

## General Catalog

Unlocking the full potential of your machines



## Welcome to the EROWA General Catalog

Competence means understanding the facts. EROWA products are based on this competence. The use of the EROWA FMC concept only has one single aim: **to increase competitiveness.** We'll be glad to be of assistance. With practical advice.

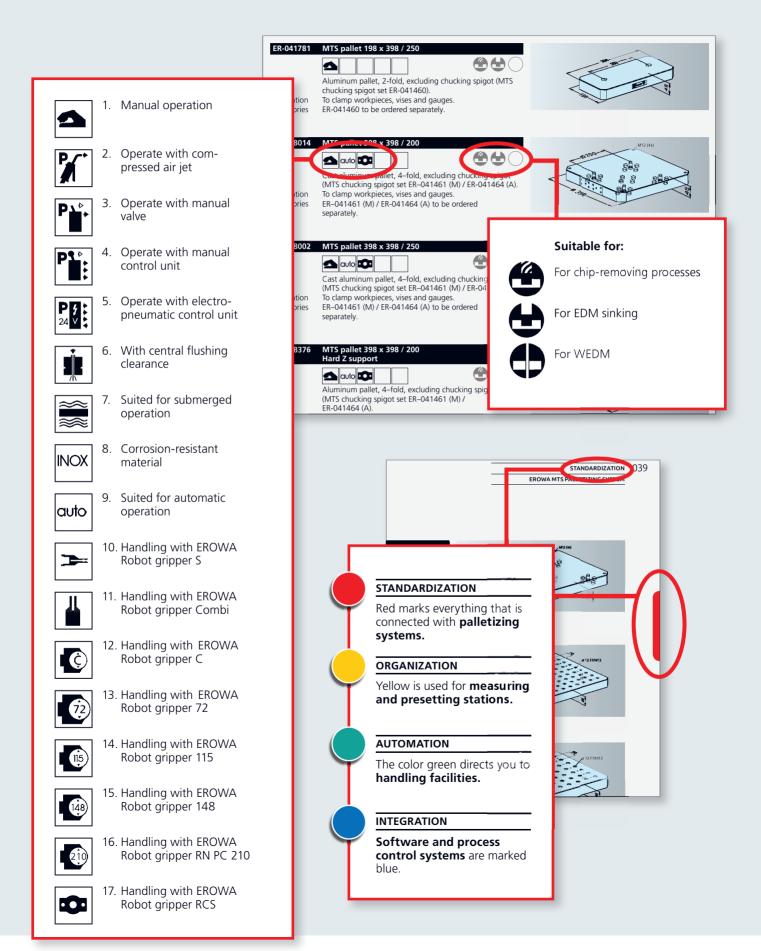
Your EROWA Team



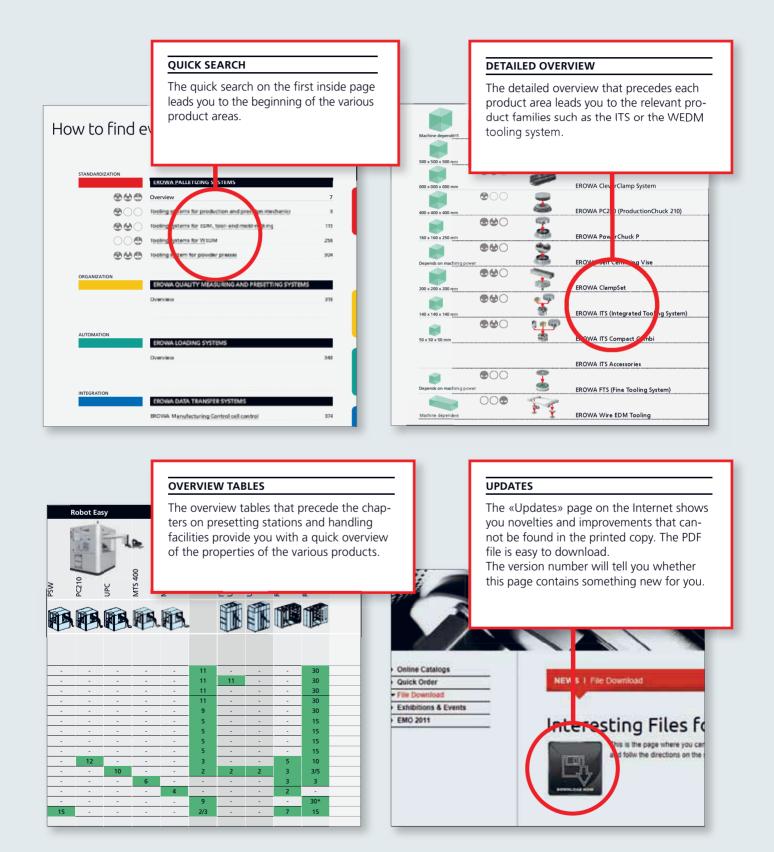
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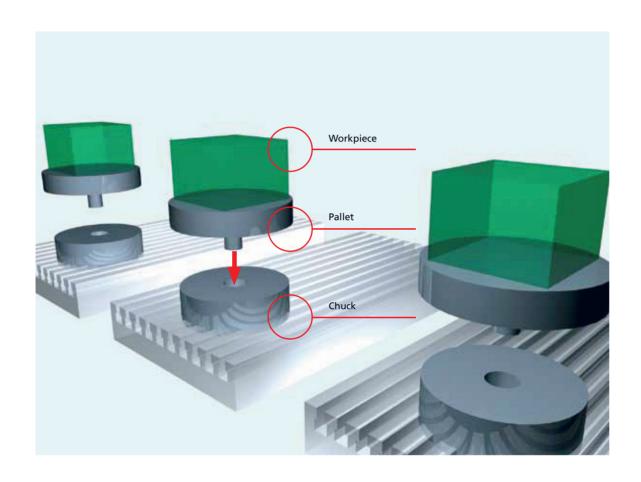
## This is how the General Catalog works



To make it easier for you to find your bearings among all the applications of EROWA products, we use the following icons in all our documents:



## **EROWA Palletizing systems**



Standardization of mechanical interfaces. The integration of a universal tooling system on all machine tools will significantly reduce any downtimes.



For chip-removing processes



For EDM sinking



For WEDM

#### **EROWA PALLETIZING SYSTEMS**

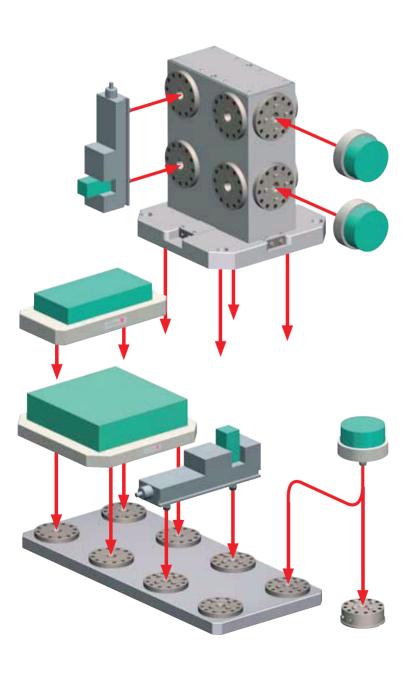
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## The datum point tooling system

The EROWA MTS (Modular Tooling System) is a flexible system.

The maximum workpiece size exclusively depends on the possibilities offered by the machine. Whether it is a case of single palletization with one MTS chuck or multiple palletization with several MTS chucks or base plates - any combination is possible.

MTS chucks can be operated manually or automatically. New jobs are set up while the machine is in productive operation. Express jobs can be positioned on the machine within seconds. After that, the previous production process can be resumed. Therefore, machine down-times are reduced to a minimum.



#### The datum point is defined!

No alignment is necessary.

#### Minimum set-up times thanks to a standardized interface!

The interface between the machine and the workpieces/fixtures is standardized. The modular design of the clamping equipment allows for an almost unlimited number of combinations of all the components.

#### Make use of existing equipment!

Vises, gauges and fixtures are palletized or equipped with chucking spigots and put into production right away.

### 5-sided machining in one single clamping process!

Once the workpiece has been clamped on an EROWA pallet, 5 sides can be machined with that one clamping process.

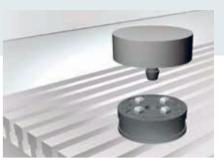
- Play-free prismatic centering in MTS single chucks.
- Indexable 4 x 90°.
- More than 500,000 clamping processes without any loss of power or reference accuracy.
- Clamping surfaces without recesses can be cleaned with compressed air.
- Low profile design.
- Suitable for automatic pallet change.
- Standardized pitch\* of 200 mm or 250 mm on all EROWA base plates.
- \*) The pitch is the distance between the MTS chucks on a base plate.

## Systematic clamping

A base plate with integrated MTS chucks.

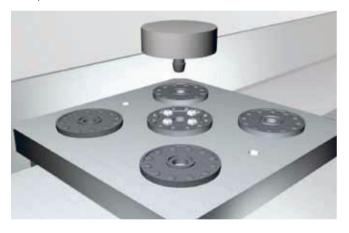


An individual MTS chuck, mounted on or directly integrated in the machine table.





Single and/or multiple MTS chucks integrated in a customized base plate.



Several MTS chucks mounted on or directly integrated in the







## The palletizing system for your manufacturing processes

Practical work demonstrates the flexibility of the EROWA MTS tooling system. Whether it is a standard solution or a customized configuration, the system will adapt to virtually any machine situation.

The system's universality allows for a wide variety of workpiece carriers to be loaded and unloaded in next to no time. The automation of the workpiece loading/unloading cycle can be retrofitted at any time.



The low profile design of the EROWA MTS leaves a great deal of space for workpieces.



Various jobs can be done on one machine. Express jobs can easily be placed in between. Resetting the clamping equipment only takes a few seconds.

#### SERVICE

We'll be glad to advise you. No doubt we will find an optimal «clamping solution» for you, too.





Customized solutions are included. We will gladly advise you.

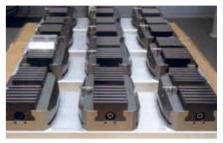


Thanks to the medium duct between chuck and pallet, workpieces may be clamped pneumatically, hydraulically or with a vacuum.





MTS chuck integrated in the mineral cast cube. In combination with the EROWA CleverClamp tooling system - a crucial production factor.



Flexible clamping devices. EROWA center clamps on MTS pallet.



MTS single base plates are quickly installed and ready to use. Fit on machine tables with R50 and 63 mm hole grid and 100 mm T- slot spacing.



MTS chuck, able to automate. During the workpiece change, the contact surfaces are cleaned automatically.



Variable use of tombstones. The MTS system provides an interface to fixtures and vises. Refitting takes no time at all.



From the manual handling facility to the complex Robot system, EROWA supplies the handling solution you require.





Automatic pallet change in mixed operation with MTS and ITS pallets. Such combinations allow for an optimal use of the tooling system according to part sizes.

## The various EROWA MTS palletizing systems at a glance

#### **EROWA MTS 81**

#### Small size, high clamping power

MTS 81 is used wherever available space is limited.

There is no need to give up the benefits of a datum point tooling system and high clamping power.

#### **EROWA MTS**

#### The universal interface

Used and proven in tens of thousands of practical applications, the MTS datum point tooling system is indispensable in machining production and the EROWA product portfolio.

#### **EROWA MTS 2.0**

#### The datum point tooling system for highest demands

With integrated open monitoring, a maximum clamping power of 20,000 N and enhanced precision, the new MTS 2.0 generation fulfills even the most exacting demands. A top product with an attractive price-performance ratio!

On the following pages, you will find detailed product information including a portfolio overview of the individual EROWA MTS palletizing systems.

#### **EROWA MTS+**

Contact your EROWA dealer for information about MTS+.

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To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS

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Mineral Cast Cube



**MTS** 





## Small size, high clamping power!

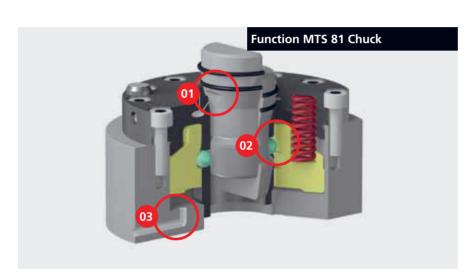
#### **Applications**

#### Handling





Manual / Loading facility / Robot



#### 01 | Precise

Play-free, conical centering. Repeatability: < 0.005 mm. Easy insertion of the pallets without any jamming.

#### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

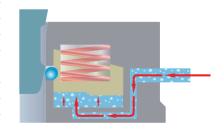
#### 03 | Open

MTS 81 chucks are operated pneumatically.

Technical data - MTS 81		
Technical data - IVI I 5 6		
	MTS 81	
Repeatability	< 0.005 mm	
Activation	clamped without pressure	
Opening pressure	min. 8.5 bar	
Process monitoring	pneumatically	
Clamping power		
with reclamping	10,000 N/chuck	
Holding power	> 60,000 N/chuck	
Reclamp	yes	
Clamping cycles	> 500,000	

#### Power package

A reclamping feature provides up to 10,000 N of clamping power. The chucks are opened pneumatically.



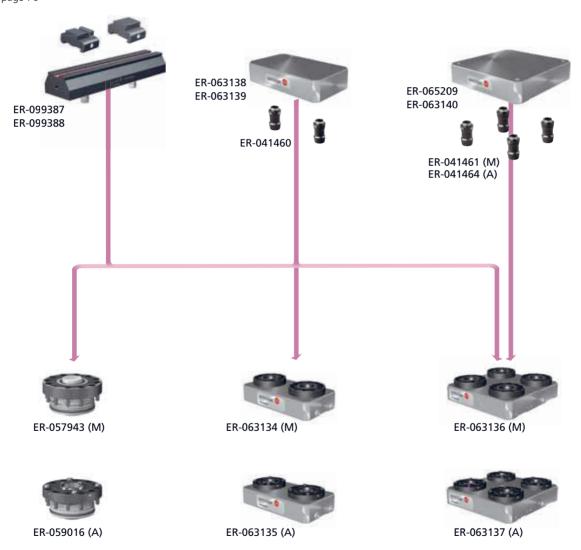


## MTS 81

## The components

(M) = manual (A) = automatic





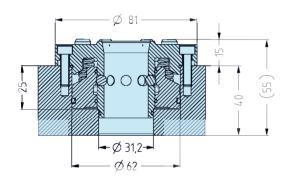
## Integral chucks

Technical data	MTS 81 integral chucks
	pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 8.5 bar
Process monitoring	pneumatic
Clamping power	
with reclamping	up to 10,000 N/chuck

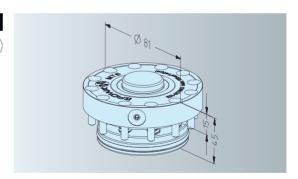
M = Multi

P = pneumatically operated A = able to automate

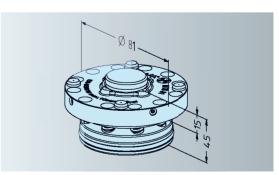
Integration variant applicable to MTS 81 IntegralChucks. Observe tolerances according to integration instructions!



ER-057943	MTS 81 IntegralChuck M-P
Version	To be fitted directly to machine tables, plates, tombstones, squares or dividing heads. Suitable for manual loading.
Connections	2 pneumatic connections: one for opening and one for reclamping.
Application	To accommodate multiple pallets.



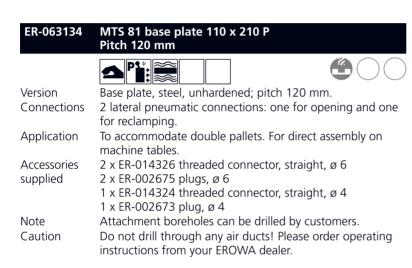
ER-059016	MTS 81 IntegralChuck M-P/A
Version	To be fitted directly to machine tables, plates,
	tombstones, squares or dividing heads. Suitable for auto-
	matic loading.
Connections	3 pneumatic connections: one for opening, one for
	reclamping, and one for presence checks and cleaning.
Application	To accommodate multiple pallets.

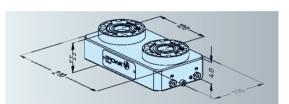


### Base plates, 2-fold

Technical data	MTS 81 Base plates, 2-fold pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	1 x 180°
Clamping	Spring tension
Opening pressure	min. 8.5 bar
Process monitoring	pneumatic
Clamping power	up to 20,000 N
with reclamping	(2 x 10,000 N)

P = pneumatically operated A = able to automate

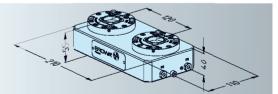




#### **EROWA MTS 81**

## Base plates, 2-fold with cleaning facility, automatable

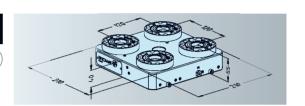




## Base plates, 4-fold

Technical data	MTS 81 Base plates, 4-fold
	pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	4 x 90°
Clamping	Spring tension
Opening pressure	min. 8.5 bar
Process monitoring	pneumatic
Clamping power	up to 40,000 N
with reclamping	(4 x 10,000 N)

ER-063136	MTS 81 base plate 210 x 210 P pitch 120 mm
Version	Base plate, steel, unhardened; pitch 120 mm.
Connections	2 lateral pneumatic connections: one for opening and one for reclamping.
Application	To accommodate multiple pallets. For direct assembly on machine tables.
Accessories supplied	2 x ER-014326 threaded connector, straight, ø 6 2 x ER-002675 plugs, ø 6
зарршеа	1 x ER-014324 threaded connector, straight, ø 4 1 x ER-002673 plug, ø 4
Note	Attachment boreholes can be drilled by customers.
Caution	Do not drill through any air ducts! Please order operating instructions from your EROWA dealer.



#### **EROWA MTS 81**

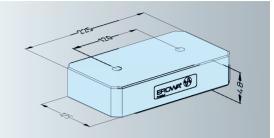
## Base plates, 4-fold with cleaning facility, automatable

ER-063137	MTS 81 base plate 210 x 210 P/A pitch 120 mm
Version	Base plate, steel, unhardened; pitch 120 mm.
Connections	3 lateral pneumatic connections: one for opening, one for cleaning and one for reclamping.
Application	To accommodate multiple pallets. For direct assembly on machine tables.
Accessories	2 x ER-014326 threaded connector, straight, ø 6
supplied	2 x ER-002675 plugs, ø 6
	1 x ER-014324 threaded connector, straight, ø 4
	1 x ER-002673 plug, ø 4
Note	Attachment boreholes can be drilled by customers.
Caution	Do not drill through any air ducts! Please order operating instructions from your EROWA dealer.



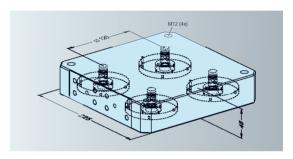
### **Pallets**

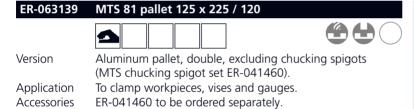


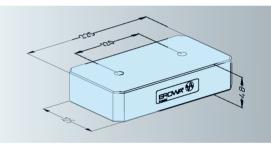


ER-065209	MTS 81 pallet 225 x 225 / 120 hard Z support
	auto C
Version	Aluminum pallet, excluding chucking spigots
	(MTS chucking spigot set ER-041461 (M) / ER-041464 (A).
	Hard Z-supports.
Application	To clamp workpieces, vises and gauges.
Accessories	ER-041461 (M) / ER-041464 (A) to be ordered

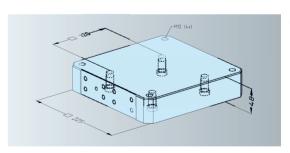
separately.







ER-063140	MTS 81 pallet 225 x 225 / 120
	auto C
Version	Aluminum pallet, 4-fold, excluding chucking spigots (MTS chucking spigot set ER-041461 (M) / ER-041464 (A).
Application	To clamp workpieces, vises and gauges.
Accessories	ER-041461 (M) / ER-041464 (A) to be ordered separately.



Note: You will find the MTS chucking spigots overview starting on page: 48.

### The universal interface

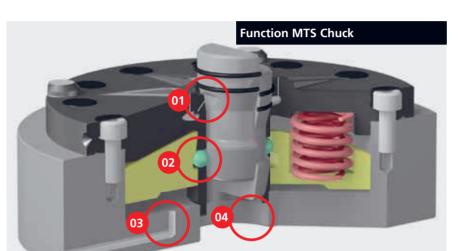
Manual / Loading facility / Robot

#### **Applications**

#### Handling







#### 01 | Precise

Play free, conical centering. Repeatability: <0.005 mm. Easy insertion of the pallets without any jamming.

#### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

#### 03 | Open

MTS chucks are available as pneumatic and hydraulic versions.

#### 04 | Cleanliness

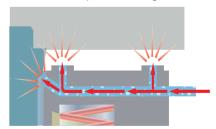
Liquids can drain off. No dirt traps.

#### Technical data - MTS

MTS < 0.005 mm clamped without pressure
clamped without pressure
min. 7 bar
min. 25 bar / max. 35 bar
12,000 N/chuck
> 60,000 N/chuck
no
> 500,000

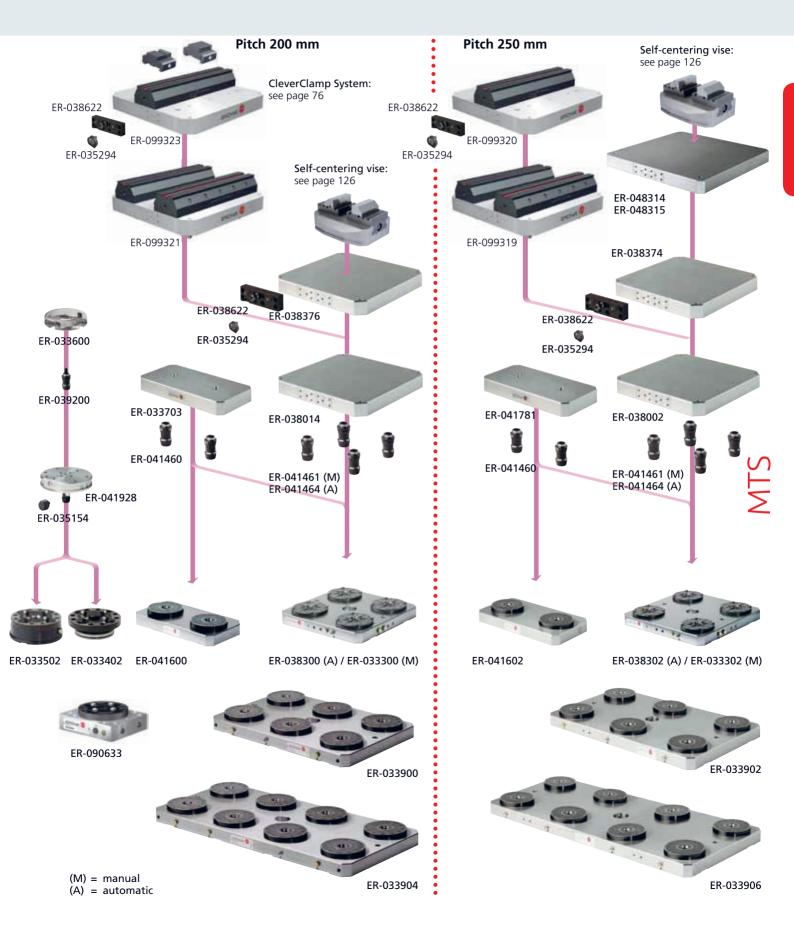
#### MTS chuck, automatable

Automatic cleaning of contact surfaces and of the centering spigot cone while the workpiece is changed.





## The components



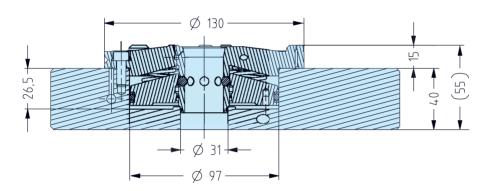
## Integral chucks

Technical data	MTS integral chucks	
	pneumatic	hydraulic
Repeatability	< 0.005 mm	< 0.005 mm
Indexation, pallet	4 x 90° (MTS IntegralCh	iuck S)
Clamping	Spring tension	Spring tension
Opening pressure	min. 7 bar	min. 25 /max. 35 bar
Process monitoring	pneumatic	pneumatic
Clamping power	12,000 N/chuck	20,000 N/chuck

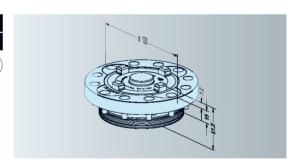
S = Single M = Multi

P = pneumatically operated H = hydraulically operated A = able to automate

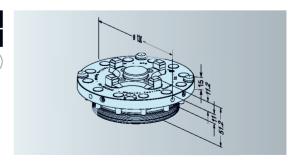
Integration variant (applicable to MTS IntegralChucks Single and Multi). Observe tolerances according to integration instructions!

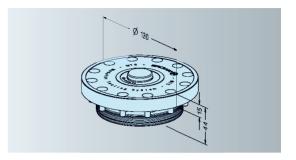


ER-033402	MTS IntegralChuck S-P
ER-033403	MTS IntegralChuck S-H
Version	For direct integration in machine tables, plates, tombstones, squares or dividing heads.
Connections Application	To open: pneumatic or hydraulic. To accommodate single or multiple pallets.

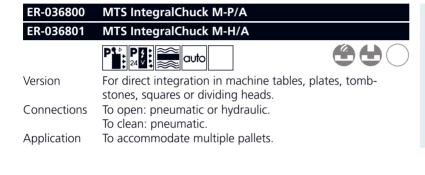


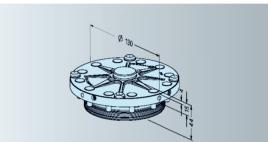
ER-036802	MTS IntegralChuck S-P/A
ER-036803	MTS IntegralChuck S-H/A
Version	For direct integration in machine tables, plates, tomb- stones, squares or dividing heads.
Connections	To open: pneumatic or hydraulic. To clean: pneumatic.
Application	To accommodate single or multiple pallets.





ER-033400	MTS IntegralChuck M-P
ER-033401	MTS IntegralChuck M-H
Version	For direct integration in machine tables, plates, tomb-
	stones, squares or dividing heads.
Connections	To open: pneumatic or hydraulic.
Application	To accommodate multiple pallets.





### Mounted chucks

Technical data	MTS mounted chucks pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	4 x 90° (MTS Chuck S)
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	12,000 N/Chuck

S = Single M = Multi

P = pneumatically operated

A = able to automate

## Version For direct mounting on machine tables, plates, tombstones, squares or dividing heads. Connections Lateral, to open: pneumatic.

Application To accommodate single or multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket ER-033804 or ER-033805.



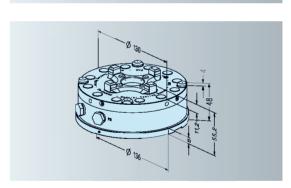
Version For direct mounting on machine tables, plates, tombstones, squares or dividing heads.

Connections Lateral, to open: pneumatic. Lateral to clean: pneumatic

Application To accommodate single or multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket

ER-033804 or ER-033805.









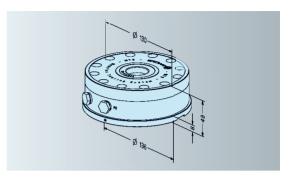
Version For direct mounting on machine tables, plates, tomb-

stones, squares or dividing heads.

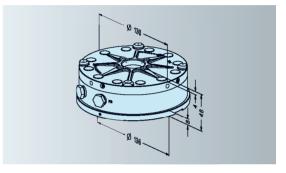
Connections Lateral, to open: pneumatic.
Application To accommodate multiple pallets.

Accessories Order separately: to fit MTS Chuck, MTS bracket

ER-033804 or ER-033805.



# Version For direct mounting on machine tables, plates, tombstones, squares or dividing heads. Connections Lateral, to open: pneumatic. Lateral to clean: pneumatic. Application Accessories Order separately: to fit MTS Chuck, MTS bracket ER-033804 or ER-033805.



## Base plates, 1-fold

Technical data	MTS base plates, 1-fold pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	4 x 90° (MTS Chuck S)
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	12,000 N

S = Single M = Multi

P = pneumatically operated

#### ER-090633 MTS base plate 149 x 180 S-P





Version Baseplate, steel not heat treated Connections At the side for opening the chuck.

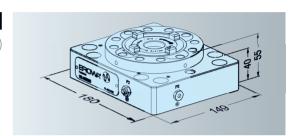
1x air jet valve 2x threaded plug

Application Mounting on to machine tables. For holding MTS single-

and multiple pallets

Installation Hole pattern for R50 / M12 grid plates and for machine

tables with T-slot distance 63 / 100 mm



#### ER-090634 MTS base plate 149 x 180 M-P





Version Baseplate, steel not heat treated Connections At the side for opening the chuck.

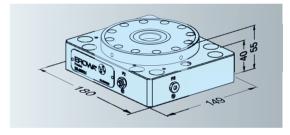
1x air jet valve 2x threaded plug

Application Mounting on to machine tables. For holding MTS single-

and multiple pallets

Installation Hole pattern for R50 / M12 grid plates and for machine

tables with T-slot distance 63 / 100 mm



## Base plates, 2-fold

Technical data	MTS base plates, 2-fold
	pneumatic
Repeatability	< 0.005 mm
Indexation, pallet	1 x 180°
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	24,000 N
	(2 x 12,000 N)

P = pneumatically operated

#### ER-041600 MTS base plate 180 x 360 / 200 P

Pitch 200





Version Base plate, steel, unhardened; Pitch: 200 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate double pallets. For direct assembly

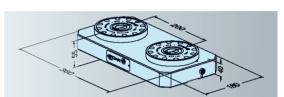
on machine tables.

Accessories supplied

1 x ER-036672 MTS air jet valve

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



#### ER-041602 MTS base plate 200 x 410 P Pitch 250

TICCII 230





Version Base plate, steel, unhardened; Pitch: 250 mm.

Connections Lateral, to open: pneumatic.

Application To accommodate double pallets. For direct assembly

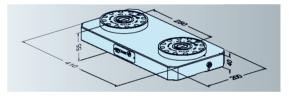
on machine tables. 1 x ER-036672.

Accessories supplied

supplied

Note Attachment boreholes can be drilled by customers.
Caution Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.





## Base plates, 4-fold

Technical data	MTS base plates, 4-fold pneumatic
Repeatability	< 0.005 mm
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	48,000 N
	(4 x 12,000 N)

pneumatically operated

#### MTS base plate 360 x 360 P Pitch 200 ER-033300 Base plate, steel, unhardened; Pitch: 200 mm. Version Connections Lateral, to open: pneumatic.

To accommodate multiple pallets. For direct assembly Application

on machine tables.

1 x ER-036672. Accessories

supplied

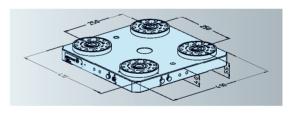
Attachment boreholes can be drilled by customers. Note Do not drill through any air ducts! Please order operating Caution

instructions from your EROWA dealer.



ER-033302	MTS base plate 410 x 410 P Pitch 250
Version	Base plate, steel, unhardened; Pitch: 250 mm.
Connections	Lateral, to open: pneumatic.
Application	To accommodate multiple pallets. For direct assembly
	on machine tables.
Accessories supplied	1 x ER-036672.
Note	Attachment boreholes can be drilled by customers.
Caution	Do not drill through any air ducts! Please order operating

instructions from your EROWA dealer.



Note

Caution

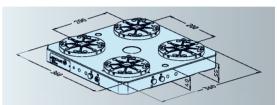
Caution

## Base plates, 4-fold, with cleaning facility, automatable

Technical data	MTS base plates, 4-fold,
	with cleaning facility, automatable
	pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	48,000 N
	(4 x 12,000 N)

P = pneumatically operated





ER-038302 MTS base plate 410 x 410 P/A
Pitch 250

instructions from your EROWA dealer.

Attachment boreholes can be drilled by customers. Do not drill through any air ducts! Please order operating

Version
Connections

Application

Accessories supplied

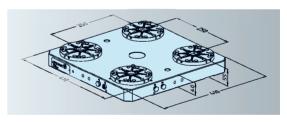
Note

Note

Asse plate, steel, unhardened; Pitch: 250 mm.
Lateral, to open: pneumatic.
Lateral to clean: pneumatic.
To accommodate multiple pallets. For direct assembly on machine tables.
for ER-038302: 1 x ER-036672, 2 x ER-014326.

instructions from your EROWA dealer.

Do not drill through any air ducts! Please order operating

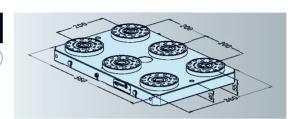


## Base plates, 6-fold

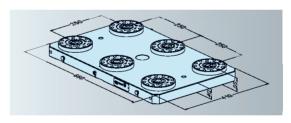
Technical data	MTS base plates, 6-fold pneumatic
Repeatability	< 0.005 mm
Clamping	Spring tension
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	72,000 N
	(6 x 12,000 N)

P = pneumatically operated

ER-033900	MTS base plate 360 x 560 P Pitch 200
Version	Base plate, steel, unhardened; Pitch: 200 mm.
Connections	Lateral, to open: pneumatic.
Application	To accommodate multiple pallets. For direct assembly on machine tables.
Accessories supplied	1 x ER-036672.
Note Caution	Attachment boreholes can be drilled by customers.  Do not drill through any air ducts! Please order operating instructions from your EROWA dealer.



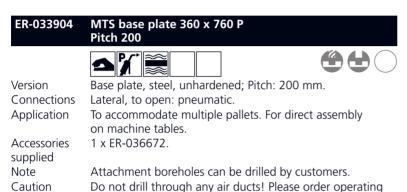
ER-033902	MTS base plate 410 x 660 P Pitch 250
Version	Base plate, steel, unhardened; Pitch: 250 mm.
Connections	Lateral, to open: pneumatic.
Application	To accommodate multiple pallets. For direct assembly on machine tables.
Accessories supplied	1 x ER-036672.
Note Caution	Attachment boreholes can be drilled by customers.  Do not drill through any air ducts! Please order operating instructions from your EROWA dealer.



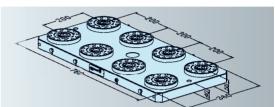
## Base plates, 8-fold

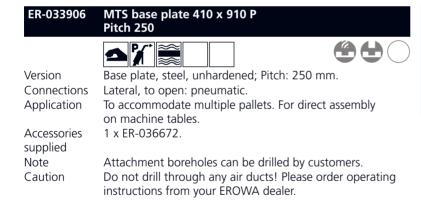
Technical data	MTS base plates, 8-fold pneumatic
Repeatability	<0.005 mm
Clamping	Spring power
Opening pressure	min. 7 bar
Process monitoring	pneumatic
Clamping power	96,000 N
	(8 x 12,000 N)

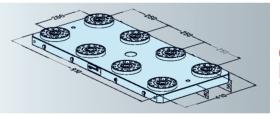
pneumatically operated



instructions from your EROWA dealer.







#### **EROWA MTS 2.0**

## The datum-point system for the highest demands

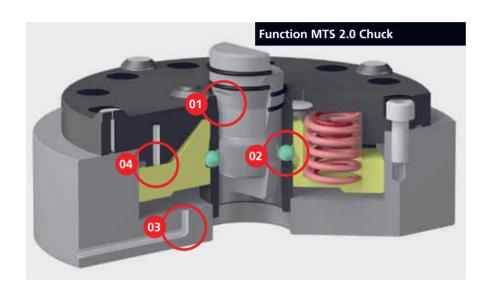
#### **Applications**

#### Handling





Manual / Loading facility / Robot



Toc	hnica	data	MTS 2.0
1124	HILL COL		- IVI I 3 Z.U

	MTS 2.0
Repeatability	< 0.003 mm
Activation	clamped without pressure
Opening pressure	6 bar
Reclamp pressure	max. 6 bar
Process monitoring	pneumatically: opening controll and monitoring
Clamping power	9,000 N/Chuck (spring tension)
with reclamping	20,000 N/Chuck
Holding power	> 60,000 N/Chuck
Reclamp	yes
Clamping cycles	> 500,000
Material	INOX

#### CRUCIAL ADVANTAGES

- Open check
- Extreme process safety
- Clamping power: 20,000 N
- Opening pressure: 6 bar
- Clamping mechanism with ceramic balls
- Rust-resistant

#### 01 | High precision

Play free, conical centering. Repeatability: < 0.003 mm. Easy insertion of the pallets without any jamming.

#### 02 | Clamping mechanism

Reliable clamping mechanism through self-locking ball lock. Stable, low level of vibration.

#### 03 | Open

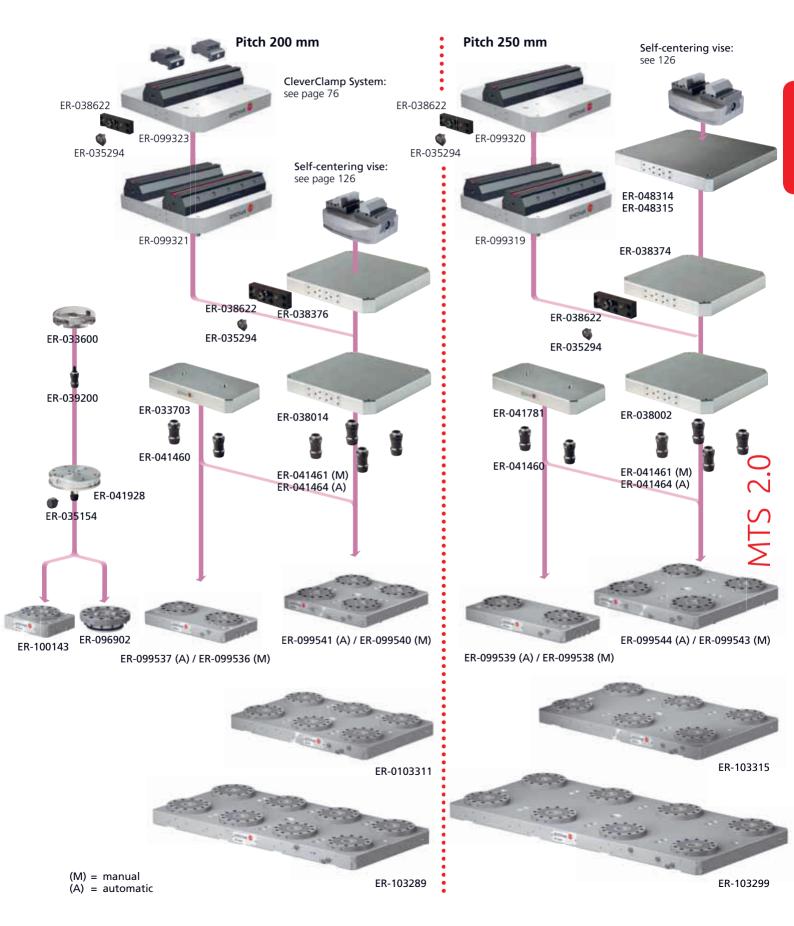
MTS 2.0 chucks are operated pneumatically. The chucks require only 6 bar opening pressure despite their high clamping power of 20,000 N.

#### 04 | Open monitoring

Know for sure when the MTS 2.0 chuck is open thanks to integrated open monitoring.



### The components



#### **EROWA MTS 2.0**

## Integral chucks

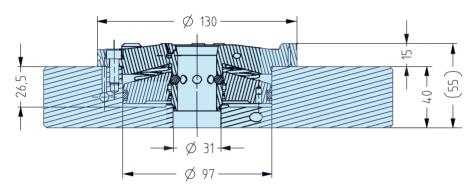
Technical data	MTS 2.0 integral chuck, pneumatic
Repeatability	< 0.003 mm
Indexation, pallet	4 x 90° (MTS 2.0 IntegralChuck S)
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening controll and monitoring
Clamping power	9,000 N (spring tension)
with reclamping	20,000 N

S = Single M = Multi

P = pneumatically operated

A = able to automate

Integration variant (applicable to MTS 2.0 IntegralChucks Single and Multi). Observe tolerances according to integration instructions!



#### ER-096902 MTS 2.0 IntegralChuck S-P





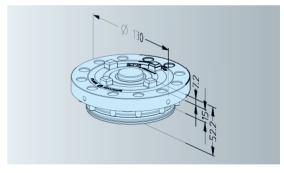
Version For direct attachment to machine tables, plates,

tombstones, angles or dividing heads.

Connections 3 pneumatic connections: for opening, reclamping and

open check.

Application To hold individual and multiple pallets.



#### ER-096903 MTS 2.0 IntegralChuck S-P/A





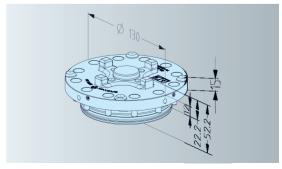
Version For direct attachment to machine tables, plates,

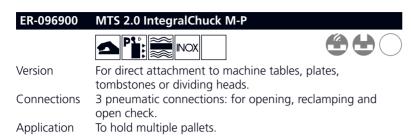
tombstones or dividing heads.

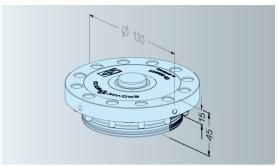
Connections 4 pneumatic connections: for opening, cleaning/presence

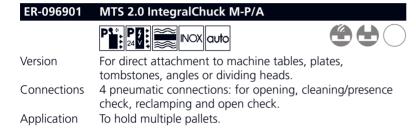
checks, reclamping and open check.

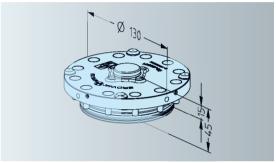
Application To hold individual and multiple pallets.











#### **EROWA MTS 2.0**

## Base plates, 1-fold

Technical data	MTS 2.0 base plate, 1-fold, pneumatic
Repeatability	< 0.003 mm
Indexation, pallet	4 x 90° (MTS 2.0 IntegralChuck S)
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening control and monitoring
Clamping power	9,000 N (spring tension)
with reclamping	20,000 N

S = Single M = Multi

P = pneumatically operated

A = able to automate

### ER-100143 MTS 2.0 base plate 149 x 180 S-P single





Version Base plate, unhardened steel.

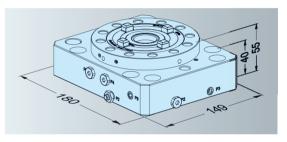
Connections: Laterally: for opening, reclamping and open check.

Application To hold individual and multiple pallets. To be set up on

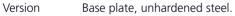
machine tables.

Mounting Mounting hole configuration for R50/M12 grids and for

tables with T-slot distances of 60/100 mm.



## ER-100145 MTS 2.0 base plate 149 x 180 S-P/A single P1: P1: NOX auto



Connections: Laterally: for opening, reclamping, open check and for

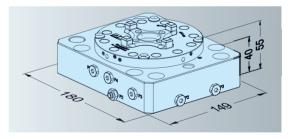
cleaning/presence check.

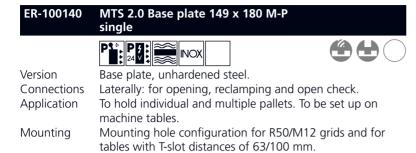
Application To hold individual and multiple pallets. To be set up on

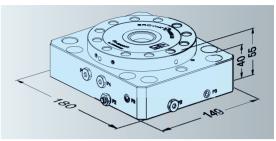
machine tables

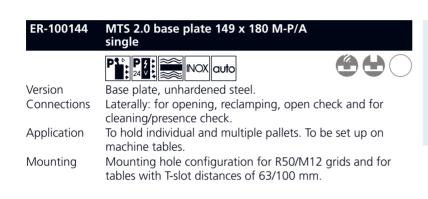
Mounting Mounting hole configuration for R50/M12 grids and for

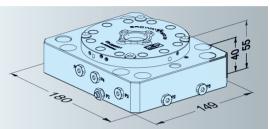
table with T-slot distances of 63/100 mm.











#### **EROWA MTS 2.0**

# Base plates, 2-fold

Clamping power 18,000 N (2 x 9,000 N) (spring tension)	Technical data	MTS 2.0 base plate, 2-fold, pneumatic
Clamping Spring tension  Opening pressure 6 bar  Process monitoring Pneumatically: opening controll and monitor  Clamping power 18,000 N (2 x 9,000 N) (spring tension)	Repeatability	< 0.003 mm
Opening pressure 6 bar Process monitoring Pneumatically: opening controll and monitoring Clamping power 18,000 N (2 x 9,000 N) (spring tension)	Indexation, pallet	1 x 180° (MTS 2.0 IntegralChuck S)
Process monitoring Pneumatically: opening controll and monitoring Clamping power 18,000 N (2 x 9,000 N) (spring tension)	Clamping	Spring tension
Clamping power 18,000 N (2 x 9,000 N) (spring tension)	Opening pressure	6 bar
	Process monitoring	Pneumatically: opening controll and monitoring
141 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Clamping power	18,000 N (2 x 9,000 N) (spring tension)
with reclamping 40,000 N (2 x 20,000 N)	with reclamping	40,000 N (2 x 20,000 N)

= Single Multi

pneumatically operated

able to automate

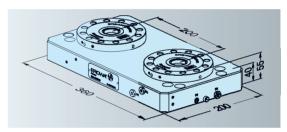
#### ER-099536 MTS 2.0 base plate 200 x 360 P Pitch 200





Version Connections **Applicatin** Mounting

Base plate, unhardened steel. Pitch: 200 mm. Laterally: for opening, reclamping and open check. To hold double pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.



#### ER-099537 MTS 2.0 base plate 200 x 360 P/A Pitch 200 94 Pi Pi INOX auto Version

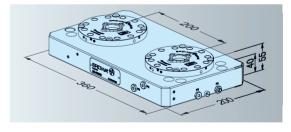
Connections

Base plate, unhardened steel. Pitch: 200 mm.

Laterally: for opening, reclamping, open check and for

cleaning/presence check.

Application To hold double pallets. To be set up on machine tables. Mounting hold configuration for R50/M12 grids and for Mounting tables with T-slot distances of 63/100 mm.

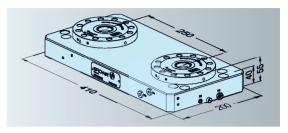


#### ER-099538 MTS 2.0 base plate 200 x 410 P Pitch 250

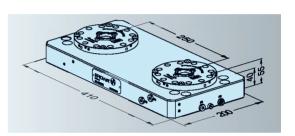




Version Connections Application Mounting Base plate, unhardened steel. Pitch: 250 mm.
Laterally: for opening, reclamping and open check.
To hold double pallets. To be set up on machine tables.
Mounting hold configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.



# Version Connections Application Mounting MTS 2.0 base plate 200 x 410 P/A Pitch 250 Price 250 Nox auto Description Nox auto Price 250 Nox auto Price 250 Nox auto Price 250 Nox auto Description Nox auto Price 250 Nox auto Description Nox auto Price 250 Nox auto Description Description Description Description Nox auto Description D



#### **EROWA MTS 2.0**

## Base plates, 4-fold

Technical data	MTS base plate 2.0, 4-fold, pneumatic
Repeatability	< 0.003 mm
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening controll and monitoring
Clamping power	36,000 N (4 x 9,000 N) (spring tension)
with reclamping	80,000 N (4 x 20,000 N)

S = Single M = Multi

P = pneumatically operated

A = able to automate

PC\* = pitch circle

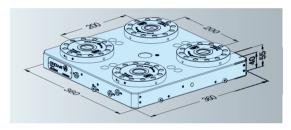
# ER-099540 MTS 2.0 base plate 360 x 360 P Pitch 200 Norsion Page plate upbardened steel Pitch; 200 mm

Version Base plate, unhardened steel. Pitch: 200 mm.

reclamping and open check.

Application To hold multiple pallets. To be set up on machine tables. Mounting Mounting hole configuration for R50/M12 grids and for

tables with T-slot distances of 63/100 mm.

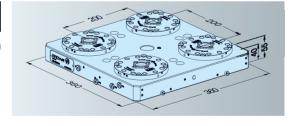


# Version Connections MTS 2.0 base plate 360 x 360 P/A Pitch 200 Price | Price | NOX | auto | Base plate, unhardened steel. Pitch: 200 mm. Laterally and underneath (PC\* ø57 mm): for opening,

Connections Laterally and underneath (PC\* ø57 mm): for opening, reclamping, open check and for cleaning/presence check.

Application To hold mutliple pallets. To be set up on machine tables.

Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.



#### ER-099543 MTS 2.0 base plate 410 x 410 P Pitch 250





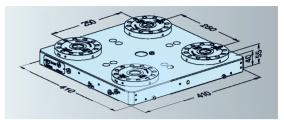
Version Connections Base plate, unhardened steel. Pitch: 250 mm.

Laterally and underneath (PC\* ø57 mm): for opening,

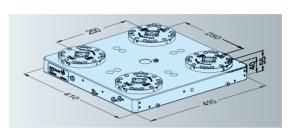
reclamping and open check.

Application Mounting To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for

tables with T-slot distances of 63/100 mm.



# Version Connections Application Mounting MTS 2.0 base plate 410 x 410 P/A Pitch 250 Pitch 250 Pitch 250 NOX auto Laterally and underneath (PC\* ø57 mm): for opening, reclamping, open check and for cleaning/presence check. To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for R50/M12 grids and for tables with T-slot distances of 63/100 mm.





#### **EROWA MTS 2.0**

# Base plates, 6-fold

Technical data	MTS 2.0 base plate, 6-fold, pneumatic
Repeatability	< 0.003 mm
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening controll and monitoring
Clamping power	54,000 N (6 x 9,000 N) (spring tension)
with reclamping	120,000 N (6 × 20,000 N)

S = Single M = Multi

P = pneumatically operated

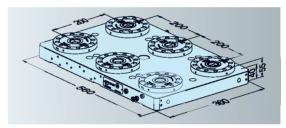
A = able to automate

#### ER-103311 MTS 2.0 base plate 360 x 560 P Pitch 200





Version Connections Application Mounting Base plate, unhardened steel. Pitch: 200 mm.
Laterally: for opening, reclamping and open check.
To hold multiple pallets. To be set up on machine tables.
Mounting hole configuration for tables with T-slot distances of 63/100 mm.

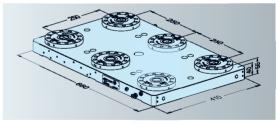


#### ER-103315 MTS 2.0 base plate 410 x 660 P Pitch 250





Version Connections Application Mounting Base plate, unhardened steel. Pitch: 250 mm. Laterally: for opening, reclamping and open check. To hold multiple pallets. To be set up on machine tables. Mounting hole configuration for tables with T-slot distances of 63/100 mm.



# Base plates, 8-fold

Technical data	MTS 2.0 base plate, 8-fold, pneumatic
Repeatability	< 0.003 mm
Clamping	Spring tension
Opening pressure	6 bar
Process monitoring	Pneumatically: opening controll and monitoring
Clamping power	72,000 N (8 x 9,000 N) (spring tension)
with reclamping	160,000 N (8 x 20,000 N)

S = Single M = Multi

P = pneumatically operated

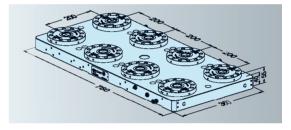
A = able to automate

#### ER-103289 MTS 2.0 base plate 360 x 760 P Pitch 200





Version Connections Application Mounting Base plate, unhardened steel. Pitch: 200 mm.
Laterally: for opening, reclamping and open check.
To hold multiple pallets. To be set up on machine tables.
Mounting hole configuration for tables with T-slot distances of 63/100 mm.

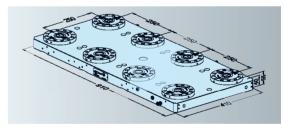


#### ER-103299 MTS 2.0 base plate 410 x 910 P Pitch 250





Version Connections. Application Mounting Base plate, unhardened steel. Pitch: 250 mm.
Laterally: for opening, reclamping and open check.
To hold multiple pallets. To be set up on machines tables.
Mounting hole configuration for tables with T-slot distances of 63/100 mm.



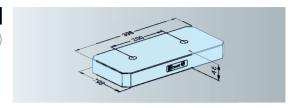
## **Pallets**

# ER-033703 MTS pallet 198 x 398 / 200

Version Aluminum pallet, 2-fold, excluding chucking spigot

(MTS chucking spigot set ER-041460).

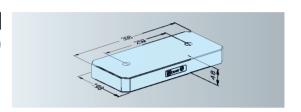
Application To clamp workpieces, vises and gauges. Accessories ER-041460 to be ordered separately.



# Version MTS pallet 198 x 398 / 250 Aluminum pallet, 2-fold, excluding chucking spigot

Version Aluminum pallet, 2-fold, excluding chucking spigot (MTS chucking spigot set ER-041460).

Application To clamp workpieces, vises and gauges. Accessories ER-041460 to be ordered separately.



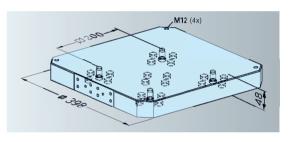
# Version Aluminum pallet, 4–fold, excluding chucking spigot (MTS chucking spigot set ER–041461 (M) / ER-041464 (A).

Application To clamp workpieces, vises and gauges.

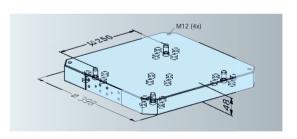
Accessories ER–041461 (M) / ER-041464 (A) to be ordered

separately.

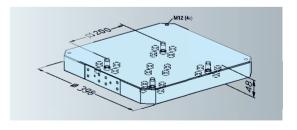
separately.



ER-038002	MTS pallet 398 x 398 / 250
	auto C
Version	Aluminum pallet, 4–fold, excluding chucking spigot (MTS chucking spigot set ER–041461 (M) / ER-041464 (A).
Application Accessories	To clamp workpieces, vises and gauges. ER–041461 (M) / ER-041464 (A) to be ordered separately.



ER-038376	MTS pallet 398 x 398 / 200 Hard Z support	
	<b>△</b> auto <b>△ △ △</b>	
Version	Aluminum pallet, 4–fold, excluding chucking spigot	
	(MTS chucking spigot set ER–041461 (M) /	
	ER-041464 (A).	
Application	To clamp workpieces, vises and gauges.	
Accessories	ER-041461 (M) / ER-041464 (A) to be ordered	



#### ER-038374 MTS pallet 398 x 398 / 250

Hard Z support





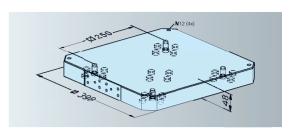
Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

To clamp workpieces, vises and gauges. **Application** ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-058819 MTS Pallet 398 x 398/200 R50





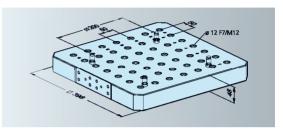
Aluminum pallet (hard anodized), 4-fold, excluding Version

chucking spigot (MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

To clamp workpieces, vises and gauges. **Application** ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### ER-044906 MTS Pallet 498 x 498/250 R50





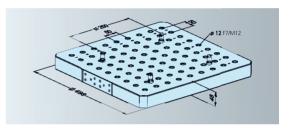
Aluminum pallet (hard anodized), 4-fold, excluding Version

chucking spigot (MTS chucking spigot set ER-041461 (M) /

ER-041464 (A).

To clamp workpieces, vises and gauges. **Application** ER-041461 (M) / ER-041464 (A) to be ordered Accessories

separately.



#### MTS Pallet 498 x 498 / 250 ER-048314



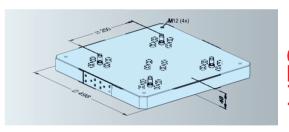


Version Aluminum pallet, 4-fold, excluding chucking spigot (MTS

chucking spigot set ER-041461 (M) / ER-041464 (A).

To clamp workpieces, vises and gauges. Application Accessories ER-041461 (M) / ER-041464 (A) to be ordered

separately.



#### ER-048315 MTS Pallet 498 x 498 / 250 Hard Z support





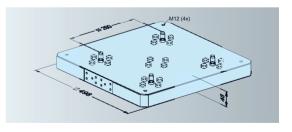


Aluminum pallet, 4-fold, excluding chucking spigot Version

(MTS chucking spigot set ER-041461 (M) / ER-041464 (A).

Application To clamp workpieces, vises and gauges. Accessories ER-041461 (M) / ER-041464 (A) to be ordered

separately.



#### ER-054981 MTS pallet 600 x 800 x 57 / 250 hard Z support





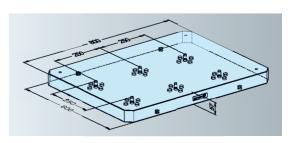


Aluminum pallet, 6-fold, excluding chucking spigot Version (MTS chucking spigot set ER-054710(A), ER-041462 (M).

Application To clamp workpieces, vises and gauges, for chip-cutting

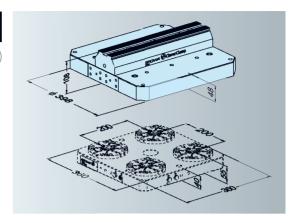
operations

To be ordered separately ER-054710(A), ER-041462 (M). Accessories

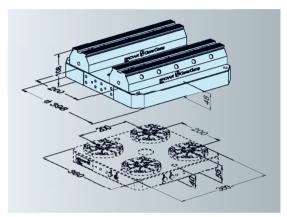


# Pallets CleverClamp System

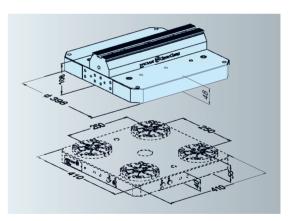




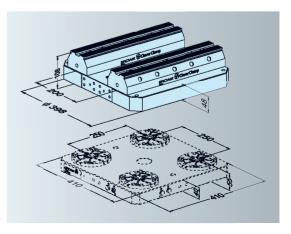
# Version Combination of MTS aluminum pallet with two 298 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)). Application Optimal for multiple fixtures and for clamping big workpieces. Accessories Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



ER-099320	Base MTS 250 mono CleverClamp	
	auto C	
Version	Combination of MTS aluminum pallet with 298 rail (MTS	
	spigot set ER-041461 (M) / ER-041464 (A)).	
Application	Optimal accessibility for 5-axis applications with single and multiple fixtures.	
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) with GripperLink Rapid ER-038622.	



ER-099319	Base MTS 250 duo CleverClamp
	<b>△</b> auto
Version	Combination of MTS aluminum with two 398 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)).
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



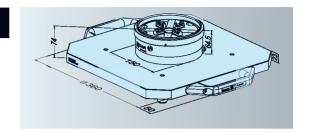
#### ER-054315 Adapter pallet MTS-PowerChuck 360x360, pitch 200

Adapterpallet MTS to PowerChuck P. Chuck ER-029391 Version

installed and aligned.

Operation PowerChuck P with lateral valve. Operate with air-jet. On machines with MTS base to receive ITS pallets and Application

standard holders.



#### ER-033602 MTS pallet P ø 148 Alu

Version

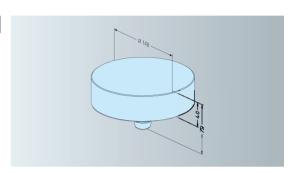


Aluminum pallet, fitted with centering plate ER-033600,

including chucking spigot ER-039200.

To clamp workpieces and gauges. For manual **Application** 

handling.



#### ER-033600 MTS centering plate P

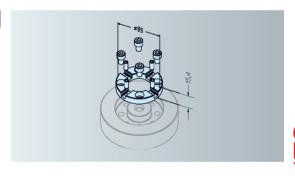




Version Steel, including attachment bolts and positioning pins. **Application** For the production of customized and indexable

MTS pallets.

Chucking spigot ER-039200 to be ordered separately. Accessories



#### ER-041928 MTS pallet P ø 148 Inox





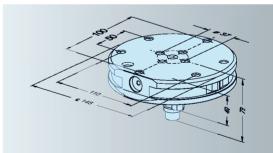
Version ER-040999. Centering segment integrated in the pallet

Application To clamp workpieces and gauges. For manual handling

and automatic operation.

Compatible with EROWA PC210 CombiChuck and Note

PowerChuck P (ITS chucking spigot ER-010742 required).



#### ER-040999 MTS chucking spigot P

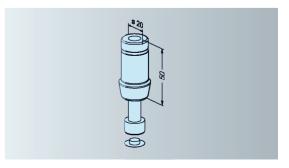


Version One chucking spigot, including attachment bolt and

protective cap.

For the conversion of ITS pallet ø 148 ER-041912 into Application

MTS pallet P ø 148 ER-041928.



# Chucking spigots

MTS centering spigot:

ER-033800 MTS centering spigot ER-038000 MTS centering spigot / A

The centering spigot defines the datum point (free of play).



MTS chucking spigot:

ER-039200 MTS chucking spigot / A

(centering play 0.1 mm).



MTS compensation spigot:

ER-039201 MTS compensation spigot / A The compensation spigot positions the pallet in one axis only (X or Y) and is capable of compensating for

a maximum set-up distance difference of 0.1 mm.

Possible compensation movements Centering surfaces

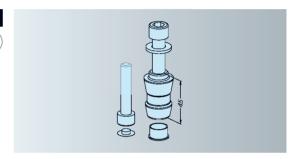
#### ER-033800 MTS centering spigot





Version

One chucking spigot with centering function (without play), including attachment bolts (M10x50, M12x55), U-disc and protective caps.



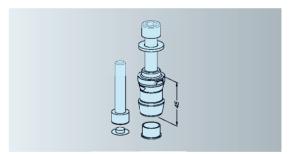
#### ER-039201 MTS compensation spigot / A





Version

One chucking spigot with compensation function, including attachment bolts (M10x50, M12x55), U-disc and protective caps.



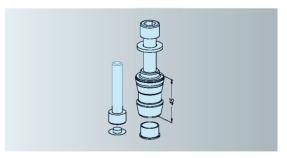
#### ER-039200 MTS chucking spigot / A





Version

One chucking spigot without centering (centering play 0.1mm), including attachment bolts (M10x50, M12x55), U-disc and protective caps.



#### ER-038000 MTS centering spigot / A



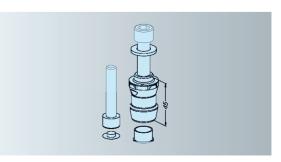


Version

One chucking spigot with centering function, including attachment bolts (M10x50, M12x55), U-disc, O-ring and protective caps.

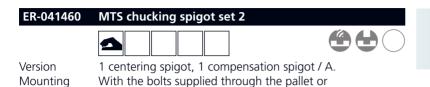
Application

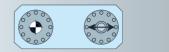
For MTS pallets which are loaded/unloaded automatically. The centering spigot defines the datum point without play and closes the cleaning boreholes in the MTS Chucks / A.

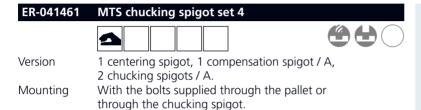


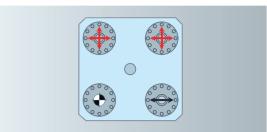
# Chucking spigot set

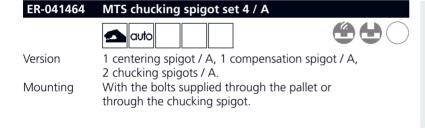
through the chucking spigot.



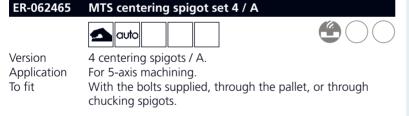


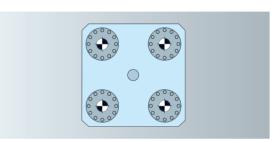


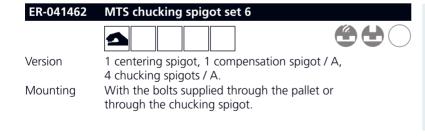


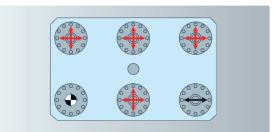


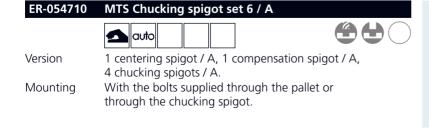


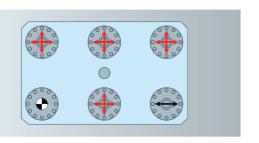






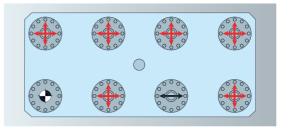






# Chucking spigot set

#### ER-041463 MTS chucking spigot set 8 Version 1 centering spigot, 1 compensation spigot / A, 6 chucking spigots / A. With the bolts supplied through the pallet or Mounting through the chucking spigot.



#### **EROWA MTS**

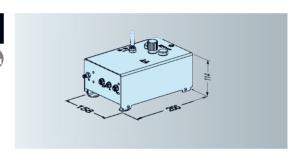
# Operation

ER-073872	Manual control unit with booster
Version	Manual valve to control the EROWA chucks:
	Opening/Reclamping/Cleaning.
Application	Operation of: EROWA ITS Compact Combi Chuck, ITS,

UPC, MTS, PC 210 chucks and PowerChuck P. Integrated booster with load ratio 1:2 (up to output pres-

Note

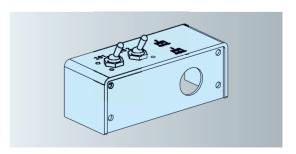
sure of 10 bar max.).



ER-099200	MTS 2.0 manual control unit
	<b>640</b>
Version	Manually operated valve for the control of the MTS 2.0 chuck functions. Opening / reclamping / monitoring / open check. Open control status: display possible through pressure gage and additional electrical signal.
Application	Operation of MTS 2.0 chucks.



ER-039466	Additional valve double
Version	For mounting to the manual control units ER-008988 and ER-073872, incl. set of hoses.
Application	Operating of two separate chucks with one single control unit.



# Operation

#### ER-001846 Air jet





Version Plastic, smooth regulation of air flow, connection

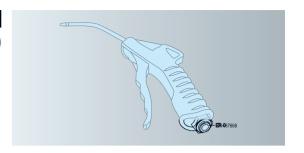
1/4", inside thread.

Operation of manual chucks. Application

Volume and pressure reduction to air jet (ER-087668). Option

Pressure build up is reduced if Air Jet is not pushed against

an air valve.



#### ER-074893 **Pressure booster**







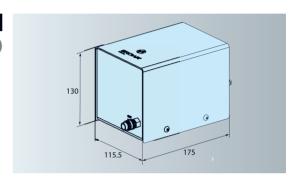
Version Quick-connect couplings for hose  $\emptyset$  i = 8 mm.

Compression ratio: 1:2

**Application** On insufficient system pressure and on pressure

fluctuations.

Installation Integrate in air circuit near application.



#### ER-034820 MTS air coupling ER-034822

MTS air coupling pallet

1 piece

**Application** The MTS air coupling ER-034820 combined with the MTS

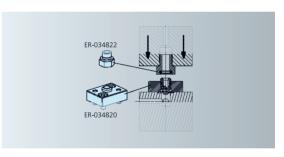
air coupling ER-034822 serves as a pneumatic interface

between MTS base plates (A) and MTS pallets (B).

For use with compressed air.

Working pres- max. 10 bar.

sure



#### ER-044426 Nipple for MTS base plates

#### ER-044428 **Coupling for MTS pallets**

Application The coupling for MTS pallets ER-044428, in combination

> with the nipple for MTS base plates ER-044426, serves as an interface for the medium connection between MTS

base plates (A) and MTS pallets (B).

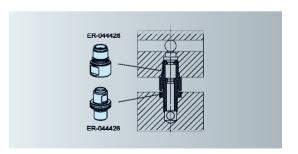
For use with compressed air,

> with vacuum, with oil / hydraulic.

Working pres- max. 200 bar.

sure

Docking- and undocking only depressurized. **Important** 



## Accessories

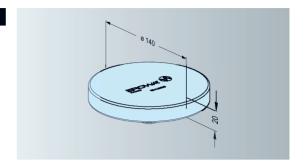
#### ER-042038 MTS cover

Version Aluminum cover, anodized. Suitable for MTS and

MTS 2.0 chucks.

Application Protects MTS and MTS 2.0 chucks that are not in use from

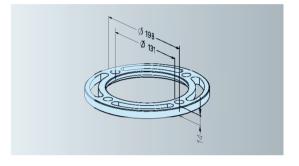
chips and coolant.



#### ER-033804 MTS ring bracket

Version Bracket made of steel, excluding attachment bolts. Suitable for MTS chucks only. To attach mounted Application

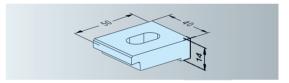
MTS chucks to the machine table.



#### MTS bracket ER-033805 1 piece

Version Bracket made of steel, excluding attachment bolt. Application To attach MTS chucks onto the machine table. Note

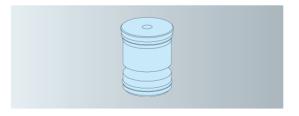
Four brackets are necessary per MTS chuck.

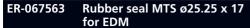


#### MTS Locking bolt with M6 with internal thread M6 ER-037967

Version

Application To plug the central borehole in MTS and MTS 81 chucks.





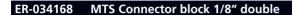




Version Rubber seal

Note Assembly according to operating instructions. Prevents

liquid from penetrating from below.



Version Connector block made of steel, excluding attachment

bolts.

Application To receive pneumatic and hydraulic threaded connectors,

nipples and couplings.

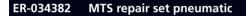




Version Steel, hardened

Application The Z-support bolts (1, 2) serve as Z-support surface for

customized MTS pallets.

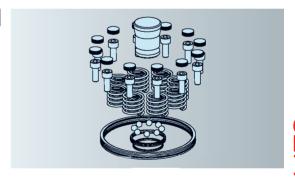


Version All the wearing parts for pneumatic MTS chucks.
Application As a repair set or for the conversion of hydraulic MTS

chucks into pneumatic ones.

Note Repair or conversion according to instruction manual

supplied.



#### ER-061558 MTS 81 Repair Kit

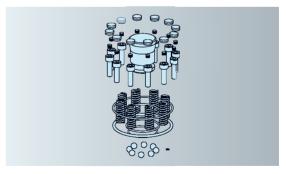


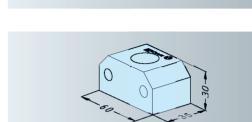
Application Repair Kit

Version All the wearing parts for MTS IntegralChuck ø 81

M-P (ER-057943) and MTS IntegralChuck ø 81 M-P/A

(ER-059016).





### Accessories

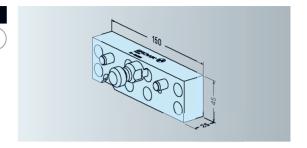
#### ER-038622 MTS GripperLink Rapid





Version **Application**  Coupling for MTS pallets, mounting accessories included. Suited for MTS pallets to be used on EROWA handling

devices with the RCS coupling system.



#### ER-035294 EWIS™ Rapid chip with chip holder RCS

with chip ø 12.4 x 2 mm









Version Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and Application

Basic WEDM holder.



#### ER-035154 EWIS™ Rapid chip with chip holder SW14

with chip ø 12.4 x 2 mm





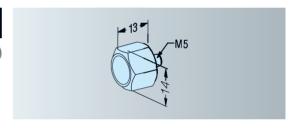




EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



#### ER-048478 MTS Chip guard low

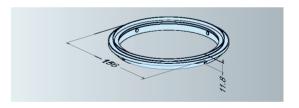




The MTS chip guard serves to seal the automatic MTS Application

chucks and base plates when MTS pallets are used. The MTS chip guard low cannot be combined with the

MTS pallet P ø 148 lnox, ER-041928.



#### ER-056879 MTS Chip guard ø 156

Note

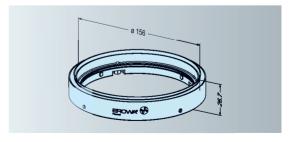
with axial deaeration



For use with MTS pallet P ø 148. Application

Prevents dirt and chips from penetrating into the

MTS SingleChuck



#### ER-049041 MTS seal frame set / 200





Version Aluminum anodized, with seal FPM (Viton).

**Application** The MTS seal frame set serves to protect MTS chucks

against dirt and liquids when in use with an EROWA

MTS pallet.



#### ER-075393 MTS seal / 200

for MTS base plate 360 x 360 mm



Version FPM (Viton).

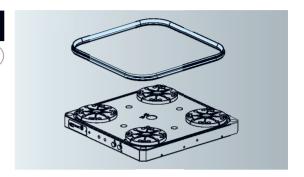
Prevents dirt from penetrating into MTS base plates 360 x **Application** 

360 in combination with MTS pallets

398 x 398 / 200.

The MTS base plate must have, or be equipped with, the Note

groove (A) to accommodate the seal.



#### ER-071604

MTS seal /250 for MTS base plate 410 x 410 mm

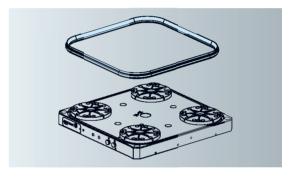


Version FPM (Viton)

Prevents dirt from penetrating into MTS base plates **Application** 

410 x 410 with the use of EROWA MTS pallets

398 x 398 / 250 and 498 x 498 / 250.



#### ER-078823 MTS alignment pallet P ø 148 for MTS single chuck

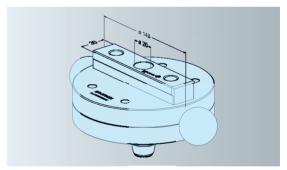






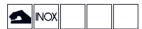
Version Alignment of radial, axial and angular position of Application

MTS single chucks.





ER-037875 MTS Alignment pallet / 250



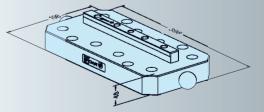


Version **Application**  Twin aluminum pallet with precision ground alignment rail.

Alignement of MTS chucks.

Rail length ER-037870 = 200 mm. Rail length ER-037875 = 250 mm.





ER-002023 from damage.

Meter.

Order units

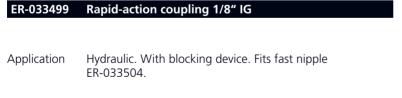
### Accessories

ER-014326 Straight threaded connector 3101 06 10 ø6 / G1/8 Application Pneumatic. ER-002814 Angled connector 3199 06 10 ø6 Application Pneumatic. ER-014366 Threaded T-connector 3198 06 10 Application Pneumatic. ER-014333 **T-connector** Application Pneumatic. ER-034095 **Cross-connector** ø6 Application Pneumatic. ER-002023 Tube ø 6/4 black Legris 1100 U06 01 Application Pneumatic. Max. operating pressure: 9 bar. Order unit Meters. ER-036672 MTS air jet valve Pneumatic. For air jet ER-001846. Application Reinforced pipe PMAFlex Co-Flex divisible ER-002147 Application Hydraulic and pneumatic. Protects tubes ER-033495 and











## Mineral Cast Cube

The whole working area of the machine is utilized optimally by using mineral cast cubes. Mineral cast as base material has many beneficial properties: The vibration damping is up to 10 times better than that of cast iron. Mineral cast also has a very high temperature stability.

Paired with the ingenious MTS datum point tooling system, the EROWA mineral cast cube becomes a key productivity factor.





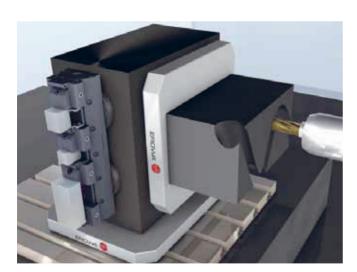
Changeover times are eliminated: Workpieces are prepared conveniently at the set-up station outside of the machine. They are then clamped in the MTS datum point tooling system for machining.



Moving the cube from the machine to the setup station? Simply lift it with the overhead crane.



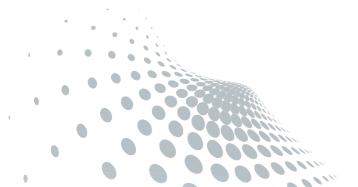
Rust-resistant built-in pockets and internal pneumatic supply for safe operation in the challenging production environment.



Ultimate machine utilization by maximizing the working area.



Reduce set-up time even further with EROWA CleverClamp, the modular tooling system. Easy to handle, versatile in use.

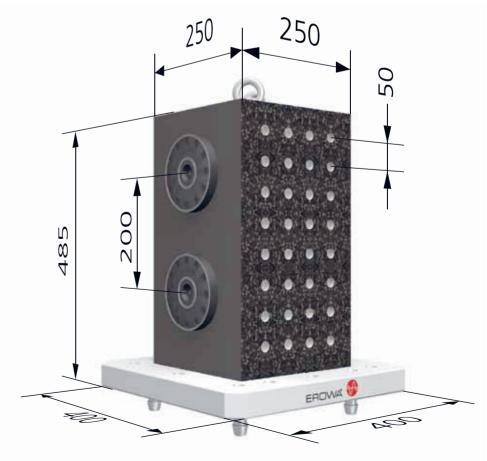


# Mineral Cast Cube Variations

All devices, including tombstones, should be clamped on the machine table as quickly and accurately as possible. The basis is the MTS datum point tooling system. So, all job changes are done in no time with only two pallets. The fixtures are stored in racks, saving space, but can be called up at any time.

#### Standard version:

ER-094454	MTS mineral cast cube 250 x 250 x 485 mm
Version	Mineral cast cube 250 x 250 x 445 mm.
	Including 2 sides each with 2 MTS chuck M-P (pitch 200 mm)
	and 2 sides with hole grid R50 / M12 F7.
	With mounted steel base plate 400 x 400 x 40 mm.
Operation	MTS chuck with air gun.
Note	Base plate with borehole for 63 / 100 mm slot spacing
	as well as preparation for 4 chucking spigots
	(set-up distance 200 mm).
\\/aiaht	
Weight	Approx. 135 kg.





#### MTS Mineral Cast Cube

Scan the code and choose your mineral cast cube on our homepage.

For clamping of MTS 4-way, 2-way and single pallets.

The following examples show some of the possibilities.

Various sizes, other forms, any number of chucks, with or without hole patterns – almost everything is possible.

The MTS mineral cast cubes are produced according to customer specifications. Simply order "Your Cube".



Example 01

8 chucks in the smallest space. Clamp pallets from the tooling station directly on the cube.



Example 02

4-way or 2-way MTS pallets can be used on two sides.



Example 03

Additional four positions for MTS single pallets..



Example 04

For optimal use of the available height in the machine.



Example 05

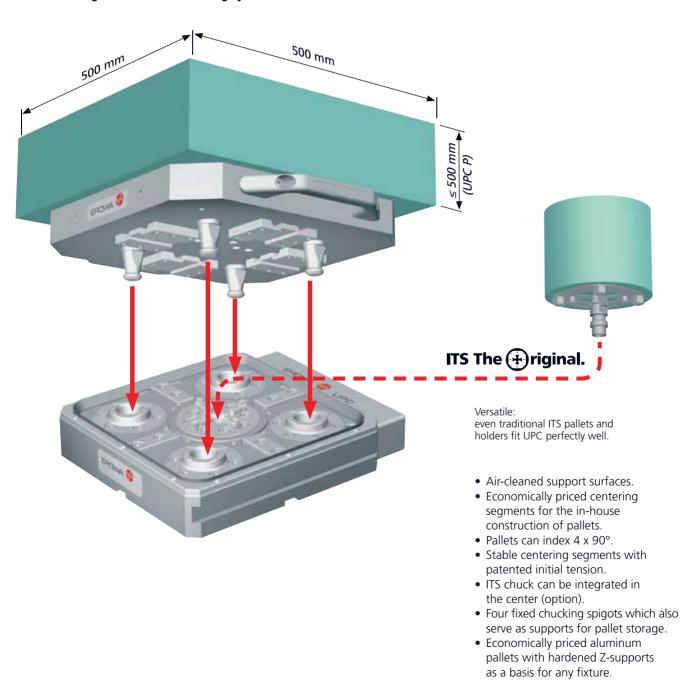
Optimal use of the machine working envelope.

#### **EROWA UPC**

# You might as well try to move a mountain

EROWA's UPC (Universal Power Chuck) breaks through the conventional limits of precision, stability and workpiece size. Now, 500 x 500 x 500 mm have ceased to be a problem. And the 2-µm precision will not be impaired at all.

A decisive factor for ITS users: the central ITS chuck guarantees seamless integration into the existing system.



#### **Applications**

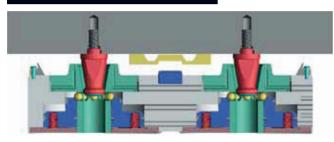
#### Handling



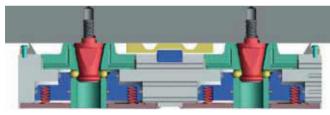


Manual / Loading facility / Robot

#### **Function**



UPC open



**UPC** closed

The functional elements have been designed with every conceivable simplicity. This makes for a favorable price. The few movable parts guarantee high functional safety.

The lock creates a retaining power of 50,000 N. The big distance between the supports creates an extreme degree of platform stability.

Precentering is done by means of the chucking spigots. Precise positioning is then achieved by four stable centering segments in the pallet and chuck. Release and cleaning are achieved by means of compressed air.

Technical data - UPC			
	UPC	UPC P «Production»	
Pallet size	320 x 320 mm	320 x 320 mm	
Chuck dimensions	280 x 280 mm	320 x 300 mm	
System height			
(chuck and pallet)	105 mm	105 mm	
Recommended			
workpiece sizes	500 x 500 x 350 mm	500 x 500 x 500 mm	
Repeatability	0.002 mm	0.002 mm	
Indexation, pallet	4 x 90°	4 x 90°	
Activation	clamped without pressure		
Air pressure, dry	min. 6 bar	min. 6 bar	
Operation	manually or with automatic control unit		
Process monitoring	pneumatically, evaluation electro-pneumatically		
Clamping power	32,000 N	50,000 N	



#### **EROWA UPC in operation**

# Universal, powerful, micronaccurate

The UPC tooling system is suitable for flexible use. Whether big electrodes on the quill of EDM centers or big workpieces in milling machines: the UPC has been designed to cope with them, and it does.

With a repeatability of 2  $\mu m$ , the UPC does not leave any wishes unfulfilled with regard to precision, either.

#### RELIABLE

Resistant to dirt.

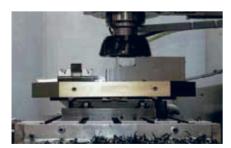
Robust - developed for continuous operation.







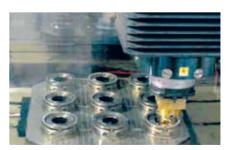
Customized solutions including. We'll be happy to advise you!



Low construction height leaves much room for workpieces.



Suitable PreSet stations are available for setting up and presetting - manual or CNC.



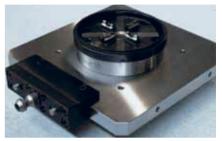
Practical! EDMing on the UPC magnet pallet.



On a clamping surface of up to 500 x 500 mm, even large workpieces or fixtures can be attached to the UPC pallet without any problems.



Powerful in heavy machining.



2 in 1: UPC adapter pallet with EROWA PowerChuck P.



The UPC pallet CleverClamp workpiece tooling system makes it simple to clamp different workpieces on a pallet with different clamping elements. The pallets can be automated.



UPC Pallet Alu DG – light and handy.



Short set-up times with flexible clamping elements: EROWA ClampSet vises on UPC grid pallet.



The UPC on the machine table constitutes the interface with the workpiece carrier. Resetting takes next to no time, and production can resume.



The UPC palletizing system is consistently automatable.

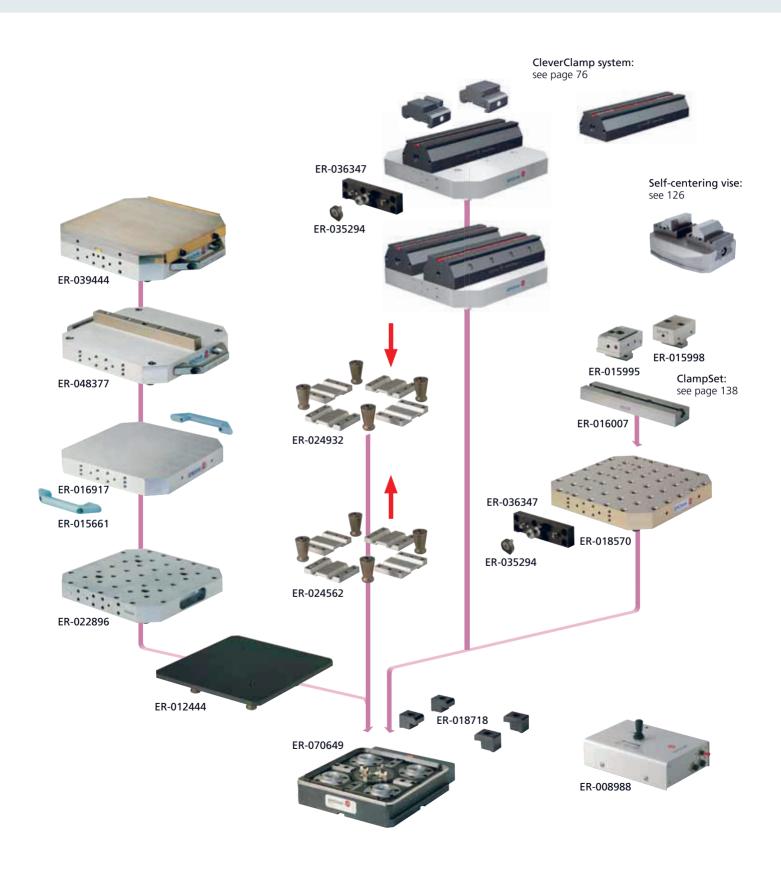


The chucks are completely sealed against ingress of coolant and chips. The contact surfaces are cleaned automatically and thoroughly with air.

#### **EROWA UPC**

# Palletizing System

### The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA UPC PALLETIZING SYSTEM**

UPC	Chucks	68
UPC	Pallets	69
UPC	Auxiliary equipment	71



For chip-removing processes



For EDM sinking



For WEDM

# EROWA UPC Chucks

Technical data	UPC	UPC P «Production»	ITS Chuck 100P	PowerChuck
Repeatability	0.002 mm	0.002 mm	0.002 mm	0.002 mm
Indexing, pallet position-oriented	4 x 90°	4 x 90°	4 x 90°	4 x 90°
Chuck clamping power	32,000 N	50,000 N	6000 N	10 000 N
Generated by	spring power	spring power	spring power	spring power
Chuck opens, air pressure dry	min. 6 bar	min. 6 bar	min. 6 bar	min. 6 bar

#### ER-074524 UPC chuck

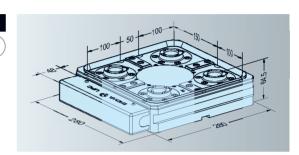


auto

Version UPC, prepared to accommodate an ITS chuck 100P. Connections Through the base and on the side.

Application On milling, grinding, drilling and EDM sinking centers.

In production lines.



#### ER-070649 UPC chuck with ITS Chuck 100 P



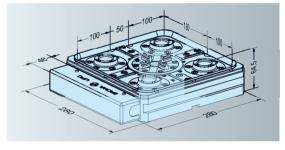


Version UPC with ITS chuck 100P fitted and aligned.

Connections Through the base and on the side.

Application On milling, grinding, drilling and EDM sinking centers.

In production lines.



#### ER-016841 UPC P chuck





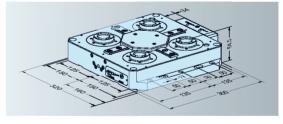
Version Chuck for high machining forces during chip removal.

Connections Through the base and on the side.

Application On milling, grinding, drilling and EDM centers and in

production lines.

Option UPC Sealing-Set ER-016650.



### ER-078728 UPC P with connection on TK 57 mm with 2 air docks



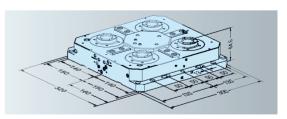


Version Connections Application Chuck for high machining forces during chip removal. Through the base on pitch circle 57 mm and on the side. For milling, grinding, drilling and EDM centers and in

production lines.

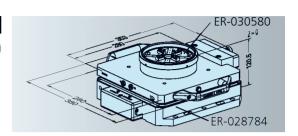
Option UPC Sealing kit ER-016650 and ER-030580.

Another system adaptations on request.



# Chucks

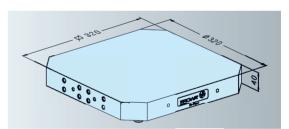
ER-030581	UPC P / PowerChuck P kit automatic
	P1 P3 auto
Version	UPC P with air dock for the automatic operation of Power-
	Chuck P.
Content	1 x ER-028784, UPC P with air duct and UPC seal kit
	1 x ER-030580, PowerChuck P on UPC pallet with air duct
	1 x Pneumatic tube.
Requirements	
	*Air ducts for the PowerChuck P are only possible laterally.
	If required, an adapter plate can be used.
Please note	Another system adaptations on request



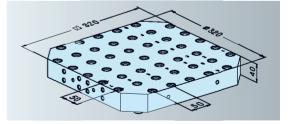
#### **EROWA UPC**

# **Pallets**

ER-016917	UPC pallet Alu 320 x 320 x 40
	auto 🗪 💮 🗳 🕁 🗀
Version	Aluminum, with centering segments and chucking spigots fitted. Hard Z-support.
Application	To clamp workpieces and gauges.
Please note	Holes to be drilled as required.



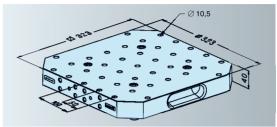
ER-018570	UPC pallet Alu R50 320 x 320 x 40 anodized
ER-016003	UPC pallet Alu R50 320 x 320 x 40
	auto 🕶 💮
Version	Aluminum with 50 mm grid. Centering segments and
	chucking spigots fitted. Hard Z-support.
Application	Basis for gauges and workpieces.
Info	Pattern borehole ø 12F7, M12 thread.

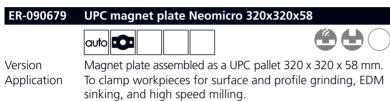


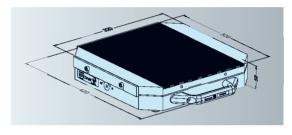
#### **EROWA UPC**

### **Pallets**





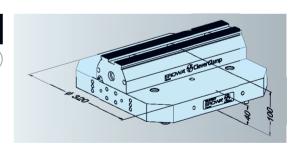




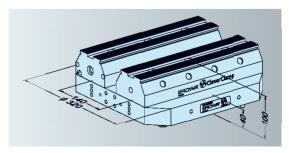
#### **EROWA UPC**

# Pallets CleverClamp System

ER-099318	Base UPC mono CleverClamp
	△ auto ○
Version	Combination of UPC aluminum pallet with 320 rail; centering segments and chucking spigots fitted. Z-Support hard.
Application	Optimal accessibility for 5-axis applications with single and multiple fixtures.
Accessories	Order separately: GripperLink RCS / EWIS™ Rapid ER-036347 for Automation.



ER-099317	Base UPC duo CleverClamp
	auto to the control of the control o
Version	Combination of UPC aluminum pallet with two 320 rails; centering segments and chucking spigots fitted. Z-support hard.
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: GripperLink RCS / EWIS <sup>TM</sup> Rapid ER-036347 for Automation.



# Auxiliary equipment

ER-024932 **UPC** centering segments and chucking spigots, for mounting from above



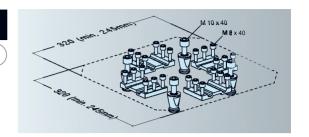


Version Four segments and chucking spigots for UPC,

including bolts.

To produce special UPC pallets. Application

With bolts through the pallet from above. Mounting Easy to assemble on the UPC chuck. Note



#### ER-024562 **UPC** centering segments and spigots to mount from lower side





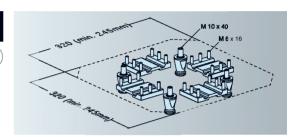
Version Four segments and chucking spigots for UPC,

including bolts.

**Application** To produce special UPC pallets.

With bolts through the pallet from below. Mounting Note Easy to assemble on the PreSet Basic UPC

presetting station.



#### ER-048377 UPC alignment pallet, 320x320x40



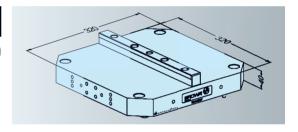




UPC chucks.

Please note System parallelism 0.005 mm.

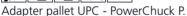
Borehole concentricity 0.005 mm.



#### ER-029453 PowerChuck P on UPC pallet







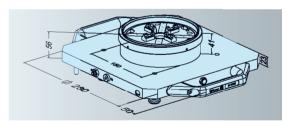
Connections Laterally on pallet.

Version

On machining centers. Operate with air-jet or fixed Application

Manual change into UPC. Possible automatic change into Note

PowerChuck P.



#### ER-030580 PowerChuck P on UPC pallet with air connection





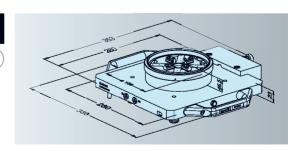


Version Adapter pallet UPC - PowerChuck P.

Connections From the bottom through of the pallet. Suitable for

ER-028784 and ER-078728.

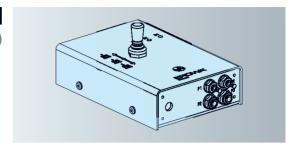
On machining centers. Application



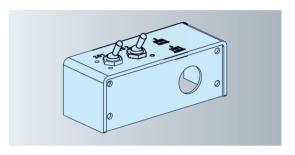
### EROWA UPC

# Auxiliary equipment

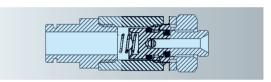
EK-000900	Manual Control unit
Version	Manual valve to control all the functions of ITS, ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.
Application	Operation of chucks on machines.



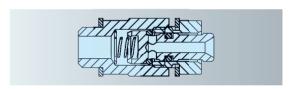
ER-039466	Additional valve double
Version	For mounting to the manual control units ER-008988 and ER-073872, incl. set of hoses.
Application	Operating of two separate chucks with one single control unit.



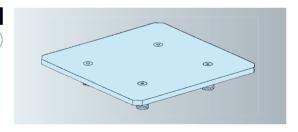
ER-016531	UPC air jet connection
Version	Valve for the manual operation of UPC ER-016092,
	ER-016093, ER-074527 and ER-070649 with an air jet.
Application	To be fitted on UPC cover.



ER-018168	UPC P air jet connection
Version	Valve for the manual operation of UPC P ER-016841 with an air jet.
Application	To be fitted on UPC P cover.



ER-012444	Cover for UPC	
Version Application	Aluminum. Cover for UPC.	

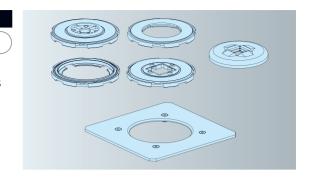


#### ER-094178 Cover set for UPC / ITS 50 C



Version Aluminum with inserts, to protect UPC chuck when used wih holder 72, pallet ø115, pallet ø148, electrode holders

ITS 50 C.



#### ER-018247 Cover UPC pallet ø 148

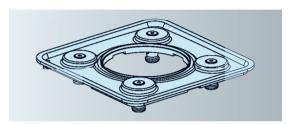




Aluminum. Cover for UPC ER-070649. Version

**Application** Protects UPC system when ø 148 mm pallets are used in

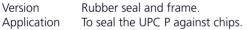
the ITS central chuck.



#### ER-016650 **UPC** sealing kit



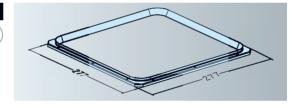




Mounting With supplied bolts.

Please note Fits UPC No. ER-016841/ER-070649/ER-074524/

ER-078728.



#### ER-018718 **UPC clamping bracket**

4 pieces



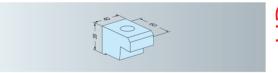


Version High tension steel, mounting accessories not included.

Application To mount UPC chucks to machine tables.

Please note Fits UPC chuck No. ER-016841/ER-070649/ER-074524/

ER-078728.



#### ER-015661 Handles for UPC pallets / FrameSet

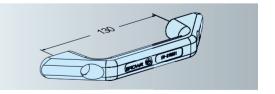
2 pieces





Version Aluminum die-casting, set of 2 units. Safe handles for UPC pallets. **Application** 

With the enclosed bolts to the prepared threads. Mounting



# **EROWA UPC**

# Auxiliary equipment

ER-018817 Sealing bolt M12x16 50 pieces Version Set of 50, including square wrench.



Application

Plastic bolts to seal grid boreholes that are not in use.

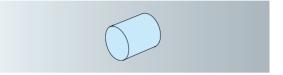
Suitable for ER-018570 and ER-016003.



Version Set of 50.

Plastic plug to seal grid boreholes that are not in use. Application

Suitable for ER-022896.

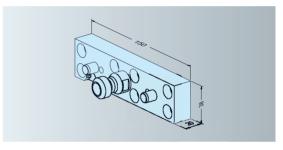


#### ER-036347 **GripperLink RCS / EWIS™ Rapid**



Version Coupling for UPC pallets, mounting accessories included. Suited for UPC pallets to be used on EROWA handling Application

devices with the «RCS coupling system».



ER-035294 EWIS™ Rapid chip with chip holder RCS with chip ø 12,4 x 2mm







Holder with built-in data carrier. EWIS chip: read only. Version To build into RCS coupling, PalletSet W holder and Basic Application

WEDM holder.

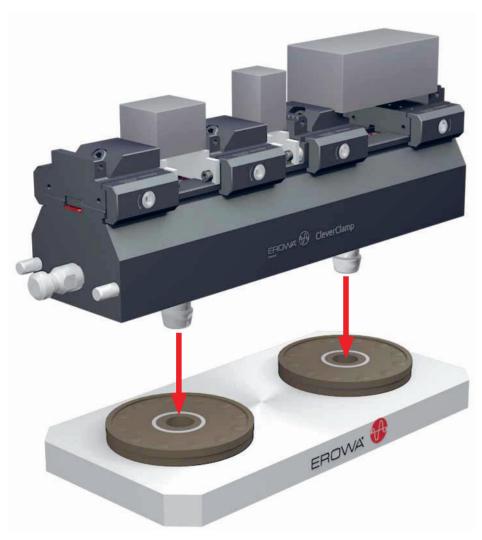


EROWA UPC PALLETIZING SYSTEM

# The flexible workpiece clamping system for chip-cutting processes

The EROWA CleverClamp system is a modular and universal workpiece clamping system. It is simple to operate and can be used in a wide variety of ways.

CleverClamp base rails are fitted directly to the machine table, a tombstone, a pallet, etc. Thanks to the standardized interface, they can be universally used in EROWA's UPC and MTS palletizing systems.





- The base rails constitute the foundation of the CleverClamp workpiece clamping system.
- The base rails are available in various versions.
- Large and well-thought-out selection of clamping and stop elements.
- Precise 2mm positioning grid to place clamping and stop elements.
- MTS clamping spigots can be directly fitted to the base rails.
- The integrated scale with a 2mm gradation helps the operator to position the clamping and stop elements quickly and repeatably during setting-up operations.
- Clamping surfaces are available in various versions.
- Base rails can be directly automated.

## **Applications**

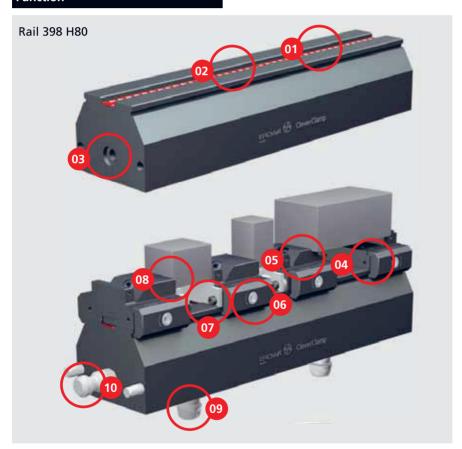
## Handling





Manual / Loading facility / Robot

#### **Function**



Technical data	- Clampino	ı elements
iccillical data	Claimping	Cicilicites

	Pull-down clamping elements	Linear clamping elements
Clamping range	0 - 4.1mm	0 - 5mm
Clamping power	up to 28kN	up to 16kN





### 01 | Precise

Steel, hardened and ground, 2mm positioning grid.

#### 02 | Scale

for the quick positioning of the clamping elements.

#### 03 | Automation

Attachment borehole for the coupling required for automatic handling.

## 04 | Stop element

#### 05 | Clamping element

Depending on requirements, as a pull-down or linear clamping element.

#### 06 | Locking bolt

Threaded spindle mechanism for the quick attachment of the modules.

# 07 | Support

Various versions and heights.

### 08 | Clamping jaw

A suitable stop surface for every clamping position.

#### 09 | Chucking spigot

for quick positioning in the EROWA MTS tooling system.

#### 10 | Automation coupling (option)

More productive machine hours through automatic loading.

# EROWA CleverClamp system in operation

# Perfect combination

The CleverClamp system clamps any workpiece and adapts to any machine situation.

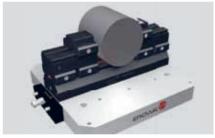
Suitable clamping and stop elements can be placed quickly with the help of the precise positioning grid. The base rails take up hardly any room but still provide a great deal of space for the flexible attachment of a wide variety of workpiece shapes and sizes.

#### **EXTREMELY VERSATILE**

Everything matches up and can be combined flexibly.







Use of elevation elements to clamp larger workpieces.



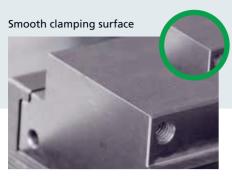
- As a single rail to be individually fitted onto the machine table, fixture, EROWA UPC or MTS pallet, etc.



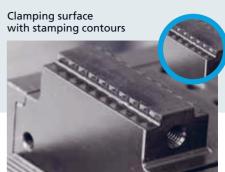
- With a fitted chucking spigot and automation coupling (option) for direct integration into the EROWA MTS tooling system.
- Can be directly automated.



- On EROWA UPC and MTS pallets.







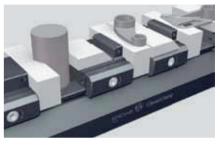
You can choose the clamping surface structure according to materials and workpieces.



The CleverClamp base rails have holes on both sides to attach eye bolts.



Clamping of workpieces with stamping technology at the minimum clamping height of 3mm.



Various clamping and stop jaws for every requirement. Soft jaws can be used for the production of clamping jaws with contours according to requirements, for example.



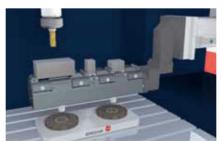
EROWA CleverClamp to clamp big workpieces with great holding power.



Multiple clamping of the same or different workpieces on the same base.



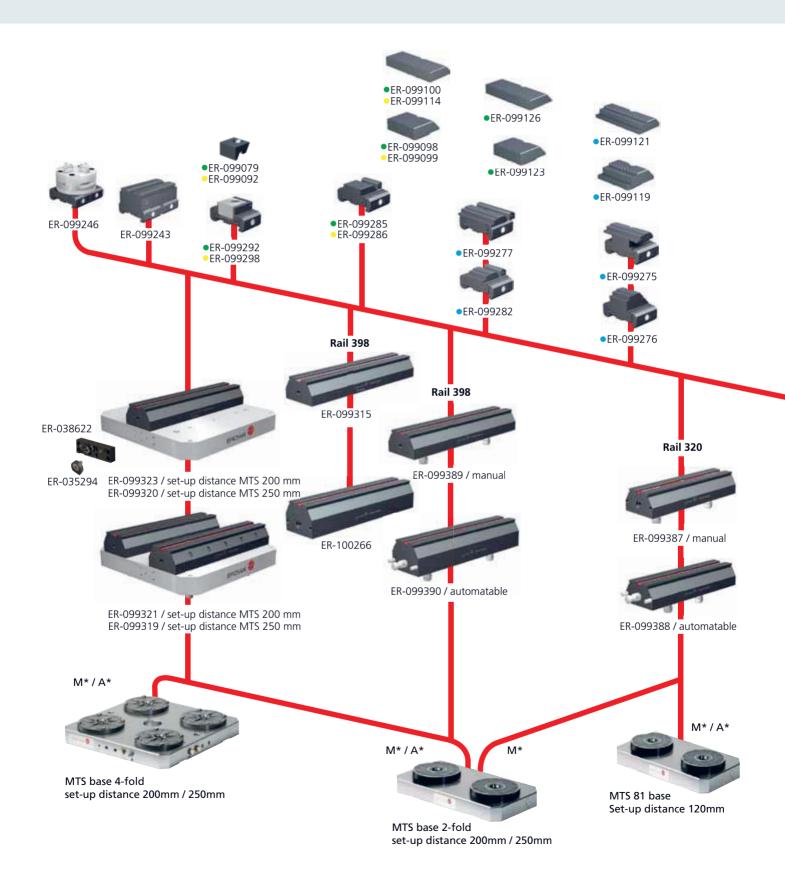
Simple handling, short set-up times. Setting up and resetting in just a few steps.



The CleverClamp can be directly automated. The Robot places the workpiece carrier on the machine with precision and speed.

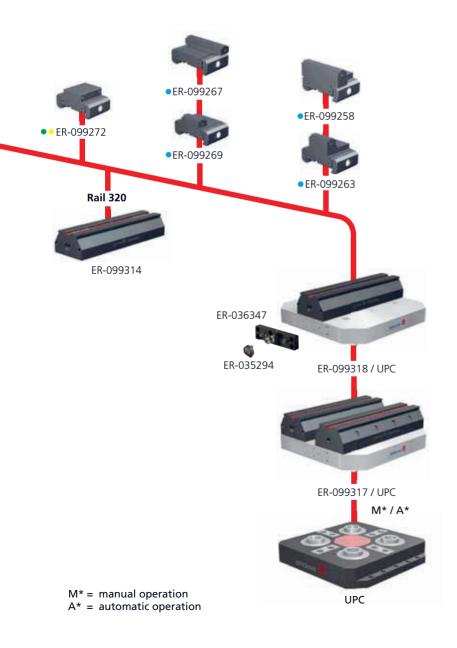
# Tooling system

# The components



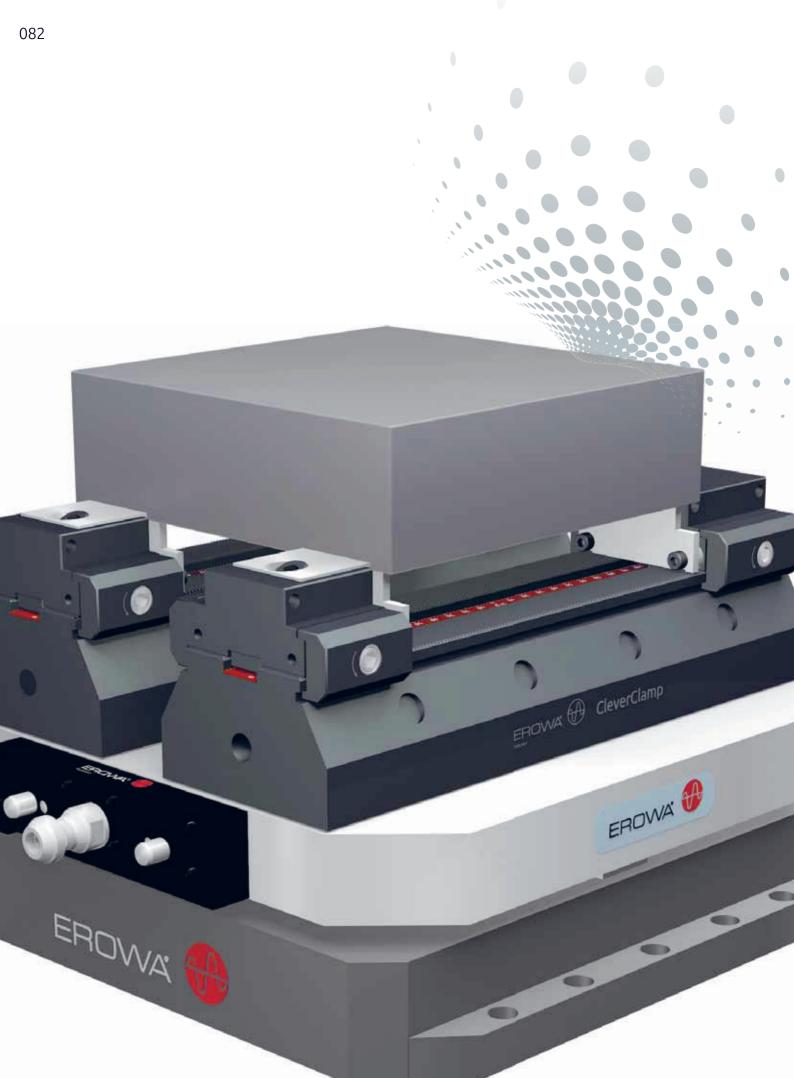
# EROWA provides you with a full range of products - everything fits together!







The color icon describes the respective surface finish.



EROWA CLEVERCLAMP SYSTEM

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



'I EVEDCL	AMP WORKP	DIECE TOOL	INIC CVCTEM

CleverClamp System Rails	84
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CleverClamp System Accessories	93



For chip-removing processes



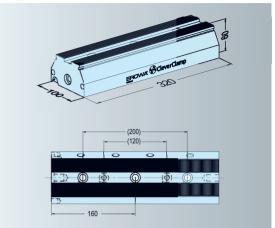
For EDM sinking



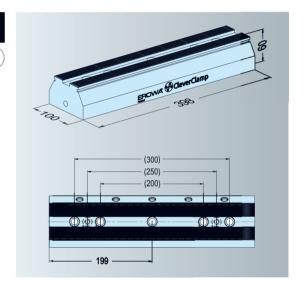
For WEDM

# Rails

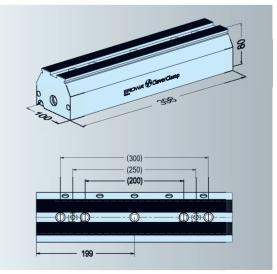


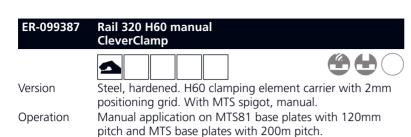


#### ER-099315 Rail 398 H60 CleverClamp Steel, hardened. H60 clamping element carrier with 2mm Version positioning grid. **Application** Serves as a base to clamp workpieces with various Clever-Clamp clamping and stop elements. Mounting To fit on R50 grid plates, pallets, tombstones and machine Accessories Clamping and stop elements, etc. Can be used directly with a spigot on MTS, 200mm Important pitch (M) or 250mm pitch (M).







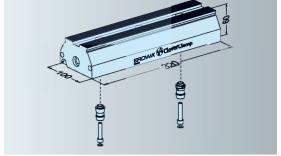


Clamp clamping and stop elements.

Clamping and stop elements, etc.

Manual application.

Serves as a base to clamp workpieces with various Clever-



ER-099388	Rail 320 H60 automated CleverClamp
	<b>△</b> auto <b>△</b>
Version	Steel, hardened. H60 clamping element carrier with 2mm positioning grid. With MTS spigot, automatic, and Grip-

Version Steel, hardened. H60 clamping element carrier with 2mm positioning grid. With MTS spigot, automatic, and GripperLink.

Operation Automated application on MTS81 base plates with 120mm pitch.

Application Serves as a base to clamp workpieces with various Clever-Clamp clamping and stop elements.

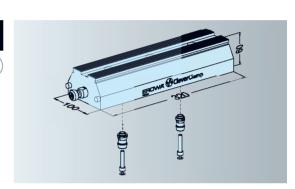
Accessories Clamping and stop elements, etc.

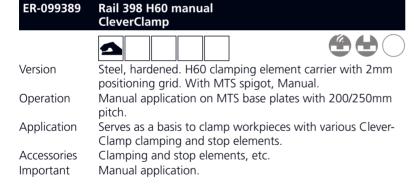
Important Automated application.

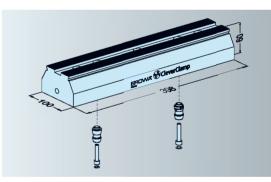
**Application** 

Accessories

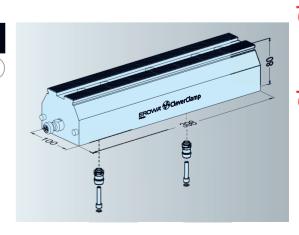
**Important** 





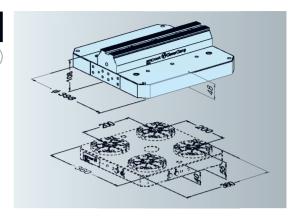


ER-099390	Rail 398 H80 automated CleverClamp
	<b>△</b> auto <b>△</b>
Version	Steel, hardened. H80 clamping element carrier with 2mm
	positioning grid. With MTS spigot, automatic, and Grip-
	perLink.
Operation	Automated application of MTS base plates with
	200/250mm pitch.
Application	Serves as a base to clamp workpieces with various Clever-
	Clamp clamping and stop elements.
Accessories	Clamping and stop elements, etc.
Important	Automated application.

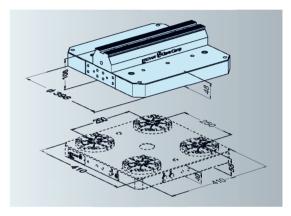


# MTS Base rails

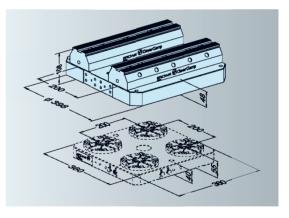
# Version Combination of MTS aluminum pallet with 398 rail (MTS spigot set ER-041461 (M)/ ER-041464 (A)). Application Optimal accessibility for 5-axis applications with single and multiple fixtures. Accessories Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.



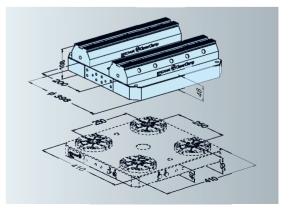
# Version Combination of MTS aluminum pallet with 298 rail (MTS spigot set ER-041461 (M) / ER-041464 (A)). Application Optimal accessibility for 5-axis applications with single and multiple fixtures. Order separately: ER-041461 (M) / ER-041464 (A) with GripperLink Rapid ER-038622.



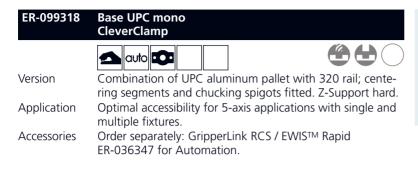


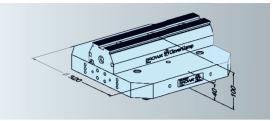


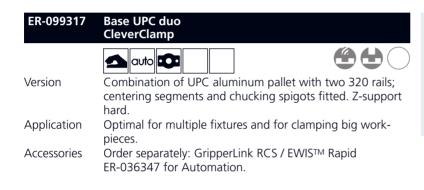
ER-099319	Base MTS 250 duo CleverClamp
	△ auto 🍑 💮
Version	Combination of MTS aluminum with two 398 rails (MTS spigot set ER-041461 (M) / ER-041464 (A)).
Application	Optimal for multiple fixtures and for clamping big workpieces.
Accessories	Order separately: ER-041461 (M) / ER-041464 (A) or MTS GripperLink Rapid ER-038622.

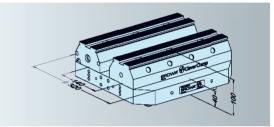


# **UPC** Base rails



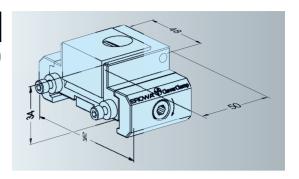




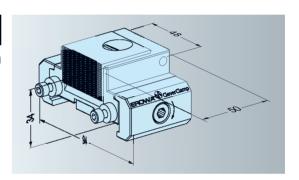


# Pull down clamping elements

ER-099292	Pull Down Slide Multi Flat CleverClamp
	<b>&amp;</b>
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides smooth.
Application	Pull-down element for clamping jobs with high clamping forces. Surface: smooth. Ideal for two-side machining and for clamping workpieces with machined surfaces.
Mounting	On a CleverClamp rail.
Important	Suitable for single or multiple fixtures.
Clamping force	Up to 28kN max. at a torque of 40Nm max.
Clamping stroke	Up to 4.1mm.

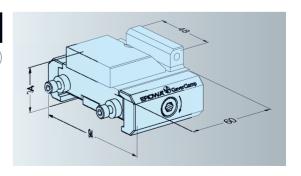


ER-099298	Pull Down Slide Multi Grip CleverClamp
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides with grip contours.
Application	Pull-down element for clamping jobs with high clamping forces. Surface with grip contours for additional purchase.
Mounting	On CleverClamp rail.
Important	Suitable for single or multiple fixtures.
Clamping force	Up to 28kN max. with a torque of 40Nm max.
Clamping stroke	Up to 4.1mm.



# EROWA CleverClamp System

# Linear clamping elements



# Linear clamping elements

ER-099286	Linear Slide Multi Grip CleverClamp
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides with grip contours.

Application Linear clamping with grip contours for additional purchase. Mountaing On CleverClamp rail.

Important Modularly compatible with all linear jaws. Suitable for

single and multiple fixtures.

**Linear Slide Multi Stamp** 

Clamping force

ER-099282

Clamping

stroke

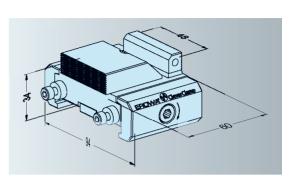
Up to 5mm.

Up to 16kN max. with a torque of 40Nm max.

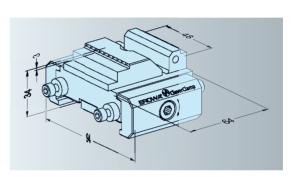
Clamping

Up to 5mm.

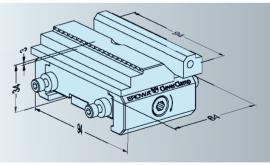
stroke



	CleverClamp
	<b>&amp;&amp;</b>
Version	Steel, hardened, width 48mm, height 34mm, clamping and stop sides with stamp contours
Application	Ideal for clamping blanks at the minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping. Can also be used for two-side machining.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Suitable for single and mutliple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.

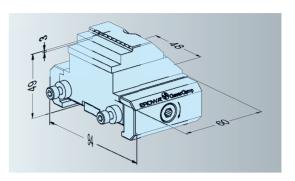




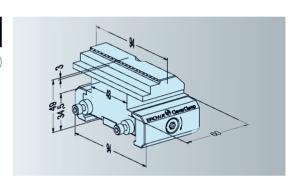


# Linear clamping elements

ER-099276	Linear Slide 5X Stamp CleverClamp
Version	Steel, hardened, width48mm, height 49mm, clamping side with stamp contours.
Application	Optimised machine spindle accessibility for 5-axis applications. Ideal for clamping blanks at a minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Can be used for single and multiple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.



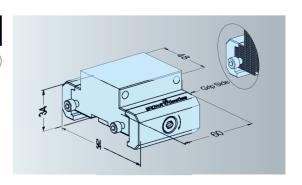
ER-099275	Linear Slide 5X Stamp Wide CleverClamp
Version	Steel, hardened, width 94mm, height 49mm, clamping side with stamp contours.
Application	Optimised machine spindle accessibility for 5-axis applications. Ideal for clamping blanks at a minimum clamping height of 3mm. Secure grip thanks to stamp technology for direct stamping.
Mounting	On CleverClamp rail.
Important	Modularly compatible with all linear jaws. Can be used for single and multiple fixtures.
Clamping force	Up to 16kN max. with a torque of 40Nm max.
Clamping stroke	Up to 5mm.



# EROWA CleverClamp System

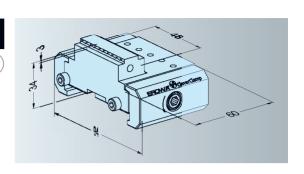
# Stop elements

ER-099272	Stop Flat/Grip CleverClamp
Version	Steel, hardened, width 48mm, height 34mm; two stop sides: one smooth, one with grip contours.
Application	Stop element in the modular CleverClamp system. Smooth stop side for workpieces with a machined surface, grip side for additional purchase.
Mounting	On CleverClamp rail.

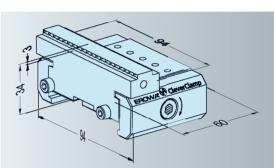


# Stop elements

E	K-099269	Stop Multi Stamp CleverClamp
Ve	rsion	Steel, hardened, width 48mm, height 34mm, with stamp contours.
Аp	plication	Stop element in the modular CleverClamp system. Stop element with stamp contours, ideal in combination with stamp clamping elements for clamping blanks at a mimimum clamping height of 3mm.
Mo	ounting	On CleverClamp rail.







ER-099263	Stop 5X Stamp CleverClamp
	<b>64</b> 0
Version	Steel, hardened, width 48mm, height 49 mm, with stamp contours.
Application	Stop element in the modular CleverClamp system. Stop

element with better machine spindle accessiblity for 5-axis applications. With stamp contours, ideal in combination with stamp clamping elements for clamping blanks at a minimum clamping height of 3mm.

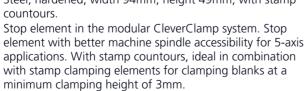
On CleverClamp rail.

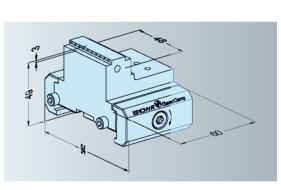
Mounting

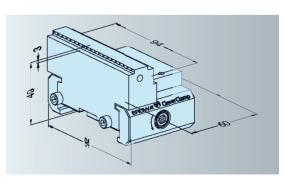


Steel, hardened, width 94mm, height 49mm, with stamp Version countours. **Application** Stop element in the modular CleverClamp system. Stop applications. With stamp countours, ideal in combination

Mounting On CleverClamp rail.

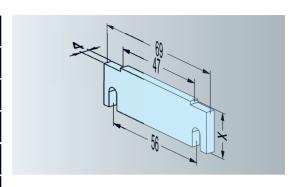






# Accessories / Parallel supports

ER-099204	Support 20 CleverClamp
ER-099206	Support 24 CleverClamp
ER-099227	Support 29 CleverClamp
ER-099228	Support 31 CleverClamp
ER-099229	Support 34 CleverClamp
ER-099230	Support 39 CleverClamp
ER-099231	Support 44 CleverClamp
ER-099232	Support 46 CleverClamp





Version Application Steel, hardened, width 47mm, height x mm.

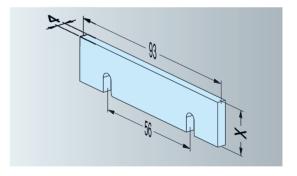
Ground support for setting the workpiece clamping height

between the CleverClamp clamping and stop elements.

Supports of the heights 34, 39, 44 and 46 can only be used in combination with the 5-axis clamping and stop

elements.

ER-099233	Support 20 Wide CleverClamp	
ER-099234	Support 24 Wide CleverClamp	
ER-099235	Support 29 Wide CleverClamp	
ER-099236	Support 31 Wide CleverClamp	
ER-099237	Support 34 Wide CleverClamp	
ER-099238	Support 39 Wide CleverClamp	
ER-099239	Support 44 Wide CleverClamp	
ER-099240	Support 46 Wide CleverClamp	









Version Application

Important

Steel, hardened, width 93mm, height x mm.

pplication Ground support for setting the workpiece clamping height

between the CleverClamp clamping and stop elements. Supports of the heights 34, 39, 44 and 46 can only be used in combination with the 5-axis clamping and stop

elements.

# Accessories

ER-099243	Elevation for rail H60 CleverClamp	

Version Steel, hardened, height 60mm, width 94mm, length

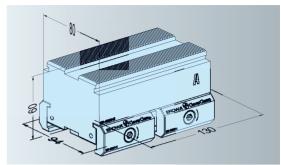
130mm.

Application CleverClamp 5-axis elevation - enables optimal machine

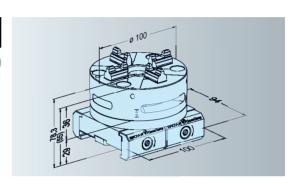
spindle accessibility in 5-axis applications.

Mounting On CleverClamp rail.

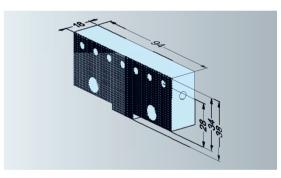
ER-099166 Stop Jaw Flat / Grip Wide

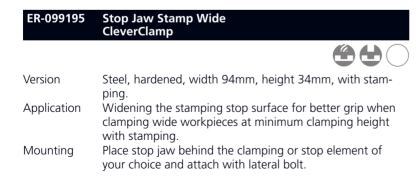


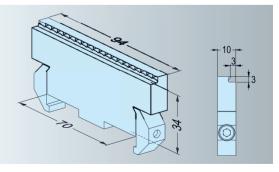
ER-099246	Quick Chuck 100 P CleverClamp
Version	CleverClamp carrier element with QuickChuck 100P, manual.
Application	Adapter between CleverClamp and EROWA ITS pallets/holders.
Mounting	On CleverClamp rail.



	CleverClamp
	<b>60</b>
Version	Steel, hardened, width 94mm, height 34mm, one side smooth, the other with grip contours.
Application	Widening the stop surface for better grip when clamping wide workpieces.
Mounting	Use the bolts supplied to fit it to the front of the Clever- Clamp clamping or stop elements of your choice.
Important	Can be ideally combined for use with the 94mm-width linear laws.

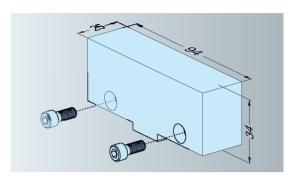




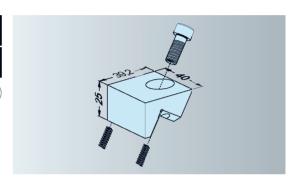


# Accessories

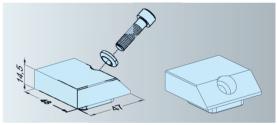
ER-099164	Stop Jaw Soft Wide CleverClamp
Version	Steel, soft, width 94mm, height 34mm.
Application	Soft stop jaw, ideal for milling workpiece-specific clamping contours.
Mounting	Use the bolts supplied to fit it to the front of the Clever- Clamp clamping or stop elements of your choice.



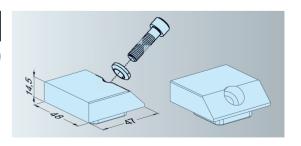
ER-099079	Pull Down Jaw Flat CleverClamp
ER-099092	Pull Down Jaw Grip CleverClamp
	<b>64</b>
Version Application	Steel, hardened, stop side smooth or with grip contours <b>ER-099079:</b> stop side smooth - ideal for clamping work pieces with machined surfaces.
	<b>ER-099092:</b> stop side with grip contours for additional grip.
Mounting	Can be used on all CleverClamp pull-down clamping elements.







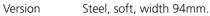
ER-099123	Linear Jaw Soft CleverClamp
	640
Version	Steel, soft, width 48mm.
Appliacation	To produce jaws with contours of your choice.
Mounting	Can be used on all CleverClamp linear clamping elements.





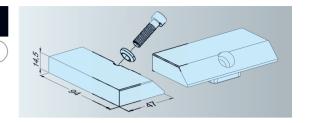






Application To produce jaws with contours of your choice.

Mounting Can be used on all CleverClamp linear clamping elements.



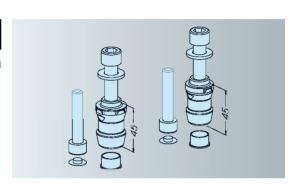
# ER-099334 MTS Spigot Set 2 automated CleverClamp

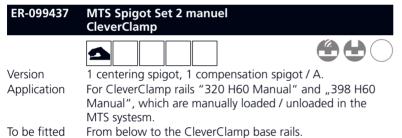
Version 1 centering spigot / A, 1 compensation spigot / A.

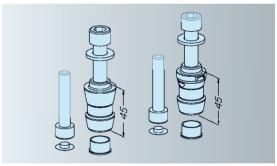
Application For CleverClamp rails "320 H60 automated" and "398

automated", which are automatically loaded / unloaded in the MTS System.

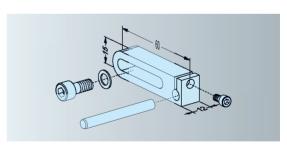
To be fitted From below to the CleverClamp base rails.



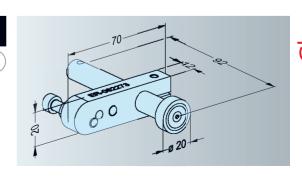




ER-099201	MillStop CleverClamp
Version	Adjustable stop made of steel.
Application	Lateral stop on any CleverClamp clamping or stop element.
Mounting	Use the bolts supplied to fit it laterally to the CleverClamp clamping or stop elements of your choice.



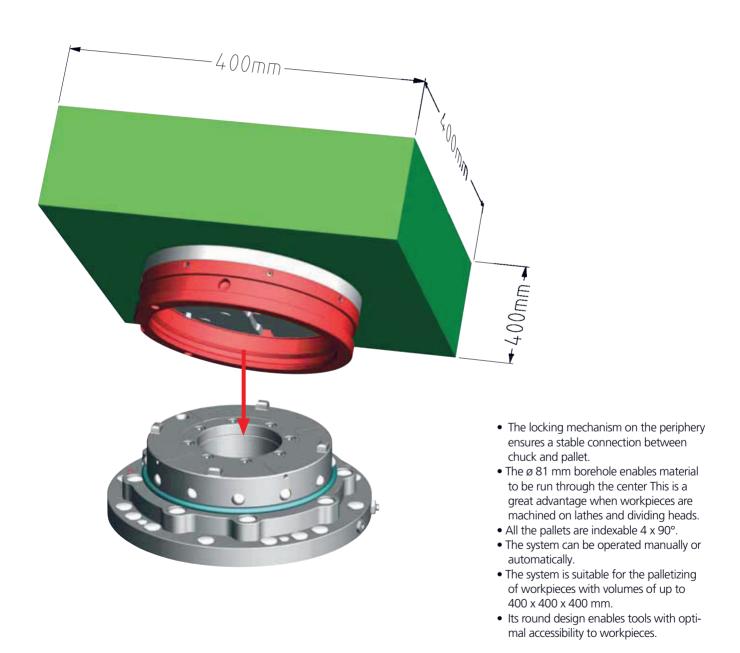
ER-082273	Magnetic stop CleverClamp
Version	Stop made of anodized aluminum.
Application	Magnetic stop used for positioning workpieces in vises.
Important	Remove the magnetic stop before machining the part.



# **EROWA ProductionChuck 210**

# Palletizing system with centralized material pass-through

The EROWA ProductionChuck 210 ingeniously combines the endurance-tested EROWA precision with the flexible operation of a palletizing system such as required by modern parts manufacturing.



## **Applications**

## Handling

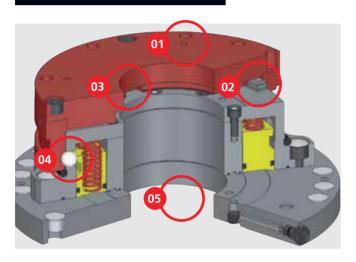






Manual / Loading facility / Robot

#### **Function**



#### 05 | Material pass-through

Rod material of up to Ø 81 mm can be led directly through the chuck. The Ø 81 mm boreholes also provides for air, hydraulic and vacuum lines to operate the fixtures that are clamped on pallets.

#### 01 | Mounting

Workpieces, fixtures and plates are directly mounted on the PC 210 pallet.

#### 02 | Centering system

The widely spaced centering system enables the transfer of maximum torque.

#### 03 | Z-supports

The Z-supports are positioned on the far outside, thus accommodating the tilting moment in the best possible way. The Z-supports are automatically cleaned with air. Dynamic pressure is used to check whether a pallet is in place.

#### 04 | Ball lock

- round tables with T-slots

The self-locking ball lock generates a clamping power of 20,000 N. Compressed air is necessary to open the chuck and to clean the Z-supports.

#### Technical data - ProductionChuck 210 **ProductionChuck 210** Repeatability <0.002 mm Pallet indexation 4 x 90° 20,000 N / 29,000 N Clamping power Clamping power (central PowerChuck P) 9,000 N Generated by spring power Opening with compressed air 7.5 bar Chuck fits directly to: - machine tables with T-slots 50, 63, 100 mm

4 x 90°, 45°



# EROWA ProductionChuck 210 in action

# Flexible palletizing of workpieces and fixtures

The ProductionChuck 210 pallet serves as a workpiece and fixture carrier.

A borehole in the center of the pallet also enables material up to a diameter of 81 mm to be led through the ProductionChuck 210.

#### RELIABLE

Dirt-resistant, robust, designed for continuous use.





The existing attachment boreholes allow for quick mounting on all well-established machines.



Another advantage: the workpiece or the fixture can be fitted directly on the PC pallet 210.





Working space well exploited! 5-side machining in one clamping process thanks to optimal accessibility.



The Z-supports are placed as far on the outside that they provide a stable and precise support even for bigger workpieces.



Fixture stability. Access from all sides. Best use of horizontal/vertical milling machines.



PC 210 is an tooling system that is ideal for rotary transfer machines:

- quick fixture change,
- sufficient room to dock on the hydraulic system to operate the fixtures.



Palletized clamping devices in the robot magazine.



Particularly suitable for use on lathes. The ProductionChuck 210 is the only precision palletizing system with a borehole for central material feed.



Mixed use of ITS and ProductionChuck 210 pallets.





Would you like to automate? We will gladly advise you as to how an EROWA handling facility will increase your productivity up to three times.

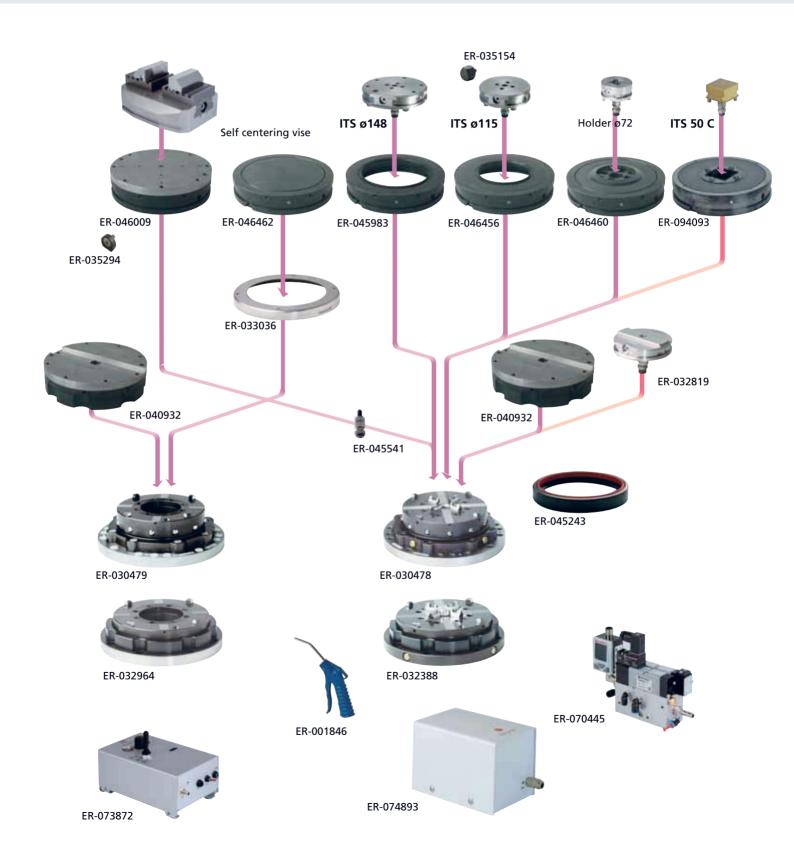




# **EROWA ProductionChuck 210**

# palletizing system

The components



102

104

106

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



Chucks

Workpiece carriers

**Auxiliary Equipment** 

ProductionChuck 210

ProductionChuck 210

ProductionChuck 210



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



For chip-removing processes



For EDM sinking



For WEDM

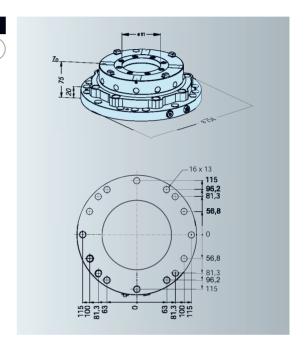


# EROWA ProductionChuck 210

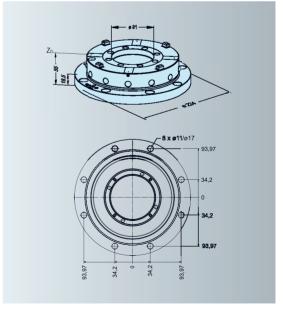
# Chucks

Technical data	ProductionChuck 210
Repeatability	0.002 mm
Indexing	4 x 90°
Clamping power	20,000 N
Clamping power (central PowerChuck P)	9,000 N
Generated by	spring power
Opening with compressed air	min. 7.5 bar

ER-030479	ProductionChuck 210
Version	Chuck for high machining forces in chip cutting. Low design. Through-borehole ø 81 mm.
Connections	Laterally or from below with two lines.
Operation	With air gun, laterally. With control unit, through
	the two connections laterally or from below.
Application	On milling machines, lathes and grinding machines.
	To clamp pallets PC 210.

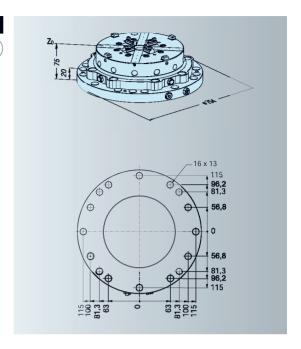


ER-032964	ProductionChuck 210 without base plate
Version	Chuck for high machining forces in chip cutting.
	Low design. Through-borehole ø 81 mm.
Application	On milling machines, lathes and grinding machines.
	To clamp pallets PC 210.
Connections	2 air connections: on the sides and from below through
	customized base plate.
Operation	With air gun or control unit.
Note	Base plate must be customized.
	·

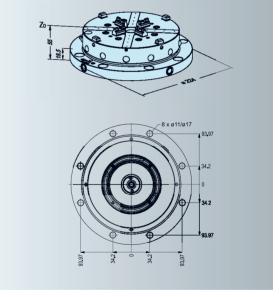


# Chucks

# Version Chuck for strong machining forces in chip-cutting operations. PC 210 with integrated PowerChuck P. Connections Operation With air gun, laterally. With control unit, through the two connections laterally or from below. Application On milling machines, lathes, grinding machines and EDM centers. To clamp pallets PC 210, ITS pallets Ø 148, Ø 115, ITS 50 holders and PM pallets.



ER-032388	ProductionChuck 210 Combi without base plate
	P1: 24 auto
Version	Chuck for high machining forces in chip cutting. System PC210 and ITS.
Application	On milling machines, lathes, grinding machines and EDM centers. To clamp pallets PC 210, ITS pallets Ø 148, Ø 115, ITS 50 holders and PM pallets.
Connections	2 air connections: on the sides and from below through customized base plate.
Operation Note	With air gun or control unit. Base plate must be customized.



# **EROWA ProductionChuck 210**

# Workpiece carriers

# ER-046473 Clamping ring RN PC 210

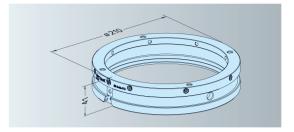




Version Steel, hardened.

Application Clamping ring for centering pallet PC 210 and centering pallet PC 210 / Ø 81. Can be automated with gripper

PC 210 RN (option).



## ER-042865 PC Centering pallet 210

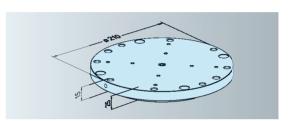


Version Steel, without clamping ring (option ER-046473).

Fitting 8 x M10 attachment threads and two ø 10 boreholes.

Application To accommodate workpieces, clamping jigs and

plates PC 210.



## ER-042866 PC Centering pallet 210 ø 81



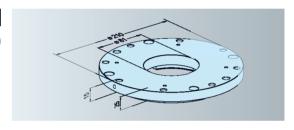
Version Steel, without clamping ring (option ER-046473).

Fitting 8 x M10 attachment threads and two

ø 10 boreholes.

Application To accommodate workpieces, clamping jigs and

plates PC 210.



#### ER-046009 Pallet RN PC 210



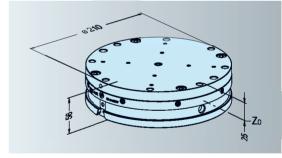


Version Steel. Centering segments integrated. Assembly 8 x M10 attachment threads and two

ø 10 boreholes.

Application To clamp workpieces, clamping jigs and pallets PC 210.

Can be automated with gripper RN PC 210 (option).



# ER-046474 Pallet RN PC 210 ø 81





Version Steel. Centering segments integrated.

Through borehole ø 81 mm.

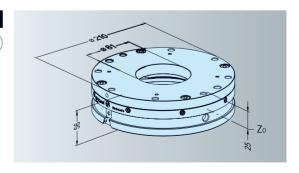
Fitting 8 x M10 attachment threads and two

ø 10 boreholes.

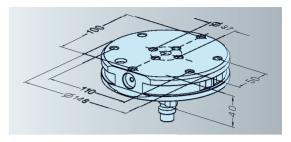
Application To accommodate workpieces, clamping jigs and

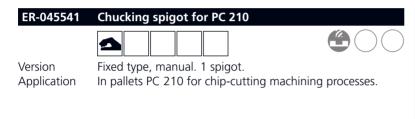
plates PC 210.

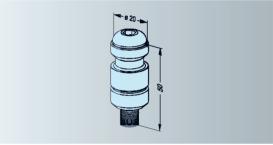
Can be automated with gripper RN PC 210 (Option).



ER-041912	Pallet P ø 148 Inox
ER-041924	Pallet Kit P ø 148 Inox 4 pieces
	INOX auto (1)
Version	Steel, corrosion-resistant. Centering integrated in
Application	the pallet. For use on all EROWA PowerChucks P and Production- Chuck 210 Combi. To accommodate workpieces and
Mounting	fixtures in chip-cutting machining processes.  Through pallet with M8 bolts or through blank with M10 bolts.







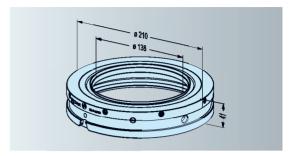
Please note: Further pallets and electrode holders for the ProductionChuck 210 Combi can be found from pages 172.



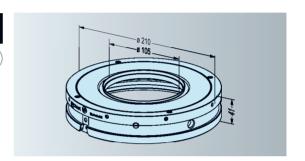
# **EROWA ProductionChuck 210**

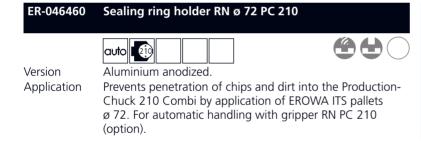
# Auxiliary Equipment

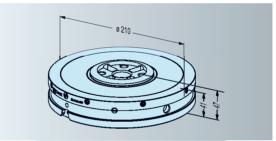
# Version Application Application Application Application Application Application Application Application Chuck 210 by application of EROWA ITS pallets ø 148. For automatic handling with gripper RN PC 210 (option).



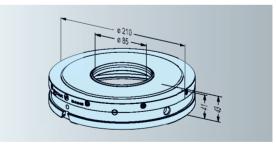
# Version Application Application Application Application Application Chuck 210 by application of EROWA ITS pallets Ø 115. For automatic handling with gripper RN PC 210 (option).



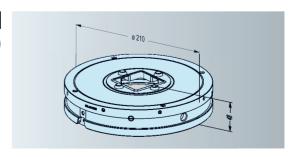


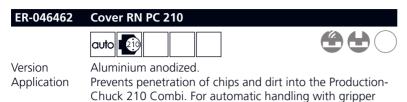


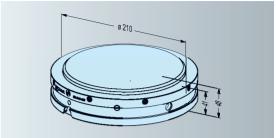




ER-094093	Sealing ring ITS 50 C for PC 210
	auto 🛍 💮
Version Application	Aluminium anodized. Prevents penetration of chips and dirt into the ProductionChuck 210 Combi by application of EROWA electrode holders C. For automatic handling with gripper RN PC 210 (option).







# ER-040932 Positioning pallet PC 210

RN PC 210 (option).

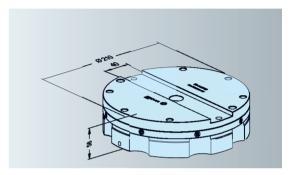


Version Alignment pallet with ground alignment rail and central

borehole.

Application Alignment of angular position, and determination

of the center of PC 210 chucks.



## ER-032819 Alignment pallet ø 115



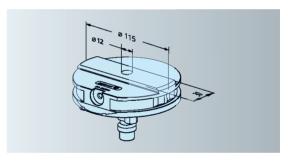


Version Pallet ø 115 mm, alignment length 110 mm, center bore-

hole ø 12 mm.

Application Alignement of radial, axial and angular position of ITS

chucks, PowerChuck P and PC 210 Combi chucks.



# ER-045243 PC 210 Sealing ring



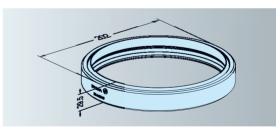


Version Holder with wiper.

Application For use on ProductonChuck 210 Combi.

To seal the outer balls if ITS 50 standard electrode holders or other workpiece carriers without PC sealing ring holders

PC 210 are used.



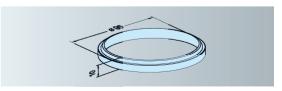
#### ER-045249 Wiper for pallet PC 210 ø 81



Version Rubber

Application Prevents penetration of chips and dirt into the Production-

Chuck 210 in use with pallets PC 210 / ø 81.



# **EROWA ProductionChuck 210**

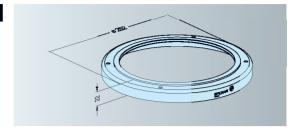
# Auxiliary Equipment

#### ER-033036 **Covering ring PC 210**

**Application** Covering ring for the attachment bolts of the

PC 210: ER-030479, ER-030478 (Recommended for

application on lathes).



#### EWIS™ Rapid chip with chip holder RCS ER-035294

with chip ø 12,4 x 2mm



Version Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and Application

Basic WEDM holder.



#### ER-035154 EWIS™ Rapid chip with chip holder SW14

with chip ø 12,4 x 2mm



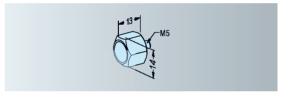
Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

**Application** In any EROWA electrode holder and pallet which has been

prepared for it.

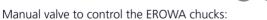
Version



#### ER-073872 Manual control unit with booster







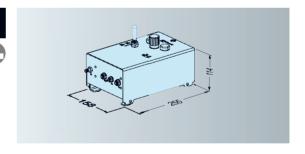
Opening/Reclamping/Cleaning.

Operation of: EROWA ITS Compact Combi Chuck, ITS, **Application** 

UPC, MTS, PC 210 chucks and PowerChuck P.

Integrated booster with load ratio 1:2 (up to output Note

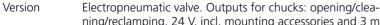
pressure of 10 bar max.).



#### ER-070445 Control unit with monitoring





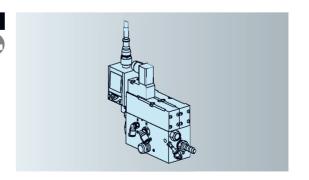


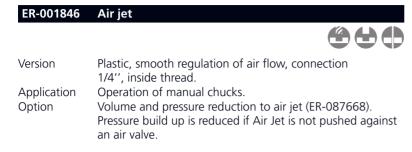
ning/reclamping. 24 V, incl. mounting accessories and 3 m

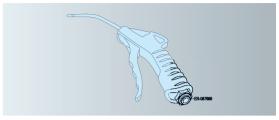
connection hose.

Operation and monitoring of machine-integrated chucks, **Application** 

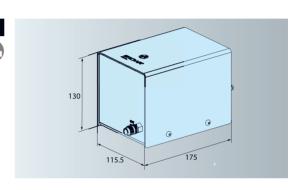
for instance through the CNC M-function.







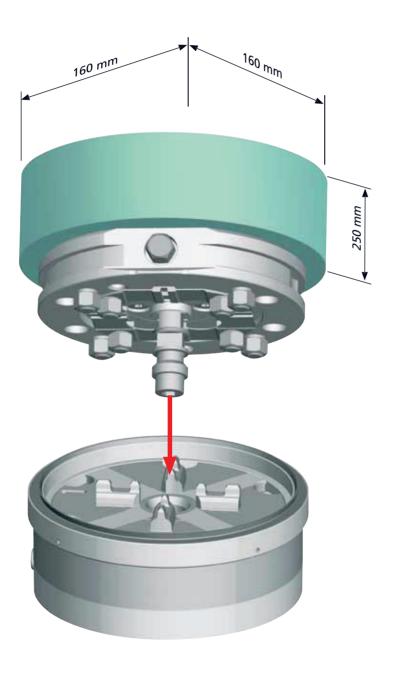
ER-074893	Pressure booster
	<b>600</b>
Version	Quick-connect couplings for hose $\emptyset$ i = 8 mm. Compression ratio: 1:2.
Application	On insufficient system pressure and on pressure fluctuations.
Installation	Integrate in air circuit near application.



## **EROWA PowerChuck P**

## Accessible from all sides

EROWA PowerChucks are quick and easy to integrate on a wide variety of machining centers.



- Whether affixed to the T-slot table or built into the integrated axis, there is always a good solution.
- Access from all five open sides is particularly important with horizontal machining. The low height of the chuck plays a significant role on smaller machines.
- Operation is manual with an air jet, or with one of the pneumatic control units through the permanently screwed-in connections.
- In automatic operation, the presence and proper position of the pallets in the chuck is monitored (EROWA standard). Support surfaces are automatically cleaned.
- The different variants enable the chuck to be optimally fitted to the existing machine base.

### **Applications**

### Handling

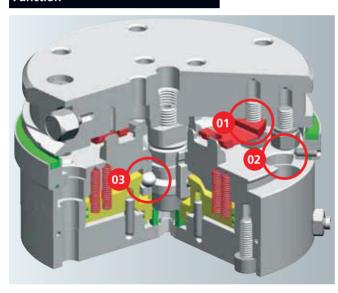






Manual / Loading facility / Robot

#### **Function**



#### 01 | Centering plates

The G-centering plates with their ground centering slots and their 0.7-mm-thick spring plate ensure clean and powerful poitioning.

#### 02 | Cleaning

During the clamping process, the contact surfaces of the supports are cleaned with compressed air.

#### 03 | Ball lock

The self-locking ball lock generates a clamping power of 10,000 N; full clamping power is even retained in the case of a pressure failure.

## Technical data - PowerChuck P

	PowerChuck P
Pallet size	ø 115 mm, ø 148 mm and ITS 50
Chuck dimensions H x ø	H = 51 mm x ø 156 mm
System height (chuck and pallet)	H = 91 mm
Recommended workpiece size	up to 160 x 160 x 250 mm
Repeatability	0.002 mm
Indexing	4 × 90°
Clamping power	10,000 N
Generated by	springs
Release	compressed air, min. 6 bar
Operation	control unit or air jet



## EROWA PowerChuck P in action

# Powerful, flexible, universally applicable

Manufacturing is virtually inconceivable anymore without PowerChucks. Whether on milling or drilling machines, whether on profile-grinding or surface-grinding machines, whether on spindles of dividing heads or lathes: wherever it is, they fit like a glove.

Downtimes are completely eliminated by integrating a consistent clamping system on all machine tools.

#### CLEAN

By automatic cleaning of the contact surfaces.







Horizontal chuck on a dividing head.



Flexible and automatic loading of a machine tool with an EROWA handling unit. The ratio of productive hours is considerably increased.



Universal combination of EROWA clamping systems with automatic handling.



Gaskets protect the chucks and ensure secure automatic loading.



Securely clamped also for heavy machining.





We would like to advise you. Please describe your clamping problem to us.



Clamped with  $\mu m$ -accuracy with one movement of the hand.



Practical clamping elements for universal operation.



Grinding or milling: EROWA PowerChucks are just right.



Prepare, clamp and complete the job.

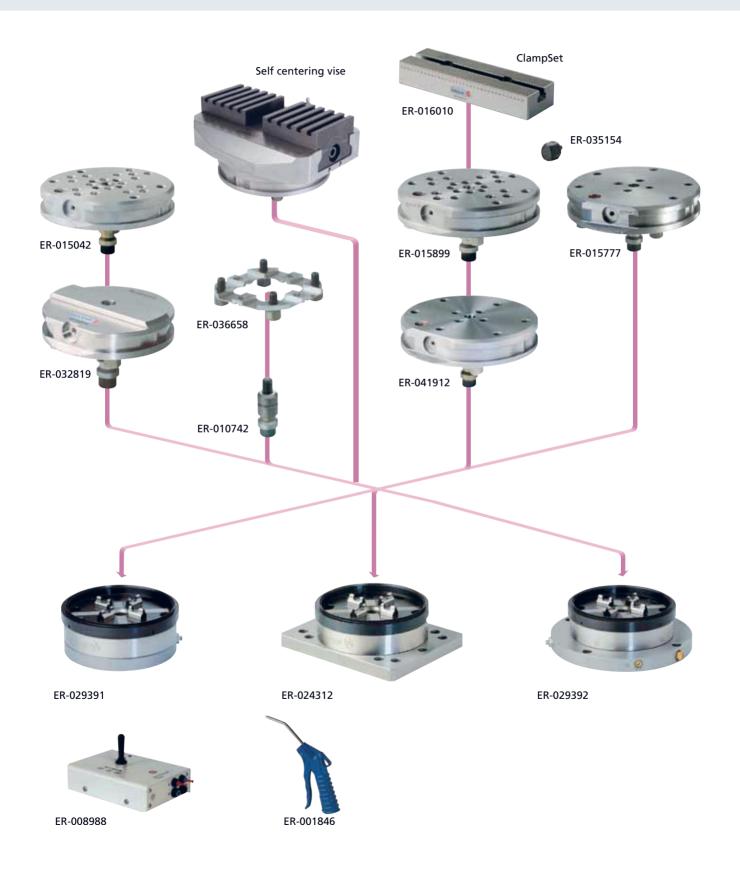




## EROWA PowerChuck P

# Palletizing system

## The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



### **EROWA POWERCHUCK P PALLETIZING SYSTEM**

PowerChuck P	Chucks	116
PowerChuck P	Workpiece carrier	118
PowerChuck P	Auxiliary Equipment	122



For chip-removing processes



For EDM sinking



For WEDM

## EROWA PowerChuck P Chucks

Technical data	PowerChuck P
Repeatability	0.002 mm
Pallet indexation	4 x 90°
Clamping power	10,000 N
Generated by	spring power
Opening with compressed air	min. 6 bar

#### ER-029391 PowerChuck P ø 150



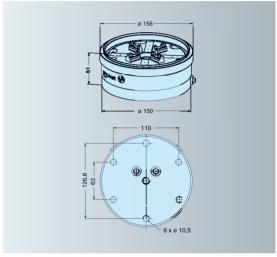


Version Connections Operation

Extra-flat version. Height 51 mm. Base plate ø 150 mm. On the side or at the rear with two lines.

With airjet, laterally. With control unit through the two

lines on the side and at the rear.



#### ER-029392 PowerChuck P ø 204





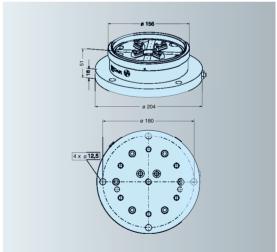
Version Connections Operation

Extra-flat version. Height 51 mm. Base plate ø 204 mm.

On the side or at the rear with two lines.

With airjet, laterally. With control unit through the two

lines on the side and at the rear.



#### ER-029436 PowerChuck P without base plate

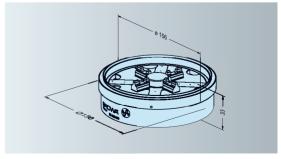




Version Connections Operation

Extra flat version. Height 33 mm. Without base plate. At the rear according the instruction manual.

Pneumatically.







Version Extra-flat version. Height 51 mm. Base plate 158 mm x 198 mm.

Connections On the side or at the rear with two lines. With airjet, laterally. With control unit through Operation the two lines on the side and at the rear.

#### ER-044310 PowerChuck P 158 x 230





Version Extra-flat version. Height 51 mm. Base plate 158 mm x 230 mm.

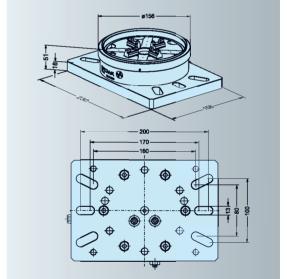
Connections On the side or at the rear with two lines.

With airgun on the side. With control unit through Operation

the two lines on the side or at the rear.

Information The borehole pattern of this plate fits 40mm and 50mm

T-slot distances.



#### ER-029422 PowerChuck P / R



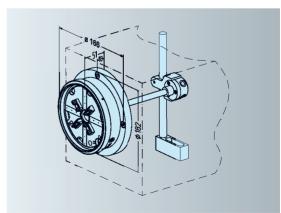


PowerChuck P with rotatable connection, Version

max. 50 rpm.

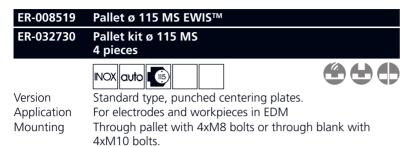
Two lines to the rotatable connection. Connections

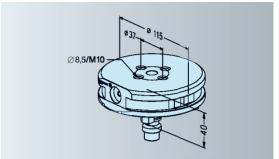
With control unit, manually and automatically. Operation For use on dividing heads and round tables. **Application** 



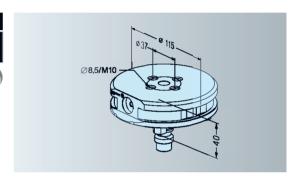
## EROWA PowerChuck P

# Workpiece carriers

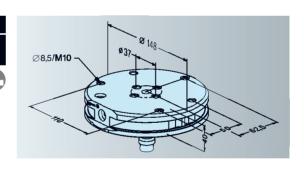




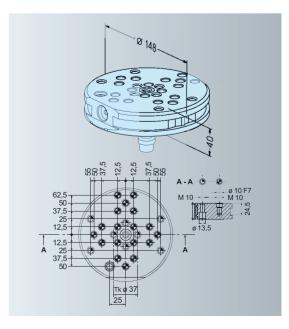
ER-008517	Pallet G ø 115 EWIS™
ER-032729	Pallet kit G ø 115 4 pieces
	NOX auto 6
Version	Standard type, ground centering plates.
Application	For electrodes and workpieces in EDM.
Mounting	Through pallet with 4xM8 bolts or through blank with
	4xM10 bolts.



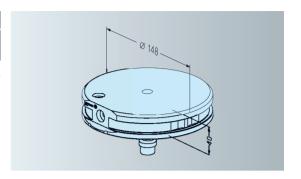
ER-015776	Pallet ø 148 MS EWIS™
ER-032731	Pallet kit ø 148 MS 4 pieces
	INOX auto (49)
Version	Standard type, punched centering plates.
Application	For electrodes and workpieces, and for the construction of fixtures.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.



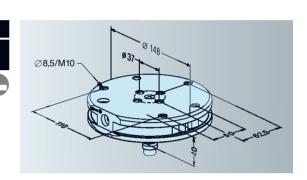
ER-015042	Pallet ø 148 MS ALU R25
ER-033051	Pallet Kit ø 148 MS ALU R25 4 pieces
	auto 48
Version	Body of casted aluminum with borehole pattern 25, ø 10 F7, thread M10.
Application	Palletizing of workpieces and electrodes, mounting of fixtures and ClampSet Base 220.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.



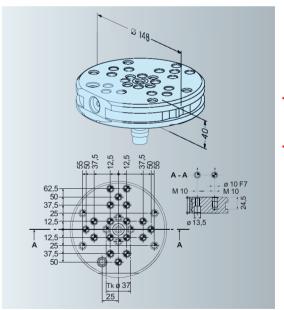
ER-032699	Pallet ø 148 G
ER-033048	Pallet Kit ø 148 G 4 pieces
	INOX auto 4
Version	Without bore holes apart from center borehole and borehole for reference bolt.
Application Mounting	For work pieces machined in chip-cutting machining. According to your preference.



ER-015777	Pallet ø 148 G EWIS™
ER-032732	Pallet kit G ø 148 EWIS™ 4 pieces
	NOX auto 8
Version	Standard type, ground centering plates.
Application	To accommodate workpieces and fixtures in chip-cutting machining processes.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.



ER-015899	Pallet ø 148 G R25
ER-033053	Pallet Kit ø 148 G R25 4 pieces
	auto 48
Version	Steel, nitride coated, with borehole pattern 25, ø 10 F7, thread M10.
Application	To accommodate EROWA ClampSet Base 220 or specially constructed fixtures and gauges.

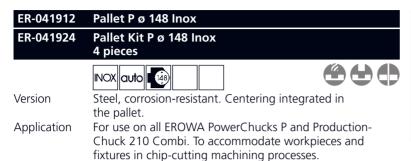


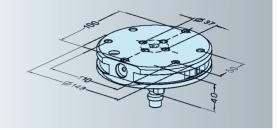
Mounting

bolts.

## **EROWA PowerChuck P**

# Workpiece carriers







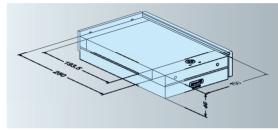
Through pallet with M8 bolts or through blank with M10

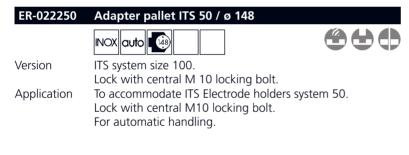
Version Magnetic clamping plate of steel with M8 attachment

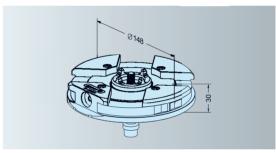
boreholes for ITS Pallet ø 148.

Application To clamp workpieces for surface and profile grinding,

WEDM and high-frequency milling.







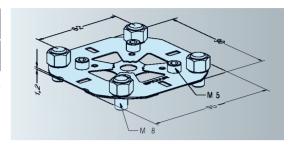
ER-050195	Centering plate 100 M8 1 unit
ER-011599	Centering plate 100 M8 10 pieces
	i NOX
Version	Corrosion-resistant, including 4 supporting feet M8 and 4 x M5 screws per plate.

Mounted directly on of blank plane surface of blank.

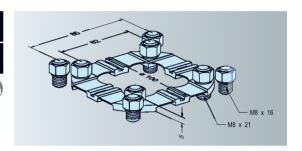
Workpieces and electrodes.

Application

Mounting



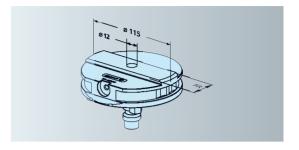
ER-036657	Centering plate G Inox 1 unit
ER-036658	Centering plate G Inox 5 pieces
Version	Ground including 8 supporting feet M8 per plate.
Application	For workpieces, jigs and fixtures in chip-removal machi-
	ning.
Mounting	According to accompanying fitting instructions.
_	- · · · - · ·



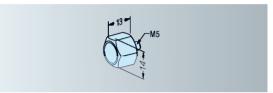
## **EROWA PowerChuck P**

# **Auxiliary Equipment**

# Version Pallet ø 115 Pallet ø 115 Pallet ø 115 mm, alignment length 110 mm, center borehole ø 12 mm. Application Alignment of radial, axial and angular position of ITS chucks, PowerChuck P and PC 210 Combi chucks.

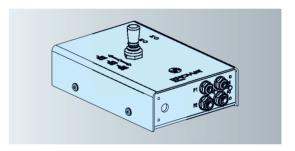




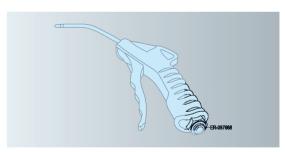


ER-008988	Manual control unit
	<b>&amp;</b>
Version	Manual valve to control all the functions of ITS, ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.
Application	Operation of chucks on machines.

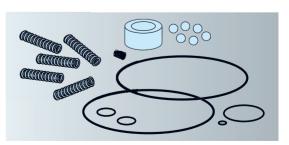
prepared for it.



ER-001846	Air jet
	990
Version	Plastic, smooth regulation of air flow, connection 1/4'', inside thread.
Application	Operation of manual chucks.
Option	Volume and pressure reduction to air jet (ER-087668). Pressure build up is reduced if Air Jet is not pushed against an air valve.



ER-015962	Repair kit PowerChuck P	
	<b>64</b> 0	
Version	All the wear parts of PowerChuck P.	
Application	Dismantle chuck according to instructions supplied, replace parts.	
Please note	Every chuck is supplied with instructions. Please keep in a safe place.	



#### ER-035365 Sealing ring PowerChuck P ø 72

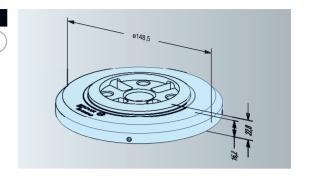




Version Aluminium anodized.

Application Prevents penetration of chips and dirt into the Power-

Chuck P by application of EROWA Holders ø 72.



#### Sealing ring for holder 72 PowerChuck P ER-055761



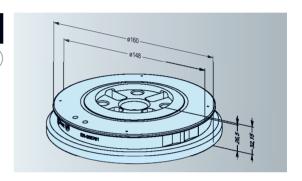




Version Rust-resistant steel

Application Prevents penetration of chips and dirt into the Power-

Chuck P by application of EROWA Holders 72.



#### ER-038918 Sealing ring PowerChuck P / ø 85

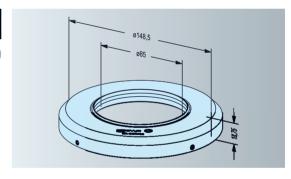




Version Aluminium anodized.

Application Prevents penetration of chips and dirt into the

PowerChuck P by application of EROWA pallets PM85.



#### ER-092203 Sealing ring ITS 50 C for PowerChuck P manual

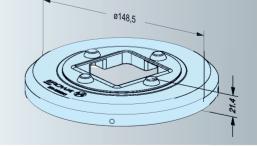


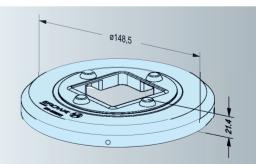




Application Prevents penetration of chips and dirt into the Power-

Chuck P by application of EROWA electrode holders C.





## **EROWA PowerChuck P**

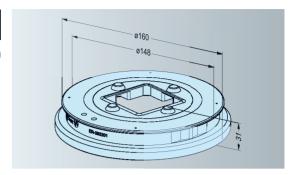
# Auxiliary Equipment



Version Rust-resistant steel

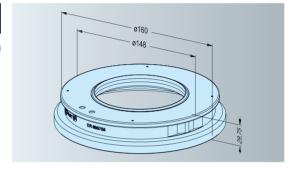
Application Prevents penetration of chips and dirt into the PowerChuck P

during machining with EROWA electrode holders C.

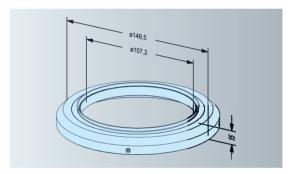


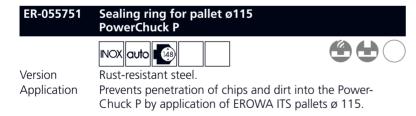
# Version Application Prevents penetration of chips and dirt into the

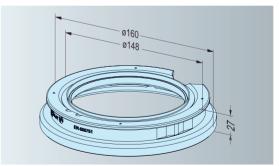
PowerChuck P by application of EROWA pallets PM85.



# Version Application Application Application Application Application Chuck P by application of EROWA ITS pallets Ø 115.







#### ER-016131 Sealing ring holder ø 148





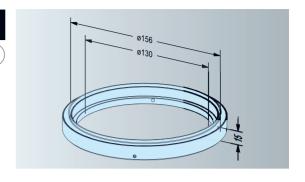
Version

Steel black oxide coated.

Application Prevents penetration of chips and dirt into the

PowerChuck P by application of EROWA ITS

pallets ø 148.



## Sealing ring for pallet ø148 PowerChuck P ER-054219



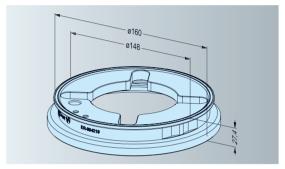




Version

Rust-resistant steel.

Prevents penetration of chips and dirt into the Power-**Application** Chuck P by application of EROWA ITS pallets ø 148.



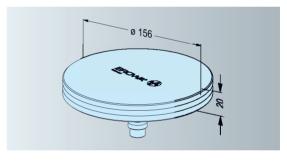
#### ER-008972 **Cover for PowerChuck P**





Version Application Aluminum. Without centering plate and supports. Protects the PowerChuck P from chips and cooling water

when not in use.



#### Cover to PowerChuck P ER-055763



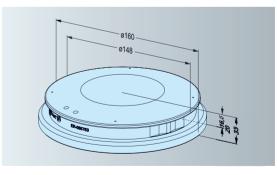




Version Application Rust-resistant steel.

Prevents penetration of chips and dirt into the

PowerChuck P. For automatic handling.





# Secure and flexible clamping

For producing workpieces as completely as possible and economically, 5-sided machining in one setup offers great benefits. The downtimes are significantly reduced and errors during reclamping are avoided.

The EROWA Self Centering Vise is the precise and flexible interface between the workpiece and the machine.



- The pallet and vise body of the selfcentering vise are made of one piece.
   But, the center of the vise can still be adjusted.
- The entire body of the self-centering vise is manufactured from rust-resistant hardened steel.
- In addition, the slide and the spindle have a high-tech coating and are wear-free.
- The spindle is sealed and protected against contamination.
- Wide selection of jaws.
- Two different sizes (85 + 148).
- Depending on size, the EROWA selfcentering vise is also available with an integrated EROWA G pallet or without a pallet for direct mounting on an EROWA pallet or machine table.

### **Applications**

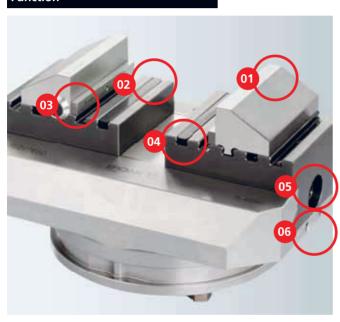
### Handling





Manual / Loading facility / Robot

#### **Function**



#### 01 | Jaws

Various types of jaws can be changed quickly without tools

#### 02 | Dirt covers

Dirt covers for grid grooves and highprecision spindle

## 03 | Pads

Various pads

#### 04 | Grid

15 mm grid for jaw positioning

#### 05 | Operation

Double-sided clamping and unclamping

#### 06 | Center

Center adjustment

### **Technical Data - Self Centering Vise**

	Self Centering Vise 148	Self Centering Vise 85
Clamping force at 60 Nm	19,000 N	
Clamping force at 35 Nm		14,000 N
Repeatability	0.01 mm	0.01 mm
Clamping stroke of spindle	30 mm	30 mm
Opening width	5-155 mm	5-95 mm
Contact spacing of jaw positioning	15 mm	15 mm
Clamping mechanism	maintenance-free	maintenance-free
Material	hardened, rust-resistant	hardened, rust-proof
Compatibility with EROWA tooling (depending on model)	ITS, PowerChuck P, PC210 Combi, MTS Single Chuck	ITS, PowerChuck P, PM85
Options	- different jaws,	- different jaws,
	- dust cover for profiles	<ul> <li>dust cover for profiles</li> </ul>
	- pads in various heights	- pads in various heights
	- clamping pin for ITS or MTS	- clamping pin for ITS
	- torque wrench	- torque wrench

## EROWA Self Centering Vise in action

# Precise and protected clamping

Wherever good access, high holding power and variable clamping is required, the self-centering vise is the first choice.

#### **CHANGE WITH SYSTEM**

Replacing jaws without tools.







All moving parts of the self centering vise are protected.



Also suitable for heavy cutting operations: The Self Centering Vise 148 holds workpieces in position with 19,000 N. Selecting the appropriate jaws adds even more stability.



The grooves are protected by covers against pollution.



Simple means fast – changing jaws in no time and without any tools.



Securely clamped and well accessible from all sides.



No matter how many chips, the Self Centering Vise remains clean at crucial points such as the spindle and guides.



The Self Centering Vise 148 is made of rust-resistant material. All components are hardened. Highly stressed parts are specially surface-coated for increased durability.





A few manual steps – and the workpiece is positioned in the Self Centering Vise.



Wholly made of one piece. Self Centering Vise P 148 with utmost stability.



The SlipStop® surface prevents unhardened workpieces from slipping. The holding force is more than doubled.

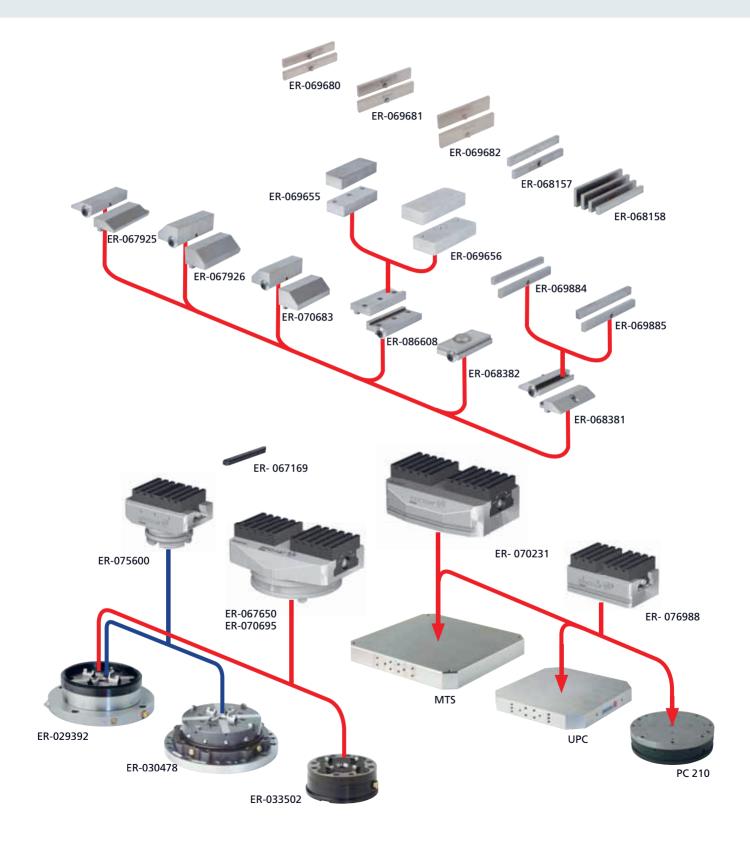


Despite its small and compact design, the Self Centering Vise 85 P is also ideally suitable for clamping large workpieces.



The Self Centering Vises fit perfectly in the magazines of EROWA robots. Contact us for more information on EROWA automation solutions.

## The components



Self Centering Vise

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



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FROWA	SELE	( FNIFR	

Self Centering Vise	132
Self Centering Vise auxiliary equipment	133



For chip-removing processes



For EDM sinking



For WEDM

# Self Centering Vise

	Self Centering Vise 148	Self Centering Vise 85
Clamping force at 60 Nm (35 Nm by Typ 85)	19,000 N	14,000 N
Repeatability	0.01 mm	0.01 mm
Clamping stroke of spindle	30 mm	30 mm
Opening width	5-155 mm	5-95 mm
Contact spacing of jaw positioning	15 mm	15 mm

44

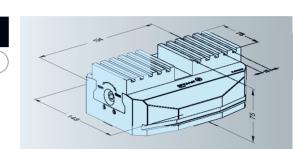
#### ER-070231 **Self Centering Vise 148** without pallet

Self-Centering Vise 148, including lateral stop.

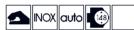
Various jaws, torque wrenches etc. Accessories

To clamp workpieces. Mounting on pallets. Application

Mounting directly on the machine table.



#### Self Centering Vise 148 P ER-067650



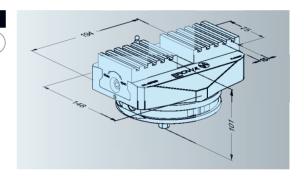


Version Chucking spigot F/M Production ER-010742 or MTS Optional

chucking spigot P ER-040999. Various jaws, torque wrenches etc.

To clamp workpieces. For use on PC 210 Combi, Application

PowerChuck P, MTS SingleChuck.



#### ER-070695 **Self Centering Vise 148 G**





Self-Centering Vise 148 G, including lateral stop. Version Chucking spigot F/M Production ER-010742. Optional Accessories Various jaws, torque wrenches etc.

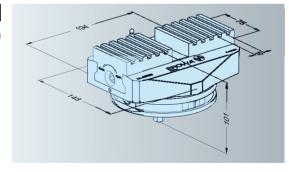
optional **Application** 

Accessories

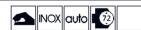
Version

To clamp workpieces. For use on PC 210 Combi,

PowerChuck P & F, UPC with ITS.



#### ER-075600 **Self Centering Vise 85 P**





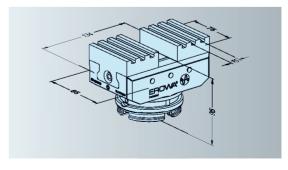
Stainless material, hardened and ground. Pallet fully Version

integrated.

Application On milling and grinding machines.

Compatible with EROWA tooling systems: ITS, PM85, Note

PowerChuck P.

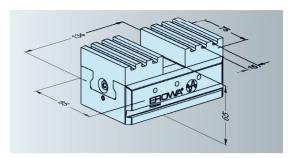


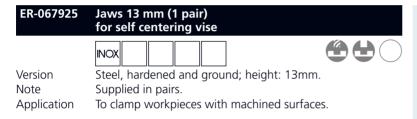
## Auxiliary equipment

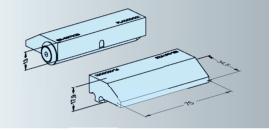
Version
Accessories
Application

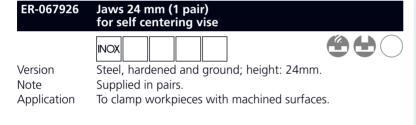
Self Centering Vise 85
without pallet

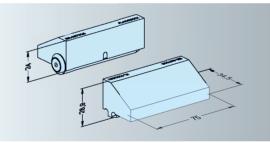
Stainless material, hardened and ground.
Various jaws, torque wrenches etc.
To clamp workpieces. To be mounted on pallets or directly on the machine table.



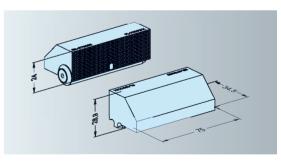


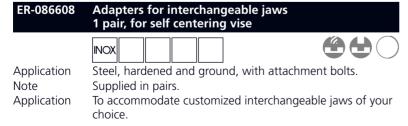


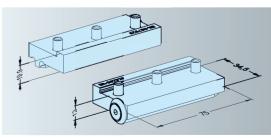




	EN-0/0003	for self centering vise
		NOX
\	/ersion	Steel, hardened and ground; height: 24mm; with grip contours.
-	Note Application	Supplied in pairs. Ideal to clamp unhardened workpieces.







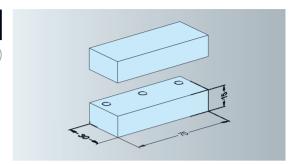
# Auxiliary equipment

#### ER-069655 Interchangeable jaws steel unhardened 1 pair, to fit adapter ER-086608

Version Steel, unhardened, dimensions: 75 x 30 x 15 mm, including attachment boreholes, fully prepared.

Note To fit adapter ER-067929.

To produce jaws with contours of your choice. Application



#### ER-069656 Interchangeable jaws Alu 1 pair, to adapter ER-086608

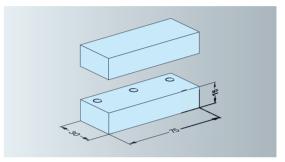


Version Aluminum, dimensions: 75 x 30 x 15 mm, including

attachment boreholes, fully prepared.

Note To fit adapter ER-067929.

Application To produce jaws with contours of your choice.

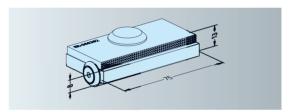


#### ER-068382 Pendulum jaw 1 piece, for self centering vise Hardened ground jaw with pendulum compensation for Version oblique workpieces.

To clamp workpieces with oblique outer surfaces.

To fit Insert.

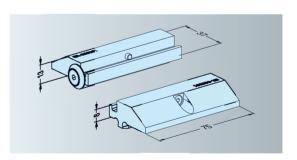
**Application** 



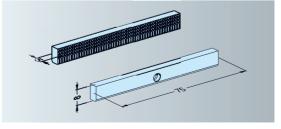
ER-068381	Adapter 5 mm for SlipStop® jaw inserts 1 pair, for self centering vise		
Version	Steel, hardened and ground. With fixing screw for inserts,		
	clamping height 5 mm.		
Note	Delivered in pairs.		

To accomodate SlipStop® inserts ER-069884 and Application

ER-069885.









INOX

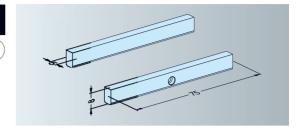


Version Steel hardened and ground.

Note Delivered in pairs.

Application Suitable for Adapter ER-068381. Ideal for the clamping

of ground workpieces.



## ER-068157 Spacers 8 mm, 1 pair for self Centering vise







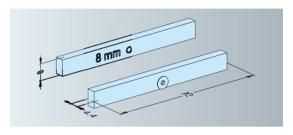
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



## ER-069680 Support 12 mm mounted self centering vise







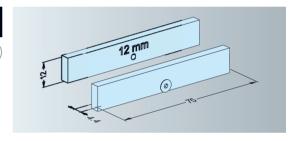
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



## ER-069681 Support 16 mm mounted self centering vise







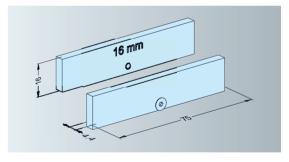
Version 1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

To fit Insert in the jaws, the insert jaws with the supports into

the profile.



## ER-069682 Support 20mm mounted Self Centering vise





Version

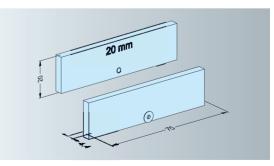
1 pair of hardened, ground supports.

Application For the optimal positioning of workpieces at the correct

height on the self-centering vise.

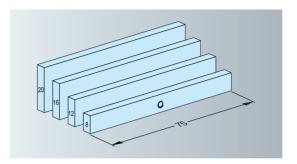
To fit Insert in the jaws, the insert jaws with the supports into

the profile.



# Auxiliary equipment

ER-068158 Spacer set (4 pairs) for self centering vise Version Set of ground supports, heights 8, 12, 16 and 20 mm. Application Support for the height positioning of workpieces. Insert the support into the groove of the jaw with the Mounting help of the holding device.

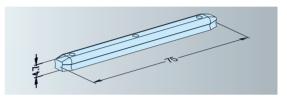


## ER-067169 **Chip cover** for self centering vise Version 1 plastic cover.

Application To protect the empty profile inserts at the base of the self-centering vise.

To fit Insert.

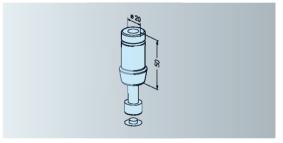
Important

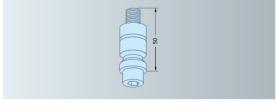


#### ER-040999 MTS chucking spigot P Version One chucking spigot, including attachment bolt and protective cap. For the conversion of ITS pallet ø 148 ER-041912 into Application MTS pallet P ø 148 ER-041928.



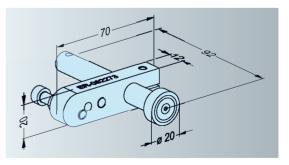
Fixed type, manual. Bolt 12.9, without flushing hole. Version In pallets for chip-cutting machining processes. Application





ER-082273	Magnetic stop CleverClamp
Version Application	Stop made of anodized aluminum.  Magnetic stop used for positioning workpieces in vises.

Remove the magnetic stop before machining the part.

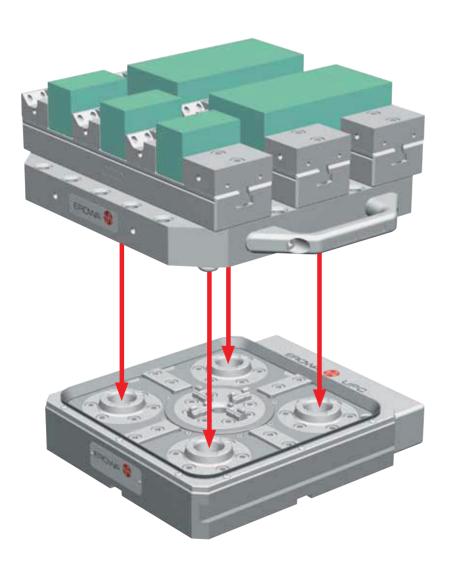


## **EROWA ClampSet**

# For universal use and high precision

EROWA ClampSet is the modular system for the precise clamping of workpieces. It can be universally used throughout the EROWA manufacturing concept.

The base rails and clamping elements have been produced in accordance with the highest standards and enable operators to position workpieces with a high degree of precision. ClampSet is optimally suitable for the high precision requirements in tool- and mold-making.



- The ClampSet offers enormous flexibility. A great number of various precise clamping elements are available.
- It serves to clamp both machined workpieces and blanks.
- A variety of jaws enable many different workpiece forms to be clamped.
- A maximum clamping range of 225 mm also provides room for large workpieces.
- Workpieces are set up and preset outside the machine; this makes for an optimal use of time and cuts costs.
- Once the ClampSet has been palletized, it is immediately suitable for the automatic loading of machines.

## **Applications**

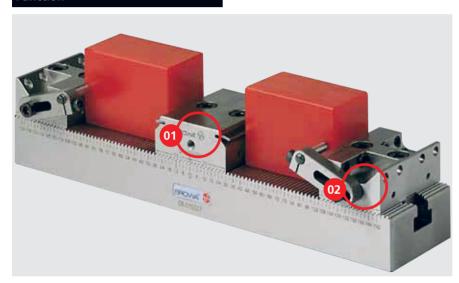
## Handling





Manual / Loading facility / Robot

### **Function**



### 01 | ClampSet Block N

the pull-down jaw in combination with the ClampSet Standard Block offers the ideal pull-down effect.

#### 02 | ClampSet Stop

the lateral stop can be attached to any ClampSet jaw.

## **Technical data - ClampSet**

	ClampSet Base 220	ClampSet Base 320
Clamping range	max. 126 mm	max. 225 mm
Material	steel, hardened, ground	



## EROWA ClampSet in action

# Modular, flexible, precise

Whether it's drilling, milling, grinding or EDM, ClampSet will reduce set-up times.

#### FLEXIBLE

Can be used vertically and horizontally.

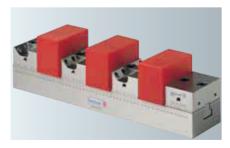




#### 03 | Standard Block

The Standard Block with 4 ball pressure bolts at an angle of 3° to the base surface for an optimal pull-down function.

Base 220, ClampSet Standard Block and ClampSet Block F (hard jaw) to clamp blanks.



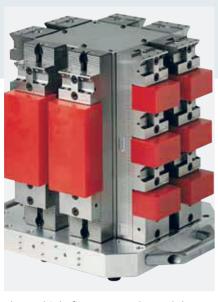
Base 320 with 3 ClampSet Standard Blocks and Block F for multiple fixtures.



A fixture with Base 220 on an ITS pallet ø 148 mm.



ClampSet vise on ITS pallet. Positioning to  $\mu$ -accuracy and ready for use within seconds.



The multiple fixture on Cube and the UPC pallet for horizontal machining.



04 | ClampSet Slide ClampSet Slide; the precision clamping jaw for multiple clamping.

Base 220, ClampSet Slide and Block F to clamp machined parts (grinding vise).





jaw to clamp various cylindrical parts, both horizontally and vertically.



Base 220, ClampSet Slide and prismatic



05 | Support N Support N; to clamp flat, low work-Base 220, ClampSet Slide, Block F and Support N (in two parts).





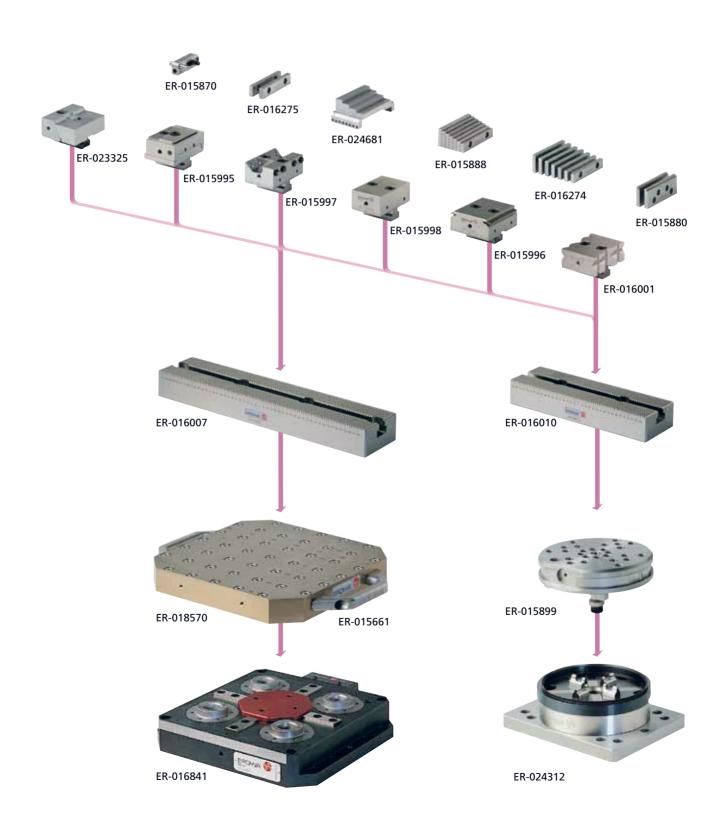
ClampSet also for long and big workpieces.



## EROWA ClampSet

# Clamping elements

## The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



## **EROWA CLAMPSET CLAMPING ELEMENTS**

ClampSet	Technical data	144
ClampSet	Base	146
ClampSet	Clamping elements	147



For chip-removing processes



For EDM sinking



For WEDM

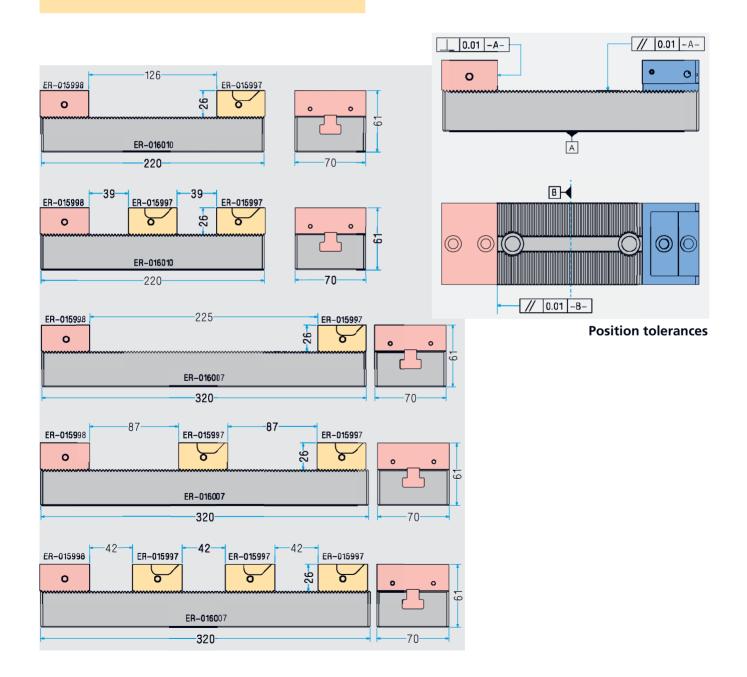
## **EROWA ClampSet**

# clamping elements

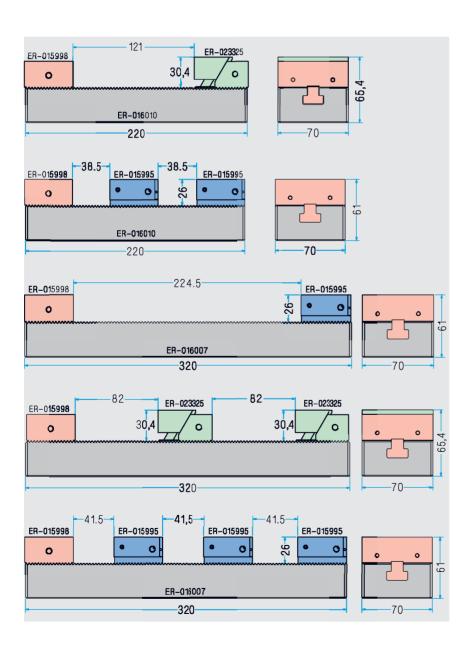
#### **Application ClampSet Standard block** ER-015997 ClampSet Standard block ER-015998 ClampSet Block F ER-016010 ClampSet Base 220 ER-016007 ClampSet Base 320 ClampSet Standardblock Clamping power in kg ±10% Number of at a torque of ball-pressure bolts 5 Nm 10 Nm 15 Nm 2 900 1750 2500 1450 2750 3900

For the sake of clamping precision and safety, it is very important to tighten the bolts with a torque wrench.

Data given are guiding values, which may be impaired by dirt and other environmental influences.



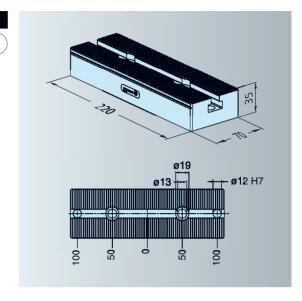
Application ClampSet Slide / Jaw			
ER-015995	ClampSet Slide		
ER-023325	ClampSet Jaw		
ER-015998	ClampSet Block F		
ER-016010	ClampSet Base 220		
ER-016007	ClampSet Base 320		
	Clamping power in kg ±10% at a torque of		
	5 Nm 10 Nm 15 Nm 20 Nm		
ClampSet Slide	250 500 750 1000		
ClampSet Jaw	300 600 900 1200		



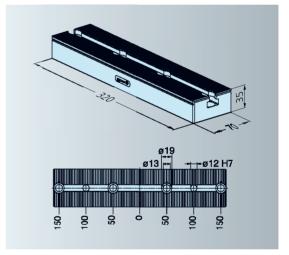
### EROWA ClampSet

### Base

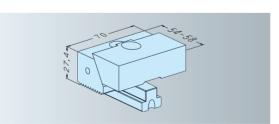
# Version Steel, hardened, ground. Clamping element carrier with 3 mm positioning grid. Application On ITS pallets 148 with 25 mm grid and on UPC pallets with 50 mm grid, as a base for the various ClampSet clamping jaws. Mounting On all EROWA grid pallets. R40 subject to consultation.



ER-016007	ClampSet base 320
Version	Steel, hardened, ground. Clamping element carrier with 3 mm positioning grid.
Application	On UPC grid pallets R50 or Cube R50, as a base for the various ClampSet clamping jaws.
Mounting	On EROWA UPC and MTS grid pallets R50 or Cube R50.
Note	R40 subject to consultation.



ER-023325	ClampSet Jaw
Version	Steel, hardened, including tenon block for attachment.
Application	To clamp workpieces with machined surfaces.
Mounting Note	On ClampSet Base 320 or 220 with tenon block supplied. Favorably priced alternative to the Clamp Set Slide.
11010	The fixed stop side enables multiple fixtures.



### **EROWA ClampSet**

# Clamping elements

### ER-015995 ClampSet Slide



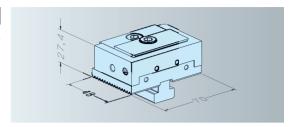


Version **Application** Mounting Note

Steel, hardened, incl. T-nut for fixation. To clamp workpieces with machined sides.

On ClampSet Base 320 or 220 with the T-nut supplied. Fixed stop side for the multiple fixture of machined workpieces. The precision clamping jaw in the ClampSet

system.



#### ER-015997 ClampSet standard block M8







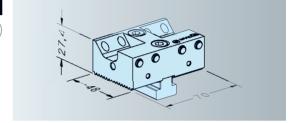


Version Application

Steel, hardened, incl. T-nut for attachment. The blanks are clamped with the M8 stud bolts. A clamping jaw in EROWA's modular vise system.

Mounting Note

On ClampSet Base 320 or 220 with the T-nut supplied. The fixed stop side allows for multiple fixtures.



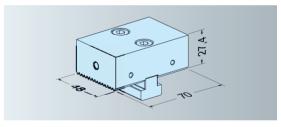
### ClampSet block F ER-015998





Version Application Mounting

Steel, hardened, incl. T-nut for attachment. Hard jaw in EROWA's modular vise system. On ClampSet 320 or 220 with the T-nut supplied.



### ER-015999 ClampSet block S

steel soft





Version

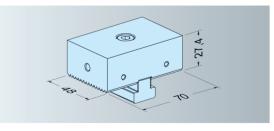
Steel, soft, incl. T-nut for attachment.

Application

The soft block serves to produce a workpiece-specific

Mounting

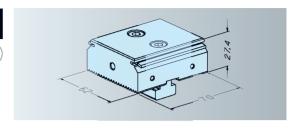
On ClampSet 320 or 220 with the T-nut supplied.



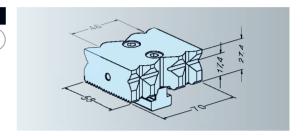
### **EROWA ClampSet**

# Clamping elements

ER-015996	ClampSet block N pull-down jaw
Version	Steel, hardened, incl. T-nut for attachment.
Application	To clamp blanks. Hard jaw in EROWA's modular vise system.
Mounting Note	On ClampSet 320 or 220 with the T-nut supplied. Pull-down function when clamping.



# Version Steel, hardened, incl. T-nut for attachment. Application To clamp round parts. Hard jaw in EROWA's modular vise system. Mounting On ClampSet 320 or 220 with the T-nut supplied.

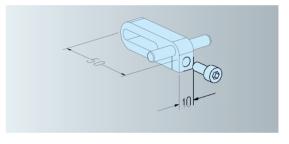


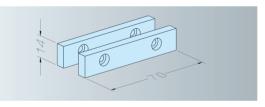
ER-015870	ClampSet Stop adjustable stop	
Version Application	Adjustable stop, steel. Lateral stop for every ClampSet element.	

Mounting Laterally to the relevant ClampSet block with the bolts supplied.

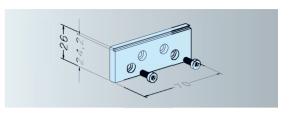




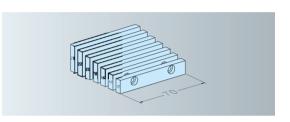




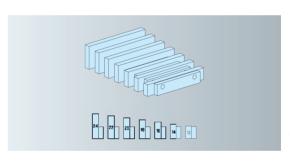
ER-015880	ClampSet Support N 1 pair
Version	Steel, hardened, ground, with bolts.
Application	Pull-down element for ClampSet Slide and ClampSet Block. To clamp workpieces of aluminum and non-ferrous heavy metal.
Mounting	To ClampSet Slide and ClampSet Block with the bolts supplied.
Note	Also suitable for clamping workpieces of low height.



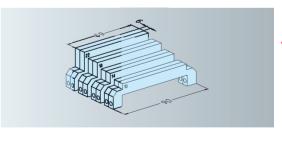




ER-016274	ClampSet support kit 7 parts, stepped
Version Application Mounting	Set of 7 ground, offset supports, with bolts. Supports for the height positioning of workpieces. To ClampSet Slide with the bolts supplied.

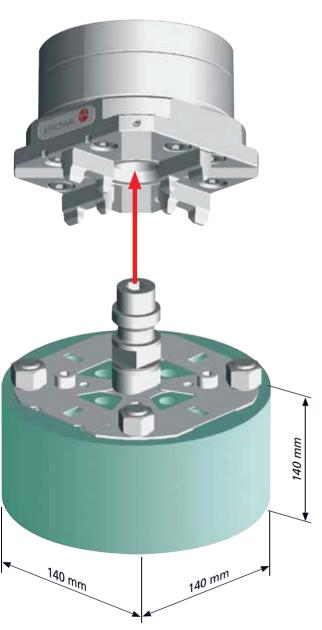




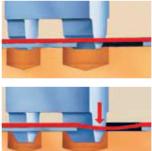


# Simple, practical, good

EROWA's ITS chuck operates on a principle that is as simple as it is ingenious. It holds both tools and workpieces with equal precision and with a high degree of repeatability. Its applications are so numerous that it forms the basis for a well thought-out modular tooling system.



- Tens of thousands of ITS chucks are in daily operation worldwide with their guaranteed 2-µm accuracy and with a reliability they have earned for themselves in practical working application.
- Integrated on milling, grinding and drilling machines, on EDM sinking and WEDM centers or on measuring and presetting stations, ITS helps us week after week to achieve a profitable use of production time.



The two pictures illustrate the ITS patent. After a rough precentering process, the reference position is only reached when the centering plate is flexed. Together with the contact points, this flexing action creates the stability of the frictional connection. This is how positioning accuracy is created between the flexible centering plate and the rigid centering prisms.

### ITS The (\*)riginal.

Nothing is copied as fast as a pioneering invention. But then a copy always lags behind the times. It won't be different with the next innovative idea. We will ensure that you continue to do well if you invest your money in originals. In originals by EROWA.

### **Applications**

### Handling

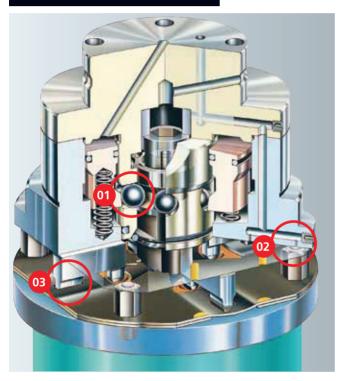
Manual / Loading facility / Robot







### **Function**







### 01 | Ball lock

The reliable clamping mechanism with the self-locking ball lock generates a clamping power of up to 7,000 N (NSF) and does not unlock even if the pressure fails.





### 02 | Cleaning

Experience shows that precision and dirt are do not go hand in hand. This is why the contact points of the support feet are cleaned with compressed air at the very moment of clamping. This also functions when the chuck is submerged in liquid.



### 03 | Precision

The second important effect: the flexing plate wipes off any dirt. Centering plate and prism only touch on one line. A small contact area also reduces the possibility of interference by chips and dirt particles.

Technical data - ITS chuck			
	ITS		

	ITS chuck, pneumatic
System sizes	50 and 100
Repeatability	0.002 mm
Indexing	4 x 90°
Clamping power	2,500 N - 7,000 N
Recommended workpiece sizes	up to 140 x 140 x 140 mm
Generated by	springs (+ 6 bar NSF chucks)
Opening	compressed air min. 6 bar
Operation	control unit or air jet

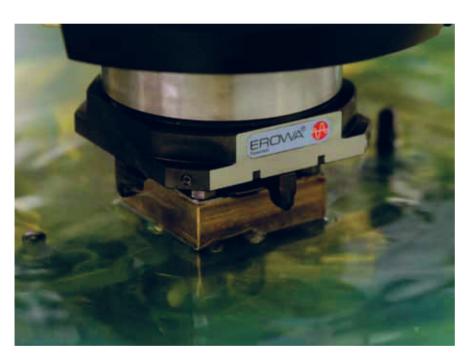
### EROWA ITS chuck in action

# A suitable version for each job

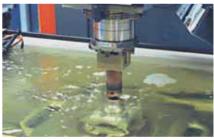
The applications of ITS chucks are as numerous as the jobs to be done in precision mechanics and in tool and mold manufacturing. This is why we offer such a diverse variety of chucks.

### SAVE TIME

Machine changes and inprocess-control without loss of time thanks to fixed reference position.

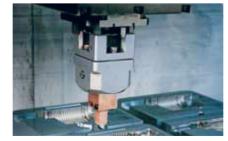






Precision and reliability in the tank and on the quill of the EDM machine.







ITS chucks can be used on all machines.



Ideally suitable for milling, drilling, grinding, turning . . .





Exploit marginal and night hours by loading EDM machines automatically: ITS provides you with the necessary prerequisites.



ITS chucks: Perfectly suited for integration in special fixtures.



The centering plate is fitted directly on to the electrode or the workpiece... ...which is then transferred to the ITS chuck at once!



Checking outside the machine: quick, simple, precise.



Loading machines with preset parts will increase your capacity.

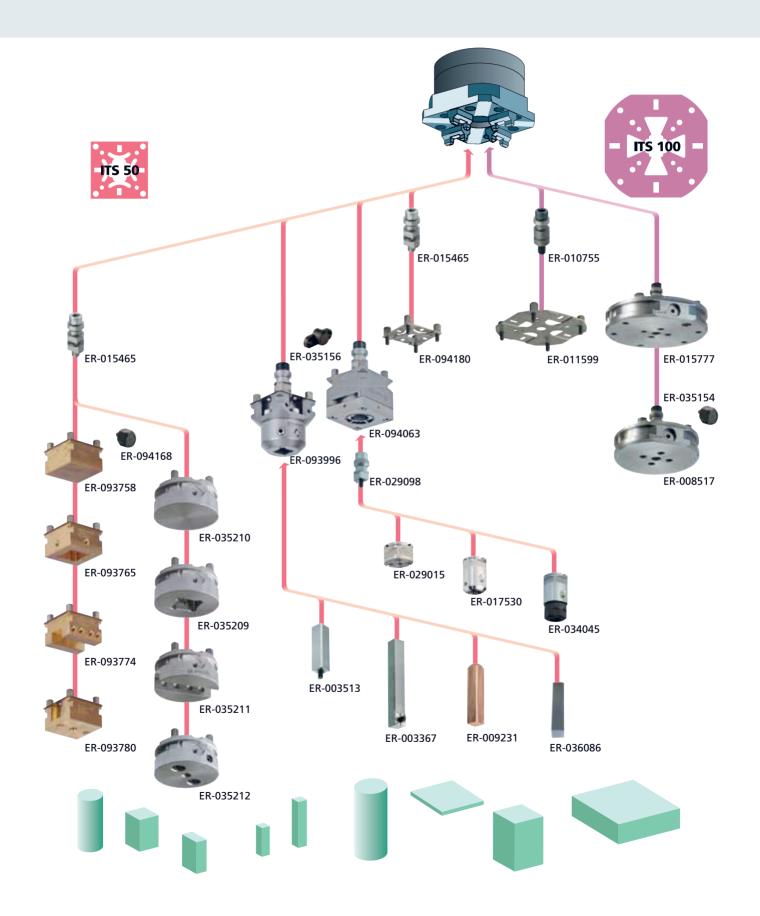


High degree of safety. The sealing plate of the EROWA ITS 50 holder C and the sealing ring constitute a form-fit seal. This provides the chuck with maximum protection against contamination.

### **EROWA ITS**

# Integrated tooling system

The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



### **EROWA ITS TOOLING SYSTEM**

EROWA ITS chucks	
ITS chucks - a survey	156
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For chip-removing processes

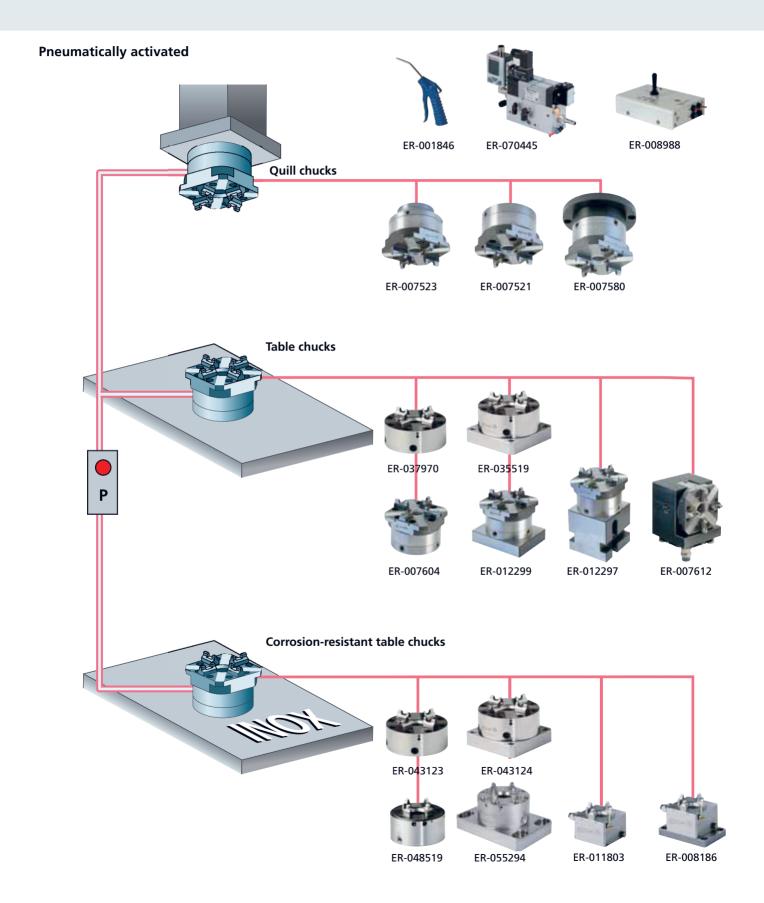


For EDM sinking

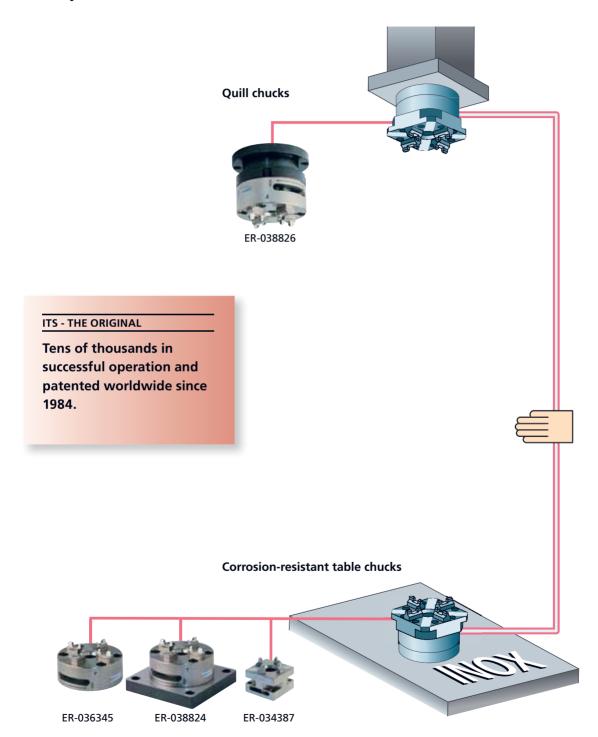


For WEDM

# ITS chucks



### Mechanically activated



Connections

Application

On back.

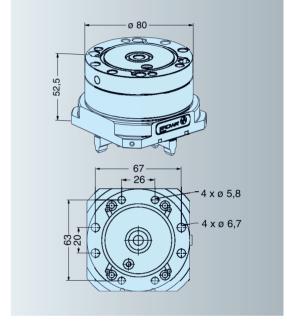
### **EROWA ITS chucks**

# pneumatic, quill

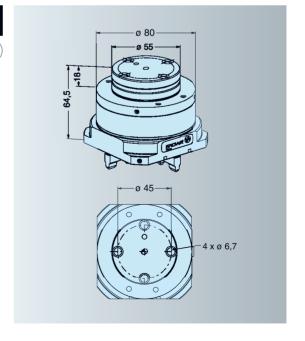
Technical data	Chuck	Chuck «NSF»
		(with reclamping)
Repeatability	0.002 mm	0.002 mm
Indexing	4 x 90°	4 x 90°
Generated by	springs	springs
Opening	min. 6 bar	min. 6 bar
Reclamp		min. 6 bar

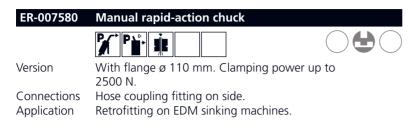
# Rapid-action chuck automatic Pipe auto Version Standard type. Clamping power up to 2500 N.

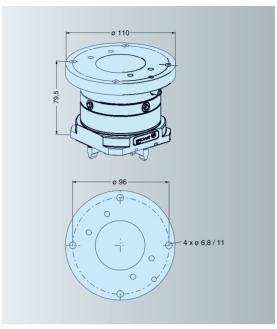
EDM sinking machines with automatic electrode change, machine tools with automatic loading, production lines.



ER-007523	Rapid-action chuck automatic with shoulder for flushing		
Version	Shoulder for flushing connection. Clamping power up to 2500 N.		
Connections Application	On back. EDM sinking machines with automatic electrode change.		







# pneumatic, table, able to automate

### ER-037970 ITS chuck 100 P without base plate





Version Clamping Steel, hardened. 6000 N.

power

At the rear, with two lines.

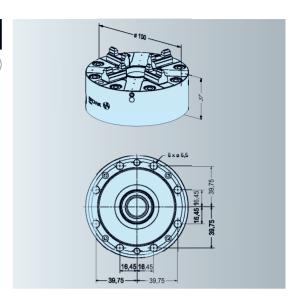
Connections
Operation

With control unit.

Application

For receiving pallets ø 115 / ø 148, electrode holders,

pallets PM56, PM60 and PM85 Precise.



### ER-035519 ITS chuck 100 P 102 x 102





Version Clamping Steel, hardened.

amping 6000 N.

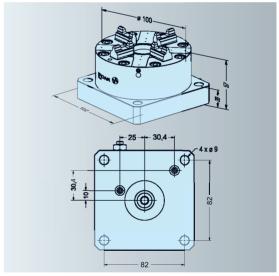
power Connections

On the side or at the rear, with two lines.

Operation With control unit or with air jet.

Application For receiving pallets ø 115 / ø 148, electrode holders,

pallets PM56, PM60 and PM85 Precise.



### ER-045076 ITS chuck 100 P 118 x 118





Version Clamping Steel, hardened.

6000 N.

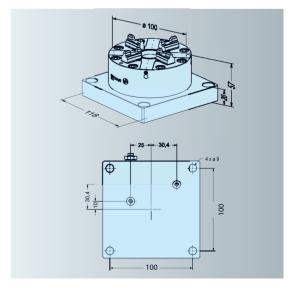
power

Connections Laterally or at the rear, with two lines.

Operation With control unit or compressed-air jet.

Application For receiving pallets ø 115 / ø 148, electrode holders,

pallets PM56, PM60 and PM85 Precise.



## pneumatic, table, manual

### ER-058250 ITS Chuck 100 P with base plate ø100





Version Clamping power

Steel, hardened, with P-profile.

6000 N.

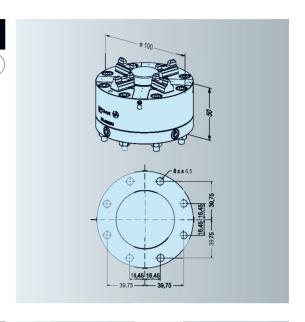
Connections Operation

Air valves, lateral. With air jet.

Application

To hold pallet ø 115 / ø 148 and pallets PM56, PM60,

PM85 Precise.



### ER-082885 **ITS Chuck 100 P Inox** with base plate ø 100

5000 N.









Version

Steel, stainless, hardened, with P-profile.

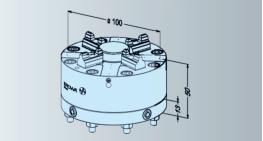
Clamping

power

Connections Air valves, lateral. Operation With air jet.

To hold pallet ø 115 / ø 148 and pallets PM56, PM60, Application

PM85 Precise.



### ER-007604 **Manual rapid-action chuck NSF**





Version Connections Application

NSF = increased clamping power up to 7000 N. Pneumatic valves on side, flushing on back.

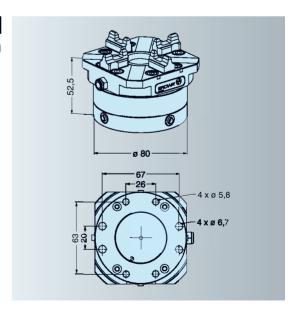
Electrode fabrication general.

Note

To clamp pallets of ø 115 / ø 148, ø 72 and electrode

holder 50.

Pallets with P centering system are excluded.



# pneumatic, table, manual

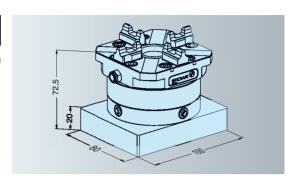
# ER-012299 Rapid-action chuck NSF on plate

Version NSF = increased clamping power up to 7000 N. Connections Pneumatic valves on side.

Application Electrode fabrication, e.g. on magnetic plate.

Note To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



### ER-012297 Rapid-action chuck NSF on block



NSF = increased clamping power up to 7000 N.

Connections Pneumatic valves on side.

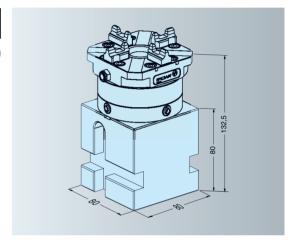
Version

Application Electrode fabrication. For use in horizontal and vertical

positions.

Note To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



### ER-007612 Rapid-action chuck NSF on angle plate





Version Standard type on type G angle plate.

NFS = increased clamping power up to 7000 N.

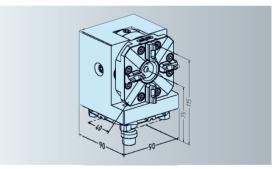
Connections Pneumatic valves on the side, flushing through

chucking spigot.

Application To produce electrodes, and on EDM quill.

Note To hold pallets ø 115 / ø 148, electrode holders, with the

exception of pallets with a P-profile.



# pneumatic, table, able to automate, INOX

### ER-043123 ITS chuck 100 P Inox without base plate



Steel, hardened, INOX.

Version Clamping

5000 N.

power

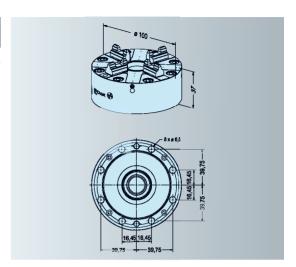
Connections

At the rear, with two lines.

Operation With control unit

To hold pallets ø 115 / ø 148, electrode holders and pallets Note

PM56, PM60 and PM85 Precise.



### ER-043124 ITS chuck 100 P Inox 102 x 102



Steel, hardened, INOX.

Version Clamping

5000 N.

power Connections

On the side or at the rear, with two lines.

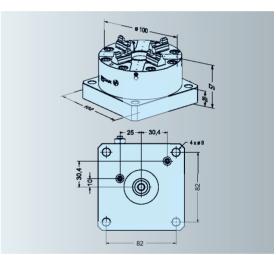
Operation With control unit or with air jet.

Application

To hold pallets ø 115 / ø 148, electrode holders and pallets

840

PM56, PM60 and PM85 Precise.



### ITS chuck 100 P Inox 118 x 118 ER-047743



Steel, hardened, stainless

Clamping 5,000 N

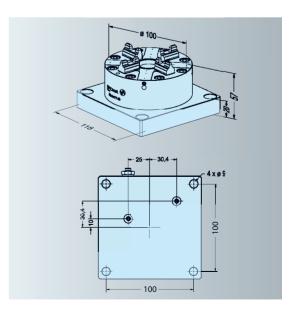
power

Version

Connections Laterally or at the rear, with two lines. Operation With control unit or with compressed-air jet.

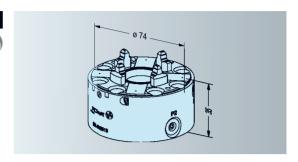
**Application** To hold pallets ø 115 / ø 148, electrode holders and pallets

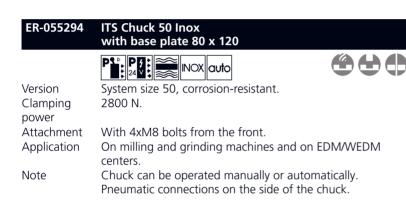
PM56, PM60 and PM85 Precise.

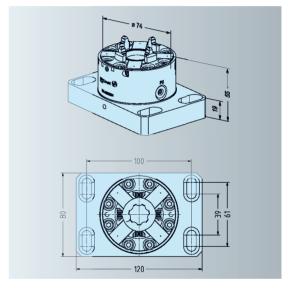


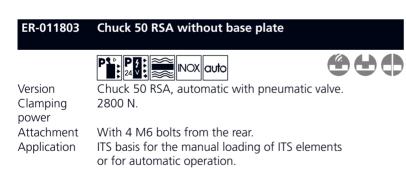
# pneumatic, table, able to automate, INOX

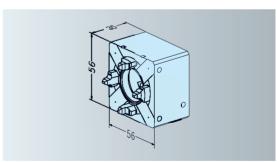
### ER-048519 ITS chuck 50 Inox 840 INOX auto System size 50, corrosion-resistant. Version 2800 N. Clamping power with 8 M5 bolts from the front. To be fitted Application For fixtures produced by users themselves. Chuck can be operated manually or automatically. Note Air connections laterally or at the rear.



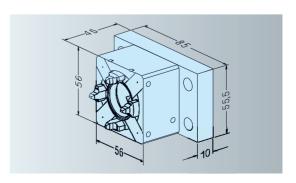








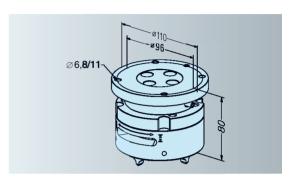
ER-008186	Chuck 50 RSA with base plate 10 x 55.5 x 85
	Pi 24 NOX auto
Version	Chuck 50 RSA, automatic, with pneumatic connection.
Clamping power	2800 N.
Application	ITS basis for the manual loading of ITS elements or for automatic operation.



# manual, quill

Technical data	ITS chuck, manual
Repeatability	0.002 mm
Indexing	4 x 90°
Operation/clamping	manually with clamping lever

ER-038826	QuickChuck 100 P / R
Version	On a ø 110 mm base plate with a rotatable flushing
	connection.
Attachment	With 4 x M6 bolts.
Application	On EDM centers with quill rotation.
Note	Clamping power: up to 10000 N.



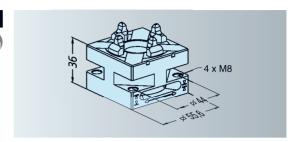


Note

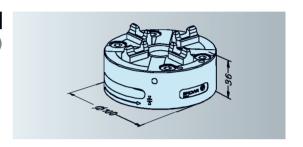
# manual, table, INOX

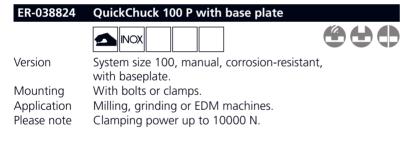
# Version Attachment Application QuickChuck 50 System size 50, manual, corrosion-resistant. 4 x M8 from the rear or 4 x M6 stud bolts with nuts. On EDM/WEDM centers for light milling and grinding work. Max. revolutions on rotating axes 200min<sup>1</sup>

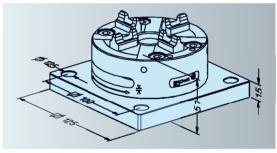
Clamping power up to 4000 N.



# Version Mounting Application Note QuickChuck 100 P System size 100, manual, corrosion-resistant. With four M8 bolts supplied. Turning, milling, grinding or EDM/WEDM machines, in dividers and fixtures. Clamping power up to 10000 Nm. max. 3000 rpm.



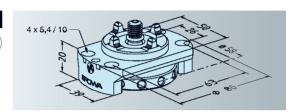




# ITS screw chucks manual

Technical data	ITS screw chuck, manual
Repeatability	0.002 mm
Indexing	4 x 90°
Operation/clamping	manually with locking bolt

ER-007697	Screw chuck 50 D
Version	Only 20 mm overall height. For holders of system size 50.
Connections Application	Central flushing possible. Small lathes, on tapers, flanges, jigs and fixtures.





### Accessories

### ER-019424 **Universal square block**



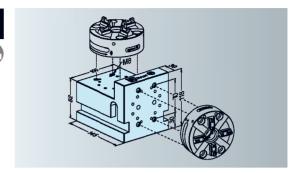


Version Steel, hardened, corrosion-resistant.

Application For attaching 1 or 2 chucks in horizontal and/or vertical

position. Fits ITS chucks, QuickChuck 50, QuickChuck 100.

Delivery without chucks. Note



### ER-032832 Sealing ring ITS chuck 50



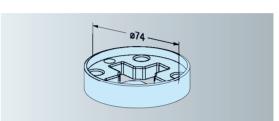






Prevents penetration of chips and dirt into the ITS Chuck 50 Application

by application of EROWA Holders ø 72.



### ER-034665 Cover ITS chuck 50







Prevents penetration of chips and dirt into the ITS Chuck Application

50 in combination with the seal ring ER-032832.



### ER-094955 Sealing ring ITS 50 C for chuck 50



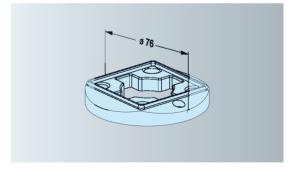






**Application** Prevents penetration of chips and dirt into the ITS Chuck

50 with application of EROWA HoldersITS50 C.



#### ER-094152 Sealing ring ITS50 C for ITS 100 P

manual





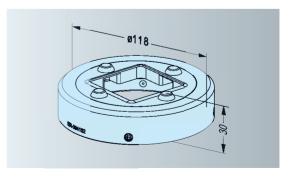




Prevents penetration of chips and dirt into the

QuickChuck 100 P or ITS chuck 100 P by application of

EROWA electrode holders C.



### ER-034735 Seal Rapid Action Chuck / ø 72

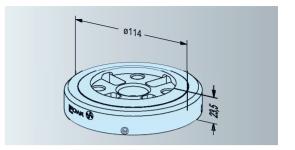




Version Aluminium anodized.

Prevents penetration of chips and dirt into the rapid action Application

chuck by application of EROWA Holders ø 72.



### ER-035356 Sealing ring QuickChuck 100 P ø 72





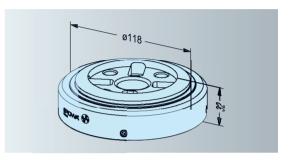


Version Aluminium anodized.

Prevents penetration of chips and dirt into the **Application** 

QuickChuck 100 P or ITS chuck 100 P by application of

EROWA Holders ø 72.



### ER-094112 Sealing ring ITS50 C for SSF manual





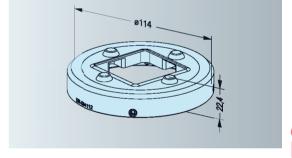




Version Aluminium anodized.

Application Prevents penetration of chips and dirt into the rapid action

chuck during machining of EROWA electrode holders C.



#### ER-046046 Chip guard ø 115

to QuickChuck 100 P / ITS Chuck 100 P

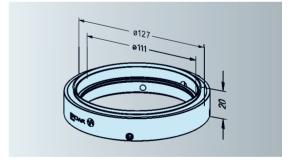


Aluminum, for pallets ø 115 mm. Version

Seals QuickChuck 100 P / ITS Chuck 100 P in use with **Application** 

pallets ø 115 mm against liquid and chips. Can be

combined with ER-029313.



### ER-046044 Chip guard ø 148

for QuickChuck 100 P / ITS Chuck 100 P

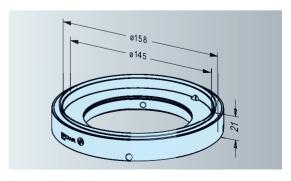


Version Aluminum, for pallets ø 148 mm.

Seals QuickChuck 100 P / ITS Chuck 100 P in use with Application

pallets ø 148 mm against liquid and chips. Can be

combined with ER-029313.



## Accessories

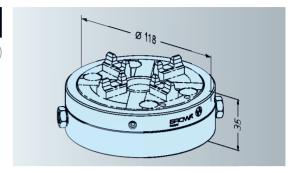
### Chip guard for QuickChuck 100 P ER-029313



Aluminum. Version

Application Seals the locking mechanism of the QuickChuck 100 P

against the penetration of liquids and chips.



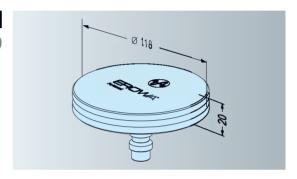
### Cover for rapid-action chuck ER-007618







Version Aluminum, without supports and centering plate. To protect rapid-action chucks against dirt. **Application** 



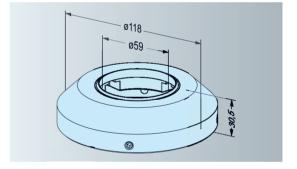
### ER-041374 Sealing ring PM56





Version Aluminum, for pallets PM56.

Application Prevents dirt from penetrating into ITS chuck 100 P.



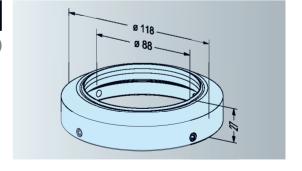
### ER-034677 Sealing ring ITS 100 P / ø 85











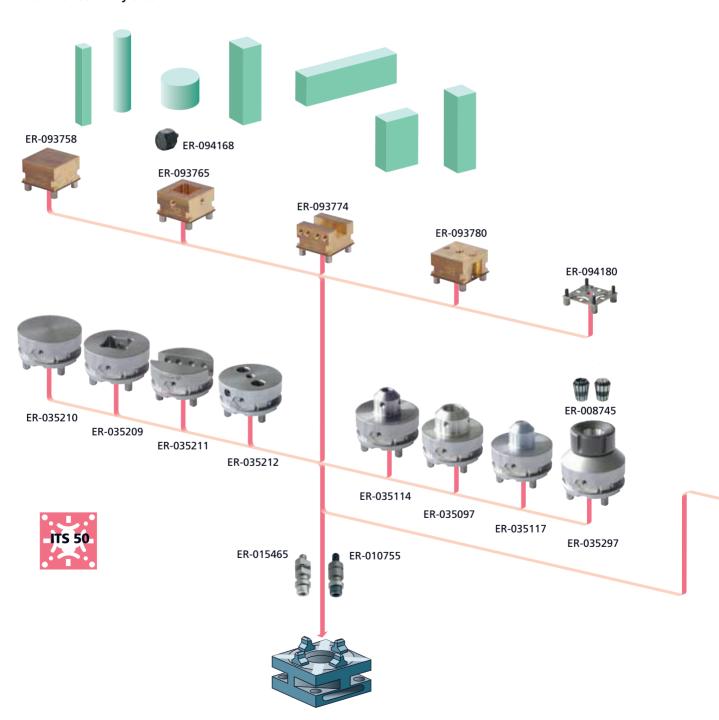


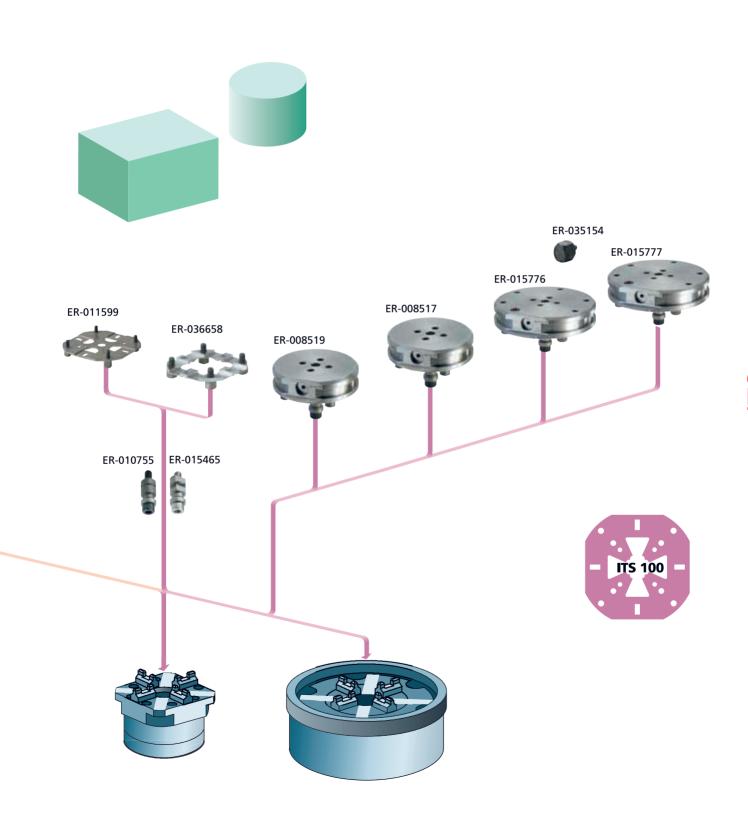
### **EROWA**

# ITS System carriers

### The components

Universality starts with the system carrier. Whether you use completely prepared electrode holders, pallets or the very economically priced centering plates, they all depend on the application. However, the workpiece will be ready for universal and flexible use in any case.



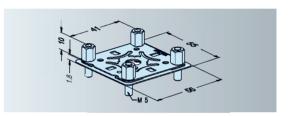


# ITS centering plates

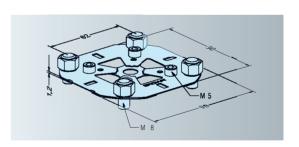
The centering plates are the most cost-effective base for clamping electrodes. They are mounted directly onto the blanks. This way, jigs and fixtures are also ITS compatible. The hole pattern for mounting is simply drilled into the blank with a drilling template, or by means of an NC program.

Technical data	ITS centering plates
Material	corrosion-resistant
System accuracy in chuck	0.002 mm
Versions:	
Centering plate 50	small electrode weights
Centering plate 100 M8	workpieces and electrodes
Centering plate G	workpieces, jigs and fixtures
	for chip-removal machining
Handling	with EROWA Handlingsystems
	or electrode changer.

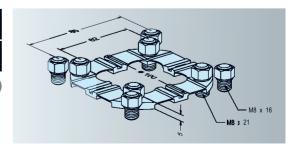
ER-094180	Centering plate 50 C 50 pieces
ER-094181	Centering plate 50C 5 pieces
Version	Corrosion-resistant, including sealing plate and 4 supporting feet each.
Application Mounting	Small electrode weights. Mounted directly on plane surface of blank.



ER-011599	Centering plate 100 M8 10 pieces	
ER-050195	Centering plate 100 M8 1 unit	
Version Application	Corrosion-resistant, including 4 supporting feet M8 and 4 x M5 screws per plate. Workpieces and electrodes.	
Mounting	Mounted directly on of blank plane surface of blank.	



ER-036658	Centering plate G Inox 5 pieces
ER-036657	Centering plate G lnox 1 unit
Version	Ground, including 8 supporting feet M8.
Application	For workpieces, jigs and fixtures in chip-removal machining.
Fixation of blank	According to accompanying fitting instructions.

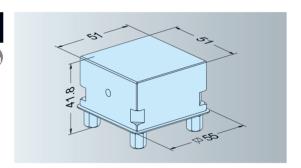


# ITS standard electrode holders

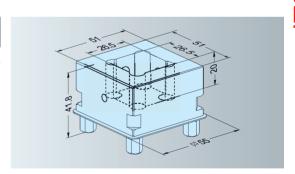
Standard electrode holders are used to contain electrodes for the entire machining cycle and for storage. Their economical unit price enables users to stock such holders in large quantities. The standard holders are supplied without chucking spigots.

Technical data	ITS standard electrode holders	
Material	body: brass centering plate: corrosion-resistant	
System accuracy in chuck	0.002 mm	
Recommended max. weight with electrode	20 kg / 44 lbs	
Handling	with EROWA Handlingsystems or electrode changer.	

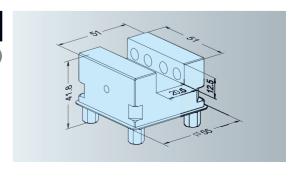
ER-093758	Uniblank C EWIS™ 12 pieces
	INOX auto 🚅 🖒
Version	Set of 12 units, fitted without machining of body. With gripper slot and sealing plate.
Application Mounting Note	To mount electrodes and workpieces of various shapes. As required. Order EWIS™ chip, ER-094168 separately.



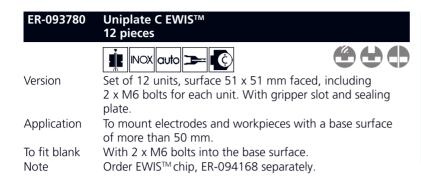
ER-093765	Prisround C EWIS™ 12 pieces
	NOX auto C
Version	Set of 12 units, with gripper slot and sealing plate.
	Prepared for receiving the code carrier.
Application	To mount blank parts with shaft size up to 25 mm
Mounting	Fit into recess and tighten bolts. If necessary center part with insert plates ER-010523.
Note	Order EWIS™, ER-094168 seperatly!

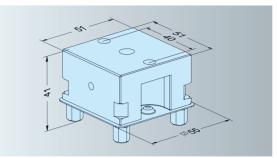


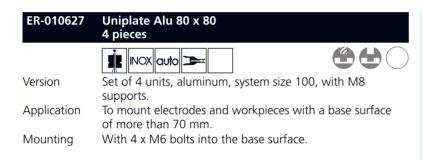
ER-093774	Uniholder C EWIS™ 12 pieces
	NOX auto C
Version	Set of 12 units, including 2 setscrews for each unit.
	With gripper slot and sealing plate.
Application	To mount electrodes and workpieces with a base surface
	of up to 20 mm.
Mounting	Insert and tighten setscrews. If necessary, center with
	spacer plate ER-010532.
Note	Order EWIS™ chip, ER-094168 separately!

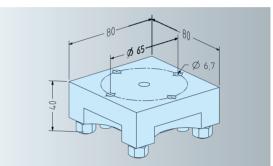


# ITS standard electrode holders







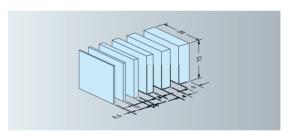


ER-010532	Spacer plate 300 pieces	
		<b>940</b>
Version	6 x 50 plates. Corrosion-resistant. Thicknesses from 0.5 mm to 5 mm.	

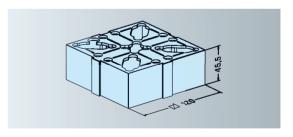
Centering of blanks in electrode holders.

Application

Application

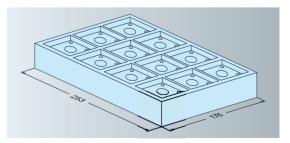


ER-013913	System stand 10 pieces
Version Application	Plastic, set of 10. As a rack for four electrode holders 50 or a pallet ø 115/148 mm.
Please note	System racks can be stuck together without any gaps, e. g. to be stored in drawers.



ER-011591	System stand 50 12-fold 10 pieces
Version	Set of 10 styrene stands

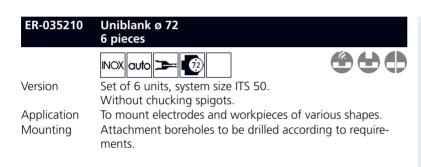
Storage and transport of electrode holders system size 50.

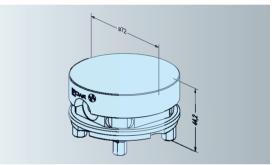


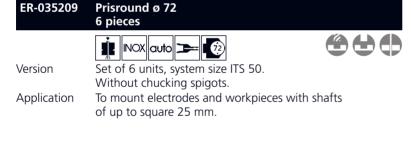
### Holder ø 72

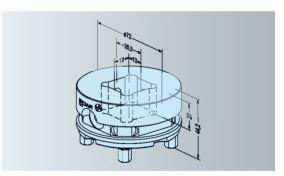
The EROWA holders ø 72 in combination with covers provides maximum protection against the contamination of table chucks. The holders are the optimal solution for automatic production.

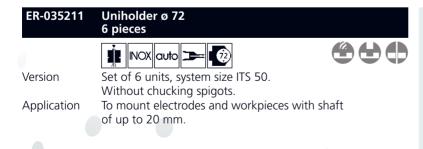
Technical data	EROWA Holder ø 72
Material	steel, corrosion-resistant
System accuracy, chuck	0.002 mm
Recommended max.	
weight with electrode	20 kg / 44 lbs
Handling	with EROWA handling systems
	or electrode changers.

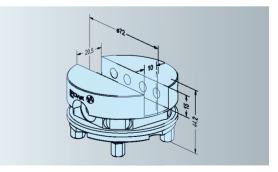












### Holder ø 72







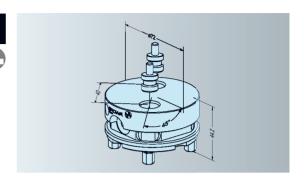
Version Set of 6 units, includes 12 PinLock locking pins. System

size ITS 50, without chucking spigots.

Application To mount electrodes and workpieces with surface more

than square 40 x 40 mm or ø 50 mm.

With two PinLock locking pins. Mounting



### Blank holder ø 10 / ø 72 ER-035114 6 pieces

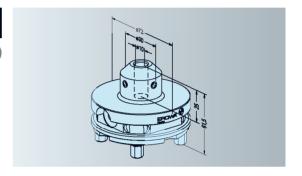




Set of 6 units, system size ITS 50. Version

Without chucking spigots.

To clamp cylindrical parts with ø 10 mm. Application



### ER-035097 Blank holder ø 20 / ø 72

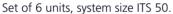
6 pieces

Version



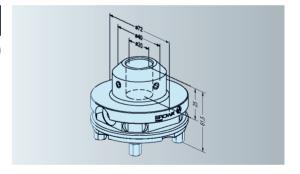






Without chucking spigots.

To clamp cylindrical parts with ø 20 mm. **Application** 



### ER-035117 Blank holder ø 72 without borehole 6 pieces





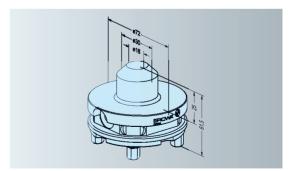


Version Set of 6 units, system size ITS 50.

Without chucking spigots. To clamp cylindrical parts.

Application Attachment borehole up to max. ø 12 mm to be drilled Mounting

according to requirements.



### ER-035297 Collet chuck holder ø 72



**Application** 





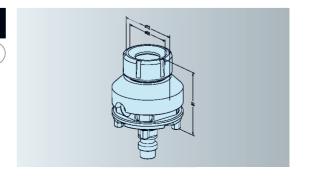
One collet chuck holder with chucking spigot. Version

System size ITS 50.

To clamp cylindrical parts.

Clamping range ø 2 mm - ø 20 mm.

Please note Order collet chucks type ETS 32 separately.





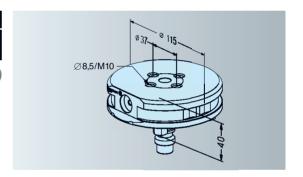
# ITS precision pallets

ITS precision pallets are workpiece and electrode carriers.

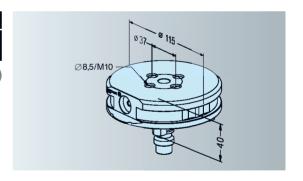
The pallets are prepared for automatic handling and to accommodate EWIS chips. Marginal and night hours are thus put to productive use.

Technical data	ITS precision pallets
Material	corrosion-resistant
System accuracy in chuck	0.002 mm
Run-out	< 0.01 mm
Variants	
Pallets MS	die cut centering plates
Pallets G	ground centering plates
Pallets P	Centering integrated in the pallet
Borehole pattern	standard, can be supplemented
Handling	with EROWA Handlingsystems
Unit supplied	pallet including chucking spigot

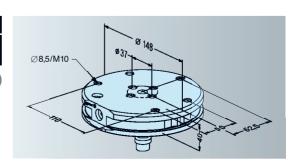
ER-008519	Pallet ø 115 MS EWIS™
ER-032730	Pallet kit ø 115 MS 4 pieces
	NOX auto 6
Version	Standard type, punched centering plates.
Application	For electrodes and workpieces in EDM
Mounting	Through pallet with 4xM8 bolts or through blank with 4xM10 bolts.

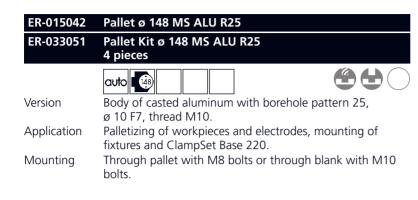


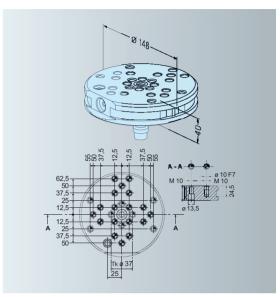
ER-008517	Pallet G ø 115 EWIS™
ER-032729	Pallet kit G ø 115 4 pieces
	INOX auto 6
Version	Standard type, ground centering plates.
Application	For electrodes and workpieces in EDM.
Mounting	Through pallet with 4xM8 bolts or through blank with
	4xM10 bolts.



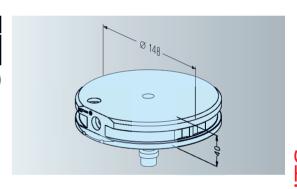
ER-015776	Pallet ø 148 MS EWIS™
ER-032731	Pallet kit ø 148 MS 4 pieces
	INOX auto 4
Version	Standard type, punched centering plates.
Application	For electrodes and workpieces, and for the construction of fixtures.
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.

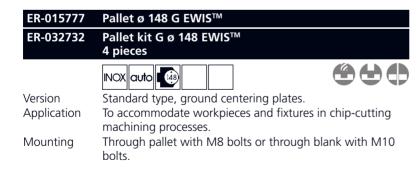


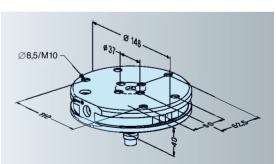




ER-032699	Pallet ø 148 G
ER-033048	Pallet Kit ø 148 G 4 pieces
	INOX auto 49
Version	Without bore holes apart from center borehole
	and borehole for reference bolt.
Application	For work pieces machined in chip-cutting machining.
Mounting	According to your preference.



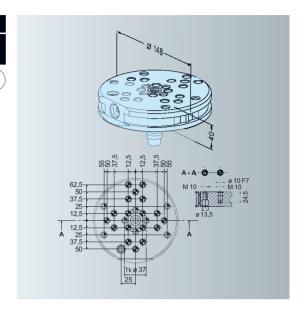




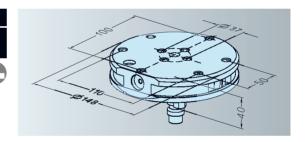
#### **EROWA ITS System carriers**

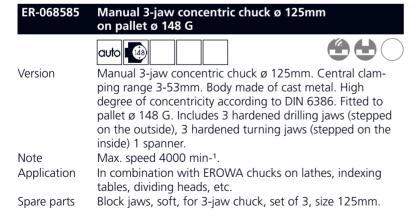
## ITS precision pallets

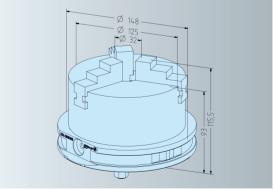
ER-015899	Pallet Ø 148 G R25
ER-033053	Pallet Kit ø 148 G R25 4 pieces
	auto 49
Version	Steel, nitride coated, with borehole pattern 25,
	ø 10 F7, thread M10.
Application	To accommodate EROWA ClampSet Base 220 or specially constructed fixtures and gauges.



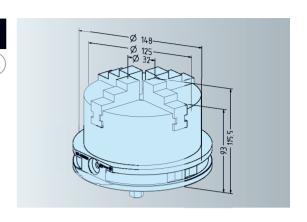
ER-041912	Pallet P ø 148 Inox		
ER-041924	Pallet Kit P ø 148 Inox 4 pieces		
	NOX auto 48		
Version	Steel, corrosion-resistant. Centering integrated in the pallet.		
Application	For use on all EROWA PowerChucks P and Production- Chuck 210 Combi. To accommodate workpieces and fixtures in chip-cutting machining processes.		
Mounting	Through pallet with M8 bolts or through blank with M10 bolts.		



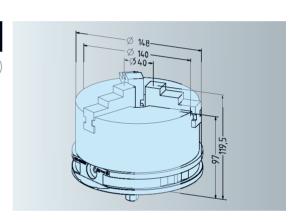


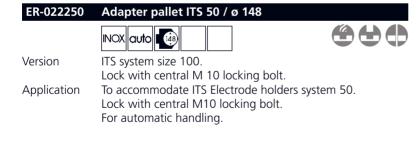


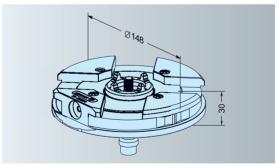
#### ER-068586 Manual 4-jaw concentric chuck ø 125mm on pallet ø 148 G auto 48 Version Manual 4-jaw concentric chuck ø 125mm. Central clamping range 3-53mm. Body made of cast metal. High degree of concentricity according to DIN 6386. Fitted to pallet ø 148 G. Includes 4 hardened drilling jaws (stepped on the outside), 4 hardened turning jaws (stepped on the inside), 1 spanner. Max. speed 4000 min-1. Note Application In combination with EROWA chucks on lathes, indexing tables, dividing heads, etc. Block jaws, soft, for 4-jaw chuck, set of 4, size 125mm. Spare parts



ER-068697	Manual 3-jaw concentric chuck ø 140mm on pallet ø 148 G
	auto 🕮
Version	Manual 3-jaw concentric chuck ø 140mm. Central clamping range 3-53mm. Body made of cast metal. High degree of concentricity according to DIN 6386. Fitted to pallet ø 148 G. Includes 3 hardened drilling jaws (stepped on the outside), 3 hardened turning jaws (stepped on the inside) 1 spanner.
Note	Max. speed 4000 min-1.
Application	In combination with EROWA chucks on lathes, indexing tables, dividing heads, etc.
Spare parts	Block jaws, soft, for 3-jaw chuck, set of 3, size 140mm.





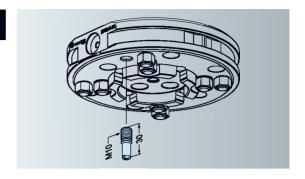


#### **EROWA ITS System carriers**

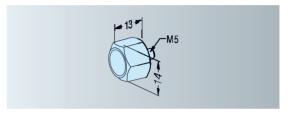
# ITS precision pallets

Version Set of 10 bolts. Bolts have been reworked.

Application On pallets Ø 148 mm: for positional orientation in PowerChucks and Robot magazines.







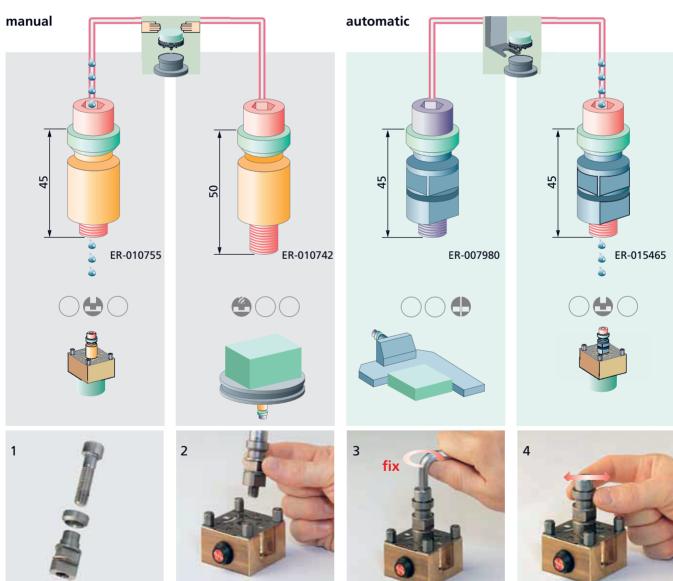


#### **EROWA ITS Chucking spigots**

# For every application the proper version



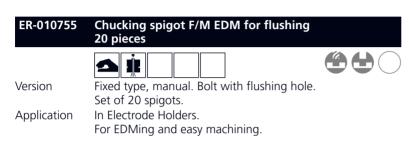
- **01** | Movable upper part for error compensation
- 02 | Groove for ball lock
- 03 | Flats for magazine engagement
- **04** | Groove for O-ring seal
- 05 | Flats for gripper

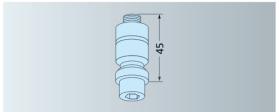


The various versions are exactly tailored to individual applications.

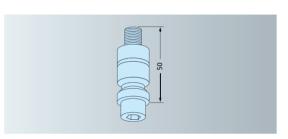
Chucking spigots are screwed into the holder or into the pallet for the machining cycle only. Since it has no influence on the reference position, it is removed for the purpose of spacesaving storage and only screwed in again when the holder or pallet is used next time.

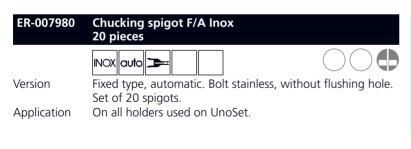
Technical data	ITS Chucking spigot
Material	Steel, hardened
Bolt	M10

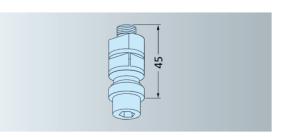


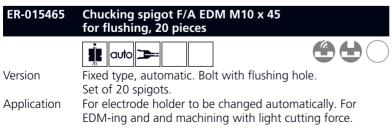


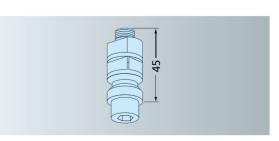
ER-010742	Chucking spigot F/M production 1 unit		
ER-051381	Chucking spigot F/M Production 20 pieces		
Version	Fixed type manual Rolt 13 0 without flucking hole		
Version Application	Fixed type, manual. Bolt 12.9, without flushing hole. In pallets for chip-cutting machining processes.		









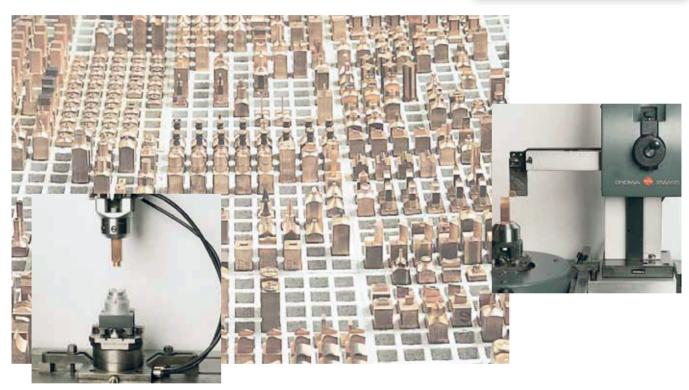


# Square Electrode System and System Plus

EROWA square holders are higly suitable for the manufacture of small electrodes. Their applications consists of milling, turning, grinding, as well as EDM sinking and WEDM. Used in addition to the System Plus, they represent a well-rounded, well thought-out range of products for everyone who works with many small electrodes.

#### SAVE SPACE

Store up to 1600 square electrodes safe and handy on 1 m<sup>2</sup>.



# **System Plus**The stamped centering profile directly on the blank forms the system reference.



**1. Preparation** Stamp in the centering profile.



**2. Milling**On a straight System Plus holder.



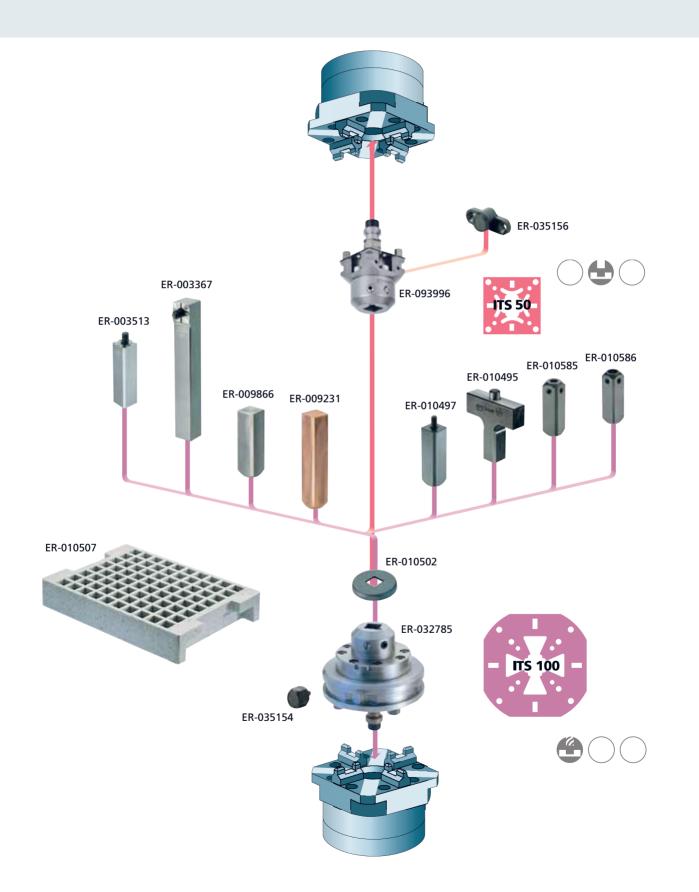
**3. WEDM** On an angle holder.



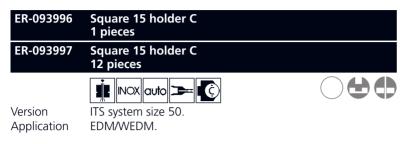
**4. EDM**On a straight holder.

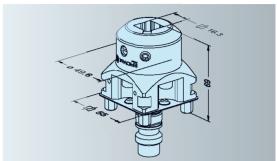
# ITS Integrated tooling system

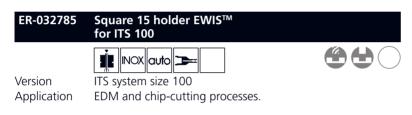
#### The components

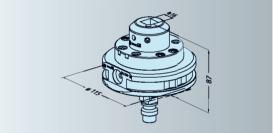


# Square Electrode Clamping System 15





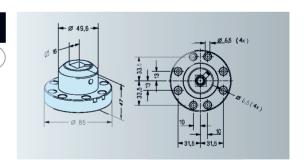




ER-007870	Square 15 holder front part	
Version Application	Only clamping part of the holder. For the construction on multiple fixtures.	



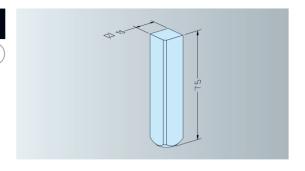
ER-015627	Square 15 holder on adapter ø 85		
Version Application Mounting	Clamping part fitted to flange, positioned with rods. For the construction on multiple fixtures. From above through the flange into the base.		







Version Set of 40 blanks. EDM copper, drawn profile. Application Blank for electrodes of up to 15 mm square.

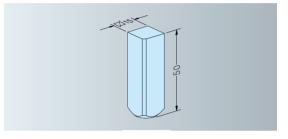


### ER-009866 Square 15 electrode shaft 40 pieces



Version Set of 40 shafts, drawn steel.

Application To solder or bond to copper or graphite electrode blanks.

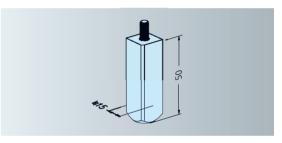


### ER-010497 Square 15 electrode shaft M5 10 pieces



Version Set of 10 blanks, hardened, ground, including M5 bolts.

Application To screw on to electrode blanks.



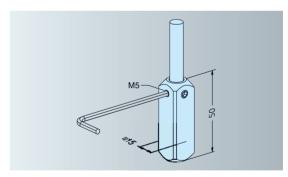
#### ER-010585 Square 15 blank holder ø 8mm



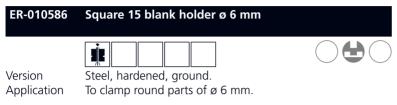


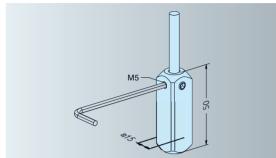
Version Steel, hardened, ground.

Application To clamp round parts of ø 8 mm.

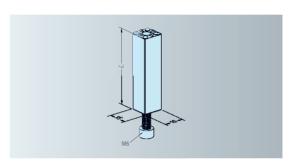


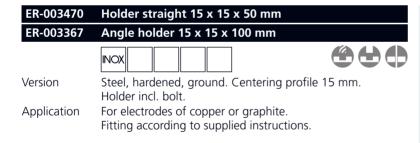
# Square Electrode Clamping System 15 and System Plus

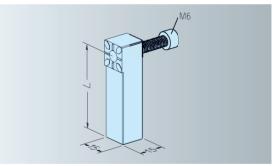




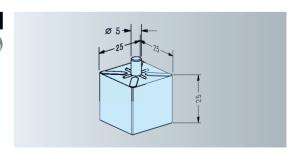
ER-003467	Holder straight 15 x 15 x 37 mm		
ER-003513	Holder straight 15 x 15 x 57 mm		
	NOX BUT		
Version	Steel, hardened, ground. Centering profile 15 mm. Holder incl. bolt.		
Application	For electrodes of copper or graphite. Fitting according to supplied instructions.		







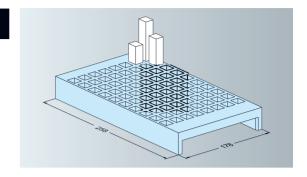
ER-003422	Prism die size 15
	<b>640</b>
Version Application	Steel, hardened, ground. Embossed profile 15 mm. Embossing of centering prisms in blanks.





Version Set of 10 stands, styrene.

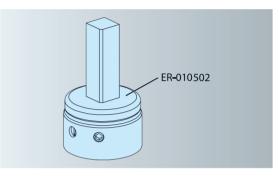
Application Storage and transport of blanks and electrodes.



#### Square 15 chip guard 10 pieces ER-010502

Version Set of 10 guards, oil-resistant rubber. Application Protection against chips during electrode

manufacturing.



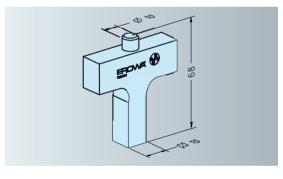
#### ER-010495 Square 15 alignment rail



Version Steel, hardened, ground.

Application Testing of concentricity and angular accuracy of holder to

ITS system.



## ITS Square 15 Element Set

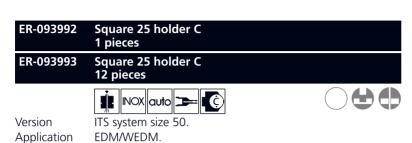
This will provide you with the complete basic equipment to work with EROWA's square 15 system. Additional material, consumables in particular, can be ordered according to requirements.

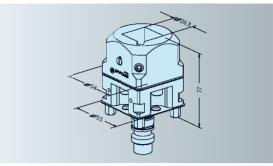


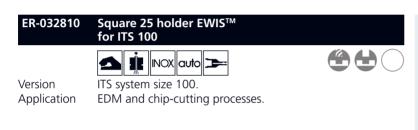
#### ER-103676 Square 15 Electrode Set

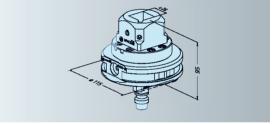
Order number	Description	Units per set	Units supplied by order number
ER-006641	Socket wrench SW4 for square holder	2	1
ER-093996	Square 15 electrode holder 50 C,		
	for use on EDM centers	2	1
ER-009231	Square 15 electrode blank, copper	20	40
ER-009866	Square 15 electrode shaft, steel	20	40
ER-032785	Square 15 holder EWIS,		
	for chip-cutting processes	1	1
ER-010495	Square 15 checking pin	1	1
ER-010497	Square 15 electrode shaft, M5	8	10
ER-010502	Square 15 chip guard	10	10
ER-010507	Square 15 electrode stand, styrene	2	10

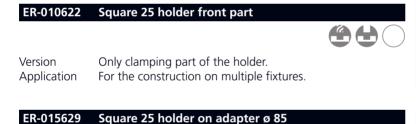
## Square Electrode Clamping System 25

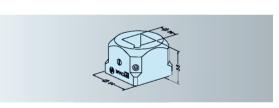


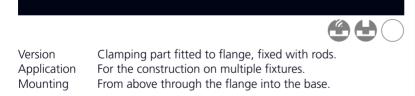




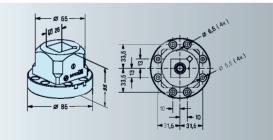








ER-015629



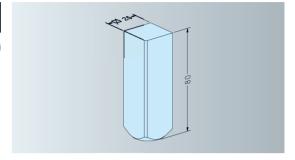
# Square Electrode Clamping System 25 and System Plus

#### ER-009209 Square 25 electrode blank

24 pieces



Version Set of 24 blanks. EDM copper, drawn profile.
Application Blank for electrodes of up to 25 mm edge square.

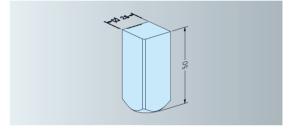


#### ER-010491 Square 25 electrode shaft 24 pieces



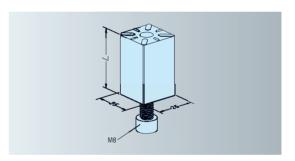
Version Set of 24 shafts, soft steel, drawn profile.

Application To solder or bond to blanks of up to 40 mm square.

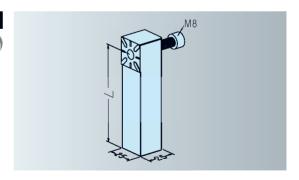


# ER-003405 Holder straight 25 x 25 x 40 mm ER-003439 Holder straight 25 x 25 x 65 mm Version Steel, hardened, ground. Centering profile 25 mm. Holder incl. bolt. Application For electrodes of copper or graphite.

Fitting according to supplied instructions.



# Version Steel, hardened, ground. Centering profile 25 mm. Holder incl. bolt. Application For electrodes of copper or graphite. Fit according to supplied instructions.

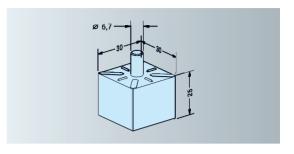


#### ER-003489 Prism die size 25





Version Steel, hardened, ground. Embossed profile 25 mm. Application Embossing of centering prisms in blanks.



#### ER-010592 Square 25 alignment rail

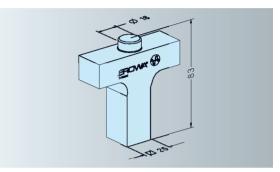




Version Steel, hardened, ground.

Application Testing of concentricity and angular accuracy of the holder

to the ITS system.



#### ER-010505 Square 25 chip guard 10 pieces





Version Set of 10 guards, oil-resistant rubber. Protection against chips during electrode Application

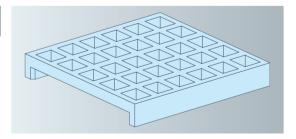
manufacturing.



#### Square 25 electrode stand 10 pieces ER-010511

Version Set of 10 styrene stands.

Application Storage and transporting of blanks and electrodes.





## ITS Square 25 Element Set

This will provide you with the complete basic equipment to work with EROWA's square 25 system. Additional material, consumables in particular, can be ordered according to requirements.



ER-103678 Square 25 Electrode Set

Order number	Description	Units per set	Units supplied by order number
ER-032810	Square 25 holder EWIS, for chip-cutting processes	1	1
ER-006641	Socket wrench SW4 for square holder	3	1
ER-009209	Square 25 electrode blank, holder	24	24
ER-010491	Square 25 electrode shaft, steel	24	24
ER-010505	Square 25 electrode chip guard	10	10
ER-010511	Square 25 electrode stand, styrene	2	10
ER-010592	Square 25 checking pin	1	1
ER-093992	Square 25 electrode holder 50 C,		
	for use on EDM centers	2	1

#### **EROWA**

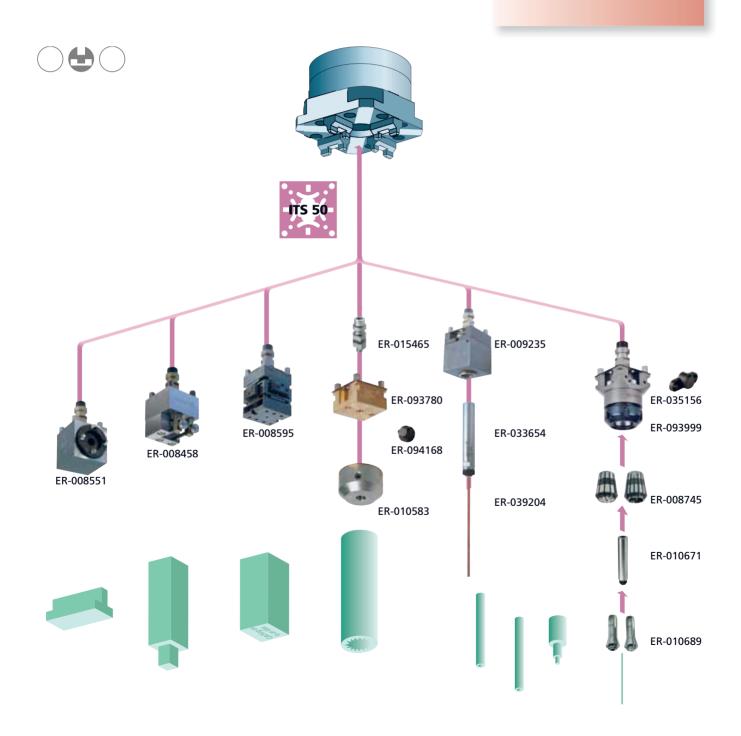
# ITS Special Electrode Holders

#### The components

These holders support the manufacturing of special electrodes. Thanks to their adjustable angular and axial positions, existing electrodes can be integrated into the system. One of each of these holders should be kept ready for use in every workshop.

#### **SAVE TIME**

Machine changes and inprocess-control without loss of time thanks to fixed reference position.

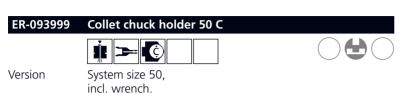


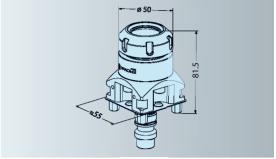
Application

Application

Version Application

# ITS Special Electrode Holders

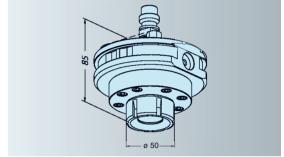




# Version System size 100

For round material up to ø 20 mm.

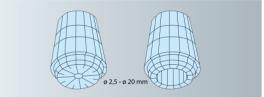
For round material up to ø 20 mm.





19 collet chucks from ø 2.5 mm to ø 20 mm.

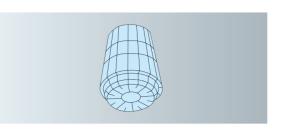
For round material up to ø 20 mm.



#### **EROWA**

# ITS Special Electrode Holders

ER-006700	Collet chuck ø 2.5 mm ETS 32
ER-006701	Collet chuck ø 3 mm ETS 32
ER-006702	Collet chuck ø 4 mm ETS 32
ER-006703	Collet chuck ø 5 mm ETS 32
ER-006704	Collet chuck ø 6 mm ETS 32
ER-006705	Collet chuck ø 7 mm ETS 32
ER-006706	Collet chuck ø 8 mm ETS 32
ER-006707	Collet chuck ø 9 mm ETS 32
ER-006708	Collet chuck ø 10 mm ETS 32
ER-006709	Collet chuck ø 11 mm ETS 32
ER-006710	Collet chuck ø 12 mm ETS 32
ER-006711	Collet chuck ø 13 mm ETS 32
ER-006712	Collet chuck ø 14 mm ETS 32
ER-006713	Collet chuck ø 15 mm ETS 32
ER-006714	Collet chuck ø 16 mm ETS 32
ER-006715	Collet chuck ø 17 mm ETS 32
ER-006716	Collet chuck ø 18 mm ETS 32
ER-006717	Collet chuck ø 19 mm ETS 32
ER-006718	Collet chuck ø 20 mm ETS 32



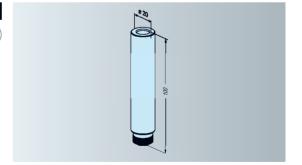


Version Delivered separately, clamping range per collet chuck:

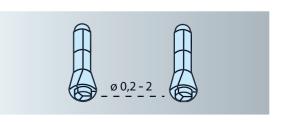
ø 2.5 mm = 0.5 mm ø 3-20 mm = 1 mm

Application Round material from ø 2 mm to ø 20 mm.

ER-010671	Mini collet chucks holder ø 20
Version	Steel ground ø 20 mm.
Application	In $\emptyset$ 20 mm adapter or in $\emptyset$ 20 mm collet chuck for mini collet chucks of $\emptyset$ 0.2 mm to $\emptyset$ 2 mm.



ER-010689	Set of mini collet chucks		
Version	Set of 19 collet chucks ø 0.2 mm to ø 2.0 mm, steel		
	ground, with brass seal for appropriate diameter.		
Application	Clamping of small electrode tubes ø 0.2 mm to ø 20 mm.		



ER-002403	Mini collet chuck ø 0.2 mm
ER-002404	Mini collet chuck ø 0.3 mm
ER-002405	Mini collet chuck ø 0.4 mm
ER-002406	Mini collet chuck ø 0.5 mm
ER-002407	Mini collet chuck ø 0.6 mm
ER-002408	Mini collet chuck ø 0.7 mm
ER-002409	Mini collet chuck ø 0.8 mm
ER-002410	Mini collet chuck ø 0.9 mm
ER-002411	Mini collet chuck ø 1.0 mm
ER-002412	Mini collet chuck ø 1.1 mm
ER-002413	Mini collet chuck ø 1.2 mm
ER-002414	Mini collet chuck ø 1.3 mm
ER-002415	Mini collet chuck ø 1.4 mm
ER-002416	Mini collet chuck ø 1.5 mm
ER-002417	Mini collet chuck ø 1.6 mm
ER-002418	Mini collet chuck ø 1.7 mm
ER-002419	Mini collet chuck ø 1.8 mm
ER-002420	Mini collet chuck ø 1.9 mm
ER-002421	Mini collet chuck ø 2.0 mm

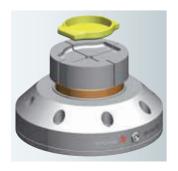


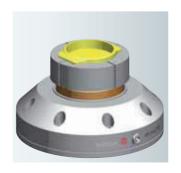
Version Steel, ground, with brass seal for appropriate diameter. Application Clamping of small electrode tubes.

#### **EROWA**

# Collet Chuck Tooling System

For workpieces in many shapes, including workpieces that are not rotationally symmetrical, a collet chuck is the optimal holding device. EROWA CTS combines the features of the tooling system with the well-known advantages of collet chucks.



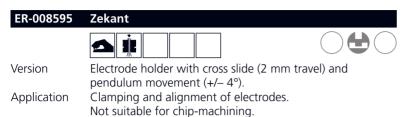


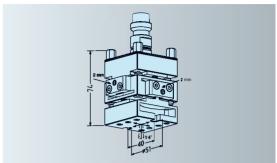


Ask your specialist EROWA dealer for more information about the entire EROWA CTS range.

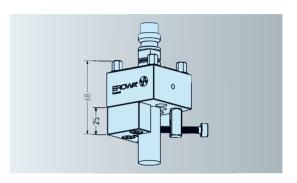
#### **EROWA**

# ITS Special Electrode Holders

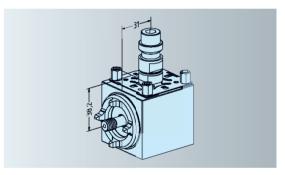




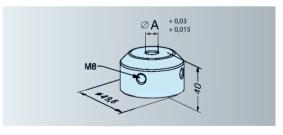
# V-block holder stainless Version Prism ground bearing surfaces 10 mm +/- 0.005 mm from the center. Application Clamping from outside, precision machined electrodes or small workpieces.

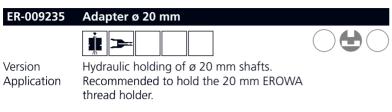


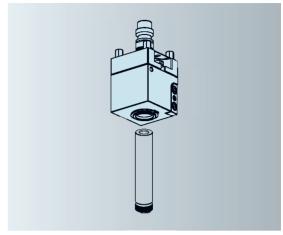
ER-008551	Horizontal holder
Version	Hardened and ground 90° angle and centering accuracy 0.005 mm.
Application	Clamping of electrode holders in horizontal position, may not be used for chip-machining.



ER-010583	Blank holder ø 10 mm
ER-010581	Blank holder ø 12 mm
ER-010577	Blank holder ø 20 mm
Version	Steel, hardened, ground bore.
Application	Fit to Uniplate C ER-093780 for clamping of precision copper tubes or bars.







ER-033654	Thread holder M3 P=0.5mm / ø 2.3 mm / L= 100
ER-033655	Thread holder M4 P=0.7mm / ø 2.9 mm / L= 100
ER-033656	Thread holder M5 P=0.8mm / ø 3.8 mm / L= 120
ER-033657	Thread holder M6 P=1mm / ø 4.5 mm / L= 120
	<b>(4</b> )



Version Ground 20 mm shaft.

Application Defined positioning of threaded EROWA electrodes.

Note Systems for M3, M4, M5 and M6.

ER-033204	Threaded electrode M3 / L= 80	
ER-033205	Threaded electrode M4 / L= 80	
ER-033206	Threaded electrode M5 / L= 120	
ER-033207	Threaded electrode M6 / L= 120	



Version EDM copper with precision thread.
Application For EDM-ing threads with EROWA Thread holder System.

Note Sizes available for: M3, M4, M5 and M6.



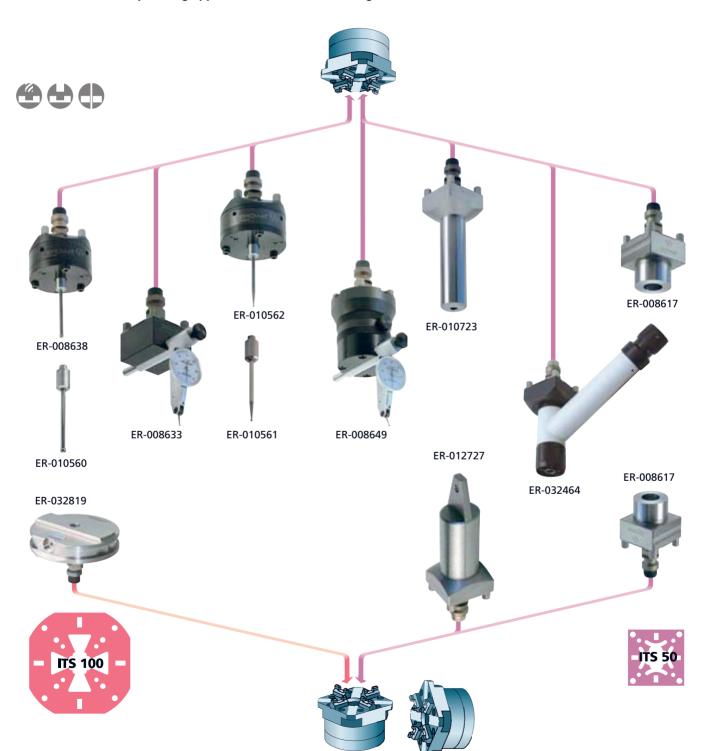


#### **EROWA**

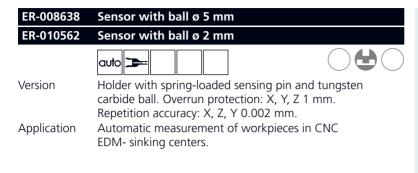
# Measuring and Checking Elements

#### The components

Trusting is good - checking is better. These specially designed elements will make it easier for you to check your production equipment. These elements are for use both in chip-cutting applications and in EDM sinking and WEDM.

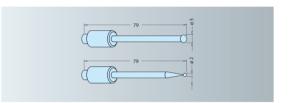


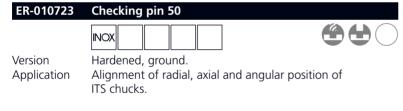
## Measuring and Checking Elements

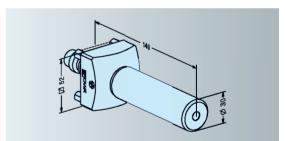


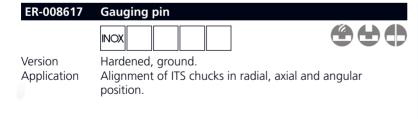


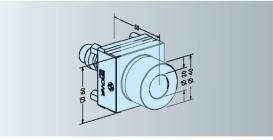
ER-010560	Replacement sensor pin ø 5 mm
ER-010561	Replacement sensor pin ø 2 mm
Version	Tungsten carbide, incl. adapter part, without spacer washer
Application	Replacement of pins in sensors ER-008638 and ER-010562 Attention: spacer washer is matched to the respective sensor.







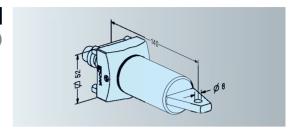




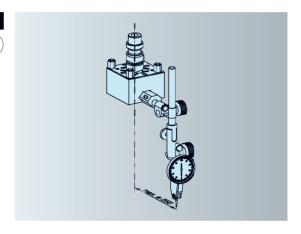
#### **EROWA**

## Measuring and Checking Elements

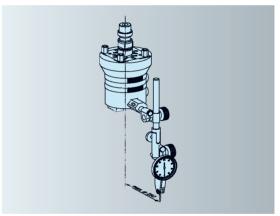
# Version Application Application Reference pin UnoSet NOX Hardened, ground, borehole ø 8 mm. To determine reference measurements on horizontal chucks.



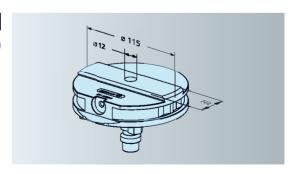
# Version Holder with sliding part and metric dial gauge mm. Scale graduation: 0.01 mm. Application Concentricity measurement of workpieces on machines with C-axis or rotating spindle.

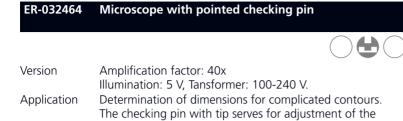


# Version Application Application Hotal Rotatable centering device complete Wersion Holder with rotating and sliding part, including metric dial gauge mm. Scale graduation: 0.01 mm. Concentricity measurement of workpieces on machines without rotating axis.

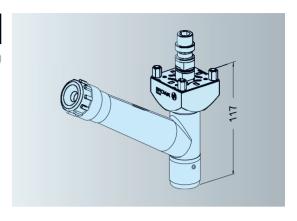


ER-032819	Alignment pallet ø 115
Version	Pallet ø 115 mm, alignment length 110 mm, center borehole ø 12 mm.
Application	Alignement of radial, axial and angular position of ITS chucks, PowerChuck P and PC 210 Combi chucks.

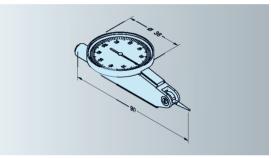




optical system.



# Version Application On PreSet setup and pre-setting cells, and on ITS centering devices. Dial gauge ø 38, 0.002mm Measuring range +/- 0.2 mm Graduation 0.002 mm. On PreSet setup and pre-setting cells, and on ITS centering devices.



# EROWA ITS Element Set My first EROWA

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, consumables in particular, can be ordered according to requirements.



#### ER-103679 My first EROWA

Order number	Description	Units per set	Units supplied by order number
ER-093758	Uniblank C EWIS	3	12
ER-093765	Prisround C EWIS	3	12
ER-093774	Uniholder C EWIS	3	12
ER-093780	Uniplate C EWIS	3	12
ER-010438	Setscrew M8 x 16 for Prisround	6	25
ER-010441	Setscrew M8 x 16 for Uniholder	6	25
ER-010577	Blank holder ø 20 mm	1	1
ER-010581	Blank holder ø 12 mm	1	1
ER-010583	Blank holder ø 10 mm	1	1
ER-103692	Hexagon socket bolt M6 x 20 for Uniplate C	6	12
ER-010723	Checking pin	1	1
ER-010906	Toolkit ITS	1	1
ER-038824	QuickChuck 100 P with base plate	1	1
ER-015465	Chucking spigot F/A EDM	5	20
ER-103687	Set of SW5 hex keys for ITS C	1	1



# EROWA ITS Element Set EDM Set

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, in particular consumables, can be ordered according to requirements.

User set for manual or CNC EDM centers with ITS quill chuck. The supplied chuck has been designed for manual electrode manufacturing.



#### ER-103680 QuickChuck 100 EDM Set

Order number	Description	Units per set	Units supplied by order number
ER-000974	M10 x 20 hex socket head bolt	1	1
ER-001483	Key for collet holder 50	1	1
ER-006702	Collet ø 4mm	1	1
ER-006704	Collet ø 6 mm	1	1
ER-006706	Collet ø 8 mm	1	1
ER-006708	Collet ø 10 mm	1	1
ER-006710	Collet ø 12 mm	1	1
ER-006718	Collet ø 20 mm	1	1
ER-008458	Prism holder, stainless	1	1
ER-093999	Collet holder 50 C	1	1
ER-103687	Set of SW5 hex keys for ITS C	1	1

#### ER-103680 QuickChuck 100 EDM Set

Order number	Description	Units per set	Units supplied by order number
ER-094180	Centering plate 50 C with washer	20	50
ER-011599	Centering plate 100 M5 with washer	5	10
ER-093765	Prisround C EWIS	6	12
ER-093774	Uniholder C EWIS	6	12
ER-093780	Uniplate C EWIS	6	12
ER-010438	Setscrew M8 x 16 for Prisround	12	25
ER-010441	Setscrew M8 x 16 for Uniholder	12	25
ER-010514	Spacer plate 0,5 mm	50	50
ER-010518	Spacer plate 1 mm	50	50
ER-010521	Spacer plate 2 mm	50	50
ER-010523	Spacer plate 3 mm	50	50
ER-010525	Spacer plate 4 mm	50	50
ER-010526	Spacer plate 5 mm	50	50
ER-103692	Hexagon socket bolt for Uniplate C	12	12
ER-010694	Sealing washers	12	24
ER-010710	Drilling template for borehole patterns, centering		
	plates 50 and 100	1	1
ER-010723	Checking pin	1	1
ER-010753	Support feet M5	100	100
ER-010906	Toolkit ITS	1	1
ER-038824	QuickChuck 100 P with base plate	1	1
ER-015465	Chucking spigot F/A EDM	10	20
007752	M8 support foot	20	_
000999	M5 x 8 socket head bolt	20	_

#### **EROWA ITS Element Set**

### **EDM Standard Set**

We have compiled practical sets for newcomers to the modern ITS Integrated Tooling System. Additional material, in particular consumables, can be ordered according to requirements.

User set for manual or CNC centers. Containing, among other things, 50 electrode holders and a chuck.



#### ER-103681 EDM Standard Set

Order number	Description	Units per set	Units supplied by order number
000714	Setscrew M8 x 16	25	1
ER-001483	Key for collet holder 50	1	1
ER-006702	Collet ø 4 mm	1	1
ER-006704	Collet ø 6 mm	1	1
ER-006706	Collet ø 8 mm	1	1
ER-006708	Collet ø 10 mm	1	1
ER-006710	Collet ø 12 mm	1	1
ER-006718	Collet ø 20 mm	1	1
ER-103687	Set of SW5 hex keys for ITS C	1	1

#### ER-103681 EDM Standard Set

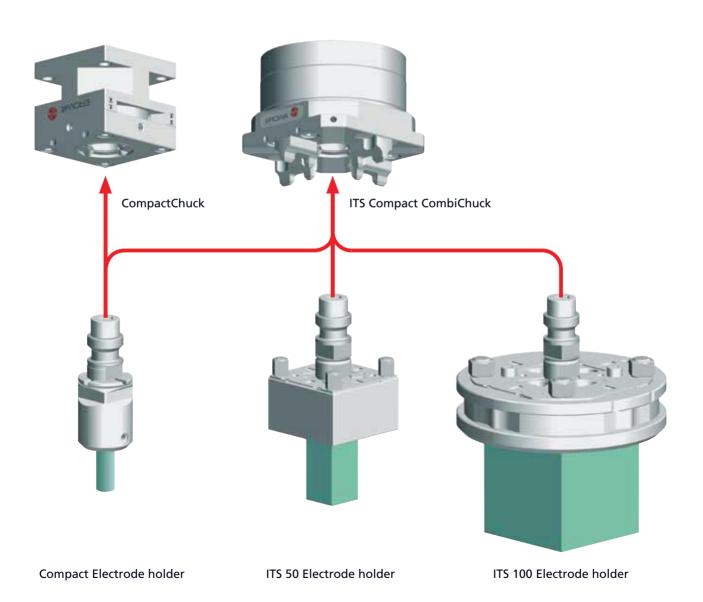
		·	
Order number	Description	Units per set	Units supplied by order number
ER-012297	Rapid-action chuck, manual, on block	1	1
ER-008458	Prism holder	1	1
ER-093999	Collet holder 50 C	1	1
ER-094180	Centering plate 50 C with washer	20	50
ER-011599	Centering plate 100 M8 with washer	5	10
ER-093765	Prisround C EWIS	12	12
ER-093774	Uniholder C EWIS	6	12
ER-093780	Uniplate C EWIS	12	12
ER-010438	Setscrew M8 x 16 für Prisround	25	25
ER-010441	Setscrew M8 x 16 for Uniholder	12	25
ER-010514	Spacer plate 0,5 mm	100	50
ER-010518	Spacer plate 1 mm	100	50
ER-010521	Spacer plate 2 mm	100	50
ER-010523	Spacer plate 3 mm	100	50
ER-010525	Spacer plate 4 mm	100	50
ER-010526	Spacer plate 5 mm	100	50
ER-103692	Hexagon socket bolt for Uniplate C	24	12
ER-010694	Sealing washers	12	24
ER-010710	Drilling template for borehole patterns, centering		
	plates 50 and 100	1	1
ER-010723	Checking pin	1	1
ER-010685	Supports M5, adjustable	12	12
ER-010744	Chip guard for rapid-action chuck	1	1
ER-010753	Supports M5	100	100
ER-010906	Toolkit ITS	1	1
ER-015465	Chucking spigot F/A EDM	20	20
ER-022354	Seal ring for chucking spigot	10	10
007752	M8 support foot	20	_
000999	M5 x 8 socket head bolt	20	



#### **EROWA ITS Compact Combi**

### Three in one

Seamless integration into the existing ITS system. The ITS Compact CombiChucks have the same mounting borehole grid as the conventional EROWA ITS chucks. Universal clamping of three systems in one single chuck. High precision and great performance due to the patented EROWA tooling technology. Whether on the machine table or in the tool quill: EROWA's ITS Compact CombiChucks can be used everywhere.



#### **Applications**

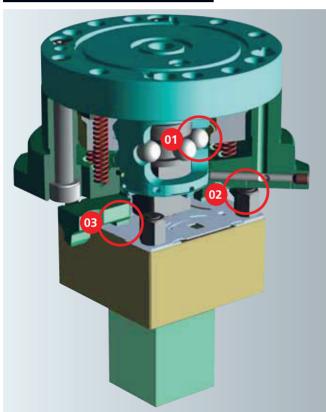
#### Handling



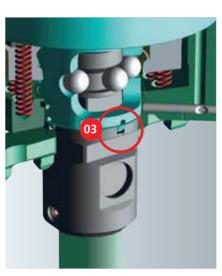


Manual / Loading facility / Robot

#### **Function**







ITS Compact CombiChuck with Compact holder.

#### 01 | Ball-lock

The self-locking ball-lock generates a clamping power of 5,000 N (with reclamping) and does not open even if the pressure fails.

#### 02 | Cleaning

The support feet are cleaned during the clamping process.

#### 03 | Prismatic spigots

After latching to the centering plate, the prismatic spigots in combination with the spring slots ensure powerful and high-precision positioning.

## Technical data - ITS Compact Combi Chuck

	ITS Compact CombiChuck
System sizes	Compact 30, ITS 50 and ITS 100
Indexing	4 x 90°
Clamping power	3,000 N, 5,000 N with reclamping
Clamping	Spring power
Opening	Compressed air min. 6 bar
Operation	With manual or electropneumatic
	control unit

## EROWA ITS Compact Combi in action Versatile and universal

Compact – the best investment value tooling system for electrodes up to  $\varnothing$  50 mm. Compactness, precision, great performance. EROWA's Compact System consists of a complete range of chucks, electrode holders, electrode changers and accessories.

#### FLEXIBLE

**Universal clamping of** three systems in one chuck.





Storage capacity of up to 900 parts per square meter.

Three pallet sizes - one chuck. EROWA ITS Compact CombiChuck.







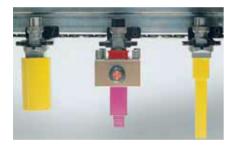
Economical automation by a combined loading of the EDM center.



Quick and precise clamping of electrode holders with a fitted chip guard.



Compact chucking spigot Combi: for the integration of all Compact electrodes and electrode holders into the EROWA ITS Compact Combi system.



Mixed up in the electrode magazine.



Compact ITS Adapter for the integration of Compact holders into regular ITS chucks.



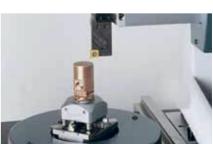
Robust and precise. The Compact standard holder is the base for most clamping applications.



Ready - steady - GO! Insert chucking spigot and start machining. Use the ready made copper blank, you won't find a quicker way.



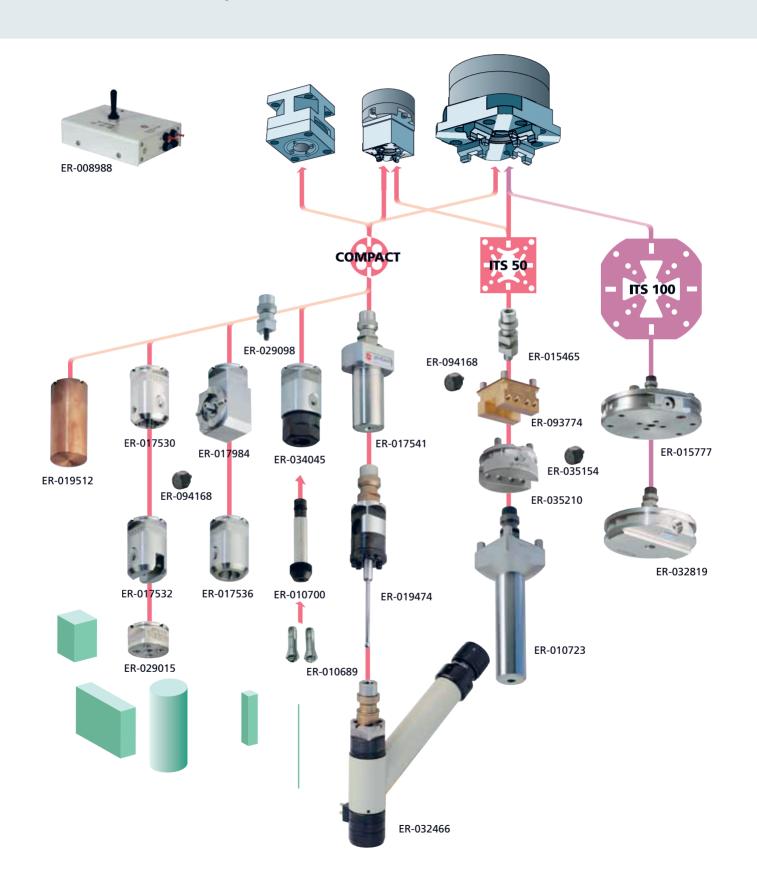
With a Compact ITS adapter, Compact electrode holders become compatible with regular EROWA ITS chucks. The electrode holder can be manually clamped in the adapter with precision and speed.



Setting-up and measuring outside the machine: quickl, simple and accurate.

## Tooling system

The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA ITS COMPACT COMBI TOOLING SYSTEM**

IT	rs Compcat Combi	a survey	222
ΙT	rs Compcat Combi	ITS Compact CombiChuck	224
П	rs Compcat Combi	Compact chuck	228
17	rs Compcat Combi	Compact ITS Adapter	229
Ι٦	rs Compcat Combi	Electrodeholder	230
П	rs Compcat Combi	Electrode	232
П	rs Compcat Combi	Accessories	233
רו	rs Compcat Combi	Measuring equipment	236
ΙT	ΓS Compcat Combi	Compact Electrodeholder Set	238



For chip-removing processes



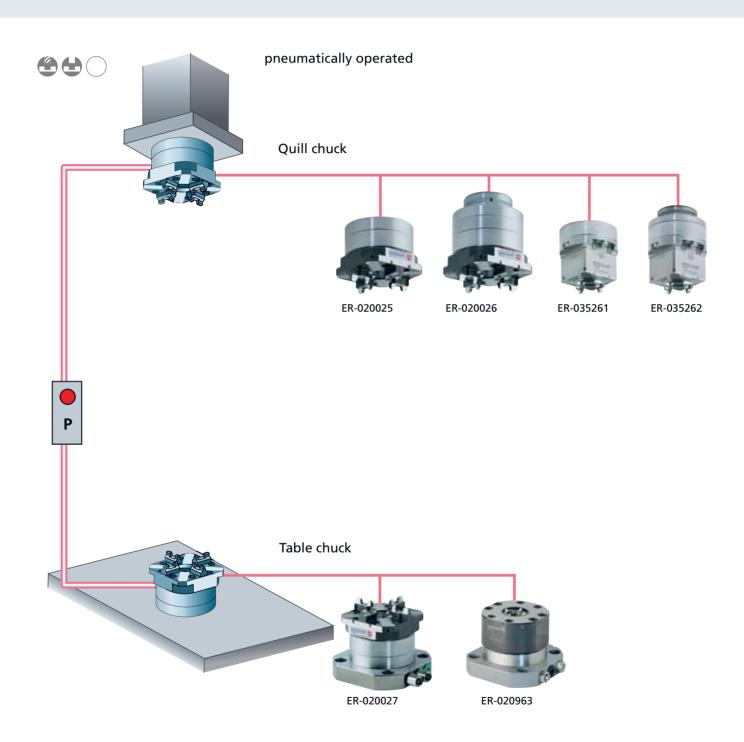
For EDM sinking

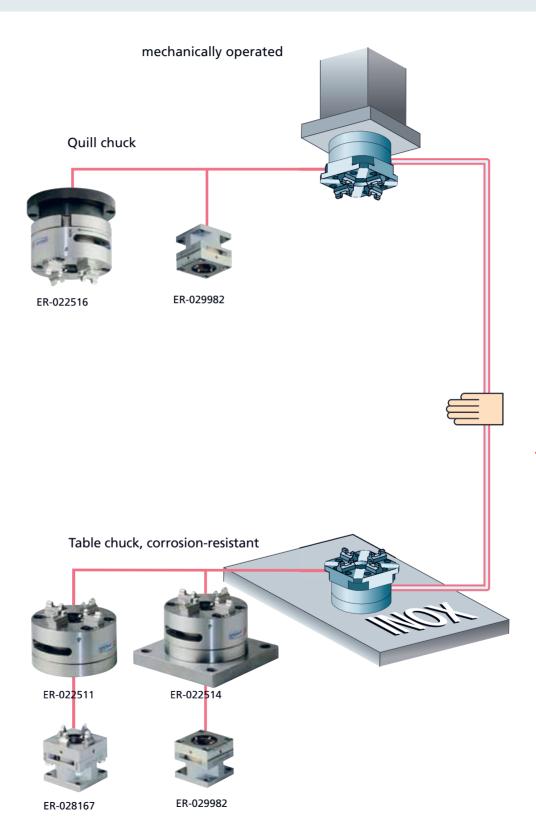


For WEDM

## Tooling system

The chucks





## **EROWA ITS Compact Combi** Chucks

Technical data	ITS Compact CombiChuck	ITS 50 Compact CombiChuck
Repeatability	0,002 mm	0,002 mm
Indexing	4 x 90°	4 x 90°
Clamping power with		
reclamping 6 bar (without)	5000 N (3000 N)	(4'000 N)
Generated by	springs	springs
Opening with compressed air, dry	min. 6 bar	min. 6 bar
Operation	with manual or electro-	with manual or electro-
	pneumatic control unit.	pneumatic control unit.

#### ER-020025 ITS Compact CombiChuck

**auto** 

Version Connections **Application** 

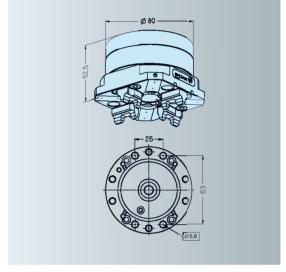
ITS rapid-action chuck with built-in CompactChuck.

At the rear.

EDM centers with automatic electrode change, machine

tools with automatic loading of ITS and Compact electrode

holders.



#### ER-020026 ITS Compact CombiChuck with collar

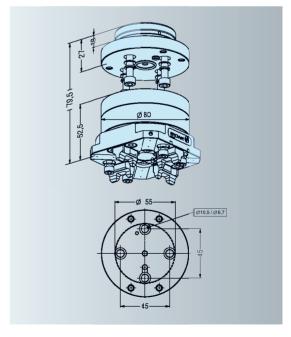


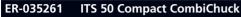
Version Connections With flange ø 80/55 mm for flushing connection.

Application

EDM centers with automatic electrode change of ITS and

Compact electrode holders.









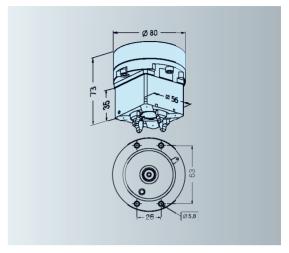
Version Connections ITS QuickChuck 50 with built-in CompactChuck.

At the rear.

EDM centers with automatic electrode change, machine Application

tools with automatic loading of ITS and Compact electrode

holders.



#### ITS 50 Compact CombiChuck with collar ER-035262





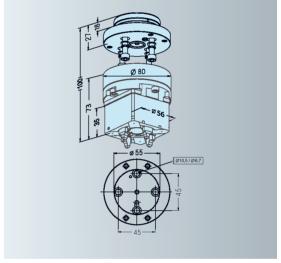
Version Connections With flange ø 80/55 mm for flushing connection.

At the rear.

**Application** 

EDM centers with automatic electrode change of ITS

and Compact electrode holders.



#### ER-020027 **ITS Compact CombiChuck** with base plate





Version

With base plate 106 x 106 mm.

Connections

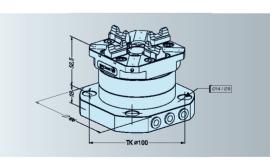
Laterally on base plate for manual and pneumatic

control unit.

Application

On milling, grinding and EDM centers with manual

and automatic loading facilities.



## Chucks

Technical data	QuickChuck 100 Combi	QuickChuck 50 Combi
Repeatability	0,002 mm	0,002 mm
Indexing	4 x 90°	4 x 90°
Max. clamping power	up to 10'000 N	up to 4′000 N
Operation	manual	manual

#### ER-022511 QuickChuck 100 Combi

NOX

Combi system for EROWA ITS and Compact.

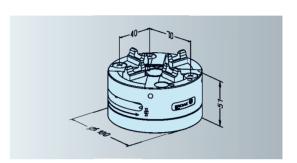
To fit With 4 x M8 bolts.

Operation Manual.

Version

Application To clamp EROWA electrode holders and pallets of

the system sizes Compact, ITS 50 und ITS 100.



## ER-022514 QuickChuck 100 Combi with base plate 125x125





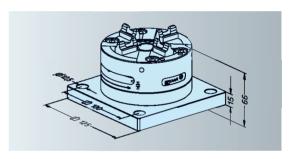
Version Combi system for EROWA ITS and Compact with base plate.

Mounting With bolts or brackets.

Operation Manual.

Application To clamp EROWA electrode holders and pallets of

the system sizes Compact, ITS 50 and ITS 100.



#### ER-022516 QuickChuck 100 Combi R





Version Combi system for EROWA ITS and Compact with

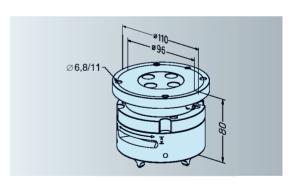
rotatable flushing connection.

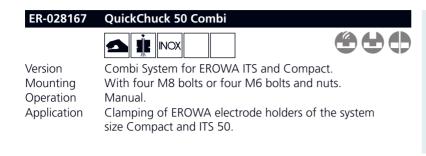
Mounting With 4 x M6 bolts.

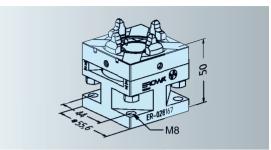
Operation Manual.

Application To fit to rotating axes of EDM centers with lateral flushing

connection.





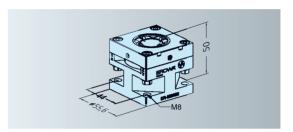


## Compact chucks

Technical data	CompactChuck
Repeatability	0.002 mm
Indexing	4 × 90°
Clamping power with	
reclamping 6 bar (without)	5,000 N (2,200 N)
Opening with compressed air	min. 6 bar
Operation mode	PA = Pneumatic, automatic
	PM = Pneumatic, manual
	M = Manual

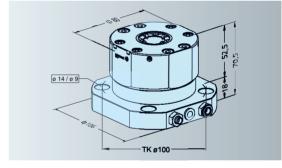
# ER-029982 CompactChuck M Mounting With four M8 bolts or with four M6 bolts and nuts

Operation Application
Note With four M8 bolts or with four M6 bolts and nuts
Rapid-action lock with lever.
Clamping of EROWA Compact electrode holders.
The CompactChuck M can also be used as a quill chuck.



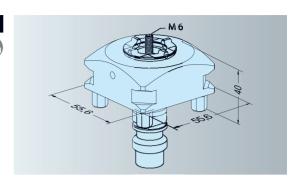
# Version Connections Application CompactChuck PM/PA On 106 x 106 mm clamping plate. On the side on clamping plate. On milling, grinding and EDM centers with manual

operation.

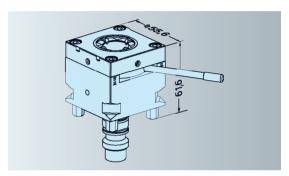


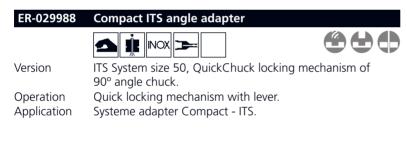
## Compact ITS Adapter

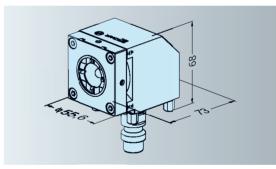
# Version ITS system size 50, lock with central locking bolt. Prepared to accommodate chip holder for EWIS chip. Operation Application System adapter Compact - ITS.

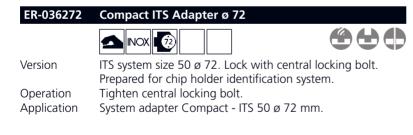


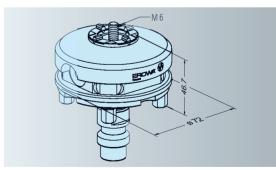
# Version ITS system size 50 C, QuickChuck action for Compact holders. Operation Application Application Application Compact ITS adapter chuck C Adapter Chuck Chuck action for Compact holders. Quick locking mechanism with lever. Individual Compact chuck for machines which are equipped with standard ITS. System adapter Compact - ITS.





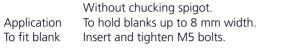


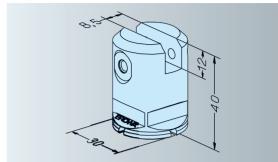




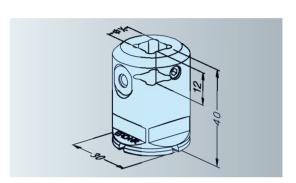
## Electrode Holder

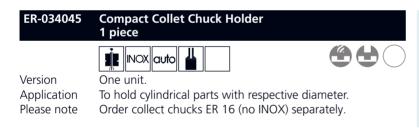


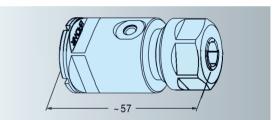




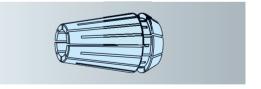
ER-017529	Compact Prisround 10mm 18 pieces	
ER-017530	Compact Prisround 15mm 18 pieces	
	INOX auto III	640
Version	Set of 18 units. Without chucking spigot.	
Application	To hold blanks with shaft of up to X = 10 mm square (ER-017529), up to X = 15 mm square (ER-017530).	
Mounting	Insert and tighten M5 bolts.	







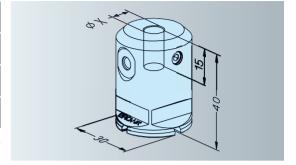
ER-002394	Collet chuck ER16 ø 2mm	
ER-002395	Collet chuck ER16 ø 3mm	
ER-002396	Collet chuck ER16 ø 4mm	
ER-002397	Collet chuck ER16 ø 5mm	
ER-002398	Collet chuck ER16 ø 6mm	
ER-002399	Collet chuck ER16 ø 7mm	
ER-002400	Collet chuck ER16 ø 8mm	
ER-002401	Collet chuck ER16 ø 9mm	
ER-002402	Collet chuck ER16 ø 10mm	
		#A 4 h 🔿





Version Clamping range 1 mm per collet chuck. Fits Collet Chuck Holder ER-034045. Option: Sealing ring ER-005064.

ER-017533	Compact Electrode Holder 8mm 18 pieces	
ER-017534	Compact electrode holder 10mm 18 pieces	
ER-017535	Compact electrode holder 12mm 18 pieces	
ER-017536	Compact electrode holder 16mm 18 pieces	
	INOX auto	640



Version Set of 18 units.

Without chucking spigot.

Application To hold cylindrical parts with respective diameter.

Mounting Insert and tighten M5 bolts.



## Electrode

Compact electrode ø 30 x 60 12 pieces, without gripper groove ER-019512

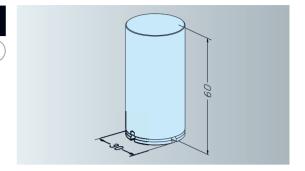




Version Electrode copper.

Application

Set of 18 units. Without chucking spigot. To produce electrodes up to ø 30 mm.



Compact electrode 10 x 10 x 45 copper 36 pieces ER-030161

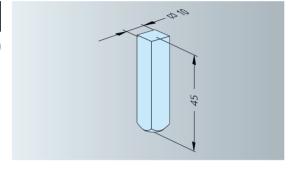






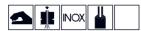
Version Electrode copper. Set of 36.

Production of electrodes of up to 10 x 10 mm. Application



## Accessories

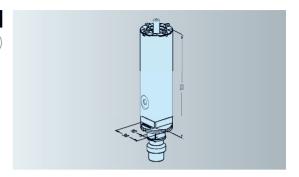
#### ER-017982 Compact extension 100mm



Version Shaft ø 30 x 100 mm.

Application Extends the electrode by 100 mm.

Operation Lock via central bolt through shaft.



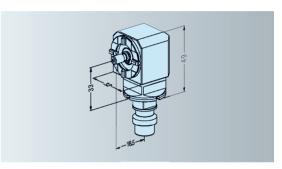
#### ER-017984 Compact angle chuck



Version Compact Chuck at 90° angle.
Operation Central locking bolt.

Application Change from vertical to horizontal machining

position.



## ER-029015 Compact standard holder H=16 20 pieces

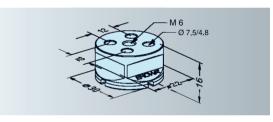


Set of 20 per package, without chucking spigot.

Application To fit electrodes and workpieces.

Note Attach blank through the center with the chucking spigot bolt or through the holder with four M4 bolts (option

ER-023125, 100 M4 x 14 socket head bolts).



## ER-029098 Chucking spigot Compact Combi 20 pieces





Version

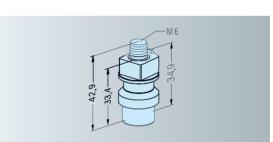
Version

Set of 20.

Application To accommodate all the compact electrodes and electrode

holders in CompactChucks, ITS-Compact-CombiChucks and electrode changers. For handling with the EROWA

Combi gripper.



## Accessories

#### Chucking spigot clip 2 open electroconductive / 20 pieces ER-051968

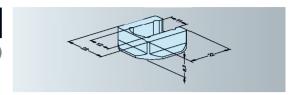
INOX auto



Version Synthetic, set of 20. Electroconductive.

To be fitted to ITS chucking spigot F/A.

To fit on ITS chucking spigot F/A. To load/unload ITS elec-Application trodes and electrode holders with EROWA Combi gripper.



#### ER-051969 Chucking spigot clip 2 closed electroconductive / 20 pieces



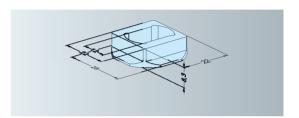




Synthetic, set of 20. Electroconductive. Version

To be fitted to ITS chucking spigot F/A.

To fit to ITS chucking spigot F/A. To load/unload ITS elec-Application trodes and electrode holders with EROWA Combi gripper.



#### ER-020958 Compact system stand 24-fold

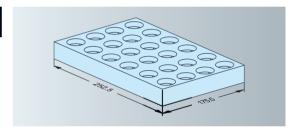
10 pieces

Styrene, set of 10. Version

Version

Storage and transport of 24 parts each. Compact elec-**Application** 

trodes ø 30 mm, with fitted Compact chucking spigot.



#### ER-035154 EWIS™ Rapid chip with chip holder SW14

with chip ø 12,4 x 2mm

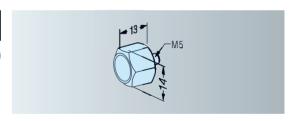




Sleeve fitting with built-in data carrier. EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been **Application** 

prepared for it.



#### ER-094168 EWIS™ rapid chip with chip holder SW14

for holder C

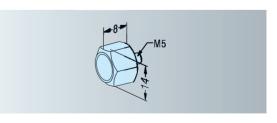


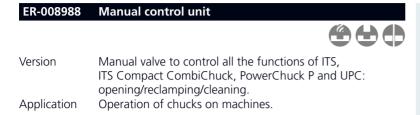
Version Sleeve fitting with built-in data carrier.

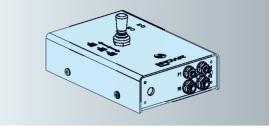
EWIS Rapid chip: read only.

**Application** In any EROWA electrode holder and pallet which has been

prepared for it.











Version Rubber seal to attach to Compact ITS adapters.

Set of 10.

**Application** Protects Compact ITS adapter and prevents the intrusion of

liquids and chips. To be used in combination with sealing

ring ER-022922.

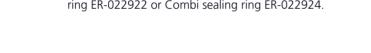






**Application** Protects Compact chucks and prevents the intrusion of

liquids and chips. To be used in combination with sealing ring ER-022922 or Combi sealing ring ER-022924.









Version Rubber seal, set of 50.

**Application** To be fitted to Compact holder. In combination with chip

guards ER-022921 or ER-022923, this prevents the intrusion of liquids and chips into the CompactChuck and the

CombiChuck.







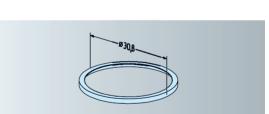


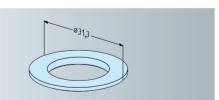


**Application** To be fitted to ITS chucking spigots. In combination with

the chip guard ER-022923, this prevents the intrusion of

liquids and chips into the CombiChuck.





## Measuring equipment

#### ER-019979 Compact centering equipment fixed

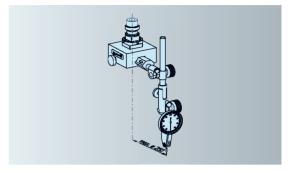


Version Holder with slide and metric dial gauge.

Gradation: 0.01 mm.

Centric alignment of workpieces on machines with C-axes Application

or rotation spindles.



#### ER-019951 **Compact centering equipment rotate**

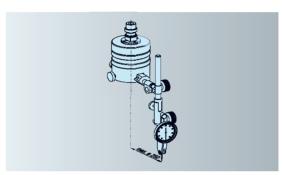


Holder with slide and metric dial gauge. Version

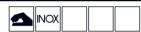
Gradation: 0.01 mm.

Centric alignment of workpieces on machines without Application

rotation axis.



#### Compact checking pin ER-017541



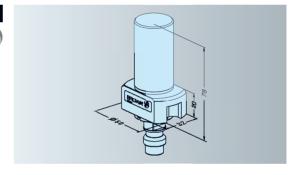




Version Hardened, ground, corrosion-resistant.

Application To align radial, axial and angular position of Compact

chucks.



#### ER-019473 Compact probe with ball ø 2 mm

#### ER-019474 Compact probe with ball ø 5mm

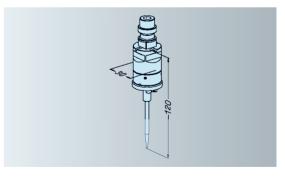


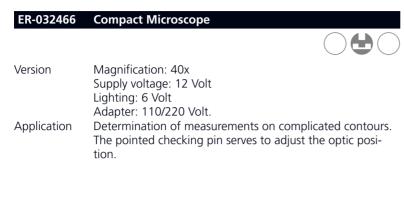


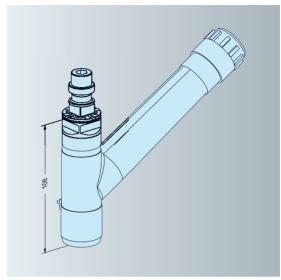
Version with spring-mounted probe and carbide bolt. Version

> Overrun protection: X-, Y-, Z-axes, 0.3 mm. Repeatability: X-, Y-, Z-axes, 0.002 mm.

**Application** Automatic measuring of workpieces in CNC EDM centers.







#### **EROWA**

## Compact Electrode holder Set

We have compiled a helpful set for the introduction of the EROWA Compact System. Additional material, in particular consumable parts, can be ordered according to your requirements.



#### ER-018858 Compact Electrode holder Set

The material is packed in a practical plastic box.

Article number	Description	Number of	Number supplied
		units in the set	according to article
			number
000682	Stud bolt M5 x 8	4	1
018293	Stud bolt M5 x 10	12	1
018294	Stud bolt M5 x 6	16	1
ER-017529	Compact Prisround 10 mm	4	18
ER-017530	Compact Prisround 15 mm	4	18
ER-017532	Compact Uniholder	2	18
ER-017533	Compact Electrode holder ø 8 mm	2	18
ER-017535	Compact Electrode holder ø 12 mm	2	18
ER-017536	Compact Electrode holder ø 16 mm	2	18
ER-029015	Compact Standard holder	6	20
Order chucking spi	gots according to requirements.		

#### **EROWA ITS Auxiliary Equipment**

## Chuck operation

#### ER-001846 Air jet







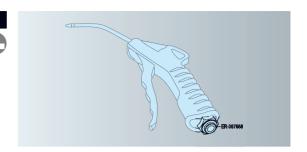
1/4", inside thread.

Application Operation of manual chucks.

Volume and pressure reduction to air jet (ER-087668). Option

Pressure build up is reduced if Air Jet is not pushed against

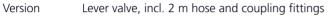
an air valve.



#### Manual valve ER-010538

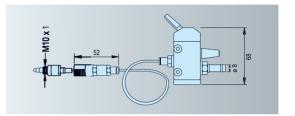






Operation of chucks with an air connection for opening. **Application** 

Note Connecting thread M10x1.



#### ER-011598 Rapid-action coupling chuck side (A)



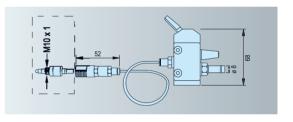




Fast coupling for compressed air. Version

Application Screw into a suitable EROWA chuck. Cf. manual.

Note For connecting thread M10x1.



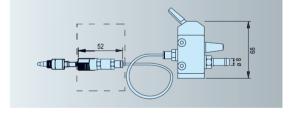
#### ER-011597 Rapid-action coupling hose side (B)





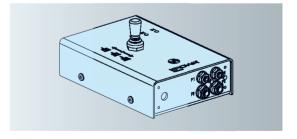
Fast coupling for compressed air Version Application For use on the air supply

Application

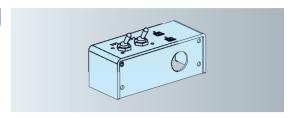


#### ER-008988 Manual control unit 940 Version Manual valve to control all the functions of ITS, ITS Compact CombiChuck, PowerChuck P and UPC: opening/reclamping/cleaning.

Operation of chucks on machines.



#### ER-039466 Additional valve double Version For mounting to the manual control units ER-008988 and ER-073872, incl. set of hoses. Operating of two separate chucks with one single control **Application**



#### ER-074893 **Pressure booster**







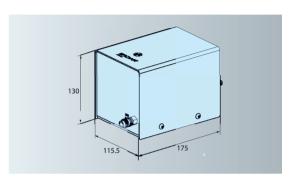
Version Quick-connect couplings for hose  $\emptyset$  i = 8 mm.

Compression ratio: 1:2

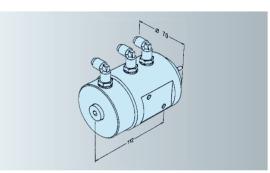
**Application** On insufficient system pressure and on pressure

fluctuations.

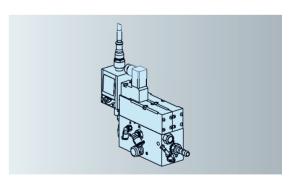
Installation Integrate in air circuit near application.



#### ER-011362 Twin rotatable pneumatic connector ER-011412 Triple rotatable pneumatic connector **∜**‡∥auto Non machine specific connection flange. Two (three) air Version Max. speed: 6000 rpm. Max. operating pressure: 10 bar. Air supply to EROWA chucks on rotatable spindles. Application Operation Only operate when spindle is at stand still!



#### ER-070445 Control unit with monitoring Version Electropneumatic valve. Outputs for chucks: opening/cleaning/reclamping. 24 V, incl. mounting accessories and 3 m connection hose. Application Operation and monitoring of machine-integrated chucks, for instance through the CNC M-function.



## EROWA ITS Auxiliary Equipment

## Toolroom accessories

#### ER-010906 Set of tools

Application



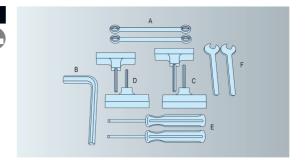


Application A = Box wrench 8/10 mm for supporting feet M5

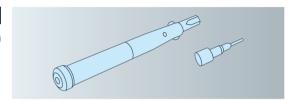
B = Key 8 mm for chucking spigot C = Key with handle 4 mm D = Key with handle 3 mm

E = Screwdriver for slotted screws in Uniplate

F = Open-end wrench 8 mm

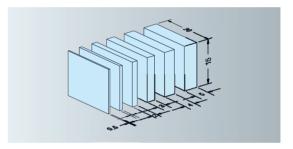


#### ER-011600 Torque wrench Torque range up to 20 Nm, inc. 3, 4, 5, 6 mm key and one Version WS 8 mm bit. Service and fitting work on ITS system parts. Application

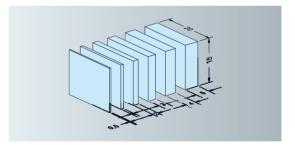


EN-010332	300 pieces	
		<b>640</b>
Version	6 x 50 plates. Corrosion-resistant. Thicknesses from 0.5 mm to 5 mm.	

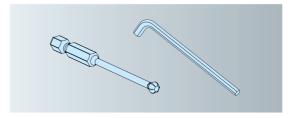
Centering of blanks in electrode holders.



ER-010514	Insert plates 0.5mm 50 pieces	
ER-010518	Insert plates 1mm 50 pieces	
ER-010521	Insert plates 2mm 50 pieces	
ER-010523	Insert plates 3mm 50 pieces	
ER-010525	Insert plates 4mm 50 pieces	
ER-010526	Insert plates 5mm 50 pieces	
		<b>&amp;&amp;</b>



ER-103687	SW5 hex key set for ITS C
Version	Consisting of 1 SW5 insert ball-point hex key, 1 hex key 5.



#### System stand 10 pieces ER-013913

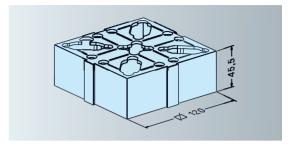
Version Plastic, set of 10.

Application As a rack for four electrode holders 50 or a pallet

ø 115/148 mm.

Please note System racks can be stuck together without any gaps, e. g.

to be stored in drawers.



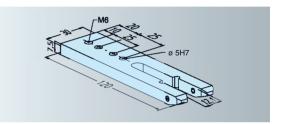
#### Carrier fork for electrode changer ER-010661



Version Steel, hardened, ground.

To build simple electrode changers, suitable for ER-007521 Application

and ER-007523



#### ER-024808 Pick-up fork Combi

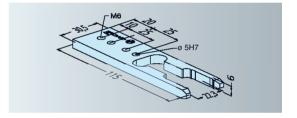
Version



Corrosion-resistant steel.

**Application** To make simple electrode changers suitable for chucks

ER-020025 and ER-020026.



ER-022457	Supporting foot SW13H/L=16/L1=11.4

20 pieces

ER-008547 Support foot SW13/L=16/L1=10.2

20 pieces

ER-008553 Support. foot SW13/L=21/L1=10.2

20 pieces



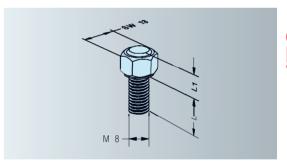
Set of 20 supportfeet. Version

ER-022457  $\dot{L}$  = 16 in combination with.

G-centering plates,

Position outside the centering plate.

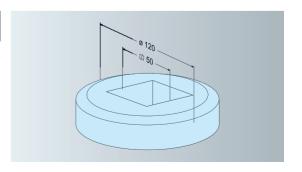
ER-008547 L = 16 for punched centering plates, ER-008553 L = 21 for G-centering plates.



#### Chip guard 50 x 50mm, ø 120 mm ER-010744 for rapid-action chuck



**Application** On Uniplate, Prisround and all other standardholders.



#### **EROWA ITS Auxiliary Equipment**

## Toolroom accessories

#### ER-022355 Sealing ring for ITS chucking spigot 50 pieces

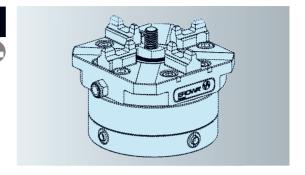






Application Set of 50 sealing rings. Sealing between chucking spigot

and Rapid-action chuck.



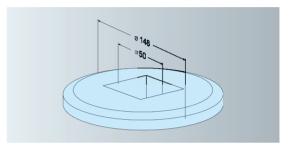
#### ER-008475 Chip guard 50 x 50 for PowerChuck







On Uniplate, Prisround and all other standard holders. **Application** 



#### EWIS™ Rapid chip with chip holder SW14 ER-035154

with chip ø 12,4 x 2mm





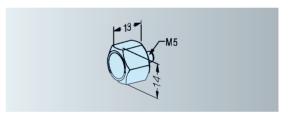




EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been **Application** 

prepared for it.



#### EWIS™ rapid chip with chip holder SW14 for holder C ER-094168





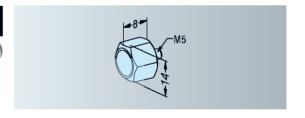


Version Sleeve fitting with built-in data carrier.

EWIS Rapid chip: read only.

In any EROWA electrode holder and pallet which has been Application

prepared for it.



#### ER-035156 EWIS™ Rapid chip with chip holder long

with chip ø 12,4 x 2mm







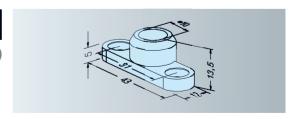


EWIS™ Chip: read only.

With EROWA Collet Chuck holders and Application

Square 15/25 holders.

Mounting With supplied M4 bolts.



## **EROWA ITS Auxiliary Equipment**

## Spare parts

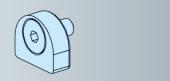
ER-035294 EWIS™ Rapid chip with chip holder RCS with chip ø 12,4 x 2mm





Holder with built-in data carrier. EWIS chip: read only. To build into RCS coupling, PalletSet W holder and

Basic WEDM holder.



ER-010694 Sealing washer 24 pieces

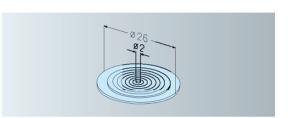
Version

Application



Application Set of 24 washers. Insertion in Prisround for sealing on

central flushing.



ER-013062 Repair kit for ITS chuck
ER-015985 Repair kit for ITS chuck INOX



Version All the wear parts of ITS rapid-action chucks.

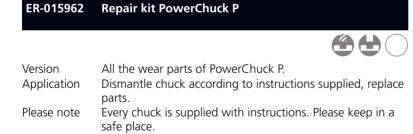
Application Dismantle chuck according to instructions supplied, replace

parts.

Please note Every chuck is supplied with instructions. Please keep in a

safe place.







Note

## EROWA ITS Auxiliary Equipment

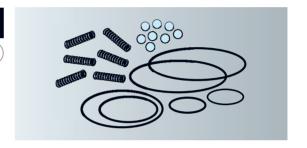
## Spare parts

ER-023121	Repair kit for UPC O-rings, springs, balls
Version	All the wearing parts of UPC ER-016092, ER-016093, ER-070649 and ER-074524.
Application	Dismantle UPC according to instructions supplied, replace

Each UPC is supplied with an operating manual, which you



ER-023120	Repair kit for UPC P O-rings, springs, balls
Version	All the wear parts of UPC P ER-016841, ER-078728 and ER-028784.
Application	Dismantle UPC P according to instructions supplied, replace parts.
Note	Each UPC P is supplied with an operating manual, which you will please keep.



ER-009007	Viton seal ø18.5/12 x 9 mm 10 pieces	



Version Set of 10 seals.
Application To fit ITS rapid-action and power.

will please keep.

EROWA ITS AUXILIARY EQUIPMENT

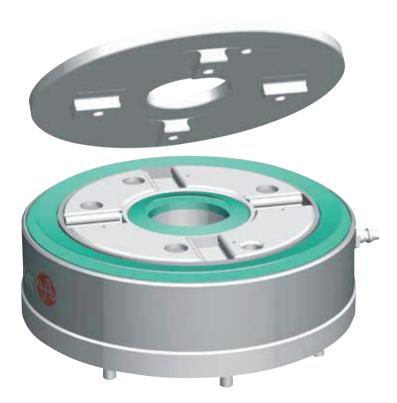


#### **EROWA FTS Fine Tooling System**

# Workpiece palletization on small machines

The significance of setting up while the machine is at work is not a function of workpiece size. Rather, it is the time spent on changing from one production batch to another that has a crucial impact on machine productivity. Even with very small parts on machines designed for fine and finest processes, setting up outside the machine can be a critical success factor for production.

The FTS Fine Tooling System has been adapted to exactly these circumstances. With a positioning accuracy of less than 0.002 mm and its extremely flat design, it contributes toward an optimal exploitation of the working range of small machines.



- The pallet is positioned and clamped with special profiles.
- The pallet has to be raised only 4 mm before it can be removed from the church
- The precision pallet is made of one piece
- The chuck centers and clamps the pallet by means of spring tension. Thus functional safety is also guaranteed in the case of air-pressure failure.
- The compressed air required to open and clean the chuck is supplied through the lateral connections or directly through the base plate.
- Central through borehole of ø 18 mm.
- The seals ensure that the pallet is neatly and precisely clamped and positioned.

#### Applications

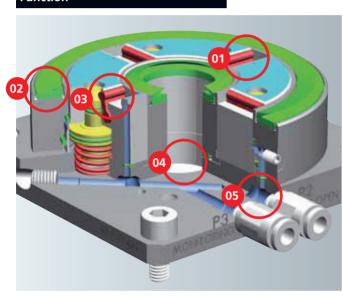
#### Handling





Manual / Loading facility / Robot

#### **Function**



#### 01 | Cleaning

Contact surfaces are automatically cleaned with compressed air.

#### 02 | Seals

The seals ensure reliable protection from contamination.

#### 03 | Clamping mechanism

Reliable clamping mechanism thanks to spring tension.

#### 04 | Through-hole

Central through borehole of ø 18 mm.

#### 05 | Connections

Pneumatic system can be connected up laterally or through the base plate.

#### Technical data - FTS Fine Tooling System

FTS Fine Tooling System	
Repeatability	< 0.002 mm
Indexation	4 x 90°
Clamping power	400 N
Recommended workpiece size	depends on machining power
Clamping	by spring tension
Opening	by compressed air, min. 6 bar
Operation	control unit or air gun



### EROWA FTS Fine Tooling System in Operation

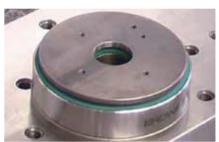
# The palletizing system for micro-machining

Have a closer look at EROWA's FTS Fine Tooling System. All its components are made of stainless steel. The chucks can be fitted to a wide variety of machine tables, either directly or with adapter plates. A standard pallet covers the main range of applications.

#### FLAT DESIGN

For a maximum utilization of the machine working range.







Chuck height: only 23 mm!

FTS in operation on a laser marking machine. The system's high positioning accuracy ensures the quality of signage even on the smallest of workpieces.

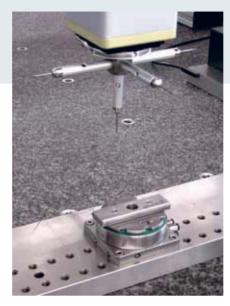




Setting up outside the machine is an essential success factor for increased machine productivity.



Fixture with set-up workpieces.



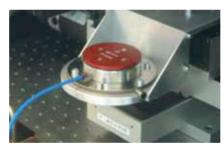
Positioning accuracy is below 0.002 mm on all machines. Precision is retained after every machining process change.



The chucks can be fitted to the machine table directly or with adapter plates.



The flat precision pallet is the basis for all clamping processes.



The cover prevents penetration of chips and dirt into the FTS chuck.



4 mm vertical movement to remove the pallet. This, too, saves space.



FTS is ideally suitable for the high-precision machining of small and smallest workpieces.

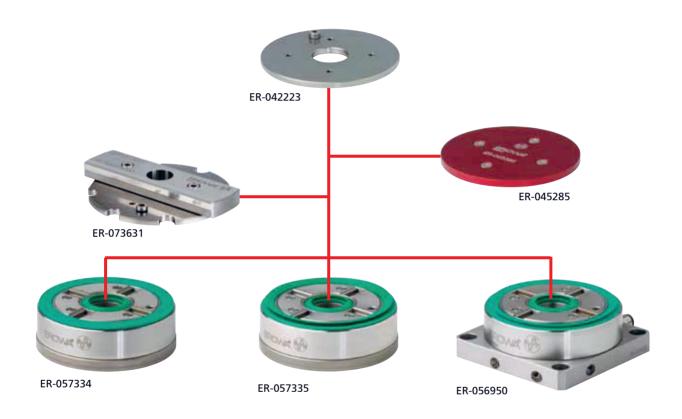


All axes, X, Y, Z and the center are checked with the same alignment plate.

## EROWA FTS Fine Tooling System

## Tooling System

## The components



To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA FTS FINE TOOLING SYSTEM**

FTS Fine Tooling System	Chucks	254
FTS Fine Tooling System	Auxiliary equipment	255



For chip-removing processes



For EDM sinking



For WEDM

# EROWA FTS Fine Tooling System

### Chucks

Technical Data	FTS Fine Tooling System
Repeatability	< 0.002 mm
Indexation	4 x 90°
Clamping power	400 N
Recommended workpiece size	depends on machining power
Clamping	by spring tension
Opening	by compressed air, min. 6 bar
Operation	control unit or air jet

#### ER-057334 FTS Chuck manual Inox



Pneumatic FTS chuck.

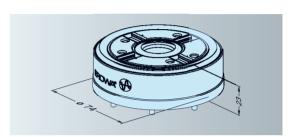
To fit With 7 x M3 bolts through the chuck.

Connections Lateral for opening.

Version

Version

Operation With air jet ER-001846 (option).



#### ER-057335 FTS Chuck pneumatic Inox



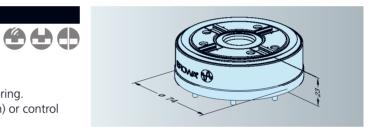
Pneumatic FTS chuck.

To fit With 7 x M3 bolts through the chuck.

Connections At the rear for opening and cleaning/monitoring.

Operation With manual control unit ER-008988 (option) or control

unit with monitoring ER-070445 (option).



#### ER-056950 FTS Chuck with base plate Inox





840

Version Pneumatic FTS chuck with base plate.

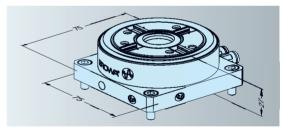
To fit With 4 x M5 bolts on grid dimension 63 mm through the

pase plate

Connections Lateral for opening and cleaning/monitoring.

Operation With manual control unit ER-008988 (option) or control

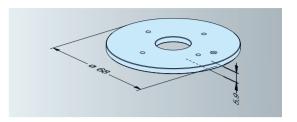
unit with monitoring ER-070445 (option).



#### EROWA FTS Fine Tooling System

# Auxiliary equipment

ER-042223	Pallet FTS
Version	Steel pallet, hardened, including positioning pin for safe positioning. With central borehole ø 18 mm.
Application	To accommodate workpieces or fixtures.
To fit blanks	Through the pallet with 4 x M3 bolts.

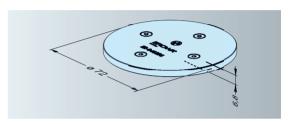


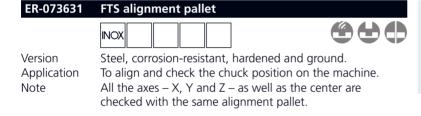
ER-045285	Cover FTS	
Version	Aluminum, with elox finish.	

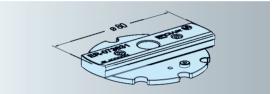
Application To protect chucks that are not in operation on the

machine.

Note CANNOT be used as a pallet.





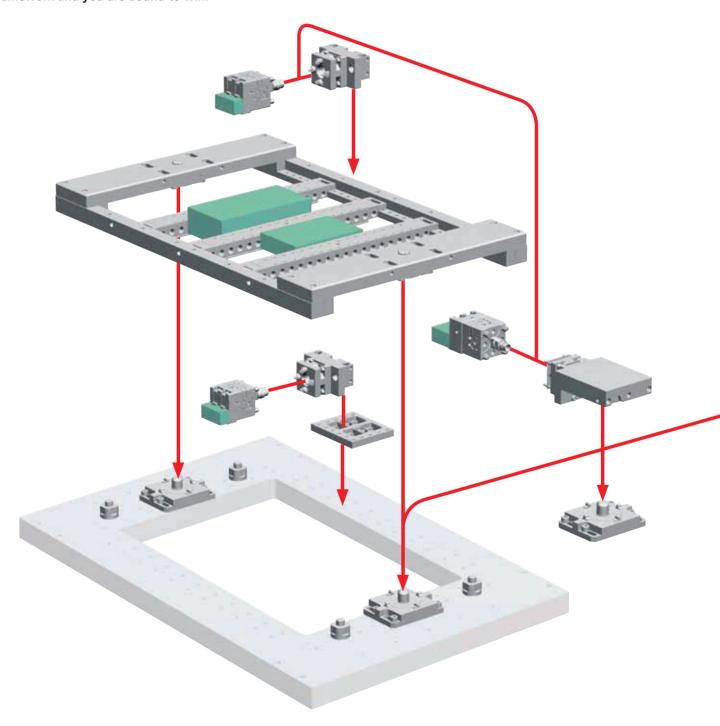




# The modular tooling system for WEDM purposes

EROWA tooling systems make WEDM centers considerably more flexible and productive. Down-times can be virtually eliminated. Expensive machines can work round the clock.

Our program contains system components for newcomers, for those who would like to extend the use of ITS, and for top-end users. You define the framework and you are bound to win.



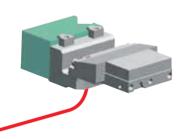
#### Applications

Handling



Manual / Loading facility / Robot

- Modular tooling system.
- Single and multiple palletization.
- Repeatability of clamping elements 0.002 mm.
- WEDM basic kits for all popular WEDM centers.
- Can be automated with EROWA handling handling facilities.



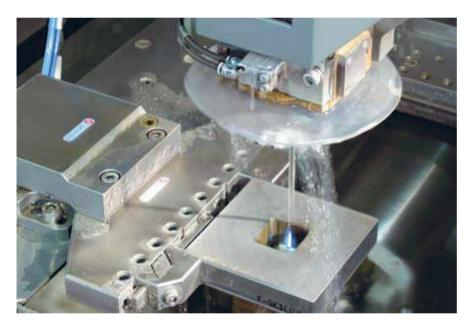
	Flat clamping chuck pneumatisch	manuell	Chuck RSA 50	QuickChuck 50 RSM
Repeatability	0.002 mm	0.002 mm	0.002 mm	0.002 mm
Indexing			4 x 90°	4 x 90°
Clamping power	with reclamping	without reclamping		
	7′000 N	3′000 N	2′800 N	4′000 N
Clamping process	Spring tension	mechanically	Spring tension	Spring tension
Opening, compressed air, dry	min. 6 bar		***************************************	min. 6 bar
Operation	pneumatically	mechanically	pneumatically	mechanically
Max. weight of pallet	30 kg (with support)	30 kg (with support)		

# Quick and precise resetting

The right solution for every application. With well-thought-out combinations of vises, clamping elements and clamping beams, any conceivable workpiece can be clamped. The repeatability of EROWA's Wire EDM tooling system allows for workpieces to be preset outside the machine and for safe automatic loading. Ongoing jobs can be interrupted for express jobs and then continued later.

#### FLEXIBLE

Suitable workpiece carriers for all workpiece sizes.







Use removable supports where they make sense. Thread in EDM wire through the special grooves.



Special mounting for cylindrical parts. Mounted to the pendulum holder, the workpiece is adjustable in three axes.



Adjustable in all axes: the pendulum holder with fitted flat vise.



Use removable supports where they make sense. Thread in EDM wire through the special grooves.

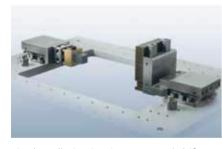




EROWA Lift to load the WEDM center.



Special accommodation for cylindrical parts. Fitted to the pendulum holder, workpieces can be adjusted in three axes.



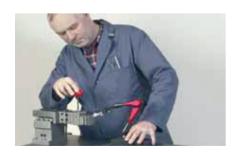
Single palletization in a manned shift: this is where the tricky jobs are done.



EDM electrode holders are positioned on the WEDM center for machining both quickly and with high precision.



Its low design creates more space for workpieces.



Presetting the workpieces saves time.



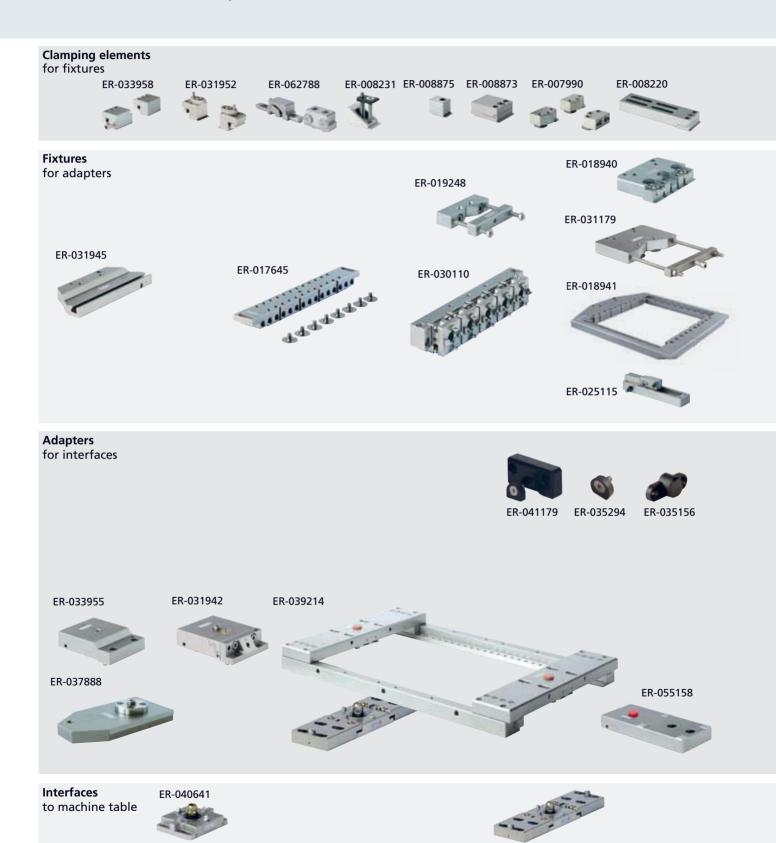
Presetting made easy. While the WEDM center is in operation, the next job is being preset quickly and accurately on the EROWA PreSet station.

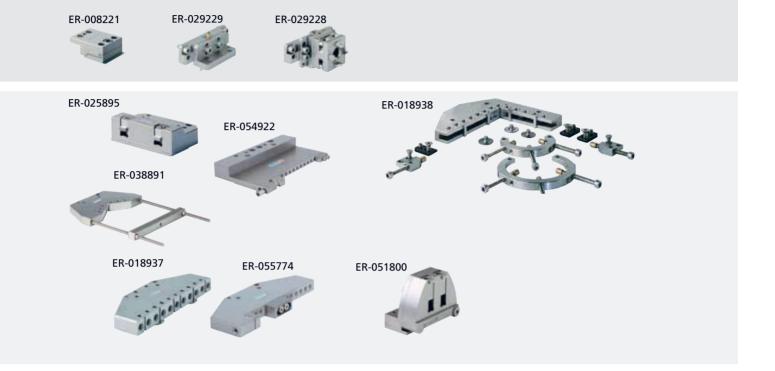


Load Robots for more autonomy at night and at weekends. We'll be glad to advise you how to increase your productivity with an EROWA handling facility.

# **Tooling System**

#### The components







ER-035715

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:



1. Manual operation



2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS



#### **EROWA WIRE EDM TOOLING**

Wire	e EDM Tooling	Interfaces to machine table	264
Wire	e EDM Tooling	Adapters for interfaces	268
Wire	e EDM Tooling	Fixtures for adapters	273
Wire	e EDM Tooling	Clamping elements for fixtures	282
Wire	EDM Tooling	System accessories	285
Wire	EDM Tooling	Wire EDM Tooling Kits	290
Wire	EDM Tooling	Clamping equipment sets	292



For chip-removing processes



For EDM sinking

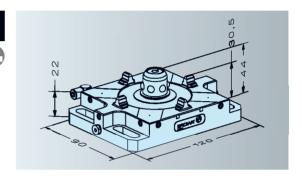


For WEDM

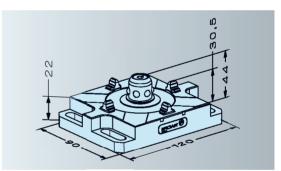
# Interfaces to machine table

Technical data	Flat chuck	Flat chuck	Basic WEDM chuck
	pneumatic	manual	manual
Repeatability	0.002 mm	0.002 mm	0.002 mm
Clamping power	with reclamping	without reclamping	without reclamping
	7,000 N	3,000 N	8,000 N
Generated by	spring power	mechanic	mechanic
Opening with compressed air, dry	min. 6 bar		
Operation	pneumatic	manual	manual
Max. pallet weight	30 kg (with support)	30 kg (with support)	15 kg (with support)

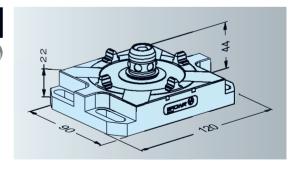
ER-035714	Flat chuck pneumatic PalletSet W / FrameSet
	P\$ PF   NOX auto
Version	Pneumatic chuck for a direct fit to the $Z = 0$ base of the
	WEDM center.
Application	On WEDM centers with manual or automatic workpiece
	loading.
Connections	On the side for opening, cleaning, reclamping.



ER-035715	Flat chuck manual PalletSet W / FrameSet
Version	Mechanical chuck for a direct fit to the $Z = 0$ base of the
	WEDM center.
Application	On WEDM centers with manual workpiece loading.
Operation	With a manually operated ball lock.



ER-040641	Basic WEDM chuck Basic Tooling
Version	Mechanical chuck for a direct fit to the $Z = 0$ base of the WEDM center.
Application Operation	On WEDM centers with manual workpiece loading. With a manually operated ball lock.



Technical data	Chuck RSA 50	QuickChuck 50 RSM	
Repeatability	0.002 mm	0.002 mm	
Indexing	4 x 90°	4 x 90°	
Clamping power	2,800 N	4,000 N	
Clamping	Spring power	mechanical	
Opening with compressed air, dry	min. 6 bar		
Operation	pneumatic	mechanical	

#### ER-007851 Chuck 50 RSA / on universal plate UnoSet

INOX auto

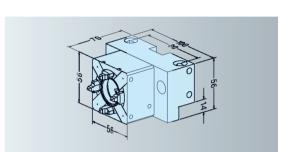
Automatic, with pneumatic valve.

Application ITS base for the manual or automatic loading of

ITS elements.

Use On all machine bases and FrameSet beams.

Can be used either horizontally or vertically.



#### ER-007852 QuickChuck 50 RSM / on universal plate UnoSet

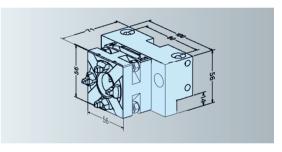


Version Manual.

Version

Application ITS base for the manual loading of ITS elements.
Use On all machine bases and FrameSet beams.

On all machine bases and FrameSet beams. Can be used either horizontally or vertically.



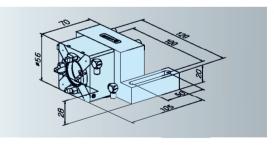
#### ER-022583 Clamping chuck 50 RSA / UnoSet on adapter plate R=100mm



Chuck 50 on adapter plate, manual.

Application To be fitted directly to any machine bases with attachment

boreholes in a 100 mm grid.



#### ER-022584 QuickChuck 50 RSM UnoSet on adapter plate R=100mm





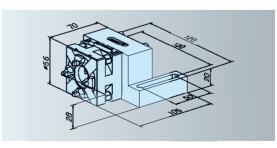
Version Application

Version

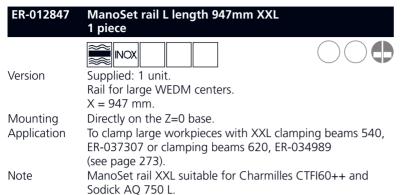
Chuck 50 on adapter plate, manual.

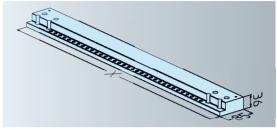
To be fitted directly to any machine bases with attachment

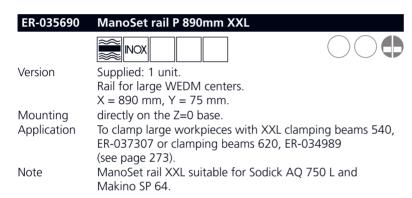
boreholes in a 100 mm grid.

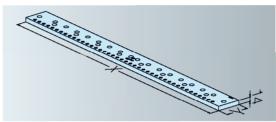


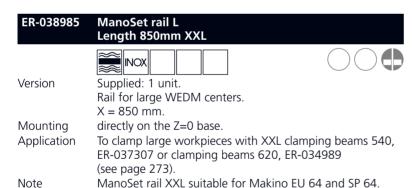
## Interfaces to machine table

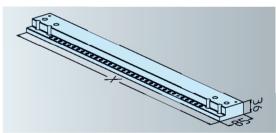


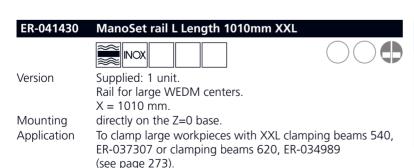








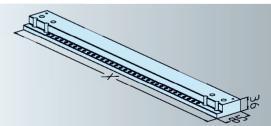


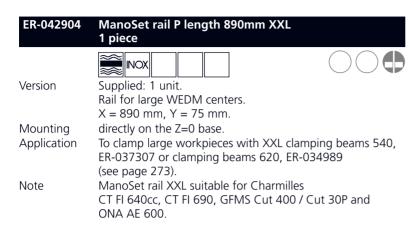


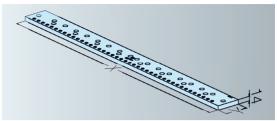
ManoSet rail XXL suitable for Makino U86 and

Seibu M 750.

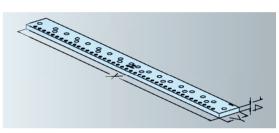
Note



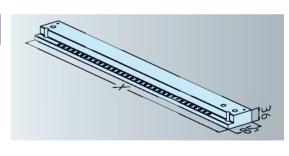


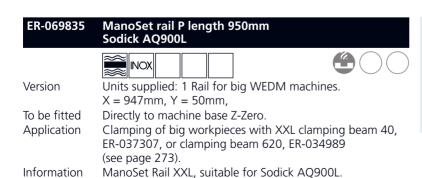


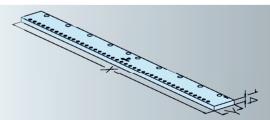






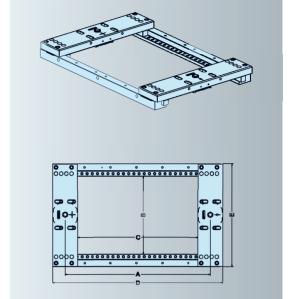






# Adapters for interfaces

ER-045555	Clamping frame FrameSet 430/220-335
ER-039212	Clamping frame FrameSet 430/300-335
ER-039211	Clamping frame FrameSet 490/220-395
ER-039213	Clamping frame FrameSet 500/300-405
ER-039214	Clamping frame FrameSet 560/300-465
ER-039215	Clamping frame FrameSet 650/300-555
ER-039216	Clamping frame FrameSet 650/380-555
ER-039217	Clamping frame FrameSet 710/380-615
	NOX auto

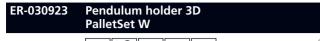


Version	Clamping frame for the multiple palletization of
	workpieces.

Application To fit on EROWA flat chucks (see page 264).

Options See Clamping beams and clamping elements for the EROWA Wire Tooling System, starting from page 273.

	Α	В	С	D	E
ER-045555	430	220	335	525	396
ER-039212	430	300	335	525	396
ER-039211	490	220	395	585	316
ER-039213	500	300	405	595	396
ER-039214	560	300	465	655	396
ER-039215	650	300	555	745	396
ER-039216	650	380	555	745	476
ER-039217	710	380	615	805	476



INOX auto Version

Note

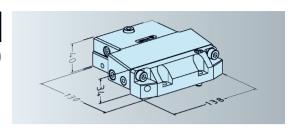
Pendulum head for automatic and manual loading.

G-Centerning plates for increased durability.

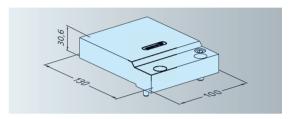
Basis for all the other clamping elements such as UniVise Application

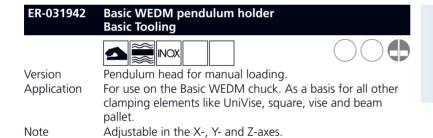
square, frame pallet, vise and beam pallet.

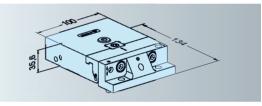
Adjustable in the X-, Y- and Z-axes. Note

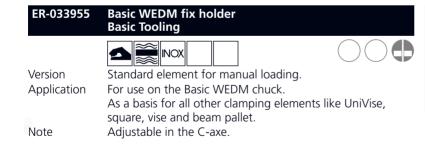


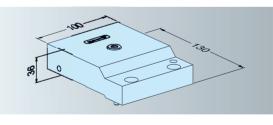
#### ER-030678 Fix holder PalletSet W INOX auto Version Standard element for automatic and manual loading. Base for all other clamping elements such as UniVise Application square, frame plate, vise and beam pallet. Adjustable in the C-axis. Note











# Adapters for interfaces

#### ER-030645 **UnoSet adapter PalletSet W** centering plate G

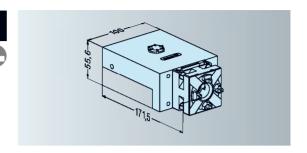
||NOX||auto||



Clamps workpieces of system size ITS 50 horizontally into **Application** 

the workspace.

Fits all UnoSet and ITS 50 clamping elements. Note



#### ER-030643 **UnoSet adapter with RSA 50** PalletSet W

NOX auto

Version System adapter from Palletset W to UnoSet. Application Clamps workpieces of the ITS 50 system size

horizontally into the workspace.

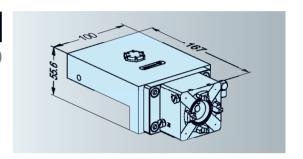
Clamping

power

Version

Version

Suitable for all UnoSet and ITS 50 clamping elements. Note



#### PSW adapter QuickChuck 50 Combi ER-033933 PalletSet W / centering plate G



System adapter from Palletset W to UnoSet and/or Version

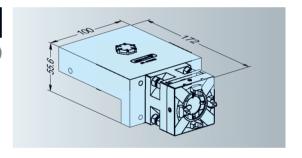
2800 N.

**Application** Clamps workpieces of the ITS 50 and Compact system

sizes horizontally into the workspace.

Suitable for all UnoSet and ITS 50 clamping elements and Note

Compact clamping elements.



#### ER-033974 PSW adapter QuickChuck 100 P



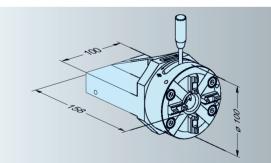
Version System adapter from Palletset W to UnoSet, ITS 50,

holder ø 72, and pallets 148, 115.

Clamps workpieces of the ITS 50 and ITS 100 system sizes **Application** 

horizontally into the workspace.

Suitable for all UnoSet clamping elements. Note



#### ER-035994 PSW adapter QuickChuck 100 P 360° turnable



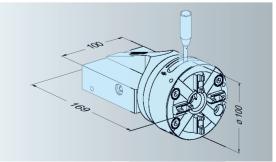


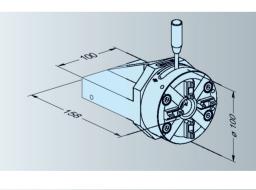
**Application** Clamps workpieces of system size ITS 50 and ITS 100

horizontally into the working range. Can be rotated

around 360°.

Fits all UnoSet clampingelements and ITS 115/148 pallets. Note







Version System adapter from Palletset W to UnoSet.

Z-axis height adjustable.

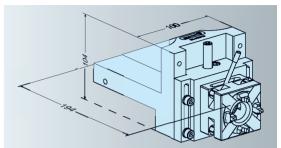
Application To clamp UnoSet and electrodes/workpieces

in the ITS 50 system size horizontally into the workspace. Suitable for use with the whole ITS 50 system and elec-

trode holders.

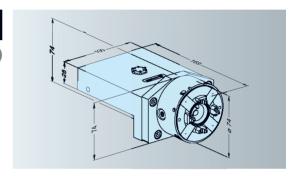
Note

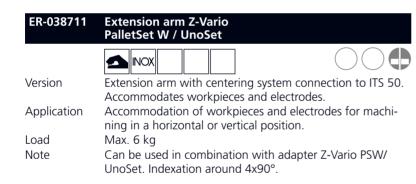
Option

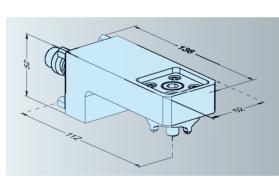


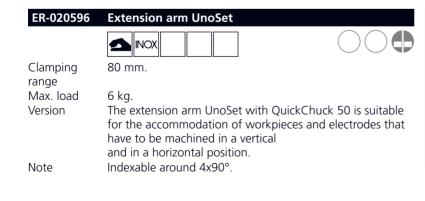
# Version Application Operation Note Holder Ø 72 PalletSet W System adapter from Palletset W to ITS 50 holder Ø 72 Clamps workpieces of holder Ø 72 size horizontally into the workspace. Pneumatically with air jet. Suitable for all holders Ø 72 and ITS 50.

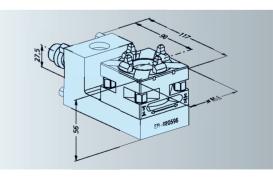
ER-032832 Sealing ring ITS Chuck 50.



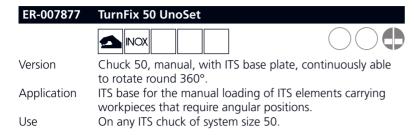


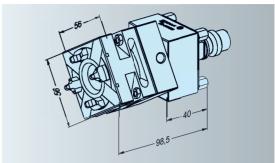




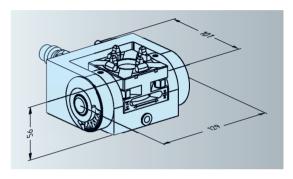


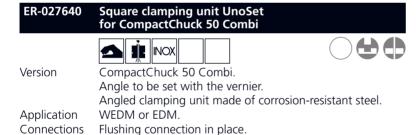
# Adapters for interfaces

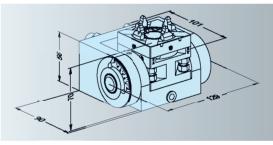




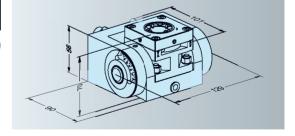
# Version Application Max. load Max. work-piece size Connections Angle clamping unit UnoSet for QuickChuck 50 Chuck 50, angle to be set with the vernier. WEDM or EDM. To fit lateral sprues to casting tools. 6 kg. 100 x 100 x 100 mm. Flushing connection in place.



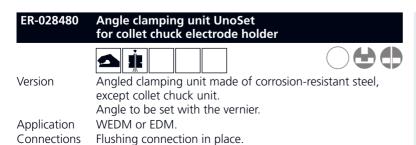


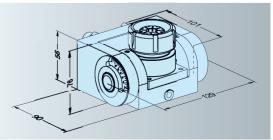


ER-027641	Square clamping unit UnoSet for CompactChuck M
Version	CompactChuck manual.
	Angle to be set with the vernier.
	Angled clamping unit made of corrosion-resistant steel.



Application WEDM or EDM.
Connections Flushing connection in place.





# Fixtures for adapters

ER-017645	Clamping beam 220mm	
ER-017646	Clamping beam 300mm	
ER-017647	Clamping beam 380mm	
ER-017648	Clamping beam 460mm	
		0 0 1



Application To clamp workpieces with clamping claws on Z-discs.

Version Cross boreholes, ground.

Clamping Be	eam X	Y
ER-017645	22 mm	46 mm
ER-017646	25 mm	46 mm
ER-017647	25 mm	46 mm
ER-017648	36 mm	56 mm

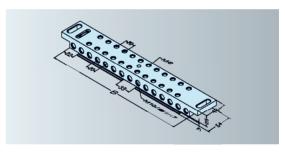
ER-021126	Double-sided clamping beam 300mm	
ER-021127	Double-sided clamping beam 380mm	
ER-021128	Double-sided clamping beam 460mm	

Application To clamp workpieces with clamping claws on Z-support

ieages

ledges.

Version Cross boreholes, ground.

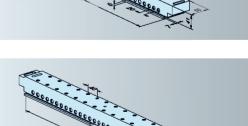


ER-037307	Double-sided clamping beam 540 ManoSet XXL	

Application Clamping of workpieces with clamping claws on Z-support









## Fixtures for adapters

#### ER-030110 Beam 5-fold 300 QuickChuck 50

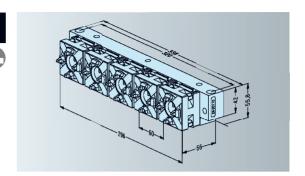
**△ NOX** 

Five chucks 50, manual, in a row.

Application Use

Version

ITS adapter for the manual loading of five ITS elements. On all FrameSet clamping frames. Width 300 mm. In combination with the basic adapter set (ER-016652) on the WEDM machine table.



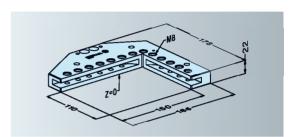
#### ER-018938 UniVise square PalletSet W



Version Square with all the clamping accessories.

Application To be fitted to fix holders or pendulum holders.

Note Max. load: 10 kg.



#### ER-018940 Vise PalletSet W

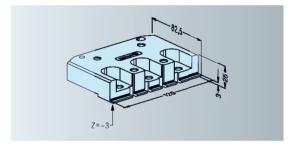


Version Clamping element with clips for one-sided attachment to

workpieces.

Application To be fitted to fix holders or pendulum holders.

Note Max. load: 12 kg.



#### ER-019248 Prism holder 80 PalletSet W



Prism and clamping part with detachable Z-supports. Clamping of cylindrical workpieces of up to Ø 80 mm. To be fitted to the front of beam pallet ER-018937 or

clamping beams (cf. p 273).

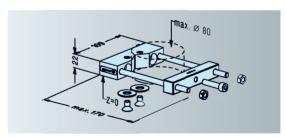
Note Max. load: 6 kg.

Version

**Application** 

Assembly

Version



#### ER-031179 Prism holder 120 mm PalletSet W



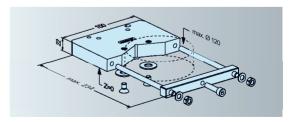
Prism and clamping bars with detachable Z-supports.

Application To clamp cylindrical workpieces of up to

ø 120 mm

Mounting directly to fixholder or pendulum holder.

Note Max. load: 10 kg.





**INOX** 

Version Prism and clamping bars with detachable

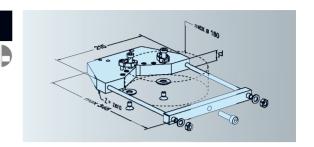
Z-supports.

Application To clamp cylindrical workpieces of up to

ø 180 mm.

directly to fixholder or pendulum holder. Mounting

Note Max. load: 12 kg.



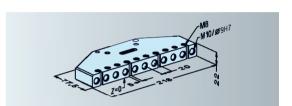
#### ER-018937 Beam pallet PalletSet W



Version Pallet to accommodate various clamping elements.

Includes Z-supports and clips.

To be fitted to fix holders or pendulum holders 3D. Application **Options** Prism holders and BeamVise clamping elements.



#### ER-054922 Flat vise 8mm PalletSet W



One movable jaw and one fixed jaw. Hardened, ground Version

and corrosion-resistant.

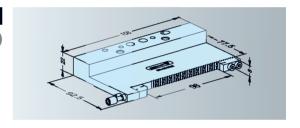
Clamping 0 - 96 mm.

range

Max. load 5 kg.

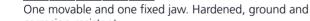
Lateral clamping of workpieces machined outside of up to Application

96mm. To be fitted to fixholder or pendulum holder.



#### ER-055774 Flat vise 170 mm PalletSet W





corrosion-resistant. 0 - 171 mm.

Clamping

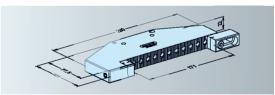
range

Version

Max. load 12 kg.

Lateral clamping of workpieces of 0 - 171mm machined **Application** 

from the outside. To be fitted to fix or pendulum holders.





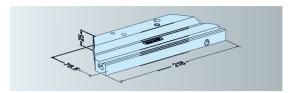
Options

#### **EROWA Wire EDM Tooling**

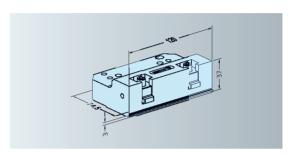
# Fixtures for adapters

# Version To accommodate various clamping elements. Application To fit to fixholder or pendulum holder 3D.

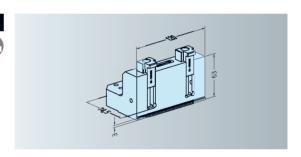
Jaw holder ER-033958 or bracket holder ER-031952.



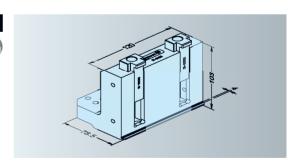
# Version Vise with fixed Z-lip and jaws attached from above. Hardened and ground. Clamping range Max. load Application Application Vise PalletSet W 40 mm Vise with fixed Z-lip and jaws attached from above. Hardened and ground. max. 150 x 150 x 40 mm. 12 kg. Lateral clamping of workpieces of 0 -150 mm machined from the outside. To be fitted to fix or pendulum holders.

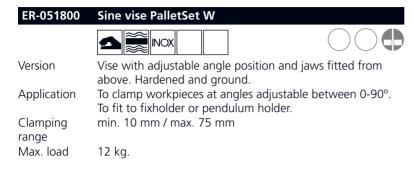


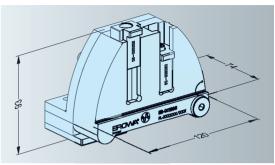
# Version Application Max. clamping Max. load Vise PalletSet W 100 mm Vise with fixed Z-lip and jaws fitted from above. To clamp workpieces of up to 100 mm in height. To be fitted to fixholder or pendulum holder. Max. load 12 kg.



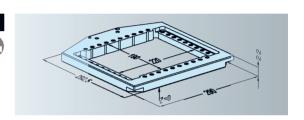
ER-034631	Vise PalletSet W 140 mm
Version	Vise with fixed Z-lip and jaws fitted from above. Hardened and ground.
Application	To clamp workpieces of up to 140mm in height.  To be fitted to fixholder or pendulum holder.
Max. load	12 kg.
Max. clamping range	150 x 100 x 140 mm.

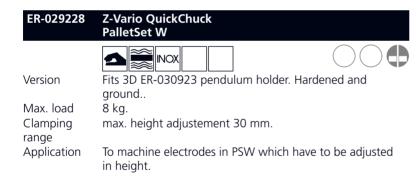


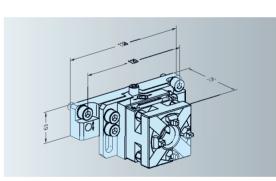


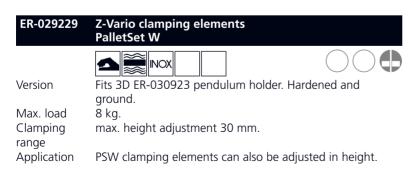


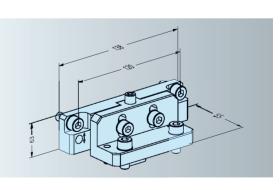
# Version Clamping frame for multiple palletization of work-pieces. Application Option Option Note Clamping beam 220 ER-017645. To support the clamping frame, use Z-supports (Page 278).











Version

Mounting

#### **EROWA Wire EDM Tooling**

## Fixtures for adapters

#### ER-025115 Z-support PalletSet W universal pneumatic, 1 pair



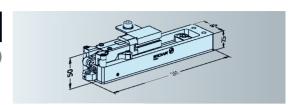
1 pair of supports. Hardened and ground. Directly on the Z=0 base of the WEDM center.

Operation With manual control unit.

Application Support and clamping of the frame plate with weights

of up to 30kg. Stabilizes the frame plate in case of high

flushing pressure.



#### ER-025116 Z-support PalletSet W universal manual 1 pair



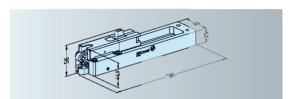
Version 1 pair of supports. Hardened and ground. Mounting Directly on the Z=0 base of the WEDM center.

Operation Manually.

Application Support and clamping of the frame plate with weights

of up to 30 kg. Stabilizes the frame plate in case of high

flushing pressure.



### ER-025100 Z-support beam 300 PalletSet W manual ER-025101 Z-support beam 380 PalletSet W manual

ER-027205 Z-support beam 460 PalletSet W manual

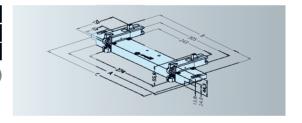


Version Support beam for use in EROWA ManoSet.

Operation Manually.

Application Support and clamping of the frame plate w

Support and clamping of the frame plate with weights of up to 30 kg in combination with EROWA ManoSet. Stabilizes the frame plate in case of high flushing pressure.



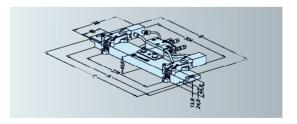
ER-025027	Z-support beam 300 PalletSet W pneumatic
ER-025030	Z-support beam 380 PalletSet W pneumatic
ER-028306	Z-support beam 460 PalletSet W pneumatic

P1: NOX auto

Version Support beam for use in EROWA ManoSet. Operation Pneumatically.

Application Support and clamping of the frame plate with weights of up to 30kg in combination with EROWA ManoSet.

Stabilizes the frame plate in case of high flushing pressure.





Clamping

Ranges from 0 to 100 mm.

range

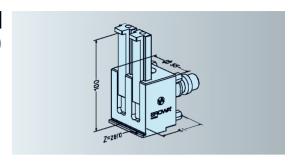
Max. exten-

40 mm at 100 mm workpiece height.

sion

Zuladung max. 5 kg.

Workpiece fixed. Including three sets of clamping jaws. Version



#### ER-007935 Rotary vise 0 - 100 UnoSet



Clamping range

0-100 mm.

Max. exten-

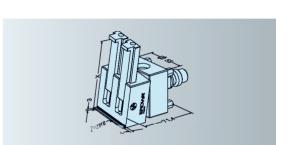
40 mm with 100 mm part height.

sion

Zuladung max. 5 kg.

Version Continuously able to rotate around 360°.

Set with three pairs of clamping jaws.



#### ER-014698 **VeeVise UnoSet**



Clamping

0-100 mm.

range

Max. extension

Zuladung

max. 5 kg.

Clamping component without ITS connection. Version

40 mm with 100 mm part height.

To fit to an existing pendulum rotating adapter.



#### ER-008842 Pendulum vise 0 - 100 UnoSet



Clamping

Ranges from 0 to 100 mm.

range

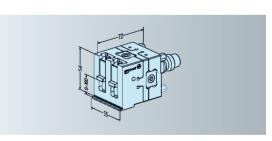
40 mm at 100 mm workpiece height. Max. exten-

sion

Zuladung

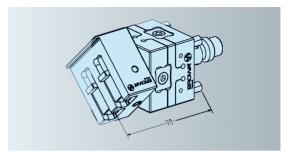
Version Workpiece adjustable in two axes. Including three sets of

clamping jaws.



## Fixtures for adapters

# Clamping o-100 mm. Max. extension Zuladung Version Rotatable pendulum vise 0 - 100 UnoSet A0 mm with 100 mm part height. For adjustable workpiece positioning in three axes. Continuously able to rotate around 360°.

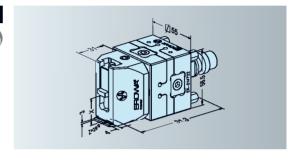


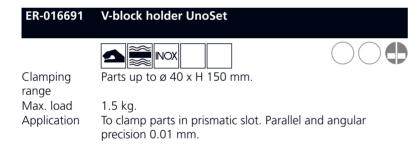
# Clamping o-100 mm. Max. extension Zuladung wax. 5 kg. VeeVise TP UnoSet 0-100 mm. 40 mm with 100 mm part height. max. 5 kg. Version Version Version VeeVise TP UnoSet 0-100 mm. max. 5 kg. For adjustable workpiece positioning in three axes.

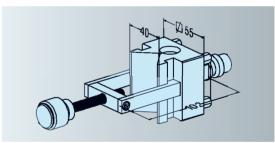
Continuously able to rotate around 360°.

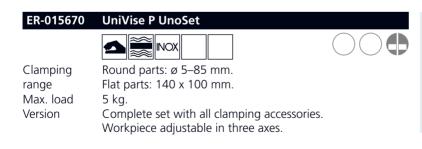
Set with three clamping jaws.

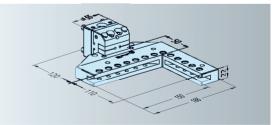
Set with three pairs of clamping jaws.

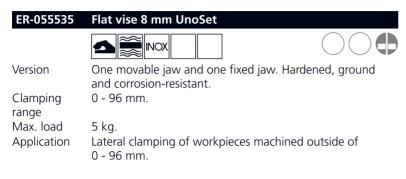


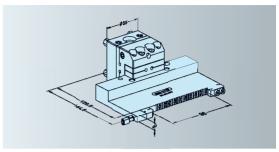


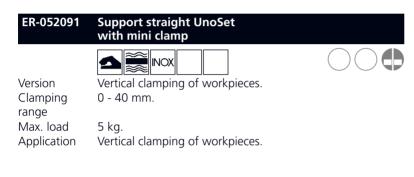


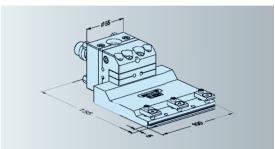




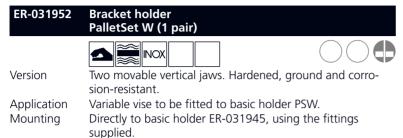


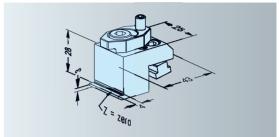




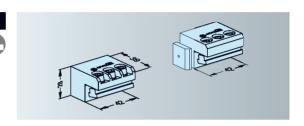


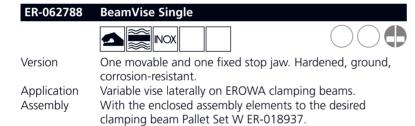
# Clamping elements for fixtures

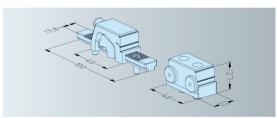


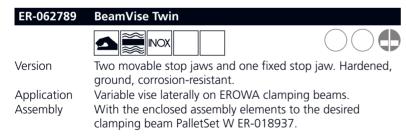


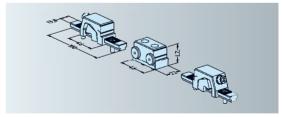
# Version One movable jaw and one fixed jaw. Hardened, ground and corrosion-resistant. Application Mounting Directly to basic holder ER-031945, using the fittings supplied.



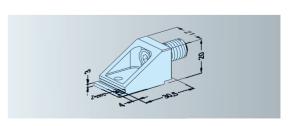


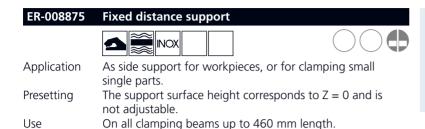


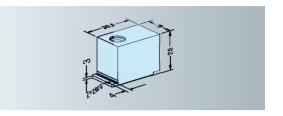




ER-008231	Mini distance support
Application	As side support for workpieces, or for clamping small, flat single parts.
Presetting	The support surface height corresponds to $Z = 0$ and is not adjustable.
Use	On all clamping and gripping beam ER-018937.







# Application As side support for workpieces, or for clamping small single parts. Presetting The support surface height corresponds to Z = 0 and is adjustable +/- 0.15 mm.



On all clamping and gripping beams.

Use

Application

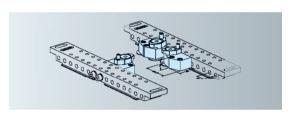
For supporting round parts with diameters starting at 50 mm, or as a side support for rectangular workpieces.

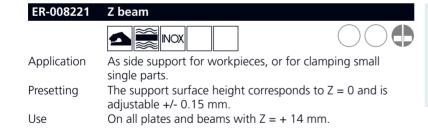
Presetting

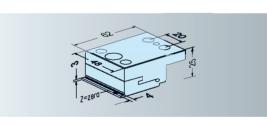
The support surface height corresponds to Z = 0 and is not adjustable.

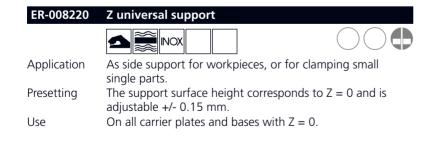
Use

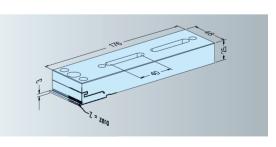
On all clamping beams.



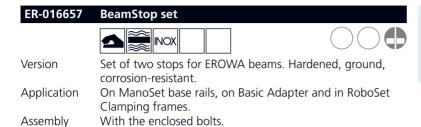




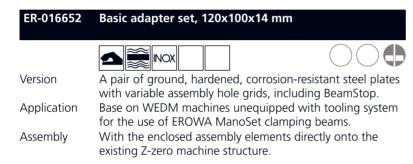


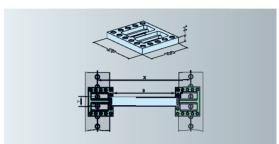


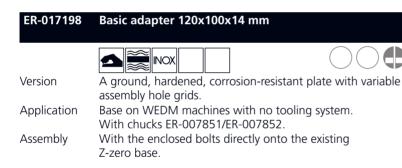
# Clamping elements for fixtures

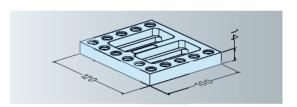




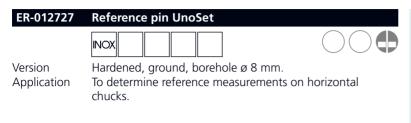


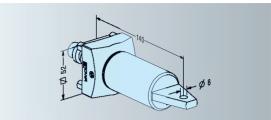


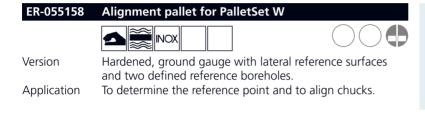


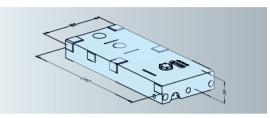


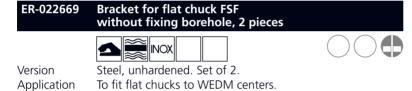
### Accessories

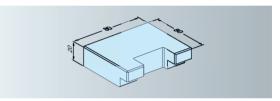


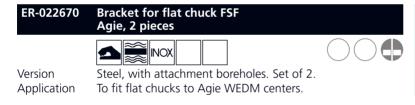


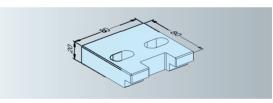


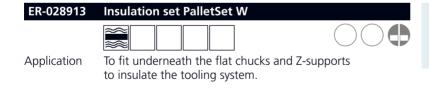


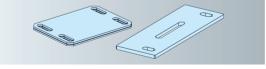






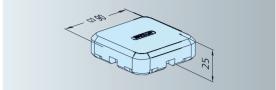




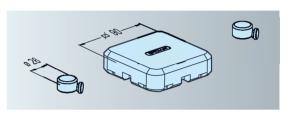


### Accessories





ER-027695	Cover for flat clamping chuck PalletSet W	
Version	Set consisting of 2 covers for flat chucks and 4 covers for	
	Z-supports.	
Application	Protects flat chucks and Z-supports that are not use	
	against contamination and damage.	



# ER-035156 EWIS™ Rapid chip with chip holder long with chip ø 12,4 x 2 mm



Application With EROWA Collet Chuck holders and

Square 15/25 holders. With supplied M4 bolts.

Version

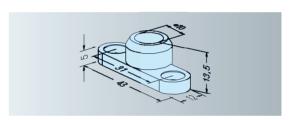
tion and damage.

Mounting With supplied M4 bolts.

ER-035294 EWIS™ Rapid chip with chip holder RCS with chip ø 12,4 x 2 mm

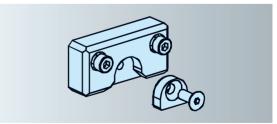
Version Holder with built-in data carrier. EWIS chip: read only. Application To build into RCS coupling, PalletSet W holder and

Basic WEDM holder.









ER-030671 Centering plate, G100 M8 x 1 PalletSet W 5 pieces

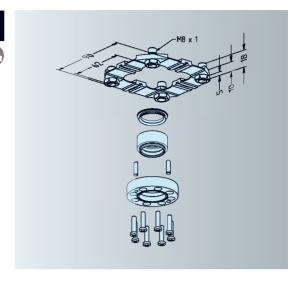




Version Application Set of 5, including support feet.

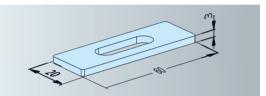
To be fitted directly to workpiece and electrodes

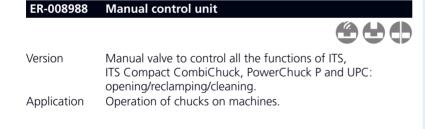
to be used on flat chucks.

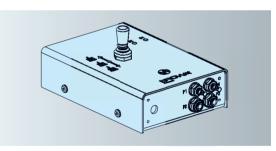


Version
Application
Spacer plate 3 mm
8 pieces

Version
Set of 8 plates. Ground, hardened.
To fit underneath clamping beams to raise the Z-support by 3 mm. This prevents collisions in the working range of the lower flushing nozzles.







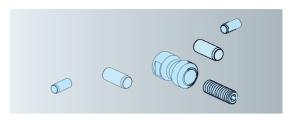
Note

#### **EROWA Wire EDM Tooling**

Recess for EWIS chip (not included) in the chucking spigot.

### Accessories

# Version Gripper Coupling for RCS gripper, consisting of 4 positioning pins and a chucking spigot. Application On all EROWA handling devices equipped with the RCS coupling system. Glue in pins according to instructions, fit chucking spigot with bolt.



#### ER-034533 FrameSet gripper bolts 4 pieces

Version Set of 4 gripper bolts.

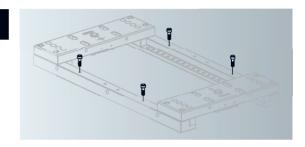
Application For FrameSet clamping frames with EROWA handling

facilities.

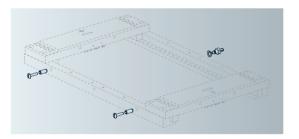
device.

Note Can only be used in connection with FrameSet gripper

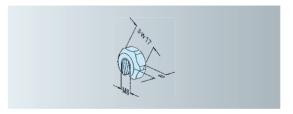
automation.



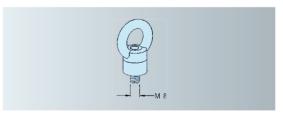
# Version Set including 2 gripper pins, 2 M6x30 bolts, 1 cord holder, 1 spring washer. Application To take up FrameSet frames with the EROWA Lift.



ER-008846	Slotted nut M8 10 pieces
Quantity Application	10 On long setscrews, to avoid time-consuming nut tightening.



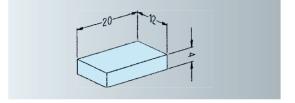
ER-008848	Eye bolt M8 1 couple
Quantity Application	2 To raise loaded clamping frames with a crane or lifting



Spacer plate large 50 pieces ER-007799

Quantity 50

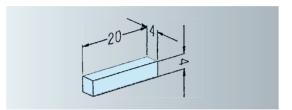
Application As supports for chucking claws.



Spacer plate small 50 pieces ER-007781

Quantity 50

Application As supports for chucking claws.



Erogrease (corrosion protection) 1 kg OKS 403 ER-001674



Version

For the durable lubrication of guides, joints and threads Application

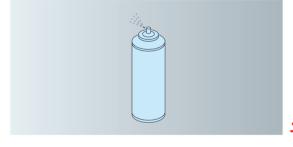
submerged in water.



Version 0.4 litre aerosol.

For the maintenance and conservation of all the clamping Application

elements used for WEDM purposes.



## Kit

ER-009696	UnoSet Basic Kit manual
ER-007962	UnoSet Basic Kit pneumatic
Version	Basic tooling system equipment for WEDM centers.
Application	Suitable for the palletization of small and medium sized workpieces.
Mounting	Depending on the machine base, we recommend the multi-adapter plate ER-017198.
Kit contains	1 chuck 1 UniVise universal vise
Note	Machine-specific information can be found at www.erowa.com/unoset or at your EROWA dealer.



ER-017198	Multi-adapter plate
Application	To fit the UnoSet chuck to the machine base
Mounting	Through the adjustable borehole grids with the bolts supplied.



ER-021502	Starter Kit PalletSet W, manual	
ER-021503	Starter Kit PalletSet W pneumatic	
Version	Basic tooling system equipment for WEDM centers.	
Application	Suitable for the palletization of medium-sized workpieces.	
Mounting	Directly to the machine base with the fittings supplied.	
Kit contains	1 chuck 1 fixholder 1 vise 1 manual control unit (pneumatic)	
Note	Machine-specific information can be found at www.erowa.com/palletset or at your EROWA dealer.	



	Starter Kit FrameSet, fix
	Starter Kit FrameSet, basic
	Starter Kit Frameset, manual
	Starter Kit Frameset, pneumatic
Version	Basic frame tooling system equipment for WEDM centers.
	Manually or pneumatically controlled chucks according to your
	choice. With the FrameSet fix version, the clamping frames are
	firmly bolted to the machine base.
Application	Suitable for the palletization of small and medium-sized
• •	workpieces.
Mounting	directly to the machine base with the fittings supplied.
Kit contains	2 FrameSet fix plates or corresponding chucks
	1 clamping frame of the machine-specific size
	2 fitting clamping beams
	1 set clamping equipment
	1 set frame supports
	Fittings and pneumatic materials where necessary
Note	Machine-specific information can be found at
	www.erowa.com/frameset or at your EROWA dealer.



	ManoSet Kit XXL	
Version	Basic frame tooling system equipment for WEDM centers	
	Fixed rails serve as the basis for the clamping beams.	
Application	On large WEDM centers.	
Mounting	Directly to the machine base with the fittings supplied.	
Kit contains	1 set machine-specific base rails	
	2 fitting clamping beams	
	1 set clamping equipment	
Note	Machine-specific information can be found at	
	www.erowa.com/manoset or at your EROWA dealer.	



# Set of clamping elements

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-019989 Set of clamping elements, PalletSet W

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-002611	Hex key SW 5	1	1
ER-007729	Z-washer 3 mm	10	1
ER-007768	Hex key SW 3	1	1
ER-007781	Spacer, small	50	50
ER-007799	Spacer, large	50	50
ER-008884	Clip, universal	10	4
ER-017920	Countersunk bolt M8 x 14	10	1
ER-022109	Socket head bolt M8 x 20	10	50
ER-022110	Socket head bolt M8 x 30	10	50
ER-022111	Socket head bolt M8 x 40	10	50
ER-022113	Socket head bolt M8 x 60	10	50
ER-022118	Threaded pin M6 x 12	10	50
ER-022119	Threaded pin M6 x 20	10	50
ER-022120	Threaded pin M6 x 30	10	50
ER-022121	Threaded pin M6 x 40	10	50
ER-022122	Threaded pin M6 x 50	10	50



# Set of clamping elements for Wire EDM Tooling Standard

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-008868 Set of clamping elements, standard

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-001733	Hex key SW 8	1	1
ER-007781	Spacer plate, small	50	50
ER-007799	Spacer plate, large	50	50
ER-008216	Slotted nut M8	4	4
ER-008728	Straight pin ø9 L = 30	12	4
ER-008735	Straight pin ø9 L = 40	4	4
ER-008738	Straight pin ø9 L = 50	4	4
ER-008742	Straight pin ø9 L = 80	4	4
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded pin, hex, M8 x 20	20	50

#### ER-008868 Set of clamping elements, standard

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-008797	Threaded pin, hex, M10 x 30	20	50
ER-008848	Eye bolt	2	2
ER-008855	Hex nut, M8 x 0.8	50	50
ER-008863	Washer	50	50
ER-008884	Bracket, universal	20	4
ER-008896	Bracket	4	4
ER-008901	Sliding disk	10	20
ER-008910	Spacer plate	8	8
ER-017920	Countersunk head bolt M8 x 14	10	1
ER-021796	Ring spanner, SW 10	1	1
ER-021797	Ring spanner, SW 13	1	1
ER-021798	Ring spanner, SW 17	1	1
ER-021912	Hex key SW 3	1	1
ER-021913	Hex key SW 4	1	1
ER-021914	Hex key SW 5	1	1
ER-021915	Hex key SW 6	1	1
ER-022109	Socket head bolt, hex, M8 x 20	50	50
ER-022110	Socket head bolt, hex, M8 x 30	50	50
ER-022111	Socket head bolt, hex, M8 x 40	40	50
ER-022112	Socket head bolt, hex, M8 x 50	40	50
ER-022113	Socket head bolt, hex, M8 x 60	20	50
ER-022114	Socket head bolt, hex, M8 x 70	20	20
ER-022115	Socket head bolt, hex, M8 x 80	20	20
ER-022116	Socket head bolt, hex, M8 x 100	20	20
ER-022117	Hex extension nut M8	20	20
ER-022118	Threaded pin, hex, M6 x 12	100	50
ER-022119	Threaded pin, hex, M6 x 20	50	50
ER-022120	Threaded pin, hex, M6 x 30	50	50
ER-022121	Threaded pin, hex, M6 x 40	50	50
ER-022122	Threaded pin, hex, M6 x 50	50	50
ER-022123	Threaded pin, hex, M6 x 60	50	50
ER-022124	Extension nut, hex / M6	20	20
ER-022125	Spacer, hex / M6 / L = 40	20	20



# set of clamping elements for Wire EDM Tooling Economy

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-008215 Set of clamping elements Economy

### These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-001733	Hex key SW 8	1	1
ER-007781	Spacer plate, small	50	50
ER-007799	Spacer plate, large	50	50
ER-008216	Slotted nut M8	4	4
ER-008728	Straight pin, $Ø9 L = 30$	12	4
ER-008735	Straight pin, $Ø9 L = 40$	4	4
ER-008738	Straight pin, ø9 L = 50	4	4
ER-008742	Straight pin, $Ø9 L = 80$	4	4
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded pin, hex, M8 x 20	10	50

#### ER-008215 Set of clamping elements Economy

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-008797	Threaded pin, hex, M10 x 30	10	50
ER-008848	Eye bolt	2	2
ER-008855	Hex nut, M8 x 0.8	50	50
ER-008863	Washer	50	50
ER-008884	Bracket universal	15	4
ER-008896	Bracket	4	4
ER-008901	Sliding disk	10	20
ER-008910	Spacer plate	8	8
ER-017920	Countersunk head bolt M8 x 14	10	1
ER-021796	Ring spanner, SW 10	1	1
ER-021797	Ring spanner, SW 13	1	1
ER-021798	Ring spanner, SW 17	1	1
ER-021912	Hex key SW 3	1	1
ER-021913	Hex key SW 4	1	1
ER-021914	Hex key SW 5	1	1
ER-021915	Hex key SW 6	1	1
ER-022109	Socket head bolt, hex, M8 x 20	20	50
ER-022110	Socket head bolt, hex, M8 x 30	10	50
ER-022111	Socket head bolt, hex, M8 x 40	10	50
ER-022112	Socket head bolt, hex, M8 x 50	10	50
ER-022113	Socket head bolt, hex, M8 x 60	10	50
ER-022114	Socket head bolt, hex, M8 x 70	10	20
ER-022115	Socket head bolt, hex, M8 x 80	10	20
ER-022116	Socket head bolt, hex, M8 x 100	10	20
ER-022117	Hex extension nut, M8	10	20
ER-022118	Threaded pin, hex, M6 x 12	20	50
ER-022119	Threaded pin, hex, M6 x 20	10	50
ER-022120	Threaded pin, hex, M6 x 30	10	50
ER-022121	Threaded pin, hex, M6 x 40	10	50
ER-022122	Threaded pin, hex, M6 x 50	10	50
ER-022123	Threaded pin, hex, M6 x 60	10	50
ER-022124	Extension nut, hex / M6	10	20
ER-022125	Spacer, hex/M6/L = 40	10	20



# Set of clamping elements for Wire EDM Tooling XL

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.





#### ER-008301 Set of clamping elements, XL

These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-001417	Wrench SW13	1	1
ER-002613	Hex key SW 5	1	1
ER-007781	Spacer plate, small, 4 x 4 x 20 mm	50	50
ER-007799	Spacer plate, large, 4 x 12 x 20 mm	50	50
ER-008744	Threaded rod M8 x 100	4	4
ER-008748	Threaded rod M8 x 150	4	4
ER-008755	Threaded rod M8 x 200	4	4
ER-008763	Threaded rod M8 x 250	4	4
ER-008765	Threaded rod M8 x 300	4	4
ER-008770	Threaded rod M8 x 350	4	4
ER-008776	Threaded rod M8 x 20	10	50
ER-008786	Threaded rod M8 x 30	10	50
ER-008790	Threaded rod M8 x 40	10	50
ER-008794	Threaded rod M8 x 50	10	50
ER-008812	Countersunk head bolt M8 x 40	20	40
ER-008855	Hex nut M8 x 0.8D	20	50
ER-008861	Hex nut M8 x 3D	4	10
ER-008863	Washer ø 15 x 8,4 x 1.6	20	50
ER-008896	Clamp 45 mm	8	4

#### ER-008301 Set of clamping elements XL

## These materials have been packed in one solid plastic box.

Order number	Description	Units per set	Units supplied by order number
ER-008901	Sliding disk	20	20
ER-010115	Clamps, aluminum, bronzed	4	1
ER-010120	Column, 100 mm	4	1
ER-010123	Column, 60 mm	4	1
ER-010126	Adjustment supports	4	1



# Set of clamping elements for Wire EDM Tooling

EROWA's extensive accessory sets contain a number of practical and economically priced auxiliaries which turn clamping jobs into fun.

ER-008868 Set of clamping elements, standard



ER-019989 Set of clamping elements PalletSet W



ER-008215 Set of clamping elements Economy



ER-008301 Set of clamping elements XL







### **EROWA Sine Dividing Head ITS**

# The highest precisionthe simplest handling

#### Your advantages

Workpieces and electrodes are clamped and machined simply, quickly, and with precision.

Thanks to the precision of the integrated ITS rapid-action chuck, workpieces need not be realigned when they are changed.

Full ITS universality is guaranteed.

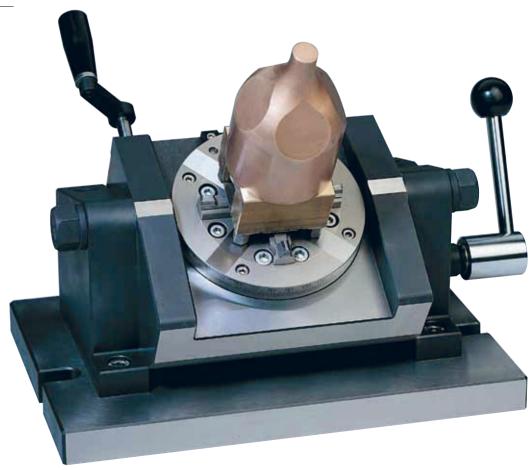
Simple to fit on any milling, grinding or EDM center.

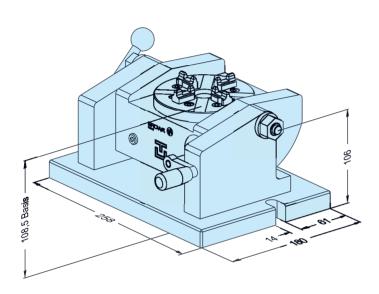


The EROWA Sine Dividing Head ITS is easy and quick to fit on the machine table, with only two bolts.



The workpiece is clamped with the precision of the ITS tooling system, with a repeatability of 0.002 mm.





#### **Technical data** ER-010427 **EROWA Sine Dividing Head** Titling range 0°-90° Rotating axis, rapid-action chuck 360° Chuck indexing 4 x 90° 1 turn on crank 4,5° Air connection M5 Air pressure 7 bar Weight 22 kg Concentricity rapid-action chuck/rotating axis ± 0,015 mm Axial load 500 N Clamping, indexing and rotating axes mechanical Materials Corrosion resistant Option ER-010567 Manual valve

#### **Function**

The Sine Dividing Head offers you the following possibilities:



ITS S rapid-action chuck, able to rotate round 360°, indexing vernier 5 minutes (0.08°).



. . . swivelable round 90° with . . .



... sine function.

#### **EROWA PM Tooling**

# Pressing powder systematically

Pressed-powder parts are becoming ever more refined, and the diversity of product shapes is on the increase. Batch sizes are becoming smaller, which means that powder presses must be reset frequently.

EROWA has developed a solution for the minimization of resetting times: Single- or multi-level powder presses are equipped with the suitable PM tooling system. In this way, pressing tools can be exchanged in next to no time and with the highest degree of precision.



The EROWA PM tooling system was developed for use under high pressing forces. Depending on the field of application and on requirements, the optimal tooling system can be chosen.

Crucial advantages of the PM tooling systems:

- Repeatability for the highest precision requirements.
- High degree of stability thanks to patented outside clamping.
- User-friendliness.
- Capable of being automated.

These factors directly aim to increase the productivity and economy of your powder press!

- **01** | Upper punch on EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.
- **02** | Die-plate on EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.
- **03** | Lower punch on the EROWA PM Tooling pallet: Positioning accuracy < 0.002 mm.

#### **Applications**

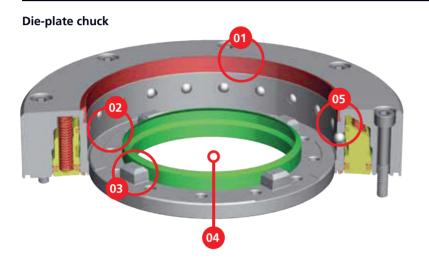
#### Handling





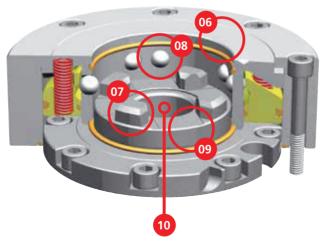
Manual / Loading facility / Robot

#### Function



- **01** | Fully sealed system; resistant to powder, contamination and liquids.
- **02** | Large contact surface for great force absorption.
- 03 | Precise «P» centering.
- **04** | Wide opening for bottom punch.
- **05** | Patented outside clamping.
- **06** | Fully sealed system.
- 07 | Precise «P» centering.
- 08 | Patented outside clamping.
- **09** | Large contact surface for great force absorption.
- **10** | 25 mm clearance for center pin or second punch.

#### **Punch chuck**



Technical data - PM Tooling Precise		
PM Tooling Precise	System size	Max. admissible pressing force
Punch chuck	PM56	500 kN
	PM60	500 kN
	PM85	1000 kN
Die-plate chuck	PM128	1000 kN

#### **EROWA PM Tooling**

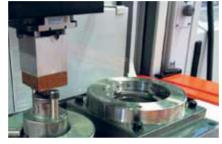
# Universal from milling to pressing

With the EROWA PM tooling system, punches and die plates are fitted to pallets and manufactured with datum-point precision.

Compatibility with other EROWA tooling systems enables your production machine to be fully automated. Workpieces run through the entire production chain on pallets:

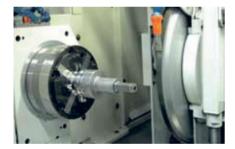


**Milling**Electrodes used to EMD the molds are machined on ITS system holders.



**EDM**Shapes in the surface of the punches are EDMed.

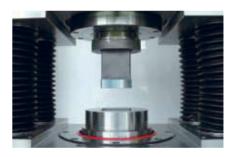




**Grinding**Punches may also be machined on cylindrical grinding machines.



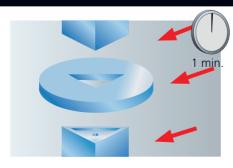
**Wire-EDM**The contours are produced on a
WEDM center. The reference position
is provided by the chuck.



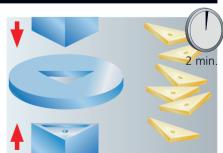
**Powder pressing**Top and bottom punches and the die plate are inserted into the press. The reference positions are provided by the precisely aligned chucks.

# Changing variants in 2 minutes 0 min.

Pneumatically loosen die-plate and both punches.



Insert and clamp new die-plate and punches.



Produce new molds.

To make it easier for you to find your way about the fields of application for EROWA products, we use the following symbols in all our documents:









2. Operate with compressed air jet



3. Operate with manual valve



4. Operate with manual control unit



5. Operate with electropneumatic control unit



6. With central flushing clearance



7. Suited for submerged operation



8. Corrosion-resistant material



9. Suited for automatic operation



10. Handling with EROWA Robot gripper S



11. Handling with EROWA Robot gripper Combi



12. Handling with EROWA Robot gripper C



13. Handling with EROWA Robot gripper 72



14. Handling with EROWA Robot gripper 115



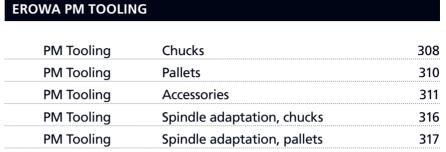
15. Handling with EROWA Robot gripper 148



16. Handling with EROWA Robot gripper RN PC 210



17. Handling with EROWA Robot gripper RCS





For chip-removing processes



For EDM sinking



For WEDM

## **EROWA PM Tooling Precise** Chucks

Technical data	PM chucks
Repeatability	0,002 mm
Indexation	4 x 90°
Opening with dry compressed air	min. 6 bar
Clamping	Spring pressure

#### ER-047544 Die-plate chuck PM128 II Precise



Steel, hardened. Through borehole ø 86. External seal.

Clamping

23000 N (reclamped at 6 bar).

power

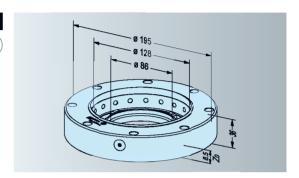
Version

At the rear, with two lines. Connections

Operation With control unit.

**Application** On milling machines and powder presses.

To accommodate die-plate pallets PM128 Precise.



#### ER-040697 **Chuck PM85 Precise**



Version Steel, hardened, corrosion-resistant.

Through borehole ø 25.

Clamping

power

At the rear, with two lines. Connections

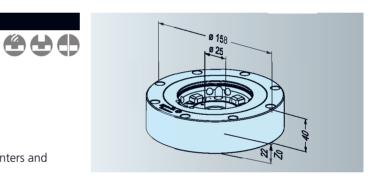
9000 N.

Operation With control unit.

On milling machines, lathes, EDM/WEDM centers and **Application** 

powder presses.

To accommodate pallets PM85 Precise.



#### ER-055370 **Chuck PM60 Precise**

6500 N.





Version Steel, hardened, corrosion-resistant.

Through borehole ø 25.

Clamping

power

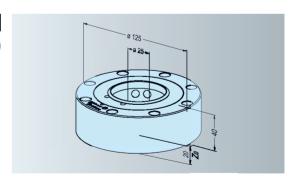
At the rear, with two lines. Connections

Operation With control unit.

**Application** On milling machines, lathes, EDM/WEDM centers and

powder presses.

To accommodate pallets PM60 Precise.





Steel, hardened, corrosion-resistant.

Through borehole ø 86. External seal.

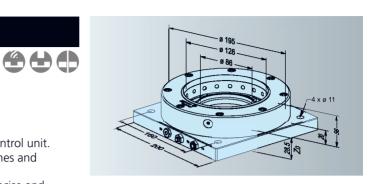
Clamping 20000 N (reclamped at 6 bar) power

Operation Laterally with compressed-air gun or with control unit. Application On milling machines, lathes, grinding machines and

EDM/WEDM centers.

To accommodate die-plate pallets PM128 Precise and

Multi.



#### ER-040696 **Chuck PM85 Precise** with base plate



Steel, hardened, corrosion-resistant.

Through borehole ø 25.

9000 N. Clamping

power

Version

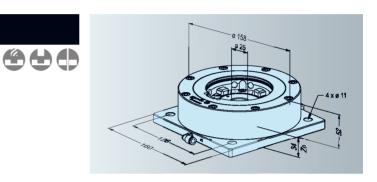
Version

Connections Laterally, with two lines. Operation With control unit.

Application On milling and grinding machines and on

EDM/WEDM centers.

To accommodate pallets PM85 Precise and Multi.



#### ER-047500 **Chuck PM60 Precise** with base plate



Version Steel, hardened, corrosion-resistant.

Through borehole ø 25.

6500 N. Clamping

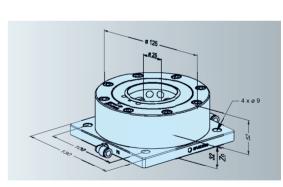
power

Laterally, with two lines. Connections With control unit. Operation

On milling and grinding machines and on Application

EDM/WEDM centers.

To accommodate pallets PM60 Precise.



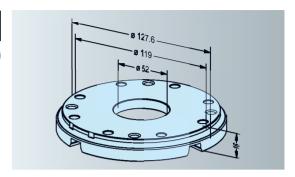
Fitting blanks

#### **EROWA PM Tooling Precise**

## **Pallets**

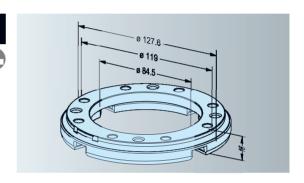
# Version Steel, hardened, corrosion-resistant. Centering integrated in pallet. Inside ø 52. Application For use on die-plate chuck PM128 Precise. To accommodate die plates, workpieces and fixtures for chip-cutting machines, EDM/WEDM centers and powder presses.

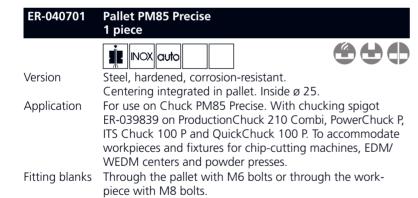
Through the pallet with M6 bolts or through the work-

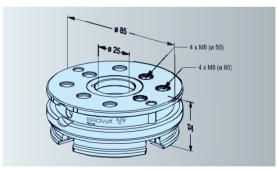


ER-046927	Die-plate pallet PM128 ø 84.5 Precise 1 piece
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 84.5.
Application	For use on die-plate chuck PM128 Precise. To accommo-
	date die plates, workpieces and fixtures for chip-cutting
	machines, EDM/WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts or through the work-
-	piece with M8 bolts.

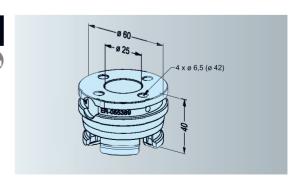
piece with M8 bolts.







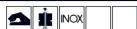
ER-055369	Pallet PM60 Precise 8 pieces
	NOX auto
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 25.
Application	For use on Chuck PM60 Precise. With chucking spigot ER-041429 on ProductionChuck 210 Combi, PowerChuck P, ITS Chuck 100 P and QuickChuck 100 P. To accommodate workpieces and fixtures for chip-cutting machines, EDM/ WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts.



Version

## Accessories

#### Adapter pallet H24 PM Precise for die-plate pallet PM128 ER-035792





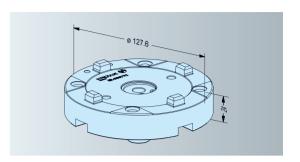
Height of pallet: 24 mm.

Serves as an adapter between the die-plate pallets PM128 Application

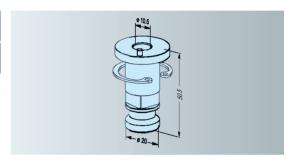
Precise and Multi and an ITS Chuck 100 P or a Power-

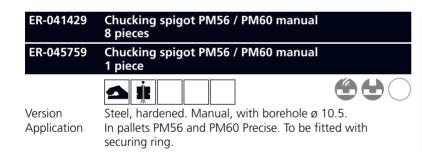
**4** 

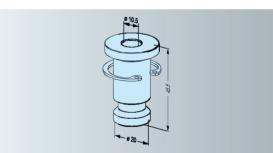
Chuck P.



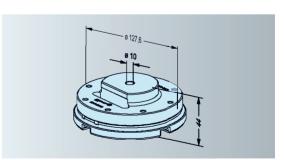
ER-039839	Chucking spigot PM85 automatic 8 pieces
ER-046075	Chucking spigot PM85 automatic 1 piece
	it auto
Version Application	Steel, hardened. Automatic, with borehole ø 10.5. In pallets PM85 Precise. To be fitted with securing ring.



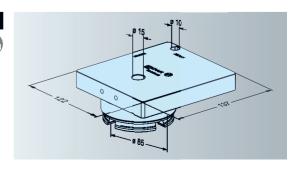




ER-049248	Alignment pallet PM128 Precise for die-plate chuck PM128 Precise
	NOX BOOK TO THE STATE OF THE ST
Version	Steel hardened, corrosion-resistant. Ground alignment surface and centering borehole ø 10.
Application	In tool- and mold-making. For alignment of the angle position and determination of the center of the die-plate chuck PM128 Precise.

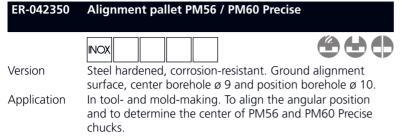


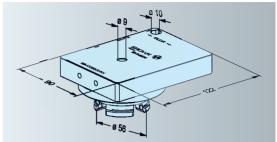
ER-042440	Alignment pallet PM85 Precise
	NOX
Version	Steel hardened, corrosion-resistant. Ground alignment surface, center borehole ø 15 and position borehole ø 10.
Application	In tool- and mold-making. Alignment of the angle position and determination of the center of PM85 Precise chucks.



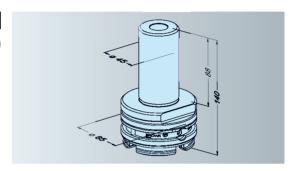
#### **EROWA PM Tooling**

## Accessories

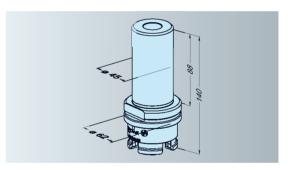




# Version Steel hardened, corrosion-resistant. Ground alignment surface and Ø 45. Application Alignment pin PM85 Precise Alignment of the radial and axial positions of PM85 Precise chucks.



ER-043428	Alignment pin PM56 / PM60 Precise	
·	INOX auto	
Version	Steel hardened, corrosion-resistant. Ground alignment surface and ø 45.	
Application	Alignment of the radial and axial positions of PM56 and PM60 Precise chucks.	



Please note: you can find the entire range in the EROWA PM Tooling System Catalog.

EROWA PM TOOLING

STANDARDIZATION

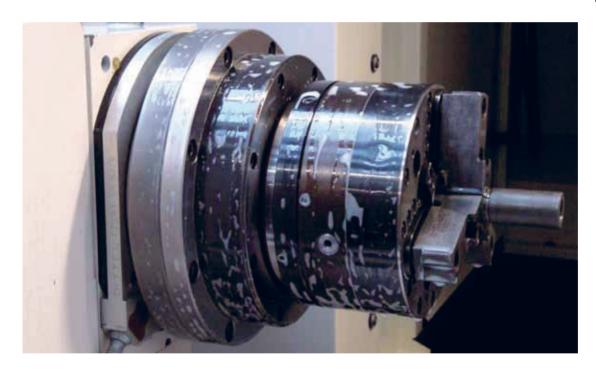
#### EROWA spindle adaptation

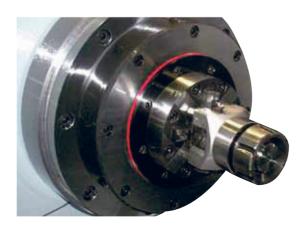
## The universal interface

Minimize resetting time - increase productivity! With the help of EROWA's spindle-adaptation solution, productive time - for instance in circular grinding - can be substantially increased.

The changeover from a three-jaw chuck to a pneumatically operated tooling system and to customized jigs only takes a few seconds - whilst the highest degree of precision is retained. The basis for all adaptations is the EROWA PM chuck. It is integrated with the machine spindle with the help of a suitable flange. The overall solution is impressive, not least owing to its robust and compact design.







Crucial advantages of EROWA's spindle adaptation:

- Substantially shorter resetting times.
- Minimum height.
- Highest stability and repeatability.
- Maximum concentric accuracy.
- Pneumatic control of adaptations.
- Fully sealed.
- Capable of being automated.

#### **Applications**

#### Handling Manual







Sample application



The chuck integrated with the machine spindle is opened with compressed air, either through an air-gun or through a fixed air supply.



The three-jaw chuck is inserted. Both run-out and concentricity are repeated to an accuracy of 0.002 mm.



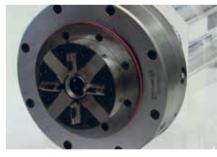
The system is ready for operation in next to no time. Resetting is no longer an essential time factor.



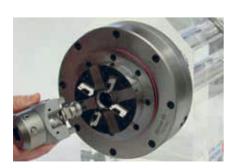
The base chuck is opened and the threejaw chuck is removed.



The palletized EROWA ITS chuck is inserted. The contour of the pallet completely seals off the spindle.



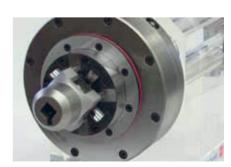
Ready for clamping and positioning to an accuracy of 0.002 mm.



The ITS chuck is opened through the integrated air coupling.



Any EROWA ITS system carrier can be clamped safely, quickly and precisely.



The ITS square holder, for example, serves as a fast-exchange facility for small workpieces or electrode blanks.

#### **EROWA** spindle adaptation

## Chucks

Technical data	PM chuck
Repeatability	0,002 mm
Indexation	4 x 90°
Opening with dry compressed air	min. 6 bar
Clamping	Spring pressure

#### ER-073369 Die-plate Chuck PM128 II AirDock





Version Hardened steel. Through hole: ø 48. Outside seal.

Positioning ring, including 2 AirDock valves.

Max. speed 4000 min-1.

Clamping power

23,000 N (reclamped at 6 bar).

Connections At the rear through customized base plate, flange or rota-

table pneumatic connector (not supplied with this unit).

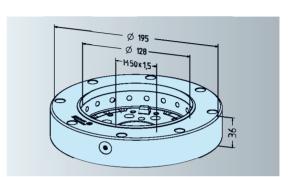
Operation With compressed-air gun, control unit or through the

machine control unit.

Application On dividing heads, indexing tables, lathes and circular grin-

ding machines. To accommodate adapter chuck, die-plates

PM128 and customer-specific jigs.



#### ER-078473 ITS Chuck 100 P

on die-plate pallet PM128 Precise





Version Hardened steel.

Clamping ITS Chuck 100 P: 6,000 N.

power

Connections At the rear, to die-plate PM128.

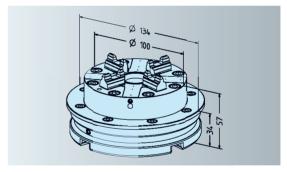
Operation Through AirDock valves. With compressed-air gun, control

unit or through the machine control unit.

Application As adapter chuck in the die-plate chuck PM 128 II AirDock.

To accommodate electrode holders, pallets ø 115, ø 148,

PM56, PM60 and PM85 Precise.



### ER-078474 Manual 3-jaw concentric chuck ø 125 mm on die-plate pallet PM128 Precise





Version

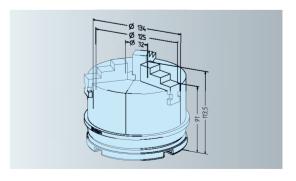
Manual 3-jaw concentric chuck ø 125 mm. Central clamping area 3-53mm. Body made of cast metal. High degree of concentricity according to DIN 6386. Includes

3 hardened drilling jaws (stepped on the outside), 3 hardened turning jaws (stepped on the inside),

1 spanner.

Note Max. speed 4000 min-1.

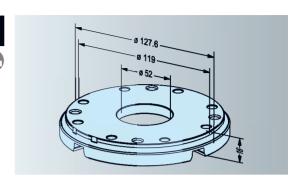
Application As adapter chuck in the die-plate chuck PM128 II AirDock.



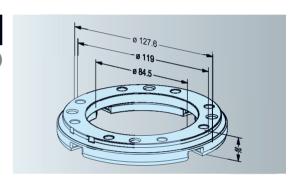
#### EROWA PM TOOLING EROWA spindle adaptation

## **Pallets**

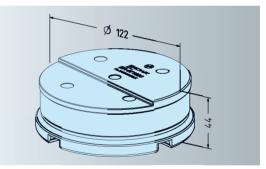
#### Die-plate pallet PM128 ø 52 Precise 1 piece ER-034680 **940** INOX Version Steel, hardened, corrosion-resistant. Centering integrated in pallet. Inside ø 52. For use on die-plate chuck PM128 Precise. To accommo-Application date die plates, workpieces and fixtures for chip-cutting machines, EDM/WEDM centers and powder presses. Fitting blanks Through the pallet with M6 bolts or through the workpiece with M8 bolts.



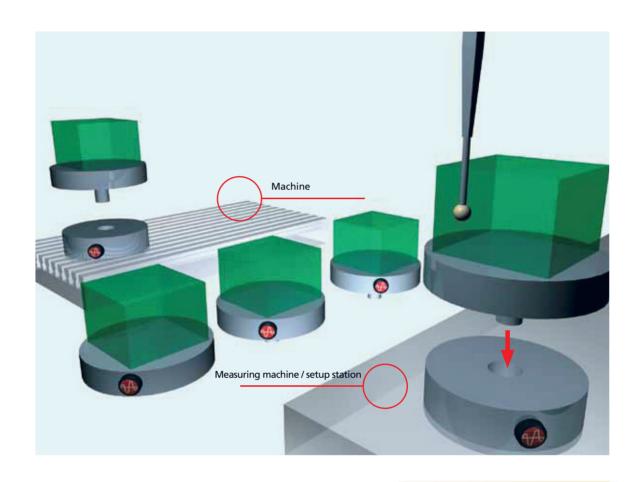
ER-046927	Die-plate pallet PM128 ø 84.5 Precise 1 piece
Version	Steel, hardened, corrosion-resistant.
	Centering integrated in pallet. Inside ø 84.5.
Application	For use on die-plate chuck PM128 Precise. To accommo-
	date die plates, workpieces and fixtures for chip-cutting
	machines, EDM/WEDM centers and powder presses.
Fitting blanks	Through the pallet with M6 bolts or through the work-
	piece with M8 bolts.



ER-071890	Alignment pallet PM128 Precise for die-plate chuck PM128 AirDock	
Version	Hardened steel, corrosion-resisitant. With ground alignment surface and ø 122. Including M50x1.5 threaded insert.	
Application	In tool- and mold-making. To align angle position and determine the center of die-plate chucks PM128 AirDock.	



# EROWA quality measuring and presetting systems





For chip-removing processes



For EDM sinking



For WEDM

Organization of electrodes and workpieces. All the workpieces and electrodes are set up outside the machine. If necessary, their offset values are determined outside the machine. Thus programs can be generated in advance, and automation becomes possible. Quality measurements enhance process safety and are an important factor for successful quality management.

#### EROWA QUALITY MEASURING AND PRESETTING SYSTEMS

EROWA CMM Qi	320
EROWA PreSet 3D CNC	326
EROWA PreSet 3D MAN	328
EROWA PreSet 2D EROWA PreSet 2D +C	330
EROWA PreSet Basic PalletSet W	332
EROWA PreSet Basic UnoSet	332
EROWA PreSet Basic UPC	332
Basic equipment / options for CMM Qi / PreSet 3D	334
Measuring tools and options for EROWA measuring systems	336
Software for EROWA measuring systems - EROWA PreSoft / ARCO-CAD - Metrolog X4 - EROWA Quick Link XT - EROWA JMS® Pro Organization - EROWA JMS® Pro Q-Measure - EROWA Manufacturing Control	338 340 342 344 344 346

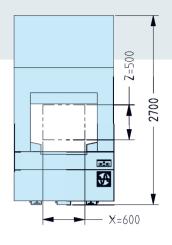
#### 840

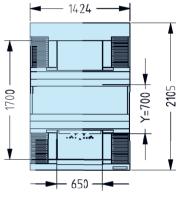
# Top-precision quality measurements

Precision is produced, not measured – this is an old saying.
Nevertheless, it is very advantageous if the measuring machine can measure as accurately as possible.

Thanks to its solid construction, the EROWA CMM Qi high-quality measuring machine provides utmost mechanical precision, combining EROWA products to a consistent high-precision system.







#### **EROWA CMM Qi**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Software for presetting and quality measuring
- Renishaw measuring probe (option)
- Calibration ball

For additional details, please contact your EROWA dealer.

#### **Technical data**

	CMM Qi
X-axis travel	600 mm
Y-axis travel	700 mm
Z-axis travel	500 mm
Maximum distance between table and	
probe holder (without probe)	668 mm
Maximum distance between the columns at table height	650 mm
Usable area of the granite slab (with EROWA hole pattern)	650 x 1700 mm
Resolution	0.0001 mm
Standard	0.0001 mm
High Precision	0.00002 mm
Measurement uncertainty in the volume (according to ISO 10360/2)	
Standard	1.5 μm + L/500
High Precision (SP25 probe system)	0.7 μm + L/500
	(L in mm)
Machine dimensions	
Dimensions LxWxH	2100 x 1500 x 2700 mm
Maximum loadable workpiece weight	650 kg
Machine weight (no load)	2350 kg
Ambient conditions	
Standard	19°-21° Delta 0.5°/h
High Precision	19°-21° Delta 0.2°/h
Software	
Presetting software	- PreSoft by EROWA
	- EROWA PreSet Confi-
	gurator
Measuring software	- ARCO CAD
	- Metrolog X4

A quality measuring machine with crucial benefits:

- Over 100 animated PreSet programs
- Integrated hole grid for clamping **EROWA chucks.**
- Extensive software package for presetting, quality measurements and automation.
- Prepared for automation.
- Secure workpiece recognition possible with EWIS™
- Mechanical precision.
- Many post-processors for conversion of measured data.
- Temperature compensation available as an option.



#### 01 | Rails

High-precision Renishaw rails with optical read heads ensure excellent results.

#### 02 | Renishaw probing systems

high-precision measuring probe systems for the greatest flexibility.

#### 03 | Centric drives

Centric drives for symmetric movements.

#### 04 | Symmetric machine layout

Special aluminum casting for excellent shape and temperature stability as well as guide rails made from granite.

#### 05 | Software

With the EROWA presetting and measuring software, presetting data can be recorded in a very simple way and quality measurements are both precise and retraceable.

#### 06 | Various clamping systems

Depending on your requirements, one or more EROWA tooling systems can be mounted to the solid table. All the necessary boreholes already exist. FrameSet, MTS, UPC or ITS – all variants are supported.

#### 07 | Integrated operation

Already prepared for the control of the various tooling systems.

#### 08 | Joystick control

Optimal operation for secure measurements. One control lever for all axes. Optionally also available as a wireless joystick.

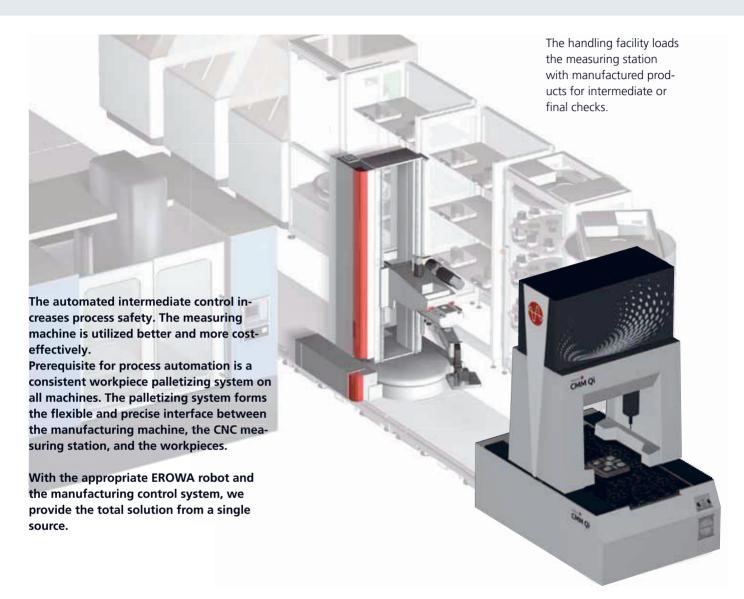
#### 09 | Natural granite

The solid granite slab combined with the specially cast portal constitutes the basis for precision.

#### 10 | Closed casing

The best possible shield against ambient influences, as well as a controlled airflow around the measuring system.

# Continuous quality monitoring





With the automatic pallet detection feature via a chip, you can view where each part is located in the manufacturing chain at any time. Status messages can also be sent to the operator via SMS.



Using the automation kit (option), the CMM Qi can be loaded by an EROWA robot. The CNC control allows automatic quality measurements.



The automatic in-process or final check boosts process reliability to an essential degree. The machine is used to better capacity and thus becomes more profitable. Also, reject costs can be reduced.

# CMM O

# Integrated automation

Are you looking for a favorably priced way of automating a measuring machine with the aim of achieving more autonomy?

The solution: CMM Qi measuring machine with a gripper and an integrated workpiece magazine.



#### The advantages:

- Favorably priced automation.
- Simple operation.
- Stand-alone solution.
- Saves space since no additional loading robot is required.
- Autonomy for several hours of unmanned measuring.
- Independent automation for Q-Measure.
- Retrofit option for existing CMM Qi measuring machines.
- Operation with EROWA process control system possible.
- EROWA EWIS™ identification possible.
- All the necessary safety components are integrated.



Capacity: up to 30 ITS 50/72 electrode holders. Max. workpiece weight: 5 kg (including holder).



Integrated safety components



The integrated automation of the CMM Qi can be retrofitted to all CMM Qi measuring machines.

# Scanning – High-precision shape and profile measurements

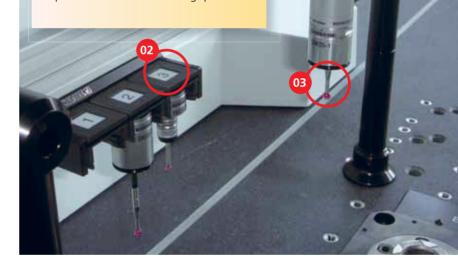
While "normal measurement" only results in individual measured points, scanning provides a large number of data giving much more detailed information on the form and shape of the feature or the workpiece.

Scanning is therefore used anywhere where complex freeform geometries are reproduced or where dimensional accuracy and complex surfaces must be within certain tolerances.

#### **EROWA Scanning**

the crucial advantages.

- Very fast form and profile identification of prismatic and complex workpieces.
- More accurate information about the shape of a feature or workpiece thanks to a great number of data.
- Modular design and flexible probe change facilities allow for an optimal selection of probe configurations for every measuring application
- Possibility of using a wide range of probe insert lengths and tactile swit ching modules.
- Maximized working range of the CMM Qi through the integration of the probe head in the measuring quill.



#### 01 | Rotary/swivel head

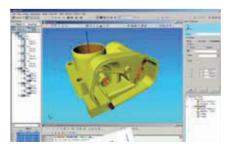
The PH10MQ is a motorized rotary/ swivel head with 7.5° indexation. It is mounted directly in the measuring quill. This maximizes working range of the CMM Qi.

#### 02 | Change magazine

The FCR25 change magazine allows a quick and automatic probe change to select the best probe configuration for each measuring application.

#### 03 | Scanning accuracy

The SP25M allows a scanning functionality. The Renishaw scanning modules 1 and 2 recommended by EROWA are optimized for probe lengths of 20 mm to 105 mm to achieve a superior scanning accuracy.



The EROWA measuring software assists you in all your measuring applications.



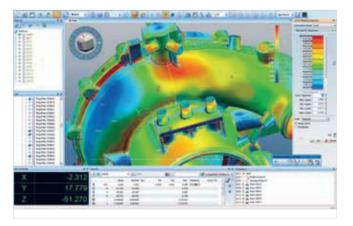
EROWA scanning solutions are configured individually to meet your needs. We are happy to advise you personally in order for you to find the optimal solution.

# CMM Qi

# Laser scanning High-speed data collection

Laser scanning is a non-contact and efficient measuring process. Objects are digitally recorded to a high level of detail and within a short period of time.





The laser scanner generates a point cloud. The easy-to-view and colored surface diagram (color mapping) allows for an intuitive inspection of dimensional accuracy.

#### **EROWA laser scanning**

The crucial advantages:

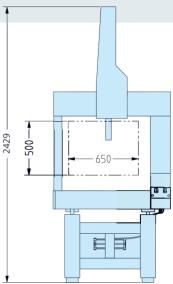
- Fast and economical measuring process.
- Very high level of detail.
- Efficient processing of a large amount of data in a short period of time.
- Non-contact measuring process for workpiece geometries which are difficult to record.
- Quick and easy recording of the entire part geometry freeform surfaces (as well as geometry features) for measuring and reverse engineering application.
- For complex freeform surfaces.
- For big surfaces.
- The measured data can be easily evaluated on the basis of the generated point cloud (color mapping)...
- Can be combined with all tactile measuring systems.

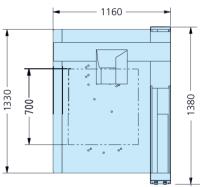
#### **EROWA PreSet 3D CNC**



# Simple presetting - automatic series measurements







#### **EROWA PreSet 3D CNC**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Presetting software
- Renishaw measuring probe (option)
- Calibration ball

#### **Technical data**

	PreSet 3D CNC
Range, X-axis*	650 mm
Range, Y-axis*	700 mm
Range, Z-axis*	500 mm
Maximum distance between table and	
probe holder (without probe)	688 mm
Maximum distance between the columns at table height	819 mm
Usable surface of the granite plate (with EROWA borehole pattern)	819 x 1330 mm
Resolution, scales	0.0005 mm
Measuring accuracy according to volume (according ISO 10360/2)	2.5 µm + L/300
Machine dimensions	
Dimensions LxWxH	1380 x 1160 x 2429 mm
Maximum workpiece load	650 kg
Machine weight (without load)	775 kg

For additional details, please contact your EROWA dealer.

\* Other axis ranges on request.



#### 01 | Rails

High-precision Renishaw rails with optical probe heads guarantee the best results.

#### Renishaw probe unit

For top quality and unmatched flexibility.

#### 02 | Machine design

Specially cast aluminum for optimal dimensional and thermal stability.

#### 03 | Natural granite

The high-precision workplate of black granite constitutes the base for all EROWA tooling systems that can be set up. Attachment boreholes have been prepared.

#### 04 | Joystick control

Optimal operation for safe measurement. One joystick for all the axes.

#### Software

With the EROWA presetting software, presetting data can be collected very simply and with graphic support.

#### **Tooling system operation**

All the systems can be opened by means of simple levers.

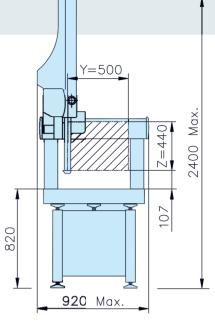
#### Motorized axes

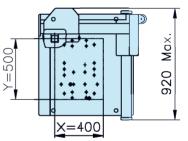
All the axes are driven by DC servo motors.



Presetting, setting up and measuring

When it comes to thousandths of a millimeter, you can't do things by halves. PreSet 3D MAN satisfies the most exacting requirements. Due to its modular principle, the system can be flexibly adapted and extended. We assume the system responsibility for the project from installation and training right through to maintenance. Comfortably and competently.





#### **EROWA PreSet 3D MAN**

- Measuring machine (working plate with borehole grid for all EROWA tooling systems)
- Pneumatic control system
- PC and color printer (option)
- Presetting software
- Renishaw measuring probe (option)
- Calibration ball

For additional details, please contact your EROWA dealer.

#### Technical data PreSet 3D MAN Range, X-axis 400 mm Range, Y-axis 500 mm Range, Z-axis 440 mm Maximum distance between table and probe holder (without probe) 547 mm Maximum distance between the columns at table height 590 mm Usable surface of the granite plate (with EROWA borehole pattern) 590 x 840 mm 0.0005 mm Resolution, scales $2.5 \mu m + 3 \mu m \times L/1000$ Measuring accuracy according to volume (according ISO 10360/2) Machine dimensions 920 x 920 x 2400 mm Dimensions LxWxH 130 kg Maximum workpiece load Machine weight (without load 210 kg



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#### Software

With the EROWA presetting software, presetting data can be collected very simply and with graphic support.

#### **EROWA PreSet 2D**

# Electrode preset made easy

The electrode presetting station for every contingency. The matured design does justice to everyday life in the workshop. Measurements in the X-, Y-, Z- and C-axes can be carried out quickly and safely. The data output of the measured values are integrated. The presetting station can be equipped with various tooling systems.

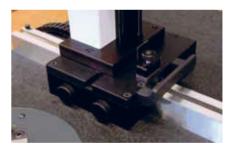




Simply ingenious: the 2D edge probe (EROWA patent) enables you to make the necessary measurements on radii, edges, corners and oblique surfaces.



The practical user guidance in the EROWA mode shows step by step how offset values are determined.



With cutting-edge air bearing technology and perfect settings, the height measuring unit moves with maximum precision at minimal effort.

#### **EROWA PreSet 2D**

- Measuring slab with trolley
- Integrated chuck
- PT880 digital display with preset ting macros
- Two-axis measuring facility
- EROWA 2D edge probe
- Detergent for hard-stone slab

For additional details, please contact your EROWA dealer.

#### **Order numbers EROWA PreSet 2D**

PreSet 2D UnoSet	
PreSet 2D PalletSet W	
PreSet 2D UPC / ITS Chuck 100 P	
PreSet 2D ITS Compact Combi	
PreSet 2D ProductionChuck 210	
	PreSet 2D PalletSet W PreSet 2D UPC / ITS Chuck 100 P PreSet 2D ITS Compact Combi

#### with C-axis

ER-0	)57213	PreSet 2D+C ITS Chuck 100
ER-0	)57214	PreSet 2D+C ITS Compact Combi

### **EROWA PreSet 2D**

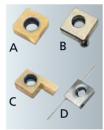
# Options and accessories



EROWA 2D edge probe ER-057471 Precise probing of sharp edges, angles, diameters and lengths.



ER-008617 Measuring pin Alignment of radial and axial and angular positions of ITS chucks.



Probe insert	<b>A</b> ER-008623
	<b>B</b> ER-008562
	<b>C</b> ER-008831
	<b>D</b> ER-008628
for 2D edge probe.	



Microscope ER-008756 To view profiles, indentations and boreholes, with a magnifying factor of 30.



3xM2 probe insert	<b>E</b> ER-009899
ø 2 mm	<b>F</b> ER-003350
ø 1 mm	<b>G</b> ER-003358
for 2D edge probe	



Cold light ER-095529 for the microscope: for optimal light on the area to be magnified.



Lever gauge ER	-059439
Analogue gauge with a diameter	of
38 mm and a resolution of 0.002	2 mm.



Software for EROWA PreSet 2D

- EROWA EMC
- EROWA QuickLink
- EROWA JMS® Pro Organization

For data entry, conversion to machinespecific formats, and data transfer from the EROWA PreSet 2D station to a machine control

Tac	hnical	data

	PreSet 2D
Movement X-axis	240 mm
Movement Y-axis	320 mm
Movement Z-axis	335 mm
Evaluation unit	Heidenhain Positip 880 with
	<b>EROWA</b> presetting macros
Interface	Serial RS232 for data transfer
	to QuickLink / parallel output
	for printer
Probe system	EROWA 2D edge probe
Space requirements	500 x 800 x 1000 mm
Compressed-air supply	min. 6bar, dry

### **EROWA PreSet Basic**



# Setup and alignment

PreSet Basic is the ideal setting and presetting station for a quick check of the Z-plane or to align workpieces in the Y-axis. Its stable trolley enables you to place it wherever it makes most sense in terms of work.





Choice of clamping system (here PalletSet W). The presetting station has a modular design. Select the clamping system as required.



Using the dial indicator on a flexible base, align workpieces in the Z-plane or the Y-axis along the stop guide rail.



Measuring slab made of top quality natural stone according to DIN 876/00. Delivered with certificate and measurement record.

UPC	PalletSet W	UnoSet
230	220	230
100	25	10
0.002	0.002	0.002
Analog dial	gauge on flexible stand	d
800 x 500 x	< 1000	
	230 100 0.002 Analog dial	



ER-057206	PreSet Basic UPC
Version	Presetting station with trolley, measuring top, UPC chuck and probe.
Load	100 kg.
Application	Setting and aligning of workpieces on UPC pallets.



ER-057205	PreSet Basic PalletSet W
Version	Presetting station with trolley, measuring top,PSW chuck and probe.
Load	25 kg.
Application	Setting and aligning of workpieces on PalletSet W holders.



ER-057204	PreSet Basic UnoSet
Version	Presetting station with trolley, measuring top, UnoSet chuck and probe.
Load Application	10 kg. Setting and aligning of workpieces on UnoSet holders.

## EROWA CMM Qi / PreSet 3D



# Basic equipment

Measuring stations are equipped with EROWA tooling systems according to requirements. Some of these tooling systems can be mounted on one and the same table in combination.



ER-035526	MTS Chuck 3D
Version	Pneumatic MTS Single Chuck for PreSet 3D.
Mounting	With clamping ring directly to prepared borehole pattern.
Application	To accommodate MTS Single ITS 148 P pallets.
Combination	The MTS Chuck 3D can be fitted in combination with one
	of the following systems: FrameSet (on 3D CNC only),
	PalletSet W. UnoSet, ITS Compact CombiChuck, Power Chuck P.



ER-035527 ER-067489	MTS 360 3D MTS+ 360 3D
Version	MTS Base plate with four clamping units. Plate dimension 360 x 360 mm.
Mounting	With fitting accessories directly to prepared borehole pattern.
Application	To accommodate MTS twofold and fourfold pallets with set-up distance of 200 mm.



ER-035528 ER-067493	MTS 410 3D MTS+ 410 3D
Version	MTS Base plate with four clamping units. Plate dimension 410 x 410 mm.
Mounting Application	With fitting accessories directly to prepared borehole pattern. To accommodate MTS twofold and fourfold pallets with set-up distance of 250mm.



ER-076397 ER-076398	UPC / ITS Chuck 100 P PreSet 3D UPC PreSet 3D
Version	ER-076397 = UPC chuck with integrated ITS chuck. ER-076398 = UPC chuck
Mounting	Directly to prepared borehole pattern.
Application	To accommodate all UPC, ITS 148 and ITS 115 pallets, as well as holders 72 and 50.
Combination	The UPC can be fitted in combination with one of the following systems: FrameSet (3D CNC only), PalletSet W, UnoSet.



ER-035529	PC 210 3D
ER-035530	PC 210 Combi 3D
Version	Pneumatic chucks. PC 210 Combi 3D with integrated PowerChuck.
Mounting	With fitting accessories directly to prepared borehole pattern.
Application	To accommodate PC 210 pallets. In the combined version, pallets
	148 and 115 and holder 72 and 50 can also be clamped.
Combination	The PC 210 can be fitted in combination with one of the following
	systems: PalletSet W, UnoSet.



ER-029434	PowerChuck P 3D
Version	Pneumatic chuck on base plate.
Mounting	Directly to prepared borehole pattern.
Application	To accommodate ITS 148 P, 148 and 115 pallets, as well as holders 72 and 50.
Combination	The PowerChuck can be fitted in combination with one of the following systems: FrameSet (on 3D CNC only), PalletSet W, UnoSet, MTS chuck.



ER-025060 ER-077292	ITS Compact CombiChuck 3D ITS Chuck 100P 3D
Version	ER-025060 = ITS chuck with integrated Compact Chuck. ER-077292 = ITS Schuck
Mounting	Directly to prepared borehole pattern.
Application	To accommodate ITS 148 and ITS 115 pallets, holders 72 and 50, and all the Compact 30 holders.
Combination	The ITS Compact CombiChuck can be fitted in combination with one of the following systems: FrameSet (on 3D CNC only), PalletSet W, UnoSet, MTS chuck.



ER-046080	FrameSet Base 3D
Version Mounting Application Combination	Pneumatic chuck (only for PreSet 3D CNC). With fitting accessories directly to prepared borehole pattern. To accommodate FrameSet clamping frame. The FrameSet can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single Chuck.



ER-022683	PalletSet W Base 3D
Version Mounting Application Combination	Pneumatic flat chuck mounted on column.  Directly to prepared borehole pattern.  To accommodate all PalletSet W holders.  The PalletSet W can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single Chuck, PC 210.



ER-012580	UnoSet Kit Support 3D
Version	Pneumatic chuck mounted on column.
Mounting	Directly to prepared borehole pattern.
Application	To accommodate all UnoSet holders, as well as holders 72 and 50,
	in a horizontal position.
Combination	The UnoSet can be fitted in combination with one of the following systems: UPC, PowerChuck P, ITS Compact CombiChuck, MTS Single Chuck, PC 210.

#### **EROWA PreSet**



# Measuring tools and options

Various ingenious components make it easy for you to have everything under control in a practical way.

For questions on measuring devices and options for EROWA measuring stations, please contact your authorized EROWA dealer.



Alignment pallet MTS 200 ER-037870 Alignment pallet MTS 250 ER-037875

To align the angular position and to establish the center of MTS chucks.

Pallet 396 x 198 mm Alignment length 200 / 250 mm



Alignment gauge

ER-055158

PalletSet W

To align the angular position and to establish the center of flat chucks.

Pallet PalletSet W



Alignment pallet MTS ø 148 ER-078823

To align the angular position and to establish the center of MTS single chucks.

ø 148 mm Alignment length 130 mm



Measuring pin

ER-008617

Alignment of radial and axial and angular positions of ITS chucks.



Alignment pallet UPC ER-048377

To align the angular position and to establish the center of UPC chucks.

320 x 320 mm Alignment length 320 mm



Checking pin 50

ER-010723

Alignment of radial and axial positions of ITS chucks.



Alignment pallet PC 210 ER-040932

To align the angular position and to establish the center of PC-210 chucks.

Clamping ring PC 210 Pallet Alignment length 210 mm



Checking pin for Compact ER-017541 To align the tooling system on the PreSet

station.





Alignment pallet ITS ER-032819

To align the angular position and to establish the center of ITS chucks.

Pallet ø 115 mm Alignment length 110 mm



ER-007805 Evaluation system

To run the EROWA measurement and presetting software. Consists of a computer with operating system, flat screen, keyboard, printer and mouse.



ER-007796 Zero master To check the  $\ll$ Z = 0 height».



EWISTM ER-035990 identification system Hardware module.

Read/write head and evaluation unit.



Reference pin UnoSet ER-012727 Determination of reference measurements on horizontal chucks.

Borehole ø8 mm



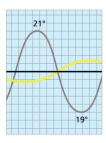
**EWIS Chip** ER-035154 with holder SW14 For pallets and electrode holders. EWIS™ Chip: read only. Compatible with the EWIS™ Rapid system.



Detergent ER-001516 For granite tables.



Wireless Joystick CMM Qi ER-067640 Wireless joystick CMM Qi ER-103113 «Upgrade» to wireless control panel. Wireless control panel including receiver. Machine control by joystick, control of the measurement software on the PC as well as CNC travel speed override.



Automatic temperature compensation CMM Qi For automatic temperature absorption and consistent compensation. With three sensors for the axes and one sensor for the workpiece.

ER-067638



ER-054645 Software maintenance contract Hardware maintenance contract ER-064410 The maintenance contract ensures that the CMM Qi is checked at regular intervals.



Preparatory kit for CMM Qi ER-077882 automation , including barrier Automation interface for robotic loading of the CMM Qi.



Air filter unit for ER-067636 air conditioning CMM Qi Supplies the air bearings of the CMM Qi measuring machine with high-quality compressed air.

#### **EROWA PreSoft XP**

# Efficient presets

Presetting provides more productive time on machine tools. However, presetting must be as efficient as possible in itself. PreSoft XP takes this demand into account.



**01** | Graphic user guidance enables every operator to preset parts correctly within a short period of time. The processes can be learned intuitively. Knowledge of 3D measurements is not required.



**02** | The reference positions are controlled, which guarantees that the offset values always receive the correct reference point.



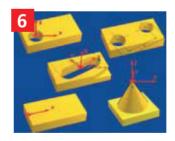
03 | The automatic assignment of offset values to the ID numbers of electrodes and workpieces creates a high degree of process safety.



**04** | Diameters or sections can be quickly checked using simple measuring macros.



**05** | Generate your own macros for quick and safe measurements. Process safety will increase since the optimized macros cover exactly your requirements.



**06** | Already integrated: more than 100 frequently used measuring processes as macros. Select, move, done!



**07** | The animated arrow symbol shows the right measurement sequence: anyone can determine presetting data correctly without any prior training.

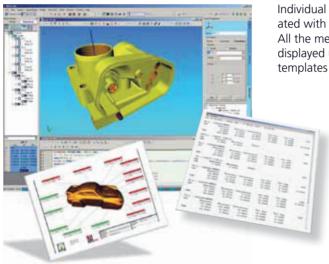


**08** | PreSoft XP is seamlessly integrated in JMS® Pro. The presetting function is activated by a mouseclick. The offset data that have been recorded are automatically transmitted from the measuring station into the JMS® Pro system.

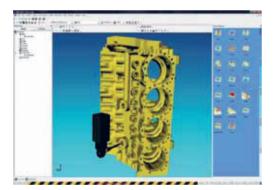
### ARCO-CAD measuring software

# Compelling benefits

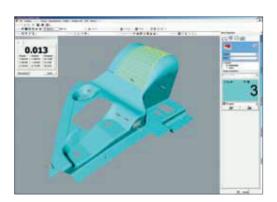
ARCO-CAD includes all functions to import CAD models and to create measuring programs based on them or to measure them directly against CAD nominal values. This allows real quality measurements with complete data logging after corresponding training.



Individual and complex reports can be generated with the help of the ARCO-CAD reporter. All the measured features can be graphically displayed using CAD, charts or tables. Individual templates facilitate the creation of reports.



User guidance is based on ARCO-CAD using animated symbols. All users are able to operate the machine intuitively and safely thanks to the pictorial representation of the measurement tasks in this program.

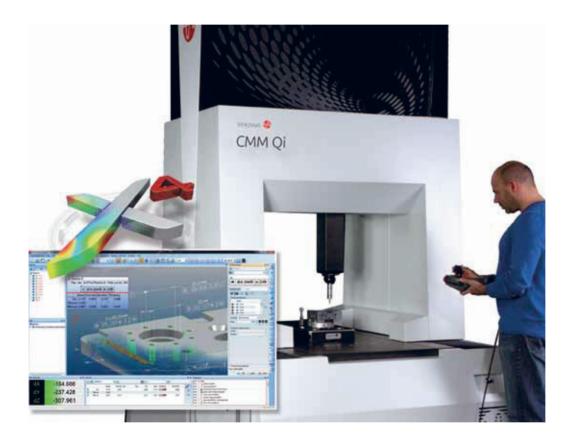


ARCO-CAD allows the integration of CAD data. The areas to be measured are selected and calculated on the basis of the imported data. This feature is particularly suitable for measuring complex 3D shapes.

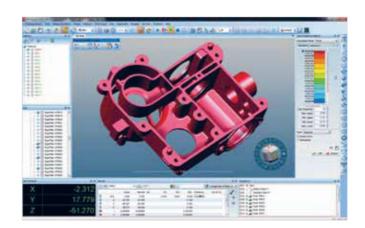
## Measuring Software Metrolog X4

# High-end software to satisfy the highest standards

The Metrolog X4 3D measuring software offers advanced technology and the know-how for even faster and more efficient measurements. Profit from an optimal user surface for excellent user-friendliness, as well as a high performance capability even with large volumes of data.



- Simple-to-operate graphic user interface, completely adaptable to operator requirements in line with individual machine and measuring types.
- Assistant for manual measurements.
- Automatic adaptation of the display during point collection.
- · Adjustable information windows.



## Simple CAD import function capable of processing big data sets in all established formats.



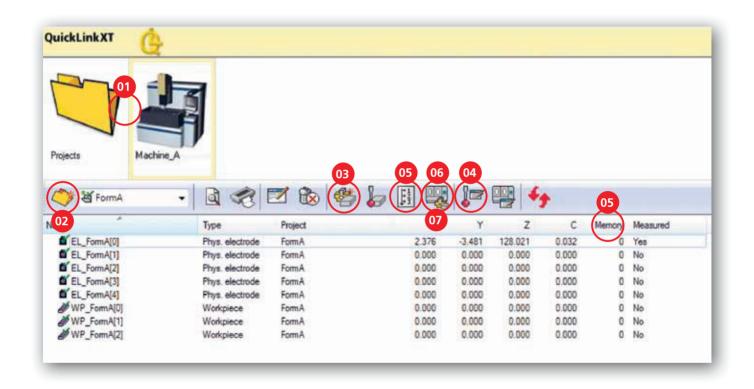
- Handling of form and position tolerances of the most complex kind within record time.
- Simplified definition of form and position tolerances.
- Comprehensive support for tolerance evaluation in accordance with applicable standards.
- Support of the ANSI and ISO standards.



### EROWA QuickLinkXT

# Simple data transfer

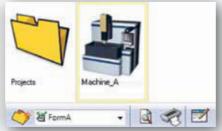
QuickLink<sup>XT</sup> is a simple program for the data transfer from the EROWA PreSet 2D presetting station to a machine control unit. Set up a PC, insert the CD, install the program, plug in the connecting cable between PC and display, and the comfortable data transfer to the machine or the programming station is ready.





#### 01 | Stored projects

The projects are stored to document the working steps. This information can be called up and printed out at any time.



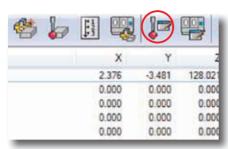
#### 02 | New project

Every new job is given a designation. In this way, it can easily be found again. Even at this early stage, the job has been allocated to a machine.



#### 03 | Number of electrodes

At the beginning, the number of electrodes to be measured is defined. This will guarantee an overview of the working progress.





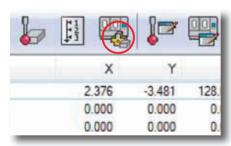
#### 04 | Data export

All the selected measured data are converted into the specific machine format at the push of a button. They can be stored on a diskette or in a network directory.

#### 05 | Control is good

Before the export, you can check whether the result comes up to expectations.

Presetting data of electrodes are transferred to the machine with ease and speed. The X-, Y-, Z- and C-values are determined on the PreSet 2D presetting station and transmitted to QuickLinkXT at the push of a button. All the data of one job are converted into the specific machine format.



#### 06 | Receive measured data

QuickLink<sup>XT</sup> is ready to take over the data from the presetting station. The transmission command is triggered in the control unit of the presetting station.



#### 07 | Allocate memory space

The memory positions are defined at once in order to avoid any confusion during the transfer to the machine control unit.

### EROWA JMS® Pro Organization

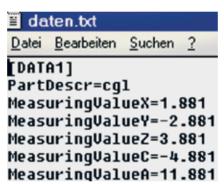
# Presetting and measuring made simple

JMS® Pro Organization consists of program modules that are connected with data import, setting up and presetting. Presetting data are the most important feature of job preparation. They must be accessible from everywhere at all times.

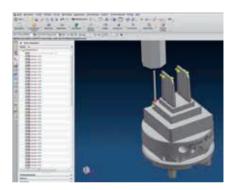
For this reason, the EROWA JMS® Pro software stores all the data in a machine-neutral format. Only the relevant JMS® Pro Cell Integration products will convert the data into the desired machine format. The decision as to the center on which the job will be processed need not be made at the point in time when the part is preset. Any available machine can be chosen just before the job is done.



JMS® Pro PreSet 3D the presetting software with user guidance and automatic data recording in JMS® Pro.



JMS® Pro PreSet Import links up the most popular measuring stations with JMS® Pro. Data import is largely automatic.

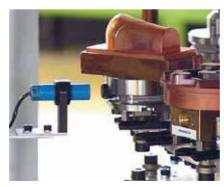


The measured points and tolerances are determined in the CAD system. On the EROWA CMM Qi measuring machine, the relevant measuring program is generated through EROWA Q-Measure, after which the quality measurement is carried out.

JMS® Pro Q-Measure



On the set-up and measuring stations, hand-held reading devices are used. (The EWIS<sup>TM</sup> Rapid equipment is available as an option).



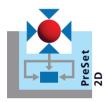
The EWIS<sup>TM</sup> Rapid identification system provides an overview of holders and pallets. With the modern transponder chips, every pallet can be identified at any time. The handling facilities examine the magazine loads automatically.

## The EROWA JMS® Pro PreSet software package offers you all the necessary tools for productive, routine-informed presetting.



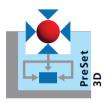
#### JMS® Pro Organizer

Data organization module for data management and to set up and identify workpieces.



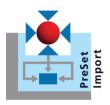
#### JMS® Pro PreSet 2D

Data organization module for the integration of the timetested electrode presetting station.



#### JMS® Pro PreSet 3D

Data organization module for the integration of the EROWA 3D measuring station.



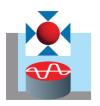
#### JMS® Pro PreSet Import

Data organization module for the import of data from other measuring stations.



#### JMS® Pro JobManager CMM

Control module for automatic quality measurements on PreSet 3D CNC.



EWIS<sup>TM</sup> Rapid Identification System
The assignment of data to workpieces
provides a good overiew. With the modern transponder chips, every pallet can
be identified at any time. On set-up and
measuring stations, identification is
carried out with manual scanners, while
EROWA handling facilities identify their
magazine content automatically.

#### Your advantages:

- Entry into the EROWA

  Job Management System.
- A fully developed measuring software is included.
- More than 100 presetting programs are available.
- Quick change from presetting to measuring software with the help of a button.
- Automated quality control.



JMS® Pro JobManager

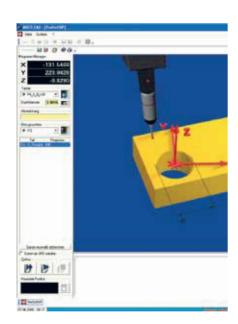
Automatic quality control: The measuring station is equipped with a Robot. The JMS<sup>® Pro</sup> JobManager will link up the right parts with the suitable measuring programs.

### EROWA Organization with EROWA Manufacturing Control V3

# Presetting and measuring made simple

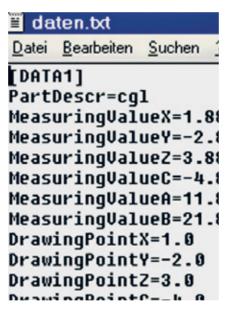
EROWA Manufacturing Control V3 Organization consists of program modules that are connected with data import, setting up and presetting. Presetting data is the most important feature of job preparation. It must be accessible from everywhere at all times.

For this reason, the EROWA Manufacturing Control V3 software stores all the data in a machine-neutral format. Only the relevant EROWA Manufacturing Control V3 products will convert the data into the desired machine format. The decision as to the center on which the job will be processed need not be made at the point in time when the part is preset. Any available machine can be chosen just before the job is done.



#### JMS® Pro PreSet 3D

the presetting software with user guidance and automatic data recording in EROWA Manufacturing Control V3.

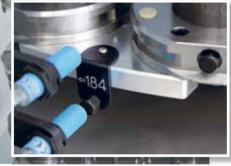


#### EROWA Manufacturing Control V3 PreSet Import Standard

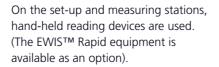
links up the most popular measuring stations with EROWA Manufacturing Control V3.

Data import is largely automatic.





The EWIS<sup>TM</sup> Rapid identification system provides an overview of holders and pallets. With the modern transponder chips, every pallet can be identified at any time. The handling facilities examine the magazine loads automatically.





## The EROWA Manufacturing Control V3 software package offers you all the necessary tools for productive, routine-informed presetting.



**PreSet Import 2D**Option for connecting the proven electrode presetting station.



PreSet Import 3D
Option for the integration of the EROWA 3D measuring machine CMM Qi.



PreSet Import Standard
Option for importing data from other measuring machines.



Cell Manager CMM
Control module for automatic quality
measurements using the 3D CNC mea-

suring machine.



**Cell Manager Auto Qi**Organizes an autonomously automated measuring cell with the user-friendly surface of the control system.



EWIS<sup>TM</sup> Rapid Identification System
The assignment of data to workpieces
provides a good overiew. With the modern transponder chips, every pallet can
be identified at any time. On set-up and
measuring stations, identification is
carried out with manual scanners, while
EROWA handling facilities identify their
magazine content automatically.



The CMM Cell Manager

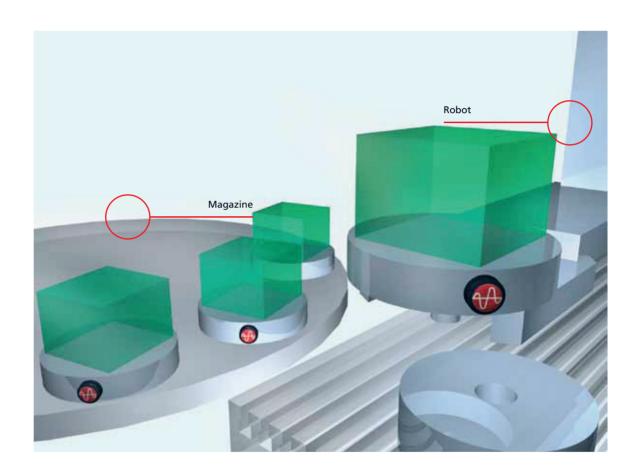
Automatic quality control: The measuring machine is equipped with a robot. The CMM Cell Manager associates the right parts with the appropriate measuring programs.



#### The Auto Qi Cell Manager

Autonomously automated stand-alone measuring machine for presetting and quality measurements. The EROWA CMM Qi measuring machine is equipped with an integrated handling device. The CMM Cell Manager connects the right parts with suitable measuring programs.

# **EROWA** loading systems





For chip-removing processes



For EDM sinking



For WEDM

Automation of machine tools. This relieves personnel of monotonous work, while at the same time creating a multiple capacity for the output of parts and for preparation. It also provides more space for your personnel's creativity.

## EROWA LOADING SYSTEMS

un to 250 kg	EROWA Robot Easy	352
up to 250 kg		
up to 80 kg	EROWA Robot Compact 80	354
up to 80 kg	EROWA Multi	356
up to 250 kg	EROWA Robot Dynamic	358
up to 500 kg	EROWA Robot Dynamic 500  EROWA Robot Six	362 366
up to 500 kg up to 250 kg	EROWA ROBUL SIX	368
up to 250 kg	EROWA LiftGear	370

# The automatic EROWA Handling Devices

	9		VICC							I	
		Robot Easy Compac								Robot	Multi
Туре	ITS 50 / 72	ITS115 ITS148	MSW NSW	PC210	OPC	MTS 400	MTS 500	Maximum capacity	Loading station	Rack	Rotary
Tooling system/ magazine posi- tions per level											_
Compact #	-	-	-	-	-	-	-	11	-	-	30
ITS 50 🏺	60	-	-	-	-	-	-	11		-	30
Holder 72	60	-	-	-	-	-	-	11	-	-	30
PM 56	-	-	-	-	-	-	-	11	-	-	30
PM 85	-	-	-	-	-	-	-	9	-	-	30
PM 130	-	-	-	-	-	-	-	5	-	-	15
ITS 115 🐷	-	24	-	-	-	-	-	5	2	-	15
ITS 148 👄	-	24	-	-	-	-	-	5	2	-	15
MTS 148	-	-	-	-	-	-	-	5	-	-	15
PC 210	-	-	-	12	-	-	-	3	2	5	10
UPC 320 🛸	-	-	-	-	10	-	-	2	2	3	3/5
MTS 400	-	-	-	-	-	6	-	-	-	3	3
MTS 500	-	-	-	-	-	-	4	-	-	2	-
UnoSet 🐸	-	-	-	-	-	-	-	9	-	-	30*
PalletSet W 🦛	-	-	15	-	-	-	-	2/3	2	7	15
PalletSet W frame	_	_	7	_	_	_	_	_	-	4	3
FrameSet	-	-	-	-	-	-	-	-	-	2	-
Transfer weight											
(incl. pallet)	20	40	30/15	130	130	250	250	80**	80	80**	80**
Number of possible											
machine levels	1	1	1	1	1	1	1	3 x 12	3 x 4	12	12
Gripper arm swiveling	-	-	-	-	-	-	-	option	option	option	option
Automatic gripper change	-	-	-	-	-	-	-	option	-	option	option
Double gripper	-	-	-	-	-	-	-	-	-	option	option
Loading station	-	-	-	-	-	-	-	option	option	option	option
EWIS™ Rapid	option	option	option	option	option	option	option	option	option	option	option
Remote diagnosis	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	-										

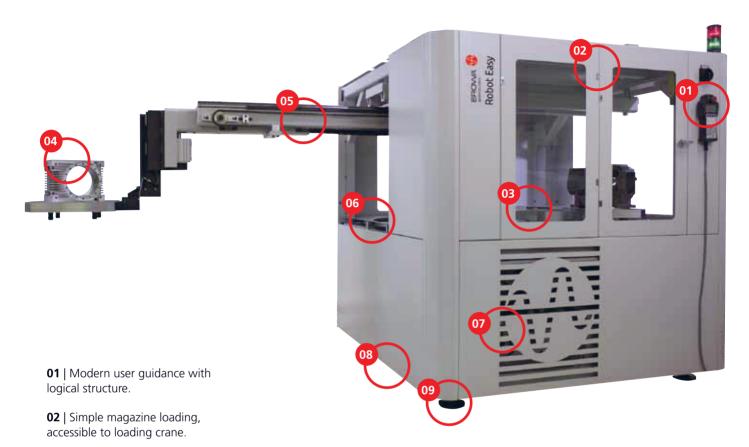
EROW	A Robot	Dynamic	С	ERO	WA Robo	ot Dynan	nic 500		ERC	WA Rob	ot Six		
EROW	A Robot	Dynamic	Linear	ERO	WA Robo	ot Dynan	nic 500 L	inear	ERC	WA Rob	ot Six Lir	near	
r unit Transfer unit	7	Rack	Loading station	Transfer unit Linear Transfer unit	Rotary	. Rack 7 250 kg	. Rack 500 kg	Loading station	Transfer unit Linear Transfer unit	Rotary	Rack II	Loading station	Туре
									E.				Tooling system/ magazine posi- tions per level
-	30	-	-	-	30	-	-	-	-		_		♥ Compact
-	30	15	-	-	30	-	-	-	-		_	-	
-	30	15	-	-	30	-	-	-	-		-	-	Holder 72
-	30	15 15	-	-	30	-	-	-	-	.≌	_	-	₽ PM 56
-	15	7	-	-	30 15	-	-	-	-	- EROWA Robot Dynamic on request	EROWA Robot Dynamic on request	-	■ PM 85
	15	7	-		15	-		-		οy	yna		<ul><li>▶ PM 130</li><li>↓ ITS 115</li></ul>
_	15	7	-	_	15	_	_	_	-	bot	7 D	_	⇒ ITS 115 ⇒ ITS 148
-	15	7	_	-	15	_	_	_	-	Ro	obc st		MTS 148
_	10	5	-	_	10	-	_	_	_	WA	'A R que	_	► PC 210
-	3/5	3	-	-	5	3	-	-	_	RO Fe	OW re	-	<b>●</b> UPC 320
-	3	2	-	-	3	2	1	-	-	e - E y or	- ER y or	-	MTS 400
-	-	2	-	-	-	2	1	-	-	typ	pe . uall	-	MTS 500
-	30*	15	-	-	30	-	-	-	-	ary	k ty ivid	-	UnoSet
-	15	3/4	-	-	15	-	-	-	-	- Rotary type - EROWA R - Individually on request	- Rack type - EROWA Rok - Individually on request	-	
-	3	-	-	-	3	-	-	-	-	' '	1 1	-	PalletSet W frame
-	-	1	-	-	-	-	-	-	-			-	FrameSet
200/250**	-	-	-	500**	-	-	-	-	130/500**	-	-	-	Transfer weight (incl. pallet)
-	12	12	-	-	12	12	12	-	-	- like Robo - individua	ot Dynamic al	-	Number of possible machine levels
option	-	-	-	-		-	-	-	yes		-	-	Gripper arm swiveling
option	-	-	-	option	-	-	-	-	option	-	-	-	Automatic gripper change
option	-	-	-	-	-	-	-	-	option	-	-	-	Double gripper
option	-	-	-	option	-	-	-	-	option	-	-	-	Loading station
option	-	-	-	option	-	-	-	-	option	-	-	-	EWIS™ Rapid
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	Remote diagnosis

Suspended in the magazine Depending on gripper, tooling system and the RCS or WGS coupling system

## **EROWA Robot Easy**



# Handling facility for large and heavy workpieces



- **03** | Up to 60 magazine positions per level.
- 04 | Max. 250 kg transfer weight.
- **05** | X-stroke: ~1600 mm.
- **06** | For big/overloaded pallets also with drip pan and controlled drainage.
- 07 | Integrated control system.
- 08 | Servicing-friendly casing.
- 09 | Integrated level adjustment.
- **10** | EWIS™ AutoLink Rapid as an option.



## Simple magazine loading Open freely accessible loading posit

Open, freely accessible loading positions for up to 60 workpieces.

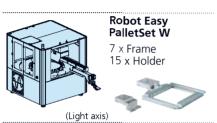


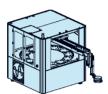
## Workpiece identification within seconds

EWIS™ Rapid identifies all the cell positions and transmits them to the cell computer.



Number of possible magazine positions per Robot version

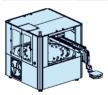




**Robot Easy** PC 210

12 x PC 210

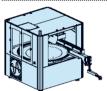




**Robot Easy UPC** 

10 x UPC



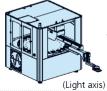


**Robot Easy** ITS 50/72

60 x ITS 50 Holder 72



(Light axis)



## Robot Easy ITS 115/148

24 x ITS 115/148

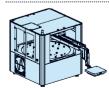




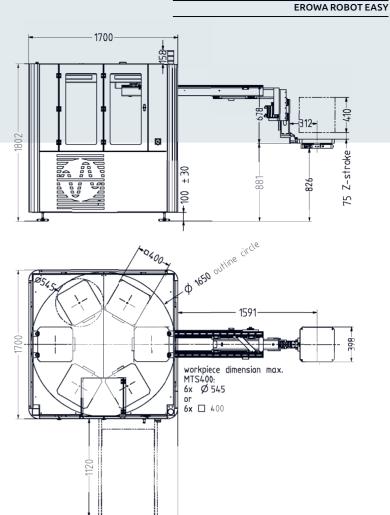
## Robot Easy MTS 400

6 x MTS 400





#### **Robot Easy MTS 500** 4 x MTS 500



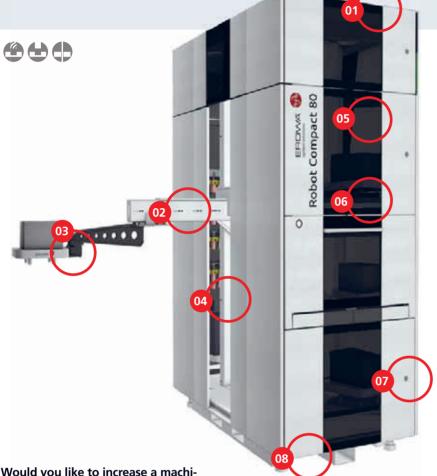
Tech	nical	Data

-670-

	EROWA Robot Easy MTS		
Transfer weight	40 kg/ 250 kg		
Axes			
M- and X-axes controlled	X: stroke ~1600 mm		
	(option long axis)		
Z-axis pneumatic	Z: stroke 75 mm		
Pneumatic			
Min. pressure / max. consumption	5 bar / 200 l/min.		
Electrical system			
Voltage (V+PE)	3x400		
Frequency (Hz)	50/60		
Power (VA)	710		
Nominal current (A)	1.8		
Control system			
Interface	Ethernet		
	Serial RS232		
	M-function		
	Parallel I/O Bit		
Workpiece identification	EWIS™ Rapid		
JobManagement	Erowa Manufacturing Contr JMS <sup>® Pro</sup>		

### **EROWA Robot Compact 80**

# Productivity on 2m<sup>2</sup>



Examples of the number of possible magazine positions. Possible mixed use.

Robot Compact 80

#### Robot Compact 80 Standard magazine 217 x ITS 50

for more

information!

217 x ITS 50 217 x Holder 72 217 x PM 56

217 x PM 56 70 x ITS 115/148

70 x MTS 148

70 x PM 85/130 8 x UPC

## Robot Compact 80 3. Magazine/Rack



327 x ITS 50 327 x Holder 72 327 x PM 56



105 x ITS 115/148 105 x MTS 148 105 x PM 85/130



8 x UPC

Would you like to increase a machine's autonomy? Are the workpieces numerous but not very big? Do you only have a little room left around the machine? Do you want to serve two machines with the same handling facility? If you can answer one of these question with YES, then we are just what you're looking for. The EROWA Robot Compact 80 is the answer to your requirements.

- **01** | Symmetrical design to enable positioning to the left or right of the machine.
- 02 | X-stroke 1380 mm.
- 03 | Max. 80 kg transfer weight.
- **04** | 330° swivel axis for the operation of the two frame magazines and up to two machines.
- **05** | 2 rack magazines with more than 200 magazine positions. A third magazine can be installed as an option.
- **06** | Freely adjustable height of magazine levels.
- **07** | Compact Monobloc construction on a mere 2 m<sup>2</sup>.
- **08** | Option: DockOn trolley for Robot Compact 80.

#### Layout example

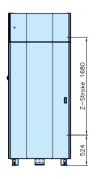
With longer machining times, it is worth using one Robot to serve two machines. The Robot's capacity is put to better use, and precious shop-floor space is optimally utilized.

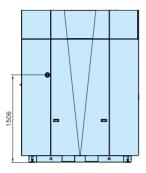


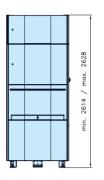


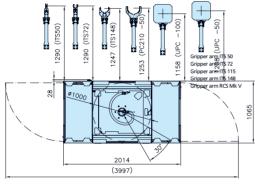












#### **Technical Data**

	EROWA Robot Compact 80			
Transfer weight	80 kg			
Magazine positions	> 200 ( > 300 with 3. Magazine / Option )			
Magazine levels	12 per Rack Magazine			
Magazinbeladung max.	1000 kg			
Axes electrically powered	X-stroke 1380 mm Z-stroke 1680 mm			
and controlled				
Swivel range, C-axis	330°			
Loading station UPC/PC210 (Option)	yes			
Axis control	Electrically controlled axes			
Connections				
Pneumatic				
Min. pressure/max. consumption	5 bar / 150 l/min.			
Electrical system				
Voltage (V+PE)	3x400			
Frequency (Hz)	50/60			
Power (kVA)	1.4			
Nominal current (A)	2.1			
Control system				
Interface	Ethernet			
	Serial RS232 / 422			
	M-function			
	Parallel I/O Bit			
Workpiece identification	EWIS™ Scan			
JobManagement	Erowa Manufacturing Control			

JMS® Pro

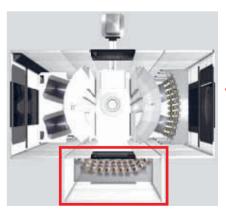
#### DockOn

The Robot can often only be placed on the operator's side of the machine. This blocks access for manual work. With the optional "DockOn" equipment, the facility can simply be moved to the side if the operator wants to do some manual work.



#### Integrated loading station (option)

To set up big and heavy workpieces at an ergonomically correct height. UPC pallets of up to 80kg in weight can be moved to the loading station, for instance with the help of an underslung crane. At the same time, the Robot continues to operate without any interruption.



#### 50% more magazine capacity

The third magazine for the EROWA Robot Compact 80 can be retrofitted quickly, simply and with minimum space requirements.

### **EROWA Robot Multi**

## **990**

# For 270 workpieces and electrodes

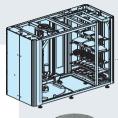
#### To load one or two machines.



- **01** | Magazine can be loaded from 3 sides and is accessible for loading crane.
- **02** | Fast change times with double gripper.
- 03 | Gripper arm with swivel axis.
- **04** | X-stroke 1200 mm.
- 05 | 80 kg transfer weight.
- **06** | Integrated control system.

- 07 | Servicing-friendly casing.
- **08** | Short starting-up times through compact monobloc design.
- 09 | Up to 270 magazine positions.
- **10** | Reading time < 30 seconds for the whole magazine with workpiece identification EWIS™ Rapid.

To load one or two machines with 6 chucks max.



Examples of the number of possible magazine positions.

#### Robot Multi Rack Magazine



5 x PC 210



3 x UPC



3 x MTS 400



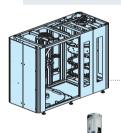
2 x MTS 500



PalletSet W 2 x Frame 7 x Holder



FrameSet 2 x Frame



#### Robot Multi Rotary Magazine

30 x Compact



30 x ITS 50 30 x Holder 72



30 x PM 85 30 x PM 56

15 x PM 130



15 x ITS 115/148 15 x MTS 148



10 x PC 210



5 x UPC



3 x MTS 400



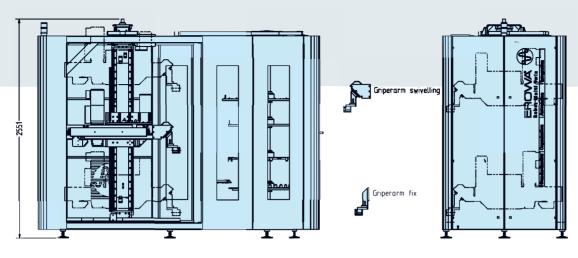
HSK, CAT, ISO, BT Tooling / up to 60 Holder

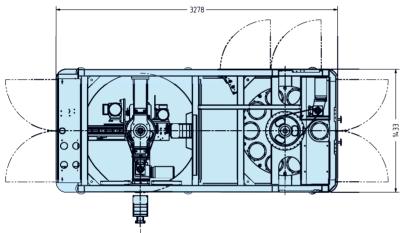


PalletSet W 3 x Frame 15 x Holder



30 x UnoSet

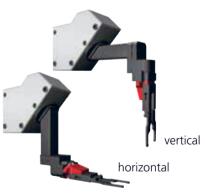






Loading station for user-friendly loading/unloading cycles.

Transfer weight		
	80 kg	
Magazine levels, max.	Rotary 12	Rack 12
Magazine level load, max.	Rotary 600 kg	Rack 400 kg
Magazine load max.	Rotary 1500 kg	Rack 1900 kg
electrically driven and controlled axes	X-stroke 1200 mm	Z-stroke 1450 mm
Pneumatic		
Min. pressure/max. consumption	5 bar / 200 l/min.	
Electrical system	Γ	sports S
Voltage (V+PE)	3x400	RobotMulti
Frequency (Hz)	50/60	1.55
Power (kVA)	3.6	
Nominal current (A)	3.5	
Control system		4 = 1
Interface	Ethernet	1 5 1 5 4 00
	Serial RS232 / 422	
	M-function	
	Parallel I/O I/O-Bit	
Remote diagnosis	yes	
Workpiece identification	EWIS™ Rapid	
JobManagement	Erowa Manufacturing	Control



#### Swiveling Gripper arm

The Robot Multi also serves CNC machines with vertically aligned chucks. The swiveling gripper arm turns the palletized workpiece into the right position.

for more information!

### **EROWA Robot Dynamic**

# Modular extensions to suit your wishes

The concept of the EROWA Robot Dynamics is as simple as it is ingenious. Depending on requirements, the Robot can be adapted and extended time and again, whilst the basic investment is preserved. As a stand-alone model to serve one single machine, or on rails to serve up to eight machines, everything is possible.



- **01** | Up to 9 magazines in the system; they can also be used in mixed composition. We will be glad to advise you about configurations.
- **02** | The X stroke varies between 1500 mm and 2350 mm depending on the axis.
- **03** | Great freedom of movement and lateral loading with the swivel arm.
- 04 | Maximum transfer weight: 250 kg.

- **05** | Surface scanner for additional safety.
- **06** | Reading time: <30 seconds for the entire magazine workpiece identification with EWIS™ Rapid.
- **07** | Transfer unit with +/- 225° swivel C-axis. Machines and magazines can be placed freely in a circle.



Examples of the number of possible magazine positions.

#### Rack Magazine



5 x PC 210



3 x UPC



2 x MTS 400



2 x MTS 500



Examples of the number of possible magazine positions.

#### **Rotary Magazine**

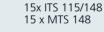
30 x Compact



30 x ITS 50 Holder 72



30 x PM 85





10 x PC 210

5 x UPC



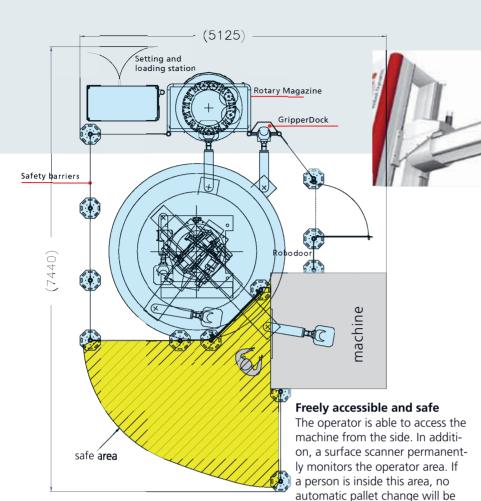
3 x MTS 400



PalletSet W 15 x Holder



PalletSet W 3 x Frame



#### Long range

The XT (telescopic) axis can extend to a maximum of 2000 mm.



#### Extending the machine tool store

This is made simple by a rotary magazine for workpiece holders.



## Workpiece identification within seconds

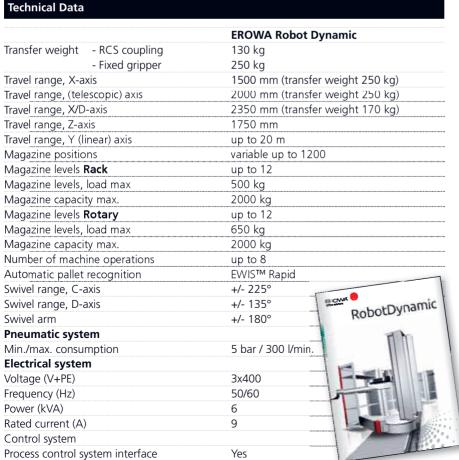
Each magazine position and each pallet is being monitored at all times. The EWIS™ Rapid identification system provides an overview.



#### Buckling arm, axis

The additional joint allows operating even in a small space.

for more information!



executed.

### **EROWA Robot Dynamic Linear**

## Flexible automation

The Robot Dynamic is capable of handling both big and small workpieces. One of the important features of the automatic manufacture of one-off parts and small series is the fact that the facility should be able to change autonomously from one different pallet size to the next.

The EROWA process control system provides you with an overview of all important information at a glance. All the relevant data and various planning aids are available to the machine operator on site and online



The first step is to equip the machine is such a way that most of the night hours can be utilized. One magazine is sufficient for this; with an average machine time of 30 minutes per workpiece, 5 hours can be put to productive use in this way.



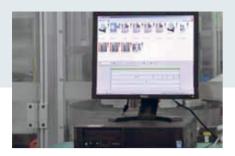
#### Various system sizes

There is a gripper to fit each tooling system size (different pallet sizes). The grippers are stored in the GripperDock and are automatically exchanged whenever required.

The Robot Dynamic loads/unloads pallets with an overall weight of up to 250 kg.



The production cell is extended and multiple machines are integrated. The Robot is equipped with a rail, additional magazines and a loading station. The initial investment is still used and extended, but now the production cell has the original capacity several times over.



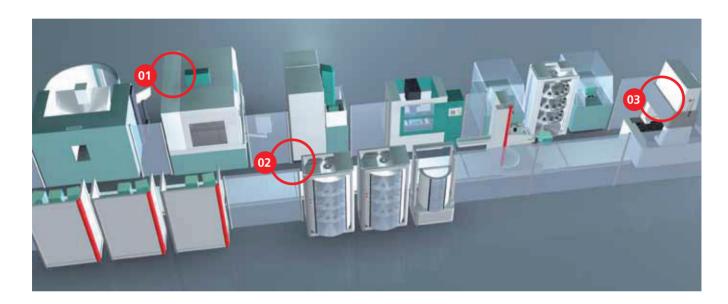
**01** | The process control system is a crucial factor for manufacturing security and helps operators to retain an overview at all times.



**02** | The stable linear rail is extended to the required length in segments.



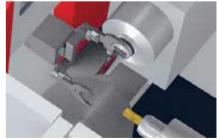
**03** | The handling facility serves the measuring station with manufactured products for interim and final checks.





#### **Additional stroke**

If the Robot Dynamic cannot be placed close enough to the machine tool, it can be equipped with an additional XT (telescopic) axis. The XT axis has a stroke of 2000 mm and loads pallets with up to 200 kg weight on the machine.



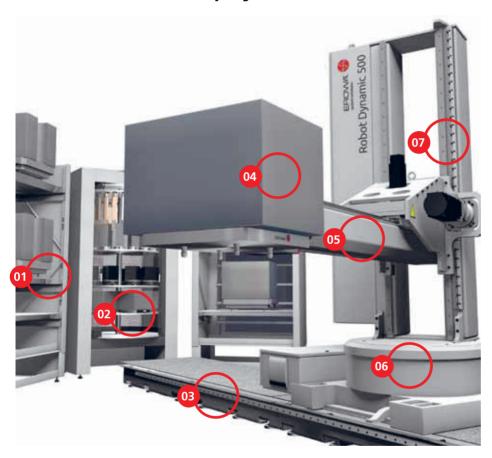
**Double gripper**Quick part change with the double gripper.

### EROWA Robot Dynamic 500

# For small and large up to 500 kg

Small batch and mixed workpiece sizes as well as different machining techniques require flexible production systems.

With the exchange gripper system, the Robot Dynamic 500 automatically retrieves the largest MTS pallets from the rack and immediately afterward small electrodes from the rotary magazine.



- **01** | Rack magazine for large and heavy workpieces up to 500 kg per pallet.
- **02** | Rotary magazine with many storage locations for small workpieces and electrodes.
- 03 I Linear rail up to 20 m.
- **04** | Ingenious exchange gripper system also for large MTS pallets of 800 x 800 x 500 mm and up to 500 kg capacity.

- 05 I The X travel is 1500 mm.
- **06** I Transfer unit with +/- 225° swiveling C-axis. Machines and magazines can be freely placed in a circle.
- **07** I Z-axis with 1520 mm gripper movement.



Specification based on maximum possible magazine positions per level.

(max. 2000 kg per magazine)

Rack M 1475



3 x UPC of 130 kg

Rack M 1475 Rack M 1000



2 x MTS 400 of 200 kg 1 x MTS 400 of 400 kg

Rack M 1475 Rack M 1000



2 x MTS 500 of 200 kg 1 x MTS 500 of 500 kg



(max. 2000 kg per magazine)

**Rotary Magazine** 

30 x Compact



30 x ITS 50 Holder 72



30 x PM 85



15x ITS 115/148 15 x MTS 148



10 x PC 210



5 x UPC



3 x MTS 400



30 x UnoSet



PalletSet W 15 x Holder



PalletSet W 3 x Frame



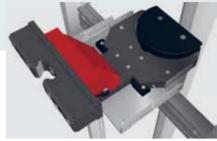
#### Standalone or linear solution

Integrated safety system

A Robot Dynamic 500 consists basically of a transfer unit and various magazines. They are supplemented with a gripper pool, loading station, and linear axis. Up to 8 machine tools can be operated.

Technical Data	
	EROWA Robot Dynamic 500
Transfer weight	up to 500 kg
Workpiece size max.	800 x 800 x 500 mm
Gripper exchange	Yes
Gripper types	Fixed mounted fork grippers
- мониличення на применення на применення на применення на применення на применення на применення на применен 	Exchangeable fork grippers
	WGS gripper system (New)
Swivel arm	No
X-axis gripper movement	1500 mm
Z-axis gripper movement	1520 mm
Y (linear axis) gripper movement	up to 20 m
Rotation range	+/-225°
System height	2800 mm / with linear axis 3100 mm
Room height min.	3500 mm for linear
Magazine levels <b>Rack</b>	max. 12
Magazine levels load max.	500 kg
Magazine capacity max.	2000 kg
Magazine levels <b>Rotary</b>	max. 12
Magazine levels load max.	500 kg
Magazine capacity max.	2000 kg
Number of machine operations	up to 8 Robot Dynamic 500
Pneumatic system	Kopor
Minimum pressure / maximum consumption	5 bar / 300 l/min.
Electrical system	
Voltage (V+PE)	3x400
Frequency (Hz)	50/60
Power (kVA)	16
Rated current (A)	25
Control system	
Process control system interface	Yes

Yes



#### GripperDock

The right gripper for each tooling system size. They are stored in the GripperDock and automatically employed when needed.



New - Exchange gripper system WGS 500 Heavy MTS pallets of up to 500 kg are clamped in combination with WGS Gripper Link directly in the WGS 500 coupling. For smaller system sizes, the appropriate WGS gripper is used.



#### For large workpieces

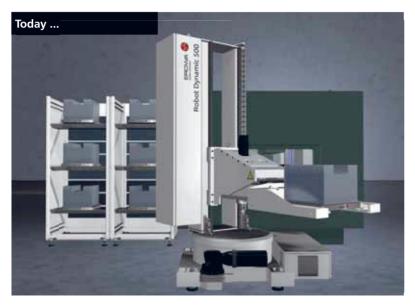
MTS pallets with part sizes up to 800 x 800 x 500 mm are easily loaded on the machine.

For more information!

### EROWA Robot Dynamic 500

# Flexible and modular automation

The EROWA Robot Dynamic 500 can always be adapted and extended. Due to the modular design, it is very easy to adapt the handling facility at any time exactly to the individual needs of the production plant.





The right gripper for each pallet size. That is flexible and productive manufacturing of small and large workpieces.

**Basic investment –** The machine tool is equipped with a transfer unit, different workpiece magazines, a loading station, and a process control system. So the production cell continues to produce after the manned shift efficiently and autonomously.



**Expand as needed** – More machines are added. The robot is equipped with rails and additional workpiece magazines. The initial investment is used further and supplemented. The capacity of the production line is multiplied, and more unmanned shifts can be realized.

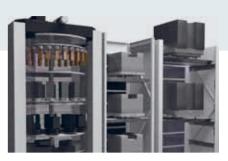
AUTOMATION



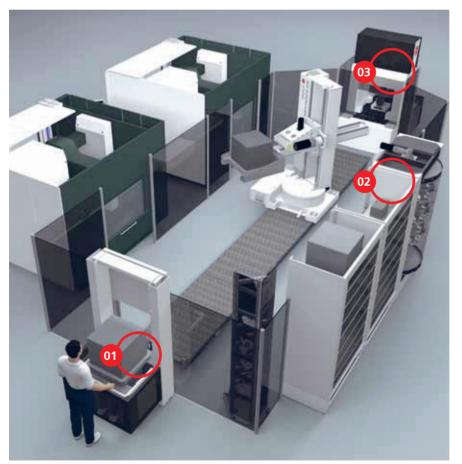
01 | A loading station is available to facilitate the setup and preparation of heavy parts.



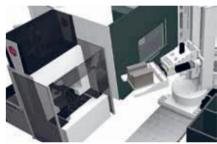
Each pallet is equipped with an EWIS™ identification chip. So you always have an overview of all magazine positions and pallets.



02 | The different EROWA pallet sizes are used on one and the same machine. Depending on the assigned jobs, the Robot Dynamic 500 switches to the fitting system size automatically.



A highly efficient system for automating the manufacture of single parts and small batches. Workpieces are supplied and removed via the integrated setting-up and loading stations. When needed, simply another magazine is added.



03 | Integrated quality control. Integrating an EROWA CMM Qi measuring machine in your process line will also take care of this requirement.



The EROWA process control system provides the operator with all relevant information and various planning tools online and at any time. This is one of the prerequisites to be able to manufacture small series and individual components flexibly and automatically.

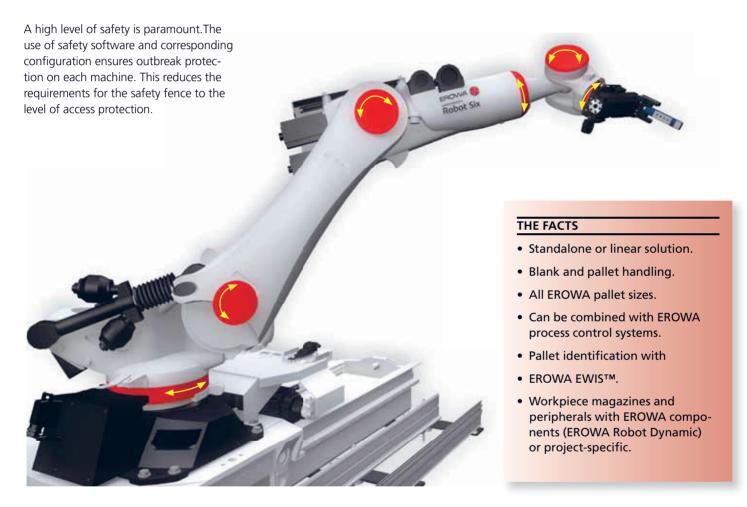
#### **EROWA Robot Six**



# Maximum versatility and flexibility

Using a 6-axis robot basically allows you to utilize more degrees of freedom and to use types of different weight classes.

This is based on standardized interfaces and options, to ensure optimal integration into the "EROWA World."



	<b>EROWA Robot Six</b> (ER6 K180L as shown)	EROWA Robot Six individual			
Transfer weight	up to 180 kg	-			
- with RCS5 coupling	up to 130 kg	-			
- with WGS coupling	-	up to 500 kg			
Max. range (overhang)	R = 2500 mm	Depending on robot and gripper type			
Swiveling/indexing range	+/- 180°				
Y linear axis	Yes, length on request				
Magazine type		D* Rack magazine Components, t-specific upon request			



For more information!

**01** | Measuring software Full functionality for the highest demands. For intermediate and final inspection and quality measurement.

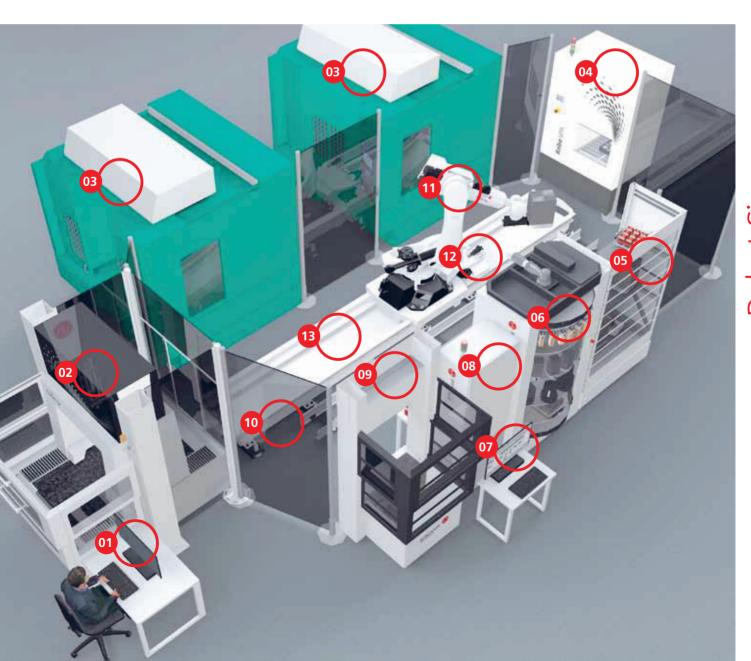
#### **02** | CMM Qi

Swiss quality measuring machine. The measuring machine fulfils all the criteria for successful automation.

- **03** | Machine tool Milling, turning, drilling, grinding.
- **04** | RoboSpa Cleaning station for workpieces and electrodes.

- **05** | Standard Rack magazine. with configurable levels and pallet positions:
- MTS and/or UPC pallets
- Pallets of sorted blanks
- Pallets with fixture
- **06** | Standard Rotary magazine with high capacity for pallets:
- ITS 50 / ITS 50 C, ITS 72 / ITS 148 pallets
- PC 210 / UPC pallets
- **07** | Process control system Control panel for loading station and rotary.
- **08** | Robot control Control including peripheral and machine connections.

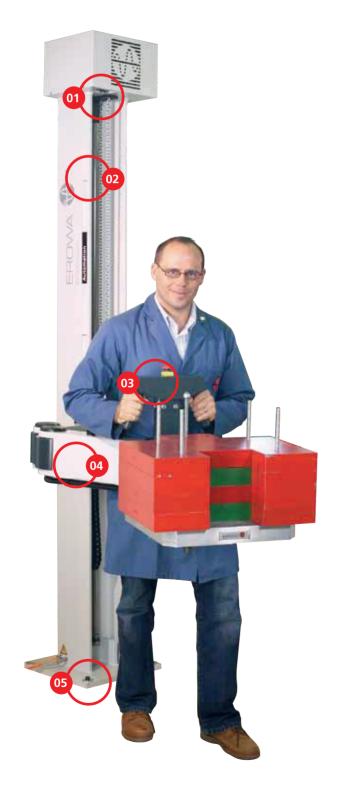
- **09** | Loading station for input and output of palletized workpieces in the production cell or for conversion operations.
- **10** | Safety / access protection No outbreak protection is necessary thanks to safe logic.
- **11** | EROWA Robot Six 6-axis robot for blank and pallet change. Transfer weight 130 kg with RCS5 coupling.
- **12** | Mobile gripper station for efficient gripper change.
- 13 | Rail system.



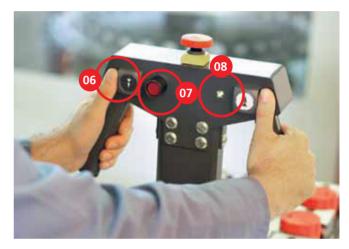
#### **EROWA Lift**



## Loading machines made easy

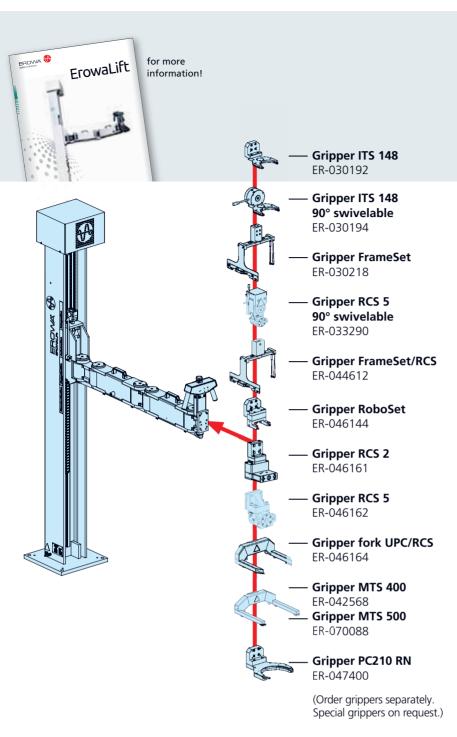


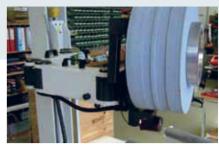
The EROWA Lift has been designed for frequent pallet changes directly onto the machine or into the handling facility. Fitted in a fixed position next to the machine, it is always where it is needed and moves palletized workpieces from transport pallets even up to the topmost magazine rack.



- 01 | Strong drive with two speeds.
- 02 | Stable guidance of the Z-axis.
- **03** | Two-handed control system with integrated operation.
- **04** | Segmented arm for optimal accessibility.
- **05** | Solid anchorage to the floor with leveling facility.
- **06** | Up/down movement at two speeds at the push of a button.
- 07 | "Open gripper" button.
- 08 | RCS 5 control light "Gripper clamped".

Lift pallets without straining your back. Directly from the shop-floor trolley into the magazine, even right to the top rack.

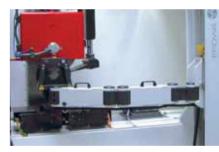




We also supply special grippers, for instance for the handling of large grinding wheels.



Simple and safe handling even of heavy workpieces up to 250 kg.



Flexible pallet positioning with the swivel arm.

Technical Data	
ER-046250	EROWA Lift
Transfer weight	max. 250 kg
Movements	Z = 1660 mm
	X = 1300  mm
	Swivel range 360°
Installation	4 heavy-duty anchors M12
	concrete strength min. C20/25
Pneumatic	min. 5 bar
Voltage	3 x 380/400 V
Frequency	50 Hz
Drive	High speed 4m/min
	Low speed 1m/min



Lifting the pallet from the transport system.

## **EROWA LiftGear**



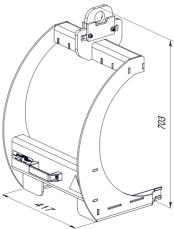
Pallets weighing more than 20 kg must be inserted into the UPCs or MTS chucks on the machine in a gentle and accurate manner. With the LiftGear and an overhead crane, this is child's play.

#### Your advantages

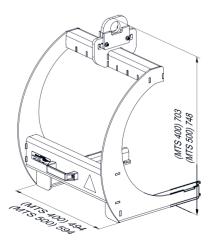
- Gentle machine loading.
- Increase in quality through careful and safe handling.
- Safety-conforming work

#### **Applications:**

Loading of machine tools, pallet magazines, Robot magazines, presetting and measuring stations.



**EROWA LiftGear UPC** 



EROWA LiftGear MTS 400 / MTS 500

Technical Data			
	ER-069551	ER-042800	ER-077012
	LiftGear UPC	LiftGear MTS 400	LiftGear MTS 500
Transfer weight	250 kg, incl. pallet	250 kg, incl. pallet	250 kg, incl. pallet
Pallet type	UPC 320 x 320 mm	MTS 400	MTS 500
Maximum workpiece dimensions			
LxWxH	320 x 380 x 450 mm	400 x 450 x 450 mm	500 x 550 x 450 mm



EROWA LiftGear UPC

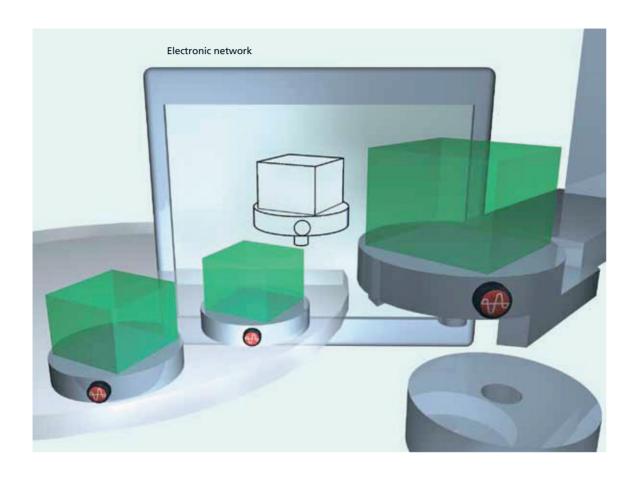


EROWA LiftGear MTS



The EROWA LiftGear moves UPC and MTC pallets to the right place - quickly, safely and accurately.

## EROWA data transfer systems



Integration of systems and communication channels. This precludes sources of error as much as possible, and will guarantee a faster flow of communication.



For chip-removing processes



For EDM sinking



For WEDM

### **EROWA DATA TRANSFER SYSTEMS**

EROWA Manufacturing Control V3 Cell control for production machines	374
EROWA JMS®Pro	376
From the production cell to networked production	

### **EROWA Manufacturing Control V3**

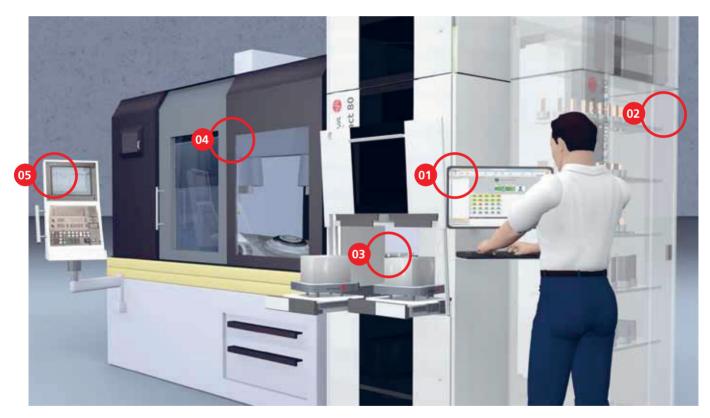
## Everything at a glance

Integration is the last step towards the successful implementation of EROWA FMC. The EROWA Manufacturing Control V3 process control system makes this step easy. The EROWA Manufacturing Control V3 software is the overriding tool through which the individual cells can be checked and controlled.

With EROWA Manufacturing Control V3, the machine operator has his production cell under control at all times. The refined features which have existed so far are now becoming even simpler thanks to active user guidance. Standard processes can be virtually run at the touch of a button. EROWA Manufacturing Control V3 is compatible with all the major control systems of lathes, milling and grinding machines.

#### FLEXIBLE MANUFACTURING

EROWA Manufacturing Control V3 controls and monitors the entire production cell.



Made for milling! With EROWA Manufacturing Control V3, it's easy to keep an overview. More productive hours are seen at a glance.

#### 01 | Cell control

The EROWA Manufacturing Control V3 software is the overriding tool through which the operator checks and controls the cell.

#### 02 | Identification

The Robot with the magazine: the entire work reserve is available on demand and is unmistakeably identified with the help of chips.

#### 03 | Loading station

The control system automatically loads/ unloads pallets between the loading station and the Robot magazine.

#### 04 | Production cell

The machine tool with the EROWA table equipment, the automatic door and the tool magazine.

#### 05 | Data transmission

The machine control system transmits data from the tool changer to the EROWA Manufacturing Control V3.

### **EROWA Manufacturing Control V3**

# Supported and guided user inputs





For more information, please contact your specialist EROWA dealer.

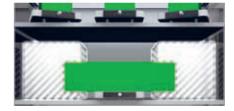
Everything at a glance: in this way, the machine operator can always see what is going on. The user surface in the current Microsoft Office look is the same for all cells, which facilitates a substitute operator's work



This is how much work reserve is still available. With each load, the system calculates how long the milling cell will still be productive.

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If there is a malfunction, this will automatically trigger off an alarm and information about the type of defect, if necessary by e-mail or SMS.



Workpiece oversize - working with oversized workpieces without any collisions and in optimized space conditions. The process control system takes into account workpiece sizes when placing workpieces in the magazine. Positions that are not available will be blocked automatically.



Clearly arranged representation of the tools on the machine, including status, downtime and tool breakage.



Fixture Manager - quick reclamping made easy! Fixtures are managed jointly with the individual and pallet-specific offset data.

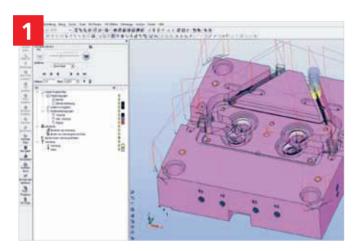
EROWA JMS® Pro

# Automatically documented production process

JMS® Pro Workflow-Management is not a slogan but a program. By making the data completely universal, it allows for comprehensive control throughout the workshop. From the CAD/CAM data import to the reporting of the completed jobs, everything can be viewed online.

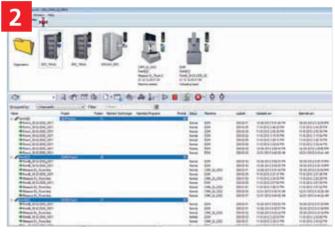
#### WORKFLOW-MANAGEMENT

Planning, controlling and monitoring individual operations.



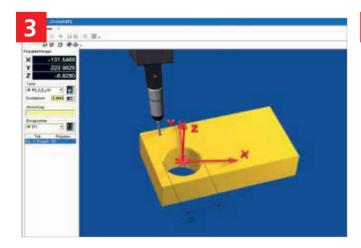
#### 01 | Data import from CAD/CAM & PPS

Import of the job structure and generation of the work steps.



#### 02 | Setting up and management of production data

Preparation of jobs while machine is at work. Identification of pallets through the electronic identification system EWIS<sup>TM</sup> Rapid. The pallets are automatically identified on the basis of the built-in chip. The data is then transmitted to JMS<sup>®</sup> Pro.



#### 03 | Determine presetting data.

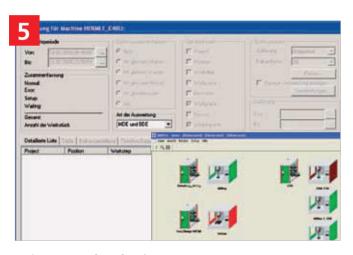
This is stored in an efficient database, in a machine-neutral format, and is available for all the users at any time.



#### 04 | Machining

The production cell is controlled online. The user is able to influence all the priorities. This will guarantee a quick response.





#### 05 | Status and evaluation

The entire production process is displayed in a clear structure: current status, registration of operational data, and utilization in the time axis.

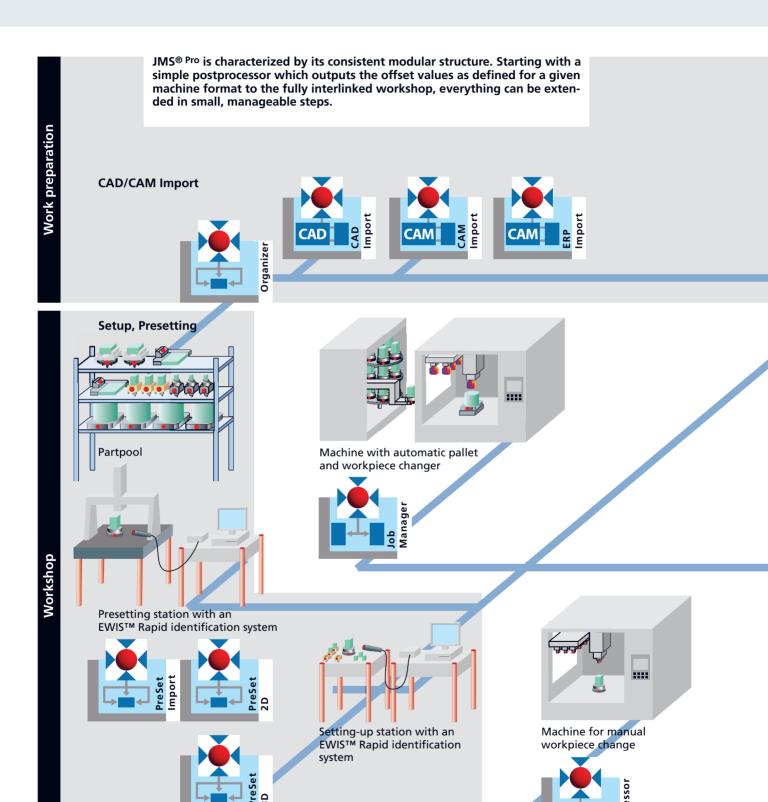


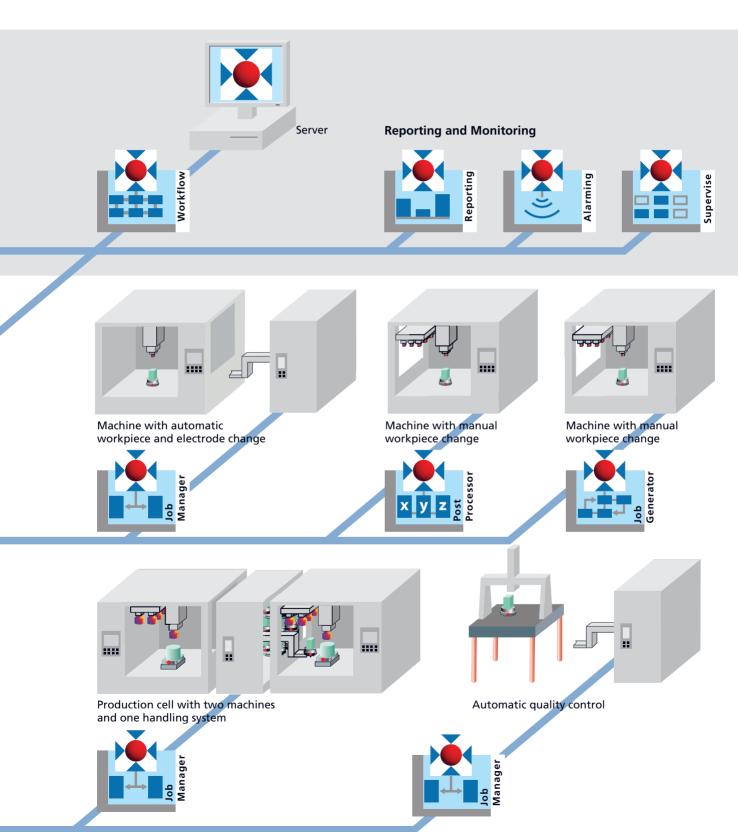
Collects and transmits special events from the production cells. The relevant users are always informed.

#### JMS® Pro is workflow-management with crucial advantages.

- The production data is stored in a clear structure. You can access them at any time.
- The entire production process is displayed in JMS® Pro. You have an overview.
- Changes to the production process are effective online. You always know what is happening.
- JMS® Pro documents all the processes automatically. Traceability is guaranteed. You are in control of all the changes.
- The complete electronic dataflow from CAD to evaluation replaces the paper avalanche.
- JMS® Pro interlinks machines of a wide variety of technologies and generations. You choose yourself what should be part of the network.
- You determine the degree of integration yourself. Whether simple postprocessor or integrated workshop solution - we give you comprehensive advice.
- Workplaces become more interesting. With JMS® Pro users become machine managers.
- Whether EDM or WEDM, milling, drilling, turning, grinding or measuring: JMS® Pro integrates the facilities.

# From production cell to integrated manufacturing





380

This is where you will find all the EROWA order numbers in numerically ascending order, together with the numbers of the pages on which the products are presented in pictures.

Order number	Page								
ER-001516	337	ER-003489	197	ER-008301	298	ER-010514	242	ER-013062	245
ER-001565	209	ER-003483	192	ER-008458	204	ER-010514	242	ER-013913	243
ER-001503	57	ER-005313	202	ER-008475	244	ER-010518	242	ER-014326	56
ER-001674	289	ER-006701	202	ER-008517	180	ER-010523	242	ER-014333	56
ER-001846	240	ER-006702	202	ER-008519	180	ER-010525	242	ER-014698	279
ER-002023	56	ER-006703	202	ER-008547	243	ER-010526	242	ER-014722	280
ER-002147	56	ER-006704	202	ER-008551	204	ER-010532	242	ER-015042	181
ER-002394	230	ER-006705	202	ER-008553	243	ER-010538	240	ER-015465	187
ER-002395	230	ER-006706	202	ER-008562	331	ER-010560	207	ER-015627	190
ER-002396	230	ER-006707	202	ER-008595	204	ER-010561	207	ER-015629	195
ER-002397	230	ER-006708	202	ER-008617	207	ER-010562	207	ER-015661	73
ER-002398	230	ER-006709	202	ER-008623	331	ER-010567	303	ER-015670	280
ER-002399	230	ER-006710	202	ER-008628	331	ER-010577	204	ER-015776	180
ER-002400	230	ER-006711	202	ER-008633	208	ER-010581	204	ER-015777	181
ER-002401	230	ER-006712	202	ER-008638	207	ER-010583	204	ER-015870	148
ER-002402	230	ER-006713	202	ER-008649	208	ER-010585	191	ER-015880	149
ER-002403	203	ER-006714	202	ER-008745	201	ER-010586	192	ER-015888	149
ER-002404	203	ER-006715	202	ER-008756	331	ER-010592	197	ER-015899	182
ER-002405	203	ER-006716	202	ER-008814	279	ER-010622	195	ER-015962	245
ER-002406	203	ER-006717	202	ER-008831	331	ER-010627	176	ER-015985	245
ER-002407	203	ER-006718	202	ER-008842	279	ER-010661	243	ER-015995	147
ER-002408	203	ER-007521	158	ER-008846	288	ER-010671	202	ER-015996	148
ER-002409	203	ER-007523	158	ER-008848	288	ER-010689	202	ER-015997	147
ER-002410	203	ER-007580	159	ER-008856	280	ER-010694	245	ER-015998	147
ER-002411	203	ER-007604	161	ER-008868	294	ER-010723	207	ER-015999	147
ER-002412	203	ER-007612	162	ER-008873	283	ER-010734	289	ER-016001	148
ER-002413	203	ER-007618	170	ER-008875	283	ER-010742	187	ER-016003	69
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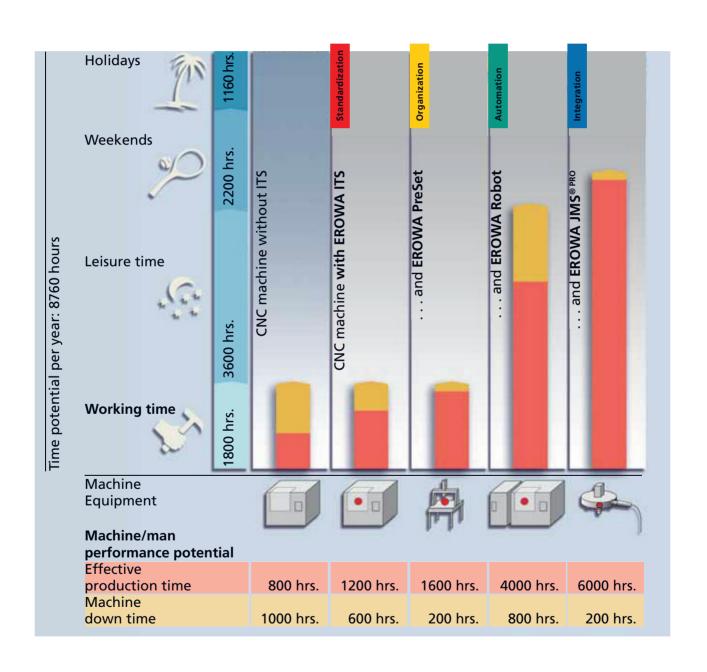
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## Optimal use of resources

Suitable EROWA components will enable you to put your machines to optimal use. We'll gladly assist you with our many years of experience. You call - we'll come.



### The next step

Important matters require planning. And your next step is certain to be such an important matter. After all, you are setting off into a new, rational age.

We will gladly accompany you on your way with advice, in daily operating procedures, so that you will know at any time what you are letting yourself in for. The nearest EROWA agency is not far away.

## Take that important step.





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