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**PROGRAMMABLE
CONTROLLERS**

**PROGRAMMABLE ROTARY
TABLES & INDEXERS**

MULTI-SPINDLE MODELS

**ROTARY TABLE
ACCESSORIES**

MULTI-COLLET BLOCK

WISE TRUNION FIXTURES

**FOURTH AXIS
ROTARY TABLES**

**FLAT-PLATE
TILTING TABLES**

TILTING ROTARY TABLES

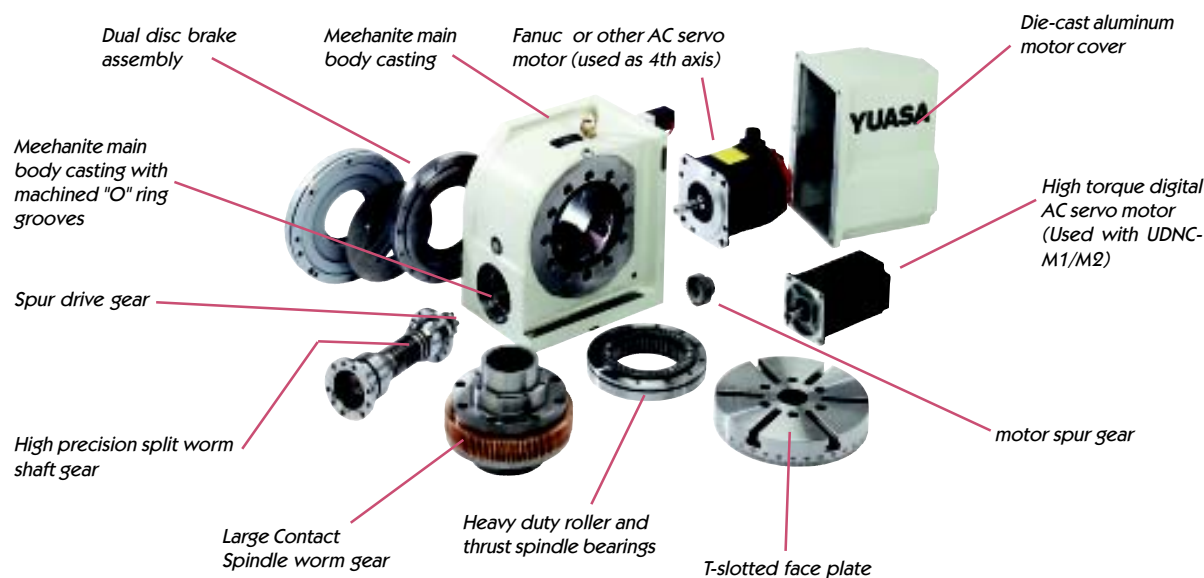
SUPER RAPIDEX

WISEDEX

CNC ROTARY PRODUCTS



DMNC SERIES



ROTARY TABLE BODY FEATURES INCLUDE:

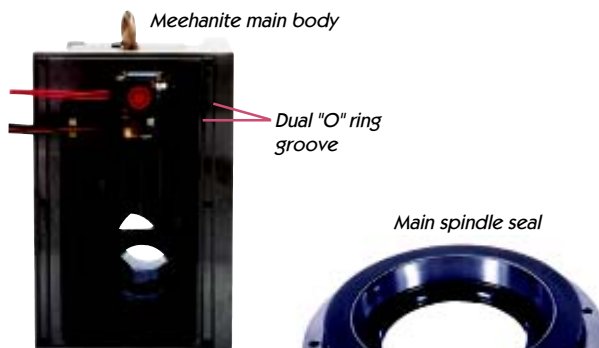
Split Worm Gear Set: This precision worm boasts of multi-tooth (8 or 9 teeth) worm gear engagement providing maximum torque to the rotary table spindle (a typical single lead worm has only 2 or 3 tooth engagement to the worm wheel gear). Also, our split worm design means that only minimum backlash (0.0002") is needed to allow rotary table movement. This small backlash value ensures a much higher positioning accuracy and more rigidity.

Heavy Duty Dual Disc Brake System: Our patented brake design (dual disc) can be used as pneumatic (standard) or hydraulic (optional). When you order your DMNC rotary table, you can specify either pneumatic spindle brake, or for a small additional cost we can prepare your rotary table to include hydraulic spindle brake for very heavy off-center cutting.

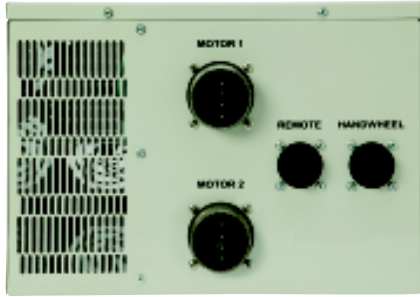
Main Spindle Bearing Set: Main spindle features a large diameter, heavy, duty class "A", high accuracy, long contact ball bearing combined with heavy dual thrust bearings. This massive bearing set is designed for heavy workpiece loads under maximum cutting conditions.

Main Spindle Seal: Double-lip, spring-loaded oil seal located directly around the spindle protects the worm gear and bearing from outside contamination.

Meehanite Main Body: The main rotary table body has machined dual "O" ring grooves for a "perfect seal" between the die cast aluminum motor cover to the rotary table body.



UDNC M1/M2 PROGRAMMABLE CONTROLLER



Side View



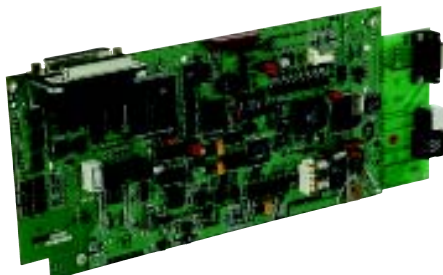
UDNC-M2 CONTROLLER



Communication Ports



Digital Servo Amplifier



Motion Controller

We are excited to introduce our new UDNC-M1 (single axis) and UDNC-M2 (dual axis) programmable controllers. These new controllers feature the latest in digital servo technology with enhanced motion control capabilities.

Nine (9) pin serial port (RS232C) along with a USB port is provided along with Windows[®] based programming software allowing for off-line programming and program storage.

The unit features direct rotary table operation using a macro "DPRNT" command from the CNC control.

An optional Ethernet port is also offered for diagnostic access from our service department directly to your UDNC controller in your plant.

Our UDNC-M1 and M2 controllers include our new digital servo amplifier providing more than 30 amp output to the digital AC servo motor ensuring maximum power for turning heavy loads. This revolutionary integrated power block technology provides more power as required while maintaining smooth servo operation for helical type cutting.

This fully digital motion control features the latest Motorola[®] DSP digital processor. This highly integrated motion controller has minimal closed servo loop delays, resulting in the opportunity for higher gains (servo stiffness) for better servo tracking.

OTHER FEATURES INCLUDE:

- Standard M & G code functions
- 100-program storage memory
- Auto backlash compensation
- Pitch error compensation
- Manual pulse generator
- Remote program step from PC
- Dual cooling fans
- Fully protected (from outside contamination)
- Helical cutting capability
- Incremental jog (to 0.0001" sec.)
- 64-bit microprocessor
- 100 RPM indexing speed



UDNC REMOTE PORT		CNC MACHINE
	#2 BLK	 +24VDC ≈250VAC M-CODE START
	#3 GRN	
	#4 RED / WHT	 +24VDC ≈250VAC M-CODE FINISH #1
N.O. OR N.C.	#5 ORG	
	#6 WHT	 +24VDC ≈250VAC M-CODE FINISH #2
N.O. OR N.C.	#7 BLU	
	#8 ORG / BLK	
	#9 CLEAR (DO NOT USE)	 EMERGENCY STOP (N.O.)
	#12 BLK / WHT	 REMOTE HOME (M-CODE OR OTHER CIRCUIT)
	#13 BLU / WHT	

INTERFACE TO CNC MACHINE VIA RS232C OR USB PORT



MACRO METHOD BENEFITS

This method clearly has a number of advantages over a typical M Code installation.

- ▶ No need to write a separate program for the indexer controller. Only the CNC machine program is required, which includes the rotary movements. This also means that all index movements are stored in the same machine program, so re-running the same job is as easy as loading the CNC machine program.
- ▶ Provides the ability re-start/re-run the CNC machine program at any block and the rotary indexer will move to the command position, regardless of the previous rotary position.
- ▶ At any time you can view the machine CRT and see the rotary table position, relative to the rest of the machine program.
- ▶ Macro programming allows for math variables such as partial indexes, etc.

CNC Machine Requirements

- ▶ Macro "B" or equivalent
- ▶ Spare M Code
- ▶ RS232 serial cable or USB cable

Set Machine Protocol

Most CNC machine controls communicate using the 7 or 8 data bit format. This, along with baud rate can be set into the UDNC controller, using parameter settings. Proper communication settings between the machine control and the UDNC controller are essential for operation. (Please note that some CNC controls may not allow this function to work due to software compatibility issues.)

UDNC - M1 / M2



Example of a Macro Program for the CNC Control (EXAMPLES ONLY)

DPRNT line for UDNC-M1

```
%  
9010  
POPEN;  
DPRNT[G90F100A#1];  
PCLOS;  
M21; - (example of machine M-code)  
M99;  
%
```

DPRNT line for UDNC-M2

```
%  
9011  
POPEN;  
DPRNT[G90F100A#1B#2];  
PCLOS;  
M21; - (example of machine M-code)  
M99;  
%
```

Once this is done all that is required in the machine program, is to first insert the macro program call "G15", for example, then the variable #1="A" <move>. The CNC program line would be **G15A60**. This would provide an absolute rotary move to 60 degrees position. As you can see, this is the simplest programming method available today.

NOTE: Ethernet port (opt.) is available for diagnostic access from our service department directly to your UDNC controller.

DMNC SERIES ROTARY TABLE MODELS (Single Spindle)



MODELS 400~130



Ultra-precision Split Worm Gear



UDNC-M1

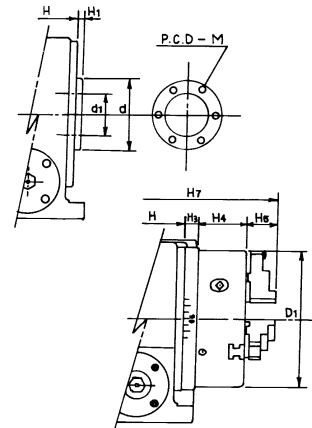


DHB 130~320

Inch/(mm)

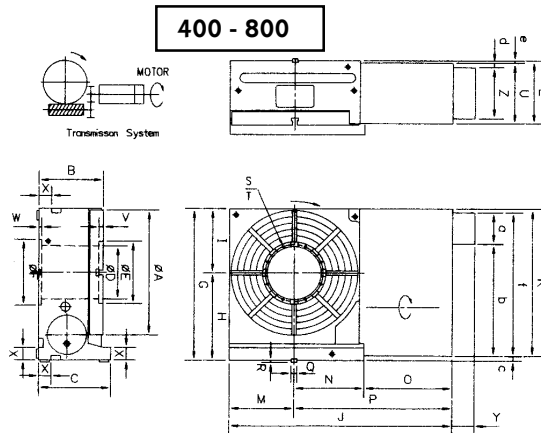
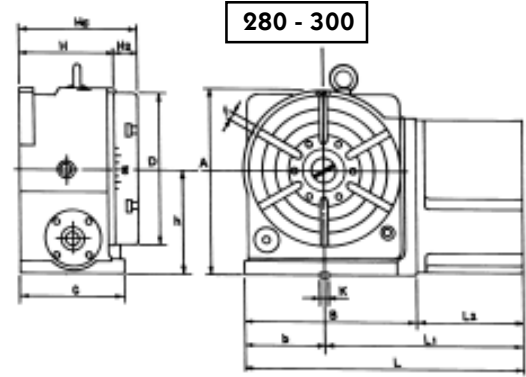
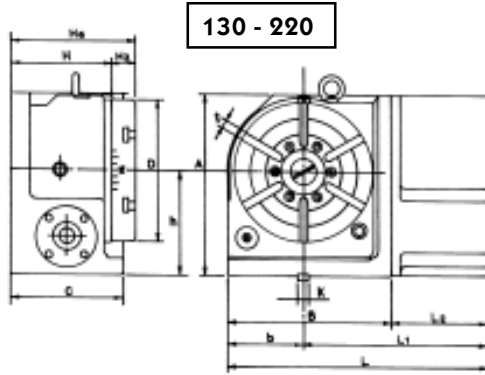
MODEL / DMNC	130	170	220	280	320	400	500	630	800
SUB TABLE O.D. BORE I.D. THREADED I.D.	5.12 (130)	6.69 (170)	8.66 (220)	11.02 (280)	12.60 (320)	15.75 (400)	19.68 (500)	24.80 (630)	31.50 (800)
	1.18 (30)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	N/A	N/A	N/A
	N/A	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	N/A	N/A	N/A
CENTER HEIGHT inch.(mm)	4.13 (105)	5.12 (130)	6.30 (160)	7.48 (190)	8.66 (220)	11.10 (280)	12.20 (310)	16.54 (420)	18.90 (480)
MAX PRM	100	75	50	36		25		11.1	
SPINDLE TORQUE ft.lbs (Kg.m)	90 (12)	165 (23)	195 (27)	780 (108)	810 (112)	789 (109)	1,450 (200)	1,965 (272)	2,640 (365)
SPINDLE BRAKE TORQUE lbs.ft (kg.m)									
PNEUMATIC BRAKE	50 (6.9)	110 (15)	180 (25)	325 (45)	480 (66)	N/A	N / A		
HYDRAULIC BRAKE	108 (15)	217 (30)	352 (49)	515 (71)	623 (86)	789 (109)	855 (118)	941 (130)	1,231 (170)
RESOLUTION (degree)	0.001"	0.00075"	0.0005"	0.000375"		0.00025"			
MAX LOAD HORIZONTAL (TABLE POSITION) lbs. (Kg)	66 (30)	180 (80)	260 (120)	400 (180)	550 (250)	1,100 (500)	2,156 (980)	3,300 (1,500)	4,400 (2,000)
MAX LOAD VERTICAL (TABLE POSITION) lbs. (Kg)	33 (15)	90 (40)	130 (60)	200 (90)	275 (125)	770 (350)	1,045 (475)	1,430 (650)	1,650 (750)
POSITIONING ACCURACY	+/- 10 seconds					+/- 7.5 seconds			
REPEATABILITY	+/- 2 seconds								
MOTOR TYPE	Digital AC Servo								
SETTING POSITION	HORIZONTAL OR VERTICAL								
THRU HOLE DIAMETER Inch (mm)	1.44 (36.5)	1.77 (45)	2.50 (63.5)	3.54 (90)	4.33 (110)	6.69 (170)	10.0 (254)	10 (254)	
POWER SUPPLY	105 ~ 240 VAC Single Phase 20 Amp								
GEAR RATIO	45 : 1	60 : 1	90 : 1	120 : 1		180 : 1			
SPINDLE RUNOUT Inch (mm)	0.006 (0.02)								
T-SLOTTED FACE PLATE	4-SLOT	6-SLOT				8-SLOT			
NET WEIGHT lbs. (Kg)	70 (32)	108 (49)	180 (82)	282 (128)	418 (190)	682 (310)	1,131 (513)	1,815 (824)	2,750 (1,248)

SPINDLE SPECIFICATIONS										CHUCK DIMENSIONS		
MODEL	D1	d	d1	PCD-M	H1	H3	H4	H5	H7	Inner Jaw	Outer Jaw	I.D.
DMNC 130	4.01 (102)	2.76 (70)	1.44 (36.5)	2.36-M5 (60)-M5	0.18 (4.5)	0.65 (16.5)	1.81 (46)	0.63 (16)	7.87 (200)	0.12~1.18 (3~30)	0.12~3.39 (3~86)	1.26 (32)
DMNC 170	6.57 (167)	3.35 (85)	1.77 (45)	2.44-M8 (62)-M8	0.28 (7)	0.71 (18)	2.68 (68)	1.79 (45.4)	10.49 (266.4)	0.16~1.65 (4~4.2)	0.39~6.14 (10~156)	1.73 (44)
DMNC 220	8.27 (210)	4.33 (110)	2.50 (63.5)	3.54-M8 (90)-M8	0.31 (8)	0.79 (20)	2.95 (75)	1.84 (46.8)	11.76 (298.8)	0.16~2.44 (4~62)	0.39~7.09 (10~180)	2.48 (63)
DMNC 280	10.79 (274)	5.51 (140)	3.54 (90)	4.57-M10 (116)-M10	0.35 (9)	0.87 (22)	3.58 (91)	2.13 (54.2)	13.55 (344.2)	0.16~3.46 (4~88)	0.47~9.06 (12~230)	3.54 (90)
DMNC 320	12.2 (310)	6.3 (160)	4.33 (110)	5.35-M10 (136)-M10	0.35 (9)	0.98 (25)	3.78 (96)	2.28 (58)	14.8 (376)	0.20~4.25 (5~108)	0.59~10.43 (15~265)	4.33 (110)



NOTE: For controller features see page #9. For rotary table (body) features see page #8. Left hand motor mounted models are available, by request. Rear mounted motor models are available on request.

OVERALL DIMENSIONAL SPECIFICATIONS



STANDARD ACCESSORIES

- ▶ UDNC-M1 Controller
- ▶ Remote Cable (for M-code Interface, 15 ft.)
- ▶ Power cord (105~240 VAC, single phase)
- ▶ Operators Manual, Warranty Card, Locating Keys
- ▶ T-slotted Face Plate (130-320 removable)

OPTIONAL ACCESSORIES

- ▶ Handwheels (MPG-300)
- ▶ Remote quill switch (RQS-100) for manual mills
- ▶ Collet Chucks, Lathe Chucks, etc.
- ▶ Tailstocks (manual & air operated)
- ▶ Vise and collet block trunion fixtures
- ▶ PC Programming software
- ▶ RS232 cable for DPRNT

Unit: inch (mm)

MODEL	A	B	b	C	D	L	L1	L2	H	H2	H6	t	h	k
DMNC 130	7.87 (200)	6.57 (167)	3.03 (77)	5.31 (135)	5.12 (130)	12.28 (312)	9.25 (235)	5.71 (145)	4.78 (121.5)	1.12 (33.5)	5.91 (155)	0.39 (10)	4.13 (105)	0.55 (14)
DMNC 170	9.25 (235)	8.46 (215)	3.94 (100)	5.91 (150)	6.69 (170)	15.55 (395)	11.61 (295)	7.09 (180)	5.31 (135)	1.38 (35)	6.69 (170)	0.47 (12)	5.12 (130)	0.71 (18)
DMNC 220	11.02 (280)	10.24 (260)	4.72 (120)	6.89 (175)	8.66 (220)	18.11 (460)	13.38 (340)	7.87 (200)	6.18 (157)	1.50 (38)	7.68 (195)	0.47 (12)	6.3 (160)	0.71 (18)
DMNC 280	13.39 (340)	12.60 (320)	5.91 (150)	7.68 (195)	11.02 (280)	20.47 (520)	14.57 (370)	7.87 (200)	6.97 (177)	1.69 (43)	8.66 (220)	0.47 (12)	7.48 (190)	0.71 (18)
DMNC 320	15.35 (390)	14.17 (360)	6.69 (170)	8.66 (220)	12.60 (320)	22.05 (560)	15.35 (390)	7.87 (200)	7.76 (197)	1.89 (48)	9.65 (245)	0.55 (14)	8.66 (220)	0.71 (18)
DMNC 400	19.09 (485)	8.07 (205)	14.09 (358)	9.06 (230)	6.69 (170)	7.99 (203)	20.28 (515)	11.61 (295)	N/A	N/A	8.07 (205)	0.71 (18)	11.02 (280)	0.71 (18)

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N
DMNC 500	19.68 (500)	9.84 (250)	9.25 (235)	10.0 (254)	9.65 (245)	9.65 (245)	22.05 (560)	12.2 (310)	9.84 (250)	31.81 (818)	14.6 (371)	9.25 (235)	9.84 (250)	10.04 (255)
DMNC 630	24.08 (630)	11.81 (300)	11.61 (295)	10.00 (254)	11.61 (295)	11.61 (295)	28.35 (720)	15.75 (400)	12.60 (320)	40.94 (1,040)	15.75 (400)	9.76 (248)	12.60 (320)	13.19 (335)
DMNC 800	31.50 (800)	13.58 (345)	13.19 (335)	10.00 (254)	11.61 (295)	11.61 (295)	34.65 (880)	18.90 (480)	15.75 (400)	44.17 (1,122)	19.84 (504)	10.91 (277)	15.75 (400)	16.34 (415)

MODEL	O	P	Q	R	S	T	U	V	W	X	Y	Z
DMNC 500	11.93 (303)	21.97 (558)	.7h (17.7h)	0.276 (7)	P10.83 (P275)	.31-M.39 (8-M10)	9.25 (235)	0.59 (15)	0.79 (20)	3.14 (80)	2.76 (70)	6.77 (172)
DMNC 630	15.16 (385)	28.35 (720)	0.87h.28 (22h7)	0.28 (7)	P10.83 (P275)	.31-M.39 (8-M10)	9.57 (243)	0.79 (20)	0.79 (20)	1.97 (50)	2.76 (70)	7.87 (200)
DMNC 800	12.09 (307)	28.43 (722)	0.87h.28 (22h7)	0.28 (7)	P10.83 (P275)	.31-M.39 (8-M10)	10.63 (270)	0.79 (20)	0.79 (20)	1.97 (50)	2.76 (70)	7.87 (200)

MODEL	a	b	c	d	e	f	g	h	i	j
DMNC 500	4.06 (103)	10 (254)	1.14 (29)	0.55 (14)	0.2 (5.08)	12.09 (307)	.71h.28 (17.7h7)	1.18 (30)	0.71 (18)	0.47 (12)
DMNC 630	3.94 (100)	11.81 (300)	3.54 (90)	0.59 (15)	0.28 (7.1)	15.75 (400)	.71h.28 (17.7h7)	1.18 (30)	0.71 (18)	0.47 (12)
DMNC 800	3.94 (100)	17.2 (437)	2.09 (53)	0.59 (15)	0.28 (7.1)	19.06 (484)	.87h.28 (22h7)	1.5 (38)	0.87 (22)	0.63 (16)

NOTE: See pages 32-37 for detailed information on DMNC accessories.

DRFT SERIES FOURTH AXIS ROTARY TABLES



Model DRFT-320 with Fanuc AC servo motor



Model 5CA-2 with Sanyo AC servo motor



Model 220 with digital AC servo motor



Model 220 with Kollmorgen motor
& rear motor mount kit

NOTE: Call for overall dimensional specifications for rotary tables using rear mounted motors.

- ▶ Compatible with most popular AC servo motors. Fanuc, Mitsubishi, Yaskawa, etc.
- ▶ New spindle disc brake design with up to **40%** more holding force.
- ▶ Pressure switches provide trouble free brake operation.
- ▶ Internal harness provided with each rotary table, (external harness optional.)
- ▶ 100 VAC (Std.) or 24 VDC solenoid valve supplied.
- ▶ Hardened and ground spur gear drive.
- ▶ Double lip oil seal, for **maximum** protection against coolant contamination.
- ▶ New worm shaft housing design, with dual needle and thrust bearings for anti-backlash.
- ▶ Dual main casting grooves with "O"-rings, for the **utmost defense** from contamination reaching the motor.
- ▶ Home position and over-travel limit switches provided.

Standard external harness (optional): PN# MCBE-FA includes: 2 cable set (16 ft.) and Amphenol MS connections on both sides of cable.

- ▶ Table body, with motor cover for AC servo motors.
- ▶ 100 VAC (Std.) or 24 VDC solenoid valve and pressure switch for pneumatic spindle brake.
- ▶ Internal harness (cables from motor and encoder to inner shell of motor cover).
- ▶ All cables and motor covers are supplied with Amphenol brand connectors.
- ▶ Hardened and ground spur gears from motor to worm shaft (tapered type).
- ▶ Limit switch for home position (N/C (Std.) or N/O).
- ▶ Warranty card, test report, electrical drawings and operator's manual.

MOST MOTORS CAN BE ACCOMODATED INCLUDING:

FANUC	SIEMENS
YASKAWA	VICKERS
MITSUBISHI	KOLLMORGEN
GLENTECH	S.E.M.
BALDOR	SANYO
and many others!	

SPECIAL NOTE: motor is not included, but can be supplied at additional cost. Mounting of the motor is included in the cost of the table.



MODEL 220 w/8" chuck
and adapter plate



MODEL 220 w/8" air chuck
and adapter plate

Inch/(mm)

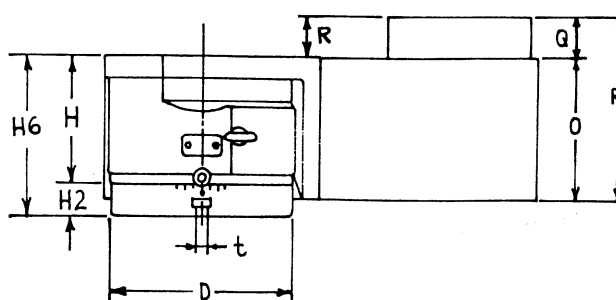
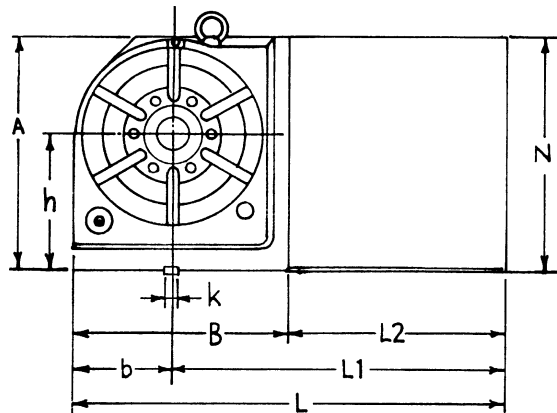
MODEL / DRFT	DRFT 130	DRFT 170	DRFT 220	DRFT 280	DRFT 320	DRFT 400	DRFT 500	DRFT 630	DRFT 800
SUB TABLE									
O.D.	5.12 (130)	6.69 (170)	8.66 (220)	11.02 (280)	12.60 (320)	15.75 (400)	19.68 (500)	24.80 (630)	31.50 (800)
I.D BORE	1.18 (30)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	N/A	N/A	N/A
I.D THREAD	N/A	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	N/A	N/A	N/A
CENTER HEIGHT	4.13 (105)	5.12 (130)	6.30 (160)	7.48 (190)	8.66 (220)	10.24 (260)	12.20 (310)	16.54 (420)	18.90 (480)
MAX RPM	75	41.6	33	16.6			11.1		
SPINDLE TORQUE ft-lbs (Kg-m)	228 (30.4)	240 (32)	300 (40)	950 (120)	950 (120)	1,400 (186)	1,950 (260)	2,700 (360)	3,250 (430)
SPINDLE BRAKE TORQUE ft-lbs (Kg-m)									
Pneumatic	40 (5)	110 (15)	180 (25)	325 (45)	480 (66)	N/A	N/A	N/A	N/A
Hydraulic	108 (115)	217 (30)	352 (49)	515 (71)	623 (86)	789 (109)	855 (118)	941 (130)	1,231 (170)
RESOLUTION (degrees)	0.00075"	0.001"					0.00025"		
MAX LOAD HORIZONTAL (TABLE POSITION) lbs (Kg)	66 (30)	180 (80)	260 (120)	400 (180)	550 (250)	660 (300)	2,156 (980)	3,300 (1,500)	4,400 (2,000)
MAX LOADVERTICAL (TABLE POSITION) lbs (Kg)	33 (15)	90 (40)	130 (60)	200 (90)	275 (125)	330 (150)	1,045 (475)	1,430 (650)	1,650 (750)
POSITIONING ACCURACY	(+) 10 seconds						(+/-) 7.5 seconds		
REPEATABILITY	(+/-) 2 seconds								
MOTOR TYPE	Digital AC Servo Motor (Fanuc, Yasnac, Sanyo, Meldas, etc.) Please specify								
SETTING POSITION	Horizontal / Vertical								
THRU HOLE DIAMETER (spindle)	1.44 (36.5)	1.77 (45)	2.50 (63.5)	3.54 (90)	4.33 (110)	6.69 (170)	10.0 (254)	10.0 (254)	
SPINDLE RUNOUT	0.0006 (0.02)								
T-SLOTTED FACE PLATE	4 T-Slots	6 T-Slots				8 T-Slots			
GEAR RATIO	60 : 1	72 : 1	100 : 1	90 : 1	120 : 1	144 : 1	90 : 1		
SOLENOID TYPE	100 VAC (Std.) or 24 VDC								
LIMIT SWITCH CONDITION	N/C (Std.) or N/O								
BRAKE CONDITION	Solenoid is active or non-active when brake is on (specify)								
NET WEIGHT lbs (Kg)	70 (32)	108 (49)	180 (82)	282 (128)	418 (190)	682 (310)	1,131 (513)	1,815 (825)	2,750 (1,250)

ORDERING INSTRUCTIONS

Motor covers for Fanuc Alpha(i) drives are standard. Other servo drives (due to overall motor length) may require our motor cover extension (see page #16). Specify motor type and part number. The spur gears we provide are designed for AC servo motors with tapered shafts. Encoders can also be different. Our motor covers are long enough to house incremental, absolute and serial encoders. However, the internal harness can be different for each. Please specify encoder PN# if applicable. The Yuasa rotary tables are supplied with a solenoid valve and pressure switch for the spindle brake. We can supply either 100VAC (std.) or 24VDC. Please specify. In addition, we must know whether the solenoid is active or non-active when the brake is on. Indicate the condition of the home position limit switch, N/C or N/O.



DRFT SERIES DIMENSIONAL SPECIFICATIONS:



Overall dimensions

Inch/(mm)

MODEL	A	B	b	C	D	L	H	H2	H6	t	h	k	N	O	P	Q	R
DRFT-130	7.87 (200)	6.57 (167)	3.03 (77)	5.31 (135)	5.12 (130)	13.44 (341)	4.78 (121)	1.12 (28)	5.91 (150)	0.39 (9.9)	4.13 (105)	0.55 (14)					
DRFT-170	9.25 (235)	8.46 (215)	3.94 (100)	5.91 (150)	6.69 (170)	17.69 (449)	5.31 (135)	1.38 (35)	6.69 (170)	0.47 (12)	5.12 (130)	0.17 (18)	8.58 (218)	6.69 (170)	8.66 (220)	1.97 (50)	1.69 (43)
DRFT-220	11.02 (280)	10.24 (260)	4.72 (120)	6.89 (175)	8.66 (220)	19.86 (504)	6.18 (157)	1.5 (38)	7.68 (195)	0.47 (12)	6.30 (160)	0.71 (18)	11.02 (280)	6.69 (170)	8.66 (220)	1.97 (50)	1.77 (45)
DRFT-280	13.39 (340)	12.60 (320)	5.91 (150)	7.68 (195)	11.02 (280)	23.25 (590)	6.97 (177)	1.69 (43)	8.66 (220)	0.47 (12)	7.48 (190)	0.71 (18)	11.22 (285)	7.56 (192)	8.66 (220)	1.97 (50)	1.26 (32)
DRFT-320	15.35 (390)	14.45 (367)	6.69 (170)	8.66 (220)	12.6 (320)	26.28 (667)	7.76 (197)	1.89 (48)	9.65 (245)	0.55 (14)	8.66 (220)	0.71 (18)	11.81 (300)	7.85 (200)	8.66 (220)	1.97 (50)	0.79 (20)
DRFT-400	18.5 (470)	17.32 (440)	8.27 (210)	9.45 (240)	15.75 (400)	29.10 (739)	8.54 (217)	2.09 (53)	10.63 (270)	0.55 (14)	10.24 (260)	0.71 (18)	12.05 (306)	7.85 (200)	8.66 (220)	1.97 (50)	0.39 (10)

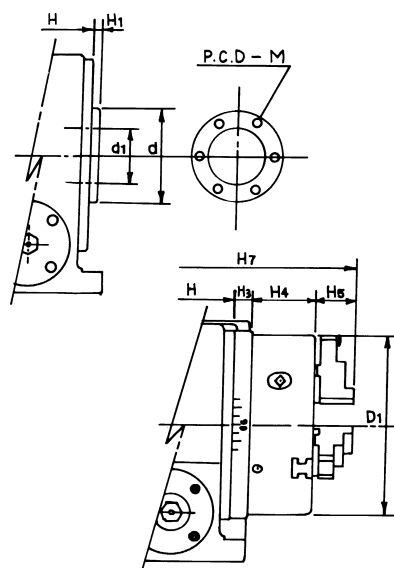
NOTE: Overall dimensions reflect Fanuc Alpha drives. Other motors may require motor cover extensions. For dimensional information on DRFT 500 ~ 800 see page 13.

Spindle Specifications

Inch/(mm)

MODEL	D1	d	d1	PCD-M	H1	H3	H4	H5	H7
130	4.01 (102)	2.76 (70)	1.44 (36.5)	2.36-M5 (60-M5)	0.18 (4.5)	0.65 (16.5)	1.81 (46)	0.63 (16)	7.87 (200)
170	6.57 (167)	3.35 (85)	1.77 (45)	2.44-M8 (62-M8)	0.28 (7)	0.71 (18)	2.68 (68)	1.79 (45.4)	10.49 (266.4)
220	8.27 (210)	4.33 (110)	2.50 (63.5)	3.54-M8 (90-M8)	0.31 (8)	0.79 (20)	2.95 (75)	1.84 (46.8)	11.76 (298.8)
280	10.79 (247)	5.51 (140)	3.54 (90)	4.57-M10 (116-M10)	0.35 (9)	0.87 (22)	3.58 (91)	2.13 (54.2)	13.55 (344.2)
320	12.2 (310)	6.30 (160)	4.33 (110)	5.35-M10 (136-M10)	0.35 (9)	0.98 (25)	3.78 (96)	2.28 (58)	14.8 (376)
400	15.16 (385)	7.48 (190)	5.12 (130)	6.30-M10 (160-M10)	0.35 (9)	1.10 (28)	3.94 (100)	2.56 (65)	16.14 (410)

NOTE: Motor covers with cables directed out the end of the cover are available on request.



Spindle & chuck specifications Inch/(mm)

Inner Jaw	Outer Jaw	I.D.
0.12 - 1.18 (3 - 30)	0.12 - 3.31 (3 - 86)	1.26 (32)
0.16 - 1.65 (4 - 42)	0.39 - 6.14 (10 - 156)	1.73 (44)
0.16 - 2.44 (4 - 62)	0.39 - 7.09 (10 - 180)	2.48 (63)
0.16 - 3.46 (4 - 88)	0.47 - 9.06 (12 - 230)	3.54 (90)
0.20 - 4.25 (15 - 265)	0.59 - 10.43 (15 - 265)	4.33 (110)
1.57 - 13.31 (40 - 128)	2.13 - 13.31 (54 - 338)	5.12 (130)

DRFT SPECIAL FOURTH AXIS TCN SERIES

Our TCN series are specifically designed for use with specific digital AC servo motors and amplifiers. The AC servo motor is mounted, and the servo amplifier is included as standard. It will be necessary to confirm that the servo motor and amplifier listed below are compatible with the CNC control used.

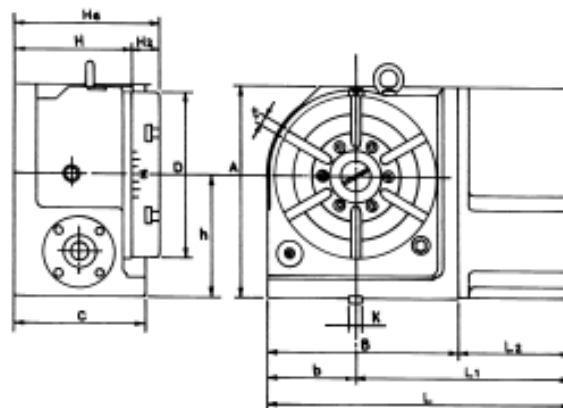


Interface cable set (std.)

5C, 16C & 3J manual and air operated collet chucks are available together with 3-jaw chucks and various vise and trunion fixtures (optional.)

220 Model is also available.

DIMENSIONAL SPECIFICATIONS



	Inch/(mm)	
MODEL / DRFT SERIES	130TCN	170TCN
SUB TABLE		
O.D.	5.12 (130)	6.69 (170)
I.D. BORE	1.18 (30)	1.65 (42)
I.D. THREAD	N / A	M36 P3.0
CENTER HEIGHT	4.13 (105)	5.12 (130)
MAX RPM	50	33.3
SPINDLE BRAKE TORQUE ft.lbs. (kg.m)		
PNEUMATIC	50 (6.9)	110 (15.2)
HYDRAULIC	108 (15)	217 (30)
RESOLUTION (degree)	0.0005"	
MAX LOAD HORIZONTAL (TABLE POSITION) lbs. (Kg)	66 (30)	180 (80)
MAX LOAD VERTICAL (TABLE POSITION) lbs. (kg)	33 (15)	90 (40)
POSITIONING ACCURACY	(+/-) 10 seconds	
REPEATABILITY	(+/-) 2 seconds	
AC SERVO MOTOR	300W	400W
SERVO AMPLIFIER	15 AMP	30AMP
SPINDLE THRU HOLE	1.44 (36.5)	1.77 (45)
SETTING POSITION	Horizontal or Vertical	
SPINDLE RUNOUT	0.0006" (0.02mm)	
NET WEIGHT lbs. (kg)	68 (31)	101 (46)

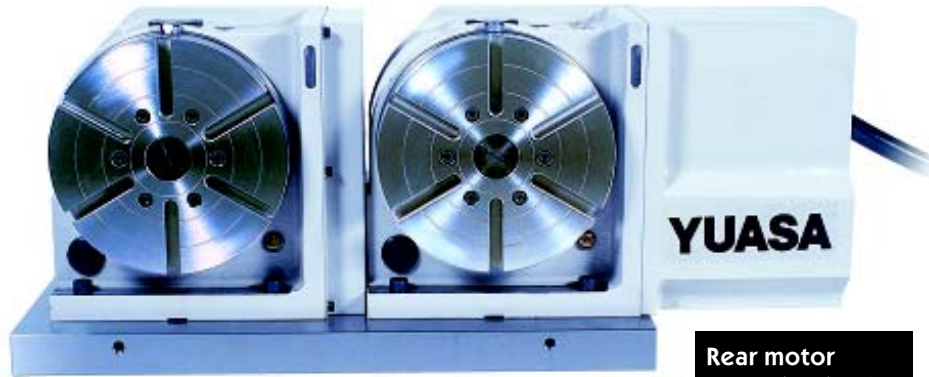
Standard accessories include:

- ▶ AC servo amplifier
- ▶ T-slotted sub-table
- ▶ External harness (motor & encoder cables)
- ▶ Mounting hardware
- ▶ Operators manual, test report & electrical drawings

Optional accessories are the same as for DMNC models.

	Inch/(mm)													
MODEL	A	B	b	C	D	L	L1	L2	H	H2	H6	t	h	k
130	7.87 (200)	6.57 (167)	3.03 (77)	5.31 (135)	5.12 (130)	12.28 (312)	9.25 (235)	5.71 (145)	4.78 (121.5)	1.12 (33)	5.91 (155)	0.39 (10)	4.13 (105)	0.55 (14)
170	9.25 (235)	8.46 (215)	3.94 (100)	5.91 (150)	6.69 (170)	14.57 (370)	10.63 (270)	6.10 (155)	5.31 (135)	1.38 (35)	6.69 (170)	0.47 (12)	5.12 (130)	0.39 (10)

DMNC MULTI-SPINDLE ROTARY TABLE MODELS



UDNC-M1 Controller



Rear motor mounting is also available for standard or special motors.

We offer our Multi-Spindle Rotary models in two, three and four spindles. ■ Excellent for reducing overall machining time. Fewer tool changes, and more "In the Cut" time, producing more parts per hour. ■ Table sizes range from 130mm (5.12") to 280mm (11.02").

■ High Torque servo drives provide the power necessary to move even three spindle units with ease. ■ Thrust roller bearings allow each spindle to move freely, even when tailstock pressure is applied. ■ Uses only one controller. ■ Same basic features as the single spindle series. ■ Can be supplied as fourth axis upon request with standard AC drives (Fanuc, Yasnac, Mitsubishi, etc.)

Inch (mm)

MODEL / DMNC	130-2	130-3	130-4	170-2	170-3	170-4	220-2	220-3	280-2
SUB TABLE O.D. BORE I.D. THREADED I.D.	5.12(130) 1.18(30) N/A			6.69(170) 1.65(42) M36 P 3.0			8.66(220) 1.65(42) M36 P.3.0		11.02(280) 1.65(42) M36 P 3.0
CENTER HEIGHT	5.12(130)			6.30(160)			7.87(200)		9.06(230)
MAX. RPM	75			41.6			33.3		16.6
SPINDLE TORQUE ft./lbs.(kg/m)	80 (11)	72 (10)	72 (10)	145 (20)	130 (18)	130 (18)	252 (35)	202 (28)	500 (69)
SPINDLE BRAKE TORQUE ft./lbs.(kg/m)	40(5)			110(15)			180(25)		325(45)
RESOLUTION(deg)	0.00075"			0.000625"			0.0005"		0.00025"
MAX LOAD HORIZ. (TABLE POSITION) lbs. (kg)	66(30)			180(80)			260(120)		400(180)
MAX LOAD VERT. (TABLE POSITION) lbs. (kg)	33(15)			90(40)			130(60)		200(90)
POSITIONING ACCURACY	(±) 10 seconds								
THRU HOLE DIA. inch (mm) (SPINDLE)	1.44(36.5)			1.77(45)			2.50(63.5)		3.54(90)
NET WIGHT lbs.(kg)	156 (71)	233 (106)	310 (140)	266 (121)	400 (182)	534 (243)	442 (201)	653 (297)	693 (315)

STANDARD ACCESSORIES

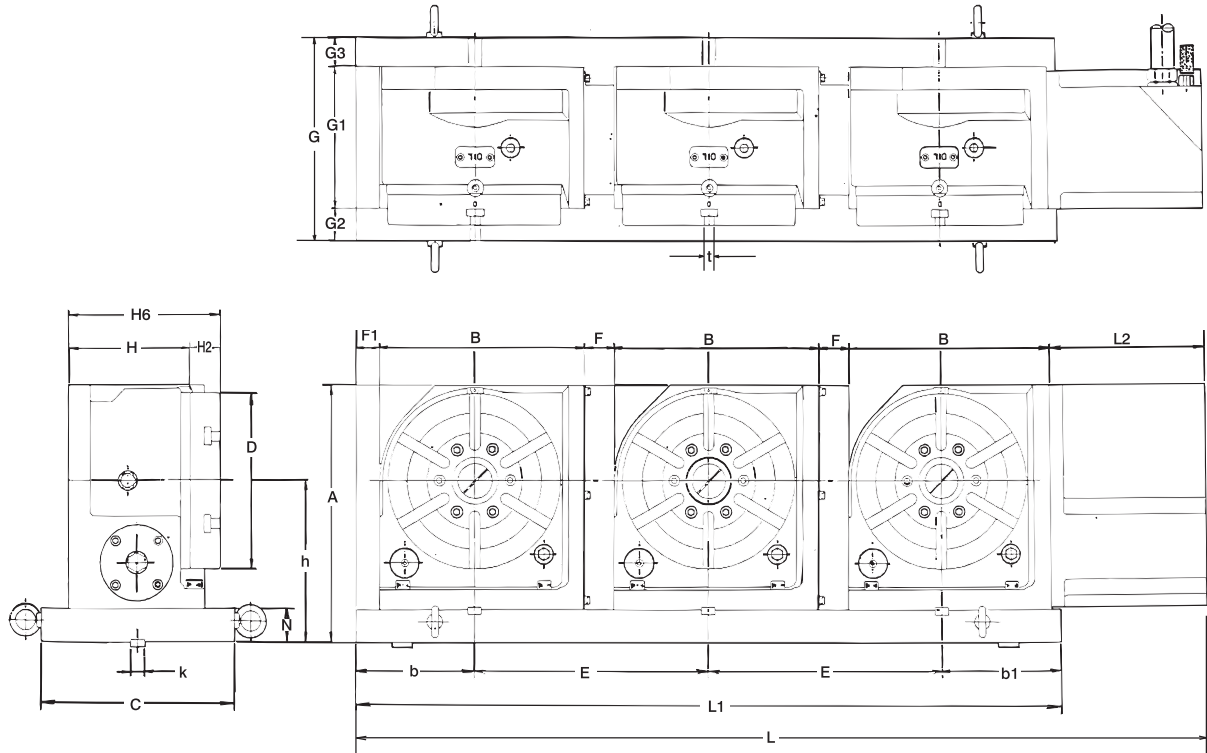
- ▶ UDNC M1 Controller (DMNC)
- ▶ Remote cable (for M-Code interface, 15 ft.)
- ▶ Power Cord: 105~240 VAC, single phase
- ▶ Operators Manual, Warranty Card, Locating Keys
- ▶ T-Slotted Face Plates (removable)

OPTIONAL ACCESSORIES

- ▶ Handwheels (MPG-300)
- ▶ Remote quill switch (RQS-100) for manual mills
- ▶ Collet Chucks, Lathe Chucks, etc.
- ▶ Tailstocks, (manual & air operated)
- ▶ Vise & collet block trunion fixtures
- ▶ PC programming software

NOTE: See pages 32-37 for detailed information on DMNC accessories.
LEFT HAND motor mounted models available on request.

OVERALL DIMENSIONAL SPECIFICATIONS



UNIT: inch (mm)

MODEL	A	B	b	b1	C	D	E	F	F1	G	G1	G2	G3	H	H2	H6	h
130-2	8.86 (225)	6.57 (167)	3.94 (100)	3.94 (100)	7.87 (200)	5.12 (130)	7.87 (200)	1.30 (33)	0.91 (23)	7.87 (200)	5.31 (135)	1.38 (35)	1.18 (30)	4.78 (121.5)	1.32 (33.5)	6.10 (155)	5.12 (130)
130-3	8.86 (225)	6.57 (167)	3.94 (100)	3.94 (100)	7.87 (200)	5.12 (130)	7.87 (200)	1.30 (33)	0.91 (23)	7.87 (200)	5.31 (135)	1.38 (35)	1.18 (30)	4.78 (121.5)	1.32 (33.5)	6.10 (155)	5.12 (130)
130-4	8.86 (225)	6.57 (167)	3.94 (100)	3.94 (100)	7.87 (200)	5.12 (130)	7.87 (200)	1.30 (33)	0.91 (23)	7.87 (200)	5.31 (135)	1.38 (35)	1.18 (30)	4.78 (121.5)	1.32 (33.5)	6.10 (155)	5.12 (130)
170-2	10.43 (265)	8.47 (215)	4.92 (125)	4.92 (125)	8.27 (210)	6.69 (170)	9.84 (250)	1.38 (35)	0.98 (25)	8.27 (210)	5.91 (150)	1.18 (30)	1.18 (30)	5.31 (135)	1.38 (35)	6.69 (170)	6.30 (160)
170-3	10.43 (265)	8.47 (215)	4.92 (125)	4.33 (110)	8.27 (210)	6.69 (170)	9.84 (250)	1.38 (35)	0.98 (25)	8.27 (210)	5.91 (150)	1.18 (30)	1.18 (30)	5.31 (135)	1.38 (35)	6.69 (170)	6.30 (160)
170-4	10.43 (265)	8.47 (215)	4.92 (125)	4.33 (110)	8.27 (210)	6.69 (170)	9.84 (250)	1.38 (35)	0.98 (25)	8.27 (210)	5.91 (150)	1.18 (30)	1.18 (30)	5.31 (135)	1.38 (35)	6.69 (170)	6.30 (160)
220-2	12.60 (320)	10.23 (260)	5.91 (150)	5.91 (150)	9.84 (250)	8.66 (220)	11.81 (300)	1.57 (40)	1.18 (30)	9.84 (250)	6.89 (175)	1.57 (40)	1.38 (35)	6.18 (157)	1.50 (38)	7.68 (195)	7.87 (200)
220-3	12.60 (320)	10.24 (260)	5.91 (150)	5.91 (150)	9.84 (250)	8.66 (220)	11.81 (300)	1.57 (40)	1.18 (30)	9.84 (250)	6.89 (175)	1.57 (40)	1.38 (35)	6.18 (157)	1.50 (38)	7.68 (195)	7.87 (200)
280-2	14.96 (380)	12.60 (320)	7.09 (180)	7.09 (180)	10.63 (270)	11.02 (280)	14.17 (360)	1.57 (40)	1.18 (30)	10.63 (270)	7.68 (195)	1.57 (40)	1.38 (35)	6.97 (177)	1.69 (43)	8.66 (220)	9.06 (230)

UNIT: inch (mm)

MODEL	k	L	L1	L2	N	t
130-2	0.70 (18)	22.24 (565)	15.75 (400)	6.89 (175)	0.98 (25)	0.39 (10)
130-3	0.70 (18)	31.10 (790)	23.62 (600)	7.87 (200)	0.98 (25)	0.39 (10)
130-4	0.70 (18)	38.96 (989)	31.49 (800)	7.87 (200)	0.98 (25)	0.39 (10)
170-2	0.70 (18)	27.17 (690)	19.68 (500)	7.87 (200)	1.18 (30)	0.47 (12)
170-3	0.70 (18)	37.81 (960)	28.93 (735)	8.66 (220)	1.18 (30)	0.47 (12)
170-4	0.70 (18)	39.19 (995)	38.77 (985)	8.66 (220)	1.18 (30)	0.47 (12)
220-2	0.70 (18)	31.10 (790)	23.62 (600)	7.87 (200)	1.57 (40)	0.47 (12)
220-3	0.70 (18)	42.91 (1090)	35.44 (900)	7.87 (200)	1.57 (40)	0.47 (12)
280-2	0.70 (18)	35.82 (910)	28.35 (720)	7.87 (200)	1.57 (40)	0.47 (12)

NOTE: For controller features see page #9. For rotary table (body) features see page #8.

CNC ROTARY PRODUCTS

DMNC 5C STYLE MODELS (single spindle)



MODEL 5C
(with manual 5C closer)



MODEL 5C (back)



UDNC-M1 Controller

Also available as full fourth axis



MODEL 5C (showing
threaded spindle nose)
2 3/16 x 10

STANDARD ACCESSORIES:

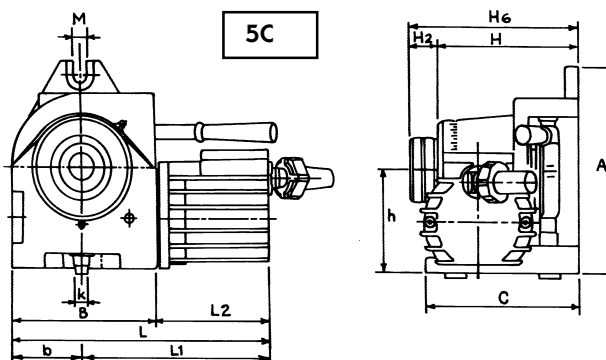
- ▶ UDNC-M1 Controller
- ▶ Remote cable (for M-Code interface, 15 ft.)
- ▶ Power Cord (105~240 VAC, single phase)
- ▶ Operators Manual, Warranty Card, Locating Keys
- ▶ Manual 5C Collet Closer (Model 5C)
- ▶ Now with Home Limit Switch

OPTIONAL ACCESSORIES

- ▶ Handwheel (MPG-300)
- ▶ Tailstock, (manual & air operated)
- ▶ Remote quill switch (RQS-100) for manual mills
- ▶ Air Operated Collet Closer (DM 105A)
- ▶ PC programming software

Inch/(mm)

MODEL / DMNC	5C
SUB TABLE	5C TYPE
O.D.	N/A
BORE I.D.	N/A
THREADED I.D.	N/A
CENTER HEIGHT	4.33 (110)
MAX RPM	100
SPINDLE TORQUE ft.lbs (kg.m)	90 (12)
SPINDLE BRAKE TORQUE ft.lbs. (kg-m)	
PNEUMATIC	N/A
HYDRAULIC	N/A
RESOLUTION DEGREE	0.001"
MAX LOAD HORIZONTAL (Indexer position)	44 lbs. (20 kg)
MAX LOAD VERTICAL (Indexer position)	22 lbs. (10 kg)
POSITIONING ACCURACY	(+/-) 20 seconds
REPEATABILITY	(+/-) 2 seconds
MOTOR TYPE	Digital AC Servo
SETTING POSITION	Horizontal / Vertical
THRU HOLE DIA. (Spindle)	1.114 (28.30)
POWER SUPPLY	105 ~ 240 VAC Single Phase 20 Amp
GEAR RATIO	45 : 1
SPINDLE RUNOUT	0.0004"(0.01)
SPINDLE TYPE	2 3/16"-10
NET WEIGHT	60.6 lbs. (27.55 kg)



MODEL	A	B	b	C	D	L	L1	L2	H	H2	H6	t	h	k	M
5CA	8.78 (223)	6.46 (164)	3.23 (82)	7.01 (178)	N/A	12.6 (320)	9.37 (238)	6.14 (156)	6.69 (170)	1.22 (31)	7.91 (201)	N/A	4.33 (110)	0.63 (16)	0.67 (17)

FEATURES (5C): MACHINE ZERO HOME SWITCH

The 5C models feature a compact footprint, designed for small VMC's and CNC drilling and tapping centers. The 5C units offer a 2 3/16" - 10 threaded spindle nose, enabling the use of any threaded Hardinge chucks and tooling. The 5C model has an optional air collet closer. This air closer is "button operated" and fits inside the indexer body casting, allowing for horizontal and vertical use. In addition, the integrity of the thru-hole is also maintained, even when the air collet closer is used.

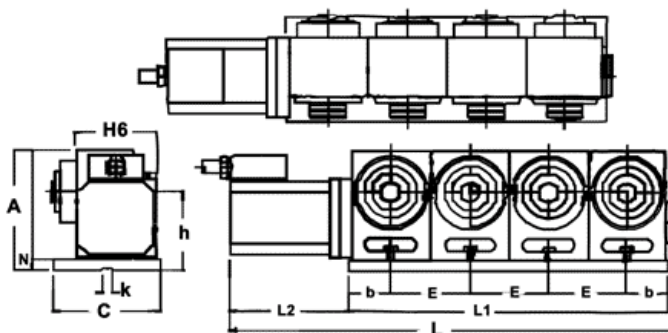
DMNC 5C STYLE MODELS (MULTI-SPINDLE)



UNIT: inch (mm)

- ▶ Dual Needle & Thrust spindle bearings for smooth, bind-free operation, even with tailstock pressure up to 400 lbs. applied
- ▶ 2 3/16 - 10 Threaded spindle nose available in 2, 3 and 4 spindle units depending on your needs and table size
- ▶ All spindles move at the same time using powerful digital AC Servo motor
- ▶ Up to 100 RPM, the the fastest indexing speed on the market today
- ▶ Motor cover includes dual "O" ring groove for "perfect seal" against outside contaminants.
- ▶ Home limit switch standard
- ▶ Unit can also be supplied as fourth axis
- ▶ High precision double lead worm design

Model / DMNC	5CA-2	5CA-3	5CA-4
Spindle Nose	2 3/16" - 10		
Center Height	5.91" (150mm)		
MAX RPM	100	66.6	
Rotational Torque ft-lbs (Kg-m)	65 (9)	58 (8)	54 (7.5)
Resolutonal Degrees	0.001"		
Max Load Horiz. lbs (Kg)	44 (20)	38 (17)	15 (7)
Max Load Vert. lbs (Kg)	22 (10)	17 (8)	15 (7)
Positioning Accuracy	+/- 20 seconds		
Thru Hole Dia. inch (mm)	1.114 (28.30)		
Net Weight lbs (Kg)	154 (70)	200 (91)	253 (115)



NOTE: All 5CA models include 5C air collet closers as standard.

DIMENSIONAL SPECIFICATIONS

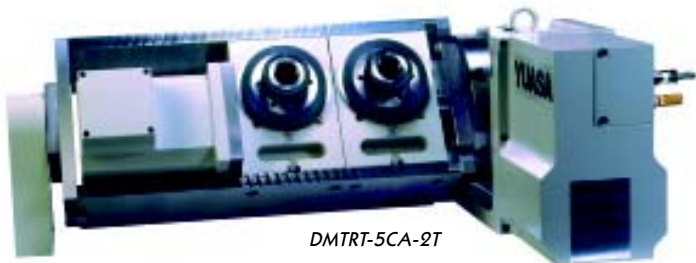
UNIT: inch (mm)

MODEL	A	b	C	E	L	L1	L2	H6	h	k	N
5CA-2	9.05 (230)	3.15 (76.5)	7.87 (200)	5.91 (160)	21.26 (540)	12.20 (310)	8.66 (220)	6.10 (155)	5.91 (150)	0.71 (18)	0.79 (20)
5CA-3					27.17 (690)	18.11 (460)					
5CA-4					33.07 (840)	24.01 (610)					

NOTE: All 5C models can be supplied with Fanuc, Mitsubishi, Yaskawa or other motors for full 4th axis applications.



DMTRT 5C STYLE MODELS (MULTI-SPINDLE TILTING)



DMTRT-5CA-2T



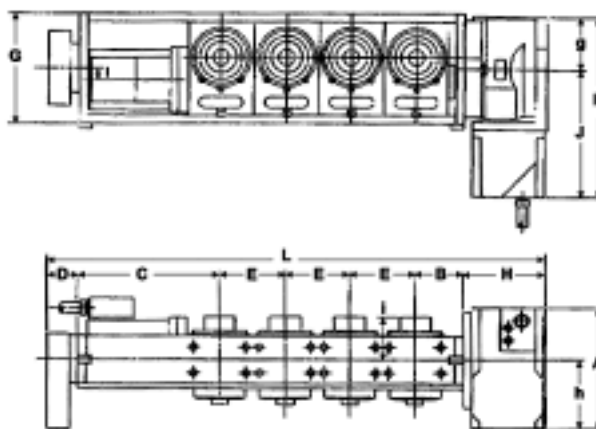
UDNC-M2 Dual-Axis
Controller

- ▶ Hydraulic brake option for tilting axis
- ▶ Allowable tilting range from $-120^{\circ} \sim +120^{\circ}$
- ▶ Heavy duty bearing end support provides smooth turning and outstanding rigidity
- ▶ All the benefits for the standard multi-spindle models with unsurpassed tilting capability
- ▶ Available with UDNC-M2 (Programmable tilt and rotary axis) or as full 4th and/or 5th axis using Fanuc, Mitsubishi or Yaskawa servo motors
- ▶ Home switch on 5C rotary axis
- ▶ Split worm design on tilt axis
- ▶ Double lead worm design on rotary axis

Inch/(mm)

MODEL / DMNC	5CA2-T	5CA3-T	5CA4-T
Threaded Spindle Nose	5C w / 2 3/16" - 10		
Center Height inch (mm)	6.30 (160)		
Max RPM (5C Indexer) (Tilt Axis)	100	66.6	
Rotational Torque ft.lbs (Kg.m)	65 (9)	58 (8)	54 (7.5)
Tilt Axis Brake Torque ft.lbs (Kg.m)	180 352		
Resolution Degrees (5C Indexer) (Tilt Axis)	0.001"		
	0.0005		
Max Load Vertical lbs. (Kg) (indexer position)	44 (20)	38 (17)	30 (13.5)
Max Load Vertical lbs (Kg) (indexer position)	22 (10)	17 (8)	15 (7)
Positioning Accuracy (5C Indexer) (Tilt Axis)	+/- 20 seconds		
	+/- 10 seconds		
5C Thru Hole Diameter inch (mm)	1.114 (28.30)		
Net Weight lbs. (Kg)	402 (182)	469 (213)	538 (244)

NOTE: All 5CA models include 5C air collet closers as standard.



DIMENSIONAL SPECIFICATIONS

UNIT: inch (mm)

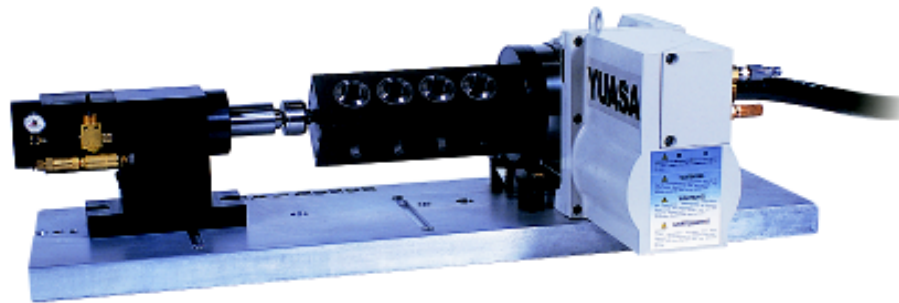
MODEL	A	B	C	D	E	F	f	G
5CA-2T	11.02 (280)	4.45 (113)	12.91 (328)	2.83 (72)	5.91 (160)	11.89 (302)	6.69 (170)	9.84 (250)
5CA-3T								
5CA-4T								
MODEL	g	H	h	I	i	J	K	L
5CA-2T	4.72 (120)	7.68 (195)	6.30 (160)	0.98 (25)	3.94 (100)	13.33 (340)	18.11 (460)	33.78 (858)
5CA-3T								39.68 (1008)
5CA-4T								45.59 (1158)

SPECIAL DMNC/DRFT ACCESSORIES

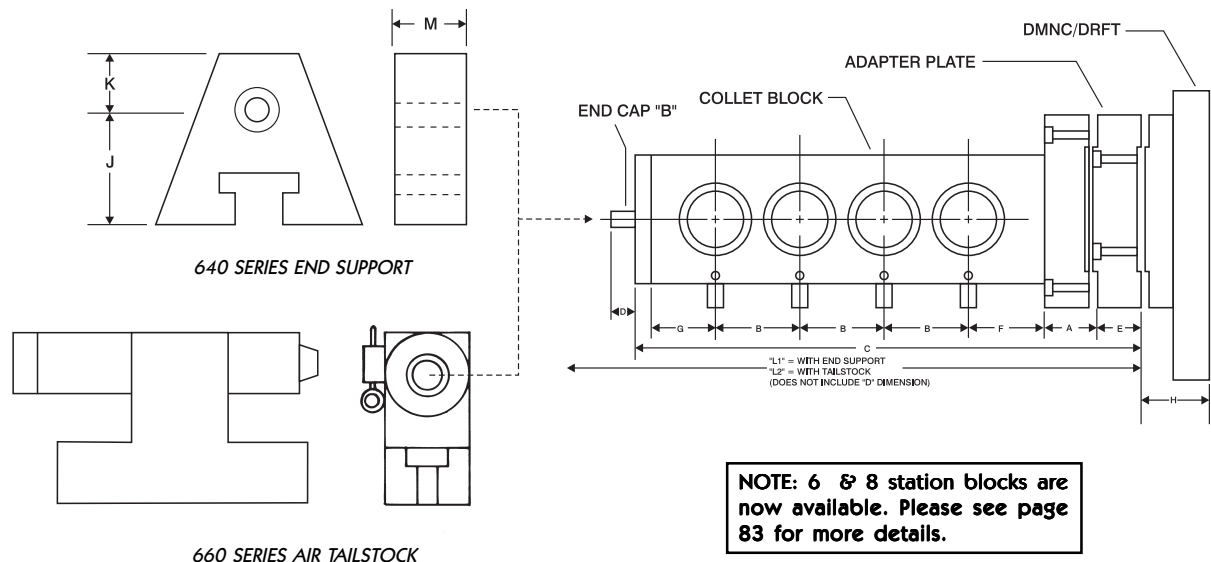


5C MULTI-COLLET CHUCK BLOCK

The 640-404 5C multi-collet chuck block features four manually operated dead length 5C collet chucks. The collet block's compact design is excellent for small VMC's and DT centers, with auto-pallet changers providing the ability for presenting up to four work pieces to the machine spindle, reducing the amount of tool changes needed, for maximum productivity. In addition, multiple sides of the same work piece can be machined without re-fixturing utilizing the lightening-fast indexing speed (62 RPM) of the DMNC units. An end support or 660 series air tailstock (shown below) may be used to support the end of the block fixture. A collet chuck adapter plate is required, (see below.) The collet action is a simple 90° turn of the operating cam, using the collet wrench (supplied.) Collet chucks are "dead length" providing zero part movement when clamped. Note: The 640-404 may also be used in a vise. For more information please see our WORKHOLDING section, page #83.



Shown with optional base plate

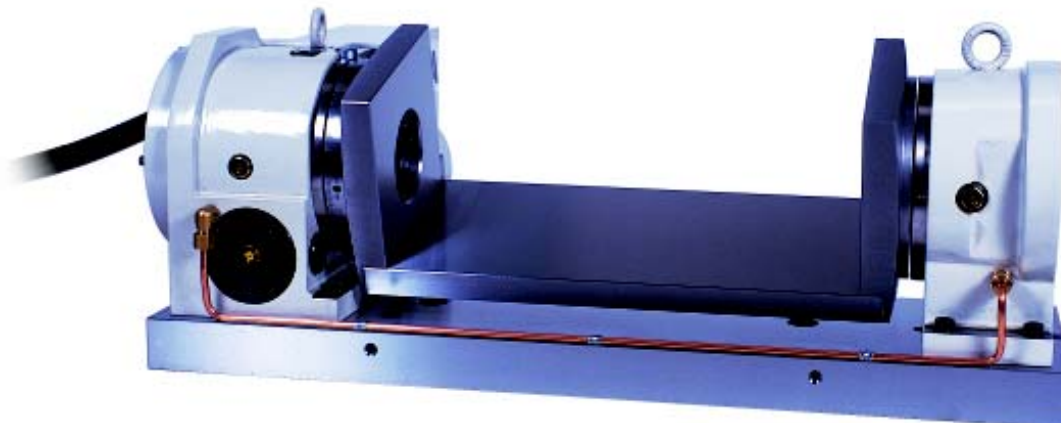


Inch/(mm)																
	COLLET BLOCK										END SUPPORT			OPTIONAL ACCESSORIES		
MODEL	A	B	C	D	E	F	G	H	L1	L2	J	K	M	END SUPPORT	TAILSTOCK	ADAPTER PLATE
640-404 (A) OR (B) (140 MODELS)	1.00 (25)	2.00 (51)	10.50 (267)	1.00 (25)	.70 (18)	1.80 (46)	1.20 (30)	4.96 (126)	12.70 (323)	21.20 (538)	4.53 (115)	1.25 (32)	1.50 (38)	640-414	660-140	553-614
640-404 (A) OR (B) (170 MODELS)	1.00 (25)	2.00 (51)	10.50 (267)	1.00 (25)	.63 (16)	1.80 (46)	1.20 (30)	5.31 (135)	12.63 (321)	21.13 (537)	5.12 (130)	1.25 (32)	1.50 (38)	640-417	660-170	553-617
640-404 (A) OR (B) (220 MODELS)	1.00 (25)	2.00 (51)	10.50 (267)	1.00 (25)	.59 (15)	1.80 (46)	1.20 (30)	6.18 (157)	12.59 (320)	21.09 (536)	6.30 (160)	1.25 (32)	1.50 (38)	640-422	660-220	553-622

Note: 5C Block Fixture may be used with either end support or tailstock. When ordering the 640-404 include "A" (includes inserts) for use with the 660 series tailstock or "B" (includes end-caps) for use with end support. "D" dimension (end-caps) is for end support only. Note: The "L2" does not include the length of the center. For tailstock dimensions, see page #36. Sub-plates available on request.

DMTT SERIES

PROGRAMMABLE TILTING TABLE WITH FLAT FIXTURE PLATE



Model 522



UDNC-M1
Controller



Heavy duty dual disc brake system

The DMTT models utilize the DMNC rotary table bodies for the "drive table." These tables are fixed on a mounting plate. A "full rotary" end support is mounted on the other end of the mounting plate. Both the rotary drive and end support sides are **ground together** at the factory to assure that the center height, parallelism, flatness, etc. are maintained. The end support is provided with **dual thrust roller bearings**, and a large spindle with the same thru hole as the rotary drive unit. A rectangular steel plate is bolted and located with fixture keys, to both the rotary and end support. This plate is easily removed however, so that a type of "Quick Change Plate effect" can be realized. The units also feature an "over-travel" system with built-in hard limit switches which can be set by the user to stop the tilting movement, in an O.T. situation.

Inch/(mm)

MODEL / DMTGF	4417	5522	6628
BLOCK SIZE (Square x Length)	15.75 x 3.94 (400 x 100)	19.69 x 5.12 (500 x 130)	23.62 x 5.91 (600 x 150)
SPINDLE TORQUE ft.lbs (Kg.m)	165 (23)	195 (27)	780 (108)
MAX RPM	55	45	22
SPINDLE BRAKE TORQUE ft.lbs (Kg.m)			
Pneumatic	220 (30)	360 (50)	650 (90)
Hydraulic	434 (60)	704 (98)	1030 (142)
RESOLUTION (Degrees)	0.000625"	0.0005"	0.00025"
MAX LOAD CAPACITY Vertical lbs. (Kg)	90 (41)	135 (61)	200 (91)
TILTING ANGLE ACCURACY	+/- 45 seconds		
REPEATABILITY	+/- 10 seconds		
MOTOR TYPE	Digital AC Servo		
THRU HOLE DIA.	1.77 (45)	2.50 (63.5)	3.54 (90)
POWER SUPPLY	105 ~ 240 VAC, 20 Amp, Single Phase		
SPINDLE RUNOUT	0.00006" (0.02mm)		
CONTROLLER	UDNC-M1		
NET WEIGHT lbs (Kg)	341 (155)	519 (236)	858 (390)

CAN BE SUPPLIED AS FULL
FOURTH AXIS.

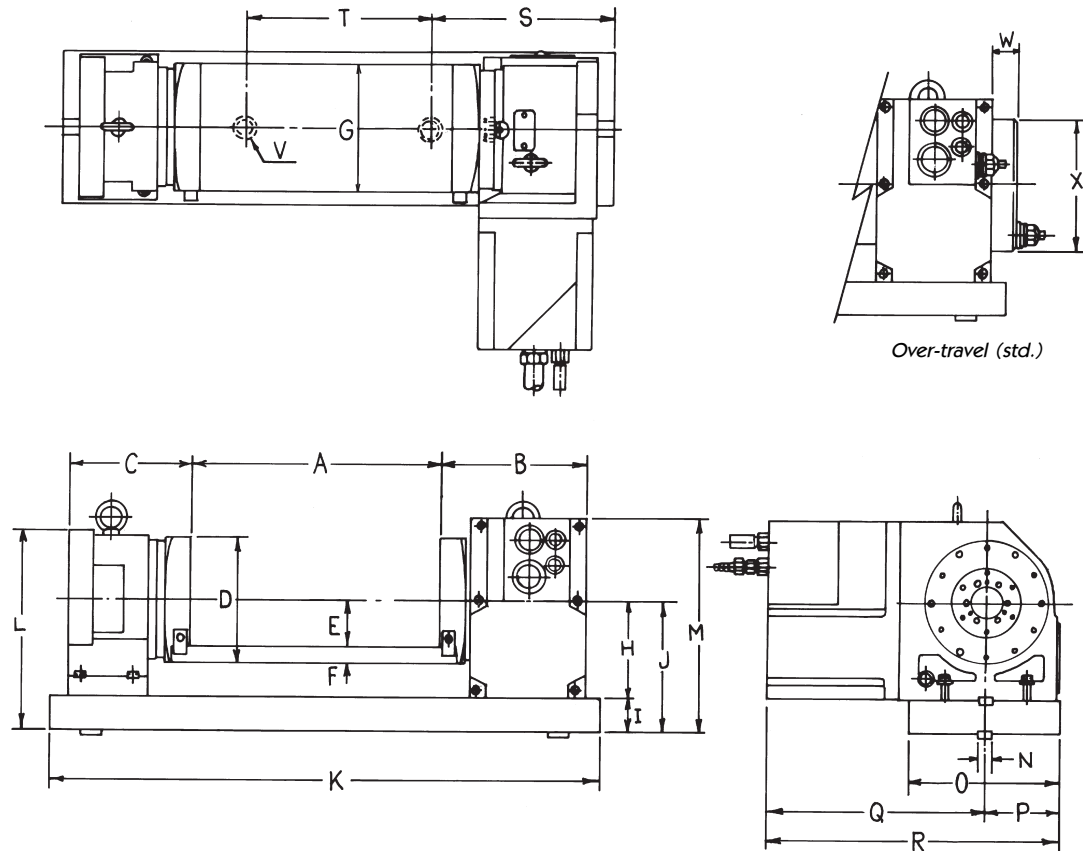
ALL POPULAR MOTORS CAN
BE ACCOMODATED.

HYDRAULIC SPINDLE BRAKES
OPTIONAL.

EACH UNIT IS SUPPLIED WITH:

- ▶ UDNC-M1
- ▶ DMTT unit complete with rotary drive unit, end support and mounting plate complete
- ▶ Power cable (105~240 VAC, 20 amp, single phase)
- ▶ Remote cable for M-Code interface to CNC
- ▶ Operators manual, test report, warranty card and locating keys

OVERALL DIMENSIONAL SPECIFICATIONS



One of the main concerns to this type of fixture, is rigidity. The DMTT series, provides a large **dual disc braking mechanism on both the ROTARY DRIVE UNIT, AND THE END SUPPORT**. This unique design supplies maximum braking power over the entire machining area of the fixture plate, providing the rigidity required to machine even the toughest of materials. The units "one-piece" design makes mounting and removal to the machine table very easy. Locating keyways are machined on the underside of the mounting plate, making this operation very simple.

	Inch/(mm)												
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M
417	15.75 (400)	7.28 (185)	5.91 (150)	7.09 (180)	2.56 (65)	0.98 (25)	7.09 (180)	5.12 (130)	1.77 (45)	6.89 (175)	30.51 (775)	10.83 (275)	11.02 (280)
522	19.69 (500)	8.27 (210)	7.09 (180)	8.66 (220)	3.15 (80)	1.18 (30)	8.66 (220)	6.30 (160)	1.77 (45)	8.07 (205)	35.43 (900)	12.72 (323)	12.80 (325)
628	23.62 (600)	9.25 (235)	7.68 (195)	10.24 (260)	3.94 (100)	1.18 (30)	10.24 (260)	7.48 (190)	1.77 (45)	9.25 (235)	40.94 (1040)	15.08 (383)	15.16 (385)

	Inch/(mm)									
MODEL	N	O	P	Q	R	S	T	V	W	X
417	0.71 (18)	9.06 (230)	4.53 (115)	11.61 (295)	16.14 (410)	8.86 (225)	12.80 (325)	M-16	1.18 (30)	7.20 (183)
522	0.71 (18)	11.81 (300)	5.91 (150)	12.60 (320)	18.50 (470)	9.06 (230)	17.32 (440)	M-16	1.18 (30)	8.43 (214)
628	0.71 (18)	13.39 (340)	6.69 (170)	14.57 (370)	21.26 (540)	10.43 (265)	20.08 (510)	M-16	1.18 (30)	10.79 (274)

END SUPPORTS MAY BE PURCHASED SEPARATELY.

PART#	MODEL (Size)
SU-06170	(For 417 model)
SU-08170	(For 522 model)
SU-10170	(For 628 model)

Optional accessories are the same as for DMNC. Note: DMTT models can be supplied with fourth axis drives on request.

DMTGF SERIES

PROGRAMMABLE TILTING TABLE WITH TRUNION FIXTURE



UDNC-M1 Controller

Model 5522



Heavy duty dual disc brake system

The DMTGF models utilize the DMNC rotary table bodies for the "drive table." These tables are fixed on a mounting plate. A "full rotary" end support is mounted on the other end of the mounting plate. Both the rotary drive and end support sides are **ground together** at the factory to assure that the center height, parallelism, flatness, etc. are maintained. The end support is provided with **dual thrust bearings**, and a large spindle with the same thru hole as the rotary drive unit. A rectangular block fixture is bolted, and located with fixture keys, to both the rotary and end support. This block is easily removed however, so that a type of "Quick Change Block effect" can be realized. The trunion block is provided with tapped holes for fixturing purposes.

Inch/(mm)

MODEL / DMTGF	4417	5522	6628
BLOCK SIZE (Square x Length)	15.75 x 3.94 (400 x 100)	19.69 x 5.12 (500 x 130)	23.62 x 5.91 (600 x 150)
SPINDLE TORQUE ft.lbs (Kg.m)	165 (23)	195 (27)	780 (108)
MAX RPM	55	45	22
SPINDLE BRAKE TORQUE ft.lbs (Kg.m)			
Pneumatic	220 (30)	360 (50)	650 (90)
Hydraulic	434 (60)	704 (98)	1030 (142)
RESOLUTION (Degrees)	0.000625"	0.0005"	0.00025"
MAX LOAD CAPACITY Vertical lbs. (Kg)	90 (41)	135 (61)	200 (91)
TILTING ANGLE ACCURACY	+/- 45 seconds		
REPEATABILITY	10 seconds		
MOTOR TYPE	Digital AC Servo		
THRU HOLE DIA.	1.77 (45)	2.50 (63.5)	3.54 (90)
POWER SUPPLY	105 ~ 240 VAC, 20 Amp, Single Phase		
SPINDLE RUNOUT	0.00006" (0.02mm)		
CONTROLLER	UDNC-M1		
NET WEIGHT lbs (Kg)	341 (155)	519 (236)	858 (390)

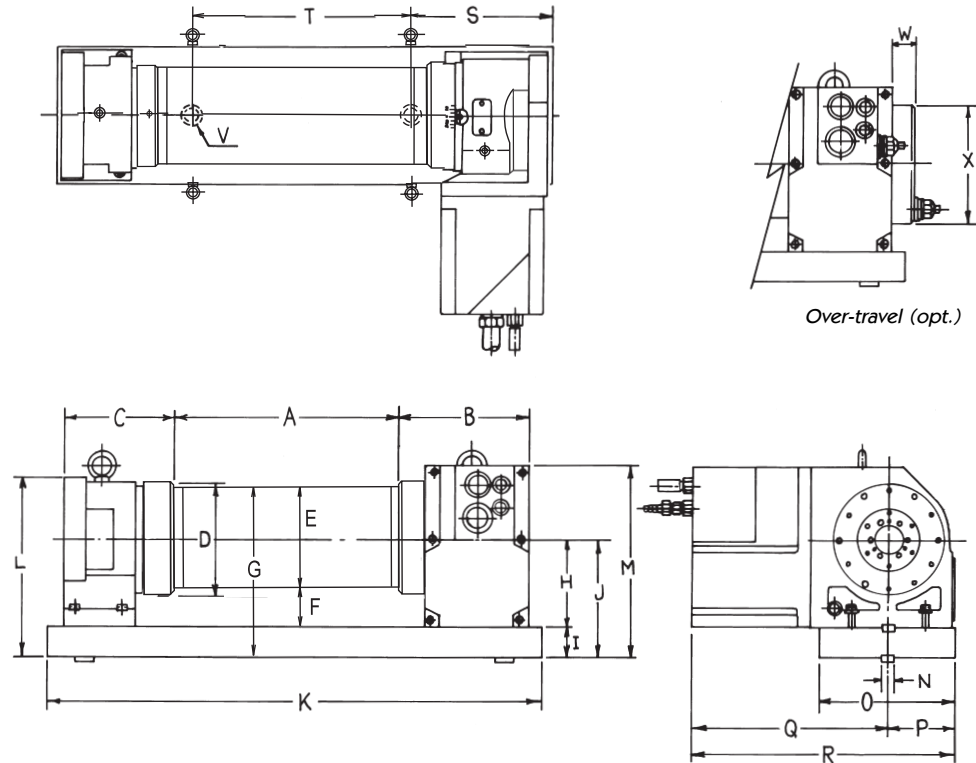
**CAN BE SUPPLIED AS FULL
FOURTH AXIS.**

**HYDRAULIC SPINDLE BRAKES
OPTIONAL.**

EACH UNIT SUPPLIED WITH:

- ▶ UDNC-M1 (DMTGF)
- ▶ DMTGF unit complete with rotary drive unit, end support and mounting plate complete
- ▶ Power cable (105 ~ 240 VAC, 20 amp, single phase)
- ▶ Remote cable for M-Code interface to CNC
- ▶ Operators manual, test report, warranty card and locating keys

OVERALL DIMENSIONAL SPECIFICATIONS



One of the main concerns to this type of fixture, is rigidity. The DMTGF series, provides a large **dual disc braking mechanism on both the ROTARY DRIVE UNIT, AND THE END SUPPORT**. This unique design supplies maximum braking power over the entire machining area of the fixture block, providing the rigidity required to machine even the toughest of materials.

The unit's "one-piece" design makes mounting and removal to the machine table very easy. Locating keyways are machined on the underside of the mounting plate, making this operation very simple.

Inch/(mm)

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M
4417	15.75 (400)	7.09 (180)	6.10 (155)	6.69 (170)	3.94 (100)	3.15 (80)	8.86 (225)	5.12 (130)	1.77 (45)	6.89 (175)	30.51 (775)	10.83 (275)	11.02 (280)
5522	19.69 (500)	8.07 (205)	7.28 (185)	8.66 (220)	5.12 (130)	3.74 (95)	10.63 (270)	6.30 (160)	1.77 (45)	8.07 (205)	35.43 (900)	12.72 (323)	12.80 (325)
6628	23.62 (600)	9.06 (230)	7.87 (200)	11.02 (280)	5.91 (150)	4.53 (115)	12.20 (310)	7.48 (190)	1.77 (45)	9.25 (235)	40.94 (1040)	15.08 (383)	15.16 (385)

Inch/(mm)

MODEL	N	O	P	Q	R	S	T	V	W	X
4417	0.71 (18)	9.06 (230)	4.53 (115)	11.61 (295)	16.14 (410)	8.86 (225)	12.80 (325)	M-16	1.18 (30)	7.20 (183)
5522	0.71 (18)	11.81 (300)	5.91 (150)	12.60 (320)	18.50 (470)	9.06 (230)	17.32 (440)	M-16	1.18 (30)	8.43 (214)
6628	0.71 (18)	13.39 (340)	6.69 (170)	14.57 (370)	21.26 (540)	10.43 (265)	20.08 (510)	M-16	1.18 (30)	10.79 (274)

**END SUPPORTS MAY BE
PURCHASED SEPARATELY.**

PART#	MODEL (Size)
SU-06170	(For 4417 model)
SU-08170	(For 5522 model)
SU-10170	(For 6628 model)

Optional accessories are the same as for DMNC. Note: DMTGF models can be supplied with fourth axis drives on request.

DMTRT SERIES PROGRAMMABLE OR TRUE 4th/5th TILT/ROTARY TABLE



DMTRT-320



DMTRT-140



UDNC-M2

STANDARD ACCESSORIES INCLUDE:

- ▶ UDNC-M2 Dual Axis Controller
- ▶ Motor/Encoder cablesPower cable (105~240VAC, 20 Amp)
- ▶ T-slotted Face Plate
- ▶ Remote cable fro M-Code interface,
- ▶ operator's manual & warranty card
- Locating keys

The DMTRT Series Tilt/Rotary tables are available in the following combinations:

OPTION 1: Programmable tilt and rotary axes complete with UDNC-M2 dual axis controller.

OPTION 2: Full fourth axis (rotary) using Fanuc, Mitsubishi, Yaskawa, etc. motors, and programmable 5th axis (tilt) using our UDNC-M1 single axis controller.

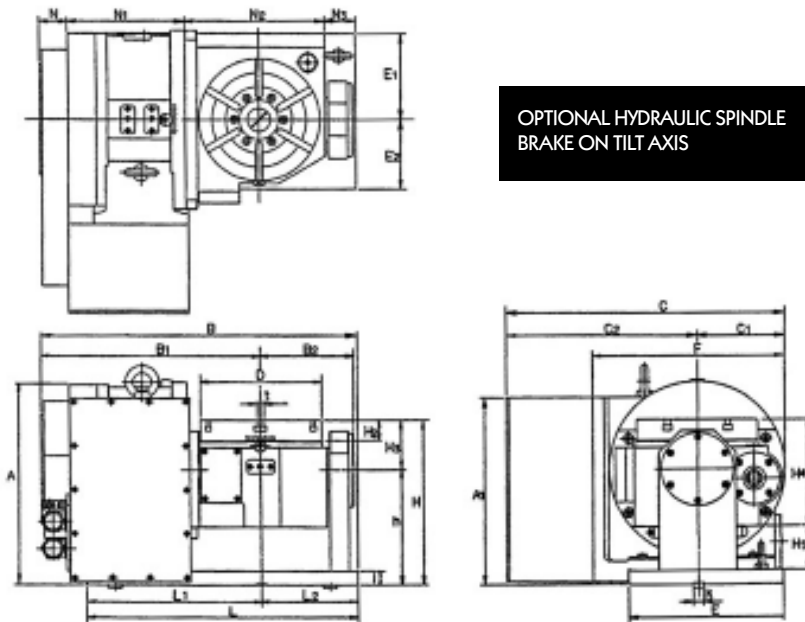
OPTION 3: Full fourth (rotary) and fifth (tilt) axes using Fanuc, Mitsubishi, Yaskawa, etc. motors on both axes.

Inch/(mm)

MODEL	DMTRT 140		DMTRT 170		DMTRT 220		DMTRT 280		DMTRT 320	
Sub Table O.D.	5.51 (140)		6.69 (170)		8.66 (220)		11.02 (280)		12.69 (320)	
Upper height of table	13.26 (337)		11.42 (290)		11.81 (300)		14.57 (370)		14.96 (380)	
Center Height @90°	5.51 (140)		8.27 (210)				10.63 (270)			
Tilting angle range	-20° ~ +110°									
Throgh hole diameter	1.26 (32)		1.77 (45)		2.50 (63.5)		3.54 (90)		4.33 (110)	
Table T-slot width	0.47 (12)								0.55 (14)	
Guide block Width x Height	0.71 X 0.27									
Total Gear ratio	rotary	tilt	rotary	tilt	rotary	tilt	rotary	tilt	rotary	tilt
	72:1	120:1	72:1	360:1	90:1	360:1	180:1	360:1	180:1	360:1
Max.Rotation speed (RPM)	62.5	33.3	48	10	38	10	20	10	20	10
Clamping Method	hydraulic		Pneumatic 70 ~ 100 psi							
Spindle Brake Torque ft-lbs. (kg-m)	rotary	tilt	rotary	tilt	rotary	tilt	rotary	tilt	rotary	tilt
	65 (88)	260 (353)	108 (147)	612 (830)	181 (245)	870 (1180)	325 (440)	1370 (1860)	479 (650)	1370 (1860)
Positioning Accuracy	22.5"	30"	22.5"	30"	22.5"	30"	22.5"	30"	22.5"	30"
Repeatability	6"	10"	6"	10"	6"	10"	6"	10"	6"	10"
Max cutting torque ft-lbs. (N-m)	58 (78.5)		37 (50)		52 (70)		218 (295)		218 (295)	
Max work load capacity lbs. (kg)	55 (25)		133 (60)		200 (91)		265 (120)		330 (150)	
Max Thrust load lbs. (kg) (horizontal)	1367 (620)		1320 (600)		2200 (1000)		3300 (1500)		4860 (2200)	
Max work inertia lbs/in./sec² (kg/cm/sec²)	1,17 (3.18)		0.043 (0.21)		0.111 (0.54)		0.242 (1.18)		0.393 (1.92)	
Net weight of table lbs. (Kg)	213 (97)		440 (200)		530 (240)		770 (350)		858 (390)	

The DMTRT models clearly use the latest technology. ■ With this type of product, rigidity of the tilting axis is one of the most important factors. In addition, these dual disc pneumatic brakes are positioned as close to the axis of rotation as possible, to provide the maximum holding torque. ■ Brushless digital AC servo motors are used, for maximum torque and very efficient servo performance. ■ A multiple gear arrangement is used on the tilting axis to prevent uneven wear. ■ Seals are critical to prevent coolant damage to the servo and gear box; the DMTRT uses the latest in seal technology, featuring spring loaded double lip oil seals around all main spindle housings. ■ Heavy duty steel conduit shielded motor cables, virtually eliminate noise interference to the controller and servos.

DIMENSIONAL SPECIFICATIONS:



Call for dimensional data on DMTRT-140.

Inch/(mm)

	D	E	E1	E2	F	h	H	H2	H3	H4
DMTRT-170	6.69 (170)	11.02 (280)	6.10 (155)	4.92 (125)	13.38 (340)	8.27 (210)	11.42 (290)	1.38 (35)	3.15 (80)	6.69 (170)
DMTRT-220	8.66 (220)	11.02 (280)	6.10 (155)	4.92 (125)	13.78 (350)	8.27 (210)	11.81 (300)	1.49 (38)	3.54 (90)	7.67 (195)
DMTRT-280	11.02 (280)	12.99 (330)	7.08 (180)	5.90 (150)	16.53 (420)	10.63 (270)	14.56 (370)	1.69 (43)	3.94 (100)	8.66 (220)
DMTRT-320	12.60 (320)	12.99 (330)	7.08 (180)	5.90 (150)	16.73 (425)	10.63 (270)	14.96 (380)	1.89 (48)	4.33 (110)	9.64 (245)

	H5	I	K	L	L1	L2	N	N1	N2	N3
DMTRT-170	3.74 (95)	0.98 (25)	0.71 (18)	17.71 (450)	11.42 (290)	6.30 (160)	1.97 (50)	8.27 (210)	8.27 (210)	2.36 (60)
DMTRT-220	3.15 (80)	0.98 (25)	0.71 (18)	19.29 (490)	12.40 (315)	6.89 (175)	1.97 (50)	8.27 (210)	10.04 (255)	2.16 (55)
DMTRT-280	4.72 (120)	1.18 (30)	0.71 (18)	22.05 (560)	13.97 (355)	8.07 (205)	1.97 (50)	8.86 (225)	12.40 (315)	2.36 (60)
DMTRT-320	4.13 (105)	1.18 (30)	0.71 (18)	23.62 (600)	14.76 (375)	8.86 (225)	1.97 (50)	8.86 (225)	13.97 (355)	2.36 (60)

	A	A1	B	B1	B2	C	C1	C2
DMTRT-170	14.17 (360)	13.38 (340)	20.86 (530)	14.56 (370)	5.90 (150)	19.68 (500)	5.90 (150)	13.78 (350)
DMTRT-220	14.56 (370)	13.38 (340)	22.44 (570)	15.55 (395)	6.69 (170)	20.08 (510)	6.30 (160)	13.78 (350)
DMTRT-280	18.50 (470)	13.35 (390)	25.59 (650)	17.52 (445)	7.87 (200)	23.82 (605)	7.87 (200)	15.94 (405)
DMTRT-320	18.50 (470)	13.35 (390)	27.16 (690)	18.31 (465)	8.66 (220)	24.02 (610)	8.07 (205)	15.94 (405)

We developed the UDNC-M2 multi-axis controller for the DMTRT product line. This offers a host of features, such as "open architecture" programming system (M&G Code or Conversational) with a built-in PLC ■ fully synchronous multi-axis movements ■ Dual encoder feedback outputs, for high accuracy. ■ Pitch error compensation to program out worm gear error ■ All standard functions: Jog, Remote start and finish, Home set, Home return, Work home set, Work home return, E stop, and a host of others. ■ Digital amplifier provides for ultra-smooth servo performance throughout the entire RPM range ■ DMTRT can be totally operated from the CNC machine via an RS232 cable connection between the VMC and UDNC-M2. CNC user Macro is used to command position between the VMC and UDNC-M2. (Please see pg.11 for MACRO programming).

DMTRT SERIES 2-SPINDLE TILTING ROTARY TABLE

FEATURES:

- ▶ Two spindle models available in 140mm and 170mm table diameter sizes
- ▶ Very compact design
- ▶ Can be supplied as programmable style (using UDNC-M2) or as full fourth or fifth axis, using FanucMitsubishi, Yaskawa, or other motors
- ▶ High torque dual disc brake design with loading ring for maximum rigidity, permitting heavy cutting
- ▶ Class "A" dual tapered roller spindle bearings providing for smooth rotation even under the heaviest thrust loads



DMTRT-140-2



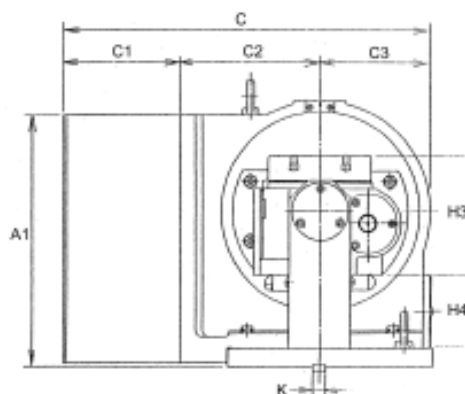
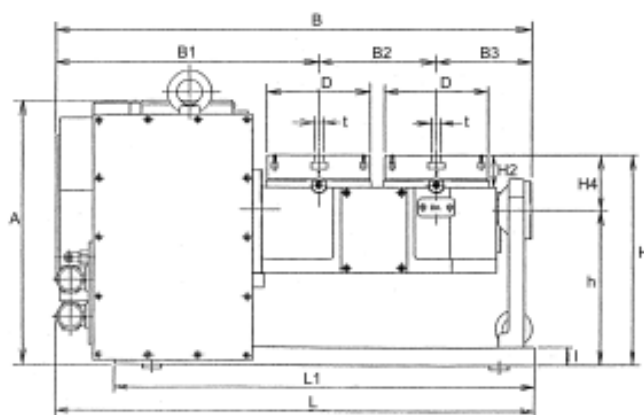
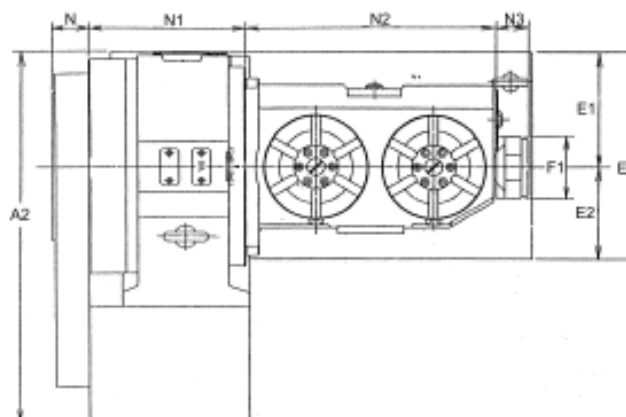
UDMC-M2

MODEL		DMTRT 140-2	DMTRT 170-2
SUB TABLE D.		5.51 (140)	6.69 (170)
CENTER HEIGHT @90°		8.27 (210)	8.27 (210)
MAX RPM	ROTARY	55.5	55.5
	TILTING	11.1	11.1
SPINDLE TORQUE ft-lbs (kg-m)	ROTARY	30 (41)	37 (51)
	TILTING	188 (26)	188 (26)
GEAR RATIO	ROTARY	72 : 1	72 : 1
	TILTING	360 : 1	360 : 1
MAX WORK LOAD CAPACITY lbs (kg)	0° (horizontal)	110 (50)	132 (60)
	@ 90°	55 (25)	66 (30)
RESOLUTION DEGREE		0.000625	0.000625
SPINDLE BRAKE TORQUE lbs (kg-m)	ROTARY	65 (9)	108 (15)
	TILTING	615 (85)	868 (120)
MAX WORK INERTIA lbs/inch/sec ² (kg/cm/sec ²)		1.24 (1.43)	1.86 (2.14)
MAX TRUST LOAD lbs (kg) (horizontal)		1100 (500)	1320 (600)
MAX CUTTING TORQUE lbs.(kg)	TILTING	80 (11)	108 (15)
	BRAKE ON	217 (30)	289 (40)
INDEXING ACCURACY	ROTARY	+/- 22.5 seconds	
	TILTING	+/- 30 seconds	
REPEATABILITY		6 seconds	
SPINDLE THRU HOLE DIA.		1.26 (32)	1.77 (45)
NET WEIGHT lbs (kg)		441 (200)	529 (240)

DIMENSIONAL SPECIFICATIONS

EACH UNIT SUPPLIED WITH:

- ▶ UDNC-M2 controller for DMTRT
- ▶ DMTRT unit complete with rotary drive unit, end support and mounting plate
- ▶ Power cable (105~240 single phase VAC, 20 Amp)
- ▶ Remote cable for M-code interface to CNC
- ▶ Operator's manual, test report, warranty card and locating keys



Inch (mm)

MODEL	A	A1	A2	B	B1	B2	B3	C	C1	C2	C3
DMTRT140-2	14.17 (360)	13.39 (340)	19.88 (505)	25.39 (645)	13.98 (355)	6.3 (160)	5.12 (130)	19.69 (500)	6.3 (160)	7.48 (190)	5.91 (150)
DMTRT170-2	14.37 (365)	13.39 (340)	19.88 (505)	28.54 (725)	14.57 (370)	7.87 (200)	6.10 (155)	19.88 (505)	6.3 (160)	7.48 (190)	6.10 (155)

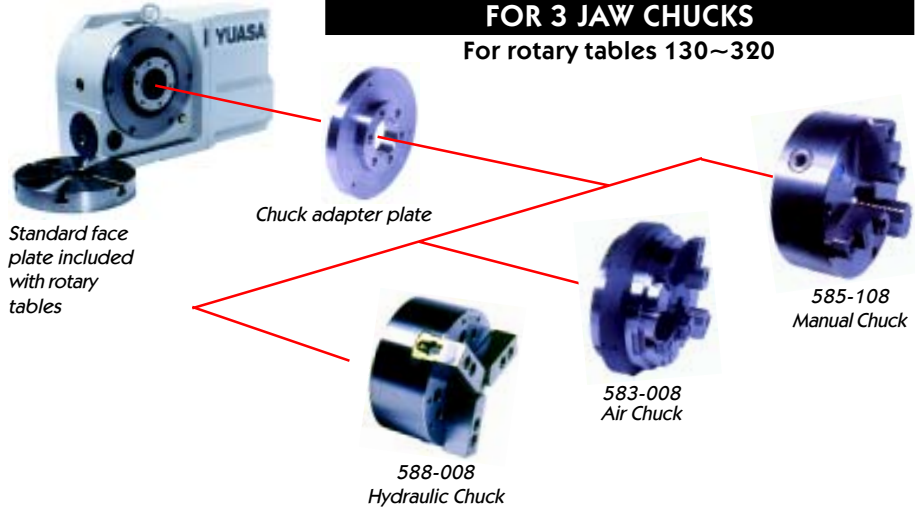
MODEL	D	E	E1	E2	F	h	H	H2	H3	H4
DMTRT140-2	5.51 (140)	11.02 (280)	6.10 (155)	4.92 (125)	3.31 (84)	8.27 (210)	11.22 (285)	1.34 (34)	6.30 (160)	3.94 (100)
DMTRT170-2	6.69 (170)	11.02 (280)	6.10 (155)	4.92 (125)	5.12 (130)	8.27 (210)	11.4 (290)	1.38 (35)	6.69 (170)	3.74 (95)

MODEL	I	K	t	L	L1	N	N1	N2	N3
DMTRT140-2	0.98 (25)	0.708 (18)	0.47 (12)	25.59 (650)	22.44 (570)	1.97 (50)	8.27 (210)	13.39 (340)	1.77 (45)
DMTRT170-2	0.98 (25)	0.708 (18)	0.47 (12)	28.74 (730)	25.59 (650)	1.97 (50)	8.27 (210)	16.54 (420)	1.77 (45)

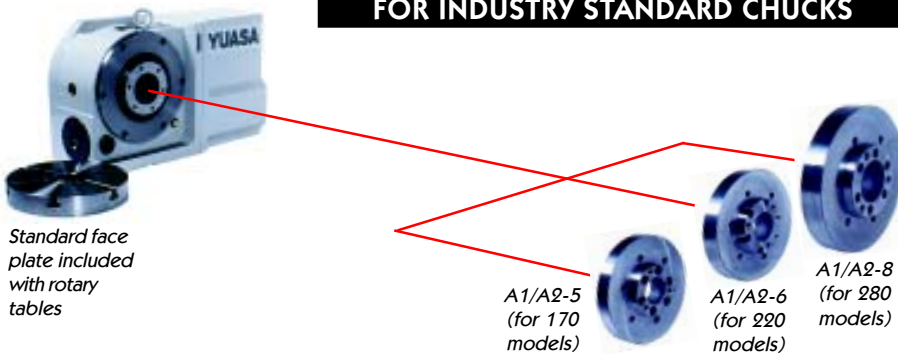
ROTARY TABLE CHUCK OPTIONS

FOR 3 JAW CHUCKS

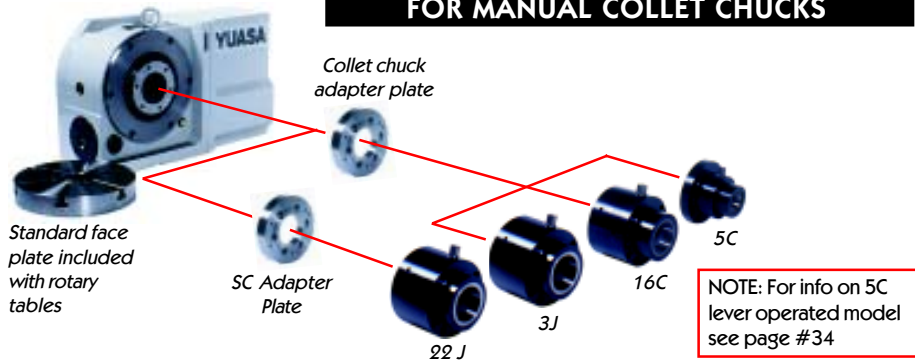
For rotary tables 130~320



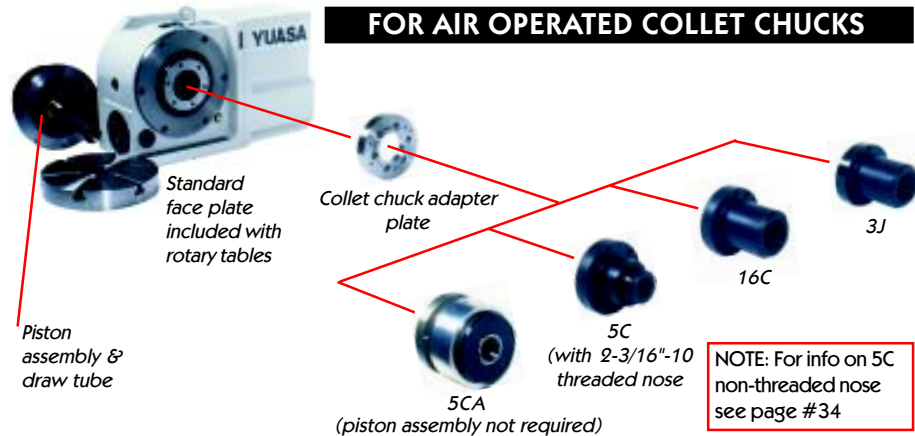
FOR INDUSTRY STANDARD CHUCKS



FOR MANUAL COLLET CHUCKS



FOR AIR OPERATED COLLET CHUCKS



DMNC & DRFT SERIES ACCESSORY CHART ROTARY TABLES (Including multi-spindle)



MODEL DMNC/DRFT	130 (2,3)	170 (2,3)	220 (2,3)	280 (2)	320	400
TAILSTOCK (MANUAL)	DTS-130	DTS-170	DTS-220	DTS-2800	DTS-3202	DTS-400
TAILSTOCK (AIR)	660-130	660-170	660-220	660-280	N/A	
BASE PLATE FOR MULTI-SPINDLE MODELS (FOR 660 SERIES TAILSTOCKS)	661-132 (2SP) 661-133 (3SP)	661-172 (2SP) 661-173 (3SP)	661-222 (2SP) 661-23 (3SP)	661-128 (2SP)	N/A	
HYDRAULIC BRAKE PARTS (REQUIRES BOOSTER PHB-100)	PHB-130	PHB-170	PHB-220	PHB-280	PHB-320	PHB-400
5C MULTI-COLLET BLOCK (4 CHUCKS) W/ SPINDLE MOUNTING PLATE	N/A	640-404 (A) OR (B); ("A" INSERTS TAILSTOCK; "B" END CAPS, END SUPPORT) REQUIRES COLLET CHUCK ADAPTER PLATE		N/A		
END SUPPORT FOR 5C MULTI-COLLET BLOCK	N/A	640-417	640-422	N/A		
3-JAW ACCU-CHUCK (MANUAL)	585-004	585-106	585-108	585-110	585-112	N/A
3-JAW AIR OPERATDED CHUCK	583-004	583-106	583-008	583-010	583-012	N/A
3-JAW HYDRAULIC CHUCK	N/A		588-008	583-010	588-012	N/A
CYLINDER FOR HYDRAULIC CHUCK (REQUIRED)	N/A		588-222	583-228	588-320	N/A
ADAPTER PLATE (ALL THREE JAW CHUCKS, REQ'D)	553-513	553-517	553-522	553-528	553-532	N/A
A1/A2 SPINDLE ADAPTER PLATES	N/A	553-717	553-722	553-728	N/A	
5C MANUAL COLLET CHUCK (FRONT MOUNTED)	ACSU-5C (REQUIRES COLLET CHUCK ADAPTER PLATE)					N/A
16C MANUAL COLLET CHUCK (FRONT MOUNTED)	ACSU-16C (REQUIRES COLLET CHUCK ADAPTER PLATE)					N/A
3J MANUAL COLLET CHUCK (FRONT MOUNTED)	ACSU-3J (REQUIRES COLLET CHUCK ADAPTER PLATE)					N/A
22J MANUAL COLLET CHUCK (FRONT MOUNTED)	N/A	ACSU-22J (REQUIRES SC STYLE ADAPTER PLATE)				
5C AIR COLLET CHUCK (FRONT MOUNTED)	ACSU-5CA (REQUIRES COLLET CHUCK ADAPTER PLATE)					
COLLET CHUCK ADAPTER PLATE (FOR FRONT MOUNTED COLLET CHUCKS)	553-613	553-617	553-622	553-628	553-632	N/A
SC ADAPTER PLATES (22J)CHUCK	N/A	553-817	553-822	553-828	553-832	N/A
5C LEVER CLOSER (MANUAL)W/ DRAW TUBE & THREADED NOSE PIECE (2 3/16"-10)	N/A	640-527	640-523	N/A		
5C AIR OPERATED COLLET CLOSER (2 3/16"-10) THREADED NOSE (FOR ROTARY TABLE MODELS)	N/A	640-637	640-624	N/A		
16C AIR OPERATED COLLET CLOSERS (FOR ROTARY TABLE MODELS)	N/A	640-747	640-723	N/A		
3J AIR OPERATED COLLER CLOSERS (FOR ROTARY TABLE MODELS)	N/A	640-857	640-826	N/A		
5C AIR COLLET CHUCK(REAR) DRAW TUBE AND PARTS (REQUIRES BOTH PARTS)	P-ACPU-45U P-ACPU-104U	P-ACPU-68U P-ACPU-106U	P-APCU-68U P-ACPU-108U	N/A		

***SPECIAL NOTE: 5C, 16C & 3J air operated collet closers must be ordered with the following:**

170 Models: 553-617, P-ACPU-68U & P-ACP-106U

220 Models: 553-622, P-ACPU-68U & P-ACP 108U

DMNC ACCESSORY CHART FOR 5C STYLE MODELS (incl. multi-spindle units)

MODEL / DMNC	5C	5CA-2	5CA-3	5CA-4
TAIL STOCK (MANUAL)	DTS-5C	N/A		
TAIL STOCK (AIR)	660-100			
BASE PLATEFOR MULTI-SPINDLE AIR TAILSTOCKS	N/A	661-122	661-123	661-124
3-JAW ACCU-CHUCK (MANUAL)	N/A			
3-JAW AIR OPERATED CHUCK	N/A			
5C AIR COLLET CHUCK (REAR); DRAW TUBE & PARTS (BOTH REQ'D)	DM-105A	INCLUDED AS STANDARD		



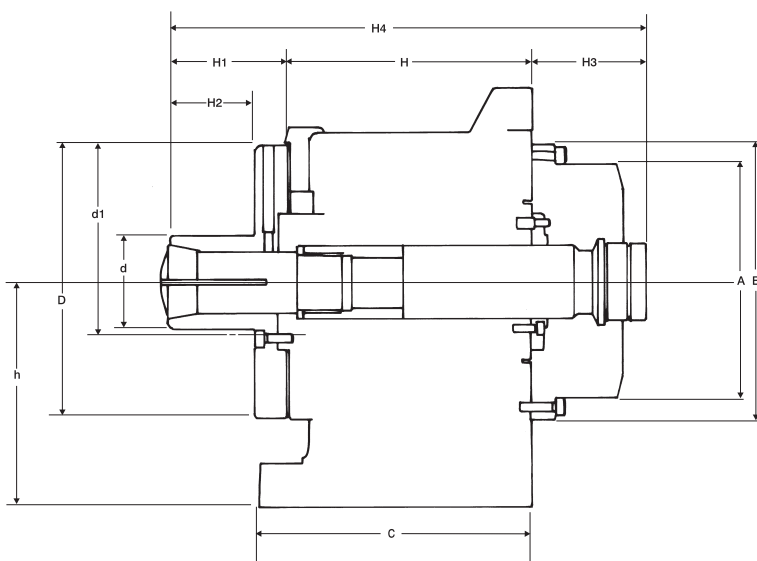
DMNC/DRFT ACCESSORIES (con't.)

YUASA

P-ACP REAR MOUNTED AIR PISTON 5C AIR OPERATED COLLET CLOSERS WITH NOSE PIECE



SHOWN ON MODEL 220



inch/(mm)

MODEL	A	B	C	D	d	d1	H	H1	H2	H3	H4	h
P-ACPU-45U & P-ACP-104U (130 Models)	4.68 (119)	5.51 (140)	5.31 (135)	4.88 (124)	1.85 (47)	2.36 (60)	4.92 (125)	1.96 (50)	1.49 (38)	2.36 (60)	9.25 (235)	4.13 (105)
P-ACPU-68U & P-ACP-106U (170 Models)	6.37 (162)	7.20 (183)	5.90 (150)	6.69 (170)	1.85 (47)	2.44 (62)	5.31 (135)	2.55 (65)	1.88 (48)	3.14 (80)	11.02 (280)	5.12 (130)
P-ACPU-68 & P-ACP-108U (220 Models)	6.37 (162)	8.42 (214)	6.88 (175)	8.66 (220)	2.36 (60)	3.54 (90)	6.18 (157)	2.87 (73)	2.16 (55)	3.14 (80)	12.20 (310)	6.29 (160)

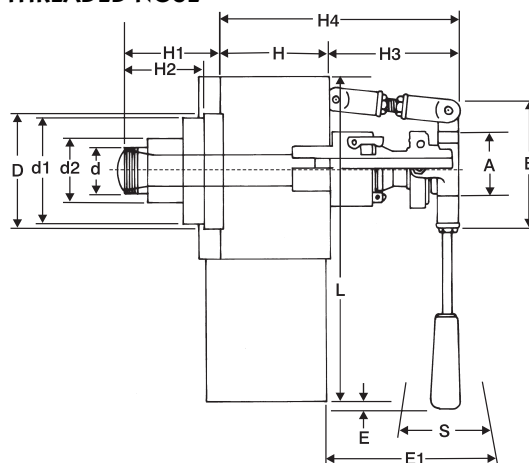
5C LEVER CLOSER (MANUAL) W/DRAW TUBE & 2 3/16"-10 THREADED NOSE



MODEL 170 (Front)



MODEL 170 (Rear)



Inch/(mm)

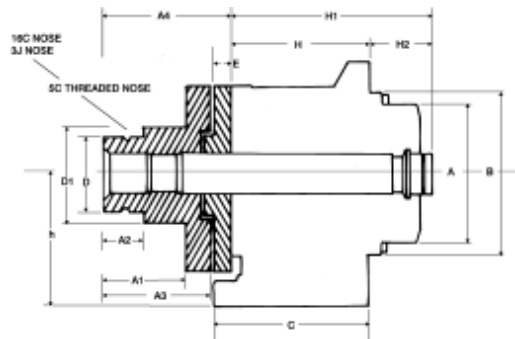
MODEL	A	B	D	d	d1	d2	E	E1	H	H1	H2	H3	H4	S	COLLET CHUCK ADAPTER PLATE
640-527 (170 Models)	3.48 (88)	5.07 (129)	5.41 (137)	2.17 (55)	4.95 (126)	3.02 (76.71)	1.32 (33.52)	8.04 (204)	5.31 (135)	4.97 (126.24)	3.86 (98)	6.07 (154.17)	16.33 (414.78)	5.25 (133.35)	553-617
640-523 (220 Models)	3.48 (88)	5.07 (129)	5.41 (137)	2.17 (55)	4.95 (126)	3.02 (76.71)	1.32 (33.52)	8.04 (204)	6.18 (157)	4.97 (126.24)	3.86 (98)	6.07 (154.17)	17.20 (436.88)	5.25 (133.35)	553-622

Note: Each 5C lever closer requires a collet chuck adapter plate.

DMNC/DRFT ACCESSORIES (cont.)

AIR OPERATED 5C (w/2 3/16"-10 threaded nose), 16C & 3J COLLET CHUCKS FOR ROTARY TABLE MODELS (170 & 220)

Our collet chucks (5C with 2 3/16"-10, 16C and 3J) are available for the 170 and 220 models for air operation. They feature our strongest pneumatic piston and drawtube (order separately), extension and nose piece. This allows for automatic collet actuation even for our largest collet chuck (3J) style. PLEASE NOTE: a collet chuck adapter plate is required to mount the nose piece, along with air piston and drawtube. See page #33 accessory page for both adapter plate and air collet system.



inch/(mm)

PART NUMBER	FOR MODEL	A	B	C	D	d1	E	H	H1	H2	A1	A2	A3	A4	h
640-637 (5C)	170	6.37 (162)	7.20 (183)	5.90 (150)	2.1875 (55.56)	3.000 (76.20)	.625 (15.8)	5.31 (135)	11.02 (280)	3.14 (80)	2.750 (69.85)	1.135 (28.82)	3.750 (95.25)	4.375 (111.12)	5.12 (130)
640-747 (16C)	170	6.37 (162)	7.20 (183)	5.90 (150)	N/A	3.375 (85.72)	.625 (15.8)	5.31 (135)	11.02 (280)	3.14 (80)	3.625 (92.07)	N/A	4.625 (117.47)	5.25 (133.35)	5.12 (130)
640-857 (3J)	170	6.37 (162)	7.20 (183)	5.90 (150)	N/A	3.375 (85.72)	.625 (15.8)	5.31 (135)	11.02 (280)	3.14 (80)	3.625 (92.07)	N/A	4.625 (117.47)	5.25 (133.35)	5.12 (130)
640-624 (5C)	220	6.37 (162)	8.42 (214)	6.88 (175)	2.1875 (55.56)	3.000 (76.20)	.585 (14.8)	6.18 (157)	12.20 (310)	3.14 (80)	2.750 (69.85)	1.135 (28.82)	3.750 (95.25)	4.335 (110.10)	6.29 (160)
640-723 (16C)	220	6.37 (162)	8.42 (214)	6.88 (175)	N/A	3.375 (85.72)	.585 (14.8)	6.18 (157)	12.20 (310)	3.14 (80)	3.625 (92.07)	N/A	4.625 (117.47)	5.21 (132.33)	6.29 (160)
640-826 (3J)	220	6.37 (162)	8.42 (214)	6.88 (175)	N/A	3.375 (85.72)	.585 (14.8)	6.18 (157)	12.20 (310)	3.14 (80)	3.625 (92.07)	N/A	4.625 (117.47)	5.21 (132.33)	6.29 (160)

THREE JAW PRECISION CHUCKS

Precision three jaw chucks are available for all DMNC/DRFT rotary table models, along with DMTRT tilting rotary tables. Our Accu-Chucks (585 Series) are offered for manual clamping (see page 86, of our workholding section) and the pneumatic chucks (583 Series, page 92) for automatic clamping. We now offer 3-jaw hydraulic chucks with large thru holes for very powerful clamping. NOTE: Each chuck, either manual or air operated, requires a 3-jaw chuck adapter plate.



585-108 8 3/4"
Accu-Chuck (manual)



583-008 8 3/4" 3-Jaw
air operated Accu-Chuck



588-008 Hydraulic chuck with 588-222 cylinder
(shown with DMNC-220)



DMNC / DRFT ACCESSORIES (con't.)

TAILSTOCKS

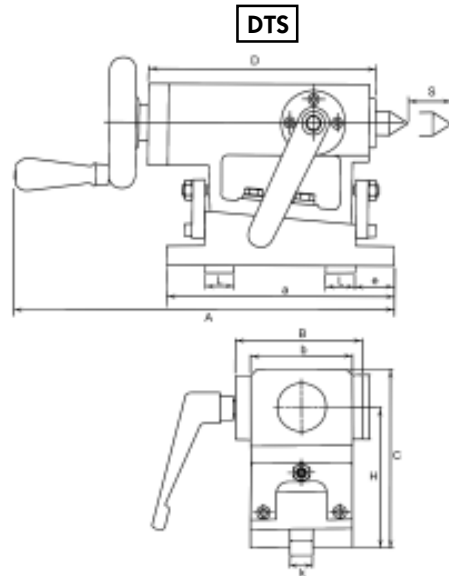
The **DTS** style tailstocks feature a solid main body dovetailed into the spindle block, for maximum rigidity, along with a Morse taper (MT) center bore, so that a live, bullnose or dead center can be used (optional). DTS series tailstocks are designed to the proper center height for each DMNC/DRFT model, with minimal adjustment. The DTS units are manually operated (using a handwheel). The **660 Series air operated Tailstocks** utilize a solid steel block (main body), (fixed center height) with a Morse Taper (MT-3) center bore, permitting the use of a bullnose, live or dead center (optional); (see page 118). A powerful air cylinder is used to drive the spindle, with a full 2.5" of stroke, providing up to 450 lbs. of thrust pressure. The spindle features a thru hole for easy removal of the center.



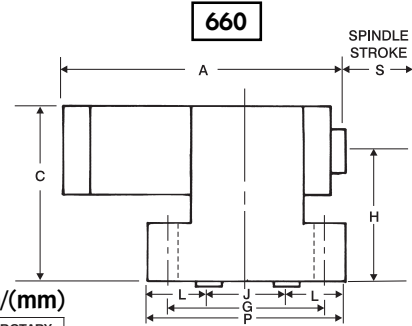
DTS-280



660-140



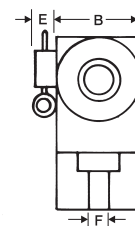
DTS



660

Inch/(mm)

MODEL	H	A	B	C	D	a	b	e	S	k	L	CENTER BORE	ROTARY MODEL
DTS-5C	4.33 (110)	11.77 (299)	3.93 (100)	5.51 (140)	7.12 (181)	7.08 (180)	3.15 (80)	1.18 (30)	1.18 (30)	0.71 (18)	0.94 (24)	MT-2	5C
DTS-130	4.13 (105)	11.77 (299)	3.93 (100)	5.31 (135)	7.12 (181)	7.08 (180)	3.15 (80)	1.18 (30)	1.18 (30)	0.71 (18)	0.94 (24)	MT-2	130
DTS-170	5.12 (130)	11.77 (299)	3.93 (100)	6.30 (160)	7.12 (181)	7.08 (180)	3.15 (80)	1.18 (30)	1.18 (30)	0.17 (4)	0.94 (24)	MT-2	170
DTS-220	6.30 (160)	13.93 (354)	5.47 (139)	8.58 (218)	9.13 (232)	8.66 (220)	3.15 (80)	1.57 (40)	2.36 (60)	0.17 (4)	0.94 (24)	MT-4	220
DTS-280	7.48 (190)	13.93 (354)	5.47 (139)	9.76 (248)	9.13 (232)	8.66 (220)	3.15 (80)	1.57 (40)	2.36 (60)	0.17 (4)	0.94 (24)	MT-4	280
DTS-320	8.66 (220)	13.93 (354)	5.47 (139)	10.9 (278)	9.13 (232)	8.66 (220)	3.15 (80)	1.57 (40)	2.36 (60)	0.17 (4)	0.94 (24)	MT-4	320
DTS-400	11.02 (280)	13.93 (354)	5.47 (139)	14.09 (358)	9.13 (232)	8.66 (220)	3.15 (80)	1.57 (40)	2.36 (60)	0.17 (4)	0.94 (24)	MT-4	400



Inch/(mm)

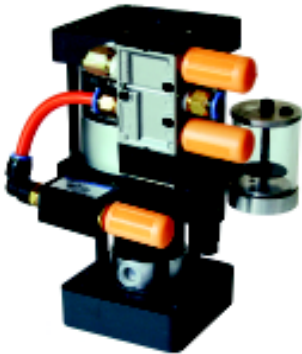
MODEL	H	A	B	C	S	F	E	P	G	J	L	CENTER BORE	KEY	UNIT
660-100	4.33 (110)	10.00 (254)	3.00 (76.20)	5.80 (147)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	5C(A) & 132 5C(L)
660-130	4.13 (105)	10.00 (254)	3.00 (76.20)	5.60 (142)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	130 MODELS
660-140	4.53 (115)	10.00 (254)	3.00 (76.20)	6.00 (152)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	140 MODELS
660-170	5.12 (130)	10.00 (254)	3.00 (76.20)	6.60 (167)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	170 MODELS
660-220	6.30 (160)	10.00 (254)	3.00 (76.20)	7.77 (197)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	220 MODELS
660-280	7.48 (190)	10.00 (254)	3.00 (76.20)	8.95 (227)	2.50 (63.50)	.630 (16)	.750 (19.05)	7.00 (177.80)	5.60 (142)	3.00 (76)	2.00 (51)	MT-3	0.71 (18)	280 MODELS

DMNC SERIES



MPG 300

This device is used for manually generating encoder pulses to the servo drive, enabling an incremental jog feature. Many times it is necessary to position the DMNC controller face to a "work zero" position, which can be a challenge. The MPG 300 (with 12 ft. cable) makes this task easy, because you can jog the rotary table while standing right in front of the machining area. The MPG 300 offers a hand wheel with detent and four-speed jog. Control both 4th and 5th axis when used with UDNC-M2 dual axis controller.



HYDRAULIC BOOSTER (PHB-100)

Our hydraulic brake option can use either hydraulic fluid only with a hydraulic pump, or you can purchase our hydraulic booster which requires only an air supply to push the hydraulic fluid into the brake chamber.



HYDRAULIC BRAKE PARTS (DHB-130~320)

The DMNC units offer a hydraulic brake option for increased spindle holding torque providing maximum rigidity for heavy milling cuts.

ACSU-5C, 5CA, 16C, 3J & 22J COLLET CHUCKS

These manually and air operated collet chucks are mounted on the front of the DMNC/DRFT rotary table. The T-slotted sub-plate is removed, then the appropriate collet chuck adapter plate is mounted to the rotary table spindle. The ACSU collet chuck is then mounted to the adapter plate. The same collet chuck adapter plate will fit all four collet chucks. These collet chucks are very rigid, and provide a "dead length" for accurate positioning of the workpiece. A simple 90° turn of the "collet lever" (supplied for manual chucks) is all that is required to open and close the collet. For the ACSU-5CA the air valve and hose connections are included with an easy turn of the switch for collet operation. **Note:** See pages 78 & 80 of the WORKHOLDING section for a detailed dimensional drawing.





CUSTOM TRUNION BLOCK AND FLAT PLATE FIXTURES

We design and build custom trunion blocks and flat plate fixtures using a variety of bearing and brake style end supports to customer specifications. In addition, our engineering staff design and build special jigs and fixtures using custom or "off the shelf" workholders to hold customer parts on these plate and trunion blocks.



The above photo illustrates Model 220 rotary table with the new OK-Vise® edge clamps holding sample workpieces, with our Model SU-08170 brake style bearing end support.



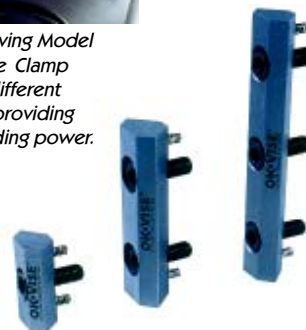
Just let us know the size and shape of the trunion fixture and we will build it along with the end support and workpiece fixture components.



Model 280 shown with 6"x6"x24" aluminum block trunion and PN#640-528 end support.



Close-up showing Model 215-301 Edge Clamp holding two different work pieces providing maximum holding power.



OK Vise® edge clamps are designed to be used along the corner edges of a trunion or tombstone fixture. This unique design permits clamping of two workpieces with one edge clamp.



Sample Work Stops



OK Vise® Clamps with extended jaws

END SUPPORTS



SU-08170 with brake and dual tapered roller bearings



640-522 with sealed bearing



710-224 for Super Rapidex applications

SUPER RAPIDEX



BASIC OPERATION

The Super Rapidex has been designed for simple indexing (multiples of 1°, up to 15° full stroke, 710-102S & up to 45° full stroke for 710-230S & 710-300S), (multiples of 5 degree movements, up to 90 degrees in a single stroke, 710-004, 104) providing up to **1 ton of spindle clamping force with zero backlash**. The actual index and spindle locking is done in one simple motion, utilizing either the machine spindle (cutter or dead tool) or "index plunger" mounted to the machine spindle, column or quill (see illustration on page #41). A programmed movement of the CNC machine spindle depressing the "index cylinder" atop the indexer body, will in-turn rotate the Super Rapidex's spindle to the desired position. Once the position is reached, and the index cylinder is returned, a **spring loaded tapered locking bar is automatically driven into the main locking gear, locating and locking the indexer into position**. For manual operation an index handle is provided (as standard) with every unit. This device allows the user to pull down on the lever, depressing the index cylinder until the desired position has been reached.

FEATURES:

■ One ton spindle clamping force, positive locking ■ Zero backlash ■ No motors, air cylinders, cables, etc. ■ Compact design, great for small VMC's with auto-pallet changers ■ Program index movements right from CNC machine control.

NOTE: NEW MODELS 710-102S, 710-230S AND 710-300S FEATURE ONE DEGREE INDEXING



710-150



710-230

710-230 (S) new model featuring over 1.5 ton braking torque and a 2.28" dia. thru hole.

APPLICATIONS:

Heavy and off-center cutting always presents a rigidity problem for indexers, but the Super Rapidex with over 1 ton of positive clamping force (1.5 ton for model 710-230) solves this problem.

Simple indexing: some folks really only need 30°, 45° or 90°, etc. positioning; enter the Super Rapidex. Any multiple of 5 degrees (1° for models 710-102S, 710-230S & 710-300S) can be achieved by simply varying the amount of "Z" axis movement in depressing the index cylinder.

The Super Rapidex thrives in a **harsh environment**. With only mechanical parts and "V" ring seals, these models are virtually **"maintenance free."**

Pallet changers, both manual and automatic, present a challenge when trying to utilize indexers on one, or both pallets. The Super Rapidex, having **no cables to get tangled, or air hoses to worry about**, is ideal for this type of use.

The easy operation and compact design of the Super Rapidex makes it perfect for **CNC drilling and tapping centers**. These smaller machines offer little machine table working area and have limited "Z" axis travel. The small footprint of the indexer makes for simple mounting, and it's low profile allows for easy access through small pallet door openings.

Another popular application is **"Multiple Indexer Setup."** As many indexers as you can fit on your machine table is the only limiting factor. Many people install an "index plate", or individual "threaded stops" to their VMC quill or spindle column so that all indexers can rotate together. Again, the compact nature of the Super Rapidex indexers is a definite plus in mounting multiple units on a single machine table or pallet.

SPECIFICATIONS:

MODEL	710-150	710-002	710-102(S)	710-004	710-104	710-230 (S)	710-300(S)
TABLE DIA.	6.69 (170)	8.26 (210)				9.06 (230)	12.20 (310)
ANGLE INDEX BY ONE FULL STROKE	45°	15°		90°		45°	45°
TOTAL INDEX CYLINDER STROKE	1.50 (38)	1.37 (35)		3.07 (78)		2.20 (56)	2.95 (75)
FORCE REQ'D. FOR CYLINDER STROKE Lbs (Kg)	66 (30)	132 (60)		176 (80)		88 (40)	242 (110)
SPINDLE BRAKING FORCE	One Ton					1.5 Ton	One Ton
SPINDLE THRU HOLE	1.45 (37)	0.64 (16.5)				2.28 (58)	2.04 (52)
SETTING POSITION	Horiz/Vert	Horiz/Vert	Vert	Horiz/Vert	Vert	Horiz/Vert	Vert
CENTER HEIGHT	4.72 (120)	5.31 (135)				5.71 (1.45)	7.28 (185)
TABLE CENTER HOLE RUNOUT	0.0004 (0.01) MAX						
TABLE SURFACE RUNOUT	0.0004 (0.01) MAX						
SQUARENESS	0.001 (0.03) MAX						
INDEXING ACCURACY	+/- 30 SECONDS					+/- 15 SEC	+/- 30 SEC
INDEXING SPEED (for full stroke move*)	APPROXIMATELY ONE SECOND MACHINE SPINDLE SPEED 200 Inch/Minute (5,000mm/Minute) MAX						
LOAD TOLERANCE (out of balance) Lbs (Kg)	18 (8)					15.4 (7)	18 (8)
MAX WORK LOAD CAPACITY (Vert. position) Lbs (Kg)	100 (45)	200 (91)				200 (91)	400 (182)
MAX WORK LOAD CAPACITY (Horiz. position) Lbs (Kg)	200 (91)	400 (182)				400 (182)	800 (363)
NET WEIGHT Lbs (Kg)	66 (30)	92 (42)	81 (37)	95 (43)	84 (38)	92 (42)	176 (80)

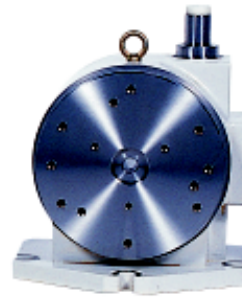
***Note:** If the workload is more than 18lbs. (8Kg) "out of balance" then it may be necessary to either reduce the machine spindle speed in depressing the index cylinder, or use a counterweight to balance the load. Counterweight kits available from stock.



710-300 (S)



710-004



710-102 (S)



710-150

SUPER RAPIDEX ACCESSORY CHART

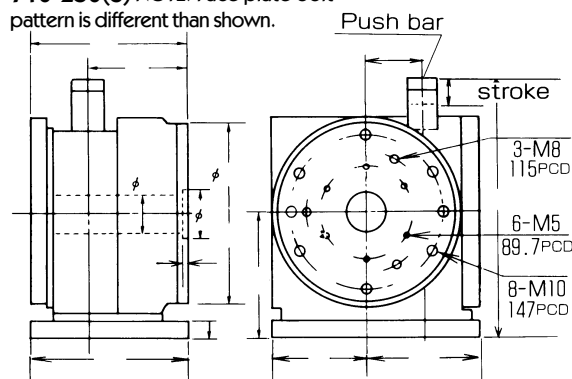
MODEL	710-150	710-002	710-102(S)	710-004	710-104	710-230(S)	710-300(S)
TAILSTOCK (Manual) ADJUSTABLE	553-300	553-301				553-301	553-311
3 JAW LATHE CHUCK	580-106	580-106 (direct mount) 585-108 (requires 710-108 adapter plate)				580-108	580-110 or 112
3 JAW AIR OPERATED CHUCK	583-006	583-006 (direct mount) 583-008 (requires 710-108 adapter plate)				583-008	583-010 or 012
5C AIR COLLET CLOSER AND DRAW TUBE	710-110	N/A					
6" (152mm) SPECIAL CUBE FIXTURE	N/A	710-109					N/A

Note: For dimensional information on the accessories listed above, see our WORKHOLDING section.

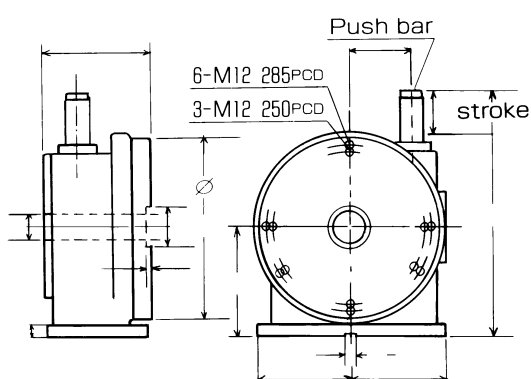
Note: Some other Workholding section accessories may be able to be adapted to the Super Rapidex's, call for more information.

710-150

710-230(S) NOTE: Face plate bolt pattern is different than shown.

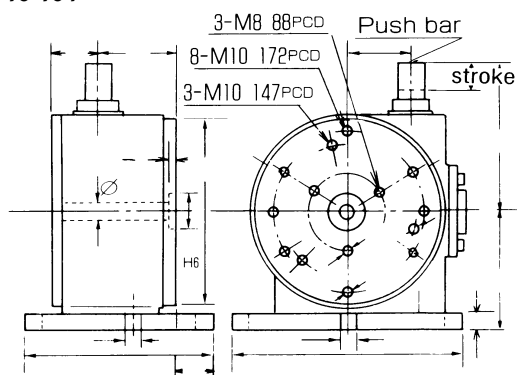


710-300 (S)



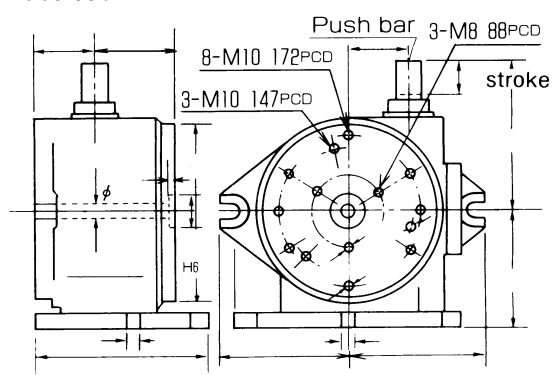
710-102(S)

710-104



710-002

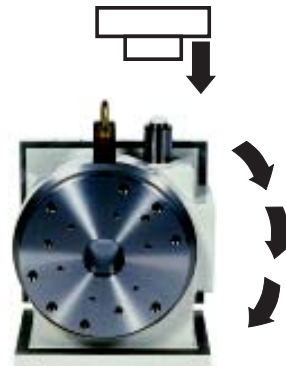
710-004



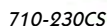
Inch/(mm)

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
710-150	5.94 (151)	3.74 (95)	5.94 (151)	6.69 (170)	1.46 (37)	1.57 (40)	0.67 (17)	4.72 (120)	0.24 (6.2)	3.58 (91)	4.29 (109)	9.72 (247)	2.16 (55)	N/A	N/A	N/A	N/A
710-002	N/A	3.86 (98)	8.03 (204)	8.27 (210)	0.65 (16.5)	1.57 (40)	N/A	5.31 (135)	0.24 (6.2)	5.91 (150)	6.30 (160)	N/A	2.76 (70)	0.65 (16.5)	2.72 (69)	N/A	6.38 (162)
710-102	N/A	3.86 (98)	8.46 (215)	8.27 (210)	0.65 (16.5)	1.57 (40)	0.79 (20)	5.31 (135)	0.24 (6.2)	N/A	N/A	N/A	2.76 (70)	0.65 (16.5)	1.93 (49)	10.24 (260)	6.38 (162)
710-004	N/A	3.86 (98)	8.03 (204)	8.27 (210)	0.65 (16.5)	1.57 (40)	N/A	5.31 (135)	0.24 (6.2)	5.91 (150)	6.30 (160)	N/A	2.76 (70)	0.65 (16.5)	2.72 (69)	N/A	8.19 (208)
710-104	N/A	3.86 (98)	8.46 (215)	8.27 (210)	0.65 (16.5)	1.57 (40)	0.79 (20)	5.31 (135)	0.24 (6.2)	N/A	N/A	N/A	2.76 (70)	0.65 (16.5)	1.93 (49)	10.24 (260)	8.19 (208)
710-230	6.56 (166.5)	4.0 (101.5)	6.28 (159.5)	9.06 (230)	2.28 (58)	2.76 (70)	0.79 (20)	5.71 (145)	0.24 (6)	5.12 (130)	5.12 (130)	13.48 (342.5)	2.76 (70)	N/A	N/A	N/A	N/A
710-300	6.97 (177)	N/A	N/A	12.20 (310)	2.05 (52)	2.76 (70)	0.79 (20)	7.28 (185)	0.24 (6.2)	6.30 (160)	6.46 (164)	16.46 (418)	4.21 (107)	0.71 (18)	N/A	N/A	N/A

MODEL	R	S	T
710-150	N/A	1.50 (38)	N/A
710-002	N/A	1.38 (35)	0.65 (16.5)
710-102	1.46 (37)	1.38 (35)	0.65 (16.5)
710-004	N/A	3.07 (78)	0.65 (16.5)
710-104	1.46 (37)	3.07 (78)	0.65 (16.5)
710-230	N/A	2.20 (56)	N/A
710-300	N/A	2.95 (75)	N/A

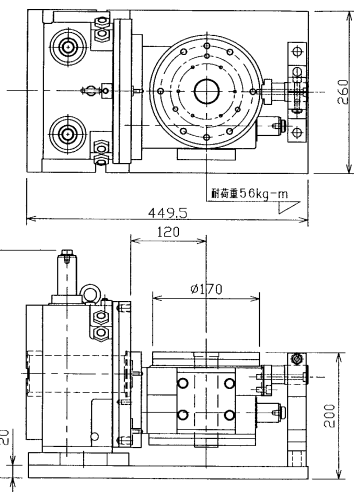


This illustration represents a machine spindle being used to depress the index cylinder of the Super Rapidex creating an index movement.

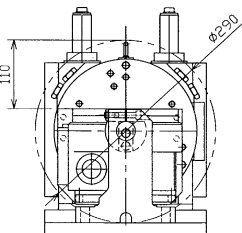


- ▶ Dual index cylinder offers clockwise and counter-clockwise rotation.
- ▶ No problem for off-center loads; no imbalance difficulties
- ▶ Multiples of 5° indexing with a full index cylinder stroke of 45°
- ▶ 1.5 ton braking torque by the dual positive locking mechanism

-
- Counter-clockwise rotation
- Clockwise rotation

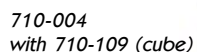
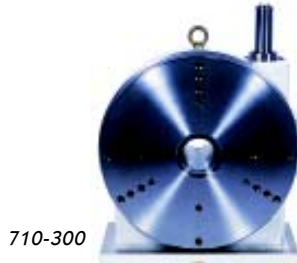


- ▶ The perfect tilting/rotary table featuring movement for the bi-directional tilt positioning
- ▶ The entire unit is mounted to a steel base mounting plate and includes a rigid end support
- ▶ Table surface is 170mm (6.69")



OTHER MODELS

710-104



VISEDEX



COMPLETE CHUCK/VISE & FLAT PLATE INDEXING SYSTEM FOR USE WITH MACHINING CENTERS

FEATURES:

THREE FACE MACHINING IN A SINGLE SETUP

Once the workpiece is set, three faces may be machined

INDEXING

5°~90° (710-164, 201); 5°~45° (710-301). VISEDEX indexes by 90° each time the index cylinder is fully depressed (710-164, 201) 45° (710-301). Minimum index movement is 5°.

EASY INDEXING

VISEDEX can rotate just by depressing the index cylinder. No hydraulic or electric system is required.

HIGH PRECISION

The clearance between workpieces is maintained because the jaw plates are set and the soft-jaws are machined to fit the workpiece shape (preventing the workpiece from lifting up.)

CAN HOLD WORKPIECES OF VARIOUS SIZES

4 dish-shaped workpieces up to a max of Ø 4.96" (126mm) or 4 square-shaped workpieces up to a max of 3.94" x 3.94" (100mm x 100mm)(with the required fixed jaw (KY-16)) can be set at one time.

PROCESS THIN AND IRREGULARLY SHAPED WORK-PIECES

Thin and irregularly shaped workpieces can be machined by gripping with formed soft-jaws, (SJ-70.)

COST EFFECTIVE

Enables simultaneous machining of multiple workpieces. Two or three faces of each workpiece can be machined in one setup maximizing the machining center's processing time.

RIGIDITY

One ton of indexer spindle clamping force enables high-speed cutting, even when hard or exotic materials are machined.

PALLET CHANGERS

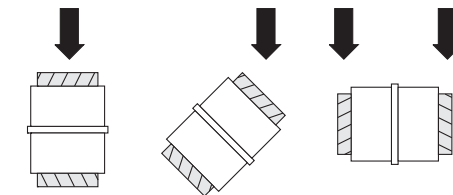
Great for use with manual or automatic pallet changers.



Machining

Machining

Machining

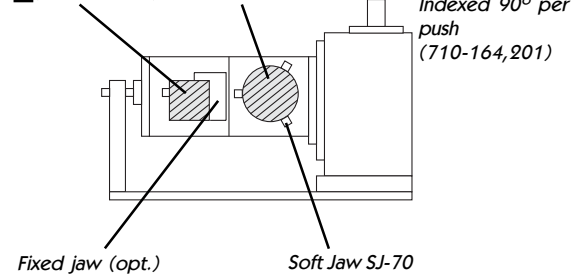


3.94"

□ (100mm max.)

4.96"

Ø (126 mm max)



Index just by depressing index cylinder

Indexed 90° per push (710-164, 201)



4 ea. Y-160 machining chucks
page #74, used for 710-164



710-104 (Super Rapidex, pg. #39,
used for 710-164, 201)



710-300 (Super Rapidex, pg. #40,
used for 710-301)

NOTE: All units include sub-plate & end support.

CNC ROTARY PRODUCTS



VISEDEX 710-164

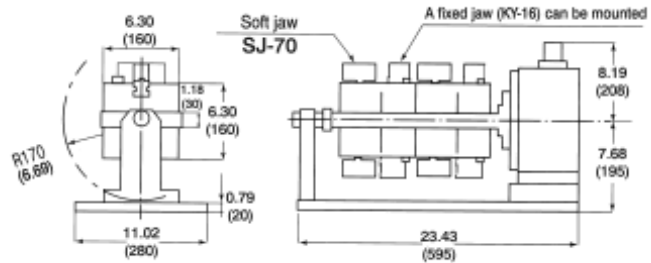
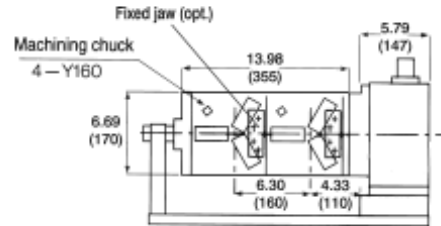
Equipped with:

- ▶ Y-160 machining chucks (4 pcs.)
- ▶ T-handle for machining chuck
- ▶ Handle for manual indexing
- ▶ Sub-plate & bearing end support



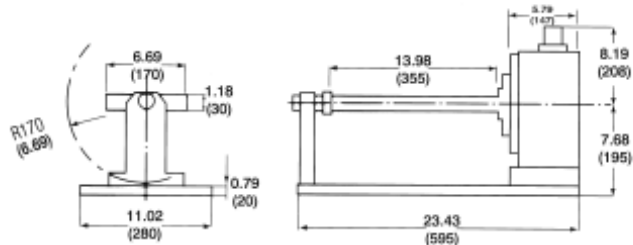
710-164

Inch/(mm)



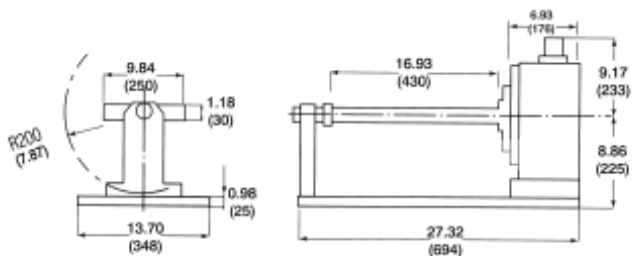
710-201

90° indexing when the index cylinder is pressed once.



710-301

45° indexing when the index cylinder is pressed once.



VISEDEX 710-201 & 710-301

Chuckless type

- ▶ Includes flat fixturing plate
- ▶ Handle for manual indexing (included)



Accuracy:

- ▶ Table center-hole runout 0.0004 (0.01)
- ▶ Table surface runout 0.0004 (0.01)
(Measured 0.59 (15mm) inside the table perimeter)
- ▶ Table surface squareness 0.001 (0.03)
- ▶ Indexing accuracy ±30 seconds
- ▶ Deformation under load002 (0.06)
(Measured at outside edge with 440lb. load)

NOTE: End supports may be purchased separately



710-224



EDM WIRE
ELECTRODES
WIRE GUIDES
EDM TOOLING

EDM MACHINE ACCESSORIES & SUPPLIES

EDM WIRE



FEATURES:

- ▶ High dimensional tolerance ... YUASA WIRE is manufactured to a diametrical tolerance of $\pm 0.001\text{mm}$ and to a roundness accuracy of within 0.001mm .
- ▶ Stable performance ... Both hard (H) and soft (S) grades offer a uniformly constant tensile strength.
- ▶ High surface quality ... YUASA WIRE has a smooth surface, free from scratches, rust or cracking.



Zinc Coated Wire

Compare the difference!

No Acid Corrosion or Damage to Resins

Special treatment avoids acid corrosion on machine and work-piece. Filtered water and pH will not be affected, thereby extending the lifespan of the ion resins.

High surface quality

Special treatment makes the wire surface smooth, free from dirt, rust and grease that causes inefficiency to the electric discharge.

Standard Weight Control

By perfect control in the manufacturing process, we obtain the standard weight per coil that enables us to maintain the stability of processing time and the accuracy of drawing. This assures the quality of wire.

No Weldment

The rough surface caused by welding can affect the quality and accuracy of performance. The welded wire tends to break which wastes time to re-thread.

High Dimensional Precision

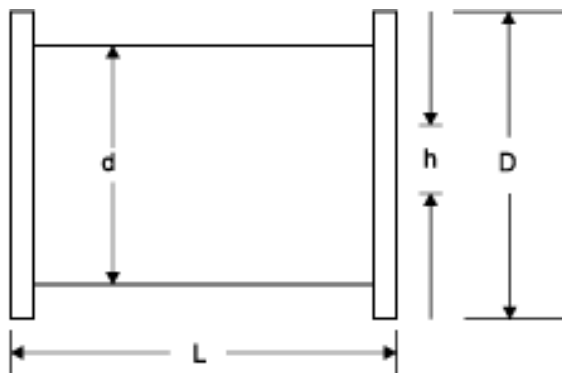
Through the use of special lubricant and diamond dies, wire diameter tolerance and roundness tolerances are both controlled to be exact. No scratching, cracking, twisting or deformation can be found on our wire.

Outstanding Straightness

Yuasa's wire provides outstanding straightness, which ensures successful automatic threading.

WIRE TYPE	DIAMETER		DIAMETER TOLERANCE Inch (mm)	BREAKING ROAD lb. (kg)	TENSILE STRENGTH psi (N/mm ²)	ELONGATION (%)
	Inch	mm				
HARD	0.004	0.10	± 0.00008 (± 0.002)	1.72 (0.78)	142,000 < (980 <)	0.2 <
	0.006	0.15		3.81 (1.73)		
	0.008	0.20		6.91 (3.14)		
	0.010	0.25		10.8 (4.92)		
	0.012	0.30		15.5 (7.07)		
	0.013	0.33		18.8 (8.55)		
SOFT	0.008	0.20		3.10 (1.41)	64,000 < (441 <)	20 <
	0.010	0.25		4.86 (2.21)		
	0.012	0.30		7.00 (3.18)		

EDM WIRE



NOTE: When ordering specify "H"= hard or "S"= soft wire.



Inch/(mm)

(Z) = Zinc coated wire, (P) = Standard Brass uncoated wire								Inch / (mm)
SPOOL TYPE AND ORDER NUMBER H=HARD S=SOFT	WEIGHT OF WIRE ON COIL lbs. (kg)	WIRE DIAMETER	D	d	L	h	NUMBER OF COILS PER BOX	LENGTH OF WIRE ON COIL ft. (M)
(Z)(P)1-10 (H)	3.0 (1.5)	0.004 (0.10)	3.94 (100)	1.97 (50)	3.54 (90)	0.79 (20)	12	59,040 (19,680)
(Z)(P)1-15 (H)		0.006 (0.15)						28,125 (9,375)
(Z)(P)3R-10 (H)	6.6 (3.0)	0.004 (0.10)	5.12 (130)	3.15 (80)	4.33 (110)	0.79 (20)	6	118,080 (39,360)
(Z)(P)3R-15 (H)		0.006 (0.15)						56,250 (18,750)
(Z)(P)3R-20 (H)(S)		0.008 (0.20)						32,964 (10,988)
(Z)(P)3R-25 (H)(S)		0.010 (0.25)						20,796 (6,932)
(Z)(P)5R-20 (H)(S)		0.008 (0.20)	6.30 (160)	3.54 (90)	4.49 (114)	0.79 (20)	4	54,942 (18,314)
(Z)(P)5R-25 (H)(S)	11.0 (5.0)	0.010 (0.25)						34,659 (11,553)
(Z)(P)5R-30 (H)(S)		0.012 (0.30)						24,003 (8,001)
(Z)(P)5R-33 (H)		0.013 (0.33)						20,250 (6,750)
(Z)(P)10-20 (H)(S)	22 (10)	0.008 (0.20)	7.87 (200)	3.54 (90)	5.28 (134)	1.18 (30)	2	109,884 (36,628)
(Z)(P)10-25 (H)(S)		0.010 (0.25)						69,318 (23,106)
(Z)(P)10-30 (H)(S)		0.012 (0.30)						48,006 (16,002)
(Z)(P)10-33 (H)(S)		0.013 (0.33)						40,500 (13,500)
(Z)(P)15-20 (H)(S)	44.0 (20.0)	0.008 (0.20)	9.84 (250)	4.33 (110)	5.51 (140)	1.18 (30)	1	219,768 (73,256)
(Z)(P)15-25 (H)(S)		0.010 (0.25)						138,636 (46,212)
(Z)(P)15-30 (H)(S)		0.012 (0.30)						96,012 (32,004)
(Z)(P)15-33 (H)		0.013 (0.33)						81,000 (27,000)
(Z)(*K)125-10 (H)	7.7 (3.5)	0.004 (0.10)	4.92 (125)	3.15 (80)	4.92 (125)	0.79 (20)	6	38,460 (12,820)
(Z)(*K)125-15 (H)		0.006 (0.15)						24,261 (8,087)
(Z)(*K)125-20 (H)(S)		0.008 (0.20)						16,800 (5,600)
(Z)(*K)125-25 (H)(S)		0.010 (0.25)						14,175 (4,725)
(Z)(*K)160-20 (H)(S)	15.4 (7.0)	0.008 (0.20)	6.30 (160)	3.94 (100)	6.30 (160)	0.87 (22)	4	76,920 (25,640)
(Z)(*K)160-25 (H)(S)		0.010 (0.25)						48,522 (16,174)
(Z)(*K)160-30 (H)(S)		0.012 (0.30)						33,600 (11,200)
(Z)(*K)160-33 (H)(S)		0.013 (0.33)						28,350 (11,200)
(Z)(*K)200-20 (H)(S)	35.2 (16.0)	0.008 (0.20)	7.87 (200)	4.92 (125)	7.87 (200)	0.87 (22)	1	175,815 (58,605)
(Z)(*K)200-25 (H)(S)		0.010 (0.25)						110,910 (36,970)
(Z)(*K)200-30 (H)(S)		0.012 (0.30)						76,809 (25,603)
(Z)(*K)200-33 (H)(S)		0.013 (0.33)						64,800 (21,600)

Chemical composition - 65/35 brass equivalent to alloy JIS - H32630 C2700

* This represents the "DIN" (German) standard, primarily designed for Agie and Charmilles machines.

SPECIAL NOTE: Other coil types along with different weight and diameter may be supplied on request.

EDM MACHINE ACCESSORIES & SUPPLIES

TUBULAR ELECTRODES FOR SMALL HOLE EDM

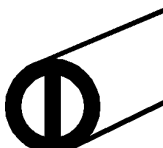
EL-100 SERIES Tubular Electrode for small hole EDM

The copper electrode with rib developed for small hole drilling EDM

Best uses for small hole machining;
also available uses for die-sinking EDM

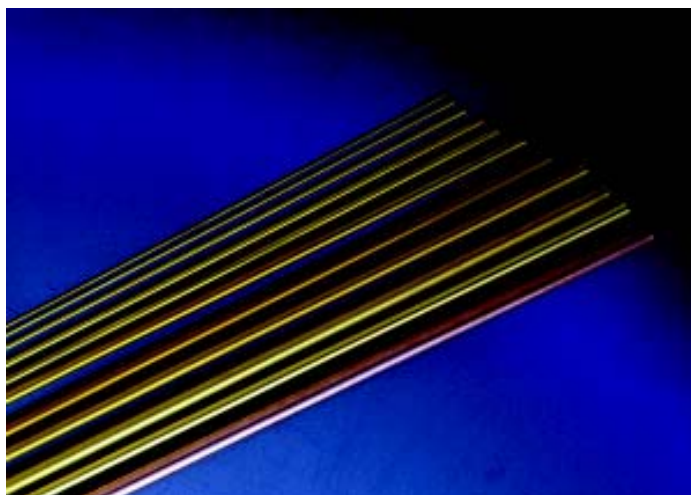
Uses electrode rotating machining,
inside core will be cleaned

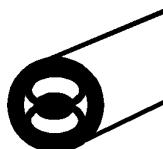


Cross section	Outer dia./Length
	Ø 0.6 (0.024)
	λ 0.1 (0.004) intervals
	Ø 2.0 (0.078)
	ℓ = 300 (11.8)

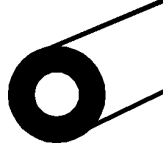
EL-200 SERIES Multihole Tubular Electrode for small hole EDM

Multihole pipe electrodes developed for K-Series small hole drilling EDM



Cross section	Outer dia./Length
	Ø 2.1 (0.083)
	λ 0.1 (0.004) intervals
	Ø 5.0 (0.200)
	ℓ = 300 (11.8)

Cu/Bs Pipe unihole pipe copper or brass pipe

Cross section	Outer dia./Length
	Ø 0.3 (0.012)
	λ 0.1 (0.004) intervals
	Ø 0.5 (0.020)
	ℓ = 300 (11.8)

	SPEC in mm	INSIDE HOLE	LENGTH	TUBES/PKG
BS BRASS TUBE	0.20	0.08	200	20
	0.30	0.12	300-400	20
	0.40	0.15	300-400	20
	0.50	0.18	300-400	20
	0.60	0.20	300-400	20
	0.70	0.20	300-400	20
	0.80	0.30	300-400	20
	0.90	0.30	300-400	20
	1.0	0.30	300-400	20
	1.1	0.30	300-400	20
CU COPPER TUBE	1.2	0.40	300-400	20
	1.3	0.40	300-400	20
	1.4	0.40	300-400	20
	1.5	0.50	300-400	20
	1.6	0.50	300-400	20
	1.7	0.50	300-400	20
	1.8	0.60	300-400	20
	1.9	0.60	300-400	20
	2.0	0.60	300-400	20

WIRE GUIDES

Used to guide wire in electro-discharge machines



M 119
PN# 595-911



M 118
PN# 595-910

M118 APPLICATION: SX, CX, (Upper)
MANUFACTURED BY: Mitsubishi
C834G

M119 APPLICATION: SX, CX, Upper
MANUFACTURED BY: Mitsubishi
B 243G



M 111
PN# 595-913



M 117
PN# 595-914



M 108
PN# 595-912

M108 APPLICATION: Stop screw, F, FL, G;
Opening: Ceramic, stainless
MANUFACTURED BY: Mitsubishi
D 162G (Ceramic)
D 123G (Stainless)

M117 APPLICATION: Die holder: G, H-HA, C, CR
MANUFACTURED BY: Mitsubishi
X 184D226H01

M111 APPLICATION: H1, HA, B, Z SK/AF (Lower)
MANUFACTURED BY: Mitsubishi
B 176G

WIRE GUIDES



M 107
PN# 595-915

M120 APPLICATION:
H1, HA, B, Z, SK/AF
(Upper)
MANUFACTURED BY:
Mitsubishi
B 123G



M 120
PN#595-916

M111 APPLICATION:
Stop screw: H1, A, B, Z/
AF (Upper)
MANUFACTURED BY:
Mitsubishi
C 524G



H 102
PN# 595-903

H 102 APPLICATION: H1-Cut, 203,304,
345, 460 (Lower)
MANUFACTURED BY: Hitachi



Z 141
PN# 595-917

General Purpose
Ceramic guides for small
hole EDM machines

F 120 APPLICATION: α °A, °B, (Upper)
MANUFACTURED BY: Fanuc



F 120
PN# 595-904



F 121
PN# 595-905

F 120 APPLICATION: α °A, °B,
(Lower)
MANUFACTURED BY: Fanuc



S 103
PN# 595-901

S 103 APPLICATION: A300, 500,
AW330, 450, EPOC, AP, BF
MANUFACTURED BY: Sodick
GUIDE (87-3)



F 101 PN# 595-906
F 102 PN# 595-907

F 101, F 102 APPLICATION: O, P, Q,
R, W (Upper & Lower)
MANUFACTURED BY: Fanuc



S 111
PN# 595-902

S111 APPLICATION:
F, K (Upper &
Lower)
MANUFACTURED
BY: Seibe



F 124 PN# 595-909
F 123 PN# 595-908

F 123 APPLICATION: °A, °B (Upper)
MANUFACTURED BY: Fanuc

F 124 APPLICATION: °A, °B (Lower)
MANUFACTURED BY: Fanuc

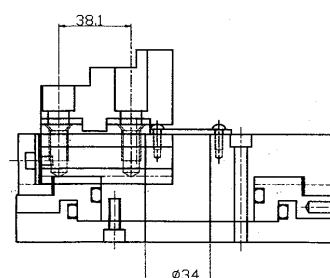
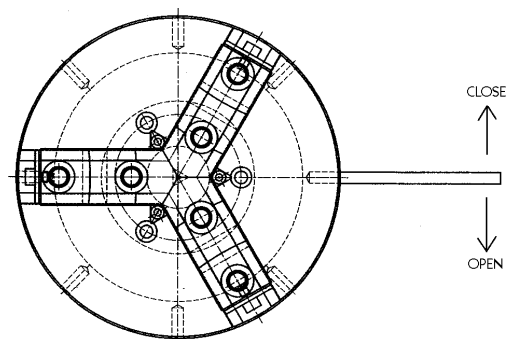
FIXTURING COMPONENTS FOR EDM MACHINES

6 1/2" STAINLESS STEEL 3-JAW CHUCK



714-160

This stainless steel 3-jaw chuck has been specifically designed for use on EDM machines. The scroll is protected from debris by stainless steel covers. The chuck jaws open and close by use of the hand rod engaged anywhere along the chuck ring. Simply move the chuck rod clockwise to open and counter-clockwise to close.



STAINLESS STEEL VISE

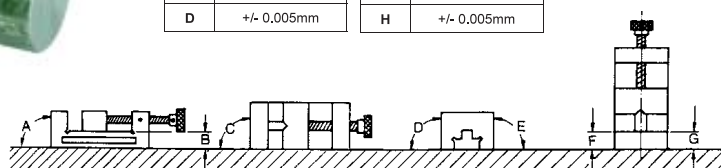
Unit:mm



595-700

ORDER NO.	MATERIAL	LENGTH	WIDTH	JAW OPENING	JAW HEIGHT	HARDNESS
595-700	SK2	176	64	75	30	HRC56°-58°

	TOLERANCE		TOLERANCE
A	+/- 0.004mm	E	+/- 0.005mm
B	+/- 0.005mm	F	+/- 0.005mm
C	+/- 0.005mm	G	+/- 0.005mm
D	+/- 0.005mm	H	+/- 0.005mm



ELECTRODE VISE



595-701



ELECTRODE HOLDERS FOR ELECTRO DISCHARGE MACHINES

Mini vise can be used in fixed electrode holders. The opening with a cross V groove on the vise can do electric discharging either vertically or horizontally, accommodating various shaped workpieces. The max. opening on the vise is 20mm.

ORDER NO.	MATERIAL	LENGTH	WIDTH	JAW OPENING	JAW HEIGHT	HARDNESS	N.W.
595-701	SKS	65	25	20	10	HRC58°-60°	0.8kg

STAINLESS STEEL OK-VISES



OK-VISE wedge clamps made of stainless steel are ideal for firm clamping of parts on EDM machines.

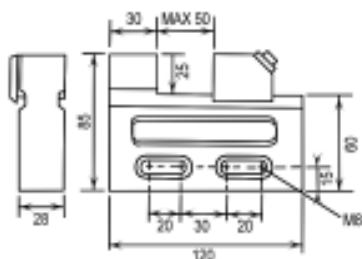
NOTE: Add "SS" to the end of any OK-Vise to select stainless steel material. (See pgs. 62 & 63.)

PRECISION ACCESSORIES FOR EDM MACHINES

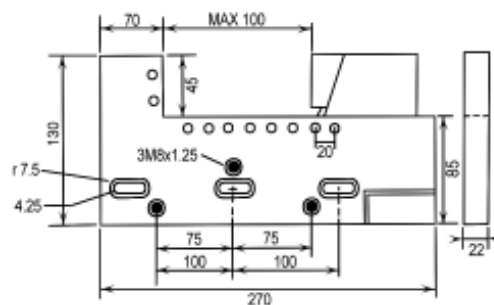
PRECISION STAINLESS STEEL VISE FOR EDM



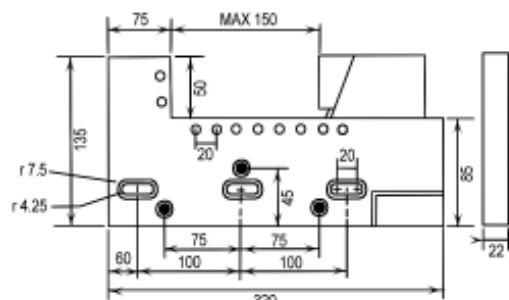
595-801



595-802



595-803



PRECISION				
MODEL	595-801	595-802	595-803	595-804
Parallelism	Within + 0.002mm			Within + 0.003mm
Squareness	Within + 0.002mm			Within + 0.005mm

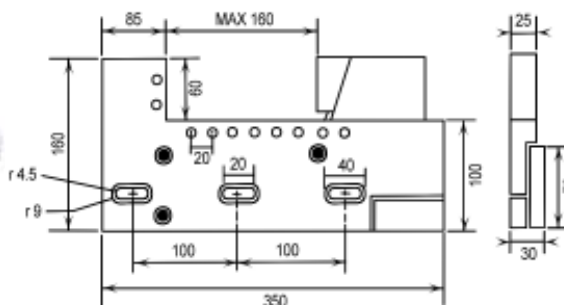
MODALITY				
MODEL	595-801	595-802	595-803	595-804
Jaw Opening	1.97 (50)	3.94 (100)	5.9 (150)	6.3 (160)
Width	1.1 (28)	0.87 (22)	0.87 (22)	1.18 (30)
Jaw Height	0.98 (25)	1.77 (45)	1.97 (50)	2.36 (60)
N.W lbs.(kg)	2.87 (1.3)	9.92 (4.5)	12.1 (5.5)	17.6 (8)
Material	Stainless Steel			
Harden	HRC50°-55°			

ADJUSTABLE PRECISION VISE FOR EDM

- ▶ The vise can be adjusted up and down, left to right and back and forth to make parallelism
- ▶ Strong clamping can withstand high water pressure



595-804



ADVANCED MOLD CLEANING MACHINE CLIPKA ACE



before



after

**MAXIMUM CLEANING RESULTS USING
ELECTROLYSIS AS WELL AS
ULTRASONIC PULSES!**

THE ADVANTAGES OF CLIPKA ACE

1. Very easy to use. "Just set it and forget it" method. Simply place mold in the solution and start the machine.
2. Cleaning process also leaves behind a protective coating, which yields twice as many shots between cleanings.
3. Clipka Ace shortens cleaning process by almost 90%.
4. Clipka Ace utilizes ELECTROLYSIS as well as ULTRASONIC pulses to completely remove all deposits left behind.
5. There is no polishing required after cleaning process is complete.
6. Cleaning solution is environmentally safe and does not use any harsh chemicals.
7. Can significantly reduce the number of imperfect parts due to improper cleaning of mold.
8. Clipka Ace cleaning process will remove all plastic deposits with no negative effect on the mold itself.
9. Mold maintenance is greatly reduced by the non-abrasive method of cleaning.
10. Clipka Ace greatly increases your quality control.

MODEL NUMBER	CPE-30-P	CPS-66-TKP	CPS-115-TKP25
Exterior Size W x D x H (inches)	23.4 x 23.0 x 32.3	31.6 x 25.5 x 30.7	40.1 x 29.1 x 33.4
Cleaning Tank W x D x H (inches)	11.6 x 19.6 x 7.87	16.5 x 22.4 x 13.0	25.6 x 25.6 x 13.0
Cleaning Basket W x D x H (inches)	8.27 x 16.1 x 0.78	10.6 x 16.5 x 0.78	19.6 x 19.6 x 1.18
Tank Capacity (gallons)	7.8	17.4	30.3
Ultrasonic Method	single frequency	Proximity 2 Frequency switching	Proximity 2 Frequency switching
Ultrasonic Frequency	40	Normal 40 (33/44)	Normal 40 (33/44)
Number of Oscillators	8	13	13 x 2
Ultrasonic Output (W)	300	600	600 x 2
Electrolysis Voltage DC (V)	7	6.5	6.5
Electrolysis Current (A)	50	50	250
Power Supply Required	100v	single phase A/C 200v	single phase A/C 200v
Power consumption (W)	1100	1500	3800
Weight of main unit (lbs)	143	270	445
Maximum weight of mold (lbs)	77	88	77
Cleaner Included w/ machine (gallon)	9.5	18.5	31.1



MOLD REPAIR WELDING MACHINE "MOLHEI"

MOLHEI is an excellent welding machine which has been specifically designed to be fast and effective in the repair of metal molds.

The weld is created by fusing a metal paste onto the mold's surface by passing it through a high intensity pulse of energy.

The MOLHEI is a new form of welding technology researched to eliminate heat distortion, shrinkage and strain, which are common problems with other more orthodox forms of welding. The MOLHEI is effective on all types of steel and can repair delicate parts as well as larger areas quickly and safely.

By controlling the power of the energy pulse, welds of various thicknesses can be produced.

Complicated shapes can be easily welded by using standard electrodes or specific ones to suit the application. Mold welding techniques require skill and specifically trained operators, but the MOLHEI can be used by anyone after a minimum of training.



Able to build up areas or repair edges.

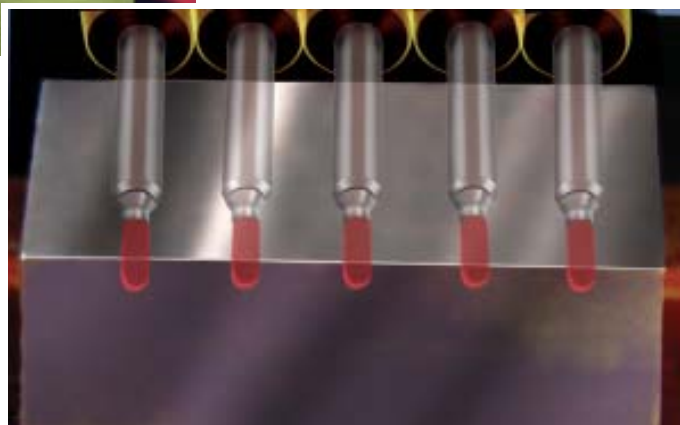
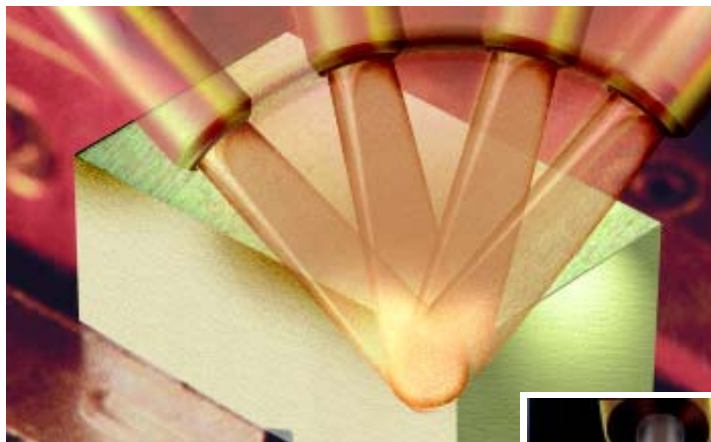
Fast repair of both small and large parts

The finished weld is non-porous

No heat distortion or shrinkage generated

Welding versatility

CONTINUOUS ELECTRIC WELDING





VICES

FIXTURING COMPONENTS

HYDRAULIC CLAMPING

COLLET FIXTURES

EXPANDING MANDRELS

SQUARE MACHINING
CHUCKS

LATHE CHUCKS

AIR OPERATED CHUCKS

LATHE WORK STOP

KEYLESS CHUCK

MODULAR FIXTURING

OK-VISES

770 SERIES STEEL
CLAMP KIT

CHUCK SOFT & SERRATED
JAWS

WORKHOLDING



ACCU-LOCK PRECISION VISE

595 series

1 YEAR
WARRANTY

NEW PN#595-603A
6" VISE WITH 8.9" JAW OPENING!

FEATURES:

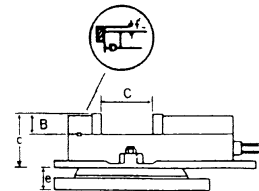
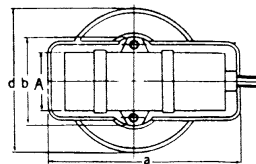
- ▶ Vise bed is flame hardened.
- ▶ Jaw plates are manufactured of tool steel, which is hardened and ground. Body is made of ductile iron which resists deflection or bending.
- ▶ Precision ground surfaces provided on top and bottom of vise bed and swivel base, also on tops of both jaws (in pairs).
- ▶ Screws are hardened and ground, and totally enclosed.
- ▶ Special half-moon nut design eliminates jaw tilt. Each pound of force applied when turning the lead screw directs one -half pound of force vertically, pushing the jaw downward and seating it firmly on the vise bed.
- ▶ Vises have a roller bearing thrust collar, which reduces friction and significantly increases holding power.
- ▶ Swivel base is graduated to 180° in 1° increments.
- ▶ Universal crank handle.



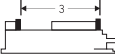
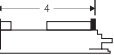
MODEL	JAW WIDTH	MAXIMUM JAW OPENING CAPACITY				JAW HEIGHT	HEIGHT	Inch/(mm)	
		1	2	3	4			LENGTH	WEIGHT lbs. (kg)
595-601	4 (102)	4 (102)	5.98 (152)	8.58 (218)	10.56 (268)	1.37 (35)	3.62 (92)	12.51 (318)	36 (16.3)
595-602	5 (127)	4.72 (120)	7 (178)	10.11 (257)	12.40 (315)	1.49 (37)	3.81 (97)	14.56 (370)	55 (25)
595-603A	6 (152)	8.9 (226)	11.65 (296)	14.45 (367)	17.24 (438)	1.77 (45)	4.60 (117)	16.92 (430)	80 (36)
595-604	8 (203)	7.87 (200)	11.10 (282)	15.39 (391)	18.66 (474)	2.37 (60)	5.62 (143)	22.04 (560)	155 (70)

Opening of jaw

Four jaw opening positions shown in illustration allow extra capacity for a variety of workpiece sizes and shapes.



MODEL	HEIGHT	WEIGHT lbs. (kg)	APPLICABLE VISE	
595-606	1.25 (32)	10 (4.5)	595-601	4 (102)
595-607	1.37 (35)	15 (6.8)	595-602	5 (127)
595-608	1.65 (42)	25 (11.4)	595-603A	6 (152)
595-609	1.92 (49)	70 (32)	595-604	8 (203)

											Inch/(mm)	
MODEL	A	B	C	a	b	c	d	e	f	SHIP WEIGHT lbs. (kg)		
										PLAIN	W/ SWIVEL BASE	
595-601	4 (102)	1.37 (35)	4 (102)	12.51 (318)	6.57 (167)	3.62 (92)	9.05 (230)	1.25 (32)	0.23 (6)	36 (16)	46 (20)	
595-602	5 (127)	1.49 (38)	4.72 (120)	14.56 (370)	7.87 (200)	3.81 (97)	10.03 (255)	1.37 (35)	0.31 (8)	55 (25)	70 (32)	
595-603A	6 (153)	1.5 (38)	8.9 (226)	17.2 (437)	8.3 (210)	4.6 (118)	12 (305)	1.7 (42)	0.2 (6)	79 (36)	105 (48)	
595-604	8 (203)	2.36 (60)	7.87 (200)	22.04 (560)	11.73 (298)	5.62 (143)	14.96 (380)	1.92 (49)	0.47 (12)	155 (70)	225 (100)	
CAPACITY												
595-601	4 (102)			5.98 (152)			8.58 (218)			10.55 (268)		
595-602	4.72 (120)			7.0 (178)			10.11 (257)			12.40 (315)		
595-603A	7.5 (191)			10.25 (260)			13.13 (333)			15.98 (400)		
595-604	7.87 (200)			11.1 (282)			15.39 (391)			18.66 (474)		

ACCU-TILT TABLE



EASY SET-UP!

1. Choose the angle
2. Pick up the gage block or ACCU-TILT table
3. Install the 0.5000" pins in the corresponding holes
4. Set the ACCU-TILT table into your vise with the selected gage blocks or the pin gage on top of the jaws
5. Now it is ready to mount in any workholding fixture or tool: a vise, a manual or air operated collet holder, or a manual or CNC operated collet indexer.

REQUIREMENTS:

Use non-lifting jaw visessuch as ACCU-LOCK™ type. Jaws must be 1.625" height minimum (both same size) and 6" minimum width.

FEATURES:

Precise machines and ground surfaces
Hard anodized 6061 t6 aluminum alloy
Working area is 0.5~4.8"x10.0~9.8". It comes with two machined 5/8" T-slots.
Angularity ± 30 seconds from the jaw plane
Squareness and parallelism 0.0008"
Set of four 0.0005" for corresponding holes
Set of 10 pin gages for increments of 1,2,3,4 and 5 degrees. (For other angles use gage blocks that must be calculated using a sine table for a distance of 5.0000".)



667-100

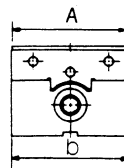
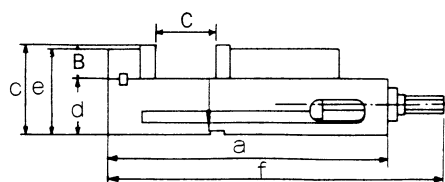
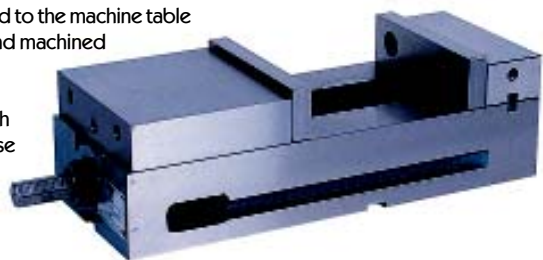
ACCU-LOCK "HIGH PRECISION" VISE

595 SERIES

This very accurate machine vise has been specifically designed for use on CNC machining centers. As with all our machine vises, the lock down principle (see below) is incorporated, ensuring that the movable jaw remains secure during machining operations.

Coolant cannot flow through the vise allowing for multiple vises to be mounted to the machine table together side by side. This principle allows for similar parts to be clamped and machined at the same time with minimum center-to-center machining distance.

Both sides of the vise are precision ground square to bottom and parallel with each other so that the vise can also be used at the vertical position with it's vise bed perfectly perpendicular to the machine table.



Inch/(mm)										
MODEL	A	B	C	a	b	c	d	e	f	Nt. Wt. lbs./ (kg)
595-404	4.02 (102)	1.57 (40)	4.72 (120)	13.07 (332)	4.13 (105)	4.25 (108)	2.68 (68)	3.94 (100)	14.65 (372)	44 (20)
595-406	5.98 (152)	1.73 (44)	5.57 (141)	14.75 (370)	6.60 (154)	4.61 (117)	2.87 (73)	4.37 (111)	17.24 (438)	66 (30)

ACCURACY:

Parallelism: running face to bottom of bed 0.0004" (0.01mm)
Squareness: between running face and jaw plate 0.0012" (0.03mm)
Squareness: both sides to fixed jaw plate 0.0008" (0.02mm)
Parallelism: keyways on bottom of bed to jaw plate 0.0008" (0.02mm)
Squareness: keyways on bottom of bed to jaw plate 0.0008" (0.02mm)
Parallelism: running face of the clamped work to bottom of bed 0.0008" (0.02mm)

WORKHOLDING



SUPER VISE

This newly designed vise features a patented ANTI-LIFT MECHANISM where the movable jaws provide alignment to the workpiece without jaw lift. A **10.8" (275mm) jaw opening** is provided (595-160) and if both jaw plates are set up at the back section of the jaw, **18" (465mm) workpiece capacity** can be realized. The height of the jaw plates is **30% higher** than other vises of the same size. This enables workpieces to be gripped with more surface contact, along with the capacity to hold larger parts in general. **Chip covers** are provided to protect the leadscrew from damage and excess wear. A **special thrust bearing** is installed which virtually eliminates friction and increases clamping pressure. Vise may be positioned **horizontal or vertical**.

The Super Vise is made from **FDC 80,000 (55Kgc_{m₂}) Ductile iron**, and the slide ways are hardened to **HRC 45 (min.)**. This rigid construction prevents the base from distorting. All vises are inspected and certified to a high standard of accuracy.



595-160

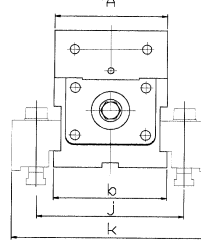
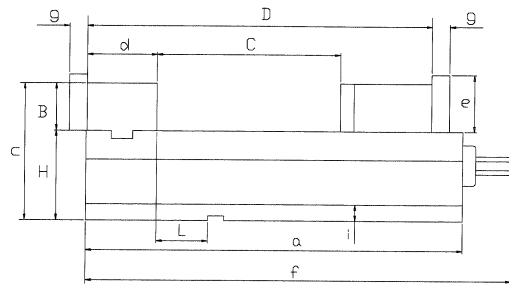
POWER VISE

The Power Vises are designed to provide maximum clamping force (**up to 78,226 lbs./sq.in. (5500 Kg/cm₂)** (595-260). Literally, **tons of pressure** can be applied to the workpiece with very little effort by the operator, and the workpiece cannot be released until the operator does so manually. A **mechanical booster** ensures a steady clamping force against shocks and vibrations during machining operations. Special **disc-springs** are used to aid the mechanical action, providing this high clamping force. **Graduation lines** are provided so that the exact clamping force may be adjusted easily.

As with Super Vise, the Power Vise offers the same **large jaw opening 10.8" (275mm)** and the **30% higher** jaw plates for extra clamping space. **Chip covers** protect the leadscrew and the vise is made from ductile iron.



595-260



Accuracy:
 Parallelism (running face to bottom of bed) 0.0004" (0.01mm)
 Squareness: between running face and jaw plate 0.0012" (0.03mm)
 Squareness: both sides to fixed jaw plate 0.0008" (0.02mm)
 Parallelism: keyways on bed, to jaw plate 0.0008" (0.02mm)
 Squareness: keyways on bed, to jaw plate 0.0008" (0.02mm)
 Parallelism: keyways on bed, to jaw plate 0.0008" (0.02mm)
 Parallelism: running face of test block to bottom of bed 0.0008" (0.02mm)
 Lift can be controlled when clamping test block 0.0006" (0.015mm)

DIMENSIONS:

Inch/(mm)

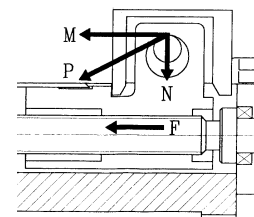
SUPER VISE																		
MODEL	A	B	C	D	a	b	c	d	e	f	g	i	j	k	H	L	KEYWAY	WEIGHT
595-100	3.93 (100)	1.73 (44)	5.03 (128)	11.22 (285)	11.34 (288)	4.02 (102)	5.08 (129)	2.87 (73)	2.05 (52)	16.42 (417)	0.78 (20)	0.71 (18)	5.47 (139)	7.52 (191)	3.35 (85)	1.24 (31.5)	0.55 (14)	37 lbs. (17 kg)
595-125	4.92 (125)	2.09 (53)	7.99 (203)	15.03 (382)	15.2 (385)	5 (127)	6.02 (153)	3.07 (78)	2.48 (63)	19.02 (438)	0.78 (20)	0.71 (18)	6.45 (164)	8.5 (216)	3.94 (100)	2.24 (57)	0.71 (18)	83.6 lbs. (38 kg)
595-160	6.3 (160)	2.09 (53)	10.8 (275)	18.3 (465)	18.9 (480)	6.38 (162)	6.41 (163)	3.39 (86)	2.48 (63)	23.86 (606)	0.78 (20)	0.82 (21)	7.84 (199)	9.92 (252)	4.33 (110)	1.93 (49)	0.71 (18)	118 lbs (54 kg)
POWER VISE																		
MODEL	A	B	C	D	a	b	c	d	e	f	g	i	j	k	H	L	KEYWAY	WEIGHT
595-200	3.93 (100)	1.73 (44)	5.03 (128)	11.22 (285)	11.34 (288)	4.02 (102)	5.08 (129)	2.87 (73)	2.05 (52)	17.56 (446)	0.78 (20)	0.71 (18)	5.47 (139)	7.52 (191)	3.35 (85)	1.24 (31.5)	0.55 (14)	37 lbs. (17 kg)
595-225	4.92 (125)	2.09 (53)	7.9 (203)	15.03 (382)	15.2 (385)	5 (127)	6.02 (153)	3.07 (78)	2.48 (63)	20.21 (514)	0.78 (20)	0.71 (18)	6.45 (164)	8.5 (216)	3.94 (100)	2.24 (57)	0.71 (18)	83.6 lbs. (38 kg)
595-260	6.3 (160)	2.09 (53)	10.8 (275)	18.3 (465)	18.9 (480)	6.38 (162)	6.41 (163)	3.39 (86)	2.48 (63)	24.21 (619)	0.78 (20)	0.82 (21)	7.84 (199)	9.92 (252)	4.33 (110)	1.93 (49)	0.71 (18)	118 lbs. (54 kg)

Special Note: Optional soft jaws are available (both movable and stationary jaw) for machining and clamping odd shaped parts.



Optional Soft Jaws

SOFT JAW PN# (Movable and Stationary)	For VISE Model#
595-120	595-100, 595-200
595-121	595-125, 595-225
595-122	595-160, 595-260



REVERSE TYPE MULTIPLE VISE

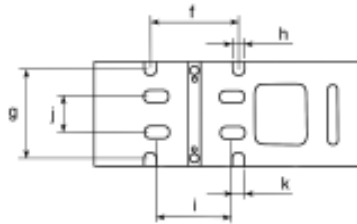
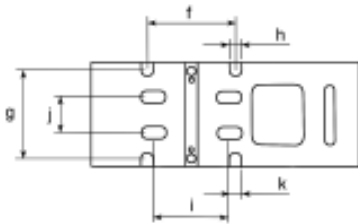
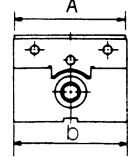
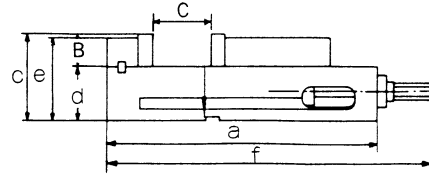
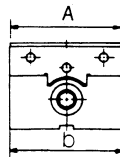
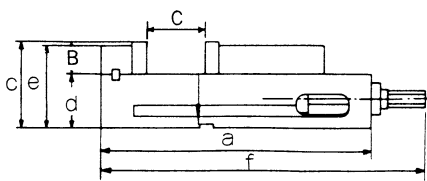
"Multi-ple vises" are designed for maximum workholding versatility in most CNC machining applications. Delivering 0.0005" repeatable clamping accuracy, they are lighter and more easily mounted than any other precision machine vise. With their modular design they are easily convertible for many special clamping situations.



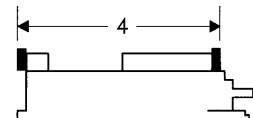
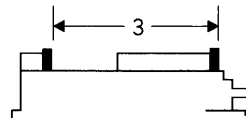
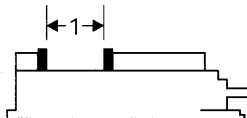
595-360 (REVERSE VISE)



595-460 (STANDARD VISE)



MODEL		A	B	C	a	b	c	d	e	f	g	h	i	j	k	Weight (Kg/lb)
595-360 595-460	inch	6	1.77	6.41	15.06	6	3.187	1.5	17	5	5	0.63	4.25	2	0.71	68.4 lb
	mm	152	45	163	382.5	152.4	80.9	38	431.8	127	127	18	108	50.8	18	31 Kg



WORKHOLDING



DOUBLE CLAMP VISE

The Double Clamp Vise was designed to allow the user to hold **two workpieces in one fixture** instead of just one. All jaws are **removable** and can be replaced by pre-machined soft jaws (see below) for holding odd shaped parts. A single handle can **simultaneously operate two movable jaws and clamp two workpieces of the same or different size**. In addition, the **center stationary jaw can be removed and one large part can be held**. This multi-purpose vise can increase the overall productivity of any CNC machine.

The **ANTI-TILT mechanism** provides movable jaw alignment to the workpiece while eliminating any possible jaw lift. The height of each jaw plate is **30% higher** than other brands, thereby permitting more surface contact with each part, and enabling larger parts to be fixtured. The whole vise body is precisely machined and ground permitting **several vises to be lined up together for maximum production**.

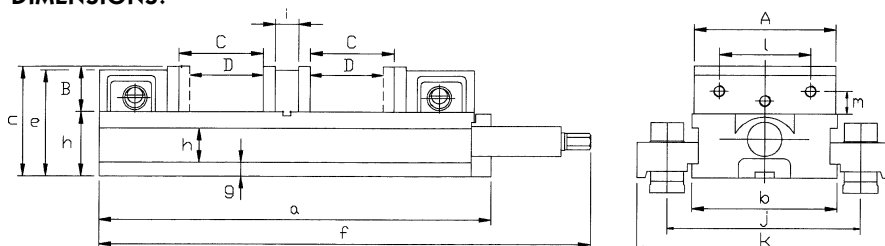


Note: A large single workpiece may be held (up to 10" (254mm) 595-623) by simply removing the center fixed jaw. Rigidity is maintained by use of the brace plate (supplied.)

Accuracy:

Parallelism running face to bottom of bed
0.0004" (0.01mm)
Squareness: between running face and jaw plate
0.0012" (0.03mm)
Squareness: both sides to fixed jaw plate
0.0008" (0.02mm)
Parallelism: keyways on bottom of bed, to jaw plate 0.0008" (0.02mm)
Squareness: keyways on bottom of bed, to jaw plate 0.0008" (0.02mm)
Parallelism: running face of test block to bottom of bed 0.0008" (0.02mm)

DIMENSIONS:



MODEL	Inch/mm															GUIDE BLOCK	WEIGHT lbs. (kg)
	A	B	C	D	a	b	c	H	e	f	g	h	i	j	k		
595-622	4.00 (102)	1.77 (45)	0.7-3.00 (18-76)	0-2.25 (0-57)	15.00 (380)	4.10 (104)	4.34 (110)	2.56 (65)	4.21 (107)	19.57 (497)	0.63 (16)	1.14 (29)	0.98 (25)	4.53 (115)	6.70 (170)	0.71 (18)	44 (20)
595-623	6.00 (152)	2.28 (58)	1.34-4.0 (34-102)	0-2.67 (0-68)	19.5 (495)	6.06 (154)	5.5 (140)	3.54 (90)	5.31 (135)	24.0 (610)	0.71 (18)	1.81 (46)	1.18 (30)	6.50 (165)	8.66 (220)	0.71 (18)	121 (55)



Optional Soft Jaws

CONSTRUCTION:

The Double Clamp Vise is made of Ductile Iron over FCD 80,000 PSI (55 kg/cm²) and the slide ways are hardened over HRC 45. This rigid construction prevents the base from distortion. Squareness and parallelism of jaw plates are within 0.0004" (0.01mm) and 0.0008"/per four inches (0.02mm / per 100mm) (see accuracy chart above.)

They include two movable jaws and one stationary jaw. Soft jaws allow the user to machine the jaws in such a way that conforms to a variety of workpiece shapes and sizes. This modular concept transforms a simple vise fixture into a multi-purpose work holder. Jaw changeover is simple and quick with the release of the lock pin.



Standard Accessories

OPTIONAL SOFT JAWS (Two Movable, one Stationary)	FOR VISE MODEL#
595-620	595-612
595-621	595-613

4-SIDED BLOCK WITH DOUBLE CLAMPING VISE

HORIZONTAL MACHINING CENTER
VERTICAL MACHINING CENTER

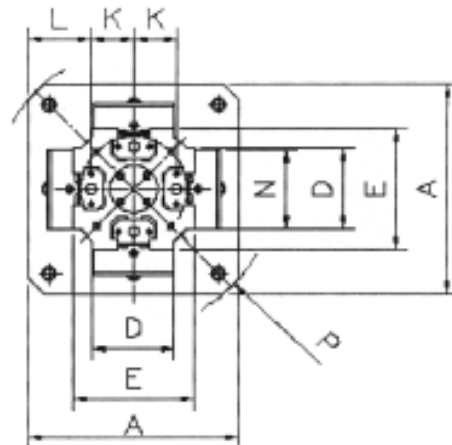
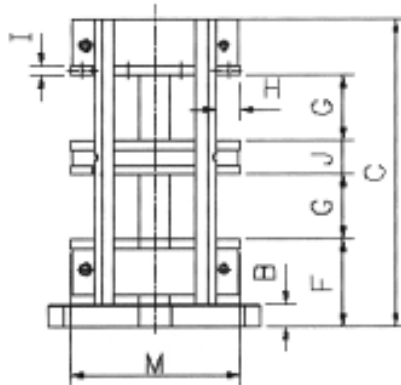


595-623-4

FEATURES:

- ▶ Cast iron integral vise tower -- high rigidity to achieve workpiece stability and to reduce vibration caused by cutting tools
- ▶ No timing problem as it automatically returns to the correct position
- ▶ New chip guard system -- center clamping area is covered 100% of the time
- ▶ Anti-lift mechanism minimizes movable jaw lift
- ▶ 5"x6" (127x152 mm) maximum part capacity in eight clamping stations
- ▶ Opens up to 12" in single station conversion model

DIMENSIONS:



Inch/(mm)

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	WEIGHT lbs. (kg)
595-623-4	15.75 (400)	1.57 (40)	22.83 (580)	6.06 (154)	9.05 (230)	4.84 (123)	4.92 (125)	1.75 (44.5)	0.67 (17)	2.52 (64)	3.17 (80.5)	4.70 (119.5)	12.60 (320)	5.98 (152)	20.67 (525)	529 (240)



Optional Soft Jaws are available.

WORKHOLDING



HIGH QUALITY OK-VISE LOW PROFILE CLAMPS



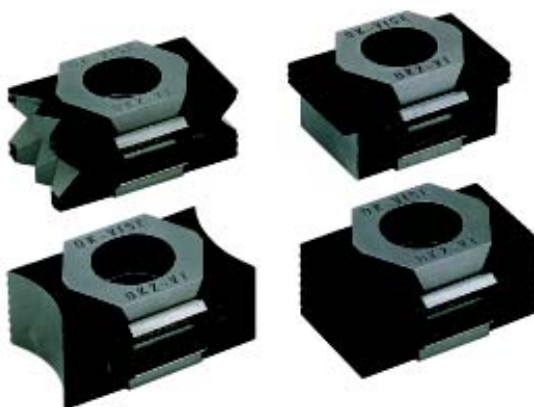
Photo features Model DK2-VT with machined jaws holding round parts firmly for heavy machining operations.



Accurate machining demands a clamp which is completely free of play. The OK-VISE achieves this by its cross-wedge construction, which allows the OK-VISE to lock firmly in every direction as it is tightened down.



OK-VISE clamps are available with larger steel or aluminum jaws.



Jaws can be machined to suit the geometry of the workpiece.



Edge clamps are specifically designed for holding parts on either indexer trunion blocks or tombstone fixtures on HMC's.



Custom workstops are available on request.



Edge clamps are offered in 50mm and 100mm lengths. See page #38 for application examples.

NOTE: Serrated jaws are standard on all models except for BK2-VT+3 which features smooth jaws as standard. Smooth jaws are available for all other models ; specify (S) for smooth: i.e., Order # 215-002S.



Single-wedge OK-VISE low-profile clamp is completely free of play.

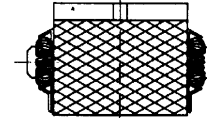
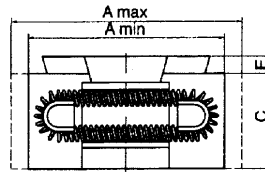
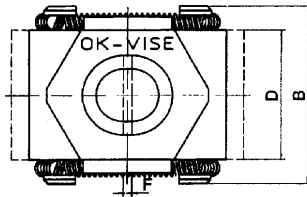


Edge Clamp

Double-wedge OK-VISE low-profile clamp has a pull down action towards the workpiece.



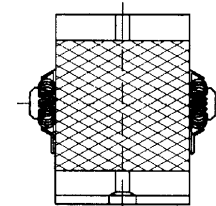
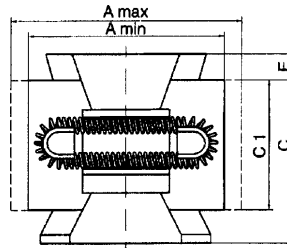
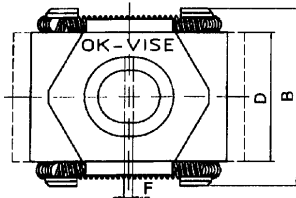
Single wedge with hard jaws



Inch/(mm)

PART NO.	MODEL NO.	A			B	C	D	E	F	MOUNTING SCREW (Included)	PRESSING FORCE OF JAWS lbs.(kp)	HARDNESS OF JAWS HRC
		MIN.	OPTIMUM	MAX.								
215-001	BK2-VT	1.06 (27)	1.14 (29)	1.22 (31)	1.14 (29)	.59 (15)	.83 (21)	.010 (2.5)	.040 (1)	5/16-18x3/4	3300 (1500)	48-52
215-002	DK2-VT	1.65 (42)	1.77 (45)	1.93 (49)	1.61 (41)	.87 (22)	1.18 (30)	.16 (4)	.080 (2)	1/2-13x1 1/4	6600 (3000)	48-52
215-003	FK2-VT	2.24 (57)	2.40 (61)	2.60 (66)	2.20 (56)	1.14 (29)	1.65 (42)	.20 (5)	.120 (3)	5/8-11x1 1/2	13200 (6000)	48-52

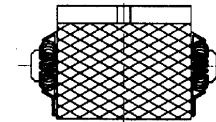
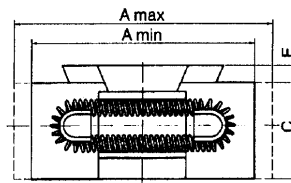
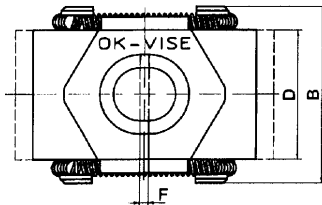
Double wedge with hard jaws



Inch/(mm)

PART NO.	MODEL NO.	A			B	C	C1	D	E	F	MOUNTING SCREW (Included)	PRESSING FORCE OF JAWS lbs.(kp)	HARDNESS OF JAWS HRC
		MIN.	OPTIMUM	MAX.									
215-101	DK2-WT	1.65 (42)	1.77 (45)	1.93 (49)	1.61 (41)	1.42 (36)	1.18 (30)	1.18 (30)	.20 (5)	.080 (2)	1/2-13x1 1/2	11000 (5000)	48-52
215-102	FK2-WT	2.24 (57)	2.40 (61)	2.64 (67)	2.20 (56)	1.97 (50)	1.65 (42)	1.65 (42)	.20 (5)	.120 (3)	5/8-11x2 1/4	19800 (9000)	48-52

Single wedge with machinable jaws

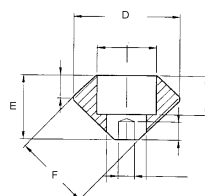
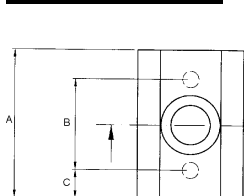


Inch/(mm)

PART NO.	MODEL NO.	A			B	C	D	E	F	MOUNTING SCREW (Included)	PRESSING FORCE OF JAWS lbs.(kp)	HARDNESS OF JAWS HRC
		MIN.	OPTIMUM	MAX.								
215-201	BK2-VT+3	1.30 (33)	1.38 (35)	1.46 (37)	1.14 (29)	.59 (15)	.83 (21)	.010 (2.5)	.040 (1)	5/16-18x3/4	3300 (1500)	30-34
215-202	DK2-VT+5	2.05 (52)	2.17 (55)	2.32 (59)	1.61 (41)	.87 (22)	1.18 (30)	.16 (4)	.080 (2)	1/2-13x1 1/4	6600 (3000)	30-34
215-203	FK2-VT+5	2.64 (67)	2.80 (71)	2.99 (76)	2.20 (56)	1.14 (29)	1.65 (42)	.20 (5)	.120 (3)	5/8-11x1 1/2	13200 (6000)	30-34

NOTE: BK2-VT+3 offer smooth end jaws as standard. All other models feature serrated jaws. Smooth jaws on all models are available on request.

Edge Clamps



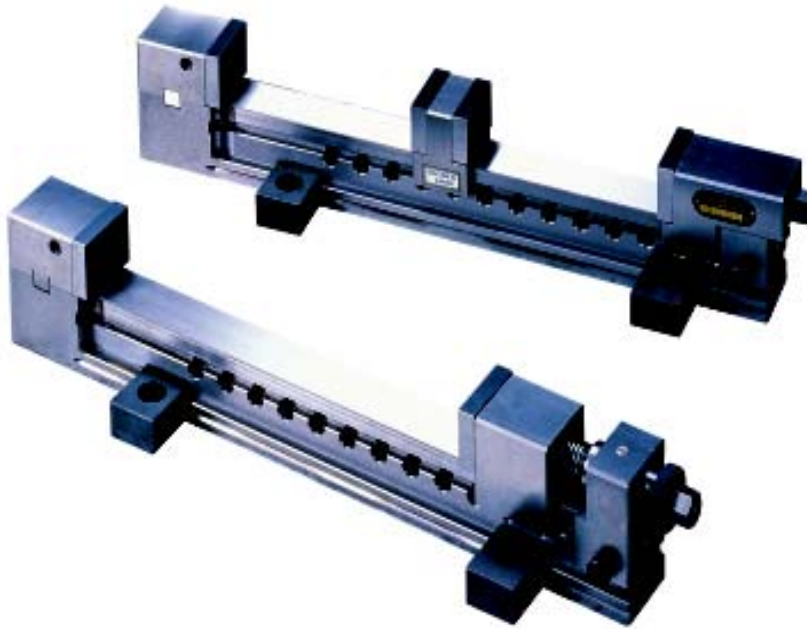
Inch/(mm)

PART NO.	MODEL NO.	A	B	C	D	E	F
215-301	CC-1	1.93 (49)	1.18 (30)	0.37 (9.5)	1.38 (35)	0.84 (21.35)	1.01 (25.36)
215-302	CC-2	3.90 (99)	1.97 (50)	0.37 (9.5)	1.38 (35)	0.84 (21.35)	1.01 (25.36)



MODULAR "FLEX-CLAMP" SYSTEM

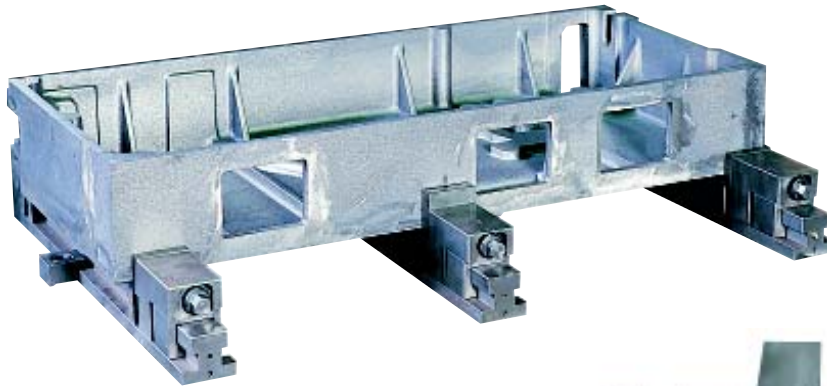
The "Flex-Clamp" system series 680 & 681 has been specifically designed to be used either as a multi-part clamping device, modular fixturing system or flexible jig. Whether your need is for production or prototype, the "Flex-Clamp" is for you.



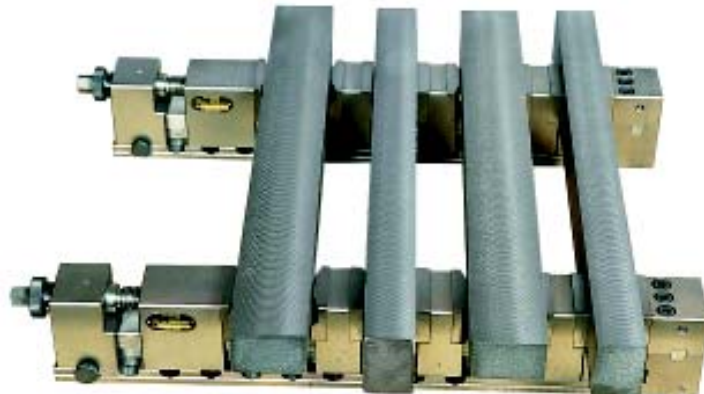
Intermediate block

OPERATION:

The moveable jaw can be located at any of the positioning holes along the vise body, to accommodate a various range of work-piece sizes. Once the moveable jaw is locked in position (with the hardened and ground locating pin), the jaw can travel along the vise bed with the simple turning of the main lead screw. The part is then held securely with no jaw tilt, eliminating any part distortion during the machining process. By utilizing one or more "intermediate blocks", multiple parts can be clamped by using only one "Flex-Clamp". The intermediate blocks are of a "slip-free" design and can be positioned anywhere along the vise bed for TOTAL multi-part positioning flexibility.



Three Flex-Clamp vises holding a large workpiece.



WORK EXAMPLES:



Horizontal application; Flex-Clamps: #1 with an intermediate block and formed jaws. #2 with formed jaws on both the intermediate, moveable and fixed jaws.



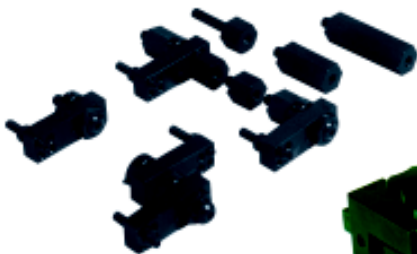
Horizontal application; three Flex-Clamps with multiple intermediate blocks.

FLEX-CLAMP FEATURES:

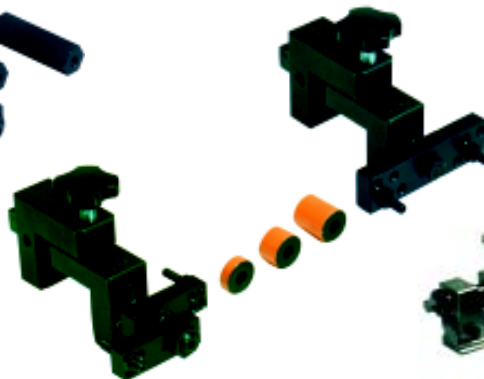
- ▶ The Flex-Clamp provides twice the clamping force of conventional vises.
- ▶ Jaws are narrow, ensuring even clamping pressure the full width of the jaw.
- ▶ Dual moveable jaw locating pins (both sides) offering maximum stability enabling greater clamping force.
- ▶ Full utilization of machines X and Y axes.
- ▶ Large workpieces can be held with multiple Flex-Clamps.
- ▶ Can be used as multi-clamp vise or flexible jig.
- ▶ When the intermediate block is used, multiple parts can be fixtured, with full utilization of the machine's X and Y axes.
- ▶ Odd shaped parts can be quickly and easily held by using combinations of Flex-Clamps, and specially formed jaws.
- ▶ The Flex-Clamp can be mounted to tombstone blocks for horizontal applications; again will allow full use of all machine axis travels.

FLEX-CLAMP WORK STOPS

An wide variety of work stops are available for all the FLEX-CLAMP vises. Below are just a few examples.



Work stops & extensions



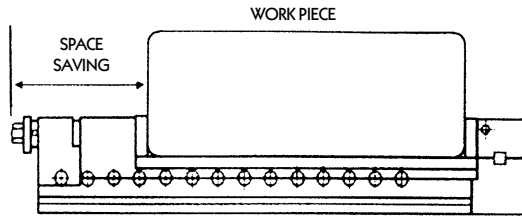
Work stops clamp over vise body.
Also shown are extensions.



Multiple parts aligned with bar-type work stop.

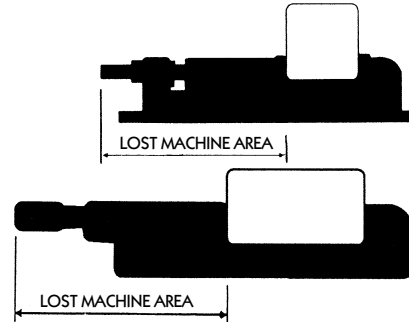
FLEX-CLAMP COMPARISON WITH STANDARD MILLING VISES

FLEX-CLAMP

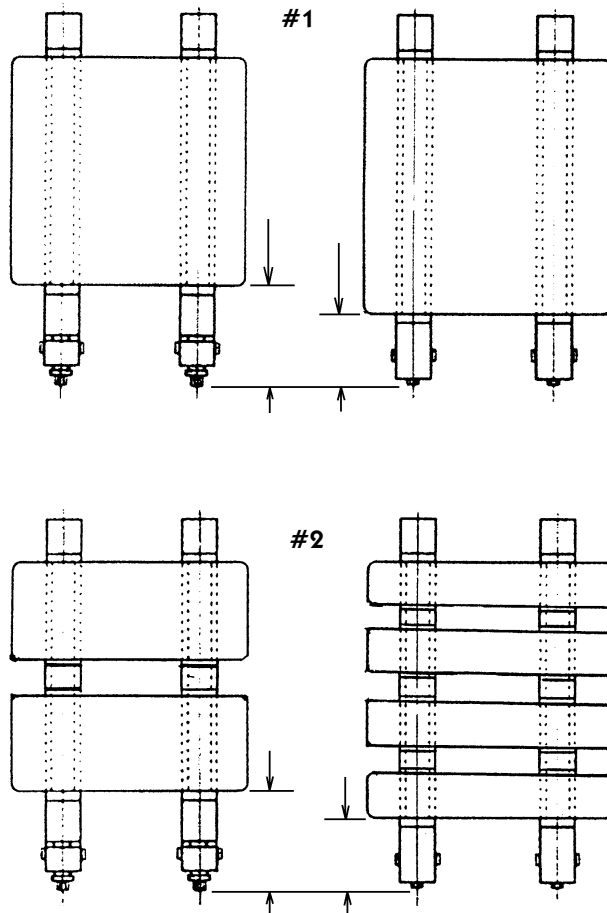


This side view shows the Flex-Clamp providing 50% more clamping area than standard milling vises.

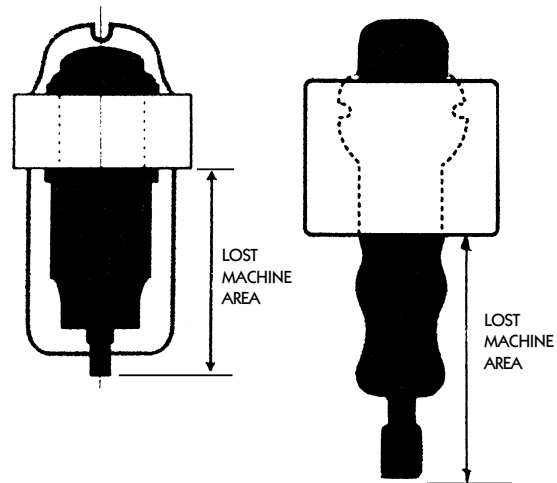
STANDARD MILLING VISE



As you can see in this illustration, over 80% of the overall space used by a conventional vise is the vise body itself leaving only 20% for actual part capacity.

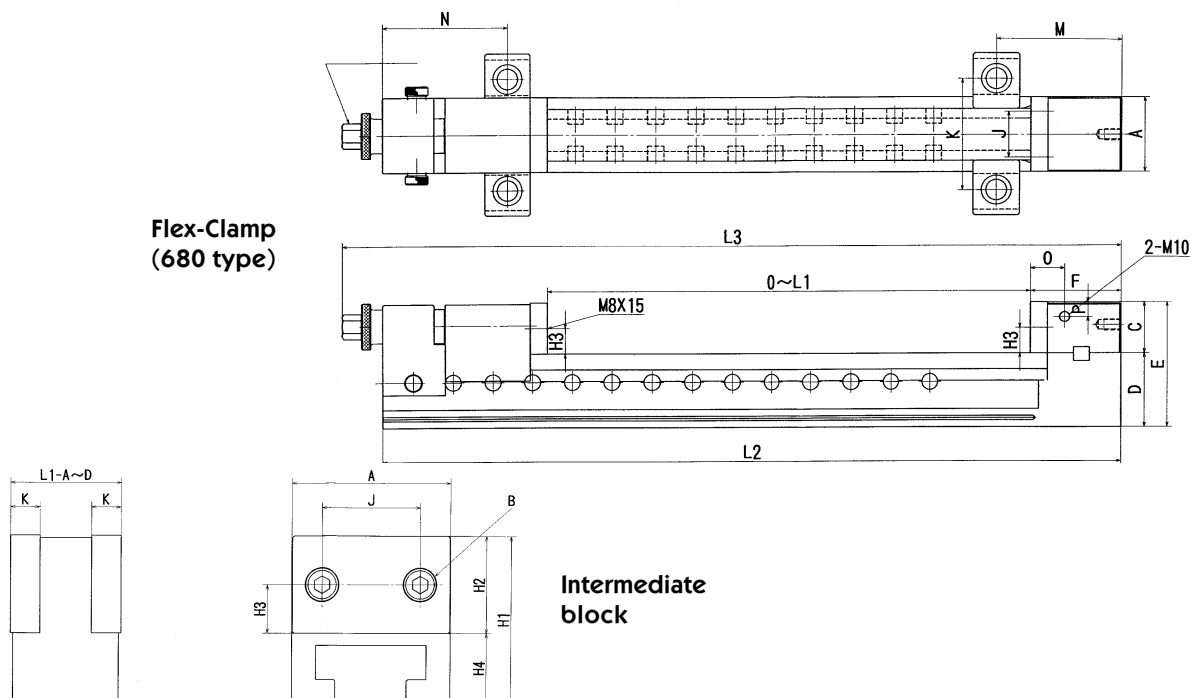


Top view (#1) indicates how the narrow width of the Flex-Clamp body allows for full utilization of the CNC machine's X axis. Illustration #2 shows the use of intermediate blocks holding multiple workpieces, providing full use of the machine's Y axis.



As you can see, the large width of the vise body reduces the machinable travel of the VMC's axis drives. In addition, due to the non-expandability of standard milling vises, large parts cannot be fixtured and special jigs are required.

DIMENSIONAL SPECIFICATIONS:



DIMENSIONS (FLEX-CLAMP)

NOTE: If you choose dimension "K" with square brackets [] then place an "A" at the end of the part number.

Inch (mm)

SERIES #	PN#	A	B	C	D	E	F	a	b	c	d	e	J	H3	K	M	N
050	680-030				2.17												
	680-040	1.97 (50)	3.74 (95)	1.57 (40)	+/-0.0003 (55) (+/-0.01)	0.75 (19)	2.76 (70)	1.42 (36)	1.77 (45)	0.91 (23)	0.59 (15)	1.02 (26)	1.26 (32)	0.79 (20)	3.07 (78) [3.94 (100)]	3.54 (90)	3.15 (80)
	680-050																
065	680-045				2.56												
	680-065	2.56 (65)	4.33 (110)	1.77 (45)	+/-0.0003 (65) (+/-0.010)	0.75 (19)	3.15 (80)	1.57 (40)	1.89 (48)	1.10 (28)	0.59 (15)	1.18 (30)	1.57 (40)	0.89 (22.5)	3.81 (97) [3.94 (100)]	4.33 (110)	4.33 (110)
	680-085																
085	680-080				2.76												
	680-100	3.35 (85)	4.92 (125)	2.17 (55)	+/-0.0006 (70) (+/-0.015)	0.94 (24)	3.94 (100)	1.57 (40)	2.17 (55)	1.10 (28)	0.59 (15)	1.50 (38)	1.97 (50)	1.08 (27.5)	4.45 (113) [4.92 (125)]	5.12 (130)	5.91 (150)
	680-120																

DIMENSIONS, NET WT, STD. ACCESSORIES (FLEX-CLAMP)

PN#	L1	L2	L3	NET WT. lbs (Kg)	STANDARD AND OPTIONAL MOUNTING ACCESSORIES
680-030	0~4.84 (0~123)	11.81 (300)	13.15 (334)	17.6 (8)	CLAMP BLOCK, T-GROOVE NUT (14mm) HEX BOLT (M12) (STD) HOLE FOR SETTING BOLT (M8, M10) & GUIDE BLOCK (OPT)
680-040	0~8.78 (0~223)	15.75 (400)	17.09 (434)	20.9 (9.5)	
680-050	0~12.72 (0~323)	19.69 (500)	21.02 (534)	24.2 (11)	
680-045	0~8.86 (0~225)	17.72 (450)	19.09 (485)	33 (15)	CLAMP BLOCK, T-GROOVE NUT (18mm) HEX BOLT (M16) (STD) HOLE FOR SETTING BOLT (M12, M14) & GUIDE BLOCK (OPT)
680-065	0~16.73 (0~425)	25.60 (650)	26.97 (685)	41.8 (19)	
680-085	0~24.61 (0~625)	33.46 (850)	34.84 (885)	50.6 (23)	
680-080	0~20.87 (0~530)	31.50 (800)	33.43 (849)	72.6 (33)	CLAMP BLOCK, T-GROOVE NUT (22mm) HEX BOLT (M16) HOLE FOR SETTING BOLT (M14, M16, M18) & GUIDE BLOCK (OPT)
680-100	0~28.74 (0~730)	39.37 (1,000)	41.30 (1,049)	83.6 (38)	
680-120	0~36.61 (0~930)	47.24 (1,200)	49.17 (1,249)	94.6 (43)	

DIMENSIONS (INTERMEDIATE BLOCK)

SERIES #	PN#	L1	K	A	J	H1	H2	H3	B	L1-B	L1-C	L1-D
050	680-223	1.77 (45)	0.47 (12) [0.39 (10)]	1.97 (50)	1.26 (32)	2.07 (52.5)	1.38 (35)	0.69 (17.5)	M6	1.57 (40) [0.47 (12)]	1.38 (35) [0.39 (10)]	1.18 (30) [0.39 (10)]
065	680-225	1.97 (50)	0.47 (12) [0.39 (10)]	2.56 (65)	1.57 (40)	3.25 (82.5)	1.57 (40)	0.79 (20)	M8	1.77 (45) [0.47 (12)]	1.38 (35) [0.39 (10)]	1.18 (30) [0.39 (10)]
085	680-226	2.36 (60)	0.59 (15) [0.47 (12)]	3.35 (85)	1.97 (50)	2.95 (75)	1.97 (50)	0.98 (25)	M8	2.17 (55) [0.59 (15)]	1.77 (45) [0.47 (12)]	N/A

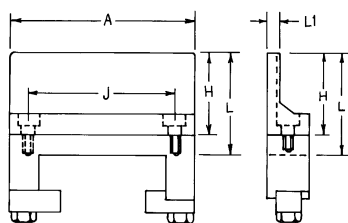
Note: If you choose the "K" dimension with some square brackets [], then you may choose either L1-B, L1-C or L1-D dimensions in square brackets. Add a "B", "C" or "D" to the end of the part number, respectively.

WORKHOLDING

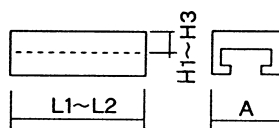
SPECIAL FIXTURING OPTIONS (FOR 680 & 681 SERIES FLEX-CLAMP)

The following fixture options are designed to expand the capability of the Flex-Clamp system. These accessories allow workpieces of various shapes and materials to be clamped quickly and accurately.

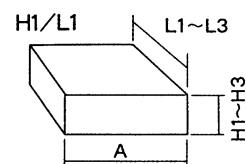
SAUCER FOR WORKPIECE



SAUCER BASE (SLIDING TYPE)



SAUCER PLATE (SLIDING TYPE)



Inch/(mm)

							XXX-101	XXX-102	XXX-103	-1	-2				XXX-201	XXX-202	XXX-203	-1	-2	-3		
SERIES #	PN#	H	L	L1	J	A	H1	H2	H3	L1	L2	A	H1	H2	H3	L1	L2	L3	A			
050	XXX-001	1.06 (27)	1.38 (35)	0.11 (3)	1.38 (35)	1.96 (50)	0.31 (8)	0.79 (20)	1.38 (35)	3.94 (100)	5.51 (140)	1.96 (50)	0.59 (15)	0.79 (20)	1.18 (30)	2.36 (60)	3.94 (100)	5.51 (140)	1.96 (50)			
065	XXX-002	1.30 (33)	1.57 (40)	0.16 (4)	1.96 (50)	2.56 (65)	0.39 (10)	0.98 (25)	1.73 (44)	4.33 (110)	5.91 (150)	2.56 (65)	0.59 (15)	0.98 (25)	1.38 (35)	3.15 (80)	4.33 (110)	5.91 (150)	2.56 (65)			
085	XXX-003	1.57 (40)	1.96 (50)	0.20 (5)	2.56 (65)	3.35 (85)	0.47 (12)	0.98 (25)	1.77 (45)	4.33 (110)	5.91 (150)	3.35 (85)	0.59 (15)	1.18 (30)	1.57 (40)	3.15 (80)	4.33 (110)	6.10 (155)	3.35 (85)			

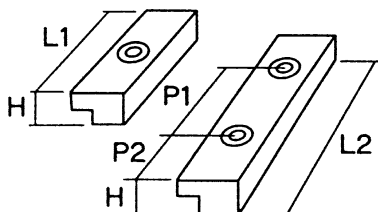
Specify length (-1, -2)

Specify length (-1, -2, -3)

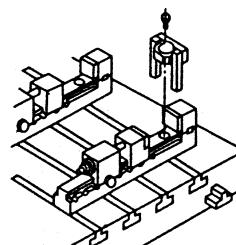
NOTE: (XXX) = Series number (see pg. #67)

You may choose your desired height and length (specify.) Example: if you wanted saucer base with the H2 (height) and L1 (length) and your chosen vise was the 680-085, then the saucer base part number would be 065-102-01.

CLAMP BLOCK FOR SLIDING FLEX-CLAMP



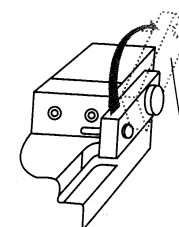
SPECIAL JIG FOR FLEX-CLAMP POSITIONING



Overall height
H1~H5

SERIES #	XXX-301	N/A	XXX-302	NOTE: (XXX) = Series number (see pg. #67)		
	L1	B	L2	P1	P2	H
050	2.56 (65)	M12	5.51 (140)	3.94 (100)	0.79 (20)	0.94 (24)
065	3.15 (80)	M16	5.91 (150)	3.94 (100)	0.98 (25)	1.08 (27.5)
085	3.15 (80)	M16	5.91 (150)	3.94 (100)	0.98 (25)	1.08 (27.5)

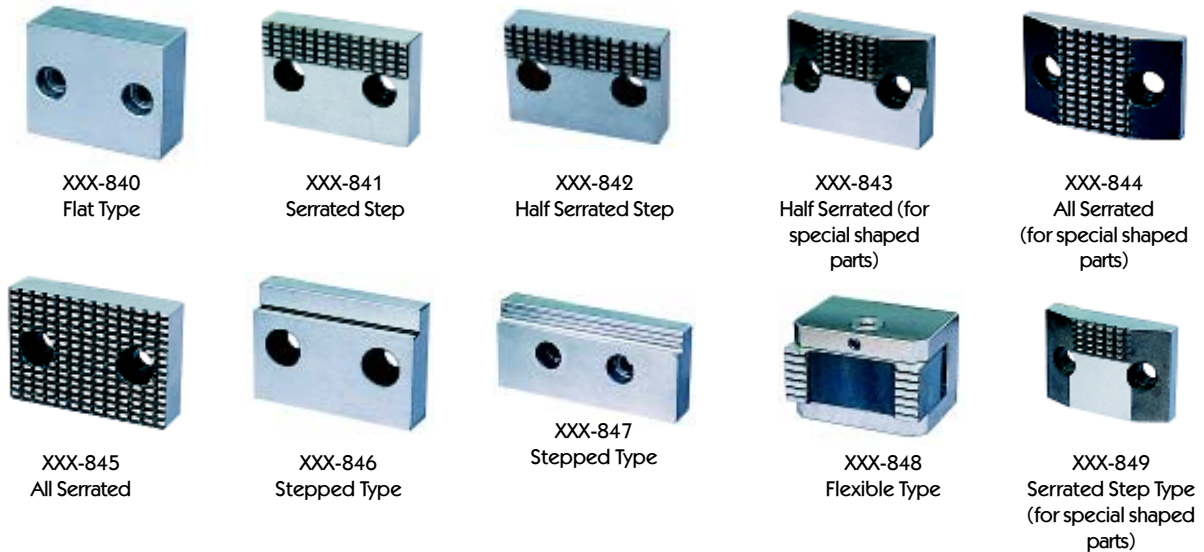
XXX-401	XXX-402	XXX-403	XXX-404	XXX-405
H1	H2	H3	H4	H5
0.47 (12)	0.55 (14)	0.63 (16)	N/A	
N/A	0.55 (14)	0.63 (16)	0.71 (18)	N/A
N/A			0.71 (18)	0.87 (22)



Work stop XXX-850
NOTE: other work stop types available

OPTIONAL JAWS FOR 680 & 681 TYPE FLEX-CLAMP

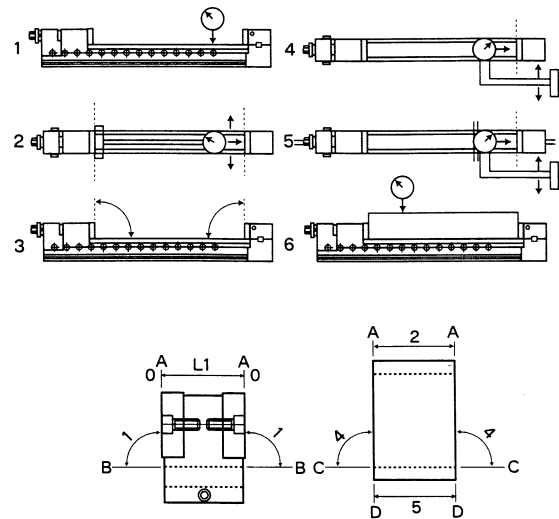
The special jaws pictured below function to grip odd-shaped work pieces as well as parts made from hard and soft materials. The step jaws allow the work pieces to be lifted off the Flex-Clamp bed for through-hole machining, etc.



NOTE: (XXX) = Series number (see pg. #67)

Accuracy Data (680 & 681 series Flex-Clamp)

No.#	INSPECTION DETAILS	J.I.S. O-CLASS	ALLOWANCE
1	Parallelism of bottom face and jaw sliding face	0.0006 (0.015)	0.0004 (0.010)
1	Parallelism of guide rails	N/A	0~0.0006 (0~0.015)
2	Parallelism of jaw faces	0.0008 (0.020)	0.0008 (0.020)
3	Right angle of jaw clamping face to slide jaw sliding face	0.001 (0.030)	0.0004 (0.010)
4	Right angle of bottom guide block to fixed jaw clamping face	0.0006 (0.015)	0.0006 (0.015)
5	Parallelism of right angle of bottom guide block to fixed jaw clamping face	0.0006 (0.015)	0.0006 (0.015)
6	Parallelism between upper surface of the test block and bottom face of frame	0.0008 (0.020)	0.0006 (0.015)



Accuracy Data (Intermediate Block)

1	Right angle (A-B)	0.001 (0.030)	0~0.0004 (0~0.010)
2~5	Parallelism (A-D)	0.0008 (0.20)	0~0.0004 (0~0.010)
4	Right angle (C-A)	0.0006 (0.015)	0~0.0004 (0~0.010)

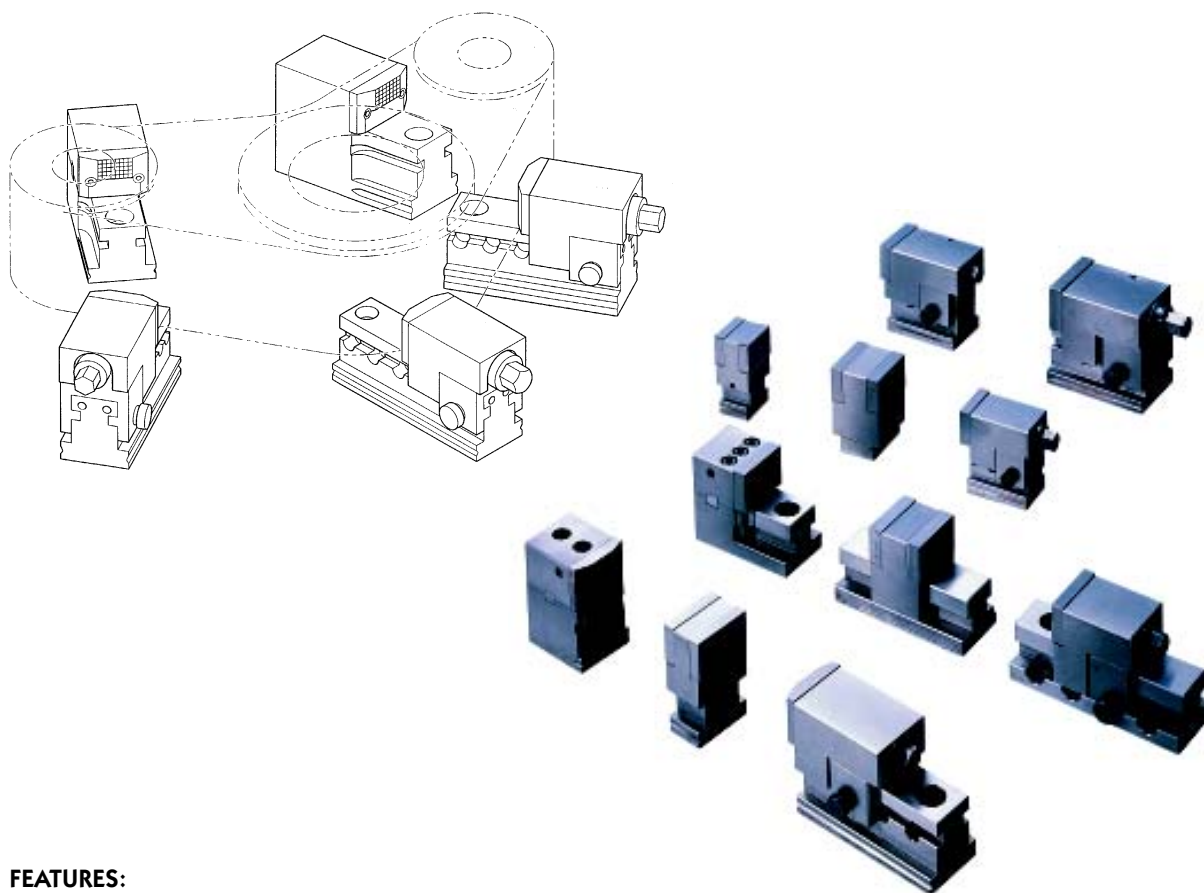
Flex-Clamp Precision Data

			Inch/(mm)			
FLEX-CLAMP TYPE	HEIGHT OF UPPER SURFACE	PRECISION	STANDARD A & B	PARALLEL A' & B'	CLAMPING FORCE	MATERIAL USED
680-030/040/050	D2.17 (D55)	+/-0.0004 (+/-0.010)	0~+0.0004 (0~+0.010)	0~+0.0002 (0~+0.006)	11,000 lbs. (800 kg/cm ²)	High strength Meehanite hardened and ground to rigid standards
680-045/065/085	D2.56 (D65)	+/- 0.0004 (+/-0.010)	0~+0.0004 (0~+0.010)	0~+0.0002 (0~+0.006)		
680-080/100/120	D2.76 (D70)	+/- 0.0006 (+/-0.015)	0~+0.0006 (0~+0.015)	0~+0.0002 (0~+0.006)		



MODULAR FLEX-CLAMP SYSTEM 681 TYPE

The 681 series employs individual movable, intermediate, and fixed jaws which can be positioned at any point of contact with the work piece. This truly modular approach to fixturing allows these reusable components to be used as a jig (for odd shaped parts), set in such a fashion as to hold many small parts (for maximum production) or used in tandem to hold medium to large work pieces.



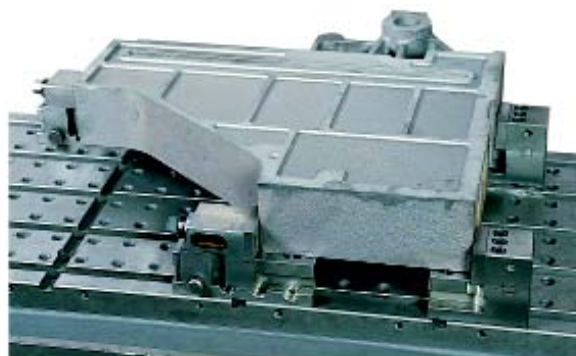
FEATURES:

- ▶ Clamping components can be positioned to form to odd shaped parts.
- ▶ Excellent for multi-part set up, or small lot machining.
- ▶ Y axis of machine can be fully utilized.
- ▶ When multiple Flex-Clamps are used, the X axis can be fully realized.
- ▶ When the middle blocks are used, multiple parts can be fixtured at one time, reducing overall machining time.
- ▶ Flex-Clamp incorporates the "Lock-Down" feature preventing any part lift during machining operations.

WORK EXAMPLES



The photo above shows two stationary blocks and two movable blocks arranged around the part.

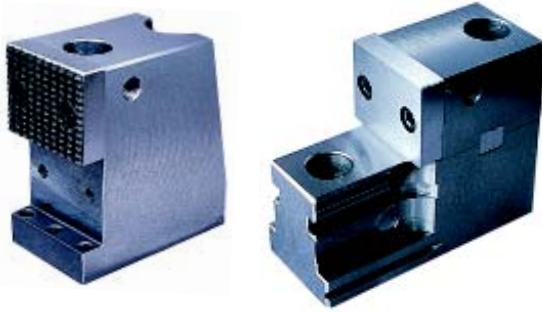


The above photo features two stationary and two movable blocks holding a large odd shaped work piece.

681 TYPE FLEX-CLAMP



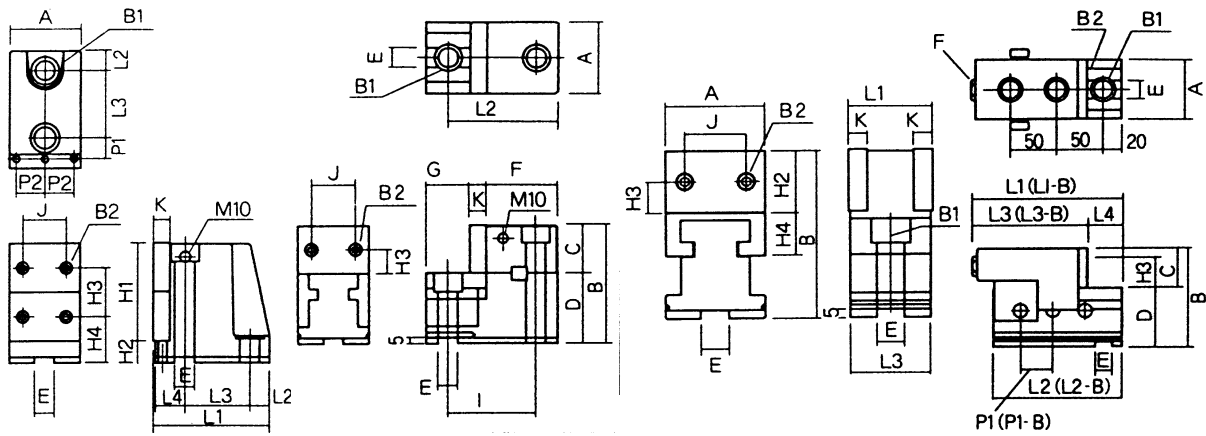
STATIONARY BLOCKS



MIDDLE BLOCK



MOVABLE BLOCK



Inch/(mm)

PN#	681-050	681-065	681-085	PN#	681-150	681-165	681-185	PN#	681-250	681-265	681-285	PN#	681-350	681-365	681-385
L1	3.54 (90)	4.09 (104)	4.69 (119)	L1	4.72 (120)	5.71 (145)	5.71 (145)	L1	1.77 (45)	2.17 (55)	2.56 (65)	L1	6.38 (162)	6.50 (165)	9.49 (241)
L2	0.51 (13)	0.79 (20)	1.38 (35)	L2	3.54 (90)	4.72 (120)	4.72 (120)	K	0.39 (10)	0.47 (12)	0.47 (12)	L2	5.39 (137)	5.51 (140)	8.03 (204)
L3	1.97 (50)	1.97 (50)	1.97 (50)	A	1.97 (50)	2.56 (65)	3.35 (85)	L3	1.57 (40)	2.09 (53)	2.48 (63)	L3	4.09 (104)	4.84 (123)	6.69 (170)
A	1.97 (50)	2.56 (65)	3.35 (85)	F	2.76 (70)	3.15 (80)	3.94 (100)	E	0.55 (14)	0.71 (18)	0.71 (18)	L4	2.28 (58)	1.65 (42)	2.76 (70)
L4	0.91 (23)	1.26 (32)	1.26 (32)	G	1.57 (40)	1.77 (45)	1.77 (45)	A	1.97 (50)	2.56 (65)	3.35 (85)	A	1.97 (50)	2.56 (65)	3.35 (85)
H1	3.15 (80)	3.54 (90)	4.33 (110)	E	0.55 (14)	0.71 (18)	0.71 (18)	J	1.26 (32)	1.57 (40)	1.97 (50)	D	2.17 (55)	2.56 (65)	2.76 (70)
H2	0.59 (15)	0.79 (20)	0.59 (15)	B	3.74 (95)	4.33 (110)	4.92 (125)	B2	M6	M8	M8	B1	M12	M14	M16
H3	1.57 (40)	1.77 (45)	2.17 (55)	D	2.17 (55)	2.56 (65)	2.76 (70)	B	3.74 (95)	4.33 (110)	4.92 (125)	C	1.57 (40)	1.77 (45)	2.17 (55)
H4	0.79 (20)	0.86 (22.5)	1.08 (27.5)	C	1.57 (40)	1.77 (45)	2.17 (55)	H2	1.38 (35)	1.57 (40)	1.97 (50)	E	0.55 (14)	0.71 (18)	0.71 (18)
E	0.55 (14)	0.71 (18)	0.71 (18)	I	2.95 (75)	3.94 (100)	3.94 (100)	H3	0.69 (17.5)	0.79 (20)	0.98 (25)	F	M19	M19	M24
J	1.26 (32)	1.57 (40)	1.97 (50)	L2B	N/A	N/A	N/A	L1-B	1.57 (40)	1.77 (45)	2.17 (55)	L2-B	3.54 (90)	4.33 (110)	4.92 (125)
B1	M12	M14	M16	I-B	N/A	N/A	N/A	L1-C	1.38 (35)	1.38 (35)	1.77 (45)	L3-B	4.02 (1.02)	4.33 (110)	5.67 (144)
K	0.47 (12)	0.59 (15)	0.59 (15)	G-B	N/A	N/A	N/A	L1-D	1.18 (30)	1.18 (30)		L1-B	3.78 (96)	4.41 (112)	5.55 (141)
B2	M6	M8	M8	K	0.47 (12)	0.59 (15)	0.59 (15)	L3-B	5.12 (130)	5.12 (130)	8.27 (210)	P-1	0.98 (25)	1.38 (35)	1.77 (45)
L5	0.79 (20)	1.57 (40)	1.97 (50)	H3	0.79 (20)	0.86 (22.5)	1.08 (27.5)	B-1	M12	M16	M16	P1-B	0.59 (15)	0.79 (20)	0.98 (25)
P1	0.71 (18)	1.10 (28)	0.98 (25)	B1	M12	M14	M16	B	3.74 (95)	4.33 (110)	4.92 (125)	H3	0.79 (20)	0.89 (22.5)	1.08 (27.5)
P2	0.79 (20)	0.98 (25)	1.38 (35)	B2	M6	M8	M8					B	3.74 (95)	4.33 (110)	4.92 (125)

WORKHOLDING



UNIVERSAL 3-WAY ANGLE VISE

550 series

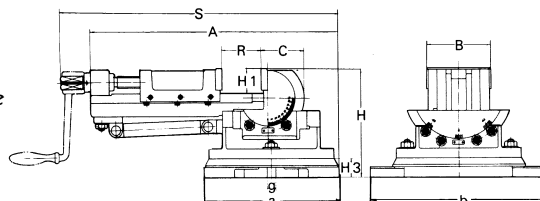
FEATURES:

- ▶ Different from other conventional milling vises, the universal 3-way milling vise makes angular settings in all directions possible.
- ▶ Body of Meehanite steel.
- ▶ Jaw plates are manufactured with tool steel and the screw is made of carbon tool steel.
- ▶ Critical parts are carefully finished and ground.
- ▶ Smooth and easy operation.
- ▶ Upper angle setting base is inclinable from the horizontal position to the vertical position. The lower angle setting inclines 45° in either left or right directions.
- ▶ Each base can be tightly secured by adjusting four bolts (supplied).
- ▶ Precise angular settings in all planes can be read from the mounted scale.
- ▶ Swivel base is graduated in 1° increments (360°).



**2 YEAR
WARRANTY**

Angles can be set in three dimensions. The 360° swivel base is graduated in degrees. The vise can be elevated through 90° from the horizontal to the vertical position, and it can also be tilted on its lower angle setting base up to 45° in both the left and right directions.

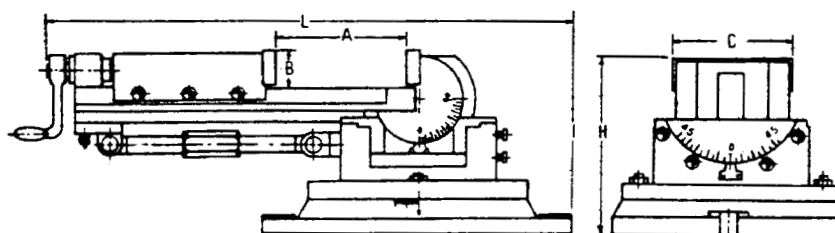


SPECIFICATIONS	MAXIMUM VARIATION (inches)
Jaw parallelism	.0008"
Sliding surface to jaw plate squareness	.0008"
Swiveling surface to base parallelism	.0008"

MODEL	B	R	H1	S	A	C	g	H	a x b	H3	WEIGHT (lbs)
550-060	3 5/32"	3 5/8"	1 3/16"	15 3/4"	14 3/8"	2 17/64"	35/64"	5 43/64"	7 1/64" x 9 7/32"	1 7/64"	32
550-061	4 9/64"	4 21/64"	1 37/64"	19 11/64"	17 1/4"	2 21/32"	35/64"	6 49/64"	8 47/64" x 11 27/64"	1 3/16"	65
550-062	5 1/8"	5 53/64"	2 3/64"	23 13/16"	21 49/64"	3 3/16"	21/32"	8 1/32"	9 27/32" x 12 53/64"	1 19/64"	96

3-WAY ANGLE MILLING VISE

- ▶ Angles can be set in 3 dimensions.
- ▶ Vise swivels 360° around base.
- ▶ Vise can be elevated through 90° from the horizontal to vertical.
- ▶ Vise can be tilted on its lower angle base up to 45° either right or left.
- ▶ Workpiece stays steady and firm at any angle.
- ▶ Super-strong screw clamping mechanism.



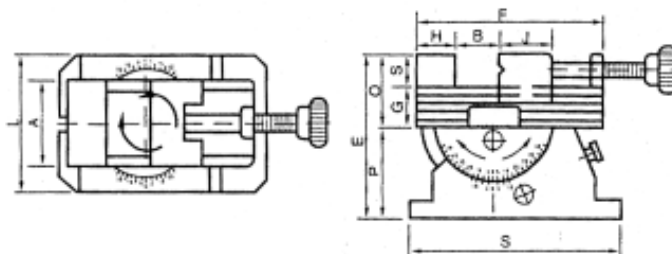
Inch/(mm)

ORDER NO.	JAW			H	L	HEIGHT AT VERTICAL POSITION	GROSS WEIGHT kg	MEAS. CFT
	WIDTH	A	B					
595-060	3.15 (80)	3.54 (90)	1.18 (30)	5.67 (144)	15.75 (400)	15.16 (385)	(C)15	0.7
595-061	4.17 (106)	4.13 (105)	1.50 (38)	6.77 (172)	18.11 (460)	18.50 (470)	(C)32	1.2
595-062	5.20 (132)	5.51 (140)	1.57 (40)	8.07 (205)	24.60 (625)	23.23 (590)	(W)50	1.6

PRECISION UNIVERSAL ANGLE VISE



1. Precision ground vise surfaces for a squareness to within 0.005m/m
2. Horizontal swivel is a full 360 degrees.
3. Vertical positioning from 0 to 45 degrees.
4. Both tilt and rotary graduations for accurate positioning.
5. These features make it ideal for unusual angles on parts.
6. Rigged design for less chatter.

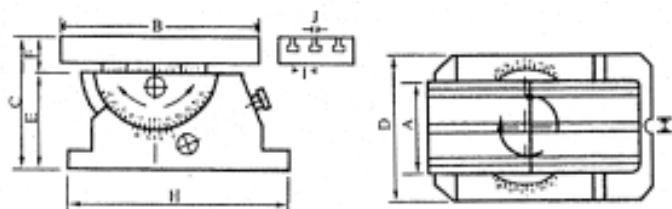


MODEL NUMBER	A	B	C	E	F	G	H	J	L	O	P	S	N.W. lb.(kg)
595-161	2.76 (70)	3.15 (80)	1.18 (30)	6.22 (158)	6.30 (160)	1.26 (32)	1.26 (32)	1.69 (43)	4.33 (110)	2.44 (62)	2.95 (75)	7.09 (180)	28.7 (13)

HIGH PRECISION UNIVERSAL ANGLE PLATE



1. Precision ground table surfaces to insure accurate parts.
2. Horizontal swivel is a full 360 degrees.
3. Vertical positioning from 0 to 45 degrees.
4. Both tilt and rotary graduations for accurate positioning.
5. These features make it ideal for unusual angles on parts
6. T-Slotted table for easy mounting of fixtures.
7. Rigged design for less chatter.



MODEL NUMBER	A	B	C	D	E	F	G	H	I	J	N.W. lb./(kg.)
595-171	3.94 (100)	7.87 (200)	4.92 (125)	4.33 (110)	2.95 (75)	1.97 (50)	.063 (16)	7.09 (180)	1.18 (30)	0.47 (12)	31 (14)
595-172	4.96 (126)	9.84 (250)	4.92 (125)	4.33 (110)	2.95 (75)	1.97 (50)	0.63 (16)	7.09 (180)	1.57 (40)	0.47 (12)	35.4 (16)

WORKHOLDING

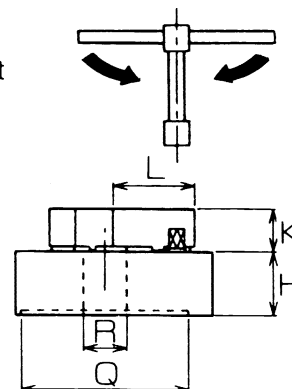
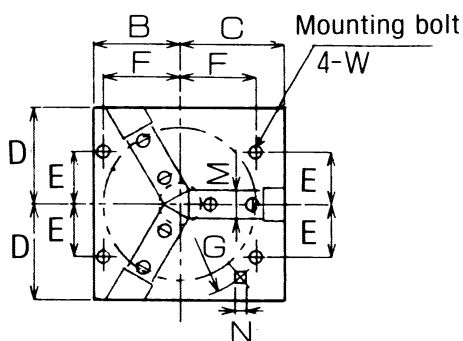
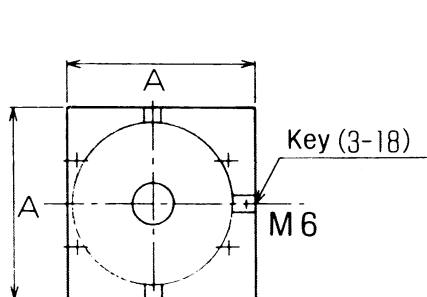


- ▶ Designed for horizontal & vertical machining centers.
- ▶ **Low profile** - enabling more "Z" axis travel use.
- ▶ **Simple operation** by use of the operating screw located on the top face of the chuck.
- ▶ **Free from shavings and dust**, all movable parts are **protected by covers**.
- ▶ **Tongue & groove master jaws**, allowing use of standard soft jaws, for clamping odd shaped work pieces.
- ▶ Fixturing of **square work pieces**, is possible by using this chuck as a two-way jaw unit (vise.)
Note: **fixed jaw** (optional, see page #75) allows the machining chuck to be used as a **modular vise**.
- ▶ **High accuracy**, with spur gear jaw drive and formed jaws, with repeatability within 0.0004" (0.01mm.)
- ▶ **Jaw operating gear** is located on **top of the chuck body**, allowing for easy access.
- ▶ **Chucks can be linked together** for multiple chuck use (see pg. #75), and mounted on a sub plate.
- ▶ **Three sizes available**, 6.30" (160mm) (Y-160); 7.87" (200mm) (Y-200); 11.81" (300mm) (Y-300.)



SPECIFICATIONS				
MODEL	JAW STROKE	GRIPPING FORCE lbs. (kg.)	GRIPPING RANGE	WEIGHT lbs. (kg.)
Y-160	0.39 (10)	5,940 (2,700)	0.59~4.96 (15~126)	31 (14)
Y-200	0.60 (15)	7,040 (3,200)	0.78~6.81 (20~173)	42 (19)
Y-300	0.98 (25)	8,360 (3,800)	1.57~10.47 (40~266)	100 (45)

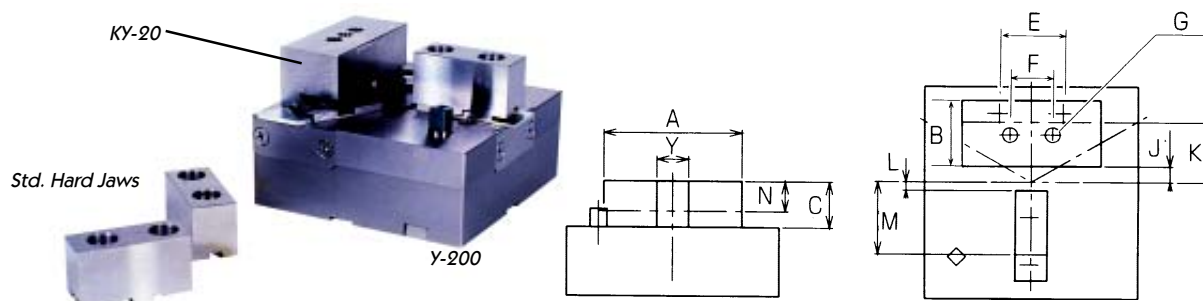
SOFT JAW DIMENSIONS			
K	L	M	PART NUMBER
1.61 (41)	2.76 (70)	1.18 (30)	SJ-70
1.69 (43)	3.35 (85)	1.18 (30)	SJ-85
2.13 (54)	4.52 (115)	1.77 (45)	SJ-115



BODY DIMENSIONS										MOUNTING BOLT		
MODEL	A	B	C	D	H	R	Q	N	G	E	F	W
Y-160	6.30 (160)	2.76 (70)	3.54 (90)	3.14 (80)	2.56 (65)	1.30 (32.5)	4.59 (116.5)	0.47 (12)	2.99 (76)	0.83 (21)	2.48 (63)	M6
Y-200	7.87 (200)	3.54 (90)	4.33 (110)	3.94 (100)	2.56 (65)	1.77 (45)	6.70 (170)	0.47 (12)	3.90 (99)	1.77 (45)	3.14 (80)	M8
Y-300	11.81 (300)	5.51 (140)	6.30 (160)	5.91 (150)	2.56 (65)	4.13 (105)	10.63 (270)	0.47 (12)	5.79 (147)	3.15 (80)	4.72 (120)	M10

FOR USE AS A TWO-WAY VISE

The Machining Chuck may be used as a **modular vise** when the fixed jaw (optional, see below) is used in place of two of the movable chuck top jaws. Simply remove two of the chuck's top jaws and place the fixed jaw over the dowel pins provided. This will locate the fixed jaw to the chuck body. Both the fixed and movable jaws are **machinable** to conform to your specific workpiece. Additional soft jaws may be purchased (see pg. # 74) making the machining chuck a truly **modular chuck/vise in one fixture**.



OPTIONAL FIXED JAW

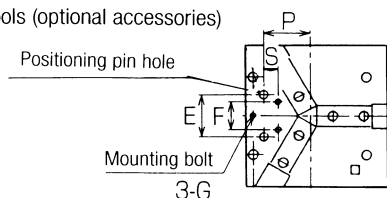
Inch/(mm)

ORDER NO.	JAW			H	L	HEIGHT AT VERTICAL POSITION	GROSS WEIGHT kg	MEAS. CFT.
	WIDTH	A	B					
595-060	3.15 (80)	3.54 (90)	1.18 (30)	5.67 (144)	15.75 (400)	15.16 (385)	(C)15	0.7
595-061	4.17 (106)	4.13 (105)	1.50 (38)	6.77 (172)	18.11 (460)	18.50 (470)	(C)32	1.2
595-062	5.20 (132)	5.51 (140)	1.57 (40)	8.07 (205)	24.60 (625)	23.23 (590)	(W)50	1.6

FIXED JAW MOUNTING DIMENSIONS

MODEL	E	F	S	P	G
Y-160	2.76 (70)	1.18 (30)	0.39 (10)	2.09 (53)	M6
Y-200	2.35 (60)	1.57 (40)	0.79 (20)	2.56 (65)	M8
Y-300	2.35 (60)	4.72 (120)	0.79 (20)	4.13 (105)	M10

Fixing tools (optional accessories)

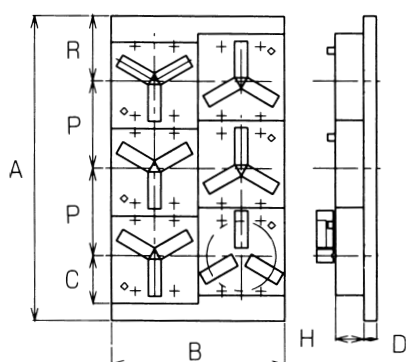


MACHINING CHUCKS CAN BE LINKED

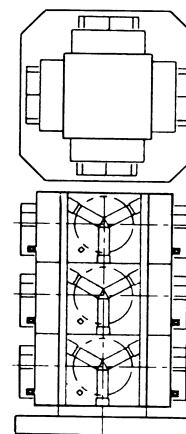
Chucks can be combined by mounting them together on a sub-plate - examples shown below - (for a VMC) or a Tombstone (for an HMC.) All Machining Chucks are produced to exacting tolerances, enabling this type of use.

Example of use (tool block)

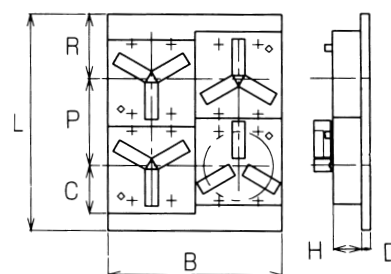
6-vise type (6P-Y160 · 6P-Y200)



Y-200 (4 ea.)



4-vise type (4P-Y160 · 4P-Y200)

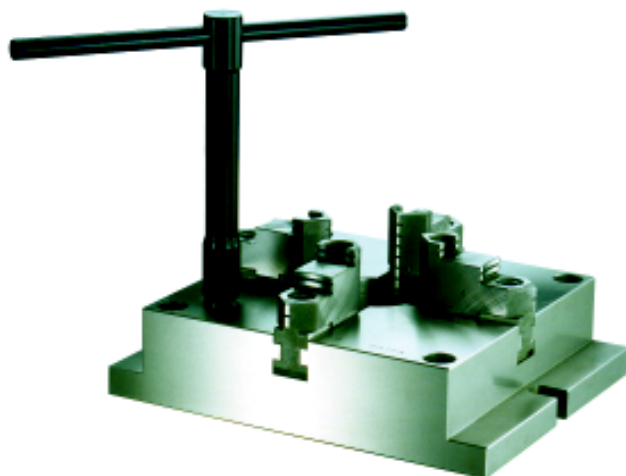


Inch/(mm)

MODEL	A	B	C	D	H	P	R	L
Y-160	22.05 (560)	12.60 (320)	3.54 (90)	0.79 (20)	2.56 (65)	6.30 (160)	4.72 (120)	15.75 (400)
Y-200	27.56 (700)	15.75 (400)	4.33 (110)	0.79 (20)	2.56 (65)	7.87 (200)	5.91 (150)	19.69 (500)

WORKHOLDING

FOUR JAW MACHINING CHUCK

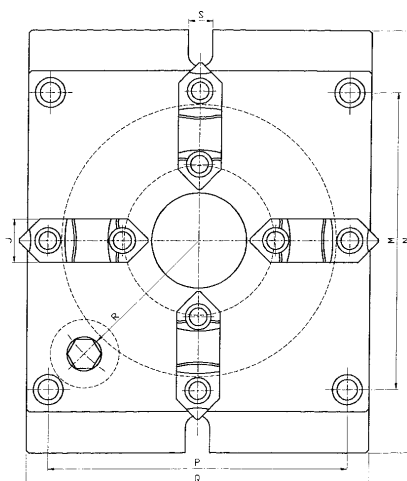
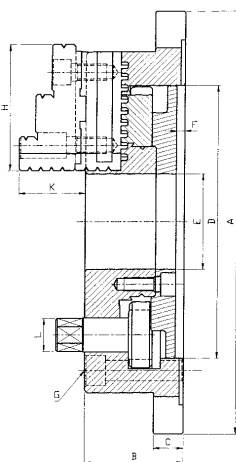


FEATURES:

- Four jaw scroll type square chuck
- Super thin design to maximize "Z" axis travel
- Simple mounting to vertical or horizontal machining centers
- Standard American tongue & groove master jaws with reversible and removable top jaws
- Solid Meehanite construction
- Soft jaws are available
- All chucks are precision ground to exacting tolerances
- High tolerance (from work table to chuck reference points) is 0.001" (0.03mm) for all chucks with the same specifications
- Top mounted operating screw for easy chuck operation
- Scroll is protected from dirt and debris

SPECIFICATIONS:

Jaw Repeatability: 0.0007" (0.02mm)
 Parallelism: 0.0010" (0.03mm)
 Squareness: 0.0010" (0.03mm)
 Chuck Height Tolerance: 0.0010" (0.03mm)

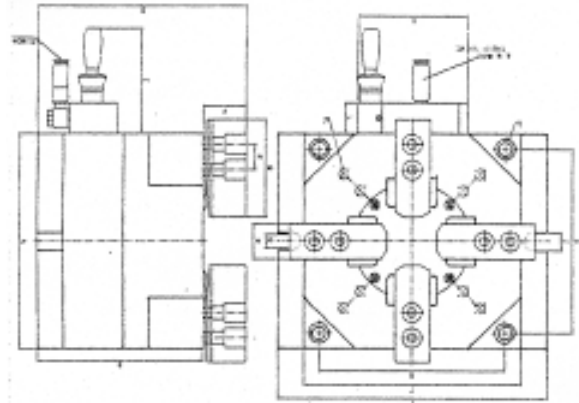


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	MAX. DIA. GRIPPED	
																		EXTERNAL	INTERNAL
595-806	8.46 (125)	22.24 (57)	0.71 (18)	5.12 (130)	1.57 (40)	0.20 (5)	4-M10	2.68 (68)	1.02 (26)	1.54 (39)	0.55 (14)	5.67 (144)	6.50 (165)	5.67 (144)	6.50 (165)	3.00 (66)	0.71 (18)	0.16~5.04 (4~128)	2.17~5.04 (55~128)
595-808	9.84 (250)	2.56 (65)	0.79 (20)	6.30 (160)	2.17 (55)	0.20 (5)	4-M12	3.23 (82)	1.10 (28)	1.69 (43)	0.67 (17)	6.85 (174)	7.87 (200)	6.85 (174)	7.87 (200)	3.27 (83)	0.71 (18)	0.20~6.38 (5~162)	2.44~6.38 (62~162)
595-810	12.20 (310)	2.83 (72)	0.87 (22)	7.87 (200)	2.76 (70)	0.24 (6)	4-M14	3.66 (93)	1.26 (32)	1.97 (50)	0.83 (21)	8.58 (218)	9.84 (250)	8.58 (218)	9.84 (250)	4.06 (103)	0.71 (18)	0.24~7.87 (6~200)	2.83~7.87 (72~200)
595-812	14.96 (380)	3.35 (85)	0.98 (25)	10.24 (260)	3.94 (100)	0.28 (7)	4-M16	4.65 (117)	1.57 (40)	2.20 (56)	0.91 (23)	10.79 (274)	12.20 (310)	10.79 (274)	12.20 (310)	5.31 (135)	0.87 (22)	0.39~10.43 (10~265)	3.54~10.43 (90~265)

PNEUMATIC SQUARE CHUCK



595-816



OPTIONAL ACCESSORIES

- ▶ Pneumatic solenoid valve
- ▶ Hard jaws
- ▶ Air filter lubricator

OPERATING SPECS:

- ▶ Internal cylinder is treated to prevent rust and provides jam free operation do to rust
- ▶ Can be interfaced with cnc via m-code for auto loading
- ▶ Self centering 4-jaw (soft jaws standard)
- ▶ Easy of clamping non equalateral parts and maintain rigid clamping force
- ▶ Simply alignment of multiple chucks with very little set up
- ▶ Flange designed for simple table mounting
- ▶ Soft jaws (standard) can be machined for clamping of odd shaped parts
- ▶ Jaws are of standard cnc lathe type tongue and groove
- ▶ Waterproof design keeps coolant and chips from contaminating internal mechanisms to provide trouble free quality machining

Inch / (mm)

SPEC / MODEL	A	B	C	D	E	F	G	H	I	J
595-816	6.89 (175)	5.31 (135)	3.94 (100)	6.85 (174)	8.86 (225)	6.89 (175)	5.71 (145)	5.71 (145)	0.708 (18)	M10
595-818	8.27 (210)	6.30 (160)	4.21 (107)	7.95 (202)	10.2 (260)	8.27 (210)	7.08 (180)	7.09 (180)	0.708 (18)	M10
595-820	9.84 (250)	7.28 (185)	4.21 (107)	9.09 (231)	12.2 (310)	9.84 (250)	8.46 (215)	8.46 (215)	0.708 (18)	M10

SPEC / MODEL	K	L	M	N	O	P	Q	R
595-816	4-M10	1.02 (26)	3.46 (88)	1.22 (31)	0.47 (12)	1.53 (39)	2.87 (73)	0.787 (20)
595-818	4-M12	1.18 (30)	4.17 (106)	1.38 (35)	0.55 (14)	1.65 (42)	3.74 (95)	0.984 (25)
595-820	4-M16	1.18 (30)	4.17 (106)	1.57 (40)	0.63 (16)	1.81 (46)	4.33 (110)	1.18 (30)

Piston Area (cm ²)						
SPEC / MODEL	A		B		Plunger Stroke inch(mm)	Jaw Stroke (Diameter) inch(mm)
	Push Side	Pull Side	Push Side	Pull Side		
595-816	5 (127)	4.25 (108)	4.80 (122)	4.6 (117)	0.47 (12)	0.216 (5.5)
595-818	7.24 (184)	6.18 (157)	6.93 (176)	6.65 (169)	0.63 (16)	0.29 (7.4)
595-820	10.6 (270)	9.41 (239)	10 (254)	9.49 (241)	0.75 (19)	0.346 (8.8)

SPEC / MODEL	Gripping Force(kg) (Air Press 6kg/cm ²)	Gross Weight lb / (kg)	Inch / (mm)
595-816	4000	55 (25)	0.59-6.89 / Ø15-Ø175
595-818	5500	93.5 (42.4)	0.787-8.27 / Ø20-Ø210
595-820	8400	148 (67.1)	1.3-9.84 / Ø33-Ø250

HYDRAULIC (PNEUMATIC) HOLLOW 2-JAW CHUCK WITH INTERNAL CYLINDER

NEW!

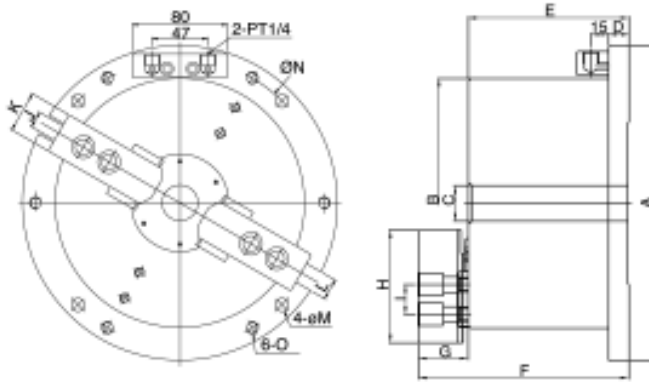


OPTIONAL ACCESSORIES

- ▶ Pneumatic solenoid valve
- ▶ Hard jaws
- ▶ Air filter lubricator

OPERATING SPECS:

- ▶ Internal type cylinder which provides better stability, greater efficiency, takes less space and needs less maintenance
- ▶ Chuck body made of cr-mo alloy steel and hardened guides for high precision and wear resistant performance
- ▶ Can be intergrated to cnc via m-code function to enable auto loading of parts
- ▶ Mounting flange designed for easy t-slot mounting
- ▶ Dust and waterproof design prevents coolant and chips from contaminating internal workings of chuck. Thus less down time and maintenance



SPEC/MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
595-835	176	135	-	15	95	128	33	62	14	10	25	13	Ø13	Ø157	M8
595-836	224	169	25	16	118	158	40	73	20	12	31	18	Ø13	Ø202	M10
595-838	265	210	30.1	17	135	177	42	95	25	14	35	18	Ø13	Ø243	M10
595-840	315	254	60	17	145	191	46	110	30	16	40	18	Ø13	Ø285	M12

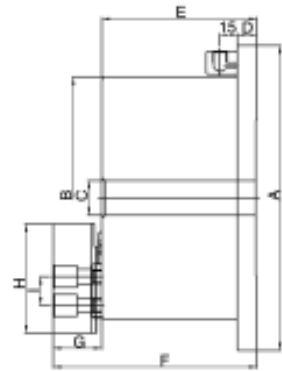
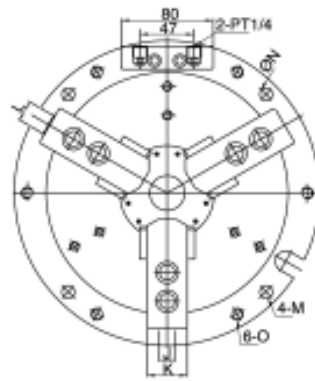
SPEC/MODEL	Piston Area ft ² (cm ²)	Plunger Stroke ft. (mm)	Jaw Stroke (Diameter) ft. (mm)	Max. Gripping Force (kgf)
595-835	11.5 (74)	0.39 (10)	0.21 (5.4)	2600
595-836	15.3 (99)	0.47 (12)	0.22 (5.5)	4000
595-838	24.2 (156)	0.63 (16)	0.29 (7.4)	6300
595-840	31.6 (204)	0.75 (19)	0.35 (8.8)	8600

SPEC/MODEL	Max. Pressure Setting (kg/cm ²)	Gripping Force(kg) (Air Press 6kg/cm ²)	Gross Weight lbs. (kg)	Gripping Range
595-835	14	1300	26.5 (12)	Ø12~Ø135
595-836	15	1800	49.4 (22.4)	Ø15~Ø169
595-838	15	2800	83.3 (37.8)	Ø20~Ø210
595-840	15	3700	125 (56.9)	Ø33~Ø254

HYDRAULIC (PNEUMATIC) HOLLOW 3-JAW CHUCK WITH INTERNAL CYLINDER



NEW!



MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
595-855	6.9 (176)	5.3 (135)	-	0.59 (15)	3.74 (95)	5.04 (128)	1.30 (33)	2.44 (62)	0.55 (14)	0.39 (10)	0.98 (25)	0.51 (13)	O9	O157	M8
595-856	8.8 (224)	6.65 (169)	0.98 (25)	0.63 (16)	4.64 (118)	6.22 (158)	1.57 (40)	2.87 (73)	0.79 (20)	0.47 (12)	1.22 (31)	0.71 (18)	O11	O202	M10
595-858	10.4 (265)	8.3 (210)	1.18 (30.1)	0.67 (17)	5.31 (135)	6.97 (177)	1.65 (42)	3.74 (95)	0.98 (25)	0.55 (14)	1.38 (35)	0.71 (18)	O11	O243	M10
595-860	12.4 (315)	10 (254)	2.36 (60)	0.67 (17)	5.7 (145)	7.52 (191)	1.81 (46)	4.33 (110)	1.18 (30)	0.63 (16)	1.57 (40)	0.71 (18)	O13	O285	M12

OPTIONAL ACCESSORIES

- ▶ Pneumatic solenoid valve
- ▶ Hard jaws
- ▶ Air filter lubricator

OPERATING SPECS:

- ▶ Internal type cylinder which provides better stability, greater efficiency, takes less space and needs less maintenance

- ▶ Chuck body made of cr-mo alloy steel and hardened guides for high precision and wear resistant performance

- ▶ Can be integrated to cnc via m-code function to enable auto loading of parts

- ▶ Mounting flange designed for easy t-slot mounting

- ▶ Dust and waterproof design prevents coolant and chips from contaminating internal workings of chuck. Thus less down time and maintenance

MODEL	Piston Area ft ² (cm ²)	Plunger Stroke ft (mm)	Jaw Stroke (Diameter) ft (mm)	Max.gripping force (kgf)
595-855	11.47 (74)	0.39 (10)	0.21 (5.4)	4000
595-856	15.3 (99)	0.47 (12)	0.22 (5.5)	6000
595-858	24.2 (156)	0.63 (16)	0.29 (7.4)	9500
595-860	31.6 (204)	0.75 (19)	0.35 (8.8)	13000

MODEL	Max.Pressure Setting psi. (Kg/cm ²)	Gripping Force (kgf) (air press 6kg/cm ²)	Gross weight lbs. (kg)	Gripping Range
595-855	241.6 (17)	1300	27.3 (12.4)	12 ~ 135
595-856	270 (19)	1800	50.7 (23)	15 ~ 169
595-858	284 (20)	2800	84.9 (38.5)	20 ~ 210
595-860	284 (20)	3700	127.9 (58)	33 ~ 254

WORKHOLDING



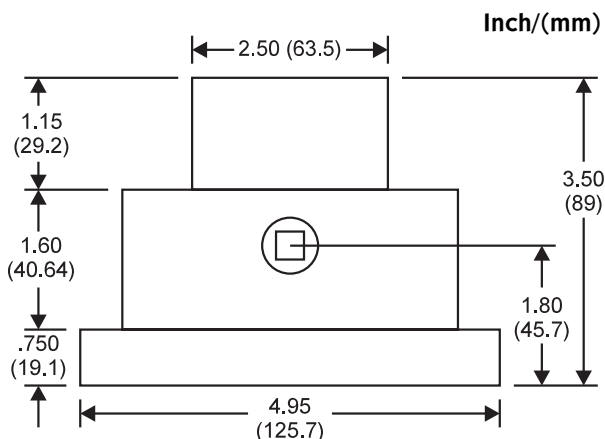
COLLET CHUCKS

MANUAL TYPE FOR 5C, 16C, 3J & 22J COLLETS

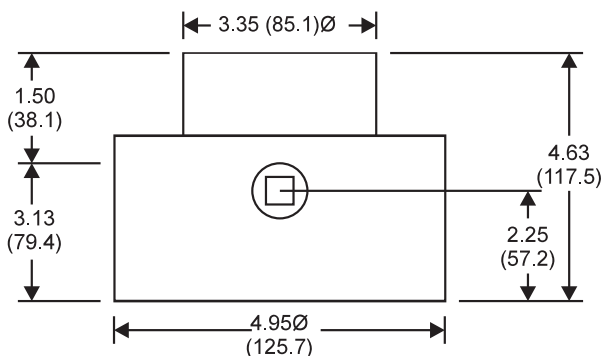
Our manual collet chucks are offered in four types: **5C, 16C, 3J & 22J**. They are designed to be used either stand alone, in multiples or for use on an indexer or rotary table. The collet chucks feature "dead length" holding (with zero part movement), and no "pull back." The collet is closed by turning the cam approximately 90°, using the wrench provided. As the cam rotates, the collet sleeve is lifted closing the collet. The collet remains stationary so that linear tolerances can be maintained. Six mounting holes are provided (5/16" on a 4.12" bolt circle.)



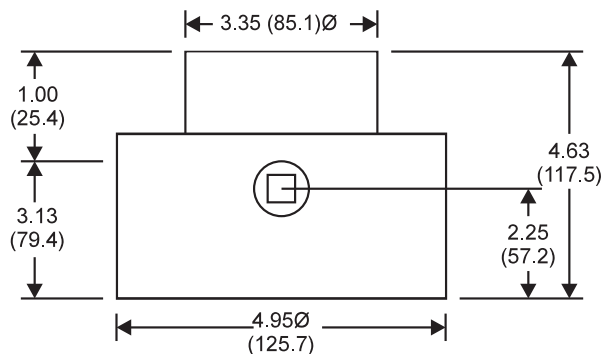
5C style chuck (PN# ACSU-5C)



16C style chuck (PN# ACSU-16C)



3J style chuck (PN# ACSU-3J)



NOTE: 22J collet chuck is available for larger collets with up to 2 1/4" capacity.

COLLET CHUCKS



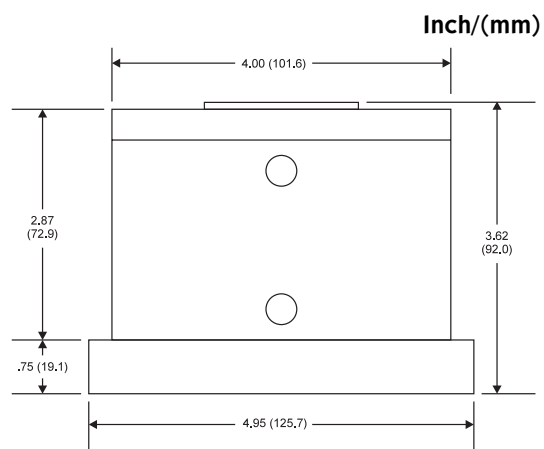
GENERAL INFORMATION

Air Operated (High Torque) for 5C, B42 & B60 Collets

The term "high torque" refers to an air mechanical collet closer which uses an air cylinder and mechanical advantage to collapse the collet. This cylinder uses air pressure to move the piston, which actuates a series of balls and incline planes to increase the force of air pressure against the collet sleeve. The air against the piston in this collet closer does not directly hold the part, but compresses the balls between the inclined planes. The movement of the balls between the inclined planes lifts the collet sleeve, collapsing the collet. This increases the holding power to well above that attained by simple air pressure. The diameter of the piston can be considerably smaller while achieving the same clamping force of a simple air cylinder with a much larger piston. The part to be machined is also held firmly against the base of the fixture and not on a cushion of air.

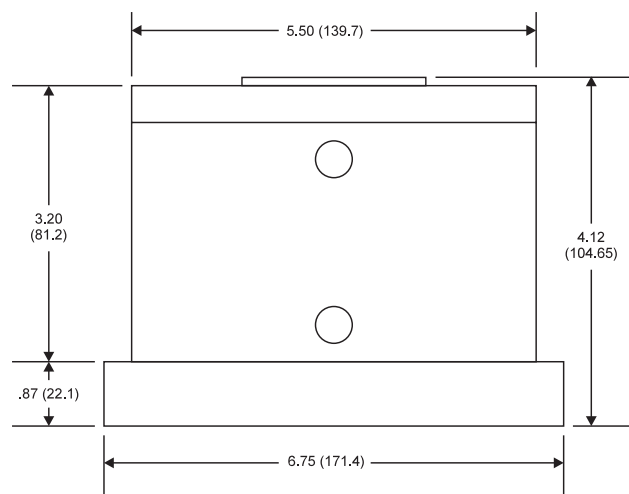
Model# ACHT-5CA

This high torque stationary 5C air collet closer is designed for use on milling, drilling and tapping operations. It can be utilized as single units, or mounted to a plate for multiple operations. They use from 50~100 PSI, depending on the holding power necessary for a particular application.



Model# ACHT-B42A

This high torque stationary air collet closer uses B-42 collets, and has been designed for use on milling, drilling and tapping machines. They can be utilized in a single or multiple fashion.



Inch/(mm)

MODEL #	ACHT-5CA	ACHT-B42A	ACSU-5CA
MAX OPERATING PRESSURE (PSI)	100		
AIR PORTS	1/8" NPTF		
MOUNTING HOLES	Four 5/16" holes on 4.50" bolt circle	Two 3/8" holes on 6.125" bolt circle	Four holes tapped 3/8"-16 on 4.50" bolt circle
WEIGHT lbs. (kg)	6 (2.7)	14 (6.3)	6 (2.7)

Model ACHT-B60A is available for larger collet sizes.

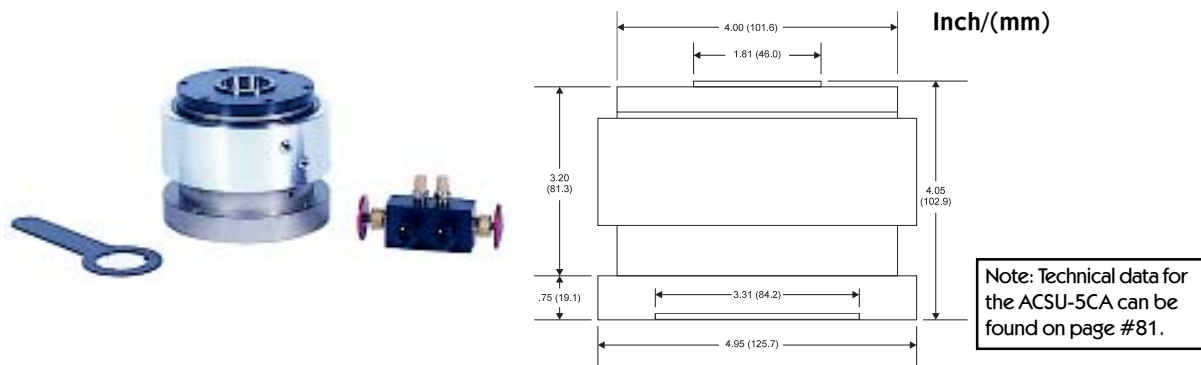
Note: Optional accessories for the ACHT models can be found on page #82.

WORKHOLDING



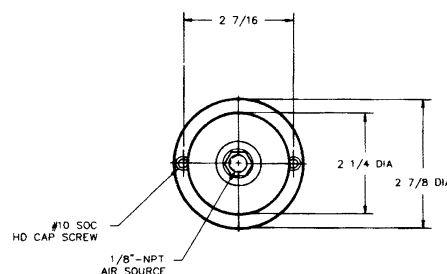
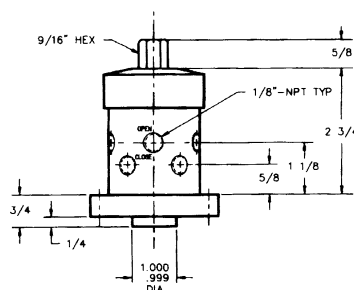
AIR COLLET CLOSER FOR ROTARY TABLE APPLICATIONS (See DMNC) MODEL #ACSU-5CA

This front mounted 5C air operated collet chuck may be used for rotary table and single station applications. The rotary gland remains in place while the air cylinder rotates. This unit comes complete with air valve hoses, fittings and a collet wrench. Note: for use on a DMNC rotary table, a collet chuck adapter plate is required.



COLLET CHUCKS ACCESSORIES FOR ACHT MODELS CENTER CONTROL VALVES

The center control valve has uses for multi-station fixtures of 2,3,4,5,6 or 8 positions. This valve eliminates the need for rotary air couplings and cams to control separate valves, and individual valves for each station. Each time the table is indexed, the holding device being used opens and closes in a pre-determined sequence.



MODEL #	NO. OF STATIONS	OPEN	CLOSED
CCV-01	2	1	1
CCV-02	3	1	2
CCV-03	4	1	3
CCV-04	4	2	2
CCV-05	5	1	4
CCV-06	5	2	3
CCV-07	6	1	5
CCV-08	6	2	4
CCV-09	6	3	3
CCV-10	8	1	7
CCV-11	8	2	6
CCV-12	8	3	5
CCV-13	8	4	4



PN# PV-001
Four way palm valve

"O"-ring kits
for all air
collet closers
are available
through our
parts
department.

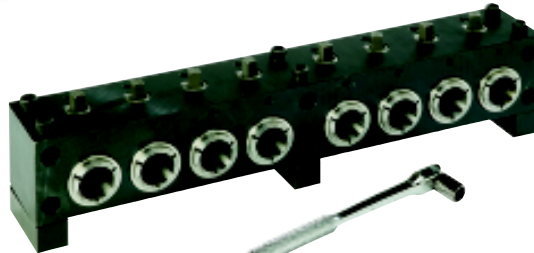
5C MULTI COLLET CHUCK BLOCK



640-404



640-406



640-408

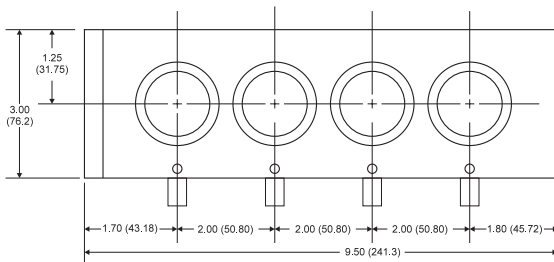
**2 & 3 station
blocks also
available.**

The PN# 640-404 Multi Collet Chuck Block was designed to be used either with a rotary indexer (see page #38) or as a stand alone collet fixture, mounted in a milling vise or similar type fixture. Four, manually operated "dead-length" 5C collet chucks are incorporated into the block. A simple 90° turn of each operating cam collapsing the collet sleeve, will activate the collet mechanism, with zero part movement when clamped.

We now offer our 5C Multi-Collet Blocks in 6 and 8 station. These new models feature the same "dead length" style by use of a cam collapsing the collet sleeve with a simple 90° turn, as in the 4-station block.

Now supplied as standard are three (3) mounting blocks designed to support and raise the Multi-Block so that it may be bolted down to a mounting plate which can then be affixed to the machine table. The Multi-Block now includes drilled holes through the body to allow simple mounting as to a base plate.

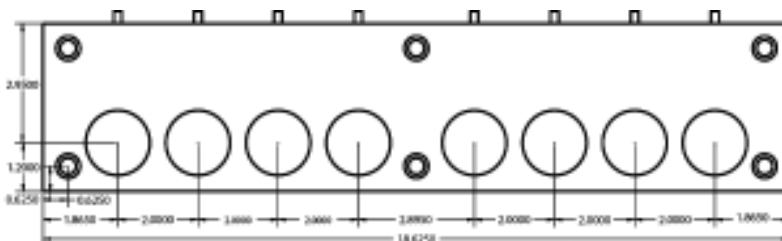
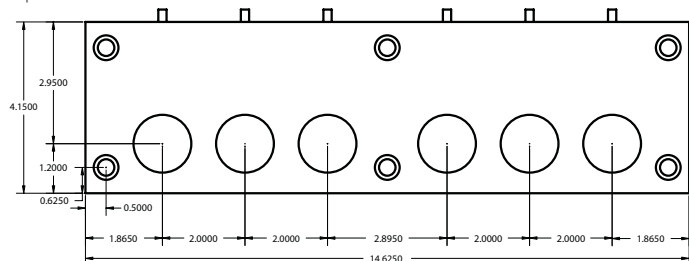
NOTE: 6 ea. bolts are included with the new Multi-Blocks.



640-404

TECHNICAL DATA:
 Repeatability: 0.0002" (0.005mm)
 Block material: Meehanite cast iron
 Squareness: 0.0004" (0.01mm)
 Parallelism: 0.0003" (0.007mm)
 Flatness: 0.0004" (0.01mm)
 Gripping force: 400 lbs. (181 kg)

640-406



640-408

WORKHOLDING



5C & 16C COLLET EXPANDING MANDRELS

DEAD LENGTH TYPE

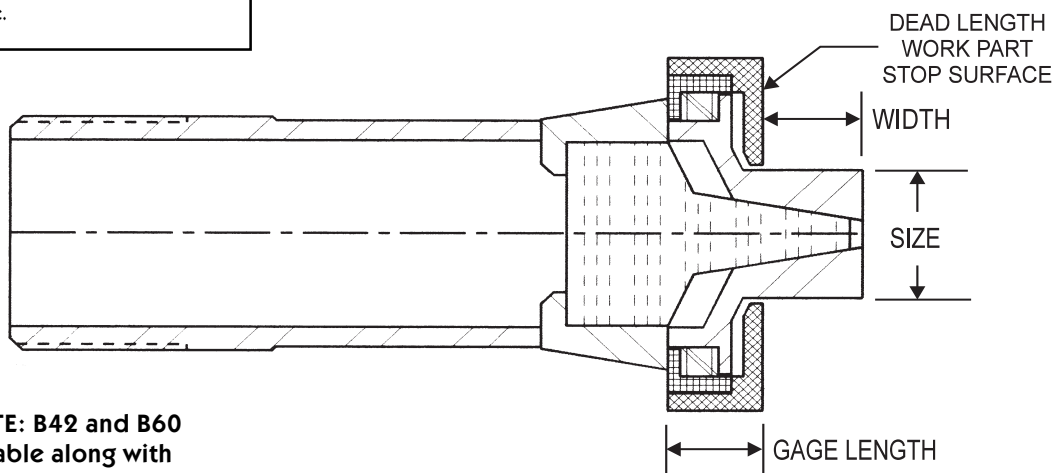
OPERATION OF EXPANDING MANDRELS

The pressure segments extend through the collet body from the expansion plug to the standard collet spindle adapter. When the segments make contact with the spindle adapter, the segments and expansion plug stop moving and become stationary. The collet body continues to slide back, by the drawbar, against the stationary expansion plug forcing the split portion of the collet body to expand to make contact with the work part I.D. The work part is supported along the entire length of the holding surface, insuring maximum rigidity.



ORDERING INFORMATION:

-400 series part numbers designate "size" ranges for the expansion O.D. When ordering you must specify the exact I.D. of the work piece you wish to hold. Prior to shipping, the collet will be machined to that diameter for maximum gripping force.



SPECIAL NOTE: B42 and B60 collets available along with larger size 5C & 16C

5C				
PN#	SIZE	O.A.L.	WIDTH	GAGE LENGTH
400-300	.250-.374	3.968	0.250	0.468
400-301	.375-.499	4.093	0.375	0.468
400-302	.500-.624	4.218	0.500	0.468
400-303	.625-.749	4.343	0.625	0.468
400-304	.750-.874	4.468	0.750	0.468
400-305	.875-.999	4.593	0.875	0.468
400-306	1.00-1.124	4.718	1.000	0.468
400-307	1.125-1.249	4.968	1.250	0.468
400-308	1.250-1.374	4.968	1.250	0.468
400-309	1.375-1.499	4.968	1.250	0.468
400-310	1.500-1.624	4.968	1.250	0.468
400-311	1.625-1.749	4.968	1.250	0.468
400-312	1.750-1.874	4.968	1.250	0.468
400-313	1.875-1.999	4.968	1.250	0.468
400-314	2.000-2.124	4.968	1.250	0.468

16C				
PN#	SIZE	O.A.L.	WIDTH	GAGE LENGTH
400-200	.250-.374	5.250	0.250	0.468
400-201	.375-.499	5.375	0.375	0.468
400-202	.500-.624	5.500	0.500	0.468
400-203	.625-.749	5.625	0.625	0.468
400-204	.750-.874	5.750	0.750	0.468
400-205	.875-.999	5.875	0.875	0.468
400-206	1.00-1.124	6.000	1.000	0.468
400-207	1.125-1.249	6.125	1.125	0.468
400-208	1.250-1.374	6.250	1.250	0.468
400-209	1.375-1.499	6.375	1.375	0.468
400-210	1.500-1.624	6.500	1.500	0.468
400-211	1.625-1.749	6.625	1.625	0.468
400-212	1.750-1.874	6.750	1.750	0.468
400-213	1.875-1.999	6.875	1.875	0.468
400-214	2.000-2.124	7.000	2.000	0.468

5C & 16C COLLET EXPANDING MANDRELS

PULL TYPE



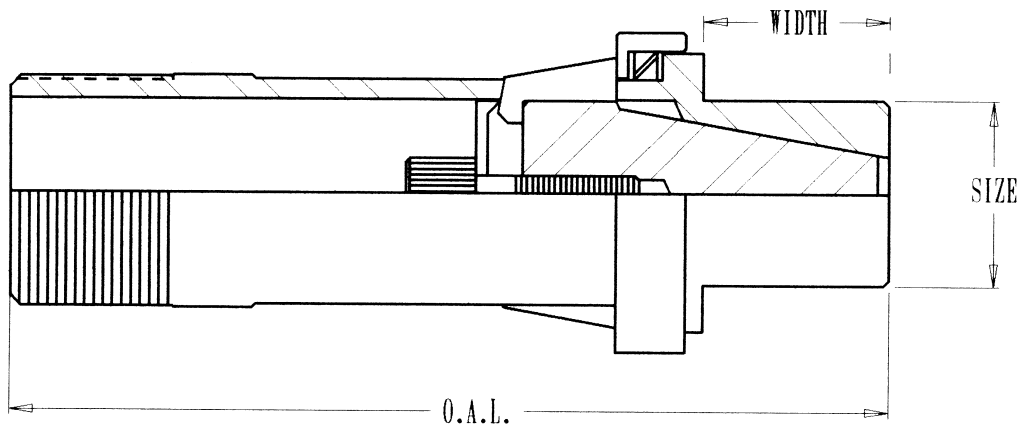
FEATURES:

- ▶ Repeatability of 0.001" (0.02mm) T.I.R.
- ▶ Maximum gripping power - the holding surface is fully supported by the expansion plug, from the spindle to the end of the holding surface.
- ▶ Greater tool clearance - only the holding surface projects from the spindle adapter face
- ▶ Fits standard collet adapters - no special adapters.
- ▶ Single piece design - no joints for threads which cause weak points
- ▶ Minimizes centrifugal forces - gripping force is not reduced by high spindle speeds.
- ▶ Reduces evaporation of coolant - no chuck jaws to cause coolant vaporization.
- ▶ Ability to hold in blind holes.
- ▶ Available in controlled length design - no length variation of the work part if the I.D. hole sizes vary from part to part.



ORDERING INFORMATION:

-400 series part numbers designate "size" ranges for the expansion O.D. When ordering you must specify the exact I.D. of the workpiece you wish to hold. Prior to shipping, the collet will be machined to that diameter for maximum gripping force.



5C				
PN#	SIZE	O.A.L.	WIDTH	GAGE LENGTH
400-100	.250-.374	3.968	0.250	0.468
400-101	.375-.499	4.093	0.375	0.468
400-102	.500-.624	4.218	0.500	0.468
400-103	.625-.749	4.343	0.625	0.468
400-104	.750-.874	4.468	0.750	0.468
400-105	.875-.999	4.593	0.875	0.468
400-106	1.00-1.124	4.718	1.000	0.468
400-107	1.125-1.249	4.968	1.250	0.468
400-108	1.250-1.374	4.968	1.250	0.468
400-109	1.375-1.499	4.968	1.250	0.468
400-110	1.500-1.624	4.968	1.250	0.468
400-111	1.625-1.749	4.968	1.250	0.468
400-112	1.750-1.874	4.968	1.250	0.468
400-113	1.875-1.999	4.968	1.250	0.468
400-114	2.000-2.124	4.968	1.250	0.468

16C				
PN#	SIZE	O.A.L.	WIDTH	GAGE LENGTH
400-200	.250-.374	5.250	0.250	0.468
400-201	.375-.499	5.375	0.375	0.468
400-202	.500-.624	5.500	0.500	0.468
400-203	.625-.749	5.625	0.625	0.468
400-204	.750-.874	5.750	0.750	0.468
400-205	.875-.999	5.875	0.875	0.468
400-206	1.00-1.124	6.000	1.000	0.468
400-207	1.125-1.249	6.125	1.125	0.468
400-208	1.250-1.374	6.250	1.250	0.468
400-209	1.375-1.499	6.375	1.375	0.468
400-210	1.500-1.624	6.500	1.500	0.468
400-211	1.625-1.749	6.625	1.625	0.468
400-212	1.750-1.874	6.750	1.750	0.468
400-213	1.875-1.999	6.875	1.875	0.468
400-214	2.000-2.124	7.000	2.000	0.468

WORKHOLDING

ACCU-CHUCK®



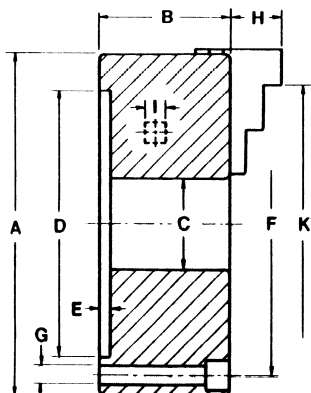
585-108

CENTER ADJUSTMENT

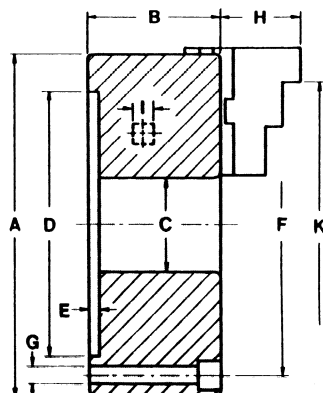
Screws with pressure plugs are located around the O.D. of the chuck to center the Accu-Chuck either on the Accu-Flange plate (lathe operation) or the DMNC or DRFT chuck adapter plate, enabling chuck runout to 0.0005" (0.01mm) T.I.R.

The Accu-Chuck may be used as a precision adjustable lathe chuck (when used with an Accu-Flange plate (see page #87) or as a 3-jaw workholding chuck when mounted to one of our DMNC or DRFT rotary tables (see CNC ROTARY PRODUCTS section.)

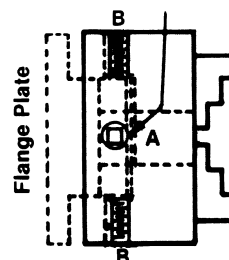
585-004, 005



585-106, 108, 110, 112



TURNING PINION GEAR "A" MOVES JAW TO GRIP WORK



Adjusting screws "B" are used to move chuck on flange plate for "dead true" accuracy.

Inch/(mm)

MODEL	CHUCK DIMENSIONS										MAXIMUM GRIP	JAWS	WEIGHT lbs (kg)
	A	B	C	D	E	F	G	H	I	K			
585-004	4.00 (100)	1.81 (46)	1.26 (32)	2.126 (54)	0.63 (16)	3.532 (90)	M 5x6	0.63 (16)	0.276 (7)	3.74 (95)		Solid	6 (2.7)
585-005	5.25 (133)	2.44 (62)	1.26 (32)	2.362 (60)	0.63 (16)	4.528 (115)	M 8x3	0.80 (20)	0.315 (8)	4.13 (105)		Solid	11 (5)
585-106	6.50 (165)	2.60 (66)	1.73 (44)	3.150 (80)	0.63 (16)	5.787 (147)	M 10x3	1.77 (45)	0.394 (10)	5.60 (142)		Two Piece	19 (8.6)
585-108	8.250 (210)	2.95 (75)	2.48 (63)	4.716 (120)	0.63 (16)	7.500 (190)	M 10x3	1.84 (47)	0.472 (12)	7.30 (185)		Two Piece	35 (16)
585-110	10.750 (273)	3.58 (91)	3.54 (90)	6.30 (160)	0.79 (20)	9.843 (250)	M 12x3	2.13 (54)	0.472 (12)	9.06 (230)		Two Piece	71 (32)
585-112	12.250 (311)	3.74 (95)	4.33 (110)	7.087 (180)	0.79 (20)	11.220 (285)	M 12x3	2.28 (58)	0.551 (14)	10.43 (265)		Two Piece	91 (41)

ACCU-CHUCK® AND FLANGE PLATES

585series

2 YEAR
WARRANTY



FEATURES:

- ▶ High strength semi-steel iron body.
- ▶ Nickel chrome-molybdenum steel scroll gear.
- ▶ Chrome molybdenum steel jaws hardened to Rc55-63.
- ▶ Chrome steel pinions Rc 55-60.
- ▶ Chrome molybdenum steel screws hardened to Rc45.
- ▶ Accurate to within .002" (0.05mm) for conventional scroll chuck work. Their unique precision comes from designed in .02" (0.5mm) clearance between the chuck body and mounting plate so that the opposing screws can be adjusted for accurate production.
- ▶ Guaranteed to .0005" (0.01mm) (adjustable).
- ▶ Chuck runout adjustable to .0005" (0.01mm) T.I.R. by 3 side screws.
- ▶ All jaws are standard American tongue and groove.



A1 Style



Threaded



D1 Style



A1 Style

Flange Plates for Accu-Chuck®

Inch/(mm)

"D1" SPINDLE	SPECIFICATIONS			
	MODEL	SPINDLE	DIAMETER	WEIGHT lbs (kg)
	586-206	D1-4	6 (152)	7 (3.2)
	586-208	D1-4	8 (203)	11 (5)
	586-216	D1-5	6 (152)	9 (4.1)
	586-218	D1-5	8 (203)	11 (5)
	586-228	D1-6	8 (203)	15 (6.8)
	586-230	D1-6	10 (254)	24 (11)
	586-232	D1-6	12 (305)	32 (14.5)
	586-238	D1-8	8 (203)	11 (5)
	586-240	D1-8	10 (254)	26 (11.8)
	586-242	D1-8	12 (305)	32 (14.5)
MODEL	CHUCK DIAMETER	TYPE OF JAW		WEIGHT lbs (kg)
585-004*	4 (102)	Solid Jaw		6 (2.7)
585-005	5.25 (133)			11 (5)
585-106	6.50 (165)	Top Reversible Jaw		19 (8.6)
585-108	8.25 (209)			35 (15.9)
585-110	10.75 (273)			71 (32.2)
585-112	12.25 (311)			91 (41.3)

THREADED SPINDLE	SPECIFICATIONS			
	MODEL	THREAD SIZE	DIAMETER	WEIGHT lbs (kg)
	586-604	1 1/2"-8 TPI	4 (102)	3 (1.4)
	586-605	1 1/2"-8 TPI	5 (127)	4 (1.8)
	586-606	1 1/2"-8 TPI	6 (152)	7 (3.2)
	586-616	2 1/4"-8 TPI	6 (152)	7 (3.2)
	586-628	2 1/4"-8 TPI	8 (203)	11 (5)
	586-630	2 1/4"-8 TPI	10 (254)	24 (10.9)
"A1" SPINDLE	SPECIFICATIONS			
	MODEL	SPINDLE	DIAMETER	WEIGHT lbs (kg)
	586-106	A1-5	6 (152)	7 (3.2)
	586-108	A1-5	8 (203)	11 (5)
	586-110	A1-5	10 (254)	24 (10.9)
	586-118	A1-6	8 (203)	11 (5)
	586-120	A1-6	10 (254)	22 (10)
	586-122	A1-6	12 (305)	32 (14.5)
	586-130	A1-8	10 (254)	24 (10.9)
	586-132	A1-8	12 (305)	32 (14.5)

WORKHOLDING

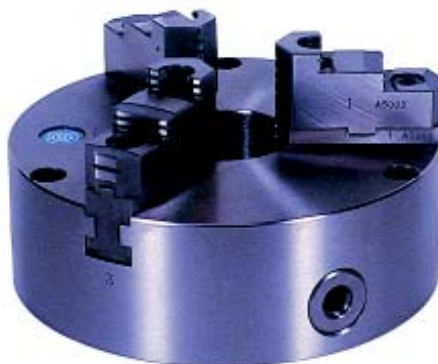
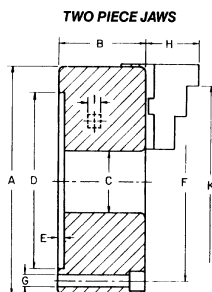


YUASA 580 series

FLAT-BACK LATHE CHUCK

FEATURES:

- ▶ Self-centering 3-jaw scroll chuck.
- ▶ High strength semi-steel iron body.
- ▶ Nickel chrome molybdenum scroll gear.
- ▶ Chrome molybdenum steel jaws.
- ▶ Hardness Rc 55-63.
- ▶ Chrome steel pinions HRC 55-60.
- ▶ Accurate to within 0.002 (0.05mm) T.I.R. (33-1/3% more accurate than ASA specifications.) Chuck O.D. runout 0.0012 (0.03mm) T.I.R.
- ▶ All jaws are standard American tongue and groove.



580-108

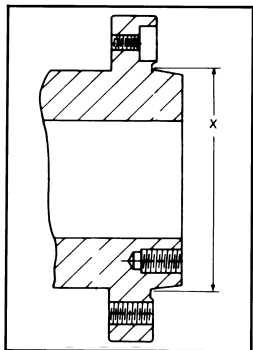
Inch/(mm)

CHUCK DIAMETER (inches)											JAWS	WEIGHT lbs (kg)
MODEL	A	B	C	D	E	F	G	H	I	K		
580-106	6.75 (167)	2.60 (66)	1.73 (44)	5.12 (130)	0.20 (5)	5.79 (147)	M10x3	1.61 (41)	0.394 (10)	5.60 (142)	Two Piece	20 (9)
580-108	8.27 (210)	2.95 (75)	2.48 (63)	6.77 (172)	0.20 (5)	7.50 (190)	M10x3	1.69 (43)	0.472 (12)	7.30 (185)	Two Piece	35 (16)
580-110	10.79 (274)	3.35 (85)	3.54 (90)	9.06 (230)	0.24 (6.1)	9.84 (250)	M12x3	2.01 (51)	0.472 (12)	9.06 (230)	Two Piece	75 (34)
580-112	12.20 (310)	3.54 (90)	4.33 (110)	10.24 (260)	0.28 (7.1)	11.20 (285)	M12x3	2.28 (58)	0.551 (14)	10.43 (265)	Two Piece	94 (43)
580-115	15.16 (385)	3.86 (98)	5.12 (130)	12.99 (330)	0.28 (7.1)	13.98 (355)	M12x6	2.40 (61)	0.591 (15)	14.00 (356)	Two Piece	146 (66)

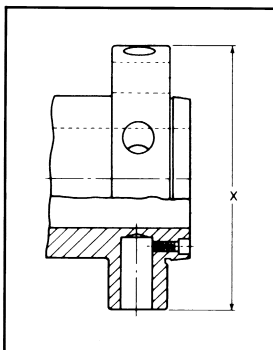
Flange Plates for 3-jaw scroll chucks 581 Series

SHORT TAPER A-1 SPINDLE			CAM-LOCK "D1" SPINDLE			LONG TAPER KEY DRIVE SPINDLE "L"		
MODEL	SPINDLE	CHUCK DIAMETER	MODEL	SPINDLE	CHUCK DIAMETER	MODEL	SPINDLE	CHUCK DIAMETER
581-110	A1-6	10 (254)	581-230	D1-6	10 (254)	581-420	L00	10 (254)
581-112	A1-6	12 (305)	581-232	D1-6	12 (305)	581-410	L0	10 (254)
581-120	A1-8	10 (254)	581-240	D1-8	10 (254)	581-412	L0	12 (305)
			581-242	D1-8	12 (305)	581-430	L1	10 (254)
						581-432	L1	12 (305)
						581-442	L2	12 (305)

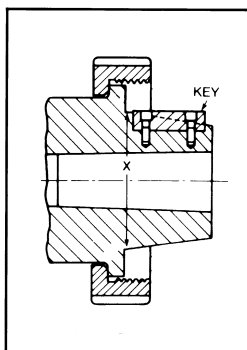
A SPINDLE



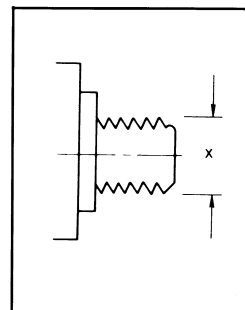
D SPINDLE



L SPINDLE



THREADED SPINDLE



WORKHOLDING

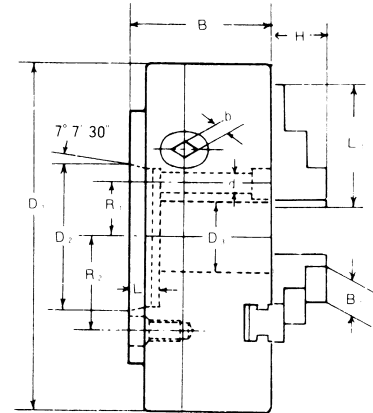
DIRECT MOUNT LATHE CHUCK



580 series

FEATURES:

- ▶ Direct mounting 3-jaw geared scroll lathe chucks for direct mounting to most spindle tapers.
- ▶ Top reversible jaws.
- ▶ All jaws are standard American tongue and groove.
- ▶ High strength semi-steel iron body.
- ▶ Nickel chrome molybdenum steel scroll gear.
- ▶ Chrome molybdenum steel jaws hardened to RC55-63.
- ▶ Chrome steel pinions RC55-60.
- ▶ Chrome molybdenum steel hardened to RC45.



Inch/(mm)

SHORT TAPER A1-SPINDLE															
MODEL	SPINDLE	NOMINAL	D1	B	D3	D2	L	R1	R2	d	B1	L1	H	b	WT lbs/(kg)
580-206	A1-5	8 (203)	8.27 (210)	3.15 (80)	1.57 (40)	3.25 (83)	0.56 (14)	1.22 (31)	2.06 (52)	0.47 (12)	1.18 (30)	3.15 (80)	1.69 (43)	0.47 (12)	40 (18)
580-208	A1-6	8 (203)	8.27 (210)	3.15 (80)	2.20 (56)	4.19 (106)	0.63 (16)	1.62 (41)	2.62 (67)	0.55 (14)	1.18 (30)	3.15 (80)	1.69 (43)	0.47 (12)	40 (18)
580-210	A1-6	10 (254)	10.04 (255)	3.62 (92)	2.20 (56)	4.19 (106)	0.63 (16)	1.62 (41)	2.62 (67)	0.55 (14)	1.38 (35)	3.74 (95)	2.01 (51)	0.55 (14)	77 (35)
580-212	A1-6	12 (305)	12.20 (310)	4.13 (105)	3.07 (78)	4.19 (106)	0.63 (16)	2.62 (66)	2.62 (67)	0.55 (14)	1.57 (40)	4.33 (110)	2.20 (56)	0.59 (15)	117 (53)
580-215	A1-6	15 (381)	15.16 (385)	4.37 (111)	3.54 (90)	4.19 (106)	0.63 (16)	2.62 (66)	2.62 (67)	0.55 (14)	1.69 (43)	5.00 (127)	2.56 (65)	0.59 (15)	201 (91)
580-220	A1-8	10 (254)	10.04 (255)	3.62 (92)	3.07 (78)	5.50 (140)	0.69 (17)	2.19 (56)	3.37 (86)	0.69 (17)	1.38 (35)	3.74 (95)	2.01 (51)	0.55 (14)	75 (34)
580-222	A1-8	12 (305)	12.20 (310)	4.13 (105)	3.07 (78)	5.50 (140)	0.69 (17)	2.19 (56)	3.37 (86)	0.69 (17)	1.57 (40)	4.33 (110)	2.20 (56)	0.59 (15)	117 (53)
580-225	A1-8	15 (381)	15.16 (385)	4.37 (111)	3.94 (100)	5.50 (140)	0.69 (17)	3.37 (86)	3.37 (86)	0.69 (17)	1.69 (43)	5.00 (127)	2.56 (65)	0.59 (15)	196 (89)
580-335	A1-11	15 (381)	15.16 (385)	4.37 (111)	4.72 (120)	7.75 (197)	0.75 (19)	3.25 (83)	4.62 (117)	0.83 (21)	1.69 (43)	5.00 (127)	2.55 (65)	0.59 (15)	185 (84)



A1 Style



D1 Style

THREADED SPINDLE					
MODEL	CHUCK DIAMETER	THREAD SIZE	CENTER HOLE DIAMETER	CHUCK THICKNESS	WEIGHT lbs (kg)
580-506	6 (152)	1 1/2"-8 TPI	1.73 (44)	3.54 (90)	28 (12.7)
580-516	6 (152)	2 1/4"-8 TPI	1.73 (44)	3.82 (97)	27 (12.3)
580-508	8 (203)	2 1/4"-8 TPI	2.48 (63)	4.61 (117)	46 (21)

CAM-LOCK D1-SPINDLE					
MODEL	SPINDLE	CHUCK DIAMETER	CENTER HOLE DIAMETER	CHUCK THICKNESS	WEIGHT lbs (kg)
580-306	D1-4	6 (152)	1.38 (35)	2.76 (70)	22 (10)
580-308	D1-6	8 (203)	2.20 (56)	3.23 (82)	44 (20)
580-310	D1-6	10 (254)	2.20 (56)	3.62 (92)	77 (35)
580-312	D1-6	12 (305)	3.07 (78)	4.13 (105)	117 (53)
580-315	D1-6	15 (381)	3.94 (100)	4.37 (111)	201 (91)
580-320	D1-8	10 (254)	3.07 (78)	3.62 (92)	75 (34)
580-322	D1-8	12 (305)	3.07 (78)	4.13 (105)	117 (53)
580-325	D1-8	15 (381)	3.94 (100)	4.37 (111)	198 (90)

WORKHOLDING

INDEPENDENT CHUCK

582 SERIES

4-JAW, INDEPENDENT CHUCK, SOLID JAW, FLAT BACK

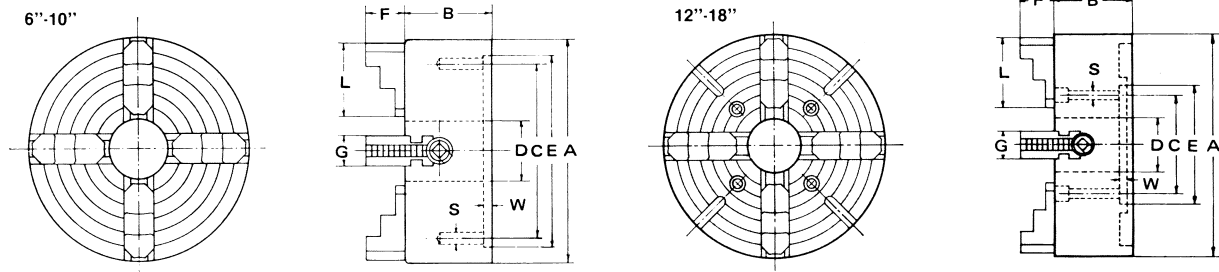
FEATURES:

Inch/(mm)

MODEL	SIZE	A	B	D	E	W	C	S	G	L	F	WT. lbs./ (kg)
582-006	6 (152)	5.91 (150)	2.36 (60)	1.57 (40)	5.12 (130)	0.20 (5)	4.53 (115)	0.375 (9.5)	0.984 (25)	2.17 (55)	0.98 (25)	15 (6.82)
582-008	8 (203)	7.87 (200)	2.95 (75)	1.97 (50)	6.89 (175)	0.24 (6.1)	6.1 (155)	0.437 (11.1)	1.18 (30)	2.95 (75)	1.18 (30)	31 (14)
582-010	10 (254)	9.84 (250)	3.15 (80)	2.17 (55)	5.91 (150)	0.24 (6.1)	4.92 (125)	0.437 (11.1)	1.18 (30)	3.54 (90)	1.37 (35)	34 (15)
582-012	12 (305)	11.81 (300)	3.54 (90)	2.56 (65)	6.69 (170)	0.32 (8.1)	5.51 (140)	0.500 (12.7)	1.38 (35)	4.33 (110)	1.77 (45)	70 (32)
582-014	14 (356)	13.78 (350)	3.54 (90)	3.15 (80)	7.48 (190)	0.32 (8.1)	6.30 (160)	0.500 (12.7)	1.38 (35)	5.12 (130)	1.77 (45)	81 (36.8)
582-016	16 (406)	15.75 (400)	3.94 (100)	3.54 (90)	8.27 (210)	0.32 (8.1)	7.09 (210)	0.625 (15.9)	1.58 (40)	4.72 (120)	1.97 (50)	135 (61)
582-018	18 (457)	17.72 (450)	4.13 (105)	3.94 (100)	9.06 (230)	0.32 (8.1)	7.87 (200)	0.625 (15.9)	1.58 (40)	5.12 (130)	2.17 (55)	166 (75)



NOTE: T-slots supplied on chuck sizes over 12 inches.



4-JAW INDEPENDENT CHUCK, DIRECT MOUNTING, SOLID JAW

Inch/(mm)

MODEL	SPINDLE TYPE	SIZE	WEIGHT lbs./ (kg)
582-108	A1-5	8 (203)	31 (14)
582-110	A1-5	10 (254)	53 (24)
582-112	A1-5	12 (305)	81 (37)
582-120	A1-6	10 (254)	58 (26)
582-122	A1-6	12 (305)	80 (36)
582-132	A1-8	12 (305)	43 (19)
582-136	A1-8	16 (406)	152 (69)
582-148	D1-4	8 (203)	29 (13)
582-170	D1-6	10 (254)	59 (27)
582-172	D1-6	12 (305)	85 (38)
582-176	D1-6	16 (406)	140 (63)
582-182	D1-8	12 (305)	97 (44)
582-186	D1-8	16 (406)	154 (70)



D1 Type

A1 Type



NEW!

STEEL BODY CHUCKS



Can be used as a "forming plate" for machining soft jaws



Hard jaws and soft jaws can be adjusted just like on a hydraulic power chuck to increase the gripping range



Hard jaws as well as soft jaws are interchangeable with those of CNC lathes



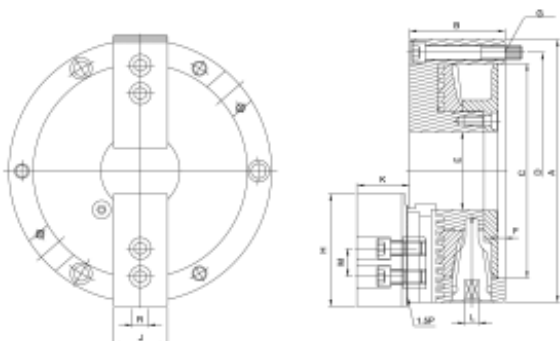
Chuck body is made of steel to enhance safety operations for high speed machining

1. Can be used as a "forming plate" for machining soft jaws
2. Hard jaws and soft jaws can be adjusted just like on a hydraulic power chuck to increase the gripping range
3. Hard jaws as well as soft jaws are interchangeable with those of CNC lathes
4. Chuck body is made of steel to enhance safety operations for high speed machining
5. The chuck handle can be operated easily and smoothly

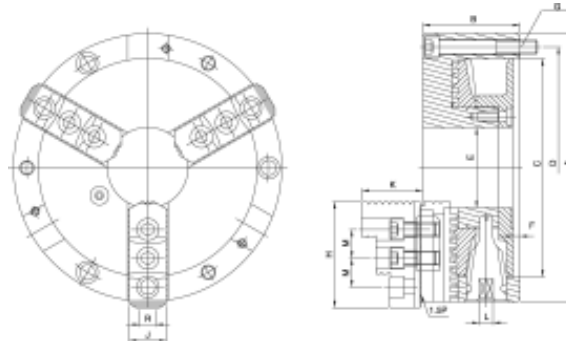
Flange



2-JAW STEEL BODY CHUCKS



3JAW STEEL BODY CHUCKS



WORKHOLDING

Inch/(mm)

MODEL #	A	B	C	D	E	F	G	H	J	K	L	M	R	MAX R.P.M	CLAMPING RANGE	
															INNER	OUTER
595-870	7.56 (192)	3.07 (78)	6.10 (155)	6.77 (172)	2.28 (58)	0.20 (5)	3-M10	3.54 (90)	1.65 (42)	1.73 (44)	0.43 (11)	0.79 (20)	0.47 (12)	3200	.31-9.25 8mm-235mm	2.60-9.25 66mm-235mm
595-871	9.13 (232)	3.35 (85)	7.48 (190)	8.27 (210)	2.76 (70)	0.24 (6)	3-M12	3.94 (100)	1.89 (48)	1.85 (47)	0.47 (12)	0.98 (25)	0.55 (14)	2800	0.43-11.02 11mm-280mm	3.35-11.02 85mm-280mm
595-872	7.56 (192)	3.07 (78)	6.10 (155)	6.77 (172)	2.28 (58)	0.20 (5)	3-M10	3.07 (78)	1.10 (28)	1.81 (46)	0.43 (11)	0.79 (20)	0.47 (12)	3200	.31-9.25 8mm-235mm	2.60-9.25 66mm-235mm
595-873	9.13 (232)	3.35 (85)	7.48 (190)	8.27 (210)	2.76 (70)	0.24 (6)	3-M12	3.62 (92)	1.26 (32)	2.09 (53)	0.47 (12)	0.98 (25)	0.55 (14)	2800	0.43-11.02 11mm-280mm	3.35-11.02 85mm-280mm
595-874	10.75 (273)	3.58 (91)	9.06 (230)	9.84 (250)	3.50 (89)	0.24 (6)	3-M12	4.09 (104)	1.46 (37)	2.20 (56)	0.47 (12)	0.55 (14)	1.18 (30)	2400	0.47-12.99 12mm-330mm	3.62-12.99 92mm-330mm
595-875	12.20 (310)	4.09 (104)	10.24 (260)	11.22 (285)	4.13 (105)	0.28 (7)	3-M12	4.65 (118)	1.85 (47)	2.64 (67)	0.55 (14)	1.18 (30)	0.83 (21)	2100	0.59-14.57 15mm-370mm	4.09-14.57 104mm-370mm

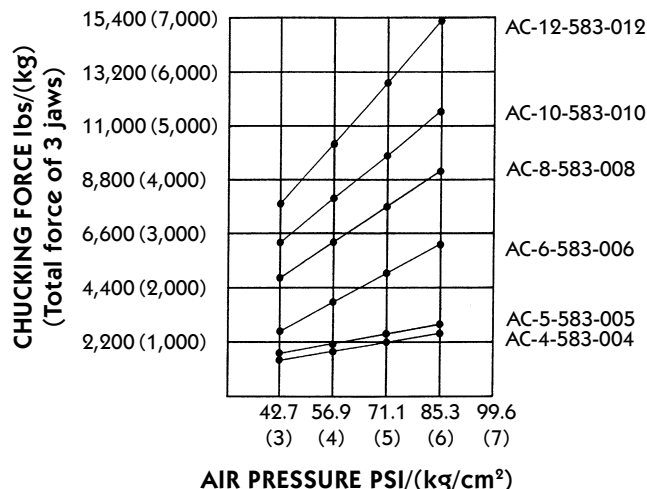
AIR CHUCKS FOR INDEXERS AND ROTARY TABLES

583 SERIES

FEATURES:

- ▶ Compact design (self-contained air cylinder).
- ▶ Built-in check valve prevents the chuck from losing force even in the event of a power failure.
- ▶ Outstanding smooth rotation and long life are guaranteed - no pressure will be given to the seals for air supply while it is rotating.
- ▶ Front mount type - can be directly mounted for our 550-006, 007, 012, 666, 008 and DMNC & DRFT (with adapter plate).
- ▶ Outer and inner-lock are possible.
- ▶ Two-piece jaw construction - soft jaws (optional) can be used.
- ▶ Chucking forces can be adjusted by the air regulator, which allows the chucking of a thin workpiece without damage.
- ▶ Great time saving for work set-up and resetting.
- ▶ Fully adjustable to 0.0005" (4 adjusting screws.)

CHUCKING FORCE VS. AIR PRESSURE



STANDARD ACCESSORIES

Chuck mounting bolt 3 pcs.
 Wrench handle 1 pc.
 Pressure gage (PT 1/8, 10kg/cm²) 1 pc.
 Air hose joint 1 pc.
 Stopper 1 pc.

PN# 584-001



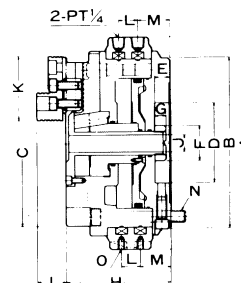
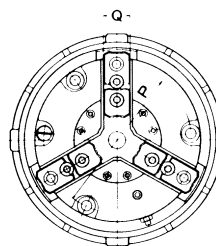
Unit: Inch

MODEL NO.	583-004	583-005	583-006	583-008	583-010	583-012
JAW STROKE	0.13"	0.15"	0.17"	0.20"	0.25"	0.27"
MAX. CHUCKING DIA. (OUTER)	3.54"	4.88"	6.61"	8.19"	10.00"	12.21"
MIN. CHUCKING DIA. (INNER)	0.16"	0.24"	0.47"	0.59"	1.10"	1.26"
CHUCKING FORCE (AT 85 PSI)	2,400 lbs.	2,600 lbs.	6,380 lbs.	9,240 lbs.	12,320 lbs.	15,400 lbs.
MAX R.P.M.	50	30	38	30	25	20
AIR CONSUMPTION (AT 85 PSI)	0.8 litre	1.3 litre	2 litre	3.9 litre	6.1 litre	8.9 litre
SERRATION PITCH	1.5mm Pitch 60°					

NOTE: A 3-WAY AIR VALVE MUST BE USED FOR CHUCK OPERATION. We recommend our manual 3-way valve (PN# 584-001) see below.



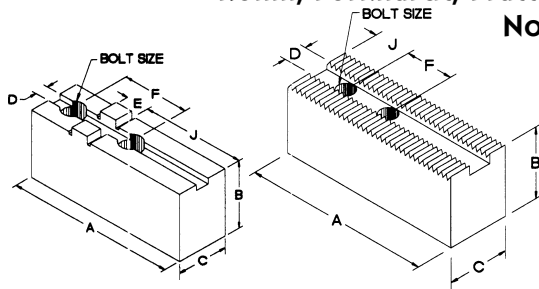
PN# 583-008 shown
with D RFT-220



ITEM	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	WEIGHT
583-004	5.43	4.41	4.41	2.16	0.27	0.94	0.37	3.31	0.91	0.79	1.69	0.63	1.26	M8	M5	2.64	0.71	14.3
583-005	6.30	5.59	5.20	2.36	0.57	0.71	0.63	3.22	1.02	0.55	1.97	0.63	1.26	M8	M5	4.13	0.79	17.6
583-006	8.35	6.69	6.50	3.15	0.63	1.38	0.43	4.09	1.14	0.67	2.52	0.75	1.22	M10	M6	5.79	1.02	37.4
583-008	10.08	8.43	7.99	4.72	0.63	2.44	0.35	4.25	1.34	1.18	3.07	0.75	1.22	M10	M6	7.50	1.18	55.0
583-010	12.40	11.10	11.14	6.30	0.79	---	---	4.65	1.57	1.69	3.62	0.75	1.38	M12	M6	9.84	1.38	88.0
583-012	14.17	12.20	11.81	7.09	0.79	3.94	0.47	5.24	1.65	2.17	4.09	0.87	1.50	M12	M8	11.22	1.57	132.0

CHUCK SOFT JAWS

For: Bergman, Bison, Buck, Cushman, Huron,
Rohm, Forkhardt, Pratt Bernerd America, SCA, SP, W&S,
Nobel & Yuasa



AMERICAN STANDARD TONGUE & GROOVE

"P" means POINTED JAW
"O" means TONGUE IS OFFSET (see "J" dimension)
"***" means 1/8" TONGUE HEIGHT
"****" means 3/16" TONGUE HEIGHT

MEDIUM DUTY SOFT JAWS

CHUCK SIZE	PART #	STANDARD HEIGHT								EXTRA HEIGHT	
		A	B	C	D	E	F	BOLT	J	PART #	B
6" **	74-6MSH	2 13/16	1 3/8	1	.313	.500	1.50	3/8	CENTER	74-6MEH	3 3/8
	74-447	2 5/8	1 5/8	1 1/4	.313	.500	1.50	3/8	1 1/8	74-471	3 3/8
	74-6MSH-O	3 1/4	1 3/8	1	.313	.500	1.50	3/8	1 13/16	74-6MEH-O	3 3/8
8" **	74-8MSH	3 5/16	1 7/8	1 1/4	.313	.500	1.75	3/8	CENTER	74-8MEH	3 3/8
	74-450	3 1/2	1 5/8	1 1/4	.313	.500	1.75	3/8	1 5/8	74-474	3 3/8
	74-8MSH-O	3 3/4	1 7/8	1 1/4	.313	.500	1.75	3/8	2 3/16	74-8MEH-O	3 3/8
10" **	74-10MSH	3 15/16	1 7/8	1 1/2	.500	.750	2.12	1/2	CENTER	74-10MEH	3 3/8
	74-452	4 1/4	1 7/8	1 1/2	.500	.750	2.12	1/2	1 15/16	74-476	3 3/8
	74-10MSH-O	4 5/8	1 7/8	1 1/2	.500	.750	2.12	1/2	2 5/8	74-10MEH-O	3 3/8
12" **	74-12MSH	4 1/2	2 1/8	1 3/4	.500	.750	2.50	1/2	CENTER	74-12MEH	3 3/8
	74-454	4 7/8	2 3/8	1 3/4	.500	.750	2.50	1/2	2 5/16	74-478	3 3/8
	74-12MSH-O	5 3/8	2 1/8	1 3/4	.500	.750	2.50	1/2	3 1/8	74-12MEH-O	3 3/8
15" ***	74-15MSH	5 3/16	2 5/16	1 3/4	.500	.750	3.00	5/8	CENTER	74-15MEH	3 13/16
	74-456	5 5/8	2 5/16	2	.500	.750	3.00	5/8	2 3/4	74-480	3 13/16
	74-15MSH-O	6 1/4	2 5/16	1 3/4	.500	.750	3.00	5/8	3 5/8	74-15MEH-O	3 13/16

1.5mm (.0591) @ 60° SERRATED

For: Yuasa, Kitagawa, Matsumoto
& Howa & Seiki

CHUCK SIZE	SOFT JAWS								EXTRA LENGTH			
	PART #	A	B	C	D	J	F	BOLT	PART #	A	PART #	A
6" KITAGAWA 6" HOWA-HO27M6	74-6K-1.5-P	3 1/8	1 1/2	1 1/4	.472	.438	.787	10mm				
	74-6K-2.0-P	3 1/8	2	1 1/4	.472	.438	.787	10mm				
	74-6K-3.0-P	3 1/8	3	1 1/4	.472	.438	.787	10mm				
8" KITAGAWA (208) B-208 KITAGAWA 8" MATSUMOTO HOLLOW	74-149-1.5	3 1/2	1 1/2	1 1/2	.551	.781	1.000	1/2	74-149-1.5-O	4 1/4	74-149-1.5-OP	4 1/4
	74-149-2.0	3 1/2	2	1 1/2	.551	.781	1.000	1/2	74-149-2.0-O	4 1/4	74-149-2.0-OP	4 1/4
	74-149-2.5	3 1/2	2 1/2	1 1/2	.551	.781	1.000	1/2	74-149-2.5-O	4 1/4	74-149-2.5-OP	4 1/4
	74-149-3.5	3 1/2	3 1/2	1 1/2	.551	.781	1.000	1/2	74-149-3.5-O	4 1/4	74-149-3.5-OP	4 1/4
	74-149-5.0	3 1/2	5	1 1/2	.551	.781	1.000	1/2	74-149-5.0-O	4 1/4	74-149-5.0-OP	4 1/4
B-10 KITAGAWA B-210 KITAGAWA 11" MATSUMOTO HOLLOW	74-82-2.0	4	2	1 1/2	.630	.650	1.181	1/2	74-82-2.0-O	5	74-82-2.0-OP	5
	74-82-2.5	4	2 1/2	1 1/2	.630	.650	1.181	1/2	74-82-2.5-O	5	74-82-2.5-OP	5
	74-82-3.5	4	3 1/2	1 1/2	.630	.650	1.181	1/2	74-82-3.5-O	5	74-82-3.5-OP	5
	74-82-5.0	4	5	1 1/2	.630	.650	1.181	1/2	74-82-5.0-O	5	74-82-5.0-OP	5
B-12" KITAGAWA 12" MATSUMOTO 11" HOWA-HO27MA12 HOWA HO21-M10	74-108-2.0	5 1/4	2	2	.710	1.188	1.181	9/16	74-108-2.0-O	6 1/4	74-108-2.0-OP	6 1/4
	74-108-2.5	5 1/4	2 1/2	2	.710	1.188	1.181	9/16	74-108-2.5-O	6 1/4	74-108-2.5-OP	6 1/4
	74-108-3.5	5 1/4	3 1/2	2	.710	1.188	1.181	9/16	74-108-3.5-O	6 1/4	74-108-3.5-OP	6 1/4
	74-108-5.0	5 1/4	5	2	.710	1.188	1.181	9/16	74-108-5.0-O	6 1/4	74-108-5.0-OP	6 1/4
B-212 KITAGAWA	74-112-2.5	5 1/4	2 1/2	2	.827	1.188	1.181	16mm	74-112-2.5-O	6 1/4	74-112-2.5-OP	6 1/4
	74-112-3.5	5 1/4	3 1/2	2	.827	1.188	1.181	16mm	74-112-3.5-O	6 1/4	74-112-3.5-OP	6 1/4
	74-112-5.0	5 1/4	5	2	.827	1.188	1.181	16mm	74-112-5.0-O	6 1/4	74-112-5.0-OP	6 1/4
	74-155-2.5	6 1/2	2 1/2	2 1/2	.866	1.400	1.690	20mm	74-155-2.5-O	7 1/2	74-155-2.5-OP	7 1/2
B-15 KITAGAWA B-18 (NEW)	74-155-3.5	6 1/2	3 1/2	2 1/2	.866	1.400	1.690	20mm	74-155-3.5-O	7 1/2	74-155-3.5-OP	7 1/2
	74-155-5.0	6 1/2	5	2 1/2	.866	1.400	1.690	20mm	74-155-5.0-O	7 1/2	74-155-5.0-OP	7 1/2
	74-115-2.5	6 1/2	2 1/2	2 1/2	1.000	1.400	1.690	20mm	74-115-2.5-O	7 1/2	74-115-2.5-OP	7 1/2
B-215 KITAGAWA	74-115-3.5	6 1/2	3 1/2	2 1/2	1.000	1.400	1.690	20mm	74-115-3.5-O	7 1/2	74-115-3.5-OP	7 1/2
	74-115-5.0	6 1/2	5	2 1/2	1.000	1.400	1.690	20mm	74-115-5.0-O	7 1/2	74-115-5.0-OP	7 1/2

ALUMINUM JAWS AVAILABLE ON REQUEST

WORKHOLDING



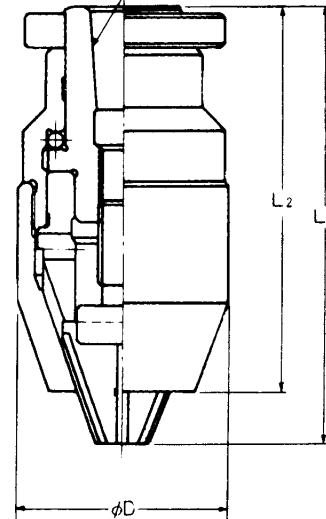
510 SERIES KEYLESS ACCU-DRILL CHUCKS

Yuasa keyless accu-drill chucks are world-wide popular industrial keyless chucks. Reliable high accuracy of the chuck assures your high quality production with CNC machines, machining centers, jig bores, drill presses and milling machines.



Dimensions

Jacobs Taper



FEATURES:

- ▶ High accuracy and long life jaws. Max. run-out: 0.0016" (0.04mm). Sub-zero treatment (remove remaining austenite) is done to the jaws, thereby guaranteeing their long life.
- ▶ Steel balls in the chuck allow you to tighten and release the chuck easily by hand.
- ▶ Keyless self-tightening feature automatically produces higher gripping force in proportion to the increased torque. Tool shank slippage is prevented.
- ▶ All components are produced under a totally controlled quality system. Heavy duty components in the perfect sealed mechanism assures long life and high accuracy.

ORDER NO.	MODEL NO.	ALBERECHT EQUIV. NO.	CAPACITY		WEIGHT		DIM INCH (mm)		
			INCHES	mm	LBS	OZ	D	L1	L2
510-101	LC3-J0	30-J0	1/8	0.3 - 3	0	3.5	0.94 (24)	1.89 (48)	1.73 (44)
510-102	LC3-J1	30-J1	1/8	0.3 - 3	0	3.5	0.94 (24)	1.89 (48)	1.73 (44)
510-103	LC6.5-J1	65-J1	1/4	0.5 - 6.5	0	10.5	1.34 (34)	2.66 (66)	2.44 (62)
510-104	LC8-J2S	80-J2S	5/16	0.5 - 8	0	13	1.50 (38)	2.99 (76)	2.70 (68.5)
510-105	LC10-J2S	100-J2S	3/8	0.5 - 10	1	3	1.69 (43)	3.58 (91)	3.15 (80)
510-106	LC13-J33	130-J33	1/2	0.5 - 13	2	3	1.97 (50)	4.06 (103)	3.58 (91)
510-107	LC13-J6	130-J6	1/2	0.5 - 13	2	3	1.97 (50)	4.06 (103)	3.58 (91)
510-108	LC16-J6	160-J6	5/8	3 - 16	2	7	2.20 (56)	4.29 (109)	3.78 (96)

SPINDLE WORK STOP



The spindle work stop is an expanding tool that fits into a lathe spindle or draw tube, and is designed to locate the workpiece in the spindle to the desired position which can be set by the user. This work locator is especially helpful when quick setup or consistency of linear dimensions is necessary.



INSTALLATION:

STEP 1: Place workpiece in chuck or collet and set proper length.

PN#	SPINDLE I.D. RANGE
SWT-100	3/4"~7/8"
SWT-101	1"~1 1/8"
SWT-102	1 1/8"~1 1/4"
SWT-103	1 1/4"~1 3/8"
SWT-104	1 3/8"~1 1/2"
SWT-105	1 1/2"~1 5/8"
SWT-106	1 5/8"~1 3/4"
SWT-107	1 3/4"~1 7/8"
SWT-108	1 7/8"~2"
SWT-109	2"~2 1/8"
SWT-110	2 1/8"~2 1/4"
SWT-111	2 1/4"~2 3/8"
SWT-112	2 3/8"~2 1/2"
SWT-113	2 1/2"~2 5/8"
SWT-114	2 5/8"~2 3/4"
SWT-115	2 3/4"~2 7/8"
SWT-116	2 7/8"~3"
SWT-117	3"~3 1/8"
SWT-118	3 1/8"~3 1/4"
SWT-119	3 1/4"~3 3/8"
SWT-120	3 3/8"~3 1/2"
SWT-121	3 1/2"~3 5/8"
SWT-122	3 5/8"~3 3/4"
SWT-123	3 3/4"~3 7/8"
SWT-124	3 7/8"~4"
SWT-125	4"~4 1/8"
SWT-126	4 1/8"~4 1/4"
SWT-127	4 1/4"~4 3/8"
SWT-128	4 3/8"~4 1/2"
SWT-129	4 1/2"~4 5/8"
SWT-130	4 5/8"~4 3/4"
SWT-131	4 3/4"~4 7/8"
SWT-132	4 7/8"~5"



STEP 2: Insert work stop into rear of spindle or draw tube. Expand fingers on work stop until they touch spindle; then back off screw 1/4 turn.



STEP 3: Using T wrench (supplied) slide work stop into spindle until it contacts with workpiece. Tighten work stop and remove wrench.



FLEXIBLE FIXTURING SYSTEMS

FOR MORE DETAILED INFORMATION, PLEASE REFER TO OUR FULL LINE MODULAR
FIXTURING CATALOG #MF-2001

MF-40 series

STANDARD DUTY

1/2"-13 tapped holes

MF-50 series

HEAVY DUTY

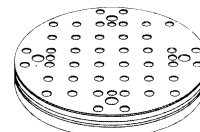
5/8"-11 tapped holes



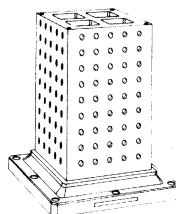
GRID PLATE



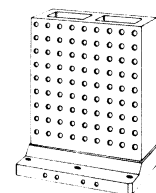
ROUND GRID PLATE



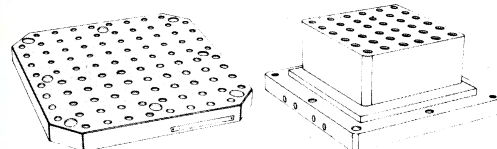
FOUR FACE ANGLE PLATE



DOUBLE ANGLE PLATE



MC PLATES



JIG PLATES WITH MULTIPLE TAPPED POSITIONING HOLES

Jig and sub jig plates are made of high tensile case iron with high grinding or machining finished accuracy. The multiple positioning holes (M.T.P. Holes) on the plates are accurately tapped. The bushes inserted in M.T.P. Holes are ground hardened steel with accuracy of ± 0.0008 " between pitches and about 200 fixture elements can be set flexibly on these plates by using M.T.P. holes.

OVER 200 FIXTURE ELEMENTS STANDARDIZED

As the basic fixture elements are all standardized for Standard-Duty working and Heavy-Duty machinings, the system will meet needs for many applications by changing the combinations of these elements. This universal feature enables you to position the work of any kind: square, round and odd shaped materials.

NOTE:

- 1) MF40 Series Elements have 1/2" threaded mounting holes for standard duty machinings.
- 2) MF50 Series Elements have 5/8" threaded mounting holes for heavy duty machinings.
- 3) MF10 Series Elements can be used both for MF40 and MF50 Series Plates.

MF10 SERIES FIXTURE ELEMENTS

LOCATING KEYS
SCREW JACK TIPS

STANDARD-DUTY MF40 SERIES FIXTURE ELEMENTS

ANGLE PLATES
CONSOLES
CLAMPS
STOPPERS
SPACERS
EXTENSIONERS
STRAPS
SUPPORTERS
HOLDERS BLOCKS
LOCATING BOLTS
LOCATING GAGES

HEAVY-DUTY MF50 SERIES FIXTURE ELEMENTS

ANGLE PLATES
CONSOLES
CLAMPS
STOPPERS
SPACERS
EXTENSIONERS
STRAPS
SUPPORTERS
HOLDERS BLOCKS
LOCATING BOLTS
LOCATING GAGES



5C COLLET FIXTURES

ACCU-DEX'S

ROTARY TABLES

DIVIDING HEADS

TILT TABLE

RIGHT ANGLE HEAD

TAILSTOCKS

BORING HEADS

BULL NOSE CENTERS

ROT-A-CHUCK

5C & R8 COLLETS

PRECISION DIAL GUAGES

MAGNETIC BASES

**MICROMETER SETS
(AIR, MANUAL)**

MILLING MACHINE ACCESSORIES & TOOLS



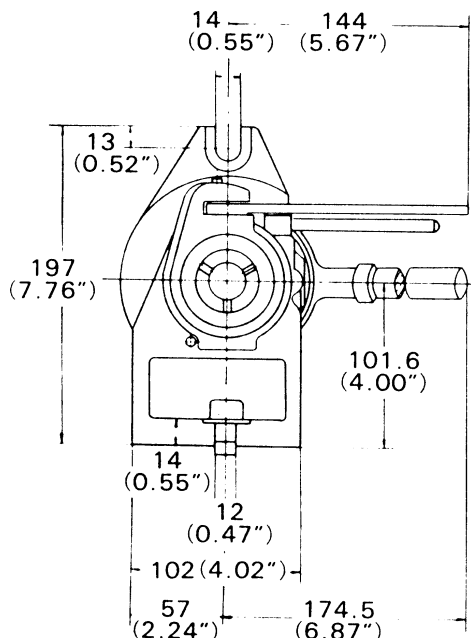
HORIZONTAL / VERTICAL 5C COLLET INDEX

550 series

2 YEAR
WARRANTY

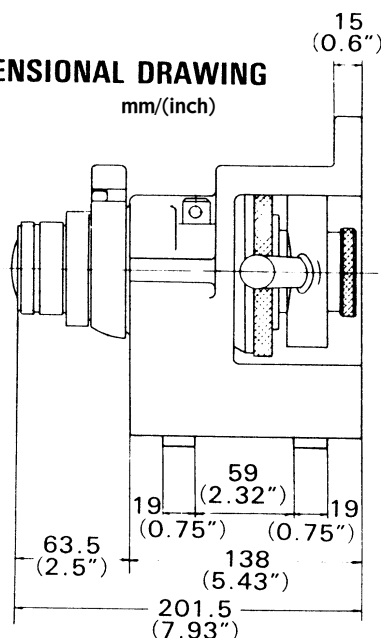
FEATURES:

- ▶ Spindle is manufactured with a taper seat in body frame.
- ▶ Rapid opening and closing is performed with a level collet closer with a leverage ratio of 100 to 1.
- ▶ Convenient ratchet mounted on front of spindle provides rapid indexing. Index plate has 24 index locations, (15° increments); any of these may be masked off for greater variety in applications.



DIMENSIONAL DRAWING

mm/(inch)



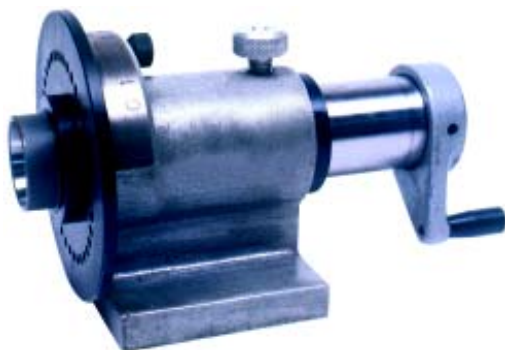
SPECIFICATIONS		MAXIMUM VARIATION Inch/(mm)
Dividing spindle concentricity		0.0002 (0.005)
Cylindrical center bore (per 1") concentricity		0.0008 (0.02)
Spindle center line parallelism		0.0008 (0.02)
Base to face squareness		0.0008 (0.02)
Center slot to dividing spindle concentricity		0.0008 (0.02)
Lateral offset of center slot of dividing spindle		0.0008 (0.02)
Repeatability		10 seconds
Indexing Accuracy		30 seconds
Spindle Runout		0.0004 (0.01)
MODEL	DESCRIPTION	WEIGHT lbs (kg)
550-004	Collet index	25 (11.3)
550-102	20 Division master plate for 550-004	2 (0.9)
550-103	Screw fed tailstock	15 (6.8)

OPERATION

Place workpiece into collet and adjust tightness with collet nut. Select indexing positions using index screw locators on master gear. Push the position lever to disengage the locator pin. Rotate the spindle to the desired position by depressing the index lever.

5C SPIN INDEX FIXTURE

TWO YEAR WARRANTY



595-003

- ▶ Hardened and precision ground spindle
- ▶ 0.0004" T.I.R. spindle accuracy
- ▶ Super time saver
- ▶ Applicable to all milling machines, surface grinders and inspection equipment
- ▶ Precision ground 36 position index plate
- ▶ Direct indexing in ten steps, graduated in 5° increments

MODEL	SPECIFICATIONS	MAXIMUM VARIATION (inches)	WEIGHT
595-003	Dividing spindle concentricity	.0004"	18 lbs.
	Cylindrical center bore (per 1") concentricity	.0012"	
	Spindle center line parallelism to base	.0008"	

5C HORIZONTAL & VERTICAL COLLET INDEX FIXTURE



595-004

*"Patented single lever action"
horizontal & vertical
Threaded spindle is hardened and ground
(2 1/4" - 8 TPI)*

- ▶ Utilizes 5C collets
- ▶ Patented single lever action activates the indexing mechanism
- ▶ Precision ground indexing plate has 24 indexing locations in 15° increments, any of which can be masked for greater versatility
- ▶ Spindle accuracy 0.0004"
- ▶ Approximate weight: 35 lbs.

SPECIFICATIONS	MAXIMUM VARIATION (inches)
Dividing spindle concentricity	0.0004"
Cylinder center bore (per 1") concentricity	0.0008"
Lateral offset of center slot of dividing spindle	0.0008"
Center slot to dividing spindle concentricity	0.0008"
Spindle center line parallelism	0.0008"
Base to face squareness	0.0008"



HORIZONTAL / VERTICAL RAPIDEX®

550 series

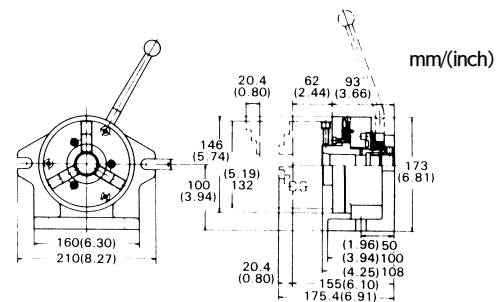
**2 YEAR
WARRANTY**

FEATURES:

- ▶ Extremely fast and accurate indexing
- ▶ Accepts a standard 5C collet or 5" Accu-Chuck®

SPECIFICATIONS		MAXIMUM VARIATION Inch/(mm)
Concentricity		0.0004 (0.01)
Parallelism		0.00078 (0.02)
Squareness		0.00078 (0.02)
Spindle Runout		0.0004 (0.01)
Indexing Accuracy		45 seconds
Repeatability		10 seconds
DIMENSIONS		
Center Height		3.937 (100)
MODEL	DESCRIPTION	WEIGHT lbs (kg)
550-005N	5C Rapidex®	28 (12.7)
585-005	5" Accu-Chuck® with solid jaws	11 (5)
553-299	Adjustable tailstock	11 (5)

Terminal "A" provides 6 positions 60° each respectively
 Terminal "B" provides 8 positions 45° each respectively
 Terminal "C" provides 12 positions 30° each respectively
 Terminal "D" provides 24 positions 15° each respectively



UNI-DEX®

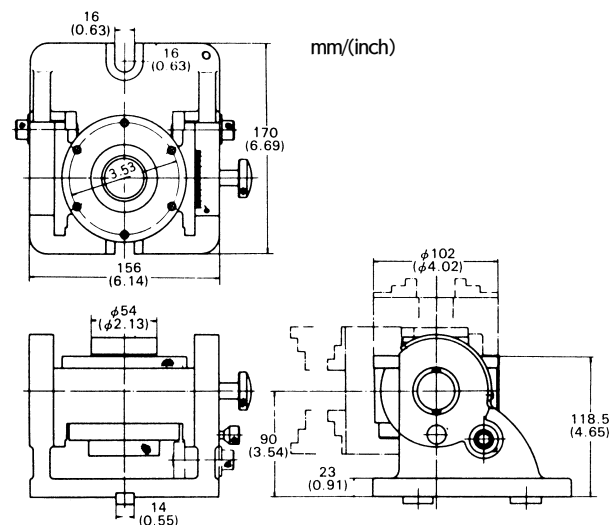
550 series

FEATURES:

- ▶ Extremely accurate and versatile
- ▶ 24 position direct indexing (15° increments)
- ▶ Accepts 4" 3-Jaw Accu-Chuck® or 5C collet
- ▶ Head can be inclined from -20° to +100° graduations on a satin chrome vernier
- ▶ Quick and easy indexing with dual positive brake shoes
- ▶ Accu-Chuck® repeatability 0.0005"
- ▶ Includes knurled draw ring for 5C collets
- ▶ Quick-set pin for 90° and 0°



DIMENSIONAL DRAWING



SPECIFICATIONS		MAXIMUM VARIATION Inch/(mm)
Tilting accuracy		0.0012 (0.03)
Spindle concentricity		0.0005 (0.01)
DIMENSIONS		
Base Size		6.70x6.14 (170x156)
Spindle Runout		0.0004 (0.01)
Indexing Accuracy		30 seconds
Repeatability		10 seconds
Center Height		3.54 (90)
Chuck at 90°		6.75 (171)
MODEL	DESCRIPTION	WEIGHT lbs (kg)
550-009	Uni-Dex® w/o chuck	29 (13)
585-004	4" Accu-Chuck® with solid jaws	6 (2.7)

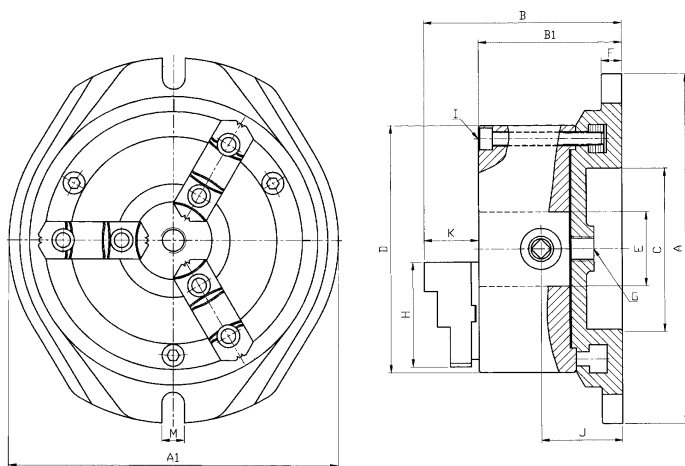
NEW!

ROT-A-CHUCK SIMPLE MOUNTED ROTARY CHUCK



LOW COST!

The 3-jaw chuck (with reversible and removable top jaws) is mounted directly to the swivel base. The chuck can be positioned and locked anywhere along the 360° Vernier scale by simply rotating the chuck manually and tightening the three screws.



The swivel base features convenient mounting positions for ease of use on both vertical and horizontal machining centers, as well as manual milling machines.

MILLING MACHINE ACCESSORIES & TOOLS

Inch/(mm)

MODEL	A	A1	B	B1	C	D	E	F	G	H	I	J	K	M
595-706	9.76 (248)	8.74 (222)	5.55 (141)	4.02 (102)	3.94 (100)	6.57 (167)	1.77 (45)	0.57 (14.5)	W 3/4 - 10	2.68 (68)	3-M10	2.36 (60)	1.54 (39)	0.55 (14)
595-707	10.79 (274)	9.72 (247)	6.10 (155)	4.41 (112)	4.96 (126)	7.56 (192)	2.28 (58)	0.63 (16)	W 3/4 - 10	3.23 (82)	3-M10	2.48 (63)	1.70 (43)	0.67 (17)
595-709	13.39 (340)	11.81 (300)	6.89 (175)	4.92 (125)	6.10 (155)	9.13 (232)	2.76 (70)	0.79 (20)	W 3/4 - 10	3.70 (94)	3-M12	2.76 (70)	1.97 (50)	0.75 (19)



ACCU-DEX® ROTARY INDEX 6-1/2", 8" & 12" WITH 3-JAW ACCU-CHUCK®

550 Series

**2 YEAR
WARRANTY**

FEATURES:

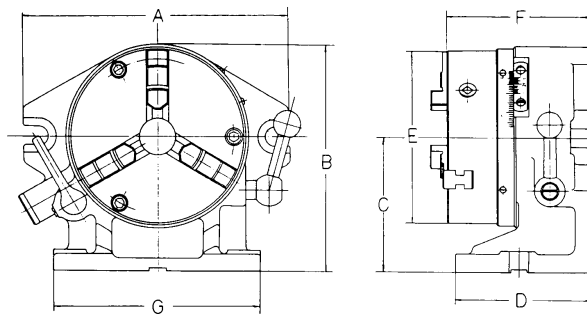
- ▶ Designed for milling, drilling, jig boring, and many other shop applications
3-Jaw Accu-Chuck® is adjustable to within 0.0005 (0.01) T.I.R.
- ▶ 360° satin chrome graduation ring with 5 minute adjustable vernier plate
- ▶ insures accurate readings
Clamping shoes lock spindle without affecting spindle adjustment
- ▶ Roller and dual ball bearing construction provides ultra smooth and
accurate table rotation (550-012)
- ▶ 24 position master plate (550-006, -007) 48 position (550-012)
- ▶ 6 masking plates (2, 3, 4, 6, 8 & 12 divisions) (550-006, -007)
- ▶ 8 masking plates (2, 3, 4, 6, 8, 12, 16 and 24 divisions) (550-012)
- ▶



550-007

NOW with 4-screw T.I.R. adjustment!

SPECIFICATIONS MODEL 550-006,-007		MAXIMUM VARIATION
Indexing accuracy		25 seconds
Base to chuck squareness		0.0008 (0.02)
Face parallelism		0.0006 (0.015)
Mounting flange concentricity		0.0008 (0.02)
Chuck concentricity (adjustable)		0.0005 (0.01)
MODEL	DESCRIPTION	WEIGHT lbs (kg)
550-006	Index with 6-1/2" chuck and 6 masking plates	77 (35)
553-300	Adjustable tailstock for 500-006	24 (11)
553-222	8" Face plate for 550-006	18 (8.1)
550-007	Index with 8" chuck and 6 masking plates	127 (57.7)
553-301	Adjustable tailstock 550-007	35 (15.9)
553-302	10" Face plate for 550-007	24 (10.9)
553-303	20 position master plate	3 (1.3)
553-304	5 division masking plate	1 (0.4)
553-305	10 division masking plate	1 (0.4)
553-330	30 position master plate for 550-007 / 008	3 (1.3)
553-332	32 position master plate for 550-007 / 008	3 (1.3)
553-333	15 division masking plate for 550-007 / 008	1 (0.4)
553-334	16 division masking plate for 550-007 / 008	1 (0.4)
553-338	8" soft master plate blank	4 (1.8)
553-339	8" soft masking plate blank	1 (0.4)



Inch/(mm)

SPECIFICATIONS MODEL 550-012		MAXIMUM VARIATION
Indexing accuracy		20 seconds
Base to chuck squareness		0.0008 (0.02)
Face parallelism		0.0005 (0.01)
Chuck concentricity		0.0005 (0.01)
Chuck center hole diameter		4.33 (110)
MODEL	DESCRIPTION	WEIGHT lbs (kg)
550-012	Index with 12" Accu-Chuck® and 8 masking plates	363 (165) 363
553-311	Adjustable tailstock	45 (20)
553-320	20 position master plate	6 (2.7)
553-321	5 division masking plate	6 (2.7)
553-322	10 division masking plate	6 (2.7)
553-340	12" soft master plate blank	5 (2.2)
553-341	12" soft masking plate blank	5 (2.2)
553-350	15" face plate (42mm bore M36 P3 thread)	30 (13.6)

DIMENSIONS								
MODEL	A	B	C	D	E	F	G	HOLE DIA.
550-006	10.24 (260)	8.58 (218)	5.12 (130)	5.12 (130)	6.57 (167)	6.15 (156)	8.66 (220)	1.73 (44)
550-007	12.28 (312)	10.12 (257)	5.87 (149)	5.83 (148)	8.27 (210)	6.82 (173)	10.16 (258)	2.48 (63)
550-012	17.00 (432)	15.21 (386)	8.98 (228)	7.87 (200)	12.20 (310)	9.10 (231)	13.78 (350)	4.33 (110)

STANDARD TYPE BASIC INDEXING SPACER

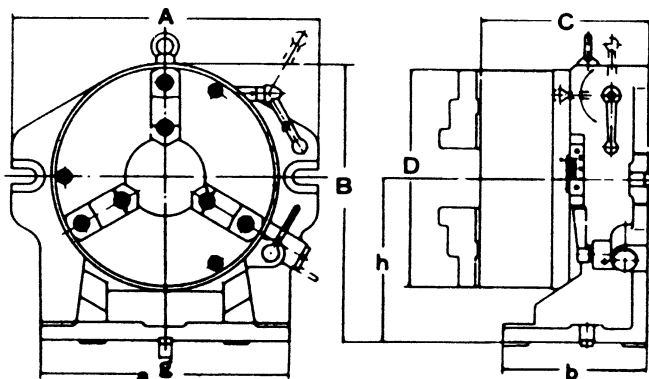


FEATURES:

- ▶ Hardened and ground, 24 position master plate
- ▶ Heavy duty shoe type spindle brake ensuring maximum rigidity for milling cuts
- ▶ Precision ground steel spindle
- ▶ Solid Meehanite casting, specially designed for milling, drilling and boring
- ▶ Six masking plates included (2,3,4,6,8 and 12 divisions)
- ▶ Chrome plated graduated ring with five minute Vernier reading
- ▶ 3-jaw chuck with removable top jaws
- ▶ Vertical and horizontal mounting positions
- ▶ An inspection report is included guaranteeing a high quality standard

Standard Accessories:

- ▶ 3-jaw chuck with removable top jaws
- ▶ Six masking plates (2,3,4,6,8 and 12 position)
- ▶ Locating keys
- ▶ Test report and warranty card (1 year)



Inch/(mm)

STANDARDS OF ACCURACY	TOLERANCE (Max.)
Parallelism of table surface to base	0.0006 (0.015)
Axial movement of table surface	0.0006 (0.015)
True running of center boss	0.0004 (0.01)
Squareness of base to angle face, p/12"	0.0008 (0.02)
True running of center chuck	0.0012 (0.03)
Positioning Accuracy	45 seconds



OPTIONAL ACCESSORIES

Part Number	Description	For Model
599-300	Tailstock	595-006
599-301	Tailstock	595-007

Inch/(mm)

MODEL #	A	B	C	D	a	b	h
595-006	10.23 (260)	8.58 (218)	6.15 (156.2)	6.57 (1.67)	8.66 (220)	5.12 (130)	5.12 (130)
595-007	12.28 (312)	10.12 (257)	6.82 (173.3)	8.27 (210)	10.16 (258)	5.83 (148)	6.10 (155)

MODEL #	Inner Jaw	Outer Jaw	Guide Block	Chuck Hole Diameter	Turret Hole Diameter	Net Wt. lbs./ (kg)
595-006	0.16~1.65 (4~42)	0.39~6.14 (10~156)	0.63 (16)	1.73 (44)	1.42 (36)	71.5 (32.5)
595-007	0.16~2.44 (4~62)	0.39~7.09 (10~180)	0.63 (16)	2.48 (63)	2.48 (63)	110 (50)



SUPER ACCU-DEX® 6-1/2" & 8"

550 series

2 YEAR
WARRANTY

FEATURES:

- ▶ Worm can be completely disengaged for free rotation
- ▶ For milling, drilling, jig boring, and many common shop applications
- ▶ 24 position hardened and ground index plate (15° increments) with satin chrome dial, 360° graduated ring and adjustable 10 second vernier
- ▶ Each unit is equipped with six masking plates (2, 3, 4, 6, 8 and 12 divisions)
- ▶ The three-jaw Accu-Chuck is completely adjustable to within 0.0005" T.I.R. (0.012)



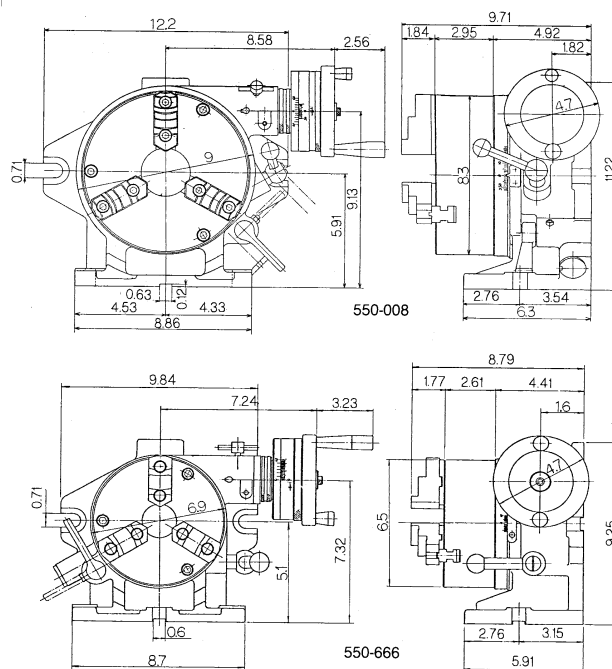
550-008

NOW with 4-screw T.I.R. adjustment!

Inch/(mm)

SPECIFICATIONS	MAXIMUM VARIATION	
	inches / (mm)	
Maximum individual spacing error	25 seconds	
Vernier reading	10 seconds	
Base to chuck squareness (90°)	0.0008 (0.02)	
Base parallelism	0.0004 (0.01)	
Mounting flange concentricity	0.0008 (0.02)	
Chuck concentricity	0.0005 (0.012)	
DIMENSIONS		
Chuck center hole diameter 550-666	1.73 (44)	
Chuck center hole diameter 550-008	2.48 (63)	
MODELS AND ACCESSORIES		
MODEL	DESCRIPTION	WEIGHT
		lbs (kg)
550-008	Index with 8" Accu-Chuck®	166 (75)
550-111	Dividing plates	9 (4.1)
553-301	Adjustable tailstock	35 (16)
553-302	10" Face plate	24 (11)
553-303	20 position master plate	3 (1.4)
553-304	5 division masking plate	1 (0.4)
553-305	10 division masking plate	1 (0.4)
553-330	30 position master plate for 550-007 / 008	3 (1.4)
553-332	32 position master plate for 550-007 / 008	3 (1.4)
553-333	15 division masking plate for 550-007 / 008	1 (0.4)
553-334	16 division masking plate for 550-007 / 008	1 (0.4)
553-338	8" soft master plate blank	4 (1.8)
553-339	8" soft masking plate blank	1 (0.4)
550-666	Index with 6-1/2" Accu-Chuck®	125 (56.8)
550-111	Dividing plates	9 (4.1)
553-300	Adjustable tailstock	24 (11)
553-222	8" Face plate	18 (8.2)

The Super Accu-Dex combines the advantages of the Accu-Dex with those of the worm-g geared rotary index. Disengaging the worm drive permits accurate quick indexing by the index pin locator into any of the 24-notch positions on the master gear. Rapid positioning to specific index locations is possible when any masking plate (2, 3, 4, 6, 8 & 12) position is used.



STANDARD TYPE SUPER INDEXING SPACER



FEATURES:

- ▶ Hardened and ground 24 position master plate
- ▶ Heavy duty shoe type spindle brake, ensuring maximum rigidity for milling cuts
- ▶ Precision ground steel spindle
- ▶ Solid Meehanite casting, specially designed for milling, drilling and boring
- ▶ Six masking plates included (2,3,4,6,8 and 12 divisions)
- ▶ Chrome plated graduated ring with five minute vernier reading
- ▶ Hardened and ground worm gear
- ▶ Vertical and horizontal mounting positions
- ▶ Eccentric worm housing for spindle disengagement



STANDARD ACCESSORIES:

- ▶ Three-jaw chuck with removable top jaws
- ▶ T-slotted face plate
- ▶ Six masking plates (2, 3, 4, 6, 8 & 12 position)
- ▶ Locating keys, test report & warranty card

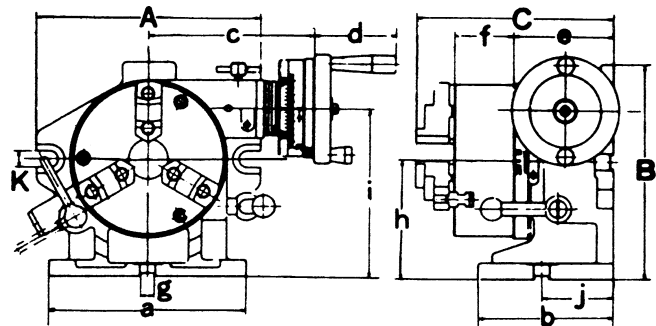


Inch/(mm)

STANDARDS OF ACCURACY	TOLERANCE (Max.)
Parallelism of table surface to base	0.0006 (0.015)
Axial movement of table surface	0.0006 (0.015)
True running of center boss	0.0004 (0.01)
Squareness of base to angle face, p/12"	0.0008 (0.02)
True running center of chuck	0.0012 (0.03)
Positioning accuracy	45 seconds



599-301



OPTIONAL ACCESSORIES		
Part Number	Description	For Model
599-300	Tailstock	595-666
599-301	Tailstock	595-008
599-007	Dividing plates	595-008

MODEL #	A	B	C	a	b	c	d	e	f	g	h	i	j	k
595-666	9.84 (250)	9.40 (235)	8.70 (221)	8.66 (220)	5.91 (150)	7.36 (184)	3.23 (82)	4.41 (112)	2.60 (66)	0.63 (16)	5.12 (130)	7.32 (186)	3.15 (80)	0.71 (18)
595-008	12.20 (310)	11.22 (285)	9.57 (243)	8.86 (225)	6.30 (160)	7.91 (201)	3.23 (82)	4.92 (125)	2.95 (75)	0.63 (16)	6.10 (155)	9.13 (232)	3.54 (90)	0.71 (18)

MODEL #	CHUCK				FACE PLATE				
	Inner Jaw	Outer Jaw	Thru Hole Diameter	Outer Diameter	Outer Diameter	Thickness	Guide Block	Turret Hole Diameter	Net Wt. lbs./ (kg)
595-666	0.16~1.65 (4~42)	0.39~6.14 (10~156)	1.73 (44)	6.57 (167)	8.00 (203)	1.97 (50)	0.63 (16)	1.42 (36)	106 (48.2)
595-008	0.16~2.44 (4~62)	0.39~7.09 (10~180)	2.48 (63)	8.27 (210)	10 (254)	2.28 (58)	0.63 (16)	2.48 (63)	166 (75.5)

COMPACT SUPER ACCU-DEX

FEATURES: PN# 550-444

- ▶ 24 position hardened and ground master index plate, direct dividing (15 degree increments)
Satin chrome dial
- ▶ 360 degree graduated ring with adjustable 20
- ▶ second vernier (indirect dividing by worm gear)
Worm gear ratio 60:1
6 degree turning of spindle per one handle
- ▶ revolution
- ▶ Brake design is our own Clamp Collar Type
Thru hole diameter: 1.30" (33mm) for spindle,
1.26" (32mm) for 4" Accu-chuck, PN# 585-004
- ▶ included as standard



OPTIONAL ACCESSORIES

PART #	DESCRIPTION	WEIGHT lbs./ (kg)
553-299	Adjustable Tailstock	11 (5)
553-404	T-Slotted Face Plate	13.2 (6)
550-100	Dividing Plates	7 (3.2)

NOTE: The PN# 550-444 Compact Super Accu-dex is great for small parts on small milling machines. The tilted angle of the rotary handle mechanism permits use in the middle of the machine table.

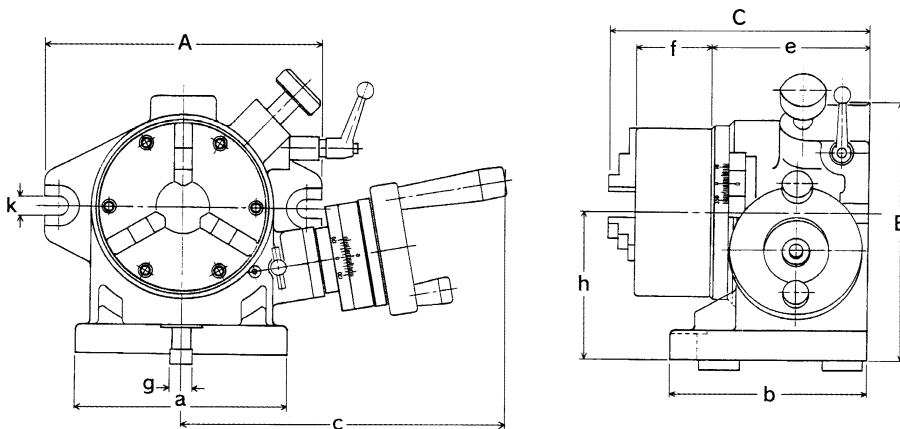
Inch/(mm)

ACCURACY	TOLERANCE
Parallelism of turret surface to base	0.0004 (0.01)
True running of axial movement of turret surface	0.0004 (0.01)
True running of mounting flange boss	0.0008 (0.02)
Squareness of base to angle face	0.0008 (0.02)
Dividing accuracy (indirect) (cumulation)	1' 20"
Dividing accuracy (direct) (cumulation)	3'

OPERATION

Direct Dividing: Disengage worm gear; use index pin for 15° index positions into master gear.

Indirect dividing: Engage worm gear. Rotate until desired position is reached. Dividing plates may be used on worm shaft (PN# 550-100)



Inch/(mm)

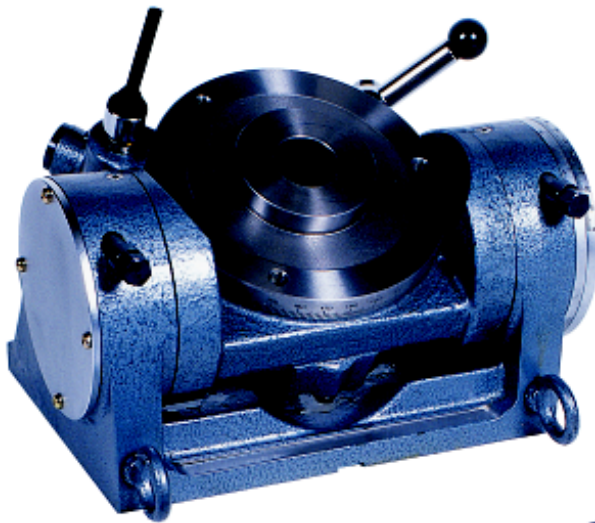
MODEL	Number of dividing	CHUCK				A	B	C	a	b	c	e	f	g	h	j	k	Weight lbs./ (kg)
		Outer Diameter	Inner Jaw	Outer Jaw	Inner Diameter													
550-444	2,3,4,6 8,12,24	4.02 (102)	0.12~1.18 (3~30)	0.12~3.39 (3~86)	1.26 (32)	6.69 (170)	6.18 (157)	6.22 (158)	5.12 (130)	4.72 (120)	7.76 (197)	3.78 (96)	1.81 (46)	0.55 (14)	3.54 (90)	-	0.51 (13)	30.8 (14)

COMPACT / TILT ROTARY ACCU-DEX



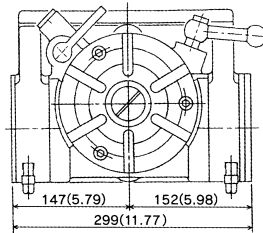
FEATURES: PN# 550-109

- ▶ 24 position hardened and ground master index plate (15 deg. increments)
- ▶ Six masking plates (2,3,4,6,8 & 12 position)
- ▶ Tilting angles 0~90 degrees, one degree graduation, read 2' by vernier
- ▶ 360 degree graduated ring and adjustable 5 minute vernier (rotary)
- ▶ 1.42" (36mm) thru hole diameter
- ▶ Quick set pin for 0 and 90 degree positions
- ▶ Steel shoe type locking mechanism (tilt and rotary) for maximum rigidity
- ▶ Accepts 6" Accu-chuck (585-106) or 6" face plate (553-406)(optional)
- ▶ Solid Meehanite construction
- ▶ Net weight 81.4 lbs (37 kg)



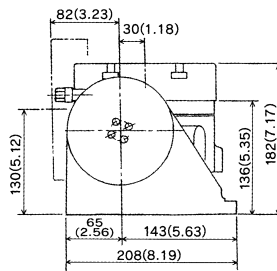
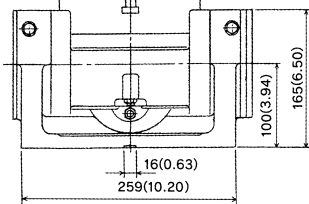
OPTIONAL ACCESSORIES

PART #	DESCRIPTION	WEIGHT lbs./ (kg)
585-106	6" Accu-chuck	19 (8.6)
553-406	6" Face plate	13 (5.9)
553-300	Adjustable Tailstock	24 (10.9)



● Shown with optional Sub Table

mm/(inch)



Inch/(mm)

ACCURACY	TOLERANCE
Parallelism of turret surface to base	0.0008 (0.02)
True running of axial movement of turret surface	0.0006 (0.015)
True running of mounting flange boss	0.0008 (0.02)
Parallelism of inclined axis center line to base	0.0008 (0.02)
Tilting accuracy (measured at the positions)	30 and 60 degree 0.0012 (0.03)
Dividing accuracy (cumulation)	60 seconds

The PN# 550-109 is truly a revolutionary new product in manual tilting and rotary indexing. In addition, the tilt/rotary Accu-Dex has a very small footprint and is ideal for small milling machines or VMC's.

MODEL	Dividing Number	CHUCK				Tilting Angle	Guide Block	Weight lbs./ (kg)
		Outer Diameter	Inner Jaw	Outer Jaw	Bore			
550-109	2,3,4,6,8,12,24	6.57 (167)	0.16~1.65 (4~42)	0.39~6.14 (10~156)	1.73 (44)	0°~90°	0.63 (16)	77.0 (35)



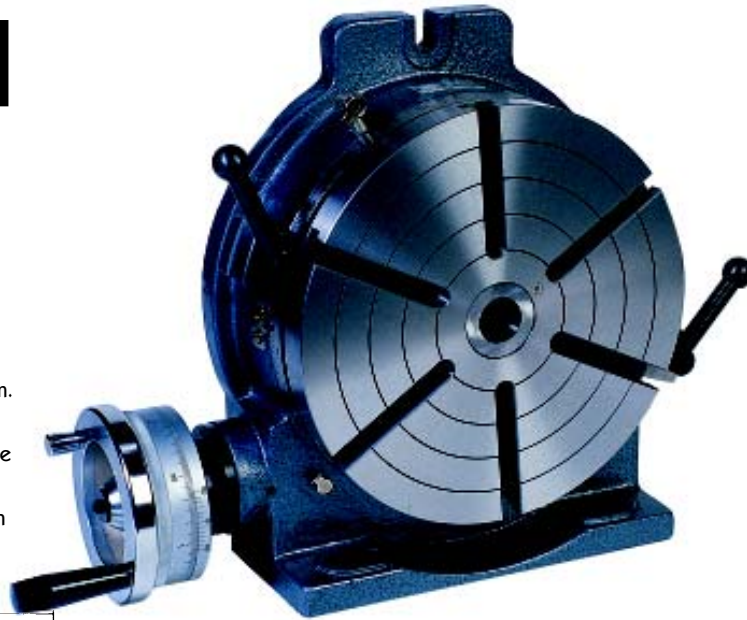
HORIZONTAL / VERTICAL PRECISION ROTARY TABLES

550 Series

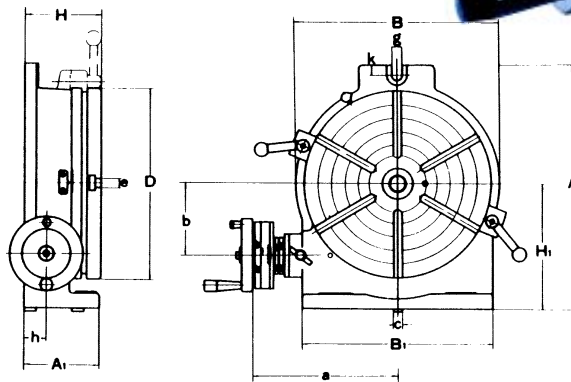
**2 YEAR
WARRANTY**

FEATURES:

- ▶ Works as an index center in the vertical position as well as a conventional rotary table for circular cutting, angle setting, boring and spot facing
10 second vernier reading
- ▶ Disengageable worm gear permits free table rotation. Worm shaft is hardened and ground
- ▶ Optional dividing plates and crank handle can be attached to the rotary table drive mechanism. One rotation of handle equals 4°
- ▶ The table is made of Meehanite. The base of the body, table surface and the rotating parts are finished ground, permitting very smooth rotation



550-050



Inch/(mm)



SPECIFICATIONS	MAXIMUM VARIATION
Clamping surface flatness (concave)	0.0006 (0.015)
Cylindrical center bore concentricity	0.0008 (0.02)
Surface to base parallelism	0.0008 (0.02)
Surface to angle face squareness	0.0004 (0.01)
Surface to center slot squareness	0.0008 (0.02)
ACCURACY	
550-046, 550-048	1 minute 20 seconds
550-050, 550-052, 550-054, 550-055	45 seconds
550-056	40 seconds

OPTIONAL DIVISION PLATES	
MODEL	DESCRIPTION
550-100	for 6" tables (A,B,C,D plates)
550-111	for 8", 10", 12", 14" tables (A,B plates)
550-111-4H	for 16", 20" tables (A,B plates)

MODEL	TABLE			BASE DIMENSIONS				DISTANCE OF HANDLE FROM CENTER			GUIDE BLOCK	T-SLOT		BOLT SLOTS		TABLE CENTER SHAFT SLEEVE	WORM RATIO	GRADUATION OF MICRO-COLLAR	GRADUATION OF VERNIER HANDLE	WEIGHT lbs./(kg)
	Diameter	Face height	Center height	at vertical position	at horizontal position	A	B	A1	B1	a	b	h	c	e	No.	g	k			
	D	H	H1	A	B	A1	B1	a	b	h	c	e	No.	g	k					
550-046	5.91 (150)	3.15 (80)	3.94 (100)	7.87 (200)	6.30 (160)	3.07 (78)	5.91 (150)	5.43 (138)	2.13 (54)	1.10 (28)	0.55 (14)	0.39 (10)	6	0.59 (15)	0.39 (10)	MT-2	90:1	1"	10"	24.2 (11)
550-048	7.87 (200)	4.13 (105)	5.31 (135)	10.43 (265)	8.66 (220)	4.06 (103)	7.87 (200)	7.24 (184)	3.35 (85)	1.42 (36)	0.63 (16)	0.47 (12)	6	0.67 (17)	0.39 (10)	MT-3	90:1	1"	10"	61.6 (28)
550-050	9.84 (250)	4.53 (115)	6.50 (165)	12.80 (325)	11.02 (280)	4.45 (113)	9.84 (250)	8.03 (204)	4.13 (105)	1.52 (38.5)	0.63 (16)	0.47 (12)	6	0.67 (17)	0.59 (15)	MT-3	90:1	1"	10"	96.8 (44)
550-052	11.81 (300)	5.31 (135)	7.68 (195)	15.28 (388)	12.99 (330)	5.24 (133)	11.81 (300)	9.61 (244)	4.65 (118)	1.81 (46)	0.63 (16)	0.55 (14)	6	0.71 (18)	0.63 (16)	MT-4	90:1	1"	10"	147.4 (67)
550-054	13.78 (350)	5.51 (140)	9.06 (230)	17.72 (450)	14.96 (380)	5.43 (138)	13.78 (350)	10.59 (269)	5.20 (132)	1.85 (47)	0.63 (16)	0.55 (14)	6	0.71 (18)	0.71 (18)	MT-4	90:1	1"	10"	206.8 (94)
550-055	15.75 (400)	6.30 (160)	10.04 (255)	19.69 (500)	16.93 (430)	6.18 (157)	15.75 (400)	12.44 (316)	6.30 (160)	2.26 (57.5)	0.63 (16)	0.63 (16)	6	0.71 (18)	0.59 (15)	MT-5	90:1	1"	10"	297.0 (135)
550-056	19.69 (500)	6.89 (175)	11.81 (300)	23.62 (600)	21.26 (540)	6.81 (173)	19.69 (500)	13.03 (331)	7.20 (183)	2.48 (63)	0.63 (16)	0.79 (20)	6	0.87 (22)	0.59 (15)	MT-6	90:1	1"	10"	484.0 (220)

HORIZONTAL PRECISION ROTARY TABLES

550 Series

**2 YEAR
WARRANTY**

FEATURES:

- ▶ 10 second vernier reading
- ▶ Excellent performance, practical design and low cost
- ▶ Widely used for circular cutting, angle setting, boring and spot facing on machines
- ▶ Meehanite table is fully ground and finished.
- ▶ The critical wear points are hand finished for ultra precision. Rotation is very smooth
- ▶ Locking the table is achieved with two opposing clamp brakes, which eliminate
- ▶ deflection during operation
- ▶ Worm gear is hardened and ground
- ▶ Worm gear can be completely disengaged for free rotation



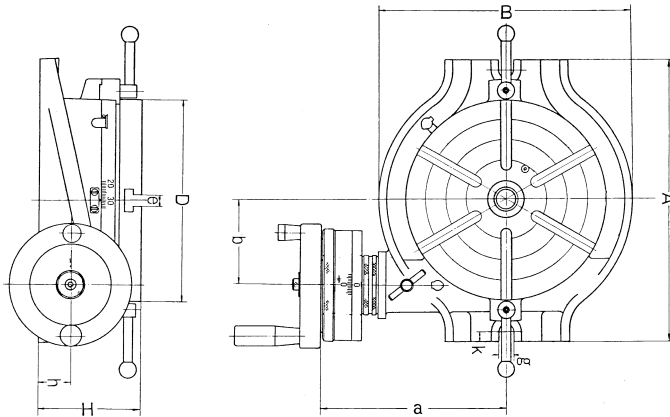
550-110N



Inch/(mm)

SPECIFICATIONS	MAXIMUM VARIATION
Clamping surface flatness (concave)	0.0006 (0.015)
Cylindrical center bore concentricity	0.0008 (0.02)
Surface to base parallelism	0.0008 (0.02)
Surface to center slot squareness	0.0008 (0.02)
Tapered center bore concentricity	0.0008 (0.02)
ACCURACY	
550-106N, 550-108N	1 minute 20 seconds
550-110N, 550-112N, 550-114N, 550-116N	45 seconds
550-120N	40 seconds

OPTIONAL DIVISION PLATES	
MODEL	DESCRIPTION
550-100	for 6" tables (A,B,C,D plates)
550-111	for 8", 10", 12", 14" tables (A,B plates)
550-111-4H	for 16", 20" tables (A,B plates)



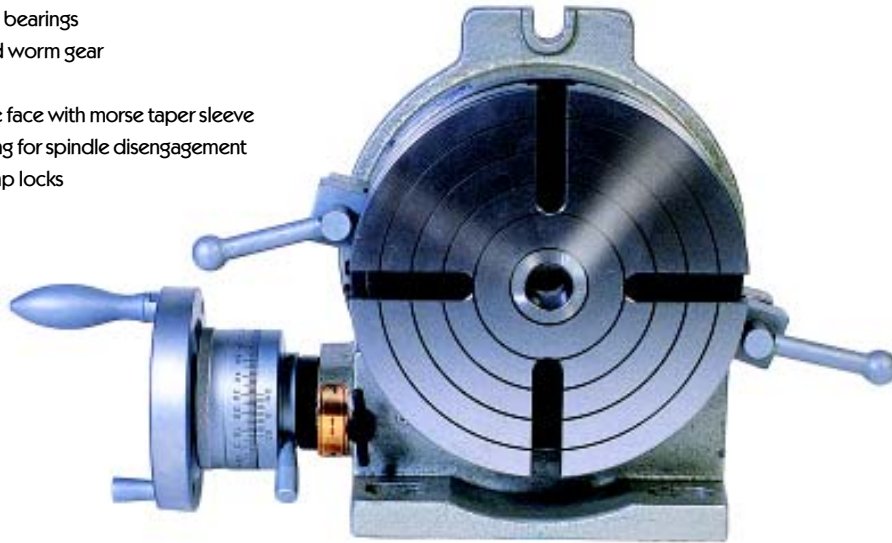
MODEL	TABLE		BASE DIMENSIONS		DISTANCE OF HANDLE FROM CENTER			WIDTH OF T-SLOT		BOLT SLOTS		CENTER SLEEVE	WORM RATIO	GRADUATION OF MICRO-COLLAR	GRADUATION OF VERNIER HANDLE	WEIGHT lbs./(kg)
	Outer Diameter	Height														
			D	H	A	B	a	b	h	e	No.					
550-106N	5.91 (150)	3.15 (80)	8.27 (210)	7.24 (184)	5.43 (138)	2.13 (54)	1.10 (28)	0.39 (10)	6	0.39 (10)	0.35 (9)	MT-2	90:1	1'	10"	23.1 (10.5)
550-108N	7.87 (200)	4.13 (105)	280 (11.02)	9.84 (250)	7.24 (184)	3.35 (85)	1.42 (36)	0.47 (12)	6	0.55 (14)	0.39 (10)	MT-3	90:1	1'	10"	55.0 (25.0)
550-110N	9.84 (250)	4.53 (115)	13.39 (340)	11.81 (300)	8.03 (204)	4.13 (105)	1.52 (38.5)	0.47 (12)	6	0.63 (16)	0.59 (15)	MT-3	90:1	1'	10"	81.4 (37.0)
550-112N	11.81 (300)	5.31 (135)	15.75 (400)	14.33 (364)	9.61 (244)	4.65 (118)	1.81 (46)	0.55 (14)	6	0.71 (18)	0.71 (18)	MT-4	90:1	1'	10"	132.0 (60.0)
550-114N	13.78 (350)	5.51 (140)	18.11 (460)	16.54 (420)	10.59 (269)	5.20 (132)	1.85 (47)	0.55 (14)	6	0.71 (18)	0.79 (20)	MT-4	90:1	1'	10"	187.0 (85.0)
550-116N	15.75 (400)	6.30 (160)	19.69 (500)	19.69 (500)	12.44 (316)	6.30 (160)	2.26 (57.5)	0.63 (16)	6	-	-	MT-5	90:1	1'	10"	316.8 (144)
550-120N	19.69 (500)	7.48 (190)	23.62 (600)	23.62 (600)	14.41 (366)	7.64 (194)	2.68 (68)	0.79 (20)	6	-	-	MT-6	90:1	1'	10"	660.0 (300.0)

MILLING MACHINE ACCESSORIES & TOOLS

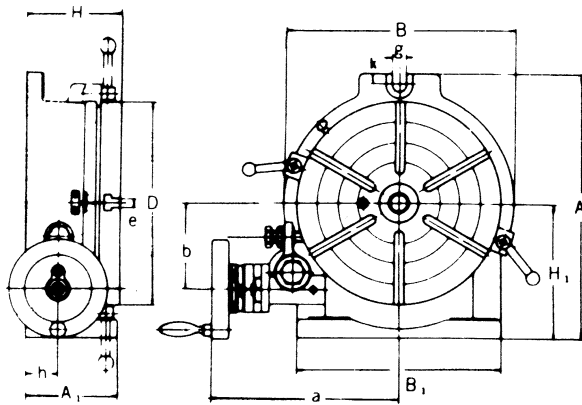
STANDARD TYPE HORIZONTAL / VERTICAL ROTARY TABLES

FEATURES:

- ▶ High density Meehanite casting
- ▶ Tapered roller spindle bearings
- ▶ Hardened and ground worm gear
- ▶ 10 second vernier
- ▶ Precision ground table face with morse taper sleeve
- ▶ Eccentric worm housing for spindle disengagement
- ▶ Heavy duty table clamp locks



595-048



599-301

Inch/(mm)

PART #	DESCRIPTION
599-006	Dividing plates for 595-046
599-008	Dividing plates for 595-048
599-012	Dividing plates for 595-050/052
599-300	Tailstock for 595-046
599-301	Tailstock for 595-048/050
599-311	Tailstock for 595-052

TESTING OBJECTIVE	VARIATION inch/(mm)
Flatness of table surface	0.0006 (0.015)
Parallelism of table surface to base	0.0008 (0.02)
Squareness of table surface to angle face	0.0008 (0.02)
True running of table surface	0.0006 (0.015)
True running of center hole	0.0008 (0.02)
Positioning accuracy	45 seconds

MODEL NUMBER	TABLE DIMENSIONS			BASE DIMENSIONS			WIDTH OF T-SLOT		BOLT SLOTS	CENTER SLEEVE	NET WEIGHT lbs./(kg)
	Outer Diameter		Height								
	A1	D	H	H1	A	B	e	# Slots			
595-046	3.07 (78)	5.91 (150)	3.15 (80)	3.94 (100)	7.87 (200)	6.30 (160)	0.43 (11)	4	0.59 (15)	MT-2	26.4 (12)
595-048	3.94 (100)	7.87 (200)	4.13 (105)	5.31 (135)	10.43 (265)	8.66 (220)	0.55 (14)	4	0.67 (17)	MT-3	66.1 (30)
595-050	4.33 (110)	9.84 (250)	4.53 (115)	6.50 (165)	12.80 (325)	11.02 (280)	0.55 (14)	6	0.67 (17)	MT-3	99 (45)
595-052	5.12 (130)	11.81 (300)	5.31 (135)	7.68 (195)	15.28 (388)	12.99 (330)	0.63 (16)	6	0.71 (18)	MT-4	187 (85)
595-054	5.12 (130)	13.78 (350)	5.51 (140)	9.06 (230)	17.72 (450)	14.96 (380)	0.63 (16)	6	0.71 (18)	MT-4	220 (100)
595-055	5.90 (150)	15.98 (406)	6.10 (155)	10.03 (255)	19.69 (500)	16.93 (430)	0.63 (16)	6	0.71 (18)	MT-4	297 (135)

TILTING ROTARY TABLES

6", 10", 12" AND 20"



550 Series

**2 YEAR
WARRANTY**

FEATURES:

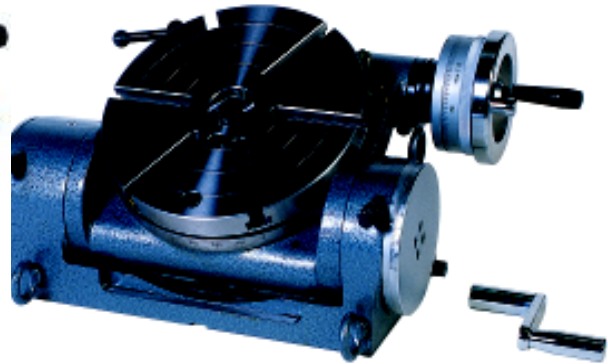
- Accurate and built for use in milling, boring and other machines
- Indexing, facing and other operations can be done rapidly with extreme precision
- Worm shafts are hardened and ground
- Rapid indexing can be done with optional dividing plates

ACCURACY:

	Inch/(mm)
Surface to center hole squareness	0.0008 (0.02)
Surface to base parallelism	0.0008 (0.02)
Clamping surface concentricity	0.0008 (0.02)
Tapered center bore concentricity	0.0004 (0.01)
Maximum cumulative spacing error 550-210 and 550-212	45 seconds
Maximum cumulative spacing error 550-220	20 seconds
Maximum cumulative spacing error 550-206	1 minute, 20 seconds



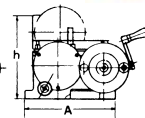
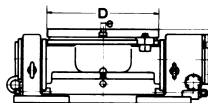
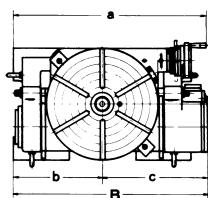
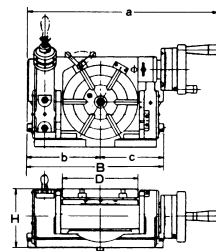
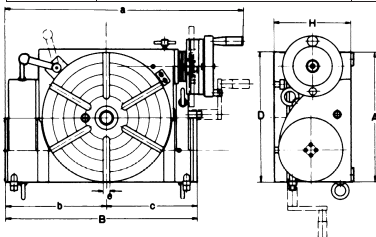
550-206



550-210

MAIN SPECIFICATIONS		550-210, 212, 220	550-206
TILTING	Degree per one handle rotation	1°	6°
	vernier reading	2'	1'
TABLE	Degree per one handle rotation	4°	4°
	Scale of micro collar	1'	1'
	vernier reading	10"	10"
	Gear ratio	1:90	1:90

OPTIONAL ACCESSORIES		
MODELS	DESCRIPTION	WEIGHT lbs. (kg)
550-100	Dividing plates for 550-206	9 (4.1)
550-111	Dividing plates for 550-210; 212	9 (4.1)
550-111-4	Dividing plates for 550-220	9 (4.1)
553-299	Adjustable tailstock for 550-206	11 (5)
553-301	Adjustable tailstock for 550-210 / 212	22 (10)
553-312	Adjustable tailstock for 550-220	54 (24.5)



OPTIONAL DIVISION PLATES	
MODEL	DESCRIPTION
550-100	for 6" tables (A,B,C,D plates)
550-111	for 8", 10", 12", 14" tables (A,B plates)
550-111-4H	for 16", 20" tables (A,B plates)



Inch/(mm)

ORDER NO.	TABLE DIAMETER & TABLE HEIGHT			MOUNTING SURFACE					T-SLOT WIDTH	CENTER HOLE	CENTER HEIGHT (Tilted at 90°)	WEIGHT lbs./ (kg)
	D	H	h	A	B	a	b	c	e			
550-206	5.91 (150)	4.53 (115)	6.50 (165)	7.09 (180)	10.55 (268)	14.96 (380)	5.63 (143)	4.92 (125)	0.39 (10)	MT-2	3.54 (90)	50.6 (23)
550-210	9.84 (250)	6.10 (155)	10.83 (275)	10.04 (255)	15.63 (397)	19.49 (495)	8.27 (210)	7.36 (187)	0.47 (12)	MT-3	5.91 (150)	156.2 (71)
550-212	11.81 (300)	7.01 (178)	12.56 (319)	11.81 (300)	17.60 (447)	21.69 (551)	9.25 (235)	8.35 (212)	0.55 (14)	MT-4	6.65 (169)	228.8 (104)
550-220	19.69 (500)	13.19 (335)	21.65 (550)	19.69 (500)	34.33 (872)	33.98 (863)	15.75 (400)	18.58 (472)	0.79 (20)	MT-6	11.81 (300)	1053.8 (479)



HIGH PRECISION DIVIDING HEAD

550 series

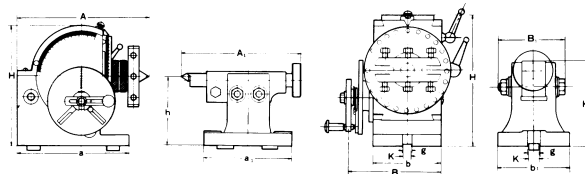
2 YEAR
WARRANTY

FEATURES:

- ▶ Can be easily adjusted to any angle between -10° to +90° from a horizontal position
Divide any angle by the direct, indirect or differential methods
- ▶ Spiral machining capability
- ▶ Spindles with taper roller bearings are an integral part of all dividing heads
- ▶ Direct mounted index plate has 24 divisions
- ▶ Hardened and ground worm gear has a 40 to 1 ratio
- ▶ Positive locking mechanism uses a 360° brake shoe
- ▶ Face plate provided for use with Accu-Chuck®
- ▶ Optional Accu-Chucks® are available
- ▶ Three dividing plates are included
- ▶
- ▶

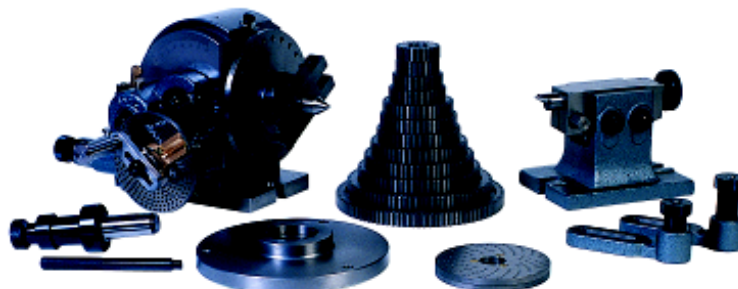


No. 550-030, -031 Semi-Universal

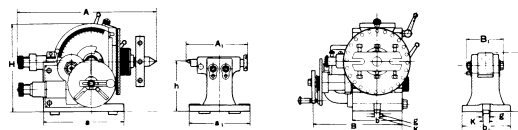


Inch/(mm)

SPECIFICATIONS	MAXIMUM VARIATION (inches / seconds)
Center concentricity	0.0004 (0.01)
Inside taper concentricity of dividing spindle	
Measured at spindle nose	0.0004 (0.01)
Measured at arbor (12" long)	0.0008 (0.02)
Axial movement of dividing spindle	0.0002 (0.005)
Alignment of dividing head and tailstock	
Vertical plane	0.0008 (0.02)
Horizontal plane	0.0008 (0.02)
Maximum cumulative spacing error	
Models 550-030, 550-031	1 minute
Models 550-032, 550-033	50 seconds



No. 550-032, -033 Universal Dividing Head



DIMENSIONS

MODEL	H	A	B	h	a	b	g	H1	A1	B1	a1	b1	g1	K
550-030	6.81 (173)	7.44 (189)	5.51 (140)	3.94 (100)	6.30 (160)	3.58 (91)	0.59 (15)	4.25 (108)	6.57 (167)	3.15 (80)	5.12 (130)	3.62 (92)	0.59 (15)	0.55 (14)
550-031	8.66 (220)	9.84 (250)	6.14 (156)	5.04 (128)	8.15 (207)	4.49 (114)	0.59 (15)	5.39 (137)	7.52 (191)	3.46 (88)	5.91 (150)	4.25 (108)	0.59 (15)	0.55 (14)
550-032	9.29 (236)	14.37 (365)	10.71 (272)	5.24 (133)	8.39 (213)	5.28 (134)	0.67 (17)	5.47 (139)	8.86 (225)	3.46 (88)	7.40 (188)	5.43 (138)	0.71 (18)	0.63 (16)
550-033	11.85 (300)	18.07 (459)	13.78 (350)	6.69 (170)	10.71 (272)	6.69 (170)	0.83 (21)	7.05 (179)	11.65 (295)	4.49 (114)	8.86 (225)	6.46 (164)	0.83 (21)	0.79 (20)

MODEL	SPINDLE THREAD (mm)	SIZE	WEIGHT lbs./ (kg)	CENTER HOLE TAPER	CENTER HEIGHT	OPTION	
						CHUCK NUMBER	CHUCK DIAMETER
550-030	M30 X P3	6" Semi-Universal	50 (22.7)	B&S 7	3.937 (100)	585-005	5 1/4 (133)
550-031	M40 X P3	10" Semi-Universal	80 (36)	B&S 9	5.039 (128)	585-106	6 1/2 (165)
550-032	M55 X P3	10" Universal	175 (79.5)	B&S 10	5.236 (133)	585-108	8 1/4 (210)
550-033	M70 X P4	12" Universal	302 (137)	B&S 11	6.693 (170)	585-110	10 3/4 (273)

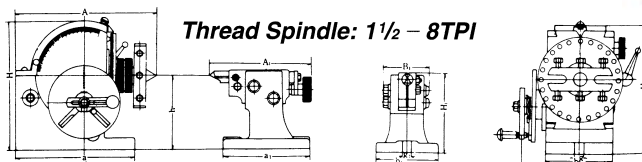
NOTE: Each unit is supplied with the Accu-Flange® plate.

STANDARD TYPE SEMI-UNIVERSAL DIVIDING HEAD



FEATURES:

- ▶ Tapered roller spindle bearings
- ▶ Hardened and ground worm gear
- ▶ Swivel head, locked from 10 deg. below horizontal, to 90 deg.
- ▶ Brown & Sharpe threaded spindle nose
- ▶ Easy indexing all divisions from 2~50 and most from 52~380
- ▶ High accuracy with little backlash for smooth rotation



Thread Spindle: 1 1/2 – 8TPI

STANDARD ACCESSORIES:

- ▶ Dividing plates (A, B, & C)
- ▶ Tailstock
- ▶ Flange plate for 3-jaw chuck
- ▶ 1 year warranty
- ▶ Test report & operator's manual

DIMENSIONS: Tailstock

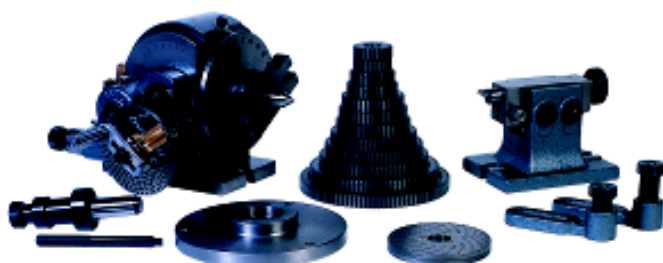
Inch/(mm)

MODEL	A1	B1	H1	a1	b1	g1	DIVIDING HEAD WT. lbs./ (kg)
595-030	6.57 (167)	3.15 (80)	4.23 (107.5)	5.12 (130)	3.62 (92)	0.51 (13)	50 (22.7)
595-031	7.52 (191)	3.46 (88)	5.39 (137)	5.91 (150)	4.25 (108)	0.63 (16)	80 (36.4)

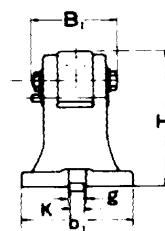
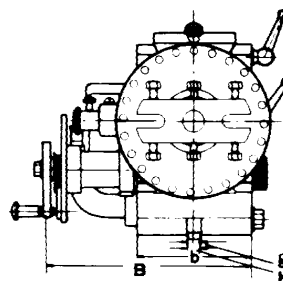
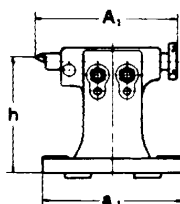
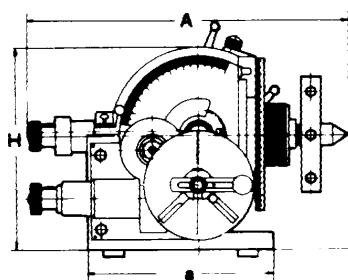
DIMENSIONS: Body

MODEL	A	B	H	a	b	g	h	Spindle Taper	Hole Dia.
595-030	7.44 (189)	5.51 (140)	6.81 (173)	6.30 (160)	3.58 (91)	0.51 (13)	3.94 (100)	MT-2	0.71 (18)
595-031	11.54 (293)	6.14 (156)	8.66 (220)	8.15 (207)	4.49 (114)	0.63 (16)	5.04 (128)	MT-3	0.79 (20)

UNIVERSAL DIVIDING HEAD



595-032



Universal Index B&S type No.2 Headstock

Unit: mm/Inches

ORDER NO.	A	B	H	h	a	b	g	Taper of center	Spindle hole
595-032	365 14 13/32	272 10 45/64	236 9 13/64	132.7 5 15/64	213 5 25/64	134 5 9/32	16 5/8	MT-4	25.4 1

Tailstock

Unit: mm/Inches

A1	B1	H1	h1	a1	b1	g1
205~255 8 5/64~10 5/64	86 3 15/32	139 5 15/32	132.7 5 15/64	175 6 15/64	124 4 7/8	16 5/8

ITEM NO.	TESTING OBJECTIVE	VARIATION MAXIMUM TESTED
1	True running of center	0.0006 (0.015)
2	True running of inside taper of dividing spindle	
	Measured at spindle nose	0.0004 (0.01)
	Measured at arbor 8" long	0.0012 (0.03)
3	Axial movement of dividing spindle	0.0004 (0.01)
4	Alignment of dividing head and tailstock	
	In the vertical plane	0.0008 (0.02)
	In the horizontal plane	0.0008 (0.02)
5	Dividing accuracy of worm drive maximum cumulative spacing error	1' 30"

OPTIONAL 3-JAW CHUCKS	
PN# 595-105	5" Chuck for 595-030 D/H
PN# 595-106	6" Chuck for 595-031 D/H
PN# 595-108	8" Chuck for 595-032 D/H

MILLING MACHINE ACCESSORIES & TOOLS

OPTIONAL DIVIDING PLATES FOR MANUAL AND ROTARY TABLES & SUPER ACCU-DEX'S

Dividing plates are designed to offer many more indexing positions to our manual Rotary tables and Super Accu-Dex's. These optional plates come in a set of two (A & B) plates (550-111 & 550-111-4H) and set of four (550-100) (A, B, C & D.) They are also supplied with a "division separator" and "position locator." This allows the user to easily select certain index moves without having to count each index hole on the plate. The position locator is specifically designed to "slide" up and down each plate in order to reach any particular row of holes, depending on the index pattern desired.



Divisional charts are supplied with each set of plates making index calculations unnecessary.



550-048

550-111

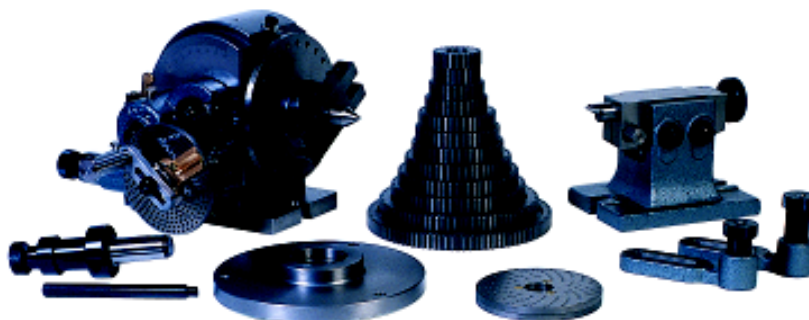
MODEL	A	A1	B	B1	C	D	E	F	G	H	I	J	K	M
595-706	9.76 (248)	8.74 (222)	5.55 (141)	4.02 (102)	3.94 (100)	6.57 (167)	1.77 (45)	0.57 (14.5)	W 3/4 -10	2.68 (68)	3-M10	2.36 (60)	1.54 (39)	0.55 (14)
595-707	10.79 (274)	9.72 (247)	6.10 (155)	4.41 (112)	4.96 (126)	7.56 (192)	2.28 (58)	0.63 (16)	W 3/4 -10	3.23 (82)	3-M10	2.48 (63)	1.70 (43)	0.67 (17)
595-709	13.39 (340)	11.81 (300)	6.89 (175)	4.92 (125)	6.10 (155)	9.13 (232)	2.76 (70)	0.79 (20)	W 3/4 -10	3.70 (94)	3-M12	2.76 (70)	1.97 (50)	0.75 (19)
595-710	14.96 (380)	13.39 (340)	6.97 (177)	5.00 (127)	7.68 (195)	10.75 (273)	3.50 (89)	0.79 (20)	W 3/4 -10	3.70 (94)	3-M12	2.83 (72)	1.97 (50)	0.75 (19)
595-712	17.00 (432)	15.08 (383)	7.76 (197)	5.55 (141)	9.06 (230)	12.20 (310)	4.13 (105)	0.87 (22)	W 3/4 -10	4.65 (118)	3-M12	2.99 (76)	2.20 (56)	0.87 (22)

STANDARD DIVISION PLATES & CHANGE GEARS FOR DIVIDING HEADS

Dividing plates are included as standard accessories for all 550 Series dividing heads. Mounting and operation are the same as for rotary tables.

REFERENCE	NUMBER OF HOLES IN THE PLATES
550-030 / 031 / 032 / 033	PLATE A = 15, 16, 17, 18, 19, 20 PLATE B = 21, 23, 27, 29, 31, 33 PLATE C = 37, 39, 41, 42, 47, 49
REFERENCE	NUMBER OF TEETH IN THE CHANGE GEARS
550-032 / 033	24, 24, 28, 32, 40, 44, 48, 56, 64, 72, 86, 100

All plates are ground to exacting tolerances.



TILT TABLE

550 Series

**2 YEAR
WARRANTY**



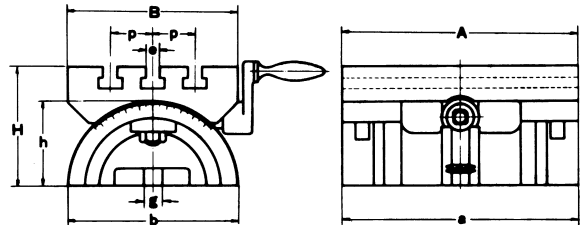
FEATURES:

- ▶ Inclinal to 45° right or 15° left by use of worm gear adjustment handle
- ▶ Plate will accept accessories and work pieces larger than its diameter
- ▶ Vernier graduation (5 minutes)
- ▶ Low profile provides low machine-head clearance
- ▶ Constructed of Meehanite steel. All other parts made of special tool steel with a hardened and ground finish
- ▶ Angular settings performed easily and precisely



SPECIFICATIONS	MAXIMUM VARIATION Inch/(mm)
Table to surface flatness	0.0006 (0.015)
Table to surface underside parallelism	0.0006 (0.015)
Inclined table surface to underside parallelism	0.0006 (0.015)

MODEL	TABLE			T-SLOT				WEIGHT lbs./ (kg)
	A	B	H	NO.	e	p	g	
550-421	7.09 (180)	5.12 (130)	3.58 (91)	3	0.39 (10)	1.30 (33)	0.51 (13)	17 (7.7)
550-422	10.00 (254)	7.01 (178)	5.24 (133)	3	0.47 (12)	1.73 (44)	0.67 (17)	50 (22.7)
550-423	14.96 (380)	10.24 (260)	7.28 (185)	3	0.63 (16)	2.60 (66)	0.75 (19)	152 (69)



Excellent for use with DMNC Programmable Rotary Tables & Indexers.



DMNC-5C Indexer
550-423 Tilt table

When the 550 Series manual tilting tables are used with a DMNC rotary product, the combination provides for a very inexpensive five axis package.

With the low profile of the tilt tables, a minimum of "Z" axis machine travel is sacrificed.

The rotary tables may be either directly mounted to the tilt table's T-slots, or sub-plate (supplied by the customer), which can be mounted to the tilt table surface.

The 550 Series tilt tables provide a very rigid locking mechanism to withstand the forces from heavy milling cuts.



SUGGESTED:

MODEL (Tilt Table)	Models (SUDX/EUDX Rotary Table & Indexers)
550-442	5C, 5CA, 132-5C, 130, 140
550-423	170, 220

NOTE: It may be necessary to add a sub-plate for mounting, as not all models will mount directly to the T-slots of the tilt tables.

RIGHT ANGLE ATTACHMENT & ACCESSORIES

FEATURES: MODEL 720-800

- ▶ All cast STEEL body
- ▶ Ribbed support for strength
- ▶ Hardened and ground spiral bevel gears
- ▶ R8 spindle tested (0.001" T.I.R. max)
- ▶ Tapered roller bearings (both ends of body)
- ▶ 3.3375" bore with R8 spindle

NOTE: Special draw bar required (see below.)
Convert your vertical mill into a horizontal.

720-800



Arbor Support

- ▶ T-slot for centering and alignment
- ▶ Chip guard
- ▶ Heavy duty cast iron

Inches

PN#	Applicable Machine	A	B	C	D
721-100	Bridgeport	50°	3.73	5.20	1.14
721-101	Alliant	60°	3.937	5.25	1.23
721-102	Index	45°	5.672	7.83	1.00

721-100



721-200

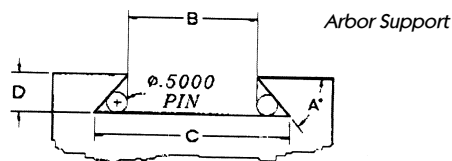


R-8 Arbor

- ▶ 1.625" running bushing
- ▶ Series of 1/4", 1/2", 1" & 2" spacers
- ▶ Nut

Inches

PN#	A	Diameter	Key	Thread
721-200	14.00	0.875	1/8"	7/8"-14
721-201	14.00	1.00	1/4"	1"-14

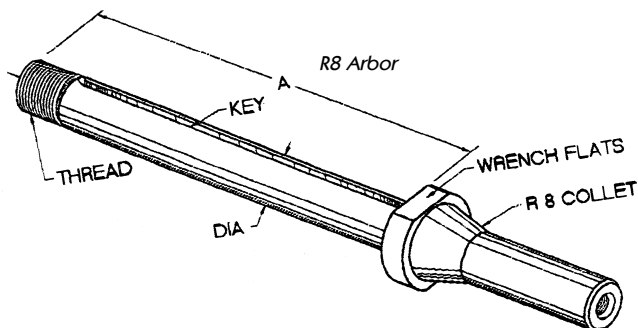


Arbor Support

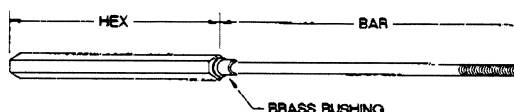
Extended Draw Bar w/ 7/16" -20 threaded end

- ▶ 4140 heat treat
- ▶ Steel construction

PN#	Hex Length	Bar Length	Machine Specifications
721-300	2"	18"	Bridgeport Shephard
721-301	5"	18"	Bridgeport Shephard
721-302	8"	18"	Bridgeport RAA
721-303	8"	18"	Lagun Vari-Speed / Alliant
721-304	11"	18"	Index Vari-Speed / RAA Lagun RAA

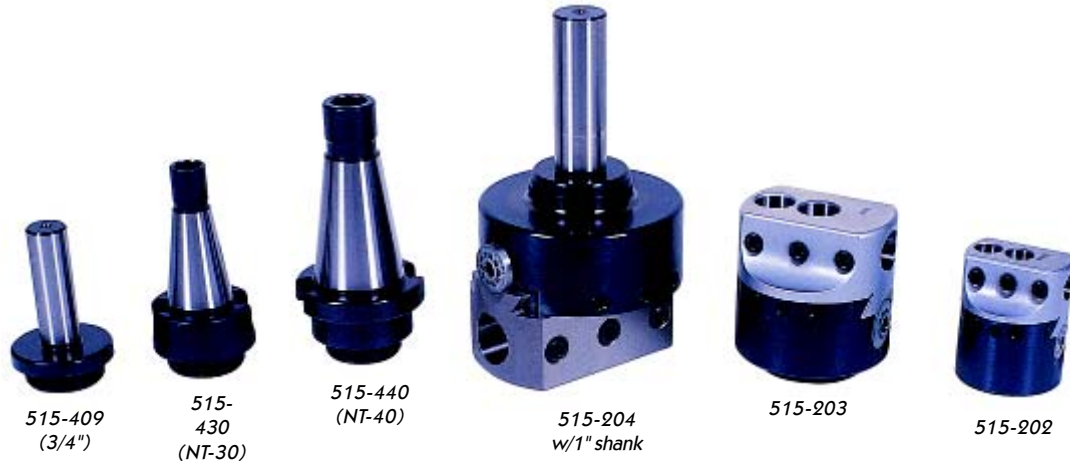


Extended Draw Bar



515 Series

PRO-BORE® BORING HEADS



FEATURES:

- ▶ One shank fits all
- ▶ High quality, excellent performance, practical design at an affordable price
- ▶ Offset increment is 0.0005" (0.01mm)
- ▶ Maximum rigidity is assured even when boring bar holder is used in an offset position
- ▶ All models (2", 3" and 4") give the added feature of one size threaded shank (1 1/2" - 18 TPI)
- ▶ Hardened and ground adjusting screw along with our wide base design guarantees long life and trouble free use

MODEL	BORING HEAD O.D. SIZE	HOLE SIZE	OFFSET	THREADED BACK
515-202	2"	1/2"	5/8"	1 1/2" - 18 TPI
515-203	3"	3/4"	3/4"	1 1/2" - 18 TPI
515-204	4"	1"	1 3/8"	1 1/2" - 18 TPI
MODEL	SHANK SIZE		THREADED SHANK	
515-403	MT-3		1 1/2" - 18	
515-404	MT-4		1 1/2" - 18	
515-430	NT30		1 1/2" - 18	
515-440	NT40		1 1/2" - 18	
515-408	R8		1 1/2" - 18	
515-409	3/4"		1 1/2" - 18	
515-410	1"		1 1/2" - 18	

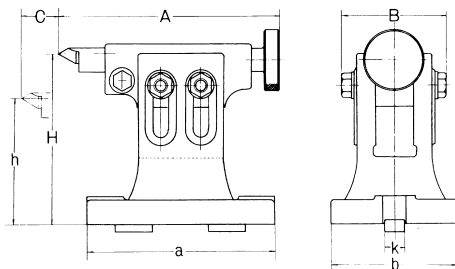
553 Series

**2 YEAR
WARRANTY**

TAILSTOCKS

FEATURES:

- ▶ Tailstock is adjustable in two directions
- ▶ Height can be adjusted when working with different indexing centers
- ▶ Angle of inclination can be adjusted for various machining applications



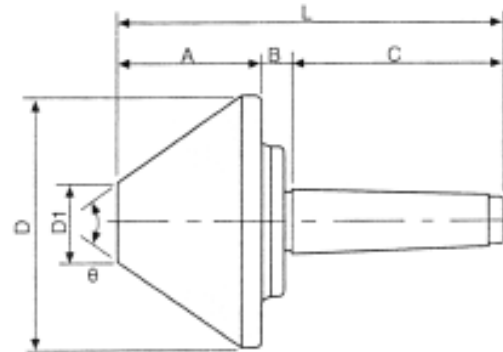
Inch/(mm)

SPECIFICATIONS											
MODEL	DESCRIPTION	CENTER HEIGHT		A	B	a	b	c	k	CENTER APPLICABLE UNIT	WEIGHT lbs./ (kg)
		h	H								
553-299	Adjustable	2.56 (65)	3.94 (100)	6.89 (175)	3.11 (79)	5.12 (130)	3.62 (92)	1.18 (30)	0.55 (14)	550-009, 550-005, 550-046, 550-206	11 (5)
553-300	Adjustable	3.94 (100)	5.31 (135)	6.93 (176)	3.27 (83)	5.91 (150)	3.94 (100)	1.18 (30)	0.63 (16)	550-006, 550-666, 550-048	18 (8.1)
553-301	Adjustable	5.31 (135)	6.69 (170)	7.95 (202)	4.41 (112)	7.09 (180)	5.12 (130)	1.38 (35)	0.63 (16)	550-007, 550-210, 710-002/102 550-008, 550-050, 550-212, 710-004/104	22 (10)
553-311	Adjustable	6.69 (170)	9.06 (230)	7.95 (202)	4.72 (120)	7.87 (200)	5.51 (140)	1.38 (35)	0.63 (16)	550-052, 550-012, 550-054	28 (12.7)
553-312	Adjustable	8.27 (210)	11.81 (300)	10.43 (265)	5.59 (142)	8.66 (220)	6.30 (160)	2.36 (60)	0.63 (16)	550-055, 550-056, 550-220	54 (24.5)

HIGH PRECISION BULL NOSE CENTER



570-201



1. The tip of the bull nose center uses Cr-Mo steel hardened to HRC 60° ± 1°
2. The center uses a combination of taper roller bearing and ball bearing
3. Applicable to pipe turning

SPECIFICATIONS:

Inch/(mm)

ORDER NO.	MORES TAPER MT/MK	A	B	C	D	D1	L	Accuracy	Max R.P.M	Load weight	ANGLE	G.W. Weight lbs. (kg)	L x W x H
570-201	BC 63-MT.2	1.81 (46)	0.67 (17)	2.72 (69)	2.48 (63)	0.47 (12)	5.2 (132)	0.005	4000R.P.M	RPM100=200kg	60°	1.98 (0.9)	7.79 X 3.35 X 3.35 (198 X 85 X 85)
570-202	BC 63-MT.3	1.81 (46)	0.67 (17)	3.39 (86)	2.48 (63)	0.47 (12)	5.87 (149)	0.005	4000R.P.M	RPM100=200kg	60°	2.20 (1.0)	7.79 X 3.35 X 3.35 (198 X 85 X 85)
570-203	BC 78-MT.3	2.05 (52)	0.71 (18)	3.39 (86)	3.07 (78)	0.59 (15)	6.14 (156)	0.005	3300R.P.M	RPM100=400kg	70°	2.87 (1.3)	7.79 X 3.35 X 3.35 (198 X 85 X 85)
570-204	BC 106-MT.3	2.32 (59)	0.63 (16)	3.39 (86)	4.17 (106)	0.98 (25)	6.34 (161)	0.005	3000R.P.M	RPM100=500kg	70°	5.95 (2.7)	8.58 X 4.57 X 4.57 (218 X 116 X 116)
570-205	BC 63-MT.4	1.81 (46)	0.67 (17)	4.25 (108)	2.48 (63)	0.47 (12)	6.73 (171)	0.005	4000R.P.M	RPM100=200kg	60°	2.20 (1.0)	7.79 X 3.35 X 3.35 (198 X 85 X 85)
570-206	BC 78-MT.4	2.05 (52)	0.71 (18)	4.25 (108)	3.07 (78)	0.59 (15)	7.01 (178)	0.005	3300R.P.M	RPM100=400 kg	70°	3.20 (1.45)	7.79 X 3.35 X 3.35 (198 X 85 X 85)
570-207	BC 106-MT.4	2.32 (59)	0.63 (16)	4.25 (108)	4.17 (106)	0.98 (25)	7.2 (183)	0.005	3000R.P.M	RPM100=500kg	70°	6.61 (3.0)	8.58 X 4.57 X 4.57 (218 X 116 X 116)
570-208	BC 128-MT.4	2.87 (73)	0.47 (12)	4.25 (108)	5.04 (128)	1.57 (40)	7.6 (193)	0.005	2000R.P.M	RPM100=650 kg	70°	10.6 (4.8)	5.31 X 5.31 X 9.65 (135 x 135 X 245)
570-209	BC 156-MT.4	3.46 (88)	0.47 (12)	4.25 (108)	6.14 (156)	1.77 (45)	8.19 (208)	0.008	1900R.P.M	RPM100=800kg	70°	16.8(7.6)	6.54 X 6.54 X 10.2 (166 x166 x 258)
570-210	BC206-MT.4	3.86 (98)	0.47 (12)	4.25 (108)	8.11 (206)	3.19 (81)	8.58 (218)	0.008	1500R.P.M	RPM100=1300kg	70°	37.5 (17)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-211	BC258-MT.4	4.21 (107)	0.51 (13)	4.25 (108)	10.2 (258)	3.62 (92)	8.98 (228)	0.008	1200R.P.M	RPM100=2000kg	80°	59.5 (27)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-212	BC128-MT.5	2.87 (73)	0.47 (12)	5.35 (136)	5.04 (128)	1.57 (40)	8.7 (221)	0.005	2000R.P.M	RPM100=650kg	70°	12.8 (5.8)	5.31 X 5.31 X 9.65 (135 x 135 x 245)
570-213	BC156-MT.5	3.46 (88)	0.47 (12)	5.35 (136)	6.14 (156)	1.77 (45)	9.29 (236)	0.008	1900R.P.M	RPM100=800kg	70°	18.7 (8.5)	6.54 X 6.54 X 10.2 (166 x 166 x 258)
570-214	BC206-MT.5	3.86 (98)	0.47 (12)	5.35 (136)	8.11 (206)	3.19 (81)	9.69 (246)	0.008	1500R.P.M	RPM100=1600kg	70°	39.7 (18)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-215	BC258-MT.5	4.21 (107)	0.51 (13)	5.35 (136)	10.2 (258)	3.62 (92)	10.08 (256)	0.008	120R.P.M	RPM100=2200kg	80°	61.7 (28)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-216	BC306-MT.5	4.21 (107)	1.18 (30)	5.35 (136)	12 (306)	4.72 (120)	10.75 (273)	0.01	100R.P.M	RPM100=3000kg	90°	82.7 (37.5)	13.5 X 13.1 X 14.1 (343 x 332 x 357)
570-217	BC206-MT.6	3.86 (98)	0.47 (12)	7.48 (190)	8.11 (206)	3.19 (81)	11.81 (300)	0.008	1500R.P.M	RPM100=2000kg	70°	45.4 (20.6)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-218	BC258-MT.6	4.21 (107)	0.51 (13)	7.48 (190)	10.2 (258)	3.62 (92)	12.2 (310)	0.008	1200R.P.M	RPM100=2500kg	80°	67.5 (30.6)	11.5 X 11.5 X 13.7 (292 x 292 x 347)
570-219	BC306-MT.6	4.21 (107)	1.18 (30)	7.48 (190)	12 (306)	4.72 (120)	12.87 (327)	0.01	1000R.P.M	RPM100=3000kg	90°	88.2 (40)	13.5 X 13.1 X 14.1 (343 x 332 x 357)

ACCU-COLLETS 500 SERIES



FEATURES:

- ▶ Internal thread
- ▶ Hardened and ground full finish

PN# 500-000: 5C Standard Set - 7 pcs.;
1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1".

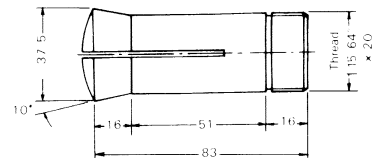
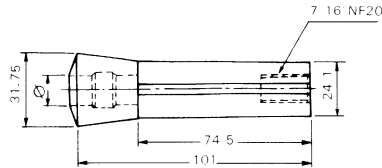
PN# 500-001: 5C Metric Set - 7 pcs.;
6, 8, 10, 12, 16, 20, 25.



R-8



5C



5C COLLET INCH SIZE	
SIZE	MODEL
1/8"	500-100
1/4"	500-101
3/8"	500-102
1/2"	500-103
5/8"	500-104
3/4"	500-105
7/8"	500-106
1"	500-107
1 1/8"	500-108
3/16"	500-110
5/16"	500-111
7/16"	500-112
9/16"	500-113
11/16"	500-114
13/16"	500-115
15/16"	500-116
1 1/16"	500-117
5/32"	500-120
7/32"	500-121
9/32"	500-122
11/32"	500-123
13/32"	500-124
15/32"	500-125
17/32"	500-126
19/32"	500-127
21/32"	500-128
23/32"	500-129
25/32"	500-130
27/32"	500-131
29/32"	500-132

5C COLLET INCH SIZE	
SIZE	MODEL
31/32"	500-133
1 1/32"	500-134
1 3/32"	500-135
9/64"	500-140
11/64"	500-141
13/64"	500-142
15/64"	500-143
17/64"	500-144
19/64"	500-145
21/64"	500-146
23/64"	500-147
25/64"	500-148
27/64"	500-149
29/64"	500-150
31/64"	500-151
33/64"	500-152
35/64"	500-153
37/64"	500-154
39/64"	500-155
41/64"	500-156
43/64"	500-157
45/64"	500-158
47/64"	500-159
49/64"	500-160
51/64"	500-161
53/64"	500-162
55/64"	500-163
57/64"	500-164
58/64"	500-165
61/64"	500-166

5C COLLET INCH SIZE	
SIZE	MODEL
63/64"	500-167
1 1/64"	500-168
1 3/64"	500-169
1 5/64"	500-170
1 7/64"	500-171
5C COLLET METRIC SIZE	
SIZE	MODEL
3mm	500-200
4mm	500-201
5mm	500-202
6mm	500-203
8mm	500-204
10mm	500-205
12mm	500-206
14mm	500-207
15mm	500-208
16mm	500-209
18mm	500-210
20mm	500-211
22mm	500-212
25mm	500-213
R8 COLLET INCH SIZE	
SIZE	MODEL
1/8"	500-300
1/4"	500-301
3/8"	500-302
1/2"	500-303
5/8"	500-304

R8 COLLET INCH SIZE	
SIZE	MODEL
3/4"	500-305
3/16"	500-307
5/16"	500-308
7/16"	500-309
9/16"	500-310
11/16"	500-311
5/32"	500-312
7/32"	500-313
9/32"	500-314
11/32"	500-315
13/32"	500-316
15/32"	500-317
17/32"	500-318
19/32"	500-319
21/32"	500-320
23/32"	500-321
R8 COLLET METRIC SIZE	
SIZE	MODEL
3mm	508-400
4mm	508-401
5mm	508-402
6mm	508-403
8mm	508-404
10mm	508-405
12mm	508-406
14mm	508-407
15mm	508-408
16mm	508-409
18mm	508-410



COLLET ACCESSORIES

5C STEP COLLETS

Invaluable for holding extra large work up to 6" diameter for a limited depth. The precision ground body and threads are heat treated. The soft head may be bored or stepped out as desired. Step chucks are designed and constructed to eliminate the need for closers.



Stock No.	Diameter
500-602	2"
500-603	3"
500-604	4"
500-605	5"
500-606	6"

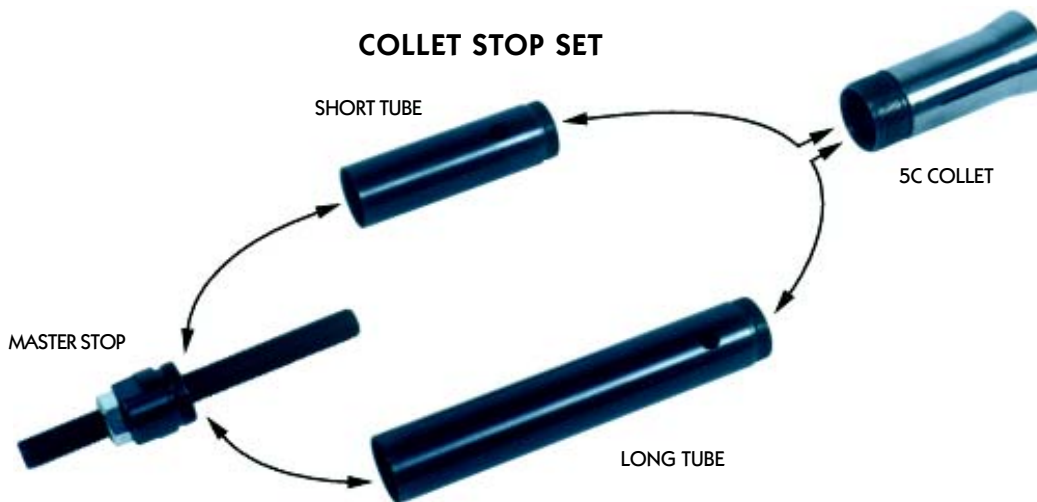
5C EMERGENCY COLLET

This 1/16" steel emergency collet is especially well suited for holding soft or delicate work pieces without marring surfaces.



500-501

COLLET STOP SET



COLLET STOP SET

5C Master Stop	500-503
16C Master Stop	500-504
5C Short Tube	500-505
5C Long Tube	500-506

FOR CHUCKING PARTS TO A DEPTH, FROM THE FACE	
Master Stop	3 Inches
Master Stop and Short Tube	7 Inches
Master Stop and Long Tube	9 1/2 Inches
Master Stop, Short Tube & Long Tube	13 1/2 Inches

COLLET STOP WRENCH



This wrench is made to simplify insertion and removal of threaded collet stops.

5C Collet Wrench	500-701
16C Collet Wrench	500-702

5C COLLET WRENCH



A convenient tool for inserting or removing 5C collets in any type of fixture using 5C collets. Made from 1/8" steel and stamped to precision tolerances. May also be used to tighten 5C collet collet stop in collet.

5C Collet Wrench	500-703
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COLLET WRENCH



The YUASA collet wrench simplifies insertion and removal of collets in the spindle nose on CNC lathes.

The collet wrench is manufactured with a steel head and fins for greater strength and durability. The bright red handle makes it easy to locate and is designed to be comfortable to the hand. The new collet wrenches are available for 5C, 16C and 3J collets.

5C Wrench	500-704
16C Wrench	500-705
3J Wrench	500-706

ER SPRING COLLET CHUCK SYSTEM

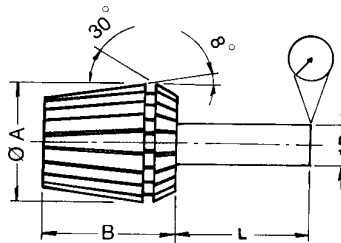


DIN 6499



The Yuasa ER Collet System is made of a durable and selective spring steel. Each collet is produced using the finest heat treat process and is precision ground to ensure precise accuracy while providing extremely powerful clamping. The Yuasa ER Collet System is available in a wide variety of sizes, making it ideal for boring, drilling, milling, tapping and many other machining operations.

L mm	D mm	DIN6343 Standard Precision	YUASA Standard Precision
6	1.0-1.4	0.02	0.015
10	1.5-2.9	0.02	0.015
16	3.0-5.9	0.02	0.015
25	6.0-9.9	0.02	0.015
40	10.0-17.9	0.03	0.02
50	18.0-26.9	0.03	0.02
60	27.0-34.9	0.03	0.02



TYPE	A	B
ER-16	17	27
ER-20	21	31
ER-25	26	35
ER-32	33	40
ER-40	41	46
ER-50	52	60

TYPE	ER-11			ER-16			ER-20			ER-25			ER-32			ER-40			ER-50		
	7 PCS./SET			10 PCS./SET			12 PCS./SET			15 PCS./SET			18 PCS./SET			22 PCS./SET			12 PCS./SET		
COMPLETE SET	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch	ORDER NO.	CAP mm	CAP Inch
	506-100	1.0-7.0	.04-.28	506-200	0.5-10.0	0.2-.39	506-300	1-13	.04-.51	506-400	1-16	.04-.63	506-500	2-20	.08-.79	506-600	4-25	.16-.98	506-700	10-34	.39-1.34
	506-101	0.5-1.0	.02-.04	506-201	0.5-1.0	0.2-.04	506-301	1-2	.04-.08	506-401	1-2	.04-.08	506-501	2-3	.08-.12	506-601	4-5	.16-.20	506-701	10-12	.39-.47
	506-102	1.5-2.0	.06-.08	506-202	1.0-2.0	.04-.08	506-302	2-3	.08-.12	506-402	2-3	.08-.12	506-502	3-4	.12-.16	506-602	5-6	.20-.24	506-702	12-14	.47-.55
	506-102	2.5-3.0	.10-.12	506-203	2.0-3.0	.08-.12	506-303	3-4	.12-.16	506-403	3-4	.12-.16	506-503	4-5	.16-.20	506-603	6-7	.24-.28	506-703	16-16	.55-.63
	506-104	3.5-4.0	.14-.16	506-204	3.0-4.0	.12-.16	506-304	4-5	.16-.20	506-404	4-5	.16-.20	506-504	5-6	.20-.24	506-604	7-8	.28-.31	506-704	16-18	.63-.71
	506-105	4.5-5.0	.18-.20	506-205	4.0-5.0	.16-.20	506-305	5-6	.20-.24	506-405	5-6	.20-.24	506-505	6-7	.24-.28	506-605	8-9	.31-.35	506-705	18-20	.71-.79
	506-106	5.5-6.0	.22-.24	506-206	5.0-6.0	.20-.24	506-306	6-7	.24-.28	506-406	6-7	.24-.28	506-506	7-8	.28-.31	506-606	9-10	.35-.39	506-706	20-22	.79-.87
	506-107	6.5-7.0	.26-.28	506-207	6.0-7.0	.24-.28	506-307	7-8	.28-.31	506-407	7-8	.28-.31	506-507	8-9	.31-.35	506-607	10-11	.39-.43	506-707	22-24	.87-.94
				506-208	7.0-8.0	.28-.31	506-308	8-9	.31-.35	506-408	8-9	.31-.35	506-508	9-10	.35-.39	506-608	11-12	.43-.47	506-708	24-26	.94-1.02
				506-209	8.0-9.0	.31-.35	506-309	9-10	.35-.39	506-409	9-10	.35-.39	506-509	10-11	.39-.43	506-609	12-13	.47-.51	506-709	26-28	1.02-1.10
				506-210	9.0-10.0	.35-.39	506-310	10-11	.39-.43	506-410	10-11	.39-.43	506-510	11-12	.43-.47	506-610	13-14	.51-.55	506-710	28-30	1.10-1.18
INDIVIDUAL COLLETS							506-311	11-12	.43-.47	506-411	11-12	.43-.47	506-511	12-13	.47-.51	506-611	14-15	.55-.59	506-711	30-32	1.18-1.26
							506-312	12-13	.47-.51	506-412	12-13	.47-.51	506-512	13-14	.51-.55	506-612	15-16	.59-.63	506-712	32-34	1.26-1.34
										506-413	13-14	.51-.55	506-513	14-15	.55-.59	506-613	16-17	.63-.67			
										506-414	14-15	.55-.59	506-514	15-16	.59-.63	506-614	17-18	.67-.71			
										506-415	15-16	.59-.63	506-515	16-17	.63-.67	506-615	18-19	.71-.75			
													506-516	17-18	.67-.71	506-616	19-20	.75-.79			
													506-517	18-19	.71-.75	506-617	20-21	.79-.83			
													506-518	19-20	.75-.79	506-618	21-22	.83-.87			
																506-619	22-23	.87-.91			
																506-620	23-24	.91-.94			
																506-621	24-25	.94-.98			
																506-622	25-26	.98-1.02			

MILLING MACHINE ACCESSORIES & TOOLS

PRECISION INSTRUMENTS

DIAL GAUGES

300 SERIES

FEATURES:

- ▶ Satin finish chrome plated case
- ▶ Faces are easy to read black graduations (either balanced or continuous)
- ▶ Hard chrome plated stem is precision ground
- ▶ Spindle rack, pinions and pivots of hardened steel to ensure long wear and accuracy
- ▶ Contact point is of hardened, ground and chrome plated tool steel
- ▶ Cleanly knurled, adjustable bezel with clamp screw for locating zero
- ▶ Center lug has screws for positioning in intervals of 90° (flat backs also available)
- ▶ Accuracy meets Federal specifications



300-004

MODEL	GRADUATION IN INCHES (A.G.D. Group 2)	RANGE	READING	REVOLUTION COUNTER HAND
300-001	.001"	.25"	0 - 100	Without
300-002	.001"	.50"	0 - 100	Without
300-003	.001"	1.00"	0 - 100	With
300-004	.0005"	1.00"	0 - 100	With
300-005	.001"	2.00"	0 - 100	With

LARGE FACE (3") INDICATOR

- ▶ With extra large 3" dial face for easy reading
- ▶ .001" graduations
- ▶ Lug back with 1/4" hole
- ▶ Rotational bezel for easy zero setting
- ▶ 2" travel
- ▶ ISO 9001 Certified



300-205

ELECTRONIC DIGITAL INDICATORS

- ▶ .5" / 12mm range
- ▶ .0005" resolution
- ▶ Auto power off
- ▶ Inch / Metric conversion
- ▶ Rapid display function
- ▶ Zero setting button
- ▶ Searching function
- ▶ Hold function
- ▶ Min/max preset mode
- ▶ Lug back mount
- ▶ RS 232 interface
- ▶ ISO 9001 certified



300-304

DIAL TEST INDICATORS

AUTOMATIC REVERSE TYPE

FEATURES:

- ▶ Adjustable bezel and dial
- ▶ Contact point adjustable through 230°
- ▶ Fully jewelled movement
- ▶ Extremely light contact pressure
- ▶ Clean, easy to read face
- ▶ Dovetails on front, top and back for all around positioning
- ▶ Includes 1/4" and 3/8" mounting shanks

PART NO.	GRAD.	RANGE	DIAL DIA.	READING	PT. LENGTH
300-103	.0001"	.008"	1.25"	0 - 15 - 0	0.70
300-104	.0005"	.030"	1.25"	0 - 15 - 0	0.70

TEST INDICATOR HOLDER



300-120

FEATURES:

- ▶ Adapts immediately for fast and positive indicating
- ▶ Suitable for all popular indicators with 5/32" shank or dovetail
- ▶ Reach from 0 - 12" diameter
- ▶ Guaranteed accurate readings
- ▶ 1 7/8" capacity

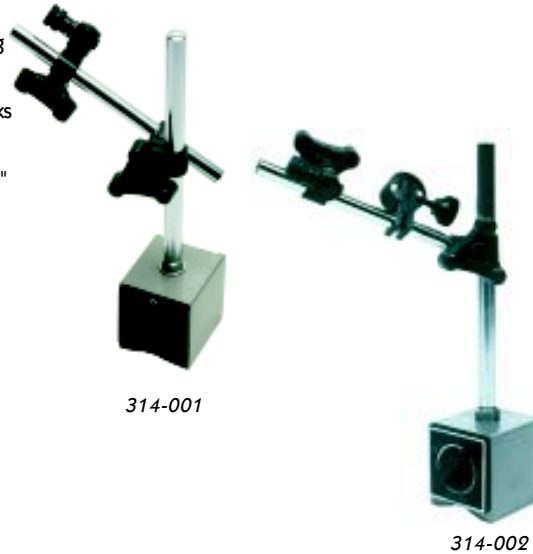
MAGNETIC BASE DIAL GAUGE STAND

341 SERIES

FEATURES:

- ▶ Powerful permanent magnetic holding power (110 lb. force)
- ▶ Accepts all A.G.D. dial indicator backs and stems
- ▶ Accepts dial test indicator stems (3/8" dia. and 5/16" dia.)
- ▶ On and Off lever releases magnet
- ▶ Universal adjustment in horizontal and vertical planes

MODEL	DESCRIPTION
314-001	Standard mag. base with fine adjustment
314-002	
314-003	With king size base



314-001

314-002

314-003

KING SIZE BASE

- ▶ Super powerful magnetic holding power
- ▶ Accepts all A.G.D. indicators
- ▶ Special shaped clamp for tighter non-slip handgrip
- ▶ On/Off lever control - no risk to polished surfaces
- ▶ Centered "V" magnet for strongest possible grip on round or flat surfaces
- ▶ Extra large magnet base: 3 3/16" x 2 3/4" x 2 3/4"
- ▶ 175 lb. PULL!
- ▶ 15 1/2" tall



MICROMETER SETS

403/404 SERIES 0"- 6"

Enameled frame

Anvil and spindle hardened and precision ground, with micro-lap finish on ends

Carbide faces

Friction thimble for exact and repetitive readings

Positive locking clamp

Every micrometer meets Federal specifications for accuracy

All sets are supplied complete with standard for each micrometer

Quick and easy wear adjustment

SPECIFICATIONS	
Accuracy	.0001"
Carbide faces	.250" diameter
Flatness	.00003"
Parallelism	.00005"
MODEL	DESCRIPTION
403-101	Micrometer set 0 - 3"
403-102	Micrometer set 0 - 4"
404-104	Micrometer set 0 - 6"

ENAMEL FRAME OUTSIDE MICROMETER

403 SERIES



FEATURES:

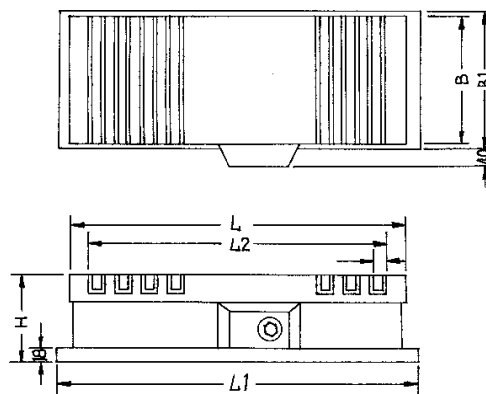
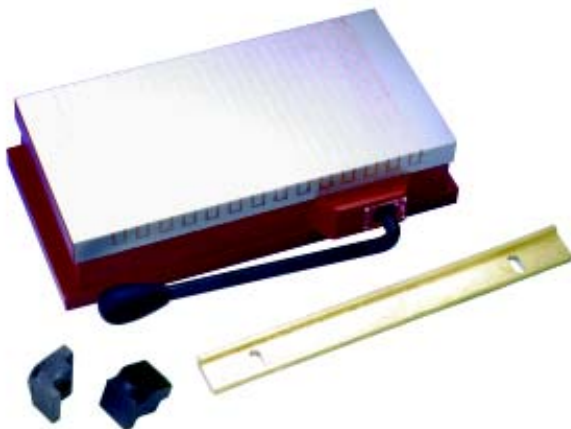
- ▶ Friction thimble for exact and repetitive readings
- ▶ Every micrometer meets Federal specifications for accuracy
- ▶ Positive locking clamp
- ▶ Cast iron frame with enamel finish
- ▶ Crisp, clear graduations
- ▶ Hard chrome-plated, no-glare satin finished sleeve and thimble
- ▶ Quick and easy wear adjustment
Spanner wrench with each micrometer
- ▶ Light, smooth operation for convenient single-hand measuring
- ▶ Spindle and anvil fully hardened and precision ground
- ▶ Packed in specially fitted case

SPECIFICATIONS		
Carbide faces	.250" diameter	
Flatness	.00003"	
Accuracy	.0001"	
Parallelism	.00005"	
MODEL	RANGE	GRADUATION
403-001	0 - 1"	.0001"
403-002	1 - 2"	.0001"
403-003	2 - 3"	.0001"
403-004	3 - 4"	.0001"
403-005	4 - 5"	.0001"
403-006	5 - 6"	.0001"





ANGULAR PERMANENT MAGNETIC PLATE



- Permanent magnetic force
- Operation plane, specially treated, nondeformation and high precision

PART NO.	SIZE (Inch)	OPERATION PLANE			POLE GAP P	FIXED PLANE		SWITCH TYPE	HEIGHT (H)	WEIGHT (lbs.)
		B	L	L2		B	L1			
600-007	4 x 7	3.94	7.09	5.39	0.33 (0.09 + 0.24)	4.09	7.87	Living Hexagon Socket Screw Keys	2.874	17.6
600-008	5 x 10	4.92	9.84	7.52		5.12	10.63			33.0
600-009	6 x 12		11.81	9.65			12.60			48.4
600-010	6 x 14	5.91	13.78	11.77		6.14	14.57			55.0
600-011	6 x 18		17.72	15.31			18.70			72.6
600-012	8 x 16		15.75	13.19	0.33 (0.09 + 0.24)		16.54	Fixed		85.8
600-013	8 x 18	7.87	17.72	15.31		8.11	18.70			96.8
600-014	8 x 20		19.69	17.44			20.47			105.6
600-015	8 x 24		23.62	20.98			24.41			127.6
600-016	10 x 20	9.84	19.69	16.42		0.71 (0.12 + 0.59)	10.0	20.87	Living Hexagon Socket Screw Keys	3.543
600-017	12 x 24	11.81	23.62	20.67		11.97	24.80	198.0		

The sides of the Yuasa magnetic chucks are diamagnetic; they create no magnetic field and therefore will not attract ferrous particles. The surface plates of the chucks are almost without pitch -- permitting you to use them for jobs (small or thin parts) that previously couldn't be handled by the ordinary type magnetic chuck. Handle release is positive.

DEMAGNETIZER



604-001

FEATURES:

- Suitable for general component spare parts, attachments, tools, etc. for fixed way demagnetization.
- Suitable for longtime use; be able to use continuously for 24 hours
- Designed with double coils inside to avoid heat release

ORDER NO.	INPUT VOLTAGE	CAPACITY	DUTY CYCLE	DIMENSION			N.W.
				L	W	H	
604-001	110/120VAC	330VA	100%	150	200	100	8.5 kg

PRO/CALC® MATERIAL DIRECTORY AND SPINDLE SPEED INDICATOR

WHAT RPM SHOULD I BE USING??
 - Drilling a 1.950" hole in 4140 HT??
 - Face milling 17-4 with a 4" diameter cutter??
 - Turning a 14" diameter of 8620??

- Increase tool life and productivity
- Decrease breaking & burning up of expensive cutting tools
- Eliminate the hassle of calculating proper RPM's for optimum tool life!
- Tap drill sizes in English & metric, coarse and fine, and surface foot & surface meter calculations!



605-100

A hand-held, battery operated reference directory containing 80% of the most commonly used materials in general machining. These materials are referenced to the recommended surface foot machinability and operations being performed. PRO/CALC® requires no mathematical computations. Simply select material to be machined, operation to be performed and tool diameter to be used. The correct RPM will automatically be displayed.



AUTO TAPPING
MACHINES
SPECIAL MACHINES
AUTO DRILLING UNITS
RIVETING MACHINES
CNC TURNING CENTERS

AUTOMATIC MACHINES



SPECIFICATIONS:

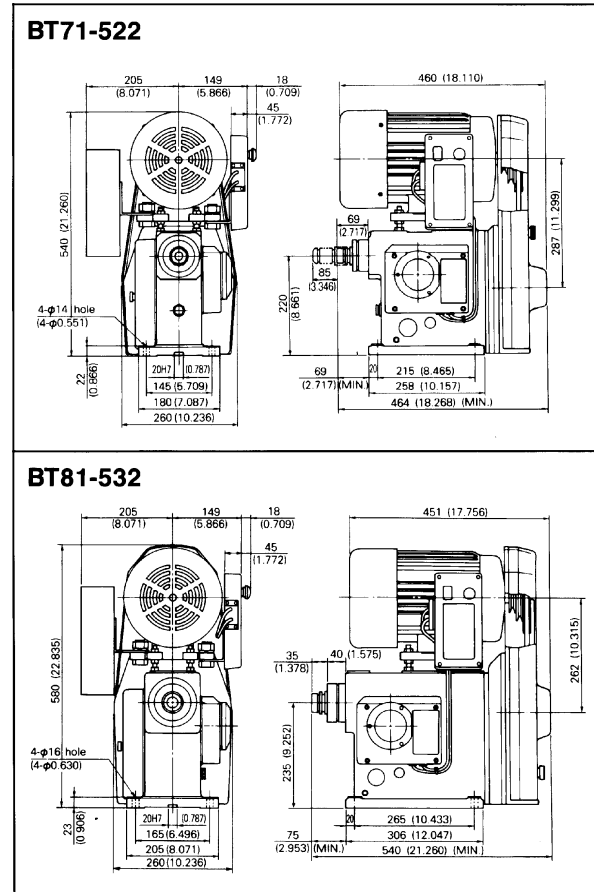
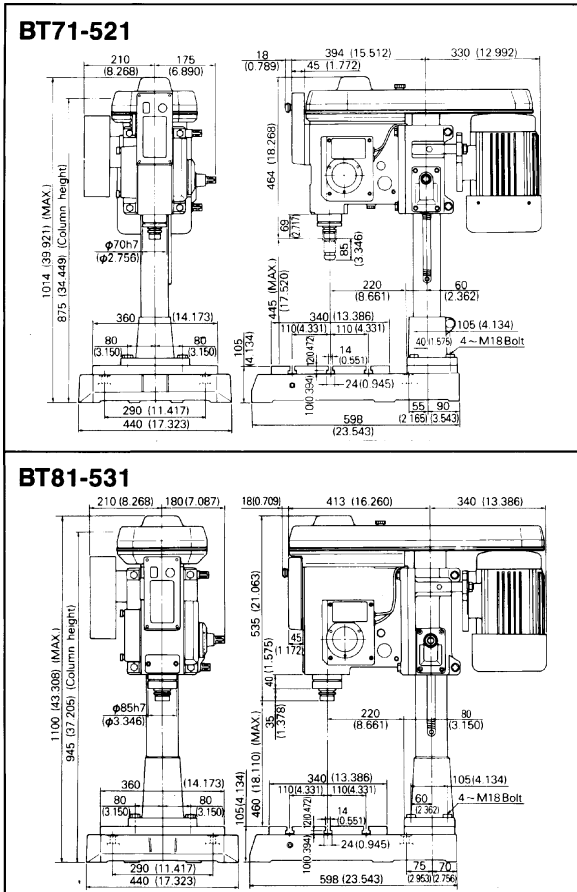
Inch/(mm)



MODEL	VERTICAL (weight lbs. (kg))	BT61-511 174 (79)	BT71-521 430 (195)	BT81-531 489 (222)
	HORIZONTAL (weight lbs. (kg))	BT61-512 88 (40)	BT71-522 205 (93)	BT81-532 260 (118)
SPINDLE STROKE		0.12~1.97 (3~50)	0.31~2.56 (8~65)	0.31~2.56 (8~65)
SWING		12.99 (330)	17.32 (440)	17.32 (440)
TAPPING CAPACITY (Mild Steel)		#5~5/16 (M3~M8)	5/16~5/8 (M5~M16)	3/8~1 1/8 (M10~M30)
MAXIMUM TRAVEL OF HEAD		10.24 (260)	11.81 (300)	11.81 (300)
MAXIMUM DISTANCE BETWEEN SPINDLE NOSE AND TABLE		13.78 (350)	17.52 (445)	18.11 (460)
TYPE OF SPINDLE NOSE		JT No. 2 (shaft)	MT No.2 (bore)	MT No. 3 (bore)
TABLE T-SLOT DIMENSIONS		0.39 x 0.71 (10 x 18 (3 slots))	0.55 x 0.94 (14 x 24 (3 slots))	0.55 x 0.94 (14 x 24 (3 slots))
TABLE SIZE		8.86 x 9.06 (225 x 230)	14.17 x 13.39 (360 x 340)	14.17 x 13.39 (360 x 340)
INSTALLATION AREA	VERTICAL	11.97 x 16.81 (304 x 427)	17.32 x 23.62 (440 x 600)	17.32 x 23.62 (440 x 600)
	HORIZONTAL	5.91 x 8.11 (150 x 206)	7.09 x 10.08 (180 x 256)	8.07 x 12.01 (205 x 305)
MOTOR		3PH - 4P 400W (with fan) (1/2 HP)	3 PH 4/8P 1.5/0.75KW (2/1HP)	3PH 4/8P 2/1KW (2.5/1.25HP)
POWER SUPPLY		AC 3 PHASE 220V ± 10% 50/60 Hz ± 1Hz		
POWER CAPACITY KVA		0.72	1.56	2.2
SPINDLE SPEED min-1	50 Hz	1,680 840 420	515 285 155	240 120 60
	60 Hz	2,000 1,000 500	620 340 190	280 140 70
THREAD PITCHES (Change gears for tapping are optional.)	THREADS PER INCH	(100) (80) 64 56 48	28 24 20 19 18	
		44 40 32 28 24	16 14 13 12 11	
		20 18 16		10 9 8
	METRIC PITCHES	0.2 0.25 0.3 0.35 0.4	0.7 (0.75) 0.8 (0.9)	
		0.45 0.5 0.6 0.7 0.75	1.0 1.25 1.5 1.75 2.0	2.5 3.0 3.5

- ▶ Change gears for BT71 and BT81 are common.
 - ▶ Change gears for parenthesized specification are special order and may require time before delivery.
 - ▶ Specifications including design and dimensions listed in this catalog are subject to change without notice.
 - ▶ Spindle safety clutch is available within the limit of M6 to M8 in BT61, and M8 to M16 in BT71.
- As spindle safety clutch in BT81 is torque limiter type, it is used to protect the machine rather than to prevent breakage.

NOTE: BTO-263 small vertical tapping machine (1/4" cap.) is available on request.



AUTOMATIC MACHINES



SPECIAL AUTOMATIC TAPPING MACHINES

Tapping equipment may come equipped with variable speed controllers and torque sensors. Angular, horizontal or vertical machines are all available to fit your specific needs.

STANDARD FEATURES INCLUDE:

- ▶ Large T slot fixture mounting surface
- ▶ Built in 1/2 hp high volume coolant pump
- ▶ Recirculating coolant systems
- ▶ Lead screw design
- ▶ Torque sensitive clutches
- ▶ Built-in foot pedal control
- ▶ Lockable caster mounting



SPECIAL AUTOMATIC DRILLING MACHINES

Drilling equipment may come equipped with variable speed controllers, torque sensitive peck control systems as well as manually controlled peck feed systems. These machines also may include pneumatic clamping control circuits, shuttle and feeding systems.

STANDARD FEATURES INCLUDE:

- ▶ Large T slot fixture mounting surface
- ▶ Built in 1/2 hp high volume coolant pump
- ▶ 5 gallon recirculating coolant system
- ▶ Easily adjustable hydro regulator and gauge
- ▶ Built in foot pedal control
- ▶ Filter, regulator and lubricator
- ▶ Lockable caster mounting



PNEUMATIC SELF-CENTERING VISE



880-001

STANDARD FEATURES:

- ▶ Self-centering clamping design insures accurate center location (+/- .0001")
- ▶ Heavy duty clamping force to insure drilling and tapping locations
- ▶ Blank vise jaws are available for case hardening or oil hardening
- ▶ Standard length 1 7/16"
- ▶ Extra length 2"
- ▶ Maximum clamping capacity of vise 1 1/8" diameter; oversize master jaws are available for large diameter part (max. dia. 1 3/4")
- ▶ Heavy duty design and construction for many years of trouble-free use

HIGH SPEED ADJUSTABLE INDEXER



880-002

STANDARD FEATURES:

- ▶ Quick indexing positioning .04 seconds per index
- ▶ Vertical/horizontal mounting
- ▶ Easily adjustable indexing positioning
- ▶ Integrated with positioning sensors
- ▶ Complete with a 9-pin coolant resistant connector
- ▶ Positive stop with locking pal
- ▶ Positioning accuracy of +/- .0006
- ▶ Quickly adjust from 2,3,4,6,8,12,24 stops
- ▶ May be used with any production drill, mill, tap, grinding machine as well as many other types of production systems
- ▶ Comes with or without programmable logic controller
- ▶ Heavy duty design and construction for many years of trouble-free use

SHUTTLE DUAL 5C COLLET CLOSER



880-003

STANDARD FEATURES:

- ▶ Allows you to load and unload parts while the machine continues to operate
- ▶ Fast 0.8 seconds per shuttle
- ▶ Auto clamp and unclamp of the collet closer
- ▶ Quick and easy tooling change-over
- ▶ Simple PLC control package
- ▶ Heavy duty design and construction for many years of trouble-free use

STANDARD TYPE DRILL UNIT

FEATURES:

- ▶ Electric motor drive, air-operated feed, hydraulic cutting feed
- ▶ Easy stroke setting (full/rapid stroke)
- ▶ Rigid aluminum die-cast housing
- ▶ Spindle speed change by pulleys
- ▶ Compact design
- ▶ Optional controller: AFC-G2



Inch/(mm)

SPECIFICATIONS		MODEL	AF1-111	AF1-112	AF2-125	AF2-126	AF2-128
		TYPE	DIRECT	BIAS	DIRECT	BIAS	BIAS
MAX DRILLING CAPACITY(Mild steel)			ø0.236 (6)	ø0.315 (8)	ø0.354 (9)		ø0.433 (11)
SPINDLE NOSE TAPER			JACOBS TAPER NO.1		JACOBS TAPER NO. 6		
MAXIMUM SPINDLE STROKE			3.15 (80)		4.72 (120)		
MAXIMUM CUTTING FEED STROKE			1.97 (50)		3.54 (90)		
MINIMUM REQUIRED RAPID FEED STROKE			1.18 (30)				
SPINDLE SPEED R.P.M. (Speed change pulleys are optional accessories)	50 Hz	5000, 3300, 2250, 1500, 1000	5000, 3300, 2250, 1500, 1000, 650	4170, 2960, 2080, 1500, 1050, 750		1500, 1050, 750, 525, 375	
	60 Hz	6000, 4000, 2700, 1800, 1200	6000, 4000, 2700, 1800, 1200, 800	5000, 3550, 2500, 1800, 1250, 900		1800, 1250, 900, 630, 450	
CUTTING FEED SPEED			0.016 - 0.787 inch/sec (0.4-20mm/sec)				
THRUST POWER AT 5 kgf/cm2 G AIR PRESSURE lbs (kgf)			220 (100)		330 (150)		
WORKING PRESSURE			71.10 lbs/in2 (5 kgf/cm2)				
MOTOR RATING			3 PHASES, 2 POLES 200W		3 PHASES, 2 POLES 375W		
POWER SUPPLY			220V 60Hz				
SPACE REQUIRED (L x W x H)	INCH	29.6 x 4.76 x 6.30	19.9 x 4.76 x 9.53	36.2 x 5.24 x 8.07	25.4 x 5.24 x 11.7	25.4 x 5.24 x 11.7	
	mm	753 x 121 x 160	506 x 121 x 242	920 x 133 x 205	646 x 133 x 296	646 x 133 x 296	
NET WEIGHT lbs (kg)			30.8 (14)	33 (15)	61.6 (28)	68.2 (31)	

TORQUE SENSOR TYPE DRILL

FEATURES: (MICRO COMPUTERIZED TORQUE SENSOR TYPE)

- ▶ Controller included
- ▶ Small and deep hole drilling (0.024"-0.118")
- ▶ Peck feed and torque sensor
- ▶ Self-diagnostic controller function

(MECHANICAL TORQUE SENSOR TYPE)

- ▶ Peck feed and torque sensor by optional or appc control circuit
- ▶ Optional controller: AF2521



OPTIONAL ACCESSORIES

MODEL #	DESCRIPTION
AFC-G2	Control box for AF1-111/112, AF2-125/126/128
AF-2521	Control box for AF2-226
DS-2	Drill stand
AFA-112	2-spindle attachment for AF1
AFA-122	2-spindle attachment for AF2
CP-***	Speed change pulleys

SPECIFICATIONS		MODEL	AF1-211	AF1-211T-20	AF1-212	AF1-212T-20	AF2-226
		TYPE	DIRECT			BIAS	
MAX DRILLING CAPACITY(Mild steel)			ø0.039-ø0.118 (1-3)	ø0.024-ø0.047 (0.6-1.2)	ø0.039-ø0.118 (1-3)	ø0.024-ø0.047 (0.6-1.2)	ø0.118-ø0.433 (3-11)
AVAILABLE RANGE OF TORQUE SENSOR lbs/in (kg/mm)			0.43-8.66 (5-100)	0.08-1.73 (1-20)	0.43-8.66 (5-100)	0.08-1.73 (1-20)	3.46-43.3 (40-500)
SPINDLE NOSE TAPER			JACOBS TAPER NO.1				J.T. NO.6
MAXIMUM SPINDLE STROKE			3.15 (80)				4.72 (120)
MAXIMUM CUTTING FEED STROKE			1.97 (50)				3.54 (90)
MINIMUM REQUIRED RAPID FEED STROKE			1.18 (30)				
SPINDLE SPEED R.P.M. (Speed change pulleys are optional accessories)	50 Hz	5000, 3300, 2250, 1500, 1000			5000, 3300, 2250, 1500, 1000, 650		2080, 1500, 1050, 750, 525
	60 Hz	6000, 4000, 2700, 1800, 1200			6000, 4000, 2700, 1800, 1200, 800		2500, 1800, 1250, 900, 630
CUTTING FEED SPEED			0.016 - 0.787 in/sec. (0.4 - 20mm/sec.)				
THRUST POWER AT 5 kgf/cm2 G AIR PRESSURE lbs (kgf)			220 (100)				330 (150)
WORKING PRESSURE			71.10 lbs/in2 (5 kgf/cm2)				
MOTOR RATING			3 PHASES, 2 POLES 200W				3 PHASES, 2 POLES, 375W
POWER SUPPLY			220V 60Hz				
SPACE REQUIRED (L x W x H)	INCH	29.6 x 4.76 x 6.30			19.9 x 4.76 x 9.53		25.8 x 5.24 x 11.7
	mm	753 x 121 x 160			506 x 121 x 242		656 x 133 x 296
NET WEIGHT lbs (kg)			30.8 (14)			33 (15)	74.8 (34)

AUTOMATIC PRECISION RIVETING MACHINES



BRO-161

FEATURES:

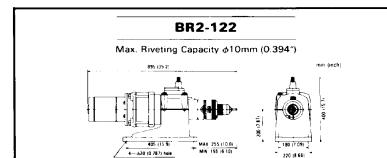
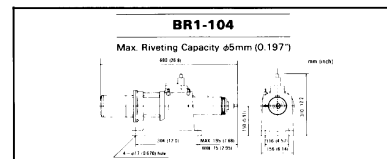
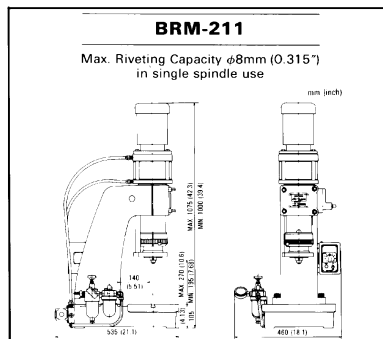
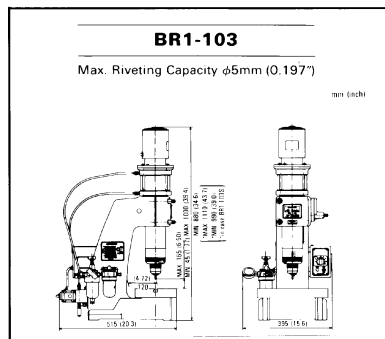
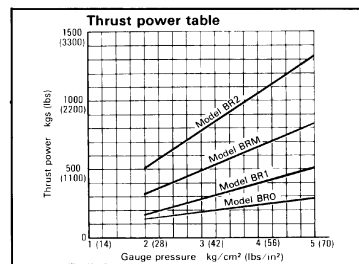
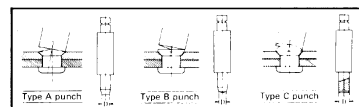
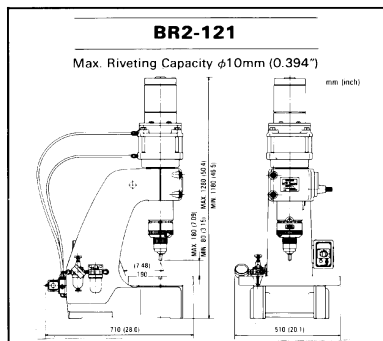
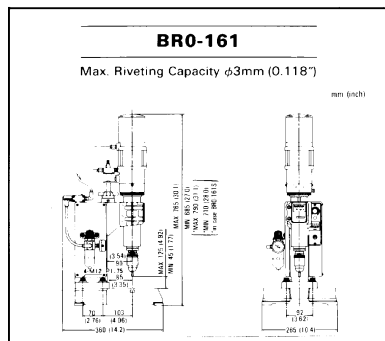
- ▶ Smooth powdercoat finish
- ▶ Fine stroke adjustable in 0.02 inch (0.05mm) increments
- ▶ Noiseless operation
- ▶ Easy setting and simple operation
- ▶ Digital parts counter available
- ▶ Multiple spindle machine (model BRM) and specialized machines can be used horizontally for maximum efficiency
- ▶ Model BRO adopts oilless cylinder, which is easy to maintain
- ▶ Optional riser block available in model BRO and BRM

SPECIFICATIONS (All metric equipment)

RIVETING PUNCH (Option)

MODEL	D Diameter mm		
	Type A	Type B	Type C
BR0	3, 5, 7	2, 3, 4, 5, 6, 7	
BR1	3, 5, 8	3, 4, 5, 6, 7, 5	
BR2		8, 10, 12, 14	
BRA	3, 5, 7	2, 3, 4, 5, 6, 7	

SPECIFICATIONS	MODELS	VERTICAL (Net Weight)	BRO-161 (95 lbs/43 kg)	BRO 161S (97 lbs/44 kg)	BR1-103 (210 lbs/95 kg)	BR1-103S (214 lbs/97 kg)	BR2-121 (552 lbs/250 kg)	BR2-122 (243 lbs/110 kg)
		HORIZONTAL (Net Weight)			BR1-104 (99 lbs/45 kg)			
STROKE OF SPIN HEAD			0.79 (20) ~ 1.38 (35)		0.79 (20) ~ 1.57 (40)		0.20 (5) ~ 1.38 (35)	
DISTANCE BETWEEN PUNCH AND TABLE			1.77 (45) ~ 4.92 (125)		1.77 (45) ~ 6.50 (165)		3.15 (80) ~ 7.09 (180)	
RIVETING CAPACITY (MILD STEEL RIVET)			UNDER 0.12 (3)		Under 0.20 (5)		0.16 (4) ~ 0.39 (10)	
WORKING CYCLE TIME			0.5 - 6 SECOND					
GAUGE PRESSURE			28.44 lbs/in.2 (2 kg/cm2) ~ 71.10 lbs/in.2 (5 kgs/cm2)					
AVERAGE AIR CONSUMPTION IN ONE CYCLE			1.8N liters		5N liters		7N liters	
WORKING SURFACE (VERT. MODEL L x W)			7.09 (180) x 9.84 (250)		7.09 (180) x 12.20 (310)		12.20 (310) x 18.90 (480)	
MOTOR RATING			AC 3 Phases 2 poles 80W	AC Single Phase 2 poles 80W	AC 3 Phases 4 poles 200W	AC Single Phase 4 poles 200W	AC 3 Phases 4 poles 750W	
OCCUPIED SPACE (VERT. MODEL L x W x H)	INCH		14.17x10.43x30.12	14.17x10.43x30.10	20.28x15.55x39.37	20.28x15.55x43.70	27.95x20.08x50.39	
	mm		360 x 265 x 765	360 x 265 x 790	515 x 395 x 1000	515 x 395 x 1110	710 x 510 x 1280	





**RADIUS AND ANGLE
DRESSER**

**PLANET SERIES
AIR GRINDERS**

**BANTAM AIR MOTOR
SPINDLES**

**ASTRO AIR MOTOR
SPINDLES**

**IMPULSE PENCIL
GRINDERS**

GRINDING ATTACHMENTS & ACCESSORIES



550 series

2 YEAR
WARRANTY

RADIUS AND ANGLE DRESSER

FEATURES:

- ▶ An extremely accurate and versatile unit for use on all O.D., I.D. surface grinding operations. At no time are the hands near the point of contact.
 - ▶ Knob "A" controls radii and knob "B" controls angular movements.
 - ▶ All moving parts are lapped.
 - ▶ Adjustable gibs.
 - ▶ Gage block setting for grinding precise radii.
 - ▶ Easy, fast, accurate radius setting.
- Radius is set on the grinder by measuring over the two pins or by inserting a gage block, for direct reading.
- ▶ Inside or outside radius is determined by using either the left or right hand pins.

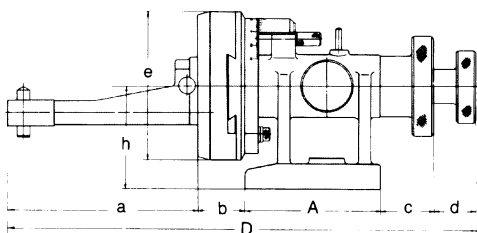
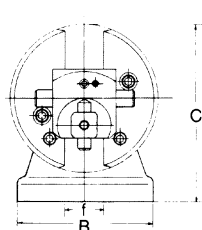
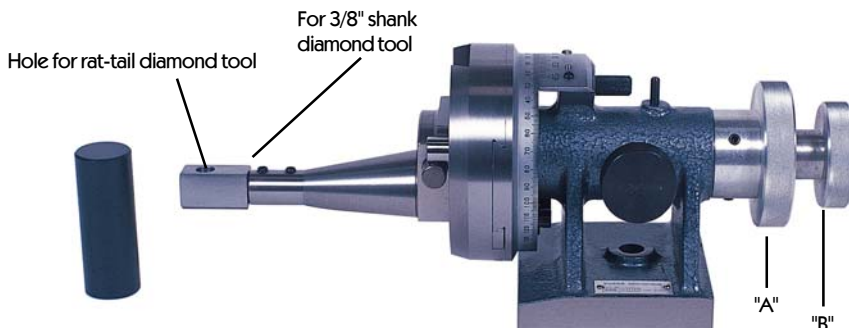
SPECIFICATIONS	MODELS	
	550-000	550-001N
Weight lbs/(kg)	16 (7.2)	23 (10.4)
Maximum diameter of wheel	8"	12"
Convex radii	0 - 1 3/16"	0 - 1 5/8" (6" **)
Concave radii	1/32" - 1 3/16"	1/32" - 1 5/8" *** (6" **)
Tangent travel either side of center	1.20"	2"
Center line of tool	3"	3.4"
Overall length	13.66"	16.61"

Optional accessories for 550-001N

**553-308 - Extension adaptor for 1-5/8" to 6" concave radii and convex radii

Inch/(mm)

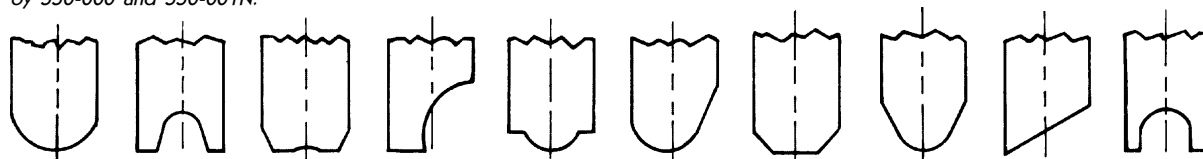
SPECIFICATIONS	MAXIMUM VARIATION
Face plate to dresser arm squareness (per 2")	0.0005 (0.012)
Face plate to base squareness	0.0006 (0.015)
Center runout of dovetail groove to wheel center	0.0006 (0.015)



Inch/(mm)

MODEL	MOUNTING SURFACE		OVERALL LENGTH		CENTER HEIGHT	DIMENSIONS					
	A	B	C	D	h	a	b	c	d	e	f
550-000	3.94 (100)	3.94 (100)	5.17 (131)	13.66 (347)	3.00 (76.2)	5.59 (142)	1.34 (34)	1.57 (40)	1.22 (31)	4.33 (110)	1.85 (47)
550-001N	5.35 (136)	4.13 (105)	6.01 (152)	16.14 (410)	3.40 (86.3)	6.46 (164)	1.50 (38)	1.81 (46)	1.22 (31)	5.23 (132.8)	1.85 (47)

Concave and convex radii which can be dressed by 550-000 and 550-001N.



RADIUS ANGLE AND DUPLEX DRESSER

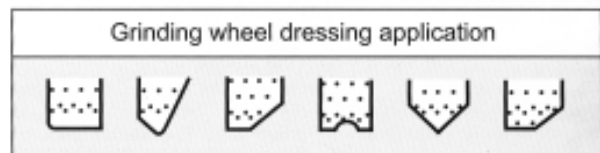
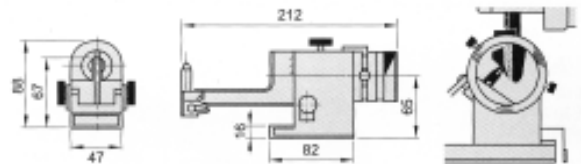


VISUAL RADIUS ANGLE DRESSER



595-901

Model 595-901 is a Visual Universal Wheel dresser adaptable to most surfaces and is capable of producing a variety of flat and curved cross-section shapes. By sighting the diamond point through the lens, angles, radii and tangents can be made with very high accuracy.



SPECIFICATIONS

MODEL	Center Height	Max wheel diameter	Max convex radius	Max concave radius	Dressing angle	Tangential travel	Net weight lbs. (Kg)
595-901	2.56 (65)	7.87 (200)	0.51 (13)	1 (25.4)	95°-0°-95°	0.86 (22.5)	9.26 (4.2)

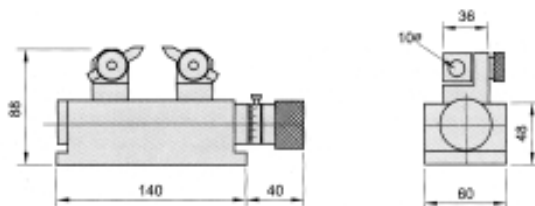
PRECISION DUPLEX DRESSER

FEATURES:

The 595-900 Series are designed to simultaneously dress both sides of a grinding wheel, precisely and without deformation.



595-902



Max. thickness	Min.	Max.	Min.
40mm 	0.2mm 	40mm 	0.02mm/min

SPECIFICATIONS

MODEL	Max wheel width	Max dressing depth	Min. dressing width	Graduation	Net weight lbs. (Kg)
595-902	1.57 (40)	1.57 (40)	0.00787 (0.2)	0.000787 (0.02)	7.72 (3.5)



YUASA/NSK SUPER PRECISION HIGH SPEED GRINDERS PLANET SERIES

FEATURES:

- ▶ Designed for micro finish grinding
- ▶ Approx. 0.0004" of material can be removed per pass
- ▶ Produces super micron finish
- ▶ Minimum consumption of air
- ▶ Virtually noiseless operation, with silencer exhaust system
- ▶ May be used as a precision internal grinder on a lathe



Internal grinding is enabled by attaching a boring head to jig milling machine, then attaching PLANET jig grinder (applicable to all PLANET series.)



Mount these precision grinders on a lathe tool post or slide for precision internal grinding.



Capable of grinding internal side surfaces and end surfaces by lathe and CNC lathe (PLANET 400, 550 and 800.)



Virtually zero spindle runout. Ultra precision ball bearing withstands ultra-sonic rotation even under long periods of operation. Highest quality air turbine.

Complete set includes air line kit.



ITEM # PRODUCT	COMPLETE SET (Includes the following)	81-PL10485 SYSTEM 550	81-PL91181 SYSTEM 400	81-PL10497 SYSTEM 800
PLANET Grinder (ITEM #) BODY & STD. ASSY.		81-PL10520	81-PL91171	81-PL10528
SHANK DIAMETER		3/4"	3/4"	3/4"
AIR LINE KIT (ITEM #)		81-AP10655	81-AP10655	81-AP10656
HOSE WITH FITTINGS		6 ft.	6 ft.	6 ft.
COLLET CHUCK AND A NUT		1/4", 1/8"	1/4", 1/8"	1/8" w/o nut
GRINDSTONE		1 set	1 set	1 set
GRINDSTONE WITH SHANK		—	—	—
ANTI SWIVEL ROD		1 set	1 set	1 set
WRENCH		1 set	1 set	1 set
LUBRICATING OIL (Equiv. to Turbine Oil #60)		1 pc.	1 pc.	1 pc.
WOODEN BOX		1 pc.	1 pc.	1 pc.

5 PLANET MODELS ARE AVAILABLE

PLANET 400: 35,000 ~ 45,000 RPM
 PLANET 550: 50,000 ~ 65,000 RPM
 PLANET 800: 70,000 ~ 90,000 RPM
 PLANET 1500: 130,000 ~ 150,000 RPM
 PLANET 2000: 180,000 ~ 200,000 RPM

YUASA / NSK PLANET 550 50,000~65,000 R.P.M.



Shown with optional extended shank

FEATURES:

- ▶ Suitable for grinding of deep holes; processing of up to 2.36" deep hole with inner diameter of more than 0.55".
- ▶ Capable of grinding inner diameters from min. $\varnothing 0.12$ " to max. $\varnothing 2.76$ ".
- ▶ Operable by a small 2 horsepower compressor.
- ▶ An exhaust air type that produces very little noise.
- ▶ Standard collet chucks in $\varnothing 1/8$ " and $\varnothing 1/4$ "; optional collet chucks are available (see below.)
- ▶ Grindstone shank for deep holes is available (as an option) in 1.57", 1.97" and 2.36". Easy replacement of chuck and grindstone shank.
- ▶ A maximum air efficiency design for outstandingly high torque.
- ▶ The stainless steel body casing allows the Planet 550 to be fixtured, and used as a tool post grinder for precision I.D. grinding.
- ▶ Dual set of ball bearings supply the rigidity for deep hole grinding with extended shanks.

SPECIFICATIONS:

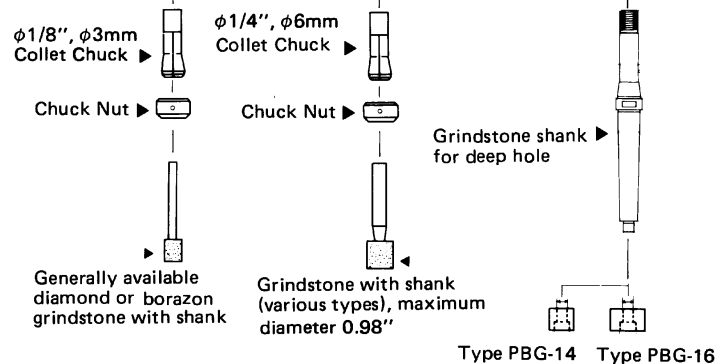
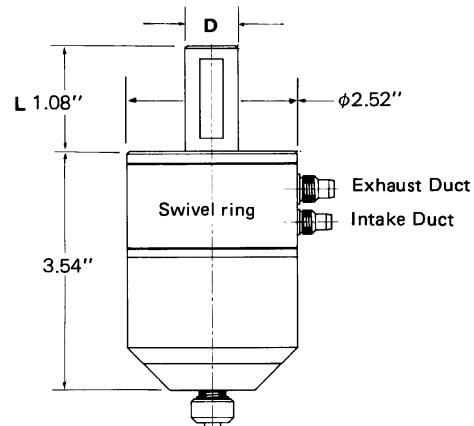
ITEM #	81-PL10520
MODEL (BODY ONLY)	PLANET 550
SHANK DIAMETER	$\varnothing 3/4$ "
GRINDING CAPACITY	$\varnothing 0.12 - \varnothing 2.76$ "
GRINDING DEPTH	Max. 2.36"
GRINDSTONE DIA.	Max. $\varnothing 0.98$ "
REVOLUTION	50,000 - 65,000 rpm
AIR PRESSURE	43 - 85 PSI
VOLUME OF AIR FLOW	130 l/min.
COMPRESSOR	2HP (1.5kw)
WEIGHT	3.61 lbs.

ORDERING INFORMATION:

Body & std. assy. - PN# 81-PL10520
Complete set w/ air line kit - PN# 81-PL10485

OPTIONAL COLLET CHUCKS

ITEM #	SIZE
81-PL10675	$\varnothing 1/4$ "
81-PL10680	$\varnothing 3/16$ "
81-PL11466	$\varnothing 1/8$ "
81-PL11785	$\varnothing 3/32$ "



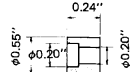
STANDARD ACCESSORIES:

- (#81-PL10520)
1. Planet 550 body
 2. 6' air hose
 3. 1 set of wrenches
 4. Collet chucks and a nut ($\varnothing 1/8$ " & $\varnothing 1/4$ ")
 5. Anti-swivel rod
 6. Grindstone holder

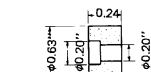
GRINDSTONE SHANK FOR DEEP HOLES

ITEM #	MODEL	LENGTH (L)
81-PL13680	K064761	1.57" (40mm)
81-PL13681	K064762	1.97" (50mm)
81-PL13682	K064763	2.36" (60mm)

■ Borazon or diamond vitrified grindstone without shank

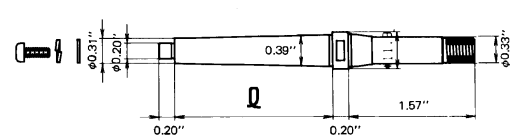


Types PBG-14, PDG-14



Types PBG-16, PDG-16

■ Dimensions of grindstone shank for deep hole



Length ℓ	Type No.
1.57"	K064761
1.97"	K064762
2.36"	K064763

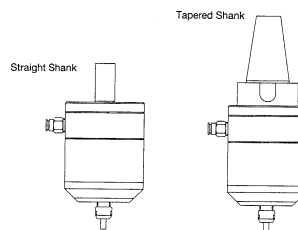


ORDERING INFORMATION
Body & std. assy.
PN #81-PL91171
Complete Set - w/ Air Line Kit
PN #81-PL91181

PLANET 400 (35,000 ~ 45,000 rpm)

FEATURES:

- ▶ Very heavy duty spindle and bearing design (4 bearings)
- ▶ Large diameter air turbine provides high spindle torque for larger diameter (up to 1") and the removal of more material than other Planet models.



Tapered shanks are available on request (see below.)

Standard Set of Planet 400

CAT No.	SHANK DIAMETER	MODEL
81-PL1181	Straight Ø 3/4" x 40mm	81-PL400-H3440
	Tapered BT30	81-PL400-BT30S
	Tapered NT30	81-PL400-NT30S
	Tapered BT40	81-PL400-BT40S
	Tapered NT40	81-PL400-NT40S

PROCESSABLE RANGE

Processable Diameter	Ø 0.11" ~ Ø 2.75"
Processable Depth	2.36"
Max. Grindstone Dia.	0.78"
Rotating Speed	35,000 ~ 45,000 rpm
Proper Air Pressure	42 ~ 71 PSI
Volume of Air Flow	7.06 CFM
Weight	6 lbs, 10.7 oz.

Planet Unit: 1 unit (including accessories listed under Planet 400 unit (see below))

Air Line Kit: 1 unit

Piping Hose (K-260): 6 ft. Anti-Swivel Bar

Air Intake Hose (K-215): 6 ft. Lubricating Oil (K-211): 1 pc.

Planet 400 Single Unit

CAT. No.	Shank D x L	Description / Model
81-PL91171	Straight Ø 3/4" x 40mm	PL400-H3440 1Unit
	Tapered BT30	PL400-BT30 1Unit
	Tapered NT30	PL PL400-NT30 1Unit
	Tapered BT40	PL PL400-BT40 1Unit
	Tapered NT40	PL PL400-NT40 1Unit

Collet Chuck Standard size: Ø 1/8" (CHK-3.175) w/ Collet Cap (K-265): 1 pc.

Special size: Ø 1/4" (CHK5-6.35) w/ Collet Cap (K265): 1 pc.

CHK

Ø 0.8 - Ø 0.6mm every 0.1mm

Ø 0.25. Ø 3.175. Ø 6.35mm

Air Intake Hose: (K-215): 6 ft.

Anti-Swivel Bar. Wrench (12 x 14) 2 pcs.

PLANET 800 70,000~90,000 RPM



GRINDSTONE

ITEM #	MODEL	DESCRIPTION
81-PL10573	PG-01	Cup Wheel
81-PL10570	PG-02	Cup Wheel

ORDERING INFORMATION
Body & std. assy. - PN# 81-PL10528
Complete set - w/ air line kit - PN# 81-PL10497

High speed revolution of 90,000 rpm makes it suitable for internal grinding of small diameter holes (processable inner diameter range Ø0.08"~Ø1.18")

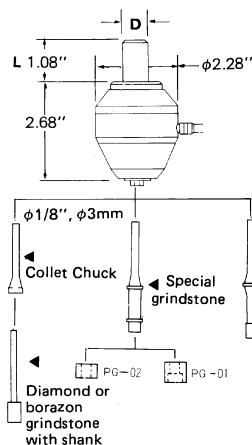
ITEM #	81-PL10528
MODEL	PLANET 800
SHANK DIAMETER	3/4"
GRINDING CAPACITY	Ø0.08 - Ø1.81"
GRINDING DEPTH	Max. 0.98"
GRINDSTONE DIA.	Max. Ø0.43"
REVOLUTION	70,000 - 90,000 rpm
AIR PRESSURE	43 - 71 PSI
VOLUME OF AIR FLOW	80 l/min.
COMPRESSOR	1HP (0.75kw)
WEIGHT	1.32 lbs.

OPTIONAL COLLETS

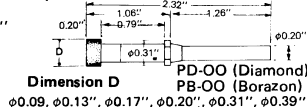
ITEM #	SIZE
81-PL10637	Ø1/8"
81-PL11521	Ø3/32"
81-PL11517	Ø1/16"
81-PL11536	Ø3/64"

GRINDSTONE SHANK

ITEM #	MODEL	LENGTH (L)
81-PL13735	PX-10	0.39" (10mm)
81-PL13736	PX-20	0.79" (20mm)

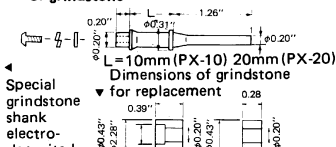


Special grindstone shank electro-deposited with diamond or borazon



Dimension D
Ø0.09, Ø0.13", Ø0.17", Ø0.20", Ø0.31", Ø0.39"

Dimensions of shank for replacement of grindstone



Type PG/01 PG/02

YUASA/NSK BANTAM SERIES



The Bantam Series air motor spindles have been designed for drilling and end-milling using small diameter cutting tools.

BANTAM 150
8,000~16,000 RPM
POWER OUTPUT -
132W

BANTAM 250
15,000~26,000 RPM
POWER OUTPUT -
105W



Bantam Characteristics:

- ▶ High torque air motor spindle features less vibration which is excellent for small diameter drilling and milling, and ensures an ultra-smooth finish when grinding inside and outside of cylindrical surfaces.
- ▶ The air driven system produces very little heat permitting long periods of continuous smooth operation.
- ▶ The spindle runout is a maximum of 8 microns for high accuracy.
- ▶ The Bantam units feature ultra-precision angular contact bearings with a concentricity of 8 microns providing the combination of high accuracy and strong rigidity. Rotational speed can be regulated by varying the air pressure.
- ▶ Muffler reduces noise level down to 60dB max.
- ▶ Air consumption of 170 l/min. max. Energy saving mechanism allows use of small air compressor down to 2.2kW (3 HP).
- ▶ High torque allows the use of grinding tools for grinding bore, O.D. and sides.
- ▶ Vane type air motor offers high output power for it's size and allows it to be used in a wider range of applications that require high torque.

Application:

Small diameter milling and drilling using conventional vertical milling or machining centers can be a problem if the maximum spindle speed is too slow. Tool chattering and excessive heat build-up can cause shorter life to the cutting tools and produce rough working surfaces. The Bantam high-torque air motor solves these problems because the VMC's spindle does not rotate. Simply install the Bantam into the main machine spindle and supply the air.

STANDARD ACCESSORIES

- ▶ BANTAM body with 3/4" shank
- ▶ Collet chuck 1/8"
- ▶ Collet nut
- ▶ 6' intake hose
- ▶ Silencer
- ▶ Spanner
- ▶ Pin spanner

ORDERING INFORMATION:

Bantam 150

Body & assy. PN# 81-BT11210
Complete set w/ air line kit
PN# 81-BT11200

Bantam 250

Body & assy. PN# 81-BT11211
Complete set w/ air line kit
PN# 81-BT11201



Bantam 150 & 250 Complete Set

- ▶ Bantam unit
- ▶ Chuck Ø1/8"
- ▶ Air line kit (lubricator, filter, regulator, pressure gauge, on-off switch)
- ▶ Air tube (6F)
- ▶ Spanner
- ▶ Oil



BANTAM 150 OPTIONAL COLLET CHUCKS

ITEM #	SIZE
81-PL10675	1/4"
81-PL10680	3/16"
81-PL11466	1/8"
81-PL11785	3/32"

BANTAM 250 OPTIONAL COLLET CHUCKS

ITEM #	SIZE
81-RA11812	3/32"
81-RA11818	1/8"
81-RA11813	3mm

SPECIFICATIONS	BANTAM 150				BANTAM 250			
	28.44 PSI	42.66 PSI	56.88 PSI	71.1 PSI	28.44 PSI	42.66 PSI	56.88 PSI	71.1 PSI
Air supply pressure								
Speed	8,000 RPM	12,000 RPM	14,000 RPM	15,700 RPM	15,000 RPM	20,000 RPM	24,000 RPM	26,000 RPM
Air flow	3.36 ft3/min.	4.24 ft3/min.	5.23 ft3/min.	6.08 ft3/min.	3.07 ft3/min.	4.03 ft3/min.	4.73 ft3/min.	5.44 ft3/min.

GRINDING ATTACHMENTS & ACCESSORIES

ASTRO SYSTEM

MULTI-PURPOSE AIR MOTOR & SPINDLE ATTACHMENT FOR MACHINE ATTACHMENT

FEATURES:

- ▶ Explosion-proof type air motor with no heat generation
- ▶ 2 types (3 models) of air motors
 - 30,000 rpm (straight and angle)
 - 60,000 rpm (straight)
- ▶ Higher torque by reduction gear system
- ▶ Various applications: grinding, drilling, cutting slits, chamfering, deburring

ASTRO I 30,000 RPM



The ASTRO SYSTEM has been designed to operate smoothly, at high speed for a prolonged period of time. Air filter, control of air flow, pressure and revolution are provided by air regulator connected directly to air compressor. Automatic oiling to the air tool is provided by oiler. An on/off switch is provided to complement the system.

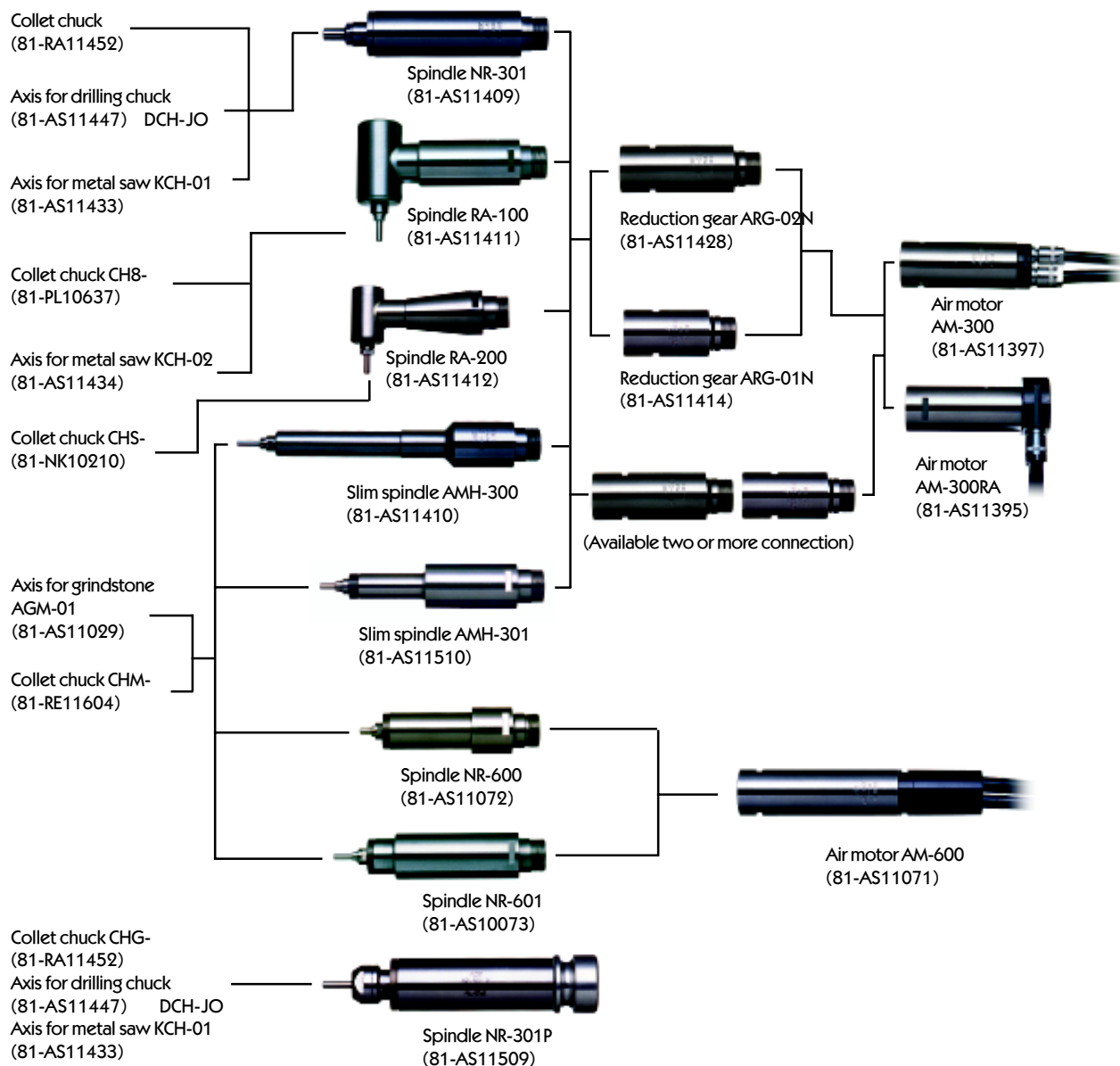
ASTRO SYSTEM BOXES:

ITEM# 81-AS11400

Astro System box I: air motor (81-AS11397), spindle (81-AS11409), air line kit (81-AP10658), wooden box, oil, wrench, collet chuck.

ITEM# 81-AS11070

Astro System box II: air motor (81-AS11071), spindle (81-AS11409), air line kit (81-AP10658), wooden box, oil, wrench, collet chuck.



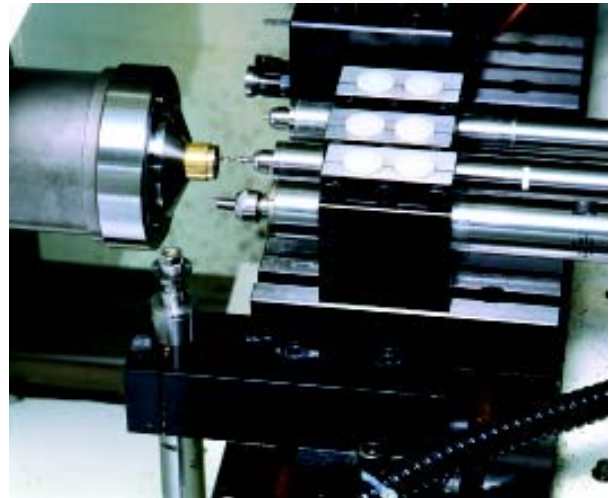
ASTRO SYSTEM



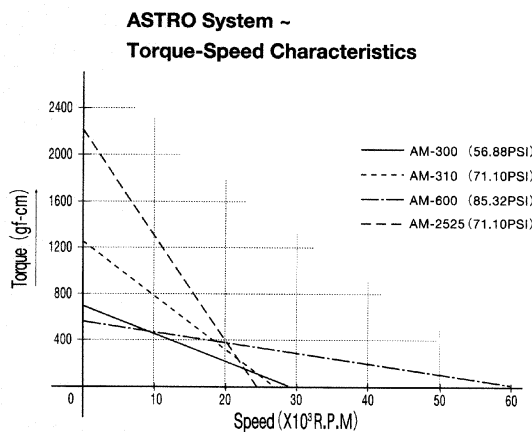
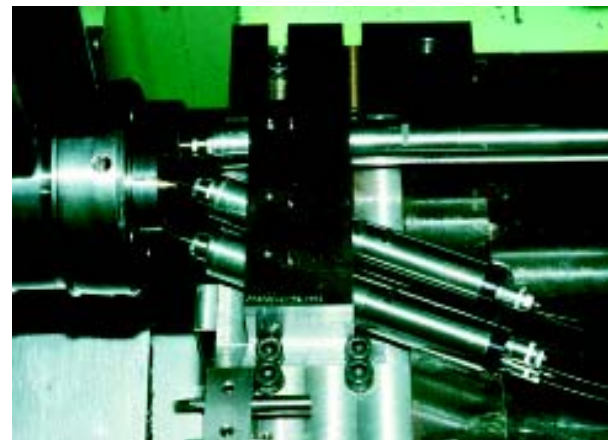
The Astro Series incorporates air motor spindles providing the necessary speed and torque to accomplish a wide variety of machining operations such as grinding, boring, drilling, chamfering and deburring. Astro spindles can be mounted to any NC or manual lathe to either the compound slide or tool post. By using multiple Astro spindles, primary and secondary operations can be performed in a single set-up. A simple chucker lathe can be turned into a CNC turning center.



Straight and angled spindles are available. When the "axis for metal saw" adapter is used with the 90° spindle, slitting operations are possible. Collet chucks, drill chucks and grindstone adapters are mounted to the Astro spindles for holding a wide variety of cutting and grinding tools.



Five different air motors are available up to 60,000 RPM. A variety of gear reducers can be inserted between the Astro air motor and spindle enabling "low speed" and "high torque" for various machining operations using many different materials.

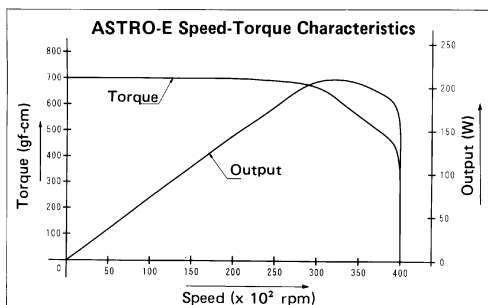


The outer housing of the Astro spindles, gear reducers and air motors is made of stainless steel, and when connected, create a solid single unit.

Ultra-precision vane type air motors provide high torque while maintaining extremely quiet operation.

GRINDING ATTACHMENTS & ACCESSORIES

MULTI-PURPOSE, HIGH TORQUE BRUSHLESS MOTOR AND



- ▶ High output power of 210 watts.
- ▶ The Astro-E motor, a Hall-element DC brushless motor with the rare earth magnet rotor, provides the high output power of 210 watts.
- ▶ 2,000~40,000 rpm; wide range of speed control offers assured

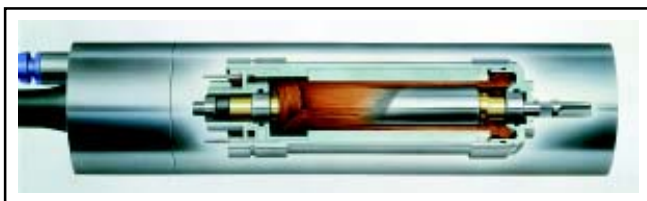
- ▶ Stainless steel body; the casings of the motor and spindle are made from stainless steel (SUS-416.)
- ▶ Adaptable to automatic control; capable of use in an automatic control system with single or multiple motors.
- ▶ Air cooled motor for extended service life; a small amount of air (10 l/min.) effectively cools the motor, maximizing operating time between service

- ▶ No carbon brushes; the high speed brushless DC motor, which eliminates the need for replacement and maintenance of the brushes, offers

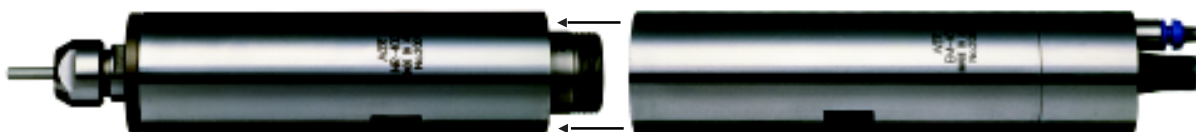
- ▶ Digital speed display; the motor speed is accurately indicated on the

- ▶ Various attachments for a wide range of applications; The motor and the attachment are disconnected by unscrewing. You can readily mount the straight or 90° angle

- ▶ Safety protection mechanism; above mentioned variety of functions are built into the compact, lightweight bodies. They also come equipped with overload protection, which automatically stops the motor when over-



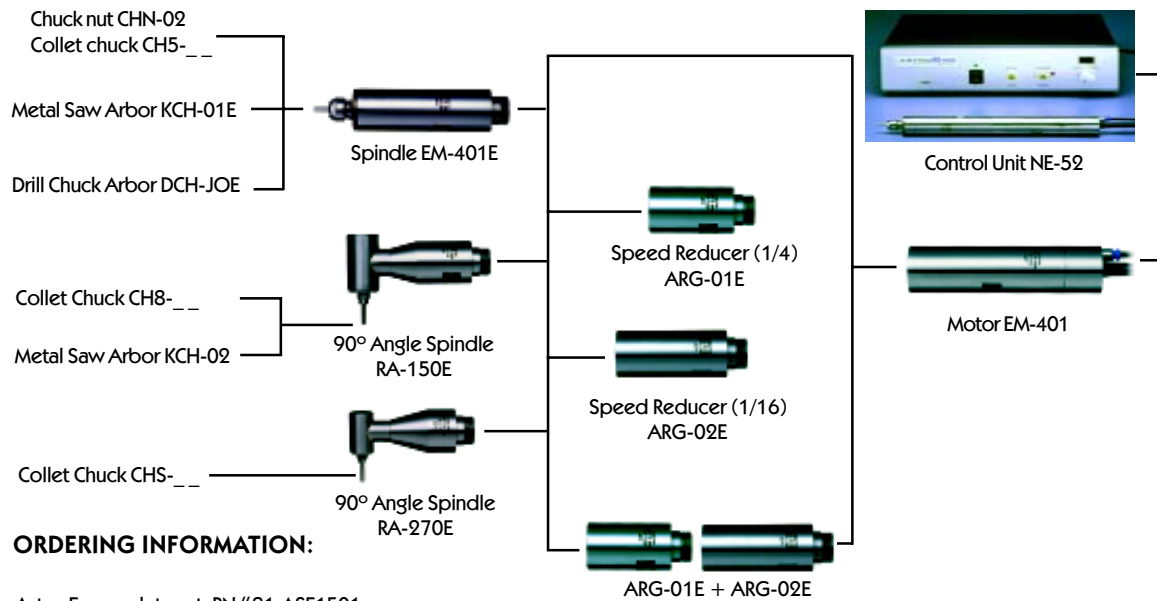
NR-401E Spindle & EM-401 Motor



Specifications

MOTOR & SPINDLE					
Motor	Spindle	RPM	Motor Weight	Spindle Weight	Dimensions
EM-401	NR-401E	2,000-40,000 RPM	1.3 lb (w/cord)	1 lb	Ø1.181 x 8.74 L

ASTRO-E SYSTEM CHART



ORDERING INFORMATION:

Astro-E: complete set, PN#81-ASE1501
(Includes)
81-ASE1503 (EM401) motor
81-ASE1502 (NE52) control unit
81-ASE1504 (NR-401E) spindle
1/8" collet chuck, tools

ULTRA-PRECISION HIGH-SPEED SPINDLE HES SERIES

For machining centers and milling machines

By attaching the HES Series ultra-precision high-speed spindle to the main, motionless spindle of a milling machine or machining center, a wide application of work processing is made possible for small diameter milling, drilling and grinding.

Speed 2,000~40,000 RPM
Max. output 210W
Allowable motor speed 40,000 RPM
Spindle accuracy within 1 μ m
Chuck run-out accuracy within 6 μ m
Standard size collet chuck (CHK-3.175) $\varnothing$ 1/8"
Cord length 13 ft.
With air cooling hose (for continuous use) length 13 ft.
Weight (HES-BT50S) 13 lbs., 8.9 oz.
Weight (HES-NT50S) 14 lbs.

OPTIONS:

Collet chuck (CHK-••) (w/collet cap K-265) . . . $\varnothing$ 0.8mm~ $\varnothing$ 6.0mm every 0.1mm and $\varnothing$ 3/32", $\varnothing$ 1/4"
Axis for metal saw (KCH-03) for $\varnothing$ 30mm
Axis for drill chuck (DCH-JOK) for Jacob's taper No.0
Grindstone axis (AGM-03) . . for grinding wheel with inside diameter of $\varnothing$ 5mm



This product is highly accurate and has excellent durability due to the use of the NR-402E spindle assembled with 4 ultra-precision angular ball bearings, which have proven superior performance in the ASTRO-E 400. This product reduces vibration, noise and heat generation, and extends the service life of cutting tools due to the ultra-precision spindle.

Ultra-precision High-speed Spindle

CAT. NO.	MODEL	STANDARD EQUIPMENT
81-ASE1592	HES-BT50S	Holder HES-BT50 or HES-NT50, Motor (EM-401A), Spindle (NR-402E), Collet chuck $\varnothing$ 1/8" (CHK-3.175) w/ collet cap (K-265) 1 pc., Spanner (12x14), (22x27) 2 pcs. each, Allen wrench (4mm) 1 pc.
81-ASE1593	HES-NT50S	

CAT spindle tapers
are now available

GRINDING ATTACHMENTS & ACCESSORIES



IMPULSE GRINDERS

FEATURES:

The high-torque air motor in pursuit of maximum efficiency of air

With special rotary vane motor, the impulse allows less fall of speed caused by fluctuations in load, and maintains speed under no-load at all times to assure a stable grinding.



- ▶ Ultra-precision pneumatic multi-purpose grinder
- ▶ Extremely low noise level
- ▶ Twist free mechanism prevents hose twisting
- ▶ Choose from four different grinders

SPECIFICATIONS:

Rotating speed: 60,000 RPM

Air consumption: 5.83 CFM

Air pressure: 57~85 PSI

Hose length: 4.5 ft.

23,000 - 60,000 RPM



PRODUCT	ITEM #	MODEL	DESCRIPTION	RPM	AIR PRESSURE	STANDARD ACCESSORIES	WEIGHT
	81-NK60100	NSP-601	Pencil Grinder	60,000	57-85 PSI 160 NL/min.	5' hose, silencer, 1/8" collet, and chuck wrench	5.82 oz.
	81-NK45400	NA45-400	45° Grinder	40,000	57-85 PSI 160NL/min.	5' hose, silencer, 1/8" collet, and chuck wrench	7.41 oz.
	81-NK45230	NA45-230	45° Grinder	23,000	57-85 PSI 160NL/min.	5' hose, silencer, 1/8" collet and chuck wrench, Shaft for grindstone, top cut, rubber pad, sand paper	6.70 oz.
	81-NK90230	NA90-230	90° Grinder	23,000	57-85 PSI 160NL/min.		

PRODUCT	ITEM #	MODEL	DESCRIPTION
	81-AL807	AL-807	Air Line Kit
	81-NK11045	NCH-01	Shaft for grindstone for NA45-230 (81-NK45230) NA90-230 (81-NK90230)
	81-NK11043	CNA	Head Cover
	81-NK10210 81-NK10215 81-NK10220	CHS	1/8" collet chuck 3/32" 1/16"
	81-RE22015	K-212	Bur wrench

PRODUCT	ITEM #	MODEL	DESCRIPTION
	81-NK45800 81-NK45801	A80P A80R	Top Cut
	81-NK11033	PN-030	Rubber pad (Sand paper disks available)
	81-AA10055	K-208	Silencer (small)

EXCELLENT FOR POLISHING TOO



Yuasa's National Headquarters for the U.S.A. in Chicago, IL



NOTES
