YUASA

HIGH PRECISION MACHINING ACCESSORIES

YUASA HISTORY

Yuasa was founded in the year 1666, in Kyoto Japan. This new company (named Yuasa Hardware Co.) supplied coal to blacksmith shops and cutting tool manufacturers throughout Japan. Sometimes swords, knives an other payment by Yuasa for the coal supplied to them. Yuasa, in turn began selling these tools to industrial users all over Japan. With the success of this business, Yuasa began to expand, by introducing other cutting tool related items into the market which had been purchased from various outside suppliers.

Over the centuries, Yuasa expanded its market base and products, serving the world with items ranging from CNC machine tools to standard household products. The Yuasa Group is now located in more than 30 countries around the world with over 5,000 employees.

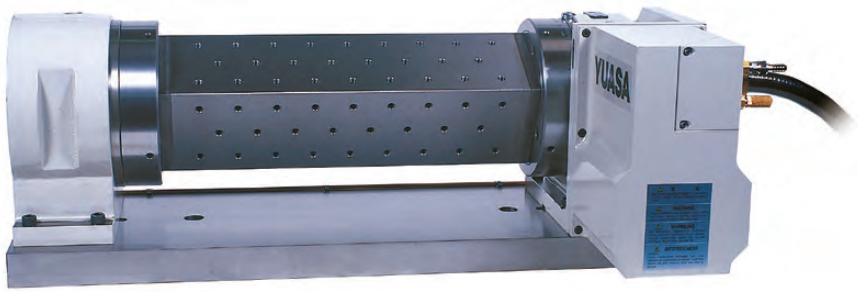
In 1970, Yuasa International was formed in Carlstadt, NJ, selling mostly measuring tools to industrial distributors. By 1980 our product base had expanded to include manual milling machine and engine lathe accessories.

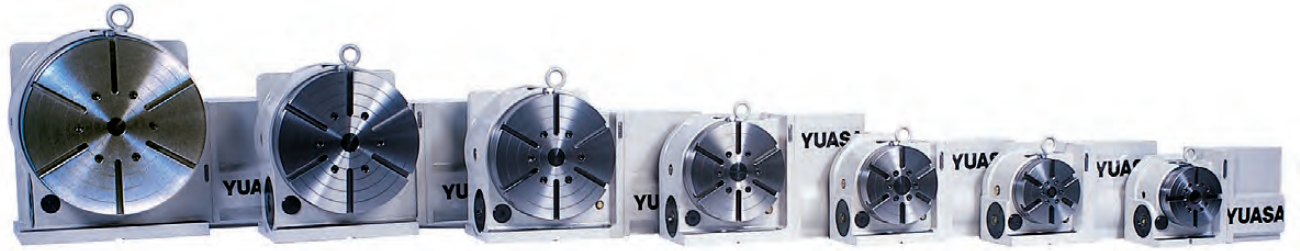
YUASA INTERNATIONAL TODAY

Yuasa International serves the USA, Canada, Mexico and South America with items to include CNC rotary products, workholding items, milling machine accessories, grinding products, CNC turning centers and specialized automatic machines designed to customer specifications. We provide sales offices, service outlets showrooms and warehouses strategically located in major metropolitan areas designed to fully service the needs of our customers. Our goal is to provide a complete range of products and services to meet the needs of the smallest job shop to the largest manufacturing plant with the highest quality machine accessories and equipment.

We are continuing to add personnel and facilities to strengthen our organization and provide better service. Active participation in local, regional and international trade shows makes it possible for us to further demonstrate all of the products and services we provide.

Recently, we established our web site www.yuasa-intl.com so customers can access not only this entire catalog, but also very useful technical information and software updates. We also provide direct e-mail for people wanting to contact us via the Internet for placing orders, expediting, service and parts related questions. INFO@YUASA-INTL.COM





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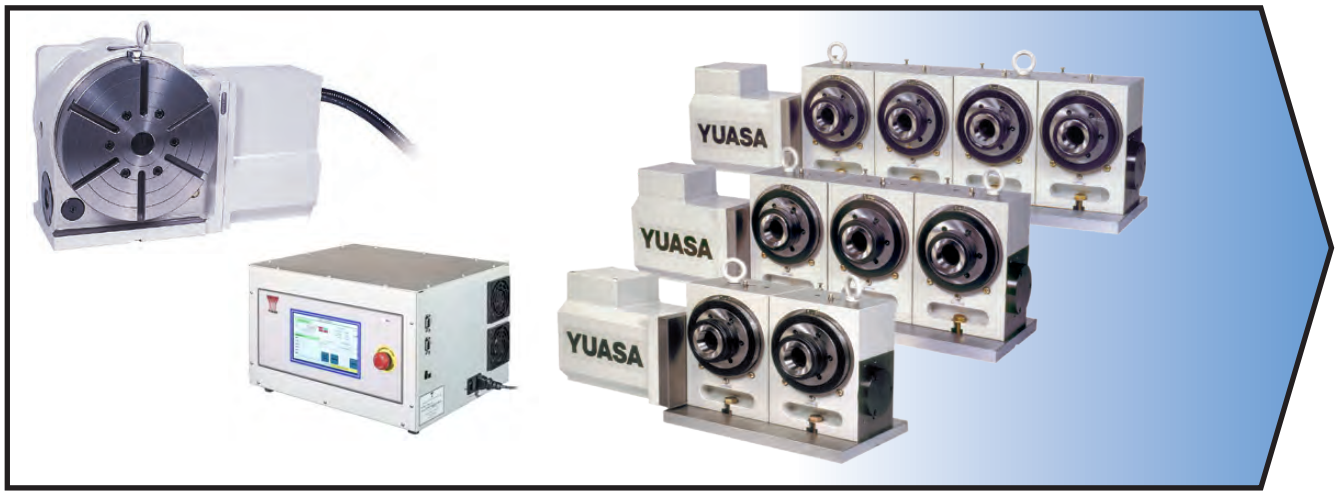
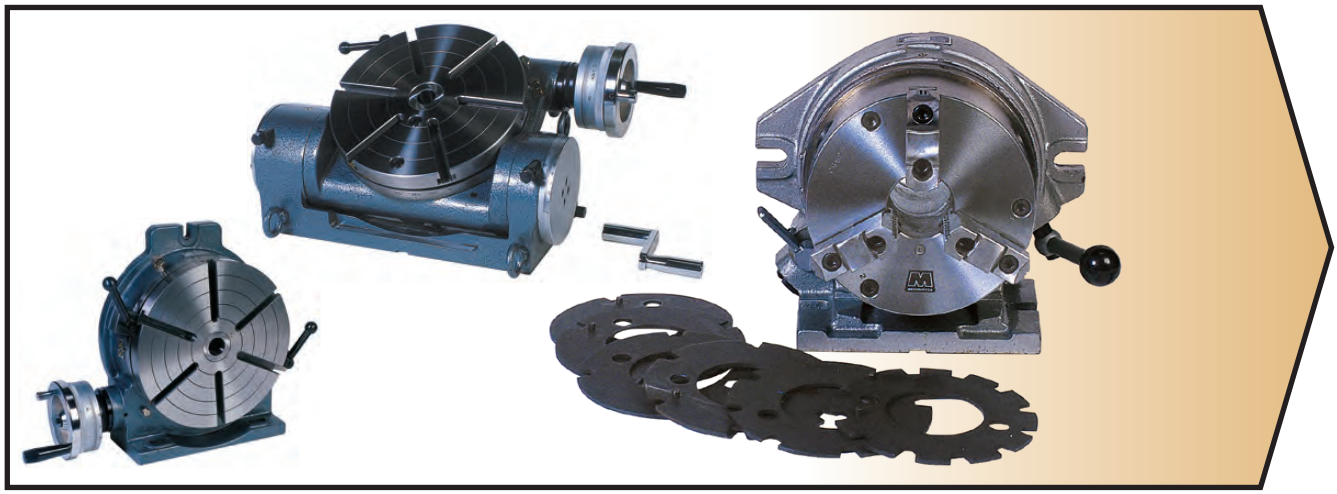
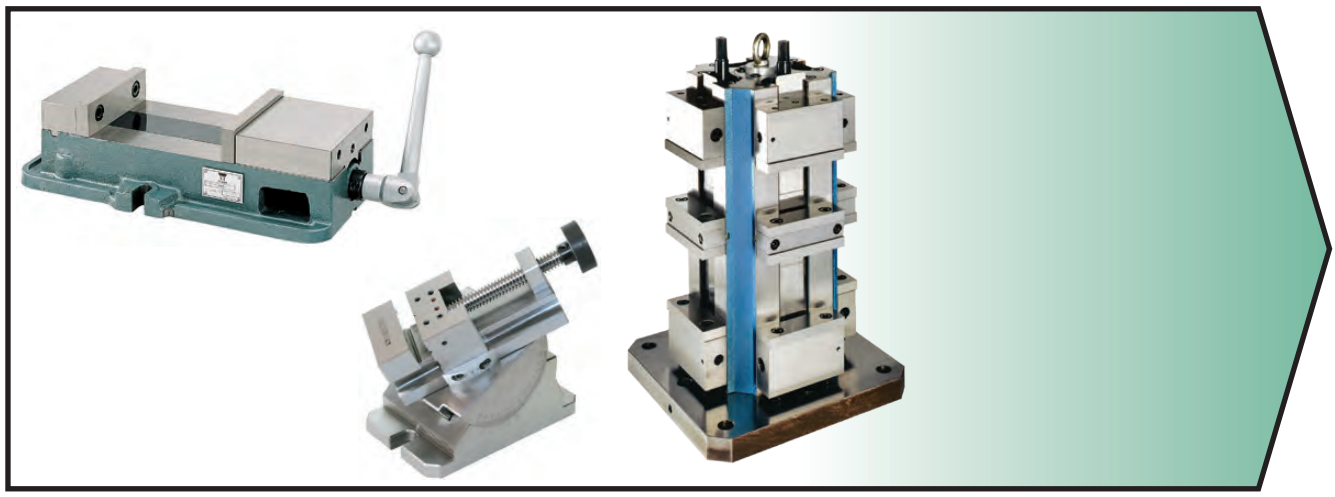


CNC ROTARY PRODUCTS



MILLING MACHINE ACCESSORIES & TOOLS



WORKHOLDING

CNC ROTARY TABLE

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.

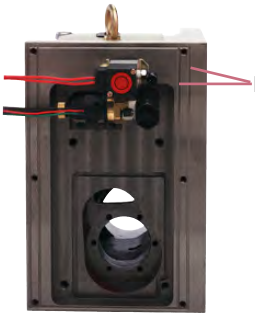
Split worm gear set

Main spindle bearing set

Heavy Duty 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.

Heavy Duty Disc Brake System

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.



Dual "O" ring groove

Meehanite main body

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

Main spindle seal

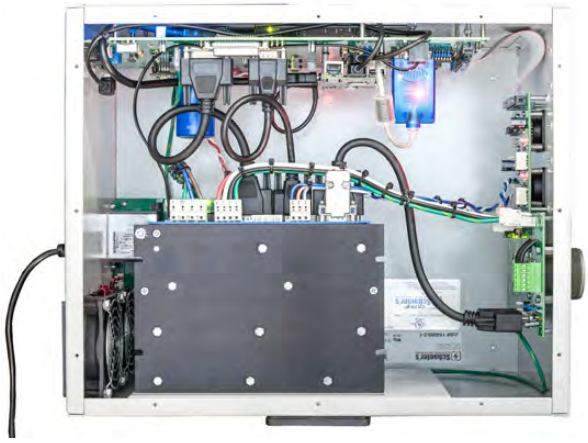
Meehanite Main Body: The main rotary table body has machined dual "O" ring grooves for a "perfect seal" between the die cast aluminum motor cover to the rotary table body.

NMC-501/502 PROGRAMMABLE CONTROLLER

Optional ports open for capability of converting NMC-501 (single axis) to NMC-502 (dual axis) and the capability of converting to hydraulic brake system.

NEW TOUCH SCREEN DISPLAY

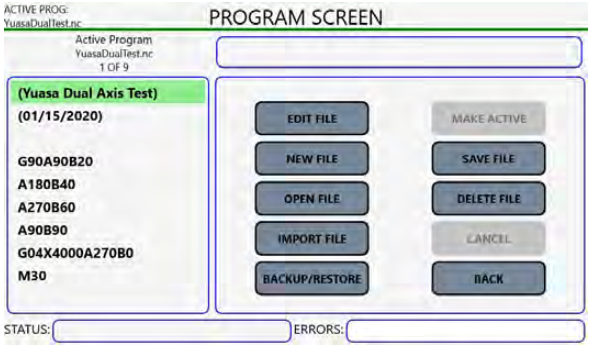
NMC-501(single axis) and NMC-502 (dual axis) is our programmable controller for the DMNC series rotary tables and DMTRT tilt rotary tables.
Now with the NMC-501/502, there is no need to download separate software and configuration files. All controllers will contain multiple Yuasa motor configuration so there will be no need to change any parameters. You will be able to choose the files already stored to match the motor you are installing on your rotary table.
With a new addition of an USB port, the controller can be updated via USB flash drive. Also USB port can be used for keyboard or mouse for writing an downloading programs.



Internal circuit boards are environmentally sealed.

FEATURES:

- M-Code port and RS232 9 Pin DNC communication port included
- Direct operation of rotary table via “DPRNT” statement right from CNC machine control
- Touch screen QWERTY keyboard
- Environmentally sealed
- Dual cooling fans
- Manual pulse generator for easy setup (MPG-600) (optional)
- Multi-language (optional)
- Customizable screen defaults



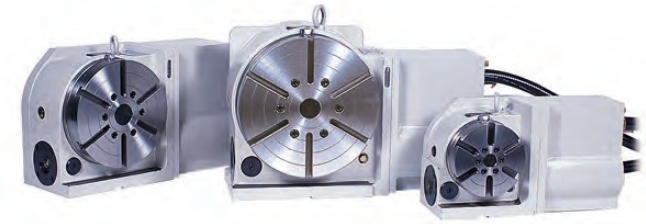
You will now be able to write your program on NotePad, save it on to your flash drive, and simply import your file to the controller.

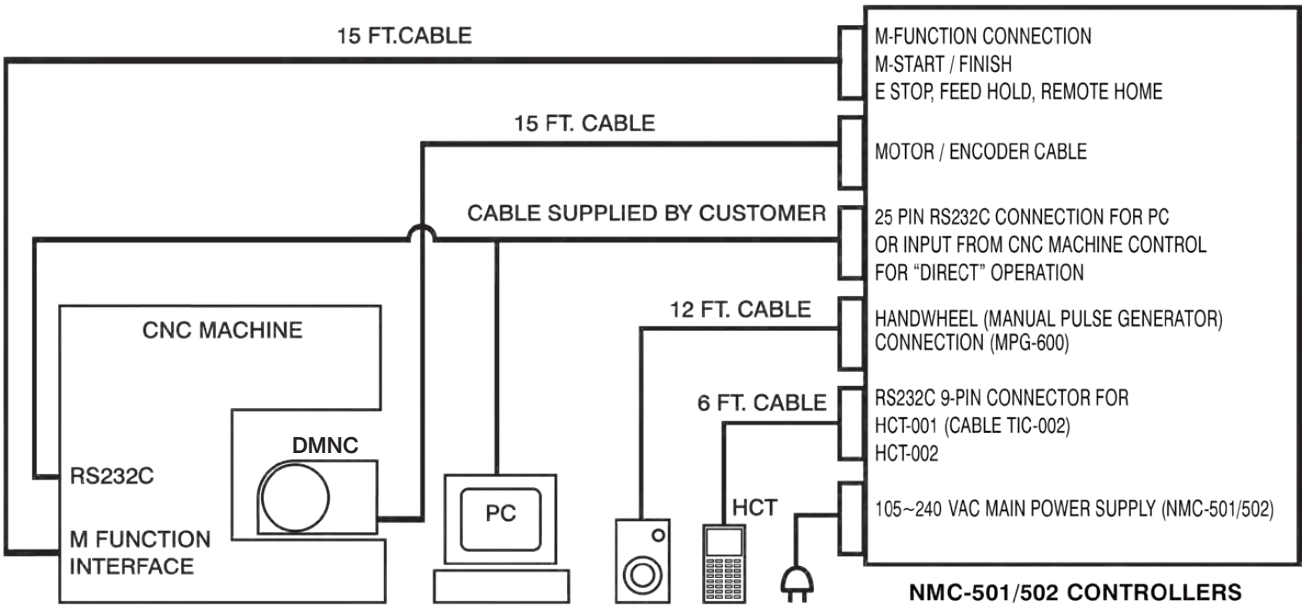
USABLE M AND G CODE

M02 END OF PROGRAM
M18 DISABLE FINISH RELAY #1
M19 ENABLE FINISH RELAY#1
M20 DISABLE FINISH RELAY #2
M21 ENABLE FINISH RELAY #2
M22 DISABLE BRAKE
M23 ENABLE BRAKE
M30 END PROGRAM

G00 RAPID FEEDRATE IN R.P.M. G01 FEEDRATE OF F OR COMMAND
G04 DWELL IN MILLISECONDS G26 HOME A
G27 HOME B
G28 HOME ALL AXIS
G70 START LOOP
G71 END LOOP
G72 AUTO DIVIDE
G90 ABSOLUTE INDEX
G91 INCREMENTAL INDEX

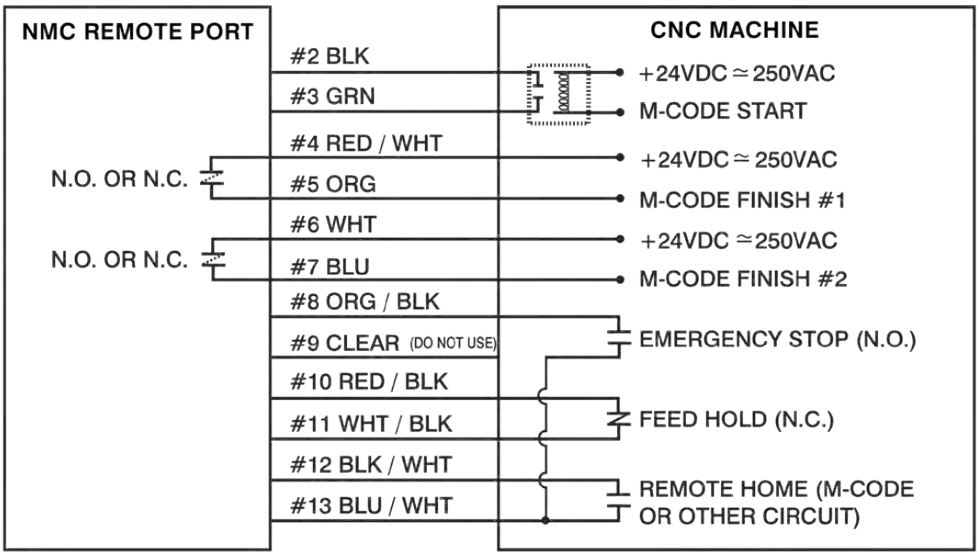
DMNC CONNECTION DIAGRAM





INTERFACE OPTIONS TO CNC MACHINES

There are two primary methods of operation of the DMNC units with controllers. The first is by connecting the remote cable (supplied with each DMNC unit), to a spare M Code (Start and Finish). With this method, a program is written and stored into the UDNC controller, then each step is executed (sequentially) by the M Code output from the CNC machine control.



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 NMC controller, using parameter settings. Proper communication settings between the machine control and the NMC controller are essential for operation. (Please note that some CNC controls may not allow this function to work due to software compatibility issues.)

NMC-501

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

DPRNT line for NMC-501

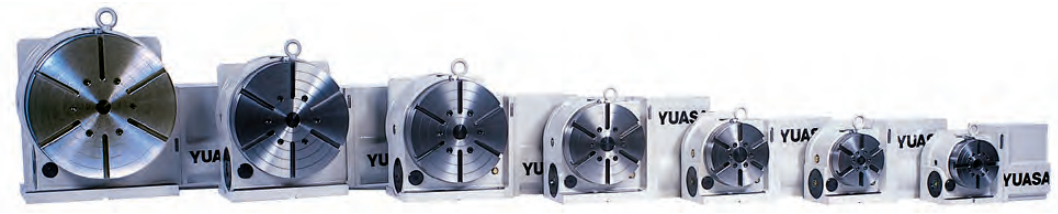
```
%
9010
POPEN;
DPRNT[G90F100A#1];
PCLOS;
M21; - (example of machine M-code)
M99;
%
```

DPRNT line for NMC-502

```
%
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.

DMNC SERIES
ROTARY TABLE MODELS (Single Spindle)



MODELS 400~130 Larger models available up to 2,000mm diameter

Ultra-precision Split Worm Gear

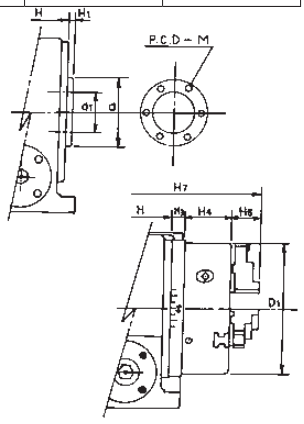
NMC-501 CONTROLLER

DHB 130~320

Inch/(mm)

MODEL / DMNC	130	170	220	280	320	400	500
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 P3.0	8.66 (220) 1.65 (42) M36 P3.0	11.02 (280) 1.65 (42) M36 P3.0	12.60 (320) 1.65 (42) M36 P3.0	15.75 (400) 1.65 (42) N/A	19.68 (500) N/A N/A
CENTER HEIGHT in.(mm)	4.13 (105)	5.12 (130)	6.30 (160)	7.48 (190)	8.66 (220)	11.10 (280)	12.20 (310)
MAX RPM	100	75	50	36		25	
SPINDLE TORQUE ft.lbs (Kg.m)	90 (12)	165 (23)	195 (27)	780 (108)	810 (112)	789 (109)	1,450 (200)
SPINDLE BRAKE TORQUE lbs.ft (Kg.m) PNEUMATIC BRAKE HYDRAULIC BRAKE	 50 (6.9) 108 (15)	 110 (15) 217 (30)	 180 (25) 352 (49)	 325 (45) 515 (71)	 480 (66) 623 (86)	 N/A 789 (109)	 N/A 855 (118)
RESOLUTION (degrees)	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)
MAX LOAD VERTICAL (Table Position) lbs. (Kg)	33 (15)	90 (40)	130 (60)	200 (90)	275 (125)	770 (350)	1,045 (475)
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)
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 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)

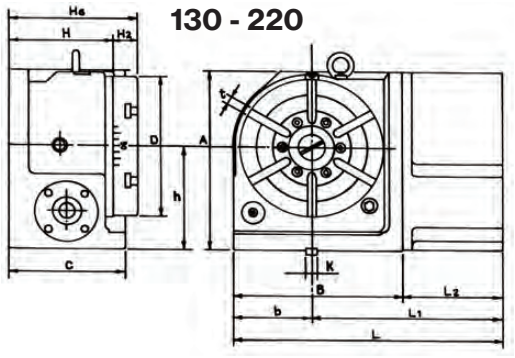
SPINDLE SPECIFICATIONS										CHUCK DIMENSIONS		
MODEL	D1	d	d1	PCD-M	H1	H3	H4	H5	H7	Inner Jaw	Outer Jaw	I.D.
DMNC 130	4.01 (102)	2.76 (70)	1.44	2.36-M5 (60)-M5	0.18 (4.5)	0.65	1.81 (46)	0.63 (16)	7.87 (200)	0.12~1.18 (3~30)	0.12~3.39 (3~86)	1.26 (32)
DMNC 170	6.57 167	3.35 (85)	1.77 (45)	2.44-M8 (62)-M8	0.28 (7)	0.71 (18)	2.68 (68)	1.79	10.49	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	3.54-M8 (90)-M8	0.31 (8)	0.79 (20)	2.95 (75)	1.84	11.76	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	13.55	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 (15~188)	0.59~10.43 (15~265)	4.33 (110)



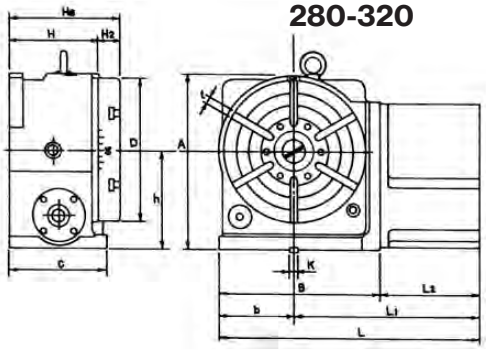
OVERALL DIMENSIONAL SPECIFICATIONS

YUASA

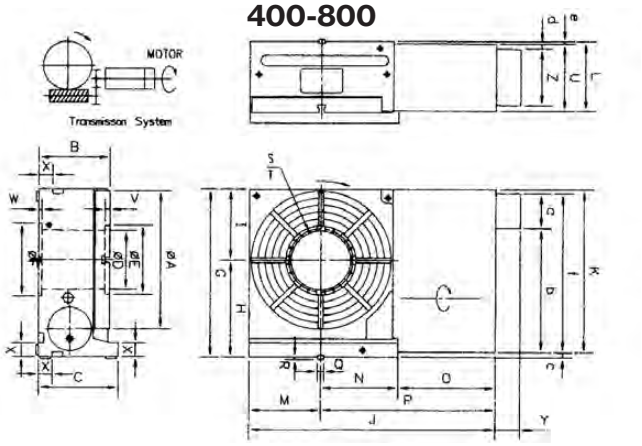
130 - 220



280-320



400-800



STANDARD ACCESSORIES

- NMC-501 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-600)
- Remote quill switch (RQS-100) for manual mills
- Collet Chucks, Lathe Chucks, etc.
- Tailstocks (manual & air operated)
- Vise and collet block trunnion fixtures
- RS232 cable for DPRNT

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)	7.87 (200)	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)

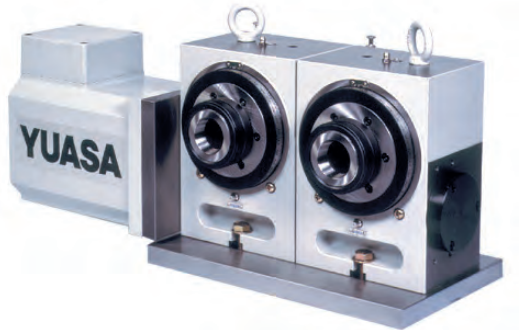
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N
DMNC 500	19.68 (500)	9.84 (250)	9.25 (235)	10.0 (254)	9.65 (245)	9.65 (245)	22.05 (560)	12.2 (310)	9.84 (250)	31.81 (818)	14.6 (371)	9.25 (235)	9.84 (250)	10.04 (255)
DMNC 630	24.08 (630)	11.81 (300)	11.61 (295)	10.00 (254)	11.61 (295)	11.61 (295)	28.35 (720)	15.75 (400)	12.60 (320)	40.94 (1,04-0)	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 (1,12-2)	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)	.9.75 (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)

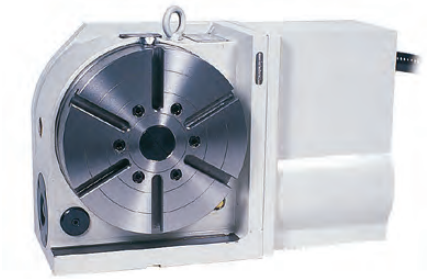
MODEL	a	b	c	d	e	f	g	h	i	j
DMNC 500	4.06 (103)	10 (254)	1.14 (29)	0.55 (14)	0.2 (0.58)	12.09 (307)	.71h.28 (17.7h7)	1.18 (30)	0.71 (18)	0.47 (12)
DMNC 630	3.94 (100)	11.81 (300)	3.54 (90)	0.59 (15)	0.28 (71)	15.75 (400)	.71h.28 (17.7h7)	1.18 (30)	0.71 (18)	0.47 (12)
DMNC 800	3.94 (100)	17.2 (437)	2.09 (53)	0.59 (15)	0.28 (71)	19.06 (484)	.87h.28 (22h7)	1.5 (38)	0.87 (22)	0.63 (16)

DRFT SERIES FOURTH AXIS ROTARY TABLES

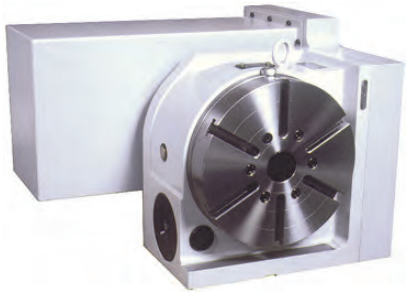
Model DRFT-320 with Fanuc AC servo motor



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.

FEATURES:

- 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.

External Cable for Fanuc Motor
1. MCBE-FA: standard; includes both motor and encoder cable
2. MCBE-FMS: steel braided; motor cable
   MCBE-FES: steel braided; encoder cable

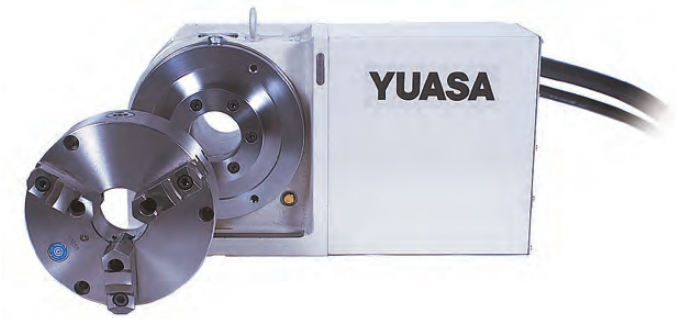
ITEMS INCLUDED WITH EACH ROTARY TABLE

- 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 ACCOMMODATED INCLUDING:

FANUC	SIEMENS
YASKAWA	VICKERS
MITSUBISHI	KOLLMORGEN
GLENTECH	S.E.M.
BALDOR	SANYO

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

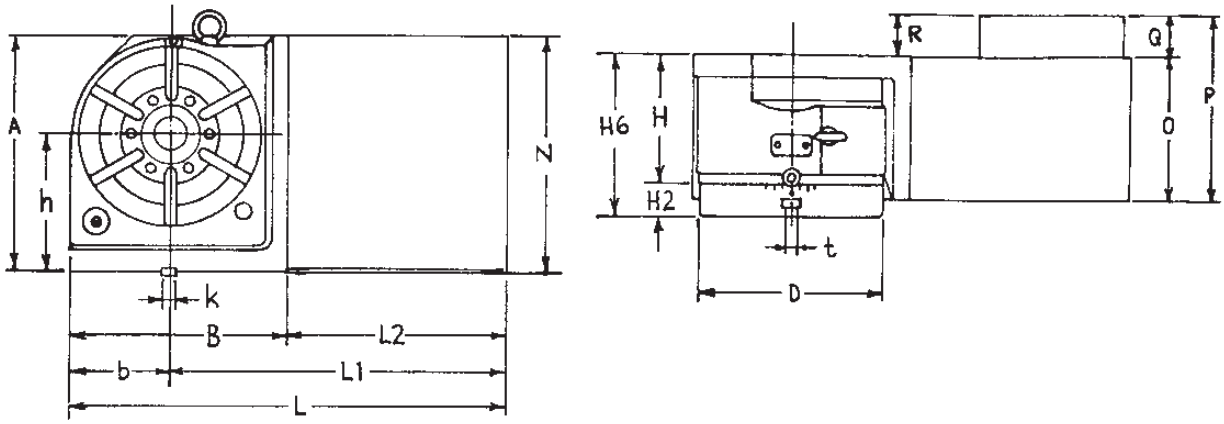
Inch/(mm)

MODEL / DRFT	DRFT 130	DRFT 170	DRFT 220	DRFT 280	DRFT 320	DRFT 400	DRFT 500
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)
I.D. BORE	1.18 (30)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	N/A
I.D. THREAD	N/A	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	M36 P3.0	N/A
CENTER HEIGHT	4.13 (105)	5.12 (130)	5.12 (130)	7.48 (190)	8.66 (220)	10.24 (260)	12.20 (310)
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)
SPINDLE BRAKE TORQUE ft-lbs (Kg-m)							
Pneumatic	40 (5)	110 (15)	180 (25)	325 (45)	480 (66)	N/A	N/A
Hydraulic	108 (115)	217 (30)	352 (49)	515 (71)	623 (86)	789 (109)	855 (118)
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)
MAX LOAD VERTICAL (TABLE POSITION)							
lbs (Kg)	33 (15)	90 (40)	130 (60)	200 (90)	275 (125)	330 (150)	1,045 (475)
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)
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)

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. 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)	10.64 (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	18.75 (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)

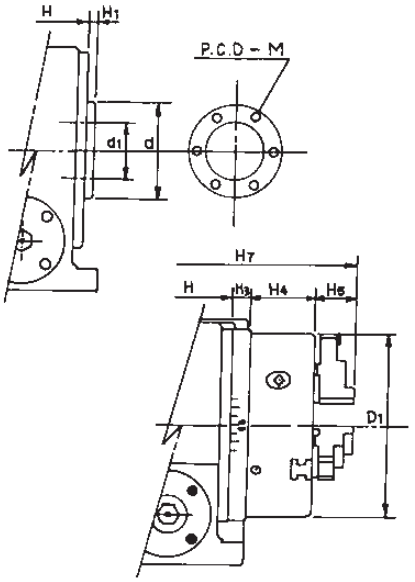
NOTE: Overall dimensions reflect Fanuc Alpha drives. Other motors may require motor cover extensions. Call for dimensional information on DRFT 500 ~ 800.

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)

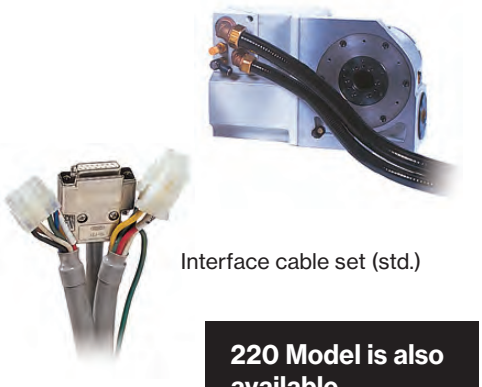
Inner Jaw	Outer Jaw	I.D.
0.12-1.18 (3-30)	0.12-3.31 (3-86)	1.26 (32)
0.16-1.65 (4-42)	3.39-6.14 (10-156)	1.73 (44)
0.16-2.44 (4-62)	0.39-7.09 (10-180)	2.48 (63)
0.16-3.46 (4-88)	0.47-9.06 (12-230)	3.54 (90)
0.20-4.25 (15-265)	0.59-10.43 (15-265)	4.33 (110)
1.57-13.31 (40-128)	2.13-13.31 (54-338)	5.12 (130)

DRFT SPECIAL FOURTH AXIS TCN SERIES

YUASA

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.

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



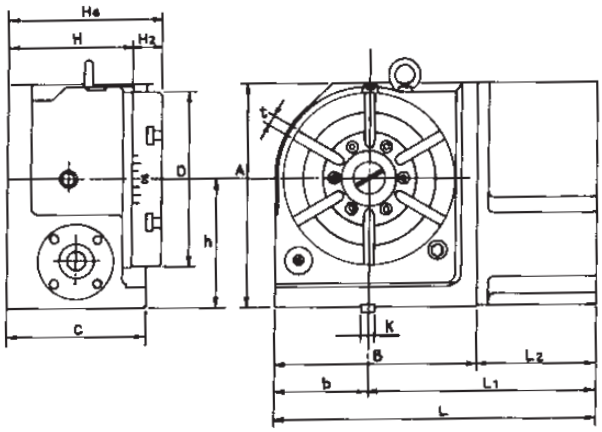
Interface cable set (std.)

220 Model is also available.

DIMENSIONAL SPECIFICATIONS

Inch/(mm)

MODEL / DRFT SERIES	130TCN	170TCN
SUB TABLE O.D. I.D. BORE I.D. THREAD	 5.12 (130) 1.18 (30) N / A	 6.69 (170) 1.65 (42) M36 P3.0
CENTER HEIGHT	4.13 (105)	5.12 (130)
MAX RPM	50	33.3
SPINDLE BRAKE TORQUE ft.lbs. (kg.m) PNEUMATIC HYDRAULIC	 50 (6.9) 108 (15)	 110 (15.2) 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	30 AMP
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

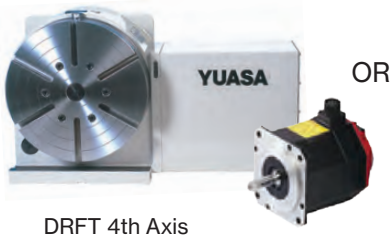
Optional accessories are the same as for DMNC models.

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)

MULTI-SPINDLE ROTARY TABLE MODELS

DMNC Style



DRFT 4th Axis

OR

NMC-501 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	130-2	130-3	130-4	170-2	170-3	170-4	220-2	220-3	280-2
SUB TABLE O.D. I.D. BORE I.D. THREAD	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 (2.30)
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 (degrees)	0.00075"			0.000625"			0.0005"		0.00025"
MAX LOAD HORIZONTAL (TABLE POSITION) lbs/(Kg)	66 (30)			180 (80)			260 (120)		400 (180)
MAX LOAD VERTICAL (TABLE POSITION)	33 (15)			90 (40)			130 (60)		200 (90)
POSITIONING ACCURACY	(+/-) 10 seconds								
THRU HOLE DIAMETER Inch/(mm)(spindle)	1.44 (36.5)			1.77 (45)			2.50 (63.5)		3.54 (90)
NET WEIGHT lbs/(Kg)	156 (71)	233 (106)	310 (140)	266 (121)	400 (182)	534 (243)	442 (201)	635 (297)	693(315)

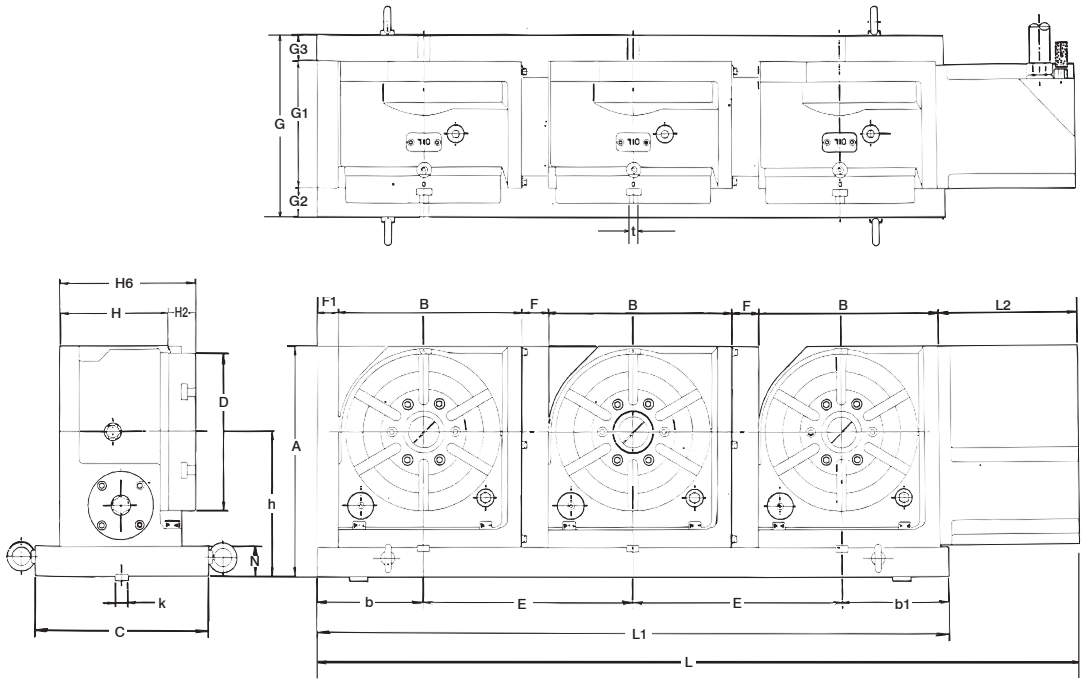
STANDARD ACCESSORIES

- NMC-501 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-600)
- Remote quill switch (RQS-100) for manual mills
- Collet Chucks, Lathe Chucks, etc.
- Tailstocks, (manual & air operated)
- Vise & collet block trunnion fixtures

OVERALL DIMENSIONAL SPECIFICATIONS



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)
140-2	9.37 (238)	7.48 (190)	4.33 (110)	4.33 (110)	7.87 (200)	5.51 (140)	8.66 (220)	1.18 (30)	0.98 (25)	7.87 (200)	5.51 (140)	1.18 (30)	1.18 (30)	4.96 (126)	1.34 (34)	6.30 (160)	5.51 (140)
140-3	9.37 (238)	7.48 (190)	4.33 (110)	4.33 (110)	7.87 (200)	5.51 (140)	8.66 (220)	1.18 (30)	0.98 (25)	7.87 (200)	5.51 (140)	1.18 (30)	1.18 (30)	4.96 (126)	1.34 (34)	6.30 (160)	5.51 (140)
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)
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)	709 (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)

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 5. For rotary table (body) features see page 2.

DMNC 5C STYLE MODELS (single spindle)

MODEL 5C
(with manual 5C closer)

MODEL 5C (back)

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

STANDARD ACCESSORIES:

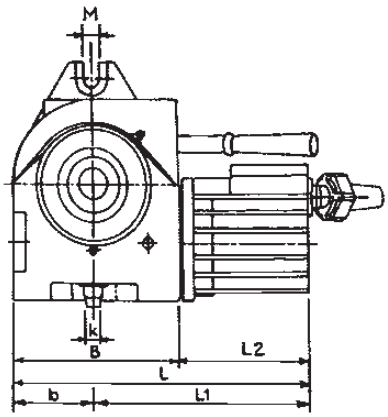
- NMC-501 Controller
- Remote cable (for M-Code interface, 15 ft.)
- Power Cord (105~240 VAC, single phase)
- Operators Manual, Warranty Card, Locating
- Keys
- Manual 5C Collet Closer (Model 5C)
- Now with Home Limit Switch

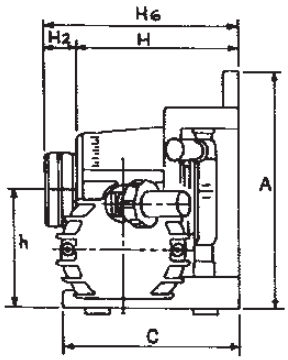
NMC-501 Controller

OPTIONAL ACCESSORIES

- Handwheel (MPG-600)
- Tailstock, (manual & air operated)
- Remote quill switch (RQS-100) for manual mills
- Air Operated Collet Closer (DM 105A)

ALSO AVAILABLE AS 4TH AXIS





Inch/(mm)

MODEL / DMNC	5C
SUB TABLE O.D. BORE I.D. THREADED I.D.	 5C TYPE N/A 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 HYDRAULIC	 N/A 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)

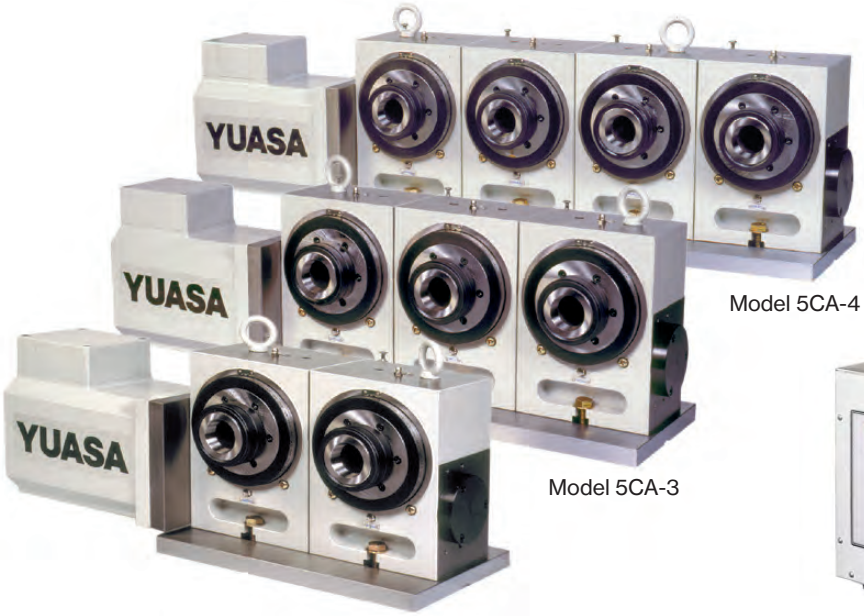
Inch/(mm)

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.

5C STYLE MODELS (MULTI-SPINDLE)



Model 5CA-4

Model 5CA-3

Model 5CA-2

4th Axis DRFT

OR

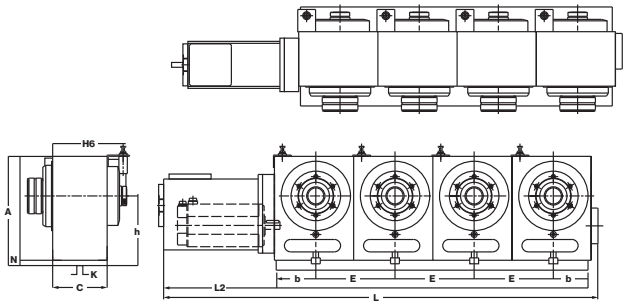
Programmable DMNC

NMC-501 Controller

- Dual Needle & Thrust spindle bearings for smooth, bind-free operation, even with tail-stock 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 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

Inch/(mm)

MODEL	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)
Resolutional 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)



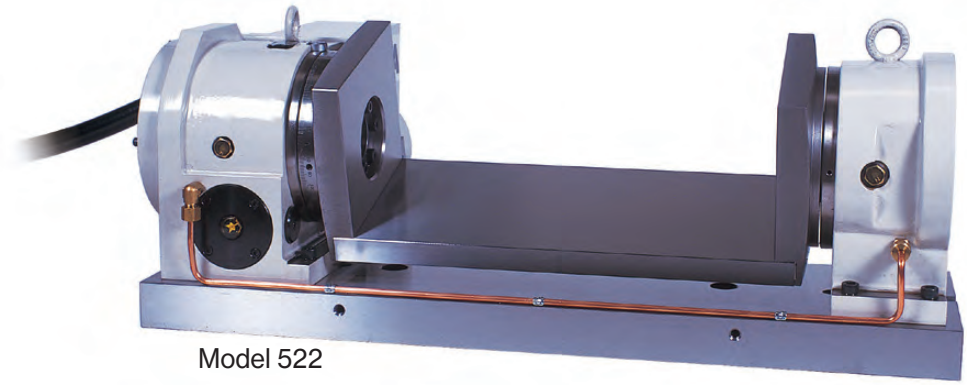
NOTE: All 5CA models include 5C air collet closers as standard.

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.

TILTING TABLE WITH FLAT FIXTURE PLATE



Model 522

4th Axis DMTT - ***F

DMTT Programmable Style

NMC-501 Controller

Heavy Duty 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 DMTT	314	417	522	628
PLATE SIZE (Length x Width)	11.81 x 5.91 (300 x 150)	15.75 x 7.09 (400 x 180)	19.69 x 8.66 (500 x 220)	23.62 x 10.24 (600 x 260)
ROTATIONAL TORQUE ft/lbs (Kg/m) SUTT	80 (11)	100 (14)	110 (15)	400 (55)
ROTATIONAL TORQUE ft/lbs (Kg/m) EUTT	156 (21)	165 (23)	195 (27)	780 (108)
MAX RPM	60	55	45	22
SPINDLE BRAKE TORQUE ft/lbs (Kg/m)	110 (15)	280 (39)	375 (52)	500 (70)
RESOLUTION (degrees)	0.000625”		0.0005”	0.00025”
MAX LOAD CAPACITY lbs (Kg)	55 (25)	90 (41)	135 (61)	200 (91)
TILTING ANGLE ACCURACY	+/- 1.5 minutes			
REPEATABILITY	10 seconds			
MOTOR TYPE	Digital AC servo			
THRU HOLE DIA.	1.26 (32)	1.77 (45)	2.50 (63.5)	3.54 (90)
POWER SUPPLY	105-240 VAC 20 Amp			
SPINDLE RUNOUT	0.00006” (0.02mm)			
CONTROLLER	NMC-501			
NET WEIGHT lbs (Kg)	200 (90.5)	320 (145.5)	462 (210)	816 (317)

CAN BE SUPPLIED AS FULL FOURTH AXIS.

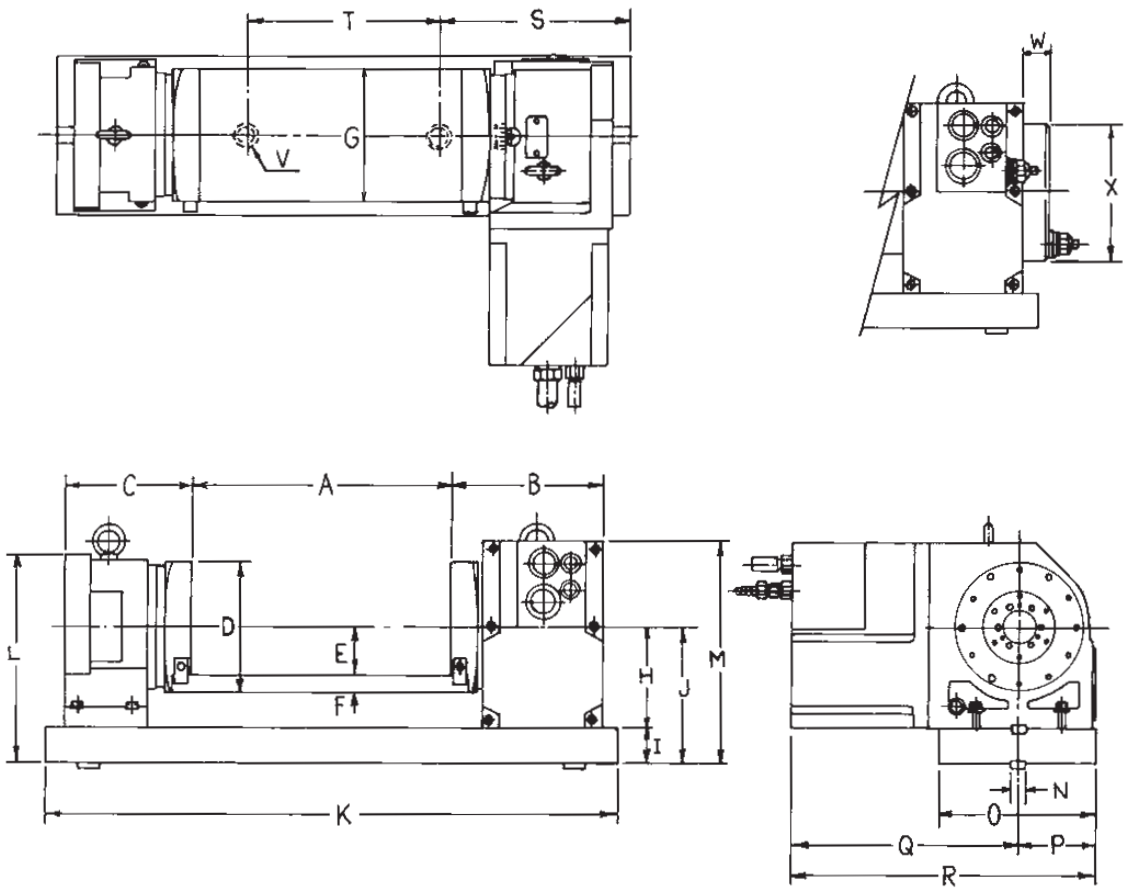
ALL POPULAR MOTORS CAN BE ACCOMMODATED.

HYDRAULIC SPINDLE BRAKES OPTIONAL.

EACH UNIT IS SUPPLIED WITH:

- NMC-501 Controller
- 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)

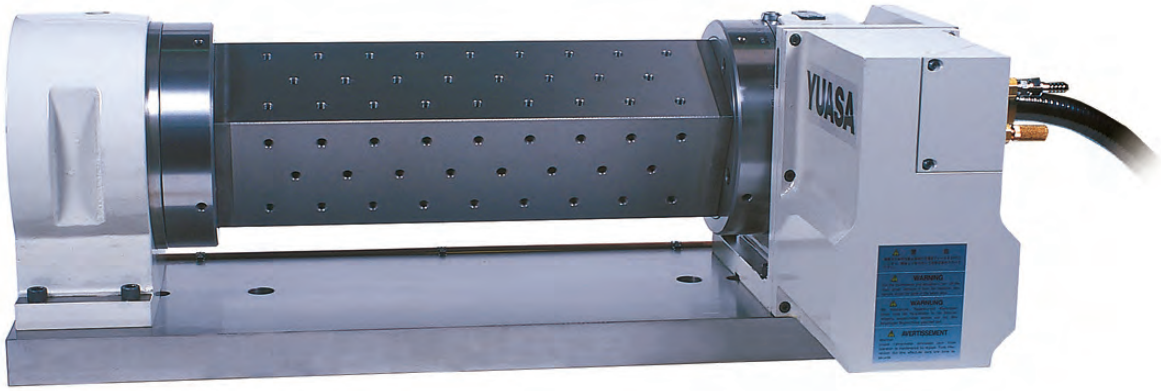
Inch/(mm)

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)
DAS-170	(For 417 model)
DAS-220	(For 522 model)
DAS-280	(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 TRUNNION FIXTURE



Model 5522

NMC-501 Controller

Heavy duty 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 trunnion 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 Hydraulic	220 (30) 434 (60)	360 (50) 704 (98)	650 (90) 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	NMC-501		
NET WEIGHT lbs (Kg)	341 (155)	519 (236)	858 (390)

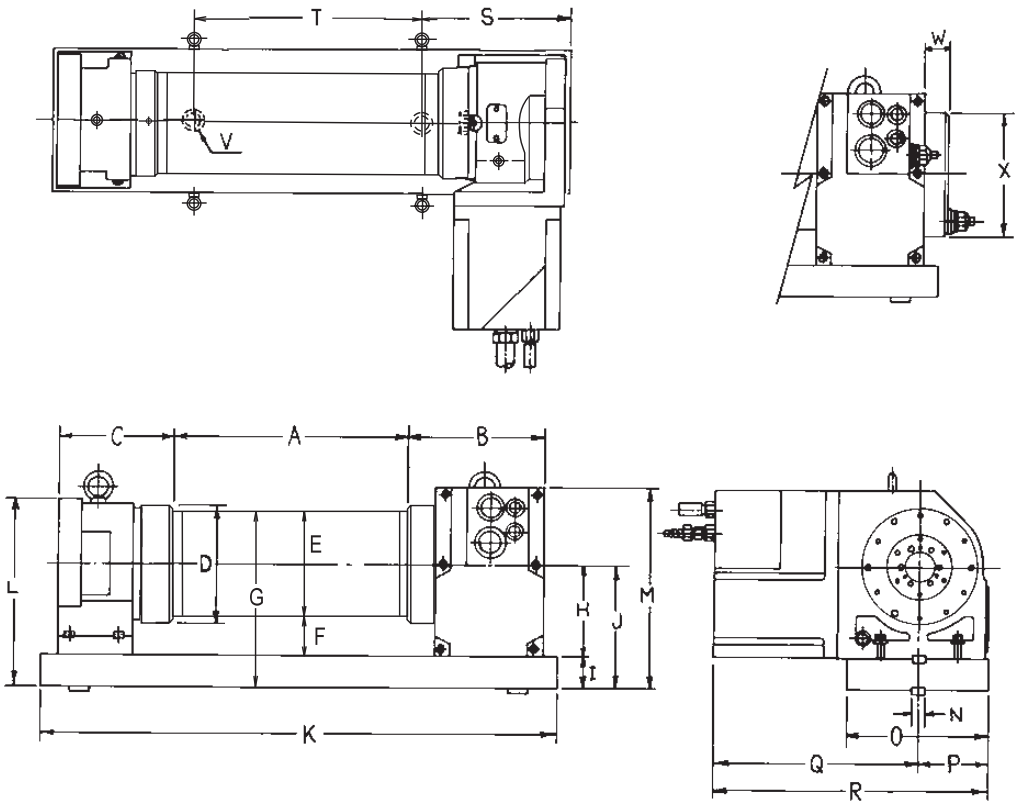
CAN BE SUPPLIED AS FULL FOURTH AXIS.

HYDRAULIC SPINDLE BRAKES OPTIONAL.

EACH UNIT SUPPLIED WITH:

- NMC-501 (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)
DAS-170	(For 4417 model)
DAS-220	(For 5522 model)
DAS-280	(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

NMC-502

STANDARD ACCESSORIES INCLUDE:

- NMC-502 Dual Axis Controller
- Motor/Encoder cables
- Power cable (105~240VAC, 20 Amp)
- T-slotted Face Plate
- Remote cable for 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 NMC-502 dual axis controller.

OPTION 2: Full fourth axis (rotary) using Fanuc, Mitsubishi, Yaskawa, etc. motors, and programmable 5th axis (tilt) using our NMC-501 single axis controller.

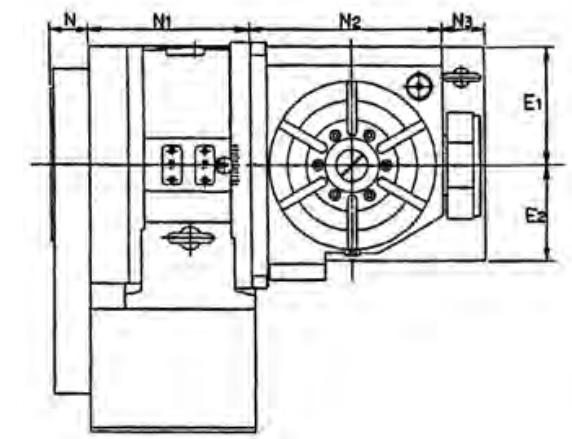
OPTION 3: Full fourth (rotary) and fifth (tilt) axes using Fanuc, Mitsubishi, Yaskawa, etc. motors on both axes.

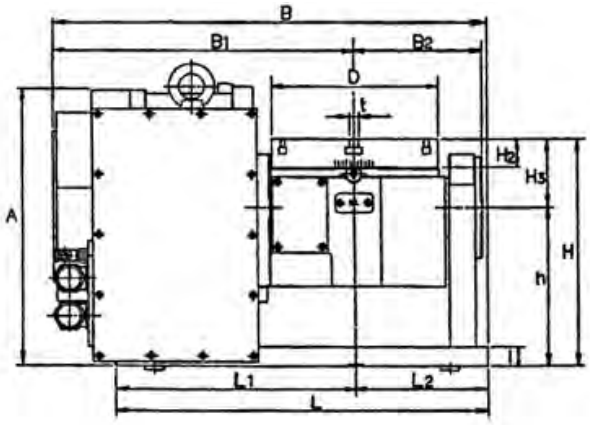
Inch/(mm)

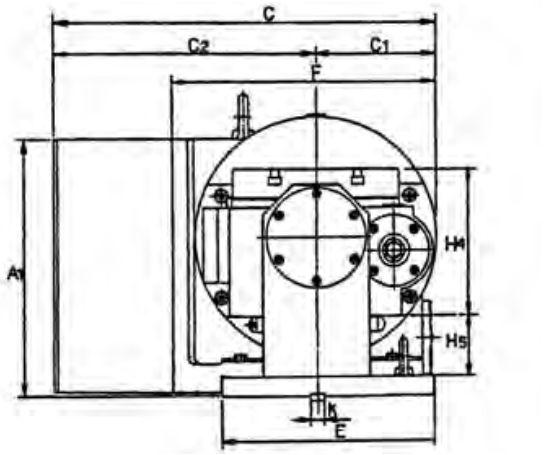
MODEL	DMTRT 130		DMTRT 170		DMTRT 220		DMTRT 280		DMTRT 320	
Sub Table O.D.	5.51 (140)		6.69 (170)		8.66 (220)		11.02 (280)		12.69 (320)	
Upper height of table	13.26 (337)		11.42 (290)		11.81 (300)		14.57 (370)		14.96 (380)	
Center Height @90°	5.51 (140)		8.27 (210)				10.63 (270)			
Tilting angle range	-20° ~ +110°									
Through 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./sec^2 (kg/cm/sec^2)	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:







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 (220)	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 NMC-502 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 NMC-502. CNC user Macro is used to command position between the VMC and NMC-502.

DMTRT SERIES
2-SPINDLE TILTING ROTARY TABLE

DMTRT 130-2

FEATURES:

- Two spindle models available in 130mm and 170mm table diameter sizes
- Very compact design
- Can be supplied as programmable style (using NMC-502 Controller) or as full fourth or fifth axis, using Fanuc, Mitsubishi, 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

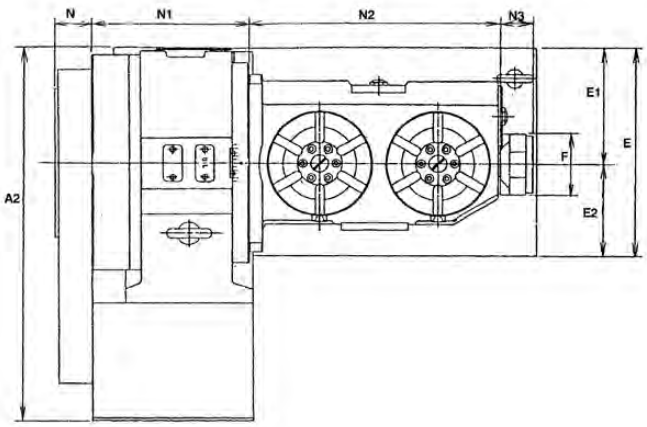
4th Axis DMTRT ***-*F/FP

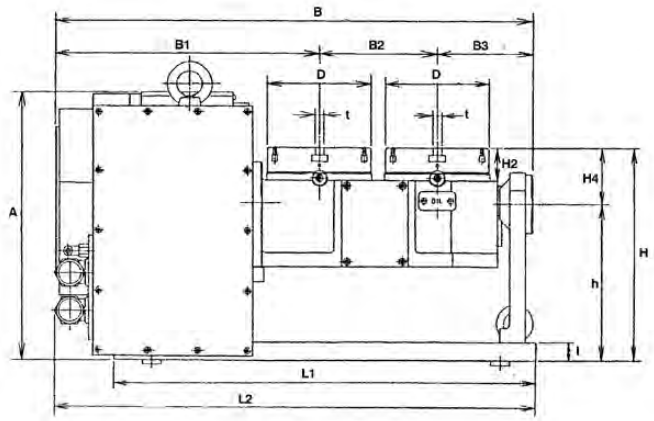
NMC-502 CONTROLLER

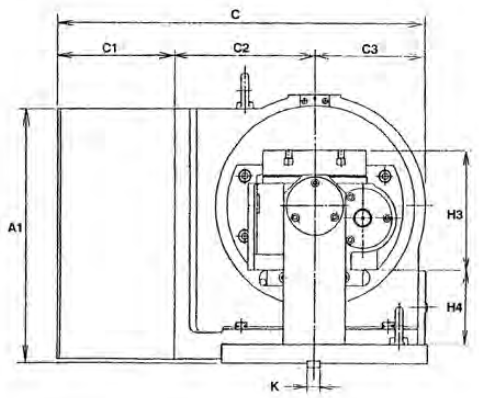
Inch/(mm)

MODEL		DMTRT 130-2	DMTRT 170-2
SUB TABLEO.D.		5.12 (130)	6.69 (170)
CENTER HEIGHT @90°		7.48 (190)	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/sec² (kg/cm/sec²)		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:

- NMC-502 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
DMTRT 130-2	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)
DMTRT 170-2	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)

Inch/(mm)

MODEL	D	E	E1	E2	F	h	H	H2	H3	H4
DMTRT 130-2	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)
DMTRT 170-2	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)

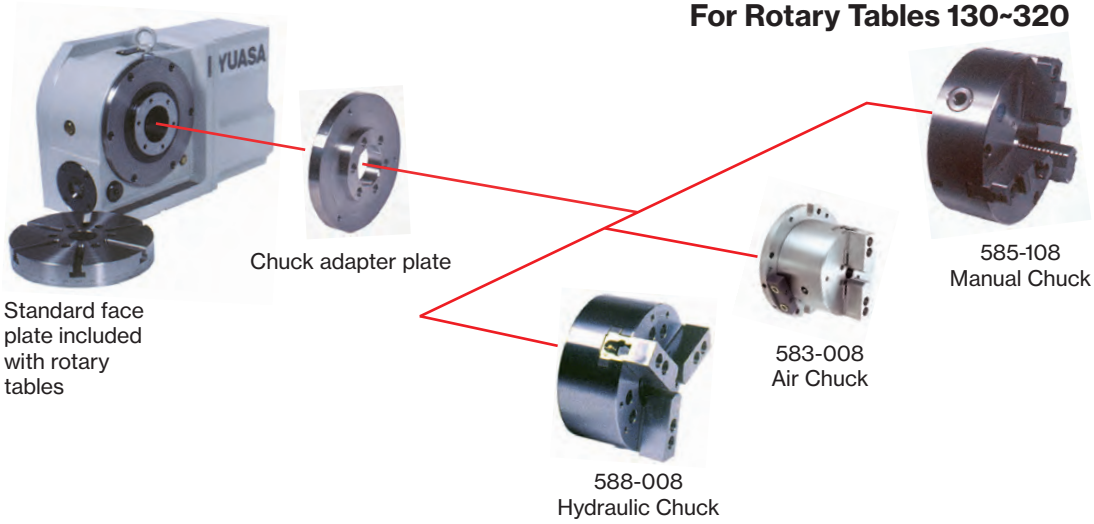
Inch/(mm)

MODEL	I	K	t	L	L1	N	N1	N2	N3
DMTRT 130-2	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)
DMTRT 170-2	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)

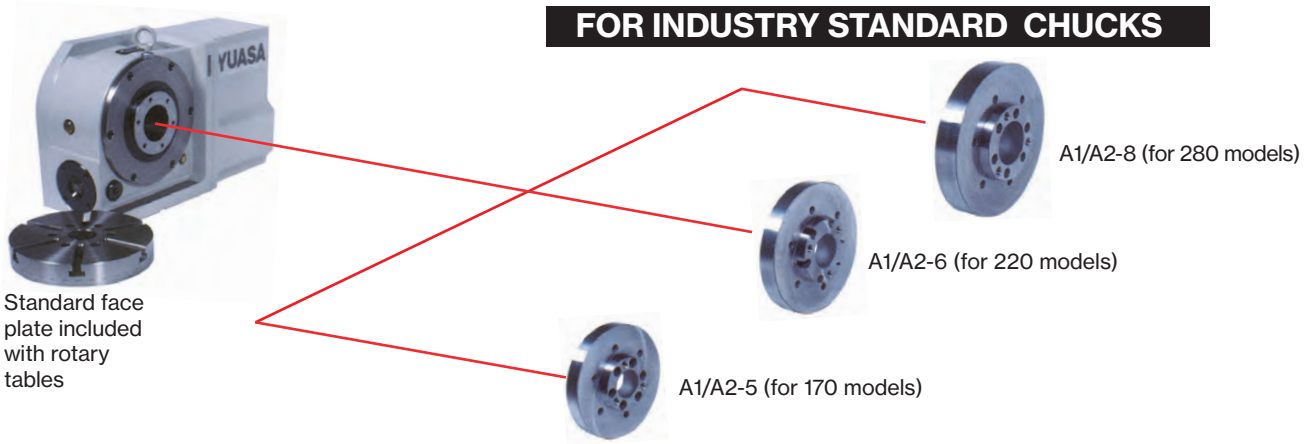
ROTARY TABLE CHUCK OPTIONS

FOR 3-JAW CHUCKS

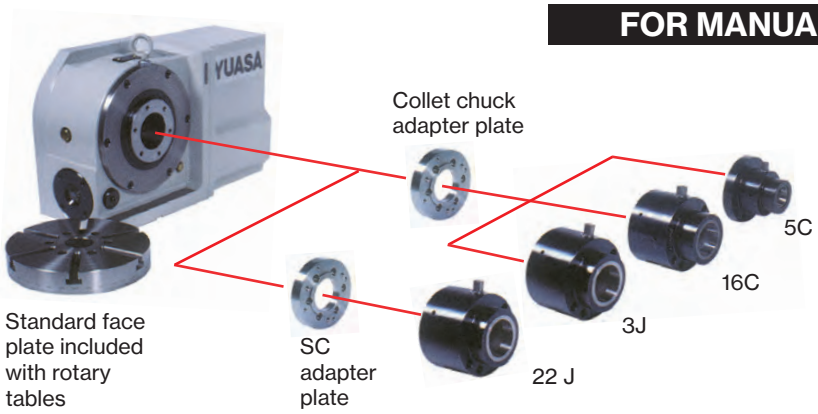
For Rotary Tables 130~320



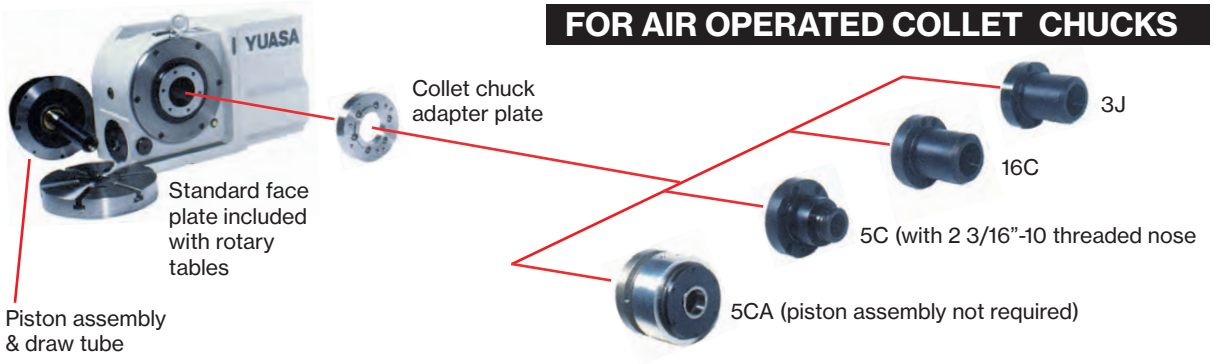
FOR INDUSTRY STANDARD CHUCKS



FOR MANUAL COLLET CHUCKS



FOR AIR OPERATED COLLET CHUCKS



DMNC & DRFT SERIES ACCESSORY CHART
ROTARY TABLES (Including Multi-Spindle)

YUASA

MODEL SUDX/EUDX/RFT	130 (2,3)	140 (2,3)	170 (2,3)	220 (2,3)	280 (2)	320	400
TAILSTOCK (MANUAL)	DTS-130	DTS-140	DTS-170	DTS-220	DTS-280	DTS-320	DTS-400
TAILSTOCK (AIR)	660-130	660-140	660-170	660-220	660-280	N/A	
BASE PLATE FOR MULTI-SPINDLE MODELS (FOR 660 SERIES TAILSTOCKS)	661-132 (2SP) 661-133 (3SP)	661-142 (2SP) 661-143 (3SP)	661-172 (2SP) 661-173 (3SP)	661-222 (2SP) 661-223 (3SP)	661-282 (2SP)	N/A	
4 SPEED VISE TWO-SIDED TRUNION (MUST BE ORDERED WITH SPINDLE MOUNTING PLATE)	N/A	620-204 (A) OR (B) ("A" INSERTS TAILSTOCK; "B" END CAPS END SUPPORT)			N/A		
SPINDLE MOUNTING PLATE FOR SPEED VISE TRUNION	N/A	620-306	620-307	620-308	N/A		
END SUPPORT FOR SPEED VISE TRUNION	N/A	640-414	640-417	640-422	N/A		
5C MULTI-COLLET BLOCK (4 CHUCKS) W/ SPINDLE MOUNTING PLATE	N/A	640404 (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	640-414	640-417	640-422	N/A		
3-JAW ACCU-CHUCK (MANUAL)	585-004	585-005	585-106	585-108	585-110	585-112	580-115
3-JAW AIR OPERATED CHUCK	583-004	583-005	583-006	583-008	583-010	583-012	N/A
3-JAW HYDRAULIC CHUCK	N/A			588-008	588-010	588-012	N/A
CYLINDER FOR HYDRAULIC CHUCK (REQUIRED)	N/A			588-222	588-228	588-320	N/A
ADAPTER PLATE (ALL THREE JAW CHUCKS, REQ'D.)	553-513	553-514	553-517	553-522	553-528	553-532	553-540
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)						
16C MANUAL COLLET CHUCK (FRONT MOUNTED)	ACSU-16C (REQUIRES COLLET CHUCK ADAPTER PLATE)						
3J MANUAL COLLET CHUCK (FRONT MOUNTED)	ACSU-3J (REQUIRES COLLET CHUCK ADAPTER PLATE)						
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	553-614	553-617	553-622	553-628	553-632	553-640
SC ADAPTER PLATES (22J) CHUCK	N/A		553-817	553-822	553-828	553-832	553-840
5C LEVER CLOSER (MANUAL) W/ DRAW TUBE & THREADED NOSE PIECE (2 3/16"-10)	N/A		640-527 640-523 COLLET CHUCK ADAPTER PLATE REQUIRED		N/A		
5C AIR OPERATED COLLET CLOSER (2 3/16"-10) THREADED NOSE (FOR ROTARY TABLE MODELS)	N/A		640-637 640-624 (*SEE SPECIAL NOTE, BELOW)		N/A		
16C AIR OPERATED COLLET CLOSER (FOR ROTARY TABLE MODELS)	N/A		640-747 640-723 (*SEE SPECIAL NOTE, BELOW)		N/A		
3J AIR OPERATED COLLET CLOSERS (FOR ROTARY TABLE MODELS)	N/A		640-857 640-826 (*SEE SPECIAL NOTE, BELOW)		N/A		
5C AIR COLLET CHUCK (REAR) DRAW TUBE AND PARTS (REQUIRES BOTH PARTS)	P-ACPU-45U P-ACPU-104U	P-ACPU-45U P-ACPU-105U	P-ACPU-68U P-ACPU-106U	P-ACPU-68U P-ACPU-108U	N/A		

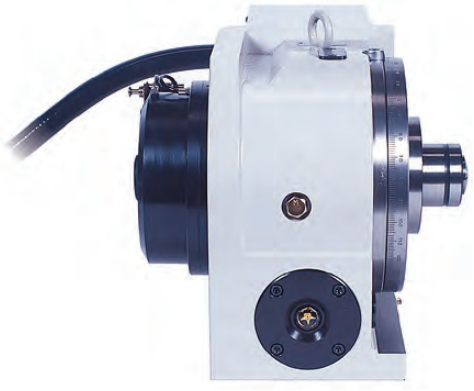
***SPECIAL NOTE: 5C,16C & 3J air operated collet closers must be ordered with the following:**
170 Models: 553-617, P-ACPU-68U & P-ACP-106U
220 Models: 553-622, P-ACPU-68U & P-ACP 108U

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

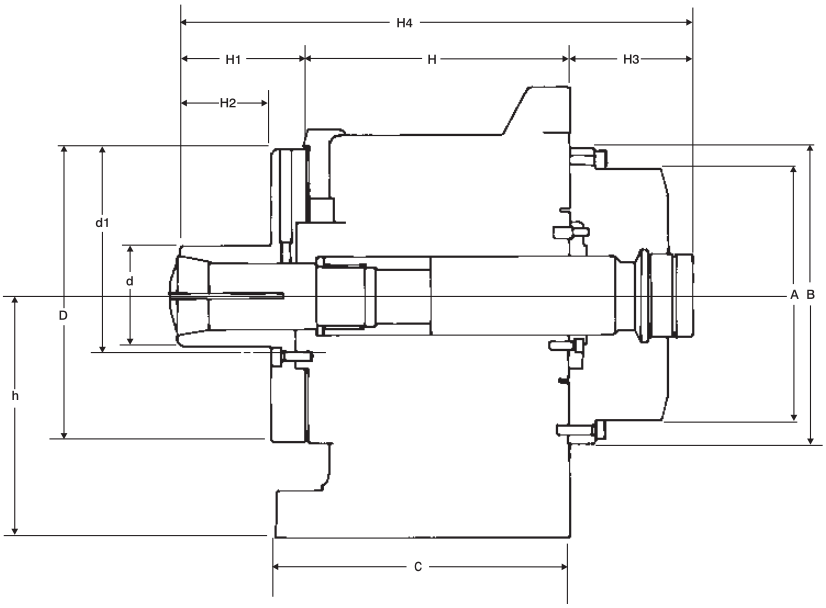
MODEL / DMNC	5C	5CA-2	5CA-3	5CA-4
TAIL STOCK (MANUAL)	DTS-5C	N/A		
TAIL STOCK (AIR)	660-100			
BASE PLATEFOR MULTI-SPINDLE AIR TAILSTOCKS	N/A	661-122	661-123	661-124
3-JAW ACCU-CHUCK (MANUAL)	N/A			
3-JAW AIR OPERATED CHUCK	N/A			
5C AIR COLLET CHUCK (REAR); DRAW TUBE & PARTS (BOTH REQ'D)	DM-105A	INCLUDED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

DMNC/DRFT ACCESSORIES (con't.)

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



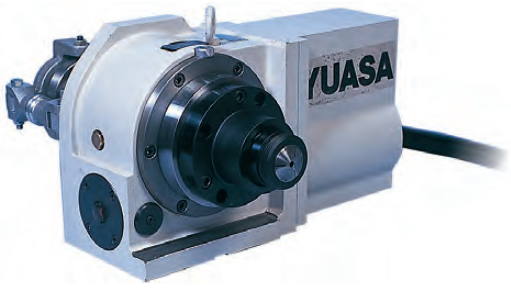
SHOWN ON MODEL 220



Inch/(mm)

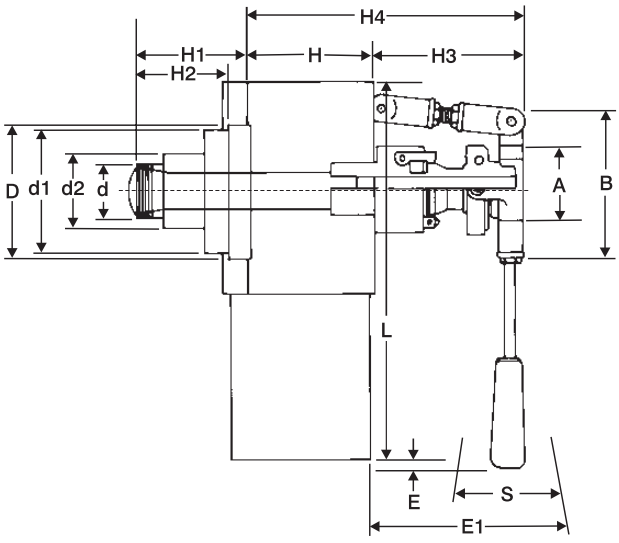
MODEL	A	B	C	D	d	d1	H	H1	H2	H3	H4	h
P-ACPU-45U & P-ACP-104U (130 Models)	4.68 (119)	5.51 (140)	5.31 (135)	4.88 (124)	1.85 (47)	2.36 (60)	4.92 (125)	1.96 (50)	1.49 (38)	2.36 (60)	9.25 (235)	4.13 (105)
P-ACPU-68U & P-ACP-106U (170 Models)	6.37 (162)	7.20 (183)	5.90 (150)	6.69 (170)	1.85 (47)	2.44 (62)	5.31 (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)

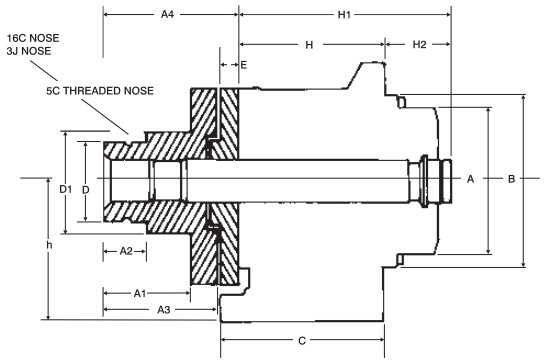
MODEL	A	B	D	d	d1	d2	E	E1	H	H1	H2	H3	H4	S	COLLET CHUCK ADAPTER PLATE
640-527 (170 Models)	3.48 (88)	5.07 (129)	5.41 (137)	2.17 (55)	4.95 (126)	3.02 (76.71)	1.32 (33.52)	8.04 (204)	5.31 (135)	4.97 (126.24)	3.86 (98)	6.07 (154.17)	16.33 (414.78)	5.25 (133.35)	553-617
640-523 (220 Models)	3.48 (88)	5.07 (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 SC lever closer requires a collet chuck adapter plate.

DMNC/DRFT ACCESSORIES (con't.)

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 #25 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 and the pneumatic chucks 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)

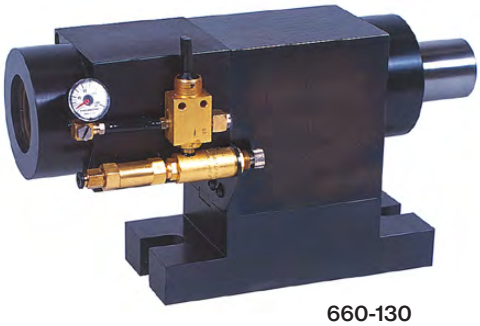
583-008 8 3/4" 3-Jaw
air operated Accu-Chuck

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

DMNC / DRFT ACCESSORIES (con't.)

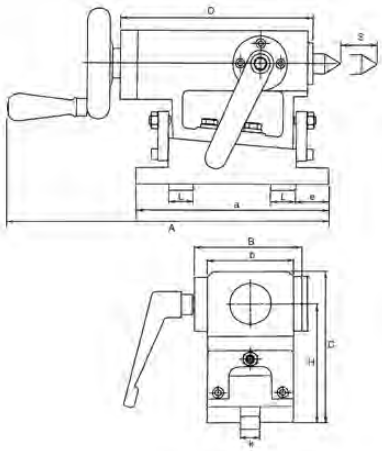
The DTS style tailstocks feature a solid main body dovetailed into the spindle block, for maximum rigidity, along with a Morse taper (MT) center bore, so that a live, bullnose or dead center can be used (optional). DTS series tailstocks are designed to the proper center height for each DMNC/DRFT model, 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). 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

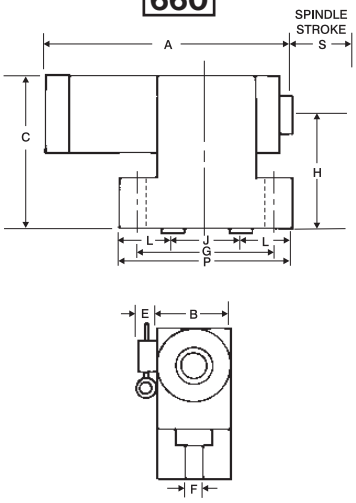


660-130

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)	0.71 (18)	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)	0.71 (18)	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)	0.71 (18)	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)	0.71 (18)	0.94 (24)	MT-4	320
DTS-400	11.02 (280)	13.93 (354)	5.47 (139)	14.09 (359)	9.13 (232)	8.66 (220)	3.15 (80)	1.57 (40)	2.36 (60)	0.71 (18)	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
660-170	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-600

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-600 (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-600 offers a hand wheel with detent and four-speed jog. Control both 4th and 5th axis when used with NMC-502 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 90º 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.

5C

16 C

22J

5CA

3 J

CUSTOM TRUNNION BLOCK AND FLAT PLATE FIXTURES

We design and build custom trunnion 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 trunnion blocks.

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

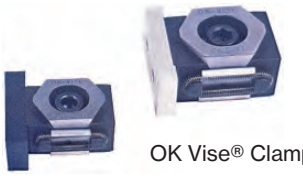
Just let us know the size and shape of the trunnion fixture and we will build it along with the end support and workpiece fixture components.

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

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

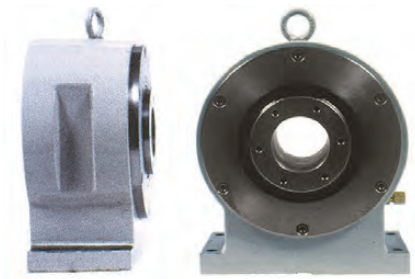
OK Vise® edge clamps are designed to be used along the corner edges of a trunnion or tombstone fixture. This unique design permits clamping of two workpieces with one edge clamp.

Sample Work Stops



OK Vise® Clamps with extended jaws.

END SUPPORTS



DAS-220 with brake and dual tapered roller bearings

640-522 with sealed bearing

710-224 for Super Rapidex applications

SUPER RAPIDEX

YUASA

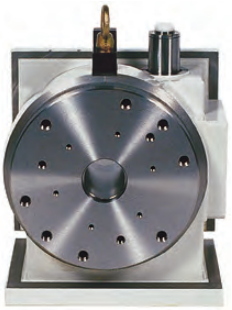
BASIC OPERATION

The Super Rapidex has been designed for simple indexing (multiples of 1°, up to 15° full stroke, 710-102S & up to 45º 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:

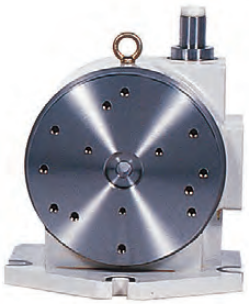
Inch/(mm)

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)

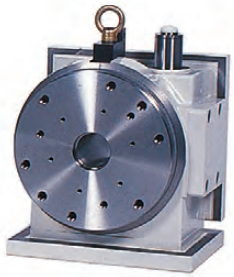
*Note: If the workload is more than 18lbs. (8Kg) “out of balance” then it may be necessary to either reduce the machine spindle speed in depressing the index cylinder, or use a counterweight to balance the load. Counterweight kits available from stock.

710-300 (S)

710-004



710-102 (S)



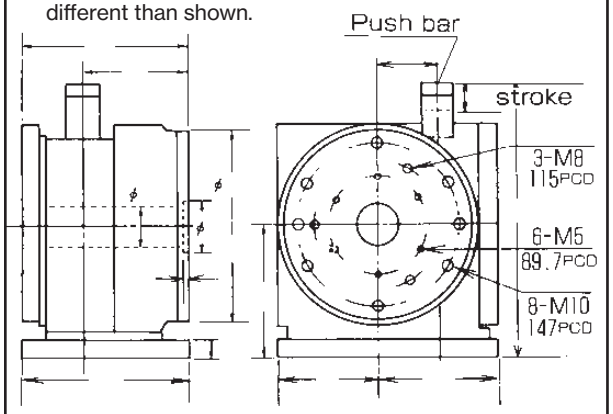
710-150

SUPER RAPIDEX ACCESSORY CHART

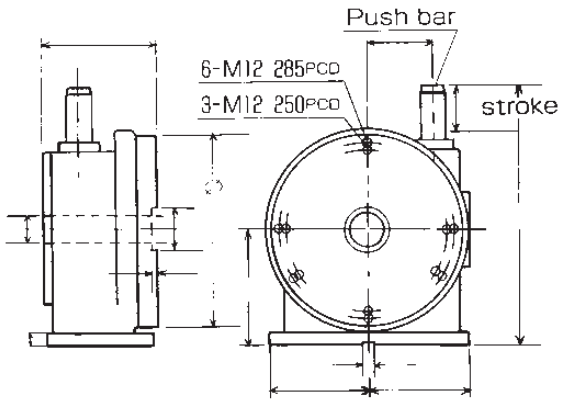
MODEL	710-150	710-002	710-102(S)	710-004	710-104	710-230(S)	710-300(S)
TAILSTOCK (Manual) ADJUSTABLE	553-300	553-301				553-301	553-311
3 JAW LATHE CHUCK	580-106	580-106 (direct mount) 585-108 (requires 710-108 adapter plate)				580-108	580-110 or 112
3 JAW AIR OPERATED CHUCK	583-006	583-006 (direct 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.

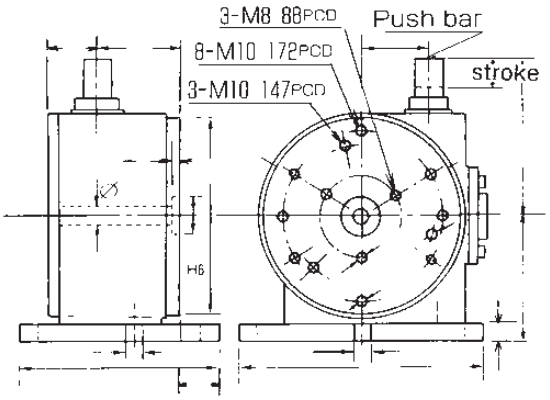
710-150
710-230(S) NOTE: Face plate bolt pattern is different than shown.



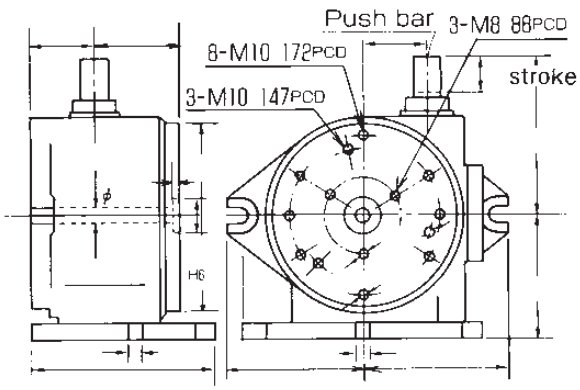
710-300 (S)



710-102(S)
710-104



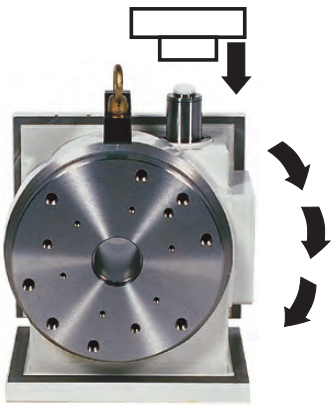
710-002
710-004



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

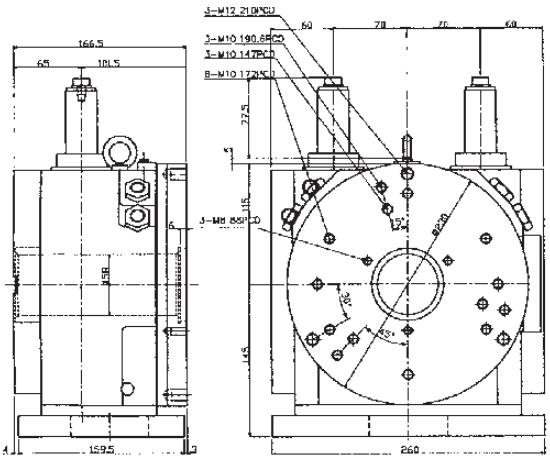
MODEL	R	S	T
710-150	N/A	1.50 (38)	N/A
710-002	N/A	1.38 (35)	0.65 (16.5)
710-102	1.46 (37)	1.38 (35)	0.65 (16.5)
710-004	N/A	3.07 (78)	0.65 (16.5)
710-104	1.46 (37)	3.07 (78)	0.65 (16.5)
710-230	N/A	2.20 (56)	N/A
710-300	N/A	2.95 (75)	N/A



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

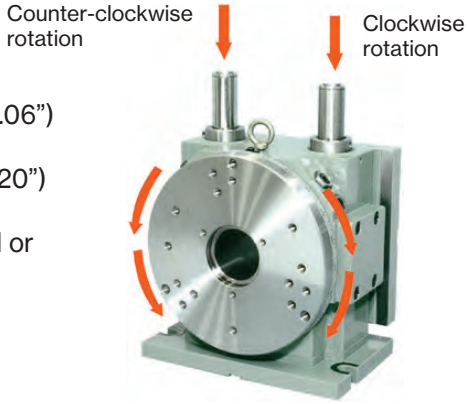
SUPER RAPIDEX

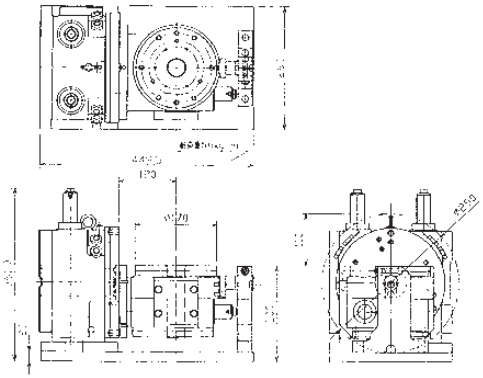
710-230CS
710-340CS



FEATURES:

- Dual index cylinder offers clockwise and counter-clockwise rotation.
- No problem for off-center loads; no imbalance difficulties
- Multiples of 5º indexing with a full index cylinder stroke of 45º
- 1.5 ton braking torque by the dual positive locking mechanism
- Table diameter is 230mm (9.06”)
- Large thru hole of 56mm (2.20”)
- Setting position is horizontal or vertical
- Total weight: 105 lb (48Kg)



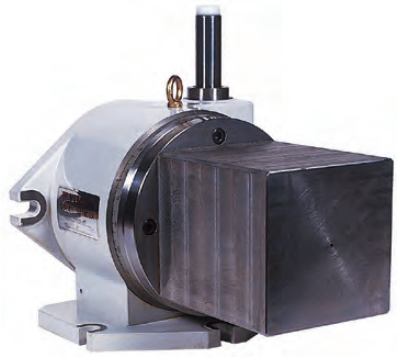


710-230CST

- 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”)

710-104

710-300

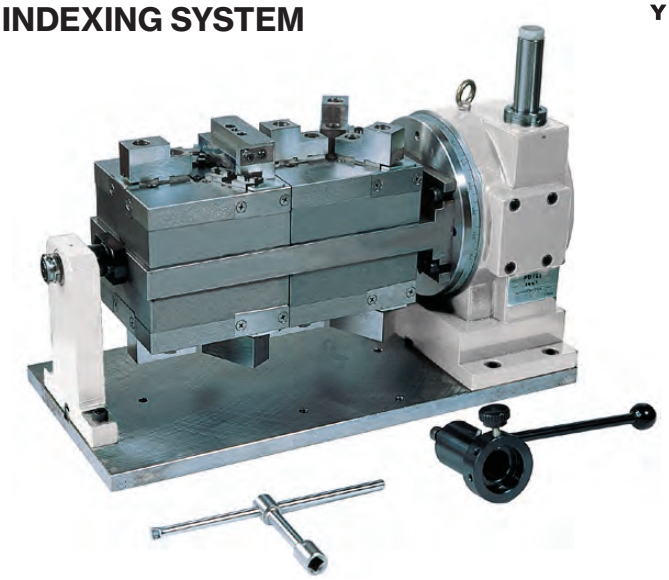


710-004 with 710-109 (cube)

VISEDEX

YUASA

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.)

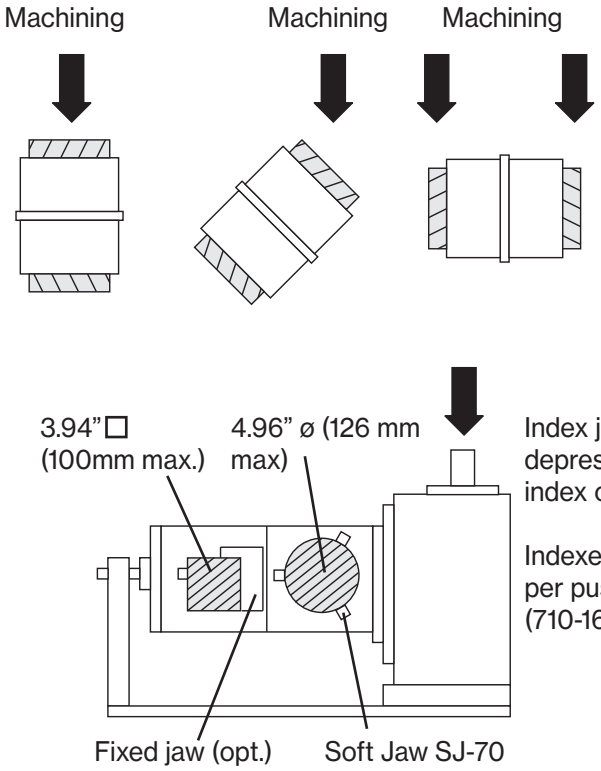
CAN HOLD WORKPIECES OF VARIOUS SIZES
4 dish-shaped workpieces up to a max of Ø 4.96" (126mm) or 4 square-shaped workpieces up to a max of 3.94" x 3.94" (100mm x 100mm)(with the required fixed jaw (KY-16)) can be set at one time.

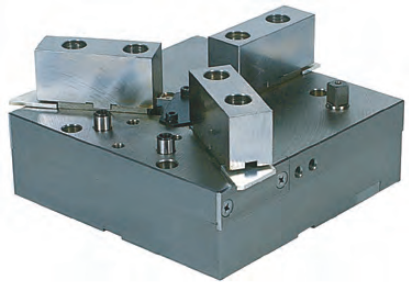
PROCESS THIN AND IRREGULARLY SHAPED WORK-PIECES
Thin and irregularly shaped workpieces can be machined by gripping with formed soft-jaws, (SJ-70.)

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.





4 ea. Y-160 machining chucks page #75, used for 710-164

710-104 (Super Rapidex, pg. #32, used for 710-164, 201)

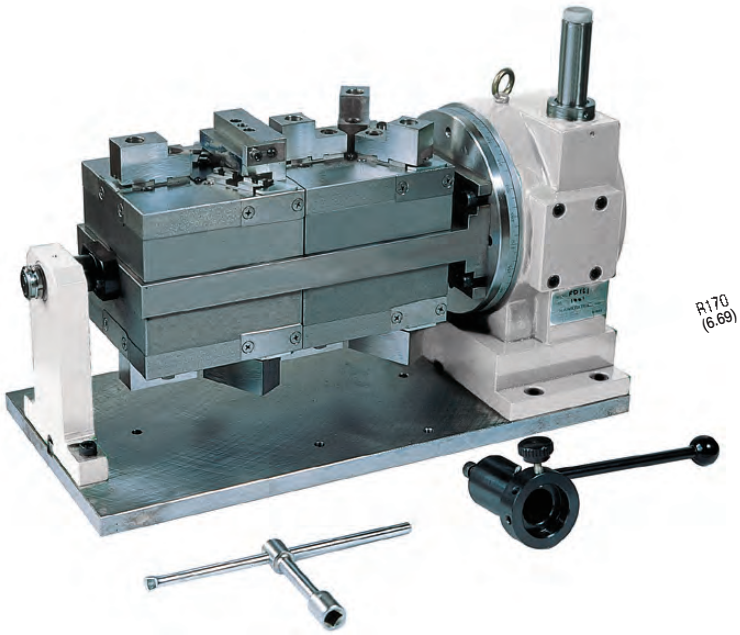
710-300 (Super Rapidex, pg. #32, used for 710-301)

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

VISEDEX 710-164

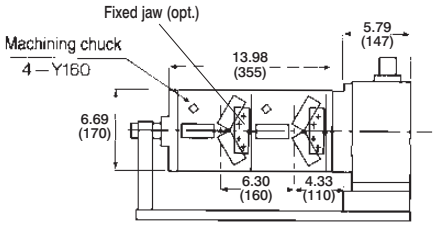
Equipped with:

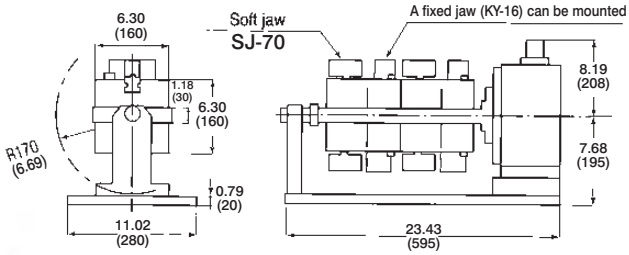
- Y-160 machining chucks (4 pcs.)
- T-handle for machining chuck
- Handle for manual indexing
- Sub-plate & bearing end support



710-164

Inch/(mm)

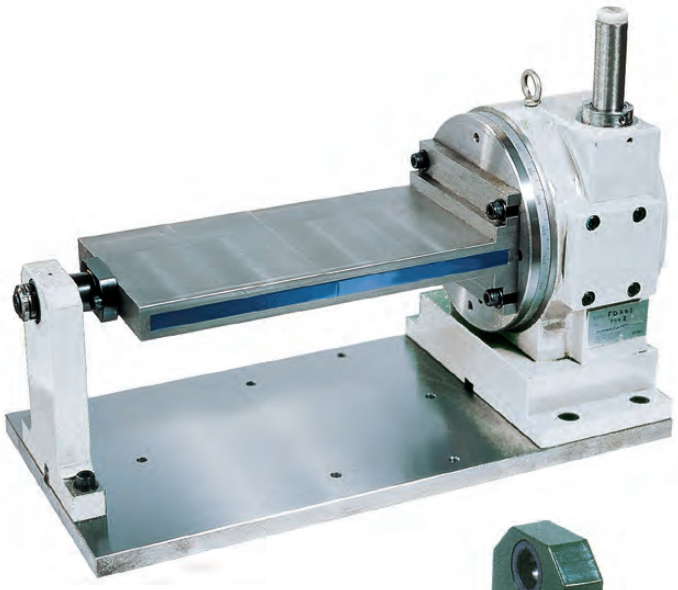




VISEDEX 710-201 & 710-301

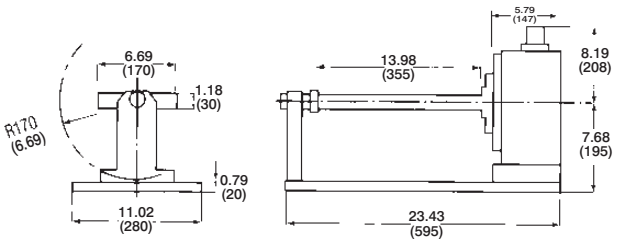
Chuckless type

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



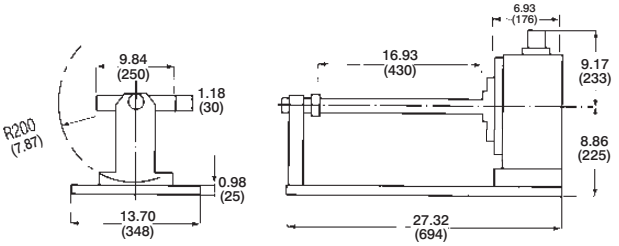
710-201

90° indexing when the index cylinder is pressed once.



710-164

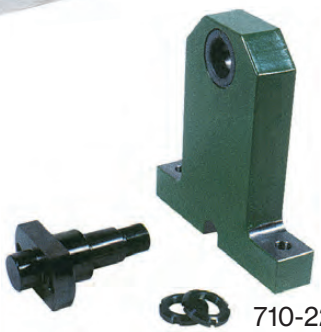
45° indexing when the index cylinder is pressed once.



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 load 002 (0.06)
  (Measured at outside edge with 440lb. load)

NOTE: End supports may be purchased separately



710-224

HORIZONTAL / VERTICAL 5C COLLET INDEX

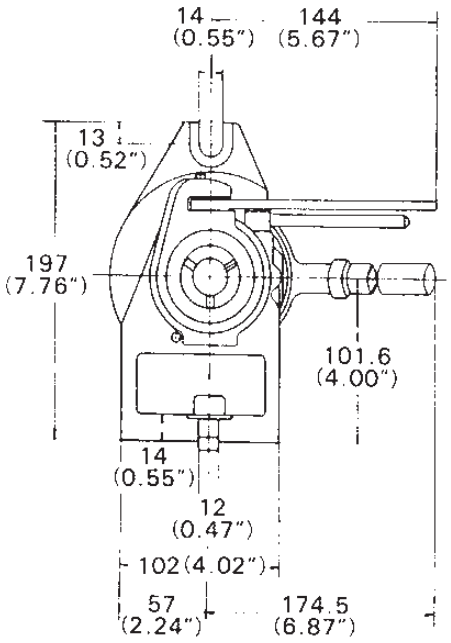
YUASA

550 series

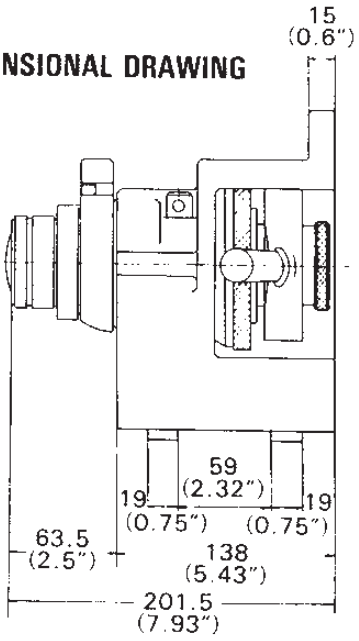
2 YEAR WARRANTY

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



SPECIFICATIONS	MAXIMUM VARIATION	
Dividing spindle concentricity	0.0002 (0.005)	
Cylidrical 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)

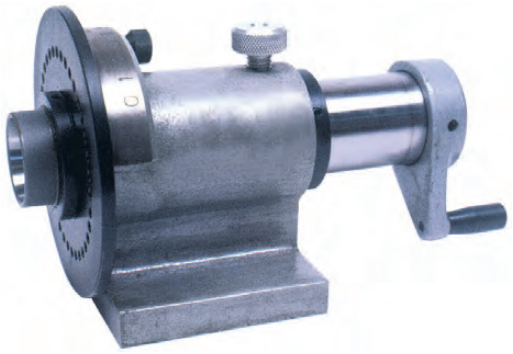
OPERATION

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.

YUASA

5C SPIN INDEX FIXTURE

TWO YEAR WARRANTY



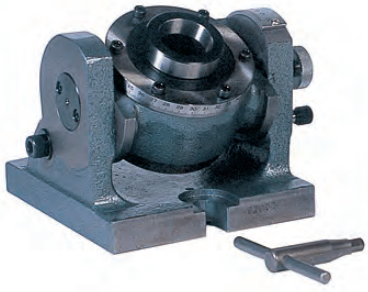
- Hardened and precision ground spindle
- 0.0004” T.I.R. spindle accuracy
- Super time saver
- Applicable to all milling machines, surface grinders and inspection equipment
- Precision ground 36 position index plate
- Direct indexing in ten steps, graduated in 5° increments

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"	

UNI-DEX®

550 series

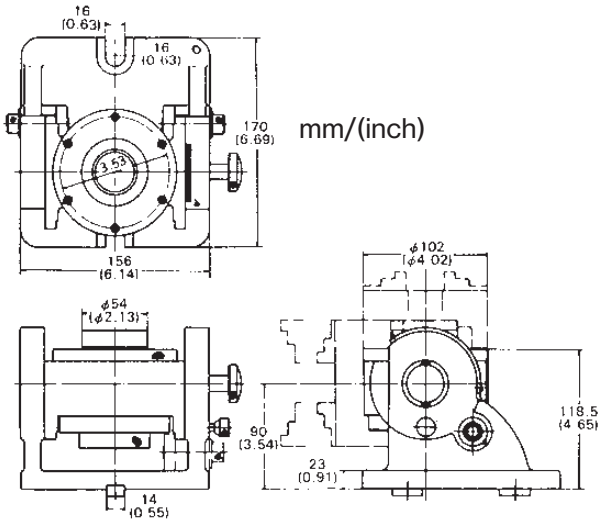
FEATURES:



585-004 (opt.)

- 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



mm/(inch)

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)

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

YUASA

550 series

2 YEAR WARRANTY

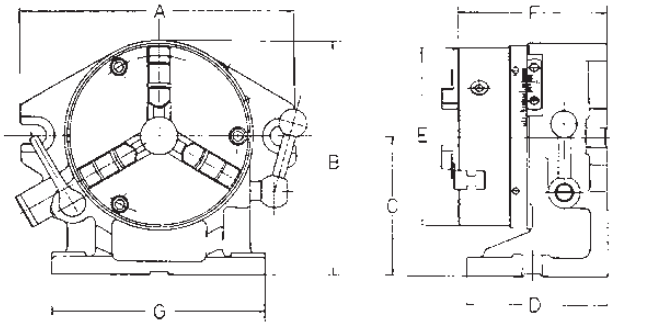
FEATURES:

- 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 posiotion 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)



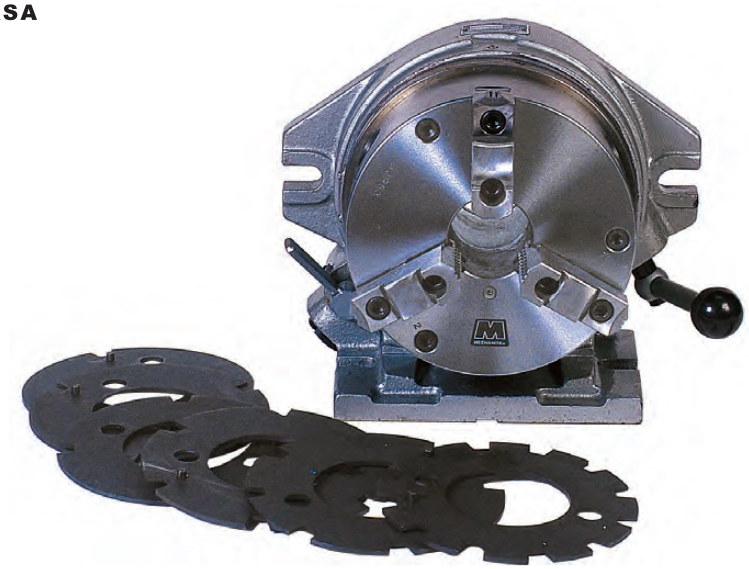
Inch/(mm)

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)**
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)
553-431	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)

YUASA

STANDARD TYPE BASIC INDEXING SPACER

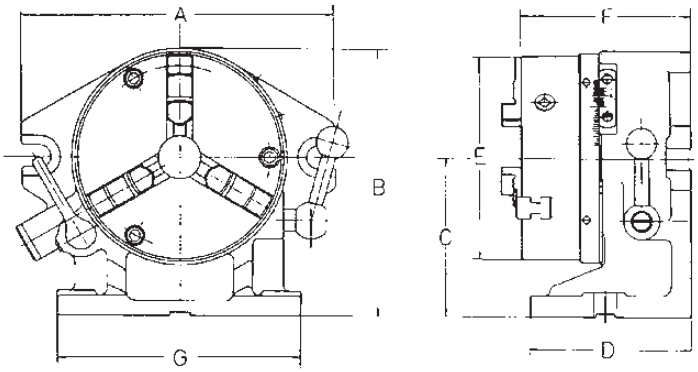


FEATURES:

- 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

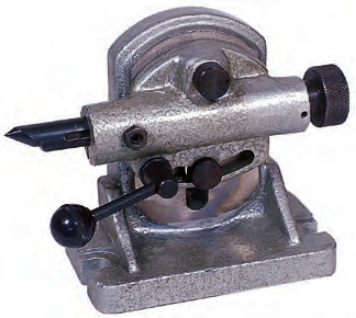
STANDARD ACCESSORIES:

- 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"

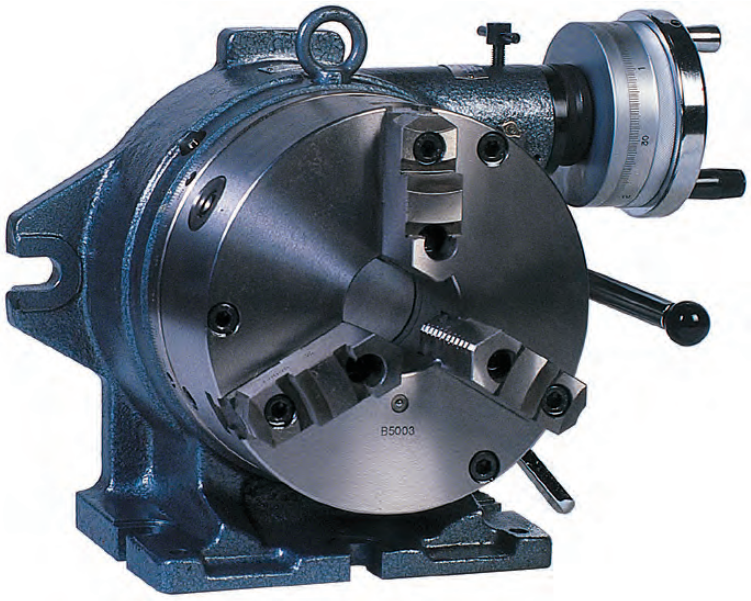
YUASA

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!

The Super Accu-Dex combines the advantages of the Accu-Dex with those of the worm-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.

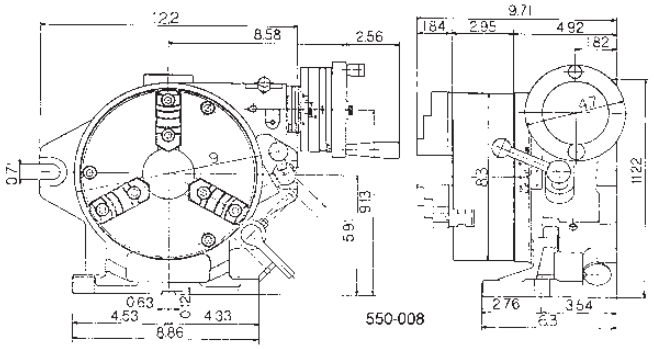
Inch/(mm)

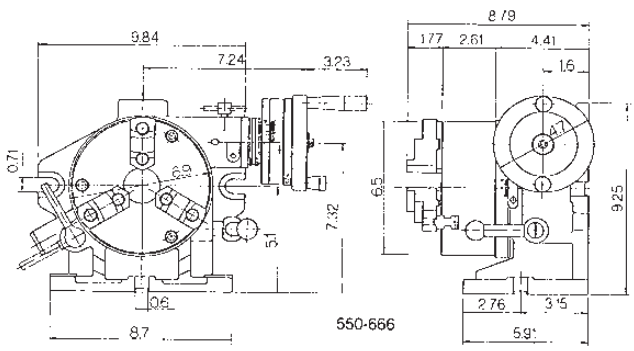
SPECIFICATIONS	MAXIMUM VARIATION inches / (mm)
Maximum individual spacing error	25 seconds
Vernier reading	10 seconds
Base to chuck squareness (90°)	0.0008 (0.02)
Base parallelism	0.0004 (0.01)
Mounting flange concentricity	0.0008 (0.02)
Chuck concentricity	0.0005 (0.012)
DIMENSIONS	
Chuck center hole 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)





YUASA

STANDARD TYPE SUPER INDEXING SPACER

FEATURES:

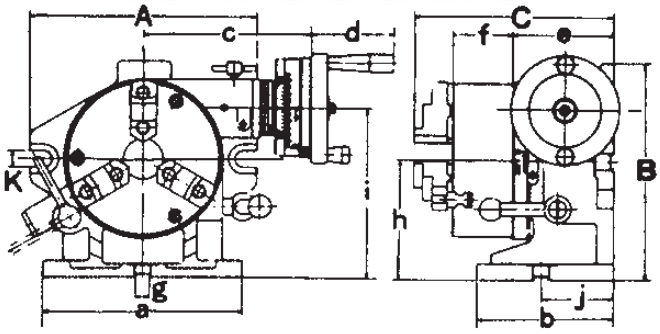
- Hardened and ground 24 position master plate
- Heavy duty shoe type spindle brake, ensuring maximum rigidity for milling cuts
  Precision ground steel spindle
- Solid Meehanite casting, specially designed for milling, drilling and boring
- Six masking plates included (2,3,4,6,8 and 12 divisions)
- 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)

	CHUCK				FACE PLATE				
MODEL #	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)

HORIZONTAL / VERTICAL PRECISION ROTARY TABLES

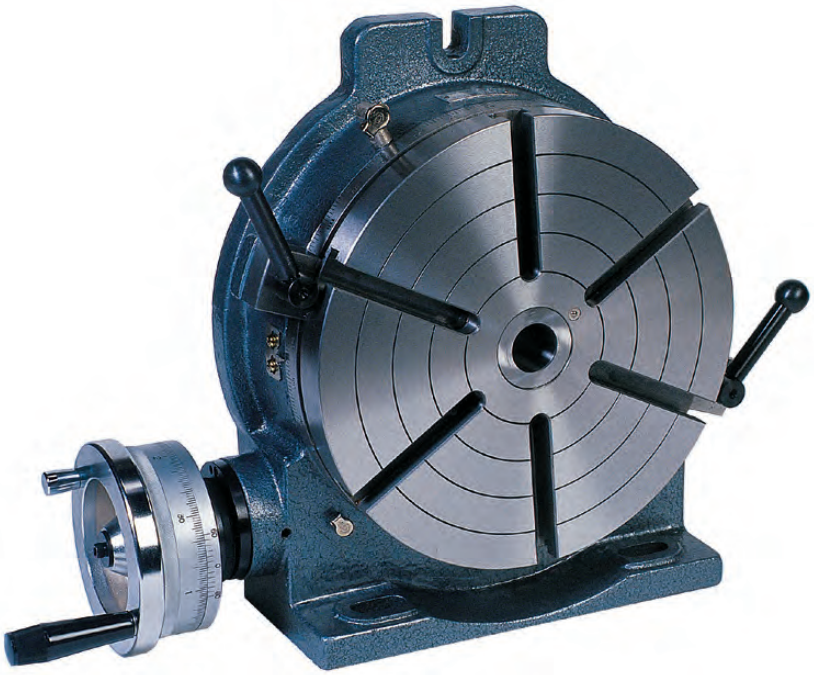
YUASA

550 series

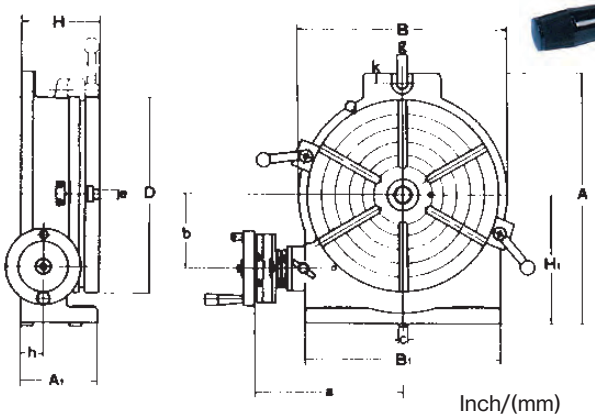
2 YEAR WARRANTY

FEATURES:

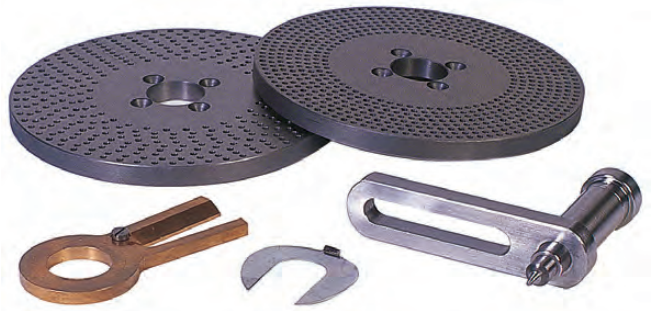
- Works as an index center in the vertical position as well as a conventional rotary table for circular cutting, angle setting, boring and spot facing 10 second vernier reading
- Disengageable worm gear permits free table rotation. Worm shaft is hardened and ground
- Optional dividing plates and crank handle can be attached to the rotary table drive mechanism.
- One rotation of handle equals 4º
- 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)

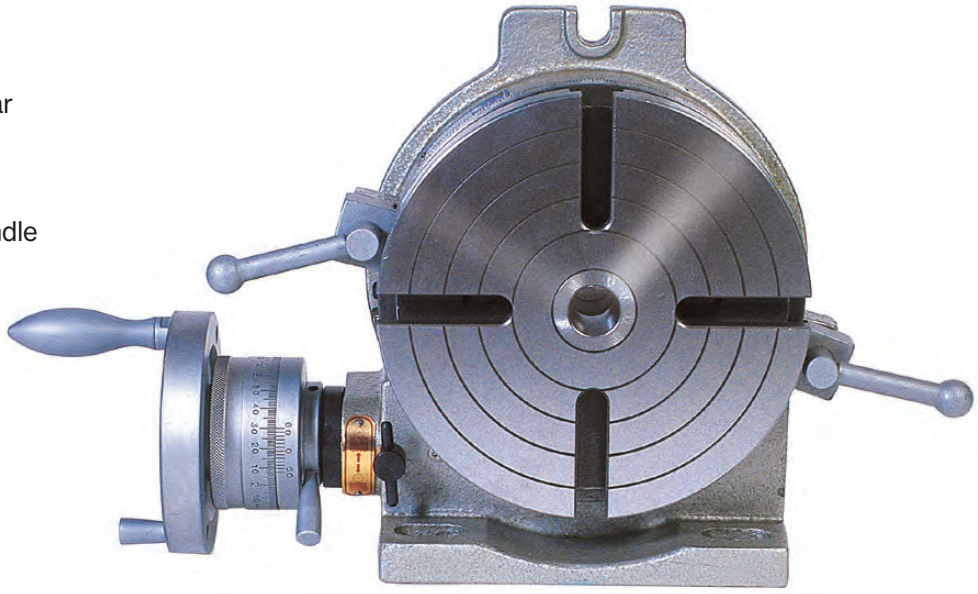
MODEL	TABLE			BASE DIMENSIONS				DISTANCE OF HANDLE FROM CENTER			GUIDE BLOCK	T-SLOT		BOLT SLOTS		TABLE CENTER SHAFT SLEEVE	WORM RATIO	GRADUATION OF MICRO-COLLAR	GRADUATION OF VERNIER HANDLE	WEIGHT lbs./(kg)
	Diameter	Face height	Center height	at vertical position		at horizontal position													
	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)

YUASA

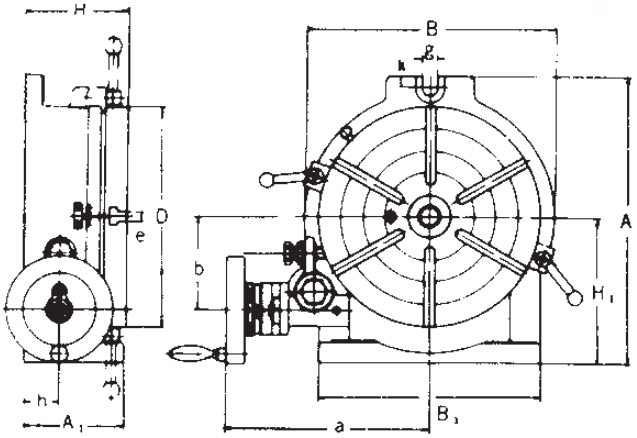
STANDARD TYPE HORIZONTAL / VERTICAL ROTARY TABLES

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	g		
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)

TILTING ROTARY TABLES
6", 10", 12" AND 20"

YUASA

550 series

2 YEAR WARRANTY

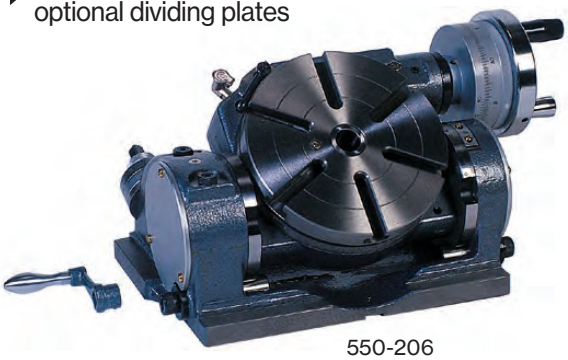
FEATURES:

- 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

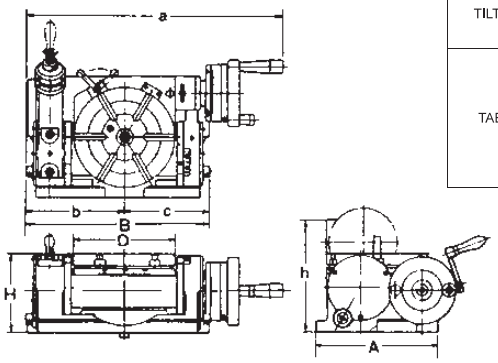


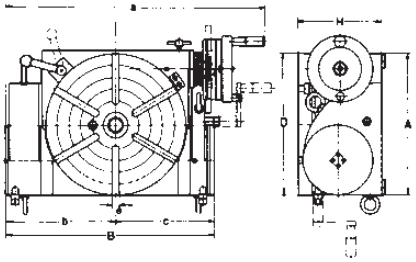
550-206

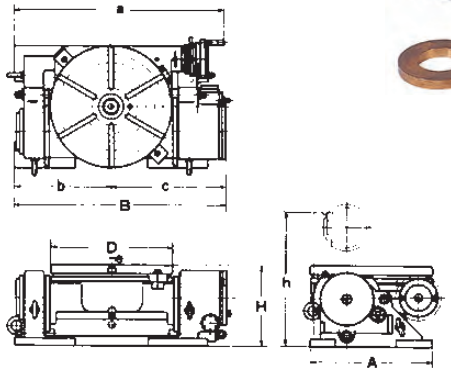
550-210

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)

YUASA

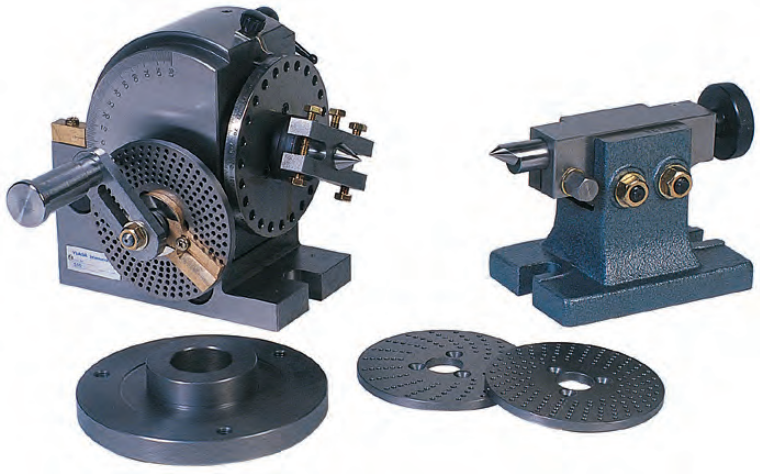
HIGH PRECISION DIVIDING HEAD

550 series

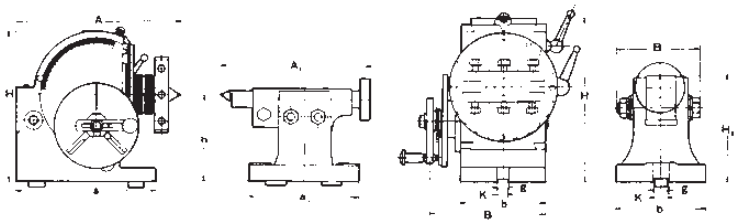
2 YEAR WARRANTY

FEATURES:

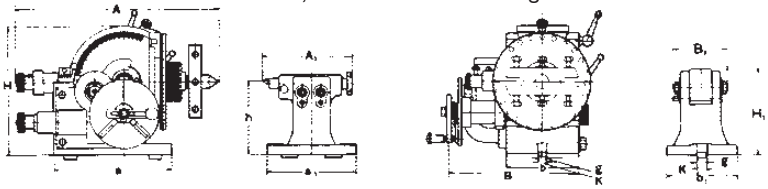
- Can be easily adjusted to any angle between -10° to +90° from a horizontal position
- Divide any angle by the direct, indirect or differential methods
- Spiral machining capability
- Spindles with taper roller bearings are an integral part of all dividing heads
- Direct mounted index plate has 24 divisions
- 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



No. 550-032, -033 Universal Dividing Head



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

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)

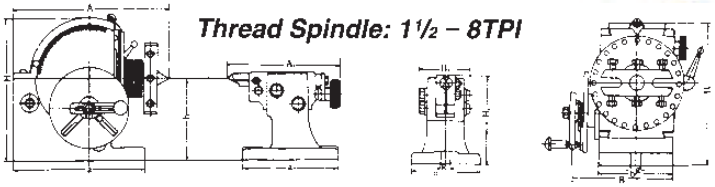
NOTE: Each unit is supplied with the Accu-Flange® plate.

STANDARD TYPE SEMI-UNIVERSAL DIVIDING HEAD

YUASA

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



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)

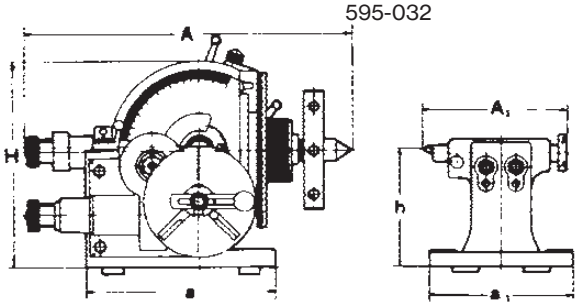
MODEL	A1	B1	H1	a1	b1	g1	DIVIDING HEAD WT. lbs./(kg)
595-030	6.57 (167)	3.15 (80)	4.23 (107.5)	5.12 (130)	3.62 (92)	0.51 (13)	50 (22.7)
595-031	7.52 (191)	3.46 (88)	5.39 (137)	5.91 (150)	4.25 (108)	0.63 (16)	80 (36.4)

DIMENSIONS: Body

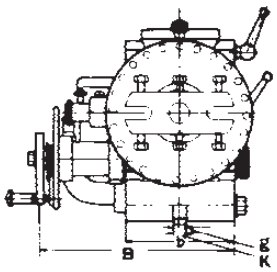
MODEL	A	B	H	a	b	g	h	Spindle Taper	Hole Dia.
595-030	7.44 (189)	5.51 (140)	6.81 (173)	6.30 (160)	3.58 (91)	0.51 (13)	3.94 (100)	B&S#7	0.71 (18)
595-031	11.54 (293)	6.14 (156)	8.66 (220)	8.15 (207)	4.49 (114)	0.63 (16)	5.04 (128)	B&S#9	0.79 (20)

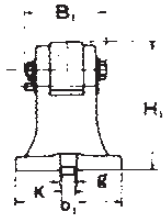
UNIVERSAL DIVIDING HEAD

595-032



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 Measured at arbor 8" long	 0.0004 (0.01) 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 In the horizontal plane	 0.0008 (0.02) 0.0008 (0.02)
5	Dividing accuracy of worm drive maximum cumulative spacing error	1' 30"





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

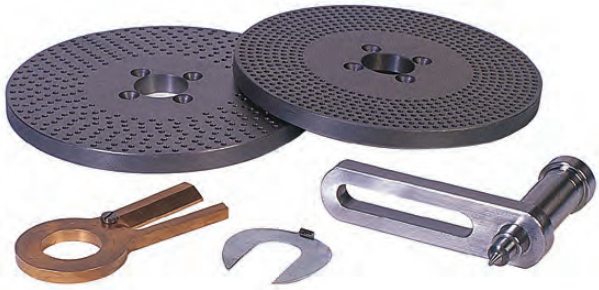
Unit: mm/Inches

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

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

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	REFERENCE	NUMBER OF DIVISION	PLATES
550-100	550-106N, 550-046, 550-206	2-50	A, B, C, D = 4 PCS
550-111	550-108N/ 110N/ 112N / 114N, 550-048 / 050 / 052 / 054 550-210 /212, 550-666, 550-008	2-100	A, B = 2 PCS
550-111-4H	550-116N / 120N, 550-055 / 056, 550-220	2-100	A, B = 2 PCS
REFERENCE	NUMBER OF HOLES IN THE PLATES		
550-111/ 111-4H	PLATE A = 26, 28, 30, 32, 34, 37, 38, 39, 41, 43, 44, 46, 47, 49, 51, 53, 57, 59		
	PLATE B = 61, 63, 67, 69, 71, 73, 77, 79, 81, 83, 87, 89, 91, 93, 97, 99		

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

YUASA

550 series

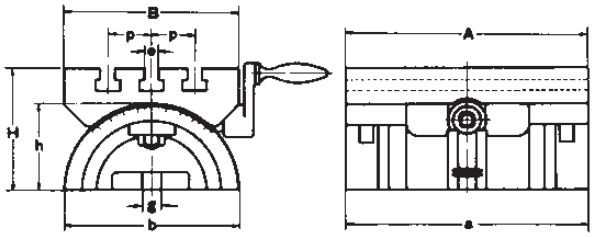
2 YEAR WARRANTY

FEATURES:

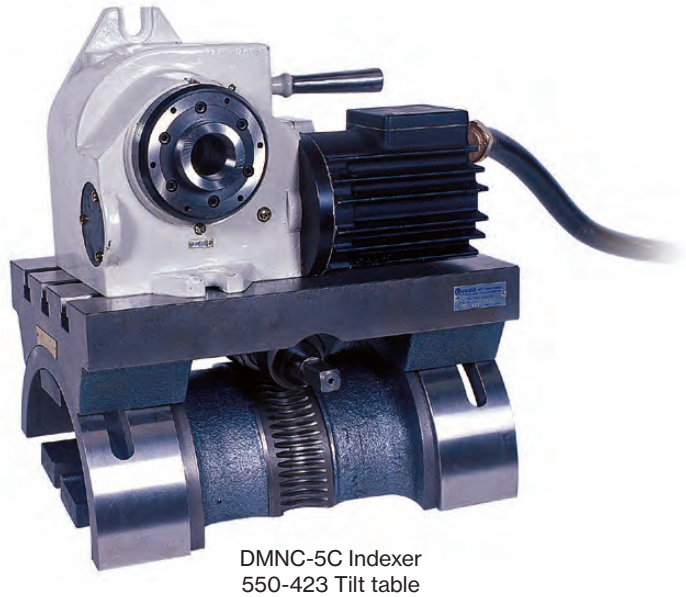
- Inclinable to 45º right or 15º left by use of worm gear adjustment handle
- Plate will accept accessories and work pieces larger than its diameter
- Vernier graduation (5 minutes)
- Low profile provides low machine-head clearance
- Constructed of Meehanite steel. All other parts made of special tool 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)

	TABLE			T-SLOT				WEIGHT lbs./(kg)
MODEL	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.



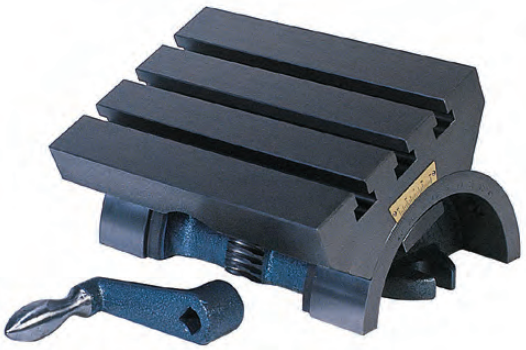
DMNC-5C Indexer
550-423 Tilt table

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:

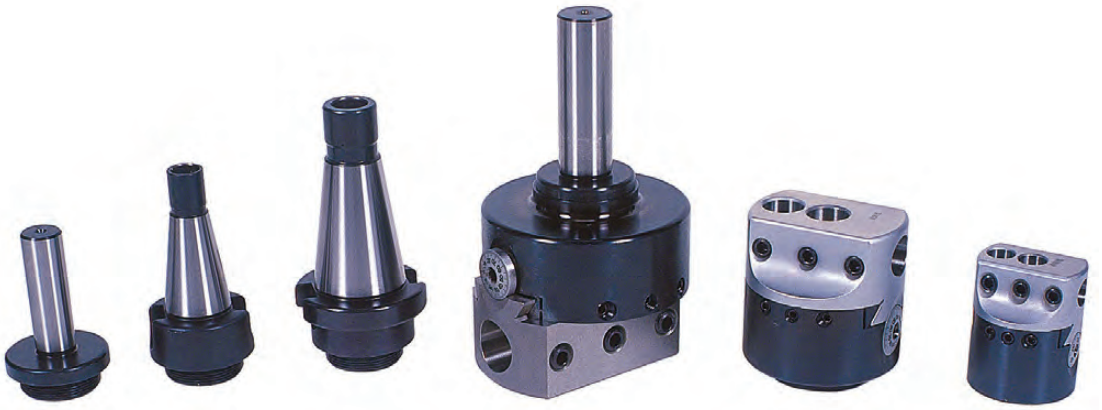
MODEL (Tilt Table)	Models (SUDX/EUDX Rotary Table & Indexers)
550-442	5C, 5CA, 132-5C, 130, 140
550-423	170, 220

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.

YUASA

515 series

PRO-BORE® BORING HEADS



515-409 (3/4") | 515-430 (NT-30) | 515-440 (NT-40) | 515-204 w/1" shank | 515-203 | 515-202

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	

MILLING MACHINE ACCESSORIES & TOOLS

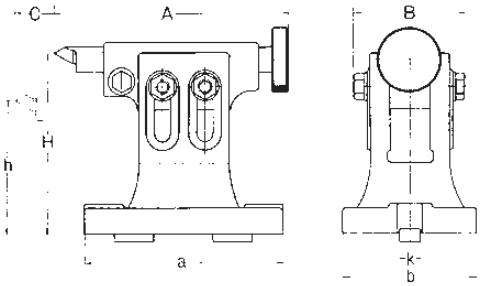
553 Series

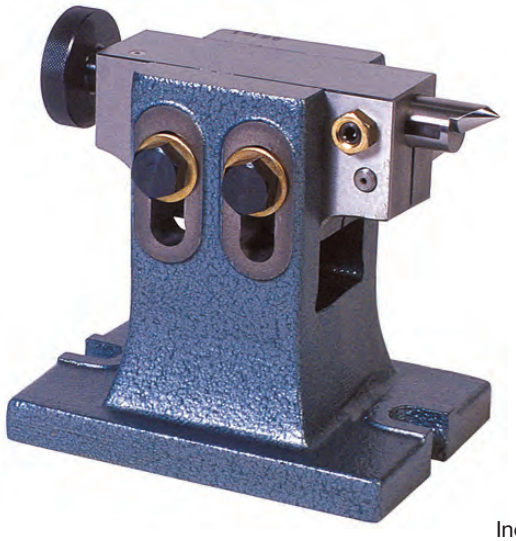
2 YEAR WARRANTY

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



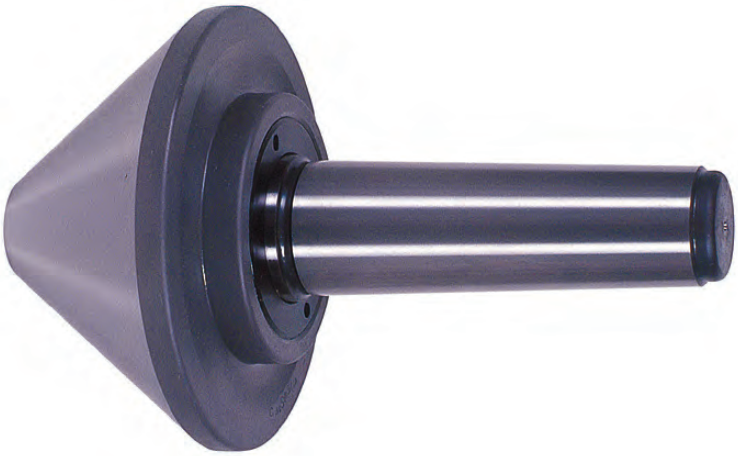


Inch/(mm)

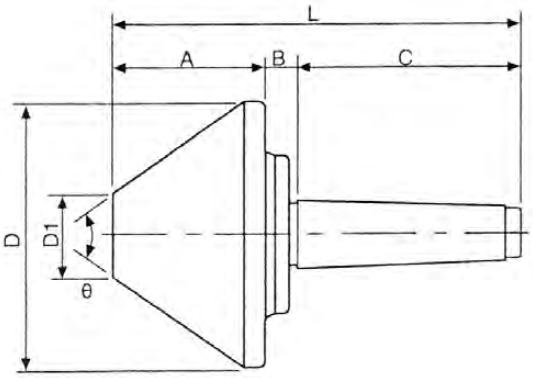
SPECIFICATIONS											
MODEL	DESCRIPTION	CENTER HEIGHT h	CENTER HEIGHT H	A	B	a	b	c	k	CENTER APPLICABLE UNIT	WEIGHT lbs./(kg)
553-299	Adjustable	2.56 (65)	3.94 (100)	6.89 (175)	3.11 (79)	5.12 (130)	3.62 (92)	1.18 (30)	0.55 (14)	550-009, 550-005, 550-046, 550-206	11 (5)
553-300	Adjustable	3.94 (100)	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

YUASA



570-201



1. The tip of the bull nose center uses Cr-Mo steel hardened to HRC 60º ±1º
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)MK	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	60º	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)	248 (63)	0.47 (12)	5.87 (149)	0.005	4000R.P.M.	RPM100=200KG	60º	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	70º	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	70º	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	60º	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=400KG	70º	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	70º	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=650KG	70º	10.6 (4.8)	5.31 X 5.31 X 9.65 (135 X135 X 245)
570-209	BC 156-MT.4	3.46 (88)	0.47 (12)	4.25 (108)	6.14 (156)	6.14 (156)	8.19 (208)	0.008	1900R.P.M.	RPM100=800KG	70º	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	70º	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	80º	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	70º	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	70º	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	70º	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	80º	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	90º	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	70º	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	80º	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	90º	88.2 (40)	13.5 X 13.1 X 14.1 (343 X 332 X 357)

YUASA

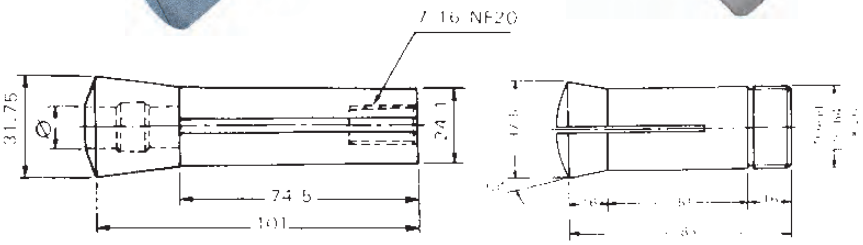
ACCU-COLLETS 500 SERIES

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.



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"	500-111
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.

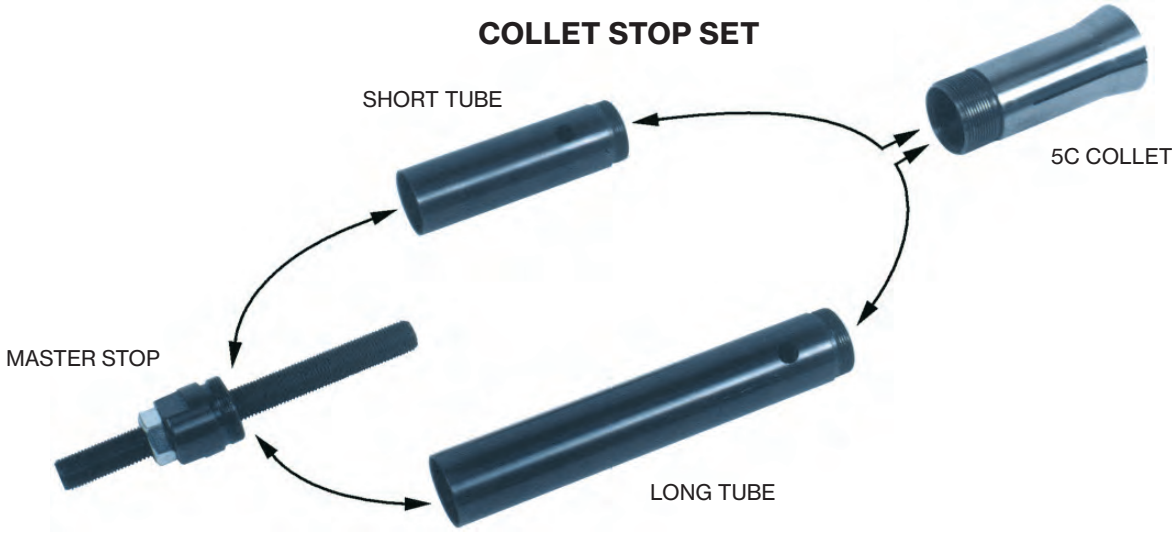
Stock No.	Diameter
500-602	2"
500-603	3"
500-604	4"
500-605	5"
500-606	6"

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

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

YUASA

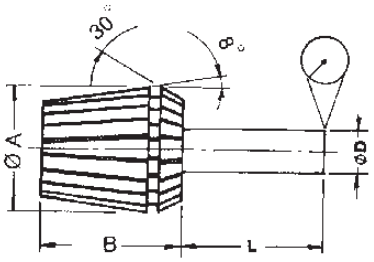
ER SPRING COLLET CHUCK SYSTEM

DIN 6499

ER-50 ER-40 ER-32 ER-25 ER-20 ER-11

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
INDIVIDUAL COLLETS	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	506-601	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
							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			

RADIUS AND ANGLE DRESSER

YUASA

550 series

2 YEAR WARRANTY

FEATURES:

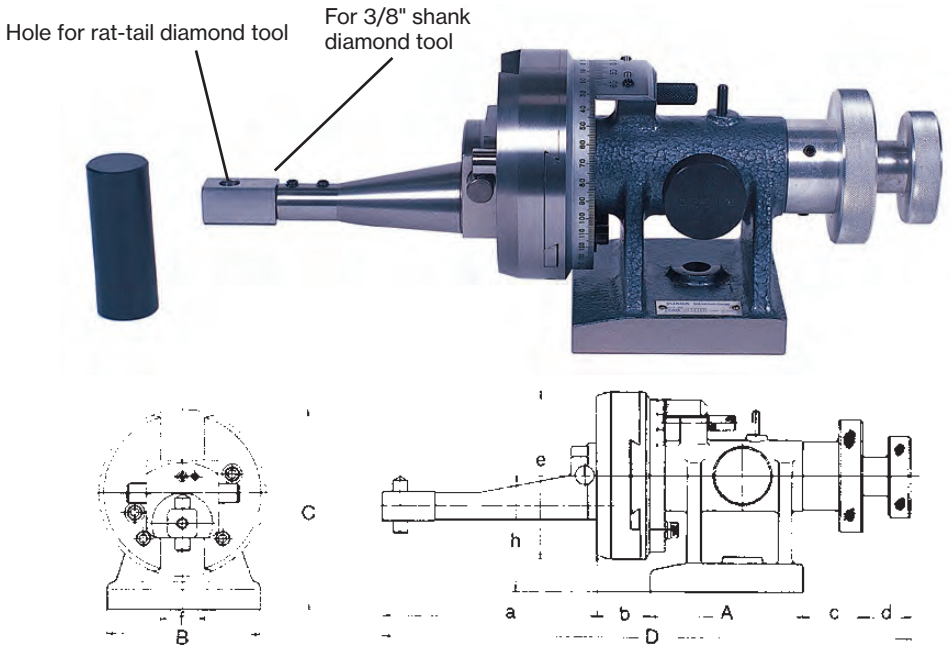
- An extremely accurate and versatile unit for use on all O.D., I.D. surface grinding operations. At no time are the hands near the point of contact.
- Knob "A" controls radii and knob "B" controls angular movements.
- All moving parts are lapped.
- Adjustable gibs.
- Gage block setting for grinding 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 chair	0.0006 (0.015)



Inch/(mm)

	MOUNTING SURFACE		OVERALL LENGTH		CENTER HEIGHT	DIMENSIONS					
MODEL	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.

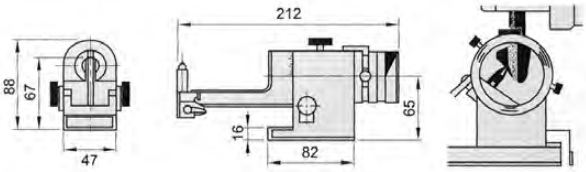
YUASA

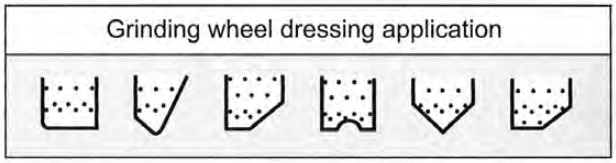
HIGH PRECISION DIVIDING HEAD

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

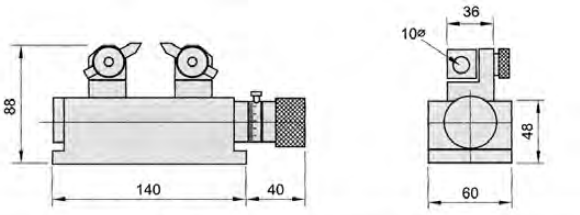
MODEL	Center Height	Max wheel diameter	Max convex radius	Max concave radius	Dressing angle	Tangential travel	Net weight lbs. (Kg)
595-901	2.56 (65)	7.87 (200)	0.51 (13)	1 (25.4)	95º-0º-95º	0.86 (22.5)	9.26 (4.2)

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/DIV

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)

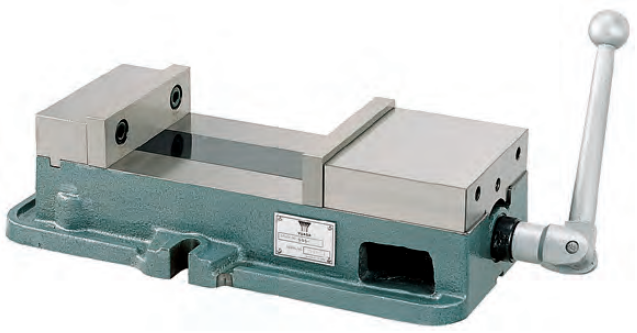
ACCU-LOCK PRECISION VISE

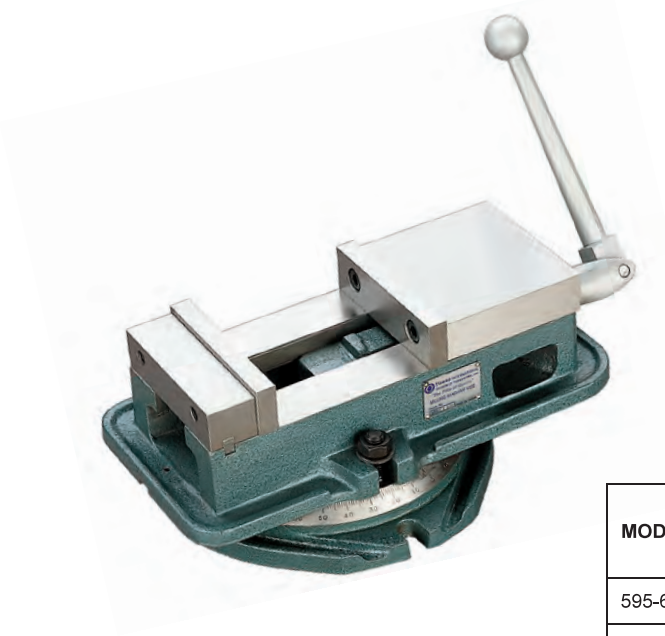
595 series **1 YEAR WARRANTY** 595-603A 6" VISE WITH 8.9" JAW OPENING!

YUASA

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 180º in 1º increments. Universal crank handle.

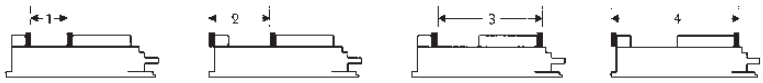


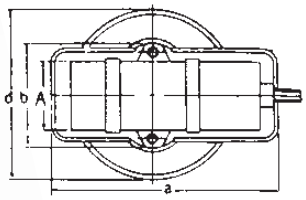


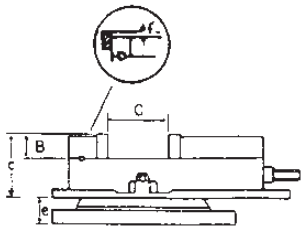
SPECIFICATIONS									
MODEL	JAW WIDTH	MAXIMUM JAW OPENING CAPACITY				JAW HEIGHT	HEIGHT	LENGTH	WEIGHT lbs\(kg)
		1	2	3	4				
595-601	4 (102)	4 (102)	5.98 (152)	8.58 (218)	10.55 (268)	1.37 (35)	3.62 (92)	12.51 (318)	36 (16.3)
595-602	5 (127)	4.72 (120)	7 (178)	10.11 (257)	12.40 (315)	1.49 (38)	3.81 (97)	14.56 (370)	55 (25)
595-603A	6 (152)	7.50 (191)	10.25 (260)	13.13 (333)	15.98 (406)	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

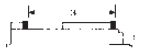
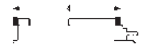
Four jaw opening positions shown in illustration allow extra capacity for a variety of workpiece sizes and shapes.







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 (152)	1.73 (44)	7.5 (191)	17.12 (435)	9.25 (235)	4.60 (117)	11.8 (300)	1.65 (42)	0.39 (10)	80 (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)			7.00 (178)			10.11 (257)			12.40 (315)	
595-603A	7.50 (191)			10.25 (260)			13.13 (333)			15.98 (400)	
595-604	7.87 (200)			11.10 (282)			15.39 (391)			18.66 (474)	

SWIVEL BASE				
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)	595-603N	6 (152)
595-609	1.92 (49)	70 (32)	595-604	8 (203)

WORKHOLDING

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.

667-100

REQUIREMENTS:

Use non-lifting jaw vises such 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 5º. (For other angles use gage blocks that must be calculated using a sine table for a distance of 5.0000".)

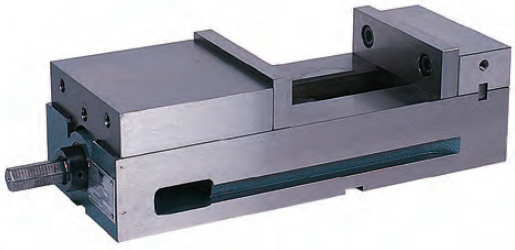
ACCU-LOCK "HIGH PRECISION" VISE

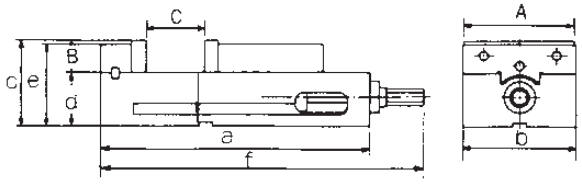
595 SERIES

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)

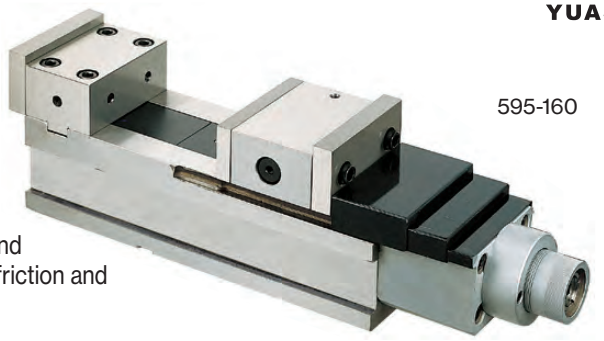
MODEL	A	B	C	a	b	c	d	e	f	Nt. Wt. lbs./(kg)
595-404	4.02 (102)	1.57 (40)	4.72 (120)	13.07 (332)	4.13 (105)	4.25 (108)	2.68 (68)	3.94 (100)	14.65 (372)	44 (20)
595-406	5.98 (152)	1.73 (44)	5.57 (141)	14.75 (370)	6.60 (154)	4.61 (117)	2.87 (73)	4.37 (111)	17.24 (438)	66 (30)

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)

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.



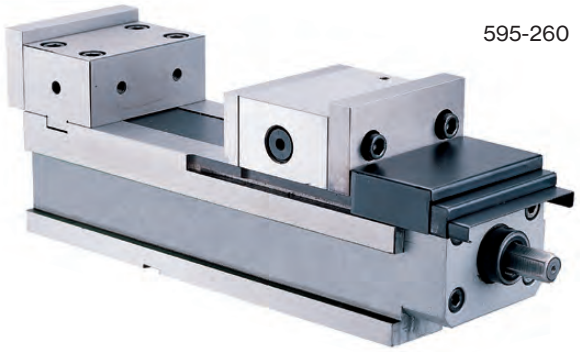
595-160

The Super Vise is made from FDC 80,000 (55Kgcm2) 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.

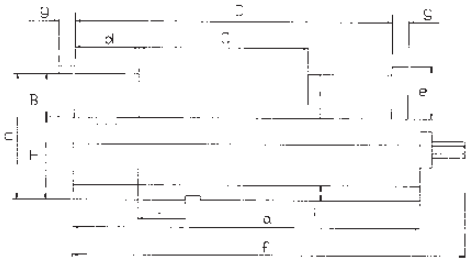
POWER VISE

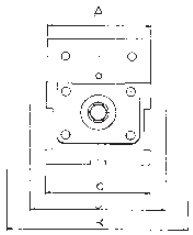
The Power Vises are designed to provide maximum clamping force (up to 78,226 lbs./sq.in. (5500 Kg/cm2) (595-260). Literally, tons of pressure can be applied to the workpiece with very little effort by the operator, and the workpiece cannot be released until the operator does so manually. A mechanical 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



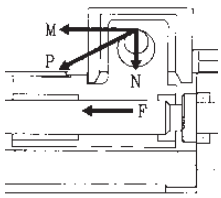


Accuracy:
Parallelism (running face to bottom of bed) 0.0004" (0.01mm)
Squareness: between running face and jaw plate 0.0012" (0.03mm)
Squareness: both sides to fixed jaw plate 0.0008" (0.02mm)
Parallelism: keyways on bed, to jaw plate 0.0008" (0.02mm)
Squareness: keyways on bed, to jaw plate 0.0008"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

Inch/(mm)

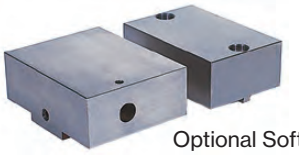
MODEL	A	B	C	D	a	b	c	d	e	f	g	i	j	k	H	L	KEYWAY	WEIGHT
595-100	3.93 (100)	1.73 (44)	5.03 (128)	11.22 (285)	11.34 (288)	4.02 (102)	5.08 (129)	2.87 (73)	2.05 (52)	16.42 (417)	0.78 (20)	0.71 (18)	5.47 (139)	7.52 (191)	3.35 (85)	1.24 (31.5)	0.55 (14)	37 lbs. (17 Kg)
595-125	4.92 (125)	2.09 (53)	7.99 (203)	15.03 (382)	15.20 (385)	5.00 (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	6.30 (160)	2.09 (53)	10.80 (275)	18.30 (465)	18.90 (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)



DIMENSIONS: 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)	7.99 (203)	15.03 (382)	15.20 (385)	5.00 (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	6.30 (160)	2.09 (53)	10.80 (275)	18.30 (465)	18.90 (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.

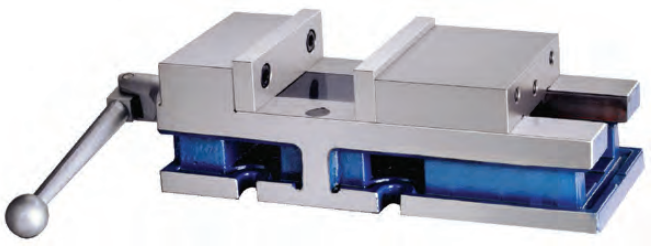


Optional Soft Jaws

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

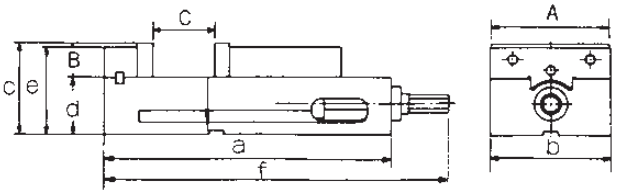
REVERSE TYPE MULTIPLE VISE

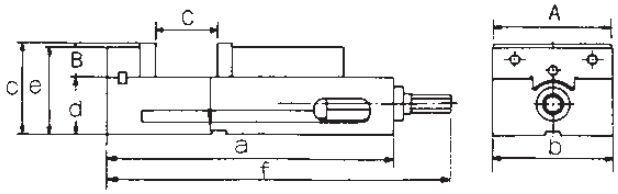
"Multiple vises" are designed for maximum workholding versatility in most CNC machining applications. Delivering 0.0005" repeatable clamping accuracy, they are lighter and more easily mounted than any other precision machine vise. With their modular design they are easily convertible for many special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

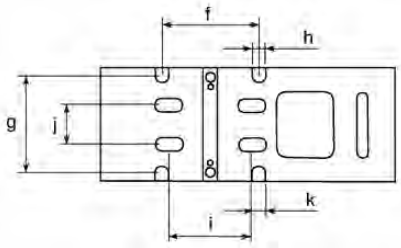


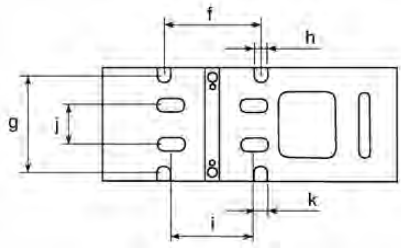
595-360 (REVERSE VISE)

595-460 (STANDARD VISE)

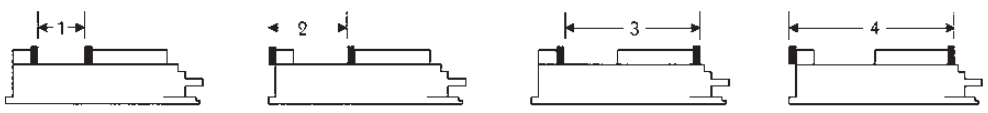








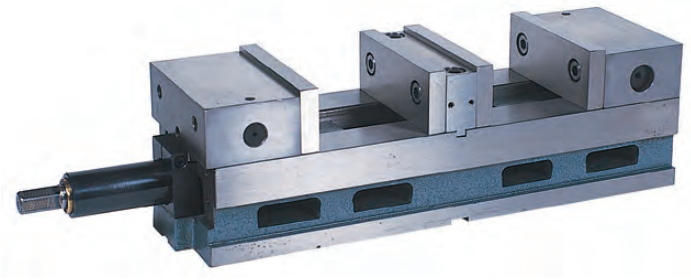
MODEL		A	B	C	a	b	c	d	e	f	g	h	i	j	k	Weight (Kg/lb)
595-360 595-460	inch	6	1.77	6.41	15.06	6	3.187	1.5	17	5	5	0.63	4.25	2	0.71	68.4 lb
	mm	152	45	163	382.5	152.4	80.9	38	431.8	127	127	18	108	50.8	18	31 Kg



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.

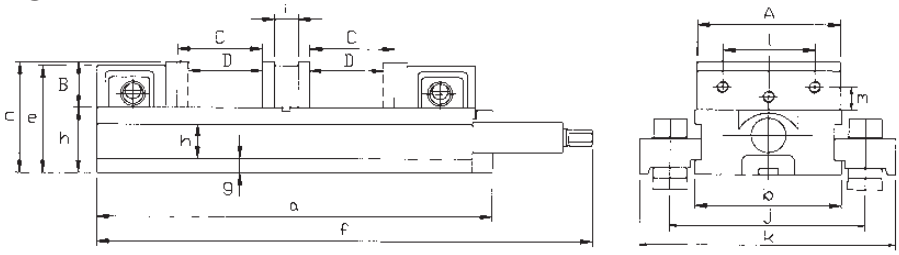
The **ANTI-TILT mechanism** provides movable jaw alignment to the workpiece while eliminating any possible jaw lift. The height of each jaw plate is **30% higher** than other brands, thereby permitting more surface contact with each part, and enabling larger parts to be fixtured. The whole vise body 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.)

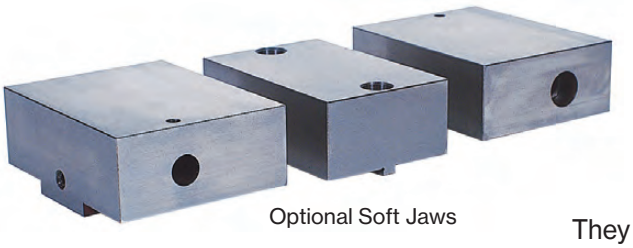
ACCURACY:
Parallelism running face to bottom of bed 0.0004" (0.01mm)
Squareness: between running face and jaw plate 0.0012" (0.03mm)
Squareness: both sides to fixed jaw plate 0.0008" (0.02mm)
Parallelism: keyways on bottom of bed, to jaw plate 0.0008" (0.02mm)
Squareness: keyways on bottom of bed, to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

DIMENSIONS:



Inch/(mm)

MODEL	A	B	C	D	a	b	c	H	e	f	g	h	i	j	k	Guide Block	WEIGHT lbs. (kg)
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)
595-406	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

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

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

4-SIDED BLOCK WITH DOUBLE CLAMPING VISE

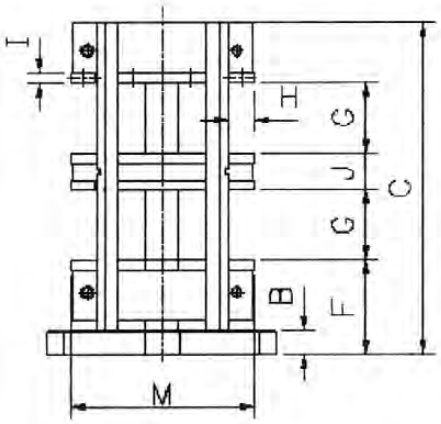
HORIZONTAL MACHINING CENTER
VERTICAL MACHINING CENTER

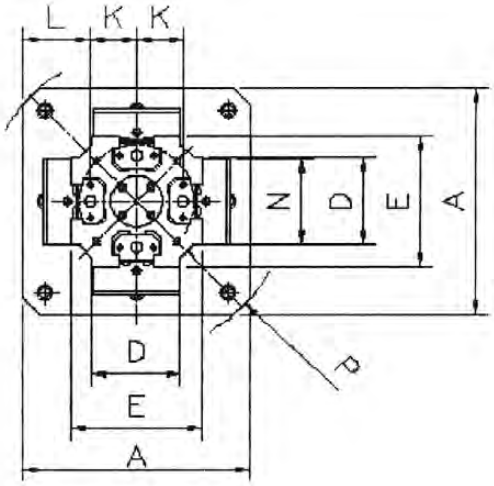
595-623-4

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

HIGH QUALITY OK-VISE LOW PROFILE CLAMPS

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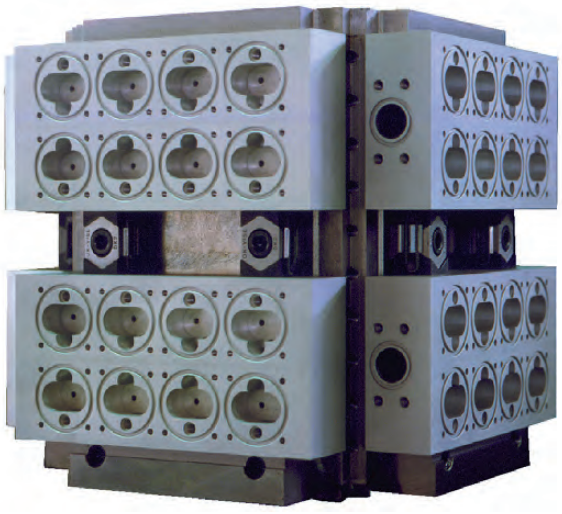
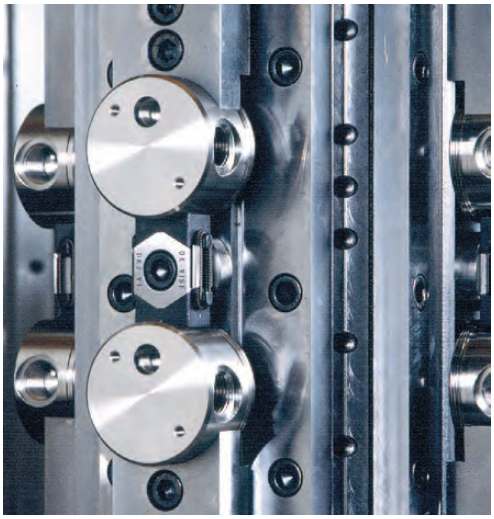
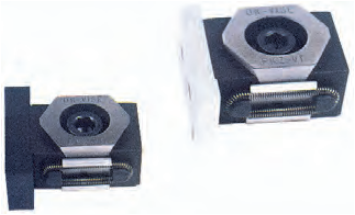


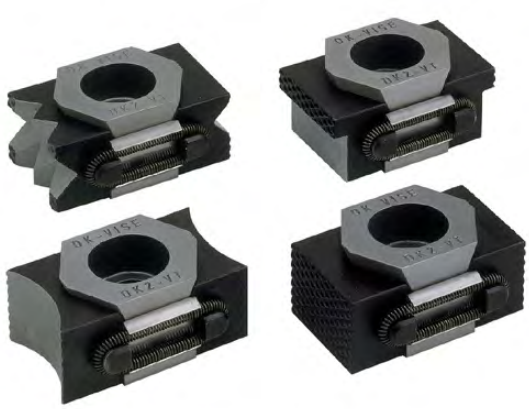
Accurate machining demands a clamp which is completely free of play. The OK-VISE achieves this by its cross-wedge construction, which allows the OK-VISE to lock firmly in every direction as it is tightened down.

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



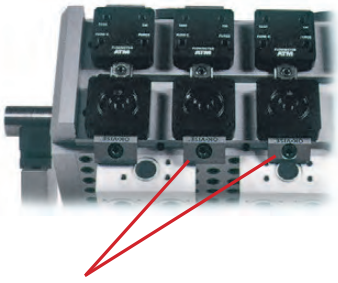


OK-VISE clamps are available with larger steel or aluminum jaws.



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

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



Edge clamps are offered in 50mm and 100mm lengths.

Custom workstops are available on request.

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.

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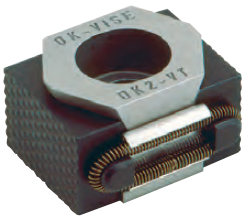


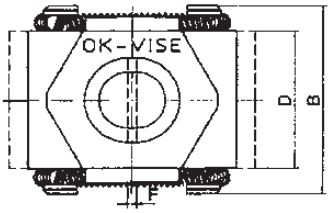
Single-wedge OK-VISE low-profile clamp is completely free of play.

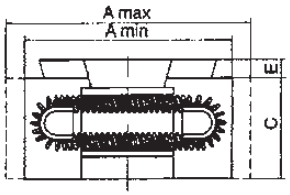
Edge Clamp

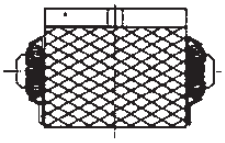
Double-wedge OK-VISE low-profile clamp has a pull down action towards the workpiece.

Single wedge with hard jaws

Also available in stainless steel



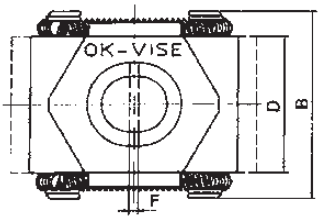


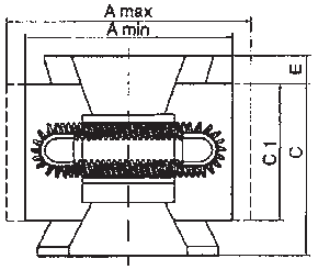


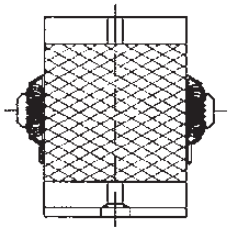
Inch/(mm)

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





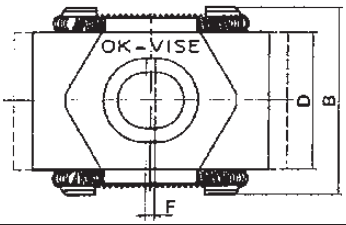


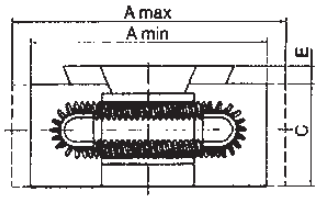
Inch/(mm)

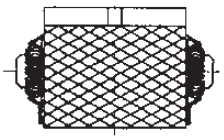
PART NO.	MODEL NO.	A			B	C	C1	D	E	F	MOUNTING SCREW (Included)	PRESSING FORCE OF JAWS lbs.(kp)	HARDNESS OF JAWS HRC
		MIN.	OPTIMUM	MAX.									
215-101	DK2-WT	1.65 (42)	1.77 (45)	1.93 (49)	1.61 (41)	1.42 (36)	1.18 (30)	1.18 (30)	.20 (5)	.080 (2)	1/2-13x1 1/2	11000 (5000)	48-52
215-102	FK2-WT	2.24 (57)	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

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.





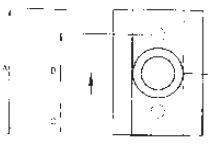


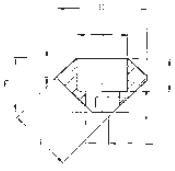
Inch/(mm)

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

Edge clamps

Inch/(mm)

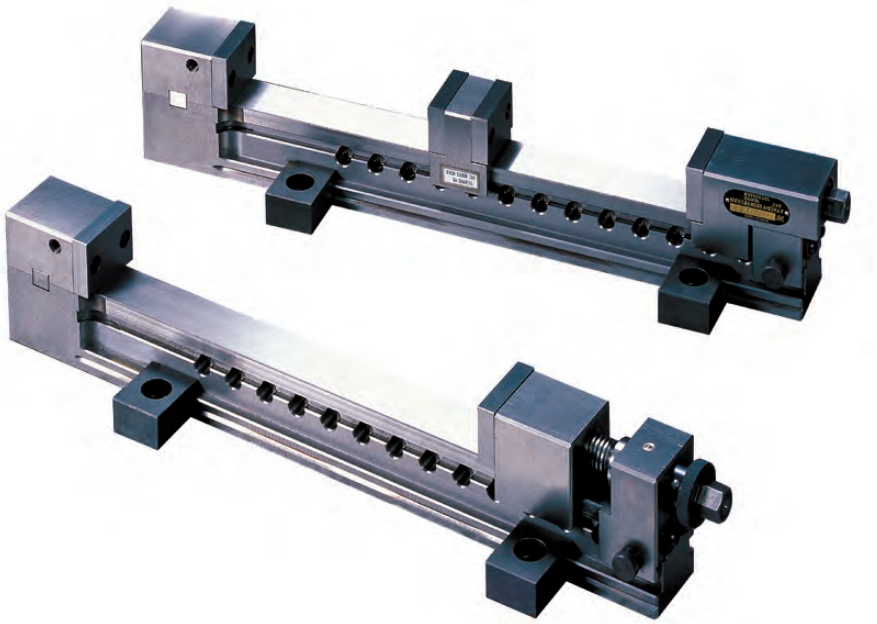




PART NO.	MODEL NO.	A	B	C	D	E	F
215-301	CC-1	1.93 (49)	1.18 (30)	0.37 (9.5)	1.38 (35)	0.84 (21.35)	1.01 (25.36)
215-302	CC-2	3.90 (99)	1.97 (50)	0.37 (95)	1.38 (35)	0.84 (21.35)	1.01 (25.36)

MODULAR "FLEX-CLAMP" SYSTEM

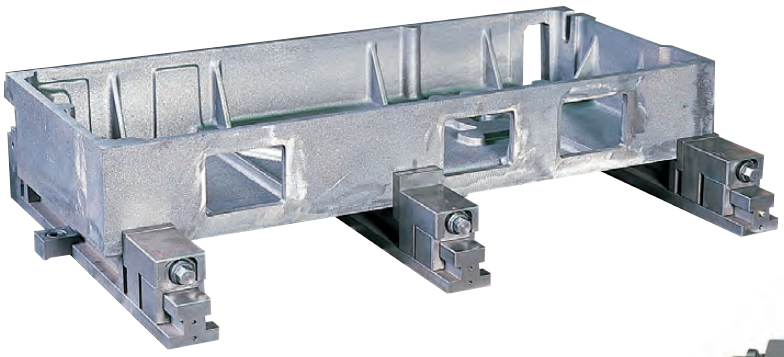
The "Flex-Clamp" system series 680 & 681 has been specifically designed to be used either as a multi-part clamping device, modular fixturing system or flexible jig. Whether your need is for production or prototype, the "Flex-Clamp" is for you.



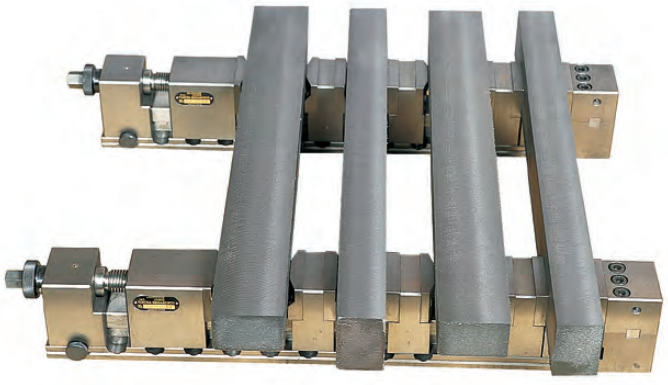
Intermediate block

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.



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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.

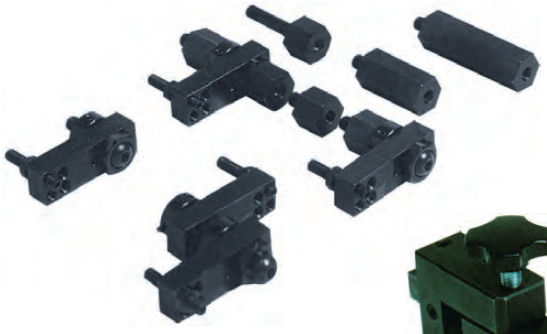
Horizontal application; three Flex-Clamps with multiple intermediate blocks.

FLEX-CLAMP FEATURES:

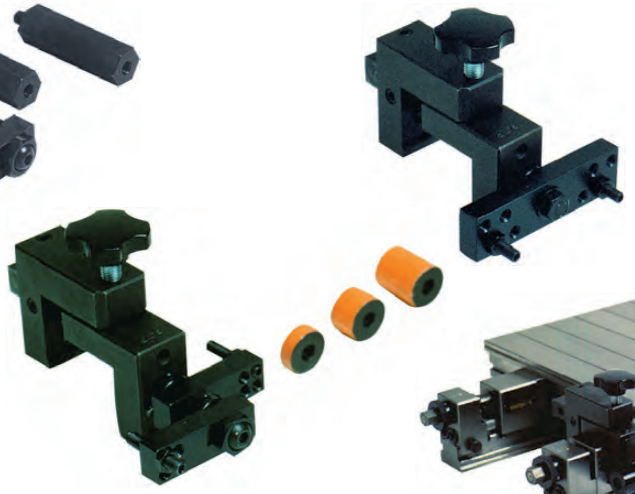
- The Flex-Clamp provides twice the clamping force of conventional vises.
- Jaws are narrow, ensuring even clamping pressure the full width of the jaw.
- Dual moveable jaw locating pins (both sides) offering maximum stability enabling greater clamping force.
- Full utilization of machines X and Y axes.
- 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

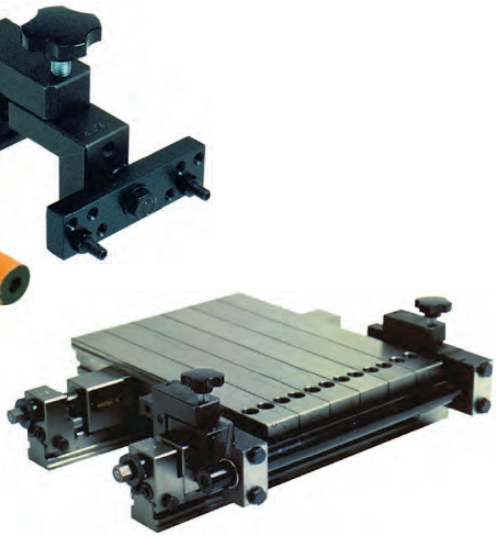
An wide variety of work stops are available for all the FLEX-CLAMP vises. Below are just a few examples.



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

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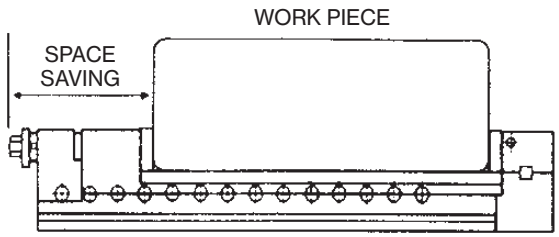
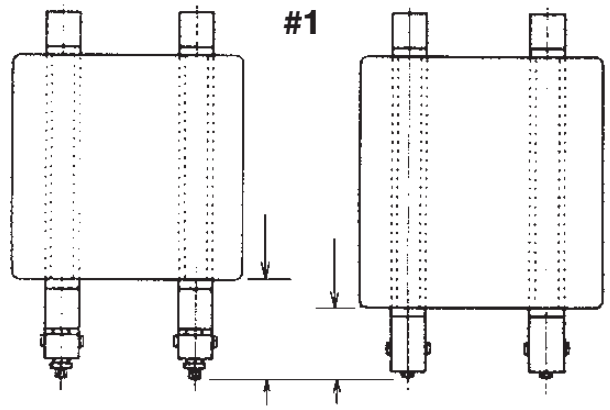
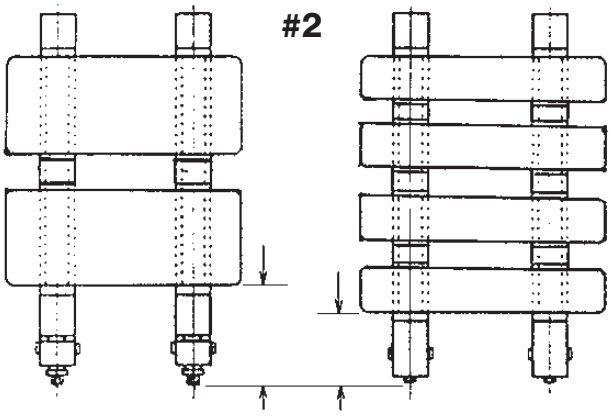
FLEX-CLAMP



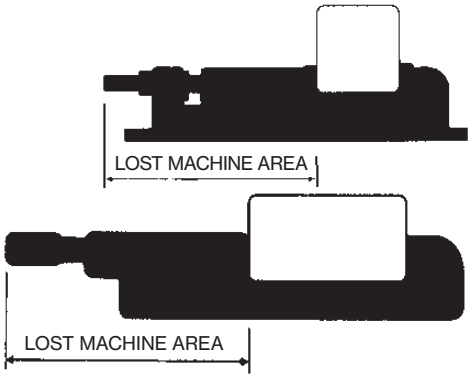
This side view shows the Flex-Clamp providing 50% more clamping area than standard milling vises.



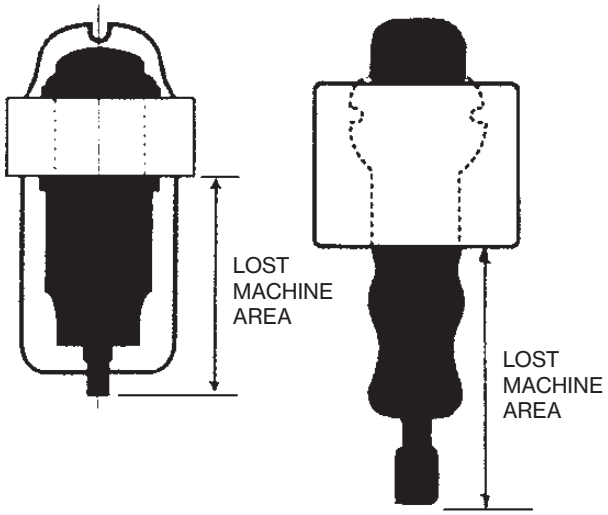


Top view (#1) indicates how the narrow width of the Flex-Clamp body allows for full utilization of the CNC machine's X axis. Illustration #2 shows the use of intermediate blocks holding multiple workpieces, providing full use of the machine's Y axis.

STANDARD MILLING VISE



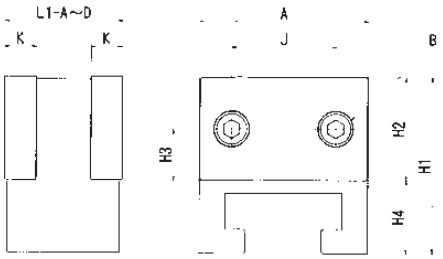
As you can see in this illustration, over 80% of the overall space used by a conventional vise is the vise body itself leaving only 20% for actual part capacity.



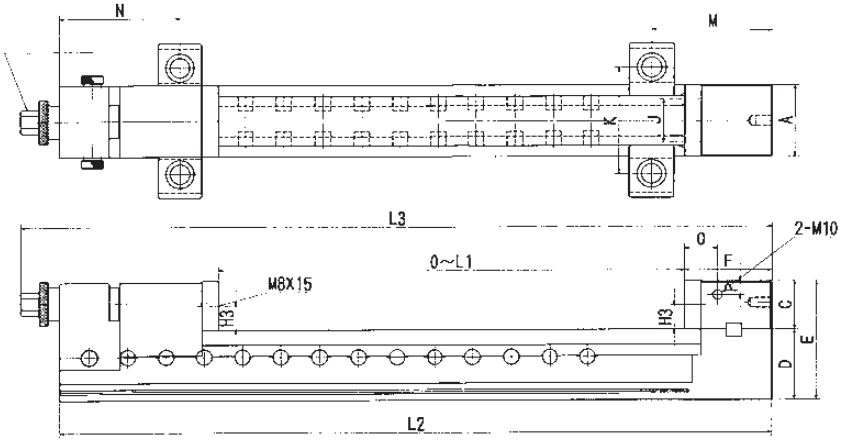
As you can see, the large width of the vise body reduces the machinable travel of the VMC's axis drives. In addition, due to the non-expandability of standard milling vises, large parts cannot be fixtured and special jigs are required.

DIMENSIONAL SPECIFICATIONS:

Intermediate block



Flex-Clamp (680 type)



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

DIMENSIONS (FLEX-CLAMP)

Inch/(mm)

SERIES #	PN#	A	B	C	D	E	F	a	b	c	d	e	J	H3	K	M	N
050	680-030	1.97 (50)	3.74 (95)	1.57 (40)	2.17 +/-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)
	680-040																
	680-050																
065	680-045	2.56 (65)	4.33 (110)	1.77 (45)	2.56 +/-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)
	680-065																
	680-085																
085	680-080	3.35 (85)	4.92 (125)	2.17 (55)	2.76 +/-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)
	680-100																
	680-120																

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

Inch/(mm)

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)

Inch/(mm)

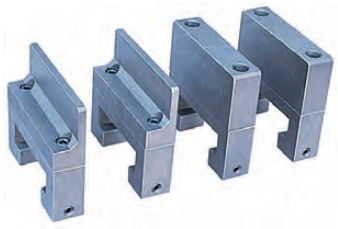
SERIES #	PN#	L1	K	A	J	H1	H2	H3	B	L1-B	L1-C	L1-D
050	680-223	1.77 (45)	0.47 (12) [0.39 (10)]	1.97 (50)	1.26 (32)	2.07 (52.5)	1.38 (35)	0.69 (17.5)	M6	1.57 (40) [0.47 (12]	1.38 (35) [0.39 (10)]	1.18 (30) [0.39 (10)]
065	680-225	1.97 (50)	0.47 (12) [0.39 (10]	2.56 (65)	1.57 (40)	3.25 (82.5)	1.57 (40)	0.79 (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

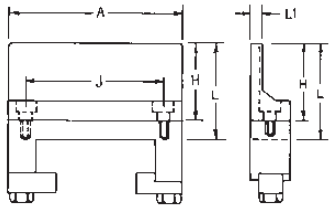
Note: If you choose the "K" dimension with some square brackets [ ], then you may choose either L1-B, L1-C or L1-D dimensions in square brackets. Add a "B", "C" or "D" to the end of the part number, respectively.

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

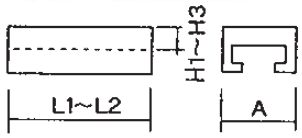
SAUCER FOR WORKPIECE





SERIES #	PN#	H	L	L1	J	A
050	XXX-001	1.06 (27)	1.38 (35)	0.11 (3)	1.38 (35)	1.96 (50)
065	XXX-002	1.30 (33)	1.57 (40)	0.16 (4)	1.96 (50)	2.56 (65)
085	XXX-003	1.57 (40)	1.96 (50)	0.20 (5)	2.56 (65)	3.35 (85)

SAUCER BASE (SLIDING TYPE)

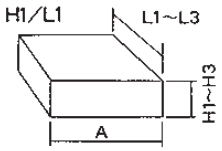


XXX-101	XXX-102	XXX-103	-1	-2	
H1	H2	H3	L1	L2	A
0.31 (8)	0.79 (20)	1.38 (35)	3.94 (100)	5.51 (140)	1.96 (50)
0.39 (10)	0.98 (25)	1.73 (44)	4.33 (110)	5.91 (150)	2.56 (65)
0.47 (12)	0.98 (25)	1.77 (45)	4.33 (110)	5.91 (150)	3.35 (85)

Specify length (-1, -2)

SAUCER PLATE (SLIDING TYPE)

Inch/(mm)



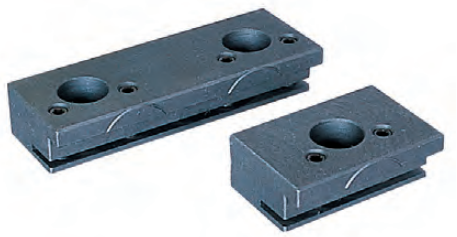
XXX-201	XXX-202	XXX-203	-1	-2	-3	
H1	H2	H3	L1	L2	L3	A
0.59 (15)	0.79 (20)	1.18 (30)	2.36 (60)	3.94 (100)	5.51 (140)	1.96 (50)
0.59 (15)	0.98 (25)	1.38 (35)	3.15 (80)	4.33 (110)	5.91 (150)	2.56 (65)
0.59 (15)	1.18 (30)	1.57 (40)	3.15 (80)	4.33 (110)	6.10 (155)	3.35 (85)

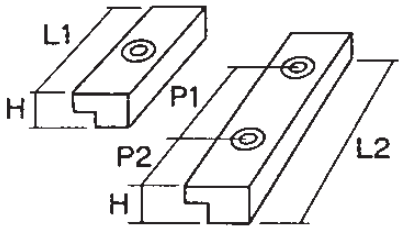
Specify length (-1, -2, -3)

NOTE:
(XXX) = Series number (see pg. #68)

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.

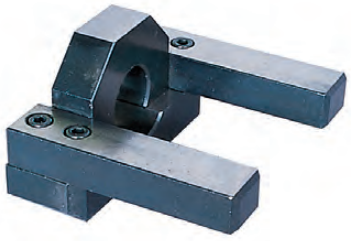
CLAMP BLOCK FOR SLIDING FLEX-CLAMP



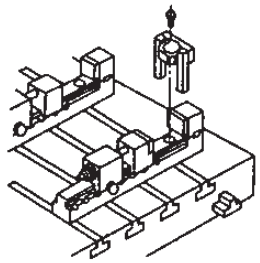


SERIES #	XXX-301	N/A	XXX-302			
	L1	B	L2	P1	P2	H
050	2.56 (65)	M12	5.51 (140)	3.94 (100)	0.79 (20)	0.94 (24)
065	3.15 (80)	M16	5.91 (150)	3.94 (100)	0.98 (25)	1.08 (27.5)
085	3.15 (80)	M16	5.91 (150)	3.94 (100)	0.98 (25)	1.08 (27.5)

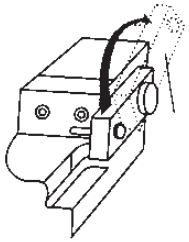
SPECIAL JIG FOR FLEX-CLAMP POSITIONING



Overall height
H1~H5



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

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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.

XXX-840
Flat Type

XXX-841
Serrated Step

XXX-842
Half Serrated Step

XXX-843
Half Serrated (for special shaped parts)

XXX-844
All Serrated
(for special shaped parts)

XXX-845
All Serrated

XXX-846
Stepped Type

XXX-847
Stepped Type

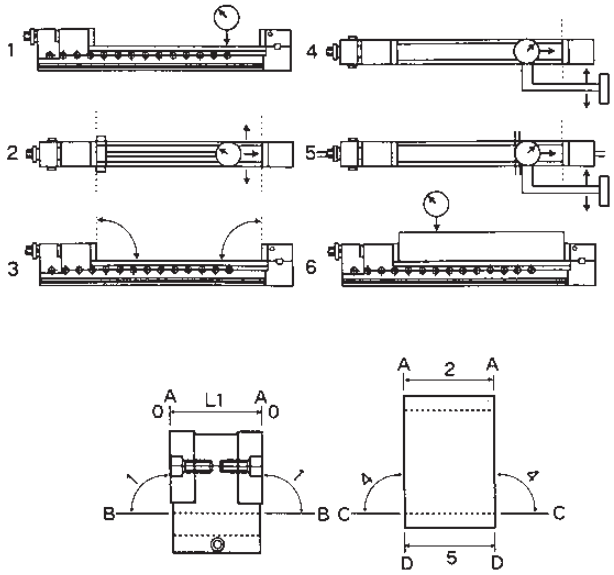
XXX-848
Flexible Type

XXX-849
Serrated Step Type
(for special shaped parts)

NOTE: (XXX) = Series number (see pg. #68)

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)

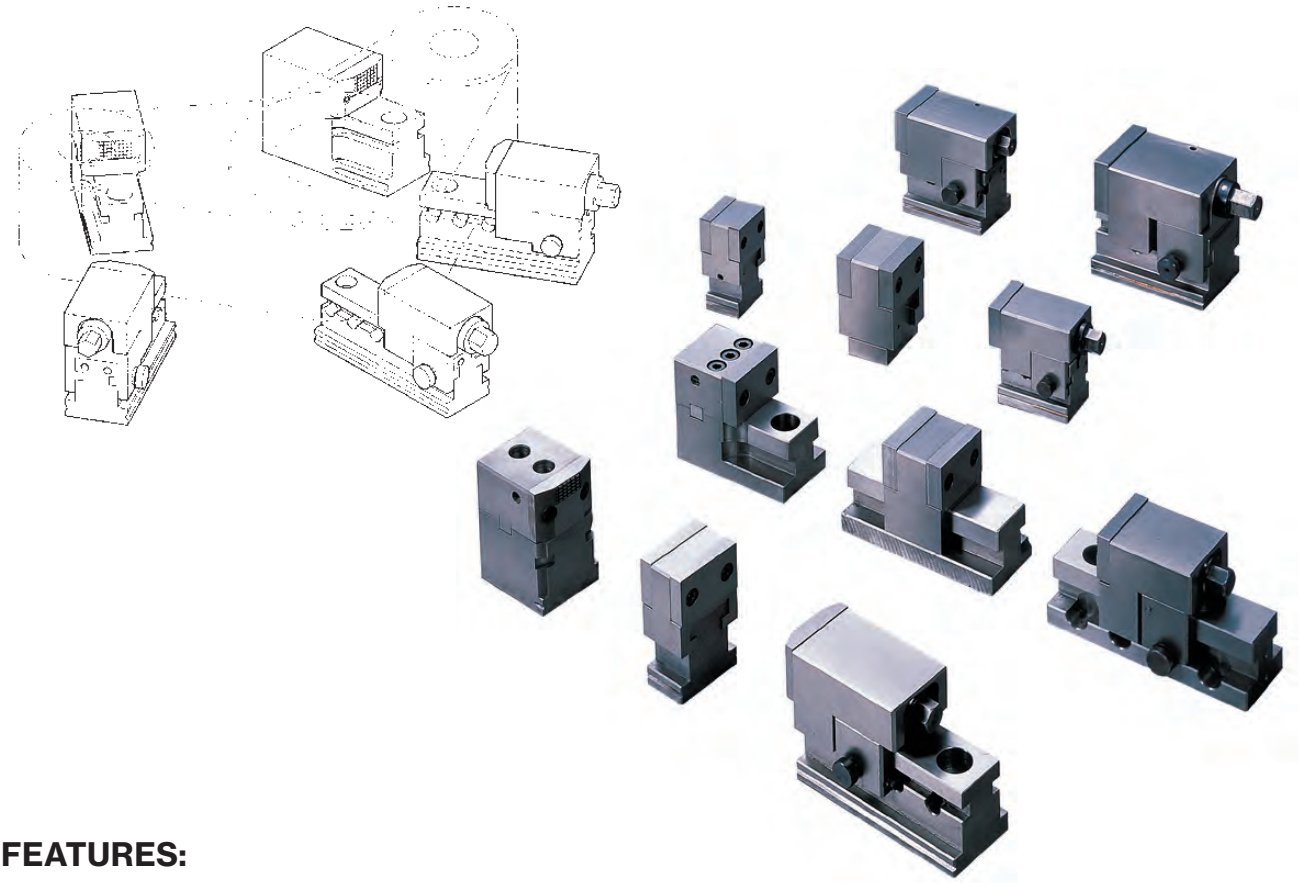
FLEX-CLAMP PRECISION DATA

Inch/(mm)

			STANDARD	PARALLEL	CLAMPING FORCE	MATERIAL USED
FLEX-CLAMP TYPE	HEIGHT OF UPPER SURFACE	PRECISION	A & B	A' & B'		
680-030/040/050	2.17 (55)	+/-0.0004 (+/-0.010)	0~+0.0004 (0~+0.010)	0~+0.0002 (0~+0.006)	11,000 lbs. (800 kg/cm2)	High strength Meehanite hardened and ground to rigid standards
680-045/065/085	2.56 (65)	+/- 0.0004 (+/-0.010)	0~+0.0004 (0~+0.010)	0~+0.0002 (0~+0.006)		
680-080/100/120	2.76 (70)	+/- 0.0006 (+/-0.015)	0~+0.0006 (0~+0.015)	0~+0.0002 (0~+0.006)		

MODULAR FLEX-CLAMP SYSTEM 681 TYPE

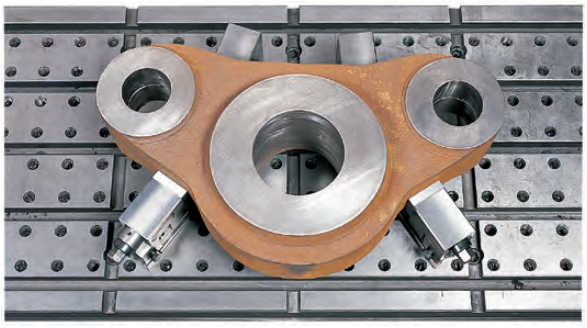
The 681 series employs individual movable, intermediate, and fixed jaws which can be positioned at any point of contact with the work piece. This truly modular approach to fixturing allows these reusable components to be used as a jig (for odd shaped parts), set in such a fashion as to hold many small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



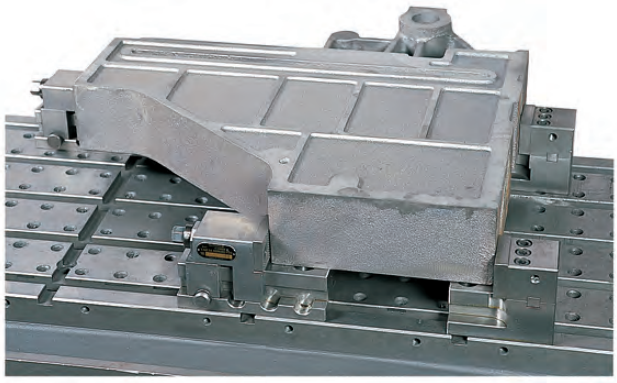
FEATURES:

- 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.

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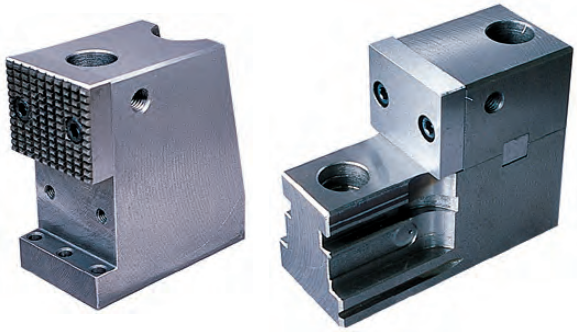
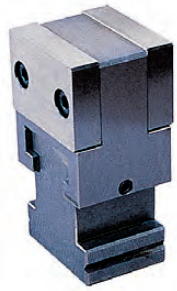
681 TYPE FLEX-CLAMP

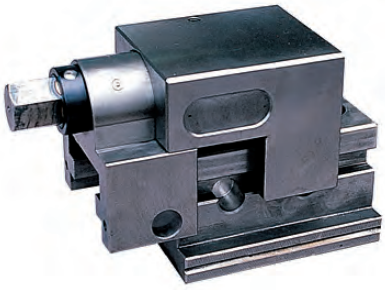
STATIONARY BLOCKS

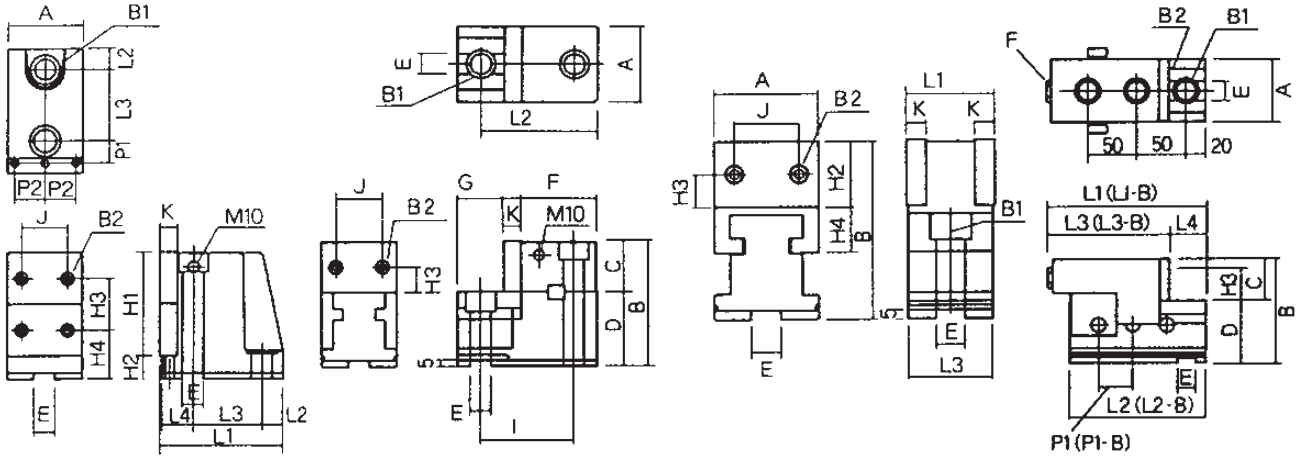


MIDDLE BLOCK



MOVABLE BLOCK





Inch/(mm)

PN#	681-050	681-065	681-085
L1	3.54 (90)	4.09 (104)	4.69 (119)
L2	0.51 (13)	0.79 (20)	1.38 (35)
L3	1.97 (50)	1.97 (50)	1.97 (50)
A	1.97 (50)	2.56 (65)	3.35 (85)
L4	0.91 (23)	1.26 (32)	1.26 (32)
H1	3.15 (80)	3.54 (90)	4.33 (110)
H2	0.59 (15)	0.79 (20)	0.59 (15)
H3	1.57 (40)	1.77 (45)	2.17 (55)
H4	0.79 (20)	0.86 (22.5)	1.08 (27.5)
E	0.55 (14)	0.71 (18)	0.71 (18)
J	1.26 (32)	1.57 (40)	1.97 (50)
B1	M12	M14	M16
K	0.47 (12)	0.59 (15)	0.59 (15)
B2	M6	M8	M8
L5	0.79 (20)	1.57 (40)	1.97 (50)
P1	0.71 (18)	1.10 (28)	0.98 (25)
P2	0.79 (20)	0.98 (25)	1.38 (35)

PN#	681-150	681-165	681-185
L1	4.72 (120)	5.71 (145)	5.71 (145)
L2	3.54 (90)	4.72 (120)	4.72 (120)
A	1.97 (50)	2.56 (65)	3.35 (85)
F	2.76 (70)	3.15 (80)	3.94 (100)
G	1.57 (40)	1.77 (45)	1.77 (45)
E	0.55 (14)	0.71 (18)	0.71 (18)
B	3.74 (95)	4.33 (110)	4.92 (125)
D	2.17 (55)	2.56 (65)	2.76 (70)
C	1.57 (40)	1.77 (45)	2.17 (55)
I	2.95 (75)	3.94 (100)	3.94 (100)
L2B	N/A	N/A	N/A
I-B	N/A	N/A	N/A
G-B	N/A	N/A	N/A
K	0.47 (12)	0.59 (15)	0.59 (15)
H3	0.79 (20)	0.86 (22.5)	1.08 (27.5)
B1	M12	M14	M16
B2	M6	M8	M8

PN#	681-250	681-265	681-285
L1	1.77 (45)	2.17 (55)	2.56 (65)
K	0.39 (10)	0.47 (12)	0.47 (12)
L3	1.57 (40)	2.09 (53)	2.48 (63)
E	0.55 (14)	0.71 (18)	0.71 (18)
A	1.97 (50)	2.56 (65)	3.35 (85)
J	1.26 (32)	1.57 (40)	1.97 (50)
B2	M6	M8	M8
B	3.74 (95)	4.33 (110)	4.92 (125)
H2	1.38 (35)	1.57 (40)	1.97 (50)
H3	0.69 (17.5)	0.79 (20)	0.98 (25)
L1-B	1.57 (40)	1.77 (45)	2.17 (55)
L1-C	1.38 (35)	1.38 (35)	1.77 (45)
L1-D	1.18 (30)	1.18 (30)	
L3-B	5.12 (130)	5.12 (130)	8.27 (210)
B-1	M12	M16	M16

PN#	681-350	681-365	681-385
L1	6.38 (162)	6.50 (165)	9.49 (241)
L2	5.39 (137)	5.51 (140)	8.03 (204)
L3	4.09 (104)	4.84 (123)	6.69 (170)
L4	2.28 (58)	1.65 (42)	2.76 (70)
A	1.97 (50)	2.56 (65)	3.35 (85)
D	2.17 (55)	2.56 (65)	2.76 (70)
B1	M12	M14	M16
C	1.57 (40)	1.77 (45)	2.17 (55)
E	0.55 (14)	0.71 (18)	0.71 (18)
F	M19	M19	M24
L2-B	3.54 (90)	4.33 (110)	4.92 (125)
L3-B	4.02 (1.02)	4.33 (110)	5.67 (144)
L1-B	3.78 (96)	4.41 (112)	5.55 (141)
P-1	0.98 (25)	1.38 (35)	1.77 (45)
P1-B	0.59 (15)	0.79 (20)	0.98 (25)
H3	0.79 (20)	0.89 (22.5)	1.08 (27.5)
B	3.74 (95)	4.33 (110)	4.92 (125)

UNIVERSAL 3-WAY ANGLE VISE

YUASA

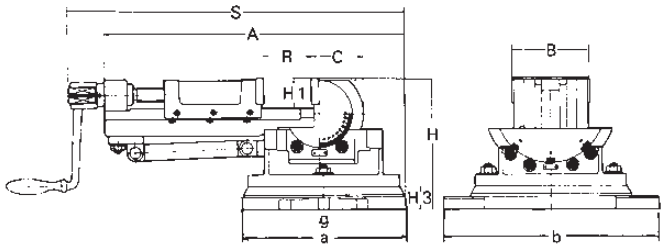
550 series

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 45º 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 1º increments (360º).

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.

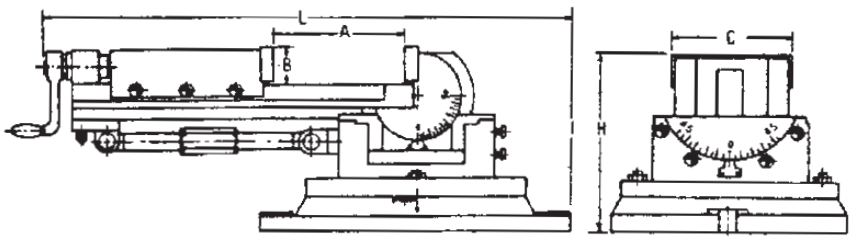


MODEL	B	R	H1	S	A	C	g	H	a x b	H3	WEIGHT lbs (kg)
550-060	3.16 (80)	3.63 (92)	1.19 (30)	15.75 (400)	14.38 (365)	2.27 (58)	0.55 (14)	5.67 (144)	7.02 x 9.22 (178 x 234)	1.11 (28)	32 (15)
550-061	4.14 (105)	4.33 (110)	1.58 (40)	19.17 (487)	17.25 (438)	2.66 (67)	0.55 (14)	6.77 (172)	8.73 x 11.42 (222 x 290)	1.19 (30)	65 (30)
550-062	5.13 (130)	5.83 (148)	2.05 (52)	23.81 (605)	21.77 (553)	3.19 (81)	0.66 (17)	8.03 (204)	9.84 x 12.83 (250 x 326)	1.30 (33)	96 (44)

SPECIFICATIONS	MAXIMUM VARIATION inch/(mm)
Jaw parallelism	.0008 (0.02)
Sliding surface to jaw plate squareness	.0008 (0.02)
Swiveling surface to base parallelism	.0008 (0.02)

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.



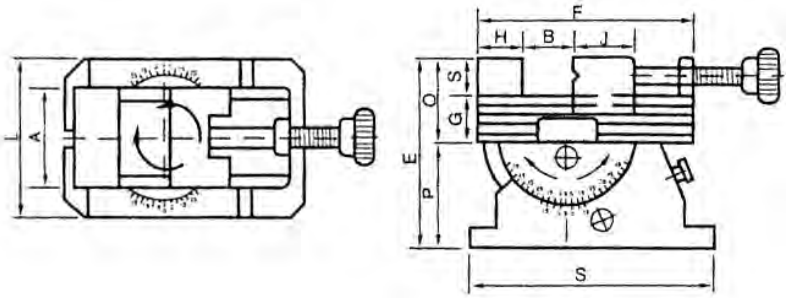
Inch/(mm)

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)	42.60 (625)	23.23 (590)	(W)50	1.6

YUASA

PRECISION UNIVERSAL ANGLE VISE

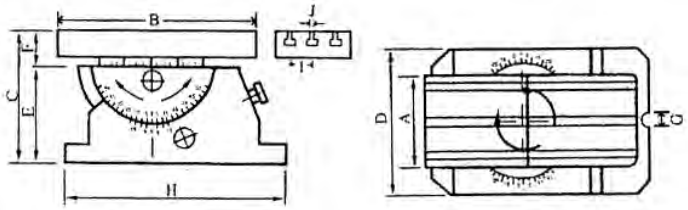
1. Precision ground vise surfaces for a squareness to within 0.005m/m
2. Horizontal swivel is a full 360 degrees.
3. Vertical positioning from 0 to 45 degrees.
4. Both tilt and rotary graduations for accurate positioning.
5. These features make it ideal for unusual angles on parts.
6. Rigged design for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



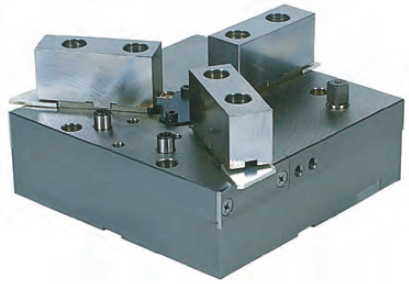
MODEL NUMBER	A	B	C	D	E	F	G	H	I	J	N.W. lb./(kg)
595-171	3.94 (100)	7.87 (200)	1.14 (29)	4.92 (125)	2.95 (75)	1.97 (50)	.063 (16)	7.09 (180)	1.18 (30)	0.47 (12)	31 (14)
595-172	4.96 (126)	9.84 (250)	4.92 (125)	4.33 (110)	2.95 (75)	1.97 (50)	0.63 (16)	7.09 (180)	1.57 (40)	0.47 (12)	35.4 (16)

MACHINING CHUCK

YUASA

FEATURES:

- 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 #76) 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. #76), and mounted on a sub plate.
- Three sizes available, 6.30” (160mm) (Y-160); 7.87” (200mm) (Y-200); 11.81” (300mm) (Y-300.)

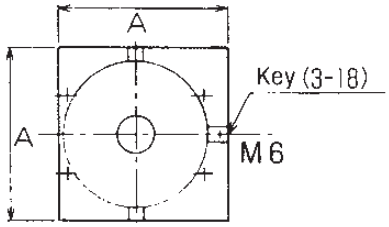


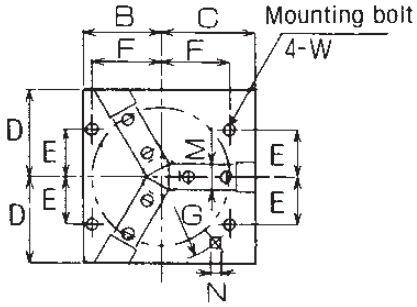
Y-200

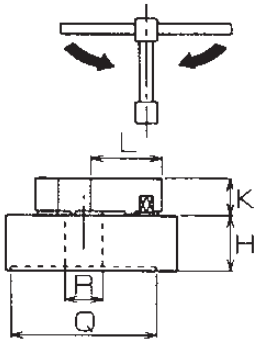
Inch/(mm)

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







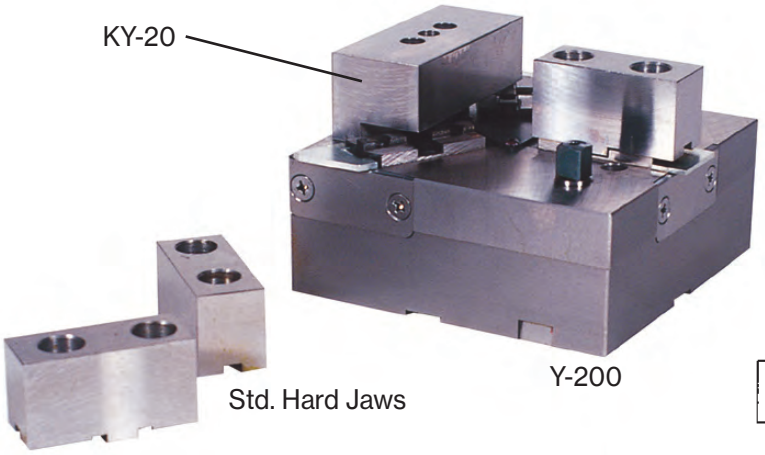
SPECIAL NOTE: All Machining Chucks incorporate a machined keyway in the chuck base for easy locating and mounting to the machine table.

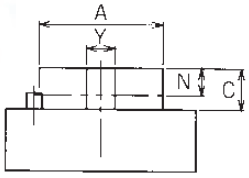
BODY DIMENSIONS										MOUNTING BOLT		
MODEL	A	B	C	D	H	R	Q	N	G	E	F	W
Y-160	6.30 (160)	2.76 (70)	3.54 (90)	3.14 (80)	2.56 (65)	1.30 (32.5)	4.59 (116.5)	0.47 (12)	2.99 (76)	0.83 (21)	2.48 (63)	M6
Y-200	7.87 (200)	3.54 (90)	4.33 (110)	3.94 (100)	2.56 (65)	1.77 (45)	6.70 (170)	0.47 (12)	3.90 (99)	1.77 (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

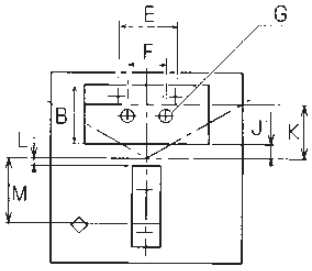
YUASA

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 making the machining chuck a truly modular chuck/vise in one fixture.







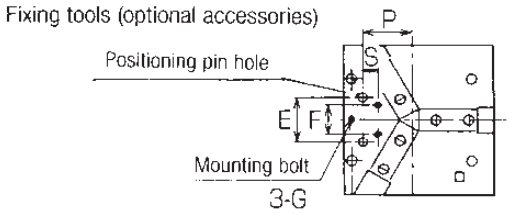
OPTIONAL FIXED JAW

Inch/(mm)

PN#	MODEL	A	B	C	D	E	F	H	G	N	Y	MIN J	MAX K	MIN L	MAX M
KY-16	for Y-160	3.94 (100)	1.77 (45)	1.61 (41)	1.18 (30)	2.76 (70)	1.18 (30)	0.39 (10)	2-M8	0.71 (18)	1.18 (30)	0.79 (20)	1.57 (40)	0.39 (10)	2.56 (65)
KY-20	for Y-200	5.12 (130)	2.44 (62)	1.69 (43)	1.65 (42)	2.35 (60)	1.57 (40)	0.79 (20)	2-M8	0.79 (20)	1.18 (30)	0.59 (15)	1.97 (50)	0.39 (10)	2.76 (70)
KY-30	for Y-300	6.30 (160)	4.53 (115)	2.13 (54)	2.28 (58)	2.35 (60)	4.72 (120)	0.79 (20)	3-M10	1.38 (35)	1.77 (45)	0.59 (15)	3.94 (100)	0.51 (13)	4.72 (120)

FIXED JAW MOUNTING DIMENSIONS

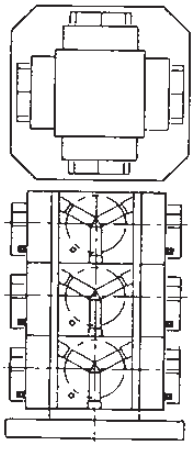
MODEL	E	F	S	P	G
Y-160	2.76 (70)	1.18 (30)	0.39 (10)	2.09 (53)	M6
Y-200	2.35 (60)	1.57 (40)	0.79 (20)	2.56 (65)	M8
Y-300	2.35 (60)	4.72 (120)	0.79 (20)	4.13 (105)	M10



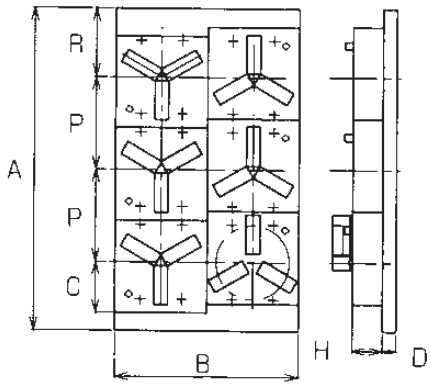
MACHINING CHUCKS CAN BE LINKED

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)

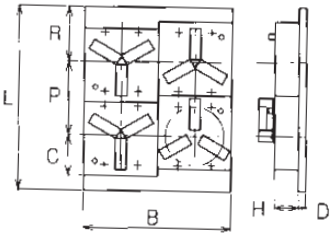


6-vise type (6P-Y160 · 6P-Y200)



Y-200 (4 ea.)

4-vise type (4P-Y160 · 4P-Y200)



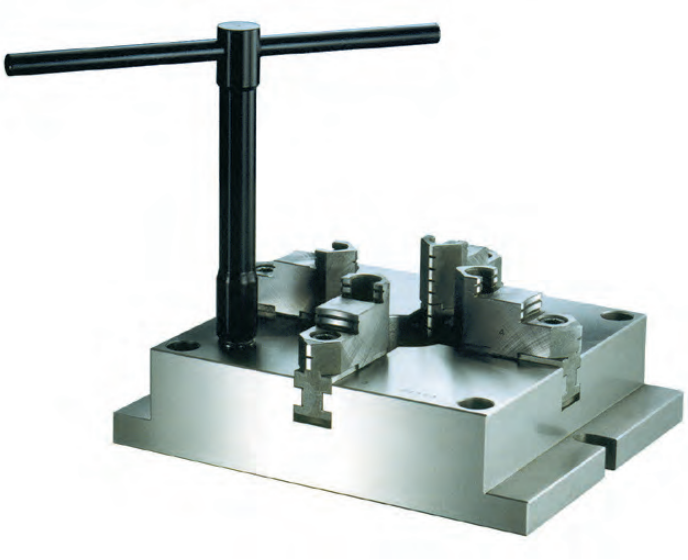
Inch/(mm)

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

YUASA

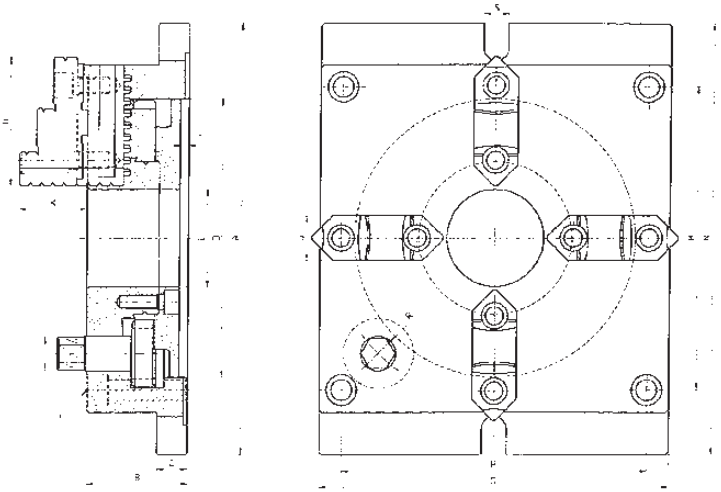


FEATURES:

- 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

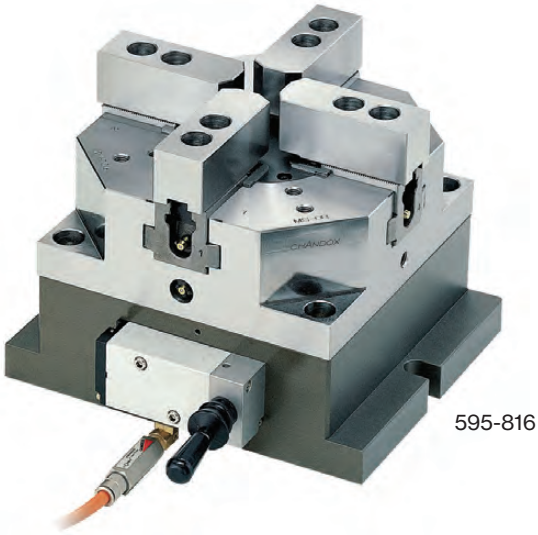
SPECIFICATIONS:

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

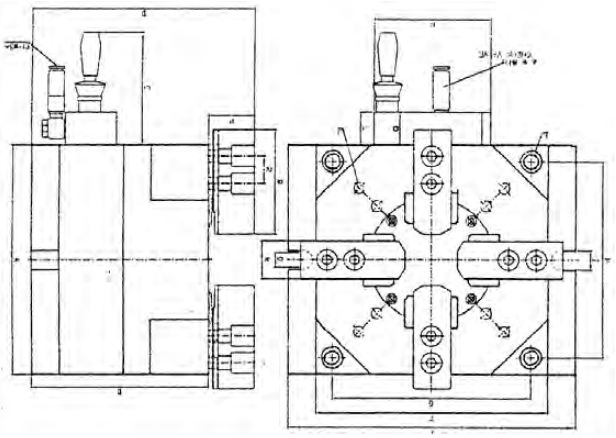


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	MAX. DIA. GRIPPED	
																		EXTERNAL	INTERNAL
595-806	8.46 (125)	22.24 (57)	0.71 (18)	5.12 (130)	1.57 (40)	0.20 (5)	4-M10	2.68 (68)	1.02 (26)	1.54 (39)	0.55 (14)	5.67 (144)	6.50 (165)	5.67 (144)	6.50 (165)	3.00 (66)	0.71 (18)	0.16~5.04 (4~128)	2.17~5.04 (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 equilateral 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

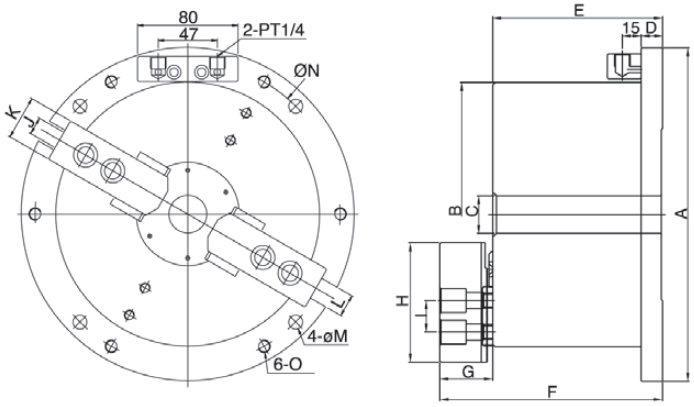
SPEC / MODEL	K	L	M	N	0	P	Q	R
595-816	4-M10	1.02 (26)	3.46 (88)	1.22 (31)	0.47 (12)	1.53 (39)	2.87 (73)	0.787 (20)
595-818	4-M12	1.18 (30)	4.17 (106)	1.38 (35)	0.55 (14)	1.65 (42)	3.74 (95)	0.984 (25)
595-820	4-M16	1.18 (30)	4.17 (106)	1.57 (40)	0.63 (16)	1.81 (46)	4.33 (110)	1.18 (30)

Piston Area (cm²)						
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)	4.25 (108)	4.6 (117)	0.47 (12)	0.216 (5.5)
595-818	7.24 (184)	6.18 (157)	1.18 (30)	6.65 (169)	0.63 (16)	0.29 (7.4)
595-820	10.6 (270)	9.41 (239)	1.18 (30)	9.49 (241)	0.75 (19)	0.346 (8.8)

SPEC / MODEL	Gripping Force(kg) (Air Press 6kg/cm2)	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

YUASA



OPTIONAL ACCESSORIES

- Pneumatic solenoid valve
- Hard jaws
- Air filter lubricator

OPERATING SPECS:

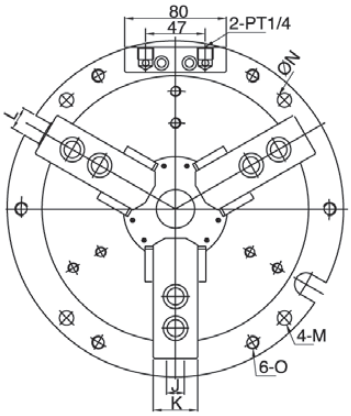
- Internal type cylinder which provides better stability, greater efficiency, takes less space and needs less maintenance
- Chuck body made of chrome alloy steel and hardened guides for high precision and wear resistant performance
- Can be integrated to CNC via m-code function to enable auto loading 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

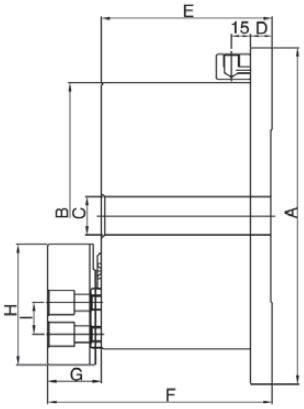
SPEC/MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
595-835	176	135	-	15	95	128	33	62	14	10	25	13	Ø13	Ø157	M8
595-836	224	169	25	16	118	158	40	73	20	12	31	18	Ø13	Ø202	M10
595-838	265	210	30.1	17	135	177	42	95	25	14	35	18	Ø13	Ø243	M10
595-840	315	254	60	17	145	191	46	110	30	16	40	18	Ø13	Ø285	M12

SPEC/MODEL	Piston Area ft² (cm²)	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/cm²)	GrippingForce(kg) (Air Press 6kg/cm²)	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





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)	130 (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 chrome 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 ft²(cm²)	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

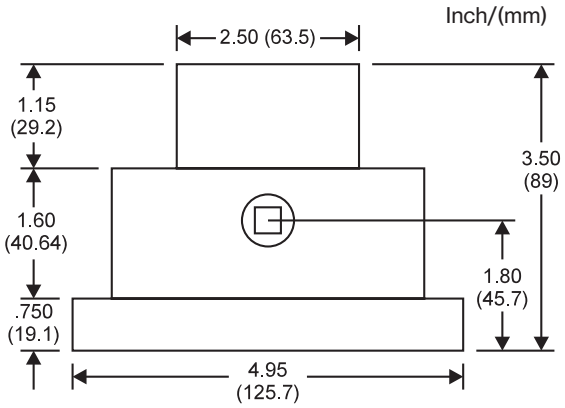
MODEL	Max. Pressure Setting psi (Kg/cm²)	Gripping Force (kgf) (air press. 6kg/cm²)	Gross Weight lbs. (kg)	Gripping Range
595-855	241.6 (17)	1300	27.3 (12.4)	12-135
595-856	270 (19)	1800	50.7 (23)	15-169
595-858	284 (20)	2800	84.9 (38.5)	20-210
595-860	284 (20)	3700	127.9 (58)	33-254

COLLET CHUCKS

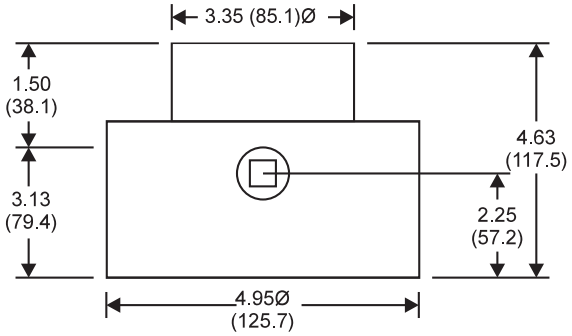
MANUAL TYPE FOR 5C, 16C, 3J & 22J COLLETS

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.)

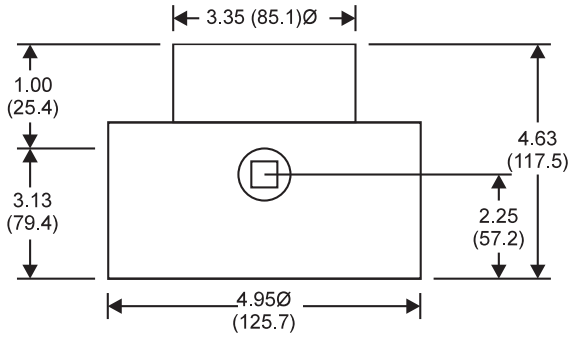
5C style chuck (PN# ACSU-5C)



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.

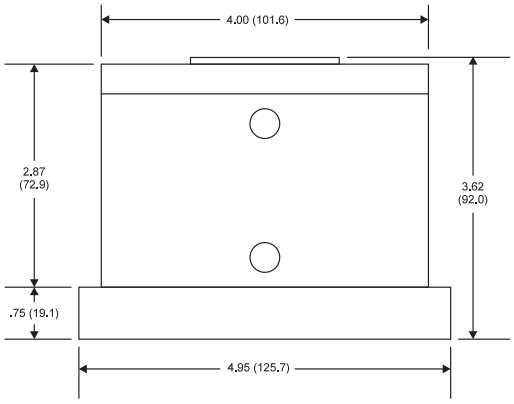
GENERAL INFORMATION
Air Operated (High Torque) for 5C, B42 & B60 Collets

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

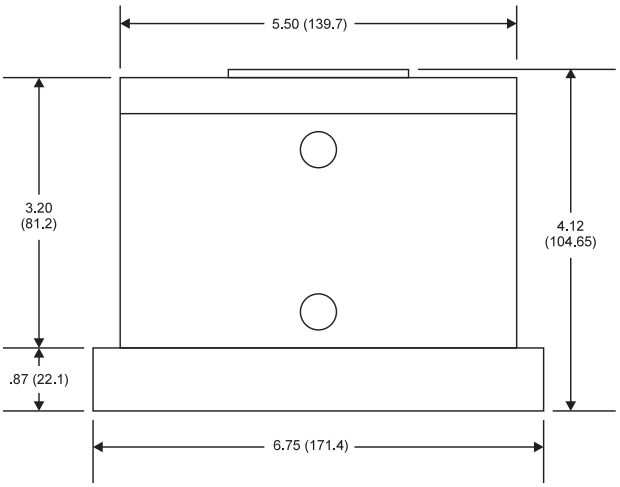
This high torque stationary 5C air collet closer is designed for use on milling, drilling and tapping operations. It can be utilized as single units, or mounted to a plate for multiple operations. They use from 50~100 PSI, depending on the holding power necessary for a particular application.

Inch/(mm)



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.



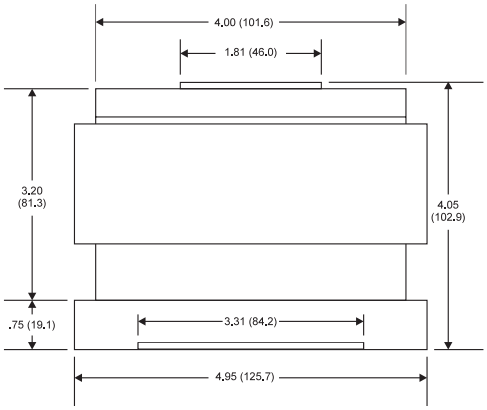
Inch/(mm)

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.

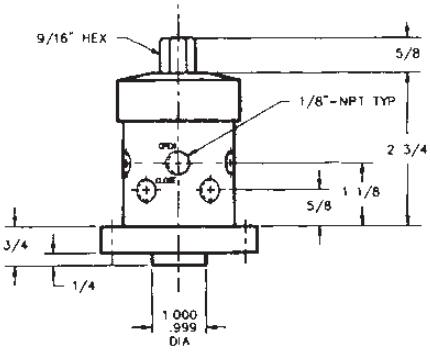
AIR COLLET CLOSER FOR ROTARY TABLE APPLICATIONS (See DMNC) MODEL #ACSU-5CA

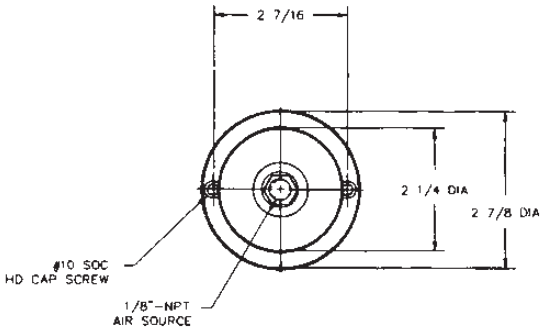
This front mounted 5C air operated collet chuck may be used for rotary table and single station applications. The rotary gland remains in place while the air cylinder rotates. This unit comes complete with air valve hoses, fittings and a collet wrench. Note: for use on a DMNC rotary table, a collet chuck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

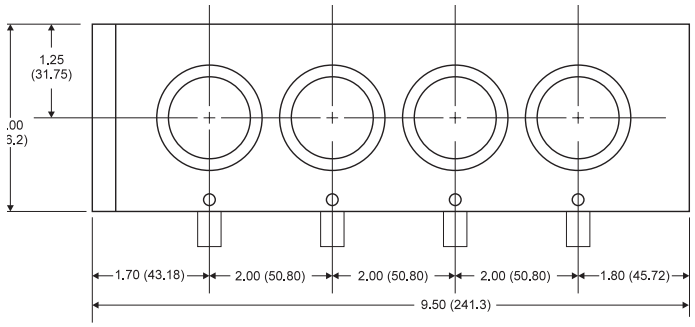
2 & 3 station blocks also available.

The PN# 640-404 Multi Collet Chuck Block was designed to be used either with a rotary indexer 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.

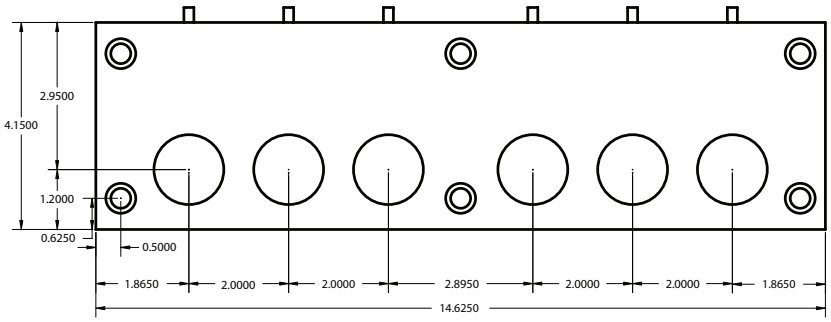
We now offer our 5C Multi-Collet Blocks in 6 and 8 station. These new models feature the same "dead length" style by use of a cam collapsing the collet sleeve with a simple 90º turn, as in the 4-station block.

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.

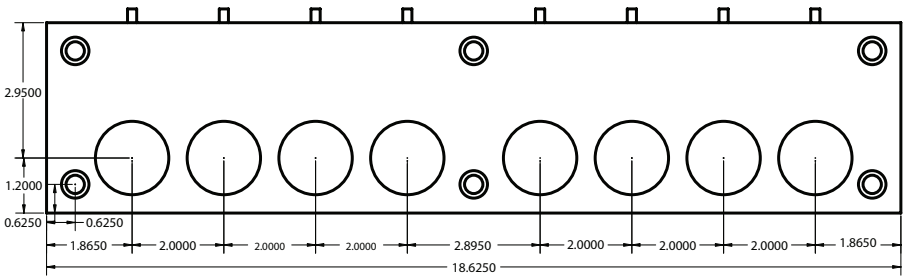


640-404



640-406

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)



640-408

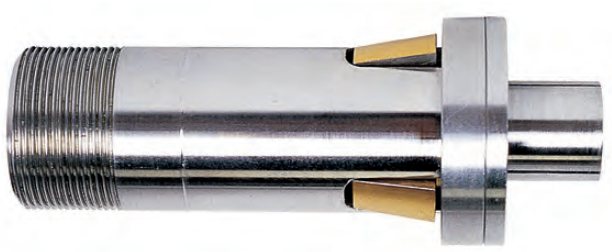
5C & 16C COLLET EXPANDING MANDRELS

DEAD LENGTH TYPE

YUASA

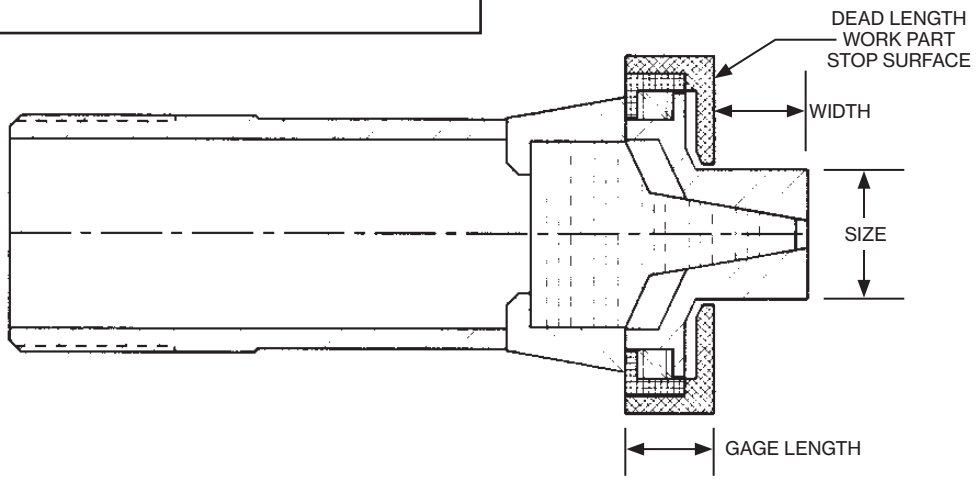
OPERATION OF EXPANDING MANDRELS

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
400-400	.250-.374	5.250	0.250	0.468
400-401	.375-.499	5.375	0.375	0.468
400-402	.500-.624	5.500	0.500	0.468
400-403	.625-.749	5.625	0.625	0.468
400-404	.750-.874	5.750	0.750	0.468
400-405	.875-.999	5.875	0.875	0.468
400-406	1.00-1.124	6.000	1.000	0.468
400-407	1.125-1.249	6.125	1.125	0.468
400-408	1.250-1.374	6.250	1.250	0.468
400-409	1.375-1.499	6.375	1.375	0.468
400-410	1.500-1.624	6.500	1.500	0.468
400-411	1.625-1.749	6.625	1.625	0.468
400-412	1.750-1.874	6.750	1.750	0.468
400-413	1.875-1.999	6.875	1.875	0.468
400-414	2.000-2.124	7.000	2.000	0.468

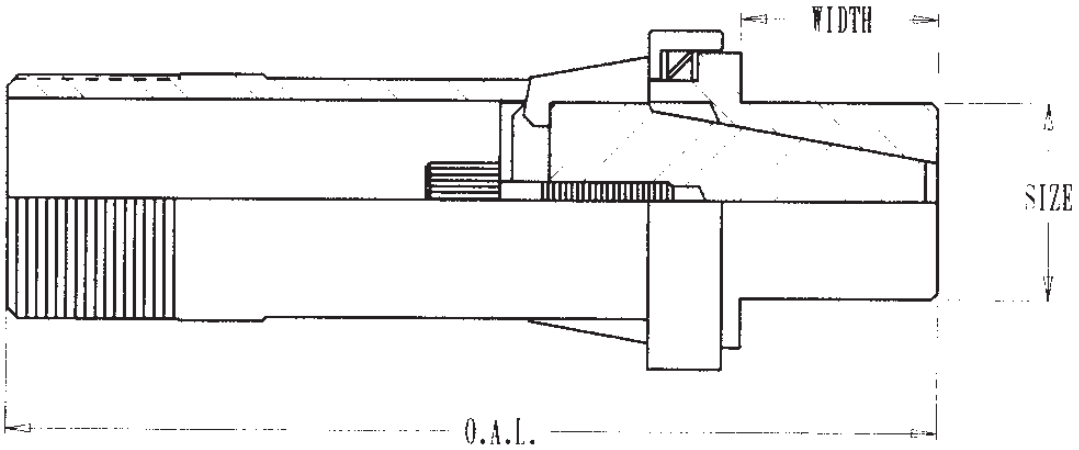
5C & 16C COLLET EXPANDING MANDRELS

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

ACCU-CHUCK®

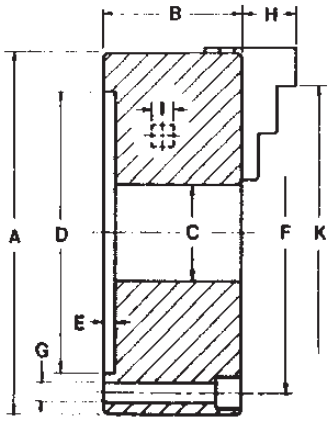
585-108

CENTER ADJUSTMENT

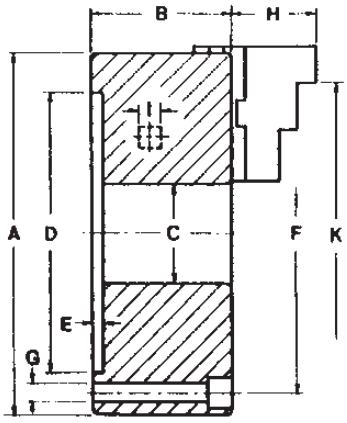
Screws with pressure plugs are located around the O.D. of the chuck to center the Accu-Chuck either on the Accu-Flange plate (lathe operation) or the DMNC or DRFT chuck adapter plate, enabling chuck runout to 0.0005" (0.01mm) T.I.R.

The Accu-Chuck may be used as a precision adjustable lathe chuck (when used with an Accu-Flange plate (see page #88) or as a 3-jaw workholding chuck when mounted to one of our DMNC or DRFT rotary tables (see CNC ROTARY PRODUCTS section.)

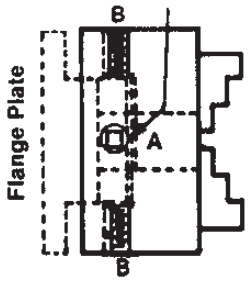
585-004, 005



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

585 series

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 form 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)

	SPECIFICATIONS			
	MODEL	SPINDLE	DIAMETER	WEIGHT lbs (kg)
"D1" SPINDLE	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)

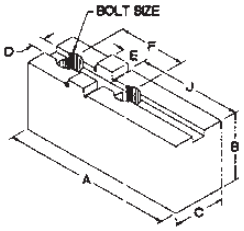
	SPECIFICATIONS			
	MODEL	THREAD SIZE	DIAMETER	WEIGHT (lbs)
THREADED SPINDLE	586-604	1 1/2"-8 TPI	4"	3
	586-605	1 1/2"-8 TPI	5"	4
	586-606	1 1/2"-8 TPI	6"	7
	586-616	2 1/4"-8 TPI	6"	7
	586-628	2 1/4"-8 TPI	8"	11
	586-630	2 1/4"-8 TPI	10"	24

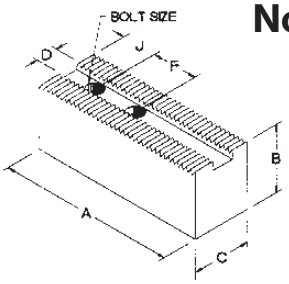
MODEL	CHUCK DIAMETER	TYPE OF JAW	WEIGHT lbs (kg)
585-004*	4 (102)	Solid Jaw	6 (2.7)
585-005	5.25 (133)		11 (5)
585-106	6.50 (165)	Top Reversible Jaw	19 (8.6)
585-108	8.25 (209)		35 (15.9)
585-110	10.75 (273)		71 (32.2)
585-112	12.25 (311)		91 (41.3)

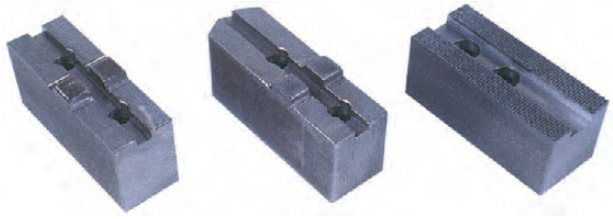
	SPECIFICATIONS			
	MODEL	SPINDLE	DIAMETER	WEIGHT (lbs)
"A1" SPINDLE	586-106	A1-5	6"	7
	586-108	A1-5	8"	11
	586-110	A1-5	10"	24
	586-118	A1-6	8"	11
	586-120	A1-6	10"	22
	586-122	A1-6	12"	32
	586-130	A1-8	10"	24
	586-132	A1-8	12"	32

CHUCK SOFT JAWS

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







Tongue & Groove Serrated

AMERICAN STANDARD TONGUE & GROOVE

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 12" 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
B-15 KITAGAWA B-18 (NEW)	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
	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
B-215 KITAGAWA	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
	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

YUASA

510 Series

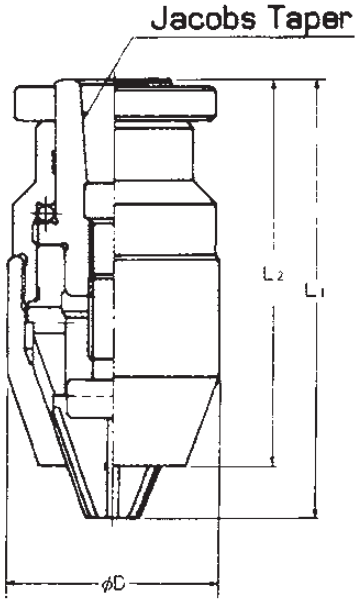
KEYLESS ACCU-DRILL CHUCKS

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.

FEATURES:

- High accuracy and long life jaws. Max. run-out: 0.0016" (0.04mm). Sub-zero treatment (remove remaining autenite) 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.

Dimensions

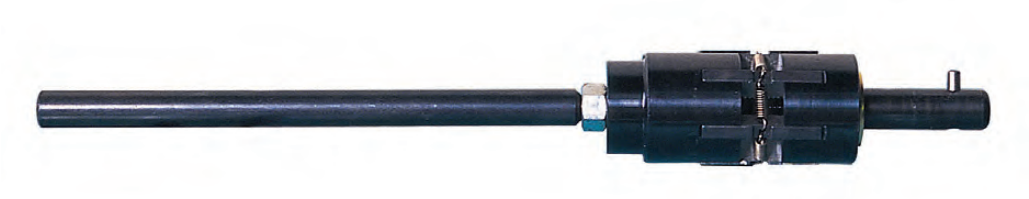


ORDER NO.	MODEL NO.	ALBERECHT EQUIV. NO.	CAPACITY INCHES	CAPACITY mm	WEIGHT LBS	WEIGHT OZ	DIM INCH (mm) D	DIM INCH (mm) L1	DIM INCH (mm) L2
510-101	LC3-J0	30-J0	1/8	0.3 - 3	0	3.5	0.94 (24)	1.89 (48)	1.73 (44)
510-102	LC3-J1	30-J1	1/8	0.3 - 3	0	3.5	0.94 (24)	1.89 (48)	1.73 (44)
510-103	LC6.5-J1	65-J1	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

YUASA

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.



PN#	SPINDLE I.D. RANGE
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"

INSTALLATION:

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

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

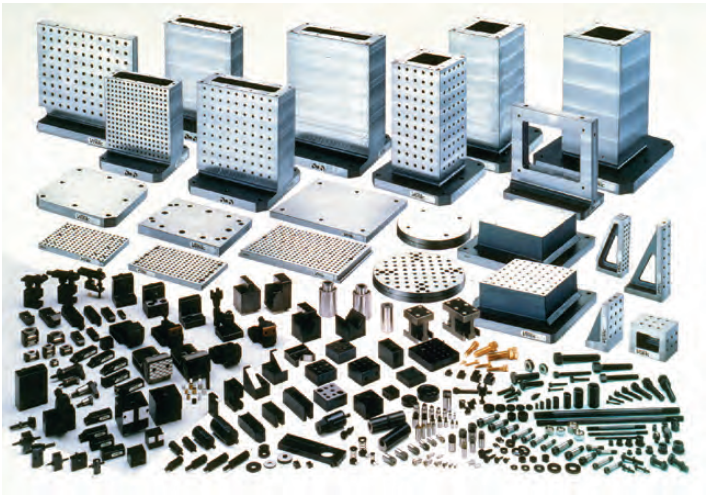
FOR MORE DETAILED INFORMATION, PLEASE REFER TO OUR FULL LINE MODULAR FIXTURING CATALOG #MF-2001

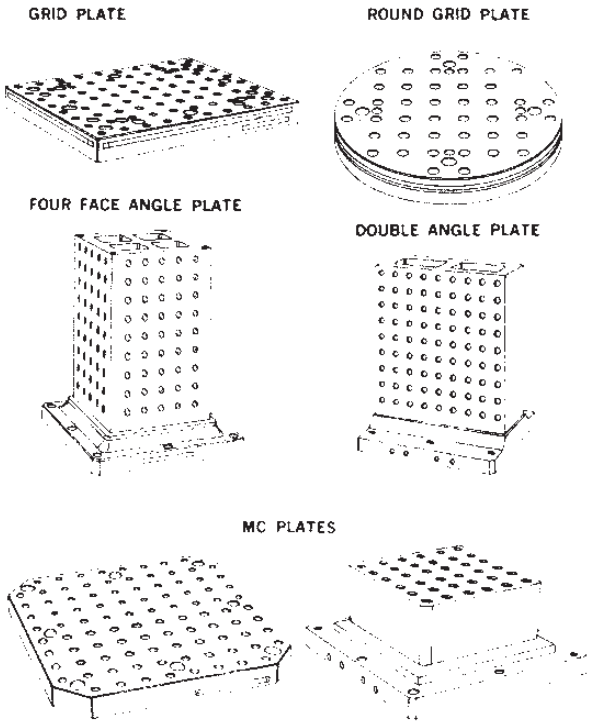
MF-40 series

STANDARD DUTY
1/2"-13 tapped holes

MF-50 series

STANDARD DUTY
5/8"-11 tapped holes





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	STANDARD-DUTY MF40 SERIES FIXTURE ELEMENTS	HEAVY-DUTY MF50 SERIES FIXTURE ELEMENTS
LOCATING KEYS SCREW JACK TIPS	ANGLE PLATES CONSOLES CLAMPS STOPPERS SPACERS EXTENSIONERS STRAPS SUPPORTERS HOLDERS BLOCKS LOCATING BOLTS LOCATING GAGES	ANGLE PLATES CONSOLES CLAMPS STOPPERS SPACERS EXTENSIONERS STRAPS SUPPORTERS HOLDERS BLOCKS LOCATING BOLTS LOCATING GAGES

ADVANCED MOLD CLEANING MACHINE
CLIPIKA ACE

YUASA

Before

After

MAXIMUM CLEANING RESULTS USING ELECTROLYSIS AS WELL AS ULTRASONIC PULSES!

THE ADVANTAGES OF CLIPIKA 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. Clipika Ace shortens cleaning process by almost 90%.
4. Clipika 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. Clipika 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. Clipika 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
Ul;trasonic 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

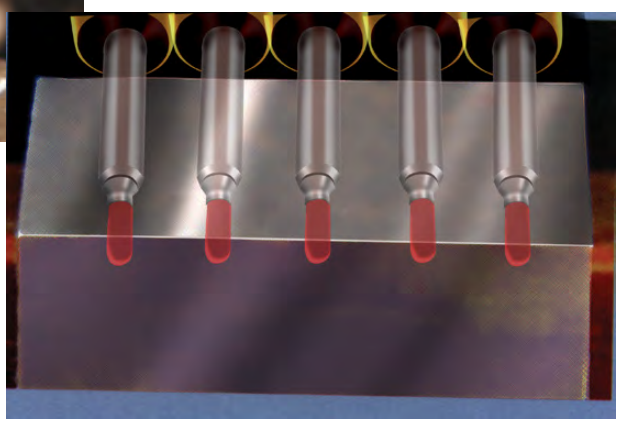
The MOLHEI is a new form of welding technology researched to eliminate heat distortion, shrinkage and strain, which are common problems with other more orthodox forms of welding. The MOLHEI is effective on all types of steel and can repair delicate parts as well as larger areas quickly and safely.

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



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

YUASA

NOTES

WARRANTY

Yuasa International hereby warranties that for a period of one or two years (if stated) from the date of original purchase (depending upon the product), it will repair or replace any part of the enclosed unit for reasons of defects in material or workmanship, without charge.

SERVICE POLICY

1. Warranty cards must be on file for warranty repair within 30 days of the purchase date.

2. When requesting service, proof of purchase must be submitted if warranty card is not on file. If no car or receipt is supplied, the repair will be charged to the customer.

3. Merchandise returned for repair and found not defective will be billed for handling and inspection charges to the customer. All shipments will be set back to the customer "freight collect".

4. The unit must not have been previously altered, repaired or serviced by anyone other than a Yuasa Authorized Service Center. Misuse will invalidate the warranty.

5. Before any item is repaired, the customer will receive a written estimate which must be returned to Yuasa within 15 days, signed to approve/disapprove repair.

6. All shipments are to be prepaid. If merchandise is defective, credit will be issued for the freight.

7. No other warranty other than the foregoing is authorized or accepted by Yuasa International.

SPECIAL NOTES

1. We reserve the right to make changes in design and specifications without prior notice.

2. Warranty and Non-Warranty repairs:
   Phone: (847) 981-0737 or (800) 323-7427
   Fax: (847) 981-0757

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