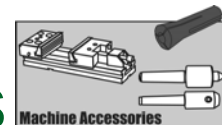


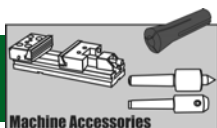
Machine Accessories



Angle Plate.....	D49-D50
Center and Follower Rest, 3-jaw, 4-jaw or 6-jaw Chucks.....	D35-D36
Clamping Kits & Accessories.....	D40-D42
Collets & Collet Chucks.....	D5-D15
Dividing Head.....	D51-D52
Drill Chucks & Arbors.....	D23-D25
End Mill Arbors, End Mill Holders , Adapter, Sleeves, Sockets.....	D16-D22
Face Mill Arbors,End Mill Arbors & Adapters for CNC.....	D26-D28
Grinders, Dressers, Finders.....	D37-D39
Live Centers, Lathe Centers, Fixtures.....	D31-D32
Mandrels,Boring Head & Accessories.....	D29-D30
Rotary Table, Slide Table.....	D33-D34
Tool Posts & Tool Holders.....	D1-D4
Vises (Drill Press Vises,Bench Vises, Precision Vises) & Magnetic Chucks.....	D43-D48

Tel: 86-532-80905056 Fax: 86-532-80907556 E-mail: feng@precotools.cn

Part D



Machine Accessories

QUICK CHANGE TOOL POSTS & TOOL HOLDERS

Quick Change Lathe Tool Post Sets

Piston Type

Piston Type Tool Post Sets

Each set consists of one piston type tool post and one of each of 5 tool holders:

- Style1: Boring & Facing.
- Style2: Boring, Turning & Facing.
- Style4: Boring, Heavy duty.
- Style7: Universal Parting Blade.
- Style10: Knurling, Facing & Turning.



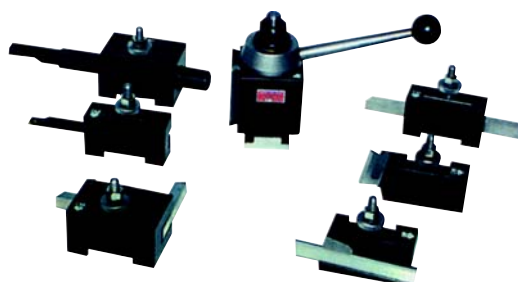
Tool Post		
Series	Swing	Model No.
100	Up To 12"	951-1100
200	10-15"	951-1200
300	13-18"	951-1300
400	14-20"	951-1400

Wedge Type

Piston Type Tool Post Sets

Each set consists of one piston type tool post and one of each of 5 tool holders:

- Style1: Boring & Facing.
- Style2: Boring, Turning & Facing.
- Style4: Boring, Heavy duty.
- Style7: Universal Parting Blade.
- Style10: Knurling, Facing & Turning.

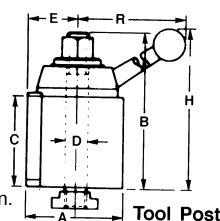


Tool Post		
Series	Swing	Model No.
100	Up To 12"	951-1111
200	10-15"	951-1222
300	13-18"	951-1333
400	14-20"	951-1444
500	17-48"	951-1555

Quick Change Lathe Tool Posts

Features:

- All working parts hardened & ground.
- Maximum rigidity for chatter-free performance.
- No time wasted with shims.
- Holders fit "ALORIS" & "YUASA" tool posts.
- Increases productivity of all lathe operations.
- Completely sealed for maintenance free operation.
- Change tools in seconds.



Tool Post Series	Width			Overall D	Height E	Fits Lathe			Piston Type Model No.	Wedge Type Model No.
	A	B	C			H	R	Size		
100	2-1/2"	3-7/8"	2-1/4"	9/16"	1-3/8"	4-11/16"	5-3/4"	12"	950-1100	950-1111
200	3	4-5/8	2-3/4	5/8	1-5/8	5-9/16	7-5/16	10-15"	950-1200	950-1222
300	3-1/2	5-1/8	3	3/4	1-7/8	6-1/8	7-7/8	13-18"	950-1300	950-1333
400	4	6-1/4	3-5/8"	7/8	2-1/8	7	9	14-20"	950-1400	950-1444
500	5	7-3/8	4-5/8"		2-11/16			17-48"	-----	950-1555

Tool Holders Interchangeable with Aloris

Features:

- All working parts hardened & ground.
- Maximum rigidity for chatter-free performance.
- No time wasted with shims.

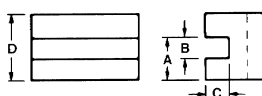
Quick Change Lathe Tool Holders

Features:

- All working parts hardened & ground.
- Maximum rigidity for chatter-free performance.
- No time wasted with shims.

Turning & Facing Holders

Features:



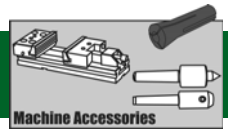
- Takes various sizes of bits.
- Turning and facing tools can be locked in together.
- Save time and labor when changing operations.



Style No. 1

Series	A	B	C	D	Tool Bit	Model No.
100(AXA)	15/16"	1/2"	7/16"	1-1/2"	3/16-1/2"	950-1101
200(BXA)	1-1/8"	5/8"	1/2"	1-3/4"	1/4-5/8"	950-1201
300(CXA)	1-7/16"	3/4"	5/8"	2-1/8"	1/2-3/4"	950-1301
400(CA)	1-11/16"	1"	3/4"	2-1/2"	1/2-1"	950-1401
500	3-3/16"	1-1/4"	1"	3-1/8"		950-1501

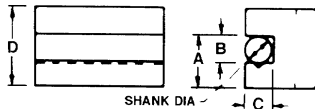
Machine Accessories



Boring, Turning & Facing Holders

Features:

- "V" groove holds round shank boring bars and tools as well as square tool bits
- Boring Bar not included.



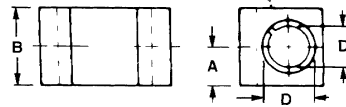
Style No. 2

Series	A	B	C	D	Tool Bit	Shank	Model No.
100(AXA)	15/16"	1/2"	7/16"	1-1/2"	3/16-1/2"	7/16	950-1102
200(BXA)	1-1/8	5/8	1/2	1-3/4	1/4-5/8	1/2	950-1202
300(CXA)	1-7/16	3/4	5/8	2-1/8	1/2-3/4	3/4	950-1302
400(CA)	1-11/16	3/4	2-1/2	1/2-1	13/16		950-1402
500	3-3/16	1-1/4	1	3-1/8			950-1502

Heavy Duty Boring Holders

Features:

- Equipped with a split bushing to accommodate a boring bar of smaller dia.
- It grips with extreme rigidity, cuts smoothly without chatter.
- Holders supplied with split bushing.



Style No. 4

Series	A	B	Inside D	D1	Model No.
100(AXA)	3/4	1-1/2	3/4	5/8	950-1104
200(BXA)	1	2	2	3/4	950-1204
300(CXA)	1	2	1	3/4	950-1304
400(CA)	1-3/8	2-3/4	1-1/4	1	950-1404
500	1-9/16	3-1/8	1-1/2	1-1/4	950-1504

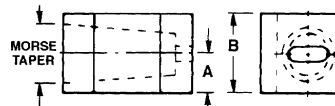
Style No. 41

Series	A	B	Inside D	D1	Model No.
100(AXA)	7/8	1-3/4	1	3/4	950-1141
200(BXA)	1	2	1-1/4	1	950-1241
300(CXA)	1-1/8	2-1/4	1-1/4	1	950-1341
400(CA)	1-3/8	2-3/4	1-1/2	1-1/4	950-1441
500					950-1541

Morse Taper Holders

Features:

- Drills with carriage by using power feed instead of tail stock
- Easily centered.
- For 2,3 and 4 Morse Taper drills.
- Drill not included.



Style No. 5

Series	A	B	Taper Hole Size	Model No.
100(AXA)	3/4	1-1/2	2M.T.	950-1105
200(BXA)	7/8	1-3/4	2M.T.	950-1205
300(CXA)	1	2	3M.T.	950-1305
400(CA)	1-1/4	2-1/2	3M.T.	950-1405
500				950-1505

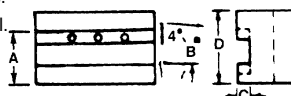
Style No. 53

Series	A	B	Taper Hole Size	Model No.
100(AXA)	3/4	1-1/2	3M.T.	950-1153
200(BXA)	7/8	1-3/4	3M.T.	950-1253
300(CXA)	1-1/16	2-1/8	4M.T.	950-1353
400(CA)	1-1/4	2-1/2	4M.T.	950-1453
500				950-1553

Universal Parting Blade Holders

Features:

- For bevel as well as T-cut blades.
- Absence of vibration prevents breaking blades.
- Blade additional.



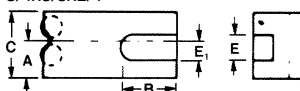
Style No. 7

Series	A	B	C	D	Height	Model No.
100(AXA)	13/16	1/2	13/16	1-1/2	1/2	950-1107
200(BXA)	1	11/16	13/16	1-3/4	11/16	950-1207
300(CXA)	1-3/16	3/4	13/16	2	3/4	950-1307
400(CA)	1-7/16	7/8	1/4	2-1/2	7/8	950-1407
500		1-3/16	1/4	2-3/4		950-1507

Knurling, Facing & Turning Holders

Features:

- For turning and facing as knurling.
- Supplied with a set of high speed precision round lapped medium diamond knurls.
- Dimensions 3/4x3/8x1/4"

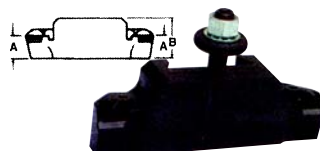


Style No. 10

Series	A	B	C	E	E1	Tool Bit	Model No.
100(AXA)	7/8"	7/8"	1-6/19"	1/2"	3/8"	3/16-1/2"	950-1110
200(BXA)	1	1	1-3/4	5/8	1/2	1/4-5/8	950-1210
300(CXA)	1-3/16	1-3/16	2	3/4	5/8	1/2-3/4	950-1310
400(CA)	1-7/16	1-7/16	2-1/2	1	3/4	1/2-1	950-1410
500	1-7/8	1-7/8	3-1/8	1-1/4	1		950-1510

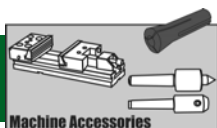
Combination Facing & Turning Holders For Carbide Triangular Inserts

Accommodates standard triangular positive rack inserts. Unique design permits both right hand and left hand turning and facing. Supplied with carbide shims to protect the holder. Inserts not included.



Style No. 16

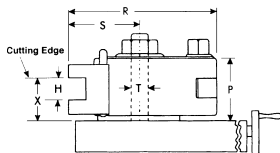
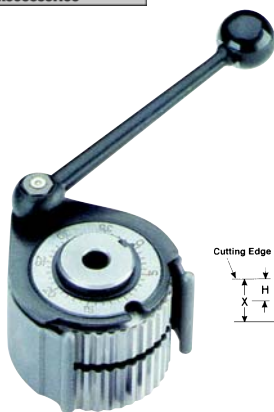
Rate	A	B	I.C.	Thick	Model No.
POS.	7/8"	1-3/8"	3/8"	1/8	950-1116
POS.	1	1-3/4	3/8	1/8	950-1216
POS.	1-3/16	2	3/8	1/8	950-1316
POS.	1-1/2	2-1/4	1/2	3/16	950-1416



Machine Accessories

40-POSITION QUICK CHANGE TOOL POSTS & HOLDERS

Tool Post & Technical Specifications



The best designed Quick Change Tool Post & Holder system in the industry for its accuracy, rigidity and productivity now at affordable price!

- Two-year guarantee.
- Wear-free, tear-free, and maintenance-free.
- Adjust tool to 40 different positions indicated by a marked position dial (index every 9°)
- Fully interchangeable with other brand 40-position quick change tool post & holder.
- Heat-treated and precision-ground for very accurate repeatability.
- Change tools in seconds.
- Adjust height of cutting edge easily and accurately.
- Reground tools without removal from holder-setting unchanged.

Each set includes:
1 Tool Post
3 "D" Holders
1 "B" Holder

40-Position Quick Change Tool Posts

Specifications	Model No. 950-2100	Model No. 950-2200	Model No. 950-2300	Model No. 950-2400	Model No. 950-2500	Model No. 950-2600
Size of Tool Post	A0	A	E	B	C	D
Lathe Swing	Up to 10"/ 120-220mm	6-13"/ 150-300mm	10-18"/ 200-400mm	13-20"/ 300-500mm	18-30"/ 400-700mm	30"-40"/ 800-1000mm
Max. Driving Power (HP)	1.5	3	6	9	18	27
R max	2.99	4.13	5.14	6.00	7.90	9.49
S max	1.36	2.07	2.57	2.95	3.62	4.80
P	1.26	1.83	2.30	2.68	3.90	4.53
T	0.51	0.79	0.79	1.26	1.57	1.57
H	0.51	0.83	0.94	1.00	1.26	1.61
X min	0.79	1.18	1.37	1.46	1.86	2.44
X max	1.18	1.61	2.04	2.25	3.43	4.56

40-Position Quick Change Tool Post Sets

Tool Post Series	Lathe Swing	Sets Model No.
A0	Up to 10" (120-220mm)	950-2705
A1	6-13" (150-300mm)	950-2710
E5	10-18" (200-400mm)	950-2715
B2	13-20" (300-500mm)	950-2722
C3	18-30" (400-700mm)	950-2725
D1	30" up (600-1000mm)	950-2730

CUT-OFF TOOL HOLDER A



Fits Post Size	Blade Thickness	Blade Width	Holder Length	Model No.
A	7/64"	13/32"	3-5/32"	950-2401
E	11/64"	5/8"	4"	950-2402
B	11/64"	5/8"	4-3/4"	950-2403
C	7/32"	3/4"	6"	950-2404

BORING, TURNING & FACING HOLDER B



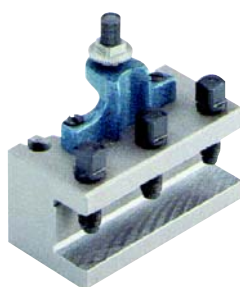
Fits Post Size	Facing Height	Holder Length	Model No.
A0	15/32"	2"	950-2201
A	3/4"	3-5/32"	950-2202
E	1-3/16"	4"	950-2203
B	1-1/4"	5-1/8"	950-2204
C	1-1/4"	6-5/16"	950-2205
C	1-5/8"	6-5/16"	950-2206
D	2"	7-3/32"	950-2207
A	4/5"	3-3/5"	950-2210
B	18/25	4-4/5"	950-2211
C	2	6-5/16"	950-2212
D ₁	2-1/2"	7-1/5"	950-2213
D ₂	2-4/5"	8-4/5"	950-2214

DRILL & BORING BAR HOLDER S



Fits Post Size	Facing Height	Holder Length	Model No.
A0	19/32"	2"	950-2301
A	1-3/16"	3-5/32"	950-2302
E	1-3/16"	4"	950-2303
E	1-5/8"	4"	950-2304
B	1-5/8"	4-3/4"	950-2305
C	1-5/8"	6-2/5"	950-2306
C	2"	6-2/5"	950-2307
D	2-1/2"	7-3/32"	950-2308
D	2-1/2"	8-4/5"	950-2309

TURNING AND FACING HOLDER D



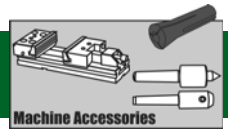
Fits Post Size	Facing Height	Holder Length	Model No.
A0	15/32"	2"	950-2101
A	3/4"	3-5/32"	950-2102
E	3/4"	4"	950-2103
E	1"	4"	950-2104
B	1"	4-3/4"	950-2105
B	1"	5-1/2"	950-2106
B	1-1/4"	4-3/4"	950-2107
B	1-1/4"	5-1/2"	950-2108
C	1-1/4"	6"	950-2109
C	1-1/4"	6-11/16"	950-2110
C	1-5/8"	6"	950-2111
C	1-5/8"	6-11/16"	950-2112
C	1-3/4"	6-11/16"	950-2113
D ₁	1-5/8"	7-3/32"	950-2114
D ₁	2"	7-3/32"	950-2115
D ₁	2-1/2"	7-3/32"	950-2116
D ₂	2"	8-4/5"	950-2122
D ₂	2-1/2"	8-4/5"	950-2123
A	16/25"	3-5/32"	950-2124
A	16/25"	3-3/5"	950-2125
A	4/5"	3-3/5"	950-2126

BUSHINGS FOR DRILL & BORING BAR HOLDER



Drill & Boring Bar Holder Model No.	Bushings Diameters	Hole M.T. Size	Bushing Model No.
950-2302	1-3/16"	1mt	950-2501
950-2302	1-3/16"	2mt	950-2502
950-2303	1-3/16"	2mt	950-2503
950-2304	1-5/8"	3mt	950-2504
950-2305	1-5/8"	3mt	950-2505
950-2305	1-5/8"	4mt	950-2506
950-2306	1-5/8"	3mt	950-2507
950-2306	1-5/8"	4mt	950-2508
950-2307	2"	4mt	950-2509
950-2308	2-1/2"	5mt	950-2510

Machine Accessories

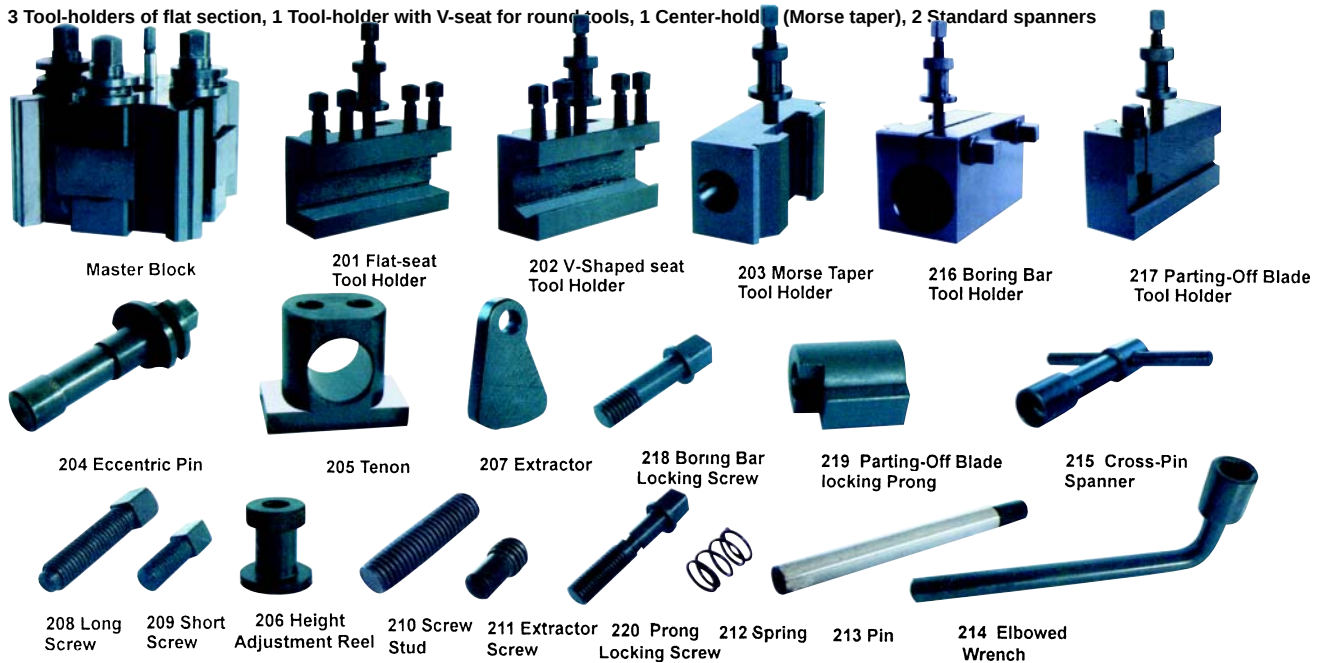


QUICK CHANGE TOOL POST AND SETS

The quick change tool post is a major spare part of the ordinary lathes. It is composed of the cutter-cartridge body and the tool-holder for various cutting tools for processing works like cylindrical facing, end facing, cutting, knurling, drilling, enlarging boring and reaming, etc. The height of tools can be regulated and positioned relative to the centerline of machine spindle. It features external tool-mounting, too-matching, quick tool-changing, great precision in positing and great hardness etc.

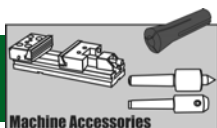
Set Includes:

3 Tool-holders of flat section, 1 Tool-holder with V-seat for round tools, 1 Center-hold (Morse taper), 2 Standard spanners



Size	For Lathes with Swing	Dimensions of Turret Body	Max. Height Square and Rectangular Tools	Max. Diameter Round Tool	Taper Shank	Max. Adjust Tool Holder	Sets Model No.
MK	Up to 7"	1-7/8x1-7/8x1-1/4	3/8	3/8		5/16	951-5100
M	7-10"	2-3/4x2-3/4x1-3/4	5/8	1/2	1	1/2	951-5200
A	10-14"	3-7/8x3-7/8x2-3/8	3/4	5/8	2	9/16	951-5300
B	16-18"	5x5x3-3/8	1-1/8	13/16	3	15/16	951-5400
C	18-24"	5-5/8x5-5/8x3-3/4	1-1/4	15/16	4	1	951-5500
D	Over	6-7/8x6-7/8x4-3/4	1-1/2	1-1/4	4	1-1/2	951-5600
E	Over	7-7/8x7-7/8x5-5/16	2	1-3/8	5	1-5/8	951-5700
F	Over	8-7/8x8-7/8x5-7/8	2	1-3/8	5	2-1/4	951-5800
Ba	14-16"						951-5900

Fig.	Description	Ba	MK	M	A	B	C	D	E	F
	Master Block		950-5100	950-5200	950-5300	950-5400	950-5500	950-5600	950-5700	950-5800
201	Flat-Seat Tool Holder	950-5921	950-5121	950-5221	950-5321	950-5421	950-5521	950-5621	950-5721	950-5821
202	V-Tool Holder	950-5922	950-5122	950-5222	950-5322	950-5422	950-5522	950-5622	950-5722	950-5822
203	Morse Taper Tool Holder	950-5923	950-5123	950-5223	950-5323	950-5423	950-5523	950-5623	950-5723	950-5823
217	Parting-off Blade Holder	950-5917	950-5117	950-5217	950-5317	950-5417	950-5517	950-5617	950-5717	950-5817
216	Boring Bar Tool Holder	950-5916	950-5116	950-5216	950-5316	950-5416	950-5516	950-5616	950-5716	950-5816
204	Eccentric Clamp Pin		950-5124	950-5224	950-5324	950-5424	950-5524	950-5624	950-5724	950-5824
205	Tenon		950-5125	950-5225	950-5325	950-5425	950-5525	950-5625	950-5725	950-5825
212	Clamping Block Spring		-----	-----	950-5312	950-5412	950-5512	-----	-----	-----
213	Dowel Pin		950-5113	950-5213	950-5313	950-5413	950-5513	950-5613	950-5713	950-5813
210	Screw Stud		950-5110	950-5210	950-5310	950-5410	950-5510	950-5610	950-5710	950-5810
206	Height Adj. Screw		950-5106	950-5206	950-5306	950-5406	950-5506	950-5606	950-5706	950-5806
218	Boring Bar Locking Screw		950-5118	950-5218	950-5318	950-5418	950-5518	950-5618	950-5718	950-5818
220	Prong Locking Screw		-----	950-5220	950-5320	950-5420	950-5520	950-5620	950-5720	-----
219	Parting-off Blade Locking Prong		-----	950-5219	950-5319	950-5419	950-5519	950-5619	950-5719	-----
209	Short Screw		950-5109	950-5209	950-5309	950-5409	950-5509	950-5609	950-5709	950-5809
215	T-Key For Set Screws	950-5915	950-5115	950-5215	950-5315	950-5415	950-5515	950-5615	950-5715	950-5815
214	Hexagon Wrench	950-5914	950-5114	950-5214	950-5314	950-5414	950-5514	950-5614	950-5714	950-5814
207	Extractor		950-5107	950-5207	950-5307	950-5407	950-5507	950-5607	950-5707	950-5807
208	Long Screw		950-5108	950-5208	950-5308	950-5408	950-5508	950-5608	950-5708	950-5808
211	Extractor Screw		950-5111	950-5211	950-5311	950-5411	950-5511	950-5611	950-5711	950-5811



Machine Accessories

5C ROUND COLLETS

- Made of highest grade steel available for collect manufacture.
- Precision ground to close tolerance.

Inch

Premium Grade			Premium Grade		
Size	Economy Model No.	0.0005" T.I.R Model No.	Size	Economy Model No.	0.0005" T.I.R Model No.
1/32"	230-4102	230-4902	37/64"	230-4137	230-4937
3/64"	230-4103	230-4903	19/32"	230-4138	230-4938
1/16"	230-4104	230-4904	39/64"	230-4139	230-4939
5/64"	230-4105	230-4905	5/8"	230-4140	230-4940
3/32"	230-4106	230-4906	41/64"	230-4141	230-4941
7/64"	230-4107	230-4907	21/32"	230-4142	230-4942
1/8"	230-4108	230-4908	43/64"	230-4143	230-4943
9/64"	230-4109	230-4909	11/16"	230-4144	230-4944
5/32"	230-4110	230-4910	45/64"	230-4145	230-4945
11/64"	230-4111	230-4911	23/32"	230-4146	230-4946
3/16"	230-4112	230-4912	47/64"	230-4147	230-4947
13/64"	230-4113	230-4913	3/4"	230-4148	230-4948
7/32"	230-4114	230-4914	49/64"	230-4149	230-4949
15/64"	230-4115	230-4915	25/32"	230-4150	230-4950
1/4"	230-4116	230-4916	51/64"	230-4151	230-4951
17/64"	230-4117	230-4917	13/16"	230-4152	230-4952
9/32"	230-4118	230-4918	53/64"	230-4153	230-4953
19/64"	230-4119	230-4919	27/32"	230-4154	230-4954
5/16"	230-4120	230-4920	55/64"	230-4155	230-4955
21/64"	230-4121	230-4921	7/8"	230-4156	230-4956
11/32"	230-4122	230-4922	57/64"	230-4157	230-4957
23/64"	230-4123	230-4923	29/32"	230-4158	230-4958
3/8"	230-4124	230-4924	59/64"	230-4159	230-4959
25/64"	230-4125	230-4925	15/16"	230-4160	230-4960
13/32"	230-4126	230-4926	61/64"	230-4161	230-4961
27/64"	230-4127	230-4927	31/32"	230-4162	230-4962
7/16"	230-4128	230-4928	63/64"	230-4163	230-4963
29/64"	230-4129	230-4929	1"	230-4164	230-4964
15/32"	230-4130	230-4930	1-1/64"	230-4301	230-4971
31/64"	230-4131	230-4931	1-1/32"	230-4302	230-4972
1/2"	230-4132	230-4932	1-3/64"	230-4303	230-4973
33/64"	230-4133	230-4933	1-1/16"	230-4304	230-4974
17/32"	230-4134	230-4934	1-5/64"	230-4305	230-4975
35/64"	230-4135	230-4935	1-3/32"	230-4306	230-4976
9/16"	230-4136	230-4936	1-7/64"	230-4307	230-4977
			1-1/8"	230-4308	230-4978



Metric

Size	Model No.	Size	Model No.
1.5mm	230-3015	2mm	230-4202
2.5mm	230-3025	3mm	230-4203
3.5mm	230-3035	4mm	230-4204
4.5mm	230-3045	5mm	230-4205
5.5mm	230-3055	6mm	230-4206
6.5mm	230-3065	7mm	230-4207
7.5mm	230-3075	8mm	230-4208
8.5mm	230-3085	9mm	230-4209
9.5mm	230-3095	10mm	230-4210
10.5mm	230-3105	11mm	230-4211
11.5mm	230-3115	12mm	230-4212
12.5mm	230-3125	13mm	230-4213
13.5mm	230-3135	14mm	230-4214
14.5mm	230-3145	15mm	230-4215
15.5mm	230-3155	16mm	230-4216
16.5mm	230-3165	17mm	230-4217
17.5mm	230-3175	18mm	230-4218
18.5mm	230-3185	19mm	230-4219
19.5mm	230-3195	20mm	230-4220
20.5mm	230-3205	21mm	230-4221
21.5mm	230-3215	22mm	230-4222
22.5mm	230-3225	23mm	230-4223
23.5mm	230-3235	24mm	230-4224
24.5mm	230-3245	25mm	230-4225
25.5mm	230-3255	26mm	230-4226
26.5mm	230-3265	27mm	230-4227
27.5mm	230-3275	28mm	230-4228
28.5mm	230-3285	29mm	230-4229
29.5mm	230-3295	30mm	230-4230

5C ROUND COLLET SETS

Range	No. Of pieces	Model No.
1/8-1" by 8ths	8pcs	230-4008
1/8" to 1" by 16ths	15pcs	230-4015
1/8-1-1/16" by 16ths	16pcs	230-4016
1/16" to 1-1/16" by 16ths	17pcs	230-4017
1/16" to 1-1/8" by 16ths	18pcs	230-4018
1/8" to 1" by 32nds	29pcs	230-4029
1/8" to 1-1/32" by 32nds	30pcs	230-4030
1/8-1-1/6" by 32nds	31pcs	230-4031
1/16" to 1-1/16" by 32nds	33pcs	230-4033
1/16" to 1-1/8" by 32nds	35pcs	230-4035
1/8" to 1" by 64ths	57pcs	230-4057
1/16" to 1-3/64" by 64ths	64pcs	230-4064
1/16" to 1-1/16" by 64ths	65pcs	230-4065
1/16" to 1-1/8" by 64ths	69pcs	230-4069

5C COLLET STOPS



Model No. 239-9051

Converts standard 1" capacity lathe collets into soled or spring ejector stop collets without alteration of the standard collets.

Model No. 239-9052

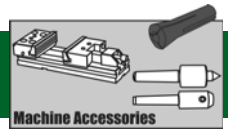
Fits any 5C collet. Supplied with threaded rod. Hardened for long life. Black oxide

5C EMERGENCY COLLETS



Type	Model No.
5c steel	230-4395
5c brass	230-4396
5c nylon	230-4397

Machine Accessories



R8 ROUND COLLETS

Inch		Premium Grade .0005" T.I.R
Size	Economy Model No.	Model No.
1/16"	231-4704	231-4904
3/32"	231-4706	231-4906
1/8"	231-4708	231-4908
5/32"	231-4710	231-4910
3/16"	231-4712	231-4912
7/32"	231-4714	231-4914
1/4"	231-4716	231-4916
9/32"	231-4718	231-4918
5/16"	231-4720	231-4920
11/32"	231-4722	231-4922
3/8"	231-4724	231-4924
13/32"	231-4726	231-4926
7/16"	231-4728	231-4928
15/32"	231-4730	231-4930
1/2"	231-4732	231-4932
17/32"	231-4734	231-4934
9/16"	231-4736	231-4936
19/32"	231-4738	231-4938
5/8"	231-4740	231-4940
21/32"	231-4742	231-4942
11/16"	231-4744	231-4944
23/32"	231-4746	231-4946
3/4"	231-4748	231-4948
25/32"	231-4750	231-4950
13/16"	231-4752	231-4952
27/32"	231-4754	231-4954
7/8"	231-4756	231-4956
1"	231-4764	231-4964

For Bridgeport
Type 7/16"-20
Thread Hardened
& Ground

Metric	
Size	Model No.
2mm	231-4802
3mm	231-4803
4mm	231-4804
5mm	231-4805
6mm	231-4806
7mm	231-4807
8mm	231-4808
9mm	231-4809
10mm	231-4810
11mm	231-4811
12mm	231-4812
13mm	231-4813
14mm	231-4814
15mm	231-4815
16mm	231-4816
17mm	231-4817
18mm	231-4818
19mm	231-4819
20mm	231-4820
21mm	231-4821
22mm	231-4822
23mm	231-4823
24mm	231-4824



SETS

Range	No. Of Pieces	Model No.
1/8-3/4" by 8ths	6pcs	231-0006
1/8" to 7/8" by 8ths	7pcs	231-0007
1/8-3/4" by 16ths	11pcs	231-0011
1/16" to 3/4" by 16ths	12pcs	231-0012
1/8" to 7/8" by 16ths	13pcs	231-0013
1/16" to 7/8" by 16ths	14pcs	231-0014
1/8 to 3/4" by 32nds	21pcs	231-0021
1/16-3/4" by 32ths	23pcs	231-0023
1/8" to 7/8" by 32nds	25pcs	231-0025
1/16" to 7/8" by 32nds	27pcs	231-0027
1/8" to 3/4" by 16ths plus 7/8"	12pcs	231-0112
1/16" to 1" by 1/32"	28pcs	231-0128

R8 EMERGENCY COLLETS



- Can be drilled, bored or machined with a H.S.S Tool Bit.
- Face & Pilot Hole are soft to Permit machining to your requirement.

Type	Model No.
R8 steel	231-4395
R8 brass	231-4396
R8 nylon	231-4397

R8 SQUARE COLLETS

Inch	
Size	Model No.
1/8"	530-7208
5/32"	530-7210
3/16"	530-7212
1/4"	530-7216
9/32"	530-7218
5/16"	530-7220
11/32"	530-7222
3/8"	530-7224
13/32"	530-7226
7/16"	530-7228
15/32"	530-7230
1/2"	530-7232
17/32"	530-7234
9/16"	530-7236

Metric	
Size	Model No.
3mm	530-7030
4mm	530-7040
5mm	530-7050
5.5mm	530-7055
6mm	530-7060
7mm	530-7070
8mm	530-7080
9mm	530-7090
9.5mm	530-7095
10mm	530-7100
11mm	530-7110
12mm	530-7120
13mm	530-7130
13.5mm	530-7135
14mm	530-7140

R8 HEX COLLETS

Inch	
Size	Model No.
1/8"	530-6208
5/32"	530-6210
3/16"	530-6212
1/4"	530-6216
9/32"	530-6218
5/16"	530-6220
11/32"	530-6222
3/8"	530-6224
13/32"	530-6226
7/16"	530-6228
15/32"	530-6230
1/2"	530-6232
17/32"	530-6234
9/16"	530-6236
19/32"	530-6238
5/8"	530-6240
21/32"	530-6242
11/16"	530-6244
23/32"	530-6246
3/4"	530-6248
25/32"	530-6250

Metric	
Size	Model No.
3mm	530-6030
4mm	530-6040
5mm	530-6050
6mm	530-6060
7mm	530-6070
8mm	530-6080
9mm	530-6090
10mm	530-6100
11mm	530-6110
12mm	530-6120
13mm	530-6130
13.5mm	530-6135
14mm	530-6140
15mm	530-6150
16mm	530-6160
17mm	530-6170
17.5mm	530-6175
18mm	530-6180
19mm	530-6190
20mm	530-6200



R8 SQUARE COLLET SET

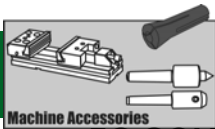
Model No.530-7004

4pcs 1/8" to 1/2" by 8ths

R8 HEX COLLET SET

Model No.530-6006

6pcs 1/8" to 3/4" by 8ths



Machine Accessories

5C SQUARE COLLETS

Model No.530-4252 6pcs set 1/8-3/4" by 8ths

Model No.530-4256 11pcs set 1/8-3/4" by 16th

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	530-4208	3mm	530-4030
5/32"	530-4210	4mm	530-4040
3/16"	530-4212	5mm	530-4050
7/32"	530-4214	5.5mm	530-4055
1/4"	530-4216	6mm	530-4060
9/32"	530-4218	7mm	530-4070
5/16"	530-4220	8mm	530-4080
11/32"	530-4222	9mm	530-4090
3/8"	530-4224	9.5mm	530-4095
13/32"	530-4226	10mm	530-4100
7/16"	530-4228	11mm	530-4110
15/32"	530-4230	12mm	530-4120
1/2"	530-4232	13mm	530-4130
17/32"	530-4234	13.5mm	530-4135
9/16"	530-4236	14mm	530-4140
19/32"	530-4238	15mm	530-4150
5/8"	530-4240	16mm	530-4160
21/32"	530-4242	17mm	530-4170
11/16"	530-4244	17.5mm	530-4175
23/32"	530-4246	18mm	530-4180
3/4"	530-4248	19mm	530-4190
		20mm	530-4200

5C STEP COLLETS

Soft head may be bored or stepped out.

	1"	1-1/8"	1-3/16"
Head	Thickness	Thickness	Thickness
Dia.	Model No.	Model No.	Model No.
2"	230-4362	230-4372	230-4382
3"	230-4363	230-4373	230-4383
4"	230-4364	230-4374	230-4384
5"	230-4365	230-4375	230-4385
6"	230-4366	230-4376	230-4386

5C EXPANDING COLLETS

Descriptions	Model No.
1/4" to 1-15/16" 4pcs set	230-4450
0.025" to 0.463"x1" (#1)	230-4451
0.437" to 0.800"x1" (#2)	230-4452
0.750 to .1.437"x1" (#3)	230-4453
0.750 to .1.935"x1" (#4)	230-4454

5C FIXTURE MOUNTS COLLETS

- A lathe tool for use in place of face plate fixture.
- Quick mounting and dismounting.
- Repeat accuracy.
- Soft head for easy machining.



- Heat treated tool steel shank.
- Precision ground all over.
- Black oxide finished.

Head Dia.	Head Length	Model No.
2"	1"	230-4460
2"	2"	230-4461
2"	3"	230-4462
3"	1"	230-4463
3"	2"	230-4464
3"	3"	230-4465
4"	1"	230-4466
4"	3"	230-4467
5"	1"	230-4468
6"	1"	230-4469
4"	2"	230-4470

5C COLLET BLOCK SETS

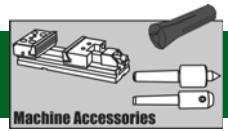


Set Model No. 235-7050

- A simple and effective short jig, for machinist parallel, square or hex shapes as well as for cross hole drilling at 60°; α
- Made of hardened steel.
- Overall dimensions: 1-3/4"x1-3/4" x3".
- Ground to .0005" flatness, squareness and parallelism.
- Capacity: 1/6" through 1-1/8".
- Standard nut closer and cam operated, quick-acting closer can be used on both square and hex blocks.

Descriptions	Model No.
lever operated closer	235-7051
nut closer	235-7052
square block	235-7054
hex block	235-7056

Machine Accessories



3C ROUND COLLETS



Inch					
Size	Model No.	Size	Model No.	Size	Model No.
3/64"	232-4703	7/32"	232-4714	25/64"	232-4725
1/16"	232-4704	15/64"	232-4715	13/32"	232-4726
5/64"	232-4705	1/4"	232-4716	27/64"	232-4727
3/32"	232-4706	17/64"	232-4717	7/16"	232-4728
7/64"	232-4707	9/32"	232-4718	29/64"	232-4729
1/8"	232-4708	19/64"	232-4719	15/32"	232-4730
9/64"	232-4709	5/16"	232-4720	31/64"	232-4731
5/32"	232-4710	21/64"	232-4721	1/2"	232-4732
11/64"	232-4711	11/32"	232-4722	33/64"	232-4733
3/16"	232-4712	23/64"	232-4723	17/32"	232-4734
13/64"	232-4713	3/8"	232-4724	35/64"	232-4735
				9/16"	232-4736

Metric			
Size	Model No.	Size	Model No.
1mm	232-6010	7.5mm	232-6075
1.5mm	232-6015	8mm	232-6080
2mm	232-6020	8.5mm	232-6085
2.5mm	232-6025	9mm	232-6090
3mm	232-6030	9.5mm	232-6095
3.5mm	232-6035	10mm	232-6100
4mm	232-6040	10.5mm	232-6105
4.5mm	232-6045	11mm	232-6110
5mm	232-6050	11.5mm	232-6115
5.5mm	232-6055	12mm	232-6120
6mm	232-6060	12.5mm	232-6125
6.5mm	232-6065	13mm	232-6130
7mm	232-6070		

3C SQUARE COLLETS



Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	232-6208	3mm	232-6230
5/32"	232-6210	4mm	232-6240
3/16"	232-6212	5mm	232-6250
7/32"	232-6214	5.5mm	232-6255
1/4"	232-6216	6mm	232-6260
9/32"	232-6218	7mm	232-6270
5/16"	232-6220	8mm	232-6280
11/32"	232-6222	9mm	232-6290
3/8"	232-6224		

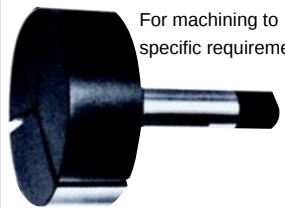
3C HEX COLLETS



Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	232-7008	3mm	232-7030
5/32"	232-7010	4mm	232-7040
3/16"	232-7012	5mm	232-7050
7/32"	232-7014	5.5mm	232-7055
1/4"	232-7016	6mm	232-7060
9/32"	232-7018	7mm	232-7070
5/16"	232-7020	8mm	232-7080
11/32"	232-7022	9mm	232-7090
3/8"	232-7024	10mm	232-7100
13/32"	232-7026	11mm	232-7110
7/16"	232-7028	12mm	232-7120

3C STEP COLLETS

Soft head
For machining to specific requirements.



Head Dia.	Thickness	Model No.
2"	1"	230-5521
2"	1-1/8"	230-5522
2"	1-1/4"	230-5523
3"	1"	230-5531
3"	1-1/8"	230-5532
3"	1-1/4"	230-5533

3AT ROUND COLLETS



Inch					
Size	Model No.	Size	Model No.	Size	Model No.
3/64"	232-4803	13/64"	232-4813	23/64"	232-4823
1/16"	232-4804	7/32"	232-4814	3/8"	232-4824
5/64"	232-4805	15/64"	232-4815	25/64"	232-4825
3/32"	232-4806	1/4"	232-4816	13/32"	232-4826
7/64"	232-4807	17/64"	232-4817	27/64"	232-4827
1/8"	232-4808	9/32"	232-4818	7/16"	232-4828
9/64"	232-4809	19/64"	232-4819	29/64"	232-4829
5/32"	232-4810	5/16"	232-4820	15/32"	232-4830
11/64"	232-4811	21/64"	232-4821	31/64"	232-4831
3/16"	232-4812	11/32"	232-4822	1/2"	232-4832

Metric					
Size	Model No.	Size	Model No.	Size	Model No.
1mm	232-4010	5mm	232-4050	9mm	232-4090
1.5mm	232-4015	5.5mm	232-4055	9.5mm	232-4095
2mm	232-4020	6mm	232-4060	10mm	232-4100
2.5mm	232-4025	6.5mm	232-4065	10.5mm	232-4105
3mm	232-4030	7mm	232-4070	11mm	232-4110
3.5mm	232-4035	7.5mm	232-4075	11.5mm	232-4115
4mm	232-4040	8mm	232-4080	12mm	232-4120
4.5mm	232-4045	8.5mm	232-4085	12.5mm	232-4125
				13mm	232-4130

3AT SQUARE COLLETS



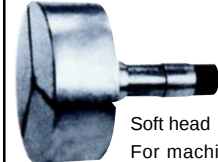
Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	232-4208	3mm	232-4230
5/32"	232-4210	4mm	232-4240
3/16"	232-4212	5mm	232-4250
7/32"	232-4214	5.5mm	232-4255
1/4"	232-4216	6mm	232-4260
9/32"	232-4218	7mm	232-4270
5/16"	232-4220	8mm	232-4280
11/32"	232-4222	9mm	232-4290
3/8"	232-4224		

3AT HEX COLLETS



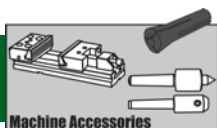
Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	232-5008	3mm	232-5030
5/32"	232-5010	4mm	232-5040
3/16"	232-5012	5mm	232-5050
7/32"	232-5014	5.5mm	232-5055
1/4"	232-5016	6mm	232-5060
9/32"	232-5018	7mm	232-5070
5/16"	232-5020	8mm	232-5080
11/32"	232-5022	9mm	232-5090
3/8"	232-5024	10mm	232-5100
13/32"	232-5026	11mm	232-5110
7/16"	232-5028	12mm	232-5120

3AT STEP COLLETS



Soft head
For machining to specific requirements.

Head Dia.	Thickness	Model No.
2"	1"	230-5621
2"	1-1/8"	230-5622
2"	1-1/4"	230-5623
3"	1"	230-5631
3"	1-1/8"	230-5632
3"	1-1/4"	230-5633



Machine Accessories

MORSE TAPER ROUND COLLETS

1 Morse Taper

Inch		Metric	
Size	Model No.	Size	Model No.
1/16"	230-4401	2mm	230-4412
1/8"	230-4402	3mm	230-4413
3/16"	230-4403	4mm	230-4414
1/4"	230-4404	6mm	230-4416
5/16"	230-4405	8mm	230-4418



3 Morse Taper

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-4608	3mm	230-5103
3/16"	230-4612	5mm	230-5105
1/4"	230-4616	6mm	230-5106
5/16"	230-4620	8mm	230-5108
3/8"	230-4624	10mm	230-5110
7/16"	230-4628	11mm	230-5111
1/2"	230-4632	13mm	230-5113
9/16"	230-4636	14mm	230-5114
5/8"	230-4640	16mm	230-5116
11/16"	230-4644	17mm	230-5117
3/4"	230-4648	18mm	230-5118

4 Morse Taper

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-4708	3mm	230-4803
3/16"	230-4712	5mm	230-4805
1/4"	230-4716	6mm	230-4806
5/16"	230-4720	8mm	230-4808
3/8"	230-4724	10mm	230-4810
7/16"	230-4728	11mm	230-4811
1/2"	230-4732	13mm	230-4813
9/16"	230-4736	14mm	230-4814
5/8"	230-4740	16mm	230-4816
11/16"	230-4744	17mm	230-4817
3/4"	230-4748	18mm	230-4818
13/16"	230-4752	20mm	230-4820
7/8"	230-4756	22mm	230-4822
15/16"	230-4760	24mm	230-4824
1"	230-4764	25mm	230-4825

2 Morse Taper

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-4508	2mm	230-5202
3/16"	230-4512	3mm	230-5203
1/4"	230-4516	5mm	230-5205
5/16"	230-4520	6mm	230-5206
3/8"	230-4524	10mm	230-5210
7/16"	230-4528	11mm	230-5211
1/2"	230-4532	12mm	230-5212

7#, 9#, 21# B&S TAPER ROUND COLLETS



Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-1508	3mm	230-1573
3/16"	230-1512	5mm	230-1575
1/4"	230-1516	6mm	230-1576
5/16"	230-1520	8mm	230-1578
3/8"	230-1524	10mm	230-1580
7/16"	230-1528	11mm	230-1581
1/2"	230-1532	13mm	230-1583

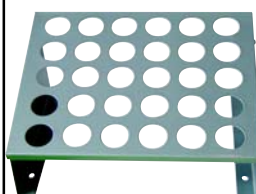
Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-1608	3mm	230-1673
3/16"	230-1612	5mm	230-1675
1/4"	230-1616	6mm	230-1676
5/16"	230-1620	8mm	230-1678
3/8"	230-1624	10mm	230-1680
7/16"	230-1628	11mm	230-1681
1/2"	230-1632	13mm	230-1683
9/16"	230-1636	14mm	230-1684
5/8"	230-1640	16mm	230-1686
11/16"	230-1644	17mm	230-1687
3/4"	230-1648	18mm	230-1688
		20mm	230-1690

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-1108	3mm	230-1173
3/16"	230-1112	5mm	230-1175
1/4"	230-1116	6mm	230-1176
5/16"	230-1120	8mm	230-1178
3/8"	230-1124	10mm	230-1180
7/16"	230-1128	11mm	230-1181
1/2"	230-1132	13mm	230-1183
9/16"	230-1136	14mm	230-1184
5/8"	230-1140	16mm	230-1186
11/16"	230-1144	17mm	230-1187
3/4"	230-1148	18mm	230-1188
13/16"	230-1152	20mm	230-1190
7/8"	230-1156	22mm	230-1192
15/16"	230-1160	24mm	230-1194
1"	230-1164	25mm	230-1195

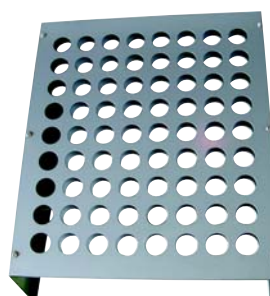
CUTTER GRINDER COLLETS

Inch		Metric	
Size	Model No.	Size	Model No.
1/8"	230-5308	3mm	230-5403
3/16"	230-5312	5mm	230-5405
1/4"	230-5316	6mm	230-5406
5/16"	230-5320	8mm	230-5408
3/8"	230-5324	10mm	230-5410
7/16"	230-5328	11mm	230-5411
1/2"	230-5332	13mm	230-5413
9/16"	230-5336	14mm	230-5414
5/8"	230-5340	16mm	230-5416

5C COLLET STANDS



Hold 5C 30 collets
Model No. 239-9530



Hold 5C 72 collets
Model No. 239-9572

WOODEN RACK FOR R8 COLLET



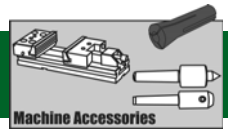
Hold 14 piece R8 collet
Model No. 239-9814

R8 COLLET RACKS



Specifications	Model No.
R8 Collet Rack, hold 12 collets	239-9212
R8 Collet Rack, hold 15 collets and tools	239-9815
R8 Vertical Collet Rack, hold 48 collets	239-9848

Machine Accessories



TG SERIES-SINGLE ANGLE COLLETS

TG75 Collets

Inch

Size	Model No.	Size	Model No.	Size	Model No.
1/16"	204-8101	5/16"	204-8121	9/16"	204-8141
5/64	204-8102	21/64	204-8122	37/64	204-8142
3/32	204-8103	11/32	204-8123	19/32	204-8143
7/64	204-8104	23/64	204-8124	39/64	204-8144
1/8	204-8106	3/8	204-8126	5/8	204-8146
9/64	204-8107	25/64	204-8127	41/64	204-8147
5/32	204-8108	13/32	204-8128	21/32	204-8148
11/64	204-8109	27/64	204-8129	43/64	204-8149
3/16	204-8111	7/16	204-8131	11/16	204-8151
13/64	204-8112	29/64	204-8132	45/64	204-8152
7/32	204-8113	15/32	204-8133	23/32	204-8153
15/64	204-8114	31/64	204-8134	47/64	204-8154
1/4	204-8116	1/2	204-8136	3/4	204-8156
17/64	204-8117	33/64	204-8137	49/64	204-8157
9/32	204-8118	17/32	204-8138	25/32	204-8158
19/64	204-8119	35/64	204-8139		



Metric

Size	Model No.	Size	Model No.	Size	Model No.
1mm	204-8001	8mm	204-8016	14.5mm	204-8032
1.5mm	204-8002	8.5mm	204-8017	15mm	204-8033
2mm	204-8003	9mm	204-8018	15.5mm	204-8034
2.5mm	204-8004	9.5mm	204-8019	16mm	204-8036
3mm	204-8005	10mm	204-8021	16.5mm	204-8037
3.5mm	204-8006	10.5mm	204-8022	17mm	204-8038
4mm	204-8007	11mm	204-8023	17.5mm	204-8039
4.5mm	204-8008	11.5mm	204-8024	18mm	204-8041
5mm	204-8009	12mm	204-8026	18.5mm	204-8042
5.5mm	204-8011	12.5mm	204-8027	19mm	204-8043
6mm	204-8012	13mm	204-8028	19.5mm	204-8044
6.5mm	204-8013	13.5mm	204-8029	20mm	204-8046
7mm	204-8014	14mm	204-8031		

TG100 Collets

Inch

Size	Model No.	Size	Model No.
1/64"	204-9901	33/64"	204-9933
1/32"	204-9902	17/32"	204-9934
3/64"	204-9903	35/64"	204-9935
1/16"	204-9904	9/16"	204-9936
5/64"	204-9905	37/32"	204-9937
3/32"	204-9906	19/32"	204-9938
7/64"	204-9907	39/64"	204-9939
1/8"	204-9908	5/8"	204-9940
9/64"	204-9909	41/64"	204-9941
5/32"	204-9910	21/32"	204-9942
11/64"	204-9911	43/64"	204-9943
3/16"	204-9912	11/16"	204-9944
13/64"	204-9913	45/64"	204-9945
7/32"	204-9914	23/32"	204-9946
15/64"	204-9915	47/64"	204-9947
1/4"	204-9916	3/4"	204-9948
17/64"	204-9917	49/64"	204-9949
9/32"	204-9918	25/32"	204-9950
19/64"	204-9919	51/64"	204-9951
5/16"	204-9920	13/16"	204-9952
21/64"	204-9921	53/64"	204-9953
11/32"	204-9922	27/32"	204-9954
23/64"	204-9923	55/64"	204-9955
3/8"	204-9924	7/8"	204-9956
25/64"	204-9925	57/64"	204-9957
13/32"	204-9926	29/32"	204-9958
27/64"	204-9927	59/64"	204-9959
7/16"	204-9928	15/16"	204-9960
29/64"	204-9929	61/64"	204-9961
15/32"	204-9930	31/32"	204-9962
31/64"	204-9931	63/64"	204-9963
1/2"	204-9932	1"	204-9964

Metric

Size	Model No.
1mm	204-0301
2mm	204-0302
3mm	204-0303
4mm	204-0304
5mm	204-0305
6mm	204-0306
7mm	204-0307
8mm	204-0308
9mm	204-0309
10mm	204-0310
11mm	204-0311
12mm	204-0312
13mm	204-0313
14mm	204-0314
15mm	204-0315
16mm	204-0316
17mm	204-0317
18mm	204-0318
19mm	204-0319
20mm	204-0320
21mm	204-0321
22mm	204-0322
23mm	204-0323
24mm	204-0324
25mm	204-0325

TG150 Collets

Inch

Size	Model No.	Size	Model No.
3/32"	204-0003	27/32"	204-0054
7/64"	204-0004	55/64"	204-0055
1/8"	204-0005	7/8"	204-0056
9/64"	204-0006	57/64"	204-0057
5/32"	204-0007	29/32"	204-0058
11/64"	204-0008	59/64"	204-0059
3/16"	204-0009	15/16"	204-0060
13/64"	204-0010	61/64"	204-0061
7/32"	204-0011	31/32"	204-0062
15/64"	204-0015	63/64"	204-0063
1/4"	204-0016	1"	204-0064
17/64"	204-0017	1-1/64"	204-0101
9/32"	204-0018	1-1/32"	204-0102
19/64"	204-0019	1-3/64"	204-0103
5/16"	204-0020	1-1/16"	204-0104
21/64"	204-0021	1-5/64"	204-0105
11/32"	204-0022	1-3/32"	204-0106
23/64"	204-0023	1-7/64"	204-0107
3/8"	204-0024	1-1/8"	204-0108
25/64"	204-0025	1-9/64"	204-0109
13/32"	204-0026	1-5/32"	204-0110
27/64"	204-0027	1-11/64"	204-0111
7/16"	204-0028	1-3/16"	204-0112
29/64"	204-0029	1-13/64"	204-0113
15/32"	204-0030	1-7/32"	204-0114
31/64"	204-0031	1-15/64"	204-0115
1/2"	204-0032	1-1/4"	204-0116
33/64"	204-0033	1-17/64"	204-0117
17/32"	204-0034	1-9/32"	204-0118
35/64"	204-0035	1-19/64"	204-0119
9/16"	204-0036	1-5/16"	204-0120
37/64"	204-0037	1-21/64"	204-0121
19/32"	204-0038	1-11/32"	204-0122
39/64"	204-0039	1-23/64"	204-0123
5/8"	204-0040	1-3/8"	204-0124
41/64"	204-0041	1-25/64"	204-0125
21/32"	204-0042	1-13/32"	204-0126
43/64"	204-0043	1-27/64"	204-0127
11/16"	204-0044	1-7/16"	204-0128
45/64"	204-0045	1-29/64"	204-0129
23/32"	204-0046	1-15/32"	204-0130
47/64"	204-0047	1-31/64"	204-0131
3/4"	204-0048	1-1/2"	204-0132
49/64"	204-0049	1-33/64"	204-0133
25/32"	204-0050	1-17/32"	204-0134
51/64"	204-0051	1-35/64"	204-0135
13/16"	204-0052	1-9/16"	204-0136
53/64"	204-0053		

Metric

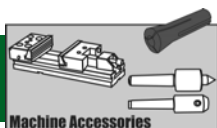
Size	Model No.
2mm	204-0202
3mm	204-0203
4mm	204-0204
5mm	204-0205
6mm	204-0206
7mm	204-0207
8mm	204-0208
9mm	204-0209
10mm	204-0210
11mm	204-0211
12mm	204-0212
13mm	204-0213
14mm	204-0214
15mm	204-0215
16mm	204-0216
17mm	204-0217
18mm	204-0218
19mm	204-0219
20mm	204-0220
21mm	204-0221
22mm	204-0222
23mm	204-0223
24mm	204-0224
25mm	204-0225
26mm	204-0226
27mm	204-0227
28mm	204-0228
29mm	204-0229
30mm	204-0230
31mm	204-0231
32mm	204-0232
33mm	204-0233
34mm	204-0234
35mm	204-0235
36mm	204-0236
37mm	204-0237
38mm	204-0238
39mm	204-0239
40mm	204-0240

TG Collet Dimensions

TG Series	Dia.	Length	Capacity Range
75	1.062"	1.844"	1/16- 3/4"
100	1.379"	2.375"	3/32-1"
150	2.001"	3.000"	3/8-1-1/2"
200	2.671"	3.250"	1"-2"

TG200 C

Size	Model No.
1"	204-0564
1-1/4"	204-0516
1-1/2"	204-0532
1-3/4"	204-0543
2"	204-0550



Machine Accessories

DA SERIES-DOUBLE ANGLE COLLETS



DA Series	D	L	Capacity Range
400	1.455"	2.00"	3/32-1
300	0.375"	2.00"	1/32-1/4
200	0.539"	1.18"	3/64-25/64
100	0.769"	1.44"	3/64-9/16
180	1.035"	1.62"	3/64-3/4

- Concentric within 0.0005 TIR at collet nose assembled with chuck
- Self release for rapid, easy operation.

Inch

Size	100DA Model No.	180DA Model No.	200DA Model No.	300DA Model No.
1/32"	-----	-----	----	159-3020
3/64"	159-0000	159-0700	159-1140	159-3040
1/16"	159-0020	159-0720	159-1160	159-3060
5/64"	159-0040	159-0740	159-1180	159-3080
3/32"	159-0060	159-0760	159-1200	159-3100
7/64"	159-0080	159-0780	159-1220	159-3120
1/8"	159-0100	159-0800	159-1240	159-3140
9/64"	159-0120	159-0820	159-1260	159-3160
5/32"	159-0140	159-0840	159-1280	159-3180
11/64"	159-0160	159-0860	159-1300	159-3200
3/16"	159-0180	159-0880	159-1320	159-3220
13/64"	159-0200	159-0900	159-1340	159-3240
7/32"	159-0220	159-0920	159-1360	159-3260
15/64"	159-0240	159-0940	159-1380	159-3280
1/4"	159-0260	159-0960	159-1400	159-3300
17/64"	159-0280	159-0980	159-1420	
9/32"	159-0300	159-1000	159-1440	
19/64"	159-0320	159-1020	159-1460	
5/16"	159-0340	159-1040	159-1480	
21/64"	159-0360	159-1060	159-1500	
11/32"	159-0380	159-1080	159-1520	
23/64"	159-0400	159-1100	159-1540	
3/8"	159-0420	159-1120	159-1560	
25/64"	159-0440		159-1580	
13/32"	159-0460		159-1600	
27/64"	159-0480		159-1620	
7/16"	159-0500		159-1640	
29/64"	159-0520		159-1660	
15/32"	159-0540		159-1680	
31/64"	159-0560		159-1700	
1/2"	159-0580		159-1720	
33/64"	159-0600		159-1740	
17/32"	159-0620		159-1760	
35/64"	159-0640		159-1780	
9/16"	159-0660		159-1800	
37/64"			159-1820	
19/32"			159-1840	
39/64"			159-1860	
5/8"			159-1880	
41/64"			159-1900	
21/32"			159-1920	
43/64"			159-1940	
11/16"			159-1960	
45/64"			159-1980	
23/32"			159-2000	
47/64"			159-2020	
3/4"			159-2040	
49/64"			159-2060	

Metric

Size	100DA Model No.	180DA Model No.	200DA Model No.
1.5mm	159-5000	159-5560	159-5900
2.0mm	159-5020	159-5580	159-5920
2.5mm	159-5040	159-5600	159-5940
3.0mm	159-5060	159-5620	159-5960
3.5mm	159-5080	159-5640	159-5980
4.0mm	159-5100	159-5660	159-6000
4.5mm	159-5120	159-5680	159-6020
5.0mm	159-5140	159-5700	159-6040
5.5mm	159-5160	159-5720	159-6060
6.0mm	159-5180	159-5740	159-6080
6.5mm	159-5200	159-5760	159-6100
7.0mm	159-5220	159-5780	159-6120
7.5mm	159-5240	159-5800	159-6140
8.0mm	159-5260	159-5820	159-6160
8.5mm	159-5280	159-5840	159-6180
9.0mm	159-5300	159-5860	159-6200
9.5mm	159-5320	159-5880	159-6220
10.0mm	159-5340	159-5900	159-6240
10.5mm	159-5360		159-6260
11.0mm	159-5380		159-6280
11.5mm	159-5400		159-6300
12.0mm	159-5420		159-6320
12.5mm	159-5440		159-6340
13.0mm	159-5460		159-6360
13.5mm	159-5480		159-6380
14.0mm	159-5500		159-6400
14.5mm	159-5520		159-6420
15.0mm			159-6440
15.5mm			159-6460
16.0mm			159-6480
16.5mm			159-6500
17.0mm			159-6520
17.5mm			159-6540
18.0mm			159-6560
18.5mm			159-6580
19.0mm			159-6600
19.5mm			159-6620
20.0mm			159-6640

COLLET SETS

Collet Series	No. of Pieces	Range	Model No.
100	29	1/8-9/16 by 64ths	159-1029
100	15	1/8-9/16 by 32ths	159-1015
180	41	1/8-3/4 by 64ths	159-1841
180	21	1/8-9/16 by 32ths	159-1821
200	17	1/8-3/8 by 64ths	159-2017
200	9	1/8-3/8 by 32ths	159-2009
300	9	1/8-1/4 by 64ths	159-3009
300	5	1/8-1/4 by 32ths	159-3005

Machine Accessories

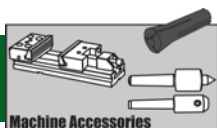


EOC COLLETS



Type	A	L	Capacity Range
16B	25.5	40	2-16
20B	29.8	45	2-20
25B	35.05	52	2-25
32B	43.7	60	4-32
40B	52.2	68	6-40
50B	63.8	80	8-50

Size	16B Model No.	20B Model No.	25B Model No.	32B Model No.	40B Model No.	50B Model No.	Size	25A Model No.	32A Model No.	40A Model No.	50A Model No.
2mm	122-0502	122-1502	122-2502				2mm	204-5202			
3mm	122-0504	122-1504	122-2504				3mm	204-5203			
4mm	122-0506	122-1506	122-2506	122-3506			4mm	204-5204	204-5354		
5mm	122-0508	122-1508	122-2508	122-3508			5mm	204-5205	204-5355		
6mm	122-0510	122-1510	122-2510	122-3510	122-4510		6mm	204-5206	204-5356	204-5406	204-9456
7mm	122-0512	122-1512	122-2512	122-3512	122-4512		7mm	204-5207	204-5357	204-5407	204-9457
8mm	122-0514	122-1514	122-2514	122-3514	122-4514	122-5514	8mm	204-5208	204-5358	204-5408	204-9458
9mm	122-0516	122-1516	122-2516	122-3516	122-4516	122-5516	9mm	204-5209	204-5359	204-5409	204-9459
10mm	122-0518	122-1518	122-2518	122-3518	122-4518	122-5518	10mm	204-5210	204-5360	204-5410	204-9460
11mm	122-0520	122-1520	122-2520	122-3520	122-4520	122-5520	11mm	204-5211	204-5361	204-5411	204-9461
12mm	122-0522	122-1522	122-2522	122-3522	122-4522	122-5522	12mm	204-5212	204-5362	204-5412	204-9462
13mm	122-0524	122-1524	122-2524	122-3524	122-4524	122-5524	13mm	204-5213	204-5363	204-5413	204-9463
14mm	122-0526	122-1526	122-2526	122-3526	122-4526	122-5526	14mm	204-5214	204-5364	204-5414	204-9464
15mm	122-0528	122-1528	122-2528	122-3528	122-4528	122-5528	15mm	204-5215	204-5365	204-5415	204-9465
16mm	122-0530	122-1530	122-2530	122-3530	122-4530	122-5530	16mm	204-5216	204-5366	204-5416	204-9466
17mm		122-1532	122-2532	122-3532	122-4532	122-5532	17mm	204-5217	204-5367	204-5417	204-9467
18mm		122-1534	122-2534	122-3534	122-4534	122-5534	18mm	204-5218	204-5368	204-5418	204-9468
19mm		122-1536	122-2536	122-3536	122-4536	122-5536	19mm	204-5219	204-5369	204-5419	204-9469
20mm		122-1538	122-2538	122-3538	122-4538	122-5538	20mm	204-5220	204-5370	204-5420	204-9470
21mm			122-2540	122-3540	122-4540	122-5540	21mm	204-5221	204-5371	204-5421	204-9471
22mm			122-2542	122-3542	122-4542	122-5542	22mm	204-5222	204-5372	204-5422	204-9472
23mm			122-2544	122-3544	122-4544	122-5544	23mm	204-5223	204-5373	204-5423	204-9473
24mm			122-2546	122-3546	122-4546	122-5546	24mm	204-5224	204-5374	204-5424	204-9474
25mm			122-2548	122-3548	122-4548	122-5548	25mm	204-5225	204-5375	204-5425	204-9475
26mm				122-3550	122-4550	122-5550	26mm		204-5376	204-5426	204-9476
27mm				122-3552	122-4552	122-5552	27mm		204-5377	204-5427	204-9477
28mm				122-3554	122-4554	122-5554	28mm		204-5378	204-5428	204-9478
29mm				122-3556	122-4556	122-5556	29mm		204-5379	204-5429	204-9479
30mm				122-3558	122-4558	122-5558	30mm		204-5380	204-5430	204-9480
31mm				122-3560	122-4560	122-5560	31mm		204-5381	204-5431	204-9481
32mm				122-3562	122-4562	122-5562	32mm		204-5382	204-5432	204-9482
33mm					122-4564	122-5564	33mm			204-5433	204-9483
34mm					122-4566	122-5566	34mm			204-5434	204-9484
35mm					122-4568	122-5568	35mm			204-5435	204-9485
36mm					122-4570	122-5570	36mm				204-9486
37mm					122-4572	122-5572	37mm				204-9487
38mm					122-4574	122-5574	38mm				204-9488
39mm					122-4576	122-5576	39mm				204-9489
40mm					122-4578	122-5578	40mm				204-9490
41mm						122-5580	41mm				204-9491
42mm						122-5582	42mm				204-9492
43mm						122-5584	43mm				204-9493
44mm						122-5586	44mm				204-9494
45mm						122-5588	45mm				204-9495
46mm						122-5590	46mm				204-9496
47mm						122-5592	47mm				204-9497
48mm						122-5594	48mm				204-9498
49mm						122-5596	49mm				204-9499
50mm						122-5598	50mm				204-9500



Machine Accessories

ER COLLETS



- Unique 8° taper design affords highest gripping power.
- True double angle, for extreme concentricity.
- 16 Jaws giving powerful gripping and parallel clamping.
- A unique self-releasing system is built into the collet and clamping nut to eliminate cutting tools sticking in collets.

Type	A	B
ER11	11.5mm	18mm
ER16	17mm	27mm
ER20	21mm	31mm
ER25	26mm	35mm
ER32	33mm	40mm
ER40	41mm	46mm

Inch

Size	ER11 Model No.	ER16 Model No.	ER20 Model No.	ER25 Model No.	ER 32 Model No.	ER40 Model No.
1/32"	204-1102	204-1602				
3/64"	204-1103	204-1603	204-2003			
1/16"	204-1104	204-1604	204-2004	204-2504		
5/64"	204-1105	204-1605	204-2005	204-2505		
3/32"	204-1106	204-1606	204-2006	204-2506	204-3206	
7/64"	204-1107	204-1607	204-2007	204-2507	204-3207	
1/8"	204-1108	204-1608	204-2008	204-2508	204-3208	204-4008
9/64"	204-1109	204-1609	204-2009	204-2509	204-3209	204-4009
5/32"	204-1110	204-1610	204-2010	204-2510	204-3210	204-4010
11/64"	204-1111	204-1611	204-2011	204-2511	204-3211	204-4011
3/16"	204-1112	204-1612	204-2012	204-2512	204-3212	204-4012
13/64"	204-1113	204-1613	204-2013	204-2513	204-3213	204-4013
7/32"	204-1114	204-1614	204-2014	204-2514	204-3214	204-4014
15/64"	204-1115	204-1615	204-2015	204-2515	204-3215	204-4015
1/4"	204-1116	204-1616	204-2016	204-2516	204-3216	204-4016
17/64"	204-1117	204-1617	204-2017	204-2517	204-3217	204-4017
9/32"	204-1118	204-1618	204-2018	204-2518	204-3218	204-4018
19/64"		204-1619	204-2019	204-2519	204-3219	204-4019
5/16"		204-1620	204-2020	204-2520	204-3220	204-4020
21/64"		204-1621	204-2021	204-2521	204-3221	204-4021
11/32"		204-1622	204-2022	204-2522	204-3222	204-4022
23/64"		204-1623	204-2023	204-2523	204-3223	204-4023
3/8"		204-1624	204-2024	204-2524	204-3224	204-4024
25/64"			204-2025	204-2525	204-3225	204-4025
13/32"			204-2026	204-2526	204-3226	204-4026
27/64"			204-2027	204-2527	204-3227	204-4027
7/16"			204-2028	204-2528	204-3228	204-4028
29/64"			204-2029	204-2529	204-3229	204-4029
15/32"			204-2030	204-2530	204-3230	204-4030
31/64"			204-2031	204-2531	204-3231	204-4031
1/2"			204-2032	204-2532	204-3232	204-4032
33/64"				204-2533	204-3233	204-4033
17/32"				204-2534	204-3234	204-4034
35/64"				204-2535	204-3235	204-4035
9/16"				204-2536	204-3236	204-4036
37/64"				204-2537	204-3237	204-4037
19/32"				204-2538	204-3238	204-4038
39/64"				204-2539	204-3239	204-4039
5/8"				204-2540	204-3240	204-4040
41/64"					204-3241	204-4041
21/32"					204-3242	204-4042
43/64"					204-3243	204-4043
11/16"					204-3244	204-4044
45/64"					204-3245	204-4045
23/32"					204-3246	204-4046
47/64"					204-3247	204-4047
3/4"					204-3248	204-4048
49/64"					204-3249	204-4049
25/32"					204-3250	204-4050
51/64"					204-3251	204-4051
13/16"					204-3252	204-4052
53/64"						204-4053
27/32"						204-4054
55/64"						204-4055
7/8"						204-4056
57/64"						204-4057
29/32"						204-4058
59/64"						204-4059
15/16"						204-4060
61/64"						204-4061
31/32"						204-4062
63/64"						204-4063
1"						204-4064
1-1/64"						204-4065

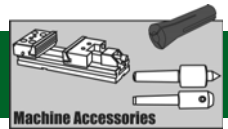
Metric

Size	ER11 Model No.	ER 16 Model No.	ER-20 Model No.	ER-25 Model No.	ER 32 Model No.	ER 40 Model No.
1mm	204-1010	204-6010	204-7010	204-7210		
1.5mm	204-1015	204-6015	204-7015	204-7215		
2mm	204-1020	204-6020	204-7020	204-7220	204-3320	
2.5mm	204-1025	204-6025	204-7025	204-7225	204-3325	
3mm	204-1030	204-6030	204-7030	204-7230	204-3330	204-4130
3.5mm	204-1035	204-6035	204-7035	204-7235	204-3335	
4mm	204-1040	204-6040	204-7040	204-7240	204-3340	204-4134
4.5mm	204-1045	204-6045	204-7045	204-7245	204-3345	
5mm	204-1050	204-6050	204-7050	204-7250	204-3350	204-4135
5.5mm	204-1055	204-6055	204-7055	204-7255	204-3355	
6mm	204-1060	204-6060	204-7060	204-7260	204-3360	204-4136
7mm	204-1070	204-6070	204-7070	204-7270	204-3370	204-4137
8mm		204-6080	204-7080	204-7280	204-3380	204-4138
9mm		204-6090	204-7090	204-7290	204-3390	204-4139
10mm		204-6100	204-7100	204-7300	204-3400	204-4140
11mm			204-7110	204-7310	204-3410	204-4141
12mm			204-7120	204-7320	204-3420	204-4142
13mm			204-7130	204-7330	204-3430	204-4143
14mm				204-7340	204-3440	204-4144
15mm				204-7350	204-3450	204-4145
16mm				204-7360	204-3460	204-4146
17mm					204-3470	204-4147
18mm					204-3480	204-4148
19mm					204-3490	204-4149
20mm					204-3500	204-4150
21mm						204-4151
22mm						204-4152
23mm						204-4153
24mm						204-4154
25mm						204-4155
26mm						204-4156
27mm						204-4157
28mm						204-4158
29mm						204-4159
30mm						204-4160

SETS

Type	Descriptions	Model No.
ER16	10pcs set includes 1/32", 1/16", 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8"	204-1630
ER20	12pcs set includes 1/16", 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2"	204-2040
ER25	15pcs set includes 1/16", 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", 5/8"	204-2550
ER32	18pcs set includes 3/32", 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", 5/8", 21/32", 11/16", 23/32", 3/4"	204-3260
ER40	23pcs/set with wooden stand, includes 1/8", 3/16", 7/32", 1/4", 5/16", 11/32", 3/8", 13/32", 7/16", 1/2", 17/32", 9/16", 5/8", 21/32", 11/16", 3/4", 25/32", 13/16", 27/32", 7/8", 15/16", 31/32", 1"	204-4000

Machine Accessories



COLLET CHUCKS



MORSE TAPER

Shank Diameter	Collet Type	Capacity	Model No.
2MT	ER-20	0.04-0.511	230-7051
2MT	ER-25	0.04-0.629	230-7053
3MT	ER-32	0.06-0.787	230-7055
3MT	ER-40	0.12-1.02	230-7057
4MT	ER-40	0.12-1.02	230-7059
4MT	ER-50	0.393-1.33	230-7063
5MT	ER-40	0.12-1.02	230-7061
5MT	ER-50	0.393-1.33	230-7065
6MT	ER-50	0.393-1.33	230-7067



R8

Shank Diameter	Collet Type	G/L	Capacity	Model No.
R8	ER-16	1-1/2"	0.02-0.393	230-7041
R8	ER-16	3"	0.02-0.393	230-7043
R8	ER-32	1-5/8"	0.06-0.787	230-7045
R8	ER-40	2-27/32"	0.12-1.02	230-7047



30, 40 AND 50

Shank Diameter	Collet Type	Capacity	Model No.
30	ER-16	0.02-0.393	230-7071
30	ER-32	0.08-0.787	230-7073
30	ER-40	0.12-1.02	230-7075
40	ER-16	0.02-0.393	230-7077
40	ER-20	0.04-0.511	230-7079
40	ER-32	0.08-0.787	230-7081
40	ER-40	0.12-1.02	230-7083
40	ER-50	0.393-1.33	230-7085
50	ER-16	0.02-0.393	230-7087
50	ER-20	0.04-0.511	230-7089
50	ER-40	0.12-1.02	230-7091
50	ER-50	0.393-1.33	230-7093

STRAIGHT SHANK

Shank Diameter	Collet Type	Capacity	Model No.
5/8x2-1/2	ER-11	0.02-0.275	230-7001
3/4x2-1/2	ER-11	0.02-0.275	230-7003
3/4x4"	ER-11	0.02-0.275	230-7005
3/4x6"	ER-11	0.02-0.275	230-7007
3/4x2-1/2	ER-16	0.02-0.393	230-7009
3/4x4"	ER-16	0.02-0.393	230-7011
3/4x6"	ER-16	0.02-0.393	230-7013
3/4x2-1/2	ER-20	0.04-0.511	230-7015
3/4x4"	ER-20	0.04-0.511	230-7017
3/4x6"	ER-20	0.04-0.511	230-7019
3/4x2"	ER-25	0.04-0.629	230-7021
3/4x4"	ER-25	0.04-0.629	230-7023
1"x1-31/32	ER-32	0.08-0.787	230-7027
1-1/4x2-3/8	ER-32	0.08-0.787	230-7029
1-1/4x5-29/32	ER-32	0.08-0.787	230-7031
3/4x1-31/32	ER-32	0.08-0.787	230-7025
1"x2-3/8	ER-40	0.12-1.02	230-7033
1-1/4x2-3/8	ER-40	0.12-1.02	230-7035

COLLET CHUCK SETS



ER 40

Collets in Set15 collets :

1/8, 3/16, 1/4, 5/16, 3/8,
7/16, 1/2, 9/16, 5/8, 11/16,
3/4, 13/16, 7/8, 15/16, 1"

Collet in Set 8 collets :

1/8, 1/4, 3/8, 1/2, 5/8, 3/4,
7/8, 1

Shank Size	Model No.
R8	230-0008
ISO 30	230-0030
ISO 40	230-0040
ISO 50	230-0050
3MT	230-0063
4MT	230-0064
5MT	230-0065
1"x2-3/8	230-0076
1-1/4" x2-3/8	230-0078

Shank Size	Model No.
R8	230-0108
30	230-0130
40	230-0140
50	230-0150
3MT	230-0163
4MT	230-0164
5MT	230-0165
1X2-3/8	230-0176
1-1/4"x2-3/8	230-0178

ER16

Collets in Set 10 collets:

1/32, 1/16, 3/32, 1/8, 3/16,
7/32, 1/4, 5/16, 11/32, 3/8

Shank Size	Model No.
R8	230-0608
30	230-0630
40	230-0640
50	230-0650
2MT	230-0662
3MT	230-0663
4MT	230-0664
3/4X2-1/2"	230-0672
3/4"x4	230-0674
3/4"x6"	230-0676

ER11

Collets in Set 7 collets:

1/32, 1/16, 3/32, 1/8,
3/16, 7/32, 1/4

Shank Size	Model No.
R8	230-0718
30	230-0733
40	230-0734
50	230-0735
2MT	230-0772
3MT	230-0773
4MT	230-0774
3/4X2-1/2"	230-0741
3/4"x4	230-0743
3/4"x6"	230-0744

ER 25

Collets in Set10 collets :

3/32, 1/8, 3/16, 1/4, 5/16, 3/16, 1/4, 5/16, 3/8,
3/8, 7/16, 1/2, 9/16, 5/8 1/2, 5/8

Shank Size	Model No.
R8	230-0408
30	230-0430
40	230-0440
50	230-0450
2MT	230-0462
3MT	230-0463
4MT	230-0464
3/4"	230-0474
1"	230-0476

Shank Size	Model No.
R8	230-0508
30	230-0530
40	230-0540
50	230-0550
2MT	230-0562
3MT	230-0563
4MT	230-0564
3/4"x2-1/2	230-0574
1"x2-3/8	230-0576

ER 32

Collets in Set 12 colles:

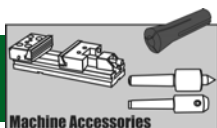
1/16, 3/32, 1/8, 3/16, 1/4,
5/16, 3/8, 7/16, 1/2, 9/16,
5/8, 13/16

Shank Size	Model No.
R8	230-0208
30	230-0230
40	230-0240
50	230-0250
3MT	230-0263
4MT	230-0264
5MT	230-0265
3/4"x2-1/2"	230-0274
1"x2-3/8	230-0276

Collets in Set 6 collets :

1/4, 5/16, 3/8, 1/2, 5/8, 3/4

Shank Size	Model No.
R8	230-0308
30	230-0330
40	230-0340
50	230-0350
3MT	230-0363
4MT	230-0364
5MT	230-0365
3/4"x2-1/2	230-0374
1"x2-3/8	230-0376



Machine Accessories

METRIC ER COLLETS



Size	ER 8 Model No.	ER 9 Model No.	ER 12 Model No.
1.0mm	204-0810	204-0910	204-1210
1.5mm	204-0815	204-0915	204-1215
2.0mm	204-0820	204-0920	204-1220
2.5mm	204-0825	204-0925	204-1225
3.0mm	204-0830	204-0930	204-1230
3.5mm	204-0835	204-0935	204-1235
4.0mm		204-0940	204-1240
4.5mm		204-0945	204-1245
5.0mm		204-0950	204-1250
5.5mm			204-1255
6.0mm			204-1260
7.0mm			204-1270

Size	ER-50 Model No.	Size	ER 50 Model No.
6mm	204-9060	20mm	204-9200
7mm	204-9070	21mm	204-9210
8mm	204-9080	22mm	204-9220
9mm	204-9090	23mm	204-9230
10mm	204-9100	24mm	204-9240
11mm	204-9110	25mm	204-9250
12mm	204-9120	26mm	204-9260
13mm	204-9130	27mm	204-9270
14mm	204-9140	28mm	204-9280
15mm	204-9150	29mm	204-9290
16mm	204-9160	30mm	204-9300
17mm	204-9170	31mm	204-9310
18mm	204-9180	32mm	204-9320
19mm	204-9190	33mm	204-9330
		34mm	204-9340

Size	ER 60 Model No.	Size	ER60 Model No.
10mm	204-6210	25mm	204-6225
11mm	204-6211	26mm	204-6226
12mm	204-6212	27mm	204-6227
13mm	204-6213	28mm	204-6228
14mm	204-6214	29mm	204-6229
15mm	204-6215	30mm	204-6230
16mm	204-6216	31mm	204-6231
17mm	204-6217	32mm	204-6232
18mm	204-6218	33mm	204-6233
19mm	204-6219	34mm	204-6234
20mm	204-6220	35mm	204-6235
21mm	204-6221	36mm	204-6236
22mm	204-6222	37mm	204-6237
23mm	204-6223	38mm	204-6238
24mm	204-6224	39mm	204-6239
		40mm	204-6240

Size	ER 90 Model No.	Size	ER 90 Model No.
20mm	204-6320	40mm	204-6340
22mm	204-6322	42mm	204-6342
24mm	204-6324	44mm	204-6344
26mm	204-6326	46mm	204-6346
28mm	204-6328	48mm	204-6348
30mm	204-6330	50mm	204-6350
32mm	204-6332	52mm	204-6352
34mm	204-6334	54mm	204-6354
36mm	204-6336	56mm	204-6356
38mm	204-6338	58mm	204-6358
		60mm	204-6360

METRIC ER COLLET CHUCK SETS



ER40

15 collets : 3, 4, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20, 22, 24, 26mm

ER32

12 Collets: 3, 4, 5, 6, 8, 10, 12, 14, 15, 16, 18, 20mm

ER25

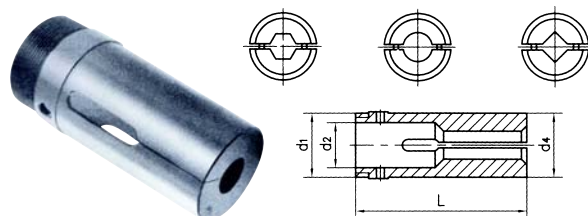
10 collets: 3, 4, 5, 6, 8, 10, 12, 14, 15, 16mm

ER16

8 collets: 2, 3, 4, 5, 6, 7, 8, 10mm

Shank Size	15 Collets Model No.	Shank Size	8 Collets Model No.	Shank Size	12 Collets Model No.	Shank Size	6 Collets Model No.	Shank Size	10 Collets Model No.	Shank Size	6 Collets Model No.	Shank Size	8 Collets Model No.
R8	230-2008	R8	230-2108	R8	230-2208	R8	230-2308	R8	230-2408	R8	230-2508	R8	230-2608
30	230-2030	30	230-2130	30	230-2230	30	230-2330	30	230-2430	30	230-2530	30	230-2630
40	230-2040	40	230-2140	40	230-2240	40	230-2340	40	230-2440	40	230-2540	40	230-2640
45	230-2045	45	230-2145	45	230-2245	45	230-2345	45	230-2445	45	230-2545	45	230-2645
50	230-2050	50	230-2150	50	230-2250	50	230-2350	50	230-2450	50	230-2550	50	230-2650
3MT	230-2063	3MT	230-2163	3MT	230-2263	3MT	230-2363	3MT	230-2462	3MT	230-2562	3MT	230-2662
4MT	230-2064	4MT	230-2164	4MT	230-2264	4MT	230-2364	4MT	230-2463	4MT	230-2563	4MT	230-2663
5MT	230-2065	5MT	230-2165	5MT	230-2265	5MT	230-2365	5MT	230-2464	5MT	230-2564	5MT	230-2664
1"	230-2076	1"	230-2176	3/4"	230-2274	3/4"	230-2374	3/4"	230-2474	3/4"	230-2574	1/2"	230-2672
1-1/4"	230-2078	1-1/4"	230-2178	1"	230-2276	1"	230-2376	1"	230-2476	1"	230-2576	3/4"	230-2674

FEEDING COLLET DIN 6344

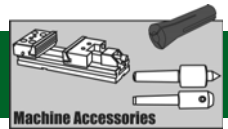


Size	Hex Model No.	Size	Square Model No.	Size	Round Model No.
8mm	530-1208	7mm	530-1107	10mm	530-1010
10mm	530-1210	8mm	530-1108	12mm	530-1012
16mm	530-1216	13mm	530-1113	18mm	530-1018
20mm	530-1220	17mm	530-1117	24mm	530-1024
30mm	530-1230	25mm	530-1125	36mm	530-1036
45mm	530-1245	36mm	530-1136	52mm	530-1052

CLAMPING COLLET DIN 6343

Size	Hex Model No.	Size	Round Model No.	Size	Square Model No.
10mm	530-0210	12mm	530-0012	11mm	530-0111
13mm	530-0213	16mm	530-0016	15mm	530-0115
19mm	530-0219	22mm	530-0022	18mm	530-0118
22mm	530-0222	26mm	530-0026	21mm	530-0121
26mm	530-0226	30mm	530-0030	25mm	530-0125
30mm	530-0230	36mm	530-0036	29mm	530-0129
36mm	530-0236	42mm	530-0042	35mm	530-0135
42mm	530-0242	50mm	530-0050	42mm	530-0142
52mm	530-0252	60mm	530-0060		

Machine Accessories



R8 END MILL HOLDERS

For single and double end mills (* for single end mills only).



Inch	
Hole Dia.	Model No.
3/16"	210-0102
1/4"	210-0103
5/16"	210-0104
3/8"	210-0105
7/16"	210-0106
1/2"	210-0107
5/8"	210-0108

Metric	
Hole Dia.	Model No.
4mm	210-1104
5mm	210-1105
6mm	210-1106
7mm	210-1107
8mm	210-1108
10mm	210-1110
12mm	210-1112

Sets

No. Of Pieces	Specifications	Model No.
5	3/16, 3/8, 1/2, 5/8, 3/4"	210-0305
8	3/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4"	210-0308
9	3/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1-1/4, 1-1/2"	210-0309

MT END MILL HOLDER -TANG TYPE

For single and double end mills

(* for single end mills only).



Shank Hole			Shank Hole			Shank Hole			Shank Hole		
Taper	Dia.	Model No.	Taper	Dia.	Model No.	Taper	Dia.	Model No.	Taper	Dia.	Model No.
MT2	3/16"	219-2012	MT3	5/8"	*219-3017	MT4	1"	*219-4020	MT5	1-1/4"	*219-5021
MT2	1/4"	219-2013	MT3	3/4"	*219-3018	MT4	1-1/4"	*219-4021	MT5	1-1/2"	*219-5022
MT2	5/16"	219-2014	MT3	7/8"	*219-3019	MT4	1-1/2"	*219-4022	MT5	2"	*219-5024
MT2	3/8"	219-2015	MT3	1"	*219-3020	MT5	3/16"	219-5012	MT5	2-1/2"	*219-5025
MT2	1/2"	*219-2016	MT4	3/16"	219-4012	MT5	1/4"	219-5013	MT6	7/8"	219-6019
MT2	5/8"	*219-2017	MT4	1/4"	219-4013	MT5	5/16"	219-5014	MT6	1"	219-6020
MT2	3/4"	*219-2018	MT4	5/16"	219-4014	MT5	3/8"	219-5015	MT6	1-1/4"	*219-6021
MT3	3/16"	219-3012	MT4	3/8"	219-4015	MT5	1/2"	219-5016	MT6	1-1/2"	*219-6022
MT3	1/4"	219-3013	MT4	1/2"	219-4016	MT5	5/8"	219-5017	MT6	2"	*219-6024
MT3	5/16"	219-3014	MT4	5/8"	219-4017	MT5	3/4"	219-5018	MT6	2-1/2"	*219-6025
MT3	3/8"	219-3015	MT4	3/4"	219-4018	MT5	7/8"	219-5019			
MT3	1/2"	219-3016	MT4	7/8"	*219-4019	MT5	1"	219-5020			

MT END MILL HOLDER - DRAWBAR END TYPE

For single and double end mills

(* for single end mills only).



Shank Hole			Shank Hole			Shank Hole			Shank Hole		
Taper	Dia.	Model No.	Taper	Dia.	Model No.	Taper	Dia.	Model No.	Taper	Dia.	Model No.
MT2	3/16"	219-2112	MT3	1/2"	219-3116	MT4	1-1/4"	*219-4121	MT6	3/8"	219-6115
MT2	1/4"	219-2113	MT3	5/8"	*219-3117	MT4	1-1/2"	*219-4122	MT6	1/2"	219-6116
MT2	5/16"	219-2114	MT3	3/4"	*219-3118	MT5	3/8"	219-5115	MT6	5/8"	219-6117
MT2	3/8"	219-2115	MT3	7/8"	*219-3119	MT5	1/2"	219-5116	MT6	3/4"	219-6118
MT2	1/2"	*219-2116	MT3	1"	*219-3120	MT5	5/8"	219-5117	MT6	7/8"	*219-6119
MT2	5/8"	*219-2117	MT4	3/8"	219-4115	MT5	3/4"	219-5118	MT6	1"	*219-6120
MT2	3/4"	*219-2118	MT4	1/2"	219-4116	MT5	7/8"	219-5119	MT6	1-1/4"	*219-6121
MT3	3/16"	219-3112	MT4	5/8"	219-4117	MT5	1"	219-5120	MT6	1-1/2"	*219-6122
MT3	1/4"	219-3113	MT4	3/4"	219-4118	MT5	1-1/4"	*219-5121	MT6	2"	*219-6124
MT3	5/16"	219-3114	MT4	7/8"	*219-4119	MT5	1-1/2"	*219-5122	MT6	2-1/2"	*219-6126
MT3	3/8"	219-3115	MT4	1"	*219-4120	MT5	2"	*219-5124			

30-40-50 TAPER END MILL HOLDERS

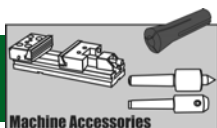
For single and double end mills

(* for single end mills only).



Inch	
Hole Dia.	Model No.
3/16"	210-3012 210-4012
5/16"	210-3015 210-4015
3/8"	210-3024 210-4024 210-5024
1/2"	210-3032 210-4032 210-5032
5/8"	210-3040 210-4040 210-5040
3/4"	210-3048 210-4048 210-5048
7/8"	*210-3056 210-4056 210-5056
1"	*210-3064 *210-4064 210-5064
1-1/4"	*210-3066 *210-4066 *210-5066
1-1/2"	*210-4068 *210-5068
2"	*210-4070 *210-5070
2-1/2"	*210-5072

Metric	
Hole Dia.	Model No.
6mm	210-3306
8mm	210-3308 210-4308 210-5308
10 mm	210-3310 210-4310 210-5310
12mm	210-3312 210-4312 210-5312
13mm	210-3313 210-4313 210-5313
14mm	210-3314 210-4314 210-5314
16mm	210-3316 210-4316 210-5316
18mm	210-3318 210-4318 210-5318
19mm	210-3319 210-4319 210-5319
20mm	210-3320 210-4320 210-5320
22mm	*210-3322 210-4322 210-5322
25mm	*210-3325 *210-4325 210-5325
32mm	*210-3332 *210-4332 *210-5332
40mm	*210-4340 *210-5340
50mm	*210-5350
63mm	*210-5363



Machine Accessories

MT SHELL END MILL HOLDER -TANG END



Inch					
Shank Hole			Shank Hole		
Taper	Size	Model No.	Taper	Size	Model No.
MT2	1/2"	219-2032	MT4	7/8"	219-4056
MT2	5/8"	219-2040	MT4	1"	219-4100
MT2	3/4"	219-2048	MT4	1-1/4"	219-4106
MT3	1/2"	219-3032	MT4	1-1/2"	219-4132
MT3	5/8"	219-3040	MT5	1/2"	219-5032
MT3	3/4"	219-3048	MT5	5/8"	219-5040
MT3	7/8"	219-3056	MT5	3/4"	219-5048
MT3	1"	219-3064	MT5	7/8"	219-5056
MT3	1-1/4"	219-3066	MT5	1"	219-5100
MT4	1/2"	219-4032	MT5	1-1/4"	219-5106
MT4	5/8"	219-4040	MT5	1-1/2"	219-5132
MT4	3/4"	219-4048	MT5	2"	219-5200

Metric					
Shank Hole			Shank Hole		
Taper	Size	Model No.	Taper	Size	Model No.
MT2	13mm	219-1213	MT4	27mm	219-1427
MT2	16mm	219-1216	MT4	32mm	219-1432
MT2	22mm	219-1222	MT4	40mm	219-1440
MT3	16mm	219-1316	MT5	16mm	219-1516
MT3	22mm	219-1322	MT5	22mm	219-1522
MT3	27mm	219-1327	MT5	27mm	219-1525
MT3	32mm	219-1332	MT5	32mm	219-1532
MT4	16mm	219-1416	MT5	40mm	219-1540
MT4	22mm	219-1422	MT5	50mm	219-1550

MT SHELL END MILL HOLDER-DRAW BAR THREAD END



Inch					
Shank Hole			Shank Hole		
Taper	Size	Model No.	Taper	Size	Model No.
MT2	1/2"	219-2232	MT4	7/8"	219-4456
MT2	5/8"	219-2240	MT4	1"	219-4464
MT2	3/4"	219-2248	MT4	1-1/4"	219-4466
MT3	1/2"	219-3432	MT4	1-1/2"	219-4468
MT3	5/8"	219-3440	MT5	1/2"	219-5532
MT3	3/4"	219-3448	MT5	5/8"	219-5540
MT3	7/8"	219-3456	MT5	3/4"	219-5548
MT3	1"	219-3464	MT5	7/8"	219-5556
MT3	1-1/4"	219-3466	MT5	1"	219-5564
MT4	1/2"	219-4432	MT5	1-1/4"	219-5566
MT4	5/8"	219-4440	MT5	1-1/2"	219-5568
MT4	3/4"	219-4448	MT5	2"	219-5570

Metric					
Shank Hole			Shank Hole		
Taper	Size	Model No.	Taper	Size	Model No.
MT2	13mm	219-2213	MT4	27mm	219-4327
MT2	16mm	219-2216	MT4	32mm	219-4332
MT2	22mm	219-2222	MT4	40mm	219-4340
MT3	16mm	219-3316	MT5	16mm	219-5316
MT3	22mm	219-3322	MT5	22mm	219-5322
MT3	27mm	219-3327	MT5	27mm	219-5327
MT3	32mm	219-3332	MT5	32mm	219-5332
MT4	16mm	219-4316	MT5	40mm	219-5340
MT4	22mm	219-4322	MT5	50mm	219-5350

STRAIGHT SHANK SHELL END MILL HOLDER

Dia. Of Shank	Arbor Dia.	Model No.
1/2"	1/2"	210-5501
1/2"	3/4"	210-5502
1/2"	1"	210-5503
1/2"	1-1/4"	210-5504
1/2"	1-1/2"	210-5505
3/4"	1/2"	210-5506
3/4"	3/4"	210-5507
3/4"	1"	210-5508
3/4"	1-1/4"	210-5509
3/4"	1-1/2"	210-5510



R8 SHELL END MILL HOLDER



Inch	
Arbor Dia.	Model No.
1/2"	210-0401
3/4"	210-0402
1"	210-0403
1-1/4"	210-0404
1-1/2"	210-0405

Metric	
Arbor Dia.	Model No.
16mm	210-0416
19mm	210-0419
22mm	210-0422
27mm	210-0427
32mm	210-0432
40mm	210-0440

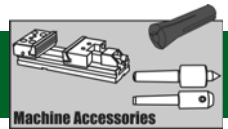
30,40 AND 50 SHELL END MILL HOLDER

Inch			
Hole Size	30 Taper Model No.	40 Taper Model No.	50 Taper Model No.
1/2"	210-6332	210-6431	210-6531
3/4"	210-6348	210-6448	210-6548
1"	210-6364	210-6464	210-6564
1-1/4"	210-6366	210-6466	210-6566
1-1/2"	210-6368	210-6468	210-6568
2"	210-6370	210-6470	210-6570
2-1/2"			210-6572



ISO-Metric			
Hole Size	ISO 30 Model No.	ISO 40 Model No.	ISO 50 Model No.
16mm	210-7316	210-7416	210-7516
19mm	210-7319	210-7419	210-7519
22mm	210-7322	210-7422	210-7522
25mm	210-7325	210-7425	210-7525
27mm	210-7327	210-7427	210-7527
32mm	210-7332	210-7432	210-7532
40mm	210-7340	210-7440	210-7540
50mm	210-7350	210-7450	210-7550
63mm	210-7363	210-7463	210-7563

Machine Accessories



CARBIDE INDEXABLE END MILL

Shank	Cut Dia.	Teeth	Model No.
R8	16mm	1	210-0816
R8	18mm	1	210-0818
R8	20mm	2	210-0820
R8	22mm	2	210-0822
R8	25mm	2	210-0825
R8	28mm	2	210-0828
R8	32mm	2	210-0832
R8	36mm	2	210-0836
R8	40mm	3	210-0840
R8	5/8"	1	210-0841
R8	11/16"	1	210-0844
R8	45mm	3	210-0845
R8	50mm	3	210-0850
R8	13/16"	2	210-0852
R8	7/8"	2	210-0856
R8	1"	2	210-0864
R8	1-1/16"	2	210-0870
R8	1-1/4"	2	210-0875
R8	1-3/8"	2	210-0880
R8	1-5/8"	3	210-0885
R8	1-13/16"	3	210-0890
R8	2"	3	210-0895
R8	2-1/2"	4	210-0896
16mm	16mm	1	210-1616
16mm	18mm	1	210-1618
16mm	20mm	2	210-1618
16mm	22mm	2	210-1620
16mm	25mm	2	210-1622
16mm	28mm	2	210-1625
16mm	32mm	2	210-1628
16mm	36mm	2	210-1632
16mm	40mm	3	210-1636
16mm	45mm	3	210-1640
16mm	50mm	3	210-1645
20mm	16mm	1	210-2016
20mm	18mm	1	210-2018
20mm	20mm	2	210-2020
20mm	22mm	2	210-2022
20mm	25mm	2	210-2025
20mm	28mm	2	210-2028
20mm	32mm	2	210-2032
20mm	36mm	2	210-2036
20mm	40mm	3	210-2040
20mm	45mm	3	210-2045
20mm	50mm	3	210-2050
25mm	16mm	1	210-1716
25mm	18mm	1	210-1718
25mm	20mm	2	210-1720
25mm	22mm	2	210-1722
25mm	25mm	2	210-1725
25mm	28mm	2	210-1728
25mm	32mm	2	210-1732
25mm	36mm	2	210-1736
25mm	40mm	3	210-1740
25mm	45mm	3	210-1745
25mm	50mm	3	210-1750
32mm	16mm	1	210-1816
32mm	18mm	1	210-1818
32mm	20mm	2	210-1820
32mm	22mm	2	210-1822
32mm	25mm	2	210-1825
32mm	28mm	2	210-1828
32mm	32mm	2	210-1832
32mm	36mm	2	210-1836
32mm	40mm	3	210-1840
32mm	45mm	3	210-1845
32mm	50mm	3	210-1850

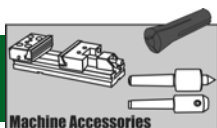
Shank	Cut Dia.	Teeth	Model No.
MT3	16mm	1	210-2316
MT3	18mm	1	210-2318
MT3	20mm	2	210-2320
MT3	22mm	2	210-2322
MT3	25mm	2	210-2325
MT3	28mm	2	210-2328
MT3	32mm	2	210-2332
MT3	36mm	2	210-2336
MT3	40mm	3	210-2340
MT3	5/8"	1	210-2341
MT3	11/16"	1	210-2344
MT3	45mm	3	210-2345
MT3	50mm	3	210-2350
MT3	13/16"	2	210-2352
MT3	7/8"	2	210-2356
MT3	1"	2	210-2364
MT3	1-1/16"	2	210-2370
MT3	1-1/4"	2	210-2375
MT3	1-3/8"	2	210-2380
MT3	1-5/8"	3	210-2385
MT3	1-13/16"	3	210-2390
MT3	2"	3	210-2395
MT4	16mm	1	210-2416
MT4	18mm	1	210-2418
MT4	20mm	2	210-2420
MT4	22mm	2	210-2422
MT4	25mm	2	210-2425
MT4	28mm	2	210-2428
MT4	32mm	2	210-2432
MT4	36mm	2	210-2436
MT4	40mm	3	210-2440
MT4	5/8"	1	210-2441
MT4	11/16"	1	210-2444
MT4	45mm	3	210-2445
MT4	50mm	3	210-2450
MT4	13/16"	2	210-2452
MT4	7/8"	2	210-2456
MT4	1"	2	210-2464
MT4	1-1/16"	2	210-2470
MT4	1-1/4"	2	210-2475
MT4	1-3/8"	2	210-2480
MT4	1-5/8"	3	210-2485
MT4	1-13/16"	3	210-2490
MT4	2"	3	210-2495
MT5	16mm	1	210-2516
MT5	18mm	1	210-2518
MT5	20mm	2	210-2520
MT5	22mm	2	210-2522
MT5	25mm	2	210-2525
MT5	28mm	2	210-2528
MT5	32mm	2	210-2532
MT5	36mm	2	210-2536
MT5	40mm	3	210-2540
MT5	5/8"	1	210-2541
MT5	11/16"	1	210-2544
MT5	45mm	3	210-2545
MT5	50mm	3	210-2550
MT5	13/16"	2	210-2552
MT5	7/8"	2	210-2556
MT5	1"	2	210-2564
MT5	1-1/16"	2	210-2570
MT5	1-1/4"	2	210-2575
MT5	1-3/8"	2	210-2380
MT5	1-5/8"	3	210-2585
MT5	1-13/16"	3	210-2590
MT5	2"	3	210-2595



Shank	Cut Dia.	Teeth	Model No.
5/8"	5/8"	1	210-2640
5/8"	11/16"	1	210-2644
5/8"	13/16"	2	210-2652
5/8"	7/8"	2	210-2656
5/8"	1"	2	210-2664
5/8"	1-1/8"	2	210-2670
5/8"	1-1/4"	2	210-2675
5/8"	1-3/8"	2	210-2680
5/8"	1-5/8"	3	210-2685
5/8"	1-13/16"	3	210-2690
5/8"	2"	3	210-2695
1/4"	5/8"	1	210-2740
1/4"	11/16"	1	210-2744
1/4"	13/16"	2	210-2752
1/4"	7/8"	2	210-2756
1/4"	1"	2	210-2764
1/4"	1-1/8"	2	210-2770
1/4"	1-1/4"	2	210-2775
1/4"	1-3/8"	2	210-2780
1/4"	1-5/8"	3	210-2785
1/4"	1-13/16"	3	210-2790
1/4"	2"	3	210-2795
1"	5/8"	1	210-2840
1"	11/16"	1	210-2844
1"	13/16"	2	210-2852
1"	7/8"	2	210-2856
1"	1"	2	210-2864
1"	1-1/8"	2	210-2870
1"	1-1/4"	2	210-2875
1"	1-3/8"	2	210-2880
1"	1-5/8"	3	210-2885
1"	1-13/16"	3	210-2890
1"	2"	3	210-2895
1-1/4"	5/8"	1	210-2941
1-1/4"	11/16"	1	210-2944
1-1/4"	13/16"	2	210-2952
1-1/4"	7/8"	2	210-2956
1-1/4"	1"	2	210-2964
1-1/4"	1-1/8"	2	210-2970
1-1/4"	1-1/4"	2	210-2975
1-1/4"	1-3/8"	2	210-2980
1-1/4"	1-5/8"	3	210-2985
1-1/4"	1-13/16"	3	210-2990
1-1/4"	2"	3	210-2995
30	16mm	1	210-8316
30	18mm	1	210-8318
30	20mm	2	210-8320
30	22mm	2	210-8322
30	25mm	2	210-8325
30	28mm	2	210-8328
30	32mm	2	210-8332
30	36mm	2	210-8336
30	40mm	3	210-8340
30	5/8"	1	210-8341
30	11/16"	1	210-8344

Shank	Cut Dia.	Teeth	Model No.
30	45mm	3	210-8345
30	50mm	3	210-8350
30	13/16"	2	210-8352
30	7/8"	2	210-8356
30	1"	2	210-8364
30	1-1/16"	2	210-8370
30	1-1/4"	2	210-8375
30	1-3/8"	2	210-8380
30	1-5/8"	3	210-8385
30	1-13/16"	3	210-8390
30	2"	3	210-8395
40	16mm	1	210-8416
40	18mm	1	210-8418
40	20mm	2	210-8420
40	22mm	2	210-8422
40	25mm	2	210-8425
40	28mm	2	210-8428
40	32mm	2	210-8432
40	36mm	2	210-8436
40	40mm	3	210-8440
40	5/8"	1	210-8441
40	11/16"	1	210-8444
40	45mm	3	210-8445
40	50mm	3	210-8450
40	13/16"	2	210-8452
40	7/8"	2	210-8456
40	1"	2	210-8464
40	1-1/16"	2	210-8470
40	1-1/4"	2	210-8475
40	1-3/8"	2	210-8480
40	1-5/8"	3	210-8485
40	1-13/16"	3	210-8490
40	2"	3	210-8495
50	16mm	1	210-8516
50	18mm	1	210-8518
50	20mm	2	210-8520
50	22mm	2	210-8522
50	25mm	2	210-8525
50	28mm	2	210-8528
50	32mm	2	210-8532
50	36mm	2	210-8536
50	40mm	3	210-8540
50	5/8"	1	210-8541
50	11/16"	1	210-8544
50	45mm	3	210-8545
50	50mm	3	210-8550
50	13/16"	2	210-8552
50	7/8"	2	210-8556
50	1"	2	210-8564
50	1-1/16"	2	210-8570
50	1-1/4"	2	210-8575
50	1-3/8"	2	210-8580
50	1-5/8"	3	210-8585
50	1-13/16"	3	210-8590
50	2"	3	210-8595

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Machine Accessories

MT COMBI SHELL END MILL ARBORS



Inch					
Shank Arbor			Shank Arbor		
Taper	Dia.	Model No.	Taper	Dia.	Model No.
MT3	1/2"	210-3532	MT4	1-1/4"	210-4566
MT3	5/8"	210-3540	MT4	1-1/2"	210-4568
MT3	3/4"	210-3548	MT4	2"	210-4570
MT3	7/8"	210-3556	MT5	5/8"	210-5540
MT3	1"	210-3564	MT5	3/4"	210-5548
MT3	1-1/4"	210-3566	MT5	7/8"	210-5556
MT4	1/2"	210-4532	MT5	1"	210-5564
MT4	5/8"	210-4540	MT5	1-1/4"	210-5566
MT4	3/4"	210-4548	MT5	1-1/2"	210-5568
MT4	7/8"	210-4556	MT5	2"	210-5570
MT4	1"	210-4564			

Metric					
Shank Arbor			Shank Arbor		
Taper	Dia.	Model No.	Taper	Dia.	Model No.
MT3	13mm	210-3613	MT4	27mm	210-4627
MT3	16mm	210-3616	MT4	32mm	210-4632
MT3	22mm	210-3622	MT4	40mm	210-4640
MT3	27mm	210-3627	MT5	22mm	210-5622
MT3	32mm	210-3632	MT5	27mm	210-5627
MT4	13mm	210-4613	MT5	32mm	210-5632
MT4	16mm	210-4616	MT5	40mm	210-5640
MT4	22mm	210-4622	MT5	50mm	210-5650

R8 COMBI SHELL END MILL ARBORS

It could be used clutch drive ring cross screw,
cross spanner to help to clamp various end mills.



Inch	
Arbor Dia.	Model No.
1/2"	210-1332
5/8"	210-1340
3/4"	210-1348
1"	210-1364
1-1/4"	210-1366
1-1/2"	210-1368

Metric	
Arbor Dia.	Model No.
13mm	210-1413
16mm	210-1416
22mm	210-1422
27mm	210-1427
32mm	210-1432
40mm	210-1440

30-40-50 COMBI SHELL END MILL ARBORS

DIN 2080

	SK50	SK40	SK 30
Hole Size	Model No.	Model No.	Model No.
16	210-9516	210-9416	210-9316
22	210-9522	210-9422	210-9322
27	210-9527	210-9427	210-9327
32	210-9532	210-9432	210-9332
40	210-9540	210-9440	
50	210-9550	210-9450	

Inch			
Arbor Dia.	30	40	50
1/2"	210-3132		
5/8"	210-3140	210-4140	210-5140
3/4"	210-3148	210-4148	210-5148
7/8"	210-3156	210-4156	210-5156
1"	210-3164	210-4164	210-5164
1-1/4"	210-3166	210-4166	210-5166
1-1/2"		210-4168	210-5168
2"		210-4170	210-5170

Metric			
Arbor Dia.	30	40	50
13mm	210-3213		
16mm	210-3216	210-4216	210-5216
22mm	210-3222	210-4222	210-5222
27mm	210-3227	210-4227	210-5227
32mm	210-3232	210-4232	210-5232
40mm		210-4240	210-5240
50mm		210-4250	210-5250

ACCESSORY FOR SHELL COMBI END MILL ARBORS

SCREWS



Spanner



Driver Ring



Inch		
Arbor Dia.	Thread	Model No.
1/2"	1/4-28	210-5840
3/4"	3/8-24	210-5841
1"	1/2-20	210-5842
1-1/4"	5/8-18	210-5843
1-1/2"	3/4-16	210-5844
2"	1-14	210-5845

Metric		
Arbor Dia.	Thread	Model No.
13mm	M6	210-5830
16mm	M8	210-5831
22mm	M10	210-5832
27mm	M12	210-5833
32mm	M16	210-5834
40mm	M20	210-5835
50mm	M24	210-5836
60mm	M30	210-5837

Inch	
Arbor Dia.	Model No.
1/2"	210-5860
5/8"	210-5861
3/4"	210-5862
1"	210-5863
1-1/4"	210-5864
1-1/2"	210-5865
2"	210-5866

Metric	
Arbor Dia.	Model No.
13mm	210-5850
16mm	210-5851
22mm	210-5852
27mm	210-5853
32mm	210-5854
40mm	210-5855
50mm	210-5856
60mm	210-5857

Inch	
Size	Model No.
1/2"	210-5810
5/8"	210-5811
3/4"	210-5822
7/8"	210-5823
1"	210-5824
1-1/4"	210-5825
1-1/2"	210-5826
2"	210-5827
1/2"	210-5880

Metric	
Size	Model No.
13mm	210-5800
16mm	210-5801
22mm	210-5802
27mm	210-5803
32mm	210-5804
40mm	210-5805
50mm	210-5806
60mm	210-5807

Machine Accessories



MILLING MACHINE ARBORS

STYLE A

- Style A with 23/32" x 1-3/4" pilots.
- Machined from high grade forging; have standard key ways and include arbor spacers and running bushings.



STYLE B

- Style B without pilots.
- Machined from high grade forging; have standard key ways and include arbor spacers and running bushings.



Arbor No.	Taper	Length of Dia. of				Model No.
		Arbor Dia.	Shoulder To nut	Running Bushings	Bushings Furnished	
30-7/8—A10-2	30	7/8"	10	1-5/8"	1	219-8332
31-A10-2	30	1 "	10	1-5/8"	1	219-8336
31-1/4-A10-2	30	1-1/4"	10	1-7/8"	1	219-8338
40-7/8-A10	40	7/8"	10		None	219-8432
40-7/8-A16-3	40	7/8"	16	1-7/8"	1	219-8434
41-A8	40	1 "	8		None	219-8436
41-A10	40	1 "	10		None	219-8438
41-A12	40	1 "		12	None	219-8440
41-A16-3	40	1 "	16	1-7/8"	1	219-8442
41-1/4-A8	40	1-1/4	8		None	219-8444
41-1/4-A10	40	1-1/4"	10		None	219-8446
41-1/4-A12	40	1-1/4"	12		None	219-8448
41-1/4-A-16-3	40	1-1/4"	16	1-7/8"	1	219-8450
50-7/8-A10	50	7/8	10		None	219-8532
50-7/8-A18-4	50	7/8"	18	2-1/8"	1	219-8534
51-A8	50	1 "	8		None	219-8536
51-A12	50	1 "	12	2-1/8"	None	219-8538
51-A18-4	50	1 "	18		1	219-8540
51-1/4-A8	50	1-1/4"	8		None	219-8542
51-1/4-A12	50	1-1/4	12		None	219-8544
51-1/4-A18-4	50	1-1/4"	18	2-1/8"	1	219-8546

		Length of Dia. of				
		Arøber	Shoulder	Running	Bushings	
Arbor No.	Taper	Dia.	To nut	Bushings	Furnished	Model No.
31-B2	30	1"	2 "	None	None	219-9334
40-7/8-B14-3	40	7/8"	14	1-7/8"	1	219-9432
40-7/8-B16-3	40	7/8	16	1-7/8	1	219-9434
41-B3	40	1"	3 "	None	None	219-9436
41-B14-3	40	1	14	1-7/8	1	219-9438
41-B20-3	40	1	20	1-7/8"	1	219-9440
41-1/4-B3	40	1-1/4"	3 "	None	None	219-9442
41-1/4-B14-3	40	1-1/4	14	1-7/8	1	219-9444
41-1/4-B20-3	40	1-1/4	20	1-7/8	1	219-9446
41-1/2-B10	40	1-1/2	10	2-1/8	None	219-9448
41-1/2-B20-4	40	1-1/2	20	2-1/8	1	219-9450
51-B3-1/2	50	1	3-1/2	None	None	219-9532
51-B15-4	50	1	15	2-1/8	1	219-9534
51-B18-4	50	1	18	2-1/8	2	219-9536
51-B24-4	50	1	24	2-1/8	2	219-9538
51-1/4-B3-1/2	50	1-1/4	3-1/2	None	None	219-9540
51-1/4-B15-4	50	1-1/4	15	2-1/8	1	219-9542
51-1/4-B18-4	50	1-1/4	18	2-1/8	2	219-9544
51-1/4-B24-4	50	1-1/4	24	2-1/8	2	219-9546
51-1/4-B30-4	50	1-1/4	30	2-1/8	2	219-9548
51-1/2-B3-1/2	50	1-1/2	3-1/2	None	None	219-9550
51-1/2-B18-4	50	1-1/2	18	2-1/8	2	219-9552
51-1/2-B24-5	50	1-1/2	24	2-3/4	2	219-9554
51-1/2-B30-5	50	1-1/2	30	2-3/4	2	219-9556
51-1/2-B36-5	50	1-1/2	36	2-3/4	2	219-9558
52-B24-5	50	2	24	2-3/4	2	219-9560
52-B30-5	50	2	30	2-3/4	2	219-9562
52-B36-5	50	2	36	2-3/4	2	219-9564
52-1/2-B36-6	50	2-1/2	36	3-3/8	2	219-9566

ARBOR SPACERS

With Keyways



7/8" Hole and 1-3/8"	1" Hole and 1-1/2"	1-1/4" Hole and 1-3/4"	1-1/2" Hole and 2-1/8"	2" Hole and 2-3/4"	Spacer Width	Model No.	Outside Dia.	Model No.	Outside Dia.	Model No.	Outside Dia.	Model No.	Outside Dia.	Model No.
1/16"	219-8110	219-8210	219-8710	219-8810	219-8910	1/2"	219-8126	219-8226	219-8726	219-8826	219-8926	219-8926	219-8926	219-8926
3/32"	219-8112	219-8212	219-8712	219-8812	219-8912	5/8"	219-8128	219-8228	219-8728	219-8828	219-8928	219-8928	219-8928	219-8928
1/8"	219-8114	219-8214	219-8714	219-8814	219-8914	3/4"	219-8130	219-8230	219-8730	219-8830	219-8930	219-8930	219-8930	219-8930
3/16"	219-8116	219-8216	219-8716	219-8816	219-8916	7/8"	219-8132	219-8232	219-8732	219-8832	219-8932	219-8932	219-8932	219-8932
1/4"	219-8118	219-8218	219-8718	219-8818	219-8918	1"	219-8134	219-8234	219-8734	219-8834	219-8934	219-8934	219-8934	219-8934
5/16"	219-8120	219-8220	219-8720	219-8820	219-8920	1-1/4"	219-8136	219-8236	219-8736	219-8836	219-8936	219-8936	219-8936	219-8936
3/8"	219-8122	219-8222	219-8722	219-8822	219-8922	1-1/2"	219-8138	219-8238	219-8738	219-8838	219-8938	219-8938	219-8938	219-8938
7/16"	219-8124	219-8224	219-8724	219-8824	219-8924	2"	219-8140	219-8240	219-8740	219-8840	219-8940	219-8940	219-8940	219-8940
						3"	219-8142	219-8242	219-8742	219-8842	219-8942	219-8942	219-8942	219-8942

ARBOR RUNNING BUSHINGS WITH KEYWAYS

For Style A and Style B milling machine arbors



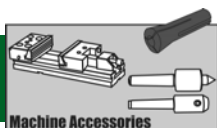
Arbor Dia.	Outside Dia.	Length	Model No.	Arbor Dia.	Outside Dia.	Length	Model No.
7/8"	1-5/8"	2-5/8"	219-8652	1-1/4"	2-1/8"	3-3/4"	219-8668
1"	1-5/8"	2-5/8"	219-8654	1-1/2"	2-1/8"	3-3/4"	219-8670
1-1/4"	1-7/8"	2-5/8"	219-8656	7/8"	2-3/4"	4-1/4"	219-8672
7/8"	1-7/8"	3-1/8"	219-8658	1"	2-3/4"	4-1/4"	219-8674
1"	1-7/8"	3-1/8"	219-8660	1-1/4"	2-3/4"	4-1/4"	219-8676
1-1/4"	1-7/8"	3-1/8"	219-8662	1-1/2"	2-3/4"	4-1/4"	219-8678
7/8"	2-1/8"	3-3/4"	219-8664	2"	2-3/4"	4-1/4"	219-8680
1"	2-1/8"	3-3/4"	219-8666	2-1/2"	3-3/8"	4-1/4"	219-8682

NUTS

For milling machine arbors



Arbor Dia.	Thread	Model No.
7/8"	7/8-14RH	219-8632
1"	1-14RH	219-8634
1-1/4"	1-1/4-12RH	219-8636
1-1/2"	1-1/2-12 RH	219-8638
2"	2-12RH	219-8640
2-1/2"	2-1/2-12RH	219-8642



Machine Accessories

MICROMETER ADJUSTABLE SPACING COLLARS

- Provides you with quick, accurate and positive adjustment.
- Features precise calibration of 1/1000".



Range	Hole Dia.	Outside Dia.	Thickness	Model No.
7/16-5/8"	3/4	1-1/2	7/16	712-0400
9/16-3/4"	7/8	1-1/2	9/16	712-0410
5/8-7/8"	1	1-3/4	5/8	712-0420
3/4-1"	1-1/4	2-1/8	3/4	712-0430
7/8-1-1/4"	1-1/2	2-5/8	7/8	712-0440
15/16-1-1/2"	2	3-5/8	15/16	712-0450



STRAIGHT SHANK STUB MILLING MACHINE ARBORS

- For holding saws or small cutters.
- These arbors are designed and made to fit directly into standard End Mill Adapters. Sets include spacers and nut.
- Arbors furnished with standard key ways and L.H. arbor nut.
- Lengths of shoulder to nut are 1"
- Hardened and ground.

Dia. Of Shank	Arbor Dia.	Length of Shoulder to Nut	Model No.
1/2"	1/2"	1"	210-3800
1/2"	5/8"	1"	210-3801
1/2"	3/4"	1"	210-3802
3/4"	1/2"	1"	210-3803
3/4"	5/8"	1"	210-3804
3/4"	3/4"	1"	210-3805
3/4"	7/8"	1"	210-3806
3/4"	1"	1"	210-3807
3/4"	1-1/4"	1"	210-3808

STUB MILLING MACHINE ARBORS

- Adjust the washer to hold the end mills according to your various needs.



Inch	Shank	Arbor Dia.	Length of Shoulder to Nut	Model No.
	R8	1"	2"	210-2108
	MT2	1"	2"	210-2112
	MT3	1"	2"	210-2113
	MT4	1"	2"	210-2114
	MT5	1"	2"	210-2115
	R8	1-1/4"	2"	210-2118
	MT2	1-1/4"	2"	210-2122
	MT3	1-1/4"	2"	210-2123
	MT4	1-1/4"	2"	210-2124
	MT5	1-1/4"	2"	210-2125
	30	1"	1-1/2"	210-2130
	30	1-1/4"	1-3/4"	210-2133
	40	1"	1-1/2"	210-2140
	40	1-1/4"	1-3/4"	210-2144
	50	1"	1-1/2"	210-2150
	50	1-1/4"	1-3/4"	210-2155

Metric	Shank	End Mill Dia.	Model No.
	R8	22mm	210-2208
	MT2	22mm	210-2212
	MT3	22mm	210-2213
	MT4	22mm	210-2214
	MT5	22mm	210-2215
	R8	27mm	210-2218
	MT2	27mm	210-2222
	MT3	27mm	210-2223
	MT4	27mm	210-2224
	MT5	27mm	210-2225

7:24 TO MORSE TAPER ADAPTERS

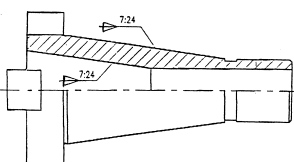


Outside Taper	Inside Taper	Overall Length	Model No.	Outside Taper	Inside Taper	Overall Length	Model No.
30	1	118mm	214-7300	40	4	188mm	214-7335
30	2	118mm	214-7305	40	5	273mm	214-7340
30	3	138mm	214-7310	50	1	172mm	214-7345
30	4	212mm	214-7315	50	2	187mm	214-7350
40	1	143mm	214-7320	50	3	192mm	214-7355
40	2	143mm	214-7325	50	4	197mm	214-7360
40	3	158mm	214-7330	50	5	232mm	214-7365

7:24 TO 7:24 ADAPTERS

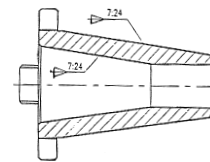
Inside Taper Draw, Key Type

Outside Taper	Inside Taper	Overall Length	Model No.
40	30	110mm	214-7270
50	30	145mm	214-7275
50	40	145mm	214-7280



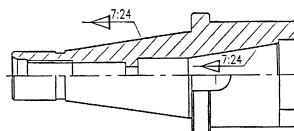
End Open Type

Outside Taper	Inside Taper	Overall Length	Model No.
40	30	86mm	214-7200
50	30	129.5mm	214-7205
50	40	129.5mm	214-7210



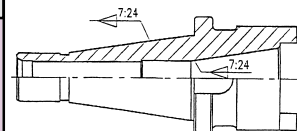
Outside Taper Draw

Outside Taper	Inside Taper	Overall Length	Model No.
40	30	152.4mm	214-7220
50	30	185.8mm	214-7225
50	40	207.8mm	214-7230

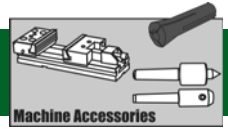


Inside Taper Draw

Outside Taper	Inside Taper	Overall Length	Model No.
40	30	152.4mm	214-7240
40	40	204.4mm	214-7245
50	30	185.8mm	214-7250
50	40	207.8mm	214-7255
50	50	260.8mm	214-7260



Machine Accessories



R8 TO MT SLEEVES



Specifications	Model No.
from R8 to MT1	214-9001
from R8 to MT2	214-9002
from R8 to MT3	214-9003
from R8 to MT4	214-9004

DRIFT KEYS-DROP FORGED

Removes taper shank drills or reamers Set Model No. 292-6240
From sleeves or sockets quickly Set include all FOUR sizes



Size	Fits Mt. Sleeves and Sockets	Overall Length	ThickNess	Width at Hole	Model No.
1	No. 1 M. T.	4-1/2"	13/64"	11/16"	292-6220
2	No. 2 M. T.	4-1/8"	1/4"	13/16"	292-6225
3	No. 3 M. T.	6-3/4"	5/16"	1-1/16"	292-6230
4	No. 4.5.6. M. T.	7-1/8"	15/32"	1-1/8"	292-6235

MORSE TAPER SLEEVES



Hardened Tang Only

Morse Taper Outside	Morse Taper Inside	Model No.	Morse Taper Outside	Morse Taper Inside	Model No.
1	0	214-8001	5	2	214-8025
2	1	214-8012	6	2	214-8026
3	1	214-8013	4	3	214-8034
4	1	214-8014	5	3	214-8035
5	1	214-8015	6	3	214-8036
6	1	214-8016	5	4	214-8045
3	2	214-8023	6	4	214-8046
4	2	214-8024	6	5	214-8056

Hardened & Ground Throughout, DIN-2185

Morse Taper Outside	Morse Taper Inside	Model No.	Morse Taper Outside	Morse Taper Inside	Model No.
1	0	214-8101	5	2	214-8125
2	1	214-8112	6	2	214-8126
3	1	214-8113	4	3	214-8134
4	1	214-8114	5	3	214-8135
5	1	214-8115	6	3	214-8136
6	1	214-8116	5	4	214-8145
3	2	214-8123	6	4	214-8146
4	2	214-8124	6	5	214-8156

MORSE TAPER EXTENSION SOCKETS



Hardened Tang Only

Morse Taper Shank Outside	Morse Taper Shank Inside	Model No.	Morse Taper Shank Outside	Morse Taper Shank Inside	Model No.	Morse Taper Shank Outside	Morse Taper Shank Inside	Model No.
1	1	214-8511	5	2	214-8525	5	4	214-8545
2	1	214-8512	6	2	214-8526	6	4	214-8546
3	1	214-8513	2	3	214-8532	3	5	214-8553
4	1	214-8514	3	3	214-8533	4	5	214-8554
5	1	214-8515	4	3	214-8534	5	5	214-8555
6	1	214-8516	5	3	214-8535	6	5	214-8556
1	2	214-8521	6	3	214-8536	4	6	214-8564
2	2	214-8522	2	4	214-8542	5	6	214-8565
3	2	214-8523	3	4	214-8543	6	6	214-8566
4	2	214-8524	4	4	214-8544			

Hardened & Ground Throughout, DIN-2187

Morse Taper Shank Outside	Morse Taper Shank Inside	Model No.	Morse Taper Shank Outside	Morse Taper Shank Inside	Model No.
1	1	214-8611	1	4	214-8641
2	1	214-8612	2	4	214-8642
3	1	214-8613	3	4	214-8643
4	1	214-8614	4	4	214-8644
5	1	214-8615	5	4	214-8645
6	1	214-8616	6	4	214-8646
1	2	214-8621	1	5	214-8651
2	2	214-8622	2	5	214-8652
3	2	214-8623	3	5	214-8653
4	2	214-8624	4	5	214-8654
5	2	214-8625	5	5	214-8655
6	2	214-8626	6	5	214-8656
1	3	214-8631	1	6	214-8661
2	3	214-8632	2	6	214-8662
3	3	214-8633	3	6	214-8663
4	3	214-8634	4	6	214-8664
5	3	214-8635	5	6	214-8665
6	3	214-8636	6	6	214-8666

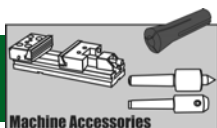
SOLID SOCKETS

Morse Taper I.D. Straight Shank O.D, Ground & Accurate.



Used to convert spindles to larger or smaller tapers and to extend the spindles of drill presses, radial drills, boring mills, turret lathes and similar machines.

Solid Socket Number	Morse Taper I.D.	Shank Diameter	Overall Length	Model No.	Solid Socket Number	Morse Taper I.D.	Shank Diameter	Overall Length	Model No.
1	1	1"	3-1/2"	214-8701	10	3	1-1/2"	4-3/4"	214-8710
2	1	1-1/4"	3-1/2"	214-8702	11	3	1-3/4"	4-3/4"	214-8711
3	1	1-1/2"	3-1/2"	214-8703	12	3	2"	4-3/4"	214-8712
4	2	1"	4"	214-8704	13	4	1-1/2"	6"	214-8713
5	2	1-1/4"	4"	214-8705	14	4	1-3/4"	6"	214-8714
6	2	1-1/2"	4"	214-8706	15	4	2"	6"	214-8715
7	2	1-3/4"	4"	214-8707	16	5	2-1/4"	7-3/8"	214-8716
8	2	2"	4"	214-8708	17	5	2-1/2"	7-3/8"	214-8717
9	3	1-1/4"	4-3/4"	214-8709	18	6	3-1/4"	10-1/8"	214-8718
					19	6	3-1/2"	10-1/8"	214-8719



Machine Accessories

KEY TYPE DRILL CHUCKS



Taper Mounted

Capacity	Taper Mount	Model No.
0-1/4"	JT1	290-0001
0-3/8"	JT2	290-0002
0-1/2"	JT33	290-0003
0-1/2"	JT6	290-0004
1/32"-5/8"	JT3	290-0005
3/64"-3/4"	JT3	290-0006
0-1/2"	JT6	290-0007
1/8"-5/8"	JT3	290-0008
3/16"-3/4"	JT3	290-0009
3/16"-1-1/32"	JT4	290-0010

Thread Mounted

Capacity	Thread Mount	Model No.
0-1/4"	3/8"-24UNF	290-0021
1/16"-3/8"	3/8"-24UNF	290-0022
0-3/8"	3/8"-24 UNF	290-0023
5/16"-1/2"	3/8"-24 UNF	290-0024
5/16"-1/2"	1/2"-20 UNF	290-0025
1/8"-5/8"	1/2"-20 UNF	290-0026
1/8"-5/8"	5/8"-16 UNF	290-0027
6mm	M10x1	290-0030
6mm	M12x1.25	290-0031
10mm	M10x1	290-0032
10mm	M12x1.25	290-0033
1.5-13mm	M12x1.25	290-0034
3-16mm	M12x1.25	290-0035
3-16mm	M16x1.5	290-0036

KEYLESS DRILL CHUCKS

Light duty Keyless Drill chuck

Thread mounted

Capacity	Thread Mount	Dimension DxLxI	Accuracy	Model No.	Accuracy	Model No.	Accuracy	Model No.
1-10mm	M10x1	42x86x78mm	0.14mm	290-7021	0.25mm	290-7121	0.35mm	290-7221
1-13mm	M12x1.25	44x90x81mm	0.14mm	290-7025	0.25mm	290-7125	0.35mm	290-7225
3-16mm	M16x1.5mm	48x102x92mm	0.20mm	290-7029	0.25mm	290-7129	0.35mm	290-7229
1/32"-3/8"	3/8"-24UNF	42x86x78mm	0.14mm	290-7049	0.25mm	290-7149	0.35mm	290-7249
1/32"-3/8"	1/2"-20UNF	42x86x78mm	0.14mm	290-7051	0.25mm	290-7151	0.35mm	290-7251
1/32"-1/2"	1/2"-20UNF	44x90x81mm	0.14mm	290-7053	0.25mm	290-7153	0.35mm	290-7253
1/8"-5/8"	5/8"-16UNF	48x102x92mm	0.20mm	290-7059	0.25mm	290-7159	0.35mm	290-7259

Light duty Keyless Drill chuck

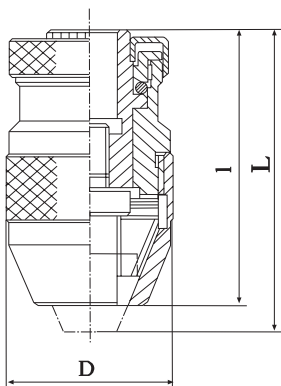
Taper mounted

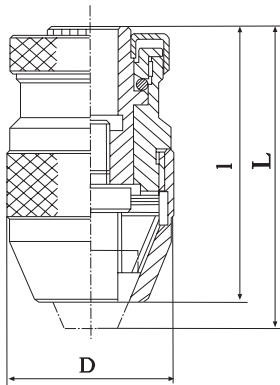
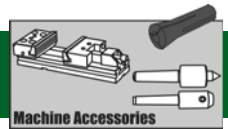
Capacity	Taper Mount	Dimension DxLxI	Accuracy	Model No.	Accuracy	Model No.	Accuracy	Model No.
1-10mm	B12	42x86x78mm	0.14mm	290-6021	0.25mm	290-6121	0.35mm	290-6221
1-13mm	B16	44x97x88mm	0.14mm	290-6025	0.25mm	290-6125	0.35mm	290-6225
3-16mm	B16	48x102x92mm	0.20mm	290-6029	0.25mm	290-6129	0.35mm	290-6229
3-16mm	B18	48x108x98mm	0.20mm	290-6031	0.25mm	290-6131	0.35mm	290-6231
1/32"-3/8"	JT2	42x86x78mm	0.14mm	290-6049	0.25mm	290-6149	0.35mm	290-6249
1/32"-1/2"	JT6	44x97x88mm	0.14mm	290-6051	0.25mm	290-6151	0.35mm	290-6251
1/32"-1/2"	JT33	44x97x88mm	0.14mm	290-6053	0.25mm	290-6153	0.35mm	290-6253
1/8"-5/8"	JT6	48x102x92mm	0.20mm	290-6055	0.25mm	290-6155	0.35mm	290-6255
1/8"-5/8"	JT3	48x108x98mm	0.20mm	290-6057	0.25mm	290-6157	0.35mm	290-6257

Heavy duty Keyless Drill chuck

Thread mounted

Capacity	Thread Mount	Dimension DxLxI	Accuracy	Model No.	Accuracy	Model No.	Accuracy	Model No.
0.5-8mm	M10x1	42x91x84mm	0.06mm	290-5401	0.12mm	290-5501	0.20mm	290-5601
1-10mm	M10x1	42x91x84mm	0.06mm	290-5403	0.12mm	290-5503	0.20mm	290-5603
1-13mm	M12x1.25	48x106x97mm	0.06mm	290-5405	0.12mm	290-5505	0.20mm	290-5605
1-16mm	M16x1.5	53x109x101mm	0.07mm	290-5407	0.14mm	290-5507	0.20mm	290-5607
3-16mm	M16x1.5	53x109x101mm	0.07mm	290-5409	0.14mm	290-5509	0.20mm	290-5609
1/64"-5/16"	3/8"-24UNF	42x91x84mm	0.06mm	290-5415	0.12mm	290-5515	0.20mm	290-5615
1/32"-3/8"	3/8"-24UNF	42x91x84mm	0.06mm	290-5417	0.12mm	290-5517	0.20mm	290-5617
1/32"-3/8"	1/2"-20UNF	42x91x84mm	0.06mm	290-5419	0.12mm	290-5519	0.20mm	290-5619
1/32"-1/2"	1/2"-20UNF	48x106x97mm	0.06mm	290-5421	0.12mm	290-5521	0.20mm	290-5621
1/32"-5/8"	1/2"-20UNF	53x109x101mm	0.07mm	290-5423	0.14mm	290-5523	0.20mm	290-5623
1/8"-5/8"	1/2"-20UNF	53x109x101mm	0.07mm	290-5425	0.14mm	290-5525	0.20mm	290-5625





Heavy duty Keyless Drill chuck

Taper mounted

Capacity	Mount	Taper Dimension DxLxI	Accuracy	Model No.	Accuracy	Model No.	Accuracy	Model No.
0.5-8mm	B12	42x91x84mm	0.06mm	290-5001	0.12mm	290-5101	0.20mm	290-5201
0.5-8mm	B16	42x91x84mm	0.06mm	290-5003	0.12mm	290-5103	0.20mm	290-5203
1-10mm	B12	42x91x84mm	0.06mm	290-5005	0.12mm	290-5105	0.20mm	290-5205
1-10mm	B16	42x91x84mm	0.06mm	290-5007	0.12mm	290-5107	0.20mm	290-5207
1-13mm	B12	48x106x97mm	0.06mm	290-5009	0.12mm	290-5109	0.20mm	290-5209
1-13mm	B16	48x106x97mm	0.06mm	290-5011	0.12mm	290-5111	0.20mm	290-5211
1-16mm	B16	53x109x101mm	0.07mm	290-5013	0.14mm	290-5113	0.20mm	290-5213
1-16mm	B18	53x109x101mm	0.07mm	290-5015	0.14mm	290-5115	0.20mm	290-5215
3-16mm	B16	53x109x101mm	0.07mm	290-5017	0.14mm	290-5117	0.20mm	290-5217
3-16mm	B18	53x109x101mm	0.07mm	290-5019	0.14mm	290-5119	0.20mm	290-5219
5-20mm	B22	62x129x119mm	0.09mm	290-5021	0.18mm	290-5121	0.20mm	290-5221
0.5-6mm	B10	35x67x61mm	0.06mm	290-5023	0.12mm	290-5123	0.20mm	290-5223
0.5-6mm	B12	35x67x61mm	0.06mm	290-5025	0.12mm	290-5125	0.20mm	290-5225
1/64"-5/16"	JT2	42x91x84mm	0.06mm	290-5029	0.12mm	290-5129	0.20mm	290-5229
1/64"-5/16"	JT33	42x91x84mm	0.06mm	290-5031	0.12mm	290-5131	0.20mm	290-5231
1/32"-3/8"	JT2	42x91x84mm	0.06mm	290-5033	0.12mm	290-5133	0.20mm	290-5233
1/32"-3/8"	JT33	42x91x84mm	0.06mm	290-5035	0.12mm	290-5135	0.20mm	290-5235
1/32"-1/2"	JT2	48x106x97mm	0.06mm	290-5037	0.12mm	290-5137	0.20mm	290-5237
1/32"-1/2"	JT33	48x106x97mm	0.06mm	290-5039	0.12mm	290-5139	0.20mm	290-5239
1/32"-1/2"	JT6	48x106x97mm	0.06mm	290-5041	0.12mm	290-5141	0.20mm	290-5241
1/32"-5/8"	JT3	53x109x101mm	0.07mm	290-5043	0.14mm	290-5143	0.20mm	290-5243
1/32"-5/8"	JT6	53x109x101mm	0.07mm	290-5045	0.14mm	290-5145	0.20mm	290-5245
1/8"-5/8"	JT3	53x109x101mm	0.07mm	290-5047	0.14mm	290-5147	0.20mm	290-5247
1/8"-5/8"	JT6	53x109x101mm	0.07mm	290-5049	0.14mm	290-5149	0.20mm	290-5249
3/16"-3/4"	JT3	62x129x119mm	0.09mm	290-5051	0.18mm	290-5151	0.20mm	290-5251
1/64"-1/4"	JT1	35x67x61mm	0.06mm	290-5053	0.12mm	290-5153	0.20mm	290-5253



R8 To Jacobs Taper

Jacobs Taper	R8 Shank Model No.
JT 0	290-0800
JT 1	290-0801
JT 2	290-0802
JT 3	290-0803
JT 4	290-0804
JT 5	290-0805
JT 6	290-0806
JT 33	290-0833

R8 Shank To "B" Taper

"B" Taper	R8 Shank Model No.
B10	290-0810
B12	290-0812
B16	290-0816
B18	290-0818
B22	290-0822
B24	290-0824

DRILL CHUCK ARBORS

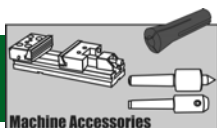


MT Shank With Tang To Jacobs Taper

Jacobs Taper	MT0 Model No.	MT1 Model No.	MT2 Model No.	MT3 Model No.	MT4 Model No.	MT5 Model No.	MT6 Model No.
JT 0	290-1000	290-1100	290-1200	290-1300	290-1400	290-1500	290-2700
JT 1	290-1001	290-1101	290-1201	290-1301	290-1401	290-1501	290-2701
JT 2	290-1002	290-1102	290-1202	290-1302	290-1402	290-1502	290-2702
JT 3	290-1003	290-1103	290-1203	290-1303	290-1403	290-1503	290-2703
JT 4	290-1004	290-1104	290-1204	290-1304	290-1404	290-1504	290-2704
JT 5	290-1005	290-1105	290-1205	290-1305	290-1405	290-1505	290-2705
JT 6	290-1006	290-1106	290-1206	290-1306	290-1406	290-1506	290-2706
JT 33	290-1033	290-1133	290-1233	290-1333	290-1433	290-1533	290-2733

MT Shank With Tang To "B" Taper

"B" Taper	MT 0	MT 1	MT 2	MT 3	MT 4	MT 5	MT 6
B 10	290-1010	290-1110	290-1210	290-1310	290-1410	290-1510	290-2710
B 12	290-1012	290-1112	290-1212	290-1312	290-1412	290-1512	290-2712
B 16	290-1016	290-1116	290-1216	290-1316	290-1416	290-1516	290-2716
B 18	290-1018	290-1118	290-1218	290-1318	290-1418	290-1518	290-2718
B 22	290-1022	290-1122	290-1222	290-1322	290-1422	290-1522	290-2722
B 24	290-1024	290-1124	290-1224	290-1324	290-1424	290-1524	290-2724



Machine Accessories

DRILL CHUCK ARBORS continued



7:24 Shank To Jacobs Taper

Jacobs Taper	ISO 30 Model No.	ISO 40 Model No.	ISO 45 Model No.	ISO 50 Model No.
JT 0	290-2300	290-2400	290-2600	290-2500
JT 1	290-2301	290-2401	290-2601	290-2501
JT 2	290-2302	290-2402	290-2602	290-2502
JT 3	290-2303	290-2403	290-2603	290-2503
JT 4	290-2304	290-2404	290-2604	290-2504
JT 5	290-2305	290-2405	290-2605	290-2505
JT 6	290-2306	290-2406	290-2606	290-2506
JT 33	290-2333	290-2433	290-2633	290-2533

7:24 Shank To "B" Taper

"B" Taper	ISO Shank			
	ISO 30	ISO40	ISO45	ISO50
B 10	290-2310	290-2410	290-2610	290-2510
B 12	290-2312	290-2412	290-2612	290-2512
B 16	290-2316	290-2416	290-2616	290-2516
B 18	290-2318	290-2418	290-2618	290-2518
B 22	290-2322	290-2422	290-2622	290-2522
B 24	290-2324	290-2424	290-2624	290-2524



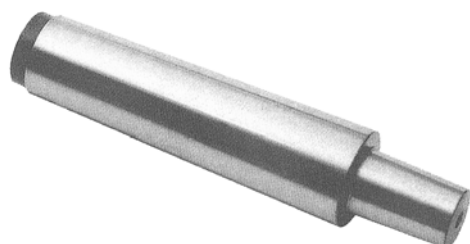
Straight Shank To Jacobs Taper

Jacobs Taper	1/2" Straight Shank Model No.	5/8" Straight Shank Model No.	3/4" Straight Shank Model No.	7/8" Straight Shank Model No.	1" Straight Shank Model No.	1-1/2" Straight Shank Model No.	1-3/4" Straight Shank Model No.
	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.	Model No.
JT 0	290-1600	290-1700	290-1800	290-1900	290-2000	290-2100	290-2200
JT 1	290-1601	290-1701	290-1801	290-1901	290-2001	290-2101	290-2201
JT 2	290-1602	290-1702	290-1802	290-1902	290-2002	290-2102	290-2202
JT 3	290-1603	290-1703	290-1803	290-1903	290-2003	290-2103	290-2203
JT 4	290-1604	290-1704	290-1804	290-1904	290-2004	290-2104	290-2204
JT 5	290-1605	290-1705	290-1805	290-1905	290-2005	290-2105	290-2205
JT 6	290-1606	290-1706	290-1806	290-1906	290-2006	290-2106	290-2206
JT 33	290-1633	290-1733	290-1833	290-1933	290-2033	290-2133	290-2233

Straight Shank To "B" Taper

"B" Taper	Straight Shank								
	10 mm	12mm	14 mm	16 mm	20 mm	25 mm	32 mm	36 mm	40 mm
B 10	290-1610	290-1640	290-1660	290-1710	290-1810	290-1910	290-2010	290-2110	290-2210
B 12	290-1612	290-1642	290-1662	290-1712	290-1812	290-1912	290-2012	290-2112	290-2212
B 16	290-1616	290-1646	290-1666	290-1716	290-1816	290-1916	290-2016	290-2116	290-2216
B 18	290-1618	290-1648	290-1668	290-1718	290-1818	290-1918	290-2018	290-2118	290-2218
B 22	290-1622	290-1652	290-1672	290-1722	290-1822	290-1922	290-2022	290-2122	290-2222
B 24	290-1624	290-1654	290-1674	290-1724	290-1824	290-1924	290-2024	290-2124	290-2224

MT Shank With Draw Bar To Jacobs Taper

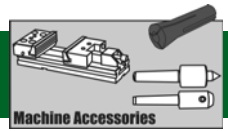


Jacobs Taper	MT 0	MT 1	MT 2	MT 3	MT 4	MT 5
JT 0	290-3000	290-3100	290-3200	290-3300	290-3400	290-3500
JT 1	290-3001	290-3101	290-3201	290-3301	290-3401	290-3501
JT 2	290-3002	290-3102	290-3202	290-3302	290-3402	290-3502
JT 3	290-3003	290-3103	290-3203	290-3303	290-3403	290-3503
JT 4	290-3004	290-3104	290-3204	290-3304	290-3404	290-3504
JT 5	290-3005	290-3105	290-3205	290-3305	290-3405	290-3505
JT 6	290-3006	290-3106	290-3206	290-3306	290-3406	290-3506
JT 33	290-3033	290-3133	290-3233	290-3333	290-3433	290-3533

MT Shank With Draw Bar To "B" Taper

"B" Taper	MT 0	MT 1	MT 2	MT 3	MT 4	MT 5
B 10	290-3010	290-3110	290-3210	290-3310	290-3410	290-3510
B 12	290-3012	290-3112	290-3212	290-3312	290-3412	290-3512
B 16	290-3016	290-3116	290-3216	290-3316	290-3416	290-3516
B 18	290-3018	290-3118	290-3218	290-3318	290-3418	290-3518
B 22	290-3022	290-3122	290-3222	290-3322	290-3422	290-3522
B 24	290-3024	290-3124	290-3224	290-3324	290-3424	290-3524

Machine Accessories



FACE MILL ARBORS FOR CNC

BT Shank

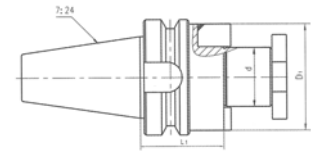
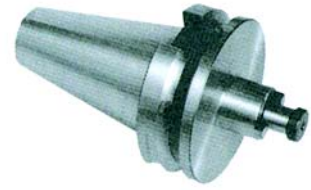
Shank x d-L1	Model No
BT30x16-60	824-4301
BT30x22-60	824-4302
BT30x27-60	824-4303
BT30x32-60	824-4304
BT30x50-70	824-4305
BT30x40-61	824-4306
BT40x16-45	824-4401
BT40x16-60	824-4402
BT40x16-120	824-4403
BT40x22-45	824-4404
BT40x22-60	824-4405
BT40x22-100	824-4406
BT40x22-120	824-4407
BT40x27-45	824-4408
BT40x27-60	824-4409
BT40x27-75	824-4410
BT40x27-105	824-4411
BT40x27-120	824-4412
BT40x32-45	824-4413
BT40x32-60	824-4414
BT40x32-75	824-4415
BT40x32-120	824-4416
BT40x40-60	824-4417
BT40x50-70	824-4418

BT Shank

Shank x d-L1	Model No
BT50x16-60	824-4501
BT50x16-75	824-4502
BT50x16-120	824-4503
BT50x22-60	824-4504
BT50x22-75	824-4505
BT50x22-100	824-4506
BT50x22-120	824-4507
BT50x27-60	824-4508
BT50x27-75	824-4509
BT50x27-105	824-4510
BT50x32-60	824-4511
BT50x32-75	824-4512
BT50x32-105	824-4513
BT50x40-60	824-4514
BT50x40-75	824-4515
BT50x40-90	824-4516
BT50x40-105	824-4517
BT50x50-60	824-4518
BT50x50-70	824-4519

DIN69871 Shank

Shank x d-L1	Model No
30x16-60	824-3301
30x22-60	824-3302
30x27-60	824-3303
30x32-60	824-3304
30x40-60	824-3305
30x50-70	824-3306
40x16-60	824-3401
40x22-60	824-3402
40x27-60	824-3403
40x32-60	824-3404
40x40-60	824-3405
40x50-70	824-3406
50x16-60	824-3501
50x22-60	824-3502
50x27-60	824-3503
50x32-60	824-3504
50x40-60	824-3505
50x50-70	824-3506



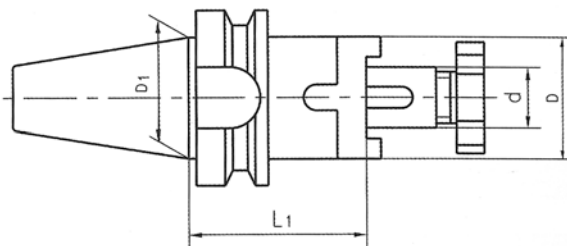
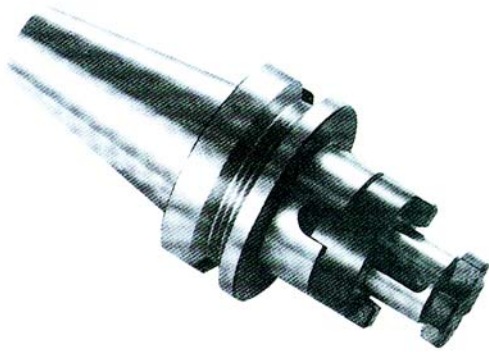
COMBI FACE MILL ARBORS FOR CNC

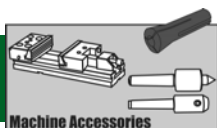
BT Shank

Shank x d-L1	Model No
BT30x13-55	824-1301
BT30x16-55	824-1302
BT30x16-100	824-1303
BT30x22-55	824-1304
BT30x22-100	824-1305
BT30x27-55	824-1306
BT30x27-100	824-1307
BT30x32-60	824-1308
BT30x32-100	824-1309
BT30x40-60	824-1310
BT30x40-100	824-1311
BT40x13-55	824-1401
BT40x16-55	824-1402
BT40x16-100	824-1403
BT40x22-55	824-1404
BT40x22-100	824-1405
BT40x27-55	824-1406
BT40x27-100	824-1407
BT40x32-60	824-1408
BT40x32-100	824-1409
BT40x40-60	824-1410
BT40x40-100	824-1411
BT50x13-63	824-1501
BT50x16-63	824-1502
BT50x16-100	824-1503
BT50x22-70	824-1504
BT50x22-100	824-1505
BT50x27-70	824-1506
BT50x27-100	824-1507
BT50x32-70	824-1508
BT50x32-100	824-1509
BT50x40-75	824-1510
BT50x40-100	824-1511
BT50x50-75	824-1512
BT50x50-125	824-1513

DIN 69871 Shank

Shank x d-L1	Model No
30x13-55	824-2301
30x16-55	824-2302
30x16-100	824-2303
30x22-55	824-2304
30x22-100	824-2305
30x27-55	824-2306
30x27-100	824-2307
30x32-60	824-2308
30x32-100	824-2309
30x40-60	824-2310
30x40-100	824-2311
40x13-55	824-2401
40x16-55	824-2402
40x16-100	824-2403
40x22-55	824-2404
40x22-100	824-2405
40x27-55	824-2406
40x27-100	824-2407
40x32-60	824-2408
40x32-100	824-2409
40x40-60	824-2410
40x40-100	824-2411
50x13-55	824-2501
50x16-55	824-2502
50x16-100	824-2503
50x22-55	824-2504
50x22-100	824-2505
50x27-55	824-2506
50x27-100	824-2507
50x32-60	824-2508
50x32-100	824-2509
50x40-60	824-2510
50x40-100	824-2511
50x50-70	824-2512
50x50-125	824-2513

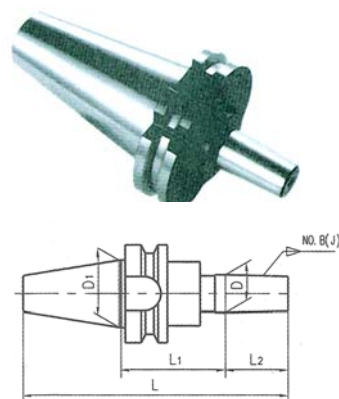




Machine Accessories

DRILL CHUCK ARBORS FOR CNC

Taper	BT Shank			DIN69871.40
	BT 30	BT 40	BT 50	Shank
JT 1	290-8001	290-8101	290-8201	290-8501
JT 2	290-8002	290-8102	290-8202	290-8502
JT 2S	290-8032	290-8132	290-8232	290-8532
JT 3	290-8003	290-8103	290-8203	290-8503
JT 4	290-8004	290-8104	290-8204	290-8504
JT 5	290-8005	290-8105	290-8205	290-8505
JT 6	290-8006	290-8106	290-8206	290-8506
JT 33	290-8033	290-8133	290-8233	290-8533
B 10	290-8010	290-8110	290-8210	290-8510
B 12	290-8012	290-8112	290-8212	290-8512
B 16	290-8016	290-8116	290-8216	290-8516
B 18	290-8018	290-8118	290-8218	290-8518



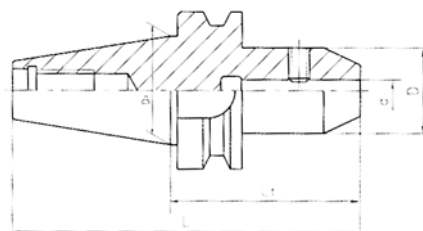
BT Shank

Shank x d-L1	Model No
BT30x6-60	824-6306
BT30x8-60	824-6308
BT30x10-60	824-6310
BT30x12-60	824-6312
BT30x14-60	824-6314
BT30x16-75	824-6316
BT30x18-75	824-6318
BT30x20-75	824-6320
BT30x25-90	824-6325
BT40x6-50	824-6406
BT40x8-50	824-6408
BT40x10-63	824-6410
BT40x12-63	824-6412
BT40x14-63	824-6414
BT40x16-63	824-6416
BT40x16-70	824-6417
BT40x18-63	824-6418
BT40x20-63	824-6420
BT40x20-70	824-6421
BT40x25-100	824-6425
BT40x32-100	824-6432
BT40x32-110	824-6433
BT40x40-120	824-6440
BT50x6-63	824-6506
BT50x8-63	824-6508
BT50x10-63	824-6510
BT50x12-80	824-6512
BT50x16-80	824-6516
BT50x20-80	824-6520
BT50x25-100	824-6525
BT50x25-105	824-6526
BT50x32-100	824-6532
BT50x32-105	824-6533
BT50x40-115	824-6540
BT50x40-120	824-6541
BT50x42-120	824-6542
BT50x50-150	824-6550

END MILL ARBORS FOR CNC

DIN69871 Shank

Shank x d-L1	Model No
30x6-50	824-5306
30x8-50	824-5308
30x10-50	824-5310
30x12-50	824-5312
30x16-50	824-5316
40x6-50	824-5406
40x6-100	824-5407
40x8-50	824-5408
40x8-100	824-5409
40x10-50	824-5410
40x10-100	824-5411
40x12-50	824-5412
40x14-50	824-5414
40x16-63	824-5416
40x18-63	824-5418
40x20-63	824-5420
40x25-100	824-5425
40x32-100	824-5432
40x40-120	824-5440
50x6-63	824-5506
50x8-63	824-5508
50x10-63	824-5510
50x12-63	824-5512
50x14-63	824-5514
50x16-63	824-5516
50x18-63	824-5518
50x20-63	824-5520
50x25-80	824-5525
50x32-100	824-5532
50x40-100	824-5540
50x50-125	824-5550
50x63-150	824-5563

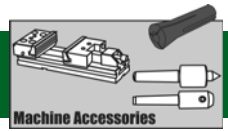


DIE STOCK AND TAP ADAPTORS (THREADING SETS)

MT3 shank ,die stock
16,20,25,30mm & tap
adaptor 8,10,12,16mm.

Model No.318-1900

Machine Accessories



ADAPTERS FOR CNC

Morse Taper Adapters, With Tang, For CNC

Shank-MT-L1	Model No
BT 30-MT 1-50	214-7501
BT 30-MT 2-60	214-7505
BT 30-MT 3-80	214-7510
BT 40-MT 1-50	214-7515
BT 40-MT 2-60	214-7520
BT 40-MT 3-70	214-7525
BT 40-MT 3-75	217-7526
BT 40-MT 4-90	214-7530
BT 40-MT 4-95	214-7531
BT 50-MT 1-45	214-7535
BT 50-MT 2-50	214-7540
BT 50-MT 3-65	214-7545
BT 50-MT 4-85	214-7550
BT 50-MT 4-95	214-7555
BT 50-MT 5-108	214-7560

Shank-MT-L1	Model No
DIN69871.30-MT1-50	214-7601
DIN69871.30-MT2-60	214-7602
DIN69871.30-MT3-75	214-7603
DIN69871.40-MT1-50	214-7611
DIN69871.40-MT2-50	214-7612
DIN69871.40-MT3-70	214-7613
DIN69871.40-MT4-95	214-7614
DIN69871.40-MT5-125	214-7615
DIN69871.50MT1-45	214-7621
DIN69871.50-MT2-60	214-7622
DIN69871.50-MT3-65	214-7623
DIN69871.50-MT4-95	214-7624
DIN69871.50-MT5-105	214-7625

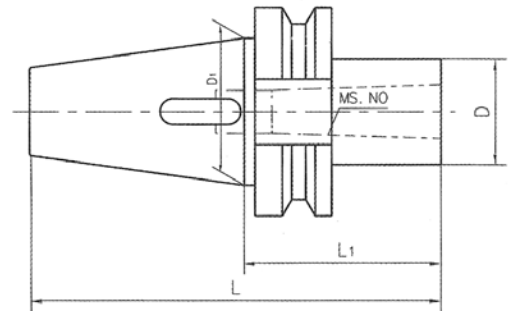


Morse Taper Adapters With Draw Bar, For CNC

Shank-MT-L1	Model No
BT40-MT1-45	214-7701
BT40-MT1-100	214-7703
BT40-MT2-60	214-7705
BT40-MT2-100	214-7707
BT40-MT3-75	214-7709
BT40-MT4-107	214-7711
BT45-MT1-45	214-7713
BT46-MT2-45	214-7715
BT47-MT3-60	214-7717
BT50-MT1-45	214-7719
BT50-MT2-45	214-7721
BT50-MT3-60	214-7723
BT50-MT4-75	214-7725
BT50-MT5-105	214-7727

R8 Adapter For CNC

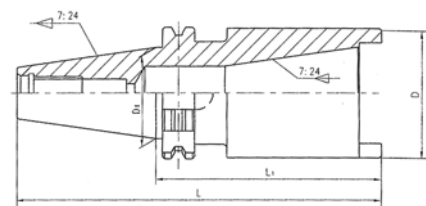
Shank-R8-L1	Model No
BT30-R8-115	214-7901
BT30-R8-135	214-7903
BT30-R8-150	214-7905
BT40-R8-75	214-7907
BT40-R8-95	214-7909
BT40-R8-100	214-7911
BT40-R8-130	214-7913



7:24 Adapters For CNC

Shank-ISO-L1	Model No
BT40-ISO30-50	214-7801
BT40-ISO40-100	214-7803
BT50-ISO30-50	214-7805
BT50-ISO40-70	214-7807
BT50-ISO50-120	214-7809

Shank-ISO-L1	Model No
DIN69871.40-ISO30-50	214-7831
DIN69871.40-ISO40-100	214-7833
DIN69871.50-ISO30-50	214-7835
DIN69871.50-ISO40-70	214-7837
DIN6987.50-ISO50-120	214-7839



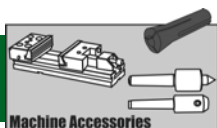
EXPENDING ARBORS

Machine these arbors to hold a specific part. For use on lathes, milling machine, grinders, Chucks, collets, fixtures etc.

Model No. 262-0108

8pcs set of 8 arbors and hex wrenches on a wooden block.

Size	Length of Arbor	Model No.
1/4"	3"	262-4016
3/8"	3"	262-4024
1/2"	3"	262-4032
5/8"	3"	262-4040
3/4"	4"	262-4048
7/8"	4"	262-4056
1"	4"	262-4100
1-1/4"	4"	262-4116



Machine Accessories

LATHE MANDRELS



Made of hardened tool steel which is accurately ground to size. Slightly tapered with marked in the large end Standard taper 0.0005" per inch. Sizes under 1" are 0.0005" undersize on small end. Sizes 1-1/16" to 3" are 0.001" under size on small end.

Diameter	Overall Length	Model No.	Diameter	Overall Length	Model No.	Diameter	Overall Length	Model No.
1/8	2-1/2	262-2008	3/4	6	262-2048	1-3/8	8-1/2	262-2124
5/32	3	262-2010	25/32	6-1/4	262-2050	1-7/16	8-3/4	262-2128
3/16	3	262-2012	13/16	6-1/4	262-2052	1-15/32	9	262-2130
7/32	3-3/4	262-2014	27/32	6-1/2	262-2054	1-1/2	9	262-2132
1/4	3-3/4	262-2016	7/8	6-1/2	262-2056	1-9/16	9-1/4	262-2136
9/32	4	262-2018	29/32	6-3/4	262-2058	1-5/8	9-1/2	262-2140
5/16	4	262-2020	15/16	6-3/4	262-2060	1-11/16	9-3/4	262-2144
11/32	4-1/4	262-2022	31/32	7	262-2062	1-3/4	10	262-2148
3/8	4-1/4	262-2024	1	7	262-2100	1-13/16	10-1/4	262-2152
13/32	4-1/2	262-2026	1-1/32	7-1/4	262-2102	1-7/8	10-1/2	262-2156
7/16	4-1/2	262-2028	1-1/16	7-1/4	262-2104	1-15/16	10-3/4	262-2160
15/32	5	262-2030	1-3/32	7-1/2	262-2106	2	11	262-2200
1/2	5	262-2032	1-1/8	7-1/2	262-2108	2-1/8	11-1/2	262-2208
17/32	5-1/4	262-2034	1-5/32	7-3/4	262-2110	2-1/4	12	262-2216
9/16	5-1/4	262-2036	1-3/16	7-3/4	262-2112	2-3/8	12	262-2224
19/32	5-1/2	262-2038	1-7/32	8	262-2114	2-1/2	12-1/2	262-2232
5/8	5-1/2	262-2040	1-1/4	8	262-2116	2-5/8	12-1/2	262-2240
21/32	5-3/4	262-2042	1-9/32	8-1/4	262-2118	2-3/4	13	262-2248
11/16	5-3/4	262-2044	1-5/16	8-1/4	262-2120	2-7/8	13	262-2256
23/32	6	262-2046	1-11/32	8-3/4	262-2122	3	13	262-2300

PRECISION EXPANDING MANDRELS

Hardened & precision ground for maximum concentricity and holding power

- Center holes are ground and lapped.
- Automatic expansion feature can be used on any bore within the range of the mandrel standard or non-standard.
- Sizes up to 1" are furnished with 1 sleeve larger sizes have 2 sleeve, 1 large and 1 small.



Expanding Mandrel Sets are individually packed.

Range	No. of Mandrels	Model No.
1/2" ~ 7/8"	5	262-3010
1" ~ 1-1/2"	3	262-3020
1/2" ~ 1-1/2"	8	262-3030

Range	Length of Arbor	Length of Sleeve	Model No.
1/2" ~ 9/16"	5"	2-1/2"	262-3050
9/16" ~ 21/32"	6"	2-3/4"	262-3052
21/32" ~ 3/4"	7"	2-3/4"	262-3054
3/4" ~ 7/8"	7"	3-1/4"	262-3056
7/8" ~ 1"	7"	3-1/2"	262-3058
1" ~ 1-1/4"	9"	4"	262-3060
1-1/4" ~ 1-1/2"	9"	4"	262-3062
1-1/2" ~ 2"	11-1/2"	5"	262-3064
2" ~ 2-3/4"	14"	6"	262-3066
2-3/4" ~ 3-3/4"	17"	7"	262-3068

UNIVERSAL FACING & BORING HEAD



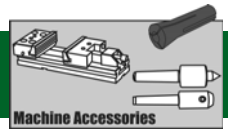
Feature

Description	F212A	F213A	F214A
Max. facing and boring diameter	150	350	450
Max stroke of slide	±15	±25	±50
Fine feed per graduation	0.005	0.005	0.005
Manual feed per revolution	2	3	3
Dia of tool post holes in slide	0.02 0.04 0.06 0.08 0.10 0.12	0.03 0.06 0.09 0.12 0.15 0.18	0.03 0.06 0.09 0.12 0.15 0.18
Max dia of slide	18	22	22
Height of head without shank	90	120	168
The length of sliding block	87.5	118	118
The width of sliding block	75	105	160
Inside dia of bushing	70	90	90
	4, 8, 12	8, 10, 12, 14	8, 10, 12, 14

Model No.

Type	MT Shank				R8 Shank	ISO Shank			
	MT3	MT4	MT5	MT6		ISO30	ISO40	ISO45	ISO50
212A	220-1703	220-1704	220-1705	220-1706	220-1708	220-1730	220-1740	220-1745	220-1750
213A	220-1803	220-1804	220-1805	220-1806	220-1808	220-1830	220-1840	220-1845	220-1850
214A	220-1903	220-1904	220-1905	220-1906	220-1908	220-1930	220-1940	220-1945	220-1950

Machine Accessories



PRECISION BORING HEADS-F1

- High quality, excellent performance, practical design at affordable price.
- Maximum rigidity is assured even when boring bar holder is used in an offset position.
- Hardened and ground adjusting screw along with outside base design guarantees long life and trouble free use.



Adjusting Screws

Range	Model No.
for 2"	220-1201
for 3"	220-1302
For 4"	220-1401

Boring Head Dia.	Boring Bar Hole Size	Max. Offset	Grad.	1-1/2"-18 Model No.	7/8"-20 Model No.
2	1/2	5/8	0.0005"	220-1200	220-1210
3	3/4	1	0.0005"	220-1300	220-1310
4	1	1-5/8	0.0005"	220-1400	220-1410
50	12	16	0.01mm	220-1050	220-1060
75	18	25	0.01mm	220-1075	220-1085
100	25	41	0.01mm	220-1100	220-1110

PRECISION BORING HEADS-F2

Boring Head Diameter	Boring Bar Hole Size	Max. Offset	Grad.	Type	Thread	Model No.
2-1/8	1/2	5/16	0.001"	F2	1-5/8"-16	220-1208
54	12	8	0.01mm	F2	1-5/8"-16	220-1054

PRECISION BORING HEADS SHANK

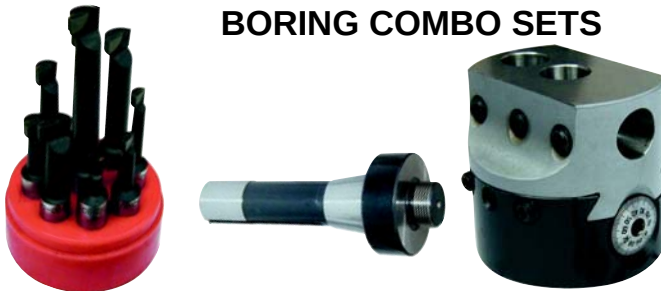


- All of the shank is suitable for F1.
- R8, MT2, MT3 and MT4 are suitable for F2.

Morse Taper Shank Thread	Draw Bar End Model No.	Tang End Model No.
1 7/8"-20	220-1511	220-1512
1 1-1/2"-18	220-1513	220-1514
2 3/4"-20	220-1519	220-1520
2 7/8"-20	220-1521	220-1522
2 1-1/2"-18	220-1523	220-1524
3 7/8"-20	220-1531	220-1532
3 1-1/2"-18	220-1533	220-1534
4 7/8"-20	220-1541	220-1542
4 1-1/2"-18	220-1543	220-1544
5 7/8"-20	220-1551	220-1552
5 1-1/2"-18	220-1553	220-1554

Shank Types	7/8"-20 Thread Model No.	1-1/2"-18 Thread Model No.
R8	220-1560	220-1561
1/2" Dia. Straight Shank	220-1563	220-1564
5/8" Dia. Straight Shank	220-1566	220-1567
3/4" Dia. Straight Shank	220-1569	220-1570
7/8" Dia. Straight Shank	220-1572	220-1573
1" Dia. Straight Shank	220-1575	220-1576
1-1/4" Dia. Straight Shank	220-1578	220-1579
1-1/2" Dia. Straight Shank	220-1581	220-1582
2" Dia. Straight Shank	220-1584	220-1585
30 taper	220-1590	220-1591
40 taper	220-1593	220-1594
50 taper	220-1596	220-1597

BORING COMBO SETS



2" Boring Combo Model No. 220-1600

3" Boring Combo Model No. 220-1800

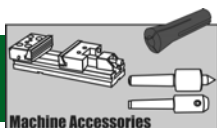
- 2" Boring head Model No. 220-1200.
- R8 shank (7/8"-20 TPI) Model No. 220-1560.
- 1/2" Boring bar set Model No. 375-1202 or 375-1206
- 3" Boring head Model No. 220-1300.
- R8 shank (1-1/2"-18 TPI) Model No. 220-1561.
- 3/4" Boring bar set Model No. 375-1602 or 375-1606

REVOLVING TAILSTOCK TURRETS

These turrets, available in 2 sizes, have 6 holes each for holding 6 tools. A trigger type handle is conveniently located which enables instant changing.

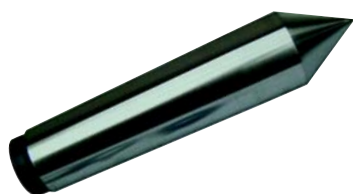


Shank	Diameter of Turret	Size of Hole	Model No.
MT1	2-1/2"	5/8"	220-0900
MT2	2-1/2"	5/8"	220-0901
MT3	2-1/2"	5/8"	220-0902
MT4	2-1/2"	5/8"	220-0903
1/2" Dia. Straight Shank	2-1/2"	5/8"	220-0904
5/8" Dia. Straight Shank	2-1/2"	5/8"	220-0905
3/4" Dia. Straight Shank	2-1/2"	5/8"	220-0906
7/8" Dia. Straight Shank	2-1/2"	5/8"	220-0907
1" Dia. Straight Shank	2-1/2"	5/8"	220-0908
MT2	5"	1"	220-0911
MT3	5"	1"	220-0912
MT4	5"	1"	220-0913
7/8" Dia. Straight Shank	5"	1"	220-0915
1" Dia. Straight Shank	5"	1"	220-0916
1-1/4" Dia. Straight Shank	5"	1"	220-0917
1-1/2" Dia. Straight Shank	5"	1"	220-0918



Machine Accessories

SOLID LATHE CENTERS



- Hardened and ground to the closest tolerance.
- There are three type to meet your need carbon steel, high speed steel tipped, carbide tipped
- Accuracy 0.01mm

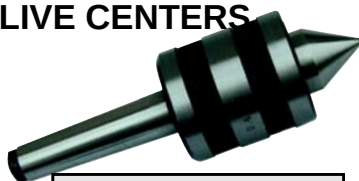
Morse Taper	Overall Length	Carbon Steel Model No.	H.S.S. Model No.	Carbide Tipped Model No.
MT1	80mm/3-3/16"	251-3011	251-3071	251-3051
MT2	100mm/3-15/16"	251-3012	251-3072	251-3052
MT3	125mm/4-15/16"	251-3013	251-3073	251-3053
MT4	160mm/6-5/16"	251-3014	251-3074	251-3054
MT5	200mm/7-7/8"	251-3015	251-3075	251-3055
MT6	270mm/11"	251-3016	251-3076	251-3056
MT7	360mm/14"	251-3017	251-3077	251-3057

PRECISION LIGHT DUTY LIVE CENTERS



Morse Taper	Accuracy	Model No.
MT1	0.0004"	251-3031
MT2	0.0004"	251-3032
MT3	0.0004"	251-3033
MT4	0.0004"	251-3034
MT5	0.0004"	251-3035
MT6	0.0004"	251-3036
MT7	0.0004"	251-3037

PRECISION MEDIUM DUTY LIVE CENTERS



Morse Taper	Accuracy	Model No.
MT1	0.0008"	251-3021
MT2	0.0008"	251-3022
MT3	0.0008"	251-3023
MT4	0.0008"	251-3024
MT5	0.001"	251-3025
MT6		251-3026

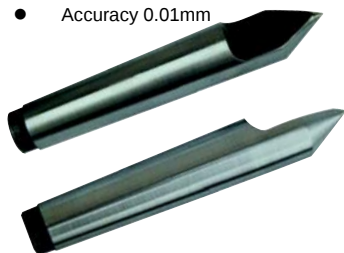
PRECISION HEAVY DUTY LIVE CENTERS



Morse Taper	Accuracy	Model No.
MT1	0.0003"	251-3001
MT2	0.0003"	251-3002
MT3	0.0003"	251-3003
MT4	0.0003"	251-3004
MT5	0.0004"	251-3005
MT6	0.0004"	251-3006

HALF-NOTCHED LATHE CENTERS

- Accuracy 0.01mm



Morse Taper	Carbon Steel Model No.	Carbide Alloy Model No.
MT1	251-3801	251-3811
MT2	251-3802	251-3812
MT3	251-3803	251-3813
MT4	251-3804	251-3814
MT5	251-3805	251-3815
MT6	251-3806	251-3816
MT7	251-3807	251-3817

BULL NOSE LIVE CENTERS



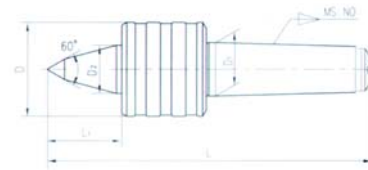
Morse Taper	Small End Dia.	Large End Dia.	Model No.
MT2	1/2"	2-7/16"	251-3702
MT3	3/4"	3"	251-3703
MT3	1-1/4"	4"	251-3704
MT3	1-1/2"	5"	251-3705
MT4	1-3/8"	5"	251-3706
MT4	2"	6"	251-3707
MT5	1-3/8"	6"	251-3708
MT5	2-1/8"	8"	251-3709

LONG NOSE LIVE CENTER

Head-Driving Type for N/C & Copying Lathes

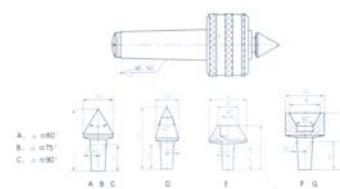
- Usable at high speeds-3,000 RPM on MT3, MT4,2,000 RPM on MT5 and 1500RPM on MT6.
- Run out with in 0.0002".
- Unique head-driving mechanism ensures that no dust, chips, or foreign oils can enter and destroy bearings.

MT	L1(mm)	D (mm)	D1(mm)	D2(mm)	L (mm)	Model No.
MT2	30	40	17.78	18	141	251-3042
MT3	36	45	23.825	22	165	251-3043
MT4	36	45	31.267	22	188	251-3044
MT5	64	78	44.399	40	270	251-3045
MT6	75	102	63.348	50	346	251-3046



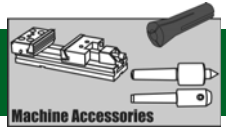
MEDIUM DUTY MULTI PURPOSE LIVE CENTER

- The body of these sets is constructed similar to medium live centers.
- The sets consists of 3 large male centers, 1 female center, 4 smaller, different sized male center.



MT	D1	L1	A	B	C	D	E	F	G	Head A Model No.	Head B Model No.	Head C Model No.	Head D Model No.	Head E Model No.	Head F Model No.	Head G Model No.	Sets Model No.
MT2	10	20	16 39	16 35.5	16 33	16 46	25 10 40	16 36 10	20 39 16	251-3201	251-3202	251-3203	251-3204	251-3205	251-3206	251-3207	251-3082
MT3	12	24	20 48	20 43.5	20 40.5	18 56	35 15 50	22 42 18	35 48 30	251-3301	251-3302	251-3303	251-3304	251-3305	251-3306	251-3307	251-3083
MT4	15	30	28 61.5	28 55.5	28 51.5	26 73	55 30 61.5	40 55 35	55 60 48	251-3401	251-3402	251-3403	251-3404	251-3405	251-3406	251-3407	251-3084
MT5	20	40	36 80	36 72.45	36 66.87	36 101	70 41 78	60 81 50	70 85 61	251-3501	251-3502	251-3503	251-3504	251-3505	251-3506	251-3507	251-3085
MT6	30	55	55 117	55 113	55 108	50 138	90 50 107.5	75 110 60	90 116 75	251-3601	251-3602	251-3603	251-3604	251-3605	251-3606	251-3607	251-3086

Machine Accessories



VERT. 5C ANGLE COLLET FIXTURES

(Model A)

Model No. 235-6090

Base Size: 2-1/2"x7-3/4"

Height: 4"



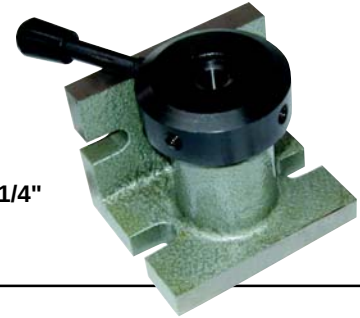
H/V 5C ANGLE COLLET FIXTURES

(Model B)

Model No. 235-6095

Base Size: 4-1/4"x4-1/4"

Height: 4"-1/4"



H/V 5C ANGLE COLLET FIXTURES

(Model C)



H/V 5C COLLET FIXTURES

Base In	Height In	Base In	Height In	Model No.
Horizontal	Horizontal	Vertical	Vertical	
5x4"	3-5/8"	5x3-5/8"	4"	235-6080

Base	Height	Model No.
5x3-5/8"	3-3/4"	235-6085

END MILL GRINDING FIXTURES

- The fixture uses 5C collects (no more bushings to lose) which means any shank-size end mill from 1/16" to 1-1/8" can be ground. Shell mills can easily be held with straight shank arbors.
- Grinds 2,3,4,6,8 & 12 fluted end mills and shell mills. Faces only!
- Clearance and relief angles are built into base.
- Solid 2-1/2" x 4-1/2" base ground on bottom for sure contact with magnet.
- Black oxide finish.



Model No. 287-6000

END MILL CUTTERS/SHARPENERS

TYPE 287



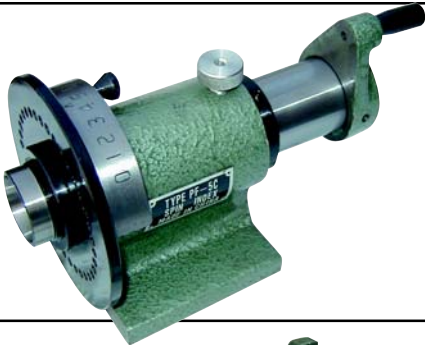
- Designed to accomplish all sharpening need.
- Diameter of shank of end mill is 3/8", 1/2", 5/8".
- It may be equally divided into 2,3,4,6, 8.

Model No. 231-0287

5C SPIN INDEX FIXTURES

Model No. 235-6011

- 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.



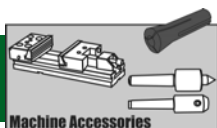
5C COLLET INDEX FIXTURES

- Threaded spindle is hardened and ground (2-1/4"-8TPI).
- Single lever action activates the indexing mechanism.
- Precision ground index plate has 24 indexing locations in fifteen degree.
- 15; increments, any of which can be masked for greater versatility.

Model No. 235-6200

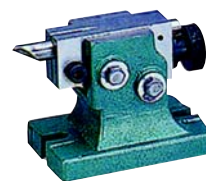
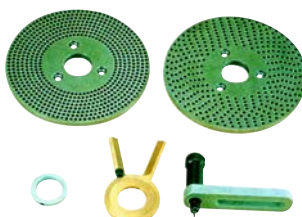
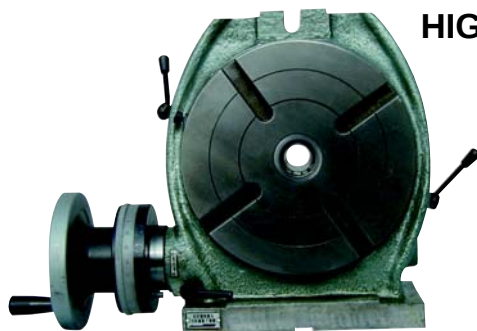
Specifications	Maximum Variation
Dividing spindle concentricity	0.004"
Cylinder center bore (per 1") concentricity	0.008"
Lateral offset of center slot of dividing spindle	0.008"
Center slot to dividing spindle concentric	0.008"
Spindle center line parallelism	0.008"





Machine Accessories

HIGH PRECISION H/V ROTARY TABLES



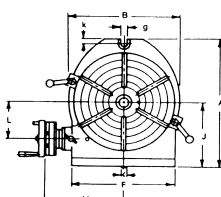
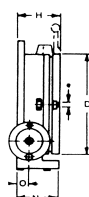
- Extra deep coolant channel.
- Dual positive action locks.

Optional Dividing Plates

- Graduated 360°
- Low profile.
- 10 second vernier reading.

Optional Tailstock

- Gear drive immersed in oil.
- Optional dividing plates and tailstock.
- Gear Ratio 90:1.

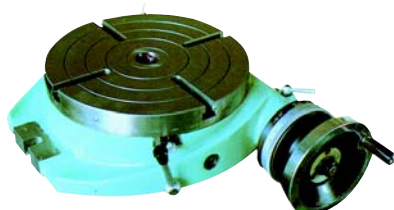


Specifications	Maximum Variation (inches/second)
Clamping surface flatness(concave)	0.0006"
Cylindrical center bore concentricity	0.0008"
Taper center bore concentricity	0.0008"
Surface to base parallelism	0.0008"
Surface to angle face squareness	0.0004"
Surface to center slot squareness	0.0008"

Descriptions	Model No.
8" Horizontal & Vertical Table (YUASA TYPE)	200-1143
10" Horizontal & Vertical Table (YUASA TYPE)	200-1153
12" Horizontal & Vertical Table (YUASA TYPE)	200-1163
Dividing Plate (fits all except 6")	200-1096
Adjustable Tailstock for 8" & 10"	200-1098
Adjustable Tailstock for 12"	200-1100
8" Horizontal & Vertical Table	200-1091
10" Horizontal & Vertical Table	200-1093
12" Horizontal & Vertical Table	200-1095

Table Dia.	A	B	C	D	E	F	G	H	J	K	L	M	N	O	T-Slot	Net Weight	Shipping Weight	Model No.
8"	11.200	9.400	0.650	7.872	3MT	8.203	0.570	3.944	5.985	0.610	3.700	7.830	3.880	1.900	0.46564	95lbs	200-1143	
10"	12.900	11.300	0.552	9.800	3MT	9.960	0.562	4.330	6.750	0.562	4.100	8.625	4.175	1.900	0.46594	135lbs	200-1153	
12"	16.125	14.250	0.710	12-5/8	4MT	12.625	0.725	4.750	8.250	0.725	5.25	10.250	4.640	1.900	0.545209	250lbs	200-1163	

HIGH PRECISION HORIZONTAL ROTARY TABLES



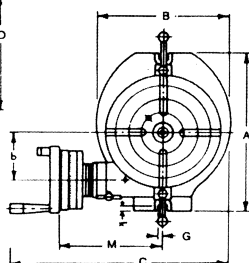
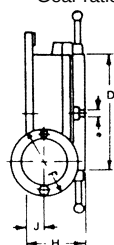
- Extra deep coolant channel.
- Dual positive action locks.
- Gear ratio 90:1.

Special design features include:

- Graduated 360°
- Low profile.
- Satin chrome dials.

Optional Dividing Plate

- Gear drive immersed in oil.
- 10 second vernier reading.
- Optional dividing plates and tailstock.



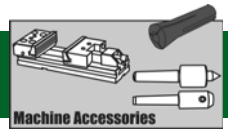
Dimensions

Specifications	Maximum Variation (inches/second)
Clamping surface flatness(concave)	0.0006"
Cylindrical center bore concentricity	0.0008"
Taper center bore concentricity	0.0008"
Surface to base parallelism	0.0008"
Surface to angle face squareness	0.0004"
Surface to center slot squareness	0.0008"

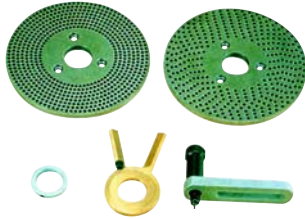
Descriptions	Model No.
6" Horizontal	200-1076
8" Horizontal	200-1078
10" Horizontal	200-1080
12" Horizontal	200-1082
Dividing Plate (Fits all except 6")	200-1096

Table Dia.	A	B	C	D	E	F	G	H	J	K	L	M	T-Slot Width	Net Weight	Shipping Weight	Model No.
6"	10-1/4	7-3/4	13-1/16	6-19/64	2MT	4-15/16	0.224	3-5/64	1	45/64	3	5	0.39	36lbs	48lbs	200-1076
8"	11-7/16	9-5/16	14-1/4	7-7/8	3MT	4-15/16	9/32	3-7/32	1	13/16	3-1/2	5-11/16	0.456	50lbs	61lbs	200-1078
10"	13	11-1/4	16-5/8	9-15/16	3MT	4-15/16	9/32	3-11/16	1	13/16	3-7/8	9-1/2	0.465	82lbs	93lbs	200-1080
12"	16-1/8	14-3/16	19-9/16	12-5/8	4MT	4-15/16	0.354	4-1/16	1-3/8	1	4-1/4	12-5/16	0.545	153lbs	167lbs	200-1082

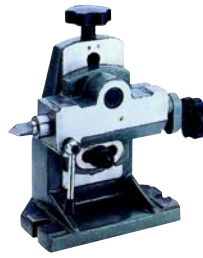
Machine Accessories



PRECISION INCLINEABLE ROTARY TABLES



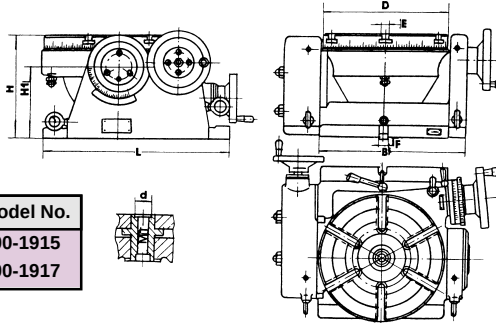
- Satin chrome dials.
- Gear ratio 90:1.
- Low profile.



- Gear drive immersed in oil.
- 10 second vernier reading.
- Optional dividing plates and tailstock.



- Dual positive action locks.
- Extra deep coolant channel.

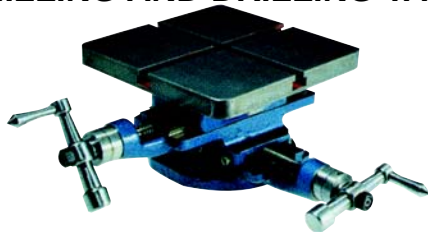


Descriptions	Model No.
10" inclineable rotary table	200-1915
12" inclineable rotary table	200-1917

Specifications	Maximum Variation (inches/second)
Clamping surface flatness(concave)	0.0006"
Cylindrical center bore concentricity	0.0008"
Taper center bore concentricity	0.0008"
Surface to base parallelism	0.0008"
Surface to angle face squareness	0.0004"
Surface to center slot squareness	0.0008"

Table OuterDia.	Table Height	Center Height	Base Dia.	Base Dia.	Width of T-slot	Locating Key	Centering Hole	Center Taper Hole	Weight	Model No.
D	H	H1	B	L	E	F	D			
9.81	8.07	5.51	10.24	12.2	0.47	0.55	1.2	MT-3	172	200-1915
12.6	10.04	6.89	13.07	14.96	0.55	0.71	1.6	MT-4	293	200-1917

MILLING AND DRILLING TABLE

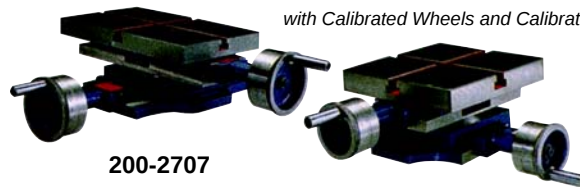


Model No.	201-2524
Size	7x7(Rotatable 360°)
Height	4-1/8"
Travel	4 on each axis
Base Size	4-5/8" diameter
Mounting	1-1/8" Long Base Bolt
Weight	35 lbs

Suitable for all kinds of precision machining operations. Easy to read dials are graduated in .001". Dovetail slides have adjustable steel gibs to compensate for wear. T-slots are 5/8" wide x 7/16" deep.

COMPOUND SLIDING TABLE

with Calibrated Wheels and Calibrated Swivel Table



200-2707

200-2708

Description	Model No. 200-2707	Model No. 200-2708
Size of Table	11-13/16x7-7/8	7-7/8x7-7/8
Height Overall	5-1/2	6-7/8
Length Overall	20-3/32	13-25/32
Size of Slots	7/16	3/8
Sliding	7-7/8	4-29/32
Graduation	.001"	.001"
Weight (Approx.)	84lbs	44lbs

COMPOUND SLIDE TABLES

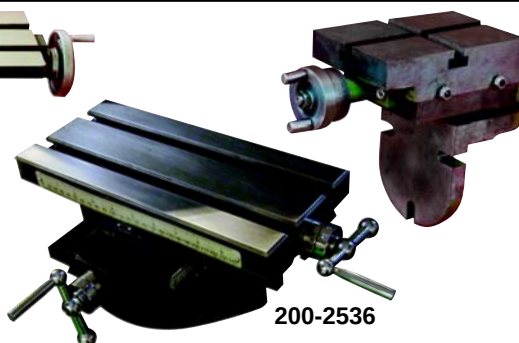
cutter.

200-2535



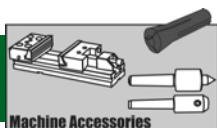
200-2537

A heavy, rugged slide used in all kinds of positioning, milling, drilling, microscope viewing and staging, adjustable bases for heavy loads, small jig boring, precision cutter.



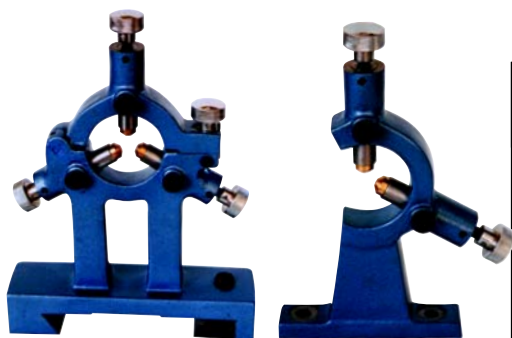
200-2536

	Model No. 200-2535	Model No. 200-2536	Model No. 200-2537
Desc.	4"x6"	5-1/2"x12"	6"x18"
T-Slot Size	3/8"	5/8"	5/8"
Height	6-7/8"	4-1/2"	5"
Travel	3-1/5"	6-1/2"/4-1/3"	13"/6"
Base Size	9"x8"	10-1/2"x8"	



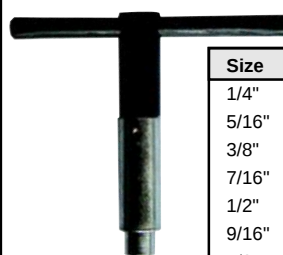
Machine Accessories

CENTER AND FOLLOWER REST



Center Rest Height	Follower Rest Height	Model No.
150mm	140mm	200-2540
230mm	187mm	200-2542
200mm	157mm	200-2544
180mm	137mm	200-2546
160mm	126mm	200-2548
170mm	144mm	200-2550
150mm	124mm	200-2552

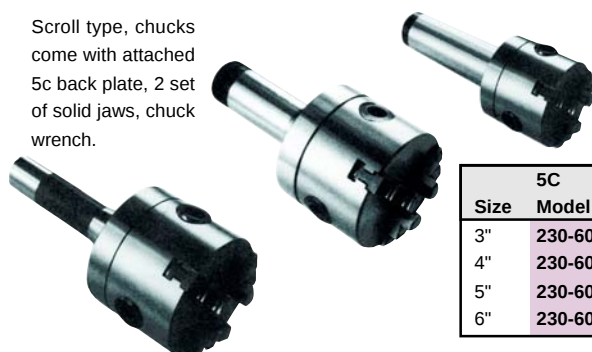
STANDARD CHUCK KEYS



Size	Model No.
1/4"	290-1171
5/16"	290-1172
3/8"	290-1173
7/16"	290-1174
1/2"	290-1175
9/16"	290-1176
5/8"	290-1177
11/16"	290-1178
3/4"	290-1179

5C & R8 PRECISION CHUCKS

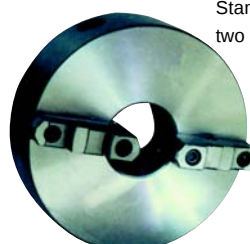
Scroll type, chucks come with attached 5c back plate, 2 set of solid jaws, chuck wrench.



	5C	R8
Size	Model No.	Model No.
3"	230-6003	230-6013
4"	230-6004	230-6014
5"	230-6005	230-6015
6"	230-6006	230-6016

2-JAW SELF-CENTERING CHUCKS

Standard Accuracy, Semi-Steel Body, Soft two piece jaws, Shape to Fit work pieces.



Chuck Dia.	Thru Radial Hole	Model No.
6"	0.0012 1.65	428-7106
8"	0.0016 2.16	428-7108
10"	0.0016 2.99	428-7110
12"	0.0020 4.05	428-7112

3 & 4- JAW PLAIN BACK SELF-CENTERING CHUCKS

Plain back, universal scroll chucks. for adaptor mounting. has 2 sets solid jaws & 2 piece jaws

3-Jaw



Chuck Dia.	Thru Hole	Model No.
3"	0.630"	429-3003
4"	0.866"	429-3004
5"	1.181"	429-3005
6"	1.575"	429-3006
8"	2.559"	429-3008
10"	3.150"	429-3010
12"	3.937"	429-3012
15"	4.000"	429-3015

4-Jaw



Chuck Dia.	Thru Hole	Model No.
5"	1.181"	428-8205
6"	1.575"	428-8206
8"	2.559"	428-8208
10"	3.150"	428-8210
12"	3.937"	428-8212
15"	4.000"	428-8215
20"	6.25"	428-8220

3 & 4 JAW DIRECT MOUNT D1 CAMLOCK CHUCKS

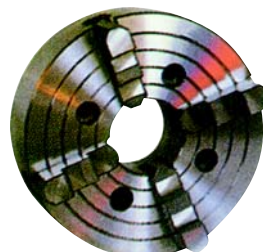
the advantage of using a direct mount chuck is extra working capacity on the lathe due to a shouter overall length with the integral camlock mount.

3-Jaw Universal



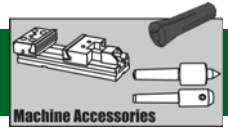
Chuck Dia.	Spindle	Thru Hole	Model No.
6"	D1-3	1.575"	429-3063
6"	D1-4	1.575"	429-3064
6"	D1-5	1.575"	429-3065
8"	D1-4	1.969"	429-3084
8"	D1-5	1.969"	429-3085
8"	D1-6	1.969"	429-3086
10"	D1-5	2.756"	429-3105
10"	D1-6	2.756"	429-3106
10"	D1-8	2.756"	429-3108
12"	D1-11	3.937"	429-3121
12"	D1-6	3.937"	429-3126
12"	D1-8	3.937"	429-3128
15"	D1-11	5.11"	429-3151
15"	D1-8	5.11"	429-3158
16"	D1-11	4.95"	429-3161

4-Jaw Independent



Chuck Dia.	Spindle	Thru Hole	Model No.
8"	D1-4	2.165"	429-4084
10"	D1-5	2.953"	429-4105
10"	D1-6	2.953"	429-4106
12"	D1-6	3.740"	429-4126
16"	D1-8	4.921"	429-4168

Machine Accessories



4- JAW INDEPENDENT FLAT BACK CHUCKS

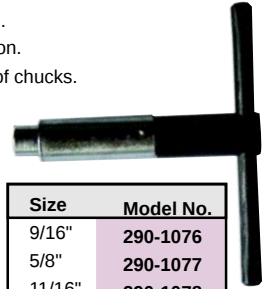


The chuck body is made of cast iron. The reversible jaws and operation screw are made of high quality carbon steel jaws and are hardened precision ground.

Chuck Dia.	Hole Circle	Thru Hole	Model No.
3"	2.59	0.86"	429-4003
6"	5-23/32	1-1/2"	429-4006
8"	4-9/67	1-15/16"	429-4008
10"	4-3/4	2-1/21"	429-4010
12"	6-1/2	3-3/4"	429-4012
16"	8-15/16	3-1/2"	429-4016
20"	9-1/4	6-1/4"	429-4020

SELF-EJECTING CHUCK KEYS

- Hardened & tempered.
- Heavy duty construction.
- Made to fit all makes of chucks.



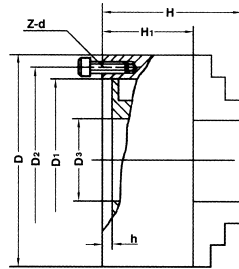
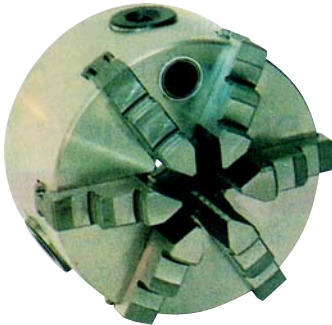
Size	Model No.
1/4"	290-1071
5/16"	290-1072
3/8"	290-1073
7/16"	290-1074
1/2"	290-1075

Size	Model No.
9/16"	290-1076
5/8"	290-1077
11/16"	290-1078
3/4"	290-1079

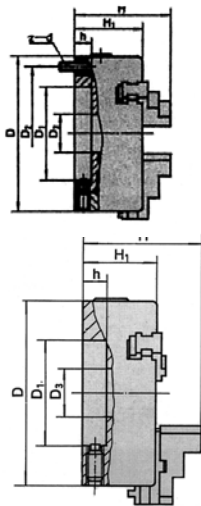
6- JAW FLAT BACK, SELF-CENTERING, UNIVERSAL SCROLL CHUCKS

These chucks are suitable for clamping and machining the thin-walled workpieces, especially the handle-cutting tools.

By using this series of chucks, the deformation can be reduced or avoided when the workpieces are gripped and the grinding states can be improved owing to their evenbearing



Dimensions	Model No. 429-6004	Model No. 429-6005	Model No. 429-6006	Model No. 429-6008
D	100mm(4")	130mm(5")	165mm(6")	200mm(8")
D1	72	100mm	130mm	165mm
D2	84	115mm	145mm	180mm
D3	26	35mm	42mm	65mm
H	73	86mm	96.5mm	109mm
H1	53.5	60mm	66.5mm	75mm
h	3.5	3.5mm	4.5mm	5mm
z-d	3-M8	3-M8	3-M8	3-M10



PRECISION ADJUSTABLE RUN-TRUE CHUCKS

This series chucks are made of high quality materials with precision machining, and the bodies enjoy nice rigidity. What is more, the chucks have a high repeatable concentric precision. With suitable adjustment the chuck's clamping precision can reach 0.013mm.

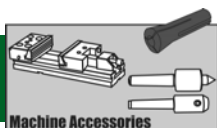
3-Jaw Adjustable Chucks

	Model No. 429-3165	Model No. 429-3600	Model No. 429-3200	Model No. 429-3825	Model No. 429-3250	Model No. 429-3910	Model No. 429-3325	Model No. 429-3912
Size	165mm	6"	200mm	8"	250mm	10"	325mm	12"
D	165	6.49"	204	8.03"	254	10"	330	12.99"
D1	80	3.15"	120	4.724"	150	5.90"	200	7.874"
D2	145	5.70"	180	7.08"	226	8.89"	296	11.653"
D3	40	1.575"	65	2.56"	80	3.15"	100	3.937"
H	102	4.01"	112	4.41"	138	5.433"	158.5	6.24"
H1	72	2.835"	78	3.07"	88	3.464"	100	3.937"
h	13.5	0.531"	13.5	0.531"	18	0.708"	20.5	0.807"
z-d	6-M8	6-1/4-18	6-M10	6-3/8-16	6-M12	6-7/16"-14	6-M16	6-1/2-13

6-Jaw Adjustable Chucks

	Model No. 429-6160	Model No. 429-6600	Model No. 429-6200	Model No. 429-6825	Model No. 429-6250	Model No. 429-6910	Model No. 429-6315	Model No. 429-6912
Size	160mm	6"	200mm	8"	250mm	10"	315mm	12"
D	152.5mm	6	210	8.27	254	10	305	12
D1	79.37	3.125	120.65	4.75	161.90	6.374	200.79	7.905
D2	135.70	5.343	190.5	7.5	111.13	4.375	133.35	5.25
D3	39	1.535	57.5	2.264	72	2.835	83	3.268
H	98.6	3.882	132.2	5.206	153.8	6.056	166.9	6.569
H1	59	2.323	79.3	3.122	88.7	3.492	101.1	3.980
h	17.5	0.689	19.1	0.752	20.4	0.803	20.4	0.803
z-d	6-M6	6-1/4-20	6-M10	6-3/8-16	6-M12	6-7/16-14	6-M12	6-1/2-13

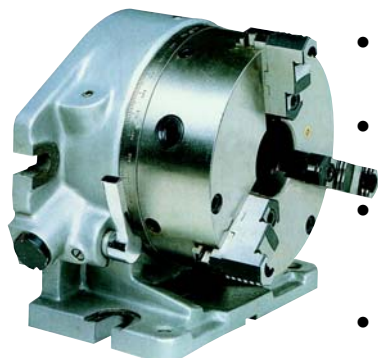




Machine Accessories

HORIZONTAL/VERTICAL

INDEXING FIXTURES



- Designed for milling, drilling, jig boring, and many other shop applications.
- Hardened and ground 24 position index plate (15 degree increments).
- 360 degree satin chrome grauated ring with 5 minute adjustable vernier plate insures accurate readings.
- Fast and simple indexing of 2,3,4,6,8,12 and 24 divisions.

Specifications

Indexing unit complete with 3 jaw Chuck and 6 masking plate.

Squareness (table base to chuck).....0.0008"

Parallelism (face to face).....0.0006"

Concentricity(mounting flange).....0.0008"

Concentricity (chuck).....0.0012"

Size of Thru	Chuck	Hole Dia.	Model No.
6	1-23/32	200-2006	
8	2-15/32	200-2008	

SUPER HORIZONTAL/VERTICAL

INDEXING FIXTURES



- Designed for milling, drilling, jig boring, and many other shop applications.
- Hardened and ground 24 position index plate (15 degree increments).
- 360 degree satin chrome grauated ring with **10 SECOND** adjustable vernierplate insures accurate readings.
- Fast and simple indexing of 2,3,4,6,8,12 and 24 divisions.

Specifications

Indexing unit complete with 3 jaw

Chuck and 6 masking plate and face plate

Vernier Reading.....10 seconds

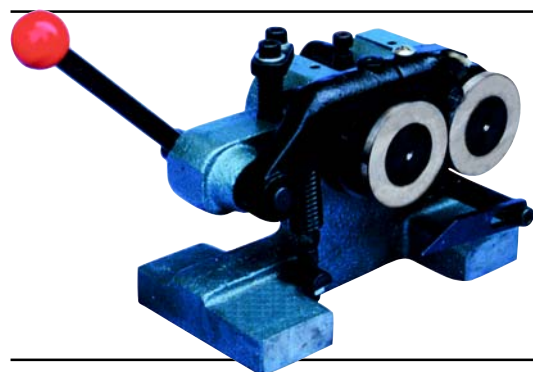
Squareness (table base to chuck).....0.0008"

Parallelism (face to face).....0.0004"

Concentricity(mounting flange).....0.0008"

Concentricity (chuck).....0.0012"

Size of Thru Chuck	Hole Dia.	Model No.
6	1-23/32	200-2106
8	2-15/32	200-2108



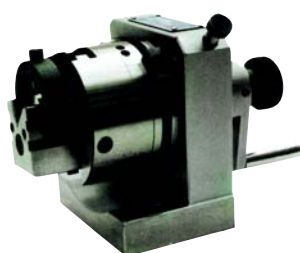
PUNCH GRINDER

Punch grinder is a precision product which installed on a plane plate, and grind the top surface of round punch simply and accurately. The operation can be stable handled due to use the depressed roller to fix the handle. Heavy grinding can be done also. Ascertain the surface of the turning roller and depressed bearing without scratch and rust to keep its accuracy before using.

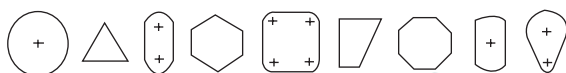
Model No. 287-6802

PUNCH FORMER AND RADIUS DRESSE

A precision Grinding Machine Accessory for dressing grinding wheel, also adaptable to Grinding Machine and Electrical Discharge Machine (EDM) for precision punch forming.



Applications



Applications



- Use for concave and convex radius.
- Hardened tool steel construction.
- Radius dresser standard with both models.
- With oscillating Vee Block for tangent dressing.
- Compare to units costing 2 or 3 times as much.
- Complete with fitted case.

Specifications

Center Height.....3-1/2(80mm)

Indexing Div.....24 every 15 degree +/- 10 seconds

Tangential travel either side of center......25/32(19.8mm)

Dia. Workpiece of V-block.....16-1.18(4-30mm)

V-block adjusting system.....Rack and Pinon

Max. Size Grinding Wheel.....7.87(200mm)

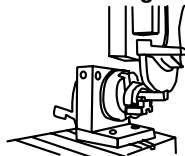
Max. Outside Radius (on wheel).....1.89(48mm)

Max.inside Radius(on wheel).....3.9(100mm)

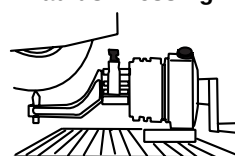
Dimension.....14.2x4.6x5.7(360x116x145mm)

Model No. 287-6801

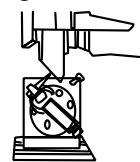
Punch Forming



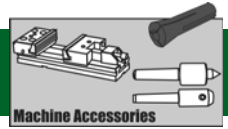
Radius Dressing



Angle Dressing

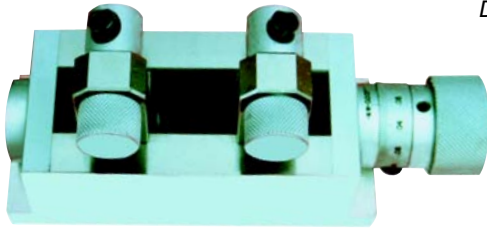


Machine Accessories



PRECISION DUPLEX DRESSER

Dress any custom width up to 1-9/16"



Model No. 225-1005

- Designed to simultaneously dress both sides of a grinding wheel, precisely and without deformation.
- useful for thinning grinding wheels or dressing thin wheels.
- Tool steel construction and hardened throughout to HRC 60 for life time use.

Specifications

Max. Width of Wheel.....1-9/16"
 Max. Dressing Depth.....1-9/16"
 Min. Dressing Width.....0.0079"
 Graduation.....0.0001"
 Weight.....71lbs.

HI-LO WHEEL DRESSER

- Minimum Height.....2"
- Maximum Height.....9"
- Cast iron construction.
- 1/4 Carat and 3/8" shank diamond included.



Model No. 225-1213

BRAKE TRUING UNIT

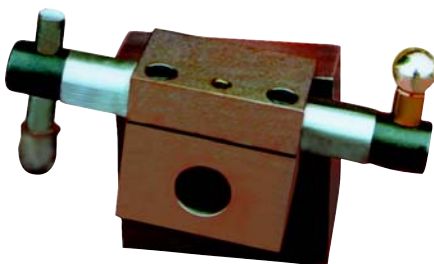
- For dressing diamond and CBN wheels.
- Surface is treated with blaze-dried lacquer.
- Axis part is fixed with shaft bearing and can be rotated at high speed and with great precision.



Model No. 225-3000

ANGLE DRESSER

- Features a shank 3/8" diamond.
- Heavy precision ground base plate.
- All 6 sides square to 0.0002"
- Side block pivots on shoulder hardened screws.



Model No. 225-2017

ADJUSTABLE DRESSER

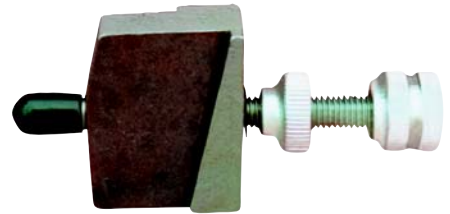
- Use on all grinding machines.
- Dress OD and face of wheels.
- Adjustable to 7" height.
- Dress any width.



Model No. 225-2016

GEIGER WHEEL DRESSER

- Features a shank 3/8" diamond.
- Restores your grinding wheels back to perfection.
- Complete with an extremely hard 1/2 carat industrial diamond tip.
- Accurate and simple to use tool that accommodates most any bench or pedestal type grinder.



Model No. 225-6812

ANGLE MEASURE & DRESSER EQUIPMENT WITH DIAL.

- Angle for -2° 30' to 84° 30'



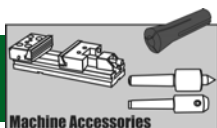
Model No. 225-7000

GRINDING WHEEL DRESSER AND CUTTERS



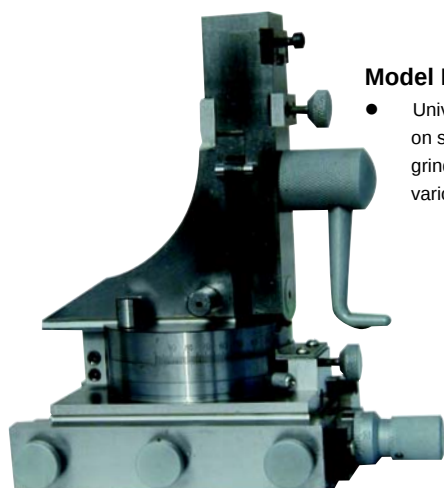
- Hunting on type cutters will quickly remove the load from grinding wheels and present a new and fast grinding surface.
- Fulfill most general dressing needs where fast dressing is the primary requirement.

No. size	For (Dia)	Dresser with one cutter Model No.	Replacement Cutters Model No.
#0	UP to 10"	287-6300	287-6350
#1	10" to 16"	287-6301	287-6351
#2	16" to 26"	287-6302	287-6352



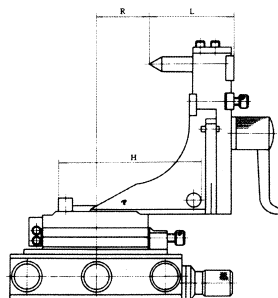
Machine Accessories

UNIVERSAL WHEEL DRESSERS



Model No. 287-6070

- Universal Wheel Dresser Adaptable on surface grinder and universal tool grinder for dressing grinding wheels into various cross sections of flat or curved shapes.



Specifications	Model No.287-6070
Center Height	165mm (6-2/5")
Measuring quasi-pin dia	10mm (0.4")
Max. Swing Distance of diamond cutter	±20mm (±0.8")
Max. Wheel Diameter	200mm (8")
Reading Accuracy or Turret Index	5"
Max. Translation of Feed	20mm (0.8")
Feed per division of handle scale	0.02mm
Weight	5kg

- To dress convex arc surface: $H = L + R$
- To dress concave arc surface: $H = L - R$
- H. — Distance between outer generation lines of two location pins.
- R. — Radius of the arc surface to be dressed.
- L. — Distance from tip of diamond cutter to base plate.

RADIUS AND ANGLE DRESSERS

Special Order for Rat Tail Adapter



Model No. 225-1020

An extremely accurate and versatile unit which may be used on all O.D., I.D., and surface operations. Knob "A" controls radius dressing and Knob "B" controls angle dressing. At no time are the hands near the point contact. All moving parts are lapped and the unit has adjustable gibs for taking up of future wear.

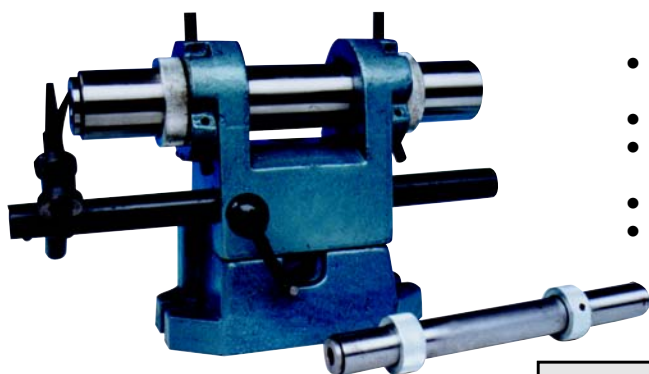
- No height gage or set-up aids required.
- Radius is set on the grinder by measuring over the two pins or by inserting a gage block, for direct reading.
- Inside or outside radius is determined by using either the left hand or right hand pins.
- Uses 3/8" shank diamond.

Specifications	Model No. 225-1020
Maximum Diameter of Wheel	12"
Convex Radii	0-1-5/8"
Concave Radii	0-4"
Tangent Travel Either Side of Center	2"
Center Line of Tool	3.4"
Over Length	16.61"
Weight	30lbs
Rat Tail Adapter	Model No. 225-1030

Accuracy:

Squareness of Face Plate to Dresser Arm, per 2"	0.0005"
Squareness of Face Plate to Base	0.0006"
Center Run out of Dovetail Groove to Wheel Center	0.0006"

END-MILL SHARPENERS

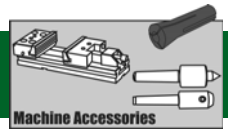


Model No. 287-6530

- Designed to accomplish all sharpening needs. No need to send out tools. Specials as standards can be sharpened.
- Spindles and bushings to cover the full range of 3/16" up to 1-1/4"
- Shank end-mills are supplied. Will accept cutters with diameters up to 12", and even larger with the use of "riser blocks".
- Quickly sharpens cutters and end-mills right on your tool or surface grinder.
- Two spindles and four bushings cover the full range of 3/16", 3/8", 1/2", 5/8", 3/4", 7/8", 1" and 1-1/4" shank end-mills. Accept double end, end-mills

Specifications	Maximum Variation
Spindle center line to base parallelism (per 12")	0.0024"
Body to stand concentricity	0.0012"
Repeat accuracy	0.0012"

Machine Accessories



ECONOMY ADAPT CLAMP KIT

Better Performance with just 21 pieces



Including:
2 forged adjusta clamps
8 T slot bolts, two each of 2,4,5,6"
4 Rotary T slot bolts 3,4,5,6"
2 springs, 4 flange nuts, and 1 sturdy holder.

Model No. 400-8032

T-SLOT CLEANER

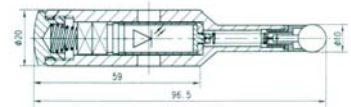


A must for every machine shop

Model No. 400-0000

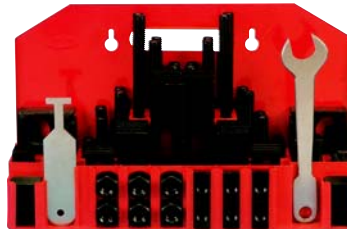
ELECTRONIC EDGE FINDERS

- It is used for CNC
- Tooth point LED indicator
- Be made of high quality alloy steel
- Concentricity 0.01mm



Model No.287-0300

52-PC. METRIC CLAMPING KIT



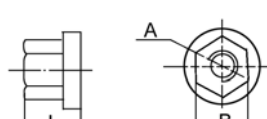
Size	Model No.
M10	400-3010
M12	400-3012
M14	400-3014
M16	400-3016

COUPLING NUTS



A	L	B	Model No.
M10	24	17	407-4110
M12	32	19	407-4112
M14	32	19	407-4114
M16	40	24	407-4116

FLANGED NUTS



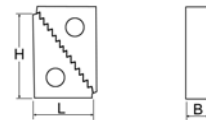
A	L	B	Model No.
M10	12	17	407-5010
M12	17	19	407-5012
M14	17	19	407-5014
M16	20	24	407-5016

T-SLOT NUTS



A	B	C	D	Model No.
M10	11.70	22	7.1	407-2310
M12	13.70	25	8	407-2312
M14	15.70	25	8	407-2314
M16	17.70	31	11	407-2316

STEP BLOCKS



L	H	B	Model No.
19.05	27.30	25	407-6210
26.99	39.60	25	407-6220
63.50	96.00	25	407-6230
50.80	77.30	27	407-6240
76.20	115	27	407-6250

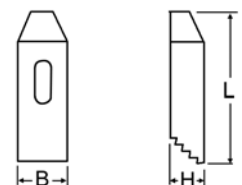
DOUBLE END BOLTS

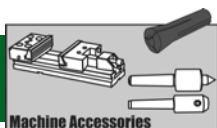


A	L	I	Model No.
M10	76	28	407-8005
M10	102	32	407-8010
M10	127	32	407-8015
M10	152	32	407-8020
M10	178	32	407-8025
M10	203	32	407-8030
M12	76	28	407-8035
M12	102	38	407-8040
M12	127	38	407-8045
M12	152	38	407-8050
M12	178	38	407-8055
M12	203	38	407-8060

STEP CLAMPS

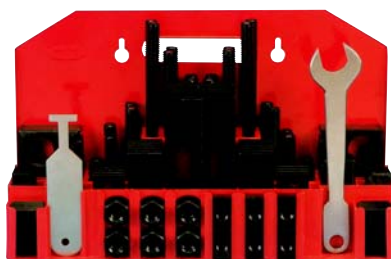
For Bolt	L	B	H	Model No.
M10	63.5	25	12	407-8205
M10	101.6	25	15	407-8210
M10	152.4	28	19	407-8215
M12	63.5	28	12	407-8220
M12	101.6	31	19	407-8225
M12	152.4	31	22	407-8230
M14	63.5	28	12	407-8235
M14	101.6	31	19	407-8240
M14	152.4	31	22	407-8245
M16	101.6	38	19	407-8250
M16	152.4	38	22	407-8255





Machine Accessories

52-PCS DELUXE STEEL CLAMPING KIT



Each set contains

- 6 T-slot nuts.
- 6 flange nuts.
- 4 coupling nuts.
- 6 step blocks.
- 6 serrated end clamps.
- 24 studs, 4 each: 3", 4", 5"
- 6", 7", 8" lg. 1 holder.

* Nut Wrench - **FREE**.

* Slot Cleaner - **FREE**.

Table Slot	Stud Size	Metal Holder Model No.	Plastic Holder Model No.
3/8"	5/16"-18	400-2375	400-3375
7/16"	3/8" -16	400-2437	400-3437
9/16"	1/2" -13	400-2562	400-3562
1/2"	3/8" -16	400-2501	400-3501
5/8"	1/2" -13	*400-2626	*400-3626
3/4"	5/8" -11	400-2750	400-3750

50-PCS SUPER CLAMP SETS

With Steel Blocks

Each set contains

- 24 studs with flats, 4 each: 3", 4", 5", 6", 7", 8", lg.
- 4 coupling nut.
- 4 flange nuts.
- 6 serrated end clamps.
- 6 T slot nut.
- 6 step blocks.
- 1 T-slot cleaner-FREE.
- 1 holder-FREE.

Table Slot	Stud Size	Model No.
3/8"	5/16-18	400-4375
5/8"	1/2-13	400-4626

38-PCS T-NUT & STUD SETS

- 4 flange nuts
- 4 T-slot nuts
- 4 coupling nuts
- 1 T-slot cleaner
- 24 studs, 4 each: 3", 4", 5", 6", 7", 8"lg
- 1 Holder

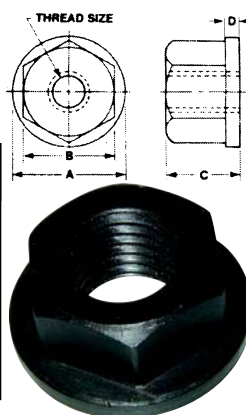
Table Slot	Stud Size	Model No.
7/16"	3/8-16	402-4437
9/16"	1/2-13	402-4562
5/8"	1/2-13	402-4625
3/4"	5/8-11	402-4750



FLANGED NUTS

- heat treated steel black oxide finished.

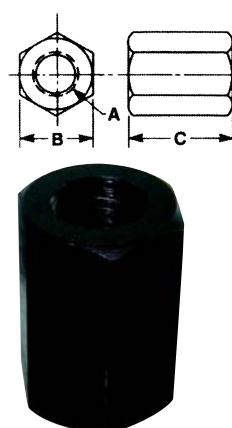
Thread Size	A	B	C	D	Model No.
5/16-18	11/16	1/2	9/32	1/8	407-5020
3/8-16	3/4	9/16	9/32	1/8	407-5024
1/2-13	1-5/32	7/8	1/2	3/16	407-5032
5/8-11	1-5/16	15/16	5/8	3/16	407-5040
3/4-10	1-1/2	1-1/8	21/32	1/4	407-5048
7/8-9	1-3/4	1-5/16	3/4	1/4	407-5056
1-8	2	1-1/2	7/8	1/4	407-5064



COUPLING NUTS

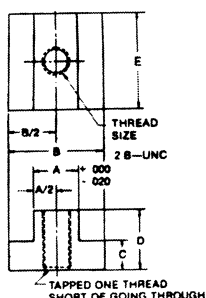
- heated treated steel black oxide finished.

Thread Size	Hex Size A	B	C	Model No.
3/8-16	11/16	1		407-4024
5/16-18	9/16	7/8		407-4020
1/2-13	7/8	1-1/4		407-4032
5/8-11	1-1/16	1-5/8		407-4040
3/4-10	1-1/4	1-7/8		407-4048
7/8-9	1-7/16	2-1/4		407-4056
1-8	1-5/8	2-1/2		407-4064



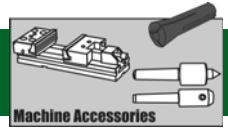
T-SLOT NUTS

- Heat treated steel black oxide finished.
- An imperfect thread is left in the base of the T-nut to eliminate any danger of screwing stud through.
- T-nut and damaging table slot



Thread Size	Table Slot A	B	C	D	E	Model No.
5/16-18	3/8	5/8	3/16	1/2	7/8	407-2202
3/8-16	7/16	11/16	7/32	1/2	7/8	407-2204
3/8-16	1/2	7/8	9/32	1/2	7/8	407-2206
3-8/16	9/16	7/8	11/32	5/8	1-1/8	407-2208
1/2-13	9/16	7/8	11/32	5/8	1-1/8	407-2210
1/2-13	5/8	1	11/32	5/8	1-1/8	407-2212
1/2-13	11/16	1-1/8	7/16	3/4	1-1/4	407-2214
5/8-11	11/16	1-1/8	7/16	3/4	1-1/4	407-2216
5/8-11	3/4	1-1/4	15/32	3/4	1-1/4	407-2218
5/8-11	13/16	1-1/4	9/16	1	1-1/2	407-2220
3/4-10	13/16	1-1/4	9/16	1	1-1/2	407-2222
3/4-10	7/8	1-1/2	9/16	1	1-1/2	407-2224
3/4-10	1	1-5/8	5/8	1	1-3/4	407-2226
3/4-10	1-1/16	1-5/8	11/16		2	407-2228
7/8-9	1	1-5/8	5/8	1	1-3/4	407-2230
1/8	1-1/16	1-5/8	11/16		2	407-2232

Machine Accessories



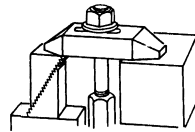
CLAMPING STUDS

- Heat treated steel
- Black oxide finished
- Studs threaded the same on both ends

OAL Length	A-1-1/8" 5-16-18 Model No.	A-1-1/4" 3/8-16 Model No.	A-1-1/2" 1/2-13 Model No.	A-1-3/4" 5/8-11 Model No.	A-2" 3/4-10 Model No.	A-2-1/4" 7/8-9 Model No.	A-2-1/2" 1-8 Model No.
1-1/2"	407-0115	407-0215	407-0315				
2"	407-0120	407-0220	407-0320	407-0420			
2-1/2"	407-0125	407-0225	407-0325				
3"	407-0130	407-0230	407-0330	407-0430	407-0530	407-0630	407-0730
3-1/2"		407-0235	407-0335	407-0435			
4"	407-0140	407-0240	407-0340	407-0440	407-0540	407-0640	407-0740
4-1/2"		407-0245	407-0345	407-0445			
5"	407-0150	407-0250	407-0350	407-0450	407-0550	407-0650	407-0750
5-1/2"		407-0255	407-0355	407-0455			
6"	407-0160	407-0260	407-0360	407-0460	407-0560	407-0660	407-0760
6-1/2"		407-0265	407-0365	407-0465			
7"	407-0170	407-0270	407-0370	407-0470	407-0570	407-0670	407-0770
7-1/2"	407-0175	407-0275	407-0375	407-0475			
8"	407-0180	407-0280	407-0380	407-0480	407-0580	407-0680	407-0780
10"			407-0390	407-0490	407-0590	407-0690	407-0790
12"			407-0392	407-0492	407-0592	407-0692	407-0792
14"			407-0394	407-0494	407-0594	407-0694	407-0794
16"					407-0596	407-0696	407-0796
18"					407-0598	407-0698	407-0798
20"					407-0599	407-0699	407-0799

PLAIN CLAMP

Heat treated steel black oxide finished



Bolt Size	Length	Width	Thickness	Model No.
5/16 or 3/8	2-1/2	1	1/2	410-7002
5/16 or 3/8	4	1	5/8	410-7004
5/16 or 3/8	6	1-1/8	3/4	410-7006
1/2	2-1/2	1-1/8	1/2	410-7008
1/2	4	1-1/4	3/4	410-7010
1/2	6	1-1/4	7/8	410-7012
5/8	2-1/2	1-1/4	5/8	410-7014
5/8	4	1-1/2	3/4	410-7016
5/8	6	1-1/2	7/8	410-7018
3/4	4	1-1/2	3/4	410-7020
3/4	6	1-1/2	1	410-7022
3/4	8	1-3/4	1-1/8	410-7024
1	6	2	1-1/4	410-7026
1	8	2	1-3/8	410-7028
1	10	2	1-1/2	410-7030

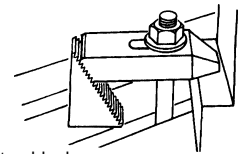


DELUXE STEP BLOCKS

- Solid in pairs only.
- Standard steel and powder casting.

Capacity of Full Block	Height Of 1/2 Block	Powder Casting Model No	Steel Model No.
3/4 to 1/2	1-1/8	407-6110	407-6010
1-1/8 to 2-1/2	1-3/4	407-6120	407-6020
2-1/2 to 6	3-7/8	407-6130	407-6030

STEP CLAMP



- Step clamp teeth are matched to fit anysize step block.
- Heat treated steel black oxide finished.
- 1/2" & 5/8" bolt size clamps forged & hardened.

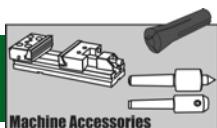
Bolt Size	Length	Width	Thickness	Model No.
5/16 or 3/8	2-1/2	1	1/2	410-7702
5/16 or 3/8	4	1	5/8	410-7704
5/16 or 3/8	6	1-1/8	3/4	410-7706
1/2	2-1/2	1-1/8	1/2	410-7708
1/2	4	1-1/4	3/4	410-7710
1/2	6	1-1/4	7/8	410-7712
5/8	2-1/2	1-1/4	5/8	410-7714
5/8	4	1-1/2	3/4	410-7716
5/8	6	1-1/2	7/8	410-7718
3/4	4	1-1/2	3/4	410-7720
3/4	6	1-1/2	1	410-7722
3/4	8	1-3/4	1-1/8	410-7724
7/8 or 1	8	2	1-1/4	410-7726
7/8 or 1	8	2	1-3/8	410-7728
7/8 or 1	10	2	1-1/2	410-7730

Heavy Duty Steel 1-1/2" Wide

Capacity of Full Block	Height Of 1/2 Block	Powder Casting Model No	Steel Model No.
1-1/2 to 3-3/4	2-1/2	407-6140	407-6040
2-1/2 to 6	3-7/8	407-6150	407-6050
3-1/2 to 9	5-1/2	407-6161	407-6060

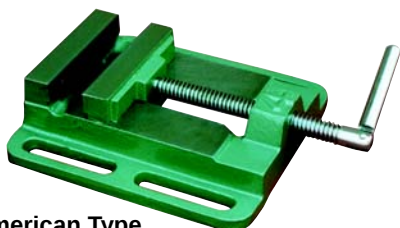
Double Duty Steel 2" Wide

Capacity of Full Block	Height Of 1/2 Block	Powder Casting Model No	Steel Model No.
1-1/2 to 3-3/4	2-1/2	407-6170	407-6070
2-1/2 to 6	3-7/8	407-6180	407-6080
3-1/2 to 9	5-1/2	407-6190	407-6090



Machine Accessories

DRILL PRESS VISES



American Type



German Type

- Popularly used in tool rooms and machine shops for small work.
- Adjustable screw has fine pitch and long bearing.
- Rugged cast iron construction.
- Grooved steel jaw for better grip.
- Lead screw has precision cut.

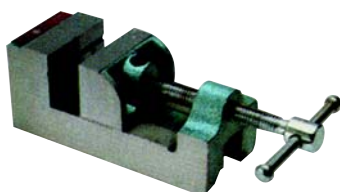
American Type

Jaw Width	Height of Jaw	Max. Jaw Opening	Model No.
2-1/2"	3/4"	2	428-8402
3"	3/4"	3-3/8	428-8403
4"	3/4"	4	428-8404
5"	7/8"	4-7/8	428-8405
6"	7/8"	5-5/8	428-8406

German Type

Jaw Width	Height of Jaw	Max. Jaw Opening	Model No.
50mm	20	30	428-8412
75mm	20	50	428-8413
100mm	20	80	428-8414
125mm	25	100	428-8415
150mm	25	135	428-8416

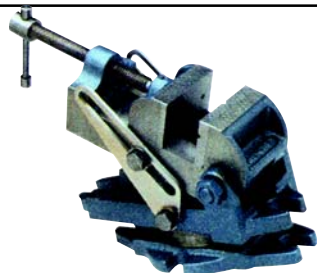
DRILL PRESS VISES



- For small drilling, tapping and grinding.
- Can be turned on either side of stand on end.
- Accurately machined and assembled from high intensive cast iron.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
2-1/2"	1-1/2"	2-1/2"	428-7402
3-1/2"	1-3/4"	3-1/2"	428-7403
4-1/2"	1-3/4"	4-1/2"	428-7404

SWIVEL & TILT VISES



- The base has keyway and two bolt slots for locating and mounting on machine table.
- Angle vise are mounted on swivel base, providing complete 360° rotation of the angle base and 0° horizontal to 90° vertical setting.
- Jaw plates are one plain and one grooved.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
2-1/2"	1-1/2"	2-1/2"	428-8825
3-1/2"	1-3/8"	3"	428-8830
4-1/2"	1-5/8"	4"	428-8840

DELUXE TILT VISES



- Full 90° horizontal to vertical adjustment.
- One grooves and one plain jaw plates.
- Two bolt lugs on the base for setting on machine table.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
3"	1-3/8"	3"	428-8730
4"	1-5/8"	4"	428-8740

ADJUSTABLE ANGLE VISES



- Full 90° adjustable hardened and ground replaceable jaws, ground to fit round parts.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
2-1/2"	1-1/2"	2-3/8"	428-7101
3-1/2"	1-1/2"	3"	428-7102
4-1/2"	1-5/8"	4"	428-7103

HOLD DOWN CLAMPS



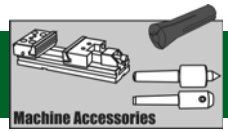
428-7430



428-7440

Hold down clamps can be spotted on any work surface on bench tops. A countersink hole is bored to accommodate the bolt that engages the clamp frame, rugged, heat thread malleable iron frame.

Capacity	Opening Throat	Dia. Of Screw	Model No.
3"	1-3/4"	9/16"	428-7430
4-1/4"	2-1/2"	13/16"	428-7440



QUICK GRIP DRILL PRESS VISES

- Center bar of high carbon steel and locking mechanism are hardened and ground.
- Set screw adjusts clamping pressure and feed of the sliding jaw, when the lever is in operation.
- With bolt lugs for clamping on worktable.
- Body and sliding jaw are of selected strong stress relieved iron casting.

A Type

Jaw Width	Jaw Depth	Jaw Opening	Model No.
3"	1-1/4"	3"	428-8503
4"	1-5/16"	4-11/16"	428-8504
6"	1-13/16"	6-3/16"	428-8506
8"	2"	8-3/8"	428-8508

B Type

Jaw Width	Jaw Opening	Jaw Depth	Model No.
3-1/8"	2-3/4"	1-1/2"	428-8523
4"	3-1/8"	1-3/4"	428-8524
4-3/4"	3-1/2"	2"	428-8525

2-WAY COMPOUND SLIDE VISE

- Used for end mills or drills presses, machined handle.

- Adjustable wear gibs and both axis.
- Independent cross feed and traverse.
- Hardened and ground top jaws.

Round Base

Vise Width	Base Travel	Vise Travel	Model No.
3"	4-1/2"	3-1/2"	428-8303
4"	6"	5"	428-8304
5"	7"	6"	428-8305
6"	8"	6"	428-8306

Square Base

Vise Width	Base Travel	Vise Travel	Model No.
3"	4-1/2"	3-1/2"	428-8313
4"	6"	5"	428-8314
5"	7"	6"	428-8315
6"	8"	6"	428-8316

WELDING ANGLE CLAMPS

saver

Model No. 318-0008 *Problems solver and the time*

- Holds two pieces of different thickness at a 90° angle.
- Has "V" jaws for holding round material.
- Up to 1-1/2" on square or rect angular material.
- Up to 1-1/2" round material.

ANGLE VISES

Length of Jaw	Height of Jaw	Jaw Opening	Model No.
4"	1-3/8"	2-3/8"	625-0125
5"	2-3/8"	4"	625-0130

BENCH VISE

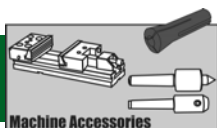
- Removable hardened alloy steel jaw inserts.
- Completely enclosed center screw.
- Attractive hammered enamel finish.

Jaw Width	Jaw Opening	Weight (kgs)	Stationary Base Model No.	Weight (kgs)	Swivel Base Model No.
4"	4"	6.5	428-7504	7	428-7604
5"	5"	12	428-7505	13	428-7605
6"	6"	20	428-7506	22	428-7606
8"	8"	32	428-7508	35	428-7608

MULTI-PURPOSE ADJUSTABLE VISE

One of the most versatile vises on the market. Unique design comes equipped with 5" parallel jaw, V-shaped pipe jaws, and a solid steel anvil. Both jaws and locking base swivel 360° for the best angle on your work.

Jaw width	Parallel Jaw Opening	Pipe Vise Opening	Weight (kgs)	Model No.
4"	0-3.2"	0.39-2"	19	428-9905
4"	0-3.2"	0.39-2"	22	428-9907
5"	0-4"	0.6-2.36	38	428-9910
5"	0-4"	0.6-2.36"	23	428-9911
5"	0-4"	0.6-2.36"	27	428-9912
5"	0-4"	0-4.7"	30	428-9913
5"	0-4"	0-4.7"	34	428-9914
6"	0-4.7"	0.59-2.56"	40	428-9915
6"	0-4.7"	0.59-2.56"	45	428-9916



Machine Accessories

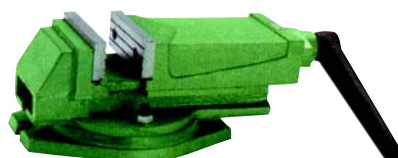


TILT & SWIVEL MILLING VISES

- Positive locking to withstand heavy loads.
- Horizontal swivel movement 360°. Vertical swivel movement 90°.
- Accuracy hardened and ground jaws run on precision ground.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
4"	1-5/8"	2-3/4"	428-7304
5"	1-7/8"	4"	428-7305
6"	2"	5"	428-7306

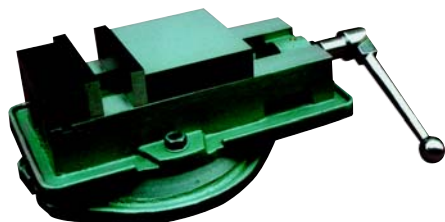
MILLING VISE WITH SWIVEL BASE



- Used in milling sharpening and drilling machine.
- Fill 360° swivel base with fine, accurate graduation.
- Can be used both as stationery or swivel vise.
- Drop forged handle.

Jaw Width	Jaw Depth	Jaw Opening	Model No.
3"	1-3/8"	2-5/8"	428-8103
4"	1-1/2"	3-1/8"	428-8104
5"	1-3/4"	4"	428-8105
6"	2"	5"	428-8106
8"	2-3/8"	6-1/2"	428-8108

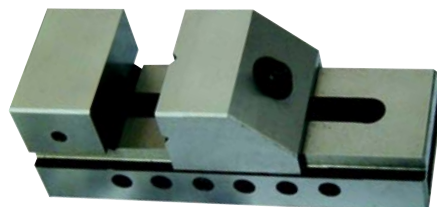
PRECISION MILLING MACHINE VISES



- Two type with swivel and without swivel. Only 6-1/4" without swivel.
- With lock down jaw eliminates TILT.
- Provide better clamping pressure.
- Eliminates hammering.
- Removable hinged handle for fast locking.

Jaw Width	Jaw Depth	Jaw Opening	With Swivel Base Model No.	Without Swivel Base Model No.
4"	1-1/4"	4-1/8"	428-7241	428-7240
5"	1-3/8"	4-1/2"	428-7251	428-7250
6"	1-3/4"	5-1/2"	428-7261	428-7260
8"	2-1/4"	8-1/4"	428-7281	428-7280
6-1/4"	1-1/2"	8-1/8"		428-7265

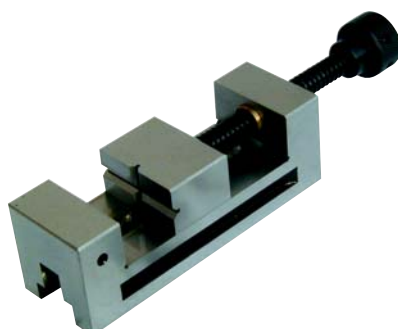
PRECISION TOOLMAKERS VISE



- Guaranteed tolerance within .005mm/.0002" of parallelism, flatness and squareness with the vise in any mode. Made of high carbon steel, Hardened and tempered to ensure stability and accuracy throughout the unit's working life. The hardness is 58-62 HRC.
- For high accuracy light machining, inspection or marking of precision components. Vise can be used on base, side, end or top.

Jaw Width	Jaw Depth	Jaw Opening	Vise Length	Model No.
1"	3/8"	1"	1-5/8"	428-9210
2"	1-1/4"	3"	6"	428-9220
2-1/2"	1-3/8"	3-1/2"	7-1/4"	428-9225
3"	1-5/8"	4"	7-5/8"	428-9230
3-1/2"	1-5/8"	5"	10"	428-9235
4"	1-7/8"	5"	10-3/8"	428-9240
5"	2"	6-3/8"	12"	428-9250

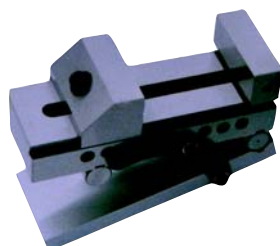
PRECISION TOOLMAKERS VISE



- Clamping slots and 3/8" hole in base, provide easymeans of fixing to angle plate etc.
- Hardened and ground dovetail slides eliminate "left" and insure consistent accuracy, the hardness is 58-62 HRC.
- Has ground "V" way, Detachable replacement jaws.
- Has ground "V" way, Detachable replacement jaws.

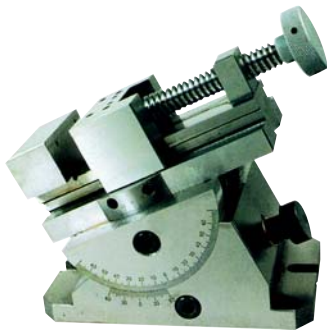
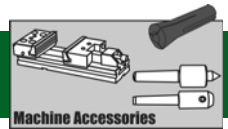
Jaw Width	Jaw Depth	Jaw Opening	Vise Length	Model No.
2"	1"	2-1/2"	6"	428-9020
2-1/2"	1-1/4"	3-1/2"	7-1/2"	428-9025
3"	1-1/4"	4"	8-1/2"	428-9030
3-1/2"	1-3/8"	5"	10"	428-9035
4"	1-5/8"	5"	10-3/8"	428-9040
5"	2"	6-3/8"	12"	428-9050

PRECISION ANGLE VISE



- Made of high carbon steel. Subject to rigid heat-treatment.
- Provide a close tolerance of .005mm/.0002" for both parallelism and squareness.
- Available for inspecting angles and work pieces with angle.
- Tolerance 0.005mm/0.0002", Hardness 58-62 HRC

Jaw Width	Jaw Depth	Jaw Opening	Vise Length	Model No.
2"	1"	2-5/8"	5-3/8"	428-9520
2-1/2"	1-1/4"	3-5/8"	3"	428-9525
3"	1-1/4"	4"	7-5/8"	428-9530
3-1/2"	1-5/8"	4"	9-3/8"	428-9535
4"	1-5/8"	5"	10"	428-9540
5"	2"	6"	11-5/8"	428-9550



PRECISION UNIVERSAL VISE

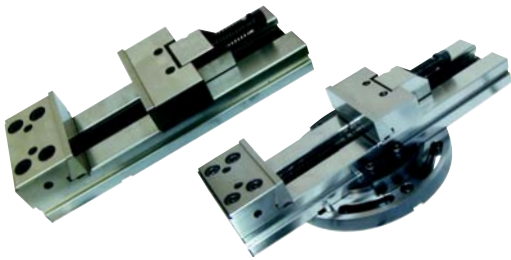
Precision Universal Vise is a newly developed fixture which is composed of two parts, namely a precision vise and a swivel plate base. With the aid of graduated swivel plate, the vise is capable of revolving 360° in a horizontal plane and 45° in a vertical plane. It is

a adaptable to precision grinding machine and boring machine and so on, for level and inclined face machining as well as boring at a certain degree of inclination etc.

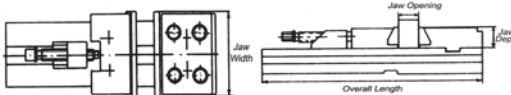
Width of Jaw	Max. Opening of Jaws	Depth of Jaw	Model No.
2-3/4"	3-1/8"	1-1/8"	628-7020
70mm	80mm	30mm	628-7010

PRECISION MODULAR VISES

Ground flat, square, and parallel within 0.005mm (.0002")

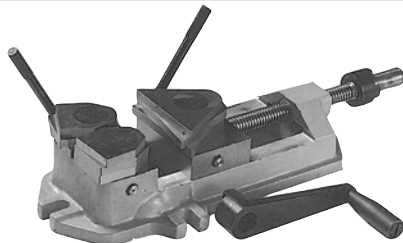


- One each of L-Socket, T-Hex Key,
- One set Vise Holding Clamps (four pieces)
- One set Positioning Key-Nuts (two pieces)
- One Work stop with nail bolt.



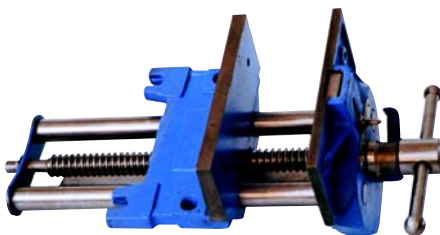
Jaw Width	Jaw Depth	Jaw Opening	Overall Length	Without Swivel Base Model No.	With Swivel Base Model No.
4"/100mm	1.2"/30mm	4"/100mm	10.6"/270mm	428-0100	428-1100
5"/125mm	1.6"/40mm	6"/150mm	13.6"/345mm	428-0125	428-1125
6"/150mm	2.0"/50mm	8"/200mm	16.5"/420mm	428-0150	428-1150
6"/150mm	2.4"/60mm	12"/300mm	20.5"/520mm	428-0151	428-1151
7"/175mm	2.4"/60mm	8"/200mm	17.9"/455mm	428-0175	428-1175
7"/175mm	2.4"/60mm	12"/300mm	21.9"/555mm	428-0176	428-1176
7"/175mm	2.4"/60mm	16"/400mm	25.8"/655mm	428-0177	428-1177
7"/175mm	2.4"/60mm	20"/500mm	29.7"/755mm	428-0178	428-1178
8"/200mm	2.6"/65mm	8"/200mm	19.5"/495mm	428-0200	428-1200
8"/200mm	2.6"/65mm	12"/300mm	23.4"/595mm	428-0201	428-1201
8"/200mm	2.6"/65mm	16"/400mm	27.4"/695mm	428-0202	428-1202
8"/200mm	2.6"/65mm	8"/200mm	31.3"/795mm	428-0203	428-1203
8"/200mm	2.6"/65mm	8"/200mm	35.2"/895mm	428-0204	428-1204
12"/300mm	3.1"/80mm	12"/300mm	25.0"/635mm	428-0300	428-1300
12"/300mm	3.1"/80mm	12"/300mm	28.9"/735mm	428-0301	428-1301
12"/300mm	3.1"/80mm	12"/300mm	32.9"/835mm	428-0302	428-1302
12"/300mm	3.1"/80mm	12"/300mm	36.8"/935mm	428-0303	428-1303

MULTI-FIXTURE VISES



Width of Jaw	Max. Opening of Jaws	Length of Base	Overall Length	Overall Width	Overall Height	Model No.
2-3/4"	3"	10"	14-3/4"	7-1/8"	3-1/4"	428-8915
5-1/2"	6"	18-1/4"	25"	9"	5"	428-8920

WOOD WORKING CLAMP



This heavy duty unit is everything a vise should be. Some features include carefully machined main screw and guide rods, quality casting and quick release bar. Predrilled jaws allow easy installation of wooden faces. Fastens flush to a standard 2-1/2" work bench.

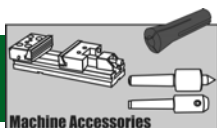
Jaw Width	Jaw Depth	Jaw Opening	Model No.
7"	3-1/2"	11"	428-9900
9"	3-1/3"	10-1/2"	428-9901

WOOD WORKING ANGLE VISE



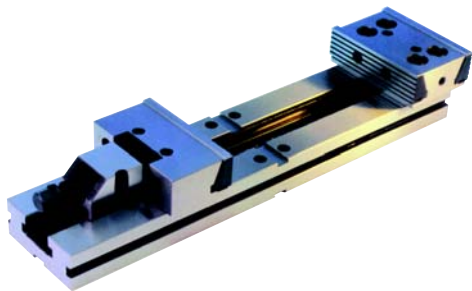
Model No. 428-8400

The vise is designed for wood working. Two Jaws could be adjusted to 90°, The swivel base could turn 90°, Max. Jaw Opening is 4", The weight is 11LBS



Machine Accessories

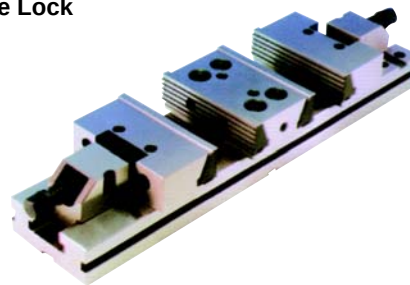
LONG BODY MODULAR VISES



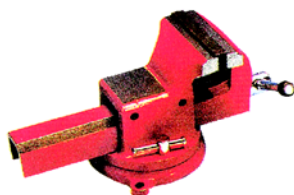
Jaw Width	Jaw Open	Base Length	Weight	Model No.
4"/100mm	11"/290mm	18"/460mm	10kg	428-2100
5"/125mm	13"/320mm	20"/520mm	17kg	428-2125
6"/150mm	14"/360mm	23"/580mm	31kg	428-2150
6"/150mm	18"/460mm	27"/680mm	34kg	428-2151
7"/175mm	16"/400mm	26"/666mm	46kg	428-2181
7"/175mm	20"/500mm	30"/766mm	51kg	428-2182
7"/175mm	24"/600mm	34"/866mm	56kg	428-2183
8"/200mm	20"/500mm	32"/805mm	85kg	428-2200
8"/200mm	24"/600mm	36"/905mm	92kg	428-2201
8"/200mm	28"/700mm	40"/1005mm	99kg	428-2202

LONG BODY MODULAR VISES

Double Lock



Jaw Width	Each Jaw Open	Base Length	Weight	Model No.
4"/100mm	3-1/2" /90mm	18"/460mm	14kg	428-3100
5"/125mm	4" /100mm	20"/520mm	21kg	428-3125
6"/150mm	4-3/10"/110mm	23"/580mm	38kg	428-3150
6"/150mm	6-3/10"/160mm	27"/680mm	42kg	428-3151
7"/175mm	4-7/10"/120mm	26"/666mm	58kg	428-3181
7"/175mm	6-7/10"/170mm	30"/766mm	63kg	428-3182
7"/175mm	8-7/10"/220mm	34"/866mm	68kg	428-3183
8"/200mm	6"/150mm	32"/805mm	95kg	428-3200
8"/200mm	8"/200mm	36"/905mm	101kg	428-3201
8"/200mm	10"/250mm	40"/1005mm	107kg	428-3202

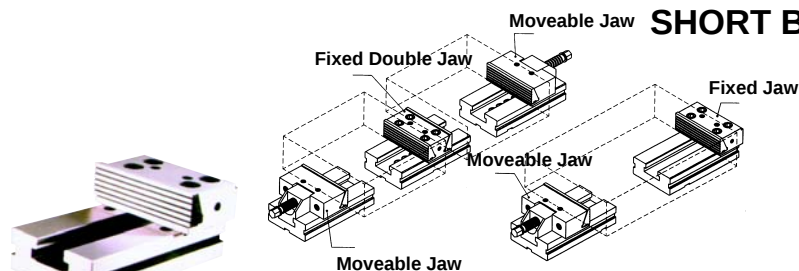


- Made from quality steel by forging and machine.
- Jaws and clamps are quenched in high-frequency.
- Body is painted and some parts are electroplated.

FORGING STEEL MULTI-PURP. VISE

Jaw Width	Jaw Height	Opening	Model No. Stationary Base	Model No. Swivel Base
75mm/3"	125mm	75mm	428-7513	428-7613
100mm/4"	132mm	100mm	428-7514	428-7614
115mm/4-1/2"	146mm	115mm	428-7511	428-7611
125mm/5"	151mm	125mm	428-7515	428-7615
135mm/5"-1/2"	156mm	135mm	428-7512	428-7612
150mm/6"	182mm	150mm	428-7516	428-7616
175mm/7"	195mm	175mm	428-7517	428-7617

SHORT BODY PRECISION MODULAR VISE



Fixed Jaw



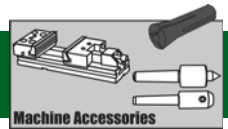
Fixed Double Jaw



Moveable Jaw

Base Length	Jaw Width	Vise Height	Moveable Jaw Model No.	Fixed Jaw Model No.	Fixed Double Jaw Model No.
5-1/2"/140mm	4"/100mm	2-3/5"/65mm	428-4014	428-4114	428-4214
6-3/10"/160mm	5"/125mm	3"/80mm	428-4016	428-4116	428-4216
9"/230mm	6"/150mm	4"/100mm	428-4023	428-4123	428-4223
9-2/5"/240mm	7"/175mm	4-3/5"/118mm	428-4024	428-4124	428-4224
11-4/5"/300mm	8"/200mm	5-3/10"/135mm	428-4030	428-4130	428-4230
13-4/5"/350mm	12"/300mm	6-1/5"/158mm	428-4035	428-4135	428-4235

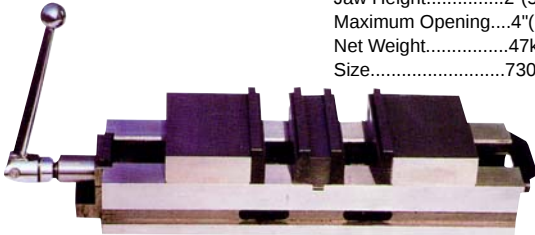
Machine Accessories



PRECISION MACHINE VISE

with 2 Clamping Stations

Jaw Width.....6.3"(160mm)
Jaw Height.....2"(50mm)
Maximum Opening.....4"(100mm)
Net Weight.....47kg
Size.....730x280x200mm

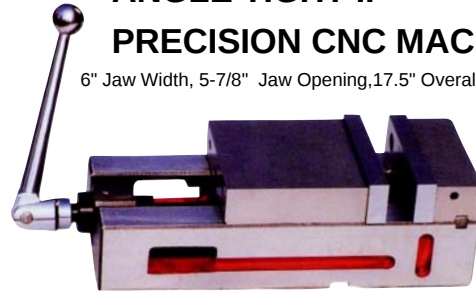


Model No.428-1260

ANGLE TIGHT II

PRECISION CNC MACHINE VISE

6" Jaw Width, 5-7/8" Jaw Opening, 17.5" Overall Length, 5" Height.



Model No.428-9999

MACHINE VISE FOR HOLDING SHAFTS AND ROUND



- 4" wide hardened steel replaceable jaws.
- Capacity 1/2" to 2-1/2" round parts.
- Work rests on V-block made of hardened and ground tool steel.
- Has an adjustable sliding rod to set work in proper position.
- Vise ends are ground so that it can be used vertically or horizontally.

Description	Model No.
3" Jaw Width	428-3017
4" Jaw Width	428-3018

PERMANENT MAGNETIC CHUCKS

Alnico Standard Magnetic Chuck

Magnetic force $>80\text{N}/\text{CM}^2$



Size	Model No.
4x7"/100x175mm	285-0100
5x10"/125x250mm	285-0105
6x12"/150x300mm	285-0110
6x14"/150x350mm	285-0115
6x16"/150x400mm	285-0120
6x18"/150x450mm	285-0125
8x16"/200x400mm	285-0130
8x18"/200x450mm	285-0135
8x20"/200x500mm	285-0140
8x22"/200x550mm	285-0145
8x24"/200x600mm	285-0150
10x20"/250x500mm	285-0155
10x24"/250x600mm	285-0156
12x24"/300x600mm	285-0157

Powerful Permanent Magnetic Chucks

Powerful permanent magnetic chuck is suitable for powerful milling and grinding. Powerful permanent magnetic chuck has a magnetic force $>120\text{N}/\text{CM}^2$

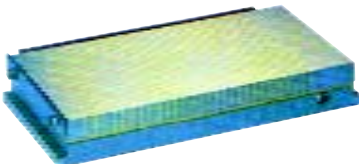


Size	Model No.
4x7"/100x175mm	285-0300
4x8-1/2"/100x212mm	285-0302
5x10"/125x250mm	285-0305
5x12"/125x300mm	285-0307
6x12"/150x300mm	285-0310
6x14"/150x350mm	285-0312
6x16"/150x400mm	285-0314
6x18"/150x450mm	285-0315
6x20"/150x500mm	285-0320
8x12"/200x300mm	285-0322
8x14"/200x350mm	285-0324
8x16"/200x400mm	285-0326
8x18"/200x450mm	285-0328
8x20"/200x500mm	285-0370
8x22"/200x550mm	285-0372
8x24"/200x600mm	285-0374
10x20"/250x500mm	285-0382
10x24"/250x600mm	285-0384
12x24"/300x600mm	285-0386
10x15"/250x375mm	285-0390

Dense Permanent Magnetic Chucks

Used for processing various magnetic conduction work pieces, especially thin and small piece, in surface grinder, tools grinder and electric sparks machine tools.

Magnetic force $\geq 80\text{N}/\text{CM}^2$



Size	Model No.
4x7"/100x175mm	285-0160
5x10"/125x150mm	285-0170
6x12"/150x300mm	285-0180
6x14"/150x350mm	285-0184
6x16"/150x400mm	285-0186
6x18"/150x450mm	285-0190
8x16"/200x400mm	285-0192
8x18"/200x450mm	285-0194
8x20"/200x500mm	285-0196
8x22"/200x550mm	285-0198
8x24"/200x600mm	285-0200

Circular Permanent Magnetic Chucks

Circular permanent magnetic chuck is used for holding work pieces in grinder, lathe and bench work.

Magnetic force $>80\text{N}/\text{CM}^2$



Diameter	Model No.
6"/150mm	285-1206
8"/200mm	285-1208
10"/250mm	285-1210
12"/300mm	285-1211

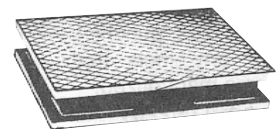
DEMAGNETIZERS



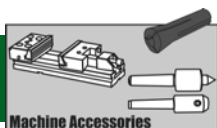
Volt	Table Size	Model No.
110V	190x120mm	285-2805
110V	210x152mm	285-2808
220V	190x120mm	285-2815
220V	210x152mm	285-2818

LAPPING BENCH PLATE

- Precision ground on one side, ground on the other side.
- Made of casting iron.
- Size: 10"x14"x2-3/4"



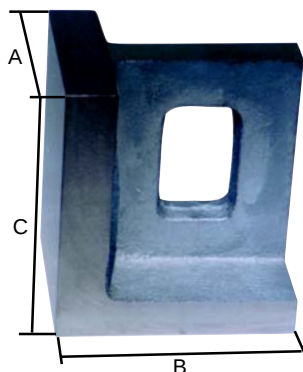
Model No. 640-0000



Machine Accessories

UNIVERSAL RIGHT ANGLE PLATES

Machined or Precision Ground



Made of finest quality, close grained semi-steel castings, stress relieved against distortion by annealing after seasoning. All outside surfaces closely finished for square and parallel references: Machined Square and parallel within 0.001 per 6". Precision ground: Square within 0.0005" per 6". Parallel within 0.00025" per 6".

A	B	C	Machined Finished Model No.	Grounded Finished Model No.
3-3/4"	4"	5"	418-4105	418-4205
4"	4"	6"	418-4110	418-4210
5"	5"	6"	418-4115	418-4215
4"	5"	8"	418-4120	418-4220
5"	8"	12"	418-4125	418-4225
5-1/2"	7"	10"	418-4130	418-4230
5-1/2"	8"	10"	418-4135	418-4235
6"	6"	8"	418-4140	418-4240
8"	10"	12"	418-4145	418-4245
8"	9"	16"	418-4150	418-4250
10"	12"	16"	418-4155	418-4255
12"	12"	24"	418-4160	418-4260



PLAIN ANGLE PLATES

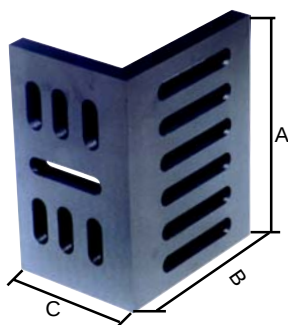
Machined or Precision Ground

- Made from high tensile cast iron normalized and stress relieved.
- Machined: Flat and square within 0.002" per 6" for general work.
- Precision ground: flat and square within 0.0005" per 6" for layout and inspection or precision machine

Size	No. of Ribs	Machined Model No.	Grounded Model No.
2 x 2 x 2"	1	418-4310	418-4400
3 x 3 x 3"	1	418-4315	418-4415
4 x 4 x 5"	2	418-4320	418-4420
5 x 5 x 5"	2	418-4325	418-4425
6 x 6 x 6"	2	418-4330	418-4430
8 x 8 x 8"	2	418-4335	418-4435
10 x 10 x 10	2	418-4340	418-4440
12 x 12 x 12	2	418-4345	418-4445

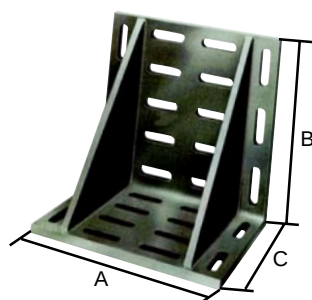
SLOTTED ANGLE PLATES

- Made of high tensile cast iron properly seasoned against distortion.
- webbed style accurately machined, square parallel on outside faces and ends.
- Open end style accurately machined square and parallel on a ll faces.



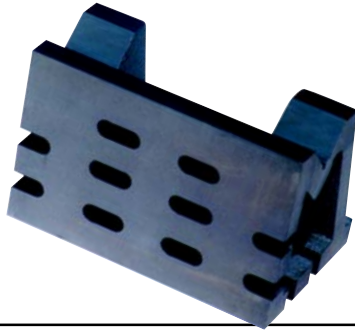
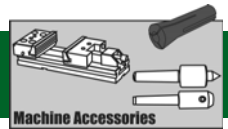
Dimensions A	Dimensions B	Dimensions C	Webbed Machined Model No.	Webbed Ground Model No.	Open end Machined Model No.	Open end Ground Model No.
3"	2-1/2"	2"	418-4510	418-4612	418-4712	418-4812
3-1/2"	3"	2-1/2"	418-4515	418-4617	418-4717	418-4817
4-1/2"	3-1/2"	3"	418-4520	418-4622	418-4720	418-4822
6"	5"	4-1/2"	418-4525	418-4627	418-4725	418-4827
7"	5-1/2"	4-1/2"	418-4530	418-4632	418-4730	418-4832
8"	6"	5"	418-4535	418-4637	418-4735	418-4837
9"	7"	6"	418-4540	418-4642	418-4740	418-4842
10"	8"	6"	418-4545	418-4647	418-4745	418-4847
12"	9"	8"	418-4550	418-4652	418-4750	418-4752

GIANT SLOTTED ANGLE PLATES



- Made from high tensile cast-iron normalized and stress relieved.
- Machined flat and square within 0.002" per 6" for general work.

Dimensions A	Dimensions B	Dimensions C	Model No.
16"	12"	9"	418-4916
20"	16"	12"	418-4920
24"	24"	18"	418-4924
36"	24"	24"	418-4936

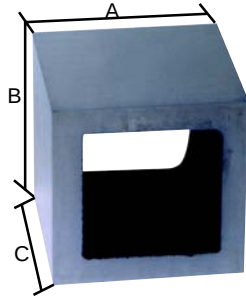


VEE ANGLE PLATE

The V-Angle is manufactured from a high grade cast iron that is fully stress relieved to give stability through out its working life.

The V-Angle has many more clamping positions than an ordinary angle plate. Its design allows almost any shape to be clamped securely, and all types of clamps to be used.

Size	Model No.
3 x 3 x 5"	418-4905
4 x 4 x 6"	418-4906
5 x 5 x 7"	418-4907
6 x 6 x 8"	418-4908



BOX PARALLELS

- Made of high quality fine grained cast iron, stress relieved.
- All faces and ends finished square and parallel.
- Machined finish-Size + or -0.015". Square and parallel within 0.002" per 6".
- Ground finish - Size + or - 0.002" Square and parallel within 0.0005" per 6".

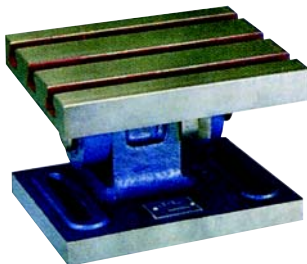
A	B	C	Wall Thickness	Wt (lbs)	Machined Model No.	Grounded Model No.
4"	4"	5"	5/8"	12	418-4000	418-4020
4"	4"	6"	3/4"	16	418-4002	418-4022
4"	6"	6"	3/4"	20	418-4004	418-4024
5"	5"	5"	3/4"	17	418-4006	418-4026
5"	10"	10"	3/4"	73	418-4008	418-4028
6"	6"	6"	3/4"	25	418-4010	418-4030
6"	6"	8"	3/4"	35	418-4012	418-4032
6"	12"	12"	3/4"	105	418-4014	418-4034
8"	8"	8"	5/8"	71	418-4016	418-4036
10"	10"	10"			418-4018	418-4038



ADJUSTABLE ANGLE PLATES

Heavy machined casting. Adjustable 45 in either direction. Crank handle for easy and precise adjustment.

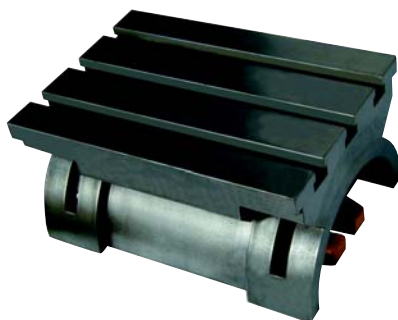
Plate Size (In)	Height (In)	T-Bolt (In)	Model No.
5 x 7	3-7/8	3/8	200-1105
7 x 10	5-3/16	7/16	200-1110
9 x 12	6-7/16	7/16	200-1112
10 x 15	7-3/8	5/8	200-1115
12 x 24	8-1/8	5/8	200-1124



SWIVEL ANGLE TABLES

- Adjustable heavy castings.
- Rugged construction.
- Machined "T" slots.
- SAVES job set-up time in operation.
- Graduated for 90 tilt.
- Accuracy of table surface

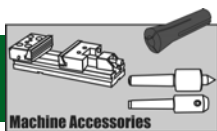
Size	Height	Model No.
5 x 6"	4"	200-1305
6 x 8"	5"	200-1306
8 x 10"	6"	200-1308
10 x 12"	7"	200-1310



SWIVEL ANGLE PLATES

- Perfect for setting work at any angle during milling or other operations.
- Heavy rugged graded casting.
- Machined "T" slots.
- Graduated 90 for setting 45 on each side.
- Accuracy of table surface 0.0005".

T-Slot	Size	Height	Model No.
1/2"	5 x 7"	3-3/4"	200-1205
1/2"	7 x 10"	5"	200-1207
3/5"	10 x 15"	6-3/4"	200-1210

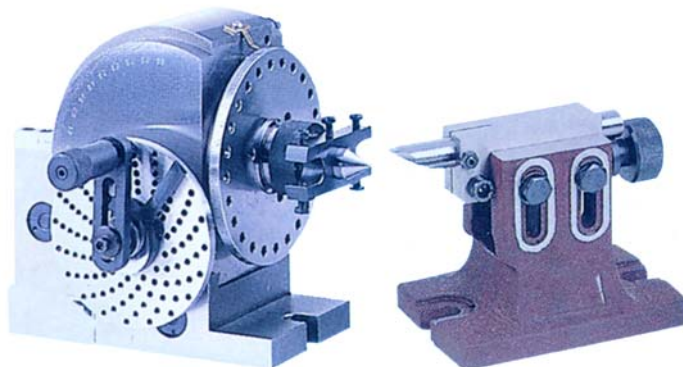


Machine Accessories

SEMI-UNIVERSAL DIVIDING HEADS

FEATURES

- Can be easily adjusted to any angle between -10° to $+90^{\circ}$ from a horizontal position.
- Hardened and ground spindle is rigidly held in a taper roller bearing.
- Divide any angle by the direct, indirect or differential methods.
- Spiral machining capability.
- All models have threaded spindle nose and 24 hole dividing plate with easy conversion to fast direct indexing on numbers 2,3,4,6,8,12, and 24.
- Hardened and ground worm gear has a 40 to 1 ratio.
- Positive locking mechanism uses a 360° brake shoe.
- Accurate precision, little back lash, fine appearance and strong structure so can assure smooth rotation.
- Three dividing plates are included.



Model No. 235-6300 / 235-6301

Standard Accessories



Number of the holes of Dividing Plates

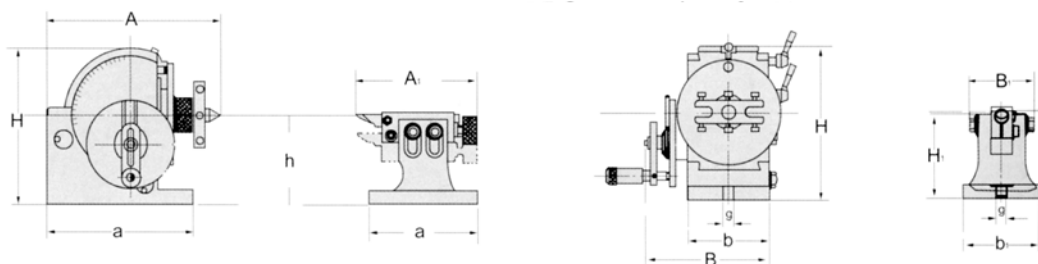
A-Plate 15,16,17,18,19,20

B-Plate 21,23,27,29,31,33

C-Plate 37,39,41,43,47,49

THREAD SPINDLE: Model No. 235-6300 1-1/2"-8 TPI

Model No. 235-6301 1-1/2"-8 TPI



Semi-Universal index B&S Type

No.0 No. 1 (Head-stock)

mm/inch

Model No.	A	B	H	h	a	b	g	Taper of center	Diameter of spindle hole
235-6300	193	131	173	100	166	90	16	B & S	18
	7.59	5.15	6.81	3.93	6.53	3.54	0.63	No.7	0.71
235-6301	242	168	220	128	206	113	16	B & S	20
	9.52	6.61	8.66	5.04	8.11	4.45	0.63	No.9	0.79

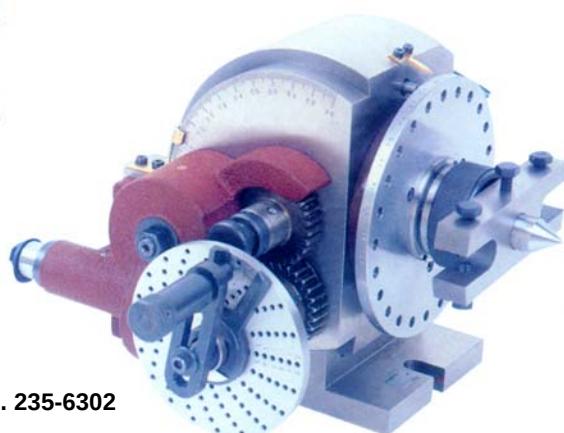
No.0 No. 1 (Tail-stock)

mm/inch

Model No.	A ₁	B ₁	H ₁	h	a ₁	b ₁	g ₁
235-6300	175	87	102	100	130	92	16
	6.89	3.24	4.02	3.93	5.12	3.62	0.63
235-6301	183	87	137	128	158	110	16
	7.20	3.24	5.39	5.04	6.22	4.33	0.63



UNIVERSAL DIVIDING HEAD

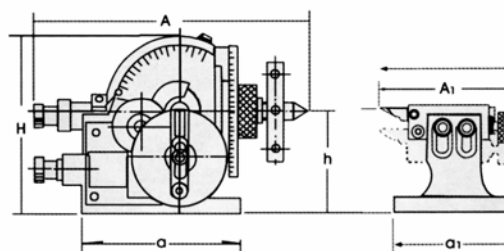
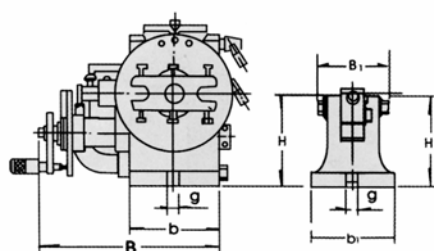


Model No. 235-6302

Standard Accessories



THREAD SPINDLE: 2-1/4"-8TPI



Universal index B&S Type

No.2 (Head-stock)

mm/inch

Model No.	A	B	H	h	a	b	g	Taper of center	Diameter of spindle hole
235-6302	370	280	236	133	212	134	16	B & S	25.4
	14.56	11.02	9.29	5.24	8.35	5.27	0.63	No.10	1

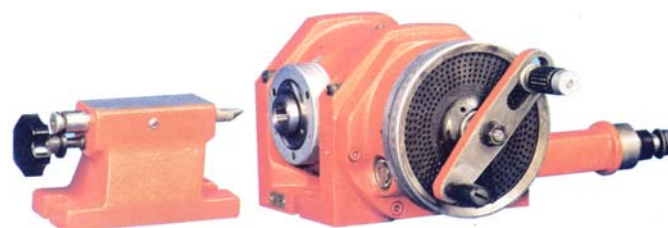
No.0 No. 1 (Tail-stock)

mm/inch

Model No.	A ₁	B ₁	H ₁	h	a ₁	b ₁	g ₁
235-6302	183	87	156	133	175	122	16
	7.20	3.42	6.14	5.24	6.89	4.80	0.63

ACCURACY	MAXIMUM VARIATION
Center concentricity	0.0006"
	0.015mm
Inside taper concentricity of dividing spindle	
(1) Measured at spindle nose	(1) 0.0004"
	0.01mm
(2) Measured at arbor (8" long)	(2) 0.0012"
	0.03mm
Axial movement of dividing spindle	0.0004"
	0.01mm
Alignment of dividing head and tailstock	
(1) Vertical plane	(1) 0.0008"
	0.02mm
(2) Horizontal plane	(2) 0.0008"
	0.02mm
DIVIDING ACCURACY OF WORM DRIVE	
Maximum cumulative spacing error	1'30"

UNIVERSAL DIVIDING HEAD



Specification	Model No. 235-6008	Model No. 235-6100	Model No. 235-6125	Model No. 235-6160
Center height	80mm	100mm	125mm	160mm
Rotating angle of the spindle of the diving handle			9°	
Min. value of the vernier			10"	
Worm gear ratio			1:40	
Dia. of spindle register taper	36.541mm	41.275mm	53.975mm	53.975mm
	1.441mm	1.63mm	2.13mm	2.13mm
Spindle taper	MT3	MT3	MT4	MT4
Width of the locating key	14mm	14mm	18mm	18mm
Hole No. of hole plate first face	24, 25, 28, 30, 34, 37, 38, 39, 41, 42, 43			
second face	46, 47, 49, 51, 53, 54, 57, 58, 59, 62, 66			
Mould of change gears	1.5	1.5	2	2
Teeth No. of change gears	25, 30, 35, 40, 50, 55, 60, 70, 80, 90, 100			
Accuracy of the dividing handle	60"	± 45"	± 45"	± 45"
Accuracy of each of quadrants			± 1"	