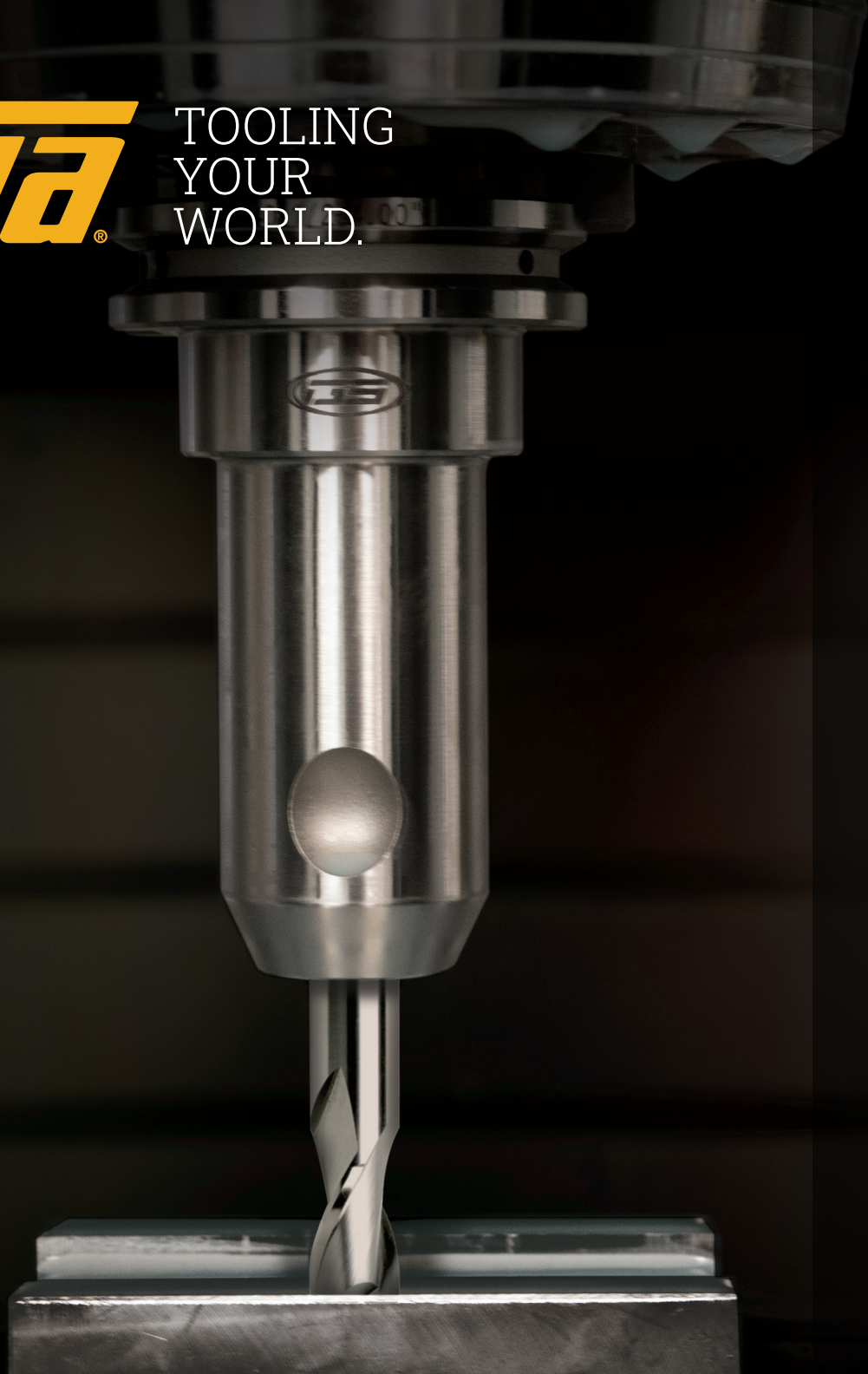


SOWA[®]

TOOLING
YOUR
WORLD.



HSS & HSCO End Mills, End Mill Holders



HSS & HSCO End Mills	4-9
GS Tooling End Mill Range & Features	10-11
End Mill Holders	12-16
Accessories	17
Retention Knobs	18



ALSO AVAILABLE
Solid Carbide End Mills

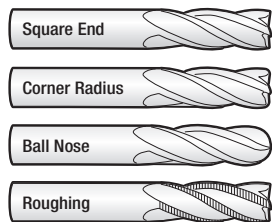


Compare our End Mills with other brands... the biggest difference you'll find is unrivaled value for your money!

At Sowa Tool, we strive to make our customers' experience easy and enjoyable and take great pride in our reputation as a trusted and reliable brand. By combining our 6-plus decades of industry expertise with our agility and size to provide tailored and one-stop-shop solutions, we help our customers reach their goals. Our long-term customers have come to know us for our dedication to quality and customer satisfaction.

Our GS Tooling branded products are guaranteed to meet the most stringent industry benchmarks. The performance of GS Tooling end mills, at such a reasonable cost, is without a doubt one of the best deals available on the marketplace today.

TYPES:



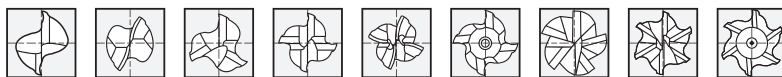
FINISHES:



LENGTHS:



FLUTES:



	GS TOOLING	OTHER BRANDS
Quality Material:		
Solid Sub-Micron Micrograin Carbide	✓	✓
Superior Tolerance:		
Ground to a Tolerance of h6	✓	✓
Variety of Finishes:		
Uncoated for Aluminum	✓	✓
Titanium Carbonitride (TiCN) for Aluminum	✓	✓
Uncoated	✓	✓
Titanium Aluminum Nitride (TiAlN)	✓	✓
Aluminum Titanium Nitride (AlTiN)	✓	✓
2 to 8-Flutes:		
Available in 2, 3, 4, 5, 6 & 8-Flutes	✓	✓
Most Common Types:		
Available in Square End, Ball Nose, Corner Radius & Roughing	✓	✓
Other:		
Stock available in USA & Canada	✓	✓
Decades of performance	✓	✓
UNRIVALED VALUE FOR YOUR MONEY	✓	✗

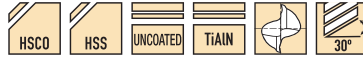
Depend on us to tool your world and deliver the competitive edge your business needs to stay ahead!



2-Flute HSCO & HSS

These end mills come standard with right-hand cutting and right-hand helical flutes. All shanks are flattened for holder set screw. Designed for slotting, drilling, pocketing and general-purpose operation.

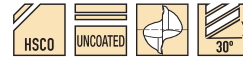
- 2 helical flutes
- Single end with weldon shank
- Centre cutting
- Keyway tolerance



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat	HSCO TiAlN Coated Weldon Flat	HSCO Comb. Shank	HSS Weldon Flat
				Code No.	Code No.	Code No.	Code No.
Inch							
1/8	3/8	3/8	2-5/16	103050	104570	-	104450
5/32	3/8	7/16	2-5/16	103052	-	-	104452
3/16	3/8	7/16	2-5/16	103054	104571	-	104454
7/32	3/8	1/2	2-5/16	103056	-	103005	104456
1/4	3/8	1/2	2-5/16	103058	104572	-	104458
1/4	3/8	1-1/4	3-1/8	103130	-	-	-
9/32	3/8	9/16	2-5/16	103060	-	103007	104460
5/16	3/8	9/16	2-5/16	103062	104573	-	104462
5/16	3/8	1-3/8	3-1/8	103132	-	-	-
11/32	3/8	9/16	2-5/16	103064	-	-	104464
3/8	3/8	9/16	2-5/16	103066	104574	103010	104466
3/8	3/8	1-1/2	3-1/4	103134	-	-	-
13/32	3/8	13/16	2-1/2	103068	-	-	104468
7/16	3/8	13/16	2-1/2	103070	104575	103011	104470
15/32	3/8	13/16	2-1/2	103072	-	-	104472
1/2	1/2	1	3	103074	104576	-	104474
1/2	1/2	2	4	103136	-	-	-
17/32	1/2	1	3	103076	-	-	-
9/16	1/2	1-1/8	3-1/8	103078	-	-	104476
5/8	5/8	1-5/16	3-7/16	103082	104577	-	104478
5/8	5/8	2	4-1/8	103138	-	-	-
11/16	5/8	1-5/16	3-7/16	103086	-	103015	104480
3/4	3/4	1-5/16	3-7/16	103090	104578	-	104482
3/4	3/4	2-1/4	4-1/2	103140	-	-	-
13/16	5/8	1-1/2	3-5/8	103094	-	-	104484
7/8	3/4	1-1/2	3-3/4	103098	104579	-	104486
7/8	7/8	2-1/2	4-3/4	103142	-	-	-
1	1	1-5/8	4-1/8	103110	104580	-	104488
1	1	3	5-1/2	103144	-	-	-
1-1/8	1	1-5/8	4-1/8	103112	104581	-	104490
1-1/8	1	3	5-1/2	103146	-	-	-
1-1/4	1-1/4	1-5/8	4-1/8	103116	104582	103019	104492
1-1/4	1-1/4	3	5-1/2	103150	-	-	-
1-3/8	1-1/4	1-5/8	4-1/8	103120	-	-	-
1-1/2	1-1/4	1-5/8	4-1/8	103124	-	-	104494
1-1/2	1-1/4	3	5-1/2	103152	-	-	-
1-3/4	1-1/4	1-5/8	4-1/8	103126	-	-	104496
1-3/4	1-1/4	3	5-1/2	103154	-	-	-
2	1-1/4	1-5/8	4-1/8	103128	-	-	104498
2	1-1/4	3	5-1/2	103156	-	-	-
6pc Set	Contains: 1/4" - 3/4"			103574	-	-	-
Metric							
2 mm	3/8	5/16	2-5/16	103700	-	-	-
3 mm	3/8	5/16	2-5/16	103702	-	-	-
3.5 mm	3/8	7/16	2-5/16	103703	-	-	-
4 mm	3/8	7/16	2-5/16	103704	-	-	-
5 mm	3/8	1/2	2-5/16	103706	-	-	-
5.5 mm	3/8	1/2	2-5/16	103707	-	-	-
6 mm	3/8	1/2	2-5/16	103708	-	-	-
7 mm	3/8	9/16	2-5/16	103710	-	-	-
8 mm	3/8	9/16	2-5/16	103712	-	-	-
9 mm	3/8	9/16	2-5/16	103713	-	-	-
10 mm	3/8	13/16	2-1/2	103714	-	-	-
11 mm	3/8	13/16	2-1/2	103715	-	-	-
12 mm	3/8	13/16	2-1/2	103716	-	-	-
14 mm	1/2	1-1/8	3-1/8	103718	-	-	-
16 mm	5/8	1-5/16	3-7/16	103720	-	-	-
18 mm	5/8	1-5/16	3-7/16	103722	-	-	-
20 mm	5/8	1-1/2	3-3/4	103724	-	-	-
22 mm	3/4	1-1/2	3-3/4	103726	-	-	-
24 mm	3/4	2	4-1/2	103728	-	-	-

2-Flute Extended Shank HSCO



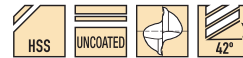
Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Length Below Shank	Overall Length (in.)	HSCO Weldon Flat Code No.	HSCO Comb. Shank Code No.
Inch						
1/8	3/8	3/8	13/16	2-3/8	103158	-
3/16	3/8	1/2	1-1/8	2-11/16	103160	103622
1/4	3/8	5/8	1-1/2	3-1/16	103162	103624
5/16	3/8	3/4	1-3/4	3-5/16	103164	-
3/8	3/8	3/4	1-3/4	3-5/16	103166	103628
1/2	1/2	1	2-7/32	4	103168	103630
5/8	5/8	1-3/8	2-23/32	4-5/8	103170	103632
3/4	3/4	1-5/8	3-11/32	5-3/8	103172	103634
7/8	7/8	2	4	6	103174	103636
1	1	2-1/2	4-31/32	7-1/4	103176	-
1-1/4	1-1/4	3	4-31/32	7-1/4	103178	-

2-Flute HSS For Aluminum



The 2-flute end mills for aluminum have high helix flute design making them well suited for milling aluminum and other non-ferrous materials.

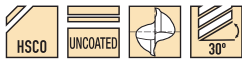


Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSS Weldon Flat Code No.
Inch				
1/4	3/8	5/8	2-7/16	103506
1/4	3/8	1-1/4	3-1/16	103518
1/4	3/8	1-3/4	3-9/16	103529
5/16	3/8	3/4	2-1/2	103507
5/16	3/8	1-3/8	3-1/8	103519
5/16	3/8	2	3-3/4	103530
3/8	3/8	3/4	2-1/2	103508
3/8	3/8	1-1/2	3-1/4	103520
3/8	3/8	2-1/2	4-1/4	103531
7/16	3/8	1	2-11/16	103509
7/16	1/2	1-3/4	3-3/4	103521
1/2	1/2	1-1/4	3-1/4	103510
1/2	1/2	2	4	103522
1/2	1/2	3	5	103532
5/8	5/8	1-5/8	3-3/4	103511
5/8	5/8	2-1/2	4-5/8	103523
5/8	5/8	4	6-1/8	103533
3/4	3/4	1-5/8	3-7/8	103512
3/4	3/4	3	5-1/4	103524
3/4	3/4	4	6-1/4	103534
7/8	3/4	1-7/8	4-1/8	103513
1	1	2	4-1/2	103514
1	1	4	6-1/2	103525
1	1	6	8-1/2	103535
1-1/4	1-1/4	2	4-1/2	103515
1-1/4	1-1/4	4	6-1/2	103526
1-1/4	1-1/4	6	8-1/2	103536
1-1/2	1-1/4	2	4-1/2	103516
1-1/2	1-1/4	4	6-1/2	103527
1-1/2	1-1/4	8	10-1/2	103537
2	1-1/4	2	4-1/2	103517
2	1-1/4	4	6-1/2	103528

2-Flute Double End HSCO

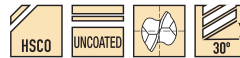
Excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/8	3/8	3/8	3-1/16	103180
5/32	3/8	7/16	3-1/8	103182
3/16	3/8	7/16	3-1/8	103184
7/32	3/8	1/2	3-1/8	103186
1/4	3/8	1/2	3-1/8	103188
9/32	3/8	9/16	3-1/8	103190
5/16	3/8	9/16	3-1/8	103192
11/32	3/8	9/16	3-1/8	103194
3/8	3/8	9/16	3-1/8	103196
13/32	1/2	9/16	3-1/8	103198
7/16	1/2	13/16	3-3/4	103200
15/32	1/2	13/16	3-3/4	103202
1/2	1/2	13/16	3-3/4	103204
9/16	5/8	1-1/8	4-1/2	103206
5/8	5/8	1-1/8	4-1/2	103208
11/16	3/4	1-5/16	5	103210
3/4	3/4	1-5/16	5	103212
1	1	1-5/8	5-7/8	103220

2-Flute Ball Nose HSCO



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.	HSCO Comb. Shank Code No.
Inch					
1/8	3/8	3/8	2-5/16	103394	103801
3/16	3/8	1/2	2-3/8	103395	103802
1/4	3/8	5/8	2-7/16	103396	103803
5/16	3/8	3/4	2-1/2	103397	103804
3/8	3/8	3/4	2-1/2	103398	-
7/16	1/2	1	3	103399	103806
1/2	1/2	1	3	103400	-
5/8	5/8	1-3/8	3-1/2	103402	103808
3/4	3/4	1-5/8	3-7/8	103404	103809
7/8	3/4	2	4-1/4	103405	103810
1	1	2-1/4	4-3/4	103406	103811

2-Flute Double End Miniature HSCO

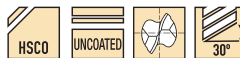
Excellent tool geometry for slotting, keying and general purpose milling, plus the added economy offered by the double-end design.



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/32	3/16	3/64	2	103281
1/32	3/16	3/32	2-1/4	103441
3/64	3/16	1/16	2	103282
3/64	3/16	9/64	2-1/4	103442
1/16	3/16	3/32	2	103283
1/16	3/16	3/16	2-1/4	103443
1/16	3/16	7/32	2-1/2	103452
5/64	3/16	1/8	2	103284
5/64	3/16	15/64	2-1/4	103444
5/64	3/16	1/4	2-1/2	103453
3/32	3/16	9/64	2	103285
3/32	3/16	9/32	2-1/4	103445
3/32	3/16	9/32	2-5/8	103454
7/64	3/16	5/32	2	103286
7/64	3/16	21/64	2-1/4	103446
7/64	3/16	9/32	2-5/8	103455
1/8	3/16	3/16	2	103288
1/8	3/16	3/8	2-1/4	103447
1/8	3/16	3/4	3-1/8	103456
9/64	3/16	7/32	2	103289
9/64	3/16	13/32	2-1/4	103448
9/64	3/16	3/4	3-1/8	103457
5/32	3/16	15/64	2	103290
5/32	3/16	7/16	2-1/4	103449
5/32	3/16	7/8	3-1/4	103458
11/64	3/16	1/4	2	103291
11/64	3/16	1/2	2-1/4	103450
11/64	3/16	7/8	3-1/4	103459
3/16	3/16	9/32	2	103292
3/16	3/16	1/2	2-1/4	103451
3/16	3/16	1	3-3/8	103460

2-Flute Ball Nose Extended Shank HSCO



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Length Below Shank	Overall Length (in.)	HSCO Weldon Flat Code No.	HSCO Comb. Shank Code No.
Inch						
1/8	3/8	3/8	13/16	2-3/8	103410	103821
3/16	3/8	1/2	1-1/8	2-11/16	103411	103822
1/4	3/8	5/8	1-1/2	3-1/16	103412	103823
5/16	3/8	3/4	1-3/4	3-5/16	103413	-
3/8	3/8	3/4	1-3/4	3-5/16	103414	103825
7/16	1/2	1	1-7/8	3-11/16	103415	-
1/2	1/2	1	2-1/4	4	103416	103827
5/8	5/8	1-3/8	2-3/4	4-5/8	103417	-
3/4	3/4	1-5/8	3-3/8	5-3/8	103418	-
1	1	2-1/2	5	7-1/4	103419	103830

2-Flute Ball Nose Double End HSCO & HSS



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.	HSS Weldon Flat Code No.
Inch					
1/8	3/8	3/8	3-1/16	104174	104226
3/16	3/8	7/16	3-1/8	104176	104228
1/4	3/8	1/2	3-1/8	104178	104230
5/16	3/8	9/16	3-1/8	104180	104232
3/8	3/8	9/16	3-1/8	104182	104234
7/16	1/2	13/16	3-3/4	104184	104236
1/2	1/2	13/16	3-3/4	104186	104238
5/8	5/8	1-1/8	4-1/2	104188	104240
3/4	3/4	1-5/16	5	104190	104242
1	1	1-5/8	5-7/8	104192	104244

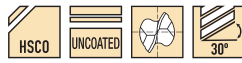


Speeds & Feeds:

2-Flute Ball Nose Double End Miniature HSCO



Helical flute on the nose radius. Suitable for high efficiency copying process and cutting of die mold corner radius.



Speeds & Feeds > Page 2 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/32	3/16	3/32	2	103420
3/64	3/16	1/16	2	103421
1/16	3/16	3/32	2	103270
1/16	3/16	3/32	2	103488
1/16	3/16	7/32	2-1/2	103497
5/64	3/16	1/8	2	103489
3/32	3/16	9/64	2	103271
3/32	3/16	9/64	2	103490
3/32	3/16	9/32	2-5/8	103499
7/64	3/16	21/64	2-1/4	103491
1/8	3/16	3/16	2	103272
1/8	3/16	3/8	2-1/4	103492
1/8	3/16	3/4	3-1/8	103501
9/64	3/16	13/32	2-1/4	103493
5/32	3/16	15/64	2	103273
5/32	3/16	7/16	2-1/4	103494
5/32	3/16	7/8	3-1/4	103503
11/64	3/16	1/2	2-1/4	103495
3/16	3/16	9/32	2	103274
3/16	3/16	1/2	2-1/4	103496
3/16	3/16	1	3-3/8	103504

3-Flute Throwaway HSCO



Well balanced web design to minimize deflection and chattering. High accuracy for outside diameter is guaranteed under the strict tolerance control.



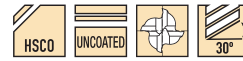
Speeds & Feeds > Page 3 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/16	1/4	3/32	31/32	103580
1/16	1/4	5/32	1-3/32	103594
5/64	1/4	7/32	1-3/16	103596
3/32	1/4	5/32	1-1/64	103582
3/32	1/4	1/4	1-1/4	103598
7/64	1/4	9/32	1-9/32	103600
1/8	1/4	3/16	1-3/32	103584
1/8	1/4	5/16	1-11/32	103602
9/64	1/4	11/32	1-7/16	103604
5/32	1/4	1/4	1-9/32	103586
5/32	1/4	3/8	1-17/32	103606
11/64	1/4	13/32	1-19/32	103608
3/16	1/4	9/32	1-11/32	103588
3/16	1/4	7/16	1-21/32	103610
13/64	1/4	15/32	1-11/16	103612
7/32	1/4	5/16	1-13/32	103590
7/32	1/4	1/2	1-3/4	103614
15/64	1/4	9/16	1-13/16	103616
1/4	1/4	3/8	1-13/32	103592
1/4	1/4	5/8	1-3/4	103618

4-Flute Double End HSCO



Double end economy. Used for slabbing, shallow pocketing, tracer milling or die sinking and similar operations.



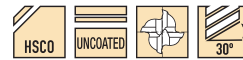
Speeds & Feeds > Page 3 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/8	3/8	3/8	3-1/16	103379
3/16	3/8	1/2	3-1/4	103380
1/4	3/8	5/8	3-3/8	103381
5/16	3/8	3/4	3-1/2	103382
3/8	3/8	3/4	3-1/2	103383
1/2	1/2	1	4-1/8	103384
5/8	5/8	1-3/8	5	103385
3/4	3/4	1-5/8	5-5/8	103386
7/8	7/8	1-7/8	6-1/8	103387
1	1	1-7/8	6-3/8	103388

4-Flute Double End Miniature HSCO



Suitable for finishing of precision components such as watch, camera, and electronic apparatus molds, etc.



Speeds & Feeds > Page 3 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/16	3/16	3/32	2	103461
1/16	3/16	3/16	2-1/4	103470
1/16	3/16	7/32	2-1/2	103479
5/64	3/16	1/8	2	103462
5/64	3/16	15/64	2-1/4	103471
5/64	3/16	1/4	2-1/2	103480
3/32	3/16	9/64	2	103463
3/32	3/16	9/32	2-1/4	103472
3/32	3/16	9/32	2-5/8	103481
7/64	3/16	5/32	2	103464
7/64	3/16	21/64	2-1/4	103473
7/64	3/16	9/32	2-5/8	103482
1/8	3/16	3/16	2	103465
1/8	3/16	3/8	2-1/4	103474
1/8	3/16	3/4	3-1/8	103483
9/64	3/16	7/32	2	103466
9/64	3/16	13/32	2-1/4	103475
9/64	3/16	3/4	3-1/8	103484
5/32	3/16	15/64	2	103467
5/32	3/16	7/16	2-1/4	103476
5/32	3/16	7/8	3-1/4	103485
11/64	3/16	1/4	2	103468
11/64	3/16	1/2	2-1/4	103477
11/64	3/16	7/8	3-1/4	103486
3/16	3/16	9/32	2	103469
3/16	3/16	1/2	2-1/4	103478
3/16	3/16	1	3-3/8	103487

Tolerances - Inch

Size	Diameter	Shank Diameter
3/32 thru 1"	+0.000"-0.002"	+0.0000"-0.0005"

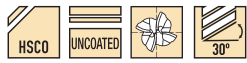
Tolerances - Metric

Size	Diameter	Shank Diameter
1mm-25mm	+0.000mm-0.051mm	+0.000mm-0.013mm

HSS & HSCO End Mills

4-Flute Ball Nose HSCO

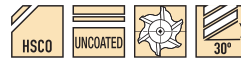
The 4-Flute Ball End Mills are designed for milling of radius bottom slots, fillets and special contours. The end teeth are cut to centre allowing these end mills to drill into material at the beginning of a slotting cut.



Speeds & Feeds > Page 3 Link in header.

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	HSCO Weldon Flat Code No.
Inch				
1/8	3/8	3/8	2-5/16	104950
3/16	3/8	1/2	2-3/8	104952
1/4	3/8	5/8	2-7/16	104954
1/4	3/8	1-1/4	3-1/16	104982
5/16	3/8	3/4	2-1/2	104956
5/16	3/8	1-3/8	3-1/8	104984
3/8	3/8	3/4	2-1/2	104958
3/8	3/8	1-1/2	3-1/4	104986
7/16	3/8	1	2-11/16	104960
1/2	1/2	1-1/4	3-1/4	104962
1/2	1/2	2	4	104988
5/8	5/8	1-5/8	3-3/4	104964
5/8	5/8	2-1/2	4-5/8	104990
11/16	3/4	1-5/8	3-3/4	104966
3/4	3/4	1-5/8	3-7/8	104968
3/4	3/4	3	5-1/4	104992
7/8	7/8	1-7/8	4-1/8	104970
7/8	7/8	3-1/2	5-3/4	104994
1	1	2	4-1/2	104972
1	1	4	6-1/2	104996
1-1/8	1	2	4-1/2	104974
1-1/4	1-1/4	2	4-1/2	104976
1-1/2	1-1/4	2	4-1/2	104978
2	1-1/4	2	4-1/2	104980

6-Flute Centre Cut Heavy Duty HSCO



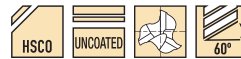
Speeds & Feeds > Page 3 Link in header.

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
2	2	2	5-3/4	6	103389
2	2	4	7-3/4	6	103390
2	2	5	8-3/4	6	103391
2	2	6	9-3/4	6	103392
2	2	8	11-3/4	6	103393

Multi-Flute 60° High Helix Centre Cut HSCO



Faster feed and speed than normal HSS can be applied to even hardened steels over 35HRC.



Speeds & Feeds > Page 3 Link in header.

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
1/4	3/8	5/8	2-7/16	3	103538
5/16	3/8	3/4	2-1/2	3	103539
3/8	3/8	3/4	2-1/2	3	103540
7/16	3/8	1	2-11/16	3	103541
1/2	1/2	1-1/4	3-1/4	3	103542
5/8	5/8	1-5/8	3-3/4	3	103543
3/4	3/4	1-5/8	3-7/8	3	103544
1	1	2	4-1/2	4	103546
1-1/4	1-1/4	2	4-1/2	4	103547
1-1/2	1-1/4	2	4-1/2	4	103548
2	1-1/4	2	4-1/2	4	103549



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Multi-Flute HSCO & HSS

Centre cutting allows these end mills to drill into the part from the beginning of a slot. These centre cutting end mills are recommended for pocketing, tracer milling, cam milling, die sinking and slotting.



Speeds & Feeds > Page 3 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Fl.	HSCO Weldon Flat	HSCO TiAlN Coated Weldon Flat	HSCO Comb. Shank	HSS Weldon Flat
					Code No.	Code No.	Code No.	Code No.
Inch								
1/8	3/8	3/8	2-5/16	4	103222	104522	-	104400
5/32	3/8	7/16	2-3/8	4	103223	-	103021	104402
3/16	3/8	1/2	2-3/8	4	103224	104524	-	104404
7/32	3/8	9/16	2-7/16	4	103225	-	103023	104406
1/4	3/8	5/8	2-7/16	4	103226	104526	-	104408
1/4	3/8	1-1/4	3-1/16	4	103360	-	-	-
1/4	3/8	1-3/4	3-9/16	4	103370	-	-	-
9/32	3/8	11/16	2-1/2	4	103227	-	-	104410
5/16	3/8	3/4	2-1/2	4	103228	104528	-	104412
5/16	3/8	1-3/8	3-1/8	4	103361	-	-	-
5/16	3/8	2	3-3/4	4	103371	-	-	-
11/32	3/8	3/4	2-1/2	4	103229	-	103027	104414
3/8	3/8	3/4	2-1/2	4	103230	104530	-	104416
3/8	3/8	1-1/2	3-1/4	4	103362	-	-	-
3/8	3/8	2-1/2	4-1/4	4	103372	-	-	-
13/32	3/8	1	2-11/16	4	103231	-	-	104418
7/16	3/8	1	2-11/16	4	103232	104532	-	104420
1/2	1/2	1-1/4	3-1/4	4	103235	104535	-	104422
1/2	1/2	2	4	4	103363	-	103658	-
1/2	1/2	3	5	4	103373	-	-	-
9/16	1/2	1-3/8	3-3/8	4	103237	-	103031	104424
5/8	5/8	1-5/8	3-3/4	4	103240	104540	-	104426
5/8	5/8	2-1/2	4-5/8	4	103364	-	-	-
5/8	5/8	4	6-1/8	4	103374	-	-	-
11/16	5/8	1-5/8	3-3/4	4	103242	-	103033	104428
3/4	3/4	1-5/8	3-7/8	4	103246	104546	-	104430
3/4	3/4	3	5-1/4	4	103365	-	-	-
3/4	3/4	4	6-1/4	4	103375	-	-	-
13/16	3/4	1-7/8	4-1/8	4	103248	-	-	-
7/8	3/4	1-7/8	4-1/8	4	103252	-	-	104432
7/8	3/4	3-1/2	5-3/4	4	103366	-	103664	-
7/8	3/4	5	7-1/4	4	103376	-	-	-
1	1	2	4-1/2	4	103259	104559	-	104434
1	1	4	6-1/2	4	103367	-	103666	-
1	1	6	8-1/2	4	103377	-	-	-
1-1/8	1	2	4-1/2	4	-	104561	-	-
1-1/8	1	2	4-1/2	6	103261	-	-	104436
1-1/4	1-1/4	2	4-1/2	4	-	104564	-	-
1-1/4	1-1/4	2	4-1/2	6	103264	-	-	104438
1-1/4	1-1/4	4	6-1/2	6	103368	-	-	-
1-1/4	1-1/4	6	8-1/2	6	103378	-	-	-
1-3/8	1	2	4-1/2	6	103265	-	-	-
1-1/2	1-1/4	2	4-1/2	4	-	-	103046	-
1-1/2	1-1/4	2	4-1/2	6	103267	104567	103044	104442
1-1/2	1-1/4	4	6-1/2	6	103369	-	-	-
1-1/2	1-1/4	8	10-1/2	6	103378A	-	-	-
2	1-1/4	2	4-1/2	6	103269	-	-	104444
6pc Set	Contains: 1/4"- 3/4"				103581	-	-	-
Metric								
2 mm	3/8	3/8	2-5/16	4	103730	-	-	-
3 mm	3/8	3/8	2-5/16	4	103731	-	-	-
4 mm	3/8	1/2	2-3/8	4	103732	-	-	-
5 mm	3/8	9/16	2-1/2	4	103733	-	-	-
6 mm	3/8	5/8	2-1/2	4	103734	-	-	-
7 mm	3/8	11/16	2-1/2	4	103735	-	-	-
8 mm	3/8	3/4	2-1/2	4	103736	-	-	-
10 mm	3/8	1	2-11/16	4	103737	-	-	-
11 mm	3/8	1	2-11/16	4	103749	-	-	-
12 mm	3/8	1	2-11/16	4	103738	-	-	-
13 mm	1/2	1-1/4	3-1/4	4	103750	-	-	-
14 mm	1/2	1-3/8	3-3/8	4	103739	-	-	-
16 mm	5/8	1-5/8	3-3/4	4	103740	-	-	-
18 mm	5/8	1-5/8	3-3/4	4	103741	-	-	-
20 mm	5/8	1-7/8	4-1/8	4	103742	-	-	-
22 mm	3/4	1-7/8	4-1/8	4	103743	-	-	-
24 mm	3/4	2	4-1/2	4	103744	-	-	-

Multi-Flute 3/4" Shank Regular Length HSCO



Speeds & Feeds > Page 3 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
3/4	3/4	1-5/8	3-7/8	4	103336
7/8	3/4	1-7/8	4-1/8	4	103338
1	3/4	1-7/8	4-1/8	4	103340
1-1/8	3/4	2	4-1/4	6	103341
1-1/4	3/4	2	4-1/4	6	103342
1-1/2	3/4	1-1/2	4-1/4	6	103343
1-3/4	3/4	1-1/2	4-1/2	6	103344
2	3/4	1-1/2	4-1/2	8	103345

Multi-Flute Roughing End Mills HSCO



Multiple-Flute: This general purpose rougher is designed for high production metal removal in a wide range of workpiece material. It is recommended for cutting steel grades and many non-ferrous materials. The end tooth of this tool has a centre hole design for many accurate resharpenings.



Coarse pitch

Speeds & Feeds > Page 4 [Link in header.](#)

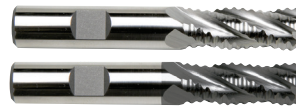
Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	O.A.L. (in.)	Fl.	HSCO Weldon Flat Code No.	HSCO TiAlN Coated Weldon Flat Code No.	HSCO Comb. Shank Code No.
Inch							
1/4	3/8	5/8	2-7/16	3	103900	104500	103950
5/16	3/8	3/4	2-1/2	3	103901	104501	103951
3/8	3/8	3/4	2-1/2	4	103902	104502	-
3/8	3/8	1-1/2	4	4	103932	-	-
1/2	1/2	1-1/4	3-1/4	4	103903	104503	103953
1/2	1/2	2	4	4	103920	-	103970
5/8	5/8	1-5/8	3-3/4	4	103904	104504	-
5/8	5/8	2-1/2	4-5/8	4	103921	-	103971
3/4	5/8	1-5/8	3-3/4	4	103905	104505	103955
3/4	3/4	1-5/8	3-3/4	4	103906	104506	-
3/4	5/8	3	5-1/8	4	103922	-	-
3/4	3/4	3	5-1/4	4	103923	-	-
7/8	3/4	1-7/8	4-1/8	5	103907	104507	103957
7/8	3/4	3-1/2	5-3/4	5	103924	-	-
1	1	2	4-1/2	5	103908	104508	-
1	1	3	5-1/2	5	103916	-	-
1	1	4	6-1/2	5	103925	-	-
1-1/8	1	2	4-1/2	6	103909	104509	103959
1-1/4	1-1/4	2	4-1/2	6	103910	104510	-
1-1/4	1-1/4	3	5-1/2	6	103917	-	-
1-1/4	1-1/4	4	6-1/2	6	103926	-	-
1-1/2	1-1/4	2	4-1/2	6	103911	104511	-
1-1/2	1-1/4	3	5-1/2	6	103918	-	-
1-1/2	1-1/4	4	6-1/2	6	103927	-	-
1-3/4	1-1/4	2	4-1/2	6	103912	-	-
1-3/4	1-1/4	4	6-1/2	6	103928	-	-
2	2	2	5-3/4	8	103913	-	-
2	2	3	6-3/4	8	103914	-	-
2	2	4	7-3/4	8	103915	-	-
2	2	6	9-3/4	8	103919	-	-
2	2	8	11-3/4	8	103929	-	-

Multi-Flute Centre Cut Roughing End Mills HSCO



This general purpose rougher is designed for high production metal removal in a wide range of workpiece material. It is recommended for cutting steel grades and many non-ferrous materials.

- Multiple helical flutes
- Coarse pitch



Speeds & Feeds ► Page 4 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.	HSCO TiAlN Coated Weldon Flat Code No.
Inch						
1/4	3/8	1/4	2-1/16	3	104340	104360
3/8	3/8	3/8	2-5/32	3	104342	104362
1/2	1/2	1/2	2-1/2	3	104344	104364
1/2	1/2	1-1/4	3-1/4	4	103100	103585
5/8	5/8	5/8	2-3/4	3	104346	104366
5/8	5/8	1-5/8	3-3/4	4	103101	103591
3/4	3/4	3/4	2-7/8	3	104348	104368
3/4	3/4	1-5/8	3-7/8	4	103102	103587
1	1	1	3-1/2	3	104350	104370
1	1	2	4-1/2	5	103103	103593
1-1/4	1-1/4	2	4-1/2	6	103104	103589
1-1/2	1-1/4	2	4-1/2	6	103105	103595

Multi-Flute Fine Pitch Centre Cut Roughing End Mills HSCO



This general purpose rougher is designed for high production metal removal in a wide range of workpiece material. Suitable for a very broad spectrum of materials having high tensile strengths. Milled surfaces are of exceptional quality.



Speeds & Feeds ► Page 4 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.	HSCO TiAlN Coated Weldon Flat Code No.
Inch						
1/4	3/8	1/4	2-1/16	3	104300	104320
1/4	3/8	5/8	2-7/16	3	104150	104202
5/16	3/8	3/4	2-1/2	3	104152	104204
3/8	3/8	3/8	2-5/32	3	104302	104322
3/8	3/8	3/4	2-1/2	4	104154	104206
7/16	3/8	1	2-11/16	4	104156	104208
1/2	1/2	1/2	2-1/2	3	104304	104324
1/2	1/2	1-1/4	3-1/4	4	104158	104210
1/2	1/2	2	4	4	104250	104266
5/8	5/8	5/8	2-3/4	3	104306	104326
5/8	5/8	1-5/8	3-3/4	4	104160	104212
5/8	5/8	2-1/2	4-5/8	4	104252	104268
3/4	3/4	3/4	2-7/8	3	104308	104328
3/4	3/4	1-5/8	3-7/8	4	104162	104214
3/4	3/4	3	5-1/4	4	104254	104270
7/8	3/4	7/8	3-1/8	3	104310	104330
7/8	3/4	1-7/8	4-1/8	5	104164	104216
7/8	7/8	3-1/2	5-3/4	5	104256	104272
1	1	1	3-3/4	3	104312	104332
1	1	2	4-1/2	5	104166	104218
1	1	4	6-1/2	5	104258	104274
1-1/4	1-1/4	2	4-1/2	6	104168	104220
1-1/4	1-1/4	4	6-1/2	6	104260	104276
1-1/2	1-1/4	2	4-1/2	6	104170	104222
1-1/2	1-1/4	4	6-1/2	6	104262	104278
2	1-1/4	2	4-1/2	6	104172	104224
2	1-1/4	4	6-1/2	6	104264	104280

Multi-Flute Roughing End Mills For Aluminum HSCO



Speeds & Feeds ► Page 4 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
1/4	3/8	5/8	2-7/16	3	104052
5/16	3/8	3/4	2-1/2	3	104054
3/8	3/8	3/4	2-1/2	3	104056
1/2	1/2	1-1/4	3-1/4	3	104058
5/8	5/8	1-5/8	3-3/4	3	104060
3/4	3/4	1-5/8	3-3/4	3	104062
1	1	2	4-1/2	3	104066
1-1/4	1-1/4	2	4-1/2	3	104068
1-1/2	1-1/4	2	4-1/2	3	104070

Multi-Flute Centre Cut Finishing Roughing End Mills HSCO



Tools are finishing end mills with chipbreakers. Prevents chattering while achieving good chip control and high efficiency



Speeds & Feeds ► Page 4 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
1/4	3/8	5/8	2-7/16	4	103550
5/16	3/8	3/4	2-1/2	4	103551
3/8	3/8	3/4	2-1/2	4	103552
7/16	3/8	1	2-11/16	4	103553
1/2	1/2	1-1/4	3-1/4	4	103554
5/8	5/8	1-5/8	3-3/4	4	103555
3/4	3/4	1-5/8	3-3/4	4	103556
7/8	3/4	1-7/8	4-1/8	5	103557
1	1	2	4-1/2	5	103559
1-1/4	1-1/4	2	4-1/2	6	103560
1-1/2	1-1/4	2	4-1/2	6	103561
2	1-1/4	2	4-1/2	6	103562

Multi-Flute Ball Nose Roughing End Mills HSCO



This general purpose rougher is designed for high production metal removal in a wide range of workpiece material.

- Multiple helical flutes
- Coarse pitch



Speeds & Feeds ► Page 4 [Link in header.](#)

Cutting Dia. (in.)	Shank Dia. (in.)	Flute Length (in.)	Overall Length (in.)	Flutes	HSCO Weldon Flat Code No.
Inch					
1/4	3/8	5/8	2-7/16	3	104088
5/16	3/8	3/4	2-1/2	3	104089
3/8	3/8	3/4	2-1/2	4	104090
1/2	1/2	1-1/4	3-1/4	4	104091
5/8	5/8	1-5/8	3-3/4	4	104092
3/4	3/4	1-3/4	4	4	104093
1	3/4	2	4-1/2	5	104094
1	1	2	4-1/2	5	104095
1-1/4	1-1/4	2	4-1/2	6	104096
1-1/2	1-1/4	2	4-1/2	6	104097



High Speed Steel Tapered End Mills

- Made from Premium-Grade High Speed Steel
- End cutting
- Weldon flat



Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.
1/2°						
	AX103	3/32	3/4	3/8	2-7/8	154200
	AX105	3/32	1-1/4	3/8	3-1/4	154201
	AX203	1/8	3/4	3/8	2-7/8	154202
	AX305	3/16	1-1/4	3/8	3-1/4	154203
	AX405	1/4	1-1/4	3/8	3-1/4	154204
	AX409	1/4	2-1/4	1/2	4-1/4	154205
	AX609	3/8	2-1/4	1/2	4-1/4	154206
1°						
	A102	3/32	1/2	3/8	2-5/8	154207
	A103	3/32	3/4	3/8	2-7/8	154208
	A201	1/8	1/4	3/8	2-5/8	154209
	A203	1/8	3/4	3/8	2-7/8	154210
	A204	1/8	1	3/8	2-7/8	154211
	A303	3/16	3/4	3/8	2-7/8	154212
	A305	3/16	1-1/4	3/8	3-1/4	154213
	A403	1/4	3/4	3/8	2-7/8	154214
	A405	1/4	1-1/4	3/8	3-1/4	154215
	A409	1/4	2-1/4	1/2	4-1/8	154216
	A605	3/8	1-1/4	1/2	3-1/4	154217
	A609	3/8	2-1/4	1/2	4-1/4	154218
	A805	1/2	1-1/4	1/2	3-1/4	154219
	A809	1/2	2-1/4	1/2	4-1/4	154220
	A813	1/2	3-1/4	1/2	5-1/2	154221
1-1/2°						
	AAX203	1/8	3/4	3/8	2-7/8	154222
	AAX405	1/4	1-1/4	3/8	3-1/4	154223
2°						
	B103	3/32	3/4	3/8	2-7/8	154225
	B105	3/32	1-1/4	3/8	3-1/4	154226
	B204	1/8	1	3/8	2-7/8	154227
	B303	3/16	3/4	3/8	2-7/8	154228
	B305	3/16	1-1/4	3/8	3-1/4	154229
	B403	1/4	3/4	3/8	2-7/8	154230
	B405	1/4	1-1/4	3/8	3-1/4	154231
	B409	1/4	2-1/4	1/2	4-1/4	154232
	B413	1/4	3-1/4	1/2	5-1/2	154233
	B605	3/8	1-1/4	1/2	3-1/4	154234
	B609	3/8	2-1/4	1/2	4-1/4	154235
	B805	1/2	1-1/4	1/2	3-1/4	154236
	B809	1/2	2-1/4	1/2	4-1/4	154237
3°						
	C104	3/32	1	3/8	2-7/8	154238
	C106	3/32	1-1/4	3/8	3-1/4	154239
	C203	1/8	3/4	3/8	2-7/8	154240
	C204	1/8	1	3/8	2-7/8	154241
	C303	3/16	3/4	3/8	2-7/8	154242
	C305	3/16	1-1/4	3/8	3-1/4	154243
	C403	1/4	3/4	3/8	2-7/8	154244
	C405	1/4	1-1/4	3/8	3-1/4	154245
	C409	1/4	2-1/4	1/2	4-1/4	154246
	C605	3/8	1-1/4	1/2	3-1/4	154247
	C805	1/2	1-1/4	1/2	3-1/4	154248
	C809	1/2	2-1/4	5/8	4-3/8	154249
5°						
	E004	1/16	1	3/8	2-7/8	154250
	E103	3/32	3/4	3/8	2-7/8	154251
	E104	3/32	1	3/8	2-7/8	154252
	E106	3/32	1-1/2	3/8	3-1/4	154253
	E203	1/8	3/4	3/8	2-7/8	154254
	E204	1/8	1	3/8	2-7/8	154255
	E205	1/8	1-1/4	3/8	3-1/4	154256
	E206	1/8	1-1/2	3/8	3-1/4	154257
	E208	1/8	2	1/2	3-7/8	154258
	E210B	1/8	2-1/2	1/2	4-1/2	154259
	E303	3/16	3/4	3/8	2-7/8	154260
	E305	3/16	1-1/4	1/2	3-1/4	154261

Angle Per Side	Tool No.	Tip Dia. (in.)	Length Of Cut (in.)	Shank Dia. (in.)	Overall Length (in.)	Code No.
5°						
	E403	1/4	3/4	3/8	2-7/8	154262
	E405	1/4	1-1/4	1/2	3-1/4	154264
	E409A	1/4	2-1/4	5/8	4-1/2	154265
	E605	3/8	1-1/4	1/2	3-1/4	154266
	E609	3/8	2-1/4	3/4	4-3/4	154267
	E613	3/8	3-1/4	3/4	5-1/2	154268
	E805	1/2	1-1/4	1/2	3-1/4	154269
	E809	1/2	2-1/4	3/4	4-1/2	154270
7°						
	G004	1/16	1	3/8	2-7/8	154271
	G104	3/32	1	3/8	2-7/8	154272
	G203	1/8	3/4	3/8	2-7/8	154273
	G206	1/8	1-1/2	1/2	3-1/4	154274
	G305	3/16	1-1/4	1/2	3-1/8	154275
	G403	1/4	3/4	1/2	3	154276
	G405	1/4	1-1/4	1/2	3-1/4	154277
	G409	1/4	2-1/4	3/4	4-1/2	154278
	G609	3/8	2-1/4	3/4	4-1/2	154279
10°						
	J102	3/32	1/2	3/8	2-5/8	154280
	J106	3/32	1-1/2	1/2	3-1/2	154281
	J203	1/8	3/4	3/8	2-7/8	154282
	J205	1/8	1-1/4	1/2	3-1/4	154283
	J309	3/16	2-1/4	3/4	4-1/2	154284
	J403	1/4	3/4	1/2	2-7/8	154285
	J405	1/4	1-1/4	1/2	3-1/4	154286
	J409	1/4	2-1/4	3/4	4-1/2	154287
	J605	3/8	1-1/4	5/8	3-1/2	154288
	J805	1/2	1-1/4	3/4	3-1/2	154289
15°						
	P103	3/32	3/4	1/2	2-3/4	154290
	P106	3/32	1-1/2	3/4	3-3/4	154291
	P202	1/8	1/2	3/8	2-7/8	154292
	P204	1/8	1	1/2	3	154293
	P304	3/16	1	1/2	3	154294
	P404	1/4	1	1/2	3	154295
	P406	1/4	1-1/2	3/4	3-3/4	154296
	P605	3/8	1-1/4	3/4	3-5/8	154297
	P805	1/2	1-1/4	3/4	3-1/2	154298
20°						
	T0002	1/32	1/2	3/8	2-1/2	154319
	T002	1/16	1/2	3/8	2-1/2	154320
	T103	3/32	3/4	1/2	2-3/4	154321
	T202	1/8	1/2	3/8	2-1/2	154299
	T204	1/8	1	1/2	3	154322
	T304	3/16	1	1/2	3	154323
	T404	1/4	1	1/2	3	154324
	T406	1/4	1-1/2	3/4	4	154325
	T504	5/16	1	3/4	3-3/8	154326
	T506	5/16	1-1/2	3/4	3-1/2	154327
	T606	3/8	1-1/2	3/4	4	154328
	T608	3/8	2	1	4-1/2	154329
	T809	1/2	2-1/4	1-1/4	4-3/4	154330
30°						
	U002A	1/16	1/2	1/2	2-1/2	154331
	U103	3/32	3/4	1/2	2-3/4	154332
	U202	1/8	1/2	1/2	2-1/2	154333
	U204B	1/8	1	1/2	3-1/8	154334
	U204A	1/8	1	5/8	3-1/8	154335
	U404	1/4	1	3/4	3-1/2	154336
	U406	1/4	1-1/2	1	4-1/8	154337
	U605	3/8	1-1/4	1	4	154338
	U606	3/8	1-1/2	1	4-1/4	154339
	U805	1/2	1-1/4	1	4	154340
	U806	1/2	1-1/2	1	4-1/4	154341
35°						
	V203 (4-fl.)	1/8	3/4	1/2	3	154342
	V404 (4-fl.)	1/4	1	1	3-1/4	154344
45°						
	WA215	1/8	5/16	1/2	2-5/8	154345
	WA215 (SP)	1/8	5/16	1/2	2-5/8	154346
	WA203	1/8	3/4	5/8	3-1/4	154347
	WA203 (SP)	1/8	3/4	5/8	3-1/4	154348
	WA204B	1/8	1	3/4	3-3/4	154349
	WA204B (SP)	1/8	1	3/4	3-3/4	154350
	WA204A	1/8	1	1	3-3/4	154351
	WA204A (SP)	1/8	1	1	3-3/4	154352



THE DIFFERENCE IS IN THE DETAILS

End Mill holders that are equal or greater quality as the competition, with better pricing!

Sowa Tool's premium brand, GS Tooling, delivers top-tier quality and performance that rivals or exceeds the best in the world. These products offer exceptional features and dependability, at shockingly affordable prices, making them an ideal choice for applications where accuracy and speed matter most.

There is a reason we say GS stands for "Gold Standard"!



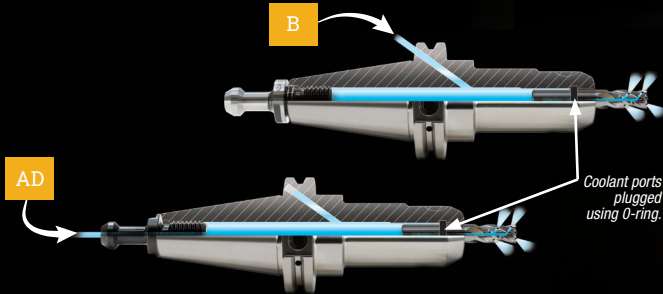
Explore all of our rotary tooling systems.

Sowa Tool offers a large SKU offering of a wide range of quality rotary tooling: End Mill Holders, Collet Chucks & Collets, Shell Mill & Face Mill Holders, Shrink Fit Holders, Tap Holders, Driven Tooling and Angle Heads.

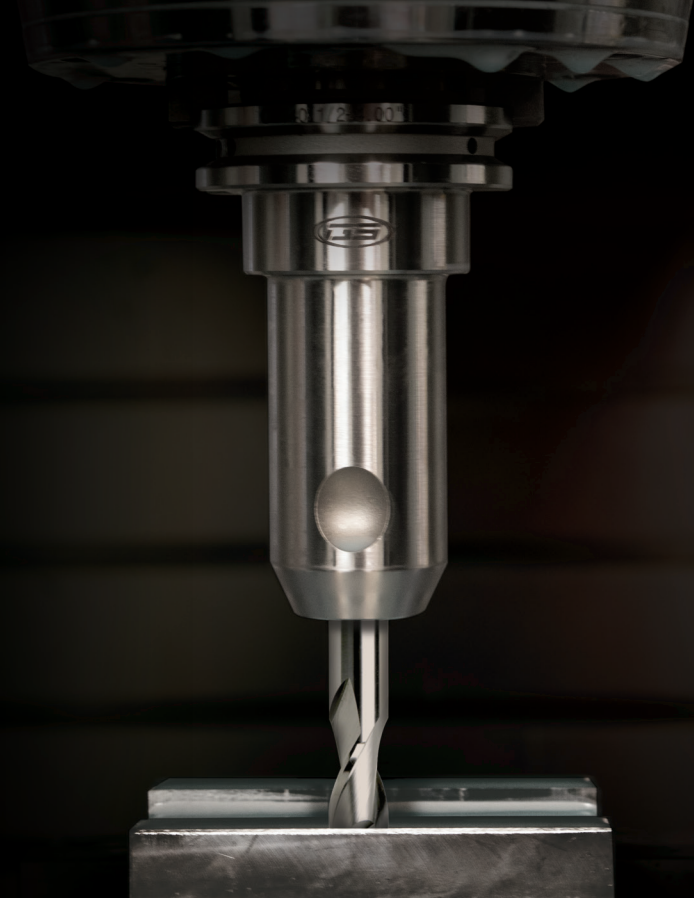
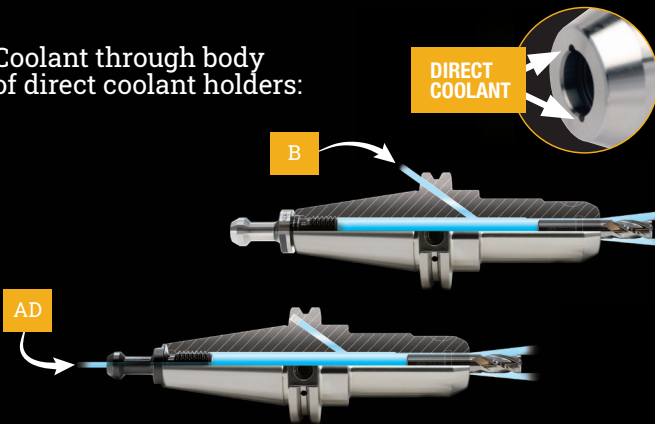
Details	End Mill Holders										
Image											
Holder	CAT End Mill Holder	CAT End Mill Holder	Dual Contact CAT End Mill Holder	Direct Coolant CAT End Mill Holder	BT End Mill Holder	Direct Coolant BT End Mill Holder	HSK End Mill Holder	NMTB End Mill Holder	R8 End Mill Holder	Straight Shank End Mill Holder	Blank Bars
Brand											
Taper	CAT40, 50	CAT40, 50	CAT40, 50	CAT40, 50	BT30, 40, 50	BT30, 40, 50	HSK63A,100A	NMTB40, 50	R8	Extension	CAT40, 50, NMTB
Taper Accuracy	AT3 or better	AT2 or better	AT2 or better	AT2 or better	AT2 or better	AT2 or better	According to DIN69893	AT2 or better	According to R8 Tolerance	h6	AT2 or better
Coolant Features	AD/B DIN Standard	AD/B DIN Standard	AD/B DIN Standard	AD/B DIN Standard, Coolant Through Body	AD/B JIS Standard	AD/B DIN Standard, Coolant Through Body	Coolant Through	Coolant Through	Coolant Through	Coolant Through	Not Coolant Through
Material Grade	42CrMo	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	16NiCr4 Premium European Alloy Steel	SNCM 420H
Factory Balanced (Certificate Included)	CAT40: G2.5/ 8,000rpm CAT50: G2.5/ 6,000rpm	CAT40: G6.3/ 30,000rpm CAT50: G6.3/ 25,000rpm	CAT40: G6.3/ 30,000rpm CAT50: G6.3/ 25,000rpm	CAT40: G6.3/ 30,000rpm CAT50: G6.3/ 25,000rpm	BT30 & BT40: 6.3/ 30,000rpm BT50: G6.3/ 25,000rpm	BT30 & BT40: 6.3/ 30,000rpm BT50: G6.3/ 25,000rpm	HSK63A: G6.3/ 30,000rpm HSK100A: G6.3/ 25,000rpm	Factory Balanced	Factory Balanced	Factory Balanced	Factory Balanced
Runout Accuracy	0.0002"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"	0.0001"
RFID Chip Hole	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

Multiple coolant options are standard

Coolant through tool:



Coolant through body of direct coolant holders:



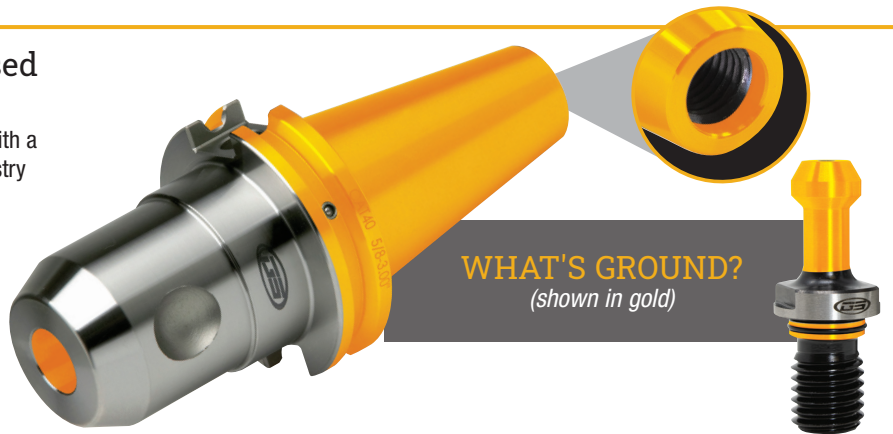
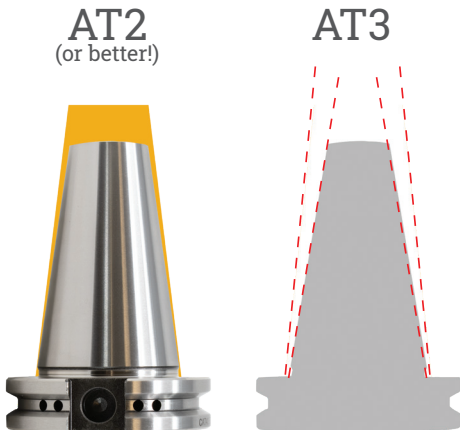
Quality QC

All GS Tooling holders are inspected, one piece at a time. An individualized balance certificate of inspection is included with each holder.

BALANCE CERTIFICATION	
Machinist:	_____
Rotor Name:	_____
Date:	Correction Diameter: _____
Rotor No.:	Correction Mode: _____
Measuring Speed:	Result: _____
This Holder Is Balanced To _____ / _____ RPM	
Signature: _____	
<small>For Customer Service inquiries please call Sowa Tool & Machine Co. Ltd. at 1-800-265-8221</small>	

Only the strongest material is used

GS Tooling end mill holders and retention knobs are all made from **16NiCr4** Premium European Alloy Steel, with a hardness of **58-62 HRC**. This is greater than the industry standard of 48-52 HRC which can distort with use.



All components are ground to perfection

For an extra level of precision, we start with prebalanced holders and components. We then invest the time to grind all surfaces that will be in contact with the machine to a fine finish, giving our holder a **runout accuracy of 0.0001"** and our **taper and collet cavities an accuracy of AT2 or better** (Compare this with the runout accuracy of 0.0002" and taper accuracy AT3 of other brands). This offers a tighter connectivity and grip in all mated areas vs turned holders, increasing tolerances throughout.



Which holder works best for your budget and accuracy needs?

STM PREMIUM

The perfect economic tooling solution for general purpose machining applications.

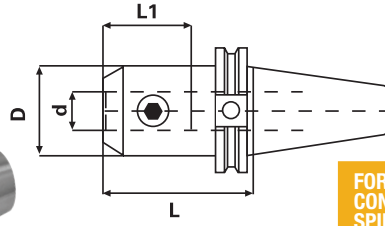
VS

GS TOOLING

Superior tooling performance when speed and accuracy matter most.

42CrMo	Material Grade	16NiCr4 (Premium European Alloy Steel)
AT3 or better (0.00024-0.00036in/ft)	Taper Accuracy	AT2 or better (0.00012-0.00024in/ft)
0.0002"	Runout Accuracy	0.0001"
CAT40 End Mill Holders: Balanced to G2.5 / 8,000rpm CAT50 End Mill Holders: Balanced to G2.5 / 6,000rpm CAT40 Collet Chucks: Balanced to G2.5 / 20,000rpm CAT50 Collet Chucks: Balanced to G2.5 / 15,000rpm	Balance	CAT40 End Mill Holders: Balanced to G6.3 / 30,000rpm CAT50 End Mill Holders: Balanced to G6.3 / 25,000rpm CAT40 Collet Chucks: Balanced to G2.5 / 30,000rpm CAT50 Collet Chucks: Balanced to G2.5 / 25,000rpm
AD/B DIN coolant through flange	Coolant Features	AD/B DIN coolant through flange
H6 = basic plus 0.0025-0.0030" (standard class of fit)	Thread Tolerance	H4 = basic plus 0.0015-0.0020" (premium class of fit)
Limited to the most popular items	SKU Offering	Wide selection

CAT40 End Mill Holders



FOR DUAL CONTACT SPINDLES

Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life.

DIRECT COOLANT

Coolant through the spindle and body, DIN coolant through flange option.

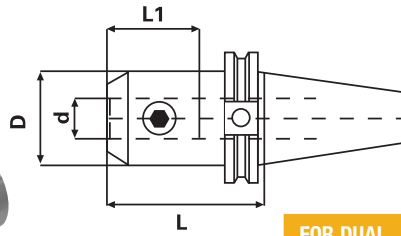
Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	GS Tooling Code No.	STM Code No.	Dual Contact Code No.	Direct Coolant Code No.
1/8	1.35*	0.59	0.75	8-32	531069	-	-	-
1/8	2.50	0.59	0.75	8-32	531070	-	-	-
1/8	2.50	0.63	0.75	8-32	-	525070	-	-
1/8	4.00	0.59	0.75	8-32	531071	-	-	-
1/8	4.00	0.63	0.75	8-32	-	525071	-	-
3/16	1.38*	0.79	0.75	10-32	531072	-	-	-
3/16	2.50	0.79	0.75	10-32	531073	-	-	-
3/16	2.50	0.86	0.75	10-32	-	525073	-	-
3/16	4.00	0.79	0.75	10-32	531074	-	-	-
3/16	4.00	0.86	0.75	10-32	-	525074	-	-
1/4	1.38*	1.18	0.79	1/4-28	531000	-	-	522014
1/4	2.50	1.10	0.79	1/4-28	-	525002	-	-
1/4	2.50	1.18	0.79	1/4-28	531002	-	-	522016
1/4	4.00	1.10	0.79	1/4-28	-	525004	-	-
1/4	4.00	1.18	0.79	1/4-28	531004	-	-	522018
1/4	9.00	1.18	0.79	1/4-28	531005	-	-	-
5/16	1.38*	1.18	0.87	5/16-24	531006	-	-	522022
5/16	2.50	1.18	0.87	5/16-24	531008	-	-	522024
5/16	2.50	1.26	0.87	5/16-24	-	525008	-	-
5/16	4.00	1.18	0.87	5/16-24	531010	-	-	522026
5/16	9.00	1.18	0.87	5/16-24	531011	-	-	-
3/8	1.38*	1.57	1.00	3/8-24	531012	-	-	522030
3/8	2.50	1.26	1.00	3/8-24	-	525014	-	-
3/8	2.50	1.57	1.00	3/8-24	531014	-	-	522032
3/8	4.00	1.26	1.00	3/8-24	-	525016	-	-
3/8	4.00	1.57	1.00	3/8-24	531016	-	-	-
3/8	5.00	1.57	1.00	3/8-24	531018	-	-	522036
3/8	9.00	1.57	1.00	3/8-24	531031	-	-	-
7/16	2.50	1.50	1.38	7/16-20	531020	-	-	-
7/16	4.00	1.50	1.38	7/16-20	531022	-	-	-
7/16	9.00	1.50	1.38	7/16-20	531033	-	-	-
1/2	1.75*	1.50	1.38	7/16-20	-	525024	-	-
1/2	1.75*	2.56	1.38	7/16-20	531024	-	-	522046
1/2	2.50	1.50	1.38	7/16-20	-	525026	-	-
1/2	2.50	2.56	1.38	7/16-20	531026	-	521026	522048
1/2	4.00	1.50	1.38	7/16-20	-	525028	-	-
1/2	4.00	2.56	1.38	7/16-20	531028	-	521028	522050
1/2	5.00	2.56	1.38	7/16-20	-	-	521030	522052
1/2	5.00	3.07	1.38	7/16-20	531030	-	-	-
1/2	9.00	2.56	1.38	7/16-20	531035	-	-	-
5/8	1.75*	1.61	1.65	9/16-18	-	525032	-	-
5/8	1.75*	1.97	1.65	9/16-18	531032	-	-	-

Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	GS Tooling Code No.	STM Code No.	Dual Contact Code No.	Direct Coolant Code No.
5/8	1.75*	2.72	1.65	9/16-18	-	-	-	522056
5/8	3.00	1.61	1.65	9/16-18	-	525034	-	-
5/8	3.00	2.56	1.65	9/16-18	-	-	-	522058
5/8	3.00	2.76	1.65	9/16-18	531034	-	-	-
5/8	3.00	3.50	1.65	9/16-18	-	-	521034	-
5/8	4.00	2.56	1.65	9/16-18	-	-	-	522060
5/8	4.00	2.76	1.65	9/16-18	531036	-	-	-
5/8	4.00	3.50	1.65	9/16-18	-	-	521036	-
5/8	5.50	2.76	1.65	9/16-18	531038	-	-	-
5/8	5.50	3.50	1.65	9/16-18	-	-	521038	-
5/8	9.00	3.50	1.65	9/16-18	531037	-	-	-
3/4	1.75*	1.77	1.89	5/8-18	-	525040	-	-
3/4	1.75*	2.01	1.89	5/8-18	531040	-	-	-
3/4	1.75*	2.56	1.89	5/8-18	-	-	-	522066
3/4	3.00	1.77	1.75	5/8-18	-	525042	-	-
3/4	3.00	2.56	1.75	5/8-18	531042	-	-	522068
3/4	3.00	3.86	1.75	5/8-18	-	-	521042	-
3/4	4.00	2.56	1.75	5/8-18	531044	-	-	522070
3/4	4.00	3.86	1.75	5/8-18	-	-	521044	-
3/4	5.50	2.56	1.75	5/8-18	531046	-	-	522072
3/4	5.50	3.86	1.75	5/8-18	-	-	521046	-
3/4	9.00	3.86	1.75	5/8-18	531039	-	-	-
7/8	1.75*	2.17	1.94	5/8-18	531048	-	-	-
7/8	3.50	3.15	2.00	5/8-18	531050	-	-	-
7/8	6.00	4.22	2.00	5/8-18	531052	-	-	-
7/8	9.00	4.22	2.00	5/8-18	531041	-	-	-
1	2.00*	2.32	2.25	3/4-16	531054	-	-	-
1	2.00*	2.36	2.25	3/4-16	-	525054	-	522080
1	2.00	2.36	2.36	3/4-16	-	-	521054	-
1	4.00	2.36	2.36	3/4-16	-	525056	-	-
1	4.00	3.54	2.36	3/4-16	531056	-	-	522082
1	4.00	4.21	2.36	3/4-16	-	-	521056	-
1	6.00	3.54	2.36	3/4-16	531058	-	-	-
1	6.00	4.21	2.36	3/4-16	-	-	521058	-
1	9.00	4.50	2.36	3/4-16	531043	-	-	-
1-1/4	2.00*	2.28	2.25	3/4-16	-	525060‡	-	-
1-1/4	2.00*	2.36	2.25	3/4-16	-	-	521060‡	-
1-1/4	2.00*	2.44	2.25	3/4-16	531060‡	-	-	522088
1-1/4	4.00	3.54	2.48	3/4-16	531062	-	521062	522090
1-1/4	6.00	3.54	2.48	3/4-16	531064	-	521064	-
1-1/2	4.50	2.95	2.99	3/4-16	531066	-	521066	522094
1-1/2	6.00	3.20	2.99	3/4-16	531068	-	-	-

* Stubby Length ‡ Not DIN Coolant

End Mill Holders

CAT50 End Mill Holders



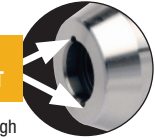
FOR DUAL CONTACT SPINDLES

Improves rigidity and reduces vibration allowing for increased feed rates and increased tool life.



DIRECT COOLANT

Coolant through the spindle and body, DIN coolant through flange option.



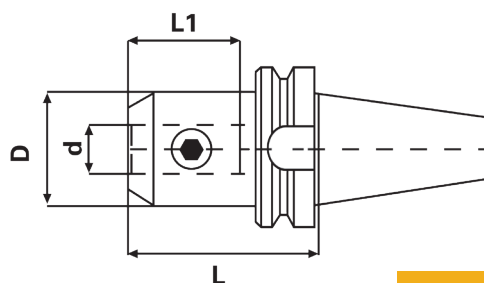
Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	GS Tooling Code No.	STM Code No.	Dual Contact Code No.	Direct Coolant Code No.
1/4	1.38*	0.71	0.79	1/4-28	531082	-	-	-
1/4	2.50	1.18	0.79	1/4-28	531084	-	-	522102
1/4	4.00	1.18	0.79	1/4-28	531086	-	-	522104
1/4	6.00	1.18	0.79	1/4-28	531088	-	-	-
1/4	8.00	1.18	0.79	1/4-28	531090	-	-	-
5/16	2.50	1.18	0.87	5/16-24	531092	-	-	-
5/16	4.00	1.18	0.87	5/16-24	531094	-	-	-
5/16	4.00	1.26	0.87	5/16-24	-	-	-	522112
5/16	6.00	1.18	0.87	5/16-24	531096	-	-	-
3/8	1.38*	1.57	1.00	3/8-24	531098	-	-	-
3/8	2.50	1.57	1.00	3/8-24	531100	-	-	522118
3/8	4.00	1.57	1.00	3/8-24	531102	-	-	522120
3/8	6.00	1.57	1.00	3/8-24	531104	-	-	522122
3/8	8.00	1.26	1.00	3/8-24	-	-	-	522124
3/8	8.00	1.57	1.00	3/8-24	531106	-	-	-
3/8	14.00	1.57	1.00	3/8-24	531107	-	-	-
7/16	2.50	1.50	1.38	7/16-20	531108	-	-	-
7/16	4.00	1.50	1.38	7/16-20	531110	-	-	522130
7/16	6.00	1.50	1.38	7/16-20	531112	-	-	-
7/16	14.00	1.48	1.38	7/16-20	531113	-	-	-
1/2	1.75*	1.50	1.38	7/16-20	531116	-	-	522134
1/2	2.63	1.77	1.38	7/16-20	531118	-	-	522136
1/2	4.00	1.50	1.38	7/16-20	-	525120	-	-
1/2	4.00	1.77	1.38	7/16-20	531120	-	521120	522138
1/2	6.00	1.77	1.38	7/16-20	531122	-	521122	522140
1/2	8.00	1.48	1.38	7/16-20	-	-	-	522142
1/2	8.00	1.77	1.38	7/16-20	531124	-	-	-
1/2	14.00	1.77	1.38	7/16-20	531125	-	-	-
9/16	6.00	1.77	1.65	9/16-18	531133	-	-	-
5/8	1.75*	1.73	1.65	9/16-18	531126	-	-	-
5/8	1.75*	1.77	1.65	9/16-18	-	-	-	522148
5/8	3.00	1.77	1.65	9/16-18	531128	-	-	522150
5/8	4.00	1.77	1.65	9/16-18	531130	-	521130	522152
5/8	6.00	1.61	1.65	9/16-18	-	-	-	522154
5/8	6.00	1.77	1.65	9/16-18	531132	-	521132	-
5/8	8.00	1.77	1.65	9/16-18	531134	-	-	-
5/8	14.00	1.57	1.65	9/16-18	531131	-	-	-

Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	GS Tooling Code No.	STM Code No.	Dual Contact Code No.	Direct Coolant Code No.
3/4	1.75*	2.76	1.89	5/8-18	531136	-	-	522158
3/4	3.00	2.76	1.89	5/8-18	531138	-	-	522160
3/4	3.00	3.86	1.89	5/8-18	-	-	521138	-
3/4	4.00	1.77	1.89	5/8-18	-	525140	-	-
3/4	4.00	2.76	1.89	5/8-18	531140	-	-	522162
3/4	4.00	3.86	1.89	5/8-18	-	-	521140	-
3/4	6.00	2.76	1.89	5/8-18	531142	-	-	522164
3/4	6.00	3.86	1.89	5/8-18	-	-	521142	-
3/4	8.00	2.76	1.89	5/8-18	531144	-	-	522166
3/4	14.00	3.86	1.89	5/8-18	531145	-	-	-
7/8	1.75*	3.15	2.00	5/8-18	531146	-	-	-
7/8	3.75	3.15	2.00	5/8-18	531148	-	-	-
1	2.00*	2.32	2.36	3/4-16	531152	-	-	522176
1	4.00	2.36	2.36	3/4-16	-	525154	-	-
1	4.00	3.54	2.36	3/4-16	531154	-	-	522178
1	4.00	4.21	2.36	3/4-16	-	-	521154	-
1	6.00	3.54	2.36	3/4-16	531156	-	-	522180
1	6.00	4.21	2.36	3/4-16	-	-	521156	-
1	8.00	3.54	2.36	3/4-16	531158	-	-	522182
1	8.00	4.21	2.36	3/4-16	-	-	521158	-
1	12.00	2.36	2.36	3/4-16	-	-	-	522183
1-1/4	2.00*	2.56	2.75	3/4-16	531160	-	-	522186
1-1/4	4.00	2.55	2.48	3/4-16	-	525162	-	-
1-1/4	4.00	3.54	2.48	3/4-16	531162	-	521162	522188
1-1/4	6.00	3.54	2.48	3/4-16	531164	-	521164	522190
1-1/4	8.00	3.54	2.48	3/4-16	531166	-	521166	-
1-1/2	2.25*	2.83	2.75	3/4-16	531168	-	-	522196
1-1/2	4.50	3.15	2.99	3/4-16	531170	-	521170	522198
1-1/2	7.00	3.15	2.99	3/4-16	531172	-	521172	-
1-1/2	9.00	3.15	2.99	3/4-16	531174	-	-	-
2	3.63*	3.66	3.74	1-14	531176	-	-	522204
2	5.37	4.13	3.74	1-14	531178	-	521178	522206
2	8.00	4.13	3.74	1-14	531180	-	-	522208
2	10.00	4.13	3.74	1-14	531182	-	-	522210
2-1/2	6.00	3.94	4.25	1-14	531184	-	-	-

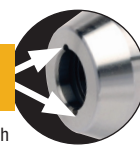
* Stubby Length † Not DIN Coolant



BT30/40/50 End Mill Holders



DIRECT COOLANT



Coolant through the spindle and body.

Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Direct Coolant Code No.
BT30						
1/8	2.36	0.59	0.75	8-32	532001	-
3/16	2.36	0.79	0.75	10-32	532003	-
1/4	2.36	1.10	0.79	1/4-28	-	522218
1/4	2.36	1.18	0.79	1/4-28	532000	-
5/16	2.36	1.18	0.87	5/16-24	532002	-
5/16	2.36	1.26	0.87	5/16-24	-	522220
3/8	2.36	1.18	1.00	3/8-24	532004	-
3/8	2.36	1.26	1.00	3/8-24	-	522222
7/16	2.36	1.50	1.38	7/16-20	532006	-
1/2	2.36	1.50	1.38	7/16-20	-	522224
1/2	2.36	2.95	1.38	7/16-20	532008	-
5/8	2.50	1.61	1.65	9/16-18	532010	-
3/4	3.00	1.77	1.88	5/8-18	532012	522228
7/8	3.54	2.09	2.00	5/8-18	532014	-
1	3.54	2.32	2.36	3/4-16	532016	-
BT40						
1/8	1.38*	0.59	1.75	8-32	531019	-
1/8	2.50	0.59	0.75	8-32	531021	-
1/8	4.00	0.59	0.75	8-32	531023	-
3/16	1.38*	0.79	0.75	10-32	531025	-
3/16	2.50	0.79	0.75	10-32	531027	-
3/16	4.00	0.79	0.75	10-32	531029	-
1/4	1.38*	1.18	0.79	1/4-28	532018	-
1/4	2.50	1.18	0.79	1/4-28	532020	-
1/4	4.00	1.10	0.79	1/4-28	-	522246
1/4	4.00	1.18	0.79	1/4-28	532022	-
5/16	1.38*	1.18	0.87	5/16-24	532024	-
5/16	2.50	1.18	0.87	5/16-24	532026	-
5/16	4.00	1.18	0.87	5/16-24	532028	-
3/8	1.38*	1.57	1.00	3/8-24	532030	-
3/8	2.50	1.57	1.00	3/8-24	532032	522256
3/8	4.00	1.57	1.00	3/8-24	532034	522258
7/16	2.50	1.50	1.38	7/16-20	532036	-
1/2	1.75*	1.50	1.38	7/16-20	532038	-

Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.	Direct Coolant Code No.
BT40 continued						
1/2	2.50	2.56	1.38	7/16-20	532040	522264
1/2	4.00	2.56	1.38	7/16-20	532042	522266
5/8	1.75*	1.97	1.65	9/16-18	532044	-
5/8	2.50	2.76	1.65	9/16-18	532046	-
5/8	4.00	3.50	1.65	9/16-18	532048	-
3/4	1.75*	2.01	1.89	5/8-18	532050	-
3/4	2.50	2.56	1.89	5/8-18	532052	522276
3/4	4.00	2.56	1.89	5/8-18	532054	522278
7/8	3.38	4.06	2.00	5/8-18	532056	-
7/8	6.00	2.08	2.00	5/8-18	532058	-
1	2.00*	2.32	2.25	3/4-16	532060	522282
1	3.56	3.54	2.36	3/4-16	532062	-
1	6.00	3.54	2.36	3/4-16	532064	-
1-1/4	2.00*	2.36	2.25	3/4-16	532066†	-
1-1/4	3.56	3.54	2.48	3/4-16	532068	-
1-1/4	6.00	3.54	2.48	3/4-16	532070	-
1-1/2	4.50	3.15	2.99	3/4-16	532072	-
1-1/2	6.00	3.15	2.99	3/4-16	532074	-
BT50						
3/8	2.50	1.57	1.00	3/8-24	532075	-
3/8	5.31	1.57	1.00	3/8-24	532076	-
1/2	2.75	1.77	1.38	7/16-20	532077	-
1/2	5.31	1.77	1.38	7/16-20	532078	-
5/8	3.00	1.77	1.65	9/16-18	532079	-
5/8	5.31	1.77	1.65	9/16-18	532081	-
3/4	3.00	2.76	1.75	5/8-18	532083	-
3/4	6.00	3.82	1.75	5/8-18	532085	-
1	4.00	4.21	2.36	3/4-16	532087	-
1	6.00	3.54	2.36	3/4-16	532089	-
1-1/4	4.00	3.54	2.48	3/4-16	532091	-
1-1/4	6.00	3.54	2.48	3/4-16	532093	-
1-1/2	4.13	3.15	2.99	3/4-16	532095	-
1-1/2	7.00	3.15	2.99	3/4-16	532097	-
2	4.72	4.13	3.86	1-14	532099	-

* Stubby Length † Not DIN Coolant



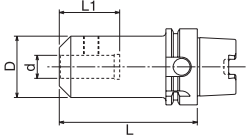
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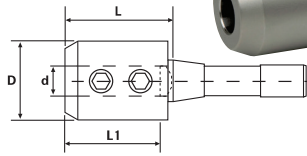
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HSK63A/HSK100A End Mill Holders



Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.
HSK63A					
3/16	3.00	0.866	0.748	10-32X1/4	536002
3/16	5.00	0.866	0.748	10-32X1/4	536004
1/4	3.00	1.102	0.787	1/4-28X1/4	536006
1/4	5.00	1.102	0.787	1/4-28X1/4	536008
5/16	3.00	1.417	0.874	5/16-24X1/4	536010
5/16	5.00	1.417	0.874	5/16-24X1/4	536012
3/8	3.50	1.574	1.00	3/8-24X5/16	536014
3/8	5.00	1.574	1.00	3/8-24X5/16	536016
7/16	5.00	1.771	1.378	7/16-20X3/8	536020
1/2	4.00	1.771	1.378	7/16-20X3/8	536022
1/2	5.00	1.771	1.378	7/16-20X3/8	536024
5/8	4.00	1.889	1.654	9/16-18X1/2	536026
3/4	4.50	1.968	1.889	5/8-18X1/2	536030
3/4	6.00	1.968	1.889	5/8-18X1/2	536032
1	4.50	2.755	2.363	3/4-16X11/16 (2)	536034
1-1/4	4.50	2.952	2.88	3/4-16X11/16 (2)	536038
HSK100A					
3/16	4.00	0.867	0.748	10-32X1/4	536042
3/16	6.00	0.867	0.748	10-32X1/4	536044
1/4	4.00	1.102	0.787	1/4-28X1/4	536046
1/4	6.00	1.102	0.787	1/4-28X1/4	536048
5/16	4.00	1.220	0.866	5/16-24X1/4	536050
5/16	6.00	1.220	0.866	5/16-24X1/4	536052
3/8	4.00	1.260	1.00	3/8-24X5/16	536054
3/8	6.00	1.260	1.00	3/8-24X5/16	536056
1/2	4.00	1.575	1.378	7/16-20X3/8	536062
1/2	6.00	1.575	1.378	7/16-20X3/8	536064
5/8	4.00	1.693	1.654	9/16-18X1/2	536066
3/4	4.00	2.56	1.890	5/8-18X1/2	536070
3/4	6.00	1.969	1.890	5/8-18X1/2	536072
1	4.00	2.559	2.362	3/4-16X11/16 (2)	536074
1	6.00	2.559	2.362	3/4-16X11/16 (2)	536076
1-1/4	4.00	2.559	2.480	3/4-16X11/16 (2)	536078
1-1/4	6.00	2.559	2.480	3/4-16X11/16 (2)	536080

R8 End Mill Holders



Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.
1/4	1.33	1.18	0.79	1/4-28	534056
5/16	1.75	1.26	0.87	5/16-24	534058
3/8	1.33	1.26	1.00	3/8-24	534060
1/2	1.33	2.56	1.38	7/16-20	534064
5/8	1.50	1.61	1.65	9/16-18	534066
3/4	2.37	1.77	1.89	5/8-18	534068
1	3.25	2.76	2.36	3/4-16	534072
1-1/4	3.25	3.15	2.48	3/4-16	534074

Straight Shank End Mill Holders

- Can be used to extend the reach of the cutting tool as well as machining within tight clearances
- All ground body, bore, nose, flange
- TIR, 0.0001" / 0.003mm OD to ID
- Certified Steel

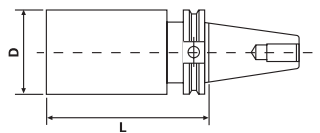


Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.
1/4	6.00	1.18	0.750	1/4-28	534078
5/16	6.00	1.18	0.750	5/16-24	534080
3/8	6.00	1.57	1.00	3/8-24	534082
1/2	6.00	1.77	1.00	1/4-28	534084

Blank Bars

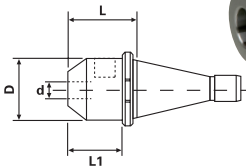
Blank bars are suitable for all applications, including deep boring. While the tapers are ground and hardened, the projections are not.

- Traverse ground shank to obtain optimum accuracy
- Meets or exceeds ANSI specifications
- Material to be machined - SNCM 415H



Taper	L	D	Code No.
CAT Taper			
CAT 40	13	2.50	531592
CAT 50	13	3.88	531594
NMTB Taper			
NMTB50	13	3.88	534602

NMTB40/NMTB50 End Mill Holders

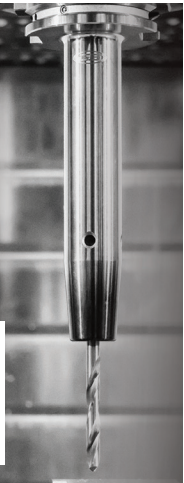


Hole Dia. (d)	Gauge Length (L)	L1	D	Set Screw	Code No.
NMTB40					
1/4	2.31	1.97	0.79	1/4-28	534000
5/16	2.31	1.18	0.87	5/16-24	534002
3/8	2.31	1.57	1.00	3/8-24	534004
1/2	2.31	2.56	1.38	7/16-20	534008
5/8	2.31	2.76	1.65	9/16-18	534010
3/4	2.31	2.76	1.89	5/8-18	534012
7/8	2.94	3.15	2.01	5/8-18	534014
1	3.37	3.54	2.36	3/4-16	534016
1-1/4	3.69	3.54	2.48	3/4-16	534018
1-1/2	3.95	2.95	2.99	3/4-16	534019
NMTB50					
1/4	2.75	1.57	0.79	1/4-28	534020
3/8	2.75	1.57	1.00	3/8-24	534022
1/2	2.75	1.50	1.38	7/16-20	534026
1/2	4.50	1.50	1.38	7/16-20	534028
5/8	2.75	1.77	1.65	9/16-18	534030
3/4	2.88	1.77	1.89	5/8-18	534034
3/4	4.50	2.76	1.89	5/8-18	534036
7/8	2.88	2.17	2.01	5/8-18	534038
1	3.50	2.36	2.36	3/4-16	534042
1-1/4	3.50	2.56	2.48	3/4-16	534046
2	4.69	4.13	3.74	1-14	534054



Shrink Fit Solutions

Don't just shrink fit, ShrinkSMART when maximum gripping power and exceptional concentricity are needed. Gripping the tool 360° along the entire length of bore results in an evenly distributed clamping force, allowing for greater speeds and feeds, better finishes, extended tool life and increased productivity.

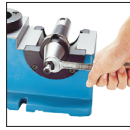


Tool Holder Tightening Fixtures/Setting Stands

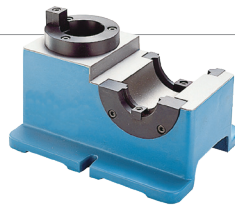
Quick and easy way to change cutters and retention knobs safely.
Protects the taper of holder with protective insert.



Deluxe Tool Holder Tightening Fixtures



Select between horizontal or vertical tool holding; quick and simple operation



Vertical Description	Horizontal Description	Code No.
40 Taper (CAT, BT & NMTB)	40 Taper x 2 (only BT & NMTB)	335250
50 Taper (CAT, BT & NMTB)	50 Taper x 2 (only BT & NMTB)	335260
50 Taper (CAT, BT & NMTB)	50 Taper x 1 / 40 Taper x 1	335240
40 Taper (CAT, BT & NMTB)	50 Taper x 1 / 40 Taper x 1	335230

Simple Tool Holder Tightening Fixtures



30 Taper (CAT, BT & NMTB)	-	335200
35 Taper (CAT, BT & NMTB)	-	335205
40 Taper (CAT, BT & NMTB)	-	335210
50 Taper (CAT, BT & NMTB)	-	335220

Simple Tool Holder Tightening Fixtures



30 Taper (CAT, BT & NMTB)	-	335270
40 Taper (CAT, BT & NMTB)	-	335275
50 Taper (Only CAT50 & NMTB50)	-	335280

NC/CNC Tool Trolley Cart

Complete tool trolley with 4 bolt-in tool trays and replaceable inserts.

(W)1002mm x (D)650mm x (H)830mm

Weight: 51kgs



Description	Tool Cart Code No.	Replacement Plastic Inserts Code No.
40 Taper Type Trolley with 7 inserts per tray (4 trays hold 28 inserts)	326985	326986
50 Taper Type Trolley with 5 inserts per tray (4 trays hold 20 inserts)	326995	326996

Spindle Taper Wipers

- For easily and quickly cleaning spindle holes
- Plastic body, the taper wiper is made of special cotton material therefore not damaging the spindle
- The BT & DIN tapers are the same



Model No.	Taper	Total Length	Code No.
VTW-30	#30	168mm	326210
VTW-40	#40	159mm	326215
VTW-50	#50	265mm	326220
VTW-50H	HSK50	159mm	326225
VTW-63H	HSK63	167mm	326230

Replacement O-Rings For DIRECT COOLANT Holders

Can be used in all tapers of direct coolant holders



Holder Size	Code No.
1/4	522390
5/16	522391
3/8	522392
1/2	522393
5/8	522394
3/4	522395
1	522396
1-1/4	522397

Replacement Set Screws



Size	Size of Holder	Code No.
8-32 x 5/16	1/8	534109
10-32 x 5/16	3/16	534111
1/4-28 x 1/4	1/4	534110
5/16-24 x 1/4	5/16	534112
3/8-24 x 5/16	3/8, 7/16	534114
7/16-20 x 3/8	1/2	534116
9/16-18 x 1/2	5/8	534118
5/8-18 x 1/2	3/4, 7/8	534120
3/4-16 x 9.5mm	1, 1-1/4, 1-1/2	534119
3/4-16 x 11/16	1, 1-1/4, 1-1/2	534122
1-14 x 7/8	2	534124

HSK Accessories

HSK Coolant Tube Wrenches



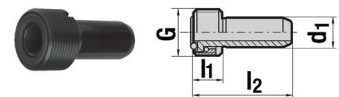
Series	Description	Code No.
HSK63A	Coolant Tube Wrench	536604
HSK100A	Coolant Tube Wrench	536606

Designed to lock and unlock the HSK coolant supply units

HSK Coolant Tubes

Designed specifically to be used with HSK holders

Leak-proof screwed connection



Used with Taper	d1	G	h1	l2	Code No.
HSK63A	12	M18x1	11.5	36.5	536600
HSK100A	16	M24x1.5	15.5	44.0	536602

HSK Simple Tool Holder Tightening Fixture



Taper	Description	Code No.
HSK63	Tool Setting Stand, Weight 4.5 kg	335225

Retention Knobs

Ground Pilot and Flat

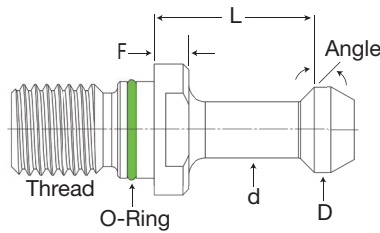
O-Ring on Pilot to prevent coolant penetration into the spindle

Can't find your retention knob?

We invite your inquiries, call 1-800-265-8221 or email sales@sowatool.com.

Please have the following information ready when calling:

1. Taper of Machine
2. Make and Model No. of the Machine
3. Draw Bar Thread Diameter and Pitch
4. Taper Angle required underneath head of stud



Taper	Model	Coolant Through	D	d	L	F	Angle	Thread	Code No.	
BT30	GS585X45	N	0.433	0.276	0.709	0.197	45	M12x1.75	366000	
	GS585X60	N	0.433	0.276	0.709	0.197	60	M12x1.75	366002	
BT40	PS444X15	N	0.748	0.551	0.905	0.275	15	M16x2	366003	
	GSC444X15	Y	0.748	0.551	0.905	0.275	15	M16x2	366004	
	GS444X45	N	0.590	0.390	1.102	0.236	45	M16x2	366006	
	GS444X60	N	0.590	0.390	1.102	0.236	60	M16x2	366008	
	PS444X90	N	0.590	0.390	1.102	0.236	90	M16x2	366010	
	GSC444X45	Y	0.590	0.390	1.102	0.236	45	M16x2	366012	
	GSC444X60	Y	0.590	0.390	1.102	0.236	60	M16x2	366014	
	PSC444X90	Y	0.590	0.390	1.102	0.236	90	M16x2	366016	
	PS477	N	0.740	0.490	0.552	0.236	45	M16x2	366018	
	PSC478	Y	0.740	0.490	0.440	0.120	45	M16x2	366020	
	PSC479	Y	0.740	0.490	0.552	0.120	45	M16x2	366022	
	GSC477	Y	0.740	0.490	0.552	0.236	45	M16x2	366024	
	PSC480X15	Y	0.748	0.551	0.900	0.157	15	M16x2	366026	
	PS534X45	N	0.590	0.390	0.990	0.236	45	M16x2	366028	
	PS554	N	0.594	0.406	1.250	0.187	45	M16x2	366030	
	PSC554	Y	0.594	0.406	1.250	0.187	45	M16x2	366032	
	CT40	GSC470X15	Y	0.748	0.551	0.787	0.157	15	5/8x11	366034
		GS474	N	0.740	0.490	0.440	0.118	45	5/8x11	366036
GSC474		Y	0.740	0.490	0.440	0.118	45	5/8x11	366038	
GSC475		Y	0.740	0.490	0.440	0.120	45	5/8x11	366040	
GS475		N	0.740	0.490	0.440	0.120	45	5/8x11	366042	
PS498		N	0.590	0.390	0.777	0.200	90	5/8x11	366044	
PS531X45		N	0.590	0.390	1.000	0.236	45	5/8x11	366046	
GS532X15		N	0.748	0.551	0.792	0.275	15	5/8x11	366048	
GS532X45		N	0.590	0.390	0.990	0.236	45	5/8x11	366050	
GS532X60		N	0.590	0.390	0.990	0.236	60	5/8x11	366052	
GS532X90		N	0.590	0.390	0.990	0.236	90	5/8x11	366054	
GSC532X15		Y	0.748	0.551	0.792	0.275	15	5/8x11	366056	
GSC532X45		Y	0.590	0.390	0.990	0.236	45	5/8x11	366058	
GSC532X60		Y	0.590	0.390	0.990	0.236	60	5/8x11	366060	
GSC532X90		Y	0.590	0.390	0.990	0.236	90	5/8x11	366062	
PS552		N	0.594	0.406	1.139	0.187	45	5/8x11	366064	
PSC552		Y	0.594	0.406	1.139	0.187	45	5/8x11	366066	
CT45		GS572X45	N	0.590	0.390	0.990	0.120	45	5/8x11	366068
	PS572X60	N	0.590	0.390	0.990	0.120	60	5/8x11	366070	
	PS572X90	N	0.590	0.390	0.990	0.120	90	5/8x11	366072	
	PSC572X45	Y	0.590	0.390	0.990	0.120	45	5/8x11	366074	
	PSC572X60	Y	0.590	0.390	0.990	0.120	60	5/8x11	366076	
	PSC572X90	Y	0.590	0.390	0.990	0.120	90	5/8x11	366078	
	PSC375	Y	0.940	0.605	0.580	0.160	45	3/4x10	366080	
	PSC278	Y	1.140	0.820	0.700	0.200	45	M24x3	366082	
	GS446X45	N	0.906	0.669	1.378	0.394	45	M24x3	366084	
	BT50	PS446X60	N	0.906	0.669	1.378	0.394	60	M24x3	366086
		PS446X90	N	0.906	0.669	1.378	0.394	90	M24x3	366088
		GSC446X45	Y	0.906	0.669	1.378	0.394	45	M24x3	366090
	CT50	GS275	N	1.140	0.820	0.700	0.200	45	1x8	366092
		PSC274	Y	1.140	0.820	0.700	0.200	45	1x8	366094
		GSC275	Y	1.140	0.820	0.700	0.200	45	1x8	366096
		GS536X45	N	0.906	0.669	1.386	0.394	45	1x8	366098
		GS536X60	N	0.906	0.669	1.386	0.394	60	1x8	366100
		GS536X90	N	0.906	0.669	1.386	0.394	90	1x8	366102
GSC536X45		Y	0.906	0.669	1.386	0.394	45	1x8	366104	
GSC536X60		Y	0.906	0.669	1.386	0.394	60	1x8	366106	
GSC536X90		Y	0.906	0.669	1.386	0.394	90	1x8	366108	



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Tool Holding

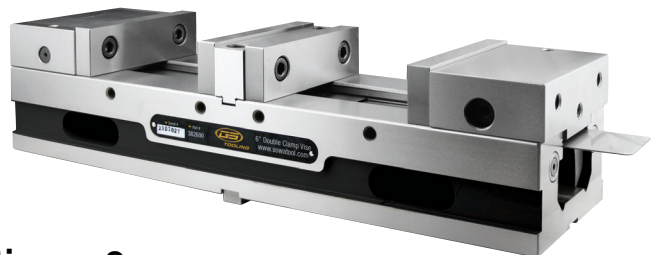


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