

Alberti
 Anderson
 Bemaq
 Biesse
 Busellato
 CMS
 Eima
 Heian
 Homag
 IMA
 Komo
 Maka
 Masterwood

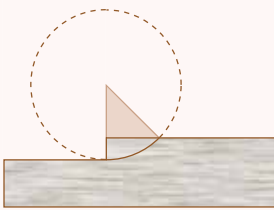
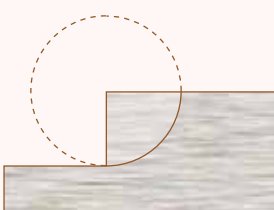
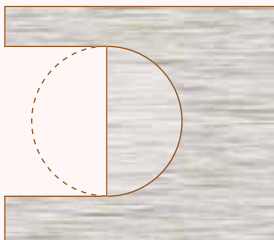


MKM
 Morbidelli
 Multicam
 Reich
 Reichenbacher
 Rye
 Scheer
 SCM
 Shoda
 Trima
 Weeke
 Westphal

CNC Tooling Solutions



Feed Speed: m/mm

	Material	One Wing		Two Wings		Three Wings	
		RPM	120	180	RPM	120	180
 Low Stock Removal Higher Feed Rates	Wood, with grain		7.2	10.8		14.4	21.6
	Wood, across grain		4.8	7.2		9.6	14.4
	MDF		9.6	14.4		19.2	28.8
	Plywood		7.2	10.8		14.4	21.6
	Chipboard		14.4	21.6		28.8	43.2
	Plastics		3.6	5.4		7.2	10.8
						10.8	16.2
	Material	One Wing		Two Wings		Three Wings	
		RPM	120	180	RPM	120	180
 Higher Stock Removal Lower Feed Rates	Wood, with grain		3.6	5.4		7.2	10.8
	Wood, across grain		2.4	3.6		4.8	7.2
	MDF		4.8	7.2		9.6	14.4
	Plywood		2.4	3.6		4.8	7.2
	Chipboard		7.2	10.8		14.4	21.6
	Plastics		1.2	1.8		2.4	3.6
						3.6	5.4
	Material	One Wing		Two Wings		Three Wings	
		RPM	120	180	RPM	120	180
 Maximum Stock Removal Minimum Feed Rates	Wood, with grain		1.8	2.7		3.6	5.4
	Wood, across grain		1.2	1.8		2.4	3.6
	MDF		2.4	3.6		4.8	7.2
	Plywood		1.8	2.7		3.6	5.4
	Chipboard		4.8	7.2		9.6	14.4
	Plastics		0.6	0.9		1.2	1.8
						1.8	2.7

The feed speed values decrease with a cutter diameter of less than 16 mm and/or a cut depth greater than 20mm.

Size Restrictions: mm/tooth

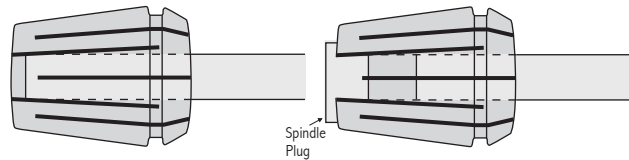
Material	One Wing		Two Wings		Three Wings	
	RPM	120	180	RPM	120	180
Wood, with grain		0.6	0.3		0.15	0.6
Wood, across grain		0.4	0.2		0.1	0.4
MDF		0.8	0.4		0.2	0.8
Plywood		0.6	0.2		0.15	0.6
Chipboard		1.2	0.6		0.4	1.2
Plastics		0.3	0.1		0.05	0.3
					0.1	0.05

Collet Measurement Guide

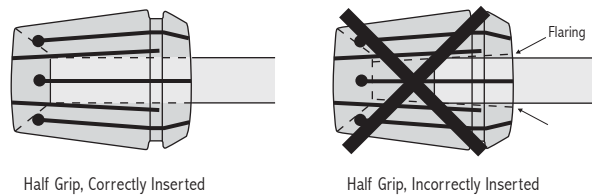
Collet Series	Length	Outside Diameter
ER11	18 mm (.708")	11.5 mm (.45")
ER16	27.5 mm (1.08")	17 mm (.67")
ER20	31.5 mm (1.24")	21 mm (.83")
ER25	34 mm (1.34")	26 mm (1.02")
ER32	40 mm (1.57")	33 mm (1.3")
ER40	46mm (1.81")	41 mm (1.61")
ER50	60mm (2.36")	52 mm (2.05")
EOC 8	26 mm (1.026")	14.4 mm (.567")
SYOZ 20	34 mm (1.34")	20 mm (.78")
RDO 20	34 mm (1.34")	20 mm (.78")
407E-EOC 12	34 mm (1.34")	20 mm (.78")
EOC 16	40 mm (1.57")	25.5 mm (1")
RDO 25	40 mm (1.57")	25.5 mm (1")
SYOZ 25	52 mm (2.06")	35 mm (1.38")
RDO 35	52 mm (2.06")	35 mm (1.38")
462 E	52 mm (2.06")	35 mm (1.38")
EOC 32	60 mm (2.36")	43.7 mm (1.72")
TG 75	47 mm (1.85")	27 mm (1.06")
TG100	60 mm (2.36")	35 mm (1.38")
Shoda Collets		
Piggyback	52 mm (2.06")	16 mm (back side)
SD Style, 20 mm	52 mm (2.06")	20 mm (back side)
SD Style, 24 mm	52 mm (2.06")	24 mm (back side)
SS Style, 23 mm	40 mm (1.58")	23.5 mm (.925")
Heian Collets		
HN-24 mm	55 mm (2.16")	24 mm (1.14" back side)
HN-29 mm	55 mm (2.16")	24 mm (1.14" back side)
HN-Piggyback	36.5 mm (1.43")	22 mm (.886")
Pin Router Collets		
A421-69	43.6 mm (1.72")	28 mm (1.1")
A450	41.3 mm (1.62")	36 mm (1.41")

Proper Tool Colleting

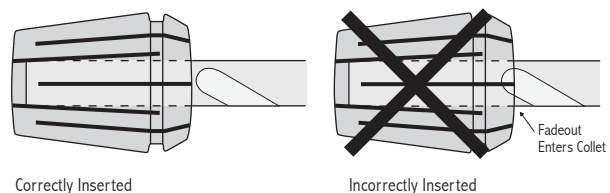
There are two types of collets, half grip and full grip. Full grip collets have a slot for the shank that extends the entire length of the collet. Proper utilization requires that the shank fill at least 80% of the collet. If the shank is not long enough to fill the minimum 80%, a spindle plug the same diameter as the router's shank is required. This will keep the width of collet consistent at the top and bottom, preventing flaring.



Half grip collets are easy to use and work well for router bits with shorter shanks that would not fit into a full grip collet. Spindle plugs are not required for half grip collets as any shank used in the half grip must completely fill the slot.



Another important factor to keep in mind involves where the "flute fadeout" occurs in relation to where the collet begins. If this fadeout section extends into the collet, the collet cannot properly grip the tool. Without a proper grip, the support becomes uneven and can result in permanent damage or tool breakage.



Remember: always properly inspect the collet for wear whenever a tool is being changed. Changing collets is much more economical than the cost of repairing damage to your machine due to overuse.

CNC Router Feed Chart

Wood, Wood Products, Metal Doors

BC Saw Tool Series	Cutting Diameter	Cutting Depth	Spindle Speed	Soft Natural Wood	Hard Natural Wood	Soft Plywood	Hard Plywood	MDF	Laminated Chipboard	Laminated Plywood	Metal Door Foam Core
BC10-00	1/4	1/4	18,000	100-200	—	—	—	—	—	—	—
BC12-00	1/2	1/2	18,000	—	100-300	—	—	—	—	—	—
BC12-80	1/2	1/2	18,000	100-500	100-300	—	—	—	—	—	—
BC14-00	1/2	2	18,000	100-500	—	—	—	—	—	—	—
BC15-00	1/2	2	18,000	—	—	—	—	—	—	—	—
BC15-50	1/2	2	2,000-2,500	—	—	—	—	—	—	—	100-200
BC15-75	1/2	2	2,000-2,500	150	—	—	—	—	—	—	200-300
BC30-00	N/A	Varies	18,000	150	150	—	—	150	—	—	—
BC37-50	*	*	18,000	150	150	150	150	150	—	—	—
BC37-60	*	*	18,000	150	150	150	150	150	—	—	—
BC38-00	*	*	18,000	150	150	—	—	—	—	—	—
BC38-50	*	*	18,000	150	150	150	150	150	—	—	—
BC38-60	*	*	18,000	150	150	150	150	150	—	—	—
BC40-000	1/2	3/4	18,000	100-300	100-300	—	—	—	—	—	—
BC40-100	1/2	3/4	18,000	150-400	150-400	—	—	—	—	—	—
BC40-200	1/2	3/4	18,000	100-300	100-300	—	—	—	—	—	—
BC40-300	1/2	3/4	18,000	150-400	150-400	—	—	—	—	—	—
BC40-400	1/2	3/4	18,000	150-400	150-400	—	—	—	—	—	—
BC52-200	1/2	3/4	18,000	200-400	200-400	—	—	200-450	—	—	—
BC57-200	1/2	3/4	18,000	200-400	200-400	—	—	200-450	—	—	—
BC52-400	12 mm	3/4	18,000	200-400	200-400	—	—	200-450	—	—	—
BC57-400	12 mm	3/4	18,000	200-400	200-400	—	—	200-450	—	—	—
BC52-900	1/2	3/4	18,000	200-400	200-400	—	—	200-450	—	—	—
BC56-200	1/2	3/4	18,000	200-400	200-400	200-400	200-400	200-400	—	—	—
BC57-900	1/2	3/4	18,000	200-400	200-450	—	—	200-450	—	—	—
BC60-000 (high)	1/2	3/4	18,000	600-1,000	600-1,000	600-1,200	600-1,200	500-1,000	—	—	—
BC60-000 (low)	1/2	3/4	18,000	700-1,200	700-1,200	700-1,500	700-1,500	600-1,500	—	—	—
BC60-090	1/2	3/4	18,000	100-400	100-400	100-400	100-400	100-400	—	—	—
BC60-100 (1 edge)	1/2	3/4	18,000	100-600	100-600	100-600	100-600	100-500	100-600	100-600	—
BC60-100 (2 edge)	1/2	3/4	18,000	400-1,200	400-1,000	400-1,200	400-1,000	400-800	400-1,200	400-1,000	—
BC60-100 (3 edge)	1/2	3/4	18,000	500-1,600	500-1,500	700-1,800	700-1,600	600-1,200	700-1,800	700-1,600	—
BC60-100C	1/2	3/4	18,000	400-1,500	400-1,200	400-1,400	400-1,200	400-1,000	400-1,400	400-1,200	—
BC60-200	1/2	3/4	18,000	200-600	200-500	—	—	200-500	—	—	—
BC60-470	1/2	3/4	18,000	200-600	200-500	—	—	200-500	—	—	—
BC60-300	1/2	3/4	18,000	400-1,500	400-1,200	400-1,400	400-1,200	400-1,000	—	—	—
BC60-400	1/2	3/4	18,000	400-1,500	400-1,200	400-1,400	400-1,200	400-1,000	—	—	—
BC60-350	1/2	3/4	18,000	500-1,600	500-1,500	700-1,800	700-1,600	600-1,200	—	—	—
BC60-430	1/2	3/4	18,000	500-1,600	500-1,500	700-1,800	700-1,600	600-1,200	—	—	—
BC60-450	12 mm	3/4	18,000	200-600	200-500	—	—	200-500	—	—	—
BC60-500 (M)	1/2	3/4	18,000	500-1,600	500-1,500	700-2,400	700-2,200	600-1,600	700-2,400	700-2,200	—
BC60-600	1/2	3/4	18,000	1,000-1,800	1,000-1,800	1,200-3,000	1,200-2,800	1,000-2,000	1,200-3,000	1,200-2,800	—
BC60-700	1/2	3/4	18,000	1,000-1,800	1,000-1,800	1,200-3,000	1,200-2,800	1,000-2,000	—	—	—
BC60-900	1/2	3/4	18,000	700-1,200	700-1,200	700-1,500	700-1,500	600-1,500	—	—	—
BC60-950	1/2	3/4	18,000	400-1,500	400-1,200	400-1,400	400-1,200	400-1,000	—	—	—
BC61-000	1/4	1/2	18,000	100-300	—	—	—	—	—	—	—
BC61-200	1/4	1/2	18,000	100-300	100-250	100-250	100-200	100-250	—	—	—
BC62-200	1/4	1/2	18,000	150-300	150-300	—	—	150-300	—	—	—
BC63-200	1/4	1/2	18,000	150-300	150-300	—	—	150-300	—	—	—

* Depth of Cut = Half of the Cutting Edge Diameter

Determining Feed and Speed Rates

These feed rates are in inches per minute and are only guidelines. Actual speed and feed rates will depend on individual equipment and goals. Generally, the faster a bit is fed, the longer the edges will last. For maximum life, start at a “safe” rate, then push feed rate until either finish is undesirable, or tool is risking breakage. Other factors that could affect feed rate listed on the next page.

Plastics, Foam, Aluminum

BC Saw Tool Series	Soft Plastic	Hard Plastic	Fibrous Reinforcements	Foam	Aluminum	Solid Surface
BC10-00	150	—	—	—	—	—
BC12-00	—	—	—	100	—	—
BC14-00	—	—	—	—	90	—
BC15-00	—	—	—	—	90	Aluminum Extrusion or Aluminum UAD Doors / Windows
BC37-50	150	150	—	—	—	150
BC37-60	150	150	—	—	—	150
BC38-50	150	150	—	—	—	150
BC38-60	150	150	—	—	—	150
BC40-000	—	—	—	—	120	—
BC40-100	—	—	—	—	120	—
BC40-300	—	—	—	—	120	16,000 RPM
BC52-000	—	—	—	150	150	150-200
BC52-200	200	—	—	—	—	150-200
BC52-400	200	—	—	—	—	150-200
BC52-600	275	250	—	—	—	150
BC53-000	—	—	150	—	—	—
BC56-000P	—	250	150	—	—	150-200
BC56-430	300	275	—	—	—	—
BC56-450	—	250	150	—	—	150-200
BC56-600	300	275	—	—	—	—
BC57-000	—	—	150	—	150	150-200
BC57-200	—	—	—	—	—	150-200
BC57-400	—	—	—	—	—	150-200
BC57-600	300	275	—	—	—	—
BC58-000	—	—	150	—	—	—
BC55-000	—	—	150	—	—	—
BC59-000	—	—	150	—	—	—
BC54-000	—	—	150	—	—	—
BC60-200	—	300	—	—	—	100-300
BC60-470	—	300	250	—	—	100-300
BC61-000P	350	300	—	—	—	—
BC61-400	350	300	—	—	—	—
BC62-000	—	—	100	—	150	—
BC62-400	—	—	100	—	150	—
BC62-600	—	—	—	—	54-144	—
BC62-700	—	200	—	—	—	100-180
BC62-750	150	150	—	—	—	100-180
BC62-800	—	200	—	—	—	100-180
BC62-850	150	150	—	—	—	100-180
BC62-900	—	—	—	—	54-144	—
BC63-000	—	—	100	—	150	—
BC63-400	—	—	100	—	150	—
BC63-600	—	—	—	—	54-144	—
BC63-700	—	200	—	—	—	100-180
BC63-750	150	150	—	—	—	100-180
BC63-800	—	200	—	—	—	100-180
BC63-850	150	150	—	—	—	100-180
BC63-900	—	—	—	—	54-144	—
BC66-000	125	125	—	—	—	125
BC66-200	150	150	—	—	—	—
BC66-250	150	150	—	—	—	—
BC66-300	175	150	—	—	150	—
BC66-350	175	150	—	—	150	—
BC67-000	—	—	125	—	—	—

Determining Rates (Cont.)

• Rigidity of Set Up

Vibration is a major source of tool wear and poor finish. Adjust feed rate to minimize vibration. Often a faster rate can improve finishes.

• Router Environment

Other variables that affect every routing application are spindle, horsepower, rigidity and runout, collet condition, clamping system and tool sharpness. Adjust feed rate to achieve desired finish.

• Number of Flutes

Single flute tools should be fed at a slightly higher rate (approximately a 10% increase) than double flute tools.

• Bit Diameter

This chart is for 1/4" diameter bits. Other diameter feed factors are as follows: 3/8" diameter, plus 10%; 1/2" diameter, plus 20%.

• Depth of Cut

Decrease feed rate approximately 25% for each multiple of the depth cut. For example, if the depth is 2 times, reduce by 25%; if the depth is 3 times, reduce by 50%.

• Spindle Speed

This chart is for an RPM of 18,000. If spindle is 20,000 RPM, increase speed by 10%; if spindle is 14,500 RPM, reduce speed rate by approximately 20%.

• Finish

Find the fastest feed rate that will enable you to obtain a satisfactory finish for the best tool life.

• Routing Formulas

Feed Rate* = RPM x Number of Cutting Edges x Chip Load

Chip Load = Feed Rate / (RPM x Number of Cutting Edges)

Speed (RPM) = Feed Rate / (Number of Cutting Edges x Chip Load)

*Feed Rate is in Inches per Minute

Tool Number Alpha-Numeric Index

0121043	5011742	5216248	5321443	8001952	8200155	8601758	8813765
0121243	5011842	5216348	53214A43	8002152	8200355	8601958	8813965
0121443	5012042	5216448	5321643	8002352	8200555	8602158	8814165
0121643	5012242	5216548	53216A43	8002552	8200755	8602358	8814365
0121843	5012442	5216648	5321843	8002752	8200955	8602558	8814565
0122043	5012642	5216748	53218A43	8002952	8201155	8602758	8814765
0122243	5012742	5216848	5322043	8003152	8201355	8602958	8910161
0122443	5012842	5216948	53220A43	8003352	8201555	8603158	8910361
0023010	5012942	5217048	5322243	8003552	8201755	8603358	8910561
0023210	5013042	5217148	53222A43	8003752	8201955	8700159	8910761
1030610	5013242	5217248	5322443	8003952	8202155	8700359	8910961
1030810	5013442	5217348	53224A43	8004152	8202355	8700559	8911161
1031010	5013642	5217448	5500045	8004352	8202555	8700759	8911361
1031210	5013842	5217548	5500245	8004552	8202755	8700959	8911561
1031410	5014042	5217648	5500445	8004752	8202955	8701159	8920161
1031610	5014242	5217748	5500645	8004952	8203155	8701359	8920361
1032010	5014442	5217848	5500845	8005152	8203355	8701559	8920561
1032210	5015842	5217948	5501045	8005352	8203555	8701759	8920761
1032410	5016042	5218048	5501245	8005552	8203755	8701959	8920961
1032610	5016142	5218148	5501445	8005752	8203955	8702159	8921161
1032810	5016242	5218248	5502045	8005952	8204155	8702359	8921361
1033010	5016342	5218348	5502245	8006152	8300156	8702559	8921561
1033210	5016442	5218448	5510245	8006352	8300356	8702759	8921761
22901X38	5016642	5218548	5510445	8006552	8300556	8702959	8921961
22902X38	5016742	5218648	5510645	8006752	8301156	8703159	8922161
22903X38	5016842	5218748	5510845	8006952	8301356	8703359	8930161
22904X38	5016942	5218848	5511045	8010153	8301556	8703559	8930361
22905X38	5017042	5218948	5511245	8010353	8301756	8703759	8930561
22906X38	5017142	5219048	5511445	8010553	8301956	8703959	8930761
22907X38	5017242	5219148	5511645	8011153	8302156	8704159	8930961
22908X38	5017442	5219248	5511845	8011353	8302356	8704359	8931161
22911X38	5017642	5219348	5512045	8011553	8302556	8800165	8931361
22912X38	5017842	5219448	5512245	8011753	8302756	8800265	8931561
22913X38	5018042	5219548	5602045	8011953	8302956	8800365	8931761
22914X38	5018242	5219648	5602545	8012153	8303156	8800465	8931961
22921X39	5018442	5219748	5603045	8012353	8303356	8800565	8932161
22922X39	5018542	5219848	5603545	8012553	8303556	8800665	8932361
22923X39	5018642	5219948	5604045	8012753	8303756	8800765	8932561
22924X39	5211047	5311044	5900546	8012953	8303956	8800865	8932761
22925X39	5211247	5311244	5900646	8013153	8500157	8800965	8940162
22926X39	5211447	5311344	5900846	8013353	8500357	8801065	8940362
22927X39	5211647	5311444	5901046	8013553	8500557	8801165	8940562
22928X39	5211847	5311644	5910546	8013753	8500757	8801265	8940762
22931X39	5212047	5312044	5910646	8013953	8501157	8801365	8940962
22932X39	5212247	5312244	5910846	8100154	8501357	8810165	8941162
22933X39	5212447	5312644	5911046	8100354	8501557	8810365	8941362
22934X39	5212647	5312844	6000547	8100554	8501757	8810565	8941562
22935X39	5212847	5313044	6000647	8101154	8501957	8810765	8941762
22936X39	5213047	5313144	6000847	8101354	8502157	8810965	8941962
22937X39	5213447	5313244	6010547	8101554	8502357	8811165	8942162
22938X39	5213847	5313344	6010647	8101754	8502557	8811365	8942362
22941X39	5214047	5313444	6010847	8101954	8502757	8811565	8942562
22942X39	5214247	5313644	6011047	8102154	8502957	8811765	8942762
22943X39	5214447	5313844	8000152	8102354	8503157	8811965	8942962
22944X39	5214647	5313944	8000352	8102554	8503357	8812165	8943162
22945X39	5214847	5314044	8000552	8102754	8600158	8812365	8943362
22946X39	5215047	5314244	8000752	8102954	8600358	8812565	8943562
22947X39	5215247	5314444	8000952	8103154	8600558	8812765	8950162
22948X39	5215447	5321043	8001152	8103354	8600758	8812965	8950362
5011042	5215647	53210A43	8001352	8103554	8601158	8813165	8950562
5011442	5216048	5321243	8001552	8103754	8601358	8813365	8950762
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Cutting Tool Engineering and Supply. NAP GLADU specializes in tooling – specifically cutting tools. We provide quality tools at affordable prices. At some point in the manufacturing process, production materials need to be cut, milled, shaped or profiled. With guidance from our Technical Experts, we can help determine the most cost-effective answer for all of your cutting needs. Our representatives can perform in-plant analysis of machines and the materials you are processing – and provide recommendations for increased productivity levels.

Regardless of the difficulty of the job, our Service Representatives can provide a solution that results in a quality tool at a fair price. Exposure gained from nearly 40 years in the business has provided us with the knowledge to aid and improve overall production techniques and ultimately the finished product.

Visit **NAP GLADU** online at www.napgladu.com to check out our monthly specials and to add your name to our mailing list. You can request helpful literature, find related links or view our comprehensive selection of tools. Our address, fax, and phone number are located on the website for your convenience, as well as a toll free number for Canadian and American customers – or contact our Sales Representatives at any time via email. If you have any questions or concerns, please contact our offices or visit our showroom at the Toronto Head Office.



CNC Tools and Tool Holders: NAP GLADU is pleased to release this catalogue featuring tools specifically for CNC machines – machines that are computer numerically controlled. A full range of products are offered including: router bits, drill bits and tool holders.

Router Bits and Shank Tools: NAP GLADU offers the industry's largest selection of premium grade carbide tipped router bits for trimming, sizing and profiling. We outfit everything from portable routers to multi-head CNC machines. To provide optimum performance and practical solutions for difficult to rout applications, we offer carbide tipped, solid carbide and high speed steel router bits.

Cutters with Bore: For ripping, cross cutting or sizing, NAP GLADU carries a wide variety of carbide or diamond tipped saw blades, hoggers and cutter heads. The highest quality raw materials are combined with state-of-the-art diamond grinding, resulting in precision saw blades which offer superior cutting and durability. Our high speed steel blades are designed for both automatic and manual machines to cut most materials.

Knives: NAP GLADU has cutting knives for every application. From planer knives to lathe knives, we can custom manufacture the knives you require. Knives available include: Tersa, Esta disposable, lathe, sticker, Oertli, planer, corrugated back, notched edge shaper, portable planer, super profiler, turnover, insert, circular and Eco Pro knives. Multiple grades are available, including M2 high speed steel, carbide tipped, stellite and solid carbide.

Bandsaw Blades: NAP GLADU carries a broad range of bandsaw blades including: carbon steel, high speed steel, carbide tipped, millband, pallet band and band knives. Each type of band is available in various widths, gauges, tooth styles, sets and pitches. Applications include metal cutting, woodworking, food processing, resawing, log sawing, plastic, rubber and foam cutting and pallet refurbishing. Contact our sales representatives to discuss your cutting application and determine the appropriate blade for your needs.

Custom Profiling Services: Using sophisticated drafting equipment, our engineers can provide custom profiling of high speed steel, carbide tipped and solid carbide knives – done to your exact specifications. Tool profiles are created from wood samples or drawings using computer-aided drafting to the highest tolerances, ensuring an exact profile tool. NAP GLADU also offers custom template making services for those who grind their own knives.

Sharpening Services: NAP GLADU takes pride in offering you the best sharpening service available. Using only the most current technology and equipment available, certified technicians sharpen your saw blades, router bits, cutters, knives, hand tools and metal cutting saw blades to their original specifications.

Other Products and Services: In addition to the products mentioned above, NAP GLADU supplies the manufacturing industry with many other quality items and services. We invite you to come and visit our showroom and speak with our knowledgeable sales staff regarding any product you are interested in or cutting challenge you may have.



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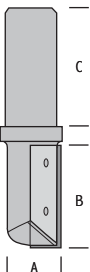
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Shank-Type Cutter with Carbide Tipped Turnover Knives

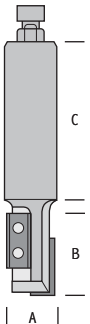
Series 128.415

	Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand						
	175662	—	1	8	20	30	60	9.5
	175663	—	1	10	25	30	60	9.5
	175678	—	1	10	25	40	75	10
	175669	—	1	8	20	40	70	12
	175670	—	1	10	25	40	75	12
	175664	175665	1	12	30	40	80	12
	175666	175667	1	14	30	40	80	12
	175668	—	1	16	50	40	100	12
	180797	—	1	10	25	45	80	16
	Tool Bodies Made of Heavy Metal							
	180816	—	1	8	20	40	70	12
	180817	—	1	10	25	40	75	12
	180818	—	1	12	30	40	80	12
Turnover Knives								
GBC20G	20 x 4.1 x 1.1		for cutting diameter = 8 mm					
GBC25G	25 x 5.5 x 1.1		for cutting diameter = 10 mm					
GBC30G	30 x 5.5 x 1.1		for cutting diameter = 12 mm or 14 mm					
GBC50G	50 x 5.5 x 1.1		for cutting diameter = 16 mm					

This bit is designed for jointing, rabbeting and grooving on conventional and CNC routers – best suited for solid wood and panel materials. The cutting edge on this bit is parallel to the cutter axis.

Shank-Type Cutter with Carbide Tipped Turnover Knives

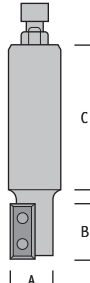
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	BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	168612	1+1	18	45	43	106	16
	168611	1+1	18	45	55	107	25
	168613	1+1	22	55	55	117	25
Turnover Knives							
	180825	29.5 x 12 x 1.5					

Made for jointing, rabbeting and grooving on conventional and CNC routers – best suited for solid wood and panel materials. The staggered cutting edges on this bit are parallel to the cutter axis.

Shank-Type Cutter with Carbide Tipped Turnover Knives

Series 128.410

	BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	171071	1(L+R)	18	29	55	100	25
	171070	1(L+R)	18	50	55	120	25
	Turnover Knives						
	180825	29.5 x 12 x 1.5					
	ICKA50E	50 x 12 x 1.7					

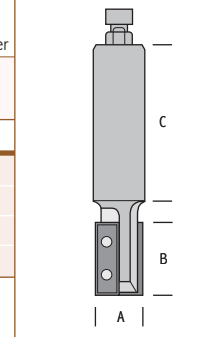
For jointing, rabbeting and grooving on conventional and CNC routers. This bit can be used to cut openings and contours in solid wood and panel materials. The cutting edge on this bit is parallel to the cutter axis. The rotation can be customized by installing the appropriate turnover knives.

Series 128.410

Shank-Type Cutter with Carbide Tipped Turnover Knives

This bit is designed for jointing, rabbeting and grooving on conventional and CNC routers. This bit can be used for milling cut-outs and contours in solid wood and panel materials. The two cutting edges on this bit are parallel to the cutter axis and allow circumference and face cutting.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
180804	2	16	30	55	100	25
180805	2	16	50	55	120	25
Turnover Knives						
180821		30 x 9 x 1.5	for wood materials			
180807		30 x 9 x 1.5	for MDF and HDF			
180806		50 x 9 x 1.5	for wood materials			
180808		50 x 9 x 1.5	for MDF and HDF			

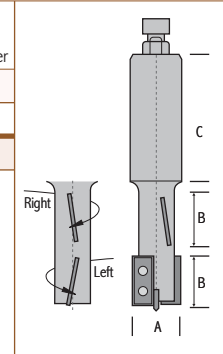


Series 128.260

Shank-Type Cutter with Carbide Tipped Turnover Knives

This bit is designed for jointing, rabbeting and grooving on CNC routers – best suited for cutting openings and contours in solid wood and panel materials. The lower part of the cutting edge can be reversed to a left hand rotation by adjusting the Z-axis and changing the direction of rotation on the router. This allows for optimum machining of frail edges by utilizing only one spindle.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
180442	2+2	20	28	55	130	25
Turnover Knives						
180260		28 x 7 x 1.5				

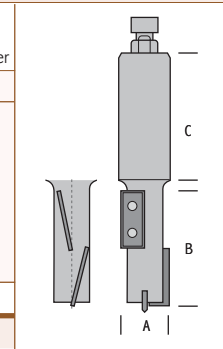


Series 128.260

Shank-Type Cutter with Carbide Tipped Turnover Knives

This bit is for jointing on CNC routers with chip-free cutting edges in coated panel materials; can be used for milling cut-outs and contours. By exchanging the upper and lower knives the blade life is doubled, thereby making this cutter an economical choice.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
180447	—	2+2	20	50	55	125	20
180443	—	1+1	16	30	55	110	25
180444	—	1+1	16	50	55	130	25
180445	—	1+1	18	50	55	130	25
180446	180812	2+2	20	30	55	110	25
180448	180813	2+2	20	50	55	125	25
180814	—	2+2	30	75	55	145	25
Turnover Knives							
180262		16 x 7 x 1.1	for cutting length = 30 mm				
180260		28 x 7 x 1.1	for cutting length = 50 mm				
180815		40 x 9 x 1.1	for cutting length = 75 mm				
ICKA9G		7.5 x 12 x 1.5	boring knife for Ø30				



Shank-Type Cutter with Carbide Tipped Turnover Knives

Series 128.410

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
172269	1(L+R)	18	29	55	132	25
180227	2(L+R)	40	40	55	158	25
Turnover Knives						
180825	29.5 x 12 x 1.5					
ICK40G	40 x 12 x 1.7					

Designed for jointing, rabbeting and grooving on CNC routers – best suited for cutting openings and contours in solid wood and panel materials. The lower part of the cutting edge can be reversed to a left hand rotation by adjusting the Z-axis and changing the direction of rotation on the router. This will allow the optimum machining of frail edges by utilizing only one spindle.

Shank-Type Cutter with Carbide Tipped Turnover Knives

Series 128.210

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
168732	2	80	30	55	89	25
Turnover Knives						
180825	29.5 x 12 x 1.5					

This bit is for jointing, rabbeting and planing on CNC routers – made for cutting contours in solid wood and panel materials. Can also be used for plane-cutting machine tables. The cutting edge on this bit is parallel to the cutter axis.

Shank-Type Cutter with Carbide Tipped Turnover Knives

Series 128.215

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
168682	1+1	16	30	43	92	16
168684	1+1	20	30	43	96	16
168685	1+1	20	30	55	108	25
Turnover Knives						
180825	29.5 x 12 x 1.5 turnover knife					
ICK7.5G	7.5 x 12 x 1.5 boring knife for Ø16					
ICKA9G	9 x 12 x 1.5 boring knife for Ø20					

This bit is for jointing, rabbeting and grooving on conventional and CNC routers – best suited for cutting openings and contours in solid wood and panel materials. One of the cutting edges is parallel to the cutter axis for circumference cutting, the other is a plunging insert with a shear angle.

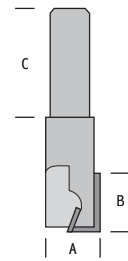


Series 128.215

Shank-Type Cutter with Carbide Tipped Turnover Knives

For jointing, rabbeting and grooving on conventional and CNC routers – best suited for cutting openings and contours in solid wood and panel materials. One of the cutting edges is parallel to the cutter axis for circumference cutting, the other is a plunging insert with a shear angle.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
180809	1+1	16	12	30	70	12
180810	1+1	18	12	30	70	12
180811	1+1	20	12	30	70	12
Turnover Knives						
ICKA12G		12 x 12 x 1.5	turnover knife			
ICK7.5G		7.5 x 12 x 1.5	boring knife for Ø16 and Ø18			
ICKA9G		9 x 12 x 1.5	boring knife for Ø20			

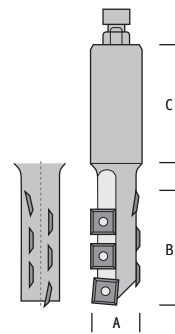


Series 128.410

Shank-Type Cutter with Carbide Tipped Turnover Knives

Design for pre- and finish cutting on routers and CNC machines. This bit produces chip-free edges in coated materials and can also be used for hogging purposes. The upper and lower insert knives have shear angles.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
180802	1+1	22	42	55	115	25
180803	1+1	22	60	55	131	25
Turnover Knives						
ICKA12G		12 x 12 x 1.5	for wood materials			
ICKA12E		12 x 12 x 1.5	for MDF and HDF			

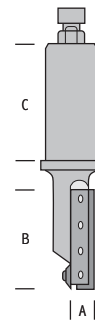


Series 128.260

Shank-Type Cutter with Carbide Tipped Turnover Knives

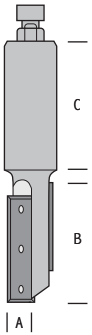
For jointing, rabbeting and grooving on conventional and CNC routers – made for cutting openings and contours in solid wood and panel materials. One of the cutting edges is parallel to the cutter axis, the other is a plunging insert.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
175705	175706	1+1	16	30	40	81	12
175707	—	1+1	18	30	40	81	12
175709	175710	1+1	20	30	40	81	12
175711	—	1+1	22	30	40	81	12
175712	175713	1+1	16	30	45	91	16
175714	—	1+1	16	50	45	106	16
180798	—	1+1	18	50	45	106	16
175720	—	1+1	19.05	50	50	110	19.05
175715	—	1+1	16	50	55	116	25
175716	175717	1+1	18	50	55	116	25
175718	—	1+1	20	50	55	116	25
Turnover Knives							
ICKA12G		12 x 12 x 1.5					
GBC30G		30 x 5.5 x 1.1					
GBC50G		50 x 5.5 x 1.1					



Shank-Type Cutter with Carbide Tipped Turnover Knives

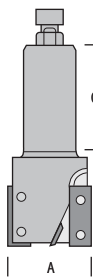
Series 128.215

	Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand						
	177156	180906	2	18	55	55	125	25
	177157	—	2	20	55	55	125	25
	177158	—	2	22	55	55	125	25
	180799	—	2	24	50	55	119	25
	177159	—	2	20	55	55	153	MK 2
Turnover Knives								
ICKA50E			50 x 12 x 1.7					

This bit is made for jointing, rabbeting and grooving on conventional and CNC routers. Works best when used to cut openings and contours in solid wood and panel materials. This bit has two staggered cutting edges which are parallel to the cutter axis.

Shank-Type Cutter with Carbide Tipped Turnover Knives

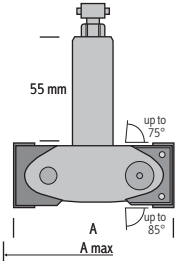
Series 128.410

	Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand						
	168731	—	2+1	40	30	43	91	16
	168730	170815	2+1	40	30	55	106	25
	Turnover Knives							
	ICKA12G			12 x 12 x 1.5	turnover knife			
	180825			29.5 x 12 x 1.5	boring knife			

This bit is made for jointing, rabbeting and grooving on conventional and CNC routers. Works best when used to cut openings and contours in solid wood and panel materials. There are two cutting edges parallel to the cutter axis and one as a plunging insert with a shear angle.

Chamfering Cutter Head

Series 128.715

	BC Saw Tool Number	Edge Count	A1 (mm) Cutting Diameter	A2 (mm) Max Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
	172271	2	100	117	40	110	25
	172429	2	100	117	40	125	MK2
	Turnover Knives						
	ICK40G		41 x 12 x 1.5				
	ICKB39.5G		39.5 x 12 x 1.5 for rabbeting				

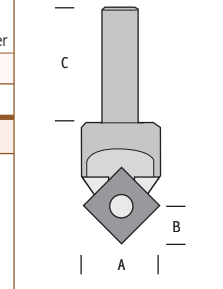
Made for chamfering and panel raising with an adjustable chamfer angle, jointing also possible. This cutter is best suited for solid wood and panel materials. The adjustable chamfer angle ranges from 0° to 85°, on a high-precision scale. Knives can be changed without affecting the set angle, allowing for precision cuts every time.

Series 128.415

Ornamental Groove Cutter with Carbide Tipped Turnover Knives

This bit is made for cutting ornamental grooves, inscriptions and engravings on CNC machines. Designed for solid wood and panel materials. The negative shear angle ensures chip-free cuts on laminated materials.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
171169	1	17	8.3	21	48	10
Turnover Knives						
ICKA12G		12 x 12 x 1.5	for wood materials			

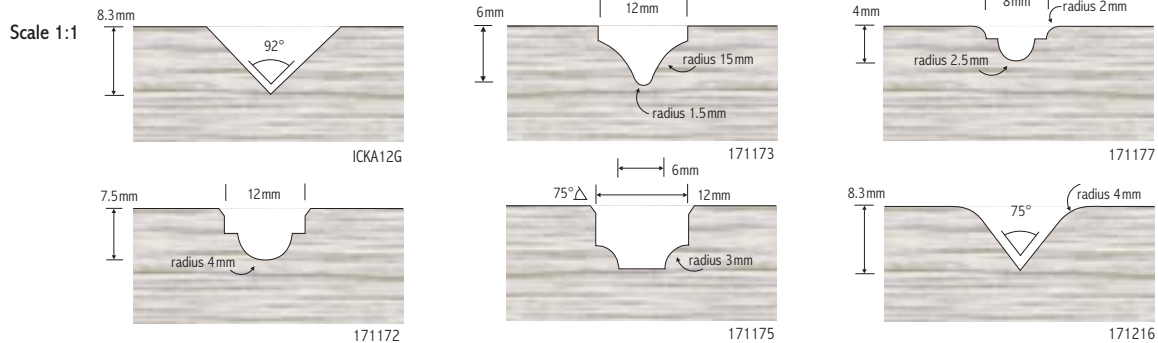
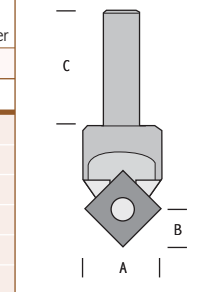


Series 150.514

Set - Ornamental Groove Cutter and Turnover Knives

This set combines the above bit with the six different designs shown below. These can be used to cut ornamental grooves, inscriptions and engravings on CNC machines.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
171217	1	17	8.3	21	48	10
Comes with Complete Set of Turnover Knives						
ICKA12G		12 x 12 x 1.5				
171172		11 x 12 x 1.5				
171173		11 x 12 x 1.5				
171175		11 x 12 x 1.5				
171177		12 x 12 x 1.5				
171216		12 x 12 x 1.5				

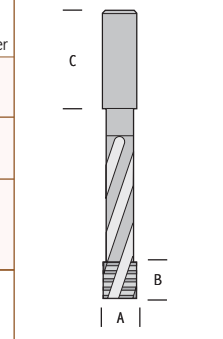


Series 129.460

Lock Case Cutter for CNC Machining Centres

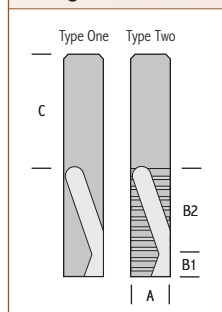
Made for cutting lock-cases and face plates in doors on CNC machining centres. The solid carbide design of this bit withstands high cutting pressures. The positive spiral, coupled with the chip breakers on the cutting edges allows for optimum chip evacuation that is highly balanced. The bits with two cutting edges are serrated for door hardware cutouts; the bits with three are roughing cutters for lock cases only.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
178843	2	14	25	50	155	14
178839	3	14	25	50	155	14
178958	2	16	25	50	175	16
178840	3	16	25	50	175	16
178959	2	18	25	50	175	18
178841	3	18	25	50	175	18
178842	3	18	25	50	175	18



Plunge Cutter

Series 129.460



BC Saw Tool Number	Tool Type	Edge Count	A (mm) Cutting Diameter	B1 (mm) Cutting Length	B2 (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
179189	One	2	12	10	47	53	110	12
179190	One	2	12	10	70	50	130	12
178359	One	2	14	10	47	45	110	14
178360	One	2	16	11	52	60	130	16
178362	Two	2	16	5	65	60	130	16
179191	Two	3	20	5	70	60	135	20

Designed for plunge-cutting and cutting keyholes. Used for door manufacturing on CNC machining centres. The solid carbide design withstands high cutting pressures. The first type (type one) is for boring the peephole and to cut through-holes. Type two is for cutting the latch hole or keyhole. The spiral cut on both types is positive.

Carbide Tipped Three Wing Slot Cutters

Series 10000

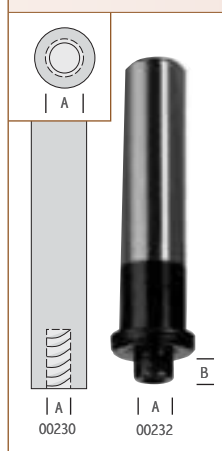


BC Saw Tool Number	A (in) Cutting Diameter	B (in) Cutting Length	(in) Bore Diameter
10306	1 7/8	.062 1/16	5/16
10308	1 7/8	.065	5/16
10310	1 7/8	.07	5/16
10312	1 7/8	.075	5/16
10314	1 7/8	.078 5/64	5/16
10316	1 7/8	.085	5/16
10320	1 7/8	.093 3/32	5/16
10322	1 7/8	.11	5/16
10324	1 7/8	.125 1/8	5/16
10326	1 7/8	.14	5/16
10328	1 7/8	.156 5/32	5/16
10330	1 7/8	.187 3/16	5/16
10332	1 7/8	.25 1/4	5/16

These three wing cutters can be combined with the arbors below for use on CNC machining centres. The cuts create a 1/2" deep slot in all types of wood.

CNC Router Arbors

Series 00000



BC Saw Tool Number	A (in) Shaft Diameter	C (in) Shaft Length	(in) Overall Length	(in) Shank Diameter
00230	5/16	3/16	2	1/2
00232	5/16	—	6	1/2

Either of these arbors can be combined with the cutters above for use on CNC machining centres. The cuts create a 1/2" deep slot in all types of wood.

Eco Pro Cutters

The Eco Pro head and knives are custom profiled to a single profile, as specified by our customer. Although restricted to one profile, the low cost and relatively quick delivery times for Eco Pro increases the price-to-performance ratio. The light weight aluminum body allows a longer spindle life and lets Eco Pro cutters run on small machining centres, routers, double-end tenoners, moulders and shapers.

Eco Pro cutters produce one profile with a quality that is unmatched.

The simple design of two fixing screws removes the need for a clamping element and backer plate, thus reducing costs and breakable parts. A larger gullet capacity and an available shear angle increases production quality and tool life. Many knife grades are available to ensure optimal quality for cutting solid woods and wood materials. For high production of consistent profiles, Eco Pro cutters with bore or shank-type cutters will outperform all other insert tools. More information is available in our Leuco catalogue or from our customer service team.



Low Cost, Perfect Profiling

Super Profilers

A variety of knives and profiles can be used on just one cutting head. Leuco's Super Profilers are versatile insert tools consisting of a body with clamping wedges for attachment of custom profiled carbide knives and support plates in various profile variations. Simply by changing the insert knife and its corresponding backer plate, one tool can cut many profiles. The various models shown on the following pages allow for a wide range of cutting depths, cutting heights and cutting diameters

Interchangeable knives makes the Super Profiler a versatile tool.

to run on CNC routers, shapers, moulders and double-end tenoners. With multiple knife grades, almost any material can be routed cleanly and accurately, including: soft woods, hardwoods and composite materials. The many features and options of Leuco's Super Profilers ensure consistency, extended tool life and high production. For more information on shank-type super profilers or super profilers with bore, speak to our sales representatives request a Leuco catalogue.

Many Profiles, One Tool

The following information is required when ordering a complete super profiler with profiled knives and backers:

1. Profile drawing or wood sample
2. Machine used to run tool, i.e. router, DET, etc.
3. Material to be cut, i.e. solid wood, MDF, etc.



Super Profiler Blank



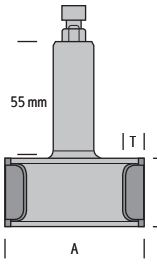
Sample Profiled Knife

for more information on profilers, see page 15

Indicates Profiling Zone
see page 15 for tool options

Shank-Type Super Profiler

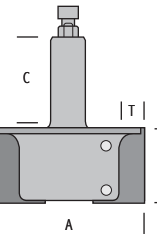
Series 128.612

	Tool Number		Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand						
	167479	—	2	82	11	40	110	20
	167834	167835	2	82	11	40	110	25
	176241	176242	2	86	13	60	130	25
	167483	—	2	82	11	40	127	MK2
SP - Blanks								
	179112	40.6 x 28.2	for hardwoods					
	177367	40.6 x 28.2	for softwoods					
	179113	60.8 x 30.2	for hardwoods					
	177368	60.8 x 30.2	for softwoods					

For cutting inside and outside profiles on CNC routers – best suited for solid wood and panel materials. The cutter body is closed at the top and the bottom. Hardwoods and softwoods have different suggested profile knives, refer to the chart for the correct tool number. Customized profiles are available per customer specifications, please call our order desk for details.

Shank-Type Super Profiler

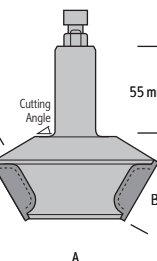
Series 128.612

	Tool Number		Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand							
	171033	—	2	60	11	30	43	89.6	16
	171143	171144	2	100	16	50	55	112	25
	173271	—	2	120	22	50	55	109	25
	173270	—	2	120	22	60	55	118	25
SP - Blanks									
	179114	30.6 x 25.5	for hardwoods						
	177369	30.6 x 25.5	for softwoods						
	180199	49.3 x 33.7	for hardwoods						
	180218	49.4 x 44.5	for hardwoods						
	179999	60.6 x 45.6	for hardwoods						
	178845	60.6 x 45.6	for softwoods						

Made for cutting inside and outside contours on CNC routers – works best when cutting solid wood and panel materials. This bit is for profiles that require a cutter body which is open on one side. Hardwoods and softwoods have different suggested profile knives, please refer to the chart for the correct tool number. Profile knives can be customized per customer specifications, call our order desk for details.

Shank-Type Super Profiler

Series 128.612

	Tool Number		Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	Cutting Angle	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand							
	168184	—	2	100	11	40	30°	119	25
	176235	176236	2	110	11	40	45°	120	25
	176237	—	2	125	13	60	30°	140	25
SP - Blanks									
	179112	40.6 x 28.2	for hardwoods						
	177367	40.6 x 28.2	for softwoods						
	179113	60.8 x 30.2	for hardwoods						
	177368	60.8 x 30.2	for softwoods						

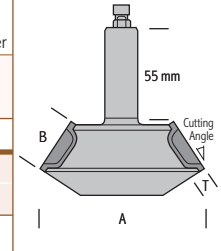
Made for cutting inside and outside profiles on CNC routers – best suited for solid wood and panel materials. The angled body allows for deep profiles and profiling from the top. Hardwoods and softwoods have different suggested profile knives, refer to the chart for the correct tool number. Profiles can be customized per customer specifications, please call our order desk for more details.

Series 128.612

Shank-Type Super Profiler

Made for cutting inside and outside profiles on CNC routers – best suited for solid wood and panel materials. The angled body allows for deep profiles and profiling from the bottom. Hardwoods and softwoods have different suggested profile knives, refer to the chart for the correct number. Customized profiles are available per customer specifications.

Tool Number		Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	Cutting Angle	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand							
176239	—	2	125	11	40	30°	120	25
176233	—	2	130	11	40	45°	117	25
SP - Blanks								
179112	40.6 x 28.2	for hardwoods						
177367	40.6 x 28.2	for softwoods						

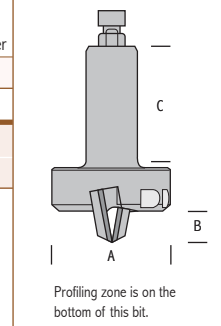


Series 128.612

Ornamental Groove Super Profiler

This bit is designed for cutting ornamental grooves and profiles on CNC routers – best suited for solid wood and panel materials. Hardwoods and softwoods have different suggested profile knives, refer to the chart for the correct tool number. Profiles can be customized per customer specifications; please call our order desk for more details.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
173268	2	59	13	62	97	25
SP - Blanks						
179114	30.6 x 25.5	for hardwoods				
177369	30.6 x 25.5	for softwoods				

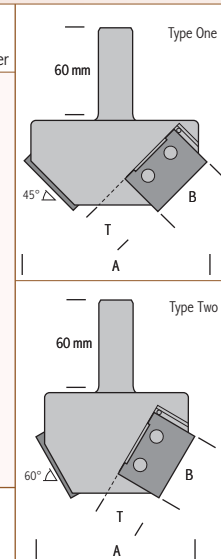


Series 128.663

Eco Pro Cutter Head

Designed for profiling solid wood and wood materials on CNC routers. A shear angle gives a high quality cut, even when cutting across the grain of solid woods; this virtually eliminates sanding. The cutter head body is custom profiled as per customer specifications, call our order desk for details.

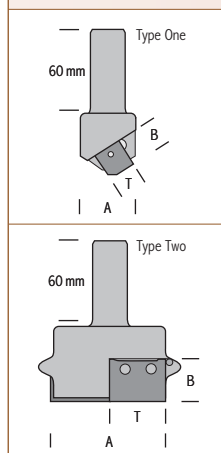
Tool Number		Cutter Type	Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand							
178393	178610	One	2	95	25	30	104	25
178395	178612	One	2	100	20	40	110	25
178394	178611	One	2	100	30	30	107	25
178396	178613	One	2	110	30	40	113	25
180331	180335	One	2	115	32.5	41	115	25
178397	178614	One	2	125	20	50	114	25
178398	178615	One	2	125	33	50	121	25
178389	178605	Two	2	95	20	40	110	25
178387	178604	Two	2	95	25	30	104	25
178391	178607	Two	2	100	20	50	119	25
178388	178606	Two	2	100	30	30	107	25
178390	178608	Two	2	105	30	40	114	25
180330	180334	Two	2	110	32.5	41	115	25
178392	178609	Two	2	125	33	50	127	25



Indicates Profiling Zone
see page 15 for tool options

Eco Pro Cutter Head

Series 128.663

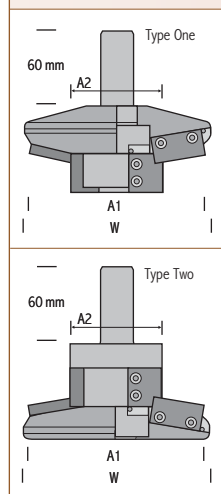


Tool Number		Cutter Type	Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand							
180539	—	One	1	35	20	20	98.5	25
180299	180298	Two	2	76	30	25	101	25
180297	180296	Two	2	76	30	30	109	25
178402	178401	Two	2	100	40	30	112	25
178404	178403	Two	2	120	50	33	122	25

Designed for profiling solid wood and wood materials on CNC routers. A shear angle gives a high quality cut, even when cutting across the grain of solid woods; this virtually eliminates sanding. The cutter head body is custom profiled as per customer specifications, call our order desk for details.

Eco Pro Cutter Head

Series 128.913

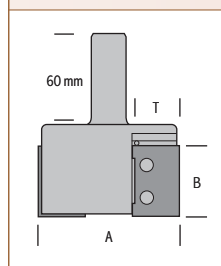


Tool Number		Cutter Type	Edge Count	A1 (mm) Large Diameter	A2 (mm) Small Diameter	W (mm) Body Width	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand							
178751	179369	One	2+2	130	82	140	122	25
178752	179370	One	2+2	137	71.6	145	122	25
178753	179371	One	2+2	137	71.2	145	127	25
178849	179372	One	2+2	142	82	144	123	25
179373	178853	Two	2+2	142	82	144	143	25
179374	178848	Two	2+2	150	82	140	143	25

This bit is designed for profiling solid wood and wood materials on CNC routers. The tool geometry is optimized for a high quality cut, even when cutting across the grain of solid woods; this virtually eliminates sanding. The cutter head body is custom profiled as per customer specifications, call our order desk for details.

Eco Pro Cutter Head

Series 128.613



Tool Number		Edge Count	A (mm) Cutting Diameter	T (mm) Blade Width	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand							
178377	178592	2	52	20	40	60	117	25
178379	178593	2	52	20	50	60	127	25
178375	178594	2	62	25	30	60	107	25
178383	178595	2	62	20	40	60	119	25
178385	178596	2	62	20	50	60	127	25
178381	178599	2	71	25	30	60	107	25
178376	178597	2	71	30	30	60	107	25
178378	178598	2	71	30	40	60	117	25
180328	180332	2	75	32.5	41	60	118	25
178380	178600	2	75	33	50	60	127	25
178382	178601	2	81	30	30	60	107	25
178384	178602	2	81	30	40	60	117	25
180329	180333	2	85	32.5	41	60	118	25
178386	178603	2	85	33	50	60	127	25

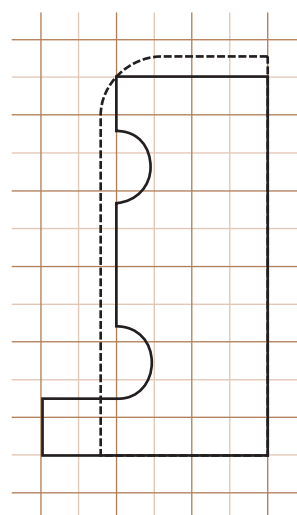
This bit is designed for profiling solid wood and wood materials on CNC routers. The cutter head body is custom profiled as per customer specifications. All profiles can be designed for hard- or softwoods, call our order desk for details.

Which to Choose?

Before deciding which type of profiler to buy, consider what applications you want to use the tool for. Super Profilers are extremely versatile; you can change profiles by changing the insert knives. Great for a shop that is looking for a tool that they can use for several applications. An Eco Pro cutter produces just one profile, but the quality is unmatched. Both cutters have their pros and cons. If you are unsure of which cutter is best suited for your workshop, please don't hesitate to call one of our service representatives for help.

If you are unsure which cutter is best for your work, call us.

that is looking for a tool that they can use for several applications. An Eco Pro cutter produces just one profile, but the quality is unmatched. Both



----- Super Profiler
—— Eco Pro

Ordering Profiles

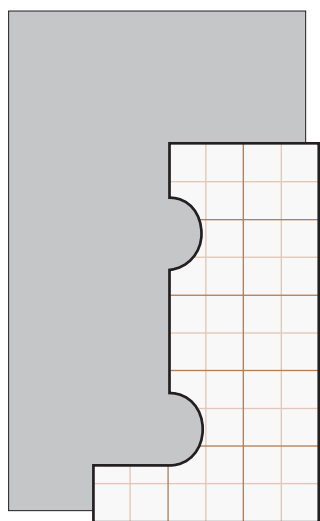
To determine whether a profile you're interested in can be used on either a Super Profiler or an Eco Pro cutter, follow the outlines below as general guidelines. If a profile can fit in the grid, it can be made into a cutter for you. The first sample is for an Eco Pro cutter. This is the largest size available for Eco Pros, anything smaller can fit either on this tool or on another Eco Pro cutter. The next three drawings illustrate some of the more common Super Profilers. The first is the largest available. Again, anything that fits in this grid can be fit to a Super Profiler for a one-pass cut. The next two illustrations serve as examples on different styles of cutters available for Super Profilers. If help is needed, we would be happy to help fit your profile to the appropriate tool.

Any profile that fits into the grid on the left can be cut in one pass.

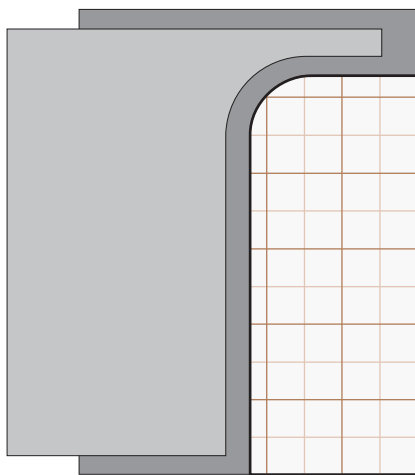


Scale 1:1

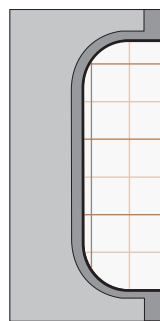
Lay your wood sample or drawing in the grid — any profile that fits can be cut in one pass



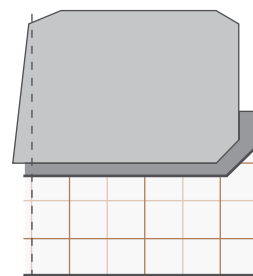
Eco Pro Cutter
Example 178386, page 14



Super Profiler - largest available
Example 173270, page 12



Super Profiler
Example 167479, page 12



Super Profiler
Example 173268, page 12



Spiral Router Bits

Spiral Bits
pg 18-20



Compression Bits
pg 20,
22-24,
28



Chipbreaker | Finisher
pg 21-22,
25-26,
29

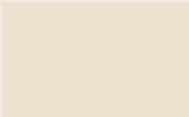


High Velocity Spiral Bits
pg 28-29



Chipbreaker Finisher Bits	21-22, 25-26, 29
Compression Bits	20, 22-24, 28
High Velocity Spiral Bits	28-29
“O” Flute Spiral Bits	30-31
Spiral Bits	18-20

“O” Flute Spiral Bits
pg 30-31





Solid Carbide Double Edge Downcut Spiral Wood Rout Bits

Series BC57-200



BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC57-244	1/8	1/2	2	1/8
BC57-264	3/16	3/4	2	3/16
BC57-240	1/8	1/2	2	1/4
BC57-240L	1/8	1/2	2	1/4
BC57-251	5/32	1/2	2 1/2	1/4
BC57-250	5/32	5/8	2	1/4
BC57-260	3/16	3/4	2	1/4
BC57-260L	3/16	3/4	2	1/4
BC57-261	3/16	3/4	2 1/2	1/4
BC57-270	7/32	3/4	2 1/2	1/4
BC57-271	7/32	1	2 1/2	1/4
BC57-280	1/4	7/8	2 1/2	1/4
BC57-281S	1/4	7/8	2 1/2	1/4
BC57-285	1/4	1	2 1/2	1/4
BC57-285L	1/4	1	2 1/2	1/4
BC57-287	1/4	1 1/8	3	1/4
BC57-290	9/32	1	2 1/2	5/16
BC57-300	5/16	1 1/8	3	5/16
BC57-318*	3/8	1	3	3/8
BC57-320	3/8	1 1/8	3	3/8
BC57-321S	3/8	1 1/8	3	3/8
BC57-325	3/8	1 1/4	3	3/8
BC57-325L	3/8	1 1/4	3	3/8
BC57-310	5/16	1 1/8	3	1/2
BC57-310L	5/16	1 1/8	3	1/2
BC57-330	3/8	1 1/4	3	1/2
BC57-340	7/16	1	3	1/2
BC57-360	1/2	1 1/8	3	1/2
BC57-361S	1/2	1 1/8	3	1/2
BC57-362	1/2	1 1/4	3 1/2	1/2
BC57-365	1/2	1 5/8	3 1/2	1/2
BC57-365L	1/2	1 5/8	3 1/2	1/2
BC57-366S	1/2	1 5/8	3 1/2	1/2
BC57-367	1/2	2 1/8	4	1/2
BC57-370	17/32	1 1/8	3	1/2
BC57-380	5/8	1 5/8	3 1/2	5/8
BC57-385	5/8	2 1/8	4	5/8
BC57-385L	5/8	2 1/8	4	5/8
BC57-390	3/4	1 5/8	4	3/4
BC57-395	3/4	2 1/8	4	3/4
BC57-395L	3/4	2 1/8	4	3/4

*Special Point
L Left Hand Rotation
S Soft Wood

Helix Angle 30°

These are designed to rout wood and wood composites where downward chip removal, long life and quality finish are desired.

Materials: For use on softwood, hardwood, wood composites and solid surfaces.



Series BC57-400

Solid Carbide Double Edge Downcut Spiral Wood Rout Bits – Metric

Designed to rout wood and wood composites where downward chip removal, long life and quality finish are desired.

Materials: For use on softwood, hardwood, wood composites and solid surfaces.

BC Saw Tool Number	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC57-410	4	16	64	6
BC57-411	5	20	64	6
BC57-412	6	25	64	6
BC57-414	8	25	64	8
BC57-416	10	35	76	10
BC57-418	12	35	76	12
BC57-420	14	50	88	14
BC57-422	16	55	100	16
BC57-424	18	60	120	18
BC57-426	20	60	120	20



Series BC57-600

Solid Carbide Double Edge Downcut Spiral Bits - Plastic

Best for cutting plastic with a smooth finish and downward chip flow.

Materials: For use on acrylic, nylon, ABS, PE, HDPE, UHMW, polycarbonate and solid surfaces.

BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC57-623	1/4	3/8	2 1/2	1/4
BC57-625	1/4	3/4	2 1/2	1/4
BC57-637	3/8	1	3	3/8
BC57-651	1/2	1 1/8	3 1/2	1/2
BC57-627	6 mm	25 mm	64 mm	6 mm
BC57-639	8 mm	25 mm	76 mm	8 mm
BC57-643	10 mm	25 mm	76 mm	10 mm
BC57-645	12 mm	35 mm	88 mm	12 mm

Helix Angle 11°



Series BC57-900

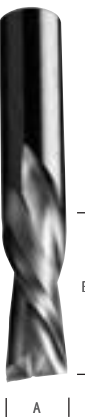
Solid Carbide Double Edge Downcut Extreme Heavy Duty Standard

This bit is for routing where extreme loads are placed upon the cutting tools and when extra part hold down is required.

Materials: For use on softwood, hardwood, and wood composites.

BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC57-910	1/4	7/8	2 1/2	1/4
BC57-921	3/8	7/8	3	3/8
BC57-923	3/8	1 1/8	3	3/8
BC57-924	3/8	1 1/4	3	3/8
BC57-936	1/2	1 1/4	3	1/2
BC57-940	1/2	1 5/8	3 1/2	1/2

Helix Angle 30°



Spiral Router Bits



Three Edge



Four Edge

Solid Carbide Multi-Edge Upcut Spiral Bits

Series BC58-000 | BC55-000

BC Saw Tool Number	Edge Count	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC58-040	Three	1/8	1/2	2	1/4
BC58-060	Three	3/16	5/8	2	1/4
BC58-080	Three	1/4	3/4	2 1/2	1/4
BC55-040	Four	1/8	1/2	2	1/4
BC55-050	Four	5/32	9/16	2	1/4
BC55-060	Four	3/16	5/8	2	1/4
BC55-080	Four	1/4	3/4	2 1/2	1/4

Series BC58-000, Helix Angle 30°
Series BC55-000, Helix Angle 15°

Designed to rout difficult to cut materials when horsepower or spindle speed may be a problem. They employ upcut router geometry rather than end mill geometry for better chip removal and a smoother finish.

Materials: Best for routing fiberglass, composite materials, laminates and other man-made abrasive materials.



Three Edge



Four Edge

Solid Carbide Multi-Edge Downcut Spiral Bits

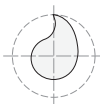
Series BC59-000 | BC54-000

BC Saw Tool Number	Edge Count	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC59-040	Three	1/8	1/2	2	1/4
BC59-060	Three	3/16	5/8	2	1/4
BC59-080	Three	1/4	3/4	2 1/2	1/4
BC54-040	Four	1/8	1/2	2	1/4
BC54-050	Four	5/32	9/16	2	1/4
BC54-060	Four	3/16	5/8	2	1/4
BC54-080	Four	1/4	3/4	2 1/2	1/4
BC59-440	Three	3 mm	12 mm	64 mm	6 mm
BC59-460	Three	5 mm	16 mm	64 mm	6 mm
BC59-480	Three	6 mm	19 mm	76 mm	6 mm
BC54-440	Four	3 mm	12 mm	64 mm	6 mm
BC54-460	Four	5 mm	16 mm	64 mm	6 mm
BC54-480	Four	6 mm	19 mm	76 mm	6 mm

Helix Angle 30°

Designed to rout difficult to cut materials when horsepower or spindle speed may be a problem. They employ upcut router geometry rather than end mill geometry for better chip removal and a smoother finish.

Materials: Best for routing fiberglass, composite materials, laminates and other man-made abrasive materials.



Solid Carbide Single Edge Compression Spiral Bits

Series BC60-100SE

Tool Number		A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand				
BC60-102	—	1/8	3/8	2 1/2	1/4
BC60-106	—	3/16	5/8	2 1/2	1/4
BC60-110	—	1/4	7/8	2 1/2	1/4
BC60-122HS	—	3/8	1	3	3/8
BC60-120	BC60-120L	3/8	1 1/8	3	3/8
BC60-160	—	1/2	1	3	1/2
BC60-162HS*	—	1/2	1	3	1/2
BC60-167	—	1/2	1 1/8	3	1/2
BC60-168HW	—	1/2	1 1/8	3	1/2
BC60-170	—	1/2	1 3/8	3 1/2	1/2
BC60-165	BC60-165L	1/2	1 5/8	3 1/2	1/2
BC60-185	—	5/8	2 1/4	4	5/8
BC60-195	—	3/4	2	4	3/4
BC60-132	—	6 mm	25 mm	64 mm	6 mm
BC60-134	—	8 mm	25 mm	64 mm	8 mm
BC60-136	—	10 mm	35 mm	76 mm	10 mm
BC60-138	—	12 mm	35 mm	76 mm	12 mm
BC60-142	—	16 mm	55 mm	100 mm	16 mm

HW Hardwood geometry
HS Hard Surface Double Laminate

Helix Angle 30°
*Helix Angle 20°

Designed for fast feed rates and optimum edge finishes on both sides of laminated materials. These bits are made for low speed applications.

Materials: For routing double-sided laminated or veneered materials, natural woods and wood composites.

Series BC60-000

Solid Carbide Three Edge High Helix Chipbreaker Bits

Designed with a unique scalloped cutting edge design for extremely fast machining or roughing. These bits are designed for fast chip removal with upcuts.

Materials: For use on softwoods, hardwoods, plywoods, wood composites as well as hard and soft plastics and plastic composites.

BC Saw Tool Number	Flute Cut	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-001	Upcut	3/8	1 1/8	3 1/2	3/8
BC60-002	Downcut	3/8	1 1/8	3 1/2	3/8
BC60-005	Upcut	1/2	1 1/8	3 1/2	1/2
BC60-007	Upcut	1/2	1 5/8	4	1/2
BC60-006	Downcut	1/2	1 1/8	3 1/2	1/2
BC60-008	Downcut	1/2	1 5/8	4	1/2
BC60-009	Upcut	5/8	1 5/8	4	5/8
BC60-011	Upcut	5/8	2 1/8	5	5/8
BC60-010	Downcut	5/8	1 5/8	4	5/8
BC60-012	Downcut	5/8	2 1/8	5	5/8
BC60-017	Upcut	3/4	1 5/8	4	3/4
BC60-019	Upcut	3/4	2 1/8	5	3/4
BC60-018	Downcut	3/4	1 5/8	4	3/4
BC60-020	Downcut	3/4	2 1/8	5	3/4
BC60-003	Upcut	12 mm	25 mm	76 mm	12 mm
BC60-004	Downcut	12 mm	25 mm	76 mm	12 mm
BC60-013	Upcut	16 mm	55 mm	120 mm	16 mm
BC60-014	Downcut	16 mm	55 mm	120 mm	16 mm
BC60-015	Upcut	18 mm	60 mm	120 mm	18 mm
BC60-016	Downcut	18 mm	60 mm	120 mm	18 mm

Helix Angle 30°



Series BC60-000

Solid Carbide Three Edge Low Helix Chipbreaker Bits

Designed with a unique scalloped cutting edge design for extremely fast machining or roughing. These bits require a low horsepower and will provide a long tool life.

Materials: For use on softwoods, hardwoods, plywoods, wood composites as well as hard and soft plastics and plastic composites.

BC Saw Tool Number	Flute Cut	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-037	Upcut	3/8	1 1/8	3 1/2	3/8
BC60-038	Downcut	3/8	1 1/8	3 1/2	3/8
BC60-053	Upcut	1/2	1 1/8	3 1/2	1/2
BC60-051	Upcut	1/2	1 5/8	4	1/2
BC60-054	Downcut	1/2	1 1/8	3 1/2	1/2
BC60-052	Downcut	1/2	1 5/8	4	1/2
BC60-065	Upcut	5/8	1 5/8	4	5/8
BC60-061	Upcut	5/8	2 1/8	5	5/8
BC60-066	Downcut	5/8	1 5/8	4	5/8
BC60-062	Downcut	5/8	2 1/8	5	5/8
BC60-073	Upcut	3/4	1 5/8	4	3/4
BC60-071	Upcut	3/4	2 1/8	5	3/4
BC60-074	Downcut	3/4	1 5/8	4	3/4
BC60-072	Downcut	3/4	2 1/8	5	3/4
BC60-055	Upcut	12 mm	25 mm	76 mm	12 mm
BC60-056	Downcut	12 mm	25 mm	76 mm	12 mm
BC60-063	Upcut	16 mm	55 mm	120 mm	16 mm
BC60-064	Downcut	16 mm	55 mm	120 mm	16 mm
BC60-075	Upcut	18 mm	60 mm	120 mm	18 mm
BC60-076	Downcut	18 mm	60 mm	120 mm	18 mm

Helix Angle 10°





Solid Carbide Double Edge Compression Spiral Bits

Series BC60-100DE

BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-112	1/4	7/8	2 1/2	1/4
BC60-124	3/8	1 1/8	3	3/8
BC60-164	1/2	1	3	1/2
BC60-171	1/2	1 3/8	3 1/2	1/2
BC60-169	1/2	1 1/8	3	1/2
BC60-172	1/2	1 5/8	4	1/2
BC60-172L	1/2	1 5/8	4	1/2
BC60-186	5/8	2 1/4	5	5/8
BC60-186L	5/8	2 1/4	5	5/8
BC60-196	3/4	1 7/8	4	3/4
BC60-198	3/4	2 1/2	5	3/4
BC60-198L	3/4	2 1/2	5	3/4
BC60-133	6 mm	25 mm	64 mm	6 mm
BC60-135	8 mm	25 mm	64 mm	8 mm
BC60-137	10 mm	35 mm	76 mm	10 mm
BC60-139	12 mm	35 mm	76 mm	12 mm
BC60-140	20 mm	50 mm	100 mm	20 mm

L Left Hand Rotation

Helix Angle 30°

Designed for fast feed rates and optimum edge finishes on both sides of laminated materials.

Materials: For double-sided laminates and veneers, natural woods and wood composites.



Solid Carbide Double Edge Compression Spiral Chipbreaker Bits

Series BC60-100C

BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-123C	3/8	7/8	3	3/8
BC60-124C	3/8	1 1/8	3	1/2
BC60-163C	1/2	7/8	3	1/2
BC60-164C	1/2	1	3	1/2
BC60-169C	1/2	1 1/8	3	1/2
BC60-171C	1/2	1 3/8	3 1/2	1/2
BC60-172C	1/2	1 5/8	4	1/2
BC60-186C	5/8	2 1/4	5	5/8
BC60-196C	3/4	1 7/8	4	3/4
BC60-135C	8 mm	25 mm	64 mm	8 mm
BC60-137C	10 mm	35 mm	76 mm	10 mm
BC60-139C	12 mm	35 mm	76 mm	12 mm
BC60-140C	20 mm	50 mm	100 mm	20 mm

Helix Angle 30°

This bit provides the optimum edge finish of the compression spiral along with the increased feed rates of the chipbreaker/finisher design.

Materials: For double-sided laminates and veneers, natural woods and wood composites.

Series BC60-100TE

Designed for ultra-high feed rates with optimum edge finishes on both sides of laminated materials.

Materials: Made for use on double-sided laminates and veneers, natural woods and wood composites.

Solid Carbide Three Edge Compression Spiral Bits

BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-125	3/8	1 1/8	3	3/8
BC60-174	1/2	1 1/8	3	1/2
BC60-175	1/2	1 5/8	3 1/2	1/2
BC60-197	3/4	2	4	3/4

Helix Angle: 30°



Series BC60-100M

Designed for fast feed rates with an excellent finish. The short upcut allows a mortise cut with downcut action.

Materials: For routing or mortising double sided laminates and veneers, natural woods and wood composites.

Solid Carbide Multi-Edge Mortise Compression Up/Down Spiral Bits

BC Saw Tool Number	Edge Count	A (in) Cutting Diameter	B (in) Cutting Length	C (in) Upcut Length	(in) Overall Length	(in) Shank Diameter
BC60-111	Single	1/4	7/8	.175	2 1/2	1/4
BC60-113	Double	1/4	7/8	.188	2 1/2	1/4
BC60-121	Single	3/8	7/8	.188	3	3/8
BC60-123	Double	3/8	7/8	.188	3	3/8
BC60-127L	Double	3/8	1 1/8	.188	3	3/8
BC60-126	Three	3/8	7/8	.200	3	3/8
BC60-161	Single	1/2	7/8	.200	3	1/2
BC60-161L	Single	1/2	7/8	.200	3	1/2
BC60-166	Single	1/2	1 5/8	.200	3 1/2	1/2
BC60-163	Double	1/2	7/8	.200	3	1/2
BC60-173	Double	1/2	1 3/8	.200	3 1/2	1/2
BC60-173L	Double	1/2	1 3/8	.200	3 1/2	1/2
BC60-176	Three	1/2	7/8	.200	3	1/2
BC60-177	Three	1/2	1 3/8	.200	3 1/2	1/2
BC60-199	Three	3/4	2	.200	4	3/4
BC60-152	Single	6 mm	22 mm	4 mm	64 mm	6 mm
BC60-154	Single	8 mm	22 mm	4 mm	64 mm	8 mm
BC60-156	Single	10 mm	22 mm	4 mm	76 mm	10 mm
BC60-155	Double	10 mm	22 mm	4 mm	76 mm	10 mm
BC60-158	Single	12 mm	22 mm	4 mm	76 mm	12 mm
BC60-157	Double	12 mm	22 mm	4 mm	76 mm	12 mm

L Left Hand Rotation

Helix Angle: 30°





Solid Carbide Multi-Edge Max Life Compression Spiral Bits

Series BC60-100MW



BC Saw Tool Number	Flute Cut	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-123MW*	Double	3/8	7/8	3	3/8
BC60-126MW*	Three	3/8	7/8	3	3/8
BC60-163MW*	Double	1/2	7/8	3	1/2
BC60-169MW	Double	1/2	1 1/8	3	1/2
BC60-171MW	Double	1/2	1 3/8	3 1/2	1/2
BC60-172MW	Double	1/2	1 5/8	4	1/2

*Mortise Compression

Helix Angle 30°

Designed for maximum life when cutting in high-wear applications. The unique geometry and carbide improve the wear characteristics of the tool under abrasive applications with a superior part finish.

Materials: Made for double-sided laminates and veneers.



Solid Carbide Three Edge Low Helix Finisher Bits

Series BC60-200



BC Saw Tool Number	Flute Cut	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-239	Upcut	1/4	3/8	3	1/4
BC60-241	Upcut	1/4	7/8	3	1/4
BC60-240	Downcut	1/4	3/8	3	1/4
BC60-242	Downcut	1/4	7/8	3	1/4
BC60-243	Upcut	3/8	5/8	3	3/8
BC60-245	Upcut	3/8	1 1/8	3	3/8
BC60-244	Downcut	3/8	5/8	3	3/8
BC60-246	Downcut	3/8	1 1/8	3	3/8
BC60-249	Upcut	1/2	1 1/8	3 1/2	1/2
BC60-253	Upcut	1/2	1 5/8	4	1/2
BC60-251	Upcut	1/2	2 1/8	4 1/2	1/2
BC60-250	Downcut	1/2	1 1/8	3 1/2	1/2
BC60-254	Downcut	1/2	1 5/8	4	1/2
BC60-252	Downcut	1/2	2 1/8	4 1/2	1/2
BC60-269	Upcut	3/4	1 5/8	4	3/4
BC60-271	Upcut	3/4	2 1/8	5	3/4
BC60-270	Downcut	3/4	1 5/8	4	3/4
BC60-272	Downcut	3/4	2 1/8	5	3/4

Helix Angle 10°

Designed with a fast helix for perfect balance and smooth finish over a wide speed range.

Materials: Best for routing hardwoods, softwoods, plastics, plastic composites and solid surfaces.

Series BC60-450

Designed for additional balance at fast feed rates with a smooth finish.

Materials: For routing natural wood, wood composites and plywood.

Solid Carbide Three Edge High Helix Finisher Bits

BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-461	Upcut	6	25	76	6
BC60-462	Downcut	6	25	76	6
BC60-451	Upcut	8	25	76	8
BC60-452	Downcut	8	25	76	8
BC60-453	Upcut	10	35	76	10
BC60-454	Downcut	10	35	76	10
BC60-455	Upcut	12	35	88	12
BC60-456	Downcut	12	35	88	12
BC60-457	Upcut	16	55	120	16
BC60-458	Downcut	16	55	120	16
BC60-459	Upcut	18	60	120	18
BC60-460	Downcut	18	60	120	18

Helix Angle 30°



Series BC60-470

Designed for additional balance at fast feed rates with a smooth finish.

Materials: Best for routing natural woods and wood composites, plastic and plastic composites and solid surfaces.

Solid Carbide Three Edge Low Helix Finisher Bits

BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-481	Upcut	6	25	76	6
BC60-482	Downcut	6	25	76	6
BC60-471	Upcut	8	25	76	8
BC60-472	Downcut	8	25	76	8
BC60-473	Upcut	10	35	76	10
BC60-474	Downcut	10	35	76	10
BC60-475	Upcut	12	35	88	12
BC60-476	Downcut	12	35	88	12
BC60-483	Upcut	14	45	110	14
BC60-484	Downcut	14	45	110	14
BC60-477	Upcut	16	55	120	16
BC60-478	Downcut	16	55	120	16
BC60-479	Upcut	18	60	120	18
BC60-480	Downcut	18	60	120	18

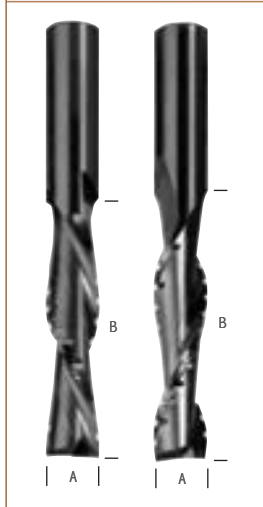
Helix Angle 30°





Solid Carbide Double Edge Chipbreaker | Finisher Bits

Series BC60-400



BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-411	Upcut	8	25	64	8
BC60-412	Downcut	8	25	64	8
BC60-413	Upcut	10	35	76	10
BC60-414	Downcut	10	35	76	10
BC60-415	Upcut	12	35	76	12
BC60-416	Downcut	12	35	76	12
BC60-417	Upcut	16	55	100	16
BC60-418	Downcut	16	55	100	16
BC60-419	Upcut	18	60	120	18
BC60-420	Downcut	18	60	120	18

Helix Angle 30°

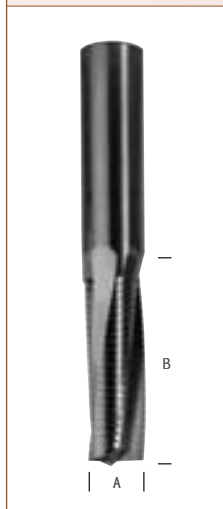
This bit is designed for faster feed rates and smoother finishes than the conventional two flute bits.

Materials: Best for routing natural woods and wood composites.



Solid Carbide Three Edge Chipbreaker | Finisher Bits

Series BC60-430



BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-431	Upcut	8	25	64	8
BC60-432	Downcut	8	25	64	8
BC60-433	Upcut	10	35	76	10
BC60-434	Downcut	10	35	76	10
BC60-435	Upcut	12	35	76	12
BC60-436	Downcut	12	35	76	12
BC60-437	Upcut	16	55	100	16
BC60-438	Downcut	16	55	100	16
BC60-439	Upcut	18	60	120	18
BC60-440	Downcut	18	60	120	18

Helix Angle 30°

Designed for additional balance at fast feed rates with a smooth finish.

Materials: Best for routing natural woods and wood composites.

Series BC60-450

Designed for additional balance at fast feed rates with a smooth finish.

Materials: For routing natural wood, wood composites and plywood.

Solid Carbide Three Edge High Helix Finisher Bits

BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-461	Upcut	6	25	76	6
BC60-462	Downcut	6	25	76	6
BC60-451	Upcut	8	25	76	8
BC60-452	Downcut	8	25	76	8
BC60-453	Upcut	10	35	76	10
BC60-454	Downcut	10	35	76	10
BC60-455	Upcut	12	35	88	12
BC60-456	Downcut	12	35	88	12
BC60-457	Upcut	16	55	120	16
BC60-458	Downcut	16	55	120	16
BC60-459	Upcut	18	60	120	18
BC60-460	Downcut	18	60	120	18

Helix Angle 30°



Series BC60-470

Designed for additional balance at fast feed rates with a smooth finish.

Materials: Best for routing natural woods and wood composites, plastic and plastic composites and solid surfaces.

Solid Carbide Three Edge Low Helix Finisher Bits

BC Saw Tool Number	Flute Cut	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-481	Upcut	6	25	76	6
BC60-482	Downcut	6	25	76	6
BC60-471	Upcut	8	25	76	8
BC60-472	Downcut	8	25	76	8
BC60-473	Upcut	10	35	76	10
BC60-474	Downcut	10	35	76	10
BC60-475	Upcut	12	35	88	12
BC60-476	Downcut	12	35	88	12
BC60-483	Upcut	14	45	110	14
BC60-484	Downcut	14	45	110	14
BC60-477	Upcut	16	55	120	16
BC60-478	Downcut	16	55	120	16
BC60-479	Upcut	18	60	120	18
BC60-480	Downcut	18	60	120	18

Helix Angle 30°





Solid Carbide Four Edge Compression Spiral Bits

Series BC60-500



BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-564	1/2	1	3	1/2
BC60-569	1/2	1 1/8	3	1/2
BC60-571	1/2	1 3/8	3 1/2	1/2
BC60-572	1/2	1 5/8	4	1/2
BC60-586	5/8	2 1/4	5	5/8
BC60-596	3/4	1 7/8	4	3/4
BC60-598	3/4	2 1/2	5	3/4

Helix Angle 30°

The ultimate in compression spiral tooling, these tools produce extremely fine finishes on the newest generation of CNC routers.

Materials: Best for use with double-sided laminates and veneers, natural wood and wood composites.



Solid Carbide Four Edge Mortise Compression Spiral Bits

Series BC60-500M



BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-563	1/2	7/8	3	1/2
BC60-573	1/2	1 3/8	3 1/2	1/2

Helix Angle 30°

A compression design that allows for fast feed and excellent finish with a short upcut to allow mortise cuts with downcut action.

Materials: Best for use with double-sided laminates and veneers, natural wood and wood composites.



Solid Carbide Four Edge High Velocity Compression Spiral Bits

Series BC60-600



BC Saw Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC60-664	1/2	1	3	1/2
BC60-669	1/2	1 1/8	3	1/2
BC60-671	1/2	1 3/8	3 1/2	1/2
BC60-672	1/2	1 5/8	4	1/2
BC60-686	5/8	2 1/4	5	5/8
BC60-696	3/4	1 7/8	4	3/4
BC60-698	3/4	2 1/2	5	3/4

Helix Angle 30°

Designed to combine a roughing and finishing cut in one tool for rapid feed rates with good finish.

Materials: For high velocity routing of double-sided laminates and veneers, natural wood and wood composites.

Series BC60-700

Solid Carbide Four Edge High Velocity Spiral Bits

Designed to combine a roughing and finishing cut in one tool for rapid feed rates with good finish.

Materials: These are for high velocity routing of hardwoods, softwoods and wood composites.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-711	Upcut	1/2	1 1/8	3 1/2	1/2
BC60-715	Upcut	1/2	1 5/8	4	1/2
BC60-719	Upcut	1/2	2 1/8	4 1/2	1/2
BC60-710	Downcut	1/2	1 1/8	3 1/2	1/2
BC60-714	Downcut	1/2	1 5/8	4	1/2
BC60-718	Downcut	1/2	2 1/8	4 1/2	1/2
BC60-721	Upcut	5/8	2 1/8	5	5/8
BC60-720	Downcut	5/8	2 1/8	5	5/8
BC60-731	Upcut	3/4	2 1/8	5	3/4
BC60-730	Downcut	3/4	2 1/8	5	3/4

Helix Angle 30°



Series BC60-900

Solid Carbide Three Edge Extreme Heavy Duty Hogger

Designed for heavy material removal operations where the bit is subjected to excessive cutting forces and finish is not a primary concern.

Materials: Best for use with natural wood and wood composites as well as hard and soft plastics and plastic composites.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-901	Upcut	3/8	1 1/8	3	3/8
BC60-902	Downcut	3/8	1 1/8	3	3/8
BC60-905	Upcut	1/2	1 1/8	3	1/2
BC60-907	Upcut	1/2	1 5/8	3 1/2	1/2
BC60-909	Upcut	1/2	2 1/8	4	1/2
BC60-906	Downcut	1/2	1 1/8	3	1/2
BC60-908	Downcut	1/2	1 5/8	3 1/2	1/2
BC60-910	Downcut	1/2	2 1/8	4	1/2
BC60-916	Downcut	3/4	2 1/8	5	3/4

Helix Angle 30°



Series BC60-950

Solid Carbide Double Edge Extreme Heavy Duty Chipbreaker | Finisher Bits

This bit is designed to be fed very fast while withstanding excessive cutting forces and at the same time leaving a smooth finish.

Materials: For use with natural wood and wood composites.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC60-951	Upcut	3/8	1 1/8	3	3/8
BC60-950	Upcut	3/8	1 1/8	3	3/8
BC60-955	Upcut	1/2	1 1/8	3	1/2
BC60-957	Upcut	1/2	1 5/8	3 1/2	1/2
BC60-959	Upcut	1/2	2 1/8	4	1/2
BC60-954	Downcut	1/2	1 1/8	3	1/2
BC60-956	Downcut	1/2	1 5/8	3 1/2	1/2
BC60-958	Downcut	1/2	2 1/8	4	1/2
BC60-965	Upcut	3/4	2 1/8	5	3/4

Helix Angle 30°





Solid Carbide Single Edge Downcut Spiral "O" Flute Bits, Imperial

Series BC62-700

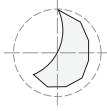


Hard Plastic Tool Number	Soft Plastic Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC62-713	BC62-763	1/8	1/2	2	1/8
BC62-719	BC62-769	3/16	5/8	2	3/16
BC62-712	BC62-762	1/8	1/2	2	1/4
BC62-715	—	5/32	9/16	2	1/4
BC62-718	BC62-768	3/16	5/8	2	1/4
BC62-720	—	7/32	3/4	2 1/2	1/4
BC62-725	BC62-775	1/4	3/4	2 1/2	1/4
BC62-726	BC62-776	1/4	1 1/4	3	1/4
BC62-727	BC62-777	1/4	1 1/2	3	1/4
BC62-733	BC62-783	3/8	1 1/8	3	3/8
BC62-735	BC62-785	3/8	1 5/8	3 1/2	3/8
BC62-740	BC62-790	1/2	1 5/8	3 1/2	1/2

Helix Angle 21°

Designed to provide a smooth finish in hard and soft plastics with downward chip removal.

Materials: Bits designed for hard plastics can be used on acrylic, nylon, PVC, polycarbonate and solid surfaces. Soft plastic bits are for HDPE, HIPS UHMW, ABS, polycarbonate PE, polystyrene, polypropylene, acetal, acrylic, PET and solid surfaces.



Solid Carbide Single Edge Downcut Spiral "O" Flute Bits, Metric

Series BC62-800



Hard Plastic Tool Number	Soft Plastic Tool Number	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC62-802	BC62-852	2	8	50	2
BC62-806	BC62-856	2.5	8	50	2.5
BC62-810	BC62-860	3	8	50	3
BC62-814	BC62-864	3	12	64	3
BC62-818	BC62-868	4	8	64	4
BC62-820	BC62-870	4	12	64	4
BC62-822	BC62-872	4	20	64	4
BC62-826	BC62-876	4	30	64	4
BC62-828	BC62-878	5	16	64	5
BC62-832	BC62-882	5	30	64	5
BC62-804	BC62-854	2	8	64	6
BC62-808	BC62-858	2.5	8	64	6
BC62-812	BC62-862	3	8	64	6
BC62-816	BC62-866	3	12	64	6
BC62-824	BC62-864	4	20	64	6
BC62-830	BC62-880	5	16	64	6
BC62-834	BC62-884	6	8	64	6
BC62-836	BC62-886	6	12	64	6
BC62-838	BC62-888	6	20	64	6
BC62-840	BC62-890	6	30	76	6
BC62-842	BC62-892	6	38	76	6
BC62-844	BC62-894	8	25	64	8
BC62-846	BC62-896	8	38	76	8
BC62-848	BC62-898	10	30	76	10
BC62-849	BC62-899	10	35	76	10
BC62-847	BC62-897	12	38	76	12

Helix Angle 21°

Designed to provide a smooth finish in hard and soft plastics with downward chip removal.

Materials: Bits designed for hard plastics can be used on acrylic, nylon, PVC, polycarbonate and solid surfaces. Soft plastic bits are for HDPE, HIPS UHMW, ABS, polycarbonate PE, polystyrene, polypropylene, acetal, acrylic, PET and solid surfaces.

Series BC63-700

Solid Carbide Single Edge Upcut Spiral "O" Flute Bits, Imperial

Designed to provide a smooth finish in hard and soft plastics with upward chip removal.

Materials: Bits designed for hard plastics can be used on acrylic, nylon, PVC, polycarbonate and solid surfaces. Soft plastic bits are for HDPE, HIPS UHMW, ABS, polycarbonate PE, polystyrene, polypropylene, acetal, acrylic, PET and solid surfaces.

Hard Plastic Tool Number	Soft Plastic Tool Number	A (in) Cutting Diameter	C (in) Cutting Length	(in) Overall Length	(in) Shank Diameter
BC63-701	BC63-751	1/16	1/4	2	1/8
BC63-711	BC63-761	1/8	1/4	2	1/8
BC63-713	BC63-763	1/8	1/2	2	1/8
BC63-716	BC63-766	3/16	3/8	2	3/16
BC63-719	BC63-769	3/16	5/8	2	3/16
BC63-700	BC63-750	1/16	1/4	2	1/4
BC63-710	BC63-760	1/8	1/4	2	1/4
BC63-712*	BC63-762*	1/8	1/2	2	1/4
BC63-715	—	5/32	9/16	2	1/4
BC63-717	BC63-767	3/16	3/8	2	1/4
BC63-718	BC63-768	3/16	5/8	2	1/4
BC63-720	—	7/32	3/4	2 1/2	1/4
BC63-724	BC63-774	1/4	3/8	2	1/4
BC63-725*	BC63-775*	1/4	3/4	2 1/2	1/4
BC63-726	BC63-776	1/4	1 1/4	3	1/4
BC63-727	BC63-777	1/4	1 1/2	3	1/4
BC63-730	BC63-780	3/8	5/8	2 1/2	3/8
BC63-731	BC62-781	3/8	3/4	3	3/8
BC63-733	BC63-783	3/8	1 1/8	3	3/8
BC63-735*	BC63-785*	3/8	1 5/8	3 1/2	3/8
BC63-740*	BC63-790*	1/2	1 5/8	3 1/2	1/2

*Also available with a special point for improved bottom finish

Helix 21°



Series BC63-800

Solid Carbide Single Edge Upcut Spiral "O" Flute Bits, Metric

Designed to provide a smooth finish in hard and soft plastics with upward chip removal.

Materials: Bits designed for hard plastics can be used on acrylic, nylon, PVC, polycarbonate and solid surfaces. Soft plastic bits are for HDPE, HIPS UHMW, ABS, polycarbonate PE, polystyrene, polypropylene, acetal, acrylic, PET and solid surfaces.

Hard Plastic Tool Number	Soft Plastic Tool Number	A (mm) Cutting Diameter	C (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
BC63-802	BC63-852	2	8	50	2
BC63-806	BC63-856	2.5	8	50	2.5
BC63-810	BC63-860	3	8	50	3
BC63-814	BC63-864	3	12	64	3
BC63-818	BC63-868	4	8	64	4
BC63-820	BC63-870	4	12	64	4
BC63-822	BC63-872	4	20	64	4
BC63-826	BC63-876	4	30	64	4
BC63-828	BC63-878	5	16	64	5
BC63-832	BC63-882	5	30	64	5
BC63-804	BC63-854	2	8	64	6
BC63-808	BC63-858	2.5	8	64	6
BC63-812	BC63-862	3	8	64	6
BC63-816	BC63-866	3	12	64	6
BC63-824	BC63-874	4	20	64	6
BC63-830	BC63-880	5	16	64	6
BC63-834	BC63-884	6	8	64	6
BC63-836	BC63-886	6	12	64	6
BC63-838	BC63-888	6	20	64	6
BC63-840	BC63-890	6	30	76	6
BC63-842	BC63-892	6	38	76	6
BC63-844	BC63-894	8	25	64	8
BC63-846	BC63-896	8	38	76	8
BC63-848	BC63-898	10	30	76	10
BC63-849	BC63-899	10	35	76	10
BC63-847	BC63-897	12	38	76	12

Helix Angle 21°





Diamond Router Bits and Profilers

Rabbeting
pg 34, 37-38



Sizing
pg 35-36



Trimming
pg 36



Combination
pg 36



Conical
pg 37



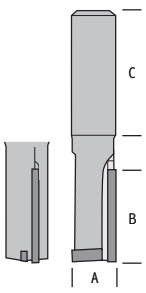
Profilers
pg 38-39



- Combination Cutting 36
- Conical 37
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- Rabbeting, Jointing and Grooving 34, 37-38
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Diamond Shank-Type Cutter - for Jointing, Rabbeting and Grooving

Series 229.522

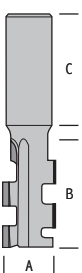


Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
178659	178660	1	8	12	35	60	12
178661	178769	2	10	22	35	70	12
181102	—	1	12	25.4	35	70	12
181104	—	1	16	25.4	45	85	16
181106	—	1	16	35	45	95	16

This is a diamond shank cutter made for jointing, rabbeting, grooving and copying on CNC routers. This bit is best suited for cutting coated panel and MDF boards, hard solid woods, plastics and mineral boards. The increased stability makes this bit highly reliable and because it can be resharpened several times, this bit is also economical.

Diamond Shank-Type Cutter - for Jointing, Rabbeting and Grooving

Series 229.222

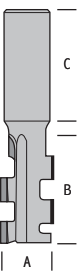


Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
181088	181087	1+1	12	22	35	64	12
181086	181085	1+1	12	28	35	70	12
181082	181081	1+1	16	22	45	82	16
181076	181075	1+1	16	28	45	88	16
181070	181069	1+1	16	35	45	95	16
181068	181067	1+1	16	28	45	85	16
181064	181063	1+1	18	35	45	92	16
181058	181057	1+1	18	43	45	100	16
181080	181079	1+1	16	22	45	82	20
181074	181073	1+1	16	28	45	88	20
181062	181061	1+1	18	35	45	92	20
181056	181055	1+1	18	43	45	100	20
181084	181083	1+1	12	28	55	95	25
181078	181077	1+1	16	22	55	92	25
181072	181071	1+1	16	28	55	98	25
181066	181065	1+1	18	28	55	95	25
181060	181059	1+1	18	35	55	102	25
181054	181053	1+1	18	43	55	110	25
181052	181051	1+1	20	52	55	120	25

Made for jointing, rabbeting, grooving and copying on CNC routers. This bit is best suited for cutting coated panel and MDF boards, hard solid woods, some plastics and mineral boards. Increased stability makes this bit highly reliable and because it can be resharpened several times, this bit is also economical. A spiral chip gullet ensures good chip removal, resulting in long edge lives. The large shear angle, which alternates top and bottom, adds to the high quality of cut that this bit produces.

Diamond Shank-Type Cutter - for Jointing, Rabbeting and Grooving

Series 229.222



BC Saw Tool Number	Edge Count	A (in) Cutting Diameter	B (in) Cutting Length	C (in) Shank Length	(in) Overall Length	(in) Shank Diameter
181090	1+1	1/2	1	1 3/8	2 2/3	1/2
181092	1+1	5/8	1	1 3/8	2 7/8	1/2
181094	1+1	3/4	1	1 3/4	3 3/8	5/8
181096	1+1	3/4	1 5/8	1 3/4	3 7/8	5/8

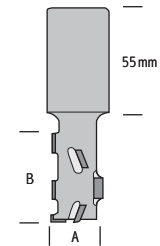
A diamond shank cutter made for jointing, rabbeting, grooving and copying on CNC routers using the "Inch Program." This bit is best suited for cutting coated panel and MDF boards, hard solid woods, plastics and mineral boards. Increased stability makes this bit highly reliable and because it can be resharpened several times, this bit is also economical. The large shear angle, which alternates top and bottom, adds to the high quality of cut produced by this bit.

Series 229.522

Diamond Shank-Type Cutter - for Sizing and Dividing Cuts

For sizing and dividing cuts on CNC routers. This bit is best suited for cutting coated panel and MDF boards, hard solid woods, plastics and mineral boards. Increased stability makes this bit highly reliable and because it can be resharpened several times, it is also economical. The large shear angle, which alternates top and bottom, adds to the high quality of cut that this bit produces.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand					
181114	181113	2+2	20	28	95	20
181116	181115	2+2	20	38	105	20
181118	181117	2+2	20	48	115	20
181108	181107	2+2	20	28	95	25
181110	181109	2+2	20	38	105	25
181112	181111	2+2	20	48	115	25

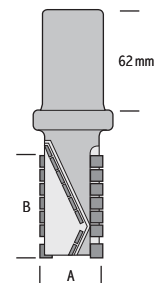


Series 229.022

Diamond Shank-Type Cutter - for Sizing and Dividing Cuts

This bit is a high performance tool for rough and finish milling. It can be used for sizing and dividing cuts on CNC routers. Best for use in particle board and MDF panels – either raw, melamine or paper laminated, with a feed rate up to 30 m/min. This bit has a spiral cut which produces a high cutting quality and it can be resharpened.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand					
178887	178888	3	25	28	110	25
179166	179167	3	25	38	120	25
178889	178890	3	25	48	130	25

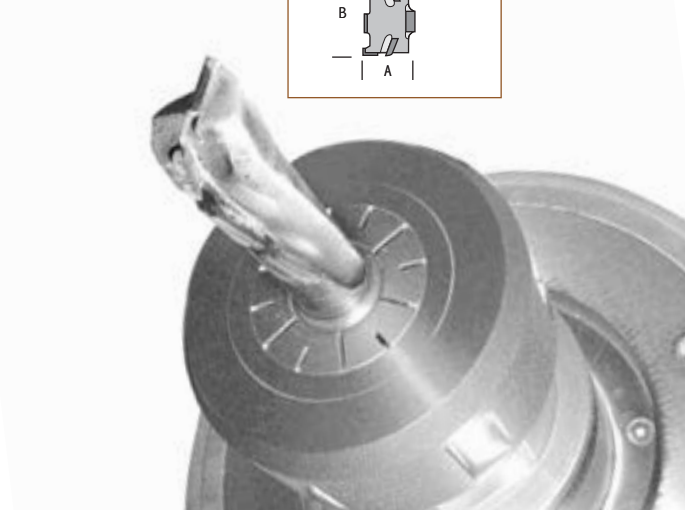
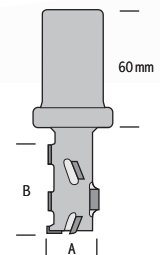


Series 229.022

Diamond Shank-Type Cutter - for Sizing and Dividing Cuts

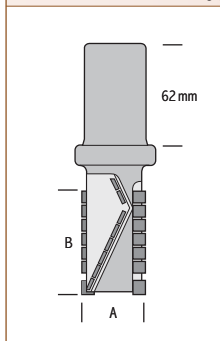
This bit is a high performance tool for sizing and dividing cuts on CNC routers. Can be used for rough and finish milling. Best for use in particle board and MDF panels – either raw, melamine or paper laminated. Features include: opposing shear angles to create high quality cuts on the top and bottom edges, good chip-disposal and optimum cutting lengths for the most popular panel thicknesses. This bit is also resharpenable.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) For Board Thickness	(mm) Shank Diameter
Right Hand	Left Hand						
180784	180785	2+1+2	18	22	95	5-19	25
180786	180787	2+1+2	20	28	100	12-25	25
180788	180789	2+1+2	25	35	110	18-32	25
180790	180791	2+1+2	25	42	120	25-40	25



Diamond Shank-Type Cutter - for Sizing and Dividing Cuts

Series 229.022

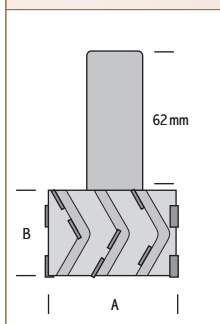


Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) For Board Thickness	(mm) Shank Diameter
Right Hand	Left Hand						
180200	180201	3	18	22	100	16-19	25
180202	180203	3	20	28	107	22-25	25
180204	180205	3	25	35	115	28-32	25
180206	180207	3	25	42	125	38-39	25

A high performance CNC bit for sizing and dividing cuts, designed for rough and finish milling. For cutting particle board and MDF panels – raw, melamine or paper laminated. Features include: opposing shear angles to create high quality cuts on the top and bottom edges, good chip-disposal and optimum cutting lengths for the most popular panel thicknesses. This bit is also resharpenable.

Diamond Router Bit - for Trimming

Series 229.022

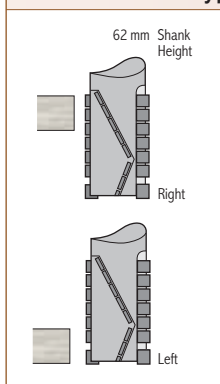


Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) For Board Thickness	(mm) Shank Diameter
Right Hand	Left Hand						
180457	180458	4+2+4	48	22	85	16-19	25
180459	180460	4+2+4	48	28	91	22-25	25
180461	180462	4+2+4	48	35	98	28-32	25

This is a high performance CNC router bit for trimming, designed specifically for finish cuts. Best suited for particle board and MDF panels – raw, melamine or paper laminated. Features include: a fast feed rate (35m/min), opposing 40° shear angles to create high quality cuts on edges, rabbeting capabilities and optimum cutting lengths for the most popular panel thicknesses.

Diamond Shank-Type Cutter - for RH|LH Combination Cutting

Series 229.020



BC Saw Tool Number	(R/L) Edge Count	A (mm) Cutting Diameter	(mm) Edge Length	(mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
179497	3/1	25	2x22	19.5	129	25
179498	3/1	25	2x26	23.3	137	25
179499	3/1	25	2x30	27.0	145	25
179500	3/1	25	2x34	31.0	145	25

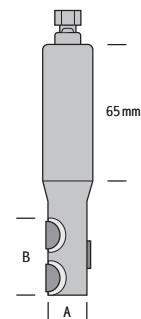
A high performance CNC bit for sizing and finishing. Best suited for particle board and MDF panels – raw, melamine or paper laminated. The lower portion of this bit can be used for left hand rotation where Z=1; the upper portion can be used for right hand rotation and the fastest feed rates where Z=3. This feature allows for optimum machining of frail edges while utilizing only one spindle. All material must be secured in place on vacuum blocks when cutting with this bit.

Series 229.021

Conical Diamond Shank-Type Cutter

This bit is a conical shank-type cutter for pre-moulding with a fast feed rate (max: 30m/min), designed to be used for counter edge banding machines and CNC routers or machining centers. Best for cutting particle board, panel materials – foil-coated, veneered or HPL and MDF panels – raw, melamine or paper laminated.

BC Saw Tool Number	Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	(mm) Overall Length	(mm) Shank Diameter
179024	1+1	18	36	120	25

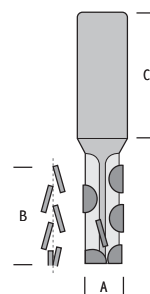


Series 229.022

Shank-Type Cutter - for Jointing, Rabbeting, Grooving and Copying

For jointing, rabbeting, grooving and copying on CNC routers. Designed for cutting particle board, panel materials – foil-coated, veneered or HPL and MDF panels – raw, melamine or paper laminated. This bit also works well in hard or exotic woods and plastics, including: thermoplastics, duroplastics, Corian and Varicor. This bit features shear angles which alternate top and bottom and it is resharpenable.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
171434	171435	3	18	25	45	85	16
172514	172515	3	18	35	45	90	16
171442	171443	3	18	43	45	100	16
171436	171437	3	18	25	55	100	25
172516	172517	3	18	35	55	105	25
171444	171445	3	18	43	55	115	25

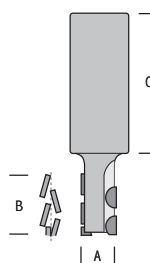


Series 229.022

Shank-Type Cutter - for Jointing, Rabbeting, Grooving and Copying

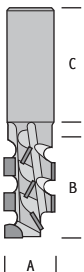
For jointing, rabbeting, grooving and copying on CNC routers. Designed for cutting particle board, panel materials – foil-coated, veneered or HPL and MDF panels. This bit also works well in hard or exotic woods and plastics, including: thermoplastics, duroplastics, Corian and Varicor. Can be resharpened.

Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
Right Hand	Left Hand						
171412	—	1+1	10	22	30	60	10
171414	—	1+1	12	22	30	60	10
172506	—	1+1	14	25	30	65	10
171418	—	1+1	16	25	30	65	10
172508	—	1+1	16	35	30	75	10
171413	—	1+1	10	22	30	60	12
171415	—	1+1	12	22	30	60	12
172507	—	1+1	14	25	30	65	12
171419	—	1+1	16	25	30	65	12
172509	—	1+1	16	35	30	75	12
170377	—	1+1	10	22	50	85	16
170380	—	1+1	12	22	50	85	16
170384	—	1+1	14	25	43	80	16
170387	171420	1+1	16	25	45	80	16
172510	172511	1+1	16	35	45	90	16
170106	—	1+1	10	22	60	100	25
169110	—	1+1	12	22	60	100	25
170111	—	1+1	14	25	55	95	25
170113	171421	1+1	16	25	55	95	25
172512	172513	1+1	16	35	55	105	25



Shank-Type Cutter - for Jointing, Rabbeting, Grooving and Copying

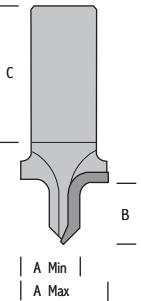
Series 229.022

	Tool Number		Edge Count	A (mm) Cutting Diameter	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	Right Hand	Left Hand						
	178987	178988	1+1	18	25	45	85	16
	178989	178990	1+1	18	35	45	90	16
	178991	178992	1+1	18	25	55	100	25
	178993	178994	1+1	18	35	55	105	25
	178995	178996	1+1	18	43	55	115	25
	173340	173341	1+1	22	50	60	120	25
	173338	173339	1+1	25	38	60	108	25
	173336	173337	1+1	25	44	60	114	25

For jointing, rabbeting, grooving and copying on CNC routers. Designed for cutting particle board, panel materials – foil-coated, veneered or HPL and MDF panels – raw, melamine or paper laminated. This bit also works well in hard or exotic woods and plastics, including: thermoplastics, duroplastics, Corian and Varicor. This bit is resharpenable.

Leucodia Profiler

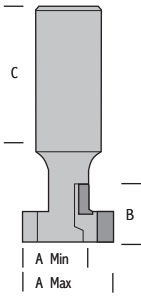
Series 229.063

	BC Saw Tool Number	Edge Count	A (mm) Diameter Min Max	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	22901X	1	10 26	25	35	75	12
	22902X	1	12 35	25	45	85	12
	22903X	1	10 26	25	45	85	16
	22904X	1	12 35	25	45	85	16
	22905X	1	10 26	25	45	85	20
	22906X	1	12 35	25	45	95	20
	22907X	1	10 26	25	55	95	25
	22908X	1	12 35	25	55	95	25

This bit is for profiling on CNC routers and machining centres. Best suited for cutting particle board and MDF – raw and coated. The polished cutting-edge face and the shear angles contribute to the high quality of cut. The resharpening area is 2 mm.

Leucodia Profiler

Series 229.063

	BC Saw Tool Number	Edge Count	A (mm) Diameter Min Max	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
	22911X	2+1	10 35	22	35	70	12
	22912X	2+1	10 35	22	45	80	16
	22913X	2+1	10 35	22	45	80	20
	22914X	2+1	10 35	22	55	90	25

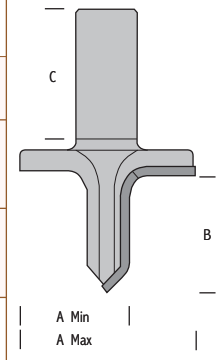
Designed for profiling on CNC routers and machining centres. Best suited for cutting particle board and MDF – raw and coated. The polished cutting-edge face and the shear angles contribute to the high quality of cut. The resharpening area is 2 mm.

Series 229.063

Leucodia Profiler

This bit is for profiling on CNC routers and machining centres. Best suited for cutting particle board and MDF – raw and coated. The polished cutting-edge face and the shear angles contribute to the high quality of cut. The resharping area is 2 mm.

BC Saw Tool Number	Edge Count	A (mm) Diameter Min Max	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
22921X	1	16 55	15	45	90	16
22922X	1	18 75	30	45	110	16
22923X	1	16 55	15	45	90	20
22924X	1	18 75	15	45	90	20
22925X	1	18 75	30	45	110	20
22926X	1	16 55	15	55	100	25
22927X	1	18 75	15	55	100	25
22928X	1	18 75	30	55	120	25

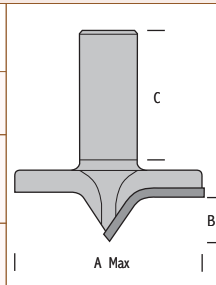


Series 229.063

Leucodia Profiler

Designed for profiling on CNC routers and machining centres. Best suited for cutting particle board and MDF – raw and coated. The polished cutting-edge face and the shear angles contribute to the high quality of cut. The resharping area is 2 mm.

BC Saw Tool Number	Edge Count	A (mm) Diameter Min Max	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
22931X	1	18 79	18	45	78	16
22932X	1	18 55	25	45	100	16
22933X	1	18 99	13	45	88	20
22934X	1	18 79	18	45	78	20
22935X	1	18 55	25	45	100	20
22936X	1	18 99	13	55	98	25
22937X	1	18 79	18	55	88	25
22938X	1	18 55	25	55	110	25

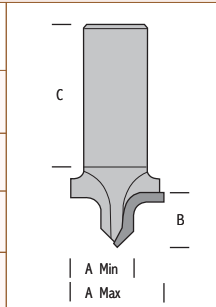


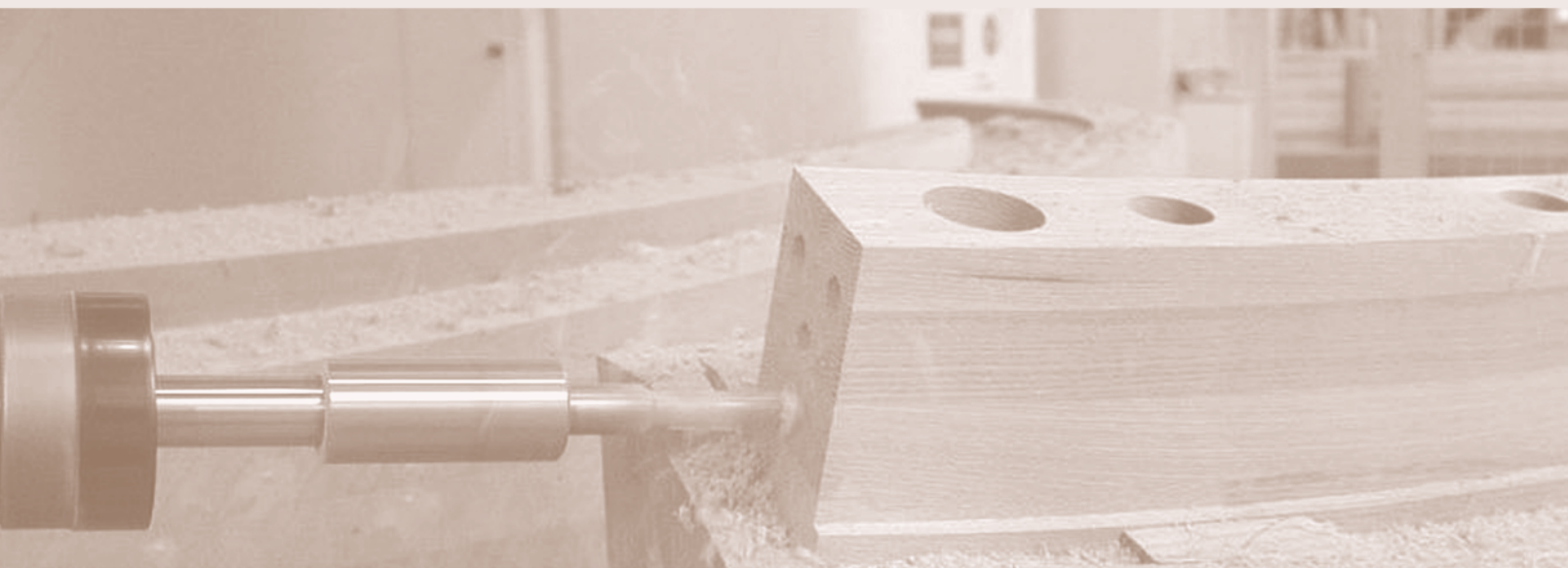
Series 229.063

Leucodia Profiler

This bit is for profiling on CNC routers and machining centres. Best suited for cutting particle board and MDF – raw and coated. The polished cutting-edge face and the shear angles contribute to the high quality of cut. The resharping area is 2 mm.

BC Saw Tool Number	Edge Count	A (mm) Diameter Min Max	B (mm) Cutting Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
22941X	1	10 26	12.5	35	70	12
22942X	1	12 35	12.5	45	70	12
22943X	1	10 26	12.5	45	80	16
22944X	1	12 35	12.5	45	80	16
22945X	1	10 26	12.5	45	80	20
22946X	1	12 35	12.5	45	90	20
22947X	1	10 26	12.5	55	90	25
22948X	1	12 35	12.5	55	90	25





Dowel Drills, Hinge Boring Bits and Accessories

Brad Point
pg 42



V-Point, Solid Carbide
pg 43



Adaptors
pg 43



V-Point, Carbide Tipped
pg 44



Countersinks/bores,
Carbide Tipped
pg 45



Countersinks/bores,
Custom
pg 45-47



Hinge Boring Bits
pg 47-48



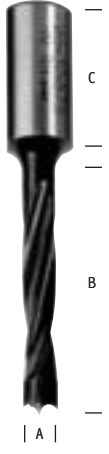
Boring Chucks
pg 49



Adaptors	43
Boring Chucks	49
Brad Point Dowel Drills, Carbide Tipped	42
Countersinks Counterbores, Carbide Tipped	45
Countersinks Counterbores, Custom Solid	45-47
Hinge Boring Bits	47-48
V-Point Through Hole Dowel Drills, Carbide Tipped	44
V-Point Through Hole Dowel Drills, Solid Carbide	43

Carbide Tipped Brad Point Dowel Drills - Length 57.5 mm

Series 50000



BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
50110	4.0	30	20	57.5	10
50114	4.5	30	20	57.5	10
50116	5.0	30	20	57.5	10
50117	5.1	30	20	57.5	10
50118	5.2	30	20	57.5	10
50120	6.0	30	20	57.5	10
50122	1/4"	30	20	57.5	10
50124	7.0	30	20	57.5	10
50126	8.0	30	20	57.5	10
50127	8.1	30	20	57.5	10
50128	8.2	30	20	57.5	10
50129	9.0	30	20	57.5	10
50130	3/8"	30	20	57.5	10
50132	10.0	30	20	57.5	10
50134	11.0	30	20	57.5	10
50136	12.0	30	20	57.5	10
50138	1/2"	30	20	57.5	10
50140	14.0	30	20	57.5	10
50142	15.0	30	20	57.5	10
50144	16.0	30	20	57.5	10

All sizes available in right or left hand rotation

These are brad point dowel drills with a flat chucking surface and an adjustable set screw. Please specify either "R" or "L" for right or left hand rotation when ordering.

Carbide Tipped Brad Point Dowel Drills - Length 70 mm

Series 50000



BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
50158	4.0	43	20	70	10
50160	5.0	43	20	70	10
50161	5.1	43	20	70	10
50162	5.2	43	20	70	10
50163	6.0	43	20	70	10
50164	1/4"	43	20	70	10
50166	7.0	43	20	70	10
50167*	7.5	43	20	70	10
50168	8.0	43	20	70	10
50169	8.1	43	20	70	10
50170	8.2	43	20	70	10
50171	9.0	43	20	70	10
50172	3/8"	43	20	70	10
50174	10.0	43	20	70	10
50176	11.0	43	20	70	10
50178	12.0	43	20	70	10
50180	1/2"	43	20	70	10
50182	13.0	43	20	70	10
50184	14.0	43	20	70	10
50185	15.0	43	20	70	10
50186	16.0	43	20	70	10

* Custom Size

All sizes available in right or left hand rotation

These are brad point dowel drills which have a flat chucking surface and an adjustable set screw. Please specify either "R" or "L" for right or left hand rotation when ordering.

Series 53000

Metric Solid Carbide V-Point Dowel Drills

V-Point drills are for clean through hole drilling available in right and left hand rotation. Drills are straight shank and must be used in adaptors below if 10 mm shank is required. Please specify "R" or "L" for right or left hand rotation when ordering.

BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
53210	2.0	22	27	49	2.0
53212	2.5	27	28	55	2.5
53214	3.0	27	28	55	3.0
53216	3.2	27	28	55	3.2
53218	3.5	30	25	55	3.5
53220	4.0	30	25	55	4.0
53222	4.5	30	25	55	4.5
53224	5.0	30	25	55	5.0

All sizes available in right or left hand rotation



Series 53000A

Adaptors

These adaptors allow the solid carbide straight shank drills, pictured above, to fit in machines requiring 10 mm shanks with a flat chucking surface.

BC Saw Tool Number	A (mm) Corresponding Drill Diameter	C (mm) Shank Length	(mm) Adaptor Length	(mm) Shank Diameter
53210A	2.0	20	38	10
53212A	2.5	20	38	10
53214A	3.0	20	38	10
53216A	3.2	20	38	10
53218A	3.5	20	38	10
53220A	4.0	20	38	10
53222A	4.5	20	38	10
53224A	5.0	20	38	10



Series 01200

Adaptors

These adaptors allow the solid carbide straight shank drills, pictured above, to fit in machines requiring 10 mm shanks with a flat chucking surface.

BC Saw Tool Number	X (mm) Inside Diameter	Y (mm) Outside Diameter	(mm) Adaptor Length
01210	2.0	10	23
01212	2.5	10	23
01214	3.0	10	23
01216	3.2	10	23
01218	3.5	10	23
01220	4.0	10	23
01222	4.5	10	23
01224	5.0	10	23



Carbide Tipped V-Point Dowel Drills - Length 57.5 mm

Series 53000



BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
53110	5.0	27	26	57.5	10
53112	6.0	27	26	57.5	10
53113	1/4"	27	26	57.5	10
53114	7.0	28	25	57.5	10
53116	8.0	27	26	57.5	10
53120	10.0	27	26	57.5	10
53122	12.0	33	20	57.5	10

All sizes available in right or left hand rotation

Use one of these V-Point tips for clean through-hole drilling. The shank has a flat chucking surface with an adjustable set screw. Please specify "R" or "L" for right or left hand rotation when ordering.

Carbide Tipped V-Point Dowel Drills - Length 70 mm

Series 53000



BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
53126	4	35	26	70	10
53128	3/16"	35	26	70	10
53130	5	35	26	70	10
53131	7/32"	35	26	70	10
53132	6	35	26	70	10
53133	1/4"	35	26	70	10
53134	7	35	26	70	10
53136	8	35	26	70	10
53138	9	35	26	70	10
53139	3/8"	35	26	70	10
53140	10	35	26	70	10
53142	12	35	26	70	10
53144	1/2"	35	26	70	10

All sizes available in right or left hand rotation

Use one of these V-Point tips for clean through-hole drilling. The shank has a flat chucking surface with an adjustable set screw. Please specify "R" or "L" for right or left hand rotation when ordering.

Series 55000

Carbide Tipped Countersinks, for Metric Twist Drills

Designed for drilling countersinks in solid wood and panel materials. A socket screw will hold the countersink to drills 3 mm to 6 mm in diameter. Please specify "R" or "L" for right or left when ordering.

BC Saw Tool Number	Rotation Direction	A1 (mm) Fits Drill Diameter	A2 (mm) Countersink Size	(mm) Overall Length	(mm) Shank Diameter
55102	Right	3.0	15	58	10
55104	Left	3.0	15	58	10
55106	Right	3.5	15	58	10
55108	Right	4.0	15	58	10
55110	Left	4.0	15	58	10
55112	Right	4.5	15	58	10
55114	Left	4.5	15	58	10
55116	Right	5.0	15	58	10
55118	Left	5.0	15	58	10
55120	Right	6.0	15	58	10
55122	Left	6.0	15	58	10

All sizes available in right or left hand rotation



Series 55000

Countersinks for Dowel Drills

These countersinks are for attachment to the spiral flutes of brad point and taper point drills (Series 51000 and 53000). All countersinks are available in right or left hand rotation. Please specify "R" or "L" for right or left when ordering.

BC Saw Tool Number	X (mm) Inside Diameter	Y (mm) Outside Diameter	(mm) Adaptor Length
55000	4.0	14	15
55002	5.0	16	15
55004	6.0	16	15
55006	7.0	18	15
55008	8.0	18	15
55010	9.0	20	15
55012	10.0	20	15
55014	12.0	22	15
55020*	5-10	20	16.5
55022*	10-12	22	16.5

All sizes available in right or left hand rotation

*These countersinks clamp onto Series 51000 and 53000 drills



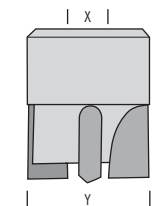
Series 56000

Custom Counterbores for Dowel Drills

These counterbores are for attachment to the spiral flutes of brad point and taper point drills (Series 51000 and 53000). The counterbores are custom made and require 4-6 weeks for delivery. Please specify the inside diameter required when ordering, as well as "R" or "L" for right or left hand rotation.

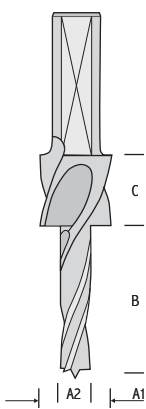
BC Saw Tool Number	X Inside Diameter	Y (mm) Outside Diameter	(mm) Adaptor Length
56020	Custom	20	20
56025	Custom	25	20
56030	Custom	30	20
56035	Custom	35	20
56040	Custom	40	20

All sizes available in right or left hand rotation



CUSTOM High Speed Steel Solid Counterbores

Series 57000



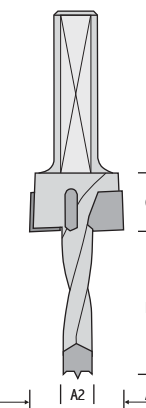
A1 (mm) Large Diameter	A2 (mm) Small Diameter	B (mm) Twist Length	C (mm) Counterbore Length	(mm) Overall Length	(mm) Shank Diameter
Up To: 15	Custom	Custom	Custom	Up To: 130	Custom
20					
25					
30					
40					
50					

All sizes available in right or left hand rotation

We offer custom solid counterbores made from high speed steel. When ordering, please state the direction of rotation and the dimensions needed. All items are custom made and require 4-6 weeks delivery. Extra charges will be added for the addition of v-points, threaded shanks, shanks with driving flats and length adjusting screws.

CUSTOM Carbide Tipped Solid Counterbores

Series 58000



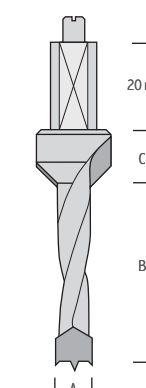
A1 (mm) Large Diameter	A2 (mm) Small Diameter	B (mm) Twist Length	C (mm) Counterbore Length	(mm) Overall Length	(mm) Shank Diameter
Up To: 15	Custom	Custom	Custom	Up To: 130	Custom
20					
25					
30					
40					
50					

All sizes available in right or left hand rotation

We offer custom solid counterbores made with carbide tips. When ordering, please state the direction of rotation and provide us with the dimensions needed. All items are custom made and require 4-6 weeks delivery. Extra charges will be added for the addition of v-points, threaded shanks, shanks with driving flats and length adjusting screws.

Carbide Tipped Solid Countersinks - Custom Sizes Available

Series 59000



BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) Countersink Length	(mm) Overall Length	(mm) Shank Diameter
59005	5.0	15	15	50	10
59006	6.0	15	15	50	10
59008	8.0	15	15	50	10
59010	10.0	15	15	50	10
59105	5.0	20	15	55	10
59106	6.0	20	15	55	10
59108	8.0	20	15	55	10
59110	10.0	20	15	55	10

All sizes available in right or left hand rotation

These are solid countersinks made with carbide tips that can be custom made. When ordering, please state the direction of rotation and the required dimensions according to the diagram shown. All items are custom made and require 4-6 weeks delivery.

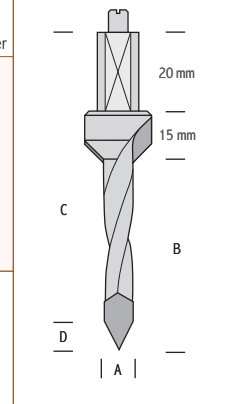
Series 60000

Carbide Tipped Solid Countersinks - Custom Sizes Available

Custom solid countersinks can be custom made with carbide tips. When ordering, please state the direction of rotation and the dimensions needed according to the diagram. All items are custom made and require 4-6 weeks delivery.

BC Saw Tool Number	A (mm) Cutting Diameter	B (mm) Twist Length	C (mm) End to Twist	D (mm) V-Point Length	(mm) Overall Length	(mm) Shank Diameter
60005	5.0	22.5	57.5	4.0	61.5	10
60006	6.0	22.5	57.5	5.0	62.5	10
60008	8.0	22.5	57.5	6.5	64.0	10
60105	5.0	35	70	4.0	74.0	10
60106	6.0	35	70	5.0	75.0	10
60108	8.0	35	70	6.5	76.5	10
60110	10.0	35	70	8.5	78.5	10

All sizes available in right or left hand rotation



Series 52000

Carbide Tipped Hinge Boring Bits - Length 57.5 mm

This bit has two cutting edges, two spurs and a centre point to provide for clean hole boring for concealed hinges. Cylindrical 10 mm shanks have a flat chucking surface and adjustable set screw for optimum clamping. All boring bits are available in either rotation, please specify "R" or "L" when ordering.

BC Saw Tool Number	A (mm) Cutting Diameter	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
52110	15	26	57.5	10
52112	16	26	57.5	10
52114	18	26	57.5	10
52116	20	26	57.5	10
52118	22	26	57.5	10
52120	24	26	57.5	10
52122	25	26	57.5	10
52124	26	26	57.5	10
52126	28	26	57.5	10
52128	30	26	57.5	10
52130	32	26	57.5	10
52134	35	26	57.5	10
52138	38	26	57.5	10
52140	40	26	57.5	10

All sizes available in right or left hand rotation



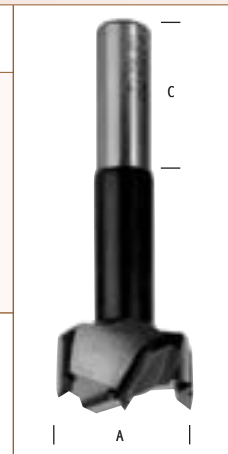
Series 52000

Carbide Tipped Hinge Boring Bits - Length 70 mm

This bit has two cutting edges, two spurs and a centre point to provide for clean hole boring for concealed hinges. The cylindrical 10 mm shanks have a flat chucking surface and an adjustable set screw for optimum clamping. When ordering, please specify "R" for right hand rotation or "L" for left hand rotation.

BC Saw Tool Number	A (mm) Cutting Diameter	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
52142	15	26	70	10
52144	18	26	70	10
52146	20	26	70	10
52148	25	26	70	10
52150	26	26	70	10
52152	30	26	70	10
52154	35	26	70	10
52156	40	26	70	10

All sizes available in right or left hand rotation



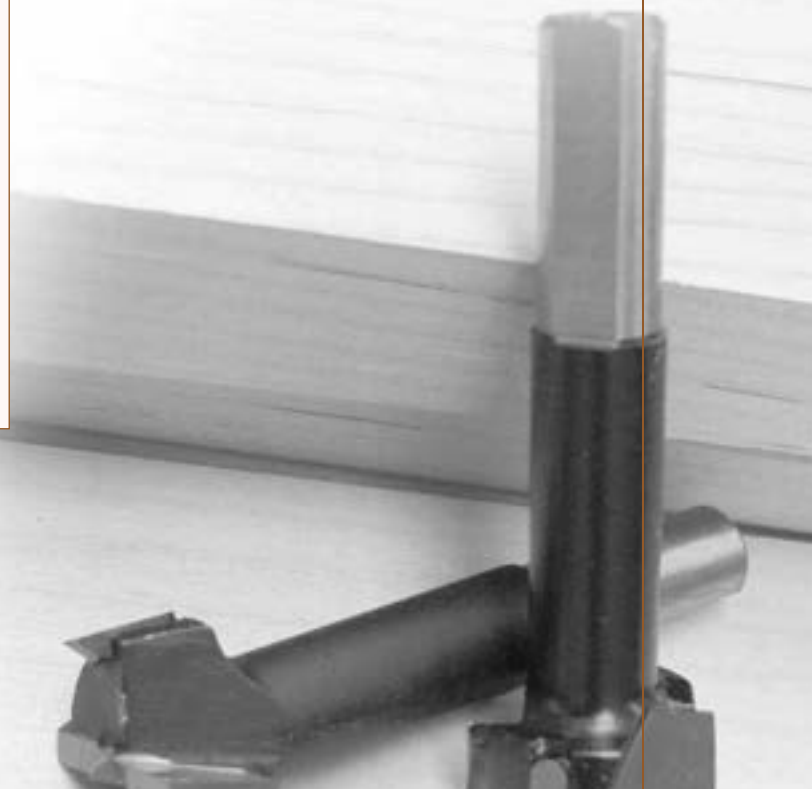
Carbide Tipped Hinge Boring Bits - Length 90 mm

Series 52000



BC Saw Tool Number	A (mm) Cutting Diameter	C (mm) Shank Length	(mm) Overall Length	(mm) Shank Diameter
52160	8	30	90	10
52161	10	30	90	10
52162	11	30	90	10
52163	12	30	90	10
52164	13	30	90	10
52165	14	30	90	10
52166	15	30	90	10
52167	16	30	90	10
52168	17	30	90	10
52169	18	30	90	10
52170	19	30	90	10
52171	20	30	90	10
52172	21	30	90	10
52173	22	30	90	10
52174	23	30	90	10
52175	24	30	90	10
52176	25	30	90	10
52177	26	30	90	10
52178	27	30	90	10
52179	28	30	90	10
52180	29	30	90	10
52181	30	30	90	10
52182	31	30	90	10
52183	32	30	90	10
52184	33	30	90	10
52185	34	30	90	10
52186	35	30	90	10
52187	36	30	90	10
52188	37	30	90	10
52189	38	30	90	10
52190	40	30	90	10
52191	42	30	90	10
52192	44	30	90	10
52193	45	30	90	10
52194	46	30	90	10
52195	48	30	90	10
52196	50	30	90	10
52197	55	30	90	10
52198	58	30	90	10
52199	60	30	90	10

This bit has two cutting edges, two spurs and a centre point to provide for clean hole boring for concealed hinges. The cylindrical 10 mm shanks have a flat chucking surface and an adjustable set screw for optimum clamping. *These boring bits are only available for right hand rotation.*



Series 5

Miscellaneous Boring Chucks

These 7/16-14 threaded shank chucks accept straight shank drills. They are available in both right and left hand rotations.

BC Saw Tool Number	Rotation Direction	X (mm) Inside Diameter	(mm) Shank Threads
BC62473 BC62484	Right Left	1/8	7/16 - 14
BC62474 BC62485	Right Left	5/32	7/16 - 14
BC62475 BC62486	Right Left	3/16	7/16 - 14
BC62476 BC62487	Right Left	7/32	7/16 - 14
BC62477 BC62488	Right Left	1/4	7/16 - 14
BC62478 BC62489	Right Left	9/32	7/16 - 14
BC62479 BC62490	Right Left	5/16	7/16 - 14
BC62480 BC62491	Right Left	3/8	7/16 - 14
BC62481 BC62492	Right Left	7/16	7/16 - 14
BC62482 BC62493	Right Left	1/2	7/16 - 14
BC62483 BC62494	Right Left	10 mm	7/16 - 14



| x |

Series 7

Metric Boring Chucks for European Machinery

These adaptors allow the use of standard 10 mm shank drills in machines with threaded mounting systems.

BC Saw Tool Number	Rotation Direction	X (mm) Inside Diameter	Y (mm) Outside Diameter	(mm) Overall Length	Corresponding Machine(s)	(mm) Shank Threads
BC62239 BC62240	Right Left	10	16	40	Nottmeyer	8
BC62245 BC62246	Right Left	10	16	50	Bilek Knoevenagel	8
BC62241 BC62242	Right Left	10	19	40	Holtzma, Torwegge, Mayer, Knoevenagel	10
BC62243 BC62244	Right Left	10	19	41	Alberti, Balestrini, Busellato, Torwegge, Biesse, Vitap, Weeke, Gessner, Morbidelli	10
BC62247 BC62248	Right Left	10	19	42	Morbidelli, Nottmeyer	10



BC62243

— | x | — y



BC62239



BC62241



BC62245



BC62247



Tool Holders



Tool Holders	3-8
Collets & Nuts	9-18
Dust Control.	19-21
Other Collets	22-24
Other Holders	25-30
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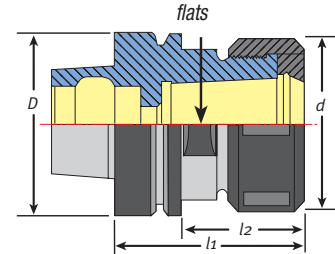


HSK63F

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



Use DNA collets for best rigidity and accuracy (T.I.R.) when using 1/8" shanks or smaller. page 20.



Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

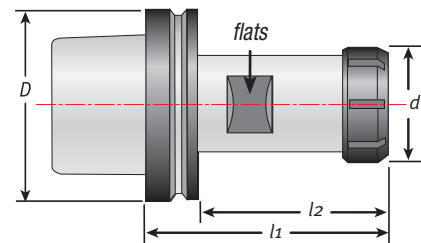
HSK50F and 63F Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench	Flats
31419-F	HSK50F x ER32 - 80	50	50	80	54	46132	04616	-
31431-F	HSK63F x ER16 - 60	63	32	60	34	46116	04613	26
31434-F	HSK63F x ER16 - 100	63	32	100	74	46116	04613	26
30000	HSK63F x ER32 - 70	63	50	70	44	46132	04616	36
30001	HSK63F x ER40 - 76	63	63	76	50	46140	04617	46
30001-L	HSK63F x ER40 - 76 left-handed	63	63	76	50	46140-L	04617	46
30002	HSK63F x ER40 - 90	63	63	90	64	46140	04617	46
30003	HSK63F x ER40 - 115	63	63	90	64	46140	04617	46
30005	HSK63F x ER40 - 125	63	63	125	99	46140	04617	46
31025F	HSK63F x SYOZ25 - 80	63	60	80	54	03638	03691	38



HSK-E

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

HSK32E, 40E, 50E, 63E Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench	Flats
31374-60	HSK32E x ER25	32	42	48	27	46125	04615	22
31376-E	HSK40E x ER16 - 65*	40	28	65	45	46116	04613	24
31383-E	HSK40E x ER25 - 75	40	42	75	55	46125	04615	27
31386-E	HSK40E x ER32 - 100	40	50	100	80	46132	04616	35
31419-E	HSK50E x ER32 - 85	50	50	85	59	46132	04616	36
31456-E	HSK63E x ER32 - 90	63	50	90	64	46132	04616	none
31472-E	HSK63E x ER40 - 120	63	63	120	94	46140	04617	none
50001	HSK63E x ER40 - 75	63	63	75	49	46140	04617	none



ISO30

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



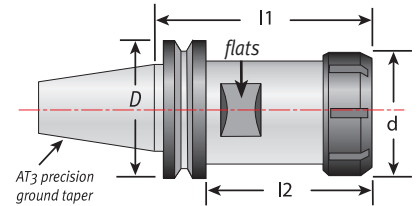
ISO20


Collets
pg. 12

Nuts
pg. 18

Dust Seals
pg. 22

Retention
Knobs
pg. 34

Setup
Equipment
pg. 38


Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

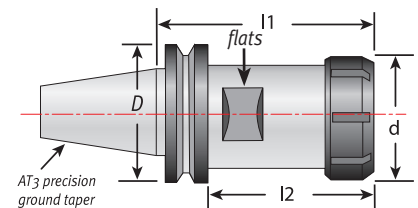
ISO20, 30, and 40 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench	Flats
30383	ISO20 x ER16M - 52 w/HS mini nut & stud	30	22	52	36	33116	04622	17
16000-2016MC	ISO20 x ER16 - 52 coated HS mini nut & stud	30	22	52	36	53116	04622	17
16000-2516	ISO20 x ER16 - 52	30	32	52	36	46116	04613	17
16000-2520	ISO20 x ER20 - 52	30	35	52	36	46120	04614	17
42407-W	ISO30 x ER11M - 100	50	16	100	84	23111	04621	14
42000-CMS	ISO30 x ER32 - CMS	46	50	58	42	46132	04616	36
42213-W-50	ISO30 x ER32 - 50	50	50	50	34	46132	04616	47
42213-W-50-L	ISO30 x ER32 - 50 (left-hand thread)	50	50	50	34	46132-L	04616	47
42213-W-63	ISO30 x ER32 - 63	50	50	63	47	46132	04616	36
42213-W-63-L	ISO30 x ER32 - 63 (left-hand thread)	50	50	63	47	46132-L	04616	36
42213-W-90	ISO30 x ER32 - 90	50	50	90	74	46132	04616	36
42215-W-57	ISO30 x ER40 - 57	50	63	57	41	46140	04617	47
42040-CMS	ISO30 x ER40 - CMS	46	63	66	50	46140	04617	42
42261-W	ISO40 x ER40 - 70mm	63.5	63	70	54	46140	04617	46



SK 30

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



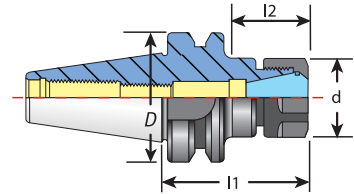
Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

SK Toolholders for ANDI and Weeke CNC Routers

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench	Flats
NT-54300130	SK-30 x SYOZ25 - 70	50	60	70	54	83632	03691	38
NT-54300130-L	SK-30 x SYOZ25 - 70 (left-hand thread)	50	60	70	54	83632	03691	38



- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

BT30 x ER16 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16101	BT30 x ER16 - 70 with hex nut	46	28	70	40	41116	04609
16101-SLOTNUT	BT30 x ER16 - 70 with slotted nut	46	32	70	40	46116	04613
16102	BT30 x ER16 - 60 with hex nut	46	28	60	35	41116	04609
16102-C	BT30 x ER16 - 60 with dust seal nut	46	32	60	35	41616	04609
16102-DNA	BT30 x ER16 - 60 with DNA 16 nut	46	27	60	35	27116	DNA16W
16102-SLOTNUT	BT30 x ER16 - 60 with slotted nut	46	32	60	35	46116	04613
16103	BT30 x ER16 - 90 with hex nut	46	28	90	60	41116	04609
16103-SLOTNUT	BT30 x ER16 - 90 with slotted nut	46	32	90	60	46116	04613
16104	BT30 x ER16 - 100 with hex nut	46	28	100	70	41116	04609
16104-SLOTNUT	BT30 x ER16 - 100 with slotted nut	46	32	100	70	46116	04613
16105	BT30 x ER16 - 120 with hex nut	46	28	120	88	41116	04609
16105-SLOTNUT	BT30 x ER16 - 120 with slotted nut	46	32	120	88	46116	04613

BT30 x ER20 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16106	BT30 x ER20 - 70	46	34	70	44	41120	04610
16106-SLOTNUT	BT30 x ER20 - 70 with slotted nut	46	35	70	44	46120	04614
16107	BT30 x ER20 - 135	46	35	135	109	41120	04614
16107-SLOTNUT	BT30 x ER20 - 135 with slotted nut	46	35	135	109	46120	04614
16108-2.5	BT30 x ER20 - 2.5"	46	34	63.5	41.5	41120	04610
16108-2.5-SLOTNUT	BT30 x ER20 - 2.5" with slotted nut	46	35	63.5	41.5	46120	04614

BT30 x ER25 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16109	BT30 x ER25 - 70	46	42	70	44	41925	04615
16110	BT30 x ER25 - 60	46	42	60	36	41925	04615
16111	BT30 x ER25 - 135	46	42	135	109	41925	04615
16111-90	BT30 x ER25 - 90	46	42	90	64	41925	04615



BT30, ER32

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *Includes PowerCOAT nut*



Use DNA collets for best rigidity and accuracy (T.I.R.) when using 1/8" shanks or smaller. page 20.



Collets
pg. 12



Nuts
pg. 18



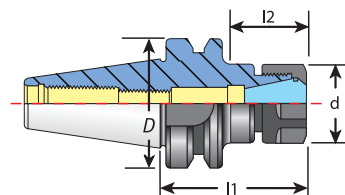
Dust Seals
pg. 22



Retention
Knobs
pg. 34



Setup
Equipment
pg. 38



Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

BT30 x ER32 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16112	BT30 x ER32 - 60	46	20	60	27	46132	04616
16113	BT30 x ER32 - 70	46	20	70	33	46132	04616
16121	BT30 x ER32 - 60, 41mm flats - Komo	46	20	60	23	46132	04616
16121-L	BT30 x ER32 - 60, 41mm flats - Komo - (left-hand thread)	46	20	60	23	46132-L	04616
16131	BT30 x ER32 - 90 38mm flats - Komo	46	20	90	43	46132	04616
16114	BT30 x ER32 - 100	46	20	100	53	46132	04616
16115	BT30 x ER40 - 80	46	20	80	38	46132	04616

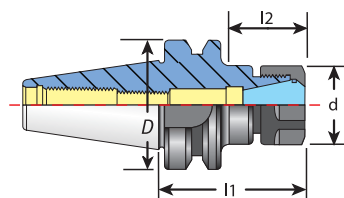
BT30 x SYOZ25 Toolholders

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16001-W	BT30 x SYOZ25 - 70, 38mm flats - Komo	46	60	70	48	included	03691
16001	BT30 x SYOZ25 - 70 with nut	46	60	70	48	included	03691



BT30, SYOZ25

- *Balanced to 25,000 RPM at G2.5*
- *Inspection report included for accuracy and balance*
- *includes PowerCOAT nut*



Note: The "l1" dimension is measured with the collet in the nut. Dimensions are in millimeters.

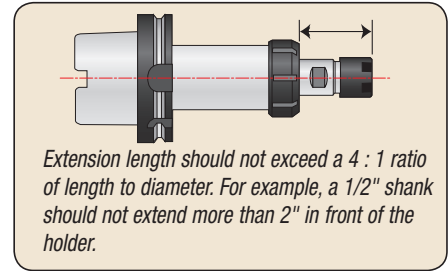
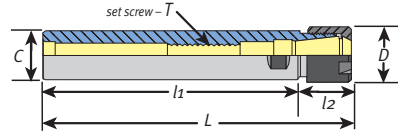
BT35 x ER32 and BT35 x SYOZ25 Toolholders for Heian Routers

Part No.	Description	D	d	l1	l2	Collet Nut	Wrench
16010	BT35 x SYOZ25 - 76 with nut	53	60	76	52	included	03691
161-BT35-ER32 76A	BT35 x ER32 - 76 with nut	53	50	76	52	included	04616

ER Mini-Nut and Straight Shank Extensions



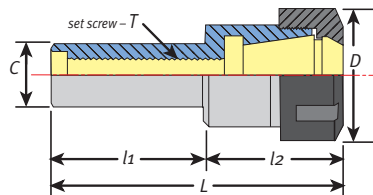
- Collet pocket T.I.R. 0.0001"
- All surfaces precision ground
- Includes PowerCOAT nut



ER Mini-Nut Extensions

Dimensions are in millimeters unless otherwise indicated.

Part No.	Description	C	L	l1	l2	D	Stop Screw	Wrench
04889	3/8" x ER8, - 100	3/8"	124	100	24	12	-	04620
04891	1/2" x ER11, - 140	1/2"	166.5	140	26.5	16	-	04621
04893	5/8" x ER11, - 140	5/8"	158.5	140	18.5	16	-	04621
04895	1/2" x ER16, - 140	1/2"	177	140	37	22	-	04622
04896	3/4" x ER16, - 140	3/4"	165	140	25	22	06083	04622
04892	1/2" x ER20, - 140	1/2"	180	140	40	28	06083	04623
04894	3/4" x ER20, - 140	3/4"	180	140	40	28	06083	04623
04881	20mm x ER20, - 180	20	220	180	40	28	06083	04623
04897	1.0" x ER20, - 140	1.0"	168	140	28	28	06083	04623
04898	3/4" x ER25, - 100	3/4"	149	100	49	35	06087	04624
04888	1.0" x ER25, - 140	1.0"	190	140	50	35	06083	04624



Dimensions are in millimeters unless otherwise indicated.

ER Straight Shank Extensions

Part No.	Description	C	L	l1	l2	D	Stop Screw	Wrench
04851	16mm x ER11, - 140, hex nut	16	174.5	140	21.6	19	-	04608
04855	1/2" x ER11, - 140, hex nut	1/2"	174.5	140	21.6	19	-	04608
04854	5/8" x ER11, - 140, hex nut	5/8"	174.5	140	21.6	19	-	04608
04832	5/8" x ER16, - 60, hex nut	5/8"	95.1	60	35.1	28	-	04609
04834	3/4" x ER16, - 50, hex nut	3/4"	85.1	50	35.1	28	06083	04609
04835	3/4" x ER16, - 100, hex nut	3/4"	135.1	100	35.1	28	06083	04609
04856	3/4" x ER16, - 140, hex nut	3/4"	175.1	140	35.1	28	06083	04609
04836	3/4" x ER20, - 2-1/2", hex nut	3/4"	100	2-1/2"	38	34	06083	04610
04858	1.0" x ER20, - 140, hex nut	1.0"	180.5	140	40.5	34	06083	04610
04837	1.0" x ER25, - 50, slotted nut	1.0"	101	50	51	42	06089	04615
04817	20mm x ER32, - 50, slotted nut	20	97.1	50	47	50	06089	04616
04818	20mm x ER32, - 100, slotted nut	20	146.5	100	47	50	06083	04616
04839	1.0" x ER32, - 50, slotted nut	1.0"	101.5	50	51.5	50	06089	04616
04839-140	1.0" x ER32, - 140, slotted nut	1.0"	191.5	140	51.5	50	06083	04616
04843	1-1/4" x ER32, - 60, slotted nut	1-1/4"	111.5	60	51.5	50	06089	04616
04841	1.0" x ER40, - 50, slotted nut	1.0"	115	50	65	63	06083	04617



- Capacity from 1/16" to 1/2"
- 4 times greater holding power
- Balanced to 10,000 RPM



Collets
pg. 12



Nuts
pg. 18



Dust Seals
pg. 22



Retention
Knobs
pg. 34



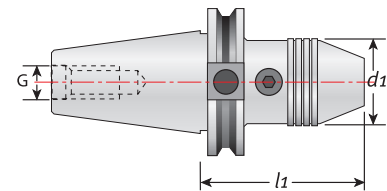
Setup
Equipment
pg. 38

HP3 feature a one-piece design that provides greater rigidity and safety because the chuck cannot break free during operation.

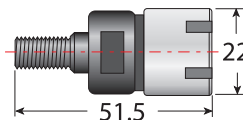
HP3 Precision Drill Toolholders (ISO, BT, HSK)

Dimensions are in millimeters
unless otherwise indicated.

Part No.	Description	d1	l1	G
171.05.046.003	HSK63F HP3 drill chuck 1/2"	50	123.5	-
64.05.046.051	ISO30 HP3 drill chuck 1/2"	50	103	M12
67.05.046.001	BT30 HP3 drill chuck 1/2"	50	92.5	M12
39.05.046.001	BT40 HP3 drill chuck 1/2"	50	95.5	M16



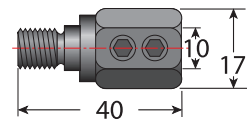
- ER collet or side-lock style
- Eliminate threaded drill bits
- Better rigidity and holding power



Threaded Drill Adapters

For CNC routers with inline multi-spindles.

Part No.	Collet Type	Shank	Thread
00316-SLN-R	ER16	3/8" or 10mm	Right
00316-SLN-L	ER16	3/8" or 10mm	Left



Dimensions are in millimeters unless otherwise indicated.

Part No.	Shank	Thread	I.D.
00316-SLN-R	M10x1.05	Right	10
00316-SLN-L	M10x1.05	Left	10



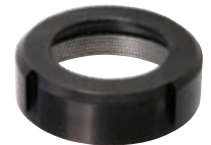
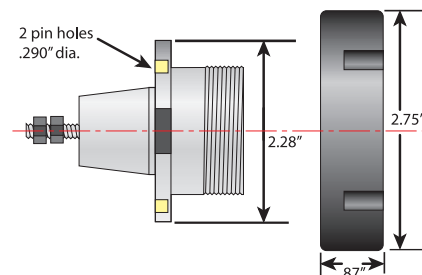
- Use with standard ER32 or DNA ER32 collets
- 0.0002" T.I.R. (collet pocket runout)
- Taper ground to AT3 specification

Order collets and
PowerCOAT nut separately.

CMS ER32 Toolholder

Includes turret nut. Order collets and PowerCOAT nut separately.

Part No.	Description
CMS-RR32	CMS ER32 Toolholder with turret nut



Turret Nut

ER Collets from ER8 thru ER40 – Inch and Metric Sizes

Techniks Collet Advantages

1. *manufactured to highest industry standards*
2. *each collet is hand inspected for quality*
3. *runout (T.I.R.) averages 0.0002"*
4. *ultra-precision collets available (T.I.R. 0.0001")*

Techniks collets are manufactured from high carbon-bearing steel using a special Swiss grinding technique. Each collet is heat treated for improved clamping range and longer life.

Depend on Techniks collets to provide unsurpassed accuracy and holding power to extend cutting tool life.



Use PowerCOAT nuts for best rigidity and router bit life.

Use DNA ER Collets (Dead Nuts Accurate) for Small Router Bits & Cutters



See page 20 for more information.

- 0.0002" T.I.R.
- Best collet for tools 6mm and smaller
- Works with standard ER holders

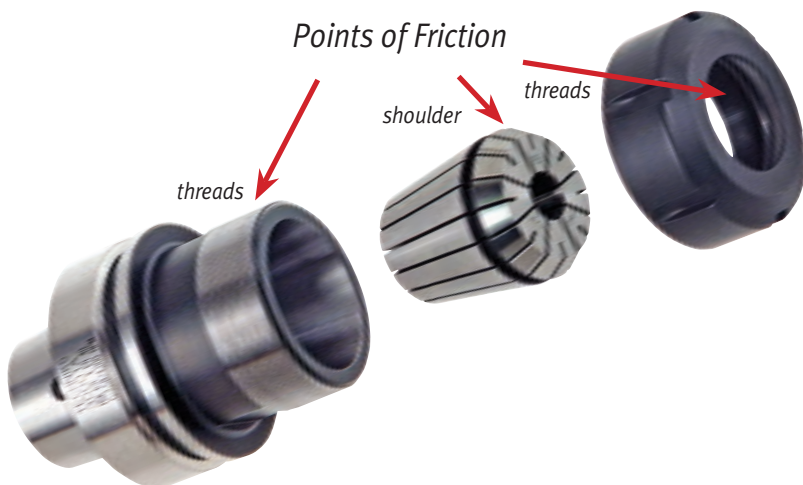
PowerCOAT Nuts Outperform Bearing Nuts



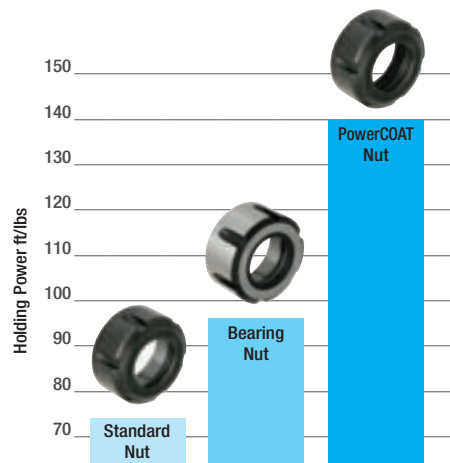
- 40% more holding power = Greater rigidity & accuracy
- Less runout (T.I.R.), better balance (up to 70,000 RPMs)
- Safer: cutting tool is less likely break free

Why CNC Routers Run Better with PowerCOAT Nuts

PowerCOAT nuts greatly reduce friction between the nut, collet shoulder, and tool holder threads to increase down force on the collet, making it collapse tighter around the tool shank. This improves holding power and runout (T.I.R.). Better T.I.R. means cutting is faster and smoother and tool life is improved too.



Holding Power Testing – ft/lbs



Each nut was tightened to 70 ft/lbs recommended torque before break-free testing of holding power.

Why Bearing Nuts Are Obsolete Technology

Rubber bearing seals eventually fail, then dust contaminates bearings, making them seize up.

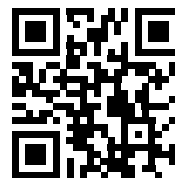
Uncoated threads limit holding power.



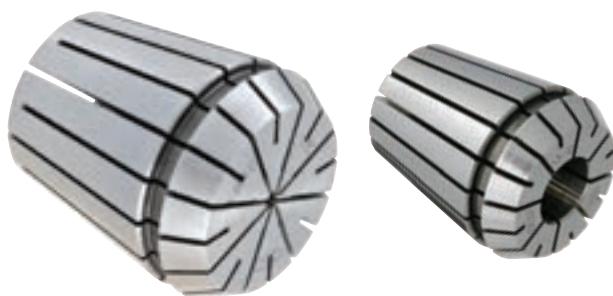
Bearing nuts cannot be balanced because they have moving parts, so cutting tools wear prematurely.



Scan the QR code to see how PowerCOAT nuts hold tighter to improve CNC router performance and shop safety. Or, enter this url:
http://delivr.com/1hsm1_qr



Inch Size Precision ER Collets



Compatible with DR, RD, ESX, AR, & BR series collets.



Order collet sets to ensure you always have the collets you need on hand.

- Average .0002" T.I.R.
- Clamping range: .039"
- Use with PowerCOAT nut (pg. 18) for best holding power and cutting tool life.



ER Inch Size Collet Sets

Part No.	Size	Pieces	Collets Included	Fits Shank Sizes
04208IS	ER11	7	1/16 – 1/4" by 32 ^{nds}	1/32 - 1/4"
04209IS	ER16	10	3/32 – 3/8" by 32 ^{nds}	1/16 - 3/8"
04210IS	ER20	12	5/32 – 1/2" by 32 ^{nds}	1/8 - 1/2"
04211IS	ER25	16	5/32 – 5/8" by 32 ^{nds}	1/8 - 5/8"
04212IS	ER32	18	7/32 – 3/4" by 32 ^{nds}	3/16 - 3/4"
04213IS	ER40	13	1/8 – 1.0" by 16 ^{ths}	1/8 - 1.0"

ER8 Inch Size Collets

Part No.	Inch Range	Shank
04208-1/16	.043 – .062"	1/16"
04208-1/8	.086 – .125"	1/8"
04208-3/16	.148 – .187"	3/16"

ER11 Inch Size Collets

Part No.	Inch Range	Shank
04211-1/16	.043 – .062"	1/16"
04211-3/32	.054 – .093"	3/32"
04211-1/8	.086 – .125"	1/8"
04211-5/32	.117 – .156"	5/32"
04211-3/16	.148 – .187"	3/16"
04211-7/32	.179 – .218"	7/32"
04211-1/4	.211 – .250"	1/4"
04211-9/32	-	9/32"

ER16 Inch Size Collets

Part No.	Inch Range	Shank
04216-1/16	.043 – .062"	1/16"
04216-3/32	.054 – .093"	3/32"
04216-1/8	.086 – .125"	1/8"
04216-5/32	.117 – .156"	5/32"
04216-3/16	.148 – .187"	3/16"
04216-7/32	.179 – .218"	7/32"
04216-1/4	.211 – .250"	1/4"
04216-9/32	.242 – .281"	9/32"
04216-5/16	.273 – .312"	5/16"
04216-11/32	.304 – .343"	11/32"
04216-3/8	.336 – .375"	3/8"
04216-13/32	.367 – .406"	13/32"

Ultra Precision Collets

- .0002" T.I.R. or better
- individually tested & measured

To Order Ultra Precision Collets

Hand-selected Ultra Precision collets are guaranteed .0002" T.I.R. or better. Just place UP in front of the regular part number when ordering.

ER20 Inch Size Collets

Part No.	Inch Range	Shank
04220-1/16	.043 – .062"	1/16"
04220-3/32	.054 – .093"	3/32"
04220-1/8	.086 – .125"	1/8"
04220-5/32	.117 – .156"	5/32"
04220-3/16	.148 – .187"	3/16"
04220-7/32	.179 – .218"	7/32"
04220-1/4	.211 – .250"	1/4"
04220-9/32	.242 – .281"	9/32"
04220-5/16	.273 – .312"	5/16"
04220-11/32	.304 – .343"	11/32"
04220-3/8	.336 – .375"	3/8"
04220-13/32	.367 – .406"	13/32"
04220-7/16	.398 – .437"	7/16"
04220-15/32	.429 – .468"	15/32"
04220-1/2	.461 – .500"	1/2"

ER25 Inch Size Collets

Part No.	Inch Range	Shank
04225-3/32	.054 – .093"	3/32"
04225-1/8	.086 – .125"	1/8"
04225-5/32	.117 – .156"	5/32"
04225-3/16	.148 – .187"	3/16"
04225-7/32	.179 – .218"	7/32"
04225-1/4	.211 – .250"	1/4"
04225-9/32	.242 – .281"	9/32"
04225-5/16	.273 – .312"	5/16"
04225-11/32	.304 – .343"	11/32"
04225-3/8	.336 – .375"	3/8"
04225-13/32	.367 – .406"	13/32"
04225-7/16	.398 – .437"	7/16"
04225-15/32	.429 – .468"	15/32"
04225-1/2	.461 – .500"	1/2"
04225-17/32	.492 – .531"	17/32"
04225-9/16	.523 – .562"	9/16"
04225-19/32	.554 – .593"	19/32"
04225-5/8	.586 – .625"	5/8"
04225-3/4	.711 – .750"	3/4"

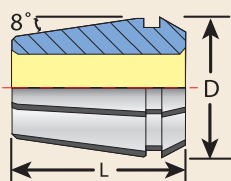
ER32 Inch Size Collets

Part No.	Inch Range	Shank
04232-1/16	.043 – .062"	1/16"
04232-3/32	.054 – .093"	3/32"
04232-1/8	.086 – .125"	1/8"
04232-5/32	.117 – .156"	5/32"
04232-3/16	.148 – .187"	3/16"
04232-7/32	.179 – .218"	7/32"
04232-1/4	.211 – .250"	1/4"
04232-9/32	.242 – .281"	9/32"
04232-5/16	.273 – .312"	5/16"
04232-11/32	.304 – .343"	11/32"
04232-3/8	.336 – .375"	3/8"
04232-13/32	.367 – .406"	13/32"
04232-7/16	.398 – .437"	7/16"
04232-15/32	.429 – .468"	15/32"
04232-1/2	.461 – .500"	1/2"
04232-17/32	.492 – .531"	17/32"
04232-9/16	.523 – .562"	9/16"
04232-19/32	.554 – .593"	19/32"
04232-5/8	.586 – .625"	5/8"
04232-21/32	.617 – .656"	21/32"
04232-11/16	.648 – .687"	11/16"
04232-23/32	.679 – .718"	23/32"
04232-3/4	.711 – .750"	3/4"

ER40 Inch Size Collets

Part No.	Inch Range	Shank
04240-1/8	.086 – .125"	1/8"
04240-5/32	.117 – .156"	5/32"
04240-3/16	.148 – .187"	3/16"
04240-7/32	.179 – .218"	7/32"
04240-1/4	.211 – .250"	1/4"
04240-9/32	.242 – .281"	9/32"
04240-5/16	.273 – .312"	5/16"
04240-11/32	.304 – .343"	11/32"
04240-3/8	.336 – .375"	3/8"
04240-13/32	.367 – .406"	13/32"
04240-7/16	.398 – .437"	7/16"
04240-15/32	.429 – .468"	15/32"
04240-1/2	.461 – .500"	1/2"
04240-17/32	.492 – .531"	17/32"
04240-9/16	.523 – .562"	9/16"
04240-19/32	.554 – .593"	19/32"
04240-5/8	.586 – .625"	5/8"
04240-21/32	.617 – .656"	21/32"
04240-11/16	.648 – .687"	11/16"
04240-23/32	.679 – .718"	23/32"
04240-3/4	.711 – .750"	3/4"
04240-25/32	.742 – .781"	25/32"
04240-13/16	.773 – .812"	13/16"
04240-27/32	.807 – .843"	27/32"
04240-7/8	.836 – .875"	7/8"
04240-29/32	.867 – .906"	29/32"
04240-15/16	.898 – .937"	15/16"
04240-31/32	.929 – .968"	31/32"
04240-1	.961 – 1.00"	1.0"

Use the table (below) for selecting your replacement collets. ER collets all have unique length and diameter measurements.



Size	L	D
ER8	13mm (.51")	8.5mm (.33")
ER11	18mm (0.708")	11.5mm (0.45")
ER16	27.5mm (1.08")	17mm (0.67")
ER20	31.5mm (1.24")	21mm (0.83")
ER25	34mm (1.34")	26mm (1.02")
ER32	40mm (1.57")	33mm (1.3")
ER40	46mm (1.81")	41mm (1.61")
ER50	60 mm (2.36")	52mm (2.05")

ER50 Inch Size Collets

Part No.	Inch Range	Shank
04250-1/2	.461 – .500"	1/2"
04250-5/8	.586 – .625"	5/8"
04250-3/4	.711 – .750"	3/4"
04250-7/8	.836 – .875"	7/8"
04250-1	.961 – 1.00"	1.0"
04250-1-1/4	1.211 – 1.250	1-1/4"



Compatible with DR, RD, ESX, AR, & BR series collets.



- Average .0002" T.I.R.
- Clamping range: .039"
- Use with PowerCOAT nut (pg. 18) for best cutting tool life.

To Order Ultra Precision Collets

Hand-selected Ultra Precision collets are guaranteed .0002" T.I.R. or better. Just place UP in front of the regular part number when ordering.

ER8 Precision Metric Collets

Part No.	Inch Range	Shank mm
04208-01.0	.019 – .039"	0.5 – 1.0
04208-01.5	.039 – .059"	1.0 – 1.5
04208-02.0	.059 – .079"	1.5 – 2.0
04208-02.5	.079 – .098"	2.0 – 2.5
04208-03.0	.098 – .118"	2.5 – 3.0
04208-03.5	.118 – .138"	3.0 – 3.5
04208-04.0	.138 – .157"	3.5 – 4.0
04208-04.5	.157 – .177"	4.0 – 4.5
04208-05.0	.177 – .197"	4.5 – 5.0

ER11 Precision Metric Collets

Part No.	Inch Range	Shank mm
04211-01.0	.019 – .039"	0.5 – 1.0
04211-01.5	.039 – .059"	1.0 – 1.5
04211-02.0	.059 – .079"	1.5 – 2.0
04211-02.5	.079 – .098"	2.0 – 2.5
04211-03.0	.098 – .118"	2.5 – 3.0
04211-03.5	.118 – .138"	3.0 – 3.5
04211-04.0	.138 – .157"	3.5 – 4.0
04211-04.5	.157 – .177"	4.0 – 4.5
04211-05.0	.177 – .197"	4.5 – 5.0
04211-05.5	.197 – .217"	5.0 – 5.5
04211-06.0	.217 – .236"	5.5 – 6.0
04211-06.5	.236 – .256"	6.0 – 6.5
04211-07.0	.256 – .276"	6.5 – 7.0

ER Metric Collet Sets

Part No.	Size	Pieces	Collets Included	Fits Shank Sizes
04200MS	ER8	9	1 - 5mm by 0.5mm	.5 – 5mm
04201MS	ER11	13	1 - 7mm by 0.5mm	.5 – 7mm
04202MS	ER16	10	1 - 10mm by 1mm	.5 – 10mm
04203MS	ER20	12	2 - 13mm by 1mm	1.0 – 13mm
04204MS	ER25	15	2 - 16mm by 1mm	1.0 – 16mm
04205MS	ER32	18	3 - 20mm by 1mm	2 – 20mm
04206MS	ER40	23	4 - 26mm by 1mm	3 – 26mm
04207MS	ER50	17	6 - 34mm by 2 mm	5 – 34mm

ER16 Precision Metric Collets

Part No.	Inch Range	Shank mm
04216-01	.019 – .039"	0.5–1
04216-01.5	.039 – .059"	1.0–1.5
04216-02	.039 – .079"	1–2
04216-02.5	.059 – .098"	1.5–2.5
04216-03	.079 – .118"	2–3
04216-03.5	.098 – .137"	2.5–3.5
04216-04	.118 – .157"	3–4
04216-04.5	.137 – .177"	3.5–4.5
04216-05	.157 – .197"	4–5
04216-05.5	.177 – .216"	4.5–5.5
04216-06	.197 – .236"	5–6
04216-06.5	.216 – .255"	5.5–6.5
04216-07	.236 – .276"	6–7
04216-07.5	.255 – .295"	6.5–7.5
04216-08	.276 – .315"	7–8
04216-08.5	.295 – .334"	7.5–8.5
04216-09	.315 – .354"	8–9
04216-09.5	.334 – .374"	8.5–9.5
04216-10	.354 – .394"	9–10
04216-10.5	.374 – .413"	9.5–10.5

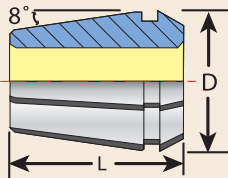
ER20 Precision Metric Collets

Part No.	Inch Range	Shank mm
04220-01	.019 – .039"	0.5–1
04220-01.5	.039 – .059"	1.0–1.5
04220-02	.039 – .079"	1–2
04220-02.5	.059 – .098"	1.5–2.5
04220-03	.079 – .118"	2–3
04220-03.5	.098 – .137"	2.5–3.5
04220-04	.118 – .157"	3–4
04220-04.5	.137 – .177"	3.5–4.5
04220-05	.157 – .197"	4–5
04220-05.5	.177 – .216"	4.5–5.5
04220-06	.197 – .236"	5–6
04220-06.5	.216 – .255"	5.5–6.5
04220-07	.236 – .276"	6–7
04220-07.5	.255 – .295"	6.5–7.5
04220-08	.276 – .315"	7–8
04220-08.5	.295 – .334"	7.5–8.5
04220-09	.315 – .354"	8–9
04220-09.5	.334 – .374"	8.5–9.5
04220-10	.354 – .394"	9–10
04220-10.5	.374 – .413"	9.5–10.5
04220-11	.394 – .433"	10–11
04220-11.5	.413 – .452"	10.5–11.5
04220-12	.433 – .472"	11–12
04220-12.5	.452" – .492"	11.5–12.5
04220-13	.472 – .512"	12–13
04220-13.5	.492 – .531"	12.5–13.5
04220-14	.512 – .551"	13–14

ER25 Precision Metric Collets

Part No.	Inch Range	Shank mm
04225-02	.039 – .079"	1–2
04225-02.5	.059 – .098"	1.5–2.5
04225-03	.079 – .118"	2–3
04225-03.5	.098 – .137"	2.5–3.5
04225-04	.118 – .157"	3–4
04225-05	.157 – .197"	4–5
04225-06	.197 – .236"	5–6
04225-07	.236 – .276"	6–7
04225-08	.276 – .315"	7–8
04225-09	.315 – .354"	8–9
04225-10	.354 – .394"	9–10
04225-11	.394 – .433"	10–11
04225-12	.433 – .472"	11–12
04225-13	.472 – .512"	12–13
04225-14	.512 – .551"	13–14
04225-15	.551 – .591"	14–15
04225-16	.591 – .630"	15–16
04225-17	.630 – .669"	16–17

Use the table (below) for selecting your replacement collets. ER collets all have unique length and diameter measurements.



Size	L	D
ER8	13mm (.51")	8.5mm (.33")
ER11	18mm (0.708")	11.5mm (0.45")
ER16	27.5mm (1.08")	17mm (0.67")
ER20	31.5mm (1.24")	21mm (0.83")
ER25	34mm (1.34")	26mm (1.02")
ER32	40mm (1.57")	33mm (1.3")
ER40	46mm (1.81")	41mm (1.61")
ER50	60 mm (2.36")	52mm (2.05")

ER32 Precision Metric Collets

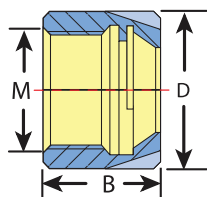
Part No.	Inch Range	Shank mm
04232-03	.079 – .118"	2–3
04232-03.5	.098 – .137"	2.5–3.5
04232-04	.118 – .157"	3–4
04232-04.5	.137 – .177"	3.5–4.5
04232-05	.157 – .197"	4–5
04232-05.5	.177 – .216"	4.5–5.5
04232-06	.197 – .236"	5–6
04232-06.5	.216 – .255"	5.5–6.5
04232-07	.236 – .276"	6–7
04232-07.5	.255 – .295"	6.5–7.5
04232-08	.276 – .315"	7–8
04232-08.5	.295 – .334"	7.5–8.5
04232-09	.315 – .354"	8–9
04232-09.5	.334 – .374"	8.5–9.5
04232-10	.354 – .394"	9–10
04232-10.5	.374 – .413"	9.5–10.5
04232-11	.394 – .433"	10–11
04232-11.5	.413 – .452"	10.5–11.5
04232-12	.433 – .472"	11–12
04232-12.5	.452 – .492"	11.5–12.5
04232-13	.472 – .512"	12–13
04232-13.5	.492 – .531"	12.5–13.5
04232-14	.512 – .551"	13–14
04232-14.5	.531 – .570"	13.5–14.5
04232-15	.551 – .591"	14–15
04232-15.5	.570 – .610"	14.5–15.5
04232-16	.591 – .630"	15–16
04232-16.5	.610 – .649"	15.5–16.5
04232-17	.630 – .669"	16–17
04232-17.5	.649 – .688"	16.5–17.5
04232-18	.669 – .709"	17–18
04232-18.5	.688 – .728"	17.5–18.5
04232-19	.709 – .748"	18–19
04232-19.5	.728 – .767"	18.5–19.5
04232-20	.748 – .787"	19–20
04232-21	.787 – .827"	20–21

ER40 Precision Metric Collets

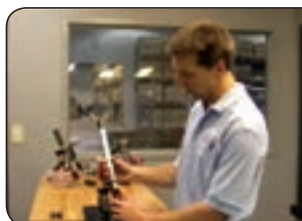
Part No.	Inch Range	Shank mm
04240-04	.118 – .157"	3–4
04240-05	.157 – .197"	4–5
04240-06	.197 – .236"	5–6
04240-07	.236 – .276"	6–7
04240-08	.276 – .315"	7–8
04240-09	.315 – .354"	8–9
04240-10	.354 – .394"	9–10
04240-11	.394 – .433"	10–11
04240-12	.433 – .472"	11–12
04240-13	.472 – .512"	12–13
04240-14	.512 – .551"	13–14
04240-15	.551 – .591"	14–15
04240-16	.591 – .630"	15–16
04240-17	.630 – .669"	16–17
04240-18	.669 – .709"	17–18
04240-19	.709 – .748"	18–19
04240-20	.748 – .787"	19–20
04240-21	.787 – .827"	20–21
04240-22	.827 – .866"	21–22
04240-23	.866 – .906"	22–23
04240-24	.906 – .945"	23–24
04240-25	.945 – .984"	24–25
04240-26	.984 – 1.024"	25–26

ER50 Precision Metric Collets

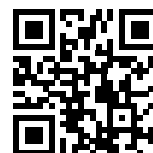
Part No.	Inch Range	Shank mm
04250-06	.197 – .236"	5–6
04250-07	.236 – .276"	6–7
04250-08	.276 – .315"	7–8
04250-09	.315 – .354"	8–9
04250-10	.354 – .394"	9–10
04250-12	.394 – .472"	10–12
04250-14	.472 – .551"	12–14
04250-16	.551 – .630"	14–16
04250-18	.630 – .709"	16–18
04250-20	.709 – .787"	18–20
04250-22	.787 – .866"	20–22
04250-24	.866 – .945"	22–24
04250-26	.945 – 1.024"	24–26
04250-28	1.024 – 1.102"	26–28
04250-30	1.102 – 1.181"	28–30
04250-32	1.181 – 1.259"	30–32
04250-34	1.259 – 1.338"	32–34



- 40% more holding power = Greater rigidity (accuracy)
- Less runout (T.I.R.) better balance (up to 70,000 RPMs)
- Cost less than bearing nuts



Scan the QR code to see how PowerCOAT nuts hold tighter to improve CNC router performance and shop safety. Or, enter this url:
http://delivr.com/1hsm1_qr



PowerCOAT nuts greatly reduce friction between the nut, collet shoulder, and tool holder threads to increase down force on the collet, making it collapse tighter around the tool shank. This improves holding power and runout (T.I.R.). Better T.I.R. means cutting is faster and smoother and tool life is improved too.

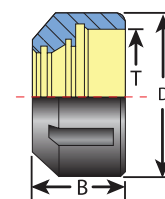
PowerCOAT Ultra High-Speed ER Nuts

Dimensions are in millimeters.

Part No.	Description	D	B	M	Max. Speed	Wrench	Recommended Torque
46111	ER RH 11 B Nut	19	11.8	M14 x 0.75	70,000	04608	20 ft/lbs
46116	ER RH 16 B Nut	32	18.0	M22 x 1.5	65,000	04613	42 ft/lbs
46120	ER RH 20 B Nut	35	19.5	M25 x 1.5	60,000	04614	59 ft/lbs
46125	ER RH 25 B Nut	42	20.5	M32 x 1.5	55,000	04615	77 ft/lbs
46132	ER RH 32 B Nut	50	23.0	M40 x 1.5	50,000	04616	100 ft/lbs
46140	ER RH 40 B Nut	63	26.0	M50 x 1.5	40,000	04617	130 ft/lbs



- 40% more holding power than bearing nuts!
- Extends collet life and accuracy
- Cost less than bearing nuts



Use these nuts with a dust seal that snaps into the nut to seal and protect your collets and cutting tools. Match the ER collet size and shank size to the dust seal specifications. Each dust seal has a .020" range.

PowerCOAT ER Dust Seal Nuts

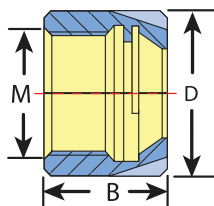
Part No.	Description	D	B	Wrench	T	Recommended Torque
41616	ER16 HS Internal Dust Seal Coated Nut	32	22.5	04613	M22 x 1.5	42 ft/lbs
41620	ER20 HS Internal Dust Seal Coated Nut	35	24	04614	M25 x 1.5	59 ft/lbs
41625	ER25 HS Internal Dust Seal Coated Nut	42	25	04615	M32 x 1.5	77 ft/lbs
41632	ER32 HS Internal Dust Seal Coated Nut	50	27.5	04616	M40 x 1.5	100 ft/lbs
41640	ER40 HS Internal Dust Seal Coated Nut	63	30.7	04617	M50 x 1.5	130 ft/lbs



These nuts use a special wrench to torque down the nut. Do not over tighten these nuts.

- *Balanced 20,000 RPM at G 2.5*
- *Narrow nose diameter*
- *Left hand nut available*

Use ER High Speed mini nuts for applications where speed exceeds 10,000 RPMs. They are balanced to G2.5 for 20,000 RPMs. For collet holders and multi-spindle heads where center or shoulder distances are important.



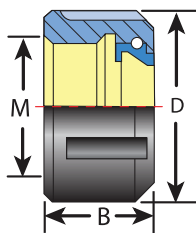
Dimensions are in millimeters.

ER High Speed Mini Nuts

Part No.	Description	D	B	M	Wrench	Recommended Torque
33108	ER8 HS Mini Nut	12	11	M10 x 0.75	04620	7 ft/lbs
33111	ER11 HS Mini Nut	16	12	M13 x 0.75	04621	12 ft/lbs
33116	ER16 HS Mini Nut	22	18	M19 x 1.0	04622	20 ft/lbs
33120	ER20 HS Mini Nut	28	19.5	M24 x 1.0	04623	22 ft/lbs
33125	ER25 HS Mini Nut	35	21	M30 x 1.0	04624	26 ft/lbs
33125-L	ER25 HS L-Hand Nut	35	21	M30 x 1.0	04624	26 ft/lbs



- *Bearings reduce friction between collet and nut*
- *Holds 40% tighter than standard bearing nuts*
- *Helps prolong cutter life*



PowerCOAT ER Bearing Nuts

Dimensions are in millimeters.

Part No.	Description	D	B	M	Wrench	Recommended Torque
29116	ER16 Bearing Nut	27.5	18	M22 x 1.5	04609	42 ft/lbs
29132	ER32 HS Bearing Nut	50	25	M40 x 1.5	04616	100 ft/lbs

Use these nuts for spindle speeds below 18,000 RPMs



If you are experiencing poor cutting tool life at small shank sizes, it may be because the standard ER collet is not providing enough holding power on the small shank to maintain T.I.R. while cutting, causing premature tool wear. DNA collets provided greater accuracy and rigidity for small shank tools.



Use DNA collets with standard ER holders and extensions.

DNA 11 Dead Nuts Accurate Collets

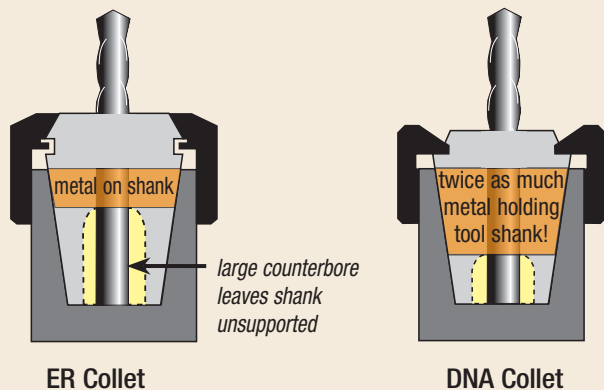
Part No.	Shank Size inch/mm	Range inch /mm
05952-02	5/64" / 1.5 - 2mm	.059" - .079" / .5mm
05952-03	7/64" / 2.5 - 3mm	.098" - .118" / .5mm
05952-03.5	1/8" / 3 - 3.5mm	.118" - .138" / .5mm
05952-04	5/32" / 3.5 - 4mm	.138" - .157" / .5mm
05952-05	3/16" / 4.5 - 5mm	.177" - .197" / .5mm
05952-06	15/64" / 5.5 - 6mm	.216" - .236" / .5mm
05952-1/8	exact size collet: 1/8"	.105" - .125" / .5mm
05952-3/16	exact size collet: 3/16"	.167" - .187" / .5mm
05952-1/4	exact size collet: 1/4"	.230" - .250" / .5mm
2011.0000	DNA 11 nut M14 x .75"	
2011.0000C	DNA 11 dust seal nut for 1/8" and 3mm	
DNA11W	DNA 11 collet wrench	
DNA11TWA	DNA 11 torque wrench adapter	

- .0002" T.I.R. extends cutting tool life!
- More rigid, more accurate, higher holding power than standard ER collets
- Works with ER holders & extensions

DNA 16 Dead Nuts Accurate Collets

Part No.	Shank Size inch/mm	Range inch/mm
05954-0.3	.2 - .3mm	.007" - .011" / .10mm
05954-0.4	1/64" / .3 - .4mm	.011" - .015" / .10mm
05954-0.5	.4 - .5mm	.015" - .019" / .10mm
05954-0.6	.5 - .6mm	.019" - .023" / .10mm
05954-0.8	1/32" / .7 - .8mm	.027" - .031" / .10mm
05954-1.0	.9 - 1.0mm	.035" - .039" / .10mm
05954-1.2	3/64" / 1.1 - 1.2mm	.043" - .047" / .10mm
05954-1.25	1.0 - 1.25mm	.039" - .049" / .25mm
05954-1.5	1.25 - 1.5mm	.049" - .059" / .25mm
05954-1.75	1/16" / 1.5 - 1.75mm	.059" - .068" / .25mm
05954-02	5/64" / 1.75 - 2mm	.068" - .078" / .25mm
05954-2.25	2 - 2.25mm	.078" - .088" / .25mm
05954-2.5	3/32" / 2.25 - 2.5mm	.088" - .098" / .25mm
05954-03	2.5 - 3mm	.098" - .118" / .5mm
05954-3.5	1/8" / 3 - 3.5mm	.118" - .138" / .5mm
05954-04	5/32" / 3.5 - 4mm	.137" - .157" / .5mm
05954-4.5	4 - 4.5mm	.157" - .177" / .5mm
05954-05	3/16" / 4 - 5mm	.157" - .197" / .25mm
05954-06	7/32" / 5 - 6mm	.196" - .236" / 1.0mm
05954-07	1/4" / 6 - 7mm	.236" - .275" / 1.0mm
05954-08	5/16" / 7 - 8mm	.275" - .314" / 1.0mm
05954-09	11/32" / 8 - 9mm	.314" - .354" / 1.0mm
05954-10	3/8" / 9 - 10mm	.354" - .392" / 1.0mm
05954-1/8	exact size collet: 1/8"	.105" - .125" / .5mm
05954-3/16	exact size collet: 3/16"	.147" - .187" / 1.0mm
05954-1/4	exact size collet: 1/4"	.210" - .25" / 1.0mm
05954-3/8	exact size collet: 3/8"	.335 - .375" / 1.0mm

DNA (Dead Nuts Accurate) Collets



DNA collets hold small tools with greater rigidity and more accuracy (T.I.R.) for greatly improved tool life.



DNA 16 Nuts, Sealed Nuts, Wrenches and TWAs

Part No.	Description
2016-2000	DNA16 Mini Nut - M19 x 1.0" x O.D. 25mm
27116	M22 x 1.5 nut, , O.D. 27mm
27216	M22 x 1.5 nut* 1/8" o-ring
27116-30	3.0 - 2.5mm sealed nut, O.D. 27mm
27116-40	4.0 - 3.5mm sealed nut, O.D. 27mm
27116-45	4.5 - 4.0mm sealed nut, O.D. 27mm
27116-50	5.0 - 4.5mm sealed nut, O.D. 27mm
27116-55	5.5 - 5mm sealed nut, O.D. 27mm
27116-60	6.0 - 5.5mm sealed nut, O.D. 27mm
27116-65	6.5 - 6mm sealed nut, O.D. 27mm
DNA16W	DNA 16 collet wrench
DNA16TWA	DNA 16 torque wrench adapter
894-22	DNA 16 mini nut wrench

DNA 20 Dead Nuts Accurate Collets

Part No.	Shank Size inch/mm	Range inch/mm
05956-03	2.5 - 3mm	.098" - .118" / .5mm
05956-3.5	1/8" / 3 - 3.5mm	.118" - .138" / .5mm
05956-04	5/32" / 3.5 - 4mm	.137" - .157" / .5mm
05956-05	3/16" / 4 - 5mm	.157" - .197" / 1.0mm
05956-06	7/32" 5 - 6mm	.197" - .236" / 1.0mm
05956-1/8	exact size collet: 1/8"	.105" - .125" / .5mm
05956-3/16	exact size collet: 3/16"	.147" - .187" / 1.0mm
05956-1/4	exact size collet: 1/4"	.210" - .250" / 1.0mm
05956-3/8	exact size collet: 3/8"	.335" - .375" / 1.0mm
2020.0000	DNA 20 nut, M25 x 1.5" x O.D. 32mm	
2020.0000C	DNA 20 dust seal nut, uses dust seals on page 22	
DNA20W	DNA 20 collet wrench	
DNA20TWA	DNA 20 torque wrench adapter	

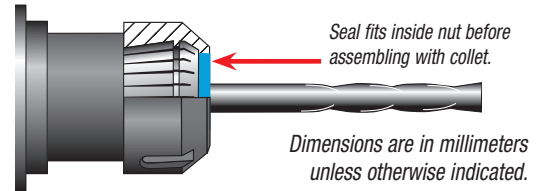
DNA 32 Dead Nuts Accurate Collets

Part No.	Shank Size inch/mm	Range inch/mm
05958-03	2.5 - 3mm	.098" - .118" / .5mm
05958-3.5	1/8" / 3 - 3.5mm	.118" - .138" / .5mm
05958-04	5/32" / 3.5 - 4mm	.137" - .157" / .5mm
05958-05	3/16" / 4 - 5mm	.157" - .197" / 1.0mm
05958-06	7/32" 5 - 6mm	.197" - .236" / 1.0mm
05958-1/8	exact size collet: 1/8"	.105" - .125" / .5mm
05958-3/16	exact size collet: 3/16"	.147" - .187" / 1.0mm
05958-1/4	exact size collet: 1/4"	.210" - .250" / 1.0mm
05958-3/8	exact size collet: 3/8"	.335" - .375" / 1.0mm
05958-1/2	exact size collet: 1/2"	.5"
05958-3/4	exact size collet: 3/4"	.75"
05958-13	exact size collet: 13mm	13mm
05958-20	exact size collet: 20mm	20mm
1132.0000	DNA 32 nut, M40 x 1.5" x O.D. 47.5mm	
1132.0000C	DNA 32 dust seal nut, uses dust seals on page 22	
DNA32W	DNA 32 collet wrench	
DNA32TWA	DNA 32 torque wrench adapter	

Internal Dust Seals for ER16 to ER40 Collets



- Eliminates cleaning collets!
- Extends the life of your collets
- Use with Dust Seal Nuts (pg. 18)



Internal Dust Seals

ER16	ER20	ER25	ER32	ER40	Metric Shank	Inch Shank
08516 - 03.5	08520 - 03.5	08525 - 03.5	08532 - 03.5	08540 - 03.5	3.5 - 3.0	1/8"
08516 - 04.0	08520 - 04.0	08525 - 04.0	08532 - 04.0	08540 - 04.0	4.0 - 3.5	5/32"
08516 - 04.5	08520 - 04.5	08525 - 04.5	08532 - 04.5	08540 - 04.5	4.5 - 4.0	11/64"
08516 - 05.0	08520 - 05.0	08525 - 05.0	08532 - 05.0	08540 - 05.0	5.0 - 4.5	3/16"
08516 - 05.5	08520 - 05.5	08525 - 05.5	08532 - 05.5	08540 - 05.5	5.5 - 5.0	13/64"
08516 - 06.0	08520 - 06.0	08525 - 06.0	08532 - 06.0	08540 - 06.0	6.0 - 5.5	7/32"
08516 - 06.5	08520 - 06.5	08525 - 06.5	08532 - 06.5	08540 - 06.5	6.5 - 6.0	1/4"
08516 - 07.0	08520 - 07.0	08525 - 07.0	08532 - 07.0	08540 - 07.0	7.0 - 6.5	17/64"
08516 - 07.5	08520 - 07.5	08525 - 07.5	08532 - 07.5	08540 - 07.5	7.5 - 7.0	9/32"
08516 - 08.0	08520 - 08.0	08525 - 08.0	08532 - 08.0	08540 - 08.0	8.0 - 7.5	5/16"
08516 - 08.5	08520 - 08.5	08525 - 08.5	08532 - 08.5	08540 - 08.5	8.5 - 8.0	21/64"
08516 - 09.0	08520 - 09.0	08525 - 09.0	08532 - 09.0	08540 - 09.0	9.0 - 8.5	11/32"
08516 - 09.5	08520 - 09.5	08525 - 09.5	08532 - 09.5	08540 - 09.5	9.5 - 9.0	3/8"
08516 - 10.0	08520 - 10.0	08525 - 10.0	08532 - 10.0	08540 - 10.0	10.0 - 9.5	25/64"
	08520 - 10.5	08525 - 10.5	08532 - 10.5	08540 - 10.5	10.5 - 10.0	13/32"
	08520 - 11.0	08525 - 11.0	08532 - 11.0	08540 - 11.0	11.0 - 10.5	27/64"
	08520 - 11.5	08525 - 11.5	08532 - 11.5	08540 - 11.5	11.5 - 11.0	7/16"
	08520 - 12.0	08525 - 12.0	08532 - 12.0	08540 - 12.0	12.0 - 11.5	15/32"
	08520 - 12.5	08525 - 12.5	08532 - 12.5	08540 - 12.5	12.5 - 12.0	31/64"
	08520 - 13.0	08525 - 13.0	08532 - 13.0	08540 - 13.0	13.0 - 12.5	1/2"
		08525 - 13.5	08532 - 13.5	08540 - 13.5	13.5 - 13.0	17/32"
		08525 - 14.0	08532 - 14.0	08540 - 14.0	14.0 - 13.5	35/64"
		08525 - 14.5	08532 - 14.5	08540 - 14.5	14.5 - 14.0	9/16"
		08525 - 15.0	08532 - 15.0	08540 - 15.0	15.0 - 14.5	37/64"
		08525 - 15.5	08532 - 15.5	08540 - 15.5	15.5 - 15.0	19/32"
		08525 - 16.0	08532 - 16.0	08540 - 16.0	16.0 - 15.5	5/8"
			08532 - 16.5	08540 - 16.5	16.5 - 16.0	41/64"
			08532 - 17.0	08540 - 17.0	17.0 - 16.5	21/32"
			08532 - 17.5	08540 - 17.5	17.5 - 17.0	11/16"
			08532 - 18.0	08540 - 18.0	18.0 - 17.5	45/64"
			08532 - 18.5	08540 - 18.5	18.5 - 18.0	23/32"
			08532 - 19.0	08540 - 19.0	19.0 - 18.5	3/4"
			08532 - 19.5	08540 - 19.5	19.5 - 19.0	49/64"
			08532 - 20.0	08540 - 20.0	20.0 - 19.5	25/32"
				08540 - 20.5	20.5 - 20.0	51/64"
				08540 - 21.0	21.0 - 20.5	13/16"
				08540 - 21.5	21.5 - 21.0	27/32"
				08540 - 22.0	22.0 - 21.5	55/64"
				08540 - 22.5	22.5 - 22.0	7/8"
				08540 - 23.0	23.0 - 22.5	29/32"
				08540 - 23.5	23.5 - 23.0	59/64"
				08540 - 24.0	24.0 - 23.5	15/16"
				08540 - 24.5	24.5 - 24.0	61/64"
				08540 - 25.0	25.0 - 24.5	31/32"
				08540 - 25.5	25.5 - 25.0	1"



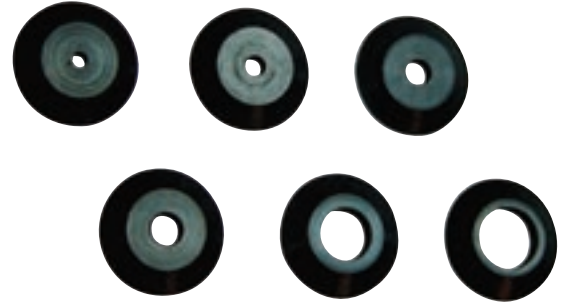
Simple and effective dust covers prevent costly failures and reduce downtime by keeping unwanted particles from entering the collet pocket where they can clog collets, hampering performance.

Keeping your tool holder clean insures proper balance, maximizes grip on tool shank, and reduces downtime spent cleaning out collets during tool changes.

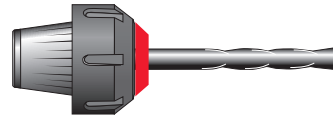


For 3/16" thru 3/4" tool shanks.
Works with: TG75, TG100, ER25, ER32, ER40, SY0Z25, SD-C015, SD-20MM
Do not slide dust cover over cutting edge of tool or you may damage the dust cover.

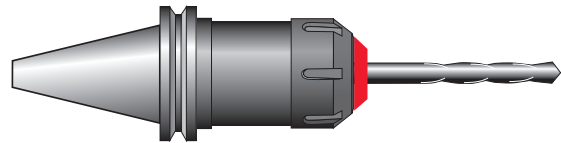
- Eliminates cleaning collets!
- Extends the life of your collets
- Extends tool life by maintaining T.I.R.



1. Slide dust cover on cutting tool shank from the bottom. Do not slide dust cover over cutting edges.



2. Install cutting tool into collet and nut.



3. Install assembly into toolholder and tighten collet nut to proper torque using a torque wrench

External Dust Covers

Part No.	Description
DC32-3/16	Dust cover for 3/16" tool shank
DC32-1/4	Dust cover for 1/4" tool shank
DC32-5/16	Dust cover for 5/16" tool shank
DC32-3/8	Dust cover for 3/8" tool shank
DC32-1/2	Dust cover for 1/2" tool shank
DC32-5/8	Dust cover for 5/8" tool shank
DC32-3/4	Dust cover for 3/4" tool shank

Dust Cover Sets

Part No.	Description
DC32-3/16-5	3/16" Dust Covers, 5 pieces
DC32-1/4-5	1/4" Dust Covers, 5 pieces
DC32-5/16-5	5/16" Dust Covers, 5 pieces
DC32-3/8-5	3/8" Dust Covers, 5 pieces
DC32-1/2-5	1/2" Dust Covers, 5 pieces
DC32-5/8-5	5/8" Dust Covers, 5 pieces
DC32-3/4-5	3/4" Dust Covers, 5 pieces
DC32-5D	1 each, 1/4", 3/8", 1/2", 5/8", 3/4"

Precision TG75 Collets and PowerCOAT Nut

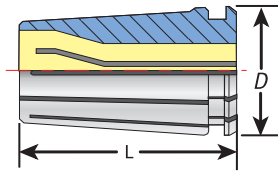


- .0004" T.I.R.
- Precision ground & hand inspected
- Clamping range: 1/64"



Dimensions

Series	L	A
TG75	1.844"	1.062"



TG75 Sets

Part No.	Pieces	ID Sizes
04008-43S	43	1/8" - 3/4" by 64ths
04008-22S	22	1/8" - 3/4" by 32nds
04008-11S	11	1/8" - 3/4" by 16ths

Order collet sets to ensure you always have the collets you need on hand.

TG75 Collets

Part No.	Shank
04008-3/32	3/32"
04008-7/64	7/64"
04008v-1/8	1/8"
04008-9/64	9/64"
04008-5/32	5/32"
04008-11/64	11/64"
04008-3/16	3/16"
04008-13/64	13/64"
04008-7/32	7/32"
04008-15/64	15/64"
04008-1/4	1/4"

Part No.	Shank
04008-17/64	17/64"
04008-9/32	9/32"
04008-19/64	19/64"
04008-5/16	5/16"
04008-21/64	21/64"
04008-11/32	11/32"
04008-23/64	23/64"
04008-3/8	3/8"
04008-25/64	25/64"
04008-13/32	13/32"
04008-27/64	27/64"

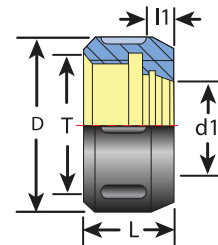
Part No.	Shank
04008-7/16	7/16"
04008-29/64	29/64"
04008-15/32	15/32"
04008-31/64	31/64"
04008-1/2	1/2"
04008-33/64	33/64"
04008-17/32	17/32"
04008-35/64	35/64"
04008-9/16	9/16"
04008-37/64	37/64"
04008-19/32	19/32"

Part No.	Shank
04008-39/64	39/64"
04008-5/8	5/8"
04008-41/64	41/64"
04008-21/32	21/32"
04008-43/64	43/64"
04008-11/16	11/16"
04008-45/64	45/64"
04008-23/32	23/32"
04008-47/64	47/64"
04008-3/4	3/4"



Features

- Increases holding power by 75%
- Balanced to 25,000 RPM
- Better rigidity and less T.I.R. (runout)



TG75 PowerCOAT Collet Nut

Part No.	Description	D	d1	T	I1	L	Wrench	Recommended Torque
27500	TG75 Collet Nut	1.88"	-	1 1/2 - 12"	0.32"	0.94"	04018	85 ft/lb

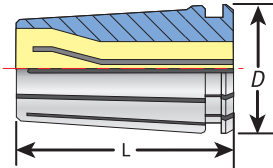


- .0004" T.I.R.
- Precision ground & hand inspected
- Clamping range: 1/64"



Dimensions

Series	L	A
TG100	2.375"	1.379"



TG100 Collets

Part No.	Shank
04010-3/32	3/32"
04010-7/64	7/64"
04010-1/8	1/8"
04010-9/64	9/64"
04010-5/32	5/32"
04010-11/64	11/64"
04010-3/16	3/16"
04010-13/64	13/64"
04010-7/32	7/32"
04010-15/64	15/64"
04010-1/4	1/4"
04010-17/64	17/64"
04010-9/32	9/32"
04010-19/64	19/64"
04010-5/16	5/16"

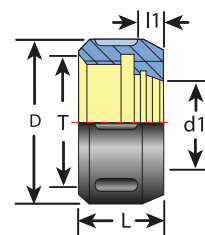
Part No.	Shank
04010-21/64	21/64"
04010-11/32	11/32"
04010-23/64	23/64"
04010-3/8	3/8"
04010-25/64	25/64"
04010-13/32	13/32"
04010-27/64	27/64"
04010-7/16	7/16"
04010-29/64	29/64"
04010-15/32	15/32"
04010-31/64	31/64"
04010-1/2	1/2"
04010-33/64	33/64"
04010-17/32	17/32"
04010-35/64	35/64"

TG100 Sets

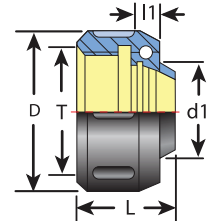
Part No.	Pcs.	ID Sizes
04010-59S	59	3/32 - 1" by 64ths
04010-41S	41	3/8 - 1" by 64ths
04010-30S	30	3/32 - 1" by 32nds
04010-21S	21	3/8 - 1" by 32nds
04010-15S	15	1/8 - 1" by 16ths

Part No.	Shank
04010-9/16	9/16"
04010-37/64	37/64"
04010-19/32	19/32"
04010-39/64	39/64"
04010-5/8	5/8"
04010-41/64	41/64"
04010-21/32	21/32"
04010-43/64	43/64"
04010-11/16	11/16"
04010-45/64	45/64"
04010-23/32	23/32"
04010-47/64	47/64"
04010-3/4	3/4"
04010-49/64	49/64"
04010-25/32	25/32"

Part No.	Shank
04010-51/64	51/64"
04010-13/16	13/16"
04010-53/64	53/64"
04010-27/32	27/32"
04010-55/64	55/64"
04010-7/8	7/8"
04010-57/64	57/64"
04010-29/32	29/32"
04010-59/64	59/64"
04010-15/16	15/16"
04010-61/64	61/64"
04010-31/32	31/32"
04010-63/64	63/64"
04010-1	1.0"



dust seal nut



Use the TG100 Dust Seal Nut with an ER32 dust seal that snaps into the nut to seal and protect your tools.

TG100 PowerCOAT Nut and Dust Seal Nut

Part No.	Description	D	d1	T	I1	L	Spanner	Recommended Torque
28110	TG100 Collet Nut	2.35"	1.12"	1 7/8 - 12"	0.44"	1.18"	03691	85 ft/lb
28210	TG100 Dust Seal Nut	2.35"	0.95"	1 7/8 - 12"	0.44"	1.41"	03691	100 ft/lb

Shoda Collets and Nuts



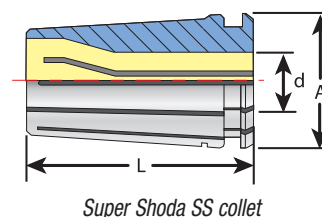
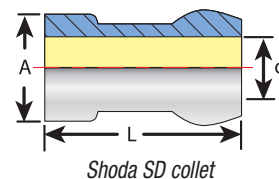
- Precision ground accuracy
- Heat-treated carbon steel
- Individually inspected

Our Shoda collets are the most accurate in the industry. We use heat-treated high carbon bearing steel and a Swiss grinding technique that ensures accuracy.

Shoda Collets

Dimensions are in millimeters unless otherwise indicated.

Part Number	Description	A	d	L
SD-20mm-.250	Shoda 20mm (old style) 1/4" collet	20	.250"	52
SD-20mm-.312	Shoda 20mm (old style) 5/16" collet	20	.312"	52
SD-20mm-.375	Shoda 20mm (old style) 3/8" collet	20	.375"	52
SD-20mm-.500	Shoda 20mm (old style) 1/2" collet	20	.500"	52
SD-20mm-.625	Shoda 20mm (old style) 5/8" collet	20	.625"	52
SD-C001-.125	Shoda Piggyback 1/8" collet	16	.125"	52
SD-C001-.187	Shoda Piggyback 3/16" collet	16	.187"	52
SD-C001-.250	Shoda Piggyback 1/4" collet	16	.250"	52
SD-C001-.312	Shoda Piggyback 5/16" collet	16	.312"	52
SD-C001-.375	Shoda Piggyback 3/8" collet	16	.375"	52
SD-C001-.500	Shoda Piggyback 1/2" collet	16	.500"	52
SD-C015-.125	Shoda 24mm (new style) 1/8" collet	24	.125"	52
SD-C015-.250	Shoda 24mm (new style) 1/4" collet	24	.250"	52
SD-C015-.312	Shoda 24mm (new style) 5/16" collet	24	.312"	52
SD-C015-.375	Shoda 24mm (new style) 3/8" collet	24	.375"	52
SD-C015-.500	Shoda 24mm (new style) 1/2" collet	24	.500"	52
SD-C015-.625	Shoda 24mm (new style) 5/8" collet	24	.625"	52
SD-C015-.750	Shoda 24mm (new style) 3/4" collet	24	.750"	52
SS-22-1/4	Super Shoda 1/4" collet	23	1/4"	40
SS-22-3/8	Super Shoda 3/8" collet	23	3/8"	40
SS-22-10	Super Shoda 10mm collet	23	10	40
SS-22-1/2	Super Shoda 1/2" collet	23	1/2"	40



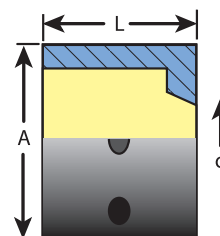
Super Shoda nut



Shoda Collet Nuts

Dimensions are in millimeters.

Part Number	Description	A	d	L
SD-C001-Nut	Shoda piggy back collet nut	36	14	30
SD-20mm-Nut	Shoda old style collet nut	41	19	30
SD-C015-Nut	Shoda new style collet nut	46	22	30
SS22-Nut	Super Shoda collet nut	36	12.5	15
SS22-Ext -Nut	Super Shoda extended nut	36	12.5	30

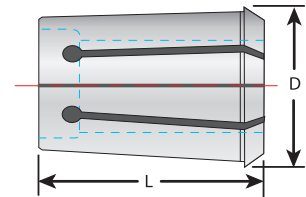




- Runout (T.I.R.) .0004"
- Collapse range: 1/64"
- Made to DIN 6388 standards

These collets conform to DIN 6388 specifications and are made from high-carbon bearing steel that is heat-treated for improved flexibility and longer life. Each collet is precisely ground and honed using a Swiss technique, then individually inspected and tested for quality.

Snap collet into the nut before screwing nut onto spindle or collet holder.



SYOZ and EOC Collets

EOC08	SYOZ20 / EOC12	EOC16	SYOZ25	Shank
83508-1/8	83520-1/8	83531-1/8	83868-1/8	1/8"
83508-3/16	83520-3/16	83531-3/16	83868-3/16	3/16"
83508-1/4	83520-1/4	83531-1/4	83868-1/4	1/4"
83508-5/16	83520-5/16	83531-5/16	83868-5/16	5/16"
	83520-3/8	83531-3/8	83868-3/8	3/8"
	83520-7/16	83531-7/16	83868-7/16	7/16"
	83520-1/2	83531-1/2	83868-1/2	1/2"
		83531-9/16	83868-9/16	9/16"
		83531-5/8	83868-5/8	5/8"
			83868-3/4	3/4"
			83868-7/8	7/8"
			83868-1	1"
	83512-10	83531-10	83868-10	10mm
		83531-16	83868-16	16mm
			83868-20	20mm
			83868-25	25mm

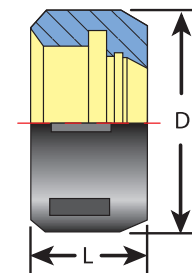
Dimensions

Collet Type	L	D
EOC 08	26mm	14.4mm
EOC 16	40mm	25.5mm
SYOZ 20	34mm	20mm
SYOZ25	52mm	35mm

SYOZ and EOC Nuts and Wrenches

Dimensions are in millimeters.

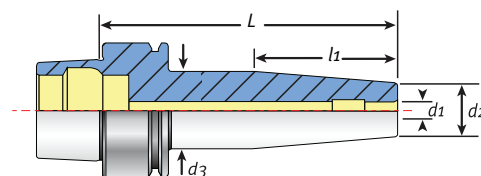
Part No.	Description	L	D	Wrench
83508-NUT	EOC08 PowerCOAT Nut	19	30	-
83636-NUT	EOC16 PowerCOAT Nut	24	43	-
83634	SYOZ20 / EOC12 PowerCOAT Nut	20	35	22220
83632	SYOZ25 PowerCOAT Nut	30	60	03691



HSK40E, HSK50E, ShrinkFIT Holders



- Superior rigidity increases tool-life
- Maximum T.I.R. only 0.0001"
- Balanced 25,000 RPM at G2.5



HSK40E Inch Size ShrinkFIT Holders

Part No.	Description	d1	d2	d3	l1	l2
39001-E	HSK40E x 1/8" I.D. - 3.54"	1/8"	.63	.87"	3.54"	.79"
39002-E	HSK40E x 3/16" I.D. - 3.54"	3/16"	.63"	.87"	3.54"	.79"
39004-E	HSK40E x 1/4" I.D. - 3.54"	1/4"	.71"	1.06"	3.54"	1.42"
39006-E	HSK40E x 5/16" I.D. - 3.54"	5/16"	.79"	1.06"	3.54"	1.42"
39008-E	HSK40E x 3/8" I.D. - 3.54"	3/8"	.94"	1.26"	3.54"	1.53"

HSK40E Metric Size ShrinkFIT Holders

Part No.	Description	d1	d2	d3	l1	l2
39082-E	HSK40E x 3mm I.D. - 80mm	3mm	10mm	18mm	80mm	18mm
39084-E	HSK40E x 4mm I.D. - 80mm	4mm	14mm	22mm	80mm	20mm
39088-E	HSK40E x 6mm I.D. - 80mm	6mm	21mm	27mm	80mm	36mm
39090-E	HSK40E x 8mm I.D. - 80mm	8mm	21mm	27mm	80mm	36mm
39092-E	HSK40E x 10mm I.D. - 80mm	10mm	24mm	32mm	85mm	42mm

HSK50E ShrinkFIT Holders

Part No.	Description	d1	d2	d3	l1	l2
39016-E	HSK50E x 3/16" I.D. - 3.54"	3/16"	.63"	.87"	3.54"	.79"
39018-E	HSK50E x 1/4" I.D. - 3.54"	1/4"	.71"	1.06"	3.54"	1.42"
39020-E	HSK50E x 5/16" I.D. - 3.54"	5/16"	.79"	1.06"	3.54"	1.42"
39022-E	HSK50E x 3/8" I.D. - 3.54"	3/8"	.94"	1.26"	3.54"	1.53"
39024-E	HSK50E x 1/2" I.D. - 3.54"	1/2"	1.10"	1.34"	3.54"	1.85"



- Smaller nose diameter (d2) than standard ShrinkFIT
- Maximum T.I.R. only 0.0001"
- Balanced 25,000 RPM at G2.5

HSK40E SlimLINE ShrinkFIT Holders

Use SlimLINE holders when small nose diameter (d2) tooling is required.

Part No.	Description	d1	d2	d3	l1	l2
99528	HSK40E x 1/8" I.D. - 80mm SlimLINE	1/8"	.44"	.63"	80mm	20mm
99538	HSK40E x 3/16" I.D. - 80mm SlimLINE	3/16"	.5"	.69"	80mm	20mm
99548	HSK40E x 1/4" I.D. - 80mm SlimLINE	1/4"	.56"	.81"	80mm	36mm
99568	HSK40E x 3/8" I.D. - 80mm SlimLINE	3/8"	.69"	.94"	80mm	47mm
99588	HSK40E x 1/2" I.D. - 80mm SlimLINE	1/2"	.81"	1.06"	80mm	47mm



- Maximum T.I.R. only 0.0001"
- Balanced 25,000 RPM at G2.5



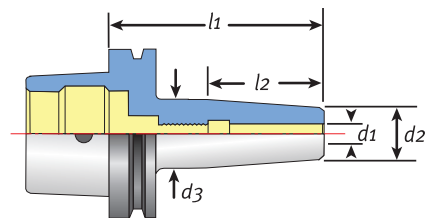
ShrinkFIT
Machines
pg. 30



Retention
Knobs
pg. 34



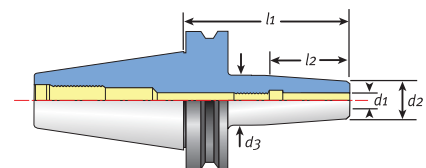
Setup
Equipment
pg. 38



Dimensions are in millimeters unless
otherwise indicated.

HSK63F ShrinkFIT Toolholders

Part No.	Description	d1	d2	d3	l1	l2
71010	HSK63F x 20 - 100	20	33	42	100	52
71011	HSK63F x 25 - 115	25	44	53	115	63
71250	HSK63F x 1/4" - 80	1/4"	21	27	80	36
71375	HSK63F x 3/8" - 95	3/8"	24	32	95	42
71500	HSK63F x 1/2" - 95	1/2"	24	32	95	47
71750	HSK63F x 3/4" - 100	3/4"	33	42	100	52
71100	HSK63F x 1" - 115	1"	44	53	115	53

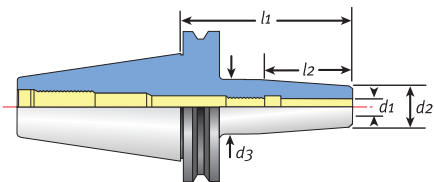


BT30 ShrinkFIT Holders – with drive slots

Part No.	Description	d1	d2	d3	l1	l2
67250	BT30 x 1/4" I.D. - 3"	1/4"	.71"	1.06"	3"	1.42"
67375	BT30 x 3/8" I.D. - 3"	3/8"	.78"	1.06"	3"	1.42"
67500	BT30 x 1/2" I.D. - 3"	1/2"	1.10"	1.34"	3"	1.85"
67625	BT30 x 5/8" I.D. - 3"	5/8"	1.26"	1.34"	3"	1.97"
67750	BT30 x 3/4" I.D. - 3"	3/4"	1.42"	1.15"	3"	2.04"



ShrinkFIT toolholders provide concentric clamping force of 10,000 lbs or more directly on the cutting tool shank to reduce T.I.R. (runout). This is why operators are able to run faster and cutters last longer too.



ISO30 ShrinkFIT Toolholders

Part No.	Description	d1	d2	d3	l1	l2
64250	ISO30 x 1/4" - 80	1/4"	18	27	80	39
64375	ISO30 x 3/8" - 80	3/8"	24	32	80	-
64500	ISO30 x 1/2" - 80	1/2"	28	32	80	25
64625	ISO30 x 5/8" - 80	5/8"	28	32	80	50
64750	ISO30 x 3/4" - 80	3/4"	36	41	80	-
64110	ISO30 x 1.0" - 4"	1.0"			4"	



small footprint
17" wide, 18" deep, 31" tall

Includes everything shown

- Microprocessor controlled induction heat changes tools in 30 seconds
- Automatic cooling using shop air eliminates handling hot tools
- For carbide shank sizes 1/8" to 1-1/4" (works best with h6 shanks)
- The benefits of shrink-fit without the high cost!
- Optional heat sinks reduce cooling cycle time by 50% to only 90 seconds!

"Never Down" Guarantee

We stand behind our products 100% and expect them to out-perform the competition. Purchase a Techniks ShrinkFIT machine with confidence knowing that we can provide a backup if yours should ever need servicing!

Replacement machine is on loan until original is repaired and back in service. Replacement machines are limited to standard configuration. Power requirements may vary from original machine. Replacements are subject to availability. Extended Warranties are also available.

ShrinkSTATION Machine Includes:

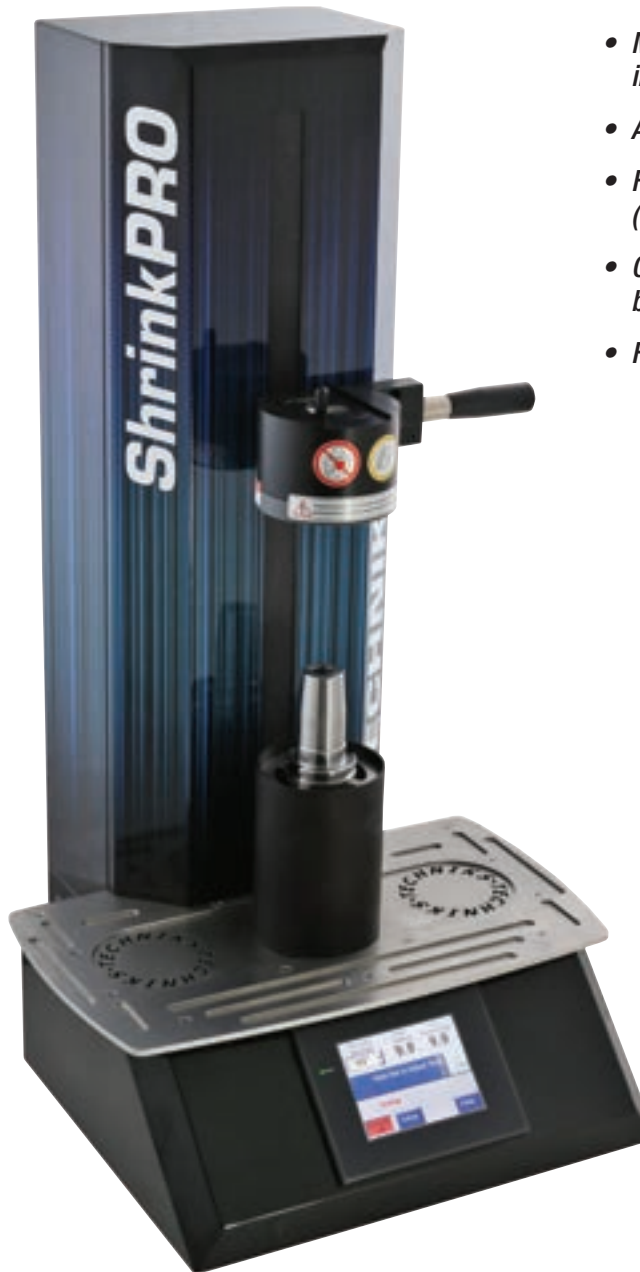
Part No.	Description	QTY.
00300-02-1	small induction head (3-16mm)	1
00300-02-2	large induction head (20-32mm)	1
00165	induction stop ring (3-5mm)	1
00166	induction stop ring (6-12mm)	1
00167	induction stop ring (14-20mm)	1
00168	induction stop ring (25-32mm)	1
00151	toolholder adapter - 30 taper	1
00152	toolholder adapter - 40 taper	1
00153	toolholder adapter - 50 taper	1
00157	toolholder adapter - HSK 40	1
00158	toolholder adapter - HSK 50	1
00159	toolholder adapter - HSK 63	1
00170	toolholder sleeve	1
200.001.018	thermal insulated glove	1

The ShrinkSTATION is our small footprint machine. It only requires 17" x 18" of bench space, so it's easy to add to your shop.

All controls are computerized and easy to use – simply align the induction head with your toolholder, enter your shank size, and press START.

Part No.	Description	Tool Change	Rating	L x D x H	Ship Wt.
00320	ShrinkSTATION	30 seconds	1 phase, 220V, 20A	17" x 18" x 31"	42 lbs

For HSK 32 Toolholder Adapter order Part No. 00156 , For HSK 80 Toolholder Adapter order Part No. 00160.



- Microprocessor controlled induction heat changes tools in only 6 seconds
- Air cooled after heat cycle. 90 psi shop air required
- For carbide or HSS shank sizes 1/8" to 1-1/4" (works best with h6 shanks)
- Optional heat sinks (shown) reduce cooling cycle time by 50% to only 90 seconds!
- Full color screen

All Techniks ShrinkFIT machines use shop air for cooling to eliminate the safety, maintenance, and reliability issues associated with water-cooled shrink fit machines.



Place heat sink over hot toolholder to reduce cooling time by 50%. Can be used with any ShrinkFIT machine to speed cooling process.

Heat Sinks

Part No.	Shank Range
00100-HS1	1/8" thru 1/4"
00100-HS2	1/4" thru 5/16"
00100-HS3	3/8" thru 5/8"
00100-HS4	5/8" thru 3/4"
00100-HS5	3/4" thru 1"
00100-HS6	1" thru 1 1/4"

For HSK 32 Adapter order Part No. 00156.

For HSK 80 Adapter order Part No. 00160.

Included With ShrinkPRO Machine

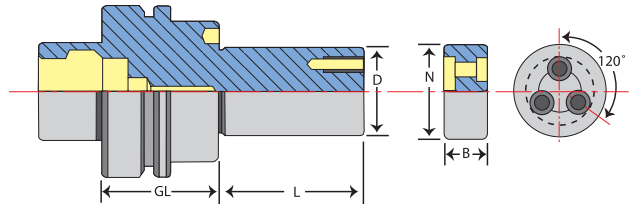
Part No.	Description	QTY.	Part No.	Description	QTY.
00165	induction stop ring (3-5mm)	1	00153	toolholder adapter - 50 taper	1
00166	induction stop ring (6-12mm)	1	00157	toolholder adapter - HSK 40	1
00167	induction stop ring (14-20mm)	1	00158	toolholder adapter - HSK 50	1
00168	induction stop ring (25-32mm)	1	00159	toolholder adapter - HSK 63	1
00151	toolholder adapter - 30 taper	1	00170	toolholder sleeve	1
00152	toolholder adapter - 40 taper	1	200.001.018	thermal insulated glove	1

Part No.	Description	Tool Change	Rating	L x D x H	Ship Wt.
00600	ShrinkPRO machine	6-9 seconds	3 phase, 480V, 30A	20"x 20"x 37"	84 lbs

HSK63F and ISO30 Moulder Head Arbors



- Arbor nut with 3 tightening screws improves safety
- Precision ground taper provides high accuracy



HSK63F Moulder Head Arbors

Dimensions are in millimeters unless otherwise indicated.

Part No.	Description	D	L	N	B	GL
41050	HSK63F 1" arbor x 80	1.0"	80	35	20	45
41086-95-8SC	HSK63F 1" arbor x 95	1.0"	95	35	8	45
41086-120-8SC	HSK63F 1" arbor x 120	1.0"	120	35	8	45
41055-8SC	HSK63F 1-1/4" arbor x 50	1 1/4"	50	45	8	45
41060	HSK63F 1-1/4" arbor x 55	1 1/4"	55	42	20	45
41080-3H	HSK63F 1-1/4" arbor x 80	1 1/4"	80	42	20	45
41085	HSK63F 1-1/4" arbor x 100	1 1/4"	100	42	20	45
41087	HSK63F 1-1/4" arbor x 112	1 1/4"	112	42	20	45
41091	HSK63F 50mm arbor x 153	50mm	153	60	10	33



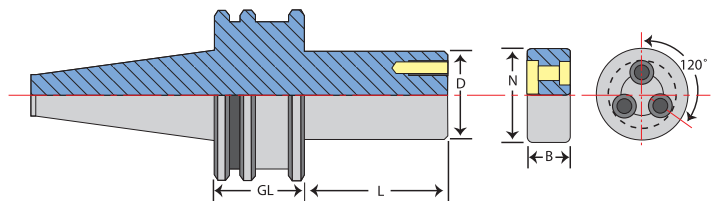
- Arbor nut with 3 tightening screws improves safety
- Taper ground to AT3 specification for accuracy



Retention
Knobs
pg. 34



Setup
Equipment
pg. 38



ISO30 Moulder Head Arbors

Dimensions are in millimeters unless otherwise indicated.

Part No.	Description	D	L	N	B	GL
42700-40-W	ISO30 x 1-1/4" x 40 arbor	1-1/4"	40	42	20	42
42700-55-W	ISO30 x 1-1/4" x 55 arbor	1-1/4"	55	42	20	42
42700-80-W	ISO30 x 1-1/4" x 80 arbor	1-1/4"	80	42	20	42
42700-1.25-100-W	ISO30 x 1-1/4" x 100 arbor	1-1/4"	100	42	20	42

Special sizes made to your specifications. Call for details.

Use this guide to help measure your tools to determine what you need to order, or for special order toolholders built to your specifications.

Make and model of CNC router _____

Pull Stud Dimensions

P = _____

A = _____

L = _____

R = _____

Toolholder Dimensions

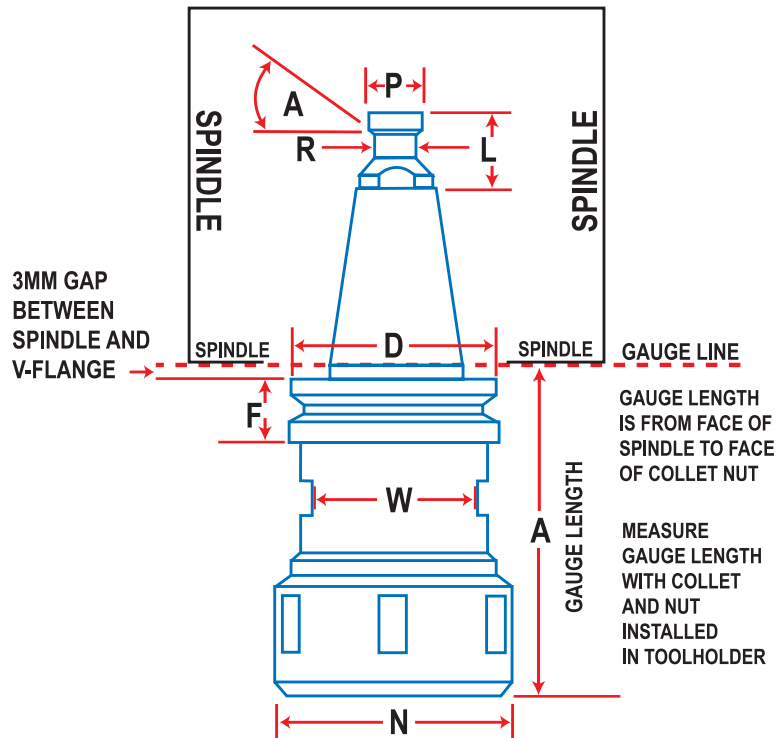
D = _____

F = _____

W = _____

A = _____

N = _____



Make and model of HSK spindle CNC Router _____

Toolholder Dimensions

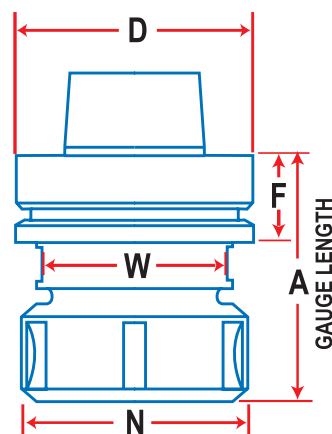
D = _____

F = _____

W = _____

A = _____

N = _____



Retention Knobs for CNC Routers

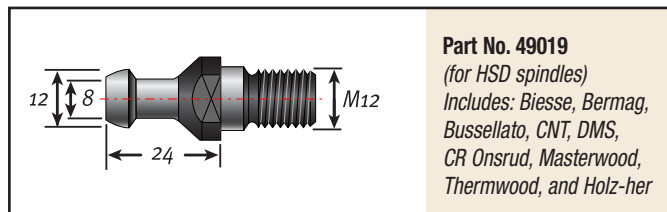


- All mating surfaces precision ground
- Manufactured to the highest standards for maximum safety and long life
- Hardened for maximum longevity

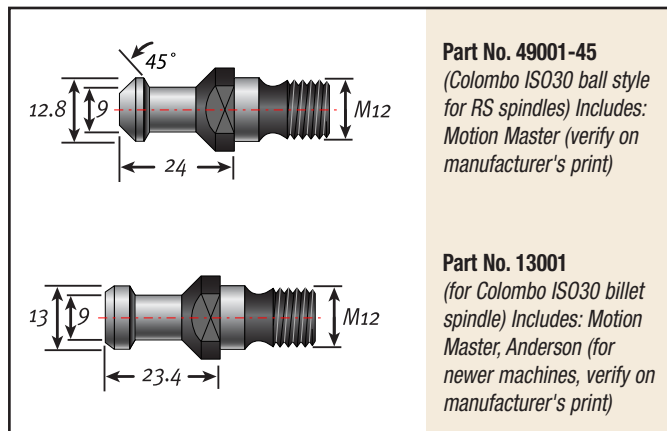
Match the dimensions and appearance of your retention knob to the drawings below. Use the manufacturer's print that came with your machine to verify your selection.

For safe operation, make sure that the pull stud you order is the exact pull stud your machine uses. Using the wrong pull stud can cause damage to the spindle and/or toolholder, and is a safety hazard.

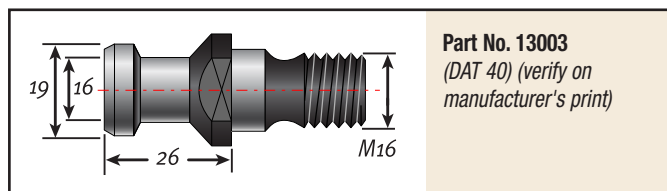
HSD Spindles



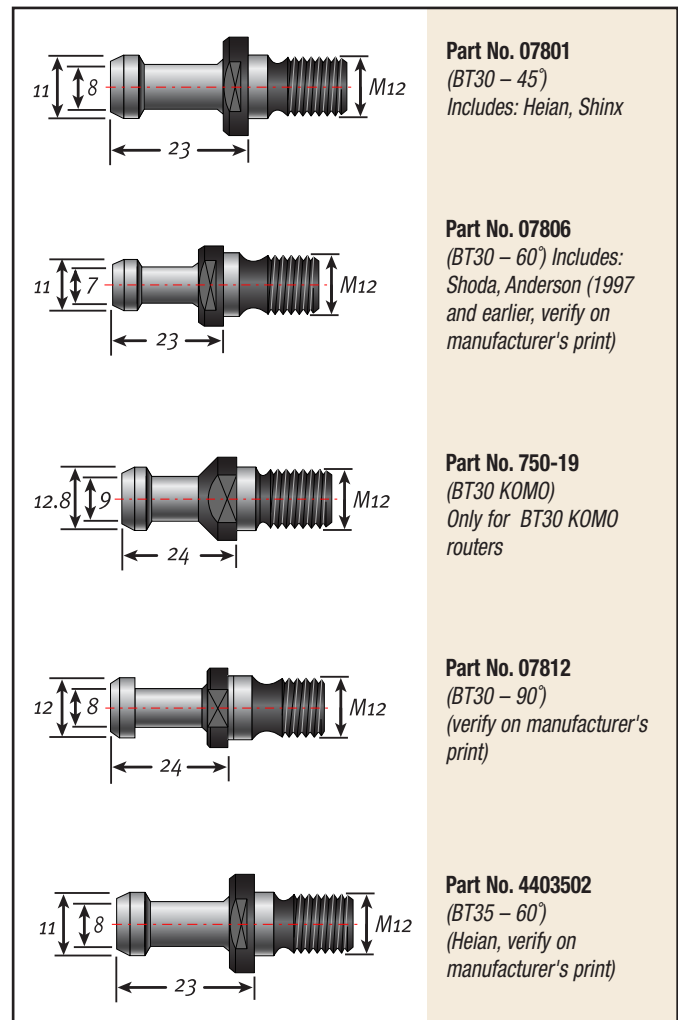
ISO30 Spindles



DAT Spindles



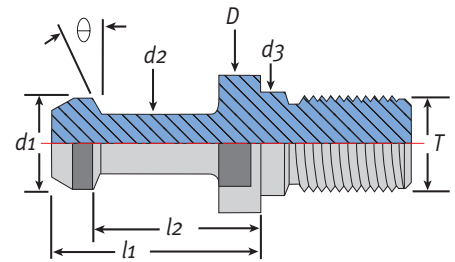
BT Spindles



Special Order Retention Knobs

We can get the pull studs you need. Just fill in your pull stud(s) dimensions on the chart below before you call. Keep your information in this catalog for easy re-orders.

Please carefully select the pull stud you need by referring to the diagram. For safe operation please make sure that the pull stud you order is the exact pull stud your machine uses. Improper choice of pull stud can cause damage to the spindle and/or toolholder, and is a potential safety hazard.



Retention Knob	Machine	d1	d2	l1	l2	θ	T

Special Order Collet Dimensions

Length _____	Diameter _____	Other Markings _____
Length _____	Diameter _____	Other Markings _____
Length _____	Diameter _____	Other Markings _____

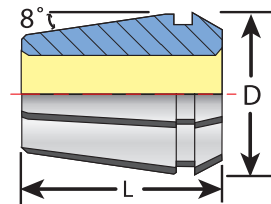
Use the guide below for selecting your replacement collets. The best way to tell what type of collet you need is to measure the length of the collet using a digital caliper. ER, TG, and SYOZ collets all have unique length and diameter measurements.

Standard Collet Dimensions

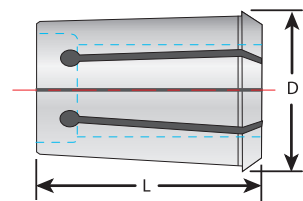
ER Collet Style	Length	O.D. (diameter)
ER11	18mm (0.708")	11.5mm (0.45")
ER16	27.5mm (1.08")	17mm (0.67")
ER20	31.5mm (1.24")	21mm (0.83")
ER25	34mm (1.34")	26mm (1.02")
ER32	40mm (1.57")	33mm (1.3")
ER40	46mm (1.81")	41mm (1.61")
ER50	60 mm (2.36")	52mm (2.05")

DIN 6388 Collet Style	Length	O.D. (diameter)
EOC 8	26mm (1.026")	14.4mm (0.567")
SYOZ20	34mm (1.34")	20mm (0.78")
RD020	34mm (1.34")	20mm (0.78")
407E	34mm (1.34")	20mm (0.78")
EOC12	34mm (1.34")	20mm (0.78")
SYOZ25	52mm (2.06")	35mm (1.38")
RD035	52mm (2.06")	35mm (1.38")
462E	52mm (2.06")	35mm (1.38")
EOC32	60mm (2.36")	43.7mm (1.72")

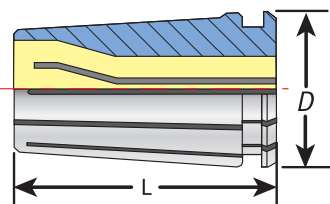
TG Collet Style	Length	O.D. (diameter)
TG75	47mm (1.85")	27mm (1.06")
TG100	60mm (2.36")	35mm (1.38")



ER Collet Style



SYOZ Collet Style



TG Collet Style

Type A, UM, RU, and M Hand Wrenches



DNA slotted wrench



ER hex wrench



ER slotted wrench

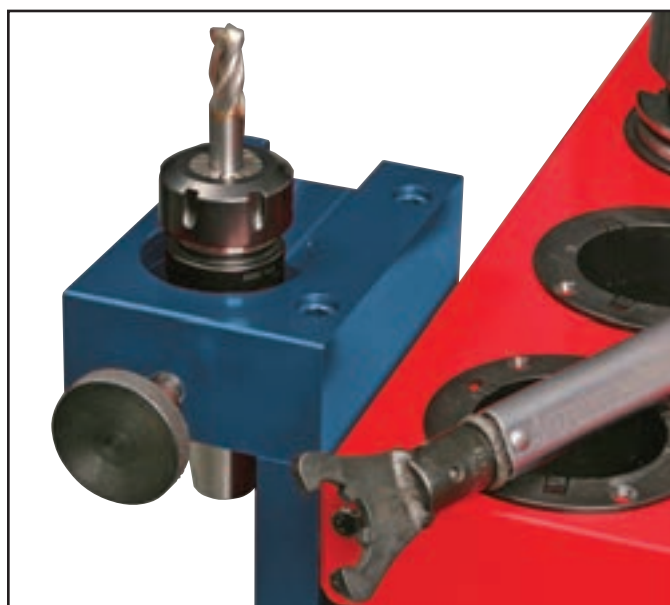


ER mini wrench



TG hook wrench

Note: Correct torque on the collet nut reduces collet wear and improves safety by properly securing cutting tool in the holder. Use the torque chart on page 37 for tightening collet nuts. Do not over-tighten nuts or you may damage the collet and/or toolholder.



Use a tightening fixture to secure the tool holder.

DNA Hand Wrenches

Part No.	Description	Nut Type
DNA11W	DNA 11 wrench	DNA-11 slotted
DNA16W	DNA 16 wrench	DNA-16 slotted
DNA20W	DNA 20 wrench	DNA-20 slotted
DNA32W	DNA 32 wrench	DNA-32 slotted
894-22	DNA mini nut wrench	hex

ER Hex Hand Wrenches

Part No.	Description	Nut Type
894-36	TE-Stubby wrench	TE Stubby
04608	ER11-A wrench	A (Hex)
04609	ER16-A wrench	A (Hex)
04610	ER20-A wrench	A (Hex)

ER Slotted Hand Wrenches

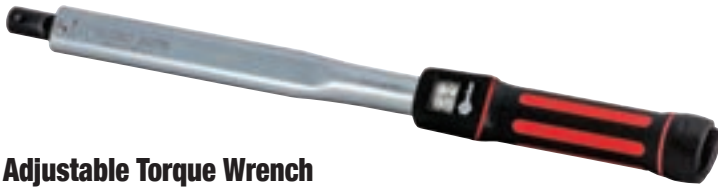
Part No.	Description	Nut Type
04613	ER16-E wrench	slotted
04614	ER20-E wrench	slotted
04615	ER25-E wrench	slotted
04616	ER32-E wrench	slotted
04617	ER40-E wrench	slotted
04618	ER50-E wrench	slotted

ER Mini Hand Wrenches

Part No.	Description	Nut Type
04620	ER8-M wrench	ER Mini
04621	ER11-M wrench	ER Mini
04622	ER16-M wrench	ER Mini
04623	ER20-M wrench	ER Mini
04624	ER25-M wrench	ER Mini

Hook Style TG Hand Wrenches

Part No.	Description	Nut Type
04018	TG75 wrench	TG75
03691	TG100 wrench	TG100
22220	SYOZ 20 wrench	SYOZ 20
01250-13S	Drill Chuck wrench	Chuck



- Get constant cutting tool performance
- Ensure proper tightening for best T.I.R.
- Prevent tool accidents

Adjustable Torque Wrench

Part No.	Torque Range	Length	Weight	Spigot
60 TH	5-45 ft/lbs	12"	1 lb.	16mm round
200 TH	30-150 ft/lbs	16.5"	1.75 lbs	16mm round
300 TH	45-228 ft/lbs	21.5"	2.5 lbs	16mm round



Set adjustable dial to the correct amount of torque and tighten nut until wrench "clicks".

Collet Keys For Adjustable Torque Wrench

Part No.	Collet Nut Size	Type	Recommended Torque
04576	ER11 Mini	Mini	12 ft/lbs
04577	ER16 Mini	Mini	20 ft/lbs
04578	ER20 Mini	Mini	22 ft/lbs
04587	ER25 Mini	Mini	26 ft/lbs
04580-16	ER16 Slotted	Slotted	42 ft/lbs
04601-16	ER16 Hex	Hex	42 ft/lbs
04580-20	ER20 Slotted	Slotted	59 ft/lbs
04602-20	ER20 Hex	Hex	59 ft/lbs
04603-25	ER25 Slotted	Slotted	77 ft/lbs
04604-32	ER32 Slotted	Slotted	100 ft/lbs
04605-40	ER40 Slotted	Slotted	130 ft/lbs
03690-25	SY0Z25/TG100	Hook	90 ft/lbs
04018-TWA	TG75 Slotted	Hook	90 ft/lbs
DNA11TWA	DNA 11	Slotted	12 ft/lbs
DNA16TWA	DNA 16	Slotted	42 ft/lbs
DNA20TWA	DNA 20	Slotted	59 ft/lbs
DNA32TWA	DNA 32	Slotted	100 ft/lbs
04588-R	ER32 Slotted	Slotted	100 ft/lbs
SD-TWA	SY0Z-20	Hook	40 ft/lbs



ER25 Mini



DNA 16 Slotted



ER Slotted



Hex



TG Hook / SY0Z



04588-R

Retention Knob Sockets-Square Drive

Part No.	Taper or Holder	Flats	Drive	Recommended Torque
PSS - 30BT	BT30 Taper Retention Knob	0.535"	3/8"	36 ft/lbs
PSS - 30ISO	ISO30 Taper Retention Knob	0.535"	3/8"	36 ft/lbs
PSS - 40	All 40 Taper Retention Knobs	0.750"	3/8"	76 ft/lbs
PSC - 50	All 50 Taper Retention Knob	1.250"	1/2"	100 ft/lbs

Fixed Head Square Drives

Part No.	Description	Drive
29828	3/8" Square Drive	3/8"
29827	1/2" Square Drive	1/2"



Square Drives

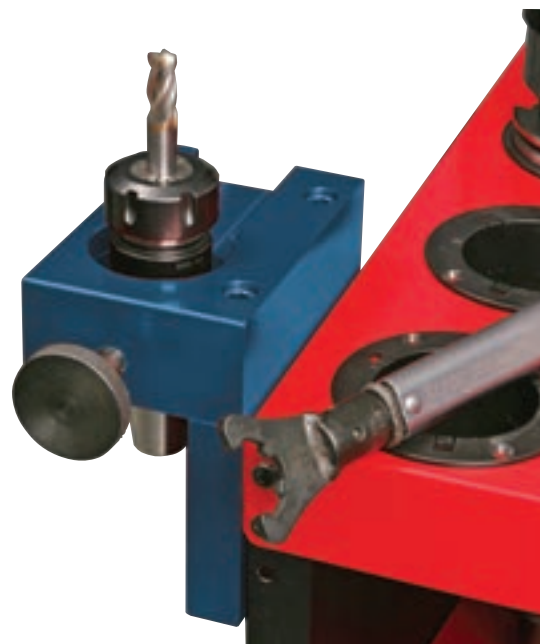


Retention Knob Sockets



- For HSK, ISO, BT, CAT spindles
- Change Retention Knobs from underneath
- Bolts to side of workbench or tool cart

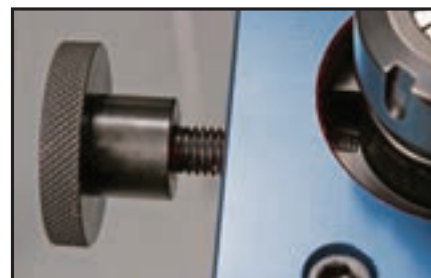
A sliding collar engages the wrench flats on HSK toolholders to allow tightening of collet nut.



Side Mount Tightening Fixture

Part No.	Description
NTS-BT30-38	BT30 taper - 38mm flats
NTS-BT30-41	BT30 taper - 41mm flats
NTS-BT30-Slot	BT30 for tools with drive slots
NTS-ISO20-17	ISO20 - 17mm flats
NTS-ISO20-22	ISO20 - 22mm flats
NTS-ISO25-27	ISO25 - 27mm flats
NTS-ISO30-36	ISO30 - 36mm flats
NTS-ISO30-38	ISO30 - 38mm flats
NTS-ISO30-47	ISO30 - 47mm flats
NTS-HSK63A	HSK63A - no flats
NTS-HSK63F-36	HSK63F - 36mm flats
NTS-HSK63F-38	HSK63F - 38mm flats
NTS-HSK63F-41	HSK63F - 41mm flats
NTS-HSK63F-46	HSK63F - 46mm flats
NTS-40-Taper	Any CAT40 or BT40 taper

Note: Correct torque on the collet nut reduces collet wear and improves safety by properly securing cutting tool in the holder. Use the torque chart on page 37 for tightening collet nuts. Do not overtighten nuts or you may damage the collet and/or toolholder.



A large set-screw engages the drive slot in ISO, BT, and CAT toolholders to securely hold the tool in the fixture.



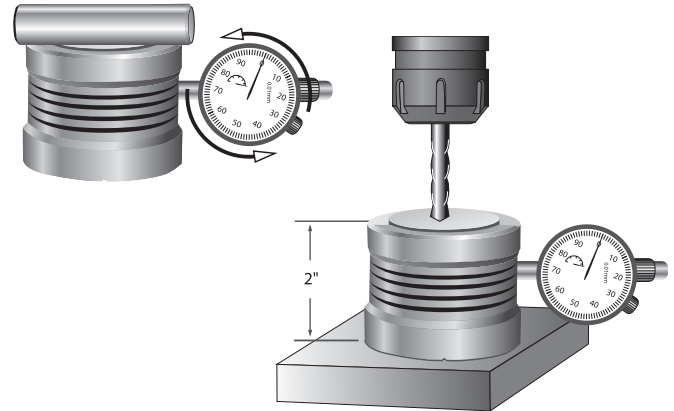
analog preset gauge

- Accuracy 0.0002"
- Easy to measure tool depth
- Height 50mm (2")

Save valuable machine time by using axial preset gauges to quickly set tool depth and increase accuracy.

Operation

1. Use the gauge pin included to press down on the spring-loaded center piece as illustrated. Please be sure the gauge pin is placed on the shiny surface.
2. Turn the indicator to read "0", then remove the gauge pin.
3. Put the unit on the workpiece and carefully jog the tool down to make contact with the gauge face. When the gauge reads "0" the tool is 50mm (2") above the workpiece.



Analog Axial Preset Gauge

Part No.	Description
17906-2	ZSI-50 Preset Gauge



- For CAT, BT, HSK spindles
- Remove contaminants to improve T.I.R.
- Keeps spindles and toolholders clean

Spindle Wipers

Dimensions are in millimeters.

Part No.	Taper	Total	Taper
17706	30	170	60
17707	40	188	78
17708	50	240	120
38036	HSK63A	165	31
38032	HSK63F	165	31

Real lambskin provides the best cleaning. Use with any type of machine with a taper of 7/24 CAT, BT or DIN 69871.

Innovative Aggregates Speed Processing Operations

Aggregates Increase Productivity

We have made hundreds of different types of aggregates and can make practically any application specific aggregate you need.

Call us to discuss your application and find out if a standard aggregate head will meet your need, or if a custom solution is required.



*variable angle routing,
drilling, or sawing*



*3 inline outputs
for boring*



corner squaring



profiling aggregate



oscillating aggregate speeds mortising.



*mortising
chainsaw style*



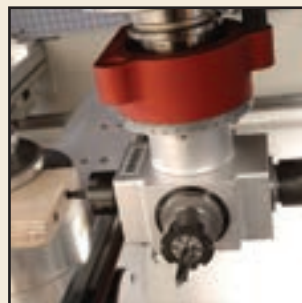
*spindle speeder
aggregate
36,000 RPM*



combine sawing & drilling



multi-spindles speed processing



4 spindles for different tasks



grooving with a saw arbor

Hand Built To Meet Your Needs

We promise

- unmatched reliability
- unmatched performance
- unmatched support

How you benefit

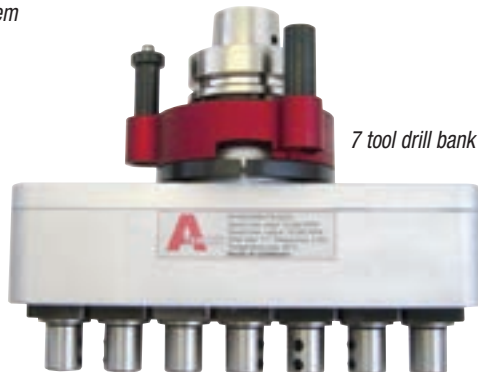
- increase productivity
- increased reliability
- reduced machine down-time



*Floating Aggregate with
Chip Guide System*



variable angle sawing



7 tool drill bank



Only the very best components available are used to create our aggregate heads. This is why our aggregate heads run cool, quiet, and trouble-free.

Every aggregate head we make is individually hand assembled by one, highly skilled technician who is personally responsible for the quality of that aggregate, and signs their name to the aggregate upon completion.

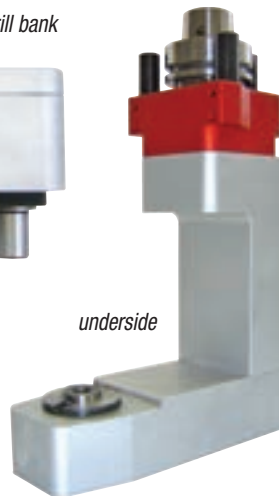
Our assembly process is a labor of love, but the end result is well worth the effort.



lock recess



multiple outputs



underside



shaping with cutting knives



high-speed processing



cutting pocket with chainsaw



lock recess aggregate

SmartLINE Aggregates



SmartLINE Aggregates are compact design, light weight aggregates that are great for smaller routers or where improved clearance or maneuverability is required. They are available in a variety of stock configurations and are grease lubricated like our FunctionLINE for standard-duty processing operations. *See page 41 for SmartLINE.*

FunctionLINE Aggregates



FunctionLINE Aggregates are the most versatile aggregates in our offering. They are available in a wide array of configurations, and can be purpose-built for almost any application specific operation. These aggregates are grease lubricated for continuous operation in standard duty applications. *See page 47 for FunctionLINE.*

UltraLINE Aggregates



UltraLINE Aggregates are oil bath lubricated for heavy-duty processing operations. We recommend the UltraLINE for sawing using blades larger than 7", V-grooving, heavy routing applications, cutting MDF, composite materials, or cutting aluminum. They are available in a variety of stock configurations. *See page 59 for UltraLINE.*



How To Order Aggregates

Call us at (800) 597-3921 to talk live with one of our application engineers who will help you determine the best aggregate for your requirements. Please specify the router manufacturer, the spindle type (HSK, ISO, BT, etc.), a description of your application, and the material being processed. We will make sure you get the right aggregate for your needs.



"Never Down" Guarantee

We stand behind our products 100% and expect them to outperform the competition. Purchase a Techniks aggregate with confidence knowing that we can provide a backup aggregate if yours should ever need servicing!

Replacement aggregate is on loan until original aggregate is repaired and back in service. Replacement aggregates are limited to standard configuration and subject to availability.

We are so sure you are going to love our aggregate heads, that we are offering you a **FREE ER Collet Set** with any aggregate purchase!

FREE!



Over \$400 Value!

Why are we doing this?

Because we know that once you try Techniks aggregate heads, you will so pleased with our quality and performance that you will become a customer for life. And now, with our **NEVER DOWN** guarantee, we can guarantee your complete satisfaction!

Choose from hundreds of aggregate head solutions like this modular connection aggregate that provides more flexibility in tool selection.

Custom aggregates are included in this promotion!

Your choice of an ER32 or ER25 collet set with the purchase of any aggregate head! **Over \$400 value!**





Specify your machine spindle when ordering.

SmartLINE Duo Compact Aggregate

Light weight design aggregate for standard-duty operations on smaller routers or where space is limited.

Features include dual spindle outputs that are great for drilling and sawing applications.

Use For:

- Combine boring and sawing operations
- Creating custom profiles and mortises
- Faster sizing and grooving (saw blade)

Features:

- Output: two-sided, right angle
- Output options: ER25, saw blade

Includes:

- Collet nut & wrenches
- ER collets sold separately

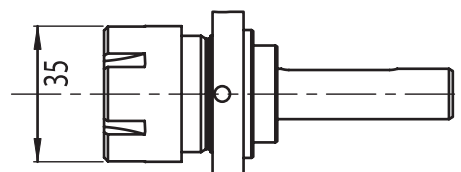
SmartLINE Duo Aggregates are one of our most popular choices because they can be configured with multiple ER25 outputs, a combination of ER and saw outputs, or even with two S1 saw outputs as needed.

All SmartLINE aggregate heads are individually hand-built just like our other aggregate lines. They offer full aggregate functionality for standard duty operations in a compact design for smaller routers. SmartLINE aggregates are grease lubricated and offer an excellent price-to-performance ratio.

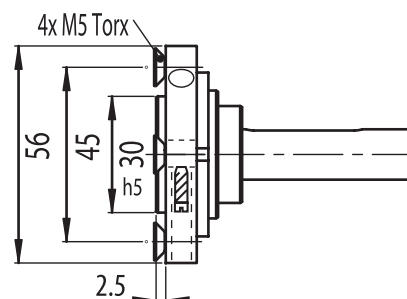
SmartLINE – Duo Aggregate

Spindle Speed Max.	8,000 RPM
Tool Speed Max.	12,000 RPM
Rotation	Aggregate can be rotated 360°
Lubrication	grease
Gear Ratio	1:1.48
Maximum Torque	12 ft/lbs
Output Directions	one output rotates same as machine spindle, one opposite
Maximum Temp.	185°F
Spindle Outputs*	M5, S1

SmartLINE Duo Output Options

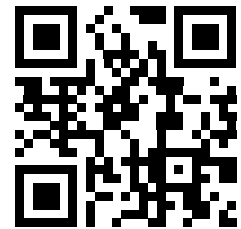
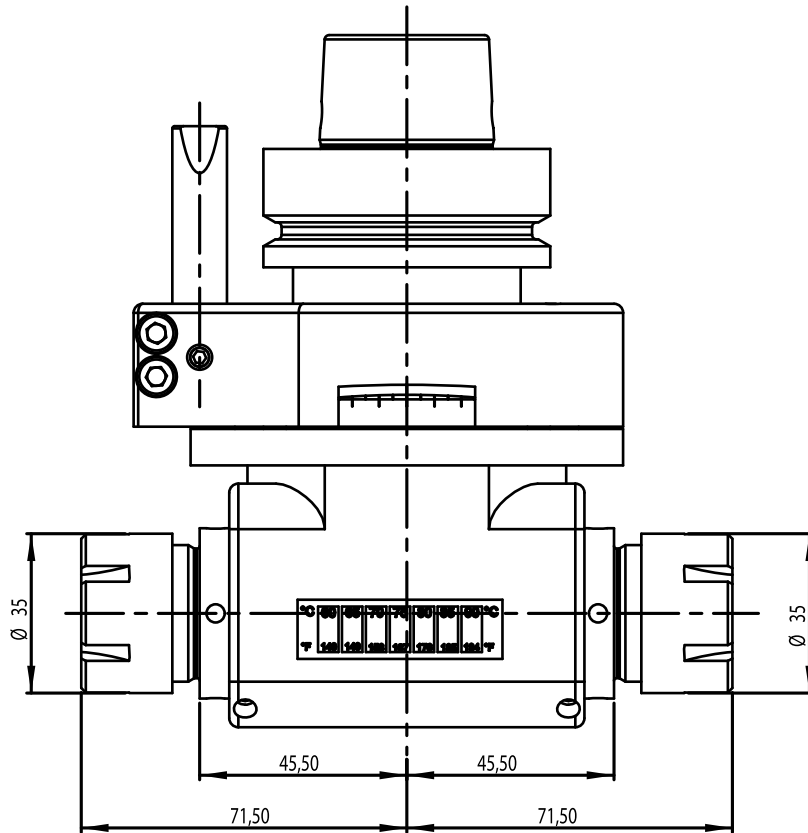


M5 - ER25 Collet and nut
Range: 1mm – 16mm



S1 - Saw Spindle, 45mm bolt circle
w/ 10 mm bore for router bit

SmartLINE Duo Dimensions (mm)



Scan the QR code or enter this url: <http://delivr.com/1hlv9> to learn more about agg heads.



Learn about our "Never Down" Guarantee – See page 42



processing plastic



saw and drill configuration



dual ER25 outputs



Vario aggregate shown

Specify your machine spindle when ordering.

Use Vario or Viso Aggregates to cut at any angle from 0° to 100°. The Viso digital display aggregate takes the guesswork out of repeating angles, and makes transfer of angles from prints to aggregate easy. Vario aggregates can be fitted with an ER25 output, or the Combi saw output that is compatible with 45mm or 52mm bolt circles. The Viso can also accept the modular system.

SmartLINE – Vario and Viso Aggregates

Spindle Speed Max.	12,000 RPM
Tool Speed Max.	12,000 RPM
Lubrication	grease
Rotation	Aggregate can be rotated 360°
Gear Ratio	1:1
Swiveling Range	0° to 100°
Maximum Torque	3 ft/lbs
Spindle Direction	Same as machine spindle
Maximum Temp.	185°F
Spindle Outputs*	K1, K2

SmartLINE Vario and Viso Adjustable Angle

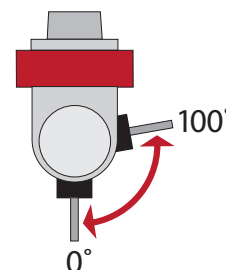
All the features of the FunctionLINE Vario, but compact-sized for applications where operating space or aggregate weight are a concern.

Features:

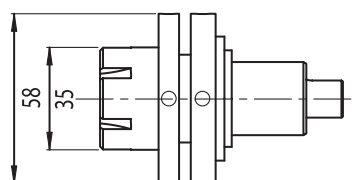
- Variable angle single output (0° - 100°)
- Viso features digital display for easy angle setting
- Output options: combination ER25 & saw blade or modular system

Includes:

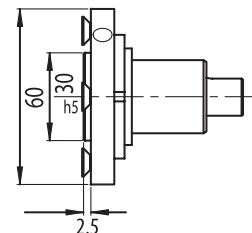
- Collet nut & wrenches
- ER collets sold separately



SmartLINE Vario or Viso Output Options

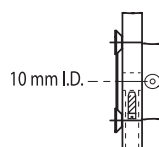


K1 - ER25 Collet and saw blade

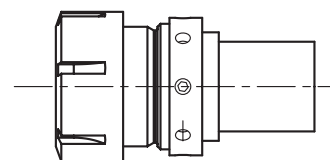


K2 - Saw blade with either 45mm or 52mm bolt circle

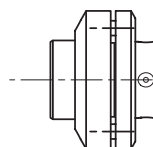
Modular Output Options (Viso Only)



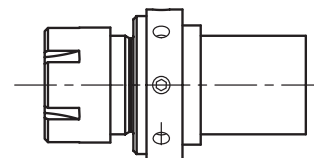
S1 - Modular Saw Spindle w/ 10 mm bore for router bit



R6 Modular - ER32

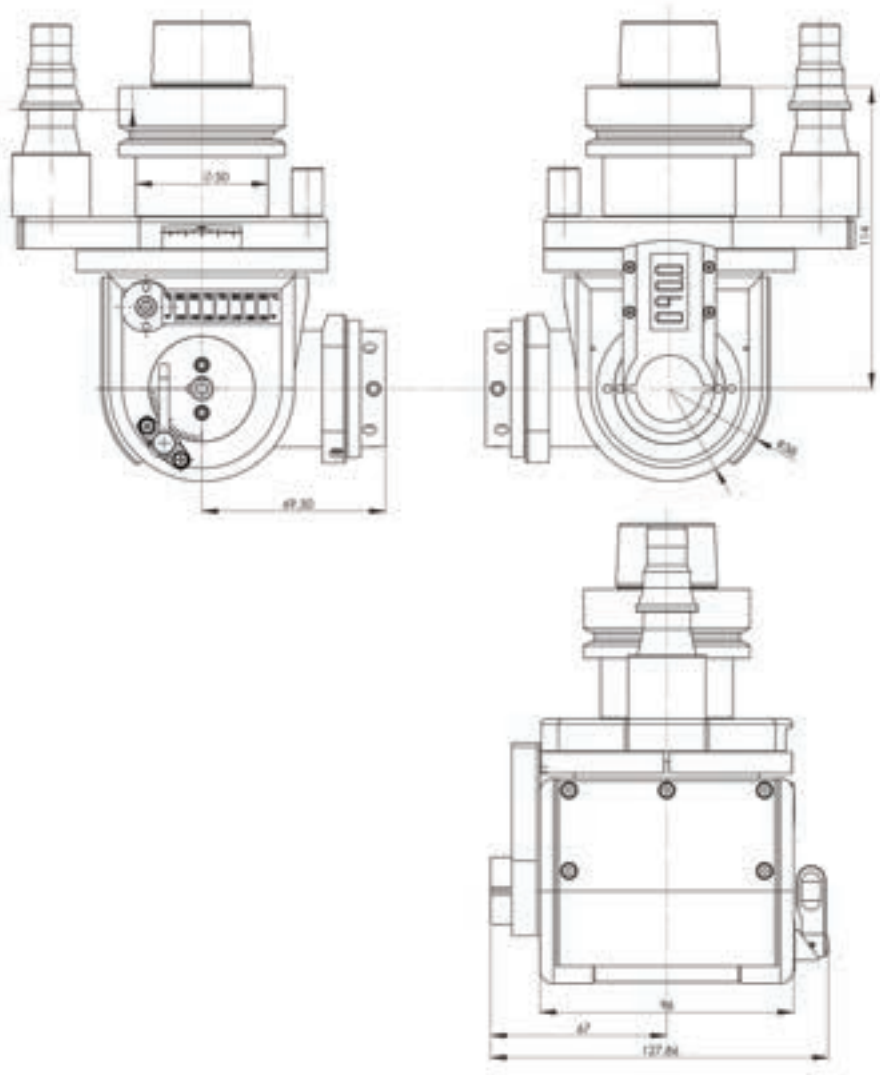


P1 - Modular Saw Arbor
Range: 1.5mm-4mm tool shank



M5 - Modular ER25

SmartLINE Vario and Viso Dimensions (mm)



Learn about our "Never Down" Guarantee – See page 42

Viso Digital Display Aggregate



**Scan the QR code
or enter this url:
<http://delivr.com/1hlug> to learn
more about
Viso aggregate
heads**



Vario sawing



adjusts angle as needed



Viso Digital Display



Specify your machine spindle when ordering.

SmartLINE Aggregates are individually hand-built just like our other aggregate lines. They offer full aggregate functionality for standard duty operations in a compact design for smaller routers. SmartLINE aggregates are grease lubricated and offer an excellent price-to-performance ratio.

SmartLINE Lock Recess

Spindle Speed Max.	8,000 RPM
Tool Speed Max.	12,000 RPM
Lubrication	grease
Rotation	Aggregate can be rotated 360°
Gear Ratio	1:1.48
Maximum Torque	3 ft/lbs
Spindle Direction	Same as machine spindle
Maximum Temp.	185°F
Spindle Outputs*	M5

SmartLINE Extra Lockset Recess

Innovative lockset recess aggregate features compact design and lighter weight to make this the ideal aggregate for working in tight spaces. Offset design is optimized for cutting lockset recesses, but can be used for other boring applications.

Use For:

- routing out lockset recesses
- other boring operations

Features:

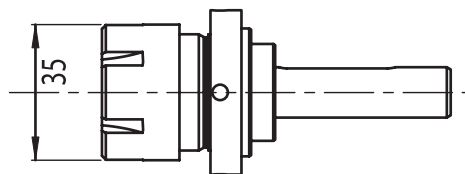
- Offset design optimized for longer tooling operations such as mortising
- Output options: ER25

Includes:

- Collet nut & wrenches
- ER collets sold separately

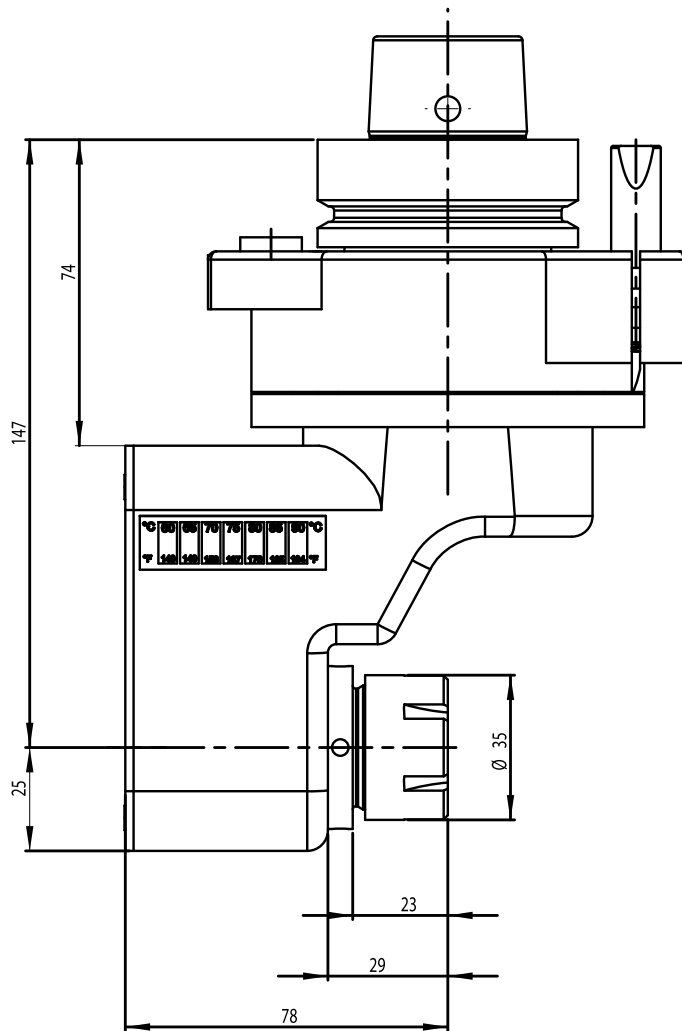


SmartLINE Extra Lockset Recess Output



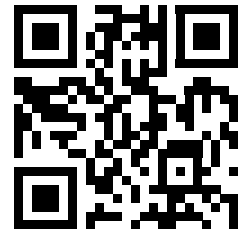
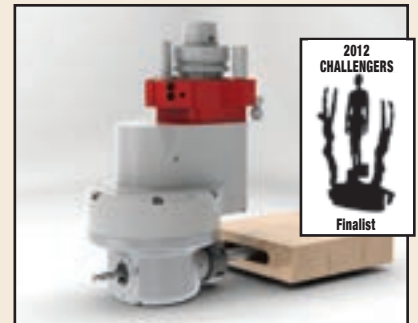
M5 - ER25 Collet and nut
Range: 1mm – 16mm

SmartLINE Extra Lockset Recess

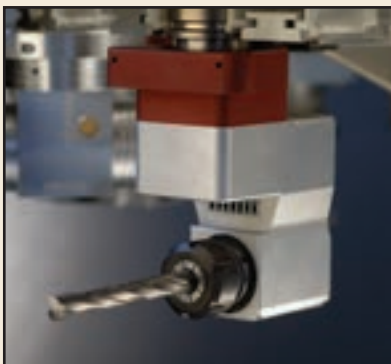
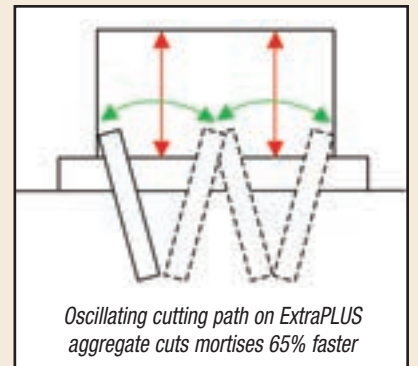


Learn about our "Never Down" Guarantee – See page 42

New! ExtraPLUS Aggregate



**Scan the QR code or enter this
url: <http://delivr.com/1hrj9>
to learn more about ExtraPLUS.**



Extra Lockset Recess Aggregate



Mortising a lockset recess



Extra Lockset Recess Aggregates



FunctionLINE Mono aggregates can be configured with either ER25 or ER32 outputs, or a saw arbor, or for maximum flexibility a modular output that allows switching between saw spindles or ER outputs.

All FunctionLINE aggregate heads are grease lubricated for standard duty operation. They provide the greatest number of configurations and application specific tool output options to increase CNC router productivity.

FunctionLINE – Mono Aggregate

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Rotation	aggregate can be rotated 360°
Lubrication	grease
Gear Ratio	1:1.48
Maximum Torque	15 ft/lbs
Spindle Direction	same as machine spindle
Maximum Temp.	185°F
Spindle Outputs*	M5, R6, S1, S2, Modular

FunctionLINE Mono Aggregate

An affordable way to add 4th axis capability to your CNC router. Perform routing, boring, mortising, and sawing operations faster to increase profits.

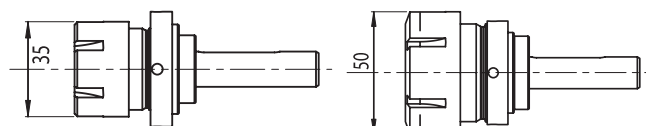
Features

- Single, right angle output (other angles available)
- Output options: ER25, ER32, saw blade, modular

Includes:

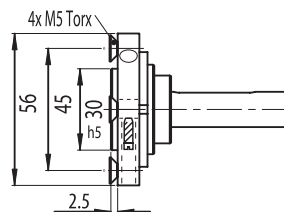
- Collet nut & wrenches
- ER collets sold separately

FunctionLINE Mono Output Options

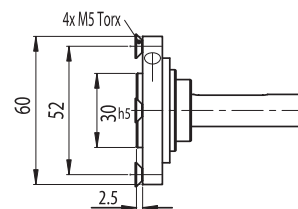


M5 - ER25 Collet, and nut
Range: 1mm – 16mm

R6 - ER32 Collet,
Range: 3mm – 20mm

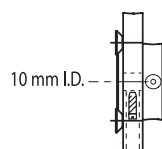


S1 - Saw Spindle, 45mm bolt circle
w/ 10 mm bore for router bit

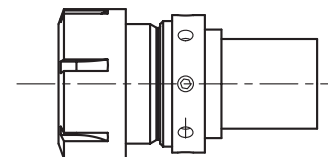


S2 - Saw, Spindle,
52mm bolt circle

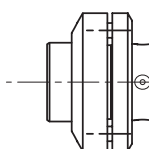
FunctionLINE Mono Modular System Options



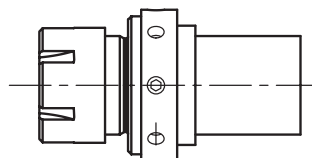
S1 - Modular Saw Spindle
w/ 10 mm bore for router bit



R6 Modular - ER32

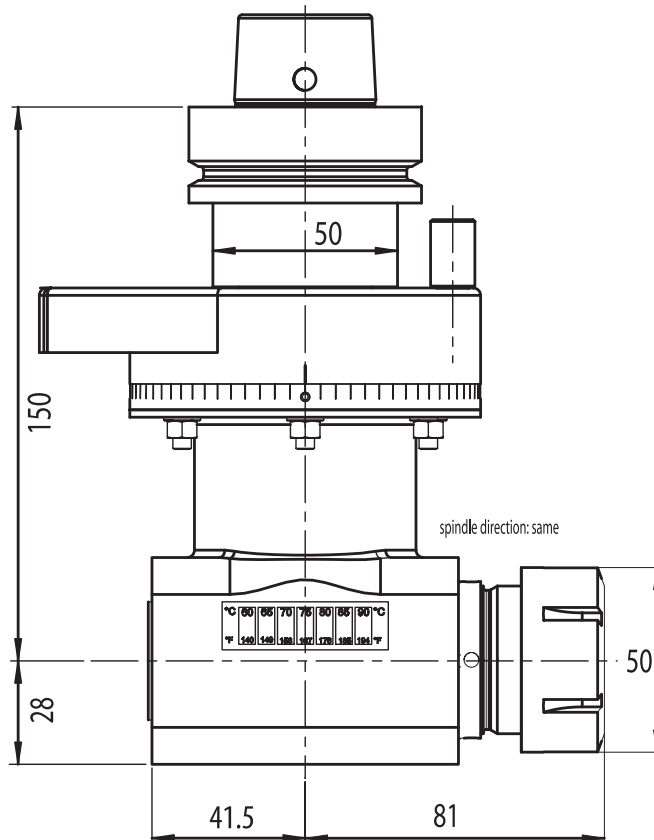


P1 - Modular Saw Arbor
Range: 1.5mm-4mm tool shank

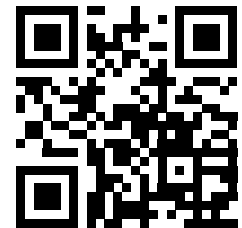


M5 - Modular ER25

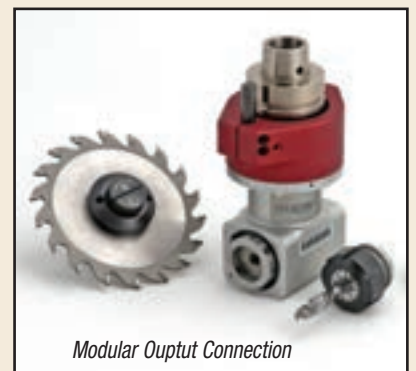
FunctionLINE Mono Dimensions (mm)



Aggregate Heads at Work



Scan the QR code or enter this url: <http://delivr.com/1hmzs> to see our agg heads in action.



Learn about our "Never Down" Guarantee – See page 42



Edge Routing



Sawing



Boring



Specify your machine spindle when ordering

FunctionLINE Duo aggregates can be configured with ER25 or ER32 outputs, a saw arbor, or for maximum flexibility a modular output that allows switching between saw spindles or ER outputs.

All FunctionLINE aggregate heads are grease lubricated for standard duty operation. They provide the greatest number of configurations and application specific tool output options to increase CNC router productivity.

FunctionLINE – Duo Aggregate

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Rotation	aggregate can be rotated 360°
Lubrication	grease
Gear Ratio	1:1.48
Maximum Torque	15 ft/lbs
Spindle Direction	#1 clockwise, #2 opposite
Maximum Temp.	185°F
Spindle Outputs*	M5, R6, S1, S2, Modular

FunctionLINE Duo Aggregate

Add 4th axis capability and reduce the need for additional tool changes. Perform routing, boring, mortising, and sawing operations faster to increase profits.

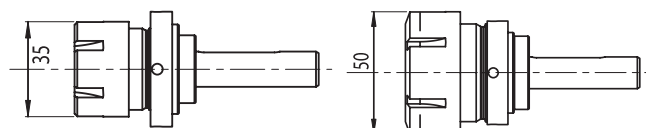
Features

- Dual, right angle outputs (other angles available)
- Output options: ER25, ER32, saw blade, modular

Includes:

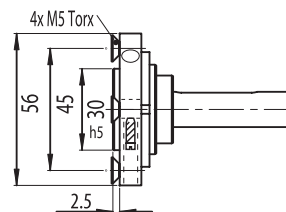
- Collet nuts & wrenches
- ER collets sold separately

FunctionLINE Duo Output Options

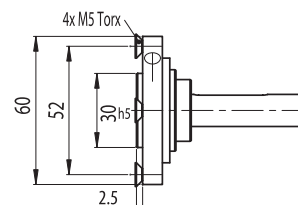


M5 - ER25 Collet, and nut
Range: 1mm – 16mm

R6 - ER32 Collet,
Range: 3mm – 20mm

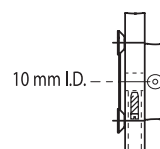


S1 - Saw Spindle, 45mm bolt circle
w/ 10 mm bore for router bit

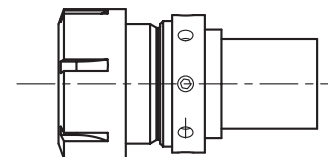


S2 - Saw, Spindle,
52mm bolt circle

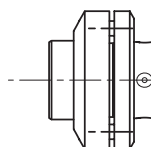
FunctionLINE Duo Modular System Options



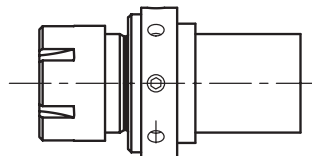
S1 - Modular Saw Spindle
w/ 10 mm bore for router bit



R6 Modular - ER32

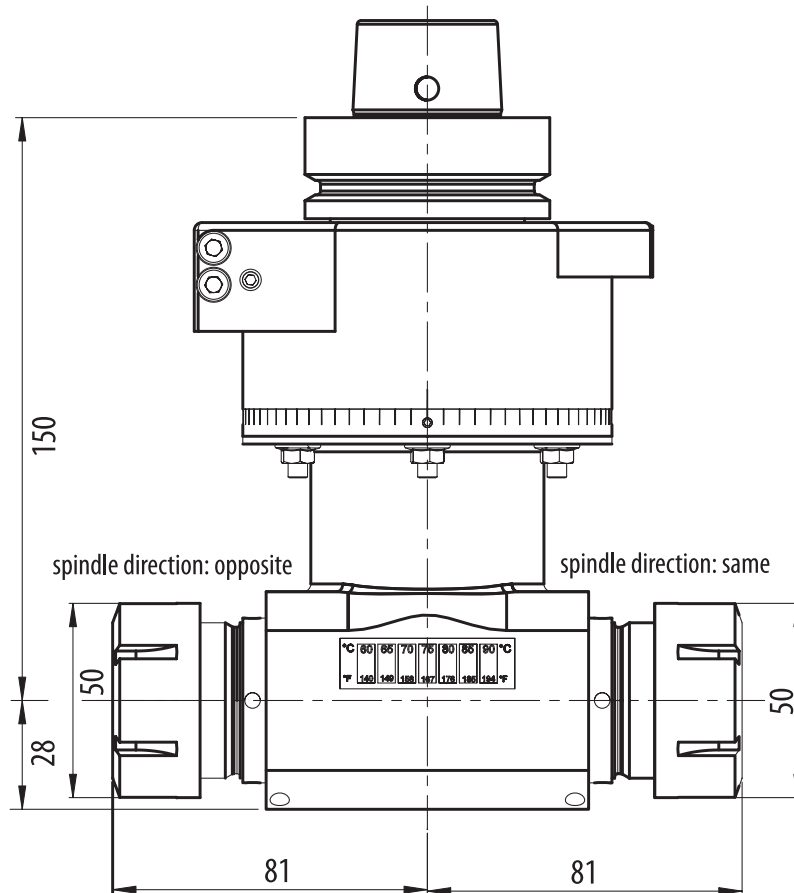


P1 - Modular Saw Arbor
Range: 1.5mm-4mm tool shank

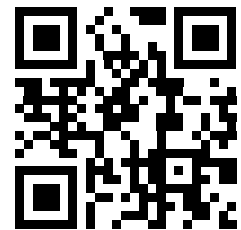


M5 - Modular ER25

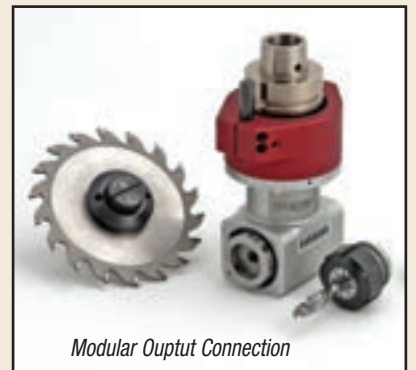
FunctionLINE Duo Dimensions (mm)



Learn about our "Never Down" Guarantee – See page 42



Scan the QR code or enter this url: <http://delivr.com/1hlv9> to learn more about agg heads.



Boring



Mortising



Sawing



FunctionLINE Quattro aggregates can be configured with 4 ER25 outputs, or two ER25 and two ER32 outputs, or two modular outputs and two ER25 outputs. Modular outputs are required for saw spindles.

All FunctionLINE aggregate heads are grease lubricated for standard duty operation. They provide the greatest number of configurations and application specific tool output options to increase CNC router productivity.

FunctionLINE – Quattro Aggregate

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Rotation	aggregate can be rotated 360°
Lubrication	grease
Gear Ratio	1:1.48
Maximum Torque	15 ft/lbs
Spindle Direction	#1 & #2 clockwise, #3 & #4 opposite
Maximum Temp.	185°F
Spindle Outputs*	M5, R6, S1, Modular

FunctionLINE Quattro Aggregate

Use Quattro Aggregates when three or more tools are required for routing, boring, mortising, and sawing operations. Choose from a wide variety of spindle outputs. (See chart below)

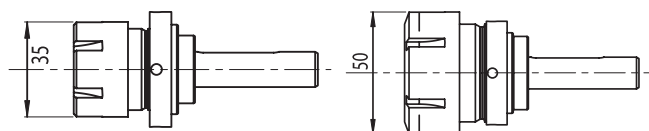
Features

- Quad, right angle outputs
- Practically eliminate time consuming tool changes
- Output options: ER25, ER32, saw blade, modular

Includes:

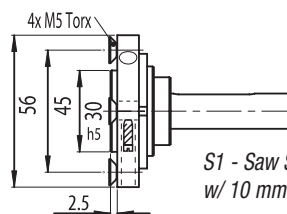
- Collet nuts & wrenches
- ER collets sold separately

FunctionLINE Quattro Output Options



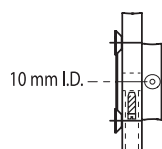
M5 - ER25 Collet, and nut
Range: 1mm – 16mm

R6 - ER32 Collet,
Range: 3mm – 20mm

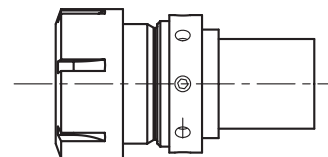


S1 - Saw Spindle, 45mm bolt circle
w/ 10 mm bore for router bit

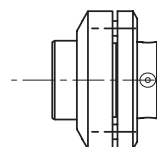
FunctionLINE Quattro Modular System Options



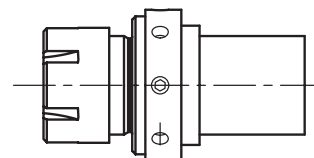
S1 - Modular Saw Spindle
w/ 10 mm bore for router bit



R6 Modular - ER32

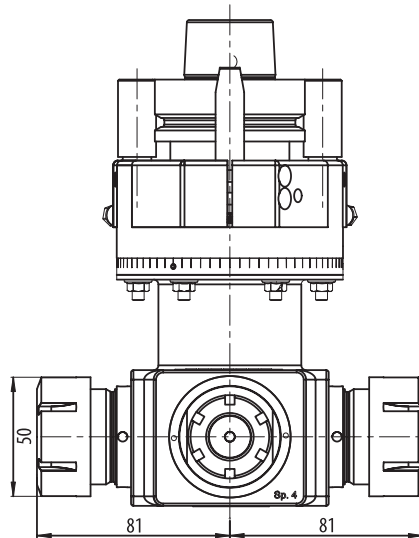
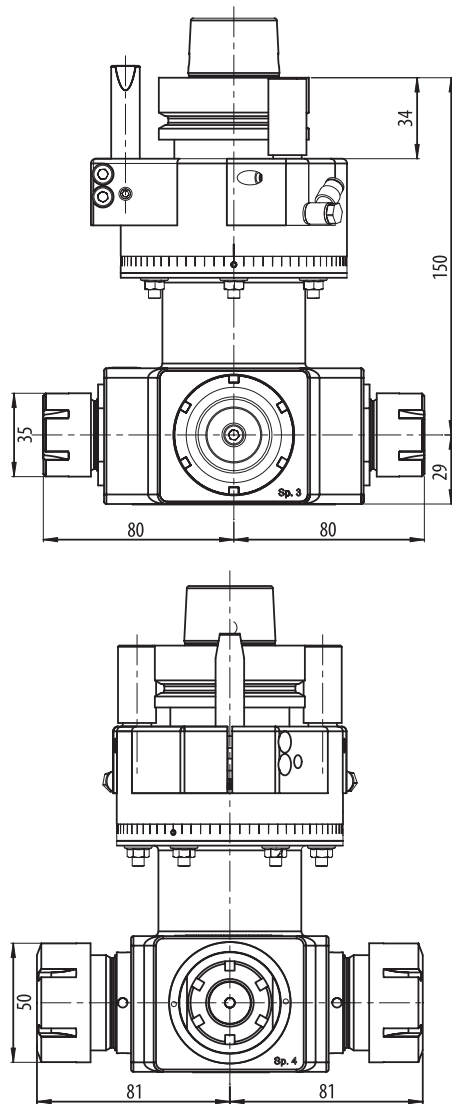


P1 - Modular Saw Arbor
Range: 1.5mm-4mm tool shank



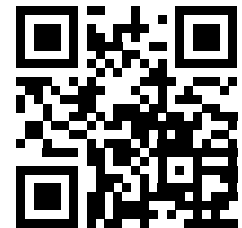
M5 - Modular ER25

FunctionLINE Quattro Dimensions (mm)

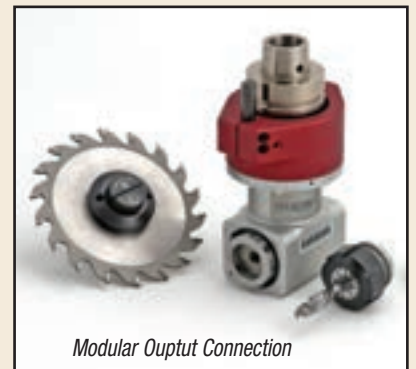


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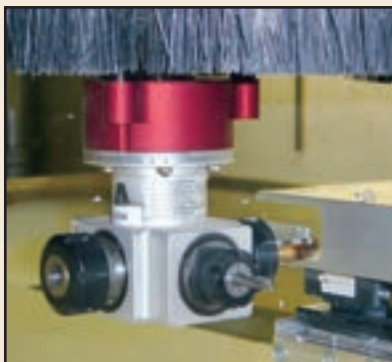
Aggregate Heads at Work



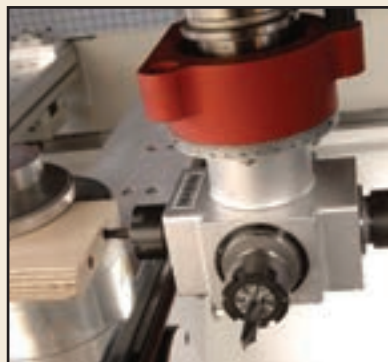
Scan the QR code or enter this url: <http://delivr.com/1hmzs> to see our agg heads in action.



Modular Oupput Connection



Routing Aluminum



Boring



Eliminate tool changes

Viso aggregate shown



Specify your machine spindle when ordering.

Use Vario or Viso aggregates to cut at any angle from 0° to 100°. Vario aggregates can be fitted with an ER25 output, or the Combi saw output that is compatible with 45mm or 52mm bolt circles. The Viso digital display aggregate takes the guesswork out of repeating angles, and makes transfer of angles from prints to aggregate easy. The FunctionLINE Viso can also accept the modular system.

FunctionLINE – Vario and Viso Aggregates

Spindle Speed Max.	15,000 RPM
Tool Speed Max.	15,000 RPM
Lubrication	grease
Rotation	Aggregate can be rotated 360°
Gear Ratio	1:1
Swiveling Range	0° to 100°
Maximum Torque	15 ft/lbs
Spindle Direction	Opposite machine spindle
Maximum Temp.	185°F
Spindle Outputs Vario	K1, K2
Spindle Outputs Viso	K1, K2, Modular

FunctionLINE Vario and Viso Aggregates

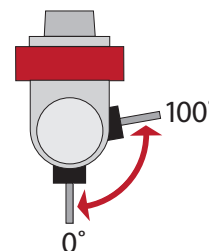
The Viso aggregate has all the features of the Vario, but adds a digital display of the angle setting. This feature increases accuracy and repeatability of desired angles.

Features:

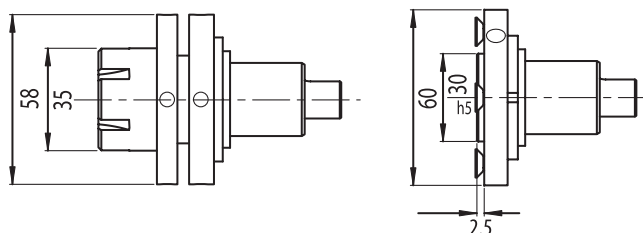
- Route, drill, saw, or mortise any angle from 0° to 100°
- Viso features digital display for easy angle setting
- Output options: combination ER25 and saw blade or modular system (Viso only)

Includes:

- Collet nut & wrenches
- ER collets sold separately



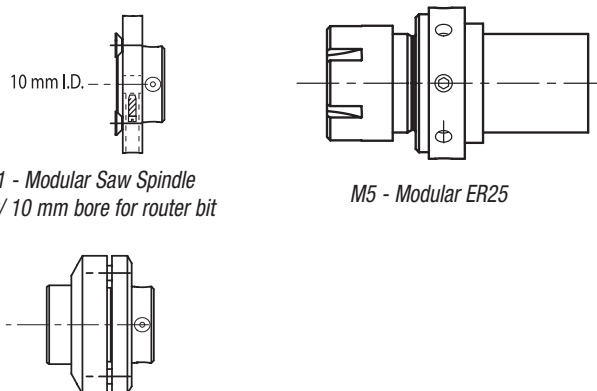
FunctionLINE Vario or Viso Output Options



K1 - ER25 Collet and saw blade

K2 - Combi spindle 45mm and 52mm bolt circle

Modular Output Options (Viso aggregate only)

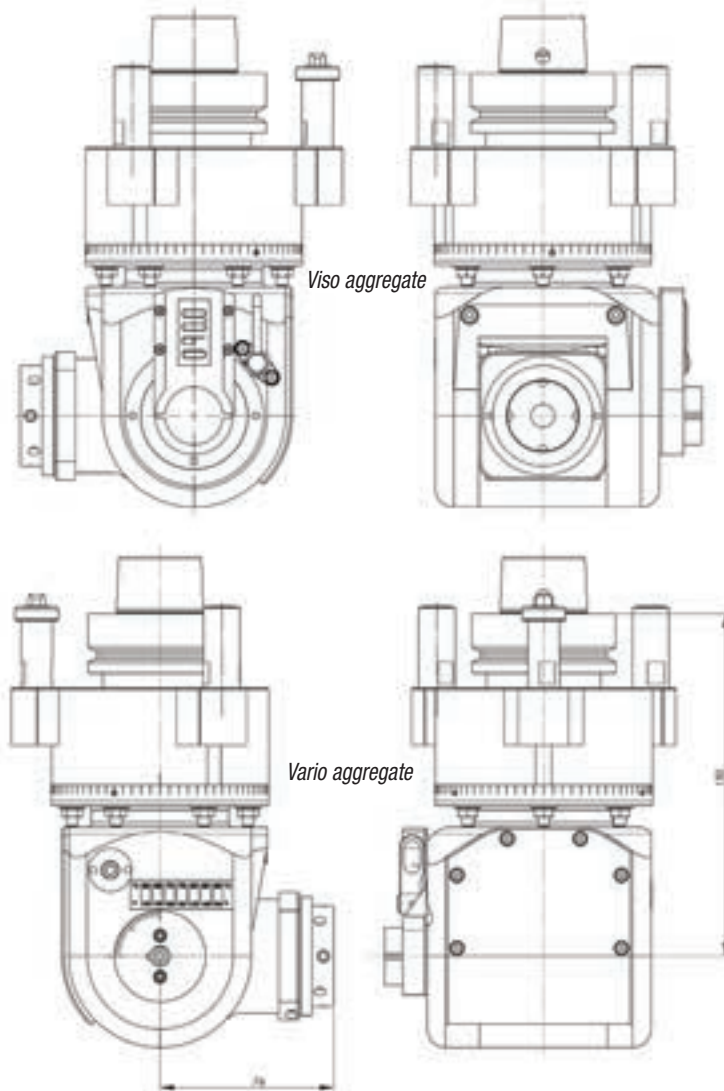


S1 - Modular Saw Spindle w/ 10 mm bore for router bit

M5 - Modular ER25

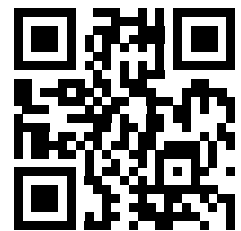
P1 - Modular Saw Arbor
Range: 1.5mm-4mm tool shank

FunctionLINE Vario and Viso Dimensions (mm)



Learn about our "Never Down" Guarantee – See page 42

Viso Digital Display Aggregate



Scan the QR code
or enter this url:
<http://delivr.com/1hlug> to learn
more about
Viso aggregate
heads



Vario sawing



adjusts angle as needed



Viso Digital Display



Specify your machine spindle when ordering.

All FunctionLINE aggregates are grease lubricated for standard duty operation. They provide the greatest number of configurations and application specific tool output options to increase CNC router productivity.

FunctionLINE Lock Recess

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Lubrication	grease
Rotation	aggregate can be rotated 360°
Gear Ratio	1:1.5
Maximum Torque	15 ft/lbs
Spindle Direction	same as machine spindle
Maximum Temp.	185°F
Spindle Outputs	front: ER32, rear ER16 integral

FunctionLINE Extra Lockset Recess

Innovative lockset recess aggregate features an offset design optimized for cutting lockset recesses. Can also be used for other boring applications.

Use For:

- routing out lockset recesses
- use ER16 output on back for cutting lock plates
- other boring or routing operations

Features:

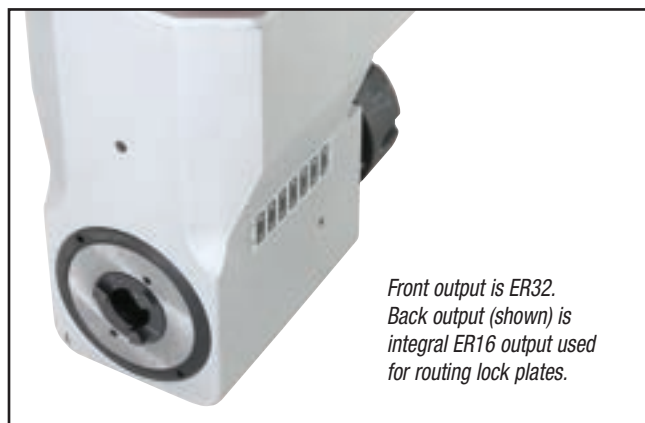
- Offset design optimized for longer tooling operations such as mortising
- ER32 output on front, ER16 on back
- 15,000 RPM tool speed for faster cutting

Includes:

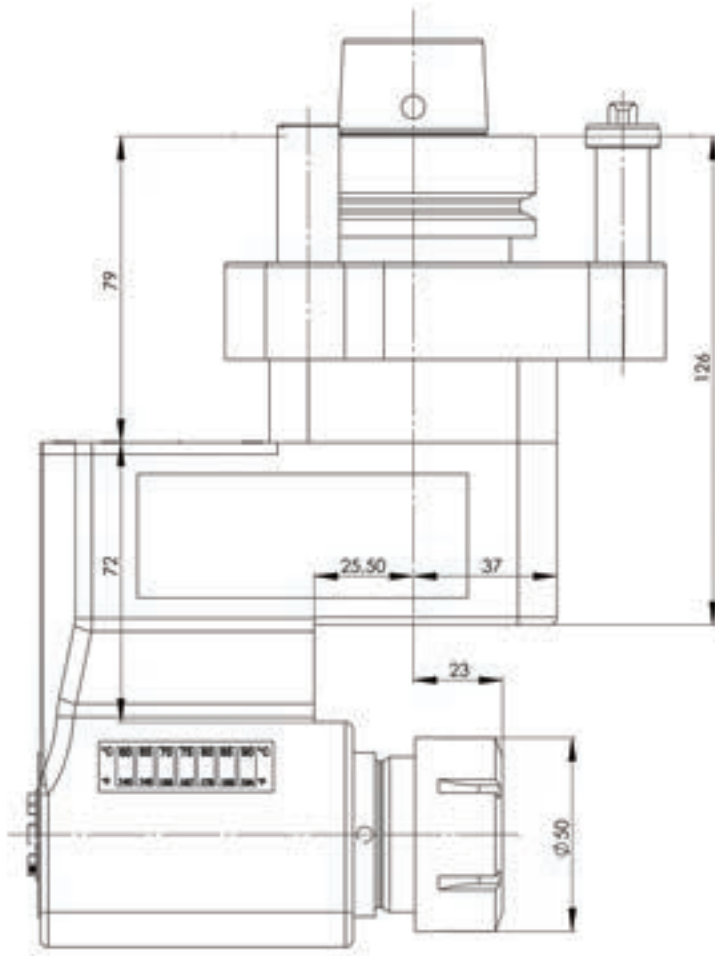
- Collet nut & wrench
- ER collets sold separat

New! ExtraPLUS Lock Recess Aggregate

ExtraPLUS aggregate feature an oscillating cutting motion that speeds lock recess cut by 65%. Scan the QR code on next page to see it in action

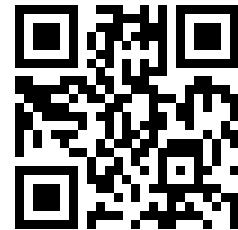
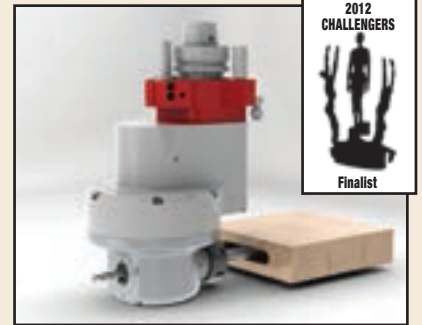


FunctionLINE Lockset Recess

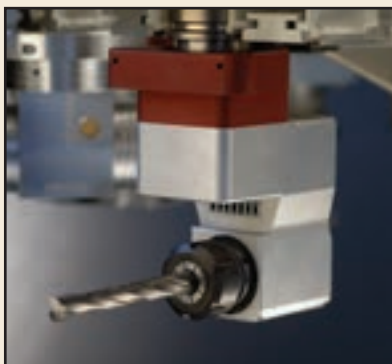
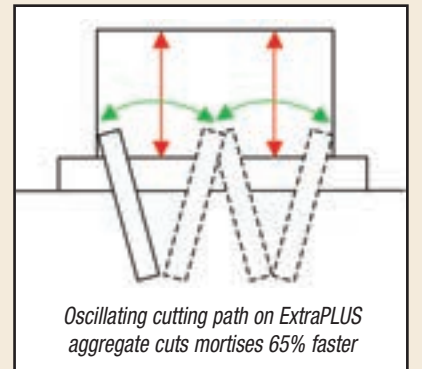


Learn about our "Never Down" Guarantee – See page 42

New! ExtraPLUS Aggregate



Scan the QR code or enter this url: <http://delivr.com/1hrj9> to learn more about ExtraPLUS.



Extra Lockset Recess Aggregate



Mortising a lockset recess



Extra Lockset Recess Aggregates



Specify your machine spindle when ordering.

Soft-Touch aggregates automatically compensate for any surface variation in your material. The Chip Guide is available to direct dust into the machine hood. Scan the QR code on the next page to see the Chip Guide in action.

FunctionLINE Soft-Touch (grease lubricated)

Spindle Speed Max.	18,000 RPM (24,000 RPM option)
Floating Range	10 mm (with 10 mm adjustment)
Floating Pressure	adjustable from 1/4 lb. to 20 lbs
Rotation	aggregate can be rotated 360°
Gear Ratio	1:1
Floating Bell	70 mm deep X 105 mm I.D.
Maximum Torque	10 ft/lbs
Rotation Direction	same as machine spindle
Maximum Temp.	185°F
Spindle Outputs	Modular system

The FunctionLINE Soft-Touch Aggregate

The Soft-Touch aggregate head accurately follows the contours of your stock, automatically compensating for up to 10mm of variance to maintain constant depth-of-cut. Floating pressure is adjustable from 1/4 lb. to 20 lbs. Compressed air provides saw dust evacuation.

Features:

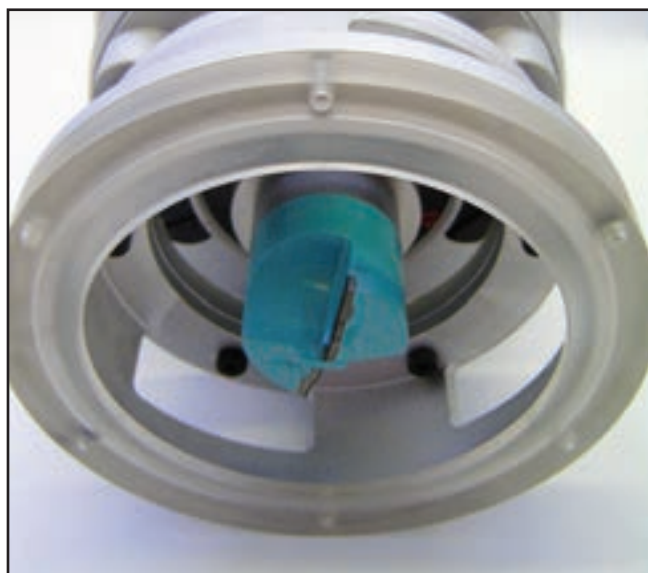
- Up to 10mm of compensation for surface variance
- Eliminate re-work processing
- Optional chip guide directs dust into the machine's dust hood for a cleaner work environment

Includes:

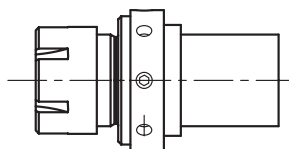
- collet nut and wrench, standard floating bell, ER25 or ER32 output (your choice)

Options:

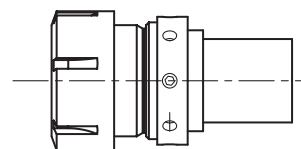
- Chip Guide, various floating bells, shoes, sanding discs, and sleighs. High-speed version up to 24,000 RPM



Soft-Touch Modular Output Options

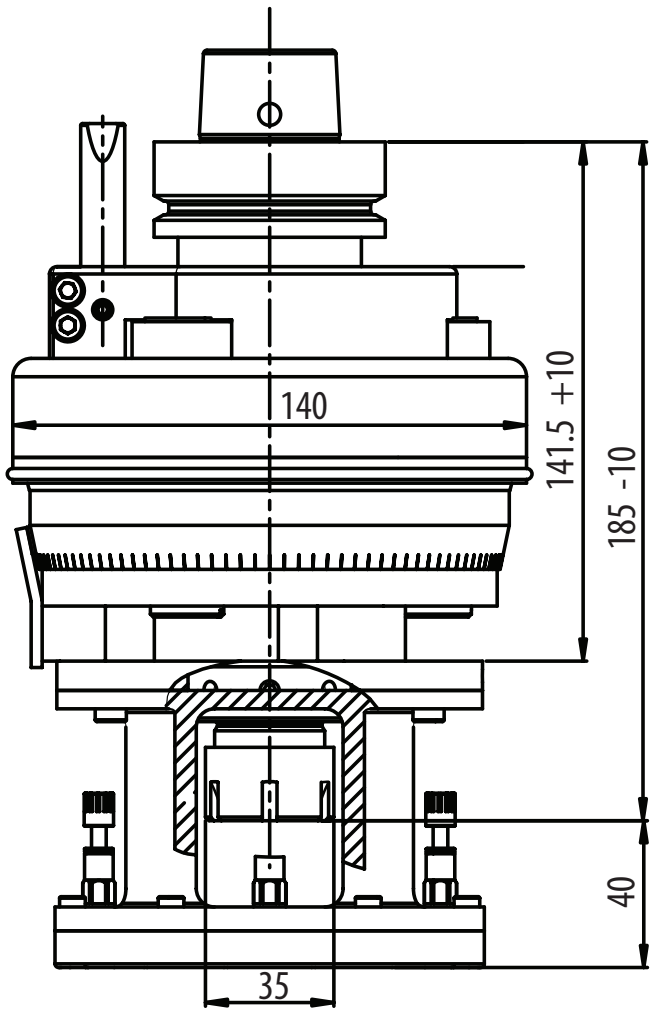


M5 - Modular ER25

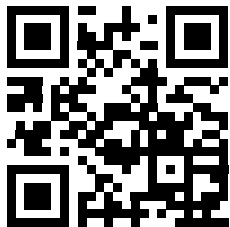


R6 - Modular ER32

FunctionLINE Soft-Touch Dimensions (mm)



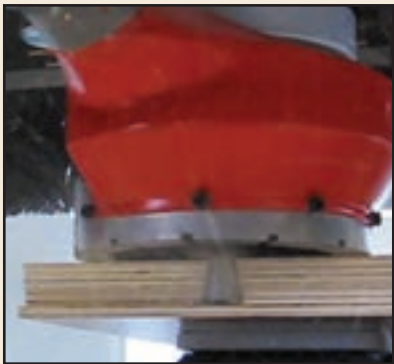
Soft-Touch with Chip Guide



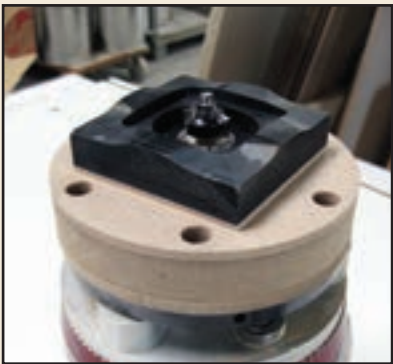
Scan the QR code or enter this url: <http://delivr.com/1hw31> to learn more about the Chip Guide aggregate.



Learn about our "Never Down" Guarantee – See page 42



Edge processing



Setup for edging



Sanding disc



Specify your machine spindle when ordering

UltraLINE Mono aggregates can be configured with a wide variety of spindle outputs to perform a variety of processing tasks quickly and efficiently. Call us for assistance specifying the outputs you need.

All UltraLINE aggregate heads are oil bath lubricated for heavy duty operation and long life.

UltraLINE – Mono Aggregate

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Rotation	Aggregate can be rotated 360°
Lubrication	oil bath
Gear Ratio	1:1.48
Gear Reduction*	1:0.676 (*optional feature)
Maximum Torque	17 ft/lbs
Spindle Direction	Same as machine spindle
Maximum Temp.	185°F
Spindle Outputs	M5, R6, S1, S2, A1, A2, A3, A4, 05, R7

UltraLINE aggregates are an affordable way to add 4th axis capability to your CNC router. Perform routing, boring, mortising, and sawing operations faster and easier. We recommend UltraLINE aggregates for sawing using blades larger than 7", V-grooving, heavy routing applications, cutting MDF, composite materials, or cutting aluminum.

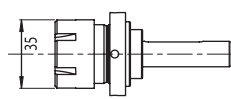
Features

- Oil bath gear lubrication for superior wear resistance during heavy-duty operations
- Single, right angle output (other angles available)
- Output options: ER25, ER32, saw blade, arbor

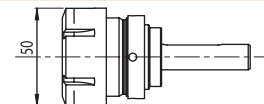
Includes:

- Collet nut & wrenches
- ER collets sold separately

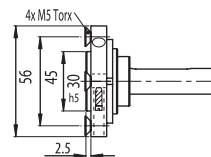
UltraLINE Mono Output Options



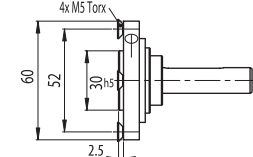
M5 - ER25 Collet and nut
Range: 1mm – 16mm



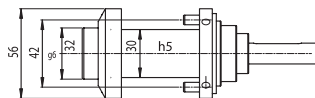
R6 - ER32 Collet and nut
Range: 3mm – 20mm



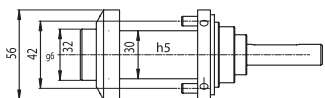
S1 - Saw Spindle, 45mm bolt circle w/ 10 mm bore for router bit



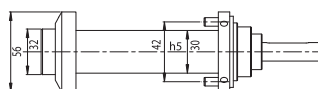
S2 - Saw Spindle, 52mm bolt circle



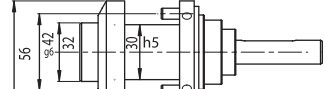
A1 - Prolock Spindle
Range: 1.5mm-6mm tool shank



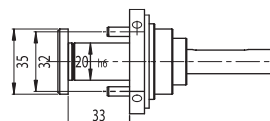
A2 - Prolock Spindle
Range: 48mm – 52mm



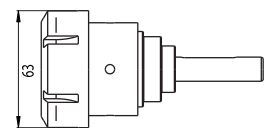
A3 - Prolock Spindle
ange: 98mm – 102mm



A4 - Prolock Spindle
Range: 28mm – 32mm

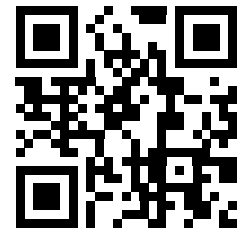
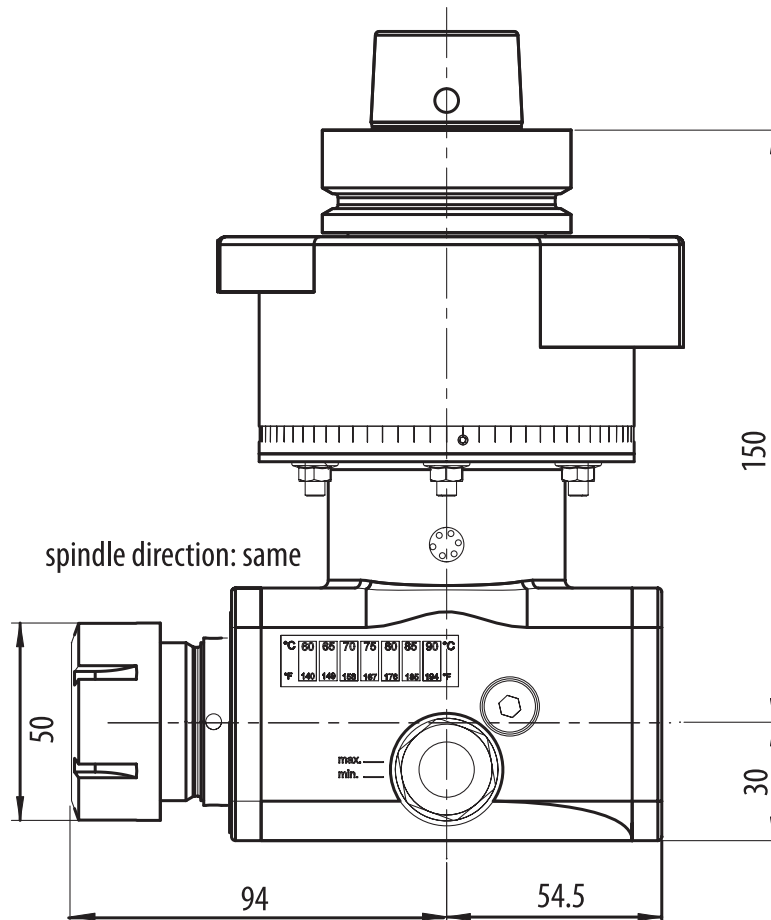


05 - Special, Ø20h6 2x Ø5H7, 2x M5 - bolt circle 32mm, M10 central



R7 - ER40 - for use with Ultra Line only Range: 4mm – 26mm

UltraLINE Mono Dimensions (mm)



Scan the QR code or enter this url: <http://delivr.com/1hlv9> to learn more about agg heads.



Learn about our "Never Down" Guarantee – See page 42



Shown with P4 Prolock spindle



Sawing



Boring



Specify your machine spindle when ordering

UltraLINE Duo aggregates can be configured with your choice of spindle outputs to perform a variety of processing tasks quickly and efficiently. Call us for assistance specifying the outputs you need. All UltraLINE aggregate heads are oil bath lubricated for heavy duty operation and extended life.

UltraLINE – Duo Aggregate

Spindle Speed Max.	10,000 RPM
Tool Speed Max.	15,000 RPM
Rotation	Aggregate can be rotated 360°
Lubrication	oil bath
Gear Ratio	1:1.48
Gear Reduction*	1:0.676 (optional high torque feature)
Maximum Torque	17 ft/lbs
Spindle Direction	Same as machine spindle
Maximum Temp.	185°F
Spindle Outputs	M5, R6, S1, S2, A1, A2, A3, A4, O5

UltraLINE aggregates add 4th axis capability to your CNC router. Perform routing, boring, mortising, and sawing operations faster and easier. We recommend UltraLINE aggregates for sawing using blades larger than 7", V-grooving, heavy routing applications, cutting MDF, composite materials, or cutting aluminum.

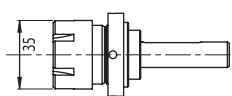
Features

- Oil bath gear lubrication for superior wear resistance during heavy-duty operation
- Dual, right angle output (other angles available)
- Output options: ER25, ER32, saw blade, Prolock

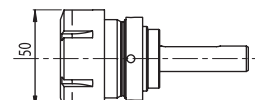
Includes:

- Collet nuts & wrenches
- ER collets sold separately

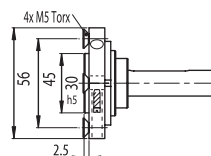
UltraLINE Duo Output Options



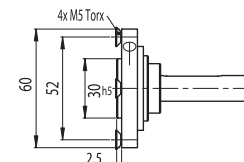
M5 - ER25 Collet and nut
Range: 1mm – 16mm



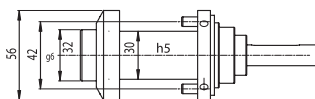
R6 - ER32 Collet and nut
Range: 3mm – 20mm



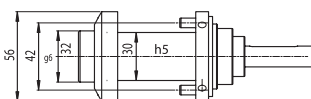
S1 - Saw Spindle, 45mm bolt circle w/ 10 mm bore for router bit



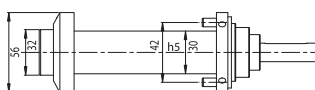
S2 - Saw Spindle, 52mm bolt circle



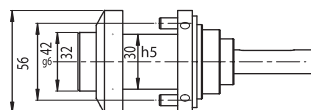
A1 - Prolock Spindle
Range: 1.5mm-6mm tool shank



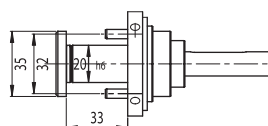
A2 - Prolock Spindle
Range: 48mm – 52mm



A3 - Prolock Spindle
ange: 98mm – 102mm

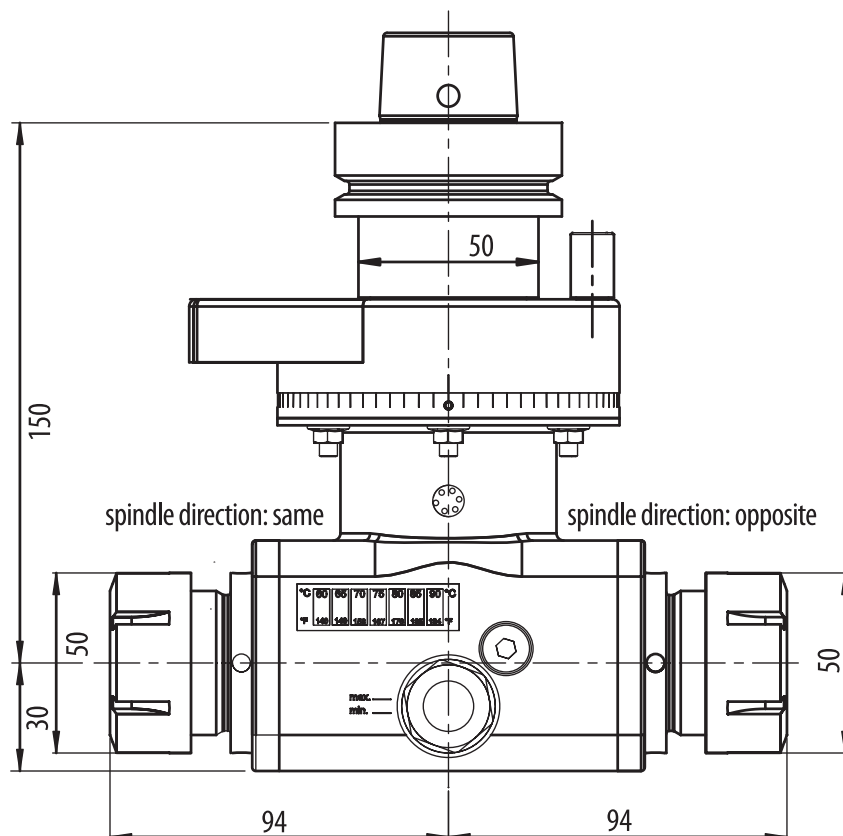


A4 - Prolock Spindle
Range: 28mm – 32mm



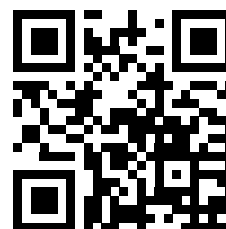
O5 - Special, Ø20h6 2x Ø5H7, 2x M5 - bolt circle 32mm ,M10 central

UltraLINE Duo Dimensions (mm)



Learn about our "Never Down" Guarantee – See page 42

Aggregate Heads at Work



Scan the QR code or enter this url: <http://delivr.com/1hmzs> to see our agg heads in action.



Boring



Mortising



Sawing



Specify your machine spindle when ordering.

Use UltraLINE Vario aggregates to cut at any angle from -100° to 100° (a full 200° of adjustment). Vario aggregates are equipped with a combination saw blade and ER25 output. A dedicated saw output is also available.

UltraLINE Vario (oil bath lubricated)

Spindle Speed Max.	13,760 RPM
Tool Speed Max.	15,000 RPM
Lubrication	Oil Bath
Rotation	Aggregate can be rotated 360°
Gear Ratio	1:1.09
Swiveling Range	-100° to 100° (full 200° adjustment)
Maximum Torque	17 ft/lbs
Spindle Direction	Opposite machine spindle
Maximum Temp.	185°F
Spindle Outputs	K1, K2

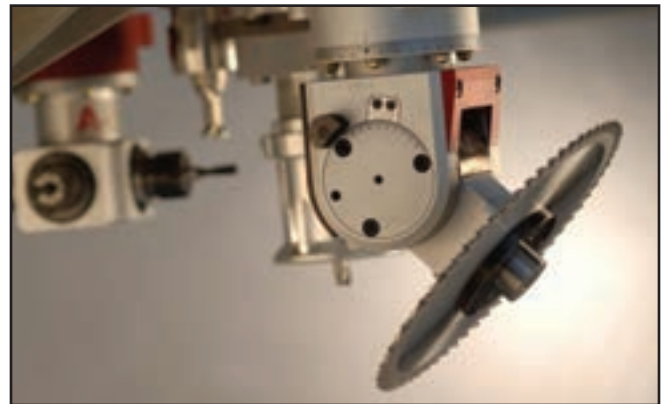
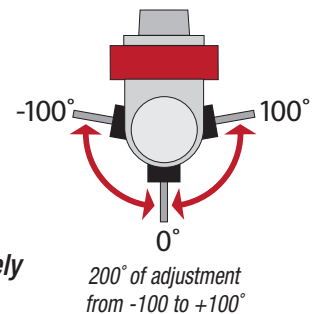
UltraLINE aggregates feature oil bath lubricated gearing for superior wear resistance, and are sealed from all contaminants for extended life under heavy-duty conditions. We recommend UltraLINE aggregates for sawing using blades larger than 7", V-grooving, heavy routing applications, cutting MDF, composite materials, or cutting aluminum.

Features:

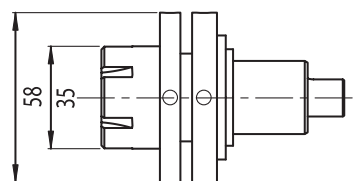
- Ultra Vario Aggregate features a full 200° of angle adjustment from -100° to 100°
- Most flexible of any aggregate head
- Create "impossible" custom profiles and mortises
- Faster sizing and grooving (saw blade) than with router bits

Includes:

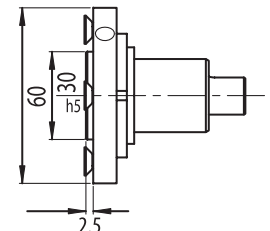
- Collet nut & wrenches
- Torx screws and saw blade connection
- ER collets sold separately



UltraLINE Vario Output Options

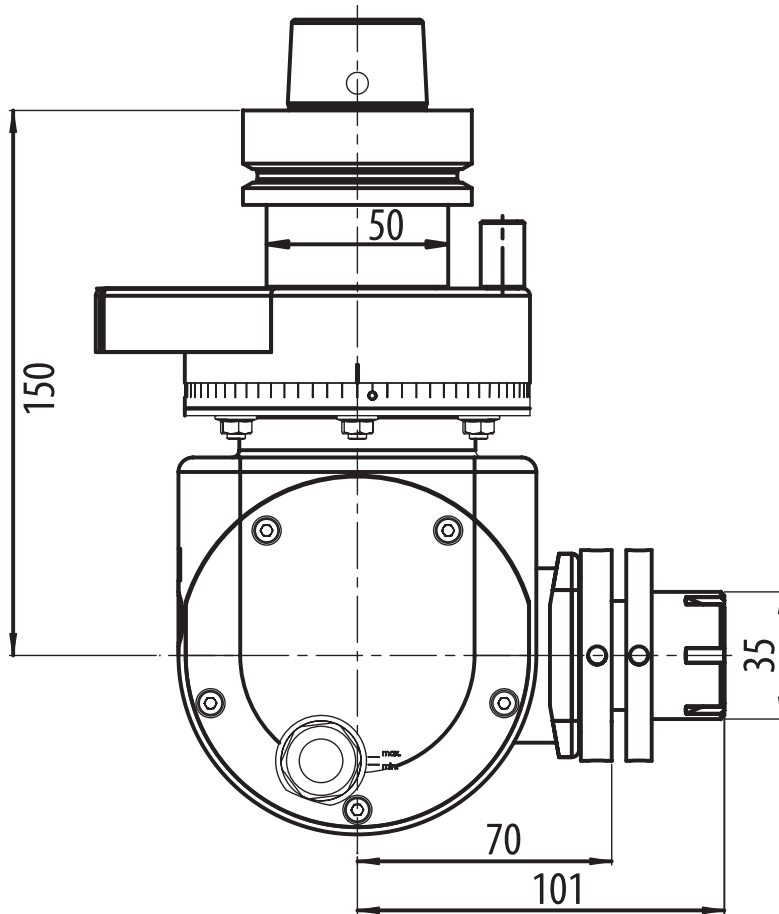


K1 - ER25 Collet



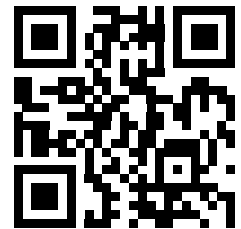
K2 - Combi spindle 45mm and 52mm bolt circle

UltraLINE Vario Dimensions (mm)

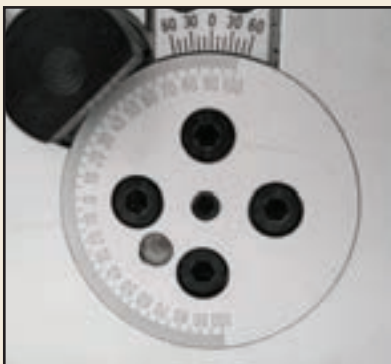


Learn about our "Never Down" Guarantee – See page 42

Viso Digital Display Aggregate



Scan the QR code
or enter this url:
<http://delivr.com/1hlug> to learn
more about
Viso aggregate
heads



Vraio graduated scale



adjusts angle as needed



Vario sawing



UltraLINE Moulder aggregates are used with a variety of cutting tools to shape and form as required. They are also used for gang saw applications. They feature oil bath lubricated gearing for superior wear resistance under heavy-duty use.

Features:

- Gear reduction for high torque
- 30mm x 120mm arbor size
- Optional Chip Guide for dust control

Includes:

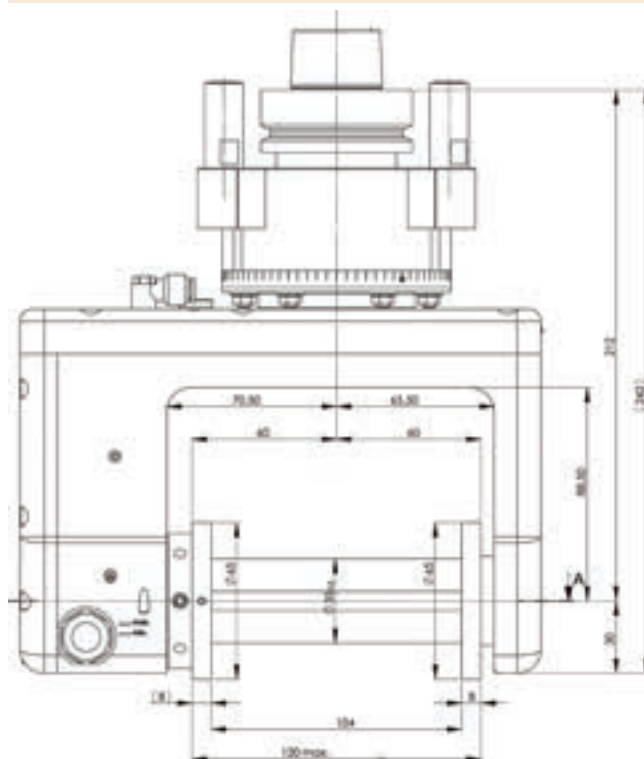
- Slide hammer and saw pins

Optional Chip Guide

Optional Chip Guide System directs dust and chips into the machine's dust exhaust system. Chips don't contaminate your material or your workplace.



Optional 35mm Arbor Dimensions (mm)

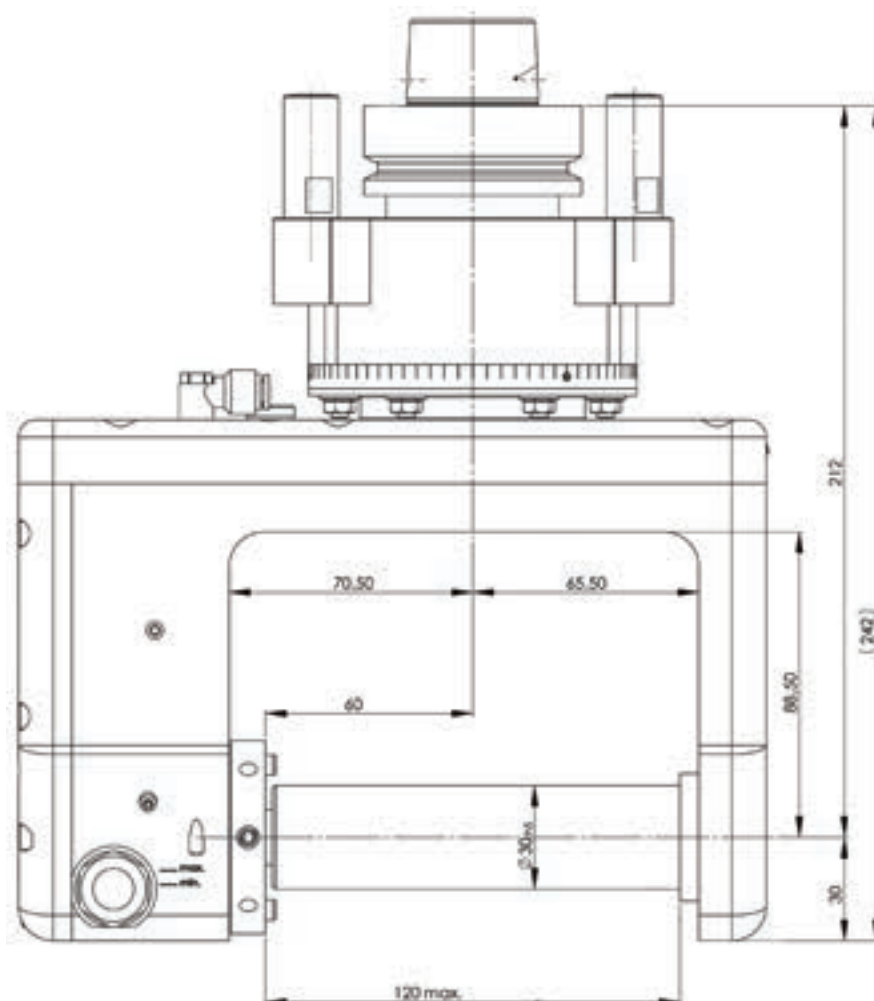


Each UltraLINE aggregates is assembled by a skilled technician who pays meticulous attention to the smallest details. They are manufactured using the highest quality components available including finely ground, precision calibrated bevel gears that run cooler to extended aggregate life. You know you are getting the best, because you can hear the difference when you run our aggregates.

UltraLINE Moulder Aggregate (oil bath lubricated)

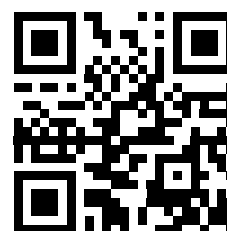
Spindle Speed Max.	12,000 RPM
Tool Speed Max.	7,690 RPM
Lubrication	Oil Bath
Arbor size	30mm x 120mm (35mm option)
Rotation	Aggregate can be rotated 360°
Gear Ratio	1:0.641
Maximum Torque	17 ft/lbs
Spindle Direction	same as machine spindle
Maximum Temp.	185°F

UltraLINE Moulder Head Dimensions (mm)



Learn about our "Never Down" Guarantee – See page 42

See the Chip Guide in Action



Scan the QR code or enter url:
<http://delivr.com/1hrrt> to learn
more about the moulder head
with Chip
Guide.



forming and shaping



creating a smooth profile



grooving application

Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
00100	29	04008-11/32	22	04010-15/32	23
00200	29	04008-11/64	22	04010-15/64	23
00316-SLN-L	11	04008-11S	22	04010-15S	23
00316-SLN-L	11	04008-13/32	22	04010-17/32	23
00316-SLN-R	11	04008-13/64	22	04010-17/64	23
00316-SLN-R	11	04008-15/32	22	04010-19/32	23
00320	28	04008-15/64	22	04010-19/64	23
01250-13S	34	04008-17/32	22	04010-21/32	23
03508	25	04008-17/64	22	04010-21/64	23
03508-1/4	25	04008-19/32	22	04010-21S	23
03508-1/8	25	04008-19/64	22	04010-23/32	23
03508-3/16	25	04008-21/32	22	04010-23/64	23
03508-5/16	25	04008-21/64	22	04010-25/32	23
03520-1/2	25	04008-22S	22	04010-25/64	23
03520-1/4	25	04008-23/32	22	04010-27/32	23
03520-1/8	25	04008-23/64	22	04010-27/64	23
03520-10	25	04008-25/64	22	04010-29/32	23
03520-3/16	25	04008-27/64	22	04010-29/64	23
03520-3/8	25	04008-29/64	22	04010-3/16	23
03520-5/16	25	04008-3/16	22	04010-3/32	23
03520-7/16	25	04008-3/32	22	04010-3/4	23
03531-1/2	25	04008-3/4	22	04010-3/8	23
03531-1/4	25	04008-3/8	22	04010-30S	23
03531-1/8	25	04008-31/64	22	04010-31/32	23
03531-10	25	04008-33/64	22	04010-31/64	23
03531-16	25	04008-35/64	22	04010-33/64	23
03531-3/16	25	04008-37/64	22	04010-35/64	23
03531-3/8	25	04008-39/64	22	04010-37/64	23
03531-5/16	25	04008-41/64	22	04010-39/64	23
03531-5/8	25	04008-43/64	22	04010-41/64	23
03531-7/16	25	04008-43S	22	04010-41S	23
03531-9/16	25	04008-45/64	22	04010-43/64	23
03636	25	04008-47/64	22	04010-45/64	23
03690-25	35	04008-5/16	22	04010-47/64	23
03691	34	04008-5/32	22	04010-49/64	23
03868-1	25	04008-5/8	22	04010-5/16	23
03868-1/2	25	04008-7/16	22	04010-5/32	23
03868-1/4	25	04008-7/32	22	04010-5/8	23
03868-1/8	25	04008-7/64	22	04010-51/64	23
03868-10	25	04008-9/16	22	04010-53/64	23
03868-16	25	04008-9/32	22	04010-55/64	23
03868-20	25	04008-9/64	22	04010-57/64	23
03868-25	25	04008v-1/8	22	04010-59/64	23
03868-3/16	25	04010-1	23	04010-59S	23
03868-3/4	25	04010-1/2	23	04010-61/64	23
03868-3/8	25	04010-1/4	23	04010-63/64	23
03868-5/16	25	04010-1/8	23	04010-7/16	23
03868-5/8	25	04010-11/16	23	04010-7/32	23
03868-7/16	25	04010-11/32	23	04010-7/64	23
03868-7/8	25	04010-11/64	23	04010-7/8	23
03868-9/16	25	04010-13/16	23	04010-9/16	23
04008-1/2	22	04010-13/32	23	04010-9/32	23
04008-1/4	22	04010-13/64	23	04010-9/64	23
04008-11/16	22	04010-15/16	23	04018	34

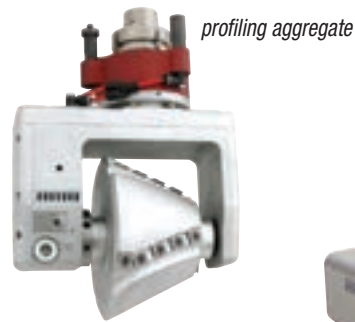
Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
04018-TWA	35	04216-04	14	04220-12.5	14
04200MS	14	04216-04.5	14	04220-13	14
04201MS	14	04216-05	14	04220-13.5	14
04202MS	14	04216-05.5	14	04220-13/32	12
04203MS	14	04216-06	14	04220-14	14
04204MS	14	04216-06.5	14	04220-15/32	12
04205MS	14	04216-07	14	04220-3/16	12
04206MS	14	04216-07.5	14	04220-3/32	12
04207MS	14	04216-08	14	04220-3/8	12
04208-01.0	14	04216-08.5	14	04220-5/16	12
04208-01.5	14	04216-09	14	04220-5/32	12
04208-02.0	14	04216-09.5	14	04220-7/16	12
04208-02.5	14	04216-1/16	12	04220-7/32	12
04208-03.0	14	04216-1/4	12	04220-9/32	12
04208-03.5	14	04216-1/8	12	04225-02	15
04208-04.0	14	04216-10	14	04225-02.5	15
04208-04.5	14	04216-10.5	14	04225-03	15
04208-05.0	14	04216-11/32	12	04225-03.5	15
04208-1/16	12	04216-13/32	12	04225-04	15
04208-1/8	12	04216-3/16	12	04225-05	15
04208-3/16	12	04216-3/32	12	04225-06	15
04208IS	12	04216-3/8	12	04225-07	15
04209IS	12	04216-5/16	12	04225-08	15
04210IS	12	04216-5/32	12	04225-09	15
04211-01.0	14	04216-7/32	12	04225-1/2	13
04211-01.5	14	04216-9/32	12	04225-1/4	13
04211-02.0	14	04220-01	14	04225-1/8	13
04211-02.5	14	04220-01.5	14	04225-10	15
04211-03.0	14	04220-02	14	04225-11	15
04211-03.5	14	04220-02.5	14	04225-11/32	13
04211-04.0	14	04220-03	14	04225-12	15
04211-04.5	14	04220-03.5	14	04225-13	15
04211-05.0	14	04220-04	14	04225-13/32	13
04211-05.5	14	04220-04.5	14	04225-14	15
04211-06.0	14	04220-05	14	04225-15	15
04211-06.5	14	04220-05.5	14	04225-15/32	13
04211-07.0	14	04220-06	14	04225-16	15
04211-1/16	12	04220-06.5	14	04225-17	15
04211-1/4	12	04220-07	14	04225-17/32	13
04211-1/8	12	04220-07.5	14	04225-19/32	13
04211-3/16	12	04220-08	14	04225-3/16	13
04211-3/32	12	04220-08.5	14	04225-3/32	13
04211-5/32	12	04220-09	14	04225-3/4	13
04211-7/32	12	04220-09.5	14	04225-3/8	13
04211-9/32	12	04220-1/16	12	04225-5/16	13
04211IS	12	04220-1/2	12	04225-5/32	13
04212IS	12	04220-1/4	12	04225-5/8	13
04213IS	12	04220-1/8	12	04225-7/16	13
04216-01	14	04220-10	14	04225-7/32	13
04216-01.5	14	04220-10.5	14	04225-9/16	13
04216-02	14	04220-11	14	04225-9/32	13
04216-02.5	14	04220-11.5	14	04232-03	15
04216-03	14	04220-11/32	12	04232-03.5	15
04216-03.5	14	04220-12	14	04232-04	15

Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
04232-04.5	15	04232-9/16	13	04250-06	15
04232-05	15	04232-9/32	13	04250-07	15
04232-05.5	15	04240-04	15	04250-08	15
04232-06	15	04240-05	15	04250-09	15
04232-06.5	15	04240-06	15	04250-1	13
04232-07	15	04240-07	15	04250-1-1/4	13
04232-07.5	15	04240-08	15	04250-1/2	13
04232-08	15	04240-09	15	04250-10	15
04232-08.5	15	04240-1	13	04250-12	15
04232-09	15	04240-1/2	13	04250-14	15
04232-09.5	15	04240-1/4	13	04250-16	15
04232-1/16	13	04240-1/8	13	04250-18	15
04232-1/2	13	04240-10	15	04250-20	15
04232-1/4	13	04240-11	15	04250-22	15
04232-1/8	13	04240-11/16	13	04250-24	15
04232-10	15	04240-11/32	13	04250-26	15
04232-10.5	15	04240-12	15	04250-28	15
04232-11	15	04240-13	15	04250-3/4	13
04232-11.5	15	04240-13/16	13	04250-30	15
04232-11/16	13	04240-13/32	13	04250-32	15
04232-11/32	13	04240-14	15	04250-34	15
04232-12	15	04240-15	15	04250-5/8	13
04232-12.5	15	04240-15/16	13	04250-7/8	13
04232-13	15	04240-15/32	13	04576	35
04232-13.5	15	04240-16	15	04577	35
04232-13/32	13	04240-17	15	04578	35
04232-14	15	04240-17/32	13	04580-16	35
04232-14.5	15	04240-18	15	04580-20	35
04232-15	15	04240-19	15	04587	35
04232-15.5	15	04240-19/32	13	04588-R	35
04232-15/32	13	04240-20	15	04601-16	35
04232-16	15	04240-21	15	04602-20	35
04232-16.5	15	04240-21/32	13	04603-25	35
04232-17	15	04240-22	15	04604-32	35
04232-17.5	15	04240-23	15	04605-40	35
04232-17/32	13	04240-23/32	13	04608	34
04232-18	15	04240-24	15	04609	34
04232-18.5	15	04240-25	15	04610	34
04232-19	15	04240-25/32	13	04613	34
04232-19.5	15	04240-26	15	04614	34
04232-19/32	13	04240-27/32	13	04615	34
04232-20	15	04240-29/32	13	04616	34
04232-21	15	04240-3/16	13	04617	34
04232-21/32	13	04240-3/4	13	04618	34
04232-23/32	13	04240-3/8	13	04620	34
04232-3/16	13	04240-31/32	13	04621	34
04232-3/32	13	04240-5/16	13	04622	34
04232-3/4	13	04240-5/32	13	04623	34
04232-3/8	13	04240-5/8	13	04624	34
04232-5/16	13	04240-7/16	13	04817	10
04232-5/32	13	04240-7/32	13	04818	10
04232-5/8	13	04240-7/8	13	04832	10
04232-7/16	13	04240-9/16	13	04834	10
04232-7/32	13	04240-9/32	13	04835	10

Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
04836	10	08520 - 08.5	20	08532 - 12.5	20
04837	10	08520 - 09.0	20	08532 - 13.0	20
04839	10	08520 - 09.5	20	08532 - 13.5	20
04839-140	10	08520 - 10.0	20	08532 - 14.0	20
04841	10	08520 - 10.5	20	08532 - 14.5	20
04843	10	08520 - 11.0	20	08532 - 15.0	20
04851	10	08520 - 11.5	20	08532 - 15.5	20
04854	10	08520 - 12.0	20	08532 - 16.0	20
04855	10	08520 - 12.5	20	08532 - 16.5	20
04856	10	08520 - 13.0	20	08532 - 17.0	20
04858	10	08525 - 03.5	20	08532 - 17.5	20
04881	10	08525 - 04.0	20	08532 - 18.0	20
04888	10	08525 - 04.5	20	08532 - 18.5	20
04889	10	08525 - 05.0	20	08532 - 19.0	20
04891	10	08525 - 05.5	20	08532 - 19.5	20
04892	10	08525 - 06.0	20	08532 - 20.0	20
04893	10	08525 - 06.5	20	08540 - 04.0	20
04894	10	08525 - 07.0	20	08540 - 04.5	20
04895	10	08525 - 07.5	20	08540 - 05.0	20
04896	10	08525 - 08.0	20	08540 - 05.5	20
04897	10	08525 - 08.5	20	08540 - 06.0	20
04898	10	08525 - 09.0	20	08540 - 06.5	20
06000-2016MC	7	08525 - 09.5	20	08540 - 07.0	20
06000-2516	7	08525 - 10.0	20	08540 - 07.5	20
06000-2520	7	08525 - 10.5	20	08540 - 08.0	20
07710	37	08525 - 11.0	20	08540 - 08.5	20
07711	37	08525 - 11.5	20	08540 - 09.0	20
07801	32	08525 - 12.0	20	08540 - 09.5	20
07806	32	08525 - 12.5	20	08540 - 10.0	20
07812	32	08525 - 13.0	20	08540 - 10.5	20
08516 - 03.5	20	08525 - 13.5	20	08540 - 11.0	20
08516 - 04.0	20	08525 - 14.0	20	08540 - 11.5	20
08516 - 04.5	20	08525 - 14.5	20	08540 - 12.0	20
08516 - 05.0	20	08525 - 15.0	20	08540 - 12.5	20
08516 - 05.5	20	08525 - 15.5	20	08540 - 13.0	20
08516 - 06.0	20	08525 - 16.0	20	08540 - 13.5	20
08516 - 06.5	20	08532 - 03.5	20	08540 - 14.0	20
08516 - 07.0	20	08532 - 04.0	20	08540 - 14.5	20
08516 - 07.5	20	08532 - 04.5	20	08540 - 15.0	20
08516 - 08.0	20	08532 - 05.0	20	08540 - 15.5	20
08516 - 08.5	20	08532 - 05.5	20	08540 - 16.0	20
08516 - 09.0	20	08532 - 06.0	20	08540 - 16.5	20
08516 - 09.5	20	08532 - 06.5	20	08540 - 17.0	20
08516 - 10.0	20	08532 - 07.0	20	08540 - 17.5	20
08520 - 03.5	20	08532 - 07.5	20	08540 - 18.0	20
08520 - 04.0	20	08532 - 08.0	20	08540 - 18.5	20
08520 - 04.5	20	08532 - 08.5	20	08540 - 19.0	20
08520 - 05.0	20	08532 - 09.0	20	08540 - 19.5	20
08520 - 05.5	20	08532 - 09.5	20	08540 - 20.0	20
08520 - 06.0	20	08532 - 10.0	20	08540 - 20.5	20
08520 - 06.5	20	08532 - 10.5	20	08540 - 21.0	20
08520 - 07.0	20	08532 - 11.0	20	08540 - 21.5	20
08520 - 07.5	20	08532 - 11.5	20	08540 - 22.0	20
08520 - 08.0	20	08532 - 12.0	20	08540 - 22.5	20

Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
08540 - 23.0	20	1132.0018	19	16121	9
08540 - 23.5	20	1132.0038	19	16121-L	9
08540 - 24.0	20	1132.0300	19	16131	9
08540 - 24.5	20	1132.0316	19	171.05.046.003	11
08540 - 25.0	20	1132.0350	19	17706	37
08540 - 25.5	20	1132.0400	19	17707	37
08540- 03.5	20	1132.0500	19	17708	37
1016.0030	18	1132.0600	19	17906-2	37
1016.0040	18	12000-CMS	7	200 TH	35
1016.0050	18	12040-CMS	7	2011.0000	18
1016.0060	18	12213-W-50	7	2011.0000C	18
1016.0080	18	12213-W-50-L	7	2016-2000	19
1016.0100	18	12213-W-63	7	2020.0000	19
1016.0120	18	12213-W-63-L	7	2020.0000C	19
1111.0014	18	12213-W-90	7	22220	34
1111.0018	18	12215-W-57	7	27116	19
1111.0300	18	12261-W	7	27116-30	19
1111.0316	18	12407-W	7	27116-40	19
1111.0350	18	12700-1.25-100-W	30	27116-45	19
1111.0400	18	12700-40-W	30	27116-50	19
1111.0500	18	12700-55-W	30	27116-55	19
1111.0600	18	12700-80-W	30	27116-60	19
1116.0014	18	13001	32	27116-65	19
1116.0018	18	13003	32	27216	19
1116.0038	18	16001	9	27500	22
1116.0125	18	16001-W	9	28110	23
1116.0150	18	16010	9	28210	23
1116.0175	18	161-BT35-ER32 76A	9	29116	17
1116.0200	18	16101	8	29132	17
1116.0225	18	16101-SLOTNUT	8	29827	35
1116.0250	18	16102	8	29828	35
1116.0300	18	16102-C	8	300 TH	35
1116.0316	18	16102-DNA	8	30001-L	6
1116.0350	18	16102-SLOTNUT	8	30000	6
1116.0400	18	16103	8	30001	6
1116.0450	18	16103-SLOTNUT	8	30002	6
1116.0500	18	16104	8	30003	6
1116.0600	18	16104-SLOTNUT	8	30005	6
1116.0700	18	16105	8	30383	7
1116.0800	18	16105-SLOTNUT	8	31025F	6
1116.0900	18	16106	8	31374-60	6
1116.1000	18	16106-SLOTNUT	8	31376-E	6
1120.0014	19	16107	8	31383-E	6
1120.0018	19	16107-SLOTNUT	8	31386-E	6
1120.0038	19	16108-2.5	8	31419-E	6
1120.0300	19	16108-2.5-SLOTNUT	8	31419-F	6
1120.0316	19	16109	8	31431-F	6
1120.0350	19	16110	8	31434-F	6
1120.0400	19	16111	8	31456-E	6
1120.0500	19	16111-90	8	31472-E	6
1120.0600	19	16112	9	33108	17
1132.0000	19	16113	9	33111	17
1132.0000C	19	16114	9	33116	17
1132.0014	19	16115	9	33120	17

Part No.	Pg.	Part No.	Pg.	Part No.	Pg.
33125	17	67625	27	NTS-BT30-Slot	36
33125-L	17	67750	27	NTS-HSK63A	36
39.05.046.001	11	71010	27	NTS-HSK63F-36	36
39000	26	71011	27	NTS-HSK63F-38	36
39002	26	71100	27	NTS-HSK63F-41	36
39004	26	71250	27	NTS-HSK63F-46	36
39006	26	71375	27	NTS-ISO20-17	36
39008	26	71500	27	NTS-ISO20-22	36
39016	26	71750	27	NTS-ISO25-27	36
39018	26	750-19	32	NTS-ISO30-36	36
39020	26	83632	25	NTS-ISO30-38	36
39022	26	83634	25	NTS-ISO30-47	36
39024	26	894-22	19	PSC - 50	35
39082	26	894-22	34	PSS - 30BT	35
39084	26	894-36	34	PSS - 30ISO	35
39088	26	99528	26	PSS - 40	35
39090	26	99538	26	SD-20mm-.250	24
39092	26	99548	26	SD-20mm-.312	24
41050	30	99568	26	SD-20mm-.375	24
41055-8SC	30	99588	26	SD-20mm-.500	24
41060	30	CMS-RR32	11	SD-20mm-.625	24
41080-3H	30	DC32-1/2	21	SD-20mm-Nut	24
41085	30	DC32-1/2-5	21	SD-C001-.125	24
41086-120-8SC	30	DC32-1/4	21	SD-C001-.187	24
41086-95-8SC	30	DC32-1/4-5	21	SD-C001-.250	24
41087	30	DC32-3/16	21	SD-C001-.312	24
41091	30	DC32-3/16-5	21	SD-C001-.375	24
41616	16	DC32-3/4	21	SD-C001-.500	24
41620	16	DC32-3/4-5	21	SD-C001-Nut	24
41625	16	DC32-3/8	21	SD-C015-.125	24
41632	16	DC32-3/8	21	SD-C015-.250	24
41640	16	DC32-5/16	21	SD-C015-.312	24
4403502	32	DC32-5/16-5	21	SD-C015-.375	24
46111	16	DC32-5/8	21	SD-C015-.500	24
46116	16	DC32-5/8-5	21	SD-C015-.625	24
46120	16	DC32-5D	21	SD-C015-.750	24
46125	16	DNA11TWA	18	SD-C015-Nut	24
46132	16	DNA11W	18	SD-TWA	35
46140	16	DNA11W	34	SS-22-1/2	24
49001-45	32	DNA16-TWA	35	SS-22-1/4	24
49019	32	DNA16TWA	19	SS-22-10	24
50001	6	DNA16W	19	SS-22-3/8	24
60 TH	35	DNA16W	34	SS22-Ext -Nut	24
64.05.046.051	11	DNA20TWA	19	SS22-Nut	24
64110	27	DNA20W	19		
64250	27	DNA20W	34		
64375	27	DNA32TWA	19		
64500	27	DNA32W	19		
64625	27	DNA32W	34		
64750	27	NT-54300130	7		
67.05.046.001	11	NT-54300130-L	7		
67250	27	NTS-40-Taper	36		
67375	27	NTS-BT30-38	36		
67500	27	NTS-BT30-41	36		



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- increased reliability
- reduced machine down-time



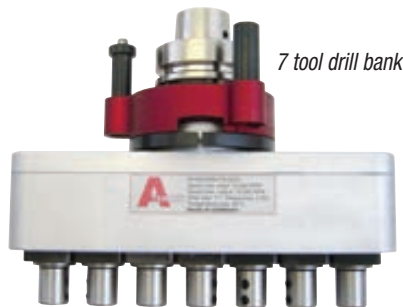
*Floating Aggregate with
Chip Guide System*



*mortising
chainsaw style*



*chisel
corner
squaring*



7 tool drill bank



oscillating aggregate speeds mortising.

Only the very best components available are used to create our aggregate heads. This is why our aggregate heads run cool, quiet, and trouble-free. Every aggregate head we make is individually hand assembled by one, highly skilled technician who is personally responsible for the quality of that aggregate.



multi-spindles speed processing



high-speed processing



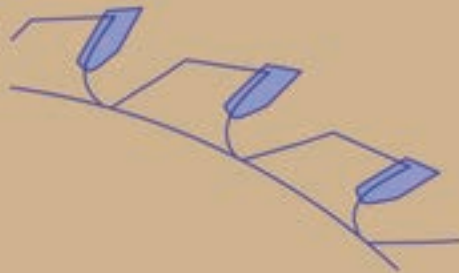
cutting pocket with chainsaw



lock recess aggregate



http://delivr.com/1ikze_qr



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