

duMONT CNC

Indexable Broaching System

PILLOT

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duMONT CNC Broaching Kits

Indexable Broaching Systems Combine Flexibility & Rigidity to Deliver Superior Performance

With generations of experience delivering American-crafted precision broaching tools, our passion for developing new technologies that solve problems gives our Indexable Broaching Systems the ability to improve productivity, quality and consistency in ways that stand the test of time.

Our CNC Broaching Kits are designed to conveniently give you a wide range of capabilities for your applications at a better value than buying individually.



632 Kit - 6 Piece Kit, 32mm Shank

EDP #	Description
KIT-BC-632	CNC Broach Concierge Kit with 6 Standard 32mm shank dia. Tools #5, 6, 8, 10, 12, 14/16 tool holders with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers
Includes	
99036	UT-5-32 32mm DIAMETER TOOL HOLDER
99038	UT-6-32 32mm DIAMETER TOOL HOLDER
99040	UT-8-32 32mm DIAMETER TOOL HOLDER
99042	UT-10-32 32mm DIAMETER TOOL HOLDER
99044	UT-12-32 32mm DIAMETER TOOL HOLDER
99046	UT-14/16-32 32mm DIAMETER TOOL HOLDER
99207	IN-3/16-H7 KEYWAY INSERT
99209	IN-1/4-H7 KEYWAY INSERT
99212	IN-5/16-H7 KEYWAY INSERT
99213	IN-3/8-H7 KEYWAY INSERT
99215	IN-1/2-H7 KEYWAY INSERT
99216	IN-5/8-H7 KEYWAY INSERT
99561	T8 TORX DRIVER
99562	T15 TORX DRIVER
99563	T20 TORX DRIVER

632L Kit - 6 Piece Kit, 32mm Shank - Long

EDP #	Description
KIT-BC-632L	CNC Broach Concierge Kit with 6 Long 32mm shank dia. Tools #5, 6, 8, 10, 12, 14/16 tool holders with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers
Includes	
99037	UT-5-32-L 32mm DIAMETER TOOL HOLDER
99039	UT-6-32-L 32mm DIAMETER TOOL HOLDER
99041	UT-8-32-L 32mm DIAMETER TOOL HOLDER
99043	UT-10-32-L 32mm DIAMETER TOOL HOLDER
99045	UT-12-32-L 32mm DIAMETER TOOL HOLDER
99047	UT-14/16-32-L 32mm DIAMETER TOOL HOLDER
99207	IN-3/16-H7 KEYWAY INSERT
99209	IN-1/4-H7 KEYWAY INSERT
99212	IN-5/16-H7 KEYWAY INSERT
99213	IN-3/8-H7 KEYWAY INSERT
99215	IN-1/2-H7 KEYWAY INSERT
99216	IN-5/8-H7 KEYWAY INSERT
99561	T8 TORX DRIVER
99562	T15 TORX DRIVER
99563	T20 TORX DRIVER

duMONT CNC Broaching Kits

725 Kit - 7 Piece Kit, 25mm Shank	
EDP #	Description
KIT-BC-725	CNC Broach Concierge Kit with 7 Standard 25mm Shank Tool #2, 3, 4, 5, 6, 8, 10 tool holder with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers
Includes	
99000	UT-2-25 25mm DIAMETER TOOL HOLDER
99002	UT-3-25 25mm DIAMETER TOOL HOLDER
99004	UT-4-25 25mm DIAMETER TOOL HOLDER
99006	UT-5-25 25mm DIAMETER TOOL HOLDER
99008	UT-6-25 25mm DIAMETER TOOL HOLDER
99010	UT-8-25 25mm DIAMETER TOOL HOLDER
99012	UT-10-25 25mm DIAMETER TOOL HOLDER
99202	IN-3/32-H7 KEYWAY INSERT
99203	IN-1/8-H7 KEYWAY INSERT
99206	IN-5/32-H7 KEYWAY INSERT
99207	IN-3/16-H7 KEYWAY INSERT
99209	IN-1/4-H7 KEYWAY INSERT
99212	IN-5/16-H7 KEYWAY INSERT
99213	IN-3/8-H7 KEYWAY INSERT
99561	T8 TORX DRIVER
99562	T15 TORX DRIVER
99563	T20 TORX DRIVER

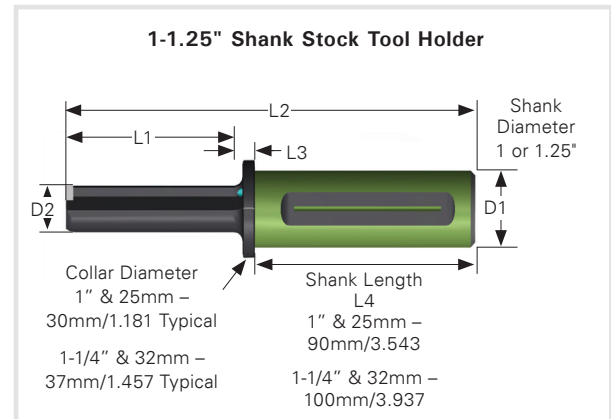
725L Kit - 7 Piece Kit, 25mm Shank - Long	
EDP #	Description
KIT-BC-725L	CNC Broach Concierge Kit with 7 Long 25mm Shank Tool #2, 3, 4, 5, 6, 8, 10 tool holder with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers
Includes	
99001	UT-2-25-L 25mm DIAMETER TOOL HOLDER
99003	UT-3-25-L 25mm DIAMETER TOOL HOLDER
99005	UT-4-25-L 25mm DIAMETER TOOL HOLDER
99007	UT-5-25-L 25mm DIAMETER TOOL HOLDER
99009	UT-6-25-L 25mm DIAMETER TOOL HOLDER
99011	UT-8-25-L 25mm DIAMETER TOOL HOLDER
99013	UT-10-25-L 25mm DIAMETER TOOL HOLDER
99202	IN-3/32-H7 KEYWAY INSERT
99203	IN-1/8-H7 KEYWAY INSERT
99206	IN-5/32-H7 KEYWAY INSERT
99207	IN-3/16-H7 KEYWAY INSERT
99209	IN-1/4-H7 KEYWAY INSERT
99212	IN-5/16-H7 KEYWAY INSERT
99213	IN-3/8-H7 KEYWAY INSERT
99561	T8 TORX DRIVER
99562	T15 TORX DRIVER
99563	T20 TORX DRIVER

6SQ25-32 Kits - 6 Piece Kit, 25mm or 32mm Shank - Square		
EDP #	Description	
KIT-BC-6SQ25 or 32	CNC Square Broach Concierge Kit with 6 tool holders in 25mm or 32mm Shank with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers	
Includes (25mm or 32mm):		
25mm	32mm	
99621	99622	UT-SQ-8/10 SQUARE TOOL HOLDER SHANK
99623	99624	UT-SQ-10/13 SQUARE INSERT TOOL HOLDER SHANK
99625	99626	UT-SQ-13/16 SQUARE INSERT TOOL HOLDER SHANK
99627	99628	UT-SQ-16/19 SQUARE INSERT TOOL HOLDER SHANK
99629	99630	UT-SQ-19/27 SQUARE INSERT TOOL HOLDER SHANK
99631	99632	UT-SQ-27/37 SQUARE INSERT TOOL HOLDER SHANK
Inserts		
99601	SQ-8/10 SQUARE INSERT	
99602	IN-SQ-10/13 SQUARE INSERT	
99603	IN-SQ-13/16 SQUARE INSERT	
99604	IN-SQ-16/19 SQUARE INSERT	
99605	IN-SQ-19/27 SQUARE INSERT	
99606	IN-SQ-27/37 SQUARE INSERT	
99561	T8 TORX DRIVER	
99562	T15 TORX DRIVER	
99563	T20 TORX DRIVER	

6HX32 Kit - 6 Piece Kit, 32mm Shank - Hex	
EDP #	Description
KIT-BC-6HX32	CNC Hex Broach Concierge Kit with 6 tool holders in 32mm Shank with 1 insert / each, in a metal rack & T8,T15,T20 Torx Drivers
Includes	
99722	UT-HEX-9/11-32 HEX TOOL HOLDER 32MM SHANK
99724	UT-HEX-11/17-32 HEX TOOL HOLDER 32MM SHANK
99726	UT-HEX-17/28-32 HEX TOOL HOLDER 32MM SHANK
99728	UT-HEX-28/37-32 HEX TOOL HOLDER 32MM SHANK
99730	UT-HEX-37/45-32 HEX TOOL HOLDER 32MM SHANK
99731	UT-HEX-45/70-32 HEX TOOL HOLDER 32MM SHANK
Inserts	
99701	IN-HEX-9/11 HEX INSERT
99702	IN-HEX-11/17 HEX INSERT
99703	IN-HEX-17/28 HEX INSERT
99704	IN-HEX-28/36 HEX INSERT
99705	IN-HEX-37/45 HEX INSERT
99706	IN-HEX-45/70 HEX INSERT
99561	T8 TORX DRIVER
99562	T15 TORX DRIVER
99563	T20 TORX DRIVER
99563	T20 TORX DRIVER

Stock Tool Holders for Keyway and Slotting Inserts (Inch)

The Tool Holders designed to work exclusively with duMONT Stock Keyway and Slotting Inserts are heat treated tool steel, hardened to 58/60 HRC at the Insert seat providing resistance to deformation and longer tool life. Most Tool Holders provide two 3.5mm holes for Thru Tool Coolant delivery promoting lubrication, cooling and chip flushing improving finish and tool performance. Available in 1 inch and 1.25 inch diameters in both Standard and Long Lengths designated by -S and -L respectively. Always confirm that the first digit in the Description of the Tool Holder Size matches the Tool Holder Size for the Insert to be used - i.e. Tool Holder Description 6-S for 1 inch shank diameter (EDP No. 99108) could be used with Inserts 1/4 inch (EDP No. 99209) or 6mm (EDP No. 99406). See the Engineering Section for additional process and Special Insert information and available applications — Keyways in Tapered Bore, Square, Hexagon and Involute Internal Gears.



1 & 1.25 Inch Shank Stock Tool Holders for Keyway and Slotting Inserts

Description provides: Tool Holder Size — Length Designation Standard or Long.

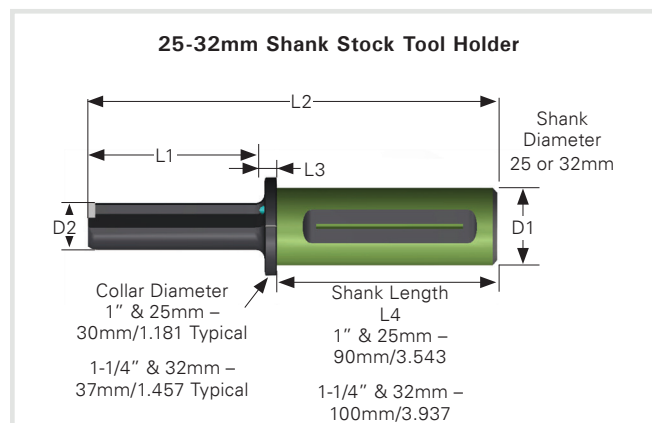
See Pages 50-51 for Accessories.

NEW for 2022

Tool Holder Accessories										
EDP - 1 in Shank D1	"EDP - 1.25 in Shank D1"	Description Tool Holder Size	Minimum Bore Dia. (inch)	Stem Dia. (D2) (inch)	Stem Length (L1) (inch)	Overall Length (L2) (inch)	Centering Plate	Mounting Screw	Driver	Thru Tool Coolant
99100	99130	2-S	.314	.256	.984	4.882	CP-0	MS-1	T08	Yes
99101	99131	2-L	.314	.256	1.378	5.276	CP-0	MS-1	T08	Yes
99102	99132	3-S	.354	.315	1.181	5.079	CP-1	MS-1	T08	Yes
99103	99133	3-L	.354	.315	1.575	5.472	CP-1	MS-1	T08	Yes
99104	99134	4-S	.452	.394	1.575	5.472	CP-1	MS-1	T08	Yes
99105	99135	4-L	.452	.394	2.205	6.102	CP-1	MS-1	T08	Yes
99106	99136	5-S	.531	.472	1.811	5.709	CP-1	MS-1	T08	Yes
99107	99137	5-L	.531	.472	2.598	6.496	CP-1	MS-1	T08	Yes
99108	99138	6-S	.708	.630	2.205	6.102	CP-2	MS-2	T15	Yes
99109	99139	6-L	.708	.630	3.189	7.087	CP-2	MS-2	T15	Yes
99110	99140	8-S	.885	.787	2.677	6.378	CP-2	MS-2	T15	Yes
99111	99141	8-L	.885	.787	3.937	7.825	CP-2	MS-2	T15	Yes
99112	99142	10-S*	1.102	.984	3.386	7.284	CP-3	MS-3	T20	No
99113	99143	10-L	1.102	.984	4.961	8.858	CP-3	MS-3	T20	No
99114	99144	12-S*	1.299	1.181	4.016	7.992	CP-3	MS-3	T20	No
99115	99145	12-L	1.299	1.181	6.339	10.236	CP-3	MS-3	T20	No
-	99146	14/16-S	1.574	1.378	4.961	9.094	CP-4	MS-3	T20	No
-	99147	14/16-L	1.574	1.378	7.087	11.220	CP-4	MS-3	T20	No
-	99148	18/26-S*	1.850	1.575	5.512	9.803	CP-5	MS-4	5mm-Hex	No
-	99149	18/26-L*	1.850	1.575	7.874	12.165	CP-5	MS-4	5mm-Hex	No

*Collar Length .433 inch

Stock Tool Holders for Keyway and Slotting Inserts (mm)



25 & 32mm Shank Stock Tool Holders for Keyway and Slotting Inserts

Description provides: Tool Holder Size — Length Designation Standard or Long.

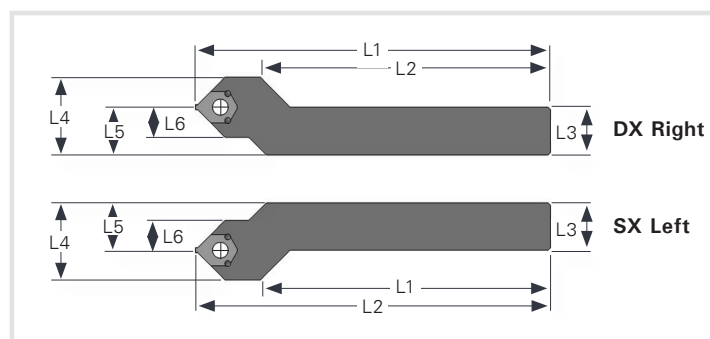
See Pages 50-51 for Accessories.

Tool Holder Accessories										
EDP - 25mm Shank D1"	EDP - 32mm Shank D1"	Description	Minimum Bore Dia.	Stem Dia. (D2)	Stem Length (L1)	Overall Length (L2)	Centering	Mounting		Thru Tool
		Tool Holder Size	(mm)	(mm)	(mm)	(mm)	Plate	Screw	Driver	Coolant
99000	99030	2-S	8	6.5	25	124	CP-0	MS-1	T08	Yes
99001	99031	2-L	8	6.5	35	134	CP-0	MS-1	T08	Yes
99002	99032	3-S	9	8	30	129	CP-1	MS-1	T08	Yes
99003	99033	3-L	9	8	40	139	CP-1	MS-1	T08	Yes
99004	99034	4-S	11.5	10	40	139	CP-1	MS-1	T08	Yes
99005	99035	4-L	11.5	10	56	155	CP-1	MS-1	T08	Yes
99006	99036	5-S	13.5	12	46	145	CP-1	MS-1	T08	Yes
99007	99037	5-L	13.5	12	66	165	CP-1	MS-1	T08	Yes
99008	99038	6-S	18	16	56	155	CP-2	MS-2	T15	Yes
99009	99039	6-L	18	16	81	182	CP-2	MS-2	T15	Yes
99010	99040	8-S	22.5	20	68	162	CP-2	MS-2	T15	Yes
99011	99041	8-L	22.5	20	100	199	CP-2	MS-2	T15	Yes
99012	99042	10-S*	28	25	86	185	CP-3	MS-3	T20	No
99013	99043	10-L	28	25	126	225	CP-3	MS-3	T20	No
99014	99044	12-S*	33	30	102	203	CP-3	MS-3	T20	No
99015	99045	12-L	33	30	161	260	CP-3	MS-3	T20	No
-	99046	14/16-S	40	35	126	231	CP-4	MS-3	T20	No
-	99047	14/16-L	40	35	180	285	CP-4	MS-3	T20	No
-	99048	18/26-S*	47	40	140	249	CP-5	MS-4	5mm-Hex	No
-	99049	18/26-L*	47	40	200	309	CP-5	MS-4	5mm-Hex	No

*Collar Length 11mm

Tools for External Machining

The series of tools for external machining was developed for external surfaces (to execute splines and keyway seatings, among others). These tools are made with tool steel. In addition to the two types of tools for external machining available in the catalog, Pilot Precision Products is able to build special tools for external machining based on specific customer demands.

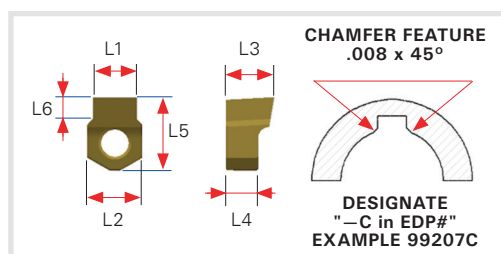


Tools for External Machining (mm)						
EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)
99901	20-DX	150.0	122.5	20x20	32.5	20
99902	20-SX			20x20	32.5	20
99903	25-DX			25x25	37.5	25
99904	25-SX			25x25	37.5	25

Use Insert L2 Pocket size 13mm or 0.5157" /

Ref: Toolholder Size 10 & 12

Broaching and Slotting Inserts - Imperial

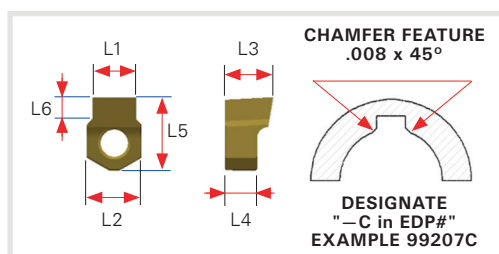


Inserts (inch) - Tolerances				To order a different tolerance - EDP# + (TOLERANCE) = 99202P9												
EDP No.	L1 (Inch)	H-7 (Standard)		P-9		D-10		C-11		L2	L3	L4	L5	L6	Tool Holder Size	Sharpen Stem
		L1 (High)	L1 (Low)	L1 (High)	L1 (Low)	L1 (High)	L1 (Low)	L1 (High)	L1 (Low)							
99202	3/32	0.09410	0.09370							0.1968	0.2362	0.1968	0.2559	0.0551	2	SS-0
99202()				0.09360	0.09260	0.09610	0.09570	0.09850	0.09810					0.0551		
99202C*		0.09410	0.09370											0.0520		
99203	1/8	0.12550	0.12551							0.2362	0.2755	0.1968	0.3149	0.0905	3	SS-1
99203()				0.12460	0.12340	0.12810	0.12770	0.13070	0.13030					0.0905		
99203C*		0.12550	0.12551											0.0740		
99206	5/32	0.15670	0.15652							0.2362	0.2755	0.1968	0.3149	0.1141	4	SS-1
99206()				0.15590	0.15470	0.15930	0.15892	0.16200	0.16160					0.1141		
99206C*		0.15670	0.15652											0.0790		
99207	3/16	0.18800	0.18778							0.2362	0.2755	0.1968	0.3149	0.1299	5	SS-1
99207()				0.18710	0.18590	0.19060	0.19020	0.19320	0.19280					0.1299		
99207C*		0.18800	0.18778											0.1050		
99209	1/4	0.25080	0.25040							0.3968	0.3543	0.2362	0.5314	0.1587	6	SS-2
99209()				0.24940	0.24800	0.25390	0.25350	0.25670	0.25630					0.1587		
99209C*		0.25080	0.25040											0.1360		
99210	9/32	0.28180	0.28160							0.3968	0.3543	0.2362	0.5314	0.1692	8	SS-2
99210()				0.28060	0.27920	0.28510	0.28470	0.28790	0.28750					0.1692		
99210C*		0.28180	0.28160											0.1520		
99212	5/16	0.31310	0.31270							0.3968	0.3543	0.2362	0.5314	0.1875	8	SS-2
99212()				0.31190	0.31050	0.31640	0.31600	0.31920	0.31880					0.1875		
99212C*		0.31310	0.31270											0.1670		
99213	3/8	0.37560	0.37520							0.5157	0.5511	0.3937	0.7283	0.2500	10	SS-3
99213()				0.37440	0.37300	0.37890	0.37850	0.38170	0.38130					0.2500		
99213C*		0.37560	0.37520											0.1990		
99214	7/16	0.43820	0.43780							0.5157	0.5511	0.3937	0.7283	0.2500	12	SS-4
99214()				0.43680	0.43510	0.44220	0.44180	0.44560	0.44520					0.2500		
99214C*		0.43820	0.43780											0.2300		
99215	1/2	0.50070	0.50030							0.5157	0.5511	0.3937	0.7283	0.3000	12	SS-4
99215()				0.49930	0.49760	0.50470	0.50430	0.50810	0.50760					0.3000		
99215C*		0.50070	0.50030											0.2610		
99242	9/16	0.56320	0.56280							0.7086	0.5511	0.3937	0.8661	0.2750	14/16	SS-4
99242()				0.56180	0.56010	0.56720	0.56680	0.57060	0.57020					0.2750		
99242C*		0.56320	0.56280											0.2670		
99216	5/8	0.62570	0.62530							0.7086	0.5511	0.3937	0.8661	0.3120	14/16	SS-4
99216()				0.62430	0.62240	0.62970	0.62930	0.63310	0.63270					0.3120		
99216C*		0.62570	0.62530											0.3024		
99217	3/4	0.75080	0.75040							1.0236	0.7086	0.3937	1.1811	0.3930	18/26	SS-5
99217()				0.74910	0.74710	0.75590	0.75550	0.75940	0.75900					0.3930		
99217C*		0.75080	0.75040											0.3860		
99218	7/8	0.87579	0.87559							1.0236	0.7086	0.3937	1.1811	0.4330	18/26	SS-5
99218()				0.8743	0.8738	0.88090	0.88050	0.88450	0.88410					0.4330		
99218C*		0.87579	0.87559											0.4030		
99219	1	1.00150	1.00250							1.0236	0.7086	0.3937	1.1811	0.5410	18/26	SS-5
99219()				0.9993	0.9988	1.00590	1.00550	1.00960	1.00910					0.5410		
99219C*		1.00150	1.00250											0.4270		

*Chamfer feature providing a 45° Chamfer at the intersection of the bore and the walls of the broached section when cut to full depth is available by specifying a "C" in the EDP No. for example --- 99408-C.

**It is necessary on larger cuts 12mm or ½ inch keyways and above to cut in two operations, a roughing pass with a smaller width insert (approximate ½ required width) and finishing pass at the desired width. This approach reduces the pressure required.

Broaching and Slotting Inserts - Metric



Inserts (mm) - Tolerances										To order a different tolerance - EDP# + (TOLERANCE) = 99202P9						
EDP No.	L1 (mm)	L1 (High)	L1 (Low)	L1 (High)	L1 (Low)	L1 (High)	L1 (Low)	L1 (High)	L1 (Low)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	Tool Holder Size	Sharpen Stem
99401	2	0.07910	0.07810							5.00	6.50	5.00	6.00	1.30	2	SS-0
99401C*				0.07850	0.07750	0.08540	0.08110	0.08350	0.08300					1.30		
99401C*		0.07910	0.07810											1.09		
99402	3	0.11860	0.11830							6.08	6.50	5.00	7.50	2.00	3	SS-1
99402C*				0.11790	0.11690	0.12090	0.12047	0.12280	0.12244					2.00		
99402C*		0.11860	0.11830											1.42		
99403	4	0.15800	0.15767							6.08	7.00	5.00	8.00	2.60	4	SS-1
99403C*				0.15710	0.15590	0.16020	0.15984	0.16220	0.16180					2.60		
99403C*		0.15800	0.15767											2.07		
99404	5	0.19730	0.19705							6.08	7.00	5.00	8.00	3.00	5	SS-1
99404C*				0.19650	0.19530	0.19960	0.19920	0.20160	0.20118					3.00		
99404C*		0.19730	0.19705											2.74		
99406	6	0.23680	0.23650							10.08	9.00	6.00	13.50	4.00	6	SS-2
99406C*				0.23560	0.23420	0.23940	0.23897	0.24090	0.24055					4.00		
99406C*		0.23680	0.23650											3.00		
99407	8	0.31560	0.31527							10.08	9.00	6.00	13.50	4.50	8	SS-2
99407C*				0.31440	0.31300	0.31810	0.31770	0.32050	0.32010					4.50		
99407C*		0.31560	0.31527											3.78		
99408	10	0.39430	0.39410							13.10	14.00	10.00	18.50	6.00	10	SS-3
99408C*				0.39300	0.39130	0.39720	0.39680	0.40000	0.39960					6.00		
99408C*		0.39430	0.39410											3.88		
99409	12	0.47310	0.47280							13.10	14.00	10.00	18.50	6.50	12	SS-3
99409C*				0.47170	0.47000	0.47600	0.47560	0.47950	0.47910					6.50		
99409C*		0.47310	0.47280											3.89		
99410	14	0.55190	0.55157							18.00	14.00	10.00	22.00	7.00	14/16	SS-4
99410C*				0.55050	0.54880	0.55510	0.55472	0.55910	0.55860					7.00		
99410C*		0.55190	0.55157											4.71		
99411	16	0.63060	0.63030							18.00	14.00	10.00	22.00	8.00	14/16	SS-4
99411C*				0.62920	0.62750	0.63390	0.63346	0.63780	0.63740					8.00		
99411C*		0.63060	0.63030											5.53		
99412	18	0.70950	0.70905							26.00	18.00	10.00	30.00	9.00	18/26	SS-5
99412C*				0.70780	0.70580	0.71450	0.71413	0.71810	0.71770					9.00		
99412C*		0.70950	0.70905											5.67		
99413	20	0.78820	0.78780							26.00	18.00	10.00	30.00	10.00	18/26	SS-5
99413C*				0.78650	0.78450	0.79330	0.79287	0.79690	0.79645					10.00		
99413C*		0.78820	0.78780											6.29		
99414	22	0.86700	0.86650							26.00	18.00	10.00	30.00	11.00	18/26	SS-5
99414C*				0.86520	0.86320	0.87200	0.87160	0.87560	0.87519					11.00		
99414C*		0.86700	0.86650											6.79		
99494	25	0.98510	0.98464							26.00	18.00	10.00	30.00	12.00	18/26	SS-5
99494C*				0.98340	0.98140	0.99010	0.98970	0.99370	0.99330					12.00		
99494C*		0.98510	0.98464											7.02		

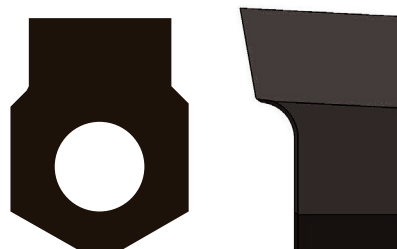
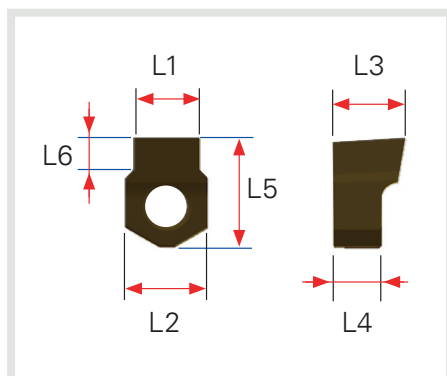
*Chamfer feature providing a 45° Chamfer at the intersection of the bore and the walls of the broached section when cut to full depth is available by specifying a "C" in the EDP No. for example --- 99402-C.

The Inserts designed to work exclusively with duMONT Tool Holders are a sintered steel alloy with a 13% cobalt content, heat treated to a 72 HRC hardness providing toughness and impact resistance. A TiN coating is applied to improve wear resistance and lubricity. All Inserts are designed to allow several re-sharpenings. Stock Insert specifications and mild steel application data are provided. A Chamfer Feature is available (see footnote*). See the Engineering Section for process and Special Insert information and available applications — Keyways in Tapered Bore, Square, Hexagon and Involute Internal Gears. We can add custom corner radius per your requirement, allow up to 2 weeks for modification and recoating.

**It is necessary on larger cuts 12mm or ½ inch keyways and above to cut in two operations, a roughing pass with a smaller width insert (approximate ½ required width) and finishing pass at the desired width. This approach reduces the pressure required.

MAX HP Inserts

The MAX HP Inserts are optimal for use in stainless, super alloys, and hardened steel applications. Higher rake angle; TiAlN coated



New for 2022

**Designed for
Hi-Temp, Stainless
& Hardened Steel
Alloys**

Inserts (inch) - Tolerances

EDP No.	L1 (Inch)	H-7 (Standard)		L2 (Inch)	L3 (Inch)	L4 (Inch)	L5 (Inch)	L6 (Inch)	Tool Holder Size	Sharpen Stem
		L1 (High)	L1 (Low)							
99202-M	3/32	0.09410	0.09370	0.1968	0.2362	0.1968	0.2559	0.0551	2	SS-0
99203-M	1/8	0.12550	0.12551	0.2362	0.2755	0.1968	0.3149	0.0905	3	SS-1
99206-M	5/32	0.15670	0.15652	0.2362	0.2755	0.1968	0.3149	0.1141	4	SS-1
99207-M	3/16	0.18800	0.18778	0.2362	0.2755	0.1968	0.3149	0.1299	5	SS-1
99209-M	1/4	0.25080	0.25040	0.3968	0.3543	0.2362	0.5314	0.1587	6	SS-2
99210-M	9/32	0.28180	0.28160	0.3968	0.3543	0.2362	0.5314	0.1692	8	SS-2
99212-M	5/16	0.31310	0.31270	0.3968	0.3543	0.2362	0.5314	0.1875	8	SS-2
99213-M	3/8	0.37560	0.37520	0.5157	0.5511	0.3937	0.7283	0.2500	10	SS-3
99214-M	7/16	0.43820	0.43780	0.5157	0.5511	0.3937	0.7283	0.2500	12	SS-4
99215-M	1/2	0.50070	0.50030	0.5157	0.5511	0.3937	0.7283	0.3000	12	SS-4
99242-M	9/16	0.56320	0.56280	0.7086	0.5511	0.3937	0.8661	0.2750	14/16	SS-4
99216-M	5/8	0.62570	0.62530	0.7086	0.5511	0.3937	0.8661	0.3120	14/16	SS-4
99217-M	3/4	0.75080	0.75040	1.0236	0.7086	0.3937	1.1811	0.3930	18/26	SS-5
99218-M	7/8	0.87579	0.87559	1.0236	0.7086	0.3937	1.1811	0.4330	18/26	SS-5
99219-M	1	1.00150	1.00250	1.0236	0.7086	0.3937	1.1811	0.5410	18/26	SS-5

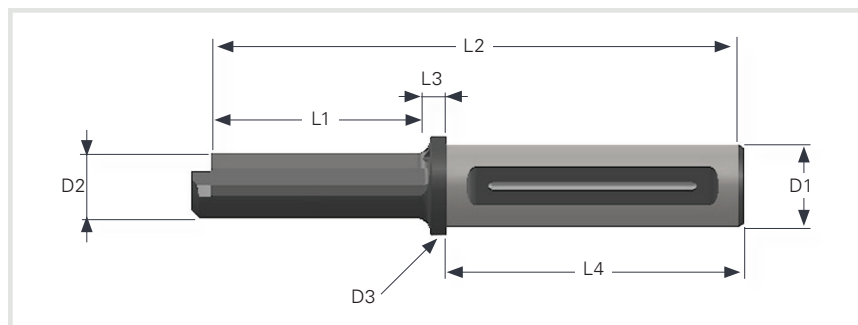
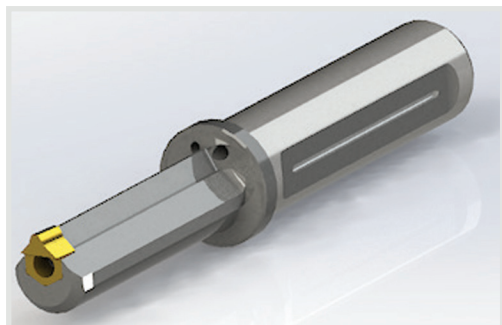
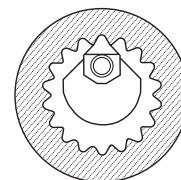
Inserts (mm) - Tolerances

EDP No.	L1 (mm)	H-7 (Standard)		L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	Tool Holder Size	Sharpen Stem
		L1 (High)	L1 (Low)							
99401-M	2	0.07910	0.07810	5.00	6.50	5.00	6.00	1.30	2	SS-0
99402-M	3	0.11860	0.11830	6.08	6.50	5.00	7.50	2.00	3	SS-1
99403-M	4	0.15800	0.15767	6.08	7.00	5.00	8.00	2.60	4	SS-1
99404-M	5	0.19730	0.19705	6.08	7.00	5.00	8.00	3.00	5	SS-1
99406-M	6	0.23680	0.23650	10.08	9.00	6.00	13.50	4.00	6	SS-2
99407-M	8	0.31560	0.31527	10.08	9.00	6.00	13.50	4.50	8	SS-2
99408-M	10	0.39430	0.39410	13.10	14.00	10.00	18.50	6.00	10	SS-3
99409-M	12	0.47310	0.47280	13.10	14.00	10.00	18.50	6.50	12	SS-3
99410-M	14	0.55190	0.55157	18.00	14.00	10.00	22.00	7.00	14/16	SS-4
99411-M	16	0.63060	0.63030	18.00	14.00	10.00	22.00	8.00	14/16	SS-4
99412-M	18	0.70950	0.70905	26.00	18.00	10.00	30.00	9.00	18/26	SS-5
99413-M	20	0.78820	0.78780	26.00	18.00	10.00	30.00	10.00	18/26	SS-5
99414-M	22	0.86700	0.86650	26.00	18.00	10.00	30.00	11.00	18/26	SS-5
99494-M	25	0.98510	0.98464	26.00	18.00	10.00	30.00	12.00	18/26	SS-5

**It is necessary on larger cuts 12mm or ½ inch keyways and above to cut in two operations, a roughing pass with a smaller width insert (approximate ½ required width) and finishing pass at the desired width. This approach reduces the pressure required.

Tools for Splined Profiles

The SP tool line was designed to make splined internal profiles. The choice of tool is determined by the minimum entry hole of the workpiece to be machined. In fact, we recommend purchasing a tool with a diameter (D2) as close to the value of said hole as possible, as shown in the table. It is also possible to make special tools in various diameters and sizes based on specific customer needs.



Tools for Splined Profiles (mm)													
EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	D1 (mm)	D2 (mm)	D3 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
99801	02-25	25.0	124.0	9.0	90.0	25.0	6.5	30.0	CP-0	T08	MS-1	7.0	382
99802	02-32	25.0	134.0		100.0	32.0	6.5	37.0	CP-0	T08	MS-1	7.0	600
99803	03-25	30.0	129.0		90.0	25.0	8.0	30.0	CP-1	T08	MS-1	8.5	368
99804	03-32	30.0	139.0		100.0	32.0	8.0	37.0	CP-1	T08	MS-1	8.5	673
99805	04-25	40.0	139.0		90.0	25.0	10.0	30.0	CP-1	T08	MS-1	10.5	368
99806	04-32	40.0	149.0		100.0	32.0	10.0	37.0	CP-1	T08	MS-1	10.5	672
99807	05-25	46.0	145.0		90.0	25.0	12.0	30.0	CP-1	T08	MS-1	12.5	382
99808	05-32	46.0	155.0		100.0	32.0	12.0	37.0	CP-1	T08	MS-1	12.5	698
99809	06-25	56.0	155.0	11	90.0	25.0	16.0	30.0	CP-2	T15	MS-2	16.5	428
99810	06-32	56.0	165.0		100.0	32.0	16.0	37.0	CP-2	T15	MS-2	16.5	725
99811	08-25	68.0	167.0		90.0	25.0	20.0	30.0	CP-2	T15	MS-2	21.0	488
99812	08-32	68.0	177.0		100.0	32.0	20.0	37.0	CP-2	T15	MS-2	21.0	820
99813	10-25	86.0	185.0	9.0	90.0	25.0	25.0	32.0	CP-3	T20	MS-3	28.0	647
99814	10-32	86.0	195.0		100.0	32.0	25.0	37.0	CP-3	T20	MS-3	28.0	935
99815	12-25	102.0	203.0		90.0	25.0	30.0	35.0	CP-3	T20	MS-3	33.0	824
99816	12-32	102.0	213.0		100.0	32.0	30.0	37.0	CP-3	T20	MS-3	33.0	1,157
99817	14/16-25	126.0	225.0		90.0	25.0	35.0	37.0	CP-4	T20	MS-3	38.0	1,211
99818	14/16-32	126.0	235.0		100.0	32.0	35.0	37.0	CP-4	T20	MS-3	38.0	1,490
99819	18/25-32	140.0	249.0		100.0	32.0	40.0	45.0	CP-5	BRUG.5	MS-4	42.0	1,903

Note: Inserts used on the tool line for splined profiles are all considered special: they are not in stock; rather, they are manufactured specifically for the customer based on the type of machining required. Please contact us for a quote.

Tools and Inserts for Square

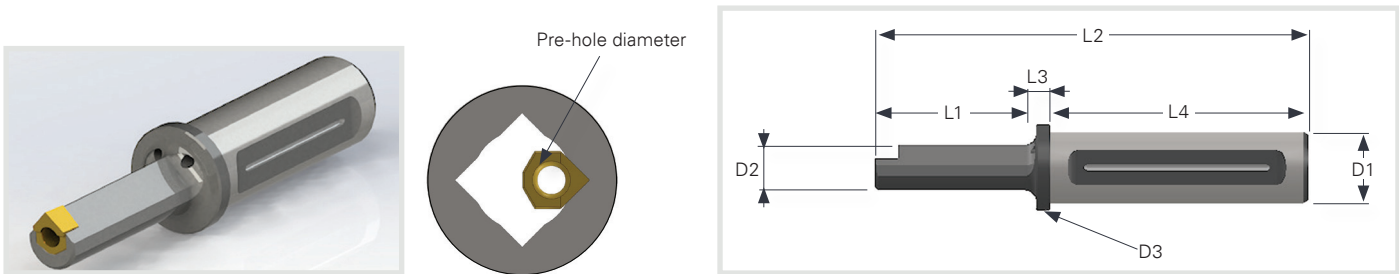
This series of duMONT tools was developed to execute internal squares. It offers the following advantages: absolute concentricity, the possibility of correcting the required measurement, machining speed and cost savings. Every insert size in this line is able to execute various square sizes, which makes using duMONT tools for squares very economical and convenient. To execute internal square holes, it is necessary to cut a pre-hole with a diameter based on the following formula:

$$\text{PRE-HOLE DIAMETER} = \text{SQUARE THICKNESS} \times 1.050$$

For example, for a square with a thickness of 10mm, the diameter of the pre-hole will be: 10mm x 1.050 = 10.50mm

To execute completely square holes, the customer will need to make a specific request and will be supplied with an ad hoc tool. In addition to this, in many other cases, in order to obtain a perfectly appropriate tool for the type of square hole that needs to be executed, it will be possible to produce a special tool that meets the customer's specifications.

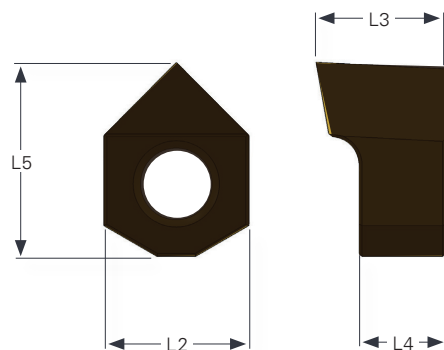
Tools for Square



Tools for Square (mm)

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	D1 (mm)	D2 (mm)	D3 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
99621	8/10-25	30.0	129.0	9.0	90.0	25.0	7.25	30.0	CP-1	T08	MS-1	8.0	368
99622	8/10-32	30.0	139.0		100.0	32.0	7.25	37.0	CP-1	T08	MS-1	8.0	673
99623	10/13-25	40.0	139.0		90.0	25.0	8.60	30.0	CP-1	T08	MS-1	10.0	368
99624	10/13-32	40.0	149.0		100.0	32.0	8.60	37.0	CP-1	T08	MS-1	10.0	672
99625	13/16-25	50.0	149.0		90.0	25.0	12.00	30.0	CP-2	T15	MS-2	13.0	428
99626	13/16-32	50.0	159.0		100.0	32.0	12.00	37.0	CP-2	T15	MS-2	13.0	725
99627	16/19-25	52.0	151.0		90.0	25.0	15.00	30.0	CP-3	T20	MS-3	16.0	647
99628	16/19-32	52.0	161.0		100.0	32.0	15.00	37.0	CP-3	T20	MS-3	16.0	935
99629	19/27-25	86.0	185.0		90.0	25.0	18.50	30.0	CP-3	T20	MS-3	19.0	824
99630	19/27-32	86.0	195.0		100.0	32.0	18.50	37.0	CP-3	T20	MS-3	19.0	1,157
99631	27/37-25	100.0	199.0		90.0	25.0	25.00	30.0	CP-4	T20	MS-3	27.0	1,390
99632	27/37-32	100.0	209.0		100.0	32.0	25.00	37.0	CP-4	T20	MS-3	27.0	1,490
99633	37/50-32	140.0	249.0		100.0	32.0	35.00	45.0	CP-5	BRUG-5	MS-4	37.0	1,903

Inserts for Square



NEW for 2022

Inserts for Square (mm)

TIN EDP No.	MAX HP Inserts	Working range (mm)	Working range (inches)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	Tool Holder Size	Sharpen Stem
99601	99601-M	8mm/10mm	0.314/0.393	6.00	7.00	5.00	7.00	8/10	SS-1
99602	99602-M	10mm/13mm	0.393/0.511	6.00	7.00	5.00	7.50	10/13	SS-1
99603	99603-M	13mm/16mm	0.511/0.629	10.00	8.00	6.00	12.00	13/16	SS-2
99604	99604-M	16mm/19mm	0.629/0.748	10.00	8.00	6.00	12.50	16/19	SS-2
99605	99605-M	19mm/27mm	0.748/1.062	13.00	13.00	10.00	17.00	19/27	SS-3
99606	99606-M	27mm/37mm	1.062/1.456	18.00	14.00	10.00	22.00	27/37	SS-4
99607	99607-M	37mm/50mm	1.456/1.968	26.00	18.00	10.00	30.00	37/50	SS-5

*Reference Radius Chart on pg. 61

Tools and Inserts for Hexagon

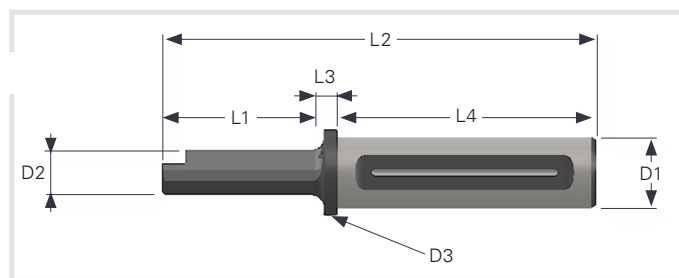
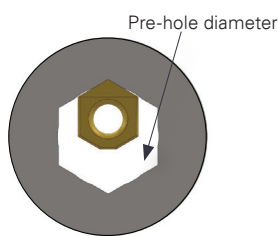
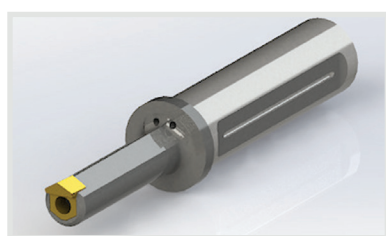
The duMONT CNC Indexable Broaching System was developed to execute internal hexagons. It offers the following advantages: absolute concentricity, the possibility of correcting the required measurement, machining speed and cost savings. Every insert size in this line is able to execute various hexagonal sizes, which makes using duMONT tools for hexagons very economical and convenient. To execute internal hexagonal holes, it is necessary to cut a pre-hole with a diameter based on the following formula:

$$\text{PRE-HOLE DIAMETER} = \text{HEXAGON THICKNESS} \times 1.020$$

For example, for a hexagon with a thickness of 10mm, the diameter of the pre-hole will be: 10mm x 1.020 = 10.20mm

To achieve your desired hexagonal hole, contact our Engineering Department for a custom solution to meet your needs.

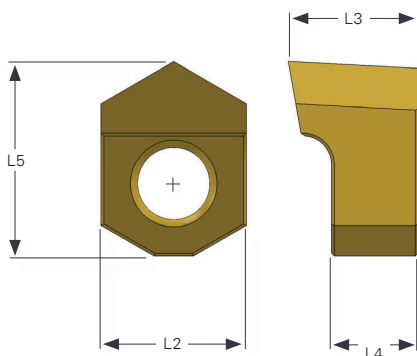
Tools for Hexagon



Tools for Hexagon (mm)

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	D1 (mm)	D2 (mm)	D3 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
99721	9/11-25	30.0	129.0	9.0	90.0	25.0	8.0	30.0	CP-1	T08	MS-1	9.0	388
99722	9/11-32	30.0	139.0		100.0	32.0	8.0	37.0	CP-1	T08	MS-1	9.0	673
99723	11/17-25	40.0	139.0		90.0	25.0	10.0	30.0	CP-1	T08	MS-1	11.0	368
99724	11/17-32	40.0	149.0		100.0	32.0	10.0	37.0	CP-1	T08	MS-1	11.0	672
99725	17/28-25	56.0	155.0		90.0	25.0	15.0	30.0	CP-2	T15	MS-2	17.0	647
99726	17/28-32	56.0	165.0		100.0	32.0	15.0	37.0	CP-2	T15	MS-2	17.0	935
99727	28/37-25	86.0	185.0		90.0	25.0	25.0	30.0	CP-3	T20	MS-3	28.0	1,390
99728	28/37-32	86.0	195.0		100.0	32.0	25.0	37.0	CP-3	T20	MS-3	28.0	1,157
99729	37/45-25	126.0	225.0		90.0	25.0	35.0	45.0	CP-4	T20	MS-3	37.0	1,490
99730	37/45-32	126.0	235.0		100.0	32.0	35.0	45.0	CP-4	T20	MS-3	37.0	1,850
99731	45/70-32	140.0	249.0		100.0	32.0	40.0	45.0	CP-5	BRUG 5	MS-4	45.0	1,950

Inserts for Hexagon



NEW for 2022

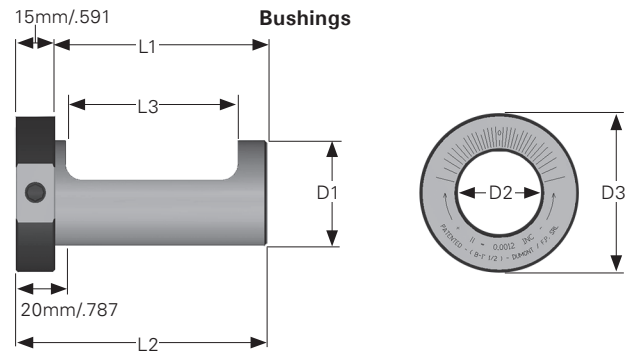
Inserts for Hexagon (mm)

TIN EDP No.	MAX HP Inserts	Working range (mm)	Working range (inches)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	Tool Holder Size	Sharpen Stem
99701	99701-M	9mm/11mm	0.354/0.433	6.08	6.50	5.08	7.50	9/11	SS-1
99702	99702-M	11mm/17mm	0.433/0.669	6.08	7.00	5.00	8.00	11/17	SS-1
99703	99703-M	17mm/28mm	0.669/1.102	10.08	9.00	6.15	13.08	17/28	SS-2
99704	99704-M	28mm/37mm	1.102/1.456	13.08	14.00	10.00	18.50	28/37	SS-3
99705	99705-M	37mm/45mm	1.456/1.771	18.00	14.00	10.00	22.00	37/45	SS-4
99706	99706-M	45mm/70mm	1.771/2.755	26.00	18.00	10.00	30.00	45/70	SS-5

*Reference Radius Chart on pg. 61

Stock Eccentric Bushings

The Eccentric Bushings are designed to allow the use of the Tool Holders in lathes that do not have a Y-axis. The Bushing, manufactured from tool steel, hardened and ground, enables symmetry corrections within a range of +Y 0.5mm (.020 inch) to -Y 0.5mm (.020 inch). The Eccentric Bushings can accommodate Tool Holders with either 25mm or 32mm shanks and are available in various diameters, allowing the Tooling System to be use in a wide variety of machines. Shorter VDI style Eccentric bushings are also available.

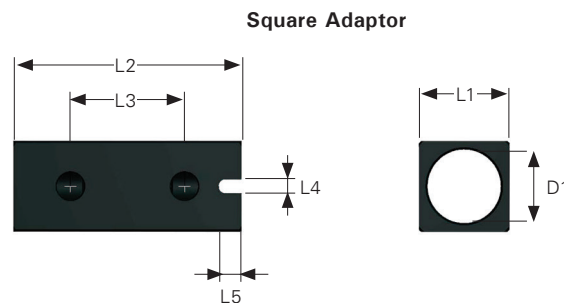


Stock Eccentric Bushings for use with 25mm (.984 inch) and 32mm (1.260 inch) Tool Holders

EDP No.	Description	Shank Diameter (D1)		Shank Internal Dia.(D2)		Shank Length (L1)		Overall Length (L2)		Collar Diameter (D3)		Undercut Length (L2)	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
99060	EB-1-1/4	31.8	1.250	25	0.984	70	2.756	85	3.346	55	2.165	58	2.283
99061	EB-1-1/2	38.1	1.500	32	1.260	80	3.150	95	3.740	55	2.165	66	2.598
99062	EB-2	50.8	2.000	32	1.260	100	3.937	115	4.528	65	2.559	75	2.953
99063	EB-32	32	1.260	25	0.984	70	2.756	85	3.346	55	2.165	58	2.283
99064	EB-40	40	1.575	32	1.260	80	3.150	95	3.740	55	2.165	66	2.598
99065	EB-50	50	1.969	32	1.260	100	3.937	115	4.528	65	2.559	75	2.953
99066	EB-60	60	2.362	32	1.260	100	3.937	115	4.528	80	3.150	75	2.953
99070	EB-1-1/4-VDI	31.8	1.250	25	0.984	50	1.969	65	2.559	55	2.165	38	1.496
99071	EB-1-1/2-VDI	38.1	1.500	32	1.260	65	2.559	80	3.150	55	2.165	51	2.008
99072	EB-2-VDI	50.8	2.000	32	1.260	80	3.150	95	3.740	65	2.559	55	2.168
99073	EB-32-VDI	32	1.260	25	0.984	50	1.969	65	2.559	55	2.165	38	1.496
99074	EB-40-VDI	40	1.575	32	1.260	65	2.559	80	3.150	55	2.165	51	2.008
99075	EB-50-VDI	50	1.969	32	1.260	80	3.150	95	3.740	65	2.559	55	2.165
99076	EB-60-VDI	60	2.362	32	1.260	80	3.150	95	3.740	80	3.150	55	2.165

Stock Square Adaptors

The Square Adaptors are available in two sizes for use with either 25mm or 32mm Tool Holders. The Adaptors provide a method for allowing the Tooling System to be used on traditional machines such as Slotting and Shaping machines. Manufactured from 39NiCrMo3 steel, heat treated and then blued, the Adaptor provides two holes 12 MA threaded for use with two flat head M12 x 8 screws to secure the Tool Holder in place. The Square Adaptor offers a locating slot on each of the four sides.



Stock Square Adaptors

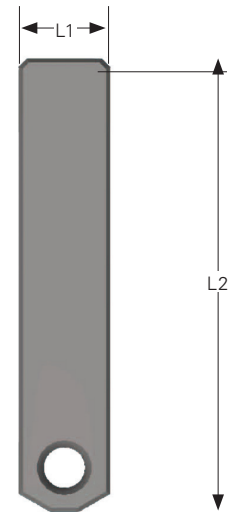
EDP No.	Description	Shank Diameter (D1)		Width & Height (L1)		Overall Length (L2)		Locking Bolt Holes (L3)		Locating Slot Width (L4)		Locating Slot Depth (L5)	
		(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)	(inch)
99535	SA-35	25	.984	35	1.387	90	3.543	40	1.575	6	.236	10	0.394
99540	SA-40	32	1.260	40	1.575	100	3.937	50	1.969	6	.236	10	0.394
99550	SA-50	32	1.260	50	1.969	170	6.693	50	1.969	6	.236	10	0.394

Stock Centering Plates

The Centering Plates are designed to fit specific Tool Holders and facilitate correct mounting and orientation of the Tool Holder. The Centering Plate sits in the Tool Holder, as does the Insert, and provides a surface to be referenced using a sensor or gauge.

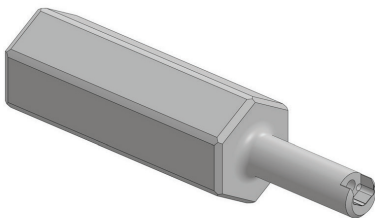
The results are used to reference against the axis of the part to be processed. The chart below identifies the Tool Holders that can be used with a particular Centering Plate.

Stock Centering Plates						
EDP No.	Description	Used with tool holders size	Plate Height (L1)		Plate Height (L2)	
			(mm)	(inch)	(mm)	inch
99500	CP-0	2	5	0.197	50	1.968
99501	CP-1	3, 4 & 5	6	0.236	50	1.969
99502	CP-2	6 & 8	10	0.394	50	1.969
99503	CP-3	10 & 12	13	0.512	60	2.362
99504	CP-4	14/16	18	0.709	70	2.756
99505	CP-5	18/26	26	1.024	70	2.756



Stock Sharpening Stems

Insert life can be extended through re-sharpening of Inserts that show a decline in surface finish (a sign of wear). The Sharpening Stems, available in 5 sizes, are designed to accept specific Insert sizes. The Insert is removed from the Tool Holder and mounted on the Sharpening Stem. The Sharpening Stem holds the Insert securely in place as the cutting edge of the Insert is sharpened at its original angle using a suitable grinder and grinding wheel.



Stock Sharpening Stems					
EDP No.	Description	Used with insert (inch)	Used with insert (mm)	Overall Length	
				(mm)	(inch)
99520	SS-0	3/32	2	150	5.906
99521	SS-1	1/8, 5/32 & 3/16	3, 4 & 5		
99522	SS-2	1/4, 9/32 & 5/16	6 & 8		
99523	SS-3	3/8	10 & 12		
99524	SS-4	7/16 – 5/8	14 & 16		
99525	SS-5	3/4-1	18 – 26		

Insert Mounting Screws and Torx Drivers

Inserts are mounted in the Tool Holder using a Torx Screw or 5mm Hex screw. The Screw size varies with the size of the Tool Holder. Replacement and extra Screws are available as are the appropriate size Torx Drivers. The charts on the right lists the individual Screw and Driver sizes and the Tool Holders they are used with.

Stock Insert Mounting Screws and Torx Driver				
EDP No.	Description	Style	Thread	Used with tool holders size
99551	MS-1	Torx	M 2.5 x .45	2, 3, 4 & 5
99552	MS-2	Torx	M 4 x .70	6 & 8
99553	MS-3	Torx	M 6 x 1.00	10, 12 & 14/16
99554	MS-4	5mm Hex	M 8 x 1.25	18/26

Torx Drivers			
EDP No.	Description	Style	Used with tool holders size
99561	T-08	Torx	2, 3, 4 & 5
99562	T-15	Torx	6 & 8
99563	T-20	Torx	10, 12 & 14/16
99564	5mm	Hex Driver	18/26

Stock Swivel Ball-Bearing Point Set Screws

Used in Lathe Without Y-axis

The Set Screws are used only in Lathe without Y-axis during Eccentric Bushing rotation to correct symmetry errors. Do not over-tighten Ball-Bearing Point Set Screw. It must allow the Tool Holder to move up and down as the Bushing is rotated. It is important to confirm the bolt requirements for the existing tooling to be used in the mounting of the Tooling System.

Stock Swivel Ball-Bearing Point Set Screws			
EDP No.	Description	Thread	Length
99571	BB-1	M 6 x 1.00	15mm
99572	BB-2	M 8 x 1.25	18mm
99573	BB-3	M 10 x 1.5	23mm
99574	BB-4	M 12 x 1.75	26mm
99575	BB-5	M 14 x 2.00	30mm
99576	BB-6	M 16 x 2.00	33mm
99577	BB-7	UNC 5/16-18	37/64
99578	BB-8	UNC 3/8-16	5/8
99579	BB-9	UNC 1/2-13	3/4
99580	BB-10	UNC 5/8-11	36/64

Accurate and Efficient

The duMONT CNC Indexable Broaching System offers a patented solution for effective and efficient broaching and shaping operations on CNC Lathes and Machining Centers as well as Slotting and shaping machines. The CNC Indexable Broaching system is designed to be flexible while delivering the rigidity and performance required. The CNC Indexable Broaching system allows the cutting of thru and blind hole keyways, keyways in a tapered bore and shaped or splined holes. Programming assistance is available, please refer to PilotPrecision.com or call 413-350-5200 for details.

System Components

Inserts – Stock Keyway and Slotting Inserts in Inch and Metric Sizes

The Insert designed to work exclusively with a duMONT Tool Holder is manufactured from a sintered steel alloy with a 13% cobalt content, heat treated to a 72 HRC hardness to provide toughness and impact resistance, and TiN coated to further enhance performance. Stock Inserts may be re-sharpened two to three times depending on the keyway width tolerance and requires recoating after re-sharpening. The Engineering Section discusses additional types of Special Inserts that may be designed and manufactured for specific applications.

Tool Holders – 25 & 32mm and 1 & 1-1/4 in Shank Tool Holders

The duMONT Tool Holder is designed to work exclusively with the Insert. The Holders are manufactured of heat treated tool steel hardened to 58/60 HRC at the Insert seat, providing resistance to deformation and longer tool life. The Tool Holders come in Standard and Long Lengths and can, in many cases, accommodate more than one insert size. The Stock Tool Holders are often used in conjunction with Special Form Inserts designed for specific applications.

Square Adaptors – Square Adaptors for use on Traditional Slotting, and Shaping Machines

The Square Adaptors provide a means of interfacing the Broaching System to a wide variety of conventional Slotting and Shaping Machines. The Square Adaptors are available in 1.378 (35mm) and 1.575 (40mm) size and accept the 25mm Tool Holder and 32mm Tool Holder respectively.

Centering Plates – Centering Plates for use in Tool Holders

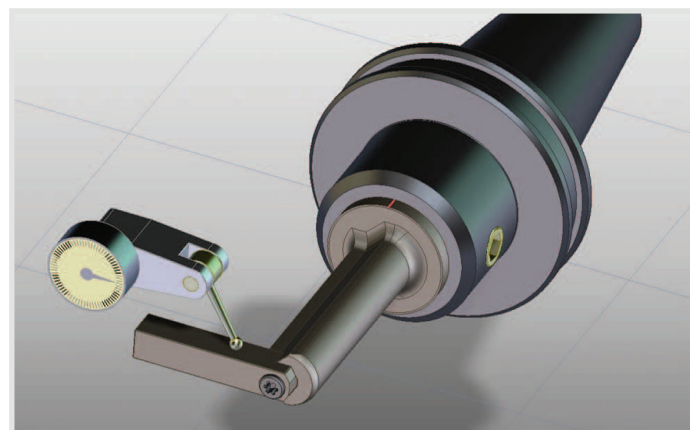
The appropriate size Centering Plate is mounted in the Tool Holder to facilitate correct mounting and orientation of the Tool Holder with the machine. Through the use of a sensor or dial indicator, the centering of the Plate will be readily transferred to the Insert when mounted in the Tool Holder.

Sharpening Stems – Sharpening Stems for Stock Inserts

Hexagon shanked Sharpening Stems are available for mounting and supporting an Insert during re-sharpening. Inserts that show a decline in surface finish (a sign of wear), can have their life extended through a re-sharpening process. The Inserts are designed to allow two to three re-sharpenings, more if tolerances allow. Recoating of the Insert is required after sharpening.

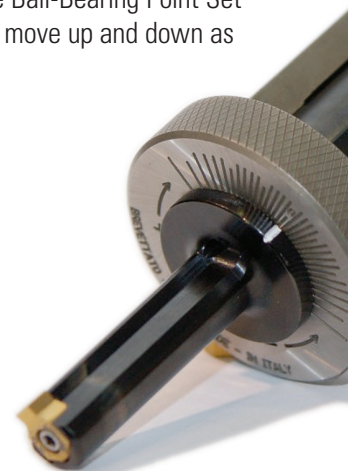
Eccentric Bushings – Eccentric Bushings for 25mm and 32mm Tool Holders

The Eccentric Bushings are designed to facilitate the use of the Tooling System in Lathes that do not have a Y-axis adjustment. The Eccentric Bushing has a range of +/- .020 (0.5mm) and provides gradient lines each representing a displacement of .001 (0.03mm). This movement should be sufficient to adjust for any error that may occur on a CNC Lathe and insure proper alignment. The Bushings are also available in the shorter VDI style.



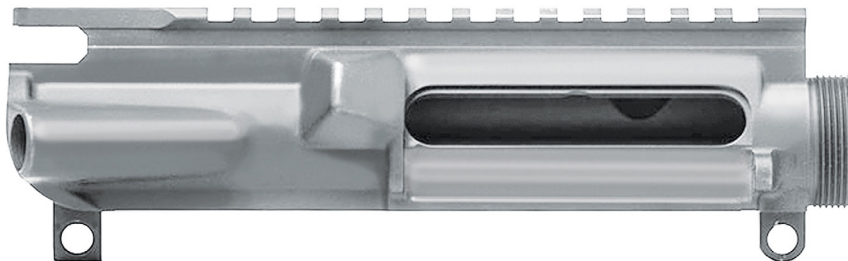
Mounting Screws – Insert Mounting Screws, Drivers and Set

Screw Inserts are mounted in the Tool Holder using a Torx Screw or a 5mm Hex Screw. The Screw size varies with the size of the Insert and Tool Holder. Replacement and extra Screws are available to avoid downtime, as are Torx Drivers as needed. Swivel Ball-Bearing Point Set Screws are used only in Lathes without Y-axis during Eccentric Bushing rotation to correct symmetry errors. Do not over-tighten the Ball-Bearing Point Set Screw – it must allow the Tool Holder to move up and down as the Bushing is rotated.



Charging Handle for CNC Broaching Kit

Charging Handle Broach



For improved functionality of charging handles, use our CNC Charging Handle Broaching Kit.

Key features and benefits include:

- Broach is internal to machine cycle
- No subcontractor/offline operation required
- Easy resharpener of insert (up to 3-5 times)
- Costs only 25% of traditional broaching

The Charging Handle CNC Broaching Kit is available for:

AR15 (.223/5.56 NATO)

AR10 (.308/.762)

AR22 (.22 LR)

AR9 (9mm)

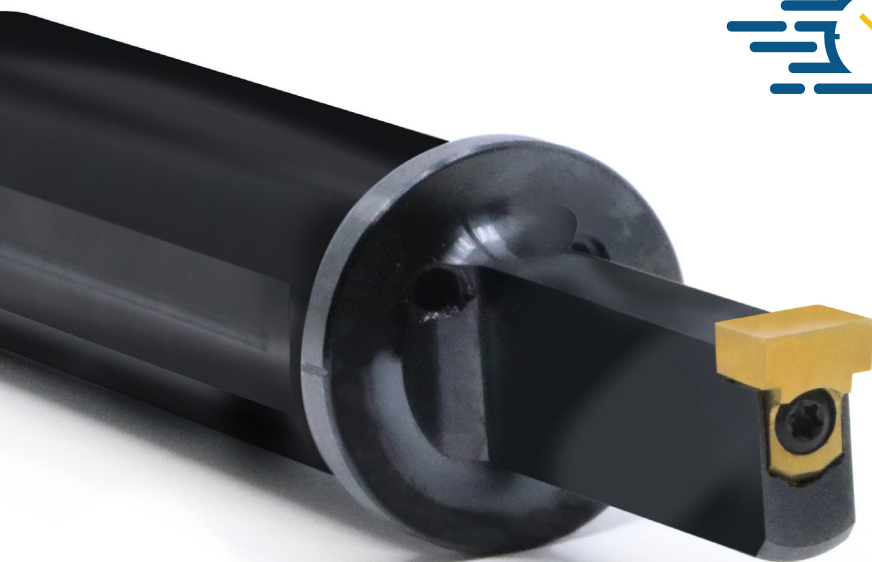
Cutting Data includes:

300-500 IPM

.0035 CPP (cut per pass)



Estimated Cycle Time:
45 seconds



Charging Handle Kit

EDP 99914

(Comes with 4 inserts & mounting screws, 1 holder & torx driver)

Replacement Components

99925 AR Charging Handle Insert

99926 AR Charging Handle Holder

99562 T-15 Torx Driver

99552 MS-2 Mounting Screw

Inserts can be modified if needed.

AR Firearm CNC Broaching Kits

The **duMONT CNC** AR15/M16 Magwell Kit comes with 3 holders, 3 types of inserts, 2 drivers, and an alignment tool in a durable case. This kit allows all broaching of a magwell to be done within the CNC cycle. The need for a secondary broaching process in a special purpose broaching machine is eliminated!



Insert 1
Profile Insert



Insert 2
Long Straight Insert



Insert 3
Mag Catch Insert



Save time: Approximate
1 minute 30 sec. total
broaching cycle time

1-1/4" Shank Diameter Holders

CUTTING DATA

300-500 IPM with
.0035 stepover

ROUGHMILL
(with a $\phi 3/8$ " endmill)
then 51 passes

OR

ROUGHMILL
(with a $\phi 1/2$ " endmill)
then 69 passes

3 passes at final depth

Estimated Tool Life,
2,600 pieces TiN coated
EDP 99911 for AR10
EDP 99916 for AR15
Can be Resharpended
2-3 times

300-500 IPM with
.0035 stepover

ROUGHMILL
(with a $\phi 3/8$ " endmill)
then 45 passes

OR

ROUGHMILL
(with a $\phi 1/2$ " endmill)
then 63 passes

3 passes at final depth

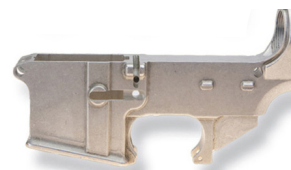
Estimated Tool Life,
2,600 pieces TiN coated
EDP 99912 for AR10
EDP 99917 for AR15
Can be Resharpended
2-3 times

300-400 IPM with
.0025-.0055 stepover

ROUGHMILL
(with a $\phi 3/8$ " or $\phi 1/2$ " endmill)
then 15 passes

3 passes at final depth

Estimated Tool Life,
4,000 pieces TiN coated
EDP 99918 for AR10 & AR15
Can be Resharpended
2-3 times



A standard CNC broaching tool can be added if you would like to make the magazine reliefs square corners.



AR15/M16 and AR10 FIREARMS KIT

99910 AR10 Magwell Kit

99915 AR15 Magwell Kit

Kit Components

EDP No.	Description
99910	AR10 Mag Well Kit
99911	AR10 INSERT 1 (PROFILE)
99912	AR10 INSERT 2
99915	AR15 MAGWELL KIT
99916	AR15 INSERT 1 (PROFILE)
99917	AR15 INSERT 2 (STRAIGHT)
99918	AR15 & AR10 INSERT 3 (MAG CATCH)
99921	AR15 & AR10 HOLDER 1 (TAKES INSERT 1 & 2)
99922	AR15 & AR10 HOLDER 2 (MAG CATCH)

1911 CNC Broaching Kit

Insertable tool vs. solid tool or round tool

1911 Broaching Kit

Complete Pistol Kits

EDP Nos.

99927 1911 Broaching Kit

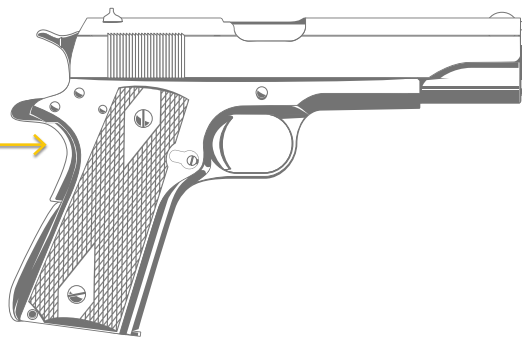
The 1911 CNC Broaching Kit is available for:

.45 ACP	.22 LR
40 S&W	10mm
.380 ACP	9mm

Components: 1 of each / kit

EDP Nos.

99928	1911 Magwell Insert
99929	1911 Magwell Holder
99930	1911 Trigger Slot Insert
99931	1911 Trigger Slot Holder
99932	1911 Trigger Bow Insert
99933	1911 Trigger BowHolder
99561	T-08 Torx Driver
99562	T-15 Torx Driver

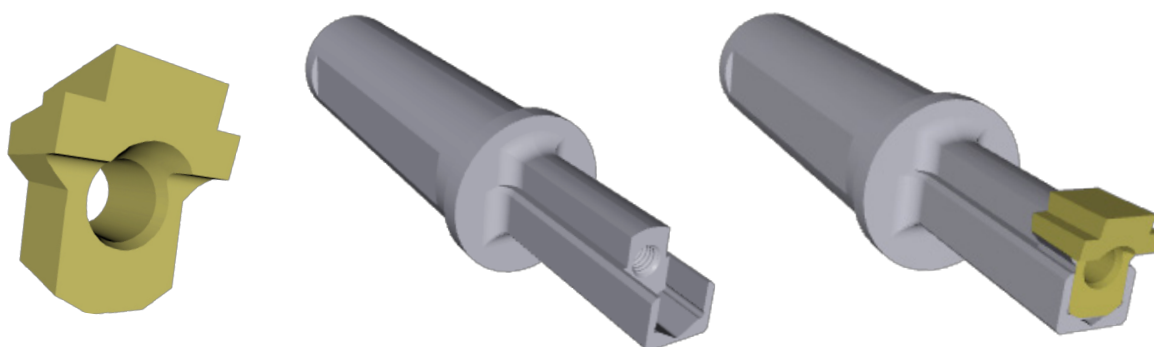


Inserts can be Custom Made to order

NEW! Now Available

Insertable Options for Breechfacing in Your CNC Applications for Gunslide Manufacturing

Our Breechface Broaches are easily assembled into a standard CNC holder. Calibers include: 9mm, .40, .45, .380 and 10mm. Our Breechface broaches are internal to machine cycle and do not require subcontracting/offline operation.



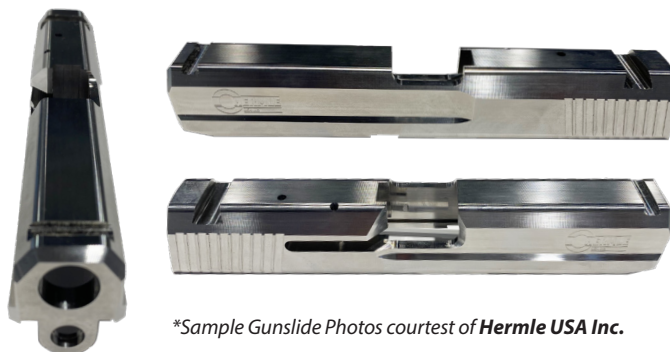
Insertable Tools Customized to Your Requirments

Custom Breechface Broaches for the Following Brands:

- Glock
- Smith & Wesson
- H&K
- Walther
- CZ
- Canik

Firearm Broaches we can support:

- Magwells
- Rifling
- Receiver
- Frame Broaches
- Slotters - Revolver
- Revolver Finishing



*Sample Gunslide Photos courtest of **Hermle USA Inc.**

Also Available: Custom Breechface Broaches for Slotting

* Delivery Available in 4-6 Weeks for Custom Products

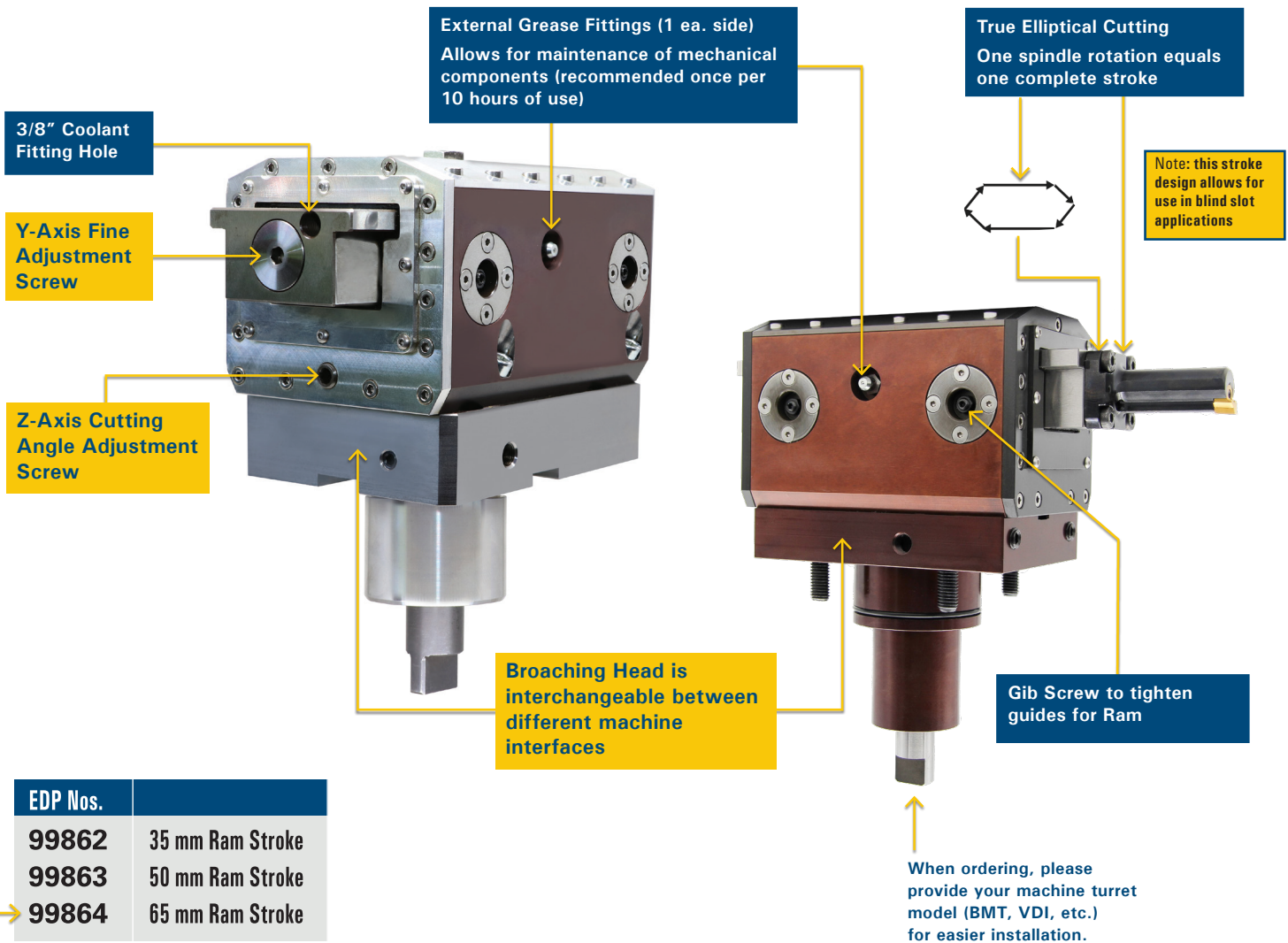
* Custom broaches on pg. 26



Motorized Slotter

FASTER CNC Broaching with Optimal Performance

The duMONT Motorized Slotter can easily handle internal and external keyway and spline profiles in significantly shorter cycle times while consolidating operations in one machine and eliminating secondary broaching operations.



Key Features & Benefits

- 6 Sided Ram Design creates maximum torsional rigidity resulting in superior finish, tool life, and **allows for a longer 65 mm Stroke option**
- Great for shaping holes into hex or squares 1" or larger beyond rotary broaching limits
- Easy to maintain and rebuild based on the ability to grease/lubricate
- Rebuild* Kit is available for bearings and seals for DIY maintenance, or the unit can be sent back for maintenance at **Half the Cost of Competitors**

Cycle Time Comparison:



5-10x FASTER

than other CNC Broaching Tools for
OD & ID Slots & Splines

50x FASTER

than Wire EDM in Slots or
Splines

***12 Month Warranty on Product Defects**

duMONT CNC Slotter DIY Kit

Easy Rebuild for Faster CNC Broaching

To keep your Motorized Slotter working at maximum efficiency, we give you the option of using our DIY Rebuild Kit or send us your equipment to repair at our facility. *General recommendation is to rebuild after 1000 continuous cycle hours.



EDP Nos.	Rebuild Kit
99865	35 mm Ram Stroke
99866	50 mm Ram Stroke
99867	65 mm Ram Stroke
Rebuild	Pilot Standard Rebuild <i>*Average: 2 Weeks</i>

Contact us for Quote on 48 hour Expedited Rebuild.

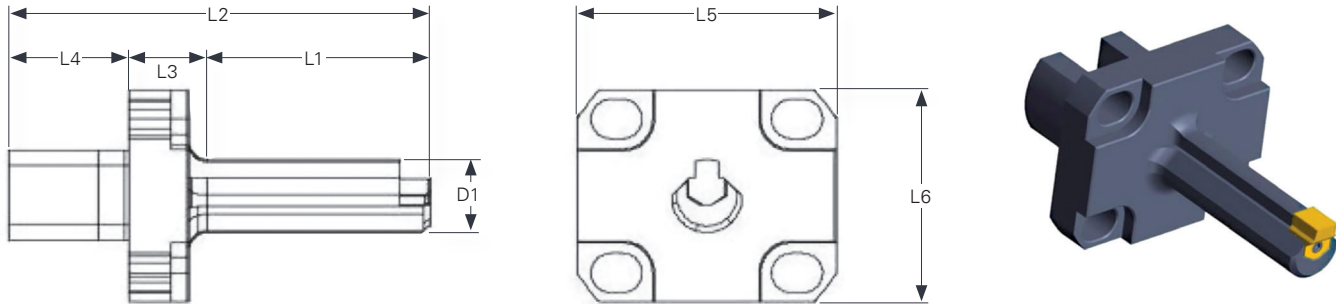
Price will vary depending on amount of work required.

**Loaner Heads available for Emergency Repairs only.*



MH Slotting Series Insert Holder

The line of tools illustrated here was developed for use on motorized slotting machines for CNC lathes. With the line of tools for motorized slotting machines, it is possible to use the inserts of standard lines for keyway seatings, for hexagonal profiles and for square profiles. It is also possible to manufacture tools and inserts for special profiles. The technical data table does not include the measurements for the diameter and length of the side designed for clamping inside the motorized slotting machine, as these measurements are defined case by case based on customer demands. The picture below is provided by way of example and illustrates one of the many possible shapes that the tool legs can have.



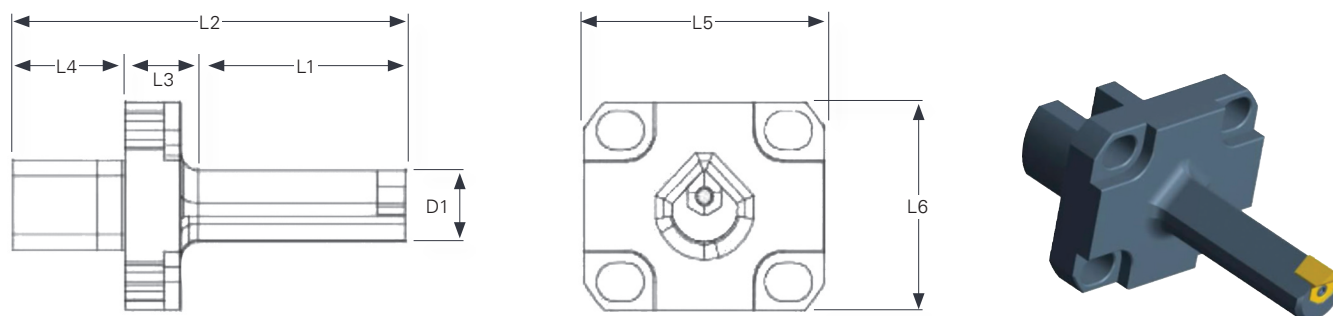
MH 35 / 50 / 65 Slotting Series Insert Holder

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	D1 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum Bore Dia.		Minimum hole (mm)	Weight (g)
												(mm)	(inch)		
99161	02-35	25	58	13	20	43	35	6	CP-0	T-08	MS-1	7	0.276	7	0.150
99162	03-35	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.5	0.335	8.7	0.160
99163	04-35	40	73	13	20	43	35	10	CP-1	T-08	MS-1	10.5	0.413	11	0.170
99164	05-35	46	79	13	20	43	35	12	CP-1	T-08	MS-1	12.5	0.492	13	0.180
99165	06-35	46	79	13	20	43	35	16	CP-2	T-15	MS-2	16.5	0.650	17	0.210
99166	08-35	46	79	13	20	43	35	20	CP-2	T-15	MS-2	21	0.827	21.5	0.225
99167	10/12-35	46	79	13	20	43	35	22	CP-3	T-20	MS-3	28/30	1.102/1.181	24	0.235
99168	14/16-35	46	79	13	20	43	35	25	CP-4	T-20	MS-3	35	1.378	27	0.245
99169	02-50	25	58	13	20	43	35	6	CP-0	T-08	MS-1	7	0.276	7	0.150
99170	03-50	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.5	0.335	8.7	0.160
99171	04-50	40	73	13	20	43	35	10	CP-1	T-08	MS-1	10.5	0.413	11	0.170
99172	05-50	46	79	13	20	43	35	12	CP-1	T-08	MS-1	12.5	0.492	13	0.180
99173	06-50	56	89	13	20	43	35	16	CP-2	T-15	MS-2	16.5	0.650	17	0.210
99174	08-50	56	89	13	20	43	35	20	CP-2	T-15	MS-2	21	0.827	21.5	0.225
99175	10/12-50	56	89	13	20	43	35	22	CP-3	T-20	MS-3	28/30	1.102/1.181	24	0.235
99176	14/16-50	56	89	13	20	43	35	25	CP-4	T-20	MS-3	35	1.378	27	0.245
99177	02-65	25	58	13	20	43	35	6	CP-0	T-08	MS-1	7	0.276	7	0.150
99178	03-65	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.5	0.335	8.7	0.160
99179	04-65	40	73	13	20	43	35	10	CP-1	T-08	MS-1	10.5	0.413	11	0.170
99180	05-65	46	79	13	20	43	35	12	CP-1	T-08	MS-1	12.5	0.492	13	0.210
99181	06-65	56	89	13	20	43	35	16	CP-2	T-15	MS-2	16.5	0.650	17	0.180
99182	08-65	68	102	13	20	43	35	20	CP-2	T-15	MS-2	21	0.827	21.5	0.240
99183	10/12-65	70	103	13	20	43	35	22	CP-3	T-20	MS-3	28/30	1.102/1.181	24	0.265
99184	14/16-65	70	103	13	20	43	35	25	CP-4	T-20	MS-3	35	1.378	27	0.285

See pages 55-57 for accessories.

See pages 43-44 for inserts

MH Square Series Insert Holder



MH 35 / 50 / 65 Square Series Insert Holder

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	D1 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
10000*	8/10-35	30	58	13	20	43	35	7.25	CP-1	T-08	MS-1	8	0.150
10001*	10/13-35	40	63	13	20	43	35	8.6	CP-1	T-08	MS-1	10	0.160
10002*	13/16-35	46	73	13	20	43	35	12	CP-2	T-15	MS-2	13	0.170
10003*	16/19-35	46	79	13	20	43	35	15	CP-3	T-20	MS-3	16	0.180
10004*	19/27-35	46	79	13	20	43	35	18.5	CP-3	T-20	MS-3	19	0.210
10005*	27/37-35	46	79	13	20	43	35	25	CP-4	T-20	MS-3	27	0.225
10006*	8/10-50	30	58	13	20	43	35	7.25	CP-1	T-08	MS-1	8	0.150
10007*	10/13-50	40	63	13	20	43	35	8.6	CP-1	T-08	MS-1	10	0.160
10008*	13/16-50	50	77	13	20	43	35	12	CP-2	T-15	MS-2	13	0.170
10009*	16/19-50	52	87	13	20	43	35	15	CP-3	T-20	MS-3	16	0.210
10010*	19/27-50	60	93	13	20	43	35	18.5	CP-3	T-20	MS-3	19	0.225
10011*	27/37-50	60	93	13	20	43	35	25	CP-4	T-20	MS-3	27	0.285
10012*	8/10-65	30	58	13	20	43	35	7.25	CP-1	T-08	MS-1	8	0.150
10013*	10/13-65	40	63	13	20	43	35	8.6	CP-1	T-08	MS-1	10	0.160
10014*	13/16-65	50	77	13	20	43	35	12	CP-2	T-15	MS-2	13	0.170
10015*	16/19-65	52	87	13	20	43	35	15	CP-3	T-20	MS-3	16	0.210
10016*	19/27-65	75	108	13	20	43	35	18.5	CP-3	T-20	MS-3	19	0.290
10017*	27/37-65	75	108	13	20	43	35	25	CP-4	T-20	MS-3	27	0.315

*please allow 2-4 weeks for delivery.

See pages 55-57 for accessories.

See page 46 for inserts.

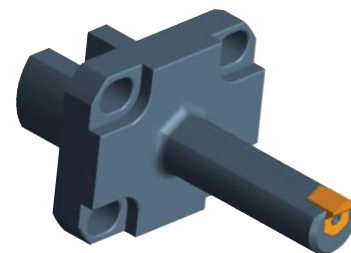
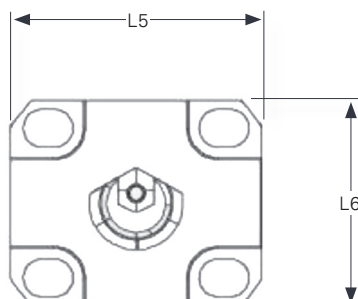
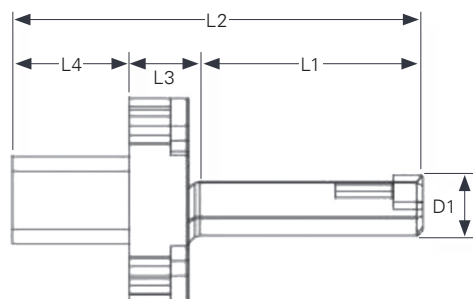
Pre-Hole Diameter = Square Thickness X 1.050

For example, for a square with a thickness of 10mm, the diameter of the pre-hole will be: 10mm x 1.050 = 10.50mm

To execute completely square holes, the customer will need to make a specific request and will be supplied with an ad hoc tool.

In addition to this, in many other cases, to obtain a perfectly appropriate tool for the type of square hole that needs to be executed, it will be possible to produce a special tool that meets the customer's specifications.

MH Hexagon Series Insert Holder



MH 35 / 50 / 65 Hexagon Series Insert Holder

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	D1 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
10018*	9/11-35	30	58	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.150
10019*	11/17-35	40	63	13	20	43	35	10	CP-1	T-08	MS-1	11	0.160
10020*	17/28-35	46	73	13	20	43	35	15	CP-2	T-15	MS-2	16	0.170
10021*	28/37-35	46	79	13	20	43	35	25	CP-3	T-20	MS-3	27	0.180
10022*	37/45-35	46	79	13	20	43	35	28	CP-4	T-20	MS-3	30	0.270
10023*	9/11-50	30	58	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.150
10024*	11/17-50	40	63	13	20	43	35	10	CP-1	T-08	MS-1	11	0.160
10025*	17/28-50	60	73	13	20	43	35	15	CP-2	T-15	MS-2	16	0.210
10026*	28/37-50	60	79	13	20	43	35	25	CP-3	T-20	MS-3	27	0.225
10027*	37/45-50	60	79	13	20	43	35	28	CP-4	T-20	MS-3	30	0.245
10028*	9/11-65	30	58	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.150
10029*	11/17-65	40	73	13	20	43	35	10	CP-1	T-08	MS-1	11	0.160
10030*	17/28-65	60	93	13	20	43	35	15	CP-2	T-15	MS-2	16	0.210
10031*	28/37-65	75	108	13	20	43	35	25	CP-3	T-20	MS-3	27	0.225
10032*	37/45-65	75	108	13	20	43	35	28	CP-4	T-20	MS-3	30	0.275

*Please allow 2-4 weeks for delivery.

See pages 55-57 for accessories.

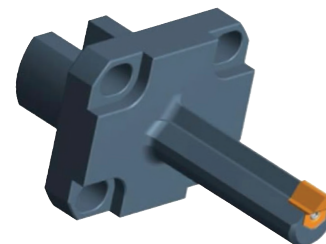
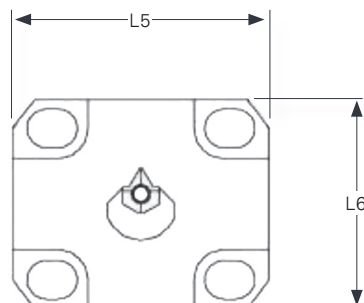
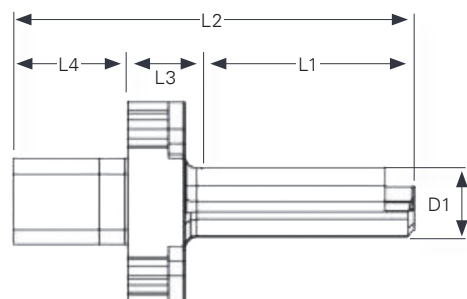
See page 47 for inserts.

Pre-Hole Diameter = Square Thickness X 1.020

For example, for a hexagon with a thickness of 10mm, the diameter of the pre-hole will be: 10mm x 1.020 = 10.20mm

To achieve your desired hexagonal hole, contact our Engineering Department for a custom solution to meet your needs.

MH-Spline Series Insert Holder



MH-Spline 35 / 50 / 65 Series Insert Holder

EDP No.	Description	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	D1 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
10033*	02-35	25	58	13	20	43	35	6.5	CP-0	T-08	MS-1	7	0.150
10034*	03-35	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.160
10035*	04-35	40	73	13	20	43	35	10	CP-1	T-08	MS-1	11	0.170
10036*	05-35	46	79	13	20	43	35	12	CP-1	T-08	MS-1	13	0.180
10037*	06-35	46	79	13	20	43	35	16	CP-2	T-15	MS-2	17	0.210
10038*	08-35	46	79	13	20	43	35	20	CP-2	T-15	MS-2	21.5	0.225
10039*	10-35	46	79	13	20	43	35	22	CP-3	T-20	MS-3	24	0.235
10040*	12-35	46	79	13	20	43	35	25	CP-3	T-20	MS-3	27	0.245
10041*	14/16-35	46	79	13	20	43	35	28	CP-4	T-20	MS-3	30	0.245
10042*	02-50	25	58	13	20	43	35	6.5	CP-0	T-08	MS-1	7	0.150
10043*	03-50	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.160
10044*	04-50	40	73	13	20	43	35	10	CP-1	T-08	MS-1	11	0.170
10045*	05-50	46	79	13	20	43	35	12	CP-1	T-08	MS-1	13	0.180
10046*	06-50	56	89	13	20	43	35	16	CP-2	T-15	MS-2	17	0.210
10047*	08-50	60	93	13	20	43	35	20	CP-2	T-15	MS-2	21.5	0.245
10048*	10-50	60	93	13	20	43	35	22	CP-3	T-20	MS-3	24	0.265
10049*	12-50	60	93	13	20	43	35	25	CP-3	T-20	MS-3	27	0.285
10050*	14/16-50	60	93	13	20	43	35	28	CP-4	T-20	MS-3	30	0.310
10051*	02-65	25	58	13	20	43	35	6.5	CP-0	T-08	MS-1	7	0.150
10052*	03-65	30	63	13	20	43	35	8	CP-1	T-08	MS-1	8.7	0.160
10053*	04-65	40	73	13	20	43	35	10	CP-1	T-08	MS-1	11	0.170
10054*	05-65	46	79	13	20	43	35	12	CP-1	T-08	MS-1	13	0.180
10055*	06-65	60	79	13	20	43	35	16	CP-2	T-15	MS-2	17	0.210
10056*	08-65	70	100	13	20	43	35	20	CP-2	T-15	MS-2	21.5	0.245
10057*	10-65	75	108	13	20	43	35	22	CP-3	T-20	MS-3	24	0.265
10058*	12-65	75	108	13	20	43	35	25	CP-3	T-20	MS-3	27	0.310
10059*	14/16-65	75	108	13	20	43	35	28	CP-4	T-20	MS-3	30	0.310

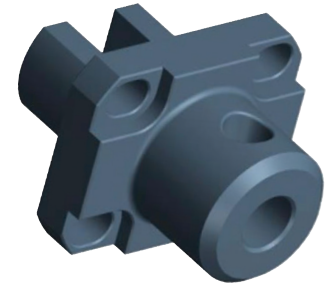
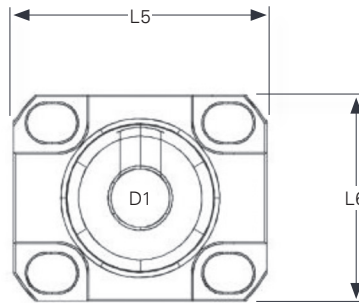
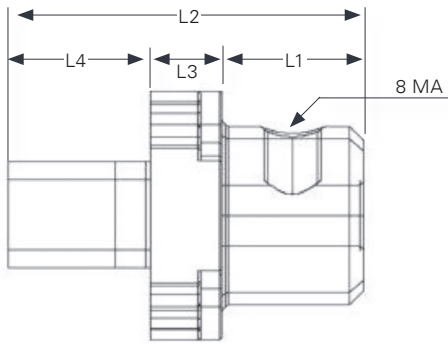
*please allow 2-4 weeks for delivery. When ordering please provide your machine turret model (BMT, VDI, etc.) for easier installation.

See pages 55-57 for accessories.

Note: Inserts used on the tool line for splined profiles are all considered special: they are not in stock; rather, they are manufactured specifically for the customer based on the type of machining required. Please contact us for a quote.

MH-M Series Tool Holder Adaptor for the MINITOOL

10mm D



MH-M 35 / 50 / 65 Series Tool Holder Adaptor

EDP No.	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)	L6 (mm)	D1 (mm)	Centering Plate	Torx driver	Mounting screw	Minimum hole (mm)	Weight (g)
10060*	20	50	10	20	43	35	10	-	-	-	-	-
10061*	20	50	10	20	43	35	10	-	-	-	-	-
10062*	20	50	10	20	43	35	10	-	-	-	-	-

*please allow 2-4 weeks for delivery.

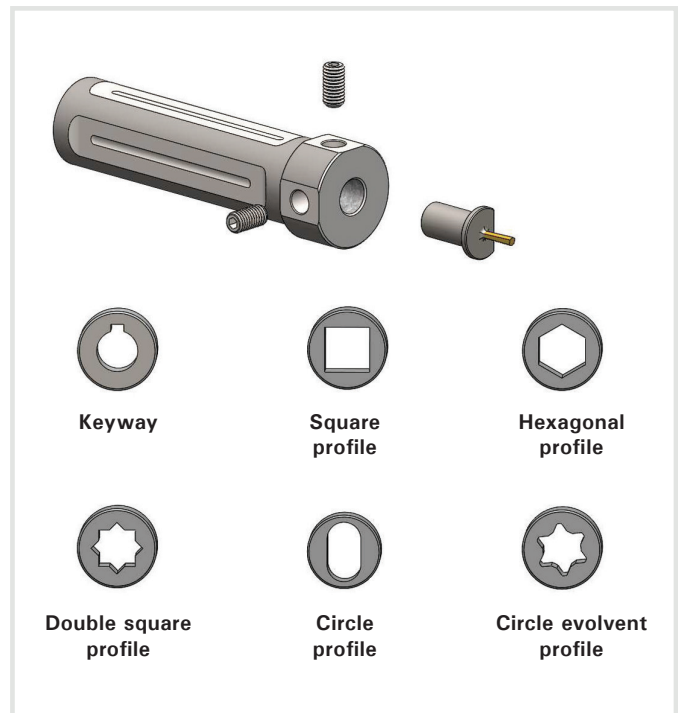
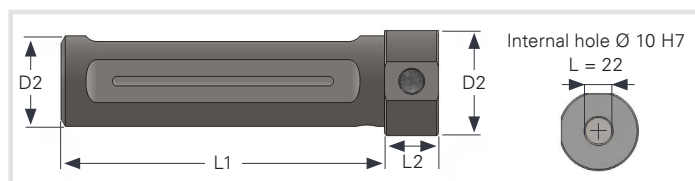
See pages 41-42 and 46-48 for Tool Holders.

MINITOOL

***All Tools are Custom Made to Order**

The MINITOOL series was developed based on the need to satisfy demands linked to machining small workpieces. Integral inserts were used to satisfy these demands, as these types of inserts make it possible to achieve extremely small cutting profiles, with very diverse geometries. In order to ensure high tool rigidity and achieve tools that are absolutely perfect for the operation that needs to be performed, the integral inserts are always designed ad hoc based on specific customer demands. To ensure the prompt supply of tools, Pilot Precision Products always has a stock of semi-finished MINITOOL inserts and has developed specific programs for its CNC sharpening machines, aimed at profiling inserts based on customer demands, in extremely short amounts of time. MINITOOL series inserts can fit UT-1/8 insert-carrier (available in different socket diameters). The aforementioned insert-carrier can, in turn, be internally fitted with eccentric bushing, the same way as the classic line duMONT tool and, therefore, can correct any alignment errors on CNC lathes that are not equipped with a Y-axis. Alternatively, MINITOOL inserts can be locked into the machine tool-carrier with a simple clamping gripper (for ex. an ER gripper). In this case, it is preferable for the machine tool to be equipped with a Y-axis.

Tool 1/8



Tools for External Machining (mm)

EDP No.	Description	L1 (mm)	L2 (mm)	D1 (mm)	D2
99906	1/8-3/4"	90	15	30	3/4"
99907	1/8-20mm	90		30	20mm
99908	1/8-25mm	90		30	25mm
99909	1/8-32mm	100		38	32mm

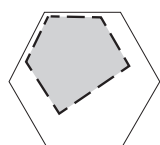
*Reference pg. 68 - Hassay Custom Push Broaches

Index Broach with 10mm Shank for MINITOOL

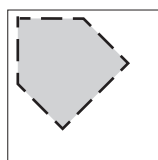
Hex and Hexalobe



An Alternative To Full Form Rotary Broaching



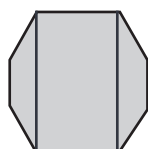
Single Point
Hex Broach



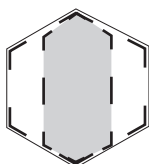
Single Point
Square Form



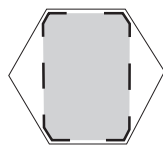
2 Point Hex
Index Broach



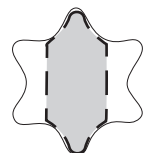
4 Point Index
Hex Broach



Full 6 Point
Hex Form



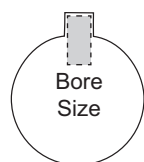
Full 4 Point
Hex Form



Full 6 Lobe
Form



2 Index Lobe
Broach



Keyway Shaper

Index Broaches can be made in the NEW MAX Alloy

HassayMAX

2 or 4 Point Hex Broach Cutting Process

- Hole preparation completed with chamfer & proper pilot hole size
- Machine spindle locked
- Punch enters the work piece, cutting the work piece, then retracts.
- The machine spindle indexes 60° then locks
- The punch enters the work piece a second time, cutting the work piece, then retracts
- Machine spindle indexes 60° then locks
- Punch enters for a third and final imprint
- Drill or boring bar used to make pilot hole can re-enter cut and remove ribbons and chips formed inside the cut

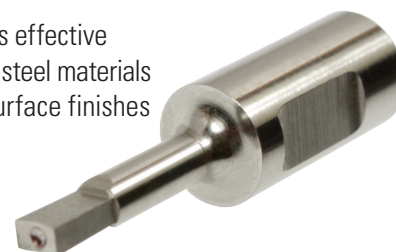


Hex or
Square
Broach

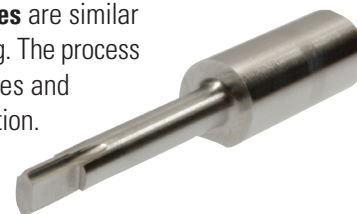
2 Point Hex Broach Cutting Procedure is effective for broaching materials with higher tensile strength and relieves overall pressure during the process.



4 Point Hex Broach Cutting Procedure is effective for index broaching titanium and stainless steel materials to help improve better tolerances and surface finishes in the finished part.



6 Lobe Hexalobe Broach Cutting Procedures are similar procedures as 2 point or 4 point broach cutting. The process reduces overall pressure, improves tolerances and surface finishes. Ideal for automated production.



Required Tooling Includes:

- 90° Spot/Chamfer Tool
- Desired Pilot Drill
- Index Punch Broach

Typical Applications Include:

- Hexagonal
- Double Hexagonal
- 6 Lobe / Hexalobe
- Square
- Keyways / Slots / Splines

Why Hassay Savage Index Broaches?

- For Longer Production Runs
- Superb Surface Finishes
- Outstanding Tool Life in Stainless & Titanium
- Special Sizes, Special tolerances in Less Than 5 Days
- Produce bone screws to ± 0.0002 Tolerance



Engineering Section



Special Inserts and Applications

The CNC Indexable Broaching System offers a wide range of Special Design Inserts that provide the opportunity to manufacture parts more efficiently and accurately through single machine processing. When location or timing is a critical design element of the part, the tooling system offers a means to do more work within the same coordinate system. Allow us to put our experience to work for you. Get the right Insert for the material you are machining, the shape or form you require with the programming needed to get your job done. Please contact us at 413-350-5200.

Blind Hole Inserts

Blind Hole Cutting requires a Special Insert. The Insert's composition and hardness is altered to reduce the risk of chipping. Additional design considerations are required for small diameter holes with restricted chip flow, deep hole cutting, and when working with bars of material in lathe operations. The programs used for Blind Hole Cutting require that special attention be given to the end of each stroke and the retraction of the Insert. A straight X-axis move out of the work can result in chipping of the Insert. Programming assistance is available; the manufacturer, model, and controls of the machine to be used as well as a fully dimensioned drawing of the finished part are required. The proper design, insert material, and programming is essential to success.

Cornering Inserts

Machine Squares, Hexagons, and Octagons with Inserts designed with two cutting edges intersecting at the appropriate angle 90°, 120° or 135°. Cut the corner, rotate the spindle (C axis) as required for the next cut (re-run of the subroutine) and repeat to completion. The same cornering Inserts may be used to generate a range of sizes of the given shape by simply increasing or decreasing the tool offset.

Internal Tothing and Grooving Inserts

Inserts designed to meet industry standards (ANSI, DIN, ISO etc.) as well as nonstandard geometries are available. A chamfering feature may be added in order to produce a burr-free part. One machine processing in the same coordinate system promotes product uniformity and processing efficiencies.

Sharpening – Allow us to extend the life of your inserts

Re-sharpening extends the life of the Insert and saves money. The Inserts that show a decline in surface finish (a sign of wear), can have their life extended through a sharpening process. The Inserts are designed to allow two to three sharpenings, more if tolerances allow. A Sharpening Stem is available for mounting and supporting of an Insert during re-sharpening. The Stem's hexagon shank facilitates the sharpening process. Sharpening must be properly performed using an appropriate grinder and grinding wheel. The original cutting angle must be maintained. Recoating of the Insert is required after sharpening.

Contact us for a quote to re-sharpen your inserts to proper manufactured geometry.

CNC Programming Support

Programming – Allow us to put our experience to work for you.

Programming assistance is available; the make, model, and controls of the machine used, along with a print drawing of the part, is required.

In the CNC program, it is necessary to establish an approaching value which accounts for the "cord," the distance from the center of the cutting edge of the Insert to I.D. of the bore at the point the corners of the Inserts contact the I.D. of the bore. This distance is a function of Insert width and Bore Diameter. The approaching value being sufficiently lower than the diameter of the bore avoids damage to the Insert.

On-site engineering programming service is available at an hourly rate plus travel costs.

** It is necessary on larger cuts 12mm or ½ inch keyways and above to cut in two operations, a roughing pass with a smaller width insert (approximate ½ required width) and finishing pass at the desired width. This approach reduces the pressure required.

Engineering Section - Tool Holder Speeds & Feeds

Aluminum				Bronze			Mild Steel / Low Alloy Steel			High Alloy Steel			Stainless		
Width of Insert	Cut per Stroke (inch)	Cutting Speed (inches/min)	Pressure Required (lbs)	Cut per Stroke (inch)	Cutting Speed (inches/min)	Pressure Required (lbs)	Cut per Stroke (inch)	Cutting Speed (inches/min)	Pressure Required (lbs)	Cut per Stroke (inch)	Cutting Speed (inches/min)	Pressure Required (lbs)	Cut per Stroke (inch)	Cutting Speed (inches/min)	Pressure Required (lbs)
3/32	0.0060	480	71	0.0040	340	132	0.0035	300	182	0.0030	230	170	0.0023	200	141
1/8	0.0060	480	94	0.0040	340	176	0.0035	300	242	0.0028	230	211	0.0025	200	204
5/32	0.0060	480	118	0.0040	340	220	0.0035	300	302	0.0025	230	235	0.0023	200	235
3/16	0.0060	480	141	0.0040	340	236	0.0033	300	342	0.0025	230	282	0.0023	200	281
1/4	0.0055	480	172	0.0032	340	281	0.0025	300	345	0.0022	230	331	0.0020	200	326
9/32	0.0055	400	194	0.0032	300	316	0.0022	265	341	0.0021	200	355	0.0020	175	366
5/16	0.0050	400	196	0.0032	300	351	0.0022	265	379	0.0020	200	376	0.0019	175	387
3/8	0.0050	400	235	0.0027	300	355	0.0019	265	393	0.0017	200	384	0.0016	175	391
7/16	0.0044	400	241	0.0027	300	414	0.0018	265	434	0.0016	200	421	0.0015	175	428
1/2	0.0042	380	263	0.0026	270	456	0.0016	230	441	0.0015	180	451	0.0014	150	456
9/16	0.0040	380	282	0.0024	270	473	0.0016	230	496	0.0014	180	473	0.0013	150	476
5/8	0.0040	380	313	0.0023	270	504	0.0015	230	517	0.0014	180	526	0.0013	150	529
3/4	0.0035	380	329	0.0020	270	526	0.0013	230	538	0.0012	180	541	0.0011	150	538
2mm	0.0060	480	59	0.0040	340	110	0.0035	300	151	0.0025	230	118	0.0023	200	118
3mm	0.0060	480	89	0.0040	340	165	0.0035	300	227	0.0025	230	177	0.0023	200	176
4mm	0.0060	480	118	0.0040	340	220	0.0035	300	303	0.0025	230	236	0.0023	200	235
5mm	0.0060	480	148	0.0036	340	248	0.0033	300	357	0.0025	230	295	0.0023	200	294
6mm	0.0055	480	162	0.0032	340	264	0.0033	300	429	0.0022	230	312	0.0020	200	307
8mm	0.0055	400	216	0.0032	300	353	0.0025	265	433	0.0020	200	378	0.0018	175	368
10mm	0.0050	400	246	0.0027	300	372	0.0020	265	433	0.0017	200	401	0.0016	175	409
12mm	0.0045	380	266	0.0027	270	446	0.0019	230	494	0.0015	180	425	0.0014	150	430
14mm	0.0040	380	276	0.0025	270	482	0.0017	230	515	0.0013	180	430	0.0013	150	466
16mm	0.0040	380	315	0.0022	270	485	0.0015	230	520	0.0013	180	491	0.0011	150	450
18mm	0.0037	380	328	0.0020	270	496	0.0014	230	546	0.0012	180	510	0.0010	150	461
20mm	0.0034	360	335	0.0019	250	523	0.0013	200	563	0.0012	150	567	0.0010	130	512
22mm	0.0032	360	346	0.0018	250	546	0.0012	200	571	0.0010	150	520	0.0010	130	535
25mm	0.0032	360	394	0.0017	250	585	0.0011	200	595	0.0009	150	531	0.0009	130	544

Slotter Speeds & Feeds

To help ensure a long service life for your broaching tools and an excellent processing finish, it is advisable to follow these parameters:

	35 mm Ram Stroke	50 mm Ram Stroke	65 mm Ram Stroke	RPM = cut speed ÷ (ram stroke x 2)	
	Insert Width	Insert Width	Insert Width	Cutting speed	Cut per Stroke Min / Max
Aluminum	5/8 in.	5/8 in.	5/8 in.	1496 in./min.	.0023/.0059 in.
Soft steel	9/16 in.	9/16 in.	9/16 in.	1299 in./min.	.0015/.0027 in.
Cast iron	9/16 in.	9/16 in.	1/2 in.	1102 in./min.	.0015/.0027 in.
Common steel	9/16 in.	9/16 in.	1/2 in.	1181 in./min.	.0011/.0019 in.
Hardened steel	1/2 in.	1/2 in.	3/8 in.	984 in./min.	.0007/.0015 in.
Stainless steel	1/2 in.	1/2 in.	3/8 in.	984 in./min.	.0007/.0015 in.
Plastic	3/4 in.	3/4 in.	3/4 in.	1574 in./min.	.0027/.0059 in.
Bronze-Brass	9/16 in.	1/2 in.	1/2 in.	1181 in./min.	.0011/.0023 in.

Distance from Centerline to Cutting Edge



Square	
IN	Tool Radius(mm)
SQ-8/10	4.25
SQ-10/13	4.80
SQ-13/16	7
SQ-16/9	8.50
SQ-19/27	10.75
SQ-27/37	14.5
SQ-37/50	20.5

Hex	
IN	Tool Radius(mm)
HEX-9/11	4.5
HEX-11/17	5.5
HEX-17/28	8.5
HEX-28/37	14
HEX-37/45	19.50
HEX-45/70	23

Standard Keyway	
IN	Tool Radius(mm)
UT-2	3.50
UT-3	4.50
UT-4	5.50
UT-5	6.50
UT-6	9.00
UT-8	11.00
UT=10	14.00
UT-12	15.50
UT-14/16	19.00
UT-18/26	22.00

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