EMUGE FRANKEN

AHB TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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EMUGE

OVERSIZED TAPPING SOLUTIONS

FOR PARTS THAT REQUIRE POST HEAT TREATMENT OR PLATING

EMUGE Oversize Tapping Solutions

Oversize taps are commonly used to tap holes that will be heat treated after tapping or will be plated, thus the need for the oversize thread diameters. EMUGE offers a range of taps for threads that need to be produced with an "oversize" thread condition.

Threaded parts will always have the specified class of fit listed on all blueprints for tapped holes (example: 1/4-20 UNC 2B). The final thread that is produced in the piece part must conform to that class of fit and must be gaged with a certified thread plug gage which measures the class of fit (i.e. 2B, 3B, 6H, 6G, etc.).

EMUGE standard taps use the class of fit system to designate that the tap will produce a thread that conforms to the specified class of fit. No tap H-Limit callout is required. For the vast majority of tapping operations, the standard 2B, 3B or 6H tolerance designated taps are sufficient for the tapping process.

But in the case of threaded parts that will be subsequently heat treated or plated before final gaging, an "oversize" tap may be required. The oversize tap will produce a thread with a pitch

diameter that is slightly greater than the normal tap tolerance to allow for the thickness of the plating film or the expansion of material in the heat treating process. Therefore, EMUGE offers a range of taps for threads that need to be produced with an "oversize" thread condition.

Overview of Thread Classifications and Applications

The machining of internal threads is governed by two major screw thread systems.

Unified Screw Thread (Inch System) designations are represented by abbreviations such as UNC (Unified Coarse) and UNF (Unified Fine). The thread major diameter is designated followed by the number of Threads Per Inch (TPI). (example: 1/2" x 13 UNC).

The **Class of Fit** for a thread is a specified tolerance or allowance that governs the interaction of the male and female thread. For internal Unified Threads, the class of fit is designated by the letter "B" preceded by a number that designates the tolerance range (i.e. 1B, 2B or 3B).

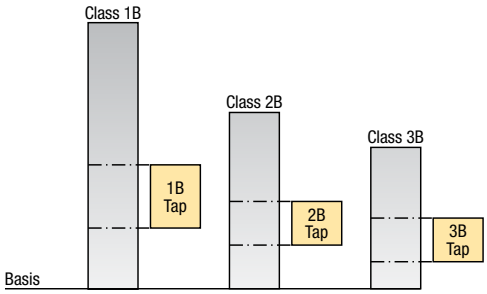
ISO Metric Screw Thread System designations are by the letter M followed by the value of the nominal diameter and the pitch given in millimeters (example: M6 x 0.75). The metric coarse threads do not need to have a pitch specified. (example: M12 designation means M12 x 1.75). For Metric Fine threads, the pitch is always specified in thread description (example: M12 x 1.5).

The Metric Thread System uses **two tolerance classes,** designated by the letters "H" or "G". For example, 6H or 6G. In this system, the "G" tolerance is sometimes referred to as an oversize tolerance.

Corresponding H-Limit Tap Tolerances – UNC / UNF

EMUGE has determined that the tolerance of the tap should be manufactured as close as possible to the finished internal thread tolerance. This practice ensures that the threads produced will comply to the gage tolerances providing that the working conditions such as machine, chucking tools, and workpiece match the application.

- EMUGE taps are marked with the appropriate tolerance class for their intended use. The U.S. GH thread class numbers are not marked on the tap.
- Tolerances for the various GH numbers are shown in chart 2 on page 7.
- Classification for the tolerance 1B can be provided upon request.
- Taps for cast iron and titanium tapping are designed one GH class higher to provide better tool life.



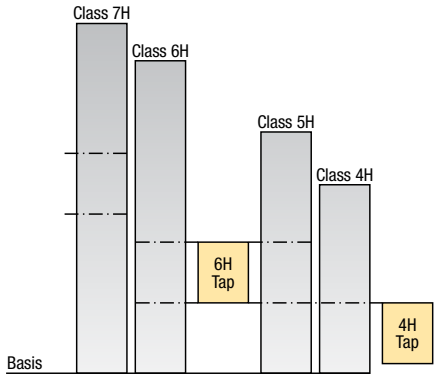
UNC Thread	Tap Limit	
	3B (Tap)	2B (Tap)
No. 1 - 64	H1 / H2	H2 / H3
No. 2 - 56	H1 / H2	H2 / H3
No. 3 - 48	H1 / H2	H2 / H3
No. 4 - 40	H2	H2 / H3
No. 5 - 40	H2	H2 / H3
No. 6 - 32	H2	H3 / H4
No. 8 - 32	H2	H3 / H4
No. 10 - 24	H2 / H3	H3 / H4
No. 12 - 24	H2 / H3	H3 / H4
1/4 - 20	H3	H4 / H5
5/16 - 18	H3	H4 / H5
3/8 - 16	H3 / H4	H4 / H5
7/16 - 14	H3 / H4	H4 / H5
1/2 - 13	H4	H5 / H6
9/16 - 12	H4	H5 / H6
5/8 - 11	H4	H5 / H6
3/4 - 10	H4 / H5	H6 / H7
7/8 - 9	H4 / H5	H6 / H7
1 - 8	H5	H6 / H7
1 1/8 - 7	H5	H7 / H8
1 1/4 - 7	H5 / H6	H7 / H8
1 3/8 - 6	H6	H7 / H8
1 1/2 - 6	H6	H7 / H8
1 3/4 - 5	H6 / H7	H8 / H9
2 - 4 1/2	H7	H8 / H9

UNF Thread	Tap Limit	
	3B (Tap)	2B (Tap)
No. 0 - 80	H1	H1 / H2
No. 1 - 72	H1 / H2	H2 / H3
No. 2 - 64	H1 / H2	H2 / H3
No. 3 - 56	H1 / H2	H2 / H3
No. 4 - 48	H2	H2 / H3
No. 5 - 44	H2	H2 / H3
No. 6 - 40	H2	H2 / H3
No. 8 - 36	H2	H2 / H3
No. 10 - 32	H2	H2 / H3
No. 12 - 28	H2 / H3	H3 / H4
1/4 - 28	H2 / H3	H3 / H4
5/16 - 24	H3	H3 / H4
3/8 - 24	H3	H3 / H4
7/16 - 20	H3	H4 / H5
1/2 - 20	H3	H4 / H5
9/16 - 18	H3 / H4	H4 / H5
5/8 - 18	H3 / H4	H5 / H6
3/4 - 16	H4	H5 / H6
7/8 - 14	H4	H5 / H6
1 - 12	H4 / H5	H5 / H6
1 1/8 - 12	H4 / H5	H6 / H7
1 1/4 - 12	H4 / H5	H6 / H7
1 3/8 - 12	H4 / H5	H6 / H7
1 1/2 - 12	H4 / H5	H6 / H7

Corresponding D-Limit Tap Tolerances – Metric Coarse / Fine

The approved tap tolerance system for metric ISO threads is International Standard ISO 2857.

- 4H tap corresponds to ISO 1, 6H tap corresponds to ISO 2, 6G tap corresponds to ISO 3
- 4H and 6G taps can be supplied upon request. 6G taps are Oversize.
- The U.S. GD tap class numbers are not marked on our taps.
- Taps for cast iron and titanium tapping are designed one GH class higher to provide better tool life.

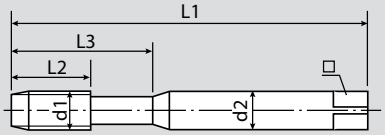


Metric Coarse Thread	Pitch	Tap Tolerance	
		4H	6H
M 1.6	0.35	D2	D2 / D3
M 1.8	0.35	D2	D2 / D3
M 2	0.4	D2	D3
M 2.2	0.45	D2	D3
M 2.5	0.45	D2	D3
M 3	0.5	D2	D3
M 3.5	0.6	D2	D3 / D4
M 4	0.7	D2 / D3	D3 / D4
M 4.5	0.75	D2 / D3	D3 / D4
M 5	0.8	D2 / D3	D3 / D4
M 6	1	D2 / D3	D4 / D5
M 7	1	D2 / D3	D4 / D5
M 8	1.25	D3	D4 / D5
M 10	1.5	D3	D4 / D5
M 12	1.75	D3 / D4	D5 / D6
M 14	2	D3 / D4	D5 / D6
M 16	2	D3 / D4	D5 / D6
M 18	2.5	D4	D6 / D7
M 20	2.5	D4	D6 / D7
M 22	2.5	D4	D6 / D7
M 24	3	D4 / D5	D7 / D8
M 27	3	D4 / D5	D7 / D8
M 30	3.5	D4 / D5	D7 / D8
M 33	3.5	D4 / D5	D8 / D9
M 36	4	D5	D8 / D9
M 39	4	D5	D8 / D9
M 42	4.5	D5	D8 / D9
M 45	4.5	D5	D8 / D9
M 48	5	D5 / D6	D9 / D10
M 52	5	D5 / D6	D9 / D10

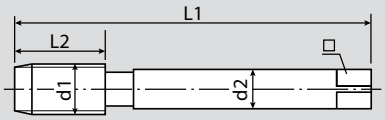
Metric Fine Thread (choice)	Tap Tolerance	
	4H	6H
M 3 x 0.35	D2	D3
M 4 x 0.5	D2	D3
M 6 x 0.5	D2 / D3	D3 / D4
M 6 x 0.75	D2 / D3	D4
M 8 x 0.75	D2 / D3	D4
M 8 x 1	D3	D4 / D5
M 12 x 1	D3	D4 / D5
M 10 x 1.25	D3	D4 / D5
M 14 x 1.25	D3	D4 / D5
M 12 x 1.5	D3 / D4	D5 / D6
M 20 x 1.5	D3 / D4	D5 / D6
M 24 x 1.5	D3 / D4	D5 / D6
M 42 x 1.5	D3 / D4	D5 / D6
M 18 x 2	D3 / D4	D6 / D7
M 24 x 2	D4	D6 / D7
M 42 x 2	D4	D6 / D7
M 36 x 3	D4 / D5	D7 / D8
M 42 x 3	D4 / D5	D7 / D8
M 52 x 3	D4 / D5	D7 / D8

Two distinct tap H-Limit tolerances for UNC / UNF will cover the majority of parts that will be plated or heat treated after tapping.

Chamfer Form B / 4-5 P • GLT-1 Coating • DIN length / ANSI shank • HSSE Cobalt base substrate material



Reinforced Shank
(Sizes: #4 - 3/8")



Reduced Shank
(Sizes: 7/16" - 3/4")

UNC

Nominal Size d1	TPI	L1	L2	L3	d2	Square	H-Limit	EDP No.	H-Limit	EDP No.
#4	40	2.205"	0.433"	0.709"	0.141"	0.110"	H4	BU20C31Z.5003	H5	BU20C34J.5003
#5	40	2.205"	0.433"	0.709"	0.141"	0.110"	H4	BU20C31Z.5004	H5	BU20C34J.5004
#6	32	2.205"	0.472"	0.787"	0.141"	0.110"	H4	BU20C31Z.5005	H6	BU20C34K.5005
#8	32	2.480"	0.512"	0.827"	0.168"	0.131"	H4	BU20C31Z.5006	H6	BU20C34K.5006
#10	24	2.756"	0.591"	0.984"	0.194"	0.152"	H5	BU20C34J.5007	H7	BU20C34L.5007
#12	24	3.150"	0.630"	1.142"	0.220"	0.165"	H5	BU20C34J.5008	H7	BU20C34L.5008
1/4"	20	3.150"	0.669"	1.181"	0.255"	0.191"	H6	BU20C34K.5009	H7	BU20C34L.5009
5/16"	18	3.543"	0.787"	1.378"	0.318"	0.238"	H6	BU20C34K.5010	H8	BU20C34M.5010
3/8"	16	3.937"	0.866"	1.535"	0.381"	0.286"	H7	BU20C34L.5011	H9	BU20C34N.5011
7/16"	14	3.937"	0.866"	–	0.323"	0.242"	H7	CU20C34L.5012	H9	CU20C34N.5012
1/2"	13	4.331"	0.984"	–	0.367"	0.275"	H7	CU20C34L.5013	H10	CU20C34P.5013
9/16"	12	4.331"	1.024"	–	0.429"	0.322"	H8	CU20C34M.5014	H10	CU20C34P.5014
5/8"	11	4.331"	1.063"	–	0.480"	0.360"	H8	CU20C34M.5015	H11	CU20C34Q.5015
3/4"	10	4.921"	1.181"	–	0.590"	0.442"	H9	CU20C34N.5016	H11	CU20C34Q.5016

UNF

Nominal Size d1	TPI	L1	L2	L3	d2	Square	H-Limit	EDP No.	H-Limit	EDP No.
#4	48	2.205"	0.433"	0.709"	0.141"	0.110"	H4	BU20C31Z.5037	H5	BU20C34J.5037
#5	44	2.205"	0.433"	0.709"	0.141"	0.110"	H4	BU20C31Z.5038	H5	BU20C34J.5038
#6	40	2.205"	0.472"	0.787"	0.141"	0.110"	H4	BU20C31Z.5039	H6	BU20C34K.5039
#8	36	2.480"	0.512"	0.827"	0.168"	0.131"	H5	BU20C34J.5040	H6	BU20C34K.5040
#10	32	2.756"	0.512"	0.984"	0.194"	0.152"	H5	BU20C34J.5041	H6	BU20C34K.5041
#12	28	3.150"	0.630"	1.142"	0.220"	0.165"	H5	BU20C34J.5042	H7	BU20C34L.5042
1/4"	28	3.150"	0.669"	1.181"	0.255"	0.191"	H5	BU20C34J.5043	H7	BU20C34L.5043
5/16"	24	3.543"	0.669"	1.260"	0.318"	0.238"	H6	BU20C34K.5044	H7	BU20C34L.5044
3/8"	24	3.937"	0.709"	1.535"	0.381"	0.286"	H6	BU20C34K.5045	H9	BU20C34N.5045
7/16"	20	3.937"	0.866"	–	0.323"	0.242"	H6	CU20C34K.5046	H8	CU20C34M.5046
1/2"	20	3.937"	0.866"	–	0.367"	0.275"	H6	CU20C34K.5047	H8	CU20C34M.5047
9/16"	18	3.937"	0.866"	–	0.429"	0.322"	H7	CU20C34L.5048	H9	CU20C34N.5048
5/8"	18	3.937"	0.866"	–	0.480"	0.360"	H7	CU20C34L.5049	H9	CU20C34N.5049
3/4"	16	4.331"	0.984"	–	0.590"	0.442"	H7	CU20C34L.5050	H9	CU20C34N.5050

Refer to page 8 for Materials and Cutting Speed Recommendations.

Each H-limit represents 0.0005" over basic pitch diameter.
Refer to page 7 for additional information regarding H-Limits.

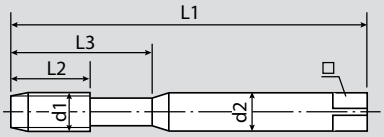
Note: Similar EMUGE 2B and 3B Class of Fit taps are available:
- BU20C300 & CU20C300 (2B Class of Fit)
- BU20C310 & CU20C310 (3B Class of Fit)

Visit EMUGE.com for additional information

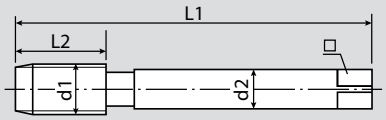
METRIC REKORD B-VA STYLE PLUG TAPS

Two distinct tap tolerances, 6G and 7G for Metric oversized taps, will cover the majority of parts that will be plated or heat treated after tapping.

Chamfer Form B / 4-5 P • GLT-1 Coating • DIN length / DIN shank • HSSE Cobalt base substrate material



Reinforced Shank
(Sizes: M2 - M10)



Reduced Shank
(Sizes: M12 - M24)

METRIC

Nominal Size d1	Pitch	L1	L2	L3	d2	Square	Tolerance	D-Tolerance	EDP No.	Tolerance	D-Tolerance	EDP No.
M 2	0.4	45 mm	7 mm	12 mm	2.8 mm	2.1 mm		D4	B020C320.0020		D5	B020C330.0020
M 2.5	0.45	50 mm	9 mm	14 mm	2.8 mm	2.1 mm		D4	B020C320.0025		D5	B020C330.0025
M 3	0.5	56 mm	11 mm	18 mm	3.5 mm	2.7 mm		D4	B020C320.0030		D5	B020C330.0030
M 4	0.7	63 mm	13 mm	21 mm	4.5 mm	3.4 mm		D5	B020C320.0040		D6	B020C330.0040
M 5	0.8	70 mm	15 mm	25 mm	6 mm	4.9 mm		D5	B020C320.0050		D7	B020C330.0050
M 6	1	80 mm	17 mm	30 mm	6 mm	4.9 mm		D6	B020C320.0060		D8	B020C330.0060
M 8	1.25	90 mm	20 mm	35 mm	8 mm	6.2 mm		D6	B020C320.0080		D8	B020C330.0080
M 10	1.5	100 mm	22 mm	39 mm	10 mm	8 mm	ISO 3/6G	D7	B020C320.0100	7G	D9	B020C330.0100
M 12	1.75	110 mm	24 mm	–	9 mm	7 mm		D8	C020C320.0112		D10	C020C330.0112
M 14	2	110 mm	26 mm	–	11 mm	9 mm		D9	C020C320.0114		D11	C020C330.0114
M 16	2	110 mm	27 mm	–	12 mm	9 mm		D9	C020C320.0116		D11	C020C330.0116
M 18	2.5	125 mm	30 mm	–	14 mm	11 mm		D9	C020C320.0118		D12	C020C330.0118
M 20	2.5	140 mm	32 mm	–	16 mm	12 mm		D9	C020C320.0120		D12	C020C330.0120
M 22	2.5	140 mm	32 mm	–	18 mm	14.5 mm		D9	C020C320.0122		D12	C020C330.0122
M 24	3	160 mm	34 mm	–	18 mm	14.5 mm		D10	C020C320.0124		D14	C020C330.0124

METRIC FINE

Nominal Size d1	Pitch	L1	L2	L3	d2	Square	Tolerance	D-Tolerance	EDP No.
M 8	1	90 mm	17 mm	–	6 mm	4.9 mm		D6	C020C320.0251
M 10	1	90 mm	18 mm	–	7 mm	5.5 mm		D6	C020C320.0276
M 12	1	100 mm	18 mm	–	9 mm	7 mm		D6	C020C320.0301
M 12	1.5	100 mm	22 mm	–	9 mm	7 mm		D8	C020C320.0303
M 14	1.5	100 mm	22 mm	–	11 mm	9 mm	ISO 3/6G	D8	C020C320.0331
M 16	1.5	100 mm	22 mm	–	12 mm	9 mm		D8	C020C320.0359
M 18	1.5	110 mm	25 mm	–	14 mm	11 mm		D8	C020C320.0390
M 20	1.5	125 mm	25 mm	–	16 mm	12 mm		D8	C020C320.0422

Refer to page 8 for Materials and Cutting Speed Recommendations.

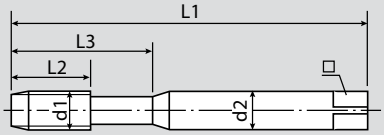
Each D-limit represents 0.0005" over basic pitch diameter.

Note: Similar EMUGE 6H Class of Fit taps are available:
- B020C300 & C020C300 (M)
- B020C300 & C020C300 (MF)

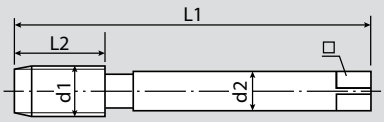
Visit EMUGE.com for additional information

Two distinct tap H-Limit tolerances for UNC / UNF will cover the majority of parts that will be plated or heat treated after tapping.

Chamfer Form C / 2-3 P • GLT-1 Coating • DIN length / ANSI shank • HSSE Cobalt base substrate material



Reinforced Shank
(Sizes: #4 - 3/8")



Reduced Shank
(Sizes: 7/16" - 3/4")

UNC

Nominal Size d1	TPI	L1	L2	L3	d2	Square	H-Limit	EDP No.	H-Limit	EDP No.
#4	40	2.205"	0.236"	0.709"	0.141"	0.110"	H4	BU50C41Z.5003	H5	BU50C44J.5003
#5	40	2.205"	0.276"	0.709"	0.141"	0.110"	H4	BU50C41Z.5004	H5	BU50C44J.5004
#6	32	2.205"	0.276"	0.787"	0.141"	0.110"	H4	BU50C41Z.5005	H6	BU50C44K.5005
#8	32	2.480"	0.315"	0.827"	0.168"	0.131"	H4	BU50C41Z.5006	H6	BU50C44K.5006
#10	24	2.756"	0.394"	0.984"	0.194"	0.152"	H5	BU50C44J.5007	H7	BU50C44L.5007
#12	24	3.150"	0.394"	1.142"	0.220"	0.165"	H5	BU50C44J.5008	H7	BU50C44L.5008
1/4"	20	3.150"	0.512"	1.181"	0.255"	0.191"	H6	BU50C44K.5009	H7	BU50C44L.5009
5/16"	18	3.543"	0.551"	1.378"	0.318"	0.238"	H6	BU50C44K.5010	H8	BU50C44M.5010
3/8"	16	3.937"	0.630"	1.535"	0.381"	0.286"	H7	BU50C44L.5011	H9	BU50C44N.5011
7/16"	14	3.937"	0.709"	–	0.323"	0.242"	H7	CU50C44L.5012	H9	CU50C44N.5012
1/2"	13	4.331"	0.787"	–	0.367"	0.275"	H7	CU50C44L.5013	H10	CU50C44P.5013
9/16"	12	4.331"	0.787"	–	0.429"	0.322"	H8	CU50C44M.5014	H10	CU50C44P.5014
5/8"	11	4.331"	0.866"	–	0.480"	0.360"	H8	CU50C44M.5015	H11	CU50C44Q.5015
3/4"	10	4.921"	0.984"	–	0.590"	0.442"	H9	CU50C44N.5016	H11	CU50C44Q.5016

UNF

Nominal Size d1	TPI	L1	L2	L3	d2	Square	H-Limit	EDP No.	H-Limit	EDP No.
#4	48	2.205"	0.236"	0.709"	0.141"	0.110"	H4	BU50C41Z.5037	H5	BU50C44J.5037
#5	44	2.205"	0.276"	0.709"	0.141"	0.110"	H4	BU50C41Z.5038	H5	BU50C44J.5038
#6	40	2.205"	0.276"	0.787"	0.141"	0.110"	H4	BU50C41Z.5039	H6	BU50C44K.5039
#8	36	2.480"	0.315"	0.827"	0.168"	0.131"	H5	BU50C44J.5040	H6	BU50C44K.5040
#10	32	2.756"	0.394"	0.984"	0.194"	0.152"	H5	BU50C44J.5041	H6	BU50C44K.5041
#12	28	3.150"	0.394"	1.142"	0.220"	0.165"	H5	BU50C44J.5042	H7	BU50C44L.5042
1/4"	28	3.150"	0.394"	1.181"	0.255"	0.191"	H5	BU50C44J.5043	H7	BU50C44L.5043
5/16"	24	3.543"	0.394"	1.260"	0.318"	0.238"	H6	BU50C44K.5044	H7	BU50C44L.5044
3/8"	24	3.937"	0.394"	1.535"	0.381"	0.286"	H6	BU50C44K.5045	H9	BU50C44N.5045
7/16"	20	3.937"	0.512"	–	0.323"	0.242"	H6	CU50C44K.5046	H8	CU50C44M.5046
1/2"	20	3.937"	0.512"	–	0.367"	0.275"	H6	CU50C44K.5047	H8	CU50C44M.5047
9/16"	18	3.937"	0.591"	–	0.429"	0.322"	H7	CU50C44L.5048	H9	CU50C44N.5048
5/8"	18	3.937"	0.591"	–	0.480"	0.360"	H7	CU50C44L.5049	H9	CU50C44N.5049
3/4"	16	4.331"	0.669"	–	0.590"	0.442"	H7	CU50C44L.5050	H9	CU50C44N.5050

Refer to page 8 for Materials and Cutting Speed Recommendations.

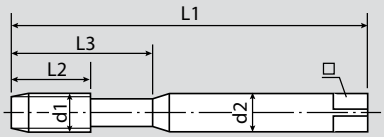
Each H-limit represents 0.0005" over basic pitch diameter.
Refer to page 7 for additional information regarding H-Limits.

Note: Similar EMUGE 2B and 3B Class of Fit taps are available:
- BU50C400 & CU50C400 (2B Class of Fit)
- BU51C410 & CU51C410 (3B Class of Fit)

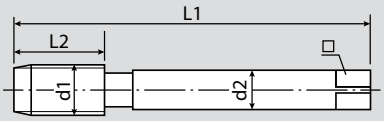
Visit EMUGE.com for additional information

Two distinct tap tolerances, 6G and 7G for Metric oversized taps, will cover the majority of parts that will be plated or heat treated after tapping.

Chamfer Form C / 2-3 P • GLT-1 Coating • DIN length / DIN shank • HSSE Cobalt base substrate material



Reinforced Shank
METRIC (Sizes: M2 - M10)
METRIC FINE
(Sizes: M4 - M6)



Reduced Shank
METRIC (Sizes: M12 - M24)
METRIC FINE
(Sizes: M8 - M16)

METRIC – SEMI-BOTTOMING

Nominal Size d1	Pitch	L1	L2	L3	d2	Square	Tolerance	D-Tolerance	EDP No.	Tolerance	D-Tolerance	EDP No.
M 2	0.4	45 mm	7 mm	12 mm	2.8 mm	2.1 mm	ISO 3/6G	D4	B050C420.0020	7G	D5	B050C430.0020
M 2.5	0.45	50 mm	9 mm	14 mm	2.8 mm	2.1 mm		D4	B050C420.0025		D5	B050C430.0025
M 3	0.5	56 mm	11 mm	18 mm	3.5 mm	2.7 mm		D4	B050C420.0030		D5	B050C430.0030
M 4	0.7	63 mm	13 mm	21 mm	4.5 mm	3.4 mm		D5	B050C420.0040		D6	B050C430.0040
M 5	0.8	70 mm	15 mm	25 mm	6 mm	4.9 mm		D5	B050C420.0050		D7	B050C430.0050
M 6	1	80 mm	17 mm	30 mm	6 mm	4.9 mm		D6	B050C420.0060		D8	B050C430.0060
M 8	1.25	90 mm	20 mm	35 mm	8 mm	6.2 mm		D6	B050C420.0080		D8	B050C430.0080
M 10	1.5	100 mm	22 mm	39 mm	10 mm	8 mm		D7	B050C420.0100		D9	B050C430.0100
M 12	1.75	110 mm	24 mm	44 mm	9 mm	7 mm		D8	C050C420.0112		D10	C050C430.0112
M 16	2	110 mm	27 mm	–	12 mm	9 mm		D9	C050C420.0116		D11	C050C430.0116
M 20	2.5	140 mm	32 mm	–	16 mm	12 mm		D9	C050C420.0120		D12	C050C430.0120
M 24	3	160 mm	34 mm	–	18 mm	14.5 mm		D10	C050C420.0124		D14	C050C430.0124

Chamfer Form E / 1.5-2 P • GLT-1 Coating • DIN length / DIN shank • HSSE Cobalt base substrate material

METRIC FINE – FULL BOTTOMING

Nominal Size d1	Pitch	L1	L2	L3	d2	Square	Tolerance	D-Tolerance	EDP No.
M 4	0.5	63 mm	5 mm	21 mm	4.5 mm	3.4 mm	ISO 3/6G	D5	B051C420.0210
M 5	0.5	70 mm	5 mm	25 mm	6 mm	4.9 mm		D5	B051C420.0218
M 6	0.5	80 mm	5 mm	30 mm	6 mm	4.9 mm		D6	B051C420.0228
M 6	0.75	80 mm	8 mm	30 mm	6 mm	4.9 mm		D6	B051C420.0229
M 8	1	90 mm	10 mm	–	6 mm	4.9 mm		D6	C051C420.0251
M 10	1	90 mm	10 mm	–	7 mm	5.5 mm		D6	C051C420.0276
M 12	1	100 mm	11 mm	–	9 mm	7 mm		D6	C051C420.0301
M 12	1.5	100 mm	15 mm	–	9 mm	7 mm		D8	C051C420.0303
M 14	1.5	100 mm	15 mm	–	11 mm	9 mm		D8	C051C420.0331
M 16	1.5	100 mm	15 mm	–	12 mm	9 mm		D8	C051C420.0359

Refer to page 8 for Materials and Cutting Speed Recommendations.

Each D-limit represents 0.0005" over basic pitch diameter.

Note: Similar EMUGE 6H Class of Fit taps are available:
- B050C400 & C050C400 (M)
- B050C400 & C050C400 (MF)

Visit EMUGE.com for additional information

NOTE:
The cutting speeds (SFM) listed in the respective columns are standard values which have to be adjusted to individual work conditions (material, lubrication, machine, etc.).

Values in boldface = Recommended

Rekord B-VA

Enorm-Z

		Applications – Materials	SFM			min^{-1}			SFM			min^{-1}		
			min.	**rec.**	max.	min.	**rec.**	max.	min.	**rec.**	max.	min.	**rec.**	max.
		Steel materials												
P	1.1	Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	49	**82**	148	15	**25**	45	49	**82**	148	15	**25**	45
P	2.1	Construction steels, Cementation steels, Steel castings, etc.	33	**66**	131	10	**20**	40	33	**66**	131	10	**20**	40
P	3.1	Cementation steels, Heat-treatable steels, Cold work steels, etc.	16	**49**	82	5	**15**	25	16	**49**	82	5	**15**	25
P	4.1	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	16	**33**	49	5	**10**	15	16	**33**	49	5	**10**	15
		Stainless steel materials												
M	1.1	Ferritic, martensitic	16	**26**	39	5	**8**	12	16	**26**	39	5	**8**	12
M	2.1	Austenitic	7	**16**	26	2	**5**	8	7	**16**	26	2	**5**	8
M	3.1	Austenitic-ferritic (Duplex)	7	**16**	26	2	**5**	8	7	**16**	26	2	**5**	8
M	4.1	Austenitic-ferritic heat-resistant (Super Duplex)	7	**16**	26	2	**5**	8	7	**16**	26	2	**5**	8
		Non ferrous materials												
		Aluminum alloys												
N	1.1	Aluminum wrought alloys												
N	1.2													
N	1.3													
N	1.4	Aluminum cast alloys Si ≤ 7%							49	**82**	131	15	**25**	40
N	1.5	Aluminum cast alloys 7% < Si ≤ 12%												
N	1.6	Aluminum cast alloys 12% < Si ≤ 17%												
		Copper alloys												
N	2.1	Pure copper, low-alloyed copper							16	**49**	98	5	**15**	30
N	2.2	Copper-zinc alloys (brass, long-chipping)	33	**82**	131	10	**25**	40	33	**82**	131	10	**25**	40
N	2.3	Copper-zinc alloys (brass, short-chipping)												
N	2.4	Copper-aluminum alloys (alu bronze, long-chipping)							16	**49**	82	5	**15**	25
N	2.5	Copper-tin alloys (tin bronze, long-chipping)							16	**49**	82	5	**15**	25
N	2.6	Copper-tin alloys (tin bronze, short-chipping)												

THREAD REFERENCE INFORMATION

Chart 1 - Pitch Diameter Definition (P.D.)

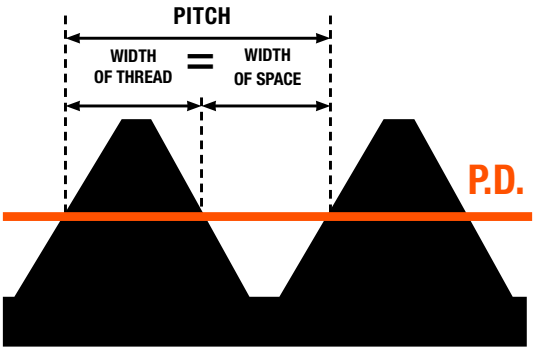
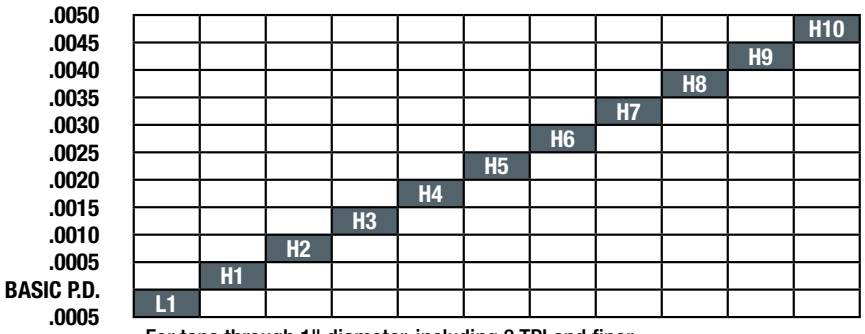


Chart 2 - H-Limit to Pitch Diameter (P.D.)

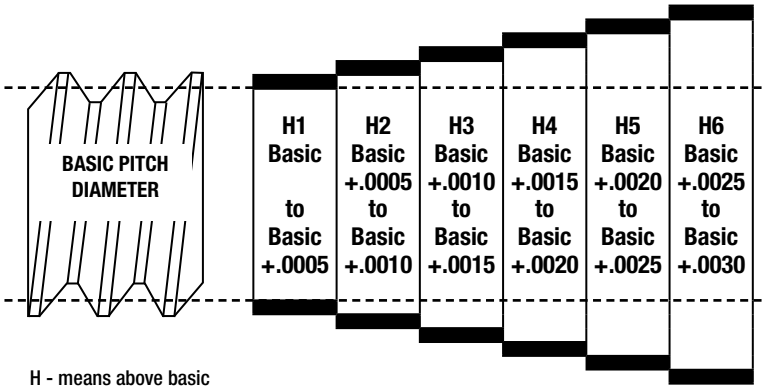


For taps through 1" diameter, including 8 TPI and finer

Each H-limit represents 0.0005" over basic pitch diameter.

Chart 3 - Relationship between P.D. and H-Limits

For taps 0-80 through 1" diameter



H - means above basic

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