

EMUGE

AHB

TOOLING & MACHINERY, INC.

COMPLETE METALWORKING SOLUTIONS



HIGH PERFORMANCE SOLUTIONS FOR
STAINLESS & ALLOY STEEL CHALLENGES

Efficient, Economical Threading of Stainless & More.

Featuring Advanced Geometry and GLT-1 Multi-layered Coating.

Emuge “Z-Taps” are an extensive line of taps featuring design and engineering that make them ideal for stainless steels, high strength alloys, tool steels and cast steels $\leq 30Rc$.

Emuge Z-Taps are designed with an advanced chamfer geometry and rake / flute form. **GLT-1**, a multi-layered coating, produces a **consistent, controllable chip formation that is released smoothly for fast and efficient chip removal.** GLT-1 is uniquely structured with advanced heat resistance characteristics, along with an outer anti-friction layer. These elements synergistically combine to produce exceptional wear resistance and sliding properties that result in **improved tool life, reduced torque, optimized chip evacuation and superior thread finish.**

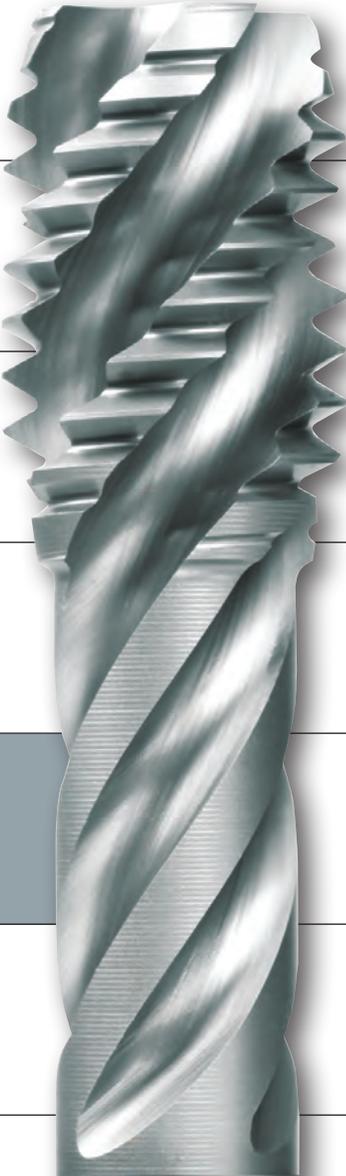
Emuge Z-Taps also feature an increased number of flutes and a shortened thread section to reduce friction, and a lower cutting torque to **reduce the occurrence of tap breakage and enable higher cutting speeds.**

- Available in through-hole and blind-hole designs for thread lengths up to 3xD
- Blind-hole taps offer two chamfer designs – full bottoming (1.5-2 threads) and modified bottoming (2-3 threads)
- DIN length available for improved chip clearance in hard-to-reach tapping applications
- For optimal results, recommended on CNC machines with synchronous spindles utilizing emulsion coolant lubrication and synchronous tap holders such as Emuge Softsynchro® Holders
- A full line of sizes from no. 4 to ¾"
- Available in UNC, UNF and Metric Fine and Coarse, 223 SKUs in total
- Available in both 2B and 3B class of fit

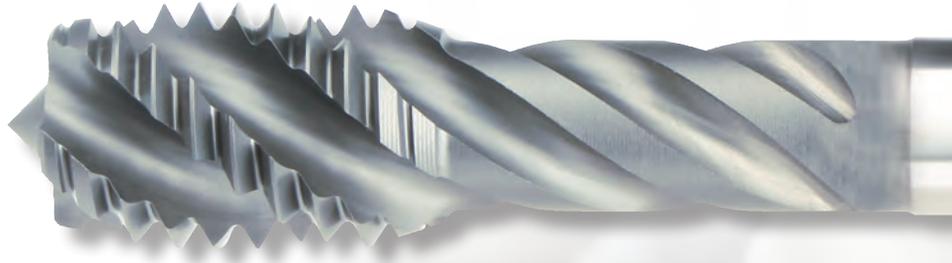


Ideal For Stainless, High Strength Alloys, Tool and Cast Steels $\leq 30Rc$

Austenitic Stainless Steels such as 304, 316, etc. have high ductility, low yield stress and relatively high ultimate tensile strength, requiring a special tap. **EMUGE Z-TAPS!**

	<p>Z-Geometry with special relief and rake angles for tough long-chipping materials</p>		
	<p>Advanced chamfer geometry for optimized tool life</p>		
	<p>Increased number of flutes with high 45° helix angle</p>		
	<p>Shortened thread section for less friction</p>		
	<p>Unique cutting geometry and flute form for efficient chip control</p>		

- GLT-1 Coating
- 45° Flute Angle
- 2B and 3B Class of Fit



UNC / BLIND-HOLE

Size	T.P.I.	# Flutes	Chamfer Length	Shank Dia.	Square Width	OAL	2B Class of Fit	NEW 3B Class of Fit
							EDP No.	EDP No.
4	40	2	2 - 3 Modified Bottoming	0.141	0.110	2.205	BU50C400.5003	–
5	40	3		0.141	0.110	2.205	BU50C400.5004	–
6	32	3		0.141	0.110	2.205	BU50C400.5005	–
8	32	3		0.168	0.131	2.480	BU50C400.5006	–
10	24	3		0.194	0.152	2.756	BU50C400.5007	–
1/4	20	3		0.255	0.191	3.150	BU50C400.5009	–
5/16	18	3		0.318	0.238	3.543	BU50C400.5010	–
3/8	16	3		0.381	0.286	3.937	BU50C400.5011	–
7/16	14	4		0.323	0.242	3.937	CU50C400.5012	–
1/2	13	4		0.367	0.275	4.331	CU50C400.5013	–
9/16	12	4		0.429	0.322	4.331	CU50C400.5014	–
5/8	11	4		0.480	0.360	4.331	CU50C400.5015	–
3/4	10	4		0.590	0.442	4.921	CU50C400.5016	–
4	40	2	1.5 - 2 Full Bottoming	0.141	0.110	2.205	BU51C400.5003	BU51C410.5003
5	40	3		0.141	0.110	2.205	BU51C400.5004	BU51C410.5004
6	32	3		0.141	0.110	2.205	BU51C400.5005	BU51C410.5005
8	32	3		0.168	0.131	2.480	BU51C400.5006	BU51C410.5006
10	24	3		0.194	0.152	2.756	BU51C400.5007	BU51C410.5007
1/4	20	3		0.255	0.191	3.150	BU51C400.5009	BU51C410.5009
5/16	18	3		0.318	0.238	3.543	BU51C400.5010	BU51C410.5010
3/8	16	3		0.381	0.286	3.937	BU51C400.5011	BU51C410.5011
7/16	14	4		0.323	0.242	3.937	CU51C400.5012	CU51C410.5012
1/2	13	4		0.367	0.275	4.331	CU51C400.5013	CU51C410.5013
9/16	12	4		0.429	0.322	4.331	CU51C400.5014	CU51C410.5014
5/8	11	4		0.480	0.360	4.331	CU51C400.5015	CU51C410.5015
3/4	10	4		0.590	0.442	4.921	CU51C400.5016	CU51C410.5016
COOLANT-THRU TAPS:								NEW 3B Class of Fit
10	24	3	2 - 3 Modified Bottoming	0.194	0.152	2.756	BU94C400.5007	BU99C410.5007
1/4	20	3		0.255	0.191	3.150	BU94C400.5009	BU99C410.5009
5/16	18	3		0.318	0.238	3.543	BU94C400.5010	BU99C410.5010
3/8	16	3		0.381	0.286	3.937	BU94C400.5011	BU99C410.5011
7/16	14	4		0.323	0.242	3.937	CU94C400.5012	CU99C410.5012
1/2	13	4		0.367	0.275	4.331	CU94C400.5013	CU99C410.5013
9/16	12	4		0.429	0.322	4.331	CU94C400.5014	CU99C410.5014
5/8	11	4		0.480	0.360	4.331	CU94C400.5015	CU99C410.5015
3/4	10	4		0.590	0.442	4.921	CU94C400.5016	CU99C410.5016

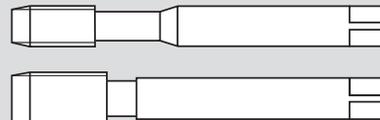


UNF / BLIND-HOLE

							2B Class of Fit	NEW 3B Class of Fit
Size	T.P.I.	# Flutes	Chamfer Length	Shank Dia.	Square Width	OAL	EDP No.	EDP No.
10	32	3	2 - 3 Modified Bottoming	0.194	0.152	2.756	BU50C400.5041	-
1/4	28	3		0.255	0.191	3.150	BU50C400.5043	-
5/16	24	3		0.318	0.238	3.543	BU50C400.5044	-
3/8	24	3		0.381	0.286	3.937	BU50C400.5045	-
7/16	20	4		0.323	0.242	3.937	CU50C400.5046	-
1/2	20	5		0.367	0.275	3.937	CU50C400.5047	-
9/16	18	5		0.429	0.322	3.937	CU50C400.5048	-
5/8	18	5		0.480	0.360	3.937	CU50C400.5049	-
3/4	16	5		0.590	0.442	4.331	CU50C400.5050	-
10	32	3	1.5 - 2 Full Bottoming	0.194	0.152	2.756	BU51C400.5041	BU51C410.5041
1/4	28	3		0.255	0.191	3.150	BU51C400.5043	BU51C410.5043
5/16	24	3		0.318	0.238	3.543	BU51C400.5044	BU51C410.5044
3/8	24	3		0.381	0.286	3.937	BU51C400.5045	BU51C410.5045
7/16	20	4		0.323	0.242	3.937	CU51C400.5046	CU51C410.5046
1/2	20	5		0.367	0.275	3.937	CU51C400.5047	CU51C410.5047
5/8	18	5		0.480	0.360	3.937	CU51C400.5049	CU51C410.5049
3/4	16	5		0.590	0.442	4.331	CU51C400.5050	CU51C410.5050
COOLANT-THRU TAPS:								NEW 3B Class of Fit
10	32	3	2 - 3 Modified Bottoming	0.194	0.152	2.756	BU94C400.5041	BU99C410.5041
1/4	28	3		0.255	0.191	3.150	BU94C400.5043	BU99C410.5043
5/16	24	3		0.318	0.238	3.543	BU94C400.5044	BU99C410.5044
3/8	24	3		0.381	0.286	3.937	BU94C400.5045	BU99C410.5045
7/16	20	4		0.323	0.242	3.937	CU94C400.5046	CU99C410.5046
1/2	20	5		0.367	0.275	3.937	CU94C400.5047	CU99C410.5047
9/16	18	5		0.429	0.322	3.937	CU94C400.5048	CU99C410.5048
5/8	18	5		0.480	0.360	3.937	CU94C400.5049	CU99C410.5049
3/4	16	5		0.590	0.442	4.331	CU94C400.5050	CU99C410.5050

Refer to back cover for Z-Taps Materials and Cutting Speed Recommendations.

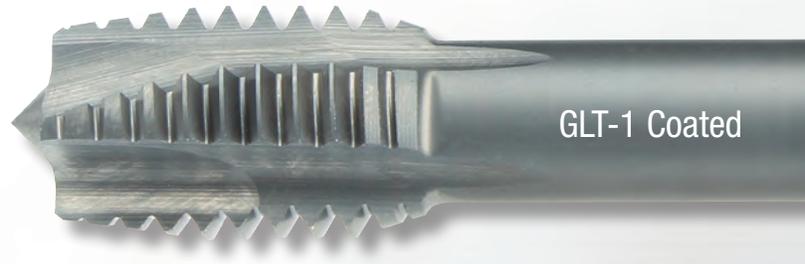
DIN Shank Type



Reinforced Style:
on tap sizes: 4 - 3/8

Reduced Style:
on tap sizes: 7/16 - 3/4

- GLT-1 or TiN Coating
- B / 4-5 Chamfer Length
- 2BX and 3BX Class of Fit
- Powdered metal substrate has exceptionally hard, heat resistant properties that enhance cutting performance and extend tool life.



UNC / THROUGH-HOLE

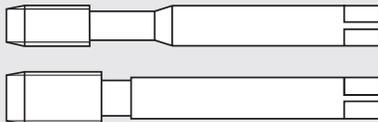
Size	T.P.I.	# Flutes	Coating	Shank Dia.	Square Width	OAL	2BX Class of Fit	NEW 3BX Class of Fit
							EDP No.	EDP No.
4	40	2	GLT-1	0.141	0.110	2.205	BU20A601.5003	BU20A611.5003
6	32	3	GLT-1	0.141	0.110	2.205	BU20A601.5005	BU20A611.5005
8	32	3	GLT-1	0.168	0.131	2.480	BU20A601.5006	BU20A611.5006
10	24	3	GLT-1	0.194	0.152	2.756	BU20A601.5007	BU20A611.5007
1/4	20	3	GLT-1	0.255	0.191	3.150	BU20A601.5009	BU20A611.5009
5/16	18	4	GLT-1	0.318	0.238	3.543	BU20A601.5010	BU20A611.5010
3/8	16	4	GLT-1	0.381	0.316	3.937	BU20A601.5011	BU20A611.5011
7/16	14	4	GLT-1	0.323	0.242	3.937	CU20A601.5012	CU20A611.5012
1/2	13	4	GLT-1	0.367	0.275	4.331	CU20A601.5013	CU20A611.5013
5/8	11	4	GLT-1	0.480	0.360	4.331	CU20A601.5015	CU20A611.5015
3/4	10	4	GLT-1	0.590	0.442	4.921	CU20A601.5016	CU20A611.5016

COOLANT-THRU TAPS:

10	24	3	TiN	0.194	0.152	2.756	BU088F01.5007	–
1/4	20	3	TiN	0.255	0.191	3.150	BU088F01.5009	–
5/16	18	4	TiN	0.318	0.238	3.543	BU088F01.5010	–
3/8	16	4	TiN	0.381	0.286	3.937	BU088F01.5011	–
7/16	14	4	TiN	0.323	0.242	3.937	CU088F01.5012	–
1/2	13	4	TiN	0.367	0.275	4.331	CU088F01.5013	–
9/16	12	4	TiN	0.429	0.322	4.331	CU088F01.5014	–
5/8	11	4	TiN	0.480	0.360	4.331	CU088F01.5015	–
3/4	10	4	TiN	0.590	0.442	4.921	CU088F01.5016	–

Refer to back cover for Z-Taps Materials and Cutting Speed Recommendations.

DIN
Shank
Type



Reinforced Style:
on tap sizes: 4 – 3/8

Reduced Style:
on tap sizes: 7/16 – 3/4



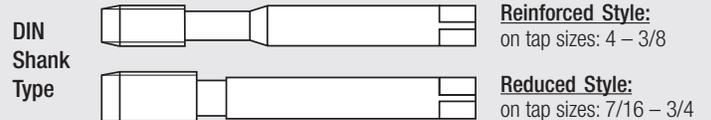
UNF / THROUGH-HOLE

Size	T.P.I.	# Flutes	Coating	Shank Dia.	Square Width	OAL	2BX Class of Fit	NEW 3BX Class of Fit
							EDP No.	EDP No.
10	32	3	GLT-1	0.194	0.152	2.756	BU20A601.5041	BU20A611.5041
1/4	28	3	GLT-1	0.255	0.191	3.150	BU20A601.5043	BU20A611.5043
5/16	24	4	GLT-1	0.318	0.238	3.543	BU20A601.5044	BU20A611.5044
3/8	24	4	GLT-1	0.381	0.286	3.937	BU20A601.5045	BU20A611.5045
7/16	20	4	GLT-1	0.323	0.242	3.937	CU20A601.5046	CU20A611.5046
1/2	20	4	GLT-1	0.367	0.275	3.937	CU20A601.5047	CU20A611.5047
5/8	18	4	GLT-1	0.480	0.360	3.937	CU20A601.5049	CU20A611.5049
3/4	16	4	GLT-1	0.590	0.442	4.331	CU20A601.5050	CU20A611.5050

COOLANT-THRU TAPS:

10	32	3	TiN	0.194	0.152	2.756	BU088F01.5041	-
1/4	28	3	TiN	0.255	0.191	3.150	BU088F01.5043	-
5/16	24	4	TiN	0.318	0.238	3.543	BU088F01.5044	-
3/8	24	4	TiN	0.381	0.286	3.937	BU088F01.5045	-
7/16	20	4	TiN	0.323	0.242	3.937	CU088F01.5046	-
1/2	20	4	TiN	0.367	0.275	3.937	CU088F01.5047	-
9/16	18	4	TiN	0.429	0.322	3.937	CU088F01.5048	-
5/8	18	4	TiN	0.480	0.360	3.937	CU088F01.5049	-
3/4	16	4	TiN	0.590	0.442	4.331	CU088F01.5050	-

Refer to back cover for Z-Taps Materials and Cutting Speed Recommendations.



Spiral Flute Bottoming Taps

Enorm-Z Style

GLT-1 Coating • 45° Flute Angle • ISO 2/6H Class of Fit

METRIC COARSE / BLIND-HOLE

Size	# Flutes	Chamfer Length	Shank Dia.	Square Width	OAL	EDP No.
3 x 0.5	3	2 - 3 Modified Bottoming	3.5	2.7	56	B050C400.0030
4 x 0.7	3		4	3.4	63	B050C400.0040
5 x 0.8	3		6	4.9	70	B050C400.0050
6 x 1	3		6	4.9	80	B050C400.0060
8 x 1.25	3		8	6.2	90	B050C400.0080
10 x 1.5	3		10	8	100	B050C400.0100
12 x 1.75	4		9	7	110	C050C400.0112
14 x 2	4		11	9	110	C050C400.0114
16 x 2	4		12	9	110	C050C400.0116
18 x 2.5	4		14	11	125	C050C400.0118
20 x 2.5	4		16	12	140	C050C400.0120
24 x 3	5		18	14.5	160	C050C400.0124

3 x 0.5	3	1.5 - 2 Full Bottoming	3.5	2.7	56	B051C400.0030
4 x 0.7	3		4.5	3.4	63	B051C400.0040
5 x 0.8	3		6	4.9	70	B051C400.0050
6 x 1	3		6	4.9	80	B051C400.0060
8 x 1.25	3		8	6.2	90	B051C400.0080
10 x 1.5	3		10	8	100	B051C400.0100
12 x 1.75	4		9	7	110	C051C400.0112
16 x 2	4		12	9	110	C051C400.0116

COOLANT-THRU TAPS:

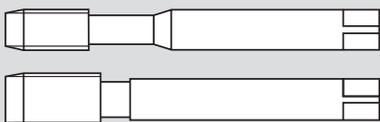
5 x 0.8	3	2 - 3 Modified Bottoming	6	4.9	70	B099C400.0050
6 x 1	3		6	4.9	80	B099C400.0060
8 x 1.25	3		8	6.2	90	B099C400.0080
10 x 1.5	3		10	8	100	B099C400.0100
12 x 1.75	4		9	7	110	C099C400.0112
16 x 2	4		12	9	110	C099C400.0116
20 x 2.5	4		16	12	140	C099C400.0120

METRIC FINE / BLIND-HOLE

Size	# Flutes	Chamfer Length	Shank Dia.	Square Width	OAL	EDP No.
8 x 1	3	1.5 - 2 Full Bottoming	6	4.9	90	C051C400.0251
10 x 1	4		7	5.5	90	C051C400.0276
12 x 1.5	5		9	7	100	C051C400.0303
14 x 1.5	5		11	9	100	C051C400.0331
16 x 1.5	5		12	9	100	C051C400.0359
18 x 1.5	5		14	11	110	C051C400.0390
20 x 1.5	5		16	12	125	C051C400.0422

Refer to back cover for Z-Taps Materials and Cutting Speed Recommendations.

DIN Shank Type



COARSE:

Reinforced Style: on tap sizes: 3 x 0.5 – 10 x 1.5

Reduced Style: on tap sizes: 12 x 1.75 – 30 x 3.5

Spiral Point Plug Taps

Rekord B-Z Style

GLT-1 or TiN Coating • B/4-5 Chamfer Length • 6HX Class of Fit
 • Powdered metal substrate has exceptionally hard, heat resistant properties that enhance cutting performance and extend tool life.

METRIC COARSE / THROUGH-HOLE

Size	# Flutes	Coating	Shank Dia.	Square Width	OAL	EDP No.
3 x 0.5	3	GLT-1	3.5	2.7	56	B020A601.0030
4 x 0.7	3	GLT-1	4.5	3.4	63	B020A601.0040
5 x 0.8	3	GLT-1	6	4.9	70	B020A601.0050
6 x 1	3	GLT-1	6	4.9	80	B020A601.0060
8 x 1.25	4	GLT-1	8	6.2	90	B020A601.0080
10 x 1.5	4	GLT-1	10	8	100	B020A601.0100
12 x 1.75	4	GLT-1	9	7	110	C020A601.0112
14 x 2	4	GLT-1	11	9	110	C020A601.0114
16 x 2	4	GLT-1	12	9	110	C020A601.0116
20 x 2.5	4	GLT-1	16	12	140	C020A601.0120
24 x 3	4	GLT-1	18	14.5	160	C020A601.0124
30 x 3.5	4	GLT-1	22	18	180	C020A601.0130

COOLANT-THRU TAPS:

5 x 0.8	3	TiN	6	4.9	70	B1088F01.0050
6 x 1	3	TiN	6	4.9	80	B1088F01.0060
8 x 1.25	4	TiN	8	6.2	90	B1088F01.0080
10 x 1.5	4	TiN	10	8	100	B1088F01.0100
12 x 1.75	4	TiN	9	7	110	C1088F01.0112
16 x 2	4	TiN	12	9	110	C1088F01.0116
20 x 2.5	4	TiN	16	12	140	C1088F01.0120

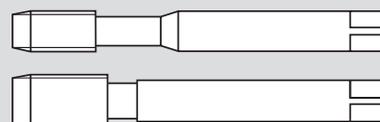
METRIC FINE / THROUGH-HOLE

Size	# Flutes	Coating	Shank Dia.	Square Width	OAL	EDP No.
4 x 0.5	3	GLT-1	4.5	3.4	63	B020A601.0210
5 x 0.5	3	GLT-1	6	4.9	70	B020A601.0218
8 x 1	4	GLT-1	6	4.9	90	C020A601.0251
10 x 1	4	GLT-1	7	5.5	90	C020A601.0276
10 x 1.25	4	GLT-1	7	5.5	100	C020A601.0277
12 x 1.5	4	GLT-1	9	7	100	C020A601.0303
14 x 1.5	4	GLT-1	11	9	100	C020A601.0331
16 x 1.5	4	GLT-1	12	9	100	C020A601.0359
18 x 1.5	4	GLT-1	14	11	110	C020A601.0390
20 x 1.5	4	GLT-1	16	12	125	C020A601.0422

COOLANT-THRU TAPS:

8 x 1	4	TiN	6	4.9	90	C1088F01.0251
10 x 1	4	TiN	7	5.5	90	C1088F01.0276
10 x 1.25	4	TiN	7	5.5	100	C1088F01.0277
12 x 1.5	4	TiN	9	7	100	C1088F01.0303

DIN Shank Type



FINE:

Reinforced Style: on tap sizes: 4 x 0.5 – 6 x 0.75

Reduced Style: on tap sizes: 8 x 1 – 20 x 1.5

Increase tool life & thread quality with our unique design

Featuring patented constructional separation of the transmission of torque and axial force.

The EMUGE collet holder type **KSN/HD/Softsynchro®** makes the optimum use of a synchronous spindle possible, with the *best imaginable tool life and thread surface quality.*

- Freedom from rotational play in the C-axis due to **form-positive transmission of torque by means of steel balls.**
- **Soft minimum length compensation on tension and compression**, with axial force transmission by means of pre-tensioned elastomer springs that are coolant resistant.
- Patented elastomer springs which, by means of their absorption characteristics, **prevent axial pressure forces that act negatively on the tap flank surfaces.**
- Minimum length compensation system **automatically corrects for small pitch errors** between synchronized spindle and tap lead during feed cycle and critically when spindle reverses direction of rotation to exit.
- Precision ball grooves minimize rolling friction on torque transmission balls to **guarantee precise micro correction of lead errors in a rigid tapping cycle**, even under the most demanding machining conditions.



EMUGE



Can't reach?

Try a tap extension holder from Emuge.

Why buy special extra-length taps when a holder will solve the problem?

Many sizes available.

Visit Emuge.com for more information.

Z-Taps Materials & Cutting Speed Recommendations

Hardness range: ≤ 30 HRC ≤ 300 BHN

Main Steel Groups	Examples	Cutting Speed - SFM	
300 Series Stainless	316, 304, 321	15	50
400 Series Stainless	420, 440C	15	50
17-4 Ph Cond. A	17-4 Ph annealed	15	25
Alloy Steels	4140, 4340, 8620	25	65
Valve & Pump Steels		25	65
Cast & Forged Steels		25	65
Mold & Tool Steels	P20, H13, D2, S7	15	50



AHB

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