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NPT Threading Solutions

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NPT / NPTF TAPERED PIPE THREADING SOLUTIONS

Innovative NPT/NPTF Tapered Pipe Threading Solutions

Threading parts that serve the energy sector presents demanding metalworking challenges. Many of the key components of an oil extrusion operation are threaded parts, including blow-out preventers, valves, pumps, pump jacks, compressors and gears. Between the hostile conditions in oil and gas environments that put high demands on the equipment, and the catastrophic outcomes that can result from minute discrepancies in production, precision manufacturing is essential. Part failure is not an option, because it can jeopardize an entire operation.

The comprehensive line of EMUGE NPT/NPTF Tapered Pipe Taps and Thread Milling tools have new, innovative features designed to meet and exceed even the most difficult oil, gas, and petrochemical manufacturing challenges.

Also ideal for:

- Food and dairy processing equipment
- High-pressure pipe delivery systems
- Valve industry
- Fire suppression systems

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EMUGE

NPT / NPTF

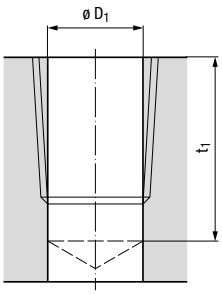
Rekord-A
Straight Flute

Rekord-A straight flute NPT / NPTF pipe taps are ideal for through and blind hole applications in short chipping cast iron, short chipping brass and also steel materials.

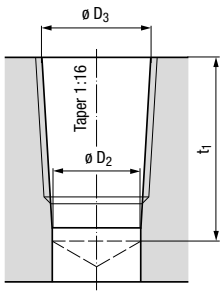
- NPT American tapered pipe thread per ANSI / ASME B1.20.1 for threads with dryseal materials
- NPTF American tapered pipe thread per ANSI B1.20.3 for threads without dryseal materials
- Standard taper 1:16
- Bright finished or TIN coated for additional tool life
- Form C (2-3 P) chamfer length
- ANSI / ANSI standard dimensions for overall length and shank size
- DIN / ANSI standard dimension taps have longer standard lengths with ANSI standard shank dimensions

Thread Hole Preparatory Diameters for Tapered Pipe Thread NPT, Taper 1:16. See page 6 for Tapered Pipe Thread NPTF.

A) Cylindrical preparation of thread hole



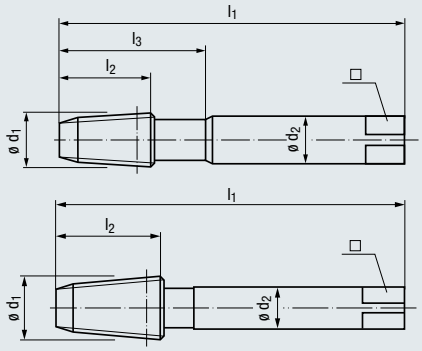
B) Tapered preparation of thread hole



Nominal Size ø D	T.P.I.	inch ø D_1	ø D_2	ø D_3 (+0.002)	t_1
1/16	27	0.2421	0.2343	0.2516	0.4646
1/8	27	0.3346	0.3268	0.3441	0.4685
1/4	18	0.4331	0.4232	0.4472	0.6850
3/8	18	0.5669	0.5571	0.5827	0.6969
1/2	14	0.7008	0.6870	0.7213	0.9094
3/4	14	0.9114	0.8976	0.9319	0.9291
1	11 1/2	1.1437	1.1280	1.1689	1.1181
1 1/4	11 1/2	1.4882	1.4705	1.5138	1.1378
1 1/2	11 1/2	1.7264	1.7106	1.7528	1.1378
2	11 1/2	2.1988	2.1831	2.2268	1.1535

The minimum drilling depth t_1 includes the reach of screw by hand L_1 and the effective depth L_3 to ANSI / ASME B1.20.1 as well as the chamfer of the tap. Additional drilling-down has to be determined by the user according to the construction of the workpiece. For series production it is recommended that the minor thread dia. be made as per B. Special taps are required for blind holes where the minimum depths t_1 as listed in the above table cannot be met. In this case please supply a sketch with blind hole dimensions along with the order.

ANSI Length - ANSI Shank



Reinforced Shank (1/16 - 3/8)

Reduced Shank (1/2 - 2)

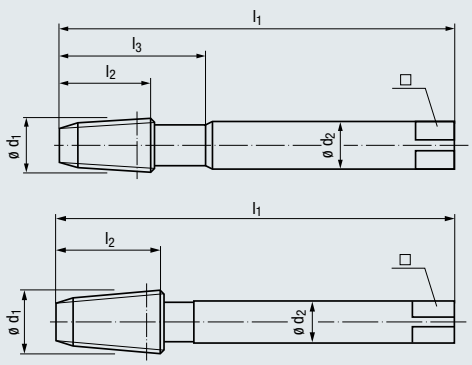
NPT

NPTF

Coating		TIN		TIN
Cutting Material	HSS Extra	HSS Extra	HSS Extra	HSS Extra
Chamfer Length	C / 2-3	C / 2-3	C / 2-3	C / 2-3
For use with Emulsion Coolant or Thread Cutting Oil	E / O	E / O	E / O	E / O
Applications – Materials (See page 15)	P 1.1-2.1 K 1.1-2 N 2.2-3		P 1.1-2.1 K 1.1-2 N 2.2-3	

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.	Tool No.
1/16	27	2.13	0.69	0.925	0.3125	0.234	4	AW181000.5763	AW181400.5763	AW181000.5782	AW181400.5782
1/8	27	2.13	0.75	0.984	0.4375	0.328	5	AW181000.5764	AW181400.5764	AW181000.5783	AW181400.5783
1/4	18	2.44	1.06	1.280	0.5625	0.421	5	AW181000.5765	AW181400.5765	AW181000.5784	AW181400.5784
3/8	18	2.56	1.06	1.339	0.7000	0.531	5	AW181000.5766	AW181400.5766	AW181000.5785	AW181400.5785
1/2	14	3.13	1.38	–	0.6875	0.515	5	AW181000.5767	AW181400.5767	AW181000.5786	AW181400.5786
3/4	14	3.25	1.38	–	0.9063	0.679	6	AW181000.5768	AW181400.5768	AW181000.5787	AW181400.5787
1	11 1/2	3.75	1.75	–	1.1250	0.843	6	AW181000.5769	AW181400.5769	AW181000.5788	AW181400.5788
1 1/4	11 1/2	4.00	1.75	–	1.3125	0.984	6	AW181000.5770	AW181400.5770	AW181000.5789	AW181400.5789
1 1/2	11 1/2	4.25	1.75	–	1.5000	1.125	7	AW181000.5771	AW181400.5771	AW181000.5790	AW181400.5790
2	11 1/2	4.50	1.75	–	1.8750	1.406	7	AW181000.5772	AW181400.5772	AW181000.5791	AW181400.5791

DIN Length - ANSI Shank



Reinforced Shank (1/16 - 3/8)

Reduced Shank (1/2 - 2)

NPT

NPTF

Coating		TIN		TIN
Cutting Material	HSS Extra	HSS Extra	HSS Extra	HSS Extra
Chamfer Length	C / 2-3	C / 2-3	C / 2-3	C / 2-3
For use with Emulsion Coolant or Thread Cutting Oil	E / O	E / O	E / O	E / O
Applications – Materials (See page 15)	P 1.1-2.1 K 1.1-2 N 2.2-3		P 1.1-2.1 K 1.1-2 N 2.2-3	

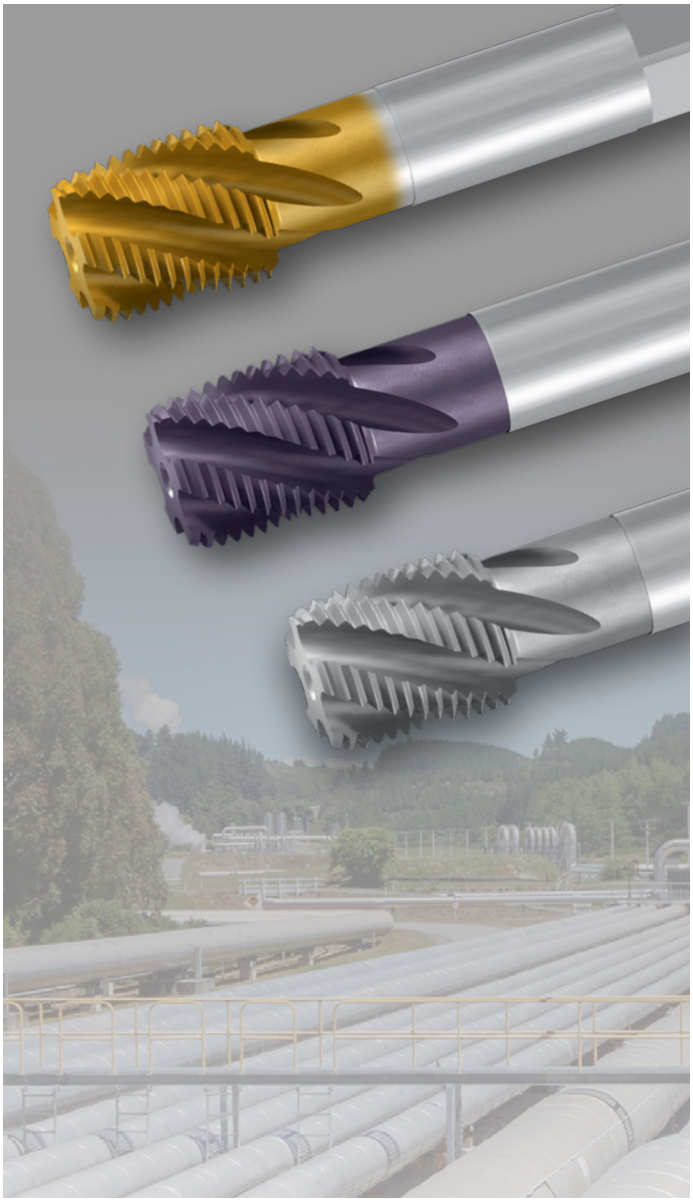
Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.	Tool No.
1/16	27	3.543	0.69	1.161	0.3125	0.234	4	CW181000.5763	CW181400.5763	CW181000.5782	CW181400.5782
1/8	27	3.937	0.75	1.299	0.4375	0.328	5	CW181000.5764	CW181400.5764	CW181000.5783	CW181400.5783
1/4	18	3.937	1.06	1.772	0.5625	0.421	5	CW181000.5765	CW181400.5765	CW181000.5784	CW181400.5784
3/8	18	4.331	1.06	1.850	0.7000	0.531	5	CW181000.5766	CW181400.5766	CW181000.5785	CW181400.5785
1/2	14	5.512	1.38	–	0.6875	0.515	5	CW181000.5767	CW181400.5767	CW181000.5786	CW181400.5786
3/4	14	5.512	1.38	–	0.9063	0.679	6	CW181000.5768	CW181400.5768	CW181000.5787	CW181400.5787
1	11 1/2	6.299	1.75	–	1.1250	0.843	6	CW181000.5769	CW181400.5769	CW181000.5788	CW181400.5788
1 1/4	11 1/2	6.693	1.75	–	1.3125	0.984	6	CW181000.5770	CW181400.5770	CW181000.5789	CW181400.5789
1 1/2	11 1/2	7.480	1.75	–	1.5000	1.125	7	CW181000.5771	CW181400.5771	CW181000.5790	CW181400.5790
2	11 1/2	7.874	1.75	–	1.8750	1.406	7	CW181000.5772	CW181400.5772	CW181000.5791	CW181400.5791

NPT / NPTF

Rekord D-VA
Spiral Flute

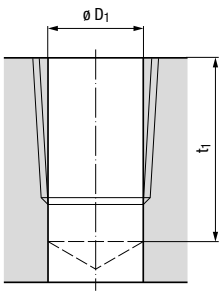
Rekord D-VA slow spiral style taps are best suited for stainless steel and steel materials.

- For through and blind hole applications
- NPT American tapered pipe thread per ANSI / ASME B1.20.1
- NPTF American tapered pipe thread per ANSI B1.20.3
- Standard taper 1:16
- 15° helix spiral flute construction
- Bright finish, or TIN or TICN coated for additional tool life
- ANSI / ANSI standard dimensions for overall length and shank size
- ANSI taps have a shorter overall length than DIN dimension taps

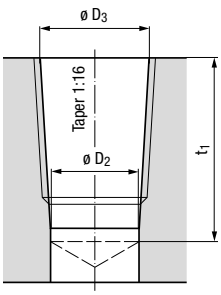


Thread Hole Preparatory Diameters for Tapered Pipe Thread NPTF, Taper 1:16. See page 4 for Tapered Pipe Thread NPT.

A) Cylindrical preparation of thread hole



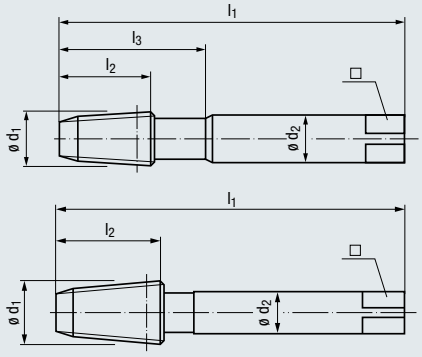
B) Tapered preparation of thread hole



Nominal Size ø D	T.P.I.	inch ø D_1	ø D_2	ø D_3 (+0.002)	t_1
1/16	27	0.2402	0.2343	0.2524	0.4646
1/8	27	0.3327	0.3268	0.3449	0.4685
1/4	18	0.4291	0.4232	0.4488	0.6850
3/8	18	0.5630	0.5571	0.5843	0.6969
1/2	14	0.6929	0.6870	0.7217	0.9094
3/4	14	0.9055	0.8976	0.9323	0.9291
1	11 1/2	1.1319	1.1280	1.1701	1.1181
1 1/4	11 1/2	1.4764	1.4705	1.5150	1.1378
1 1/2	11 1/2	1.7224	1.7106	1.7539	1.1378
2	11 1/2	2.1949	2.1831	2.2280	1.1535

The minimum drilling depth t_1 includes the reach of screw by hand L_1 and the effective depth L_3 to ANSI B1.20.3 as well as the chamfer of the tap. Additional drilling-down has to be determined by the user according to the construction of the workpiece. For series production it is recommended that the minor thread dia. be made as per B. Special taps are required for blind holes where the minimum depths t_1 as listed in the above table cannot be met. In this case please supply a sketch with blind hole dimensions along with the order.

ANSI Length - ANSI Shank



With Coolant thru

Coating		TIN	TICN
Cutting Material	HSS Extra	HSS Extra	HSS Extra
Spiral Thread Technical Characteristics	Right 15°	Right 15°	Right 15°
Chamfer Length	C / 2-3	C / 2-3	C / 2-3
For use with Emulsion Coolant or Thread Cutting Oil	E / O	E / O	E / O
Applications – Materials (See page 15)		P 1.1-3.1 M 1.1-3.1	

NPT

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.
1/16	27	2.13	0.69	0.925	0.3125	0.234	**3**	**AW483000.5763**	**AW483100.5763**	**AW889300.5763**
1/8	27	2.13	0.75	0.984	0.4375	0.328	**3**	**AW483000.5764**	**AW483100.5764**	**AW889300.5764**
1/4	18	2.44	1.06	1.280	0.5625	0.421	**3**	**AW483000.5765**	**AW483100.5765**	**AW889300.5765**
3/8	18	2.56	1.06	1.339	0.7000	0.531	**3**	**AW483000.5766**	**AW483100.5766**	**AW889300.5766**
1/2	14	3.13	1.38	–	0.6875	0.515	**5**	**AW483000.5767**	**AW483100.5767**	**AW889300.5767**
3/4	14	3.25	1.38	–	0.9063	0.679	**5**	**AW483000.5768**	**AW483100.5768**	**AW889300.5768**
1	11 1/2	3.75	1.75	–	1.1250	0.843	**5**	**AW483000.5769**	**AW483100.5769**	**AW889300.5769**
1 1/4	11 1/2	4.00	1.75	–	1.3125	0.984	**5**	**AW483000.5770**	**AW483100.5770**	**–**
1 1/2	11 1/2	4.25	1.75	–	1.5000	1.125	**5**	**AW483000.5771**	**AW483100.5771**	**–**
2	11 1/2	4.50	1.75	–	1.8750	1.406	**7**	**AW483000.5772**	**AW483100.5772**	**–**

NPTF

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.
1/16	27	2.13	0.69	0.925	0.3125	0.234	**3**	**AW483000.5782**	**AW483100.5782**	**AW889300.5782**
1/8	27	2.13	0.75	0.984	0.4375	0.328	**3**	**AW483000.5783**	**AW483100.5783**	**AW889300.5783**
1/4	18	2.44	1.06	1.280	0.5625	0.421	**3**	**AW483000.5784**	**AW483100.5784**	**AW889300.5784**
3/8	18	2.56	1.06	1.339	0.7000	0.531	**3**	**AW483000.5785**	**AW483100.5785**	**AW889300.5785**
1/2	14	3.13	1.38	–	0.6875	0.515	**5**	**AW483000.5786**	**AW483100.5786**	**AW889300.5786**
3/4	14	3.25	1.38	–	0.9063	0.679	**5**	**AW483000.5787**	**AW483100.5787**	**AW889300.5787**
1	11 1/2	3.75	1.75	–	1.1250	0.843	**5**	**AW483000.5788**	**AW483100.5788**	**AW889300.5788**
1 1/4	11 1/2	4.00	1.75	–	1.3125	0.984	**5**	**AW483000.5789**	**AW483100.5789**	**–**
1 1/2	11 1/2	4.25	1.75	–	1.5000	1.125	**5**	**AW483000.5790**	**AW483100.5790**	**–**
2	11 1/2	4.50	1.75	–	1.8750	1.406	**7**	**AW483000.5791**	**AW483100.5791**	**–**

NPT / NPTF

Rekord-D-VA-AZ and Rekord 2D-VA-AZ Skip Tooth Tapered Pipe Taps

Taps feature an advanced flute form with variable skip tooth geometry that is designed to eliminate severe teeth chipping and breakage problems. The design optimizes chip flow and clearance, and lowers tapping torque – ideal for materials that produce long, stringy chip formations such as aluminum, carbon steels, stainless and mold steels.

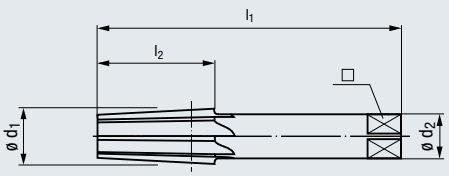
- Made of premium HSS-E material for improved tap life
- Extra length series for improved reach, chip clearance, and delivery of coolant
- PVD coated for improved tap life and thread finish
- Precision ground to produce internal NPT / NPTF pipe threads to close tolerance on thread dimensions and limits of size
- Excellent surface quality on the thread flanks, for consistently tight, leak-free joints at assembly
- Significantly longer tap life and reduced part rejects due to rough / torn threads

Taper Reamers

For the preparation of a tapered hole

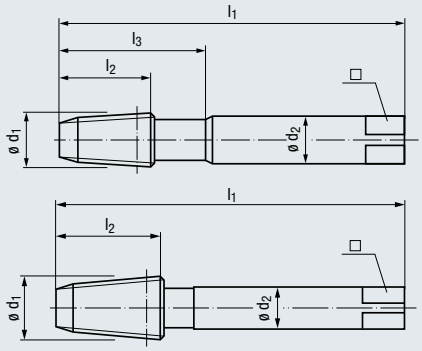
- **For tapered pipe threads NPT, NPTF, taper 1:16**
- **Tapered conical end mills also available (See page 14)**

Please note: If needed, the reamers can be fitted to the required hole depth by shortening the cutting part.



					Cutting Material	HSS Extra	HSS Extra
					Flute Characteristics		Left 7°
			mm				
Nominal Size ø D	l_1	l_2	ø d_2	□	**# Flutes**	**Tool No.**	**Tool No.**
1/16	70	17	6	4.9	**6**	**G0037165.5763**	**G0037175.5763**
1/8	70	17	7	5.5	**6**	**G0037165.5764**	**G0037175.5764**
1/4	80	27	11	9	**6**	**G0037165.5765**	**G0037175.5765**
3/8	85	27	12	9	**8**	**G0037165.5766**	**G0037175.5766**
1/2	95	35	16	12	**8**	**G0037165.5767**	**G0037175.5767**
3/4	105	35	20	16	**10**	**G0037165.5768**	**G0037175.5768**
1	130	43	25	20	**10**	**G0037165.5769**	**G0037175.5769**
1 1/4	140	44	32	24	**12**	**G0037165.5770**	**G0037175.5770**
1 1/2	150	45	36	29	**12**	**G0037165.5771**	**G0037175.5771**
2	160	46	45	35	**14**	**G0037165.5772**	**G0037175.5772**

ANSI Length - ANSI Shank



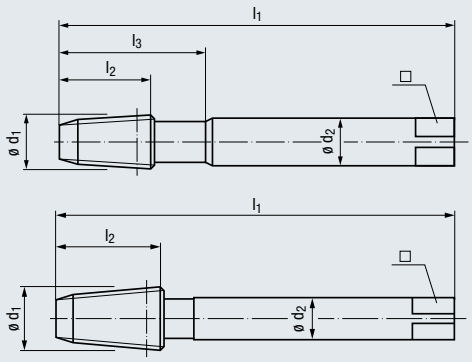
Reinforced Shank (1/16 - 3/8)

Reduced Shank (1/2 - 1)

	NPT		NPTF	
Coating		TiN		TiN
Cutting Material	HSS Extra	HSS Extra	HSS Extra	HSS Extra
Spiral Thread Technical Characteristics	Right 15°	Right 15°	Right 15°	Right 15°
Chamfer Length	C / 2-3	C / 2-3	C / 2-3	C / 2-3
For use with Emulsion Coolant or Thread Cutting Oil	E / O	E / O	E / O	E / O
Applications – Materials (See page 15)	P 1.1-3.1	M 1.1-3.1	P 1.1-3.1	M 1.1-3.1

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.	Tool No.
1/16	27	2.13	0.69	0.925	0.3125	0.234	3	AW493000.5763	AW493100.5763	AW493000.5782	AW493100.5782
1/8	27	2.13	0.75	0.984	0.4375	0.328	3	AW493000.5764	AW493100.5764	AW493000.5783	AW493100.5783
1/4	18	2.44	1.06	1.280	0.5625	0.421	3	AW493000.5765	AW493100.5765	AW493000.5784	AW493100.5784
3/8	18	2.56	1.06	1.339	0.7000	0.531	3	AW493000.5766	AW493100.5766	AW493000.5785	AW493100.5785
1/2	14	3.13	1.38	–	0.6875	0.515	5	AW493000.5767	AW493100.5767	AW493000.5786	AW493100.5786
3/4	14	3.25	1.38	–	0.9063	0.679	5	AW493000.5768	AW493100.5768	AW493000.5787	AW493100.5787
1	11 1/2	3.75	1.75	–	1.1250	0.843	5	AW493000.5769	AW493100.5769	AW493000.5788	AW493100.5788

DIN Length - ANSI Shank

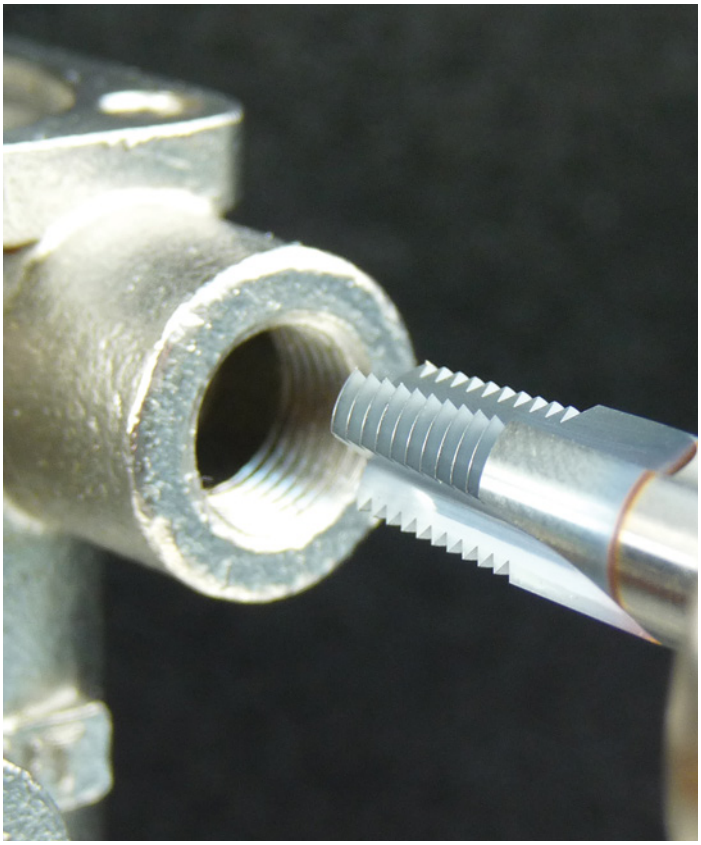


Reinforced Shank (1/16 - 3/8)

Reduced Shank (1/2 - 2)

	NPT		NPTF	
Coating		TiN		TiN
Cutting Material	HSS Extra	HSS Extra	HSS Extra	HSS Extra
Spiral Thread Technical Characteristics	Right 15°	Right 15°		
Chamfer Length	C / 2-3	C / 2-3	C / 2-3	C / 2-3
For use with Emulsion Coolant or Thread Cutting Oil	E / O	E / O	E / O	E / O
Applications – Materials (See page 15)	P 1.1-3.1	M 1.1-3.1	P 1.1-3.1	M 1.1-3.1

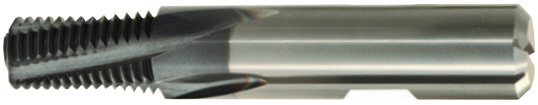
Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_2	□	# Flutes	Tool No.	Tool No.	Tool No.	Tool No.
1/16	27	3.543	0.69	1.161	0.3125	0.234	3	CW493000.5763	CW493100.5763	CW193000.5782	CW193100.5782
1/8	27	3.937	0.75	1.299	0.4375	0.328	3	CW493000.5764	CW493100.5764	CW193000.5783	CW193100.5783
1/4	18	3.937	1.06	1.772	0.5625	0.421	3	CW493000.5765	CW493100.5765	CW193000.5784	CW193100.5784
3/8	18	4.331	1.06	1.850	0.7000	0.531	3	CW493000.5766	CW493100.5766	CW193000.5785	CW193100.5785
1/2	14	5.512	1.38	–	0.6875	0.515	5	CW493000.5767	CW493100.5767	CW193000.5786	CW193100.5786
3/4	14	5.512	1.38	–	0.9063	0.679	5	CW493000.5768	CW493100.5768	CW193000.5787	CW193100.5787
1	11 1/2	6.299	1.75	–	1.1250	0.843	5	–	–	CW193000.5788	CW193100.5788
1 1/4	11 1/2	6.693	1.75	–	1.3125	0.984	5	–	–	CW193000.5789	CW193100.5789
1 1/2	11 1/2	7.480	1.75	–	1.5000	1.125	5	–	–	CW193000.5790	CW193100.5790
2	11 1/2	7.874	1.75	–	1.8750	1.406	7	–	–	CW193000.5791	CW193100.5791



GFI-ECO

EMUGE GFI-ECO solid carbide thread mills are designed to produce NPT threads and provide maximum value with premium EMUGE quality.

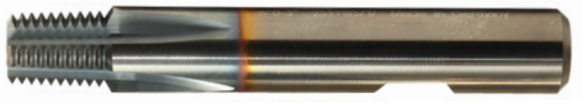
- Premium micro-grain carbide substrate
- Multiple thread sizes with one cutter
- Precision ground for high repeatability
- PVD coated multilayer TICN for wear resistance
- Cylindrical h6 shank diameter



GFI API-LP

Innovative high performance thread mills for NPT threads. Extended milling section with 14 cutting teeth, to produce API-LP thread depth.

- Increased core diameter and flute count for maximum rigidity and stability
- Innovative left-hand flute geometry / anti-vibration design
- Extended milling section for API-LP thread depth
- TIALN-T46 multilayer coating resists heat, edge wear and chipping
- Multiple thread sizes possible with 1 tool
- Precision ground for repeatability
- Features external coolant channels only



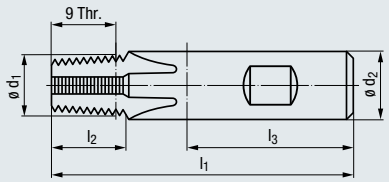
GFI NPT

Solid carbide thread mills are designed to produce internal NPT pipe threads to a close tolerance on thread dimensions and limits of size, and with excellent surface quality on the thread flanks to consistently achieve tight, leak-free joints.

- Premium micro-grain carbide substrate
- Increased core diameter for maximum rigidity
- PVD coated multilayer TICN for wear resistance
- Finished ground with precise cutting geometry to ensure long tool life, low cycle times and superior finished threads in all materials up to 58 Rc

GFI NPT - Universal Applications
GFI-ECO - Value Offering

- For internal tapered threads, right-hand (RH) or left-hand (LH)
- For blind and through hole applications



GFI NPT

GFI-ECO

NPT cutters are manufactured with a corrected profile

Application recommendation: You must have an NC program for a spiral formed helix to prevent a profile step

Coating: TICN

Applications – Materials (See page 15)

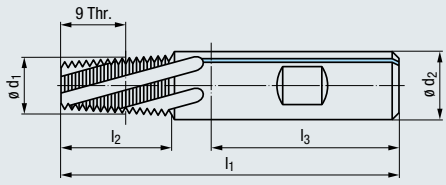
P 1.1-5.1 | M 1.1-4.1
K 1.1-4.2 | N 1.1-5.2
S 1.1-2.6 | H 1.1-2

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_1	ø d_2	# Flutes	Tool No.	
1/16	27	2 1/4	0.388	1 3/8	0.232	5/16	**3**	**GFT53106.5763**	
1/8	27	2 1/4	0.388	1 3/8	0.301	5/16	**3**	**GFT53106.5764**	
1/4	18	3 1/4	0.582	1 25/32	0.400	1/2	**4**	**GFT53116.5765**	
3/8	18	3 1/4	0.582	1 25/32	0.439	1/2	**4**	**GFT53116.5766**	
1/2-3/4	14	3 1/2	0.749	1 29/32	0.561	5/8	**4**	**GFT53136.9678**	
1"-2"	11 1/2	3 3/4	0.913	2 1/32	0.772	3/4	**5**	**GFT53156.9679**	

Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_1	ø d_2	# Flutes		Tool No.
1/16	27	2 1/2	0.388	1 3/8	0.232	1/4	**3**		**GFT53AA6.5763**
1/8	27	2 1/2	0.388	1 3/8	0.246	1/4	**3**		**GFT53AA6.5764**
1/4-3/8	18	2 1/2	0.582	1 3/8	0.307	5/16	**3**		**GFT53A06.9677**
1/2-3/4	14	3 1/2	0.748	1 25/32	0.488	1/2	**4**		**GFT53A16.9678**
1"-2"	11 1/2	4	0.911	1 29/32	0.606	5/8	**4**		**GFT53A36.9679**

GFI API-LP - High Performance Design

- For internal tapered threads, right-hand (RH) or left-hand (LH)
- Left hand spiral flute at 15°
- For blind and through hole applications



With coolant grooves along the shank

NPT/API-LP cutters are manufactured with a corrected profile

Application recommendation: You must have an NC program for a spiral formed helix to prevent a profile step

Coating: TIALN-T46

Applications – Materials (See page 15)

P 1.1-5.1 | M 1.1-4.1
K 1.1-4.2 | N 1.1-5.2
S 1.1-2.6 | H 1.1-2

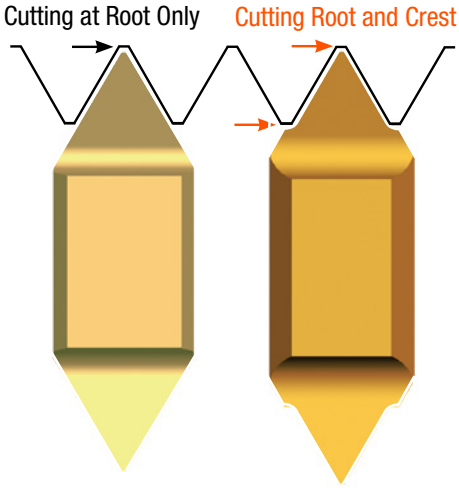
Nominal Size ø D	T.P.I.	l_1	l_2	l_3	ø d_1	ø d_2	# Flutes	Tool No.	
1/16-1/8	27	2 1/4	0.536	1 3/8	0.232	5/16	**4**	**GFT8B209.9676**	
1/4-3/8	18	3 1/4	0.804	1 25/32	0.399	1/2	**4**	**GFT8B219.9677**	
1/2-3/4	14	3 1/2	1.034	1 29/32	0.561	5/8	**4**	**GFT8B239.9678**	
1" - 2"	11 1/2	3 3/4	1.259	2 1/32	0.772	3/4	**5**	**GFT8B259.9679**	

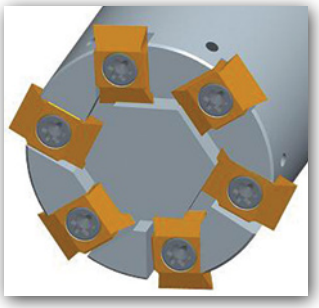
Gigant-ic™ Insert Thread Milling Program

NPT API-LP INSERTS

Rigidity, security and precision are key benefits of the new EMUGE indexable insert thread milling program that includes a full range of tool bodies and inserts for **vibration-free machining of large threads.** Deep access and large thread capability are ideal for subsea components and more. **Inserts have 4 useable cutting edges for long tool life and maximum cutting efficiency.**

- Advanced partial profile insert technology further enhances the versatility and economy of the system
- For easy machining of all difficult materials the inserts are made of select micro-grain carbide and offered with either TIN or TIALN coatings
- Precision ground rake and relief angles allow for high chip-per-tooth load for increased productivity
- The inserts' free-cutting geometry produces low radial cutting pressure, ensuring true-to-gauge threads with excellent thread quality
- Smaller machines can produce larger threads due to less spindle torque
- Each indexable insert has 4 useable cutting edges for exceptional tool life and fast edge indexing can easily be accomplished at the machine
- Produces internal NPT & API-LP taper pipe threads
- For taper pipe threads 1" and above
- Advanced full and partial profile insert technology





New Tool bar design with 6 inserts

NPT • API-LP • 11 1/2 Specifications

Size	Bar Size	# Inserts	Cutter Dia.	Shank Dia.	Depth Max	Bar* EDP No.	Insert TIN Full Profile EDP No.	Insert TIALN-T4 Full Profile EDP No.	Insert TIN Partial Profile EDP No.	Insert TIALN-T4 Partial Profile EDP No.
1"	11	3	0.940"	1 1/4"	2.36"	GZ340121	GF643105.9679	GF643107.9679	GF643105.9514	GF643107.9514
1 1/4"					3.00"	GZ340001				
1 1/2"	11	3	23.85mm	32mm	60mm	GZ341121**				
2"					80mm	GZ341001**				
1 1/2"	11	6	1.339"	1 1/4"	2.36"	GZ340221	GF643105.9679	GF643107.9679	GF643105.9514	GF643107.9514
2"	11	6	34mm	32mm	60mm	GZ341221**				
1 1/2"	11	5	1.102"	1 1/4"	3.54"	GZ340211	GF643105.9679	GF643107.9679	GF643105.9514	GF643107.9514
2"	11	5	28mm	32mm	90mm	GZ341211**				

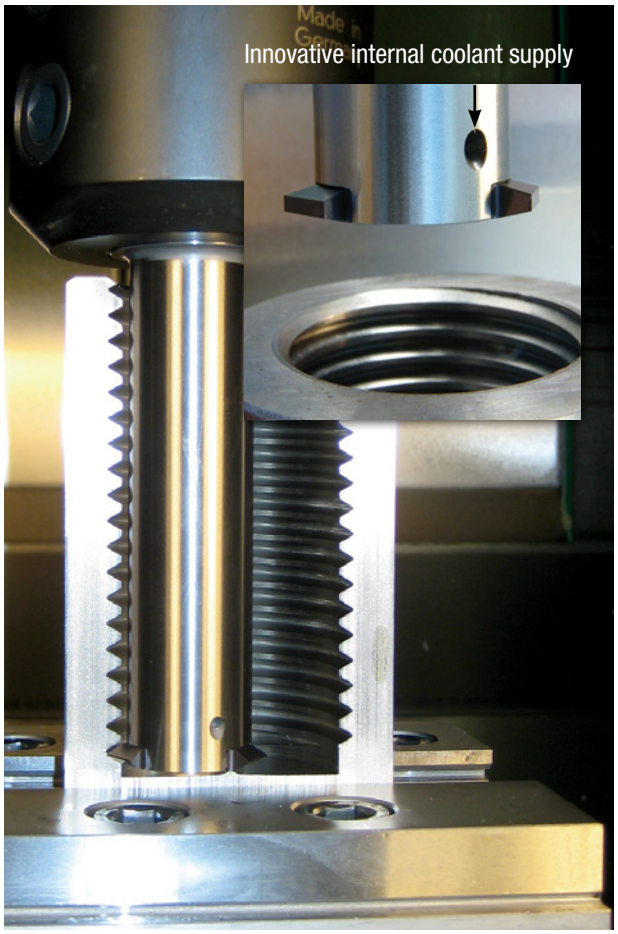
NPT • API-LP • 8 Specifications

2 1/2"	12	3	1.293"	1 1/4"	3.50"	GZ340012	GF643205.9680	GF643207.9680		
3"		5	1.585"		4.25"	GZ340202				
3 1/2"	12	3	32.85mm	32mm	95mm	GZ341012**				
≥ 4"		5	40.25mm		110mm	GZ341202**				
2 1/2"	13	4	1.585"	1 1/4"	4.25"	GZ340153			GF643305.9514	GF643307.9514
3"					5.78"	GZ340143				
3 1/2"	13	4	40.25mm	32mm	110mm	GZ341153**				
≥ 4"					147mm	GZ341143**				

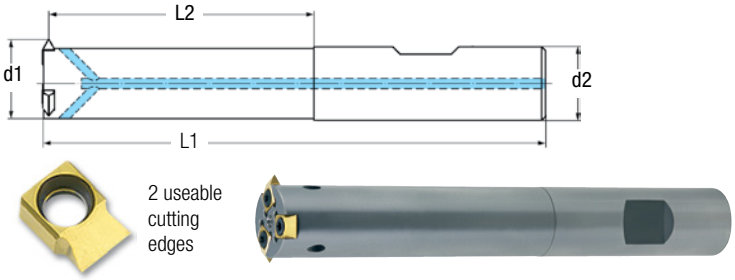
*All Gigant-ic bars have internal coolant exiting radially at insert. ** Metric shanks

TOOL BODIES

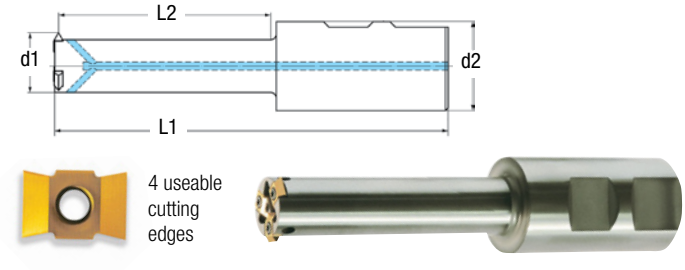
Rigid, anti-vibration, hardened tool steel body with a modular bar design allows for 4 bar sizes to be easily set-up and interchanged on a variety of CNC machines.



Modular Design - Chuck Sold Separately - Bar Size #10



Modular Design - Chuck Sold Separately - Bar Sizes #11, #12, #13



UNC - Weldon Shank Specifications

Size	Bar Size	# Inserts	Cutter Dia. d1	Shank Dia. d2	Overall Length L1	Depth Max L2	Bar* EDP No.	Insert TIN EDP No.	Insert TIALN-T4 EDP No.
7/8 - 9"	10	2	0.669"	1/2"	3.42"	1.57"	**GZ340000**	**GF643005.9514**	**GF643007.9514**
	10	2	17mm	12mm	87mm	40mm	**GZ341000****		
≥ 1"	10	3	0.807"	5/8"	4.57"	2.55"	**GZ340050**		
	10	3	20.5mm	16mm	116mm	65mm	**GZ341050****		

8 UN - Weldon Shank Specifications

≥ 1 1/8"	11	3	.0940"	1 1/4"	5.51" 5.91"	3.15" 3.50"	**GZ340001** **GZ340101**	**GF643105.9517**	**GF643107.9517**
	11	3	23.85mm	32mm	142mm 152mm	80mm 90mm	**GZ341001**** **GZ341101****		
≥ 1 1/2"	11	5	1.293"	1 1/4"	6.26"	3.74"	**GZ340201**		
	11	5	32.85mm	32mm	159mm	95mm	**GZ341201****		
≥ 1 1/2"	11	6	1.339"	1 1/4"	4.80"	2.36"	**GZ340221**		
	11	6	34mm	32mm	124mm	60mm	**GZ341221****		
≥ 2"	11	8	1.585"	1 1/4"	5.59"	3.15"	**GZ340231**		
	11	8	40.25mm	32mm	144mm	80mm	**GZ341231****		
≥ 1 1/2"	12	3	1.293"	1 1/4"	6.10" 6.89"	3.74" 4.50"	**GZ340012** **GZ340112**	**GF643205.9517**	**GF643207.9517**
	12	3	32.85mm	32mm	158mm 178mm	95mm 115mm	**GZ341012**** **GZ341112****		
≥ 2"	12	5	1.585"	1 1/4"	6.77"	4.33"	**GZ340202**		
	12	5	40.25mm	32mm	172mm	110mm	**GZ341202****		
≥ 2"	13	4	1.585"	1 1/4"	6.73" 8.11"	4.33" 5.78"	**GZ340153** **GZ340143**	**GF643305.9518**	**GF643307.9518**
	13	4	40.25mm	32mm	173mm 208mm	110mm 147mm	**GZ341153**** **GZ341143****		
≥ 2 3/8"	13	5	1.889"	1 1/4"	9.56"	6.69"	**GZ340203**		
	13	5	48mm	32mm	245mm	170mm	**GZ341203****		

*All Gigant-ic bars have internal coolant exiting radially at insert. ** Metric shanks

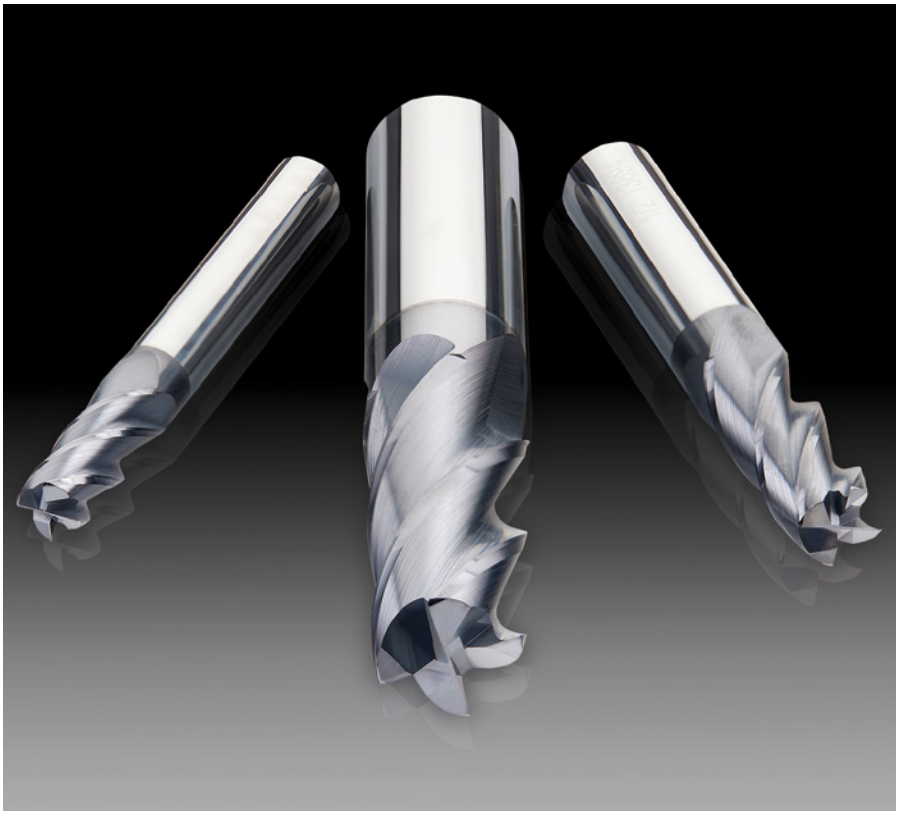
NEW NPT/NPTF 1:16 Tapered Carbide End Mills

Solid carbide end mills designed to prepare a tapered core hole.

This innovative EMUGE design provides an easy, efficient solution for preparing a tapered core hole prior to finish tapping or thread milling NPT/NPTF/BSPT pipe threads. It extensively saves the tool life of expensive threading cutters while reducing the number of tools required to prepare holes over a large range of pipe thread sizes — and it does not require a large or 5-Axis machine!

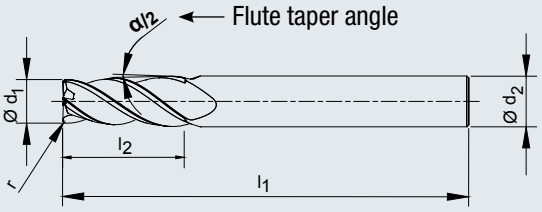
- Designed with the proper 1:16 taper angle ground into the conical form for milling the minor diameter holes for taper pipe threads prior to tapping or thread milling
- Saves on tool costs — only three tool sizes are required to handle a full range of hole sizes from 1/4" up to 4", instead of purchasing individual reamers for each pipe thread size
- For thread milling strategies, allows users to pre-taper holes for finish threading in NPT partial-profile thread applications
- TIALN-T21 coating resists heat, edge wear and chipping
- Enables smaller machines to handle larger threading applications
- Ideal in a full range of materials from aluminum and carbon steels, stainless steels and exotic nickel alloys

Visit https://info.emuge.com/nptendmill for additional information and programming support.



NPT / NPTF 1:16 Tapered Carbide End Mills

- Premium micro-grain carbide substrate
- Corner radius prevents wear or chipping while prolonging functional tool life
- For internal tapered threads, right-hand (RH)
- Shank tolerance h6
- HA - straight shank
- Suitable for most materials



Coating: TIALN-T21

Applications – Materials (See below): P 1.1-5.1, M 1.1-4.1, K 1.1-4.2, N 1.2-5.2, S 1.1-2.6, H 1.1-3

α/2		ø d_2	ø d_1	l_1	l_2	r	# Flutes	Tool No.	Tool No.	Tool No.
1° 47'	**3/8**	.322	3	7/8	0.020	**4**	**3914A.037020**		
	1/2	.430	3	1 1/8	0.020	**4**		**3914A.050020**	
	3/4	.645	4	1 23/32	0.030	**4**			**3914A.075030**

Applications – Materials

		Applications – Materials	Specific Material Grade
P		**Steel materials**	
	1.1	Cold-extrusion steels, Construction steels, Free-cutting steels, etc.	Cq15 S235 7-2) 10SPb20
	2.1	Construction steels, Cementation steels, Steel castings, etc.	E360 (St70-2) 16MnCr5 GS-25CrMo4
	3.1	Cementation steels, Heat-treatable steels, Cold work steels, etc.	20MoCr3 42CrMo4 102Cr6
	4.1	Heat-treatable steels, Cold work steels, Nitriding steels, etc.	50CrMo4 X45NiCrMo4 31CrMo12
	5.1	High-alloyed steels, Cold work steels, Hot work steels, etc.	X38CrMoV5-3 X100CrMoV8-1-1 X40CrMoV5-1
M		**Stainless steel materials**	
	1.1	Ferritic, martensitic	X2CrTi12
	2.1	Austenitic	X6CrNiMoTi17-12-2
	3.1	Austenitic-ferritic (Duplex)	X2CrNiMoN22-5-3
	4.1	Austenitic-ferritic heat-resistant (Super Duplex)	X2CrNiMoN25-7-4
K		**Cast materials**	
	1.1	Cast iron with lamellar graphite (GJL)	EN-GJL-200 (GG20)
	1.2		EN-GJL-300 (GG30)
	2.1	Cast iron with nodular graphite (GJS)	EN-GJS-400-15 (GGG40)
	2.2		EN-GJS-700-2 (GGG70)
	3.1	Cast iron with vermicular graphite (GJV)	GJV 300
	3.2		GJV 450
	4.1	Malleable cast iron (GTMW, GTMB)	EN-GJMW-350-4 (GTW-35)
	4.2		EN-GJMB-450-6 (GTS-45)
N		**Non ferrous materials**	
		Aluminum alloys	
	1.1	Aluminum wrought alloys	EN AW-AlMn1
	1.2		EN AW-AlMgSi
	1.3		EN AW-AlZn5Mg3Cu
	1.4	Aluminum cast alloys Si ≤ 7%	EN AC-AlMg5
	1.5	Aluminum cast alloys 7% < Si ≤ 12%	EN AC-AlSi9Cu3
	1.6	Aluminum cast alloys 12% < Si ≤ 17%	GD-AlSi17Cu4FeMg
		Copper alloys	
	2.1	Pure copper, low-alloyed copper	E-Cu 57
	2.2	Copper-zinc alloys (brass, long-chipping)	CuZn37 (Ms63)
	2.3	Copper-zinc alloys (brass, short-chipping)	CuZn36Pb3 (Ms58)
	2.4	Copper-aluminum alloys (alu bronze, long-chipping)	CuAl10Ni5Fe4
	2.5	Copper-tin alloys (tin bronze, long-chipping)	CuSn8P
	2.6	Copper-tin alloys (tin bronze, short-chipping)	CuSn7 ZnPb (Rg7)
	2.7	Special copper alloys	(Amcoo 8)
	2.8		(Ampco 45)

		Applications – Materials	Specific Material Grade
N		**Non ferrous materials**	
		Magnesium alloys	
	3.1	Magnesium wrought alloys	MgAl6Zn
	3.2	Magnesium cast alloys	EN-MCMgAl9Zn1
		Synthetics	
	4.1	Duroplastics (short-chipping)	Bakelit, Pertinax
	4.2	Thermoplastics (long-chipping)	PMMA, POM, PVC
	4.3	Fiber-reinforced synthetics (fiber content ≤ 30%)	GFK, CFK, AFK
	4.4	Fiber-reinforced synthetics (fiber content > 30%)	GFK, CFK, AFK
		Special materials	
	5.1	Graphite	C 8000
	5.2	Tungsten-copper alloys	W-Cu 80/20
	5.3	Composite materials	Hylite, Alucobond
S		**Special materials**	
		Titanium alloys	
	1.1	Pure titanium	Ti1
	1.2	Titanium alloys	TiAlT4
	1.3		TiAl4Mo4Sn2
		Nickel alloys, cobalt alloys and iron alloys	
	2.1	Pure nickel	Ni 99,6
	2.2	Nickel-base alloys	Monel 400
	2.3		Inconel 718
	2.4	Cobalt-base alloys	Incoloy 800
	2.5		Haynes 25
	2.6	Iron-base alloys	Incoloy 925
H		**Hard materials**	
	1.1	High strength steels, hardened steels, hard castings	Weldox 1100
	1.2		Hardox 550
	1.3		Armox 600T
	1.4		Ferro-Titanit
	1.5		HSSE

EMUGE FRANKEN

Ask about our Precision Fixed Limit Thread Gages

Comprehensive line of EMUGE Thread Gages consist of **GO / NO-GO plug gages and thread depth plug gages.** A Certificate of Accuracy is furnished with each gage.

NPT

Size (in)	EDP No.
1/16-27	L0500100.5763
1/8-27	L0500100.5764
1/4-18	L0500100.5765
3/8-18	L0500100.5766
1/2-14	L0500100.5767
3/4-14	L0500100.5768
1"-11-1/2	L0500100.5769

NPTF

Size (in)	EDP No.
1/16-27	L0520100.5782
1/8-27	L0520100.5783
1/4-18	L0520100.5784
3/8-18	L0520100.5785
1/2-14	L0520100.5786
3/4-14	L0520100.5787

For more information:
www.emuge.com/products/gages/npt-nptf

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