



Leading Through Innovation



HSS-PM

YG TAP Ti Ni

**YG Gewindebohrer Titan /
Superlegierungen**

- For Heat Resistent Super Alloys and Titanium Alloys Applied with Cutting Edge Rake Angles and Thread Relief
- Für hitzebeständige Superlegierungen und Titanlegierungen, mit Schneidkanten-Spanwinkeln und Gewindehinterschliff

HSS-PM
YG TAP
Ti Ni

For Heat Resistant Super Alloys and Titanium Alloys
Applied with Cutting Edge Rake Angles and Thread Relief



ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc				
P	1	Non-alloy steel	About 0.15% C	Annealed	125					
	2		About 0.45% C	Annealed	190	13				
	3		About 0.45% C	Quenched & Tempered	250	25				
	4		About 0.75% C	Annealed	270	28				
	5		About 0.75% C	Quenched & Tempered	300	32				
	6	Low alloy steel		Annealed	180	10				
	7			Quenched & Tempered	275	29	○	○	○	○
	8			Quenched & Tempered	300	32	○	○	○	○
	9			Quenched & Tempered	350	38	○	○	○	○
	10	High alloyed steel, and tool steel		Annealed	200	15				
11			Quenched & Tempered	325	35					
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15				
	13		Martensitic	Quenched & Tempered	240	23				
	14		Austenitic		180	10				
K	15	Grey cast iron	Pearlitic / ferritic		180	10				
	16		Pearlitic (Martensitic)		260	26				
	17	Nodular cast iron	Ferritic		160	3				
	18		Pearlitic		250	25				
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				
N	21	Aluminum-wrought alloy	Not Curable		60					
	22		Curable	Hardened	100					
	23		≤ 12% Si, Not Curable		75					
	24	Aluminum-cast, alloyed	≤ 12% Si, Curable		90					
	25		> 12% Si, Not Curable		130					
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110					
	27		CuZn, CuSnZn (Brass)		90					
	28		CuSn, lead-free copper and electrolytic copper		100					
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic							
	30		Rubber, Wood, etc.							
S	31	Heat Resistant Super Alloys	Fe Based	Annealed	200	15	○	○	○	○
	Cured			280	30			○	○	
	33		Ni or Co Based	Annealed	250	25			○	○
	34			Cured	350	38			○	○
	35			Cast	320	34			○	○
	36	Titanium Alloys	Pure Titanium		400 Rm		○	○	○	○
	37		Alpha + Beta Alloys	Hardened	1050 Rm		◎	◎	◎	◎
H	38	Hardened steel	Hardened		550	55				
	39		Hardened		630	60				
	40	Chilled Cast Iron	Cast		400	42			○	○
	41	Hardened Cast Iron	Hardened		550	55				

[illegible]

CARBIDE

HSS

YG

YG TAP Ti Ni

TM903 SERIES

M

ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

ISO MÉTRIQUE DIN13

ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.

DIN 371

DIN 376

Hole type

2.5×D

60°

P

ØD2

ØD1

L1

L2

L3

KI

K

Ød1

Ti

HSS PM

DIN 371/376

6H

60°

C

R25

Bright

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TM903136	8	45	13	2.8	2.1	5	3	1.6
M2.5	× 0.45	TM903176	9	50	15	2.8	2.1	5	3	2.05
*M2.6	× 0.45	TM903496	9	50	15	2.8	2.1	5	3	2.1
M3	× 0.5	TM903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TM903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TM903246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TM903286	8	70	25	6	4.9	8	3	4.2
M6	× 1.0	TM903316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TM903366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TM903426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TM903506	18	110	44	9	7	10	3	10.2
M16	× 2.0	TM903606	20	110	44	12	9	12	3	14

DIN 371(M2~M10) and DIN 376(M11~M30)

* DIN profile not ISO

© : Excellent ○ : Good

ISO	P										M					K				
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											
ISO	N										S					H				
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc																				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400
Recommended																○	◎			

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TZ903 SERIES

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ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

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60°

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ØD1

L1

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Ti

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DIN 371/376

6H

60°

C

R25

TiAlN

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAlN	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TZ903136	8	45	13	2.8	2.1	5	3	1.6
M2.5	× 0.45	TZ903176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TZ903206	6	56	18	3.5	2.7	6	3	2.5
M3.5	× 0.6	TZ903226	7	56	20	4	3	6	3	2.9
M4	× 0.7	TZ903246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TZ903286	8	70	25	6	4.9	8	3	4.2
M6	× 1.0	TZ903316	10	80	30	6	4.9	8	3	5
M7	× 1.0	TZ903346	10	80	30	7	5.5	8	3	6
M8	× 1.25	TZ903366	13	90	35	8	6.2	9	3	6.8
M9	× 1.25	TZ903396	13	90	35	9	7	10	3	7.8
M12	× 1.75	TZ903506	18	110	44	9	7	10	3	10.2
M14	× 2.0	TZ903546	20	110	44	11	9	12	3	12
M16	× 2.0	TZ903606	20	110	44	12	9	12	3	14
M24	× 3.0	TZ903786	30	160	60	18	14.5	17	4	21

DIN 371(M2~M10) and DIN 376(M11~M30)

* DIN profile not ISO

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ISO	P										M					K				
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	13	25	28	32	30	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended							○	○	○											
ISO	N										S					H				
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc																				
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400
Recommended																○	◎			

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TM923 SERIES

M

ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

ISO MÉTRIQUE DIN13

ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

DIN 371

DIN 376

Hole type
3.0×D

60°

P

L1

L2

L3

KL

ØD1

ØD2

Ød1

Ni

HSS PM

DIN 371/376

6H

60°

B

Bright

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KL	Z	Ød1
M2.5 × 0.45		TM923176	9	50	15	2.8	2.1	5	3	2.05
M3 × 0.5		TM923206	11	56	18	3.5	2.7	6	3	2.5
M4 × 0.7		TM923246	13	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		TM923286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TM923316	17	80	30	6	4.9	8	3	5
M8 × 1.25		TM923366	20	90	35	8	6.2	9	3	6.8
M10 × 1.5		TM923426	22	100	39	10	8	11	3	8.5
M12 × 1.75		TM923506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TM923546	26	110	44	11	9	12	3	12
M16 × 2.0		TM923606	27	110	44	12	9	12	3	14
M18 × 2.5		TM923656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TM923706	32	140	54	16	12	15	4	17.5
M22 × 2.5		TM923746	32	140	54	18	14.5	17	4	19.5
M24 × 3.0		TM923786	34	160	60	18	14.5	17	4	21
M27 × 3.0		TM923866	36	160	60	20	16	19	4	24
M30 × 3.5		TM923946	40	180	70	22	18	21	4	26.5

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* DIN profile not ISO

ISO

P

Non-alloy steel

Low alloy steel

High alloyed steel, and tool steel

M

Stainless steel

Grey cast iron

Nodular cast iron

Malleable cast iron

K

N

Aluminum-wrought alloy

Aluminum-cast, alloyed

Copper and Copper Alloys (Bronze / Brass)

Non Metallic Materials

S

Heat Resistant Super Alloys

Titanium Alloys

Hardened steel

Chilled Cast Iron

Hardened Cast Iron

H

ISO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Material Description	VDI 3323	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB																				
Recommended						⊙	⊙	⊙	⊙											

ISO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Material Description	VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB																					
Recommended											⊙	⊙	⊙	⊙	⊙		○				○

⊙ : Excellent ○ : Good

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YG

YG TAP Ti Ni

TZ923 SERIES

M

ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13

ISO MÉTRIQUE DIN13

ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

Zum Gewindeschneiden von Nickellegierungen und hitzefesten Legierungsstählen, die in der Luftfahrtindustrie und chemischen Industrie verwendet werden.

DIN 371

DIN 376

Hole type
3.0×D

60°

P

L1

L2

L3

KL

ØD1

ØD2

Ød1

Ni

HSS PM

DIN 371/376

6H

60°

B

TiAIN

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	TiAIN	L1	L2	L3	ØD2	K	KL	Z	Ød1
M2 × 0.4		TZ923136	8	45	13	2.8	2.1	5	3	1.6
M2.5 × 0.45		TZ923176	9	50	15	2.8	2.1	5	3	2.05
M3 × 0.5		TZ923206	11	56	18	3.5	2.7	6	3	2.5
M3.5 × 0.6		TZ923226	12	56	20	4	3	6	3	2.9
M4 × 0.7		TZ923246	13	63	21	4.5	3.4	6	3	3.3
M5 × 0.8		TZ923286	15	70	25	6	4.9	8	3	4.2
M6 × 1.0		TZ923316	17	80	30	6	4.9	8	3	5
M8 × 1.25		TZ923366	20	90	35	8	6.2	9	3	6.8
M10 × 1.5		TZ923426	22	100	39	10	8	11	3	8.5
M12 × 1.75		TZ923506	24	110	44	9	7	10	3	10.2
M14 × 2.0		TZ923546	26	110	44	11	9	12	3	12
M16 × 2.0		TZ923606	27	110	44	12	9	12	3	14
M18 × 2.5		TZ923656	30	125	50	14	11	14	4	15.5
M20 × 2.5		TZ923706	32	140	54	16	12	15	4	17.5
M24 × 3.0		TZ923786	34	160	60	18	14.5	17	4	21

For tapping Nickel alloys and heat resistant alloy steels which are used in aero space and chemical industries.

* DIN profile not ISO

ISO

P

Non-alloy steel

Low alloy steel

High alloyed steel, and tool steel

M

Stainless steel

Grey cast iron

Nodular cast iron

Malleable cast iron

K

N

Aluminum-wrought alloy

Aluminum-cast, alloyed

Copper and Copper Alloys (Bronze / Brass)

Non Metallic Materials

S

Heat Resistant Super Alloys

Titanium Alloys

Hardened steel

Chilled Cast Iron

Hardened Cast Iron

H

ISO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Material Description	VDI 3323	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HRc	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
HB																				
Recommended						⊙	⊙	⊙	⊙											

ISO	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Material Description	VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB																					
Recommended											⊙	⊙	⊙	⊙	⊙		○				○

⊙ : Excellent ○ : Good

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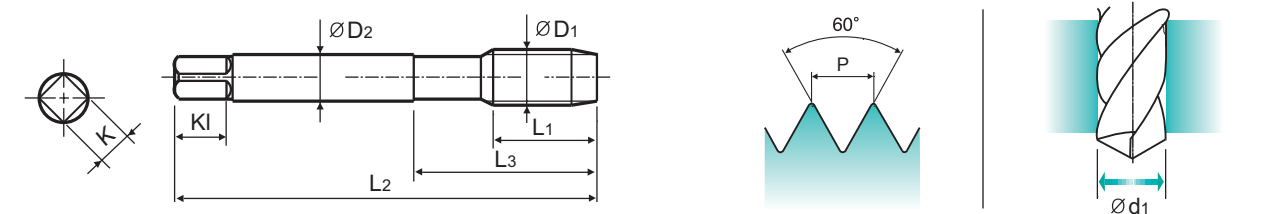
M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

Machine taps
Maschinengewindebohrer

► Suitable for tapping blind holes due to special flute geometry and excellent chip evacuation.

► Geeignet zum Gewinden von Sacklöchern dank besonderer Nutengeometrie und ausgezeichneter Spanabfuhr.



Ti Ni

HSS PM

DIN 371/376

6H

60°

C

R40

Vap

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Vap	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TQ833136	8	45	13	2.8	2.1	5	3	1.6
M2.5	× 0.45	TQ833176	9	50	15	2.8	2.1	5	3	2.05
M3	× 0.5	TQ833206	6	56	18	3.5	2.7	6	3	2.5
M4	× 0.7	TQ833246	7	63	21	4.5	3.4	6	3	3.3
M4.5	× 0.75	TQ833266	8	70	25	6	4.9	8	3	3.7
M5	× 0.8	TQ833286	8	70	25	6	4.9	8	3	4.2
M6	× 1.0	TQ833316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TQ833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TQ833426	15	100	39	10	8	11	3	8.5
M12	× 1.75	TQ833506	18	110	44	9	7	10	3	10.2

► DIN 371(M2~M10) and DIN 376(M12)

ISO	P										M					K				
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											
ISO	N										S					H				
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

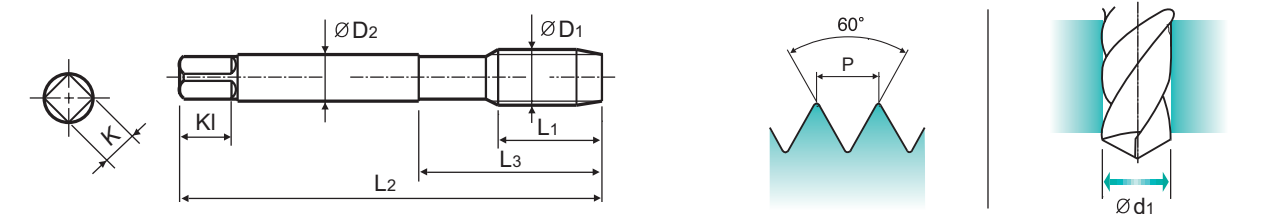
M ISO metric coarse threads DIN 13

Metrisches ISO-Gewinde DIN 13
ISO MÉTRIQUE DIN13
ISO Metrico passo grosso DIN 13

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Maschinengewindebohrer

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Ti Ni

HSS PM

DIN 371/376

6H

60°

C

R40

Bright

p.B234

SIZE	Pitch	EDP No.	Thread Length	Overall Length	Neck Length	Shank Diameter	Square Size	Square Length	No. of Flute	Tapping Drill Diameter
ØD1	P	Bright	L1	L2	L3	ØD2	K	KI	Z	Ød1
M2	× 0.4	TR833136	8	45	13	2.8	2.1	5	3	1.6
M4	× 0.7	TR833246	7	63	21	4.5	3.4	6	3	3.3
M5	× 0.8	TR833286	8	70	25	6	4.9	8	3	4.2
M6	× 1.0	TR833316	10	80	30	6	4.9	8	3	5
M8	× 1.25	TR833366	13	90	35	8	6.2	9	3	6.8
M10	× 1.5	TR833426	15	100	39	10	8	11	3	8.5

► DIN 371(M2~M10) and DIN 376(M12)

ISO	P										M					K				
Material Description	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel					Stainless steel				
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc	125	13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25	21	
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended						◎	◎	◎	◎											
ISO	N										S					H				
Material Description	Aluminum-wrought alloy					Aluminum-cast, alloyed					Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials				
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HRc	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400
Recommended											◎	◎	◎	◎	◎	◎	◎	◎	◎	◎



					TM903	TZ903	TM293	TZ293	TM933	TZ933	TM923	TZ923	TQ833	TR833	TQ873	TR873
ISO	VDI 3323	Material Description	HB	HRC	Vc (m/min.)											
P	6	Low alloy steel	180	10					10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	7		275	29	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	8		300	32	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10	6-10
	9		350	38	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5
S	31	Heat Resistant Super Alloys	200	15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	32		280	30			10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15	10-15
	33		250	25			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	34		350	38			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	35		320	34			2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4
	36	Titanium Alloys	400Rm		10-15	10-15	10-15	10-15					10-15	10-15	10-15	10-15
	37		1050Rm		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
H	38	Hardened steel	550	55								3-5				
	40	Chilled Cast Iron	400	42			3-5	3-5			3-5	3-5			3-5	3-5