



FLAT SHANK

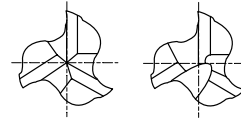
**E2516** SERIES

FLAT SHANK

**EQ516** SERIES

### HSSCo8, 3 FLUTE LONG LENGTH

- HSSCo8, 3 SCHNEIDEN LANG**
- Fraise HSSCo8, 3 dents, longue**
- 3 TAGLIENTI, SERIE LUNGA - HSSCo8**



Up to  $\varnothing 2.5\text{mm}$     Over  $\varnothing 2.5\text{mm}$

HSS  
Co8

DIN  
844

3

30°

DIN  
1835B

P.750~757

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAIN	e8	h6		
E2516020	EQ516020	2.0	6	10	54
E2516025	EQ516025	2.5	6	12	56
E2516030	EQ516030	3.0	6	12	56
E2516035	EQ516035	3.5	6	15	59
E2516040	EQ516040	4.0	6	19	63
E2516045	EQ516045	4.5	6	19	63
E2516050	EQ516050	5.0	6	24	68
E2516055	EQ516055	5.5	6	24	68
E2516060	EQ516060	6.0	6	24	68
E2516070	EQ516070	7.0	10	30	80
E2516075	EQ516075	7.5	10	30	80
E2516080	EQ516080	8.0	10	38	88
E2516090	EQ516090	9.0	10	38	88
E2516100	EQ516100	10.0	10	45	95
E2516110	EQ516110	11.0	12	45	102
E2516120	EQ516120	12.0	12	53	110
E2516130	EQ516130	13.0	12	53	110
E2516140	EQ516140	14.0	12	53	110
E2516150	EQ516150	15.0	12	53	110
E2516160	EQ516160	16.0	16	63	123
E2516170	EQ516170	17.0	16	63	123
E2516180	EQ516180	18.0	16	63	123
E2516190	EQ516190	19.0	16	63	123
E2516901	EQ516901	20.0	16	75	135

**Tolerances according to DIN 7160 & 7161**

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.
- ▶ NEXT PAGE

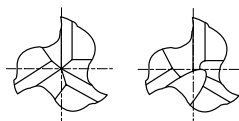
Tolerance range in $\mu\text{m}$						
Nominal-Diameter in mm						
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO Material Description	P											M			K						
	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron		
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	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	
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	
ISO Material Description	N										S					H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	○	○	○	○	○																

### HSSCo8, 3 FLUTE LONG LENGTH

- HSSCo8, 3 SCHNEIDEN LANG
- Fraise HSSCo8, 3 dents, longue
- 3 TAGLIANTI, SERIE LUNGA - HSSCo8



Up to Ø2.5mm Over Ø2.5mm

HSS Co8
DIN 844
3
30°
FLAT
P.750~757

Unit : mm

EDP No.		Mill Diameter	Shank Diameter	Length of Cut	Overall Length
UNCOATED	TiAlN	e8	h6		
E2516200	EQ516200	20.0	20	75	141
E2516220	EQ516220	22.0	20	75	141
E2516240	EQ516240	24.0	25	90	166
E2516250	EQ516250	25.0	25	90	166
E2516260	EQ516260	26.0	25	90	166
E2516280	EQ516280	28.0	25	90	166
E2516300	EQ516300	30.0	25	90	166
E2516320	EQ516320	32.0	32	106	186
E2516350	EQ516350	35.0	32	106	186
E2516360	EQ516360	36.0	32	106	186
E2516400	EQ516400	40.0	40	125	217

- ▶ Other shank design on your request.
- ▶ TiN and TiCN Coatings are available on your request.

#### Tolerances according to DIN 7160 & 7161

	Tolerance range in $\mu\text{m}$					
	Nominal-Diameter in mm					
	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30	over 30 to 50
<b>e8</b>	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73	-50 -89
<b>h6</b>	0 -6	0 -8	0 -9	0 -11	0 -13	0 -16

◎ : Excellent ○ : Good

ISO Material Description	P										M			K						
	Non-alloy steel					Low alloy steel					High alloyed steel, and tool steel			Stainless steel			Grey cast iron		Nodular cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRc																				
HB	125	130	150	170	200	180	215	240	275	310	350	200	235	270	180	215	160	195	130	165
Recommend	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

ISO Material Description	N					S										H					
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron	Hardened Cast Iron	
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRc																					
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommend	◎	◎	◎	◎	◎						◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎

CBN END MILLS

i-Xmill END MILLS

i-SMART MODULAR END MILLS

X5070 END MILLS

4G MILL END MILLS

X-POWER PRO END MILLS

TitaNox-POWER END MILLS

JET-POWER END MILLS

V7 PLUS END MILLS

ALU-POWER HPC END MILLS

ALU-POWER END MILLS

D-POWER GRAPHITE END MILLS

D-POWER CFRP END MILLS

ROUTERS

CRX S END MILLS

K-2 END MILLS

ONLY ONE COATED PM60 END MILLS

TANK-POWER END MILLS

GENERAL HSS END MILLS

MILLING CUTTERS

TECHNICAL DATA

**E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES**

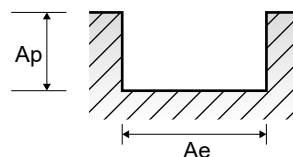
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**3 FLUTE - SLOTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)								
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	
P	1	Non-alloy steel	1.0D	0.5D	Vc	35	35	35	35	35	35	35	35	35
					fz	0.002	0.005	0.007	0.012	0.015	0.021	0.027	0.037	
					RPM	5570	3714	2785	2228	1857	1393	1114	928	
	2		1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30
					fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033	
					RPM	4775	3183	2387	1910	1592	1194	955	796	
	3-4		1.0D	0.5D	Vc	25	25	25	25	25	25	25	25	25
					fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029	
					RPM	3979	2653	1989	1592	1326	995	796	663	
	5		1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15
					fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029	
RPM		2387			1592	1194	955	796	597	477	398			
6	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30		
			fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033			
			RPM	4775	3183	2387	1910	1592	1194	955	796			
7	1.0D	0.5D	Vc	25	25	25	25	25	25	25	25	25		
			fz	0.002	0.003	0.006	0.008	0.011	0.019	0.023	0.029			
			RPM	3979	2653	1989	1592	1326	995	796	663			
8-9	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15		
			fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029			
			RPM	2387	1592	1194	955	796	597	477	398			
10	1.0D	0.5D	Vc	30	30	30	30	30	30	30	30	30		
			fz	0.002	0.004	0.007	0.01	0.014	0.021	0.026	0.033			
			RPM	4775	3183	2387	1910	1592	1194	955	796			
11.1	1.0D	0.5D	Vc	15	15	15	15	15	15	15	15	15		
			fz	0.002	0.003	0.006	0.007	0.01	0.018	0.022	0.029			
			RPM	2387	1592	1194	955	796	597	477	398			
N	21-22	Aluminum-wrought alloy	1.0D	0.5D	Vc	75	105	100	100	105	100	95	95	
					fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035	
					RPM	11937	11141	7958	6366	5570	3979	3024	2520	
					FEED	107	167	191	210	217	263	263	265	
23-24	Aluminum-cast, alloyed	1.0D	0.5D	Vc	49	68	65	65	68	65	62	62		
				fz	0.003	0.005	0.008	0.011	0.013	0.022	0.029	0.035		
				RPM	7799	7215	5173	4138	3608	2586	1974	1645		
				FEED	70	108	124	137	141	171	172	173		

※The FEED, in long & extra long types, should be reduced by around 50%

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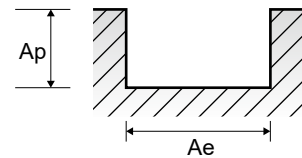


**E2572, E2573, E2516, E2553, E2554, E2551, E2552** SERIES

Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**3 FLUTE - SLOTTING**

VDI 3323	Parameter	Diameter (Ø)											
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.042	0.048	0.048	0.054	0.06	0.059	0.058	0.057	0.057	0.057	0.059	0.065
	RPM	796	696	619	557	506	446	398	371	348	318	309	279
2	FEED	100	100	89	90	91	79	69	64	60	54	55	54
	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061
3-4	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	68	75	75	74	68	62	53	52	48	42	42	44
	Vc	25	25	25	25	25	25	25	25	20	25	25	25
5	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	56	55	56	50	52	41	36	32	27	27	28	27
6	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
7	FEED	34	32	32	32	29	21	21	20	21	16	17	16
	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.033	0.042	0.047	0.052	0.052	0.054	0.052	0.054	0.054	0.051	0.053	0.061
8-9	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	68	75	75	74	68	62	53	52	48	42	42	44
	Vc	25	25	25	25	25	25	25	25	20	25	25	25
10	fz	0.033	0.037	0.042	0.042	0.048	0.043	0.042	0.04	0.045	0.04	0.042	0.046
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	56	55	56	50	52	41	36	32	27	27	28	27
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.033	0.036	0.04	0.045	0.045	0.037	0.042	0.042	0.048	0.038	0.042	0.045
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
21-22	FEED	34	32	32	32	29	21	21	20	21	16	17	16
	Vc	95	100	100	100	95	95	95	105	100	105	100	100
	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054
23-24	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796
	FEED	233	239	233	220	198	192	178	184	158	152	149	129
	Vc	62	65	65	65	62	62	62	68	65	68	65	65
23-24	fz	0.036	0.04	0.044	0.046	0.048	0.053	0.055	0.055	0.053	0.053	0.056	0.054
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517
	FEED	152	155	152	143	129	126	116	119	103	98	97	84



**E2572, E2573, E2516, E2553, E2554, E2551, E2552 SERIES**

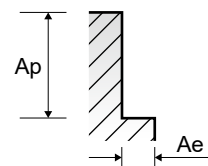
Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**3 FLUTE - SIDE CUTTING**

ISO	VDI 3323	Material Description	Ae	Ap	Parameter	Diameter (Ø)							
						2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0
P	1	Non-alloy steel	0.1D	1.5D	Vc	35	35	35	35	35	35	35	35
					fz	0.004	0.008	0.013	0.02	0.025	0.036	0.045	0.061
					RPM	5570	3714	2785	2228	1857	1393	1114	928
	2		Vc	30	30	30	30	30	30	30	30		
			fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056		
			RPM	4775	3183	2387	1910	1592	1194	955	796		
	3-4		Vc	25	25	25	25	25	25	25	25		
			fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048		
			RPM	3979	2653	1989	1592	1326	995	796	663		
	5		Vc	15	15	15	15	15	15	15	15		
			fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046		
RPM		2387	1592	1194	955	796	597	477	398				
6	Vc	30	30	30	30	30	30	30	30				
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056				
	RPM	4775	3183	2387	1910	1592	1194	955	796				
7	Vc	25	25	25	25	25	25	25	25				
	fz	0.003	0.006	0.009	0.014	0.018	0.03	0.038	0.048				
	RPM	3979	2653	1989	1592	1326	995	796	663				
8-9	Vc	15	15	15	15	15	15	15	15				
	fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046				
	RPM	2387	1592	1194	955	796	597	477	398				
10	Vc	30	30	30	30	30	30	30	30				
	fz	0.003	0.006	0.011	0.018	0.023	0.036	0.044	0.056				
	RPM	4775	3183	2387	1910	1592	1194	955	796				
11.1	Vc	15	15	15	15	15	15	15	15				
	fz	0.002	0.004	0.009	0.013	0.019	0.03	0.037	0.046				
	RPM	2387	1592	1194	955	796	597	477	398				
N	21-22	Aluminum-wrought alloy	0.1D	1.5D	Vc	75	105	100	100	105	100	95	95
					fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057
					RPM	11937	11141	7958	6366	5570	3979	3024	2520
					FEED	179	267	334	363	351	442	435	431
23-24	Aluminum-cast, alloyed	0.1D	1.5D	Vc	49	68	65	65	68	65	62	62	
				fz	0.005	0.008	0.014	0.019	0.021	0.037	0.048	0.057	
				RPM	7799	7215	5173	4138	3608	2586	1974	1645	
				FEED	117	173	217	236	227	287	284	281	

※The FEED, in long & extra long types, should be reduced by around 50%

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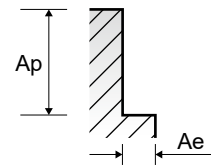


Vc = m/min.  
fz = mm/tooth  
RPM = rev./min.  
FEED = mm/min.

**E2572, E2573, E2516, E2553, E2554, E2551, E2552** SERIES

**3 FLUTE - SIDE CUTTING**

VDI 3323	Parameter	Diameter (Ø)											
		14.0	16.0	18.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0	36.0	40.0
1	Vc	35	35	35	35	35	35	35	35	35	35	35	35
	fz	0.069	0.079	0.079	0.089	0.1	0.1	0.1	0.1	0.1	0.099	0.097	0.107
	RPM	796	696	619	557	506	446	398	371	348	318	309	279
2	FEED	165	165	147	149	152	134	119	111	104	95	90	89
	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
3-4	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	117	127	127	127	116	105	92	82	80	68	69	70
	Vc	25	25	25	25	25	25	25	25	20	25	25	25
5	fz	0.054	0.059	0.067	0.067	0.076	0.07	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	92	88	89	80	82	67	61	58	45	48	50	50
6	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
7	FEED	53	54	53	54	49	37	32	30	32	26	27	27
	Vc	30	30	30	30	30	30	30	30	30	30	30	30
	fz	0.057	0.071	0.08	0.089	0.089	0.092	0.09	0.086	0.089	0.083	0.087	0.098
8-9	RPM	682	597	531	477	434	382	341	318	298	273	265	239
	FEED	117	127	127	127	116	105	92	82	80	68	69	70
	Vc	25	25	25	25	25	25	25	25	20	25	25	25
10	fz	0.054	0.059	0.067	0.067	0.076	0.07	0.071	0.073	0.076	0.071	0.075	0.083
	RPM	568	497	442	398	362	318	284	265	199	227	221	199
	FEED	92	88	89	80	82	67	61	58	45	48	50	50
11.1	Vc	15	15	15	15	15	15	15	15	15	15	15	15
	fz	0.052	0.06	0.067	0.076	0.076	0.065	0.063	0.063	0.071	0.064	0.069	0.076
	RPM	341	298	265	239	217	191	171	159	149	136	133	119
21-22	FEED	53	54	53	54	49	37	32	30	32	26	27	27
	Vc	95	100	100	100	95	95	95	105	100	105	100	100
	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
23-24	RPM	2160	1989	1768	1592	1375	1210	1080	1114	995	955	884	796
	FEED	395	400	393	358	334	323	295	304	269	261	247	220
	Vc	62	65	65	65	62	62	62	68	65	68	65	65
23-24	fz	0.061	0.067	0.074	0.075	0.081	0.089	0.091	0.091	0.09	0.091	0.093	0.092
	RPM	1410	1293	1149	1035	897	789	705	722	647	618	575	517
	FEED	258	260	255	233	218	211	192	197	175	169	160	143



**SELECTION GUIDE**



**HSS**

SERIES	E2464	E2509	E2572	E2573	E2516	E2553	E2SET553
FLUTE	2	2	3	3	3	3	3
HELIX ANGLE	42°	42°	≈ 30°	≈ 30°	30°	30°	30°
SIZE MIN	D1.0	D2.0	D1.5	D1.0	D2.0	D1.0	D2.0
SIZE MAX	D32.0	D20.0	D32.0	D40.0	D40.0	D20.0	D10.0
PAGE	696	698	699	700	702	704	705

**MILLING TOOLS**

**HSS GENERAL HSS END MILLS**

General Purpose, Non-coated, Any Coating Available

◎ : Excellent ○ : Good

Recommended cutting conditions : P 738

Please visit [globalyg1.com/mat](http://globalyg1.com/mat) for material search



SHORT LENGTH	LONG LENGTH	STUB LENGTH	SHORT LENGTH	LONG LENGTH	SHORT LENGTH THROW AWAY	THROW AWAY SET
Uncoated	Uncoated	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated / TiAIN	Uncoated
HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8	HSS Co8



ISO	VDI 3323	Material Description	HB	HRc	E2464	E2509	E2572	E2573	E2516	E2553	E2SET553
P	1	Non-alloy steel	125		○	○	◎	◎	◎	◎	◎
	2		190	13	○	○	◎	◎	◎	◎	◎
	3		250	25			◎	◎	◎	◎	◎
	4		270	28			◎	◎	◎	◎	◎
	5		300	32			◎	◎	◎	◎	◎
	6	Low alloy steel	180	10	○	○	◎	◎	◎	◎	◎
	7		275	29			◎	◎	◎	◎	◎
	8		300	32			◎	◎	◎	◎	◎
	9		350	38			○	○	○	○	○
	10		High alloyed steel, and tool steel	200	15	○	○	◎	◎	◎	◎
	11	325		35			○	○	○	○	○
M	12	Stainless steel	200	15							
	13		240	23							
	14		180	10							
K	15	Grey cast iron	180	10							
	16		260	26							
	17	Nodular cast iron	160	3							
	18		250	25							
19	Malleable cast iron	130									
20		230	21								
N	21	Aluminum-wrought alloy	60		◎	◎	○	○	○	○	○
	22		100		◎	◎	○	○	○	○	○
	23	Aluminum-cast, alloyed	75		◎	◎	○	○	○	○	○
	24		90		◎	◎	○	○	○	○	○
	25		130		○	○	○	○	○	○	○
	26		110								
	27	Copper and Copper Alloys (Bronze / Brass)	90								
	28		100								
	29	Non Metallic Materials									
	30										
S	31	Heat Resistant Super Alloys	200	15							
	32		280	30							
	33		250	25							
	34		350	38							
	35		320	34							
	36	Titanium Alloys	400 Rm								
	37		1050 Rm								
H	38	Hardened steel	550	55							
	39		630	60							
	40	Chilled Cast Iron	400	42							
	41	Hardened Cast Iron	550	55							