

**C1136, C3136, C1139, C3139, C1132, C3132** SERIES

**3 FLUTE COUNTERSINKS**

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

ISO	VDI 3323	Material Description	Vc	Feed								
				5.0	10.0	15.0	20.0	25.0	30.0	40.0	50.0	
<b>P</b>	1	Non-alloy steel	20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41	
	2		20	0.12-0.16	0.16-0.20	0.20-0.23	0.23-0.26	0.26-0.29	0.29-0.33	0.33-0.37	0.37-0.41	
	3		13	0.10-0.14	0.14-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.39	
	4		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	
	5		10	0.06-0.10	0.10-0.14	0.14-0.17	0.17-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	
<b>M</b>	12	Stainless steel	6	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15	
	13		5	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15	
	14		4	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.10	0.10-0.12	0.10-0.12	0.12-0.15	0.12-0.15	
<b>K</b>	15	Grey cast iron	22	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	
	16		17	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	
	17	Nodular cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32	
	18		15	0.08-0.10	0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	
	19		Malleable cast iron	17	0.09-0.11	0.11-0.13	0.13-0.16	0.16-0.19	0.19-0.22	0.22-0.25	0.25-0.28	0.28-0.32
20	15	0.08-0.10		0.10-0.12	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31		
<b>N</b>	21	Aluminum-wrought alloy	42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45	
	22		42	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45	
	23	Aluminum-cast, alloyed	39	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45	
	24		37	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42	
	25		35	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.27	0.27-0.31	0.31-0.35	0.35-0.40	0.40-0.45	
	26		Copper and Copper Alloys (Bronze / Brass)	28	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	27			25	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42
	28			15	0.12-0.15	0.15-0.18	0.18-0.21	0.21-0.24	0.24-0.28	0.28-0.32	0.32-0.37	0.37-0.42



**HSS-E**

# COUNTERBORES

## FLACHSENKER

- For Machining Screw Head Seats
- Zur Herstellung von Schraubenkopfsenkungen

i-ONE DRILLS

i-DREAM DRILLS

DREAM DRILLS -PRO

DREAM DRILLS GENERAL

DREAM DRILLS -HIGH FEED

DREAM DRILLS -FLAT BOTTOM

DREAM DRILLS -INOX

DREAM DRILLS -ALU

DREAM DRILLS -MQL

DREAM DRILLS for HIGH HARDENED STEELS

GENERAL CARBIDE DRILLS

MULTI-1 DRILLS

HPD DRILLS

GOLD-P DRILLS

SUPER-GP DRILLS

STRAIGHT SHANK DRILLS

TAPER SHANK DRILLS

NC-SPOTTING DRILLS

CENTER DRILLS

SPADE DRILLS

REAMERS

COUNTER SINKS

COUNTER BORES

TECHNICAL DATA

# SELECTION GUIDE



SERIES	EL950		
TYPE	MEDIUM	FINE	BEOFRE THREADING
PILOT DIA.	3.4~14.0	3.2~13.0	2.5~10.2
CUTTER DIA.	6.0~20.0		
PAGE	A419		
SURFACE TREATMENT	Bright		

## HSS-E COUNTERBORES

For Machining Screw Head Seats



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

◎ : Excellent ○ : Good

Recommended cutting conditions : p.A421

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		Ferritic	130		
20	Malleable cast iron	Pearlitic	230	21		
N	21	Aluminum-wrought alloy	Not Curable	60		○
	22		Curable Hardened	100		○
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		○
	24		≤ 12% Si, Curable Hardened	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	
	32		Cured	280	30	
	33		Annealed	250	25	
	34		Ni or Co Based 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		

# YMG COUNTERBORES

## EL950 SERIES

### HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSAZPFEN

FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°

LAMATORI A TRE TAGLIANTI IN HSS-E per sedi di viti a testa cilindrica a 180°

The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

Die Flachsenker mit festem Führungszapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



HSS-E DIN 373 3 PLAIN Bright p.A421



### MEDIUM Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
EL950003	YG54M3-M	M3	3.4	6.0	5	71
EL950035	YG54M3.5-M	M3.5	3.9	6.5	5	71
EL950004	YG54M4-M	M4	4.5	8.0	5	71
EL950005	YG54M5-M	M5	5.5	10.0	8	80
EL950006	YG54M6-M	M6	6.6	11.0	8	80
EL950008	YG54M8-M	M8	9.0	15.0	12.5	100
EL950010	YG54M10-M	M10	11.0	18.0	12.5	100
EL950012	YG54M12-M	M12	14.0	20.0	12.5	100

### FINE Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter D(e8)	Cutter Diameter D1(z9)	Shank Diameter D2(h9)	Overall Length L
EL950901	YG54M3-F	M3	3.2	6.0	5	71
EL950902	YG54M3.5-F	M3.5	3.7	6.5	5	71
EL950903	YG54M4-F	M4	4.3	8.0	5	71
EL950904	YG54M5-F	M5	5.3	10.0	8	80
EL950905	YG54M6-F	M6	6.4	11.0	8	80
EL950906	YG54M8-F	M8	8.4	15.0	12.5	100
EL950907	YG54M10-F	M10	10.5	18.0	12.5	100
EL950908	YG54M12-F	M12	13.0	20.0	12.5	100

▶ NEXT PAGE

ISO	P											M		K			Material Description				
	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	12	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		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						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	○	○	○																		

◎ : Excellent ○ : Good



EL950 SERIES

RECOMMENDED CUTTING CONDITIONS  
EMPOHLENE SCHNEIDPARAMETER

### HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

### EL950 SERIES HSS-E, 3 FLUTE COUNTERBORES for 180° CAPSCREW

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

- HSS-E, 3 SCHNEIDEN FLACHSENKER MIT FESTEM FÜHRUNGSZAPFEN
- FRAISES À LAMER HSS-E 3 DENTS TÊTE DE VIS À 180°
- LAMATORI A TRE TAGLIENTI IN HSS-E per sedi di viti a testa cilindrica a 180°

The counterbores with solid pilot are designed for machining as fillister screw caps or ejector caps in molds.

Die Flachsenker mit festem Führungszapfen dienen dem 180° Ansenken für Zylinderkopfschrauben und Auswerferstiften in Formen



#### BEFORE THREADING

Unit : mm

EDP No.	ITEM No.	Screw Size	Pilot Diameter	Cutter Diameter	Shank Diameter	Overall Length
PLAIN	PLAIN		D(e8)	D1(z9)	D2(h9)	L
EL950909	YG54M3-T	M3	2.5	6.0	5	71
EL950910	YG54M3.5-T	M3.5	2.9	6.5	5	71
EL950911	YG54M4-T	M4	3.3	8.0	5	71
EL950912	YG54M5-T	M5	4.2	10.0	8	80
EL950913	YG54M6-T	M6	5.0	11.0	8	80
EL950914	YG54M8-T	M8	6.8	15.0	12.5	100
EL950915	YG54M10-T	M10	8.5	18.0	12.5	100
EL950916	YG54M12-T	M12	10.2	20.0	12.5	100

#### Tolerances according to DIN 7160 & 7161 Toleranzen nach DIN 7160 & 7161

	Nominal-Diameter in mm / Nennmaßbereich in mm				Nominal-Diameter in mm / Nennmaßbereich in mm				
	from 1 to 3 von 1 bis 3	over 3 to 6 über 3 bis 6	over 6 to 10 über 6 bis 10	over 10 to 18 über 10 bis 18	from 6 to 10 von 6 bis 10	over 10 to 14 über 10 bis 14	over 14 to 18 über 14 bis 18	over 18 to 24 über 18 bis 24	
		Tolerance range in μm / Toleranzwerte in μm							
e8	- 14	- 20	- 25	- 32	+ 78	+ 93	+ 103	+ 125	
h9	- 28	- 38	- 47	- 59	+ 42	+ 50	+ 60	+ 73	

⊙ : Excellent ○ : Good

ISO	P											M				K				
	Non-alloy steel					Low alloy steel						High alloy steel, and tool steel		Stainless steel		Grey cast iron	Nodular cast iron		Malleable cast iron	
Material Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VDI 3323																				
HRC	13	25	28	32	30	32	29	32	38	15	35	15	23	10	10	26	3	25	15	21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	○	○

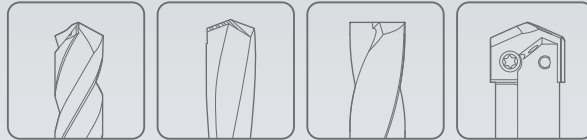
  

ISO	N										S							H			
	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)					Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel	Chilled Cast Iron
Material Description	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
VDI 3323																					
HRC	15	30	25	38	34						200	280	250	350	320	400Rm	1050Rm	550	630	400	550
HB	60	100	75	90	130	110	90	100													
Recommended	⊙	⊙	⊙	○																	

ISO	VDI 3323	Material Description	Parameter	Cutter Diameter (∅)								
				6.0	6.5	8.0	10.0	11.0	15.0	18.0	20.0	
P	1	Non-alloy steel	Vc	25	25	25	25	25	25	25	25	
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	
			RPM	1326	1224	995	796	723	531	442	398	
			FEED	322	297	242	258	234	172	167	150	
			Vc	24	24	24	24	24	24	24	24	
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	
	2			RPM	1273	1175	955	764	694	509	424	382
				FEED	309	286	232	248	225	165	160	144
				Vc	18	18	18	18	18	18	18	18
	3			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
				RPM	955	881	716	573	521	382	318	286
FEED		232		214	174	186	169	124	120	108		
4		Vc	18	18	18	18	18	18	18	18		
		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
		RPM	955	881	716	573	521	382	318	286		
5		FEED	232	214	174	186	169	124	120	108		
		Vc	18	18	18	18	18	18	18	18		
		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
6		RPM	955	881	716	573	521	382	318	286		
		FEED	232	214	174	186	169	124	120	108		
		Vc	24	24	24	24	24	24	24	24		
7		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
		RPM	1273	1175	955	764	694	509	424	382		
		FEED	309	286	232	248	225	165	160	144		
8		Vc	18	18	18	18	18	18	18	18		
		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
		RPM	955	881	716	573	521	382	318	286		
9		FEED	232	214	174	186	169	124	120	108		
		Vc	15	15	15	15	15	15	15	15		
		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
10		RPM	796	735	597	477	434	318	265	239		
		FEED	193	178	145	155	141	103	100	90		
		Vc	24	24	24	24	24	24	24	24		
11		fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13		
		RPM	1273	1175	955	764	694	509	424	382		
		FEED	309	286	232	248	225	165	160	144		
N	21	Aluminum-wrought alloy	Vc	30	30	30	30	30	30	30	30	
			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13	
			RPM	1592	1469	1194	955	868	637	531	477	
	22			FEED	382	353	286	315	286	210	207	186
				Vc	30	30	30	30	30	30	30	30
				fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
	23			RPM	1592	1469	1194	955	868	637	531	477
				FEED	382	353	286	315	286	210	207	186
				Vc	20	20	20	20	20	20	20	20
	24			fz	0.08	0.08	0.08	0.11	0.11	0.11	0.13	0.13
				RPM	1061	979	796	637	579	424	354	318
FEED		255		235	191	210	191	140	138	124		



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