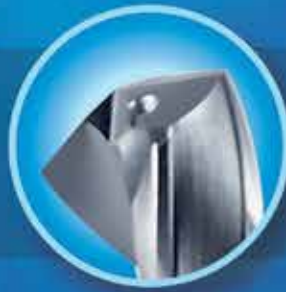
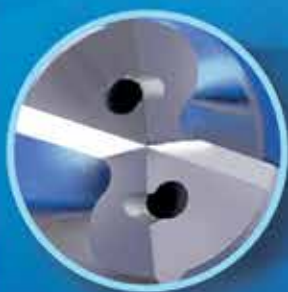


1588SL

for deep drilling / zum Tiefbohren

New 10xD 12xD 15xD 20xD 30xD
Drills/Bohrer

- Special flute design for optimal stability and good chip flow / *Spezielles Spannutendesign für optimale Stabilität und guten Spanabfluß*
- Special margin for high accuracy and stable operation / *Spezielle Führungsfase für hohe Genauigkeit und eine stabile Bearbeitung*
- Optimal cutting edge for different material / *Optimierte Schneidkantenausführung für guten Spanbruch in vielen Anwendungsbereichen*
- New PVD-coating for smooth chip flow, less friction and good wear resistance / *Neuartige PVD-Beschichtung für optimalen Spanabfluß, weniger Reibung und gute Verschleißfestigkeit*



your Partner
your Value

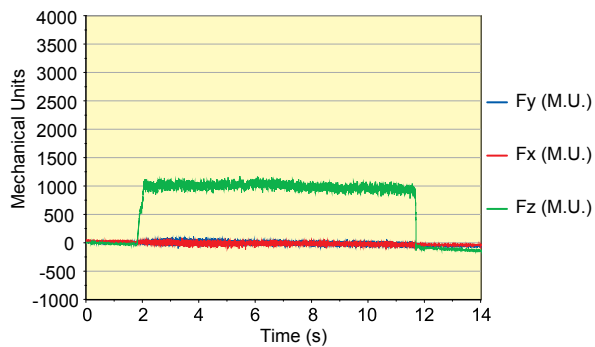
ZCC-CT
ZCC Cutting Tools Europe GmbH

1588SL Comparison of cutting force / Vergleich der Schnittkraft

Type/Typ	1588SL12C	Competitor Wettbewerb	Feed Vorschub	0.2mm/r
Diameter Durchmesser	Ø6mm	Ø6mm	Depth Bohrtiefe	72mm
Material	42CrMo(HB250)		Cooling Kühlung	Emulsion
Cutting speed Schnittgesch.	80m/min		Machine Maschine	CNC

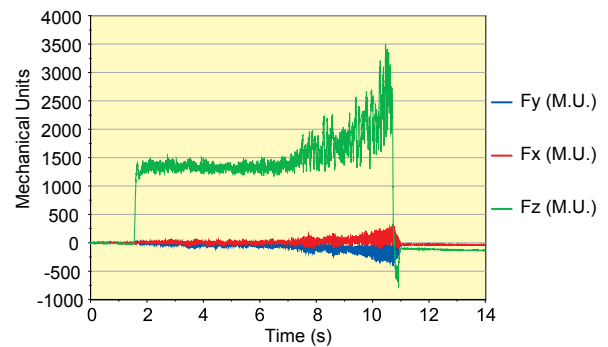
1588SL

DynoWare by Kistler



other manufacturer / Andere Hersteller

DynoWare by Kistler

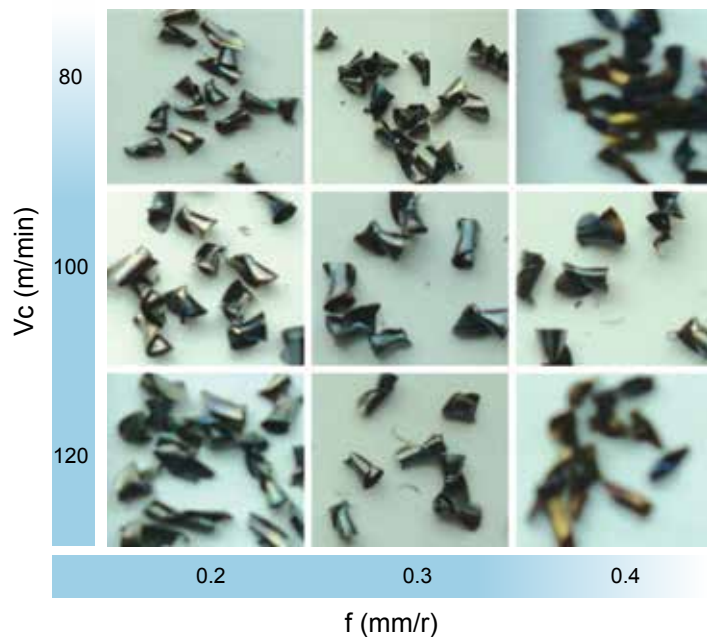


1588SL Chips breakage / Spanbruchverhalten

Type / Typ: 1588SL12C
 Diameter / Durchmesser: Ø10mm
 Material: 45 Stahl(HB200)
 Vc: 80-120(m/min)
 f_n : 0.2-0.4(mm/r)
 Drilling depth / Bohrtiefe: 120mm
 Cooling / Kühlsystem: Emulsion
 Machine / Maschine: CNC Machine

**Stable machining
under different cutting
speed and feed rate.**

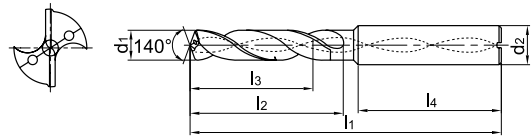
**Stabile Bearbeitung
bei verschiedenen
Geschwindigkeiten
und Vorschüben.**



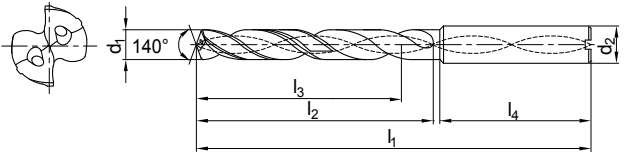
SL series · SL Serie

General machining · Allgemeine Bearbeitung (Deep drill · Tiefbohrer)

1588SL10C / 1588SL12C / 1588SL15C



1588SL20C / 1588SL30C



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe (l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
3.0	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-0300	6	80	43	39	36	○
	12			1588SL12C-0300	6	90	50	40	36	●
	15			1588SL15C-0300	6	100	60	50	36	●
	20			1588SL20C-0300	6	110	70	62	36	○
	30			1588SL30C-0300	6	140	100	92	36	○
3.1	10			1588SL10C-0310	6	80	43	39	36	○
	12			1588SL12C-0310	6	90	50	40	36	●
	15			1588SL15C-0310	6	105	65	55	36	●
	20			1588SL20C-0310	6	123	83	72	36	●
	30			1588SL30C-0310	6	160	120	108	36	●
3.2	10			1588SL10C-0320	6	80	43	39	36	○
	12			1588SL12C-0320	6	90	50	40	36	●
	15			1588SL15C-0320	6	105	65	55	36	●
	20			1588SL20C-0320	6	123	83	72	36	○
	30			1588SL30C-0320	6	160	120	108	36	○
3.3	10			1588SL10C-0330	6	80	43	39	36	○
	12			1588SL12C-0330	6	90	50	40	36	●
	15			1588SL15C-0330	6	105	65	55	36	●
	20			1588SL20C-0330	6	123	83	72	36	○
	30			1588SL30C-0330	6	160	120	108	36	○
3.4	10			1588SL10C-0340	6	80	43	39	36	○
	12			1588SL12C-0340	6	90	50	40	36	●
	15			1588SL15C-0340	6	105	65	55	36	●
	20			1588SL20C-0340	6	123	83	72	36	○
	30			1588SL30C-0340	6	160	120	108	36	○
3.5	10			1588SL10C-0350	6	80	43	39	36	○
	12			1588SL12C-0350	6	90	50	40	36	●
	15			1588SL15C-0350	6	105	65	55	36	●
	20			1588SL20C-0350	6	123	83	72	36	○
	30			1588SL30C-0350	6	160	120	108	36	○
3.6	10			1588SL10C-0360	6	80	43	39	36	○
	12			1588SL12C-0360	6	90	50	40	36	●
	15			1588SL15C-0360	6	112	72	62	36	●
	20			1588SL20C-0360	6	136	96	84	36	○
	30			1588SL30C-0360	6	176	136	124	36	○
3.7	10			1588SL10C-0370	6	80	43	39	36	○
	12			1588SL12C-0370	6	90	50	46	36	●
	15			1588SL15C-0370	6	112	72	68	36	●
	20			1588SL20C-0370	6	136	96	84	36	○
	30			1588SL30C-0370	6	176	136	124	36	○

Material Overview · Material Übersicht

✓ = Very suitable · Sehr empfohlen
✓ = Suitable · Empfohlen

Grade Sorte	Workpiece material · Werkstückstoff										
	Carbon steel Kohlenstoff- Stahl HB≤180	Alloy steel Legierter Stahl	Hardened steel · Gehärteter Stahl			Stainless steel Rostfreier Stahl	Cast iron Gusseisen	Nodular cast iron GGG Kugelgra- phitguss	Aluminum alloy Aluleg.	Copper alloy Kupferleg.	Heat resist. alloy Warmfeste Leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

SL series · SL Serie

General machining · Allgemeine Bearbeitung
(Deep drill · Tiefbohrer)

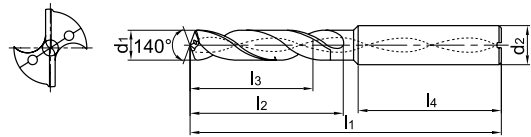
1588SL10C / 1588SL12C / 1588SL15C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



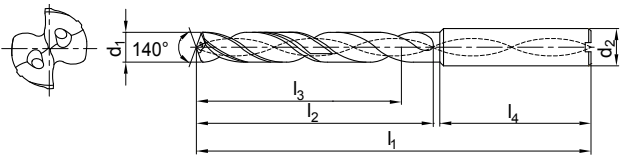
1588SL20C / 1588SL30C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
3.8	10	Internal	Straight shank Zylinder-schaft	1588SL10C-0380	6	80	43	39	36	○
	12			1588SL12C-0380	6	90	50	46	36	●
	15			1588SL15C-0380	6	112	72	68	36	●
	20			1588SL20C-0380	6	136	96	84	36	○
	30			1588SL30C-0380	6	176	136	124	36	○
3.9	10			1588SL10C-0390	6	80	43	39	36	○
	12			1588SL12C-0390	6	90	50	46	36	●
	15			1588SL15C-0390	6	112	72	68	36	●
	20			1588SL20C-0390	6	136	96	84	36	○
	30			1588SL30C-0390	6	176	136	124	36	○
4.0	10			1588SL10C-0400	6	92	55	50	36	○
	12			1588SL12C-0400	6	102	64	56	36	●
	15			1588SL15C-0400	6	112	72	64	36	●
	20			1588SL20C-0400	6	136	96	84	36	●
	30			1588SL30C-0400	6	176	136	124	36	●
4.1	10			1588SL10C-0410	6	92	55	50	36	○
	12			1588SL12C-0410	6	102	64	56	36	●
	15			1588SL15C-0410	6	120	80	72	36	●
	20			1588SL20C-0410	6	148	108	96	36	○
	30			1588SL30C-0410	6	192	152	140	36	○
4.2	10			1588SL10C-0420	6	92	55	50	36	○
	12			1588SL12C-0420	6	102	64	56	36	●
	15			1588SL15C-0420	6	120	80	72	36	●
	20			1588SL20C-0420	6	148	108	96	36	○
	30			1588SL30C-0420	6	192	152	140	36	○
4.3	10			1588SL10C-0430	6	92	55	50	36	○
	12			1588SL12C-0430	6	102	64	56	36	●
	15			1588SL15C-0430	6	120	80	72	36	●
	20			1588SL20C-0430	6	148	108	96	36	○
	30			1588SL30C-0430	6	192	152	140	36	○
4.4	10			1588SL10C-0440	6	92	55	50	36	○
	12			1588SL12C-0440	6	102	64	56	36	●
	15			1588SL15C-0440	6	120	80	72	36	●
	20			1588SL20C-0440	6	148	108	96	36	○
	30			1588SL30C-0440	6	192	152	140	36	○
4.5	10			1588SL10C-0450	6	92	55	50	36	○
	12			1588SL12C-0450	6	102	64	56	36	●
	15			1588SL15C-0450	6	120	80	72	36	●
	20			1588SL20C-0450	6	148	108	96	36	○
	30			1588SL30C-0450	6	192	152	140	36	○
4.6	10			1588SL10C-0460	6	92	55	50	36	○
	12			1588SL12C-0460	6	102	64	56	36	●
	15			1588SL15C-0460	6	128	88	80	36	●
	20			1588SL20C-0460	6	158	118	106	36	○
	30			1588SL30C-0460	6	208	168	156	36	○

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe (l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
4.7	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-0470	6	92	55	50	36	○
	12			1588SL12C-0470	6	102	64	56	36	●
	15			1588SL15C-0470	6	128	88	80	36	●
	20			1588SL20C-0470	6	158	118	106	36	○
	30			1588SL30C-0470	6	208	168	156	36	○
4.8	10			1588SL10C-0480	6	92	55	50	36	○
	12			1588SL12C-0480	6	102	64	56	36	●
	15			1588SL15C-0480	6	128	88	80	36	●
	20			1588SL20C-0480	6	158	118	106	36	○
	30			1588SL30C-0480	6	208	168	156	36	○
4.9	10			1588SL10C-0490	6	92	55	50	36	○
	12			1588SL12C-0490	6	102	64	56	36	●
	15			1588SL15C-0490	6	128	88	80	36	●
	20			1588SL20C-0490	6	158	118	106	36	○
	30			1588SL30C-0490	6	208	168	156	36	○
5.0	10			1588SL10C-0500	6	104	68	61	36	○
	12			1588SL12C-0500	6	116	78	72	36	●
	15			1588SL15C-0500	6	128	88	82	36	●
	20			1588SL20C-0500	6	158	118	106	36	●
	30			1588SL30C-0500	6	208	168	156	36	●
5.1	10			1588SL10C-0510	6	104	68	61	36	○
	12			1588SL12C-0510	6	116	78	72	36	●
	15			1588SL15C-0510	6	136	96	90	36	●
	20			1588SL20C-0510	6	168	128	116	36	○
	30			1588SL30C-0510	6	228	188	170	36	○
5.2	10			1588SL10C-0520	6	104	68	61	36	○
	12			1588SL12C-0520	6	116	78	72	36	●
	15			1588SL15C-0520	6	136	96	90	36	●
	20			1588SL20C-0520	6	168	128	116	36	○
	30			1588SL30C-0520	6	228	188	170	36	○
5.3	10			1588SL10C-0530	6	104	68	61	36	○
	12			1588SL12C-0530	6	116	78	72	36	○
	15			1588SL15C-0530	6	136	96	90	36	●
	20			1588SL20C-0530	6	168	128	116	36	○
	30			1588SL30C-0530	6	228	188	170	36	●
5.4	10			1588SL10C-0540	6	104	68	61	36	○
	12			1588SL12C-0540	6	116	78	72	36	○
	15			1588SL15C-0540	6	136	96	90	36	●
	20			1588SL20C-0540	6	168	128	116	36	○
	30			1588SL30C-0540	6	228	188	170	36	○
5.5	10			1588SL10C-0550	6	104	68	61	36	○
	12			1588SL12C-0550	6	116	78	72	36	●
	15			1588SL15C-0550	6	136	96	90	36	●
	20			1588SL20C-0550	6	168	128	116	36	●
	30			1588SL30C-0550	6	228	188	170	36	●
5.6	10			1588SL10C-0560	6	104	68	61	36	○
	12			1588SL12C-0560	6	116	78	72	36	●
	15			1588SL15C-0560	6	144	104	98	36	●
	20			1588SL20C-0560	6	180	140	126	36	○
	30			1588SL30C-0560	6	240	200	182	36	○

Material Overview · Material Übersicht

✓ = Very suitable · Sehr empfohlen
 ✓ = Suitable · Empfohlen

Grade Sorte	Workpiece material · Werkstückstoff										
	Carbon steel Kohlenstoff- Stahl HB≤180	Alloy steel Legierter Stahl	Hardened steel · Gehärteter Stahl			Stainless steel Rostfreier Stahl	Cast iron Gusseisen	Nodular cast iron GGG Kugelgra- phitguss	Aluminum alloy Aluleg.	Copper alloy Kupferleg.	Heat resist. alloy Wärmefeste Leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

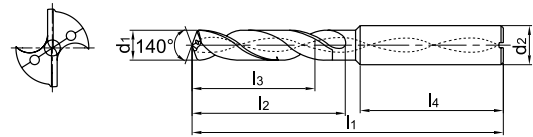
Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

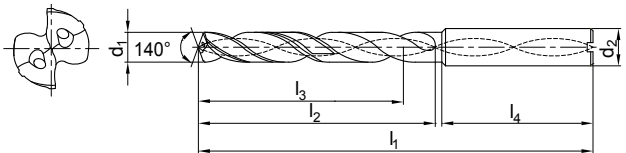
SL series · SL Serie

General machining · Allgemeine Bearbeitung
(Deep drill · Tiefbohrer)

1588SL10C / 1588SL12C / 1588SL15C



1588SL20C / 1588SL30C



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	
										KDG303
5.7	10	Internal	Straight shank Zylinder-schaft	1588SL10C-0570	6	104	68	61	36	○
	12			1588SL12C-0570	6	116	78	72	36	●
	15			1588SL15C-0570	6	144	104	98	36	●
	20			1588SL20C-0570	6	180	140	126	36	○
	30			1588SL30C-0570	6	240	200	182	36	○
5.8	10			1588SL10C-0580	6	104	68	61	36	○
	12			1588SL12C-0580	6	116	78	72	36	●
	15			1588SL15C-0580	6	144	104	98	36	●
	20			1588SL20C-0580	6	180	140	126	36	○
	30			1588SL30C-0580	6	240	200	182	36	○
5.9	10			1588SL10C-0590	6	104	68	61	36	○
	12			1588SL12C-0590	6	116	78	72	36	●
	15			1588SL15C-0590	6	144	104	98	36	●
	20			1588SL20C-0590	6	180	140	126	36	○
	30			1588SL30C-0590	6	240	200	182	36	○
6.0	10			1588SL10C-0600	6	104	68	61	36	○
	12			1588SL12C-0600	6	116	78	72	36	●
	15			1588SL15C-0600	6	144	104	98	36	●
	20			1588SL20C-0600	6	180	140	126	36	●
	30			1588SL30C-0600	6	240	200	182	36	●
6.1	10			1588SL10C-0610	8	117	80	71	36	○
	12			1588SL12C-0610	8	131	93	84	36	●
	15			1588SL15C-0610	8	152	112	103	36	●
	20			1588SL20C-0610	8	192	150	132	36	○
	30			1588SL30C-0610	8	260	220	202	36	○
6.2	10			1588SL10C-0620	8	117	80	71	36	○
	12			1588SL12C-0620	8	131	93	84	36	●
	15			1588SL15C-0620	8	152	112	103	36	●
	20			1588SL20C-0620	8	192	150	132	36	○
	30			1588SL30C-0620	8	260	220	202	36	○
6.3	10			1588SL10C-0630	8	117	80	71	36	○
	12			1588SL12C-0630	8	131	93	84	36	●
	15			1588SL15C-0630	8	152	112	103	36	●
	20			1588SL20C-0630	8	192	150	132	36	○
	30			1588SL30C-0630	8	260	220	202	36	○
6.4	10			1588SL10C-0640	8	117	80	71	36	○
	12			1588SL12C-0640	8	131	93	84	36	●
	15			1588SL15C-0640	8	152	112	103	36	●
	20			1588SL20C-0640	8	192	150	132	36	○
	30			1588SL30C-0640	8	260	220	202	36	○
6.5	10			1588SL10C-0650	8	117	80	71	36	○
	12			1588SL12C-0650	8	131	93	84	36	●
	15			1588SL15C-0650	8	152	112	103	36	●
	20			1588SL20C-0650	8	192	150	132	36	○
	30			1588SL30C-0650	8	260	220	202	36	○

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe (l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
6.6	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-0660	8	117	80	71	36	○
	12			1588SL12C-0660	8	131	93	84	36	●
	15			1588SL15C-0660	8	160	120	111	36	●
	20			1588SL20C-0660	8	202	162	144	36	○
	30			1588SL30C-0660	8	272	232	214	36	○
6.7	10			1588SL10C-0670	8	117	80	71	36	○
	12			1588SL12C-0670	8	131	93	84	36	●
	15			1588SL15C-0670	8	160	120	111	36	●
	20			1588SL20C-0670	8	202	162	144	36	○
	30			1588SL30C-0670	8	272	232	214	36	○
6.8	10			1588SL10C-0680	8	117	80	71	36	○
	12			1588SL12C-0680	8	131	93	84	36	●
	15			1588SL15C-0680	8	160	120	111	36	●
	20			1588SL20C-0680	8	202	162	144	36	○
	30			1588SL30C-0680	8	272	232	214	36	○
6.9	10			1588SL10C-0690	8	117	80	71	36	○
	12			1588SL12C-0690	8	131	93	84	36	●
	15			1588SL15C-0690	8	160	120	111	36	●
	20			1588SL20C-0690	8	202	162	144	36	○
	30			1588SL30C-0690	8	272	232	214	36	○
7.0	10			1588SL10C-0700	8	117	80	71	36	○
	12			1588SL12C-0700	8	131	93	84	36	●
	15			1588SL15C-0700	8	160	120	111	36	●
	20			1588SL20C-0700	8	202	162	144	36	●
	30			1588SL30C-0700	8	272	232	214	36	○
7.1	10			1588SL10C-0710	8	130	94	84	36	○
	12			1588SL12C-0710	8	146	108	96	36	●
	15			1588SL15C-0710	8	170	130	118	36	●
	20			1588SL20C-0710	8	213	173	155	36	○
	30			1588SL30C-0710	8	290	250	232	36	○
7.2	10			1588SL10C-0720	8	130	94	84	36	○
	12			1588SL12C-0720	8	146	108	96	36	●
	15			1588SL15C-0720	8	170	130	118	36	○
	20			1588SL20C-0720	8	213	173	155	36	○
	30			1588SL30C-0720	8	290	250	232	36	○
7.3	10			1588SL10C-0730	8	130	94	84	36	○
	12			1588SL12C-0730	8	146	108	96	36	●
	15			1588SL15C-0730	8	170	130	118	36	○
	20			1588SL20C-0730	8	213	173	155	36	○
	30			1588SL30C-0730	8	290	250	232	36	○
7.4	10			1588SL10C-0740	8	130	94	84	36	○
	12			1588SL12C-0740	8	146	108	96	36	●
	15			1588SL15C-0740	8	170	130	118	36	○
	20			1588SL20C-0740	8	213	173	155	36	○
	30			1588SL30C-0740	8	290	250	232	36	○
7.5	10			1588SL10C-0750	8	130	94	84	36	○
	12			1588SL12C-0750	8	146	108	96	36	●
	15			1588SL15C-0750	8	170	130	118	36	●
	20			1588SL20C-0750	8	213	173	155	36	○
	30			1588SL30C-0750	8	290	250	232	36	○

Material Overview · Material Übersicht

✓ = Very suitable · Sehr empfohlen
 ✓ = Suitable · Empfohlen

Grade Sorte	Workpiece material · Werkstückstoff										
	Carbon steel Kohlenstoff- Stahl HB≤180	Alloy steel Legierter Stahl	Hardened steel · Gehärteter Stahl			Stainless steel Rostfreier Stahl	Cast iron Gusseisen	Nodular cast iron GGG Kugelgra- phitguss	Aluminum alloy Aluleg.	Copper alloy Kupferleg.	Heat resist. alloy Wärmefeste Leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

SL series · SL Serie

General machining · Allgemeine Bearbeitung
(Deep drill · Tiefbohrer)

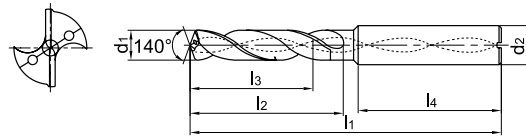
1588SL10C / 1588SL12C / 1588SL15C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



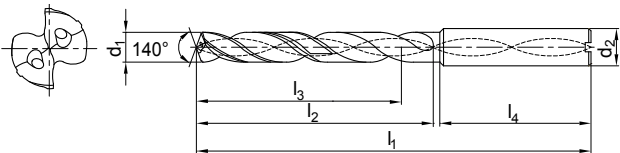
1588SL20C / 1588SL30C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	
										KDG303
7.6	10	Internal	Straight shank	1588SL10C-0760	8	130	94	84	36	○
	12			1588SL12C-0760	8	146	108	96	36	●
	15			1588SL15C-0760	8	180	140	128	36	○
	20			1588SL20C-0760	8	223	183	165	36	○
	30			1588SL30C-0760	8	305	265	246	36	○
7.7	10			1588SL10C-0770	8	130	94	84	36	○
	12			1588SL12C-0770	8	146	108	96	36	○
	15			1588SL15C-0770	8	180	140	128	36	○
	20			1588SL20C-0770	8	223	183	165	36	○
	30			1588SL30C-0770	8	305	265	246	36	○
7.8	10			1588SL10C-0780	8	130	94	84	36	○
	12			1588SL12C-0780	8	146	108	96	36	●
	15			1588SL15C-0780	8	180	140	128	36	○
	20			1588SL20C-0780	8	223	183	165	36	○
	30			1588SL30C-0780	8	305	265	246	36	○
7.9	10			1588SL10C-0790	8	130	94	84	36	○
	12			1588SL12C-0790	8	146	108	96	36	○
	15			1588SL15C-0790	8	180	140	128	36	○
	20			1588SL20C-0790	8	223	183	165	36	○
	30			1588SL30C-0790	8	305	265	246	36	○
8.0	10			1588SL10C-0800	8	130	94	84	36	○
	12			1588SL12C-0800	8	146	108	96	36	●
	15			1588SL15C-0800	8	180	140	128	36	●
	20			1588SL20C-0800	8	223	183	165	36	●
	30			1588SL30C-0800	8	305	265	246	36	●
8.1	10	Intern	Zylinder-schaft	1588SL10C-0810	10	148	105	94	40	○
	12			1588SL12C-0810	10	162	120	108	40	●
	15			1588SL15C-0810	10	194	150	138	40	●
	20			1588SL20C-0810	10	239	195	176	40	○
	30			1588SL30C-0810	10	330	285	265	40	○
8.2	10			1588SL10C-0820	10	148	105	94	40	○
	12			1588SL12C-0820	10	162	120	108	40	●
	15			1588SL15C-0820	10	194	150	138	40	●
	20			1588SL20C-0820	10	239	195	176	40	○
	30			1588SL30C-0820	10	330	285	265	40	○
8.3	10			1588SL10C-0830	10	148	105	94	40	○
	12			1588SL12C-0830	10	162	120	108	40	●
	15			1588SL15C-0830	10	194	150	138	40	○
	20			1588SL20C-0830	10	239	195	176	40	○
	30			1588SL30C-0830	10	330	285	265	40	○
8.4	10			1588SL10C-0840	10	148	105	94	40	○
	12			1588SL12C-0840	10	162	120	108	40	●
	15			1588SL15C-0840	10	194	150	138	40	●
	20			1588SL20C-0840	10	239	195	176	40	○
	30			1588SL30C-0840	10	330	285	265	40	○

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe (l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
8.5	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-0850	10	148	105	94	40	○
	12			1588SL12C-0850	10	162	120	108	40	●
	15			1588SL15C-0850	10	194	150	138	40	●
	20			1588SL20C-0850	10	239	195	176	40	●
	30			1588SL30C-0850	10	330	285	265	40	○
8.6	10			1588SL10C-0860	10	148	105	94	40	○
	12			1588SL12C-0860	10	162	120	108	40	●
	15			1588SL15C-0860	10	204	160	148	40	●
	20			1588SL20C-0860	10	249	205	186	40	○
	30			1588SL30C-0860	10	340	295	275	40	○
8.7	10			1588SL10C-0870	10	148	105	94	40	○
	12			1588SL12C-0870	10	162	120	108	40	●
	15			1588SL15C-0870	10	204	160	148	40	●
	20			1588SL20C-0870	10	249	205	186	40	○
	30			1588SL30C-0870	10	340	295	275	40	○
8.8	10			1588SL10C-0880	10	148	105	94	40	○
	12			1588SL12C-0880	10	162	120	108	40	●
	15			1588SL15C-0880	10	204	160	148	40	●
	20			1588SL20C-0880	10	249	205	186	40	○
	30			1588SL30C-0880	10	340	295	275	40	○
8.9	10			1588SL10C-0890	10	148	105	94	40	○
	12			1588SL12C-0890	10	162	120	108	40	●
	15			1588SL15C-0890	10	204	160	148	40	○
	20			1588SL20C-0890	10	249	205	186	40	○
	30			1588SL30C-0890	10	340	295	275	40	○
9.0	10			1588SL10C-0900	10	148	105	94	40	○
	12			1588SL12C-0900	10	162	120	108	40	●
	15			1588SL15C-0900	10	204	160	148	40	●
	20			1588SL20C-0900	10	249	205	186	40	●
	30			1588SL30C-0900	10	340	295	275	40	○
9.1	10			1588SL10C-0910	10	158	115	103	40	○
	12			1588SL12C-0910	10	174	132	120	40	○
	15			1588SL15C-0910	10	216	172	160	40	○
	20			1588SL20C-0910	10	262	218	196	36	○
	30			1588SL30C-0910	10	360	315	292	40	○
9.2	10			1588SL10C-0920	10	158	115	103	40	○
	12			1588SL12C-0920	10	174	132	120	40	●
	15			1588SL15C-0920	10	216	172	160	40	●
	20			1588SL20C-0920	10	262	218	196	36	○
	30			1588SL30C-0920	10	360	315	292	40	○
9.3	10			1588SL10C-0930	10	158	115	103	40	○
	12			1588SL12C-0930	10	174	132	120	40	●
	15			1588SL15C-0930	10	216	172	160	40	○
	20			1588SL20C-0930	10	262	218	196	36	○
	30			1588SL30C-0930	10	360	315	292	40	○
9.4	10			1588SL10C-0940	10	158	115	103	40	○
	12			1588SL12C-0940	10	174	132	120	40	○
	15			1588SL15C-0940	10	216	172	160	40	○
	20			1588SL20C-0940	10	262	218	196	36	○
	30			1588SL30C-0940	10	360	315	292	40	○

Material Overview · Material Übersicht

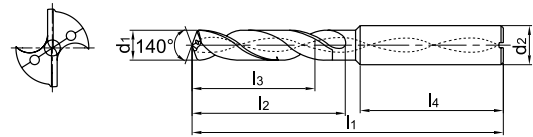
✓ = Very suitable · Sehr empfohlen
 ✓ = Suitable · Empfohlen

Grade Sorte	Workpiece material · Werkstückstoff										
	Carbon steel Kohlenstoff- Stahl HB≤180	Alloy steel Legierter Stahl	Hardened steel · Gehärteter Stahl			Stainless steel Rostfreier Stahl	Cast iron Gusseisen	Nodular cast iron GGG Kugelgra- phitguss	Aluminum alloy Aluleg.	Copper alloy Kupferleg.	Heat resist. alloy Warmfeste Leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

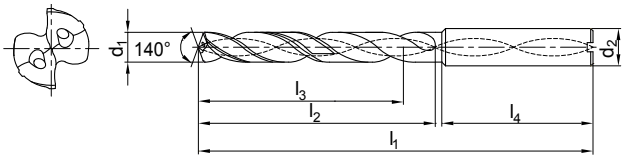
SL series · SL Serie

General machining · Allgemeine Bearbeitung (Deep drill · Tiefbohrer)

1588SL10C / 1588SL12C / 1588SL15C



1588SL20C / 1588SL30C



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
9.5	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-0950	10	158	115	103	40	○
	12			1588SL12C-0950	10	174	132	120	40	●
	15			1588SL15C-0950	10	216	172	160	40	●
	20			1588SL20C-0950	10	262	218	196	36	○
	30			1588SL30C-0950	10	360	315	292	40	○
9.6	10			1588SL10C-0960	10	158	115	103	40	○
	12			1588SL12C-0960	10	174	132	120	40	○
	15			1588SL15C-0960	10	226	182	170	40	○
	20			1588SL20C-0960	10	272	228	206	40	○
	30			1588SL30C-0960	10	372	328	305	40	○
9.7	10			1588SL10C-0970	10	158	115	103	40	○
	12			1588SL12C-0970	10	174	132	120	40	○
	15			1588SL15C-0970	10	226	182	170	40	○
	20			1588SL20C-0970	10	272	228	206	40	○
	30			1588SL30C-0970	10	372	328	305	40	○
9.8	10			1588SL10C-0980	10	158	115	103	40	○
	12			1588SL12C-0980	10	174	132	120	40	○
	15			1588SL15C-0980	10	226	182	170	40	○
	20			1588SL20C-0980	10	272	228	206	40	○
	30			1588SL30C-0980	10	372	328	305	40	○
9.9	10			1588SL10C-0990	10	158	115	103	40	○
	12			1588SL12C-0990	10	174	132	120	40	○
	15			1588SL15C-0990	10	226	182	170	40	○
	20			1588SL20C-0990	10	272	228	206	40	○
	30			1588SL30C-0990	10	372	328	305	40	○
10.0	10			1588SL10C-1000	10	158	115	103	40	○
	12			1588SL12C-1000	10	174	132	120	40	○
	15			1588SL15C-1000	10	226	182	170	40	○
	20			1588SL20C-1000	10	272	228	206	40	○
	30			1588SL30C-1000	10	372	328	305	40	○
10.1	10			1588SL10C-1010	12	183	135	121	45	○
	12			1588SL12C-1010	12	204	156	144	45	○
	15			1588SL15C-1010	12	240	190	178	45	○
	20			1588SL20C-1010	12	292	242	220	45	○
	30			1588SL30C-1010	12	372	328	305	40	○
10.2	10			1588SL10C-1020	12	183	135	121	45	○
	12			1588SL12C-1020	12	204	156	144	45	○
	15			1588SL15C-1020	12	240	190	178	45	○
	20			1588SL20C-1020	12	292	242	220	45	○
	30			1588SL30C-1020	12	372	328	305	40	○
10.3	10			1588SL10C-1030	12	183	135	121	45	○
	12			1588SL12C-1030	12	204	156	144	45	○
	15			1588SL15C-1030	12	240	190	178	45	○
	20			1588SL20C-1030	12	292	242	220	45	○
	30			1588SL30C-1030	12	372	328	305	40	○
10.4	10			1588SL10C-1040	12	183	135	121	45	○
	12			1588SL12C-1040	12	204	156	144	45	○
	15			1588SL15C-1040	12	240	190	178	45	○
	20			1588SL20C-1040	12	292	242	220	45	○
	30			1588SL30C-1040	12	372	328	305	40	○

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
10.5	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-1050	12	183	135	121	45	○
	12			1588SL12C-1050	12	204	156	144	45	●
	15			1588SL15C-1050	12	240	190	178	45	●
	20			1588SL20C-1050	12	292	242	220	45	○
10.6	10			1588SL10C-1060	12	183	135	121	45	○
	12			1588SL12C-1060	12	204	156	144	45	○
	15			1588SL15C-1060	12	248	198	186	45	○
	20			1588SL20C-1060	12	300	250	228	45	○
10.7	10			1588SL10C-1070	12	183	135	121	45	○
	12			1588SL12C-1070	12	204	156	144	45	○
	15			1588SL15C-1070	12	248	198	186	45	○
	20			1588SL20C-1070	12	300	250	228	45	○
10.8	10			1588SL10C-1080	12	183	135	121	45	○
	12			1588SL12C-1080	12	204	156	144	45	○
	15			1588SL15C-1080	12	248	198	186	45	○
	20			1588SL20C-1080	12	300	250	228	45	○
10.9	10			1588SL10C-1090	12	183	135	121	45	○
	12			1588SL12C-1090	12	204	156	144	45	○
	15			1588SL15C-1090	12	248	198	186	45	○
	20			1588SL20C-1090	12	300	250	228	45	○
11.0	10			1588SL10C-1100	12	183	135	121	45	○
	12			1588SL12C-1100	12	204	156	144	45	●
	15			1588SL15C-1100	12	248	198	186	45	●
	20			1588SL20C-1100	12	300	250	228	45	○
11.1	10			1588SL10C-1110	12	183	135	121	45	○
	12			1588SL12C-1110	12	204	156	144	45	○
	15			1588SL15C-1110	12	262	212	200	45	○
	20			1588SL20C-1110	12	315	265	240	45	○
11.2	10			1588SL10C-1120	12	183	135	121	45	○
	12			1588SL12C-1120	12	204	156	144	45	●
	15			1588SL15C-1120	12	262	212	200	45	○
	20			1588SL20C-1120	12	315	265	240	45	○
11.3	10			1588SL10C-1130	12	183	135	121	45	○
	12			1588SL12C-1130	12	204	156	144	45	○
	15			1588SL15C-1130	12	262	212	200	45	○
	20			1588SL20C-1130	12	315	265	240	45	○
11.4	10			1588SL10C-1140	12	183	135	121	45	○
	12			1588SL12C-1140	12	204	156	144	45	○
	15			1588SL15C-1140	12	262	212	200	45	○
	20			1588SL20C-1140	12	315	265	240	45	○
11.5	10			1588SL10C-1150	12	183	135	121	45	○
	12			1588SL12C-1150	12	204	156	144	45	●
	15			1588SL15C-1150	12	262	212	200	45	●
	20			1588SL20C-1150	12	315	265	240	45	○
11.6	10			1588SL10C-1160	12	183	135	121	45	○
	12			1588SL12C-1160	12	204	156	144	45	○
	15			1588SL15C-1160	12	272	222	210	45	○
	20			1588SL20C-1160	12	325	275	250	45	○
11.7	10			1588SL10C-1170	12	183	135	121	45	○
	12			1588SL12C-1170	12	204	156	144	45	●
	15			1588SL15C-1170	12	272	222	210	45	●
	20			1588SL20C-1170	12	325	275	250	45	○

Material Overview · Material Übersicht

✓ = Very suitable · Sehr empfohlen
 ✓ = Suitable · Empfohlen

Grade Sorte	Workpiece material · Werkstückstoff										
	Carbon steel Kohlenstoff- Stahl HB≤180	Alloy steel Legierter Stahl	Hardened steel · Gehärteter Stahl			Stainless steel Rostfreier Stahl	Cast iron Gusseisen	Nodular cast iron GGG Kugelgra- phitguss	Aluminum alloy Aluleg.	Copper alloy Kupferleg.	Heat resist. alloy Wärmefeste Leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

SL series · SL Serie

General machining · Allgemeine Bearbeitung
(Deep drill · Tiefbohrer)

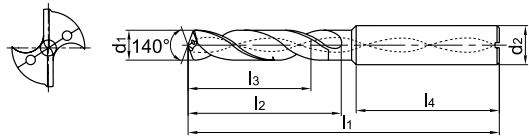
1588SL10C / 1588SL12C / 1588SL15C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



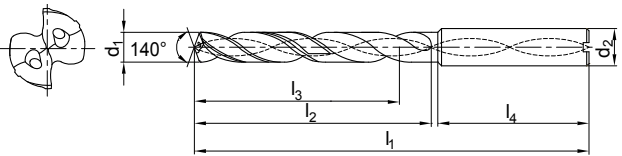
1588SL20C / 1588SL30C



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



Drilling diameter Bohrerdurchmesser d1 12D(m7) 20/30D(h7)	Drilling depth Bohrtiefe l(l/d1)	Cooling mode Kühlmittel.	Shank Schaft	Type Typ	Basic dimension(mm) · Basis Abmessungen					Grade Sorte
					d2(h5)	l1	l2	l3	l4	KDG303
11.8	10	Internal Intern	Straight shank Zylinder- schaft	1588SL10C-1180	12	183	135	121	45	○
	12			1588SL12C-1180	12	204	156	144	45	●
	15			1588SL15C-1180	12	272	222	210	45	●
	20			1588SL20C-1180	12	325	275	250	45	○
11.9	10			1588SL10C-1190	12	183	135	121	45	○
	12			1588SL12C-1190	12	204	156	144	45	○
	15			1588SL15C-1190	12	272	222	210	45	○
	20			1588SL20C-1190	12	325	275	250	45	○
12.0	10			1588SL10C-1200	12	183	135	121	45	○
	12			1588SL12C-1200	12	204	156	144	45	●
	15			1588SL15C-1200	12	272	222	210	45	●
	20			1588SL20C-1200	12	325	275	250	45	○
12.5	10			1588SL10C-1250	14	209	160	144	45	○
	12			1588SL12C-1250	14	230	182	168	45	●
	20			1588SL20C-1250	14	325	275	250	45	○
12.7	10			1588SL10C-1270	14	209	160	144	45	○
	12			1588SL12C-1270	14	230	182	168	45	○
12.8	10			1588SL10C-1280	14	209	160	144	45	○
	12			1588SL12C-1280	14	230	182	168	45	○
	10			1588SL10C-1300	14	209	160	144	45	○
13.0	12			1588SL12C-1300	14	230	182	168	45	●
	20			1588SL20C-1300	14	338	290	265	45	○
13.5	10			1588SL10C-1350	14	209	160	144	45	○
	12			1588SL12C-1350	14	230	182	168	45	●
	20			1588SL20C-1350	14	338	290	265	45	○
14.0	10			1588SL10C-1400	14	209	160	144	45	○
	12			1588SL12C-1400	14	230	182	168	45	●
	20			1588SL20C-1400	14	367	318	290	45	○
14.5	12			1588SL12C-1450	16	260	208	194	48	●
15.0	12			1588SL12C-1500	16	260	208	194	48	●
15.5	12			1588SL12C-1550	16	260	208	194	48	●
16.0	12			1588SL12C-1600	16	260	208	194	48	●
16.5	12			1588SL12C-1650	18	286	234	218	48	●
17.0	12			1588SL12C-1700	18	286	234	218	48	●
17.5	12			1588SL12C-1750	18	286	234	218	48	○
18.0	12			1588SL12C-1800	18	286	234	218	48	●
18.5	12			1588SL12C-1850	20	310	258	240	48	○
19.0	12			1588SL12C-1900	20	310	258	240	48	○
19.5	12			1588SL12C-1950	20	310	258	240	48	○
20.0	12			1588SL12C-2000	20	310	258	240	48	●
20.5	12			1588SL12C-2050	22	310	258	240	48	○
21.0	12			1588SL12C-2100	22	310	258	240	48	○

SP series · SP Serie

General machining · Allgemeine Bearbeitung

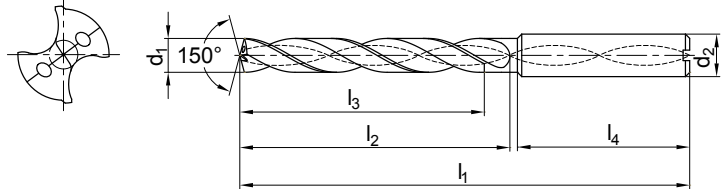
1534SP03C Pilot drills · Pilotbohrer



Internal Coolant
Interne Kühlung



Straight shank
Zylinderschaft



1534SP03C* Drilling diameter/ Bohrerdurchmesser d1(h7)	Drilling depth/ Bohrtiefe (l/d1)	1588SL20C*/30C* Drilling diameter/ Bohrerdurchmesser d1(h7)	Cooling mode/ Kühlmittel	Shank/ Schaft	Type · Typ	Basic dimension(mm) · Basis Abmessungen					Grade/ Sorte
						d2(h6)	l1	l2	l3	l4	
3.03	3	3.0	Internal Intern	Straight shank Zylinderschaft	1534SP03C-0303	6	62	20	14	36	●
3.13	3	3.10			1534SP03C-0313	6	62	20	14	36	○
3.23	3	3.20			1534SP03C-0323	6	62	20	14	36	○
3.33	3	3.30			1534SP03C-0333	6	62	20	14	36	○
3.43	3	3.40			1534SP03C-0343	6	62	20	14	36	○
3.53	3	3.50			1534SP03C-0353	6	62	20	14	36	●
3.63	3	3.60			1534SP03C-0363	6	62	20	14	36	○
3.73	3	3.70			1534SP03C-0373	6	62	20	14	36	○
3.83	3	3.80			1534SP03C-0383	6	66	24	17	36	○
3.93	3	3.90			1534SP03C-0393	6	66	24	17	36	○
4.03	3	4.0			1534SP03C-0403	6	66	24	17	36	●
4.13	3	4.10			1534SP03C-0413	6	66	24	17	36	○
4.23	3	4.20			1534SP03C-0423	6	66	24	17	36	○
4.33	3	4.30			1534SP03C-0433	6	66	24	17	36	○
4.43	3	4.40			1534SP03C-0443	6	66	24	17	36	○
4.53	3	4.50			1534SP03C-0453	6	66	24	17	36	●
4.63	3	4.60			1534SP03C-0463	6	66	24	17	36	○
4.73	3	4.70			1534SP03C-0473	6	66	24	17	36	○
4.83	3	4.80			1534SP03C-0483	6	66	28	20	36	○
4.93	3	4.90			1534SP03C-0493	6	66	28	20	36	○
5.03	3	5.0			1534SP03C-0503	6	66	28	20	36	●
5.13	3	5.10			1534SP03C-0513	6	66	28	20	36	○
5.23	3	5.20			1534SP03C-0523	6	66	28	20	36	○
5.33	3	5.30			1534SP03C-0533	6	66	28	20	36	○
5.43	3	5.40			1534SP03C-0543	6	66	28	20	36	○
5.53	3	5.50			1534SP03C-0553	6	66	28	20	36	●
5.63	3	5.60			1534SP03C-0563	6	66	28	20	36	○
5.73	3	5.70			1534SP03C-0573	6	66	28	20	36	○

Material Overview · Material Übersicht

✓ = Very suitable · Sehr empfohlen
✓ = Suitable · Empfohlen

Grade/ Sorte	Workpiece material · Werkstückstoff										
	Carbon steel/ Kohlenstoff Stahl HB≤180	Alloy steel	Hardened steel · Gehärteter Stahl			Stainless steel/ Rostfreier Stahl	Cast iron/ Gusseisen	Nodular cast iron GGG	Aluminum alloy/ Alu leg.	Copper alloy/ Kupfer leg.	Heat resist. alloy/ Warmfest. leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

1534SP03C* Drilling diameter/ Bohrerdurchmesser d ₁ (h7)	Drilling depth/ Bohrtiefe l(l/d ₁)	1588SL20C*/30C* Drilling diameter/ Bohrerdurchmesser d ₁ (h7)	Cooling mode/ Kühlmittel	Shank/ Schaft	Type · Typ	Basic dimension(mm) · Basis Abmessungen					Grade/ Sorte
						d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	
5.83	3	5.80	Internal Intern	Straight shank Zylinder- schaft	1534SP03C-0583	6	66	28	20	36	○
5.93	3	5.90			1534SP03C-0593	6	66	28	20	36	○
6.03	3	6.0			1534SP03C-0603	6	66	28	20	36	●
6.13	3	6.10			1534SP03C-0613	8	79	34	24	36	○
6.23	3	6.20			1534SP03C-0623	8	79	34	24	36	○
6.33	3	6.30			1534SP03C-0633	8	79	34	24	36	○
6.43	3	6.40			1534SP03C-0643	8	79	34	24	36	○
6.53	3	6.50			1534SP03C-0653	8	79	34	24	36	●
6.63	3	6.60			1534SP03C-0663	8	79	34	24	36	○
6.73	3	6.70			1534SP03C-0673	8	79	34	24	36	○
6.83	3	6.80			1534SP03C-0683	8	79	34	24	36	○
6.93	3	6.90			1534SP03C-0693	8	79	34	24	36	○
7.03	3	7.0			1534SP03C-0703	8	79	34	24	36	●
7.13	3	7.10			1534SP03C-0713	8	79	41	29	36	○
7.23	3	7.20			1534SP03C-0723	8	79	41	29	36	○
7.33	3	7.30			1534SP03C-0733	8	79	41	29	36	○
7.43	3	7.40			1534SP03C-0743	8	79	41	29	36	○
7.53	3	7.50			1534SP03C-0753	8	79	41	29	36	○
7.63	3	7.60			1534SP03C-0763	8	79	41	29	36	○
7.73	3	7.70			1534SP03C-0773	8	79	41	29	36	○
7.83	3	7.80			1534SP03C-0783	8	79	41	29	36	○
7.93	3	7.90			1534SP03C-0793	8	79	41	29	36	○
8.03	3	8.0			1534SP03C-0803	8	79	41	29	36	●
8.13	3	8.10			1534SP03C-0813	10	89	47	35	40	○
8.23	3	8.20			1534SP03C-0823	10	89	47	35	40	○
8.33	3	8.30			1534SP03C-0833	10	89	47	35	40	○
8.43	3	8.40			1534SP03C-0843	10	89	47	35	40	○
8.53	3	8.50			1534SP03C-0853	10	89	47	35	40	○
8.63	3	8.60			1534SP03C-0863	10	89	47	35	40	○
8.73	3	8.70			1534SP03C-0873	10	89	47	35	40	○
8.83	3	8.80			1534SP03C-0883	10	89	47	35	40	○
8.93	3	8.90			1534SP03C-0893	10	89	47	35	40	○
9.03	3	9.0			1534SP03C-0903	10	89	47	35	40	●
9.13	3	9.10			1534SP03C-0913	10	89	47	35	40	○
9.23	3	9.20			1534SP03C-0923	10	89	47	35	40	○
9.33	3	9.30			1534SP03C-0933	10	89	47	35	40	○
9.43	3	9.40			1534SP03C-0943	10	89	47	35	40	○

Material Overview · Material Übersicht

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Grade/ Sorte	Workpiece material · Werkstückstoff										
	Carbon steel/ Kohlenstoff Stahl HB≤180	Alloy steel	Hardened steel · Gehärteter Stahl			Stainless steel/ Rostfreier Stahl	Cast iron/ Gusseisen	Nodular cast iron GGG	Aluminum alloy/ Alu leg.	Copper alloy/ Kupfer leg.	Heat resist. alloy/ Warmfest. leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

1534SP03C* Drilling diameter/ Bohrerdurchmesser d1(h7)	Drilling depth/ Bohrtiefe (l/d1)	1588SL20C*/30C* Drilling diameter/ Bohrerdurchmesser d1(h7)	Cooling mode/ Kühlmittel.	Shank/ Schaft	Type · Typ	Basic dimension(mm) · Basis Abmessungen					Grade/ Sorte
						d2(h6)	l1	l2	l3	l4	
9.53	3	9.50	Internal Intern	Straight shank Zylinder- schaft	1534SP03C-0953	10	89	47	35	40	○
9.63	3	9.60			1534SP03C-0963	10	89	47	35	40	○
9.73	3	9.70			1534SP03C-0973	10	89	47	35	40	○
9.83	3	9.80			1534SP03C-0983	10	89	47	35	40	○
9.93	3	9.90			1534SP03C-0993	10	89	47	35	40	○
10.03	3	10.0			1534SP03C-1003	10	89	47	35	40	●
10.13	3	10.10			1534SP03C-1013	12	102	55	40	45	○
10.23	3	10.20			1534SP03C-1023	12	102	55	40	45	○
10.33	3	10.30			1534SP03C-1033	12	102	55	40	45	○
10.43	3	10.40			1534SP03C-1043	12	102	55	40	45	○
10.53	3	10.50			1534SP03C-1053	12	102	55	40	45	○
10.63	3	10.60			1534SP03C-1063	12	102	55	40	45	○
10.73	3	10.70			1534SP03C-1073	12	102	55	40	45	○
10.83	3	10.80			1534SP03C-1083	12	102	55	40	45	○
10.93	3	10.90			1534SP03C-1093	12	102	55	40	45	○
11.03	3	11.0			1534SP03C-1103	12	102	55	40	45	○
11.13	3	11.10			1534SP03C-1113	12	102	55	40	45	○
11.23	3	11.20			1534SP03C-1123	12	102	55	40	45	○
11.33	3	11.30			1534SP03C-1133	12	102	55	40	45	○
11.43	3	11.40			1534SP03C-1143	12	102	55	40	45	○
11.53	3	11.50			1534SP03C-1153	12	102	55	40	45	○
11.63	3	11.60			1534SP03C-1163	12	102	55	40	45	○
11.73	3	11.70			1534SP03C-1173	12	102	55	40	45	○
11.83	3	11.80			1534SP03C-1183	12	102	55	40	45	○
11.93	3	11.90			1534SP03C-1193	12	102	55	40	45	○
12.03	3	12.0			1534SP03C-1203	12	102	55	40	45	○
12.53	3	12.50			1534SP03C-1253	14	107	60	43	45	○
12.73	3	12.70			1534SP03C-1273	14	107	60	43	45	○
12.83	3	12.80			1534SP03C-1283	14	107	60	43	45	○
13.03	3	13.0			1534SP03C-1303	14	107	60	43	45	○
13.53	3	13.50			1534SP03C-1353	14	107	60	43	45	○
14.03	3	14.0			1534SP03C-1403	14	107	60	43	45	○
14.53	3	14.50			1534SP03C-1453	16	115	65	45	48	○
15.03	3	15.0			1534SP03C-1503	16	115	65	45	48	○
15.53	3	15.50			1534SP03C-1553	16	115	65	45	48	○
16.03	3	16.0			1534SP03C-1603	16	115	65	45	48	○
16.53	3	16.50			1534SP03C-1653	18	123	73	51	48	○

Material Overview · Material Übersicht

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Grade/ Sorte	Workpiece material · Werkstückstoff										
	Carbon steel/ Kohlenstoff Stahl HB≤180	Alloy steel	Hardened steel · Gehärteter Stahl			Stainless steel/ Rostfreier Stahl	Cast iron/ Gusseisen	Nodular cast iron GGG	Aluminum alloy/ Alu leg.	Copper alloy/ Kupfer leg.	Heat resist. alloy/ Warmfest. leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

Drilling · Bohren

Solid Carbide drills · Vollhartmetallbohrer

1534SP03C* Drilling diameter/ Bohrerdurchmesser d ₁ (h7)	Drilling depth/ Bohrtiefe (l/d ₁)	1588SL20C*/30C* Drilling diameter/ Bohrerdurchmesser d ₁ (h7)	Cooling mode/ Kühlmittel	Shank/ Schaft	Type · Typ	Basic dimension(mm) · Basis Abmessungen					Grade/ Sorte
						d ₂ (h ₆)	l ₁	l ₂	l ₃	l ₄	
17.03	3	17.0	Internal Intern	Straight shank Zylinder- schaft	1534SP03C-1703	18	123	73	51	48	○
17.53	3	17.50			1534SP03C-1753	18	123	73	51	48	○
18.03	3	18.0			1534SP03C-1803	18	123	73	51	48	○
18.53	3	18.50			1534SP03C-1853	20	131	79	55	50	○
19.03	3	19.0			1534SP03C-1903	20	131	79	55	50	○
19.53	3	19.50			1534SP03C-1953	20	131	79	55	50	○
20.03	3	20.0			1534SP03C-2003	20	131	79	55	50	○

Material Overview · Material Übersicht

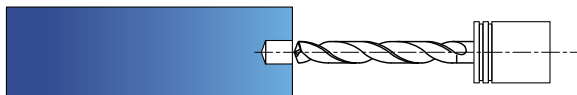
✓ = Very suitable · Sehr empfohlen
✓ = Suitable · Empfohlen

Grade/ Sorte	Workpiece material · Werkstückstoff										
	Carbon steel/ Kohlenstoff Stahl HB≤180	Alloy steel	Hardened steel · Gehärteter Stahl			Stainless steel/ Rostfreier Stahl	Cast iron/ Gusseisen	Nodular cast iron GGG	Aluminum alloy/ Alu leg.	Copper alloy/ Kupfer leg.	Heat resist. alloy/ Warmfest. leg.
			~40HRC	~50HRC	~60HRC						
KDG303	✓	✓	✓			✓	✓	✓	✓		✓

SL series · SL Serie

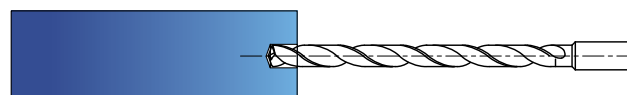
Recommended cutting data · Schnittdatenempfehlung (Deep drill · Tiefbohrer)

1 Preparation pilot hole with 1534SP03C* Herstellung der Pilotbohrung mit 1534SP03C*



- Top angel of pilot drill must be bigger than SL-drill.
Spitzenwinkel des Pilotbohrers muß größer sein als beim SL-Bohrer.
- Diameter of pilot drill must be 0.01~0.04mm bigger than SL-drill.
Der Durchmesser des Pilotbohrers sollte 0.01~0.04 mm größer sein als beim SL-Bohrer.
- The pilot hole should be 1~3×D.
Tiefe der Pilotbohrung soll 1~3×D betragen.
- V_c: 60-80 m/min; f: 0.1-0.25 mm/r; a_p: 1~3×D

2 Entering into pilot hole with SL-drill Einführen des SL-Bohrers in die Pilotbohrung



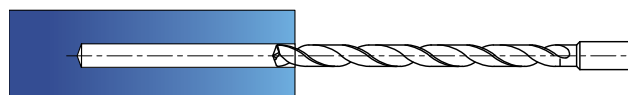
- Entering the pilot hole with low cutting speed. (V_c: 20~30m/min)
Den SL-Bohrer mit geringer Drehzahl in die Pilotbohrung einführen. (V_c: 20~30 m/min)
- 1~3 mm stop before end of pilot hole. (V_f=0)
1~3 mm vor dem Lochende stehenbleiben. (V_f=0)
- Increase cutting speed up to recommended parameter and than start feed rate.
Die Schnittgeschwindigkeit auf die empfohlenen Parameter erhöhen und erst dann mit dem Vorschub beginnen.

3 Making deep hole Herstellung der Tieflochbohrung



- Drilling with suitable cutting speed and feed rate.
Bohren mit geeigneter Schnittgeschwindigkeit und Vorschüben.
- At cross holes feed rate should be reduced to 0.05 mm/rev..
Bei Querbohrungen den Vorschub auf 0.05 mm/u reduzieren.

4 Pull back of drill Herausziehen des Bohrers



- After reaching the required depth reduce the cutting speed (V_c: 20~30 m/min) and pull back the drill by high feed rate. (V_f: 2000 mm/min)
Nach Erreichen der geforderten Bohrtiefe die Schnittgeschwindigkeit reduzieren (V_c: 20~30 m/min) und den Bohrer mit hohem Vorschub (V_f: 2000 mm/min) herausziehen.

General information · Allgemeiner Hinweis

If surface contour is not flat use suitable operation (e.g. face milling with solid carbide endmill) for preparation.

Sollte die Kontur des Bauteils eine Schräge aufweisen, eine geeignete Bearbeitung (z.B. Planfräsen mit VHM - Fräser) zur Begradigung durchführen.

SL series twist deep drills · SL Spiraltiefbohrer Serie (Internal coolant · Interne Kühlung)

10D 12D 15D

Workpiece material/ Werkstück-stoff	Mild steel/ Baustahl HB≤180		Carbon steel, alloy steel/ Kohlenstoffstahl Leg. Stahl ~30HRC		Pre-hardened steel/ Vergüteter Stahl ~40HRC		Stainless steel/ Rostfreier Stahl		Cast iron/ Gusseisen		Nodular cast iron/ GGG		Aluminum alloy/ Alu. Legierungen		Heat resistant alloy/ Warmfeste Legierungen	
Vc	60~120m/min		60~120m/min		50~80 m/min		40~60 m/min		80~150 m/min		60~120 m/min		100~180 m/min		10~20 m/min	
Ø (mm)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)
3	10600	0.06~ 0.1	10600	0.06~ 0.1	7400	0.06~ 0.1	5300	0.03~ 0.07	12700	0.06~ 0.1	9500	0.06~ 0.1	15000	0.09~ 0.12	2100	0.03~ 0.06
4	8000	0.08~ 0.12	8000	0.08~ 0.12	5600	0.08~ 0.12	4000	0.04~ 0.08	96000	0.08~ 0.12	7000	0.08~ 0.12	11000	0.10~ 0.15	1600	0.04~ 0.07
5	6400	0.10~ 0.14	6400	0.10~ 0.14	4500	0.10~ 0.14	3200	0.05~ 0.10	7600	0.10~ 0.14	5700	0.10~ 0.14	9000	0.10~ 0.15	1250	0.05~ 0.9
6	5300	0.11~ 0.16	5300	0.11~ 0.16	3700	0.11~ 0.16	2700	0.06~ 0.12	6400	0.11~ 0.16	4700	0.11~ 0.16	7400	0.11~ 0.16	1050	0.06~ 0.11
8	4000	0.13~ 0.19	4000	0.13~ 0.19	2800	0.13~ 0.19	2000	0.08~ 0.16	4800	0.13~ 0.19	3600	0.13~ 0.19	5600	0.13~ 0.19	800	0.08~ 0.14
10	3200	0.14~ 0.22	3200	0.14~ 0.22	2200	0.14~ 0.22	1600	0.10~ 0.18	3800	0.14~ 0.22	2800	0.14~ 0.22	4500	0.14~ 0.22	600	0.10~ 0.16
12	2700	0.16~ 0.24	2700	0.16~ 0.24	1900	0.16~ 0.24	1300	0.12~ 0.20	3200	0.16~ 0.24	2400	0.16~ 0.24	3700	0.16~ 0.24	500	0.12~ 0.18
14	2300	0.18~ 0.28	2300	0.18~ 0.28	1600	0.18~ 0.28	1100	0.13~ 0.22	2700	0.18~ 0.28	2100	0.18~ 0.28	3200	0.18~ 0.28	450	0.13~ 0.20
16	2100	0.20~ 0.30	2100	0.20~ 0.30	1400	0.20~ 0.30	1050	0.14~ 0.25	2100	0.20~ 0.30	1800	0.20~ 0.30	2800	0.25~ 0.36	400	0.14~ 0.23
18	1800	0.22~ 0.32	1800	0.22~ 0.32	1200	0.22~ 0.32	950	0.15~ 0.28	1800	0.22~ 0.32	1600	0.22~ 0.32	2500	0.28~ 0.38	350	0.15~ 0.25
20	1600	0.25~ 0.35	1600	0.25~ 0.35	1100	0.25~ 0.35	800	0.16~ 0.30	1600	0.25~ 0.35	1400	0.25~ 0.35	2300	0.30~ 0.40	320	0.16~ 0.28

1. When the tool is used for the first time, please make a test cutting with 90% of cutting speed or 85% feed rate mentioned above. If the cutting conditions remain stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are for drilling with emulsion.
3. Use a collet without any defect or dust. The radial run-out of drill must be under 0.02mm.
4. These conditions above are for cutting depth below 30xD.

1. Beim ersten Einsatz 90% der empfohlenen Schnittgeschwindigkeit oder 85% des Vorschubs wählen. Bei stabiler Bearbeitung die Schnittdaten entsprechend erhöhen.
2. Die obigen Schnittdatenempfehlungen basieren auf dem Einsatz von Emulsion.
3. Keine defekte Werkzeugaufnahme wählen. Die Rundlaufgenauigkeit muss unter 0,02mm liegen.
4. Die obigen Schnittdaten sind für Bohrungstiefen unter 30xD ausgelegt.

Drilling · Bohren

Recommended cutting data · Schnittdatenempfehlung

SL series twist deep drills · SL Spiraltiefbohrer Serie (Internal coolant · Interne Kühlung)

20D 30D

Workpiece material/ Werkstückstoff	Mild steel/ Baustahl HB≤180		Carbon steel, alloy steel/ Kohlenstoffstahl Leg. Stahl ~30HRC		Pre-hardened steel/ Vergüteter Stahl ~40HRC		Stainless steel/ Rostfreier Stahl		Cast iron/ Gusseisen		Nodular cast iron/ GGG		Aluminum alloy/ Alu. Legierungen		Heat resistant alloy/ Warmfeste Legierungen	
Vc	70~90 m/min		50~80 m/min		40~60 m/min		40~60 m/min		50~80 m/min		60~80 m/min		100~180 m/min		8~15 m/min	
Ø (mm)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)
3	8250	0.06~ 0.1	7650	0.06~ 0.1	5200	0.06~ 0.1	4750	0.03~ 0.07	7100	0.06~ 0.1	7600	0.06~ 0.1	12750	0.09~ 0.12	1350	0.03~ 0.06
4	6250	0.08~ 0.12	5750	0.08~ 0.12	3900	0.08~ 0.12	3600	0.04~ 0.08	5400	0.08~ 0.12	5600	0.08~ 0.12	9350	0.10~ 0.15	1050	0.04~ 0.07
5	5000	0.10~ 0.14	4600	0.10~ 0.14	3150	0.10~ 0.14	2900	0.05~ 0.10	4250	0.10~ 0.14	4550	0.10~ 0.14	7650	0.10~ 0.15	800	0.05~ 0.9
6	4150	0.11~ 0.16	3800	0.11~ 0.16	2600	0.11~ 0.16	2450	0.06~ 0.12	3600	0.11~ 0.16	3750	0.11~ 0.16	6300	0.11~ 0.16	700	0.06~ 0.11
8	3100	0.13~ 0.19	2900	0.13~ 0.19	1950	0.13~ 0.19	1800	0.08~ 0.16	2700	0.13~ 0.19	2900	0.13~ 0.19	4750	0.13~ 0.19	500	0.08~ 0.14
10	2500	0.14~ 0.22	2300	0.14~ 0.22	1550	0.14~ 0.22	1450	0.10~ 0.18	2150	0.14~ 0.22	2250	0.14~ 0.22	3850	0.14~ 0.22	400	0.10~ 0.16
12	2100	0.16~ 0.24	1950	0.16~ 0.24	1350	0.16~ 0.24	1150	0.12~ 0.20	1800	0.16~ 0.24	1900	0.16~ 0.24	3150	0.16~ 0.24	350	0.12~ 0.18
14	1800	0.18~ 0.28	1650	0.18~ 0.28	1100	0.18~ 0.28	1000	0.13~ 0.22	1500	0.18~ 0.28	1700	0.18~ 0.28	2700	0.18~ 0.28	300	0.13~ 0.20

1. When the tool is used for the first time, please make a test cutting with 90% of cutting speed or 85% feed rate mentioned above. If the cutting conditions remain stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are for drilling with emulsion.
3. Use a collet without any defect or dust. The radial run-out of drill must be under 0.02mm.
4. These conditions above are for cutting depth below 30xD.

1. Beim ersten Einsatz 90% der empfohlenen Schnittgeschwindigkeit oder 85% des Vorschubs wählen. Bei stabiler Bearbeitung die Schnittdaten entsprechend erhöhen.
2. Die obigen Schnittdatenempfehlungen basieren auf dem Einsatz von Emulsion.
3. Keine defekte Werkzeugaufnahme wählen. Die Rundlaufgenauigkeit muss unter 0,02mm liegen.
4. Die obigen Schnittdaten sind für Bohrungstiefen unter 30xD ausgelegt.

SP series pilot drills · SP Pilotbohrer Serie (Internal coolant · Interne Kühlung)

3D

Workpiece material/ Werkstückstoff	Mild steel/ Baustahl HB≤180		Carbon steel, alloy steel/ Kohlenstoffstahl Leg. Stahl ~30HRC		Pre-hardened steel/ Vergüteter Stahl ~40HRC		Stainless steel/ Rostfreier Stahl		Cast iron/ Gusseisen		Nodular cast iron/ GGG		Aluminum alloy/ Alu. Legierungen		Heat resistant alloy/ Warmfeste Legierungen	
Vc	80~150m/min		80~150m/min		50~80m/min		50~80m/min		80~150m/min		60~120m/min		100~180m/min		15~25m/min	
Ø (mm)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)	n (min ⁻¹)	f (mm/r)
3	12700	0.09~0.12	12700	0.09~0.12	7400	0.09~0.12	6300	0.03~0.07	12700	0.09~0.12	9500	0.09~0.12	15000	0.09~0.12	2100	0.03~0.06
4	9600	0.10~0.15	9600	0.10~0.15	5600	0.10~0.15	4700	0.04~0.08	9600	0.10~0.15	7000	0.10~0.15	11100	0.10~0.15	1600	0.04~0.07
5	7600	0.12~0.18	7600	0.12~0.18	4500	0.12~0.18	3800	0.05~0.10	7600	0.12~0.18	5700	0.12~0.18	9000	0.12~0.18	1250	0.05~0.09
6	6400	0.14~0.20	6400	0.14~0.20	3700	0.14~0.20	3200	0.06~0.12	6400	0.14~0.20	4700	0.14~0.20	7400	0.14~0.20	1050	0.06~0.11
8	4800	0.16~0.24	4800	0.16~0.24	2800	0.16~0.24	2400	0.08~0.16	4800	0.16~0.24	3600	0.16~0.24	5600	0.16~0.24	800	0.08~0.14
10	3800	0.18~0.27	3800	0.18~0.27	2200	0.18~0.27	1900	0.10~0.18	3800	0.18~0.27	2800	0.18~0.27	4500	0.18~0.27	600	0.10~0.16
12	3200	0.20~0.30	3200	0.20~0.30	1900	0.20~0.30	1600	0.12~0.20	3200	0.20~0.30	2400	0.20~0.30	3700	0.20~0.30	500	0.12~0.18
14	2700	0.22~0.35	2700	0.22~0.35	1600	0.22~0.35	1350	0.13~0.22	2700	0.22~0.35	2100	0.22~0.35	3200	0.22~0.35	450	0.13~0.20

1. When the tool is used for the first time, please make a test cutting with 90% of cutting speed or 85% feed rate mentioned above. If the cutting conditions remain stable, gradually increase the cutting speed and feed rate.
2. The cutting conditions above are for drilling with emulsion.
3. Use a collet without any defect or dust. The radial run-out of drill must be under 0.02mm.
4. These conditions above are for cutting depth below 3xD.

1. Beim ersten Einsatz 90% der empfohlenen Schnittgeschwindigkeit oder 85% des Vorschubs wählen. Bei stabiler Bearbeitung die Schnittdaten entsprechend erhöhen.
2. Die obigen Schnittdatenempfehlungen basieren auf dem Einsatz von Emulsion.
3. Keine defekte Werkzeugaufnahme wählen. Die Rundlaufgenauigkeit muss unter 0,02mm liegen.
4. Die obigen Schnittdaten sind für Bohrungstiefen unter 3xD ausgelegt.



1588SL



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