














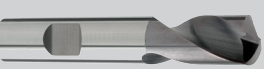






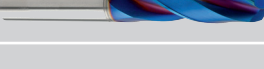

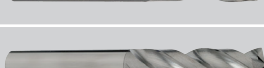





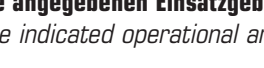



BOHREN VHM DRILLING VHM (SOLID CARBIDE)

	ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION		ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE-METALLE	GUSS	TITAN	HRC	GRAPHIT	
	VHM	WERKS- (COMPANY) NORM	E.3604.0	3		✓	✓		✓			
	VHM	WERKS- (COMPANY) NORM	E.3608.0	3		✓	✓		✓			
	VHM	WERKS- (COMPANY) NORM	E.3673.0	4		✓			✓			
	VHM	WERKS- (COMPANY) NORM	Blue Cut E.3676.1	5 - 6		✓			✓			
	VHM	ähnl. DIN 1899	E.3601.0	6	✓		✓	✓				
	VHM		E.3631.0	7	✓	✓	✓	✓				
	VHM	 LH	E.3632.0	7	✓	✓	✓	✓				
	VHM		E.3633.0	7	✓	✓	✓	✓				
	VHM		E.3671.0	7	✓	✓	✓	✓				
	VHM	 Blue Cut	E.3636.1	8	✓					✓		
	VHM	 Blue Cut	E.3637.1	8	✓					✓		
	VHM	 Blue Cut	E.3652.1	8	✓					✓		
	VHM		E.3634.0	9	✓	✓	✓	✓				
	VHM		E.3635.0	9	✓	✓	✓	✓				
	VHM	WERKS- (COMPANY) NORM	Blue Cut E.3602.1	9	✓					✓		
	VHM	DIN 1897	Blue Cut E.3603.1	10	✓					✓		
	VHM	WERKS- (COMPANY) NORM	E.3605.0	11	✓	✓	✓	✓				
	VHM	WERKS- (COMPANY) NORM	 E.3677.0	12	✓	✓	✓	✓				
	VHM	WERKS- (COMPANY) NORM	E.3668.0	13	✓	✓	✓	✓				
	VHM	DIN 1897	E.3606.0	14	✓	✓	✓	✓				
	VHM	DIN 338	E.3607.0	15	✓	✓	✓	✓				
	VHM	WERKS- (COMPANY) NORM	E.3609.0	16	✓	✓	✓	✓				
	VHM	WERKS- (COMPANY) NORM	Blue Cut E.3611.1	17	✓	✓	✓	✓	✓			

Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

Die angegebenen Einsatzgebiete sind Richtlinien. Die genauen Einsatzdaten finden Sie im jeweiligen Artikel!

The indicated operational areas are estimated guide lines. The exact dates of use please find at the specified articles!





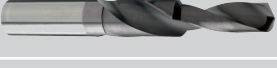

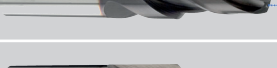
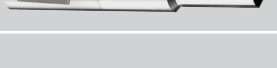
BOHREN VHM DRILLING VHM (SOLID CARBIDE)

ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION	ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE-METALLE	GUSS	TITAN	HRC	GRAPHIT	
			✓	✓	✓	✓	✓	✓	✓	
VHM WERKS (COMPANY) NORM Blue Cut	E.3684.1	17	✓	✓	✓	✓	✓			
VHM WERKS (COMPANY) NORM Blue Cut	E.3612.1	17	✓	✓	✓	✓	✓			
VHM WERKS (COMPANY) NORM Blue Cut	E.3685.1	17	✓	✓	✓	✓	✓			
VHM 3xD Blue Cut	E.3645.1	18 - 20	✓			✓				
VHM 3xD Blue Cut	E.3646.1	18 - 20	✓			✓				✓
VHM 3xD Blue Cut	E.3647.1	18 - 20		✓			✓			✓
VHM 5xD Blue Cut	E.3665.1	21 - 23	✓			✓				
VHM 5xD Blue Cut	E.3617.1	21 - 23	✓							✓
VHM 5xD Blue Cut	E.3618.1	21 - 23		✓			✓			✓
VHM 5xD Blue Cut	E.3619.1	21 - 23			✓		✓			✓
VHM 5xD POLIERT polished	E.3628.0	24			✓	✓				✓
VHM 8xD Blue Cut	E.3610.1	25		✓			✓			
VHM 8xD Blue Cut	E.3666.1	26 - 28	✓			✓				✓
VHM 8xD Blue Cut	E.3623.1	26 - 28		✓			✓			✓
VHM 8xD Blue Cut	E.3624.1	26 - 28			✓					✓
VHM 8xD POLIERT polished	E.3629.0	29			✓	✓				✓
VHM 8xD Blue Cut	E.3672.1	30						✓		✓
VHM 12xD Blue Cut	E.3613.1	31		✓	✓		✓			
VHM 12xD Blue Cut	E.3667.1	32 - 34	✓							✓
VHM 12xD Blue Cut	E.3625.1	32 - 34	✓							✓
VHM 12xD Blue Cut	E.3681.1	32 - 34		✓	✓		✓			✓
VHM 12xD POLIERT polished	E.3630.0	35			✓	✓				✓
VHM 15xD Blue Cut	E.3674.1	36	✓		✓	✓				✓

Die angegebenen Einsatzgebiete sind Richtlinien. Die genauen Einsatzdaten finden Sie im jeweiligen Artikel!

The indicated operational areas are estimated guide lines. The exact dates of use please find at the specified articles!

BOHREN VHM DRILLING VHM (SOLID CARBIDE)

	ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION			ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE- METALLE	GUSS	TITAN	HRC	GRAPHIT	
	VHM	20xD	Blue Cut	E.3616.1	37	✓							
	VHM	20xD	SPEZIAL BESCHICHTUNG COATING	E.3620.1	37		✓			✓			
Tieflochbohrer Deephole drill				E.3614.0	38 - 39	✓			✓				
	VHM	DIN 333		E.3638.0	40	✓	✓	✓	✓				
	VHM	180° 140°		E.3639.0	40	✓	✓	✓	✓				
	VHM	90° 140°	Blue Cut	E.3640.1	41	✓	✓	✓	✓				
	VHM	90° 140°		E.3642.0	41	✓	✓	✓	✓				
	VHM	90° 140°	Blue Cut	E.3643.1	42	✓	✓	✓	✓			✓	
	VHM	90° 140°	POLIERT polished	E.3644.0	42			✓	✓				✓

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges

Die angegebenen Einsatzgebiete sind Richtlinien. Die genauen Einsatzdaten finden Sie im jeweiligen Artikel!
The indicated operational areas are estimated guide lines. The exact dates of use please find at the specified articles!

VHM-Spitzbohrer

E.3604.0

2.1 2.2 5.1

VHM WERKS-
(COMPANY)
NORM

118° INOX

HA TITAN

Pointed solid carbide drills

Wiertła spiczaste z węgla spiekanego

Punte a lancia in MD

Brocas punteadas de metal duro integral

Artikel-Nr. Article-No.				E.3604.0 € Stück piece
d1	l2	l1	d2 h6	
0,50 - 0,79	3	30	1,0	
0,80 - 1,49	9	30	1,5	
1,50 - 1,99	10	38	2,0	
2,00 - 2,49	12	38	2,5	
2,50 - 2,99	15	38	3,0	
3,00 - 3,99	18	50	4,0	
4,00 - 4,99	20	50	5,0	
5,00 - 5,99	25	50	6,0	

VHM-Kanonenbohrer

E.3608.0

2.1 2.2 5.1

VHM WERKS-
(COMPANY)
NORM

118° INOX

HA TITAN

Solid carbide gun drill

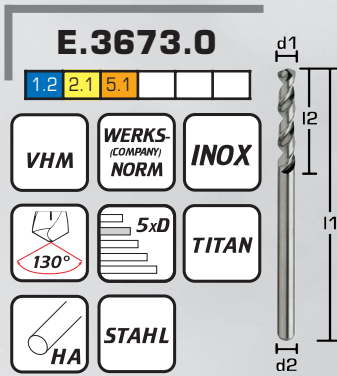
Wiertła pistoletowe z węgla spiekanego





Punte in MD a cannone

Brocas de cañón de metal duro integral

Artikel-Nr. Article-No.				E.3608.0 € Stück piece
d1	l2	l1	d2 h6	
0,50 - 0,79	3	30	1,0	
0,80 - 1,49	9	30	1,5	
1,50 - 1,99	10	38	2,0	
2,00 - 2,49	12	38	2,5	
2,50 - 2,99	15	38	3,0	
3,00 - 3,99	18	50	4,0	
4,00 - 4,99	20	50	5,0	
5,00 - 5,99	25	50	6,0	

VHM-Mikrobohrer 0,01 mm steigend

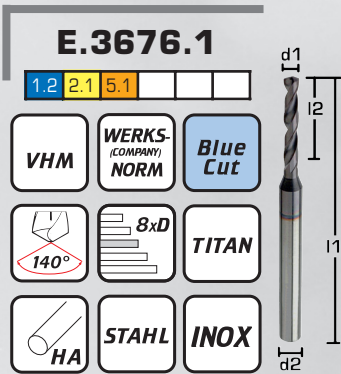






-  Solid carbide micro drills rising in steps of 0,01 mm
-  Wiertła miniaturowe z węglika spiek-anego - średnice co 0.01 mm
-  Micropunte in MD centesimali 0,01 mm
-  Microbrocas de metal duro integral con incrementos de 0,01 mm

Artikel-Nr. Article-No.				E.3673.0 € Stück piece	Artikel-Nr. Article-No.				E.3673.0 € Stück piece
d1 h5	l2	l1	d2 h7		d1 h5	l2	l1	d2 h7	
0,10 - 0,14	0,7	30	1,0		1,35	11,0	38	3,0	
0,15 - 0,19	1,0	30	1,0		1,36 - 1,39	11,0	38	3,0	
0,20	1,0	30	1,0		1,40	11,0	38	3,0	
0,21 - 0,24	1,0	30	1,0		1,41 - 1,44	11,0	38	3,0	
0,25 - 0,29	1,0	30	1,0		1,45	11,0	38	3,0	
0,30	1,5	38	3,0		1,46 - 1,49	11,0	38	3,0	
0,31 - 0,34	1,5	38	3,0		1,50	11,0	38	3,0	
0,35	1,5	38	3,0		1,51 - 1,54	12,0	38	3,0	
0,36 - 0,39	1,5	38	3,0		1,55	12,0	38	3,0	
0,40	2,0	38	3,0		1,56 - 1,59	12,0	38	3,0	
0,41 - 0,44	2,0	38	3,0		1,60	12,0	38	3,0	
0,45	3,5	38	3,0		1,61 - 1,64	12,0	38	3,0	
0,46 - 0,49	3,5	38	3,0		1,65	12,0	38	3,0	
0,50	4,0	38	3,0		1,66 - 1,69	12,0	38	3,0	
0,51 - 0,54	4,0	38	3,0		1,70	12,0	38	3,0	
0,55	4,5	38	3,0		1,71 - 1,74	12,0	38	3,0	
0,56 - 0,59	4,5	38	3,0		1,75	12,0	38	3,0	
0,60	5,0	38	3,0		1,76 - 1,79	12,0	38	3,0	
0,61 - 0,64	5,0	38	3,0		1,80	12,0	38	3,0	
0,65	5,0	38	3,0		1,81 - 1,84	12,0	38	3,0	
0,66 - 0,69	5,0	38	3,0		1,85	12,0	38	3,0	
0,70	5,5	38	3,0		1,86 - 1,89	12,0	38	3,0	
0,71 - 0,74	5,5	38	3,0		1,90	12,0	38	3,0	
0,75	5,5	38	3,0		1,91 - 1,94	12,0	38	3,0	
0,76 - 0,79	5,5	38	3,0		1,95	12,0	38	3,0	
0,80	5,5	38	3,0		1,96 - 1,99	12,0	38	3,0	
0,81 - 0,84	5,5	38	3,0		2,00	12,0	38	3,0	
0,85	5,5	38	3,0		2,05	15,0	50	3,0	
0,86 - 0,89	7,0	38	3,0		2,10	15,0	50	3,0	
0,90	7,0	38	3,0		2,20	15,0	50	3,0	
0,91 - 0,94	7,0	38	3,0		2,25	15,0	50	3,0	
0,95	7,0	38	3,0		2,30	15,0	50	3,0	
0,96 - 0,99	8,0	38	3,0		2,35	15,0	50	3,0	
1,00	8,0	38	3,0		2,40	15,0	50	3,0	
1,01 - 1,04	8,0	38	3,0		2,45	15,0	50	3,0	
1,05	8,0	38	3,0		2,50	15,0	50	3,0	
1,06 - 1,09	8,0	38	3,0		2,55	15,0	50	3,0	
1,10	8,0	38	3,0		2,60	18,0	50	3,0	
1,11 - 1,14	8,0	38	3,0		2,65	18,0	50	3,0	
1,15	8,0	38	3,0		2,70	18,0	50	3,0	
1,16 - 1,19	8,0	38	3,0		2,75	18,0	50	3,0	
1,20	10,0	38	3,0		2,80	18,0	50	3,0	
1,21 - 1,24	10,0	38	3,0		2,85	18,0	50	3,0	
1,25	10,0	38	3,0		2,90	18,0	50	3,0	
1,26 - 1,29	10,0	38	3,0		2,95	18,0	50	3,0	
1,30	10,0	38	3,0		3,00	18,0	50	3,0	
1,31 - 1,34	10,0	38	3,0						

- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

VHM-HSC-Mikrobohrer 0,01 mm steigend



-  Solid carbide micro drills rising in steps of 0,01 mm
-  Wiertła miniaturowe z węgla spiekane - średnice skokiem co 0,01 mm
-  Micropunte in MD centesimali 0,01 mm
-  Microbrocas de metal duro integral con incrementos de 0,01 mm para alta velocidad

Artikel-Nr. Article-No.				E.3676.1	Artikel-Nr. Article-No.				E.3676.1
d1 g5	l2	l1	d2 h7	€ Stück piece	d1 g5	l2	l1	d2 h7	€ Stück piece
0,78	5,7	50	3,0		1,29	9,4	50	3,0	
0,79	5,7	50	3,0		1,30	9,4	50	3,0	
0,80	5,8	50	3,0		1,31	9,5	50	3,0	
0,81	5,9	50	3,0		1,32	9,6	50	3,0	
0,82	5,9	50	3,0		1,33	9,6	50	3,0	
0,83	6,0	50	3,0		1,34	9,7	50	3,0	
0,84	6,1	50	3,0		1,35	9,8	50	3,0	
0,85	6,2	50	3,0		1,36	9,9	50	3,0	
0,86	6,2	50	3,0		1,37	9,9	50	3,0	
0,87	6,3	50	3,0		1,38	10,0	50	3,0	
0,88	6,4	50	3,0		1,39	10,1	50	3,0	
0,89	6,5	50	3,0		1,40	10,2	50	3,0	
0,90	6,5	50	3,0		1,41	10,2	50	3,0	
0,91	6,6	50	3,0		1,42	10,3	50	3,0	
0,92	6,7	50	3,0		1,43	10,4	50	3,0	
0,93	6,7	50	3,0		1,44	10,4	50	3,0	
0,94	6,8	50	3,0		1,45	10,5	50	3,0	
0,95	6,9	50	3,0		1,46	10,6	50	3,0	
0,96	7,0	50	3,0		1,47	10,7	50	3,0	
0,97	7,0	50	3,0		1,48	10,7	50	3,0	
0,98	7,1	50	3,0		1,49	10,8	50	3,0	
0,99	7,2	50	3,0		1,50	10,9	50	3,0	
1,00	7,3	50	3,0		1,51	10,9	50	3,0	
1,01	7,3	50	3,0		1,52	11,0	50	3,0	
1,02	7,4	50	3,0		1,53	11,1	50	3,0	
1,03	7,5	50	3,0		1,54	11,2	50	3,0	
1,04	7,5	50	3,0		1,55	11,2	50	3,0	
1,05	7,6	50	3,0		1,56	11,3	50	3,0	
1,06	7,7	50	3,0		1,57	11,4	50	3,0	
1,07	7,8	50	3,0		1,58	11,5	50	3,0	
1,08	7,8	50	3,0		1,59	11,5	50	3,0	
1,09	7,9	50	3,0		1,60	11,6	50	3,0	
1,10	8,0	50	3,0		1,61	11,7	50	3,0	
1,11	8,0	50	3,0		1,62	11,7	50	3,0	
1,12	8,1	50	3,0		1,63	11,8	50	3,0	
1,13	8,2	50	3,0		1,64	11,9	50	3,0	
1,14	8,3	50	3,0		1,65	12,0	50	3,0	
1,15	8,3	50	3,0		1,66	12,0	50	3,0	
1,16	8,4	50	3,0		1,67	12,1	50	3,0	
1,17	8,5	50	3,0		1,68	12,2	50	3,0	
1,18	8,6	50	3,0		1,69	12,3	50	3,0	
1,19	8,6	50	3,0		1,70	12,3	50	3,0	
1,20	8,7	50	3,0		1,71	12,4	50	3,0	
1,21	8,8	50	3,0		1,72	12,5	50	3,0	
1,22	8,8	50	3,0		1,73	12,5	50	3,0	
1,23	8,9	50	3,0		1,74	12,6	50	3,0	
1,24	9,0	50	3,0		1,75	12,7	50	3,0	
1,25	9,1	50	3,0		1,76	12,8	50	3,0	
1,26	9,1	50	3,0		1,77	12,8	50	3,0	
1,27	9,2	50	3,0		1,78	12,9	50	3,0	
1,28	9,3	50	3,0		1,79	13,0	50	3,0	

VHM-HSC-Mikrobohrer 0,01 mm steigend

E.3676.1

1.2 2.1 5.1

VHM WERKS (COMPANY) NORM Blue Cut

140° 8xD TITAN

HA STAHL INOX

- Solid carbide micro drills rising in steps of 0,01 mm
- Wiertła miniaturowe z węgla spiekanego - średnice skokiem co 0,01 mm
- Micropunte in MD centesimali 0,01 mm
- Microbrocas de metal duro integral con incrementos de 0,01 mm para alta velocidad

Artikel-Nr. Article-No.				E.3676.1	Artikel-Nr. Article-No.				E.3676.1
d1 g5	l2	l1	d2 h7	€ Stück piece	d1 g5	l2	l1	d2 h7	€ Stück piece
Ø 0,75 - 1,79 mm siehe Seite 3.05 Ø 0,75 - 1,79 mm see page 3.05									
1,80	13,1	50	3,0		1,91	13,8	50	3,0	
1,81	13,1	50	3,0		1,92	13,9	50	3,0	
1,82	13,2	50	3,0		1,93	14,0	50	3,0	
1,83	13,3	50	3,0		1,94	14,1	50	3,0	
1,84	13,3	50	3,0		1,95	14,1	50	3,0	
1,85	13,4	50	3,0		1,96	14,2	50	3,0	
1,86	13,5	50	3,0		1,97	14,3	50	3,0	
1,87	13,6	50	3,0		1,98	14,4	50	3,0	
1,88	13,6	50	3,0		1,99	14,4	50	3,0	
1,89	13,7	50	3,0		2,00	14,5	50	3,0	
1,90	13,8	50	3,0						

VHM-Kleinstbohrer

E.3601.0

Universal

VHM ähnl. DIN 1899

118° STAHL

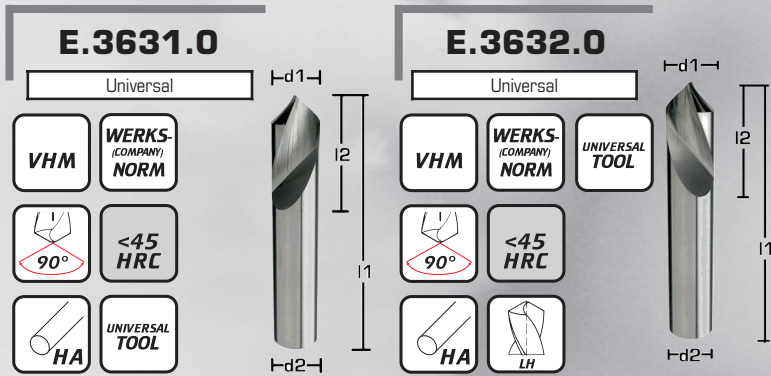
HA ALU

- Solid carbide mini drills
- Wiertła miniaturowe z węgla spiekanego
- Micropunte in MD
- Microbrocas de metal duro integral

Artikel-Nr. Article-No.				E.3601.0	Artikel-Nr. Article-No.				E.3601.0
d1 h6	l2	l1	d2 h7	€ Stück piece	d1 h6	l2	l1	d2 h7	€ Stück piece
0,25 - 0,29	2,5	30	1,0		1,15 - 1,19	10,0	30	1,5	
0,30 - 0,34	3,0	30	1,0		1,20 - 1,24	12,0	30	1,5	
0,35 - 0,39	4,0	30	1,0		1,25 - 1,29	12,0	30	1,5	
0,40 - 0,44	4,0	30	1,0		1,30 - 1,34	12,0	30	1,5	
0,45 - 0,49	4,0	30	1,0		1,35 - 1,39	12,0	30	1,5	
0,50 - 0,54	4,5	30	1,0		1,40 - 1,44	12,0	30	1,5	
0,55 - 0,59	5,0	30	1,0		1,45 - 1,49	12,0	30	1,5	
0,60 - 0,64	5,0	30	1,0		1,50 - 1,54	12,0	30	2,0	
0,65 - 0,69	6,0	30	1,0		1,55 - 1,59	12,0	30	2,0	
0,70 - 0,74	6,0	30	1,0		1,60 - 1,64	12,0	30	2,0	
0,75 - 0,79	6,5	30	1,0		1,65 - 1,69	12,0	30	2,0	
0,80 - 0,84	6,5	30	1,5		1,70 - 1,74	12,0	30	2,0	
0,85 - 0,89	6,5	30	1,5		1,75 - 1,79	12,0	30	2,0	
0,90 - 0,94	8,0	30	1,5		1,80 - 1,84	12,0	30	2,0	
0,95 - 0,99	8,0	30	1,5		1,85 - 1,89	12,0	30	2,0	
1,00 - 1,04	8,0	30	1,5		1,90 - 1,94	12,0	30	2,0	
1,05 - 1,09	8,0	30	1,5		1,95 - 1,99	12,0	30	2,0	
1,10 - 1,14	8,0	30	1,5		2,00	12,0	30	2,5	

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges

VHM-NC-Anbohrer



Solid carbide NC-Center drills

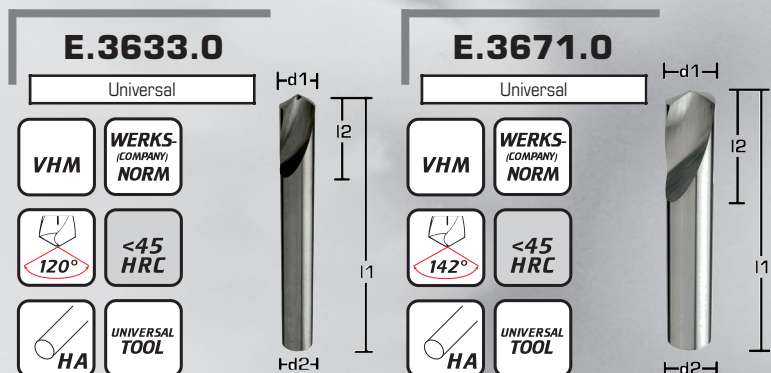
Wiertła centrujące z węgla spiekanego do maszyn CNC

Punte in MD da centro NC

Brocas de puntear de metal duro integral

Artikel-Nr. Article-No.			E.3631.0 € Stück piece	E.3632.0 € Stück piece
d1 h6	l2	l1		
1,00	6	26		
1,50	9	32		
2,00	12	38		
3,00	12	45		
4,00	15	50		
5,00	18	50		
6,00	21	50		
8,00	25	60		
10,00	27	66		
12,00	27	70		
14,00	30	75		
16,00	30	75		
18,00	33	100		
20,00	33	100		

VHM-NC-Anbohrer



Solid carbide NC-Center drills

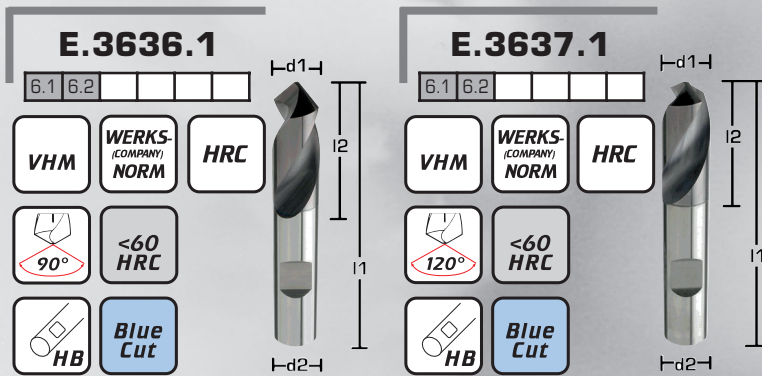
Wiertła centrujące z węgla spiekanego do maszyn CNC

Punte in MD da centro NC

Brocas de puntear de metal duro integral

Artikel-Nr. Article-No.			E.3633.0 € Stück piece	E.3671.0 € Stück piece
d1 h6	l2	l1		
3,00	12	45		
4,00	15	50		
5,00	18	50		
6,00	21	50		
8,00	25	60		
10,00	27	70		
12,00	27	70		
14,00	30	75		
16,00	30	75		
18,00	33	100		
20,00	33	100		

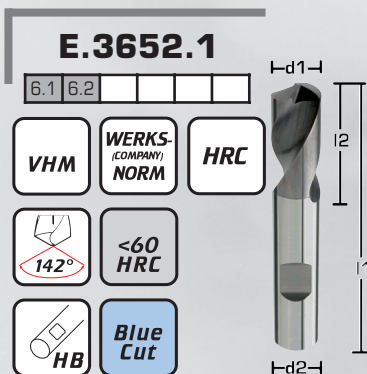
VHM-NC-Anbohrer



- Solid carbide NC-Center drills
- Wiertła centrujące z węgla spiekane go do materiaoów utwardzonych do maszyn CNC
- Punte in MD da centro NC
- Brocas de puntear de metal duro integral

Artikel-Nr. Article-No.			E.3636.1 € Stück piece	E.3637.1 € Stück piece
d1 h6	L2	L1		
3,00	8	38		
4,00	10	50		
5,00	13	50		
6,00	13	57		
8,00	19	63		
10,00	20	66		
12,00	22	73		
16,00	24	82		
20,00	30	92		

VHM-Pilotzentrierbohrer für Hochleistungsbohrer ab 8xd

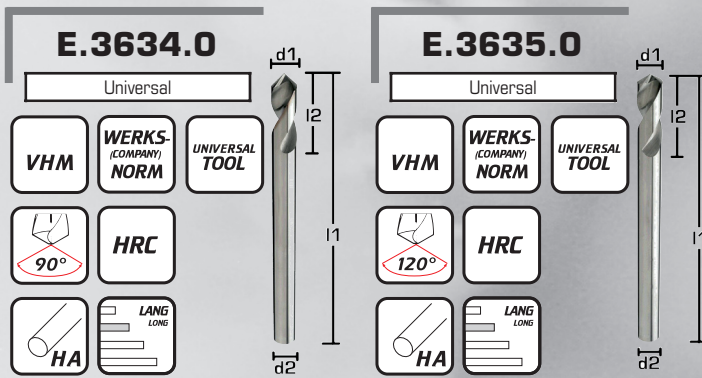


- Solid carbide pilot center drills
- Wiertła pilotująco-centrujące z węgla spiekane go do zastosowania przed wiertłami powyżej 8xD
- Punte pilota in MD
- Broca piloto de central metal duro integral para brocas de alto rendimiento desde 8xd

Artikel-Nr. Article-No.				E.3652.1 € Stück piece
d1 h6	L2	L1	d2	
3,00	11	57	3,0	
4,00	11	57	4,0	
6,00	11	57	6,0	
8,00	19	63	8,0	
10,00	20	66	10,0	
12,00	22	73	12,0	
16,00	24	82	16,0	
20,00	30	92	20,0	

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges

VHM-NC-Anbohrer lang



Solid carbide NC-Center drills long

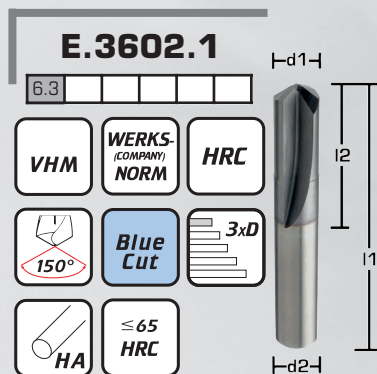
Wiertła długie centrujące z węgla spiekane do materiałów utwardzanych do maszyn CNC

Punte in MD da centro NC serie lunga

Brocas de puntear de metal duro integral, serie larga

Artikel-Nr. Article-No.				E.3634.0	E.3635.0
d1 h6	l2	l1	d2	€ Stück piece	€ Stück piece
3,00	15	100	3,0		
4,00	15	100	4,0		
5,00	20	100	5,0		
6,00	20	100	6,0		
8,00	25	100	8,0		
10,00	25	100	10,0		
12,00	25	150	12,0		

VHM-HRC-Hochleistungsbohrer



Solid carbide HRC-Heavy duty twist drills

Wiertła z węgla spiekane do obróki wysokowydajnej materiałów utwardzanych do 65 HRC

Punte in MD per lavorazioni HRC

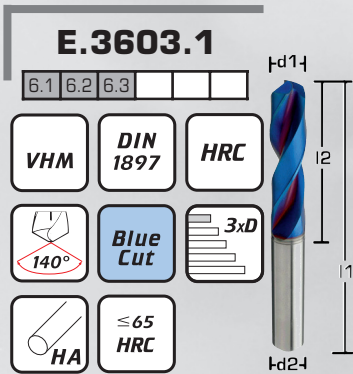
Brocas de alto rendimiento de metal duro integral

* = Auslaufartikel

* = no future production anymore

Artikel-Nr. Article-No.				E.3602.1	Artikel-Nr. Article-No.				E.3602.1
d1 + - 0,01	l2	l1	d2 h6	€ Stück piece	d1 + - 0,01	l2	l1	d2 h6	€ Stück piece
1,00	6	38	1,0		5,50	19	50	5,5	
1,50	8	38	1,5		6,00	19	50	6,0	
2,00	9	38	2,0		6,50	19	50	6,5	
2,50	13	38	2,5		6,80	19	63	6,8	
2,70	16	38	2,7		7,00	19	63	7,0	
3,00	16	38	3,0		7,80 *	19	63	8,0	
3,30	16	38	3,3		8,00	19	63	8,0	
3,50	16	50	3,5		8,50	25	63	8,5	
4,00	16	50	4,0		9,00 *	25	70	9,0	
4,20	16	50	4,2		10,00	25	70	10,0	
4,50	16	50	4,5		10,20	25	70	10,2	
4,80 *	19	50	5,0		12,00	25	75	12,0	
5,00	19	50	5,0		14,00	28	89	14,0	

VHM-HRC-Hochleistungsbohrer

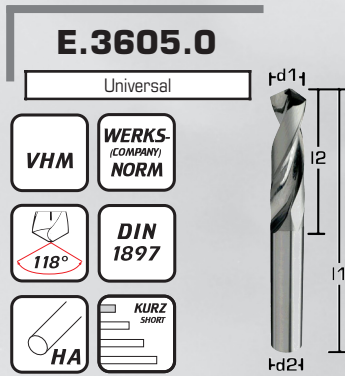


- Solid carbide HRC-Heavy duty twist drills
- Wiertła z węgla spiekane do obróbki wysokowydajnej materiałów utwardzonych do 65 HRC
- Punte in MD per lavorazioni HRC
- Brocas de alto rendimiento de metal duro integral

Artikel-Nr.		Article-No.		E.3603.1		Artikel-Nr.		Article-No.		E.3603.1		Artikel-Nr.		Article-No.		E.3603.1	
d1 h7	l2	l1	d2 h6	Stück	piece	d1 h7	l2	l1	d2 h6	Stück	piece	d1 h7	l2	l1	d2 h6	Stück	piece
1,00	7	45	4,0			6,10	34	79	8,0			13,00	60	107	14,0		
1,10	7	45	4,0			6,20	34	79	8,0			13,50	60	107	14,0		
1,20	7	45	4,0			6,30	34	79	8,0			13,80	60	107	14,0		
1,30	7	45	4,0			6,40	34	79	8,0			14,00	60	107	14,0		
1,40	7	45	4,0			6,50	34	79	8,0			14,20	65	115	16,0		
1,50	14	55	4,0			6,60	34	79	8,0			14,50	65	115	16,0		
1,60	14	55	4,0			6,70	34	79	8,0			14,80	65	115	16,0		
1,70	14	55	4,0			6,80	34	79	8,0			15,00	65	115	16,0		
1,80	14	55	4,0			6,90	34	79	8,0			15,20	65	115	16,0		
1,90	14	55	4,0			7,00	34	79	8,0			15,50	65	115	16,0		
2,00	20	55	4,0			7,10	41	79	8,0			15,80	65	115	16,0		
2,10	20	55	4,0			7,20	41	79	8,0			16,00	65	115	16,0		
2,20	20	55	4,0			7,30	41	79	8,0			16,50	73	123	18,0		
2,30	20	55	4,0			7,40	41	79	8,0			16,80	73	123	18,0		
2,40	20	55	4,0			7,50	41	79	8,0			17,00	73	123	18,0		
2,50	20	55	4,0			7,60	41	79	8,0			17,50	73	123	18,0		
2,60	20	55	4,0			7,70	41	79	8,0			18,00	73	123	18,0		
2,70	20	55	4,0			7,80	41	79	8,0			18,50	79	131	20,0		
2,80	20	55	4,0			7,90	41	79	8,0			18,80	79	131	20,0		
2,90	20	55	4,0			8,00	41	79	8,0			19,00	79	131	20,0		
3,00	20	62	6,0			8,10	47	89	10,0			19,50	79	131	20,0		
3,10	20	62	6,0			8,20	47	89	10,0			20,00	79	131	20,0		
3,20	20	62	6,0			8,30	47	89	10,0								
3,30	20	62	6,0			8,40	47	89	10,0								
3,40	20	62	6,0			8,50	47	89	10,0								
3,50	20	62	6,0			8,60	47	89	10,0								
3,60	20	62	6,0			8,70	47	89	10,0								
3,70	20	62	6,0			8,80	47	89	10,0								
3,80	24	66	6,0			8,90	47	89	10,0								
3,90	24	66	6,0			9,00	47	89	10,0								
4,00	24	66	6,0			9,10	47	89	10,0								
4,10	24	66	6,0			9,20	47	89	10,0								
4,20	24	66	6,0			9,30	47	89	10,0								
4,30	24	66	6,0			9,40	47	89	10,0								
4,40	24	66	6,0			9,50	47	89	10,0								
4,50	24	66	6,0			9,60	47	89	10,0								
4,60	24	66	6,0			9,70	47	89	10,0								
4,70	24	66	6,0			9,80	47	89	10,0								
4,80	28	66	6,0			9,90	47	89	10,0								
4,90	28	66	6,0			10,00	47	89	10,0								
5,00	28	66	6,0			10,20	55	102	12,0								
5,10	28	66	6,0			10,50	55	102	12,0								
5,20	28	66	6,0			10,80	55	102	12,0								
5,30	28	66	6,0			11,00	55	102	12,0								
5,40	28	66	6,0			11,20	55	102	12,0								
5,50	28	66	6,0			11,50	55	102	12,0								
5,60	28	66	6,0			11,80	55	102	12,0								
5,70	28	66	6,0			12,00	55	102	12,0								
5,80	28	66	6,0			12,20	60	107	14,0								
5,90	28	66	6,0			12,50	60	107	14,0								
6,00	28	66	6,0			12,80	60	107	14,0								

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer ähnl. DIN 1897 (6539)



Solid carbide twist drills similar to DIN 1897 (6539)

Wiertła skretne z węglika spiekanego, odpowiednik wiertel wg DIN 1897 (6539)

Punte in MD simile DIN 1897 (6539)

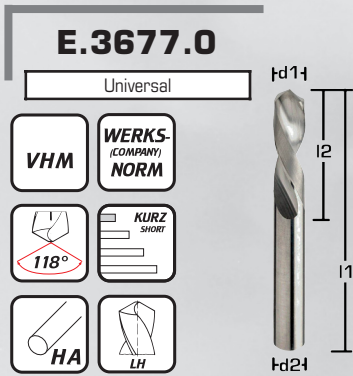
Brocas de metal duro integral, sim. DIN 1897 (6539)





* = Auslaufartikel

* = no future production anymore

Artikel-Nr.		Article-No.		E.3605.0		Artikel-Nr.		Article-No.		E.3605.0		Artikel-Nr.		Article-No.		E.3605.0		
d1	h6	l2	l1	Stück	piece	d1	h6	l2	l1	Stück	piece	d1	h6	l2	l1	Stück	piece	
0,50	5,0	30				2,80	16,0	46				5,15	26,0	60		8,80	40,0	84
0,55	5,0	30				2,85	20,0	45				5,20	26,0	62		8,90	40,0	84
0,60	5,5	30				2,90	16,0	46				5,25	26,0	60		9,00	40,0	84
0,65	6,0	30				2,95	20,0	45				5,30	26,0	62		9,10	40,0	84
0,70	6,0	30				3,00	16,0	46				5,35	28,0	60		9,20	40,0	84
0,75	8,0	30				3,05	22,0	50				5,40	28,0	66		9,30	40,0	84
0,80	8,0	30				3,10	18,0	49				5,45	28,0	60		9,40	40,0	84
0,85	9,0	30				3,15	22,0	50				5,50	28,0	66		9,50	40,0	84
0,90	9,0	30				3,20	18,0	49				5,55	28,0	60		9,60	43,0	89
0,95	10,0	30				3,25	20,0	50				5,60	28,0	66		9,70	43,0	89
1,00	6,0	26				3,30	18,0	49				5,65	28,0	60		9,80	43,0	89
1,05	10,0	30				3,35	22,0	50				5,70	28,0	66		9,90	43,0	89
1,10	7,0	28				3,40	20,0	52				5,75	28,0	60		10,00	43,0	89
1,15	10,0	30				3,45	22,0	50				5,80	28,0	66		10,20	43,0	89
1,20	8,0	30				3,50	20,0	52				5,85	28,0	60		10,50	43,0	89
1,25	12,0	30				3,55	22,0	50				5,90	28,0	66		10,80	47,0	95
1,30	8,0	30				3,60	20,0	52				5,95	28,0	60		11,00	47,0	95
1,35	12,0	30				3,65	22,0	50				6,00	28,0	66		11,20	47,0	95
1,40	9,0	32				3,70	20,0	52				6,10	31,0	70		11,50	47,0	95
1,45	12,0	32				3,75	22,0	50				6,20	31,0	70		11,80	47,0	95
1,50	9,0	32				3,80	22,0	55				6,30	31,0	70		12,00	51,0	102
1,55	16,0	40				3,85	22,0	50				6,40	31,0	70		12,50	51,0	102
1,60	10,0	34				3,90	22,0	55				6,50	31,0	70		12,70	51,0	102
1,65	16,0	40				3,95	22,0	50				6,55*	31,0	70		12,80	51,0	102
1,70	10,0	34				4,00	22,0	55				6,60	31,0	70		13,00	51,0	102
1,75	16,0	40				4,05	25,0	50				6,70	31,0	70		13,50	54,0	107
1,80	11,0	36				4,10	22,0	55				6,80	34,0	74		14,00	54,0	107
1,85	16,0	40				4,15	25,0	60				6,90	34,0	74		14,50	56,0	111
1,90	11,0	36				4,20	22,0	55				7,00	34,0	74		15,00	56,0	111
1,95	16,0	40				4,25	25,0	60				7,10	34,0	74		16,00	58,0	115
2,00	12,0	38				4,30	24,0	58				7,20	34,0	74		17,00	60,0	119
2,04*	12,0	38				4,35	25,0	60				7,30	34,0	74		18,00	62,0	123
2,05	18,0	40				4,40	24,0	58				7,40	34,0	74		19,00	64,0	127
2,10	12,0	38				4,45	25,0	60				7,50	34,0	74		20,00	66,0	131
2,15	18,0	40				4,50	24,0	58				7,60	37,0	79				
2,20	13,0	40				4,55	25,0	60				7,70	37,0	79				
2,25	18,0	40				4,60	24,0	58				7,80	37,0	79				
2,30	13,0	40				4,65	25,0	60				7,90	37,0	79				
2,35	18,0	40				4,70	24,0	58				8,00	37,0	79				
2,40	14,0	43				4,75	26,0	60				8,05*	37,0	79				
2,45	18,0	43				4,80	26,0	62				8,10	37,0	79				
2,50	14,0	43				4,85	26,0	60				8,20	37,0	79				
2,55	18,0	45				4,90	26,0	62				8,30	37,0	79				
2,60	14,0	43				4,95	26,0	60				8,40	37,0	79				
2,65	18,0	45				5,00	26,0	60				8,50	37,0	79				
2,70	16,0	46				5,05	26,0	60				8,60	40,0	84				
2,75	20,0	46				5,10	26,0	62				8,70	40,0	84				

VHM-Spiralbohrer links ähnl. DIN 1897 (6539)

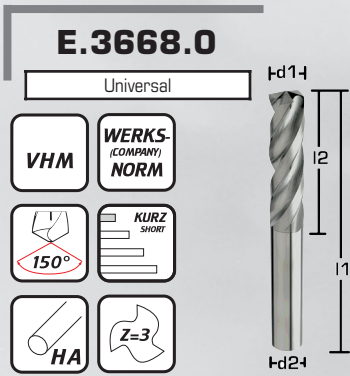


-  Solid carbide twist drills left hand similar to DIN 1897 (6539)
-  Wiertła lewoskrętne z węglika spiekanego, odpowiednik wiertel wg DIN 1897 (6539)
-  Punte in MD simile DIN 1897 (6539) elica sinistra
-  Brocas de metal duro integral, izquierdas, sim. DIN 1897 (6539)

Artikel-Nr. Article-No.			E.3677.0	Artikel-Nr. Article-No.			E.3677.0	Artikel-Nr. Article-No.			E.3677.0
d1 h6	l2	l1	€ Stück piece	d1 h6	l2	l1	€ Stück piece	d1 h6	l2	l1	€ Stück piece
0,30	4	30		2,55	18	40		4,80	26	60	
0,35	4	30		2,60	18	40		4,85	26	60	
0,40	6	30		2,65	18	40		4,90	26	60	
0,45	6	30		2,70	20	50		4,95	26	60	
0,50	6	30		2,75	20	50		5,00	26	60	
0,55	6	30		2,80	20	50		5,05	26	60	
0,60	6	30		2,85	20	50		5,10	26	60	
0,65	6	30		2,90	20	50		5,15	26	60	
0,70	6	30		2,95	20	50		5,20	26	60	
0,75	8	30		3,00	20	50		5,25	26	60	
0,80	8	30		3,05	22	50		5,30	26	60	
0,85	8	30		3,10	22	50		5,35	28	60	
0,90	9	30		3,15	22	50		5,40	28	60	
0,95	9	30		3,20	22	50		5,45	28	60	
1,00	10	30		3,25	22	50		5,50	28	60	
1,05	10	30		3,30	22	50		5,55	28	60	
1,10	10	30		3,35	22	50		5,60	28	60	
1,15	10	30		3,40	22	50		5,65	28	60	
1,20	12	30		3,45	22	50		5,70	28	60	
1,25	12	30		3,50	22	50		5,75	28	60	
1,30	12	30		3,55	22	50		5,80	28	60	
1,35	12	30		3,60	22	50		5,85	28	60	
1,40	12	30		3,65	22	50		5,90	28	60	
1,45	12	30		3,70	22	50		5,95	28	60	
1,50	12	30		3,75	22	50		6,00	28	60	
1,55	16	40		3,80	22	50		6,10	31	70	
1,60	16	40		3,85	22	50		6,20	31	70	
1,65	16	40		3,90	22	50		6,30	31	70	
1,70	16	40		3,95	22	50		6,40	31	70	
1,75	16	40		4,00	22	50		6,50	31	70	
1,80	16	40		4,05	25	50		6,60	31	70	
1,85	16	40		4,10	25	50		6,70	31	70	
1,90	16	40		4,15	25	60		6,80	34	74	
1,95	16	40		4,20	25	60		6,90	34	74	
2,00	18	40		4,25	25	60		7,00	34	74	
2,05	18	40		4,30	25	60		7,10	34	74	
2,10	18	40		4,35	25	60		7,20	34	74	
2,15	18	40		4,40	25	60		7,30	34	74	
2,20	18	40		4,45	25	60		7,40	34	74	
2,25	18	40		4,50	25	60		7,50	34	74	
2,30	18	40		4,55	25	60		7,60	37	79	
2,35	18	40		4,60	25	60		7,70	37	79	
2,40	18	40		4,65	25	60		7,80	37	79	
2,45	18	40		4,70	25	60		7,90	37	79	
2,50	18	40		4,75	26	60		8,00	37	79	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Pilotbohrer H7



Solid carbide pilot drills H7

Wiertła pilotujące 3-ostrowe z węgla spiekane w tolerancji H7

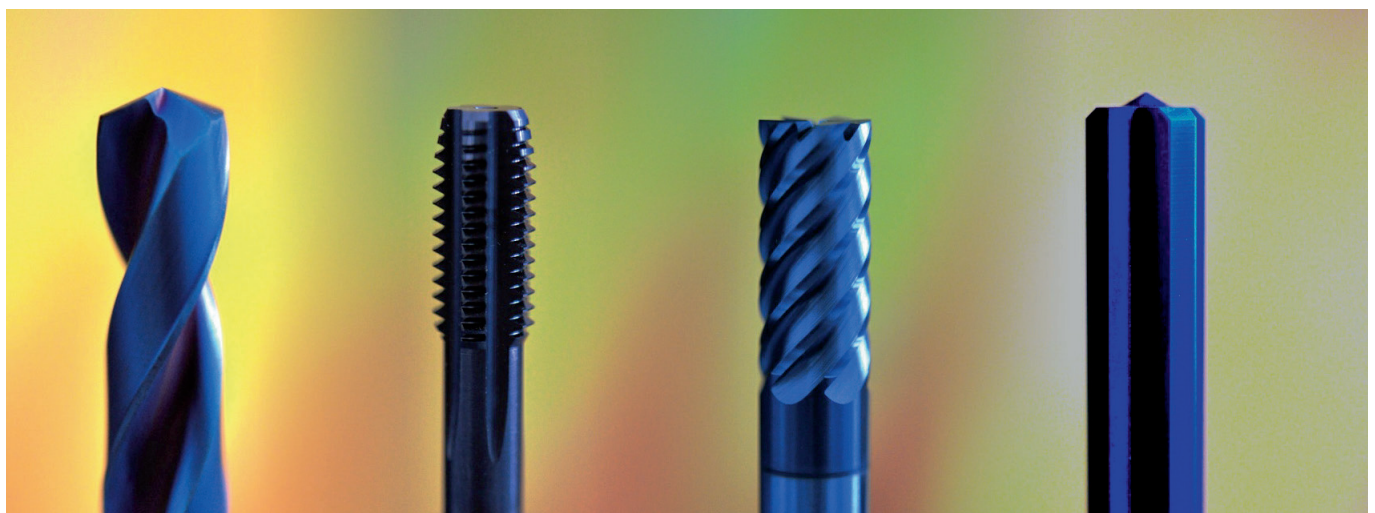
Punta in MD pilota H7

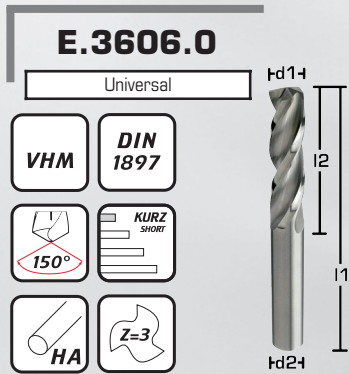
Brocas piloto de metal duro integral, tolerancia H7

Artikel-Nr. Article-No.			E.3668.0 € Stück piece	Artikel-Nr. Article-No.			E.3668.0 € Stück piece
d1 H7	l2	l1		d1 H7	l2	l1	
3,00	16	46		7,00	34	74	
3,20	18	49		7,50	34	74	
3,30	18	49		8,00	37	79	
3,50	20	52		8,50	37	79	
4,00	22	55		9,00	40	84	
4,20	22	55		9,50	40	84	
4,50	24	58		10,00	43	89	
5,00	26	62		10,20	43	89	
5,50	28	66		11,00	47	95	
6,00	28	66		12,00	51	102	
6,80	34	74					

Speziell geeignet für die Pilotbohrung bei Einlippentieflochbohrern

Especially designed for pilot drilling with one flute deephole drills





Solid carbide twist drills with 3 flutes

Wiertła skrętne trzyostrzowe z węglika spiekanego wg DIN 1897

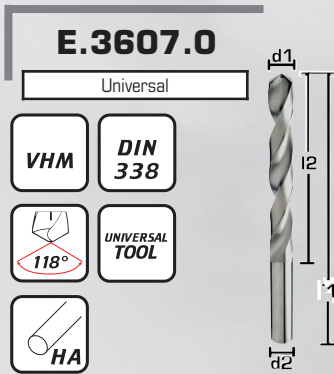
Punte in MD 3 eliche

Broca avellanador de tres labios de metal duro integral

Artikel-Nr. Article-No.			E.3606.0 € Stück piece	Artikel-Nr. Article-No.			E.3606.0 € Stück piece
d1 h6	l2	l1		d1 h6	l2	l1	
3,00	16	46		7,20	34	74	
3,10	18	49		7,30	34	74	
3,20	18	49		7,40	34	74	
3,30	18	49		7,50	34	74	
3,40	20	52		7,60	37	79	
3,50	20	52		7,70	37	79	
3,60	20	52		7,80	37	79	
3,70	20	52		7,90	37	79	
3,80	22	55		8,00	37	79	
3,90	22	55		8,10	37	79	
4,00	22	55		8,20	37	79	
4,10	22	55		8,30	37	79	
4,20	22	55		8,40	37	79	
4,30	24	58		8,50	37	79	
4,40	24	58		8,60	40	84	
4,50	24	58		8,70	40	84	
4,60	24	58		8,80	40	84	
4,70	24	58		8,90	40	84	
4,80	26	62		9,00	40	84	
4,90	26	62		9,10	40	84	
5,00	26	62		9,20	40	84	
5,10	26	62		9,30	40	84	
5,20	26	62		9,40	40	84	
5,30	26	62		9,50	40	84	
5,40	28	66		9,60	43	89	
5,50	28	66		9,70	43	89	
5,60	28	66		9,80	43	89	
5,70	28	66		9,90	43	89	
5,80	28	66		10,00	43	89	
5,90	28	66		10,20	43	89	
6,00	28	66		10,50	43	89	
6,10	31	70		11,00	47	95	
6,20	31	70		11,50	47	95	
6,30	31	70		12,00	51	102	
6,40	31	70		12,50	51	102	
6,50	31	70		13,00	51	102	
6,60	31	70		13,50	54	107	
6,70	31	70		14,00	54	107	
6,80	34	74		14,50	56	111	
6,90	34	74		15,00	56	111	
7,00	34	74		15,50	58	115	
7,10	34	74		16,00	58	115	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer DIN 338



Solid carbide twist drills DIN 338

Wiertła skrętne z węglika spiekane go wg DIN 338

Punte in MD DIN 338

Brocas de metal duro integral, DIN 338

* = Auslaufartikel

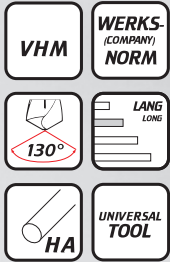
* = no future production anymore





Artikel-Nr. Article-No.			E.3607.0	Artikel-Nr. Article-No.			E.3607.0	Artikel-Nr. Article-No.			E.3607.0
d1 h6	l2	l1	€ Stück piece	d1 h6	l2	l1	€ Stück piece	d1 h6	l2	l1	€ Stück piece
0,40	5	20		3,80	43	75		7,50	69	109	
0,50	6	26		3,90	43	75		7,60	75	117	
0,60	7	27		4,00	43	75		7,70	75	117	
0,70	9	28		4,05*	43	75		7,80	75	117	
0,80	10	30		4,10	43	75		7,90	75	117	
0,90	11	32		4,20	43	75		8,00	75	117	
1,00	12	34		4,30	47	80		8,10	75	117	
1,10	14	36		4,35*	47	80		8,20	75	117	
1,20	16	38		4,40	47	80		8,30	75	117	
1,30	16	38		4,50	47	80		8,40	75	117	
1,40	18	40		4,55*	47	80		8,50	75	117	
1,45*	18	40		4,60	47	80		8,60	81	125	
1,50	18	40		4,65*	47	80		8,70	81	125	
1,55*	20	43		4,70	47	80		8,80	81	125	
1,60	20	43		4,80	52	86		8,90	81	125	
1,70	20	43		4,90	52	86		9,00	81	125	
1,80	22	46		5,00	52	86		9,10	81	125	
1,90	22	46		5,03*	52	86		9,20	81	125	
1,95*	24	49		5,05*	52	86		9,30	81	125	
2,00	24	49		5,10	52	86		9,40	81	125	
2,02*	24	49		5,20	52	86		9,50	81	125	
2,10	24	49		5,30	52	86		9,60	87	133	
2,15*	27	53		5,40	57	93		9,70	87	133	
2,20	27	53		5,50	57	93		9,80	87	133	
2,25*	27	53		5,55*	57	93		9,90	87	133	
2,30	27	53		5,60	57	93		10,00	87	133	
2,40	30	57		5,70	57	93		10,20	87	133	
2,50	30	57		5,80	57	93		10,40	87	133	
2,55*	30	57		5,90	57	93		10,50	87	133	
2,60	30	57		6,00	57	93		10,60	87	133	
2,70	33	61		6,05*	63	101		10,80	94	142	
2,80	33	61		6,10	63	101		11,00	94	142	
2,90	33	61		6,20	63	101		11,20	94	142	
3,00	33	61		6,30	63	101		11,50	94	142	
3,05*	33	61		6,40	63	101		11,80	94	142	
3,10	36	65		6,50	63	101		12,00	101	151	
3,20	36	65		6,60	63	101		12,30	101	151	
3,30	36	65		6,70	63	101		12,50	101	151	
3,40	39	70		6,80	69	109		12,80	101	151	
3,50	39	70		6,90	69	109		13,00	101	151	
3,55*	39	70		7,00	69	109		13,50	108	160	
3,60	39	70		7,10	69	109		14,00	108	160	
3,65*	39	70		7,20	69	109		14,50	108	160	
3,70	39	70		7,30	69	109		15,00	114	169	
3,75*	39	70		7,40	69	109		16,00	120	178	

VHM-Spiralbohrer ähnl. DIN 340

E.3609.0

Universal



-  Solid carbide twist drills similar DIN 340
-  Wiertła skrotne dlugie z weglika spiekanego odpowiednik wiertel wg DIN 340
-  Punte in MD simile DIN 340
-  Brocas de metal duro integral, sim. DIN 340

Artikel-Nr. Article-No.			E.3609.0	Artikel-Nr. Article-No.			E.3609.0
d1 h6	l2	l1	€ Stück piece	d1 h6	l2	l1	€ Stück piece
1,00	25	75		5,90	75	150	
1,10	25	75		6,00	75	150	
1,20	25	75		6,10	75	150	
1,30	25	75		6,20	75	150	
1,40	30	75		6,30	75	150	
1,50	30	75		6,40	75	150	
1,60	30	75		6,50	75	150	
1,70	30	75		6,60	75	150	
1,80	30	75		6,70	75	150	
1,90	30	75		6,80	75	150	
2,00	30	75		6,90	75	150	
2,10	30	75		7,00	75	150	
2,20	30	75		7,10	75	150	
2,30	30	75		7,20	75	150	
2,40	35	100		7,30	75	150	
2,50	35	100		7,40	75	150	
2,60	35	100		7,50	75	150	
2,70	35	100		7,60	75	150	
2,80	35	100		7,70	75	150	
2,90	35	100		7,80	75	150	
3,00	50	100		7,90	75	150	
3,10	50	100		8,00	75	150	
3,20	50	100		8,10	75	150	
3,30	50	100		8,20	75	150	
3,40	50	100		8,30	75	150	
3,50	50	100		8,40	75	150	
3,60	50	100		8,50	75	150	
3,70	50	100		8,60	75	150	
3,80	50	100		8,70	75	150	
3,90	50	100		8,80	75	150	
4,00	50	100		8,90	75	150	
4,10	50	100		9,00	75	150	
4,20	50	100		9,10	75	150	
4,30	50	100		9,20	75	150	
4,40	50	100		9,30	75	150	
4,50	50	100		9,40	75	150	
4,60	50	100		9,50	75	150	
4,70	50	100		9,60	75	150	
4,80	50	100		9,70	75	150	
4,90	50	100		9,80	75	150	
5,00	75	150		9,90	75	150	
5,10	75	150		10,00	75	150	
5,20	75	150		10,50	90	200	
5,30	75	150		11,00	90	200	
5,40	75	150		11,50	90	200	
5,50	75	150		12,00	90	200	
5,60	75	150		12,50	90	200	
5,70	75	150		13,00	90	200	
5,80	75	150					

- Gewindbohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

VHM-Spiralbohrer 3xd

E.3611.1

Universal

VHM WERKS (COMPANY) NORM UNIVERSAL TOOL

KURZ (SHORT) 3xD

140°

HA Blue Cut

E.3684.1

Universal

VHM WERKS (COMPANY) NORM UNIVERSAL TOOL

KURZ (SHORT) 3xD

140°

HA Blue Cut

Solid carbide twist drills, 3xd

Wiertła skrętne z węglika spiekane go 3xD

Punte in MD 3xd

Brocas de metal duro integral, 3xd, ranuras helicoidales

Schaft 3 shank 3 Schaft 6 shank 6

Artikel-Nr. Article-No.					E.3611.1	E.3684.1
d1 h6	l3	l2	l1	d2	€ Stück piece	€ Stück piece
1,00	3	8	38	3,0		
1,10	3	8	38	3,0		
1,20	3	8	38	3,0		
1,30	3	8	38	3,0		
1,40	Ø 1,50-1,90 mm nur in länger Ausführung lieferbar Ø 3,50-1,90 mm can. Only be supplied in long version					
2,00	10	16	50	3,0 / 6,0		
2,10	10	16	50	3,0 / 6,0		
2,20	10	16	50	3,0 / 6,0		
2,30	10	16	50	3,0 / 6,0		
2,40	10	16	50	3,0 / 6,0		
2,50	14	20	50	3,0 / 6,0		
2,60	14	20	50	3,0 / 6,0		
2,70	14	20	50	3,0 / 6,0		
2,80	14	20	50	3,0 / 6,0		
2,90	14	20	50	3,0 / 6,0		

VHM-Spiralbohrer 5xd

E.3612.1

Universal

VHM WERKS (COMPANY) NORM UNIVERSAL TOOL

LANG (LONG) 5xD

140°

HA Blue Cut

E.3685.1

Universal

VHM WERKS (COMPANY) NORM UNIVERSAL TOOL

LANG (LONG) 5xD

140°

HA Blue Cut

Solid carbide twist drills 5xd

Wiertła skrętne długie z węglika spiekane go 5xD

Punte in MD 5xd

Brocas de metal duro integral, 5xd, ranuras helicoidales

Schaft 3 shank 3 Schaft 6 shank 6

Artikel-Nr. Article-No.					E.3612.1	E.3685.1
d1 h6	l3	l2	l1	d2	€ Stück piece	€ Stück piece
1,50	10	13	38	3,0 / 6,0		
1,60	10	13	38	3,0 / 6,0		
1,70	10	13	38	3,0 / 6,0		
1,80	10	13	38	3,0 / 6,0		
1,90	10	13	38	3,0 / 6,0		
2,00	14	20	60	3,0 / 6,0		
2,10	14	20	60	3,0 / 6,0		
2,20	14	20	60	3,0 / 6,0		
2,30	14	20	60	3,0 / 6,0		
2,40	14	20	60	3,0 / 6,0		
2,45	14	20	60	3,0 / 6,0		
2,50	20	26	60	3,0 / 6,0		
2,60	20	26	60	3,0 / 6,0		
2,70	20	26	60	3,0 / 6,0		
2,80	20	26	60	3,0 / 6,0		
2,90	20	26	60	3,0 / 6,0		

VHM-Spiralbohrer 3xd

E.3645.1

Universal

E.3646.1

Universal

E.3647.1

2.1 | 2.2 | 5.1

Solid carbide twist drills 3xd

Wiertła skrotne z węglika spiekanego 3xD

Punte in MD 3xd

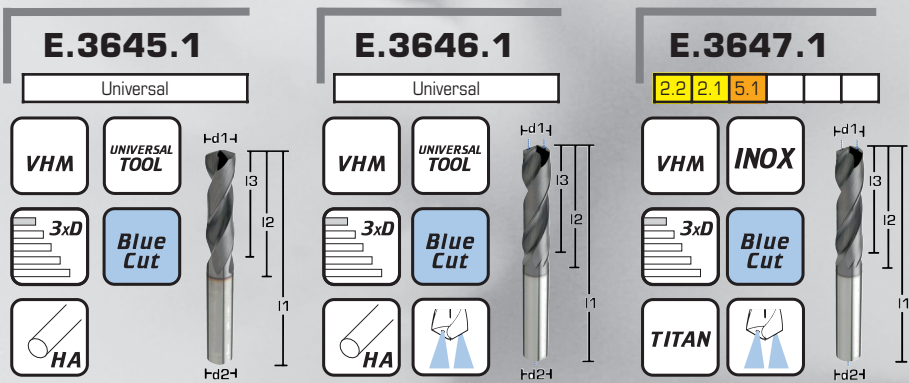
Brocas de metal duro integral, 3xd, ranuras helicoidales





Artikel-Nr. Article-No.					E.3645.1	E.3646.1	E.3647.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
1,00	4,0	7	45	4,0			
1,10	4,4	7	45	4,0			
1,20	4,8	7	45	4,0			
1,30	5,2	7	45	4,0	siehe		
1,40	5,6	7	45	4,0	Art-Nr. E.3611.1		
1,50	6,0	14	55	4,0	Art-Nr. E.3684.1		
1,60	6,4	14	55	4,0			
1,70	6,8	14	55	4,0			
1,80	7,2	14	55	4,0			
1,90	7,6	14	55	4,0			
2,00	8,0	20	55	4,0			
2,10	8,4	20	55	4,0	see		
2,20	8,8	20	55	4,0	Art-No. E.3611.1		
2,30	9,2	20	55	4,0	Art-No. E.3684.1		
2,40	9,6	20	55	4,0			
2,50	10,0	20	55	4,0			
2,60	10,4	20	55	4,0			
2,70	10,8	20	55	4,0			
2,80	11,2	20	55	4,0			
2,90	11,6	20	55	4,0			
3,00	14,0	20	62	6,0			
3,10	14,0	20	62	6,0			
3,20	14,0	20	62	6,0			
3,30	14,0	20	62	6,0			
3,40	14,0	20	62	6,0			
3,50	14,0	20	62	6,0			
3,60	14,0	20	62	6,0			
3,70	14,0	20	62	6,0			
3,80	17,0	24	66	6,0			
3,90	17,0	24	66	6,0			
4,00	17,0	24	66	6,0			
4,10	17,0	24	66	6,0			
4,20	17,0	24	66	6,0			
4,30	17,0	24	66	6,0			
4,40	17,0	24	66	6,0			
4,50	17,0	24	66	6,0			
4,60	17,0	24	66	6,0			
4,70	17,0	24	66	6,0			
4,80	20,0	28	66	6,0			
4,90	20,0	28	66	6,0			
5,00	20,0	28	66	6,0			
5,10	20,0	28	66	6,0			
5,20	20,0	28	66	6,0			
5,30	20,0	28	66	6,0			
5,40	20,0	28	66	6,0			
5,50	20,0	28	66	6,0			
5,60	20,0	28	66	6,0			
5,70	20,0	28	66	6,0			
5,80	20,0	28	66	6,0			

Fortsetzung nächste Seite to be continued

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer 3xd

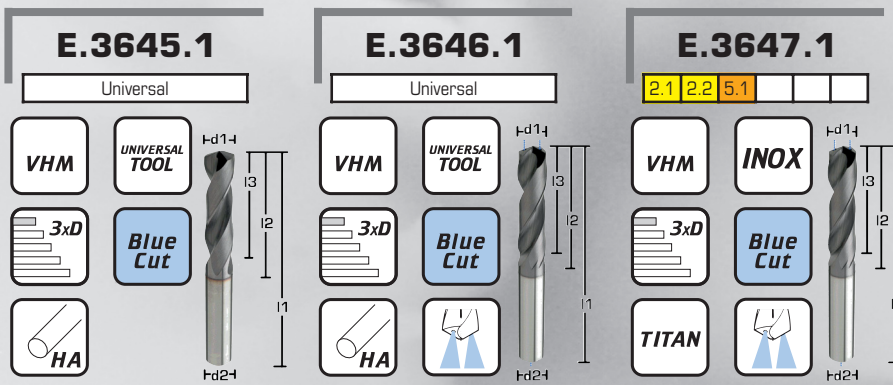


-  Solid carbide twist drills 3xd
-  Wiertła skrętne z węglika spiekane 3xD
-  Punte in MD 3xd
-  Brocas de metal duro integral, 3xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3645.1	E.3646.1	E.3647.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
5,90	20	28	66	6,0			
6,00	20	28	66	6,0			
6,10	24	34	79	8,0			
6,20	24	34	79	8,0			
6,30	24	34	79	8,0			
6,40	24	34	79	8,0			
6,50	24	34	79	8,0			
6,60	24	34	79	8,0			
6,70	24	34	79	8,0			
6,80	24	34	79	8,0			
6,90	24	34	79	8,0			
7,00	24	34	79	8,0			
7,10	29	41	79	8,0			
7,20	29	41	79	8,0			
7,30	29	41	79	8,0			
7,40	29	41	79	8,0			
7,50	29	41	79	8,0			
7,60	29	41	79	8,0			
7,70	29	41	79	8,0			
7,80	29	41	79	8,0			
7,90	29	41	79	8,0			
8,00	29	41	79	8,0			
8,10	35	47	89	10,0			
8,20	35	47	89	10,0			
8,30	35	47	89	10,0			
8,40	35	47	89	10,0			
8,50	35	47	89	10,0			
8,60	35	47	89	10,0			
8,70	35	47	89	10,0			
8,80	35	47	89	10,0			
8,90	35	47	89	10,0			
9,00	35	47	89	10,0			
9,10	35	47	89	10,0			
9,20	35	47	89	10,0			
9,30	35	47	89	10,0			
9,40	35	47	89	10,0			
9,50	35	47	89	10,0			
9,60	35	47	89	10,0			
9,70	35	47	89	10,0			
9,80	35	47	89	10,0			
9,90	35	47	89	10,0			
10,00	35	47	89	10,0			
10,10	40	55	102	12,0			
10,20	40	55	102	12,0			
10,30	40	55	102	12,0			
10,40	40	55	102	12,0			
10,50	40	55	102	12,0			
10,60	40	55	102	12,0			
10,70	40	55	102	12,0			

Fortsetzung nächste Seite to be continued

VHM-Spiralbohrer 3xd



- Solid carbide twist drills 3xd
- Wiertła skrętne z węgla spiekane 3xD
- Punte in MD 3xd
- Brocas de metal duro integral, 3xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3645.1	E.3646.1	E.3647.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
Ø 1,00-10,70 mm siehe Seite 3.18 + 3.19 Ø 1,00-10,70 mm see page 3.18 + 3.19							
10,80	40	55	102	12,0			
10,90	40	55	102	12,0			
11,00	40	55	102	12,0			
11,10	40	55	102	12,0			
11,20	40	55	102	12,0			
11,30	40	55	102	12,0			
11,40	40	55	102	12,0			
11,50	40	55	102	12,0			
11,60	40	55	102	12,0			
11,70	40	55	102	12,0			
11,80	40	55	102	12,0			
11,90	40	55	102	12,0			
12,00	40	55	102	12,0			
12,30	43	60	107	14,0			
12,50	43	60	107	14,0			
12,80	43	60	107	14,0			
13,00	43	60	107	14,0			
13,50	43	60	107	14,0			
13,80	43	60	107	14,0			
14,00	43	60	107	14,0			
14,50	45	65	115	16,0			
14,80	45	65	115	16,0			
15,00	45	65	115	16,0			
15,50	45	65	115	16,0			
15,80	45	65	115	16,0			
16,00	45	65	115	16,0			
16,50	51	73	123	18,0			
16,80	51	73	123	18,0			
17,00	51	73	123	18,0			
17,50	51	73	123	18,0			
17,80	51	73	123	18,0			
18,00	51	73	123	18,0			
18,50	55	79	131	20,0			
19,00	55	79	131	20,0			
19,50	55	79	131	20,0			
19,80	55	79	131	20,0			
20,00	55	79	131	20,0			

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges

VHM-Spiralbohrer 5xd

E.3665.1

Universal

E.3617.1

Universal

E.3618.1

2.1 5.1

E.3619.1

4.1 4.2 4.4

Solid carbide twist drills 5xd

Wiertła skrętne z węglika spiekane 5xD

Punte in MD 5xd

Brocas de metal duro integral, 5xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3665.1	E.3617.1	E.3618.1*	E.3619.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece	€ Stück piece
1,00	6,5	8	55	3,0/4,0*				
1,10	9,5	12	55	3,0/4,0*				
1,20	9,5	12	55	3,0/4,0*				
1,30	9,5	12	55	3,0/4,0*				
1,40	9,5	12	55	3,0/4,0*				
1,50	9,5	12	55	3,0/4,0*				
1,60	13,0	16	55	3,0/4,0*				
1,70	13,0	16	55	3,0/4,0*				
1,80	13,0	16	55	3,0/4,0*				
1,90	13,0	16	55	3,0/4,0*				
2,00	13,0	16	57	6,0/4,0*				
2,10	16,0	21	57	6,0/4,0*				
2,20	16,0	21	57	6,0/4,0*				
2,30	16,0	21	57	6,0/4,0*				
2,40	16,0	21	57	6,0/4,0*				
2,50	16,0	21	57	6,0/4,0*				
2,60	18,0	21	57	6,0/4,0*				
2,70	18,0	21	57	6,0/4,0*				
2,80	18,0	21	57	6,0/4,0*				
2,90	18,0	21	57	6,0/4,0*				
3,00	23,0	28	66	6,0				
3,10	23,0	28	66	6,0				
3,20	23,0	28	66	6,0				
3,30	23,0	28	66	6,0				
3,40	23,0	28	66	6,0				
3,50	23,0	28	66	6,0				
3,60	23,0	28	66	6,0				
3,70	23,0	28	66	6,0				
3,80	29,0	36	74	6,0				
3,90	29,0	36	74	6,0				
4,00	29,0	36	74	6,0				
4,10	29,0	36	74	6,0				
4,20	29,0	36	74	6,0				
4,30	29,0	36	74	6,0				
4,40	29,0	36	74	6,0				
4,50	29,0	36	74	6,0				
4,60	29,0	36	74	6,0				
4,65	29,0	36	74	6,0				
4,70	29,0	36	74	6,0				
4,80	35,0	44	82	6,0				
4,90	35,0	44	82	6,0				
5,00	35,0	44	82	6,0				
5,10	35,0	44	82	6,0				
5,20	35,0	44	82	6,0				
5,30	35,0	44	82	6,0				
5,40	35,0	44	82	6,0				

Fortsetzung nächste Seite to be continued

VHM-Spiralbohrer 5xd

E.3665.1

Universal

E.3617.1

Universal

E.3618.1

2.1 5.1

E.3619.1

4.1 4.2 4.4

Solid carbide twist drills 5xd

Wiertła skrotne z weglika spiekanego 5xD

Punte in MD 5xd

Brocas de metal duro integral, 5xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3665.1	E.3617.1	E.3618.1	E.3619.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece	€ Stück piece

Ø 1,00-5,40 mm siehe Seite 3.21 Ø 1,00-5,40 mm see page 3.21

5,50	35	44	82	6,0				
5,55	35	44	82	6,0				
5,60	35	44	82	6,0				
5,70	35	44	82	6,0				
5,80	35	44	82	6,0				
5,90	35	44	82	6,0				
6,00	35	44	82	6,0				
6,10	43	53	91	8,0				
6,20	43	53	91	8,0				
6,30	43	53	91	8,0				
6,40	43	53	91	8,0				
6,50	43	53	91	8,0				
6,60	43	53	91	8,0				
6,70	43	53	91	8,0				
6,80	43	53	91	8,0				
6,90	43	53	91	8,0				
7,00	43	53	91	8,0				
7,10	43	53	91	8,0				
7,20	43	53	91	8,0				
7,30	43	53	91	8,0				
7,40	43	53	91	8,0				
7,50	43	53	91	8,0				
7,60	43	53	91	8,0				
7,70	43	53	91	8,0				
7,80	43	53	91	8,0				
7,90	43	53	91	8,0				
8,00	43	53	91	8,0				
8,10	49	61	103	10,0				
8,20	49	61	103	10,0				
8,30	49	61	103	10,0				
8,40	49	61	103	10,0				
8,50	49	61	103	10,0				
8,60	49	61	103	10,0				
8,70	49	61	103	10,0				
8,80	49	61	103	10,0				
8,90	49	61	103	10,0				
9,00	49	61	103	10,0				
9,10	49	61	103	10,0				
9,20	49	61	103	10,0				
9,30	49	61	103	10,0				
9,40	49	61	103	10,0				
9,50	49	61	103	10,0				
9,60	49	61	103	10,0				
9,70	49	61	103	10,0				
9,80	49	61	103	10,0				

Fortsetzung nächste Seite *to be continued*

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer 5xd

E.3665.1

Universal

E.3617.1

Universal

E.3618.1

2.1 5.1

E.3619.1

4.1 4.2 4.4

Solid carbide twist drills 5xd

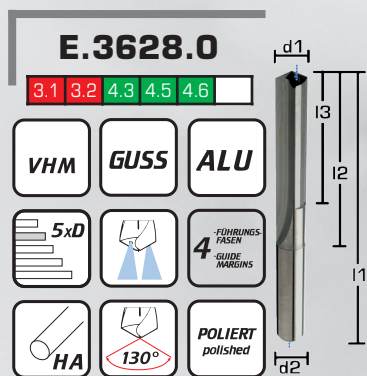
Wiertła skrętne z węglika spiekanego 5xD





Punte in MD 5xd

Brocas de metal duro integral, 5xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3665.1	E.3617.1	E.3618.1	E.3619.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece	€ Stück piece
9,90	49	61	103	10,0				
10,00	49	61	103	10,0				
10,10	56	71	118	12,0				
10,20	56	71	118	12,0				
10,30	56	71	118	12,0				
10,40	56	71	118	12,0				
10,50	56	71	118	12,0				
10,60	56	71	118	12,0				
10,70	56	71	118	12,0				
10,80	56	71	118	12,0				
10,90	56	71	118	12,0				
11,00	56	71	118	12,0				
11,10	56	71	118	12,0				
11,20	56	71	118	12,0				
11,30	56	71	118	12,0				
11,40	56	71	118	12,0				
11,50	56	71	118	12,0				
11,60	56	71	118	12,0				
11,70	56	71	118	12,0				
11,80	56	71	118	12,0				
11,90	56	71	118	12,0				
12,00	56	71	118	12,0				
12,20	60	77	124	14,0				
12,30	60	77	124	14,0				
12,50	60	77	124	14,0				
12,80	60	77	124	14,0				
13,00	60	77	124	14,0				
13,50	60	77	124	14,0				
13,80	60	77	124	14,0				
14,00	60	77	124	14,0				
14,50	63	83	133	16,0				
14,80	63	83	133	16,0				
15,00	63	83	133	16,0				
15,50	63	83	133	16,0				
15,80	63	83	133	16,0				
16,00	63	83	133	16,0				
16,50	71	93	143	18,0				
16,80	71	93	143	18,0				
17,00	71	93	143	18,0				
17,50	71	93	143	18,0				
17,80	71	93	143	18,0				
18,00	71	93	143	18,0				
18,50	77	101	153	20,0				
19,00	77	101	153	20,0				
19,50	77	101	153	20,0				
19,80	77	101	153	20,0				
20,00	77	101	153	20,0				

VHM-4 Fasenbohrer 5xd gerade genutet

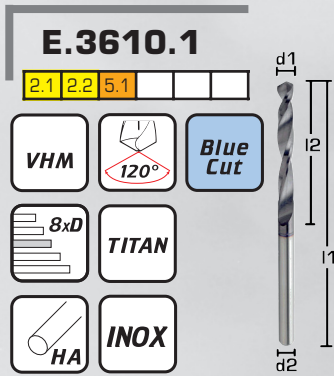






-  Solid carbide drills 4 margins 5xd straight fluted
-  Wiertła proste 4--łysinkowe z węglika spiekanego 5xD do materiałów dających krótki wiór
-  Punte MD, 4 fasi, denti dritti 5xd
-  Brocas de metal duro integral, 5xd, con cuatro caras y ranuras rectas

Artikel-Nr. Article-No.					E.3628.0 € Stück piece
d1 m7	l3	l2	l1	d2	
2,80	18	21	57	6,0	
3,00	23	28	66	6,0	
3,30	23	28	66	6,0	
3,50	23	28	66	6,0	
3,80	29	36	74	6,0	
4,00	29	36	74	6,0	
4,20	29	36	74	6,0	
4,50	29	36	74	6,0	
4,80	35	44	82	6,0	
5,00	35	44	82	6,0	
5,50	35	44	82	6,0	
5,80	35	44	82	6,0	
6,00	35	44	82	6,0	
6,50	43	53	91	8,0	
6,80	43	53	91	8,0	
7,00	43	53	91	8,0	
7,50	43	53	91	8,0	
7,80	43	53	91	8,0	
8,00	43	53	91	8,0	
8,50	49	61	103	10,0	
8,80	49	61	103	10,0	
9,00	49	61	103	10,0	
9,50	49	61	103	10,0	
9,80	49	61	103	10,0	
10,00	49	61	103	10,0	
10,20	56	71	118	12,0	
10,50	56	71	118	12,0	
10,80	56	71	118	12,0	
11,00	56	71	118	12,0	
11,50	56	71	118	12,0	
11,80	56	71	118	12,0	
12,00	56	71	118	12,0	
12,50	60	77	124	14,0	
12,80	60	77	124	14,0	
13,00	60	77	124	14,0	
13,50	60	77	124	14,0	
13,80	60	77	124	14,0	
14,00	60	77	124	14,0	
14,50	63	83	133	16,0	
14,80	63	83	133	16,0	
15,00	63	83	133	16,0	
15,50	63	83	133	16,0	
15,80	63	83	133	16,0	
16,00	63	83	133	16,0	
17,00	71	93	143	18,0	
18,00	71	93	143	18,0	
19,00	77	101	153	20,0	
20,00	77	101	153	20,0	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Mikro-Spiralbohrer 8xd



-  Solid carbide micro drills 8xD
-  Wiertła miniaturowe z węgla spiekanego 8xD do stali nierdzewnej i stopów tytanu
-  Micropunte in MD 8xD
-  Microbrocas de metal duro integral, 8xD

Artikel-Nr. Article-No.				E.3610.1 € Stück piece
d1	l2	l1	d2 h6	
0,50	3,8	38	3,0	
0,55	4,1	38	3,0	
0,60	4,5	38	3,0	
0,65	4,9	38	3,0	
0,70	5,3	38	3,0	
0,75	5,6	38	3,0	
0,80	6,0	38	3,0	
0,85	6,4	38	3,0	
0,90	6,8	38	3,0	
0,95	7,1	38	3,0	
1,00	7,5	38	3,0	
1,05	7,9	38	3,0	
1,10	8,3	38	3,0	
1,15	8,6	38	3,0	
1,20	9,0	38	3,0	
1,25	9,4	38	3,0	
1,30	9,8	38	3,0	
1,35	10,1	38	3,0	
1,40	10,5	38	3,0	
1,45	10,9	38	3,0	
1,50	11,3	38	3,0	
1,55	11,6	45	3,0	
1,60	12,0	45	3,0	
1,65	12,4	45	3,0	
1,70	12,8	45	3,0	
1,75	13,1	45	3,0	
1,80	13,5	45	3,0	
1,85	13,9	45	3,0	
1,90	14,3	45	3,0	
1,95	14,6	45	3,0	
2,00	15,0	45	3,0	
2,05	15,4	45	3,0	
2,10	15,8	45	3,0	
2,15	16,1	45	3,0	
2,20	16,5	45	3,0	
2,25	16,9	45	3,0	
2,30	17,3	45	3,0	
2,35	17,6	45	3,0	
2,40	18,0	45	3,0	
2,45	18,4	45	3,0	
2,50	18,8	53	3,0	
2,55	19,1	53	3,0	
2,60	19,5	53	3,0	
2,65	19,9	53	3,0	
2,70	20,3	53	3,0	
2,75	20,6	53	3,0	
2,80	21,0	53	3,0	
2,85	21,4	53	3,0	
2,90	21,8	53	3,0	
2,95	22,1	53	3,0	
3,00	22,5	53	3,0	

VHM-Spiralbohrer 8xd

E.3666.1

Universal

VHM UNIVERSAL TOOL

4 FÜHRUNGS-
FASCHEN
-GUIDE
MARGINS

8xD Blue Cut

ab ø 3 mm
from ø 3 mm

HA

E.3623.1

2.1 5.1

VHM INOX TITAN

8xD Blue Cut

HA

E.3624.1

4.1 4.2 4.4

VHM ALU

8xD Blue Cut

HA

Solid carbide twist drills 8xd

Wiertła skrotne z węgliką spiekanego 8xD

Punte in MD 8xd

Brocas de metal duro integral, 8xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3666.1	E.3623.1	E.3624.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
1,00	9,0	11	55	3,0			
1,10	13,5	17	55	3,0			
1,20	13,5	17	55	3,0			
1,30	13,5	17	55	3,0			
1,40	13,5	17	55	3,0			
1,50	13,5	17	55	3,0			
1,60	17,5	22	65	3,0			
1,70	17,5	22	65	3,0			
1,80	17,5	22	65	3,0			
1,90	17,5	22	65	3,0			
2,00	17,5	22	65	3,0			
2,10	22,5	28	74	3,0			
2,20	22,5	28	74	3,0			
2,30	22,5	28	74	3,0			
2,40	22,5	28	74	3,0			
2,50	22,5	28	74	3,0			
2,60	25,5	32	81	3,0			
2,70	25,5	32	81	3,0			
2,80	25,5	32	81	3,0			
2,90	25,5	32	81	3,0			
3,00	27,0	34	81	6,0			
3,10	27,0	34	81	6,0			
3,20	27,0	34	81	6,0			
3,30	27,0	34	81	6,0			
3,40	27,0	34	81	6,0			
3,50	27,0	34	81	6,0			
3,60	27,0	34	81	6,0			
3,70	27,0	34	81	6,0			
3,80	35,0	43	81	6,0			
3,90	35,0	43	81	6,0			
4,00	35,0	43	81	6,0			
4,10	35,0	43	81	6,0			
4,20	35,0	43	81	6,0			
4,30	35,0	43	81	6,0			
4,40	35,0	43	81	6,0			
4,50	35,0	43	81	6,0			
4,60	35,0	43	81	6,0			
4,70	35,0	43	81	6,0			
4,80	45,0	57	95	6,0			
4,90	45,0	57	95	6,0			
5,00	45,0	57	95	6,0			
5,10	45,0	57	95	6,0			
5,20	45,0	57	95	6,0			
5,30	45,0	57	95	6,0			

Fortsetzung nächste Seite to be continued

Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer 8xd

E.3666.1

Universal

VHM UNIVERSAL TOOL

4 FÜHRUNGS-
RÄUMEN
-
LEITEN
-
MARGINS

8xD Blue Cut

ab ø 3 mm
from ø 3 mm

HA

E.3623.1

2.1 5.1

VHM INOX TITAN

8xD Blue Cut

HA

E.3624.1

4.1 4.2 4.4

VHM ALU

8xD Blue Cut

HA

Solid carbide twist drills 8xd

Wiertła skrajne z węglika spiekane 8xD

Punte in MD 8xd

Brocas de metal duro integral, 8xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3666.1	E.3623.1	E.3624.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
Ø 1,00-5,30 mm siehe Seite 3.26 Ø 1,00-5,30 mm see page 3.26							
5,40	45	57	95	6,0			
5,50	45	57	95	6,0			
5,60	45	57	95	6,0			
5,70	45	57	95	6,0			
5,80	45	57	95	6,0			
5,90	45	57	95	6,0			
6,00	45	57	95	6,0			
6,10	52	76	114	8,0			
6,20	52	76	114	8,0			
6,30	52	76	114	8,0			
6,40	52	76	114	8,0			
6,50	52	76	114	8,0			
6,60	52	76	114	8,0			
6,70	52	76	114	8,0			
6,80	52	76	114	8,0			
6,90	52	76	114	8,0			
7,00	60	76	114	8,0			
7,10	60	76	114	8,0			
7,20	60	76	114	8,0			
7,30	60	76	114	8,0			
7,40	60	76	114	8,0			
7,50	60	76	114	8,0			
7,60	60	76	114	8,0			
7,70	60	76	114	8,0			
7,80	60	76	114	8,0			
7,90	60	76	114	8,0			
8,00	60	76	114	8,0			
8,10	68	95	142	10,0			
8,20	68	95	142	10,0			
8,30	68	95	142	10,0			
8,40	68	95	142	10,0			
8,50	68	95	142	10,0			
8,60	68	95	142	10,0			
8,70	68	95	142	10,0			
8,80	68	95	142	10,0			
8,90	68	95	142	10,0			
9,00	68	95	142	10,0			
9,10	76	95	142	10,0			
9,20	76	95	142	10,0			
9,30	76	95	142	10,0			
9,40	76	95	142	10,0			
9,50	76	95	142	10,0			
9,60	76	95	142	10,0			
9,70	76	95	142	10,0			

Fortsetzung nächste Seite to be continued

VHM-Spiralbohrer 8xd

E.3666.1

Universal

VHM UNIVERSAL TOOL

4 FUHRUNGS-
FÄHIGES
-GUIDE
-MARGINS

8xD Blue Cut

ab ø 3 mm
from ø 3 mm

HA

E.3623.1

2.1 5.1

VHM INOX TITAN

8xD Blue Cut

HA

E.3624.1

4.1 4.2 4.4

VHM ALU

8xD Blue Cut

HA

Solid carbide twist drills 8xD

Wiertła skrotne z węgla spiekane 8xD

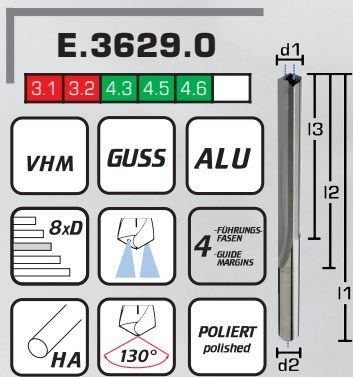
Punte in MD 8xD


Brocas de metal duro integral, 8xD, ranuras helicoidales


Artikel-Nr. Article-No.					E.3666.1	E.3623.1	E.3624.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
9,80	76	95	142	10,0			
9,90	76	95	142	10,0			
10,00	76	95	142	10,0			
10,10	90	114	162	12,0			
10,20	90	114	162	12,0			
10,30	90	114	162	12,0			
10,40	90	114	162	12,0			
10,50	90	114	162	12,0			
10,60	90	114	162	12,0			
10,70	90	114	162	12,0			
10,80	90	114	162	12,0			
10,90	90	114	162	12,0			
11,00	90	114	162	12,0			
11,10	90	114	162	12,0			
11,20	90	114	162	12,0			
11,30	90	114	162	12,0			
11,40	90	114	162	12,0			
11,50	90	114	162	12,0			
11,60	90	114	162	12,0			
11,70	90	114	162	12,0			
11,80	90	114	162	12,0			
11,90	90	114	162	12,0			
12,00	90	114	162	12,0			
12,50	106	133	178	14,0			
12,80	106	133	178	14,0			
13,00	106	133	178	14,0			
13,50	106	133	178	14,0			
14,00	106	133	178	14,0			
14,50	122	152	203	16,0			
15,00	122	152	203	16,0			
15,50	122	152	203	16,0			
16,00	122	152	203	16,0			


Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13


VHM-4 Fasenbohrer 8xd gerade genutet



 Solid carbide drills 4 margins 8xd straight fluted

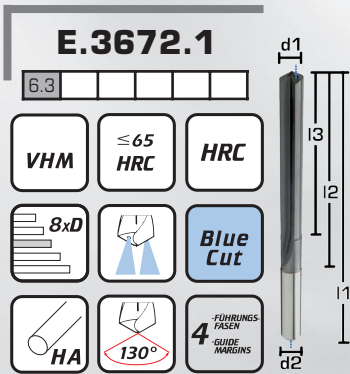
 Wiertła proste 4-lysinkowe z węglika spiekanego 8xD





 Punte MD, 4 fasi, denti dritti 8xd

 Brocas de metal duro integral, 8xd, con cuatro caras y ranuras rectas

Artikel-Nr. Article-No.					E.3629.0 € Stück piece
d1 m7	l3	l2	l1	d2 h6	
2,50	22,5	28	74	3,0	
2,80	25,5	32	81	3,0	
3,00	27,0	34	72	6,0	
3,30	27,0	34	72	6,0	
3,50	27,0	34	72	6,0	
3,80	35,0	43	81	6,0	
4,00	35,0	43	81	6,0	
4,20	35,0	43	81	6,0	
4,50	35,0	43	81	6,0	
4,80	45,0	57	95	6,0	
5,00	45,0	57	95	6,0	
5,50	45,0	57	95	6,0	
5,80	45,0	57	95	6,0	
6,00	45,0	57	95	6,0	
6,50	52,0	76	114	8,0	
6,80	52,0	76	114	8,0	
7,00	60,0	76	114	8,0	
7,50	60,0	76	114	8,0	
7,80	60,0	76	114	8,0	
8,00	60,0	76	114	8,0	
8,50	68,0	95	142	10,0	
8,80	68,0	95	142	10,0	
9,00	68,0	95	142	10,0	
9,50	76,0	95	142	10,0	
9,80	76,0	95	142	10,0	
10,00	76,0	95	142	10,0	
10,20	90,0	114	162	12,0	
10,50	90,0	114	162	12,0	
10,80	90,0	114	162	12,0	
11,00	90,0	114	162	12,0	
11,50	90,0	114	162	12,0	
11,80	90,0	114	162	12,0	
12,00	90,0	114	162	12,0	
12,50	106,0	133	178	14,0	
12,80	106,0	133	178	14,0	
13,00	106,0	133	178	14,0	
13,50	106,0	133	178	14,0	
13,80	106,0	133	178	14,0	
14,00	106,0	133	178	14,0	
14,50	122,0	152	203	16,0	
14,80	122,0	152	203	16,0	
15,00	122,0	152	203	16,0	
15,50	122,0	152	203	16,0	
15,80	122,0	152	203	16,0	
16,00	122,0	152	203	16,0	

VHM-HRC-4 Fasenbohrer 8xd



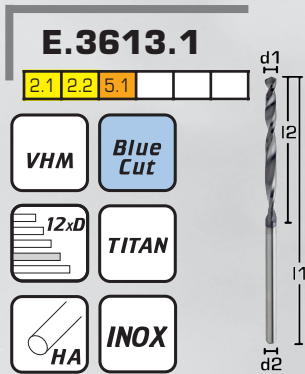
-  Solid carbide HRC drills 4 margins 8xd
-  Wiertła 4-lysinkowe z węglika spiekanego do materiałów utwardzanych 8xD
-  Punte in MD, 4 fasi, denti dritti 8xd lavorazioni HRC
-  Brocas de metal duro integral, 8xd, con cuatro caras para gran dureza





Artikel-Nr. Article-No.					E.3672.1 € Stück piece
d1 m7	l3	l2	l1	d2 h6	
5,00	46	60	98	6,0	
5,50	46	60	98	6,0	
5,80	46	60	98	6,0	
6,00	46	60	98	6,0	
6,50	60	76	114	8,0	
6,80	60	76	114	8,0	
7,00	60	76	114	8,0	
7,50	60	76	114	8,0	
7,80	60	76	114	8,0	
8,00	60	76	114	8,0	
8,50	74	92	134	10,0	
8,80	74	92	134	10,0	
9,00	74	92	134	10,0	
9,20	74	92	134	10,0	
9,50	74	92	134	10,0	
9,80	74	92	134	10,0	
10,00	74	92	134	10,0	
10,20	88	108	155	12,0	
10,50	88	108	155	12,0	
10,80	88	108	155	12,0	
11,00	88	108	155	12,0	
11,50	88	108	155	12,0	
11,80	88	108	155	12,0	
12,00	88	108	155	12,0	
13,00	104	125	172	14,0	
14,00	104	125	172	14,0	
15,00	120	143	193	16,0	
16,00	120	143	193	16,0	



- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

VHM-Mikro-Spiralbohrer 12xd



-  Solid carbide micro drills 12xd
-  Wiertła miniaturowe z węglika spiekowanego 12xD
-  Micropunte in MD 12xd
-  Microbrocas de metal duro integral, 12xd

Artikel-Nr. Article-No.				E.3613.1 € Stück piece
d1	l2	l1	d2 h6	
0,50	6,8	38	3,0	
0,55	7,4	38	3,0	
0,60	8,1	38	3,0	
0,65	8,8	38	3,0	
0,70	9,5	38	3,0	
0,75	10,1	38	3,0	
0,80	10,8	38	3,0	
0,85	11,5	38	3,0	
0,90	12,2	38	3,0	
0,95	12,8	38	3,0	
1,00	13,5	45	3,0	
1,05	14,2	45	3,0	
1,10	14,9	45	3,0	
1,15	15,5	45	3,0	
1,20	16,2	45	3,0	
1,25	16,9	45	3,0	
1,30	17,6	45	3,0	
1,35	18,2	45	3,0	
1,40	18,9	45	3,0	
1,45	19,6	45	3,0	
1,50	20,3	53	3,0	
1,55	20,9	53	3,0	
1,60	21,6	53	3,0	
1,65	22,3	53	3,0	
1,70	23,0	53	3,0	
1,75	23,6	53	3,0	
1,80	24,3	53	3,0	
1,85	25,0	53	3,0	
1,90	25,7	53	3,0	
1,95	26,3	53	3,0	
2,00	27,0	64	3,0	
2,05	27,7	64	3,0	
2,10	28,4	64	3,0	
2,15	29,0	64	3,0	
2,20	29,7	64	3,0	
2,25	30,4	64	3,0	
2,30	31,1	64	3,0	
2,35	31,7	64	3,0	
2,40	32,4	64	3,0	
2,45	33,1	64	3,0	
2,50	33,8	64	3,0	
2,55	34,4	75	3,0	
2,60	35,1	75	3,0	
2,65	35,8	75	3,0	
2,70	36,5	75	3,0	
2,75	37,1	75	3,0	
2,80	37,8	75	3,0	
2,85	38,5	75	3,0	
2,90	39,2	75	3,0	
2,95	39,8	75	3,0	
3,00	40,5	75	3,0	

VHM-Spiralbohrer 12xd

E.3667.1

Universal

VHM UNIVERSAL TOOL

4 FÜHRUNGS-FÄSERN -GUIDE MARGINS

12xD Blue Cut

ab ø 3 mm from ø 3 mm

HA

E.3625.1

Universal

VHM UNIVERSAL TOOL

12xD Blue Cut

HA

E.3681.1

2.1 2.2 4.1 4.2 5.1

VHM INOX TITAN

12xD Blue Cut ALU

4 FÜHRUNGS-FÄSERN -GUIDE MARGINS

HA

Solid carbide twist drills 12xd

Wiertła skrotne z weglika spiekanego 12xD

Punte in MD 12xd

Brocas de metal duro integral, 12xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3667.1	E.3625.1	E.3681.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
1,00	12,0	15	55	3,0			
1,10	18,5	23	55	3,0			
1,20	18,5	23	55	3,0			
1,30	18,5	23	55	3,0			
1,40	18,5	23	55	3,0			
1,50	18,5	23	55	3,0			
1,60	24,0	30	65	3,0			
1,70	24,0	30	65	3,0			
1,80	24,0	30	65	3,0			
1,90	24,0	30	65	3,0			
2,00	24,0	30	65	3,0			
2,10	30,5	38	74	3,0			
2,20	30,5	38	74	3,0			
2,30	30,5	38	74	3,0			
2,40	30,5	38	74	3,0			
2,50	30,5	38	74	3,0			
2,60	35,0	44	81	3,0			
2,70	35,0	44	81	3,0			
2,80	35,0	44	81	3,0			
2,90	35,0	44	81	3,0			
3,00	48,0	54	92	6,0			
3,10	48,0	54	92	6,0			
3,20	48,0	54	92	6,0			
3,30	48,0	54	92	6,0			
3,40	48,0	54	92	6,0			
3,50	48,0	54	92	6,0			
3,60	48,0	54	92	6,0			
3,70	48,0	54	92	6,0			
3,80	58,0	64	102	6,0			
3,90	58,0	64	102	6,0			
4,00	58,0	64	102	6,0			
4,10	58,0	64	102	6,0			
4,20	58,0	64	102	6,0			
4,30	58,0	64	102	6,0			
4,40	58,0	64	102	6,0			
4,50	58,0	64	102	6,0			
4,60	58,0	64	102	6,0			
4,70	58,0	64	102	6,0			
4,80	70,0	78	116	6,0			
4,90	70,0	78	116	6,0			
5,00	70,0	78	116	6,0			
5,10	70,0	78	116	6,0			
5,20	70,0	78	116	6,0			
5,30	70,0	78	116	6,0			
5,40	70,0	78	116	6,0			
5,50	70,0	78	116	6,0			
5,60	70,0	78	116	6,0			
5,70	70,0	78	116	6,0			
5,80	70,0	78	116	6,0			

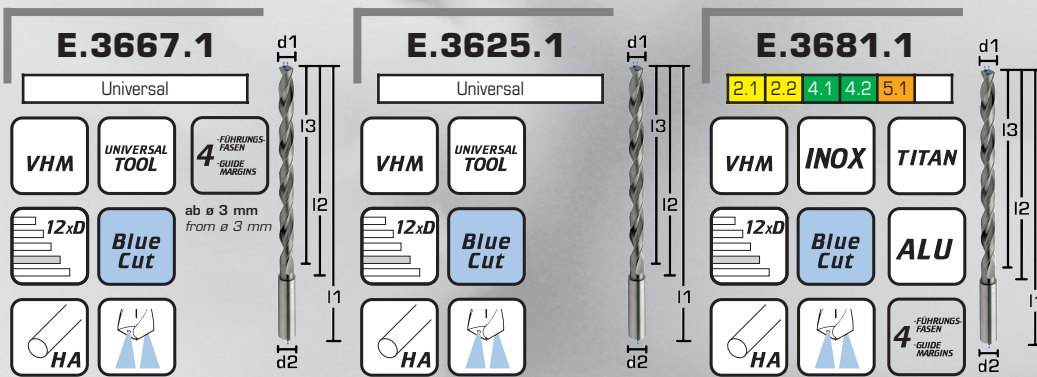
Fortsetzung nächste Seite to be continued





Pilotbohrer für Zentrierungen: E.3652.1 Seite 3.08 oder E.3668.0 Seite 3.13

Pilot-Drills for center drill holes: E.3652.1 page 3.08 or E.3668.0 page 3.13

Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Spiralbohrer 12xd



-  Solid carbide twist drills 12xd
-  Wiertła skrotne z weglika spiekanego 12xD
-  Punte in MD 12xd
-  Brocas de metal duro integral, 12xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3667.1	E.3625.1	E.3681.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
5,90	70	78	116	6,0			
6,00	70	78	116	6,0			
6,10	94	108	146	8,0			
6,20	94	108	146	8,0			
6,30	94	108	146	8,0			
6,40	94	108	146	8,0			
6,50	94	108	146	8,0			
6,60	94	108	146	8,0			
6,70	94	108	146	8,0			
6,80	94	108	146	8,0			
6,90	94	108	146	8,0			
7,00	94	108	146	8,0			
7,10	94	108	146	8,0			
7,20	94	108	146	8,0			
7,30	94	108	146	8,0			
7,40	94	108	146	8,0			
7,50	94	108	146	8,0			
7,60	94	108	146	8,0			
7,70	94	108	146	8,0			
7,80	94	108	146	8,0			
7,90	94	108	146	8,0			
8,00	94	108	146	8,0			
8,10	110	120	162	10,0			
8,20	110	120	162	10,0			
8,30	110	120	162	10,0			
8,40	110	120	162	10,0			
8,50	110	120	162	10,0			
8,60	110	120	162	10,0			
8,70	110	120	162	10,0			
8,80	110	120	162	10,0			
8,90	110	120	162	10,0			
9,00	110	120	162	10,0			
9,10	110	120	162	10,0			
9,20	110	120	162	10,0			
9,30	110	120	162	10,0			
9,40	110	120	162	10,0			
9,50	110	120	162	10,0			
9,60	110	120	162	10,0			
9,70	110	120	162	10,0			
9,80	110	120	162	10,0			
9,90	110	120	162	10,0			
10,00	110	120	162	10,0			
10,10	142	156	204	12,0			
10,20	142	156	204	12,0			
10,30	142	156	204	12,0			
10,40	142	156	204	12,0			
10,50	142	156	204	12,0			
10,60	142	156	204	12,0			

Fortsetzung nächste Seite to be continued

Pilotbohrer für Zentrierungen: E.3652.1 Seite 3.08 oder E.3668.0 Seite 3.13
 Pilot-Drills for center drill holes: E.3652.1 page 3.08 or E.3668.0 page 3.13

VHM-Spiralbohrer 12xd

E.3667.1

Universal

VHM UNIVERSAL TOOL

4 FÜHRUNGSFÄHIGKEITEN - GUIDE MARGINS

12xD Blue Cut

ab ø 3 mm from ø 3 mm

HA

E.3625.1

Universal

VHM UNIVERSAL TOOL

12xD Blue Cut

HA

E.3681.1

2.1 2.2 4.1 4.2 5.1

VHM INOX TITAN

12xD Blue Cut ALU

4 FÜHRUNGSFÄHIGKEITEN - GUIDE MARGINS

Solid carbide twist drills 12xd

Wiertła skrajne z węglika spiekanego 12xD

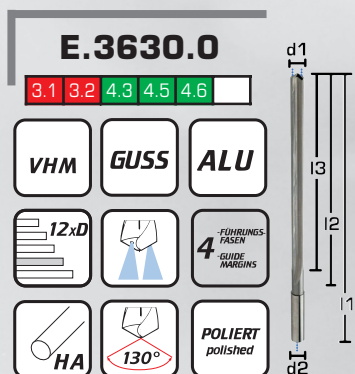
Punte in MD 12xd





Brocas de metal duro integral, 12xd, ranuras helicoidales

Artikel-Nr. Article-No.					E.3667.1	E.3625.1	E.3681.1
d1	l3	l2	l1	d2 h6	€ Stück piece	€ Stück piece	€ Stück piece
Ø 1,00-10,60 mm siehe Seite 3.32 - 3.33 Ø 1,00-10,60 mm see page 3.32 - 3.33							
10,70	142	156	204	12,0			
10,80	142	156	204	12,0			
10,90	142	156	204	12,0			
11,00	142	156	204	12,0			
11,10	142	156	204	12,0			
11,20	142	156	204	12,0			
11,30	142	156	204	12,0			
11,40	142	156	204	12,0			
11,50	142	156	204	12,0			
11,60	142	156	204	12,0			
11,70	142	156	204	12,0			
11,80	142	156	204	12,0			
11,90	142	156	204	12,0			
12,00	142	156	204	12,0			
12,50	166	182	230	14,0			
12,80	166	182	230	14,0			
13,00	166	182	230	14,0			
13,50	166	182	230	14,0			
13,80	166	182	230	14,0			
14,00	166	182	230	14,0			
14,50	192	208	260	16,0			
14,80	192	208	260	16,0			
15,00	192	208	260	16,0			
15,50	192	208	260	16,0			
15,80	192	208	260	16,0			
16,00	192	208	260	16,0			
16,50	216	234	285	18,0			
16,80	216	234	285	18,0			
17,00	216	234	285	18,0			
17,50	216	234	285	18,0			
17,80	216	234	285	18,0			
18,00	216	234	285	18,0			
18,50	240	258	310	20,0			
18,80	240	258	310	20,0			
19,00	240	258	310	20,0			
19,50	240	258	310	20,0			
19,80	240	258	310	20,0			
20,00	240	258	310	20,0			

- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

VHM-4 Fasenbohrer 12xd gerade genutet



-  Solid carbide drills 4 margins 12xd straight fluted
-  Wiertła proste 4-lysinkowe z węglika spiekanego 12xD do materiałów dających krótki wiór
-  Punte in MD, 4 fasi, denti dritti, 12xd
-  Brocas de metal duro integral, 12xd, con cuatro caras y ranuras rectas

Artikel-Nr. Article-No.					E.3630.0	Artikel-Nr. Article-No.					E.3630.0
d1 m7	l3	l2	l1	d2 h6	€ Stück piece	d1 m7	AP	l2	l1	d2 h6	€ Stück piece
3,00	38	48	86	6,0		10,00	112	130	175	10,0	
3,30	42	52	90	6,0		10,20	139	159	209	12,0	
3,50	42	52	90	6,0		10,50	139	159	209	12,0	
3,80	48	61	100	6,0		10,80	139	159	209	12,0	
4,00	48	61	100	6,0		11,00	139	159	209	12,0	
4,20	48	61	100	6,0		11,50	139	159	209	12,0	
4,50	54	67	105	6,0		11,80	139	159	209	12,0	
4,80	68	82	121	6,0		12,00	139	159	209	12,0	
5,00	68	82	121	6,0		12,50	162	183	233	14,0	
5,50	68	82	121	6,0		12,80	162	183	233	14,0	
5,80	68	82	121	6,0		13,00	162	183	233	14,0	
6,00	68	82	121	6,0		13,50	162	183	233	14,0	
6,50	90	106	146	8,0		13,80	162	183	233	14,0	
6,80	90	106	146	8,0		14,00	162	183	233	14,0	
7,00	90	106	146	8,0		14,50	184	207	260	16,0	
7,50	90	106	146	8,0		14,80	184	207	260	16,0	
7,80	90	106	146	8,0		15,00	184	207	260	16,0	
8,00	90	106	146	8,0		15,50	184	207	260	16,0	
8,50	112	130	175	10,0		15,80	184	207	260	16,0	
8,80	112	130	175	10,0		16,00	184	207	260	16,0	
9,00	112	130	175	10,0		17,00	207	231	284	18,0	
9,20	112	130	175	10,0		18,00	207	231	284	18,0	
9,50	112	130	175	10,0		19,00	230	255	308	20,0	
9,80	112	130	175	10,0		20,00	230	255	308	20,0	



VHM-Tieflochspiralbohrer ca. 15xD

E.3674.1

Universal



Solid carbide deep hole drills
appr. 15xD

Wiertła z węglika spiekanego do
głębokich otworów do ok. 15xD

Punta in MD per foratura profonda
circa 15xD

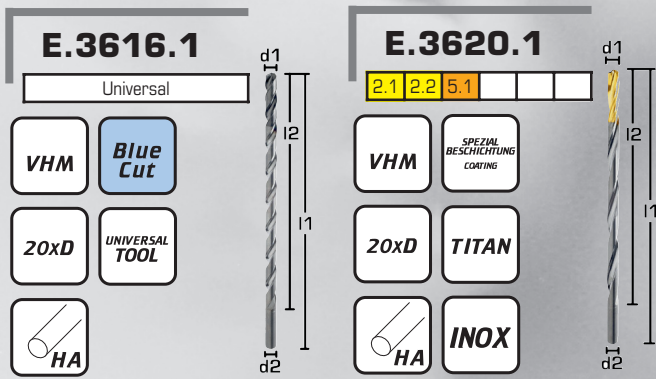
Brocas de metal duro integral con
hélice para agujeros profundos hasta
15xD

Mindestbestellmenge 3 Stück
Minimum order quantity: 3 Stück

Artikel-Nr. Article-No.				E.3674.1	Artikel-Nr. Article-No.				E.3674.1
d1 h7	l2	l1	d2	€ Stück piece	d1 h7	l2	l1	d2	€ Stück piece
1,00	20	60	3,0		4,00	68	108	6,0	
1,10	22	60	3,0		4,20	78	115	6,0	
1,20	24	60	3,0		4,50	78	115	6,0	
1,30	25	60	3,0		5,00	84	125	6,0	
1,40	27	60	3,0		5,50	92	130	6,0	
1,50	27	60	3,0		6,00	100	140	6,0	
1,60	32	65	3,0		6,50	108	145	8,0	
1,70	32	65	3,0		6,80	130	170	8,0	
1,80	35	65	3,0		7,00	130	170	8,0	
1,90	35	65	3,0		7,50	130	170	8,0	
2,00	35	65	3,0		7,80	130	170	8,0	
2,10	40	75	3,0		8,00	130	170	8,0	
2,20	40	75	3,0		8,50	163	208	10,0	
2,30	40	75	3,0		9,00	163	208	10,0	
2,40	45	75	3,0		9,50	163	208	10,0	
2,50	45	75	3,0		10,00	163	208	10,0	
2,60	48	80	3,0		10,50	195	245	12,0	
2,70	48	80	3,0		11,00	195	245	12,0	
2,80	50	80	3,0		11,50	195	245	12,0	
2,90	50	80	3,0		12,00	195	245	12,0	
3,00	60	100	6,0		12,50	230	280	14,0	
3,30	60	100	6,0		13,00	230	280	14,0	
3,50	60	100	6,0		14,00	230	280	14,0	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

VHM-Tiefloch-Spiralbohrer 20xd



Solid carbide high performance twist drill 20xD

Wiertła skrotne wysokowydajne z węglika spiekanego 20xD

Punte in MD alte prestazioni 20xD

Brocas de metal duro integral con hélice para agujeros profundos hasta 20xD

Artikel-Nr. Article-No.				E.3616.1	E.3620.1
d1	l2	l1	d2 h5	€ Stück piece	€ Stück piece
2,00	50	92	4,0		
2,50	70	112	4,0		
2,80	70	112	4,0		
3,00	80	120	6,0		
3,20	80	120	6,0		
3,30	80	120	6,0		
3,50	80	120	6,0		
3,80	90	130	6,0		
4,00	90	130	6,0		
4,20	110	160	6,0		
4,50	110	160	6,0		
4,80	120	160	6,0		
5,00	120	160	6,0		
5,50	140	185	6,0		
5,80	140	185	6,0		
6,00	140	185	6,0		
6,50	160	210	8,0		
6,80	160	210	8,0		
7,00	160	210	8,0		
7,50	180	230	8,0		
7,80	180	230	8,0		
8,00	180	230	8,0		
8,50	195	260	10,0		
8,80	230	290	10,0		
9,00	230	290	10,0		
9,80	230	290	10,0		
10,00	230	290	10,0		
10,20	268	315	12,0		
10,80	268	315	12,0		
11,80	268	315	12,0		
12,00	268	315	12,0		

E.3614.0

Baukastensystem

1. VHM-Kopf
2. Profilrohr Stahl vergütet
3. Spannhülsen-Drm. in mm angeben (ab \varnothing 6,0 mm lieferbar)
4. Ausführung HA, HB, Whistle Notch

\varnothing 0,7 - 5,0 mm in Vollhartmetall
 \varnothing 1,9 - 40,0 mm mit HM-Kopf

Längen bis ca. 3000 mm möglich

Grundsätzlich muß eine Pilotbohrung gemacht werden ca. 3-5xd

Geeignet für alle kurzspanende Werkstoffe

Modular system


1. Solid carbide head
2. Tempered steel profile tube
3. Indicate diameter of clamping sleeve in mm (available from \varnothing 6,0 mm)
4. Type HA, HB, Whistle Notch


\varnothing 0,7 - 5,0 mm in solid carbide
 \varnothing 1,9 - 40,0 mm with carbide head


Total length up to 3000 mm possible


A pilothole has to be drilled first in any case, about 3-5xd

Suitable for all short chipping materials

 One flute deephole drill with internal coolant and solid carbide head

 Wiertło łufowe do głębokiego wiercenia ostrzami z węgla spiekane

 Punte in MD monoelica con fori lubrificanti e testa in MD

 Brocas de un labio para agujeros profundos con refrigeración interior y cabeza de metal duro integral

Formular Form

Anfrage inquiry

Bestellung order

für die optimale Auslegung benötigen wir folgende Angaben
In order to provide the best tool we need the following data

1. zum Werkzeug regarding the tool

Bohrdurchmesser *drill diameter* _____mm

Bohrdurchmesser-Toleranz *drill diameter tolerance* _____mm

Gesamtlänge incl. Hülse *total length including sleeve* _____mm

Bohrtiefe (Nutzlänge) *drilling length* _____mm

Durchgangsloch *through hole* Sackloch *blind hole*

Spannhülsen-Drm. *diameter of clamping sleeve* _____ HA HB Whistle Notch

Sonderhülse n. Zg. (bitte beifügen) *Special clamping sleeve according to drawing (please add drawing)*

2. Einsatzgebiet operation data

Werkstoff *workpiece material* _____

kurzspanend *short chipping* ja *yes* nein *no*

Zugfestigkeit *Tensile strength* _____

dünnwandig *thin walls*

3. Maschine machine

Werkzeug rotiert *tool rotating*

Werkstück rotiert *workpiece rotating*

Werkzeug und Werkstück rotiert *both tool and workpiece rotate*

Kühlmitteldruck *coolant pressure* _____

Art des Kühlmittels *type of coolant* _____

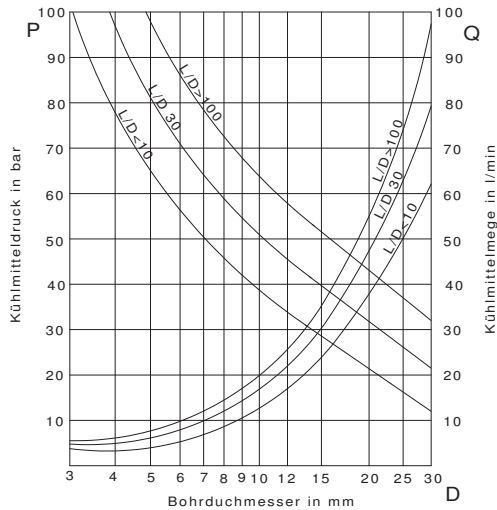
4. Besonderheiten remarks

Spezial-Einlippenbohrer zum Aufbohren vorgebohrter oder gegossener Bohrungen
 auf Anfrage

Special one flute deephole drills for drilling predrilled or casted drill holes can be offered upon demand

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
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Sonstiges	13

Bohrungsgenauigkeit und Werkstück-Zerspanbarkeit bei Tieflochbohrern



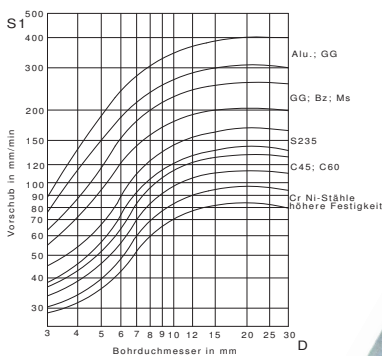
Die Zerspanbarkeit jedes Werkstückes hängt direkt von der Werkstoffart und dem Gefüge-Zustand ab. Die Form der erzeugten Späne ist bestimmend für den störungsfreien Rücklauf. Die Spanform kann durch die Wahl von Schnittgeschwindigkeit, Vorschub und Schneidegeometrie beeinflusst werden. Der Idealspan hat die Form eines kurzen Spiralwendelspanes.

Vorteile vom Tiefbohren:

- genauere Toleranzen IT 6 - IT 9
- genauerer Bohrungsverlauf
- gute Oberfläche
- teilweise kann man sich das Reiben ersparen und Passbohrungen direkt bohren

		N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
Wendelbohren													
Reiben													
Räumen													
Honen													
Tiefbohren													
Arithmetischer Mittenrauhwert	Ra												
	CLA												
	μm	2000	1000	500	250	125	63	32	16	8	4	2	1
	μin	2000	1000	500	250	125	63	32	16	8	4	2	1

■ unter normalen Bedingungen erreichbare Werte
 ■ unter günstigsten Bedingungen erreichbare Werte



The machineability of each workpiece depends on the material and its actual properties. The form of the produced chips determines hassle-free chip clearance. The chipform can be influenced by cutting speed, feed rate and cutting geometry. The ideal chip is a short, spiral one.

Advantages of deephole drilling:

- precise tolerances IT 6 - IT 9
- precise drilling length
- good surface
- reaming may not always be necessary and dowel holes can be drilled directly

Lieferbar bis 3000 mm
 Available until 3000 mm

VHM-Zentrierbohrer 60°

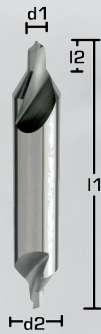
E.3638.0

Universal

VHM **DIN 333**

120° UNIVERSAL TOOL

FORM A



- Solid carbide center drills 60°
- Nawiertaki 60° z węglika spiekanego wg DIN 333
- Punte in MD da centro 60°
- Brocas de centrar de 60° de metal duro integral

Artikel-Nr. Article-No.				E.3638.0 € Stück piece
d1 K13	l2 +1 mm	l1	d2 h9	
0,50	0,8	31,5	3,15	
0,80	1,1	31,5	3,15	
1,00	1,3	31,5	3,15	
1,25	1,6	31,5	3,15	
1,60	2,0	35,5	4,00	
2,00	2,5	40,0	5,00	
2,50	3,1	45,0	6,30	
3,15	3,9	50,0	8,00	
4,00	5,0	56,0	10,00	
5,00	6,3	63,0	12,50	
6,30	8,0	71,0	16,00	

VHM-Stufenbohrer 180° für Zylinderschrauben

E.3639.0

Universal

VHM **WERKS (COMPANY) NORM**

180° 140° Z=2

HA UNIVERSAL TOOL

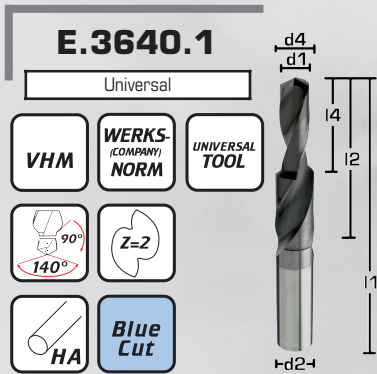


- Solid carbide step drills 180° for cylindrical screws
- Wiertła stopniowe z węglika spiekanego pod śruby z łbem cylindrycznym 180° wykonanie średniokładne
- Punte in MD a gradino 180° per viti cilindriche
- Broca escalonada de metal duro integral de 180° para tornillos cilíndricos

Artikel-Nr. Article-No.							E.3639.0 € Stück piece
für Schraube for screw	d1 h8	l4	d4 h8	l2	l1	d2 h6	
M 3,0	3,4	9	6	28	66	6,0	
M 4,0	4,5	11	8	37	80	8,0	
M 5,0	5,5	13	10	43	89	10,0	
M 6,0	6,6	15	11	47	95	12,0	
M 8,0	9,0	19	15	56	110	16,0	
M 10,0	11,0	23	18	62	123	18,0	

- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

VHM-Kernloch-Stufenbohrer 90°



Solid carbide step drills 90° for core holes

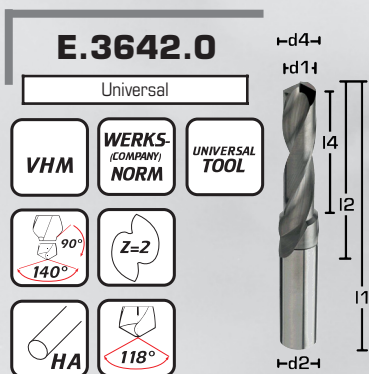
Wiertła z węglika spiekane pod gwint do śrub z łbem stożkowym 90°

Punte in MD a gradino 90° per filettatura

Broca escalonada de metal duro integral de 90° para agujeros previos

Artikel-Nr. Article-No.							E.3640.1 € Stück piece
für Gewinde for thread	d1 h8	l4	d4 h8	l2	l1	d2 h6	
M 3,0	2,5	8,8	6	20	62	6,0	
M 4,0	3,3	11,4	6	24	62	6,0	
M 5,0	4,2	13,6	6	28	66	6,0	
M 6,0	5,0	16,5	8	34	79	8,0	
M 8,0	6,8	21,0	10	47	89	10,0	
M 10,0	8,5	25,5	12	55	102	12,0	
M 12,0	10,2	30,0	14	60	107	14,0	
M 14,0	12,0	34,5	16	65	115	16,0	
M 16,0	14,0	38,5	18	73	123	18,0	

VHM-Stufenbohrer 90° für Gewindeformer



Solid carbide step drill 90° for forming taps

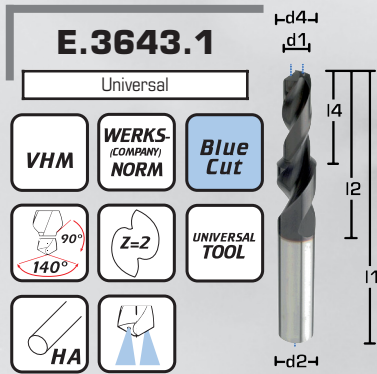
Wiertła stopniowe z węglika spiekane pod gwint wygniatały do śrub z łbem stożkowym 90°

Punte in MD a gradino 90° per maschi a rullare

Broca escalonada de metal duro integral de 90° para agujeros previos de machos de laminación

Artikel-Nr. Article-No.							E.3642.0 € Stück piece
für Gewinde for thread	d1 h8	l4 ohne Spitze l4 without center	d4 h8	l2	l1	d2	
M 2,5	2,35	10	4	16	60	4,0	
M 3,0	2,80	12	4	20	62	4,0	
M 4,0	3,70	14	6	27	64	6,0	
M 5,0	4,65	20	6	27	80	6,0	
M 6,0	5,55	24	8	35	80	8,0	
M 8,0	7,45	30	10	45	80	10,0	
M 10,0	9,30	40	12	50	90	12,0	
M 12,0	11,20	45	14	55	100	14,0	

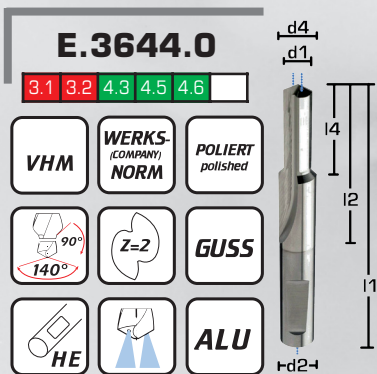
VHM-Kernloch-Stufenbohrer 90° mit Innenkühlung



- Solid carbide step drills 90° with internal coolant for core holes
- Wiertła stopniowe z węgla spiekane-go z chłodzeniem wewnętrznym pod gwint do śrub z łbem stożkowym 90°
- Punte in MD a gradino 90° con lubrificazione interna
- Broca escalonada de metal duro integral de 90° para agujeros previos con refrigeración interior

Artikel-Nr. Article-No.							E.3643.1 € Stück piece
für Gewinde for thread	d1 m7	l4	d4 h8	l2	l1	d2 h6	
M 3,0	2,5	8,8	6	20	62	6,0	
M 4,0	3,3	11,4	6	24	62	6,0	
M 5,0	4,2	13,6	6	28	66	6,0	
M 6,0	5,0	16,5	8	34	79	8,0	
M 8,0	6,8	21,0	10	47	89	10,0	
M 10,0	8,5	25,5	12	55	102	12,0	
M 12,0	10,2	30,0	14	60	107	14,0	
M 14,0	12,0	34,5	16	65	115	16,0	
M 16,0	14,0	38,5	18	73	123	18,0	

VHM-Stufenbohrer 90° mit Innenkühlung



- Solid carbide step drills 90° with internal coolant
- Wiertła stopniowe z węgla spiekane-go z chłodzeniem wewnętrznym pod gwint do śrub stożkowych 90°
- Punte in MD a gradino con fori di lubrificazione
- Broca escalonada de metal duro integral de 90° con refrigeración interior

Auslaufartikel
no future production anymore

Artikel-Nr. Article-No.							E.3644.0 € Stück piece
für Gewinde for thread	d1 m7	l4	d4 h8	l2	l1	d2 h6	
M 3,0	2,5	8,8	6	20	62	6,0	
M 4,0	3,3	11,4	6	24	62	6,0	
M 5,0	4,2	13,6	6	28	66	6,0	
M 6,0	5,0	16,5	8	34	79	8,0	Auf Anfrage
M 8,0	6,8	21,0	10	47	89	10,0	
M 10,0	8,5	25,5	12	55	102	12,0	on demand
M 12,0	10,2	30,0	14	60	107	14,0	
M 14,0	12,0	34,5	16	65	115	16,0	
M 16,0	14,0	38,5	18	73	123	18,0	
M 18,0	15,5	43,5	20	79	131	20,0	
M 20,0	17,5	47,5	22	89	147	22,0	

- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
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