

# Solid drills

Silber-Drill

Gold-Drill



## Solid drills VBAS ...

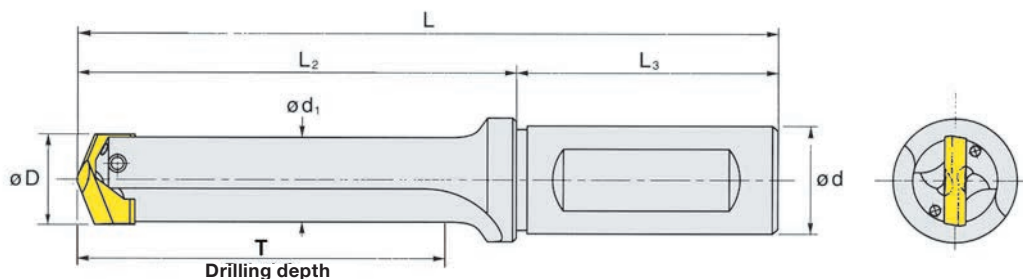
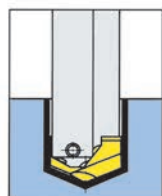
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Other versions and dimensions upon request.

Design subject to change.

All prices are net in EURO + VAT (value added tax).

## Gold Drill - Solid drills VBAS ...



Product group 06A

Order no.	Dimensions in mm							Boring inserts	Dis	
	D	d	<sub>1</sub>	L	T	L <sub>2</sub>	L <sub>3</sub>			
VBAS 13,0-15,0 A T45	12.7 - 15.0	20	12.5	110	45	70	40	A	★	
VBAS 13,0-15,0 A T75	12.7 - 15.0	20	12.5	140	75	100	40	A	★	
VBAS 13,0-15,0 A T120	12.7 - 15.0	20	12.5	185	120	145	40	A	★	
VBAS 15,0-17,0 B T50	14.8 - 17.0	20	14.5	116	50	76	40	B	★	
VBAS 15,0-17,0 B T85	14.8 - 17.0	20	14.5	150	85	110	40	B	★	
VBAS 15,0-17,0 B T135	14.8 - 17.0	20	14.5	200	135	160	40	B	★	
VBAS 17,0-19,0 C T60	16.5 - 19.0	20	16.0	122	60	82	40	C	★	
VBAS 17,0-19,0 C T95	16.5 - 19.0	20	16.0	160	95	120	40	C	★	
VBAS 17,0-19,0 C T150	16.5 - 19.0	20	16.0	215	150	175	40	C	★	
VBAS 19,0-21,0 D T65	18.5 - 21.0	20	18.0	128	65	88	40	D	★	
VBAS 19,0-21,0 D T105	18.5 - 21.0	20	18.0	170	105	130	40	D	★	
VBAS 19,0-21,0 D T165	18.5 - 21.0	20	18.0	230	165	190	40	D	★	
VBAS 21,0-23,0 E T70	20.5 - 23.0	25	20.0	148	70	93	55	E	★	
VBAS 21,0-23,0 E T115	20.5 - 23.0	25	20.0	195	115	140	55	E	★	
VBAS 21,0-23,0 E T185	20.5 - 23.0	25	20.0	265	185	210	55	E	★	
VBAS 23,0-26,0 F T80	22.5 - 26.0	25	22.0	157	80	102	55	F	★	
VBAS 23,0-26,0 F T130	22.5 - 26.0	25	22.0	210	130	155	55	F	★	
VBAS 23,0-26,0 F T210	22.5 - 26.0	25	22.0	290	210	235	55	F	★	
VBAS 26,1-29,0 G T90	26.1-29.0	32	25	183	90	123	60	G	★	
VBAS 26,1-29,0 G T145	26.1-29.0	32	25	238	145	178	60	G	★	
VBAS 28,5-35,0 H T105	28.5-35.0	32	28	198	105	138	60	H	★	
VBAS 28,5-35,0 H T175	28.5-35.0	32	28	268	175	208	60	H	★	

Prices without inserts. For compatible boring inserts VBE ... see page 06A-4 to 06A-5

Product group 21

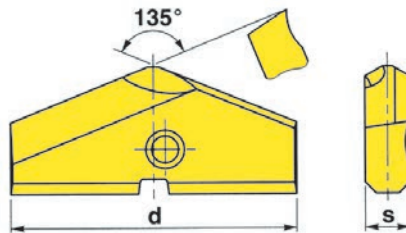
Spare parts	Screw	Screwdriver / key
VBAS ... A	SCHW M 3x6 DIN914 SY	SDIG 3,0
VBAS ... B to C	SCHW M 3x8 DIN914 SY	SDIG 3,0
VBAS ... D	SCHW M 4x8 DIN914 SY	SDIG 4,0
VBAS ... E to F	SCHW M 4x10 DIN914 SY	SDIG 4,0
VBAS ... G to H	SCHW M 5x12 DIN914 SY	SDIG 5,0

★ = ex stock

☆ = short lead time

□ = upon request

## Gold Drill - Boring inserts VBES A to E C3 (steel and cast iron)



Product group 06B

Order no.	Dimensions in mm		Solid drills type		
	d	s			A410
VBES 12,7 A C3	12.7	4.0	A		★
VBES 13,0 A C3	13.0	4.0	A		★
VBES 13,5 A C3	13.5	4.0	A		★
VBES 14,0 A C3	14.0	4.0	A		★
VBES 14,5 A C3	14.5	4.0	A		★
VBES 15,0 A C3	15.0	4.0	A		★
VBES 15,5 B C3	15.5	4.0	B		★
VBES 16,0 B C3	16.0	4.0	B		★
VBES 16,5 B C3	16.5	4.0	B		★
VBES 17,0 B C3	17.0	4.0	B		★
VBES 17,5 C C3	17.5	4.0	C		★
VBES 18,0 C C3	18.0	4.0	C		★
VBES 18,5 C C3	18.5	4.0	C		★
VBES 19,0 C C3	19.0	4.0	C		★
VBES 19,5 D C3	19.5	4.0	D		★
VBES 20,0 D C3	20.0	4.0	D		★
VBES 20,5 D C3	20.5	4.0	D		★
VBES 21,0 D C3	21.0	4.0	D		★
VBES 21,5 E C3	21.5	4.0	E		★
VBES 22,0 E C3	22.0	4.0	E		★
VBES 22,5 E C3	22.5	4.0	E		★
VBES 23,0 E C3	23.0	4.0	E		★

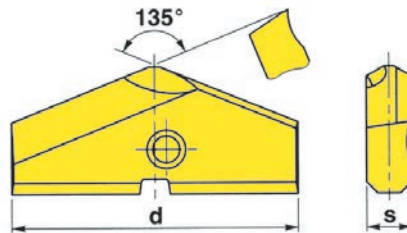
For compatible solid drills VBAS ... see page 06A-3.

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## Gold Drill - Boring inserts VBES F to H C3 (steel and cast iron)



Product group 06B

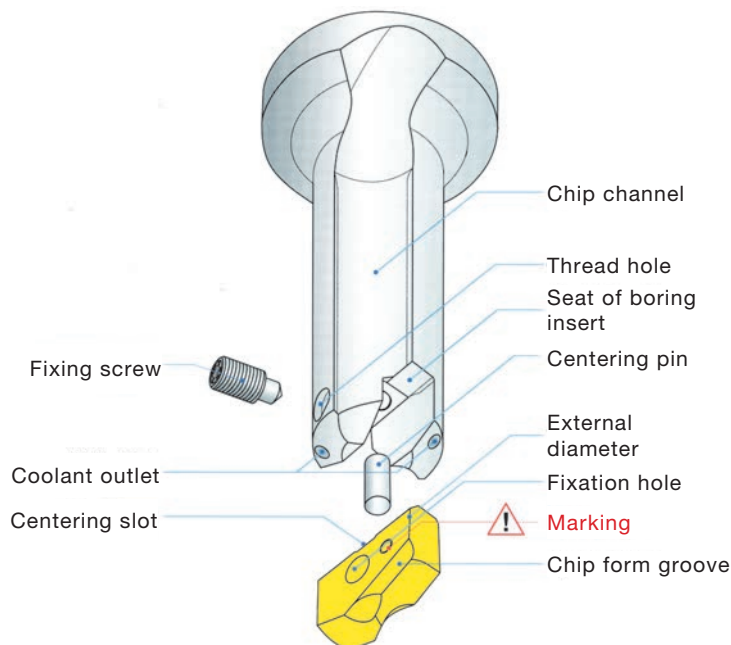
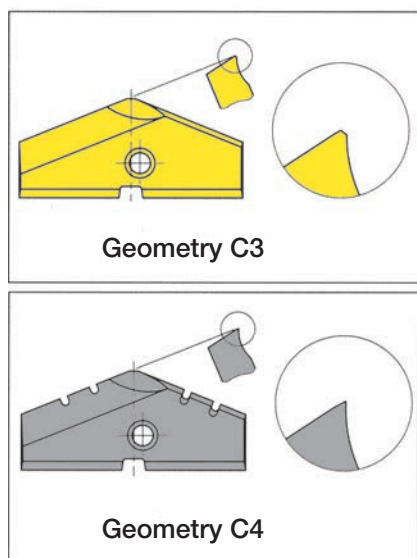
Order no.	Dimensions in mm		Solid drills type		
	d	s			A410
VBES 23,5 F C3	23.5	4.0	F		★
VBES 24,0 F C3	24.0	4.0	F		★
VBES 24,5 F C3	24.5	4.0	F		★
VBES 25,0 F C3	25.0	4.0	F		★
VBES 25,5 F C3	25.5	4.0	F		★
VBES 26,0 F C3	26.0	4.0	F		★
VBES 26,5 G C3	26.5	5.0	G		★
VBES 27,0 G C3	27.0	5.0	G		★
VBES 27,5 G C3	27.5	5.0	G		★
VBES 28,0 G C3	28.0	5.0	G		★
VBES 28,5 G C3	28.5	5.0	G		★
VBES 29,0 G C3	29.0	5.0	G		★
VBES 29,5 H C3	29.5	5.0	H		★
VBES 30,0 H C3	30.0	5.0	H		★
VBES 30,5 H C3	30.5	5.0	H		★
VBES 31,0 H C3	31.0	5.0	H		★
VBES 31,5 H C3	31.5	5.0	H		★
VBES 32,0 H C3	32.0	5.0	H		★
VBES 32,5 H C3	32.5	5.0	H		★
VBES 33,0 H C3	33.0	5.0	H		★
VBES 33,5 H C3	33.5	5.0	H		★
VBES 34,0 H C3	34.0	5.0	H		★
VBES 34,5 H C3	34.5	5.0	H		★
VBES 35,0 H C3	35.0	5.0	H		★
For compatible solid drills VBAS ... see page 06A-3.					

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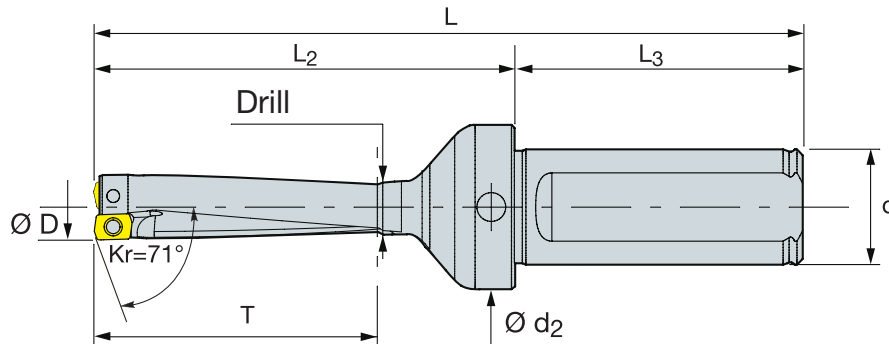
## Technical information Gold Drill



Cutting values								
Material	Strength Rm (N/mm <sup>2</sup> )	Hardness	Grade	Geometry	VC (m/min)	Feed (mm/U)		
						Ø 12,7 - 16,7	Ø 16,7 - 22,0	Ø 22 - 35
<b>Steels</b>								
Carbon < 0.2%	310-580	65	A410	C3	60-120	0.05 - 0.15	0.08 - 0.20	0.15 - 0.25
Carbon < 0.35%	340-680	65	A410	C3	55-110	0.05 - 0.13	0.08 - 0.18	0.15 - 0.20
Carbon 0.4%	520-930	65	A410	C3	50-100	0.05 - 0.13	0.08 - 0.18	0.15 - 0.20
Low alloy, hardened and tempered	310-840	65	A410	C3	40-70	0.05 - 0.13	0.08 - 0.18	0.15 - 0.20
Low alloy, hardened and tempered	745-1360	65	A410	C3	30-60	0.05 - 0.13	0.08 - 0.18	0.12 - 0.20
High alloy, annealed	310-840	65	A410	C3	40-70	0.05 - 0.13	0.08 - 0.18	0.15 - 0.20
High alloy steels, hardened and tempered	840-1580	65	A410	C3	30-50	0.05 - 0.08	0.06 - 0.10	0.08 - 0.15
Unalloyed cast steel	340-760	65	A410	C3	50-80	0.05 - 0.13	0.08 - 0.20	0.12 - 0.25
Low alloy cast steel	520-745	65	A410	C3	45-70	0.05 - 0.11	0.08 - 0.15	0.10 - 0.20
High alloy cast steel	600-775	65	A410	C3	40-60	0.05 - 0.08	0.06 - 0.10	0.08 - 0.15
<b>Corrosion-resistant steels</b>								
Annealed, martensitic, ferritic	-	65	A410	C3	40-90	0.05 - 0.13	0.08 - 0.18	0.12 - 0.20
Annealed, austenitic	-	65	A410	C3	40-80	0.05 - 0.13	0.08 - 0.18	0.12 - 0.20
<b>Cast iron</b>								
Malleable cast iron	-	65	A410	C3	70-100	0.08 - 0.20	0.10 - 0.25	0.15 - 0.25
Pearlitic malleable cast iron	-	65	A410	C3	60-90	0.08 - 0.15	0.10 - 0.20	0.15 - 0.20
Grey cast iron (FG)	-	65	A410	C3	80-110	0.08 - 0.20	0.10 - 0.25	0.15 - 0.25
Grey cast iron (FG)	-	65	A410	C3	60-90	0.08 - 0.15	0.10 - 0.20	0.15 - 0.20
Nodular graphite cast iron GS, ferritic	-	65	A410	C3	70-100	0.08 - 0.20	0.10 - 0.25	0.15 - 0.25
Nodular graphite cast iron GS, perlitic	-	65	A410	C3	60-90	0.08 - 0.15	0.10 - 0.20	0.15 - 0.20
<b>Other alloys</b>								
Aluminum alloys <6% Si	-	15	K10F	C4	100-250	0.05 - 0.20	0.08 - 0.25	0.10 - 0.30
Aluminum alloys 13% Si	-	15	K10F	C4	100-250	0.05 - 0.20	0.08 - 0.25	0.10 - 0.30
Brass, Lead	-	15	K10F	C4	120-160	0.05 - 0.20	0.08 - 0.25	0.10 - 0.30

## Silber Drill - Solid drills VBSD 12.0 to 16.0 mm

# Silber-Drill



### Product group 06H

Order no.	Dimensions in mm								Boring inserts	Dis
	D	d	d <sub>2</sub>	L	T	L <sub>2</sub>	L <sub>3</sub>	kg		
VBSD 12,0 04 T24	12.0	20	28.5	98	24	48	50	0.175	BESD 04 ...	★
VBSD 12,0 04 T48	12.0	20	28.5	122	48	72	50	0.185	BESD 04 ...	★
VBSD 12,5 04 T25	12.5	20	28.5	98	25	48	50	0.175	BESD 04 ...	★
VBSD 12,5 04 T50	12.5	20	28.5	123	50	73	50	0.185	BESD 04 ...	★
VBSD 13,0 04 T26	13.0	20	28.5	99	26	49	50	0.175	BESD 04 ...	★
VBSD 13,0 04 T52	13.0	20	28.5	125	52	75	50	0.185	BESD 04 ...	★
VBSD 13,5 04 T27	13.5	20	28.5	100	27	50	50	0.180	BESD 04 ...	★
VBSD 13,5 04 T54	13.5	20	28.5	127	54	77	50	0.190	BESD 04 ...	★
VBSD 14,0 04 T28	14.0	20	28.5	101	28	51	50	0.180	BESD 04 ...	★
VBSD 14,0 04 T56	14.0	20	28.5	129	56	79	50	0.195	BESD 04 ...	★
VBSD 14,5 04 T29	14.5	20	28.5	101	29	51	50	0.180	BESD 04 ...	★
VBSD 14,5 04 T58	14.5	20	28.5	130	58	80	50	0.200	BESD 04 ...	★
VBSD 15,0 04 T30	15.0	20	28.5	102	30	52	50	0.185	BESD 04 ...	★
VBSD 15,0 04 T60	15.0	20	28.5	132	60	82	50	0.200	BESD 04 ...	★
VBSD 15,5 04 T31	15.5	20	28.5	103	31	53	50	0.185	BESD 04 ...	★
VBSD 15,5 04 T62	15.5	20	28.5	134	62	84	50	0.210	BESD 04 ...	★
VBSD 16,0 04 T32	16.0	20	28.5	104	32	54	50	0.190	BESD 04 ...	★
VBSD 16,0 04 T64	16.0	20	28.5	136	64	86	50	0.215	BESD 04 ...	★

Prices without inserts. For compatible boring inserts BESD see page 06A-11.

### Product group 21

Spare parts			
12.0 up to 16.0	SCHT07 M2,2	SDTG 7,0	

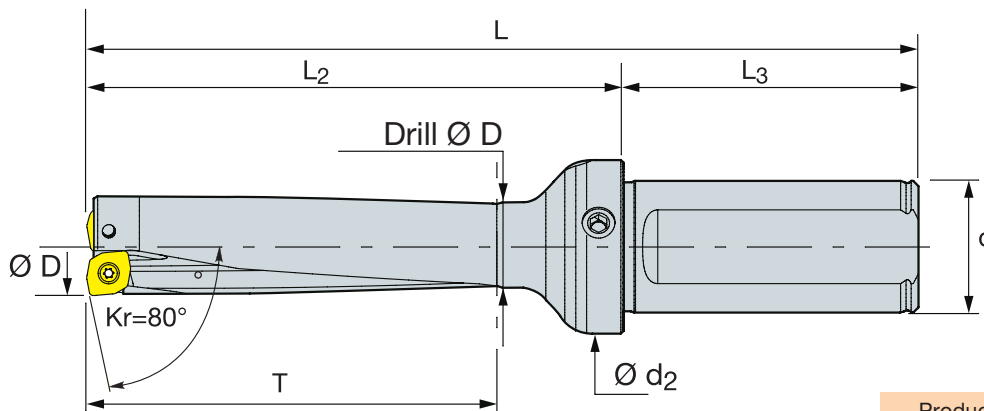
★ = ex stock

☆ = short lead time

□ = upon request

## Silber Drill - Solid drills VBSD 16.5 to 21.0 mm

# Silber-Drill



Product group 06H

Order no.	Dimensions in mm								Boring inserts	Dis
	D	d	d <sub>2</sub>	L	T	L <sub>2</sub>	L <sub>3</sub>	kg		
VBSD 16,5 06 T33	16.5	20	28.5	104	33	54	50	0.180	BESD 06 ...	★
VBSD 16,5 06 T66	16.5	20	28.5	137	66	87	50	0.205	BESD 06 ...	★
VBSD 17,0 06 T34	17.0	20	28.5	105	34	55	50	0.185	BESD 06 ...	★
VBSD 17,0 06 T68	17.0	20	28.5	139	68	89	50	0.210	BESD 06 ...	★
VBSD 17,5 06 T35	17.5	20	28.5	106	35	56	50	0.185	BESD 06 ...	★
VBSD 17,5 06 T70	17.5	20	28.5	141	70	91	50	0.215	BESD 06 ...	★
VBSD 18,0 06 T36	18.0	20	28.5	107	36	57	50	0.190	BESD 06 ...	★
VBSD 18,0 06 T72	18.0	20	28.5	143	72	93	50	0.225	BESD 06 ...	★
VBSD 18,5 06 T37	18.5	20	28.5	107	37	57	50	0.190	BESD 06 ...	★
VBSD 18,5 06 T74	18.5	20	28.5	144	74	94	50	0.225	BESD 06 ...	★
VBSD 19,0 06 T38	19.0	20	28.5	108	38	58	50	0.195	BESD 06 ...	★
VBSD 19,0 06 T76	19.0	20	28.5	146	76	96	50	0.235	BESD 06 ...	★
VBSD 20,0 06 T40	20.0	20	28.5	110	40	60	50	0.205	BESD 06 ...	★
VBSD 20,0 06 T80	20.0	20	28.5	150	80	100	50	0.250	BESD 06 ...	★
VBSD 21,0 06 T42	21.0	20	28.5	111	42	61	50	0.215	BESD 06 ...	★
VBSD 21,0 06 T84	21.0	20	28.5	153	84	103	50	0.275	BESD 06 ...	★

Prices without inserts. For compatible boring inserts BESD see page 06A-11.

Product group 21

Spare parts			
16.5 up to 21.0	SCHT07 M2,2	SDTG 7,0	

★ = ex stock

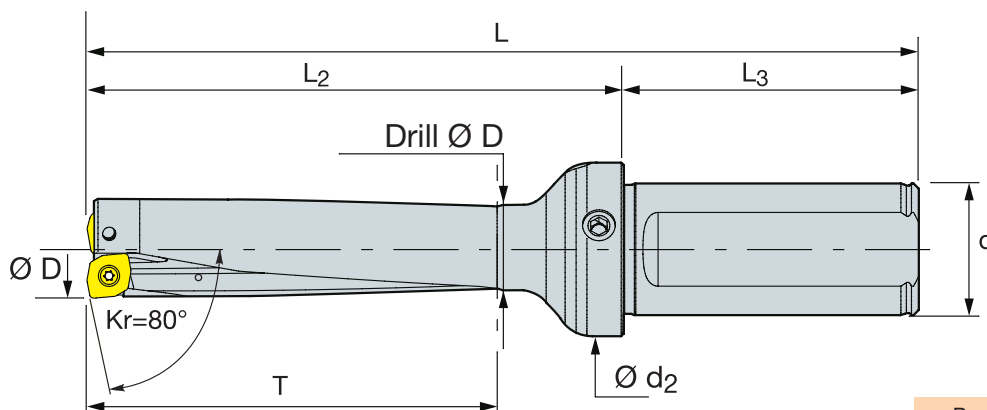
☆ = short lead time

☐ = upon request



## Silber Drill - Solid drills VBSD 22.0 to 30.0 mm

# Silber-Drill



Product group 06H

Order no.	Dimensions in mm								Boring inserts	Dis
	D	d	d2	L	T	L <sub>2</sub>	L <sub>3</sub>	kg		
VBSD 22,0 08 T44	22.0	25	33	124	44	68	56	0.335	BESD 08 ...	★
VBSD 22,0 08 T88	22.0	25	33	168	88	112	56	0.390	BESD 08 ...	★
VBSD 23,0 08 T46	23.0	25	33	125	46	69	56	0.340	BESD 08 ...	★
VBSD 23,0 08 T92	23.0	25	33	171	92	115	56	0.405	BESD 08 ...	★
VBSD 24,0 08 T48	24.0	25	33	127	48	71	56	0.355	BESD 08 ...	★
VBSD 24,0 08 T96	24.0	25	33	175	96	119	56	0.430	BESD 08 ...	★
VBSD 25,0 08 T50	25.0	25	33	128	50	72	56	0.365	BESD 08 ...	★
VBSD 25,0 08 T100	25.0	25	33	178	100	122	56	0.450	BESD 08 ...	★
VBSD 26,0 09 T52	26.0	32	43	139	52	79	60	0.605	BESD 09 ...	★
VBSD 26,0 09 T104	26.0	32	43	191	104	131	60	0.685	BESD 09 ...	★
VBSD 27,0 09 T54	27.0	32	43	140	54	80	60	0.615	BESD 09 ...	★
VBSD 27,0 09 T108	27.0	32	43	194	108	134	60	0.705	BESD 09 ...	★
VBSD 28,0 09 T56	28.0	32	43	142	56	82	60	0.635	BESD 09 ...	★
VBSD 28,0 09 T112	28.0	32	43	198	112	138	60	0.745	BESD 09 ...	★
VBSD 29,0 09 T58	29.0	32	43	143	58	83	60	0.645	BESD 09 ...	★
VBSD 29,0 09 T116	29.0	32	43	201	116	141	60	0.775	BESD 09 ...	★
VBSD 30,0 09 T60	30.0	32	43	145	60	85	60	0.670	BESD 09 ...	★
VBSD 30,0 09 T120	30.0	32	43	205	120	145	60	0.820	BESD 09 ...	★

Prices without inserts. For compatible boring inserts BESD see page 06A-11.

Product group 21

Spare parts			
22.0 up to 25.0	SCHT 08 M2,5	SDTG 08	
26.0 up to 30.0	SCHT 09 M3x08	SDTG 09	

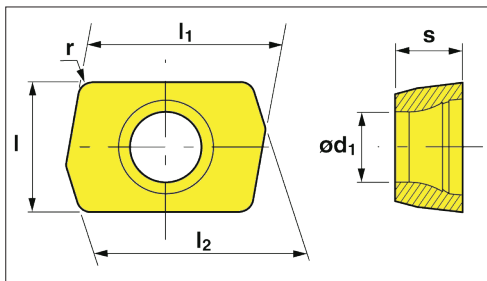
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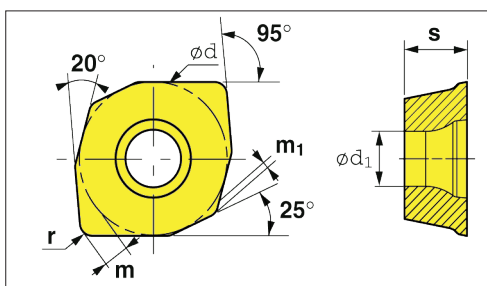
□ = upon request

## Technical information Silber Drill

# Silber-Drill



BESD 04  
ø12 - 16 mm

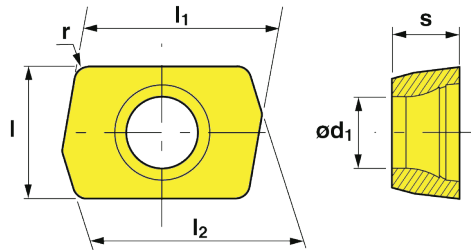


BESD 06/08/09  
ø16.5 - 30 mm

Cutting values											
Material	Strength Rm (N/mm <sup>2</sup> )	Hardness	VC (m/min)	Feed (mm/U)							
				Ø 12 - 16		Ø 14.5 - 16.0		Ø 16.5 - 21		Ø 22 - 25	
Steels				2D	4D	2D	4D	2D	4D	2D	4D
Carbon < 0.2%	310-580	80-170	180-340								
Carbon < 0.35%	340-680	90-200	170-320								
Carbon 0.4%	520-930	150-275	150-300								
Low alloy, hardened and tempered	310-840	80-250	140-290								
Low alloy, hardened and tempered	745-1470	220-450	100-200	0.04-0.06	0.03-0.05	0.06-0.08	0.05-0.07	0.06-0.08	0.05-0.07	0.08-0.10	0.07-0.10
High alloy, annealed	310-840	80-250	110-230								
High alloy steels, hardened and tempered	840-1580	250-450	75-150								
Unalloyed cast steel	340-760	90-225	125-250								
Low alloy cast steel	520-745	150-220	110-220								
High alloy cast steel	600-775	175-230	90-180								
Corrosion-resistant steels											
Annealed, martensitic, ferritic	-	90-225	140-230	0.04-0.06	0.03-0.06	0.06-0.08	0.05-0.07	0.06-0.08	0.05-0.07	0.08-0.10	0.07-0.10
Annealed, austenitic	-	150-250	80-154								
Cast iron											
Malleable cast iron	-	110-145	150-250								
Pearlitic malleable cast iron	-	150-270	150-210								
Grey cast iron (FG)	-	150-220	150-320								
Grey cast iron (FG)	-	220-330	150-210	0.04-0.06	0.04-0.07	0.09-0.12	0.07-0.10	0.10-0.15	0.08-0.12	0.12-0.18	0.10-0.15
Nodular graphite cast iron GS, ferritic	-	125-230	140-180								
Nodular graphite cast iron GS, perlitic	-	200-300	100-210								

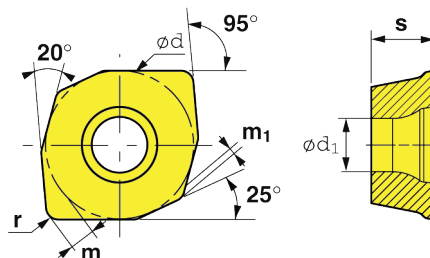
## Silber drill - Boring inserts BESD

# Silber-Drill



Product group 06I

Order no.	Dimensions in mm						Solid drills	A410
	l	s	d <sub>1</sub>	l <sub>1</sub>	l <sub>2</sub>	r		
BESD 040205	4.6	2.38	2.5	6.682	7.082	0.5	VBSD ... 04 ...	★
For compatible solid drills VBSD 04 ... see product information 06A.								



Product group 06I

Order no.	Dimensions in mm						Solid drills	A410
	d	s	d <sub>1</sub>	m	m <sub>1</sub>	r		
BESD 060304	6.35	2.38	2.5	1.308	0.287	0.4	VBSD ... 06 ...	★
BESD 080308	7.94	3.18	2.8	1.338	0.328	0.8	VBSD ... 08 ...	★
BESD 09T308	9.52	3.97	3.4	1.619	0.41	0.8	VBSD ... 09 ...	★
For compatible solid drills VBSD 06/08/09 ... see page 06A-7 to 06A-9.								

★ = ex stock

☆ = short lead time

□ = upon request



# Application examples

