

金属加工相关信息表
/To determine tool requirements
for quotations and orders:

公司 /Customer

.....
.....
.....

部门 /Department

Tel. Fax

Email

工件 /Workpiece 图纸 /Attach drawing

描述 /Description

孔 /Bore

孔深 /Bore depth

有无底孔 /Pre-machined



钻削 /Intermittent cut

相关孔 /Interference

待加工孔数量 /Bores/ Year

材料 /Workpiece material

描述 /Description

..... HRC

排屑 /Chips 短削 /Short 长削 /Long

冷却 / Coolant

中心内冷 /Internal coolant

干切 /Dry MMS 微量润滑

冷却液 /Emulsion 润滑油 /Oil

..... bar l/min

加工设备 / Machine

型号 /Type

卧加 /Horizontal 立加 /Vertical

功率 /Power

刀具 /Tool: 旋转 /Rotating 夹持 /Fix

主轴型号 /Spindle type

刀具 / Tool

描述 /Description

选项 /Options:

HSS VHM/Carbide WSP/Index inserts

PKD/PCD/CBN HM/Brazed carbide

涂层 /Coating: TiAlN TiN

柄部接口 /Shank

数量 /Quantity

目前正在使用的刀具 /Tools used so far

结构 /Sketch



根据客户的实际加工条件进行设计 / Changes caused by technical improvement and errors excepted.



Drilling with carbide

硬质合金钻头

- BILZ Preci-Speed
- BILZ GB-Drill GBV
- BILZ i-Drill
- BILZ Combi-Drill SECF
- BILZ UNIMILL
- BILZ UNIDRILL
- BILZ UNIREAM
- BILZ UNIDREAM
- BILZ HFS XXL
- BILZ 干式切削
- Dry machining drill
- 非标钻头
- Special tools
- 应用案例
- Application examples





硬质合金钻头 PRE20 / PRE21
Carbide drill PRE20/PRE21

硬质合金钻头

Drilling with carbide

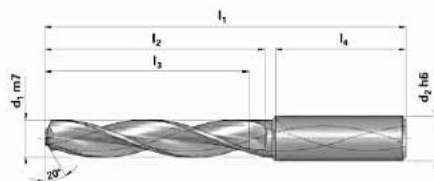


优势:

- 自定心钻削
- 孔精度高
- 轻切削
- 孔表面无毛刺

Advantages:

- Drilling without pre-centering
- Highly accurate bore forms
- Low infeed forces (no chisel edge)
- Burr-free bore exits



钻头选型 Steps	d ₁	d ₂	l ₃	l ₂	l ₄	l ₁	货号 / Ord.-No.	
							中心冷却 / with IK / Cool Channels	无中心冷却 / without IK / Cool Channels
0,1	3,8 – 4,7	6	29	36	36	74	PRE20...(d1)	PRE21...(d1)
	4,8 – 6,0	6	35	44	36	82	PRE20...(d1)	PRE21...(d1)
	6,1 – 8,0	8	43	53	36	91	PRE20...(d1)	PRE21...(d1)
	8,1 – 10,0	10	49	61	40	103	PRE20...(d1)	PRE21...(d1)
	10,1 – 12,0	12	56	71	45	118	PRE20...(d1)	PRE21...(d1)
0,5 0,8	12,5 – 14,0	14	60	77	45	124	PRE20...(d1)	PRE21...(d1)
	14,5 – 16,0	16	63	83	48	133	PRE20...(d1)	PRE21...(d1)
	16,5 – 18,0	18	71	93	48	143	PRE20...(d1)	PRE21...(d1)
	18,5 – 20,0	20	77	101	50	153	PRE20...(d1)	PRE21...(d1)

刀杆形状 / Other shanks:

(请在下单前明确 / Please indicate with the order)

Whistle Notch = DIN 6535 HE

Weldon = DIN 6535 HB



举例 / Order example:

GG25 中心冷却 / with IK, d₁ = 3,90 mm 货号 / Ord.-No.
PRE20 039 ⇒ PRE20039

AIS19 无中心冷却 / without IK, d₁ = 16,0 mm 货号 / Ord.-No.
PREAL21 160 ⇒ PREAL21160

PREAL适用于铝合金材料 /
Use type PREAL for aluminium
涂层需求 / Coating on request

切削参数推荐 /

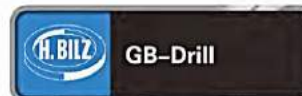
Cutting data recommendation:

孔径 Bore mm	Vc	铸铁 Cast iron	铝合金 Aluminium
		e.g. GG26, GGG50	e.g. G-AISI12
3 – 5	f	60 – 160	100 – 600
5 – 8	f	0,05 – 0,14	0,05 – 0,14
8 – 11	f	0,09 – 0,18	0,06 – 0,25
11 – 14	f	0,10 – 0,25	0,12 – 0,40
14 – 20	f	0,12 – 0,30	0,18 – 0,50
14 – 20	f	0,15 – 0,50	0,20 – 0,70

切削速度 / Cutting speed	Vc (m/min)
进给 / Infeed	f (mm/rev)

推荐:
对于高精度主轴和刀座
(用液压力柄或热胀刀柄)
中心冷却作用于刀刃。

Conditions for
successful use:
precise spindles and
toolholders (hydraulic or
heat shrink chucks are
recommended), coolant
directly on the cutting
edges, high coolant
pressure.



硬质合金钻头 GBV01 / GBV02
Carbide drill GBV01/GBV02

硬质合金钻头

Drilling with carbide

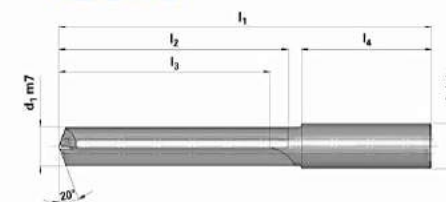


优势:

- 高稳定性深孔加工
- 4个刃带保证孔的圆度
- 高精度(IT9-IT8)
- 可修磨

Advantages:

- High drill stability in deep bore depths
- Better bore cylindricality due to 4 guide lands
- High size accuracy (IT9-IT8)
- Easy regrinding



钻头选型 Steps	d ₁	d ₂	l ₃	l ₂	l ₄	l ₁	货号 / Ord.-No.					
							5 x D	l ₃	l ₂	l ₄	l ₁	12 x D
0,1	3,8 – 4,8	6	29	38	36	74	GBV01...(d1)	50	57	36	95	GBV02...(d1)
	4,9 – 6,0	6	35	44	36	82	GBV01...(d1)	72	82	36	120	GBV02...(d1)
	6,1 – 8,0	8	43	53	36	91	GBV01...(d1)	96	106	36	144	GBV02...(d1)
	8,1 – 10,0	10	49	61	40	103	GBV01...(d1)	120	132	40	174	GBV02...(d1)
	10,1 – 12,0	12	56	71	45	118	GBV01...(d1)	144	159	45	206	GBV02...(d1)
	12,1 – 14,0	14	60	77	45	124	GBV01...(d1)	168	185	45	232	GBV02...(d1)
	14,1 – 16,0	16	63	83	48	133	GBV01...(d1)	192	212	48	262	GBV02...(d1)
	16,1 – 18,0	18	71	93	48	143	GBV01...(d1)	216	242	48	292	GBV02...(d1)
	18,1 – 20,0	20	77	101	50	153	GBV01...(d1)	240	258	50	310	GBV02...(d1)

刀杆形状 / Other shanks:

(请在下单前明确 / Please indicate with the order)

Whistle Notch = DIN 6535 HE

Weldon = DIN 6535 HB



举例 / Order example:

Kurz / Short (5 x D) d₁ = 9,5 mm Best.-Nr. / Ord.-No.
GBV01 095 ⇒ GBV01095

Lang / Long (12 x D) d₁ = 9,5 mm Best.-Nr. / Ord.-No.
GBV02 095 ⇒ GBV02095

涂层需求 / Coating on request

切削参数推荐 /

Cutting data recommendation:

孔径 Bore mm	Vc	铸铁 Cast iron	铝合金 Aluminium
		e.g. GG26, GGG50	e.g. G-AISI12
3 – 6	f	60 – 140	80 – 400
6 – 10	f	0,15 – 0,25	0,10 – 0,30
10 – 14	f	0,20 – 0,35	0,20 – 0,40
14 – 20	f	0,25 – 0,45	0,30 – 0,50
14 – 20	f	0,30 – 0,60	0,30 – 0,80

切削速度 / Cutting speed	Vc (m/min)
进给 / Infeed	f (mm/rev)

推荐:
对于高精度主轴和刀座
(用液压力柄或热胀刀柄)
中心冷却作用于刀刃。

Conditions for
successful use:
precise spindles and
toolholders (hydraulic or
heat shrink chucks are
recommended), coolant
directly on the cutting
edges, high coolant
pressure.



硬质合金钻头 ID 03/ID 05/ID 08
Carbide drill ID 03/ID 05/ID 08

硬质合金钻头

Drilling with carbide

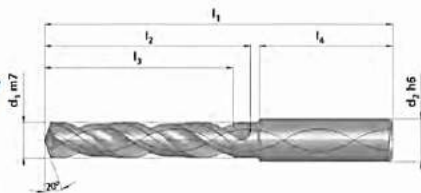


优势:

- 生产可靠性高
- 加工可靠性高
- 适于范围广
- 可修磨
- 刀具寿命长

Advantages:

- high productivity
- high process reliability
- universally applicable
- easy regrindable cutting geometry
- long tool life



注意:

对于铝合金材料和铸铁材料我们推荐i-Drill, 其它客户的特殊需要我们特别定制。

Notice:

For drilling aluminium we recommend i-Drill Alu and cast iron i-Drill Guss. Other versions like step drills, other length dimensions and coatings upon request.

d ₁	d ₂	l ₄	货号 / Ord.-No			货号 / Ord.-No			货号 / Ord.-No					
			3 x D	5 x D	8 x D	3 x D	5 x D	8 x D	3 x D	5 x D	8 x D			
3,0 - 3,7	6	36	14	26	62	ID 03...(d1)	23	28	66	ID 05...(d1)	29	35	72	ID 08...(d1)
3,8 - 4,7	6	36	17	30	66	ID 03...(d1)	29	36	74	ID 05...(d1)	36	44	81	ID 08...(d1)
4,8 - 6,0	6	36	20	30	66	ID 03...(d1)	35	44	82	ID 05...(d1)	48	58	95	ID 08...(d1)
6,1 - 8,0	8	36	29	43	79	ID 03...(d1)	43	53	91	ID 05...(d1)	66	77	114	ID 08...(d1)
8,1 - 10,0	10	40	35	49	89	ID 03...(d1)	49	61	103	ID 05...(d1)	88	101	142	ID 08...(d1)
10,1 - 12,0	12	45	40	57	102	ID 03...(d1)	56	71	118	ID 05...(d1)	100	116	162	ID 08...(d1)
12,1 - 14,0	14	45	40	57	107	ID 03...(d1)	60	77	124	ID 05...(d1)	114	132	178	ID 08...(d1)
14,1 - 16,0	16	48	45	67	115	ID 03...(d1)	63	83	133	ID 05...(d1)	133	154	203	ID 08...(d1)
16,1 - 18,0	18	48	51	75	123	ID 03...(d1)	71	93	143	ID 05...(d1)	150	173	222	ID 08...(d1)
18,1 - 20,0	20	50	55	81	131	ID 03...(d1)	77	101	153	ID 05...(d1)	167	192	243	ID 08...(d1)

d₁:适用于0.1mm / available in 0,1 mm-increments

刀杆形状 / Other shanks:

(请在下单前明确 / Please indicate with the order)

Whistle Notch = DIN 6535 HE

Weldon = DIN 6535 HB



举例 / Order example:

短形 / Short (3 x D)	d ₁ = 3,9 mm	货号 / Ord.-No.
ID 03	039	ID 03039
长形 / Long (5 x D)	d ₁ = 3,9 mm	货号 / Ord.-No.
ID 05	039	ID 05039

切削参数推荐 / Cutting data recommendation:

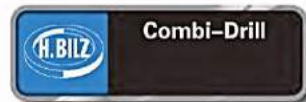
孔径 Bore mm	普通钢 Low alloy steel				合金钢 High alloy steel				不锈钢 Stainless steel				铸铁 Nodular cast iron							
	Vc	f	进给	进给	Vc	f	进给	进给	Vc	f	进给	进给	Vc	f	进给	进给				
3 - 5	f	0,15 - 0,25	0,12 - 0,25	0,10 - 0,20	0,15 - 0,25	f	0,18 - 0,35	0,15 - 0,30	0,12 - 0,25	0,18 - 0,35	f	0,20 - 0,40	0,20 - 0,35	0,15 - 0,30	0,20 - 0,40	f	0,22 - 0,45	0,20 - 0,40	0,18 - 0,35	0,22 - 0,45
5 - 8	f	0,18 - 0,35	0,15 - 0,30	0,12 - 0,25	0,18 - 0,35	f	0,20 - 0,40	0,20 - 0,35	0,15 - 0,30	0,20 - 0,40	f	0,22 - 0,45	0,20 - 0,40	0,18 - 0,35	0,22 - 0,45	f	0,25 - 0,50	0,22 - 0,45	0,20 - 0,40	0,25 - 0,50
8 - 11	f	0,20 - 0,40	0,20 - 0,35	0,15 - 0,30	0,20 - 0,35	f	0,22 - 0,45	0,20 - 0,40	0,18 - 0,35	0,22 - 0,45	f	0,25 - 0,50	0,22 - 0,45	0,20 - 0,40	0,25 - 0,50	f	0,28 - 0,55	0,25 - 0,45	0,22 - 0,45	0,28 - 0,55
11 - 14	f	0,22 - 0,45	0,20 - 0,40	0,18 - 0,35	0,22 - 0,45	f	0,25 - 0,50	0,22 - 0,45	0,20 - 0,40	0,25 - 0,50	f	0,28 - 0,55	0,25 - 0,45	0,22 - 0,45	0,28 - 0,55	f	0,30 - 0,60	0,28 - 0,45	0,25 - 0,50	0,30 - 0,60
14 - 20	f	0,25 - 0,50	0,22 - 0,45	0,20 - 0,40	0,25 - 0,50	f	0,28 - 0,55	0,25 - 0,45	0,22 - 0,45	0,28 - 0,55	f	0,30 - 0,60	0,28 - 0,45	0,25 - 0,50	0,30 - 0,60	f	0,32 - 0,65	0,30 - 0,50	0,28 - 0,45	0,32 - 0,65

推荐:
对于高精度主轴和刀座
(用液压刀柄或热胀刀柄)
中心冷却作用于刀刃。

Conditions for
successful use:
precise spindles and
toolholders (hydraulic or
heat shrink chucks are

recommended), coolant
directly on the cutting
edges, high coolant
pressure.

切削速度 / Cutting speed	Vc (m/min)
进给 / Infeed	f (mm/rev)



钻孔倒角复合刀 SECF
Drill-Chamfer-Combination SECF

硬质合金钻头

Drilling with carbide

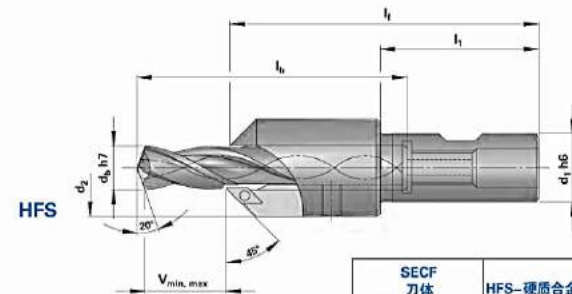


优势:

- 一次性加工完成
- 小尺寸
- 容易调节刀具长度
- 高切削率
- 可适于标准钻头

Advantages:

- Complete machining of core bores
- Small dimensions
- Easy length-adjustment and assembly (V_{min/max})
- Reliable chip removal
- Use of modified standard drills



HFS

SECF 刀体 Chamfering tool	HFS-硬质合金钻头/ TiAIN-涂层 Solide carbide/ TiAIN-coated	GB-硬质合金钻头/ 无涂层 Solide carbide/ uncoated

d ₀	d ₁	d ₂	l ₀	l ₁	V _{min/max}	l ₁	货号 / Ord.-No.	货号 / Ord.-No.	货号 / Ord.-No.
Material							ST / GGG	GG / ALU	GG / ALU
5,0	16	26	62	49,2	14 - 18	87,5	SECF 05001602	HFSF 06800682K	GBVF 05000502K
6,8	16	26	74	49,2	20 - 24	87,5	SECF 06801602	HFSF 06800682K	GBVF 06800682K
8,5	16	27	79	49,2	18 - 25	92,0	SECF 08501602	HFSF 08500852K	GBVF 08500852K
9,0	16	27	84	49,2	20 - 28	92,0	SECF 09001602	HFSF 09000902K	GBVF 09000902K
10,2	16	27	89	49,2	21 - 30	93,0	SECF 10201602	HFSF 10201022K	GBVF 10201022K
11,0	20	27	95	51,2	26 - 35	93,0	SECF 11002002	HFSF 11001102K	GBVF 11001102K
12,0	20	32	102	51,2	26 - 34	97,0	SECF 12002002	HFSF 12001202K	GBVF 12001202K
14,0	25	34	107	57,2	26 - 39	110,0	SECF 14002502	HFSF 14001402K	GBVF 14001402K

切削参数推荐 /
Cutting data recommendation:

HFSF 参阅 / look at Seite / Page 4
GBVF 参阅 / look at Seite / Page 3

可转位刀片 /
Indexable Insert

HM / 硬合金 / 无涂层 / uncoated	HM / TiN-涂层 硬合金 / TiN-coated	刀片螺钉 / Centre screw	螺钉扳手 / Screw driver
货号 / Ord.-No.	货号 / Ord.-No.	货号 / Ord.-No.	货号 / Ord.-No.
XDCW 090200 K1	XDCW 090200 K5	TX 25050	TX 208

举例 / Order example:

- 2 支 / Pieces SECF 10201602
- 10 支 / Pieces HFSF 10201022 K
- 20 片 / Pieces XDCW 090200 K1

根据客户需要涂层 /
Coating on request



VHM-特色铰刀 FUN01
Carbide Chamfermill FUN01

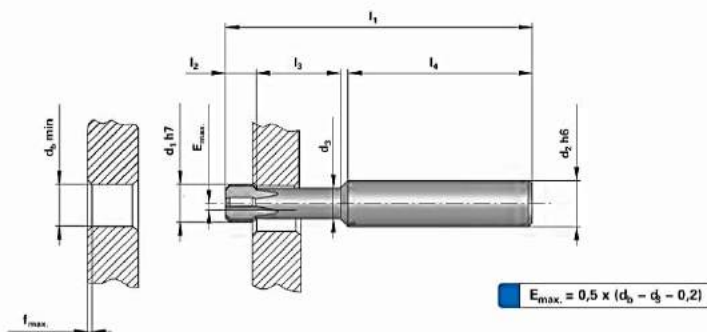


优势:

- 对于通孔可实现上下倒角带铰削
- 螺纹孔上表面倒角
- 多种复杂相关线倒角
- 使用范围广
- 切削时间短
- 切削参数高
- 多切削刃
- 可实现连续倒角加工
- 适用于干式切削
- 耐磨性极强的涂层X-CEED
- 批量生产可靠性高
- 高性价比

Advantages:

- Deburring both sides of through holes
- Chamfering of thread core-holes
- Chamfering and deburring of multiple edge-contours
- On NC-machine tools in almost all materials usable
- Shortest machining time
- High cutting data
- Many cutting edges
- Constant chamfer width
- Machining with or without coolant
- High wear resistance due to X-CEED coating
- High toughness due to micrograin carbide
- Lowest tool- and production-costs



										货号 / Ord.-No.	
d ₁	d _b	f	l ₃	d ₃	d ₂	l ₄	l ₁	l ₂	Z	无涂层 / uncoated	涂层 TIAIN-X-CEED besch. / coated
3,1	3,3	0,6	10,5	1,7	6	36	51	4,0	4	FUN0104	FUN0104X
3,9	4,2	0,7	11,5	2,2	6	36	54	4,5	5	FUN0105	FUN0105X
4,7	5,0	0,8	14,5	2,6	6	36	58	5,5	5	FUN0106	FUN0106X
6,4	6,8	1,1	20,0	3,9	6	36	65	7,5	6	FUN0108	FUN0108X
8,1	8,5	1,5	25,0	4,8	8	36	72	9,0	6	FUN0110	FUN0110X
9,7	10,2	1,8	30,0	5,9	10	40	83	10,5	6	FUN0112	FUN0112X
11,5	12,0	1,9	35,5	7,5	12	45	96	12,5	6	FUN0114	FUN0114X
13,5	14,0	1,9	41,5	9,5	14	45	104	14,5	7	FUN0116	FUN0116X
15,0	15,5	2,1	44,5	10,5	14	45	104	16,0	7	FUN0118	FUN0118X
17,0	17,5	2,1	52,0	12,5	16	48	120	18,0	7	FUN0120	FUN0120X

刀杆形状 / Other shanks:

(请在下单前明确 / Please indicate with the order)

Whistle Notch = DIN 6535 HE

Weldon = DIN 6535 HB



举例 / Order example:

2支 / Pieces FUN0110
6支 / Pieces FUN0110X

硬质合金倒角刀
Chamfering with carbide tools

应用案例 / Application example

客户问题 / The customer's problem

汽车转向节去毛刺 /
Steering-pipe crosshole-deburring
from all sides



工件材料 /
Workpiece material:
20MnCr4

机床 / Machine tool:
加工中心 /
Machining Center

加工过程 /
Cutting process:
铰孔倒角 /
Deburring of crossholes

BILZ-解决方案 / The BILZ solution:



UNIMILL
铰孔倒角 /
Chamfermill

D = 10 mm
Vc = 150 m/min
f = 0,4 mm/U/mm/rev



结果 / Result:
4个孔的倒角5秒内完成
Machining time for 4 chamfers reduced
by 80% to 5 sec!

切削参数推荐 / Cutting data recommendation for UNIMILL:

d ₁	Vc	普通钢	合金钢	不锈钢	铸铁	铝合金
		Low alloy steel	High alloy steel	Stainless steel	Cast iron	Aluminium
		e.g. CK 45	e.g. 42CrMo4V	e.g. X15Cr13	e.g. GG26, GGG50	e.g. G-AISI12
3-5	f	100-180	60-140	50-100	100-160	≤ 600
6-10	f	0,20-0,30	0,15-0,25	0,15-0,25	0,20-0,30	0,25-0,35
11-16	f	0,30-0,45	0,25-0,40	0,25-0,40	0,30-0,50	0,35-0,60
16-18	f	0,40-0,60	0,30-0,50	0,30-0,50	0,40-0,70	0,50-0,80
	f	0,50-0,80	0,40-0,60	0,40-0,60	0,50-1,00	0,60-1,20

切削速度 Cutting speed	Vc (m/min)	进给 Infeed	f (mm/rev)
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推荐:
对于高精度主轴和刀座
(用液压刀柄或热胀刀柄)
中心冷却作用于刀刃。

Conditions for
successful use:
precise spindles and
toolholders (hydraulic or
heat shrink chucks are

recommended), coolant
directly on the cutting
edges.



特色复合刀具 /
Combination tools

硬质合金复合刀具

Machining with carbide



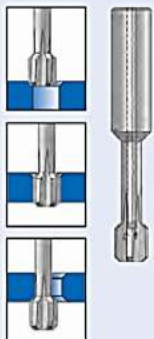
UNIREAM, UNIDRILL 和 UNIDREAM: 钻削、铰削和倒角一次性完成

UNIREAM, UNIDRILL and UNIDREAM: drill, ream and chamfer a bore on both sides

UNIREAM

UNIREAM是一把硬质合金复合刀，它不仅用于铰孔并且可用于孔的上下表面孔口倒角

UNIREAM is a multifluted solid carbide reamer that does not only produce narrow tolerated bore diameters but also chamfers at the bore top and exit by means of a circular movement.



优势

- 铰孔与倒角一次性完成，无需换刀
- 高精度
- 中心冷却保证切削效率
- 使用范围从6mm开始

Advantages:

- Reaming and chamfering in one tool without toolchange
- Narrow bore tolerances
- Internal coolant for high cutting data
- Available from diameter 6 mm upwards

UNIDRILL

UNIDRILL 是一款用于通孔加工而设计的复合刀，它实现了钻孔与孔口倒角一次性完成

Specifically designed for through-holes, the UNIDRILL drills a hole and removes the burrs on both sides of the bore by means of a circular movement.



优势

- 钻孔与倒角一次性完成，无需换刀
- 孔口表面无毛刺
- 节省了换刀时间

Advantages:

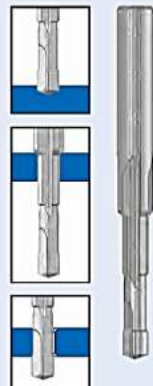
- Drilling and chamfering by one tool without toolchange
- Produces a bore hole with no burrs
- Reduces machining time as no tool change is needed

UNIDREAM

UNIDREAM新世代的产品是基于UNIREAM和UNIDRILL基础上开发出来的，它是通过一把刀完成钻削、铰削及倒角加工工艺。

优势

- 钻孔、铰孔和孔倒角一次性完成
- 孔口表面无毛刺
- 节省了换刀时间
- 使用范围从6mm开始



As a further development of UNIREAM and UNIDRILL, the UNIDREAM drills, reams and chamfers a bore.

Advantages:

- Drilling, reaming and chamfering in one tool
- Produces a bore hole with no burrs
- Reduces machining time as no tool change is needed
- Available from diameter 6 mm upwards



干式切削 / drill HFS-XXL
拖勾 / Dry machining drill

适用于深孔切削 /
Fit size drill for deep bores

当使用HFS-XXL系列钻头无需铰刀依然能达到H7公差，尤其对于深孔加工

Reaming is not necessary when using the HFS-XXL, even in deep bores.

优势

- 钻孔精度达到H7
- 长径比可达10XD
- 科学的排屑槽设计
- 四刃带自定心
- 适用于目前的钢件及铸铁件
- 推荐用液压力柄或热胀刀柄

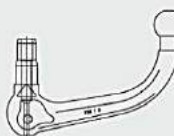
Advantages

- Drills H7 tolerance without reaming into the solid
- Up to 10 x diameter
- Very smooth chip flutes
- Self centering and with 4 guide lands
- For current steel and cast materials
- To be used in hydraulic or heat shrink chucks

应用案例 / Application example

客户问题 / The customer's problem

拖勾 /
Tow coupling



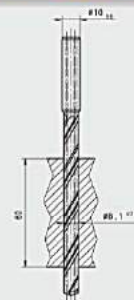
工件材料 /
Workpiece material:
ST52/3N (1.0570)

机床 / Machine tool:
加工中心 /
Machining Center

加工过程 /
Cutting process:

钻孔与铰孔一次性完成 /
Drilling and Reaming
in one step

BILZ解决方案 / The BILZ solution:



HFS-XXL mit
HFS-XXL with
4 guide lands

D = 8,1 mm
Vc = 69 m/min
f = 0,2 mm/U/mm/rev
tc = 100 min

Bohrungstoleranz H7/
bore tolerance H7

硬质合金钻头

Drilling with carbide

HFS-XXL		Trockenbohrer/Dry drill
10 x D	H7	7 x D
ST(EEL)	GG(G)	ST(EEL) GG ALU

硬质合金钻头用于干式切削 VHM /
Carbide drill for dry machining

BILZ 钻头用于干式切削或微量润滑切削，加工孔深可达7XD

The BILZ drills for dry machining can be used in bore depths up to 7 x diameter with spray mist coolant.

优势:

- 科学的排屑槽设计
- 微量冷却
- 高效率深孔加工
- 不伤工件表面的切削
- 适用于钢件、铸铁及铝合金

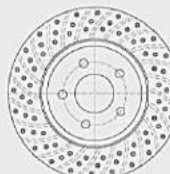
Advantages:

- Very smooth chip flutes
- Low coolant costs
- High cutting data even in deep bores
- Dry workpieces after machining
- For steel, cast iron and aluminium

应用案例 / Application example

客户问题 / The customer's problem

刹车盘 /
Brake rotor disc



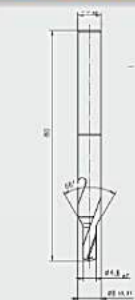
工件材料 /
Workpiece material:
GG Cr

机床 / Machine tool:
加工中心 /
Machining Center

加工过程 /
Cutting process:

钻孔、扩孔干式切削 /
Drilling, Counterboring
Dry cutting

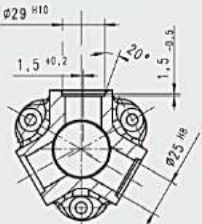

BILZ解决方案 / The BILZ solution:


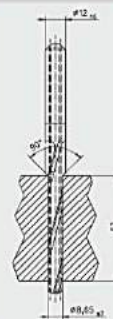


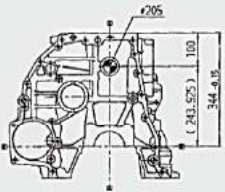

VHM-
Carbide drill for
dry machining



D = 4,6 x 8 mm
Vc = 178 m/min
Vf = 2665 mm/min
f = 0,3 mm/U/mm/rev

Standweg/tool life way
lc = 100 m


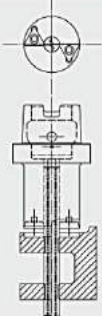
客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>喷油泵泵壳 / Diesel injection pump housing</p>  <p>工件材料 / Workpiece material: GGG-50</p> <p>机床 / Machine tool: 加工中心 / Machining Center</p> <p>加工过程 / Cutting process: 钻孔达H8精度、扩孔 / Drilling tolerance H8, counterboring</p>	<p>Stufen-Preci-Speed / Step-Preci-Speed TiAlN</p> <p>D = 25 x 30 mm Vc = 157 m/min f = 0,35/0,2 mm/U/mm/rev</p> <p>刀具寿命 / tool life way lc = 700 m</p> 

客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>进气歧管 / Inlet Manifold</p>  <p>工件材料 / Workpiece material: ALS10Mg</p> <p>机床 / Machine tool: 加工中心 / Machining Center</p> <p>加工过程 / Cutting process: 微量润滑钻孔 / Drilling with spray mist coolant</p>	<p>Stufen-Preci-Speed / Step-Preci-Speed ALUSPEED</p> <p>D = 8,65 mm Vc = 400 m/min f = 0,2 mm/U/mm/rev</p> <p>刀具寿命 / tool life way lc = 1700 m (4750 Teile / pieces)</p> <p>Austritt gratfrei Bohrungsverlauf geradlinig! Bore exit burrfree! Straight running bore!</p> 

客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>箱体 / Crank Housing</p>  <p>工件材料 / Workpiece material: GG27+</p> <p>机床 / Machine tool: 生产线 / Transfer line</p> <p>加工过程 / Cutting process: 微量润滑钻孔 / Drilling with spray mist coolant</p>	<p>Preci-Speed TiAlN</p> <p>D = 18 und 18,1 x 20 mm Vc = 96 m/min f = 0,3 mm/U/mm/rev</p> <p>刀具寿命 / tool life way lc = 1100 m</p> <p>加工后孔表面无毛刺锐边 Bore exit burrfree! Straight running bore!</p> 

客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>缸盖 / Cylinder Cover</p>  <p>工件材料 / Workpiece material: AISI7Cu3</p> <p>机床 / Machine tool: 加工中心 / Machining Center</p> <p>加工过程 / Cutting process: 孔加工 / Drilling of the fixing holes</p>	<p>Preci-Speed TiAlN</p> <p>D = 22,9 x 26 mm Vc = 396 m/min f = 0,3 mm/U/mm/rev Rz = 6.2</p> <p>刀具寿命 / tool life way lc = 5200 m</p> 

客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>连杆 / Connecting rod</p>  <p>工件材料 / Workpiece material: C70</p> <p>机床 / Machine tool: 加工中心 / Machining Center</p> <p>加工过程 / Cutting process: 孔加工 / Drilling at inclined exit</p>	<p>HFS 四刃带硬质合金钻头 HFS with 4 guide lands</p> <p>D = 7 mm Vc = 69 m/min Vf = 630 mm/min f = 0,2 mm/U/mm/rev l = 60 m (9 x D)</p> 

客户问题 / The customer's problem	BILZ解决方案 / The BILZ solution:
<p>变速箱壳 / Gearbox housing</p>  <p>工件材料 / Workpiece material: GD-AISI9Cu3</p> <p>机床 / Machine tool: 加工中心 / Machining Center</p> <p>加工过程 / Cutting process: Bohren, Fasen, 钻孔倒角及扩孔 / Drilling, chamfering, spotfacing</p>	<p>Combi-Drill 非标刀具 Drill-Chamfer-combination with shrink-fit drill and tangential inserts</p> <p>D = 10,2 x 34 mm Vc = 600 m/min f = 0,8 mm/U/mm/rev</p> 



我们是一家超过70年历史的德国传统刀具生产商，我们的刀具集中于孔加工，尤其在非标钻孔、扩孔、反划孔具有独特的优势，其中比尔兹公司的拳头产品：扩孔刀具及模块化单元已闻名于世70年。

我们的刀具安全可靠，凭借其优良的品质与德国各大汽车厂商紧密合作，同时我们深深相信企业的经营哲学与客户的关系基于全球合作基础之上。

Our tools for drilling, countersinking and re-boring as well as finish machining have been continually withstanding the toughest tests on a daily basis for more than 70 years.

The German machine tool and automotive industries in particular have appreciated our capability, reliability and quality for over 70 years.

The relationship to our customers has been cemented in our corporate philosophy with the phrase: "Our relationship to our customers is based on a global partnership. "



Hermann Bilz
GmbH & Co KG
德国比尔兹刀具公司