

ph HORN ph



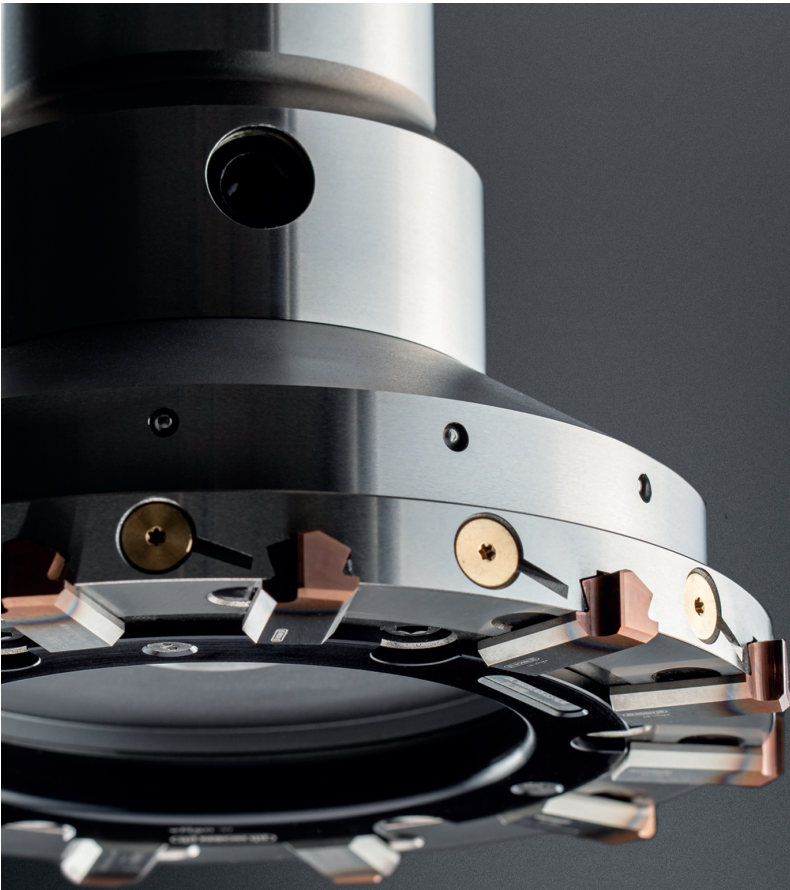
NEW

DR large 铰刀系统

用于大孔径的模块化扩孔, 最大直径达200毫米

REAMING SYSTEM DR large

Modular reaming for bore diameters up to 200 mm



不同之处： 更多可能

The difference:
more possibilities

- **易于设置和更换刀头, 无需调整工具**

Simple set-up and exchanging of the reaming head without tool adjustment

- **模块化系统设计, 并使用一颗覆盖范围广的标准切削刀片**

Modular system design with a wide range of standard inserts

- **HORN为刀具提供的具有成本效益的服务**

Inexpensive servicing of the reaming heads by HORN

刀片尺寸 DR150 - DR200

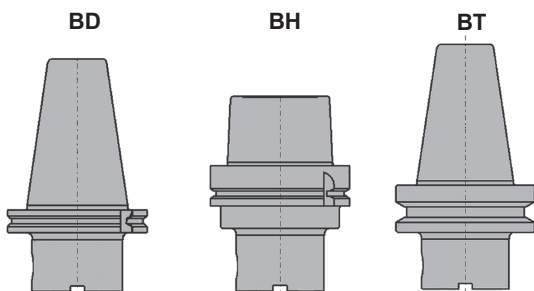
System Size DR150 - DR200



模块化系统 Ø 139.8 - 202.2 mm

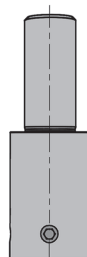
Modular System for Ø 139.8 - 202.2 mm

接头系统 / System adapter Beta-Modul

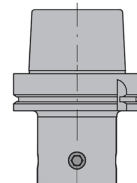


平衡刀杆 / Balancing shank

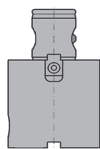
VDR
圆柱杆
cylindrical



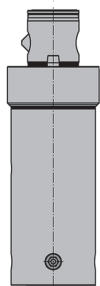
VDR
直接
direct



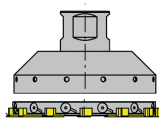
B13
接柄
Extension
Beta-Modul



VDR
平衡刀杆
Balancing shank
Beta-Modul



DR
铰刀刀头
Reaming head



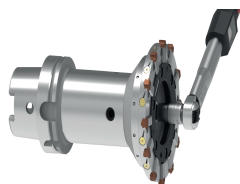
MDR
铰刀刀杆
Reaming insert holder

刀片螺钉
Screws for insert



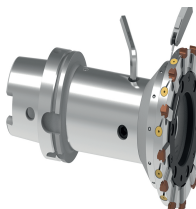
刀杆螺钉
Screw for holder





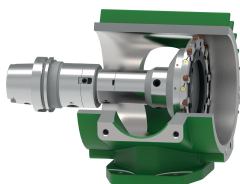
1. 组装刀具

Assemble the tool



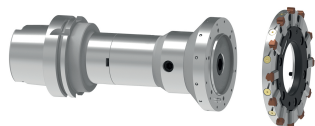
2. 调整同轴度

Adjust run-out



3. 使用刀具

Tool in use



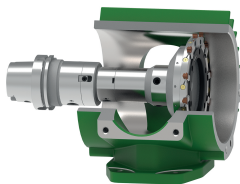
4. 使用至寿命结束后拆除切削刃

After tool life end disassemble used reaming head.



5. 安装新的切削刃

Assembly new reaming head



6. 使用刀具

Tool in use



需求

- 精度
- 过程可靠性
- 操作简便
- 加工效率

Requirements

- Precision
- Process reliability
- Simple handling
- Productivity

应用实例 „行星架“

工件材质: EN-GJS 400

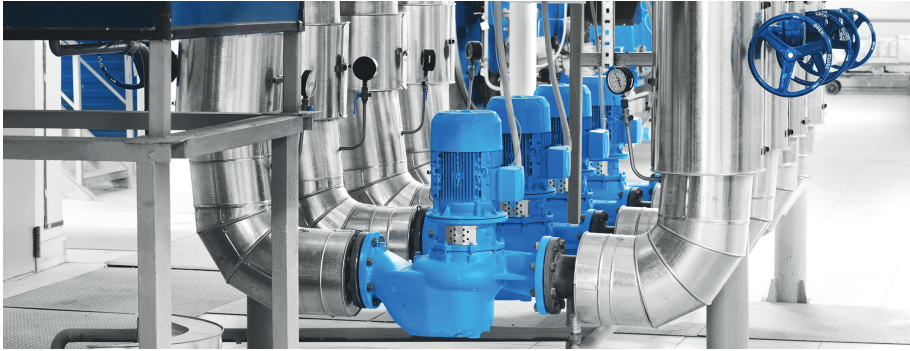
Example of a „Planet Carrier“ Application

Material: EN-GJS 400

切削速度
Cutting Data

v_c	125 m/min
f_z	0.20 mm
z	12
v_f	530 mm/min
a_p	0.15 mm
\varnothing	180 N6 mm
L	2x120 mm
XS	650 mm





需求

- 精度
- 过程可靠性
- 低成本
- 操作简便

Requirements

- Precision
- Process reliability
- Low costs
- Simple handling

应用实例 „泵壳“

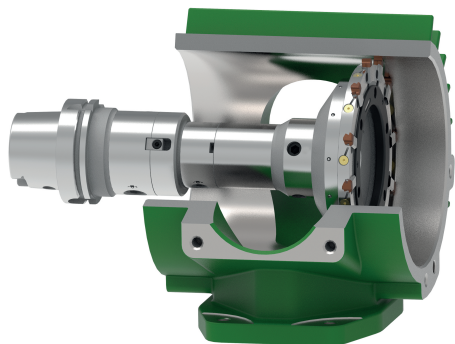
工件材质: GG25

Example of a „Pump Housing“ Application

Material: GG25

切削速度
Cutting Data

v_c	100 m/min
f_z	0.15 mm
z	12
v_f	353 mm/min
a_p	0.15 mm
\varnothing	162 H8 mm
L	300 mm
Ra	1.2 μ m
XS	350 mm



确定尺寸的订单实例

Ordering example with fixed dimension

DR.150033.G16.L.2 HL3M (N)

DR

DR系统名称

DR System designation

150,033

直径 (单位 : 毫米)

Diameter in mm

G16

切削刃槽型 (更多槽型见 „标准铰刀“)

Cutting geometry (for more geometries see „Standard Reaming head“)

L

螺旋角 (G=直槽 , L=左旋)

Helix angle (G = straight, L = left-hand helix)

2

刃口处理 (更多设计见下文)

Cutting edge preparation (for more versions see below)

HL3

涂层 (更多涂层见 „标准铰刀“)

Coating (for more coatings see „Standard Reaming head“)

M

硬质合金基材

Carbide substrate

(N)

留待后处理 (N)

Left out for reprocessing

更多刃口处理

More cutting edge preparations

S

无刃口处理

without cutting edge preparation

2

适中刃口处理

medium cutting edge preparation

3

大刃口处理

larger cutting edge preparation

刀具直径解释

Explanation of the cutting diameter



对于有标准规格的内孔公差，刀具直径由HORN标准定义。根据的孔径和公差范围，标准品铰刀直径覆盖了孔径公差范围的65%至80%。

HORN标准规定的直径总是显示为一个目标的尺寸。

例 1:
要求具有ISO孔径公差。
直径160H7

HORN标准目标直径
直径160.033毫米

铰刀物料号:
DR.160033.A01.L.S HL3M

例 2:
要求具有带孔径公差
直径: 185 +0.030 -0.015 mm

HORN标准目标直径:
直径: 185.021 mm

铰刀物料号:
DR.185021.C01.G.S AN4M

例 3:
Anfrage mit definiertem Schneidringmaß
直径: 193.158 mm

HORN标准目标直径:
直径: 193.158 mm

铰刀物料号:
DR.193158.B06.L.S HL3M

铰刀的制造公差始终为 ± 0.003 毫米

For requests with specifications of the bore tolerance, the reaming head diameter is defined by the HORN standard. Depending on the diameter and the tolerance range, the reaming head diameter will be within 65% to 80% of the total bore tolerance range.

The diameter specified by the HORN standard is always shown as a target size dimension.

Example 1:
Request with ISO bore tolerance
Diameter: 160H7

Target size diameter according to HORN
standard: Diameter: 160,033 mm

Reaming head part number:
DR.160033.A01.L.S HL3M

Example 2:
Request with bore tolerance
Diameter: 185 +0,030 -0,015 mm

Target size diameter according HORN
standard: Diameter: 185,021 mm

Reaming head part number:
DR.185021.C01.G.S AN4M

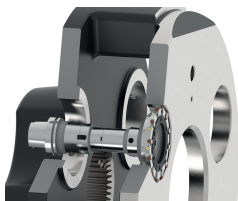
Example 3:
Request with reaming head target size
Diameter: 193,158 mm

Target size diameter according HORN-
standard: Diameter: 193,158 mm

Reaming head part number:
DR.193158.B06.L.S HL3M

The reaming head manufacturing tolerance is always $\pm 0,003$ mm

1.



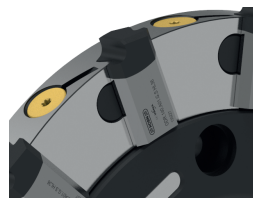
1. 使用刀具。在使用期限结束时，
铰刀片可以返回到HORN进行重磨。

1. Tool in use. After tool life ends, the reaming head
can be returned to HORN for
reconditioning.

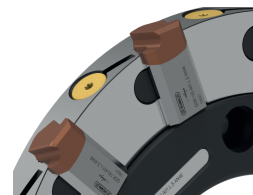
2. a) 铰刀刀片可以重磨成相同的直径和槽型。
b) 铰刀刀片也可以重磨成不同的直径和槽型。

2. a) Reaming head can be reconditioned to same size
and geometry.
b) Reaming head can be reconditioned to other size
and/or geometry.

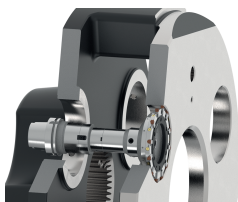
2.
a)



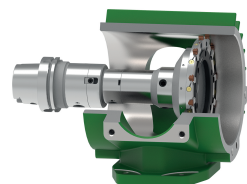
b)



3.
a)



b)



3. a) 使用刀具加工相同的直径。
b) 使用刀具加工不同的直径。

3. a) Use tool in the same bore.
b) Use tool in a different bore.

标准铰刀

Standard Reaming heads



刀具直径可以通过填写完整物料号从而自由确定
切削参数可根据要求提供

The cutting edge diameter can be freely determined by completing the part number.
Cutting data available upon request

直槽铰刀

用于盲孔和部分通孔

straight fluted reaming heads -
for blind holes and partly for through holes

产品型号 Part number	主偏角 Firstcut angle	刃口处理 Preparation	刃口处理 Backtaper	P	M	K	N
DR. _____ A06.G.S HL3M	45°	-	x2	•	•	○	
DR. _____ G16.G.S HL3M	60°/43°	-	x2	•	•	○	
DR. _____ C16.G.S HL3M	45°/20°	-	x2	•	•	○	
DR. _____ A06.G.2 HL3M	45°	2	x2	○		•	
DR. _____ G16.G.2 HL3M	60°/43°	2	x2	○		•	
DR. _____ C16.G.2 HL3M	45°/20°	2	x2	○		•	
DR. _____ A01.G.3 AN4M	45°	3	x1	○		•	
DR. _____ C11.G.3 AN4M	45°/20°	3	x1	○		•	
DR. _____ C16.G.S NP1M	45°/20°	-	x2				•

在短切屑材料中也适用于通孔
In short chipping material also suitable for through holes.

左旋铰刀

用于通孔

left hand fluted reaming heads -
for through holes

产品型号 Part number	主偏角 Firstcut angle	刃口处理 Preparation	刃口处理 Backtaper	P	M	K	N
DR. _____ C16.L.S HL3M	45°/20°	-	x2	•	•	○	
DR. _____ B06.L.S HL3M	25°	-	x2	•	•	○	
DR. _____ C16.L.2 HL3M	45°/20°	2	x2	○		•	
DR. _____ B06.L.2 HL3M	25°	2	x2	○		•	
DR. _____ A06.L.S HL3M	45°	-	x2	•	•	○	
DR. _____ C16.L.S NP1M	45°/20°	-	x2				•

高性能铰削 DR large

High-Performance Reaming DR large

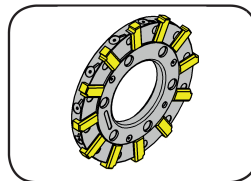


铰刀刀头

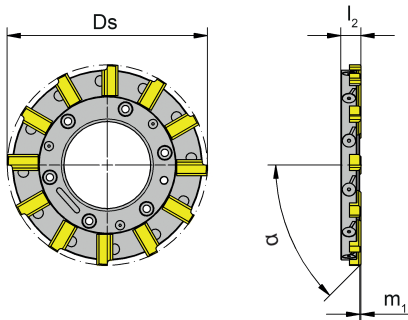
Reaming head

DR large

直槽
straight fluted



切削刃Ø Cutting edge Ø 139,801-2002,2 mm



图示=右手型
Picture = right hand cutting version

配合铰刀刀杆
for Reaming insert holder

型号 MDR large
Type

直接冷却液供应
with through coolant supply

产品型号 Part number	Ds	Ds _{min}	Ds _{max}	尺寸规格 Size	m ₁	α	l ₂	Z	HL3M
DR.140033.A06.G.S	140,033	139,801	149,8	150	0,85	45°	15	12	Δ
DR.150033.A06.G.S	150,033	149,801	159,8	160	0,85	45°	15	12	Δ
DR.160033.A06.G.S	160,033	159,801	169,8	170	0,85	45°	15	12	Δ
DR.170033.A06.G.S	170,033	169,801	179,8	180	0,85	45°	15	12	Δ
DR.180033.A06.G.S	180,033	179,801	189,8	190	0,85	45°	15	12	Δ
DR.190037.A06.G.S	190,037	189,801	200,2	200	0,85	45°	15	12	Δ
DR.200037.A06.G.S	200,037	189,801	200,2	200	0,85	45°	15	12	Δ

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	•
K	•
N	-
S	-
H	-

硬质合金牌号
Carbide grades

高性能铰削 DR large

High-Performance Reaming DR large

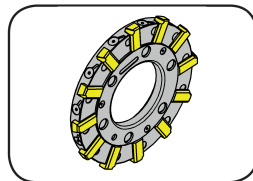


铰刀刀头

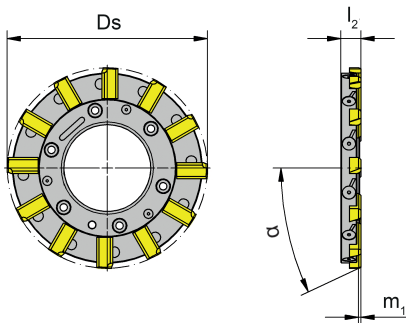
Reaming head

DR large

左旋
left helical fluted



切削刃Ø Cutting edge Ø 139,801-2002,2 mm



图示=右手型
Picture = right hand cutting version

配合铰刀刀杆
for Reaming insert holder

型号 MDR large
Type

直接冷却液供应
with through coolant supply

产品型号 Part number	Ds	Ds _{min}	Ds _{max}	尺寸规格 Size	m ₁	α	l ₂	Z	HL3M
DR.140033.B06.L.S	140,033	139,801	149,8	150	1,82	25°	15	12	Δ
DR.150033.B06.L.S	150,033	149,801	159,8	160	1,82	25°	15	12	Δ
DR.160033.B06.L.S	160,033	159,801	169,8	170	1,82	25°	15	12	Δ
DR.170033.B06.L.S	170,033	169,801	179,8	180	1,82	25°	15	12	Δ
DR.180033.B06.L.S	180,033	179,801	189,8	190	1,82	25°	15	12	Δ
DR.190037.B06.L.S	190,037	189,801	200,2	200	1,82	25°	15	12	Δ
DR.200037.B06.L.S	200,037	189,801	200,2	200	1,82	25°	15	12	Δ

▲ 库存 / on stock Δ 4周 / 4 weeks x 根据要求 / upon request

● 推荐 / recommended

○ 次推荐 / alternative recommendation

- 不合适 / not suitable

■ 非涂层 / uncoated grades

■ 涂层 / coated grades

■ 钎焊/金属陶瓷 / brazed/Cermet

尺寸单位 : mm

Dimensions in mm

P	•
M	•
K	•
N	-
S	-
H	-

硬质合金牌号
Carbide grades

高性能铰削 DR large

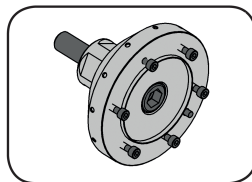
High-Performance Reaming DR large



铰刀刀杆

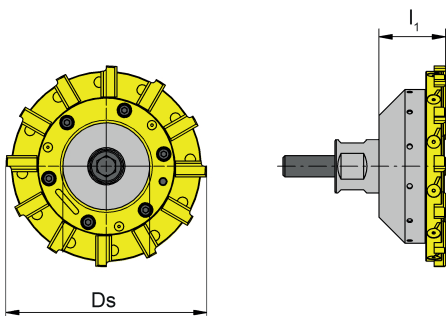
Reaming insert holder

MDR large



切削刃 \varnothing Cutting edge \varnothing 80,601 - 200,2 mm

采用综合补偿机制
with integrated compensation mechanism



直接冷却液供应
with through coolant supply

产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l_1	D_s	尺寸规格 Size	冷却 Coolant	重量 [kg] Weight [kg]
MDR.150.115.50.V.D	139.800	159.8	50	115	150	D	2.7
MDR.170.135.50.V.D	159.801	179.8	50	135	170	D	3.5
MDR.190.155.50.V.D	179.801	200.2	50	155	190	D	4.6

尺寸单位：mm
Dimensions in mm

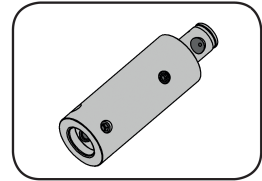
高性能铰削 DR large

High-Performance Reaming DR large



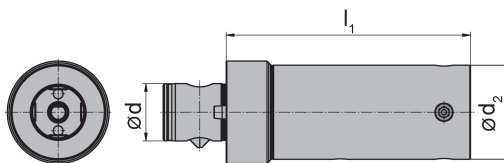
刀柄
Shank

VDR



切削刃 \varnothing	Cutting edge \varnothing	80,601 - 200,2 mm
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采用综合补偿机制
with integrated compensation mechanism



形式
BM = Beta-Modul

产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l_1	d	d_2	尺寸规格 Size	形式 Form
VDR.101.76.100.63.BM	80,601	200,2	100	63	76	101-200	BM
VDR.101.76.160.63.BM	80,601	200,2	160	63	76	101-200	BM

尺寸单位 : mm
Dimensions in mm

配件
Spare Parts

刀柄 Shank	螺钉 Screw
VDR...	C009016

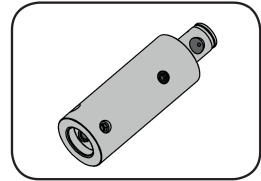
高性能铰削 DR large

High-Performance Reaming DR large



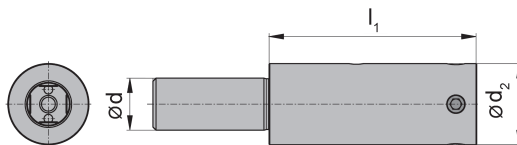
刀柄
Shank

VDR



切削刃 \varnothing Cutting edge \varnothing 80,601 - 200,2 mm

采用综合补偿机制
with integrated compensation mechanism



形式

- A = 圆柱柄 DIN 1835-A
Cylindrical shank
- B = 侧固柄 DIN 1835-B
Weldon shank DIN

产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l_1	d	d_2	尺寸规格 Size	形式 Form
VDR.101.76.100.40.A	80.601	200.2	100	40	76	101	A
VDR.101.76.100.40.B	80.601	200.2	100	40	76	101	B
VDR.101.76.160.40.A	80.601	200.2	160	40	76	101	A
VDR.101.76.160.40.B	80.601	200.2	160	40	76	101	B

尺寸单位 : mm
Dimensions in mm

配件
Spare Parts

刀柄 Shank	螺钉 Screw
VDR...	C009016

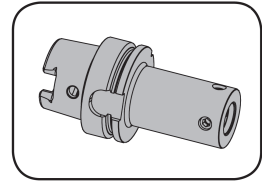
高性能铰削 DR large

High-Performance Reaming DR large



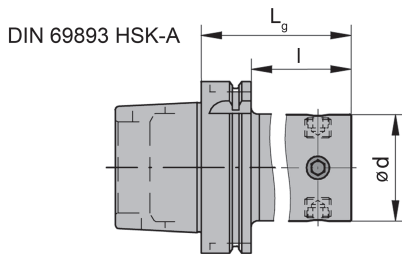
直接安装于系统
Direct mounting

VDR



切削刃 \varnothing Cutting edge \varnothing 80,601 - 200,2 mm

采用综合补偿机制
with integrated compensation mechanism



产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l	L_g	d	尺寸规格 Size	系列 System	重量 [kg] Weight [kg]
VDR.101.120.A063	80.601	140.6	94	120	76	101	HSK63	2.4
VDR.101.130.A100	80.601	200.2	101	130	76	101	HSK100	5.0

尺寸单位 : mm
Dimensions in mm

配件
Spare Parts

刀柄 Shank	螺钉 Screw
VDR...	C009016

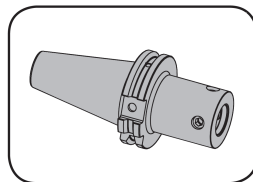
高性能铰削 DR large

High-Performance Reaming DR large



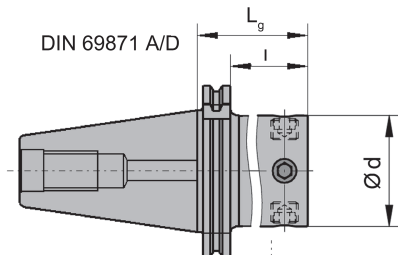
直接安装于系统
Direct mounting

VDR



切削刃 \varnothing Cutting edge \varnothing 80,601 - 200,2 mm

采用综合补偿机制
with integrated compensation mechanism



产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l	Lg	d	尺寸规格 Size	系列 System	重量 [kg] Weight [kg]
VDR.101.095.40AD	80.601	140.6	76	95	76	101	SK 40	2.2
VDR.101.095.50AD	80.601	200.2	76	95	76	101	SK 50	4.6

尺寸单位 : mm
Dimensions in mm

配件
Spare Parts

刀柄 Shank	螺钉 Screw
VDR...	C009016

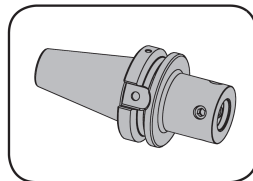
高性能铰削 DR large

High-Performance Reaming DR large



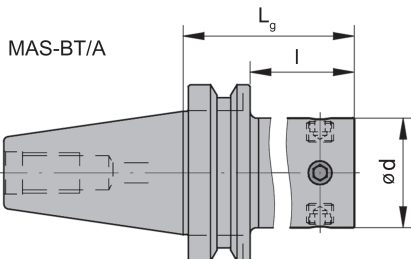
直接安装于系统
Direct mounting

VDR



切削刃 \varnothing Cutting edge \varnothing 80,601 - 200,2 mm

采用综合补偿机制
with integrated compensation mechanism



产品型号 Part number	$D_{s_{min}}$	$D_{s_{max}}$	l	Lg	d	尺寸规格 Size	系列 System	重量 [kg] Weight [kg]
VDR.101.095.40BT	80.601	140.6	-	95	76	101	JIS-BT 40	2.5
VDR.101.095.50BT	80.601	200.2	57	95	76	101	JIS-BT 50	5.1

尺寸单位 : mm
Dimensions in mm

配件
Spare Parts

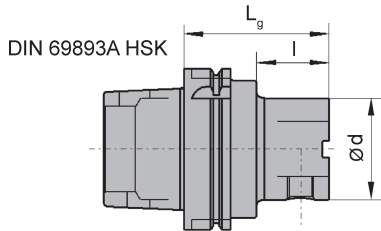
刀柄 Shank	螺钉 Screw
VDR...	C009016

接头系统 URMA
System Adaptors URMA

BH



适用于 Beta-Modul
for Beta-Modul



产品型号 Part number	Lg	l	d	Beta-Modul	重量 [kg] Weight [kg]	系列 System
BH10 63A 63 080	80	-	63	63	1.5	HSK-A 63
BH10 100A 63 080	80	35	63	63	3.3	HSK-A 100
BH10 100A 80 090	90	45	80	80	4.0	HSK-A 100
BH10 100A 100 100	100	-	100	100	5.0	HSK-A 100

不包含冷却液管-需要单独订购!
Coolant tube is not included - separate order required!

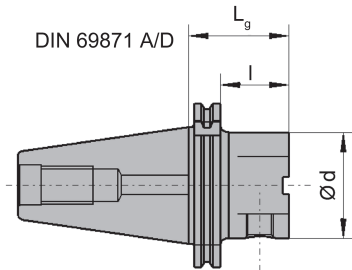
尺寸单位: mm
Dimensions in mm

接头系统 URMA
System Adaptors URMA

BD



适用于 Beta-Modul
for Beta-Modul



产品型号 Part number	Lg	l	d	Beta-Modul	重量 [kg] Weight [kg]	系列 System
BD10 40A 63 065	65	46	63	63	1.5	SK 40
BD10 40A 63 090	90	70	63	63	2.0	SK 40
BD10 50A 63 060	60	41	63	63	3.3	SK 50

尺寸单位：mm
Dimensions in mm

配件
Spare Parts

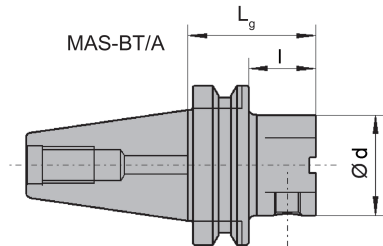
接头系统 URMA System Adaptors URMA	销 Threaded Pin
BD10 40A 63 065	Z006324
BD10...	

接头系统 URMA
System Adaptors URMA

BT



适用于 Beta-Modul
for Beta-Modul



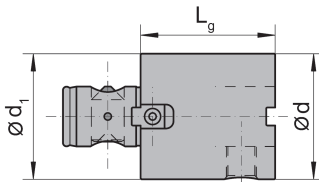
产品型号 Part number	Lg	l	d	Beta-Modul	重量 [kg] Weight [kg]	系列 System
BT10 40A 63 055	55	28	63	63	1.4	JIS-BT 40
BT10 40A 63 070	70	43	63	63	1.7	JIS-BT 40
BT10 50A 63 080	80	42	63	63	4.3	JIS-BT 50

尺寸单位：mm
Dimensions in mm

接长杆
Extension

B13

适用于 Beta-Modul
for Beta-Modul



Bestellnummer Part number	L _g	d	d ₁	机床侧接口 Interface machine end	刀具侧接口 Interface cutting edge end	重量 [kg] Weight [kg]
B13 63 63 060	60	63	63	63	63	1,3
B13 63 63 125	125	63	63	63	63	2,9

尺寸单位 : mm
Dimensions in mm



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