

WOHLHAUPTER®



**ALLIED MACHINE
& ENGINEERING**

Holemaking Solutions for Today's Manufacturing



Wohlhaupter MultiBore

基础镗刀方案

BASIC PROGRAM



www.wohlhaupter.com

精密镗刀 Precision boring tools

沃好特的模块化刀具系统为得到优质的解决方案提供了大量的产品和解决方案;同时能在难加工中极力减少误差。

Wohlhaupter's modular boring systems deliver premium results in a multitude of materials and hold extremely tight tolerances in difficult applications.

数显调节

With Digital adjustment

- VarioBore, $\varnothing$ 0,4 – 152 mm
- 510 Digital, $\varnothing$ 0,4 – 12 mm
- DigiBore, $\varnothing$ 3 – 208 mm
- 564 Balance Digital, $\varnothing$ 20 – 205 mm
- 537 Digital, $\varnothing$ 100 – 205 mm

刻度盘调节

Adjustment via vernier

- VarioBore $\varnothing$ 0,4 – 152 mm
- 248, $\varnothing$ 3 – 30,2 mm
- PrimeBore, $\varnothing$ 3 – 208 mm
- 364 Balance, $\varnothing$ 20 – 205 mm
- 310, $\varnothing$ 20 – 205 mm
- 337, $\varnothing$ 100 – 205 mm



粗精复合镗刀 Rough and finish machining

Combi-Line 粗精复合将粗加工和精加工合二为一的加工模式

Combi-Line incorporates both rough and finish boring into a single operation and maintains accuracy in both level and stepped machining.

- Combi-Line, $\varnothing$ 24,5 – 201 mm

粗镗刀具 Boring tools for rough machining

Multi Bore模块化基础镗刀, 可以与多种刀夹组合, 具备了粗加工, 倒角加工, 反镗加工, 端面槽加工, 镗外圆等其他强大功能。

MultiBore serrated bodies, combined with various insert holders, provide great versatility by rough machining, chamfering, reverse machining, circular milling, and axial grooving.

- 双刃粗镗刀, $\varnothing$ 19,5 – 205 mm
Twin cutter tools
- 端面槽槽刀, $\varnothing$ 20 – 205 mm
Axial grooving tools
- 倒角刀, $\varnothing$ 19 – 216 mm
Chamfering tools
- 反镗粗镗刀, $\varnothing$ 29 – 245 mm
Tools for reverse machining
- 环形槽槽刀, $\varnothing$ 20 – 79 mm
Grooving tools for circular milling



刀片 Replaceable Inserts

沃好特提供了大量的ISO可替换刀片, 特别设计为满足所有常规镗削加工要求

Wohlhaupter offers a large selection of ISO replaceable inserts specially designed for all conventional spindle milling operations.



中间模块 Intermediate modules

各式俱全的沃好特中间模块可被调整以适配不同的加工场景
选择重金属、硬质合金或者特殊抗震刀杆能够得到为加工直径长度比超过1:5的提供解决方案

Wohlhaupter's wide selection of intermediate modules can be modified to fit any boring application requirements.

Choose modules made of heavy metal, solid carbide or special vibration damped solutions for best results when working with a diameter-to-length ratio over 1:5.

- 变径套
Reducers
- 延长杆
Extensions
- NOVI^{TECH}
抗震刀杆
Vibration dampened intermediate modules
- 适用于精镗刀的转换套和转换柄
Adaptors and adaptor shanks for precision boring tools

主柄 Master shanks

沃好特的刀柄配备了MVS连接方式适用于不同的加工需求

Wohlhaupter master shanks equipped with MVS connecting components are available to meet the different machine requirements.

- DIN 69893 HSK
- DIN 69871-AD / B -D
- MAS BT / JIS B 6339
- DIN 2080
- ISO 26623-1 / PSC
- Morse tapers DIN 228 A/2207, DIN 1806



具有 MVS 接口的夹具 Clamping tools with MVS connection

从品种丰富、精益求精的沃好特夹持刀具中获取HSK或各式刀柄设计

Get uncompromising Wohlhaupter precision in a large range of common clamping tools in HSK or angle taper design.

- 侧固式夹持刀柄模块
Adaptor sleeves for cylindrical shanks
- 钻夹头夹持刀柄模块
Drill chucks
- 弹簧筒夹夹持刀柄模块
Collet chucks
- 壳铣刀夹持刀柄模块
Milling arbors
- 面铣刀夹持刀柄模块
Holding arbors for milling cutters
- 液压刀柄模块
Hydraulic clamping chucks
- 快换攻丝刀柄模块
Tapping chucks



镗刀 Ø 200 - 3255 mm Boring tools Ø 200 - 3255 mm

沃好特提供的镗刀系统加工范围可达Ø 200 - 3255 mm可誉为全球功能最强大且加工模式最多样的镗刀之一。

Wohlhaupter offers one of the largest selections of powerful, yet versatile boring systems for the Ø 200 - 3255 mm size range world-wide.

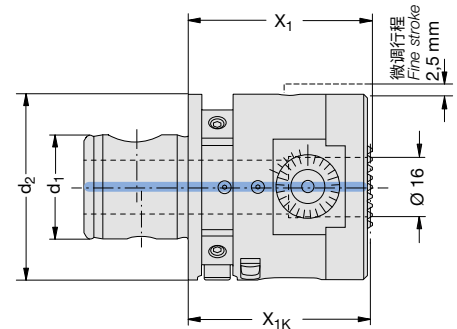
用于精加工的镗刀

Boring tools for finish machining

VARIO BORE

精密镗刀

Precision boring tool



MVS 接口 MVS connection	镗孔范围 Boring range	订货号 Part No.			
d ₂ d ₁	A	X ₁	X _{1K}	kg	
50 - 28	0,4 – 152	50	49,5	0,7	536001*



精镗刀 3ETECH

Precision boring tool with 3ETECH



MVS 接口 MVS connection	镗孔范围 Boring range	订货号 Part No.			
d ₂ d ₁	A	X ₁	X _{1K}	kg	
50 - 28	0,4 – 152	50	49,5	0,7	536002*

3ETech数码显示模块需另外单独购买

This tool is supplied without the 3ETECH digital readout module. The digital readout module must be ordered separately.

3ETECH 数码显示模块

3ETECH Digital Readout Module

订货号 Part No.
536010



附件和备件，从第 6 页开始。
请查看系统镗刀样本Z章节。

Accessories and spare parts from page 6.
General accessories and service keys, see MultiBore Catalog, chapter Z.

Ausdrehwerkzeuge für die Fertigbearbeitung

Boring tools for finish machining

Outils d'alésage pour les travaux de finition

Non-Digital

VARIO BORE

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
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Form 20 · Ø 10 – 30 mm 103049

bestehend aus / consisting of / comprenant:

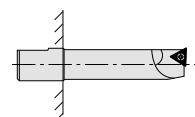
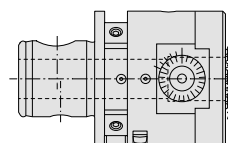
1 Feindrehwerkzeug Precision boring tool Outil d'alésage de très haute précision	536001
4 Klemmhalter Tool holders Outils porte-plaquettes	Form 20 Ø 10 – 15 218059 Ø 15 – 20 081045 Ø 20 – 25 081046 Ø 25 – 30 081047
3 Bedienschlüssel Service keys Clés de service	s2,5 115575 s4 215403 T7 115591
1 Kunststoffkoffer Plastic case Coffret en matière plastique	103161
1 Schaumstoffeinlage Foamed plastic lining Mousse de protection	103079

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
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Form 101 · Ø 10 – 30 mm 103050

bestehend aus / consisting of / comprenant:

1 Feindrehwerkzeug Precision boring tool Outil d'alésage de très haute précision	536001
4 Klemmhalter Tool holders Outils porte-plaquettes	Form 101 Ø 10 – 15 218048 Ø 15 – 20 081041 Ø 20 – 25 081042 Ø 25 – 30 081043
3 Bedienschlüssel Service keys Clés de service	s2,5 115575 s4 215403 T8 115590
1 Kunststoffkoffer Plastic case Coffret en matière plastique	103161
1 Schaumstoffeinlage Foamed plastic lining Mousse de protection	103079



Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
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Form 20 · Ø 10 – 102 mm 103051

bestehend aus / consisting of / comprenant:

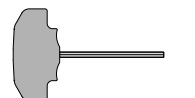
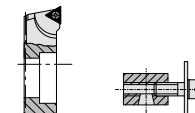
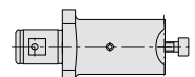
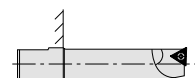
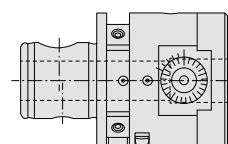
1 Feindrehwerkzeug Precision boring tool Outil d'alésage de très haute précision	536001
4 Klemmhalter Tool holders Outils porte-plaquettes	Form 20 Ø 10 – 15 218059 Ø 15 – 20 081045 Ø 20 – 25 081046 Ø 25 – 30 081047
1 Kerbzahnkörper Serrated tool body Corp cranté	236021
4 Plattenhalter Insert holders Porte-plaquettes	Ø 29 – 41 236022 Ø 40 – 53 236024 Ø 52 – 77 236026 Ø 76 – 102 236028
1 Befestigungsteil Clamping piece Élément de fixation	236020
4 Bedienschlüssel Service keys Clés de service	s2,5 115575 s4 215403 s5 215521 T7 115591
1 Kunststoffkoffer Plastic case Coffret en matière plastique	103161
1 Schaumstoffeinlage Foamed plastic lining Mousse de protection	103079

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
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Form 101 · Ø 10 – 102 mm 103052

bestehend aus / consisting of / comprenant:

1 Feindrehwerkzeug Precision boring tool Outil d'alésage de très haute précision	536001
4 Klemmhalter Tool holders Outils porte-plaquettes	Form 101 Ø 10 – 15 218048 Ø 15 – 20 081041 Ø 20 – 25 081042 Ø 25 – 30 081043
1 Kerbzahnkörper Serrated tool body Corp cranté	236021
4 Plattenhalter Insert holders Porte-plaquettes	Ø 29 – 41 236023 Ø 40 – 53 236025 Ø 52 – 77 236027 Ø 76 – 102 236029
1 Befestigungsteil Clamping piece Élément de fixation	236020
4 Bedienschlüssel Service keys Clés de service	s2,5 115575 s4 215403 s5 215521 T8 115590
1 Kunststoffkoffer Plastic case Coffret en matière plastique	103161
1 Schaumstoffeinlage Foamed plastic lining Mousse de protection	103079



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A 1.3

Ausdrehwerkzeuge für die Fertigbearbeitung

Boring tools for finish machining

Outils d'alésage pour les travaux de finition

3E^{TECH} VARIO BORE



A

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
3E^{TECH}	

Form 20 · Ø 10 – 30 mm 103045

bestehend aus / consisting of / comprenant:

1 **Feindrehwerkzeug** 536002
Precision boring tool
Outil d'alésage
de très haute précision

4 **Klemmhalter** **Form 20**
Tool holders
Ø 10 – 15 218059
Outils porte-plaquettes
Ø 15 – 20 081045
Ø 20 – 25 081046
Ø 25 – 30 081047

3 **Bedienschlüssel**
Service keys
s2,5 115575
s4 215403
Clés de service
T7 115591

1 **Kunststoffkoffer** 103161
Plastic case
Coffret en matière plastique

1 **Schaumstoffeinlage** 103079
Foamed plastic lining
Mousse de protection

Die 3E^{TECH} Digitalanzeige muss gesondert bestellt werden.

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
3E^{TECH}	

Form 20 · Ø 10 – 102 mm 103047

bestehend aus / consisting of / comprenant:

1 **Feindrehwerkzeug** 536002
Precision boring tool
Outil d'alésage
de très haute précision

4 **Klemmhalter** **Form 20**
Tool holders
Ø 10 – 15 218059
Outils porte-plaquettes
Ø 15 – 20 081045
Ø 20 – 25 081046
Ø 25 – 30 081047

1 **Kerzbahnkörper** 236021
Serrated tool body
Corp cranté

4 **Plattenhalter**
Insert holders
Ø 29 – 41 236022
Ø 40 – 53 236024
Porte-plaquettes
Ø 52 – 77 236026
Ø 76 – 102 236028

1 **Befestigungsteil** 236020
Clamping piece
Élément de fixation

4 **Bedienschlüssel**
Service keys
s2,5 115575
s4 215403
Clés de service
s5 215521
T7 115591

1 **Kunststoffkoffer** 103161
Plastic case
Coffret en matière plastique

1 **Schaumstoffeinlage** 103079
Foamed plastic lining
Mousse de protection

Die 3E^{TECH} Digitalanzeige muss gesondert bestellt werden.

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
3E^{TECH}	

Form 101 · Ø 10 – 30 mm 103046

bestehend aus / consisting of / comprenant:

1 **Feindrehwerkzeug** 536002
Precision boring tool
Outil d'alésage
de très haute précision

4 **Klemmhalter** **Form 101**
Tool holders
Ø 10 – 15 218048
Outils porte-plaquettes
Ø 15 – 20 081041
Ø 20 – 25 081042
Ø 25 – 30 081043

3 **Bedienschlüssel**
Service keys
s2,5 115575
s4 215403
Clés de service
T8 115590

1 **Kunststoffkoffer** 103161
Plastic case
Coffret en matière plastique

1 **Schaumstoffeinlage** 103079
Foamed plastic lining
Mousse de protection

The 3E^{TECH} digital readout module must be ordered separately.

Werkzeugsatz Tool set Jeu d'outil	Bestellnummer Part No. Référence
3E^{TECH}	

Form 101 · Ø 10 – 102 mm 103048

bestehend aus / consisting of / comprenant:

1 **Feindrehwerkzeug** 536002
Precision boring tool
Outil d'alésage
de très haute précision

4 **Klemmhalter** **Form 101**
Tool holders
Ø 10 – 15 218048
Outils porte-plaquettes
Ø 15 – 20 081041
Ø 20 – 25 081042
Ø 25 – 30 081043

1 **Kerzbahnkörper** 236021
Serrated tool body
Corp cranté

4 **Plattenhalter**
Insert holders
Ø 29 – 41 236023
Ø 40 – 53 236025
Porte-plaquettes
Ø 52 – 77 236027
Ø 76 – 102 236029

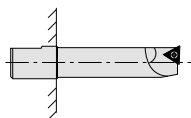
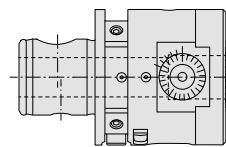
1 **Befestigungsteil** 236020
Clamping piece
Élément de fixation

4 **Bedienschlüssel**
Service keys
s2,5 115575
s4 215403
Clés de service
s5 215521
T8 115590

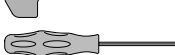
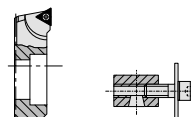
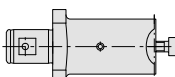
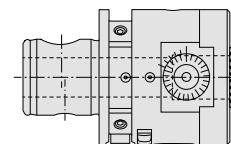
1 **Kunststoffkoffer** 103161
Plastic case
Coffret en matière plastique

1 **Schaumstoffeinlage** 103079
Foamed plastic lining
Mousse de protection

The 3E^{TECH} digital readout module must be ordered separately.



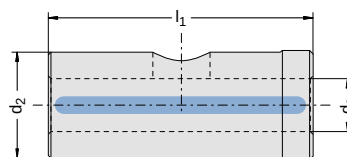
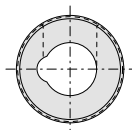
L'afficheur numérique doit être commandé séparément.



L'afficheur numérique doit être commandé séparément.

变径套

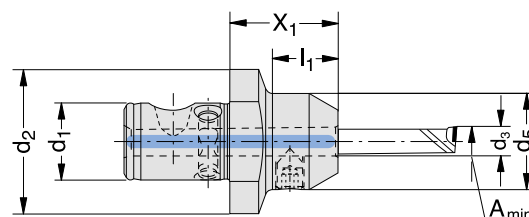
Reducing sleeves



			订货号 Part No.
d_2	d_3	l_1	
16	4	32	450129
16	5	32	450130
16	7	32	450132
16	8	32	450133
16	10	32	450134
16	12	32	450135
16	14	32	450136

转换套

Adaptor



镗孔范围 Boring range								订货号 Part No.
A _{min}	d ₁	d ₂	X ₁	l ₁	d ₃	d ₅	kg	
3	16	30	22,5	14	6	20	0,05	319010
8	16	30	22,5	14	8	22	0,05	236071

锁紧螺钉

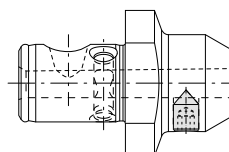
Thread Pin

扳手
Service key

订货号
Part No.

s3 / A

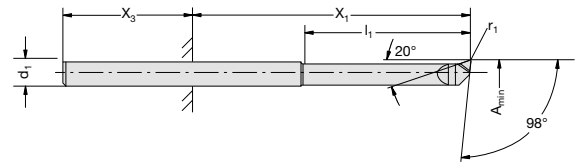
415244



迷你镗杆（带硬质合金涂层）

Mini-boring tools, coated carbide

WHC 126, Ø 0,4 – 6,5 mm



						订货号 Part No.
A_{min}	d_1	X_1	$X_{3 \min}$	l_1	r_1	
0,4	4	3,0 – 17,0	25	2,0	0,03	081401
0,6	4	4,0 – 18,0	25	3,0	0,04	081402
0,8	4	5,0 – 19,0	25	4,0	0,04	081403
1,0	4	6,0 – 20,0	25	5,0	0,05	081404
1,5	4	8,5 – 22,5	25	7,5	0,05	081405
2,0	4	11,0 – 25,0	25	10,0	0,05	081406
2,5	4	13,5 – 27,5	25	12,5	0,05	081407

变径套需要单独选配（变径套请参见第5页）

Fixture through reducing sleeves (page 5)

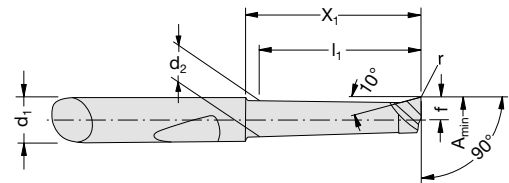
可根据需要提供其他型号

Other versions on request

迷你镗杆

Mini-boring tool

Ø 3 – 10 mm



镗孔范围 Boring range							带涂层硬质合金 Coated carbide	无涂层硬质合金 Uncoated carbide	CBN
							订货号 Part No.	订货号 Part No.	订货号 Part No.
A_{min}	d_1	X_1	l_1	f	r_1	d_2	WHC 05	WHW 04	WBN 150
3,0	6	11,5	10	1,4	0,1	2,6	081306	—	081322
3,0	6	16,5	15	1,4	0,1	2,6	081307	081307	—
4,0	6	12,0	10	1,9	0,2	3,6	081308	—	081317
4,0	6	17,0	15	1,9	0,2	3,6	081309	—	081341
4,0	6	22,0	20	1,9	0,2	3,6	081310	081310	—
5,0	6	12,0	10	2,4	0,2	4,6	081311	—	081318
5,0	6	22,0	20	2,4	0,2	4,6	081312	—	081319
5,0	6	32,0	30	2,4	0,2	4,6	081313	081313	—
6,0	6	22,0	20	2,9	0,2	5,6	081314	—	081320
6,0	6	32,0	30	2,9	0,2	5,6	081315	—	081321
6,0	6	42,0	40	2,9	0,2	5,6	081316	081316	—
8,0	8	25,0	23	3,9	0,2	7,6	081323	—	—
8,0	8	50,0	48	3,9	0,2	7,6	081324	—	—

装夹需要另配变径套

For clamping in the adapter / Reducing sleeves

订购示例: 081306 WHC 05

Ordering example 081306 WHC 05

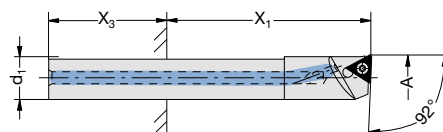
可根据需要提供其他型号

Other versions on request

镗杆（工具钢材质）

Tool holders in tool steel

Ø 6 – 20 mm



镗孔范围 Boring range					刀片型号 Insert form		刀片型号 Insert form	
					订货号 Part No.		订货号 Part No.	
A	d ₁	X ₁	X _{3 min}	kg				
6 – 8	5	12,5 – 45,0	25	0,01	211	514032	–	–
8 – 10	7	17,5 – 56,0	25	0,02	211	514033	–	–
10 – 12	8	20,0 – 60,0	25	0,03	101	514003	20	514004*
12 – 14	10	25,0 – 75,0	25	0,05	101	514005	20	514006*
14 – 16	12	30,0 – 84,0	30	0,09	101	514007	20	514008*
16 – 18	14	56,0 – 91,0	30	0,13	101	514009	20	514010*
18 – 20	14	56,0 – 91,0	30	0,13	101	514011	20	514012*

变径套需要单独选配（变径套请参见第5页）

Fixture through reducing sleeves (page 5)

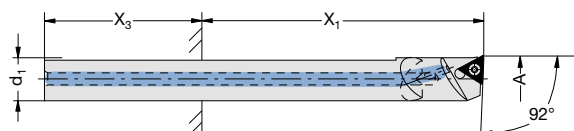
* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

镗杆（硬质合金材质）

Tool holders in carbide

Ø 6 – 20 mm



镗孔范围 Boring range					刀片型号 Insert form		刀片型号 Insert form	
					订货号 Part No.		订货号 Part No.	
A	d ₁	X ₁	X _{3 min}	kg				
6 – 8	5	12,5 – 65,0	25	0,02	211	514034	–	–
8 – 10	7	21,0 – 84,0	25	0,05	211	514035	–	–
10 – 12	8	22,0 – 92,0	25	0,07	101	514015	20	514016*
12 – 14	10	51,0 – 115,0	25	0,13	101	514017	20	514018*
14 – 16	12	68,0 – 132,0	30	0,22	101	514019	20	514020*
16 – 18	14	77,0 – 112,0	30	0,26	101	514021	20	514022*
16 – 18	14	112,0 – 147,0	30	0,33	101	514023	20	514024*
18 – 20	14	77,0 – 112,0	30	0,26	101	514025	20	514026*
18 – 20	14	112,0 – 147,0	30	0,33	101	514027	20	514028*

变径套需要单独选配（变径套请参见第5页）

Fixture through reducing sleeves (page 5)

* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

齿状刀杆

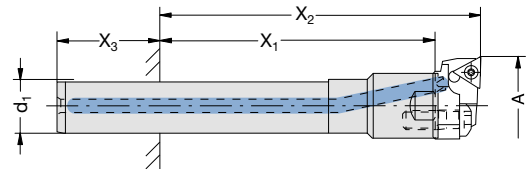
Serrated tool bodies

Ø 20 – 34 mm

硬质合金 · In carbide



工具钢 · In tool steel



刀体 Serrated tool bodies	镗孔范围 Boring range						订货号 Part No.
	A	d ₁	X ₁	X ₂	X _{3 min}	kg	
硬质合金材质 In tool steel	20 – 34	14	37 – 72	49 – 84	30	0,13	514029
工具钢材质 In carbide	20 – 34	14	65 – 100	77 – 112	30	0,25	514030
	20 – 34	14	100 – 135	112 – 147	30	0,33	514031

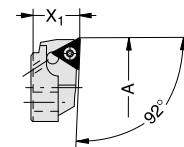
变径套需要单独选配（变径套请参见第5页）

Fixture through reducing sleeves (page 5)

刀夹

Insert holders

Ø 20 – 34 mm



镗孔范围 Boring range			刀片型号 Insert form		刀片型号 Insert form	
A 最佳 /opt.	X ₁	kg	订货号 Part No.		订货号 Part No.	
20 – 22	12	0,01	101	502052	20	502046*
22 – 24	12	0,01	101	502053	20	502047*
24 – 26	12	0,01	101	502054	20	502048*
26 – 28	12	0,01	101	502055	20	502049*
28 – 30	12	0,01	101	502056	20	502050*
30 – 32	12	0,01	101	502057	20	502051*

A 最佳 = 最佳平衡状态的加工范围

* 不适用于半径为0.8 mm的刀片

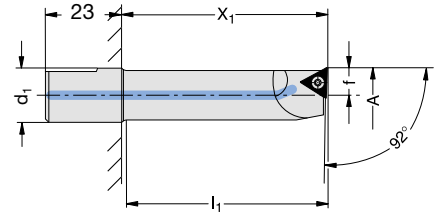
A opt. = optimised balanced for highest revolutions

* Not suitable for indexable inserts with a radius of 0,8 mm.

镗杆 (工具钢材质)

Tool holders in tool steel

Ø 6 – 27 mm



镗孔范围 Boring range						刀片型号 Insert form		刀片型号 Insert form	
A 最佳 /opt.		X ₁	l ₁	f	kg	订货号 Part No.		订货号 Part No.	
6 – 8	16	22	19	2,8	0,03	–	–	211	081053
8 – 10	16	30	27	3,8	0,04	–	–	211	218071
10 – 12	16	45	42	4,8	0,05	–	–	20	081044*
10 – 12	16	25	22	4,8	0,04	101	218047	20	218058*
10 – 12	16	35	32	4,8	0,05	101	218048	20	218059*
12 – 14	16	30	27	5,8	0,05	101	218012	20	218014*
12 – 14	16	45	42	5,8	0,06	101	218049	20	218060*
14 – 16	16	35	32	6,8	0,06	101	218050	20	218061*
14 – 16	16	50	47	6,8	0,08	101	218051	20	218062*
15 – 17	16	37	34	7,4	0,06	–	–	20	081048*
15 – 17	16	60	57	7,4	0,08	101	081041	20	081045*
16 – 18	16	40	37	7,8	0,08	101	218052	20	218063*
16 – 18	16	60	57	7,8	0,09	101	218053	20	218064*
20 – 22	16	37	33	9,8	0,07	–	–	20	081049*
20 – 22	16	70	63	9,8	0,11	101	081042	20	081046*
25 – 27	16	37	33	12,3	0,07	–	–	20	081050*
25 – 27	16	70	67	12,3	0,11	101	081043	20	081047*

可根据需要提供其他镗杆

Other tool holders on request

A_{最大} = 最佳加工范围A_{opt.} = optimised balanced for highest revolutions

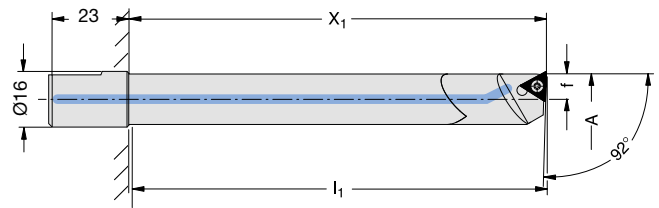
* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

镗杆（硬质合金材质）

Tool holders in carbide

Ø 10 – 20 mm



镗孔范围 Boring range					刀片型号 Insert form		刀片型号 Insert form	
A	X ₁	l ₁	f	kg	订货号 Part No.		订货号 Part No.	
10 – 12	55	52	4,8	0,07	101	218042	20	218037*
10 – 12	75	72	4,8	0,09	101	218032	20	218029*
12 – 14	70	67	5,8	0,10	101	218043	20	218038*
12 – 14	90	87	5,8	0,15	101	218033	20	218030*
14 – 16	75	72	6,8	0,16	101	218044	20	218039*
14 – 16	100	97	6,8	0,20	101	218045	20	218040*
16 – 20	90	87	7,8	0,26	101	218046	20	218041*
16 – 20	120	117	7,8	0,33	101	218034	20	218031*

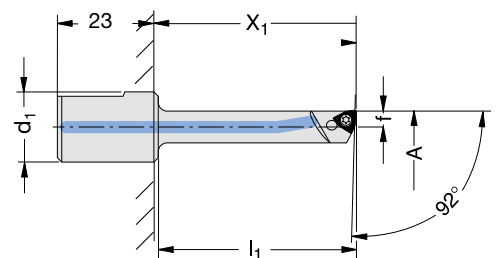
* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

镗杆（重金属材质）

Tool holders in heavy metal

Ø 6 – 10 mm

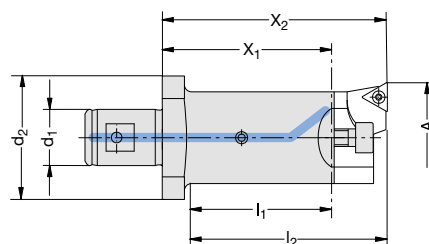


镗孔范围 Boring range						刀片型号 Insert form	
A	d ₁	X ₁	l ₁	f	kg	订货号 Part No.	
6 – 8	16	32	29	2,8	0,08	211	081055
8 – 10	16	45	42	3,8	0,09	211	218072

齿状刀体

Serrated tool bodies

Ø 29 – 53 mm



镗孔范围

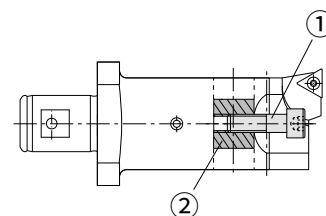
Boring range

A	d ₁	X ₁	X ₂	l ₁	d ₁	kg	订货号 Part No.
29 – 53	16	48	64	40	56	0,2	236021
29 – 53	16	84	100	76	92	0,3	236031

用于刀夹的锁紧元件

Clamping elements

螺钉 ① Cap screw	扳手 Service key	螺栓 ② Clamping bolt
订货号 Part No.		订货号 Part No.
027154	s4	145184

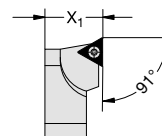


刀夹

Insert holders

Ø 29 – 53 mm

镗孔范围 Boring range	刀片型号 Insert form	订货号 Part No.
A	kg	
29 - 41	0,04	20
29 - 41	0,04	101
40 - 53	0,06	20
40 - 53	0,06	101



* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

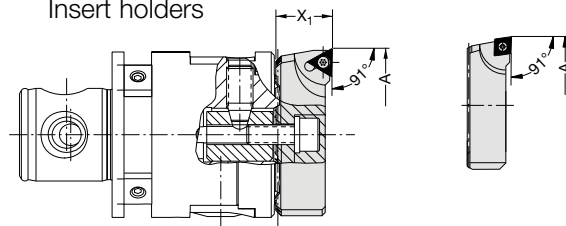
刀夹

Ø 52 – 102 mm

无中心冷却

Without a central coolant feed

Insert holders



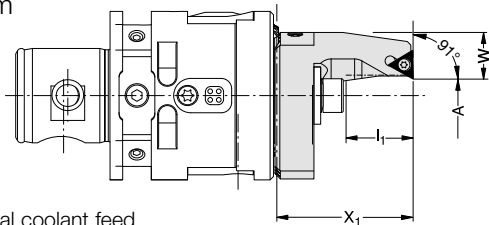
镗孔范围

Boring range

A	X ₁	X ₂	kg	刀片型号 Insert form	订货号 Part No.
52 – 77	16,5	16,5	0,06	20	236026
52 – 77	16,5	16,5	0,06	101	236027
76 – 102	16,5	16,5	0,10	20	236028
76 – 102	16,5	16,5	0,10	101	236029

镗外圆用刀夹

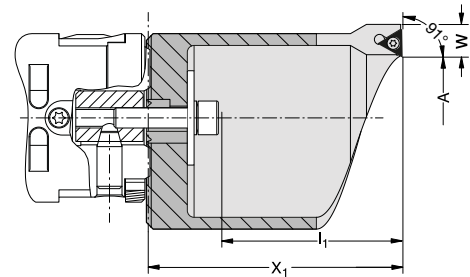
Ø 4 – 66 mm

A 型
Type A

无中心冷却

Without a central coolant feed

Insert holders for outside turning

B 型
Type B

外部车削范围

Outside turning range

A	X ₁	L ₁	W	类型 Type	kg	类型 Insert form	订货号 Part No.
4 – 17,5	40,5	20	16,6	A	0,1	20	236081**
16,5 – 30	50,5	30	11,1	A	0,1	20	236082**
29 – 44	75,5	54	9,6	B	0,3	20	236083**
43 – 66	100,5	79	9,6	B	0,4	20	236084**

* 顺时针方向加工

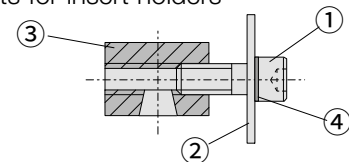
* clockwise and neutral execution

** 不适用于半径为0.8 mm的刀片

** Not suitable for indexable inserts with a radius of 0,8 mm.

用于刀夹的锁紧元件

Clamping elements for insert holders

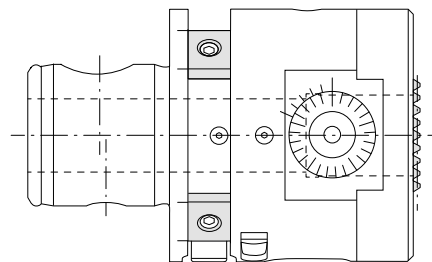


镗孔范围 Boring range	螺钉 ① Cap screw	扳手 Service key	垫片 ② Washer	螺栓 ③ Clamping bolt	固定垫片 ④ Securing washer	整体刀具 Complete tool
A	订货号 Part No.		订货号 Part No.	订货号 Part No.	订货号 Part No.	订货号 Part No.
4 – 30	070153	s5	315155	236120	215254	236088
29 – 66	070153	s5	315156	236120	215254	236089
52 – 102	115147	s5	115725	236120	–	236020

平衡调节

Balance compensation

规格 Nominal size	扳手 Service key	订货号 Part No.
M 8 x 8	s2 / A	536005

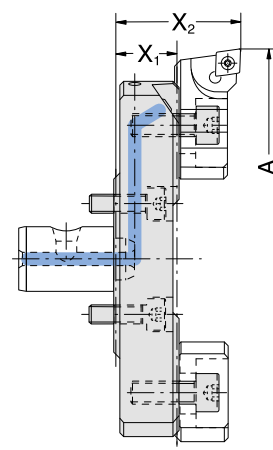


刀桥

Serrated slides

Ø 68 – 152 mm

镗孔范围 Boring range					订货号 Part No.
A	X ₁	X ₂	kg		
68 – 96	16	32,5	0,10	501054	
96 – 124	16	32,5	0,10	501055	
124 – 152	16	32,5	0,20	501056	



刀夹

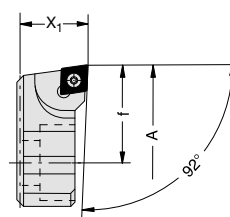
Insert holder

Ø 68 – 208 mm

镗孔范围 Boring range					订货号 Part No.
A	X ₁	f	kg	刀片型号 Insert form	
68 – 208	16,5	19,7	0,05	101	
68 – 208	16,5	19,7	0,05	20	502069

可根据需要提供其他刀夹

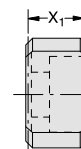
Other insert holders on request



配重块

Counter weight

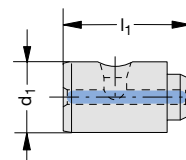
X ₁	kg	订货号 Part No.
13,4	0,05	502165



冷却液定位栓

Coolant delivery section

ALULINE				订货号 Part No.
l ₁	d ₁	kg		
25,5	16	0,01	450137	

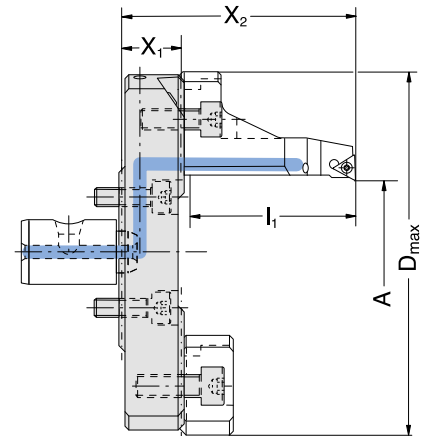


镗外圆用刀桥

Serrated slides for outside turning

2 – 58 mm

车外圆加工范围 Outside turning range				干涉直径 Interfering Ø		订货号 Part No.
A	X ₁	X ₂	l ₁	D _{max}	kg	
2 – 30	16	73	55	101	0,10	501064
30 – 58	16	73	55	129	0,20	501065



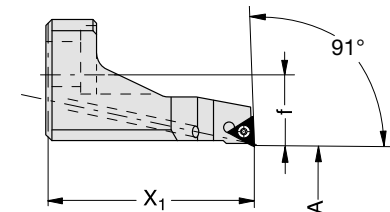
镗外圆用刀夹

Insert holders for outside turning

Ø 2 – 114 mm

外部车削范围 Outside turning range			刀片型号* Insert Form*		订货号 Part No.
A	X ₁	f		kg	
2 – 114	57,0	19,7	20	0,15	502082

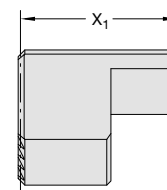
* 顺时针方向加工 / clockwise and neutral execution



配重块

Counter weight

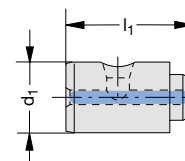
X ₁	kg	订货号 Part No.
37,75	0,16	502183

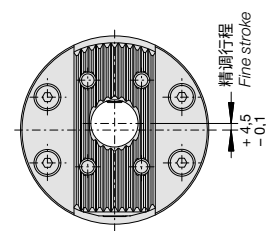
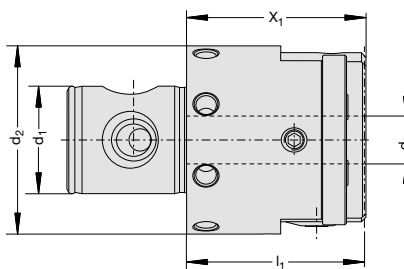


冷却液定位栓

Coolant delivery section

ALU LINE			订货号 Part No.
l ₁	d ₁	kg	
25,5	16	0,01	450137





MVS 接口 MVS-connection		镗孔范围 Boring range					订货号 Part No.
d ₂	d ₁	A	X ₁	d ₃	l ₁	kg	
63	36	3 – 208	60	16	59,5	1,3	450001

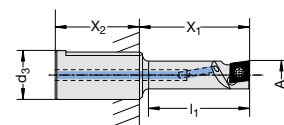
附件/备件

Accessories/Spare parts

PRIME BORE

镗杆

Tool holders



镗孔范围 Boring range						类型 Insert form	订货号 Part No.
A	X ₁	X ₂	d ₃	l ₁	kg		
6 – 10	22 – 32	28,5	16	20	0,04	211	450026
10 – 16	35 – 45	28,5	16	33	0,06	101	450027
10 – 16	35 – 45	28,5	16	33	0,06	20	450038*
16 – 24	60 – 70	28,5	16	58	0,10	101	450028
16 – 24	60 – 70	28,5	16	58	0,10	20	450039*

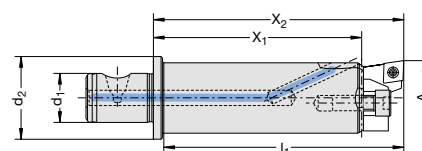
* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

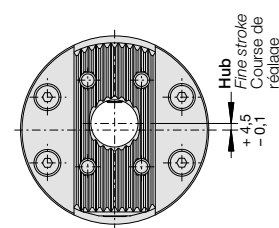
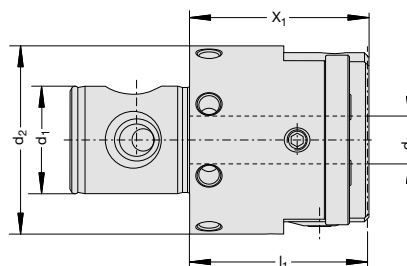
齿状刀杆

Serrated tool body

Ø 24 – 65 mm



镗孔范围 Boring range							订货号 Part No.
A	X ₁	X ₂	d ₁	d ₃	l ₁	kg	
24 – 65	68	82	16	27	79	0,20	450021



MVS-Verbindungsstelle MVS-connection Connexion MVS		Ausdrehbereich Boring range Capacité d'alesage					Best.-Nr. Part No. Référence
d ₂	d ₁	A	X ₁	d ₃	l ₁	kg	
63	36	3 – 208	60	16	59,5	1,3	450001

Werkzeugsatz:

Tool sets:

Jeux d'outils :

Ø 6 – 128 mm

Werkzeugsatz bestehend aus: Tool set Consisting of: Jeu d'outil Comrenant:	Set 1 Form 101	Set 2 Form 20
1 Feindrehwerkzeug Precision boring tool Outil d'alesage de très haute précision	450001	450001
3 Klemmhalter Tool holders Outils porte plaquettes	450026 (Form 211) 450027 (Form 101) 450028 (Form 101)	450026 (Form 211) 450038 (Form 20) 450039 (Form 20)
2 Plattenhalter Insert holders Porte plaquettes	450022 (Form 101) 450023 (Form 101)	450040 (Form 20) 450041 (Form 20)
1 Kerbzahnkörper Serrated tool body Corp cranté	450021	450021
1 Kerbzahnschiene Serrated slide Serrated slide	450024	450024
1 Kühlschmierstoff-Übergabestück Coolant delivery section Alimentation de lubrification	450125	450125
3 Bedienschlüssel Service keys Clés de service	003195 (s4) 515451 (T6) 515452 (T8)	003195 (s4) 515451 (T6) 515463 (T7)
Wendeschnidplatten Replaceable inserts Plaquettes de coupe	2x F211 02 GN121 WHC19 (397676 WHC19)	2x F211 02 GN121 WHC19 (397676 WHC19)
Wendeschnidplatten Replaceable inserts Plaquettes de coupe	3x F101 02 MN192 WHC19 (297531 WHC19)	2x F020 02 GN121 WHC19 (397673 WHC19)
1 Werkzeugkoffer Plastic case Coffret en matière plastique	103174	103174
Best.-Nr. Part No. Référence	103088	103089



Zubehör und Ersatzteile ab Seite A 7.3.
Allgemeines Zubehör und Bedien-
schlüssel siehe Kapitel Z, Zubehör.

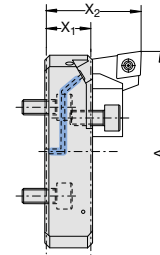
Accessories and spare parts from page A 7.3.
General accessories and service keys,
see chapter Z, Accessories.

Accessoires et pièces de rechange de la pa-
ge A 7.3. Accessoires généraux et clés
de service, voir chapitre Z, Accessoires.

齿状刀杆

Ø 65 – 128 mm

Serrated tool body



镗孔范围

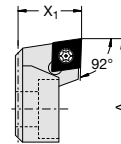
Boring range

A	X ₁	X ₂	kg	订货号 Part No.
65 – 128	14,5	29,5	0,08	450024

刀夹

Ø 24 – 65 mm

Insert holder



镗孔范围 齿状刀体

Boring range serrated tool body

镗孔范围 刀桥

Boring range serrated slides

A	A	X ₁	kg	刀片型号 Insert form	订货号 Part No.
24 – 40	-	14	0,02	101	450022
24 – 40	-	14	0,02	20	450040*
40 – 65	65 -128	14	0,03	101	450023
40 – 65	65 -128	14	0,03	20	450041*

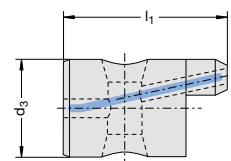
* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.

冷却液定位栓

Coolant delivery section

ALU LINE	订货号 Part No.
l ₁ 26,75	d ₃ 16 kg 0,01 450125

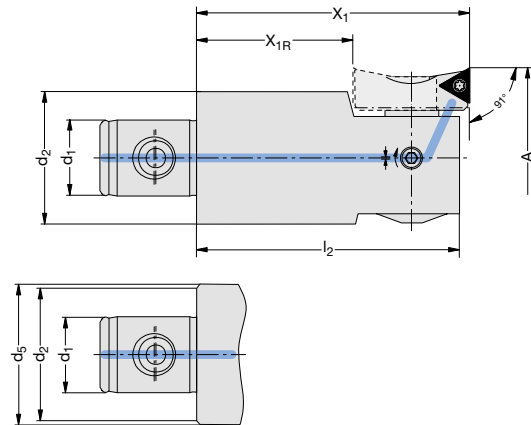


更多配件

加工范围Ø3-152mm的相关配件可以使用VarioBore系列中选取

Further accessories

... for the boring range Ø 3 - 152 mm can be found in the accessories area of the VarioBore tool.



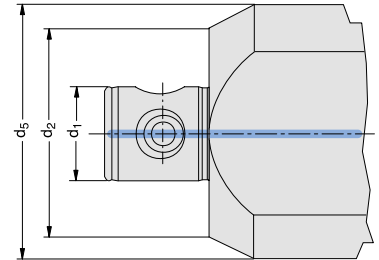
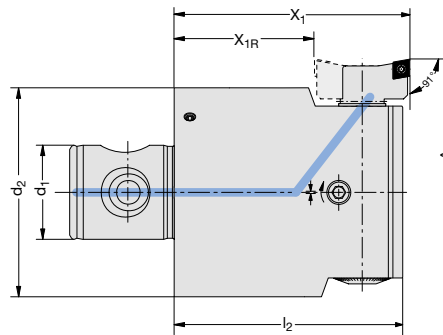
X_{1R} = 刀夹旋转后进行反镗加工时的尺寸

X_{1R} = Set dimension for reverse machining with rotated insert holder

MVS 接口- MVS connection		镗孔范围 Boring range						精密镗刀 Precision boring tool	刀夹 Insert holder	刀片型号 Insert form	整体刀具 Complete tool
d_2	d_1	A	X_1	X_{1R}	l_2	d_5	kg	订货号 Part No.	订货号 Part No.		订货号 Part No.
19 – 11		20 – 24,5	46	–	43,0	19	0,1	310010	364077*	20	310030
22 – 11		24,5 – 29,5	46	–	43,5	23	0,15	310020	210059	20	310050
22 – 11		24,5 – 29,5	46	–	43,5	23	0,15	310020	210069	101	310060
25 – 14		29 – 37	56	–	53,5	26	0,2	310001	210059	20	310011
25 – 14		29 – 37	56	–	53,5	26	0,2	310001	210069	101	310021
25 – 14		36 – 44	56	28	53,5	26	0,2	310001	210052	20	310012
25 – 14		36 – 44	56	28	53,5	26	0,2	310001	210062	101	310022
32 – 18		43 – 54	66	38	63,5	–	0,4	310003	210052	20	310013
32 – 18		43 – 54	66	38	63,5	–	0,4	310003	210062	101	310023
40 – 22		53 – 66	75	39	72,5	–	0,7	310004	210020	20	310014
40 – 22		53 – 66	75	39	72,5	–	0,7	310004	210063	101	310024
40 – 22		53 – 66	75	39	72,5	–	0,7	310004	210064	103	310054
50 – 28		65 – 83	75	39	72,5	–	1,2	310005	210020	20	310015
50 – 28		65 – 83	75	39	72,5	–	1,2	310005	210063	101	310025
50 – 28		65 – 83	75	39	72,5	–	1,2	310005	210064	103	310055
63 – 36		82 – 103	90	54	87,5	–	2,2	310006	210020	20	310016
63 – 36		82 – 103	90	54	87,5	–	2,2	310006	210063	101	310026
63 – 36		82 – 103	90	54	87,5	–	2,2	310006	210064	103	310056

* 不适用于半径为0.8 mm的刀片

* Not suitable for indexable inserts with a radius of 0,8 mm.



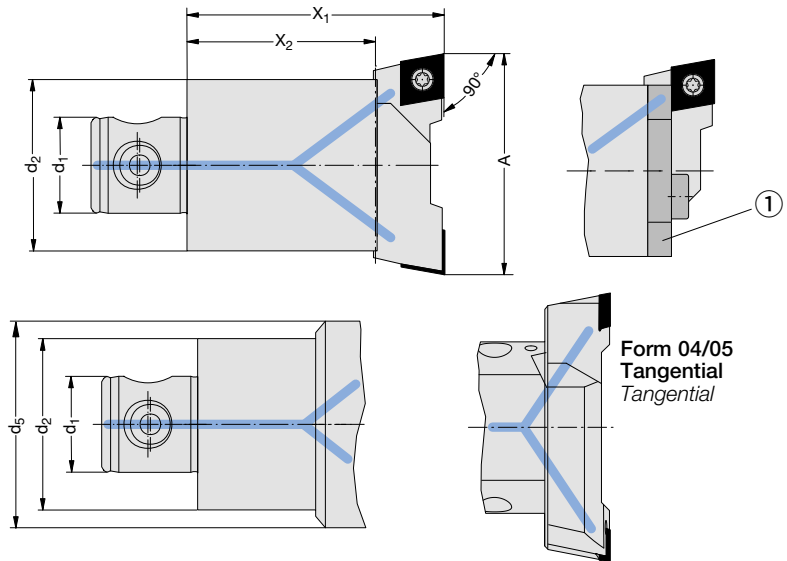
X_{1R} = 刀夹旋转后进行反镗加工时的尺寸

X_{1R} = Set dimension for reverse machining with rotated insert holder

MVS 接口 MVS connection		镗孔范围 Boring range						精密镗刀 Precision boring tool	刀夹 Insert holder	刀片型号 Insert form	整体刀具 Complete tool
d_2	d_1	A	X_1	X_{1R}	l_2	d_5	kg	订货号 Part No.	订货号 Part No.		订货号 Part No.
80 – 36		100 – 130	90	54	87,5	80	1,4	310007	210020	20	310017
80 – 36		100 – 130	90	54	87,5	80	1,4	310007	210063	101	310027
80 – 36		100 – 130	90	54	87,5	80	1,4	310007	210064	103	310057
80 – 36		125 – 167,5	90	54	87,5	100	1,8	310008	210020	20	310018
80 – 36		125 – 167,5	90	54	87,5	100	1,8	310008	210063	101	310028
80 – 36		125 – 167,5	90	54	87,5	100	1,8	310008	210064	103	310058
80 – 36		162,5 – 205	90	54	87,5	135	2,4	310009	210020	20	310019
80 – 36		162,5 – 205	90	54	87,5	135	2,4	310009	210063	101	310029
80 – 36		162,5 – 205	90	54	87,5	135	2,4	310009	210064	103	310059

当加工灰铸铁材料是我们建议使用CBN刀片以得到更好的加工效果和加工质量，不同的断屑排屑性能的刀夹信息请参见第（系统镗刀样本）第A9.3页

We recommend using insert holders with optimised chip removal to improve the result when machining grey cast iron materials with CBN. Insert holders with optimised chip removal can be found on page A 9.3 (MultiBore Catalog)



Form 04/05
Tangential
Tangential

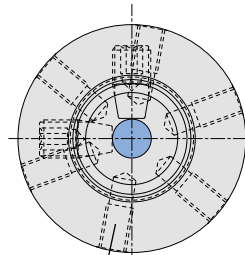
MVS 接口 MVS connection	镗孔范围 Boring range	刀体 Serrated tool body			刀夹 Insert holder		刀片型号 Insert form		整体刀具 Complete tool
d ₂ d ₁	A	X ₁	X ₂	d ₅	kg	订货号 Part No.	订货号 Part No.	刀片型号 Insert form	订货号 Part No.
25 – 14	29 – 37	56	42	–	0,2	148001	151001	103	155001
25 – 14	36 – 44	56	42	30	0,2	148002	151002	103	155002
32 – 18	36 – 44	56	42	30	0,4	148017	151002	103	155048
32 – 18	43 – 54	66	46	36	0,4	148003	151003	104	155003
32 – 18	43 – 54	66	46	36	0,4	148003	151023	103	155013
40 – 22	43 – 54	66	46	36	0,7	148018	151003	104	155049
40 – 22	43 – 54	66	46	36	0,7	148018	151023	103	155050
40 – 22	53 – 66	75	55	–	0,7	148004	151022	04	155071
40 – 22	53 – 66	75	55	–	0,7	148004	151004	104	155004
40 – 22	53 – 66	75	55	–	0,7	148004	151024	103	155039
50 – 28	65 – 83	75	55	–	1,0	148005	151032	04	155072
50 – 28	65 – 83	75	55	–	1,0	148005	151043	05	155073
50 – 28	65 – 83	75	55	–	1,1	148005	151005	104	155005
50 – 28	65 – 83	75	55	–	1,1	148005	151025	103	155040
63 – 36	82 – 103	90	60	–	1,9	148006	151086	104	155026
63 – 36	82 – 103	90	60	–	1,9	148006	151006	105	155006
63 – 36	82 – 103	90	60	–	1,9	148006	151026	103	155041
63 – 36	82 – 103	90	60	–	2,2	148006	151035	05	155075
80 – 36	100 – 130	90	60	–	3,0	148007	151087	104	155027
80 – 36	100 – 130	90	60	–	3,0	148007	151007	105	155007
80 – 36	100 – 130	90	60	–	3,0	148007	151027	103	155042
80 – 36	100 – 130	90	60	–	3,0	148007	151009	05	155020
80 – 36	125 – 155	90	60	–	3,1	148007	151010	05	155021
80 – 36	125 – 155	90	60	–	3,2	148007	151088	104	155028
80 – 36	125 – 155	90	60	–	3,2	148007	151008	105	155008
80 – 36	125 – 155	90	60	–	3,2	148007	151028	103	155043
80 – 36	150 – 205	90	60	125	4,0	148009	151010	05	155022
80 – 36	150 – 205	90	60	125	4,0	148009	151088	104	155029
80 – 36	150 – 205	90	60	125	4,0	148009	151008	105	155009
80 – 36	150 – 205	90	60	125	4,0	148009	151028	103	155044

附件配件以及使用单刃切削时需要的盖片①等，系统镗刀样本）第 A6.1页。其他常规附件和扳手，请查看 Z 章 - 附件。

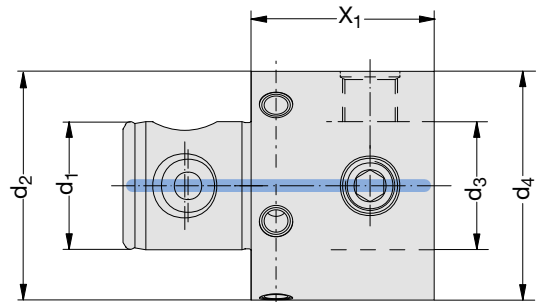
Spare parts and cover plate ① for single cutter tools, from page C 6.1 (MultiBore Catalog). General accessories and service keys, see chapter Z, Accessories.

balanced 不平衡量 ≤ 10 gmm/kg.

balanced corresponds to a specific residual imbalance of
≤ 10 gmm/kg.



动平衡螺钉
Thread precision balancing



MVS 接口 MVS connection	MVS 接口 MVS connection	动平衡螺钉 Thread precision balancing		kg	订货号 Part No.
d ₂ d ₁	d ₄ d ₃	X ₁			
19,5 – 11	19,5 – 11	40	–	0,1	219043
22 – 11	22 – 11	40	–	0,1	219044
25 – 14	25 – 14	25	–	0,1	219068
25 – 14	25 – 14	40	–	0,1	119001
32 – 18	32 – 18	40	–	0,2	119002
40 – 22	40 – 22	40	–	0,4	119003
50 – 28	50 – 28	40	M 6 x 10	0,6	119004
50 – 28 *	50 – 28 *	75	M 6 x 10	1,1	219097
50 – 28	50 – 28	75	M 6 x 10	1,1	219082
50 – 28	50 – 28	100	M 6 x 10	1,5	119058
63 – 36	63 – 36	50	M 6 x 10	1,1	119005
63 – 36	63 – 36	75	M 6 x 15	1,7	219083
63 – 36	63 – 36	125	M 6 x 15	2,9	119065
80 – 36	80 – 36	50	M 6 x 15	1,9	119006
80 – 36	80 – 36	75	M 6 x 15	2,8	219084
80 – 36	80 – 36	125	M 6 x 15	4,8	119066
80 – 36	80 – 36	200	M 6 x 15	7,4	219094
80 – 36	80 – 36	275	M 8 x 21	10,1	119069
100 – 56	100 – 56	75	M 8 x 20	4,3	219095
100 – 56	100 – 56	100	M 8 x 20	5,6	219061
100 – 56	100 – 56	150	M 8 x 20	8,1	219096
100 – 56	100 – 56	200	M 8 x 20	10,2	219062
100 – 56	100 – 56	300	M 8 x 20	14,6	219063

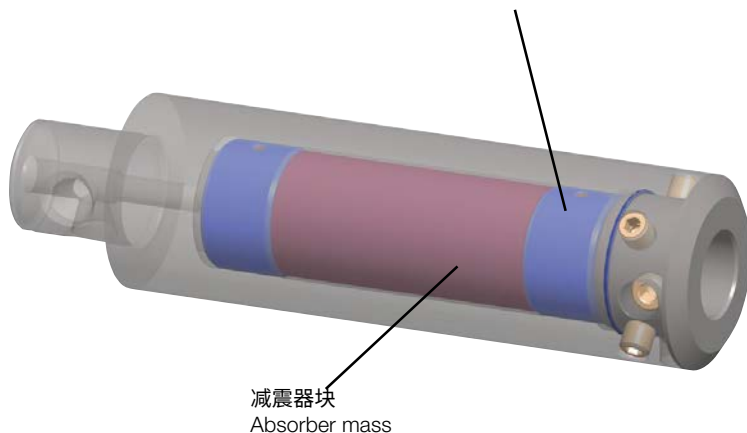
* d₂ / d₄ = 49,5 mm
适用于NOVI^{TECH}

* d₂ / d₄ = 49,5 mm
for NOVI^{TECH}-Applications

附件备件、平衡螺钉以及扳手，请查看系统镗刀样本Z章节。

Spare parts, set screw precision balancing and service keys, see
MultiBore catalog, chapter Z.

减震模块
Damper module with viscoelastic bearing



减震器块
Absorber mass

减震模块

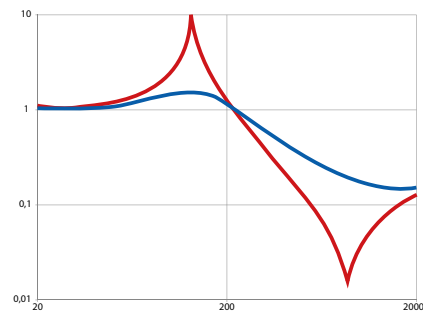
对于许多镗削加工来说, 大长径比刀具是必不可少的, 但这些刀具往往容易受到振动的影响从而会影响加工质量。为了确保最佳的加工效果, 因此沃好特在研发最新具有NOVITECH的减振中间模块。正在申请专利的新技术系统是一个弹性减振器模块, 在整个加工过程中最大可以实现直径达205毫米抗震加工。因此, 该产品是纯正的减振器, 比起市面上的其他系列产品更高效。

The Damper module

Long overhanging tools are indispensable for many boring operations; but these are often susceptible to vibration, which in turn has an effect on the processing quality. To ensure optimum machining results, Wohlhaupter has therefore developed new vibration-dampened intermediate modules with the new series NOVITECH. Inside the patent-pending NOVITECH system is a viscoelastically mounted damper module, which reduces vibrations during the machining of diameters up to 205 mm. Thus, the NOVITECH products are much more efficient than other commercially available systems, which are equipped with a pure vibration absorber made.

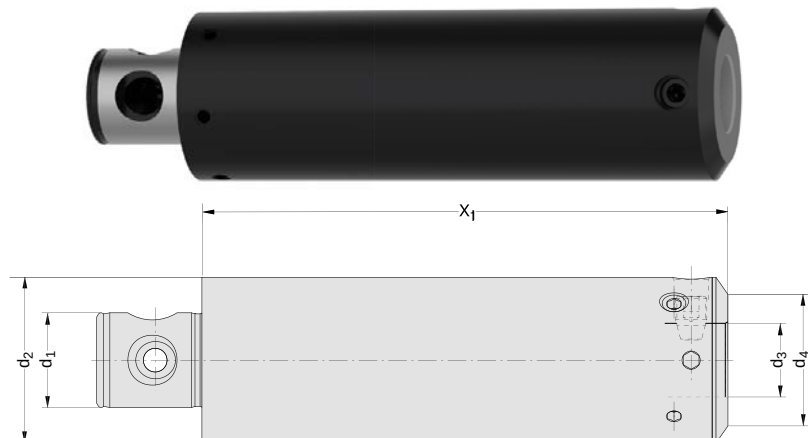
震动图谱:

Vibration chart:



— 具有NOVITECH功能的沃好特中间模块
Wohlhaupter intermediate module with NOVITECH

— 传统的中间模块
Conventional intermediate module

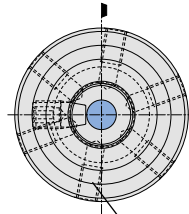


MVS 接口 MVS connection	MVS 接口 MVS connection			订货号 Part No.
d ₂ d ₁	d ₄ d ₃	X ₁	kg	
50 – 28 *	40 – 20	200	2,8	519002
63 – 36	50 – 28	200	5,7	519003
80 – 36	63 – 28	200	7,5	519004
80 – 36	80 – 36	200	7,5	519005

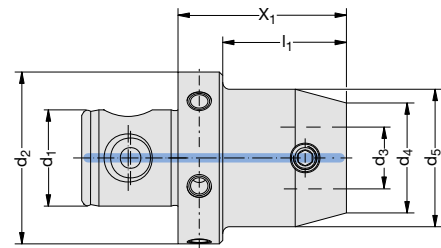
* d₂ = 49,5 mm

balanced 不平衡量 $\leq 10 \text{ gmm/kg}$.

balanced corresponds to a specific residual imbalance of $\leq 10 \text{ gmm/kg}$.



动平衡螺钉
Thread precision balancing



MVS 接口 MVS connection	MVS 接口 MVS connection	动平衡螺钉 Thread precision balancing					订货号 Part No.
$d_2 \mid d_1$	$d_4 \mid d_3$	X_1	l_1	d_5		kg	
25 – 14	19,5 – 11	30	21	19,5	–	0,1	219034
25 – 14	22 – 11	30	21	22	–	0,2	219035
32 – 18	22 – 11	12	0,5	22	–	0,1	219036
32 – 18	25 – 14	30	21	25	–	0,1	219037
40 – 22	22 – 11	12	0,5	22	–	0,2	219038
40 – 22	25 – 14	30	21	25	–	0,2	219039
40 – 22	32 – 18	30	–	40	–	0,5	219040
50 – 28	19,5 – 11	54	41	19,5	M 6 x 10	0,4	219051
50 – 28	22 – 11	14	0,5	22	M 6 x 10	0,3	219041
50 – 28	22 – 11	54	41	22	M 6 x 10	0,4	219052
50 – 28	25 – 14	14	0,5	25	M 6 x 7	0,3	119094
50 – 28	25 – 14	59	46	25	M 6 x 10	0,4	119054
50 – 28	25 – 14	59	46	32	M 6 x 10	0,5	119055
50 – 28	25 – 14	119	106	32	M 6 x 10	0,9	119010
50 – 28	25 – 14	119	106	36	M 6 x 10	1,0	219030 ¹⁾
50 – 28	32 – 18	49	36	35	M 6 x 10	0,9	219085
50 – 28	32 – 18	109	96	35	M 6 x 10	1,0	219086
50 – 28	32 – 18	109	96	40	M 6 x 10	1,1	119012
50 – 28	32 – 18	109	96	46	M 6 x 10	1,3	219032 ¹⁾
50 – 28	40 – 22	40	27	–	M 6 x 10	0,5	219087
50 – 28	40 – 22	100	87	47	M 6 x 10	1,3	219088
50 – 28	63 – 36	50	–	63	M 6 x 10	1,0	119059

¹⁾ 加强型

¹⁾ Reinforced version

附件备件、平衡螺钉以及扳手，请查看系统镗刀样本Z章节。

Spare parts, set screw precision balancing and service keys, see MultiBore catalog chapter Z, Accessories.

自动换刀标准依据 DIN 69873-E10

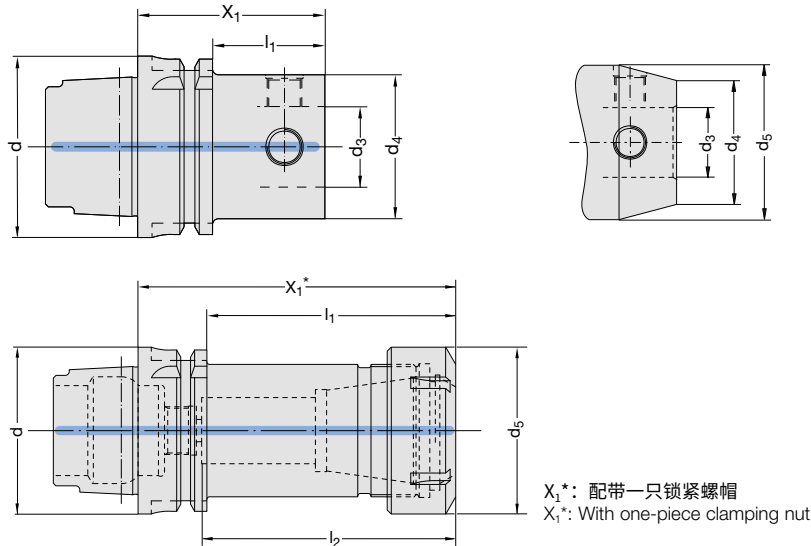
With data carrier drilling according to DIN 69873-E10

balanced 不平衡量 ≤ 4 gmm/kg.

balanced corresponds to a specific residual imbalance of ≤ 4 gmm/kg.



中心空腔 ER 40, 弹簧夹套刀柄
Collet chuck ER 40 with central bore



HSK-A 接口 Connection								订货号 Part No.
d	d ₄	d ₃	X ₁	l ₁	l ₂	d ₅	kg	
40	40 - 22		56	—	—	—	0,4	246016
40	50 - 28		70	—	—	—	0,7	246004
50	40 + 22		56	30	—	—	0,6	246015
50	50 - 28		65	—	—	—	0,8	245011
63	25 - 14		46	20	—	—	0,7	246012
63	32 - 18		56	30	—	—	0,8	246013
63	40 - 22		56	30	—	—	0,8	246014
63	50 - 28		65	39	—	—	1,1	245012
63	63 - 36		80	—	—	—	1,5	245013
63	80 - 36		80	—	—	—	2,1	246009
63	ER 40		120	94	95	63,0	1,7	252090*
100	50 - 28		65	36	—	—	2,4	245014
100	50 - 28		180	151	—	60,0	5,0	246020
100	50 - 28		180	151	—	49,5	4,0	246021
100	63 - 36		80	51	—	—	2,9	245015
100	63 - 36		205	176	—	78,0	7,8	246019
100	63 - 36		205	176	—	78,0	7,8	246022
100	80 - 36		80	51	—	—	3,7	245016
100	80 - 36		255	226	—	90,0	12,6	246018
100	80 - 36		255	226	—	—	10,4	246023
100	100 - 56		100	—	—	—	5,0	246010
100	100 - 56		300	221	—	—	17,5	246017
100	ER 40		120	91	88	63,0	3,5	252091*

* 无锁紧螺母时平衡量

* balanced without clamping nut

请查看 (系统镗刀样本) E8.1页。
常规附件和扳手, 请查看 Z 章 - 附件。

Spare parts and accessories, from page E 8.1 (MultiBore Catalog).
General accessories and service keys, see chapter Z, Accessories.

自动换刀标准依据 DIN 69873-E10

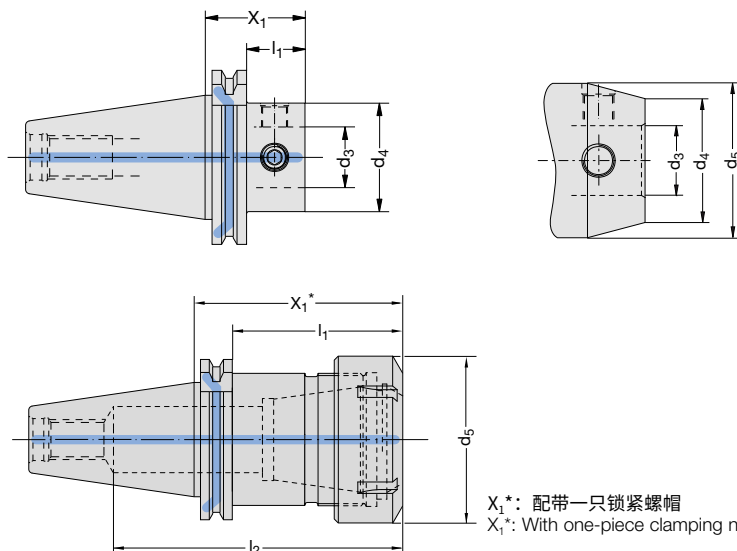
With data carrier drilling according to DIN 69873-E10

balanced 不平衡量 ≤ 4 gmm/kg.

balanced corresponds to a specific residual imbalance of ≤ 4 gmm/kg.



中心空腔 ER 40, 弹簧夹套刀柄
Collet chuck ER 40 with central bore



锥度尺寸 Taper size	接口 Connection							订货号 Part No.
	d_4	d_3	X_1	l_1	l_2	d_5	kg	
30	40	22	46	26,9	—	—	0,5	327001
30	50	28	58	—	—	—	0,8	327002
40	32	18	55	35,9	—	40,0	1,1	327003
40	40	22	46	26,9	—	—	1,0	327004
40	50	28	46	26,9	—	—	1,1	327005
40	63	36	66	46,9	—	—	1,4	327006
40	80	36	66	—	—	—	1,9	327007
40	ER 40		80	60,9	116	63,0	1,3	259079*
50	50	28	46	26,9	—	—	2,9	327017
50	50	28	186	166,9	—	60,0	6,0	327025
50	50	28	186	166,9	—	49,5	4,9	327033
50	63	36	56	36,9	—	—	3,2	327018
50	63	36	206	186,9	—	78,0	8,9	327026
50	63	36	206	186,9	—	—	6,9	327034
50	80	36	56	36,9	—	—	3,7	327010
50	80	36	256	236,9	—	90,0	13,6	327027
50	80	36	256	236,9	—	90,0	11,5	327035
50	100	56	90	—	—	—	5,3	327011
50	100	56	290	270,9	—	—	17,1	327028
50	ER 40		80	55,2	134	63,0	3,1	259080*

* 无锁紧螺母时平衡量

* balanced without clamping nut

请查看（系统镗刀样本）E8.1页。
常规附件和扳手，请查看 Z 章 - 附件。

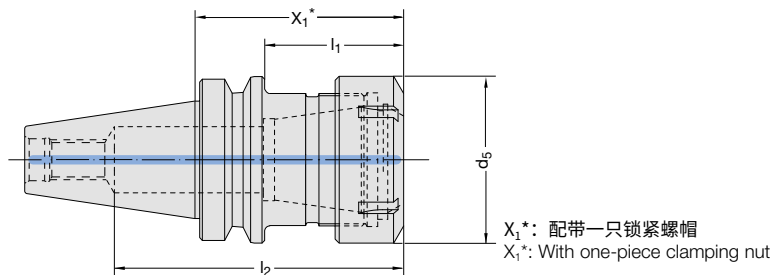
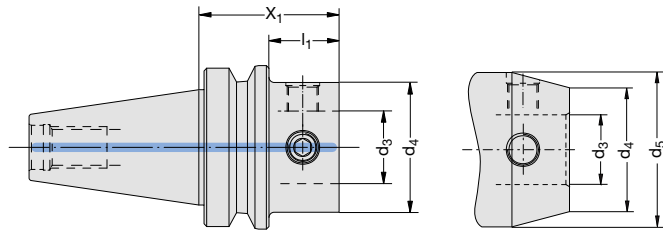
Spare parts and accessories, from page E 8.1 (MultiBore Catalog).
General accessories and service keys, see chapter Z, Accessories.

balanced 不平衡量 ≤ 4 gmm/kg.

balanced corresponds to a specific residual imbalance of
≤ 4 gmm/kg.



中心空腔 ER 40, 8°弹簧夹套刀柄
Collet chuck 8° ER 40 with central bore



锥度尺寸 Taper size	接口 Connection							订货号 Part No.
	d ₄ d ₃	X ₁	l ₁	l ₂	d ₅	kg		
30	40 – 22	40	18,0	–	–	0,5		327012
30	50 – 28	46	–	–	–	0,6		327013
40	40 – 22	46	19,0	–	–	1,1		327016
40	50 – 28	54	27,0	–	–	1,2		327019
40	63 – 36	64	–	–	–	1,5		327020
40	ER 40	70	43,0	104	63,0	1,2		259081*
50	50 – 28	65	26,8	–	–	3,9		327021
50	50 – 28	205	166,8	–	60,0	7,0		327029**
50	50 – 28	205	166,8	–	49,5	5,9		327036**
50	63 – 36	75	36,8	–	–	4,2		327022
50	63 – 36	225	186,8	–	78,0	9,9		327030**
50	63 – 36	225	186,8	–	–	7,8		327037**
50	80 – 36	75	36,8	–	–	4,7		327023
50	80 – 36	275	236,8	–	90,0	14,8		327031**
50	80 – 36	275	236,8	–	–	14,8		327038**
50	100 – 56	90	–	–	–	5,5		327024
50	100 – 56	290	251,8	–	–	17,3		327032**
50	ER 40	80	41,8	135	63,0	3,8		259082*

* 无锁紧螺母时平衡量
** 可根据需要提供

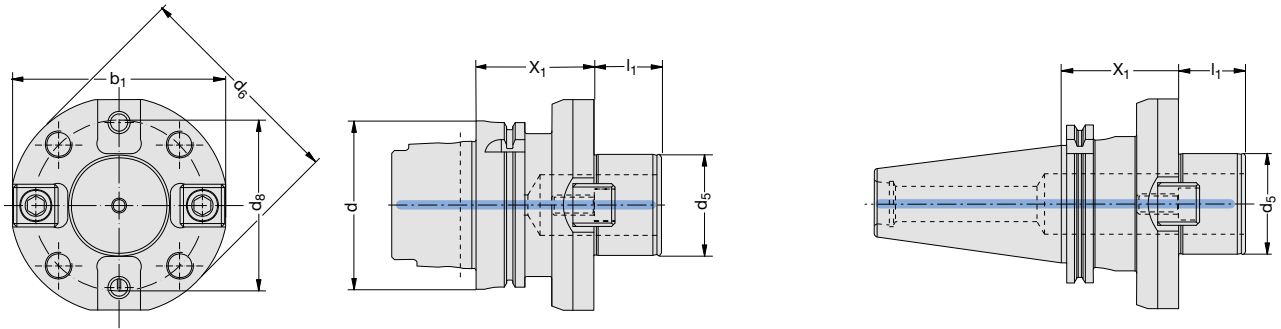
* balanced without clamping nut
**available on request

请查看 (系统镗刀样本) E8.1页。
常规附件和扳手, 请查看 Z 章 - 附件。

Spare parts and accessories, from page E 8.1 (MultiBore Catalog).
General accessories and service keys, see chapter Z, Accessories.

主柄 D 60 / D 40

Master shanks



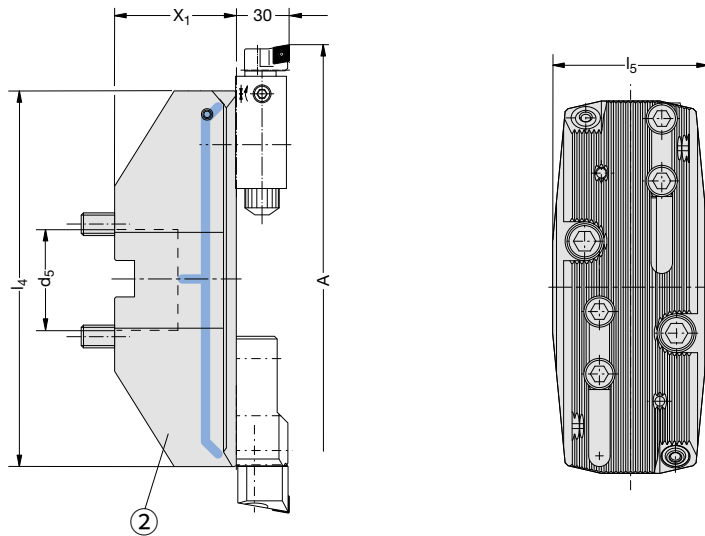
锥度尺寸 Taper size	接口 Connection								订货号 Part No.
		X_1	l_1	d_5	d_6	d_8	b_1	kg	
HSK-A (DIN 69 893):									
63	D 40	60	30	40	89,0	66,7	80	1,9	358015
100	D 40	60	30	40	89,0	66,7	80	3,6	258021
100	D 60	70	40	60	129,1	101,6	125	5,2	258061
100	D 60	70	40	60	129,1	101,6	110	5,0	258098
SK (DIN 69 871-AD/B):									
40	D 40	50	30	40	89,0	66,7	80	1,9	326080 ¹⁾
50	D 40	50	30	40	89,0	66,7	80	4,1	326081
50	D 60	70	40	60	129,1	101,6	125	5,8	198054 T 019539
50	D 60	70	40	60	129,1	101,6	110	5,5	198081 T 019539
SK (MAS BT / JIS B 6339):									
40	D 40	50	30	40	89,0	66,7	80	1,8	326084
50	D 40	55	30	40	89,0	66,7	80	4,5	326082
50	D 60	80	40	60	129,1	101,6	—	8,0	326062
SK (DIN 2080):									
50	D 60	55	40	60	128,0	101,6	—	6,8	326035
SK (ISO 7388 ANSI/CAT):									
50	D 40	60	30	40	89,0	66,7	80	4,6	326083

¹⁾ 仅用于轻型加工

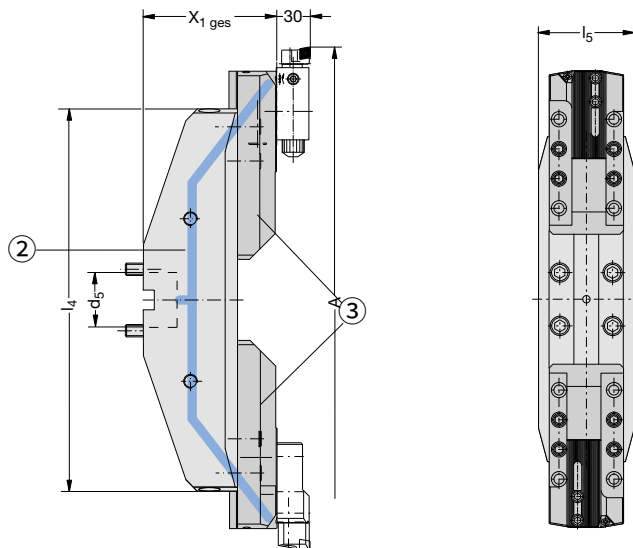
¹⁾ For light machining only

可根据需要提供其他主柄和支撑法兰

Additional master shanks and support flanges are available on request.



接口 Connection	镗孔范围 Boring range					齿状滑块刀桥 Serrated slide
d ₅	A	X ₁	l ₄	l ₅	kg	订货号 Part No.
D 60	200 – 280	85	191	110	3,5	349051
D 60	275 – 355	85	264	110	4,3	349052
D 60	350 – 430	85	339	125	5,6	349053
D 60	425 – 505	85	414	125	6,4	349054



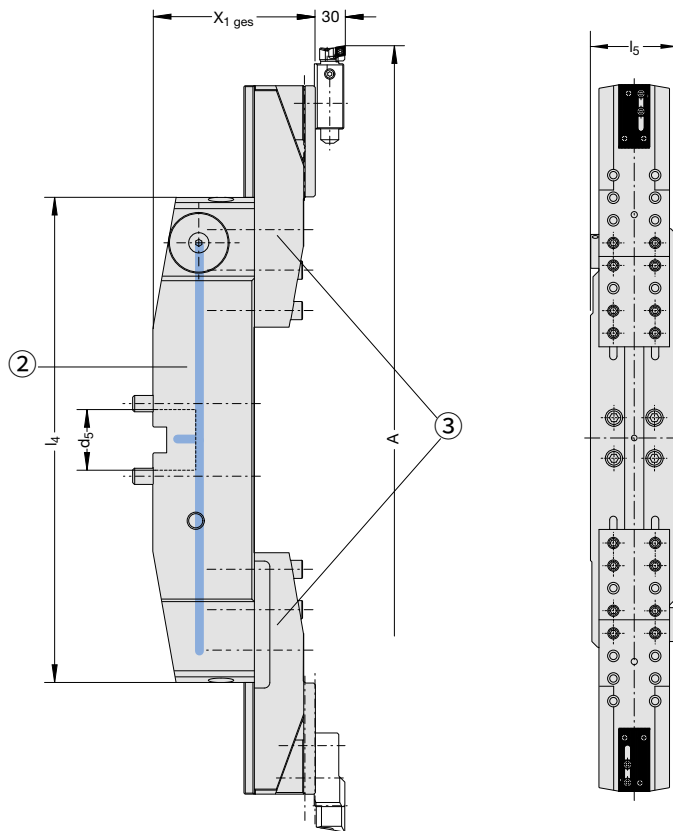
接口 Connection	镗孔范围 Boring range				基本滑块 ② Base slide		齿状滑块刀桥 ③ Serrated slide			
d ₅	A	X _{1 ges}	l ₄	l ₅	订货号 Part No.	kg	订货号 Part No.	kg	订货号 Part No.	kg
ALU LINE										
D 60	465 – 745	155	447	129	349005	11,8	349015*	2,2	349014**	5,7
D 60	740 – 1020	155	722	129	349006	18,0	349015*	2,2	349014**	5,7

* 用于精加工：齿状滑块刀桥的材料为铝合金

** 用于粗加工：齿状滑块刀桥的材料为钢

* For finishing: Serrated slide in alu

** For roughing: Serrated slide in steel



接口 Connection	镗孔范围 Boring range					基本滑块 ② Base slide	齿状滑块刀桥 ③ Serrated slide
d ₅	A	X _{1 ges}	l ₄	l ₅	kg (② + ③)	订货号 Part No.	订货号 Part No.
D 60	500 – 780	160	480	130	24,2	349031	349035
D 60	950 – 1055	185	480	130	41,3	349031	349036
D 60	775 – 1055	185	755	155	42,5	349032	349035
D 60	1050 – 1330	210	755	155	59,6	349032	349036
D 60	1442 – 1605	225	755	155	86,3	349032	349037
D 60	1325 – 1605	210	1305	185	88,2	349033	349035
D 60	1325 – 1880	235	1305	185	105,3	349033	349036
D 60	1600 – 2155	250	1305	185	132,0	349033	349037
D 60	1990 – 2430	255	1305	185	169,8	349033	349038
D 60	2150 – 2430	235	2130	225	192,5	349034	349035
D 60	2150 – 2705	260	2130	225	209,6	349034	349036
D 60	2150 – 2980	275	2130	225	236,0	349034	349037
D 60	2150 – 3255	280	2130	225	274,0	349034	349038

ALU LINE DIGITAL

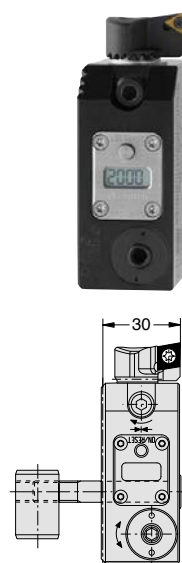
数显精镗单元 537 Digital 含刀夹和锁紧螺栓

Precision boring tools 537 digital with insert holders and clamping pieces

系列 Serie	镗孔范围 Boring range	精镗单元包含锁紧螺栓 Precision boring tool with clamping pieces	刀夹 Tool holder	刀片型号 Insert form	整体刀具 Complete tool
	A	订货号 Part No.	订货号 Part No.		订货号 Part No.
齿状刀杆 Serrated tool body	100 – 205	537003	210020	20	537006*
	100 – 205	537003	210063	101	537008*
	100 – 205	537003	210064	103	537009*
Basic / Eco:	200 – 1020	537004	210020	20	537011
	200 – 1020	537004	210063	101	537013
	200 – 1020	537004	210064	103	537014
Flex:	500 – 3255	537005	210020	20	537016
	500 – 3255	537005	210063	101	537018
	500 – 3255	537005	210064	103	537019

* Ø 100 – 205 mm 可用于齿状刀体 148007 和 148009 或者 Alu-Line 348007 和 348009。

* Ø 100 – 205 mm usable on serrated tool bodies 148007 and 148009 or Alu-Line 348007 and 348009.



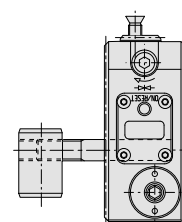
精镗单元537 Digital 包含锁紧单元

Precision boring tools 537 digital with clamping pieces

系列 Serie	镗孔范围 Boring range	精镗单元不含锁紧螺栓 Precision boring tool without clamping pieces	锁紧螺栓 Clamping pieces	精镗单元包含锁紧螺栓 Precision boring tool
	A	订货号 Part No.	订货号 Part No.	订货号 Part No.
齿状刀杆 Serrated tool body	100 – 205	537001	137026	537003*
Basic / Eco	200 – 1020	537001	137027	537004
Flex	500 – 3255	537001	137019	537005

* 技术说明请参见 系统镗刀样本第A5页

* Technical description see MultiBore Catalog page A 5



我们推荐使用碎屑去除性能最佳的刀夹，以改善使用 CBN 加工灰铸铁材料时所得到的加工效果。铁屑排屑性能最佳的刀夹请参见第（系统镗刀样本）第F9.1页

We recommend using insert holders with optimised chip removal to improve the result when machining grey cast iron materials with CBN. Insert holders with optimised chip removal can be found on page F 9.1 (MultiBore Catalog)

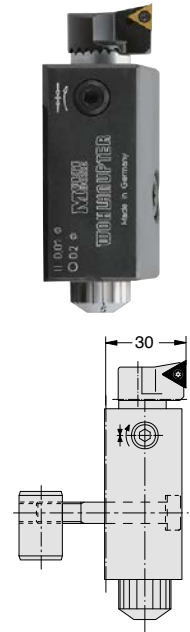
精镗单元 337 包含刀夹和锁紧螺栓

Precision boring tools 337 with insert holders and clamping pieces

系列 Serie	镗孔范围 Boring range	精镗单元包含锁紧螺栓 Precision boring tool with clamping pieces	刀夹 Tool holder	刀片型号 Insert form	整体刀具 Complete tool
	A	订货号 Part No.	订货号 Part No.		订货号 Part No.
齿状刀杆 Serrated tool body	100 – 205	337056	210020	20	337063*
	100 – 205	337056	210063	101	337067*
	100 – 205	337056	210064	103	337061*
Basic / Eco:	200 – 1020	337058	210020	20	337064
	200 – 1020	337058	210063	101	337068
	200 – 1020	337058	210064	103	337062
Flex:	500 – 3255	337070	210020	20	337071
	500 – 3255	337070	210063	101	337073
	500 – 3255	337070	210064	103	337074

* Ø 100 – 205 mm 可用于齿状刀体 148007 和 148009 或者 Alu-Line 348007 和 348009。

* Ø 100 – 205 usable on serrated tool bodies 148007 and 148009 or Alu-Line 348007 and 348009.



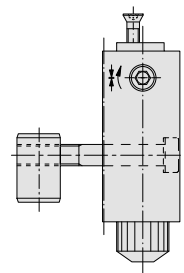
精镗单元 337 包含锁紧螺栓

Precision boring tools 337 with clamping pieces

系列 Serie	镗孔范围 Boring range	精镗单元不含锁紧螺栓 Precision boring tool without clamping pieces	锁紧螺栓 Clamping pieces	具有夹片的精密镗刀 Precision boring tool
	A	订货号 Part No.	订货号 Part No.	订货号 Part No.
齿状刀杆 Serrated tool body	100 – 205	337017	137026	337056*
Basic / Eco	200 – 1020	337017	137027	337058
Flex	500 – 3255	337017	137019	337070

* 技术说明请参见 系统镗刀样本第A10页

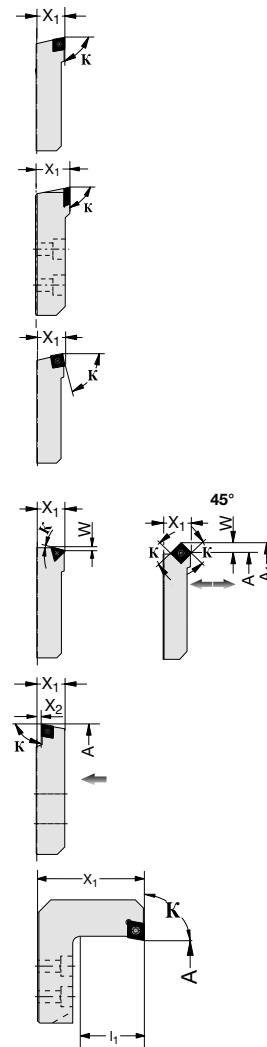
* Technical description see MultiBore Catalog page A 10



我们推荐使用碎屑去除性能最佳的刀夹，以改善使用 CBN 加工灰铸铁材料时所得到的加工效果。铁屑排屑性能最佳的刀夹请参见第（系统镗刀样本）第F9.1页

We recommend using insert holders with optimised chip removal to improve the result when machining grey cast iron materials with CBN. Insert holders with optimised chip removal can be found on page F 9.1 (MultiBore Catalog)

刀片型号 Insert form	ISO 代码 ISO-Code	切削角度 Approach angle								订货号 Part No.
		K	X ₁	X ₂	I ₁	A/A ₁	W	kg		
103	CC..09T3..	90°	30	—	—	—	—	0,6		149090
104	CC..1204..	90°	30	—	—	—	—	0,6		149099
104	CC..1204..	90°	29,3	—	—	—	—	0,6		149083
105	CC..1605..	90°	30	—	—	—	—	0,6		149093
05 切向	Tangential	90°	30	—	—	—	—	0,6		149010
05 切向	Tangential	90°	29,3	—	—	—	—	0,6		149020
113	SC..1204..	80°	30	—	—	—	—	0,6		149089
114	SC..150512	80°	30	—	—	—	—	0,6		149094
134	SN.1506..	80°	30	—	—	—	—	0,6		149096
163	TC..16T3..	15°	30	—	—	+7	4,0	0,6		201065
163	TC..16T3..	20°	30	—	—	+9	5,3	0,6		201025
163	TC..16T3..	30°	30	—	—	+14	7,7	0,6		201075
114	SC..150512	45°	30	—	—	+20	9,9	0,6		201015
104	CC..1204..	90°	30	5,0	—	+40	—	0,8		251010 ¹⁾
104	CC..1204..	90°	30	5,0	—	+75	—	0,9		251011 ²⁾
104	CC..1204..	90°	90	—	62,0	— 50	—	1,0		149040 ³⁾



示例

Exemple

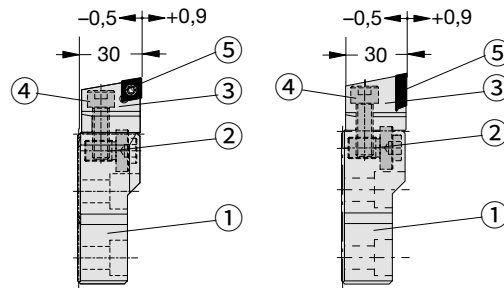
齿状滑块刀桥 Serrated slide	A	刀夹 Insert holder	A/A ₁	新 A new A
349051	200 – 280	201065	+ 7	207 – 287
349051	200 – 280	251010	+ 40	240 – 320
349051	200 – 280	149040	– 50	150 – 230

可根据需要提供其他刀体

Other insert holders on request

高度可调的刀夹

Height-adjustable insert holder



镗孔范围 Boring range	支架* ① Support	調節螺絲 ② Adjuster screw		刀夹 ③ Insert holder		固定螺絲 ④ Fixing screw		可调刀夹 Insert holder,
A	订货号 Part No.	订货号 Part No.	扳手 Service key	订货号 Part No.	刀片型号 Insert form	订货号 Part No.	扳手 Service key	整体刀具 Part No., compl.
200 – 3255	149055	315355	s6 / B	149058	103	070369	s6 / B	149059
200 – 3255	149055	315355	s6 / B	149056	104	070369	s6 / B	149057
200 – 3255	149055	315355	s6 / B	149085	05	070369	s6 / B	149086

* 包括配件 ② 和 ④ ⑤ 刀片锁紧螺钉

* including fixings ② and ④ ⑤ Countersunk screw

高低差粗加工: Ø 200 – 3255 mm

使用双刃粗加工 (> Ø 200 mm) 时, 加工碎屑可在两个刃口的径向均匀分布。

尤其是在加工灰铸铁时, 加工的碎屑可翻倍。轴向调整高度可调的刀夹可确保各个刃口的切削分布更为理想 (最大高度差 ≤ 进给率/转数 [fz])。

Height-displacement rough machining Ø 200 – 3255 mm

With two-edge roughing (> Ø 200 mm), chip removal can be evenly distributed radially over both cutting edges. Particularly when machining grey cast iron, the chip-removal rate can be doubled.

Axial adjustment of the height-adjustable insert holder ensures an ideal cut distribution to the respective cutting edge (max. height displacement ≤ feed rate/revolution [fz]).

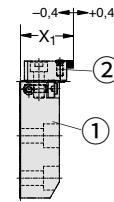
端面槽加工刀夹

Tool holder for axial grooving

端面槽加工刀夹

Tool holder for axial grooving

刀片型号 Insert form	支架 Support	刀夹 Insert holder	完整 订货号		
	订货号 Part No.	订货号 Part No.	X_1	kg	Part No., compl.
304	226014	226010	40	0,3	226029



首选用作双刃切削

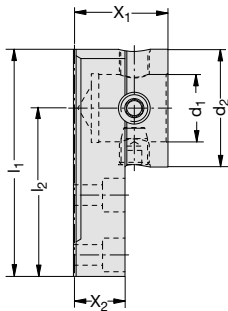
Preferred use as a twin cutter

具有 MVS 接口的转换接头

Adapter with serrated body interface and MVS connection

具有 MVS 接口的转换接头

Mounting adapters for tools with MVS connection



MVS 接口 MVS connection	订货号 Part No.					
d_2 d_1	X_1	X_2	l_1	l_2	kg	
50 - 28	50	27	115,0	90,0	1,5	349046

适用于精密镗刀 310005、364045、564045 Digital数显:

* 镗孔直径 (A):

镗孔 + 50 mm
镗外圆 - 80 mm

For precision boring tools 310005, 364045, 564045 digital:

* Boring $\varnothing$ (A):

Boring + 50 mm
Outside turning - 80 mm

用于镗外圆时: 逆时针旋转切削

When using for outside turning: counter-clockwise rotation

配种模块单独配置

Couter weight on request

镗外圆示例

Example outside turning



万能镗铣头（平旋盘）

Universal Facing and Boring Heads

可用于镗平面，镗孔加工，以及各种角度的锥面或锥孔加工。

UPA3, UPA4和UPA5-S6包装包含刀柄安装螺钉

For use on universal milling and boring machines, jig borers etc. suitable for all types of work in single or series production.

UPA 3, 4 and UPA 5-S6 are only delivered with screw-on tool shanks (DS)



UPA 3

- 使用范围：Ø 0 – 260毫米
- 滑块行程：48 mm
- 适用于各种型号机床刀柄 对于ISO30，以及MT3刀柄可以采用直接与万能镗铣头做成一体结构。

UPA 3

- Working range: Ø 0 – 260 mm
- Slide adjustment: 48 mm
- Almost every type of shank, for tapers from ISO 30 and from MT 3, can be fitted to the UPA head



UPA 4

- 使用范围：Ø 0 – 400 毫米
- 滑块行程：52 mm
- 适用于各种型号机床刀柄，对于ISO40以及MT4刀柄可以采用直接与万能镗铣头做成一体结构。

UPA 4

- Working range: Ø 0 – 400 mm
- Slide adjustment: 52 mm
- Almost every type of shank, for tapers from ISO 40 and from MT 4, can be fitted to the UPA head



UPA 5-S 6

- 加工范围：Ø0-620 毫米
- 滑块行程：112 mm
- 适用于各种型号机床刀柄，对于ISO40以及MT5刀柄可以采用直接与万能镗铣头做成一体结构。

UPA 5-S 6

- Working range: Ø 0 – 620 mm
- Slide adjustment: 112 mm
- Almost every type of shank, for tapers from ISO 40 and from MT 5, can be fitted to the UPA head

万能镗头（平旋盘） Universal Facing and Boring Heads

技术参数

Technical data

类型及参数 Type and size	UPA 3		UPA 4		UPA 5-S 6		
	快速回转 相同的转速 with rapid return in the same direction of revs.		用快速复位调节旋钮 S型表示在基础款上拥有更大的行程 Rapid return setting by quickset spindle The S-types have a lengthened slide				
加工精度,mm Working accuracy, mm	± 0.005		± 0.005		± 0.005		
各种可适配的刀柄 Types of possible shanks:							
mm Ø	25		35		45		
MT	3		4		5		
ISO	30		40		40		
Metric	—		—		—		
各种可适配的刀柄 Facing and boring range, mm in Ø	0 – 260		0 – 400		0 – 620		
滑块最大调节行程 mm Adjustment of slide, max. mm	48		52		112		
每转进给 mm/rev Self activated feed of slide per rev. in mm	0.0507		0.02 0.04 0.06 0.08 0.10 0.12 0.14 0.16 0.18 0.20 0.22 0.24				
微调 Fine adjustment:							
直径方向上一格 1 division mm in Ø	0.01		0.01		0.01		
直径方向上一圈 1 revolution mm in Ø	1.0		0.4		0.4		
复位调节直径上每转 Rapid return per revolution, mm in Ø	1.0		—		—		
复位调节直径上每转 Rapid return setting per revolution, mm in Ø	—		6.0		6.0		
刀具最大位置直径尺寸 Largest dia. of slide, mm	85		115		170		
不含刀柄的刀具长度 Height of head without shank, mm	75		128		128		
镗杆直径 mm Tool locations in slide, mm Ø	18		22		22		
镗头重量（不含刀柄），公斤 Weight of head (without shank), kg	2.1		6.5		7.9		
允许最大转速 Max. permissible revolutions	1000		600		600		
加工尺寸精度 End cut off accuracy	± 0.05		± 0.05		± 0.05		

切削要求

Chip production values

切削要求 Guide for chip cutting			类型及参数 Type and size						
			UPA 3		UPA 4		UPA 5-S 6		
最大负荷	Max. load	KW	2.5		7.0		9.5		
滑块进给	With slide feed	mm/rev.	0.050		0.08	0.12	0.24	0.08	0.12 0.24
用于更小的加工 Ø	For smaller working Ø	d ₁ , mm	60		150		200		
最大切深	Max. width of chip	b, mm	4	7	6	4	8	7	5
最大的加工直径 Ø	Max. working Ø	d ₁ , mm	260		400		500 / 620		
最大切深 Max. width of cip	未使用配重环	Without reinforcement rings	2	2.2	2	1.5	2.5	2	1.5
	使用配重环 ¹⁾	With reinforcement rings ¹⁾	—	4.5	4	3	5	4	3

¹⁾ 当时用配重环时最大切深可以提高100%。

¹⁾ By using the reinforcement rings, contained in the normal attachment, chip cutting capacity is increased by 100%.

在铣床、钻床、镗床等设备上可实现面加工，镗孔加工，槽加工，螺纹，锥孔，锥面加工以及其他特殊要求的加工模式。

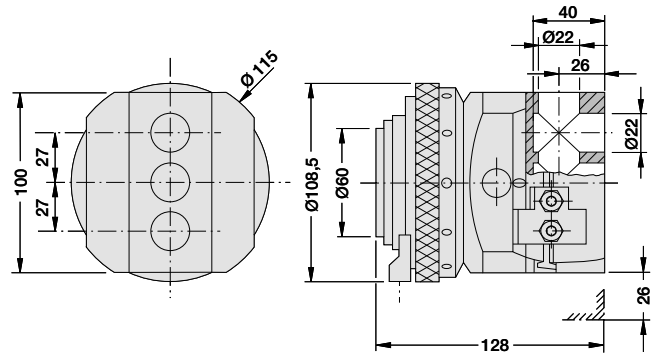
The universal tool for facing, boring, recessing, thread cutting and for special work, for use on universal milling machines, jig borers, boring machines etc.



Fig. 2



Fig. 1



	重量, 公斤 Weight, kg	订货号 Part No.
万能镗钻头/平旋盘 UPA4 (如图一) Facing and boring head UPA 4 (as fig. 1)	6.5	007020
万能镗钻头 (如图1) 与DS刀柄 (图2) 装配。由于刀柄可以互换, 因此这种万能镗钻头可以用于不同主轴刀柄接口的机床上。每种刀柄都需要安装螺钉和扳手完成安装。安装时, 应遵循说明书上的NO.102 221上的说明。 The facing and boring head (fig. 1) is arranged for mounting DS-tool shanks (fig. 2). Because shanks can be exchanged, this facing and boring head can be used on machines with different spindle locations. With each tool shank a differential thread pin and an operation key is supplied. When mounting, the instructions on mounting sheet No. 102221 should be followed.		

DS-刀柄,图二 DS-tool shanks, fig. 2		重量, 公斤 Weight, kg	订货号 Part No.	图纸编号 No. of drawing
MT 4 x Tang	DIN 1806	0.9	130005 T00 3590	K 9511
MT 5 x Tang (OERLIKON)	DIN 1806	1.6	130005 T00 3920	K 9321
ISO 40 x M 16	DIN 69871	1.5	130005 T01 3815	K 14180
ISO 40 x M 16 cap nut clamps	DIN 2080	1.2	130005 T00 3703	K 9518
ISO 40 x 5/8 in. – 11 BSW	类似 similar	1.2	130005 T00 4498	K 9531
ISO 50 x M 24	DIN 2080	2.9	130005 T00 3704	K 9519
ISO 50 x 1 in. – 8 BSW	类似 similar	2.9	130005 T00 4480	K 9914
Norm taper 40 x S 20 x 2 带DECKEL螺帽 / with bolts DECKEL		1.2	130005 T00 5070	K 8622
ISO 40 x M 16	DIN 2080*	1.2	130005 T01 0229	K 10248
ISO 40 x 5/8 in. – 11 BSW	类似 similar	1.2	130005 T01 0327	K 10334
ISO 50 x M 24	DIN 2080*	3.0	130005 T01 0048	K 10071

* 带有刀柄装夹槽

其他型号刀柄请联系相关销售人员

* with chucking groove

Other types of shanks on demand

在铣床、钻床、镗床等设备上可实现面加工，镗孔加工，槽加工，螺纹，锥孔，锥面加工以及其他特殊要求的加工模式。

The universal tool for facing, boring, recessing, thread cutting and for special work, for use on universal milling machines, jig borers, boring machines etc.

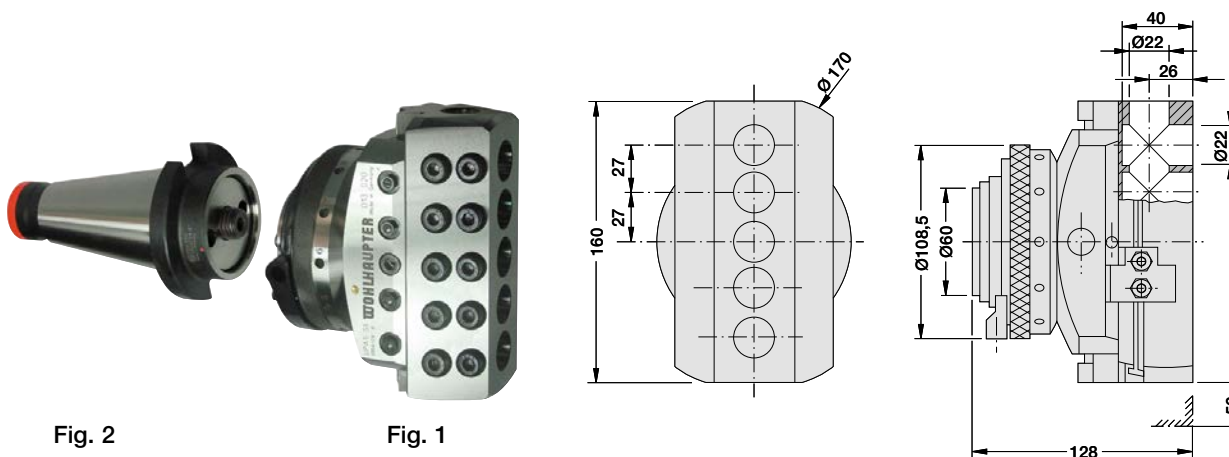


Fig. 2

Fig. 1

重量, 公斤 Weight, kg	订货号 Part No.
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万能镗头/平旋盘 UPA5 (如图一) Facing and boring head UPA 5 (as fig. 1)	7.9 013020
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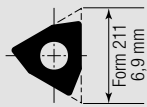
万能镗头 (如图1) 与DS刀柄 (图2) 装配。由于刀柄可以互换, 因此这种万能镗头可以用于不同主轴刀柄接口的机床上。每种刀柄都需要安装螺钉和扳手完成安装。安装时, 应遵循说明书上的NO.102 221上的说明。

The facing and boring head (fig. 1) is arranged for mounting DS-tool shanks (fig. 2). Because shanks can be exchanged, this facing and boring head can be used on machines with differing spindle locations. With each tool shank a differential thread pin and an operation key is supplied. When mounting, the instructions on mounting sheet No. 102201 should be followed.

DS-刀柄,图二 DS-tool shanks, fig. 2	重量, 公斤 Weight, kg	订货号 Part No.	图纸编号 No. of drawing
MT 5 x Tang (OERLIKON)	DIN 1806 1.6	130005 T00 3920	K 9321
ISO 40 x M 16	DIN 69871 1.5	130005 T01 3815	K 14180
ISO 40 x M 16 cap nut clamps	DIN 2080 1.2	130005 T00 3703	K 9518
ISO 40 x 5/8 in. – 11 BSW 类似 similar	DIN 2080 1.2	130005 T00 4498	K 9531
ISO 50 x M 24	DIN 2080 2.9	130005 T00 3704	K 9519
ISO 50 x 1 in. – 8 BSW 类似 similar	DIN 2080 2.9	130005 T00 4480	K 9914
Norm taper 40 x S 20 x 2 带DECKEL螺帽 / with bolts DECKEL	1.2	130005 T00 5070	K 8622
ISO 40 x M 16	DIN 2080* 1.2	130005 T01 0229	K 10248
ISO 40 x 5/8 in. – 11 BSW 类似 similar	DIN 2080* 1.2	130005 T01 0327	K 10334
ISO 50 x M 24	DIN 2080* 3.0	130005 T01 0048	K 10071

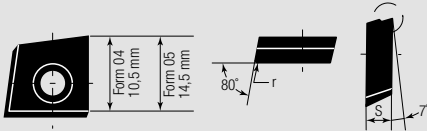
* with chucking groove

Other types of shanks on demand

						加工材料 / Cutting Materials															
						金属陶瓷 / Cermet						硬质合金 / Carbide									
						无涂层 uncoated			含涂层 coated			无涂层 uncoated		含涂层 coated							
钢:非合金到高合金 / Steel: Unalloyed to High Alloyed						P	▼▼▼						▼▼▼	▼▼▼			▼▼▼	▼▼▼			
不锈钢 / Stainless steel						M							▼▼▼	▼▼▼			▼▼▼	▼▼▼			
铸铁 / Cast Iron						K	▼▼▼					▼▼▼	▼▼▼	▼▼▼			▼▼▼	▼▼▼			
有色金属 / Non-Ferrous Metals						N	▼▼▼					▼▼▼	▼▼▼								
超合金和钛合金 / Super Alloys and Titanium						S						▼▼▼		▼▼▼			▼▼▼	▼▼▼			
高硬度材料 / Hard Materials						H											▼▼▼				
几何形状 Geometry	WH-Article-No. (订货号) WH-Article-No.	订货号 Part No.	半径 Radius	ISO代码 ISO Code	WHT 10	WHT 12	WHT 16	WHT 32	WTC 15	WTC 121	WHW 01	WHW 16	WHC 05	WHC 18	WHC 19	WHC 79	WHC 98	WHC 111	WHC 114	WHC 136	WHC 164
	121	F211 01 GN 121	397675	0,1	WBGX030101																
		F211 02 GN 121	397676	0,2	WBGX030102																
	155	F020 02 MN 155	397688	0,2	TOMX080202																
		F020 04 MN 155	397689	0,4	TOMX080204																
	650	F020 01 GL 650	097153	0,1	TOGX080201		●				●		●								
		F020 02 GL 650	097546	0,2	TOGX080202		●				●		●								
		F020 03 GL 650	097154	0,3	TOGX080203						●		●								
		F020 04 GL 650	097599	0,4	TOGX080204		●				●		●								
		F020 08 GL 650	397764	0,8	TOGX080208						●		●								
	127	F101 02 GN 127	097529	0,2	CCGT060202							●		●							
		F101 04 GN 127	097445	0,4	CCGT060204							●		●							
		F103 02 GN 127	297550	0,2	CCGT09T302							●		●							
		F103 04 GN 127	097497	0,4	CCGT09T304							●		●							
		F104 04 GN 127	097496	0,4	CCGT120404							●		●							
	158	F101 02 MN 158	297248	0,2	CCMT060202											●		●			
		F101 04 MN 158	297377	0,4	CCMT060204											●		●			
		F103 04 MN 158	297239	0,4	CCMT09T304											●		●			
		F103 08 MN 158	297240	0,8	CCMT09T308											●		●			
		F104 04 MN 158	297242	0,4	CCMT120404											●		●			
		F104 08 MN 158	297241	0,8	CCMT120408											●		●			
		F105 08 MN 158	297559	0,8	CCMT160508								●			●		●			
		F105 12 MN 158	297560	1,2	CCMT160512											●		●			
	192	F101 02 MN 192	297531	0,2	CCMT060202										●						
		F101 04 MN 192	297658	0,4	CCMT060204										●						
		F101 08 MN 192	297588	0,8	CCMT060208										●						
		F103 02 MN 192	297958	0,2	CCMT09T302										●						
		F103 04 MN 192	297653	0,4	CCMT09T304										●						
		F103 08 MN 192	397614	0,8	CCMT09T308										●						
		F104 04 MN 192	397666	0,4	CCMT120404										●						
		F104 08 MN 192	297878	0,8	CCMT120408										●						
		F104 12 MN 192	397632	1,2	CCMT120412										●						
	199	F101 02 MN 199	397164	0,2	CCMT060202														●		
		F101 04 MN 199	397165	0,4	CCMT060204														●		
		F103 02 MN 199	397702	0,2	CCMT09T302														●		
		F103 04 MN 199	397166	0,4	CCMT09T304														●		
		F103 08 MN 199	397167	0,8	CCMT09T308														●		
		F104 04 MN 199	397191	0,4	CCMT120404														●		
		F104 08 MN 199	397168	0,8	CCMT120408														●		

刀片

Replaceable Inserts

					加工材料 / Cutting Materials																		
					金属陶瓷 / Cermet						硬质合金 / Carbide												
					无涂层 uncoated		含涂层 coated		无涂层 uncoated		含涂层 coated												
钢:非合金到高合金 / Steel: Unalloyed to High Alloyed					P																	▼	▼
不锈钢 / Stainless steel					M																	▽	▼
铸铁 / Cast Iron					K																	▼	▼
有色金属 / Non-Ferrous Metals					N																		▽
超合金和钛合金 / Super Alloys and Titanium					S																		▽
高硬度材料 / Hard Materials					H																		
几何形状 Geometry	WH-Article-No. (订货号) WH-Article-No.	订货号 Part No.	半径 Radius	ISO代码 ISO Code	WHT 10	WHT 12	WHT 16	WTC 15	WTC 121	WHW 01	WHW 16	WHC 05	WHC 18	WHC 19	WHC 79	WHC 98	WHC 111	WHC 114	WHC 136	WHC 168	WHC 198		
	880	F004 04 ML 880	397595	—																			
		F005 04 ML 880	397593	—																	✂	●	
		F005 08 ML 880	397594	—																	✂	●	

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