



ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing



Drilling



Reaming



Burnishing



Threading



Wohlhaupter®

► **BORING**

UPA Facing and Boring Heads



Specials

WOHLHAUPTER®



SECTION

B10-J

UPA Versatile Boring Heads

Wohlhaupter® UPA Versatile Boring Heads

UPA 3 | UPA 4 | UPA 5-S 6

► Diameter Range: 0.000" - 24.409" (0.00 mm - 620.00 mm)



Operation Facing and Boring

In 1936, the first model of the Wohlhaupter Universal Facing and Boring head was developed to launch the start of Wohlhaupter boring products. It became a staple to the boring industry.

Universal Facing and Boring heads are used on universal milling and boring machines, boring mills, and jig boring machines for machining stationary workpieces in individual and batch productions.

Your safety and the safety of others is very important. This catalog contains important safety messages. Always read and follow all safety precautions.



This triangle is a safety hazard symbol. It alerts you to potential safety hazards that can cause tool failure and serious injury.

When you see this symbol in the catalog, look for a related safety message that may be near this triangle or referred to in the nearby text.

There are safety signal words also used in the catalog. Safety messages follow these words.

WARNING

WARNING (shown above) means that failure to follow the precautions in this message could result in tool failure and serious injury.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury.

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Applicable Industries



Aerospace



Agriculture



Automotive



Firearms



General
Machining



Oil & Gas



Renewable
Energy

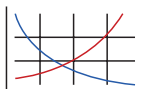
Reference Icons

The following icons will appear throughout the catalog to help you navigate between products.



Setup / Assembly Information

Detailed instructions and information regarding the corresponding part(s)



Recommended Cutting Data

Speed and feed recommendations for optimum and safe drilling

Universal Versatile Boring Heads Table of Contents

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Series	Diameter Range	
	Imperial (inch)	Metric (mm)
UPA 3	0.000 - 10.236	0.00 - 260.00
UPA 4	0.000 - 15.748	0.00 - 400.00
UPA 5-S 6	0.000 - 24.409	0.00 - 620.00

UPA Product Overview

UPA Boring Head FACING AND BORING

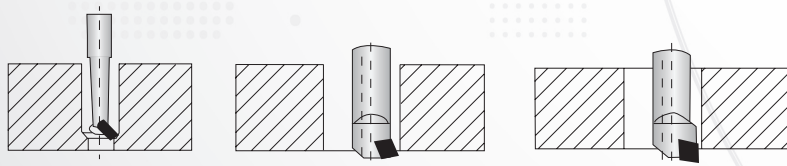
Universal Facing and Boring Heads

The versatile Wohlhaupter UPA boring heads can be used for facing, boring, and taper turning. They can also be used for right- or left-handed turning.

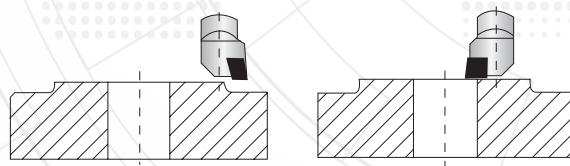
Precise and *versatile* boring heads.

- Diameter range: 0.000" - 24.409" (0.00 mm - 620.00 mm)
- Slide adjustment up to 4.410" (112.00 mm)
- Can be used in a variety of operations

UNIVERSAL FACING & BORING Applications



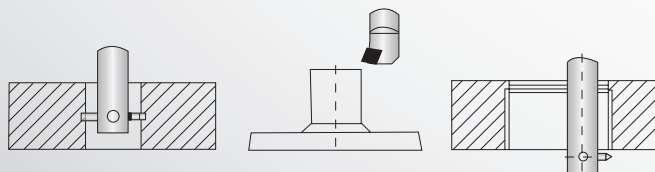
Boring with different tools



Facing

From inside
outward

From outside
inward



Recessing

Outside Turning

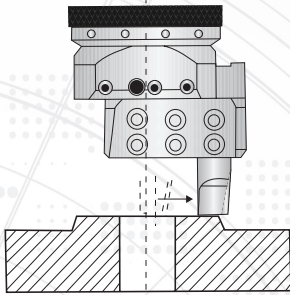
Thread Cutting



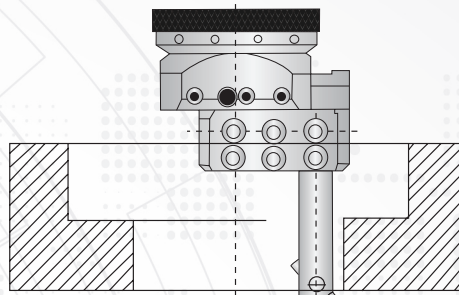
Taper Turning

UNIVERSAL

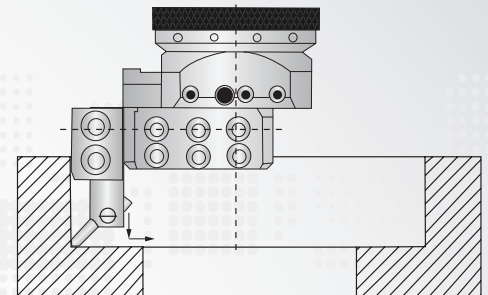
FACING & BORING Application Examples



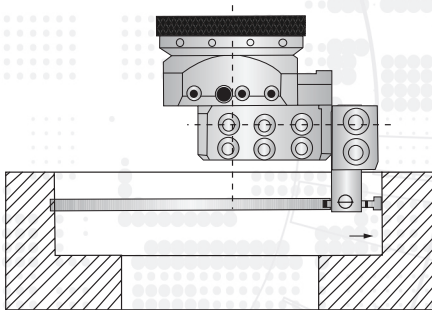
Facing with boring bar directly in slide



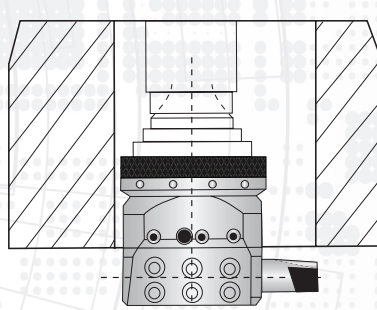
Boring with long boring bar



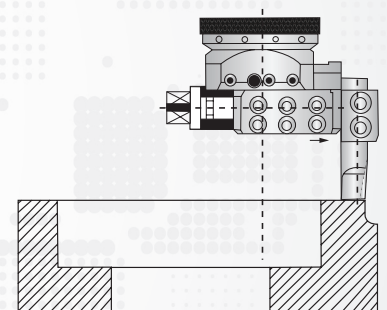
Boring and facing with short boring bar holder and a boring bar



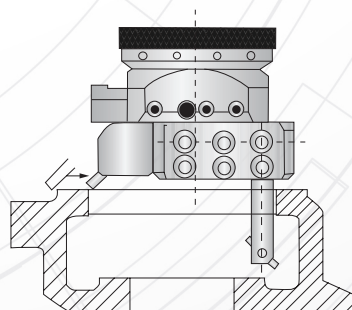
Recessing with short boring bar holder and a boring bar



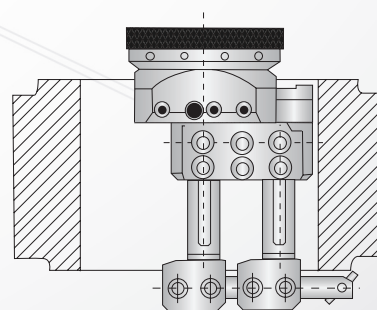
Deep hole boring with boring bar directly in slide



Large diameter facing with a long boring bar holder



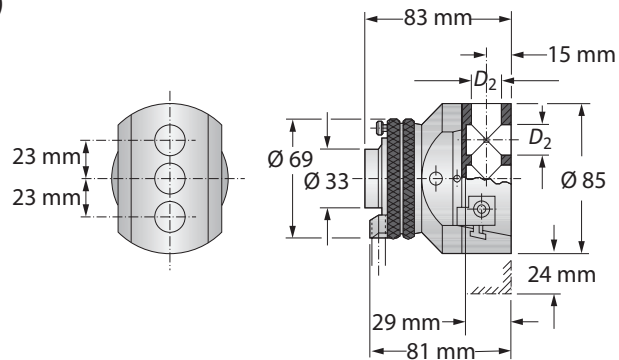
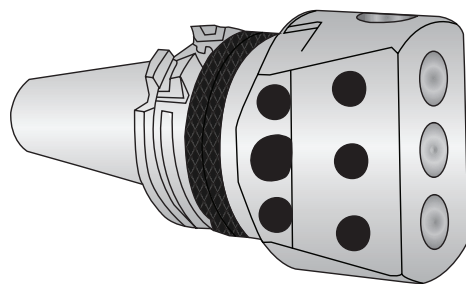
Facing in two areas with one boring bar and a boring bar holder



Facing the reverse side by using boring bar holders contained in attachment

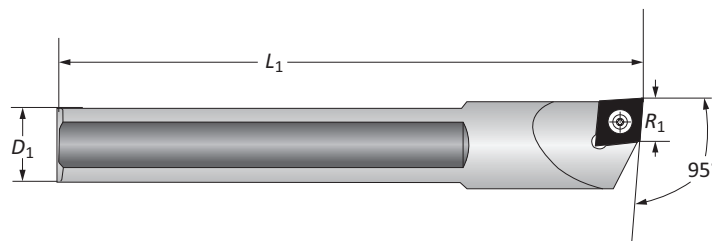
UPA 3 Boring Heads and Accessories

Diameter Range: 0.000" - 10.236" (0.00 mm - 260.00 mm)



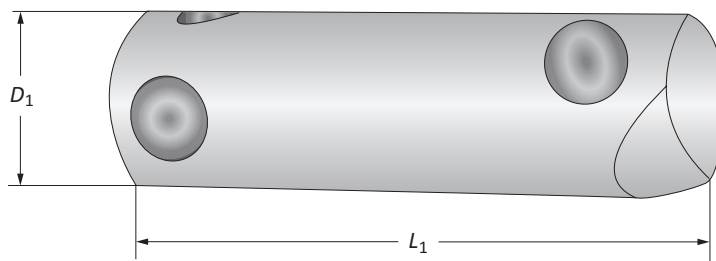
UPA 3 Boring Heads

Boring Head			
Boring Range	D_2	Weight	Part No.
i 0.000 - 10.234	0.750	4.629 (lbs)	006020
m 0.00 - 260.00	18.00	2.10 (kg)	005020



UPA 3 Boring Bars

Boring Bar				Cutting Direction	Insert Form	Part No.
D_1	L_1	R_1	Weight			
i 0.750	3.149	0.531	0.220 (lbs)	R	103	0750BFBR
0.750	3.149	0.531	0.220 (lbs)	L	103	0750BFBL
m 18.00	80.00	13.50	0.10 (kg)	R	103	081087
18.00	80.00	13.50	0.10 (kg)	L	103	218088

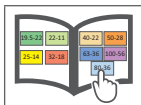
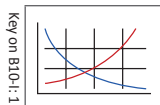


UPA 3 Boring Bars

Boring Bar		Boring Depth	Designation	Part No.
D_1	L_1			
i 0.750	2.362	1.181	B 306	074003
0.750	3.543	2.362	B 309	074004
0.750	4.724	3.543	B 312	074005
m 18.00	60.00	30.00	B 306	073003
18.00	90.00	60.00	B 309	073004
18.00	120.00	90.00	B 312	073005

B10-M: 12-15

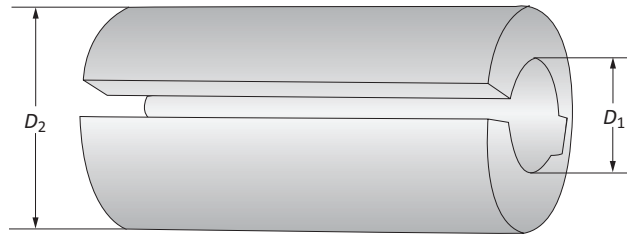
B10: vi-vii



i = Imperial (in)
m = Metric (mm)

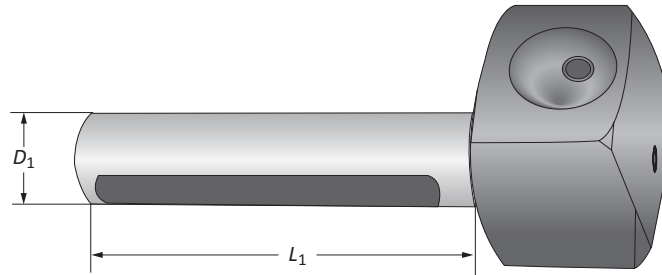
UPA 3 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 3 Reducing Sleeves

Reducing Sleeve		Weight	Part No.
D_2	D_1		
i	0.750	0.220 (lbs)	072104
	0.750	0.220 (lbs)	072105
	0.750	0.220 (lbs)	072106
	0.750	0.220 (lbs)	072107
m	18.00	0.10 (kg)	071103
	18.00	0.10 (kg)	071104
	18.00	0.10 (kg)	071105
	18.00	0.10 (kg)	071106

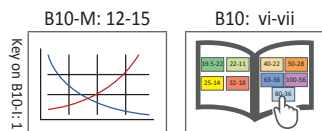
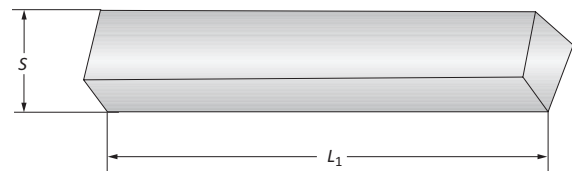


UPA 3 Boring Bar Holders

Boring Bar Holder		Working Diameter Range	Designation	Part No.
D_1	L_1			
i	0.750	3.346 - 7.480	BH 308	076001
	0.750	6.299 - 10.236	BH 312	076002
m	18.00	85.00 - 190.00	BH 308	075001
	18.00	160.00 - 260.00	BH 312	075002

UPA 3 Square Turning Bit

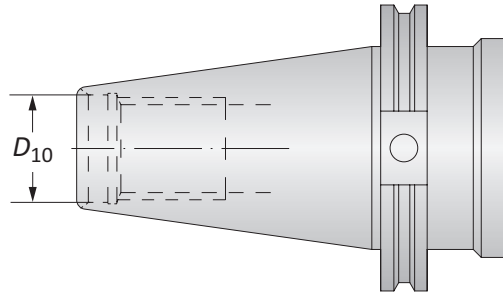
Square Turning Bit		Weight	Part No.
D_1	L_1		
i	0.236	0.035 (oz)	089001
m	6.00	11 (g)	089001



i = Imperial (in)
m = Metric (mm)

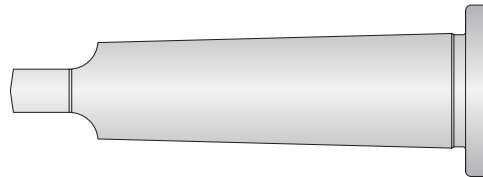
UPA 3 Master Shanks

CAT 40/50 | Morse Taper 40/50



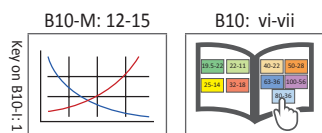
CAT 40/50 Shanks

Shank			
Style	D_{10}	Weight	Part No.
i CAT 40	$\frac{5}{8}$ - 11	2.336 (lbs)	130001T013939
CAT 50	1 - 8	7.054 (lbs)	130001T011624
m CAT 40	M16 x 2	1.06 (kg)	130001T016960
CAT 50	M24 x 3	3.20 (kg)	130001T016962



Morse Taper Shanks

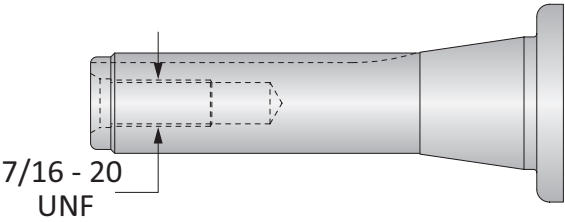
Shank			
Style	Weight	Part No.	
i MT 3	0.661 (lbs)	130001T004509	
MT 4	1.212 (lbs)	130001T003590	
MT 5	2.976 (lbs)	130001T003920	
m MT 3	0.30 (kg)	130001T004509	
MT 4	0.55 (kg)	130001T003590	
MT 5	1.35 (kg)	130001T003920	



i = Imperial (in)
m = Metric (mm)

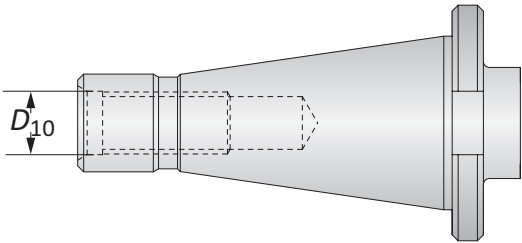
UPA 3 Master Shanks

R-8 | NMTB 40/50



R-8 Shanks

Shank		Part No.
	Weight	
i	1.058 (lbs)	130001T007166
m	0.48 (kg)	130001T007166



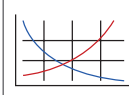
NMTB 40/50 Shanks

Shank		Part No.
Style	D ₁₀	
i	NMTB40	1.984 (lbs)
	NMTB50	5.798 (lbs)
m	NMTB40	0.90 (kg)
	NMTB50	2.63 (kg)

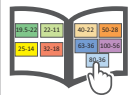
Differential Screw

Thread	Weight	Part No.
i	M16 x 2	0.066 (lbs)
m	M16 x 2	0.03 (lbs)

B10-M: 12-15



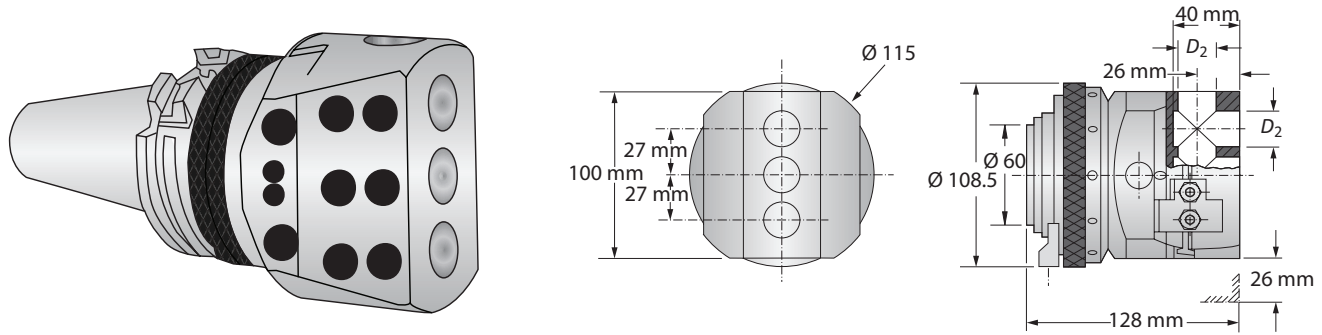
B10: vi-vii



i = Imperial (in)
m = Metric (mm)

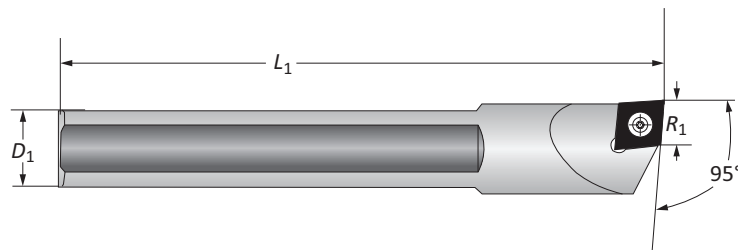
UPA 4 Boring Heads and Accessories

Diameter Range: 0.000" - 15.748" (0.00 mm - 400.00 mm)



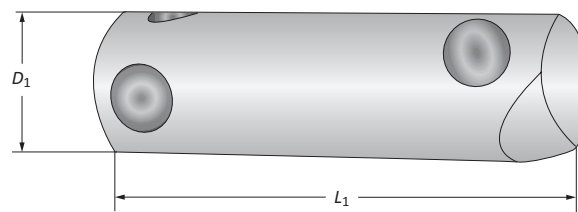
UPA 4 Boring Heads

Boring Head			
Boring Range	D_2	Weight	Part No.
i 0.000 - 15.748	0.875	14.330 (lbs)	008020
m 0.00 - 400.00	22.00	6.50 (kg)	007020



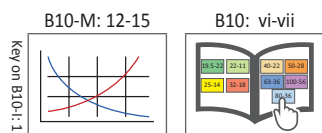
UPA 4 Boring Bars

Boring Bar				Cutting Direction	Insert Form	Part No.
D_1	L_1	R_1	Weight			
i 0.875	3.937	0.531	0.220 (lbs)	R	103	0875BFBR
0.875	3.937	0.531	0.220 (lbs)	L	103	0875BFBL
m 22.00	100.00	13.50	0.10 (kg)	R	103	081092
22.00	100.00	13.50	0.10 (kg)	L	103	218089



UPA 4 Boring Bars

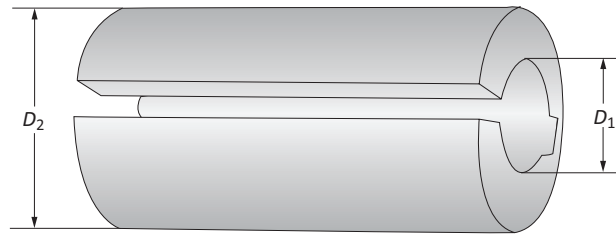
Boring Bar		Boring Depth	Designation	Part No.
D_1	L_1			
i 0.875	3.346	1.771	B 408	074006
0.875	4.921	3.346	B 412	074007
0.875	6.496	4.921	B 416	074008
m 22.00	85.00	45.00	B 408	073006
22.00	125.00	85.00	B 412	073007
22.00	165.00	125.00	B 416	073008



i = Imperial (in)
m = Metric (mm)

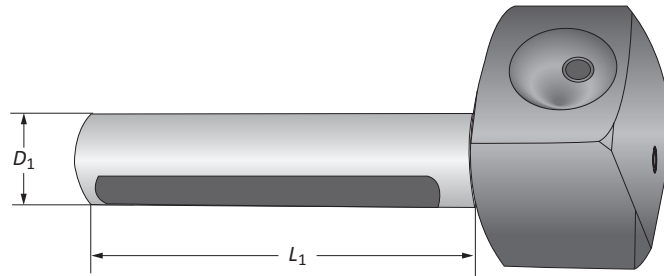
UPA 4 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 4 Reducing Sleeves

Reducing Sleeve				
	D_2	D_1	Weight	Part No.
i	0.875	0.312	0.220 (lbs)	072108
	0.875	0.375	0.220 (lbs)	072109
	0.875	0.500	0.220 (lbs)	072110
	0.875	0.625	0.176 (lbs)	072111
	0.875	0.750	0.176 (lbs)	072112
m	22.00	8.00	0.10 (kg)	071107
	22.00	10.00	0.10 (kg)	071108
	22.00	12.00	0.10 (kg)	071109
	22.00	14.00	0.08 (kg)	071110
	22.00	18.00	0.08 (kg)	071111

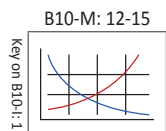
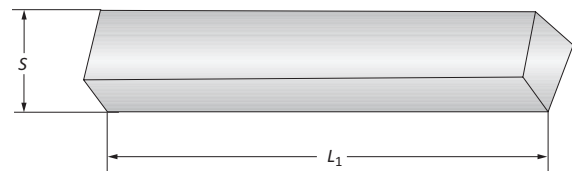


UPA 4 Boring Bar Holders

Boring Bar Holder			Designation	Working Diameter Range	Part No.
	D_1	L_1			
i	0.875	3.858	BH 410	4.527 - 9.448	076003
	0.875	7.086	BH 418	8.661 - 15.748	076004
m	22.00	98.00	BH 410	115.00 - 240.00	075003
	22.00	180.00	BH 418	220.00 - 400.00	075004

UPA 4 Square Turning Bit

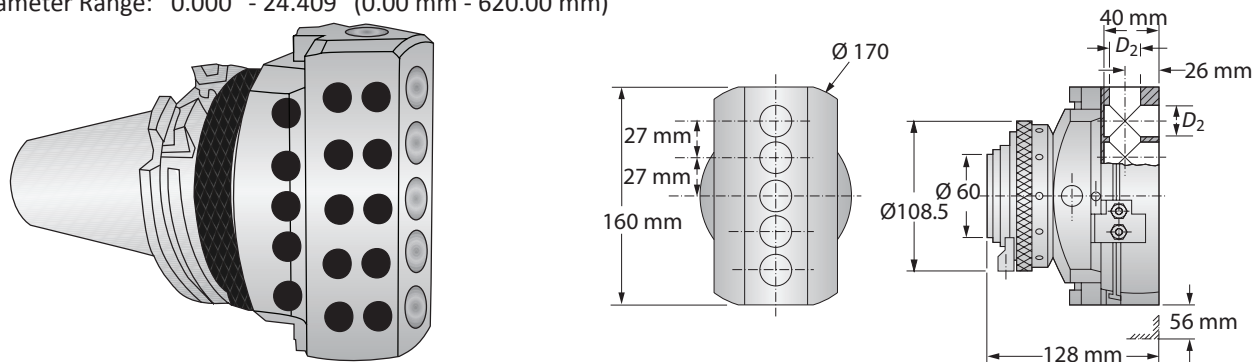
Square Turning Bit			
	D_1	L_1	Weight
i	0.236	1.574	0.035 (oz)
m	6.00	40.00	11 (g)



i = Imperial (in)
m = Metric (mm)

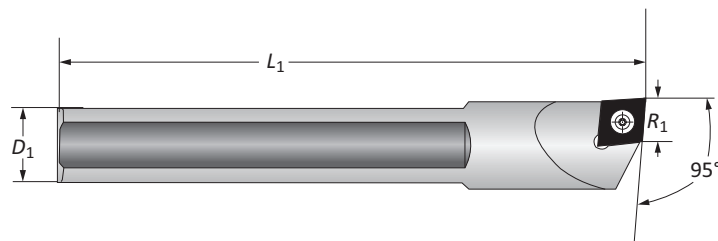
UPA 5-S 6 Boring Heads and Accessories

Diameter Range: 0.000" - 24.409" (0.00 mm - 620.00 mm)



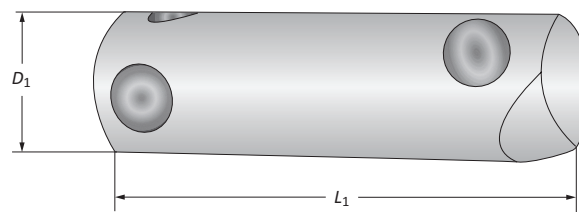
UPA 5-S 6 Boring Heads

Boring Head			
Boring Range	D ₂	Weight	Part No.
i 0.000 - 24.409	0.875	17.416 (lbs)	014020
m 0.00 - 620.00	22.00	7.90 (kg)	013020



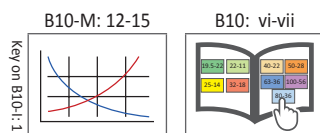
UPA 5-S 6 Boring Bars

Boring Bar				Cutting Direction	Insert Form	Part No.
D ₁	L ₁	R ₁	Weight			
i 0.875	3.937	0.531	0.220 (lbs)	R	103	0875BFBR
0.875	3.937	0.531	0.220 (lbs)	L	103	0875BFBL
m 22.00	100.00	13.50	0.10 (kg)	R	103	081092
22.00	100.00	13.50	0.10 (kg)	L	103	218089



UPA 5-S 6 Boring Bars

Boring Bar			Designation	Part No.
D ₁	L ₁	Boring Depth		
i 0.875	3.346	1.771	B 408	074006
0.875	4.921	3.346	B 412	074007
0.875	6.496	4.921	B 416	074008
m 22.00	85.00	45.00	B 408	073006
22.00	125.00	85.00	B 412	073007
22.00	165.00	125.00	B 416	073008

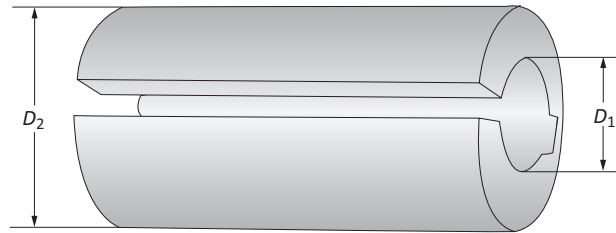


i = Imperial (in)
m = Metric (mm)



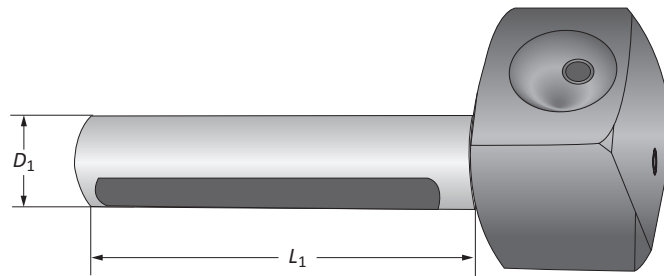
UPA 5-S 6 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 5-S 6 Reducing Sleeves

Reducing Sleeve				Part No.
	D_2	D_1	Weight	
i	0.875	0.312	0.220 (lbs)	072108
	0.875	0.375	0.220 (lbs)	072109
	0.875	0.500	0.220 (lbs)	072110
	0.875	0.625	0.176 (lbs)	072111
	0.875	0.750	0.176 (lbs)	072112
m	22.00	8.00	0.10 (kg)	071107
	22.00	10.00	0.10 (kg)	071108
	22.00	12.00	0.10 (kg)	071109
	22.00	14.00	0.08 (kg)	071110
	22.00	18.00	0.08 (kg)	071111

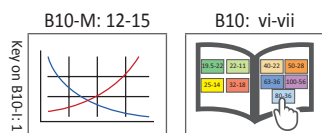
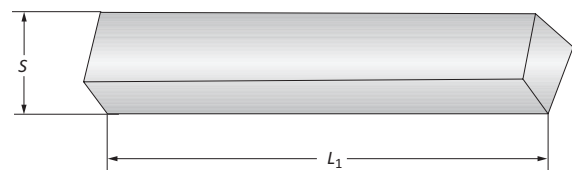


UPA 5-S 6 Boring Bar Holders

Boring Bar Holder			Designation	Working Diameter Range	Part No.
	D_1	L_1			
i	0.875	5.039	BH 513	4.724 - 15.748	076003
	0.875	9.055	BH 523	10.630 - 24.408	076004
m	22.00	228.00	BH 513	120.00 - 400.00	075003
	22.00	230.00	BH 523	270.00 - 620.00	075004

UPA 5-S 6 Square Turning Bit

Square Turning Bit			
	D_1	L_1	Part No.
i	0.236	1.574	089001
m	6.00	40.00	089001



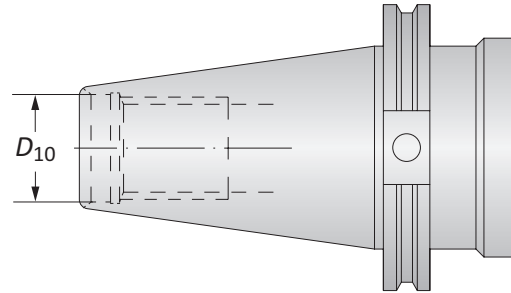
i = Imperial (in)
m = Metric (mm)

UPA 4 and 5-S 6 Master Shanks

CAT 40/50 | Morse Taper | NMTB 40/50

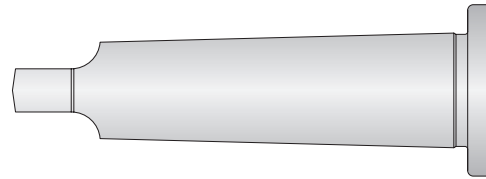
CAT 40/50 Shanks

Shank				Part No.
Style	D_{10}	Weight		
i	CAT 40	$\frac{5}{8}$ - 11	3.196 (lbs)	
	CAT 50	1 - 8	7.054 (lbs)	
m	CAT 40	M16 x 2	1.45 (kg)	
	CAT 50	M24 x 3	3.20 (kg)	



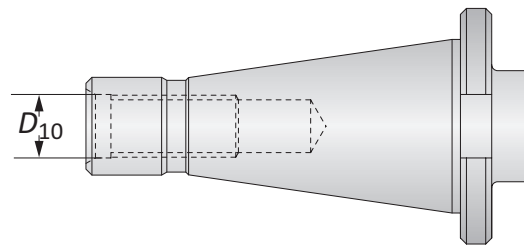
Morse Taper Shanks

Shank			Part No.
Style	Weight		
i	MT 4	1.895 (lbs)	130005T003590
	MT 5	3.639 (lbs)	130005T003920
m	MT 4	0.86 (kg)	130005T003590
	MT 5	1.65 (kg)	130005T003920



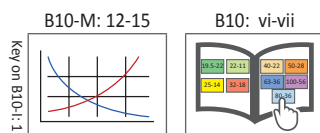
NMTB 40/50 Shanks

Shank				Part No.
Style	D ₁₀	Weight		
i	NMTB40	5/8 - 11	2.866 (lbs)	130005T004498
	NMTB50	1 - 8	6.393 (lbs)	130005T004480
m	NMTB40	5/8 - 11	1.30 (kg)	130005T004498
	NMTB50	1 - 8	2.90 (kg)	130005T004480



Differential Screw

Thread	Weight	Part No.
i M20 x 2.5	0.154 (lbs)	KW9209
m M20 x 2.5	0.07 (lbs)	KW9209

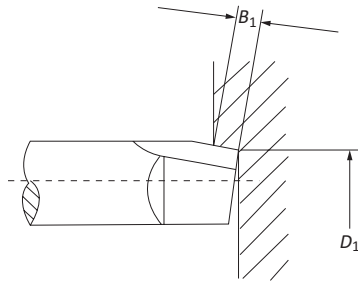


i = Imperial (in)
m = Metric (mm)

Technical Information | Chip Production Values

Technical Data

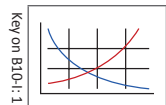
Type	UPA 3	UPA 4	UPA 5-S 6
Working accuracy	±0.005	±0.005	±0.005
Diameter range	25.00	35.00	45.00
MT shank	3.00	4.00	5.00
ISO shank	30.00	40.00	40.00
Facing and boring range	0.00 - 260.00	0.00 - 400.00	0.00 - 620.00
Adjustment of slide (max)	48.00	52.00	112.00
Self-activated feed of slide per revolution	0.05	0.02, 0.04, 0.06, 0.08, 0.10, 0.12, 0.14, 0.16, 0.18, 0.20, 0.22, 0.24	0.02, 0.04, 0.06, 0.08, 0.10, 0.12, 0.14, 0.16, 0.18, 0.20, 0.22, 0.24
 Fine adjustment of one division	0.01	0.01	0.01
Fine adjustment of one revolution	1.00	0.40	0.40
Rapid return per revolution	1.00	—	—
Rapid return setting per revolution	—	6.00	6.00
Largest diameter of slide	85.00	115.00	170.00
Height of boring head without shank	81.00	128.00	128.00
Tool locations in slide	18.00	22.00	22.00
Max permissible revolutions	1000	600	600
End cut off accuracy	±0.05	±0.05	±0.05



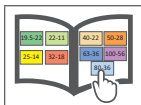
Chip Production Values

Chip Cutting Guide	Type	UPA 3	UPA 4	UPA 5-S 6
Max load	KW	2.50	7.00	9.50
With slide feed	mm/rev.	0.050	0.08, 0.12, 0.24	0.08, 0.12, 0.24
For smaller working Ø	D_1	60.00	150.00	200.00
 Maximum width of chip	B_1	4.00	7.00, 6.00, 4.00	8.00, 7.00, 5.00
Maximum working Ø	D_1	260.00	400.00	500.00 / 620.00
Without reinforcement rings	B_1	2.00	2.20, 2.00, 1.50	2.50, 2.00, 1.50
With reinforcement rings	B_1	—	4.50, 4.00, 3.00	5.00, 4.00, 3.00

B10-M: 12-15

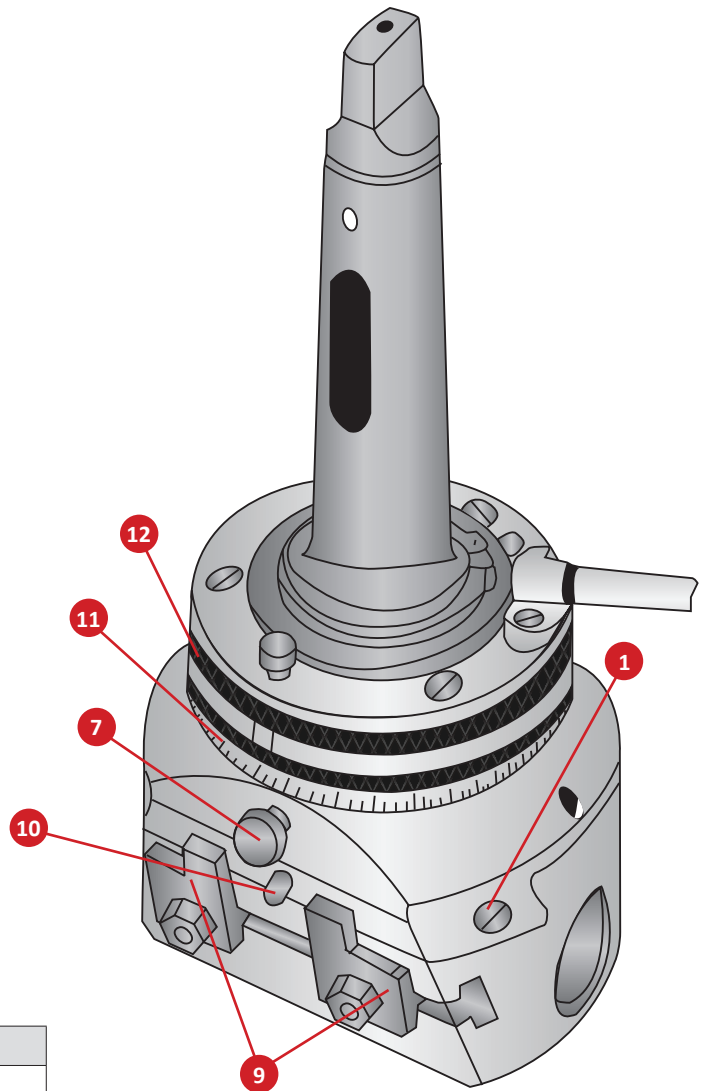
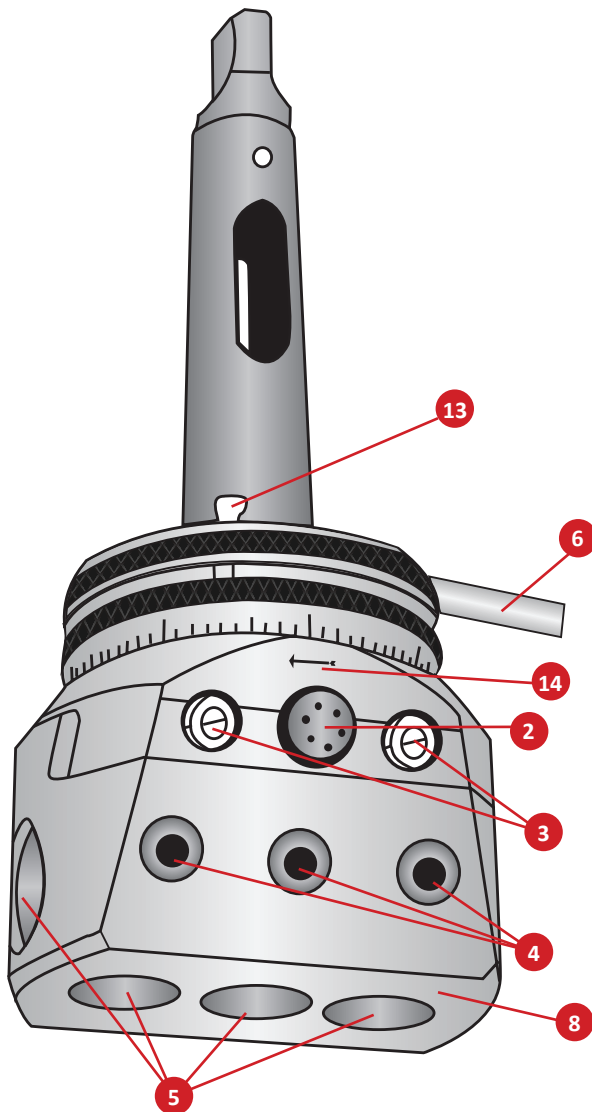


B10: vi-vii



 = Imperial (in)
 = Metric (mm)

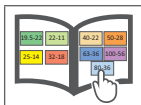
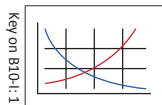
UPA 3 Boring Head Diagram



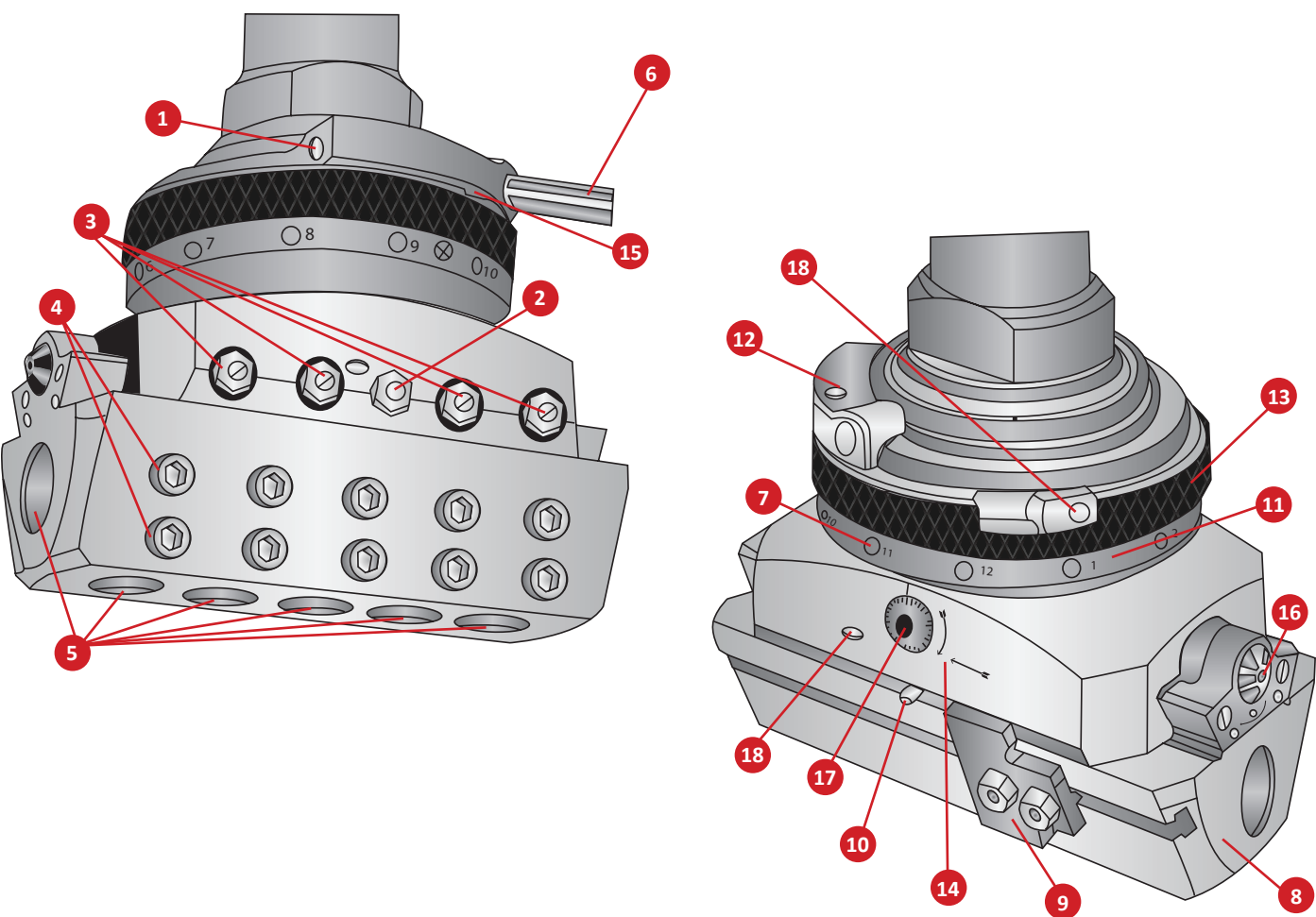
No.	Part	No.	Part
1	Regulating screw	8	Slide
2	Locking screw	9	Stop
3	Setting screws	10	Fixed pin
4	Fastening screw	11	Scale ring
5	Tool post holes	12	Holding ring
6	Stop rod	13	Button for return movement
7	Feed button	14	Arrow

B10-M: 12-15

B10: vi-vii



UPA 4 / 5-S 6 Boring Heads Diagram



No.	Part	No.	Part
1	Regulating screw	10	Fixed pin
2	Locking screw	11	Scale ring
3	Setting screws	12	Retaining ring
4	Fastening screws	13	Feed ring
5	Tool post holes	14	Arrow
6	Stop rod	15	Recess
7	Feed buttons	16	Quick setting dial
8	Slide with rotation bores	17	Fine setting dial
9	Stop	18	Release ring

B10-M: 12-15

Key on B10-I: 1

B10: vi-vii

A

B

C

D

E

F

G

H

I

J

K

L

M

INDEX

Guaranteed Test / Demo Application Form

Distributor PO #

The following must be filled out completely before your test will be considered

IMPORTANT: For processing, send Purchase Order to your Allied Field Sales Engineer (FSE). Please clearly mark the paperwork as "Test Order."

Distributor Information

Company Name: _____
Contact: _____
Account Number: _____
Phone: _____
Email: _____

End User Information

Company Name: _____
Contact: _____
Industry: _____
Phone: _____
Email: _____

Current Process List all tooling, coatings, substrates, speeds and feeds, tool life, and any problems you are experiencing

Test Objective List what would make this a successful test (i.e. penetration rate, finish, tool life, hole size, etc.)

Application Information

Hole Diameter: _____ in/mm Tolerance: _____ Material: _____
(4150 / A36 / Cast Iron / etc.)
Preexisting Diameter: _____ in/mm Depth of Cut: _____ in/mm Hardness: _____
(BHN / Rc)
Required Finish: _____ RMS State: _____
(Casting / Hot rolled / Forging)

Machine Information

Machine Type: _____ Builder: _____ Model #: _____
(Lathe / Screw machine / Machine center / etc.) (Haas, Mori Seiki, etc.)
Shank Required: _____ Power: _____ HP/KW
(CAT50 / Morse taper, etc.)
Rigidity: Orientation: Tool Rotating: Thrust: _____ lbs/N
☐ Excellent ☐ Vertical ☐ Yes
☐ Good ☐ Horizontal ☐ No
☐ Poor

Coolant Information

Coolant Delivery: _____ Coolant Pressure: _____ PSI / bar
(Through tool / Flood)
Coolant Type: _____ Coolant Volume: _____ GPM / LPM
(Air mist, oil, synthetic, water soluble, etc.)

Requested Tooling

QTY	Item Number

QTY	Item Number



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Fax: (330) 602-3400
Email: info@alliedmachine.com

Warranty Information



Allied Machine & Engineering ("Allied Machine") warrants to original equipment manufacturers, distributors, industrial and commercial users of its products for one year from the original date of sale that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied Machine's sole and exclusive obligation under this warranty is limited to, at its option, without additional charge, replacing or repairing this product or issuing a credit. For this warranty to be applied, the product must be returned freight prepaid to the plant designated by an Allied Machine representative and which, upon inspection, is determined by Allied Machine to be defective in material and workmanship.

Complete information as to operating conditions, machine, setup, and the application of cutting fluid should accompany any product returned for inspection. This warranty shall not apply to any Allied Machine products which have been subjected to misuse, abuse, improper operating conditions, improper machine setup or improper application of cutting fluid or which have been repaired or altered if such repair or alteration, in the judgement of Allied Machine, would adversely affect the performance of the product.

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Allied Machine shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for economic losses of any kind or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform this agreement.

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90200 06.2018

Printed in Germany · Technische Änderungen vorbehalten

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