ALLIED MACHINE & ENGINEERING

Holemaking Solutions for Today's Manufacturing

Drilling

Reaming

Burnishing

Threading

Specials

Wohlhaupter®

▶ *BORING*

UPA Facing and Boring Heads

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.

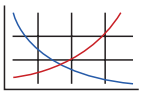
Visit www.alliedmachine.com for the most up-to-date information and procedures.

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

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 Boring Head
FACING AND BORING

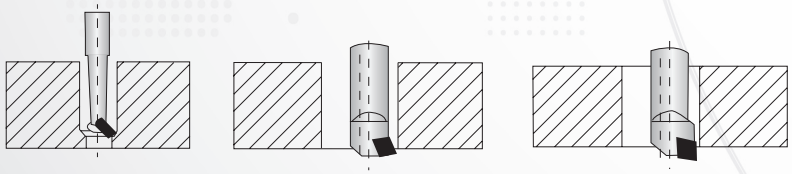
Universal Facing and Boring Heads

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.

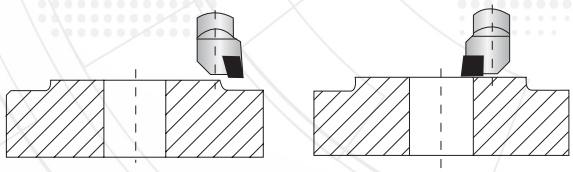
Precise and ***versatile*** boring heads.

- 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*



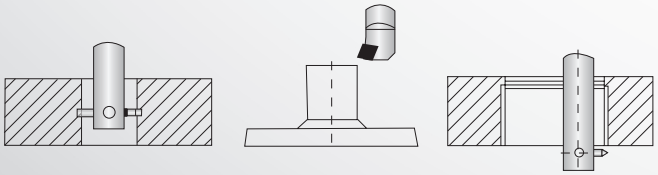
Boring with different tools



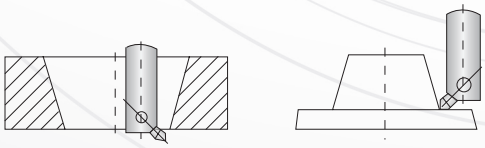
Facing

From inside outward

From outside inward



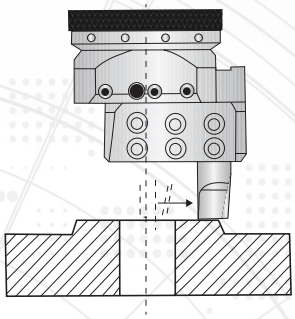
Recessing **Outside Turning** **Thread Cutting**



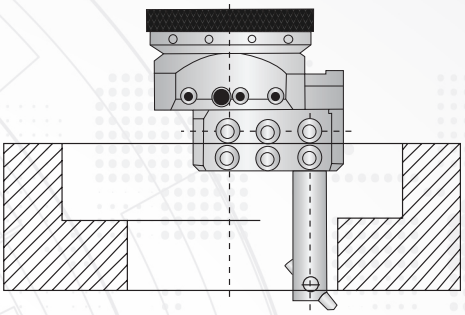
Taper Turning

UNIVERSAL

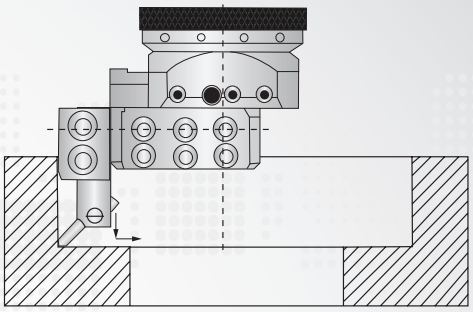
FACING & BORING *Application Examples*



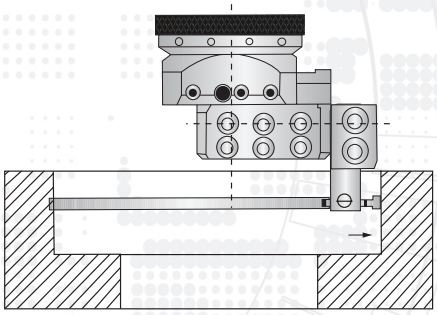
Facing with boring bar directly in slide



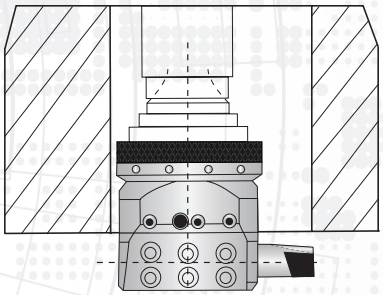
Boring with long boring bar



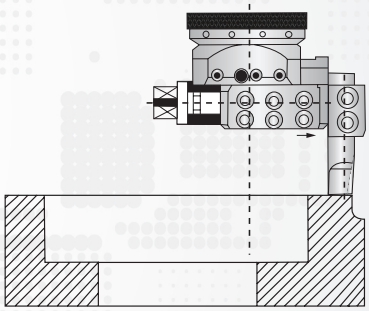
Boring and facing with short boring bar holder and a boring bar



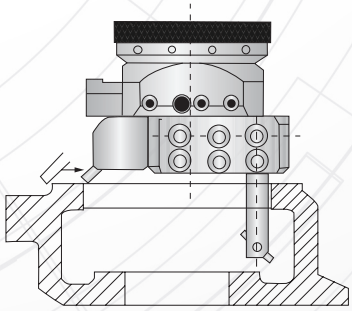
Recessing with short boring bar holder and a boring bar



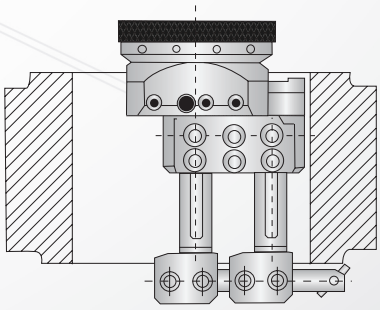
Deep hole boring with boring bar directly in slide



Large diameter facing with a long boring bar holder



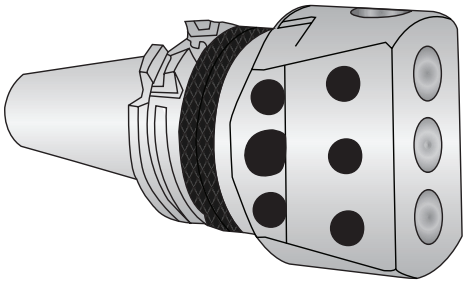
Facing in two areas with one boring bar and a boring bar holder

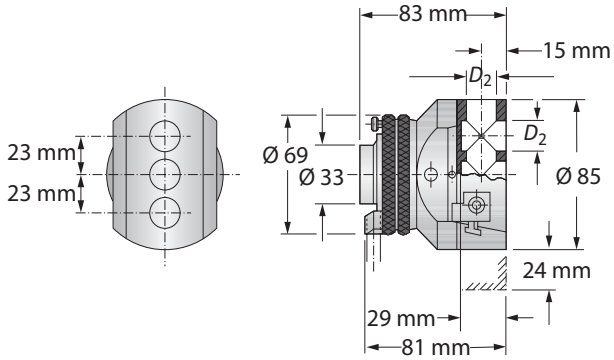


Facing the reverse side by using boring bar holders contained in attachment

UPA 3 Boring Heads and Accessories

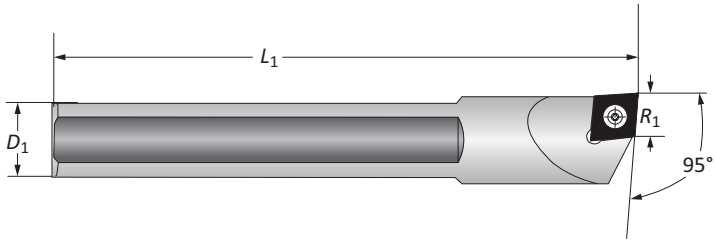
Diameter Range: 0.000" - 10.236" (0.00 mm - 260.00 mm)





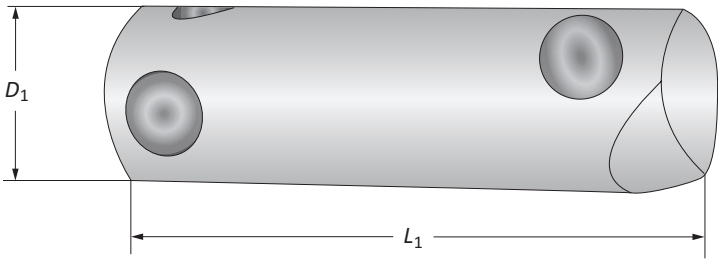
UPA 3 Boring Heads

	Boring Range	Boring Head 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 D_1	L_1	R_1	Weight	Cutting Direction	Insert Form	Part No.
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

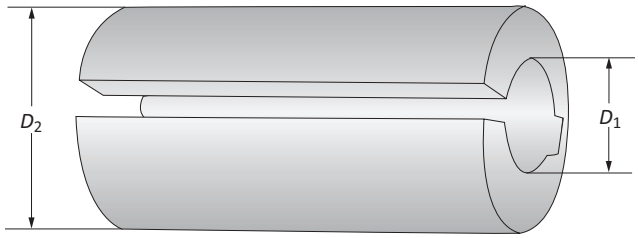
	Boring Bar D_1	L_1	Boring Depth	Designation	Part No.
i	0.750	2.362	1.181	B 306	**074003**
	0.750	3.543	2.362	B 309	**074004**
	0.750	4.724	3.543	B 312	**074005**
m	18.00	60.00	30.00	B 306	**073003**
	18.00	90.00	60.00	B 309	**073004**
	18.00	120.00	90.00	B 312	**073005**

B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

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

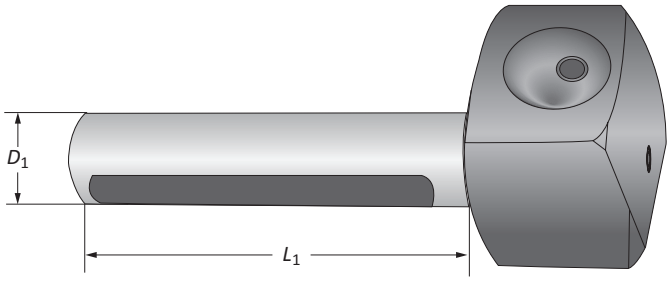
UPA 3 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 3 Reducing Sleeves

	Reducing Sleeve D_2	Reducing Sleeve D_1	Weight	Part No.
i	0.750	0.313	0.220 (lbs)	**072104**
i	0.750	0.375	0.220 (lbs)	**072105**
i	0.750	0.500	0.220 (lbs)	**072106**
i	0.750	0.625	0.220 (lbs)	**072107**
m	18.00	8.00	0.10 (kg)	**071103**
m	18.00	10.00	0.10 (kg)	**071104**
m	18.00	12.00	0.10 (kg)	**071105**
m	18.00	14.00	0.10 (kg)	**071106**

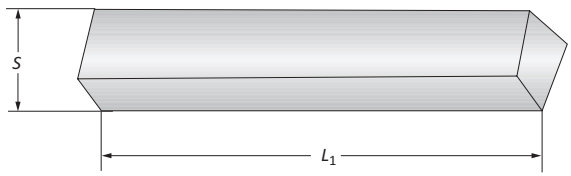


UPA 3 Boring Bar Holders

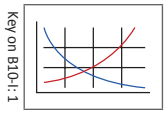
	Boring Bar Holder D_1	Boring Bar Holder L_1	Working Diameter Range	Designation	Part No.
i	0.750	3.228	3.346 - 7.480	BH 308	**076001**
i	0.750	4.724	6.299 - 10.236	BH 312	**076002**
m	18.00	82.00	85.00 - 190.00	BH 308	**075001**
m	18.00	120.00	160.00 - 260.00	BH 312	**075002**

UPA 3 Square Turning Bit

	Square Turning Bit D_1	Square Turning Bit L_1	Weight	Part No.
i	0.236	1.574	0.035 (oz)	**089001**
m	6.00	40.00	11 (g)	**089001**

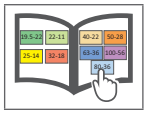


B10-M: 12-15



Key on B10-I: 1

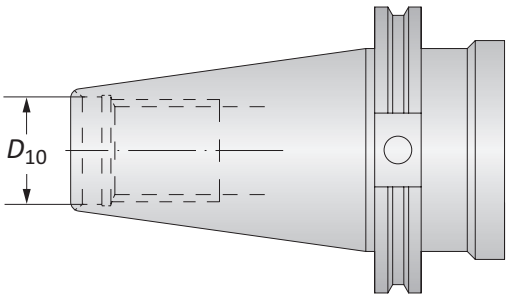
B10: vi-vii



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

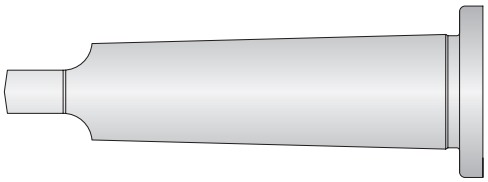
UPA 3 Master Shanks

CAT 40/50 | Morse Taper 40/50



CAT 40/50 Shanks

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

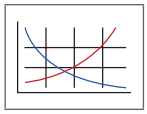


Morse Taper Shanks

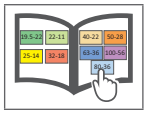
	Shank Style	Shank Weight	Part No.
i	MT 3	0.661 (lbs)	**130001T004509**
i	MT 4	1.212 (lbs)	**130001T003590**
i	MT 5	2.976 (lbs)	**130001T003920**
m	MT 3	0.30 (kg)	**130001T004509**
m	MT 4	0.55 (kg)	**130001T003590**
m	MT 5	1.35 (kg)	**130001T003920**

B10-M: 12-15

Key on B10-I: 1



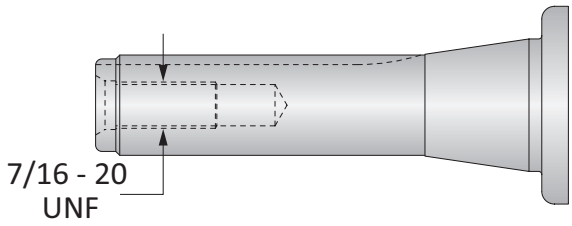
B10: vi-vii



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

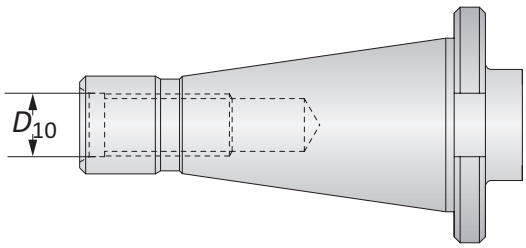
UPA 3 Master Shanks

R-8 | NMTB 40/50



R-8 Shanks

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



NMTB 40/50 Shanks

	Shank Style	D_{10}	Weight	Part No.
i	NMTB40	⅝ - 11	1.984 (lbs)	**130001T004498**
	NMTB50	1 - 8	5.798 (lbs)	**130001T004480**
m	NMTB40	⅝ - 11	0.90 (kg)	**130001T004498**
	NMTB50	1 - 8	2.63 (kg)	**130001T004480**

Differential Screw

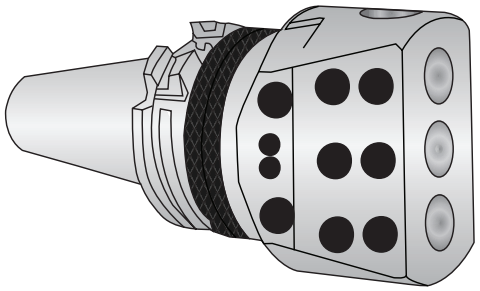
	Thread	Weight	Part No.
i	M16 x 2	0.066 (lbs)	**KW9208**
m	M16 x 2	0.03 (lbs)	**KW9208**

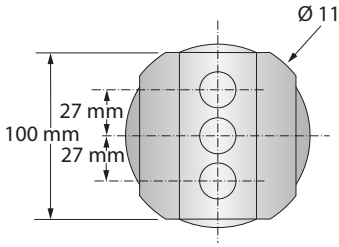
B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

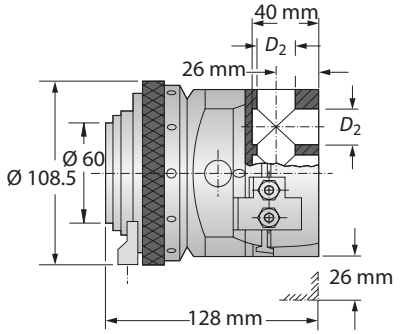
i = Imperial (in)
m = Metric (mm)

UPA 4 Boring Heads and Accessories

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

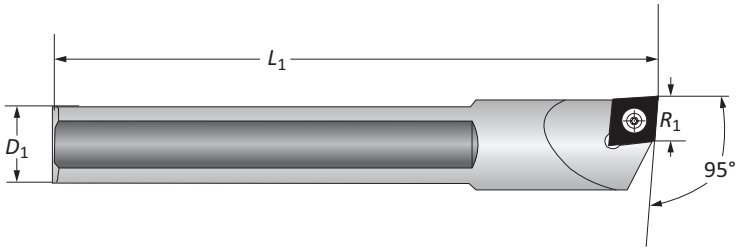






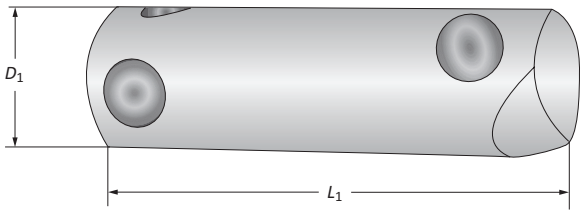
UPA 4 Boring Heads

	Boring Range	Boring Head 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 D_1	L_1	R_1	Weight	Cutting Direction	Insert Form	Part No.
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

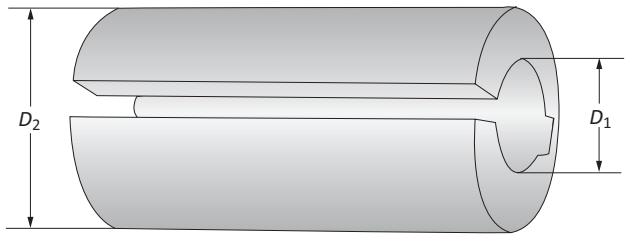
	Boring Bar D_1	L_1	Boring Depth	Designation	Part No.
i	0.875	3.346	1.771	B 408	**074006**
	0.875	4.921	3.346	B 412	**074007**
	0.875	6.496	4.921	B 416	**074008**
m	22.00	85.00	45.00	B 408	**073006**
	22.00	125.00	85.00	B 412	**073007**
	22.00	165.00	125.00	B 416	**073008**

B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

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

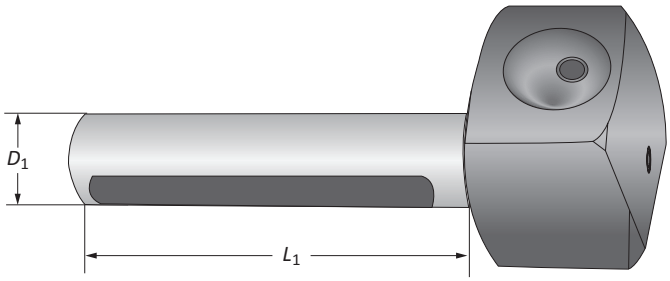
UPA 4 Accessories

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**

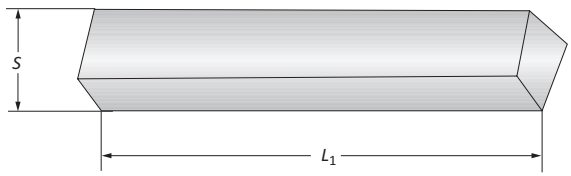


UPA 4 Boring Bar Holders

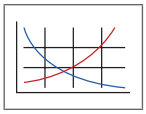
	Boring Bar Holder				
	D_1	L_1	Designation	Working Diameter Range	Part No.
i	0.875	3.858	BH 410	4.527 - 9.448	**076003**
	0.875	7.086	BH 418	8.661 - 15.748	**076004**
m	22.00	98.00	BH 410	115.00 - 240.00	**075003**
	22.00	180.00	BH 418	220.00 - 400.00	**075004**

UPA 4 Square Turning Bit

	Square Turning Bit			
	D_1	L_1	Weight	Part No.
i	0.236	1.574	0.035 (oz)	**089001**
m	6.00	40.00	11 (g)	**089001**

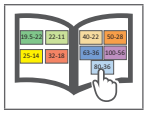


B10-M: 12-15



Key on B10-I: 1

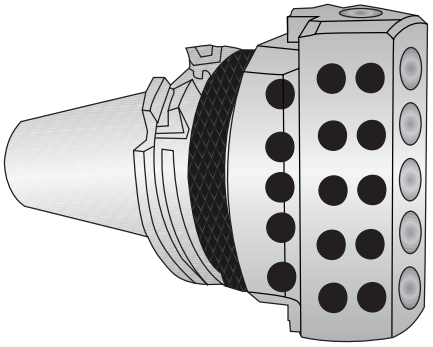
B10: vi-vii

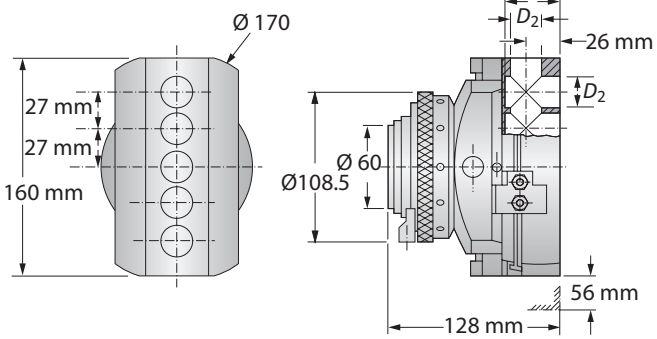


i = Imperial (in)
m = Metric (mm)

UPA 5-S 6 Boring Heads and Accessories

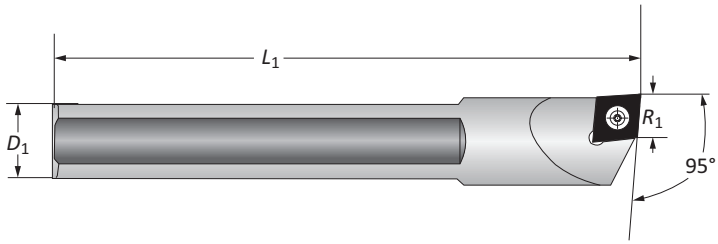
Diameter Range: 0.000" - 24.409" (0.00 mm - 620.00 mm)





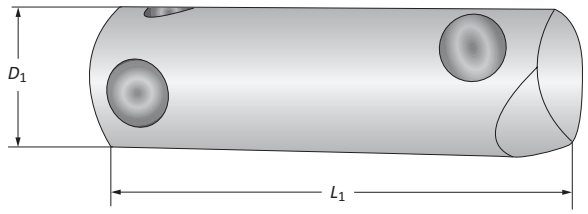
UPA 5-S 6 Boring Heads

	Boring Range	Boring Head D_2	Boring Head 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 D_1	L_1	R_1	Weight	Cutting Direction	Insert Form	Part No.
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

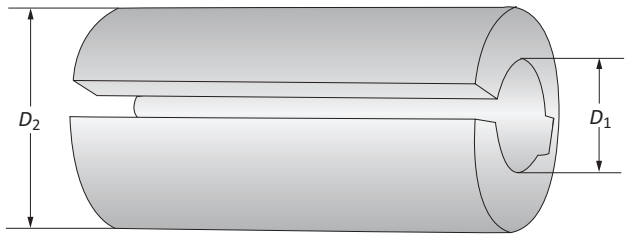
	Boring Bar D_1	L_1	Boring Depth	Designation	Part No.
i	0.875	3.346	1.771	B 408	**074006**
	0.875	4.921	3.346	B 412	**074007**
	0.875	6.496	4.921	B 416	**074008**
m	22.00	85.00	45.00	B 408	**073006**
	22.00	125.00	85.00	B 412	**073007**
	22.00	165.00	125.00	B 416	**073008**

B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

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

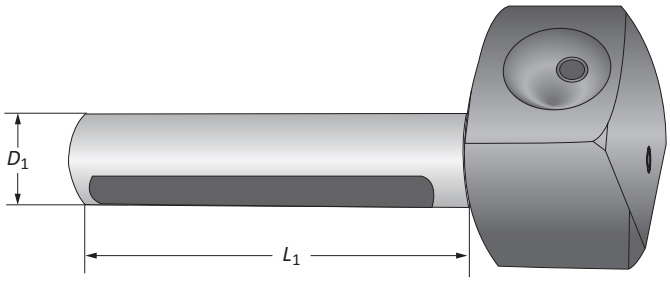
UPA 5-S 6 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 5-S 6 Reducing Sleeves

	Reducing Sleeve			
	D_2	D_1	Weight	Part No.
ⓘ	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**
ⓜ	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**

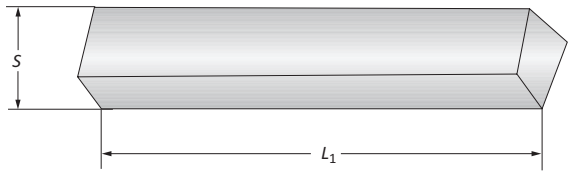


UPA 5-S 6 Boring Bar Holders

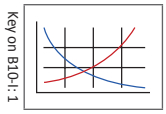
	Boring Bar Holder				
	D_1	L_1	Designation	Working Diameter Range	Part No.
ⓘ	0.875	5.039	BH 513	4.724 - 15.748	**076003**
ⓘ	0.875	9.055	BH 523	10.630 - 24.408	**076004**
ⓜ	22.00	228.00	BH 513	120.00 - 400.00	**075003**
ⓜ	22.00	230.00	BH 523	270.00 - 620.00	**075004**

UPA 5-S 6 Square Turning Bit

	Square Turning Bit			
	D_1	L_1	Weight	Part No.
ⓘ	0.236	1.574	0.035 (oz)	**089001**
ⓜ	6.00	40.00	11 (g)	**089001**

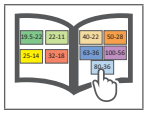


B10-M: 12-15



Key on B10-I: 1

B10: vi-vii



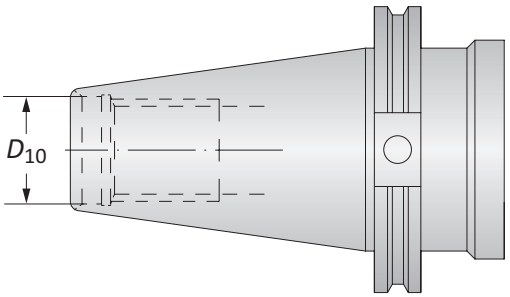
ⓘ = Imperial (in)
ⓜ = Metric (mm)

UPA 4 and 5-S 6 Master Shanks

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

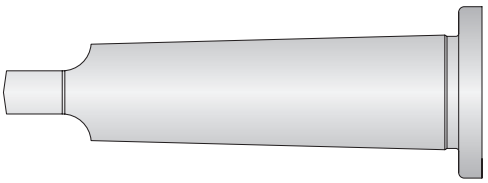
CAT 40/50 Shanks

	Shank Style	Shank D_{10}	Shank Weight	Part No.
i	CAT 40	⅝ - 11	3.196 (lbs)	**130005T013939**
i	CAT 50	1 - 8	7.054 (lbs)	**130005T011624**
m	CAT 40	M16 x 2	1.45 (kg)	**130005T016960**
m	CAT 50	M24 x 3	3.20 (kg)	**130005T016962**



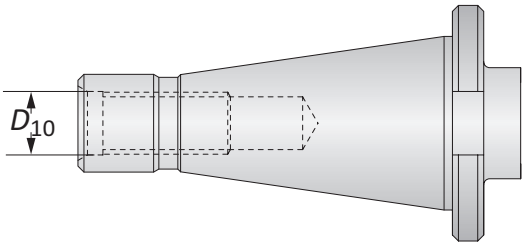
Morse Taper Shanks

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



NMTB 40/50 Shanks

	Shank Style	Shank D_{10}	Shank Weight	Part No.
i	NMTB40	⅝ - 11	2.866 (lbs)	**130005T004498**
i	NMTB50	1 - 8	6.393 (lbs)	**130005T004480**
m	NMTB40	⅝ - 11	1.30 (kg)	**130005T004498**
m	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**

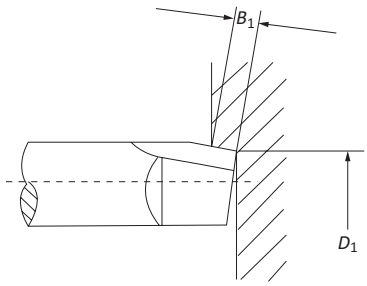
B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

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

Technical Information | Chip Production Values

Technical Data

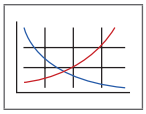
	Type	UPA 3	UPA 4	UPA 5-S 6
	Working accuracy	±0.005	±0.005	±0.005
	Diameter range	25.00	35.00	45.00
	MT shank	3.00	4.00	5.00
	ISO shank	30.00	40.00	40.00
	Facing and boring range	0.00 - 260.00	0.00 - 400.00	0.00 - 620.00
	Adjustment of slide (max)	48.00	52.00	112.00
	Self-activated feed of slide per 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

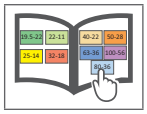
	Chip Cutting Guide	Type	UPA 3	UPA 4	UPA 5-S 6
	Max load	KW	2.50	7.00	9.50
	With slide feed	mm/rev.	0.050	0.08, 0.12, 0.24	0.08, 0.12, 0.24
	For smaller working Ø	D_1	60.00	150.00	200.00
ⓜ	Maximum width of chip	B_1	4.00	7.00, 6.00, 4.00	8.00, 7.00, 5.00
	Maximum working Ø	D_1	260.00	400.00	500.00 / 620.00
	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



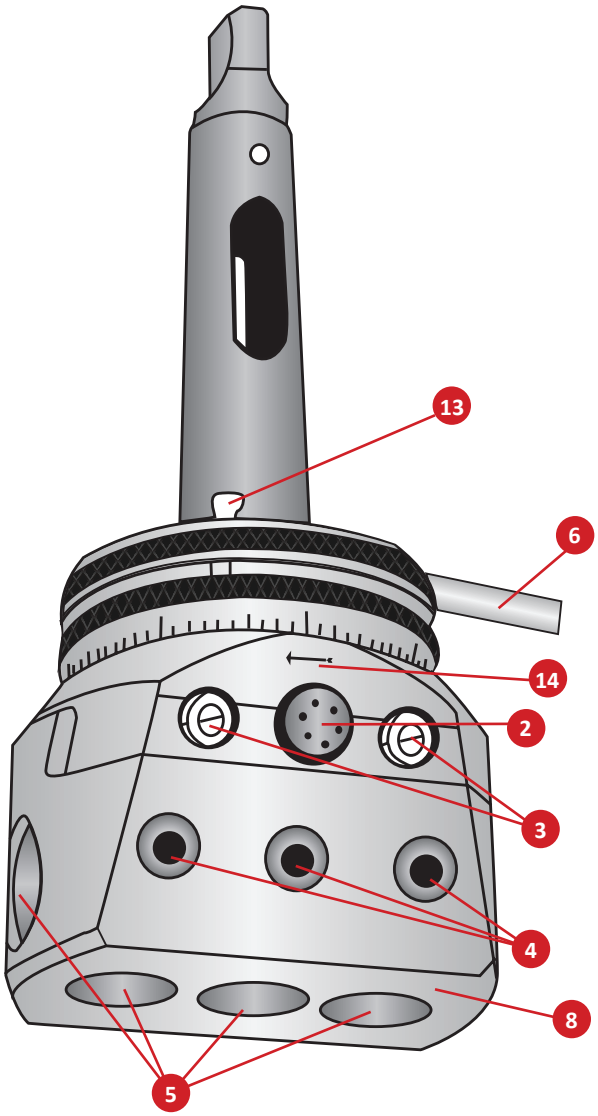
Key on B10-I: 1

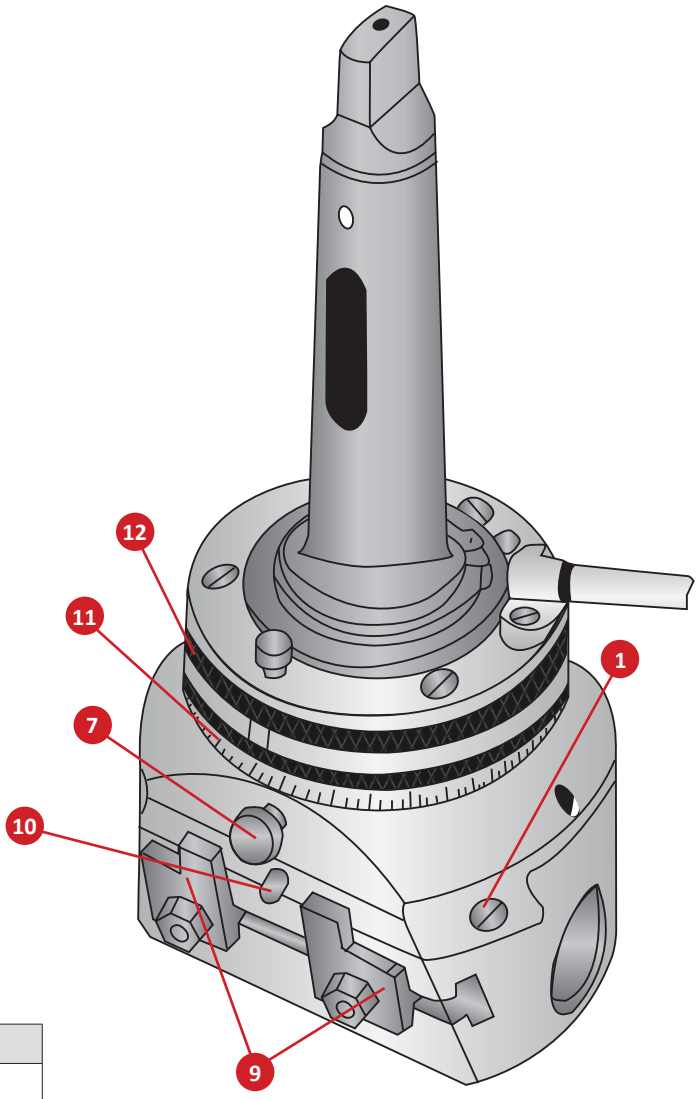
B10: vi-vii



ⓘ = Imperial (in)
ⓜ = Metric (mm)

UPA 3 Boring Head Diagram

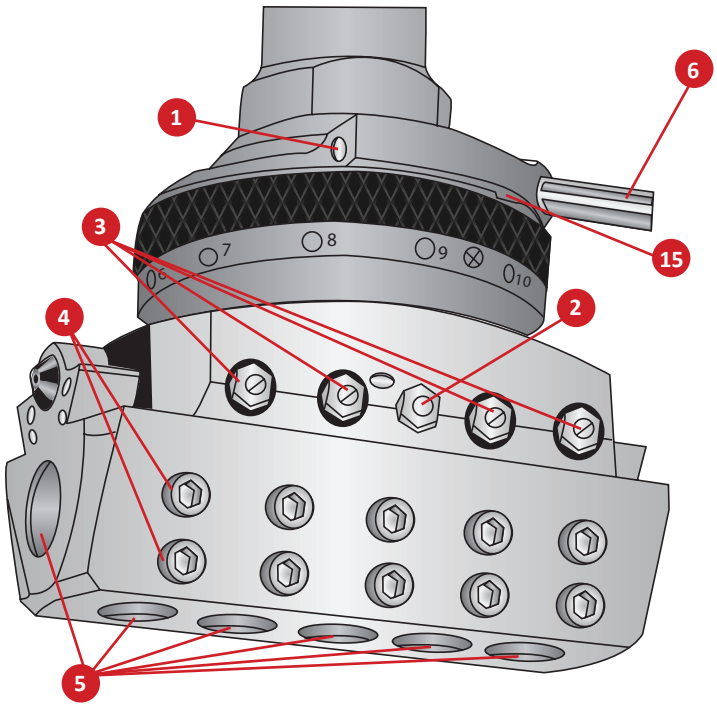


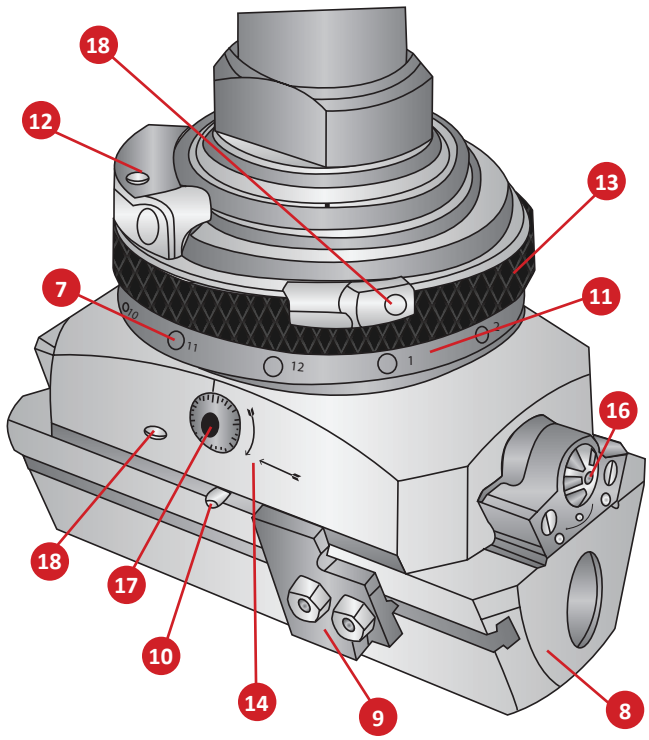


No.	Part	No.	Part
1	Regulating screw	8	Slide
2	Locking screw	9	Stop
3	Setting screws	10	Fixed pin
4	Fastening screw	11	Scale ring
5	Tool post holes	12	Holding ring
6	Stop rod	13	Button for return movement
7	Feed button	14	Arrow

B10-M: 12-15
Key on B10-I: 1
B10: vi-vii

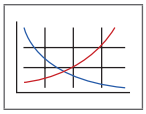
UPA 4 / 5-S 6 Boring Heads Diagram





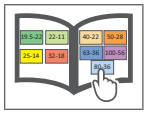
No.	Part	No.	Part
1	Regulating screw	10	Fixed pin
2	Locking screw	11	Scale ring
3	Setting screws	12	Retaining ring
4	Fastening screws	13	Feed ring
5	Tool post holes	14	Arrow
6	Stop rod	15	Recess
7	Feed buttons	16	Quick setting dial
8	Slide with rotation bores	17	Fine setting dial
9	Stop	18	Release ring

B10-M: 12-15



Key on B10-I: 1

B10: vi-vii



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: _____ (Lathe / Screw machine / Machine center / etc.)

Builder: _____ (Haas, Mori Seiki, etc.)

Model #: _____

Shank Required: _____ (CAT50 / Morse taper, etc.)

Power: _____ HP/KW

Thrust: _____ lbs/N

Rigidity:
- ☐ Excellent
- ☐ Good
- ☐ Poor

Orientation:
- ☐ Vertical
- ☐ Horizontal

Tool Rotating:
- ☐ Yes
- ☐ No

Coolant Information

Coolant Delivery: _____ (Through tool / Flood)

Coolant Pressure: _____ PSI / bar

Coolant Type: _____ (Air mist, oil, synthetic, water soluble, etc.)

Coolant Volume: _____ GPM / LPM

Requested Tooling

QTY	Item Number

QTY	Item Number

ALLIED MACHINE & ENGINEERING

Allied Machine & Engineering
120 Deeds Drive
Dover, OH 44622

Telephone: (330) 343-4283
Toll Free USA & Canada: (800) 321-5537
Fax: (330) 602-3400
Email: info@alliedmachine.com

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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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Deutschland | Österreich | Schweiz

Wohlhaupter GmbH
Maybachstraße 4
72636 Frickenhausen
Germany

Telefon:
+49 (0) 7022 408-0
Email:
info@wohlhaupter.de
Web:
www.wohlhaupter.com

Europa

Allied Machine & Engineering Co. (Europe) Ltd.
93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR England

Telefon:
+44 (0) 1384 400900
Email:
enquiries.eu@alliedmachine.com
Web:
www.alliedmachine.com

Vereinigte Staaten

Allied Machine & Engineering
120 Deeds Drive
Dover OH 44622
United States

Telefon:
+1 330 343 4283

Fax:
+1 330 602 3400

Allied Machine & Engineering
485 W Third Street
Dover OH 44622
United States

Telefon:
+1 330 343 4283

Fax:
+1 330 364 7666
(Engineering Dept.)

Asien

Wohlhaupter India Pvt. Ltd.
B-23, 2nd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Telefon:
+91 11 41827044

寶怡機械

台北: 02-27030193
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