



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

Universal Versatile Boring Heads Table of Contents

Introduction

UPA Product Overview 2 - 3

UPA 3 Boring System

UPA 3 Boring Heads and Accessories 4 - 5

UPA 3 Shanks 6 - 7

UPA 4 and 5s6 Boring System

UPA 4 Boring Heads and Accessories 8 - 9

UPA 5-S 6 Boring Heads and Accessories 10 - 11

UPA 4 and 5-S 6 Shanks 12

Technical Data and Chip Production Values 13

UPA Boring System Diagram 14 - 15

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

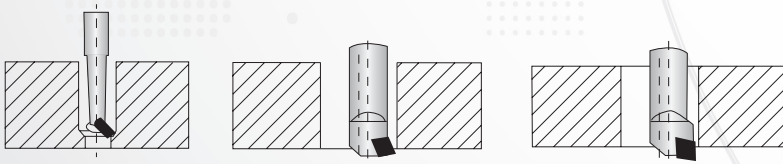
Universal Facing and Boring Heads

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.

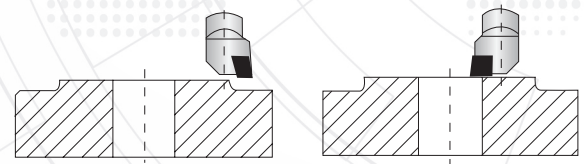
Precise and *versatile* boring heads.

- 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 and BORING Applications



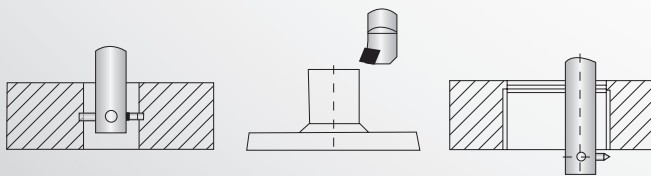
Boring with different tools



Facing

From inside outward

From outside inward



Recessing

Outside Turning

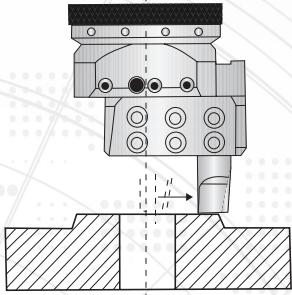
Thread Cutting



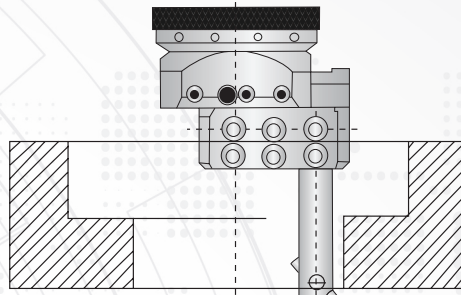
Taper Turning

UNIVERSAL

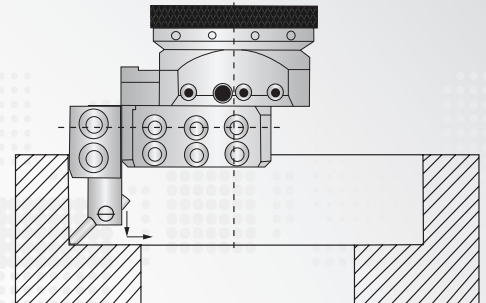
FACING and BORING Application Examples



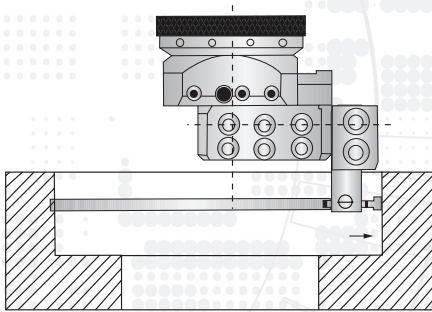
Facing with boring bar directly in slide



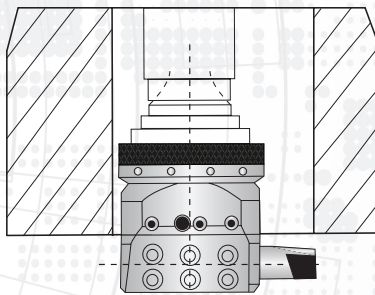
Boring with long boring bar



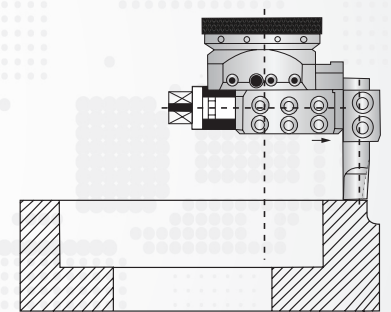
Boring and facing with short boring bar holder and a boring bar



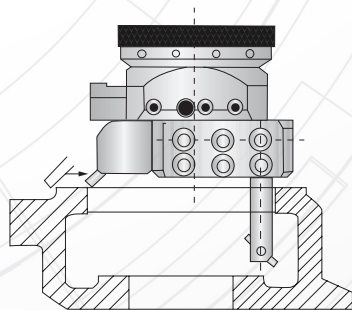
Recessing with short boring bar holder and a boring bar



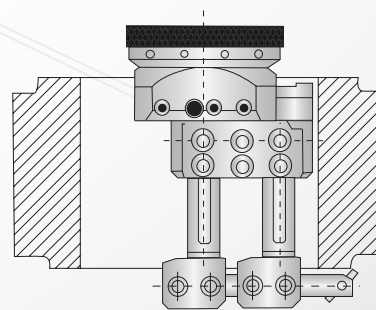
Deep hole boring with boring bar directly in slide



Large diameter facing with a long boring bar holder



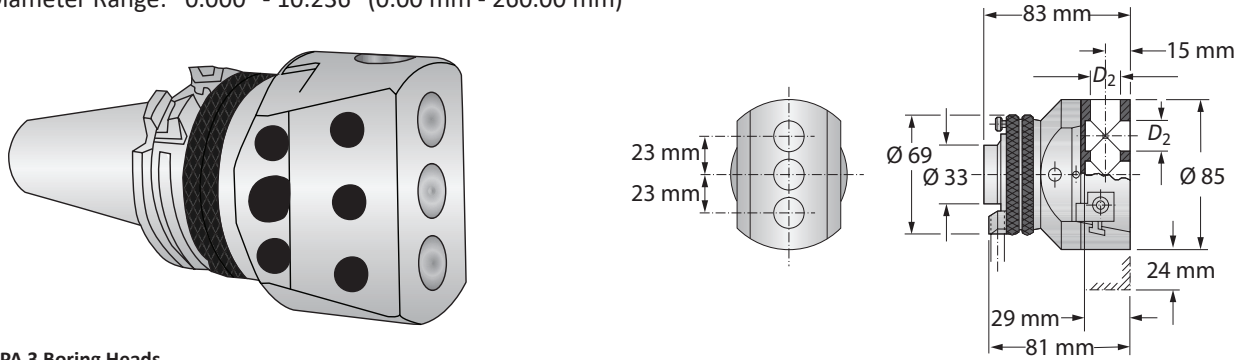
Facing in two areas with one boring bar and a boring bar holder



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

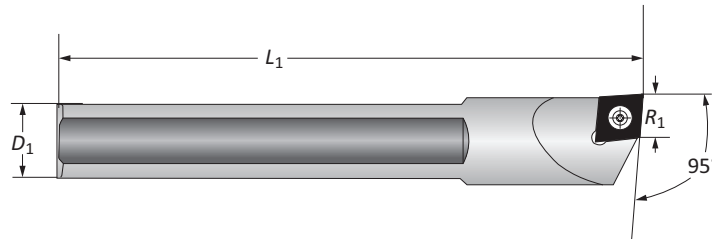
UPA 3 Boring Heads and Accessories

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



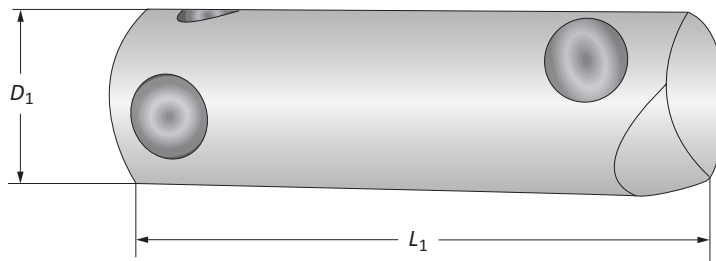
UPA 3 Boring Heads

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						
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

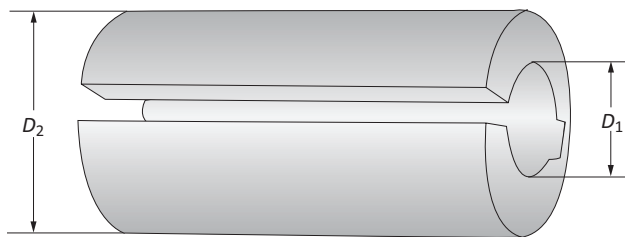
Boring Bar				
D_1	L_1	Boring Depth	Designation	Part No.
i 0.750	2.362	1.181	B 306	074003
0.750	3.543	2.362	B 309	074004
0.750	4.724	3.543	B 312	074005
m 18.00	60.00	30.00	B 306	073003
18.00	90.00	60.00	B 309	073004
18.00	120.00	90.00	B 312	073005

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



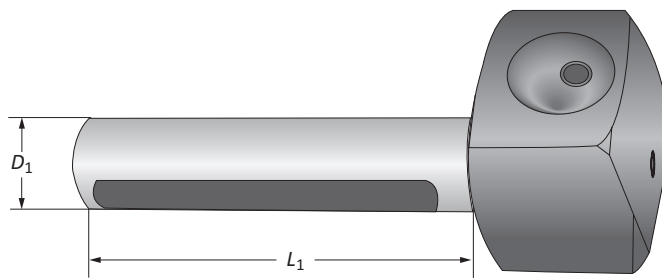
UPA 3 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 3 Reducing Sleeves

Reducing Sleeve			
	D_2	D_1	Weight
i	0.750	0.313	0.220 (lbs)
	0.750	0.375	0.220 (lbs)
	0.750	0.500	0.220 (lbs)
	0.750	0.625	0.220 (lbs)
m	18.00	8.00	0.10 (kg)
	18.00	10.00	0.10 (kg)
	18.00	12.00	0.10 (kg)
	18.00	14.00	0.10 (kg)

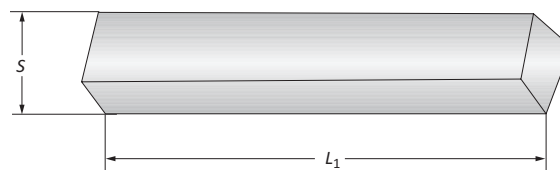


UPA 3 Boring Bar Holders

Boring Bar Holder				
	D_1	L_1	Working Diameter Range	Designation
i	0.750	3.228	3.346 - 7.480	BH 308
	0.750	4.724	6.299 - 10.236	BH 312
m	18.00	82.00	85.00 - 190.00	BH 308
	18.00	120.00	160.00 - 260.00	BH 312

UPA 3 Square Turning Bit

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

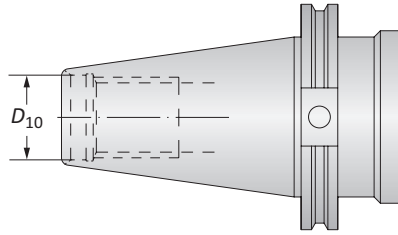


i = Imperial (in)
m = Metric (mm)

A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX

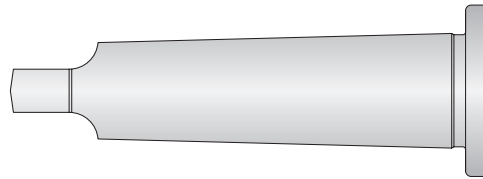
UPA 3 Master Shanks

CAT 40/50 | Morse Taper



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



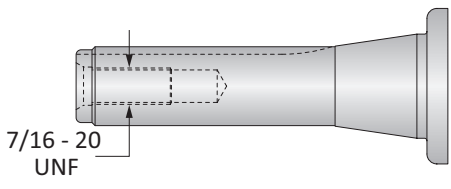
Morse Taper Shanks

		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)

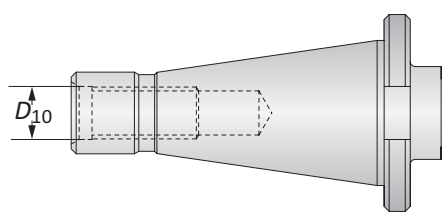
UPA 3 Master Shanks

R-8 | NMTB 40/50



R-8 Shanks

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



NMTB 40/50 Shanks

	Style	Shank D_{10}	Weight	Part No.
i	NMTB40	$\frac{5}{8}$ - 11	1.984 (lbs)	130001T004498
	NMTB50	1 - 8	5.798 (lbs)	130001T004480
m	NMTB40	$\frac{5}{8}$ - 11	0.90 (kg)	130001T004498
	NMTB50	1 - 8	2.63 (kg)	130001T004480

Differential Screw

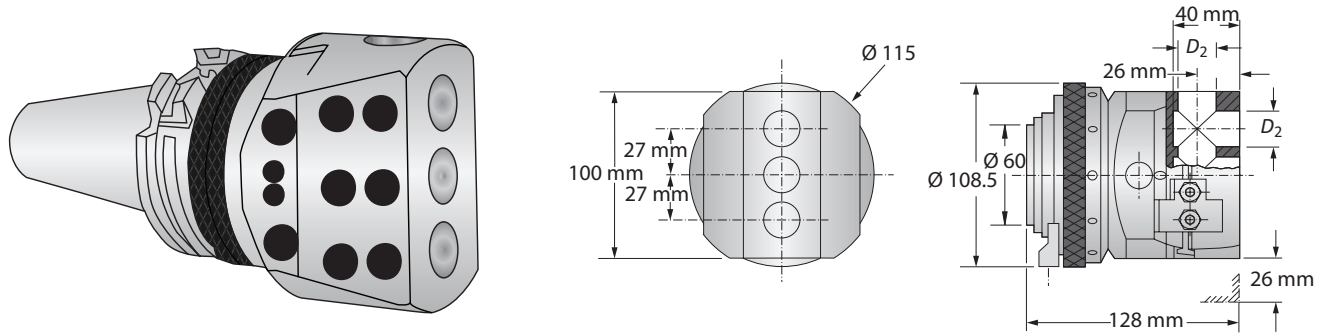
	Thread	Weight	Part No.
i	M16 x 2	0.066 (lbs)	KW9208
m	M16 x 2	0.03 (kg)	KW9208

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

A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX

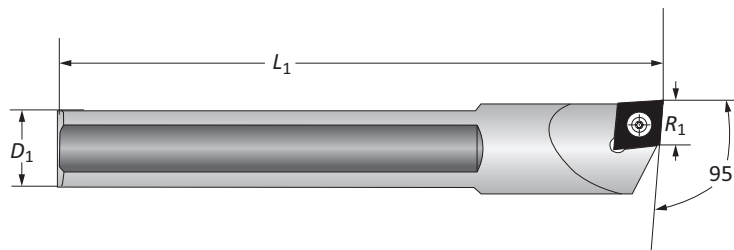
UPA 4 Boring Heads and Accessories

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



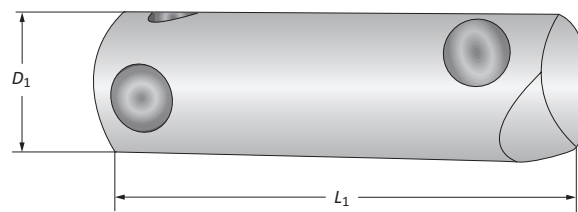
UPA 4 Boring Heads

		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					
	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



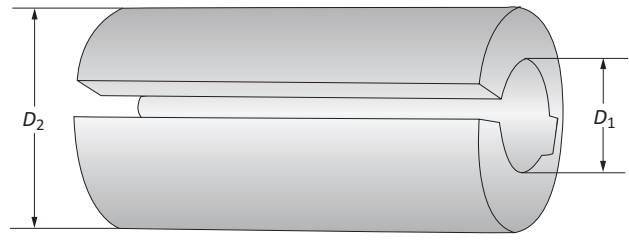
UPA 4 Boring Bars

		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

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

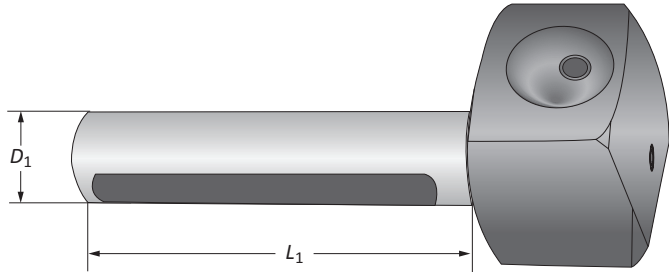
UPA 4 Accessories

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

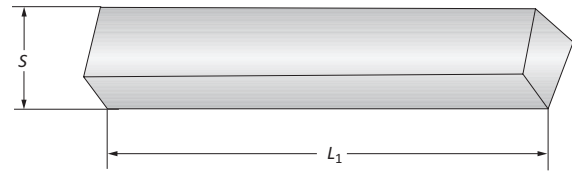


UPA 4 Boring Bar Holders

		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		
	S	L_1	Weight	Part No.
i	0.236	1.574	0.035 (oz)	089001
m	6.00	40.00	11 (g)	089001

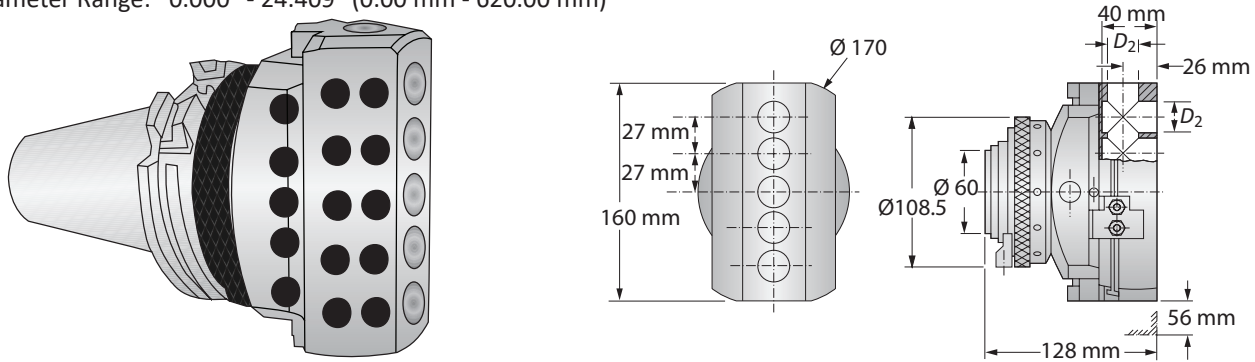


i = Imperial (in)
m = Metric (mm)

A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX

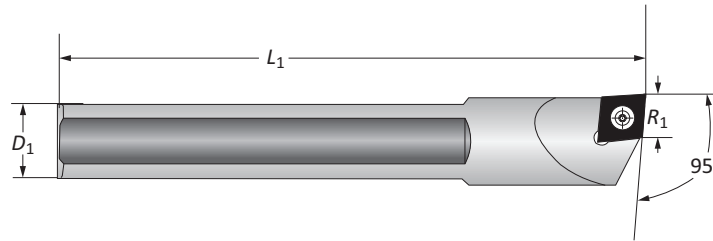
UPA 5-S 6 Boring Heads and Accessories

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



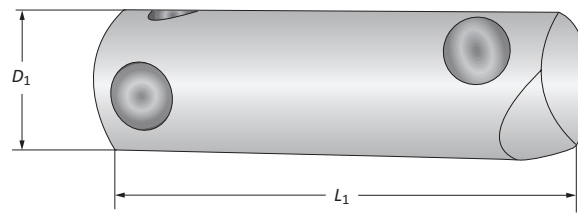
UPA 5-S 6 Boring Heads

		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					
	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



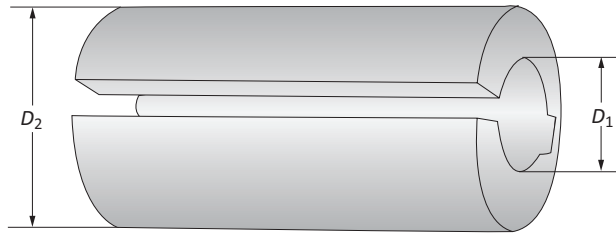
UPA 5-S 6 Boring Bars

		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	

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

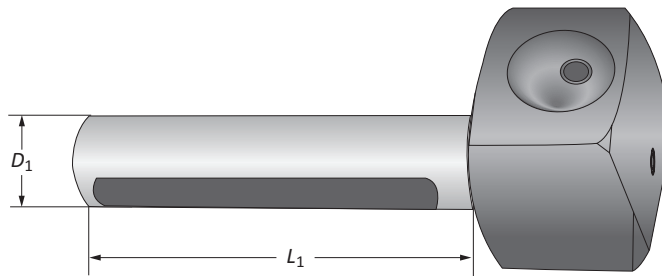
UPA 5-S 6 Accessories

Reducing Sleeves | Boring Bar Holders



UPA 5-S 6 Reducing Sleeves

		Reducing Sleeve			
		D_2	D_1	Weight	Part No.
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

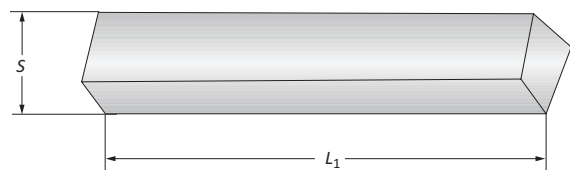


UPA 5-S 6 Boring Bar Holders

		Boring Bar Holder				
		D_1	L_1	Designation	Working Diameter Range	Part No.
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			
		S	L_1	Weight	Part No.
i		0.236	1.574	0.035 (oz)	089001
m		6.00	40.00	11 (g)	089001



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

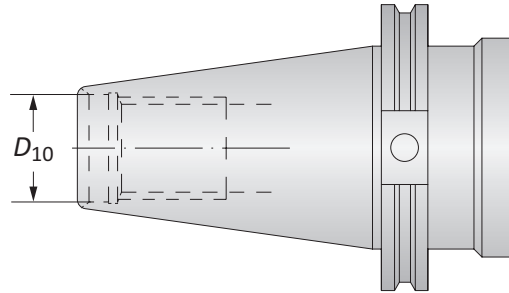
A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX

UPA 4 and 5-S 6 Master Shanks

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

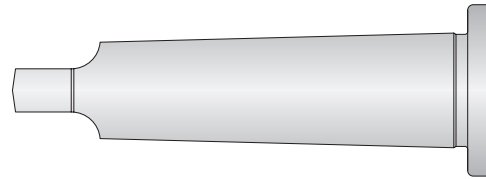
CAT 40/50 Shanks

		Shank		
	Style	D_{10}	Weight	Part No.
i	CAT 40	5/8 - 11	3.196 (lbs)	130005T013939
	CAT 50	1 - 8	7.054 (lbs)	130005T011624
m	CAT 40	M16 x 2	1.45 (kg)	130005T016960
	CAT 50	M24 x 3	3.20 (kg)	130005T016962



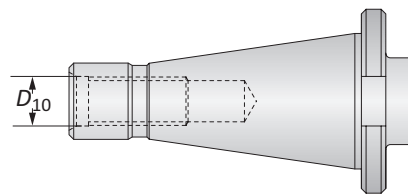
Morse Taper Shanks

		Shank		
	Style		Weight	Part No.
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		
	Style	D_{10}	Weight	Part No.
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

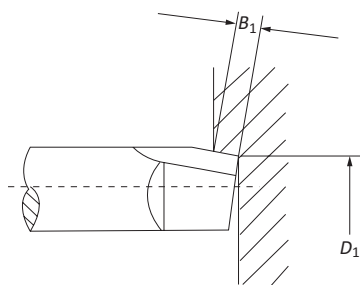
	Thread	Weight	Part No.
i	M20 x 2.5	0.154 (lbs)	KW9209
m	M20 x 2.5	0.07 (lbs)	KW9209

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
m 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

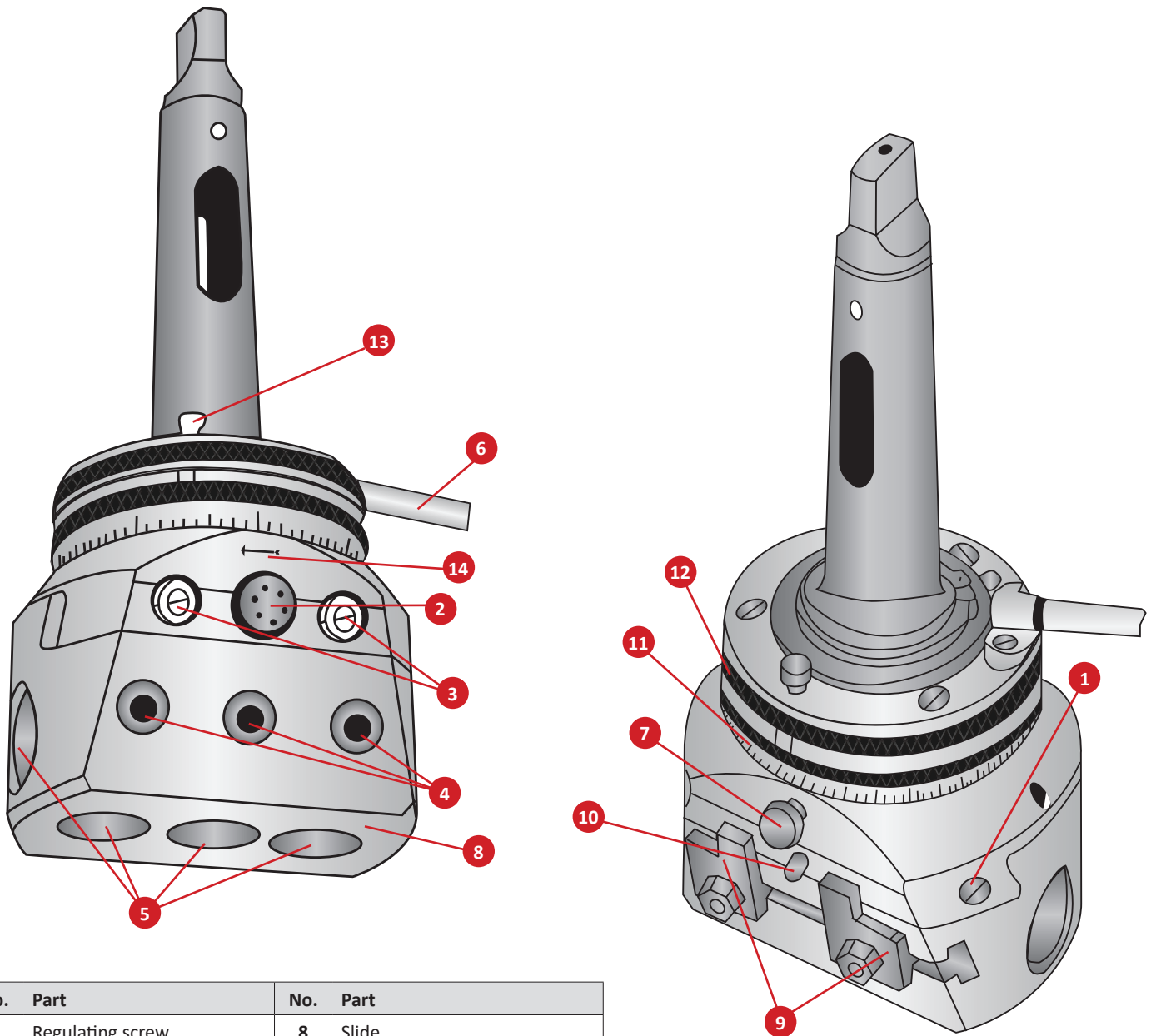
Chip Cutting Guide	Type	UPA 3	UPA 4	UPA 5-S 6
Max load	KW	2.50	7.00	9.50
With slide feed	mm/rev.	0.050	0.08, 0.12, 0.24	0.08, 0.12, 0.24
For smaller working \varnothing	D_1	60.00	150.00	200.00
m Maximum width of chip	B_1	4.00	7.00, 6.00, 4.00	8.00, 7.00, 5.00
Maximum working \varnothing	D_1	260.00	400.00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

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

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

A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX

UPA 3 Boring Head Diagram

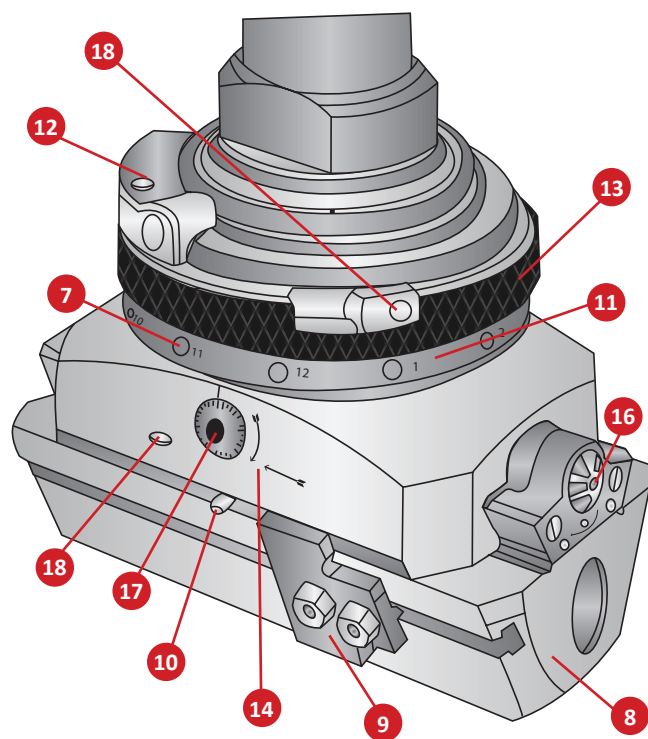
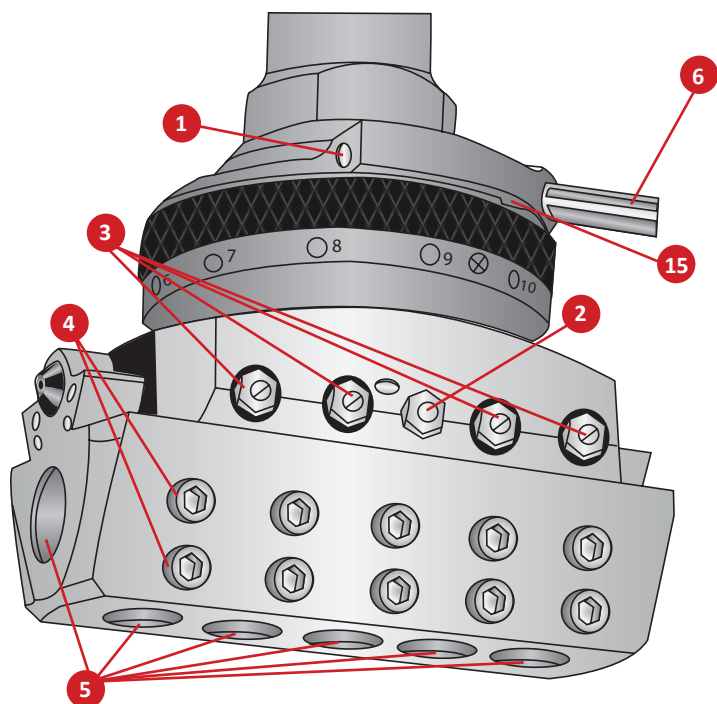


No.	Part	No.	Part
1	Regulating screw	8	Slide
2	Locking screw	9	Stop
3	Setting screws	10	Fixed pin
4	Fastening screw	11	Scale ring
5	Tool post holes	12	Holding ring
6	Holding rod	13	Button for return movement
7	Feed button	14	Arrow

A
B
C
D
E
F
G
H
I
J
K
L
M
INDEX



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	Holding rod	15	Recess
7	Feed buttons	16	Quick setting dial
8	Slide with rotation bores	17	Fine setting dial
9	Stop	18	Release ring

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

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
 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

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.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Allied Machine shall have no liability or responsibility for any claim, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of any product sold hereunder, in excess of the cost of replacement or repair as provided herein.

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.

ALL PRICES, DELIVERIES, DESIGNS, AND MATERIALS ARE SUBJECT TO CHANGE WITHOUT NOTICE.



Allied Machine & Engineering
is registered to
ISO 9001:2015 by DQS



Wohlhaupter GmbH
is registered to
ISO 9001:2015 by QA TECHNICH

United States

Allied Machine & Engineering

120 Deeds Drive
Dover OH 44622
United States

Phone:
+1.330.343.4283

Fax:
+1.330.602.3400

Toll Free USA and Canada:
800.321.5537

Toll Free USA and Canada:
800.223.5140

Allied Machine & Engineering

485 W Third Street
Dover OH 44622
United States

Phone:
+1.330.343.4283

Fax:
+1.330.364.7666
(Engineering Dept.)

Toll Free USA and Canada:
800.321.5537

Europe

Allied Machine & Engineering Co. (Europe) Ltd.

93 Vantage Point
Pensnett Estate
Kingswinford
West Midlands
DY6 7FR England

Phone:
+44 (0) 1384.400900

Wohlhaupter GmbH

Maybachstrasse 4
Postfach 1264
72636 Frickenhausen
Germany

Phone:
+49 (0) 7022.408.0

Fax:
+49 (0) 7022.408.212

Asia

Wohlhaupter India Pvt. Ltd.

B-23, 3rd Floor
B Block Community Centre
Janakpuri, New Delhi - 110058
India

Phone:
+91 (0) 11.41827044

Your local Allied Machine representative:

www.alliedmachine.com

Allied Machine & Engineering is registered to **ISO 9001:2015** by DQS
Wohlhaupter GmbH is registered to **ISO 9001:2015** by QTA TECHNIC

