



Tube & Pipe
Beveling Machines
Catalog



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Complete set of tools

The all new range of KRAIS O.D. clamp bevelling machines and I.D. clamp SFSF split frame clamshells delivers maximum power and performance for fast, accurate weld preps on pipes and tubes ranging from ½" I.D. up to 36" O.D. (12,7 – 914 mm) for I.D. clamp machines and from 2" up to 48" (60-1220 mm) for O.D. clamp machines depending on the model and configuration.

Cutting, facing, bevelling and counter boring preparations are possible on all machinable alloys including stainless steel, duplex, super duplex, inconel and other alloys.

Seal and strength weld removal applications for heat exchangers and boilers are the primary focus of our machining technology. The rugged design features a selfaccepting torque system with self-centering inner clamping which allows one skilled operator to make end preps quickly and safely, avoiding the slow and arduous process of grinding. The in-house manufactured pneumatic drives are resilient and powerful. The carefully selected quality european bearings ensure great support to the drive shaft, right angle gear assembly and cutter head. This provides rigidity and unparalleled stability.



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› Whole range of applications



Bevelling for window welds

.....
Tubes and pipes bevelling

.....
Counterboring

.....
Pipe ends cut-off



MAXIMUM POWER

.....
End prepping of high chrome tubes

.....
End prepping of super duplex pipes

.....
Fin fan tubes facing

ACCURATE WELD PREPS



.....
Tube or pipe flat facing

.....
High speed bevelling

.....
Tube high speed facing



.....
J-preps

.....
Membrane and weld overlay removal

.....
Stainless clad tubes peel back



SELF CENTERING



.....
Removing Inconel & Stainless clad tubes

.....
Tube seal weld removal

.....
Tube sheet seal weld removal



.....
Tube sheet strength weld removal

.....
Tube plug removal

.....
Tube stub removal

Other KRAIS tools – download full catalog from website > krais.com/download

› **900 Series Expanders**
RANGE: 1/4 ÷ 3/8" | 6,35 ÷ 9,5 MM



› **800 Series Expanders**
RANGE: 1/2 ÷ 1-1/2" | 12,7 ÷ 38,1 MM



› **KS Boiler Tube expanders**
RANGE: 1" (25,4 MM) ÷ 4" (101,6 MM)



› **K70 Pneumatic Right Angle Rolling Motor**
29,50 ÷ 324,50 FT-LB | 40 ÷ 440 NM



› **K50 PushPull Pneumatic Rolling Motors**
RANGE: 5/8 ÷ 1" | 15,8 ÷ 25,4 MM



› **UCBR Expanders**
RANGE: 2 ÷ 3" | 50,8 MM (76,2 MM)



› **PZ Boiler Tube Expanders**
RANGE: 1 ÷ 4" | 25,4 ÷ 101,6 MM



› **1200 Series Expanders**
RANGE: 1/2 ÷ 1-1/2" | 12,7 ÷ 38,1 MM



› **8012 Series Expanders**
RANGE: 1-3/4 ÷ 3" | 44,4 ÷ 76,2 MM



› **P2 Boiler Tube Expanders**
RANGE: 1-1/4 ÷ 3" | 31,7 ÷ 76,2 MM



› **Boiler Accessories**
WIDE RANGE OF TOOLS



› **800-5 Series Expanders**
RANGE: 5/8 ÷ 1-1/2" | 15,8 ÷ 38,1 MM



› **1200-5 Series Expanders**
RANGE: 3/4 ÷ 1-1/2" | 19 ÷ 38,1 MM



› **3WTTT Wheel Type Boiler Tube Cutters**
RANGE UP TO: 5" | 127 MM



› **F-600 Flare Type Expanders**
RANGE: 5/8 ÷ 1" | 15,8 ÷ 25,4 MM



› **1300 Series Expanders**
RANGE: 3/8" | 9,5 MM



› **K20 Pneumatic Rolling Motors**
RANGE: 5/8 ÷ 1" | 15,8 ÷ 25,4 MM



› **WTTT Series Tube Cutters**
RANGE: 3/8" (9,5 MM)



› **K77 Pneumatic Right Angle Rolling Motor**
147,50 ÷ 1073 FT-LB | 200 NM ÷ 1455 NM



› **TES-3000**
DIGITAL TUBE EXPANSION SYSTEM



› **K60 Pneumatic Rolling Motors**
1-1/2 ÷ 2-1/2" | 38,1 ÷ 63,5 MM

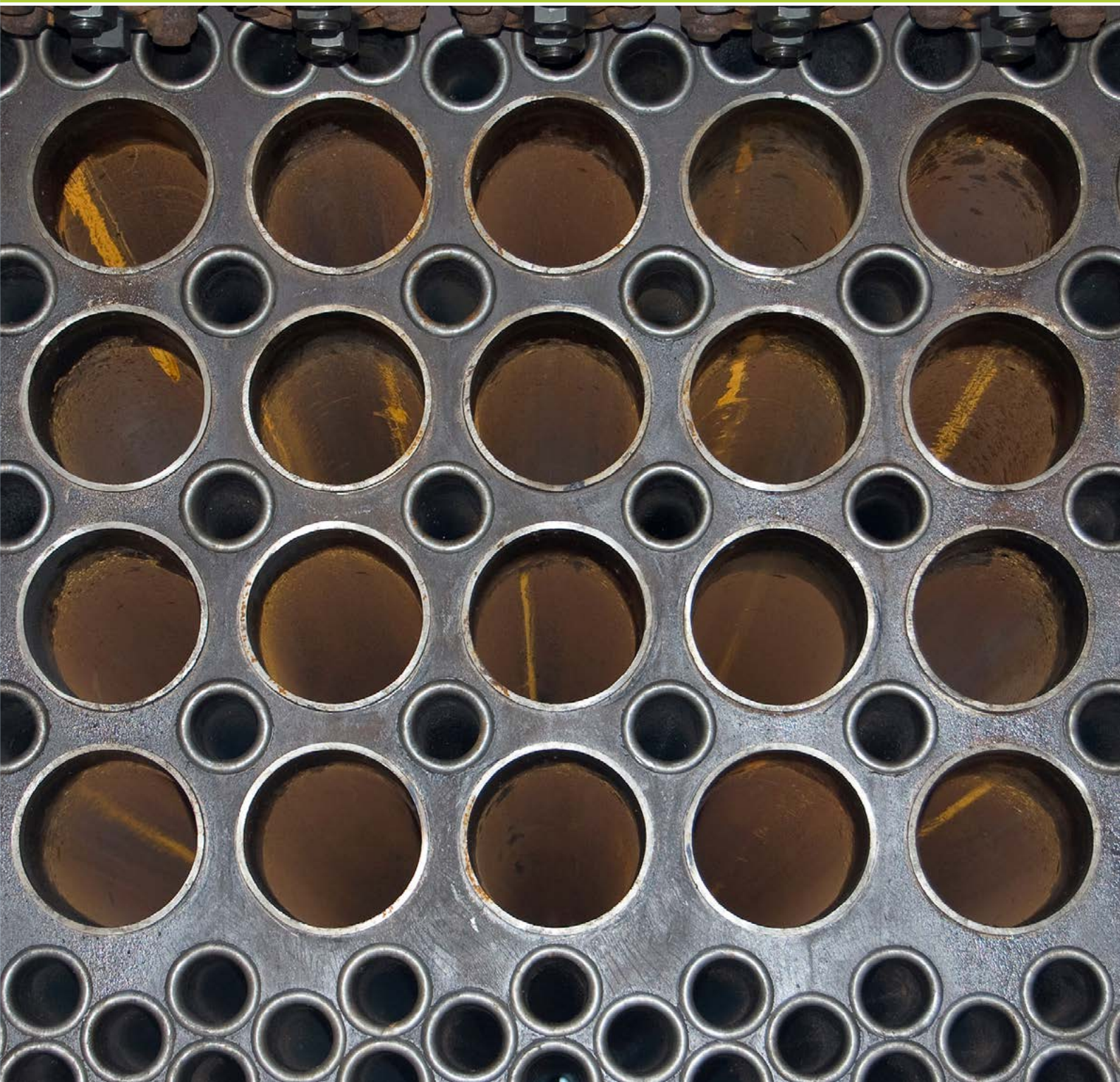


› **TES Mini 2**
COMPACT DIGITAL EXPANSION SYSTEM



PART ONE

ID CLAMPING TOOLS



Complete set of addons

KRAIS SPECIALIZED TUBE MILLING HEADS



In order to increase the boiler and heat exchanger work efficiency, we have designed and manufactured milling heads for various purposes. Our offer includes heads for strength and seal weld removal, membrane removal, facing, bevelling, fin fan cooler facing or weld removal and many more, all of which can be found in this catalogue. In the case you do not find the head for your application, let us know and we can design it for you.

FAST CLAMPING SYSTEM



The fast pneumatic clamping system (optional) is ideal for manufacturing plants that make large amounts of end preps on tubes and pipes. It offers rapid tube to tube cycle time, increased productivity with little operator fatigue. The system can be used for tube facing on condensers and heat exchangers, boiler tube panel fabrication, seal weld removal.

SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.



HYDRAULIC POWERPACK



Our hydraulic Powerpack ensure reliable power for our SFSF Clamshells. Featuring a powerful electric motor the system provides adjustable volume, constant low pressure and responsive pumps. This adds up to optimum power delivery as required by clamshells that are designed to machine a wide range of pipe sizes and materials.

COMES WITH A COMPLETE SET



The machines are shipped complete with a standard cutting head, a mandrel kit with full set of jaws, a hose with couplings, an instructions manual, operating tools and a rugged metal carrying case.

MULTIFEED MM



Practical and easy to use multi feed system with Star Wheel and build in ratchet mechanism and handle.

SPEED REDUCING GEARBOX

The optional speed reducer can be used for seal and strength weld removal applications. Inconel, duplex, super duplex and other hard to machine alloys can be machined with ease. The reduction of speed by a factor of 3 increases the torque, enabling the machine to generate a thick chip whilst reducing the cutting time. This combination increases the lifespan of the components significantly and reduces cutting time. The gear box can be purchased separately. Installation is easy: just remove the angle head from the drive and install the reduction assembly.



MiniShaft. How to proper lock

For: MiniMill 101, MiniMill 200, MiniMill 300LP and Auto MiniMill with MiniShaft.

In order to obtain the best possible centering of the MiniMill into the faced, bevel or weld removal tube, we recommend to select the shaft with diameter closest possible to the inner diameter of tube.

MINISHAFTS SHAFTS NUMBERS

TUBE OD	TUBE GAUGE	SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
3/4"	11	901 MM#151	12,40	0,492	DW-11
	11	911 MM#151	12,60	0,496	DW-11
	12	912 MM#151	13,20	0,519	DW-11
	13	905 MM#151	13,90	0,547	DW-12,5
	14	914 MM#151	14,50	0,570	DW-12,5
	15	9151 MM#151	15,10	0,594	DW-12,5
	16	916 MM#151	15,50	0,610	DW-12,5
	17	917 MM#151	15,80	0,622	DW-12,5
	18	918 MM#151	16,30	0,641	DW-15,5
	20	909 MM#151	16,80	0,661	DW-15,5
7/8"	10	9151 MM#151	15,10	0,594	DW-12,5
	11	917 MM#151	15,70	0,622	DW-12,5
	12	922 MM#151	16,40	0,645	DW-15,5
	13	923 MM#151	17,10	0,673	DW-15,5
	14	924 MM#151	17,70	0,696	DW-15,5
	15	925 MM#151	18,30	0,700	DW-15,5

TUBE OD	TUBE GAUGE	SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
7/8"	16	926 MM#151	18,60	0,732	DW-15,5
	18	928 MM#151	19,50	0,767	DW-15,5
1"	8	909 MM#151	16,80	0,661	DW-15,5
	9	938 MM#151	17,50	0,688	DW-15,5
	10	925 MM#151	18,30	0,700	DW-15,5
	11	931 MM#151	19,00	0,748	O-16
	12	932 MM#151	19,60	0,771	O-16
	13	915 MM#151	20,00	0,787	O-17
	14	934 MM#151	20,90	0,822	O-17
	16	936 MM#151	21,80	0,858	O-17
18	938 MM#151	22,60	0,889	O-7	

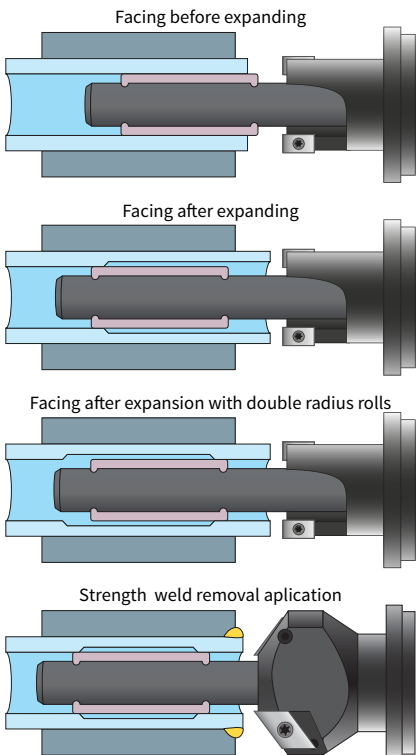
We do offer non-standard size and non-standard shaped jaws upon receiving a drawing of the tube expansion details. **As standard the machine is equipped with 3 shafts with numbers 901, 905 and 909MM#151.**

If the shaft is too thin it is exposed to large probability that the MiniMill will be installed non parallel to the axis of the tube. As well as the jaws may not fully grip the tube with its full face but with the corners only, and will result a non-square face of the tube to the tube sheet as well as there is a big probability that it may result the breaking of guide shaft as the machine might be forced into strong vibration what may created a sudden collision with tube or tube sheet. We strongly recommend to look on this, specially for tubes 3/4" O.D.

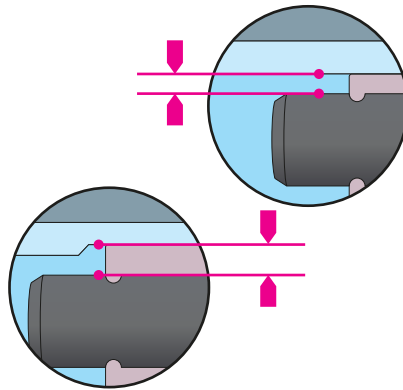
Important note!

The guide shafts in the chart are selected for non-expanded tubes. If the tubes are expanded, a different, bigger diameter shaft has to be considered. As well as the contact length of the locking jaws has to be shorter than the length of the effective expansion length. It is unacceptable if the jaws are longer than the expansion and lock only partially on non-expanded part of tube. In that circumstances the locking jaws must be shaped to be able to lock only on the expanded part of the tube.

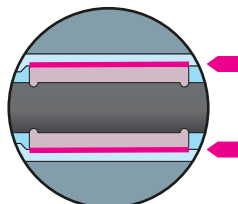
✘ WRONG JAWS SETUP



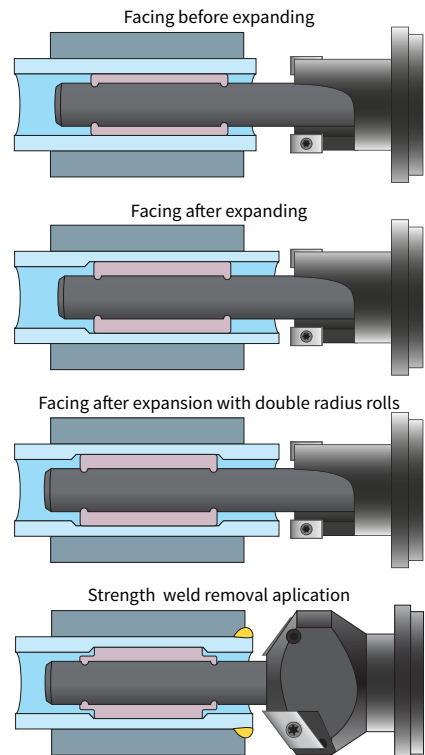
❗ **Correct gap**
between shaft and tube ID
(should be max 0,3 mm)



❗ **Correct jaws mounting**
(contact over the entire surface)



✔ CORRECT JAWS SETUP



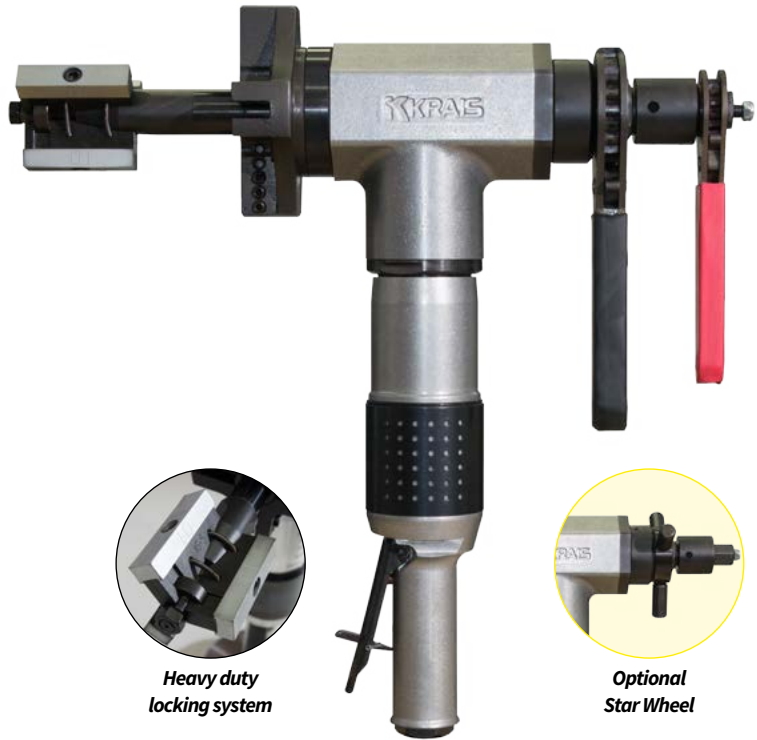
PrepMill

Signature beveler for boiler-works. Built to last!

The PrepMill series pneumatic tube facing, bevelling and weld removal machine. The PrepMill is a rugged, fast, portable weld end preparation lathe for various tubes including stainless steel and other high chromium alloys. Machine is constructed on two opposite set up taper roller bearings that makes the machine extremely stable and very rigid and compact. A standard machine is equipped to cover 25 to 122 mm ID (1" to 4,8") with a 116 mm cutter head.

Key features

- heavy duty rigid and powerful yet compact,
- heavy duty ratchet handles for feeding and locking,
- easy to lock rigidly into tube and makes continuous clean chips without lubricant,
- simultaneous bevel-face-bore machining,
- torque free operation,
- low maintenance and no special training is required.



STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	STANDARD LOCKING	FEED STROKE	FREE SPEED	POWER	TORQUE
20 – 127 mm	25 – 122 mm	25 mm	120 Rpm	1,3 Hp	140 Nm
0,787 – 5,000"	1,000 – 4,800"	1,000"			105 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Weld removal

Air use:	55 cfm	1,3 m³/min	Body width:	2,59"	66 mm	Body height:	14,5"	370 mm	Body weight:	20,5 Lbs	9,5 kg
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PREPMILL-E

PrepMill-E is electric version of PrepMill. A standard machine can cover the same pipe sizes and comes with the same cutting head. The electric motor made by FLEX with 3 stage planetary gear box made by KRAIS has variable speed control and produce enormous torque. Is interchangeable with pneumatic drive and can be purchased separately at any time.

Free Speed 120 RPM
 Power 1500 W
 Torque 360 Nm (266 Ft.Lbs)
 Feed Stroke 25 mm (1")



AVAILABLE SHAFTS



SHAFTS 20/25
 Redesigned heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force. The jaws are self-align.

BACKLASH COMPENSATOR



This enables you to make the backlash compensation between shaft spline and the feed spline to ensure the machine is completely chatter free. See manual for instructions.

SPEED REDUCER



Optional Speed Reducer can be used for seal and strength weld removal applications including duplex, super duplex and other hard to machine alloys.

UNIVERSAL CUTTER HEADS



OPTIONAL SPECIALIZED CUTTER HEADS



PRRBMH
Membrane removal heads and overlay removal heads efficiently remove material from between boiler tubes.
TABLE PAGE 55

STWRPM
Custom designed head dedicated for strength weld removal. Heads are sized per tube diameter.
TABLE PAGE 56

OBPM
Head for outside bevelling of both tubes and pipes. Sized per tube or pipe diameter and angle of required weld bevel.
TABLE PAGE 55



TFPM
A tube facing milling head for facing tubes made of any type of material. Utilizes 6% cobalt inserts.
TABLE PAGE 56

HEAD FLANGE



Optional Flange to adapt all MiniMill's special cutter head (from size 1-1/2" up)

PNEUMATIC CLAMPING SYSTEM



Perfect accessory for manufacturing plants with high volumes of end preps on tubes and pipes. It offers rapid tube to tube cycle time, increased productivity with minimal operator fatigue. This optional system can be used for tube facing on condensers and heat exchangers, boiler tube panel fabrication, seal weld removal.

LOCKING RANGES WITH STANDARD SHAFT25 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NR	QTY.
25	30	0,984	1,181	NS-1	-	SP-24	1
30	35	1,181	1,378	NS-2	-	SP-24	1
35	40	1,378	1,575	NS-3	-	SP-25	2
40	45	1,575	1,772	NS-4	-	SP-25	2
45	50	1,772	1,969	NS-5	-	SP-25	2
50	55	1,969	2,165	NS-6	-	SP-25	2
55	60	2,165	2,362	NS-7	-	SP-25	2
60	65	2,362	2,559	NS-8	-	SP-25	2
62	67	2,441	2,638	NS-5	NS-10	SP-25	2
67	72	2,638	2,835	NS-6	NS-10	SP-25	2
72	77	2,835	3,031	NS-7	NS-10	SP-25	2
77	82	3,031	3,228	NS-8	NS-10	SP-25	2
82	87	3,228	3,425	NS-5	NS-20	SP-25	2
87	92	3,425	3,622	NS-6	NS-20	SP-25	2
92	97	3,622	3,819	NS-7	NS-20	SP-25	2
97	102	3,819	4,016	NS-8	NS-20	SP-25	2
102	107	4,016	4,213	NS-5	NS-30	SP-25	2
107	112	4,213	4,409	NS-6	NS-30	SP-25	2
112	117	4,409	4,606	NS-7	NS-30	SP-25	2
117	122	4,606	4,803	NS-8	NS-30	SP-25	2

LOCKING RANGES WITH OPTIONAL SHAFT20 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NR	QTY.
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1

SAV-500 SPEED ADJUSTMENT VALVE



Perfect, optional solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.



PrepMill with its 66 mm (2-5/8) width body perfectly fit into limited access areas such as Water wall panels. Easy to clamp and feed with our heavy duty ratchet or star wheel feed.

ID CLAMPING TOOLS

IMPORTANT! Read how to proper lock on page 7

MiniMill 101

The MiniMill 100 is a rugged, fast, portable weld end preparation lathe designed for various tubes and pipes, including stainless steel and other high chromium materials. Our standard machine can be used for pipe sizes of 20 - 74 mm i.d. (0.787" - 2.913") and comes with a 88 mm cutting head.

Fitted with our optional multi feed system, the Mini Mill is easily changed from it's star wheel configuration to a ratchet drive for fast and accurate preps on water wall panels.

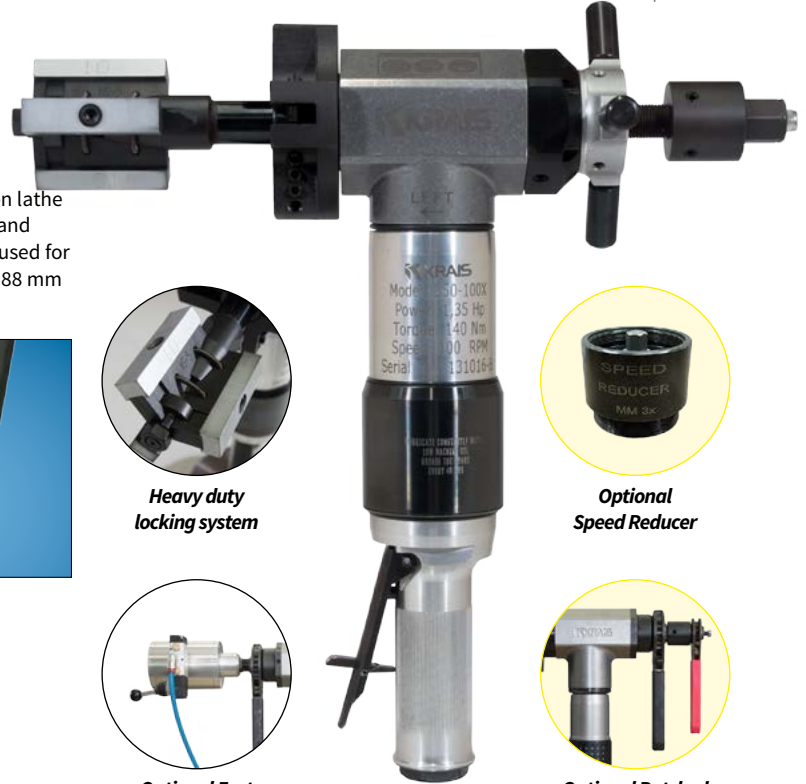


SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

KRAIS Tube Expander



Heavy duty locking system



Optional Speed Reducer



Optional Fast Clamping System



Optional Ratched Feed

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	STANDARD LOCKING	FEED STROKE	FREE SPEED	POWER	TORQUE
20 – 107 mm	25 – 74 mm	20 mm	100 Rpm	1,3 Hp	140 Nm
0,787 – 4,213"	0,787 – 2,913"	0,787"			105 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Weld removal

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	11,4 Lbs	5,2 kg
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MINIMILL 101E

MiniMill 100E is electric version of MiniMill 100. A standard machine cover the same pipe sizes and comes with the same cutting head. The electric motor made by Makita with 3 stage planetary gear box made by KRAIS has variable speed control and produce enormous torque. Is interchangeable with pneumatic drive and can be purchased separately at any time.



Free Speed 115 RPM
 Power 750 W
 Torque 366 NM (280 Ft.Lbs)
 Feed Stroke 20 mm (0,787")

AVAILABLE SHAFTS



MICROSHAFT
 A system with interchangeable guide shafts. A complete set covers 9,0 to 15,0 mm inside diameter.

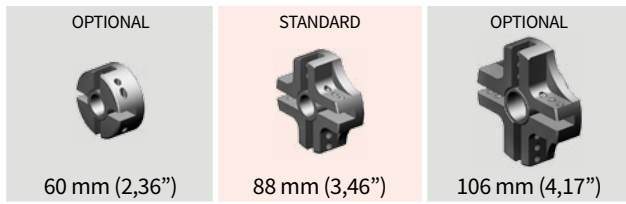


MINISHAFT
 A system with interchangeable guide shafts. A complete set covers 12,7 to 25 mm inside diameter.

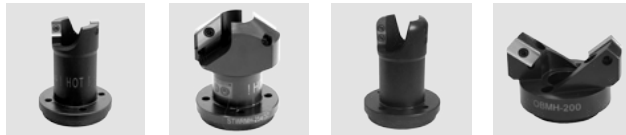


SHAFTS 20/25
 Redesigned heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force. The jaws are self-align.

UNIVERSAL CUTTER HEADS



OPTIONAL SPECIALIZED CUTTER HEADS



TFMH Tube facing milling head for facing tubes made of any type of material. Utilizes 6% cobalt inserts.

TABLE PAGE 52

STWRMH Custom designed head dedicated for strength weld removal. Heads are sized per tube diameter.

TABLE PAGE 52

SWROTC Seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.

TABLE PAGE 54

OBMH Outside bevelling of both tubes and pipes. Sized per tube or pipe diameter and angle of required weld bevel.

TABLE PAGE 53

LOCKING RANGES WITH STANDARD SHAFT25 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NR	QTY.
25	30	0,984	1,181	NS-1	-	SP-24	1
30	35	1,181	1,378	NS-2	-	SP-24	1
35	40	1,378	1,575	NS-3	-	SP-25	2
40	45	1,575	1,772	NS-4	-	SP-25	2
45	50	1,772	1,969	NS-5	-	SP-25	2
50	55	1,969	2,165	NS-6	-	SP-25	2
55	60	2,165	2,362	NS-7	-	SP-25	2
60	65	2,362	2,559	NS-8	-	SP-25	2
62	67	2,441	2,638	NS-5	NS-10	SP-25	2
67	72	2,638	2,835	NS-6	NS-10	SP-25	2
72	77	2,835	3,031	NS-7	NS-10	SP-25	2
77	82	3,031	3,228	NS-8	NS-10	SP-25	2
82	87	3,228	3,425	NS-5	NS-20	SP-25	2
87	92	3,425	3,622	NS-6	NS-20	SP-25	2
92	97	3,622	3,819	NS-7	NS-20	SP-25	2
97	102	3,819	4,016	NS-8	NS-20	SP-25	2
102	107	4,016	4,213	NS-5	NS-30	SP-25	2
107	112	4,213	4,409	NS-6	NS-30	SP-25	2
112	117	4,409	4,606	NS-7	NS-30	SP-25	2
117	122	4,606	4,803	NS-8	NS-30	SP-25	2

LOCKING RANGES WITH OPTIONAL SHAFT20 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NR	QTY.
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1

LOCKING RANGES WITH OPTIONAL MICROSHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
10,00	11,00	0,394	0,433	301 MM#36
11,00	12,00	0,433	0,472	303 MM#36
12,00	13,00	0,472	0,512	305 MM#36
13,00	14,00	0,512	0,551	307 MM#36
14,00	15,00	0,551	0,591	309 MM#36

MICROSHAFTS SHAFTS NUMBERS

SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
800 MM#151	0,354	9,00	O-7
801 MM#151	0,394	10,00	DW-8,5
805 MM#151	0,453	11,00	DW-10

*** other sizes on request

LOCKING RANGES WITH OPTIONAL MINISHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
12,40	14,50	0,488	0,571	201 MM#36
13,90	16,00	0,547	0,630	203 MM#36
15,90	18,00	0,626	0,709	205 MM#36
16,90	19,00	0,665	0,748	207 MM#36
18,90	21,00	0,744	0,827	209 MM#36
19,90	22,00	0,783	0,866	211 MM#36
20,90	23,00	0,823	0,906	213 MM#36
21,90	24,00	0,862	0,944	214 MM#36
23,60	25,60	0,929	1,008	215 MM#36
25,20	27,20	0,992	1,071	217 MM#36
26,80	28,80	1,055	1,134	219 MM#36
28,40	30,40	1,118	1,197	221 MM#36
30,00	32,00	1,181	1,260	223 MM#36
31,60	33,60	1,244	1,323	225 MM#36
33,20	35,20	1,307	1,386	227 MM#36
34,80	36,80	1,370	1,449	229 MM#36
36,40	38,40	1,433	1,512	231 MM#36
38,00	40,00	1,496	1,575	233 MM#36
39,60	41,60	1,559	1,638	235 MM#36
41,20	43,20	1,622	1,701	237 MM#36
42,80	44,80	1,685	1,764	239 MM#36
44,40	46,40	1,748	1,827	241 MM#36
46,00	48,00	1,811	1,890	243 MM#36

MINISHAFTS SHAFTS NUMBERS

TUBE OD	TUBE GAUGE	SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
3/4"	11	901 MM#151	12,40	0,492	DW-11
	11	911 MM#151	12,60	0,496	DW-11
	12	912 MM#151	13,20	0,519	DW-11
	13	905 MM#151	13,90	0,547	DW-12,5
	14	914 MM#151	14,50	0,570	DW-12,5
	15	9151 MM#151	15,10	0,594	DW-12,5
	16	916 MM#151	15,50	0,610	DW-12,5
	17	917 MM#151	15,80	0,622	DW-12,5
	18	918 MM#151	16,30	0,641	DW-15,5
	20	909 MM#151	16,80	0,661	DW-15,5
7/8"	10	9151 MM#151	15,10	0,594	DW-12,5
	11	917 MM#151	15,70	0,622	DW-12,5
	12	922 MM#151	16,40	0,645	DW-15,5
	13	923 MM#151	17,10	0,673	DW-15,5
	14	924 MM#151	17,70	0,696	DW-15,5
	15	925 MM#151	18,30	0,700	DW-15,5
7/8"	16	926 MM#151	18,60	0,732	DW-15,5
	18	928 MM#151	19,50	0,767	DW-15,5
1"	8	909 MM#151	16,80	0,661	DW-15,5
	9	938 MM#151	17,50	0,688	DW-15,5
	10	925 MM#151	18,30	0,700	DW-15,5
	11	931 MM#151	19,00	0,748	O-16
	12	932 MM#151	19,60	0,771	O-16
	13	915 MM#151	20,00	0,787	O-17
	14	934 MM#151	20,90	0,822	O-17
	16	936 MM#151	21,80	0,858	O-17
	18	938 MM#151	22,60	0,889	O-7

We do offer non-standard size and non-standard shaped jaws upon receiving a drawing of the tube expansion details. **As standard we deliver 3 shafts, numbers: 901, 905 and 909MM#151.**

ID CLAMPING TOOLS

IMPORTANT! Read how to proper lock on page 7

MiniMill 200

The MiniMill-200 is a rugged, fast, portable weld end preparation lathe for various tubes including stainless steel and other high chromium alloys. A standard machine comes complete with a 60 mm head, a locking system and includes all jaw sets to cover sizes of 20 to 44 mm (0.787" to 1.732")



Facing, bevelling tubes quickly and safely.

KRAIS Tube Expander



Optional
Lever Feed

Optional
Speed Reducer

Optional Fast
Clamping System

Optional
Ratched Feed

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	STANDARD LOCKING	FEED STROKE	FREE SPEED	POWER	TORQUE
12,5- 57,0 mm	20,0 - 44,0 mm	20 mm	200 Rpm	1,3 Hp	72 Nm
0,492 - 2,250"	0,787 - 1,732"	0,787"			53 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Weld removal

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	11,4 Lbs	5,2 kg
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EXAMPLE TOOL APPLICATION



Standard locking system with handle feed makes quick work of trimming back tubes.



Completed strength weld removal.

OPTIONAL SPECIALIZED CUTTER HEADS



OBMH
Outside bevelling of both tubes and pipes. Sized per tube or pipe diameter and angle of required weld bevel.

TABLE PAGE 53



SWROTC
Seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.

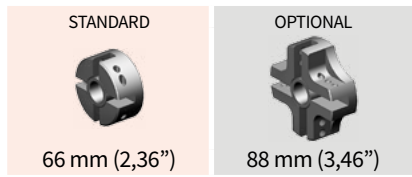
TABLE PAGE 54



STWRMH
Custom designed head dedicated for strength weld removal. Heads are sized per tube diameter.

TABLE PAGE 52

UNIVERSAL CUTTER HEADS



AVAILABLE SHAFTS



MICROSHAFT

A system with interchangeable guide shafts. A complete set covers 9,0 to 15,0 mm inside diameter.

MINISHAFT

A system with interchangeable guide shafts. A complete set covers 12,7 to 25 mm inside diameter.

SHAFTS 20/25

Redesigned heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force. The jaws are self-align.

SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

LOCKING RANGES WITH STANDARD SHAFT20 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NUMBER	QTY.
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1
28	33	1,102	1,299	NS-2	-	SP-19	1
33	38	1,299	1,496	NS-3	-	SP-20	2
38	43	1,496	1,693	NS-4	-	SP-20	2
43	48	1,693	1,890	NS-5	-	SP-20	2

LOCKING RANGES WITH OPTIONAL MICROSHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
10,00	11,00	0,394	0,433	301 MM#36
11,00	12,00	0,433	0,472	303 MM#36
12,00	13,00	0,472	0,512	305 MM#36
13,00	14,00	0,512	0,551	307 MM#36
14,00	15,00	0,551	0,591	309 MM#36

MICROSHAFTS SHAFTS NUMBERS

SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
800 MM#151	0,354	9,00	O-7
801 MM#151	0,394	10,00	DW-8,5
805 MM#151	0,453	11,00	DW-10

LOCKING RANGES WITH OPTIONAL MINISHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
12,40	14,50	0,488	0,571	201 MM#36
13,90	16,00	0,547	0,630	203 MM#36
15,90	18,00	0,626	0,709	205 MM#36
16,90	19,00	0,665	0,748	207 MM#36
18,90	21,00	0,744	0,827	209 MM#36
19,90	22,00	0,783	0,866	211 MM#36
20,90	23,00	0,823	0,906	213 MM#36
21,90	24,00	0,862	0,944	214 MM#36
23,60	25,60	0,929	1,008	215 MM#36
25,20	27,20	0,992	1,071	217 MM#36
26,80	28,80	1,055	1,134	219 MM#36
28,40	30,40	1,118	1,197	221 MM#36
30,00	32,00	1,181	1,260	223 MM#36
31,60	33,60	1,244	1,323	225 MM#36
33,20	35,20	1,307	1,386	227 MM#36
34,80	36,80	1,370	1,449	229 MM#36
36,40	38,40	1,433	1,512	231 MM#36
38,00	40,00	1,496	1,575	233 MM#36
39,60	41,60	1,559	1,638	235 MM#36
41,20	43,20	1,622	1,701	237 MM#36
42,80	44,80	1,685	1,764	239 MM#36
44,40	46,40	1,748	1,827	241 MM#36
46,00	48,00	1,811	1,890	243 MM#36

MINISHAFTS SHAFTS NUMBERS

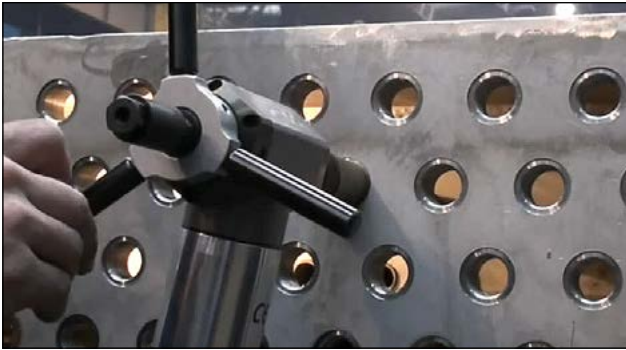
TUBE OD	TUBE GAUGE	SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
3/4"	11	901 MM#151	12,40	0,492	DW-11
	11	911 MM#151	12,60	0,496	DW-11
	12	912 MM#151	13,20	0,519	DW-11
	13	905 MM#151	13,90	0,547	DW-12,5
	14	914 MM#151	14,50	0,570	DW-12,5
	15	9151 MM#151	15,10	0,594	DW-12,5
	16	916 MM#151	15,50	0,610	DW-12,5
	17	917 MM#151	15,80	0,622	DW-12,5
	18	918 MM#151	16,30	0,641	DW-15,5
	20	909 MM#151	16,80	0,661	DW-15,5
7/8"	10	9151 MM#151	15,10	0,594	DW-12,5
	11	917 MM#151	15,70	0,622	DW-12,5
	12	922 MM#151	16,40	0,645	DW-15,5
	13	923 MM#151	17,10	0,673	DW-15,5
	14	924 MM#151	17,70	0,696	DW-15,5
7/8"	15	925 MM#151	18,30	0,700	DW-15,5
	16	926 MM#151	18,60	0,732	DW-15,5
1"	18	928 MM#151	19,50	0,767	DW-15,5
	8	909 MM#151	16,80	0,661	DW-15,5
	9	938 MM#151	17,50	0,688	DW-15,5
	10	925 MM#151	18,30	0,700	DW-15,5
	11	931 MM#151	19,00	0,748	O-16
	12	932 MM#151	19,60	0,771	O-16
	13	915 MM#151	20,00	0,787	O-17
	14	934 MM#151	20,90	0,822	O-17
	16	936 MM#151	21,80	0,858	O-17
	18	938 MM#151	22,60	0,889	O-7

We do offer non-standard size and non-standard shaped jaws upon receiving a drawing of the tube expansion details. **As standard we deliver 3 shafts, numbers: 901, 905 and 909MM#151.**

MiniMill 300FF



A standard machine for Fin Fan cooler tube trimming is equipped with custom head and locking system to suit your application (customer to provide drawing of unit). The MiniMill 300FF cutter heads have 3 carbide inserts with 4 Cutting edges each.



Trimming tubes safely and efficiently. Machine locks securely both to the tube and the plug thread of the water box.



Optional
Lever Feed

Optional
Ratched Feed

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
12,5– 51,0 mm	Depends on attachment	20 mm	300 Rpm	1,3 Hp	43 Nm
0,492 – 2,000"		0,787"			32 Ft.Lbs

RECOMMENDED FOR: FinFan cooler tube facing

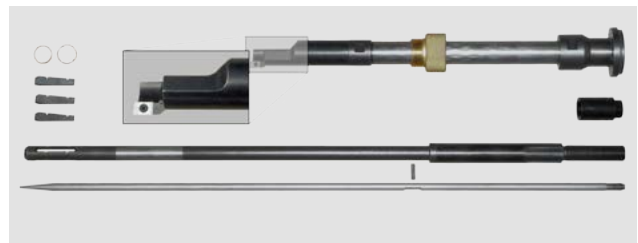
Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	13,2 Lbs	6 kg
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FINFAN ATTACHMENT



Special attachment for facing tubes in fin fan gas coolers. A locking shaft with adjustable length and a support bushing are screwed into the plug thread, making this tool the best one available on the market today. The cycle is approx. 1 min from tube to tube. For this application we recommend our 300 Rpm machine

FINFAN SEAL WELD REMOVAL ATTACHMENT



Simply the best solution for seal weld removal from air coolers. Adjustable length locking shaft and support bushing that fits into the plug thread, making this tool the best one available on the market today. A cycle time of approximately 1 min from tube to tube can be expected

FINFAN ATTACHMENT PART NUMBERS

FINFAN ATTACHMENT	TUBE CAPACITY			INSERT	NO. INSERTS	SCREW	STANDARD LENGTH		MINIMUM LENGTH		JAWS COVER	
	[INCH]	[MM]	BWG				[INCH]	[MM]	[INCH]	[MM]	MIN	MAX
601-FinFan-1-12"	1,000	25,40	12-23	CI	3	1 1/8	12	304,8	5	127	207MM#36	213MM#36
603-FinFan-1-1/8-12"	1,125	28,58	12-23	CI	3	1 1/4	12	304,8	5	127	211MM#36	217MM#36
605-FinFan-1-1/4-12"	1,250	31,75	11-23	CI	3	1 3/8	12	304,8	5	127	103MM#36	107MM#36
607-FinFan-1-1/2-12"	1,500	38,10	11-23	CI	3	1 5/8	12	304,8	5	127	107MM#36	111MM#36
609-FinFan-1-3/4-12"	1,750	44,45	9-23	CI	3	1 7/8	12	304,8	5	127	111MM#36	115MM#36
611-FinFan-2-12"	2,000	50,80	9-23	CI	3	2 1/8	12	304,8	5	127	115MM#36	119MM#36

FINFAN ATTACHMENTS AVAILABLE LENGTHS

		601-FINFAN-XX-6	601-FINFAN-XX-8	601-FINFAN-XX-10	601-FINFAN-XX-14	601-FINFAN-XX-16
Length	[inch]	6	8	10	14	16
	[mm]	152,4	203,2	254	355,6	406,4

Others sizes on request

SPEED REDUCER



An optional speed reducer can be used for seal and strength weld removal applications including duplex, super duplex and other hard to machine alloys.

SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

EXAMPLE TOOL APPLICATION



Water box demonstration of the simplicity of machine operation.



Operator trimming back tubes prior to seal welding



MiniMill 300GFF

Ideal for gasket seat machining of any size of fin fan cooler. A standard machine is equipped with a cutter head and a special locking system to fit your application. The machine locks directly into the plug thread.



Safely re-machine gasket surfaces in seconds.



STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
1,125 – 2,125"	Special fit to plug thread	20 mm	300 Rpm	1,3 Hp	43 Nm
12 TPI		0,787"			32 Ft.Lbs

RECOMMENDED FOR: FinFan cooler gasket seat facing

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	11 Lbs	5 kg
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LEVER FEED LM



A heavy duty feed handle ideal for heavy wall tube and pipe bevelling. Also well suited for strength and seal weld removal applications.

GASKET FINFAN SET



Supplied with 20 mm shaft, one set of jaws to suit plug thread diameter, pilot and gasket seat milling head. Plug size details must be provide by customer with order.

PNEUMATIC LOCK



This optional pneumatic lock decreases the cycle time between end preps by up to four times and is ideal for fabrication shops.

SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

GASKET SEAT FACING HEAD NUMBERS

HEAD TYPE	PLUG SIZE			NEST DIAMETER				INSERT	NO. OF INSERTS
	[INCH]	[MM]	TPI	MIN [INCH]	MAX [INCH]	MIN [MM]	MAX [MM]		
FFGSMH-1125	1,125	28,58	12	0,940	1,496	24,00	38,00	CI 5x5	4
FFGSMH-1250	1,250	31,75	12	1,063	1,614	27,00	41,00	CI 5x5	4
FFGSMH-1350	1,375	34,93	12	1,220	1,772	31,00	45,00	CI 5x5	4
FFGSMH-1500	1,500	38,10	12	1,339	1,890	34,00	48,00	CI 5x5	4
FFGSMH-1625	1,625	41,27	12	1,457	2,008	37,00	51,00	CI 5x5	4
FFGSMH-1750	1,750	44,45	12	1,590	2,140	40,40	54,40	CI 5x5	4
FFGSMH-1875	1,875	47,62	12	1,720	2,270	43,60	57,60	CI 5x5	4

Other sizes on request

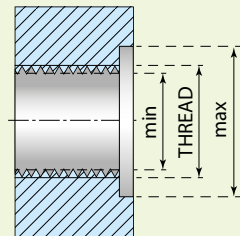
JAWS FOR GASKET SEAT FACING

JAWS SET NUMBER	PLUG SIZE		TPI	PILOT
	[INCH]	[MM]		
701MM #36-1-1/8-GFF	1,125	28,575	12	PGFF-1125
703MM #36-1-1/4-GFF	1,250	31,750	12	PGFF-1250
705MM #36-1-3/8-GFF	1,375	34,925	12	PGFF-1350
707MM #36-1-1/2-GFF	1,500	38,100	12	PGFF-1500
709MM #36-1-5/8-GFF	1,625	41,275	12	PGFF-1625
711MM #36-1-3/4-GFF	1,750	44,450	12	PGFF-1750
713MM #36-1-7/8-GFF	1,875	47,625	12	PGFF-1875

Other sizes on request

If plug holes are damaged beyond repair, our MiniDrill 55 can be used to upsize them to the next size. Example - 1-1/8" to 1-3/8".

NEST DIAMETER DIAGRAM



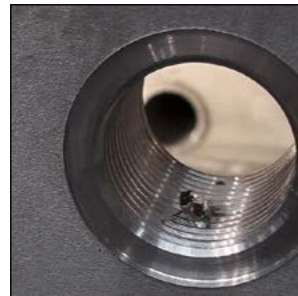
EXAMPLE TOOL APPLICATION



FinFan cooler before maintenance



Plug hole before re machining the gasket seat



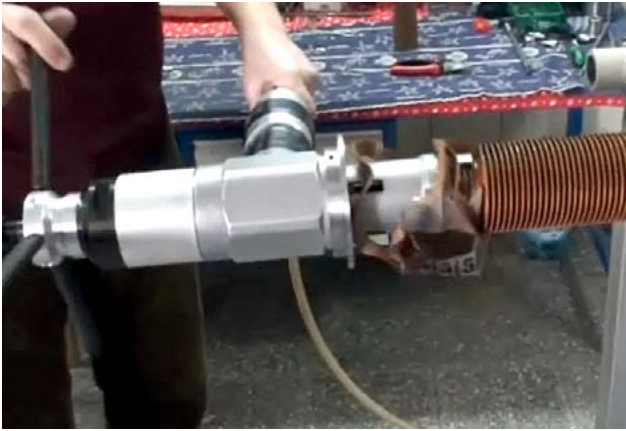
All types of water box materials can be machined with the carbide inserts of the MiniMill 300 GFF.



Custom machined jaws. Showing locked and up-locked position.

FinMill

KRAIS FinMill is a new air powered tool designed for removing fin from the outside diameter of a tube. The tool is based on the same quality drive and housing as our other PrepMill series tools. Thanks to heavy duty locking system The FinMill fin tube removal tool clamps reliably in the tube and offers chatter-free work at any position.



Removes 4.0" (101 mm) depth of fin from the tube OD in less than 2 minutes



Optional Star Wheel

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
20 – 128 mm	30 – 128 mm	40 mm	55 Rpm	2,2 kW	140 Nm
0,866 – 5,039"	1,180 – 5,039"	1,6"			105 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling

Air use:	75 cfm	2,2 m ³ /min	Body width:	2,59"	66 mm	Body height:	14,5"	370 mm	Body weight:	19 Lbs	9 kg
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SPECIALIZED CUTTER HEAD



Cutter head design to remove both left and right hand Fins

KEY FEATURES

- › Standard working range of 1.25" to 2.5" O.D.
- › Quick feed crank handle
- › Rigidly clamps to the tube I.D.
- › Works in any orientation
- › Easy to operate and no reaction torque to operator
- › No cutting fluid is required
- › Saves a lot of time by eliminating chipping and grinding

EXAMPLE TOOL APPLICATION



UNIVERSAL MOTOR



Reversible motor allow to work and remove left and right hand fins.

SPEED ADJUSTMENT



Optional Speed Adjustment Valve is a perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

IMPORTANT! Read how to properly lock on page 7

MiniMill 300LP

The fastest and strongest facing machine on the market. Engineered for safety and ease of use, featuring a pneumatic locking system with a double piston cylinder. Compact milling head with double cutting edge inserts with 6% cobalt. For all types of material including: ferrous, non-ferrous, stainless and exotic alloys steel, duplex, inconel and titanium.



The fast locking and the handle feed make this system very efficient for heat exchanger manufacturers.



Optional Speed Reducer



Optional Star Wheel

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
12,5 – 38,0 mm	12,5 – 23,0 mm	20 mm	300 Rpm	1,3 Hp	43 Nm
0,492 – 1,500"	0,492 – 0,900"	0,787"			32 Ft.Lbs

RECOMMENDED FOR: Tube facing and trimming ■ Seal weld removal

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	15,4 Lbs	7 kg
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A real application: shortening a bundle. MiniMill can deal with this task quickly and efficiently.



Double sided inserts and fixed diameter heads ensure unsurpassed efficiency and quality. Mechanical stops ensure identical tube projection.

OPTIONAL SPECIALIZED CUTTER HEADS



TFMH
A tube facing milling head for facing tubes made of any type of material. Utilizes 6% cobalt inserts.

TABLE PAGE 52



MMFH
A tube facing milling head suitable for machining tubes manufactured from very hard materials. Utilizes 4-sided carbide inserts.

TABLE PAGE 54



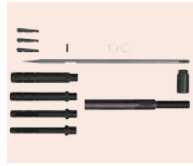
STWRMH
Custom designed head dedicated for strength weld removal. Heads are sized per tube diameter.

TABLE PAGE 52

AVAILABLE SHAFTS



MICROSHAFT
A system with interchangeable guide shafts. A complete set covers 9,0 to 15,0 mm inside diameter.



MINISHAFT
A system with interchangeable guide shafts. A complete set covers 12,7 to 25 mm inside diameter.



SHAFT 20
Redesigned heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force. The jaws are self-align.

ADDITIONAL ACCESSORIES



CUTTER HEAD
General use cutter head, works with all inserts.



SAV-500 SPEED ADJUSTMENT VALVE
Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.



LOCKING RANGES WITH OPTIONAL MICROSHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
10,00	11,00	0,394	0,433	301 MM#36
11,00	12,00	0,433	0,472	303 MM#36
12,00	13,00	0,472	0,512	305 MM#36
13,00	14,00	0,512	0,551	307 MM#36
14,00	15,00	0,551	0,591	309 MM#36

MICROSHAFTS SHAFTS NUMBERS

SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
801 MM#151	0,394	10,00	DW-8,5
805 MM#151	0,453	11,00	DW-10
800 MM#151	0,354	9,00	O-7

LOCKING RANGES WITH OPTIONAL SHAFT 20 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NUMBER	QTY.
20	24	0,787	0,945	NS-0	-	SP-19	1
24	28	0,945	1,102	NS-1	-	SP-19	1
28	33	1,102	1,299	NS-2	-	SP-19	1
33	38	1,299	1,496	NS-3	-	SP-20	2
38	43	1,496	1,693	NS-4	-	SP-20	2
43	48	1,693	1,890	NS-5	-	SP-20	2

LOCKING RANGES WITH STANDARD MINISHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
12,40	14,50	0,488	0,571	201 MM#36
13,90	16,00	0,547	0,630	203 MM#36
15,90	18,00	0,626	0,709	205 MM#36
16,90	19,00	0,665	0,748	207 MM#36
18,90	21,00	0,744	0,827	209 MM#36
19,90	22,00	0,783	0,866	211 MM#36
20,90	23,00	0,823	0,906	213 MM#36
21,90	24,00	0,862	0,944	214 MM#36

LOCKING RANGES WITH OPTIONAL MINISHAFT JAWS

RANGE [MM]		RANGE [INCH]		JAWS NR
MIN	MAX	MIN	MAX	
23,60	25,60	0,929	1,008	215 MM#36
25,20	27,20	0,992	1,071	217 MM#36
26,80	28,80	1,055	1,134	219 MM#36
28,40	30,40	1,118	1,197	221 MM#36
30,00	32,00	1,181	1,260	223 MM#36
31,60	33,60	1,244	1,323	225 MM#36
33,20	35,20	1,307	1,386	227 MM#36
34,80	36,80	1,370	1,449	229 MM#36
36,40	38,40	1,433	1,512	231 MM#36
38,00	40,00	1,496	1,575	233 MM#36
39,60	41,60	1,559	1,638	235 MM#36
41,20	43,20	1,622	1,701	237 MM#36
42,80	44,80	1,685	1,764	239 MM#36
44,40	46,40	1,748	1,827	241 MM#36
46,00	48,00	1,811	1,890	243 MM#36

MINISHAFTS SHAFTS NUMBERS

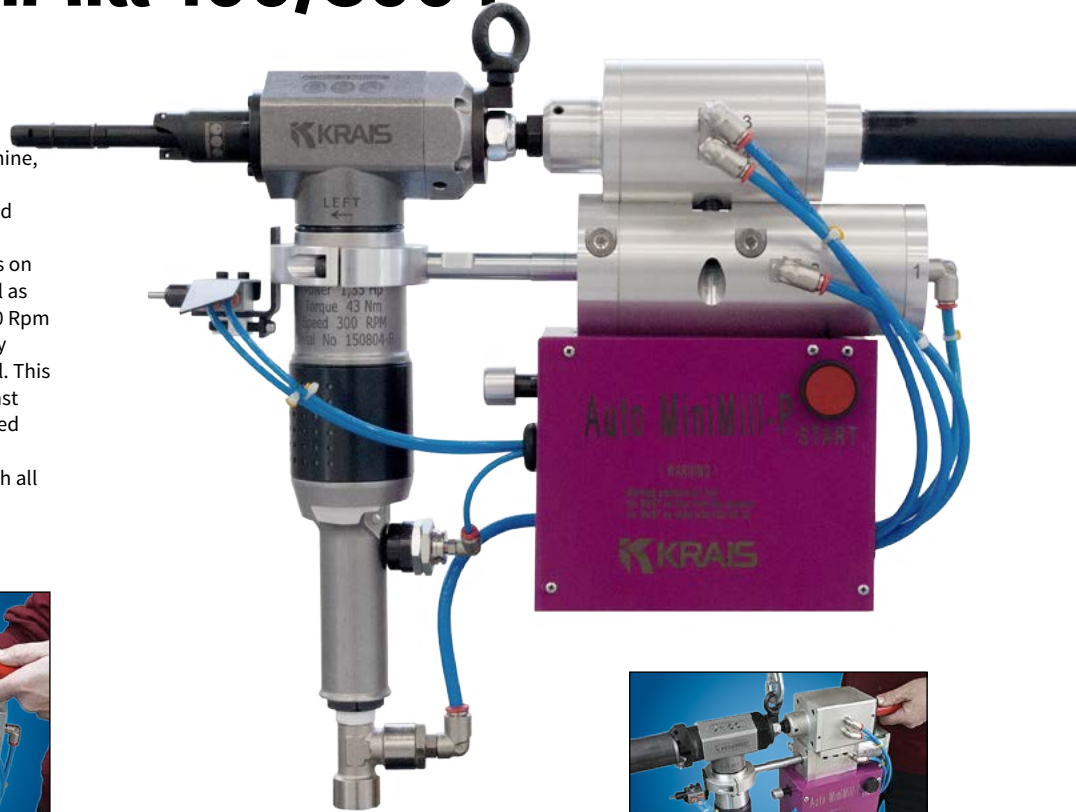
TUBE OD	TUBE GAUGE	SHAFT NUMBER	SIZE [INCH]	SIZE [MM]	SPRING
3/4"	11	901 MM#151	12,40	0,492	DW-11
	11	911 MM#151	12,60	0,496	DW-11
	12	912 MM#151	13,20	0,519	DW-11
	13	905 MM#151	13,90	0,547	DW-12,5
	14	914 MM#151	14,50	0,570	DW-12,5
	15	915 MM#151	15,10	0,594	DW-12,5
	16	916 MM#151	15,50	0,610	DW-12,5
	17	917 MM#151	15,80	0,622	DW-12,5
	18	918 MM#151	16,30	0,641	DW-15,5
	20	909 MM#151	16,80	0,661	DW-15,5
7/8"	10	915 MM#151	15,10	0,594	DW-12,5
	11	917 MM#151	15,70	0,622	DW-12,5
	12	922 MM#151	16,40	0,645	DW-15,5
	13	923 MM#151	17,10	0,673	DW-15,5
	14	924 MM#151	17,70	0,696	DW-15,5
7/8"	15	925 MM#151	18,30	0,700	DW-15,5
	16	926 MM#151	18,60	0,732	DW-15,5
	18	928 MM#151	19,50	0,767	DW-15,5
1"	8	909 MM#151	16,80	0,661	DW-15,5
	9	938 MM#151	17,50	0,688	DW-15,5
	10	925 MM#151	18,30	0,700	DW-15,5
	11	931 MM#151	19,00	0,748	O-16
	12	932 MM#151	19,60	0,771	O-16
	13	915 MM#151	20,00	0,787	O-17
	14	934 MM#151	20,90	0,822	O-17
	16	936 MM#151	21,80	0,858	O-17
	18	938 MM#151	22,60	0,889	O-7

We do offer non-standard size and non-standard shaped jaws upon receiving a drawing of the tube expansion details. **As standard we deliver 3 shafts, numbers: 901, 905 and 909MM#151.**

IMPORTANT! Read how to proper lock on page 7

Auto MiniMill 100/300 P

Auto MiniMill P is a fully automatic machine, controlled by a built-in, fully pneumatic control box, with adjustable feed rate and actuated by a hand button (foot switch optional). Ideal for repetitive work cycles on condensers and heat exchangers, as well as for bevelling and facing boiler tubes (100 Rpm configuration). AutoMiniMill P is specially designed for trimming and weld removal. This tool is based on the MiniMill 300; it is a fast facing and end preparation lathe designed for various tubes including stainless and other high chromium alloys. It works with all MiniMill 300 compatible cutter heads.



MODEL	STANDARD WORKING RANGE			MOTOR PARAMETERS		
	APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
300P	12,5 – 38,1 mm	12,5 – 23,0 mm	20 mm	300 Rpm	1,3 Hp	43 Nm
	0,492 – 1,500"	0,492 – 0,906"	0,787"			32 Ft.Lbs
100P	20,0 – 63,5 mm	12,0 – 58,0 mm	20 mm	100 Rpm	1,3 Hp	140 Nm
	0,787 – 2,500"	0,472 – 2,283"	0,787"			105 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	25 Lbs	11,5 kg
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SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

MiniDrill 80/100

MiniDrill 55 is a unique machining platform designed to safely perform multiple machining operations on heat exchangers, boilers and similar thermal exchange equipment. Designed with operator safety in mind, this system can drill, ream, bore and even re-machine serrations in steam drums quickly and safely. With a 80 mm (3.150") travel, this tool is ideally suited for the majority of plant equipment. The system is fully torque reacted with 2 clamping arms that are independent of one another and can accommodate most pitch configurations. Once locked into the tubes, the MiniDrill is extremely stable.



WALL REDUCING



Tube wall reducing head with carbide inserts.



DRILLING



Drill for machining holes in tube plugs before removing them with our special plug removal tool.



REAMMING



Safely ream tube sheets.



BORING HEAD



Boring head to machine heavy wall boiler tubes, safely and efficiently prior to collapsing through the drum.

MINIDRILL PERFORMANCE



Reducing tube wall on a 6" thick tube sheet prior to punching.

MINIDRILL WITH FAST CLAMPING



MiniDrill with the fast pneumatic clamping system is ideal for manufacturing plants that make large amounts of work on tubes and pipes. It offers rapid tube to tube cycle time, increased productivity with little operator fatigue.

PanelMill

The PanelMill attaches to the tube outside diameter by means of custom or specific clamp type jaws that provide strong clamping action that minimizes chatter and vibration. Rugged construction allows the tool's cutting blade to end prep quickly. Several cutter heads are available for tubes with up to 2-1/2" O.D. Both the clamp and cutter heads are extremely durable and easy to change. The ratchet feed arm enables the operator to comfortably feed the tool during bevelling or facing. The PanelMill is suitable for small bore heavy wall tubes with a high percentage of chrome, stainless steel, and other exotic alloys. Standard and custom made blades are offered in a wide variety of angles and sizes.



	APPLICATION RANGE		FEED STROKE		FREE SPEED		TORQUE	
PANELMILL 63	19 – 63 mm		25 mm		100 Rpm		140 Nm	
	0,750 – 2,500"		1,0"		OPT. 35, 200, 300		105 Ft.Lbs	

Air use:	55 CFM	1,3 m ³ /min	Body width:	1,96"	50,0 mm	Body height:	13,1"	300,0 mm	Total length:	14,56"	370,0 mm	Body weight:	22,04 Lbs	10,0 kg
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	APPLICATION RANGE		FEED STROKE		FREE SPEED		TORQUE	
PANELMILL 100	50 – 102 mm		25 mm		100 Rpm		140 Nm (Optional 420 Nm)	
	2,0 – 4,0"		1,0"		OPT. 40		105 Ft.Lbs (Optional 310 Nm)	

Air use:	42,4 CFM	1,2 m ³ /min	Body width:	3,11"	79,0 mm	Body height:	13,77"	350,0 mm	Total length:	15,74"	400,0 mm	Body weight:	39,68 Lbs	18,0 kg
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PANELMILL 63E

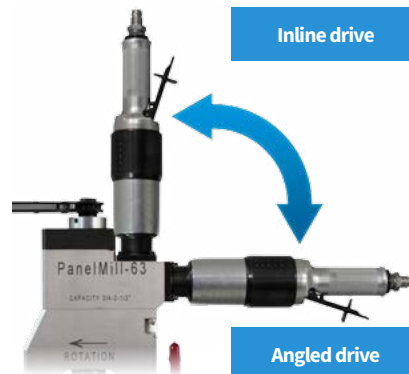
PanelMill 63E is electric version of PanelMill 63. A standard machine cover the same pipe sizes and comes with the same cutting head. The electric motor made by Makita with 3 stage planetary gear box made by KRAIS has variable speed control and produce enormous torque. Is interchangeable with pneumatic drive and can be purchased separately at any time.

Free Speed 115 RPM
 Power 1,1 Hp
 Torque 366 NM (280 Ft.Lbs)
 Feed Stroke 20 mm (0,787")

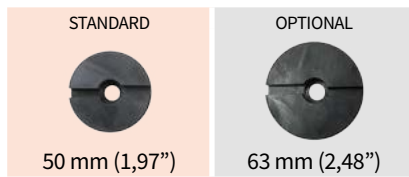


UNIVERSAL DRIVE PLACEMENT

Adjustable drive position is a standard feature of this machine. No additional components are required.



UNIVERSAL CUTTER HEADS



SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

JAWS FOR PANELMILL

JAWS NO.	TUBE OD	
	[MM]	[INCH]
300 PM#2	19,05	0,750
301 PM#2	20,00	0,787
304 PM#2	22,20	0,874
308 PM#2	25,40	1,000
309 PM#2	25,00	0,984
312 PM#2	28,80	1,134
313 PM#2	30,00	1,181
314 PM#2	31,70	1,248
318 PM#2	34,90	1,374
322 PM#2	38,10	1,500
326 PM#2	44,40	1,748
330 PM#2	50,80	2,000
331 PM#2	51,00	2,008
334 PM#2	57,10	2,248
338 PM#2	60,30	2,374
342 PM#2	63,50	2,500
346 PM#2	76,20	3,000

Other sizes on request

OPTIONAL SPECIAL CUTTER HEADS



OBPMH
Bevelling head for bevelling tubes without membranes in a boiler waterwall.

TABLE PAGE 57



PMRBMH
A seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.

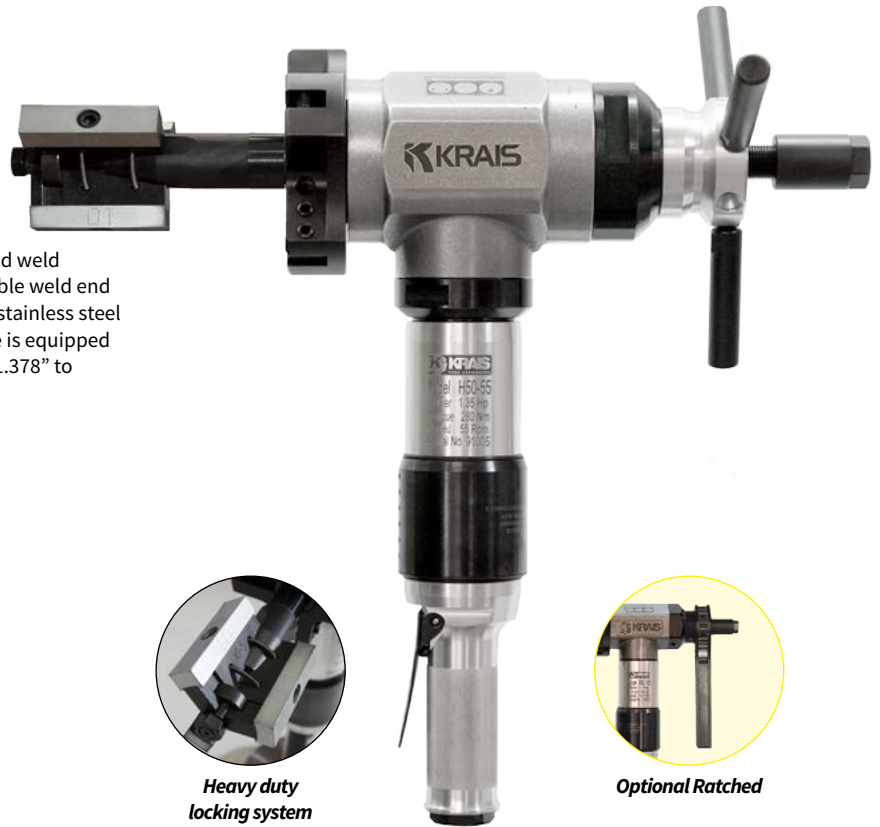
TABLE PAGE 57

MACHINING IN EVERY POSITION

PanelMill can be rotated through 180 degrees to work in every position. Machine can be used for standard beveling application and for opposite tubes.



HyperMill 56



The HyperMill series pneumatic tube facing, bevelling and weld removal machines. The HyperMill is a rugged, fast, portable weld end preparation lathe for various tubes and pipes, including stainless steel and other high chromium materials. A standard machine is equipped with a locking system to cover sizes of 35 to 128 mm ID (1.378" to 5.039") with a 135 mm cutter head.



Heavy duty locking system



Optional Ratched

STANDARD WORKING RANGE			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	POWER	TORQUE
20 – 128 mm	30 – 128 mm	40 mm	55 Rpm	1,3 Hp	280 Nm
0,866 – 5,039"	1,180 – 5,039"	1,6"			210 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling

Air use:	55 cfm	1,3 m ³ /min	Body width:	3,22"	82 mm	Body height:	15"	385 mm	Body weight:	19 Lbs	9 kg
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HYPERMILL 56E

HyperMill 56E is electric version of HyperMill 55. The machine can cover the same pipe sizes and comes with the same cutting head. The electric motor made by FLEX with 3 stage planetary gear box made by KRAIS has variable speed control and produce enormous torque. Is interchangeable with pneumatic drive and can be purchased separately at any time.

Free Speed 58 RPM
 Power 1500 W
 Torque 720 Nm (530 Ft.Lbs)
 Feed Stroke 40 mm (1,6")



SAV-500 SPEED ADJUSTMENT VALVE



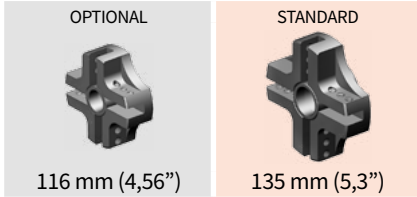
Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

AVAILABLE SHAFTS



SHAFTS 30/25/20
Redesigned heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force. The jaws are self-align.

UNIVERSAL CUTTER HEADS



OPTIONAL SPECIALIZED CUTTER HEADS



MMRBMH Membrane removal heads and overlay removal heads efficiently remove material from between boiler tubes.
TABLE PAGE 53

Other type tailor made cutter head available on request.

HEAD FLANGE



Optional Flange to adept all MiniMill's special cutter head (from size 1-1/2" up)

SPEED REDUCER



Speed reducer can be used for seal and strength weld removal applications including duplex, super duplex and other hard to machine alloys.

LOCKING RANGES WITH STANDARD SHAFT30 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT	SPRING	
MIN	MAX	MIN	MAX			NR	QTY
30,0	34,0	1,181	1,339	NS-1		SP-29	1
34,0	39,0	1,339	1,535	NS-2		SP-29	1
39,0	44,0	1,535	1,732	NS-3		SP-30	2
44,0	49,0	1,732	1,929	NS-4		SP-30	2
49,0	54,0	1,929	2,126	NS-5		SP-30	2
54,0	59,0	2,126	2,323	NS-6		SP-30	2
59,0	64,0	2,323	2,520	NS-7		SP-30	2
64,0	69,0	2,520	2,717	NS-8		SP-30	2
66,0	71,0	2,598	2,795	NS-5	NS-10	SP-30	2
71,0	76,0	2,795	2,992	NS-6	NS-10	SP-30	2
76,0	81,0	2,992	3,189	NS-7	NS-10	SP-30	2
81,0	86,0	3,189	3,386	NS-8	NS-10	SP-30	2
86,0	91,0	3,386	3,583	NS-5	NS-20	SP-30	2
91,0	96,0	3,583	3,780	NS-6	NS-20	SP-30	2
96,0	101,0	3,780	3,976	NS-7	NS-20	SP-30	2
101,0	106,0	3,976	4,173	NS-8	NS-20	SP-30	2
106,0	111,0	4,173	4,370	NS-5	NS-30	SP-30	2
111,0	116,0	4,370	4,567	NS-6	NS-30	SP-30	2
116,0	121,0	4,567	4,764	NS-7	NS-30	SP-30	2
121,0	126,0	4,764	4,961	NS-8	NS-30	SP-30	2

LOCKING RANGES WITH OPTIONAL SHAFT30 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT	SPRING	
MIN	MAX	MIN	MAX			NR	QTY
126,0	131,0	4,961	5,157	NS-5	NS-40	SP-30	2
131,0	136,0	5,157	5,354	NS-6	NS-40	SP-30	2
136,0	141,0	5,354	5,551	NS-7	NS-40	SP-30	2
141,0	146,0	5,551	5,748	NS-8	NS-40	SP-30	2
146,0	151,0	5,748	5,945	NS-5	NS-50	SP-30	2
151,0	156,0	5,945	6,142	NS-6	NS-50	SP-30	2
156,0	161,0	6,142	6,339	NS-7	NS-50	SP-30	2
161,0	166,0	6,339	6,535	NS-8	NS-50	SP-30	2

LOCKING RANGES WITH OPTIONAL SHAFT25 JAWS

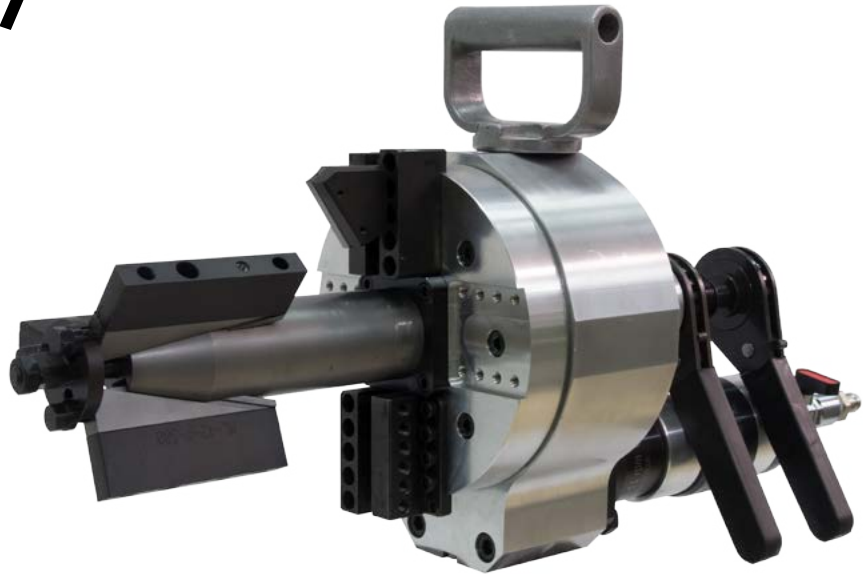
RANGE [MM]		RANGE [INCH]		JAWS	EXT	SPRING	
MIN	MAX	MIN	MAX			NR	QTY
25,0	30,0	0,984	1,181	NS-1		SP-24	1
30,0	35,0	1,181	1,378	NS-2		SP-24	1
35,0	40,0	1,378	1,575	NS-3		SP-25	2
40,0	45,0	1,575	1,772	NS-4		SP-25	2
45,0	50,0	1,772	1,969	NS-5		SP-25	2
50,0	55,0	1,969	2,165	NS-6		SP-25	2
55,0	60,0	2,165	2,362	NS-7		SP-25	2
60,0	65,0	2,362	2,559	NS-8		SP-25	2
62,0	67,0	2,441	2,638	NS-5	NS-10	SP-25	2
67,0	72,0	2,638	2,835	NS-6	NS-10	SP-25	2
72,0	77,0	2,835	3,031	NS-7	NS-10	SP-25	2
77,0	82,0	3,031	3,228	NS-8	NS-10	SP-25	2
82,0	87,0	3,228	3,425	NS-5	NS-20	SP-25	2
87,0	92,0	3,425	3,622	NS-6	NS-20	SP-25	2
92,0	97,0	3,622	3,819	NS-7	NS-20	SP-25	2
97,0	102,0	3,819	4,016	NS-8	NS-20	SP-25	2

LOCKING RANGES WITH OPTIONAL SHAFT20 JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXT	SPRING	
MIN	MAX	MIN	MAX			NR	QTY
20,0	24,0	0,787	0,945	NS-0		SP-19	1
24,0	28,0	0,945	1,102	NS-1		SP-19	1
28,0	33,0	1,102	1,299	NS-2		SP-19	1
33,0	38,0	1,299	1,496	NS-3		SP-20	2

SmartMill-7

- Most powerful machine within this size range on the market today. Utilizes a powerful 2.2 kW (3 HP) pneumatic motor that is entirely engineered and manufactured by KRAIS. SmartMill-7 has a unique construction that has been specifically designed for the largest end prep systems.
- Self-centering 40 mm (1,57") one piece locking shaft.
- Only one mandrel and 6 Jaw sets needed to cover machines entire range.
- Wide clamps produce superior clamping force for chatter free end preps.
- Fully portable for on-site and Fab-shop work.
- SmartMill-7 is available for sale or rent.



STANDARD WORKING RANGE*			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	POWER	FREE SPEED	TORQUE
40,0 – 194,0 mm	40 – 188,0 mm	50 mm	3,0 Hp	39 rpm	930 Nm
1,574 – 7,638"	1,574 – 7,402"	2"			697 Ft.Lbs

RECOMMENDED FOR: Pipe facing ■ Pipe bevelling

Air use:	70 cfm	2,2 m ³ /min	Air pressure:	90 PSI	6,2 Bar	Body weight:	21 kg	46 Lbs	Body dim.	560*235*190 mm	22*9,25*7,48"
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* other capacity and locking range are available – please consult factory!

UNIQUE SHAFT DESIGN



40 mm (1,57") shaft, assures rigidity when machining heavy wall pipe. Only 6 set of jaws needed to cover the full locking range.

POWERFUL MOTOR UNIT



SmartMill-7 is powered by powerful and efficient drives dedicated for our Lathe series beveling machines. 39 rpm and 930 Nm (697 Ft.Lbs) torque on the cutter blade is a standard feature.

LIGHTWEIGHT AND PORTABLE



The innovative design made it possible to produce lightweight and portable machine. Small weight of SmartMill-7 allows for fatigue-free operation in all conditions.

RIGHT ANGLE HEAD



Optional right angle head can be used to convert the drive if there is not enough space for the straight one.

HEAVY DUTY HANDLE



Machine is equipped with a solid and convenient aluminium handle.

OPTIONAL ELECTRIC MOTOR UNIT

SmartMill-7E is electric version of SmartMill-7. The machine can cover the same pipe sizes and comes with the same cutting head. The electric motor with 4 speed mechanical gear box has also variable speed control and produce enormous torque on the cutter blade . Is interchangeable with pneumatic drive and can be purchased separately at any time. Take 5 min to replace from pneumatic to electric.



DUDE-2000-4-SPEED

- Motor free speed120-210-380-650 RPM
- Motor power2000 Watt
- Motor torque (on the 1st gear).....240 Nm (180 Ft.Lbs)
- Machine feed stroke50 mm (2")
- Cutter head speed.....8-14-25-43 rpm
- Max torque on cutter blade (on the 1st gear).....3600 Nm (2664 Ft.Lbs)

RIGHT ANGLE HEAD



SmartMill-7 is lightweight for its power and capacity and easy to handle by operator.

SMARTMILL-7 PERFORMANCE



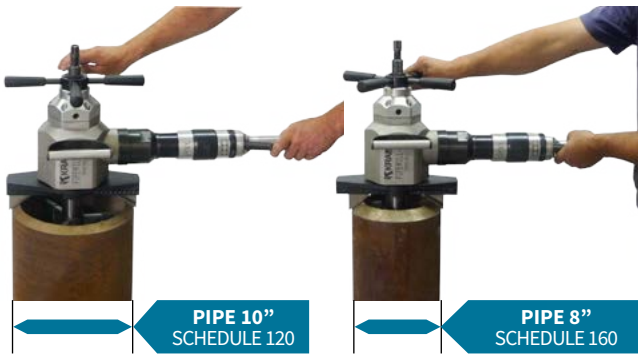
The performance of the machine may vary depending on the skill of the operator, the materials, the conditions of the tools and the air supply system in case of pneumatic unit.

LOCKING RANGES WITH STANDARD JAWS

RANGE [MM]		RANGE [INCH]		SEGMENTS		
MIN	MAX	MIN	MAX	SM-42-0	SM-42-1	ML-42-A
40,0	55,0	1,575	2,165	SM-42-0	-	-
55,0	69,5	2,165	2,736	-	SM-42-1	-
69,5	84,0	2,736	3,307	-	SM-42-1	ML-42-A-75
84,0	98,5	3,307	3,878	-	SM-42-1	ML-42-A-150
98,5	113,5	3,878	4,469	-	SM-42-1	ML-42-A-225
113,5	128,5	4,469	5,059	-	SM-42-1	ML-42-A-300
128,5	143,5	5,059	5,650	-	SM-42-1	ML-42-A-300 ML-42-A-75
143,5	158,5	5,650	6,240	-	SM-42-1	ML-42-A-300 ML-42-A-150
158,5	173,5	6,240	6,831	-	SM-42-1	ML-42-A-300 ML-42-A-225
173,5	188,5	6,831	7,421	-	SM-42-1	ML-42-A-300 ML-42-A-225 ML-42-A-75

PipeMill

PipeMill is a pneumatic powered tube facing, bevelling and weld removal machine. The PipeMill is a rugged, fast and powerful weld end preparation lathe for various pipes including stainless steel and other exotic alloys. A standard machine is equipped with a locking system to cover sizes of 50,8 to 172 mm ID (2.000" to 6.800") with a 250 mm cutting head.



STANDARD WORKING RANGE				MOTOR PARAMETERS	
CAPACITY	APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	FREE SPEED	TORQUE
254 mm	50,8 – 268,0 mm	50,8 – 172,0 mm	50 mm	Depends on gear	
10"	2,000 – 10,551"	2,000 – 6,800"	2"		

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Seal weld removal

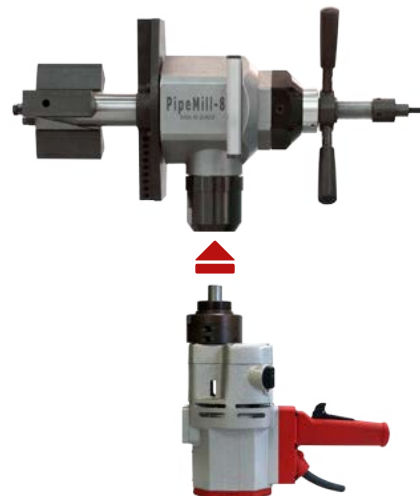
Air use:	70 cfm	2,2 m ³ /min	Body width:	5,7"	145 mm	Body height:	21,5"	550 mm	Body weight:	52,9 Lbs	24 kg
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PIPEMILL E

PipeMill 8E is electric version of PipeMill. The machine can cover the same pipe sizes and comes with the same cutting head. The electric motor with 4 speed mechanical gear box has also variable speed control and produce enormous torque on the cutter blade. Is interchangeable with pneumatic drive and can be purchased separately at any time. Take 5 min to replace from pneumatic to electric.

DUDE-2000-4-SPEED

Motor free speed	120-210-380-650 RPM
Motor power	2000 Watt
Motor torque (on the 1st gear)	240 Nm (180 Ft.Lbs)
Machine feed stroke	40 mm (1,6")
Cutter head speed	10-17-30-50 rpm
Max torque on cutter blade (on the 1st gear)	3096 Nm (2290 Ft.Lbs)

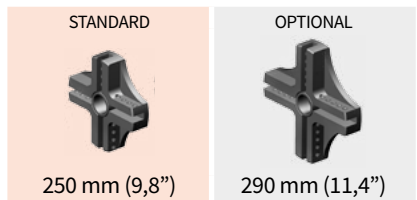


AVAILABLE GEARBOX CONFIGURATIONS

This tool comes with one chosen gearbox as a standard. Torque/speed depends on gear configuration:

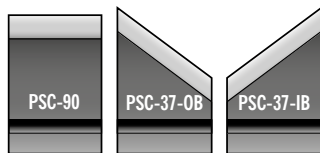
2544 Nm / 15 RPM	1908 Ft.Lbs / 15 RPM
1883 Nm / 20 RPM	1415 Ft.Lbs / 20 RPM
1290 Nm / 28 RPM	969 Ft.Lbs / 28 RPM
971 Nm / 37 RPM	730 Ft.Lbs / 37 RPM

UNIVERSAL CUTTER HEADS

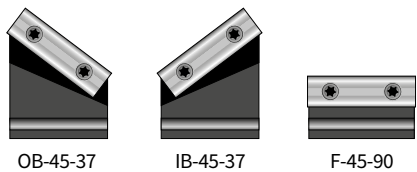


STANDARD CUTTERS

For use without holders
BIT: HSS and HSS Cobalt



HOLDERS FOR PIPEMILL



SAV-500 SPEED ADJUSTMENT VALVE



Perfect solution for all our pneumatic driven bevelling machines for adjusting cutting speed to suit to the machined tube diameter.

LOCKING RANGES WITH STANDARD JAWS

RANGE [MM]		RANGE [INCH]		JAWS	EXTENSIONS		
MIN	MAX	MIN	MAX	SM-42	A	B	C
50,0	65,0	1,969	2,559	SM-42			
65,0	80,0	2,559	3,150	SM-42	ML-42-A-75		
80,0	95,0	3,150	3,740	SM-42	ML-42-A-150		
95,0	110,0	3,740	4,331	SM-42	ML-42-A-225		
110,0	125,0	4,331	4,921	SM-42	ML-42-A-300		
125,0	140,0	4,921	5,512	SM-42	ML-42-A-375		
140,0	155,0	5,512	6,102	SM-42			SML-42-C
155,0	170,0	6,102	6,693	SM-42	ML-42-A-75		SML-42-C
170,0	184,5	6,693	7,264	SM-42	ML-42-A-150		SML-42-C
184,5	199,0	7,264	7,835	SM-42	ML-42-A-225		SML-42-C
199,0	214,0	7,835	8,425	SM-42	ML-42-A-300		SML-42-C
214,0	229,0	8,425	9,016	SM-42	ML-42-A-375		SML-42-C
229,0	244,5	9,016	9,626	SM-42		ML-42-B	SML-42-C
244,5	259,5	9,626	10,217	SM-42	ML-42-A-75	ML-42-B	SML-42-C
259,5	274,0	10,217	10,787	SM-42	ML-42-A-150	ML-42-B	SML-42-C
274,0	289,0	10,787	11,378	SM-42	ML-42-A-225	ML-42-B	SML-42-C
289,0	304,0	11,378	11,969	SM-42	ML-42-A-300	ML-42-B	SML-42-C
304,0	319,0	11,969	12,559	SM-42	ML-42-A-375	ML-42-B	SML-42-C

PIPEMILL PERFORMANCE



MiniLathe

- Most powerful machine within this size range on the market today. Utilises a powerful 2.2kW (3 HP) pneumatic motor that is entirely engineered and manufactured by KRAIS for the largest end prep systems.
- MiniLathe comes with one of 3 gearboxes as a standard. It gives a wide choice for operator. No need for extra gearbox that reduces the RPM and multiplies the torque - it comes as standard!
- Innovative 6 point locking system assures maximum stability during all machining operations.
- Self-centering 2,75" one piece locking shaft with build in jaws, eliminates the issue of broken or loosening retaining springs and o-rings.
- Only one mandrel and 10 Jaw sets needed to cover machines entire range.
- Wide clamps produce superior clamping force for chatter free end preps.
- Fully portable for on-site and Fab-shop work.
- Available for sale or rent.



MINILATHE PERFORMANCE



STANDARD WORKING RANGE*			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	POWER	FREE SPEED	TORQUE
72 – 406 mm	72 – 400 mm	50 mm	3,0 Hp	Depends on gear	
2,800 – 16,000"	2,800 – 15,700"	2"			

RECOMMENDED FOR: Pipe facing ■ Pipe beveling

Air use:	70 cfm	2,2 m ³ /min	Air pressure:	90 PSI	6,2 Bar	Body weight:	35 kg	75 Lbs	Body dim.	640*330*300 mm	25*13*12"
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* other capacity and locking range are available – please consult factory!

UNIQUE SHAFT DESIGN



70 mm (2,75") shaft, assures rigidity when machining heavy wall pipe. The jaws are fully contained within the shaft with no need for retaining springs or O-rings that easily brake or get lost.

POWERFUL MOTOR UNIT



Powerful and efficient drives dedicated for our Lathe series beveling machines. 11-21 rpm and 1770-3490 Nm (1327-2620 Ft.Lbs, depend the gear box) torque on the cutter blade is a standard feature.

6 POINTS LOCKING JAWS




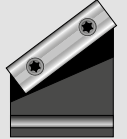
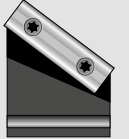
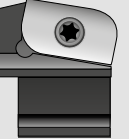
The innovative, 6 points jaws, effectively lock the machine within the pipe, allowing safe, efficient and smooth processing of the tube end.

CHOOSE YOUR GEARBOX

This tool comes with one of 3 gearboxes as a standard. Torque/speed depends on gear configuration:

3490 Nm / 11 RPM	2620 Ft.Lbs / 11 RPM
2615 Nm / 15 RPM	1960 Ft.Lbs / 15 RPM
1770 Nm / 21 RPM	1327 Ft.Lbs / 21 RPM

HOLDERS FOR MINILATHE

Facing (2CDI insert)	Inside bevelling and boring (2CDI insert)	Outside bevelling (2CDI insert)	J bevelling (2CDJ-Rxx insert)
			
F-45-90	IB-45-37 IB-45-10	OB-45-45 OB-45-37 OB-45-30 OB-45-10	JP-45-45 JP-45-37 JP-45-30

For other tool bits please send your request.

LOCKING RANGES WITH STANDARD JAWS

Jaw set	ID Range [mm]		Segment A	Segment B	Segment C
	Min	Max			
ML-42	70,00	85,00	x	x	x
ML-42	85,00	100,00	ML-42-A-75	x	x
ML-42	100,00	115,00	ML-42-A-150	x	x
ML-42	115,00	130,00	ML-42-A-225	x	x
ML-42	130,00	145,00	ML-42-A-300	x	x
ML-42	145,00	160,00	ML-42-A-375	x	x
ML-42	160,00	175,00	x	x	ML-42-C
ML-42	175,00	190,00	ML-42-A-75	x	ML-42-C
ML-42	190,00	205,00	ML-42-A-150	x	ML-42-C
ML-42	205,00	220,00	ML-42-A-225	x	ML-42-C
ML-42	220,00	235,00	ML-42-A-300	x	ML-42-C
ML-42	235,00	250,00	ML-42-A-375	x	ML-42-C
ML-42	250,00	265,00	x	ML-42-B	ML-42-C
ML-42	265,00	280,00	ML-42-A-75	ML-42-B	ML-42-C
ML-42	280,00	295,00	ML-42-A-150	ML-42-B	ML-42-C
ML-42	295,00	310,00	ML-42-A-225	ML-42-B	ML-42-C
ML-42	310,00	325,00	ML-42-A-300	ML-42-B	ML-42-C
ML-42	325,00	340,00	ML-42-A-375	ML-42-B	ML-42-C
ML-42	340,00	355,00	ML-42-A-300 ML-42-A-150	ML-42-B	ML-42-C
ML-42	355,00	370,00	ML-42-A-300 ML-42-A-225	ML-42-B	ML-42-C
ML-42	370,00	385,00	ML-42-A-375 ML-42-A-225	ML-42-B	ML-42-C
ML-42	385,00	400,00	ML-42-A-375 ML-42-A-300	ML-42-B	ML-42-C

EXPANDABLE HOLDERS



Machine is equipped with 8" standard cutter head. Optional 12" available on request.

OPTIONAL SLIDE BEARING



As an option we can supply a bronze slide bearing that delivers more stability and rigidity while machining a very hard materials and heavy wall pipes.

OPTIONAL DOUBLE-SIDED YOKE



In order to facilitate the assembly of the machine in the pipe, the machine optionally can be equipped with a double-sided yoke with removable extensions so that two people can freely install into the processed pipe.

HEAVY DUTY PENDANT



Machine is equipped with a heavy duty pendant. This can be attached to both sides of the motor for operator convenience.

OPTIONAL MOTOR UNITS



The MiniLathe can also be supplied as an electric version, with a 1750 Watt heavy duty right angle motor drive.



For thin wall application (up to 1" / 25,4 mm) is an electric motor DUDE-2000-4-SPEED, which offers 4 speed: 120-210-380-650 RPM



Optional super strong KRAIS hydraulic motor. Constructed on the basis of a small hydraulic motor and multistage planetary gear box. MiniLathe version generates 23 rpm and up to 3850 Nm (2840 Ft.Lbs) torque on cutter blade at constant cutting speed.

HyperLathe

- › Powerful 3.5 HP pneumatic drive generating 7500 Nm (5,530 ft.lbs) torque on the cutter blade. Variable speed control 0-10 rpm.
- › No need for extra gear box that reduces the rpm and multiplies the torque. It comes as standard!
- › 4" One piece locking shaft with build in jaws, eliminates the issue of broken or loosening retaining springs and o-rings
- › One mandrel covers complete working range.
- › Innovative 6 point locking system assures maximum stability during all machining operations.
- › Only one mandrel and 10 Jaw sets needed to cover machines entire range.
- › Self-centering shaft with build in jaws.
- › Wide Clamps produce superior clamping force for chatter free end preps.
- › Fully portable for on-site and Fab-shop work.
- › Available for sale or rent.



STANDARD WORKING RANGE*			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	POWER	FREE SPEED	TORQUE
101 – 508 mm	101 – 500 mm	60 mm	3,5 Hp	10 Rpm	7500 Nm
4,0 – 20,0"	4,0 – 19,6"	2,4"			5530 Ft.Lbs

RECOMMENDED FOR: Pipe facing ■ Pipe beveling

Air use:	85 cfm	2,8 m ³ /min	Air pressure:	90 PSI	6,2 Bar	Body weight:	84 kg	185 Lbs	Body dim.	800*425*400 mm	31*17*16"
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* other capacity and locking range are available – please consult factory!

6 POINT LOCKING JAWS



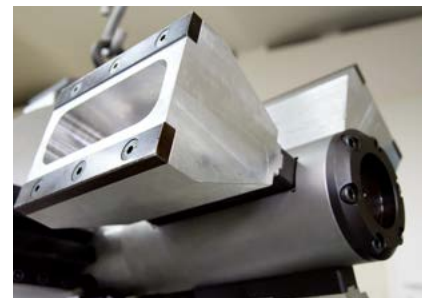
The Innovative, 6 points jaws, effectively lock the machine within the pipe, allowing safe, efficient and smooth processing of the tube end.

POWERFUL MOTOR UNIT



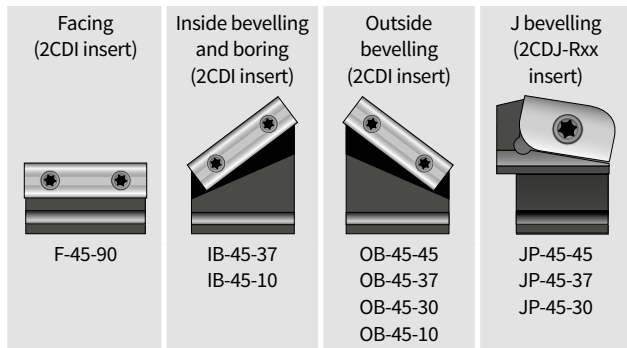
Powerful and efficient drives dedicated for our Lathe series beveling machines. 10 rpm and 7500 Nm (5530 Ft.Lbs) torque on the cutter blade is a standard feature.

UNIQUE SHAFT DESIGN



100 mm (4") shaft, assures rigidity when machining heavy wall pipe. The jaws are fully contained within the shaft with no need for retaining springs or O-rings that easily brake or get lost.

HOLDERS FOR HYPERLATHE



F-45-90

IB-45-37
IB-45-10

OB-45-45
OB-45-37
OB-45-30
OB-45-10

JP-45-45
JP-45-37
JP-45-30

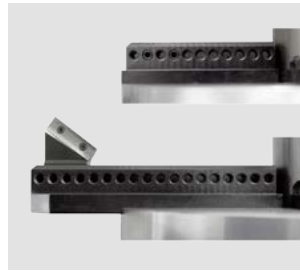
For other tool bits please send your request .

HEAVY DUTY PENDANT



Machine is equipped with a heavy duty pendant. This can be attached to both sides of the motor for operator convenience.

EXTENDABLE HOLDERS



Extended tool holders can increase the range of the machine due its extremely powerful pneumatic drive.

OPTIONAL MOTOR UNITS



The HyperLathe can also be supplied as an electric version, with a 3200 Watt heavy duty motor.



Optional super strong KRAIS hydraulic motor. Constructed on the basis of a small hydraulic motor and multistage planetary gear box. HyperLathe version generates 11 rpm and up to 8200 Nm (6050 Ft.Lbs) torque on cutter blade at constant cutting speed.

HYPERLATHE PERFORMANCE



ID Clamping End Prep Tool 4" I.D. to 19" O.D. 101,4 mm I.D. to 500,0 mm O.D.



Machining pipe 18" schedule 160

LOCKING RANGES WITH STANDARD JAWS

Jaw set	ID Capacity [mm]		Segment A	Segment B	Segment C
	Min	Max			
HL-42	100	120	x	x	x
HL-42	120	140	HL-42-A-100	x	x
HL-42	140	160	HL-42-A-200	x	x
HL-42	160	180	HL-42-A-300	x	x
HL-42	180	200	HL-42-A-400	x	x
HL-42	200	220	HL-42-A-500	x	x
HL-42	220	240	x	HL-42-B	x
HL-42	240	260	HL-42-A-100	HL-42-B	x
HL-42	260	280	HL-42-A-200	HL-42-B	x
HL-42	280	300	HL-42-A-300	HL-42-B	x
HL-42	300	320	HL-42-A-400	HL-42-B	x
HL-42	320	340	HL-42-A-500	HL-42-B	x
HL-42	340	360	x	x	HL-42-C
HL-42	360	380	HL-42-A-100	x	HL-42-C
HL-42	380	400	HL-42-A-200	x	HL-42-C
HL-42	400	420	HL-42-A-300	x	HL-42-C
HL-42	420	440	HL-42-A-400	x	HL-42-C
HL-42	440	460	HL-42-A-500	x	HL-42-C

PipeLathe

- ▶ Powerful 3.5 HP pneumatic drive generating 12500 Nm (9259 ft.lbs) torque on the cutter blade. Variable speed control 0-5 rpm.
- ▶ No need for extra gear box that reduces the rpm and multiplies the torque. It comes as standard!
- ▶ 150 mm (5,9") One piece locking shaft with build in jaws, eliminates the issue of broken or loosening retaining springs and o-rings.
- ▶ One mandrel covers complete working range.
- ▶ Innovative 6 point locking system assures maximum stability during all machining operations.
- ▶ Only one mandrel and 6 Jaw sets needed to cover machines entire range.
- ▶ Self-centering shaft with build in jaws.
- ▶ Wide Clamps produce superior clamping force for chatter free end preps.
- ▶ Fully portable for on-site and Fab-shop work.
- ▶ Available for sale or rent.

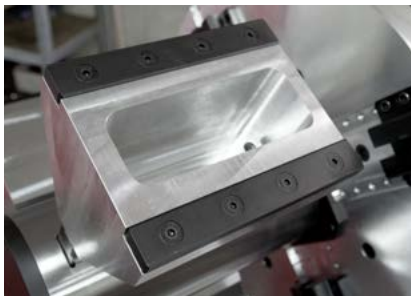


STANDARD WORKING RANGE*			MOTOR PARAMETERS		
APPLICATION RANGE	LOCKING RANGE (ID)	FEED STROKE	POWER	FREE SPEED	TORQUE
180 – 609 mm	180 – 600 mm	60 mm	3,5 Hp	5 Rpm	12 500 Nm
7,0 – 24,0"	7,0 – 23,6"	2,4"			9259 Ft.Lbs

RECOMMENDED FOR: Pipe facing ■ Pipe beveling											
Air use:	95 cfm	2,8 m ³ /min	Air pressure:	90 PSI	6,2 Bar	Body weight:	225 kg	495 Lbs	Body dim.	950*550*500 mm	38*22*22"

* other capacity and locking range are available – please consult factory!

6 POINT LOCKING JAWS



150 mm (5,9") shaft, assures rigidity when machining heavy wall pipe. The jaws are fully contained within the shaft with no need for retaining springs or O-rings that easily brake or get lost

POWERFUL MOTOR UNIT



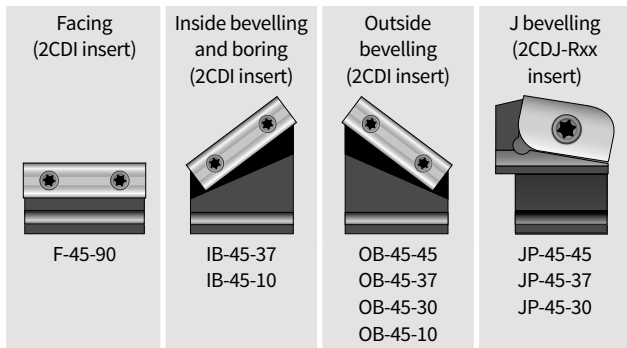
Powerful and efficient drive dedicated for our Lathe series beveling machines. 0-5 rpm and 12500 Nm (9200 ft.lbs) torque on the cutter blade is a standard feature.

PIPELATHE UNIQUE DESIGN



All the Lathe series machine design is based on long steel spindle which assure maximum rigidity because the locking shaft is fully mounted into that spindle instead partially into the main aluminium body what is causing adverse vibration due to a lot of tension on it.

HOLDERS FOR MINILATHE



For other tool bits please send your request .

HEAVY DUTY PENDANT



Machine is equipped with a heavy duty pendant. This can be attached to both sides of the motor for operator convenience.

EXTENDABLE HOLDERS



Extended tool holders can increase the range of the machine due its extremely powerful pneumatic drive.

OPTIONAL MOTOR UNITS



The PipeLathe can also be supplied as an electric version, with a 3200 Watt heavy duty motor.



Optional super strong KRAIS hydraulic motor. Constructed on the basis of a small hydraulic motor and multistage planetary gear box. PipeLathe version generates 6 rpm and up to 14200 Nm (10475 Ft.Lbs) torque on cutter blade at constant cutting speed.

OPTIONAL 36" EXTENSION KIT



Due to huge torque of our PipeLathe pneumatic we offer special extension kit for this machine to increase working range up to 36" OD pipe. The steel made cutter head is installed directly on the original 24" aluminium cutter head. Extra long and wide jaw extensions are fixed on the existing jaw set.

LOCKING RANGES WITH STANDARD JAWS

JAW SET	ID CAPACITY [MM]		SEGMENT A	SEGMENT B	SEGMENT C
	MIN	MAX			
PL-42	175,0	200,0	x	x	x
PL-42	200,0	225,0	PL-42-A-125	x	x
PL-42	225,0	250,0	PL-42-A-250	x	x
PL-42	250,0	275,0	PL-42-A-375	x	x
PL-42	275,0	300,0	PL-42-A-500	x	x
PL-42	300,0	325,0	PL-42-A-500 PL-42-A-125	x	x
PL-42	325,0	350,0	PL-42-A-500 PL-42-A-250	x	x
PL-42	350,0	375,0	x	PL-42-B	x
PL-42	375,0	400,0	PL-42-A-125	PL-42-B	x
PL-42	400,0	425,0	PL-42-A-250	PL-42-B	x
PL-42	425,0	450,0	PL-42-A-375	PL-42-B	x
PL-42	450,0	475,0	PL-42-A-500	PL-42-B	x
PL-42	475,0	500,0	x	x	PL-42-C
PL-42	500,0	525,0	PL-42-A-125	x	PL-42-C
PL-42	525,0	550,0	PL-42-A-250	x	PL-42-C
PL-42	550,0	575,0	PL-42-A-375	x	PL-42-C
PL-42	575,0	600,0	PL-42-A-500	x	PL-42-C

PIPELATHE PERFORMANCE



Machining pipe 24" schedule 160



ID Clamping End Prep Tool 7" I.D. to 23,6" O.D. 180 mm I.D. to 600 mm O.D.

FlangeMill H

Presenting our I.D. mount flange facing machines. It is a quick and easy way to remachine damaged flat and raised faced flanges on site. FlangeMill-H is designed and built based on our HyperMill-55 pneumatic or electric that is converted to a dedicated flange facer. The machine comes factory configured .

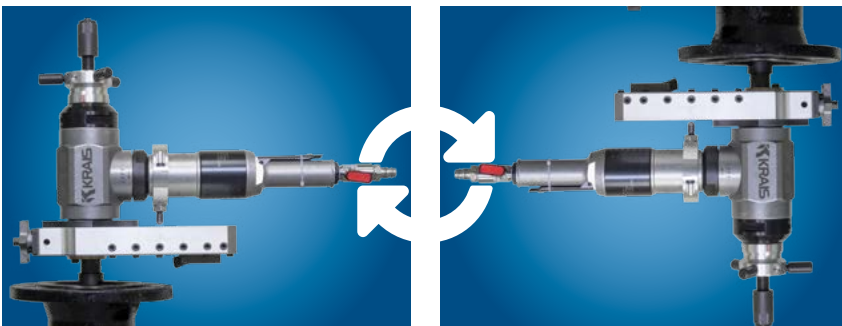


STANDARD WORKING RANGE				MOTOR PARAMETERS		
APPLICATION RANGE	SURFACE FINISH	FEED STROKE	FEED SPEED	FREE SPEED	POWER	TORQUE
44 – 356 mm	63 to 250 RMS	38 MM	0,15 MM/PIN	55 Rpm	1,7 HP	280 Nm
1,750 – 14,000"		1,500"	0,005"/PIN			210 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Weld removal

Air use:	55 cfm	1,3 m ³ /min	Body width:	2,32"	59 mm	Body height:	13,1"	335 mm	Body weight:	30,6 Lbs	13,9 kg
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MACHINING IN EVERY POSITION



FlangeMill can be rotated under any angle. Machine can be used for machining flanges in every position.

FlangeMill HE

Presenting our I.D. mount flange facing machines. It is a quick and easy way to remachine damaged flat and raised faced flanges on site. FlangeMill-H is designed and built based on our HyperMill-55 E electric that is converted to a dedicated flange facer. The machine comes factory configured.



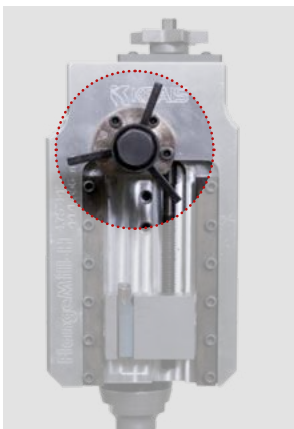
FlangeMill HE is powered by dedicated, powerful electric drive with tachometer speed control.

STANDARD WORKING RANGE				MOTOR PARAMETERS		
APPLICATION RANGE	SURFACE FINISH	FEED STROKE	FEED SPEED	FREE SPEED	POWER	TORQUE
44 – 356 mm	63 to 250 RMS	38 MM	0,15 MM / PIN	55 Rpm	1,1 kW	366 Nm
1,750 – 14,000"		1,500"	0,005" / PIN			280 Ft.Lbs

RECOMMENDED FOR: Tube facing ■ Tube bevelling ■ Weld removal

Power use:	110V / 220V	Body width:	2,32" / 59 mm	Body height:	13,1" / 335 mm	Body weight:	34,2 Lbs / 15,5 kg
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ACCURATE LOCKING SYSTEM



Both version of FlangeMill uses the same internal locking system for safety and better accuracy.

MACHINING IN EVERY POSITION



FlangeMill can be rotated under any angle. Machine can be used for machining flanges in every position.

MFM Manual FlangeMill

Simple and cost-effective solution for I.D. mount flange facing. It is a quick and easy way to reface a damaged flat, grooves in pipe flanges on site. Manual FlangeMill size and body is designed and built to allow quick and convenient processing of small flanges in awkward or dangerous locations.



STANDARD WORKING RANGE				
FACING RANGE	LOCKING RANGE	MAX V TOOL TRAVEL	MAX H TOOL TRAVEL	MIN SWING DIAMETER
30 – 350 mm	25,4 – 254,0 MM	10 MM	55,0 MM	457,2 MM
1,250 – 14,000"	1,000 – 10,000"	0,395"	2,165"	18,000"

RECOMMENDED FOR: Remachining flanges

Drive:	Manual	Body width:	6,5"	165 mm	Body height:	12,8"	325 mm	Body weight:	19,4 Lbs	8,8 kg
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MACHINING IN EVERY POSITION



Manual FlangeMill can be freely rotated to work in every position. Remachining damaged flat, grooves and raised faced flanges on site is possible in every position.

STABLE MOUNTING IN THE PIPE



The tool depth can be adjusted (10 mm stroke) thru spindle to define cut depth and the correct finish.

EASE OF USE



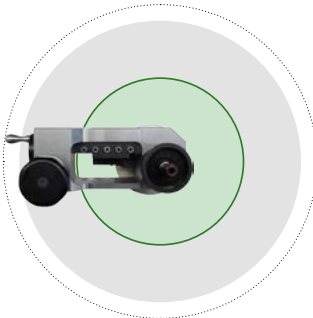
The tool arm is rotated by hand using a worm-gear mechanism to provide a perfect spiral finish.

SMOOTH OPERATION



Quick adjustment handle to move the cutter to groove position

TOOL SWING DIAMETERS



FACING RANGE: 30,0 – 350,0 MM | 1,250" - 14"

BODY SWING DIAMETER: 460 mm | 18"

WHOLE TOOL SWING DIAMETER: 560 mm | 22"

MFM IN ACTION

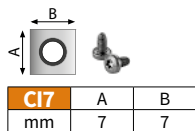


Refaced and re grooved flange with MFM

MFM TOOL BITS AND HOLDER



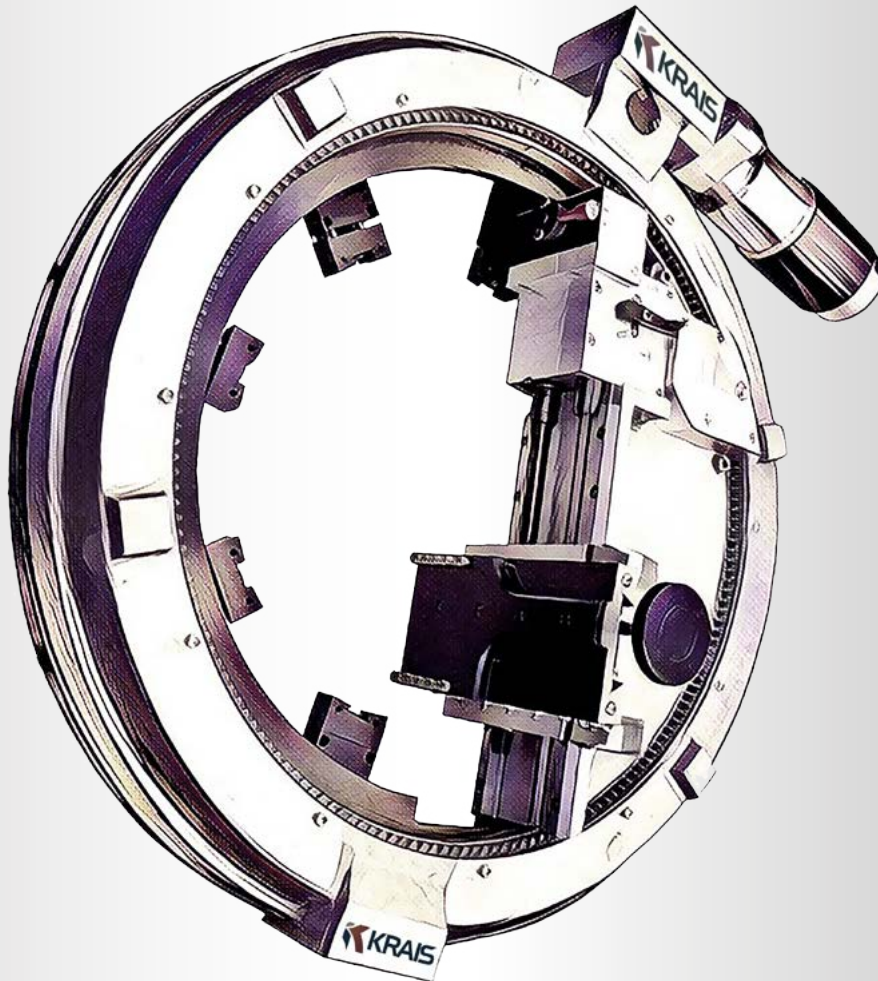
Manual Flange Mill uses one just type of holders: MFMH-7-L and MFMH-7-R with carbide insert C17 (screw MHS-2,7)



COMING SOON

OD mount Flanges Facers

(UP TO 42")



We introduce our next pipe working machine. You can expect to see new KRAIS OD Mount Flange Facer in 2017!

The tool is going to be safe, versatile and rugged machine which can rework many flange types, up to 42 inches in diameter without any attachments.

PART TWO

OD CLAMPING MACHINES



› SlimFit Split Frame Clamshells



KRAIS SFSF portable SLIM FIT Clamshell series are designed for strength and easy handling. Each of the machine from the SFSF series have a height of 3,248" (82,5 mm) up 24" and 4,47" (113,7 mm) up to 48" and a width of 2.5" (63,5 mm) resulting narrow body low profile design that makes the SFSF series the ideal choice in tight spaces .

- › 15 Standard models cover a range from 1." (33,4 mm) to 48" (1219 mm) OD
- › Pneumatic, hydraulic and electric drive options are available .
- › Motor mount on keyways to prevent the motor to twist and potential damage on gear ring .
- › Several different drive options are available to best position the motor for a specific machining application
- › All pneumatic and electric motors are design and Manufactured by KRAIS after 20 years experience of manufacturing pneumatic drives for boiler and heat exchangers tube rolling motors.
- › SFSF series clamshells can be equipped a wide range of accessories to increase performance and expand capabilities
- › Adjustable locator pads minimize the number of locators.



TOOL HOLDER



Choice of 3 positions with different travel length tool holder with heat treated slights.

TRIPPER MODULE



Lever type tripper module for operator safety.

QUALITY MATERIALS

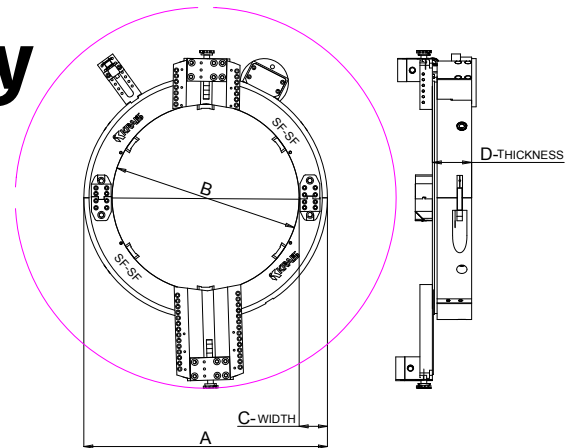


Steel plates on the back part for machine squaring on the pipe .

Clamshells capacity

General technical machine information to enable to make the right choice to suit your application.

For our SFSF clamshells we offer a wide range of pneumatic , electric made 100% in house and hydraulic choose by our engineers or upon customer preference . Such a big range and variety of parameters allow us to select motor to achieve to best and most post suitable cutting speed to machined pipe material and diameter .



Model	Pipe Capacity			Dimensions								Locator Pads	Gear ring ratio
	Unit	Min OD	Max OD	Unit	A	B	C	D	1" Slide Swing	3" Slide Swing	6" Slide Swing		
SFSF-0204	NPS	2,000	4,000	[inch]	9,685	4,736	2,500	3,248	12,165	16,165		4	4,6:1
	Metric	60,32	127,00	[mm]	246,00	120,30	63,50	82,50	309,00	410,60			
SFSF-0256	NPS	2,500	6,000	[inch]	11,831	6,858	2,500	3,248	14,339	18,339		4	5,7:1
	Metric	73,02	168,27	[mm]	300,50	174,20	63,50	82,50	364,20	465,80			
SFSF-0358	NPS	3,500	8,000	[inch]	13,819	8,846	2,500	3,248	16,339	20,339	26,339	4	6,7:1
	Metric	101,60	219,07	[mm]	351,00	224,70	63,50	82,50	415,00	516,60	669,00		
SFSF-0410	NPS	4,500	10,000	[inch]	16,220	11,236	2,500	3,248	18,756	22,756	28,756	4	7,8:1
	Metric	127,00	273,05	[mm]	412,00	285,40	63,50	82,50	476,40	578,00	730,40		
SFSF-0612	NPS	6,000	12,000	[inch]	18,150	13,236	2,500	3,248	20,843	24,843	30,843	4	8,9:1
	Metric	168,27	323,85	[mm]	461,00	336,20	63,50	82,50	529,40	631,00	783,40		
SFSF-0814	NPS	8,000	14,000	[inch]	19,488	14,484	2,500	3,248	22,063	26,063	32,063	6	9,5:1
	Metric	219,07	355,60	[mm]	495,00	367,90	63,50	82,50	560,40	662,00	814,40		
SFSF-1016	NPS	10,000	16,000	[inch]	21,457	16,484	2,500	3,287	24,102	28,102	34,102	6	10,6:1
	Metric	273,05	406,40	[mm]	545,00	418,70	63,50	83,50	612,20	713,80	866,20		
SFSF-1218	NPS	12,000	18,000	[inch]	23,504	18,484	2,500	3,287	26,224	30,224	36,224	6	11,6:1
	Metric	323,85	457,20	[mm]	597,00	469,50	63,50	83,50	666,10	767,70	920,10		
SFSF-1420	NPS	14,000	20,000	[inch]	25,472	20,848	2,500	3,287	28,150	32,150	38,150	6	12,6:1
	Metric	355,60	508,00	[mm]	647,00	520,30	63,50	83,50	715,00	816,60	969,00		
SFSF-1624	NPS	16,000	24,000	[inch]	29,488	24,406	2,500	3,287	32,268	36,268	42,268	10	14,6:1
	Metric	406,40	609,60	[mm]	749,00	619,90	63,50	83,50	819,60	921,20	1073,60		
SFSF-2028	NPS	20,000	28,000	[inch]	33,900	28,750	2,757	4,476	36,516	40,516	46,516	10	16,9:1
	Metric	508,00	711,20	[mm]	861,10	730,30	65,40	113,70	927,50	1029,10	1181,50		
SFSF-2432	NPS	24,000	32,000	[inch]	38,150	33,000	2,757	4,476	40,787	44,787	50,787	10	19:1
	Metric	609,60	812,80	[mm]	969,00	838,20	65,40	113,70	1036,00	1137,60	1290,00		
SFSF-2836	NPS	28,000	36,000	[inch]	42,150	37,000	2,757	4,476	44,913	48,913	54,913	10	21:1
	Metric	711,20	914,40	[mm]	1070,60	939,80	65,40	113,70	1140,80	1242,40	1394,80		
SFSF-3442	NPS	34,000	42,000	[inch]	48,150	43,000	2,757	4,476	50,906	54,906	60,906	10	24,2:1
	Metric	863,60	1066,80	[mm]	1223,00	1092,20	65,40	113,70	1293,00	1394,60	1547,00		
SFSF-4048	NPS	40,000	48,000	[inch]	54,402	49,525	2,757	4,476	57,276	61,276	67,276	12	27,3:1
	Metric	1016,00	1219,20	[mm]	1381,80	1251,00	65,40	113,70	1454,80	1556,40	1708,80		

SFSF clamshells motors

RECOMMENDED PNEUMATIC MOTORS

Unit	Motor	Power	Complete weight
		Hp	Kg
SF-4	B50-100X	1,3	11
SF-6	HM-252	2,2	17
SF-8	HM-252	2,2	20
SF-10	HM-252	2,2	27
SF-12	HM-252	2,2	23
SF-14	HM-198	2,2	28
SF-16	HM-198	2,2	32
SF-18	K72-LT-90	3,5	36
SF-20	K72-LT-90	3,5	39
SF-24	PD248U	3,5	52
SF-28	PD248U	3,5	95
SF-32	PD248U	3,5	107
SF-36	PD248U	3,5	118
SF-42	PD248U	3,5	137
SF-48	PD248U	3,5	153

* Only proposal and subject to change upon customer requirement and application

ALL PNEUMATIC MOTORS



Motor	Rightangle	Speed	Power	Torque	Air consumption		Air pressure	
		RPM	Hp	Nm	Lt/min	cfm	bar	psi
B50-100X	no	200	1,3	70	1300	55	6,2	90
B50-115-RA	yes	115	1,3	186	1300	55	6,2	90
B50-210-RA	yes	210	1,3	102	1300	55	6,2	90
B50-290-RA	yes	290	1,3	74	1300	55	6,2	90
HM-198	no	198	2,2	186	2200	75	6,2	90
HM-252	no	252	2,2	150	2200	75	6,2	90
HM-379	no	379	2,2	105	2200	75	6,2	90
HM-498	no	498	2,2	83	2200	75	6,2	90
K72-LT-90	yes	90	2,2	405	2200	75	6,2	90
K73-LT-190	yes	190	2,2	200	2200	75	6,2	90
PD248U	no	185	3,5	416	2800	95	6,2	90
PD348U	no	60	3,5	1250	2800	95	6,2	90

FIRST CHOICE ELECTRIC DRIVE



Motor	Reversible	Motor speed	Power	Torque	Voltage
		rpm	Watt	Nm	Volt
DUDE-2000-4-speed	YES	120-210-380-650	2000	240 Nm	110 / 230

RECOMMENDED ELECTRIC MOTORS

Unit	Motor	Power	Complete weight
		Watt	Kg
SF-4	ED-230	750	11
SF-6	ED-230	750	17
SF-8	ED-230	750	20
SF-10	K90E90	1100	27
SF-12	K90E90	1100	23
SF-14	K90E90	1100	28
SF-16	K90E90	1100	32

* Only proposal and subject to change upon customer requirement and application

HIGH END SERVO DRIVE WITH CONTROL BOX (3 PHASE)



Motor	Power	Voltage
Option 1	2300 W	390 – 440 V
Option 2	4300 W	390 – 440 V

ALL ELECTRIC MOTORS

Motor	Rightangle	Motor speed	Motor power	Motor Torque	Voltage
		rpm	Watt	Nm	Volt
K90E90	yes	90	1150	510	230
K90E190	yes	190	1150	260	230
K90E280	yes	280	1150	190	230

K90Exxx



HYDRAULIC MOTOR

Motor	Motor speed	Motor Power	Torque (max continues)	Oil working pressure		Oil flow rate min. required	
	rpm	Hp	Nm	bar	psi	Lt/min	gpm
HTB-165	343	16,7	273	190	2750	57	15



HTB-165

For this motor we recommend our hydraulic Powerpack, see page 5

RECOMMENDED HYDRAULIC MOTORS

Unit	Motor	Power	Complete weight
		Hp	Kg
SF-16	HTB-165	16,7	32
SF-18	HTB-165	16,7	36
SF-20	HTB-165	16,7	39
SF-24	HTB-165	16,7	52
SF-28	HTB-165	16,7	95
SF-32	HTB-165	16,7	107
SF-36	HTB-165	16,7	118
SF-42	HTB-165	16,7	137
SF-48	HTB-165	16,7	153

* Only proposal and subject to change upon customer requirement and application

› Reaction ring for SFSF clamshells

KRAIS SFSC REACTION RING IS PATENT PENDING! ALL RIGHTS RESERVED.



For super heavy applications with super heavy wall and/or hard alloy pipes, consider our ORR to enhance axial and linear stability. We manufacture the ORR steel ring, which mounts on the rear of the aluminium ring. The ORR is also equipped with 4 steel location stabilizers to enhance the range and rigidity of the machine for those heavy duty applications. The ORR dramatically increases the axial stability and rigidity when cutting and/or bevelling. This solution can help to save time and expense for clamshells completely made out of steel – ask your representative for more details.



SFSF-1624 with ORR mounted on the 24" pipe schedule 120

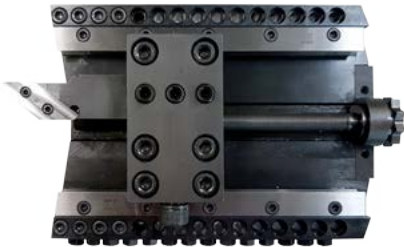


ORR mounted on the rear of the existing threaded holes in the aluminium ring.



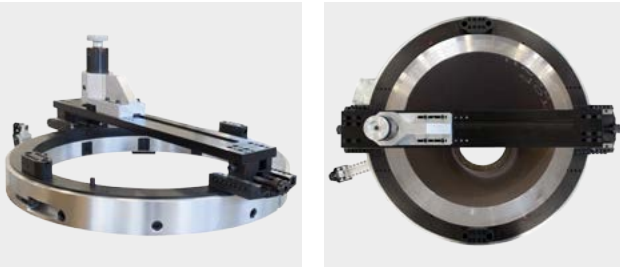
SFSF clamshells add-ons

TOOL SLIDES



KRAIS Tool Slides are rugged and built for strength and durability tool slides. Standard sizes are 1", 3" and 6". Others on request. Out-of-round and axial-feed tool slides are also available. Built with the same quality: for strength and durability as other KRAIS tool slides. KRAIS Slide construction dramatically eases tool slide mounting and locating.

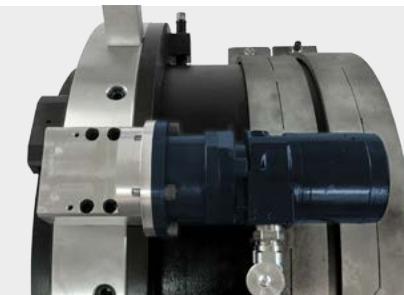
BCS - BRIDGE CROSS SLIDES



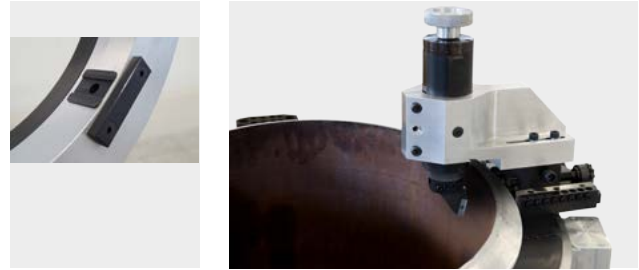
Bridge Cross Slides are available for all KRAIS Split Frame SlimFit series machines. Whether flange facing our single point heavy wall machining, the BCS quickly and easily bolts onto the split frame ring.

BCS NUMBER	RANGE [MM]		RANGE [INCH]	
	MIN	MAX	MIN	MAX
BCS-0814	203,2	355,6	8,000	14,000
BCS-1416	355,6	406,4	14,000	16,000
BCS-1618	406,4	457,2	16,000	18,000
BCS-1820	457,2	508,0	18,000	20,000
BCS-2024	508,0	609,6	20,000	24,000
BCS-2832	609,6	812,8	24,000	32,000
BCS-3236	812,8	914,4	32,000	36,000
BCS-3642	914,4	1066,8	36,000	42,000
BCS-4248	1066,8	1117,6	42,000	44,000

HYDRAULIC MOTOR



SFSF-CBA UNIVERSAL COUNTERBORE ATTACHMENT



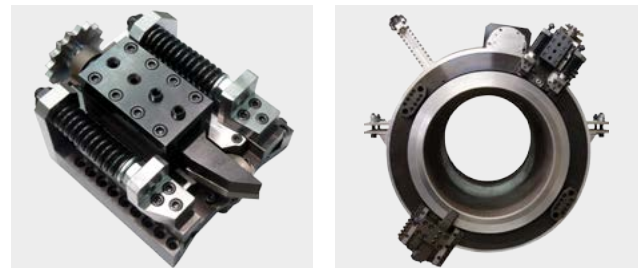
Designed for the precision counterboring of tube and pipe inside diameters. The universal counterbore is manufactured with both 6" (SFSF-CBA-150) and 10" (SFSF-CBA-254) long sleeves, and attaches directly to all KRAIS Split Frame SlimFit clamshells. The Universal Counterbore Attachment utilizes a simple and effective hand wheel to precisely control the counterboring process. Both versions (6" and 10") can be mounted directly to the tool slide or Bridge Cross Slide.

SFSF-SCBA SWIVEL HEAD COUNTERBORING ATTACHMENT



Designed for the precision counterboring of tube and pipe inside diameters. The swivel head attachment can also be used for flange facing, OD beveling and flange facing grooving. The swivel counterbore is manufactured with both 6" (SFSF-SCBA-150) and 10" (SFSF-SCBA-254) long sleeves, and attaches directly to all KRAIS Split Frame SlimFit clamshells. The Universal Counterbore Attachment utilizes a simple and effective hand wheel to precisely control the counterboring process. Both versions (6" and 10") can be mounted directly to the tool slide or Bridge Cross Slide.

OUT OF ROUND TOOL SLIDES



Out of round tool slides - can be solution for all misshapen tubes and pipes. Out of round slides feature durable springs and tracking module that follows the contours of a deformed or less than perfectly round pipe. Built with the same quality: for strength and durability as other KRAIS tool slides.

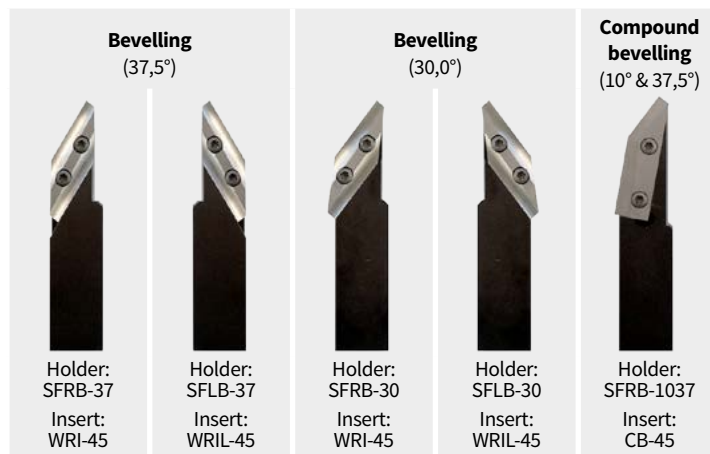
SFSF clamshells bits and holders

INSERTS FOR CLAMSHELLS

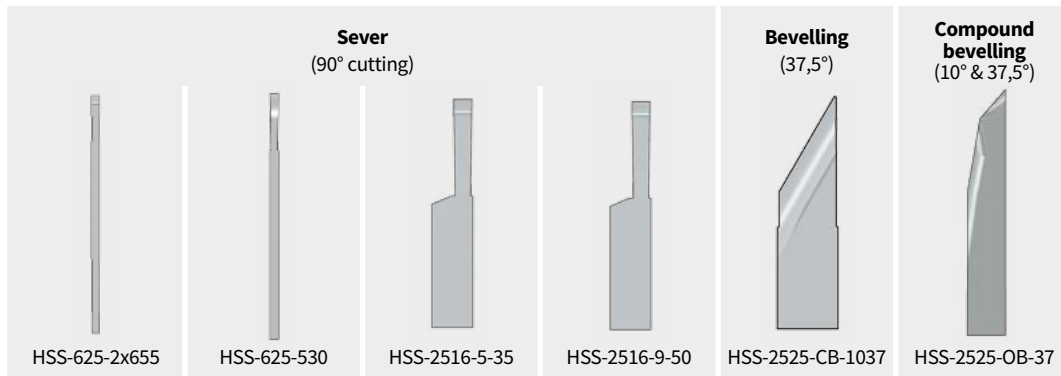


Insert **CSS** (HSS + 6% Cobalt) is available in **CSS-HL** (HSS + 6% Cobalt + Hard Lube coating) or **CSS-CB** (Carbide).

HOLDERS FOR CLAMSHELLS



For other tool bits please send your request.

CUTTERS FOR CLAMSHELLS

HSS tooling is also available in both **TiNi** and **Hard Lube coatings** (please consult factory for details).

For other tool bits please send your request.

PART 3

Accessories for beveling tools



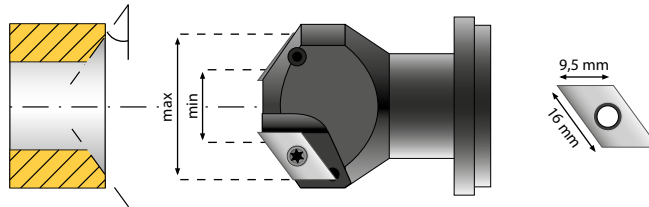
Special Heads for MiniMill/HyperMill

STWRMH

STRENGTH WELD REMOVAL
BIT: **HSS 6% Cobalt**
DEGREE: **37.5°**



Custom designed head dedicated for strength weld removal. The heads are sized per tube diameter and are precisely engineered so that the inserts cannot damage the shaft or locking jaws. Simple, trouble-free set up makes these heads very advantageous.



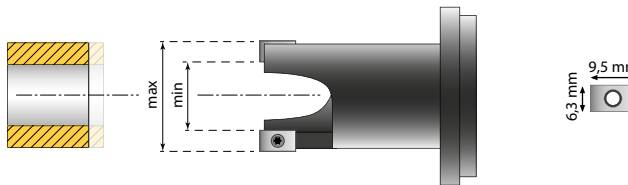
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		IN- SERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
STWRMH-190	0,750	19,05	12-23	0,530	1,46	13,50	37,00	WRI	2	901 MM#151 12,4 mm
STWRMH-222	0,875	22,23	12-23	0,650	1,496	16,50	38,00	WRI	2	905 MM#151 13,9 mm
STWRMH-254	1,000	25,40	10-23	0,732	1,654	18,60	42,00	WRI	2	909 MM#151 16,9 mm
STWRMH-285	1,125	28,58	10-23	0,858	1,772	21,80	45,00	WRI	2	915 MM#151 20 mm
STWRMH-317	1,250	31,75	9-23	0,945	1,850	24,00	47,00	WRI	2	STD Shaft: 20 or 25 mm
STWRMH-381	1,500	38,10	8-23	1,142	2,047	29,00	52,00	WRI	2	STD Shaft: 20 or 25 mm
STWRMH-444	1,750	44,45	8-23	1,417	2,244	36,00	57,00	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-508	2,000	50,80	6-23	1,575	2,480	40,00	63,00	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-571	2,250	57,15	6-23	1,811	2,717	46,00	69,00	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-603	2,375	60,33	6-23	1,949	2,854	49,50	72,50	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-635	2,500	63,50	6-23	2,067	2,972	52,50	75,50	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-762	3,000	76,20	6-23	2,579	3,484	65,50	88,50	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-889	3,500	88,90	6-23	3,071	3,976	78,00	101,00	CDI	2	STD Shaft: 20 or 25 mm
STWRMH-900	4,000	101,60	6-23	3,563	4,469	90,50	113,50	CDI	2	STD Shaft: 20 or 25 mm

TFMH

TUBE FACING MILLING HEAD
BIT: **HSS 6% Cobalt**
DEGREE: **90.0°**



A tube facing milling head created for facing tubes made of any type of material. Utilizes 6% cobalt inserts.



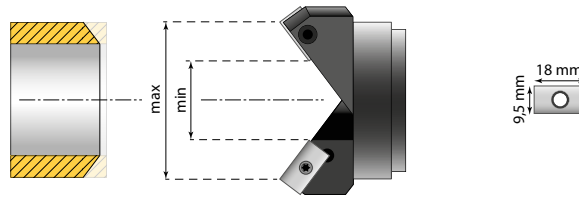
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
TFMH-145	0,570	14,48	16-23	0,441	0,870	11,2	22,1	CSZ	2	801 MM#151 Micro 10,0MM
TFMH-158	0,625	15,88	16-23	0,500	0,933	12,70	23,70	CSZ	2	805 MM#151 Micro 11,5 MM
TFMH-190	0,750	19,05	12-23	0,531	1,004	13,50	25,50	CSS	2	901 MM#151 12,4 mm
TFMH-222	0,875	22,23	12-23	0,654	1,063	16,60	27,00	CSS	2	905 MM#151 13,9 mm
TFMH-254	1,000	25,40	11-23	0,764	1,201	19,40	30,50	CSS	2	909 MM#151 16,9 mm
TFMH-285	1,125	28,58	11-23	0,854	1,307	21,70	33,20	CSS	2	915 MM#151 20,0 mm
TFMH-317	1,250	31,75	9-23	0,949	1,366	24,10	34,70	CSS	2	915 MM#151 20,0 mm
TFMH-381	1,500	38,10	9-23	1,197	1,614	30,40	41,00	CSS	2	915 MM#151 20,0 mm
TFMH-444	1,750	44,45	9-23	1,449	1,862	36,80	47,30	CS	2	MM#37
TFMH-508	2,000	50,80	9-23	1,701	2,114	43,20	53,70	CS	2	MM#37

OBMH

OUTSIDE BEVEL MILING HEAD
BIT: **HSS 6% Cobalt**
DEGREE: **37,5°**



Custom, precisely designed head. Dedicated for the outside bevelling of both tubes and pipes. Sized per tube or pipe diameter and angle of required weld bevel. The heads are precisely engineered so that the inserts cannot damage the shaft or locking jaws.



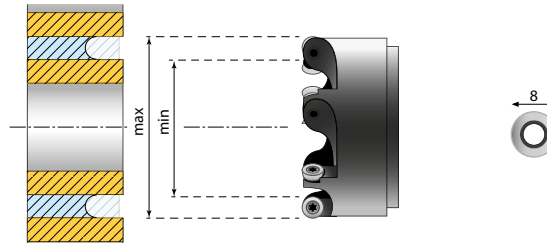
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
OBMH-190	0,750	19,05	14-23	0,5826	0,866	14,80	22,00	CS	2	901 MM#151 12,4 mm
OBMH-222	0,875	22,23	12-23	0,654	1,004	16,60	25,50	CS	2	905 MM#151 13,9 mm
OBMH-254	1,000	25,40	11-23	0,764	1,122	19,40	28,50	CS	2	909 MM#151 16,9 mm
OBMH-285	1,125	28,58	11-23	0,890	1,240	22,60	31,50	CS	2	915 MM#151 20 mm
OBMH-317	1,250	31,75	8-23	0,917	1,732	23,30	44,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-381	1,500	38,10	6-23	0,984	1,850	25,00	47,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-444	1,750	44,45	6-23	1,024	1,890	26,00	48,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-508	2,000	50,80	6-23	1,181	2,047	30,00	52,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-571	2,250	57,15	6-23	1,417	2,283	36,00	58,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-603	2,375	60,33	6-23	1,535	2,402	39,00	61,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-635	2,500	63,50	6-23	1,654	2,559	42,00	65,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-762	3,000	76,20	6-23	2,165	3,031	55,00	77,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-889	3,500	88,90	6-23	2,677	3,543	68,00	90,00	CDI	2	STD Shaft: 20 or 25 mm
OBMH-900	4,000	101,60	6-23	3,150	4,016	80,00	102,00	CDI	2	STD Shaft: 20 or 25 mm

MMRBMH

TUBE FACING MILING HEAD
BIT: **CARBIDE**



A seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.



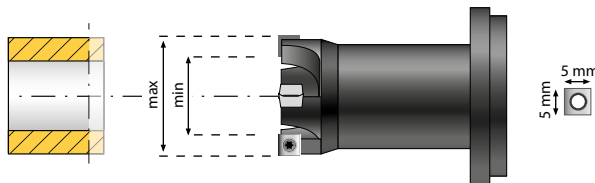
HEAD NR	TUBE CAPACITY		RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS
	[INCH]	[MM]	MIN	MAX	MIN	MAX		
MMRBMH-254	1,000	25,40	1,000	1,630	25,40	41,40	PO8	4
MMRBMH-288	1,125	28,58	1,134	1,764	28,80	44,80	PO8	5
MMRBMH-317	1,250	31,75	1,248	1,878	31,70	47,70	PO8	5
MMRBMH-381	1,500	38,10	1,500	2,130	38,10	54,10	PO8	6
MMRBMH-444	1,750	44,45	1,748	2,378	44,40	60,40	PO8	6
MMRBMH-508	2,000	50,80	2,000	2,630	50,80	66,80	PO8	7
MMRBMH-571	2,250	57,15	2,252	2,882	57,20	73,20	PO8	7
MMRBMH-603	2,375	60,33	2,374	3,004	60,30	76,30	PO8	7
MMRBMH-635	2,500	63,50	2,500	3,130	63,50	79,50	PO8	7
MMRBMH-762	3,000	76,20	3,000	3,630	76,20	92,20	PO8	8
MMRBMH-889	3,500	88,90	3,500	4,130	88,90	104,90	PO8	8
MMRBMH-101	4,000	101,60	4,000	4,630	101,60	117,60	PO8	9

SWRMH

SEAL WELD REMOVAL HEAD
BIT: **CARBIDE**
DEGREE: **90.0°**



Size specific heads designed for seal weld removal on tubes. Suitable for weld removal on carbon, duplex, inconel and other exotic alloys. Utilizes 4 sided carbide inserts.



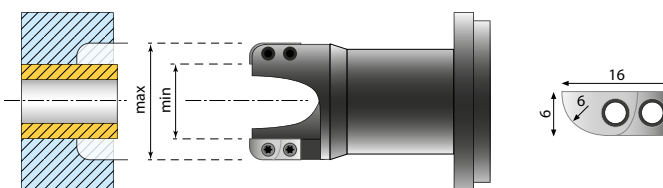
HEAD NR	TUBE CAPACITY			CUTTER RANGE				INSERT	NO. OF INSERTS	SCREW
	[INCH]	[MM]	[BWG]	MIN [INCH]	MAX [INCH]	MIN [MM]	MAX [MM]			
SWRMH-160	0,625	15,88	17-22	0,500	1,100	12,70	28,00	CI 5x5	4	MHS-2
SWRMH-190	0,750	19,05	11-22	0,510	1,140	13,00	29,00	CI 5x5	4	MHS-2
SWRMH-222	0,875	22,23	10-22	0,710	1,300	18,00	33,00	CI 5x5	4	MHS-2
SWRMH-254	1,000	25,40	8-20	0,810	1,380	20,50	35,00	CI 5x5	4	MHS-2

SWROTC

TUBE FACING MILLING HEAD
BIT: **HSS 6% Cobalt**



A seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.



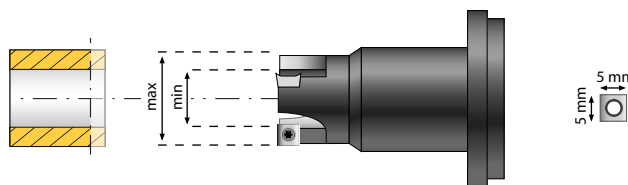
HEAD NR	TUBE CAPACITY			CUTTER RANGE				INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	[BWG]	MIN [INCH]	MAX [INCH]	MIN [MM]	MAX [MM]			
SWROTC-190	0,750	19,05	0,750	1,222	19,05	31,05	CSWR	2	901 MM#151 12,4 mm	
SWROTC-222	0,875	22,23	0,874	1,346	22,20	34,20	CSWR	2	905 MM#151 13,9 mm	
SWROTC-254	1,000	25,40	1,000	1,472	25,40	37,40	CSWR	2	909 MM#151 16,9 mm	
SWROTC-285	1,125	28,58	1,124	1,596	28,55	40,55	CSWR	2	915 MM#151 20,0 mm	
SWROTC-318	1,250	31,7	1,250	1,722	31,75	43,75	CSWR	2	915 MM#151 20,0 mm	
SWROTC-381	1,500	38,1	1,500	1,969	38,10	50,01	CSWR	2	915 MM#151 20,0 mm	

MMFH

TUBE FACING MILLING HEAD
BIT: **CARBIDE**
DEGREE: **90.0°**



A tube facing milling head suitable for machining tubes manufactured from very hard materials such as duplex, inconel and other exotic alloys. Utilizes 4 sided carbide inserts.



HEAD NR	TUBE CAPACITY			CUTTER RANGE				INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN [INCH]	MAX [INCH]	MIN [MM]	MAX [MM]			
MMFH-145	0,550	14,00	17-23	0,440	0,807	11,20	20,5	CI 5x5	2	801 MM#151 Micro 10,0 MM
MMFH-158	0,625	15,88	16-23	0,500	0,866	12,70	22,00	CI 5x5	2	805 MM#151 Micro 11,5 MM
MMFH-190	0,750	19,05	13-23	0,559	0,906	14,20	23,00	CI 5x5	3	901 MM#151 12,4 mm
MMFH-222	0,875	22,23	12-23	0,654	0,965	16,60	24,50	CI 5x5	3	905 MM#151 13,9 mm
MMFH-254	1,000	25,40	11-23	0,764	1,087	19,40	27,50	CI 5x5	3	909 MM#151 16,9 mm
MMFH-285	1,125	28,58	11-23	0,886	1,213	22,50	30,80	CI 5x5	3	915 MM#151 20,0 mm

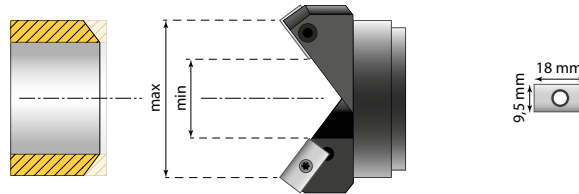
Special Heads for PrepMill

OBPM

OUTSIDE BEVEL MILLING HEAD
BIT: **HSS 6% Cobalt**
DEGREE: **37,5°**



Custom, precisely designed head. Dedicated for the outside bevelling of both tubes and pipes. Sized per tube or pipe diameter and angle of required weld bevel. The heads are precisely engineered so that the inserts cannot damage the shaft or locking jaws.



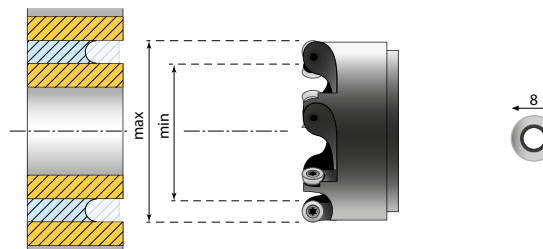
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
OBPM-285	1,125	28,58	11-23	0,890	1,240	22,60	31,50	CS	2	915 MM#151 20 mm
OBPM-317	1,250	31,75	8-23	0,917	1,732	23,30	44,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-381	1,500	38,10	6-23	0,984	1,850	25,00	47,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-444	1,750	44,45	6-23	1,024	1,890	26,00	48,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-508	2,000	50,80	6-23	1,181	2,047	30,00	52,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-571	2,250	57,15	6-23	1,417	2,283	36,00	58,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-603	2,375	60,33	6-23	1,535	2,402	39,00	61,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-635	2,500	63,50	6-23	1,654	2,559	42,00	65,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-762	3,000	76,20	6-23	2,165	3,031	55,00	77,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-889	3,500	88,90	6-23	2,677	3,543	68,00	90,00	CDI	2	STD Shaft: 20 or 25 mm
OBPM-900	4,000	101,60	6-23	3,150	4,016	80,00	102,00	CDI	2	STD Shaft: 20 or 25 mm

PRRBMH

TUBE FACING MILLING HEAD
BIT: **CARBIDE**



A seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.



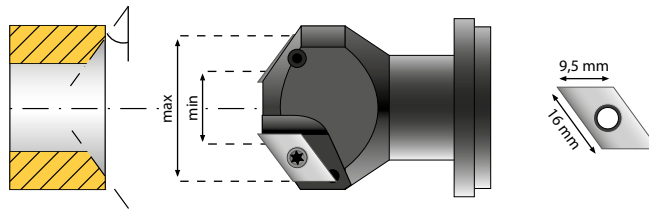
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX		
PRRBMH-254	1,000	25,40		1,000	1,630	25,40	41,40	PO8	4
PRRBMH-288	1,125	28,58		1,134	1,764	28,80	44,80	PO8	5
PRRBMH-317	1,250	31,75		1,248	1,878	31,70	47,70	PO8	5
PRRBMH-381	1,500	38,10		1,500	2,130	38,10	54,10	PO8	6
PRRBMH-444	1,750	44,45		1,748	2,378	44,40	60,40	PO8	6
PRRBMH-508	2,000	50,80		2,000	2,630	50,80	66,80	PO8	7
PRRBMH-571	2,250	57,15		2,252	2,882	57,20	73,20	PO8	7
PRRBMH-603	2,375	60,33		2,374	3,004	60,30	76,30	PO8	7
PRRBMH-635	2,500	63,50		2,500	3,130	63,50	79,50	PO8	7
PRRBMH-762	3,000	76,20		3,000	3,630	76,20	92,20	PO8	8
PRRBMH-889	3,500	88,90		3,500	4,130	88,90	104,90	PO8	8
PRRBMH-101	4,000	101,60		4,000	4,630	101,60	117,60	PO8	9

STWRPM

STRENGTH WELD REMOVAL
BIT: **HSS 6% Cobalt**
DEGREE: **37.5°**



Custom designed head dedicated for strength weld removal. The heads are sized per tube diameter and are precisely engineered so that the inserts cannot damage the shaft or locking jaws. Simple, trouble-free set up makes these heads very advantageous.



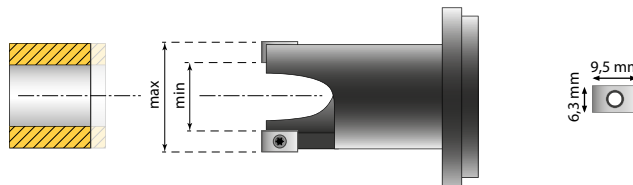
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		IN- SERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
STWRPM-285	1,125	28,58	10-23	0,858	1,772	21,80	45,00	WRI	2	STD Shaft: 20 mm
STWRPM-317	1,250	31,75	9-23	0,945	1,850	24,00	47,00	WRI	2	STD Shaft: 20 or 25 mm
STWRPM-381	1,500	38,10	8-23	1,142	2,047	29,00	52,00	WRI	2	STD Shaft: 20 or 25 mm
STWRPM-444	1,750	44,45	8-23	1,417	2,244	36,00	57,00	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-508	2,000	50,80	6-23	1,575	2,480	40,00	63,00	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-571	2,250	57,15	6-23	1,811	2,717	46,00	69,00	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-603	2,375	60,33	6-23	1,949	2,854	49,50	72,50	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-635	2,500	63,50	6-23	2,067	2,972	52,50	75,50	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-762	3,000	76,20	6-23	2,579	3,484	65,50	88,50	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-889	3,500	88,90	6-23	3,071	3,976	78,00	101,00	CDI	2	STD Shaft: 20 or 25 mm
STWRPM-900	4,000	101,60	6-23	3,563	4,469	90,50	113,50	CDI	2	STD Shaft: 20 or 25 mm

TFPM

TUBE FACING MILLING HEAD
BIT: **HSS 6% Cobalt**
DEGREE: **90.0°**



A tube facing milling head created for facing tubes made of any type of material. Utilizes 6% cobalt inserts.



HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS	SHAFT
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX			
TFPM-285	1,125	28,58	11-23	0,854	1,307	21,70	33,20	CSS	2	STD Shaft 20 mm
TFPM-317	1,250	31,75	9-23	0,949	1,366	24,10	34,70	CSS	2	STD Shaft 20 mm
TFPM-381	1,500	38,10	9-23	1,197	1,614	30,40	41,00	CSS	2	STD Shaft: 20 or 25 mm
TFPM-444	1,750	44,45	9-23	1,449	1,862	36,80	47,30	CS	2	STD Shaft: 20 or 25 mm
TFPM-508	2,000	50,80	9-23	1,701	2,114	43,20	53,70	CS	2	STD Shaft: 20 or 25 mm

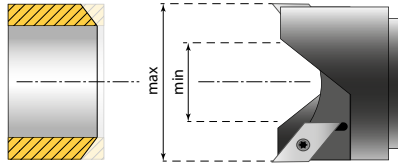
Special Heads for PanelMill

OBPMH

OUTSIDE BEVEL MILING HEAD
BIT: **HSS 6% COBALT**
DEGREE: **37,5°**



OBPMH bevelling head for bevelling tubes without membranes in a boiler waterwall.



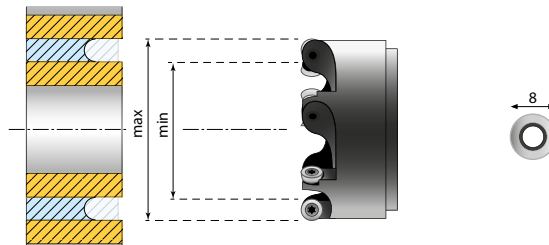
HEAD NR	TUBE CAPACITY			RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS
	[INCH]	[MM]	BWG	MIN	MAX	MIN	MAX		
OBPMH-190	0,750	19,05	14-23	0,5826	0,866	14,80	22,00	WRIL	2
OBPMH-222	0,875	22,23	12-23	0,654	1,004	16,60	25,50	WRIL	2
OBPMH-254	1,000	25,40	11-23	0,764	1,122	19,40	28,50	WRIL	2
OBPMH-285	1,125	28,58	11-23	0,890	1,240	22,60	31,50	WRIL	2
OBPMH-317	1,250	31,75	8-23	0,917	1,732	23,30	44,00	WRIL	2
OBPMH-381	1,500	38,10	6-23	0,984	1,850	25,00	47,00	WRIL	2
OBPMH-444	1,750	44,45	6-23	1,024	1,890	26,00	48,00	WRIL	2
OBPMH-508	2,000	50,80	6-23	1,181	2,047	30,00	52,00	WRIL	2
OBPMH-571	2,250	57,15	6-23	1,417	2,283	36,00	58,00	WRIL	2
OBPMH-603	2,375	60,33	6-23	1,535	2,402	39,00	61,00	WRIL	2
OBPMH-635	2,500	63,50	6-23	1,654	2,559	42,00	65,00	WRIL	2
OBPMH-889	3,500	88,90	6-23	2,677	3,543	68,00	90,00	WRIL	2

PMRBMH

TUBE FACING MILING HEAD
BIT: **CARBIDE**



A seal weld removal head over tube circumference prior to re-welding the damaged joint without removing the tube.

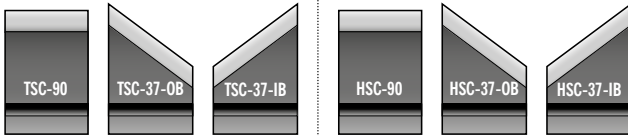


HEAD NR	TUBE CAPACITY		RANGE [INCH]		RANGE [MM]		INSERT	NO. OF INSERTS
	[INCH]	[MM]	MIN	MAX	MIN	MAX		
PMRBMH-254	1,000	25,40	1,000	1,630	25,40	41,40	PO8	4
PMRBMH-288	1,125	28,58	1,134	1,764	28,80	44,80	PO8	5
PMRBMH-317	1,250	31,75	1,248	1,878	31,70	47,70	PO8	5
PMRBMH-381	1,500	38,10	1,500	2,130	38,10	54,10	PO8	6
PMRBMH-444	1,750	44,45	1,748	2,378	44,40	60,40	PO8	6
PMRBMH-508	2,000	50,80	2,000	2,630	50,80	66,80	PO8	7
PMRBMH-571	2,250	57,15	2,252	2,882	57,20	73,20	PO8	7
PMRBMH-603	2,375	60,33	2,374	3,004	60,30	76,30	PO8	7
PMRBMH-635	2,500	63,50	2,500	3,130	63,50	79,50	PO8	7
PMRBMH-762	3,000	76,20	3,000	3,630	76,20	92,20	PO8	8
PMRBMH-889	3,500	88,90	3,500	4,130	88,90	104,90	PO8	8
PMRBMH-101	4,000	101,60	4,000	4,630	101,60	117,60	PO8	9

Cutters and inserts

STANDARD CUTTERS

FOR USE WITHOUT HOLDERS
BIT: **HSS and HSS Cobalt**








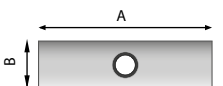



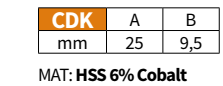



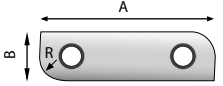




Cutters for use with MiniMill series

Cutters for use with HyperMill series

INSERTS

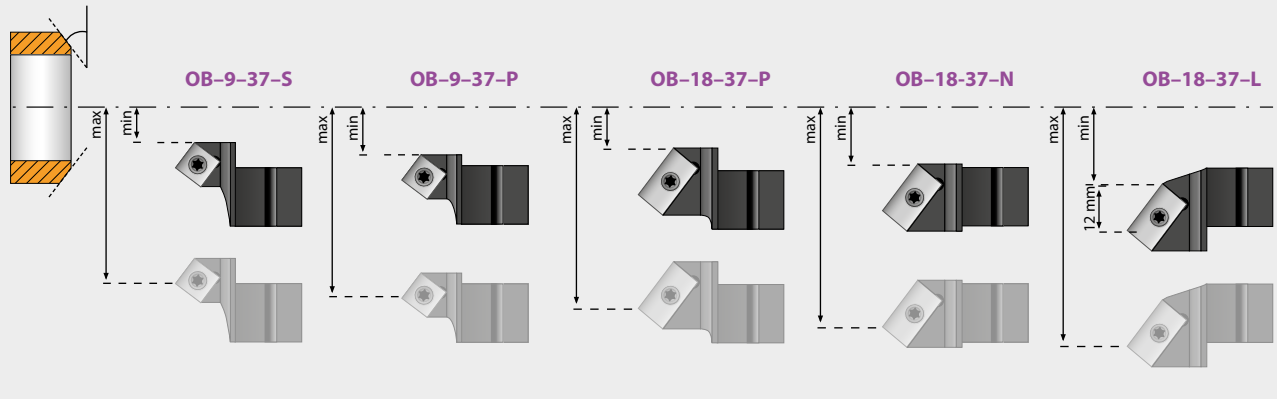
INSERTS FOR USE ONLY WITH HOLDERS OR SPECIAL HEADS

 <table border="1"> <tr><th>CS</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>9,5</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	CS	A	B	mm	9,5	9,5	 <table border="1"> <tr><th>CDI</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>18</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	CDI	A	B	mm	18	9,5	 <table border="1"> <tr><th>CI7</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>7</td><td>7</td></tr> </table> <p>MAT: CARBIDE SCREW: MHS-2,7</p>	CI7	A	B	mm	7	7	 <table border="1"> <tr><th>2CDI</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>45</td><td>12,7</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	2CDI	A	B	mm	45	12,7												
CS	A	B																																					
mm	9,5	9,5																																					
CDI	A	B																																					
mm	18	9,5																																					
CI7	A	B																																					
mm	7	7																																					
2CDI	A	B																																					
mm	45	12,7																																					
 <table border="1"> <tr><th>CI</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>5</td><td>5</td></tr> </table> <p>MAT: CARBIDE SCREW: MHS-2</p>	CI	A	B	mm	5	5	 <table border="1"> <tr><th>CDI-CB</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>18</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Carbide SCREW: MHS-4</p>	CDI-CB	A	B	mm	18	9,5	 <table border="1"> <tr><th>PO8</th><th>R</th></tr> <tr><td>mm</td><td>8</td></tr> </table> <p>MAT: CARBIDE SCREW: MHS-2,7</p>	PO8	R	mm	8	 <table border="1"> <tr><th>CDK</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>25</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	CDK	A	B	mm	25	9,5														
CI	A	B																																					
mm	5	5																																					
CDI-CB	A	B																																					
mm	18	9,5																																					
PO8	R																																						
mm	8																																						
CDK	A	B																																					
mm	25	9,5																																					
 <table border="1"> <tr><th>CSZ</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>5,8</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-2,5</p>	CSZ	A	B	mm	5,8	9,5	 <table border="1"> <tr><th>WRIL</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>13,5</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	WRIL	A	B	mm	13,5	9,5	 <table border="1"> <tr><th>CSWR</th><th>A</th><th>B</th><th>R</th></tr> <tr><td>mm</td><td>6,5</td><td>16,5</td><td>6</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-2,5</p>	CSWR	A	B	R	mm	6,5	16,5	6	 <table border="1"> <tr><th>CDJ-5</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>18</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	CDJ-5	A	B	mm	18	9,5										
CSZ	A	B																																					
mm	5,8	9,5																																					
WRIL	A	B																																					
mm	13,5	9,5																																					
CSWR	A	B	R																																				
mm	6,5	16,5	6																																				
CDJ-5	A	B																																					
mm	18	9,5																																					
 <table border="1"> <tr><th>CSS-CB</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>6,3</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Carbide SCREW: MHS-2,5</p>	CSS-CB	A	B	mm	6,3	9,5	 <table border="1"> <tr><th>WRK</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>10</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	WRK	A	B	mm	10	9,5	 <table border="1"> <tr><th>[mm]</th><th>A</th><th>B</th><th>R</th></tr> <tr><td>CDJ-2.5*</td><td>18</td><td>9,5</td><td>2,5</td></tr> <tr><td>CDJ-5</td><td>18</td><td>9,5</td><td>4,7</td></tr> <tr><td>CDJ-8*</td><td>18</td><td>9,5</td><td>8,0</td></tr> </table> <p>* on request MAT: HSS 6% Cobalt SCREW: MHS-4</p>	[mm]	A	B	R	CDJ-2.5*	18	9,5	2,5	CDJ-5	18	9,5	4,7	CDJ-8*	18	9,5	8,0	 <table border="1"> <tr><th>2CDJ-5</th><th>A</th><th>B</th><th>R</th></tr> <tr><td>mm</td><td>45</td><td>12,7</td><td>4,7</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	2CDJ-5	A	B	R	mm	45	12,7	4,7
CSS-CB	A	B																																					
mm	6,3	9,5																																					
WRK	A	B																																					
mm	10	9,5																																					
[mm]	A	B	R																																				
CDJ-2.5*	18	9,5	2,5																																				
CDJ-5	18	9,5	4,7																																				
CDJ-8*	18	9,5	8,0																																				
2CDJ-5	A	B	R																																				
mm	45	12,7	4,7																																				
 <table border="1"> <tr><th>CSS</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>6,3</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-2,5</p>	CSS	A	B	mm	6,3	9,5	 <table border="1"> <tr><th>WRI</th><th>A</th><th>B</th></tr> <tr><td>mm</td><td>13,5</td><td>9,5</td></tr> </table> <p>MAT: HSS 6% Cobalt SCREW: MHS-4</p>	WRI	A	B	mm	13,5	9,5																										
CSS	A	B																																					
mm	6,3	9,5																																					
WRI	A	B																																					
mm	13,5	9,5																																					

Holdings

OUTSIDE BEVELING HOLDERS

STANDARD: 37,5°; OTHER ANGLES ONLY ON REQUEST

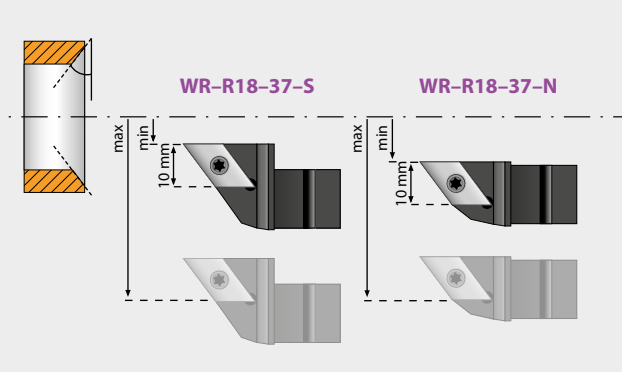


HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
OB-9-37-S	CS	60	16,00	26,00	0,630	1,024	20; 30; 37,5; 45
		88	16,00	51,00	0,630	2,008	20; 30; 37,5; 45
OB-9-37-P	CS	60	24,00	34,00	0,945	1,339	20; 30; 37,5; 45
		88	24,00	58,00	0,945	2,283	20; 30; 37,5; 45
		106	28,00	72,00	1,102	2,835	20; 30; 37,5; 45
OB-18-37-P	CDI	60	24,00	47,00	0,945	1,850	20; 30; 37,5; 45
		88	24,00	71,00	0,945	2,795	20; 30; 37,5; 45
		106	28,00	85,00	1,102	3,346	20; 30; 37,5; 45
		114	31,00	88,00	1,220	3,465	20; 30; 37,5; 45
		135	31,00	109,00	1,220	4,291	20; 30; 37,5; 45
175	31,00	149,00	1,220	5,866	20; 30; 37,5; 45		

HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
OB-18-37-N	CDI	60	34,00	56,00	1,339	2,205	20; 30; 37,5; 45
		88	34,00	80,00	1,339	3,150	20; 30; 37,5; 45
		106	38,00	94,00	1,496	3,701	20; 30; 37,5; 45
		114	43,00	101,00	1,693	3,976	20; 30; 37,5; 45
		135	43,00	122,00	1,693	4,803	20; 30; 37,5; 45
175	43,00	162,00	1,693	6,378	20; 30; 37,5; 45		
OB-18-37-L	CDI	60	40,00	63,00	1,575	2,480	20; 30; 37,5; 45
		88	40,00	87,00	1,575	3,425	20; 30; 37,5; 45
		106	44,00	101,00	1,732	3,976	20; 30; 37,5; 45
		114	47,00	104,00	1,850	4,094	20; 30; 37,5; 45
		135	47,00	125,00	1,850	4,921	20; 30; 37,5; 45
		175	47,00	165,00	1,850	6,496	20; 30; 37,5; 45

WELD REMOVAL HOLDERS

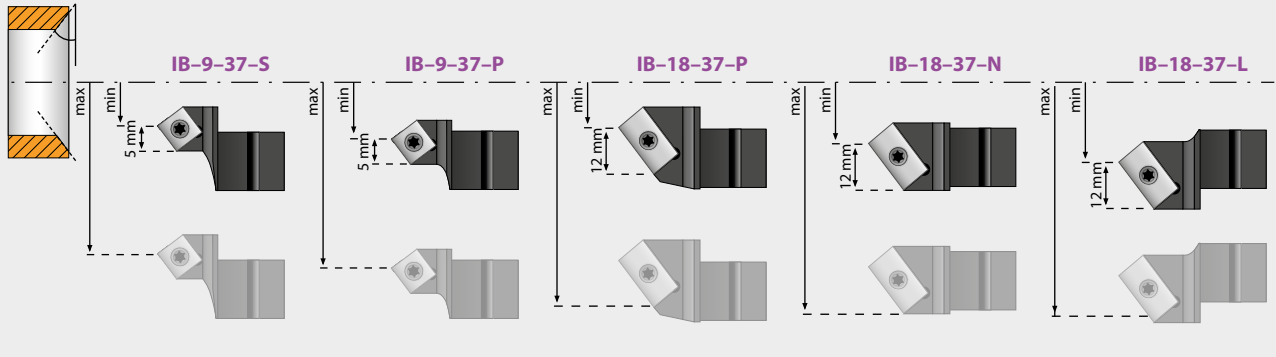
STANDARD: 37,5°; OTHER ANGLES ONLY ON REQUEST



HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
WR-R18-37-S	WRI	60	15,50	36,00	0,610	1,417	20; 30; 37,5; 45
		88	15,50	61,00	0,610	2,402	20; 30; 37,5; 45
		106	19,50	75,00	0,768	2,953	20; 30; 37,5; 45
WR-R18-37-N	WRI	60	30,00	50,00	1,181	1,969	20; 30; 37,5; 45
		88	30,00	75,00	1,181	2,953	20; 30; 37,5; 45
		106	34,00	89,00	1,339	3,504	20; 30; 37,5; 45
		114	37,00	94,00	1,457	3,701	20; 30; 37,5; 45
		135	37,00	115,00	1,457	4,528	20; 30; 37,5; 45
175	37,00	155,00	1,457	6,102	20; 30; 37,5; 45		

INSIDE BEVELING HOLDERS

STANDARD: 37,5°; OTHER ANGLES ONLY ON REQUEST

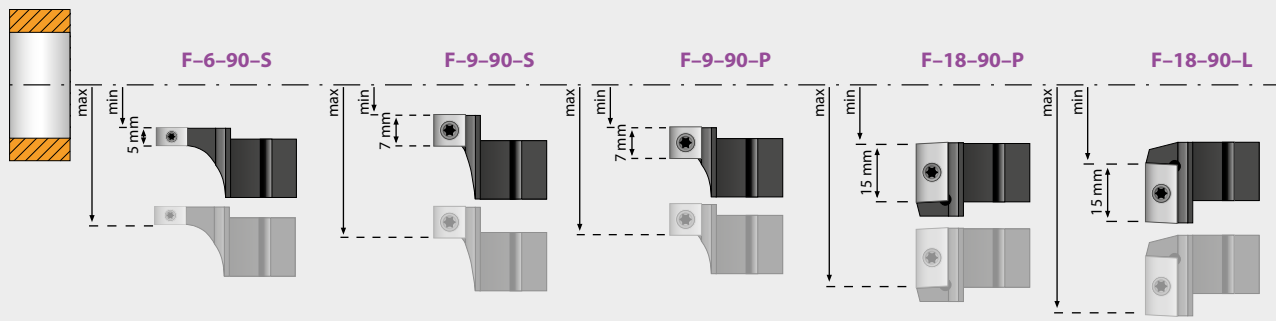


HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
IB-9-37-S	CS	60	29,00	39,00	1,142	1,535	20; 30; 37,5; 45
		88	29,00	63,00	1,142	2,480	20; 30; 37,5; 45
		106	33,00	77,00	1,299	3,031	20; 30; 37,5; 45
IB-9-37-P	CS	60	35,50	45,50	1,398	1,791	20; 30; 37,5; 45
		88	35,50	70,00	1,398	2,756	20; 30; 37,5; 45
		106	39,50	84,00	1,555	3,307	20; 30; 37,5; 45
IB-18-37-P	CDI	60	35,50	58,00	1,398	2,283	20; 30; 37,5; 45
		88	35,50	82,50	1,398	3,248	20; 30; 37,5; 45
		106	39,50	96,50	1,555	3,799	20; 30; 37,5; 45
		114	42,00	102,00	1,654	4,016	20; 30; 37,5; 45
		135	42,00	123,00	1,654	4,843	20; 30; 37,5; 45
175	42,00	163,00	1,654	6,417	20; 30; 37,5; 45		

HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
IB-18-37-N	CDI	60	44,50	67,50	1,752	2,657	20; 30; 37,5; 45
		88	44,50	92,00	1,752	3,622	20; 30; 37,5; 45
		106	48,50	106,00	1,909	4,173	20; 30; 37,5; 45
		114	51,00	111,00	2,008	4,370	20; 30; 37,5; 45
		135	51,00	132,00	2,008	5,197	20; 30; 37,5; 45
175	51,00	172,00	2,008	6,772	20; 30; 37,5; 45		
IB-18-37-L	CDI	60	53,00	76,00	2,087	2,992	20; 30; 37,5; 45
		88	53,00	100,00	2,087	3,937	20; 30; 37,5; 45
		106	57,00	114,00	2,244	4,488	20; 30; 37,5; 45
		114	60,00	120,00	2,362	4,724	20; 30; 37,5; 45
		135	60,00	141,00	2,362	5,551	20; 30; 37,5; 45
175	60,00	181,00	2,362	7,126	20; 30; 37,5; 45		

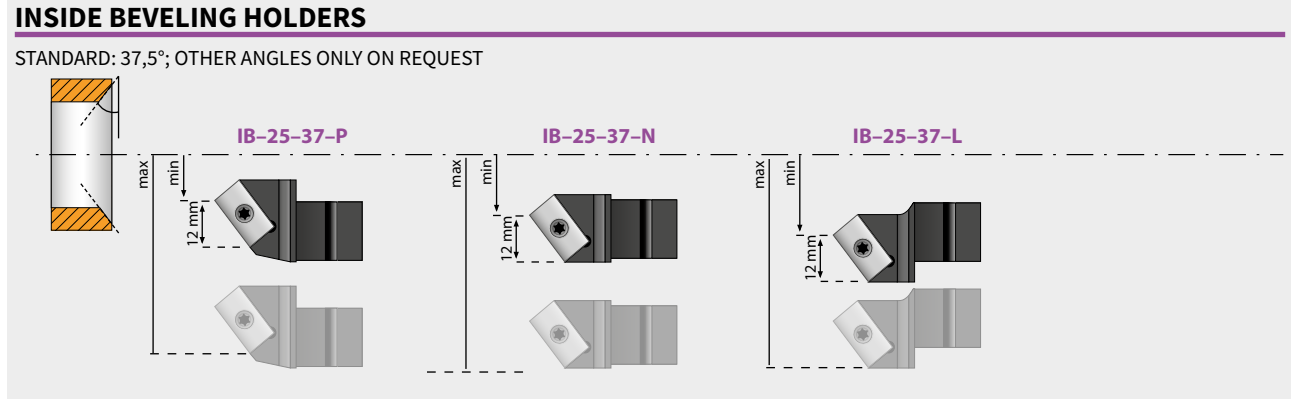
FACING HOLDERS

STANDARD: 90,0°



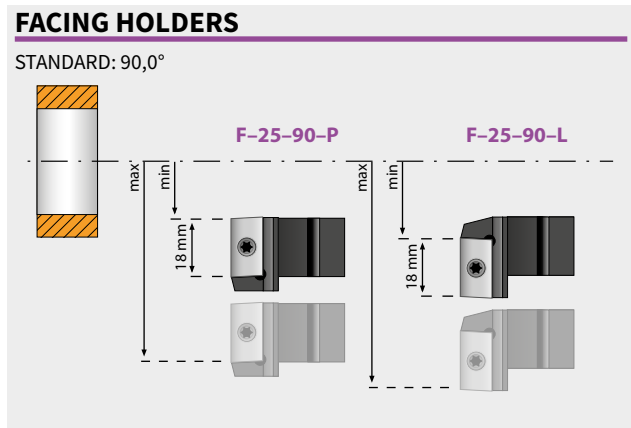
HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
F-6-90-S	CS	60	14,50	24,50	0,571	0,965	90
F-9-90-S	CS	60	16,00	30,00	0,630	1,181	90
F-9-90-P	CS	60	24,00	38,00	0,945	1,496	90
		88	24,00	62,00	0,945	2,441	90
		106	28,00	75,00	1,102	2,953	90
		114	31,00	80,00	1,220	3,150	90
F-18-90-P	CDI	60	24,00	54,00	0,945	2,126	90
		88	24,00	79,00	0,945	3,110	90
		106	28,00	95,00	1,102	3,740	90

HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
F-18-90-P	CDI	114	31,00	98,00	1,220	3,858	90
		135	31,00	119,00	1,220	4,685	90
		175	31,00	159,00	1,220	6,260	90
F-18-90-L	CDI	60	33,00	62,00	1,299	2,441	90
		88	33,00	87,00	1,299	3,425	90
		106	37,00	101,00	1,457	3,976	90
		114	38,00	104,00	1,496	4,094	90
		135	38,00	125,00	1,496	4,921	90
175	38,00	165,00	1,496	6,496	90		

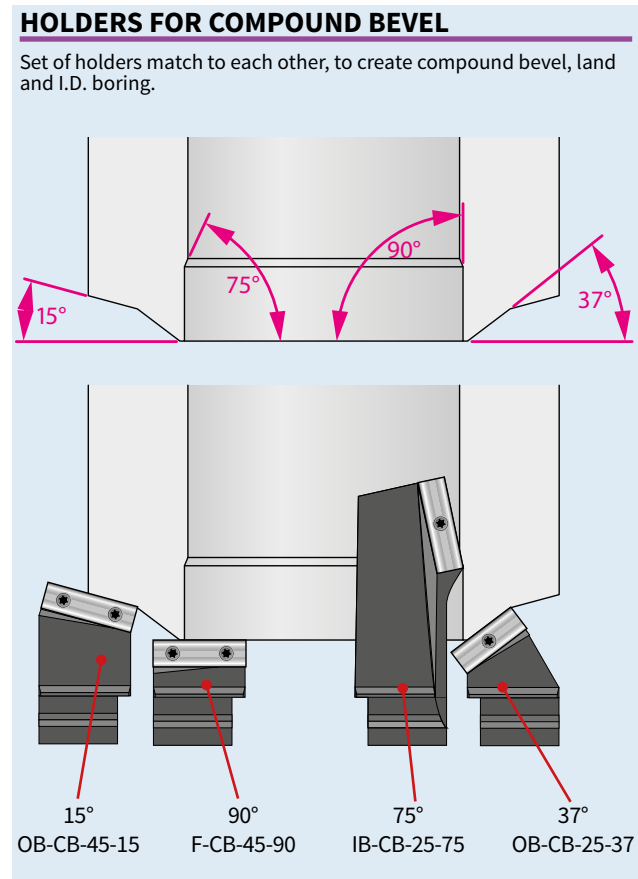


HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
IB-25-37-P	CDI	60	35,50	63,00	1,398	2,480	20; 30; 37,5; 45
		88	35,50	87,50	1,398	3,444	20; 30; 37,5; 45
		106	39,50	101,50	1,555	3,996	20; 30; 37,5; 45
		114	42,00	107,00	1,654	4,212	20; 30; 37,5; 45
		135	42,00	128,00	1,654	5,039	20; 30; 37,5; 45
		175	42,00	168,00	1,654	6,614	20; 30; 37,5; 45
IB-25-37-N	CDK	60	44,50	72,50	1,752	2,854	20; 30; 37,5; 45
		88	44,50	97,00	1,752	3,818	20; 30; 37,5; 45
		106	48,50	111,00	1,909	4,370	20; 30; 37,5; 45
		114	51,00	116,00	2,008	4,566	20; 30; 37,5; 45
		135	51,00	137,00	2,008	5,393	20; 30; 37,5; 45
		175	51,00	177,00	2,008	6,969	20; 30; 37,5; 45

HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
IB-25-37-L	CDK	60	53,00	81,00	2,087	3,188	20; 30; 37,5; 45
		88	53,00	105,00	2,087	4,133	20; 30; 37,5; 45
		106	57,00	119,00	2,244	4,685	20; 30; 37,5; 45
		114	60,00	125,00	2,362	4,921	20; 30; 37,5; 45
		135	60,00	146,00	2,362	5,748	20; 30; 37,5; 45
		175	60,00	186,00	2,362	7,322	20; 30; 37,5; 45



HOLDER NO.	BIT	HEAD	RANGE MM		RANGE INCH		DEGREE *
			MIN	MAX	MIN	MAX	
F-25-90-P	CD7	60	24,00	61,00	0,945	2,401	90
		88	24,00	86,00	0,945	3,385	90
		106	28,00	102,00	1,102	4,015	90
	CDK	114	31,00	105,00	1,220	4,133	90
		135	31,00	126,00	1,220	4,960	90
		175	31,00	166,00	1,220	6,535	90
F-25-90-L	CDI	60	33,00	69,00	1,299	2,716	90
		88	33,00	94,00	1,299	3,700	90
		106	37,00	108,00	1,457	4,251	90
	CDK	114	38,00	111,00	1,496	4,370	90
		135	38,00	132,00	1,496	5,196	90
		175	38,00	172,00	1,496	6,771	90





CHARTS

KRAIS Tube Expander

A large area of the page is filled with horizontal dotted lines, providing a grid for recording data or calculations.

Tube Tools

PRODUCT CATALOG

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KRAIS

Tube Expanders

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