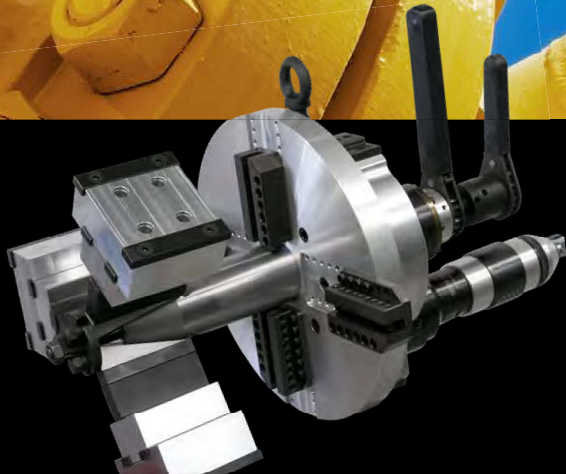
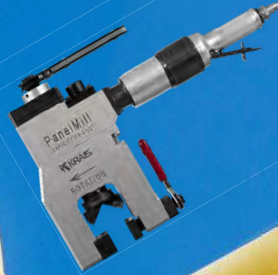
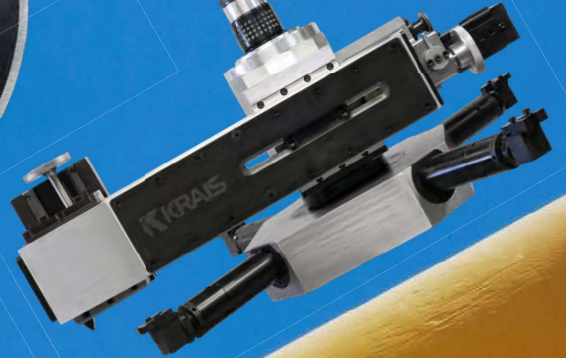
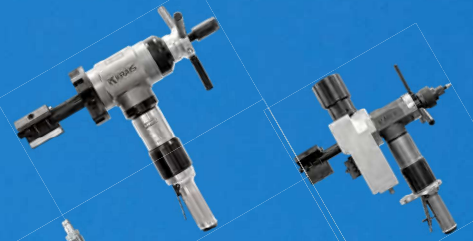
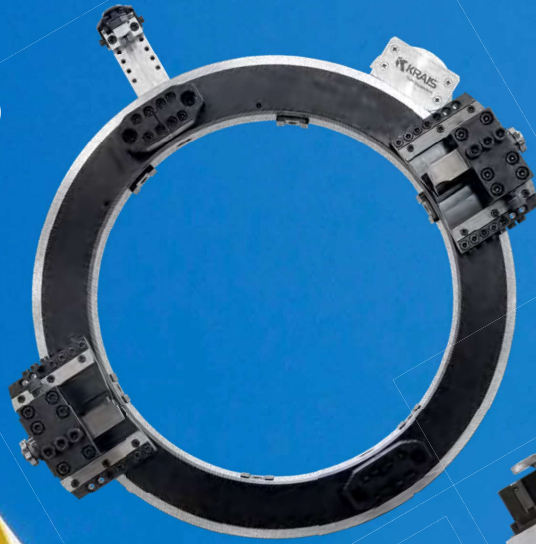




**MADE IN
POLAND**



Tube & Pipe Professional Tools



MiniDrill GFF



TAILOR MADE ONLY!

MiniDrill GFF is a unique machining platform designed to safely perform the repair or increase the FinFan Cooler plug thread and other operations on heat exchangers, boilers and similar thermal exchange equipment. This system can drill, ream, bore and even re-machine serrations in steam drums. With a 80 mm (3.150") travel, tool is 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.

WORKING RANGE		LOCKING RANGE		FREE SPEED		POWER		TORQUE	
12,5– 51,0 mm		According to the drawing		100 Rpm		1,3 Hp		140 Nm	
0,492 – 2,000"								105 Ft.Lbs	
AIR USE		BODY WIDTH		BODY HEIGHT		BODY WEIGHT			
55 cfm	1,3 m3/min	2,32"	59 mm	13,1"	335 mm	17,5 Lbs	8 kg		



RIGID LOCKING

On standard FinFan gas coolers machine locks onto two shafts on the adjacent holes. The locking plate is manufactured according to the tube hole pitch to ensure precise tool alignment.



UNIVERSAL REACTION PLATE

MiniDrill FinFan is delivered with locking plate and 2 reaction shafts. Construction of the plate allows for locking machine with both shafts on one side to allow to machine the last holes in the row. Plate can be etc.

FINFAN THREAD REPAIR PROCESS

PROPER MACHINE LOCKING FOR ALL STEPS

Choose the correct locking jaws to suit the existing plug holes



PLUG SIZE			JAW SET (2 REQUIRED)	
1-1/8"	28,58 mm	12 TPI	701MM	#36-1-1/8-GFF
1-1/4"	31,75 mm	12 TPI	703MM	#36-1-1/4-GFF
1-3/8"	34,93 mm	12 TPI	705MM	#36-1-3/8-GFF
1-1/2"	38,10 mm	12 TPI	707MM	#36-1-1/2-GFF
1-5/8"	41,28 mm	12 TPI	709MM	#36-1-5/8-GFF
1-3/4"	44,45 mm	12 TPI	711MM	#36-1-3/4-GFF
1-7/8"	47,63 mm	12 TPI	713MM	#36-1-7/8-GFF

STEP 1

Heads for weld removal over the welded plugs (in case are welded)



PLUGS SIZE			HEAD	INSERT	SCREW
1-1/8"	28,58 mm	12 TPI	TFWR-GFF-350	CS-5D	MHS-4
1-1/4"	31,75 mm	12 TPI	TFWR-GFF-380	CS-5D	MHS-4
1-3/8"	34,93 mm	12 TPI	TFWR-GFF-410	CS-5D	MHS-4
1-1/2"	38,10 mm	12 TPI	TFWR-GFF-440	CS-5D	MHS-4
1-5/8"	41,28 mm	12 TPI	TFWR-GFF-470	CS-5D	MHS-4
1-3/4"	44,45 mm	12 TPI	TFWR-GFF-500	CS-5D	MHS-4
1-7/8"	47,63 mm	12 TPI	TFWR-GFF-540	CS-5D	MHS-4

STEP 2

Select the appropriate size drill head to match the desired new thread size



DRILL HEAD SIZE		DRILL HEAD	INSERT	SCREW
1-1/8 to 1-1/4"	28,58 to 31,75 mm	MD-29,6-DRILL-L-130	CS-0,4	MHS-4
1-1/4 to 1-3/8"	31,74 to 34,93 mm	MD-32,9-DRILL-L-130	CS-0,4	MHS-4
1-3/8 to 1-1/2"	34,93 to 38,10 mm	MD-36,1-DRILL-L-130	CS-0,4	MHS-4
1-1/2 to 1-5/8"	38,10 to 41,28 mm	MD-39,3-DRILL-L-130	CS-0,4	MHS-4
1-5/8 to 1-3/4"	41,28 to 44,45 mm	MD-42,5-DRILL-L-130	CS-0,4	MHS-4
1-3/4 to 1-7/8"	44,45 to 47,63 mm	MD-45,5-DRILL-L-130	CS-0,4	MHS-4

STEP 3

Select the chamfering head to chamfer the hole before tapping (heads need a Weldon flange: MD-FLANGE-STWRMH)



RANGE		HEAD	INSERT	SCREW
0,787 to 1,653"	20,00 to 42,00 mm	STWRMH-317	WRI	MHS-4
1,417 to 2,244"	36,00 to 57,00 mm	STWRMH-444	CDI	MHS-4

STEP 4

Select tapping head to suit the required thread size



PLUGS THREAD SIZE			TAP HEAD	RATCHED FEED ARM
1-1/8"	28,58 mm	12 TPI	MDFFFT-1-1/8_12	MD-RS-H28
1-1/4"	31,75 mm	12 TPI	MDFFFT-1-1/4_12	MD-RS-H28
1-3/8"	34,93 mm	12 TPI	MDFFFT-1-3/8_12	MD-RS-H28
1-1/2"	38,10 mm	12 TPI	MDFFFT-1-1/2_12	MD-RS-H28
1-5/8"	41,28 mm	12 TPI	MDFFFT-1-5/8_12	MD-RS-H28
1-3/4"	44,45 mm	12 TPI	MDFFFT-1-3/4_12	MD-RS-H28
1-7/8"	47,63 mm	12 TPI	MDFFFT-1-7/8_12	MD-RS-H28

STEP 5

Produce new gasket seat using MiniMill-300GFF. Chose heads and jaws on page 6.



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.

STANDARD SET UP



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.



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



STANDARD WORKING RANGE		FEED STROKE	FREE SPEED	POWER	TORQUE		
APPLICATION RANGE (ID-OD)	LOCKING RANGE (ID)						
12 TPI	Suit to thread of the plug	20 mm	300 Rpm	1,3 Hp	43 Nm		
1,125 - 2,125"		0,787"			32 Ft.Lbs		
AIR USE		BODY WIDTH		BODY HEIGHT		BODY WEIGHT	
55 cfm	1,3 m³/min	2,32"	59 mm	13,1"	335 mm	13,2Lbs	6 kg

EXAMPLE TOOL APPLICATION



FinFan cooler before a maintenance



Plug hole before re machining the gasket seat



Safely re-machine gasket surfaces in seconds.



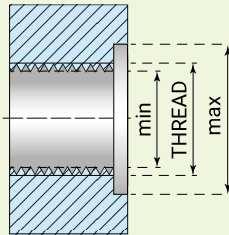
All types of water box materials can be machined with the carbide inserts of the MiniMill 300 GFF.

GASKET SEAT FACING HEADS AND JAWS NUMBERS

HEAD TYPE	PLUG SIZE			SEAL NEST DIAMETER				INSERT	NO. OF INSERTS	JAWS SET NUMBER	PLUG SIZE		TPI	PILOT
	[INCH]	[MM]	TPI	MIN [INCH]	MAX [INCH]	MIN [MM]	MAX [MM]				[INCH]	[MM]		
FFGSMH-1125	1,125	28,58	12	0,940	1,496	24,00	38,00	CI 5x5	4	701MM #36-1-1/8-GFF	1,125	28,575	12	PGFF-1125
FFGSMH-1250	1,250	31,75	12	1,063	1,614	27,00	41,00	CI 5x5	4	703MM #36-1-1/4-GFF	1,250	31,750	12	PGFF-1250
FFGSMH-1350	1,375	34,93	12	1,220	1,772	31,00	45,00	CI 5x5	4	705MM #36-1-3/8-GFF	1,375	34,925	12	PGFF-1350
FFGSMH-1500	1,500	38,10	12	1,339	1,890	34,00	48,00	CI 5x5	4	707MM #36-1-1/2-GFF	1,500	38,100	12	PGFF-1500
FFGSMH-1625	1,625	41,27	12	1,457	2,008	37,00	51,00	CI 5x5	4	709MM #36-1-5/8-GFF	1,625	41,275	12	PGFF-1625
FFGSMH-1750	1,750	44,45	12	1,590	2,140	40,40	54,40	CI 5x5	4	711MM #36-1-3/4-GFF	1,750	44,450	12	PGFF-1750
FFGSMH-1875	1,875	47,62	12	1,720	2,270	43,60	57,60	CI 5x5	4	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".

Seal nest diameter diagram



OTHER OPTIONAL ACCESSORIES



FAST CLAMPING SYSTEM

System offers rapid tube to tube cycle time, increased productivity (up to 4x) with little operator fatigue. Ideal for large amount of end preps.

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.



STANDARD SET UP



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

STANDARD WORKING RANGE		FEED STROKE	FREE SPEED	POWER	TORQUE		
APPLICATION RANGE (ID-OD)	LOCKING RANGE (ID)						
12,5– 51,0 mm	According to the drawing	20 mm	300 Rpm	1,3 Hp	43 Nm		
0,492 – 2,000"		0,787"			32 Ft.Lbs		
AIR USE		BODY WIDTH		BODY HEIGHT		BODY WEIGHT	
55 cfm	1,3 m ³ /min	2,32"	59 mm	13,1"	335 mm	13,2Lbs	6 kg

FINFAN ATTACHMENT PART NUMBERS

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

AVAILABLE LENGTHS

MODEL	DŁUGOŚĆ	
	[MM]	[INCH]
601-FinFan-xx-6	152,4	6"
601-FinFan-xx-8	203,2	8"
601-FinFan-xx-10	254,0	10"
601-FinFan-xx-12	305,0	12"
601-FinFan-xx-14	355,6	14"
601-FinFan-xx-16	406,4	16"

OPTIONAL ATTACHMENT



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 CHAMFERING ATTACHMENT

FINFAN-CMF-000-00 Chamfering Attachment for tube sheet holes in the FinFan tube sheet before welding. Available for 45-degree chamfer and R4 radius J-Prep.

OTHER OPTIONAL ACCESSORIES



SPEED REDUCER

Easy to use gearbox for 3x speed reduction. Increases the torque, enabling the machine to generate a thick chip whilst reducing the cutting time.



RATCHET FEED

Feed system allowing to work in narrow and tight locations, eg. in water walls.



LEVER FEED

Quick and easy feed system. Used in many basic applications.

EXAMPLE TOOL APPLICATION



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

EXAMPLE TOOL APPLICATION



Water box demonstration of the simplicity of machine operation.



An operator trimming back tubes prior to seal welding.



FinMill

KRAIS FinMill is a 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.



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

STANDARD SET UP



DOUBLE SIDE HEAD

Special shaped head, allows to remove left- and right-handed fins.



SHAFT25

Self-align, heavy duty locking system. Shafts and jaws are longer and wider to ensure maximum clamping force.

STANDARD WORKING RANGE		FEED STROKE	FREE SPEED	POWER	TORQUE		
APPLICATION RANGE (ID-OD)	LOCKING RANGE (ID)						
31,75 - 63,50 mm	25 - 122 mm	100 mm	100 Rpm	2,2 Hp	370 Nm		
1-1/4" - 2-1/2"	0,984 - 4,803"	4"			277 Ft.Lbs		
AIR USE		BODY WIDTH		BODY HEIGHT		BODY WEIGHT	
75 cfm	2,2 m³/min	2,59"	66 mm	14,5"	370 mm	19 Lbs	9 kg

HEAD NUMBERS

RANGE		HEAD
[INCH]	[MM]	
1-1/4	31,75	FMRH-317
1-1/2	38,10	FMRH-381
1-3/4	44,45	FMRH-444
2	50,80	FMRH-501
2-1/4	57,15	FMRH-571
2-1/2	63,50	FMRH-635

LOCKING RANGES WITH SHAFT25

RANGE [MM]		RANGE [INCH]		JAWS	EXT.	SPRING	
MIN	MAX	MIN	MAX			NUMBER	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

EXAMPLE TOOL APPLICATION



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

OPTIONAL



STAR WHEEL

The most precise feed system. Used in many basic and demanding applications.

FINMILL E

FinMill E is electric version of FinMill. 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. FinMill E works only with right hand fins.

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

