



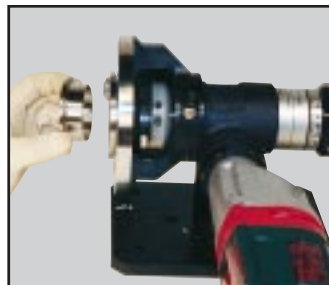
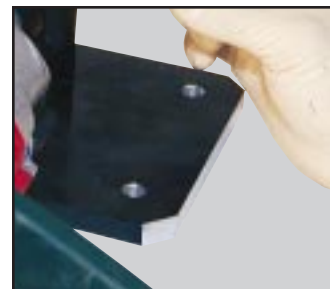
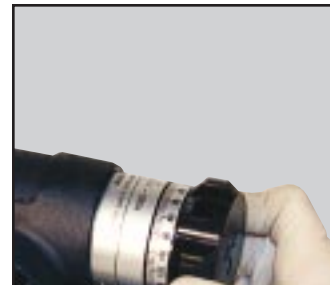
TFS

Patent
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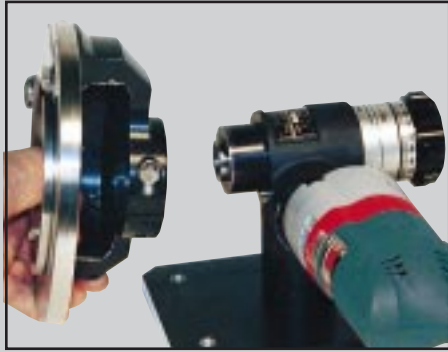
TUBE & FITTING SQUARING MACHINE FOR A PRECISE END PREP . . . WHERE EVERY PERFECT WELD BEGINS

PORTABLE ELECTRIC TOOL FOR SQUARE, BURR-FREE END PREPARATION OF TUBES, TUBE FITTINGS, ELBOWS, FERRULES AND THIN WALL PIPE. PREP 1/2" (12.7mm) THROUGH 4 1/2" (114mm) O.D. UP TO .120" (3mm) WALL THICKNESS IN SECONDS. IDEAL FOR HIGH PURITY TUBE FABRICATION WHERE AUTOMATIC WELDING IS USED.

- **Interchangeable Machining "Heads"** minimizes radial clearance and maximizes cutting range; *benefits of two machines in one.*
- **"Micrometer Index Gauge"** for precise machining to exact length and increased tool life.
- **"180°Cutter Window"** provides a clear view of cutting operation and easy tool bit change out.
- **Unique all "Stainless Steel Clamping System"** centers and squares automatically on as little as 1" (25mm) perch length without tube deformation.
- **"Bench Mount System"** quickly converts to a *hand held machine* for in-line applications.
- **"Exclusive Tool Bit Grind"** channels chips away from tube I.D. to protect electro-polished surfaces.



TFS TUBE AND FITTING SQUARING MACHINE

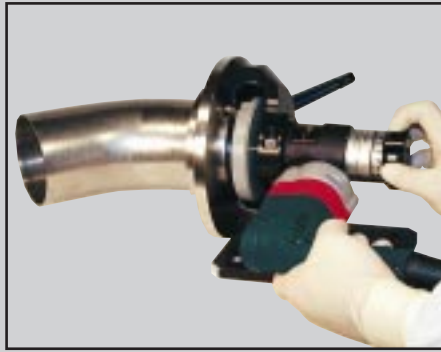


INTERCHANGEABLE MACHINING HEADS

- Two machining heads available:
1/2" (12.7 mm) to 2-1/2" (63.5 mm) O.D.
2-7/8" (73 mm) to 4-1/2" (114.3 mm) O.D.
- "Indexable machining head" insures a clear view of cutting area even in congested areas.
- Adaptor available for 4-1/2" (114.3 mm) machine clamping head to expand machining range for all tube & fittings from 1/2" (12.7 mm) to 4-1/2" (114.3 mm) O.D.

CONSTRUCTION

- Designed for clean room use. All stainless steel and hard anodized aluminum construction with sealed drive system and "dry vise" tube clamping design prevents contamination.
- Lightest weight machine of its type, only 19 lbs. Ideal for in-line overhead applications.



CLAMPING SYSTEM

- "Dry Vise" no lubrication clamping system, with easy hand tensioning / retracting lever. Center and square tubing quickly without tube deformation or contamination.
- O.D. mount clamping shoe eliminates damage to electro polished I.D.s.
- Quick change stainless steel clamping shoes available for all tubing, tube fittings, ferrules and thin wall pipe. 1/2" (12.7 mm) to 4-1/2" (114.3 mm) O.D.

DRIVE MOTOR

- Metabo 110 or 220 volt premium electric motor with locking speed control dial and load sensing speed stabilization feature for longer tool life and consistent quality finish.




MICROMETER INDEX GAUGE

- Allows for fast, precise machining to exact cut length with lathe like accuracy $\pm .002"$ (.05 mm).
- Simply determine the amount of tube to remove and monitor its removal using the index gauge.
- Index gauge gives the operator excellent control when exact tube length dimensions must be maintained.

TOOL BITS

- Standard tool bits are available for a complete range of tubing materials including all grades of Stainless Steel and a wide variety of exotic materials.
- Tool bit adjustment and change out is quick and easy.
- Long tool bit life and smooth, burr-free cuts are assured with Wachs premium quality coated and uncoated tooling.

SPECIFICATIONS

MACHINING CAPACITY:	1/2" (12.7 mm) through 4-1/2" (114.3 mm) O.D.	AXIAL FEED:	.400" (10.16 mm) maximum
MACHINING FUNCTION:	Burr-free squaring and facing	WEIGHT:	19 lbs. (9 kgs) without clamping shoes
MACHINING MATERIALS:	Stainless steel / High alloy	FINISH:	Hard anodized aluminum and stainless steel
WALL THICKNESS:	.030" (.762 mm) through .120" (3 mm)	DIMENSIONS:	
CLAMPING SYSTEM:	"DRY VISE" clamp utilizing stainless steel clamping shoes with hand tensioning / retracting lever	2-1/2" HEAD:	L: 8.3" (210 mm), H: 6.7" (170 mm), W: 5.8" (147.3 mm)
CLAMPING PERCH:	2-1/2" Head = 1", (25.4 mm) 4-1/2" Head = 1-3/8" (34.9 mm)	4-1/2" HEAD:	L: 8.3" (210 mm), H: 8.7" (220.9 mm), W: 7.8" (198 mm)
FEED SYSTEM:	Manual advance with index gauge	STANDARD EQUIPMENT:	• Base TFS machine, bench mount stand, custom storage case, operating hand tools, operating manual, one uncoated tool bit
MOTORS:	METABO: 110 or 220 Volt	OPTIONAL EQUIPMENT:	• Full range of stainless steel clamping shoes for 1/2" (12.7 mm) to 4-1/2" (114.3 mm) O.D., (special stainless steel clamping shoes for metric sizes and special fitting applications) • Adaptor for 4-1/2" machine clamping head to extend range from 1/2" (12.7 mm) to 4-1/2" (114.3 mm) O.D.
CLEARANCE RADIUS:	From centerline: 2-1/2" head = 3" (76.2 mm) 4-1/2" Head = 4" (101.6 mm)		• Coated and uncoated tool bits for various materials 
TOOL ADVANCE:	Hand advancing & retracting spindle with index gauge		
MOTOR CONTROLS:	Dial speed control, load sensing speed stabilization feature, built in safety clutch		
TOOLING:	Premium quality coated and uncoated tool bits		

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