

## METAL TUBING

### TC-1500 HI-DUTY™ TUBE CUTTER

For 1/8" to 1-1/8" (4mm-28mm) O.D. tubing.

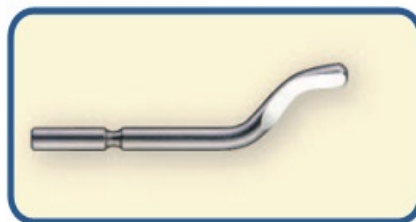


- Imperial's newest tube cutter!
- Lower profile swing radius — 4-1/4".
- Retractable rotary style reamer — can be used right- or left-handed, and with a clockwise or counterclockwise motion for better ergonomic control.
- Rollers feature flare cut-off groove to reduce tube loss when damaged flare is removed.
- Lightweight die-cast solid aluminum body — lighter than similar cutters.
- Durable low gloss black wrinkle finish for improved wear resistance.
- Enclosed hardened steel, thrust bearing feed mechanism for smoothest cutting action and trouble-free operation.
- Imperial's unique design eliminates spiraling for clean right angle cuts. Our high precision machining and construction method permits one-piece screw-type axle for easy access to cutting wheel — no clip to lose or replace.
- Imperial cutter wheels are made of the highest quality wear and abrasion-resistant chromium steel and precision machined to exacting specifications for accurate cutting and long life. Each tool is supplied with a spare cutter wheel.
- All Imperial tube cutters are 100% factory tested to ensure accurate spiral-free cutting.
- Available in "Try Me" clamshell packaging.

**TC-1500** For 1/8" to 1-1/8" (4 mm to 28 mm) O.D. tubing. Includes (2) S75015 general-purpose cutter wheels. Length 5". Wt. 8.0 oz.

**S75015** General-purpose cutter wheel.

**S75046** Wheel for continuous cutting of stainless steel, monel and other hard temper tubing.



S10001087 - Debur Replacement Blade



TC-1500C

## METAL TUBING

### HI-DUTY™ TUBE CUTTERS

For 1/8" to 1-1/8" and 1/4" to 1-5/8" O.D. tubing.

- Enclosed hardened steel thrust bearing feed mechanism for smoothest cutting action and trouble free operation.
- Imperial's unique design eliminates spiraling for clean right angle cuts. Our high precision machining and construction method permits one-piece screw-type axle for easy access to cutting wheel — no clip to lose or replace.
- Rugged aluminum alloy body designed for handling ease. Body is hand buffed and nickel chrome plated to a high-luster finish.
- Foldaway hardened steel reamer with turned cutting edge removes inside burrs cleanly. Filing surface removes outside burrs.
- Rollers feature flare cut-off groove to reduce tube loss when damaged flare is removed.
- Imperial cutter wheels are made of the highest quality wear and abrasion-resistant chromium steel and precision machined to exacting specifications for accurate cutting and long life. Each tool is supplied with a spare cutter wheel.
- All Imperial tube cutters are 100% factory tested to ensure accurate spiral-free cutting.



TC-1000

**TC-1000** For 1/8" to 1-1/8" (4 mm to 28 mm) O.D. tubing. Includes (2) S75015 general-purpose cutter wheels. Length 5". Wt. 8.8 oz.

**TC-1010** For 1/8" to 1-1/8" (4 mm to 28 mm) O.D. tubing. Includes (2) S75046 cutter wheels for continuous cutting of stainless steel, monel and other hard-temper tubing. Length 5". Wt. 8.8 oz.

**TC-1020** Combination tube constrictor & tube cutter. For 1/8" to 1-1/8" (4 mm to 28 mm) O.D. tubing. Includes S76637 constrictor wheel and S75015 general-purpose cutter wheel. Length 5-1/2". Wt. 8.8 oz.

**312-FC** For 1/4" to 1-5/8" (7 mm to 41 mm) O.D. tubing. Includes (2) S75015 general-purpose cutter wheels. Length 5-1/2". Wt. 10.4 oz.

Conforms to Federal Specification GGG-C-771d, Type II, Class I.

**S75015** General-purpose cutter wheel.

**S75046** Wheel for continuous cutting of stainless steel, monel and other hard temper tubing. For cutters TC-1000, TC-1010, TC-1500, 312-FC, 174F, TC-2050.

**S16003162** Replacement cutting wheel for soft copper & aluminum tubing is extra sharp to minimize burr buildup.

**S76637** Constrictor wheel for producing sweat joints.



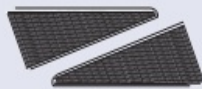
TC-1010



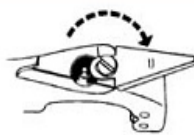
312-FC



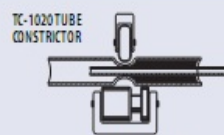
**FLARE CUT-OFF GROOVE**  
Groove in rollers reduces tube loss when cracked flare is removed.



**RETRACTABLE REAMER**  
Foldaway hardened steel reamer with turned cutting edge removes inside burrs cleanly. Filing surface removes outside burrs.



**SPARE CUTTING WHEEL**  
Spare cutting wheel carried under retractable locking reamer.



**TC-1020 TUBE CONSTRICTOR**  
**FILL WITH SOLDER**  
Joint is ready for sweating when constricted tube contacts smaller tube. Can be used for crimping applications.

### JUNIOR TUBE CUTTER

For 1/8" to 3/4" (4 mm to 19 mm) O.D. tubing.

**227-FA** Includes S32633 general-purpose cutter wheel. Swing radius 2". Length 3-1/2". Wt. 5.0 oz.



227-FA



## METAL TUBING

### IMP™ MINI TUBE CUTTERS

For 1/8" to 5/8" and 3/16" to 7/8" O.D. tubing.

- Big capacity, small size tube cutters designed for use in tight quarters where other cutters won't fit.
- Enclosed feed screw minimizes contamination assuring continued smooth operation.
- Corrosion-resistant steel rollers positioned at bottom of cutter allow for easier cutter engagement on tubing and smoother cutting action.
- All Imperial tube cutters are 100% factory tested to ensure accurate spiral-free cutting.

**TC-1050** For 1/8" to 5/8" and 4 mm to 15 mm O.D. tubing. Includes (1) S32633 general-purpose cutter wheel. Swing radius 1-1/4". Length 1-3/4". Wt. 2.5 oz.

**TC-2050** For 3/16" to 7/8" and 5 mm to 22 mm O.D. tubing. Includes (1) S75015 general-purpose cutter wheel. Swing radius 1-11/16". Length 2-1/4". Wt. 4.0 oz.



Swing Radius  
1-1/4"



TC-1050

### RATCHETING TUBE CUTTER

For 1/8" to 5/8" (4mm to 15mm) O.D. tubing.

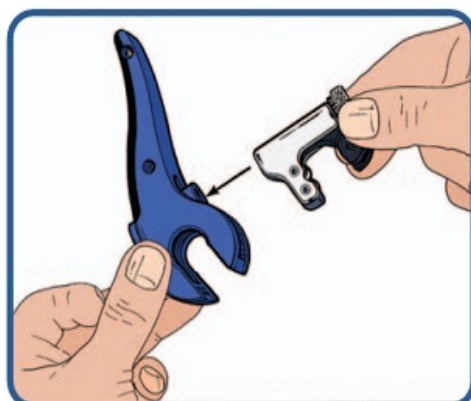
- Minimal clearance radius of 1-1/4".
- Easily completes a full revolution, maximizing leverage.
- TC-1050 cutter can easily be removed from the handle. Includes (1) S32633 general purpose cutter wheel.
- Ergonomic handle with non-slip grip.
- 100% factory tested to ensure accurate spiral-free cutting.
- Six independent drive pawls provide 15° arc-swing.

**TC-1050RH** Includes TC-1050 mini tube cutter and ratcheting handle in clamshell packaging. Length 5". Wt. 6.0 oz.

**TC-1051** Ratcheting handle only. Length 5". Wt. 1.5 oz.



TC-1050RH



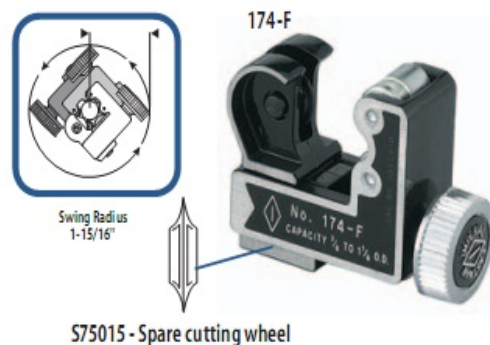
TC-1050RH

## METAL TUBING

### "BIG IMP"™ TUBE CUTTER - "Big capacity in small size"

For 3/8" to 1-1/8" (10 mm to 28 mm) O.D. tubing.

- 174-F** Includes (2) S75015 general-purpose cutter wheels. Swing radius 1-15/16" (2-1/4" swing radius with 1-1/8" tube). Length 2-11/16". Wt. 5.0 oz.



### ADJUST-O-MATIC™ TUBE CUTTERS

For 3/8" to 2-5/8" and 2" to 4-1/8" O.D. tubing.

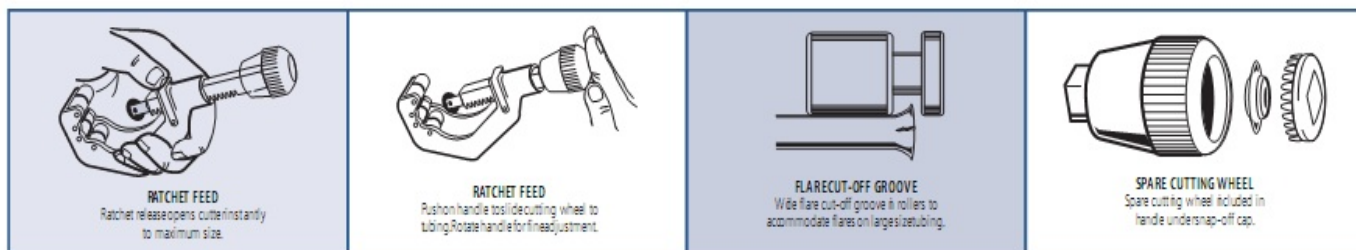
- Ratchet feed mechanism speeds up cutting operation.
- Extra wide rollers with flare cut-off groove stabilize tubing.
- Spare cutting wheel included under handle cap.
- Enclosed screw-type feed mechanism; lightweight aluminum alloy body.

- 206-FB** For 3/8" to 2-5/8" and 10 mm to 66 mm O.D. tubing. Includes (2) S74761 general-purpose cutter wheels. Length closed 7-3/4". Wt. 2.0 lbs.

- 206-FBP** Cuts schedule 40 PVC pipe up to 2". Includes one cutter wheel for PVC S10000770 and one general-purpose cutter wheel S74761.

- 406-FA** For 2" to 4-1/8" and 51 mm to 104 mm O.D. tubing. Includes (2) S74833 general-purpose cutter wheels. Length closed 11-1/4". Wt. 3.5 lbs.

Conforms to Federal Specification GGG-C-771d, Type II, Class I.



### SAWING VISE

- 384-FA** For 1/8" to 1-1/2" and 4 mm to 28 mm O.D. tubing. Cuts metal and non-metal tubing. Designed for stainless steel tubing that requires flaring. Grips tube or hose securely for perfect right angle cuts. Excellent for holding stainless steel tubing and wire braided hose when cutting with a hacksaw. Quick clamp adjustment with instant tube release. Replaceable hardened steel hacksaw guides. Fastens on bench or clamp in vise. Size: 5" x 3-1/8" x 5-1/8". Wt. 2.5 lbs.

Conforms to Federal Specification GGG-V-436d.



# PVC, PLASTIC AND NON-METAL REINFORCED TUBING

## PLASTIC TUBE AND HOSE SHEARS

For 1/16" to 13/16" (1 mm to 20 mm) O.D. hose\* or tubing.

**307-FP Snimp™** For 1/16" to 1/2" and 1 mm to 13 mm O.D. plastic tubing and non-metal reinforced hose. Compact shear is spring loaded for safety. Includes S8115601 replaceable hardened steel blade. Length 2-7/8". Wt. 1.0 oz. each. Comes in 12-pc. pop-up counter display. 9"d x 12"w x 12"h.

**327-FP** For 1/8" to 13/16" and 4 mm to 20 mm O.D. plastic tubing and non-metal reinforced hose. Can be wall- or bench-mounted for production, or carried in a toolbox. Includes S77615 replaceable hardened steel blade. Length 9-3/4". Wt. 1.0 lb.

\*Not for use with metal reinforced hose.



307-FP



307-FP POP-UP DISPLAY



327-FP

**206-FBP** Cuts schedule 40 PVC pipe up to 2". Includes one cutter wheel for PVC S10000770 and one general-purpose cutter wheel S74761.



206-FBP

# METAL TUBING

## NEW TUBE CUTTER SERVICE CENTER

For 1/8" to 4-1/8" O.D. tubing.

Selling Imperial® replacement cutter wheels, reamer blades and fasteners just got easier. Our new Service Center organizes a popular selection of replacement parts for Imperial cutters. Display on the counter or bring it with you when making sales calls. You can even sell the whole unit to customers!

### 144-F IMPERIAL TUBE CUTTER SERVICE CENTER

- 15 most common replacement parts stocked in one handy container.
- Includes a visual replacement chart for quick and easy identification.



144-F

#### 144-F SERVICE CENTER INCLUDES:

PART #	QUANTITY	DESCRIPTION	CUTTER
S75015	10	General Purpose Cutter Wheel	TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050
S75046	5	Cutter Wheel for Stainless Steel	TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050
S32633	10	Cutter Wheel	TC-1050, 227-FA
S74761	5	Cutter Wheel	206-FB, 206-FBP
S74762	5	Cutter Wheel Retaining Screw	TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050
S74833	3	Cutter Wheel	406-FA
S26883	3	Cutter Wheel Retaining Screw	TC-1050
S77511	3	Cutter Wheel Retaining Screw	206-FB, 206-FBP
S74834	3	Cutter Wheel Retaining Screw	406-FA
S76637	3	Constrictor Roller Wheel	TC-1000, TC-1010, TC-1020, 312-FC
S16003162	5	Cutter Wheel for Soft Copper Only	TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050
S10000770	3	Cutter Wheel for PVC	206-FB, 206-FBP
S7931801	3	Reamer Blade	TC-1000, TC-1010, 312-FC
S8201501	3	Retaining Screw for Reamer Blade	TC-1000, TC-1010, 312-FC
S74197	3	Spring Washer for Reamer Blade	TC-1000, TC-1010, 312-FC
144FB	1	Container only	

#### PARTS CONTENTS CHART:

<b>CUTTERWHEEL</b> Part# S74833 for Cutter #406-FA 	<b>CUTTERWHEEL FOR PVC</b> Part# S10000770 for Cutters #206-FB, 206-FBP 	<b>CUTTERWHEEL</b> Part# S74761 for Cutters #206-FB, 206-FBP 	<b>GENERAL PURPOSE CUTTERWHEEL</b> Part# S75015 for Cutters #TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050 	<b>CUTTERWHEEL FOR SOFT COPPER ONLY</b> Part# S16003162 for Cutters #TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050 	<b>CONSTRUCTOR ROLLERWHEEL</b> Part# S76637 for Cutters #TC-1000, TC-1010, TC-1020, 312-FC 
<b>CUTTERWHEEL FOR STAINLESS STEEL</b> Part# S75046 for Cutters #TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050 	<b>CUTTERWHEEL</b> Part# S32633 for Cutters #TC-1050, 227-FA 	<b>SPRING WASHER FOR REAMER BLADE</b> Part# S74197 for Cutters #TC-1000, TC-1010, 312-FC 	<b>REAMER BLADE</b> Part# S7931801 for Cutters #TC-1000, TC-1010, 312-FC 	<b>CUTTERWHEEL RETAINING SCREW</b> Part# S26883 for Cutter #TC-1050 	<b>CUTTERWHEEL RETAINING SCREW</b> Part# S74834 for Cutter #406-FA 
<b>CUTTERWHEEL RETAINING SCREW</b> Part# S77511 for Cutters #206-FB, 206-FBP 	<b>CUTTERWHEEL RETAINING SCREW</b> Part# S74762 for Cutters #TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050 	<b>RETAINING SCREW FOR REAMER BLADE</b> Part# S8201501 for Cutters #TC-1000, TC-1010, 312-FC 			



## TRIPLE HEAD LEVER TYPE

### 470-FH TRIPLE HEAD 180° TUBE BENDER WITH ROTO-LOK™ INDEXING HANDLE

- Bends 3/16", 1/4", 5/16" and 3/8" O.D. tubing.
- Patented, quick-action indexing lever repositions two-stage handle midway through bend when both handles begin to meet. This feature allows easy fabrication of bends up to 180° with reduced effort, better control and no crossing of handles!
- Optimum bending radius — for each tubing size.
- Calibrated markings — for making accurate left-hand, right-hand and offset bends.
- Compact design for working in tight spaces.
- Cushion grips — for comfort and stability.
- Made of lightweight, die-cast aluminum.

TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
3/16	7/16
1/4	9/16
5/16	11/16
3/8	15/16

Roto-Lok™ Indexing Lever  
• Smooth, tight 180° bends with less effort and improved control

Lightweight die-cast aluminum

Bends 3/16", 1/4", 5/16" and 3/8" O.D. Tubing

NEW  
Deluxe cushion grips for comfort and stability

Fixed tube hook

470-FH



## TRIPLE HEAD LEVER TYPE

### 370-FH TRIPLE HEAD 180° TUBE BENDER

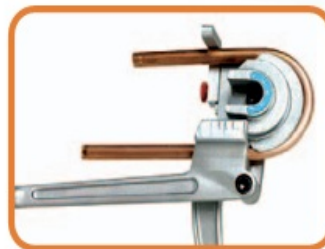
- Bends 3/16", 1/4", 3/8" and 1/2" tubing.
- Makes smooth, tight-radius 180° bends.
- Calibrated markings - for making accurate left-hand, right-hand and offset bends.
- Adjustable hook.
- Optimum bending radius - for each tubing size.
- Cushion grips - for extreme comfort.
- Made of lightweight die-cast aluminum.
- Clamshell packaging available.

Bend 3 of the most popular sizes of soft copper, aluminum and thin wall steel tubing with one rugged, precise tool!

370-FH

370-FH

TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	11/16
3/8	1-1/8
1/2	1-1/2



Easy 180° bends in one swift motion



### IMP™ TRIPLE HEAD BENDERS

For soft copper, aluminum and thin wall steel tubing.  
For 1/8", 3/16", 1/4", 5/16", 3/8" O.D. tubing.  
Makes up to 90° bends.

Calibrated markings for making accurate left-hand, right-hand and offset bends. Ninety degree start requires less effort - making bending fast and easy. For soft copper, aluminum and steel.

**367-FH** For 1/8", 3/16" and 1/4" (3 mm, 4 mm and 6 mm) O.D. tubing.  
9/16" (14.2 mm) radius to center of tube. Wt. 0.5 lbs.

**368-FH** For 3/16", 1/4", 5/16" and 3/8" (6 mm and 8 mm) O.D. tubing.



367-FH



368-FH

### SPRING TYPE TUBE BENDERS

For soft copper and aluminum tubing.  
For 1/4" to 7/8" O.D. tubing.

Tools allow hand bending of soft tubing to any shape without collapsing walls. Special spring steel, zinc finish. End belled for quick tube removal.

**201-F** Set of 8 benders for 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4" and 7/8" O.D. tubing.

**101-F** Set of 6 benders for 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8" O.D. tubing.

**163-F** Set of 4 benders for 1/4", 3/8", 1/2" and 5/8" O.D. tubing.

**112-F** Set of 3 benders for 1/4", 5/16" and 3/8" O.D. tubing.

102-F-08



CATALOG NUMBER	TUBE O.D. (in.)	LENGTH (in.)	WEIGHT EACH (OZ.)
102-F-04	1/4	10	3
102-F-05	5/16	10	3
102-F-06	3/8	10	4
102-F-07	7/16	12	6.25
102-F-08	1/2	12	6.5
102-F-10	5/8	12	8
102-F-12	3/4	12	10
102-F-14	7/8	12	10



## LEVER TYPE

### 364-FHA LEVER TYPE TUBE BENDERS

For 1/8" to 1" (6 mm to 12 mm) O.D. tubing.

Each tool bends one size. Open-side type which slips over tube at any point. Makes smooth, tight radius bends up to 180° with minimum effort. No scoring or flattening of tubing. Calibrated to show angle of bend. Wide hook grips tubing securely.

CATALOG NUMBER	TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs.)
364-FH-02	1/8	3/8	0.5
364-FH-03	3/16	7/16	0.5
364-FHA-04	1/4	9/16	1.0
364-FHA-05	5/16	11/16	1.0
364-FHA-06	3/8	15/16	1.75
364-FHA-07	7/16	1-1/2	3.5
364-FHA-08	1/2	1-1/2	3.5
364-FHA-10*	5/8	2-1/4	5.5
364-FHA-12*	3/4	3	7.0
364-FHA-14*	7/8	3	10.5
364-FHA-16*	1	3-1/2	10.5

Each tool bends only one size.

Conforms to Federal Specification GGG-B-191a Type III, Class 2.

\*For bending annealed copper and aluminum tubing only.

#### 364-FHA-14

Features telescopic handles for increased leverage. Expandable style furnished for 7/8" and 1" O.D. tubing.



#### 364-FHA-06

Style furnished for 1/4" through 1/2" O.D. tubing.

### METRIC SIZE BENDING TOOLS

CATALOG NUMBER	TUBE O.D. (mm)	RADIUS TO CENTER OF TUBE (mm)	RADIUS TO CENTER OF TUBE (inches)	WEIGHT EACH (kg.)	WEIGHT EACH (lbs.)
364-FHAM-6 mm	6	14.2	9/16	0.45	1.0
364-FHAM-8 mm	8	17.5	11/16	0.45	1.0
364-FHAM-10 mm	10	24.0	15/16	0.79	1.75
364-FHAM-12 mm	12	38.1	1-1/2	1.6	3.5



#### 364-FH-02

Style furnished for 1/8" and 3/16" O.D. tubing.



#### 364-FHA-10

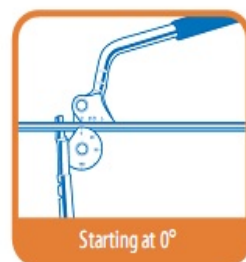
Style furnished for 5/8" and 3/4" O.D. tubing.

### 364-FHB SWIVEL HANDLE TUBE BENDERS

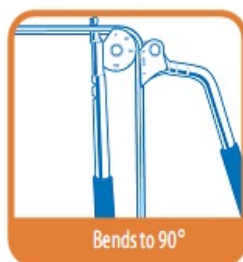
For 1/4" to 1/2" (6 mm to 12 mm) O.D. tubing.

The patented 364-FHB series has a swivel handle that can be repositioned midway through a bend when both handles begin to meet. This simple feature allows easy fabrication of bends up to 180° with reduced effort, better control and without the crossing of handles, typical of most other lever type benders.

CATALOG NUMBER	TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs.)
364-FHB-04	1/4	9/16	1.0
364-FHB-05	5/16	11/16	1.0
364-FHB-06	3/8	15/16	1.75
364-FHB-07	7/16	1-1/2	3.5
364-FHB-08	1/2	1-1/2	3.5



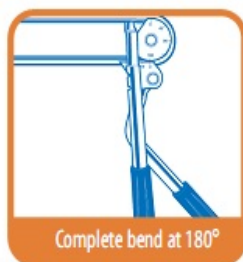
Starting at 0°



Bends to 90°



Handle swivels at 90°



Complete bend at 180°

### METRIC SIZE BENDING TOOLS

CATALOG NUMBER	TUBE O.D. (mm)	RADIUS TO CENTER OF TUBE (mm)	RADIUS TO CENTER OF TUBE (inches)	WEIGHT EACH (kg.)	WEIGHT EACH (lbs.)
364-FHBM-6 mm	6	14.2	9/16	0.45	1.0
364-FHBM-8 mm	8	17.5	11/16	0.45	1.0
364-FHBM-10 mm	10	24.0	15/16	0.79	1.75
364-FHBM-12 mm	12	38.1	1-1/2	1.6	3.5

Each tool bends only one size.



Style furnished for 1/4" through 1/2" O.D. tubing and 6 mm through 12 mm O.D. tubing.

**364-FHB-06 PATENTED**

## HEAVY DUTY LEVER TYPE

### 464-FH HEAVY-DUTY 180° TUBE BENDER WITH ROTO-LOK™ INDEXING HANDLE MAKES TIGHT BENDS

For 1/4" to 1/2" O.D. tubing.

- New design for accurate and tight bends up to 180° in stainless steel and other tough metals.
- Patented, quick action trigger release repositions two-stage handle midway through a bend when both handles begin to meet. This feature allows easy fabrication of optimized bends up to 180° with reduced effort, better control and no crossing of handles!
- Rollers in bending handle reduce friction and bending effort; eliminate scoring of tubing.
- Comfortable and durable ergonomically molded cushion grips.
- Viselug for mounting in vise.
- Clamshell packaging available for 1/4" and 3/8" O.D. models.

CATALOG NUMBER	TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs.)
464-FHT-04	1/4	9/16	1.2
464-FHT-06	3/8	15/16	3.7
464-FH-08	1/2	1-1/2	7.6





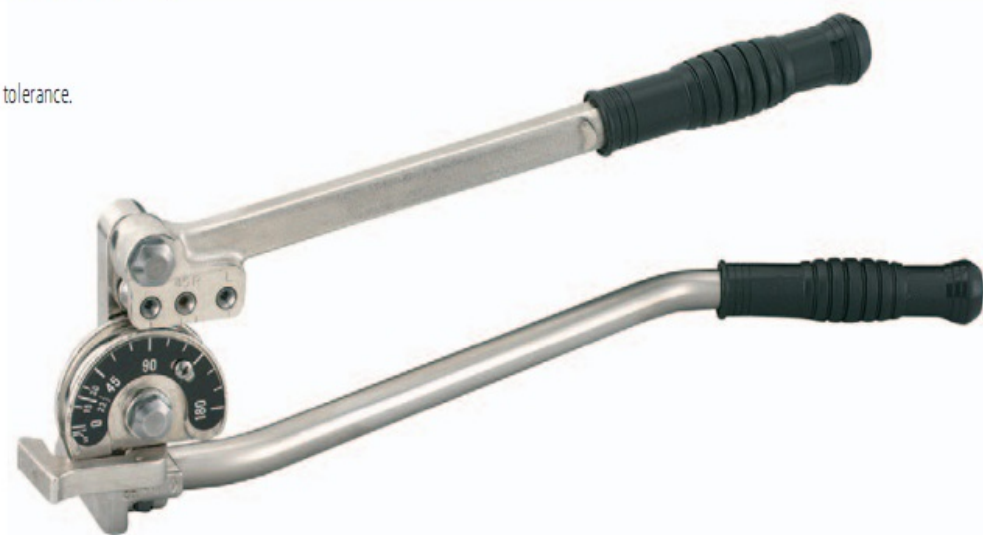
## HEAVY DUTY LEVER TYPE

### 564-FH AND 564-FHT LEVER TYPE HEAVY-DUTY TUBE BENDERS

For 3/8" and 1/2" O.D. tubing.

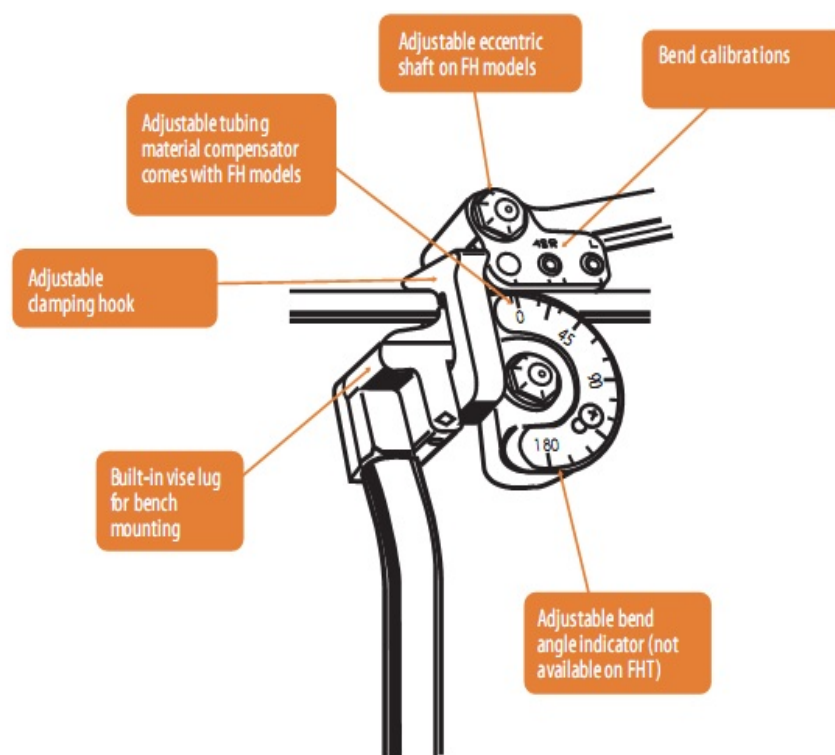
These heavy-duty tube benders feature high-strength tool steel construction on all components subjected to stress during the bending process — including forming rollers, form wheel, stop pins, hook and cam adjustment shaft. Unique offset handle design assures maximum power transfer between worker and bender. Bender will not "gyrate" as handles are brought to closed position.

- Meets ANSI B31.1/ASME Sec.3 Boiler/Power requirements (FH Models only).
- Vise mountable.
- Prevents slippage and flattening.
- Fully adjustable to compensate for variances in tube tolerance.
- Starts with handles at 90° angle.
- Built for rugged day-in and day-out use.
- Precise bends!
- Self-aligning rollers eliminate scoring and reduce bending effort.



564-FH-06  
PATENTED

CATALOG NUMBER	TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs.)
564-FHT-06	3/8	15/16	5.0
564-FH-06	3/8	1-1/8	5.5
564-FH-08	1/2	1-1/2	7.0



## LEVER TYPE KITS

### WIDE RANGE TUBE BENDER KITS

For 1/4" to 7/8" O.D. tubing.

Each tool quickly adapts to all sizes in its range by changing forming wheel and block. Telescopic handles reposition during bend for best leverage. Calibrations show precise bend angle. One-piece benders furnished for 1/4" and 5/16" O.D. sizes. Furnished in tool case with space for other tools needed on the job.

Conforms to Federal Specification GGG-B-191a Type III, Class 1.

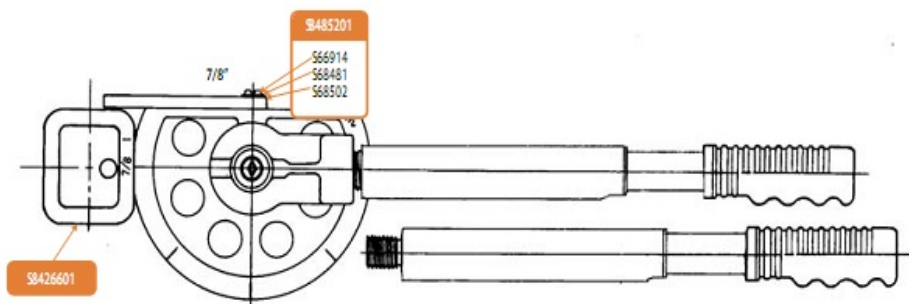


All wide-range benders furnished in tool case with space for other tools.

260-FHA

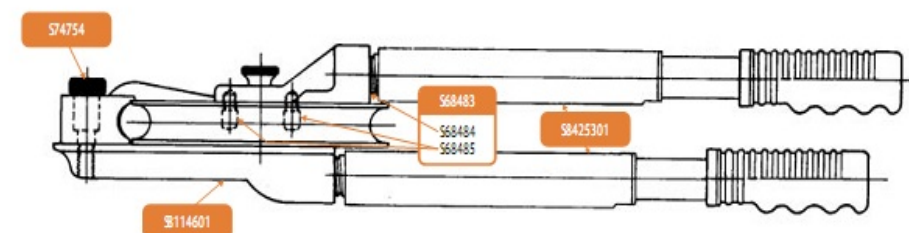
260-FHA for 7 sizes. Wt. 23 lbs.

TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	9/16
5/16	11/16
3/8	1-5/8
1/2	1-5/8
5/8	2-1/4
3/4	3
7/8	3



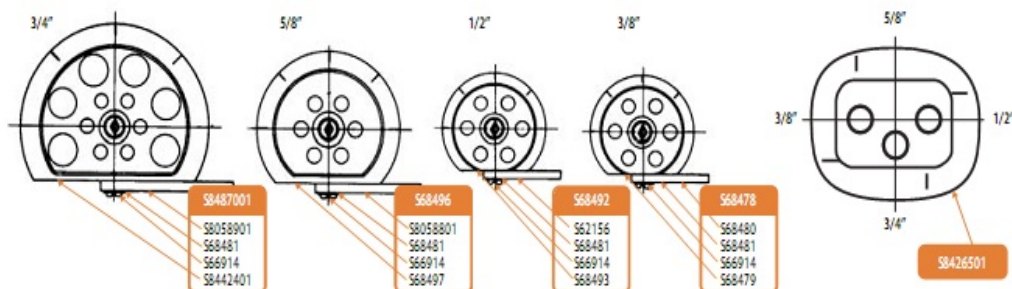
350-FHA for 6 sizes. Wt. 20 lbs.

TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	9/16
5/16	11/16
3/8	1-5/8
1/2	1-5/8
5/8	2-1/4
3/4	3



360-FHA for 4 sizes. Wt. 20 lbs.

TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
3/8	1-5/8
1/2	1-5/8
5/8	2-1/4
3/4	3



\*Recommended for bending annealed copper and aluminum tubing only.

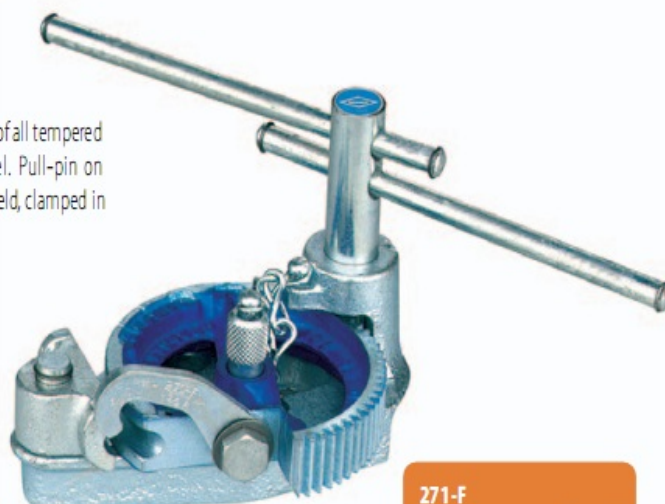


## GEAR TYPE

### 270-F GEAR TYPE TUBE BENDER

For 3/8" to 1-1/8" O.D. tubing.

For all bending work. Spur-gear type with 10-to-1 ratio for easy bending of all tempered tubing. Floating shoe aligns tube perfectly on calibrated forming wheel. Pull-pin on wheel speeds repositioning for bends over 90°. Portable. Can be hand held, clamped in vise or bolted to bench. Adapts to pipe vise with handle 271-F.



270-F

#### 271-F

Pipe vise extension (fits all 270-F Benders). For use when clamping bender in pipe vise. Wt. 1.75 lbs.

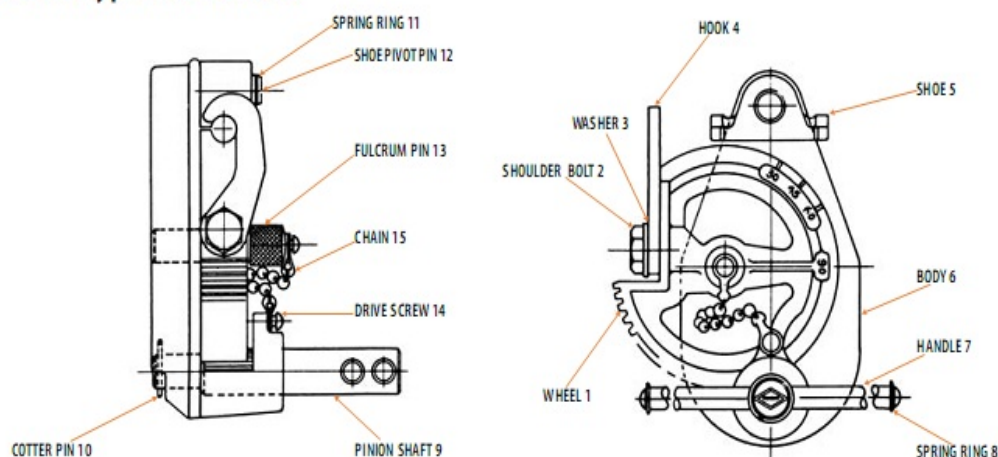


Each tool bends only one size.

CATALOG NUMBER	TUBE O.D. (in.)	RADIUS FROM CTR. TO CENTER OF TUBE (in.)	MIN. RETURN FROM CENTER TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs.)	WALL THICKNESS (in.)
270-F-06	3/8	1-3/4	4-1/2	3	.030 to .060
270-F-08	1/2	2-1/2	6	4.75	.035 to .065
270-F-10	5/8	3	7-1/2	8.5	.040 to .072
270-F-12	3/4	4	9-1/2	15	.042 to .083
270-F-14	7/8	4	9-1/2	14.75	.045 to .083
270-F-16	1	4	9-1/2	14.75	.065 to .095
270-F-18	1-1/8	4	9-1/2	14.25	.065 to .095

## REPLACEMENT PARTS

For Imperial 270-F Gear Type Tube Benders



Order by catalog number and O.D. size. Each bender handles only one size.

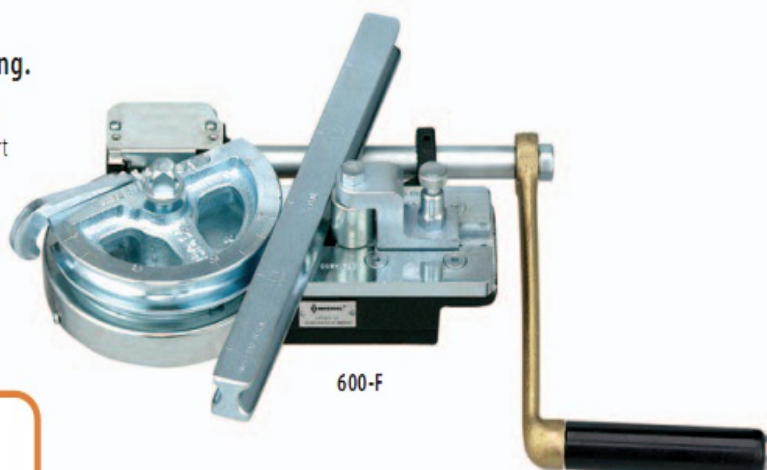
CATALOG NUMBER	size (in.)	1 part no.	2 part no.	3 part no.	4 part no.	5 part no.	6 part no.	7 part no.	8 part no.	9 part no.	10 part no.	11 part no.	12 part no.	13 part no.	14 part no.	15 part no.
270-F-06	3/8	562244	562245	562246	562247	562250	562251	562252	562253	562254	562255	562257	562258	562838	562836	562839
270-F-08	1/2	562261	562264	562246	562263	562262	562260	562269	562253	562268	562255	562266	562265	562840	562836	562839
270-F-10	5/8	562275	562280	562279	562278	562277	562276	562284	562285	562283	562255	562281	562282	562841	562836	562842
270-F-12	3/4	562305	562294	562298	562307	562306	562288	562292	562297	562291	562255	562296	562295	562835	562836	562837
270-F-14	7/8	562302	562294	562298	562304	562303	562288	562292	562297	562291	562255	562296	562295	562835	562836	562837
270-F-16	1	562299	562294	562298	562301	562300	562288	562292	562297	562291	562255	562296	562295	562835	562836	562837
270-F-18	1-1/8	562287	562294	562298	562290	562289	562288	562292	562297	562291	562255	562296	562295	562835	562869	562837

## GEAR TYPE

### WORM GEAR TUBE BENDER

For 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D. tubing.

**600-F** Precision tool for highest quality work. Worm gear type with 50-to-1 ratio and crank with revolving hand grip. Keeps effort at a minimum. Follow bar eliminates drawing action and keeps tube in virtually perfect round. Adjustable pressure roller positions quickly in index holes. Enclosed gears. Furnished in carrying case. Size of kit: 14" x 9" x 6". Wt. 35.0 lbs.



600-F



Tube Wall Thickness and Bend Radius

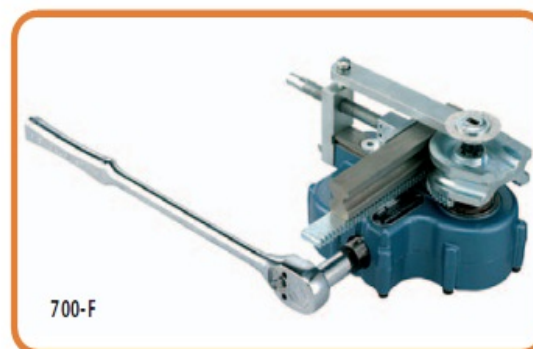
TUBE O.D. (in.)	WALL THICKNESS (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	.016 to .049	3/4
5/16	.020 to .065	1
3/8	.028 to .083	1-1/4
1/2	.035 to .083	2
5/8	.042 to .083	2-1/2
3/4	.049 to .083	3

Conforms to Federal Specification GGG-B-191b, Type I, Class 2. Meets ANSI specification (B31.1) and ASME Section III Nuclear Code.

### GEAR TYPE TUBE BENDER

For 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D. tubing.

**700-F** Makes bends up to 180° in stainless steel tubing conforming to Specification MIL-T-6845. Precision construction maintains original diameter of tube within 5% at cross section of bend. Also bends copper, aluminum and other types of tubing. Size of kit 16" x 7" x 6-1/2". Wt. 32.0 lbs.



700-F

Tube Wall Thickness and Bend Radius

TUBE O.D. (in.)	WALL THICKNESS (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	.016 to .049	9/16
5/16	.020 to .065	11/16
3/8	.028 to .083	15/16
1/2	.035 to .083	1-1/4
5/8	.042 to .083	1-1/2
3/4	.049 to .083	1-3/4

Conforms to Federal Specification GGG-B-191a and Interim Amendment No. 2, Type I, Class 1.

Calibration dial indicates angle on bend.  
(In some cases these wall thicknesses can be exceeded for copper and aluminum tubing. Consult factory.)





## 45° FLARING TOOLS

### 45° FLARING TOOLS

For 3/16", 1/4", 5/16", 3/8", 7/16", 1/2" and 5/8" O.D. tubing.

**195-FC** Flares 7 sizes of tubing. Rugged forged steel slip-on yoke and hardened flaring bar. Positive clamping action of bars prevents tube slippage. Self-centering yoke with swivel-type, hardened steel, chrome-finished flaring cone forms better flares with less effort. Design of yoke permits flaring where there is little space between nut and tube end. Satin finish nickel-chrome plated. Wt. 2.0 lbs.

**296-FC** Flares 7 sizes of tubing. Economical, fast-operating tool. Quick slip-on yoke. Easy operating swivel-type, hardened steel, chrome-finished cone assures smooth flares. Chrome and black finish. Wt. 1.75 lbs.

**195-FC, 296-FC**

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	7/16	1/2	5/8
Wall Thickness (in.)	.028	.035	.035	.035	.035	.035	.035

**395-FAM**

Outside Tube Diameter (mm)	4	6	8	10	12	15	16
Wall Thickness (mm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0



296-FC



195-FC

### 45° METRIC SIZE FLARING TOOL

**395-FAM** Same as 195-FC except for metric size tubing 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 15 mm, 16 mm O.D. tubing.

### 45° LARGE SIZE FLARING TOOLS

Flares larger tube sizes. Quick slip-on yoke with hard chrome-finished, swivel flaring cone reduces effort. Positive clamping action of flaring bar eliminates tube movement. Nickel chrome finish.

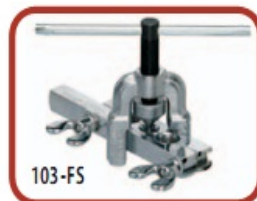
Conforms to Federal Specification GGG-F-451a Type 1, Class 2 Style A.

**103-FS** For sizes 3/4", 7/8" and 1" O.D. tubing. Wt. 3.75 lbs.

**203-FA** For sizes 5/8", 3/4", 7/8" and 1-1/8" O.D. tubing. Wt. 3.75 lbs.

**375-FS** For sizes 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D. tubing. Wt. 3.75 lbs.

**376-FS** For sizes 1/2", 5/8", and 3/4" O.D. tubing. Wt. 2.0 lbs.



103-FS



Outside Tube Diameter (in.)	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1-1/8
Wall Thickness (in.)	.025	.028	.035	.035	.035	.035	.035	.049	.049	.049	.058	.058

### HI-DUTY™ FLARING TOOL

For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**300-FB** Hardened steel, chrome finished cone makes exceptionally smooth high strength flares with a radius at base of flare — instead of the sharp angle formed by ordinary flares. New slip-on yoke permits use in tight quarters, allows flaring where there is little space between nut and tube end. New feed screw design provides smoother, easier operation. Positive gripping and self-gauging of tube for exact flare size. Sliding die blocks lock in place by lever clamp action to ensure even dispersal of force around full diameter of tube for superior grip. Wt. 1.6 lbs.

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness (in.)	.028	.035	.035	.035	.035	.035

**FORMS STRONGER FLARES-** Stronger flares assured by smooth, even radius formed at base of every flare by engineered chamfer.

**SELF GAUGING-** Just insert tube flush with top of die for accurate flare size.



## 45° ROL-AIR™ FLARING TOOLS

### 45° ROL-AIR FLARING TOOL

Flares and burnishes 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**500-FC** Faceted, hardened steel, chrome-finished cone rolls out perfect 45° flares above die block, and automatically burnishes flare face reducing the need for deburring. Original wall thickness is maintained at base of flare. New slip-on yoke permits use in tight quarters, where there is little space between nut and tube end. Larger handle, with better leverage, and precision threads on feed screw make flaring effortless. Heat treated dies grip tubing without scoring. Satin chrome and black finish. Wt. 1.5 lbs.

Outside Tube Diameter	(in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness	(in.)	.028	.035	.035	.035	.035	.035

### METRIC SIZE 45° ROL-AIR FLARING TOOL

**500-FCM** Same as 500-FC except for metric size tubing 6 mm, 8 mm, 10 mm, 12 mm, 15 mm and 16 mm O.D.

Outside Tube Diameter	(mm)	6	8	10	12	15	16
Wall Thickness	(mm)	1.0	1.0	1.0	1.0	1.0	1.0



500-FC



Flares rolled out above die bar by super-smooth faceted cone. Makes stronger flares.



**PATENTED** Unique detention mechanism for rapid engagement and release of die blocks.



Flares rolled out above die bar by super-smooth faceted cone. Makes stronger flares.



525-F

### "GRABBER"™ ROL-AIR 45° FLARING TOOL

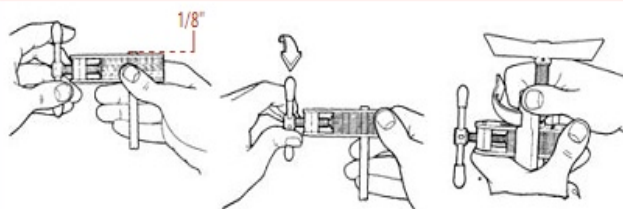
Universal application. Adjustable opening holds all sizes. Flares and burnishes 3/16" to 5/8" (4.75 to 16 mm) O.D. tubing.

**525-F** Unique, self-adjusting, tube holding mechanism permits flaring any size tubing within the range of 3/16" to 5/8" (4.75 to 16 mm) O.D. tubing. Innovative, single-opening design is more compact and easier to use than conventional multi-opening flaring bars. Faceted, hardened steel, chrome-finished cone rolls out and burnishes perfect 45° flare above the tube-holding mechanism reducing need for deburring. Original wall thickness is maintained at base of flare. Slip-on self-centering yoke permits use in tight quarters. Large handle, with better leverage, and precision threads on feed screw make flaring effortless. High quality construction with satin chrome and black finish. Wt. 1.75 lbs.

Outside Tube Diameter	(in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness	(in.)	.028	.035	.035	.035	.035	.035

Outside Tube Diameter	(mm)	4.75	6	8	10	12	15	16
Wall Thickness	(mm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0

- (1) Insert tubing into adjustable opening of tube-holding assembly. Position end of tubing approximately 1/8" above the surface of holder.
- (2) Tighten clamp screw approximately 1/2 to 3/4 of a turn beyond free travel position to secure tubing.
- (3) Be certain flaring cone surface is oiled. Slip yoke over tube holding assembly centering on tubing. Twist yoke clockwise to lock in position. Turn yoke handle clockwise to flare.





## 45° DOUBLE FLARING TOOLS

### 45° DOUBLE FLARING TOOL

For 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. tubing.

**93-FB** Recommended for Bundy and other annealed soft steel tubing (wall thickness to .035"). Also makes single or double flares in soft copper or aluminum tubing. Small, lightweight, easy to handle. Forged steel yoke; swivel-type hardened steel, chrome-finished flaring cone. Bar provides positive grip of tubing. Includes plastic tool case. Wt. 3.0 lbs.

Conforms to Federal Specification GGG-F-451a, Type 1, Class 2 Style A.

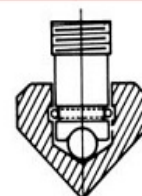


93-FB

Screw down flaring cone with proper size adapter in tube. Retract cone, remove adapter, complete flare.

#### SWIVEL-TYPE BALL BEARING CONE

Ball thrust bearing in flaring cone minimizes friction, makes operation easier.



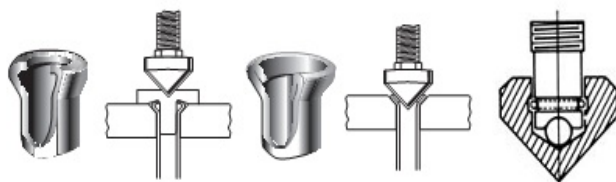
### 45° DOUBLE FLARING TOOL

For 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D. tubing.

**195-FB** Designed for automotive air-conditioning service. Makes double flares in soft copper or aluminum tubing (wall thickness to .035"). Easy operating, ball bearing swivel-type hard chrome-finished flaring cone. Quick slip-on yoke. Flaring bar offers positive grip of tubing. Also makes single flares. Includes metal case. Wt. 5.5 lbs.



195-FB



- (1) Screw down flaring cone with proper size adapter in tube. Retract cone, remove adapter, complete flare.
- (2) **SWIVEL-TYPE BALL BEARING CONE**- Ball thrust bearing in flaring cone minimizes friction, makes operation easier.

## 37° FLARING TOOLS

### 37° FLARING TOOL

For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**437-FB** For use with soft copper, aluminum and brass tubing. Hardened steel, chrome-finished cone makes exceptionally smooth, high-strength flares with a radius at base of flare – instead of the sharp angle formed by ordinary tools. New slip-on yoke permits use in tight quarters, allows flaring where there is little space between nut and tube end. New feed screw design provides smooth, easier operation. Positive gripping and self-gauging of tube for exact flare size. Sliding die blocks lock in place by clamp action. Satin chrome and black finish. Wt. 1.75 lbs.

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness (in.)	.032	.032	.032	.032	.035	.035



**FORMS STRONGER FLARES-**  
Stronger flares assured by smooth, even radius formed at base of every flare by engineered chamfer.



**SELF GAUGING** - Just insert tube flush with top of die for accurate flare size.



437-FB

### 37° ROL-AIR™ FLARING TOOL

For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**507-FB** For use with soft copper, aluminum and brass tubing. Faceted, hard chrome-finished cone rolls out perfect 37° flares above die block – then automatically burnishes flare face. Original wall thickness is maintained at base of flare. New slip-on yoke permits use in tight quarters where there is little space between nut and tube end. Larger handle, with better leverage, and precision threads on feed screw make flaring effortless. Heat treated dies firmly grip tubing. Satin chrome and black finish. Wt. 1.75 lbs.

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness (in.)	.032	.032	.032	.032	.035	.035

### METRIC SIZE 37° ROL-AIR™ FLARING TOOL

**507-FBM** Metric 37° Rol-Air flaring tool. Same as 507-FB except for metric size tubing 6 mm, 8 mm, 10 mm, 12 mm, 15 mm, 16 mm O.D. tubing.

Outside Tube Diameter (mm)	6	8	10	12	15	16
Wall Thickness (mm)	1.0	1.0	1.0	1.0	1.0	1.0



507-FB



Flares rolled out above die bar by super-smooth faceted cone. Makes stronger flares.



## 37° FLARING TOOLS

### 37° ROL-AIR™ FLARING TOOLS

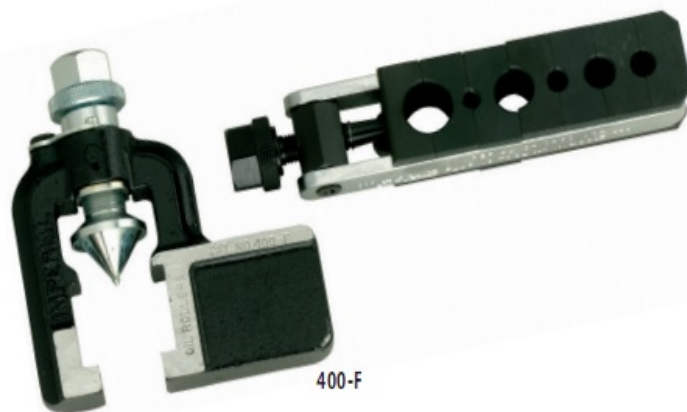
For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**400-F** Forms 37° flares to government specifications in steel, stainless steel (including MIL-T-6845), titanium and other metal tubing. Positive stop gauge assures correct size of flare. Special burnishing action polishes flare face. Three rollers in flaring cone roll out 37° flare above die block. Roller action cuts effort required; maintains original wall thickness - eliminates stress concentration. Extension on yoke for clamping in vise. Satin chrome and black finish. Furnished in sturdy tool case. Wt. 2.5 lbs.

**401-FA** Reaming yoke for 1/4" to 5/8" O.D. tubing. Recommended for use with steel and stainless steel tubing for proper flaring. Wt. 0.7 lbs.

**402-FA** Flaring and reaming kit. Contains No. 400-F Flaring Tool and No. 401-FA Reaming Yoke for 1/4" to 5/8" O.D. tubing. In tool case. Wt. 3.2 lbs.

Conforms to Federal Specification GGG-F-451a, Type 1, Class 1, Style A.



400-F

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness (in.)	.035	.049	.049	.065	.065	.065



Feed release and burnishing mechanism. Flare control gauge.



3 rollers in flaring cone. Flare formed above die block.



401-FA

Feed screw controls depth of reaming.

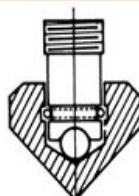


402-FA

### 37° HEAVY-DUTY FLARING TOOL

For 1/8", 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. tubing.

**447-F** Forms 37° flares in annealed stainless steel (MIL-T-6345 or AMS5566), cold drawn stainless steel and annealed copper or aluminum tubing. Built to withstand continuous rugged service. Ball thrust bearing mechanism reduces effort required. Hardened tool steel die features non-slip grip of tubing, even after repetitive flaring. Bar has vise extension. Wt. 3.25 lbs.



Ball thrust bearing in flaring cone minimizes friction, makes operation easier.



447-F

Outside Tube Diameter (in.)	1/8	3/16	1/4	5/16	3/8	1/2
Wall Thickness (in.)	.032	.032	.035	.049	.049	.049

## 37° FLARING TOOLS

### LARGE SIZE 37° ROL-AIR™ FLARING TOOLS

For 3/4", 7/8", 1", 1-1/4", 1-1/2" and 2" O.D. tubing.

Three cylinders in flaring cone roll out 37° flare above die block. Flares soft steel, copper, aluminum and fully annealed stainless steel tubing. Roller action cuts effort required; maintains original wall thickness, eliminates stress concentration. Feed release and burnishing action. Vise clamp extension on yoke. Heat treated dies clamp tubing without marking it. Satin chrome and black finish. Furnished in tool case.

**537-F** Flares and burnishes 3/4", 7/8", 1" and 1-1/4" O.D. tubing.  
Wt. 13.0 lbs.

**637-F** Flares and burnishes 1-1/4", 1-1/2" and 2" O.D. tubing.  
Wt. 13.0 lbs.

\*Conforms to Federal Specification GGG-F-451a, Type 1, Class 1, Style B.



537-F



Use clamp extension.



Flares rolled out above die bar.



Feed release and burnishing mechanism.

Outside Tube Diameter (in.)	3/4	7/8	1	1-1/4
Wall Thickness (in.)	.065	.065	.065	.083

Outside Tube Diameter (in.)	1-1/4	1-1/2	2
Wall Thickness (in.)	.083	.083	.083

### 37° PRECISION FLARING TOOL

For 1/8", 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4", 1", 1-1/4" and 1-1/2" O.D. tubing.

**407-FA** Precision tool flares (37°) 1/8" hard stainless steel and other tubing to extremely close tolerances. Swivel-head clamp locks tubing in smooth-bore die blocks. Lathe-type tube feed. Flares rolled out by ball-bearing mounted concentric flaring cone. Tool must be clamped in vise. Will flare 1/8" hard stainless steel tubing in the sizes and wall thicknesses listed below. In some cases these wall thicknesses can be exceeded when flaring aluminum, copper or soft steel tubing. In tool case. Wt. 50.0 lbs.

Facing and deburring attachments not included with 407-FA.

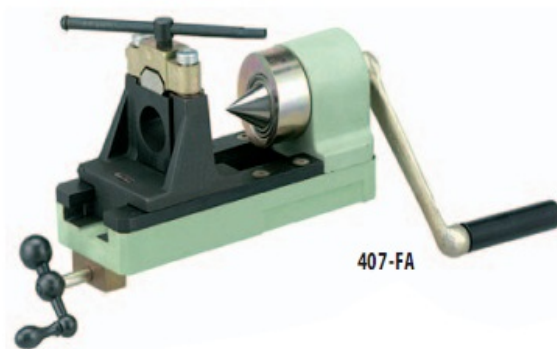
**407-F** Same as 407-FA, except includes the facing and deburring attachments.

**S74460** Internal deburring tool for 1/8" to 1/2" O.D. tubing.

**S74455** Internal deburring tool for 5/8" to 1-1/2" O.D. tubing.

**S74447** External deburring tool.

**S74462** Facing tool.



407-FA



TUBE O.D. (in.)	WALL THICKNESS (in.)
1/8	.020, .028
3/16	.010, .028
1/4	.016, .028, .035
5/16	.035
3/8	.028, .035
1/2	.035, .049
5/8	.035, .049
3/4	.028, .035, .049
1	.028, .035
1-1/4	.035, .049
1-1/2	.035, .049, .065



## FLARING & SWAGING TOOLS

### PRODUCTION FLARING (45° & 37°) AND SWAGING TOOL

For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

**555-FS** Flares and swages 6 sizes of soft copper, aluminum or brass tubing. Makes both 45° and 37° single flares. Fast cam lever operation. Portable and vise or bench mountable. Change sizes quickly. Built in gauge for accurate flare size or swage depth. Unique jaws provide a positive non-slip grip on tubing. Wt. 6.5 lbs.

Outside Tube Diameter	(in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness	(in.)	.028	.035	.035	.035	.035	.035



Swages 6 sizes.



Makes 45° & 37° flares.



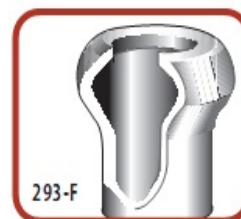
555-FS

### METRIC BUBBLE FLARING TOOL

For soft steel or Bundy tubing 4.75 mm (3/16"), 6 mm, 8 mm or 10 mm O.D. tubing.

**293-F** Forms international standard bubble flare in one fast operation. Flares metric hydraulic brake lines used on European, Japanese and American automobiles and light trucks. This unique design makes flares on 4 sizes of tubing: 4.75 mm (3/16"), 6 mm, 8 mm and 10 mm O.D. Will flare soft double-wall steel tubing with a wall thickness up to .028". Can also be used with soft copper and aluminum tubing.

**Replacement parts:** **S8771801** 4.75 mm (3/16") adapter.  
**S8771701** 6 mm adapter.  
**S8771601** 8 mm adapter.  
**S8771301** 10 mm adapter.  
**S8694401** Wing nut.



293-F

### 45° METRIC DOUBLE FLARING TOOL

For 4.75 mm (3/16"), 6 mm, 8 mm or 10 mm O.D. tubing.

**294-F** Recommended for Bundy and other annealed soft steel tubing (wall thickness to .035"). Also makes single or double flares in soft copper or aluminum tubing. Small, lightweight, easy to handle. Forged steel yoke; swivel-type hardened steel, chrome-finished flaring cone. Bar provides positive grip of tubing. Includes plastic tool case. Wt. 3.0 lbs



294-F



Screw down flaring cone with proper size adapter in tube. Retract cone, remove adapter, complete flare.

## FLARING & SWAGING TOOLS

### FLARING (45°) & SWAGING TOOL

For 1/8" to 3/4" and 4 mm to 22 mm O.D. tubing.

**275-FS** Flares and swages. Converts quickly. Screw-type feed. Ideal for use in close quarters. Two bars included cover 9 sizes. Swivel-type swaging adapters and flaring cone are hardened steel chrome-finished for easy operation. Self-centering, slip-on forged steel yoke. In tool case. Wt. 3.5 lbs.  
Flares 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D.  
Includes 5 swage adapters that swage 7 tube sizes 3/16", 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" O.D.

**Replacement parts:** **278-FS-03X04X06** Adapter 3/16", 1/4", 3/8".  
**278-FS-05** Adapter 5/16".  
**278-FS-08** Adapter 1/2".

**278-FS-10** Adapter 5/8".  
**278-FS-12** Adapter 3/4".  
**S38600** Flaring Cone.



275-FS

**275-FSM** Metric flaring and swaging tool. Same as 275-FS except for metric size tubing 4 mm, 6 mm, 8 mm, 10 mm, 12 mm, 14 mm, 15 mm, 16 mm, 18 mm, 22 mm O.D. tubing. In tool case. Wt. 3.5 lbs.

**Replacement parts:** **278-FSM-4-6-10** Adapter 4 mm, 6 mm, 10 mm.  
**278-FSM-8** Adapter 8 mm.  
**278-FSM-12** Adapter 12 mm.  
**278-FSM-14** Adapter 14 mm.

**278-FSM-15** Adapter 15 mm.  
**278-FSM-16** Adapter 16 mm.  
**278-FSM-18** Adapter 18 mm.  
**278-FSM-22** Adapter 22 mm.  
**S38600** Flaring Cone.



275-FS

Outside Tube Diameter	(in.)	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Wall Thickness	(in.)	.020	.028	.035	.035	.035	.035	.035	.035	.035

Outside Tube Diameter	(mm)	4	6	8	10	12	14	15	16	18	22
Wall Thickness	(mm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0



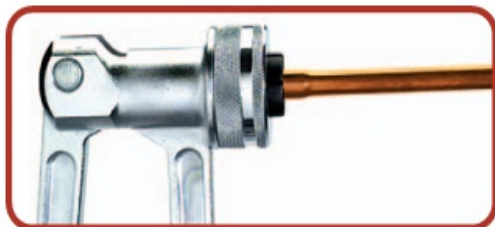
## FLARING & SWAGING TOOLS

### 175EX XPANDR™ SWAGING/EXPANDING KIT

- Easily expands tube for braze & soldered joints in seconds.
- Floating jaw head design is self-centering for fast, accurate alignment.
- Re-rounds deformed tube ends.
- Accurate joints in seconds without using fittings.
- For soft copper and soft thin wall steel and stainless steel tubing.
- Save 60-70% of time over conventional swaging tools.
- Reduces soldering by 50% over standard fittings.
- Meets ARI tube insertion recommendations.
- Long life with high alloy hardened steel jaw segments.
- XpandR™ Tool comes with non-slip, ergonomically designed grips.
- Supplied in a compact carrying case.
- Includes 5 heads: 3/8", 1/2", 5/8", 3/4" and 7/8".

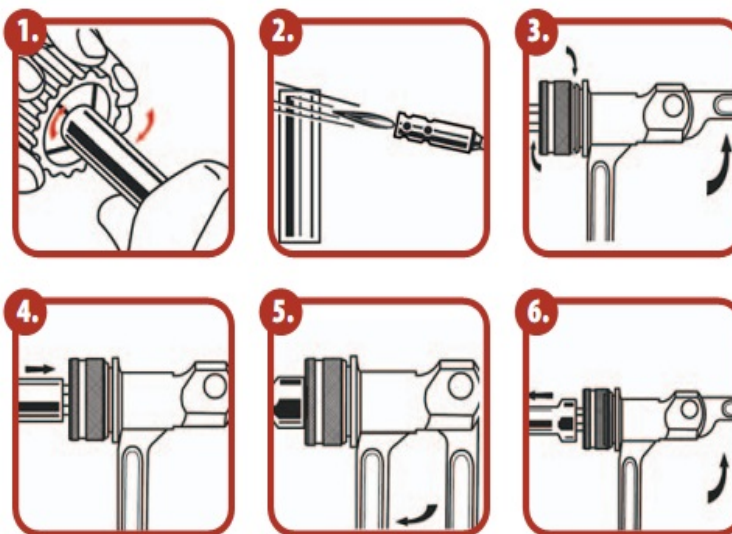


175EX



### SIX EASY STEPS:

1. Deburr inside of tube.
2. To create perfectly centered capillary sockets for soldering or brazing, you must use soft copper or fully anneal end of tube to be expanded.
3. Pull XpandR™ handle up to 90-degree position. Maintain this position as you screw the appropriate size head over the center-punch and tighten.
4. Insert the end of the tube over the XpandR™ head completely.
5. Pull the lever completely down.
6. Return the lever to the 90-degree position. Remove expanded tube.



#### 175EX KIT INCLUDES

175EXP	XpandR Pliers
175EXC	XpandR Case
175EX06	3/8" head
175EX08	1/2" head
175EX10	5/8" head
175EX12	3/4" head
175EX14	7/8" head

You may order kit items separately. Kit wt. 20 lbs.

#### ADDITIONAL HEAD SIZES AVAILABLE:

175EX16	1" head
175EX18	1-1/8" head
175EX22	1-3/8" head
175EX26	1-5/8" head

### TO RE-ROUND SLIGHTLY DEFORMED TUBE ENDS:

1. Insert deformed tube end to the first groove of head.
2. Pull the lever completely down.
3. Return the lever to the 90-degree position. Remove expanded tube.

## SWAGING TOOLS

### PUNCH TYPE SWAGING TOOLS

Use these tools for making tubing connections without fittings. Enlarge end of tube, insert another tube of original O.D. size and solder together like a sweat fitting.

**94-S** Three-in-one swaging tool for 1/2", 5/8" and 7/8" tubing. Wt. 1.0 lbs.

**95-S** One tool swages 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" O.D. tubing.

Hi-alloy steel, heat-treated for rugged use.

Hex design for ease of extraction.

Precision machined surface for ease of forming.

**193-S** Vinyl case contains 4 swaging punches 1/4", 3/8", 1/2" and 5/8" O.D. tubing. Wt. 1.0 lbs.

**195-SA** Vise-mountable flaring bar and 4 swaging punches 1/4", 3/8", 1/2" and 5/8" O.D. tubing. In tool case. Wt. 2.0 lbs.

**S75531** Flaring bar only. Wt. 1.0 lb.



95-S



### 95-S 6 IN 1 SWAGING TOOL

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness (in.)	.028	.035	.035	.035	.035	.035

### INDIVIDUAL SWAGING TOOLS

CATALOG NUMBER	TUBE O.D. (in.)	WALL THICKNESS (in.)	WEIGHT (lbs.)
93-S-03	3/16	.028	.20
93-S-04	1/4	.035	.20
93-S-05	5/16	.035	.25
93-S-06	3/8	.035	.25
93-S-08	1/2	.035	.50
93-S-10	5/8	.035	.50
93-S-12	3/4	.035	.75
93-S-14	7/8	.045	1.0

### 45° SWAGING TOOL

For 1/2", 5/8" and 7/8" O.D. tubing.

**194-S** Screw-type flaring and swaging tool. Far easier to work with in close quarters than punch type tools. Perfect swaging alignment of tube every time. Hardened steel chrome-finished adapters change quickly. In tool case. Wt. 2.0 lbs.

**Replacement parts:** **278-FS-08** Adapter 1/2".

**278-FS-10** Adapter 5/8".

**278-FS-14** Adapter 7/8".



194-S



# TUBE WORKING KITS

## WIDE RANGE TOOL KIT

121-F All-purpose tubing tool kit contains:

- TC-1000** Tube cutter for 1/8" to 1-1/8" O.D. tubing.
- 375-FS** Flaring tool for 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D. tubing.
- 102-F-04** Spring bender for 1/4" O.D. tubing.
- 102-F-06** Spring bender for 3/8" O.D. tubing.
- 102-F-08** Spring bender for 1/2" O.D. tubing.
- 123-C** Ratchet wrench with 1/2" ratchet, 3/16" and 1/4" square opening, and 1/2" hex in handle.



121-F

## CUTTING AND FLARING KITS

Each kit contains No. TC-1000 tube cutter for 1/8" to 1-1/8" O.D. tubing and a 45° or 37° flaring tool. In tool case.

CATALOG NUMBER	TUBE CUTTER	FLARING TOOL	RANGE OF FLARING TOOL (in.)	WEIGHT (lbs.)
120-F	TC-1000	375-FS (45°)	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4 O.D.	2.75
122-FA	TC-1000	437-FB (37°)	3/16, 1/4, 5/16, 3/8, 1/2, 5/8 O.D.	2.75
123-FA	TC-1000	300-FB (45°)	3/16, 1/4, 5/16, 3/8, 1/2, 5/8 O.D.	2.75
124-FA	TC-1000	500-FC (45° Rot-Air™)	3/16, 1/4, 5/16, 3/8, 1/2, 5/8 O.D.	2.75
1226-FA	TC-1000	195-FC (45°)	3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 5/8 O.D.	3.0



1226-FA



124-FA

## TUBE WORKING KITS

### 45° FLARING, CUTTING AND SWAGING KIT

For soft copper, aluminum, steel, stainless steel and brass tubing.

**275-FSC** Kit contains a TC-1000 tube cutter for 1/8" to 1-1/8" O.D.tubing and 275-FS 45° flaring and swaging tool. In tool case. Wt.3.0 lbs.

**Flares:** 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D.tubing.

**Swages:** 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D.tubing.

### 45° DOUBLE FLARING, SWAGING AND CUTTING KIT

**275-FSCD** Kit contains 275-FS, TC-1000, and double flaring adapters for 3/16", 1/4", 5/16", 3/8" and 1/2" O.D. tubing.



275-FSC

### FLAREPRO™ FOUR-IN-ONE FLARING & SWAGING TOOL

For copper, aluminum, steel, stainless steel and other metal tubing.

**2000-FS** Individual size jaw sets are used for positive clamping compactness and operating convenience.

Socket head screws are provided for clamping the jaws to the yoke and feeding the tube forming components. The screws are hand turned for all free travel movement when advancing or retracting.

A hex socket and 3/8" square drive ratchet are furnished for easy operation of the threaded members under load. Tube forming components (flaring cones, double flaring adapters and swaging adapters) are retained on the feed screw by a ball detent mechanism and can be snapped on and off for quick change as required.

The tool is designed to permit hand-held or vise-mounted operation. Wt.7.0 lbs.

**Flaring - 37° and 45°:** Flares soft copper, brass, aluminum, steel and stainless steel in nine tube sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" O.D.tubing.

**Double Flaring - 45° Only:** Double flares soft copper, aluminum and steel (Bundy or G.M.to .035 wall) in seven tube sizes: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D.tubing.

**Swaging:** Swages soft copper, aluminum and brass in seven tube sizes: 3/16", 1/4", 5/16", 3/8", 1/2", 5/8" and 3/4" O.D.tubing.



2000-FS

#### Flaring

Outside Tube Diameter (in.)	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Wall Thickness (in.)	.020	.028	.035	.035	.035	.035	.035	.049	.049

#### Swaging

Outside Tube Diameter (in.)	3/16	1/4	5/16	3/8	1/2	5/8	3/4
Wall Thickness (in.)	.028	.035	.035	.035	.035	.035	.035



## TUBING TOOL SELECTOR

TUBING TOOL SELECTOR				TUBE MATERIAL							
TOOL	PART NO.	PAGE NO.	SIZE RANGE TUBE O.D. (in.)	ANNEALED GENERAL PURPOSE	COPPER						
					TYPE K BENDING TEMPER-HARD			TYPE L BENDING TEMPER-HARD			TYPE M
					SOFT		HARD	SOFT		HARD	
Tube Cutters	TC-1000	2	1/8 - 1-1/8	●	●	●	●	●	●	●	●
Metal Tubing	TC-1050	3	1/8 - 5/8	●	●	●	●	●	●	●	●
	TC-1500	1	1/8 - 1-1/8	●	●	●	●	●	●	●	●
	TC-2050	3	3/16 - 7/8	●	●	●	●	●	●	●	●
	174-F	4	3/8 - 1-1/8	●	●	●	●	●	●	●	●
	206-FB	4	3/8 - 2-5/8	●	●	●	●	●	●	●	●
	227-FA	2	1/8 - 3/4	●	●	●	●	●	●	●	●
	312-FC	2	1/8 - 1-5/8	●	●	●	●	●	●	●	●
	406-FA	4	2 - 4-1/8	●	●	●	●	●	●	●	●
	206-FBP	4	3/8 - 2-5/8	● (5)	● (5)	● (5)	● (5)	● (5)	● (5)	● (5)	● (5)
Thermoplastic	307-FP	5	1/16 - 1/2 (4)								
Rubber Hose	327-FP	5	1/8 - 13/16 (4)								
Saw Vise	384-FA	4	1/8 - 1-1/2	●	●	●	●	●	●	●	●
Bending Tools	101-F	7	1/4 - 5/8	●	●	●		●	●		
	102-F	7	1/4 - 3/4	●	●	●		●	●		
	112-F	7	1/4 - 3/8	●	●	●		●	●		
	163-F	7	1/4 - 5/8	●	●	●		●	●		
	260-FHA	12	1/4 - 7/8	●	●	●		●	●		
	270-F	13	3/8 - 1-1/8	●	●	●	●	●	●	●	
	350-FHA	12	1/4 - 3/4	●	●	●		●	●		
	360-FHA	12	3/8 - 3/4	●	●	●		●	●		
	364-FH	9	1/8 - 3/16	●	●	●		●	●		
	364-FHA	9	1/4 - 1 (3)	●	●	●		●	●		
	364-FHAM	9	6-12 mm	●	●	●		●	●		
	364-FHB	9	1/4 - 1/2	●	●	●		●	●		
	364-FHBM	9	6-12 mm	●	●	●		●	●		
	367-FH	7	1/8, 3/16, 1/4	●	●	●		●	●		
	368-FH	7	1/4, 5/16, 3/8	●	●	●		●	●		
	370-FH	7	1/4, 3/8, 1/2	●	●	●		●	●		
	464-FH	10	1/4, 3/8, 1/2	●	●	●		●	●		
	470-FH	8	3/16, 1/4, 5/16, 3/8	●	●	●		●	●		
	564-FH	11	3/8, 1/2	●	●	●		●	●	●	
	600-F	14	1/4 - 3/4	●	●	●		●	●		
	700-F	14	1/4 - 3/4	●	●	●		●	●		
	400-F	19	3/16 - 5/8	●	●	●		●	●		(2)
	407-FA	20	1/8 - 1-1/2	●	●	●		●	●		(2)
	437-FB	18	3/16 - 5/8	●	●	●		●	●		(2)
	447-F	19	1/8 - 1/2	●	●	●		●	●		(2)
	507-FB	18	3/16 - 5/8	●	●	●		●	●		(2)
	555-FS	21	3/16 - 5/8	●	●	●		●	●		(2)
	537-F	20	3/4 - 1-1/4	●	●	●		●	●		(2)
	637-F	20	1-1/4 - 2	●	●	●		●	●		(2)
	2000-FS	26	1/8 - 3/4	●	●	●		●	●		(2)
	45° Flaring Tool	103-FS	3/4 - 1	●	●	●		●	●		(2)
	195-FC	15	3/16 - 5/8	●	●	●		●	●		(2)
	203-FA	15	5/8 - 1-1/8	●	●	●		●	●		(2)
	275-FS	22	1/8 - 3/4	●	●	●		●	●		(2)
	296-FC	15	3/16 - 5/8	●	●	●		●	●		(2)
	300-FB	15	3/16 - 5/8	●	●	●		●	●		(2)
	375-FS	15	1/8 - 3/4	●	●	●		●	●		(2)
	376-FS	15	1/2 - 3/4	●	●	●		●	●		(2)
	395-FAM	15	4 - 16 mm	●	●	●		●	●		(2)
	500-FC	16	3/16 - 5/8	●	●	●		●	●		(2)
	500-FCM	16	6-16 mm	●	●	●		●	●		(2)
	525-F	16	3/16 - 5/8	●	●	●		●	●		(2)
			4.75 - 16 mm	●	●	●		●	●		(2)
	555-FS	21	3/16 - 5/8	●	●	●		●	●		(2)
	2000-FS	26	1/8 - 3/4	●	●	●		●	●		(2)
45° Double Flaring Tools	93-FB	17	3/16 - 1/2	●				●			
	195-FB	17	1/4 - 3/4	●				●			
	2000-FS	26	3/16 - 3/4	●				●			
Reaming and Deburring Tools	208-F	30	3/16 - 1-1/2	●	●	●	●	●	●	●	●
	208-FSS	30	3/16 - 1-1/2	●	●	●	●	●	●	●	●
	210-F	30		●	●	●	●	●	●	●	●
Tube Constrictor	TC-1020	2	1/8 - 1-1/8	●	●						
Swaging Tools	93-S	23	3/16 - 7/8	●	●			●			
	94-S	23	1/2, 5/8, 7/8	●	●			●			
	95-S	23	3/16 - 5/8	●	●			●			
	193-S	23	1/4 - 5/8	●	●			●			
	194-S	23	1/2 - 7/8	●	●			●			
	195-SA	23	1/4 - 5/8	●	●			●			
	275-FS	22	3/16 - 3/4	●	●			●			
	555-FS	21	3/16 - 5/8	●	●			●			
	2000-FS	26	3/16 - 3/4	●	●			●			
Metric Bubble Flaring Tool	293-F	21	4.75 - 10 mm	●				●			
45° Metric Double Flaring	294-F	21	4.75 - 10 mm	●				●			

\*See page 5 for specialized cutters.

(1) Heavy duty cutting wheel No. 575046 is recommended for continuous service with steel, plain steel, monel, titanium and hard temper copper tubing.

(2) Type M tubing should be torch annealed before flaring.

(3) No. 364-FHA, 1" size should be used only with annealed (softened) non-ferrous tubing.

(4) Not to be used with metal reinforced hose.

(5) When cutting metallic tubing you must switch to standard wheel furnished.

## TUBING TOOL SELECTOR

TUBING TOOL SELECTOR				TUBE MATERIAL						
TOOL	PART NO.	PAGE NO.	SIZE RANGE TUBE O.D. (in.)	ANNEALED ALUMINUM (SOFT)	ANNEALED BRASS (SOFT)	SAE 1020 (SOFT)	BRAZED- BUNDY WELD GM	STAINLESS STEEL ANNEALED (SOFT)	STAINLESS STEEL (1/8 HARD)	TITANIUM
Tube Cutters	TC-1000	2	1/8 - 1-1/8	•	•	•	•	(1)	(1)	(1)
Metal Tubing	TC-1050	3	1/8 - 5/8	•	•	•	•			
	TC-1500	1	1/8 - 1-1/8	•	•	•	•	(1)	(1)	(1)
	TC-2050	3	3/16 - 7/8	•	•	•	•	(1)	(1)	(1)
	174-F	4	3/8 - 1-1/8	•	•	•	•	•	•	•
	206-FB	4	3/8 - 2-5/8	•	•	•	•			
	227-FA	2	1/8 - 3/4	•	•	•	•	(1)	(1)	(1)
	312-FC	2	1/8 - 1-5/8	•	•	•	•	•	•	•
	406-FA	4	2 - 4-1/8	•	•	•	•	•	•	•
Tube Cutters	206-FBP	4	3/8 - 2-5/8	•(5)	•(5)	•(5)	•(5)	•(5)	•(5)	•(5)
Thermoplastic	307-FP	5	1/16 - 1/2 (4)							
Rubber Hose	327-FP	5	1/8 - 13/16 (4)							
Saw Vise	384-FA	4	1/8 - 1-1/2	•	•	•	•	•	•	•
Bending Tools	101-F	7	1/4 - 5/8	•	•					
	102-F	7	1/4 - 3/4	•	•					
	112-F	7	1/4 - 3/8	•	•					
	163-F	7	1/4 - 5/8	•	•					
	260-FHA	12	1/4 - 7/8	•	•	•	•			
	270-F	13	3/8 - 1-1/8	•	•	•	•	•	•	•
	350-FHA	12	1/4 - 3/4	•	•	•	•	•		
	360-FHA	12	3/8 - 3/4	•	•					
	364-FH	9	1/8 - 3/16	•	•	•	•	•	•	•
	364-FHA	9	1/4 - 1 (3)	•	•	•	•	•		
	364-FHAM	9	6 - 12 mm	•	•	•	•	•		
	364-FHB	9	1/4 - 1/2	•	•	•	•	•		
	364-FHBM	9	6 - 12 mm	•	•	•	•	•		
	367-FH	7	1/8, 3/16, 1/4	•	•	•	•	•		
	368-FH	7	1/4, 5/16, 3/8	•	•	•	•	•		
	370-FH	7	1/4, 3/8, 1/2	•	•	•	•	•		
	464-FH	10	1/4, 3/8, 1/2	•	•	•	•	•	•	•
	470-FH	8	3/16, 1/4, 5/16, 3/8	•	•	•	•	•		
	564-FH	11	3/8, 1/2	•	•	•	•	•	•	•
	600-F	14	1/4 - 3/4	•	•	•	•	•	•	•
	700-F	14	1/4 - 3/4	•	•	•	•	•	•	•
37" Flaring Tool	400-F	19	3/16 - 5/8	•	•	•	•	•	•	•
	407-FA	20	1/8 - 1-1/2	•	•	•	•	•	•	•
	437-FB	18	3/16 - 5/8	•	•	•	•	•	•	•
	447-F	19	1/8 - 1/2	•	•	•	•	•	•	•
	507-FB	18	3/16 - 5/8	•	•	•	•	•	•	•
	555-FS	21	3/16 - 5/8	•	•	•	•	•	•	•
	537-F	20	3/4 - 1-1/4	•	•	•	•	•	•	•
	637-F	20	1-1/4 - 2	•	•	•	•	•	•	•
	2000-FS	26	1/8 - 3/4	•	•	•	•	•	•	•
45" Flaring Tool	103-FS	15	3/4 - 1	•	•					
	195-FC	15	3/16 - 5/8	•	•					
	203-FA	15	5/8 - 1-1/8	•	•					
	275-FS	22	1/8 - 3/4	•	•					
	296-FC	15	3/16 - 5/8	•	•					
	300-FB	15	3/16 - 5/8	•	•					
	375-FS	15	1/8 - 3/4	•	•					
	376-FS	15	1/2 - 3/4	•	•					
	395-FAM	15	4 - 16 mm	•	•					
	500-FC	16	3/16 - 5/8	•	•					
	500-FCM	16	6 - 16 mm	•	•					
	525-F	16	3/16 - 5/8	•	•					
			4.75 - 16 mm	•	•					
	555-FS	21	3/16 - 5/8	•	•					
	2000-FS	26	1/8 - 3/4	•	•	•	•	•	•	•
45" Double Flaring Tools	93-FB	17	3/16 - 1/2	•	•	•	•	•		
	195-FB	17	1/4 - 3/4	•	•					
	2000-FS	26	3/16 - 3/4	•	•	•	•			
Reaming and Deburring Tools	208-F	30	3/16 - 1-1/2	•	•					
	208-FSS	30	3/16 - 1-1/2	•	•	•	•	•	•	•
	210-F	30		•	•	•	•	•	•	•
Tube Constrictor	TC-1020	2	1/8 - 1-1/8	•	•					
Swaging Tools	93-S	23	3/16 - 7/8	•	•					
	94-S	23	1/2, 5/8, 7/8	•	•					
	95-S	23	3/16 - 5/8	•	•					
	193-S	23	1/4 - 5/8	•	•					
	194-S	23	1/2 - 7/8	•	•					
	195-SA	23	1/4 - 5/8	•	•					
	275-FS	22	3/16 - 3/4	•	•					
	555-FS	21	3/16 - 5/8	•	•					
	2000-FS	26	3/16 - 3/4	•	•					
Metric Bubble Flaring Tool	293-F	21	4.75 - 10 mm	•	•	•	•			
45" Metric Double Flaring	294-F	21	4.75 - 10 mm	•	•	•	•			

\*See page 5 for specialized cutters.

(1) Heavy duty cutting wheel No. S75046 is recommended for continuous service with steel/stainless steel, monel, titanium and hard temper copper tubing.

(2) Type M tubing should be torch annealed before flaring.

(3) No. 364-FA, 1" size should be used only with annealed (softened) non-ferrous tubing.

(4) Not to be used with metal reinforced hose.

(5) When cutting metal tubing you must switch to standard wheel furnished.



## TESTING AND SERVICE TOOLS

### PINCH-OFF TOOL

For 1/4" to 1/2" O.D. tubing.

Temporarily closes soft copper, aluminum or steel tubing so no liquid or gas passes sealed part. Lets you disconnect line while making repairs without loss of liquid or gas. Forming holes for 1/4", 3/8" and 1/2" O.D. tubing.

**105-FF** Pinch-Off Tool for 1/4", 5/16", 3/8" and 1/2" O.D. tubing. Wt. .75 lbs.



105-FF

### TUBING TEST PLUGS

For 1/4" to 1-5/8" O.D. tubing.

For temporary shut-off of tubing without pinching it off or installing a valve. Especially handy for plumbing, heating, refrigeration and instrumentation when troubleshooting for leaks. Light-weight, fast acting, dependable. Insert plug in tube end and tighten wing nut. Expander seals tube and holds pressures to 100 PSI.

**142-F** Test plug kit for 1/2", 5/8" and 7/8" O.D. tubing. Wt. .5 lbs.

CATALOG NUMBER	TUBE O.D. (in.)	WEIGHT EACH (oz.)	REPLACEMENT SLEEVE
140-F-04	1/4	.5	S62641
140-F-06	3/8	.75	S62648
140-F-08	1/2	1.0	S62655
140-F-10	5/8	1.5	S62661
140-F-12	3/4	2.0	S62666
140-F-14	7/8	3.0	S66434
140-F-18	1-1/8	4.0	S66435
140-F-22	1-3/8	4.0	S71174
140-F-26	1-5/8	5.0	S71177



140-F-06



142-F

### 45° REFACING TOOL

For 1/4", 5/16", 3/8" and 1/2" SAE 45° flare fittings.

Reams both inside and outside edges of tube with 3 hollow ground cutters. Tough die cast body. Deburs both clockwise and counterclockwise. Fluted body is shaped to fit comfortably in palm.

**345-FA** With cutter and adapters for 1/4", 5/16", 3/8", 1/2" and 5/8" fittings. Makes nicked or marred seats on brass and other nonferrous fittings and valves as good as new. Precision feed. Replaceable cutter. In tool case. Wt. 2.0 lbs.

**Adapters:** 346-F-04 1/4" O.D., 346-F-05 5/16" O.D., 346-F-06 3/8" O.D., 346-F-08 1/2" O.D., 346-F-10 5/8" O.D., S63412 Replacement Cutter



345-FA

# WRENCHES

## WRENCHES

### For Refrigeration and Air Conditioning Service.

- 127-C** Compressor access valve wrench. Chrome plated. Has 1/4", 3/8", 3/16" and 5/16" square drive ratchets and is specially designed for use on compressors with access valves in hard to reach places. Reversible ratchets.



127-C

- 127-C0** Same as 127-C except with unique 25° offset that provides additional convenience in hard to reach places.



127-C0

- 123-C** Rugged steel forged wrench. For use on small refrigerant cylinders, shut-off valves, packing gland nuts, etc. Ratchet has 1/4" square drive and raised face. Handle has 3/16" and 1/4" square drives and 1/2" hex.



123-C

- 124-C** Combination wrench with the four sizes most needed for servicing air-conditioning and refrigerator equipment:
- 9/16" hex for dust cap on access valves and plug oil check on compressor.
  - 1/2" hex for compressor mounting bolts.
  - 1/4" square for valve stem and service valves and old style compressor valves.
  - 3/16" square for valve refrigerant charging tanks.



124-C

- 125-C** Rugged, steel forged wrench with four sizes covering almost any application. Ratchet has 1/4" drive on one end; other end has 3/16" and 5/16" square openings, plus 9/16" hex opening.



125-C

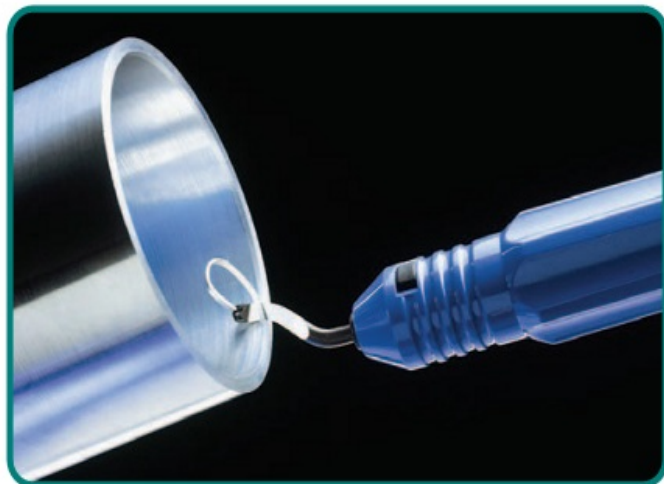
- 126-C** Economy compressor access valve wrench. Chrome plated. Has 1/4", 3/8", 3/16" and 5/16" square drive ratchets and is specially designed for use on compressors with access valves in hard to reach places. Reversible ratchets.



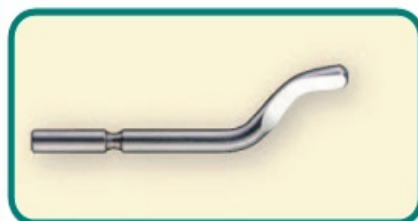
# TESTING AND SERVICE TOOLS

## DEBURRING TOOL

**210-F** The rotary style blade is perfect for removing burrs from holes and edges. Large ergonomic handle reduces user fatigue. Enclosed handy internal storage cavity for storing extra blades. Ships complete with two heavy duty blades. For copper, steel, aluminum, zinc, cast iron, brass and plastic tubing. Length 5-3/4". Wt. 1.5 oz.



**NEW**



S10001087 • Deburr Replacement Blade

## INNER-OUTER REAMING AND DEBURRING TOOLS

For 3/16" to 1-1/2" O.D. tubing.

Reams both inside and outside edges of tube with 3 hollow ground cutters. Tough die cast body. Deburrs both clockwise and counterclockwise. Fluted body is shaped to fit comfortably in palm.

**208-F** Reamer for copper, aluminum and brass tubing. Hardened steel cutter blades. Blue finish. Wt. .63 lbs.

**208-FSS** Reamer for aircraft grade stainless steel tubing, hard or soft copper, aluminum, brass and steel tubing. Tungsten hardened tool steel cutter blades. Black finish. Wt. .63 lbs.



# RATCHET WRENCHES

## 195-F KWIK-TITE™ RATCHET WRENCHES

For 5/16" to 2-1/4" O.D. tubing and 7 mm to 32 mm hex sizes.

The Kwik-Tite™ ratchet wrench speeds installation of tube fittings and valves, hex nuts, bolts and fasteners. This unique wrench, with its open jaw design, makes it easy to slip onto fittings and fasteners, even in tight quarters. Flips quickly into tightening position with a sure grip on all hex surfaces.

12-point contact distributes torque pressures evenly on the flats of the hex, not at the corners. Eliminates warping and distorting of fittings and fasteners. Because of the Kwik-Tite™ ratchet action, tightening jobs are easier and faster.

Kwik-Tite™ wrenches are constructed for rugged use. Jaws are hardened steel. Handles are made of heavy gauge alloy steel, hardened and with a black oxide finish.

### SAE

CATALOG NUMBER	HEX SIZE (in.)	OVERALL LENGTH (in.)
195-F 05	5/16	5-1/2
195-F 06	3/8	5-1/2
195-F 07	7/16	5-3/8
195-F 08	1/2	5-1/2
195-F 09	9/16	5-1/2
195-F 10	5/8	7-5/32
195-F 11	11/16	7-1/4
195-F 12	3/4	7-5/16
195-F 13	13/16	9-1/8
195-F 14	7/8	9-3/32
195-F 15	15/16	9-1/4
195-F 16	1	9-9/32
195-F 17	1-1/16	13.59
195-F 18	1-1/8	13.59
195-F 19	1-3/16	13.59
195-F 20	1-1/4	13.59
195-F 22	1-3/8	13.84
195-F 24	1-1/2	13.84
195-F 26	1-5/8	13.84
195-F 28	1-3/4	14.21
195-F 30	1-7/8	14.21
195-F 32	2	14.21
195-F 34	2-1/8	14.53
195-F 36	2-1/4	14.53

### METRIC

CATALOG NUMBER	HEX SIZE (mm.)	OVERALL LENGTH (mm.)	OVERALL LENGTH (in.)
195-F 07 mm	7	140.72	5.54
195-F 08 mm	8	140.72	5.54
195-F 09 mm	9	140.72	5.54
195-F 10 mm	10	140.72	5.54
195-F 11 mm	11	140.72	5.54
195-F 12 mm	12	140.72	5.54
195-F 13 mm	13	140.72	5.54
195-F 14 mm	14	187.45	7.38
195-F 15 mm	15	187.45	7.38
195-F 16 mm	16	187.45	7.38
195-F 17 mm	17	187.45	7.38
195-F 18 mm	18	187.45	7.38
195-F 19 mm	19	187.45	7.38
195-F 21 mm	21	237.50	9.35
195-F 22 mm	22	237.50	9.35
195-F 23 mm	23	237.50	9.35
195-F 24 mm	24	237.50	9.35
195-F 27 mm	27	345.19	13.59
195-F 30 mm	30	345.19	13.59
195-F 32 mm	32	345.19	13.59



Ratcheting of wrench requires only 30° of movement.

195-F 12



195-F 22 mm



195-SSTDM KIT



195-7STDs KIT

### KWIK-TITE™ KITS

CATALOG NUMBER	DESCRIPTION	WEIGHT (lbs.)
195-SSTDM KIT	5-Pc. metric kit in pouch. Contains 10 mm, 11 mm, 12 mm, 13 mm and 14 mm wrenches.	2
195-7STDs KIT	7-Pc. SAE kit in pouch. Contains 3/8", 7/16", 1/2", 9/16", 5/8", 11/16" and 3/4" wrenches.	2.5