SPECIALTY TOOLS FOR HVAC/R SERVICE, TUBE WORKING, ELECTRICAL AND AUTOMOTIVE

Imperial®

DEPENDABLE UNDER PRESSURE®

Imperial®

DEPENDABLE UNDER PRESSURE™

SPECIALTY TOOLS FOR HVAC/R SERVICE, TUBE WORKING, ELECTRICAL AND AUTOMOTIVE

Imperial is pleased and proud to present this new master catalog, which brings together for the first time our complete line of products.

For over 100 years Imperial has been making work easier by producing innovative specialty tools for a wide variety of industries - HVAC, refrigeration, tube working, electrical, automotive and industrial. Over this time, the consistency of our quality continues to exceed the expectations of our professional customers.

Now part of the Stride Tool Corporation, Imperial craftsmen and engineers produce their patented products within a new world headquarters facility in Glenwillow, Ohio. Featuring 120,000 square feet, all U.S. manufacturing is now housed under one roof for a unique, total customer satisfaction focus.

Mission Statement

"We supply global channels of distribution with profitable hand and specialty tools for their target customers"

Stride Tool Values

Innovation – Dependability – Accountability – Ethical Behavior – Teamwork – Results Oriented – Passion

HAND TOOLS INSTITUTE HTI CONSUMER • SAFETY • PROTECTION

WOMEN'S BUSINESS ENTERPRISE NATIONAL COUNCIL MEMBER

etr EQUIPMENT AND TOOL INSTITUTE

EDUCATIONAL RSES FOUNDATION MEMBER

WOMEN IN HVACR

STAFDA ASSOCIATE

WORLDWIDE D-I-Y COUNCIL

hvac channel.TV

AAIA Automotive Aftermarket Industry Association

HARDI HEATING, AIR CONDITIONING & REFRIGERATION DISTRIBUTORS INTERNATIONAL

TABLE OF CONTENTS

TUBE WORKING TOOLS

TUBE CUTTERS 1-6

TUBE BENDERS 7-14

FLARING & SWAGING 15-24

TUBING TOOL KITS 25-28

ACCESSORIES & WRENCHES 29-32

REFRIGERATION AND AIR-CONDITIONING PRODUCTS

MANIFOLDS 33-40

GAUGES 41

HOSES 42

COUPLERS 43-44

ACCESSORIES & TOOLS 45-46

ELECTRICAL AND DATA COMMUNICATION TOOLS

ROMEX® TOOLS 47

DATA COMMUNICATION 48-51

STRIPPERS & CRIMPERS 52-60

SNAP RING PLIERS

CONVERTIBLE 61-66

FIXED TIP 67

REPLACEABLE TIP 68-70

LOCK RING 71

REPLACEMENT TIPS 72

REFERENCE GUIDES 73-76

WIRE TWISTING PLIERS

REVERSIBLE 77

WIRE TWISTERS 78-82

AUTOMOTIVE SPECIALTY TOOLS

OIL CHANGING 83-84

HONES & DEGLAZERS 85-86

BATTERY & ENGINE 87-88

GENERAL AUTO TOOLS 89-90

GENERAL

GENERAL TOOLS 91

MERCHANDISING 92

ALPHA-INDEX 93-96

METAL TUBING

TC-1500 HI-DUTY™ TUBE CUTTER

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

NEW

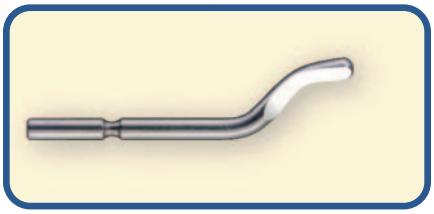
- Imperial's newest tube cutter!
- Lower profile swing radius – 4-1/4".
- Retractable rotary style reamer – can be used right- or left-handed, and with a clockwise or counterclockwise motion for better ergonomic control.
- Rollers feature flare cut-off groove to reduce tube loss when damaged flare is 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

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 -Deburr 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. 8.8oz.

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. 10.4oz.

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

S75015 General-purpose cutter wheel.

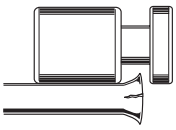
S75046 Wheel for continuous cutting of stainless steel, monel and other hard temper tubing. For cutters TC-1000, TC-1010, TC-1500, 312-FC, 174F, TC-2050.

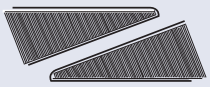
S16003162 Replacement cutting wheel for soft copper & aluminum tubing is extra sharp to minimize burr buildup.

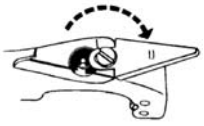
S76637 Constrictor wheel for producing sweat joints.

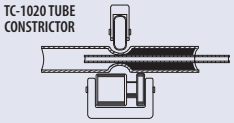
TC-1010

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.



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

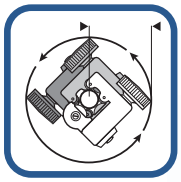
IMP™ MINI TUBE CUTTERS

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.



TC-1050

RATCHETING TUBE CUTTER

For 1/8" to 5/8" (4mm to15mm) O.D. tubing.

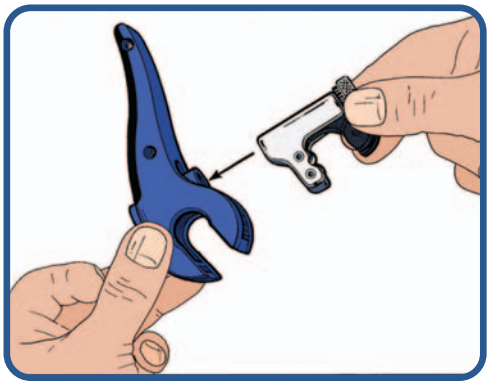
NEW

- 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



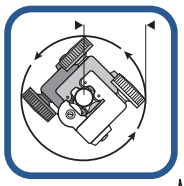
TC-1050RH

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.



174-F

S75015 - Spare cutting wheel

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.

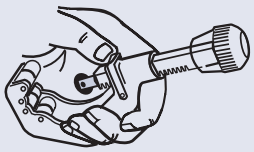
206-FB For 3/8" to 2-5/8" and 10 mm to 66 mm O.D. tubing. Includes (2) S74761 general-purpose cutter wheels. Length closed 7-3/4". Wt. 2.0 lbs.

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

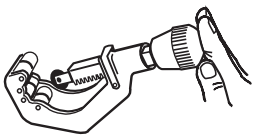
406-FA For 2" to 4-1/8" and 51 mm to 104 mm O.D. tubing. Includes (2) S74833 general-purpose cutter wheels. Length closed 11-1/4". Wt. 3.5 lbs.

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

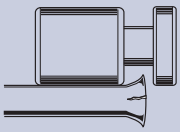
406-FA 206-FB



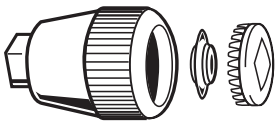
RATCHET FEED
Ratchet release opens cutter instantly to maximum size.



RATCHET FEED
Push on handle to slide cutting wheel to tubing. Rotate handle for fine adjustment.



FLARE CUT-OFF GROOVE
Wide flare cut-off groove in rollers to accommodate flares on large size tubing.



SPARE CUTTING WHEEL
Spare cutting wheel included in handle under snap-off cap.

384-FA

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.

307-FP

307-FP POP-UP DISPLAY

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.**

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:

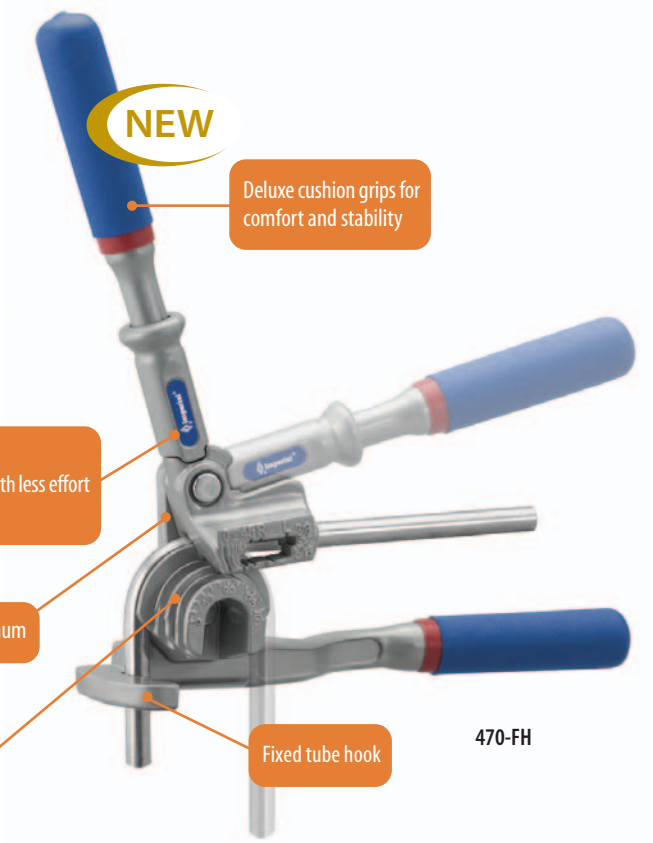
CUTTER WHEEL Part# S74833 for Cutter # 406-FA	**CUTTER WHEEL FOR PVC** Part# S10000770 for Cutters # 206-FB, 206-FBP	**CUTTER WHEEL** Part# S74761 for Cutters # 206-FB, 206-FBP	**GENERAL PURPOSE CUTTER WHEEL** Part# S75015 for Cutters # TC-1000, TC-1010, TC-1500, 312-FC, 174-F, TC-2050	**CUTTER WHEEL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



470-FH

For bending soft copper, aluminum, brass, thin wall steel, thin wall stainless steel and other tubing.

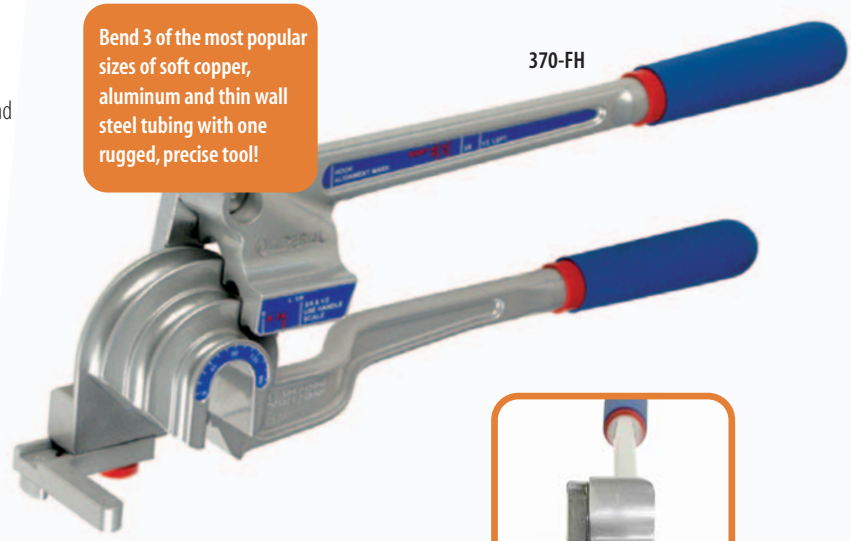
TRIPLE HEAD LEVER TYPE

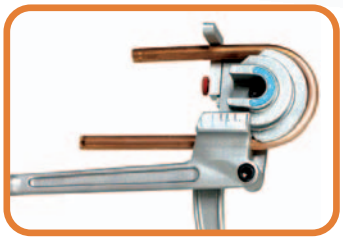
370-FH TRIPLE HEAD 180˚ TUBE BENDER

- 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





Easy 180° bends in one swift motion

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

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

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

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.

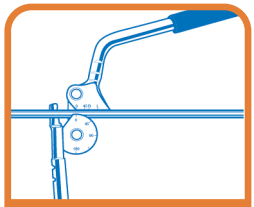
364-FHA-10
Style furnished for 5/8" and 3/4" O.D. tubing.

364-FHB SWIVEL HANDLE TUBE BENDERS

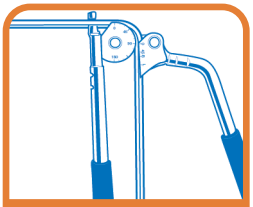
For 1/4" to 1/2" (6 mm to 12 mm) O.D. tubing.

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.

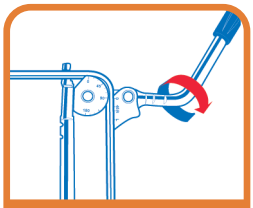
CATALOG NUMBER	TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)	WEIGHT EACH (lbs)
364-FHB-04	1/4	9/16	1.0
364-FHB-05	5/16	11/16	1.0
364-FHB-06	3/8	15/16	1.75
364-FHB-07	7/16	1-1/2	3.5
364-FHB-08	1/2	1-1/2	3.5



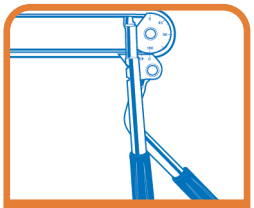
Starting at 0°



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

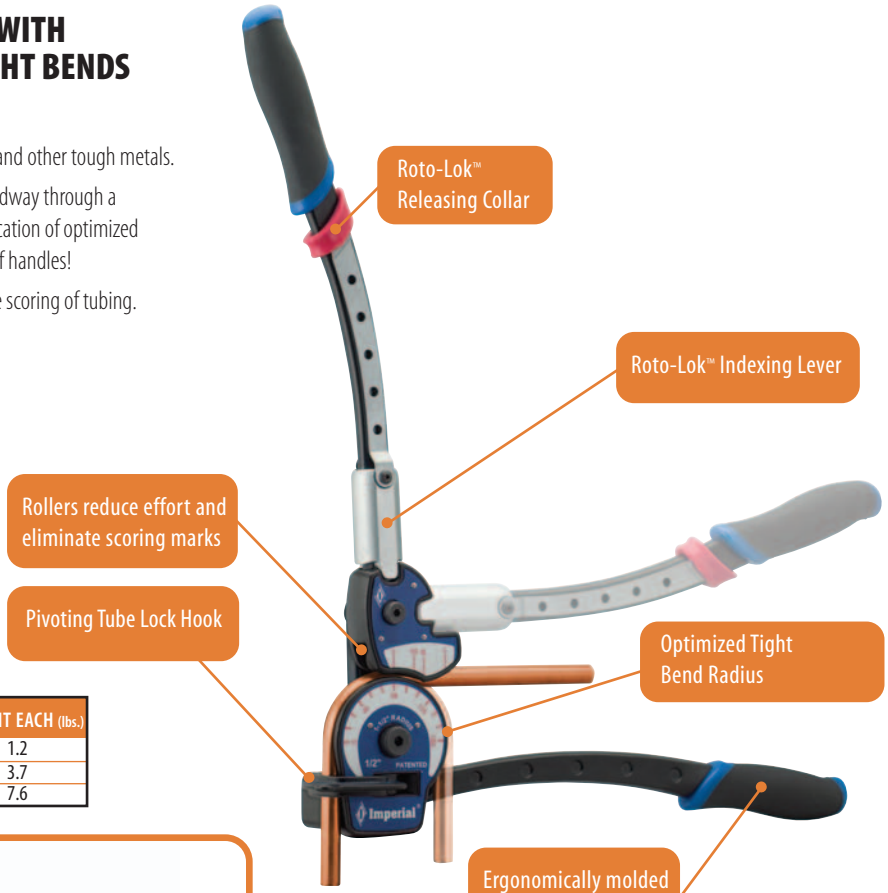
For bending soft copper, aluminum, brass, steel, stainless steel and other tubing.

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.
- Vise lug for mounting in vise.
- Clamshell packaging available for 1/4" and 3/8" O.D. models.



464-FH-08
PATENTED

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

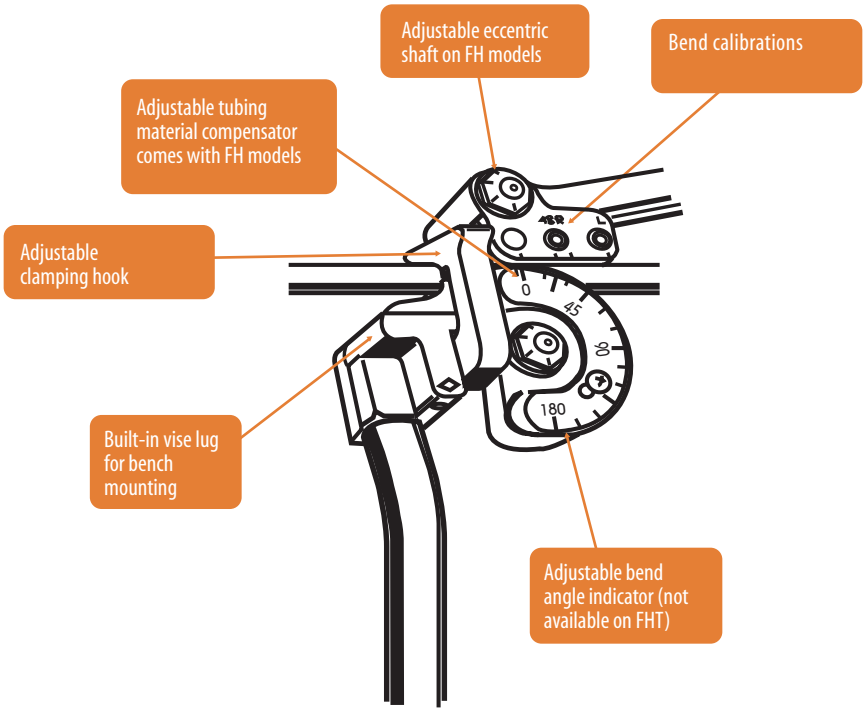
For 3/8" and 1/2" O.D. tubing.

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.

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

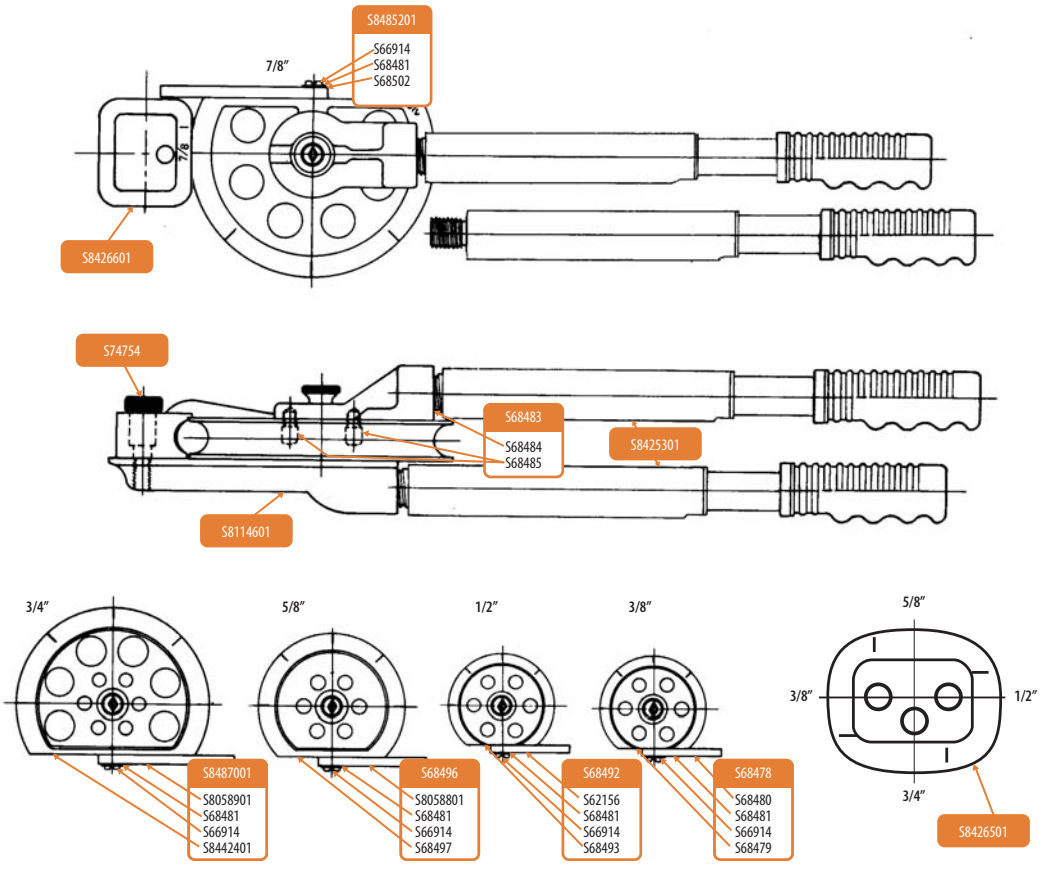
TUBE O.D. (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	9/16
5/16	11/16
3/8*	1-5/8
1/2*	1-5/8
5/8*	2-1/4
3/4*	3
7/8*	3

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

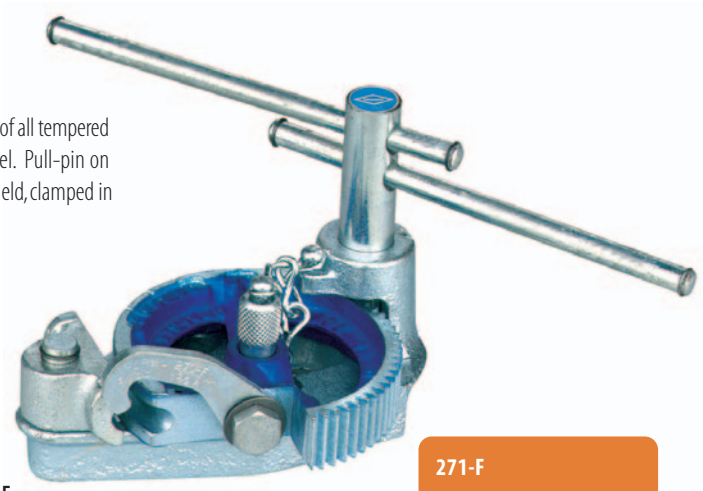


*Recommended for bending annealed copper and aluminum tubing only.

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.



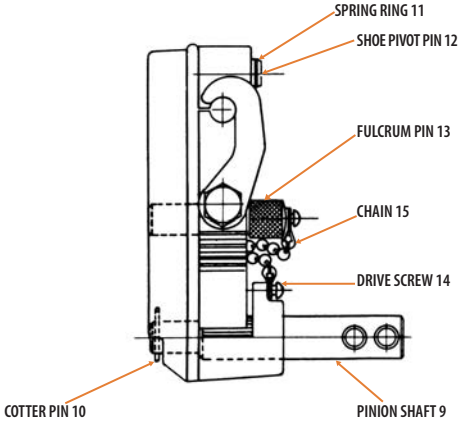
270-F

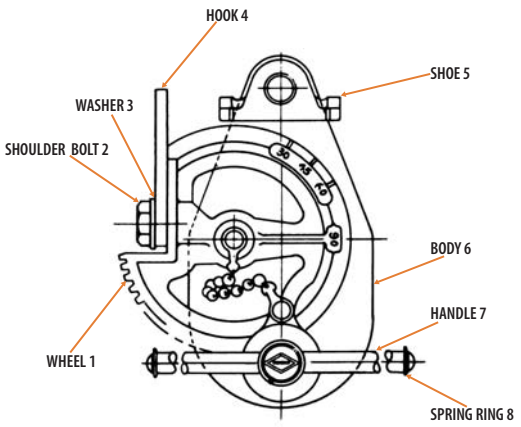
271-F
Pipe vise extension (fits all 270-F Benders). For use when clamping bender in pipe vise. Wt. 1.75 lbs.

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	S62244	S62245	S62246	S62247	S62250	S62251	S62252	S62253	S62254	S62255	S62257	S62258	S62838	S62836	S62839
270-F-08	1/2	S62261	S62264	S62246	S62263	S62262	S62260	S62269	S62253	S62268	S62255	S62266	S62265	S62840	S62836	S62839
270-F-10	5/8	S62275	S62280	S62279	S62278	S62277	S62276	S62284	S62285	S62283	S62255	S62281	S62282	S62841	S62836	S62842
270-F-12	3/4	S62305	S62294	S62298	S62307	S62306	S62288	S62292	S62297	S62291	S62255	S62296	S62295	S62835	S62836	S62837
270-F-14	7/8	S62302	S62294	S62298	S62304	S62303	S62288	S62292	S62297	S62291	S62255	S62296	S62295	S62835	S62836	S62837
270-F-16	1	S62299	S62294	S62298	S62301	S62300	S62288	S62292	S62297	S62291	S62255	S62296	S62295	S62835	S62836	S62837
270-F-18	1-1/8	S62287	S62294	S62298	S62290	S62289	S62288	S62292	S62297	S62291	S62255	S62296	S62295	S62835	S62869	S62837

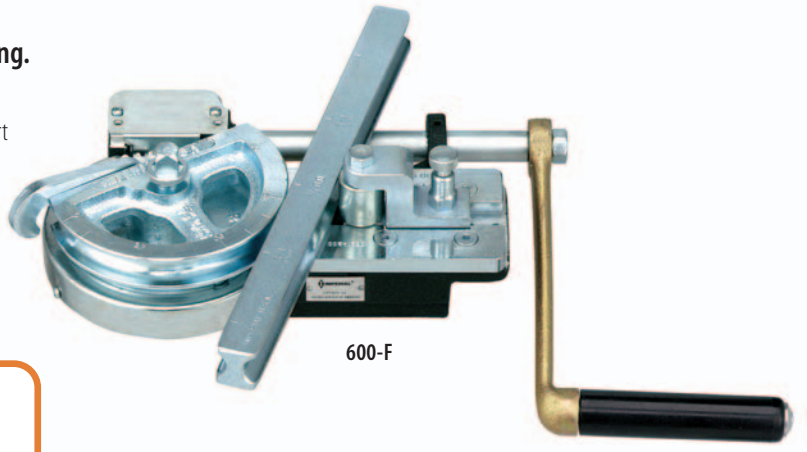
For aircraft grade stainless steel (MIL-T-6845) and all other metal tubing of bending temper.

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

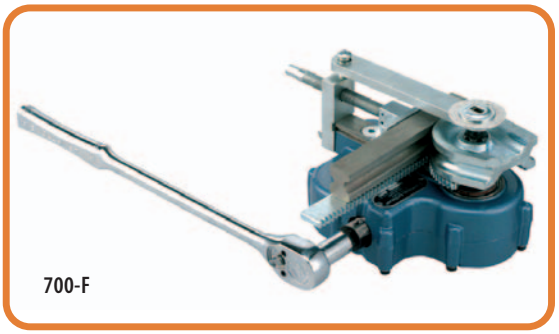
TUBE O.D. (in.)	WALL THICKNESS (in.)	RADIUS TO CENTER OF TUBE (in.)
1/4	.016 to .049	3/4
5/16	.020 to .065	1
3/8	.028 to .083	1-1/4
1/2	.035 to .083	2
5/8	.042 to .083	2-1/2
3/4	.049 to .083	3

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

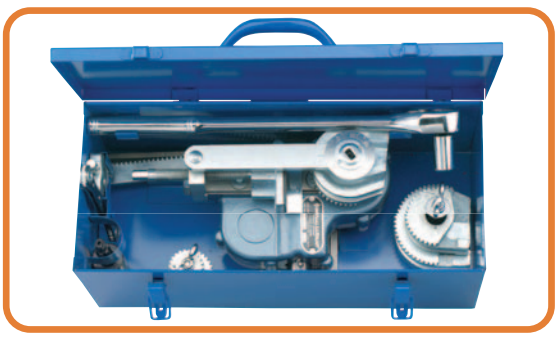
Tube Wall Thickness and Bend Radius

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.

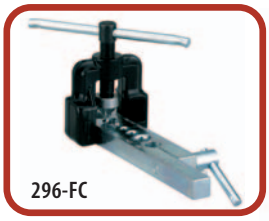
(In some cases these wall thicknesses can be exceeded for copper and aluminum tubing. Consult factory.)

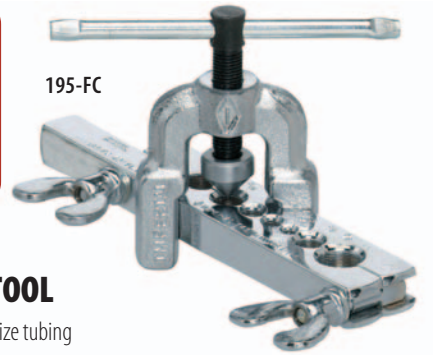


45° FLARING TOOLS

45° FLARING TOOLS

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


296-FC


195-FC

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.

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.

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

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

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.

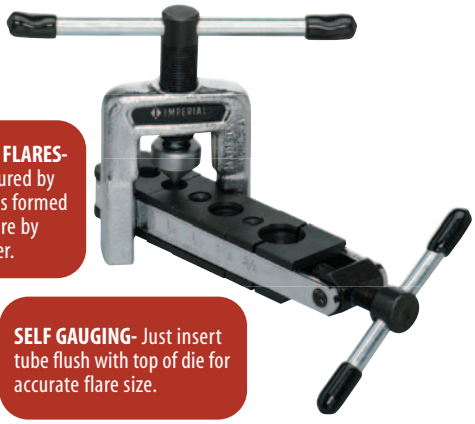
376-FS For sizes 1/2", 5/8", and 3/4" O.D. tubing. Wt. 2.0 lbs.

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 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 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.



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.

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

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.

500-FC

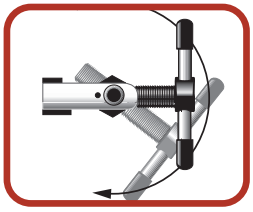
Outside Tube Diameter	(in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness	(in.)	.028	.035	.035	.035	.035	.035

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

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.

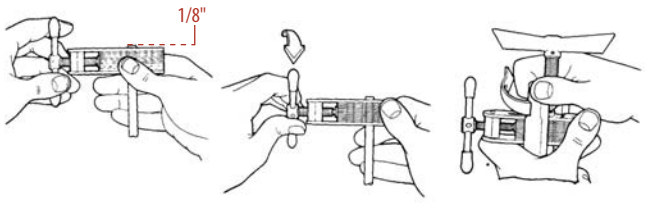
Outside Tube Diameter	(in.)	3/16	1/4	5/16	3/8	1/2	5/8
Wall Thickness	(in.)	.028	.035	.035	.035	.035	.035

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.



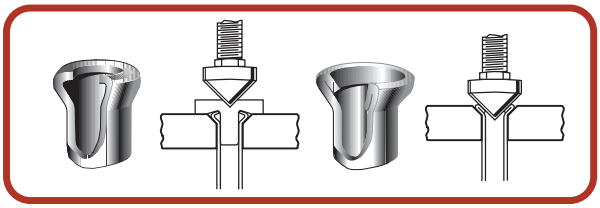
45˚ DOUBLE FLARING TOOLS

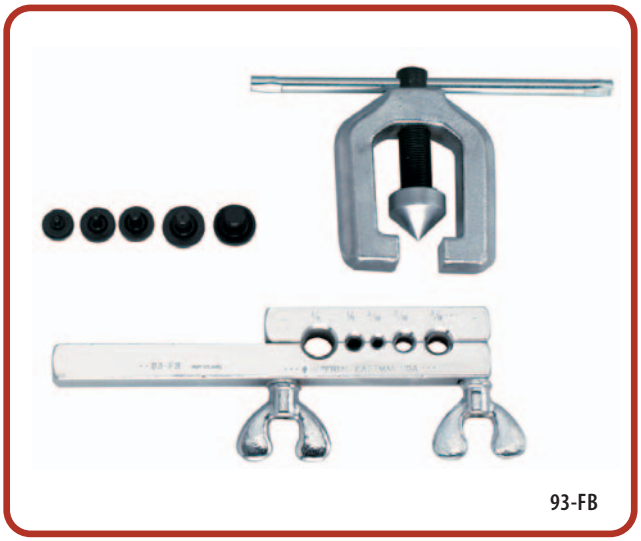
45˚ DOUBLE FLARING TOOL

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.

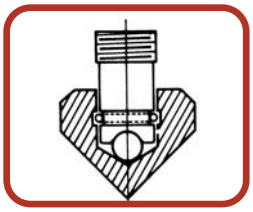




93-FB

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

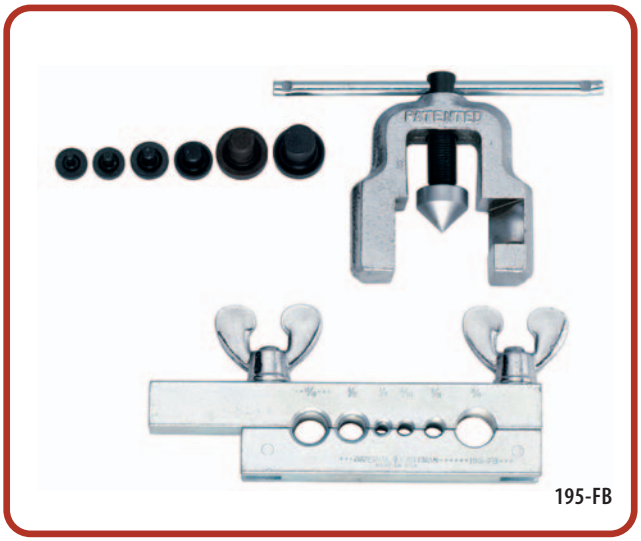
SWIVEL-TYPE BALL BEARING CONE
Ball thrust bearing in flaring cone minimizes friction, makes operation easier.



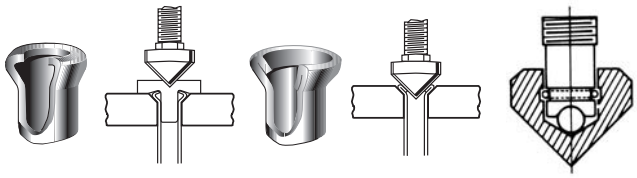
45˚ DOUBLE FLARING TOOL

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

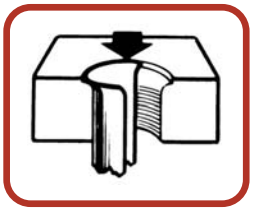
37° FLARING TOOL

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

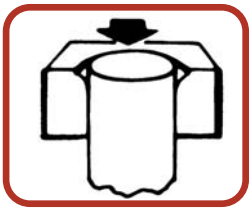
437-FB For use with soft copper, aluminum and brass tubing. Hardened steel, chrome-finished cone makes exceptionally smooth, high-strength flares with a radius at base of flare – instead of the sharp angle formed by ordinary tools. New slip-on yoke permits use in tight quarters, allows flaring where 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.

437-FB

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.

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.

507-FB

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

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

37° FLARING TOOLS

37° ROL-AIR™ FLARING TOOLS

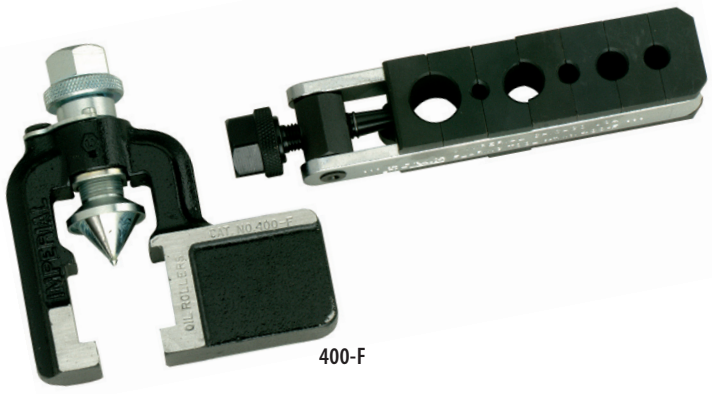
For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

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.

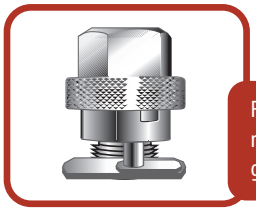
402-FA Flaring and reaming kit. Contains No. 400-F Flaring Tool and No. 401-FA Reaming Yoke for 1/4" to 5/8" O.D. tubing. In tool case. Wt. 3.2 lbs.

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

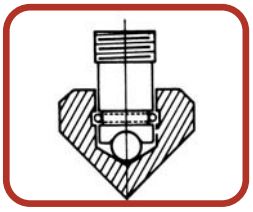
Feed screw controls depth of reaming.

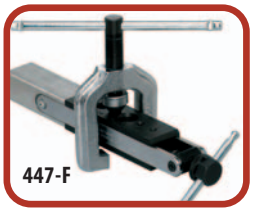
402-FA

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.

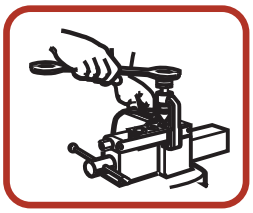
Three cylinders in flaring cone roll out 37° flare above die block. Flares soft steel, copper, aluminum and fully annealed stainless steel tubing. Roller action cuts effort required; maintains original wall thickness; eliminates stress concentration. Feed release and burnishing action. Vise clamp extension 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.

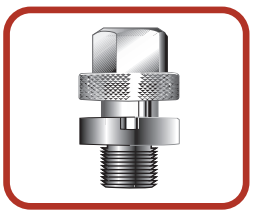
637-F Flares and burnishes 1-1/4", 1-1/2" and 2" O.D. tubing. Wt. 13.0 lbs.

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

537-F


Vise 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

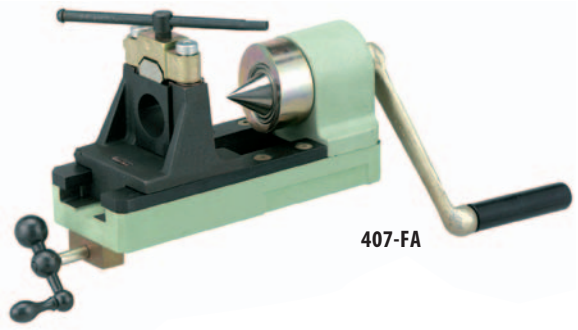
37° PRECISION FLARING TOOL

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.

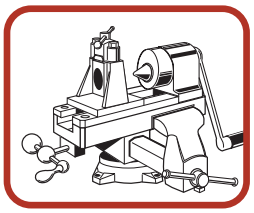
407-FA Precision tool flares (37°) 1/8" hard stainless steel and other tubing to extremely close tolerances. Swivel-head clamp locks tubing in smooth-bore die blocks. Lathe-type tube feed. Flares rolled out by ball-bearing mounted concentric flaring cone. Tool must be clamped in vise. Will flare 1/8" 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



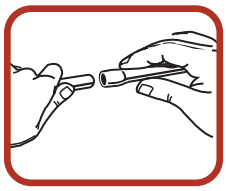
FLARING & SWAGING TOOLS

PRODUCTION FLARING (45˚ & 37˚) AND SWAGING TOOL

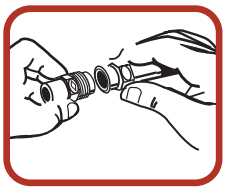
For 3/16", 1/4", 5/16", 3/8", 1/2" and 5/8" O.D. tubing.

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.

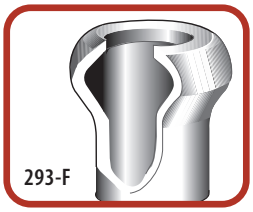
555-FS

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.



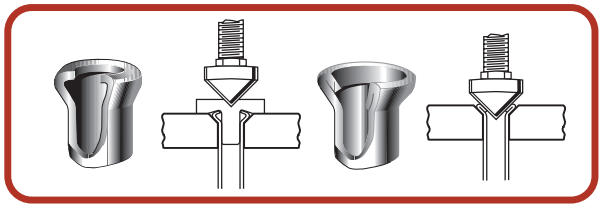
293-F

NEW

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



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

294-F

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

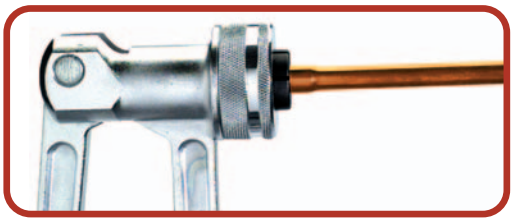
Outside Tube Diameter	(mm)	4	6	8	10	12	14	15	16	18	22
Wall Thickness	(mm)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

FLARING & SWAGING TOOLS

175EX XPANDR™ SWAGING/EXPANDING KIT

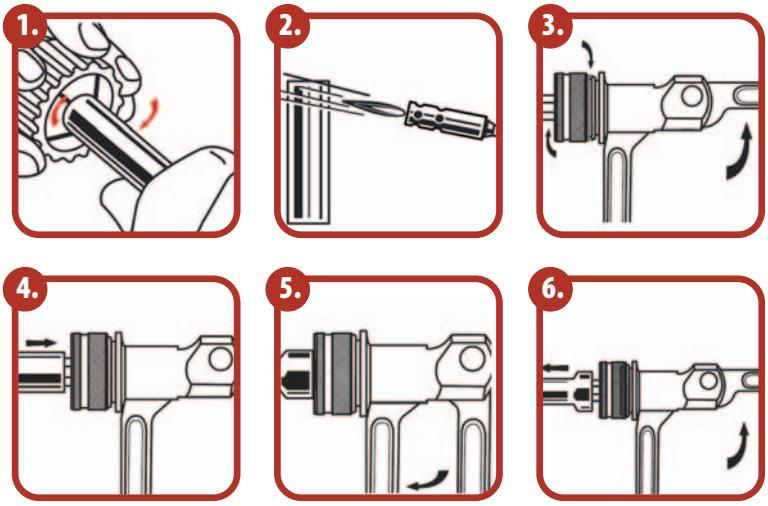
- Easily expands tube for braze & soldered joints in seconds.
- Floating jaw head design is self-centering for fast, accurate alignment.
- Re-rounds deformed tube ends.
- Accurate joints in seconds without using fittings.
- For soft copper and soft thin wall steel and stainless steel tubing.
- Save 60-70% 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".

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˚ Rol-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							
				COPPER							
					TYPE K			TYPE L			
TOOL	PART NO.	PAGE NO.	SIZE RANGE TUBE O.D. (in.)	ANNEALED GENERAL PURPOSE	SOFT	BENDING TEMPER-HARD	HARD	SOFT	BENDING TEMPER-HARD	HARD	TYPE M
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	●	●	●	●	●	●	●	●
Tube Cutters	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	●	●			●			
37˚ Flaring Tool	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	15	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. 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-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.

For flaring, cutting and bending soft copper, aluminum and brass tubing.

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-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.

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.

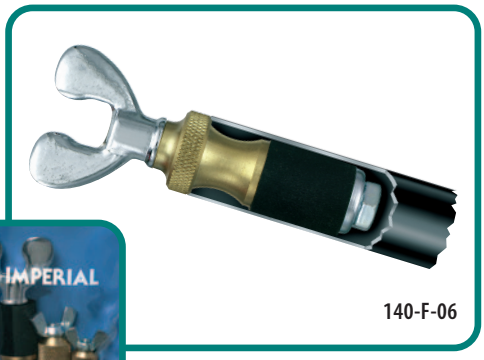
105-FF

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.



140-F-06

142-F

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

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. Deburrs 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

SERVICE MANIFOLDS

510 SERIES 2-VALVE / 4-PORT R-410A MANIFOLDS

- **Auxiliary Valve Port -** Allows multiple hookups for vacuum gauge, vacuum pump, recovery unit and add-ons.
- **Dual O-Ring Seal -** For high-pressure valve use. Electroless nickel plate stem to reduce wear and gauling.
- **Precision Gauges & Protective Boots -** Unique design with easy to read color-coded scales provides superior resistance to shock, vibration & pulsation for superior performance and extended gauge life.
- **PolarShield™ Hi-Performance Hoses** - 800 PSI working pressure, 4,000 PSI burst pressure - not all models include hose.
- **Ergonomic Handles -** Durable, soft-touch non-slip surface, even with oily fingers.
- **Swivel Hanger**

510 SERIES 2-VALVE/4-PORT R-410A MANIFOLDS - See page 40 for additional models and details

CATALOG NUMBER	REFRIGERANT	CHARGING LINES	MANIFOLD PORT CONNECTIONS
510-C*	R-410A		1/4" SAE
510-CM*	R-410A		1/4" SAE
511-C*	R-410A	3-60"	1/4" SAE
511-CM*	R-410A	3-60"	1/4" SAE
512-C*	R-410A	3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
513-C*	R-410A		5/16" SAE

* Add "C" suffix for clamshell packaging

520 SERIES 2-VALVE / 4- OR 5-PORT MANIFOLDS

- **Two Integrated Auxiliary Ports -** Provide additional hookups for use with a micron (vacuum) gauge, vacuum pump, adding tracer dye, adding oil, purging non-condensables.
- **Deep Vacuum Valve Design -** Proven diaphragm-type, soft-seat valves require only fingertip pressure to close completely. One turn to full open/close. Superior for deep vacuum service.
- **Precision Gauges & Protective Boots -** Unique design with easy to read color-coded scales provides superior resistance to shock, vibration and pulsation for superior performance and extended gauge life.
- **Ergonomic Handles -** Durable, soft-touch non-slip surface, even with oily fingers.
- **PolarShield™ Hi-Performance Hoses** - 800 PSI working pressure, 4,000 PSI burst pressure - not all models include hose.
- **Swivel Hanger**

520-CA Combination R-134a & R-12 Auto Manifold. Hose and couplers optional.

520-C Series 2-Valve / 4-Port Manifolds for commercial and residential service.

520 SERIES 2-VALVE/ 4- OR 5-PORT MANIFOLDS - See page 39 for additional models and details

CATALOG NUMBER	# OF PORTS	REFRIGERANT	CHARGING LINES	MANIFOLD PORT CONNECTIONS
520-C* (w/Sight Glass)	5	R-12, R-22, R-502		1/4" SAE
520-CA* (w/Sight Glass)	4	R-134a, R-12		1/4" SAE
520-CAM* (w/Sight Glass)	4	R-134a, R-12		1/4" SAE
521-C* (w/Sight Glass)	5	R-12, R-22, R-502	3-60"	1/4" SAE
521-CA* (w/Sight Glass)	4	R-134a, R-12	3-60" w/Auto Service Couplers	1/4" SAE
521-CAM* (w/Sight Glass)	4	R-134a, R-12	3-60" w/Auto Service Couplers	1/4" SAE

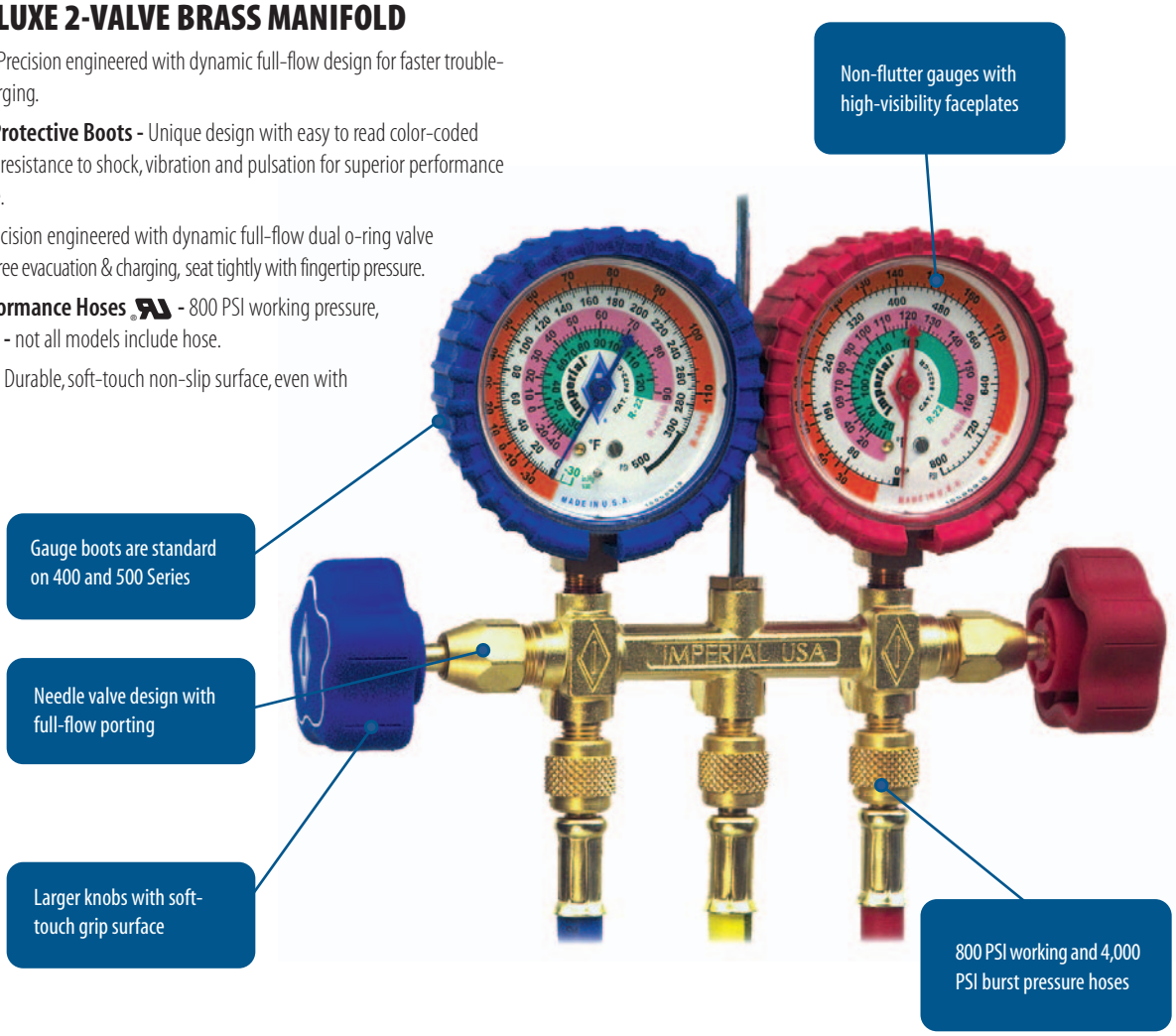
* Add "C" suffix for clamshell packaging

Recognized Component. is a registered trademark of Underwriters Laboratories Inc.

SERVICE MANIFOLDS

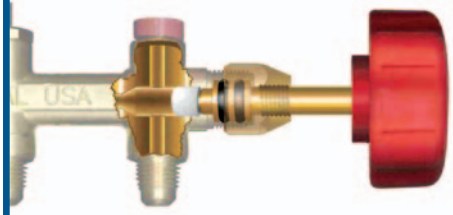
400 SERIES DELUXE 2-VALVE BRASS MANIFOLD

- **Dual O-Ring Valves -** Precision engineered with dynamic full-flow design for faster trouble-free evacuation and charging.
- **Precision Gauges & Protective Boots -** Unique design with easy to read color-coded scales provides superior resistance to shock, vibration and pulsation for superior performance and extended gauge life.
- **Soft-Seat Valves -** Precision engineered with dynamic full-flow dual o-ring valve design for faster trouble-free evacuation & charging, seat tightly with fingertip pressure.
- **PolarShield™ Hi-Performance Hoses** - 800 PSI working pressure, 4,000 PSI burst pressure - not all models include hose.
- **Ergonomic Handles -** Durable, soft-touch non-slip surface, even with oily fingers.
- **Swivel Hanger**



400 SERIES DELUXE 2-VALVE BRASS MANIFOLD - See page 40 for additional models and details

CATALOG NUMBER	REFRIGERANT	CHARGING LINES	MANIFOLD PORT CONNECTIONS
415-C*	R-410A		1/4" SAE
416-C*	R-410A	3-36"	1/4" SAE
417-C*	R-410A	3-60"	1/4" SAE
418-C*	R-410A	3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
420-C*	R-410A, R-22, R-404A		1/4" SAE
421-C*	R-410A, R-22, R-404A	3-60"	1/4" SAE
422-C*	R-410A, R-22, R-404A	3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
435-CKP*	R-134a		1/4" SAE
436-CKP*	R-134a	3-36"	1/4" SAE
450-C*	R-404A, R-507, R-134a		1/4" SAE
451-C*	R-404A, R-507, R-134a	3-36"	1/4" SAE
452-C*	R-404A, R-507, R-134a	3-60"	1/4" SAE
494-C* (body only)			1/4" SAE
495-C*	R-12, R-22, R-502		1/4" SAE
496-C*	R-12, R-22, R-502	3-36"	1/4" SAE
498-C*	R-12, R-22, R-502	2-36", 1-60"	1/4" SAE
500-C*	R-12, R-22, R-502	3-60"	1/4" SAE
505-C*	R-12, R-22, R-502	3-60" w/Low Loss Shut-Off Couplers	1/4" SAE


Side view cutaway dual o-ring valve with full flow porting

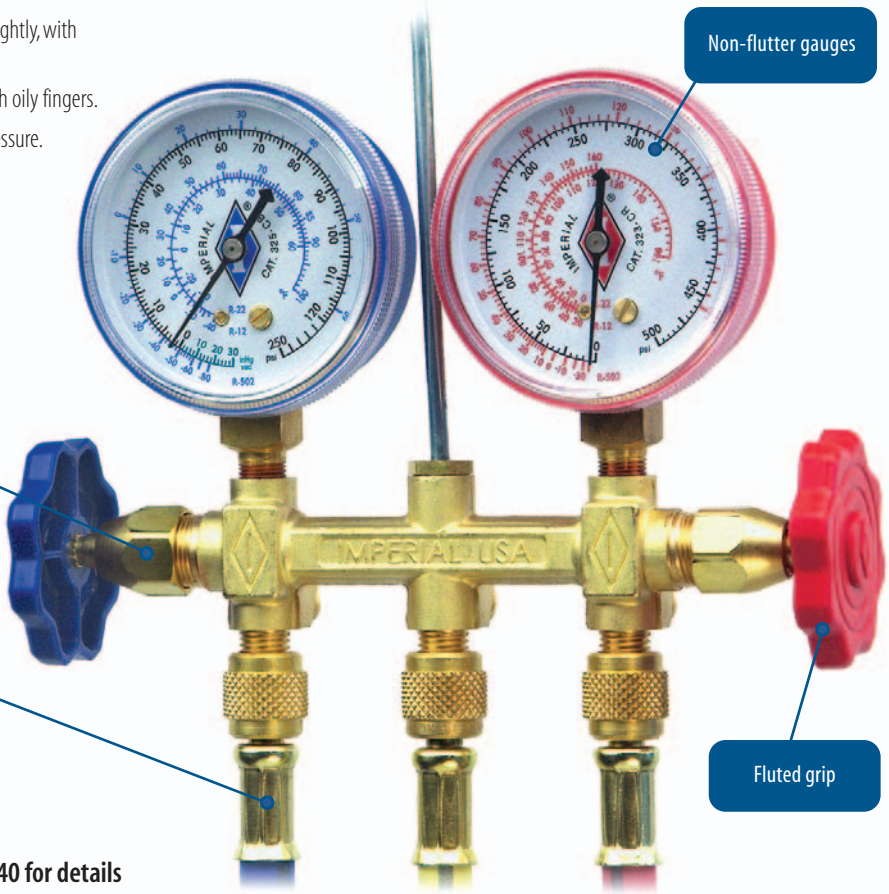
* Add "C" suffix for clamshell packaging

Recognized Component. is a registered trademark of Underwriters Laboratories Inc.

SERVICE MANIFOLDS

300 SERIES ECONOMY BRASS MANIFOLDS

- **Soft Seat Valve -** Brass stem with long wearing soft tip seats tightly, with fingertip pressure.
- **Fluted Grip Control -** Durable handwheel is non-slip even with oily fingers.
- **Premium Hose -** 600 PSI working pressure/3,000 PSI burst pressure.
- **Fluted Grips**
- **Dual O-Ring Seal Valves**
- **Swivel Hanger**



300 SERIES ECONOMY BRASS MANIFOLD - See page 40 for details

CATALOG NUMBER	REFRIGERANT	CHARGING LINES	MANIFOLD PORT CONNECTIONS
335-CKP*	R-134a		1/4" SAE
336-CKP*	R-134a	3-36"	1/4" SAE
395-C*	R-12, R-22, R-502		1/4" SAE
395-CD*	R-12, R-22, R-502		1/4" SAE
395-CKP*	R-12, R-22, R-502		1/4" SAE
396-C*	R-12, R-22, R-502	3-36"	1/4" SAE
396-CD*	R-12, R-22, R-502	3-36"	1/4" SAE
396-CKP*	R-12, R-22, R-502	3-36"	1/4" SAE
397-CD	R-12, R-22, R-502	3-72"	1/4" SAE
398-C	R-12, R-22, R-502	3-60"	1/4" SAE
398-CD	R-12, R-22, R-502	3-60"	1/4" SAE

* Add "C" suffix for clamshell packaging

SINGLE GAUGE CHARGING AND TESTING UNIT

A compact, single gauge unit which will perform a variety of charging and testing operations. Body is forged brass, with 1/4" SAE port flare connections.

- **Soft-Seat Valve –** Brass stem with long wearing soft tip seats tightly, with fingertip pressure.
- **Fluted Grip Control –** Durable handwheel is non-slip even with oily fingers.
- **Swivel Hanger**

466-C Charging and Testing Unit with 425-CB, 2-1/2" compound gauge. 0 -30" vacuum, 0-120 lbs. pressure.

401-C Charging and Testing Unit without gauge.

AUTOMOTIVE SERVICE MANIFOLDS & ACCESSORIES

520 SERIES 2-VALVE 4-PORT SERVICE MANIFOLDS

- **Deep Vacuum Valve Design -** Proven diaphragm-type, soft-seat valves require only fingertip pressure to close completely. One turn to full open/close. Superior for deep vacuum service.
- **Precision Gauges & Protective Boots -** Unique design with easy to read color-coded scales provides superior resistance to shock, vibration and pulsation for superior performance and extended gauge life.
- **PolarShield™ Hi-Performance Hoses** - 800 PSI working pressure, 4,000 PSI burst pressure - not all models include hose.
- **Ergonomic Handles -** Durable, soft-touch non-slip surface, even with oily fingers.
- **Swivel Hanger**

520 SERIES 2-VALVE 4-PORT MANIFOLD - See page 39 for details

CATALOG NUMBER	REFRIGERANT	CHARGING LINES	MANIFOLD PORT CONNECTIONS
520-CA* (w/Sight Glass)	R-134a, R-12		1/4" SAE
520-CAM*(w/Sight Glass)	R-134a, R-12		1/4" SAE
521-CA* (w/Sight Glass)	R-134a, R-12	3-60" w/R-134a Auto Service Couplers	1/4" SAE
521-CAM*(w/Sight Glass)	R-134a, R-12	3-60" w/Auto Service Couplers	1/4" SAE

* Add "C" suffix for clamshell packaging

521-CA

803-AR/803-AB

805-MAY

AUTOMOTIVE KWIK-COUPLER™ FOR R-12

19-C (Set) Includes special female coupler for use on 3/16" automotive high side access valves, 1/4" low side coupler, straight and 90° male couplers.

20-A High side adapter. Converts 3/16" system access valve to 1/4" access valve for use with standard 1/4" charging hose.

AUTOMOTIVE R-134a HOSE FOR USE WITH CONVENTIONAL MANIFOLDS EQUIPPED WITH 1/4" SAE PORTS

Red and blue hose supplied with 1/4" SAE FFL x 14 mm male connections. Yellow hose supplied with 1/4" SAE FFL x 1/2" ACME female with ball valve (bv) shut-off.

LENGTH	BLUE	YELLOW W/BV	RED	SET OF THREE (B,Y,R)
3' (36")	803-MAB	803-MAY	803-MAR	803-MAS
5' (60")	805-MAB	805-MAY	805-MAR	805-MAS
6' (72")	806-MAB	806-MAY	806-MAR	806-MAS

AUTOMOTIVE R-134a HOSE FOR USE WITH MANIFOLDS EQUIPPED WITH 1/2" ACME PORTS

Red and blue hose supplied with 1/2" ACME female x 14 mm male connections. Yellow hose supplied with 1/2" ACME x 1/2" ACME female with ball valve (bv) shut-off.

LENGTH	BLUE	YELLOW W/BV	RED	SET OF THREE (B,Y,R)
3' (36")	803-AB	803-AY	803-AR	803-AS
6' (72")	806-AB	806-AY	806-AR	806-AS

PREMIUM R-134a HI-FLOW AUTO SERVICE COUPLERS

14 mm thread connection. Quick connect/disconnect valve actuation eliminates venting. Color-coded knobs for high/low connections.

- Integral safety sleeve prevents accidental refrigerant venting under all operating conditions.
- Provides maximum flow without damaging service port.
- Meets current SAE-J639 specifications.

21-L Low side service coupler.

21-H High side service coupler.

R-134a SERVICE-MANUAL SNAP COUPLERS

14 mm thread connection. A cross between quick snap and manual couplers, this patented user-friendly design allows the technician to engage the coupler with a push of two fingers.

- Compact size
- Color coded handles for easy recognition
- Meets current SAE-J639 specifications
- 6 roller balls
- HNBR O-ring
- Made in USA

25-L Low side R-134a service coupler.

25-H High side R-134a service coupler.

Recognized Component. is a registered trademark of Underwriters Laboratories Inc.

SERVICE MANIFOLDS & ACCESSORIES

CATALOG NUMBER	REFRIGERANT	GAUGE CALIBRATION**					TEMP		CHARGING LINES	MANIFOLD PORT CONNECTIONS
		PSI	BAR	Kg/cm²	kPa	MPa	°F	°C		
700 SERIES KWIK-CHARGER MANIFOLD										
R-410A,22,404A										
715-C	R-410A, R-22, R-404A	●					●			1/4" SAE
717-C	R-410A, R-22, R-404A	●					●		3-60"	1/4" SAE
718-C	R-410A, R-22, R-404A	●					●		3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
R-404A, 507, 134a										
750-C*	R-404A, R-507, R-134a	●					●			1/4" SAE
751-C*	R-404A, R-507, R-134a	●					●		3-60"	1/4" SAE
755-C*	R-404A, R-507, R-134a	●					●		3-60" w/Low Loss Fittings	1/4" SAE
R-404, 407C, 134a										
740-CBC	R-404, R-407C, R-134a	●	●					●		1/4" SAE
R-410A										
745-CBC	R-410A	●	●					●		1/4" SAE
R-12, 502, 22										
720-C*	R-12, R-22, R-502	●					●			1/4" SAE
721-C*	R-12, R-22, R-502	●					●		3-60"	1/4" SAE
725-C*	R-12, R-22, R-502	●					●		3-60" w/Low Loss Fittings	1/4" SAE
600 SERIES 4-VALVE MANIFOLD										
R-12, 502, 22										
620-C*	R-12, R-22,R-502	●					●			1/4" & 3/8" SAE
620-CB	R-12, R-22, R-502	●	●					●		1/4" & 3/8" SAE
620-CK*	R-12, R-22, R-502				●			●		1/4" & 3/8" SAE
620-CKP*	R-12, R-22, R-502	●			●			●		1/4" & 3/8" SAE
620-CM*	R-12, R-22, R-502			●				●		1/4" & 3/8" SAE
620-CS* (w/Sight Glass)	R-12, R-22, R-502	●					●			1/4" & 3/8" SAE
621-C*	R-12, R-22, R-502	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
621-CD*	R-12 R-22, R-502	●		●			●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
621-CK*	R-12, R-22, R-502				●			●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
621-CKP*	R-12, R-22, R-502	●			●			●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
621-CM*	R-12, R-22, R-502			●				●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
621-CS* (w/Sight Glass)	R-12, R-22, R-502	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
622-C (w/Carrying Case)	R-12, R-22, R-502	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
622-CKP (w/Carrying Case)	R-12, R-22, R-502	●			●			●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
629-C*	R-12, R-22, R-502	●					●		3-60" w/Low Loss Fittings, 1-60" 3/8" VAC Line	1/4" & 3/8" SAE
R-134a										
630-CKP*	R-134a	●			●		●	●		1/4" & 3/8" SAE
630-CKPS* (w/Sight Glass)	R-134a	●			●		●	●		1/4" & 3/8" SAE
631-CKP*	R-134a	●			●		●	●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
631-CKPS* (w/Sight Glass)	R-134a	●			●		●	●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
R-410A										
640-C*	R-410A	●			●		●	●		1/4" & 3/8" SAE
640-CB	R-410A	●	●					●		1/4" & 3/8" SAE
641-C*	R-410A	●			●		●	●	4-60" (3/8" VAC)	1/4" & 3/8" SAE
642-C*	R-410A	●			●		●		3-60" w/Low Loss Ball Valve Shut-Off, 1-60" 3/8" VAC Line	1/4" & 3/8" SAE
R-410A, 22, 404A										
644-C	R-410A, R-22, R-404A	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
645-C	R-410A, R-22, R-404A	●					●			1/4" & 3/8" SAE
646-C	R-410A, R-22, R-404A	●					●		3-60" w/Low Loss Ball Valve Shut-Off, 1-60" 3/8" VAC Line	1/4" & 3/8" SAE
R-404, 407C, 134a										
660-CB	R-404, R-407C, R-134a	●	●					●		1/4" SAE
R-404A, 507, 134a										
650-C*	R-404A, R-507, R-134a	●					●			1/4" & 3/8" SAE
651-C*	R-404A, R-507, R-134a	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
652-C*	R-404A, R-507, R-134a	●					●		3-60" w/Low Loss Fittings, 1-60" 3/8" VAC Line	1/4" & 3/8" SAE
653-C (w/Carrying Case)	R-404A, R-507, R-134a	●					●		4-60" (3/8" VAC)	1/4" & 3/8" SAE
520 SERIES 2-VALVE MANIFOLD/4- OR 5-PORT MANIFOLD										
R-134a, 12										
520-CA* (w/Sight Glass)	R-134a, R-12	●					●			1/4" SAE
520-CAM* (w/Sight Glass)	R-134a, R-12			●	●			●		1/4" SAE
521-CA* (w/Sight Glass)	R-134a, R-12	●					●		3-60" w/Service Couplers	1/4" SAE
521-CAM* (w/Sight Glass)	R-134a, R-12			●	●			●	3-60" w/Service Couplers	1/4" SAE
R-12, 22, 502										
520-C* (w/Sight Glass)	R-12, R-22, R-502	●					●			1/4" SAE
520-CB (w/Sight Glass)	R-12, R-22, R-502	●	●					●		1/4" SAE
521-C* (w/Sight Glass)	R-12, R-22, R-502	●			●		●		3-60"	1/4" SAE
R-404, 407C,134a										
560-CB (w/Sight Glass)	R-404, R-407C, R-134a	●	●					●		1/4" SAE

* Add "C" suffix for clamshell packaging

* *All gauges available with MPa, kPa, Bar, etc.

SERVICE MANIFOLDS & ACCESSORIES

CATALOG NUMBER	REFRIGERANT	GAUGE CALIBRATION**					TEMP		CHARGING LINES	MANIFOLD PORT CONNECTIONS
		PSI	BAR	Kg/cm²	kPa	MPa	°F	°C		
510 SERIES 2-VALVE 4-PORT MANIFOLD										
R-410A										
510-C*	R-410A	●			●		●	●		1/4" SAE
510-CM*	R-410A					●		●		1/4" SAE
511-C*	R-410A	●			●		●	●	3-60"	1/4" SAE
511-CM*	R-410A					●		●	3-60"	1/4" SAE
512-C*	R-410A	●			●		●	●	3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
513-C*	R-410A	●			●		●	●		5/16" SAE
540-CB	R-410A	●	●					●		1/4" SAE
400 & 500 SERIES DELUXE 2-VALVE BRASS MANIFOLD										
R-410A										
415-C*	R-410A	●			●		●	●		1/4" SAE
416-C*	R-410A	●			●		●	●	3-36"	1/4" SAE
417-C*	R-410A	●			●		●	●	3-60"	1/4" SAE
418-C*	R-410A	●			●		●	●	3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
R-410A, 22, 404A										
420-C	R-410A, R-22, R-404A	●					●			1/4" SAE
421-C	R-410A, R-22, R-404A	●					●		3-60"	1/4" SAE
422-C	R-410A, R-22, R-404A	●					●		3-60" w/Low Loss Ball Valve Shut-Off	1/4" SAE
R-134a										
435-CKP*	R-134a	●			●		●	●		1/4" SAE
436-CKP*	R-134a	●			●		●	●	3-36"	1/4" SAE
R-404A, 507, 134a										
450-C*	R-404A, R-507, R-134a	●					●			1/4" SAE
450-CM*	R-404A, R-507, R-134a			●	●			●		1/4" SAE
451-C*	R-404A, R-507, R-134a	●					●		3-36"	1/4" SAE
451-CM*	R-404A, R-507, R-134a			●	●			●	3-36"	1/4" SAE
452-C*	R-404A, R-507, R-134a	●					●		3-60"	1/4" SAE
R-12, 22, 502										
494-C*	Manifold body only									1/4" SAE
495-C*	R-12, R-22, R-502	●					●			1/4" SAE
495-CB	R-12, R-22, R-502	●	●					●		1/4" SAE
495-CD*	R-12, R-22, R-502	●		●			●			1/4" SAE
495-CKP*	R-12, R-22, R-502	●			●			●		1/4" SAE
496-C*	R-12, R-22, R-502	●					●		3-36"	1/4" SAE
496-CD*	R-12, R-22, R-502	●		●			●		3-36"	1/4" SAE
496-CKP*	R-12, R-22, R-502	●			●			●	3-36"	1/4" SAE
498-C*	R-12, R-22, R-502	●					●		2-36", 1-60"	1/4" SAE
500-C*	R-12, R-22, R-502	●					●		3-60"	1/4" SAE
500-CD	R-12, R-22, R-502	●		●			●		3-60"	1/4" SAE
505-C*	R-12, R-22, R-502	●					●		3-60" w/Low Loss Fittings	1/4" SAE
300 SERIES ECONOMY 2-VALVE BRASS MANIFOLD										
R-12,22, 502										
395-C*	R-12, R-22, R-502	●					●			1/4" SAE
395-CD*	R-12, R-22, R-502	●		●			●			1/4" SAE
395-CKP*	R-12, R-22, R-502	●			●			●		1/4" SAE
396-C*	R-12, R-22, R-502	●					●		3-36"	1/4" SAE
396-CD*	R-12, R-22, R-502	●		●			●		3-36"	1/4" SAE
396-CKP*	R-12, R-22, R-502	●			●			●	3-36"	1/4" SAE
397-CD	R-12, R-22, R-502	●		●			●		3-72"	1/4" SAE
398-C	R-12, R-22, R-502	●					●		3-60"	1/4" SAE
398-CD	R-12, R-22, R-502	●		●			●		3-60"	1/4" SAE
R-134a										
335-CKP*	R-134a	●			●		●	●		1/4" SAE
336-CKP*	R-134a	●			●		●	●	3-36"	1/4" SAE

MANIFOLD ACCESSORIES & SERVICE PARTS

10SG Sight Glass Repair Kit

300-RH High Side Repair Kit w/plastic knob for 300 Series "Imperial USA" brass manifold

300-RL Low Side Repair Kit w/plastic knob for 300 Series "Imperial USA" brass manifold

600-R Diaphragm Replacement Seal Kit for all 600 Series manifolds

601-R Replacement VAC & REF Knobs w/stems for all 600 Series manifolds

602-R Replacement HI & LO Knobs w/stems for all 600 Series manifolds

400-RB Set: Red & Blue Protective Gauge Boots

405-RH High Side Repair Kit w/soft touch knob for 400 Series "Imperial USA" brass manifold

405-RL Low Side Repair Kit w/soft touch knob for 400 Series "Imperial USA" brass manifold

500-RH High Side Repair Kit for 510 & 511 Series R-410A manifold

500-RL Low Side Repair Kit for 510 & 511 Series R-410A manifold

700-CV Control Valve Repair Kit for 700 Series manifold

* Add "C" suffix for clamshell packaging

* *All gauges available with MPa, kPa, Bar, etc.

PRECISION REFRIGERANT GAUGES

NOW WITH HI-VISIBILITY REFRIGERANT COLOR-CODED SCALES

- **Superior Shock Resistance -** Our unique patented design isolates the movement from the socket, reducing the effects of shock.
- **Superior Vibration Resistance -** Our enhanced vibration dampening design cushions the movement for flutter-free performance and extended gauge service life.
- **Superior Pulsation Resistance -** After 10 million cycles, these gauges show three times less wear than conventional gauges. The result is a longer lasting, more reliable gauge.
- **Replacement Screw-on Lens -** S8230301
- **Protective Red & Blue Rubber Boot Set - 400-RB**

Protective rubber boots for gauges sold separately.

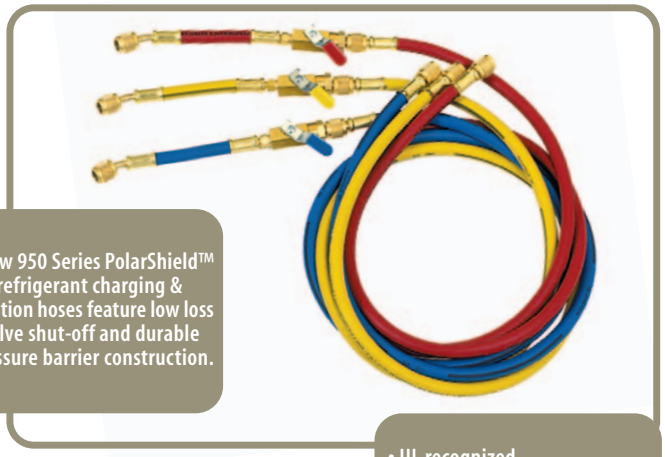
CATALOG NUMBER	DESCRIPTION	GAUGE CALIBRATION					TEMP	
		PSI	BAR	Kg/cm²	kPa	MPa	°F	°C
R-12, 134a								
441-CB	Blue Compound	●					●	
441-CBM	Blue Compound			●	●			●
441-CR	Red Pressure	●					●	
441-CRM	Red Pressure			●	●			●
R-12, 22, 502								
405-CB	Blue Compound	●	●					●
405-CR	Red Pressure	●	●					●
423-CAM	Red Pressure			●				●
423-CAPD	Red Pressure					●		●
423-CK	Red Pressure				●			●
423-CKB	Red Pressure		●		●			●
423-CKP	Red Pressure	●			●			●
423-CR	Red Pressure	●					●	
423-HPS	Red Pressure			●				●
425-CAM	Blue Compound			●				●
425-CAPD	Blue Compound			●				●
425-CB	Blue Compound	●					●	
425-CK	Blue Compound				●			●
425-CKB	Blue Compound		●		●			●
425-CKP	Blue Compound	●			●			●
425-HPS	Blue Compound			●				●
431-CM	Red Pressure	●		●			●	
432-CM	Blue Compound	●		●			●	
R-22, 404A, 410A								
422-CB	Blue Compound	●					●	
422-CR	Red Pressure	●					●	
R-22, 407C, 410A								
428-CKP	Blue Compound	●			●			●
429-CKP	Red Pressure	●			●			●
R-22, 404A, 507								
426-CKP	Blue Compound	●			●			●
427-CKP	Red Pressure	●			●			●
R-134a								
434-BKP	Blue Compound	●			●		●	●
434-RKP	Red Pressure	●			●		●	●
R-134a, 404A, 407A								
407-CB	Blue Compound	●	●					●
407-CR	Red Pressure	●	●					●
R-134a, 404A, 407C								
3423-IP	Blue Compound					●		●
3425-CIP	Red Pressure					●		●
R-134a, 404A, 507								
451-CB	Blue Compound	●					●	
451-CBM	Blue Compound			●	●			●
451-CR	Red Pressure	●					●	
451-CRM	Red Pressure			●	●			●
R-410A								
2423-P	Red Pressure			●		●		●
2425-CP	Blue Compound			●		●		●
408-CB	Blue Compound	●	●					●
408-CR	Red Pressure	●	●					●
452-CB	Blue Compound	●			●		●	●
452-CR	Red Pressure	●			●		●	●

HI-PERFORMANCE

PolarShield™ HI-PERFORMANCE CHARGING HOSE

950, 900, 850 & 800 SERIES

- **All Imperial PolarShield charging hoses are UL recognized** and meet UL-1963, SAE-J2196 & EPA requirements for strength, pressure and refrigerant permeation.
- **Rugged, Multi-Refrigerant Nylon Barrier Construction -** PolarShield hoses are compatible with all CFC, HCFC & HFC refrigerants (R-410A, R-404A, R-407C, R-134a).
- **High-Pressure -** PolarShield hoses feature 800 PSI working pressure and 4,000 PSI burst pressure with a 5-to-1 safety factor.
- **Selection -** PolarShield hoses are available with a variety of end connections, in yellow, red or blue, individually or in sets of three. Consult factory for lengths and end connections not listed below. (For Automotive R-134a hoses, see page 38.)



The new 950 Series PolarShield™ multi-refrigerant charging & evacuation hoses feature low loss ball valve shut-off and durable hi-pressure barrier construction.

- UL recognized
- 800 PSI working pressure, 4,000 PSI burst pressure
- Works with all refrigerant gases including R-410A

950 SERIES HOSES WITH LOW LOSS BALL VALVE SHUT-OFF AND 1/4" FFL* CONNECTIONS

LENGTH	BLUE	YELLOW	RED	SET OF THREE (B,Y,R)
3' (36")	953-MRB	953-MRY	953-MRR	953-MRS
5' (60")	955-MRB	955-MRY	955-MRR	955-MRS
6' (72")	956-MRB	956-MRY	956-MRR	956-MRS

*5/16" fittings available-contact factory for part numbers

900 SERIES PolarShield™ HOSES WITH AUTOMATIC SHUT-OFF VALVE

Precision engineered automatic low loss 1/4" FFL* shut-off valve traps refrigerant within the hose to eliminate venting and finger burn.

900 SERIES HOSES - (1/4" FFL* CONNECTIONS WITH AUTOMATIC SHUT-OFF ON ONE END)

LENGTH	BLUE	YELLOW	RED	SET OF THREE (B,Y,R)
3' (36")	903-MRB	903-MRY	903-MRR	903-MRS
5' (60")	905-MRB	905-MRY	905-MRR	905-MRS
6' (72")	906-MRB	906-MRY	906-MRR	906-MRS

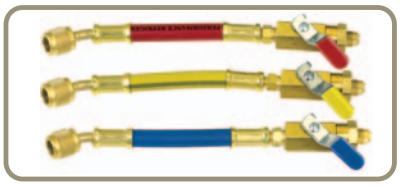
*5/16" fittings available-contact factory for part numbers

6" LOW LOSS BALL VALVE ADAPTER HOSES

1/4" SAE 45˚ female x 1/4" SAE male straight fittings

Connects to any 1/4" SAE charging line. Non-restrictive for maximum flow. UL recognized - environmentally safe.

LENGTH	BLUE	YELLOW	RED	SET OF THREE (B,Y,R)
6"	800-MBB	800-MBY	800-MBR	800-MBS



850 SERIES POLARSHIELD™ HOSES FOR R-410A SYSTEMS - WITH 5/16" ACCESS FITTINGS (1/4" x 5/16" hose connections)

LENGTH	BLUE	YELLOW	RED	SET OF THREE (B,Y,R)
3' (36")	853-MRB	853-MRY	853-MRR	853-MRS
4' (48")	854-MRB	854-MRY	854-MRR	854-MRS
5' (60")	855-MRB	855-MRY	855-MRR	855-MRS
6' (72")	856-MRB	856-MRY	856-MRR	856-MRS

800 SERIES HOSES - WITH STANDARD 1/4" FITTING*

LENGTH	BLUE	YELLOW	RED	SET OF THREE (B,Y,R)
3' (36")	803-MRB	803-MRY	803-MRR	803-MRS
4' (48")	804-MRB	804-MRY	804-MRR	804-MRS
5' (60")	805-MRB	805-MRY	805-MRR	805-MRS
6' (72")	806-MRB	806-MRY	806-MRR	806-MRS
8' (96")	808-MRB	808-MRY	808-MRR	808-MRS
12' (144")	812-MRB	812-MRY	812-MRR	812-MRS

*5/16" fittings available-contact factory for part numbers

3/8" EVACUATION HOSE WITH 3/8" SAE SWIVEL CONNECTION

Large size hoses for faster evacuation and charging

3/8" hose in three lengths for larger jobs or applications where reduced service time is desired. 3/8" swivel ends. Eight-crimp ferrules. Available in yellow. Working pressure: 500 PSI. Burst pressure: 2,500 PSI.

LENGTH	YELLOW
3' (36")	536-FTY
4' (48")	548-FTY
5' (60")	560-FTY

600 SERIES PREMIUM CHARGING HOSE

LENGTH	SET OF THREE (B,Y,R)
3' (36")	603-MRS
5' (60")	605-MRS
6' (72")	606-MRS

200 SERIES HOSE SETS FOR R-401A

LENGTH	SET OF THREE (B,Y,R)
5' (60")	205-MRS
6' (72")	206-MRS

(5/16" x 5/16" hose connections)

HOSE REPLACEMENT PARTS

S7958301	1/4" Hose Seal Gasket.
S7958302	3/8" Hose Seal Gasket.
S8921626	Brass Core Depressor.
S10000265	1/2"ACME & 5/16" Hose Seal Gasket.

Recognized Component. is a registered trademark of Underwriters Laboratories Inc.

KWIK-COUPLERS™

KWIK-COUPLER™ - SERVICES HOSE SHUT-OFF

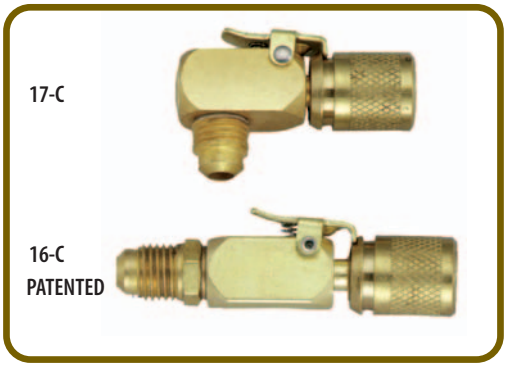
The Kwik-Coupler™ set is intended for use with refrigeration and air-conditioning service hoses when connecting to core valve type access fittings. Conventional threaded connecting is converted to push-pull operation which is faster, easier and positive sealing at all times. Valve cores are depressed automatically without adjustments or loss of refrigerant. Disconnecting is also accomplished without loss of refrigerant.

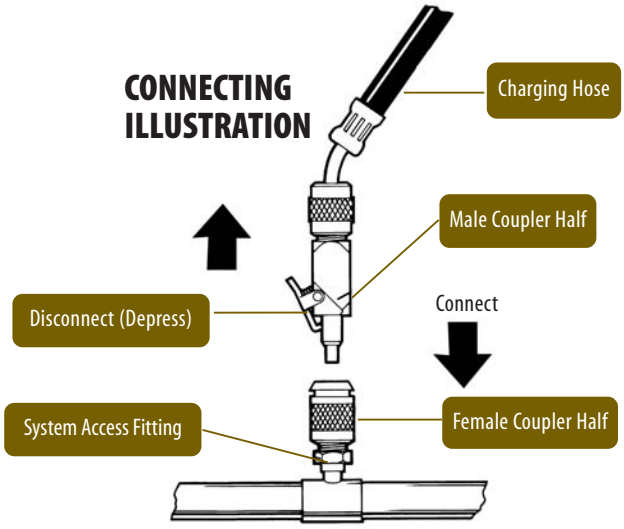
An automatic shut-off valve retains refrigerant pressure in a disconnected hose. This feature permits transferring high side hose refrigerant through the service manifold into the low side, thereby eliminating waste and hazardous high pressure discharge and atmospheric damage.

FEATURES

- Automatic full depression of core valves without adjustment, regardless of core position.
- Coupler halves separately connect to access fitting and hose end, then easy push/pull operation automatically opens or closes system without loss of refrigerant.
- Automatic shut-off of hose ends permits discharging high side hose through manifold into low side.
- Eliminates hazardous discharge of refrigerant and oil from system when disconnecting hose.
- Simplifies operation of charging critical amount of refrigerant into small systems.
- Prevents finger burn when disconnecting - especially servicing heat pumps in cold weather.
- Core depressors in hose ends no longer necessary - speeds servicing of systems with hand valves.

16-C Straight Coupler (45° Flare) 1/4" female x 1/4" male.
17-C 90° Elbow Coupler (45° Flare) 1/4" female x 1/4" male.
18-C (Set) includes 16-C and 17-C.
26-C Straight Coupler (45° Flare) 5/16" female x 5/16" male.
27-C 90° Elbow Coupler (45° Flare) 5/16" female x 5/16" male.
26-C and 27-C NOT UL APPROVED





WARNING: Do not allow any refrigerant cylinder, connected for charging, to be exposed to system high side pressure cylinder - explosion could result!

AUTOMOTIVE KWIK-COUPLER™ FOR R-12

19-C (Set) Same as 18-C except with special female coupler for use on 3/16" high side automotive access valves.

20-A High side adapter. Converts 3/16" system access valve to 1/4" access valve for use with standard 1/4" charging hose.

23-C

24-C

23-C & 24-C SHUT-OFF COUPLERS

- Coupler captures refrigerant within hose, eliminating refrigerant loss, atmospheric damage, and finger burns.
- Connects quickly & easily to any standard 1/4" SAE refrigerant hose.
- Solid brass construction for years of dependable service.
- Innovative modular design permits easy field repairs.

SHUT-OFF COUPLERS

CATALOG NUMBER	DESCRIPTION
23-C	Straight 1/4" SAE Shut-Off Coupler
24-C	90 Degree 1/4" SAE Shut-Off Coupler
25-K	Coupler Service Kit

Recognized Component. is a registered trademark of Underwriters Laboratories Inc.

KWIK-COUPLERS™

KWIK-COUPLER™ REPAIR KITS

The Kwik-Coupler repair kit is intended for use with Imperial's 16-C, 17-C, 18-C and 19-C Kwik-Couplers and PolarShield™ KC-Series hose. The male repair kit includes a threaded hex sleeve for replacement on straight coupler assemblies.

KCK-M Male Kwik-Coupler Repair Kit

REPAIR INSTRUCTIONS

1. Remove threaded sleeve on end of Kwik-Coupler. A vise may be necessary to remove old straight sleeve - the 90° has a screwdriver slot on back for removal.
2. Discard old stem and spring.
3. Use a wire brush to clean sealant residue from disassembled parts.
4. Insert new stem and spring.
5. Apply one bead of thread sealant completely around the thread. Do not apply an excessive amount of sealant - this may damage o-ring seal and cause leakage. Assemble to length at right (Fig. 1 & 2). For 90° style, engage threads until the bottom of the slot is even with the back of the coupler (Fig. 3).
6. Allow sealant to cure at least 30 minutes. The Kwik-Coupler is now ready to use.

KCK-F Female Kwik-Coupler Repair Kit

REPAIR INSTRUCTIONS

1. Insert tapered object (pen or pencil) and press against threaded retainer. Unscrew and remove retainer sleeve and rubber seals.
2. Lubricate new seals and reassemble. Tighten retainer to zero clearance plus 1/8" turn. Kwik-Coupler is now ready for use.

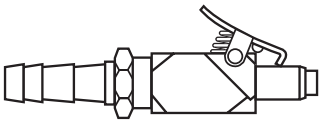


Figure 1
Assembly length 7/32"

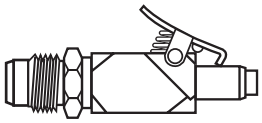


Figure 2
Assembly length 7/32"

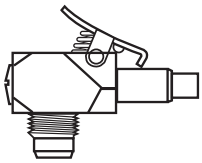


Figure 3
90° assembly

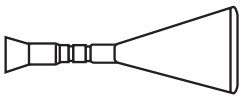


Figure 4
Sealant

Figure 5
Spring

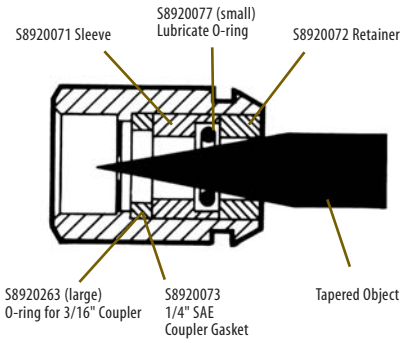
Figure 6
Stem Assembly

KWIK-COUPLER REPLACEMENT PARTS

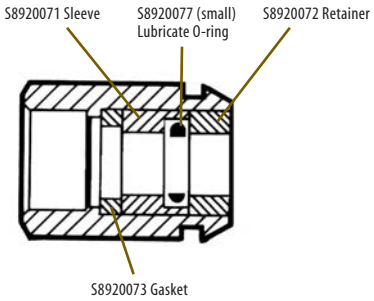
CATALOG NUMBER	DESCRIPTION
S8920069	Male Coupler-Straight
S8920071	Female Coupler-Sleeve
S8920072	Female Coupler-Retainer
S8920073	Female Coupler-Gasket
S8920074	Female Coupler-1/4"
S8920077	Female Coupler-O-Ring
S8920082	Male Coupler-90°
S8920261	Female Coupler-3/16"
S8920263 (19-C only)	Female Coupler-3/16" O-Ring
S5951125	Female Coupler for Non-Core Valve Application
KCK-F	Repair Kit For All Female Couplers
KCK-M	Repair Kit For All Male Couplers

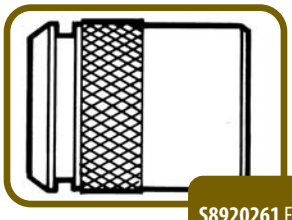
FEMALE KWIK-COUPLER REPAIR KIT – KCK-F (not for 26-C and 27-C)

Standard Female Coupler

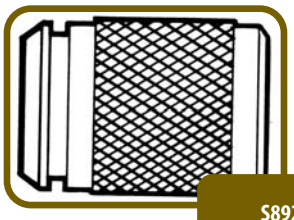


Accessory Side Female Coupler for non-core valve applications

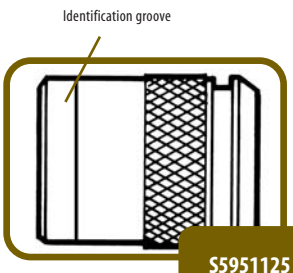




S8920261 Female Coupler (1/16" high side automotive)



S8920074 1/4" Female Coupler



S5951125 Female Coupler (accessory side)

REFRIGERANT CHARGING & RECOVERY

KWIK-VISE™

Refrigerant Recovery Tool

PT-109 Line piercing/refrigerant recovery tool pierces, seals and locks on to copper lines in one swift motion.

Self-adjusting! No need to adjust the tool for different sizes of tubing. The patented tension system automatically locks pliers on copper tubing 1/4" to 1/2" (6 mm-12 mm) O.D. tubing.

To use, simply position the PT-109 on the tubing to be pierced. Close the pliers quickly and firmly. The pliers will automatically adjust and lock into a tightly sealed, secure position.

PATENTED PT-109

Features

- Replaceable hardened, stainless steel pierce and brass valve assembly (S16002045).
- Capacity: 1/4" thru 1/2" O.D. refrigerant copper tubing.
- Durable: made with high-carbon, heat treated steel jaws.
- Works with all refrigerants CFC, HFC, HCFC and Zeotropic, Azeotropic.
- 90° elbow valve eliminates tangling and interference problems.

KWIK-CHARGE™

Liquid low side charger provides fast, safe charge essential when using tracing dye.

Kwik-Charge accepts liquid refrigerant from the cylinder and discharges into low side of the system. Charging rate is up to eight times faster than vapor charging. In addition, liquid charging is required when using R-410A and other blended refrigerants. Kwik-Charge is attached to the low side of the charging manifold. Charging hose is connected from Kwik-Charge outlet to low side of refrigeration system. Internal Kwik-Charge metering element reduces liquid flow to a level below capacity of compressor. This assures a safe, fast charge without endangering the compressor. A built-in ball check valve automatically opens when drawing a vacuum to assure rapid, unrestricted evacuation. Can be used with all fluorinated hydrocarbon refrigerant systems.

Features

- Up to 8 times faster than vapor charging.
- No need to heat refrigerant cylinder.
- Built-in check valve opens for drawing unrestricted vacuum.
- No pressure drop in cylinder.
- One charger services all units 1/2 ton or larger.

535-C

535-C Kwik-Charge 1/4" female SAE flare inlet, 1/4" male SAE flare outlet.
545-C Kwik-Charge 5/16" female SAE flare inlet, 5/16" male SAE flare outlet.

CONNECTION TO MANIFOLDS
(connect all hoses as usual)

2-Valve Connect Kwik-Charge™ to low side fitting. Arrow downward.

Kwik-Charge™ can be connected to refrigerant cylinder rather than manifold.

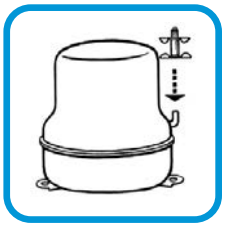
4-Valve Unscrew Kwik-Charge™ end fitting & reverse, then connect to refrigerant fitting as shown (flow arrow on body points upward).

PROCESS TUBE ADAPTER FOR CHARGING & TESTING

Offers a convenient method of making a service connection to a hermetic unit. Also ideal for providing a connection in testing coils and tubing installations. Handles pressure to 100 PSI.

To connect to a hermetic system, pinch-off tube is cut off and adapter is slipped over cut end of tube and tightened. Synthetic rubber seal of adapter grips and seals outside of tube. This gives a 1/4" SAE male flare connection to the system for evacuating, charging or testing.

After system is recharged, tube is pinched off next to adapter. Adapter is then removed and tube is cut off and sealed with solder. Adapter can be reused repeatedly.



241-F-03

CATALOG NUMBER	TUBE O.D. (in.)	SAE FLARE END (in.)
241-F-03	3/16	1/4
241-F-04	1/4	1/4
241-F-05	5/16	1/4
241-F-06	3/8	1/4

Pinch-off tube on hermetic compressor is cut off and 241-F is placed on tube. Charging line is connected to flare end of 241-F.

PIERCING VALVES & ADAPTERS

3-IN-1 PIERCING VALVE

Fast, easy, secure installation. Provides access to line at any point for charging, testing or evacuation. Two valves cover 3/16" to 5/8" O.D. tubing. Has depressor valve and needle valve shut-off.

Valve clamps on tubing line with two captive slotted-head screws: positive built-in mechanical stop for each tube size eliminates tightening guesswork. To pierce tube, thread down the combination l/4" flare port, stem and needle using knob furnished or a suitable wrench, back off stem and connect depressor-type hose for testing or charging. After service is completed valve is closed and left on line for future service. Dust cap provided.

Three-point sealing [in Fig. 1: (1) needle-type valve, (2) gasket and (3) checkvalve] prevents leakage. Neoprene seal withstands temperatures near 300˚F.

541-C Fits 3/16", 1/4" and 5/16" O.D. tubing.
542-C Fits 3/8", 1/2" and 5/8" O.D. tubing.

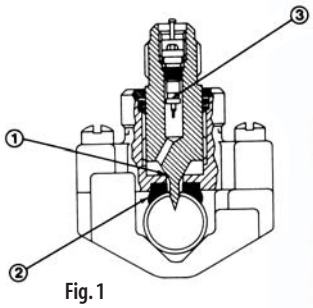
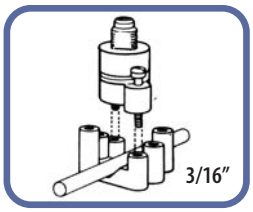
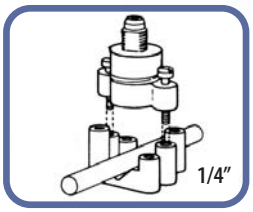


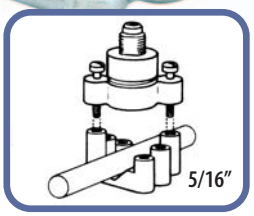
Fig. 1

541-C

FITS THREE SIZES







TAP-A-LINE™

Universal Line Piercing Valves

A quick and economical way to tap into a line at any point for charging, testing or evacuating hermetically sealed units. Valve fits 3/16" to 3/8" O.D. tubing and has 1/4" flare connections for charging lines. Valve clamps on tubing line, one end of charging line is attached to 1/4" flare connection on valve and other end to testing unit or refrigerant tank. Valve stem is turned forward until sharp needle pierces tubing. Stem is then backed off for testing or charging. After service is completed, valve is closed and left on line for future service. Valve has T-Grip handle and forged brass body. Sealing gasket is confined to prevent falling out. V-block centers valve on tube, and is attached to nut so that it can't be lost.

341-C Line piercing valve.
S67842 Replacement seal gasket.

341-C

12-C

9-C

10-C

SERVICES/SHUT-OFF VALVE

12-C 1/4" SAE female swivel connection by 1/4" SAE male flare, adjustable core depressor, positive shut-off. Can be used as a hose shut-off valve.

ACCESS FITTINGS/SWIVEL ADAPTERS

10-C 90˚ swivel adapter, 1/4" SAE male flare by 1/4" SAE female flare swivel connection with core depressor.

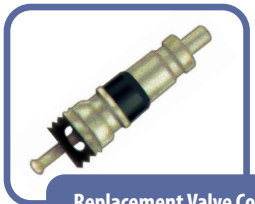
9-C Straight adapter, 1/8" female pipe by 1/4" SAE female swivel connection.

ACCESS VALVES

These valves are designed to facilitate charging and testing of refrigeration systems. Furnished with flare cap on valve end.

Half Union

Catalog Number	Tube O.D. (in.)	Pipe Thread (in.)
GU1-4A	1/4	1/8
GU1-4B	1/4	1/4



Replacement Valve Cores
Catalog Number G6400

Wrench Caps
Catalog Number G6600

Flare Caps

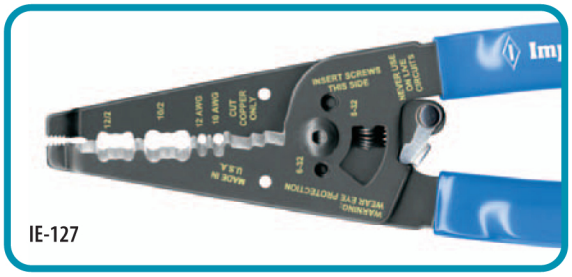
Catalog Number	For Flare Size
640-FC-04	1/4"
640-FC-06	3/8"

ROMEX® STRIPPERS AND CUTTERS

IE-123 12-2/14-2 DUAL ROMEX® STRIPPER

For 12-2 and 14-2 type NM-B cable. Patent pending "staggered" cutting blade produces a clean, sure cut with 30-50% less effort. Also features precision-ground stripping stations, serrated pliers nose, wire looping holes, spring return, lock and 6-32 / 8-32 bolt cutters. Tool markings have been redesigned to be easier to read and highly visible. Includes air-pocket cushion grips for comfort.

IE-127 10-2/12-2 DUAL ROMEX® STRIPPER

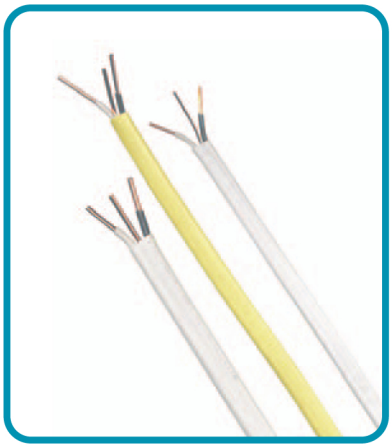


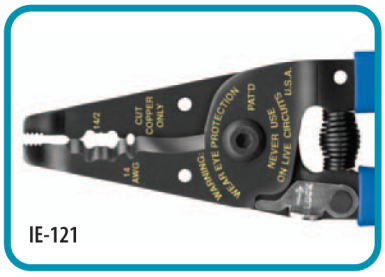
IE-121 14-2 ROMEX® STRIPPER.
IE-126 12-2 ROMEX® STRIPPER.

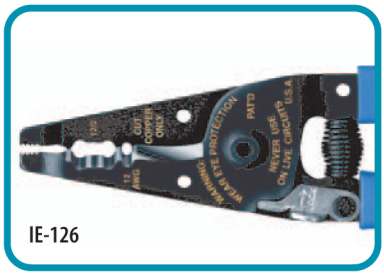
Cuts cable and removes outer sheath; strips 14 AWG (MODEL IE-121) or 12 AWG (MODEL IE-126) wire. Features pliers nose for pulling and working cable and small nuts. Precision-ground cutter and stripping stations, spring return, lock and air-pocket cushion grips for comfort.

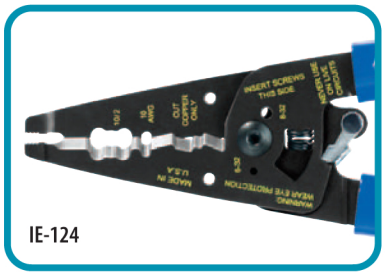
IE-124 10-2 ROMEX® STRIPPER.

For 10-2 type NM-B cable. Heavy duty stripper/cutter for removing outer jacket and stripping 10 AWG wires. Also features: pliers nose, large staggered cutter, wire looping holes, spring return, lock and 6-32/8-32 bolt sizing/cutting stations.









CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	BOLT CUTTER	NOM. LENGTH (in.)
IE-121	14-2 Romex	14-2 NM-B, 14 AWG	Curved		6-1/4
IE-123	Dual Romex	12-2/14-2 NM-B 12-14 AWG	Staggered	6-32 / 8-32	7-3/4
IE-124	10-2 Romex	10-2 NM-B, 10 AWG	Staggered	6-32 / 8-32	7-3/4
IE-126	12-2 Romex	12-2 NM-B, 12 AWG	Curved		6-1/4
IE-127	Dual Romex	10-2/12-2 NM-B 10-12 AWG	Staggered	6-32 / 8-32	7-3/4

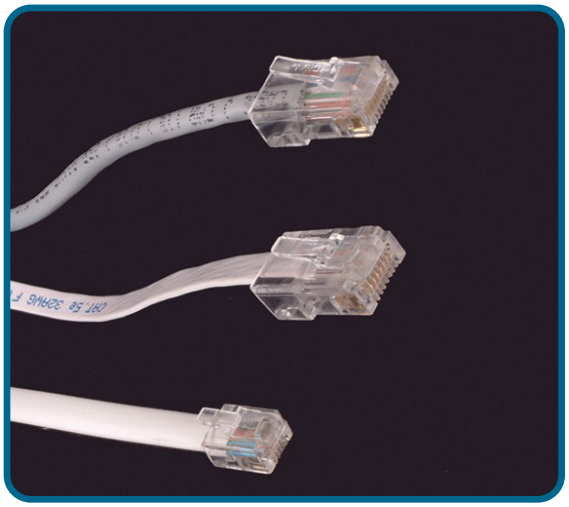
Romex® is a registered trademark of Southwire Company.

DATA COMMUNICATION TOOLS

IE-188 CAT 5e & TELEPHONE CRIMPING TOOL

Easily crimps communication terminals RJ-45 (8 position plugs) and RJ-11 (2,4,6 position plugs). Strip and cut flat telephone and CAT 5 cord and new twisted (round) CAT 5 cord. Manufactured to the highest standards with precision formed crimping dies. Non-glare black oxide finish resists rust and corrosion. Air-pocket cushion grips for user comfort.

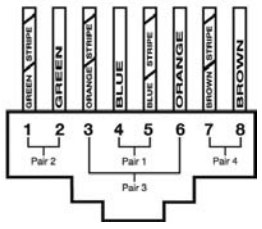
NEW



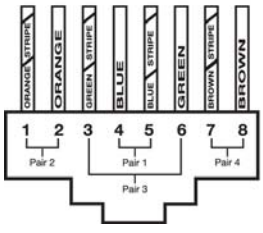
IE-188

T568A CAT 5 RJ-45 (4 pair)

Pin #
1. Green Stripe
2. Green
3. Orange Stripe
4. Blue
5. Blue Stripe
6. Orange
7. Brown Stripe
8. Brown

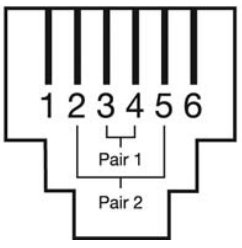


T568B CAT 5e RJ-45 (4 pair)



Pin #
1. Orange stripe
2. Orange
3. Green stripe
4. Blue
5. Blue stripe
6. Green
7. Brown stripe
8. Brown

Telephone RJ-11 (1,2,3 pair)



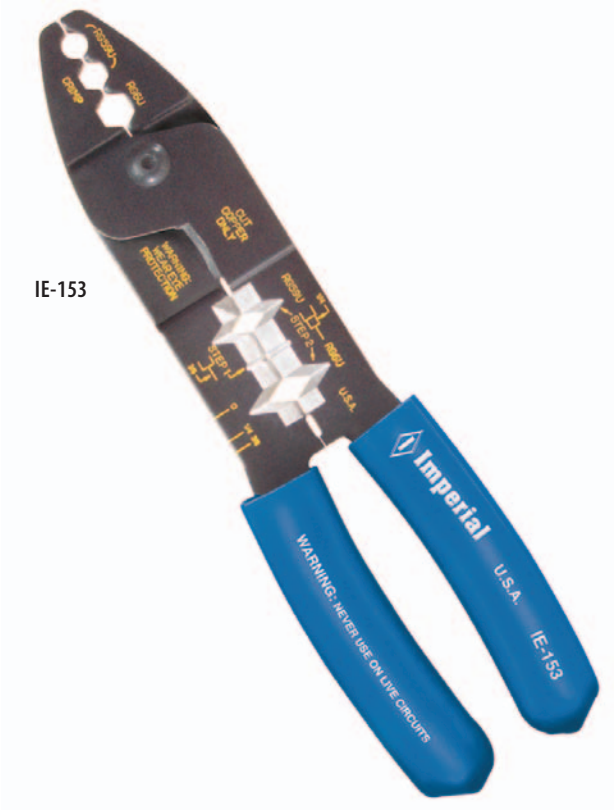
Pin #
1. White
2. Yellow
3. Green
4. Red
5. Black
6. Blue

DATA COMMUNICATION TOOLS

IE-153 COAX CABLE TOOL.

Cut, strip and crimp RG6 and RG59 coax cable with just one tool. Long, curved cutting blade cuts cleanly and easily with 25% less effort. Precision-ground stripping stations for inner insulation and outer jacket of cable. Precision-formed crimping dies ensure accurate connections. Easy 1-2-3 instructions on tool.

IE-153



IE-152 4-IN-1 MULTI-PURPOSE ELECTRICAL/DATACOM WIRE CUTTER.

Cuts solid and stranded copper electrical wire/cable and multi-conductor communication wire. Features anvil cutter at nose for nipping wire in close quarters. Large 5/8" capacity curved cutter maintains cable geometry for better cable performance. Steel wire shear easily cuts steel reinforced coax (CATV) center conductors and coarse wire rope. Precision-ground cutting edges with lock to protect sharp edges during storage. 6-32 and 8-32 bolt sizing/cutting stations. Solid wire looping holes and return spring. Rust/corrosion-resistant high carbon steel design for strength. Sealed air-pocket cushion grips for user comfort.

IE-152

IE-154 FIBER OPTIC STRIPPER.

Strips 250 micron buffer coating from 125 micron optical fiber. Also features a 1.0 mm diameter stripping station to remove fiber jacket. Factory set: requires no adjustment. Ergonomic handles and sealed air-pocket cushion grips reduce operator fatigue.

IE-154

DATA COMMUNICATION TOOLS

FIBER OPTIC STRIPPERS

Imperial's new fiber optic strippers feature precision-ground blades for consistent, clean strips. Will not damage the fiber of the Kevlar® strength member. Ergonomic, non-slip comfort-grip handles.

FIBER OPTIC JACKET STRIPPERS

NEW

IFO-1200 DUPLEX CABLE JACKET STRIPPER

Quickly and easily strips jacket from 3mm, 2mm and 1.6 mm simplex or duplex Zipcord.

IFO-1200

IFO-1212 12-FIBER RIBBON JACKET STRIPPER

Quickly and easily strips jacketing from 12-fiber ribbon cable.

NEW

IFO-1212

FIBER OPTIC BUFFER STRIPPERS

IFO-1300 FIBER OPTIC JACKET & BUFFER STRIPPER

Two tools in one.The larger strip notch removes 3mm jacketing and the smaller strip notch will remove both 900 micron & 250 micron buffer coatings. An Industry Standard.

NEW

IFO-1300

Kevlar® is a registered trademark of DuPont.

DATA COMMUNICATION TOOLS

IFO-1500 DUPLEX ZIPCORD BUFFER STRIPPER

Double strip notches remove both the 250 micron & 900 micron buffer coatings from two fibers at the same time. Great for Zipcord and all duplex cables. The double strip notch design is preferred by fiber technicians and OEM's alike.

NEW

IFO-1500

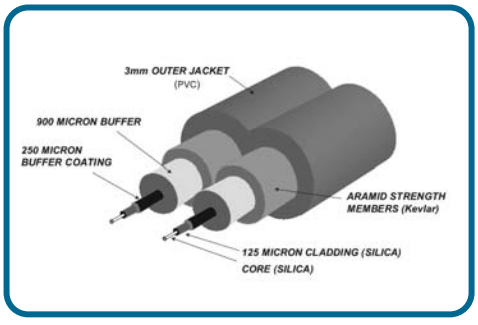
IFO-1520 "OSP" FIBER OPTIC BUFFER STRIPPER

Single strip notch at front of tool removes both 250 micron & 900 micron buffer coatings. Meets "OSP" (outside plant) and OEM requirements. Strip notch positioning at front of tool increases productivity and efficiency.

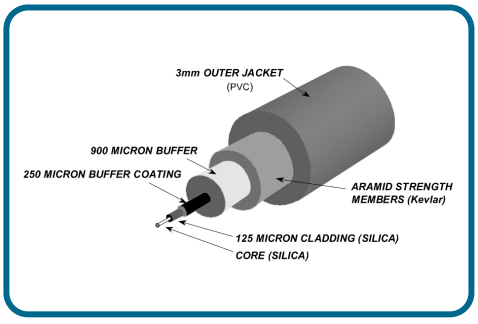
NEW

IFO-1520

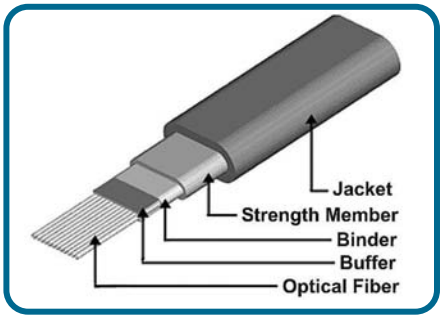
Duplex Cable



Simplex Cable



Ribbon Cable



CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CRIMPS	CUTTER TYPE	BOLT CUTTER	NOM. LENGTH (in.)
IE-152	4-in-1 Cutter			Anvil/Curved/Shear	6-32/8-32	7-3/4
IE-153	Coax Tool	RG6, RG59		Curved		8-1/2
IE-154	Fiber Optic Stripper	250 micron (buffer) 1 mm (jacket)				6-1/2
IE-188	CAT 5e	Flat Cord, Twisted Cord	RJ-45, RJ-11	Curved		11
IFO-1200	Duplex Jacket	3 mm, 2 mm, 1.6 mm				6-3/4
IFO-1212	12-Fiber Jacket	12-Fiber				6-1/4
IFO-1300	Jacket & Buffer	3 mm, 900 micron, 250 micron				6-1/4
IFO-1500	Duplex Zipcord	250 micron, 900 micron				6-1/4
IFO-1520	OSP Buffer	250 micron, 900 micron				6-1/4

UPFRONT STRIPPERS/CUTTERS

Cutters, strippers and crimpers are designed to the demanding specifications of the professional. Made from high-carbon, heat-treated steel, each tool is manufactured to produce clean, exacting results. Also, each tool is MADE IN U.S.A.

SUPER STRIPPER

- Pliers nose for working small nuts and pulling wire.
- Precision-ground stripping stations for both solid and stranded wire.
- Long, curved cutter requires less force to cut, holes in jaw for looping wire.
- Lock to protect cutting and stripping edges when stored.
- Return spring and opening stop to prevent spring from becoming disengaged.
- Longer handles for greater leverage, cuts 6-32 and 8-32 bolts.
- Available in ergonomic or standard handle design.

IE-155

IE-156

IE-159

IE-160

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	BOLT CUTTER	NOM. LENGTH (in.)
IE-155	Ergonomic	10-18 Solid 12-20 Stranded	Curved-long	6-32/8-32	7-1/4
IE-156	Super Stripper/Cutter	10-18 Solid 12-20 Stranded	Curved-long	6-32/8-32	7-1/4
IE-159	Ergonomic	20-30 Solid 22-32 Stranded	Curved-long	6-32/8-32	7-1/4
IE-160	Super Stripper/Cutter	20-30 Solid 22-32 Stranded	Curved-long	6-32/8-32	7-1/4

Meets ASME B107-37-2003 specifications for Type II, Class 1 Wire Cutter/Stripper

UPFRONT STRIPPERS/CUTTERS

HEAVY-DUTY UPFRONT STRIPPERS & CUTTERS

- Serrated pliers nose for pulling and working wire, small nuts, etc.
- AWG and metric wire sizes are embossed in steel and pad printed for high visibility.
- 2-piece hardened steel pivot for lifetime service.
- Lock to protect cutting and stripping edges when stored.
- Spring return to help speed work.
- Large air-pocket cushion grips for greater comfort.

IE-120 Strips solid wire AWG gauges: 20/18/16/14/12/10 AWG; .8/1.0/1.3/1.6/2.0/2.6 mm.

IE-125 Strips stranded wire AWG gauges: 26/24/22/20/16 AWG; .40/.50/.65/.80/1.0/1.3 mm.

IE-130 Strips solid wire AWG gauges: 30/28/26/24/22 AWG; .25/.32/.40/.50/.65 mm.

IE-132 Cutter for copper wire to 10 AWG and fine stranded cable.

IE-120

IE-125

IE-130

IE-132

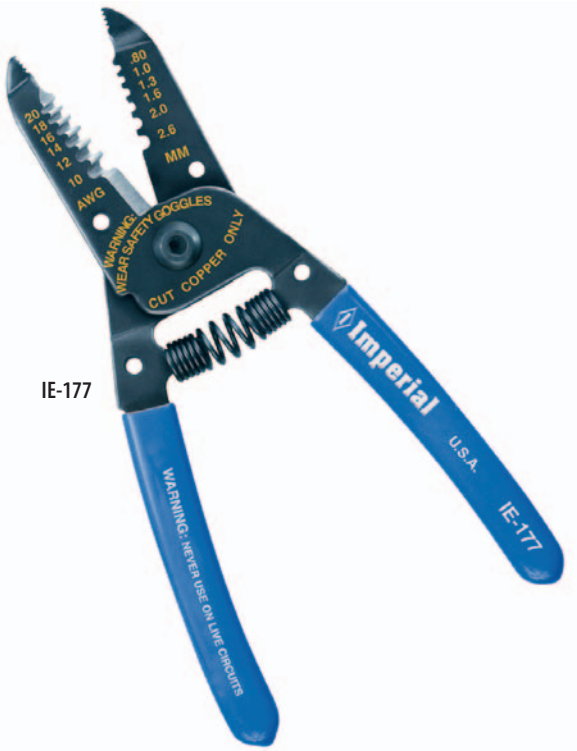
CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	NOM. LENGTH (in.)
IE-120	H-D Stripper/Cutter	10-20 Solid 0.8-2.6 mm	Scissors	6-1/4
IE-125	H-D Stripper/Cutter	16-26 Stranded 0.4-1.3 mm	Scissors	6-1/4
IE-130	H-D Stripper/Cutter	22-30 Solid 0.25-0.65 mm	Scissors	6-1/4
IE-132	H-D Cutter		Scissors	6-1/4

Meets ASME B107.37-2003 specifications for Type II, Class 1 Wire Cutter/Stripper

UPFRONT STRIPPERS/CUTTERS

STANDARD DUTY

- Precision-ground stripping stations.
- Serrated pliers nose for pulling and working wire.
- Scissors-action cutter.
- Holes in jaw for looping wire.
- Return spring.
- Cushion grips.



IE-177

IE-122

IE-178

IE-180

IE-182

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	NOM. LENGTH (in.)
IE-122	Stripper/Cutter w/Spring Return	8-16 Stranded 1.3-3.3 mm	Scissors	6
IE-177	Stripper/Cutter w/Spring Return	10-20 0.8-2.6 mm	Scissors	6
IE-178	Stripper/Cutter w/Spring Return	16-26 Stranded 0.4-1.3 mm	Scissors	6
IE-180	Stripper/Cutter w/Spring Return	22-30 0.25-0.65 mm	Scissors	6
IE-181	No lock or spring (not shown)	10-20 Stranded 0.8-2.6 mm	Scissors	6
IE-182	Stripper/Cutter w/Spring Return and Lock	10-20 Stranded 0.8-2.6 mm	Scissors	6

Meets ASME B107.37-2003 specifications for Type II, Class 1 Wire Cutter/Stripper

UPFRONT STRIPPERS/CUTTERS

"V" STRIPPERS

- Strips and cuts solid and stranded wire.
- Adjustable stripping station.
- Scissors-action cutter.
- Holes in jaw for looping wire.
- Cushion grips.
- Available with lock and return spring.

IE-117

IE-115

IE-116

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	NOM. LENGTH (in.)
IE-115	Economy "V" Stripper • Track adjustment for setting strip size	10-20	Scissors	5
IE-116	Standard "V" Stripper • Track adjustment for setting strip size • Automatic Return Spring • Slide Lock	10-20	Scissors	5
IE-117	Professional "V" Stripper • Dial adjustor for setting strip size • Automatic Return Spring • Rocker-type Lock	10-20	Scissors	5

Meets ASME B107.37-2003 specifications for Type II, Class 4 Wire Cutter/Stripper

MINI ELECTRICAL PLIERS

MINI CUTTER, STRIPPER & CRIMPER FOR WORKING IN TIGHT SPACES

IE-163 MINI CUTTER. Hardened, precision-ground cutter for stranded and solid copper or aluminum wire. Ergonomic handles reduce operator fatigue. Sealed air-pocket cushion grips for maximum comfort.

IE-164 MINI STRIPPER. Up-front, precision-ground stripping stations produce clean, exacting results in tight spaces. Strips 8-18 AWG solid and 10-22 AWG stranded wire. Ergonomic handles with sealed air-pocket cushion grips for maximum comfort.

IE-165 MINI CRIMPER. Up-front precision-formed crimp pockets are guaranteed to be free of any sharp edges or burrs which could jeopardize a quality installation. Crimps insulated and non-insulated 10-22 AWG. Ergonomic handles with sealed air-pocket cushion grips provide maximum comfort and reduce operator fatigue.

IE-162 3-PC KIT. Mini cutter, stripper and crimper in handy, reusable vinyl pouch. Everything you need for easy and stable cutting, stripping and crimping in tight places.

IE-164

IE-163

IE-164

IE-165

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CRIMPER (AWG)	CUTTER TYPE	NOM. LENGTH (in.)
IE-162	3 Pc. Kit-1 Each in Pouch	8-18 Solid 10-22 Stranded	10-22	Scissors	
IE-163	Mini Cutter			Scissors	5-1/2
IE-164	Mini Stripper	8-18 Solid 10-22 Stranded			5-1/2
IE-165	Mini Crimper		10-22		5-1/2

IE-162

UPFRONT STRIPPERS-COMBINATION TOOLS

- Serrated pliers nose for pulling and looping wire.
- (6) up-front, precision-ground stripping stations for solid and stranded wire.
- Wire cutter.
- (6) bolt/screw sizing and cutting stations.
- Wire terminal and 7-8 mm automotive ignition crimp stations.
- Highly visible, easy-to-read graphics.
- Cushion grips.
- Available in AWG, metric or combination AWG/metric models.

IE-110

5-IN-1 COMBINATION TOOL

IE-110 • Strips: 22/20/18/16/14/12/10 AWG.
- Crimps insulated and non-insulated: 22-18, 16-10 AWG; non-insulated: Auto 7 & 8 mm.
- Bolt cutter: 4-40/5-40/6-32/8-32/10-32/10-24.
- Wire sizes, etc., are embossed in metal and paint-filled.
- Air-pocket cushion grips.

IE-112

IE-114

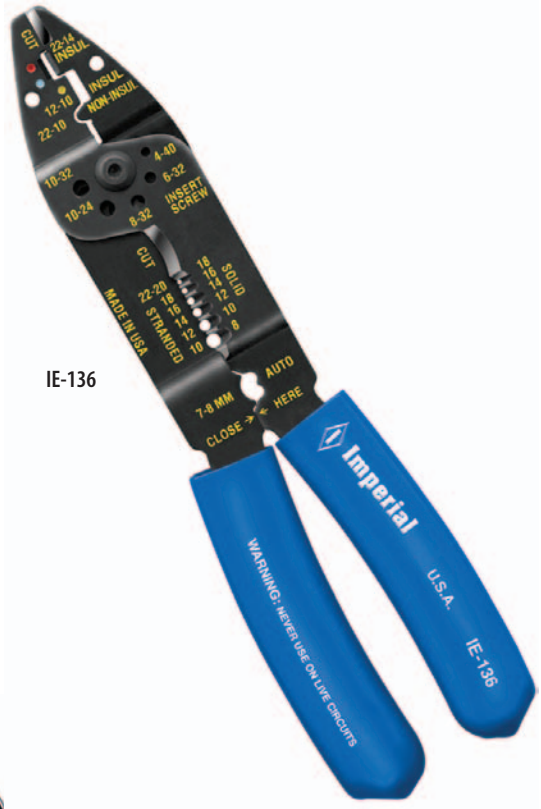
Meets ASME B107. 37-2003 specifications for Type II, Class 2 Wire Cutter/Stripper.

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	CRIMPS INSULATED (AWG)	CRIMPS NON - INSULATED (AWG)	BOLT CUTTER	NOM. LENGTH (in.)
IE-110	Super 5-in-1 Combination	10-22	Curved-long	10-22 7-8 mm Auto	10-22	4-40/5-40/6-32 8-32/10-32/10-24	8-1/4
IE-112	Combination Metric/AWG	10-20, 0.8-2.6 mm	Straight	10-22	10-22 7- 8 mm Auto	6-32/8-32/10-32 3.4/4.0/5.0 mm	9-1/2
IE-114	Metric	0.75-6.0 mm, 10-22	Straight	1.5-6.0 mm 10-22	1.5-6 0 mm, 10-22 7-8 mm Auto	2.6/3.0/3.5/4.0/ 4.5/5.0 mm	8-1/4

UPFRONT CUTTERS/ CRIMPERS

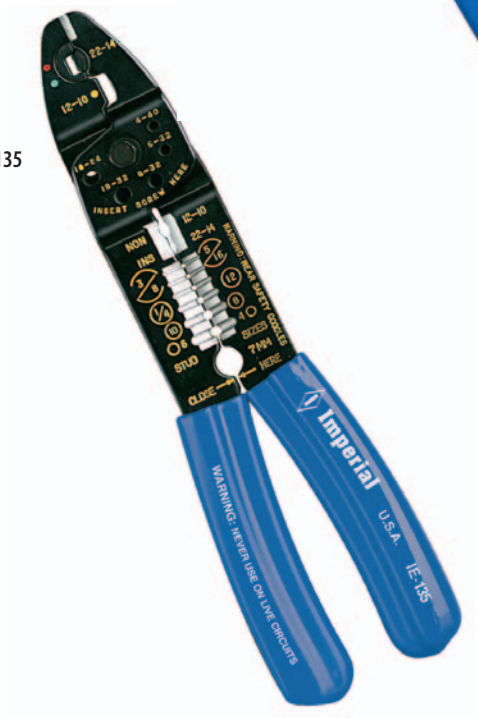
UPFRONT CUTTER/CRIMPER/STRIPPER

IE-136 • Curved cutter reduces force required to cut; longer blade length capable of cutting Romex® in a single stroke.
- Wire looping holes in jaw.
- Screw cutter/sizing holes are moved closer to the pivot for more leverage, making it easier to shear screws.
- Strips: 10-22 AWG.
- Crimps: insulated 10-22 AWG, 7-8 mm Auto.
- Crimps: non-insulated 10-22 AWG, 7-8 mm Auto.
- Bolt cutter: 4-40/6-32/8-32/10-32/10-24.
- Anvil-type wire cutter at nose of pliers.



IE-136

IE-135 • Anvil-type wire cutter at nose of pliers.
- Insulated and non-insulated crimp stations.
- Bolt/screw sizing and cutting stations.
- Precision-ground stripping stations.
- Highly visible, easy-to-read graphics.
- Cushion grips.



IE-135

Meets ASME B107. 37-2003 specifications for Type II, Class 3 Wire Cutter/Stripper.

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	CRIMPS INSULATED (AWG)	CRIMPS NON - INSULATED (AWG)	BOLT CUTTER	NOM. LENGTH (in.)
IE-135	Crimper/Cutter with 6 Crimp Stations	10-22	Anvil	10-22	10-22, 7-8 mm Auto	4-40/6-32/8-32/ 10-32/10-24	8-3/4
IE-136	Upfront Cutter/ Crimper Stripper	8-18 Solid 10-22 Stranded	Anvil Curved-long	10-22	10-22, 7-8 mm Auto	4-40/6-32/8-32/ 10-32/10-24	8-1/2

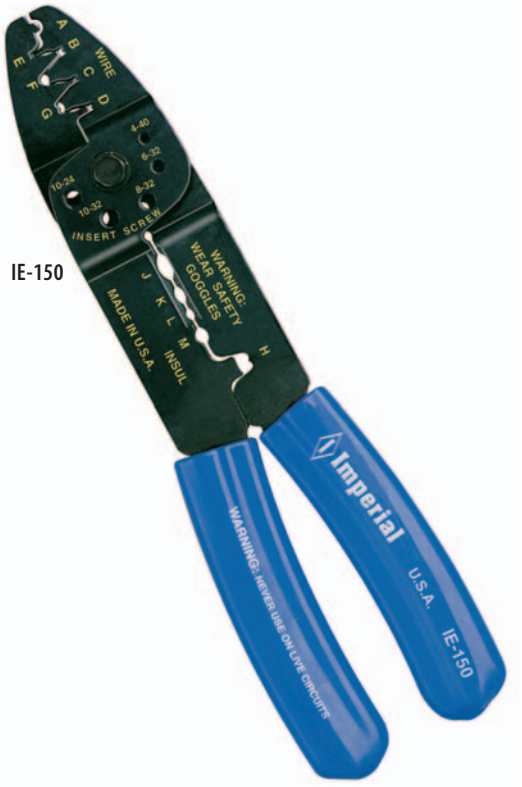
UPFRONT CRIMPERS

AUTOMOTIVE SPECIALTY TOOLS

(IE-145, IE-150, IE-187)

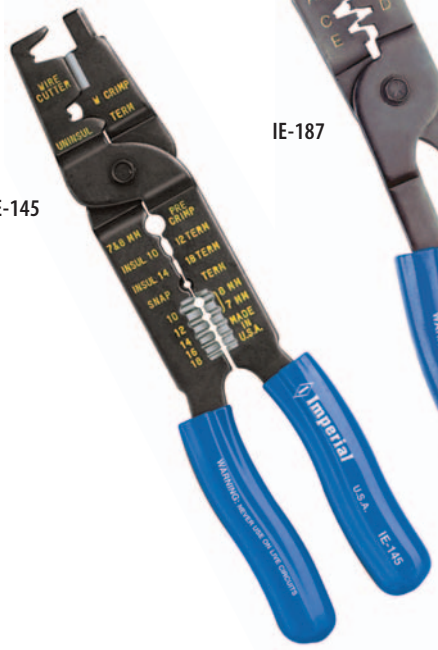
- Insulated and non-insulated crimp stations including Weatherpack Terminals (IE-150, IE-187).
- Anvil-type cutter (IE-145).
- Precision-ground stripping stations (IE-145).
- Bolt/screw sizing and cutting stations (IE-150).
- Highly visible, easy-to-read graphics.
- Cushion grips.

IE-150

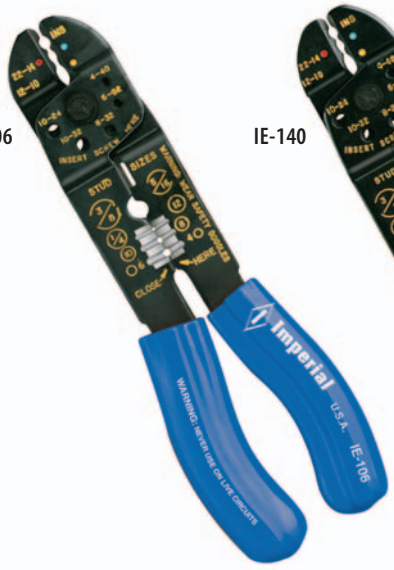


IE-187

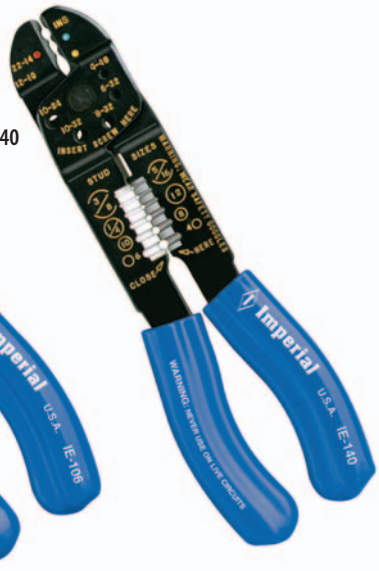
IE-145



IE-106



IE-140



MULTI-PURPOSE TOOLS

(IE-106, IE-140)

- Insulated and non-insulated crimp stations.
- Bolt/screw sizing and cutting stations.
- Anvil-type cutter.
- Precision-ground stripping stations.
- Highly visible, easy-to-read graphics.
- Cushion grips.

Meets ASME B107. 37-2003 specifications for Type II, Class 3 Wire Cutter/Stripper.

CATALOG NUMBER	DESCRIPTION	STRIPPER SIZE (AWG)	CUTTER TYPE	CRIMPS INSULATED (AWG)	CRIMPS NON-INSULATED (AWG)	BOLT CUTTER	NOM. LENGTH (in.)
IE-106	Crimper/Cutter, 7-8 mm 3 Strip Stations	12-16	Anvil	10-22	7-8 mm Auto	4-40/6-32/8-32/ 10-32/10-24	7- 3/4
IE-140	Crimper/Cutter, 6 Strip Stations NSN 5120-00-278-2423	10-22	Anvil	10-22		4-40/6-32/8-32/ 10-32/10-24	7-3/4
IE-145	Ignition Crimping Tool	10-18	Anvil	10-18	7-8 mm Auto, "W" & "F" crimp terminals		9-3/4
IE-150	Open & Closed Barrel Flag Terminal Crimper			Open barrel Closed barrel 10-22 AWG	Open barrel Closed barrel Flag terminals	4-40/6-32/8-32 10-32/10-24	8-1/2
IE-187	5-Station Micro Terminal Crimper				Open barrel & Weatherpack Terminals 14-24 AWG		8

QUICK REFERENCE GUIDE

ITEM#	DESCRIPTION	STRIPS (AWG)	CRIMPS		BOLT CUTTER	CUTTER	LOCK	SPRING RETURN	WIRE LOOPING	MILBAR (REF#)
			INSULATED (AWG)	NON-INSULATED (AWG)						
IE-106	Upfront Crimper/Cutter, 7-8 mm, 3 Strip Stations	12-16	10-22	7-8 mm Auto	(b)	●				19E
IE-110	Upfront Stripper/Cutter/Crimper, 5-in-1 Combo	10-22	10-22	10-22 7-8 mm Auto	(c)	●			●	46E
IE-112	Combination AWG/Metric Tool	10-20 0.8-2.6 mm	10-22	10-22 7-8 mm Auto	(d)	●				2E
IE-114	Upfront Stripper/Cutter/Crimper, Metric	0.75-6.0 mm 10-22	1.5-6.0 mm 10-22	1.5-6.0 mm 10-22 7-8 mm Auto	(e)	●				21E
IE-115	"V" Stripper, with Slide Adjuster	10-20 Adjustable				●			●	100E
IE-116	"V" Stripper; Slide Adjuster, Slide Lock, Spring	10-20 Adjustable				●	●	●	●	101E
IE-117	"V" Stripper; Dial Adjuster, Rocker Lock, Spring	10-20 Adjustable				●	●	●	●	103E
IE-120	HD Stripper/Cutter	10-20 0.8-2.6 mm				●	●	●	●	31E
IE-121	Romex®, 14-2	14-2 NM-B 14 AWG				●	●	●	●	57E
IE-122	Stripper/Cutter, Standard Duty	8-16 Stranded 1.3-3.3 mm				●		●	●	3E
IE-123	Romex®, Dual	12-2, 14-2 NM-B 12-14 AWG			(a)	●	●	●	●	77E
IE-124	Romex®, 10-2	10-2 NM-B 10 AWG			(a)	●	●	●	●	75E
IE-125	HD Stripper/Cutter	16-26 Stranded 0.4-1.3 mm				●	●	●	●	32E
IE-126	Romex®, 12-2	12-2 NM-B 12 AWG				●	●	●	●	58E
IE-127	Romex®, Dual	10-2, 12-2 NM-B 10-12 AWG			(a)	●	●	●	●	78E
IE-130	HD Stripper/Cutter	22-30 0.25-0.65 mm				●	●	●	●	33E
IE-132	Heavy Duty Cutter					●	●	●	●	37E
IE-135	Upfront Crimper/Cutter, 6 Strip Stations	10-22	10-22	10-22 7-8 mm Auto	(b)	●				18E
IE-136	Upfront Crimper/Cutter/Stripper	8-18 Solid 10-22 Stranded	10-22	10-22 7-8 mm Auto	(b)	●			●	52E
IE-140	Upfront Crimper/Cutter, NSN 5120-00-278-2423	10-22	10-22		(b)	●				22E
IE-145	Ignition Crimping Tool	10-18	10-18	7-8 mm Auto "W," "F" terminals			●			23E
IE-150	Open & Closed Barrel Crimper		Open barrel Closed barrel 10-22	Open barrel Closed barrel Flag terminals	(b)					25E
IE-152	4-in-1 Multi-Purpose Electrical/Datacom Cutter				(a)	●	●	●	●	71E
IE-153	Coax Cable Tool	RG6, RG59	RG6, RG59			●				70E
IE-154	Fiber Optic Stripper	250µ (buffer) 1 mm (jacket)								49E
IE-155	Super Stripper, Ergonomic Handles	10-18 Solid 12-20 Stranded			(a)	●	●	●	●	56EB
IE-156	Super Stripper	10-18 Solid 12-20 Stranded			(a)	●	●	●	●	56E
IE-159	Super Stripper, Ergonomic Handles	20-30 Solid 22-32 Stranded			(a)	●	●	●	●	66EB
IE-160	Super Stripper	20-30 Solid 22-32 Stranded			(a)	●	●	●	●	66E
IE-162	3-Piece Mini Electrical Tools Kit, in Pouch	8-18 Solid 10-22 Stranded	10-22	10-22		●				700E
IE-163	Mini Cutter					●				701E
IE-164	Mini Stripper	8-18 Solid 10-22 Stranded								702E
IE-165	Mini Crimper		10-22	10-22						703E
IE-177	Stripper/Cutter, Standard Duty	10-20 0.8-2.6 mm				●		●	●	5E
IE-178	Stripper/Cutter, Standard Duty	16-26 Stranded 0.4-1.3 mm				●		●	●	6E
IE-180	Stripper/Cutter, Standard Duty	22-30 0.25-0.65 mm				●		●	●	7E
IE-181	Stripper/Cutter, Standard Duty, No Lock or Spring	10-20 Stranded 0.8-2.6 mm				●			●	8E
IE-182	Stripper/Cutter, Standard Duty w/ Lock and Spring	10-20 Stranded 0.8-2.6 mm				●	●	●	●	15E
IE-187	5 Station Micro Terminal Crimper			Open barrel Weatherpack 14-24						91E
IE-188	CAT 5e Crimper	Flat Cord Twisted Cord	RJ-45 RJ-11			●				26E
IFO-1200	Duplex Cable Jacket Stripper	3mm, 2mm, 1.6mm (jacket)						●		1200E
IFO-1212	12-Fiber Ribbon Jacket Stripper	12 Fiber (jacket)						●		1212E
IFO-1300	Jacket & Buffer Stripper	3mm (jacket) 900µ,250µ (buffer)						●		1300E
IFO-1500	Duplex Zipcord Buffer Stripper	250µ,900µ (buffer)						●		1500E
IFO-1520	OSP Buffer Stripper	250µ,900µ (buffer)						●		1520E

BOLT CUTTER:

(a) 6-32/8-32
(b) 4-40/6-32/8-32/10-32/ 10-24
(c) 4-40/5-40/6-32/8-32/10-32/10-24
(d) 6-32/8-32/10-32/3.4 mm/4.0 mm/ 5.0 mm
(e) 2.6 mm/3.0 mm/3.5 mm/4.0 mm/4.5 mm/5.0 mm

UNIVERSAL CONVERTIBLE RETAINING RING PLIERS

EASY TO CONVERT FROM INTERNAL TO EXTERNAL RINGS – SIMPLY MOVE LEVERS TO SWITCH. NO PINS TO PUSH!

- Hex-shaped locking guides firmly hold tips.
- Tough steel construction for durability and strength.
- Ergonomic anti-slip sealed air-pocket grips for comfort.
- Spring loaded to speed the work.
- Black oxide finish resists rust and corrosion.

IR-94

IR-92

IR-92 FOR UP TO 2.0" DIA. RINGS

Includes five pairs of color-coded precision-ground tips and hex key wrench in convenient storage pouch:

(2) 0.038 in. Yellow Tips
(2) 0.038 in. Yellow 90˚ Tips
(2) 0.047 in. Green Tips
(2) 0.047 in. Green 90˚ Tips
(2) 0.070 in. Copper Tips

IR-92TP REPLACEMENT TIP KIT

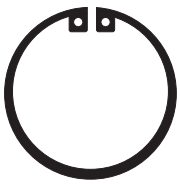
IR-94 FOR UP TO 1.0" DIA. RINGS

Includes five pairs of color-coded precision-ground tips and hex key wrench in convenient storage pouch:

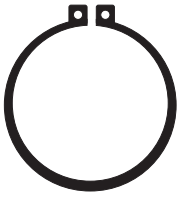
(2) 0.024 in. Red Tips
(2) 0.038 in. Yellow Tips
(2) 0.038 in. Yellow 90˚ Tips
(2) 0.047 in. Green Tips
(2) 0.047 in. Green 90˚ Tips

IR-94TP REPLACEMENT TIP KIT

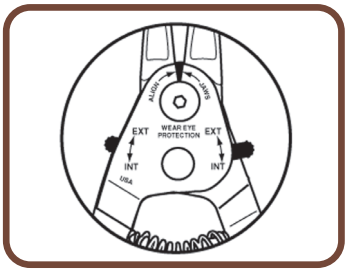
All retaining ring pliers meet ASME B107.19 specifications.



Internal (Housing)
3/8 in. – 2 in. (10 mm – 48 mm)



External (Shaft)
1/4 in. – 2 in. (7 mm – 48 mm)



Simple to Use

1. Determine the largest size of tip that will fit the retaining ring holes. Insert tips into pliers and tighten set screws with included 3/16 in. hex key wrench.
2. Convert pliers to internal or external position by gently squeezing grips and aligning edge of jaws with mark on pliers. Push both levers to desired setting. See diagram.
3. Use a punch or similar tool to break any bond created from rust or dirt that has accumulated in the retaining ring groove.
4. Push the tip of the pliers as far as possible into the retaining ring holes before squeezing the handles.
5. Use only as much pressure as needed to remove or install the retaining ring.

CAM-LOCK™ CONVERTIBLES

FIXED TIP CONVERTIBLE PLIERS FOR 1/4" TO 2" RINGS

- Patented design allows for quick changeover from internal to external uses.
- No screws to tighten or come loose.
- For 1/4" to 2" internal and external rings.
- 18˚ and 90˚ offsets; 0.038", 0.047" and 0.070" tip diameters.
- Sealed air-pocket cushion grips.
- 4- and 6-piece kits available.

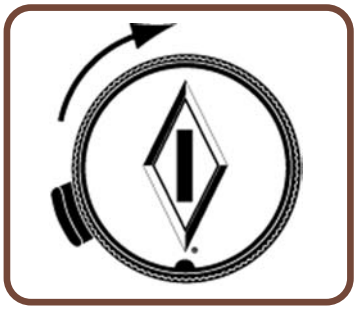
CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
				Int. (Housing)	Ext. (Shaft)	
IR-3818C	Cam-Lock Convertible	.038	18˚	●	●	6
IR-3890C	Cam-Lock Convertible	.038	90˚	●	●	6
IR-4718C	Cam-Lock Convertible	.047	18˚	●	●	6
IR-4790C	Cam-Lock Convertible	.047	90˚	●	●	6
IR-7018C	Cam-Lock Convertible	.070	18˚	●	●	7-1/4
IR-7090C	Cam-Lock Convertible	.070	90˚	●	●	7-1/4
IR-4CK	4-pc. Kit: (.038, .070 tips) w/ storage tray					
IR-6CK	6-pc. Kit: (one of each) w/storage case					
IR-6CKCASE	Replacement case for IR-6CK					

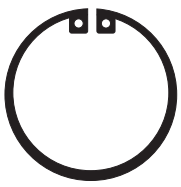
IR-7018C

CONVERT FROM EXTERNAL TO INTERNAL

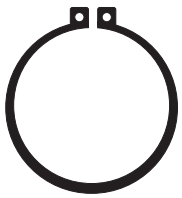
TAKES ABOUT 1 SECOND!

1. Compress handles slightly.
2. Depress shift button.
3. Turn knob.





Internal (Housing)
3/8 in. – 2 in. (10 mm – 50 mm)



External (Shaft)
1/4 in. – 2 in. (6.5 mm – 50 mm)

IR-6CK

IR-4CK

QTR-TURN™ CONVERTIBLES

FIXED TIP CONVERTIBLE PLIERS FOR 1/4" TO 3-1/2" RINGS

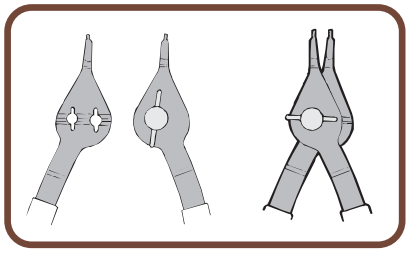
- Quickly and easily converts from internal (rings in a housing or bore) to external applications (rings on a shaft).
- Pivot will not loosen while using tool.
- Unique patented design provides stability.
- Low profile "T-Knob" for working in tight spaces.
- Available in 12 sizes: 4 tip diameters with straight, 45˚ or 90˚ offsets.
- Sealed air-pocket cushion grips for comfort.
- Professional 6-piece and 12-piece kits available.

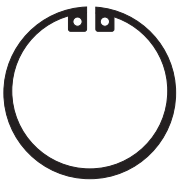
IR-47Q

CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
				Int. (Housing)	Ext. (Shaft)	
IR-38Q	Qtr-Turn Convertible	.038	0˚	●	●	6
IR-3845Q	Qtr-Turn Convertible	.038	45˚	●	●	6
IR-3890Q	Qtr-Turn Convertible	.038	90˚	●	●	6
IR-47Q	Qtr-Turn Convertible	.047	0˚	●	●	6
IR-4745Q	Qtr-Turn Convertible	.047	45˚	●	●	6
IR-4790Q	Qtr-Turn Convertible	.047	90˚	●	●	6
IR-70Q	Qtr-Turn Convertible	.070	0˚	●	●	7-1/4
IR-7045Q	Qtr-Turn Convertible	.070	45˚	●	●	7-1/4
IR-7090Q	Qtr-Turn Convertible	.070	90˚	●	●	7-1/4
IR-90Q	Qtr-Turn Convertible	.090	0˚	●	●	9-1/4
IR-9045Q	Qtr-Turn Convertible	.090	45˚	●	●	9-1/4
IR-9090Q	Qtr-Turn Convertible	.090	90˚	●	●	9-1/4

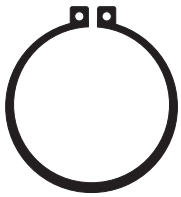
Simple to Use

Convert pliers to internal or external position by rotating "T" knob one-quarter turn; pull handle halves apart and reinstall in other hole. Rotate another quarter turn to lock. (See diagram.)





Internal (Housing)
3/8 in. - 3 in. (10 mm - 76 mm)



External (Shaft)
1/4 in. - 3-1/2 in. (6.5 mm - 89 mm)

INTERNAL

EXTERNAL

QTR-TURN™ KITS

IR-6QK PROFESSIONAL 6-PIECE KIT FOR 1/4" TO 2" RINGS

- 0.038", 0.047" and 0.070" tip diameters.
- 0˚ and 90˚ offsets.
- Custom-molded impact-resistant storage case.
- Kit weight 2.25 lbs.

IR-6QK

IR-12QK PROFESSIONAL 12-PIECE KIT FOR 1/4" TO 3-1/2" RINGS

- 0.038", 0.047", 0.070" and 0.090" tip diameters.
- 0˚, 45˚ and 90˚ offsets.
- Custom-molded impact-resistant case has storage space for spare rings.
- Kit weight 5 lbs.

REPLACEMENT KIT CASES:

IR-6QKCASE Replacement case for IR-6QK.

IR-12QKCASE Replacement case for IR-12QK.

All retaining ring pliers meet ASME B107.19 specifications.

IR-12QK

STANDARD CONVERTIBLES

FIXED TIP CONVERTIBLE PLIERS FOR 1/4" TO 3-1/2" RINGS

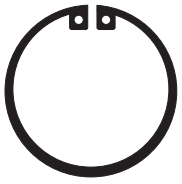
- Simply move screw to other hole and finger-tighten to convert from internal to external (or reverse).
- Available in straight, 45˚ and 90˚ offsets.
- 0.038" to 0.090" tip diameters.
- Cushion grip handles.
- 6- and 12-piece kits available.

EXTERNAL

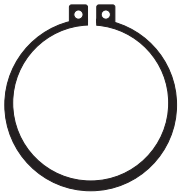
INTERNAL

To convert pliers to internal or external position, remove thumbscrew. Pull handle halves apart and reposition screw in other hole; then finger tighten.

IR-47



Internal (Housing)
3/8 in. – 3 in. (10 mm – 76 mm)



External (Shaft)
1/4 in. – 3-1/2 in. (6.5 mm – 89 mm)

CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
				Int. (Housing)	Ext. (Shaft)	
IR-38	Standard Convertible (NSN 5120-00-089-0874)	.038	0˚	●	●	6
IR-3845	Standard Convertible (NSN 5120-00-930-9186)	.038	45˚	●	●	6
IR-3890	Standard Convertible	.038	90˚	●	●	6
IR-47	Standard Convertible	.047	0˚	●	●	6
IR-4745	Standard Convertible	.047	45˚	●	●	6
IR-4790	Standard Convertible	.047	90˚	●	●	6
IR-70	Standard Convertible	.070	0˚	●	●	7-1/4
IR-7045	Standard Convertible	.070	45˚	●	●	7-1/4
IR-7090	Standard Convertible	.070	90˚	●	●	7-1/4
IR-90	Standard Convertible	.090	0˚	●	●	9-1/4
IR-9045	Standard Convertible	.090	45˚	●	●	9-1/4
IR-9090	Standard Convertible	.090	90˚	●	●	9-1/4

STANDARD CONVERTIBLE KITS

IR-12K PROFESSIONAL 12-PC. KIT FOR 1/4" TO 3-1/2" RINGS

- 0˚, 45˚ and 90˚ tip angles.
- 0.038", 0.047", 0.070" and 0.090" tip diameters.
- Impact-resistant case has storage space for spare rings.
- Kit weight 5 lbs.

IR-12K

6-PC. KITS FOR 1/4" TO 2" RINGS

- 0˚ and 45˚ or 0˚ and 90˚ offsets.
- 0.038", 0.047" and 0.070" tip diameters.
- Impact-resistant case.
- Kit weight 2.25 lbs.

IR-045K 6-pc. kit, 0˚ and 45˚ tip angles.

IR-090K 6-pc. kit, 0˚ and 90˚ tip angles.

IR-090K

REPLACEMENT KIT CASES:

IR-12KCASE Replacement Case for IR-12K

IR-6KCASE Replacement Case for IR-090K and IR-045K

2-PC. MERCHANDISING KITS FOR 3/8" TO 2" RINGS

- Straight, 45˚ or 90˚ 2-pc. kits in popular tip sizes.
- Hang card with instructions and ring specs.
- Clear plastic storage case.

IR-47700K Contains IR-47 (0.047", straight) and IR-70 (0.070", straight)

IR-477045K Contains IR-4745 (0.047", 45˚) and IR-7045 (0.070", 45˚)

IR-477090K Contains IR-4790 (0.047", 90˚) and IR-7090 (0.070", 90˚)

IR-47700K

INDUSTRIAL AND UTILITY PLIERS

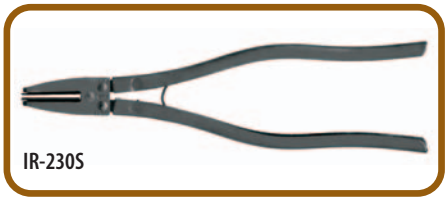
INDUSTRIAL FIXED TIP PLIERS WITH SPRING, STOP & GRIPS* FOR 1/8" TO 3-1/2" RINGS

Internal pliers – for rings in a housing or bore.

External pliers – for rings on a shaft.

Spring and Stop eliminates over-expansion of external rings; speeds assembly and removal of internal rings

IR-380S



IR-230S

• 0.023" tip diameter Mini Pliers feature spring return and shield to prevent over-expansion of delicate 1/8" – 15/64" rings.

INDUSTRIAL

CATALOG NUMBER	NSN 5120-	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
				Int. (Housing)	Ext. (Shaft)	
Mini Pliers:						
IR-230S**	595-9550	.023	0°		●	5-1/4
IR-0015R**	595-9548	.023	0°		●	5-1/4
IR-0018R**	288-9711	.023	0°		●	5-1/4
IR-2124R	892-4890	.023	45°		●	5-1/4
IR-2154R		.023	45°		●	5-1/4
IR-2184R	024-9527	.023	45°		●	5-1/4
IR-2129R		.023	90°		●	5-1/4
IR-2159R		.023	90°		●	5-1/4
IR-2189R	024-9528	.023	90°		●	5-1/4
IR-250H	596-8665	.025	0°	●		5-1/2
IR-2545H		.025	45°	●		5-1/2
IR-2590H	024-9531	.025	90°	●		5-1/2
IR-380H	293-0048	.038	0°	●		5-1/2
IR-3845H		.038	45°	●		5-1/2
IR-3890H		.038	90°	●		5-1/2
IR-380S	288-9717	.038	0°		●	6-1/4
IR-3845S	288-9716	.038	45°		●	6-1/4
IR-3890S	408-1434	.038	90°		●	6-1/4
IR-470H		.047	0°	●		5-1/2
IR-4745H		.047	45°	●		5-1/2
IR-4790H		.047	90°	●		5-1/2
IR-470S		.047	0°		●	5-3/4
IR-4745S		.047	45°		●	5-3/4
IR-4790S		.047	90°		●	5-3/4
IR-700H	293-0045	.070	0°	●		6-1/2
IR-7045H	801-0957	.070	45°	●		6-1/2
IR-7090H	595-9532	.070	90°	●		6-1/2
IR-700S	293-0049	.070	0°		●	7
IR-7045S	640-6352	.070	45°		●	7
IR-7090S	024-9529	.070	90°		●	7
IR-900H	293-0046	.090	0°	●		9
IR-9045H	520-9863	.090	45°	●		9
IR-9090H	602-4845	.090	90°	●		9
IR-1150S	293-0047	.115	0°		●	9-1/4
IR-11545S		.115	45°		●	9-1/4
IR-11590S	892-5919	.115	90°		●	9-1/4

UTILITY FIXED TIP PLIERS WITHOUT SPRING, STOP AND GRIPS FOR 1/8" TO 3-1/2" RINGS

IR-380HU

UTILITY

CATALOG NUMBER	NSN 5120-	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
				Int. (Housing)	Ext. (Shaft)	
IR-250HU	596-1106	.025	0°	●		5-1/2
IR-2545HU	640-6357	.025	45°	●		5-1/2
IR-2590HU		.025	90°	●		5-1/2
IR-380HU	293-2514	.038	0°	●		5-1/2
IR-3845HU	640-6356	.038	45°	●		5-1/2
IR-3890HU		.038	90°	●		5-1/2
IR-380SU	292-2513	.038	0°		●	6-1/4
IR-3845SU	640-6353	.038	45°		●	6-1/4
IR-3890SU	752-9755	.038	90°		●	6-1/4
IR-470HU		.047	0°	●		5-1/2
IR 4745HU		.047	45°	●		5-1/2
IR-4790HU		.047	90°	●		5-1/2
IR-470SU		.047	0°		●	5-3/4
IR-4745SU		.047	45°		●	5-3/4
IR-4790SU		.047	90°		●	5-3/4
IR-700HU	596-0711	.070	0°	●		6-1/2
IR-7045HU	640-6355	.070	45°	●		6-1/2
IR-7090HU		.070	90°	●		6-1/2
IR-700SU	595-9555	.070	0°		●	7
IR-7045SU	640-6352	.070	45°		●	7
IR-7090SU		.070	90°		●	7
IR-90HU	595-0554	.090	0°	●		9
IR-9045HU	640-6354	.090	45°	●		9
IR-9090HU	793-5052	.090	90°	●		9
IR-1150SU	293-0044	.115	0°		●	9-1/4
IR-11545SU		.115	45°		●	9-1/4
IR-11590SU	082-8359	.115	90°		●	9-1/4

*Minis do not have a stop and grips. Models IR-1150S, IR-11545S and IR-11590S are furnished with spring and grip, but no stop.
**Shielded

REPLACEABLE TIP PLIERS

REPLACEABLE TIP PLIERS WITH SPRINGS AND GRIPS FOR 3/8" TO 2" RINGS

- One tool handles different size rings by changing tips.
- Spring return.
- Cushion grips.
- Kits feature internal and external pliers with 8 pairs of tips – 2 tools take the place of 16 different pliers!
- Precision-ground replaceable tips also available separately in 0˚, 45˚ and 90˚ offsets and 5 different tip diameters.

IR-44K

For replacement tips and tip kits see page 72

CATALOG NUMBER	DESCRIPTION	TYPE	
		Int. (Housing)	Ext. (Shaft)
IR-44K	Kit includes (1) Internal Pliers, (1) External Pliers & IR-8TK Tip Kit (8 pairs) in reusable plastic storage case	●	●
IR-44H	Internal Pliers & IR-182TK Tip Kit (4 pairs)	●	
IR-44S	External Pliers & IR-182TK Tip Kit (4 pairs)		●

IR-44H

IR-44MK HANG CARD KIT – USA AND METRIC

- Two replaceable tip pliers (internal and external) with standard and metric size tip kit IR-184TK (8 pairs).
- Hang card with instructions and ring specs.
- Reusable plastic storage case.

IR-44MK

HEAVY DUTY REPLACEABLE TIP PLIERS

THE PROFESSIONAL'S CHOICE FOR INTERMEDIATE SIZE 1–1/2" TO 4" RINGS

IR-50K HEAVY DUTY PLIERS SET

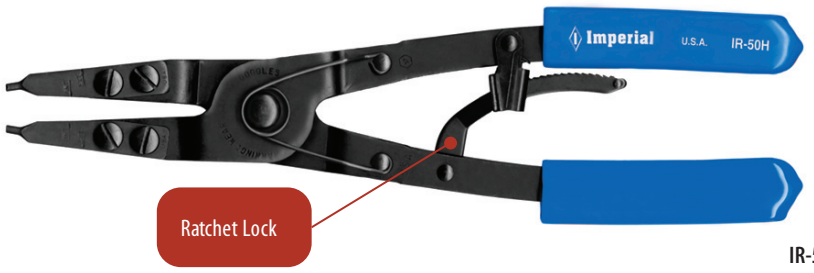
- Two replaceable tip pliers (internal and external) with 8 pairs of tips take the place of 16 separate pliers!
- Spring ratchet lock mechanism minimizes fatigue by allowing the ring to be compressed or expanded through gradual moves and then locked at a desired size without continued pressure on the handles. Heavy and large rings are safely and easily controlled.
- Tips mount directly to pliers for maximum stability.
- Spring return.
- Cushion grips.

For replacement tips and tip kits see page 72

CATALOG NUMBER	DESCRIPTION
IR-50K	Kit includes (1) heavy duty internal pliers, (1) heavy duty external pliers and (8) pair tips in custom-molded storage case.
IR-50H	Internal pliers only – without tips
IR-50S	External pliers only – without tips

All retaining ring pliers meet ASME B107.19 specifications.

IR-50K



IR-50H

1. Loosen ring first with punch or similar tool to remove bond from rust and accumulated dirt.
2. Use largest tip pliers that will fit in holes of ring.
3. Push tips as far into ring holes as possible before squeezing handles.
4. Use minimal pressure needed to remove or install ring.
5. Never use your pliers for anything other than installing and removing retaining rings.

LARGE & EXTRA-LARGE RATCHETING PLIERS

FOR SAFE & EASY CONTROL OF 3" TO 10" RINGS

- Ratchet Lock mechanism for safe and easy control of large, heavy rings.
- Spring return.
- 0˚, 45˚ and 90˚ offsets in .120", .150" and .170" tip diameters.
- Precision-ground tips mount directly to pliers for maximum stability.

LARGE PLIERS

CATALOG NUMBER	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
			Int. (Housing)	Ext. (Shaft)	
IR-120H	.120	0˚	●		16
IR-12045H	.120	45˚	●		16
IR-12090H	.120	90˚	●		16
IR-120S	.120	0˚		●	16
IR-12045S	.120	45˚		●	16
IR-12090S	.120	90˚		●	16

For replaceable tips see page 72

EXTRA-LARGE PLIERS

CATALOG NUMBER	TIP DIA. (in.)	TIP ANGLE	TYPE		NOM. LENGTH (in.)
			Int. (Housing)	Ext. (Shaft)	
IR-150H	.150	0˚	●		29
IR-15045H	.150	45˚	●		29
IR-15090H	.150	90˚	●		29
IR-170S	.170	0˚		●	19
IR-17045S	.170	45˚		●	19
IR-17090S	.170	90˚		●	19

For replaceable tips see page 72

IR-120H

IR-120S

IR-150H

IR-170S

LOCK RING PLIERS

FIXED TIP AND REPLACEABLE TIP PLIERS FOR EXTERNAL RINGS WITHOUT PICKUP HOLES

- For industrial and power transmission lock ring applications.
- Spring return for ease of operation.
- Cushion grips.

FIXED TIP LOCK RING PLIERS

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
IR-15R	Small, Auto Transmission	7-1/2
IR-47R	Standard (NSN 5120-00-595-9551)	8-1/2
IR-48R	Thin Nose	8-1/2
IR-601R	Auto Transmission	9-1/2
IR-602R	Heavy Duty	8-1/2

REPLACEABLE TIP LOCK RING PLIERS

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
IR-LRRL	External Pliers with IR-47R style tips, ratchet lock & spring return	10-1/2
IR-LRS	External Pliers with IR-47R style tips & spring return	14
IR-LHS	Horseshoe style tips (1 pair) for above pliers	

IR-48R

IR-601R

IR-602R

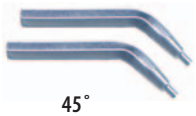
IR-LRRL

IR-LRS

REPLACEABLE TIPS & TIP KITS

- Imperial's proprietary manufacturing process results in a proven method of creating strong, long-lasting replaceable tips for its pliers.
- Precision-ground and hardened.
- Color-coded by size.
- Kits of common sizes are available.

Straight 0˚



45˚

90˚

IR-50H INTERNAL

IR-50S EXTERNAL

REPLACEABLE TIPS FOR IR-44H AND IR-44S

CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	COLOR	TIP ANGLE
IR-380T	1 Pair	.038	Black	0˚
IR-3815T	1 Pair	.038	Black	15˚
IR-3845T	1 Pair	.038	Black	45˚
IR-3890T	1 Pair	.038	Black	90˚
IR-470T	1 Pair	.047	Silver	0˚
IR-4715T	1 Pair	.047	Silver	15˚
IR-4745T	1 Pair	.047	Silver	45˚
IR-4790T	1 Pair	.047	Silver	90˚
IR-700T	1 Pair	.070	Gold	0˚
IR-7015T	1 Pair	.070	Gold	15˚
IR-930T	1 Pair	.093	Green	0˚
IR-8TK	Tip Kit, 8 Pair 1 pair each: .038" 0˚, 45˚, 90˚; .047" 0˚, 45˚, 90˚; .070" 0˚, 15˚			
IR-184TK	Tip Kit, 8 Pair Standard/Metric 1 pair each: .038" 0˚, 15˚, 45˚; .047" 0˚, 15˚, 90˚; .070" 15˚; .093" 0˚			
IR-182TK	Tip Kit, 4 Pair 1 pair each: .038" 90˚; .047" 0˚, 45˚; .070" 0˚			
IR-183TK	Tip Kit, 8 Pair 2 pairs each: .038" 90˚; .047" 0˚, 45˚; .070" 0˚			

REPLACEABLE TIPS FOR IR-50H AND IR-50S

(Both pliers use same tip)

CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	COLOR	TIP ANGLE
IR-593T	1 Pair	.093	Gold	0˚
IR-9315T	1 Pair	.093	Gold	15˚
IR-9345T	1 Pair	.093	Gold	45˚
IR-9390T	1 Pair	.093	Gold	90˚
IR-1080T	1 Pair	.108	Black	0˚
IR-10815T	1 Pair	.108	Black	15˚
IR-10845T	1 Pair	.108	Black	45˚
IR-10890T	1 Pair	.108	Black	90˚
IR-5120T	1 Pair	.120	Silver	0˚
IR-51215T	1 Pair	.120	Silver	15˚
IR-51245T	1 Pair	.120	Silver	45˚
IR-51290T	1 Pair	.120	Silver	90˚
IR-LHS	1 Pair Horseshoe Lock Ring			
IR-5108TK	Tip Kit, 4 Pair 1 pair each: .108" 0˚, 15˚, 45˚, 90˚			
IR-5120TK	Tip Kit, 4 Pair 1 pair each: .120" 0˚, 15˚, 45˚, 90˚			
IR-5004TK	Tip Kit, 4 Pair 1 pair each: .108" 15˚, 45˚; .120" 45˚, 90˚			

REPLACEABLE TIPS FOR IR-120H, IR-120S, IR-170S AND IR-150H

CATALOG NUMBER	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE
FOR MODEL IR-120H AND IR-120S PLIERS (both pliers use same tips)			
IR-120T	1 Pair	.120	0°
IR-124T	1 Pair	.120	45°
IR-129T	1 Pair	.120	90°
FOR MODEL IR-170S PLIERS			
IR-170T	1 Pair	.170	0°
IR-174T	1 Pair	.170	45°
IR-179T	1 Pair	.170	90°
FOR MODEL IR-150H PLIERS			
IR-150T	1 Pair	.150	0°
IR-154T	1 Pair	.150	45°
IR-159T	1 Pair	.150	90°

IR-120H INTERNAL

IR-120S EXTERNAL

IR-150H INTERNAL

IR-170S EXTERNAL

QUICK REFERENCE GUIDE

IMPERIAL ITEM#	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE	RING TYPE		TIP STYLE		GRIPS	SPRING	STOP	RATCHET LOCK	MILBAR (REF#)
				Int. (Housing)	Ext.(Shaft)	FIXED	REPLACE.					
	CONVERTIBLE PLIERS											
IR-3818C	CAM-LOCK™ Convertible	.038	18˚	●	●	●		●	●			120418R
IR-3890C	CAM-LOCK™ Convertible	.038	90˚	●	●	●		●	●			120490R
IR-4718C	CAM-LOCK™ Convertible	.047	18˚	●	●	●		●	●			320418R
IR-4790C	CAM-LOCK™ Convertible	.047	90˚	●	●	●		●	●			320490R
IR-7018C	CAM-LOCK™ Convertible	.070	18˚	●	●	●		●	●			340418R
IR-7090C	CAM-LOCK™ Convertible	.070	90˚	●	●	●		●	●			340490R
IR-4CK	4-pc. CAM-LOCK™ Kit w/Storage Tray	.038, .070	18˚, 90˚	●	●	●		●	●			4304R
IR-6CK	6-pc.CAM-LOCK™ Kit w/ Storage Case	.038, .047, .070	18˚, 90˚	●	●	●		●	●			4306R
IR-38Q	Qtr-Turn™ Convertible	.038	0˚	●	●	●		●				1202R
IR-3845Q	Qtr-Turn™ Convertible	.038	45˚	●	●	●		●				120245R
IR-3890Q	Qtr-Turn™ Convertible	.038	90˚	●	●	●		●				120290R
IR-47Q	Qtr-Turn™ Convertible	.047	0˚	●	●	●		●				3202R
IR-4745Q	Qtr-Turn™ Convertible	.047	45˚	●	●	●		●				320245R
IR-4790Q	Qtr-Turn™ Convertible	.047	90˚	●	●	●		●				320290R
IR-70Q	Qtr-Turn™ Convertible	.070	0˚	●	●	●		●				3402R
IR-7045Q	Qtr-Turn™ Convertible	.070	45˚	●	●	●		●				340245R
IR-7090Q	Qtr-Turn™ Convertible	.070	90˚	●	●	●		●				340290R
IR-90Q	Qtr-Turn™ Convertible	.090	0˚	●	●	●		●				5602R
IR-9045Q	Qtr-Turn™ Convertible	.090	45˚	●	●	●		●				560245R
IR-9090Q	Qtr-Turn™ Convertible	.090	90˚	●	●	●		●				560290R
IR-12QK	Qtr-Turn™ 12-Pc. Kit (1 ea size) w/ Storage Case	.038, .047, .070, .090	0˚, 45˚, 90˚	●	●	●		●				1225R
IR-6QK	Qtr-Turn™ 6-Pc. Kit w/ Storage Case	.038, .047, .070	0˚, 90˚	●	●	●		●				625R
IR-38	Standard Convertible	.038	0˚	●	●	●		●				12R
IR-3845	Standard Convertible	.038	45˚	●	●	●		●				1245R
IR-3890	Standard Convertible	.038	90˚	●	●	●		●				1290R
IR-47	Standard Convertible	.047	0˚	●	●	●		●				32R
IR-4745	Standard Convertible	.047	45˚	●	●	●		●				3245R
IR-4790	Standard Convertible	.047	90˚	●	●	●		●				3290R
IR-70	Standard Convertible	.070	0˚	●	●	●		●				34R
IR-7045	Standard Convertible	.070	45˚	●	●	●		●				3445R
IR-7090	Standard Convertible	.070	90˚	●	●	●		●				3490R
IR-90	Standard Convertible	.090	0˚	●	●	●		●				56R
IR-9045	Standard Convertible	.090	45˚	●	●	●		●				5645R
IR-9090	Standard Convertible	.090	90˚	●	●	●		●				5690R
IR-12K	12-Pc. Professional Std.Convt.Kit w/ Storage Case	.038,.047,.070,.090	0˚, 45˚, 90˚	●	●	●		●				43R
IR-045K	6-Pc. Std.Convt.Kit w/ Custom Molded Storage Case	.038, .047, .070	0˚, 45˚	●	●	●		●				4645R
IR-090K	6-Pc. Std.Convt.Kit w/ Custom Molded Storage Case	.038, .047, .070	0˚, 90˚	●	●	●		●				4690R
IR-47700K	2-Pc. Std.Convt.Kit in Plastic Case	.047, .070	0˚	●	●	●		●				42R
IR-477045K	2-Pc. Std.Convt.Kit in Plastic Case	.047, .070	45˚	●	●	●		●				4245R
IR-477090K	2-Pc. Std.Convt.Kit in Plastic Case	.047, .070	90˚	●	●	●		●				4290R
IR-6CKCASE	Custom Molded Storage Case for 6-Pc. CAM-LOCK™ Kit											4601R
IR-12KCASE	Custom Molded Storage Case for 12-Pc. Standard Kit											4301R
IR-12QKCASE	Custom Molded Storage Case for 12-Pc. Qtr-Turn™ Kit											4301R
IR-6QKCASE	Custom Molded Storage Case for 6-Pc. Qtr-Turn™ Kit											4601R
IR-6KCASE	Custom Molded Storage Case for 6-Pc. Standard Kit											4301R
IR-92	Universal Convertible, Reg., with Tip Kit	.038, .047, .070	0˚, 90˚	●	●		●	●	●			92R
IR-94	Universal Convertible, Small, with Tip Kit	.024, .038, .047	0˚, 90˚	●	●		●	●	●			94R
	REPLACEABLE TIP PLIERS											
IR-120S	Large, Ratchet Lock	.120	0˚		●		●		●		●	8R
IR-120H	Large, Ratchet Lock	.120	0˚	●			●		●		●	7R
IR-12045S	Large, Ratchet Lock	.120	45˚		●		●		●		●	845R
IR-12045H	Large, Ratchet Lock	.120	45˚	●			●		●		●	745R
IR-12090S	Large, Ratchet Lock	.120	90˚		●		●		●		●	890R
IR-12090H	Large, Ratchet Lock	.120	90˚	●			●		●		●	790R
IR-150H	Extra Large, Ratchet Lock	.150	0˚	●			●		●		●	71R
IR-15045H	Extra Large, Ratchet Lock	.150	45˚	●			●		●		●	7145R
IR-15090H	Extra Large, Ratchet Lock	.150	90˚	●			●		●		●	7190R
IR-170S	Extra Large, Ratchet Lock	.170	0˚		●		●		●		●	68R
IR-17045S	Extra Large, Ratchet Lock	.170	45˚		●		●		●		●	6845R
IR-17090S	Extra Large, Ratchet Lock	.170	90˚		●		●		●		●	6890R
IR-44S	External Pliers, Replaceable Tip	.038, .047, .070	0˚, 45˚, 90˚		●		●	●	●			4460R
IR-44H	Internal Pliers, Replaceable Tip	.038, .047, .070	0˚, 45˚, 90˚	●			●	●	●			4450R
IR-44K	Replaceable Tip Retaining Ring Pliers, Kit (2 pr. pliers, tip kit)	.038, .047, .070	0˚, 15˚, 45˚, 90˚	●	●		●	●	●			4440R
IR-44MK	US & Metric Kit, Hang Card (2 pr.pliers, tip kit)	.038, .047, .070, .093	0˚, 15˚, 45˚, 90˚	●	●		●	●	●			44R
IR-50S	Heavy Duty External Pliers				●		●	●	●		●	28R08
IR-50H	Heavy Duty Internal Pliers			●			●	●	●		●	27R08
IR-50K	Heavy Duty Retaining Ring Pliers (2 pr. pliers, tip kit & storage case)	.108, .120	0˚, 15˚, 45˚, 90˚	●	●		●	●	●		●	50R
	INDUSTRIAL PLIERS											
IR-230S	Mini Industrial, Shielded	.023	0˚		●	●			●			0012R
IR-0015R	Mini Industrial, Shielded	.023	0˚		●	●			●			0015R
IR-0018R	Mini Industrial, Shielded	.023	0˚		●	●			●			0018R
IR-2124R	Mini Industrial	.023	45˚		●	●			●			2124R
IR-2154R	Mini Industrial	.023	45˚		●	●			●			2154R

QUICK REFERENCE GUIDE

IMPERIAL ITEM#	DESCRIPTION	TIP DIA. (in.)	TIP ANGLE	RING TYPE		TIP STYLE		GRIPS	SPRING	STOP	RATCHET LOCK	MILBAR (REF#)
				Int. (Housing)	Ext. (Shaft)	FIXED	REPLACE.					
	INDUSTRIAL PLIERS											
IR-2184R	Mini Industrial	.023	45˚		●	●			●			2184R
IR-2129R	Mini Industrial	.023	90˚		●	●			●			2129R
IR-2159R	Mini Industrial	.023	90˚		●	●			●			2159R
IR-2189R	Mini Industrial	.023	90˚		●	●			●			2189R
IR-250H	Industrial Pliers	.025	0˚	●		●		●	●	●		101R
IR-2545H	Industrial Pliers	.025	45˚	●		●		●	●	●		10145R
IR-2590H	Industrial Pliers	.025	90˚	●		●		●	●	●		10190R
IR-380S	Industrial Pliers	.038	0˚		●	●		●	●	●		2R
IR-380H	Industrial Pliers	.038	0˚	●		●		●	●	●		1R
IR-3845S	Industrial Pliers	.038	45˚		●	●		●	●	●		245R
IR-3845H	Industrial Pliers	.038	45˚	●		●		●	●	●		145R
IR-3890S	Industrial Pliers	.038	90˚		●	●		●	●	●		290R
IR-3890H	Industrial Pliers	.038	90˚	●		●		●	●	●		190R
IR-470S	Industrial Pliers	.047	0˚		●	●		●	●	●		202R
IR-470H	Industrial Pliers	.047	0˚	●		●		●	●	●		102R
IR-4745S	Industrial Pliers	.047	45˚		●	●		●	●	●		20245R
IR-4745H	Industrial Pliers	.047	45˚	●		●		●	●	●		10245R
IR-4790S	Industrial Pliers	.047	90˚		●	●		●	●	●		20290R
IR-4790H	Industrial Pliers	.047	90˚	●		●		●	●	●		10290R
IR-700S	Industrial Pliers	.070	0˚		●	●		●	●	●		4R
IR-700H	Industrial Pliers	.070	0˚	●		●		●	●	●		3R
IR-7045S	Industrial Pliers	.070	45˚		●	●		●	●	●		445R
IR-7045H	Industrial Pliers	.070	45˚	●		●		●	●	●		345R
IR-7090S	Industrial Pliers	.070	90˚		●	●		●	●	●		490R
IR-7090H	Industrial Pliers	.070	90˚	●		●		●	●	●		390R
IR-900H	Industrial Pliers	.090	0˚	●		●		●	●	●		5R
IR-9045H	Industrial Pliers	.090	45˚	●		●		●	●	●		545R
IR-9090H	Industrial Pliers	.090	90˚	●		●		●	●	●		590R
IR-1150S	Industrial Pliers	.115	0˚		●	●		●	●			66R
IR-11545S	Industrial Pliers	.115	45˚		●	●		●	●			6645R
IR-11590S	Industrial Pliers	.115	90˚		●	●		●	●			6690R
	UTILITY PLIERS											
IR-250HU	Utility Pliers	.025	0˚	●		●						2101R
IR-2545HU	Utility Pliers	.025	45˚	●		●						210145R
IR-2590HU	Utility Pliers	.025	90˚	●		●						210190R
IR-380HU	Utility Pliers	.038	0˚	●		●						21R
IR-380SU	Utility Pliers	.038	0˚		●	●						22R
IR-3845HU	Utility Pliers	.038	45˚	●		●						2145R
IR-3845SU	Utility Pliers	.038	45˚		●	●						2245R
IR-3890HU	Utility Pliers	.038	90˚	●		●						2190R
IR-3890SU	Utility Pliers	.038	90˚		●	●						2290R
IR-470HU	Utility Pliers	.047	0˚	●		●						2102R
IR-470SU	Utility Pliers	.047	0˚		●	●						2202R
IR-4745HU	Utility Pliers	.047	45˚	●		●						210245R
IR-4745SU	Utility Pliers	.047	45˚		●	●						220245R
IR-4790HU	Utility Pliers	.047	90˚	●		●						210290R
IR-4790SU	Utility Pliers	.047	90˚		●	●						220290R
IR-700HU	Utility Pliers	.070	0˚	●		●						23R
IR-700SU	Utility Pliers	.070	0˚		●	●						24R
IR-7045HU	Utility Pliers	.070	45˚	●		●						2345R
IR-7045SU	Utility Pliers	.070	45˚		●	●						2445R
IR-7090HU	Utility Pliers	.070	90˚	●		●						2390R
IR-7090SU	Utility Pliers	.070	90˚		●	●						2490R
IR-90HU	Utility Pliers	.090	0˚	●		●						25R
IR-9045HU	Utility Pliers	.090	45˚	●		●						2545R
IR-9090HU	Utility Pliers	.090	90˚	●		●						2590R
IR-1150SU	Utility Pliers	.115	0˚		●	●						266R
IR-11545SU	Utility Pliers	.115	45˚		●	●						26645R
IR-11590SU	Utility Pliers	.115	90˚		●	●						26690R
	LOCK RING PLIERS											
IR-15R	Small, Auto Transmission				●	●		●	●			15R
IR-47R	Standard (NSN 5120-00-595-9554)				●	●		●	●			47R
IR-48R	Thin Nose				●	●		●	●			48R
IR-601R	Auto Transmission				●	●		●	●			601R
IR-602R	Heavy Duty				●	●		●	●			602R
IR-LRRL	Lock Ring Pliers with Ratchet Lock, IR-47R StyleTips				●		●	●	●		●	2836R
IR-LRS	Lock Ring Pliers with IR-47R StyleTips				●		●	●	●			4936R

SHAFT/BORE DIAMETER & RING SERIES REFERENCE

CONVERTIBLE PLIERS									
	PLIERS NO. TIP ANGLE			TIP SIZE (in.)	SHAFT DIAMETER (in.)	HOUSING/BORE DIAMETER (in.)	RETAINING RING MFG/RING SERIES		
	STRAIGHT	45˚	90˚				ROTOR CLIP®	TRUARC®	DASH NO.
FIXED TIPS	IR-38Q IR-3818C IR-38	IR-3845Q IR-3845	IR-3890Q IR-3890C IR-3890	.038	.250 to .672		SH, BSH	5100, 5101	-25 thru -66
					.500 to .781		SHI	5108	-50 thru -78
					.125 to .250		SHF	5555	-12 thru -25
						.375 to .562	HO, BHO	N5000, N5001	-37 thru -56
						.750 to 1	HOI	5008	-75 thru -100
	IR-47Q IR-4718C IR-47	IR-4745Q IR-4745	IR-4790Q IR-4790C IR-4790	.047	.687 to .875		SH, BSH	5100, 5101	-68 thru -87
					.812 to 1		SHI	5108	-81 thru -100
					.312, .375		SHF	5555	-31,-37
						.625 to 1.023	HO, BHO	N5000, N5001	-62 thru -102
						1 to 1.023	VHO	N5002	-100 thru -102
						1.062 to 1.375	HOI	5008	-106 thru -137
	IR-70Q IR-7018C IR-70	IR-7045Q IR-7045	IR-7090Q IR-7090C IR-7090	.070	.938 to 1.438		SH, BSH	5100, 5101	-93 thru -143
					1 to 1.438		VSH	5102	-100 thru -143
					1.062 to 2		SHI	5108	-106 thru -200
					.438 to .750		SHF	5555	-43 thru -75
						1.062 to 1.75	HO, BHO, VHO	N5000, N5001, N5002	-106 thru -175
						1.438 to 2	HOI	5008	-143 thru -200
	IR-90Q IR-90	IR-9045Q IR-9045	IR-9090Q IR-9090	.090	1.5 to 3.5		SH, VSH	5100, 5102	-150 thru -350
					1.5 to1.75		BSH	5101	-150 thru -175
					2.156 to 3.25		SHI	5108	-215 thru -325
						1.1812 to 3	HO, VHO	N5000, N5002	-181 thru -300
						2.062 to 3	HOI	5008	-206 thru -300
UNIVERSAL CONVERTIBLE PLIERS									
REPLACEABLE TIPS	IR-94		IR-94	.024	.125		SH	5100	-12
					.156		BSH	5101	-15
					.188 to .236		VSH	5102	-18 thru -23
						.250 to .312	HO, BHO, VHO	N5000, N5001, N5002	-25 thru -31
	IR-94 IR-92		IR-94 IR-92	.038	.250 to .672		SH, BSH	5100, 5101	-25 thru -66
					.500 to .781		SHI	5108	-50 thru -78
					.125 to .250		SHF	5555	-12 thru -25
						.375 to .562	HO, BHO	N5000, N5001	-37 thru -56
						.750 to 1	HOI	5008	-75 thru -100
	IR-94 IR-92		IR-94 IR-92	.047	.687 to .875		SH, BSH	5100, 5101	-68 thru -87
					.812 to 1		SHI	5108	-81 thru -100
					.312, .375		SHF	5555	-31,-37
						.625 to 1.023	HO, BHO	N5000, N5001	-62 thru -102
						1 to 1.023	VHO	N5002	-100 thru -102
	IR-92		IR-92	.047		1.062 to 1.375	HOI	5008	-106 thru -137
	IR-92		IR-92	.070	.938 to 1.438		SH, BSH	5100, 5101	-93 thru -143
					1 to 1.438		VSH	5102	-100 thru -143
					1.062 to 2		SHI	5108	-106 thru -200
					.438 to .750		SHF	5555	-43 thru -75
						1.062 to 1.75	HO, BHO, VHO	N5000, N5001, N5002	-106 thru -175
						1.438 to 2	HOI	5008	-143 thru -200

*Rotor Clip® is a registered trademark of Rotor Clip Company, Inc.
Truarc® is a registered trademark of Truarc Company LLC.

SHAFT/BORE DIAMETER & RING SERIES REFERENCE

	PLIERS NO. TIP ANGLE			TIP SIZE (in.)	SHAFT DIAMETER (in.)	HOUSING/BORE DIAMETER (in.)	RETAINING RING MFG/RING SERIES		
	STRAIGHT	45°	90°				ROTOR CLIP®	TRUARC®	DASH NO.
FIXED TIP PLIERS									
MINI	IR-230S	IR-2124R	IR-2129R	.023	.125		SH, BSH, VSH	5100, 5101, 5102	-12
	IR-0015R	IR-2154R	IR-2159R		.156				-15
	IR-0018R	IR-2184R	IR-2189R		.188 to .236				-18 thru -23
INDUSTRIAL	IR-250H	IR-2545H	IR-2590H	.025		.250 to .312	HO, BHO, VHO	N5000, N5001, N5002	-25 thru -31
	IR-380H	IR-3845H	IR-3890H	.038		.375 to 1.023	HO, BHO, VHO	N5000, N5001, N5002	-37 thru -102
						.750 to 1.375	HOI	5008	-75 thru -137
	IR-380S	IR-3845S	IR-3890S	.038	.250 to .875		SH, BSH, VSH	5100, 5101, 5102	-25 thru -87
					.500 to1.0		SHI	5108	-50 thru -100
					.125 to .250		SHF	5555	-12 thru -25
	IR-700H	IR-7045H	IR-7090H	.070		1.062 to1.750	HO, BHO, VHO	N5000, N5001, N5002	-106 thru -175
						1.437 to 2.000	HOI	5008	-143 thru -200
	IR-700S	IR-7045S	IR-7090S	.070	.938 to 1.438		SH, BSH, VSH	5100, 5101, 5102	-93 thru -143
					1.062 to 2.000		SHI	5108	-106 thru -200
					.312 to .625		SHF	5555	-31 thru -62
	IR-900H	IR-9045H	IR-9090H	.090		1.812 to 3.500	HO, VHO	N5000, N5002	-181 thru -350
						2 to 3	HOI	5008	-200 thru -300
	IR-1150S	IR-11545S	IR-11590S	.115	1.500 to 3.500		SH, BSH, VSH	5100, 5101, 5102	-150 thru -350
					2.125 to 3.25		SHI	5108	-215 thru -325
					.750		SHF	5555	-75
UTILITY	IR-250HU	IR-2545HU	IR-2590HU	.025		.250 to .312	HO, BHO, VHO	N5000, N5001, N5002	-25 thru -31
	IR-380HU	IR-3845HU	IR-3890HU	.038		.375 to 1.023	HO, BHO, VHO	N5000, N5001, N5002	-37 thru -102
						.750 to 1.375	HOI	5008	-75 thru -137
	IR-380SU	IR-3845SU	IR-3890SU	.038	.250 to .875		SH, BSH, VSH	5100, 5101, 5102	-25 thru -87
					.500 to 1.0		SHI	5108	-50 thru -100
					.125 to .250		SHF	5555	-12 thru -25
	IR-700HU	IR-7045HU	IR-7090HU	.070		1.062 to 1.750	HO, BHO, VHO	N5000, N5001, N5002	-106 thru -175
						1.437 to 2.000	HOI	5008	-143 thru -200
	IR-700SU	IR-7045SU	IR-7090SU	.070	.938 to 1.438		SH, BSH, VSH	5100, 5101, 5102	-93 thru -143
					1.062 to 2.000		SHI	5108	-106 thru -200
					.312 to .625		SHF	5555	-37 thru -62
	IR-90HU	IR-9045HU	IR-9090HU	.090		1.812 to 3.500	HO, VHO	N5000, N5002	-181 thru -350
						2 to 3	HOI	5008	-200 thru -300
	IR-1150SU	IR-11545SU	IR-11590SU	.115	1.500 to 3.500		SH, BSH, VSH	5100, 5101, 5102	-150 thru -350
					2.125 to 3.25		SHI	5108	-215 thru -325
					.750		SHF	5555	-75
REPLACEABLE TIP PLIERS									
IR-44K KIT		IR-44H				.375 to 1.750	HO, BHO, VHO	N5000, N5001, N5002	-37 thru -175
									-100 thru -102
SMALL						.750 to 2	HOI	5008	-75 thru -200
		IR-44S			.250 to 1.438		SH, BSH, VSH	5100, 5101, 5102	-25 thru -143
									-100 thru -143
					.500 to 2		SHI	5108	-50 thru -200
IR-50K KIT		IR-50H		.108		2.428 to 3.125	HO, VHO	N5000, N5002	-244 thru -312
						2.625 to 3	HOI	5008	-262 thru -300
				.120		3.156 to 4.250	HO, VHO	N5000, N5002	-315 thru -425
HEAVY DUTY						3.156 to 4	HOI	5008	-315 thru -400
		IR-50S		.108	1.500 to 3.500		SH	5100	-150 thru -350
							BSH	5101	-150 thru -175
					2.125 to 3.500		SHI	5108	-215 thru -350
				.120	1.562 to 3.750		SH	5100	-156 thru -375
					3.500 to 3.939		SHI	5108	-350 thru -393
LARGE	IR-120H	IR-12045H	IR-12090H	.120		3.062 to 6	HO	N5000	-306 thru -600
						3.156 to 4	HOI	5008	-315 thru -400
	IR-120S	IR-12045S	IR-12090S	.120	3.543 to 6.500		SH	5100	-354 thru -650
					3.500 to 4		SHI	5108	-350 thru -400
EXTRA LARGE	IR-150H	IR-15045H	IR-15090H	.150		6.250 to 10	HO, VHO	N5000, N5002	-625 thru -1000
	IR-170S	IR-17045S	IR-17090S	.170	6.750 to 10		SH, VSH	5100, 5102	-675 thru -950

*Rotor Clip® is a registered trademark of Rotor Clip Company, Inc.
Truarc® is a registered trademark of Truarc Company LLC.

MILBAR® WIRE TWISTERS

Milbar is the world's leading brand of Wire Twister Tools and Kits. Designed for the professional mechanic, Milbar forgings are made from high carbon alloy steel and are controlled throughout the manufacturing process to exacting engineering specifications. Each tool passes a series of rigorous quality assurance tests which ensure function and reliability under the most demanding environments.

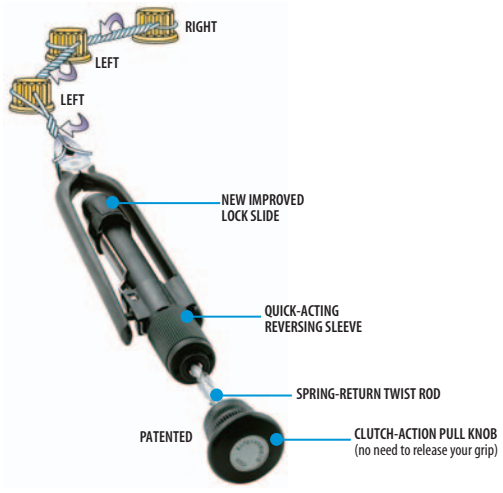
TYPES AND STYLES

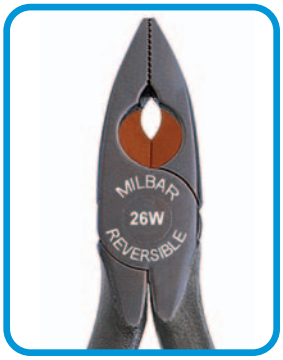
Wire Twisters come in three nominal sizes: 6", 9" and 12". Diagonal (standard) or Tapered nose configurations are provided to complement specific applications and user preference. Some models incorporate a Cushion Throat to catch clipped wire ends, preventing FOD (foreign object damage). The Spring Return feature automatically retracts the twist rod to ease and speed the work. Finally, Wire Twisters may produce right-hand twists (clockwise action), left-hand twists or both (reversible action). **All are available from Milbar.**

NEW & IMPROVED!
All Milbar Wire Twisters now have a durable black oxide finish for improved corrosion resistance.

REVERSIBLE WIRE TWISTERS

- Reversible action for left and right twists.
- Automatic spring return.
- Faster with better control.
- 6" and 9" models available with cushion throat to hold clipped wire – no Foreign Object Damage (FOD).
- 6", 9" and 12" models available.





45W

41W

42W

REVERSIBLE

CATALOG NUMBER	DESCRIPTION	NOM. SIZE (in.)	RETURN	TWIST	NOSE	JAW
25W	SafetyTwist™	6	Auto	Reversible	Diagonal	Cushion Throat
45W	SafetyTwist™	6	Auto	Reversible	Diagonal	Standard
26W	SafetyTwist™	9	Auto	Reversible	Diagonal	Cushion Throat
41W	SafetyTwist™	9	Auto	Reversible	Diagonal	Standard
42W	SafetyTwist™	12	Auto	Reversible	Diagonal	Standard

MILBAR®

AUTOMATIC RETURN

- Spring-return feature automatically retracts the twist rod to ease and speed the work.
- Cushion throat available in 9" model: catches clipped wire ends; prevents FOD.
- Right-hand twist (6", 9", 12") or left-hand twist (9", 12").
- Mini (6") available in tapered or diagonal nose.
- High carbon alloy steel forgings.

NEW & IMPROVED!
All Milbar Wire Twisters now have a durable black oxide finish for improved corrosion resistance.

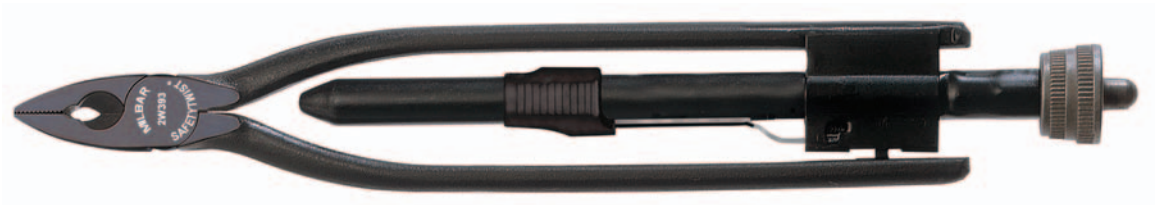
1W393

11WS

3W6

Cushion Throat prevents foreign object damage

2W393



AUTO RETURN

CATALOG NUMBER	DESCRIPTION	NOM. SIZE (in.)	RETURN	TWIST	NOSE	JAW
9WS	SafetyTwist™	6	Auto	Right Hand	Tapered	Standard
11WS	SafetyTwist™	6	Auto	Right Hand	Diagonal	Standard
1W393	SafetyTwist™	9	Auto	Right Hand	Diagonal	Standard
3W6	SafetyTwist™	9	Auto	Right Hand	Diagonal	Cushion Throat
5W4	SafetyTwist™	9	Auto	Left Hand	Diagonal	Standard
2W393	SafetyTwist™	12	Auto	Right Hand	Diagonal	Standard
6W4	SafetyTwist™	12	Auto	Left Hand	Diagonal	Standard

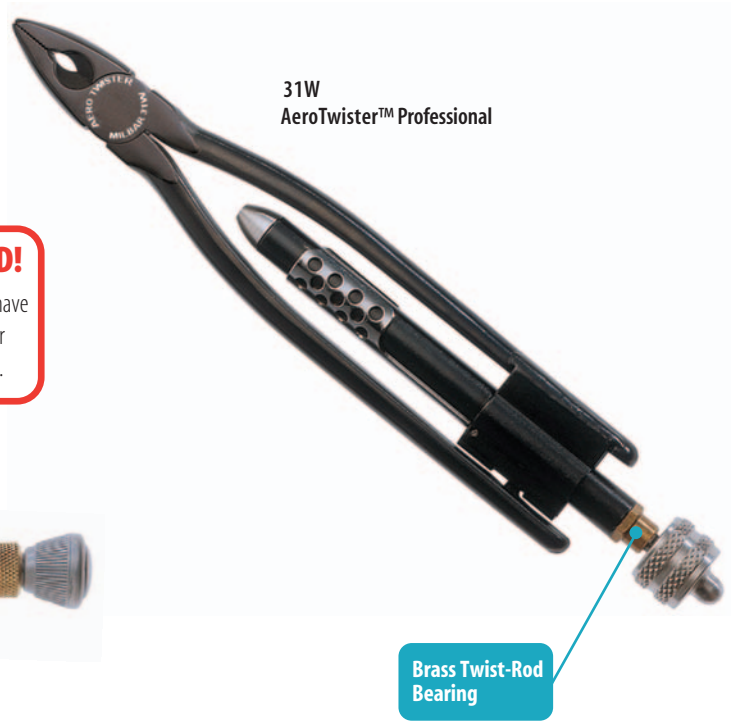
Conforms to ASME/ANSI specification B107.18.

MILBAR®

MANUAL RETURN

- Manual return models combine full performance with economy – for the infrequent user.
- Cushion throat available in 9" model: catches clipped wire ends; prevents FOD.
- Right-hand twist (6", 9", 12") or left-hand twist (9", 12").
- Mini (6") available in tapered or diagonal nose.
- High carbon alloy steel forgings.

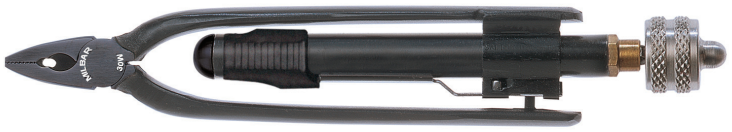
NEW & IMPROVED!
All Milbar Wire Twisters now have a durable black oxide finish for improved corrosion resistance.



31W
AeroTwister™ Professional

11W

30W



13W SPECIALTY TWISTER

- For difficult access situations (i.e., deep reach or close quarters).
- Adjustable 13" to 19".
- Right-hand twist.
- Manual return.

13W

MANUAL RETURN

CATALOG NUMBER	DESCRIPTION	NOM. SIZE (in.)	RETURN	TWIST	NOSE	JAW
9W	SafetyTwist™	6	Manual	Right Hand	Tapered	Standard
11W	SafetyTwist™	6	Manual	Right Hand	Diagonal	Standard
30W	SafetyTwist™	6	Manual	Right Hand	Diagonal	Standard
1W	SafetyTwist™	9	Manual	Right Hand	Diagonal	Standard
31W	Aero Twister™ Professional	9	Manual	Right Hand	Diagonal	Standard
3W5	SafetyTwist™	9	Manual	Right Hand	Diagonal	Cushion Throat
5W6	SafetyTwist™	9	Manual	Left Hand	Diagonal	Standard
2W	SafetyTwist™	12	Manual	Right Hand	Diagonal	Standard
6W6	SafetyTwist™	12	Manual	Left Hand	Diagonal	Standard
13W	Long Reach 13"–19" Adjustable	19	Manual	Right Hand		

Conforms to ASME/ANSI specification B107.18.

KITS

SAFETY WIRING KITS

105W Professional Safety Wiring Kit.
The most versatile kit available. Contains three different SafetyTwist™ Pliers to cover almost any application: 9" Automatic (1W393), 6" Mini (9W) and a 19" Deep Reach Twister (13W). Includes three 1/4 lb. spools of stainless steel safety wire (.020, .032, .041). Durable plastic storage case. Kit weight 4 lbs. NSN 5180-90-986-8939.

109W Limited Access Safety Wiring Kit.
Contains the 6" Mini (11W) for general purpose wiring and work in close quarters, and the 19" Deep Reach Twister (13W) for special applications. Includes three 1/4 lb. spools of stainless steel safety wire (.020, .032, .041). Durable plastic storage case. Kit weight 2 lbs. 12 oz. NSN 5180-01-337-9841.

NEW & IMPROVED!
All Milbar Wire Twisters now have a durable black oxide finish for improved corrosion resistance.

105W

109W

STAINLESS STEEL SAFETY WIRE

- Conforms to ASTM A580-S30400-Cond.A.
- Conforms to Military Specification MS-20995-C.
- Available in 5 different wire diameters.
- 1 lb. center core dispensers or 1/4 lb. spools.

1 LB. CENTER CORE DISPENSER

1/4 LB. SPOOLS

CATALOG NUMBER	WIRE DIA. (in.)	SIZE	WIRE LENGTH (ft.)
14WA	.020	1/4 lb. Spool	234
15WA	.032	1/4 lb. Spool	91
16WA	.041	1/4 lb. Spool	55
17WA	.020	1 lb. Dispenser	937
18WA	.025	1 lb. Dispenser	599
19WA	.032	1 lb. Dispenser	366
20WA	.041	1 lb. Dispenser	223
21WA	.051	1 lb. Dispenser	144

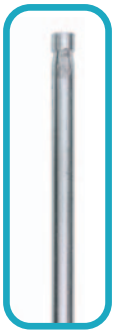
MILBAR®

SPECIFICATIONS

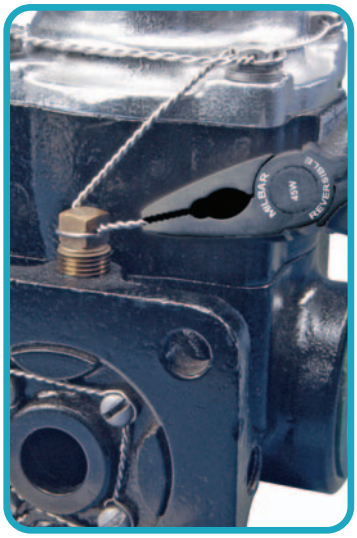
DIAGONAL

TAPERED

CUSHION THROAT

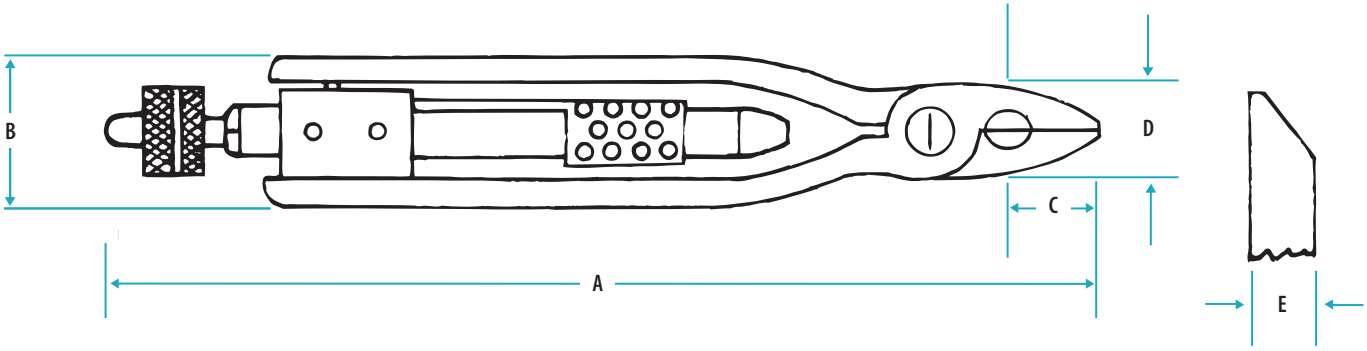


DEEP REACH



NEW & IMPROVED!

All Milbar Wire Twisters now have a durable black oxide finish for improved corrosion resistance.



SIZE (nom.)	MODEL	WIRE CAPACITY (in. dia.)	SPECIFICATIONS (in.)					WEIGHT (oz.)
			(A)	(B)	(C)	(D)	(E)	
6"	25W, 30W, 45W	0.041	8-3/4	1-3/8	1-1/8	5/8	3/8	9.7
	ALL OTHERS	0.041	8-3/8	1-3/8	1-1/8	5/8	3/8	8.3
9"	26W, 41W	0.060	11	1-3/4	1-9/16	13/16	7/16	14.0
	ALL OTHERS	0.060	10-1/2	1-3/4	1-9/16	13/16	7/16	12.9
12"	42W	0.060	12-1/4	2	1-9/16	13/16	7/16	14.6
	ALL OTHERS	0.060	11-7/8	2	1-9/16	13/16	7/16	14.0

SAFETY WIRE INSTALLATION HIGHLIGHTS, DOUBLE TWIST METHOD:

(AEROSPACE STANDARD AS567)

1. The safety wire is installed so that, if the fastener has any tendency to loosen, it will cause the safety wire to tighten.
2. The maximum span of safety wire (between tension points) shall be 6" (152 mm).
3. The maximum length of safety wire to be used in a single application is 24" (609 mm).
4. The number of twists per inch (1 twist = 1/2 complete turn) depends upon wire diameter: 0.020" to 0.025" dia., 8-14 twists; 0.032" to 0.041" dia., 6-11 twists; 0.051" to 0.060" dia., 4-9 twists.
5. **The wire which is looped around the outside of the fastener must always be routed UNDER the wire protruding from the hole (so that the loop will stay down and not cause slack). This often requires the direction of the wrap and twist of strands to REVERSE from run to run, or run to pigtail.**
6. Pigtail should be no more than 3/4" long and have a minimum of four (4) twists. Ends should be cut and bent toward fastener to prevent snags.

MILBAR®

QUICK REFERENCE GUIDE

IMPERIAL/ MILBAR#	DESCRIPTION	NOM. LENGTH (in.)	RETURN		TWIST			NOSE		JAW	
			AUTO	MANUAL	RIGHT	LEFT	REVERSIBLE	DIAGONAL	TAPERED	STD.	CUSHION THROAT
9W	SafetyTwist™	6		●	●				●	●	
9WS	SafetyTwist™	6	●		●				●	●	
11W	SafetyTwist™	6		●	●			●		●	
11WS	SafetyTwist™	6	●		●			●		●	
25W	SafetyTwist™	6	●				●	●			●
30W	SafetyTwist™	6		●	●			●		●	
45W	SafetyTwist™	6	●				●	●		●	
1W	SafetyTwist™	9		●	●			●		●	
1W393	SafetyTwist™	9	●		●			●		●	
3W5	SafetyTwist™	9		●	●			●			●
3W6	SafetyTwist™	9	●		●			●			●
41W	SafetyTwist™	9	●				●	●		●	
5W4	SafetyTwist™	9	●			●		●		●	
5W6	SafetyTwist™	9		●		●		●		●	
26W	SafetyTwist™	9	●				●	●			●
31W	AeroTwister™ Pro	9		●	●			●		●	
2W	SafetyTwist™	12		●	●			●		●	
2W393	SafetyTwist™	12	●		●			●		●	
42W	SafetyTwist™	12	●				●	●		●	
6W4	SafetyTwist™	12	●			●		●		●	
6W6	SafetyTwist™	12		●		●		●		●	
13W	Long Reach	19		●	●						
105W	Professional Safety Wiring Kit One each: 9W, 1W393, 13W, 14WA, 15WA, 16WA										
109W	Limited Access Safety Wiring Kit One each: 11W, 13W, 14WA, 15WA, 16WA										

ADJUSTABLE OIL FILTER WRENCHES

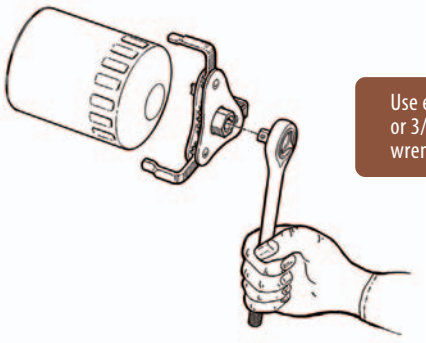
- Self-adjusting heavy-duty design actually grabs onto the filter and automatically tightens.
- Ideal for removal of most spin-off oil, fuel and fuel-water separators.
- Use either 3/8" ratchet or 3/4" open-end wrench to drive.
- Low profile (2-1/2" high) for easy access in confined areas.
- Withstands over 85 ft.-lb. of torque to remove stubborn filters.
- Sure-grip three-point contact.
- Smooth-moving sprocket gears eliminate jamming.
- Fits hundreds of filters!

IF-104

Sturdy steel construction for durability.

Black oxide finish resists rust/corrosion.

IF-104 IF-103



Use either 3/8" ratchet or 3/4" open end wrench to drive.

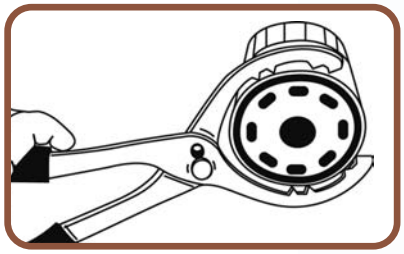
OIL FILTER PLIERS

IF-101 OIL FILTER PLIERS

- Quick fit, easy removal tool for ALL popular filters size 62 to 110 mm.
- Slipjoint, solid construction allows fit to a wider filter range.
- Easy access in tight spots.
- For all makes of cars and light trucks.
- Cushion grips for comfort.
- Nom. length 9".

IF-101

The quick fit, easy removal tool
for all makes of cars and light trucks.



CATALOG NUMBER	DESCRIPTION
IF-101	62 mm – 110 mm Oil Filter Pliers
IF-103	62 mm – 93 mm (2-1/2" – 3-3/4") Adjustable Oil Filter Wrench
IF-104	62 mm – 121 mm (2-1/2" – 4-3/4") Adjustable Oil Filter Wrench

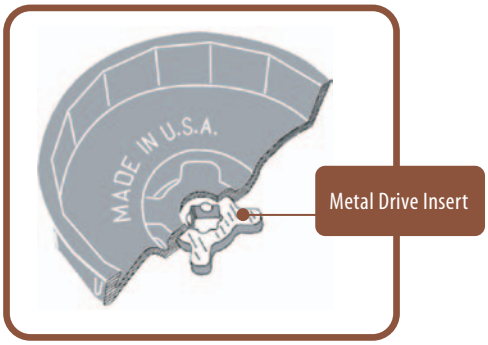
OIL FILTER CUP WRENCHES

- Each tool acts like a socket to remove hard-to-reach or stubborn oil filters.
- Largest size range available – all 100% USA-made.
- Specific sizes for popular import OEM and replacement filters.
- Available in reinforced composite material or steel with rust-resistant powdercoat finish.
- Use with 3/8" drive or with extensions to reach difficult filters; protects mechanic from hot oil contact.
- Will not crush filter can or cause oil spillage and cleanup expense.
- Extensive application charts available.
- Special carded packaging allows customers to actually test their oil filter with the packaged wrench without opening cartons or complicated blister packs.

COMPOSITE WRENCHES

COMPOSITE WRENCHES

- Glass-reinforced engineered composite material.
- Provides high torque capacity:
  - Handles 140 ft.-lbs. of torque to remove even the most stubborn filters.
  - Competitive plastic cup wrenches don't even come close to this torque capacity.
- Metal Drive Insert will not deform or break even after years of service.
- 100% Satisfaction Guaranteed!



COMPOSITE OIL FILTER CUP WRENCHES	
IF-6567C	65/67 mm, 14 Flute ("B" cup)
IF-7476C	74/76 mm, 15 Flute ("I" cup)
IF-7614C	76 mm, 14 Flute ("J" cup)
IF-7693C	76/80/93 mm, 36 Flute ("Z" cup)
IF-9315C	93 mm, 15 Flute ("Q" cup)
IF-5KITC	5 - Piece Kit, One each size

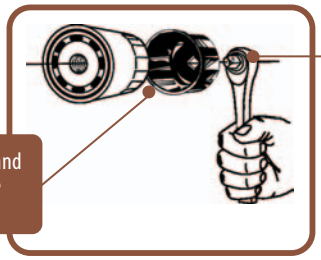
IF-5KITC

METAL WRENCHES

METAL WRENCHES

- Heat-treated steel for superior strength and durability.
- Powdercoat finish to resist corrosion.

METAL OIL FILTER CUP WRENCHES	
IF-6514	65 mm, 14 Flute
IF-6714	65/67 mm, 14 Flute
IF-6814	68 mm, 14 Flute
IF-7414	74 mm, 14 Flute
IF-7415	74 mm, 15 Flute
IF-7514	75 mm, 14 Flute
IF-7614	76 mm, 14 Flute
IF-7615	74/76 mm, 15 Flute
IF-7630	76 mm, 30 Flute
IF-768	76 mm, 8 Flute
IF-8015	80 mm, 15 Flute
IF-8215	82 mm, 15 Flute
IF-8518	85 mm, 18 Flute
IF-9015	90 mm, 15 Flute
IF-9315	93 mm, 15 Flute
IF-9336	93 mm, 36 Flute
IF-9510	95 mm, 10 Flute
IF-10015	100 mm, 15 Flute
IF-7614A	76 mm, 14 Flute Cut-away Harley Davidson. Fits most twin cam 2001 to 2007.



IF-7614A

ENGINE CYLINDER DEGLAZERS

EH-101 6" TO 9-1/2" ADJUSTABLE GLAZE BREAKER WITH 4" STONES

Designed for fast, accurate honing of large engine cylinders from 6" to 9-1/2" in diameter. Spring tension adjusting nut provides adjustable cutting action. Exclusive spread limiter for easy insertion into cylinder. Powerful arm design keeps all three stones accurately in alignment. Engineered to self-center. Easy to handle; use with any standard 3/8" or 1/2" chuck electric drill. Replacement stones available in a variety of sizes and grits (see below).

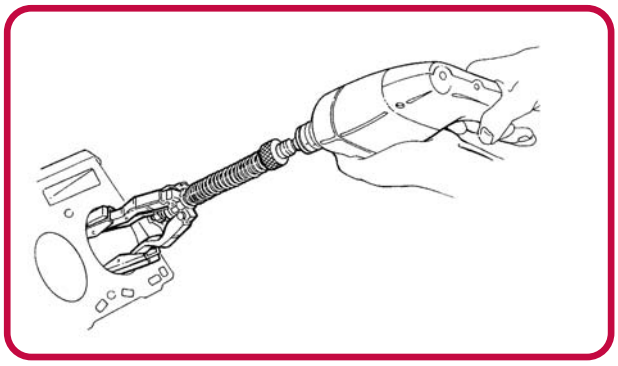
EH-101

2" TO 7" ADJUSTABLE GLAZE BREAKERS

Rugged deglazers designed for the fastest, most accurate honing of cylinders in diameters from 2" to 7". The exclusive Spread Limiter adjusts deglazer diameter to do both regular and large diameter work. The spring tension adjusting nut provides positive cutting action at all speeds. Its fast cylinder-to-cylinder change gives smooth glaze breaking capacity. Powerful arm design keeps all three stones accurately in alignment. Precisely engineered to self-center and bottom. Easy to handle. Use with any standard 3/8" or 1/2" chuck electric drill. Replacement stones available (see below).

EH-103 Adjustable Glaze Breaker, with 3" medium-grit stones.

EH-104 Adjustable Glaze Breaker, with 4" medium-grit stones.



EH-103

EH-104

GLAZE BREAKER STONE SETS

CATALOG NUMBER	DESCRIPTION	LENGTH (in.)	GRIT	USE WITH
EH-71650	3-Pc. Set	3	Medium	EH-101, EH-103, EH-104
EH-71655	3-Pc. Set	3	Fine	EH-101
EH-71660	3-Pc. Set	3	Coarse	EH-101
EH-71670	3-Pc. Set	4	Medium	EH-101, EH-104
EH-71674	3-Pc. Set	4	Fine	EH-101, EH-104
EH-71680	3-Pc. Set	4	Coarse	EH-101, EH-104

APPROXIMATE GRIT SPECIFICATIONS:

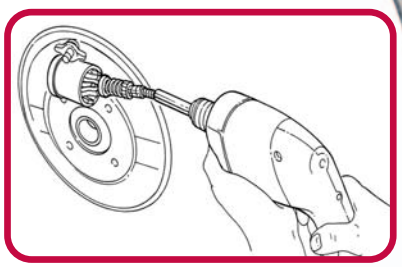
FINE C320-C400
MEDIUM C220-C240
COARSE C100

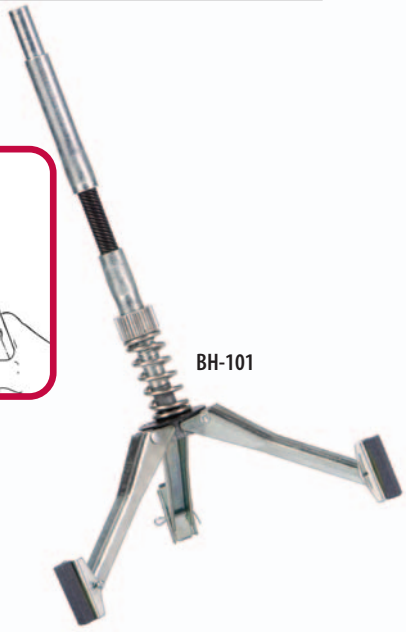
BRAKE & SMALL ENGINE CYLINDER HONES

- Flexible shaft for easy honing on or off vehicle.
- Spring tension adjusting nut for positive cutting action.
- Self-centering for full stone contact with cylinder wall.
- Replacement stones available (see below).

BH-101 CYLINDER HONE FOR DISC BRAKES AND SMALL ENGINES

Hones disc brake and small lawn and garden engine cylinders ranging from 1-1/4" to 3-1/2" in diameter. With three, 3/4" medium-grit stones.





BH-104 BRAKE CYLINDER HONE

Hones master cylinders and wheel cylinders 3/4" to 2-1/2" in diameter. Complete with three, 1-1/8" medium-grit stones.

BH-105 BRAKE CYLINDER HONE FOR SMALL CARS

Hones wheel cylinders from 1/2" to 2-1/4" in diameter. Complete with two, 1-1/8" medium-grit stones.

BH-103 THREE-IN-ONE HONE KIT

Complete Brake and Cylinder Hone Set. Three of Imperial's best-selling, high-quality hones packed with an extra set of 2" medium-grit stones. Kit contains:

BH-101 Hone, 1-1/4" – 3-1/2" capacity, 3-arm.

BH-104 Hone, 3/4" – 2-1/2" capacity, 3-arm.

BH-105 Hone, 1/2" – 2-1/4" capacity, 2-arm.

BH-71320 Set of 3 – 2" Medium-grit stones for small engine honing.

1. Adjust spring tension nut to a light contact with cylinder wall.
2. Keep stones completely in cylinder while using.
3. Lubricate while honing. Brake fluid may be used.
4. Do not store stones in brake fluid when not in use.

CATALOG NUMBER	DESCRIPTION	CYLINDER CAPACITY (in.)	STONES		REPLACEMENT STONE NUMBER
			LENGTH (in.)	GRIT	
BH-101	Disc Brake Hone, 3-arm	1-1/4 - 3-1/2	3/4	Medium	BH-71395
BH-103	3-in-1 Hone Kit	1/2 - 3-1/2	3/4 – 1-1/8	Medium	BH-71320, BH-71350, BH-71380, BH-71395
BH-104	Brake Cylinder Hone	3/4 - 2-1/2	1-1/8	Medium	BH-71380
BH-105	Small Car Cylinder Hone	1/2 - 2-1/4	1-1/8	Medium	BH-71350

BRAKE CYLINDER HONE STONE SETS

CATALOG NUMBER	DESCRIPTION	LENGTH (in.)	GRIT	USE WITH
BH-71320	3-Pc. Set	2	Medium	BH-101, BH-104
BH-71325	3-Pc. Set	2	Fine	BH-101, BH-104
BH-71350	2-Pc. Set	1-1/8	Medium	BH-105
BH-71355	2-Pc. Set	1-1/8	Fine	BH-105
BH-71380	3-Pc. Set	1-1/8	Medium	BH-101, BH-104
BH-71385	3-Pc. Set	1-1/8	Fine	BH-101, BH-104
BH-71390	3-Pc. Set	1-1/8	Coarse	BH-101, BH-104
BH-71395	3-Pc. Set	3/4	Medium	BH-101

BATTERY SERVICE TOOLS

BS-103 COPPER BATTERY CABLE CUTTER

- Power engineered for maximum cutting action with minimum effort.
- Cuts up to 2/0 gauge fine-stranded copper battery cable.
- Precision-ground, scissors-action blades minimize deflection.
- Cushion grips for user comfort.

NOT FOR USE ON STEEL.

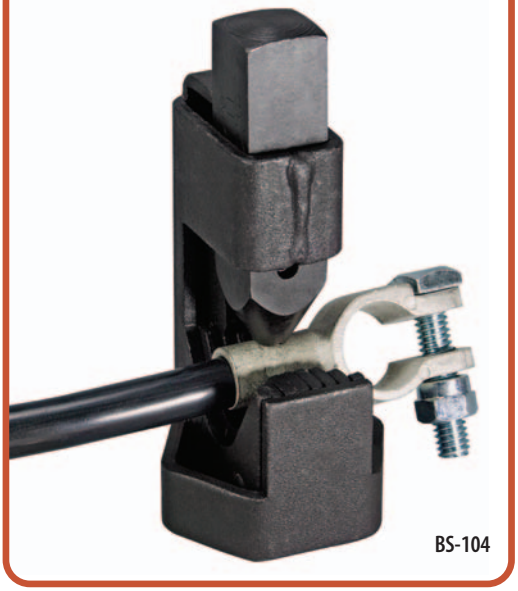
BS-103

BS-104 BATTERY TERMINAL LUG CRIMPER

- Crimps heavy-duty cable terminals.
- Extra clearance and wide throat for easy insertion of workpiece.
- Easy-to-read dual crimp depth scales.
- Heavy-duty construction for long life.
- Wide base for stability, double slide support for rigidity.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
BS-103	Battery Cable Cutter	7-1/2
BS-104	Battery Terminal Lug Crimper	3-3/4

BS-104


BS-104

To operate: Set up cable as shown and strike punch with a hammer or mallet.

ENGINE TOOLS

IE-187 FIVE-STATION MICRO TERMINAL CRIMPER

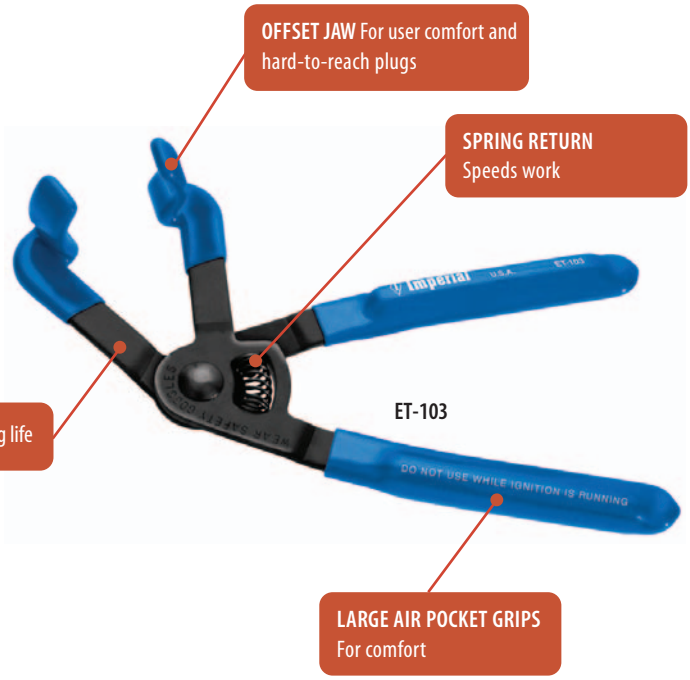
- Crimps insulated and non-insulated open barrel and Weatherpack terminals. Crimp range - 14 to 24 AWG.
- Compact head allows for one-hand operation underneath dashboard or other confined areas.
- Designed to work with GM Micro Terminals.
- Cushion grips for comfort.

IE-187

ET-103 SPARK PLUG BOOT PULLER

- Ergonomic design features offset jaw for user comfort; greater access to hard-to-reach plugs.
- Vinyl-coated jaws provide positive gripping and break tight insulators loose with just a twist.
- Spring-return action and air-pocket cushion grips to reduce fatigue.
- Fast, one-hand operation.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
ET-103	Boot Puller	7-1/4
IE-187	5-Station Micro Terminal Crimper	8



ET-103

HOSE TOOLS

KWIK-VISE™ HOSE PINCH-OFF PLIERS

- Great for radiator and heater hoses, air, water, vacuum and fuel lines.
- Tested to 50,000 cycles without failure for reliable performance.
- Patented clamping mechanism locks automatically.
- No adjustment needed. Simply squeeze to lock. Pull handles apart to release.
- Cushion grips for comfort and control.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
HP-54	Hose Pinch-off Tool 3/4" O.D. Capacity	5-1/2
HP-55	Hose Pinch-off Tool 1-1/4" O.D. Capacity	9-1/4
HP-56	Hose Pinch-off Tool 2-1/2" O.D. Capacity	14

Squeeze to lock in place.
Pull handles apart to release.

GT-115 BARB-TYPE HOSE FITTING TOOL

For 1/4"–1/2" I.D. hose.

- Use for assembly of barb-type push-on hose ends.
- Fast and easy operation.
- Assures dependable, leak-proof assemblies.
- Length 6-1/2". Wt. 1 lb.

GT-115

GT-116 PUSH LOCK CUTTER/ASSEMBLY TOOL

For 1/4"–3/4" I.D. fiber-reinforced rubber hose only.

- 2 tools in 1: everything you need to create a hose assembly.
- Assembles barb-type push-on hose ends.
- Hose cutter provides a clean cut with no frayed ends.
- Portable – can be bench-mounted.
- Length 13-1/2". Wt. 5 lbs.

GT-116

TIRE VALVE TOOL

CHANGE A VALVE IN 10 SECONDS!

TV-90 Patent pending design replaces leaky or broken valve stems without breaking down the tire from the wheel—a great time saver!

1. Insert T-handle between rim and valve stem of deflated tire.
2. Turn T-handle 1/4 turn to hook valve stem and pull out.
3. Thread new valve stem on end of plunger rod (base of valve stem should be lubricated).
4. With insertion cone positioned over stem hole, push the plunger rod/valve stem completely through the insertion cone.
5. Pull back to seat the valve stem and un-thread.

NEW

Change a valve in 10 seconds!

Valve stems not included

TV-90

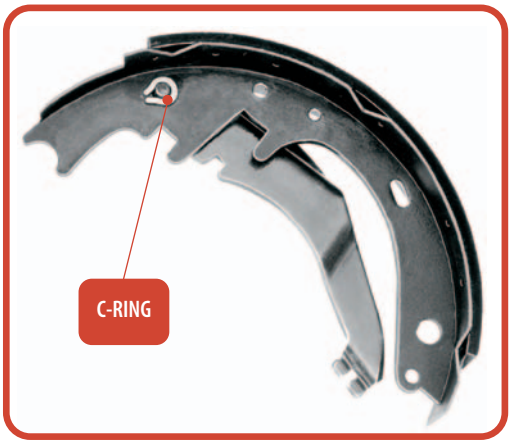
BRAKE SERVICE TOOLS

BRAKE "C" RING PLIERS

BC-101 Wedge Pliers spreads the "C" ring which holds the emergency brake actuation lever to the brake shoe.

BC-102 Utility Pliers has a narrow jaw with sharp heat-treated serrations. It provides high leverage for easy "C" ring installation and general-purpose work in tight quarters. Both made from high carbon steel and heat treated for long life.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
BC-101	Wedge Pliers for "C" Rings	7-3/4
BC-102	Utility Pliers	7-1/2
BC-103	2 Pc. Kit, 1 Each	



BC-101

BC-102

SOFT JAW PLIERS

SOFT JAW PLIERS

- Four-position pivot allows full range capacity up to 2-1/2".
- Use on AN electrical connectors, plated pipe and fittings, camera lens. . . anywhere you do not want to mar or damage surfaces.
- Cushion grips.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
GT-111	Soft Jaw Pliers – stamped steel; sleeve-type jaws	10
GT-112	Replacement Jaw Sleeves for GT-111	
GT-113	Forged Steel Soft Jaw Pliers – urethane jaw inserts (NSN 5120-00-624-8065)	10
GT-114	Replacement Jaw Inserts for GT-113	

GT-113

GT-111

MagnaMatPRO™

HIGH-ENERGY MAGNETIC TOOL & HARDWARE STORAGE SYSTEM

- Conveniently holds most ferrous tools and hardware. Keeps tools and hardware handy and organized.
- Adheres to any iron or steel surface—won't scratch paint. Place on car fender or under hood to hold tools and small parts. Affix to car-lift or toolbox for frequently used tools.
- Durable and chemical-resistant—wipes clean easily. Resistant to most automotive chemicals. Use to hold object in parts-cleaning machines.
- Flexible and foldable— can be cut into smaller strips. Carry tools and small parts to and from the job site.
- Grommets for hanging on nails or pegboard. Hang from waist to keep hands free and tools handy. Hold metal objects securely on ladders using a nail or twine.
- Use as a sweep to pick up small metal objects. Find lost metal items in carpet or grass. Pick up nails and drywall screws from construction site.
- Great for auto mechanics, technicians, tradesmen, professional craftsmen, DIYers, metal craft makers, farmers-anyone who uses tools and small metal objects.

CATALOG NUMBER	DESCRIPTION	NOM. LENGTH (in.)
612-S	MagnaMatPRO	12" x 12"

612-S

15-POCKET PROFESSIONAL TOOL BAG

TB-52 Tool Bag

- 8" W x 16" L x 11" D.
- Double layered ballistic nylon.
- Wide opening mouth.
- Padded handles and 48" shoulder strap.
- Designed to hold tools.
- Tools not included! Great for friends!

TB-52

SELLING AIDS

TOOL CENTER SIGN

TH-100

- 10" H x 45" W sturdy hardboard.
- With two grommets for hanging.

"TIME TO RE-ORDER" PEGBOARD INVENTORY TAGS

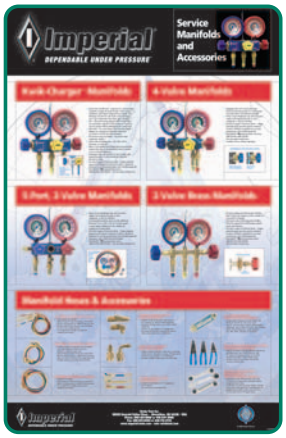
P10000831

- 2-1/2" W x 2-3/4" H prepunched.
- 12 tags per 8-1/2" x 11" sheet.

MANIFOLD, TUBE WORKING & SPECIALTY TOOLS POSTERS

LT POSTERSET

- Set of (3) posters.
- 23" W x 35-1/2" H.
- Great for stores and tech schools.



CD LIBRARY

LT00102007CD Specialty Tools for HVAC/R Service, Tube Working, Electrical and Automotive

- Each mini CD contains the Imperial catalog in a searchable format.

BANNER

LT100BNR

- 2' H x 4' W vinyl with grommets for hanging.

ALPHA-NUMERICAL INDEX

ITEM#	PAGE #
101-F	8
102-F-04	7
102-F-05	7
102-F-06	7
102-F-07	7
102-F-08	7
102-F-10	7
102-F-12	7
102-F-14	7
103-FS	15
105-FF	29
105W	80
109W	80
10-C	46
10SG	40
112-F	8
11W	79
11WS	78
120-F	25
1226-FA	25
122-FA	25
123-C	30
123-FA	25
124-C	30
124-FA	25
125-C	30
126-C	30
127-C	30
127-CO	30
12-C	46
13W	79
140-F-04	29
140-F-06	29
140-F-08	29
140-F-10	29
140-F-12	29
140-F-14	29
140-F-18	29
140-F-22	29
140-F-26	29
142-F	29
144-F	6
144FB	6
14WA	80
15WA	80
163-F	8
16-C	43
16WA	80
174-F	4
175EX	23
175EX06	23
175EX08	23
175EX10	23
175EX12	23
175EX14	23
175EX16	23
175EX18	23
175EX22	23
175EX26	23
175EXC	23
175EXP	23
17-C	43
17WA	80
18-C	43
18WA	80
193-S	24
194-S	24
195-5STDM KIT	32
195-7STDS KIT	32
195-F 05	32
195-F 06	32
195-F 07	32
195-F 07 mm	32
195-F 08	32
195-F 08 mm	32
195-F 09	32
195-F 09 mm	32
195-F 10	32
195-F 10 mm	32
195-F 11	32
195-F 11 mm	32
195-F 12	32
195-F 12 mm	32
195-F 13	32
195-F 13 mm	32
195-F 14	32
195-F 14 mm	32
195-F 15	32
195-F 15 mm	32
195-F 16	32
195-F 16 mm	32
195-F 17	32
195-F 17 mm	32
195-F 18	32
195-F 18 mm	32
195-F 19	32
195-F 19 mm	32
195-F 20	32
195-F 21 mm	32
195-F 22	32
195-F 22 mm	32
195-F 23 mm	32
195-F 24	32
195-F 24 mm	32
195-F 26	32
195-F 27 mm	32
195-F 28	32
195-F 30	32
195-F 30 mm	32
195-F 32	32
195-F 32 mm	32
195-F 34	32
195-F 36	32
195-FB	17
195-FC	15
195-SA	24
19-C	38, 43
19WA	80
1W	79
1W393	78
2000-FS	26
201-F	8
203-FA	15
205-MRS	42
206-FB	4
206-FBP	4, 5
206-MRS	42
208-F	31
208-FSS	31
20-A	38, 43
20WA	80
210-F	31
21-H	38
21-L	38
21WA	80
227-FA	2
23-C	43
241-F-03	45
241-F-04	45
241-F-05	45
241-F-06	45
2423-P	41
2425-CP	41
24-C	43
25-H	38
25-K	43
25-L	38
25W	77
260-FHA	12
26-C	43
26W	77
270-F-06	13
270-F-08	13
270-F-10	13
270-F-12	13
270-F-14	13
270-F-16	13
270-F-18	13
275-FS	22
275-FSC	26
275-FSCD	26
275-FSM	22
278-FS-03X04X06	22
278-FS-08	22, 24
278-FS-10	22, 24
278-FS-12	22
278-FS-14	24
278-FS-8	22
278-FSM-12	22
278-FSM-14	22
278-FSM-15	22
278-FSM-16	22
278-FSM-18	22
278-FSM-22	22
278-FSM-4-6-10	22
278-FSM-8	22
27-C	43
293-F	21
294-F	21
296-FC	15
2W	79
2W393	78
300-FB	15
300-RH	40
300-RL	40
307-FP	5
30W	79
312-FC	2
31W	79
327-FP	5
335-CKP	37
336-CKP	37
341-C	46
3423-IP	41
3425-CIP	41
345-FA	29
350-FHA	12
360-FHA	12
364-FH-02	9
364-FH-03	9
364-FHA-04	9
364-FHA-05	9
364-FHA-06	9
364-FHA-07	9
364-FHA-08	9
364-FHA-10	9
364-FHA-12	9
364-FHA-14	9
364-FHA-16	9
364-FHAM-10 mm	9
364-FHAM-12 mm	9
364-FHAM-6 mm	9
364-FHAM-8 mm	9
364-FHB-04	9
364-FHB-05	9
364-FHB-06	9
364-FHB-07	9
364-FHB-08	9
364-FHBM-10 mm	9
364-FHBM-12 mm	9
364-FHBM-6 mm	9
364-FHBM-8 mm	9
367-FH	8
368-FH	8
370-FH	8
375-FS	15
376-FS	15
384-FA	4

ALPHA-NUMERICAL INDEX

ITEM#	PAGE #
395-C	37
395-CD	37
395-CKP	37
395-FAM	15
396-C	37
396-CD	37
396-CKP	37
397-CD	37
398-C	37
398-CD	37
3W5	79
3W6	78
400-F	19
400-RB	40
401-C	37
401-FA	19
402-FA	19
405-CB	41
405-CR	41
405-RH	40
405-RL	40
406-FA	4
407-CB	41
407-CR	41
407-F	20
407-FA	20, 27, 28
408-CB	41
408-CR	41
415-C	36
416-C	36
417-C	36
418-C	36
41W	77
420-C	36
421-C	36
422-C	36
422-CB	41
422-CR	41
423-CAM	41
423-CAP-D	41
423-CK	41
423-CKB	41
423-CKP	41
423-CR	41
423-HPS	41
425-CAM	41
425-CAP-D	41
425-CB	41
425-CK	41
425-CKB	41
425-CKP	41
425-HPS	41
426-CKP	41
427-CKP	41
428-CKP	41
429-CKP	41
42W	77
431-CM	41
432-CM	41
434-BKP	41
434-RKP	41
435-CKP	36
436-CKP	36
437-FB	18
441-CB	41
441-CBM	41
441-CR	41
441-CRM	41
447-F	19
450-C	36
450-CM	40
451-C	36
451-CB	41
451-CBM	41
451-CM	40
451-CR	41
451-CRM	41
452-C	36
452-CB	41
452-CR	41
45W	77
464-FHT-04	10
464-FHT-06	10
464-FH-08	10
466-C	37
470-FH	7
494-C	36
495-C	36
495-CB	40
495-CD	40
495-CKP	40
496-C	36
496-CD	40
496-CKP	40
498-C	36
500-C	36
500-CD	40
500-FC	16
500-FCM	16
500-RH	40
500-RL	40
505-C	36
507-FB	18
507-FBM	18
510-C	35
510-CM	35
511-C	35
511-CM	35
512-C	35
513-C	35
520-C	35
520-CA	35
520-CAM	35
520-CB	39
521-C	35
521-CA	35
521-CAM	35
525-F	16
535-C	45
536-FTY	42
537-F	20
540-CB	40
541-C	46
542-C	46
545-C	45
548-FTY	42
555-FS	21
560-CB	39
560-FTY	42
564-FH-06	11
564-FH-08	11
564-FHT-06	11
5W4	78
5W6	79
600-F	14
600-R	40
601-R	40
602-R	40
603-MRS	42
605-MRS	42
606-MRS	42
612-S	91
620-C	34
620-CB	39
620-CK	39
620-CKP	39
620-CM	39
620-CS	34
621-C	34
621-CD	39
621-CK	39
621-CKP	39
621-CM	39
621-CS	34
622-C	34
622-CKP	39
629-C	34
630-CKP	34
630-CKPS	34
631-CKP	34
631-CKPS	34
637-F	20
640-C	34
640-CB	39
640-FC-04	46
640-FC-06	46
641-C	34
642-C	34
644-C	34
645-C	34
646-C	34
650-C	34
651-C	34
652-C	34
653-C	34
660-CB	39
6W4	78
6W6	79
700-CV	40
700-F	14
715-C	33
717-C	33
718-C	33
720-C	33
721-C	33
725-C	33
740-CBC	33
745-CBC	33
750-C	33
751-C	33
755-C	33
803-AB	38
803-AR	38
803-AS	38
803-AY	38
803-MAB	38
803-MAR	38
803-MAS	38
803-MAY	38
803-MRB	42
803-MRR	42
803-MRS	42
803-MRY	42
804-MRB	42
804-MRR	42
804-MRS	42
804-MRY	42
805-MAB	38
805-MAR	38
805-MAS	38
805-MAY	38
805-MRB	42
805-MRR	42
805-MRS	42
805-MRY	42
806-MAB	38
806-MAR	38
806-MAS	38
806-MAY	38
806-MRB	42
806-MRR	42
806-MRS	42
806-MRY	42
808-MRB	42
808-MRR	42
808-MRS	42
808-MRY	42
812-MRB	42

ALPHA-NUMERICAL INDEX

ITEM#	PAGE #
812-MRR	42
812-MRS	42
812-MRY	42
853-MRB	42
853-MRR	42
853-MRS	42
853-MRY	42
854-MRB	42
854-MRR	42
854-MRS	42
854-MRY	42
855-MRB	42
855-MRR	42
855-MRS	42
855-MRY	42
856-MRB	42
856-MRR	42
856-MRS	42
856-MRY	42
903-MRB	42
903-MRR	42
903-MRS	42
903-MRY	42
905-MRB	42
905-MRR	42
905-MRS	42
905-MRY	42
906-MRB	42
906-MRR	42
906-MRS	42
906-MRY	42
93-FB	17
93-S-03	24
93-S-04	24
93-S-05	24
93-S-06	24
93-S-08	24
93-S-10	24
93-S-12	24
93-S-14	24
94-S	24
953-MRB	42
953-MRR	42
953-MRS	42
953-MRY	42
955-MRB	42
955-MRR	42
955-MRS	42
955-MRY	42
956-MRB	42
956-MRR	42
956-MRS	42
956-MRY	42
95-S	24
9-C	46
9W	79
9WS	78
BC-101	90
BC-102	90
BC-103	90
BH-101	86
BH-103	86
BH-104	86
BH-105	86
BH-71320	86
BH-71325	86
BH-71350	86
BH-71355	86
BH-71380	86
BH-71385	86
BH-71390	86
BH-71395	86
BS-103	87
BS-104	87
EH-103	85
EH-104	85
EH-71650	85
EH-71655	85
EH-71660	85
EH-71670	85
EH-71674	85
EH-71680	85
ET-103	88
G6400	46
G6600	46
GT-111	91
GT-112	91
GT-113	91
GT-114	91
GT-115	89
GT-116	89
GU1-4A	46
GU1-4B	46
HP-54	89
HP-55	89
HP-56	89
IE-106	59
IE-110	57
IE-112	57
IE-114	57
IE-115	55
IE-116	55
IE-117	55
IE-120	53
IE-121	47
IE-122	54
IE-123	47
IE-124	47
IE-125	53
IE-126	47
IE-127	47
IE-130	53
IE-132	53
IE-135	58
IE-136	58
IE-140	59
IE-145	59
IE-150	59
IE-152	49
IE-153	49
IE-154	49
IE-155	52
IE-156	52
IE-159	52
IE-160	52
IE-162	56
IE-163	56
IE-164	56
IE-165	56
IE-177	54
IE-178	54
IE-180	54
IE-181	54
IE-182	54
IE-187	59, 88
IE-188	48
IF-10015	84
IF-101	83
IF-103	83
IF-104	83
IF-5KITC	84
IF-6514	84
IF-6567C	84
IF-6714	84
IF-6814	84
IF-7414	84
IF-7415	84
IF-7476C	84
IF-7514	84
IF-7614	84
IF-7614A	84
IF-7614C	84
IF-7630	84
IF-768	84
IF-7693C	84
IF-8015	84
IF-8215	84
IF-8518	84
IF-9015	84
IF-9315	84
IF-9315C	84
IF-9336	84
IF-9510	84
IFO-1200	50
IFO-1212	50
IFO-1300	50
IFO-1500	51
IFO-1520	51
IR-0015R	67
IR-0018R	67
IR-045K	66
IR-090K	66
IR-1080T	72
IR-10815T	72
IR-10845T	72
IR-10890T	72
IR-1150S	67
IR-1150SU	67
IR-11545S	67
IR-11545SU	67
IR-11590S	67
IR-11590SU	67
IR-12045H	70
IR-12045S	70
IR-12090H	70
IR-12090S	70
IR-120H	70
IR-120S	70
IR-120T	72
IR-124T	72
IR-129T	72
IR-12KCASE	66
IR-12QKCASE	64
IR-15045H	70
IR-15090H	70
IR-150H	70
IR-150T	72
IR-154T	72
IR-159T	72
IR-15R	71
IR-17045S	70
IR-17090S	70
IR-170S	70
IR-170T	72
IR-174T	72
IR-179T	72
IR-182TK	72
IR-183TK	72
IR-184TK	72
IR-2124R	67
IR-2129R	67
IR-2154R	67
IR-2159R	67
IR-2184R	67
IR-2189R	67
IR-230S	67
IR-250H	67
IR-250HU	67
IR-2545H	67
IR-2545HU	67
IR-2590H	67
IR-2590HU	67
IR-38	65
IR-380H	67
IR-380HU	67
IR-380S	67
IR-380SU	67
IR-380T	72

ALPHA-NUMERICAL INDEX

ITEM#	PAGE #
IR-3815T	72
IR-3818C	62
IR-3845	65
IR-3845H	67
IR-3845HU	67
IR-3845Q	63
IR-3845S	67
IR-3845SU	67
IR-3845T	72
IR-3890	65
IR-3890C	62
IR-3890H	67
IR-3890HU	67
IR-3890Q	63
IR-3890S	67
IR-3890SU	67
IR-3890T	72
IR-38Q	63
IR-44H	68
IR-44K	68
IR-44MK	73
IR-44S	68
IR-47	65
IR-470H	67
IR-470HU	67
IR-470S	67
IR-470SU	67
IR-470T	72
IR-4715T	72
IR-4718C	62
IR-4745	65
IR-4745H	67
IR-4745HU	67
IR-4745Q	63
IR-4745S	67
IR-4745SU	67
IR-4745T	72
IR-47700K	66
IR-477045K	66
IR-477090K	66
IR-4790	65
IR-4790C	62
IR-4790H	67
IR-4790HU	67
IR-4790Q	63
IR-4790S	67
IR-4790SU	67
IR-4790T	72
IR-47Q	63
IR-47R	71
IR-48R	71
IR-4CK	62
IR-5004TK	72
IR-50H	69
IR-50K	69
IR-50S	69
IR-5108TK	72
IR-5120T	72
IR-5120TK	72
IR-51215T	72
IR-51245T	72
IR-51290T	72
IR-593T	72
IR-601R	71
IR-602R	71
IR-6CK	62
IR-6CKCASE	62
IR-6KCASE	66
IR-6QKCASE	64
IR-70	65
IR-700H	67
IR-700HU	67
IR-700S	67
IR-700SU	67
IR-700T	72
IR-7015T	72
IR-7018C	62
IR-7045	65
IR-7045H	67
IR-7045HU	67
IR-7045Q	63
IR-7045S	67
IR-7045SU	67
IR-7090	65
IR-7090C	62
IR-7090H	67
IR-7090HU	67
IR-7090Q	63
IR-7090S	67
IR-7090SU	67
IR-70Q	63
IR-8TK	72
IR-90	65
IR-900H	67
IR-9045	65
IR-9045H	67
IR-9045HU	67
IR-9045Q	63
IR-9090	65
IR-9090H	67
IR-9090HU	67
IR-9090Q	63
IR-90HU	67
IR-90Q	63
IR-92	61
IR-92TP	61
IR-930T	72
IR-9315T	72
IR-9345T	72
IR-9390T	72
IR-94	61
IR-94TP	61
IR-LHS	71, 72
IR-LRRL	71
IR-LRS	71
KCK-F	44
KCK-M	44
LT POSTERSET	92
LT00102007CD	92
LT100BNR	92
P10000831	92
PT-109	45
S10000265	42
S10000770	6
S16003162	2
S26883	6
S32633	6
S38600	22
S5951125	44
S67842	46
S74197	6
S74447	20
S74455	20
S74460	20
S74462	20
S74761	6
S74762	6
S74833	6
S74834	6
S75015	2
S75046	2
S75531	24
S76637	2
S77511	6
S7931801	6
S7958301	42
S7958302	42
S8201501	6
S8694401	21
S8771301	21
S8771601	21
S8771701	21
S8771801	21
S8920069	44
S8920071	44
S8920072	44
S8920073	44
S8920074	44
S8920077	44
S8920082	44
S8920261	44
S8920263	44
S8921626	42
TB-52	91
TC-1000	2
TC-1010	2
TC-1020	2
TC-1050	3
TC-1050RH	3
TC-1051	3
TC-1500	1
TC-2050	3
TH-100	92
TV-90	90

Imperial®

DEPENDABLE UNDER PRESSURE™

LIFETIME WARRANTY

Any product manufactured by Imperial that fails to render service due to defect in workmanship or materials will be replaced or repaired at no charge. Product failures due to misuse, abuse, normal wear and tear or alterations are not covered by the Lifetime Warranty. Wear items will need to be replaced over time, and are not included (such as cutter wheels, seals, gaskets, o-rings and gauges). Imperial makes no other warranty, expressed or implied. Tools should be returned to the Buyer's place of purchase.

30333 Emerald Valley Parkway • Glenwillow, OH 44139 • USA
Phone (440) 247.4600 • (888) 467.8665 Fax (440) 715.4718 • (800) 527.6383

www.imperial-tools.com • info@stridetool.com

PIP—PRODUCT IDEA PROGRAM. We are always looking for new and innovative product ideas. Under Imperial's PIP, your new tool idea may earn you a significant PIP royalty. Send your idea or a letter to the address above, ATTN: Marketing Director, or visit our Inventors Wanted page on our website at **www.imperial-tools.com** for an Idea Submission application.

Imperial and Milbar are registered trademarks of Stride Tool Inc. © 2007 Stride Tool Inc. LT00102007