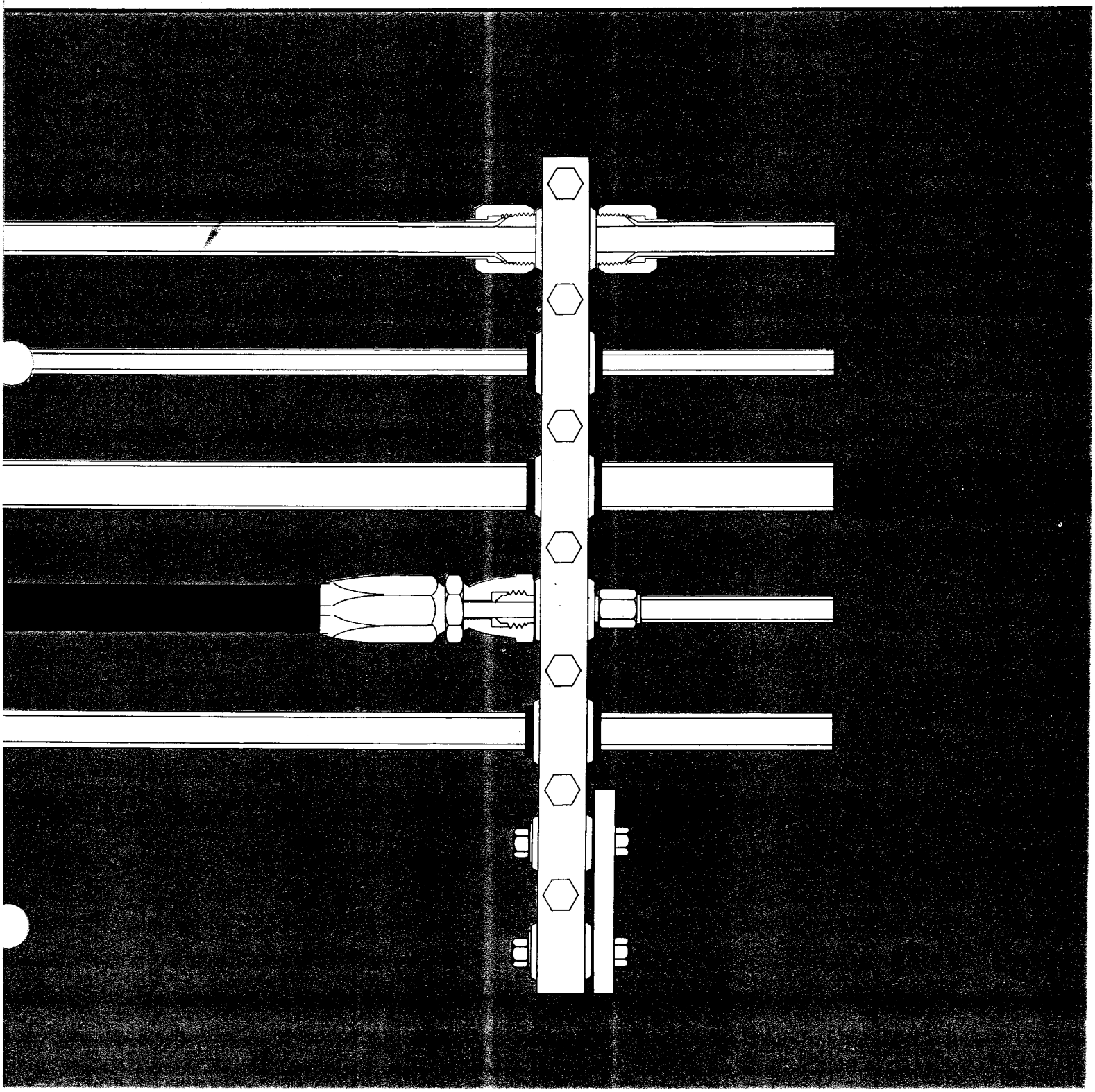
Parker
FluidConnectors

Multi-Clamp Tube Clamping Systems

for pipe, hose and tubing

Catalog 4396
June 1, 1977



CLAMPING UNITS	SPLIT BUSHINGS	MOUNTING ITEMS	ADAPTER ITEMS	STACKING ITEMS	STANDARD PARTS	TUBE CLIPS
PH-10  Series 10 1/4" thru 3/4" pages 8-9	**SB**  Series 10, 16, 32 Pipe Sizes page 10	**MA**  Mounting Adapter page 13	**RA**  Reducing Adapter page 13	**TA**  Thread Adapter page 11	**N**  Nut page 13	**3121-1**  Single tube line supporting bracket with 1 mounting hole. page 14
PH-16  Series 16 1/4" thru 1" pages 8-9	**SB-P**  Series 10, 16, 32 Tube Sizes page 10	**WA**  Weld Adapter page 11	**FJA-P**  Female Junction Adapter-Pipe page 12	**SN**  Socket-Head Stacking Nut page 11	**B**  Bolt page 13	**3121-3**  Single tube line supporting bracket with 2 mounting holes. page 14
PH-32  Series 32 3/8" thru 2" pages 8-9		**STA**  Self-Tapping Adapter page 12	**JA**  Junction Adapter page 12		**LW**  Lock Washer page 13	**3121-4**  Double tube line supporting bracket with 1 mounting hole. page 14

WHERE IS MULTI-CLAMP USED

Tubing, pipe and hose are basically used to convey a fluid under pressure. Any fluidpower system, whether using a gas (air) or aliquid (hydraulic fluid), normally carries as a side affect **shock, surge,** and **vibration**. These factors, unless surpressed, should result in serious leak potentials due to their tendency to cold work tubing and weaken or loosen fittings.

Another side effect of shock, surge and vibration which is receiving a great deal of attention is noise. Various OSHA regulations are making noise level requirements mandatory. Therefore, it is now a major concern to keep sound levels to a minimum.

The only reasonable way to prevent these potential hazards is to properly support and clamp the tube, pipe, or hose.

The Parker **multi-clamp** is an ideal system to use in these applications and performs several functions:

1. Retains and supports without damaging the pipe, tube or hose.

2. Is compatible to any design by being flexible enough to be designed into any system.

3. Guides the tube, pipe, hose to the desired routing system.

4. Protects the tube, pipe, and hose.

5. Dampens and absorbs vibration, therefore reducing noise and preventing premature tube or fitting failure.

6. Cushions hydraulic shock.

7. Uniformly spaces the tube, pipe and hose line runs.

8. Permits pipe, tube, and hose to be mixed and then in a variety of sizes, in one clamp assembly.

9. Prevents tube or pipe distortion during fabrication.

HOW TO ORDER

ORDER COMPONENTS BY PART NUMBER AS LISTED IN THIS CATALOG.

NOMENCLATURE

All **multi-clamp** components carry the prefix "C", followed by a simple letter code which describe the part. Numbers following these descriptive letter codes refer to the size of tubing, pipe, or hose (O.D.'s) the component will handle — and/or — the clamping unit series that component will operate with.

SIZE

Size, where applicable, is designated in sixteenths of an inch: -4 = $^4/_{16}$" or $^1/_4$"; -24 = $^{24}/_{32}$" or 1$^1/_2$"; etc.

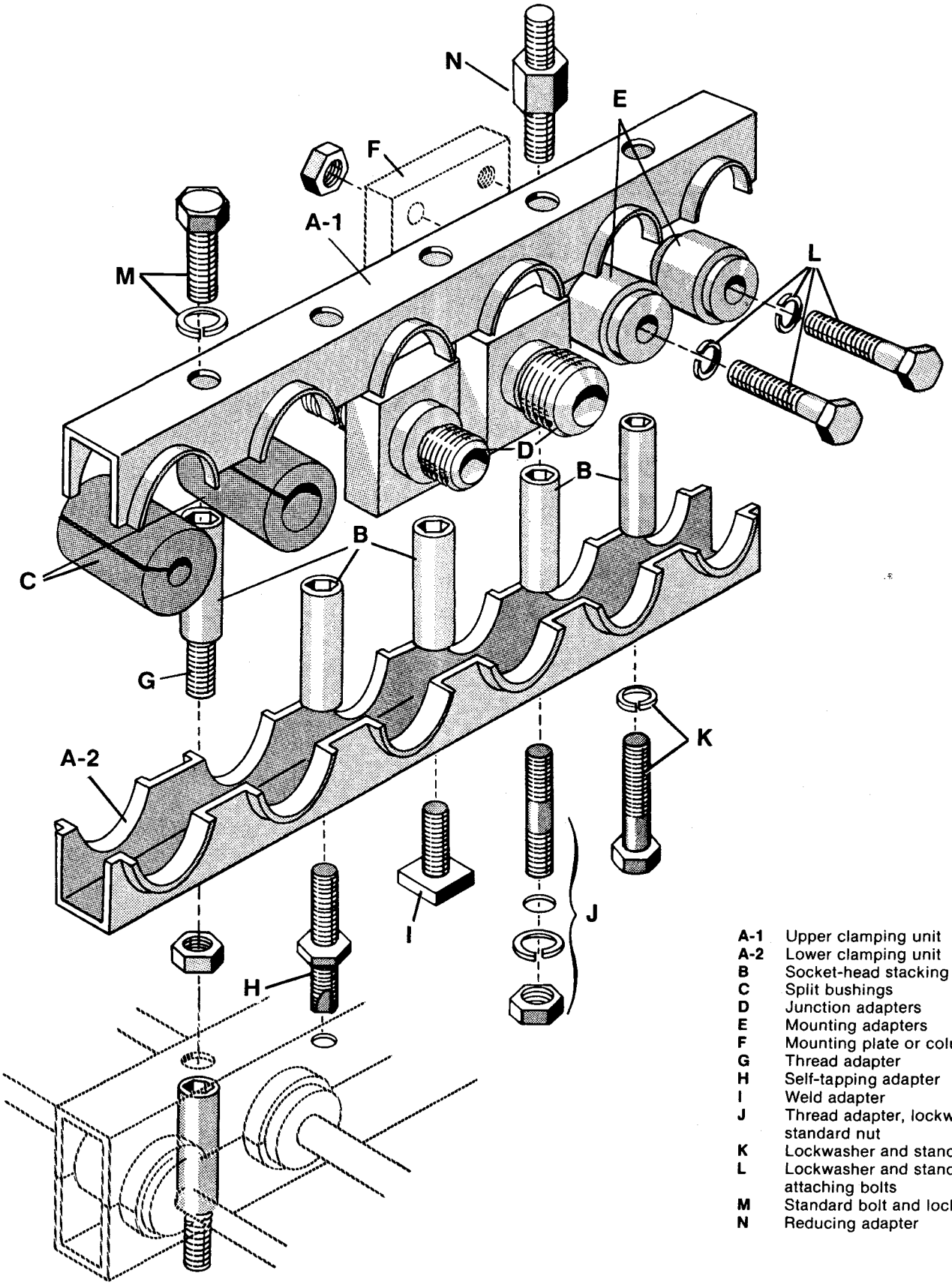
PRICING

Only items priced in current supplementary Price List 4396 are carried in stock. Price and delivery of non-standard items furnished on request.

EXAMPLE: C-JA-10-4

Prefix •	**multi-clamp** Components	**multi-clamp** Series	1st Feature	2nd Feature
C	**JA**	**10**	**4**	
① "C" is prefix for all **multi-clamp** components	② PH Clamping unit (2 pcs) SB Split bushings SN Socket-head stacking nut TA Thread adapter WA Weld adapter STA Self-tapping adapter JA Junction adapter FJA Female junction adapter MA Mounting adapter RA Reducing adapter N Nut LW Lock washer B Bolt	③ 10 PH-10 Series ■ 1½" centers ■ ¼" thru ¾" line O.D.'s ③ 16 PH-16 Series ■ 2" centers ■ ¼" thru 1" line O.D.'s ③ 32 PH-32 Series ■ 3" centers ■ ⅜" thru 2" line O.D.'s	④ Clamping Units 2 thru 32 Number of holes or line runs ④ Split Bushing 4 thru 32 O.D. of pipe or tube in sixteenths of an inch ④ Female Junction Adapter 20 Pipe Nominal I.D. in sixteenths of an inch ④ Junction Adapter 4 thru 16 Tube O.D. in sixteenths of an inch	⑤ Clamping Units With Outside Mounting Holes 2 thru 30 Number of mounting holes in clamping unit ⑤ Split Bushing P Indicates split bushing for pipe ⑤ Female Junction Adapter P Indicates pipe threaded part

FOLLOW THE DOT SEQUENCE TO GET THE PART NUMBER, THEN ORDER BY PART NUMBER.



A-1	Upper clamping unit
A-2	Lower clamping unit
B	Socket-head stacking nuts
C	Split bushings
D	Junction adapters
E	Mounting adapters
F	Mounting plate or column
G	Thread adapter
H	Self-tapping adapter
I	Weld adapter
J	Thread adapter, lockwasher, and standard nut
K	Lockwasher and standard bolt
L	Lockwasher and standard attaching bolts
M	Standard bolt and lockwashers
N	Reducing adapter

The **multi-clamp** system consists of clamping units (A-1 and A-2) connected by stacking nuts (B). The line openings may be fitted with split bushings (C) to secure lines, with junction adapters (D) to establish junctions, or with mounting adapters (E) to make a suspended mount off a plate or column (F).

For fastening to a mounting surface a socket-head stacking nut (B) is used in combination with a thread adapter (G), a self-tapping adapter (H), or a weld adapter (I) to secure the lower clamping unit (A-2).

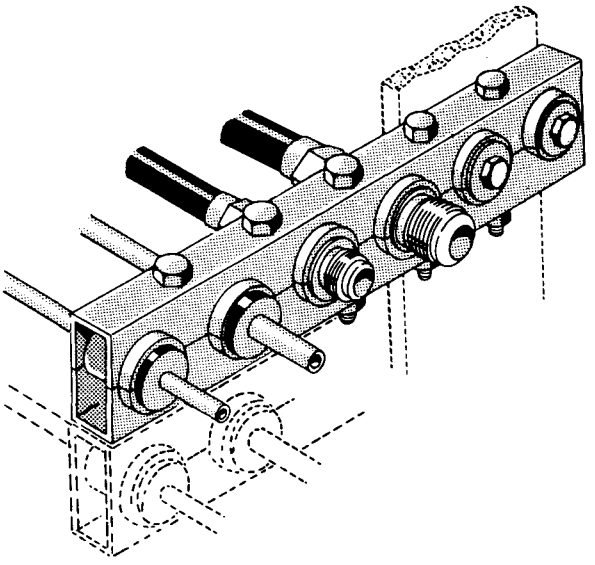
The stacking nut (B) is also used in combination with a thread adapter, lockwasher and standard nut (J) to attach the lower clamping unit (A-2) through a drilled hole in mounting to a plate.

After inserting junction adapters (D) and/or split bushings (C) and lines into the lower clamping unit (A-2), the upper clamping unit (A-1) is attached by positioning it over the lower clamping unit and placing a standard bolt and lockwasher (M) through each mounting hold and threading the bolt securely into its corresponsing stacking nut.

In bridge mounting between two columns or when the **multi-clamp** is suspended from a column, either the (J) combination of a standard bolt and lockwasher (K) can be used to secure the stacking nut to the lower clamping unit.

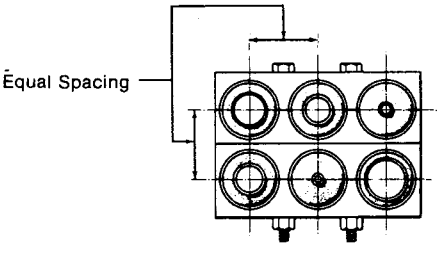
Mounting adapters (E) may be placed in appropriate holes, the lines or junction adapters installed, the upper clamping unit attached, and the complete assembly then secured with standard bolts and lockwashers (L).

Line runs can easily be stacked by mounting additional clamping units upon the existing **multi-clamp** using thread adapters (G) to connect the stacking nuts (B) in each assembly. A special reducing adapter (N) is available to connect the larger PH-32 series clamping units to the smaller PH-10 and PH-16 clamping units.



Assembled View

multi-clamp maintains equal center-line distances both horizontally and vertically-providing a definite reference for measuring. This is a distinct advantage over other clamping devices that change center line distances both horizontally and vertically with each change in line diameter.



PLANNING AND INSTALLATION

Familiarize yourself with **multi-clamp** and its versatile components. See pages 8 through 13.

Lines and directions

Determine the most desirable route — avoiding obstructions, moving parts, service openings and complex contours. Determine the total number of lines required and the direction each will go. First, consider routing line runs along the base of the device. If obstructions prohibit this, consider attaching upright spars to the device for overhead runs, or routing lines overhead in suspension. Sketches or drawings are a definite aid in planning installation of **multi-clamp**.

EXAMINE THE DEVICE

If the device to be piped consists of more than one component — such as a machine tool with hydraulic and coolant tanks — include multi-clamp junction adapters so that individual units can be easily separated and reconnected at the **multi-clamp**.

SELECT MULTI-CLAMP PARTS

The largest tube, pipe or hose O.D. used determines the appropriate series of **multi-clamp**. Refer to the following table, and use the smallest series shown for the largest line to be installed.

O.D. of Line		Multi-Clamp Series
in	mm	
3/16" thru 3/4"	4.8 thru 19.1	PH 10 (1½" centers - 38.1 mm)
1/4" thru 1"	6.4 thru 25.4	PH 16 (2" centers - 50.8 mm)
3/8" thru 2"	9.5 thru 50.8	PH 32 (3" centers - 76.2 mm)
2" and up	50.8 and up	Consult Factory*

INSTALLATION

After routing is determined and proper **multi-clamp** components selected mount lower clamping units as shown on the following pages. Position the first line and use it as a reference for measurement. Work with the center line distance which is constant in each series. Install split bushings to secure all lines and junction adapters where desired. Position upper clamping unit and secure to lower clamping unit. If a large number of lines are to be installed, cut upper clamping unit so that two lines are secured at a time.

The total number of **multi-clamps** required and the spacing between clamp supports is shown in the following table:

We suggest you clamp as close to each bend of the tube or pipe as possible; and you must clamp each side. This eliminates thrust in all directions.

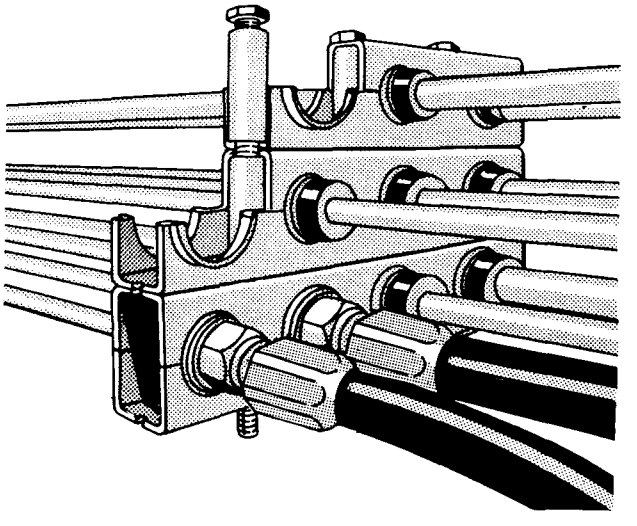
RECOMMENDED SUPPORT CLAMP SPACING

Tube O.D.		Approximate Space Between Supports	
in	mm	ft	cm
1/4" thru 1/2"	6.4 thru 12.7	3	91.4
5/8" thru 7/8"	15.9 thru 22.2	4	121.9
1"	25.4	5	152.4
1 1/4" & up	31.8	7	213.4
Pipe I.D.		**Approximate Space Between Supports**	
in	mm	ft	cm
1/4" thru 3/4"	6.4 thru 19.1	3	91.4
1" thru 1½"	25.4 thru 38.1	4	121.9
2" thru 3"	50.8 thru 76.2	8*	243.8
3½" & up	88.9 & up	10*	304.8

*For **multi-clamp** components of sizes over 2" O.D. (tube) or 1½" I.D. (pipe) consult factory.

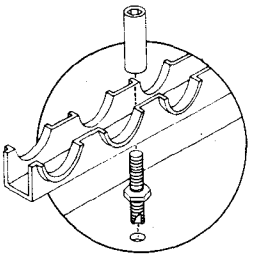
STACKING

Multiple line runs can be stacked to conserve space and make installations more rigid. Both horizontal and vertical center line distances remain the same when multi-clamp units in the same series are stacked.



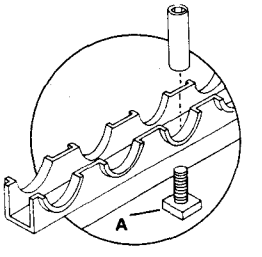
This sectional view shows a more complex installation which has been stacked using several **multi-clamps**.

SELF-TAPPING ADAPTERS



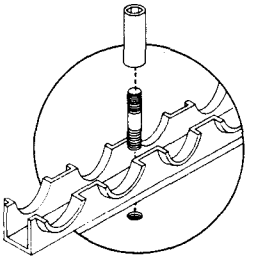
1. Using scale or clamping unit, measure and mark location of each mounting tube on mounting surface. **2.** Drill appropriate size hole for the **multi-clamp** self tapping adapter selected. **3.** Insert self tapping adapters into mounting surface with speed wrench until seated securely. **4.** Align lower clamping unit over self-tapping adapters. **5.** Thread socket-head stacking onto each self-tapping adapter until finger tight. **6.** Tighten all stacking nuts securely with wrench and proceed with installation.

WELDING ADAPTERS



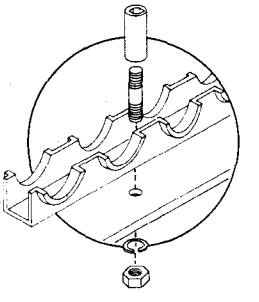
1. Insert weld adapter into mounting hole of lower clamping unit. **2.** Secure weld adapter to lower clamping unit with socket-head stacking nut (finger tight). Repeat these two steps for each hole. **3.** Position assembled unit on mounting surface. **4.** Weld the base of each weld adapter to the mounting surface (A). **5.** Tighten all socket-head stacking nuts and proceed with installation.

THREAD ADAPTER FOR TAPPED HOLE



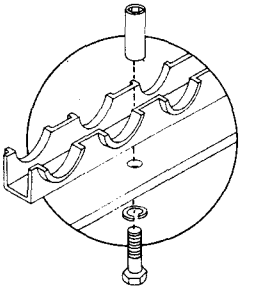
1. Using scale or clamping unit, measure and mark location of each mounting hole on mounting surface. **2.** Drill appropriate size hole for the **multi-clamp** thread adapter selected. **3..** Tap each hole with thread size indicated for appropriate **multi-clamp** unit. **4.** Assemble required number of socket-head, stacking nuts and thread adapters, inserting short threaded end of adapter in nut. **5.** Position lower clamping unti over tapped holes, and thread exposed end of adapter into each hole until finger tight. **6.** Tighten all stacking nuts securely with wrench and proceed with installation.

THREAD ADAPTER FOR DRILLED HOLE



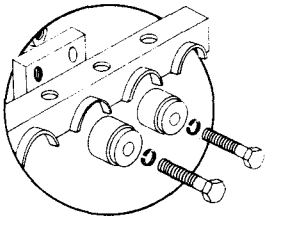
1. Using scale or clamping unit, measure and mark location of each mounting hole on mounting surface. **2.** Drill appropriate size hole for the **multi-clamp** thread adapter selected. **3.** Assemble required number of socket-head stacking nuts and thread adapters, inserting short threaded end of adapter into nut. **4.** Position lower clamping unit over drilled holes, and insert exposed end of adapter through both clamping unit mounting hole and hole in mounting surface. **5.** Attach lockwasher and nut. Tighten all stacking nuts securely with wrench and proceed with installation.

STANDARD BOLT, LOCKWASHER AND STACKING NUT FOR DRILLED HOLE



1. Using scale or clamping unit, measure and mark location of each mounting hole on mounting surface. **2.** Drill appropriate size hole for the **multi-clamp** standard bolt selected. **3.** Position lower clamping unit over drilled holes. Insert standard bolt with lockwasher through drilled hole, then through lower clamping unit. **4.** Attach socket-head stacking nuts until finger tight. **5.** Tighten securely with wrench and proceed with installation.

MOUNTING ADAPTERS



1. Complete line assembly and insert at least two mounting adapters in each clamping unit before securing the upper and lower halves. **2.** Secure assembly to mounting surface with standard bolt and lockwasher for appropriate multi-clamp series.

Note — When mounting with mounting adapters, holes in mounting surface may be tapped. Due to varying thickness of mounting surface, other than standard bolts as offered in this catalog may be required.

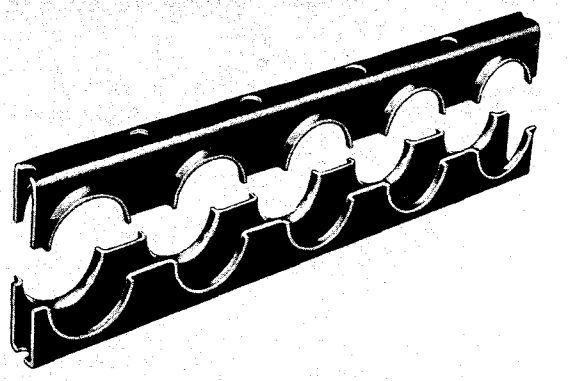
CLAMPING UNITS

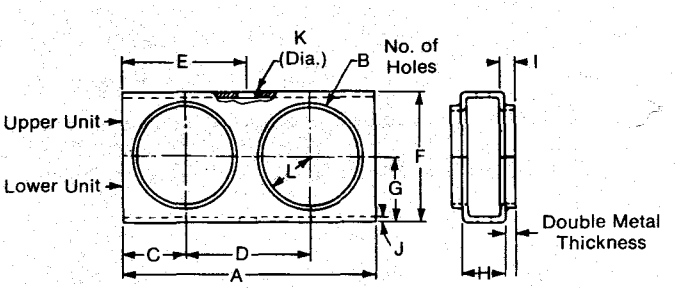
PH-10, PH-16, PH-32

Consist of upper and lower halves of a complete clamp. Steel (coated for protection against damaging environments) is standard with aluminum and stainless steel being available on request. The PH-10, PH-16 and PH-32 series are available in lengths up to 4 feet with a maximum of 32, 24 and 16 holes respectively.

Note — These part numbers are only representative of the possible lengths available. For example, C-PH-10-9 thru 31, which would have 9 thru 31 holes, are available; C-PH-16-9 thru 23, which would have 9 thru 23 holes, are available; and C-PH-32-9 thru 15, which would have 9 thru 15 holes, are available*.

*See Price List 4396

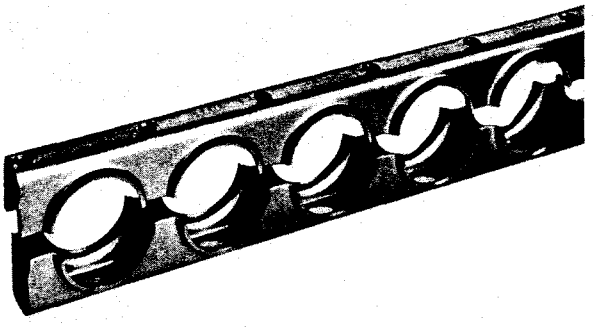




Multi-Clamp Series	Part No.*	A		B	C		D		E		F		G		H		I		J	K		L	
		in	mm	No. of Holes	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm
PH-10 (1½" - 38.10 mm - centers)	C-PH-10-2	2 11/16	68.3	2	19/32	15.1	1½	38.1	1 11/32	34.1	1½	38.1	¾	19.1	11/16	17.5	3/16	4.8	14 GA.	11/32	8.7	27/64	10.7
	C-PH-10-3	4 3/16	106.4	3																			
	C-PH-10-4	5 11/16	144.5	4																			
	C-PH-10-5	7 3/16	182.6	5																			
	C-PH-10-6	8 11/16	220.7	6																			
	C-PH-10-7	10 3/16	258.8	7																			
	C-PH-10-8	11 11/16	296.9	8																			
	C-PH-10-32	48	1219.2	32																			
PH-16 (2" - 50.80 mm - centers)	C-PH-16-2	3 11/16	93.7	2	27/32	21.4	2	50.8	1 27/32	46.8	2	50.8	1	25.4	11/16	17.5	3/16	4.8	14 GA.	11/32	8.7	19/32	15.1
	C-PH-16-3	5 11/16	144.5	3																			
	C-PH-16-4	7 11/16	195.3	4																			
	C-PH-16-5	9 11/16	246.1	5																			
	C-PH-16-6	11 11/16	296.9	6																			
	C-PH-16-7	13 11/16	347.7	7																			
	C-PH-16-8	15 11/16	398.5	8																			
	C-PH-16-24	48	1219.2	24																			
PH-32 (3" - 76.20 mm - centers)	C-PH-32-2	5 11/16	144.5	2	1 11/32	34.1	3	76.2	2 27/32	72.2	3	76.2	1½	38.1	1	25.4	3/8	9.5	10 GA.	13/32	10.3	1 1/16	27.0
	C-PH-32-3	8 11/16	220.7	3																			
	C-PH-32-4	11 11/16	296.9	4																			
	C-PH-32-5	14 11/16	373.1	5																			
	C-PH-32-6	17 11/16	449.3	6																			
	C-PH-32-7	20 11/16	525.5	7																			
	C-PH-32-8	23 11/16	601.7	8																			
	C-PH-32-16	48	1219.2	16																			

Part numbers shown are for steel clamping units (coated for protection against damaging environments).
Aluminum and stainless steel clamping units have the same part number for each respective size with a -A suffix or a -SS suffix added.

CLAMPING UNIT WITH OUTSIDE MOUNTING HOLES

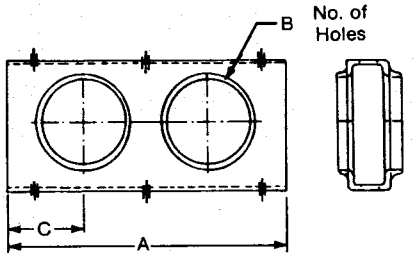


PH-10, PH-16, PH-32

Consist of upper and lower halves of a complete clamp. Steel (coated for protection against damaging environments) is standard with aluminum and stainless steel being available on request. The PH-10, PH-16 and PH-32 series are available in lengths up to 4 feet with a maximum of 30, 22 and 14 holes respectively with outside mounting holes.

Note — These part numbers are only representative of the possible lengths available with outside mounting holes. For example, C-PH-10-9-10 thru C-PH-10-29-30 are available; C-PH-16-9-10 thru C-PH-16-21-22 are available; and C-PH-32-9-10 thru C-PH-13-14 are also available*. The number underlined is the number of holes per unit while the last number in any part denotes the number of mounting holes.

*See Price List 4396



Multi-Clamp Series	Part No.*	A		B	C	
		in	mm	No. of Holes	in	mm
PH-10 (1½" - 38.10 mm - centers)	C-PH-10-1-2	2⅛	53.9	1	1	25.4
	C-PH-10-2-3	3⅝	92.1	2		
	C-PH-10-3-4	5⅛	130.2	3		
	C-PH-10-4-5	6⅝	168.3	4		
	C-PH-10-5-6	8⅛	206.4	5		
	C-PH-10-6-7	9⅝	244.5	6		
	C-PH-10-7-8	11⅛	282.6	7		
	C-PH-10-8-9	12⅝	320.7	8		
PH-16 (2" - 50.80 mm - centers)	C-PH-16-1-2	2⅝	66.7	1	1 11/32	34.1
	C-PH-16-2-3	4⅝	117.5	2		
	C-PH-16-3-4	6⅝	168.3	3		
	C-PH-16-4-5	8⅝	219.1	4		
	C-PH-16-5-6	10⅝	269.9	5		
	C-PH-16-6-7	12⅝	320.7	6		
	C-PH-16-7-8	14⅝	371.5	7		
	C-PH-16-8-9	16⅝	422.3	8		
PH-32 (3" - 76.20 mm - centers)	C-PH-32-1-2	4	101.6	1	1 13/16	46.0
	C-PH-32-2-3	7	177.8	2		
	C-PH-32-3-4	10	254	3		
	C-PH-32-4-5	13	330.2	4		
	C-PH-32-5-6	16	406.4	5		
	C-PH-32-6-7	19	482.6	6		
	C-PH-32-7-8	22	558.8	7		
	C-PH-32-8-9	25	635	8		

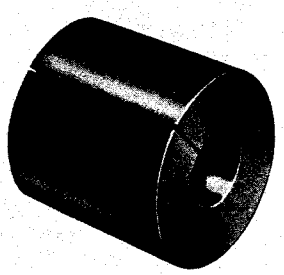
All other dimensions same as clamping units with outside mounting holes.

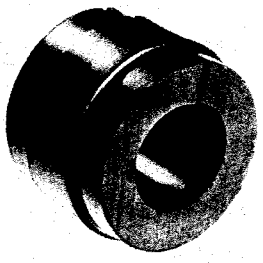
*Part numbers shown are for steel clamping units (coated for protection against damaging environments). Aluminum and stainless steel clamping units have the same part number for each respective size with a -A suffix or a -SS suffix added.

SPLIT BUSHINGS

SB and SB-P

Made of tough elastomers to resist high temperatures (250°F, 121°C), corrosion, wear and the effects of oils and coolants, etc. They are split for easy installation, and available in a wide range of I.D.'s to accomodate line sizes up to 2" for both tubing and pipe. The larger sized split bushings contain a pilot ridge to insure proper alignment in a clamping unit.



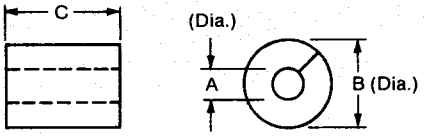


TUBE SIZES

Multi-Clamp Series	Part No.	A		B		C	
		in	mm	in	mm	in	mm
PH-10	C-SB-10-4	1/4	6.4	7/8	22.2	1 5/16	33.3
	C-SB-10-5	5/16	7.9				
	C-SB-10-6	3/8	9.5				
	C-SB-10-8	1/2	12.7				
	C-SB-10-10	5/8	15.9				
	C-SB-10-12	3/4	19.1				
PH-16	C-SB-16-4	1/4	6.4	1 1/4	31.8	1 5/16	33.3
	C-SB-16-5	5/16	7.9				
	C-SB-16-6	3/8	9.5				
	C-SB-16-8	1/2	12.7				
	C-SB-16-10	5/8	15.9				
	C-SB-16-12	3/4	19.1				
	C-SB-16-14	7/8	22.2				
	C-SB-16-16	1	25.4				
PH-32	C-SB-32-6	3/8	9.5	2 3/16	55.6	1 3/4	44.5
	C-SB-32-8	1/2	12.7				
	C-SB-32-10	5/8	15.9				
	C-SB-32-12	3/4	19.1				
	C-SB-32-14	7/8	22.2				
	C-SB-32-16	1	25.4				
	C-SB-32-20	1 1/4	31.8				
	C-SB-32-24	1 1/2	38.1				
	C-SB-32-32	2	50.8				

PIPE SIZES

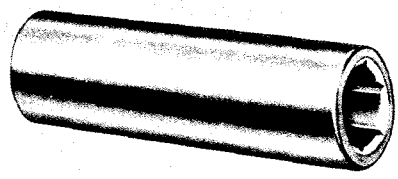
Multi-Clamp Series	Part No.	A		B		C	
		in	mm	in	mm	in	mm
PH-16	C-SB-16-4P	33/64	13.1	1 1/4	31.8	1 5/16	33.3
	C-SB-16-6P	21/32	16.7				
	C-SB-16-8P	13/16	20.7				
	C-SB-16-12P	1 1/32	26.2				
PH-32	C-SB-32-4P	33/64	13.1	2 3/16	55.6	1 3/4	44.5
	C-SB-32-6P	21/32	16.7				
	C-SB-32-8P	13/16	20.7				
	C-SB-32-12P	1 1/32	26.2				
	C-SB-32-16P	1 15/64	32.9				
	C-SB-32-20P	1 41/64	41.7				
	C-SB-32-24P	1 7/8	47.6				

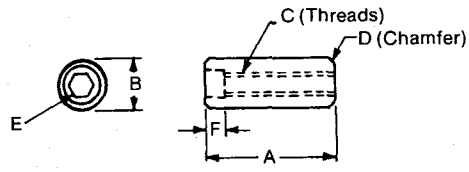


SOCKET-HEAD STACKING NUTS

SN

Primary components for holding the two halves of the clamping unit firmly together as well as the stacking of two or more clamping units. They also secure the lower clamping unit to a base, column or support. They are tightened with a standard socket-head hex wrench.



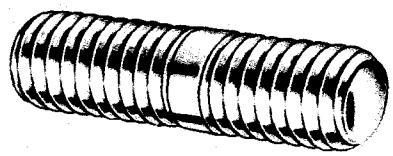


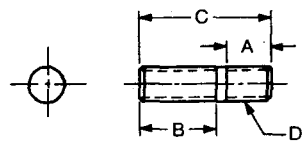
Multi-Clamp Series	Part No.	A		B		C	D		E		F	
		in	mm	in	mm	in	in	mm	in	mm	in	mm
PH-10	C-SN-10	1.335	33.9	1/2	12.7	5/16-18	1/32 x 45°	.8 x 45°	5/16	7.9	7/32	5.6
PH 16	C-SN-16	1.800	45.7	1/2	12.7	5/16-18	1/32 x 45°	.8 x 45°	5/16	7.9	7/32	5.6
PH 32	C-SN-32	2.670	67.8	11/16	17.5	3/8 -16	1/16 x 30°	1.6 x 45°	3/8	9.5	9/32	7.1

THREAD ADAPTERS

TA

Designed to thread into the stacking nuts for securing the lower clamping unit or for stacking two or more clamping units. They are available in tow sizes which accommodate all three series of clamping units.



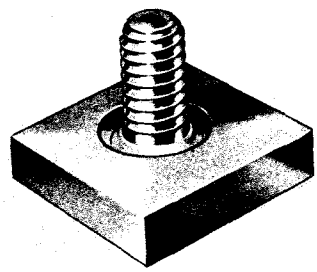


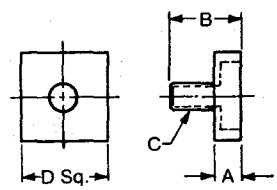
Multi-Clamp Series	Part No.	A		B		C		D
		in	mm	in	mm	in	mm	in
PH 10	C-TA-10	.50	12.7	.62	15.8	1.25	31.8	5/16-18
PH 16	C-TA-16	.50	12.7	.62	15.8	1.25	31.8	5/16-18
PH 32	C-TA-32	.50	17.7	.88	22.4	1.50	38.1	3/8 -16

WELD ADAPTERS

WA

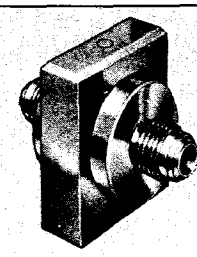
Used when a welded bond is preferred to secure the lower clamping unit to a mounting surface. They are available for all three series.





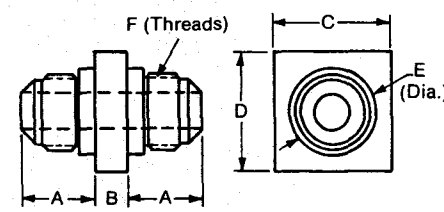
Multi-Clamp Series	Part No.	A		B		C	D	
		in	mm	in	mm	in	in	mm
PH 10	C-WA-10	.44	11.2	.75	19.1	5/16-18	1.00	25.4
PH 16	C-WA-16	.44	11.2	.75	19.1	5/16-18	1.00	25.4
PH 32	C-WA-32	.44	11.2	1.00	25.4	3/8 -16	1.25	31.8

JUNCTION ADAPTERS



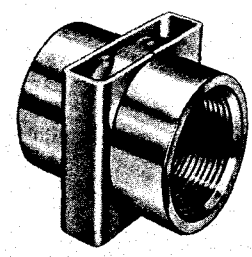
JA

Lock-fit into clamping units to accommodate popular flexible tube and hose sizes. They can be used to couple hose to tube, tube to pipe, etc. They provide the means to separate fluid system components. Pre-planned junction blocks make major system elements self-contained, complete with line runs, for breakdown, servicing, relocating or shipping. Junction adapters are available in various sizes for both the PH-10 and PH-16 series to adapt to 37° flared fittings.



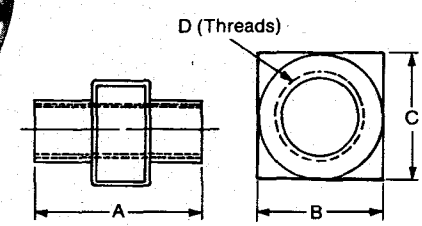
Multi-Clamp Series	Part No.*	A		B		C		D		E		F
		in	mm	in	mm	in	mm	in	mm	in	mm	in
PH 10	C-JA-10-4	25/32	19.8	1/2	12.7	1	25.4	1 11/32	34.1	27/32	46.8	7/16-20
	C-JA-10-6	25/32	19.8									9/16-18
	C-JA-10-8	7/8	22.2									3/4-16
	C-JA-10-10	1	25.4									
PH 16	C-JA-16-4	25/32	19.8	1/2	12.7	1 1/2	38.1	1 25/32	45.2	1 13/64	30.6	
	C-JA-16-6	3/4	19.1									9/16-18
	C-JA-16-8	15/16	23.8									3/4 -16
	C-JA-16-10	1	25.4									7/8 -14
	C-JA-16-12	1 1/8	28.6									1 1/16-12
	C-JA-16-14	1 1/8	28.6									1 3/16-12
	C-JA-16-16	1 5/32	29.4									1 5/16-12

FEMALE JUNCTION ADAPTER-PIPE



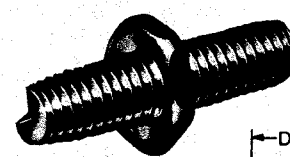
FJA-P

Available in the PH-32 series for pipe end connectors.



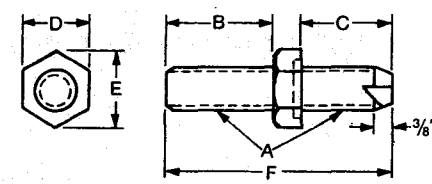
Multi-Clamp Series	Part No.*	A		B		C		D
		in	mm	in	mm	in	mm	in
PH 32	C-FJA-32-20-P	2 5/8	66.7	2 1/4	57.2	2 1/2	63.5	1 1/4npt

SELF-TAPPING ADAPTERS



STA

Used to secure the lower clamping unit to a mounting surface when non-tapped holes are present. The other end threads into the stacking nut. They are interchangeable for the PH-10 and PH-16 series.

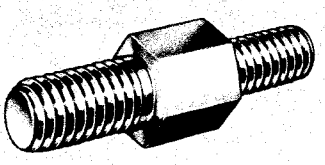


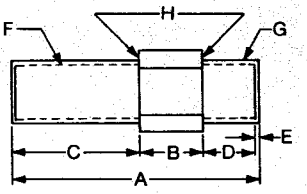
Multi-Clamp Series	Part No.*	A	B		C		D		E		F	
		in	in	mm	in	mm	in	mm	in	mm	in	mm
PH 10	C-STA-10	5/16-18	3/4	19.1	5/8	15.9	1/2	12.7	.577	14.7	1.50	38.1
PH 16	C-STA-16	5/16-18	3/4	19.1	5/8	15.9	1/2	12.7	.577	14.7	1.50	38.1

REDUCING ADAPTERS

RA

Used to stack PH-10 and/or PH-16 clamping units to the PH-32 clamping unit.



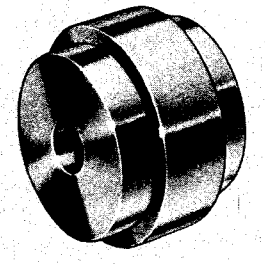


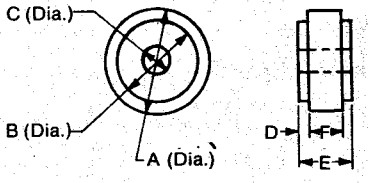
Multi-Clamp Series	Part No.	A		B		C		D		E		F	G	H	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	in	in	mm
PH 32	C-RA-32	1 7/8	47.6	1/2	12.7	3/4	19.1	5/8	15.9	.03 x 45°	.8 x 45°	3/8-16	5/16-18	.03R	.76R

MOUNTING ADAPTERS

MA

Metal bushings that fit into the line openings of the clamping units similar to split bushings. These components accommodate standard attaching bolts when making a suspended mount off a plate or column. They are available for all three series of clamping units.

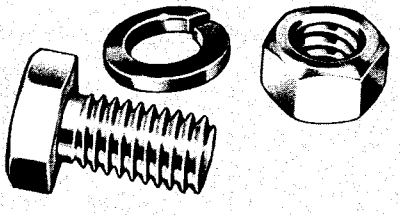




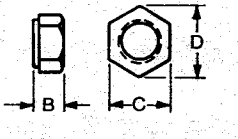
Multi-Clamp Series	Part No.	A		B		C		D		E		F	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
PH 10	C-MA-10	1 1.00	25.4 25.4	.855 max .850 min	21.7 max 21.6 min	11/32 .34	8.7 8.6	9/32 .28	7.1 7.1	1 1/16 1.06	27.0 26.9	.510 .500	13.0 12.7
PH 16	C-MA-16	1 3/8 1.44	34.9 36.6	1.195 max 1.190 min	30.4 max 30.2 min	11/32 .34	8.7 8.6	9/32 .28	7.1 7.1	1 1/16 1.06	27.0 26.9	.510 .500	13.0 12.7
PH 32	C-MA-32	2 1/2 2.30	63.5 58.4	2.140 max 2.135 min	54.4 max 54.2 min	19/32 .39	15.1 9.9	25/64 .43	9.9 10.9	1 1/2 1.56	38.1 39.6	.719 .700	18.3 17.8

STANDARD PARTS

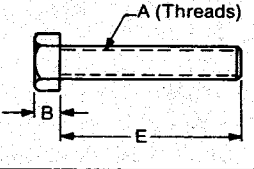
Consist of standard bolts, nuts and lockwashers for both mounting and securing the two parts of the clamping unit. They are available for all three series of clamping units.

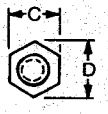


Multi-Clamp Series	Part No.	Nuts							Lock Washer		
		A	B		C		D		Size		Part No.
		in	in	mm	in	mm	in	mm	in	mm	
PH 10	C-N-10	5/16-18	17/64	6.8	1/2	12.7	.577	14.7	5/16	7.9	C-LW-10
PH 16	C-N-16	5/16-18	17/64	6.8	1/2	12.7	.577	14.7	5/16	7.9	C-LW-16
PH 32	C-N-32	3/8 -16	21/64	8.3	9/16	14.3	.650	16.5	3/8	9.5	C-LW-32



Multi-Clamp Series	Part No.	Bolts								
		A	B		C		D		E	
		in	in	mm	in	mm	in	mm	in	mm
PH 10	C-B-10	5/16-18	7/32	5.6	1/2	12.7	.577	14.7	3/4	19.1
PH 16	C-B-16	5/16-18	7/32	5.6	1/2	12.7	.577	14.7	3/4	19.1
PH 32	C-B-32	3/8 -16	1/4	6.4	9/16	14.3	.650	16.5	1	25.4

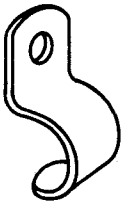


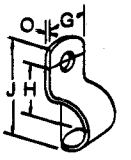


TUBE CLIP

3121-1

Single tube line supporting bracket with one mounting hole.



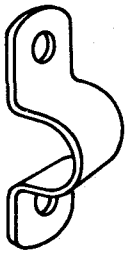


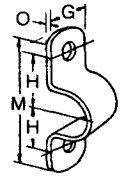
Part No. Brass	Tube O.D.		G		H		J		O		Hole Dia.	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3121-1-3	3/16	4.8	5/16	7.9	9/32	7.1	17/32	13.5	1/32	.8	5/32	4.0
3121-1-4	1/4	6.4	3/8	9.5	11/32	8.7	21/32	16.7	1/32	.8	3/16	4.8
3121-1-5	5/16	7.9	7/16	11.1	13/32	10.3	13/16	20.6	1/32	.8	3/16	4.8
3121-1-6	3/8	9.5	1/2	12.7	15/32	11.9	15/16	23.8	1/32	.8	3/16	4.8
3121-1-8	1/2	12.7	1/2	12.7	35/64	13.9	1 1/16	27.0	3/4	1.2	7/32	5.6
3121-1-10	5/8	15.9	5/8	15.9	11/16	17.5	1 5/16	33.3	1/16	1.6	1/4	6.4
3121-1-12	3/4	19.1	3/4	19.1	13/16	20.6	1 9/16	39.7	1/16	1.6	9/32	7.1

TUBE CLIP

3121-3

Single tube line supporting bracket with two mounting holes.



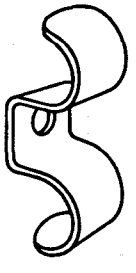


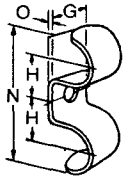
Part No. Brass	Tube O.D.		G		H		M		O		Hole Dia.	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3121-3-3	3/16	4.8	5/16	7.9	9/32	7.1	7/8	22.2	1/32	.8	5/32	4.0
3121-3-4	1/4	6.4	3/8	9.5	11/32	8.7	1 1/16	27.0	1/32	.8	3/16	4.8
3121-3-5	5/16	7.9	7/16	11.1	13/32	10.3	1 1/4	31.8	1/32	.8	3/16	4.8
3121-3-6	3/8	9.5	1/2	12.7	15/32	11.9	1 7/16	36.5	1/32	.8	3/16	4.8
3121-3-8	1/2	12.7	1/2	12.7	35/64	13.9	1 19/32	40.5	3/64	1.2	7/32	5.6
3121-3-10	5/8	15.9	5/8	15.9	11/16	17.5	2	50.8	1/16	1.6	1/4	6.4
3121-3-12	3/4	19.1	3/4	19.1	13/16	20.6	2 3/8	60.3	1/16	1.6	9/32	7.1

TUBE CLIP

3121-4

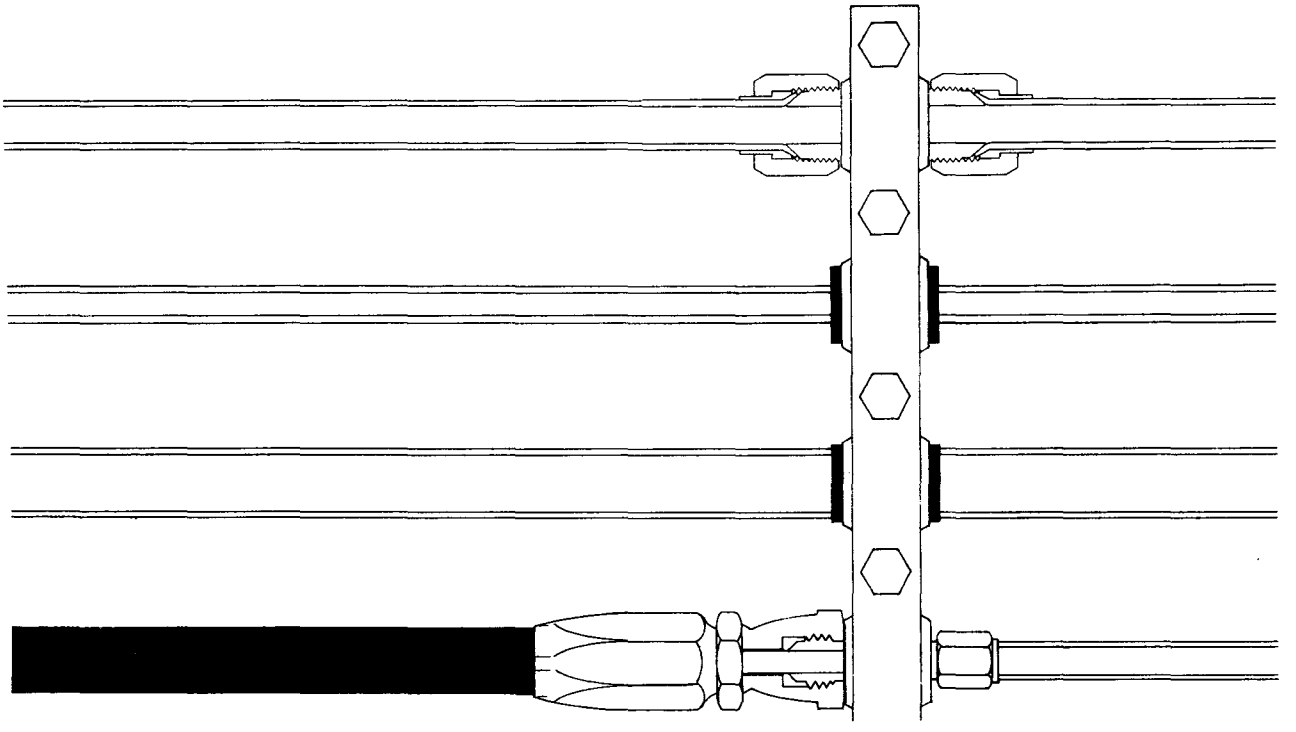
Double tube line supporting bracket with one mounting hole.





Part No. Brass	Tube O.D.		G		H		N		O		Hole Dia.	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
3121-4-3	3/16	4.8	5/16	7.9	9/32	7.1	13/16	20.6	1/32	.8	5/32	4.0
3121-4-4	1/4	6.4	3/8	9.5	11/32	8.7	1	25.4	1/32	.8	3/16	4.8
3121-4-5	5/16	7.9	7/16	11.1	13/32	10.3	1 3/16	30.2	1/32	.8	3/16	4.8
3121-4-6	3/8	9.5	1/2	12.7	15/32	11.9	1 3/8	34.9	1/32	.8	3/16	4.8
3121-4-8	1/2	12.7	1/2	12.7	35/64	13.9	1 11/16	42.9	3/64	1.2	7/32	5.6
3121-4-10	5/8	15.9	5/8	15.9	11/16	17.5	2 1/8	54.0	1/16	1.6	1/4	6.4
3121-4-12	3/4	19.1	3/4	19.1	13/16	20.6	2 1/2	63.5	1/16	1.6	9/32	7.1

Multi-Clamp Tube Clamping System



TUBE, PIPE, AND HOSE CLAMPING IS NOW MANDATORY

The JIC (Joint Industrial Council) who defines piping as "all pipe, tubing, hose, and fittings" has written specific requirements for piping support. With the availability of Parker "MULTI-CLAMP", you can now satisfy these requirements. The JIC has revised their Hydraulic Standards for Industrial equipment and General Purpose Machine Tools. This speification has been coded JIC No. #H-1-1973.

Those sections of JIC H-1-1973 and their contents which refer directly to piping support are as follows:

"**H11.8.2:** *Tube branching.* Tube branching should occur at terminal connectors and/or adapters that are securely anchored to a terminal device or component."

"**H11.9:** *Piping across Access Ways.* Piping runs across access ways shall not interfere with the normal use of the access way and should be located either below or well above the floor level and shall be in accordance with purchaser's requirements. These piping runs shall be radily accessible, rigidly supported, and, where necessary, protected against external damage."

"**H11.10:** *Piping between Assemblies.* Where the equipment is constructed of separated assemblies, a rigidly mounted bulkhead type terminal device or terminal manifold shall be used to support the piping runs and shall provide connection for each end of the piping spands between assemblies."

"**H11.19.3:** *Flexible Hose Installations.* Installations of flexible hose shall have vertical termination at the hose, ends, or the hose shall be adequately supported where end terminations are other than vertical."

"**H11.20:** *Piping Supports.*"

"**H11.20.1:** *Support Requirements.* Piping shall be securely supported to prevent its movement and minimize its vibration."

"**H11.20.2:** *Support Installations.* Piping support shall not be welded to the piping, nor shall the contact of the supports with the outside of the piping damage it."

"***H11.20.3:** *Spacing of Piping Supports.*" The maximum length of piping between supports should not exceed the distances specified in Table 1."

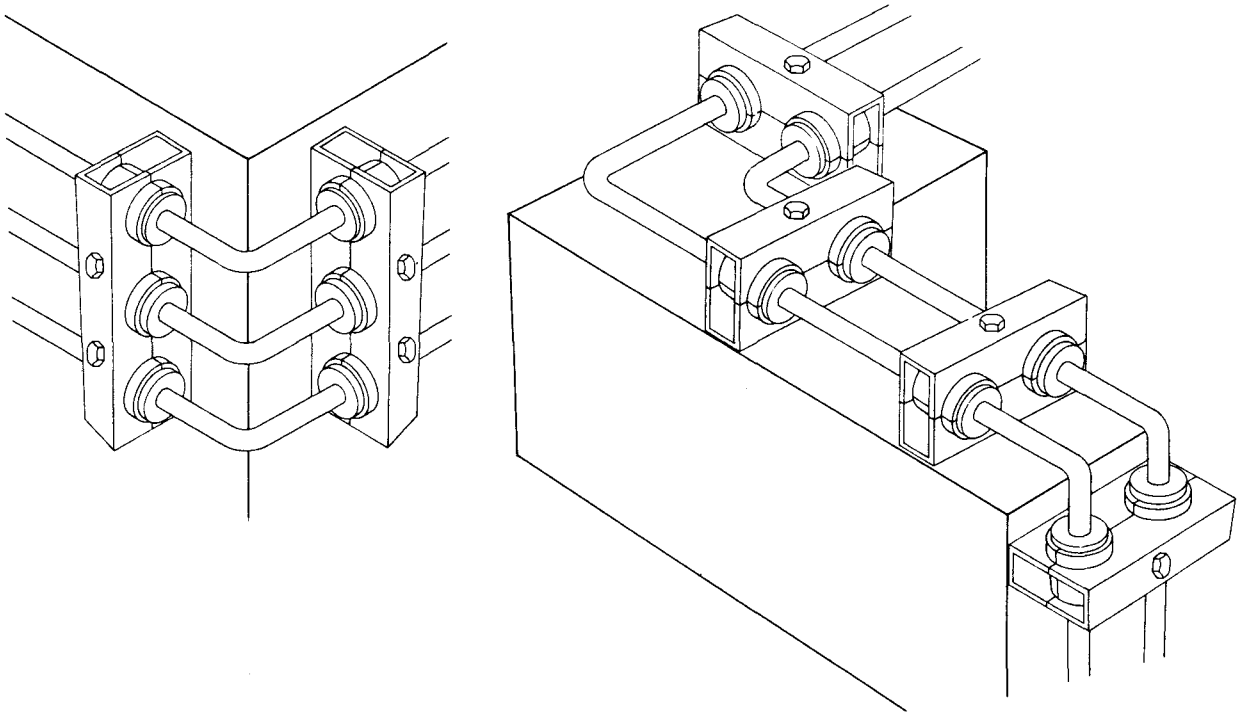
TABLE 1

Tubing outside diameter in Inches	Pipe, Nominal Size	Length between Supports in Feet
1/4, 3/8	1/8, 1/4	3
1/2, 5/8, 3/4, 7/8, 1	3/8, 1/2, 3/4	5
1 1/4 and larger	1 and larger	7

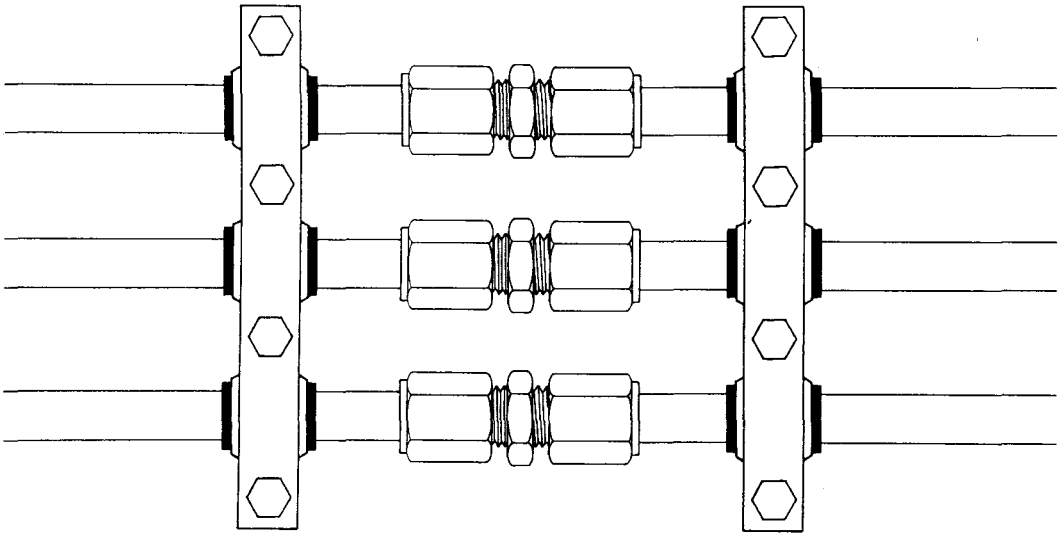
"**H11.20.4:** *Flexible Hose Failure.* Flexible hose shall be restrained or confined where its failure would constitute a hazard."

Further recommendations by Parker are that:

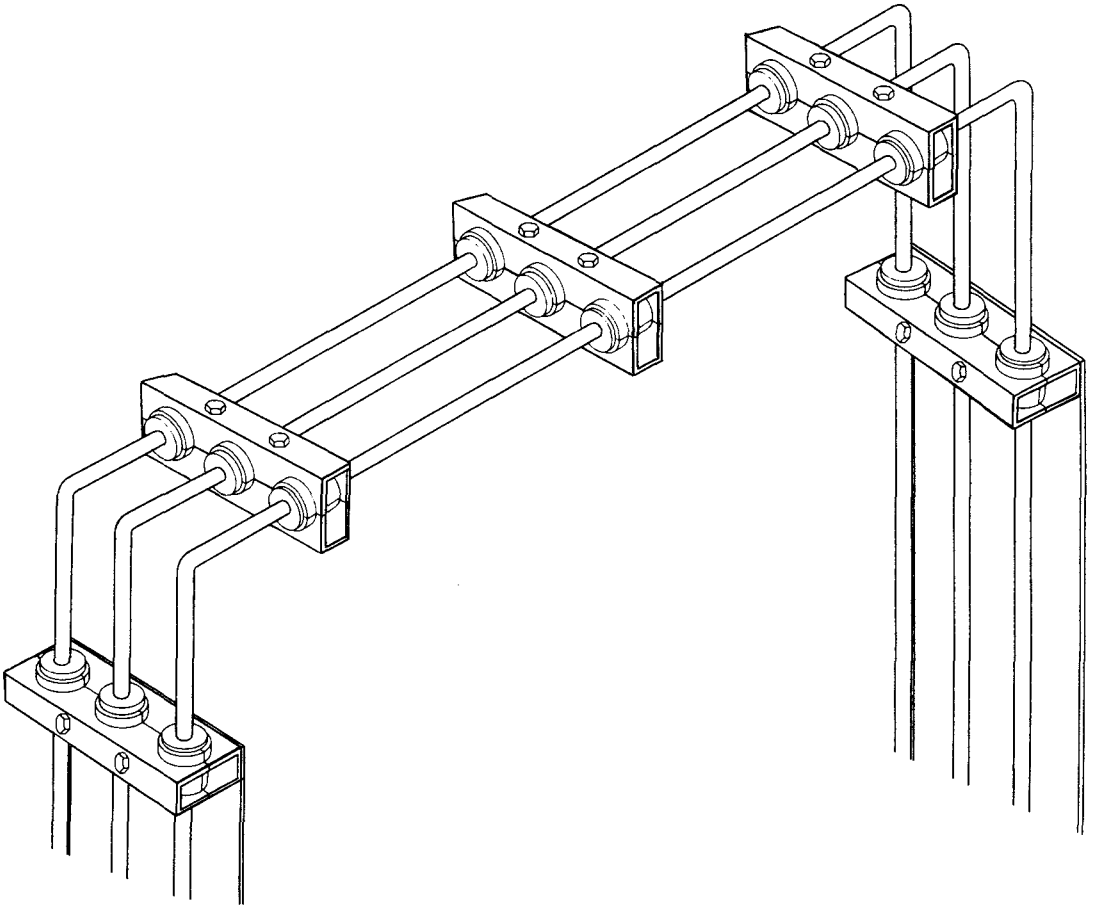
1. Tubing bends be supported on each side of the bend.



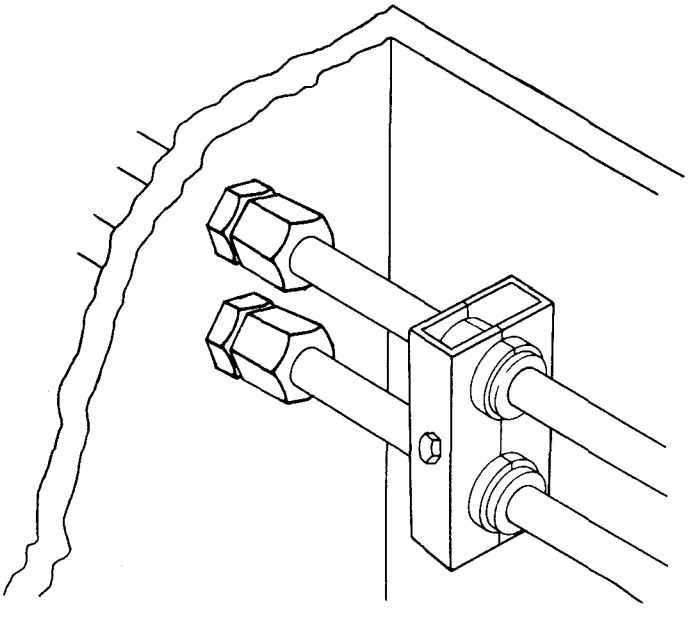
2. Union connections, if necessary, be supported on each side.



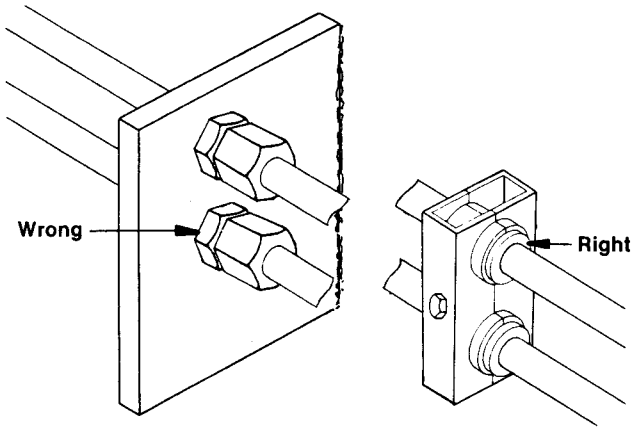
3. Long, overhead tube, pipe, and hose runs should be rigidly supported at each end and clamped to each other in the overhead run.



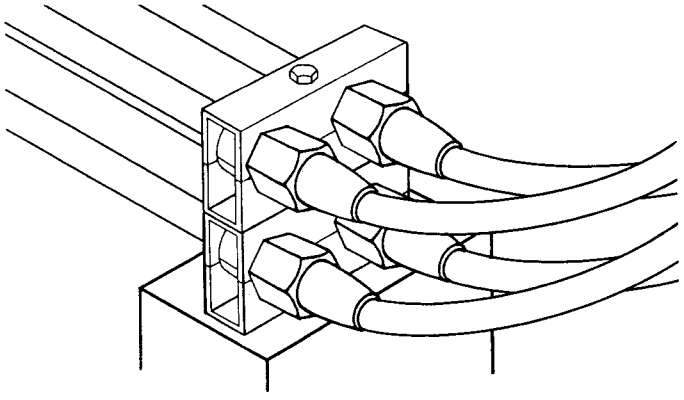
4. Metal to metal support should be integrated with an occasional elastomeric bushing type of support to both absorb vibration and reduce noise.



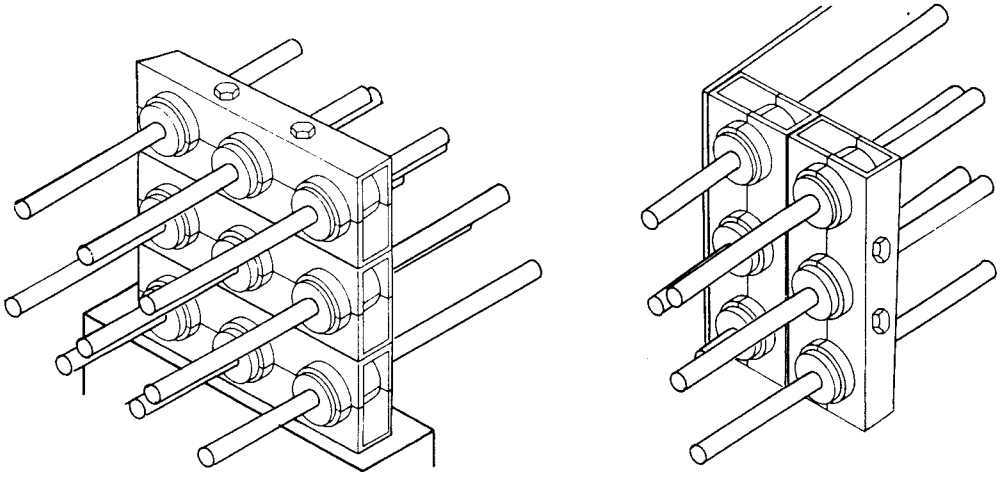
5. In shop fabricated bulkhead supports, implementing welded plates of metal with bulkhead fittings should be avoided. Rather, manufactured clamping systems (Parker Multi-Clamp) implementing elastomeric support components should be used.



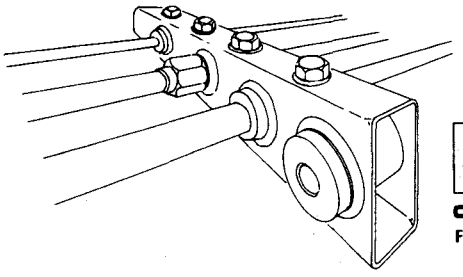
6. When a pipe or tube run must be terminated and hydraulic hose implemented for flexibility, a clamp should be inserted at the union.



7. When "gang" runs of tube, pipe, or hose are arranged one above the other, they should be clamped at the same point and then to each other. Centerline distances both vertically and horizontally should be the same to simplify design and fabrication.



PARKER MULTI-CLAMP IS THE IDEAL SYSTEM TO SATISFY THESE REQUIREMENTS AND THEN SOME!



multi-clamp
CLAMPING SYSTEMS
FOR: TUBE/PIPE/HOSE

PARKER "MULTI-CLAMP" TO HYDRO-CRAFT INTERCHANGE GUIDE

Hydro-Craft Part No.	Parker Part No.
(clamping units)	
HC-10-1	C-PH-10-1
HC-10-1-2	C-PH-10-1-2
HC-10-2	C-PH-10-2
HC-10-2-3	C-PH-10-2-3
HC-10-3	C-PH-10-3
HC-10-3-4	C-PH-10-3-4
HC-10-4	C-PH-10-4
HC-10-4-5	C-PH-10-4-5
HC-10-5	C-PH-10-5
HC-10-5-6	C-PH-10-5-6
HC-10-6	C-PH-10-6
HC-10-6-7	C-PH-10-6-7
HC-10-7	C-PH-10-7
HC-10-7-8	C-PH-10-7-8
HC-10-8	C-PH-10-8
HC-10-8-9	C-PH-10-8-9
HC-10-9	C-PH-10-9
HC-10-9-10	C-PH-10-9-10
HC-10-10	C-PH-10-10
HC-10-10-11	C-PH-10-10-11
HC-10-11	C-PH-10-11
HC-10-11-12	C-PH-10-11-12
HC-10-12	C-PH-10-12
HC-10-12-13	C-PH-10-12-13
HC-10-13	C-PH-10-13
HC-10-13-14	C-PH-10-13-14
HC-10-14	C-PH-10-14
HC-10-14-15	C-PH-10-14-15
HC-10-15	C-PH-10-15
HC-10-15-16	C-PH-10-15-16
HC-10-16	C-PH-10-16
HC-10-16-17	C-PH-10-16-17
HC-10-17	C-PH-10-17
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HC-16-6	C-PH-16-6
HC-16-6-7	C-PH-16-6-7
HC-16-7	C-PH-16-7
HC-16-7-8	C-PH-16-7-8
HC-16-8	C-PH-16-8

Hydro-Craft Part No.	Parker Part No.
(clamping units cont'd.)	
HC-16-8-9	C-PH-16-8-9
HC-16-9	C-PH-16-9
HC-16-9-10	C-PH-16-9-10
HC-16-10	C-PH-16-10
HC-16-10-11	C-PH-16-10-11
HC-16-11	C-PH-16-11
HC-16-11-12	C-PH-16-11-12
HC-16-12	C-PH-16-12
HC-16-12-13	C-PH-16-12-13
HC-16-13	C-PH-16-13
HC-16-13-14	C-PH-16-13-14
HC-16-14	C-PH-16-14
HC-16-14-15	C-PH-16-14-15
HC-16-15	C-PH-16-15
HC-16-15-16	C-PH-16-15-16
HC-16-16	C-PH-16-16
HC-16-16-17	C-PH-16-16-17
HC-16-17	C-PH-16-17
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HC-16-21	C-PH-16-21
HC-16-21-22	C-PH-16-21-22
HC-16-22	C-PH-16-22
HC-16-22-23	C-PH-16-22-23
HC-16-23	C-PH-16-23
HC-16-24	C-PH-16-24
HC-32-1	C-PH-32-1
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HC-32-2	C-PH-32-2
HC-32-2-3	C-PH-32-2-3
HC-32-3	C-PH-32-3
HC-32-3-4	C-PH-32-3-4
HC-32-4	C-PH-32-4
HC-32-4-5	C-PH-32-4-5
HC-32-5	C-PH-32-5
HC-32-5-6	C-PH-32-5-6
HC-32-6	C-PH-32-6
HC-32-6-7	C-PH-32-6-7
HC-32-7	C-PH-32-7
HC-32-7-8	C-PH-32-7-8
HC-32-8	C-PH-32-8
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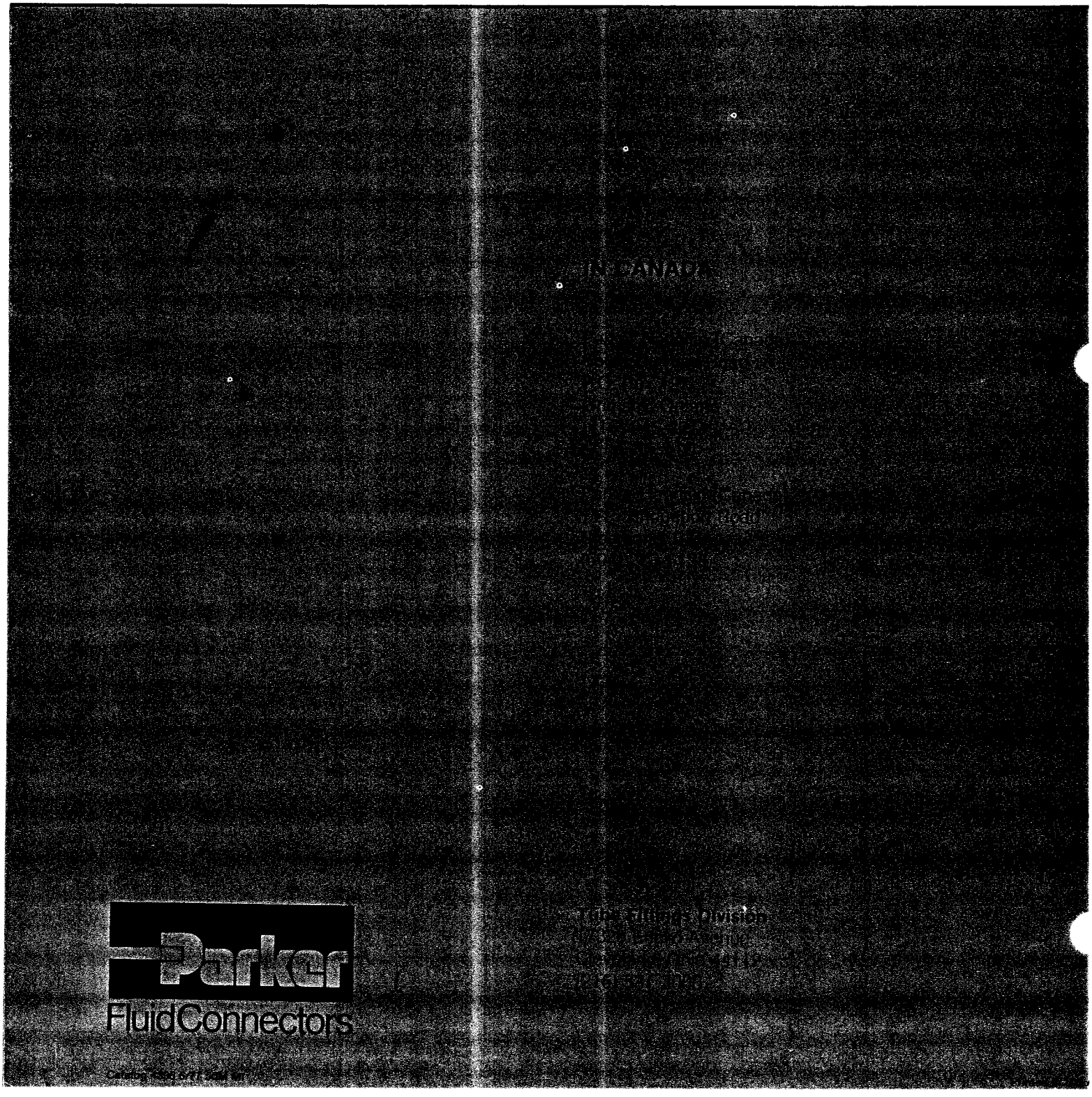
HC-32-12-13	C-PH-32-12-13
HC-32-13	C-PH-32-13
HC-32-13-14	C-PH-32-13-14
HC-32-14	C-PH-32-14
HC-32-14-15	C-PH-32-14-15
HC-32-15	C-PH-32-15
HC-32-16	C-PH-32-16
(mounting adapters)	
B-10-MO	C-MA-10
B-16-MO	C-MA-16
B-32-MO	C-MA-32
(junction adapters)	
B-10-4	C-JA-10-4
B-10-6	C-JA-10-6
B-10-8	C-JA-10-8
B-10-10	C-JA-10-10
B-16-4	C-JA-16-4
B-16-6	C-JA-16-6
B-16-8	C-JA-16-8
B-16-10	C-JA-16-10
B-16-12	C-JA-16-12

Hydro-Craft Part No.	Parker Part No.
(junction adapters cont'd.)	
B-16-14	C-JA-16-14
B-16-16	C-JA-16-16
(female pipe junction adapters)	
BFM-32-20P	C-FJA-32-20P
(split bushings)	
G-10-3	C-SB-10-3
G-10-4	C-SB-10-4
G-10-5	C-SB-10-5
G-10-6	C-SB-10-6
G-10-8	C-SB-10-8
G-10-10	C-SB-10-10
G-10-12	C-SB-10-12
G-16-4	C-SB-16-4
G-16-4P	C-SB-16-4P
G-16-5	C-SB-16-5
G-16-6	C-SB-16-6
G-16-6P	C-SB-16-6P
G-16-8	C-SB-16-8
G-16-8P	C-SB-16-10
G-16-10	C-SB-16-12
G-16-12	C-SB-16-12P
G-16-14	C-SB-16-14
G-16-16	C-SB-16-16
G-32-6	C-SB-32-6
G-32-6P	C-SB-32-6P
G-32-8	C-SB-32-8
G-32-8P	C-SB-32-8P
G-32-10	C-SB-32-10
G-32-12	C-SB-32-12
G-32-12P	C-SB-32-12P
G-32-14	C-SB-32-14
G-32-16	C-SB-32-16
G-32-16P	C-SB-32-16P
G-32-20	C-SB-32-20
G-32-20P	C-SB-32-20P
G-32-24	C-SB-32-24
G-32-24P	C-SB-32-24P
G-32-28	C-SB-32-38
G-32-32	C-SB-32-32
(bolts)	
HB-10	C-B-10
HB-16	C-B-16
HB-32	C-B-32
(nuts)	
HN-10	C-N-10
HN-16	C-N-16
HN-32	C-N-32
(lockwashers)	
HW-10	C-LW-10
HW-16	C-LW-16
HW-32	C-LW-32
(stacking nuts)	
N-10	C-SN-10
N-16	C-SN-16
N-32	C-SN-32
(reducing adapter)	
R-32	C-RA-32
(self tapping adapters)	
ST-10	C-STA-10
ST-16	C-STA-16
(thread adapters)	
T-10	C-TA-10
T-16	C-TA-16
T-32	C-TA-32
(weld adapters)	
W-10	O-WA-10
W-16	O-WA-16
W-32	O-WA-32


Parker
FluidConnectors