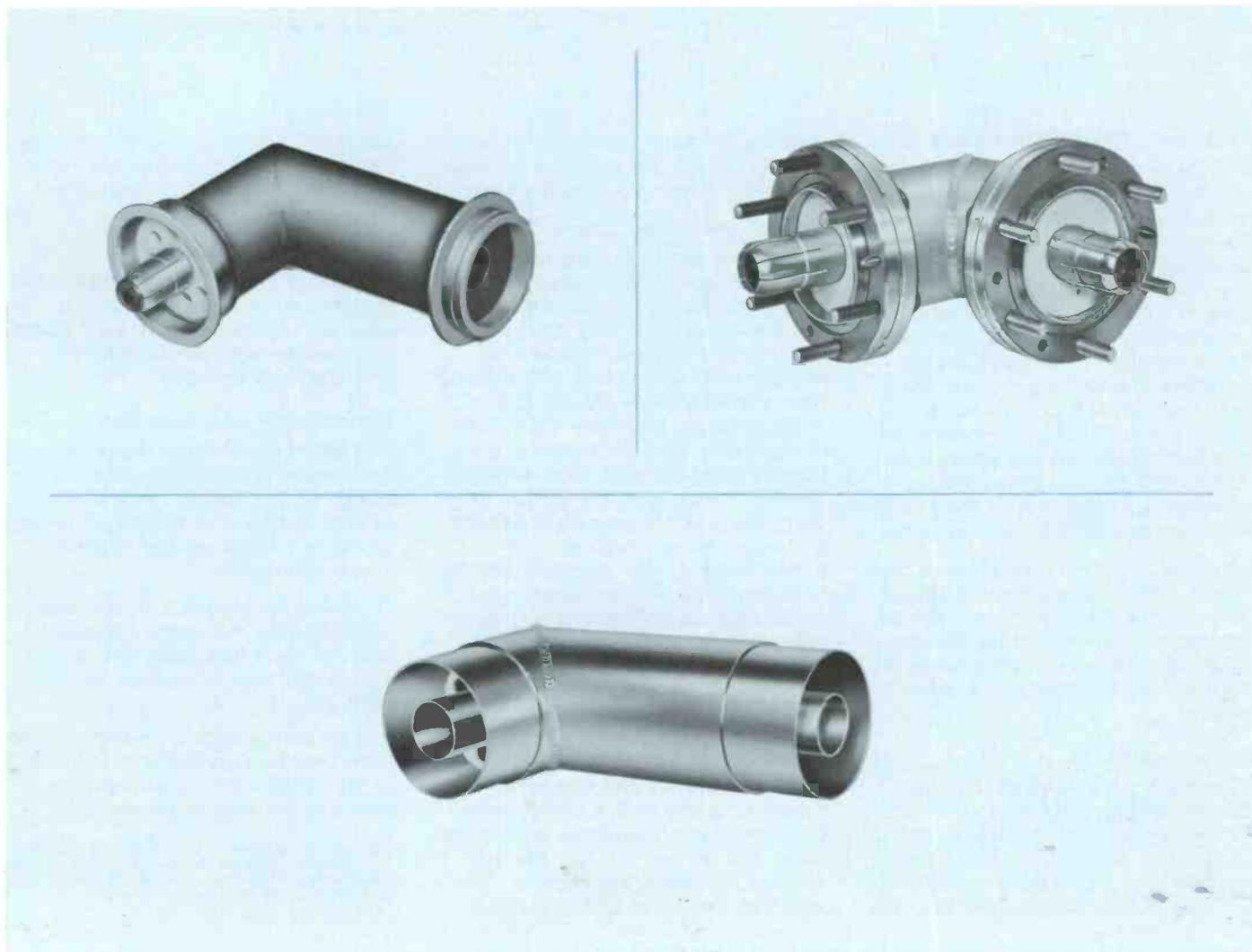


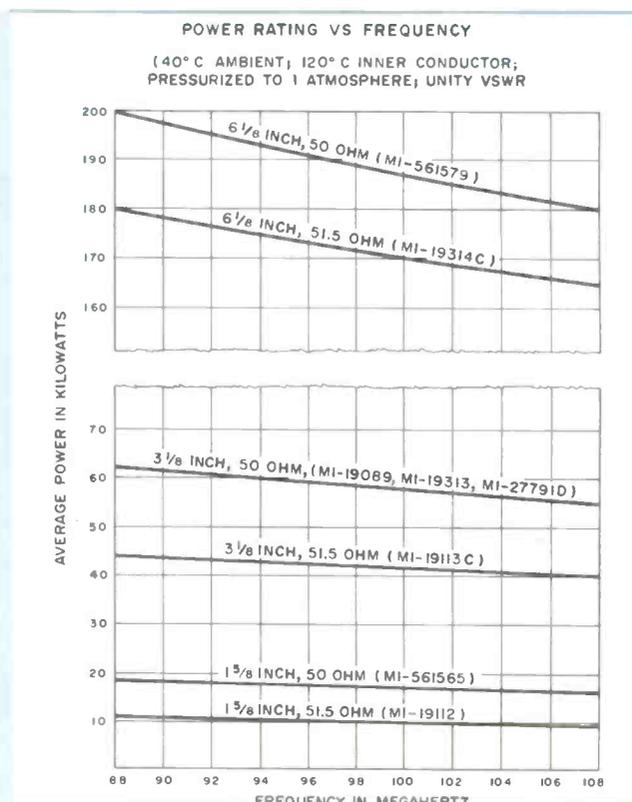


AM-FM Coaxial Transmission Line

- Wide selection of style and size
- High efficiency and minimum VSWR
- Precision-mated rigid-line flanges
- Rigid and semi-rigid
- Economical installation

RCA coaxial transmission line is an efficient means for transferring transmitter power to AM and FM antennas. Designed with economy, dependability and inexpensive installation in mind, the products described here are available in various nominal diameters and types to accommodate a wide variety of power and frequency requirements. The equipment described includes, elbows, flanges, adapters and other accessories.





"Universal" Rigid Transmission Line

An RCA exclusive design, "Universal" transmission line features near-perfect reliability and easy, inexpensive installation. It is available for radio use in 3- and 6-inch nominal diameters and in 19.5- or 20-foot (5.94, 6.1 m) lengths.¹ Flanges are heliarc welded and use a marmon clamp instead of bolts in a circle. A captive O-ring gasket seals the joint pressure-tight. Installation avoids the radial alignment considerations of bolt-flange line because all "Universal" flanges swivel before clamping. Lengths shorter than those above are available on special order.

Universal line inner conductor is supported with polytetrafluoroethylene (Teflon) insulators. Axial support is through an insulator at the flange. Coupling adjacent sections makes the inner conductor captive for axial support.

Bolt-Flanged Line

RCA supplies bolt-flanged transmission line in steatite- and Teflon-insulated styles for those who prefer this type of connection. Some rigid lines have a rolled groove near one end of the outer conductor. This

anchors the inner conductor in both axial directions yet provides for inner conductor removal if ever necessary.

Heliax* Semi-Rigid Line

Heliax is a semi-rigid transmission line often specified in situations where odd bends and curves abound. The line installs quickly and, if the foam-dielectric type, requires no pressurization. However, FM antenna feed systems often require gas pressurization. When the foam heliax is used with such an antenna, a special pressure-tight tube must be installed along with the Heliax to carry the gas for pressurization to the antenna feed system.

In the event of line damage leading to failure, Heliax transmission line repair may require replacement of the entire length as the result of its construction. The segmented design of rigid line allows replacement of individual sections, including elbows.

Transmission Line Accessories

A line of adapters and reducers which permit coupling of line components of different configurations is included here. The hanger product line (described in a separate section) includes fixed and spring hangers

which are available in grounded and insulated versions. There are types for mount on round, or angle-iron tower legs.

Pressurization Equipment

Equipment used for transmission line pressurization is described in a separate catalog section. This equipment works with dehydrated air or bottled dry nitrogen.

Transmission Line Selection

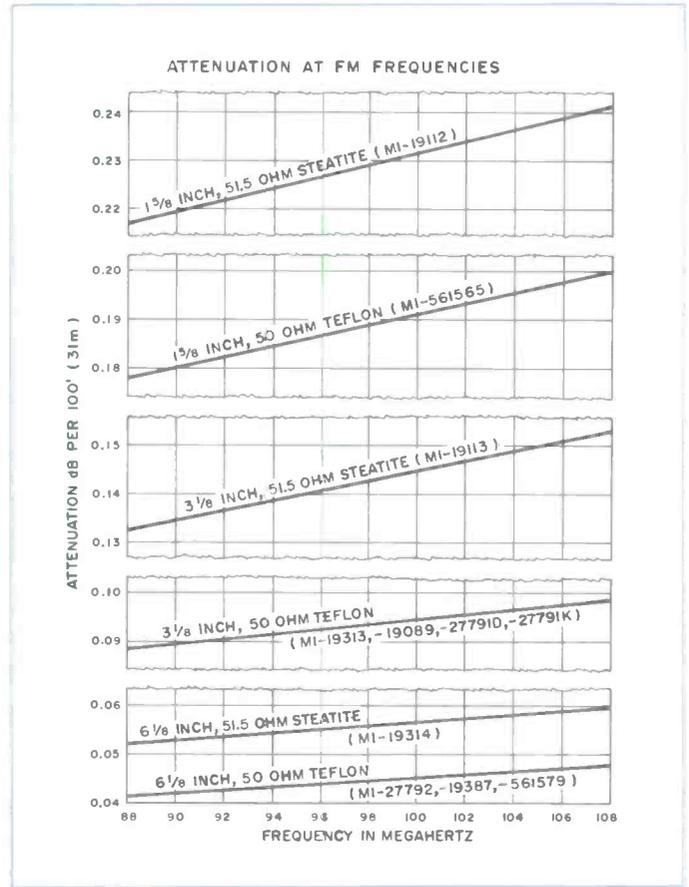
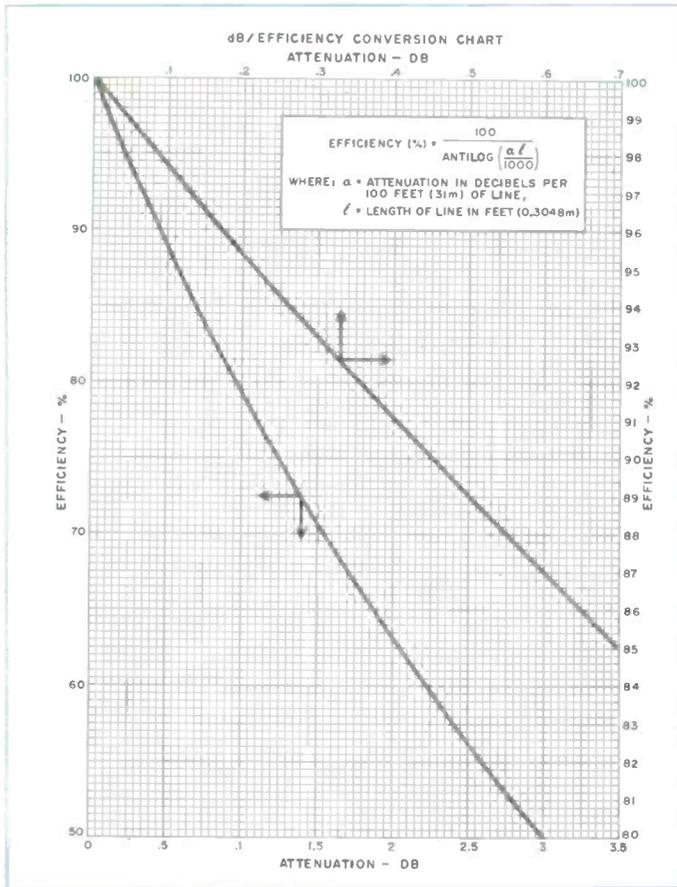
Line selection depends essentially on the frequency and power level of the energy it is to transfer. As one might expect, proper line choice enhances economy, efficiency and longevity, in the long term.

The "Quick Reference Chart" shown opposite lists the broad characteristics of each line style and recommends the type of service for each style.

A dimensional layout, on paper, goes a long way in simplifying the planning of the system and, eventually, in ordering the proper components.

¹ FM channels between 97 and 99 MHz require 19.5-foot lengths; between 99 and 102 MHz require 20-foot lengths. Channels between 88 and 97 MHz and 102 and 108 MHz use either length.

*Andrew Corp. trademark



Nominal Diameter	Recommended Service	Coupling Device	Pressure Tight	Power Rating 1 MHz ¹	Power Rating 100 MHz	Efficiency	Wgt/100 Lbs/kg	Catalog Number	Catalog Page No.		
RIGID 50-OHM IMPEDANCE—TEFLON INSULATED											
1 5/8"	FM, VHF-TV	Unflanged	No	28.5	See Curves, opposite page	See Curves, next page	115/52	MI-561565	RA.5011		
3 1/8"	AM, FM, TV	Universal	Yes	94			280/127	MI-27791D	RA.5011		
3 1/8"	AM, FM, VHF-TV	Unflanged	No	94			230/104	MI-27791K	RA.5011		
3 1/8"	FM, TV	Bolt Flange	Yes	94			270/122	MI-19089	TR.2301 ²		
6 1/8"	FM, VHF-TV	Unflanged	No				625/284	MI-561579	RA.5011		
RIGID 51.5 OHM IMPEDANCE—STEATITE AND TEFLON INSULATED											
1 5/8"	AM, FM	Bolt Flange	Yes	25	See Curves, opposite page	See Curves, next page	125/57	MI-19112	TR.2401 ²		
1 5/8"	AM, FM	Unflanged	No	25			120/54	MI-19112	TR.2401 ²		
3 1/8"	AM, FM, VHF-TV	Bolt Flange	Yes	94			250/113	MI-19113C	RA.5011		
3 1/8"	AM, FM	Unflanged	No	94			265/120	MI-19113C	RA.5011		
3 1/8"	AM, FM, VHF-TV*	Bolt Flange*	Yes*	92			255/115*	MI-19313C*	RA.5011		
3 1/8"	AM, FM, VHF-TV*	Unflanged*	No*	92			240/109*	MI-19313C*	RA.5011		
6 1/8"	AM, FM, VHF-TV	Bolt Flange	Yes	288			730/331	MI-19314C	TR.2401 ²		
6 1/8"	AM, FM, VHF-TV	Unflanged	No	288			695/316	MI-19314C	TR.2401 ²		
SEMI-RIGID 50-OHM IMPEDANCE—POLYETHYLENE INSULATED											
1/2"	AM, FM	Continuous ³	Yes	10.0			See Curves, subsequent page	See Curves, subsequent page	27/12	HJ4-50	RA.5011
7/8"	AM, FM	Continuous ³	Yes	44.0	53/24	HJ5-50			RA.5011		
1 5/8"	AM, FM	Continuous ³	Yes	145.0	104/47	HJ7-50			RA.5011		
3"	AM, FM	Continuous ³	Yes	320.0	178/81	HJ8-50			RA.5011		
5"	AM, FM	Continuous ³	Yes	830.0	330/150	HJ9-50			RA.5011		
SEMI-RIGID 50-OHM IMPEDANCE—FOAM INSULATED											
1/4"	AM, FM	Continuous ³	No	5.0	See Curves, subsequent page	See Curves, subsequent page	7/3	FHJ1-50	RA.5011		
3/8"	AM, FM	Continuous ³	No	8.0			12/5	FHJ2-50	RA.5011		
1/2"	AM, FM	Continuous ³	No	19.0			18/8	FHJ4-50	RA.5011		
7/8"	AM, FM	Continuous ³	No	44.0			44/20	FHJ5-50	RA.5011		
1 5/8"	AM, FM	Continuous ³	No	145.0			130/59	FHJ7-50	RA.5011		

¹ In kW at 100% modulation, unity VSWR.

² Available at any RCA Broadcast Field Office or Transmission Line Marketing, RCA Bldg. 2-2, Camden, N. J. 08102.

³ Attachable connectors available.

Layout and Installation of Rigid Transmission Line.

A dimensioned layout of the entire transmission line run is helpful in selection of line components and fittings. FM-radio systems usually require a "horizontal" run between the tower base and the transmitter as well as a "vertical" run up the tower to the antenna. AM transmission lines terminate at a tuner at the base of the tower. If the AM tower is base-insulated and also supports an FM antenna, the FM transmission line must include an iso-coupler or be quarter-wave insulated from the tower.

Installation Precautions

Care is required in handling the various transmission line components to prevent damage and assure proper installation. Procedures are outlined in "Transmission Line Do's and Don'ts".

Tower steel must be designed to sup-

port the vertical run in a straight line, and maintain line clearance within spring hanger guide rings under load.

Vertical Run Considerations

Provision must be made to accommodate the difference in expansion coefficients between the copper of the line and the steel of the tower. This is accomplished by fixing the line at the tower top and "floating" it down the tower on spring hangers, with expansion accumulating at the bottom of the tower.

Generally, only standard lengths should be included in the vertical run except at the top. However, one or two special lengths may be inserted if it permits a better pattern of hangers. Positions of flanges relative to hangers, guide rings and tower members must be carefully planned to avoid interference as the line moves relative to the tower. Where interference between line flanges and spring

hangers may occur due to a peculiar spacing of tower horizontal members, a steel plate may be used to mount the hanger a sufficient distance above or below the flange to avoid such interference.

Ideally, spring hangers supporting the vertical run of transmission line should occur every 10 feet (3.1 m) however minor variations may be used provided an average of one hanger for each 10 feet of line is maintained. The vertical portion of line near the top of the run should be anchored firmly using appropriate hanger or hangers. Spring-loading charts are used to set spring tensions of expansion hangers. As finally installed, the line must be *vertical* and *free to move* in the hanger guides. When installing transmission line, the preferred method is to start at the bottom and work toward the top. Two transmission line series (MI-27791D and MI-19089) must be mounted with the anchor insulator of each section at the

Transmission Line Do's and Don'ts

DO'S

1. DO store packaged transmission line in clean dry place to prevent contamination.
2. DO check operation of inner expander assembly* and any components suspected of contamination with dirt or moisture.
3. DO cap all unpacked components against the entry of moisture.
4. DO hoist components with connector end up unless component is marked otherwise.
5. DO check the line in the spring hanger guides after each section is installed to insure free movement for expansion. Shiming of guides at tower support may be necessary.
6. DO consult spring-loading dimension chart (in Hangers section) for proper spring tension on expansion hangers and adjust each position on the tower accordingly.
7. DO ascertain that inner conductors of adjacent sections match alignment to prevent inadvertent damage to the connector. Hold top connector insulator in place and see that the insulator is well seated before installing the next section.
8. DO tap outside of universal line Marman clamps with plastic-faced hammer, all the way around, to seat clamp as it is tightened.
9. DO tighten flange bolts alternately, one side, then the other, before final torquing.
10. DO use torque wrench for final tightening.
11. DO pressurize line immediately following installation, and maintain 3 lbs/in² (0.2 atm.) at all times. Leaks must be repaired immediately.
12. DO keep ends of transmission line capped during installation. If installation is halted, seal installed line ends and pressurize to at least 0.5 lbs/in² (0.04 atm.) with dry air or nitrogen.
13. DO coat O-ring gaskets lightly with Dow-Corning DC-4 silicone compound to ease assembly.
14. DO check O-ring and its groove for dirt or other foreign material and ascertain that ring is properly seated before flange assembly.

DON'TS

1. DON'T hoist coupled sections of transmission line. The stresses involved damage components.
2. DON'T use force when fitting components one to another. If cause cannot be corrected or isn't evident visually, call for RCA assistance.
3. DON'T assemble line components that contain water or condensation.
4. DON'T assemble line components that contain dust, dirt, packing material or other foreign objects. Consult RCA regarding any loose or suspicious material in the line as it is unpacked.
5. DON'T assemble match-marked components unless the marking is clear and understood. DON'T interchange match-marked items. Consult RCA about proper assembly.
6. DON'T install any line component with dust, dirt or grease on insulators.
7. DON'T install line that exhibits any evidence of damage.
8. DON'T attempt to correct defects discovered unless instructed and authorized by RCA to do so.
9. DON'T dismiss rigger until transmission line is completely installed and pressurized for at least 12 hours and the appropriate electrical tests performed.
10. DON'T power the transmission line until the line is known to be dry and pressurized to at least 3 lbs/in² (0.2 atm.).
11. DON'T exceed specified torque for clamp or flange bolts.
12. DON'T use a line flange with evidence of overstress.
13. DON'T use a damaged O-ring gasket. Use a new gasket whenever in doubt. The same goes for Marman Clamps.
14. DON'T bend elbow components to fit. If leg angle is incorrect, consult RCA.
15. DON'T let rigging equipment damage components. Provide proper protection.
16. DON'T cut tubing without a cut-off gauge and remove all burrs and chips from inside and outside of tubing.
17. DON'T assemble a horizontal run without proper support.

*Check inner conductor expansion joint for an excursion of 0.2 inch (5 mm) travel and in the extended position check for presence of contacting spring through exposed groove on inner conductor. In some lines the contacting spring is not visible in the extended position. Presence of the spring can be determined by inserting a 6-mil (0.15 mm) thick feeler gauge (0.5-inch or 13-mm wide) between the tubing inner surface and the connector body outer surface. If spring is present the feeler gauge can be inserted 0.25 inch (6.4 mm). If gauge goes in 0.5 inch (13 mm), spring is missing and line section must not be used.

top end. Series MI-19313, MI-19113C, and MI-19112 lines must be mounted with the rolled outer conductor insulator-supporting grooves at the lower end. In most cases, the elbow which joins the vertical and horizontal runs is a reinforced type.

Horizontal Run Considerations

In complex horizontal-line layouts involving elevation and direction changes, care must be exercised not to overstress miter elbows or introduce excessive flexing of the line. Frequently back to back elbows will be required to achieve desired angles.

As shown in the drawing, three-point, horizontal-spring hangers must support the line for the distance specified from the tower base. The line should be secured at the wall of the building using a horizontal anchor plate. Lines should be protected from falling ice.

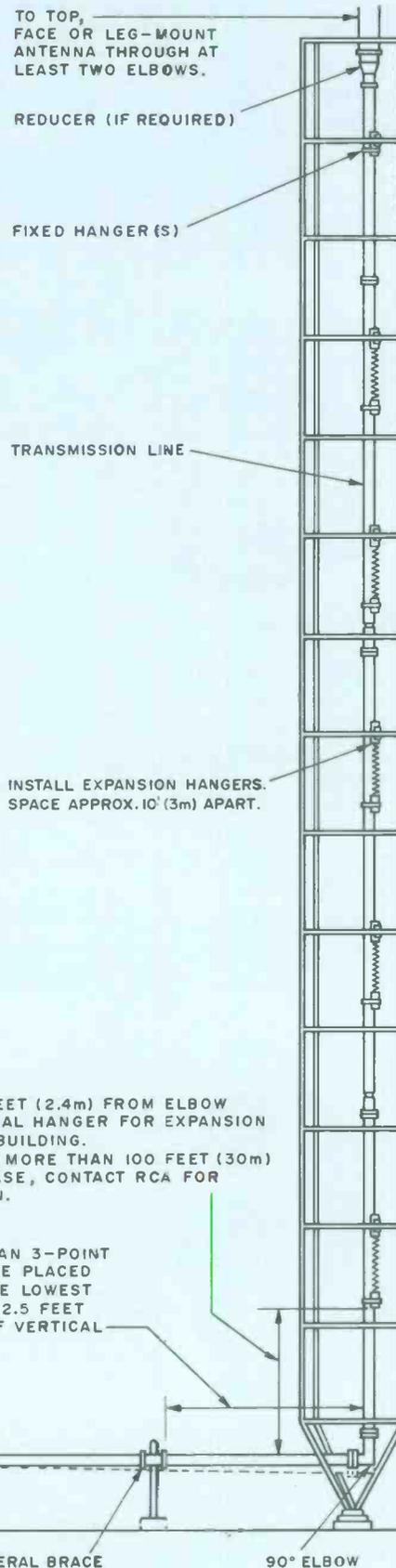
When installing 51.5-ohm, 3/8-inch line (MI-19113 and MI-19313), the sections in the horizontal run must connect the grooved end of one section with the grooved end of the adjacent section. Similarly, the ungrooved end of each section must connect with the ungrooved end of the adjacent section. This arrangement anchors the inner conductor in both directions.

Indoor Installation Considerations

The indoor part of the transmission line is normally not pressurized. Therefore, a Gas Stop is required inside the building and unflanged components used between that point and the transmitter.

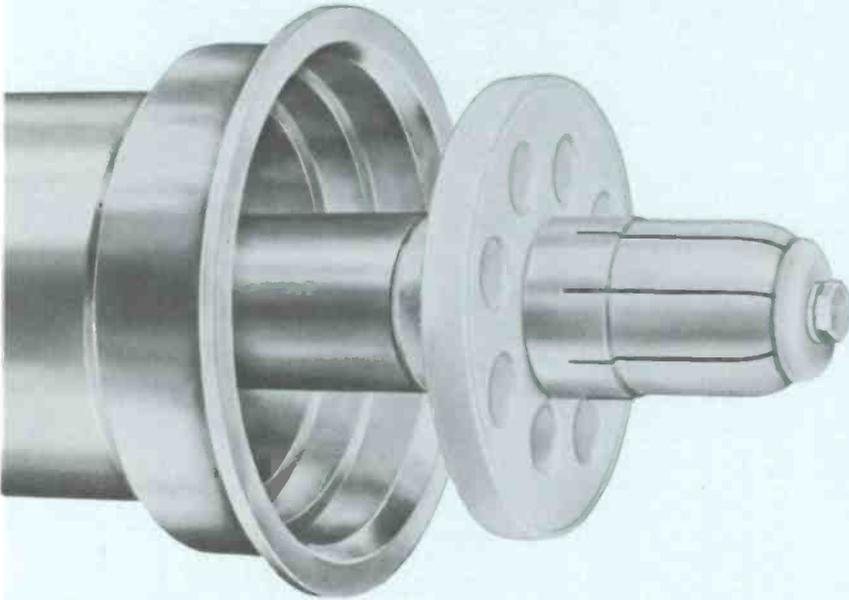
Purging Moisture from New Line

A transmission line installation must be free of moisture before power is applied. To purge an installed line, vent the line at the uppermost flange or port. Admit dry nitrogen at the transmitter end. Once purged, lines should be continuously pressurized with nitrogen or dry air. After any complete loss of pressure, the line should be purged before it is used again.



NEITHER THE BUILDING NOR OTHER THAN 3-POINT HORIZONTAL SPRING HANGER SHOULD BE PLACED CLOSER THAN 15 FEET (4.6m) FROM THE LOWEST ELBOW; THIS DISTANCE IS INCREASED 2.5 FEET (762mm) FOR EACH 100 FEET (30m) OF VERTICAL RUN IN EXCESS OF 200 FEET (61m).

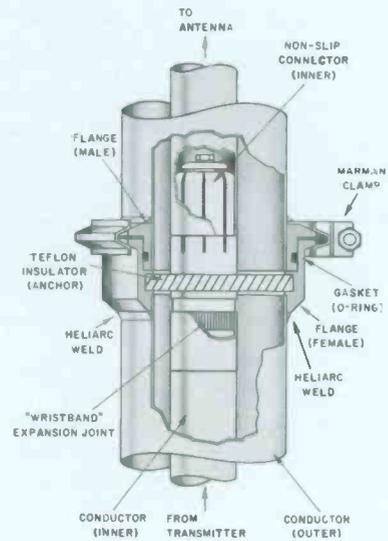
"Universal" Transmission Line



Universal transmission line uses a unique, error-proof coupling flange. There are no flange bolts; instead, a single, stainless-steel V-band clamp surrounds the beveled edges of the heliarc-welded, male and female flanges. This holds the flanges in complete alignment. The O-ring gasket is captive in a groove built into the male flange. This arrangement precludes an improperly seated gasket and hence, a leaky joint. Each Universal line coupling is a swivel joint inherently to eliminate the task of radial alignment during installation. A thick Teflon insulator, recessed in the female flange, supports the inner conductor. This design allows easy removal of the inner conductor whenever appropriate.

General Specifications

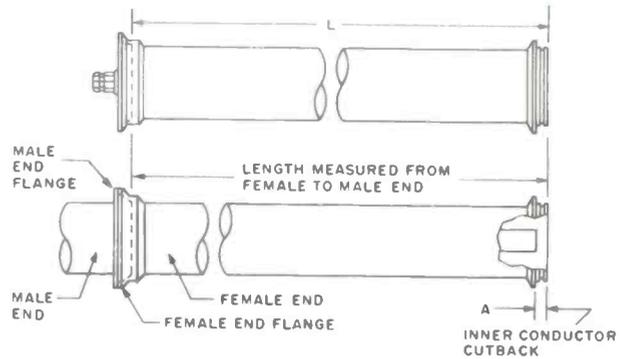
Nominal Diameter	3 1/8 inches
Insulation	Polytetrafluoroethylene Plastic (Teflon)
Outer Conductor Dimensions:	
Tube Outer Diameter (3.027" 77mm ID)	3.125" (79 mm)
Flange Diameter	4.531" (115 mm)
Clearance Hole Diameter (with Clamp)	7" (178 mm)
Inner Conductor Dimensions:	
Tube Outer Diameter	1.315" (33 mm)
Tube Inner Diameter	1.231" (31 mm)
Characteristic Impedance	50 ohms
Catalog Number Series	MI-27791D



Line Sections

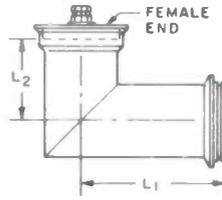


Shipped two sections per package. Each section includes connector, clamp, expansion joint and O-ring gasket.



Catalog Number	Length (L)	Dim. A	Approx. Weight	Packaged Dimensions	Shipping Weight
MI-27791D-1A	20' (6.1 m)	.090-0.97	58 lbs. (26 kg)	248x12 1/2 x 8"	162 lbs. (73 kg)
MI-27791D-1B	19 1/2' (5.9)	(2.3-2.5mm)	52 lbs. (24 kg)	(6299x311x230)	149 lbs. (68 kg)

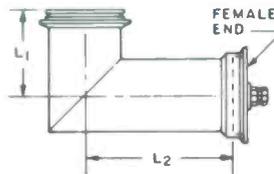
Elbow Right-Angle, Short End Female



Specially reinforced elbow available as MI-27791D-2AR. Clamp and gasket included.

Catalog Number	Insert Length		Approx. Weight	Packaged Dimensions	Shipping Weight
	L1	L2			
MI-27791D-2A	8 ¹ / ₁₆ " (205 mm)	4 ¹ / ₁₆ " (116 mm)	10 ³ / ₄ lbs. (5 kg)	25 ¹ / ₂ x13x14 ¹ / ₂ " (648x330x368 mm)	15 lbs. (7 kg)

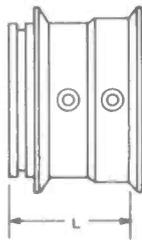
Elbow Right-Angle, Long End Female



Specially reinforced elbow available as Cat. No. MI-27791D-2BR. Clamp and gasket included.

Catalog Number	Insert Length		Approx. Weight	Packaged Dimensions	Shipping Weight
	L1	L2			
MI-27791D-2B	4 ³ / ₁₆ " (106 mm)	8 ⁷ / ₁₆ " (214 mm)	10 ³ / ₄ lbs. (5 kg)	25 ¹ / ₂ x13x14 ¹ / ₂ " (648x330x368 mm)	15 lbs. (7 kg)

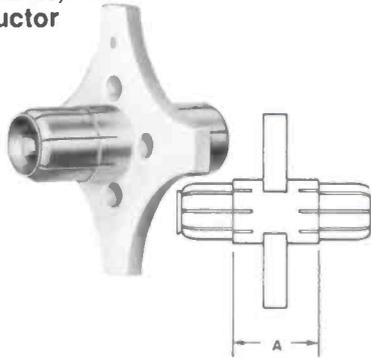
Gas Stop



Seals pressurized from unpressurized section. Includes clamps and O-ring gasket.

Catalog Number	Insert Length (L)	Approx. Weight	Shipping Weight
MI-27791D-3A	4-27/32" (123 mm)	7 lbs. (3 kg)	10 lbs. (4536g)

Connector, Inner Conductor



For use with elbows, gas stops and certain adapters.

Catalog Number	Insert Length (Dim. A)	Approx. Weight
MI-27791D-4D	1 3/4" (44 mm)	1 lb. (454g)

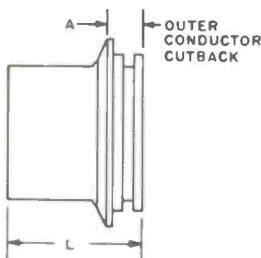
Flange, Soft-Solder, Female



Flanges field-cut line.

Catalog Number	Length (L)	Insert Length (A)	Approx. Weight	Shipping Weight
MI-27791D-4A	2 5/8" (59 mm)	5/8" (16 mm)	2 1/2 lbs. (1134g)	3 1/2 lbs. (1590g)

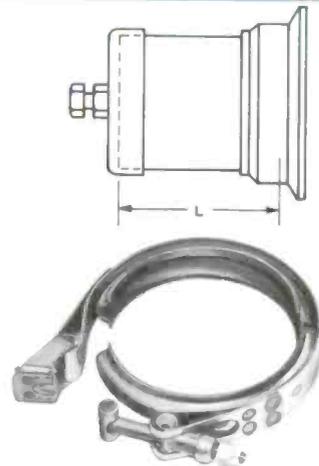
Flange, Soft-Solder, Male



Flanges field-cut line.

Catalog Number	Length (L)	Insert Length (A)	Approx. Weight
MI-27791D-4B	1 7/8" (48 mm)	17/32" (13 mm)	2 lbs. (908g)

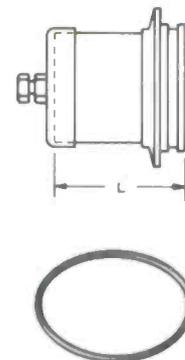
End Cap, Female Flange



Caps male end of line temporarily to prevent moisture entry. Fitted for gassing and bleeding.

Catalog Number	Length (L)	Approx. Weight
MI-27791D-8A	2 7/16" (62 mm)	2 1/2 lbs. (1134g)

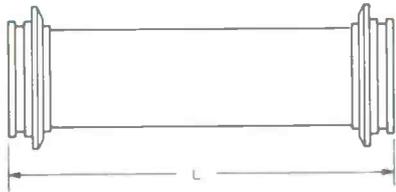
End Cap, Male Flange



Caps female end of line temporarily to prevent moisture entry. Fitted for gassing and bleeding.

Catalog Number	Length (L)	Approx. Weight
MI-27791D-8B	4" (102 mm)	1 3/4 lbs. (794g)

Adapter, Female to Female



Couples female ends of line with two male flanges. Two O-ring gaskets included.

Catalog Number	Length (L)	Approx. Weight
MI-27791D-7C	12" (305 m)	5 lbs. (2268g)

Adapter, Universal Female to EIA Flange



Couples male Universal end to EIA flange (or MI-19089).

Catalog Number	Length (L)	Approx. Weight
MI-27791D-7A	6" (152 mm)	7 lbs. (3 kg)

Adapter, Universal Male to EIA Flange



Couples female Universal end to EIA flange (or MI-19089).

Catalog Number	Length (L)	Approx. Weight
MI-27791D-7B	6" (152 mm)	5 lbs. (2268g)

Adapter, Universal Male to Bolt-Flange



Couples female Universal end to bolt-flanged line (MI-19113C or MI-19313).

Catalog Number	Length (L)	Approx. Weight
MI-27988-7B	6" (152 mm)	4.5 lbs. (2 kg)

Cutoff Guides, Inner and Outer Conductor



Inner and outer conductor cutoff. Guides that assure square cut.

Catalog Number	For	Approx. Weight
MI-19089-15	Outer Cond.	2¼ lbs. (1 kg)
MI-19089-16	Inner Cond.	6 oz. (171g)

Miscellaneous



Product	Catalog Number
O-Ring Gasket	MI-27791D-4E
V-Band Clamp	MI-27791D-4C
Silicone Grease, 2-oz. (56g) Tube	MI-19089-18

Bolt Flanged Transmission Line

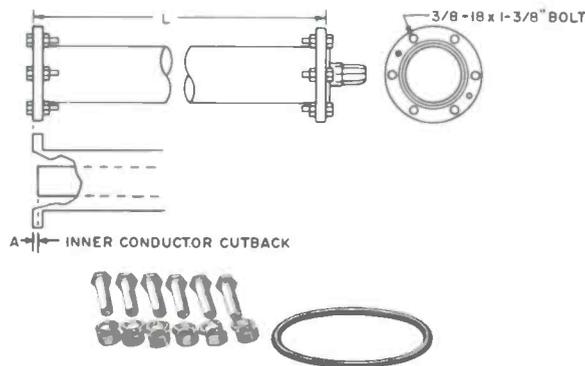


Efficient, precision-built line and line accessories. Featuring an electrically transparent Teflon insulator, this line uses the familiar bolt-flange connection. Insulator characteristics and precise inner-conductor centering allows cutting and re-flanging in the field without a change in operating impedance at the cut.

General Specifications

Nominal Diameter	3 1/8 inches
Insulation	Polytetrafluoroethylene Plastic (Teflon)
Outer Conductor Dimensions:	
Outer Diameter (3.027" 77 mm ID)	3.125" (79 mm)
Flange Diameter	5 1/8" (132 mm)
Inner Conductor Dimensions:	
Outer Diameter	1.315" (33 mm)
Inner Diameter	1.231" (31 mm)
Characteristic Impedance	50 ohms
Catalog Number Series	MI-19089

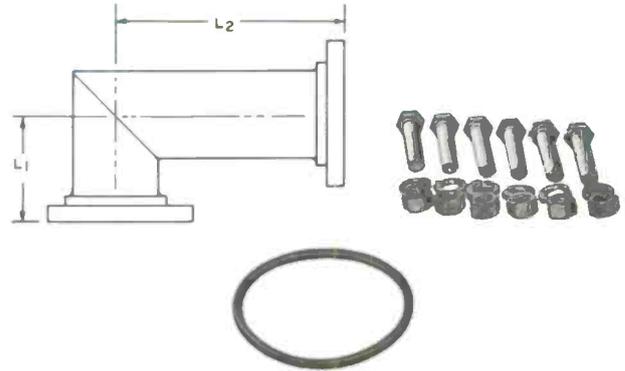
Line Sections



Shipped two sections per package. Each section includes one captive anchor insulator-connector, expansion joint, O-ring gasket, six bolts, nuts, lockwashers.

Catalog Number	Length (L)	Dimension A	Approx. Weight	Package Dimensions	Shipping Weight
MI-19089-1E	20' (6.1m)	1 1/8" (29 mm)	60 lbs. (27 kg)	248x13x8" (6300x330x203 mm)	162 lbs. (74 kg)
MI-19089-1F	19 1/2' (5.9m)	1 1/8" (29 mm)	57 lbs. (26 kg)	240x13x8" (6096x330x203 mm)	158 lbs. (72 kg)

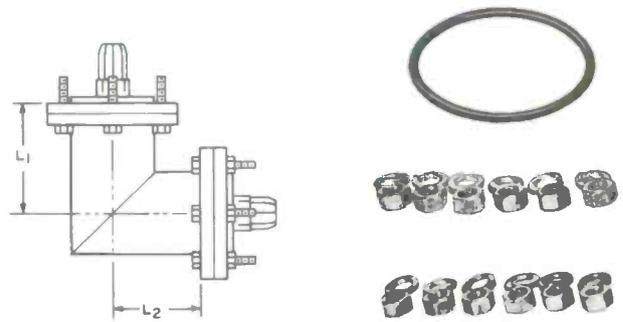
Elbow, Right Angle, Female



Reinforced elbow available as MI-19089-2CR. If anchor insulator connectors required, use MI-19089-10A. Both flanges swivel.

Catalog Number	Insert Length L1	L2	Approx. Weight
MI-19089-2C	4 3/4" (111 mm)	8" (203 mm)	11 lbs. (5 kg)

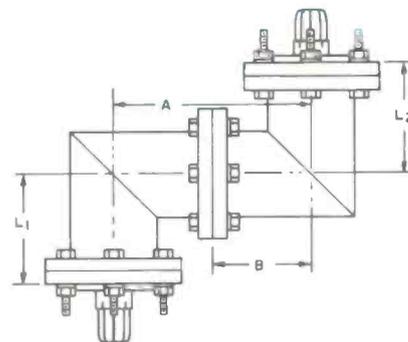
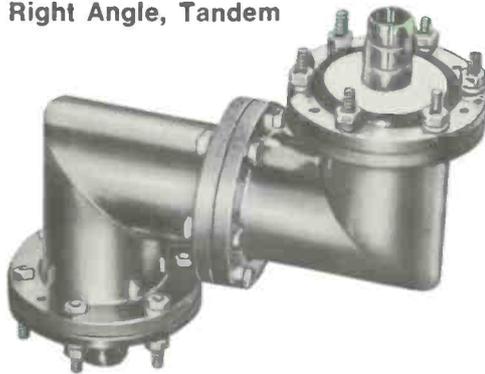
Elbow, Right Angle, Male



Equal length legs, both flanges swivel.

Catalog Number	L1 = L2	Approx. Weight
MI-19089-2A	4 1/8" (105 mm)	13 lbs. (6 kg)

Elbow, Right Angle, Tandem



All flanges swivel. Includes one O-ring gasket, two captive connectors, twelve bolts, nuts, lockwashers.

Catalog Number	L1/L2	Dimensions		Approx. Weight
		A	B	
MI-19089-6	4 1/8" (105 mm)	7 1/2" (190 mm)	3 3/4" (95 mm)	23 lbs. (10 kg)

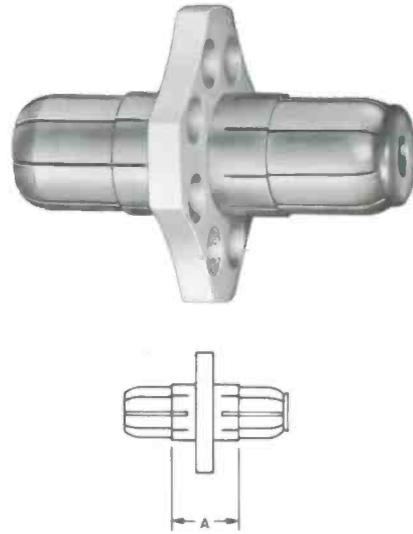
Gas Stop



Seals pressurized line sections from unpressurized. Has four capped ports for pressure connections.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19089-4	1½" (48 mm)	7 lbs. (3.2 kg)

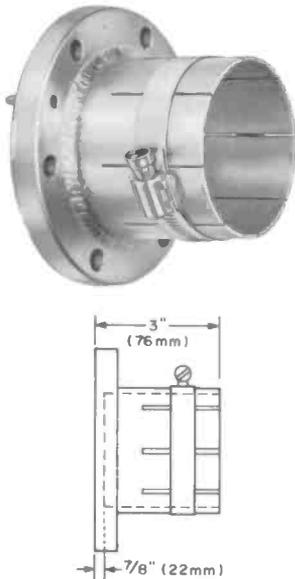
Connector, Anchor Insulator



Joins inner conductors of bolt-flanged (MI-19089) line.

Catalog Number	Insert Length (Dimension A)	Approx. Weight
MI-19089-10A	1¾" (44 mm)	1 lb. (454g)

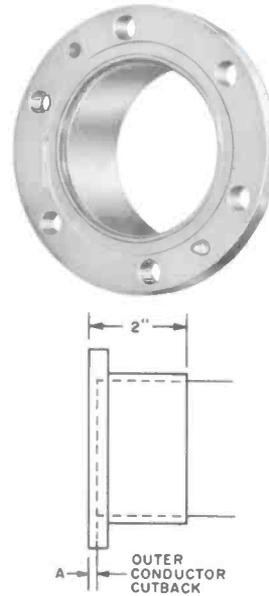
Flange, Mechanical



Flanges field-cut line. Not pressure-tight.

Catalog Number	Approx. Weight
MI-27988-4C	3 lbs. (1400g)

Flange, Soft Solder



Flanges field-cut line. No swivel.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19089-14	¼" (6 mm)	3 lbs. (1400g)

Adapter, "Universal" 3 1/8" Male



Adapts bolt-flanged (MI-19089) or EIA flanged line to "Universal" female flange.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19089-25	6" (152 mm)	5 lbs. (2300g)

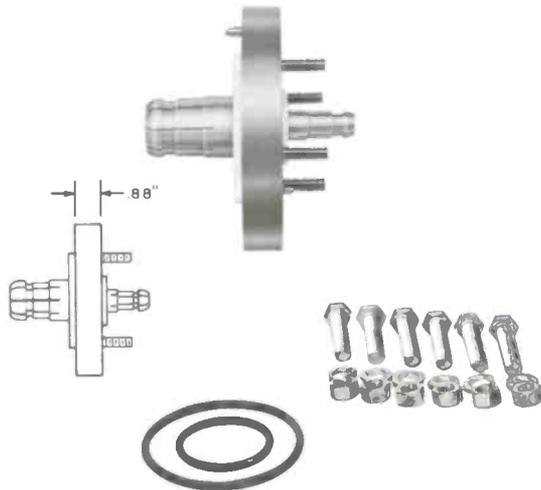
Adapter, "Universal" 3 1/8" Female



Complement to MI-19089-25 (left). Adapts bolt-flange to "Universal" male flange.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19089-24	6" (152 mm)	7 lbs. (3200 kg)

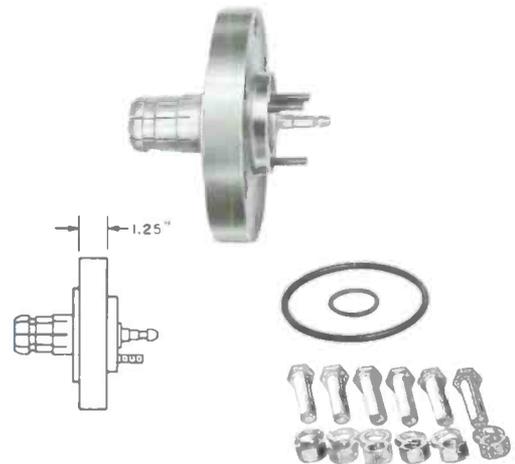
Reducer, 1 5/8" EIA Flange



Reduces 3 1/8 inch flange (MI-19089 or EIA) to 1 5/8 inch (EIA) flange.

Catalog Number	Approx. Weight
MI-27988-5C	3 lbs. (1360g)

Reducer, 7/8" EIA Flange



Reduces 3 1/8 inch flange (MI-19089) to 7/8 inch (EIA) flange.

Catalog Number	Approx. Weight
MI-27988-5D	3 lbs. (1360g)

Reducer to Type N Fitting



Connects 3/8 inch flange (MI-19089 or EIA) to a Type N female connector.

Catalog Number	Length	Approx. Weight
MI-19089-17	8" (203 mm)	5 3/4 lbs. (3 kg)

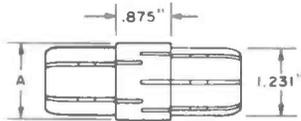
Reducer, Type HN Connector



Connects 3/8 inch flange (MI-19089 or EIA) to a Type HN female connector.

Catalog Number	Length	Approx. Weight
MI-19089-21	7 3/8" (187 mm)	4 lbs. (1800g)

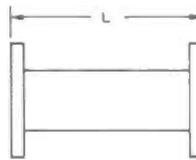
Adapter, Inner Conductor



MI-27988-4A adapts inner conductors of MI-19089 line to inner conductors of MI-19113C; MI-27988-4B adapts MI-19089 to MI-19313C inner conductors.

Catalog Number	Dimension A	Approx. Weight
MI-27988-4A	1.136" (28 mm)	6 oz. (171g)
MI-27988-4B	1.232" (31 mm)	6 oz. (171g)

Adapter, Male-to-Male



Connects male flanges of MI-19089 and EIA components.

Catalog Number	Insert Length (L)	Approx. Weight
MI-27938-7E	6" (152 mm)	5 1/2 lbs. (2500g)

Adapter, 51.5-Ohm



Adapts MI-19089 and EIA components to 51.5-ohm (MI-19113C or MI-19313).

Catalog Number	Insert Length (L)	Approx. Weight
MI-27988-7A	6" (152 mm)	5½ lbs. (2500g)

End Cap



For temporary closure of incomplete line installation to prevent entry of moisture. Includes plug for gas bleeding or pressurization.

Catalog Number	Approx. Weight
MI-19089-26	3 lbs. (1.4 kg)

Cutoff Guides



Inner and outer conductor guides that assure square cut.

Catalog Number	For	Approx. Weight
MI-19089-15	Outer	2.3 lbs. (1100g)
MI-19089-16	Inner	6 oz. (171g)

Miscellaneous



Product	Catalog Number
Gasket, O-Ring	MI-19113C-10
Kit, Hardware (6 Bolts, Nuts, Lockwashers)	MI-19113C-19
Tool, Lancing	MI-19089-29
Extractor, Anchor Insulator	MI-19089-20
Anchor Insulator Expansion Joint (Field Replacement Kit)	MI-19089-23
Inner Conductor (20' length). For use with Expansion Joint above	MI-19089-99-1
Grease, Silicone, 2 oz. Tube	MI-19089-18

Steatite Insulated 51.5 ohm Transmission Line

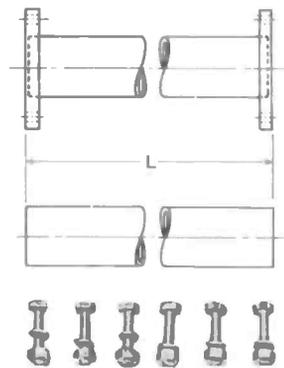


Steatite-insulated line is a 51.5 ohm line useful in AM and FM operations. Steatite is a fired ceramic insulator with a long history in power transmission. Steatite-insulated lines are available only in flanged styles in two nominal diameters: 3 1/8 and 6 1/8 inch. Only the 3 1/8 inch diameter is listed here because of its suitability to radio operations. Some components from the Teflon-insulated (MI-19313) series are compatible with steatite-insulated products. These Teflon components are described on the four pages following these two.

General Specifications

Nominal Diameter	3 1/8 inches
Insulation	Steatite Ceramic
Outer Conductor Dimensions:	
Tube Outer Diameter (3.027" 77 mm ID)	3.125" (79 mm)
Flange	5 3/8" (132 mm)
Inner Conductor Dimensions:	
Tube Outer Diameter	1.200" (30.5 mm)
Tube Inner Diameter	1.136" (28.9 mm)
Characteristic Impedance	51.5 ohms
Catalog Number Series	MI-19113C

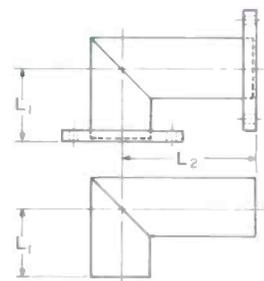
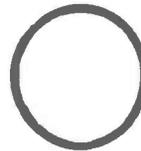
Line Sections



Shipped two sections per package. Use MI-19113C-1SF (swivel flange) for field replacement only. Channels between 97 and 99 MHz require 19 1/2 foot (5.94m) sections (special order only).

Catalog Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19113C-1	20' (6.1m)	2 Fixed	53 lbs. (24 kg)	248x13x8 1/2"	150 lbs. (68 kg)
MI-19113C-1NF	20' (6.1m)	None	52 lbs. (24 kg)	(6300x330x216 mm)	148 lbs. (67 kg)

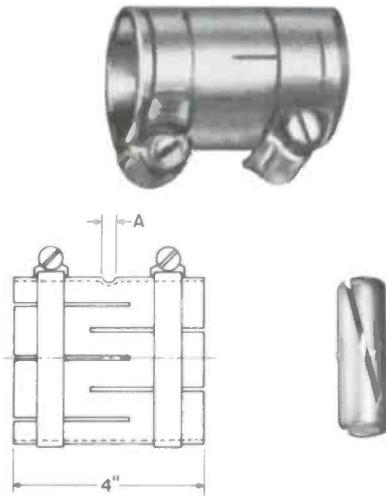
Elbows, Right Angle



Flanged elbow uses swivel flanges and includes inner-conductor connector, O-ring gasket, six bolts, nuts, lockwashers. Unflanged elbow includes inner-conductor connector only.

Catalog Number	L1	Insert Length	L2	Approx. Weight	Package Dimensions	Shipping Weight
MI-19113C-18	3 7/8" (98 mm)		8 1/8" (206 mm)	11 1/4 lbs. (5 kg)	12 1/2 x 12 1/2 x 7" (317 x 317 x 178 mm)	14 lbs. (6 kg)
MI-19113C-18NF	3 7/8" (98 mm)		8 1/8" (206 mm)	6 1/4 lbs. (3 kg)	10 x 6 x 4" (254 x 152 x 102 mm)	7 lbs. (3 kg)

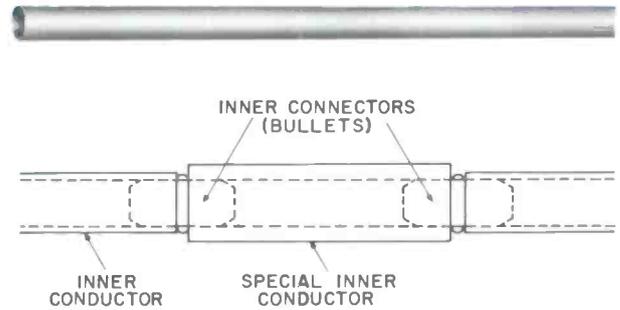
Coupling, Unflanged



Couples unflanged line sections and components. MI-19113C-8NB inner connector.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19113C-8B	3/16" (5 mm)	1 1/4 lbs. (567g)
MI-19113C-8NB	3/16" (5 mm)	1 1/8 lbs. (510g)

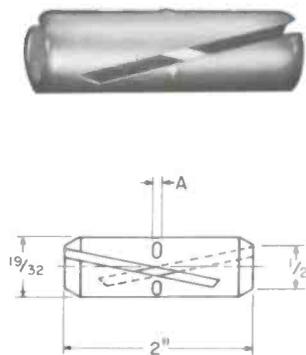
Inner Conductor, Splicing



Oversize inner-conductor tube for splicing MI-19113C line when cut at point other than midway between insulators. Each splice requires two MI-19113C-11 inner-conductor connectors. (Not supplied, see below.)

Catalog Number	ID	Dimensions OD	Length	Approx. Weight
MI-19113C-9	1.136" (29 mm)	1.282" (33 mm)	12' (3.7 m)	12 1/2 lbs. (6 kg)

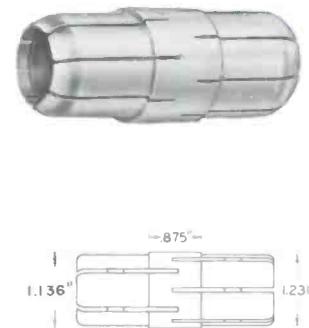
Connector, Inner Conductor



Joins inner conductors of MI-19113 components at joints or splices.

Catalog Number	Length	Approx. Weight
MI-19113C-11	2 1/2" (64 mm)	2 oz. (57g)

Adapter, Inner Conductor



Connects inner conductor of MI-19113C line to inner conductor of MI-19089 line components.

Catalog Number	Insert Length	Approx. Weight
MI-27988-4A	7/8" (22 mm)	6 oz. (171g)

Teflon-Insulated, 51.5 ohm Transmission Line

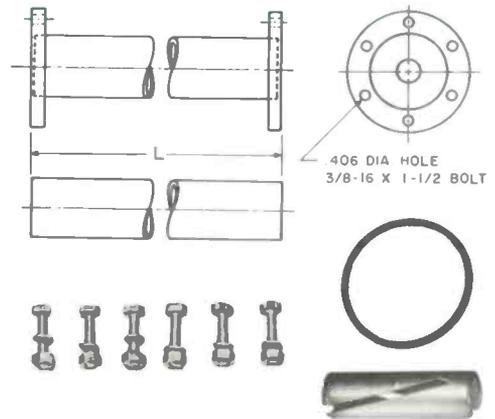


Teflon-insulated 51.5 ohm line is available in flanged and unflanged styles and features a "wristband spring" inner-conductor expansion joint that prevents galling and contamination of the insulation.

General Specifications

Nominal Diameter	3 1/8 inches
Insulation	Polytetrafluoroethylene Plastic (Teflon)
Outer Conductor Dimensions:	
Tube Outer Diameter (3.027" 77 mm ID)	3.125" (79 mm)
Flange Diameter	5 3/8" (132 mm)
Inner Conductor Dimensions:	
Tube Outer Diameter	1.282" (32.8 mm)
Tube Inner Diameter	1.231" (31.4 mm)
Characteristic Impedance	51.5 ohms
Catalog Number Series	MI-19313

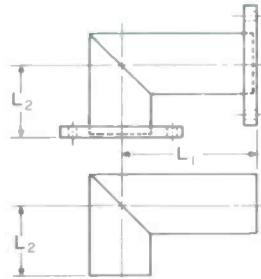
Line Sections



Inner conductor connector included with MI-19313-1NF. Use MI-19313-1SFH or MI-19313-1BSFH for replacement only. Channels between 97 and 99 MHz require 19 1/2 foot (5.94 m) sections (MI-19313-1BH or -1BSFH).

Catalog Number	Length (L)	Flanges	Approx. Weight	Package Dimensions	Shipping Weight
MI-19313-1H	20' (6.1m)	2 Fixed	51 lbs. (23 kg)	248x13x8 1/2" (6300x330x216 mm)	149 lbs. (68 kg)
MI-19313-1NF	20' (6.1m)	None	48 lbs. (22 kg)		143 lbs. (65 kg)
MI-19313-1SFH	20' (6.1m)	1 Fixed 1 Swivel	52 lbs. (23 kg)		150 lbs. (68 kg)
MI-19313-1BH	19 1/2' (5.9m)	2 Fixed	48 lbs. (22 kg)		147 lbs. (67 kg)
MI-19313-1BSFH	19 1/2' (5.9m)	1 Fixed 1 Swivel	48 lbs. (22 kg)		148 lbs. (67 kg)

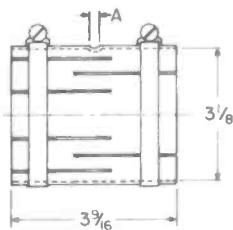
Elbows, Right-Angle



Flanged elbow uses swivel flanges and includes one inner-conductor connector, one inner-conductor-connector adapter, one O-ring gasket, six bolts, nuts, and lockwashers. MI-19313-2R is a reinforced version of the MI-19313-2. Unflanged elbow includes one inner-conductor connector and one inner-conductor-connector adapter.

Catalog Number	Insert Length		Flanges	Approx. Weight	Package Dimensions	Shipping Weight
	L1	L2				
MI-19313-2	8½" (216 mm)	3⅞" (98 mm)	2 Swivel	11½ lbs. (5.2 kg)	12½x12½x7" (317x317x178 mm)	14 lbs. (6 kg)
MI-19313-2NF	8" (203 mm)	3¾" (95 mm)	None	6½ lbs. (3 kg)		9 lbs. (4 kg)

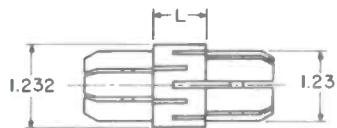
Coupling, Unflanged



Couples unflanged line sections and components. Omits inner connector.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19313-8	⅜" (5 mm)	1¼ lbs. (567g)
MI-19313-8NB	⅜" (5 mm)	1⅝ lbs. (510g)

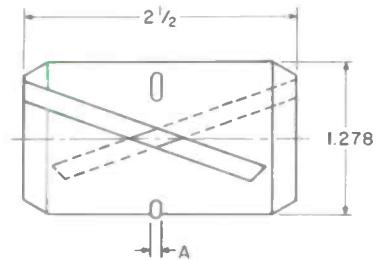
Adapter, Inner Conductor



Connects MI-19313 inner conductor to that of MI-19089 or EIA flanged line components.

Catalog Number	Insert Length (L)	Approx. Weight
MI-27988-4B	⅞" (22 mm)	6 oz. (171g)

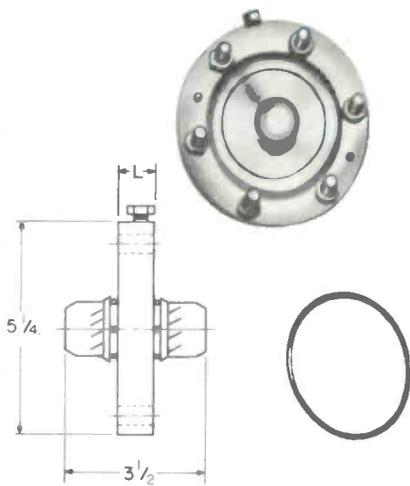
Connector, Inner Conductor



For joining inner conductors of MI-19313 transmission line sections.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19313-9	⅛" (1 mm)	2 oz. (57g)

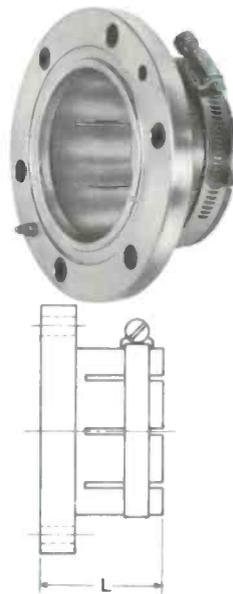
Gas Stop



Seals pressurized section from unpressurized. Fits MI-19113C or MI-19313 components. O-ring gasket and hardware (six bolts, nuts, lockwashers) included.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19113C-5	7/8" (22 mm)	4 3/4 lbs. (3 kg)

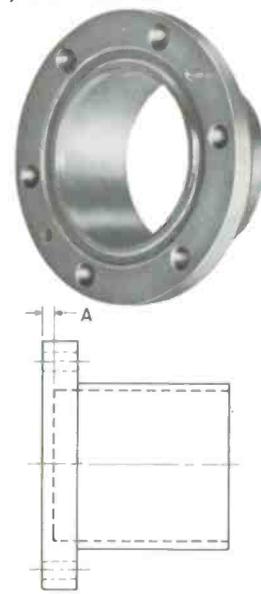
Flange, Mechanical



Flanges MI-193113C or MI-19313 unflanged line. Not pressure tight.

Catalog Number	Length (L)	Approx. Weight
MI-19113C-60	2" (51 mm)	3 1/4 lbs. (1.5 kg)

Flange, Soft-Solder



Flanges field-cut MI-19113C or MI-19313 line.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19113C-55	1/4" (6.4 mm)	3 lbs. (1.4 kg)

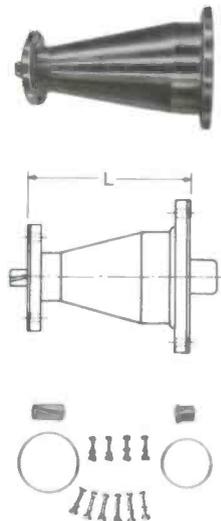
Guides, Cutoff



Inner and outer conductor cutoff guides that assure square cut. Inner guide shown.

For	Approx. Weight	Catalog Number
MI-19113 Inner	5 oz. (143g)	MI-19113C-54
MI-19313 Inner	6 oz. (171g)	MI-19113C-51
MI-19113C-9 Inner	5 oz. (143g)	MI-19113C-54
MI-19113 Outer	10 oz. (286g)	MI-19089-15
MI-19313 Outer	10 oz. (286g)	MI-19089-15

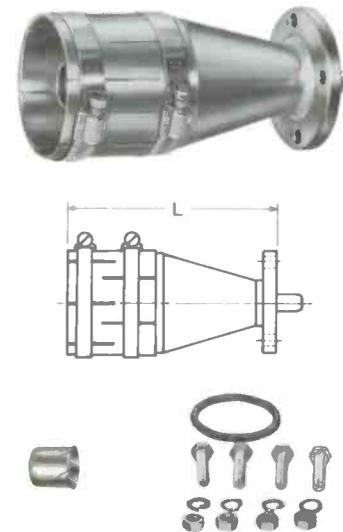
Reducer, 1 5/8 Inch Flanged



Reduces 3 3/8-inch (MI-19113C or MI-19313) line to mate with 1 5/8-inch (MI-19112) line.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19113C-6	5-5/32" (131 mm)	5.6 lbs. (3 kg)

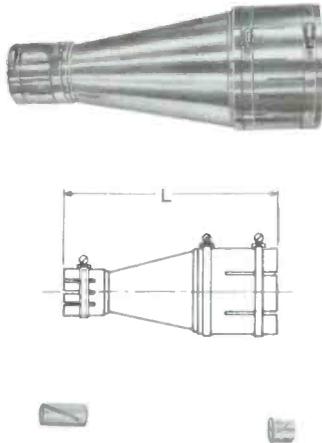
Reducer, 7/8 Inch EIA Flange



Reduces 3 3/8-inch (MI-19113C or MI-19313) unflanged line to mate with 7/8 inch EIA flanged components.

Catalog Number	Insert Length (L)	Approx. Weight
MI-27988-5A	1 1/4" (32 mm)	8 oz. (228g)

Reducer, 1 5/8 Inch Unflanged



Reduces 3 5/8-inch (MI-19113C or MI-19313) unflanged line to mate with 1 5/8-inch (MI-19112) unflanged line.

Catalog Number	Insert Length (L)	Approx. Weight
MI-19113C-7	7" (178 mm)	3 lbs. (1.4 kg)

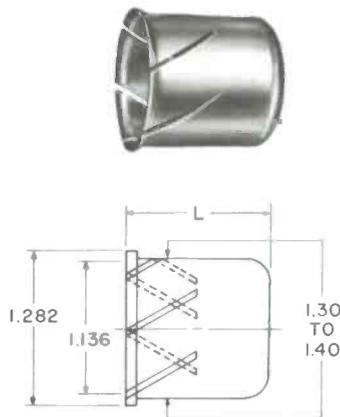
Reducer, Type N



Converts unflanged (MI-19113 or MI-19313) line to a Type N female coaxial connector.

Catalog Number	Length	Approx. Weight
MI-19113C-58	•	4 lbs. (2 kg)

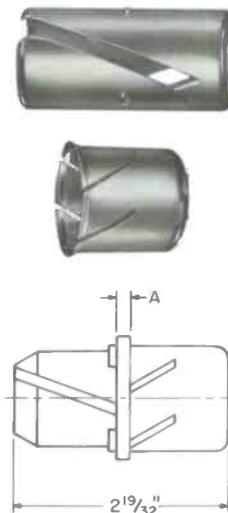
Bushing, Adapter



Reduces inner diameter of MI-19313 inner conductor to mate with MI-19113 component inner conductors.

Catalog Number	Length (L)	Approx. Weight
MI-19313-11	1 5/16" (33 mm)	2 oz. (57g)

Adapter, Inner Conductor



Connects inner conductors of MI-19113C line with those of MI-19313 line.

Catalog Number	Insert Length (A)	Approx. Weight
MI-19313-10	1/8" (3 mm)	4 oz. (114g)

End Cap



Temporarily caps open ends of line (MI-19113C or MI-19313) to prevent moisture entry during installation.

Catalog Number	Package Dimensions	Approx. Weight
MI-19113C-13	6x6x4 1/2" (152x152x114 mm)	14 1/4 lbs. (6.5 kg)

Unflanged, 50 ohm Transmission Line

Unflanged line is a hard tempered copper transmission line designed for unpresurized indoor applications in AM and FM. It employs a low loss Teflon dielectric and operates with high efficiency. A complete line of components in 1 5/8-, 3 3/8- and 6 1/8-inch nominal diameters provides installation versatility for a wide power range.



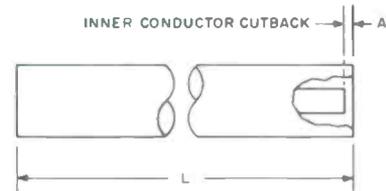
General Specifications

Nominal Diameter 1 5/8; 3 3/8; 6 1/8 inches
 Insulation Polytetrafluoroethylene Plastic (Teflon)

Outer Conductor Dimensions:

Outer Dia. 1.625" (41mm); 3.125" (79mm); 6.128" (168mm)
 Inner Dia. 1.527" (38mm); 3.027" (77mm); 5.981" (152mm)
 Characteristic Impedance 50 ohms
 Catalog Number Series MI-561565; MI-27791K; MI-561579

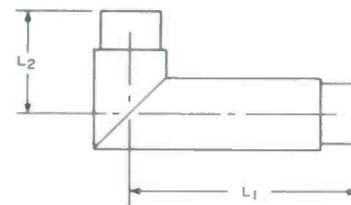
Line Sections



Each section 20 feet long (6.1m)

Catalog Number	Nominal Diameter	Dimension A	Approx. Weight	Package Dimensions	Lengths Per Package	Shipping Weight
MI-561565-1A	1 5/8"	0.015" (0.39 mm)	25 lbs. (11 kg)	8 1/2 x 13 x 248" (216 x 330 x 6299 mm)	6	203 lbs. (93 kg)
MI-27791K-1A	3 3/8"	0.215" (5.4 mm)	52 lbs. (24 kg)	8 1/2 x 13 x 248" (216 x 330 x 6299 mm)	2	148 lbs. (67 kg)
MI-561579-1A	6 1/8"	0.71" (18 mm)	67 lbs. (30 kg)	10 x 10 x 248" (254 x 254 x 6299 mm)	1	112 lbs. (51 kg)

Elbows, Right-Angle

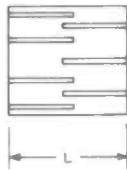


Catalog Number	Nominal Diameter	L1	Dimension	L2	Approx. Weight
MI-561565-2A	1 5/8"	6" (151 mm)	2 1/8"	62 mm	2 3/4 lbs. (1.3 kg)
MI-27791K-2A	3 3/8"	8" (205 mm)	3 3/4"	95 mm	6 lbs. (2.7 kg)
MI-561579-2A	6 1/8"	12" (305 mm)	6"	152 mm	21 1/2 lbs. (9.7 kg)

Couplings



Join line sections and components.

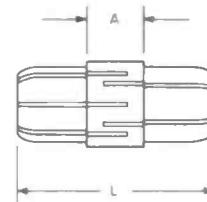


Catalog Number	Nominal Diameter	Length (Dim. L)	Approx. Weight
MI-561565-4A	1 5/8"	2 3/8" (59 mm)	8 oz. (228g)
MI-27791K-4A	3 1/8"	4" (102 mm)	20 oz. (570g)
MI-565579-4A	6 1/8"	4 1/2" (114 mm)	65 oz. (1800g)

Connectors, Inner Conductor



For joining inner conductors.

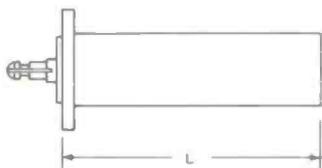


Catalog Number	Nominal Diameter	Length (Dim. L)	Insert Length (Dim. A)	Approx. Weight
MI-561565-4B	1 5/8"	2" (51 mm)	1/6" (1.6 mm)	2 oz. (57g)
MI-27791K-4B	3 1/8"	2 1/2" (64 mm)	1/6" (1.6 mm)	3 oz. (85g)
MI-561579-4B	6 1/8"	3 1/2" (89 mm)	1 1/6" (27 mm)	8 oz. (227g)

Adapter, Unflanged 1 5/8" to EIA Flanged 1 5/8"



Converts unflanged MI-561565 to 1 5/8-inch EIA flanged components using coupling (MI-561565-4A) not supplied.

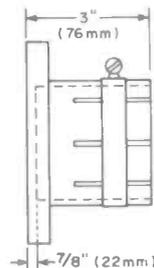


Catalog Number	Length (L)	Approx. Weight
MI-561565-7A	4 1/2" (114 mm)	1 1/2 lbs. (681g)

Adapter, Unflanged 3 1/8" to EIA Flange



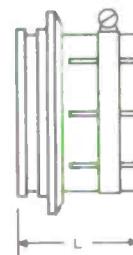
Flanges unflanged 3 1/8-inch (MI-27791K) line. Not pressure tight.



Catalog Number	Length (L)	Approx. Weight
MI-27988-4C	3" (76 mm)	2 1/2 lbs. (1100g)

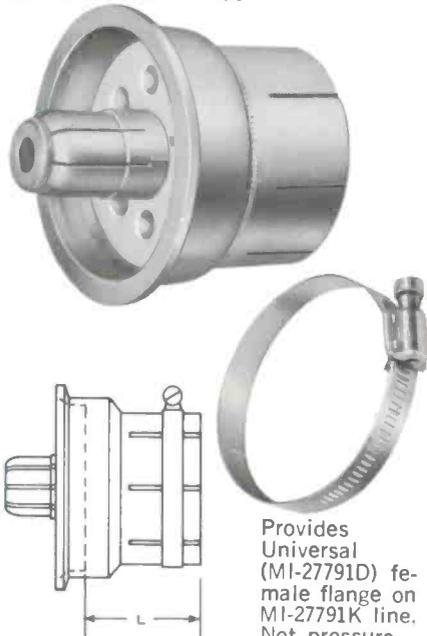
Adapter, Unflanged 3 1/8" to "Universal" 3 1/8"

Provides Universal (MI-27791D) male flange on MI-27791K line. Not pressure tight.



Catalog Number	Length (L)	Approx. Weight
MI-27791K-7B	2 5/8" (66 mm)	2 1/4 lbs. (1000g)

Adapter, Unflanged 3 1/8" to "Universal" 3 1/8"



Provides Universal (MI-27791D) female flange on MI-27791K line. Not pressure tight.

Catalog Number	Length (L)	Approx. Weight
MI-27791K-7A	2 1/2" (63 mm)	3 1/2 lbs. (1400g)

Adapter, Unflanged 6 1/8" to Bolt-Flanged 6 1/8"



Flanges unflanged 6 1/8-inch (MI-561579) line to mate with 51.5 ohm bolt flanged line. Not pressure tight.

Catalog Number	Length (L)	Approx. Weight
MI-561579-7A	3 5/8" (93 mm)	8 lbs. (3.6 kg)

Reducer, Unflanged 1 5/8" to Type N



Converts unflanged 1 5/8 inch line (MI-561565) to a female Type N Connector.

Catalog Number	Approx. Weight
MI-561565-5B	8 oz. (227g)

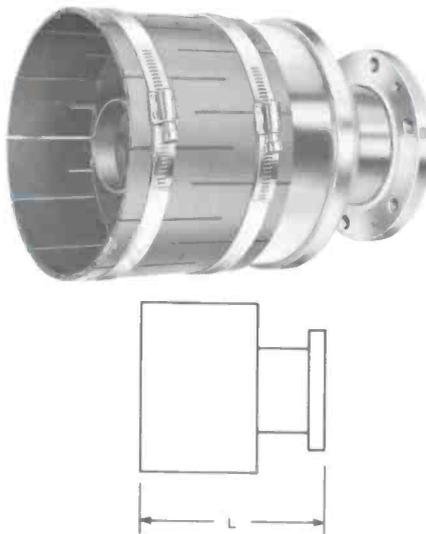
Reducer, Unflanged 3 1/8" to Type N



Converts unflanged 3 1/8-inch line (MI-27791K) to a female Type N connector.

Catalog Number	Approx. Weight
MI-27791K-5A	4 1/4 lbs. (2 kg)

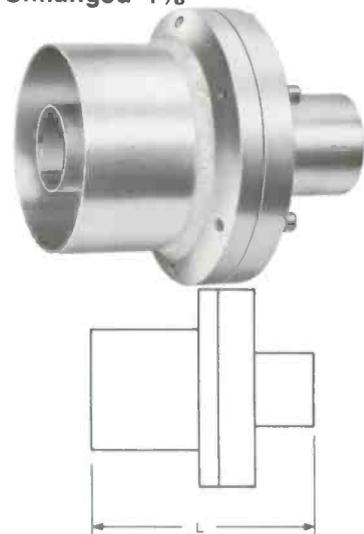
Reducer, Unflanged 6 1/8" to 3 1/8" EIA Flanged



Reduces unflanged 6 1/8-inch 50 ohm line (MI-561579) to 3 1/8-inch EIA flanged 50 ohm line (MI-19089).

Catalog Number	Length (L)	Approx. Weight
MI-561579-5B	6 3/4" (171 mm)	9 lbs. (4 kg)

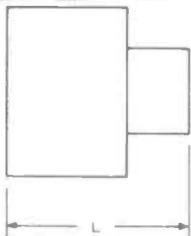
Reducer, Unflanged 3 1/8" to Unflanged 1 5/8"



Reduces unflanged 3 1/8 inch line (MI-27791K) to unflanged 1 5/8 inch (MI-561565). Requires couplings (MI-27791K-4A and MI-561565-4A), not included.

Catalog Number	Length (L)	Approx. Weight
MI-561565-5A	5" (127 mm)	3 1/4 lbs. (1.5 kg)

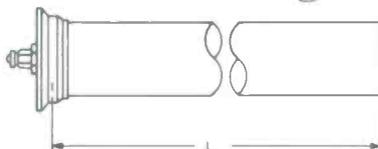
Reducer, Unflanged 6 1/8" to Unflanged 3 1/8"



Reduces unflanged 6 1/8 inch line (MI-561579) to unflanged 3 1/8 inch line (MI-27791K). Requires coupling MI-27791K-4A (not supplied). Coupling for 6 1/2 inch end included with two clamps.

Catalog Number	Length	Approx. Weight
MI-561579-5A	6 3/4" (171 mm)	8.5 lbs. (3.8 kg)

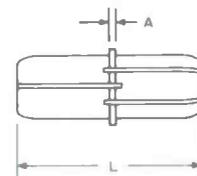
Transformer-Adapter, Unflanged 6 1/8" to "Universal" 6 1/8"



Transforms 6 1/8 inch 50 ohm (MI-27791K) to 6 1/8 inch 75 ohm (MI-27792D) and provides Universal female flanges. Specify channel or frequency when ordering.

Catalog Number	Length (L)	Approx. Weight
MI-561579-6T	52" (12m) (max.)	32 lbs. (17 kg) (max.)

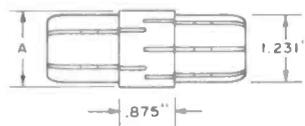
Adapter, Inner Conductor, 1 5/8"



Couples inner conductor of 1 5/8 inch 50 ohm line (MI-561565) to inner conductor of 1 5/8 inch 51.5 ohm line (MI-19112).

Catalog Number	Length (L)	Dimension A	Approx. Weight
MI-561565-8A	2" (51 mm)	1/6" (1.6 mm)	2 oz. (57g)

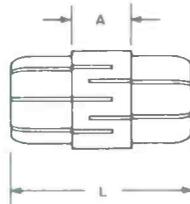
Adapter, Inner Conductor, 3 1/8"



Couples inner conductor of 3 1/8-inch 50 ohm line (MI-27791K) to the inner conductor of 3 1/8-inch 51.5 ohm line (MI-19113C or MI-19313).

Catalog Number	Dimension A	Adapts To	Approx. Weight
MI-27988-4A	1.136" (28.9 mm)	MI-19313	6 oz.
MI-27988-4B	1.232" (31.3 mm)	MI-19113C	(171g)

Adapter, Inner Conductor 6 1/8" 50 ohm to 6 1/8" 51.5 ohm



Couples inner conductor of 50 ohm line 6 1/8 inch, MI-561579, to the inner conductor of 51.5 ohm 6 1/8 inch, MI-19314C.

Catalog Number	Length (L)	Dimension A	Approx. Weight
MI-561579-8A	3 1/6" (81 mm)	1 1/6" (27 mm)	12 oz. (342g)

Clamps, Coupling

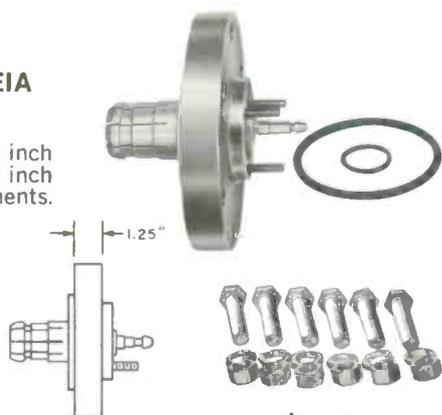


For Coupling	Catalog Number
1 5/8 inch (MI-561565-4A)	MI-561565-4C
3 1/8 inch (MI-27791K-4A)	MI-27791K-4C
6 1/8 inch (MI-561579-4A)	MI-561579-4C

Special Adapters

Reducer, 3 1/8" EIA to 7/8" EIA

Used between 3 1/8 inch EIA or MI-19089 7/8 inch EIA flanged components.



Catalog Number	Insert Length	Approx. Weight
MI-27988-5D	1.25" (32 mm)	3 lbs. (1.4 kg)

Reducer, 3 1/8" MI-19113C or 19313 to 7/8" EIA

Used between 51.5 ohm, 3 1/8 inch MI-19113C or MI-19313 line & 7/8 inch EIA flanged components. Includes two gaskets, six bolts, nuts, lockwashers (for 3 1/8 inch flange). Nuts and lockwashers for 7/8 inch flange included also.



Catalog Number	Insert Length	Approx. Weight
MI-27988-5A	1.25" (32 mm)	3 lbs. (1.4 kg)

Reducer, 3 1/8" MI-19113C or 19313 to 1 5/8" EIA

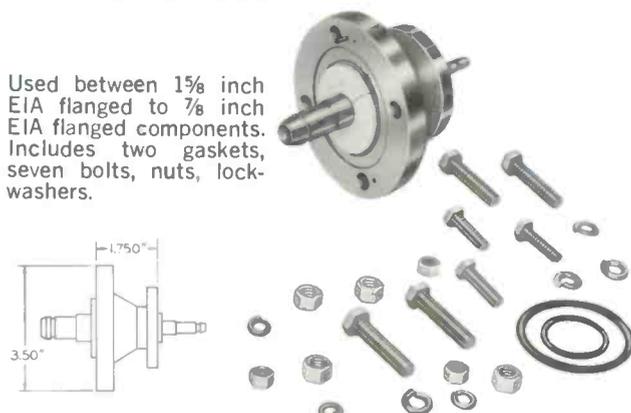
Used between 3 1/8 inch line (MI-19113C or MI-19313) & 1 5/8 inch EIA flanged components.



Catalog Number	Insert Length	Approx. Weight
MI-27988-5B	0.88" (22 mm)	8 oz. (227g)

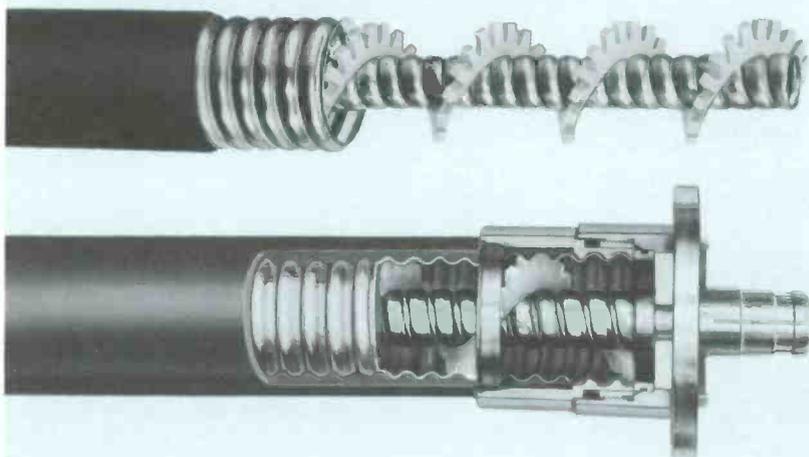
Reducer, 1 5/8" EIA to 7/8" EIA

Used between 1 5/8 inch EIA flanged to 7/8 inch EIA flanged components. Includes two gaskets, seven bolts, nuts, lockwashers.



Catalog Number	Insert Length	Approx. Weight
MI-27988-5E	1.75" (44 mm)	3 lbs. (14 kg)

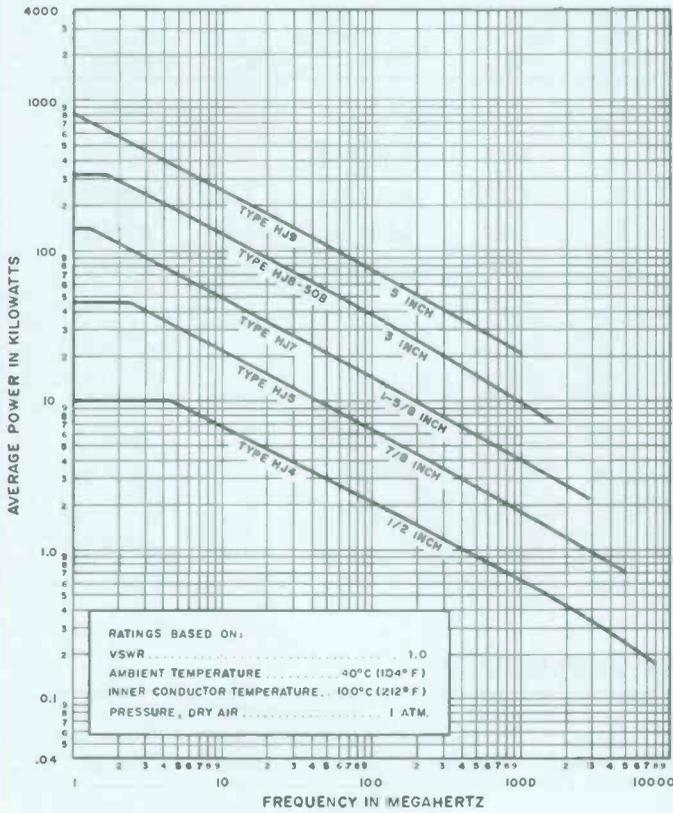
Semi-Rigid Transmission Line



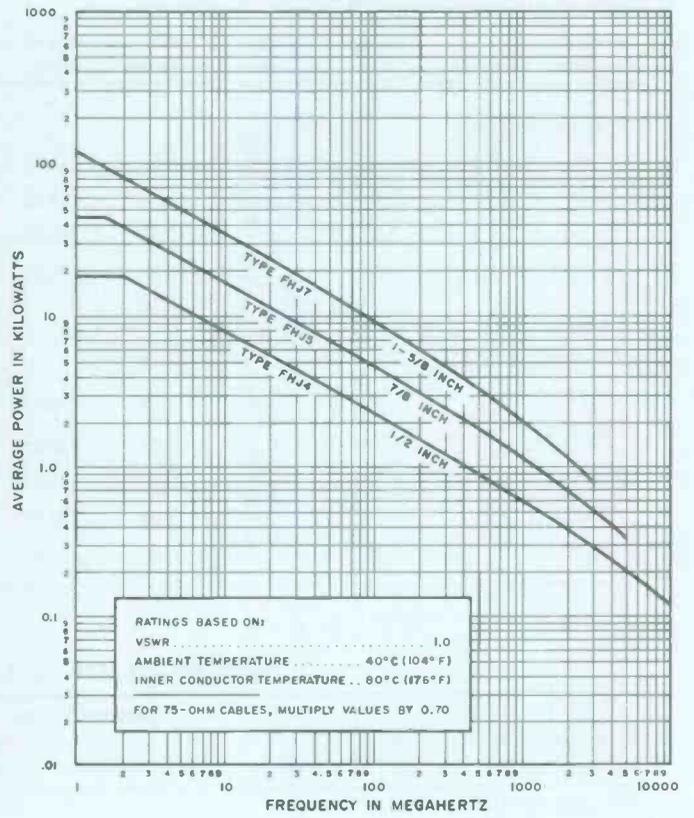
Heliax* is a semi-rigid coaxial cable suited to AM and FM power transmission. Its limited flexibility is the result of corrugated copper conductors. It is available in either 50 or 75 ohm impedance (only 50 ohm data included here). Semi-rigid line is of lighter weight than rigid, flanged line and, in some situations, less susceptible to damage than rigid line of comparable size. The line is available with either an air dielectric or filled with polyethylene foam. Sizes range from an instrumentation type 1/4 inch (6 mm) to a five-inch (127 mm) line with a high-power rating.

*Andrew Corporation Trademark.

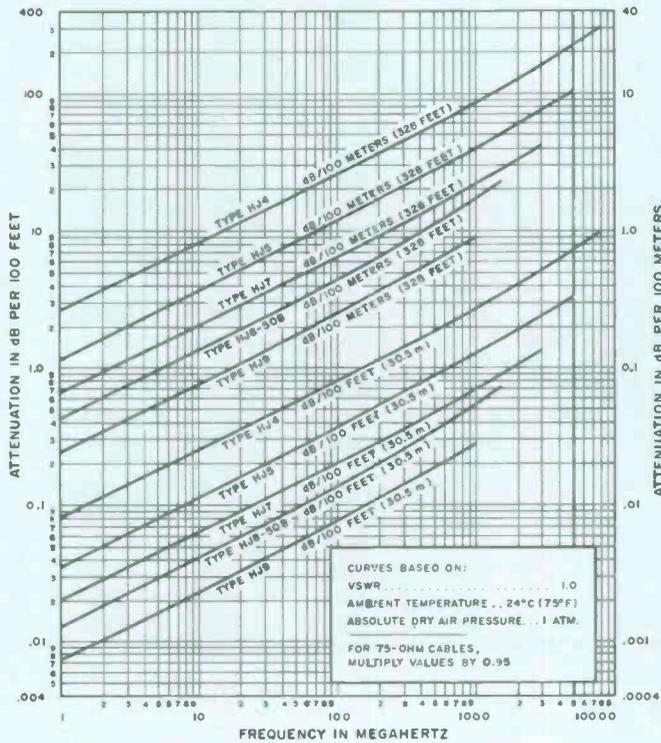
POWER CURVES
50-OHM AIR DIELECTRIC MELIAX AT UNITY VSWR



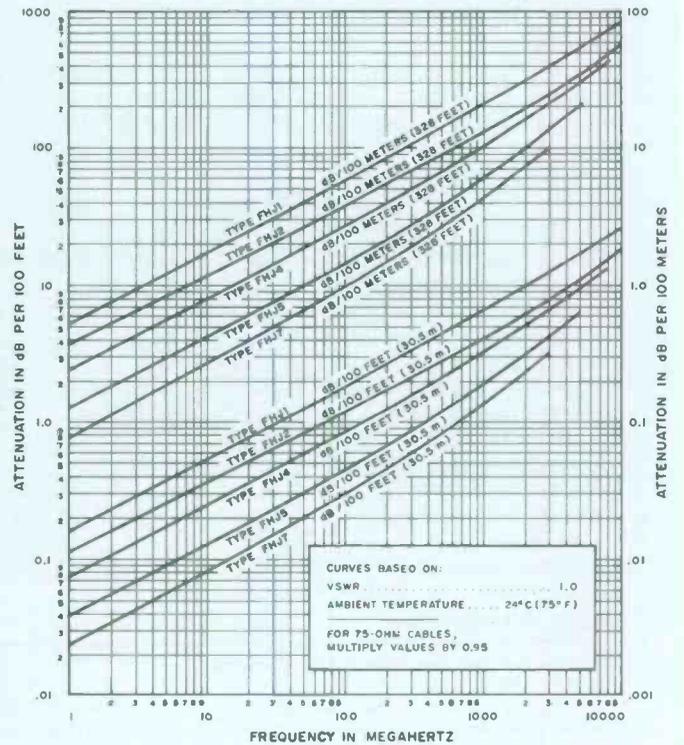
POWER CURVES
50-OHM FOAM DIELECTRIC MELIAX AT UNITY VSWR



ATTENUATION CURVES
50-OHM, AIR DIELECTRIC MELIAX AT UNITY VSWR



ATTENUATION CURVES
50-OHM, FOAM DIELECTRIC MELIAX AT UNITY VSWR



SPECIFICATIONS/ORDERING INFORMATION SEMI-RIGID CO-AX LINE

Nominal Diameter	Velocity	1 MHz Power Rating (kW)	Attenuation	Outside Diameter		Minimum Bend Radius		Weight		Catalog Number
				inches	(mm)	inches	(mm)	lbs/ft	kg/m	
AIR DIELECTRIC										
1/2"	91.4%	10	See Curve, preceding page	0.58	(14.7)	5	(127)	0.27(122g)	0.413	HJ4-50
7/8"	91.6	44		1.11	(28.2)	10	(254)	0.53(240g)	8.10	HJ5-50
1 5/8"	92.1	145		2.00	(50.8)	20	(508)	1.04(470g)	1.59	HJ7-50
3"	92.3	320		3.02	(76.7)	30	(762)	1.78(807g)	2.72	HJ8-50
FOAM DIELECTRIC										
1/4"	79	5	See Curve, preceding page	0.29	(7.4)	2.50	(63.5)	0.06(27g)	0.09	FHJ1-50
3/8"	79	8		0.44	(11.2)	3.75	(95.2)	0.12(54g)	0.18	FHJ2-50
1/2"	79	19		0.62	(15.7)	5.00	(127)	0.18(82g)	0.28	FHJ4-50
7/8"	79	44		1.09	(27.7)	10.0	(254)	0.44(200g)	0.67	FHJ5-50
1 5/8"	79	145		2.00	(50.8)	20.0	(508)	1.35(612g)	2.06	FHJ7-50

lbs/ft x 3.37 = lb/m
lbs/m x 0.4536 = kg/m

SEMI-RIGID CO-AX LINE ACCESSORIES

Line Nominal Diameter (inches)	FOAM DIELECTRIC					AIR DIELECTRIC			
	1/4"	3/8"	1/2"	7/8"	1 5/8"	1/2"	7/8"	1 5/8"	3"
Line Type Number	FJH1-50	FJH2-50	FHJ4-50	FHJ5-50	FHJ7-50	HJ4-50	HJ5-50	HJ7-50	HJ8-50
UHF Jack (Female)	41U	42U	44AU	45AU	—	—	75AU	—	—
UHF Plug (Male)	41P	42P	44AP	45AP	—	—	—	—	—
Type N Jack (Female)	41N	42N	44AW	45AW	—	74N	75AN	87N	—
Type N Plug (Male)	41W	42W	44AN	45AN	—	74W	75AW	—	—
Adapter, End Terminal	13212-2 ²	13212-2 ²	44AT	45AT	2061	—	75AT	2061	2062
Elbow, Mitre	—	—	—	—	—	—	1060	1061	1062
Wraplock, Stainless Steel	12395-1	12395-1	12395-1	12395-1	12395-1	12395-1	12395-1	12395-1	—
Tie Wires, Copperweld	27290A	27290A	—	—	—	—	—	—	—
Clamp, Mounting, Insulated	11662-3 ¹	11662-3 ¹	11662-3	11662-2	33948-3	—	—	—	—
Flange, EIA	—	—	44AR	45AR	47R	—	75AR	87R	78ARM
Flange, EIA w/Gas Barrier	—	—	—	—	—	—	75AG	87G	78AGM
Splice	—	—	44AZ	45AZ	47Z	—	75AZ	87Z	78AZ
Grip, Hoisting	—	—	—	—	—	—	19256B	24312A	26985A
Type LC Plug (Male)	—	—	44AM	45AM	47M	—	—	—	—
Type LC Jack (Female)	—	—	—	45AL	47L	—	—	—	—
Kit, Grounding (Copper Line)	—	—	26892-2	40993-5	40993-2	26892-2	40993-5	40993-2	40993-11
Kit, Hanger	—	—	—	31776-5 ⁵	31776-2 ⁵	—	31766-5 ⁵	31766-2 ⁵	33598-3 ⁵
Adapters, Hanger:									
Angle Iron Member	—	—	—	31768-1	31768-1	—	31768-1	31768-1	33981-1
Round Tower Member	—	—	—	31670-3	31670-3	—	31670-3	31670-3	33984-1 ⁴
Hanger, Insulated	—	—	—	—	—	11662-3	11662-2	33948-3	33948-2
Adapters, Insulated Hangers:									
Angle Iron Member	—	—	—	—	—	13555A	13555A	13555A	13555A
Round Tower Member	—	—	—	—	—	13550	13550	13550	13550
Barrier, Gas	—	—	—	—	—	—	1260A	1261B	1262A
Dehydrator, Automatic	—	—	—	—	—	1920A	1920A	1920A	1920A
Pump, Dry Air	—	—	—	—	—	878A	878A	878A	878A
Fittings, Nitrogen Tank	—	—	—	—	—	858C	858C	858C	859C

¹ Clamp for half inch line, shim smaller diameters.

² Use with Type N Plug.

³ Please specify diameter of tower member (-1 = 1-2"; -2 = 2-3"; -3 = 3-4"; -4 = 4-5"; -5 = 5-6").

⁴ For 1-3" tower legs; for 3-4" legs, use 41108-1; for 4-5", use 41108-2; for 5-6" legs, use 41108-3.

⁵ Kit contains hangers only. Tower adapters required. See "Adapters, Hanger" listing.