

T&B Conduit Fittings

Liquidtight Flexible Metal Conduit Fittings

Specifications—Liquidtight Flexible Metal Conduit

Ref. CEC Rule 12-1300

Liquidtight flexible metal conduit is a raceway of circular cross section having an outer liquidtight nonmetallic, sunlight resistant jacket over a flexible metal core.

Liquidtight flexible metal conduit is permitted to be used for exposed or concealed work, in dry, damp or wet locations indoors and outdoors. With the exception of Class I Division I locations, liquidtight flexible metal conduit is considered an acceptable wiring method in hazardous locations Class 1 Division 2 (CEC Rule J18-152(6)).

Liquidtight flexible metal conduit is not permitted where subjected to mechanical injury. The conduit is not permitted to be used underground or embedded in cinder fill or concrete. It cannot be used as a general purpose raceway.

Use of liquidtight conduit is not permitted where any combination of ambient or conductor temperature will produce temperature in excess of that for which the jacket is rated or in locations where flexing at low temperature will injure jacket. Liquidtight flexible metal conduit is not permitted for conductors over 600 volts.

Liquidtight flexible conduit is available in 3/8" through 6" trade size. Conduit is constructed with galvanized steel or aluminum core, regular or extra flex. Outer jacket is available for a variety of applications, e.g. oil resistant where exposed to cutting oils and for service temperature ranging from -50°C to 150°C.

Listed and certified conduits are constructed of galvanized steel core and thermoplastic jacket rated for maximum service temperature of 60°C and suitable for exposure to mineral oils but not to gasoline and similar solvents.

Conduit is required to be supported adequately, and bending is restricted to 360 degrees total.

Please refer to the following for further details and complete information:

1. U.L. 360...Safety Standards for Liquidtight Flexible Steel Conduit
2. U.L. 514, Safety Standards for Outlet Boxes and Fittings
3. W-F-406...Federal Specification: Fittings for Cable, Power, Electrical and Conduit, Metal, Flexible
4. NEMA FB-1...Standards Publication: Fittings and Supports for Conduit and Cable Assemblies
5. EMP-1...JIC Electrical Standards for Mass Production Equipment
6. EGP-1...JIC Electrical Standards for General Purpose Machine Tools
7. CEC Section 12-1300...Wiring Methods (Liquidtight Metal Conduit)
8. CSA C22.2 No. 56...Safety Standard for Flexible Metallic Conduit and Liquidtight Flexible Metal Conduit
9. CSA C22.2 No. 18...Safety Standards for Outlet Boxes, Conduit Boxes and Fittings

Please Note

The excerpts and other material herein, whether relating to the Canadian Electrical Code 2009 Part I, the Underwriters Laboratories, Inc. listing, to industry practice or otherwise, is not intended to provide all relevant information required for use and installation. Reference to original or primary source material and data is mandatory before any application or use is made of the product.

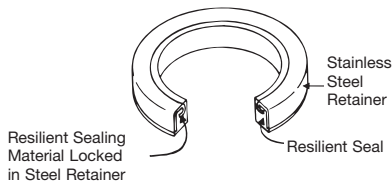
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Suggested Specifications for Liquidtight Flexible Metal Conduit Fittings



**Series 5331; Series 5231AL
Liquidtight Flexible Metal
Conduit Fittings**



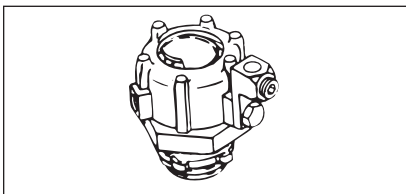
**Series 5262
Sealing Gasket**



**Series 3321
PVC Coated Liquidtight Flexible
Metal Conduit Fittings**



**Series 41
Liquidtight Union**



**5331GR Series
External Bonding**

- Liquidtight Flexible Metal conduit used shall be of the type with galvanized steel core inside and outside and outer thermoplastic jacket suitable for the ambient environmental conditions. Jacket shall be positively locked to core to prevent sleeving. Where used as an equipment grounding conductor, the conduit shall conform to applicable standards U.L. 360/CSA C22.2 No. 56.
- Flexible conduit when installed shall have sufficient slack to avoid sharp flexing and straining due to vibration and thermal expansion/constriction. Conduit shall be installed in such a manner that liquids will tend to run off the surface instead of draining toward the fittings.
- Where liquidtight flexible metal conduit terminates into a threaded or threadless opening, the conduit shall be assembled with approved liquidtight fittings. Fittings used shall be reusable type of malleable iron/steel construction, electro-zinc plated inside and outside, furnished with nylon insulated throat and taper threaded hub as manufactured by Thomas & Betts, series 5331.
- Where liquidtight flexible metal conduit is terminated into a threadless opening using a threaded hub fitting such as Thomas & Betts series 5331, a suitable moisture resistant/oil resistant synthetic rubber gasket such as Thomas & Betts series 5262 shall be provided between the outside of box or enclosure and fitting shoulder. Gasket shall be adequately protected by and permanently bonded to a metallic retainer.
- Where liquidtight flexible metallic raceway is installed in outdoor or indoor locations and is exposed to environmental conditions that are more than normally corrosive to exposed surfaces, PVC coated liquidtight flexible metal conduit fittings such as series 3321 manufactured by Thomas & Betts shall be used. Fittings shall be coated with a nominal thickness of .040 PVC and must meet the general requirements for liquidtight flexible metal conduit fittings indicated above.
- Liquidtight fittings required to couple threaded end of a fitting or pipe where rotation of fitting or pipe is limited or restricted shall be reusable type of malleable iron/steel construction, electro-zinc plated inside /outside with taper threaded hub as manufactured by Thomas & Betts, series 41. Fittings shall be equipped with a moisture resistant/oil resistant synthetic rubber gasket. Metal to metal seal or metal to thermoplastic seal for this application shall be considered unacceptable.

Approved fittings installed shall be:

- (1) Designed to prevent sleeving, assure plastic (raceway jacket) to plastic (gasket) seal.
- (2) Equipped with grounding device to assure ground continuity irrespective of raceway core construction. Grounding device if inserted into raceway and directly in contact with conductors shall have rolled over edges for sizes under 5 inches.

At the point of flexing (i.e. where raceway leaves fitting) the thermoplastic raceway jacket shall not be permitted to be in direct contact with metal.

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5331 Series
5231 AL Series

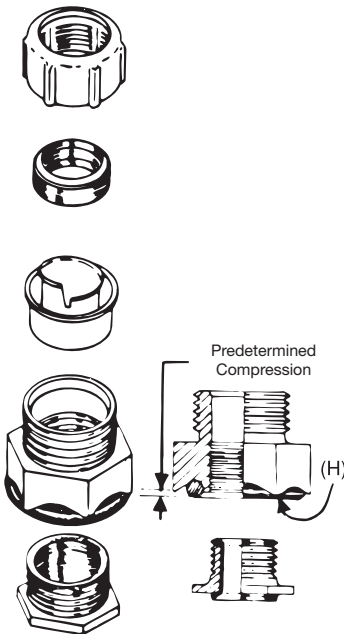


5361 Series



5271 Series

5341 Series...
same as 5331, except 45° Fittings
5351 Series...
same as 5331, except 90° Fittings



5361 Series
Chase Style

Specifications

Application

- Used where flexible metal raceway is installed in outdoor or indoor locations where exposed to continuous or intermittent moisture.
- To positively bond conduit to box or enclosure.

Features

- Ability to install quickly with low torque effort.
- Ground cone design offers following advantages:
 - (1) Compresses metallic convolutions; provides high quality ground contact with low impedance and high raceway holding power (A).
 - (2) Single helical thread on ground cone is easy to install without cross threading; accepts variations in raceway diameters and convolution pitch (B).
 - (3) Rolled over edge protects conductors (C).

Sealing ring design has following exclusive features:

- (1) Grips and seals at leading and trailing edge—will not abrade raceway jacket (D).
- (2) Provided with grooves on inside diameter for anti-sleeving (E).
- (3) Shoulders on both ends for extra sealing (F).
- (4) Symmetrical shape assures foolproof assembly.

- Can be disconnected and reused

- Watertight/oiltight installation at box or enclosure termination is assured by:
 - (1) External taper thread hub on 5331 series and use of sealing gasket 5262 series (G).
 - (2) Captive sealing 'O' ring on 5361 series (H).
 - (3) Taper tapped hole on 5271series.

- Suitable for use in Class I Division 2, Class II Division 1 and 2 and Class III Division 1 and 2 Hazardous Locations per CEC Section 18.
 - Class I, Zone 2, CEC Rule 18-152 (6)
 - Class I, Div. 2, CEC Rule J18-152 (6)
 - Class II, Div. 1 CEC Rule 18-202 (4) (b)
 - Class II, Div. 2, CEC Rule 18-252 (4)
 - Class III, Div.1 CEC Rule 18-302 (4)
 - Class III, Div. 2 CEC Rule 18-352

- CEC Rule 12-1306 stipulates "a separate bonding conductor shall be installed in liquidtight flexible conduit in accordance with section 10".

- 1/2" and 1-1/4" sizes Laboratory tested to carry ground fault current of up to 1000 amps RMS with duration of fault current 3 cycles.

- Conforms with JIC requirements.

- Available with imperial, I.S.O. and PG threaded hub.

Standard Material

5331-5361-5271 Series

Body, Gland, Locknut and Ground Cones: All steel or malleable iron.

Sealing Ring and Insulator:

All thermoplastic rated min. -20°C max. 105°C

Sealing Gasket: Stainless Steel and Buna N

5231 AL Series

All Copper-free Aluminum (non-insulated)

Standard Finish

5331-5361-5271 Series

Electro Zinc Plated and Chromate Coated

5231 AL Series

Copper-free Aluminum

Range

- 5331 Series 3/8" thru 6" conduit
 - 5341 Series 3/8" thru 4" conduit
 - 5351 Series 3/8" thru 4" conduit
 - 5361 Series 3/8" thru 4" conduit
 - 5271 Series 3/8" thru 1-1/4" conduit
 - 5231 AL Series 3/8" thru 4" conduit
- All hubs provided with taper pipe threads (NPT).

Conformity

U.L. 514B
CSA C22.2 No. 18.3
NEMA FB-1
NFPA 70-2008 (ANSI)
JIC EGP1, JIC EMP1
Federal Specification W-F-406
Federal standard H-28 (Threads)