CHAMPION FIBERGLASS®

# CHAMPION FLAME SHIELD®

MADE IN THE ★USA★

# Contents

Champion Fiberglass is the most advanced manufacturing facility of fiberglass conduit, fiberglass bridge drain and fiberglass strut systems in the world. Its well-trained and highly efficient workforce utilizes state-of-the-art proprietary high-speed winding equipment and high-temperature curing ovens to develop the world's most advanced, highest-quality fiberglass conduit and bridge drain systems. Our 200,000 square-foot facility includes five state-of-the-art fiberglass filament winding production lines. These production lines feature state-of-the-art technology that speeds our output and increases our filament winding capacity rate of manufacture – thereby increasing our ability to deliver quicker, more customized solutions for our customers.

Champion Fiberglass began production of fiberglass conduit (referred to as Reinforced Thermoset Resin Conduit or RTRC in the National Electric Code [NEC] and fittings in 1988. With unmatched expertise and proprietary, cutting-edge equipment, our team produces the industry's most advanced, precision-engineered fiberglass conduit, setting the global benchmark for quality and performance.

In 1989, Champion Fiberglass developed the first fiberglass conduit from an epoxy resin for use above ground. The conduit meets the most stringent industry specifications for flame resistance (UL 94) and smoke generation (ASTM E84). Today, Champion Duct® epoxy conduit is UL and CSA listed for both above (UL 2515, UL 2515A and CSA) and below ground (UL 2420 and CSA) applications. Another milestone was achieved in 2006 when Champion Fiberglass completed development of the first zero-smoke, zero-halogen, two-hour fire-rated Phenolic Conduit System called Flame Shield® made entirely from non-toxic chemicals. It does not include toxic chemicals such as formaldehyde, etc. Flame Shield has become the conduit of choice for subways, mass transit passenger stations and tunnel two-hour fire-rated applications. Flame Shield meets the requirements of NFPA 130 and NFPA 502.

In 2008, after many years of continuous effort and work with UL and the NEC, Champion Haz Duct® Type XW Conduit was certified for use in Class I, Division 2 and Zone I, Division 2 applications per the NEC.

In 2017, Champion Fiberglass completed a revolutionary development by establishing the first fiberglass conduits in the industry with UL-listed extended support spans that rival steel conduit support spans.

When you combine all the above achievements together, it's clear that Champion Fiberglass, Inc. is the industry-leading manufacturer of fiberglass conduit, fiberglass strut and conduit bridge hangers for the electrical market. Champion Fiberglass is the only fiberglass conduit manufacturer that is ISO 9001, ISO 14001 and ISO 45001 certified, offering its customers innovative solutions with the highest-quality products, support staff and service in the industry.



NFPA® MEMBER

NEMA® Member

NAED

MasterSpec® a product of The American Institute of Architects

Trimble

# Champion Fiberglass Flame Shield® Catalog

Champion Fiberglass's comprehensive line of phenolic conduit, **FLAME SHIELD**® is the number one choice of surface mounted conduit for transit and passenger rail systems including subway tunnels and stations. **FLAME SHIELD** conforms to the latest NFPA 130 & NFPA 502 requirements. Flame Shield conduit, when used with the appropriate UL Listed RHW FHIT Listed Fire-Rated cable, is 2-Hour Fire Certified in both horizonal and vertical applications.

The **FLAME SHIELD** conduit system provides for improved system longevity and relief from stray eddy current issues common with some transit systems. It is a system that handles the damp, cold environments found in subterranean transit and rail systems while providing a low coefficient of thermal expansion.

**FLAME SHIELD** is a non-metallic system tested and proven to handle the elevated conduit temperature requirements of NFPA 130 and NFPA 502. It does this while maintaining low smoke density and without the release of toxic gases (zero halogens).

**FLAME SHIELD** is manufactured without generating formaldehyde or residual corrosive by-products. In addition, this lightweight conduit system requires less man/hours to install overall can significantly reduce installation labor costs and the overall total project cost.

**FLAME SHIELD** is an engineered product by the industry's foremost manufacturer of Reinforced Thermosetting Resin Conduit (RTRC), Champion Fiberglass, an ISO 9001, ISO 14001 & ISO 45001 Certified Company.

## Important differences between ... CHAMPION DUCT® vs. FLAME SHIELD®

A key difference between CHAMPION DUCT fiberglass conduit (RTRC) and **FLAME SHIELD** phenolic conduit is that phenolic conduit meets the elevated temperatures requirements of exposed conduits by NFPA 130, NFPA 502 and ASTM E136. This allows **FLAME SHIELD** to be in compliance when surface mounted and when encased in concrete.

To meet the requirements of NFPA 130 and 502, Champion has developed a phenolic conduit adhesive system that maintains the integrity of the conduit system. If those standards are not required, Champion's epoxy adhesive system is available.

Another important difference between fiberglass conduit (RTRC) and phenolic conduit is the low flame spread and low smoke characteristics of **FLAME SHIELD**. This allows **FLAME SHIELD** to be used in applications requiring these low numbers.

Due to the physical properties of phenolic conduit, **FLAME SHIELD** is not field bendable for elbows or offsets. Field bending is allowed for CHAMPION DUCT (RTRC) by NFPA 70 (National Electric Code). Phenolic **FLAME SHIELD** SW (Standard Wall), MW (Medium Wall), and HW (Heavy Wall) conduits are not UL listed due to their physical properties. Phenolic **FLAME SHIELD** XW (Xtra Wall) is UL listed and approved.

## Additional Benefits of FlameShield® Include:

- The proprietary FlameShield phenolic curative system does NOT generate any latent free formaldehyde.
- Eliminates formaldehyde exposure risk to contractors being there is no free formaldehyde, therefore no emissions.
- Up to 38% fill ratio under fire conditions in both vertical & horizontal orientations with FHIT Listed cable.

## Applications for FlameShield® Include:

- Subways
- Tunnels
- Transit Stations
- Fire Alarm Circuits
- Life Safety Circuits
- Underground Mines

## Subways/Tunnels/DOT

Champion Fiberglass Type XW Phenolic FlameShield Conduit is used as a direct replacement for galvanized rigid steel conduit in subway & tunnel applications requiring fire-rated cables and 2-Hour Fire Certification. Electrical engineers choose to specify Champion Fiberglass FlameShield XW due to its a lightweight, non-corrosive, zero-smoke, zero-halogen benefits that meets today's rigorous two-hour fire-resistant safety standards.

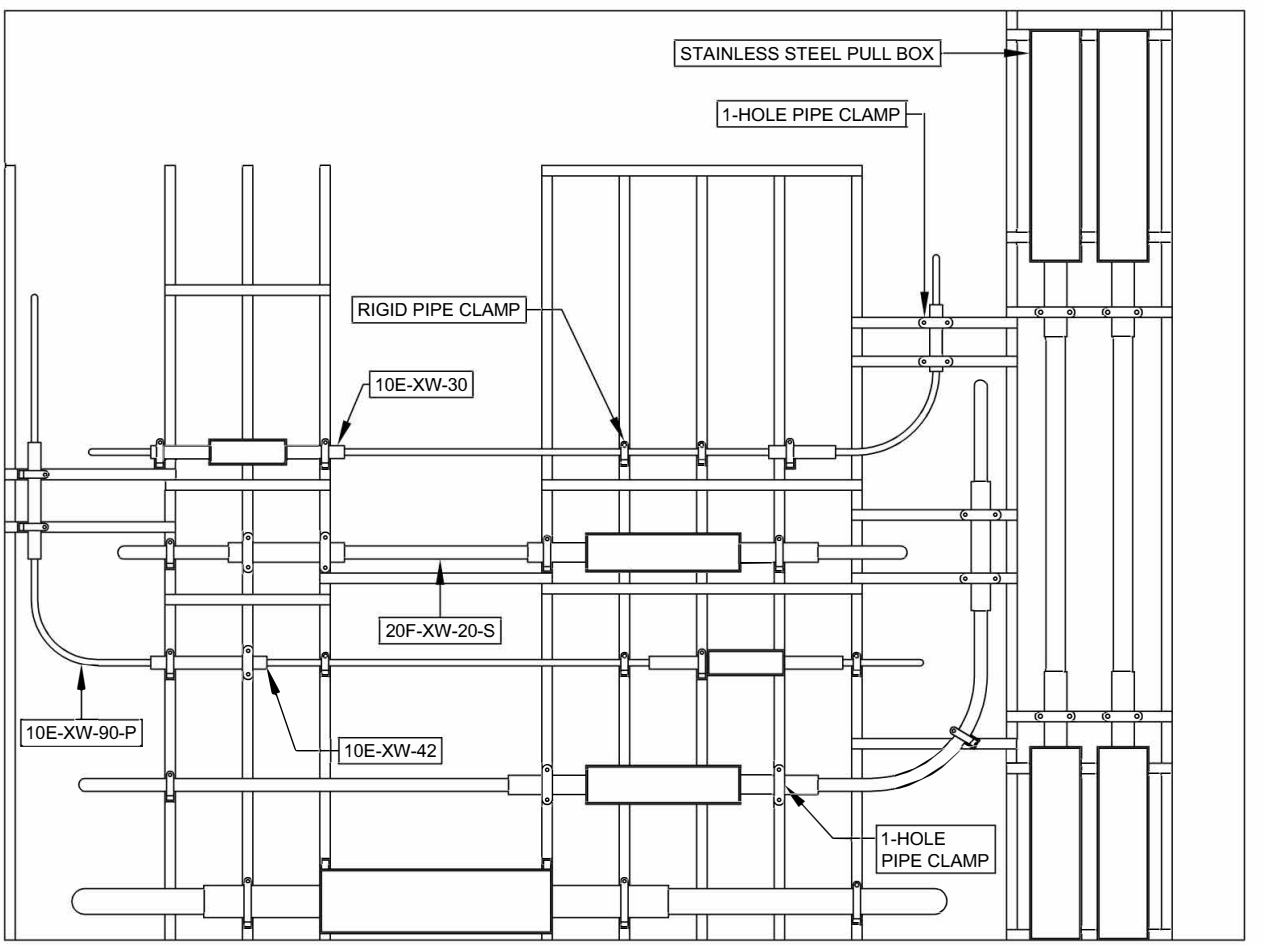
Use your smart phone's camera or QR code scanner to learn more about Champion Fiberglass conduit safety advancements in tunnel projects.

# Flame Shield®

## 2-Hour Fire Certified Vertical & Horizontal UL 2196 Testing Typical Wall Set-Up

Testing mock-up wall includes:

- XW Conduit Lengths
- 2-Hour Fire Rated Box Connectors
- XW Sleeve Couplings
- XW Elbows



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# Conduit Joining Systems

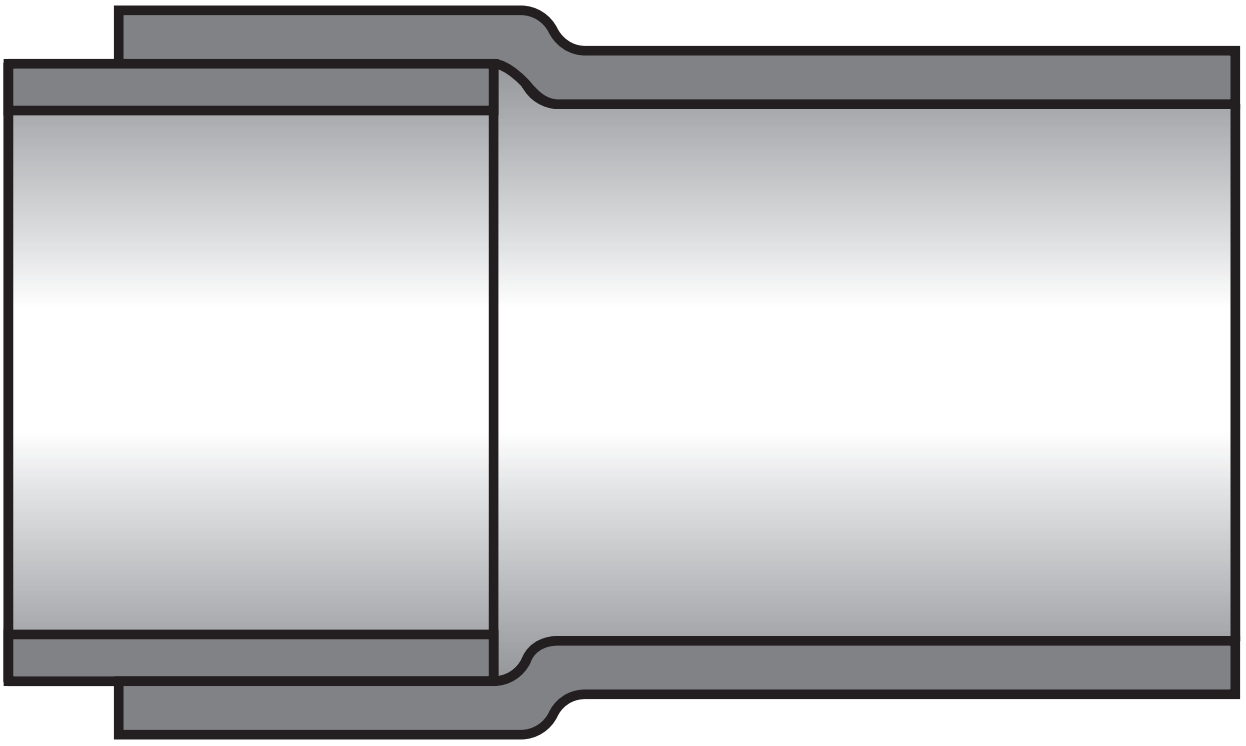
## Straight Socket Joint

The Straight Socket Joint connection can be used for above and below ground applications.

Some features of the Straight Socket Joint connection are:

- Consists of bell and spigot.
- Spigot easily slides into belled end.
- Intended for use with Champion Mix® epoxy adhesive.
- High pull-out strength.
- Concrete tight and water tight joint.
- Straight Socket joining system is provided with the following conduits:
  - XW conduits – all diameters

To learn more about how to assemble the Straight Socket Joint connection, please see the installation video on our website.



# XW CONDUIT

## In this section:

XW conduit can be used in areas that are susceptible to damage per NEC Article 355.10F. XW conduit is both IPS (Iron Pipe Size) and ID (Inside Diameter) sized conduit, where applicable. Consisting of a wall thickness of .250". All XW conduit sizes are supplied with the Straight Socket connection.



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# Straight Lengths

These lightweight conduit sections allow for a quick and easy installation.

## Types Available

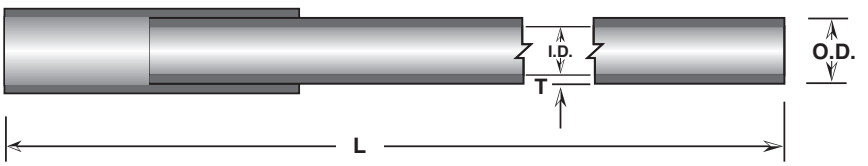
These lightweight fittings are available in both IPS and ID, where applicable. Consisting of an Extra Heavy Wall (XW) Thickness of .250"

## Certifications/Compliances

- UL 2420 (Below Ground) listed
- UL 2515 (Above Ground) listed
- UL 2515-A
- ISO 9001 Certified
- ISO 14001 Certified
- ISO 45001 Certified

PHENOLIC STRAIGHT SYSTEM

## STRAIGHT SOCKET JOINT (XW)




Note: 10 ft. (3.05 m) lengths available for all conduit diameters. Sizes ¾" & 1" only available in 10-foot lengths.

| | TYPE XW (EXTRA HEAVY WALL) INCHES (MILLIMETERS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NOMINAL SIZE | XW ITEM NUMBER | OUTSIDE DIAMETER | | MIN. INSIDE DIAMETER | NOMINAL WALL THICKNESS (T) | LENGTH (L) | | WEIGHT | |
| | | | AVERAGE | TOLERANCE | | | | | LBS/FT | KG/M |
| ☐ | 3/4" **(19)** | 07E-XW-10-S | 1.410 **(36)** | +0.056 (1.4)<br>-0.036 (0.9) | 0.910 **(23)** | .25 (6) | 10 ft | **(3m)** | .61 | **(.91)** |
| ☐ | 1" **(25)** | 10E-XW-10-S | 1.675 **(43)** | +0.056 (1.4)<br>-0.036 (0.9) | 1.175 **(30)** | .25 (6) | 10 ft | **(3m)** | .68 | **(1.01)** |
| ☐ | 1-1/4" **(32)** | 12E-XW-20-S | 2.020 **(51)** | +0.056 (1.4)<br>-0.036 (0.9) | 1.520 **(39)** | .25 (6) | 20 ft | **(6.1m)** | .82 | **(1.22)** |
| ☐ | 1-1/2" **(38)** | 15E-XW-20-S | 2.260 **(57)** | +0.056 (1.4)<br>-0.036 (0.9) | 1.760 **(45)** | .25 (6) | 20 ft | **(6.1m)** | 1.18 | **(1.76)** |
| ☐ | 2" **(51)** | 20F-XW-20-S | 2.500 **(64)** | +0.056 (1.4)<br>-0.036 (0.9) | 2.000 **(51)** | .25 (6) | 20 ft | **(6.1m)** | 1.26 | **(1.88)** |
| ☐ | 2-1/2" **(64)** | 25F-XW-20-S | 3.000 **(76)** | +0.056 (1.4)<br>-0.036 (0.9) | 2.500 **(64)** | .25 (6) | 20 ft | **(6.1m)** | 1.54 | **(2.29)** |
| ☐ | 3" **(76)** | 30F-XW-20-S | 3.500 **(89)** | +0.056 (1.4)<br>-0.036 (0.9) | 3.000 **(76)** | .25 (6) | 20 ft | **(6.1m)** | 1.82 | **(2.71)** |
| ☐ | 3-1/2" **(89)** | 35F-XW-20-S | 4.000 **(102)** | -0.036 (1.4)<br>+0.056 (0.9) | 3.500 **(89)** | .25 (6) | 20 ft | **(6.1m)** | 2.10 | **(3.13)** |
| ☐ | 4" **(102)** | 40F-XW-20-S | 4.500 **(114)** | +0.056 (1.4)<br>-0.036 (0.9) | 4.000 **(102)** | .25 (6) | 20 ft | **(6.1m)** | 2.38 | **(3.54)** |
| ☐ | 5" **(127)** | 50F-XW-20-S | 5.500 **(140)** | +0.056 (1.4)<br>-0.036 (0.9) | 5.000 **(127)** | .25 (6) | 20 ft | **(6.1m)** | 2.94 | **(4.38)** |
| ☐ | 6" **(152)** | 60F-XW-20-S | 6.500 **(165)** | +0.056 (1.4)<br>-0.036 (0.9) | 6.000 **(152)** | .25 (6) | 20 ft | **(6.1m)** | 3.50 | **(5.21)** |



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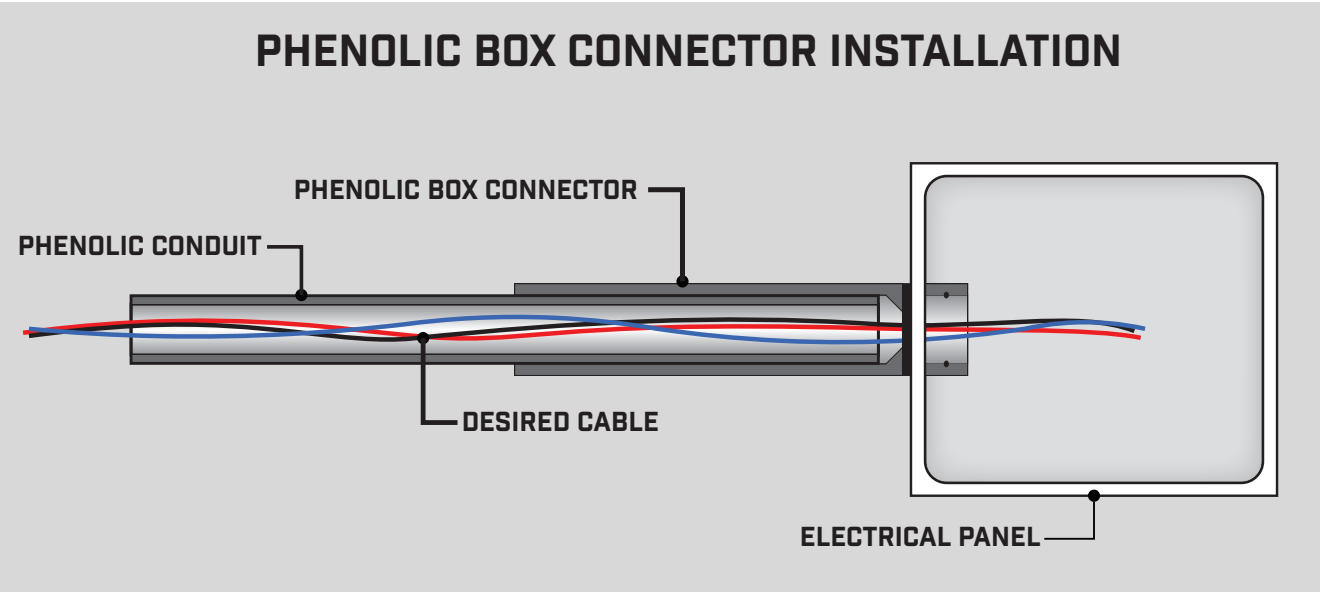
# Box Connectors

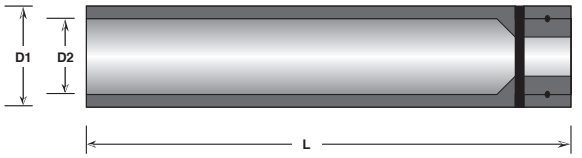


## 2-Hour Fire Rated Box Connectors

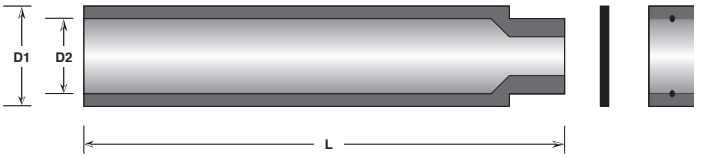
Champion Flame Shield 2-Hour Fire Rated Box Connectors have been tested and used in 1-Hour and 2-Hour fire rated applications. The unique design locks the conduit into the enclosure preventing any separation during a fire.




**ASSEMBLED**




**SEPARATED**




| SIZE | TYPE | PART # | D1 | D2 | L | WEIGHT |
|---|---|---|---|---|---|---|
| 3/4" | XW | 07E-XW-30 | 1.45 **(37)** | 1.35 **(34)** | 11.00 **(279)** | .39 **(.18)** |
| 1" | XW | 10E-XW-30 | 1.74 **(44)** | 1.68 **(43)** | 11.00 **(279)** | .52 **(.24)** |
| 1-1/4" | XW | 12E-XW-30 | 2.00 **(50)** | 1.98 **(50)** | 11.00 **(279)** | .68 **(.30)** |
| 1-1/2" | XW | 15E-XW-30 | 2.29 **(58)** | 2.24 **(57)** | 11.00 **(279)** | .70 **(.32)** |
| 2" | XW | 20F-XW-30 | 2.55 **(65)** | 2.48 **(63)** | 11.00 **(279)** | .95 **(.43)** |
| 2-1/2" | XW | 25F-XW-30 | 3.03 **(77)** | 2.98 **(76)** | 11.00 **(279)** | 1.30 **(.58)** |
| 3" | XW | 30F-XW-30 | 3.55 **(90)** | 3.48 **(88)** | 11.00 **(279)** | 1.34 **(.60)** |
| 3-1/2" | XW | 35F-XW-30 | 4.05 **(103)** | 3.98 **(101)** | 11.00 **(279)** | 1.68 **(.76)** |
| 4" | XW | 40F-XW-30 | 4.55 **(116)** | 4.48 **(114)** | 11.00 **(279)** | 2.00 **(.90)** |
| 5" | XW | 50E-XW-30 | 5.55 **(141)** | 5.48 **(139)** | 11.00 **(279)** | 2.08 **(.94)** |
| 6" | XW | 60E-XW-30 | 6.52 **(166)** | 6.45 **(163)** | 11.00 **(279)** | 2.50 **(1.13)** |

# Elbows

Available in multiple bends and radii, Champion Fiberglass Phenolic Elbows can be factory supplied with multiple types of transitions, so the elbows become “plug and play” when received at the jobsite.

## Features

- No burn-through; low coefficient of friction and single-circuit winding process protect cables.
- Lightweight and easy to install.
- NECA labor rates show that fiberglass installations take a fraction of the time that galvanized rigid steel or PVC-coated represent – especially at larger diameters.
- ISO 9001 Certified; made in the USA.
- ISO 14001 Certified
- ISO 45001 Certified

## Availability and Accessories

- Larger-size bends and radii are available upon request.
- For installations that require transitions from fiberglass to conduit systems of other material types (GRC, PVC-coated), we offer an assortment of transition and termination fittings that can be factory fitted to adapt to these conduit material types. That way, the elbows arrive at the job site ready to install.
- Elbows are supplied with the following customer-specified transition ends:
  - Plain ended (no couplings or adapters)
  - Couplings (fiberglass)
  - Male and/or female adapters (fiberglass)

## Please Note

- Add suffix “-1F” to item number for one fiberglass coupling and “-2F” to item number for two fiberglass couplings.
- Contact Champion Fiberglass for elbow item numbers that require male/female adapters or stubs.



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# Elbows

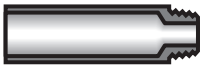


## ELBOWS WITH BONDED ON FIBERGLASS COUPLINGS

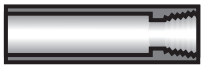
2-1/2° Phenolic Coupling

5° Phenolic Coupling

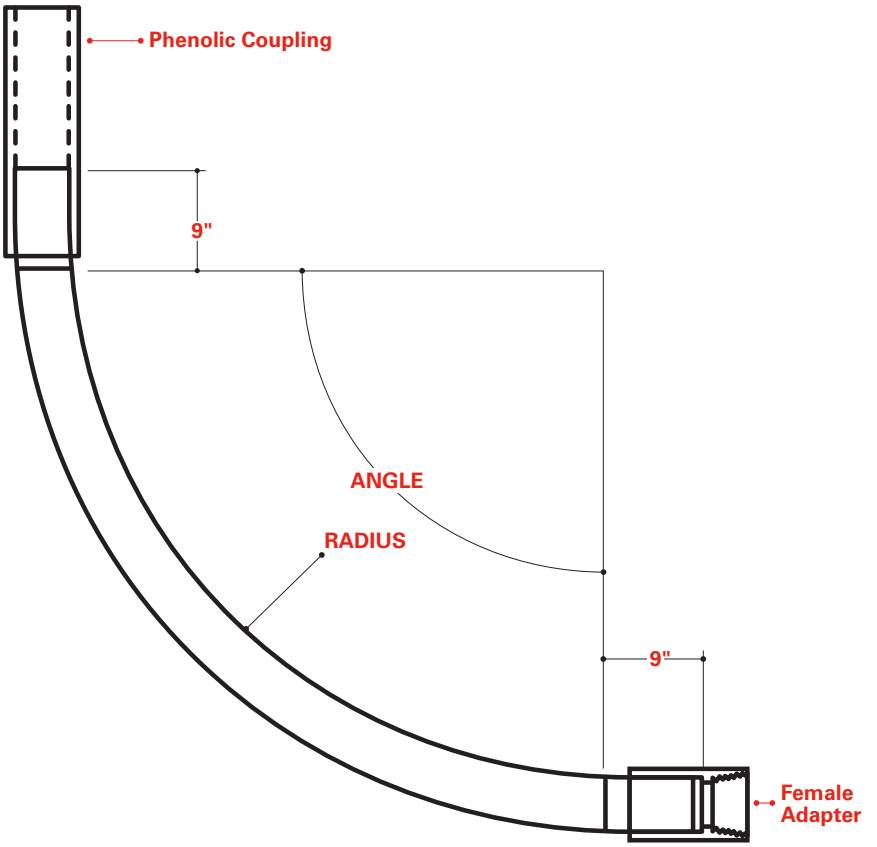
Straight Phenolic Coupling



Male Adapters (Phenolic)



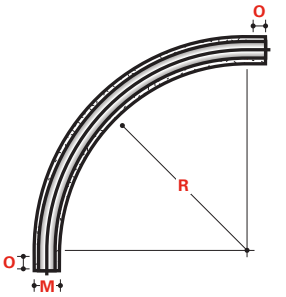
Female Adapters (Phenolic)




**Elbow with phenolic coupling and female adapter**

Elbows can be supplied with one or two Phenolic-bonded couplings. Replace "-P" suffix with: "-1F" for one coupling or "-2F" for two couplings. Champion elbows can also be supplied with 2-1/2° or 5° Phenolic offset couplings to correct conduit field misalignments. Contact Champion Fiberglass for pricing and item numbers on elbows with fiberglass Phenolic male and female adapters.

# 90° elbows




## 90° x 12"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-90-P | 1.41 | (36) | 9 | (229) | 12 | (305) | 1.52 | (0.69) |
| ☐ | 1" | XW | 10E-XW-90-P | 1.68 | (43) | 9 | (229) | 12 | (305) | 1.70 | (0.77) |
| ☐ | 1-1/4" | XW | 12E-XW-90-P | 2.02 | (51) | 9 | (229) | 12 | (305) | 2.05 | (0.93) |
| ☐ | 1-1/2" | XW | 15E-XW-90-P | 2.26 | (57) | 9 | (229) | 12 | (305) | 2.95 | (1.34) |
| ☐ | 2" | XW | 20F-XW-90-P | 2.50 | (63) | 9 | (229) | 12 | (305) | 3.15 | (1.43) |
| ☐ | 2-1/2" | XW | 25F-XW-90-P | 3.00 | (76) | 9 | (229) | 12 | (305) | 3.85 | (1.75) |
| ☐ | 3" | XW | 30F-XW-90-P | 3.50 | (89) | 9 | (229) | 12 | (305) | 4.55 | (2.06) |
| ☐ | 3-1/2" | XW | 35F-XW-90-P | 4.00 | (102) | 9 | (229) | 12 | (305) | 5.25 | (2.38) |

## 90° x 24"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-91-P | 1.41 | (36) | 9 | (229) | 24 | (610) | 2.54 | (1.15) |
| ☐ | 1" | XW | 10E-XW-91-P | 1.68 | (43) | 9 | (229) | 24 | (610) | 2.83 | (1.29) |
| ☐ | 1-1/4" | XW | 12E-XW-91-P | 2.02 | (51) | 9 | (229) | 24 | (610) | 3.42 | (1.55) |
| ☐ | 1-1/2" | XW | 15E-XW-91-P | 2.26 | (57) | 9 | (229) | 24 | (610) | 4.92 | (2.23) |
| ☐ | 2" | XW | 20F-XW-91-P | 2.50 | (65) | 9 | (229) | 24 | (610) | 5.25 | (2.38) |
| ☐ | 2-1/2" | XW | 25F-XW-91-P | 3.00 | (76) | 9 | (229) | 24 | (610) | 6.42 | (2.92) |
| ☐ | 3" | XW | 30F-XW-91-P | 3.50 | (89) | 9 | (229) | 24 | (610) | 7.58 | (3.44) |
| ☐ | 3-1/2" | XW | 35F-XW-91-P | 4.00 | (102) | 9 | (229) | 24 | (610) | 8.76 | (3.98) |
| ☐ | 4" | XW | 40F-XW-91-P | 4.50 | (114) | 9 | (229) | 24 | (610) | 9.92 | (4.50) |

## 90° x 36"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-92-P | 1.41 | (36) | 9 | (229) | 36 | (914) | 3.46 | (1.57) |
| ☐ | 1" | XW | 10E-XW-92-P | 1.68 | (43) | 9 | (229) | 36 | (914) | 3.85 | (1.75) |
| ☐ | 1-1/4" | XW | 12E-XW-92-P | 2.02 | (51) | 9 | (229) | 36 | (914) | 4.65 | (2.11) |
| ☐ | 1-1/2" | XW | 15E-XW-92-P | 2.26 | (57) | 9 | (229) | 36 | (914) | 6.69 | (3.04) |
| ☐ | 2" | XW | 20F-XW-92-P | 2.50 | (65) | 9 | (229) | 36 | (914) | 7.14 | (3.24) |
| ☐ | 2-1/2" | XW | 25F-XW-92-P | 3.00 | (76) | 9 | (229) | 36 | (914) | 8.73 | (3.96) |
| ☐ | 3" | XW | 30F-XW-92-P | 3.50 | (89) | 9 | (229) | 36 | (914) | 10.31 | (4.68) |
| ☐ | 3-1/2" | XW | 35F-XW-92-P | 4.00 | (102) | 9 | (229) | 36 | (914) | 11.90 | (5.40) |
| ☐ | 4" | XW | 40F-XW-92-P | 4.50 | (114) | 9 | (229) | 36 | (914) | 13.49 | (6.12) |
| ☐ | 5" | XW | 50F-XW-92-P | 5.50 | (140) | 9 | (229) | 36 | (914) | 16.79 | (7.56) |
| ☐ | 6" | XW | 60F-XW-92-P | 6.50 | (165) | 9 | (229) | 36 | (914) | 19.99 | (9.00) |



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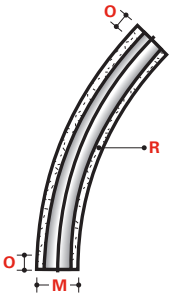
## 90° x 48"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-93-P | 1.41 | **(36)** | 9 | **(229)** | 48 | **(1,219)** | 4.44 | **(2.04)** |
| ☐ | 1" | XW | 10E-XW-93-P | 1.68 | **(43)** | 9 | **(229)** | 48 | **(1,219)** | 4.95 | **(2.26)** |
| ☐ | 1-1/4" | XW | 12E-XW-93-P | 2.02 | **(51)** | 9 | **(229)** | 48 | **(1,219)** | 5.97 | **(2.69)** |
| ☐ | 1-1/2" | XW | 15E-XW-93-P | 2.26 | **(57)** | 9 | **(229)** | 48 | **(1,219)** | 8.59 | **(3.86)** |
| ☐ | 2" | XW | 20F-XW-93-P | 2.50 | **(65)** | 9 | **(229)** | 48 | **(1,219)** | 10.08 | **(4.58)** |
| ☐ | 2-1/2" | XW | 25F-XW-93-P | 3.00 | **(76)** | 9 | **(229)** | 48 | **(1,219)** | 12.32 | **(5.59)** |
| ☐ | 3" | XW | 30F-XW-93-P | 3.50 | **(89)** | 9 | **(229)** | 48 | **(1,219)** | 14.56 | **(6.61)** |
| ☐ | 3-1/2" | XW | 35F-XW-93-P | 4.00 | **(102)** | 9 | **(229)** | 48 | **(1,219)** | 16.80 | **(7.63)** |
| ☐ | 4" | XW | 40F-XW-93-P | 4.50 | **(114)** | 9 | **(229)** | 48 | **(1,219)** | 19.04 | **(8.64)** |
| ☐ | 5" | XW | 50F-XW-93-P | 5.50 | **(140)** | 9 | **(229)** | 48 | **(1,219)** | 23.52 | **(10.68)** |
| ☐ | 6" | XW | 60F-XW-93-P | 6.50 | **(165)** | 9 | **(229)** | 48 | **(1,219)** | 28.00 | **(12.71)** |

## 90° x 60"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-94-P | 1.41 | **(36)** | 9 | **(229)** | 60 | **(1,524)** | 5.40 | **(2.48)** |
| ☐ | 1" | XW | 10E-XW-94-P | 1.68 | **(43)** | 9 | **(229)** | 60 | **(1,524)** | 6.02 | **(2.74)** |
| ☐ | 1-1/4" | XW | 12E-XW-94-P | 2.02 | **(51)** | 9 | **(229)** | 60 | **(1,524)** | 7.26 | **(3.28)** |
| ☐ | 1-1/2" | XW | 15E-XW-94-P | 2.26 | **(57)** | 9 | **(229)** | 60 | **(1,524)** | 10.45 | **(4.69)** |
| ☐ | 2" | XW | 20F-XW-94-P | 2.50 | **(65)** | 9 | **(229)** | 60 | **(1,524)** | 11.13 | **(5.05)** |
| ☐ | 2-1/2" | XW | 25F-XW-94-P | 3.00 | **(76)** | 9 | **(229)** | 60 | **(1,524)** | 13.61 | **(6.18)** |
| ☐ | 3" | XW | 30F-XW-94-P | 3.50 | **(89)** | 9 | **(229)** | 60 | **(1,524)** | 16.08 | **(7.30)** |
| ☐ | 3-1/2" | XW | 35F-XW-94-P | 4.00 | **(102)** | 9 | **(229)** | 60 | **(1,524)** | 18.55 | **(8.42)** |
| ☐ | 4" | XW | 40F-XW-94-P | 4.50 | **(114)** | 9 | **(229)** | 60 | **(1,524)** | 21.02 | **(9.54)** |
| ☐ | 5" | XW | 50F-XW-94-P | 5.50 | **(140)** | 9 | **(229)** | 60 | **(1,524)** | 25.97 | **(11.79)** |
| ☐ | 6" | XW | 60F-XW-94-P | 6.50 | **(165)** | 9 | **(229)** | 60 | **(1,524)** | 30.92 | **(14.04)** |

# 45° elbows




## 45° x 12"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-80-P | 1.41 | **(36)** | 9 | **(229)** | 12 | **(305)** | 1.07 | **(0.48)** |
| ☐ | 1" | XW | 10E-XW-80-P | 1.68 | **(43)** | 9 | **(229)** | 12 | **(305)** | 1.19 | **(0.54)** |
| ☐ | 1-1/4" | XW | 12E-XW-80-P | 2.02 | **(51)** | 9 | **(229)** | 12 | **(305)** | 1.44 | **(0.65)** |
| ☐ | 1-1/2" | XW | 15E-XW-80-P | 2.26 | **(57)** | 9 | **(229)** | 12 | **(305)** | 2.07 | **(0.94)** |
| ☐ | 2" | XW | 20F-XW-80-P | 2.50 | **(63)** | 9 | **(229)** | 12 | **(305)** | 2.21 | **(1.00)** |
| ☐ | 2-1/2" | XW | 25F-XW-80-P | 3.00 | **(76)** | 9 | **(229)** | 12 | **(305)** | 2.70 | **(1.22)** |
| ☐ | 3" | XW | 30F-XW-80-P | 3.50 | **(89)** | 9 | **(229)** | 12 | **(305)** | 2.89 | **(1.31)** |
| ☐ | 3-1/2" | XW | 35F-XW-80-P | 4.00 | **(102)** | 9 | **(229)** | 12 | **(305)** | 3.68 | **(1.67)** |

## 45° x 24"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-81-P | 1.41 | (36) | 9 | (229) | 24 | (610) | 1.52 | (0.69) |
| ☐ | 1" | XW | 10E-XW-81-P | 1.68 | (43) | 9 | (229) | 24 | (610) | 1.70 | (0.77) |
| ☐ | 1-1/4" | XW | 12E-XW-81-P | 2.02 | (51) | 9 | (229) | 24 | (610) | 2.05 | (0.93) |
| ☐ | 1-1/2" | XW | 15E-XW-81-P | 2.26 | (57) | 9 | (229) | 24 | (610) | 2.95 | (1.34) |
| ☐ | 2" | XW | 20F-XW-81-P | 2.50 | (65) | 9 | (229) | 24 | (610) | 3.15 | (1.43) |
| ☐ | 2-1/2" | XW | 25F-XW-81-P | 3.00 | (76) | 9 | (229) | 24 | (610) | 3.85 | (1.75) |
| ☐ | 3" | XW | 30F-XW-81-P | 3.50 | (89) | 9 | (229) | 24 | (610) | 4.55 | (2.07) |
| ☐ | 3-1/2" | XW | 35F-XW-81-P | 4.00 | (102) | 9 | (229) | 24 | (610) | 5.24 | (2.38) |
| ☐ | 4" | XW | 40F-XW-81-P | 4.50 | (114) | 9 | (229) | 24 | (610) | 5.95 | (2.70) |

## 45° x 36"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-82-P | 1.41 | (36) | 9 | (229) | 36 | (914) | 2.03 | (0.92) |
| ☐ | 1" | XW | 10E-XW-82-P | 1.68 | (43) | 9 | (229) | 36 | (914) | 2.27 | (1.03) |
| ☐ | 1-1/4" | XW | 12E-XW-82-P | 2.02 | (51) | 9 | (229) | 36 | (914) | 2.73 | (1.24) |
| ☐ | 1-1/2" | XW | 15E-XW-82-P | 2.26 | (57) | 9 | (229) | 36 | (914) | 3.93 | (1.78) |
| ☐ | 2" | XW | 20F-XW-82-P | 2.50 | (65) | 9 | (229) | 36 | (914) | 4.20 | (1.91) |
| ☐ | 2-1/2" | XW | 25F-XW-82-P | 3.00 | (76) | 9 | (229) | 36 | (914) | 5.13 | (2.33) |
| ☐ | 3" | XW | 30F-XW-82-P | 3.50 | (89) | 9 | (229) | 36 | (914) | 6.07 | (2.76) |
| ☐ | 3-1/2" | XW | 35F-XW-82-P | 4.00 | (102) | 9 | (229) | 36 | (914) | 6.99 | (3.18) |
| ☐ | 4" | XW | 40F-XW-82-P | 4.59 | (114) | 9 | (229) | 36 | (914) | 7.93 | (3.60) |
| ☐ | 5" | XW | 50F-XW-82-P | 5.50 | (140) | 9 | (229) | 36 | (914) | 9.79 | (4.44) |
| ☐ | 6" | XW | 60F-XW-82-P | 6.50 | (165) | 9 | (229) | 36 | (914) | 11.65 | (5.29) |

## 45° x 48"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-83-P | 1.41 | (36) | 9 | (229) | 48 | (1,219) | 2.53 | (1.16) |
| ☐ | 1" | XW | 10E-XW-83-P | 1.68 | (43) | 9 | (229) | 48 | (1,219) | 2.82 | (1.28) |
| ☐ | 1-1/4" | XW | 12E-XW-83-P | 2.02 | (51) | 9 | (229) | 48 | (1,219) | 3.40 | (1.53) |
| ☐ | 1-1/2" | XW | 15E-XW-83-P | 2.26 | (57) | 9 | (229) | 48 | (1,219) | 4.89 | (2.19) |
| ☐ | 2" | XW | 20F-XW-83-P | 2.50 | (65) | 9 | (229) | 48 | (1,219) | 5.15 | (2.34) |
| ☐ | 2-1/2" | XW | 25F-XW-83-P | 3.00 | (76) | 9 | (229) | 48 | (1,219) | 6.29 | (2.85) |
| ☐ | 3" | XW | 30F-XW-83-P | 3.50 | (89) | 9 | (229) | 48 | (1,219) | 7.43 | (3.37) |
| ☐ | 3-1/2" | XW | 35F-XW-83-P | 4.00 | (102) | 9 | (229) | 48 | (1,219) | 8.57 | (3.89) |
| ☐ | 4" | XW | 40F-XW-83-P | 4.50 | (114) | 9 | (229) | 48 | (1,219) | 9.72 | (4.41) |
| ☐ | 5" | XW | 50F-XW-83-P | 5.50 | (140) | 9 | (229) | 48 | (1,219) | 12.01 | (5.45) |
| ☐ | 6" | XW | 60F-XW-83-P | 6.50 | (165) | 9 | (229) | 48 | (1,219) | 14.29 | (6.49) |

## 45° x 60"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-84-P | 1.41 | (36) | 9 | (229) | 60 | (1,524) | 3.01 | (1.38) |
| ☐ | 1" | XW | 10E-XW-84-P | 1.68 | (43) | 9 | (229) | 60 | (1,524) | 3.35 | (1.53) |
| ☐ | 1-1/4" | XW | 12E-XW-84-P | 2.02 | (51) | 9 | (229) | 60 | (1,524) | 4.04 | (1.82) |
| ☐ | 1-1/2" | XW | 15E-XW-84-P | 2.26 | (57) | 9 | (229) | 60 | (1,524) | 5.81 | (2.61) |
| ☐ | 2" | XW | 20F-XW-84-P | 2.50 | (65) | 9 | (229) | 60 | (1,524) | 6.30 | (2.86) |
| ☐ | 2-1/2" | XW | 25F-XW-84-P | 3.00 | (76) | 9 | (229) | 60 | (1,524) | 7.70 | (3.50) |
| ☐ | 3" | XW | 30F-XW-84-P | 3.50 | (89) | 9 | (229) | 60 | (1,524) | 9.10 | (4.13) |
| ☐ | 3-1/2" | XW | 35F-XW-84-P | 4.00 | (102) | 9 | (229) | 60 | (1,524) | 10.50 | (4.77) |
| ☐ | 4" | XW | 40F-XW-84-P | 4.50 | (114) | 9 | (229) | 60 | (1,524) | 11.90 | (5.40) |
| ☐ | 5" | XW | 50F-XW-84-P | 5.50 | (140) | 9 | (229) | 60 | (1,524) | 14.70 | (6.67) |
| ☐ | 6" | XW | 60F-XW-84-P | 6.50 | (165) | 9 | (229) | 60 | (1,524) | 17.50 | (7.94) |



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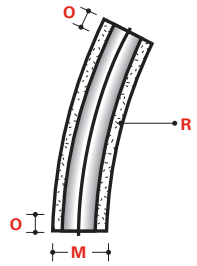
# 30° elbows




## 30° x 12"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-70-P | 1.41 | (36) | 9 | (229) | 12 | (305) | 0.97 | (0.44) |
| ☐ | 1" | XW | 10E-XW-70-P | 1.68 | (43) | 9 | (229) | 12 | (305) | 1.08 | (0.49) |
| ☐ | 1-1/4" | XW | 12E-XW-70-P | 2.02 | (51) | 9 | (229) | 12 | (305) | 1.30 | (0.59) |
| ☐ | 1-1/2" | XW | 15E-XW-70-P | 2.26 | (57) | 9 | (229) | 12 | (305) | 1.87 | (0.85) |
| ☐ | 2" | XW | 20F-XW-70-P | 2.50 | (63) | 9 | (229) | 12 | (305) | 2.00 | (0.91) |
| ☐ | 2-1/2" | XW | 25F-XW-70-P | 3.00 | (76) | 9 | (229) | 12 | (305) | 2.44 | (1.11) |
| ☐ | 3" | XW | 30F-XW-70-P | 3.50 | (89) | 9 | (229) | 12 | (305) | 2.89 | (1.31) |
| ☐ | 3-1/2" | XW | 35F-XW-70-P | 4.00 | (102) | 9 | (229) | 12 | (305) | 3.33 | (1.51) |

## 30° x 24"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-71-P | 1.41 | (36) | 9 | (229) | 24 | (610) | 1.22 | (0.55) |
| ☐ | 1" | XW | 10E-XW-71-P | 1.68 | (43) | 9 | (229) | 24 | (610) | 1.36 | (0.62) |
| ☐ | 1-1/4" | XW | 12E-XW-71-P | 2.02 | (51) | 9 | (229) | 24 | (610) | 1.64 | (0.74) |
| ☐ | 1-1/2" | XW | 15E-XW-71-P | 2.26 | (57) | 9 | (229) | 24 | (610) | 2.36 | (1.07) |
| ☐ | 2" | XW | 20F-XW-71-P | 2.50 | (65) | 9 | (229) | 24 | (610) | 2.52 | (1.14) |
| ☐ | 2-1/2" | XW | 25F-XW-71-P | 3.00 | (76) | 9 | (229) | 24 | (610) | 3.08 | (1.40) |
| ☐ | 3" | XW | 30F-XW-71-P | 3.50 | (89) | 9 | (229) | 24 | (610) | 3.72 | (1.69) |
| ☐ | 3-1/2" | XW | 35F-XW-71-P | 4.00 | (102) | 9 | (229) | 24 | (610) | 4.30 | (1.95) |
| ☐ | 4" | XW | 40F-XW-71-P | 4.50 | (114) | 9 | (229) | 24 | (610) | 4.87 | (2.21) |

## 30° x 36"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-72-P | 1.41 | (36) | 9 | (229) | 36 | (914) | 1.52 | (0.69) |
| ☐ | 1" | XW | 10E-XW-72-P | 1.68 | (43) | 9 | (229) | 36 | (914) | 1.70 | (0.77) |
| ☐ | 1-1/4" | XW | 12E-XW-72-P | 2.02 | (51) | 9 | (229) | 36 | (914) | 2.05 | (0.93) |
| ☐ | 1-1/2" | XW | 15E-XW-72-P | 2.26 | (57) | 9 | (229) | 36 | (914) | 2.95 | (1.34) |
| ☐ | 2" | XW | 20F-XW-72-P | 2.50 | (65) | 9 | (229) | 36 | (914) | 3.15 | (1.43) |
| ☐ | 2-1/2" | XW | 25F-XW-72-P | 3.00 | (76) | 9 | (229) | 36 | (914) | 3.85 | (1.75) |
| ☐ | 3" | XW | 30F-XW-72-P | 3.50 | (89) | 9 | (229) | 36 | (914) | 4.55 | (2.07) |
| ☐ | 3-1/2" | XW | 35F-XW-72-P | 4.00 | (102) | 9 | (229) | 36 | (914) | 5.25 | (2.38) |
| ☐ | 4" | XW | 40F-XW-72-P | 4.50 | (114) | 9 | (229) | 36 | (914) | 5.95 | (2.70) |
| ☐ | 5" | XW | 50F-XW-72-P | 5.50 | (140) | 9 | (229) | 36 | (914) | 7.35 | (3.34) |
| ☐ | 6" | XW | 60F-XW-72-P | 6.50 | (165) | 9 | (229) | 36 | (914) | 8.75 | (3.97) |

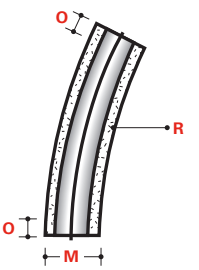
## 30° x 48"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-73-P | 1.41 | **(36)** | 9 | **(229)** | 48 | **(1,219)** | 1.89 | **(0.87)** |
| ☐ | 1" | XW | 10E-XW-73-P | 1.68 | **(43)** | 9 | **(229)** | 48 | **(1,219)** | 2.10 | **(0.96)** |
| ☐ | 1-1/4" | XW | 12E-XW-73-P | 2.02 | **(51)** | 9 | **(229)** | 48 | **(1,219)** | 2.54 | **(1.14)** |
| ☐ | 1-1/2" | XW | 15E-XW-73-P | 2.26 | **(57)** | 9 | **(229)** | 48 | **(1,219)** | 3.65 | **(1.64)** |
| ☐ | 2" | XW | 20F-XW-73-P | 2.50 | **(65)** | 9 | **(229)** | 48 | **(1,219)** | 3.89 | **(1.77)** |
| ☐ | 2-1/2" | XW | 25F-XW-73-P | 3.00 | **(76)** | 9 | **(229)** | 48 | **(1,219)** | 4.75 | **(2.16)** |
| ☐ | 3" | XW | 30F-XW-73-P | 3.50 | **(89)** | 9 | **(229)** | 48 | **(1,219)** | 5.61 | **(2.55)** |
| ☐ | 3-1/2" | XW | 35F-XW-73-P | 4.00 | **(102)** | 9 | **(229)** | 48 | **(1,219)** | 6.47 | **(2.94)** |
| ☐ | 4" | XW | 40F-XW-73-P | 4.50 | **(114)** | 9 | **(229)** | 48 | **(1,219)** | 7.34 | **(3.33)** |
| ☐ | 5" | XW | 50F-XW-73-P | 5.50 | **(140)** | 9 | **(229)** | 48 | **(1,219)** | 9.07 | **(4.12)** |
| ☐ | 6" | XW | 60F-XW-73-P | 6.50 | **(165)** | 9 | **(229)** | 48 | **(1,219)** | 10.79 | **(4.90)** |

## 30° x 60"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-74-P | 1.41 | **(36)** | 9 | **(229)** | 60 | **(1,524)** | 2.21 | **(1.01)** |
| ☐ | 1" | XW | 10E-XW-74-P | 1.68 | **(43)** | 9 | **(229)** | 60 | **(1,524)** | 2.46 | **(1.12)** |
| ☐ | 1-1/4" | XW | 12E-XW-74-P | 2.02 | **(51)** | 9 | **(229)** | 60 | **(1,524)** | 2.97 | **(1.34)** |
| ☐ | 1-1/2" | XW | 15E-XW-74-P | 2.26 | **(57)** | 9 | **(229)** | 60 | **(1,524)** | 4.27 | **(1.92)** |
| ☐ | 2" | XW | 20F-XW-74-P | 2.50 | **(65)** | 9 | **(229)** | 60 | **(1,524)** | 4.52 | **(2.05)** |
| ☐ | 3" | XW | 30F-XW-74-P | 3.50 | **(89)** | 9 | **(229)** | 60 | **(1,524)** | 6.52 | **(2.96)** |
| ☐ | 4" | XW | 40F-XW-74-P | 4.50 | **(114)** | 9 | **(229)** | 60 | **(1,524)** | 8.53 | **(3.87)** |
| ☐ | 5" | XW | 50F-XW-74-P | 5.50 | **(140)** | 9 | **(229)** | 60 | **(1,524)** | 10.54 | **(4.79)** |
| ☐ | 6" | XW | 60F-XW-74-P | 6.50 | **(165)** | 9 | **(229)** | 60 | **(1,524)** | 12.55 | **(5.70)** |

# 22-1/2° elbows




## 22-1/2° x 12"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-60-P | 1.41 | **(36)** | 9 | **(229)** | 12 | **(305)** | 0.87 | **(0.39)** |
| ☐ | 1" | XW | 10E-XW-60-P | 1.68 | **(43)** | 9 | **(229)** | 12 | **(305)** | 0.97 | **(0.44)** |
| ☐ | 1-1/4" | XW | 12E-XW-60-P | 2.02 | **(51)** | 9 | **(229)** | 12 | **(305)** | 1.16 | **(0.53)** |
| ☐ | 1-1/2" | XW | 15E-XW-60-P | 2.26 | **(57)** | 9 | **(229)** | 12 | **(305)** | 1.68 | **(0.76)** |
| ☐ | 2" | XW | 20F-XW-60-P | 2.50 | **(63)** | 9 | **(229)** | 12 | **(305)** | 1.79 | **(0.81)** |
| ☐ | 2-1/2" | XW | 25F-XW-60-P | 3.00 | **(76)** | 9 | **(229)** | 12 | **(305)** | 2.19 | **(0.99)** |
| ☐ | 3" | XW | 30F-XW-60-P | 3.50 | **(89)** | 9 | **(229)** | 12 | **(305)** | 2.58 | **(1.17)** |
| ☐ | 3-1/2" | XW | 35F-XW-60-P | 4.00 | **(102)** | 9 | **(229)** | 12 | **(305)** | 2.98 | **(1.35)** |



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## 22-1/2° x 24"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-61-P | 1.41 | **(36)** | 9 | **(229)** | 24 | **(610)** | 1.07 | **(0.48)** |
| ☐ | 1" | XW | 10E-XW-61-P | 1.68 | **(43)** | 9 | **(229)** | 24 | **(610)** | 1.19 | **(0.54)** |
| ☐ | 1-1/4" | XW | 12E-XW-61-P | 2.02 | **(51)** | 9 | **(229)** | 24 | **(610)** | 1.44 | **(0.65)** |
| ☐ | 1-1/2" | XW | 15E-XW-61-P | 2.26 | **(57)** | 9 | **(229)** | 24 | **(610)** | 2.07 | **(0.94)** |
| ☐ | 2" | XW | 20F-XW-61-P | 2.50 | **(65)** | 9 | **(229)** | 24 | **(610)** | 2.21 | **(1.00)** |
| ☐ | 2-1/2" | XW | 25F-XW-61-P | 3.00 | **(76)** | 9 | **(229)** | 24 | **(610)** | 2.70 | **(1.23)** |
| ☐ | 3" | XW | 30F-XW-61-P | 3.50 | **(89)** | 9 | **(229)** | 24 | **(610)** | 3.32 | **(1.51)** |
| ☐ | 3-1/2" | XW | 35F-XW-61-P | 4.00 | **(102)** | 9 | **(229)** | 24 | **(610)** | 3.83 | **(1.74)** |
| ☐ | 4" | XW | 40F-XW-61-P | 4.50 | **(114)** | 9 | **(229)** | 24 | **(610)** | 4.34 | **(1.97)** |

## 22-1/2° x 36"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-62-P | 1.41 | **(36)** | 9 | **(229)** | 36 | **(914)** | 1.27 | **(0.58)** |
| ☐ | 1" | XW | 10E-XW-62-P | 1.68 | **(43)** | 9 | **(229)** | 36 | **(914)** | 1.42 | **(0.64)** |
| ☐ | 1-1/4" | XW | 12E-XW-62-P | 2.02 | **(51)** | 9 | **(229)** | 36 | **(914)** | 1.71 | **(0.77)** |
| ☐ | 1-1/2" | XW | 15E-XW-62-P | 2.26 | **(57)** | 9 | **(229)** | 36 | **(914)** | 2.46 | **(1.12)** |
| ☐ | 2" | XW | 20F-XW-62-P | 2.50 | **(65)** | 9 | **(229)** | 36 | **(914)** | 2.63 | **(1.19)** |
| ☐ | 2-1/2" | XW | 25F-XW-62-P | 3.00 | **(76)** | 9 | **(229)** | 36 | **(914)** | 3.21 | **(1.46)** |
| ☐ | 3" | XW | 30F-XW-62-P | 3.50 | **(89)** | 9 | **(229)** | 36 | **(914)** | 3.79 | **(1.72)** |
| ☐ | 3-1/2" | XW | 35F-XW-62-P | 4.00 | **(102)** | 9 | **(229)** | 36 | **(914)** | 4.38 | **(1.99)** |
| ☐ | 4" | XW | 40F-XW-62-P | 4.50 | **(114)** | 9 | **(229)** | 36 | **(914)** | 4.96 | **(2.25)** |
| ☐ | 5" | XW | 50F-XW-62-P | 5.50 | **(140)** | 9 | **(229)** | 36 | **(914)** | 6.13 | **(2.78)** |
| ☐ | 6" | XW | 60F-XW-62-P | 6.50 | **(165)** | 9 | **(229)** | 36 | **(914)** | 7.29 | **(3.31)** |

## 22-1/2° x 48"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-63-P | 1.41 | **(36)** | 9 | **(229)** | 48 | **(1,219)** | 1.57 | **(0.72)** |
| ☐ | 1" | XW | 10E-XW-63-P | 1.68 | **(43)** | 9 | **(229)** | 48 | **(1,219)** | 1.75 | **(0.80)** |
| ☐ | 1-1/4" | XW | 12E-XW-63-P | 2.02 | **(51)** | 9 | **(229)** | 48 | **(1,219)** | 2.11 | **(0.95)** |
| ☐ | 1-1/2" | XW | 15E-XW-63-P | 2.26 | **(57)** | 9 | **(229)** | 48 | **(1,219)** | 3.03 | **(1.36)** |
| ☐ | 2" | XW | 20F-XW-63-P | 2.50 | **(65)** | 9 | **(229)** | 48 | **(1,219)** | 3.15 | **(1.43)** |
| ☐ | 2-1/2" | XW | 25F-XW-63-P | 3.00 | **(76)** | 9 | **(229)** | 48 | **(1,219)** | 3.85 | **(1.75)** |
| ☐ | 3" | XW | 30F-XW-63-P | 3.50 | **(89)** | 9 | **(229)** | 48 | **(1,219)** | 4.55 | **(2.07)** |
| ☐ | 3-1/2" | XW | 35F-XW-63-P | 4.00 | **(102)** | 9 | **(229)** | 48 | **(1,219)** | 5.25 | **(2.38)** |
| ☐ | 4" | XW | 40F-XW-63-P | 4.50 | **(114)** | 9 | **(229)** | 48 | **(1,219)** | 5.95 | **(2.70)** |
| ☐ | 5" | XW | 50F-XW-63-P | 5.50 | **(140)** | 9 | **(229)** | 48 | **(1,219)** | 7.35 | **(3.34)** |
| ☐ | 6" | XW | 60F-XW-63-P | 6.50 | **(165)** | 9 | **(229)** | 48 | **(1,219)** | 8.75 | **(3.97)** |

## 22-1/2° x 60"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-64-P | 1.41 | **(36)** | 9 | **(229)** | 60 | **(1,524)** | 1.81 | **(0.83)** |
| ☐ | 1" | XW | 10E-XW-64-P | 1.68 | **(43)** | 9 | **(229)** | 60 | **(1,524)** | 2.01 | **(0.92)** |
| ☐ | 1-1/4" | XW | 12E-XW-64-P | 2.02 | **(51)** | 9 | **(229)** | 60 | **(1,524)** | 2.43 | **(1.10)** |
| ☐ | 1-1/2" | XW | 15E-XW-64-P | 2.26 | **(57)** | 9 | **(229)** | 60 | **(1,524)** | 3.50 | **(1.57)** |
| ☐ | 2" | XW | 20F-XW-64-P | 2.50 | **(65)** | 9 | **(229)** | 60 | **(1,524)** | 3.68 | **(1.67)** |
| ☐ | 3" | XW | 30F-XW-64-P | 3.50 | **(89)** | 9 | **(229)** | 60 | **(1,524)** | 5.31 | **(2.41)** |
| ☐ | 3-1/2" | XW | 35F-XW-64-P | 4.00 | **(102)** | 9 | **(229)** | 60 | **(1,524)** | 6.13 | **(2.78)** |
| ☐ | 4" | XW | 40F-XW-64-P | 4.50 | **(114)** | 9 | **(229)** | 60 | **(1,524)** | 6.94 | **(3.15)** |
| ☐ | 5" | XW | 50F-XW-64-P | 5.50 | **(140)** | 9 | **(229)** | 60 | **(1,524)** | 8.58 | **(3.90)** |
| ☐ | 6" | XW | 60F-XW-64-P | 6.50 | **(165)** | 9 | **(229)** | 60 | **(1,524)** | 10.21 | **(4.64)** |



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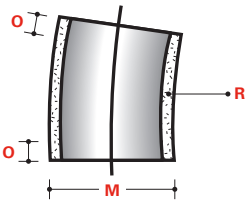
# 11-1/4° elbows




## 11-1/4° X 12"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-50-P | 1.41 | (36) | 9 | **(229)** | 12 | (305) | 0.71 | (0.32) |
| ☐ | 1" | XW | 10E-XW-50-P | 1.68 | (43) | 9 | **(229)** | 12 | (305) | 0.79 | (0.36) |
| ☐ | 1-1/4" | XW | 12E-XW-50-P | 2.02 | (51) | 9 | **(229)** | 12 | (305) | 0.96 | (0.43) |
| ☐ | 1-1/2" | XW | 15E-XW-50-P | 2.26 | (57) | 9 | **(229)** | 12 | (305) | 1.38 | (0.63) |
| ☐ | 2" | XW | 20F-XW-50-P | 2.50 | (63) | 9 | **(229)** | 12 | (305) | 1.47 | (0.67) |
| ☐ | 2-1/2" | XW | 25F-XW-50-P | 3.00 | (76) | 9 | **(229)** | 12 | (305) | 1.80 | (0.82) |
| ☐ | 3" | XW | 30F-XW-50-P | 3.50 | (89) | 9 | **(229)** | 12 | (305) | 2.18 | (0.99) |
| ☐ | 3-1/2" | XW | 35F-XW-50-P | 4.00 | (102) | 9 | **(229)** | 12 | (305) | 2.45 | (1.11) |

## 11-1/4° x 24"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-51-P | 1.41" | (36) | 6" | (152) | 24" | (610) | 0.87 | (0.39) |
| ☐ | 1" | XW | 10E-XW-51-P | 1.68" | (43) | 6" | (152) | 24" | (610) | 0.97 | (0.44) |
| ☐ | 1-1/4" | XW | 12E-XW-51-P | 2.02" | (51) | 6" | (152) | 24" | (610) | 1.16 | (0.53) |
| ☐ | 1-1/2" | XW | 15E-XW-51-P | 2.26" | (57) | 6" | (152) | 24" | (610) | 1.68 | (0.76) |
| ☐ | 2" | XW | 20F-XW-51-P | 2.50" | (63) | 6" | (152) | 24" | (610) | 1.79 | (0.81) |
| ☐ | 2-1/2" | XW | 25F-XW-51-P | 3.00" | (76) | 6" | (152) | 24" | (610) | 2.19 | (0.99) |
| ☐ | 3" | XW | 30F-XW-51-P | 3.50" | (89) | 6" | (152) | 24" | (610) | 2.58 | (1.17) |
| ☐ | 3-1/2" | XW | 35F-XW-51-P | 4.00" | (102) | 6" | (152) | 24" | (610) | 2.98 | (1.35) |
| ☐ | 4" | XW | 40F-XW-51-P | 4.50" | (114) | 6" | (152) | 24" | (610) | 3.38 | (1.53) |

## 11-1/4° x 36"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-52-P | 1.41 | **(36)** | 9 | **(229)** | 36 | **(914)** | 0.97 | **(0.44)** |
| ☐ | 1" | XW | 10E-XW-52-P | 1.68 | **(43)** | 9 | **(229)** | 36 | **(914)** | 1.08 | **(0.49)** |
| ☐ | 1-1/4" | XW | 12E-XW-52-P | 2.02 | **(51)** | 9 | **(229)** | 36 | **(914)** | 1.30 | **(0.59)** |
| ☐ | 1-1/2" | XW | 15E-XW-52-P | 2.26 | **(57)** | 9 | **(229)** | 36 | **(914)** | 1.87 | **(0.85)** |
| ☐ | 2" | XW | 20F-XW-52-P | 2.50 | **(64)** | 9 | **(229)** | 36 | **(914)** | 2.00 | **(0.91)** |
| ☐ | 2-1/2" | XW | 25F-XW-52-P | 3.00 | **(76)** | 9 | **(229)** | 36 | **(914)** | 2.44 | **(1.11)** |
| ☐ | 3" | XW | 30F-XW-52-P | 3.50 | **(89)** | 9 | **(229)** | 36 | **(914)** | 2.88 | **(1.31)** |
| ☐ | 3-1/2" | XW | 35F-XW-52-P | 4.00 | **(102)** | 9 | **(229)** | 36 | **(914)** | 3.33 | **(1.51)** |
| ☐ | 4" | XW | 40F-XW-52-P | 4.50 | **(114)** | 9 | **(229)** | 36 | **(914)** | 3.77 | **(3.77)** |
| ☐ | 5" | XW | 50F-XW-52-P | 5.50 | **(140)** | 9 | **(229)** | 36 | **(914)** | 4.64 | **(2.11)** |
| ☐ | 6" | XW | 60F-XW-52-P | 6.50 | **(165)** | 9 | **(229)** | 36 | **(914)** | 5.53 | **(2.51)** |



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## 11-1/4° x 48"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-53-P | 1.41 | **(36)** | 9 | **(229)** | 48 | **(1,219)** | 1.09 | **(0.50)** |
| ☐ | 1" | XW | 10E-XW-53-P | 1.68 | **(43)** | 9 | **(229)** | 48 | **(1,219)** | 1.21 | **(0.55)** |
| ☐ | 1-1/4" | XW | 12E-XW-53-P | 2.02 | **(51)** | 9 | **(229)** | 48 | **(1,219)** | 1.46 | **(0.66)** |
| ☐ | 1-1/2" | XW | 15E-XW-53-P | 2.26 | **(57)** | 9 | **(229)** | 48 | **(1,219)** | 2.11 | **(0.95)** |
| ☐ | 2" | XW | 20F-XW-53-P | 2.50 | **(64)** | 9 | **(229)** | 48 | **(1,219)** | 2.29 | **(1.04)** |
| ☐ | 2-1/2" | XW | 25F-XW-53-P | 3.00 | **(76)** | 9 | **(229)** | 48 | **(1,219)** | 2.83 | **(1.29)** |
| ☐ | 3" | XW | 30F-XW-53-P | 3.50 | **(89)** | 9 | **(229)** | 48 | **(1,219)** | 3.34 | **(1.51)** |
| ☐ | 3-1/2" | XW | 35F-XW-53-P | 4.00 | **(102)** | 9 | **(229)** | 48 | **(1,219)** | 3.86 | **(1.75)** |
| ☐ | 4" | XW | 40F-XW-53-P | 4.50 | **(114)** | 9 | **(229)** | 48 | **(1,219)** | 4.38 | **(1.99)** |
| ☐ | 5" | XW | 50F-XW-53-P | 5.50 | **(140)** | 9 | **(229)** | 48 | **(1,219)** | 5.41 | **(2.46)** |
| ☐ | 6" | XW | 60F-XW-53-P | 6.50 | **(165)** | 9 | **(229)** | 48 | **(1,219)** | 6.44 | **(2.92)** |

## 11-1/4° x 60"

| | NOMINAL | | XW ITEM NUMBER | M | | O-TANGENT (MIN) | | R-RADIUS (MIN) | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-54-P | 1.41 | **(36)** | 9 | **(229)** | 60 | **(1,524)** | 1.21 | **(0.55)** |
| ☐ | 1" | XW | 10E-XW-54-P | 1.68 | **(43)** | 9 | **(229)** | 60 | **(1,524)** | 1.35 | **(0.61)** |
| ☐ | 1-1/4" | XW | 12E-XW-54-P | 2.02 | **(51)** | 9 | **(229)** | 60 | **(1,524)** | 1.62 | **(0.73)** |
| ☐ | 1-1/2" | XW | 15E-XW-54-P | 2.26 | **(57)** | 9 | **(229)** | 60 | **(1,524)** | 2.34 | **(1.05)** |
| ☐ | 2" | XW | 20F-XW-54-P | 2.50 | **(65)** | 9 | **(229)** | 60 | **(1,524)** | 2.52 | **(1.44)** |
| ☐ | 2-1/2" | XW | 25F-XW-54-P | 3.00 | **(76)** | 9 | **(229)** | 60 | **(1,524)** | 3.08 | **(1.40)** |
| ☐ | 3" | XW | 30F-XW-54-P | 3.50 | **(89)** | 9 | **(229)** | 60 | **(1,524)** | 3.64 | **(1.65)** |
| ☐ | 3-1/2" | XW | 35F-XW-54-P | 4.00 | **(102)** | 9 | **(229)** | 60 | **(1,524)** | 4.20 | **(1.91)** |
| ☐ | 4" | XW | 40F-XW-54-P | 4.50 | **(114)** | 9 | **(229)** | 60 | **(1,524)** | 4.76 | **(2.16)** |
| ☐ | 5" | XW | 50F-XW-54-P | 5.50 | **(140)** | 9 | **(229)** | 60 | **(1,524)** | 5.88 | **(2.67)** |
| ☐ | 6" | XW | 60F-XW-54-P | 6.50 | **(165)** | 9 | **(229)** | 60 | **(1,524)** | 7.00 | **(3.18)** |

XW

# Fittings

Quick, easy installation and easily customized options are both features of this versatile range of connectors, adapters, couplings and more.

## Types Available

These lightweight fittings are available in both IPS and ID, where applicable. Consisting of an Extra Heavy Wall (XW) Thickness of .250"

## Certifications/Compliances

- UL 2515 (Above Ground) listed
- UL 2515-A
- ISO 9001 Certified
- ISO 14001 Certified
- ISO 45001 Certified



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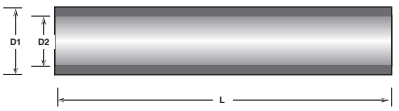
## SLEEVE COUPLING

| | NOMINAL | | XW ITEM NUMBER | D | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-42 | 1.44 | **(36)** | 18" | **(457)** | 0.91 | **(0.41)** |
| ☐ | 1" | XW | 10E-XW-42 | 1.70 | **(43)** | 18" | **(457)** | 1.02 | **(0.46)** |
| ☐ | 1-1/4" | XW | 12E-XW-42 | 2.05 | **(52)** | 18" | **(457)** | 1.23 | **(0.56)** |
| ☐ | 1-1/2" | XW | 15E-XW-42 | 2.29 | **(58)** | 18" | **(457)** | 1.77 | **(0.80)** |
| ☐ | 2" | XW | 20F-XW-42 | 2.52 | **(64)** | 18" | **(457)** | 1.89 | **(0.86)** |
| ☐ | 2-1/2" | XW | 25F-XW-42 | 3.03 | **(77)** | 18" | **(457)** | 2.31 | **(1.05)** |
| ☐ | 3" | XW | 30F-XW-42 | 3.52 | **(89)** | 18" | **(457)** | 2.77 | **(1.24)** |
| ☐ | 3-1/2" | XW | 35F-XW-42 | 4.03 | **(102)** | 18" | **(457)** | 3.57 | **(1.62)** |
| ☐ | 4" | XW | 40F-XW-42 | 4.52 | **(115)** | 18" | **(457)** | 4.41 | **(2.00)** |
| ☐ | 5" | XW | 50F-XW-42 | 5.52 | **(140)** | 18" | **(457)** | 5.25 | **(2.38)** |
| ☐ | 6" | XW | 60F-XW-42 | 6.52 | **(166)** | 18" | **(457)** | 6.09 | **(2.76)** |

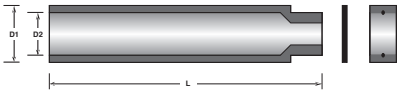



## BOX CONNECTOR

(No Threads)

| | SIZE | TYPE | XW ITEM NUMBER | D1 | D2 | L | WEIGHT |
|---|---|---|---|---|---|---|---|
| ☐ | 3/4" | XW | 07E-XW-30 | 1.45 **(37)** | 1.35 **(34)** | 10.75 **(273)** | .39 **(.18)** |
| ☐ | 1" | XW | 10E-XW-30 | 1.74 **(44)** | 1.68 **(43)** | 10.75 **(273)** | .52 **(.24)** |
| ☐ | 1-1/4" | XW | 12E-XW-30 | 2.00 **(50)** | 1.98 **(50)** | 10.75 **(273)** | .68 **(.30)** |
| ☐ | 1-1/2" | XW | 15E-XW-30 | 2.29 **(58)** | 2.24 **(57)** | 10.75 **(273)** | .70 **(.32)** |
| ☐ | 2" | XW | 20F-XW-30 | 2.55 **(65)** | 2.48 **(63)** | 10.75 **(273)** | .95 **(.43)** |
| ☐ | 2-1/2" | XW | 25F-XW-30 | 3.03 **(77)** | 2.98 **(76)** | 10.75 **(273)** | 1.30 **(.58)** |
| ☐ | 3" | XW | 30F-XW-30 | 3.55 **(90)** | 3.48 **(88)** | 10.75 **(273)** | 1.34 **(.60)** |
| ☐ | 3-1/2" | XW | 35F-XW-30 | 4.05 **(103)** | 3.98 **(101)** | 10.75 **(273)** | 1.68 **(.76)** |
| ☐ | 4" | XW | 40F-XW-30 | 4.55 **(116)** | 4.48 **(114)** | 10.75 **(273)** | 2.00 **(.90)** |
| ☐ | 5" | XW | 50E-XW-30 | 5.55 **(141)** | 5.48 **(139)** | 10.75 **(273)** | 2.08 **(.94)** |
| ☐ | 6" | XW | 60E-XW-30 | 6.52 **(166)** | 6.45 **(163)** | 10.75 **(273)** | 2.50 **(1.13)** |

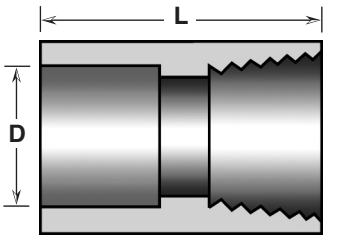
A box connector creates a separable termination into a box. This connector has straight threads (NPS) and is supplied with a locknut. Sealing O-ring supplied by adding an "-EX" suffix to the item number.



# FEMALE ADAPTER

| | NOMINAL | | XW ITEM NUMBER | D | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-32 | 1.44 | (36) | 3 | (76) | 0.30 | (0.14) |
| ☐ | 1" | XW | 10E-XW-32 | 1.70 | (43) | 3 | (76) | 0.38 | (0.17) |
| ☐ | 1-1/4" | XW | 12E-XW-32 | 2.05 | (52) | 3 | (76) | 0.45 | (0.20) |
| ☐ | 1-1/2" | XW | 15E-XW-32 | 2.29 | (58) | 3 | (76) | 0.60 | (0.27) |
| ☐ | 2" | XW | 20F-XW-32 | 2.52 | (64) | 5 | (127) | 1.20 | (0.55) |
| ☐ | 2-1/2" | XW | 25F-XW-32 | 3.03 | (77) | 5 | (127) | 0.85 | (0.38) |
| ☐ | 3" | XW | 30F-XW-32 | 3.52 | (89) | 5 | (127) | 1.40 | (0.64) |
| ☐ | 3-1/2" | XW | 35F-XW-32 | 4.03 | (102) | 5 | (127) | 1.28 | (0.58) |
| ☐ | 4" | XW | 40F-XW-32 | 4.52 | (115) | 5 | (127) | 2.08 | (0.94) |
| ☐ | 5" | XW | 50F-XW-32 | 5.52 | (140) | 5 | (127) | 2.60 | (1.18) |
| ☐ | 6" | XW | 60F-XW-32 | 6.52 | (166) | 5 | (127) | 3.51 | (1.59) |

This adapter is generally used for joining phenolic conduit with galvanized rigid steel (GRS) conduit. It has the same threads as GRS conduit and can easily be attached to GRS conduit.

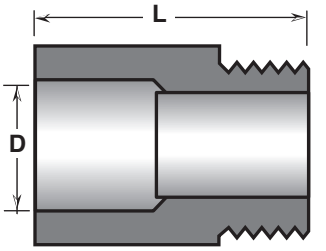



# MALE ADAPTER

(Tapered Threads)

| | NOMINAL | | XW ITEM NUMBER | D | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-33 | 1.44 | (36) | 3 | (76) | 0.09 | (0.04) |
| ☐ | 1" | XW | 10E-XW-33 | 1.70 | (43) | 3 | (76) | 0.19 | (0.09) |
| ☐ | 1-1/4" | XW | 12E-XW-33 | 2.05 | (52) | 3 | (76) | 0.24 | (0.11) |
| ☐ | 1-1/2" | XW | 15E-XW-33 | 2.29 | (58) | 3 | (76) | 0.35 | (0.16) |
| ☐ | 2" | XW | 20F-XW-33 | 2.52 | (64) | 5 | (127) | 0.69 | (0.31) |
| ☐ | 2-1/2" | XW | 25F-XW-33 | 3.03 | (77) | 5 | (127) | 0.85 | (0.38) |
| ☐ | 3" | XW | 30F-XW-33 | 3.52 | (89) | 5 | (127) | 1.00 | (0.45) |
| ☐ | 3-1/2" | XW | 35F-XW-33 | 4.03 | (102) | 5 | (127) | 1.28 | (0.58) |
| ☐ | 4" | XW | 40F-XW-33 | 4.52 | (115) | 7 | (178) | 1.56 | (0.71) |
| ☐ | 5" | XW | 50F-XW-33 | 5.52 | (140) | 7 | (178) | 2.08 | (0.94) |
| ☐ | 6" | XW | 60F-XW-33 | 6.52 | (166) | 7 | (178) | 2.47 | (1.12) |

Male adapters with tapered threads (NPT) are generally used for joining phenolic conduit to female threads of rigid steel, Myers-type hubs or terminating into precast iron boxes with female thread entrances.



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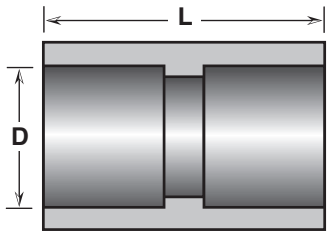
## STOP COUPLING

| | NOMINAL | | XW ITEM NUMBER | D | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-32 | 1.44 | (36) | 12 | (457) | 0.30 | (0.14) |
| ☐ | 1" | XW | 10E-XW-32 | 1.70 | (43) | 18 | (457) | 0.38 | (0.17) |
| ☐ | 1-1/4" | XW | 12E-XW-32 | 2.05 | (52) | 18 | (457) | 0.45 | (0.20) |
| ☐ | 1-1/2" | XW | 15E-XW-32 | 2.29 | (58) | 18 | (457) | 0.60 | (0.27) |
| ☐ | 2" | XW | 20F-XW-32 | 2.52 | (64) | 18 | (457) | 1.20 | (0.55) |
| ☐ | 2-1/2" | XW | 25F-XW-32 | 3.03 | (77) | 18 | (457) | 0.85 | (0.38) |
| ☐ | 3" | XW | 30F-XW-32 | 3.52 | (89) | 18 | (457) | 1.40 | (0.64) |
| ☐ | 3-1/2" | XW | 35F-XW-32 | 4.03 | (102) | 18 | (457) | 1.28 | (0.58) |
| ☐ | 4" | XW | 40F-XW-32 | 4.52 | (115) | 18 | (457) | 2.08 | (0.94) |
| ☐ | 5" | XW | 50F-XW-32 | 5.52 | (140) | 18 | (457) | 2.60 | (1.18) |
| ☐ | 6" | XW | 60F-XW-32 | 6.52 | (166) | 18 | (457) | 3.51 | (1.59) |

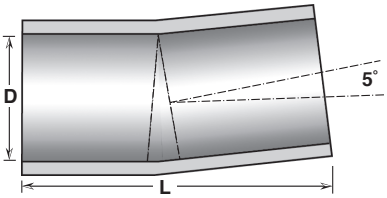
Stop coupling is sometimes referred to as a double bell coupling.




## 5° DOUBLE BELL COUPLING

| | NOMINAL | | XW ITEM NUMBER | D | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-42 | 1.44 | (36) | 18 | (457) | 0.22 | (0.10) |
| ☐ | 1" | XW | 10E-XW-42 | 1.70 | (43) | 18 | (457) | 0.29 | (0.13) |
| ☐ | 1-1/4" | XW | 12E-XW-42 | 2.05 | (52) | 18 | (457) | 0.36 | (0.16) |
| ☐ | 1-1/2" | XW | 15E-XW-42 | 2.29 | (58) | 18 | (457) | 0.39 | (0.18) |
| ☐ | 2" | XW | 20F-XW-42 | 2.52 | (64) | 18 | (457) | 0.53 | (0.24) |
| ☐ | 2-1/2" | XW | 25F-XW-42 | 3.03 | (77) | 18 | (457) | 0.77 | (0.35) |
| ☐ | 3" | XW | 30F-XW-42 | 3.52 | (89) | 18 | (457) | 0.75 | (0.34) |
| ☐ | 3-1/2" | XW | 35F-XW-42 | 4.03 | (102) | 18 | (457) | 1.12 | (0.51) |
| ☐ | 4" | XW | 40F-XW-42 | 4.52 | (115) | 18 | (457) | 1.50 | (0.68) |
| ☐ | 5" | XW | 50F-XW-42 | 5.52 | (140) | 18 | (457) | 2.08 | (0.94) |
| ☐ | 6" | XW | 60F-XW-42 | 6.52 | (166) | 18 | (457) | 2.50 | (1.13) |

Other angles can also be manufactured, such as 2.5° etc. Please contact factory for consultation.



# EXPANSION JOINTS

We recommend that expansion fittings should be provided to compensate for thermal expansion and contraction where the length change is expected to be ¼ inch ***(6 mm)*** or greater in a straight run between securely mounted items such as boxes, cabinets, elbows, or other conduit terminations.

**Expansion Characteristics of Champion Fiberglass Reinforced Thermosetting Resin Conduit (RTRC)**
Coefficient of Thermal Expansion = 1.2 x 10-5 in/in/°F (2.2 x 10-5 m/m/°C)

| TEMPERATURE CHANGE (°F) | LENGTH CHANGE (IN/100 FT) | TEMPERATURE CHANGE (°F) | LENGTH CHANGE (IN/100 FT) | TEMPERATURE CHANGE (°C) | LENGTH CHANGE (MM/M) |
|---|---|---|---|---|---|
| 5 | 0.03 | 105 | .064 | 5 | 0.05 |
| 10 | 0.06 | 110 | 0.67 | 10 | 0.09 |
| 15 | 0.09 | 115 | 0.70 | 15 | 0.14 |
| 20 | 0.12 | 120 | 0.73 | 20 | 0.19 |
| 25 | 0.15 | 125 | 0.77 | 25 | 0.23 |
| 30 | 0.18 | 130 | 0.80 | 30 | 0.28 |
| 35 | 0.21 | 135 | 0.83 | 35 | 0.32 |
| 40 | 0.24 | 140 | 0.86 | 40 | 0.37 |
| 45 | 0.28 | 145 | 0.89 | 45 | 0.42 |
| 50 | 0.31 | 150 | 0.92 | 50 | 0.46 |
| 55 | 0.34 | 155 | 0.95 | 55 | 0.51 |
| 60 | 0.37 | 160 | 0.98 | 60 | 0.56 |
| 65 | 0.40 | 165 | 1.01 | 65 | 0.60 |
| 70 | 0.43 | 170 | 1.04 | 70 | 0.65 |
| 75 | 0.46 | 175 | 1.07 | 75 | 0.70 |
| 80 | 0.49 | 180 | 1.10 | 80 | 0.74 |
| 85 | 0.52 | 185 | 1.13 | 85 | 0.79 |
| 90 | 0.55 | 190 | 1.16 | 90 | 0.83 |
| 95 | 0.58 | 195 | 1.19 | 95 | 0.88 |
| 100 | 0.61 | 200 | 1.22 | 100 | 0.93 |



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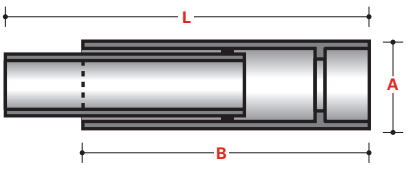
## SINGLE EXPANSION JOINT SOCKET X SPIGOT WITH O-RING

| | NOMINAL | | XW ITEM NUMBER | A | | B | | L-MIN | | L-MAX | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-36 | 1.94 | (54) | 12 | (305) | 27 | (686) | 33 | (838) | 1.40 | (0.64) |
| ☐ | 1" | XW | 10E-XW-36 | 2.20 | (61) | 12 | (305) | 27 | (686) | 33 | (838) | 1.57 | (0.71) |
| ☐ | 1-1/4" | XW | 12E-XW-36 | 2.55 | (65) | 12 | (305) | 27 | (686) | 33 | (838) | 1.89 | (0.86) |
| ☐ | 1-1/2" | XW | 15E-XW-36 | 2.79 | (71) | 12 | (305) | 27 | (686) | 33 | (838) | 2.72 | (1.23) |
| ☐ | 2" | XW | 20F-XW-36 | 3.00 | (76) | 12 | (305) | 27 | (686) | 33 | (838) | 2.90 | (1.32) |
| ☐ | 2-1/2" | XW | 25F-XW-36 | 3.53 | (90) | 12 | (305) | 27 | (686) | 33 | (838) | 3.56 | (1.61) |
| ☐ | 3" | XW | 30F-XW-36 | 4.00 | (102) | 12 | (305) | 27 | (686) | 33 | (838) | 4.19 | (1.90) |
| ☐ | 3-1/2" | XW | 35F-XW-36 | 4.53 | (115) | 12 | (305) | 27 | (686) | 33 | (838) | 4.83 | (2.19) |
| ☐ | 4" | XW | 40F-XW-36 | 5.00 | (127) | 14 | (356) | 27 | (686) | 33 | (838) | 6.42 | (2.92) |
| ☐ | 5" | XW | 50F-XW-36 | 6.00 | (152) | 14 | (356) | 27 | (686) | 33 | (838) | 7.94 | (3.60) |
| ☐ | 6" | XW | 60F-XW-36 | 7.00 | (178) | 14 | (356) | 27 | (686) | 33 | (838) | 10.06 | (4.57) |
| ☐ | 6" | HW | 60F-HW-36 | 6.42 | (163) | 12 | (305) | 27 | (686) | 33 | (838) | 3.63 | (1.65) |

Installation of Expansion Joints:

- When the duct is shorter than 100 ft., no Expansion Joint needed
- When the duct is between 100 ft. up to 300 ft., install one Expansion Joint at the mid point.
- If the duct is longer than 300 ft., install one Expansion Joint every 300 ft. apart

Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.



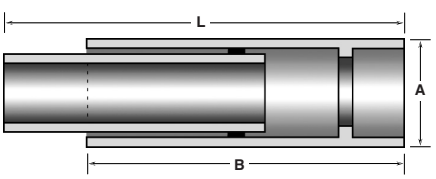

## SINGLE EXPANSION JOINT SOCKET X SOCKET WITH O-RING

| | NOMINAL | | XW ITEM NUMBER | A | | B | | L-MIN | | L-MAX | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-37 | 1.94 | (54) | 12 | (305) | 36 | (914) | 42 | (1066) | 1.76 | (0.80) |
| ☐ | 1" | XW | 10E-XW-37 | 2.20 | (61) | 12 | (305) | 36 | (914) | 42 | (1066) | 1.97 | (0.89) |
| ☐ | 1-1/4" | XW | 12E-XW-37 | 2.55 | (65) | 12 | (305) | 36 | (914) | 42 | (1066) | 2.35 | (1.07) |
| ☐ | 1-1/2" | XW | 15E-XW-37 | 2.79 | (71) | 12 | (305) | 36 | (914) | 42 | (1066) | 2.72 | (1.23) |
| ☐ | 2" | XW | 20F-XW-37 | 3.00 | (76) | 12 | (305) | 36 | (914) | 42 | (1066) | 3.62 | (1.64) |
| ☐ | 3" | XW | 30F-XW-37 | 4.00 | (102) | 12 | (305) | 36 | (914) | 42 | (1066) | 5.23 | (2.37) |
| ☐ | 4" | XW | 40F-XW-37 | 5.00 | (127) | 14 | (356) | 36 | (914) | 42 | (1066) | 7.89 | (3.58) |
| ☐ | 5" | XW | 50F-XW-37 | 6.00 | (152) | 14 | (356) | 36 | (914) | 42 | (1066) | 9.75 | (4.43) |
| ☐ | 6" | XW | 60F-XW-37 | 7.00 | (178) | 14 | (356) | 36 | (914) | 42 | (1066) | 12.08 | (5.48) |
| ☐ | 8" | XW | 80E-XW-37 | 9.42 | (239) | 14 | (356) | 36 | (914) | 42 | (1066) | 16.56 | (7.52) |

Installation of Expansion Joints:

- When the duct is shorter than 100 ft., no Expansion Joint needed
- When the duct is between 100 ft. up to 300 ft., install one Expansion Joint at the mid point.
- If the duct is longer than 300 ft., install one Expansion Joint every 300 ft. apart

Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.



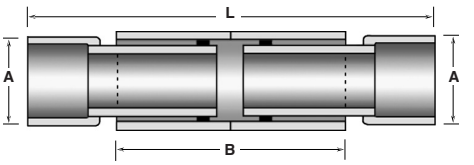
# DOUBLE EXPANSION JOINT WITH O-RING

| | NOMINAL SIZE | NOMINAL TYPE | XW ITEM NUMBER | A | | B | | L-MIN | | L-MAX | | WEIGHT LBS | WEIGHT KG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ☐ | 3/4" | XW | 07E-XW-39 | 1.94 | (54) | 17 | (432) | 53 | (1346) | 65 | (1651) | 3.01 | (1.37) |
| ☐ | 1" | XW | 10E-XW-39 | 2.20 | (61) | 17 | (432) | 53 | (1346) | 65 | (1651) | 3.36 | (1.53) |
| ☐ | 1-1/4" | XW | 12E-XW-39 | 2.55 | (65) | 17 | (432) | 53 | (1346) | 65 | (1651) | 4.06 | (1.84) |
| ☐ | 1-1/2" | XW | 15E-XW-39 | 2.79 | (71) | 17 | (432) | 53 | (1346) | 65 | (1651) | 5.83 | (2.65) |
| ☐ | 2" | XW | 20F-XW-39 | 3.00 | (76) | 17 | (432) | 53 | (1346) | 65 | (1651) | 6.24 | (2.83) |
| ☐ | 2-1/2" | XW | 25F-XW-39 | 3.53 | (90) | 17 | (432) | 53 | (1346) | 65 | (1651) | 7.63 | (3.46) |
| ☐ | 3" | XW | 30F-XW-39 | 4.00 | (102) | 17 | (432) | 53 | (1346) | 65 | (1651) | 9.01 | (4.09) |
| ☐ | 3-1/2" | XW | 35F-XW-39 | 4.53 | (115) | 17 | (432) | 53 | (1346) | 65 | (1651) | 10.42 | (4.72) |
| ☐ | 4" | XW | 40F-XW-39 | 5.00 | (127) | 17 | (432) | 53 | (1346) | 65 | (1651) | 11.78 | (5.35) |
| ☐ | 5" | XW | 50F-XW-39 | 6.00 | (152) | 17 | (432) | 53 | (1346) | 65 | (1651) | 14.55 | (6.61) |
| ☐ | 6" | XW | 60F-XW-39 | 7.00 | (178) | 17 | (432) | 53 | (1346) | 65 | (1651) | 19.25 | (8.74) |
| ☐ | 6" | HW | 60F-HW-36 | 6.42 | (163) | 12 | (305) | 53 | (1346) | 65 | (1651) | 3.63 | (1.65) |

Installation of Expansion Joints:

- When the duct is shorter than 100 ft., no Expansion Joint needed
- When the duct is between 100 ft. up to 300 ft., install one Expansion Joint at the mid point.
- If the duct is longer than 300 ft., install one Expansion Joint every 300 ft. apart

Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.



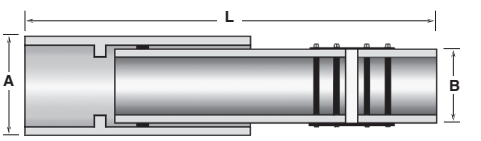

# ALIGNMENT/EXPANSION FITTING, WITH O-RINGS

| | NOMINAL SIZE | NOMINAL TYPE | XW ITEM NUMBER | A | | B | | L-MIN | | L-MAX | | WEIGHT LBS | WEIGHT KG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ☐ | 3/4" | XW | 07E-XW-31 | 1.94 | (54) | 1.410 | (36) | 44 | (1117) | 50 | (1270) | 4.27 | (1.94) |
| ☐ | 1" | XW | 10E-XW-31 | 2.20 | (61) | 1.675 | (43) | 44 | (1117) | 50 | (1270) | 4.76 | (2.16) |
| ☐ | 1-1/4" | XW | 12E-XW-31 | 2.55 | (65) | 2.020 | (51) | 44 | (1117) | 50 | (1270) | 5.74 | (2.60) |
| ☐ | 1-1/2" | XW | 15E-XW-31 | 2.79 | (71) | 2.260 | (57) | 44 | (1117) | 50 | (1270) | 8.26 | (3.75) |
| ☐ | 2" | XW | 20F-XW-31 | 3.00 | (76) | 2.500 | (64) | 44 | (1117) | 50 | (1270) | 8.82 | (4.00) |
| ☐ | 2-1/2" | XW | 25F-XW-31 | 3.53 | (90) | 3.000 | (76) | 44 | (1117) | 50 | (1270) | 10.78 | (4.89) |
| ☐ | 3" | XW | 30F-XW-31 | 4.00 | (102) | 3.500 | (89) | 44 | (1117) | 50 | (1270) | 12.74 | (5.78) |
| ☐ | 3-1/2" | XW | 35F-XW-31 | 4.53 | (115) | 4.000 | (102) | 44 | (1117) | 50 | (1270) | 14.70 | (6.67) |
| ☐ | 4" | XW | 40F-XW-31 | 5.00 | (127) | 4.500 | (114) | 44 | (1117) | 50 | (1270) | 16.66 | (7.56) |
| ☐ | 5" | XW | 50F-XW-31 | 6.00 | (152) | 5.500 | (140) | 44 | (1117) | 50 | (1270) | 20.58 | (9.34) |
| ☐ | 6" | XW | 60F-XW-31 | 7.00 | (178) | 6.500 | (165) | 44 | (1117) | 50 | (1270) | 24.50 | (11.12) |

Alignment/Expansion fitting is sometimes referred to as an Expansion/Deflection joint.

(The clamps holding the rubber sleeve connecting the two nipples are made from stainless steel for corrosion protection.)

Same instructions & note as above



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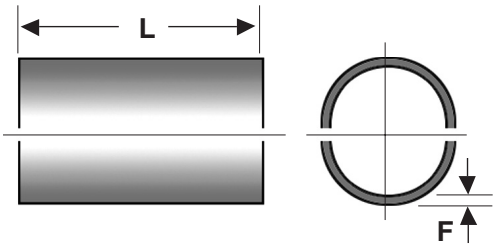
## SPLIT ANCHOR RINGS

| | NOMINAL | | XW ITEM NUMBER | F | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07C-XW-28 | 0.25 | (6) | 3 | (76) | 0.25 | (0.11) |
| ☐ | 1" | XW | 10C-XW-28 | 0.25 | (6) | 3 | (76) | 0.28 | (0.13) |
| ☐ | 1-1/4" | XW | 12C-XW-28 | 0.25 | (6) | 3 | (76) | 0.34 | (0.15) |
| ☐ | 1-1/2" | XW | 15C-XW-28 | 0.25 | (6) | 3 | (76) | 0.49 | (0.22) |
| ☐ | 2" | XW | 20D-XW-28 | 0.25 | (6) | 3 | (76) | 0.52 | (0.24) |
| ☐ | 2-1/2" | XW | 25D-XW-28 | 0.25 | (6) | 3 | (76) | 0.64 | (0.29) |
| ☐ | 3" | XW | 30D-XW-28 | 0.25 | (6) | 3 | (76) | 0.80 | (0.36) |
| ☐ | 3-1/2" | XW | 35D-XW-28 | 0.25 | (6) | 3 | (76) | 0.87 | (0.39) |
| ☐ | 4" | XW | 40D-XW-28 | 0.25 | (6) | 3 | (76) | 0.98 | (0.44) |
| ☐ | 5" | XW | 50D-XW-28 | 0.25 | (6) | 3 | (76) | 1.15 | (0.52) |
| ☐ | 6" | XW | 60D-XW-28 | 0.25 | (6) | 3 | (76) | 1.25 | (0.57) |

Split anchor rings are supplied in pairs and are used to create fixed points. The split anchor rings are placed around the support system, close to the mid point between two expansion joints. One pair of split anchor rings is placed on each side of the support system. Split anchor rings are bonded to the outside of the conduit with Flame Shield® Mix.



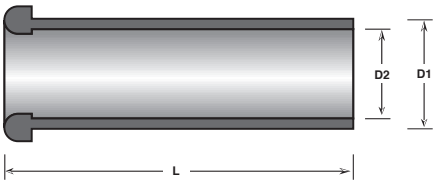

Side View

End View

## END BELLS-SOCKET TYPE

| | NOMINAL | | XW ITEM NUMBER | D1 | | D2 | | L | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | | | | | | | LBS | KG |
| ☐ | 3/4" | XW | 07E-XW-29 | 1.44 | (36) | .3125 | (8) | 9.18 | (233) | 0.63 | (0.28) |
| ☐ | 1" | XW | 10E-XW-29 | 1.70 | (43) | .3125 | (8) | 9.18 | (233) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-29 | 2.05 | (52) | .3125 | (8) | 9.18 | (233) | 0.85 | (0.38) |
| ☐ | 1-1/2" | XW | 15E-XW-29 | 2.29 | (58) | .3125 | (8) | 9.18 | (233) | 1.22 | (0.55) |
| ☐ | 2" | XW | 20F-XW-29 | 2.52 | (64) | .3125 | (8) | 9.18 | (233) | 1.30 | (0.59) |
| ☐ | 2-1/2" | XW | 25F-XW-29 | 3.03 | (77) | .3125 | (8) | 9.18 | (233) | 1.59 | (0.72) |
| ☐ | 3" | XW | 30F-XW-29 | 3.52 | (89) | .3125 | (8) | 9.18 | (233) | 1.90 | (0.86) |
| ☐ | 3-1/2" | XW | 35F-XW-29 | 4.03 | (102) | .3125 | (8) | 9.18 | (233) | 2.17 | (0.98) |
| ☐ | 4" | XW | 40F-XW-29 | 4.52 | (115) | .3125 | (8) | 9.18 | (233) | 2.40 | (1.09) |
| ☐ | 5" | XW | 50F-XW-29 | 5.52 | (140) | .3125 | (8) | 9.18 | (233) | 2.42 | (1.10) |
| ☐ | 6" | XW | 60F-XW-29 | 6.52 | (166) | .3125 | (8) | 9.18 | (233) | 2.50 | (1.13) |

End bells are used for creating a permanent termination into a box as well as having a smooth surface that the cable can be pulled over.



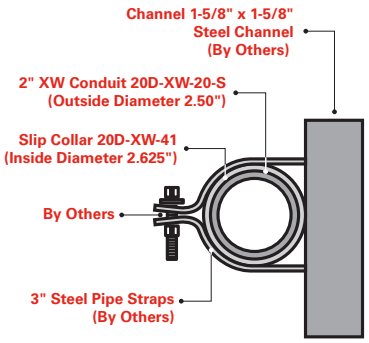
# SLIP COLLARS

| | SIZE | XW ITEM NO | ID | | OD | | WALL THICKNESS | | L | | RIGID PIPE CLAMP SIZE REQUIRED |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ☐ | 3/4" | 07E-XW-41 | 1.44" | **(37)** | 1.800" | **(41)** | 0.1825" | **(5)** | 3" | **(76)** | 1-1/2" |
| ☐ | 1" | 10E-XW-41 | 1.70" | **(43)** | 2.275" | **(58)** | 0.2875" | **(7)** | 3" | **(76)** | 2-1/2" |
| ☐ | 1-1/4" | 12E-XW-41 | 2.05" | **(52)** | 2.775" | **(70)** | 0.365" | **(9)** | 3" | **(76)** | 2-1/2" |
| ☐ | 1-1/2" | 15E-XW-41 | 2.29" | **(57)** | 2.775" | **(70)** | 0.245" | **(6)** | 3" | **(76)** | 2-1/2" |
| ☐ | 2" | 20F-XW-41 | 2.53" | **(64)** | 3.350" | **(85)** | 0.4125" | **(10)** | 3" | **(76)** | 3" |
| ☐ | 2-1/2" | 25F-XW-41 | 3.03" | **(77)** | 3.350" | **(85)** | 0.1625" | **(4)** | 3" | **(76)** | 3" |
| ☐ | 3" | 30F-XW-41 | 3.53" | **(89)** | 3.900" | **(99)** | 0.1875" | **(5)** | 3" | **(76)** | 4" |
| ☐ | 3-1/2" | 35F-XW-41 | 4.03" | **(102)** | 4.400" | **(112)** | 0.1875" | **(5)** | 3" | **(76)** | 4" |
| ☐ | 4" | 40F-XW-41 | 4.53" | **(114)** | 5.463" | **(139)** | 0.469" | **(12)** | 3" | **(76)** | 5" |
| ☐ | 5" | 50F-XW-41 | 5.53" | **(140)** | 6.525" | **(166)** | 0.500" | **(13)** | 3" | **(76)** | 6" |
| ☐ | 6" | 60F-XW-41 | 6.53" | **(165)** | 8.525" | **(168)** | 1.000" | **(25)** | 3" | **(76)** | 8" |

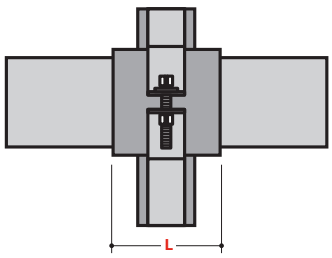
Champion Fiberglass Slip Collars allow unrestricted expansion/contraction movement of RTRC conduit while still providing proper support to the conduit system. The Slip Collars eliminate the expansion/contraction binding that naturally occurs in traditional pipe clamp installations.

The advantages of Champion Fiberglass Slip Collars include:

- Can be used with steel or fiberglass pipe clamps.
- Available in black or grey epoxy.
- Heavy-duty wall thickness collar allows for considerable pipe clamp tightening without any force transfer to conduit.




End View




Plan View



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XW

# Conduit Bodies

All conduit bodies are manufactured by compression molding for ultimate strength. The conduit bodies are made from phenolic resin with high glass content. Each conduit body is supplied with a high performance silicone gasket to provide a water tight seal between the cover and conduit body. All hardware is stainless steel.


## Features

- Champion Fiberglass conduit bodies are made from compression molded, halogen-free, self-extinguishing phenolic glass reinforced fiberglass.
- Compression molding provides a very uniform, high-strength and high-quality finished product.
- Each conduit body provides a water-tight seal between the cover and conduit body and is supplied with 316 stainless steel hardware cover screws.
- Each conduit body cover will be supplied with Champion's unique "Champ-Seal" gasketing system. This is a silicone based, water-tight and corrosion-resistant gasketing system that completely resists impression setting.

## Availability and Customization

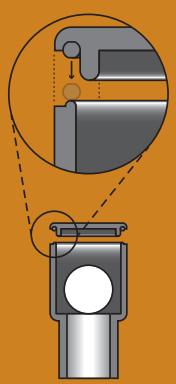
- Standard conduit bodies are supplied with hubs that require phenolic FlameShield Adhesive (page 41) to bond the conduit body /conduit body hubs.
- Non-standard (special) conduit bodies can be manufactured with NPT threaded hubs – please contact Champion Fiberglass regarding item numbers, pricing and availability of these hubs.

Available for:

- XW (Extra Heavy Wall)

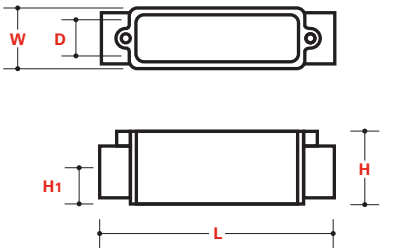
## Certifications/Compliances

- UL 2515
- CSA 22.2
- ISO 9001 Certified
- ISO 14001 Certified
- ISO 45001 Certified



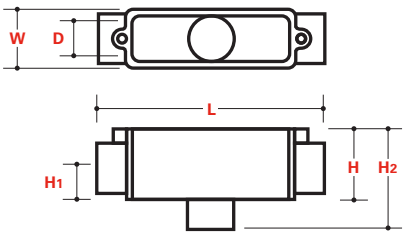
## TYPE C

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | H1 | | D | | SOCKET DEPTH | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-C | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 1.435" | (36.449) | 2" | (51) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-C | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 1.700" | (43.18) | 2" | (51) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-C | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 2.045" | (51.943) | 2" | (51) | 32.00" | (524) | 1.20 | (0.54) |
| ☐ | 1-1/2" | XW | 15E-XW-C | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 2.285" | (58.039) | 2" | (51) | 32.00" | (524) | 1.10 | (0.50) |
| ☐ | 2" | XW | 20F-XW-C | 14.25" | (362) | 3.5625" | (90) | 3.125" | (79) | 1.75" | (44) | 2.525" | (64.135) | 3" | (76) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 2-1/2" | XW | 25F-XW-C | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 3.025" | (76.835) | 3" | (76) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-C | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 3.525" | (89.535) | 3" | (76) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-C | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 4.025" | (102.235) | 3" | (76) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 4" | XW | 40F-XW-C | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 4.525" | (114.935) | 3" | (76) | 425.00" | (6,964) | 4.24 | (1.92) |




## TYPE LB

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | H1 | | H2 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-LB | 7.5" | (191) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 4.0625" | (103) | 1.435" | (36) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-LB | 7.5" | (191) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 4.0625" | (103) | 1.700" | (43) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-LB | 9" | (229) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 4.325" | (110) | 2.045" | (52) | 32.00" | (524) | 1.20 | (0.54) |
| ☐ | 1-1/2" | XW | 15E-XW-LB | 9" | (229) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 4.325" | (110) | 2.285" | (58) | 32.00" | (524) | 1.10 | (0.50) |
| ☐ | 2" | XW | 20F-XW-LB | 11.75" | (298) | 3.5625" | (90) | 3.125" | (79) | 1.75" | (44) | 6.6875" | (170) | 2.525" | (64) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 2-1/2" | XW | 25F-XW-LB | 16.625" | (422) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 8.0625" | (205) | 3.025" | (77) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-LB | 16.625" | (422) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 8.0625" | (205) | 3.525" | (90) | 425.00" | (6,964) | 4.25 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-LB | 19.375" | (492) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 8.0625" | (205) | 4.025" | (102) | 425.00" | (6,964) | 4.25 | (1.92) |
| ☐ | 4" | XW | 40F-XW-LB | 19.375" | (492) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 8.0625" | (205) | 4.525" | (115) | 425.00" | (6,964) | 4.25 | (1.92) |



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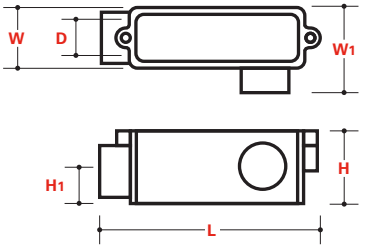
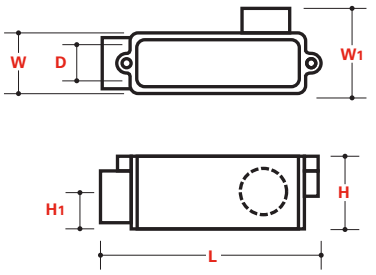
## TYPE LL

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | W1 | | H1 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-LL | 7.5" | (191) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.435" | (36) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-LL | 7.5" | (191) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.700" | (43) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-LL | 9" | (229) | 2.825" | (72) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.045" | (52) | 32.00" | (524) | 1.20 | (0.54) |
| ☐ | 1-1/2" | XW | 15E-XW-LL | 9" | (229) | 2.825" | (72) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.285" | (58) | 32.00" | (524) | 1.10 | (0.50) |
| ☐ | 2" | XW | 20F-XW-LL | 11.75" | (298) | 3.5625" | (90) | 3.125" | (79) | 6.25" | (159) | 1.75" | (44) | 2.525" | (64) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 2-1/2" | XW | 25F-XW-LL | 16.625" | (422) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.025" | (77) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-LL | 16.625" | (422) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.525" | (90) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-LL | 19.375" | (492) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.025" | (102) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 4" | XW | 40F-XW-LL | 19.375" | (492) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.525" | (115) | 425.00" | (6,964) | 4.24 | (1.92) |



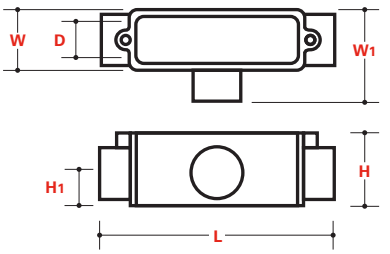

## TYPE LR

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | H1 | | H2 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-LR | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.435" | (36) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-LR | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.700" | (43) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-LR | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.045" | (52) | 32.00" | (524) | 1.20 | (0.54) |
| ☐ | 1-1/2" | XW | 15E-XW-LR | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.285" | (58) | 32.00" | (524) | 1.10 | (0.50) |
| ☐ | 2" | XW | 20F-XW-LR | 14.25" | (362) | 3.5625" | (90) | 3.125" | (79) | 6.25" | (159) | 1.75" | (44) | 2.525" | (64) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 2-1/2" | XW | 25F-XW-LR | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.025" | (77) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-LR | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.525" | (90) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-LR | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.025" | (102) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 4" | XW | 40F-XW-LR | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.525" | (115) | 425.00" | (6,964) | 4.24 | (1.92) |



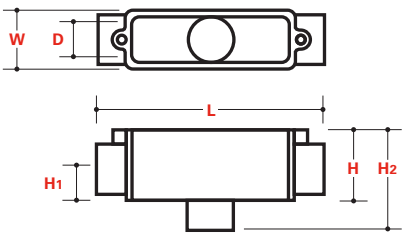
## TYPE T

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | W1 | | H1 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-T | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.435" | (36) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-T | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 3.3125" | (84) | 1.125" | (29) | 1.700" | (43) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-T | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.045" | (52) | 32.00" | (524) | 1.40 | (0.64) |
| ☐ | 1-1/2" | XW | 15E-XW-T | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 4.4375" | (113) | 1.195" | (30) | 2.285" | (58) | 32.00" | (524) | 1.30 | (0.59) |
| ☐ | 2" | XW | 20F-XW-T | 14.25" | (362) | 3.5625" | (90) | 3.125" | (79) | 6.25" | (159) | 1.75" | (44) | 2.525" | (64) | 70.75" | (1,160) | 2.80 | (1.27) |
| ☐ | 2-1/2" | XW | 25F-XW-T | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.025" | (77) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-T | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 8.0625" | (205) | 2.25" | (57) | 3.525" | (90) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-T | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.025" | (102) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 4" | XW | 40F-XW-T | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 8.625" | (219) | 3" | (76) | 4.525" | (115) | 425.00" | (6,964) | 4.24 | (1.92) |




## TYPE TB

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | H1 | | H2 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-TB | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 4.0625" | (103) | 1.435" | (36) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1" | XW | 10E-XW-TB | 9" | (229) | 2.125" | (54) | 1.8125" | (46) | 1.125" | (29) | 4.0625" | (103) | 1.700" | (43) | 13.90" | (228) | 0.70 | (0.32) |
| ☐ | 1-1/4" | XW | 12E-XW-TB | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 4.325" | (110) | 2.045" | (52) | 32.00" | (524) | 1.40 | (0.64) |
| ☐ | 1-1/2" | XW | 15E-XW-TB | 10.5" | (267) | 2.8125" | (71) | 2.5" | (64) | 1.195" | (30) | 4.325" | (110) | 2.285" | (58) | 32.00" | (524) | 1.30 | (0.59) |
| ☐ | 2" | XW | 20F-XW-TB | 14.25" | (362) | 3.5625" | (90) | 3.125" | (79) | 1.75" | (44) | 6.6875" | (170) | 2.525" | (64) | 70.75" | (1,160) | 2.80 | (1.27) |
| ☐ | 2-1/2" | XW | 25F-XW-TB | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 8.0625" | (205) | 3.025" | (77) | 70.75" | (1,160) | 2.50 | (1.13) |
| ☐ | 3" | XW | 30F-XW-TB | 19.25" | (489) | 4.6875" | (119) | 4.6875" | (119) | 2.25" | (57) | 8.0625" | (205) | 3.525" | (90) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 3-1/2" | XW | 35F-XW-TB | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 8.0625" | (205) | 4.025" | (102) | 425.00" | (6,964) | 4.24 | (1.92) |
| ☐ | 4" | XW | 40F-XW-TB | 21.5" | (546) | 5.5" | (140) | 5.875" | (149) | 3" | (76) | 8.0625" | (205) | 4.525" | (115) | 425.00" | (6,964) | 4.24 | (1.92) |



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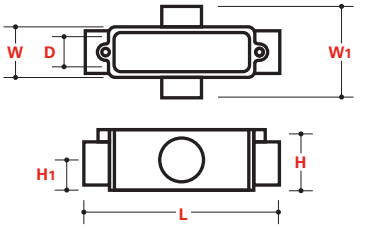
## TYPE X

| | NOMINAL | | XW ITEM NUMBER | L | | H | | W | | W1 | | H1 | | D | | VOLUME | | WEIGHT | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SIZE | TYPE | | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | INCH | (MM) | CU IN | ($CM^3$) | LBS | (KG) |
| ☐ | 3/4" | XW | 07E-XW-X | 9" | **(229)** | 2.125" | **(54)** | 1.8125" | **(46)** | 3.3125" | **(84)** | 1.125" | **(29)** | 1.435" | **(36)** | 13.90" | **(228)** | 0.70 | **(0.32)** |
| ☐ | 1" | XW | 10E-XW-X | 9" | **(229)** | 2.125" | **(54)** | 1.8125" | **(46)** | 3.3125" | **(84)** | 1.125" | **(29)** | 1.700" | **(43)** | 13.90" | **(228)** | 0.70 | **(0.32)** |
| ☐ | 1-1/4" | XW | 12E-XW-X | 10.5" | **(267)** | 2.8125" | **(71)** | 2.5" | **(64)** | 4.4375" | **(113)** | 1.195" | **(30)** | 2.045" | **(52)** | 32.00" | **(524)** | 1.60 | **(0.73)** |
| ☐ | 1-1/2" | XW | 15E-XW-X | 10.5" | **(267)** | 2.8125" | **(71)** | 2.5" | **(64)** | 4.4375" | **(113)** | 1.195" | **(30)** | 2.285" | **(58)** | 32.00" | **(524)** | 1.50 | **(0.68)** |
| ☐ | 2" | XW | 20F-XW-X | 14.25" | **(362)** | 3.5625" | **(90)** | 3.125" | **(79)** | 6.25" | **(159)** | 1.75" | **(44)** | 2.525" | **(64)** | 70.75" | **(1,160)** | 3.00 | **(1.36)** |
| ☐ | 2-1/2" | XW | 25F-XW-X | 19.25" | **(489)** | 4.6875" | **(119)** | 4.6875" | **(119)** | 8.0625" | **(205)** | 2.25" | **(57)** | 3.025" | **(77)** | 70.75" | **(1,160)** | 2.50 | **(1.13)** |
| ☐ | 3" | XW | 30F-XW-X | 19.25" | **(489)** | 4.6875" | **(119)** | 4.6875" | **(119)** | 8.0625" | **(205)** | 2.25" | **(57)** | 3.525" | **(90)** | 425.00" | **(6,964)** | 4.24 | **(1.92)** |
| ☐ | 3-1/2" | XW | 35F-XW-X | 21.5" | **(546)** | 5.5" | **(140)** | 5.875" | **(149)** | 8.625" | **(219)** | 3" | **(76)** | 4.025" | **(102)** | 425.00" | **(6,964)** | 4.24 | **(1.92)** |
| ☐ | 4" | XW | 40F-XW-X | 21.5" | **(546)** | 5.5" | **(140)** | 5.875" | **(149)** | 8.625" | **(219)** | 3" | **(76)** | 4.525" | **(115)** | 425.00" | **(6,964)** | 4.24 | **(1.92)** |

# Phenolic Conduit Adhesive

## Champion Fiberglass Phenolic Flame Shield® Adhesive (Phenolic Conduit Adhesive)

Champion Fiberglass Flame Shield Mix is a two-part component (3:1 ratio) system, high-temperature adhesive designed to permanently bond Champion Phenolic conduit, fittings and joints. The Flame Shield adhesive is used to permanently bond phenolic conduit joints that will be subjected to temperatures up to 1850°F for two hours or less. Champion Flame Shield Mix is available in a reusable 444 mL. cartridge size.

See chart below for part numbers:

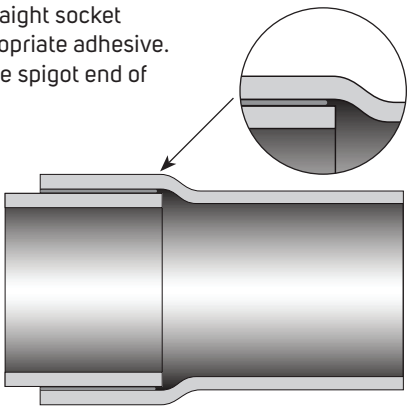
| PART NO | DESCRIPTION |
|---|---|
| FM-AG-444 | 444 mL Flame Shield Mix Adhesive Gun |
| FM-444 | 444 mL Flame Shield Phenolic Adhesive Cartridge |
| FM-MT | Champion Phenolic Flame Shield Mix – Mixer Tip |

## Additional features and benefits include:

- 40°F and above working temperature
- Fast curing time at room temperature
- Excellent adhesion bonding strength properties
- Contains no solvents
- Resistance to thermal cycling

## ADHESIVE JOINT

The Adhesive Joint is the straight socket joint combined with the appropriate adhesive. The adhesive is applied to the spigot end of the conduit.



## Estimated Number of Joints/Tube

444mL

| CONDUIT SIZE | JOINTS PER/TUBE |
|---|---|
| 3/4" | 49 |
| 1" | 41 |
| 1 1/4" | 37 |
| 2" | 24 |
| 2 1/2" | 20 |
| 3" | 18 |
| 3 1/2" | 14 |
| 4" | 11 |
| 5" | 9 |
| 6" | 7 |



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# Champion Engineering Specifications (XW)



## XW (EXTRA HEAVY WALL) PHENOLIC FIBERGLASS CONDUIT SPECIFICATIONS

### I. References

When a standard or other referenced document referred to in this specification is superseded by an approved revision, the revision shall apply.

### II. Listing

The XW conduit and fittings shall be listed by UL, Underwriters Laboratories, to the UL 2515A Extra Heavy Wall standard. All conduit shipped shall contain UL labels. The conduit shall meet the requirements of NFPA 130 and NFPA502. The FlameShield conduit when installed together with the appropriately matched 1 or 2-hour fire-rated cables will meet the requirements of the NFPA 130, NFPA 502 and/or UL2196 - 2-hour fire test@ 1850°F (1010°C). The entire system (conduit & cable) will be FHIT130 (1-hour) and FHIT502 (2- hour) Listed. The circuits will continue functioning for the duration of the respective fire-test and subsequent 35 PSI hose stream test. See Section III below for clarification on which cables have a 1 or 2- hour listing.

### III. UL2196 Tested Support Spans

The requirements for fire rated systems are more stringent than the conduit support spans outlined in the National Electrical Code (NEC) and Canadian Electrical Code (CE Code). Industry standard installation practices and workmanship shall be exercised in all installations and followed as outlined in the cable manufacturers Installation Guidelines Manual. The XW conduit shall meet the requirements of UL2196 when supported at the support spans shown in the applicable cable manufacturers Installation Manual.

### IV. Manufacturing

The conduit shall be fiberglass conduit, also known as Reinforced Thermosetting Resin Conduit (RTRC), manufactured using the **single-circuit filament winding process**. Multi-circuit windings are not allowed.

The conduit shall have a winding angle as close as possible to 54.75 degrees. Winding mandrels shall be straight and true so as to produce a non-tapered conduit. Tapering is allowed at the belled end.

The resin system shall be phenolic based, with no fillers, using an anhydride curing agent. The fiberglass shall consist of continuous E-glass Grade "A" roving. All additives for increasing flame spread and lowering smoke density shall be halogen free, i.e. not contain chlorine or bromine. Conduit shall not be manufactured with a condensation reaction of phenol and formaldehyde. This is so that there is no residual formaldehyde or any corrosive by-products. Carbon black shall be used as ultraviolet inhibitor to protect the conduit and fittings during storage and exposure to the outdoors. Conduit and elbows shall be black in color.

Curing shall be done using an oven and shall take place in two steps. The first curing zone shall bring the conduit slowly to the gel temperature. The second zone shall post-cure the conduit at no less than 350° F. The pipe has to be properly cured so that when measuring the glass transition temperature with a differential calorimeter the difference between the first measurement and the second shall not exceed 5° F.

The internal conduit and elbow walls shall be smooth, and all fibers embedded in the phenolic resin.

All elbows shall meet the nominal radius + or - 2". The wall thickness shall meet tolerance as shown below and the “Out of Rounds” as shown in NEMA TC 14.

All elbows shall have either straight socket ends or phenolic coupling ends (per project requirements).

Conduit and fittings are manufactured for use at temperatures ranging from -60° F (-51° C) to 1850° F (1010° C).

All conduits and elbows shall be durably and legibly marked in accordance to NEMA TC 14. In addition, the following information shall be included:

- NEMA TC 14
- UL 2515A (Extra Heavy Wall Phenolic – Above Ground)
- Manufacturer and reseller
  (if the conduit was modified or bent other than by the manufacturer)
- Date of manufacturing of conduit and elbows
- Elbows shall be marked with the angle and radius
- Special customer markings (per request)

All conduit, elbows and fittings shall be **manufactured in the U.S.A. and marked as such**.

## V. Dimensions

All 2"–6" conduits shall be manufactured in ID sizes. All other sizes (3/4" – 1-1/2") to be IPS.

Conduit shall be manufactured having **non-tapered sections** (except for integral belled ends).

Conduit shall be manufactured with following nominal dimensions:

| | | OUTSIDE DIAMETER | INSIDE DIAMETER | WALL THICKNESS |
|---|---|---|---|---|
| SIZE | TYPE | IN | IN | IN |
| 3/4" | XW | 1.410" | 0.910" | .250" |
| 1" | XW | 1.675" | 1.175" | .250" |
| 1-1/4" | XW | 2.020" | 1.520" | .250" |
| 1-1/2" | XW | 2.260" | 1.760" | .250" |
| 2" | XW | 2.500" | 2.000" | .250" |
| 2-1/2" | XW | 3.000" | 2.500" | .250" |
| 3" | XW | 3.500" | 3.000" | .250" |
| 3-1/2" | XW | 4.000" | 3.500" | .250" |
| 4" | XW | 4.500" | 4.000" | .250" |
| 5" | XW | 5.500" | 5.000" | .250" |
| 6" | XW | 6.500" | 6.000" | .250" |

## VI. Electrical Properties

The conduit shall have following electrical properties when tested in accordance with referenced test method:

| | | |
|---|---|---|
| Volume Resistivity | $3.8 \times 10^{14}$ ohm-cm | ASTM D257 |
| Surface Resistivity | $1.1 \times 10^{14}$ ohms | ASTM D257 |
| Dielectric Constant | 3.5 (at $10^3$ cps) | ASTM D150 |
| Dissipation Factor | 0.005 (at $10^3$ cps) | ASTM D150 |
| Dielectric Strength | 500 volts/mil (19.7 kv/mm) | ASTM D149 |

## VII. Mechanical Properties

The conduit shall have following mechanical properties when tested in accordance with referenced test method:

| | | |
|---|---|---|
| Tensile Strength, Axial | 7,000 psi (64 MPa) | ASTM D2105 |
| Compressive Strength | 12,000 psi (83 MPa) | ASTM D695 |
| Ultimate Elongation | 2% psi (9.6 GPa) | ASTM D2105 |
| Modulus of Elasticity (4" conduit) | $1.2 \times 10^{+6}$ psi (8.3 GPa) | ASTM D2105 |
| Thermal Conductivity | 1.67 Btu.in/($ft^2$)(hr)(°F/in) | ASTM D5930-1 |
| Thermal Resistivity | 0.6°F. $ft^2$ . h/Btu. in | ASTM D335 Heat |
| U.V. Resistance | >3500 Hrs (Xenon Arc) | ASTM D570 |
| Specific Gravity | 1.70 - 1.75 g/$cm^3$ | ASTM D792 |
| Glass Content | 70% ± 5% | API SPEC 1 SLR |
| Water Absorption | Less than 1% | ASTM D570 |
| Barcol Hardness | 70 ± 2 | ASTM D2583 |
| Coefficient of Thermal Expansion | $5.1 \times 10^{-5}$ in/in/°F | ASTM D696 |

## VIII. Fire Resistance and Flame Spread Properties

Conduit shall have the following flame and smoke properties when tested in accordance with referenced test method:

| | | |
|---|---|---|
| Heat Deflection | 500°F@264 psi | ASTM 0648 |
| Surface Flammability | <2 | ASTM E162 |
| Flame Spread (Tunnel Test) | <1 | ASTM E84 |
| Smoke Density (Tunnel Test) | <1 | ASTM E84 |
| Smoke Density, $D_{s4}$ minutes | <1 | ASTM E662 |
| Smoke Density, Dmax flaming | <30 | ASTM E662 |
| Smoke Density, Dmax non-flaming | <20 | ASTM E662 |
| Vertical Flame Test FT4 (IEEE 1202) | Passed | CSA 22.2 |
| Vertical Tube Furnace Test | 500°C | ASTM E136 |



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## IX. Quality Assurance Program

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an **ISO 9001 Quality Management System**.

## X. Joining System

**Conduit Straight Socket**

The conduit shall be supplied with a bonded coupling on one end and a machined spigot on the other end. A two-part adhesive, high-temperature epoxy resin system, designed to permanently bond fittings and joints of conduit shall be properly mixed and applied to the spigot end before joining the conduits together. The adhesive shall be supplied from the same manufacturer of conduit and fittings in order not to void the UL listing and to provide a two-hour certified rated connection.

## XI. Toxicity Properties

The conduit shall not contain any compounds that can release halogens, i.e. chlorine, bromine, flour and iodine in more than trace amounts when burning. **Conduit shall not be manufactured with a condensation reaction of phenol and formaldehyde. This is so that there is no residual formaldehyde or any corrosive by-products.**

Following shall be the maximum values when tested in accordance to ASTM E-800:

| GASES | VALUES (MAX PPM) |
|---|---|
| Hydrogen Chloride | 0 |
| Hydrogen Bromide | 0 |
| Hydrogen Cyanide | <1 |
| Hydrogen Sulfide | 0 |
| Ammonia | 0 |
| Aldehydes as HCHO | <10 |
| Oxides of Nitrogen | <50 |
| Carbon Dioxide | <12,500 |
| Carbon Monoxide | <250 |

## XII. Fittings and Accessories

Fiberglass conduit fittings, elbows, and accessories shall be manufactured using one of two manufacturing procedures. The first method shall use the same process, methods and components as used to manufacture the fiberglass conduit. The second method shall use the compression molding process, Sheet Molding Compound (SMC), for the manufacture of the finished component. The SMC material shall be a phenolic resin with +30% reinforcement of glass. The glass fibers should be approximately 1" in length. The SMC material shall be fire resistant to UL 2515 specifications and shall be halogen free.

## XIII. Environmental

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an **ISO 14001 Environmental Management Systems and Performance**.

## XIV. Installation Training

Manufacturer may provide (upon request) contractor installation training for field cutting, joint preparation, joint assembly and RTRC field cut sealing (with field cutting sealant) at manufacturers discretion.

## General

- Conduit shall be phenolic fiberglass as manufactured by Champion Fiberglass, Inc. using the single circuit filament winding process.
- Conduit, elbows and fittings shall be manufactured from a phenol based resin and hardener with an appropriate E-glass roving manufactured by the same single circuit filament winding process. Resin shall be free of fillers.
- Conduit shall be supplied with a bonded coupling on one end and machined spigot on the other end.
- Conduit, elbows, fittings, and adhesive are specified for use throughout a temperature range of -60°F ***(-51°C)*** to 1850°F ***(1010°C)***.
- Conduit, elbows, fittings, and adhesive shall be constructed of noncombustible materials in accordance with the requirements of ASTM E136.
- Conduit shall be wound on steel mandrels at a helix winding angle to the longitudinal axis appropriate to produce conduit that meets the physical requirements of this specification. Mandrels shall be straight and true so as to produce a **non-tapered conduit**.
- Conduit shall be free from all defects including indentations, delamination, pinholes, foreign inclusions, and resin-starved areas. The conduit shall be round. The bore of the conduit shall be smooth and uniform. All conduit ends shall be cut at right angles to the axis of the conduit.
- **Conduit shall not be manufactured with a condensation reaction of phenol and formaldehyde. This is so that there is no residual formaldehyde or any corrosive by-products.**

## Electrical Properties

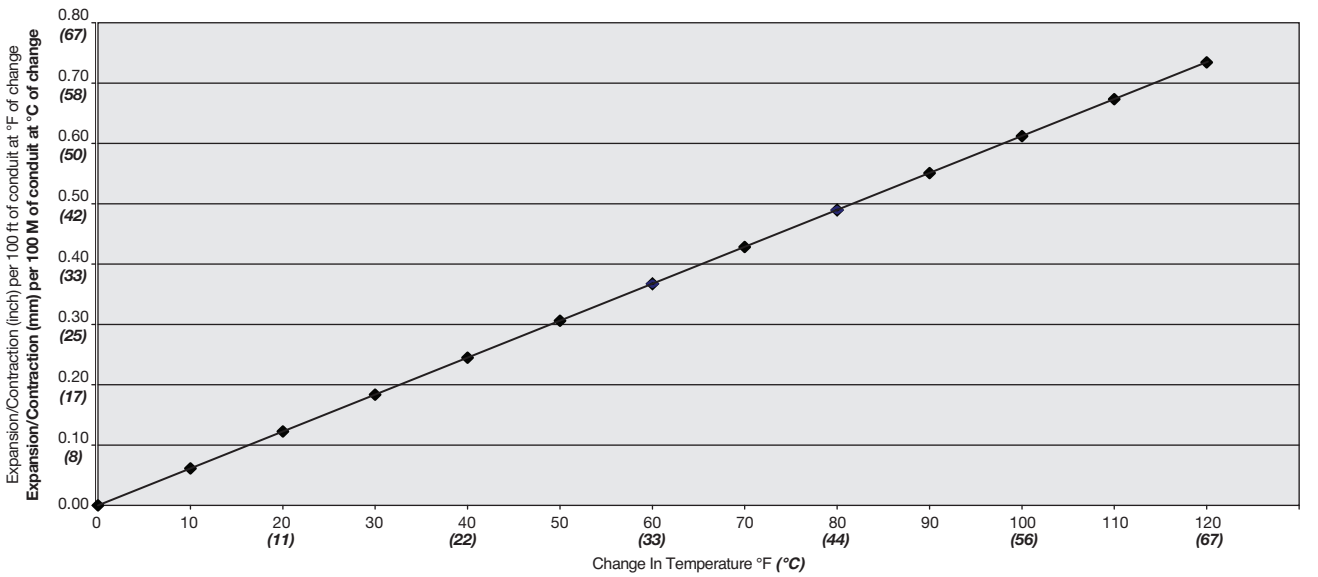
| | | |
|---|---|---|
| Dielectric Strength | 150 volts/mil. **(5.9 kv/mm)** | ASTM D 149 |

## Physical and Mechanical Properties

| | | |
|---|---|---|
| Tensile Strength, Axial | 7,000 psi **(62 MPa)** | ASTM D2105 |
| Modulus of Elasticity (4" conduit) | 1.2 X 106 psi **(8.3 GPa)** | ASTM D2105 |
| Thermal Conductivity | 1.67 Btu/(ft²)(hr.)(°F /in)**(0.24 W/m.K)** | ASTM D5930-01 |
| Specific Gravity | 1.70-1.75 | ASTM D792 |
| Glass Content | 70% ±5% | API SPEC 15 LR |

| | | |
|---|---|---|
| Water Absorption | Less than 1.0% | ASTM D570 |
| Barcol Hardness | 70 ±2 | ASTM D2583 |
| Temperature Range | -60°F to 1850°F | ASTM E119 (1850°F 2 hours) |
| Vertical Flame Test FT4 | Passed | CSA 22.2 |
| Surface Flammability | <2 | ASTM E162 |

| | | |
|---|---|---|
| Tunnel Test, Flame Spread | <1 | ASTM E84 |
| Tunnel Test, Smoke Density | <1 | ASTM E84 |
| Smoke Density, $D_{s4}$ min | <1 | ASTM E662 |
| Smoke Density, $D_{max}$ flaming | <30 | ASTM E662 |
| Smoke Density, $D_{max}$ non-flaming | <20 | ASTM E662 |
| Coefficient of Thermal Expansion | 5.1 x 10-6 in/in/°F **(9.27 x 10-6 mm/mm/°C)** | ASTM D696 |



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## Heat Deflection

The minimum heat deflection temperature shall be 500°F (260°C) when tested at 264 psi in accordance with ASTM D 648

## Toxicity

**Champion FLAME SHIELD®** conduit does not contain any compounds that can release halogens – bromine or chlorine – when burning.

| GASES | VALUES (MAX PPM) |
|---|---|
| Hydrogen Chloride | 0 |
| Hydrogen Bromide | 0 |
| Hydrogen Cyanide | <1 |
| Hydrogen Sulfide | 0 |
| Ammonia | 0 |
| Oxides of Nitrogen | <5 |
| Carbon Dioxide | <10,500 |
| Carbon Monoxide | <350 |

## Color

Natural color is dark reddish brown, almost black.

## Deflection

Deflection is always determined at midspan.

The empirical formula for deflection is:

$$D = \frac{131 \times W \times L^4}{E(OD^4 - ID^4)}$$

D = Mid-span deflection (in)
OD = Outside diameter of conduit (in)
ID = Inside diameter of conduit (in)
E = Modulus of elasticity of conduit (psi), which is 1,200,000 for phenolic fiberglass conduit
L = Distance between hangers (ft)
W = Total weight of cable and conduit (lbs/ft)

**It is recommended that midspan deflection never exceeds 5/8 inches (16 mm).**

## Impact Resistance

The minimum impact resistance values for the conduit shall be as shown in the table below when tested in accordance with ASTM D2444.

| SIZE | AT 73.4°F (32°C) IMPACT RESISTANCE LBS. FT. (NM) | | AT 73.4°F (32°C) IMPACT RESISTANCE LBS. FT. (NM) | |
|---|---|---|---|---|
| | XW | | XW | |
| 3/4" | 50 | **(68)** | 50 | **(68)** |
| 1" | 160 | **(215)** | 160 | **(215)** |
| 1-1/4" | 160 | **(215)** | 160 | **(215)** |
| 1-1/2" | 175 | **(235)** | 175 | **(235)** |
| 2" | 200 | **(270)** | 200 | **(270)** |
| 2-1/2" | 210 | **(285)** | 210 | **(285)** |
| 3" | 245 | **(330)** | 245 | **(330)** |
| 3-1/2" | 300 | **(405)** | 300 | **(405)** |
| 4" | 350 | **(470)** | 350 | **(470)** |
| 5" | 420 | **(565)** | 420 | **(565)** |
| 6" | 455 | **(615)** | 455 | **(615)** |

## Stiffness

The minimum conduit stiffness at five percent deflection for all sizes of conduit shall not be less than the values given in table below when tested in accordance with ASTM D2412.

| SIZE | AT 73.4°F (32°C) IMPACT RESISTANCE LBS. FT. (NM) | | AT 73.4°F (32°C) IMPACT RESISTANCE LBS. FT. (NM) | |
|---|---|---|---|---|
| | XW | | XW | |
| 3/4" | 50 | (68) | 50 | (68) |
| 1" | 160 | (215) | 160 | (215) |
| 1-1/4" | 160 | (215) | 160 | (215) |
| 1-1/2" | 175 | (235) | 175 | (235) |
| 2" | 200 | (270) | 200 | (270) |
| 2-1/2" | 210 | (285) | 210 | (285) |
| 3" | 245 | (330) | 245 | (330) |
| 3-1/2" | 300 | (405) | 300 | (405) |
| 4" | 350 | (470) | 350 | (470) |
| 5" | 420 | (565) | 420 | (565) |
| 6 | 455 | (615) | 455 | (615) |

## Wire Fill

Consult the appropriate wire manufacturers FHIT listing and the applicable Installation Guide for the FHIT listed wire fill percentages.



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## Corrosion Resistance Guide

The corrosion guidelines tests were performed by analyzing phenolic conduit coupons for 30 days in the chemical vapors at the temperature shown. It has been shown that **Champion FLAME SHIELD®** can often be used for chemicals listed as "Not Recommended" (NR). Real cases often are limited to fumes, vapors and occasional splashes at the temperatures indicated.

This information is provided solely as a guide since it is impossible to anticipate all individual site conditions. For specific applications which are not covered in this guide (may require screening tests), consultation with Champion Fiberglass, Inc. is recommended.

| CHEMICAL | CONCENTRATION | VAPOR°F | VAPOR°C |
|---|---|---|---|
| Acetic Acid | All | 140 | 60 |
| Acetic Acid, Glacial | All | 150 | 66 |
| Acetone | All | 80 | 27 |
| Aluminum Chloride | All | 180 | 82 |
| Aluminum Hydroxide (1) | All | 120 | 49 |
| Aluminum Sulphate | All | 250 | 121 |
| Ammonia Aqueous (1) | 10% | NR | NR |
| Ammonium Bicarbonate (1) | All | 150 | 66 |
| Ammonium Chloride | All | 150 | 66 |
| Ammonium Hydroxide (1) | All | NR | NR |
| Ammonium Phosphate | All | 150 | 66 |
| Benzene | 100 | 150 | 66 |
| Benzyl Alcohol | 100 | 125 | 52 |
| Benzyl Chloride | All | 150 | 66 |
| Calcium Chloride | All | 150 | 66 |
| Calcium Hydroxide (1) | All | 120 | 49 |
| Calcium Hypochlorite | All | (*) | (*) |
| Carbon Dioxide Gas | — | 250 | 121 |
| Carbon Tetrachloride | 100 | 150 | 66 |
| Chlorine (Liquid) | All | NR | NR |
| Chlorobenzene | 100 | 150 | 66 |
| Chloroform | 100 | 150 | 66 |
| Chloroethylene | 100 | 150 | 66 |
| Chlorotoluene | 100 | 150 | 66 |
| Citric Acid | 30 | 120 | 49 |
| Ethyl Alcohol (Ethanol) (Denaturated) | 100 | 150 | 66 |
| Ethylene Glycol | 100 | 180 | 82 |
| Furfuryl Alcohol | 100 | 125 | 52 |
| Glycol | 100 | 180 | 82 |

| CHEMICAL | CONCENTRATION | VAPOR°F | VAPOR°C |
|---|---|---|---|
| Heavy Aromatic Naphtha (HAN) | 100 | 150 | 66 |
| Hydrochloric Acid | 37 | 120 | 49 |
| Hydrogen Chloride (Gas) | — | 180 | 82 |
| Hydrogen Sulfide (Gas) | — | 180 | 82 |
| Isopropyl Alcohol | All | 125 | 52 |
| Magnesium Hydroxide (1) | All | 120 | 49 |
| Methyl Alcohol (Methanol) | 100 | 125 | 52 |
| Methyl Ethyl Ketone | 100 | 80 | 27 |
| Naphtha | All | (*) | (*) |
| Nitric Acid | — | (*) | (*) |
| Perchlorethylene | All | 80 | 27 |
| Phenol (Carbolic Acid) | All | 100 | 38 |
| Phosphoric Acid | All | 150 | 66 |
| Potassium Carbonate (1) | All | 120 | 49 |
| Potassium Permanganate | All | 150 | 66 |
| Sodium Bicarbonate (1) | All | 150 | 66 |
| Sodium Carbonate (1) | All | 150 | 66 |
| Sodium Chloride | All | 150 | 66 |
| Sodium Hydroxide (1) | All | (*) | (*) |
| Sodium Hypochlorite | All | 250 | 121 |
| Sodium Sulfate | All | 150 | 66 |
| Sodium Tripolyphosphate | 100 | 150 | 66 |
| Styrene | All | 150 | 66 |
| Sulfur Dioxide | All | NR | NR |
| Sulfuric Acid | 93 | 150 | 66 |
| Sulfurous Acid 25% min. | All | 150 | 66 |
| Toluene | 100 | 150 | 66 |
| Trichlorethylene | All | 120 | 49 |
| Xylene | 100 | 150 | 66 |

**NR = Not Recommended (*) - Contact Champion Fiberglass**

**(1) - All alkaline materials will attack phenolics to some extent. Resistance is dependent upon humidity of the environment. Material is conditionally recommended for continuous exposure to dry vapor only with occasional wetting. Duct system must be designed to eliminate condensation or pooling. If condensates can be expected from vapors, contact Champion Fiberglass.**

Information in this table is based on data supplied by raw material suppliers and collected from many years of similar industrial applications.

Temperatures represent standard test conditions and are not minimums or maximums. Champion FLAME SHIELD® products may be acceptable at other temperatures for some chemicals, but should be tested to determine specific suitability.

The recommendations or suggestions contained in this table are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory or field trial prior to use.

## LIMITED WARRANTY

This warranty covers any Champion Fiberglass, Inc. (“Champion”) electrical conduit products (“Product”).

Subject to the terms and conditions of this warranty, Champion warrants that the Product is free from defects in workmanship and materials for a period of one (1) year from the date of purchase. During the applicable terms of this warranty, and subject to the terms and conditions thereof, in the event that the Product is proven to be defective and the defect is not caused by any misuse or damage to the Product while in the possession of the user, Champion will remedy the failure or defect without charge to the user except for labor. The remedy will consist of repair or replacement of the Product and or defective part, at Champion’s option. Repair will be made, at Champion’s option, either at user’s location or at a facility designated by Champion. Any replacement part provided under this warranty assumed as its warranty period only the unexpired term of this warranty, which is fixed when such part replaces a defective part. This warranty does not cover defects, failure or damages caused by normal wear and tear, act of God, accident, misuse or unreasonable use of the Product, lack of proper maintenance, fire, flood, or any circumstances or events beyond Champion’s control.

Champion’s sole obligation under this warranty is to repair or replace the product, as provided herein. Champion shall have no liability for any direct, incidental, special or consequential damages resulting from breach of this or any other warranty (no warranty being implied from this reference) on the product. Except to the extent prohibited by applicable law, any implied warranty, including without limitation, of merchantability or fitness for any particular purchase with respect to the product, is limited in duration to the term of this warranty. This warranty is in lieu of any other express warranties and of any other obligation on the part of Champion. Any other express warranties are expressly excluded and disclaimed. No Champion representative is authorized to give any warranty (other than this warranty) with respect to the product, and any such warranty given by a Champion representative shall not constitute a Champion warranty or be binding in any respect upon Champion.

Note: Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.

To obtain performance of any obligation of Champion under this warranty, the user must provide proof of the date of purchase, notify Champion of any warranty claim at the following address:

**CHAMPION FIBERGLASS, INC.**

6400 Spring Stuebner Rd

Spring, TX 77389

Attention: Warranty Claims

Telephone: (281) 655-8900

Notify the nearest Champion authorized representative for inspection of the Product. For the name of the nearest authorized representative, refer to our web site: www.championfiberglass.com / Locate a Rep Tab / or you can contact our corporate offices for the appropriate Representative's contact information. Any written correspondence can be mailed to our corporate offices at the address above.

**This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.**


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
**Champion Fiberglass, Inc.**
6400 Spring Stuebner Road, Spring, TX, 77389-4482, USA

has been found to conform to the Quality Management System standard:
**ISO 9001:2015**

This certificate is valid for the following scope:
**Manufacture of fiberglass conduit and fittings.**


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
**Champion Fiberglass, Inc.**
6400 Spring Stuebner Road, Spring, TX, 77389-4482, USA

has been found to conform to the Environmental Management System standard:
**ISO 14001:2015**

This certificate is valid for the following scope:
**Manufacture of Fiberglass Conduit and Fittings**


DNV

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of
**Champion Fiberglass, Inc.**
6400 Spring Stuebner Road, Spring, TX, 77389-4482, USA

has been found to conform to the Occupational Health and Safety Management System standard:
**ISO 45001:2018**

This certificate is valid for the following scope:
**Manufacture of Fiberglass Conduit and Fittings.**



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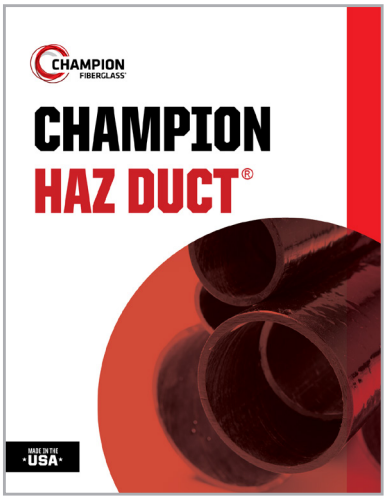
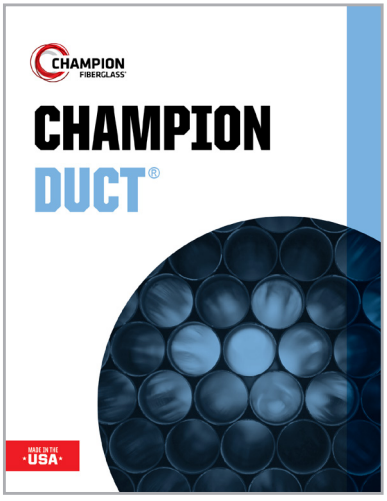
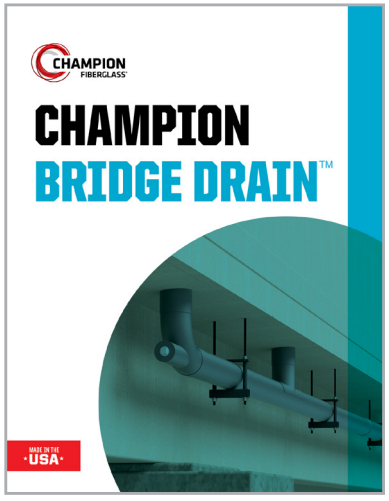
**championfiberglass.com**

Champion Fiberglass is also a manufacturer of the following products:





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090425

# MANAGEMENT SYSTEM CERTIFICATE

Certificate no.:
10000499011-MSC-ANAB-USA

Initial certification date:
17 November, 2021

Valid:
12 April, 2024 – 11 April, 2027

This is to certify that the management system of

## Champion Fiberglass, Inc.

6400 Spring Stuebner Road, Spring, TX, 77389-4482, USA

has been found to conform to the Environmental Management System standard:

**ISO 14001:2015**

This certificate is valid for the following scope:

**Manufacture of Fiberglass Conduit and Fittings**

Place and date:
**Katy, TX, 25 August, 2025**

For the issuing office:
**DNV - Business Assurance**
**1400 Ravello Drive, Katy, TX, 77449-5164, USA**

**Sherif Mekkawy**
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DNV Business Assurance USA Inc., 1400 Ravello Drive, Katy, TX, 77449, USA - TEL: +1 281-396-1000. www.dnv.com