



Submittal Review Response

Project Name: Hilo WWTP Rehabilitation and Replacement Project Phase 1
Submittal No.: 16130-003.0
Date: 9/22/2025

Client: County of Hawai'i Carollo Project No.: 203975
Contractor: Nan, Inc.
Submittal Name: Conduits PCS PVC Coated Rigid Steel Conduit
Reviewed By: Francisco Martinez

SUBMITTAL REVIEW

Review is for general compliance with contract documents. No responsibility is assumed by Carollo for correctness of quantities, dimensions, and details. No deviation or variation is approved unless specifically addressed in these review comments. Refer to Section 01330 for additional requirements. The Contractor shall assume full responsibility for coordination with all other trades and deviations from contract requirements.

Approved	<input type="checkbox"/> No Exceptions
	<input type="checkbox"/> Make Corrections Noted - See Comments
	<input type="checkbox"/> Make Corrections Noted - Confirm
Not Approved	<input checked="" type="checkbox"/> Correct and Resubmit
	<input type="checkbox"/> Rejected - See Remarks
Receipt Acknowledged	<input type="checkbox"/> Filed for Record
	<input type="checkbox"/> With Comments - Resubmit

Review Comments:

1. Furnish submittal with the missing certified test results that show the PVC-coated metallic conduit adhesive bond is stronger than the tensile strength of the PVC as required per specification section 16130 - 1.04.B.3.
2. It is noted that the contractor will confirm that the PVC coating on the conduits and associated fittings shall have no sags, blisters, lumps, or other surface defects and shall be free of holes and holidays as required per specification section 16130 - 2.03.B.3.c.
3. Confirm that the submitted sealing compound is approved for the conditions and use as required per specification section 16130 - 2.04.G.2.B.
4. Confirm that the melting point is a minimum of 200 degrees Fahrenheit as required per specification section 16130 - 2.04. G.2.c.
5. Not all sections of the PVC coated conduits are marked up in the spec to show compliance. Update spec 16130 in the submittal to include checkmark at every pertinent paragraph to show compliance as required per specification section 01330 - 1.03.G.1.a.
6. The straps, clamps and hangers should be submitted under a separate cover for hangers and supports.
7. It is unclear why stainless steel explosion proof flexible couplings are included in the PCS submittal and referencing the seal fittings. Confirm if this was submitted correctly and if not update as needed.

High Priority

CONTRACTOR SUBMITTAL TRANSMITTAL FORM REV. A

Owner: County of Hawaii
Contractor: Nan, Inc.
Project Name: Hilo WWTP Phase 1
Submittal Title:
TO:
From: Nan Inc.

Project No.: WW-4705R
Submittal Number:
For Information Only

Specification No. and Subject of Submittal / Equipment Supplier	
Spec:	Paragraph:
Authored By:	Date Submitted:

Submittal Certification		
Check Either (A) or (B):		
<input type="checkbox"/> (A)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings with <u>no exceptions</u> .	
<input type="checkbox"/> (B)	We have verified that the equipment or material contained in this submittal meets all the requirements specified in the project manual or shown on the contract drawings <u>except</u> for the deviations listed.	
Certification Statement: By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers and similar data, and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements.		
General Contractor's Reviewer's Signature: <u>M. H.</u>		
Printed Name and Title: In the event, Contractor believes the Submittal response does or will cause a change to the requirements of the Contract, Contractor shall immediately give written notice stating that Contractor considers the response to be a Change Order.		
Firm:	Signature:	Date Returned:

PM/CM Office Use	
Date Received GC to PM/CM:	
Date Received PM/CM to Reviewer:	
Date Received Reviewer to PM/CM:	
Date Sent PM/CM to GC:	

Nan, Inc

PROJECT: HILO WWTP REHABILITATION
AND REPLACEMENT PROJECT - PHASE 1

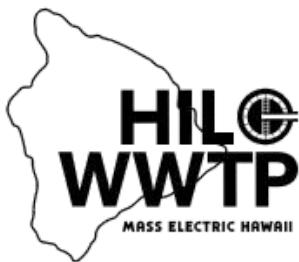
JOB NO. WW-4705R

THIS SUBMITTAL HAS BEEN CHECKED BY
THIS CONTRACTOR. IT IS CERTIFIED
CORRECT, COMPLETE, AND IN
COMPLIANCE WITH CONTRACT
DRAWINGS AND SPECIFICATIONS. ALL
AFFECTED CONTRACTORS AND
SUPPLIERS ARE AWARE OF, AND WILL
INTEGRATE THIS SUBMITTAL (UPON
APPROVAL) INTO THEIR OWN WORK.

DATE RECEIVED _____
SPECIFICATION SECTION # _____
SPECIFICATION _____
PARAGRAPH _____
DRAWING _____
SUBCONTRACTOR _____
SUPPLIER _____
MANUFACTURER _____

CERTIFIED BY CQCM or Designee : M. H.

Submittal



SUB Reference No : MECI-SUB-0004

Status: OUTSTANDING

For Action: Darrin Lee, MECI
David Wieseler, MECI

Project: HILO WWTP REHABILITATION AND REPLACEMENT PROJECT

Subject: 16130 - CONDUIT - PCS PVC COATED RIGID STEEL CONDUIT

Submittal for PCS PVC-coated rigid steel conduit, conduit bodies, PCS PVC-coated rigid steel conduit expansion fittings, joint compounds, conduit seals, conduit through wall and floor seals, conduit accessories, and PCS conduit specialty tools.

Submitted For: Approval

Specification 16130 - CONDUITS

Reference :

Paragraph 16130 - 1.04.B
No.:

Description : Submittal for PCS PVC-coated rigid steel conduit, conduit bodies, PCS PVC-coated rigid steel conduit expansion fittings, joint compounds, conduit seals, conduit through wall and floor seals, conduit accessories, and PCS conduit specialty tools.

Discipline: ELEC

Area: 00

Attachments: HWWTP - 16130 - CONDUITS - PCS PVC COATED RIGID STEEL CONDUIT.pdf

SUB by: Hannah Anderson, MECI On: 08 September 2025

Created By: Hannah Anderson, MECI On: 08 September 2025, 02:10:45 PM -10:00

Last Edited By: Hannah Anderson, MECI On: 08 September 2025, 02:10:45 PM -10:00

01 - QC/Project Engineer Review

Approved without comment.

QC/Project Engineer Review by: David Wieseler, MECI On: 08 September 2025

Created By: David Wieseler, MECI On: 08 September 2025, 02:11:54 PM -10:00

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02 - Project Manager Review

Project Manager Review by:

On:

Created By:
Last Edited By:

On: ,
On: ,

03 - Response

Response by:
Created By:
Last Edited By:

On:
On: ,
On: ,

04 - Project Manager/Engineer Closeout

Project Manager/Engineer
Closeout by:
Created By:
Last Edited By:

On:
On: ,
On: ,



MASS ELECTRIC CONSTRUCTION COMPANY PRODUCT DATA SUBMITTAL

REVISION	DATE	PREPARED BY	APPROVED BY
0	09/08/2025	Hannah Anderson	David Wieseler

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT PROJECT



SPECIFICATION - 16130 CONDUITS: PCS – PVC COATED

DOCUMENT REVISION LOG

Revision Number	Revision Date	Description	Approvals		
			PE INITIAL		PM INITIAL
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SECTION 16130

CONDUITS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
 - 1. Metallic conduits.
 - 2. Nonmetallic conduits.
 - 3. Conduit bodies.
 - 4. Conduit fittings and accessories.
 - 5. Conduit installation.

1.02 REFERENCES

- A. Abbreviations:
 - 1. GRC: Galvanized rigid steel conduit.
 - 2. PCS: Polyvinyl chloride (PVC) coated rigid steel conduit.
 - 3. PVC: Polyvinyl chloride rigid nonmetallic conduit.
 - 4. SLT: Sealtight-liquidtight flexible conduit.
 - 5. EFLX: Explosion proof flexible conduit.
 - 6. NPT: National pipe thread.
- B. Definitions:
 - 1. Conduit bodies: A separate portion of a conduit system that provides access through a removable cover to the interior of the system at a junction of 2 or more conduit sections. Includes, but not limited to, Shapes C, E, LB, T, X, etc.
 - 2. Conduit fitting: An accessory that primarily serves a mechanical purpose. Includes, but not limited to, bushings, locknuts, hubs, couplings, reducers, etc.
- C. Standards:
 - 1. American National Standards Institute (ANSI):
 - a. C80.1 - Electrical Rigid Steel Conduit.
 - 2. National Electrical Code (NEC).
 - 3. National Electrical Manufacturer's Association (NEMA):
 - a. RN-1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Steel Conduit.
 - b. TC7 - Smooth-Wall Coilable Electrical Polyethylene Conduit.
 - 4. Underwriters Laboratories (UL), Inc.:
 - a. 651B - Standard for Continuous Length HDPE Conduit.
 - b. 1203 -Standard for Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations.

1.03 DELEGATED DESIGN

- A. As specified in Sections 01357 - Delegated Design Procedures and 16070 - Hangers and Supports.

1.04 SUBMITTALS

- A. Furnish submittals as specified in Section 01330 - Submittal Procedures.
- B. Product data:
 - 1. Furnish complete manufacturer's catalog sheets for every type and size of conduit, fitting, conduit body, and accessories to be used on the Project.
 - 2. Furnish complete manufacturer's recommended special tools to be used for installation if required.
 - 3. Certified test results for PVC-coated metallic conduit showing the adhesive bond is stronger than the tensile strength of the PVC.
- C. Shop drawings:
 - 1. Furnish conduit routing plans for conduits before the installation of any conduit. Conduit routing submittals are to be stamped and sealed by a registered Professional Engineer. Include the following details.
 - a. Intended routing of each conduit.
 - b. Conduit size.
 - c. Conduit material.
 - d. Number and type of conductors.
 - e. Supporting methods.
 - 2. Provide a fully developed contractor conduit schedule that includes tags for all conduits and shows all wires from each source to destination.
 - a. Number conduits in accordance with the Contract Documents.
 - 3. Provide ampacity and conduit sizing calculations when combining wires within common conduits beyond or differently than what is already shown as combined in the conduit schedule. Include de-rating factors used when combining current-carrying conductors within each conduit. Match the conduit tags in the detailed contractor drawings and conduit schedule.
 - a. Reference General Notes on drawing 00-E-01-002 for constraints when combining wires within common conduits.
- D. Delegated design submittals:
 - 1. As specified in Section 16070 - Hangers and Supports.
- E. Certifications:
 - 1. Furnish PVC-coated conduit manufacturer's valid, unexpired certification for each installer.
- F. Record Documents:
 - 1. Incorporate all changes in conduit routing on electrical plan drawings.
 - 2. Dimension underground and concealed conduits from building lines.
 - 3. Furnish hard copy drawings.
- G. Installation drawings: Installation drawings, including individual conduit numbers, routing, sizes, cable sizes, and circuit numbers for each conduit.

1.05 QUALITY ASSURANCE

- A. All conduits, conduit bodies, and fittings shall be UL listed and labeled.

- B. Every installer of PVC-coated metallic conduit shall be certified by the manufacturer for installation of the conduit, and be able to present a valid, unexpired installer certification card prior to installation beginning.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Do not expose non-metallic conduit to direct sunlight.
- B. Do not store conduit in direct contact with the ground.

1.07 PROJECT OR SITE CONDITIONS

- A. As specified in Section 01850 - Design Criteria.

1.08 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. Before performing any trenching locate existing underground utilities:
 - a. As specified in Section 02280 – Subsurface Utility Engineering.
 - b. Review of existing civil record drawings for recorded underground utilities.
 - 1) Determine underground utility horizontal and vertical location by at least 1 of the following methods:
 - a) Soft excavation.
 - b) Local utility location service, CALL BEFORE YOU DIG or equal.

1.09 WARRANTY

- A. As specified in Section 01783 - Warranties and Bonds.

PART 2 PRODUCTS

2.01 DESIGN AND PERFORMANCE CRITERIA

- A. Provide conduits, conduit bodies, fittings, junction boxes, and all necessary components, whether or not indicated on the Drawings, as required, to install a complete electrical raceway system.
- B. Provide location and protection of existing underground utilities, underground conduit trenching, conduit and backfill necessary for the complete installation of underground conduits.

2.02 MANUFACTURERS

- A. Galvanized rigid steel conduit:
 - 1. One of the following or equal:
 - a. Allied Tube and Conduit.
 - b. Western Tube and Conduit.
 - c. Wheatland Tube Co.

B. **PVC-coated rigid steel conduit:**

1. One of the following or equal:
 - a. Allied.
 - b. Calbond.
 - c. NEC, Inc. BlackGuard.
 - d. Ocal, Inc.
 - e. Robroy Ind.

C. **Sealtight-liquidtight flexible conduit:**

1. One of the following or equal:
 - a. Southwire.
 - b. AFC Cable Systems.
 - c. Electri-Flex Co.
 - d. Anaconda.

D. **Explosion proof flexible conduit:**

1. One of the following or equal:
 - a. Appleton.
 - b. Crouse-Hinds.
 - c. Hubbell Killark.

E. **Rigid nonmetallic PVC conduit:**

1. One of the following or equal:
 - a. Carlon.
 - b. Cantex.
 - c. Triangle Conduit and Cable.

F. **Conduit bodies:**

1. One of the following or equal:
 - a. Crouse-Hinds.
 - b. Appleton.
 - c. O-Z/Gedney.
 - d. Ocal, Inc.
 - e. Robroy Ind.
 - f. Calbond.
 - g. Carlon.

G. **Joint compound:**

1. The following or equal:
 - a. Thomas & Betts.

H. **Galvanized rigid steel conduit expansion fittings:**

1. One of the following or equal:
 - a. Crouse-Hinds.
 - b. Appleton.
 - c. O-Z/Gedney.

I. **PVC-coated rigid steel conduit expansion fittings:**

1. One of the following or equal:
 - a. Ocal, Inc.

- b. Robroy Ind.
 - c. NEC, Inc. BlackGuard.
- J. Conduit sleeve:
1. One of the following or equal:
 - a. Crouse-Hinds.
 - b. Appleton.
 - c. O-Z/Gedney.
- K. Conduit seals:
1. One of the following or equal:
 - a. Appleton.
 - b. Crouse-Hinds.
 - c. O-Z/Gedney.
- L. **Conduit through wall and floor seals:**
1. The following or equal:
 - a. O-Z/Gedney:
 - 1) Type "WSK."
 - 2) Type "CSM."

2.03 COMPONENTS

- A. GRC:
1. All threads: NPT standard conduit threads with a 3/4-inch taper per foot:
 - a. Running conduit threads are not acceptable.
 2. Hot-dip galvanized inside and out:
 - a. Ensures complete coverage and heats the zinc and steel to a temperature that ensures the zinc alloys with the steel over the entire surface.
 - b. Electro-galvanizing is not acceptable.
 3. Manufactured in accordance with:
 - a. UL-6.
 - b. ANSI C80.1.
- B. PCS:
- 1. The steel conduit, before PVC coating, shall be new, unused, hot-dip galvanized material, conforming to the requirements for Type GRC.
 - 2. Coated conduit NEMA Standard RN-1:
 - a. The galvanized coating may not be disturbed or reduced in thickness during the cleaning and preparatory process.
 - 3. Factory-bonded PVC jacket:
 - a. The exterior galvanized surfaces shall be coated with primer before PVC coating to ensure a bond between the zinc substrate and the PVC coating.
 - b. Nominal thickness of the exterior PVC coating shall be 0.040 inch except where part configuration or application of the piece dictates otherwise.
 - c. PVC coating on conduits and associated fittings shall have no sags, blisters, lumps, or other surface defects and shall be free of holes and holidays.

- d. The PVC adhesive bond on conduits and fittings shall be greater than the tensile strength of the PVC plastic coating:
 - 1) Confirm bond with certified test results.
- 4. A urethane coating shall be uniformly and consistently applied to the interior of all conduits and fittings:
 - a. Nominal thickness of 0.002 inch.
 - b. Conduits having areas with thin or no coating are not acceptable.
 - c. All threads shall be coated with urethane.
- 5. The PVC exterior and urethane interior coatings applied to the conduits shall afford sufficient flexibility to permit field bending without cracking or flaking at temperature above 30 degrees Fahrenheit (-1 degree Celsius).
- 6. PCS conduit bodies and fittings:
 - a. Malleable iron.
 - b. The conduit body, before PVC coating, shall be new, unused material and shall conform to appropriate UL standards.
 - c. The PVC coating on the outside of conduit bodies shall be 0.040-inch thick and have a series of ribs to protect the coating from tool damage during installation.
 - d. 0.002-inch interior urethane coating.
 - e. Utilize the PVC coating as an integral part of the gasket design.
 - f. Stainless steel cover screw heads shall be encapsulated with plastic to ensure corrosion protection.
 - g. A PVC sleeve extending 1 conduit diameter or 2 inches, whichever is less, shall be formed at each female conduit opening.
 - 1) The inside diameter of the sleeve shall be the same as the outside diameter of the conduit to be used.
 - 2) The sleeve shall provide a vapor- and moisture resistant seal at every connection.
 - 3) Fittings shall be Form 8 and supplied with plastic encapsulated stainless steel cover screws. Fittings shall be UL Type 4X. Fittings shall be from the same manufacturer as the conduit in order to maintain system continuity and warranty.

C. SLT:

1. Temperature rated for use in the ambient temperature at the installed location but not less than the following:
 - a. General purpose:
 - 1) Temperature range: -20 degrees Celsius to +80 degrees Celsius.
 - b. Oil-resistant:
 - 1) Temperature range: -20 degrees Celsius to +60 degrees Celsius.
2. Sunlight-resistant, weatherproof, and watertight.
3. Manufactured from single strip steel, hot-dip galvanized on all 4 sides before conduit fabrication.
4. Strip steel spiral wound resulting in an interior that is smooth and clean for easy wire pulling.
5. Overall PVC jacket.
6. With integral copper ground wire, built in the core, in conduit trade sizes 1/2 inch through 1-1/4 inch.

- D. EFLX:
 - 1. Suitable for the hazardous Class and Group where installed:
 - a. As specified in Section 16050 - Common Work Results for Electrical.
 - 2. Metallic braid shall provide continuous electrical path.
 - 3. Stainless steel construction.
 - 4. Provide fittings and unions as required for the installation.

- E. PVC:
 - 1. Extruded from virgin PVC compound:
 - a. Schedule 40 unless otherwise specified.
 - b. Schedule 80 extra-heavy wall where specified.
 - 2. Rated for 90 degrees Celsius conductors or cable.
 - 3. Rated for use in direct sunlight.

- F. Conduit bodies:
 - 1. Material consistent with conduit type:
 - a. Malleable iron bodies and covers when used with Type GRC.
 - b. PVC-coated malleable iron bodies and covers when used with Type PCS.
 - 2. Conduit bodies to conform to Form 8, Mark 9, or Mogul design:
 - a. Mogul design conforming to NEC requirements for bending space for large conductors for conduit trade sizes of 1 inch and larger with conductors #4 AWG and larger, or where required for wire-bending space.
 - 3. Gasketed covers attached to bodies with stainless steel screws secured to threaded holes in conduit body.

2.04 ACCESSORIES

- A. Connectors and fittings:
 - 1. Manufactured with compatible materials to the corresponding conduit.

- B. Insulated throat metallic bushings:
 - 1. Construction:
 - a. Malleable iron or zinc-plated steel when used with steel conduit.
 - b. Positive metallic conduit end stop.
 - c. Integrally molded non-combustible phenolic-insulated surfaces rated at 150 degrees Celsius.
 - d. Use fully insulated bushings on nonmetallic conduit system made of high-impact 150 degrees Celsius rated non-combustible thermosetting phenolic.

- C. Insulated grounding bushings:
 - 1. Construction:
 - a. Malleable iron or steel, zinc-plated, with a positive metallic end stop.
 - b. Integrally molded non-combustible phenolic-insulated surfaces rated at 150 degrees Celsius.
 - c. Tin-plated copper grounding saddle for use with copper or aluminum conductors.

- D. Electrical unions (Erickson Couplings):
 - 1. Construction:
 - a. Malleable iron for use with steel conduit.

- b. PVC-coated malleable iron for use with PCS conduit.
 - c. Concrete tight, 3-piece construction.
 - d. Rated for Class I Division 1 Group D in hazardous areas.
- E. SLT fittings:
 - 1. Construction:
 - a. Malleable iron.
 - b. Furnished with locknut and sealing ring.
 - c. Liquidtight, raintight, oiltight.
 - d. Insulated throat.
 - e. Furnish as straight, 45-degree elbows, and 90-degree elbows.
 - f. Designed to prevent sleeving:
 - 1) Verify complete bonding of the raceway jacket to the plastic gasket seal.
 - g. Equipped with grounding device to provide ground continuity irrespective of raceway core construction. Grounding device, if inserted into raceway and directly in contact with conductors, shall have rolled-over edges for sizes under 5 inches.
 - h. Where terminated into a threadless opening using a threaded hub fitting, a suitable moisture-resistant/oil-resistant synthetic rubber gasket shall be provided between the outside of the box or enclosure and the fitting shoulder. Gasket shall be adequately protected by and permanently bonded to a metallic retainer.
 - 2. Corrosion-resistant and outdoor SLT fittings:
 - a. Construction:
 - 1) PVC-coated liquidtight fittings with a bonded 0.040-inch-thick PVC coating on the metal connector to form a seal around the SLT conduit.
 - 2) Insulated throat and an integral sealing ring.
- F. Hubs for threaded attachment of steel conduit to sheet metal enclosures:
 - 1. Construction:
 - a. Insulated throat.
 - b. PVC-coated when used in corrosive areas.
 - c. Bonding locknut.
 - d. Recessed neoprene o-ring to ensure watertight and dusttight connector.
 - e. 1/2-inch through 1-1/4-inch steel zinc electroplated.
 - f. 1-1/2-inch through 6-inch malleable iron zinc plated.
 - 2. Usage:
 - a. All conduits in damp, wet, outdoor, and corrosive areas shall use threaded hubs for connections to sheet metal enclosures.

- ✓ G. Sealing fittings:
- ✓ 1. Construction:
 - ✓ a. 40-percent wire fill capacity.
 - ✓ b. PVC-coated when used in corrosive areas.
 - ✓ c. PVC Coated Hazardous (Classified) Location fittings must be UL 1203 listed after the coating is applied and have a red metal tag attached to the fitting to signify compliance.
 - ✓ d. Malleable ductile iron with steel conduit.
 - e. Aluminum with aluminum conduit.

- f. Type EYDX where drains are required.
 - g. Type EYSX where drains are not required.
 - h. UL 1203 listed for use in Class I, Division 1, Groups A, B, C, D; Class I, Division 2, Groups A, B, C, D; and Class II, Divisions 1 and 2, Groups E, F, and G.
2. Sealing compound:
- a. Fiber filler and cement as recommended by the sealing fitting manufacturer.
 - b. Approved for the conditions and use.
 - 1) Not affected by surrounding atmosphere or liquids.
 - c. Melting point shall be 200 degrees Fahrenheit minimum.
- H. Expansion/deflection couplings:
1. Use to compensate for movement in any directions between 2 conduit ends where they connect.
 2. Shall allow movement of 3/4 inch from the normal in all directions.
 3. Shall allow angular movement for a deflection of 30 degrees from normal in any direction.
 4. Constructed to maintain electrical continuity of the conduit system.
 5. Materials:
 - a. End couplings: Bronze or galvanized ductile iron.
 - a. Sleeve: Neoprene.
 - b. Bands: Stainless steel.
 - c. Bonding jumper: Tinned copper braid.
- I. Expansion couplings:
1. Shall allow for expansion and contraction of conduit:
 - a. Permitting 8-inch movement, 4 inches in either direction.
 2. Constructed to maintain electrical continuity of the conduit system.
 3. Materials:
 - a. Head: Malleable or ductile iron.
 - b. Sleeve: Steel.
 - c. Insulating bushing: Phenolic.
 - d. Finish: Hot-dip galvanized.
 - e. PVC-coated steel when used with Type PCS.
- J. Conduit markers:
1. As specified in Section 16075 - Identification for Electrical Systems.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before installing any conduit or locating any device box:
 1. Examine the complete set of Drawings and Specifications, and all applicable shop drawings.
- B. Verify all dimensions and space requirements and make any minor adjustments to the conduit system as required to avoid conflicts with the building structure, other equipment, or the work of other trades.

3.02 INSTALLATION

A. General:

- a. The electrical drawings are diagrammatic in nature. Conduit routing is indicated on the drawings using both "homeruns" and schematic representation.
 - 1) Install conduit homeruns as indicated on the Drawings and as specified.
 - 2) Install conduit runs with schematic representation indicated on the Drawings and as specified.
 - 3) Modify conduit runs to suit field conditions, as accepted by the Engineer:
 - a) Make changes in conduit locations that are consistent with the design intent but are dimensionally different, or routing to bypass obstructions.
 - b) Make changes in conduit routing due to the relocation of equipment.
 - c) Install conduits and equipment in such a manner as to avoid obstructions and to preserve headroom and keep openings and passageways clear.
 - 4) Where the Drawings do not indicate the exact mounting and/or supporting method to be used, use materials and methods similar to the mounting details indicated on the Drawings.
 - 5) The electrical drawings do not indicate all required junction boxes and pull boxes:
 - a) Provide junction boxes and pull boxes to facilitate wire pulling as required:
 - (1) To meet cable manufacturer's pulling tension requirements.
 - (2) To limit total conduit bends between pull locations.
 - b) Install junction boxes and pull boxes at locations acceptable to the Engineer.
 - b. The Contractor is responsible for any deviations in general location, conduit size, routing, or changes to the conduit schedule without the express written approval or direction by the Engineer:
 - 1) The Engineer is the sole source in determining whether the change is constituted as a deviation:
 - a) Perform any changes resulting in additional conduits, or extra work from such deviations.
 - b) Incorporate any deviations on the Record Documents.
 - 2) Owner reserves the right to deduct the amount of applicable reimbursement, equivalent to the cost of the engineering effort required to show those unauthorized changes on As-Built Drawings.
 2. Use only tools recommended by the conduit manufacturer for assembling the conduit system.
 3. Provide adequate clearances from high-temperature surfaces for all conduit runs. Provide minimum clearances as follows:
 - a. Clearance of 6 inches from surfaces 113 degrees Fahrenheit to 149 degrees Fahrenheit.
 - b. Clearance of 12 inches from surfaces greater than 149 degrees Fahrenheit.

- c. Keep conduits at least 6 inches from the coverings on hot water and steam pipes, 18 inches from the coverings on flues and breechings, and 12 inches from fuel lines and gas lines.
 - d. Where it is necessary to route conduits close to high-temperature surfaces, provide a high-reflectance thermal barrier between the conduit and the surface.
4. Support conduit runs on water-bearing walls a minimum of 7/8-inch away from wall on an accepted preformed channel:
- a. Do not run conduits within water-bearing walls unless otherwise indicated on the Drawings.
5. Do not install 1-inch or larger conduits in or through structural members unless approved by the Engineer.
6. Run conduits exposed to view parallel with or at right angles to structural members, walls, or lines of the building:
- a. Install straight and true conduit runs with uniform and symmetrical elbows, offsets, and bends.
 - b. Make changes in direction with long radius bends or with conduit bodies.
7. Install conduits with total conduit bends between pull locations less than or equal to 270 degrees.
8. Route all exposed conduits to preserve headroom, access space and workspace, and to prevent tripping hazards and clearance problems:
- a. Install conduit runs so that runs do not interfere with proper and safe operation of equipment and do not block or interfere with ingress or egress, including equipment-removal hatches.
 - b. Route conduits to avoid drains or other gravity lines. Where conflicts occur, relocate the conduit as required.
9. Conduits may be run in concrete members or slabs with permission of the Engineer or as indicated on the Drawings:
- a. Refer to the typical details for conduit spacing and size requirements.
10. When installing conduits through existing slabs or walls, make provisions for locating any possible conflicting items where the conduit is to penetrate. Use tone signal or X-ray methods to make certain that no penetrations will be made into the existing conduits, piping, cables, post-tensioning cables, etc.
11. Plug conduits brought into pull boxes, manholes, handholes, and other openings until used to prevent entrance of moisture.
12. Install conduits through wall and floor seals where indicated on the Drawings.
13. For existing and new 2-inch and larger conduit runs, snake conduits with a conduit cleaner equipped with a cylindrical mandrel of a diameter not less than 85 percent of nominal diameter of the conduit:
- a. Remove and replace conduits through which mandrel will not pass.
14. Provide all sleeves and openings required for the passage of electrical raceways or cables even when these openings or sleeves are not specifically indicated on the Drawings.
15. Install complete conduit systems before conductors are installed.
16. Provide metallic conduits terminating in transformer, switchgear, motor control center, or other equipment conduit windows with grounding bushings and ground with a minimum No. 6 AWG ground wire.
17. Underground conduits:
- a. Install underground conduits, including conduit runs below slabs-on-grade in concrete-reinforced duct bank construction:
 - 1) As specified in Section 16133 - Duct Banks.

- b. Make underground conduit size transitions at handholes and manholes.
 - c. Install spare conduits in underground duct banks towards top center of runs to allow for ease of installation of future cables as conduits enter underground manholes and handholes.
 - d. Seal around conduit penetrations of below grade walls with a mechanical seal.
 - 18. Underground conduit trenching:
 - a. Perform trenching as specified in Section 02318 - Trenching.
 - b. Trench must be uniformly graded with the bottom, rock free and covered with select material.
 - c. Damage occurring to existing ducts, conduits, cables, and other utilities during underground conduit installation shall be remediated to the satisfaction of the Owner.
 - d. Whenever possible, use the walls of the trench as forms for concrete encasement:
 - 1) Forms are required where the soil is not self-supporting.
- B. Equipment grounding conductors:
- 1. Provide a separate, green insulated, grounding conductor in each raceway independent of raceway material:
 - a. Multi-conductor power and control cables shall include an integral green insulated grounding conductor.
 - b. Provide a separate grounding conductor in each individual raceway for parallel feeders.
 - 2. Conductors shall be the same type and insulation as the circuit conductors:
 - a. Use 600-volt insulation for the equipment grounding conductors for medium voltage systems.
 - 3. Minimum size in accordance with the NEC.
- C. Lighting and receptacle conduits:
- 1. Provide conduit runs for lighting and receptacle circuits, whether or not indicated on the Drawings:
 - 2. Install conduits in accordance with the requirements of this Section unless otherwise indicated.
 - 3. Minimum conduit size:
 - a. 3/4-inch for exposed conduits.
 - b. 1-inch for underground or in-slab conduits.
 - 4. Provide conduit materials for the installed location as specified in Section 16050 - Common Work Results for Electrical.
- D. Hazardous areas:
- 1. As specified in Section 16050 - Common Work Results for Electrical for hazardous areas and specific Class and Division.
- E. Conduit usage:
- 1. Exposed conduits:
 - a. Rigid conduit:
 - 1) Install the rigid conduit type for each location as specified in Section 16050 - Common Work Results for Electrical and 16052 – Hazardous Classified Area Construction.
 - 2) Minimum size: 3/4-inch.

- b. Flexible conduit:
 - 1) Use flexible conduit for final connections between rigid conduit and motors, vibrating equipment, instruments, control equipment, or where required for equipment servicing:
 - a) Use Type SLT with rigid metallic conduit.
 - b) Use Type NFC with PVC conduit.
 - c) Use Type EFLX in Class I Division 1 locations.
 - 2) Minimum size: 3/4-inch:
 - a) 1/2 when required for connection to instruments.
 - 3) Maximum length:
 - a) Fixed equipment:

Conduit Trade Size	Flexible Conduit Length (inch)
3/4	18
1	18
1-1/4	18
1-1/2	18
2	36
2-1/2	36
3	36
3-1/2	38
4	40

- b) Removable instruments or hinged equipment:
 - (1) As required to allow complete removal or full movement without disconnecting or stressing the conduit.
- 2. Concrete-encased and embedded conduits:
 - a. Straight runs and bends less than 45 degrees:
 - 1) Type PVC Schedule 40.
 - b. Bends with total deflection greater than 45 degrees:
 - 1) PCS.
 - c. Entering and exiting duct bank, underground or embedded conduit runs a minimum 12 inches above and below grade, finished floor, or entering equipment:
 - 1) PCS.
 - d. Minimum size:
 - 1) 2-inch in duct banks.
 - 2) 1-inch for in-slab conduits.
 - 3) Provide conduit fittings to enlarge the conduit from the exposed size in the conduit schedule as required.
- 3. Direct-buried and sand-bedded duct bank conduits:
 - a. Type PCS.
 - b. Minimum size: 1-inch.
- 4. Below-slab conduits:
 - a. Type PCS.

- b. Minimum size: 1-inch.
 - 5. Concrete capped, pea gravel-bedded duct bank conduits:
 - a. Type PVC40.
 - b. Minimum size: 1-inch.
 - 6. PVC-coated rigid metallic conduit:
 - a. Use specifically manufactured or machined threading dies to manufacturer's specifications to accommodate the PVC jacket.
 - b. Repair damage to PVC coatings with manufacturer supplied touchup compound or PVC Coating Repair Kit for PVC Coated Raceway Systems.
 - 7. GRC:
 - a. Conduit shall be cut square and reamed before threading.
- F. Conduit joints and bends:
1. General:
 - a. Where conduit is underground, under slabs on grade, exposed to the weather, or in NEMA Type 4 or NEMA Type 4X locations, make joints liquidtight.
 - b. Keep bends and offsets in conduit runs to an absolute minimum.
 - c. All bends shall be symmetrical.
 - d. The following conduit systems shall use large-radius sweep elbows:
 - 1) Underground conduits.
 - 2) Conduits containing fiber optic cables.
 - e. Provide large-radius factory-made bends for 1-1/4-inch trade size or larger.
 - f. Make field bends with a radius of not less than the requirements found in the NEC:
 - 1) The minimum bending radius of the cable must be less than the radius of the conduit bend.
 - 2) Make all field bends with power bending equipment or manual benders specifically intended for the purpose:
 - a) Make bends so that the conduit is not damaged and the internal diameter is not effectively reduced.
 - b) For the serving utilities, make bends to meet their requirements.
 - g. Replace all deformed, flattened, or kinked conduit.
 2. Threaded conduit:
 - a. Cut threads on rigid metallic conduit with a standard conduit-cutting die that provides a 3/4-inch per foot taper and to a length such that all bare metal exposed by the threading operation is completely covered by the couplings or fittings used. In addition, cut the lengths of the thread such that all joints become secure and wrench-tight just preceding the point where the conduit ends would butt together in couplings or where conduit ends would butt into the ends or shoulders of other fittings.
 - b. Thoroughly ream conduit after threads have been cut to remove burrs.
 - c. Use bushings or conduit fittings at conduit terminations.
 - d. On exposed conduits, repair scratches and other defects with galvanizing repair stick, Enterprise Galvanizing "Galvabar™," or CRC "Zinc It."
 - e. Coat conduit threads with an approved electrically conductive sealant and corrosion inhibitor that is not harmful to the conductor insulation:
 - 1) Apply to the male threads and tighten joints securely.
 - 2) Clean excess sealant from exposed threads after assembly.
 - f. Securely tighten all threaded connections.

- g. Any exposed threaded surfaces must be cleaned and coated with a galvanizing solution so that all exposed surfaces have a galvanized protective coating.
- 3. PVC:
 - a. Use approved solvent-weld cement specifically manufactured for the purpose. Spray-type cement is not allowed.
 - b. Apply heat for bends so that conduit does not distort or discolor. Use a spring mandrel as required to ensure full inside diameter at all bends:
 - 1) Utilize a heater specifically for PVC conduit as recommended by the conduit manufacturer.

G. Conduit sealing and drainage:

- 1. Conduit drainage and sealing other than required for hazardous and classified areas:
 - a. Provide sealing and drainage in vertical drops of long (in excess of 20 feet), exterior, above-grade conduit runs at the points at which the conduit enters buildings, switchgear, control panels, lighting panelboards, and other similar enclosures.
 - b. Provide seal fittings with drains in vertical drops directly above grade for exterior and above-grade conduit runs that are extended below grade.
 - c. Provide conduit seals with drains in areas of high humidity and rapidly changing temperatures:
 - 1) Where portions of an interior raceway pass through walls, ceilings, or floors that separate adjacent areas having widely different temperatures.
 - d. Provide conduit seals similar to O-Z/Gedney (Type CSM) on all conduits between corrosive and non-corrosive areas.
 - e. Seal one end only of all underground conduits at highest point with O-Z/Gedney sealing (non-hazardous) filling, or equal.
- 2. Install seals with drains at any location along conduit runs where moisture may condense or accumulate. This requirement includes, but is not limited to, the following locations: control panels, junction boxes, pullboxes, or low points of the conduit.

H. Hangers and supports:

- 1. General:
 - a. Provide appropriate hangers, supports, fasteners, and seismic restraints to suit applications:
 - 1) As specified in Section 16070 - Hangers and Supports.
 - 2) Provide support materials consistent with the type of conduit being installed as specified in Section 16050 - Common Work Results for Electrical.
 - b. Support conduit at the intervals required by the NEC.
 - c. Perforated strap and plumbers' tape are not acceptable for conduit supports.
- 2. Finished areas:
 - a. Above suspended ceilings:
 - 1) Support conduit on or from the structure. Do not support conduit from hanging wires or suspended ceiling grid.

- b. Concealed conduit on wood:
 - 1) Use 2-hole galvanized steel straps screwed or nailed to the wood or hammer-driven stamped galvanized-type supports having serrated or sawtooth edges on the driven portion and designed specifically for the size and type of conduit being supported. Drive these latter supports so that the conduit is tightly and rigidly supported. Replace any dented or damaged conduit.
 - c. In steel-stud construction:
 - 1) Tie conduit at maximum 4-foot intervals with No. 16 gauge double-annealed galvanized wire or conduit clips so that conduit cannot move from vibration or other causes.
 - 3. Conduit on concrete or masonry:
 - a. Use 1-hole malleable iron straps with metallic or plastic expansion anchors and screws or support from preset inserts.
 - b. Use preset inserts in concrete when possible.
 - c. Use pipe spacers (clamp backs) in wet locations.
 - 4. Conduit on metal decking:
 - a. Use 1-hole malleable iron straps with 1-inch-long cadmium-plated Type A panhead sheet-metal screws. Fully or partially hammer-driven screws are not acceptable.
 - 5. Suspended conduit:
 - a. Use malleable-iron factory-made split-hinged pipe rings with threaded suspension rods sized for the weight to be carried (minimum 3/8-inch diameter), Kindorf, or equal.
 - b. For grouped conduits, construct racks with threaded rods and tiered angle iron or preformed channel cross members. Clamp each conduit individually to a cross member. Where rods are more than 2-feet long, provide rigid sway bracing.
 - 6. Supports at structural steel members:
 - a. Use beam clamps.
 - b. Drilling or welding may be used only as specified or with approval of the Engineer.
 - 7. PVC-coated rigid metal systems:
 - a. Provide right-angle beam clamps and "U" bolts specially formed and sized to snugly fit the outside diameter of the coated conduit. Provide "U" bolts with PVC-encapsulated nuts that cover the exposed portions of the threads.
 - b. Securely fasten exposed conduits with Type 316 stainless steel clamps or straps.
- I. Expansion or expansion/deflection fittings:
- 1. General:
 - a. Align expansion coupling with the conduit run to prevent binding.
 - b. Follow manufacturer's instructions to set the piston opening.
 - c. Install expansion fittings across concrete expansion joints and at other locations where necessary to compensate for thermal or mechanical expansion and contraction.
 - d. Furnish fittings of the same material as the conduit system.

2. For metallic conduit, provide expansion or expansion/deflection couplings, as appropriate, where:
 - a. Install expansion fittings a minimum of every 200 feet in straight conduit runs.
- J. Empty conduits:
 1. Provide a pull tape in each empty conduit more than 10 feet in length.
 2. Seal ends of all conduits with approved, manufactured conduit seals, caps, or plugs immediately after installation:
 - a. Keep ends sealed until immediately before pulling conductors.
- K. Miscellaneous:
 1. Seal roof penetrations for raceways and other items that penetrate the roof in accordance with roofing manufacturer's instructions and as indicated on the Drawings.
 2. Provide electrical unions at all points of union between ends of rigid conduit systems that cannot otherwise be coupled:
 - a. Running threads and threadless couplings are not allowed.
 3. Replace any conduits installed that the Engineer determines do not meet the requirements of this Specification.
 4. Provide conduit housekeeping curb around all embedded or below-grade conduits exiting or entering the slab, per the Typical Details.

3.03 COMMISSIONING

- A. As specified in Section 01756 - Commissioning.

END OF SECTION

1.0 PCS - PVC COATED RIGID STEEL CONDUIT

**SPECIFICATION – 16130-2.02.B
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

Overview

Ocal manufacturing process

2.03.B.2

The Ocal® PVC-coated conduit system fully complies with all standards for proper use and protection in corrosive environments mandated by UL 6, NEMA RN-1* and ANSI C80.1. Ocal products are manufactured right here in the United States by ABB in our Jonesboro, AR facility.

The process of manufacturing PVC-coated conduit

—
01 The steel shell is threaded and prepared for the hot-dip galvanizing process.



—
02 The threaded shell is immersed in a molten zinc bath. This hot-dip galvanizing process enables the zinc to penetrate the internal and external surface of the steel conduit, providing an excellent corrosion protection. After the conduit is extracted from the zinc bath, super-heated steam is blown through the interior and over the outside of the conduit to remove any slag. ABB manufactures steel conduit that hot-dip galvanizes the threads as well as the conduit itself.



—
03 After priming, the conduit is heated and then rolled through liquid plastisol, achieving complete coverage of 40 mils in thickness.



—
03 After priming, the conduit is heated and then rolled through liquid plastisol, achieving complete coverage of 40 mils in thickness. Following the exterior PVC coating, 2 mils (nominal) of blue urethane is applied to the inside diameter as well as to the threads of each conduit.

2.03.B.4

Ocal offers

- Plant walk-throughs
- Installation training and certification
- Installation tools
- The expertise to ensure that you get the maximum benefit of the Ocal-Blue® total protection system
- Manufacturing capabilities that ensure unmatched delivery time on custom orders, special colors or large quantities
- Protection of each shipment with special packaging to help provide damage-free delivery

—
04 Standard color is dark gray. Custom colors available upon request.

Superior service

Our reputation for dependability and customer service has made Ocal one of the most trusted names in corrosion protection for the electrical industry.



* Current as of publication of catalog

Overview

Complete corrosion protection

ABB has developed a process for coating the interior and exterior of all Ocal® fittings with a nominal 0.002" (2 mils) of blue urethane, which is baked on. This proprietary application of urethane enhances the corrosion protection of your system, even if you accidentally nick or cut the PVC coating during installation. Flexible, overlapping sleeves on all Ocal fittings provide protection with a vapor- and moisture-tight seal at every connection.

2.03.B.4

2.03.B.6.g.2

The process of manufacturing PVC-coated fittings

- Fittings are cleaned and then sprayed inside and outside with 2 mils (nominal) of blue urethane 2.03.B.4
- This gives the fittings corrosion protection on the exterior as well as the interior – all fittings are “double-coated”
- 40 mils of PVC is applied to the exterior of the fitting
- Covers are coated with a molded flange and molded integral O-ring seal for 2½"-4" Form 8 and all Form 7; conduit bodies are molded with a flat surface to ensure a superior seal
- Standard color is dark gray. Custom colors available upon request

ABB takes pride in providing PVC-coated conduit and fittings compliant with industry-wide recognized standards. It is this dedication to superior quality that makes Ocal “Better by design.”

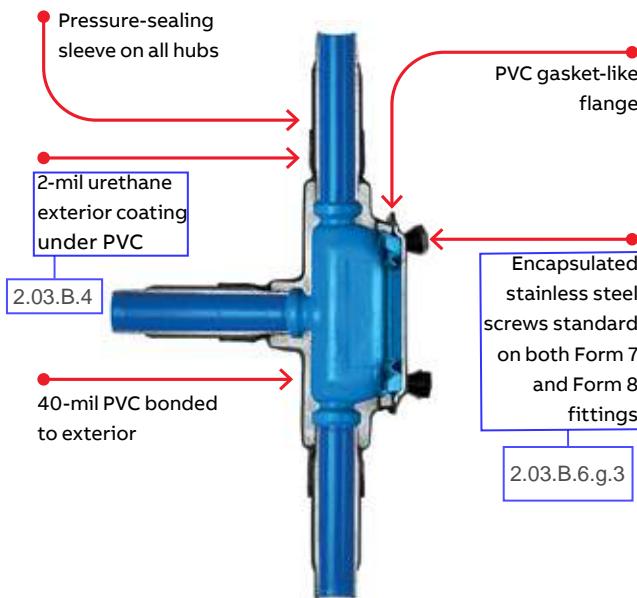


ABB supplies encapsulated screws on Ocal Form 7 and Form 8 conduit bodies.

2.03.B.6.g.3

Ocal-Blue® double-coat UL listed Type 4X and NEMA 4X

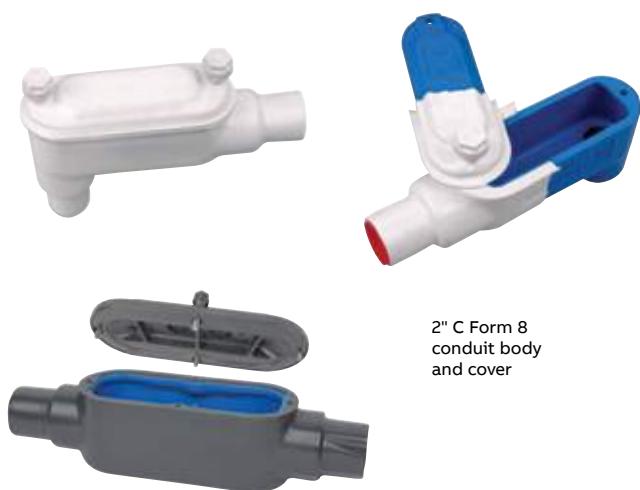
Form 8 conduit bodies

2.03.B.6.g.3

For the conduit system that has to stand up to a corrosive environment, the Ocal-Blue Type 4X Form 8 conduit body is up to the challenge. The key is in the cover. ABB takes a cast cover and then injection molds a PVC coating around it with an integral O-ring seal.

There's no need for tools or gaskets. To meet the harsh requirements of the UL Type 4X listing, you need only hand-tighten the stainless steel encapsulated screws to 15 in.-lbs. of torque – as compared to the 35 in.-lbs. of torque required to tighten cover screws on many other conduit bodies.

Ideal for providing corrosion-resistant performance in washdown and other tough applications, Ocal-Blue Type 4X Form 8 PVC-coated cast-iron conduit bodies are now available in sizes up to 2". Look for the blue to know it's a high-quality Ocal product.



2" C Form 8
conduit body
and cover

Overview

Evaluating corrosion protection of PVC-coated conduit

—
01 Example of hot-dip galvanized threads after 42-day salt-fog test

—
02 Example showing how a zinc coating surpasses the requirement for corrosion resistance

When evaluating any electrical raceway conduit or fittings, applicable standards should be referenced. The three standards that address the design and performance of PVC-coated rigid steel conduit are ANSI C80.1, UL 6 and [NEMA RN-1](#). ANSI C80.1, UL and NEMA have determined the appropriate ASTM standards and test methods that apply.

[2.03.B.2](#)

Hot-dip galvanized threads

[2.03.B.2](#) Since electrical conduit systems breathe, the threads will be exposed to the corrosive environment for the duration of the installation. [NEMA RN-1](#) 2005 is the electrical industry's standard for PVC externally coated galvanized rigid steel conduit. Section 2.1 of this standard states, "Where unusually corrosive environments are encountered, it is recommended that threads be given additional protection suitable for the intended application." Hot-dip galvanizing is the process through which the steel shell is dipped in molten zinc, causing the zinc to penetrate the steel. ABB hot-dip galvanizes the threads of the Ocal® conduit, in addition to the conduit itself. This gives the threads the protection recommended in corrosive environments.

The standard for rigid metal conduit, UL 6, sets out ASTM B117, a salt-fog test as the standard corrosion test. The photographs below present compelling evidence of the protection hot-dip galvanizing provides against the corrosive agent, salt.



—
01

Galvanized conduit underneath the PVC coating – Preece test

With much riding on the integrity of electrical conduit systems, facilities need the superior protection offered by the ABB Ocal PVC-coated conduit, which complies with the current design and performance standards for PVC-coated conduit set forth by UL 6, [NEMA RN-1](#) and ANSI C80.1. ANSI C80.1, UL 6 and [NEMA RN-1](#) have established the appropriate ASTM standards and test methods. The Preece test must be passed to be in full compliance.

Why is the Preece test relevant to PVC-coated conduit?

In cases where the PVC protection is accidentally breached, resulting from cuts, scrapes, etc., it is critical to have a second line of defense – a zinc, or galvanized, coating. The zinc coating will significantly slow corrosion before failure occurs. Conduit systems without adequate zinc protection underneath the PVC coating are most likely to suffer catastrophic [corrosion](#) damage. This is why [NEMA RN-1](#) section 3.1.1 requires the proper and correct treatment of galvanized conduit before it is PVC coated. It states, "The surface shall be cleaned in such a manner that the galvanized surface of the conduit is not harmed or eroded."



—
02

The Preece test evaluates the zinc coating on galvanized rigid conduit to ensure adequate protection from corrosion per UL 6.2.2. The test will also determine if the surface of the conduit has been damaged as a result of preparation for PVC coating.

In evaluating the test results, the conduit receives a passing grade when the sample does not show a bright, adherent deposit of copper after four 60-second immersions in the copper sulfate solution. The conduit showing the bright, firmly adhering copper has failed to provide adequate zinc protection against corrosion.

The Preece test follows procedures set forth by UL 6.2.2 and ASTM A239 and is the test recognized by UL 6, [NEMA RN-1](#) and ANSI C80.1 to adequately assess zinc protection for rigid steel conduit. The Ocal line of PVC-coated conduit systems, manufactured by ABB, currently complies with UL 6, [NEMA RN-1](#) and ANSI C80.1 without exception.

[2.03.B.2](#)

[2.03.B.2](#)

[2.03.B.2](#)

Overview

Adhesion test

2.03.B.2

—
01 Step 1 consists of two cuts through the plastic to the substrate along the length of the conduit, approximately 1/2" apart and 3" to 4" in length. A third, perpendicular, cut crosses the lengthwise parallel cuts.

—
02 Step 2 calls for the edge of the PVC that was cut on the perpendicular to be carefully lifted to form a plastic tab.

—
03 Step 3 the tab is pulled perpendicular to the conduit with a pair of pliers. The plastic tab will tear off rather than having any peeling effect or the coating separating from the substrate.

—
04 Step 4 is the evaluation of the test, which in this case, results in a passing grade for the Ocal conduit. This result is more testimony to the fact that Ocal is "Better by Design."

The evaluation process for adhesion of PVC coating on conduit is governed by [NEMA RN-1](#) section 3.8, Adhesion, which states, "The adhesion of the PVC coating to the conduit shall be greater than the strength of the coating itself." This adhesion test is straightforward and simple.

There are no specialized conditions necessary to perform this test. ABB routinely performs quality-control testing – including the adhesion test – on Ocal conduit as it rolls off the line. Conduit that passes this test demonstrates that the adhesion will provide years of trouble-free service.

The following demonstration shows Ocal® PVC-coated conduit being subjected to the adhesion test.



—
01



—
02



—
03



—
04

Results

With Ocal PVC-coated conduit and fittings, you get corrosion protection that will extend the life of your electrical raceway systems for years and years.



Technical information

Ocal® guide specification (continued)

2.03.B.6.g

D. PVC-coated hazardous location fittings

Hazardous location fittings prior to PVC coating must be UL listed. All female ends of PVC-coated conduit fittings shall have a flexible PVC sleeve which extends from the female ends of the fitting and which will overlap the PVC coating on the conduit when the fitting has been installed on the conduit. The length of the sleeve extension(s) shall be at least equivalent to the nominal conduit size for sizes up through 2 in. For sizes 2–6 in., the length of the sleeve extension(s) shall be at least 2 in. The PVC sleeve shall be a nominal thickness of 0 mils in thickness. The inside diameter of the overlapping sleeve shall be less than the outside diameter of the PVC-coated conduit.

E. PVC-coated strut, hangers and clamps

Right-angle beam clamps and U-bolts shall be specially formed and sized to fit snugly the outside diameter of the PVC-coated conduit. Support products such as ferrous strut, beam clamps, pipe straps, clamp back spacers, conduit clamp hangers and all-thread rods shall have a minimum 15-mil PVC coating by the manufacturer of the ERMC conduit and system components.

F. Stainless steel fittings

Stainless steel liquid-tight fittings shall be made of 304-grade stainless steel or better.

G. Stainless steel strut, hangers, etc.

Stainless steel strut, beam clamps, pipe straps, clamp back spacers, conduit clamp hangers and all-thread rods shall be made of 304-grade stainless steel or better.

Part 3 – Execution

3.1 Examination

A. The PVC-coated ERMC and system components have been selected for use in an atmosphere considered to be corrosive for this project. The corrosive atmosphere is considered to be more damaging than merely the presence of moisture. Accordingly, conduit and the corresponding fittings for it must have PVC protection as described under Part 2 – Products. Conduit and fittings that are merely galvanized for this purpose are insufficient.

3.2 Preparation

A. Preparation shall be done in accordance with manufacturer's printed instructions.

3.3 Installation

A. Install in accordance with manufacturer's printed instructions and manufacturer's installation training.

3.4 Quality control

A. General:
Comply with requirements of Section 01 45 13.

3.5 Manufacturer's field services

A. Free on-site installation training course by company representative. This representative must conduct the on-site training course in order to qualify for the installation certificate. The time required for this training is estimated to be two (2) hours.
B. After the on-site training installation, the representative shall then register the installer in his database and provide certification for installation.

End of section

Notes

1. Ocal® PVC-coated conduit and fittings are not recommended for use in areas where they will be exposed to sustained temperatures above 200 degrees Fahrenheit or exposed to fire. Prolonged exposure to heat greater than 200 degrees Fahrenheit or exposure to fire may cause the plastic coatings to release harmful emissions, posing a potential health hazard to persons subjected to such emissions.
2. If subjected to sustained flame or sustained heat above 400 degrees Fahrenheit, PVC will burn. PVC is self-extinguishing at room temperature.

Ocal-Blue® conduit

The ultimate in corrosion protection



See pages 94–108 for installation tooling and procedures.

Ocal-Blue conduit

Product features

- UL verified for adhesion performance (DYJC) conduit: 240 hours oven conditioning at 212 °F, 600 hours salt fog chamber, peel testing
- Hot-dip galvanized steel or aluminum conduit
- Nominal 0.002" (2 mil) blue urethane coating on interior 2.03.B.4
- Hot-dipped galvanized threads (steel)
- Minimum 0.040" (40 mil) PVC coating on exterior 2.03.B.3.b
- Standard color is dark gray – custom colors available upon request
- Color-coded thread protectors
- Couplings shipped with conduit are packaged separately



Product code	Steel	Aluminum	Pipe size (in.) metric size designator*	Outside diameter steel only (in.) (mm)	Outside diameter with PVC (in.) (mm)	Nominal wall thickness steel only (in.) (mm)	Nominal wall thickness with PVC (in.) (mm)	Nominal inside diameter (in.) (mm)	Cross section area (in.²) (mm²)	Length without couplings (ft) (m)	Min. weight per foot steel only (lbs) (kg)
COND1/2_-	COND1/2SA-		1/2	0.84	0.92	0.10	0.14	0.63	0.30	9'11 1/4"	0.79
			16	21.3	23.3	2.64	3.56	16.1	193.55	3.03	0.36
COND3/4_-	COND3/4SA-		3/4	1.05	1.13	0.11	0.15	0.84	0.53	9'11 1/4"	1.05
			21	26.70	28.70	2.71	3.73	21.20	341.93	3.03	0.48
COND1_-	COND1SA_-		1	1.32	1.40	0.13	0.17	1.06	0.86	9'11"	1.53
			27	33.4	35.4	3.20	4.21	27.00	554.84	3.02	0.69
COND1-1/4_-	COND1-1/4SA_-		1/4	1.66	1.74	0.13	0.17	1.39	1.50	9'11"	2.01
			35	42.20	44.10	3.37	4.39	35.40	967.74	3.02	0.91
COND1-1/2_-	COND1-1/2SA_-		1 1/2	1.90	1.98	0.14	0.18	1.62	2.04	9'11"	2.40
			41	48.30	50.20	3.50	4.52	41.20	1316.13	3.02	1.09
COND2_-	COND2SA_-		2	2.38	2.46	0.15	0.19	2.08	3.36	9'11"	3.32
			53	60.30	62.30	3.70	4.72	52.90	2167.74	3.02	1.51
COND2-1/2_-	COND2-1/2SA_-		2 1/2	2.88	2.96	0.19	0.23	2.49	4.80	9'10 1/2"	5.27
			63	73.00	75.00	4.90	5.91	63.20	3096.77	3.01	2.39
COND3_-	COND3SA_-		3	3.50	3.58	0.21	0.25	3.09	7.39	9'10 1/2"	6.83
			78	88.9	90.9	5.20	6.22	78.50	4767.73	3.01	3.10
COND3-1/2_-	COND3-1/2SA_-		3 1/2	4.00	4.08	0.22	0.26	3.57	9.87	9'10 1/4"	8.31
			91	101.6	103.6	5.46	6.47	90.70	6367.73	3.00	3.77
COND4_-	COND4SA_-		4	4.50	4.58	0.23	0.27	4.05	12.73	9'10 1/4"	9.73
			103	114.30	116.30	5.71	6.73	102.90	8212.89	3.00	4.41
COND5_-	COND5SA_-		5	5.56	5.64	0.25	0.29	5.07	20.01	9'10"	13.14
			129	141.3	143.3	6.22	7.23	128.90	12909.65	3.00	5.96
COND6_-	COND6SA_-		6	6.63	6.71	0.27	0.31	6.09	28.89	9'10"	17.46
			155	168.30	170.30	6.75	7.87	154.80	18638.67	3.00	7.92

* Metric size designator (ANSI C80.1-1994).

Product Code	Size	Material	Color
COND	3/4	—	—
		Blank = Steel	_ = space for color identifier
		SA = Aluminum	G = Dark gray
			W = White
			B = Light blue
Catalog No. Example:			
wCOND3/4-G is 3/4" steel conduit coated in dark gray PVC.			
Standard offering is dark gray (G). Custom colors also available.			



Ocal-Blue® couplings

Corrosion-protected connections for conduit sections



See pages 94–108 for installation tooling and procedures.

Ocal-Blue couplings

Product features

- Nominal 0.002" (2 mil) blue urethane coating on interior and threads 2.03.B.4
- Minimum 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.3.b
- Standard color is dark gray – custom colors available upon request
- Straight threads (NPS)
- Molded ribs on outer coating for easy installation
- (up to and including 4" trade size)
- Pressure-sealing sleeves protect your connection

Product code	Steel	Aluminum	Coupling size (in.) metric size designator*	Minimum length of metal (in.) (mm)	Total minimum length including sleeve (in.) (mm)	Weight steel only (lbs) (kg)
CPL1/2-	CPL1/2SA-		1/2	1.50	3.75	0.13
			16	38.10	95.25	0.06
CPL3/4-	CPL3/4SA-		3/4	1.53	3.75	0.19
			21	38.91	95.25	0.85
CPL1-	CPL1SA-		1	1.91	4.94	0.33
			27	48.41	139.7	0.15
CPL1-1/4-	CPL1-1/4SA-		1 1/4	1.91	5.50	0.43
			35	48.41	139.7	0.19
CPL1-1/2-	CPL1-1/2SA-		1 1/2	1.91	5.75	0.56
			41	48.41	146.05	0.25
CPL2-	CPL2SA-		2	1.94	5.94	0.77
			53	49.19	150.79	0.35
CPL2-1/2-	CPL2-1/2SA-		2 1/2	2.88	6.88	1.85
			63	73.10	174.70	0.83
CPL3-	CPL3SA-		3	3.03	7.03	2.70
			78	76.98	178.58	1.22
CPL3-1/2-	CPL3-1/2SA-		3 1/2	3.09	7.09	3.78
			91	78.58	180.18	1.70
CPL4-	CPL4SA-		4	3.19	7.19	3.08
			103	80.97	182.57	1.39
CPL5-	CPL5SA-		5	3.37	7.37	5.00
			129	85.69	187.29	2.25
CPL6-	CPL6SA-		6	3.44	7.44	8.00
			155	87.29	188.89	3.60

* Metric size designator (ANSI C80.1-1994).

Product Code	Size	Material	Color
CPL	1	S A -	—
		Blank = Steel	_ = space for color identifier
		SA = Aluminum	G = Dark gray
			W = White
			B = Light blue
Catalog No. Example:			Standard offering is dark gray (G). Custom colors also available.
CPL1SA-B is a 1" aluminum coupling coated in light blue PVC.			

Ocal-Blue® double-coat split couplings

Join threaded conduit where you can't use a standard coupling



TCC split coupling

Split couplings serve as speed unions for cost-effective joining of two separate lengths of threaded conduit. Like other Ocal® fittings, they're double coated in urethane and PVC to help safeguard your entire conduit system against corrosion.

Product features

- Malleable iron construction
- Nominal 0.002" (2 mil) blue urethane on both interior and exterior 2.03.B.4
- Minimum 0.040" (40 mil) PVC bonded to exterior 2.03.B.3.b
- Standard color is dark gray – custom colors available upon request
- Stainless steel hardware included separately

Ocal-Blue double-coat split couplings

Product code	Pipe size (in.)	Metric size designator*
TCC1_-	1/2	16
TCC2_-	3/4	21
TCC3_-	1	27
TCC4_-	1 1/4	35
TCC5_-	1 1/2	41
TCC6_-	2	53

* Metric size designator (ANSI C80.1-1994).

Product code	Pipe size (in.)	Metric size designator*
TCC7_-	2 1/2	63
TCC8_-	3	78
TCC9_-	3 1/2	91
TCC10_-	4	103
TCC12_-	5	129
TCC14_-	6	155

* Metric size designator (ANSI C80.1-1994).

Product Code	Size	Color
TCC	1-	--
_ = space for color identifier		
G = Dark gray		
W = White		
B = Light blue		
Standard offering is dark gray (G). Custom colors also available.		

Note: The use of standard couplings is recommended whenever possible due to better overall corrosion protection.

Ocal-Blue® nipples

Speed up your field installations with pre-threaded conduit nipples



See pages 94–108 for installation tooling and procedures.

PVC-coated conduit nipples – steel

Pipe size (in.)	Metric size*	Nipple length (in.) (mm)									
		2"	2½"	3"	3½"	4"	5"	6"	8"	10"	12"
Close	50.8	63.5	76.2	88.9	101.6	127.0	152.4	203.2	254.0	304.8	
1/2"	CLNPL1/2-	NPL1/2X2-	NPL1/2X21/2-	NPL1/2X3-	NPL1/2X31/2-	NPL1/2X4-	NPL1/2X5-	NPL1/2X6-	NPL1/2X8-	NPL1/2X10-	NPL1/2X12-
16											
3/4"	CLNPL3/4-	NPL3/4X2-	NPL3/4X21/2-	NPL3/4X3-	NPL3/4X31/2-	NPL3/4X4-	NPL3/4X5-	NPL3/4X6-	NPL3/4X8-	NPL3/4X10-	NPL3/4X12-
21											
1"	CLNPL1-	NPL1X2-	NPL1X21/2-	NPL1X3-	NPL1X31/2-	NPL1X4-	NPL1X5-	NPL1X6-	NPL1X8-	NPL1X10-	NPL1X12-
27											
1 1/4"	CLNPL11/4-	NPL11/4X2-	NPL11/4X21/2-	NPL11/4X3-	NPL11/4X31/2-	NPL11/4X4-	NPL11/4X5-	NPL11/4X6-	NPL11/4X8-	NPL11/4X10-	NPL11/4X12-
35											
1 1/2"	CLNPL11/2-	NPL11/2X2-	NPL11/2X21/2-	NPL11/2X3-	NPL11/2X31/2-	NPL11/2X4-	NPL11/2X5-	NPL11/2X6-	NPL11/2X8-	NPL11/2X10-	NPL11/2X12-
41											
2"	CLNPL2-	—	NPL2X21/2-	NPL2X3-	NPL2X31/2-	NPL2X4-	NPL2X5-	NPL2X6-	NPL2X8-	NPL2X10-	NPL2X12-
53											
2 1/2"	CLNPL21/2-	—	—	—	NPL21/2X31/2-	NPL21/2X4-	NPL21/2X5-	NPL21/2X6-	NPL21/2X8-	NPL21/2X10-	NPL21/2X12-
63											
3"	CLNPL3-	—	—	—	NPL3X31/2-	NPL3X4-	NPL3X5-	NPL3X6-	NPL3X8-	NPL3X10-	NPL3X12-
78											
3 1/2"	CLNPL31/2-	—	—	—	—	NPL31/2X4-	NPL31/2X5-	NPL31/2X6-	NPL31/2X8-	NPL31/2X10-	NPL31/2X12-
91											
4"	CLNPL4-	—	—	—	—	NPL4X4-	NPL4X5-	NPL4X6-	NPL4X8-	NPL4X10-	NPL4X12-
103											
5"	CLNPL5-	—	—	—	—	—	NPL5X5-	NPL5X6-	NPL5X8-	NPL5X10-	NPL5X12-
129											
6"	CLNPL6-	—	—	—	—	—	NPL6X5-	NPL6X6-	NPL6X8-	NPL6X10-	NPL6X12-
155											

* Metric size designator (ANSI C80.1-1994).

Product Code	Size x Length	Material	Color
NPL	3/4 x 6	—	—
		Blank = Steel	= space for color identifier
		SA = Aluminum	G = Dark gray
			W = White
			B = Light blue
			Standard offering is dark gray (G). Custom colors also available.

Catalog No. Example:
NPL3/4X6-G is a ¾" x 6" long
steel nipple coated in dark gray PVC.

Ocal-Blue® standard-radius elbows

Factory bent to save time and materials.



See pages 94–108 for installation tooling and procedures.

Product features

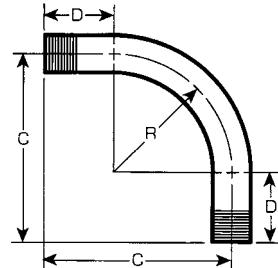
- Fabricated from Ocal® PVC-coated conduit
- Standard radii in 30°, 45°, 60° and 90° available
- Color-coded thread protectors for easy identification of conduit size

Ocal-Blue standard-radius elbows

Product code	Pipe size			Radius "R"	Offset "C"		UL min. straight end "D"		Unbent length	(Weight steel only)			
	Steel	Aluminum	(in.)		Metric size designator*	(in.)	(mm)	(in.)	(mm)				
ELL1/2_-_-	ELL1/2_-SA_-	1/2	16	4.00	101.60	6 1/8	161.93	1 3/4	44.45	10.28	261.19	0.67	16.95
ELL3/4_-_-	ELL3/4_-SA_-	3/4	21	4.50	114.30	7 7/16	188.91	2 1/4	57.15	11.07	281.14	0.95	24.07
ELL1_-_-	ELL1_-SA_-	1	27	5.75	146.05	9 1/2	241.30	2 1/4	57.15	13.53	343.71	1.77	44.97
ELL11/4_-_-	ELL11/4_-SA_-	1 1/4	35	7.25	184.15	11 1/8	288.93	3	76.20	15.89	403.56	2.55	64.80
ELL11/2_-_-	ELL11/2_-SA_-	1 1/2	41	8.25	209.55	12 13/16	325.44	3 1/4	82.55	18.46	468.86	3.98	101.13
ELL2_-_-	ELL2_-SA_-	2	53	9.50	241.30	15 1/2	393.70	4	101.60	21.92	556.83	6.33	160.86
ELL21/2_-_-	ELL21/2_-SA_-	2 1/2	63	10.50	266.70	19 1/4	488.95	4 1/4	120.65	23.49	596.73	9.65	245.09
ELL3_-_-	ELL3_-SA_-	3	78	13.00	330.20	21 1/2	546.10	6	152.40	27.42	696.48	15.42	391.77
ELL31/2_-_-	ELL31/2_-SA_-	3 1/2	91	15.00	381.00	24 1/2	622.30	5 1/2	139.70	35.06	890.57	23.30	591.84
ELL4_-_-	ELL4_-SA_-	4	103	16.00	406.40	25 1/2	635.00	5 1/4	146.05	36.63	930.47	29.68	753.80
ELL5_-_-	ELL5_-SA_-	5	129	24.00	609.60	37 7/16	941.39	8 1/4	206.38	51.70	1313.16	60.82	1544.89
ELL6_-_-	ELL6_-SA_-	6	155	30.00	762.00	49 1/2	1257.30	13 1/4	336.55	65.12	1654.15	85.69	2176.51

* Metric size designator (ANSI C80.1-1994).

Product Code	Pipe Size	Angle	Material	Color
ELL	3/4	--	--	--
			30 = 30°	Blank = Steel
			45 = 45°	SA = Aluminum
			60 = 60°	Blank = 90°
				= space for color identifier
				G = Dark gray
				W = White
				B = Light blue
Catalog No. Example: ELL3/4SA-W is a 3/4" trade size 90° aluminum elbow coated in white PVC.				
Standard offering is dark gray (G). Custom colors also available.				



Ocal-Blue® large-radius elbows

Choose the size and angle to meet your exact requirements



Product features

- Fabricated from Ocal® PVC-coated conduit
- Large radius in 90° available for immediate shipment
- Special radii and angles not listed available upon request
- Color-coded thread protectors for easy identification of conduit size

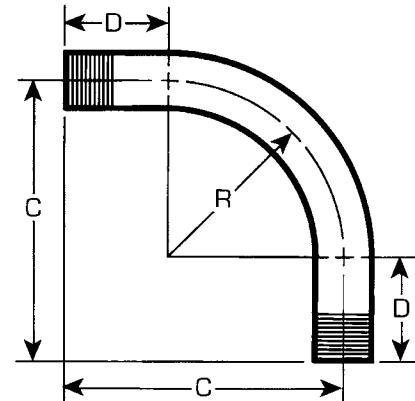
See pages 94–108 for installation tooling and procedures.

Ocal-Blue large-radius elbows

Product code		Pipe size (in.)	Metric size designator*	Radius "R"		Offset "C" (mm)	Straight end "D"		Unbent length (mm)
Steel	Aluminum			(in.)	(mm)		(in.)	(mm)	
LRELL_X12_-_-	LRELL_X12_-_-SA_-	1-2½	27-63	12.00	304.80	1' 9"	9.00	228.60	3' 0" 914.40
LRELL_X15_-_-	LRELL_X15_-_-SA_-	1-3	27-78	15.00	381.00	2' 0"	9.00	228.60	3' 6" 1066.80
LRELL_X18_-_-	LRELL_X18_-_-SA_-	1-4	27-103	18.00	457.20	2' 4"	10.00	254.00	4' 0" 1219.20
LRELL_X24_-_-	LRELL_X24_-_-SA_-	1-4	27-103	24.00	609.60	2' 11"	11.00	279.40	4' 11" 1498.60
LRELL_X30_-_-	LRELL_X30_-_-SA_-	1-5	27-129	30.00	762.00	3' 5"	11.00	279.40	5' 9" 1752.60
LRELL_X36_-_-	LRELL_X36_-_-SA_-	1-6	27-155	36.00	914.40	3' 11"	11.00	279.40	6' 6" 1981.20
LRELL_X48_-_-	LRELL_X48_-_-SA_-	1-6	27-155	48.00	1219.20	5' 0"	12.00	304.80	8' 6" 2590.80

* Metric size designator (ANSI C80.1-1994).

Product Code	Pipe Size	Radius	Angle	Material	Color
LRELL	_X	12	—	—	—
			30 = 30°	Blank = Steel	= space for color identifier
			45 = 45°	SA = Aluminum	G = Dark gray
			60 = 60°		W = White
			Blank = 90°		B = Light blue
Catalog No. Example:					
LRELL3X1845-G is a 3" trade size steel elbow with a radius of 18" and an angle of 45°, coated in dark gray PVC.					



Ocal® PVC-coated beam clamps and U-bolts

PVC coating evenly molded around saddle prevents exposure of metal – an Ocal exclusive



Parallel (PAR)



Edge (EC)

Product features

- Beam clamps support and attach conduit runs to structural beams
- Molded right-angle beam clamps and U-bolts provide extra protection
- Encapsulated, hex-shaped nuts fit standard wrenches
- Stainless steel hardware included
- Parallel (PAR) and edge (EC) clamps feature nominal 0.015" (15 mil) PVC coating for corrosion protection
- Right-angle clamps (RA) and U-bolts (UB) feature nominal 0.040" (40 mil) PVC coating for corrosion protection

2.03.B.6.f

2.03.B.3.b

PVC-coated beam clamps

Product Code			Pipe size (in.)	Metric size designator*
Right angle	Parallel	Edge		
RA1/2_-	PAR1/2_-	EC1/2_-	1/2	16
RA3/4_-	PAR3/4_-	EC3/4_-	3/4	21
RA1_-	PAR1_-	EC1_-	1	27
RA1-1/4_-	PAR1-1/4_-	EC1-1/4_-	1 1/4	35
RA1-1/2_-	PAR1-1/2_-	EC1-1/2_-	1 1/2	41
RA2_-	PAR2_-	EC2_-	2	53
RA2-1/2_-	PAR2-1/2_-	—	2 1/2	63
RA3_-	PAR3_-	—	3	78
RA3-1/2_-	PAR3-1/2_-	—	3 1/2	91
RA4_-	PAR4_-	—	4	103

Product Code

RA1-

_ = space for color identifier
 G = Gray
 W = White
 B = Blue
 Standard offering is dark gray (G).
 Custom colors also available.



Right angle (RA)

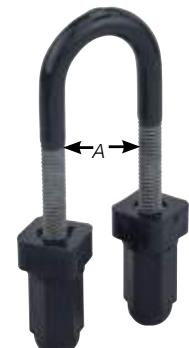
PVC-coated U-bolts

Product code	Pipe size (in.)	Metric size designator*	"A" Dimension (center to center) (in.)	Thread size (UNC-class 2A) (in.)
UB1/2_-	1/2	16	1.34	5/16-18
UB3/4_-	3/4	21	1.53	5/16-18
UB1_-	1	27	1.79	5/16-18
UB1-1/4_-	1 1/4	35	2.15	5/16-18
UB1-1/2_-	1 1/2	41	2.45	5/8-16
UB2_-	2	53	2.90	5/8-16
UB2-1/2_-	2 1/2	63	3.48	5/8-16
UB3_-	3	78	4.12	3/8-16
UB3-1/2_-	3 1/2	91	4.62	3/8-16
UB4_-	4	103	5.12	5/8-16
UB5_-	5	129	6.12	5/8-16
UB6_-	6	155	7.24	5/8-16

Product Code

UB 1-

_ = space for color identifier
 G = Dark gray
 W = White
 B = Light blue
 Standard offering is dark gray (G).
 Custom colors also available.



U-bolt (UB)

Pipe straps

Support conduit on walls and structures



Two-hole PVC-coated pipe strap



One-hole PVC-coated pipe strap

Product features

- Available in malleable iron/stamped steel with nominal 0.015" (15 mil) PVC coating
- Choose one- or two-hole versions
- Sized to allow for the extra thickness of the PVC coating
- Standard color is dark gray – custom colors available upon request

PVC-coated pipe straps

Product code		Pipe size (in.)	Metric size designator*
One-hole malleable iron	Two-hole stamped steel		
1HMS1/2_-	2HS1/2_-	1/2	16
1HMS3/4_-	2HS3/4_-	3/4	21
1HMS1_-	2HS1_-	1	27
1HMS1-1/4_-	2HS1-1/4_-	1 1/4	35
1HMS1-1/2_-	2HS1-1/2_-	1 1/2	41
1HMS2_-	2HS2_-	2	53
1HMS2-1/2_-	2HS2-1/2_-	2 1/2	63
1HMS3_-	2HS3_-	3	78
1HMS3-1/2_-	2HS3-1/2_-	3 1/2	91
1HMS4_-	2HS4_-	4	103

Product Code	Color
1HMS1-	—
	= space for color identifier
G = Dark gray	[Dark Gray Box]
W = White	[White Box]
B = Light blue	[Light Blue Box]
Standard offering is dark gray (G). Custom colors also available.	

Ocal® PVC-coated clamp-back spacers

Use as spacers with one-hole pipe straps



Ocal PVC-coated clamp-back spacers

Product code	Pipe size (in.)	Metric size designator*
CB1/2_-	1/2	16
CB3/4_-	3/4	21
CB1_-	1	27
CB1-1/4_-	1 1/4	35
CB1-1/2_-	1 1/2	41
CB2_-	2	53
CB2-1/2_-	2 1/2	63
CB3_-	3	78
CB3-1/2_-	3 1/2	91
CB4_-	4	103

Product features

- Provides space for air flow between conduit and mounting surface
- Nominal 0.015" (15 mil) PVC coating for corrosion protection

Product Code	Color
CB1-	—
	= space for color identifier
G = Dark gray	[Dark Gray Box]
W = White	[White Box]
B = Light blue	[Light Blue Box]
Standard offering is dark gray (G). Custom colors also available.	

Ocal-Blue® double-coat hubs

Unique sealing ring and groove design for optimum performance



HUB1-1/4-G
PVC-coated zinc hub

STG6-G
PVC-coated zinc grounded hub

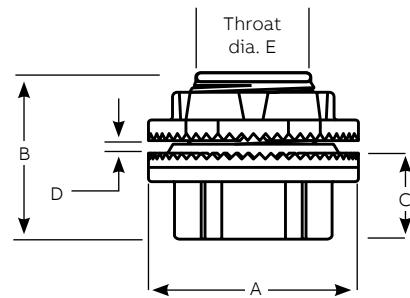
Product features

- Captive sealing ring won't buckle or slip during installation and provides a complete 360° seal – even when conduit isn't perpendicular to the enclosure
- Hexagonal/splined body and locknut enable fast and easy installation
- Insulated throat molded from 105° C-rated thermoplastic, UL94-V0 flammability rated
- Sharper and deeper teeth provide a more penetrating bite for improved bonding to the enclosure
- Zinc or copper-free aluminum with a nominal 0.040" (40 mil) PVC coating bonded to exterior [2.03.B.3.b]
- Standard color is dark gray – custom colors available upon request
- Pressure-sealing sleeves help protect your connections

Knockout hubs

PVC-coated zinc hub product code	PVC-coated aluminum hub product code	PVC-coated zinc grounded hub product code	Pipe size (in.)	Metric size designator*	Dimensions (uncoated hub)									
					A (Overall diameter)		B		C		D (Max. panel thickness)			
					(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)		
HUB1-2_-	HUB1/2SA_-	STG1_-	1/2	16	1.44	36.58	1.56	39.62	0.88	22.35	0.19	4.83	0.59	14.99
HUB3/4_-	HUB3/4SA_-	STG2_-	3/4	21	1.44	36.58	1.59	40.39	0.91	23.11	0.19	4.83	0.78	19.81
HUB1_-	HUB1SA_-	STG3_-	1	27	2.00	50.80	1.81	45.97	1.06	26.92	0.25	6.35	1.00	25.40
HUB1-1/4_-	HUB1-1/4SA_-	STG4_-	1 1/4	35	2.38	60.45	1.88	47.75	1.06	26.92	0.25	6.35	1.31	33.27
HUB1-1/2_-	HUB1-1/2SA_-	STG5_-	1 1/2	41	2.75	69.85	1.88	47.75	1.06	26.92	0.25	6.35	1.53	38.86
HUB2_-	HUB2SA_-	STG6_-	2	53	3.25	82.55	1.94	49.28	1.16	29.46	0.25	6.35	1.97	50.04
HUB2-1/2_-	HUB2-1/2SA_-	STG7_-	2 1/2	63	3.75	95.25	2.56	65.02	1.56	39.62	0.25	6.35	2.41	61.21
HUB3_-	HUB3SA_-	STG8_-	3	78	4.38	111.25	2.44	61.98	1.59	40.39	0.25	6.35	2.97	75.44
HUB3-1/2_-	HUB3-1/2SA_-	STG9_-	3 1/2	91	5.00	127.00	2.72	69.09	1.63	41.40	0.25	6.35	3.41	86.61
HUB4_-	HUB4SA_-	STG10_-	4	103	5.50	139.70	2.72	69.09	1.63	41.40	0.25	6.35	3.88	98.55
HUB5_-	HUB5SA_-	STG11_-	5	129	6.88	174.75	3.03	76.96	1.94	49.28	0.25	6.35	4.94	125.48
HUB6_-	HUB6SA_-	STG12_-	6	155	7.69	195.33	3.16	80.26	2.00	50.80	0.31	7.87	6.00	152.40

Product Code	Color
HUB1-	
—	= space for color identifier
G	Dark gray
W	White
B	Light blue
Standard offering is dark gray (G). Custom colors also available.	



Ocal® PVC-coated liquid-tight female

Hub adapter



Shown uncoated



Application

- Transition from liquid tight conduit to threaded PVC-coated rigid conduit

Standard material 5270 series

- Body, gland, locknut and ground cones: steel ($\frac{3}{8}$ "– $1\frac{1}{4}$ ") or malleable iron ($1\frac{1}{2}$ "– 2 ")

Standard finish 5270 series

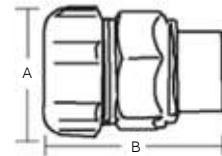
- Electro zinc plated with chromate coating
- 40 mil pvc external coating

Standard liquidtight female

Product code	Conduit size	Dimensions (in.) (uncoated)	
		A	B
5271- [†]	$\frac{3}{8}$	$1\frac{5}{32}$	$1\frac{9}{16}$
5272- [†]	$\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{11}{16}$
5273- [†]	$\frac{5}{8}$	$1\frac{21}{32}$	$1\frac{3}{4}$
5274- [†]	1	$1\frac{7}{8}$	$2\frac{1}{8}$
5275- [†]	$1\frac{1}{4}$	$2\frac{9}{32}$	$2\frac{1}{2}$
5276- [†]	$1\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{11}{16}$
5277- [†]	2	$3\frac{15}{32}$	$3\frac{1}{16}$

[†] UL Listed as grounding means under NEC 351-7.

Product Code	Color
5272-	—
= space for color identifier	
G = Dark gray	[Dark Gray Box]
W = White	[White Box]
B = Light blue	[Light Blue Box]
Standard offering is dark gray (G). Custom colors also available.	



2.0 CONDUIT BODIES

**SPECIFICATION – 16130-2.02.F
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

Ocal-Blue® double-coat conduit bodies

Easy access for pulling, splicing, mounting and maintenance

With Ocal-Blue double-coat conduit bodies, you can connect sections of conduit – with or without 90° bends – and provide easy access for wire pulling, making splices in branch conductors and for maintenance and future system changes. Conduit bodies can also serve as mounting outlets for wiring devices and lighting fixtures.

—
01 ¾" T Form 8
conduit body
and cover

—
02 ¾" X Form 7 conduit
body and cover

—
03 2½" LB Form 8
conduit body and cover

—
04 2½" LB Form 7
conduit body and cover

—
05 ¾" LB Mark 9 conduit
body and cover

Product features

- Type 4X Form 8 (½"-2") conduit bodies have injection-molded PVC-coated cover with integral O-ring seal
- Flat surface molded on conduit body seals with molded flange on cover on 2½"-4" Form 8 and all Form 7
- Available in Form 7 and Form 8 ferrous as well as Mark 9 and Form 7 aluminum
- All Ocal-Blue conduit bodies offer double corrosion protection – both bodies and covers coated inside and out with a nominal 0.002" (2 mil) blue urethane, then exterior coated with a nominal 0.040" (40 mil) PVC
- Standard color is dark gray – custom colors available upon request

- All threaded hubs fitted with pressure-sealing sleeves
- **Conduit bodies ship complete with covers and encapsulated stainless steel screws** 2.03.B.6.f
- Covers also sold separately for replacement or retrofit purposes

Product Code	Color
--------------	-------

LB27-

= space for color identifier

G = Dark gray

W = White

B = Light blue

Standard offering is dark gray (G).
Custom colors also available.



Ocal-Blue® double-coat conduit bodies

Quick reference guide

Ocal-Blue Conduit bodies and covers – quick reference

Shape	Style	Size (inch and metric size designator*)									
		1/2" 16	3/4" 21	1" 27	1 1/4" 35	1 1/2" 41	2" 53	2 1/2" 63	3" 78	3 1/2" 91	4" 103
Ocal-Blue conduit bodies											
	C	Form 7 C17-_	C27-_	C37-_	C47-_	C57-_	C67-_	C77-_	C87-_	—	—
	Form 8	C18-4X-_	C28-4X-_	C38-4X-_	C448-4X-_	C58-4X-_	C68-4X-_	C78-_	C88-_	—	—
	Mark 9	C19-_	C29-_	C39-_	C49-_	C59-_	C69-_	C789-_	C889-_	C989-_	C1089-_
	Form 7 Aluminum	C17SA-_	C27SA-_	C37SA-_	C47SA-_	C57SA-_	C67SA-_	C77SA-_	C87SA-_	—	—
	LU	Form 7 LU17-_	LU27-_	LU37-_	LU47-_	LU57-_	LU67-_	—	—	—	—
	Form 8	LU18-4X-_	LU28-4X-_	LU38-4X-_	LU448-4X-_	LU58-4X-_	LU68-4X-_	—	—	—	—
	LB	Form 7 LB17-_	LB27-_	LB37-_	LB47-_	LB57-_	LB67-_	LB777-_	LB87-_	LB97-_	LB107-_
	Form 8	LB18-4X-_	LB28-4X-_	LB38-4X-_	LB448-4X-_	LB58-4X-_	LB68-4X-_	LB78-_	LB888-_	LB98-	LB108-
	Mark 9	LB19-_	LB29-_	LB39-_	LB49-_	LB59-_	LB69-_	LB789-_	LB889-_	LB989-_	LB1089-_
	Form 7 Aluminum	LB17SA-_	LB27SA-_	LB37SA-_	LB47SA-_	LB57SA-_	LB67SA-_	LB777SA-_	LB87SA-_	LB97SA-_	LB107SA-_
	LL	Form 7 LL17-_	LL27-_	LL37-_	LL47-_	LL57-_	LL67-_	LL777-_	LL87-_	LL97-_	LL107-_
	Form 8	LL18-4X-_	LL28-4X-_	LL38-4X-_	LL448-4X-_	LL58-4X-_	LL68-4X-_	LL78-_	LL888-_	—	—
	Mark 9	LL19-_	LL29-_	LL39-_	LL49-_	LL59-_	LL69-_	LL789-_	LL889-_	LL989-_	LL1089-_
	Form 7 Aluminum	LL17SA-_	LL27SA-_	LL37SA-_	LL47SA-_	LL57SA-_	LL67SA-_	LL777SA-_	LL87SA-_	LL97SA-_	LL107SA-_
	LR	Form 7 LR17-_	LR27-_	LR37-_	LR47-_	LR57-_	LR67-_	LR777-_	LR87-_	LR97-_	LR107-_
	Form 8	LR18-4X-_	LR28-4X-_	LR38-4X-_	LR448-4X-_	LR58-4X-_	LR68-4X-_	LR78-_	LR888-_	—	—
	Mark 9	LR19-_	LR29-_	LR39-_	LR49-_	LR59-_	LR69-_	LR789-_	LR889-_	LR989-_	LR1089-_
	Form 7 Aluminum	LR17SA-_	LR27SA-_	LR37SA-_	LR47SA-_	LR57SA-_	LR67SA-_	LR777SA-_	LR87SA-_	LR97SA-_	LR107SA-_
	T	Form 7 T17-_	T27-_	T37-_	T47-_	T57-_	T67-_	T77-_	T87-_	T97-_	T107-_
	Form 8	T18-4X-_	T28-4X-_	T38-4X-_	T448-4X-_	T58-4X-_	T68-4X-_	T78-_	T88-_	—	—
	Mark 9	T19-_	T29-_	T39-_	T49-_	T59-_	T69-_	T789-_	T889-_	T989-_	T1089-_
	Form 7 Aluminum	T17SA-_	T27SA-_	T37SA-_	T47SA-_	T57SA-_	T67SA-_	T77SA-_	T87SA-_	T97SA-_	T107SA-_
	TB	Form 7 TB17-_	TB27-_	TB37-_	TB47-_	TB57-_	TB67-_	—	—	—	—
	Form 8	TB18-4X-_	TB28-4X-_	TB38-4X-_	TB448-4X-_	TB58-4X-_	TB68-4X-_	—	—	—	—
	Mark 9	TB19-_	TB29-_	TB39-_	TB49-_	—	—	—	—	—	—
	Form 7 Aluminum	TB17SA-_	TB27SA-_	TB37SA-_	TB47SA-_	TB57SA-_	TB67SA-_	—	—	—	—
	X	Form 7 X17-_	X27-_	X37-_	X47-_	X57-_	X67-_	—	—	—	—
	Form 8	X18-4X-_	X28-4X-_	X38-4X-_	X448-4X-_	X58-4X-_	X68-4X-_	—	—	—	—
	Mark 9	X19-_	X29-_	X39-_	—	—	—	—	—	—	—
	Form 7 Aluminum	X17SA-_	X27SA-_	X37SA-_	X47SA-_	X57SA-_	X67SA-_	—	—	—	—

Note: Fittings shown uncoated

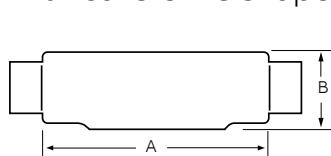
Ocal-Blue conduit body covers

	Form 7	170F-_	270F-_	370F-_	470F-_	570F-_	670F-_	870F-_	870F-_	970F-_	970F-_
	Form 8	180F-4X-_	280F-4X-_	380F-4X-_	480F-4X-_	580F-4X-_	680F-4X-_	880F-_	880F-_	980F-_	980F-_
	Mark 9	190-_	290-_	390-_	490-_	590-_	690-_	889-_	889-_	989-_	989-_
	Form 7 Aluminum	170SA-_	270SA-_	370SA-_	470SA-_	570SA-_	670SA-_	870SA-_	870SA-_	970SA-_	970SA-_

* Metric size designator (ANSI C80.1-1994).

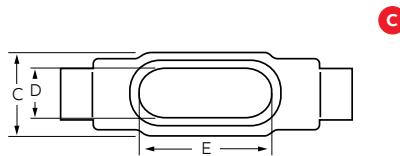
Ocal-Blue® double-coat conduit bodies

With covers – C shape



C Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
C17_-	1/2"	5.45	1.40	1.45	0.95	3.20	4.00
	16	138.43	35.56	36.83	24.13	81.28	65.55
C27_-	3/4"	6.05	1.60	1.65	1.15	3.80	6.6
	21	153.67	40.64	41.91	29.21	96.52	108.15
C37_-	1"	6.75	1.90	1.8	1.35	4.55	10.6
	27	171.45	48.26	45.72	34.29	115.57	173.7
C47_-	1 1/4"	7.30	2.30	2.20	1.80	5.00	18.8
	35	185.42	58.42	55.88	45.72	127.00	308.08
C57_-	1 1/2"	8.60	2.60	2.45	2.05	5.45	26.4
	41	218.44	66.04	62.23	52.07	138.43	432.62
C67_-	2"	9.50	3.20	3.05	2.45	6.40	51.00
	53	241.3	81.28	77.47	62.23	162.56	835.74
C77_-	2 1/2"	12.10	3.65	4.25	3.60	8.40	102.00
	63	307.34	92.71	107.95	91.44	213.36	1671.48
C87_-	3"	12.10	4.40	4.25	3.60	8.40	132.00
	78	307.34	111.76	107.95	91.44	213.36	2163.09



C Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
C19_-	1/2"	5.00	1.38	1.38	1.19	3.31	—
	16	127	35.05	35.05	30.23	84.07	—
C29_-	3/4"	5.69	1.63	1.56	1.38	3.94	—
	21	144.53	41.4	39.62	35.05	100.08	—
C39_-	1"	6.59	1.88	1.75	1.50	4.56	—
	27	167.39	47.75	44.45	38.10	115.82	—
C49_-	1 1/4"	7.50	2.50	2.19	1.94	5.31	—
	35	190.5	63.5	55.63	49.28	134.87	—
C59_-	1 1/2"	8.25	2.75	2.50	2.25	6.00	—
	41	209.55	69.85	63.5	57.15	152.4	—
C69_-	2"	10.50	3.44	3.19	2.88	8.06	—
	53	266.7	87.38	81.03	73.15	204.72	—
C789_-	2 1/2"	15.63	4.44	5.00	4.25	10.88	—
	63	397.00	112.78	127.00	107.95	276.35	—
C889_-	3"	15.63	4.81	5.00	4.25	10.88	—
	78	397.00	122.17	127.00	107.95	276.35	—
C989_-	3 1/2"	18.75	5.69	6.25	5.44	13.44	—
	91	476.25	144.53	158.75	138.18	341.38	—
C1089_-	4"	18.75	5.94	6.25	5.44	13.44	—
	103	476.25	150.88	158.75	138.18	341.38	—

C Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
C18-4X_-	1/2"	5.53	1.44	1.38	1.00	3.31	4.90
	16	140.49	36.51	34.93	25.4	84.14	80.3
C28-4X_-	3/4"	6.28	1.53	1.19	1.19	3.94	8.00
	21	159.54	38.89	30.16	30.16	100.01	131.1
C38-4X_-	1"	7.31	1.94	1.75	1.38	4.56	13.00
	27	185.74	49.21	44.45	34.93	115.89	213.03
C448-4X_-	1 1/4"	8.50	2.38	2.19	1.75	5.31	23.50
	35	215.9	60.33	55.56	44.45	134.94	385.1
C58-4X_-	1 1/2"	10.38	2.78	2.75	2.13	6.50	45.00
	41	263.53	70.64	69.85	53.98	165.1	737.42
C68-4X_-	2"	12.25	3.56	3.75	3.00	8.56	88.00
	53	311.15	90.49	95.25	76.2	217.49	1442.06
C78_-	2 1/2"	15.63	4.44	5.00	4.25	10.88	110.00
	63	396.88	112.71	127.00	107.95	276.23	1802.58
C88_-	3"	15.63	4.81	5.00	4.25	10.88	110.00
	78	396.88	122.24	127.00	107.95	276.23	1802.58

C Form 7 aluminum conduit bodies with covers

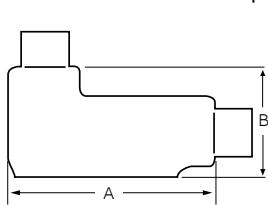
Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
C17SA_-	1/2"	5.45	1.40	1.45	0.95	3.20	4.00
	16	138.43	35.56	36.83	24.13	81.28	65.55
C27SA_-	3/4"	6.05	1.60	1.65	1.15	3.80	6.60
	21	153.67	40.64	41.91	29.21	96.52	108.15
C37SA_-	1"	6.75	1.90	1.80	1.35	4.55	10.60
	27	171.45	48.26	45.72	34.29	115.57	173.7
C47SA_-	1 1/4"	7.30	2.30	2.20	1.80	5.00	18.80
	35	185.42	58.42	55.88	45.72	127.00	308.08
C57SA_-	1 1/2"	8.60	2.60	2.45	2.05	5.45	26.40
	41	218.44	66.04	62.23	52.07	138.43	432.62
C67SA_-	2"	9.50	3.20	3.05	2.45	6.40	51.00
	53	241.30	81.28	77.47	62.23	162.56	835.74
C77SA_-	2 1/2"	12.10	3.65	4.25	3.60	8.40	102.00
	63	307.34	92.71	107.95	91.44	213.36	1671.48
C87SA_-	3"	12.10	4.40	4.25	3.60	8.40	132.00
	78	307.34	111.76	107.95	91.44	213.36	2163.09

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

Ocal-Blue® double-coat conduit bodies

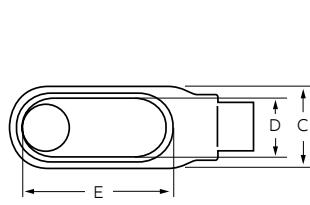
With covers – LB shape



LB

LB Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
LB17-_	1/2"	4.60	2.20	1.35	0.95	3.20	4.00
	16	116.84	55.88	34.29	24.13	81.28	65.55
LB27-_	3/4"	5.25	2.40	1.65	1.15	3.80	6.60
	21	133.35	60.96	41.91	29.21	96.52	108.15
LB37-_	1"	6.00	2.65	1.80	1.35	4.55	10.6
	27	152.4	67.31	45.72	34.29	115.57	173.7
LB47-_	1 1/4"	6.45	3.20	2.20	1.80	5.00	18.80
	35	163.83	81.28	55.88	45.72	127.00	308.08
LB57-_	1 1/2"	7.25	3.90	2.45	2.05	5.45	26.40
	41	184.15	99.06	62.23	52.07	138.43	432.62
LB67-_	2"	8.30	4.45	3.10	2.45	6.40	51.00
	53	210.82	113.03	78.74	62.23	162.56	835.74
LB777-_	2 1/2"	10.55	5.20	4.25	3.60	8.40	102.00
	63	267.97	132.08	107.95	91.44	213.36	1671.48
LB87-_	3"	10.55	5.95	4.25	3.60	8.40	132.00
	78	267.97	151.13	107.95	91.44	213.36	2163.09
LB97-_	3 1/2"	12.85	6.70	5.25	4.55	10.25	210.00
	91	326.39	170.18	133.35	115.57	260.35	3441.28
LB107-_	4"	12.85	7.20	5.25	4.55	10.25	243.00
	103	326.39	182.88	133.35	115.57	260.35	3982.06



LB

LB Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
LB19-_	1/2"	4.59	2.13	1.38	1.19	3.31	—
	16	116.68	53.98	34.93	30.16	84.14	—
LB29-_	3/4"	5.25	2.41	1.56	1.38	3.94	—
	21	133.35	61.12	39.69	34.93	100.01	—
LB39-_	1"	6.09	2.84	1.75	1.5	4.56	—
	27	154.78	72.23	44.45	38.1	115.89	—
LB49-_	1 1/4"	7.03	3.47	2.19	1.94	5.31	—
	35	178.59	88.11	55.56	49.21	134.94	—
LB59-_	1 1/2"	7.75	3.75	2.50	2.25	6.00	—
	41	196.85	95.25	63.5	57.15	152.4	—
LB69-_	2"	10.03	4.47	3.19	2.88	8.06	—
	53	254.79	113.51	80.96	73.03	204.79	—
LB789-_	2 1/2"	13.94	6.13	5.00	4.25	10.88	—
	63	354.01	155.58	127.00	107.95	276.23	—
LB889-_	3"	13.94	6.50	5.00	4.25	10.88	—
	78	354.01	165.1	127.00	107.95	276.23	—
LB989-_	3 1/2"	16.88	7.56	6.25	5.44	13.44	—
	91	428.63	192.09	158.75	138.11	341.31	—
LB1089-_	4"	16.88	7.81	6.25	5.44	13.44	—
	103	428.63	198.44	158.75	138.11	341.31	—

LB Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
LB18-4X-_	1/2"	4.94	2.22	1.38	1.00	3.31	4.90
	16	125.41	56.36	34.93	25.4	84.14	80.3
LB28-4X-_	3/4"	5.56	2.44	1.56	1.19	3.31	8.00
	21	141.29	61.93	39.69	30.16	84.14	131.1
LB38-4X-_	1"	6.50	2.81	1.75	1.38	4.56	13.00
	27	165.1	71.45	44.45	34.93	115.89	213.03
LB448-4X-_	1 1/4"	7.53	3.34	2.19	1.75	5.31	23.50
	35	191.29	84.93	55.56	44.45	134.94	385.1
LB58-4X-_	1 1/2"	9.13	4.03	2.75	2.13	6.50	45.00
	41	231.78	102.39	69.85	53.98	165.1	737.42
LB68-4X-_	2"	11.00	4.41	3.75	3.00	8.56	88.00
	53	279.4	111.92	95.25	76.2	217.49	1442.06
LB78-_	2 1/2"	13.94	6.13	5.00	4.25	10.88	110.00
	63	354.01	155.58	127.00	107.95	276.23	1802.58
LB888-_	3"	13.94	6.50	5.00	4.25	10.88	110.00
	78	354.01	165.1	127.00	107.95	276.23	1802.58
LB98-_	3 1/2"	16.88	7.56	6.25	5.44	13.44	250.00
	91	428.63	192.09	158.75	138.11	341.31	4096.77
LB108-_	4"	16.88	7.81	6.25	5.44	13.44	250.00
	103	428.63	198.44	158.75	138.11	341.31	4096.77

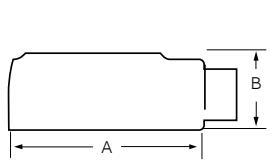
Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
LB17SA-_	1/2"	4.60	2.20	1.35	0.95	3.20	4.00
	16	116.84	55.88	34.29	24.13	81.28	65.55
LB27SA-_	3/4"	5.25	2.40	1.65	1.15	3.80	6.60
	21	133.35	60.96	41.91	29.21	96.52	108.15
LB37SA-_	1"	6.00	2.65	1.80	1.35	4.55	10.60
	27	152.4	67.31	45.72	34.29	115.57	173.7
LB47SA-_	1 1/4"	6.45	3.20	2.20	1.80	5.00	18.80
	35	163.83	81.28	55.88	45.72	127.00	308.08
LB57SA-_	1 1/2"	7.25	3.90	2.45	2.05	5.45	26.40
	41	184.15	99.06	62.23	52.07	138.43	432.62
LB67SA-_	2"	8.30	4.45	3.10	2.45	6.40	51.00
	53	210.82	113.03	78.74	62.23	162.56	835.74
LB777SA-_	2 1/2"	10.55	5.20	4.25	3.60	8.40	102.00
	63	267.97	132.08	107.95	91.44	213.36	1671.48
LB87SA-_	3"	10.55	5.95	4.25	3.60	8.40	132.00
	78	267.97	151.13	107.95	91.44	213.36	2163.09
LB97SA-_	3 1/2"	12.85	6.70	5.25	4.55	10.25	210.00
	91	326.39	170.18	133.35	115.57	260.35	3441.28
LB107SA-_	4"	12.85	7.20	5.25	4.55	10.25	243.00
	103	326.39	182.88	133.35	115.57	260.35	3982.06

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

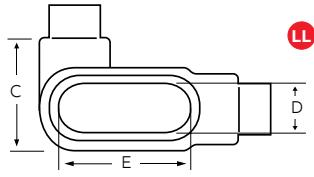
Ocal-Blue® double-coat conduit bodies

With covers – LL shape



— LL Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LL17_-	1/2"	4.60	1.40	1.45	0.95	3.20	4.00
	16	116.84	35.56	36.83	24.13	81.28	65.55
LL27_-	3/4"	5.25	1.60	1.65	1.15	3.80	6.60
	21	133.35	40.64	41.91	29.21	96.52	108.15
LL37_-	1"	6.00	1.90	2.60	1.35	4.55	10.60
	27	152.40	48.26	66.04	34.29	115.57	173.70
LL47_-	1 1/4"	6.45	2.30	3.05	1.80	5.00	18.60
	35	163.83	58.42	77.47	45.72	127.00	304.8
LL57_-	1 1/2"	7.90	2.60	3.80	2.05	5.45	26.40
	41	200.66	66.04	96.52	52.07	138.43	432.62
LL67_-	2"	8.30	3.20	4.25	2.45	6.40	51.00
	53	210.82	81.28	107.95	62.23	162.56	835.74
LL777_-	2 1/2"	10.55	3.65	5.80	3.60	8.40	102.00
	63	267.97	92.71	147.32	91.44	213.36	1671.48
LL87_-	3"	10.55	4.40	5.80	3.60	8.40	132.00
	78	267.97	111.76	147.32	91.44	213.36	2163.09
LL97_-	3 1/2"	12.85	4.90	7.03	4.55	10.25	210.00
	91	326.39	124.46	178.56	115.57	260.35	3441.28
LL107_-	4"	12.85	5.40	7.03	4.55	10.25	243.00
	103	326.39	137.16	178.56	115.57	260.35	3982.06



— LL Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LL19_-	1/2"	4.59	1.38	2.13	1.19	3.31	—
	16	116.68	34.93	53.98	30.16	84.14	—
LL29_-	3/4"	5.25	1.63	2.38	1.38	3.94	—
	21	133.35	41.28	60.33	34.93	100.01	—
LL39_-	1"	6.09	1.88	2.63	1.50	4.56	—
	27	154.78	47.63	66.68	38.1	115.89	—
LL49_-	1 1/4"	7.03	2.50	3.09	1.94	5.31	—
	35	178.59	63.5	78.58	49.21	134.94	—
LL59_-	1 1/2"	7.75	2.75	3.44	2.25	6.00	—
	41	196.85	69.85	87.31	57.15	152.4	—
LL69_-	2"	10.03	3.44	4.13	2.88	8.06	—
	53	254.79	87.31	104.78	73.03	204.79	—
LL789_-	2 1/2"	13.94	4.44	6.69	4.25	10.88	—
	63	354.01	112.71	169.86	107.95	276.23	—
LL889_-	3"	13.94	4.81	6.69	4.25	10.88	—
	78	354.08	122.24	169.93	107.95	276.35	—
LL989_-	3 1/2"	16.88	5.69	8.13	5.44	13.44	—
	91	428.63	144.46	206.38	138.11	341.31	—
LL1089_-	4"	16.88	5.94	8.13	5.44	13.44	—
	103	428.63	150.81	206.38	138.11	341.31	—

— LL Form 8 Ferrous conduit bodies with covers

Product Code	Hub Size*	Dimensions (in. and mm)**					Vol. Cap. (cu.in./cu.cm.)
		A	B	C	D	E	
LL18-4X_-	1/2"	4.94	1.44	2.16	1.00	3.31	4.90
	16	125.41	36.51	54.77	25.40	84.14	80.30
LL28-4X_-	3/4"	5.56	1.69	2.31	1.19	3.94	8.00
	21	141.29	42.86	58.74	30.16	100.01	131.10
LL38-4X_-	1"	6.47	1.94	2.63	1.38	4.56	13.00
	27	164.31	49.21	66.68	34.93	115.89	213.03
LL448-4X_-	1 1/4"	7.53	2.38	3.16	1.75	5.31	23.50
	35	191.29	60.33	80.17	44.45	134.94	385.10
LL58-4X_-	1 1/2"	9.13	2.78	4.00	2.13	6.50	45.00
	41	231.78	70.64	101.6	53.98	165.10	737.42
LL68-4X_-	2"	11.00	3.56	5.00	3.00	8.56	88.00
	53	279.4	90.49	127.00	76.20	217.49	1442.06
LL78_-	2 1/2"	13.94	4.44	6.69	4.25	10.88	110.00
	63	354.01	112.71	169.86	107.95	276.23	1802.58
LL888_-	3"	13.94	4.81	6.69	4.25	10.88	110.00
	78	354.01	122.24	169.86	107.95	276.23	1802.58

* Metric size designator (ANSI C80.1-1994).

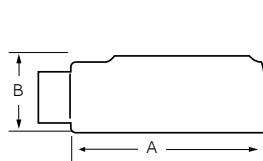
** Dimensions shown are for uncoated conduit bodies.

— LL Form 7 Aluminum conduit bodies with covers

Product Code	Hub Size*	Dimensions (in. and mm)**					Vol. Cap. (cu.in./cu.cm.)
		A	B	C	D	E	
LL17SA_-	1/2"	4.60	1.40	1.45	0.95	3.20	4.00
	16	116.84	35.56	36.83	24.13	81.28	65.55
LL27SA_-	3/4"	5.25	1.60	1.65	1.15	3.80	6.60
	21	133.35	40.64	41.91	29.21	96.52	108.15
LL37SA_-	1"	6.00	1.90	2.60	1.35	4.55	10.60
	27	152.40	48.26	66.04	34.29	115.57	173.7
LL47SA_-	1 1/4"	6.45	2.30	3.05	1.80	5.00	18.60
	35	163.83	58.42	77.47	45.72	127.00	304.8
LL57SA_-	1 1/2"	7.90	2.60	3.80	2.05	5.45	26.40
	41	200.66	66.04	96.52	52.07	138.43	432.62
LL67SA_-	2"	8.30	3.20	4.25	2.45	6.40	51.00
	53	210.82	81.28	107.95	62.23	162.56	835.74
LL777SA_-	2 1/2"	10.55	3.65	5.80	3.60	8.40	102.00
	63	267.97	92.71	147.32	91.44	213.36	1671.48
LL87SA_-	3"	10.55	4.40	5.80	3.60	8.40	132.00
	78	267.97	111.76	147.32	91.44	213.36	2163.09
LL97SA_-	3 1/2"	12.85	4.90	7.03	4.55	10.25	210.00
	91	326.39	124.46	178.56	115.57	260.35	3441.28
LL107SA_-	4"	12.85	5.40	7.03	4.55	10.25	243.00
	103	326.39	137.16	178.56	115.57	260.35	3982.06

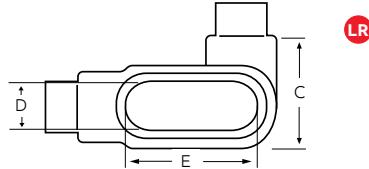
Ocal-Blue® double-coat conduit bodies

With covers – LR shape



LR Form 7 Ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LR17_-	1/2"	4.60	1.40	1.45	0.95	3.20	4.00
	16	116.84	35.56	36.83	24.13	81.28	65.55
LR27_-	3/4"	5.25	1.60	1.65	1.15	3.80	6.60
	21	133.35	40.64	41.91	29.21	96.52	108.15
LR37_-	1"	6.00	1.90	2.60	1.35	4.55	10.60
	27	152.4	48.26	66.04	34.29	115.57	173.70
LR47_-	1 1/4"	6.45	2.30	3.05	1.80	5.00	18.80
	35	163.83	58.42	77.47	45.72	127.00	308.08
LR57_-	1 1/2"	7.90	2.60	3.80	2.05	5.45	26.40
	41	200.66	66.04	96.52	52.07	138.43	432.62
LR67_-	2"	8.30	3.20	4.25	2.45	6.40	51.00
	53	210.82	81.28	107.95	62.23	162.56	835.74
LR777_-	2 1/2"	10.55	3.65	5.80	3.60	8.40	102.00
	63	267.97	92.71	147.32	91.44	213.36	1671.48
LR87_-	3"	10.55	4.40	5.80	3.60	8.40	132.00
	78	267.97	111.76	147.32	91.44	213.36	2163.09
LR97_-	3 1/2"	12.85	4.90	7.03	4.55	10.25	210.00
	91	326.39	124.46	178.56	115.57	260.35	3441.28
LR107_-	4"	12.85	5.40	7.03	4.55	10.25	243.00
	103	326.39	137.16	178.56	115.57	260.35	3982.06



LR Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LR19_-	1/2"	4.59	1.38	2.13	1.19	3.31	—
	16	116.68	34.93	53.98	30.16	84.14	—
LR29_-	3/4"	5.25	1.63	2.38	1.38	3.94	—
	21	133.35	41.28	60.33	34.93	100.01	—
LR39_-	1"	6.09	1.88	2.63	1.50	4.56	—
	27	154.78	47.63	66.68	38.1	115.89	—
LR49_-	1 1/4"	7.03	2.50	3.09	1.94	5.31	—
	35	178.59	63.5	78.58	49.21	134.94	—
LR59_-	1 1/2"	7.75	2.75	3.44	2.25	6.00	—
	41	196.85	69.85	87.31	57.15	152.4	—
LR69_-	2"	10.03	3.44	4.13	2.88	8.06	—
	53	254.79	87.31	104.78	73.03	204.79	—
LR789_-	2 1/2"	13.94	4.44	6.69	4.25	10.88	—
	63	354.01	112.71	169.86	107.95	276.23	—
LR889_-	3"	13.94	4.81	6.69	4.25	10.88	—
	78	354.08	122.24	169.93	107.95	276.35	—
LR989_-	3 1/2"	16.88	5.69	8.13	5.44	13.44	—
	91	428.63	144.46	206.38	138.11	341.31	—
LR1089_-	4"	16.88	5.94	8.13	5.44	13.44	—
	103	428.63	150.81	206.38	138.11	341.31	—

LR Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LR18-4X_-	1/2"	4.94	1.44	2.16	1.00	3.31	4.90
	16	125.41	36.51	54.77	25.4	84.14	80.30
LR28-4X_-	3/4"	5.56	1.69	2.31	1.19	3.94	8.00
	21	141.29	42.86	58.74	30.16	100.01	131.10
LR38-4X_-	1"	6.47	1.94	2.63	1.38	4.56	13.00
	27	164.31	49.21	66.68	34.93	115.89	213.03
LR448-4X_-	1 1/4"	7.53	2.38	3.16	1.75	5.31	23.50
	35	191.29	60.33	80.17	44.45	134.94	385.10
LR58-4X_-	1 1/2"	9.13	2.78	4.00	2.13	6.50	45.00
	41	231.78	70.64	101.6	53.98	165.10	737.42
LR68-4X_-	2"	11.00	3.56	5.00	3.00	8.56	88.00
	53	279.40	90.49	127.00	76.2	217.49	1442.06
LR78_-	2 1/2"	13.94	4.44	6.69	4.25	10.88	110.00
	63	354.01	112.71	169.86	107.95	276.23	1802.58
LR888_-	3"	13.94	4.81	6.69	4.25	10.88	110.00
	78	354.01	122.24	169.86	107.95	276.23	1802.58

LR Form 7 aluminum conduit bodies with covers

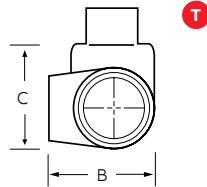
Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu.cm)
		A	B	C	D	E	
LR17SA_-	1/2"	4.60	1.40	1.45	0.95	3.20	4.00
	16	116.84	35.56	36.83	24.13	81.28	65.55
LR27SA_-	3/4"	5.25	1.60	1.65	1.15	3.80	6.60
	21	133.35	40.64	41.91	29.21	96.52	108.15
LR37SA_-	1"	6.00	1.90	2.60	1.35	4.55	10.60
	27	152.4	48.26	66.04	34.29	115.57	173.70
LR47SA_-	1 1/4"	6.45	2.30	3.05	1.80	5.00	18.80
	35	163.83	58.42	77.47	45.72	127.00	308.08
LR57SA_-	1 1/2"	7.9	2.60	3.80	2.05	5.45	26.40
	41	200.66	66.04	96.52	52.07	138.43	432.62
LR67SA_-	2"	8.30	3.20	4.25	2.45	6.40	51.00
	53	210.82	81.28	107.95	62.23	162.56	835.74
LR777SA_-	2 1/2"	10.55	3.65	5.80	3.60	8.40	102.00
	63	267.97	92.71	147.32	91.44	213.36	1671.48
LR87SA_-	3"	10.55	4.40	5.80	3.60	8.40	132.00
	78	267.97	111.76	147.32	91.44	213.36	2163.09
LR97SA_-	3 1/2"	12.85	4.90	7.03	4.55	10.25	210.00
	91	326.39	124.46	178.56	115.57	260.35	3441.28
LR107SA_-	4"	12.85	5.40	7.03	4.55	10.25	243.00
	103	326.39	137.16	178.56	115.57	260.35	3982.06

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

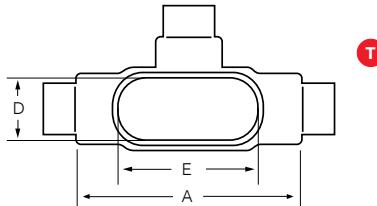
Ocal-Blue® double-coat conduit bodies

With covers – T shape



T Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu/cm)
		A	B	C	D	E	
T17_-	1/2"	5.60	1.80	2.35	0.95	3.20	6.00
	16	142.24	45.72	59.69	24.13	81.28	98.32
T27_-	3/4"	6.20	2.00	2.60	1.15	3.80	9.10
	21	157.48	50.80	66.04	29.21	96.52	149.12
T37_-	1"	7.35	2.30	3.10	1.35	4.55	16.90
	27	186.69	58.42	78.74	34.29	115.57	276.94
T47_-	1 1/4"	7.30	2.30	3.05	1.80	5.00	19.30
	35	185.42	58.42	77.47	45.72	127.00	316.27
T57_-	1 1/2"	8.60	2.60	3.80	2.05	5.45	27.50
	41	218.44	66.04	96.52	52.07	138.43	450.64
T67_-	2"	9.50	3.20	4.25	2.45	6.40	50.00
	53	241.3	81.28	107.95	62.23	162.56	819.35
T77_-	2 1/2"	12.10	3.65	5.80	3.60	8.40	102.00
	63	307.34	92.71	147.32	91.44	213.36	1671.48
T87_-	3"	12.10	4.40	5.80	3.60	8.40	132.00
	78	307.34	111.76	147.32	91.44	213.36	2163.09
T97_-	3 1/2"	14.65	4.90	7.05	4.55	10.25	210.00
	91	372.11	124.46	179.07	115.57	260.35	3441.28
T107_-	4"	14.65	5.40	7.05	4.55	10.25	243.00
	103	372.11	137.16	179.07	115.57	260.35	3982.06



T Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. Cap. (cu. in./cu.cm)
		A	B	C	D	E	
T19_-	1/2"	50.00	1.38	2.13	1.19	3.31	—
	16	127	34.93	53.98	30.16	84.14	—
T29_-	3/4"	5.69	1.63	2.38	1.38	3.94	—
	21	144.46	41.28	60.33	34.93	100.01	—
T39_-	1"	6.59	1.88	2.63	1.50	4.56	—
	27	167.48	47.63	66.68	38.1	115.89	—
T49_-	1 1/4"	7.50	2.50	3.09	1.94	5.31	—
	35	190.5	63.5	78.58	49.21	134.94	—
T59_-	1 1/2"	8.25	2.75	3.44	2.25	6.00	—
	41	209.55	69.85	87.31	57.15	152.4	—
T69_-	2"	10.5	3.44	4.13	2.88	8.06	—
	53	266.7	87.31	104.78	73.03	204.79	—
T789_-	2 1/2"	15.63	4.44	6.69	4.25	10.88	—
	63	396.88	112.71	169.86	107.95	276.23	—
T889_-	3"	15.63	4.81	6.69	4.25	10.88	—
	78	396.88	122.24	169.86	107.95	276.23	—
T989_-	3 1/2"	18.75	5.69	8.13	5.44	13.44	—
	91	476.25	144.46	206.38	138.11	341.31	—
T1089_-	4"	18.75	5.94	8.13	5.44	13.44	—
	103	476.25	150.81	206.38	138.11	341.31	—

T Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
T18-4X_-	1/2"	5.69	1.75	2.16	1.00	3.31	6.00
	16	144.46	44.45	54.77	25.4	84.14	98.32
T28-4X_-	3/4"	6.28	2.00	2.31	1.19	3.94	9.00
	21	159.54	50.8	58.74	30.16	100.01	147.48
T38-4X_-	1"	7.31	2.25	2.63	1.38	4.56	15.00
	27	185.74	57.15	66.68	34.93	115.89	245.81
T448-4X_-	1 1/4"	8.50	2.63	3.16	1.75	5.31	24.00
	35	215.9	66.68	80.17	44.45	134.94	393.29
T58-4X_-	1 1/2"	10.38	2.78	4.00	2.13	6.50	46.50
	41	263.53	70.64	101.6	53.98	165.10	762.00
T68-4X_-	2"	12.25	3.56	5.00	3.00	8.56	88.00
	53	311.15	90.49	127.00	76.20	217.49	1442.06
T78_-	2 1/2"	15.63	4.44	6.69	4.25	10.88	110.00
	63	396.88	112.71	169.86	107.95	276.23	1802.58
T88_-	3"	15.63	4.81	6.69	4.25	10.88	110.00
	78	396.88	122.24	169.86	107.95	276.23	1802.58

T Form 7 aluminum conduit bodies with covers

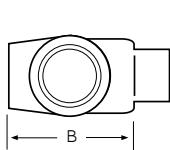
Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
T17SA_-	1/2"	5.60	1.80	2.35	0.95	3.20	6.00
	16	142.24	45.72	59.69	24.13	81.28	98.32
T27SA_-	3/4"	6.20	2.00	2.60	1.15	3.80	9.10
	21	157.48	50.80	66.04	29.21	96.52	149.12
T37SA_-	1"	7.35	2.30	3.10	1.35	4.55	16.90
	27	186.69	58.42	78.74	34.29	115.57	276.94
T47SA_-	1 1/4"	7.30	2.30	3.05	1.80	5.00	19.30
	35	185.42	58.42	77.47	45.72	127	316.27
T57SA_-	1 1/2"	8.60	2.60	3.80	2.05	5.45	27.50
	41	218.44	66.04	96.52	52.07	138.43	450.64
T67SA_-	2"	9.50	3.20	4.25	2.45	6.4	50.00
	53	241.3	81.28	107.95	62.23	162.56	819.35
T77SA_-	2 1/2"	12.10	3.65	5.80	3.60	8.40	102.00
	63	307.34	92.71	147.32	91.44	213.36	1671.48
T87SA_-	3"	12.10	4.40	5.80	3.60	8.40	132.00
	78	307.34	111.76	147.32	91.44	213.36	2163.09
T97SA_-	3 1/2"	14.65	4.90	7.05	4.55	10.25	210.00
	91	372.11	124.46	179.07	115.57	260.35	3441.28
T107SA_-	4"	14.65	5.40	7.05	4.55	10.25	243.00
	103	372.11	137.16	179.07	115.57	260.35	3982.06

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

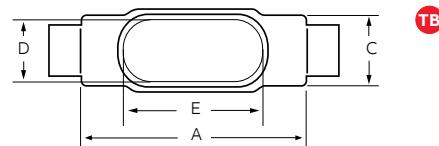
Ocal-Blue® double-coat conduit bodies

With covers – TB and LU shapes



TB Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
TB17_-	1/2"	5.60	2.06	1.63	0.95	3.20	6.00
	16	142.24	52.32	41.4	24.13	81.28	98.32
TB27_-	3/4"	6.20	2.31	1.81	1.15	3.80	9.10
	21	157.48	58.67	45.97	29.21	96.52	149.12
TB37_-	1"	7.35	2.50	2.31	1.35	4.55	16.90
	27	186.69	63.5	58.67	34.29	115.57	276.94
TB47_-	1 1/4"	7.30	3.19	2.25	1.80	5.00	19.30
	35	185.42	81.03	57.15	45.72	127.00	316.27
TB57_-	1 1/2"	8.60	3.91	2.42	2.05	5.45	27.50
	41	218.44	99.31	61.47	52.07	138.43	450.64
TB67_-	2"	9.50	4.50	3.06	2.45	6.40	52.80
	53	241.30	114.30	77.72	62.23	162.56	865.24

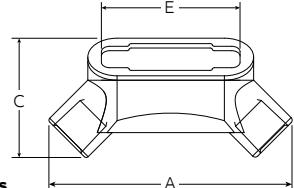


TB Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
TB19_-	1/2"	5.00	2.13	1.38	1.19	3.31	—
	16	127.00	53.98	34.93	30.16	84.14	—
TB29_-	3/4"	5.69	2.41	1.56	1.38	3.94	—
	21	144.46	61.12	39.69	34.93	100.01	—
TB39_-	1"	6.59	2.84	1.75	1.50	4.56	—
	27	167.48	72.23	44.45	38.1	115.89	—
TB49_-	1 1/4"	7.50	3.47	2.19	1.94	5.31	—
	35	190.50	88.11	55.56	49.21	134.94	—

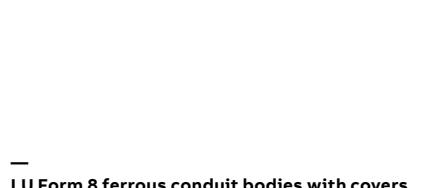
TB Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu. in./cu.cm)
		A	B	C	D	E	
TB18-4X_-	1/2"	5.69	2.63	1.38	1.00	3.31	6.00
	16	144.46	66.68	34.93	25.40	84.14	98.32
TB28-4X_-	3/4"	6.28	2.88	1.19	1.19	3.94	9.00
	21	159.54	73.03	30.16	30.16	100.01	147.48
TB38-4X_-	1"	7.31	3.25	1.75	1.38	4.56	15.00
	27	185.74	82.55	44.45	34.93	115.89	245.81
TB448-4X_-	1 1/4"	8.50	3.31	2.19	1.75	5.31	24.00
	35	215.90	84.14	55.56	44.45	134.94	393.29
TB58-4X_-	1 1/2"	10.38	3.69	2.75	2.13	6.50	46.05
	41	263.53	93.66	69.85	53.98	165.10	762.00
TB68-4X_-	2"	12.25	4.25	3.75	3.00	8.56	88.00
	53	311.15	107.95	95.25	76.2	217.49	1442.06



LU Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in.)					
		A	B	C	D	E	Cu. in.
LU17_-	1/2"	5.54	1.45	2.72	0.95	3.20	4.80
LU27_-	3/4"	6.22	1.70	3.07	1.15	3.80	7.60
LU37_-	1"	7.34	1.97	3.52	1.35	4.55	13.4
LU47_-	1 1/4"	8.40	2.47	4.21	1.80	5.00	23.00
LU57_-	1 1/2"	8.95	2.72	4.44	2.05	5.45	28.30
LU67_-	2"	10.61	3.43	5.43	2.45	6.40	56.00



LU Form 8 ferrous conduit bodies with covers

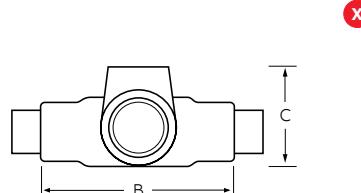
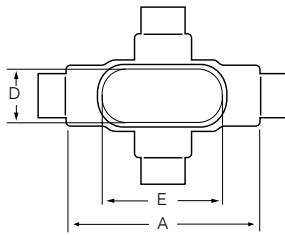
Product code	Hub size	Dimensions (in.)					
		A	B	C	D	E	Cu. in.
LU18-4X_-	1/2	6.15	1.25	2.74	1.05	3.28	4.8
LU28-4X_-	3/4	6.92	1.50	3.1	1.25	3.93	8.3
LU38-4X_-	1	8.20	1.70	3.65	1.45	4.55	14.8
LU448-4X_-	1 1/4	9.86	2.20	4.3	1.8	5.29	27
LU58-4X_-	1 1/2	11.5	2.45	4.92	2.41	6.5	45.3
LU68-4X_-	2	13.93	2.90	6.43	3.42	8.5	111.8

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

Ocal-Blue® double-coat conduit bodies

With covers – X shape



X Form 7 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu/cm)
		A	B	C	D	E	
X17_-	1/2"	5.60	1.80	3.05	0.95	3.20	6.00
	16	142.24	45.72	77.47	24.13	81.28	98.32
X27_-	3/4"	6.20	2.00	3.30	1.15	3.80	9.10
	21	157.48	50.8	83.82	29.21	96.52	149.12
X37_-	1"	7.35	2.30	3.80	1.35	4.55	16.90
	27	186.69	58.42	96.52	34.29	115.57	276.94
X47_-	1 1/4"	7.30	2.30	3.85	1.80	5.00	19.30
	35	185.42	58.42	97.79	45.72	127.00	316.27
X57_-	1 1/2"	8.60	2.60	5.05	2.05	5.45	27.50
	41	218.44	66.04	128.27	52.07	138.43	450.64
X67_-	2"	9.50	3.20	5.45	2.45	6.40	52.80
		241.3	81.28	138.43	62.23	162.56	865.24

X Mark 9 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu/cm)
		A	B	C	D	E	
X19_-	1/2"	5.69	2.91	1.75	1.00	3.31	—
	16	144.46	73.82	44.45	25.40	84.14	—
X29_-	3/4"	6.28	3.06	2.00	1.19	3.94	—
	21	159.54	77.79	50.8	30.16	100.01	—
X39_-	1"	7.31	3.50	2.25	1.38	4.56	—
	27	185.74	88.9	57.15	34.93	115.89	—

X Form 8 ferrous conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu/cm)
		A	B	C	D	E	
X18-4X_-	1/2"	5.69	1.75	2.91	1.00	3.31	6.00
	16	144.46	44.45	73.82	25.4	84.14	98.32
X28-4X_-	3/4"	6.28	2.00	3.06	1.38	3.94	9.00
	21	159.54	50.8	77.79	34.93	100.01	147.48
X38-4X_-	1"	7.31	2.25	3.50	1.38	4.56	15.00
	27	185.74	57.15	88.9	34.93	115.89	245.81
X448-4X_-	1 1/4"	8.50	2.63	4.13	1.75	5.31	24.00
	35	215.9	66.68	104.78	44.45	134.94	393.29
X58-4X_-	1 1/2"	10.38	2.47	5.25	2.13	6.50	46.50
	41	263.53	62.71	133.35	53.98	165.1	762.00
X68-4X_-	2"	12.25	3.56	6.25	3.00	8.56	88.00
	53	311.15	90.49	158.75	76.20	217.49	1442.06

X Form 7 aluminum conduit bodies with covers

Product code	Hub size*	Dimensions (in. and mm)**					Vol. cap. (cu.in./cu/cm)
		A	B	C	D	E	
X17SA_-	1/2"	5.60	1.80	3.05	0.95	3.20	6.00
	16	142.24	45.72	77.47	24.13	81.28	98.32
X27SA_-	3/4"	6.20	2.00	3.30	1.15	3.80	9.10
	21	157.48	50.8	83.82	29.21	96.52	149.12
X37SA_-	1"	7.35	2.30	3.80	1.35	4.55	16.90
	27	186.69	58.42	96.52	34.29	115.57	276.94
X47SA_-	1 1/4"	7.30	2.30	3.85	1.80	5.00	19.30
	35	185.42	58.42	97.79	45.72	127.00	316.27
X57SA_-	1 1/2"	8.60	2.60	5.05	2.05	5.45	27.50
	41	218.44	66.04	128.27	52.07	138.43	450.64
X67SA_-	2"	9.50	3.20	5.45	2.45	6.40	52.80
	53	241.3	81.28	138.43	62.23	162.56	865.24

* Metric size designator (ANSI C80.1-1994).

** Dimensions shown are for uncoated conduit bodies.

Ocal-Blue® double-coat pulling elbows

Make 90° bends while allowing straight pulls



LBD2200-G

LBD and LBH bodies are installed at 90° bends in rigid conduit to act as pull outlets for conductors that are stiff due to large size or type of insulation and to make 90° bends in conduit system while allowing straight wire pulls in either direction.

Product features

- Choose LBD series for ordinary locations and LBH series for hazardous locations
- Coated with a nominal 0.002" (2 mil) blue urethane on both interior and exterior 2.03.B.6.d
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.6.c
- Pressure-sealing sleeves seal connections

Ocal-Blue double-coat pulling elbows

Ordinary LBD series product code	Hazardous LBH series** product code	Pipe size (in.)	Metric size designator*
LBD1100_-	LBH10_-	1/2	16
LBD2200_-	LBH20_-	3/4	21
LBD3300_-	LBH30_-	1	27
LBD4400_-	LBH40_-	1 1/4	35
LBD5500_-	LBH50_-	1 1/2	41
LBD6600_-	LBH60_-	2	53
LBD7700_-	LBH70_-	2 1/2	63
LBD8800_-	LBH80_-	3	78
LBD9900_-	LBH90_-	3 1/2	91
LBD10900_-	LBH100_-	4	103
LBD012_-	-	5	129
LBD014_-	-	6	15

* Metric size designator (ANSI C80.1-1994).

** Ratings prior to PVC coating

Certifications and compliances**

LBH series suitable for use in the following environments when installed in accordance with NEC**

LBH10–LBH20

- Class I, Divisions 1 and 2, Groups B, C, D
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

LBH30–LBH100

- Class I, Divisions 1 and 2, Groups C, D
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

** Ratings prior to PVC coating

Product Code	Material	Color
LBD1100	—	—
Blank = Ferrous	_ = space for color identifier	
SA = Aluminum	G = Dark gray	
	W = White	
	B = Light blue	
Standard offering is dark gray (G). Custom colors also available.		

Ocal-Blue® double-coat mogul fittings

Make 90° bends while allowing straight pulls



BC3-G mogul



BLB4-G mogul



BUB3-G mogul



BG48-G replacement cover

Install mogul fittings in conduit systems to act as pull outlets for conductors that are stiff due to large size or type of installation, to provide the longer openings needed when pulling large conductors, to prevent sharp bends and kinks in large conductors or to provide more splicing space.

Product features

- Nominal 0.002" (2 mil) blue urethane on both interior and exterior → 2.03.B.6.d
- Nominal 0.040" (40 mil) PVC coating bonded to exterior → 2.03.B.6.c
- Pressure-sealing sleeves protect connections

Ocal-Blue double-coat mogul fittings

MOGUL FITTING WITH COVER AND GASKET

BC product code	BLB product code	BUB product code	BLB product code	Replacement cover BG product code	Pipe size (in.)	Metric size designator*
BC3-_	BLB3-_	BUB3-_	BT3-_	BG48-_	1	27
BC4-_	BLB4-_	BUB4-_	BT4-_	BG48-_	1 1/4	35
BC5-_	BLB5-_	BUB5-_	BT5-_	BG68-_	1 1/2	41
BC6-_	BLB6-_	BUB6-_	BT6-_	BG68-_	2	53
BC7-_	BLB7-_	BUB7-_	BT7-_	BG88-_	2 1/2	63
BC8-_	BLB8-_	BUB8-_	BT8-_	BG88-_	3	78
BC9-_	BLB9-_	BUB9-_	BT9-_	BG98-_	3 1/2	91
BC10-_	BLB10-_	BUB10-_	BT10-_	BG98-_	4	103

* Metric size designator (ANSI C80.1-1994).

Product Code	Material	Color
BC3	—	—
Blank = Ferrous	_ = space for color identifier	
SA = Aluminum	G = Dark gray	
	W = White	
	B = Light blue	
Standard offering is dark gray (G). Custom colors also available.		

Ocal-Blue® double-coat service entrance elbows

Make 90° bends in limited space



Ocal-Blue double-coat service entrance elbows

Product code	Pipe size (in.)	Metric size designator*
LBY15_-	1/2	16
LBY25_-	3/4	21
LBY35_-	1	27
LBY45_-	1 1/4	35
LBY55_-	1 1/2	41

* Metric size designator (ANSI C80.1-1994).

LBY series elbows are installed in conduit systems to make 90° bends where space is limited, to act as pull outlets and to provide access to conductors for maintenance and future system changes.

Product features

- Nominal 0.002" (2 mil) blue urethane on both interior and exterior 2.03.B.6.d
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.6.c
- Pressure-sealing sleeves protect connections

Certifications and compliance (LBY)*

- Class I, Division 1 and 2, Groups C, D
Class II, Division 1, Groups E, F, G
Class III, Division 1 and 2
- NEMA 3, 4, 7 CD, 9 EFG
- Explosion-proof
- Dust-ignition-proof

*Prior to PVC coating

Ocal-Blue® double-coat malleable elbows

End or change directions in conduit runs



Ocal-Blue double-coat malleable elbows

90° male product code	90° female product code	90° male-female product code	45° female product code	Pipe size (in.)	Metric size designator*
EL195_-	EL19_-	EL196_-	EL1_-	1/2	16
EL295_-	EL29_-	EL296_-	EL2_-	3/4	21
EL395_-	EL39_-	EL396_-	EL3_-	1	27
			EL49_-	1 1/4	35
			EL59_-	1 1/2	41
			EL69_-	2	53
			EL79_-	2 1/2	63
			EL89_-	3	78
			EL99_-	3 1/2	91
			EL109_-	4	103

* Metric size designator (ANSI C80.1-1994).

EL series elbows are installed at the end of conduit runs, in a box or a fitting hub to allow direction change in threaded rigid conduit run by 45° or 90° or when terminating at a box or fitting.

Product features

- Nominal 0.002" (2 mil) blue urethane on both interior and exterior 2.03.B.6.d
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.6.c
- Pressure-sealing sleeves protect connections

Product Code	Color
EL195-	
LBY15-	

_ = space for color identifier

G = Dark gray

W = White

B = Light blue

Standard offering is dark gray (G). Custom colors also available.

Ocal® PVC-coated bulkhead fittings

In bulkhead and through-bulkhead styles



STTB2-G bulkhead fitting

Product features

- Zinc body and locknut with thermoplastic insulating throat and nitrile sealing ring
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.6.c
- Standard color is dark gray – custom colors available upon request
- Pressure-sealing sleeves protect your connections

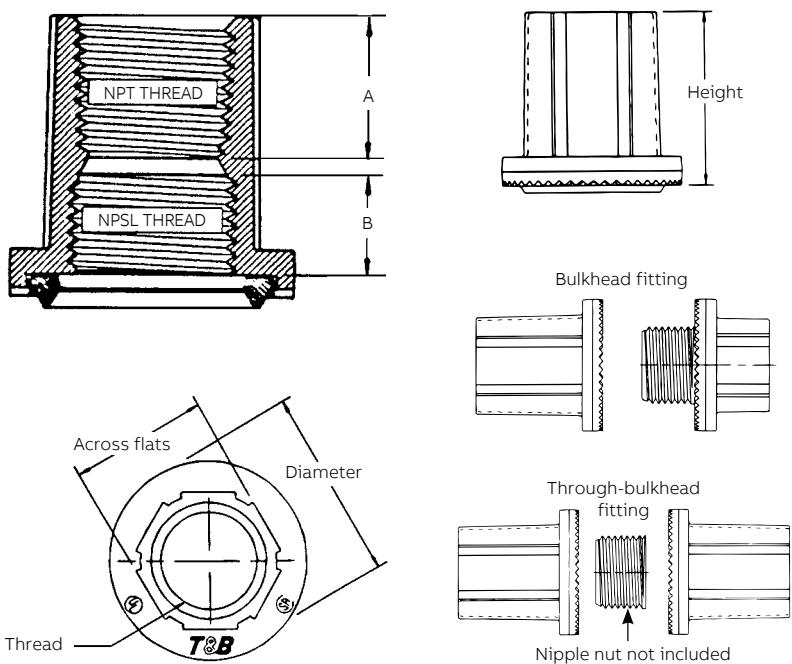
Ocal PVC-coated bulkhead fittings

Bulkhead fitting product code	Through-bulkhead fitting product code	Pipe size (in.)	Metric size designator*	Thread	Height (in.) (mm)	Diameter (in.) (mm)	Across flats (in.) (mm)	A (in.) (mm)	B (in.) (mm)
STTB1_-	STTB1_-	1/2	16	1/2-14	1.41 (35.72)	1.44 (36.51)	1.00 (25.40)	.75 (19.05)	.50 (12.70)
STTB2_-	STTB2_-	3/4	21	3/4-14	1.47 (37.31)	1.69 (42.86)	1.25 (31.75)	.78 (19.84)	.53 (13.49)
STTB3_-	STTB3_-	1	27	1-11 1/2	1.69 (42.86)	2.00 (50.80)	1.53 (38.89)	.91 (23.02)	.59 (15.08)
STTB4_-	STTB4_-	1 1/4	35	1 1/4-11 1/2	1.78 (45.24)	2.38 (60.33)	1.84 (46.83)	.91 (23.02)	.66 (16.67)
STTB5_-	STTB5_-	1 1/2	41	1 1/2-11 1/2	1.81 (46.04)	2.75 (69.85)	1.13 (28.58)	.91 (23.02)	.66 (16.67)
STTB6_-	STTB6_-	2	53	2-11 1/2	1.84 (46.83)	3.25 (29.46)	2.63 (66.68)	.94 (23.81)	.66 (16.67)
STTB7_-	—	2 1/2	63	2 1/2-8	2.28 (57.94)	3.75 (82.55)	3.13 (79.38)	1.22 (30.96)	.88 (22.23)
STTB8_-	—	3	78	3-8	2.56 (65.09)	4.38 (111.13)	3.78 (96.04)	1.19 (30.16)	.91 (23.02)
STTB9_-	—	3 1/2	91	3 1/2-8	2.56 (65.09)	5.00 (127.00)	4.28 (108.74)	1.38 (34.93)	.88 (22.23)
STTB10_-	—	4	103	4-8	2.56 (65.09)	5.50 (139.70)	4.84 (123.03)	1.38 (34.93)	.88 (22.23)

* Metric size designator (ANSI C80.1-1994).

Dimensions shown are for uncoated fittings.

Product Code	Color
STTB1-	—
—	= space for color identifier
G = Dark gray	[Dark Gray Box]
W = White	[White Box]
B = Light blue	[Light Blue Box]
Standard offering is dark gray (G). Custom colors also available.	



Ocal-Blue® double-coat reducing couplings

Easily join two different sizes of conduit



REC21-G

Product features

- Integral bushings in both ends prevent damage to wires
- Funnel-shaped interior guides wires from large to small conduit, making them easier to pull
- Nominal 0.002" (2 mil) blue urethane coating on both interior and exterior 2.03.B.6.d
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.6.c
- Pressure-sealing sleeves protect connections

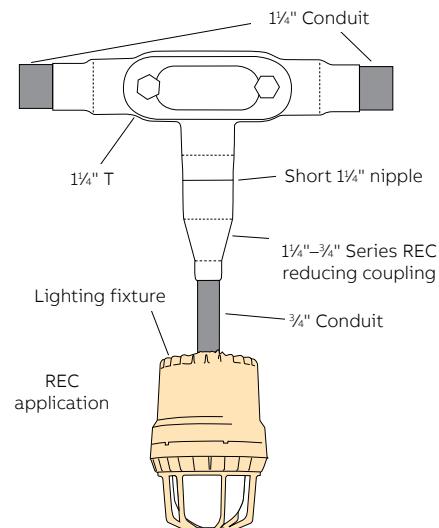
Ocal-Blue double-coat reducing couplings

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A	B	A	B
REC21-_	3/4	21	1/2	16
REC31-_	1	27	1/2	16
REC32-_	1	27	3/4	21
REC42-_	1 1/4	35	3/4	21
REC43-_	1 1/4	35	1	27
REC52-_	1 1/2	41	3/4	21
REC53-_	1 1/2	41	1	27
REC54-_	1 1/2	41	1 1/4	35
REC602-_	2	53	3/4	21

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A	B	A	B
REC603-_	2	21	1	27
REC604-_	2	27	1 1/4	35
REC605-_	2	27	1 1/2	41
REC75-_	2 1/2	35	1 1/2	41
REC86-_	3	35	2	53
REC97-_	3 1/2	41	2 1/2	63
REC108-_	4	41	3	78
REC01210-_	5	53	4	103

* Metric size designator (ANSI C80.1-1994).

Product Code	Material	Color
REC21	—	—
Blank = Ferrous	—	= space for color identifier
SA = Aluminum	G = Dark gray	
	W = White	
	B = Light blue	
Standard offering is dark gray (G). Custom colors also available.		



Ocal-Blue® urethane-coated reducing bushings 2.03.B.4.c

Reduce a conduit hub to a smaller size



RE32-G

Not recommended for reducing PVC-coated threaded hubs. Use reducing couplings instead.

Ocal-Blue urethane-coated reducing bushings

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A - Male		B - Female	
RE21-G	3/4	21	1/2	16
RE31-G	1	27	1/2	16
RE32-G	1	27	3/4	21
RE41-G	1 1/4	35	1/2	16
RE42-G	1 1/4	35	3/4	21
RE43-G	1 1/4	35	1	21
RE51-G	1 1/2	41	1/2	16
RE52-G	1 1/2	41	3/4	21

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A - Male		B - Female	
RE53-G	1 1/2	41	1	27
RE54-G	1 1/2	41	1 1/4	16
RE61-G	2	53	1/2	16
RE62-G	2	53	3/4	21
RE63-G	2	53	1	27
RE64-G	2	53	1 1/4	16
RE65-G	2	53	1 1/2	41
RE73-G	2 1/2	63	1	27

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A - Male		B - Female	
RE74-G	2 1/2	63	1 1/4	35
RE75-G	2 1/2	63	1 1/2	41
RE76-G	2 1/2	63	2	53
RE83-G	3	78	1	27
RE84-G	3	78	1 1/4	35
RE85-G	3	78	1 1/2	41
RE86-G	3	78	2	53
RE87-G	3	78	2 1/2	63

Product code	Pipe size (in.)	Metric size designator*	Pipe size (in.)	Metric size designator*
	A - Male		B - Female	
RE96-G	3 1/2	91	2	53
RE97-G	3 1/2	91	2 1/2	63
RE98-G	3 1/2	91	3	78
RE106-G	4	103	2	53
RE107-G	4	103	2 1/2	63
RE108-G	4	103	3	78

* Metric size designator (ANSI C80.1-1994).

Note: Whenever possible, it is recommended to use reducing couplings (REC series) over reducing bushings (RE series).

**3.0 PCS - PVC COATED RIGID STEEL CONDUIT
EXPANSION FITTINGS**

**SPECIFICATION – 16130-2.02.I
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

Ocal-Blue® double-coat XJG rigid conduit expansion coupling



Standard materials/finish

- Body/finish: Ductile iron with nominal 40-mil PVC exterior coating
- Internal bonding jumper: Copper braid

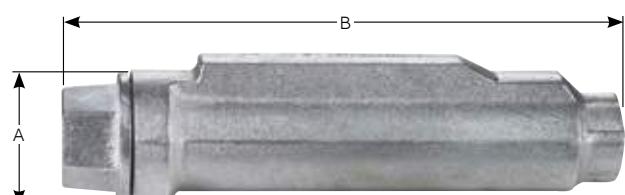
Ocal® PVC-coated XJG rigid conduit expansion coupling

Product code	Pipe size (in.)	Metric size designator*	Movement (in.)	Movement (mm)	A Diameter (in.)	A Diameter (mm)	B Length (in.)	B Length (mm)	C Height (in.)	C Height (mm)
XJG24-	3/4	21	4	101.6	2.43	61.72	10.00	254.00	2.75	69.85
XJG28-	3/4	21	8	203.2	2.43	61.72	14.00	355.60	2.75	69.85
XJG34-	1	27	4	101.6	2.67	61.72	10.00	254.00	2.99	75.95
XJG38-	1	27	8	203.2	2.67	61.72	14.00	355.60	2.99	75.95
XJG44-	1 1/4	35	4	101.6	3.36	85.34	10.56	268.22	3.68	93.47
XJG48-	1 1/4	35	8	203.2	3.36	85.34	14.56	369.82	3.68	93.47
XJG54-	1 1/2	41	4	101.6	3.36	85.34	10.56	268.22	3.68	93.47
XJG58-	1 1/2	41	8	203.2	3.36	85.34	14.56	369.82	3.68	93.47
XJG64-	2	53	4	101.6	3.86	98.04	11.25	285.75	4.18	106.17
XJG68-	2	53	8	203.2	3.86	98.04	15.25	387.35	4.18	106.17
XJG74-	2 1/2	63	4	101.6	4.96	125.98	12.12	307.85	5.25	133.35
XJG78-	2 1/2	63	8	203.2	4.96	125.98	16.12	409.45	5.25	133.35
XJG84-	3	78	4	101.6	4.96	125.98	12.12	307.85	5.25	133.35
XJG88-	3	78	8	203.2	4.96	125.98	16.12	409.45	5.25	133.35
XJG94-	3 1/2	91	4	101.6	6.37	161.80	12.87	326.90	6.75	171.45
XJG98-	3 1/2	91	8	203.2	6.37	161.80	16.87	428.50	6.75	171.45
XJG104-	4	103	4	101.6	6.37	161.80	12.87	326.90	6.75	171.45
XJG108-	4	103	8	203.2	6.37	161.80	16.87	428.50	6.75	171.45
XJG1208-	5	129	8	203.2	7.99	202.94	18.87	479.30	8.56	217.42

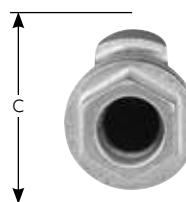
* Metric size designator (ANSI C80.1-1994).

Dimensions shown are for uncoated coupling.

Product Code	Color
XJG24-	
—	= space for color identifier
G = Dark gray	
W = White	
B = Light blue	
Standard offering is dark gray (G). Custom colors also available.	



Coupling shown uncoated



Ocal® PVC-coated XD expansion/deflection coupling

Watertight, flexible connections support movement and thermal expansion

Use the XD expansion/deflection coupling to join two conduit runs in applications where movement in any direction is required. The coupling provides a flexible, watertight connection, accommodating axial or parallel movement of up to $\frac{3}{4}$ " and angular movement of up to 30° from normal.

- Ideal for use in bridges, tunnels, interbuilding walkways, docks and piers, wastewater and water treatment facilities and other applications in which conduit runs are subject to movement due to external forces or temperature changes
- Suitable for use indoors, outdoors, direct buried or embedded in concrete
- Watertight, flexible neoprene outer jacket, zinc-plated and acrylic-painted hubs and stainless steel tamper-proof straps ensure superior corrosion resistance – ideal for use in harsh environments
- Copper ground mounting plates and grounding bonding jumper both entirely enclosed to safeguard against theft
- Includes an Erickson® type conduit union for faster, easier installation to help reduce labor costs
- Durable stainless steel inner sleeve provides a constant, smooth inner diameter in any position to ease wire pulling and protect wire insulation from damage

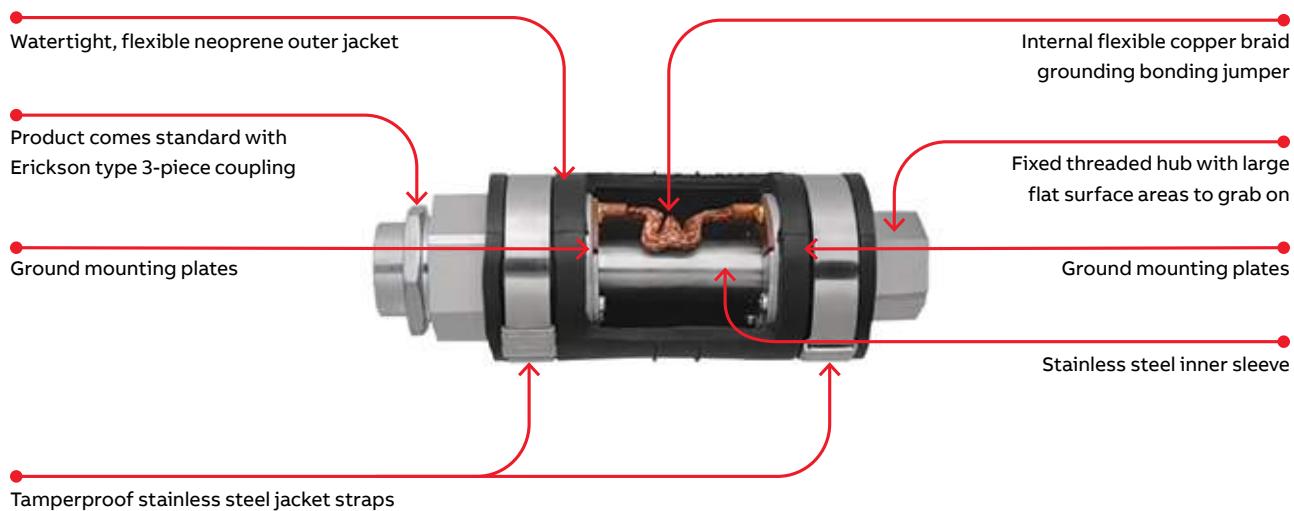
- NPT threaded hubs fit standard threaded rigid metal conduit
- Can also be used with rigid PVC conduit with the use of standard adapters (not supplied)

Listings/compliances

- UL listed to UL 514B and CSA certified to C22.2 No. 18.3, suitable for wet locations (hub sizes 1"-6")
- Watertight-NEMA 4
- NEC Article 250.98 and 300.4(A) compliant

Standard materials/finish

- Hub: ductile cast iron, zinc-plated and aluminum acrylic painted
- Inner sleeve: stainless steel
- Internal grounding bonding jumper: flexible copper braid
- Ground mounting plates: copper
- Hub rings: zinc-plated steel
- Outer jacket: molded neoprene (natural black)
- Jacket straps: stainless steel

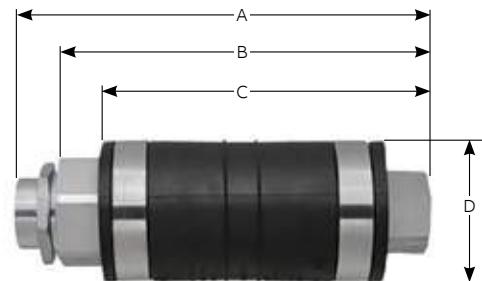


Ocal® PVC-coated XD expansion/deflection coupling

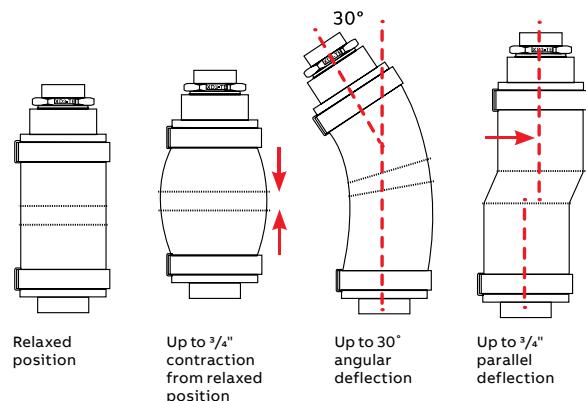


XD expansion/deflection coupling

Product code	Hub size (in.)	Dimensions (in.)			
		A	B	C	D
XD3_-	1	9 ¹³ / ₁₆	8 ¹⁵ / ₃₂	6 ⁷ / ₁₆	3 ¹¹ / ₃₂
XD4_-	1 ¹ / ₄	9 ³ / ₁₆	8 ³ / ₈	6 ⁷ / ₈	3 ⁷ / ₈
XD5_-	1 ¹ / ₂	9 ¹ / ₄	8 ⁷ / ₃₂	6 ³ / ₄	4 ⁵ / ₃₂
XD6_-	2	9 ³ / ₄	8 ²¹ / ₃₂	7 ¹ / ₄	4 ¹¹ / ₁₆
XD7_-	2 ¹ / ₂	11 ³ / ₄	11 ³ / ₈	9 ¹ / ₂	4 ⁷ / ₈
XD8_-	3	10 ¹ / ₂	9 ²¹ / ₃₂	7 ²¹ / ₃₂	5 ¹⁵ / ₁₆
XD9_-	3 ¹ / ₂	10 ⁹ / ₁₆	9 ³ / ₄	7 ³ / ₄	6 ⁵ / ₈
XD010_-	4	13 ³ / ₁₆	11 ²⁷ / ₃₂	8 ⁷ / ₈	7 ⁹ / ₃₂
XD012_-	5	14	12 ¹⁵ / ₁₆	11	8 ⁹ / ₃₂
XD014_-	6	14 ⁵ / ₁₆	13 ³ / ₈	11 ¹ / ₂	9 ¹⁹ / ₃₂



Product Code	Color
XD3-	—
—	= space for color identifier
G = Dark gray	[Dark Gray Box]
W = White	[White Box]
B = Light blue	[Light Blue Box]
Standard offering is dark gray (G). Custom colors also available.	



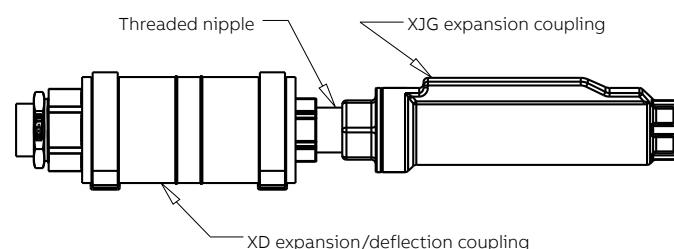
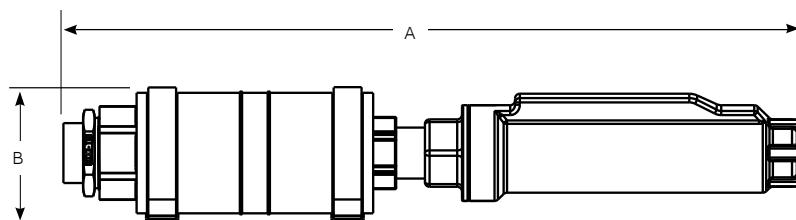
Ocal-Blue® PVC-coated XJGXD combination expansion/deflection and expansion coupling

Factory-assembled combination PVC-coated XJG and XD couplings



Ocal-Blue PVC-coated XJGXD combination expansion/deflection and expansion coupling

Product code	Hub size (in.)	Maximum conduit expansion (in.)	Dimensions — uncoated (in.)	
			A	B
XJGXD3-_	1	4	22.3	3.4
XJGXD4-_	1 1/4	4	22.8	3.9
XJGXD5-_	1 1/2	4	23.9	4.0
XJGXD6-_	2	4	25.6	4.7
XJGXD7-_	2 1/2	4	28.4	4.9
XJGXD8-_	3	4	27.1	5.9
XJGXD9-_	3 1/2	4	28.0	6.8
XJGXD010-_	4	4	30.6	7.3



Product Code	Color
XJGXD3-	
_ = space for color identifier	
G = Dark gray	
W = White	
B = Light blue	
Standard offering is dark gray (G). Custom colors also available.	

4.0 JOINT COMPOUNDS

**SPECIFICATION – 16130-2.02.G
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

KOPR-SHIELD® joint compound

Protects, lubricates and enhances the conductivity of all electrical connections



Product features

- Meets NEC requirements for protection against corrosion: "Where corrosion protection is necessary and the conduit is threaded in the field, all threads shall be coated with an approved electrically conductive, corrosion-resistant compound."
- Extremely adhesive compound flows smoothly into uneven contours and voids, ensuring easy application and complete, positive protection and lubrication
- Won't settle out, thin, thicken, harden or dry out under the most severe environmental conditions
- Excellent temperature characteristics – can be brushed on at -50° F to 250° F (-45° C to 121° C) and remains intact for short periods even at 1,800° F (982° C)
- Helps ensure low resistance and seals out air and moisture
- Unique, homogenized blend of pure, polished colloidal copper, rust and corrosion inhibitors

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

KOPR-SHIELD® joint compound



Product code	Container	Size
201-31879	Brush cap can	1½ oz. (0.04 liter)
201-31879-1	Brush cap can	4 oz. (0.12 liter)
CP8-TB	Brush cap can	8 oz. (0.24 liter)
CP16	Brush cap can	1 pint (0.47 liter)
CP128	Can	1 gallon (3.79 liter)

Note: Not recommended for food or beverage processing applications.

5.0 CONDUIT SEALS

**SPECIFICATION – 16130-2.02.K
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

Ocal® PVC-coated explosion-proof fittings

GUA, UNY, EYS and EYD series fittings are now **UL 1203 listed.**



Tested and listed after PVC coating as finished goods for confidence and peace of mind.

- 01 GUAW24G
- 02 GUA24G
- 03 UNY205G

Electrical equipment for use in explosive environments must be carefully selected to ensure it can be safely installed without triggering an explosion.

Ocal GUA, UNY, EYS and EYD series fittings give you confidence with a UL 1203 listing for use in explosive environments.

Explosion-proof Ocal GUA series conduit boxes, UNY conduit unions, EYS series sealing fittings and EYD series drain sealing fittings are now UL 1203 listed for explosion protection.

Some manufacturers rely on uncoated castings' certification for explosion protection, but the product was never subjected to explosion-proof testing as a finished good.

When you're dealing with a hazardous classified, explosion-prone environment, using Ocal UL 1203 listed components gives you the peace of mind that you have the certification and protection you need.



—
01

—
02

—
03

Ocal-Blue® double-coat UNY and UNF series conduit unions

Explosion-proof, dust-ignition-proof three-piece couplings

UL 1203 listed

2.04.G.1.h



Features:

- Explosion-proof
- Dust-ignition-proof
- UV-resistant dark gray PVC coating 2.03.B.4
- Nominal 0.002" (2 mil) blue urethane coating on both interior and exterior
- Nominal 0.040" (40 mil) PVC coating bonded to exterior 2.03.B.3.b
- PVC coating helps provide corrosion protection and helps maintain grounding continuity of the rigid conduit system
- Flexible PVC sealing sleeves help provide corrosion protection to threaded connectors

Applications:

- UNY male unions are used to connect rigid conduit to a conduit fitting, junction box, control station enclosures, or to other electrical component containing enclosures
- UNF female unions are used to connect two adjacent rigid conduits and provide a means for future modifications to the system
- For use in rigid conduit systems located:
 - Indoors or outdoors
 - In wet locations
 - In hazardous locations
 - In areas where corrosion protection is needed

Compliances and certifications:

- **UL Certified***
 - **UL 1203**
 - **CSA C22.2 No. 25 and No. 30**
- NEC/CEC*
 - Class I, Divisions 1 and 2, Groups B, C, D (steel and iron only)
 - Class I, Divisions 1 and 2, Groups C, D (aluminum only)
 - Class II, Divisions 1 and 2, Groups E, F, G
 - Class III
- **NEMA Standard RN-1** 2.03.B.2

*Dark gray PVC coating only

Material / finishes:

- Steel / dark gray PVC coating (½"-1")
- Iron / dark gray PVC coating (1¼"-4")
- Aluminum / dark gray PVC coating

Ocal-Blue® double-coat GUA series conduit boxes

Provide access to wiring, directional changes in conduit and more

UL 1203 listed

2.04.G.1.h



GUAB



GUAX



GUAC



GUAT

Features:

- Explosion-proof and dust-ignition-proof
- Raintight and wet location rated
- UV-resistant gray PVC coating
- Available in multiple hub configurations
- Provides easy access to conductors for maintenance and future system changes
- Nominal 0.002" (2 mil) blue urethane coating on both interior and exterior
- Nominal 0.040" (40 mil) PVC coating bonded to exterior
- Pressure-sealing sleeves
- Internal grounding screw

2.03.B.3.b

Compliances and certifications:

- UL certified*
 - UL 1203
 - CSA C22.2 No. 25 and No. 30
- NEC/CEC*
 - Class I, Divisions 1 and 2, Groups C, D
 - Class II, Divisions 1 and 2, Groups E, F, G
 - Class III
- NEMA
 - NEMA ratings: 3 and 4X (with O-ring installed)
 - NEMA standard RN-1

2.03.B.2

*Dark gray PVC coating only

Applications:

- Can be used as a junction in conduit for wire and splices
- Connects lengths of conduit and maintain ground continuity
- For use in rigid conduit systems located:
 - Indoors or outdoors
 - In wet locations
 - In hazardous locations
 - In areas where corrosion protection is needed

Material / finishes:

- Body: Ductile iron or aluminum / dark gray PVC coating
- Cover: Aluminum / dark gray PVC coating

Ocal-Blue double-coat GUA series conduit boxes



Product code						Iron cover only (not UL 1203 listed)	Pipe size (in.)	Metric size designator* (in.)	Cover opening (mm)
GUA	GUAC	GUAT	GUAX	GUAB	Aluminum cover only				
GUA14-G	GUAC14-G	GUAT14-G	GUAX14-G	GUAB14-G	GUA04-G	GUA04WOD-G	1/2	16	2.00
GUA24-G	GUAC24-G	GUAT24-G	GUAX24-G	GUAB24-G	GUA04-G	GUA04WOD-G	3/4	21	2.00
GUA16-G	GUAC16-G	GUAT16-G	GUAX16-G	GUAB16-G	GUA06-G	GUA06WOD-G	1/2	16	3.00
GUA26-G	GUAC26-G	GUAT26-G	GUAX26-G	GUAB26-G	GUA06-G	GUA06WOD-G	3/4	21	3.00
GUA36-G	GUAC36-G	GUAT36-G	GUAX36-G	GUAB36-G	GUA06-G	GUA06WOD-G	1	27	3.00
—	—	GUAT37-G	GUAX37-G	—	GUA07-G	GUA07WOD-G	1	27	3.63
GUA47-G	GUAC47-G	GUAT47-G	GUAX47-G	GUAB47-G	GUA07-G	GUA07WOD-G	1 1/4	35	3.63
—	GUAC49-G	GUAT49-G	GUAX49-G	—	GUA09-G	GUA09WOD-G	1 1/4	35	5.00
GUA59-G	GUAC59-G	GUAT59-G	GUAX59-G	GUAB59-G	GUA09-G	GUA09WOD-G	1 1/2	41	5.00
—	GUAC69-G	GUAT69-G	GUAX69-G	GUAB69-G	GUA09-G	GUA09WOD-G	2	53	5.00
									127.00

Ocal-Blue® double-coat GUA series conduit boxes (continued)

Provide access to wiring, directional changes in conduit and more

UL 1203 listed

2.04.G.1.h



GUAD



GUAL



GUAM



GUAN



GUAW

Ocal-Blue double-coat GUA series conduit boxes



Product code					Iron cover only (not UL 1203 listed)	Pipe size	Cover opening			
GUAD	GUAL	GUAM	GUAN	GUAW	Aluminum cover only	(in.)	Metric size designator*	(in.)	(mm)	
GUAD14-G	GUAL14-G	GUAM14-G	GUAN14-G	GUAW14-G	GUA04-G	GUA04WOD-G	1/2	16	2.00	50.80
GUAD24-G	GUAL24-G	GUAM24-G	GUAN24-G	GUAW24-G	GUA04-G	GUA04WOD-G	3/4	21	2.00	50.80
GUAD16-G	GUAL16-G	GUAM16-G	GUAN16-G	GUAW16-G	GUA06-G	GUA06WOD-G	1/2	16	3.00	76.20
GUAD26-G	GUAL26-G	GUAM26-G	GUAN26-G	GUAW26-G	GUA06-G	GUA06WOD-G	3/4	21	3.00	76.20
GUAD36-G	GUAL36-G	GUAM36-G	GUAN36-G	—	GUA06-G	GUA06WOD-G	1	27	3.00	76.20
—	GUAL47-G	GUAM47-G	GUAN47-G	—	GUA07-G	GUA07WOD-G	1 1/4	35	3.63	92.20
GUAD49-G	GUAL49-G	—	—	—	GUA09-G	GUA09WOD-G	1 1/4	35	5.00	127.00
—	GUAL59-G	—	GUAN59-G	—	GUA09-G	GUA09WOD-G	1 1/2	41	5.00	127.00
—	GUAL69-G	GUAM69-G	GUAN69-G	—	GUA09-G	GUA09WOD-G	2	53	5.00	127.00

Ocal-Blue® double-coat EYS and EYD series sealing fittings

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures

UL 1203 listed

2.04.G.1.h



EYD



EYS

Features:

- Explosion-proof
- Dust-ignition proof
- UV-resistant dark gray PVC coating
- Designed to isolate sections of conduit runs from passage of vapors, flame or gases
- Designed to limit explosion damage to the sealed-off enclosure and limit pre-compression or pressure piling in conduit system
- Helps maintain ground continuity

Applications:

- For use in rigid conduit systems located:
 - Indoors or outdoors
 - In wet locations
 - In hazardous locations
 - In areas where corrosion protection is needed
- In hazardous locations, seal fittings are needed for the following instances:
 - Where conduit enters an enclosure that contains arcing or high temperature equipment
 - Where conduit enters enclosures that house terminals, splices or taps if the conduit is 2" trade size or larger
 - Where the conduit leaves a Division 1 area or passes from a Division 2 hazardous area to a non-hazardous location

Compliances and certifications:

- UL certified*
 - **UL 1203** → 2.04.G.1.c
 - **CSA C22.2 No. 25 and No 30**
- NEC/CEC*
 - Class I, Divisions 1 and 2, Groups C, D
 - Class I, Divisions 1 and 2, Groups A, B, C, D (EYS/EYD 1/2"-1")
 - Class II, Divisions 1 and 2, Groups E, F, G
 - Class III
- NEMA
 - NEMA ratings: 3 and 4
 - **NEMA standard RN-1** → 2.03.B.2
- Sealing fittings are only approved to be used with Crouse-Hinds Chico A compound and Chico X fiber**

Material / finishes:

- Body: Ductile iron or aluminum / dark gray PVC coating
- Cover: Ductile iron or aluminum / dark gray PVC coating
- Plugs: Iron or steel / zinc plated
- Breather/drain: Stainless steel / natural
- Close nipples: Steel / natural

*Dark gray PVC coating only

**Crouse-Hinds and Chico are trademarks of Eaton Corp.

Ocal-Blue® double-coat EYS and EYD series sealing fittings

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures

UL 1203 listed → 2.04.G.1.h



EYS series

Vertical fill only



Female hubs product code	Male and female hubs product code	Figure	Trade size (NPT)	Dimensions (in.)		
				A	B	Turning radius (in.)
Product selection — inches						
EYS1-XP-G*	EYS16-XP-G*	1	½	3.90	1.34	1.71
EYS2-XP-G*	EYS26-XP-G*	1	¾	4.17	1.59	2.01
EYS3-XP-G*	EYS36-XP-G*	1	1	4.94	1.84	2.45

Notes: Product must be installed in accordance with applicable national and local electrical codes. Dimensions shown are nominal and should only be used as a reference.

Male and female hubs will come with a close conduit nipple that can be installed on either the top or bottom hub to create a male NPT conduit connection.

*NEC/CEC Class I, Divisions 1 and 2, Groups A and B.

EYS series

Vertical / horizontal fill



Female hubs product code	Male and female hubs product code	Figure	Trade size (NPT)	Dimensions (in.)		
				A	B	Turning radius
Product selection - inches						
EYS4-XP-G	EYS46-XP-G	2	1¼	5.09	2.34	1.86
EYS5-XP-G	EYS56-XP-G	2	1½	5.53	2.53	2.05
EYS6-XP-G	EYS66-XP-G	2	2	6.34	3.09	2.36
EYS7-XP-G	EYS76-XP-G	2	2½	7.59	3.59	2.61
EYS8-XP-G	EYS86-XP-G	2	3	8.59	4.34	3.14
EYS9-XP-G	EYS96-XP-G	2	3½	9.28	4.84	3.42
EYS10-XP-G	EYS106-XP-G	2	4	9.84	5.34	3.58
EYS11-XP-G	EYS116-XP-G	2	½	3.72	1.34	1.14
EYS21-XP-G	EYS216-XP-G	2	¾	3.75	1.59	1.30
EYS31-XP-G	EYS316-XP-G	2	1	4.34	1.84	1.64
EYS41-XP-G	-	2	1¼	5.09	2.34	1.86
EYS51-XP-G	EYS516-XP-G	2	1½	5.53	2.53	2.05
EYS61-XP-G	-	2	2	6.34	3.09	2.36
EYS71-XP-G	-	2	2½	7.59	3.59	2.61
EYS81-XP-G	-	2	3	8.59	4.34	3.14

Notes: Product must be installed in accordance with applicable national and local electrical codes. Dimensions shown are nominal and should only be used as a reference.

Male and female hubs will come with a close conduit nipple that can be installed on either the top or bottom hub to create a male NPT conduit connection.

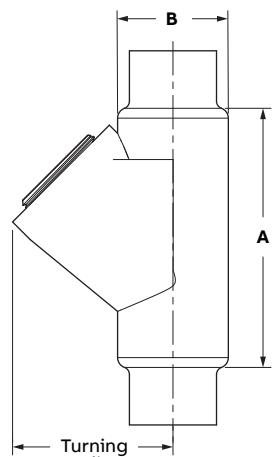


Figure 1

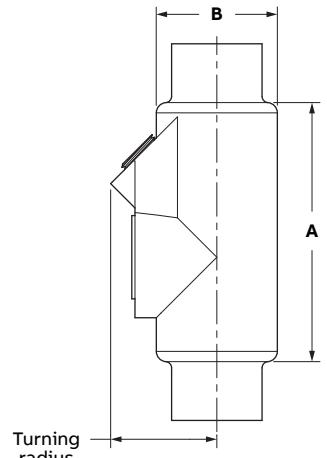


Figure 2

Ocal-Blue® double-coat EYS and EYD series sealing fittings (continued)

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures

UL 1203 listed

2.04.G.1.h



EYD series

Vertical fill only



Female hubs product code	Male and female hubs product code	Figure	Trade size (NPT)	Dimensions (in.)			Turning radius (in.)
Product selection – inches							
EYD1-G*	EYD16-G*	1	½	3.90	1.34	1.80	
EYD2-G*	EYD26-G*	1	¾	4.17	1.59	2.03	
EYD21-G*	-	1	¾	4.17	1.59	2.03	
EYD3-G*	EYD36-G*	1	1	4.94	1.84	2.24	
EYD4-G	EYD46-G	2	1¼	5.09	2.34	1.85	
EYD5-G	EYD56-G	2	1½	5.53	2.53	2.05	
EYD6-G	EYD66-G	2	2	6.34	3.09	2.37	
EYD7-G	EYD76-G	2	2½	7.59	3.59	2.74	
EYD8-G	EYD86-G	2	3	8.59	4.34	3.20	
EYD9-G	EYD96-G	2	3½	9.28	4.84	3.43	
EYD10-G	EYD106-G	2	4	9.84	5.34	3.69	

Notes: Product must be installed in accordance with applicable national and local electrical codes. Dimensions shown are nominal and should only be used as a reference.

Male and female hubs will come with a close conduit nipple that can be installed on either the top or bottom hub to create a male NPT conduit connection.

*NEC/CEC Class I, Divisions 1 and 2, Groups A and B.

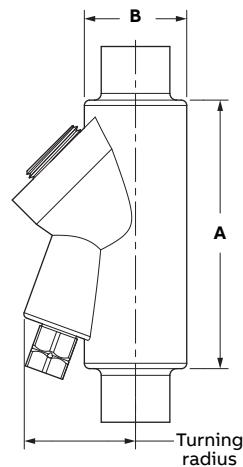


Figure 1

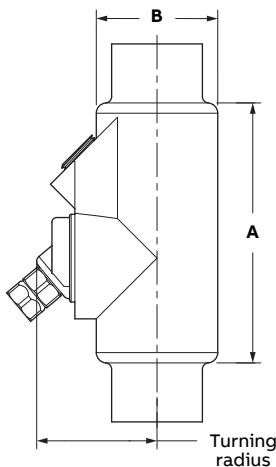


Figure 2

Ocal-Blue® double-coat EYSX and EYDX series expanded fill sealing fittings

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures — provides 40% wire fill capacity

UL 1203 listed

2.04.G.1.h



EYDX



EYSX

Features

- Provide 40% wire fill capacity to allow uninterrupted runs in a conduit system
- Explosion-proof
- Dust-ignition proof
- UV-resistant dark gray PVC coating
- Designed to isolate sections of conduit runs from passage of vapors, flame or gases
- Designed to limit explosion damage to the sealed-off enclosure and limit pre-compression or pressure piling in conduit system
- Helps maintain ground continuity

Applications

- For use in rigid conduit systems located:
 - Indoors or outdoors
 - In wet locations
 - In hazardous locations
 - In areas where corrosion protection is needed
- In hazardous locations, sealing fittings are needed for the following instances:
 - Where conduit enters an enclosure that contains arcing or high temperature equipment
 - Where conduit enters enclosures that house terminals, splices or taps if the conduit is 2" trade size or larger
 - Where the conduit leaves a Division 1 area or passes from a Division 2 hazardous area to a non-hazardous location

Compliances and certifications

- UL certified*
 - **UL 1203** → 2.04.G.1.c
 - CSA C22.2 No. 25 and No. 30
- NEC/CEC*
 - Class I, Divisions 1 and 2, Groups B, C, D (EYSX 4")
 - Class I, Divisions 1 and 2, Groups C, D
 - Class II, Divisions 1 and 2, Groups E, F, G
 - Class III
- NEMA
 - NEMA ratings: 3 and 4
 - **NEMA standard RN-1** → 2.03.B.2
- Sealing fittings are only approved to be used with Crouse-Hinds Chico A compound and Chico X fiber**

2.04.G.1.h

Material/finishes

- Bodies: Feraloy iron alloy and/or ductile iron
- Closures: Feraloy iron alloy and/or steel
- Plugs: Iron or steel/zinc plated
- Breather/drain: Stainless steel/natural
- Close nipples: Steel/natural

*Dark gray PVC coating only

**Crouse-Hinds and Chico are trademarks of Eaton Corp.

Ocal-Blue® double-coat EYDX series expanded fill sealing fittings with drain

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures — provides 40% wire fill capacity

UL 1203 listed

2.04.G.1.h



EYDX series
Vertical fill only



Female hubs product code	Figure	Trade size (NPT)	Dimensions (in.)		
			A	B	Turning radius (in.)
EYDX11-G*	1	1/2	3 ¹¹ / ₁₆	1 ¹ / ₂	1 ²⁹ / ₃₂
EYDX21-G*	1	3/4	4⁵/₁₆	2³/₁₆	2³/₈
EYDX31-G*	2	1	5¹/₁₆	2³/₁₆	1²⁷/₃₂**
EYDX41-G	2	1 ¹ / ₄	6 ⁵ / ₁₆	3	2 ⁵ / ₁₆ **
EYDX51-G	2	1¹/₂	6¹/₄	3	2⁵/₁₆**
EYDX61-G	2	2	8¹/₂	4¹/₄	3⁵/₁₆**
EYDX71-G	2	2¹/₂	9³/₁₆	4³/₄	3⁷/₁₆**
EYDX81-G	2	3	9³/₄	5¹/₄	3³/₈**

Notes: Product must be installed in accordance with applicable national and local electrical codes. Dimensions shown are nominal and should only be used as a reference.

Male and female hubs will come with a close conduit nipple that can be installed on either the top or bottom hub to create a male NPT conduit connection.

*NEC/CEC Class I, Divisions 1 and 2, Groups A and B.

**With drain cover removed.

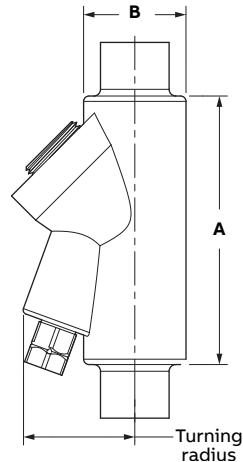


Figure 1

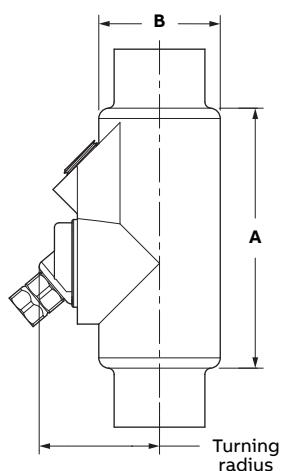


Figure 2

Ocal-Blue® double-coat EYSX series expanded fill sealing fittings

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures — provides 40% wire fill capacity

UL 1203 listed 2.04.G.1.h



EYSX series

Vertical / horizontal fill

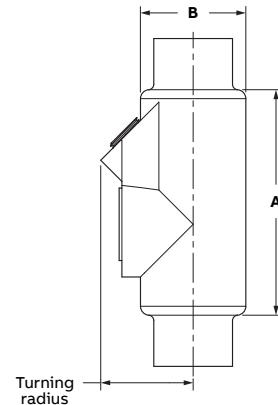


Female hubs product code	Trade size (NPT)	Dimensions (in.)			Turning radius (in.)
		A	B		
EYSX11-G	1/2	3 1/16	1 1/2		1 1/4
EYSX21-G	3/4	4 5/16	1 3/4		1 3/8
EYSX31-G	1	5 1/8	2 9/16		1 29/32
EYSX41-G	1 1/4	6 1/4	3		2 5/16
EYSX51-G	1 1/2	6 1/4	3		2 9/16
EYSX61-G	2	8 1/2	4 1/4		3 5/16
EYSX71-G	2 1/2	9 3/16	4 3/4		3 7/16**
EYSX81-G	3	9 3/4	5 1/4		3 11/16**
EYSX10-G*	4	11 1/16	6 1/2		4 19/32**

Notes: Product must be installed in accordance with applicable national and local electrical codes. Dimensions shown are nominal and should only be used as a reference.

*NEC/CEC Class I, Divisions 1 and 2, Groups C and D only.

**With drain cover removed.



Ocal-Blue® double-coat EZS and EZD series sealing fittings

Restrict the passage of gases, vapors and flames at atmospheric pressure and normal ambient temperatures

UL 1203 listed

2.04.G.1.h



EZS



EZD



Features

- Explosion-proof
- Dust-ignition proof
- UV-resistant dark gray PVC coating
- Designed to isolate sections of conduit runs from passage of vapors, flame or gases
- Designed to limit explosion damage to the sealed-off enclosure and limit pre-compression or pressure piling in conduit system
- Helps maintain ground continuity
- EZS sealing fittings for installation at any angle; the covers with opening for sealing compound can be properly positioned to accept the compound

Applications

- For use in rigid conduit systems located:
 - Indoors or outdoors
 - In wet locations
 - In hazardous locations
 - In areas where corrosion protection is needed
- In hazardous locations, sealing fittings are needed for the following instances:
 - Where conduit enters an enclosure that contains arcing or high temperature equipment
 - Where conduit enters enclosures that house terminals, splices or taps if the conduit is 2" trade size or larger
 - Where the conduit leaves a Division 1 area or passes from a Division 2 hazardous area to a non-hazardous location

Compliances and certifications

- UL certified*
 - **UL 1203** → 2.04.G.1.c
 - CSA C22.2 No. 25 and No. 30
- NEC/CEC*
 - Class I, Divisions 1 and 2, Groups C, D
 - Class II, Divisions 1 and 2, Groups E, F, G
 - Class III
- NEMA
 - NEMA ratings: 3 and 4
 - **NEMA standard RN-1** → 2.03.B.2
- Seal fittings are only approved to be used with Crouse-Hinds Chico A compound and Chico X fiber**

2.04.G.1.h

Material/finishes

- Body: Ductile iron or aluminum/dark gray PVC coating
- Cover: Ductile iron or aluminum/dark gray PVC coating
- Plugs: Iron or steel/zinc plated
- Breather/drain: Stainless steel/natural
- Close nipples: Steel/natural

*Dark gray PVC coating only

**Crouse-Hinds and Chico are trademarks of Eaton Corp.

EZS series sealing fittings



Female product code	Male and female product code	Pipe size (in.)	Metric size designator*
EZS1-G	EZS16-G	1/2	16
EZS2-G	EZS26-G	3/4	21
EZS3-G	EZS36-G	1	27
EZS4-G	EZS46-G	1 1/4	35
EZS5-G	EZS56-G	1 1/2	41
EZS6-G	EZS66-G	2	53
EZS7-G	EZS76-G	2 1/2	63
EZS8-G	EZS86-G	3	78

* Metric size designator (ANSI C80.1-1994).

EZD series sealing fittings



Product code	Pipe size (in.)	Metric size designator*
EZD111-G	1/2	16
EZD211-G	3/4	21
EZD311-G	1	27
EZD411-G	1 1/4	35
EZD511-G	1 1/2	41
EZD611-G	2	53

* Metric size designator (ANSI C80.1-1994).

Ocal-Blue® ES sealing hubs

ES explosion-proof conduit sealing hub



Shown uncoated

Ocal-Blue ES sealing hubs

Applications

ES sealing hubs are used to:

- Seal vertical conduit risers at switchgear and motor control centers, sheet metal structures or cast boxes and enclosures
- Seal horizontal conduit runs at enclosures when used with Crouse-Hinds* TSC sealing compound (see page 64)

Standard materials/finish

- Feraloy iron alloy – electrogalvanized, PVC coated

Certifications and compliances:**

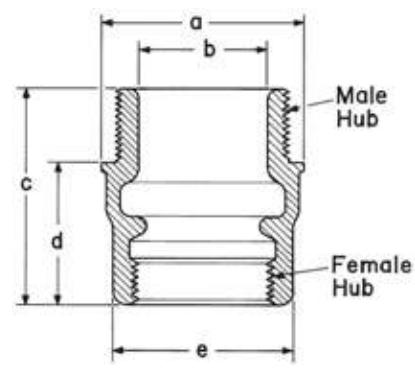
- Class I, divisions 1 and 2, groups C, D
2.04.G.1.h
- Class II, division 1 and 2, groups E, F, G
2.04.G.1.h
- UL standard: UL 1203*
2.04.G.1.h
- CSA standard: C22.2 No. 30

*Crouse-Hinds and Chico are trademarks of Eaton Corp.

**Prior to PVC coating

Product code	Male hub size (in.)	Female hub size (in.)	Approximate internal volume (cu. in.)	Dimensions (in.) (uncoated)				
				A	B	C	D	E
ES31-_	1	½	0.65	1 1/16	7/8	2	3 1/32	1 1/4
ES32-_	1	¾	0.65	1 13/16	7/8	2	1 1/16	1 1/2
ES53-_	1 ½	1	9.10	2 1/4	1 3/8	3 1/16	1 15/16	1 3/4
ES64-_	2	1 ¼	4.70	2 3/4	1 3/4	3 1/8	1 15/16	2 3/16
ES65-_	2	1 ½	4.90	2 3/4	1 5/8	3 1/32	2	2 7/16
ES76-_	2 ½	2	3.20	3 1/2	2 1/16	3 11/16	2	3
ES108-_	4	3	36.00	5 1/4	3 5/8	4 13/16	2 27/32	4 1/4
ES01210-_	5	4	95.00	6 5/8	4 3/4	6 25/32	4 27/32	5 1/4
ES014012-_	6	5	155.00	7 1/4	5 25/32	7 3/8	5 11/32	6 1/2

Product Code	Color
ES32-	
= space for color identifier	
G = Dark gray	
W = White	
B = Light blue	
Standard offering is dark gray (G). Custom colors also available.	



Chico® A and Chico® A-P Sealing Compound

Chico® X Fiber

Chico® SpeedSeal™

For Sealing Fittings and Hubs

6F

6F

Applications:

Chico X fiber:

- Forms a dam between the integral bushing of the sealing fitting and the end of the conduit and around the electrical conductors entering the hub

Chico A sealing compound:

- Forms a seal around each electrical conductor and between them and inside of the sealing fitting to restrict the passage of gases, vapors or flames through the sealing fitting at atmospheric pressure and at normal ambient temperatures

Chico® SpeedSeal™ Compound:

- Designed to separate and form an explosionproof seal around each electrical conductor in Eaton's Crouse-Hinds EYS and EYD sealing fittings
- Restricts the passage of gases, vapors or flames through the sealing fitting
- Creates a seal for Class I, Division 1, Groups C, D and Class II, Division 1, Groups E, F, G hazardous areas

Features:

2.04.G.1.h

Chico A sealing compound:

- A water soluble powder that can be easily mixed and poured. The compound, unusually dense, expands slightly when hardening and bonds to inner walls of sealing fittings. Compound hardens in 60–70 minutes
- Chico A cure time is 8 hours for Class I, Group C and D applications and 72 hours for Class I, Group A and B applications.
- Chico A has a 1 year shelf life from date of manufacture.
- Chico A ambient temperature range (after curing) is –40°F to +165°F.

Chico A-P Intrapak®:

- Packaged in two-compartment plastic pouch with precise amount of water for mixing. No mixing or measuring implements required.
- A hard squeeze of the water compartment forces the water into the compartment containing the Chico compound. Mixing is completed by kneading the pouch for one minute.
- The mixed sealing compound is poured directly into the sealing fitting – no funnel required. The package label indicates the size and quantity of sealing fittings each pouch will properly fill. Compound hardens in 60–70 minutes.

Chico X fiber:

- A mineral wool that packs easily, forming around each conductor

Chico® SpeedSeal™ Compound:

- Installs a reliable seal in five minutes - every time
- Hardens to a dense, strong mass that is suitable for Class I, Division 1, Groups C, D and Class II, Division 1, Groups E, F, G hazardous applications.
- UL and cUL Listed for use with $\frac{1}{2}$ " to 2" Eaton's Crouse-Hinds sealing fittings only.
- Packaged in a 2 oz. or 6 oz. pre-measured cartridge, eliminating the need for measuring before mixing.
- Packaged with a screw-on nozzle for accurate dispensing.
- Expands four times its original size in the sealing fitting, eliminating the need to separate the individual conductors with Chico X fiber.
- Chico X fiber dams are not required in horizontal applications, reducing installation times.
- Completely hardens in 20 minutes, simplifying use for OEMs.
- Suitable for cold temperature environments without the costly need to build a temporary shelter around sealing fittings. All ice crystals must be removed from inside the conduit seal before dispensing Chico SpeedSeal compound. The Chico SpeedSeal compound should be kept above 10°C (50°F) and below 85°F (29°C) prior to mixing. The sealing fitting must be kept at or above 4°C (40°F) during the 4 to 10 minute expansion/gel time of the compound.
- 18 months shelf-life.
- Patent pending.

Crouse-Hinds

by 

Size Ranges:

- Chico A compound – 1 lb. to 5 lbs. (provides 23–115 cubic inches of compound)
- Chico X fiber – 2 oz. to 1 lb.
- Chico A-P (5 pouches per carton) – provides 25 and 55 cubic inches of compound
- Chico SpeedSeal – 2 oz. or 6 oz. cartridge

Eaton's Crouse-Hinds sealing fittings are approved for use in hazardous locations only when Chico X fiber and Chico A Sealing Compound or Chico SpeedSeal are used to make the seal.

Ordering Information - Chico A



Net Weight	Vol. Cu. In. [†]	Cat. #
1 lb.	23	Chico A3
1 lb. [‡]	23	Chico A4
5 lb.	115	Chico A05

Ordering Information - Chico A-P Intrapak®



Cu. In. Fill per Pouch [†]	No. of Pouches per Carton	Cat. #
5	5	Chico A19 PX*
11	5	Chico A39 PX*

*A sixth pouch, containing an appropriate quantity of Chico X fiber, is included in these cartons.

[†]Number of cubic inches this amount will fill when set. See internal volume requirements for EYS, EZS, EYD, EZD and EYSR sealing fittings and ES sealing hubs (see pages 140–149).

[‡]Includes 1 oz. Chico X fiber.

Chico® A and Chico® A-P Sealing Compound**Chico® X Fiber****Chico® SpeedSeal™****For Sealing Fittings and Hubs**

6F

**Ordering Information –
Chico X Fiber****Net Weight**2 oz.
8 oz.
1 lb.**Cat. #**Chico X4
Chico X6
Chico X7**Ordering Information - Chico SpeedSeal**

Class I, Div. 1, Groups C & D and Class II, Div. 1, Groups E, F and G

2.04.G.1.h

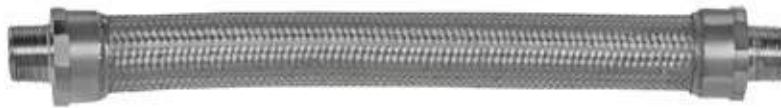
**Chart for Approximate Amount
of Fiber Per Hub**

Hub Size	Ozs. Required
1/2	1/32
3/4	1/16
1	1/8
1 1/4	1/4
1 1/2	1/2
2	1
2 1/2	1 1/2
3	2
3 1/2	3
4	4 1/2
5	7
6	10

Sealing Fitting Cat. #	Amount of SpeedSeal Material Needed (in Ounces) per Fitting	Suggested SpeedSeal Cat. #	Required Cartridge Quantity
EYS1, EYS16; EYS11, EYS116 EYD1, EYD16, EYD11, EYD116	1	CHICO SS2 (2 oz. Cartridge)	1
EYS2, EYS26, EYS21, EYS216 EYD2, EYD26, EYD21, EYD216 EYSX11, EYDX11	2	CHICO SS2 (2 oz. Cartridge)	1
EYS3, EYS36, EYS31, EYS316 EYD3, EYD36, EYD31, EYD316 EYSX21, EYDX21	3	CHICO SS6 (6 oz. Cartridge)	1
EYS41, EYS416, EYS4, EYS46 EYD4, EYD46, EYD41, EYD416 EYSX31, EYDX31	6	CHICO SS6 (6 oz. Cartridge)	1
EYSX41, EYDX41 EYD5, EYD56, EYD51, EYD516 EYS51, EYS516, EYS5, EYS56 EYSX51, EYDX51 EYD6, EYD66, EYD61, EYD616 EYS61, EYS616, EYS6, EYS66			

MSDS sheets are available at www.crouse-hinds.com

Stainless steel explosion-proof flexible couplings



2.04.G.1.h

Features and benefits:

- Corrosion-resistant design, ideal for wash-down areas
- Flexible construction with arc-resistant inner sleeve
- Terminated with two threaded male end fittings
- NPT threads

Applications:

- Used to achieve tight bends in conduit systems in confined spaces
- Can be used to connect stationary equipment to equipment that vibrates

Conforms to:

- cULus listed UL 1203
- Class I Div 1 Groups A, B, C, D: $\frac{1}{2}''\text{--}\frac{3}{4}''$
- Class I Div 1 Groups C, D: $1''\text{--}2''$
- Class II Div 1 Groups E, F, G: $\frac{1}{2}''\text{--}2''$
- IP69 rated for wet locations

Material

- Body: Flexible stainless steel 316
- Fitting: Stainless steel 316

XP Flex stainless steel explosion-proof flexible couplings



Product code	Hub size (in.)	Flexible length (in.)	A (in.)	B (in.)
XPLFL14S	$\frac{1}{2}$	4	1.73	1.34
XPLFL16S	$\frac{1}{2}$	6	1.73	1.34
XPLFL18S	$\frac{1}{2}$	8	1.73	1.34
XPLFL110S	$\frac{1}{2}$	10	1.73	1.34
XPLFL112S	$\frac{1}{2}$	12	1.73	1.34
XPLFL115S	$\frac{1}{2}$	15	1.73	1.34
XPLFL118S	$\frac{1}{2}$	18	1.73	1.34
XPLFL121S	$\frac{1}{2}$	21	1.73	1.34
XPLFL124S	$\frac{1}{2}$	24	1.73	1.34
XPLFL127S	$\frac{1}{2}$	27	1.73	1.34
XPLFL130S	$\frac{1}{2}$	30	1.73	1.34
XPLFL133S	$\frac{1}{2}$	33	1.73	1.34
XPLFL136S	$\frac{1}{2}$	36	1.73	1.34
XPLFL24S	$\frac{3}{4}$	4	1.73	1.77
XPLFL26S	$\frac{3}{4}$	6	1.73	1.77
XPLFL28S	$\frac{3}{4}$	8	1.73	1.77
XPLFL210S	$\frac{3}{4}$	10	1.73	1.77
XPLFL212S	$\frac{3}{4}$	12	1.73	1.77
XPLFL215S	$\frac{3}{4}$	15	1.73	1.77
XPLFL218S	$\frac{3}{4}$	18	1.73	1.77
XPLFL221S	$\frac{3}{4}$	21	1.73	1.77
XPLFL224S	$\frac{3}{4}$	24	1.73	1.77

Product code	Hub size (in.)	Flexible length (in.)	A (in.)	B (in.)
XPLFL227S	$\frac{3}{4}$	27	1.73	1.77
XPLFL230S	$\frac{3}{4}$	30	1.73	1.77
XPLFL233S	$\frac{3}{4}$	33	1.73	1.77
XPLFL236S	$\frac{3}{4}$	36	1.73	1.77
XPLFL36S	1	6	2.13	2.05
XPLFL38S	1	8	2.13	2.05
XPLFL310S	1	10	2.13	2.05
XPLFL312S	1	12	2.13	2.05
XPLFL315S	1	15	2.13	2.05
XPLFL318S	1	18	2.13	2.05
XPLFL321S	1	21	2.13	2.05
XPLFL324S	1	24	2.13	2.05
XPLFL327S	1	27	2.13	2.05
XPLFL330S	1	30	2.13	2.05
XPLFL333S	1	33	2.13	2.05
XPLFL336S	1	36	2.13	2.05
XPLFL412S	$1\frac{1}{4}$	12	2.13	2.56
XPLFL415S	$1\frac{1}{4}$	15	2.13	2.56
XPLFL418S	$1\frac{1}{4}$	18	2.13	2.56
XPLFL421S	$1\frac{1}{4}$	21	2.13	2.56
XPLFL424S	$1\frac{1}{4}$	24	2.13	2.56
XPLFL427S	$1\frac{1}{4}$	27	2.13	2.56



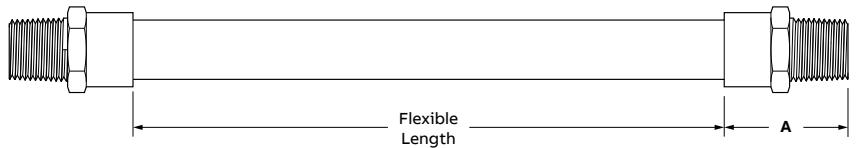
Stainless steel explosion-proof flexible couplings (continued)



Explosion-proof flexible couplings

Product code	Hub size (in.)	Flexible length (in.)	A (in.)	B (in.)
XPLFL430S	1¼	30	2.13	2.56
XPLFL433S	1¼	33	2.13	2.56
XPLFL436S	1¼	36	2.13	2.56
XPLFL512S	1½	12	2.56	3.19
XPLFL515S	1½	15	2.56	3.19
XPLFL518S	1½	18	2.56	3.19
XPLFL521S	1½	21	2.56	3.19
XPLFL524S	1½	24	2.56	3.19
XPLFL527S	1½	27	2.56	3.19
XPLFL530S	1½	30	2.56	3.19
XPLFL533S	1½	33	2.56	3.19
XPLFL536S	1½	36	2.56	3.19

Product code	Hub size (in.)	Flexible length (in.)	A (in.)	B (in.)
XPLFL612S	2	12	2.6	3.19
XPLFL615S	2	15	2.6	3.19
XPLFL618S	2	18	2.6	3.19
XPLFL621S	2	21	2.6	3.19
XPLFL624S	2	24	2.6	3.19
XPLFL627S	2	27	2.6	3.19
XPLFL630S	2	30	2.6	3.19
XPLFL633S	2	33	2.6	3.19
XPLFL636S	2	36	2.6	3.19



6.0 CONDUIT THROUGH WALL AND FLOOR SEALS

**SPECIFICATION – 16130-2.02.L
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

Thru Wall Floor Seals

For New Installation

NEC/CEC:
Rated for Ordinary Locations

The O-Z/Gedney™ Thruwall and Floor Seals provide a positive means of sealing pipe, conduit or tube where they pass through a concrete foundation of a structure below grade or below ground water level or at entry points through a concrete wall or floor which must be sealed. The usual methods of making installations, such as using straight sleeves or pitch pockets, are generally not satisfactory for their effectiveness depends upon the skill and care of the installer. If the installation is not effective, leakage will occur. Considerable time and effort may be required to remake the seal. The O-Z/Gedney™ Thruwall and Floor Seals assure watertight installations by providing the following features:

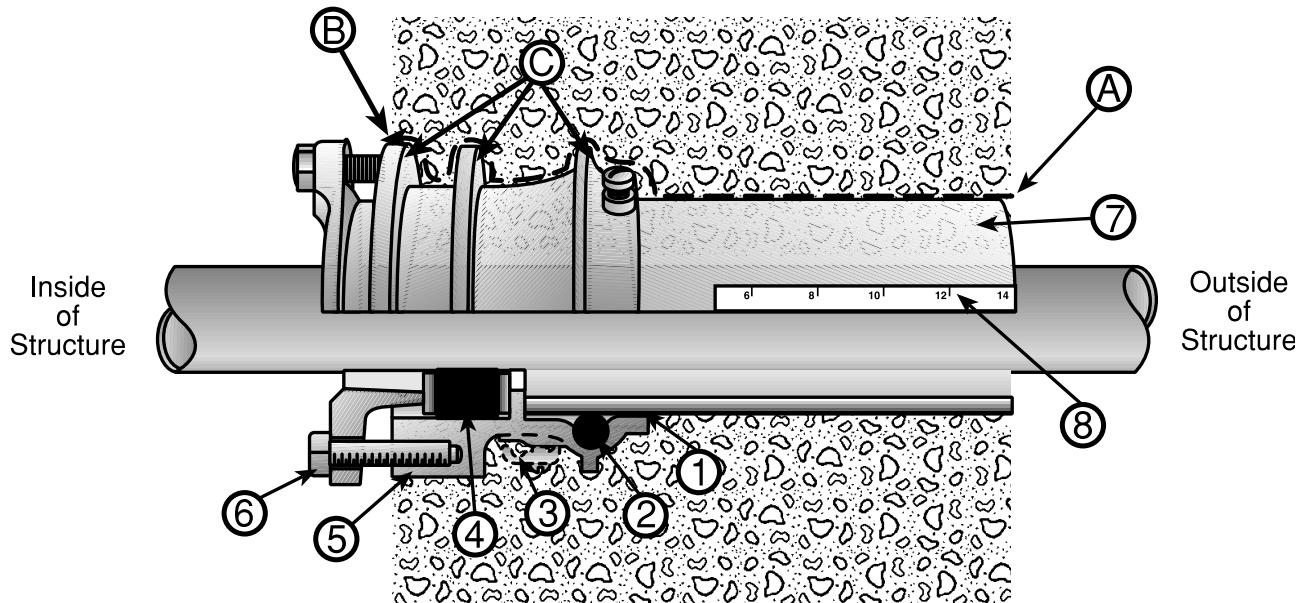
I. Prevention of Seepage

- Seepage is eliminated between (A) and (B) by the blockage points (C) created by the shrinkage of the concrete on the body fins.

II. Pressure Tight Seal

- When the extra thick Neoprene Grommet (4) is compressed, it provides a watertight seal between the Body (5) and the entering pipe, conduit or tube withstanding pressures in excess of a 50 ft. head of water without leakage.
- The Neoprene Grommet compensates for a plus or minus variation in the outside diameter of the entering pipe, conduit or tube.
- The Neoprene Grommet will provide a proper seal even if the entering pipe, conduit or tube is forced off the center line of the fitting or is tilted because of the pressure exerted on the pipe by the back fill.

Features:



Thru Wall Floor Seals

For New Installation

NEC/CEC:
Rated for Ordinary Locations

General Information

Design

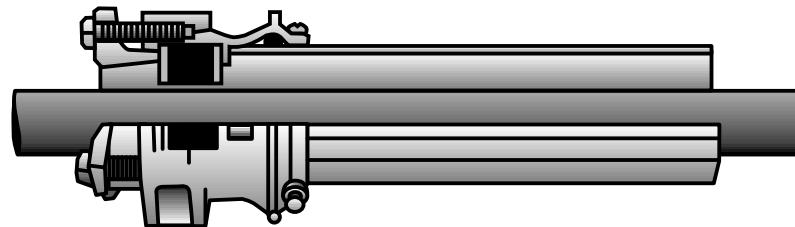
The Thruwall and Floor Seal performs two functions:

- 1) TO PROVIDE A WATERTIGHT BLOCKAGE BETWEEN POURED CONCRETE AND THE FITTING BODY. Watertight blockage is accomplished by special designed fins cast on the outside of the Body, which permit the concrete, when it cures, to shrink around these fins, preventing water from creeping along the outside of the body.
- 2) TO PROVIDE A PRESSURE SEAL BETWEEN THE FITTING BODY AND THE OUTSIDE DIAMETER OF ANY ROUND CASING PENETRATING A WALL, FLOOR OR CEILING. Pressure sealing is based on an engineering principle that solid rubber-like materials are incompressible. If properly selected material is confined and is compressed, the material will flow to fill all voids, providing a very effective, long lasting seal. The sealing grommet is a shock absorber between the fitting and the casing. It allows axial movement of the casing, removing stresses from the casing. The PVC coated steel rings provide cathodic protection as it insulates the sealing fitting from the casing.

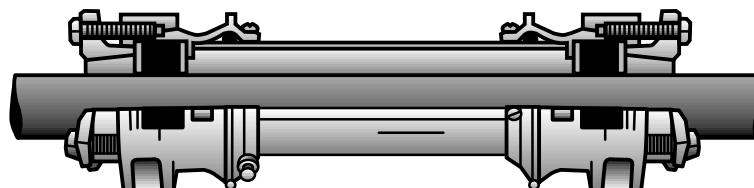
Applications

- Type FSK and WSK Thruwall Sealing Fittings are used where a single casing penetrates the fitting. The FSC and WSC Thruwall Sealing fittings are used where multiple casings penetrate through one fitting.

- The Type FSK and Type FSC fittings are used for most sealing applications. They consist of a body and sealing assembly located on the inside of the structure, and an oversize sleeve which extends from the fitting to the outside of the structure wall. After the foundation is poured, the concrete forms are removed and the round casing is inserted into the body, providing a pressure-tight seal between the round casing and the body of the fitting. The sealing assembly is always available on the inside of the structure for retightening, in the event that sufficient tightening was not utilized during the initial installation.
- The WSK and the WSC fittings are the same as the Type FSK and FSC fittings except that they have a body and sealing assembly on both sides of the oversize sleeve. This provides a pressure seal on both sides of the wall. The Type WSK and WSC fittings can be used on applications where a seal is required on each side of the wall. The body and sealing assembly on the outside of the wall can also be used as a throttle to limit the pressure on the sealing assembly on the inside of the structure. This practice is used where applications require future provisions for replacing the inside sealing assembly when there is a high pressure on the outside wall.
- Another purpose for the Type WSK and WSC fitting is to keep the round casing in the center of the fitting and not have it deflect in the oversize sleeve in the event of earth movement in the back fill.
- Sealing grommets have an expected life in excess of 20 years.



Type FSK



Type WSK

Thru Wall Floor Seals

For New Installation

NEC/CEC:
Rated for Ordinary Locations

General Information

Material Specifications

2.03.B.6.a

- 1) **BODIES AND PRESSURE CLAMPS** are high strength malleable or ductile iron coated with a high organic zinc sacrificial conductive epoxy coating.

Exception: Bodies of FSK 60 are cast iron, malleable iron and cast iron are both inherently corrosion resistant.

- 2) **PRESSURE RINGS** are closely sized to fitting inside diameter and outside diameter of casing. They are thick steel plates that have a heavy durable PVC coating, utilizing the very effective fluid bed process. PVC coating provides an insulation between the sealing assembly, and the casing to provide cathodic protection by eliminating stray electrical currents from flowing between the fitting and the casting.

Exception: Multi-hole Type FSC and WSC sealing assemblies are furnished with low water-absorbing high-impact thick phenolic plates in electrical applications to eliminate eddy current effect when single conductor AC currents pass through magnetic metal.

- 3) **BOLTS** are - Hex head cap bolts zinc electroplated.
- 4) **NEOPRENE SEALING GROMMETS** are molded or drilled to accommodate casing outside diameters. The neoprene is specifically compounded for the following very desirable operating characteristics:
 - Low compression modulus (the ability of the neoprene sealing ring to flow with low-tightening force).
 - Very low compression set (maintain seal over extended period without having to retighten).
 - Anti-oxidant (resistant to ozone attack).
 - Anti-oxidant (resistance to weathering).
 - Low crystallization (suitable for use at low temperatures).
 - Fire retardant (will not support combustion).
- 5) **OVERSIZED SLEEVES** have a marker strip to facilitate field-cutting of sleeves to accommodate walls or floors of varying thicknesses and are furnished in the following material:
 - On FSK/WSK-10 through FSK/WSK-40 and FSCS/WSCS-20 through FSCS/WSCS-50 - High strength, high-impact, durable Schedule 40 PVC pipe.
 - On FSK/WSK-60 and FSCS/WSCS-70 - Steel pipe coated with a high organic zinc conductive Epoxy coating.
 - FSK/FSCS standard length sleeves will accommodate a wall or floor up to 14 inches thick.
 - WSK/WSCS standard length sleeves will accommodate a wall or floor up to 16 inches thick.

Special Options Available at Price Addition

- 1) Bodies and pressure clamps can be furnished hot dip galvanized, add suffix -HDG.
- 2) Oversize PVC or steel sleeves longer than standard sleeve length are also available, please note:
 - For FSK/WSK-10 to FSK/WSK-40, and FSCS/WSCS-20 to FSCS/WSCS-50, add suffix -MS for PVC or -SMS for steel and specify actual wall/floor thickness in inches (not desired sleeve length).
 - For FSK/WSK-60 and FSCS/WSCS-70, add suffix -SMS and specify actual wall/floor thickness in inches (not desired sleeve length). PVC sleeves are not available in this size.
 - Example: for an FSK20-250 with a PVC sleeve for a 20-inch thick wall, the catalog number is FSK-20-250-MS20.
- 3) Grounding pad for connecting grounding wire, add suffix -G.

Alternate Construction: (Suffix -SEG)

- Segmental pressure discs and slit neoprene sealing ring produce a come-apart design which allows the sealing bushing to be installed without having to thread it along the cable or allows installation around cables already pulled/terminated. Example: FSCS-45-SEG.

WARNING Blank fittings are intended for use as abandonment plugs and for sealing openings reserved for future use. DO NOT FIELD DRILL. O-Z/Gedney™ will not be responsible for any device that has been modified in the field.

Thru Wall Floor Seals

For New Installation

NEC/CEC:
Rated for Ordinary Locations

Order of Assembly

- 1 Bodies and oversize sleeve as a unit is mounted in concrete forms.
- 2 Pour concrete.
- 3 Remove forms, pass conduit thru fitting and install sealing assembly parts.

Applications

- Where conduit, pipe or tubing enters a building through the concrete foundation below grade or ground water level, or where it is necessary to seal around a conduit, pipe or tubing where it passes through a concrete floor or wall.
- These fittings are designed so that each body size will accept several different size sealing assemblies which are made to fit the standard sizes of conduit, steel or cast iron pipe, or copper tubing.
- If desired, this design permits the purchase of the fitting less the sealing assembly for mounting in the concrete forms before the concrete is poured.
- At a later date the sealing assembly can be ordered and the installation completed.

Features

- The installation of these fittings is simplified by the use of hex head screws on the sealing assembly.

- Ordinary wrenches are used for tightening, which is desirable especially where space is limited.
- The standard fittings up to the "WSK-40-450" are furnished with a PVC oversize sleeve and the "WSK-60-480" through "WSK-60-663" sizes have a steel sleeve. (Steel sleeves can be furnished on the sizes up to WSK-40-450. Consult with local representative prior to ordering.)
- All the standard sleeves will accommodate a wall or floor up to 16" thick and a marker strip, divided in inches, is provided on the sleeve to facilitate field cutting for walls less than 16".
- Longer sleeves for use in walls or floors of greater thickness are available.

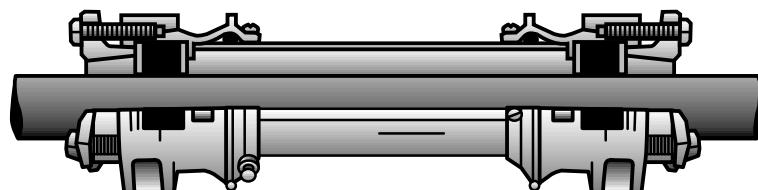
Standard Materials

- Castings - malleable or ductile iron
- WSK 60 Series bodies - cast iron
- Grommet - neoprene
- Pressure rings - steel

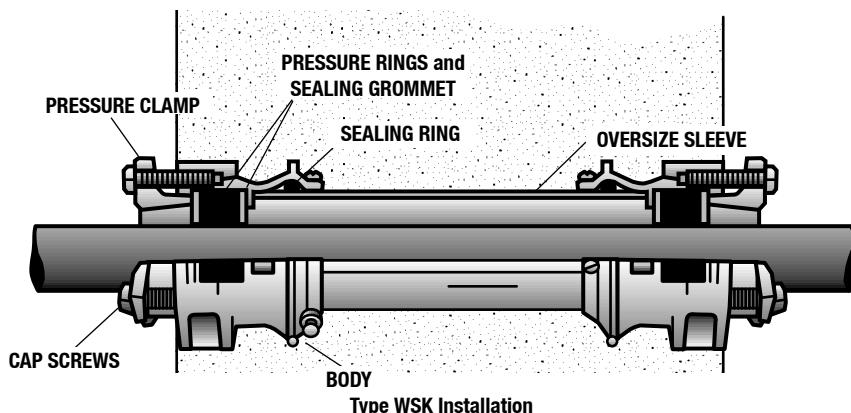
Standard Finishes

- Castings - alkyd enamel coating, hot dip galvanized available
- Pressure rings - PVC coated

WARNING: Blank Fittings are intended as abandonment plugs.
DO NOT FIELD DRILL.



Type WSK



Type WSK Installation

TO ORDER SPECIFY:

1. Catalog Number
2. Size and O.D. of conduit, pipe or tubing
3. Wall thickness if greater than 16", add suffix -MS for PVC and -SMS for steel material, and specify actual wall thickness (not desired sleeve length). PVC sleeve material not available on WSK-60.
4. Other special options if required, see options page

Thru Wall Floor Seals

For New Installation

NEC/CEC:
Rated for Ordinary Locations

Steel Pipe or Conduit		Dimensions in Millimeters (Inches)						Catalog Number	
Nom I.D.	O.D.	Cast Iron Pipe		Copper Tubing		Minimum Wall Thickness	Fitting Complete with Sealing Assembly ①	Fitting Only ②	Sealing Assembly ④ Only ③
				9.65 (0.38)	12.70 (0.50)		WSK-10-68		WSK-68-25
9.65 (0.38)	17.27 (0.68)			12.70 (0.50)	16.00 (0.63)				
12.70 (0.50)	21.34 (0.84)			19.05 (0.75)	22.35 (0.88)	190.50 (7.50)	WSK-10-88	WSK-1020	WSK-88-25
19.05 (0.75)	26.67 (1.05)			25.40 (1.00)	28.70 (1.13)		WSK-10-113		WSK-113-25
25.40 (1.00)	33.53 (1.32)			31.75 (1.25)	35.05 (1.38)		WSK-10-138		WSK-138-25
31.75 (1.25)	42.16 (1.66)			38.10 (1.50)	41.4 (1.63)		WSK-20-166		WSK-166-35
38.10 (1.50)	48.26 (1.90)			44.45 (1.75)	47.75 (1.88)	212.85 (8.38)	WSK-20-193	WSK-2030	WSK-193-35
	50.8 (2.00)			50.8 (2.00)	54.10 (2.13)		WSK-20-213		WSK-213-35
50.80 (2.00)	60.45 (2.38)	50.80 (2.00)	63.50 (2.50)	57.15 (2.25)	60.45 (2.38)		WSK-20-250		WSK-250-35
		50.8 (2.00)	66.8 (2.63)	63.50 (2.50)	66.80 (2.63)		WSK-30-263		WSK-263-45
63.5 (2.50)	73.15 (2.88)	50.8 (2.00)	69.85 (2.75)			222.25 (8.75)	WSK-30-288	WSK-3040	WSK-288-45
76.2 (3.00)							WSK-30-313		WSK-313-45
76.2 (3.00)	88.90 (3.50)						WSK-30-350		WSK-350-45
		76.20 (3.00)	92.96 (3.66)				WSK-40-366		WSK-366-55
		76.20 (3.00)	96.52 (3.80)			234.95 (9.25)	WSK-40-380	WSK-4050	WSK-380-55
88.90 (3.50)	101.60 (4.00)	76.20 (3.00)	100.58 (3.96)				WSK-40-410		WSK-410-55
101.60 (4.00)	114.30 (4.50)						WSK-40-450		WSK-450-55
		101.60 (4.00)	121.92 (4.80)				WSK-60-480		WSK-480-80
114.30 (4.50)	127.00 (5.00)	101.60 (4.00)	127.00 (5.00)				WSK-60-506		WSK-506-80
		133.35 (5.25)					WSK-60-530		WSK-530-80
		139.70 (5.50)							
127.00 (5.00)	141.22 (5.56)			254.00 (10.00)	WSK-60-563		WSK-6070		WSK-563-80
	152.40 (6.00)				WSK-60-610				
	165.10 (6.50)								
152.4 (6.00)	168.40 (6.63)				WSK-60-663				WSK-663-80

For Thruwall Seals for LARGE SIZE MECHANICAL PIPES up to 14" O.D., please see Type FSK and WSK - For Large Size Mechanical Pipes.

① Oversize sleeves can be ordered to accommodate wall thickness greater than 16". To order, add suffix -MS for PVC and -SMS for steel material, and specify actual wall thickness (not desired sleeve length). PVC sleeve material not available on WSK-60.

② "Fitting Only" consists of the following parts, malleable or ductile iron bodies, oversize sleeve and sealing rings. (Except FSK 60 Series.)

③ Furnished with a "Sealing Assembly" consisting of the following parts: pressure clamp, hex head cap screws, pressure rings and sealing grommet.

④ A set of pressure rings and sealing grommet only is available separately.

7.0 CONDUIT ACCESSORIES

**SPECIFICATION – 16130-2.04
CONDUITS: PCS – PVC COATED**



**mass.
electric
construction
company**

PRODUCT-DETAILS

702 2 SS**RGD COND CLP 2IN 12GA STN-STL**

General Information

Extended Product Type	702 2 SS
Product ID	7TAA005580R0010
EAN	0616013141151
Catalog Description	RGD COND CLP 2IN 12GA STN-STL
Long Description	Strap, 12 Gauge, Size 2 Inch, Outer Diameter Size 2.375 Inches, Stainless Steel, For Rigid or IMC Conduit, Pipe and Electrical Metal Tubing

Ordering

EAN	0616013141151
Replacement Product ID (NEW)	7TAA005580R0011

Dimensions

Product Net Weight	.354 lb 160.544 g
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Container Information

Package Level 2 Units	50 piece
Package Level 2 Width	7.7 in 196 mm

Package Level 2 Height	6 in 152 mm
Package Level 2 Depth / Length	11.1 in 282 mm

Additional Information

Application	Superstrut Pipe Straps are designed to be twist inserted anywhere along the slot side of the channel.
Brand / Label	Superstrut
Material	Stainless Steel
Number of Batteries	0
Product Name	SUPERSTRUT CHANNEL & ACCES
Product Type	Pipe Straps, Pipe Clamps & Hangers (Series 700)
Size	2 Inches
Special Functions	Bolt head is combination slot and hex head for flexibility of attachment
UPC	616013141151

Certificates and Declarations (Document Number)

Data Sheet, Technical Information	702 2 SS
Instructions and Manuals	702 2 SS

Classifications

ETIM 6	EC002470 - Mounting clamp for cable protection tubes
ETIM 7	EC002470 - Mounting clamp for cable protection tubes
UNSPSC	31151901
WEEE Category	Product Not in WEEE Scope
IDEA Granular Category Code (IGCC)	2727 >> Metal straps

Categories

Low Voltage Products and Systems → Installation Products → Wire Management and Connectivity → Metal Framing & Accessories





Representative Image

Alternate Catalog No. 702 4 SS**Catalog No. 7024SS****Description:** RGD COND CLP 4IN 11GA STN-STL**UPC No 616013141373****Home > Wire & Cable Management > Superstrut > Metal straps**

Strap, 11 Gauge, Size 4 Inch, Outer Diameter Size 4.500 Inches, Stainless Steel, For Rigid or IMC Conduit, Pipe and Electrical Metal Tubing

Descriptors

Category	Metal straps
Special Features	Bolt head is combination slot and hex head for flexibility of attachment
Application	Superstrut Pipe Straps are designed to be twist inserted anywhere along the slot side of the channel.

Specifications

Material	Stainless Steel
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Classifications

Brand Name	Superstrut
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Dimensions

Size	4 Inches
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Compliance and Certifications

RoHS	RoHS3 Compliant
REACH	REACH 240 Compliant
TSCA	TSCA Section 6(h) Compliant

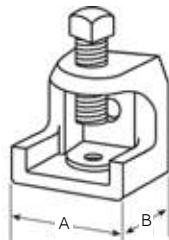
by ABB

Ocal® PVC-coated hanger rod beam clamps

Corrosion-protected clamps for hanging threaded rod



500-G
Hanger rod beam clamp



Ocal PVC-coated hanger rod beam clamps

Product code	Base "A" (in.)	Base "A" (mm)	Base "B" (in.)	Base "B" (mm)	Jaw opening (in.)	Jaw opening (mm)	Tapped hole (in.)	Tapped hole (mm)	Load rating [‡] (lb)	Load rating [‡] (kg)
500-_	1	25.40	1 1/4	31.75	15/16	23.81	1/4-20	6.35 - 20	450	204.12
501-_	1 1/2	38.10	1 5/8	41.28	7/8	22.23	15/16-18	7.94 - 18	800	362.87
502-_	2	50.80	2	50.80	1	25.40	3/8-16	9.53 - 16	1300	589.67
503-_	2 5/8	66.68	2 1/2	63.50	1	25.40	1/2-13	12.70 - 13	1300	589.67
508-_	2 1/2	63.50	2 3/8	60.33	2 1/8	53.98	1/2-13	12.70 - 13	1700	771.11

* Metric size designator (ANSI C80.1-1994).

[‡]Load ratings based on bottom hole of beam clamp with safety factor of three.

CSA File No. LR-52208

Product features

- Malleable iron construction
- Nominal 0.007–0.015" (7–15 mil) PVC coating
- 500, 502 and 503 also available uncoated in Type 316 stainless steel; add -SS316 to catalog number to order (for example: 502-SS316)

Product Code

500-

_ = space for color identifier

G = Dark gray

W = White

B = Light blue

Standard offering is dark gray (G).

Custom colors also available.

Ocal® PVC-coated mini conduit hangers

Includes stainless steel bolt and nut for fast, easy installation



MINE3/4-G
Mini conduit hanger

Product features

- Nominal 0.007–0.015" (7–15 mil) PVC coating
- Rated for loads of up to 500 lb (226.80 kg) with a safety factor of three

Ocal PVC-coated mini conduit hangers

Product Code	Pipe size (in.)	Metric size designator*
MINE1/2-_	1/2	16
MINE3/4-_	3/4	21
MINE1-_	1	27
MINE1-1/4-_	1 1/4	35
MINE1-1/2-_	1 1/2	41

* Metric size designator (ANSI C80.1-1994).

Product code	Pipe size (in.)	Metric size designator*
MINE2-_	2	53
MINE2-1/2-_	2 1/2	63
MINE3-_	3	78
MINE3-1/2-_	3 1/2	91
MINE4-_	4	103

Product Code

MINE1-

_ = space for color identifier

G = Dark gray

W = White

B = Light blue

Standard offering is dark gray (G).

Custom colors also available.

Pipe straps for strut

Designed for easy attachment of conduit to strut



Stainless steel Cobra® clamp



PVC-coated pipe strap

Just twist-insert these pipe straps anywhere you need them along the slot side of a channel. For additional flexibility, you can position the straps as closely as your pipe couplings permit.

Product features

- Combination slot and hex head bolt for flexibility of attachment
- Captivated square nut on shoulder enables easy one-handed tightening
- Use with either 1 $\frac{5}{8}$ " or 1 $\frac{1}{2}$ " strut for greater versatility
- Shipped pre-assembled for easier counting, sorting and handling
- Nominal 0.007–0.015" (7–15 mil) PVC coating
- Standard color is dark gray – custom colors available upon request
- Or choose uncoated Cobra® Clamps in Type 316 stainless steel

Stainless steel Cobra® clamp – Type 316

Type 316 stainless product code	Pipe size (in.)	Metric size designator*
CPC075SS6	1/2	16
CPC100SS6	3/4	21
CPC100SS6	1	27
CPC150SS6	1 $\frac{1}{4}$	35
CPC150SS6	1$\frac{1}{2}$	41
CPC200SS6	2	53
CPC250SS6	2$\frac{1}{2}$	63
CPC300SS6	3	78
CPC350SS6	3 $\frac{1}{2}$	91
CPC400SS6	4	103

* Metric size designator (ANSI C80.1-1994).

Note: Stainless steel strut straps are recommended only for use with stainless steel strut. Stainless steel straps may damage the PVC coating on PVC-coated strut.

Ocal® PVC-coated strut pipe straps

PVC-coated pipe strap product code	Pipe size (in.)	Metric size designator*
SS1/2_-	1/2	16
SS3/4_-	3/4	21
SS1_-	1	27
SS1-1/4_-	1 $\frac{1}{4}$	35
SS1-1/2_-	1$\frac{1}{2}$	41
SS2_-	2	53
SS2-1/2_-	2$\frac{1}{2}$	63
SS3_-	3	78
SS3-1/2_-	3 $\frac{1}{2}$	91
SS4_-	4	103
SS5_-	5	129

* Metric size designator (ANSI C80.1-1994).

Product Code

SS1-

_ = space for color identifier

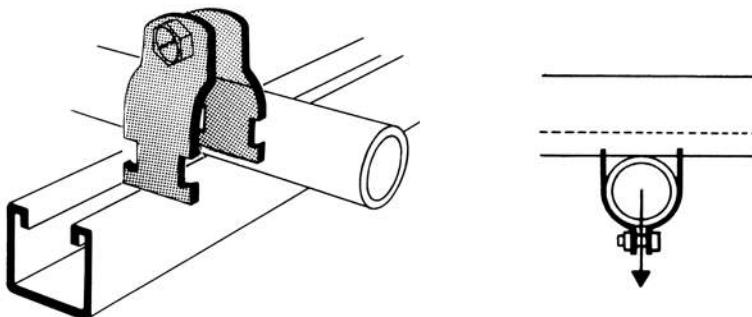
G = Dark gray

W = White

B = Light blue

Standard offering is dark gray (G).

Custom colors also available.



Ocal® touch-up compounds

Fast-drying, air-cure patch for Ocal PVC-coated conduit and fittings



Ocal touch-up compounds

Product code	Container	Size	Color
Exterior PVC patch			
SPRAY-G	Spray can	12½ oz. (0.37 liter)	Dark gray
SPRAY-W	Spray can	12½ oz. (0.37 liter)	White
SPRAY-B	Spray can	12½ oz. (0.37 liter)	Light blue
PATCHP-G	Brush cap can	1 pint (0.47 liter)	Dark gray
PATCHP-W	Brush cap can	1 pint (0.47 liter)	White
PATCHP-B	Brush cap can	1 pint (0.47 liter)	Light blue
PATCHG-G	Can	1 gallon (3.79 liter)	Dark gray
PATCHG-W	Can	1 gallon (3.79 liter)	White
PATCHG-B	Can	1 gallon (3.79 liter)	Light blue
Interior urethane patch			
URETHANEPATCH	Brush cap can	1 pint (0.47 liter)	Blue

8.0 PCS CONDUIT SPECIALTY TOOLS

SPECIFICATION – 16130-3.02.A.2 CONDUITS: PCS – PVC COATED



**mass.
electric
construction
company**

GREENLEE® model 555 electric bender for PVC-coated conduit

Bends 1/2" through 2" PVC-coated conduit



When using this electric bending machine on 1/2" through 2" conduit, the shoes as well as the roller assembly should be of the type designed specifically for use with PVC-coated conduit.

When using conventional shoes, the shoes and each of the rollers in the roller assembly must be machined 60 thousandths. Some manufacturers use slide bars instead of a roller assembly, and these, too, must be machined 60 thousandths.

Be sure to compensate for "spring back," since PVC coating often requires the setting to be off as much as 5°.

GREENLEE model 555 electric bender for PVC-coated conduit

Product code	Description
GBENDER	GREENLEE model 555 bender
Shoes and roller kit for 40-mil PVC-coated conduit	
12586	1/2"-2" shoes and roller supports

Hand bender for PVC-coated conduit

Make saddles, offsets and conventional bends



Hand bender for PVC-coated conduit (handle not included)

Product code	Conduit size (in.)
35220	1/2
35225	3/4
2424A8	1

Ridgid 700 portable threader and die heads

For PVC-coated conduit



Handheld

The Ridgid #12R is typically used for smaller size conduit. The ratchet knob indicates forward and reverse. Die heads snap in from both sides and lock in place. (#12R includes ratchet and handle only)

Handheld powered

The Ridgid 700 power drive is a heavy-duty handheld tool typically used for conduit up to 2" in diameter. The 700 power drive, available in both 115 V and 230 V models, is designed to use Ridgid 12R dies. An optional case is available for this tool.

Ridgid 700 portable threader

Product code	Description
Ridgid 700 portable threader and die heads for PVC-coated conduit	
51857	High speed $\frac{1}{2}$ " 12R die head for coated conduit
51862	High speed $\frac{3}{4}$ " 12R die head for coated conduit
51867	High speed 1" 12R die head for coated conduit
51872	High speed $1\frac{1}{4}$ " 12R die head for coated conduit
51877	High speed $1\frac{1}{2}$ " 12R die head for coated conduit
51882	High speed 2" 12R die head for coated conduit

Ridgid 460-6

Tri-stand chain vise



Product features

- Sturdy, stable frame collapses for easy mobility and storage
- Ceiling brace for overhead support enables you to secure frame even during difficult work
- Features recesses for bending tubes $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " O.D.

Ridgid 460-6 tri-stand chain vise

Product code	Description	in.	Pipe capacity Metric size designator*
36273 (Ridgid model 460-6)	Tri-stand with 6" chain vise (use with Ocal® half-shell clamps)	$\frac{1}{2}$ -6	16-155

* Metric size designator (ANSI C80.1-1994).

Ocal® jaws for PVC-coated conduit

Designed to hold PVC-coated conduit securely in a yoke-style vise without damaging the conduit



Product features

- Replaces the standard jaw inserts in a yoke vise
- Provides greater clamping force and prevents pipe from spinning during threading
- Cast aluminum with machined features
- Three-piece set

Ocal jaws for PVC-coated conduit

Product code	Description	(lb)	Weight (kg)
JAWS23	Use with RIDGID no. 23 and 40A yoke vises	2.80	1.27

Steel pipe cutters

Specially designed for cutting PVC-coated conduit



Product features

- Easy pressure control transmits optimum force onto tube
- Hardened, high-alloy steel cutter wheel provides long service life and burr-free external cutting

Conduit roller cutters

Product code	Description	Pipe O.D.
32820	Steel pipe cutter – Up to 2"	1/8"-2"
32840	Steel pipe cutter – Up to 4"	1/8"-4"

Ratchet pipe reamer

Rapid and clean deburring



Product features

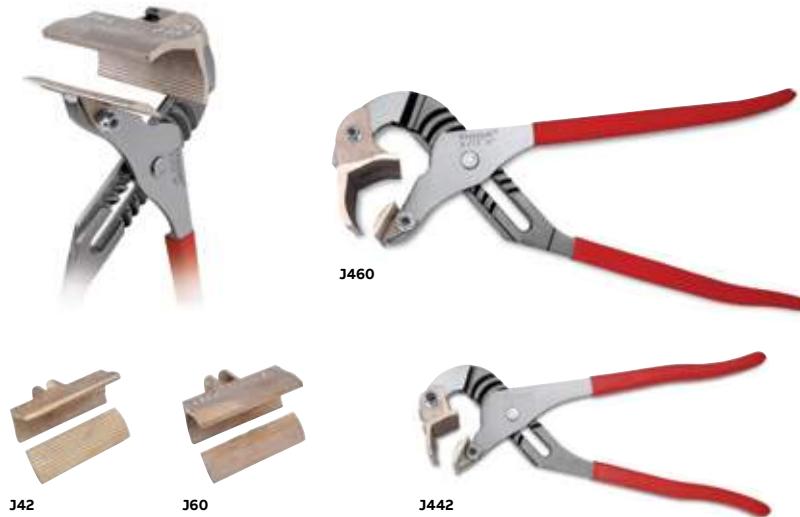
- Smooth-running ratchet
- Tempered-steel cutting bit
- For steel tubes $\frac{1}{4}$ " to 2" O.D.

Ratchet pipe reamer

Product code	Description	Pipe O.D. (in.)
70289	Ratchet pipe reamer	$\frac{1}{4}$ -2

Ocal® J-wrenches

Removable aluminum jaws for PVC-coated conduit



Use with our pliers, or purchase the jaws only and adapt your own.

Ocal J-wrenches

Product code	Description	Pipe capacity (in.)
J442	12" J-wrench with jaws	$\frac{1}{2}$ - $1\frac{1}{4}$
J460	16" J-wrench with jaws	$1\frac{1}{2}$ - $2\frac{1}{2}$
J42	12" jaw set only	$\frac{1}{2}$ - $1\frac{1}{4}$
J60	16" jaw set only	$1\frac{1}{2}$ - $2\frac{1}{2}$

Strap wrenches

Specially coated strap won't absorb oil



Strap wrenches

Product code	Handle length		Strap length		Strap width		Pipe capacity		Pipe capacity (O.D.)		Weight	
	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(in.)	(mm)	(lb)	(kg)
31355	11.75	298.45	17.00	431.80	1.75	44.45	2.00	50.80	3.50	88.90	1.75	.79
31370	18.00	457.20	29.25	742.95	1.75	44.45	5.00	127.00	5.50	139.70	2.75	1.25

FedoTech threaded conduit assembly device



Product features

- Used by electrical contractors in conjunction with 12-R power drive systems to connect large sizes of electrical threaded conduit in a mechanized manner
- Particularly useful in assembling threaded electrical conduit in lengths up to several hundred feet at once instead of manual piece-by-piece assembly
- Decreases overhead labor costs for electrical contractors by mechanizing a once manual task into one that can be completed in a fraction of the time
- Ideal for assembling PVC-coated conduit since no tools are needed that could damage the external coating
- For assembling 2", 3" and 4" threaded conduit

FedoTech threaded conduit assembly device

Product code	Description	Pipe capacity (in.)
JAGF001	Conduit assembly tool	2, 3, 4

Ocal® heat-cure patch

A better patching solution for hot weather applications



Even in the best of installations, the PVC jacket on PVC-coated conduit or fittings can be cut, nicked or abraded. To maintain corrosion protection, ABB offers thicker PVC patch to its offering of Ocal touch-up compounds.

Ideal for use in hot weather, Ocal heat-cure patch offers a thicker consistency at high ambient temperatures than standard air-cure patches, helping to ensure better coverage and a more effective patch.

Ocal heat-cure patch makes patching fast and easy.

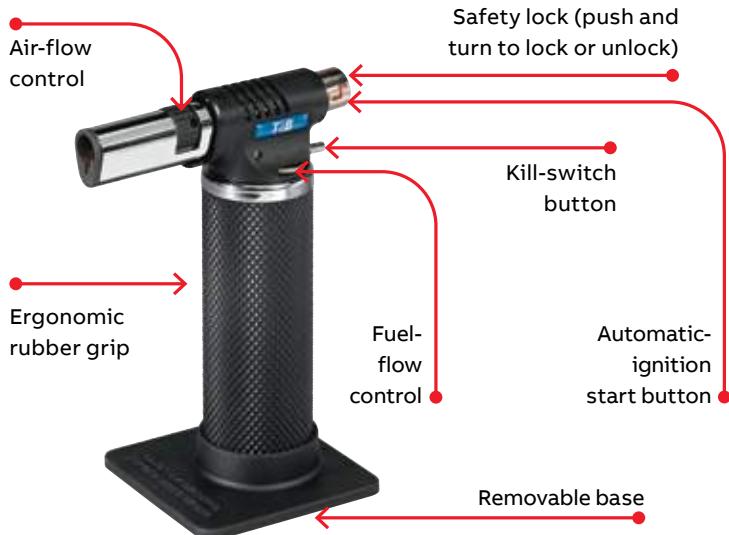
1. Make sure the area to be patched is clean and dry.
2. Squeeze the amount of patch material needed onto the area to be repaired.
3. If necessary, spread and level the patch material with a putty knife.
4. Apply heat with a heat gun or torch, such as the portable heat-shrink torch.
5. Being careful not to overheat (500° F/260° C max.), apply heat for two minutes total, or at least one minute after surface of patch has turned glossy. (The patch material is a glossy liquid that turns flat with initial heat application and then turns glossy again as heating continues.)
6. Allow the patched area to air cool, or use a water quench.

Ocal heat-cure patch

Product code	Color	Size
PATCHT-G	Dark gray	6 oz. (0.18 liter)
PATCHT-W	White	6 oz. (0.18 liter)
PATCHT-B	Light blue	6 oz. (0.18 liter)

Portable heat-shrink torch

Separate controls enable precise adjustment of flame and temperature



Product features

- 2,500° F (1,371° C) output capacity satisfies virtually any heating, brazing or soldering requirement
- Dual fuel- and air-flow controls enable separate adjustment of temperature and flame precision
- Brass and steel construction provides durability
- Operates on standard butane lighter fluid (not included)
- Operating time (per full fuel tank):
Up to 220 minutes
- Fuel tank capacity:
2.03 fl. oz. / 60.03 ml

Portable heat-shrink torch

Product code	Description	Dimensions (without base)				Weight (when filled)	
		Length (in.)	Width (mm)	Height (in.)	Height (mm)	(oz)	(g)
WT-PTORCH	Portable heat-shrink torch	3.90	99.06	1.40	35.56	5.40	137.16