

SAFETY • RELIABILITY • PRODUCTIVITY

CONDUX

UNDERBRIDGE CONDUIT SUPPORT & BORE SPACER CONDUIT-IN-CASING SYSTEMS CATALOG

Leading the world in the design & manufacture of conduit under-bridge hanger systems and conduit bore spacers, Condux hangers are supporting conduit on over 3000 bridges worldwide, including San Francisco's famous Golden Gate Bridge & the spectacular Sunshine Skyway Bridge in Tampa Bay.

Special designs to meet your specific needs, large or small, is our hallmark. Condux engineers are ready to supply you with personalized service which will successfully accomplish your next bridge hanger project.

Rapid turnaround is guaranteed thanks to computerized estimation design and manufacturing. No matter what stage of the project you're in, Condux can help you secure the most cost-effective solution.



ISO 9001:2008
CERTIFIED

www.CONDUX.com

providing labor-saving **solutions & support**

Good businesses know the importance of productivity and efficiency. That's why we take pride in working directly with the industries we serve to offer tools that are engineered to reduce installation time and increase safety. Condux has the specialized tools to help you do the job right, and do it safely.

Reliable Customer Service

Every tool we sell is backed by our commitment to reliable Customer Service through our international network of knowledgeable representatives and our international Customer Service personnel. You will receive the most reliable customer support available anywhere.

Product Training Seminars

A product is most effective with the proper knowledge and training behind it. That's why Condux offers in-depth product information and hands-on product training. Our outdoor facility has precast manholes, four conduit runs, power poles at the perimeter, handholes, and transformer boxes for realistic training. Participants work in both classroom and hands-on settings, with involvement in a variety of product installations over a two-day period.



To our knowledge, all products and other information in this catalog are accurate at the time of printing. Condux International, Inc. reserves the right to change products and other information without prior notice.

Tools shown in this catalog are designed for their intended use only by trained craftspeople. Before using any Condux tool, make certain you have read and understand any safe-

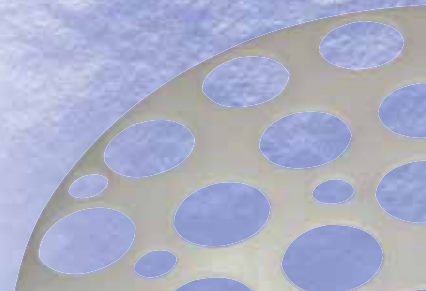
ty, operating, and maintenance instructions for that tool. Call or write for any additional product information required for operation.

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The Condux Engineering Advantage

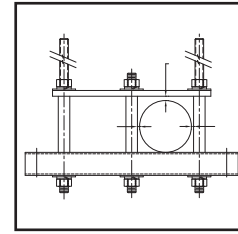
Condux underbridge duct support systems are complete, pre-engineered and field-proven. The hangers can be provided in any configuration (horizontal and vertical) from our inventory of components and preassembled to your specifications.

Support Features:

- Corrosion-resistant fiberglass construction
- Maximum strength-to-weight ratio
- Square tubes incorporated for increased strength

Condux engineers are ready to design a support structure for your underbridge system. We will provide the following:

- Cost and delivery evaluation
- Advanced computer aided design capability
- Estimate based on your information or bridge plans
- Best hanger solution for your application



"Free" space allows the conduit movement that results from expansion/contraction.

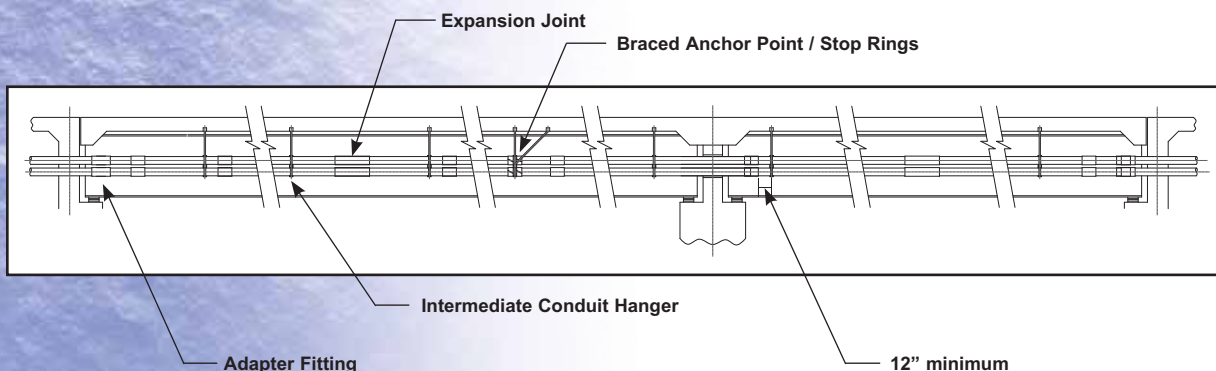


Our experience is your assurance against problems such as conduit sagging and hanger weakening.



Sagging conduit creates "nodes" which can damage the hanger.

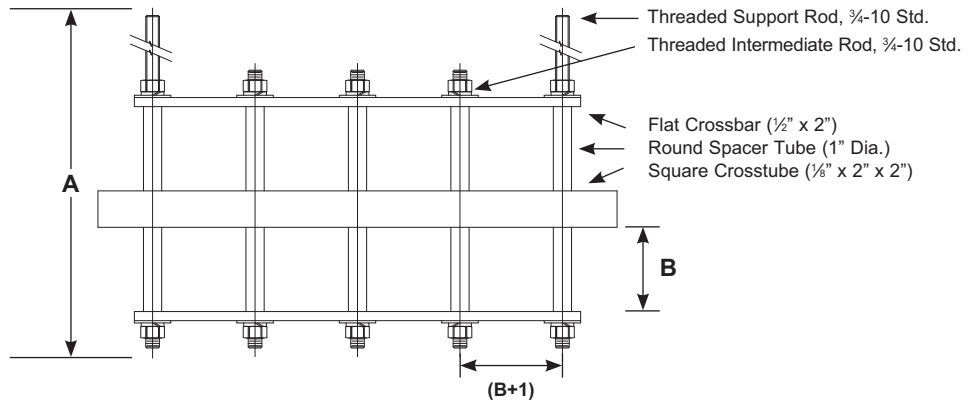
Support System Components



Visit the **Engineer to Order Products** section at www.Condux.com to fill out, print and fax back a copy of this sheet to 507.387.1442 for order processing of this document.

Underbridge Conduit Support Estimating Guide

- **Call Condux**—We will work with you to initialize the estimate.
- We suggest you make several photocopies of this sheet and keep them with this design guide for future use.
- Fill out and mail, FAX or scan and then e-mail (cnxinfo@condux.com) this order information sheet.
- Condux will provide you with an estimate.



1. Grid Type Hanger

To order, the following information is needed.

| | |
|--|--|
| Number of square crosstubs _____ | Flat bar material (FGL, PVC) _____ |
| Number of ducts high _____ | Round tube material (FGL, PVC) _____ |
| Number of ducts wide _____ | Square tube material (FGL, AL, HDG) _____ |
| Spacing between crossmembers (B) _____ | Hardware material (316, 304, HDG, ZNC) _____ |
| Spacing between rod centers (B + 1") _____ | Locations of support rods from left _____ |
| Overall length of support rods (A) _____ | (Example shown: 1 & 5) |
| Quantity _____ | Locations of square crosstubs from top _____ |
| | (Example shown: 2) |
| | Conduit OD and type _____ |

2. Adjustable Bar Brace

To order, the following information is needed:

Run (horizontal distance between bolt centers) (X) _____

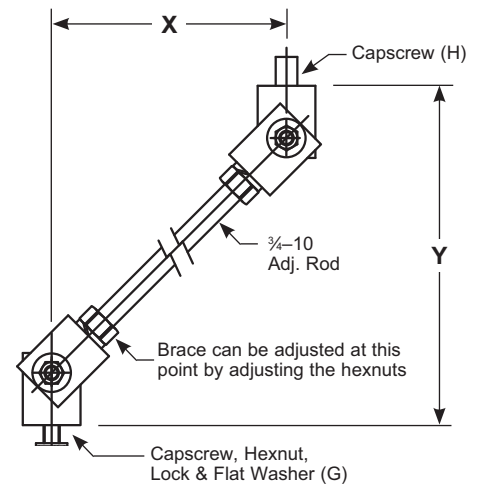
Rise (dist. from top of sq. tube to bottom of deck) (Y) _____

Bolt diameter to be used at hanger (G) _____
(1/2" standard)

Threaded stud dia. to be used at support (H) _____
(3/4" standard)

Type of material (316, HDG) _____

Quantity _____



Return Quotation to:

Name _____ Company _____

Address _____ City _____ State _____

Zip _____ Phone (_____) _____ FAX (_____) _____

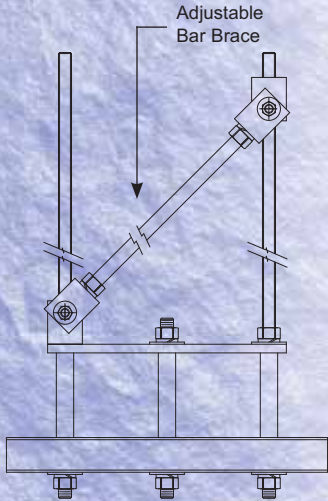
E-mail _____ Return Quotation by _____

Materials required at job site by _____

Mail or FAX a copy of this page to Condux



Underbridge Hanger Installation Guide



1. Begin at one abutment by installing a double bell stop coupling or adapter coupling onto the conduit that is protruding from the abutment. This conduit may be PVC, threaded steel, or fiberglass.

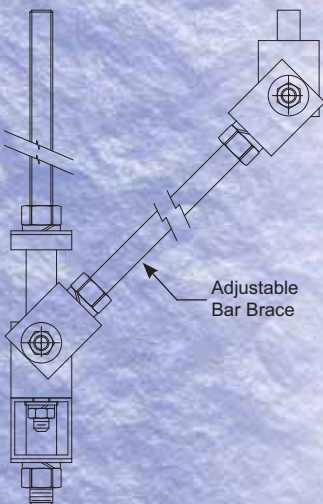
2. Install as many supports as are required to reach the first conduit joint. This may require the installation of expansion anchors into the bridge deck if concrete inserts or other means of support have not previously been installed.

3. Next, install the first piece of conduit and make the connection at the abutment according to standard practices for the type of conduit being used. Continue the process of installing segments of supports and conduit, working from one abutment to the other. No joint should be within 12 inches of a hanger.

4. Expansion joints are installed in the conduit system during this ongoing assembly process. The expansion joints must be placed at the required locations by attaching the expansion sleeve to the conduit that is in place. If the expansion sleeve is of the type that will accept the spigot end of the next conduit piece, then the next conduit piece should be inserted to the halfway point of the sleeve allowing for equal movement in either direction.* If the expansion sleeve is of the type that requires an expansion nipple, then the nipple should be adjusted to the halfway point of the sleeve and subsequently assembled to the end of the next conduit section.

A. Care must be taken that the expansion joints remain at mid-travel during the remainder of the installation process. The joint may be wrapped with tape for assurance.

B. No expansion joint should be closer than 12 inches to any support. The ideal location is $\frac{1}{4}$ the distance to the next support.



5. Split stop rings are installed on the conduit at anchor points which occur at the midway point between expansion joints. When an anchor point location is reached, two stop rings should be slipped over the conduit section so that one falls on each side of the anchor point support. After the conduit connection has been made, and the last expansion joint has been checked to make sure that it has not moved, the stop rings can be epoxied to the outside of the conduit against each side of the support. Plastic tie wraps or tape can be used to hold the stop rings in place until the epoxy has cured.

A. It is convenient at this time to install the anchor point bracing between the anchor point support and the bridge deck.

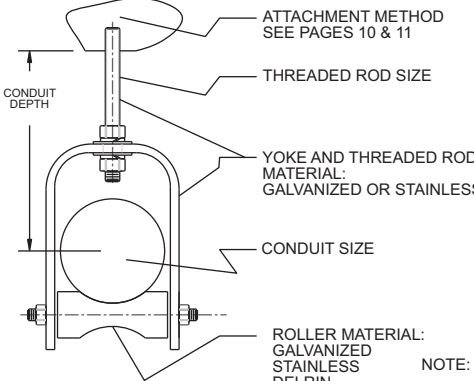
6. The last section of conduit should be cut to length so that it fits end to end with the conduit that protrudes from the abutment. If the two conduits are the same, the connection can be made with a sleeve coupling or slip coupling. Simply slide the sleeve onto one of the conduits, apply epoxy to each end, place the ends together and slide the sleeve over the joint. If an adapter coupling is required, then the last connection is made by retracting the last expansion joint, thereby allowing enough space between the conduit ends to install the adapter. After the connection has been made, the expansion joint should be back at mid-travel.*

*This principle holds true for a temperature range of approx. 50°–70°F. Account for your jobsite ambient temperature when installing expansion joints.

NOTE: Any calculations noted or implied in this guide are not to be used unless the results are validated by Condux engineers.

Visit the **Engineer to Order Products** section at www.Condux.com to fill out, print and fax back a copy of this sheet to 507.387.1442 for order processing of this document.

BRACKET OPTIONS



ATTACHMENT METHOD
SEE PAGES 10 & 11

THREADED ROD SIZE

YOKE AND THREADED ROD
MATERIAL:
GALVANIZED OR STAINLESS

CONDUIT SIZE

ROLLER MATERIAL:
GALVANIZED
STAINLESS
DELRIN

NOTE: _____

CONDUIT YOKE ROLLER HANGER

ORDERING INFO
QUANTITY: _____

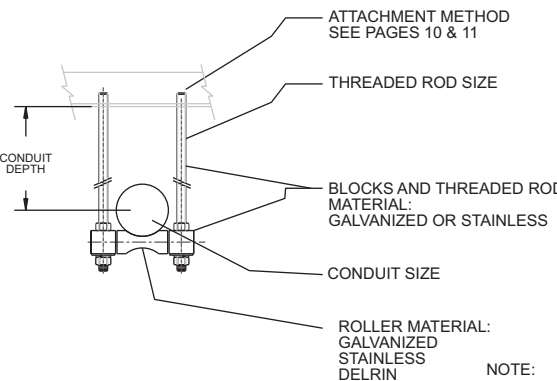
CONDUIT SIZE: _____

THREADED ROD SIZE: _____

CONDUIT DEPTH: _____

YOKE & THREADED
ROD MATERIAL TYPE: _____

ROLLER MATERIAL: _____



ATTACHMENT METHOD
SEE PAGES 10 & 11

THREADED ROD SIZE

BLOCKS AND THREADED ROD
MATERIAL:
GALVANIZED OR STAINLESS

CONDUIT SIZE

ROLLER MATERIAL:
GALVANIZED
STAINLESS
DELRIN

NOTE: _____

CONDUIT TWO ROD ROLLER HANGER

ORDERING INFO
QUANTITY: _____

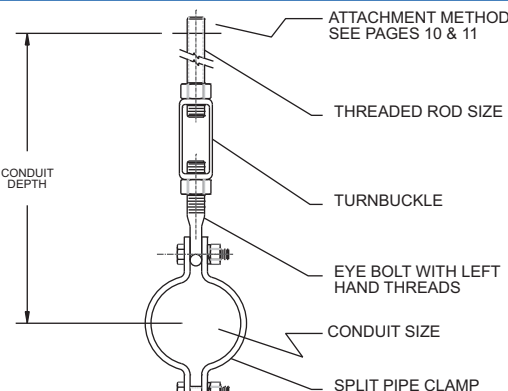
CONDUIT SIZE: _____

THREADED ROD SIZE: _____

CONDUIT DEPTH: _____

BLOCKS & THREADED
ROD MATERIAL TYPE: _____

ROLLER MATERIAL: _____



ATTACHMENT METHOD
SEE PAGES 10 & 11

THREADED ROD SIZE

TURNBUCKLE

EYE BOLT WITH LEFT
HAND THREADS

CONDUIT SIZE

SPLIT PIPE CLAMP

NOTE: _____

CONDUIT TURNBUCKLE HANGER

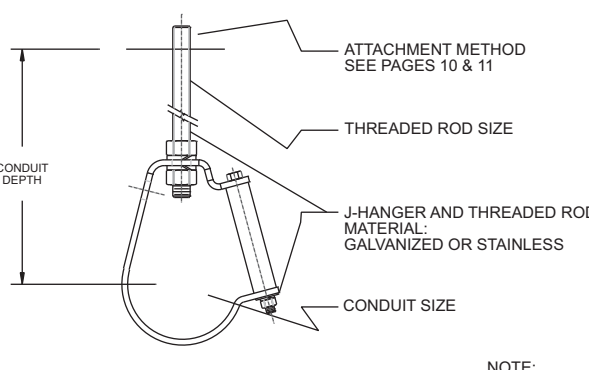
ORDERING INFO
QUANTITY: _____

CONDUIT SIZE: _____

THREADED ROD SIZE: _____

CONDUIT DEPTH: _____

MATERIAL TYPE:
(GALVANIZED OR STAINLESS)



ATTACHMENT METHOD
SEE PAGES 10 & 11

THREADED ROD SIZE

J-HANGER AND THREADED ROD
MATERIAL:
GALVANIZED OR STAINLESS

CONDUIT SIZE

NOTE: _____

CONDUIT J-HANGER

ORDERING INFO
QUANTITY: _____

CONDUIT SIZE: _____

THREADED ROD SIZE: _____

CONDUIT DEPTH: _____

J-HANGER & THREADED
ROD MATERIAL TYPE: _____

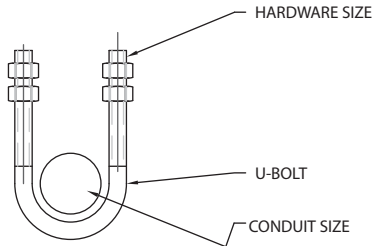


UNDERBRIDGE CONDUIT SUPPORT SYSTEMS

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BRACKET OPTIONS

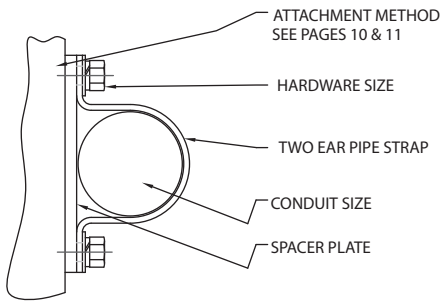
CONDUIT U-BOLT HANGER



ORDERING INFO
QUANTITY: _____
CONDUIT SIZE: _____
HARDWARE SIZE: _____
MATERIAL TYPE: _____
(GALVANIZED OR STAINLESS)

NOTE: _____

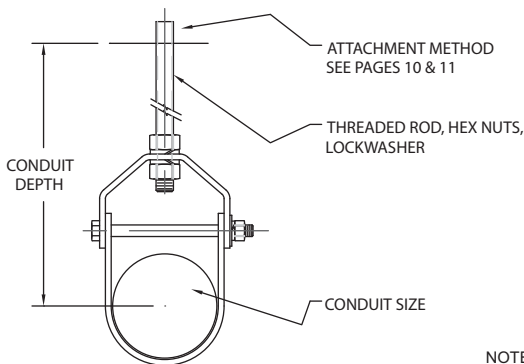
CONDUIT TWO EAR PIPE STRAP HANGER



ORDERING INFO
QUANTITY: _____
CONDUIT SIZE: _____
HARDWARE SIZE: _____
SPACER PLATE THICKNESS: _____
MATERIAL TYPE: _____
(GALVANIZED, STAINLESS OR FIBERGLASS)

NOTE: _____

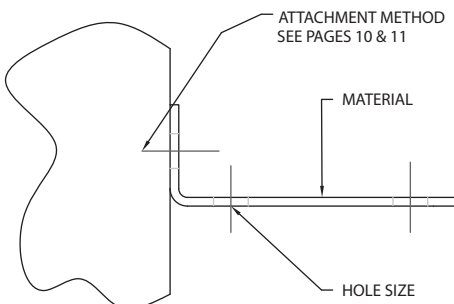
CONDUIT CLEVIS HANGER



ORDERING INFO
QUANTITY: _____
CONDUIT SIZE: _____
THREADED ROD SIZE: _____
CONDUIT DEPTH: _____
MATERIAL TYPE: _____

NOTE: _____

CONDUIT SIDE MOUNT



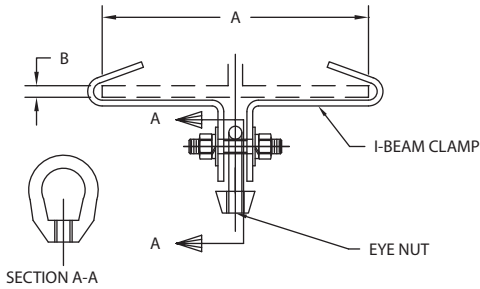
ORDERING INFO
QUANTITY: _____
MATERIAL SIZE: _____
HOLE SIZE: _____
MATERIAL TYPE: _____
(GALVANIZED OR STAINLESS)

NOTE: _____

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BRACKET OPTIONS

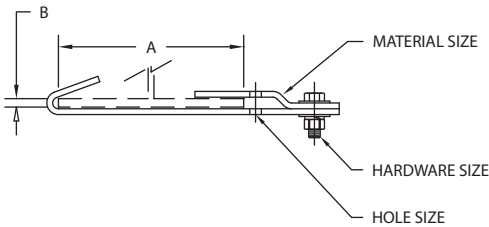
I-BEAM ATTACHMENT



ORDERING INFO
 QUANTITY: _____
 MEASUREMENT "A": _____
 MEASUREMENT "B": _____
 EYE NUT THREAD SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

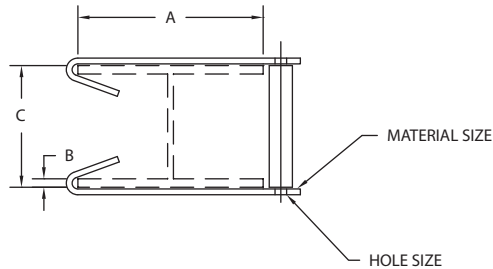
I-BEAM SIDE MOUNT



ORDERING INFO
 QUANTITY: _____
 MEASUREMENT "A": _____
 MEASUREMENT "B": _____
 HARDWARE SIZE: _____
 MATERIAL SIZE: _____
 HOLE SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

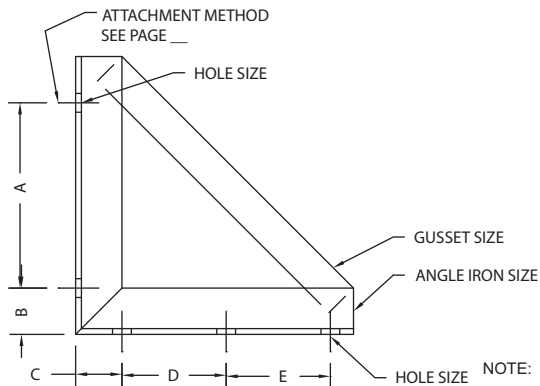
DOUBLE I-BEAM SIDE MOUNT



ORDERING INFO
 QUANTITY: _____
 MEASUREMENT "A": _____
 MEASUREMENT "B": _____
 MEASUREMENT "C": _____
 MATERIAL SIZE: _____
 HOLE SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

ANGLE IRON HANGER MOUNT



ORDERING INFO
 QUANTITY: _____
 MATERIAL GUSSET SIZE: _____
 MATERIAL ANGLE IRON SIZE: _____
 MEASUREMENT: A: _____ B: _____ C: _____
 D: _____ E: _____
 HOLE SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

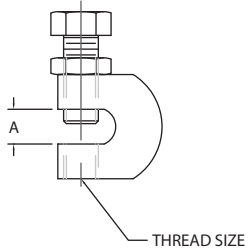


UNDERBRIDGE CONDUIT SUPPORT SYSTEMS

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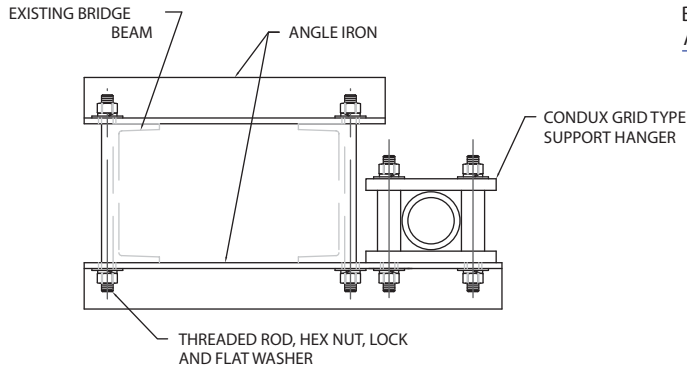
BRACKET OPTIONS

C-CLAMP



ORDERING INFO
QUANTITY: _____
THREAD SIZE: _____
MEASUREMENT "A": _____
MATERIAL TYPE: _____
(GALVANIZED OR STAINLESS)

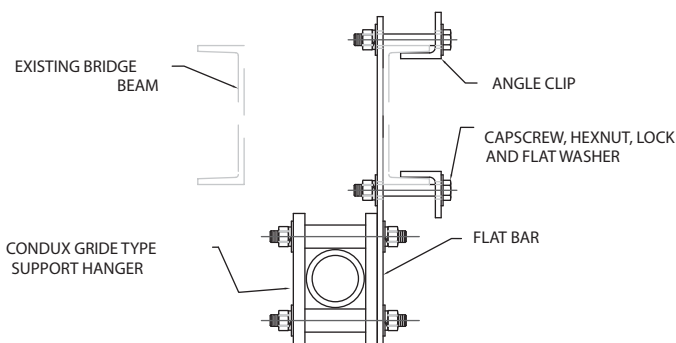
NOTE: _____



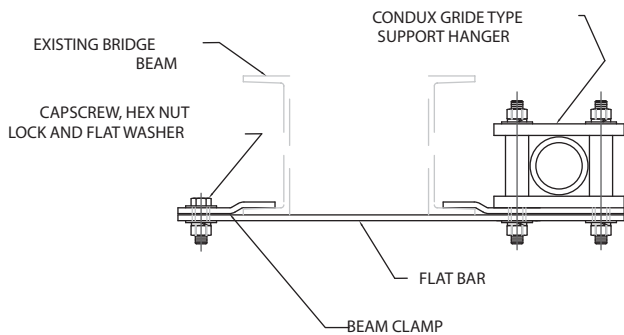
BOX TYPE ATTACHMENT

OPTIONAL ATTACHMENTS

CALL CONDEX INTERNATIONAL
ENGINEERING DEPARTMENT FOR
ORDERING ASSISTANCE



ANGLE CLIP ATTACHMENT

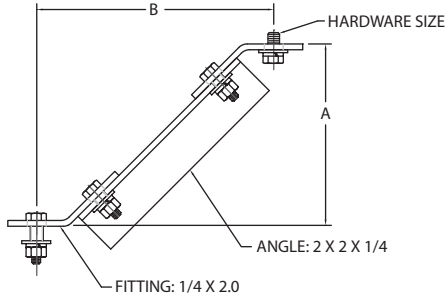


BEAM CLAMP ATTACHMENT

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BRACKET OPTIONS

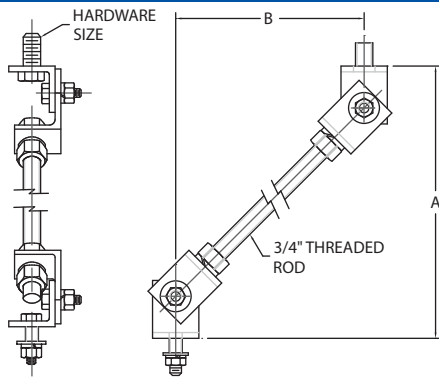
HANGER BRACE ANGLE IRON



ORDERING INFO
 QUANTITY: _____
 MEASUREMENT "A": _____
 MEASUREMENT "B": _____
 HARDWARE SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

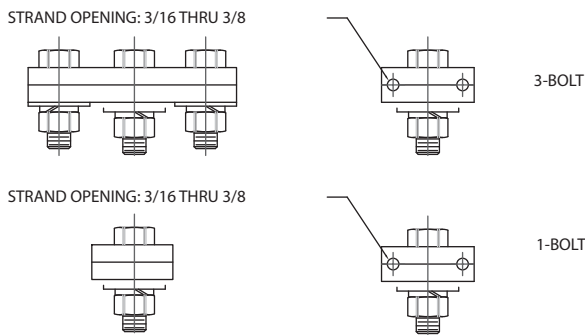
HANGER BRACE ADJUSTABLE



ORDERING INFO
 QUANTITY: _____
 MEASUREMENT "A": _____
 MEASUREMENT "B": _____
 HARDWARE SIZE: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE: _____

GUY STRAND CLAMP

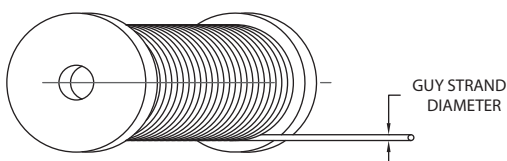


ORDERING INFO
 QUANTITY
 3-BOLT: _____
 1-BOLT: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

NOTE:
 HOT DIP GALVANIZED IS ONLY AVAILABLE IN A 3-BOLT CLAMP

NOTE: _____

GUY STRAND WIRE



ORDERING INFO
 STRAND SIZE: 1/4" OR 3/8"
 LENGTH: _____
 MATERIAL TYPE: _____
 (GALVANIZED OR STAINLESS)

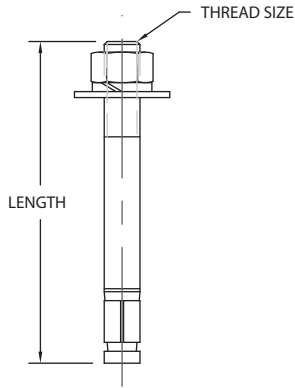
NOTE: _____



UNDERBRIDGE CONDUIT SUPPORT SYSTEMS

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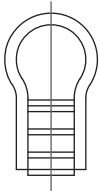
BRACKET OPTIONS



CONCRETE STUD INSERT

ORDERING INFO
QUANTITY: _____
THREAD SIZE: _____
LENGTH: _____
MATERIAL TYPE: _____
(ELECTRO GALVANIZED OR STAINLESS STEEL)

NOTE: _____



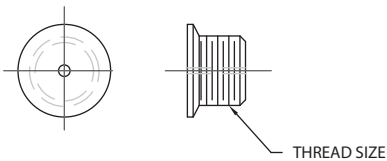
HOT DIP GALVANIZED INSERTS ARE
THREADED OVERSIZED TO FIT HOT DIP
GALVANIZED THREADS

CONCRETE CAST-IN PLACE LOOP INSERT

ORDERING INFO
QUANTITY: _____
THREAD SIZE: _____
MATERIAL TYPE: _____
(ELECTRO GALVANIZED, HOT DIP GALVANIZED
OR STAINLESS STEEL 303 TYPE)



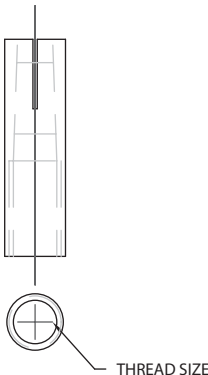
NOTE: _____



CONCRETE CAST-IN PLACE SETTING PLUG

ORDERING INFO
QUANTITY: _____
THREAD SIZE: _____

NOTE: _____



CONCRETE DROP IN WEDGE ANCHOR

ORDERING INFO
QUANTITY: _____
THREAD SIZE: _____
MATERIAL TYPE: _____
(ELECTRO GALVANIZED OR STAINLESS STEEL
303 TYPE)

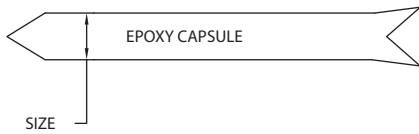
NOTE: _____



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BRACKET OPTIONS

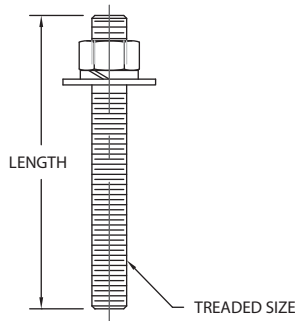
CONCRETE EXPOXY ADHESIVE CAPSULT INSERT



ORDERING INFO
 QUANTITY: _____
 SIZE: _____

NOTE: _____

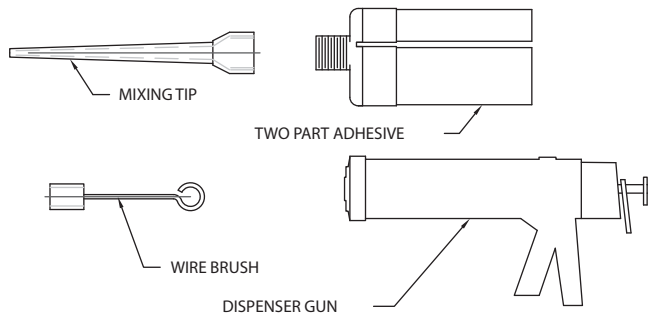
CONCRETE THREADED ANCHOR ROD



ORDERING INFO
 QUANTITY: _____
 THREAD SIZE: _____
 LENGTH: _____
 MATERIAL TYPE: _____
 (ELECTRO GALVANIZED, HOT DIP GALVANIZED OR STAINLESS STEEL)

NOTE: _____

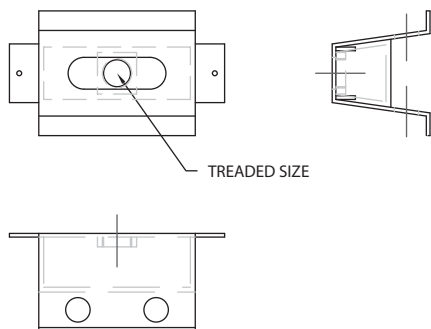
INJECTION ADHESIVE ANCHOR SYSTEM



DESCRIPTION:
 TWO PART ADHESIVE QTY: _____
 DISPENSER GUN QTY: _____
 WIRE BRUSH SIZE: _____ QUANTITY: _____
 REPLACEMENT MIXING TIP QTY: _____

NOTE: _____

CONCRETE CAST-IN PLACE ADJUSTABLE INSERT



ORDERING INFO
 QUANTITY: _____
 THREAD SIZE: _____
 MATERIAL TYPE: HOT DIP GALVANIZED

NOTE: _____



Conduit-In-Casing with Condux Bore Spacers

The Process

Conduit-in-casing is a simple process that allows telecom and power utilities to quickly and easily place power and communication cable below ground and under structures such as roadways, rail lines, etc. After the casing is installed and soil removed, multiple ducts supported by Condux Bore Spacers are then installed. Grout is typically injected between the individual ducts. Once the grout has cured, the telecom/power cables are pulled into place.

Maximum Protection & Effectiveness

Condux Bore Spacers are designed to support the conduit bundles reliably throughout the installation process and help disperse installation stress. This protects the conduit, which, in turn, protects the installed cables. In addition, bore spacers keep the conduit well organized inside of the casing, which allows for easy cable installation and quick identification for future installation in any unused conduit. Condux Bore Spacers also help maximize the allotted space within the diameter of a casing by facilitating the safe installation of the greatest number of conduit within that casing. This saves time and money.

Custom Bore Spacer Design

Bore spacer design is essential for proper conduit installation and alignment, which ultimately contributes to the reliability and longevity of the system. Condux Bore Spacers are manufactured with several innovative features like special contoured grout flow holes and stabilization holes. Contoured grout flow holes make grout injection fast and efficient. Ropes or cables

are used in conjunction with the stabilization holes to counteract rotational torque placed on the duct bank during installation and prevent twisting.

In addition, Condux Bore Spacers can be equipped with heavy-duty casters to improve installation times. Special float stops also help protect the conduit during the application of grout.

Most importantly, Condux Bore Spacers are manufactured to job site specifications based on the size of the casing and the number of conduits required. This also lets the end user specify the minimum separation between individual duct runs, as well as the number, size and configuration of the grout holes.

Grout

Grout is typically used to fill the space between the ducts and casing once they are in place. The grout serves several purposes.



Conduit-In-Casing with Condux Bore Spacers

First, grout helps stabilize the conduit, especially when cable is being pulled in place. This will help limit the potential for the duct bank to collapse either from the force being applied during cable installation or due to the weight of the cables themselves.

Second, grout also helps keep the duct bank in place, preventing it from moving because of the unbalanced weight distribution of placed cables. Finally, grout isolates the individual conduit from one another, further protecting them in case of a cable fault, as well as minimizing heat transfer when used in a power utility application.

Choosing the right grout for the project is another essential component of a successful installation. The objective is to completely fill the annular space of the casing, without damaging the conduits. Contact Condux for specific conduit-in-casing grout options.





Our Schedule Will Fit Your Schedule

The Condux Bore Spacer program is specially designed to ensure fast turnaround for all aspects of spacer design and manufacture. Even though the spacers are a custom designed product, our rapid turnaround will make it seem like we just took them right out of inventory. This rapid response includes all aspects of spacer production including:

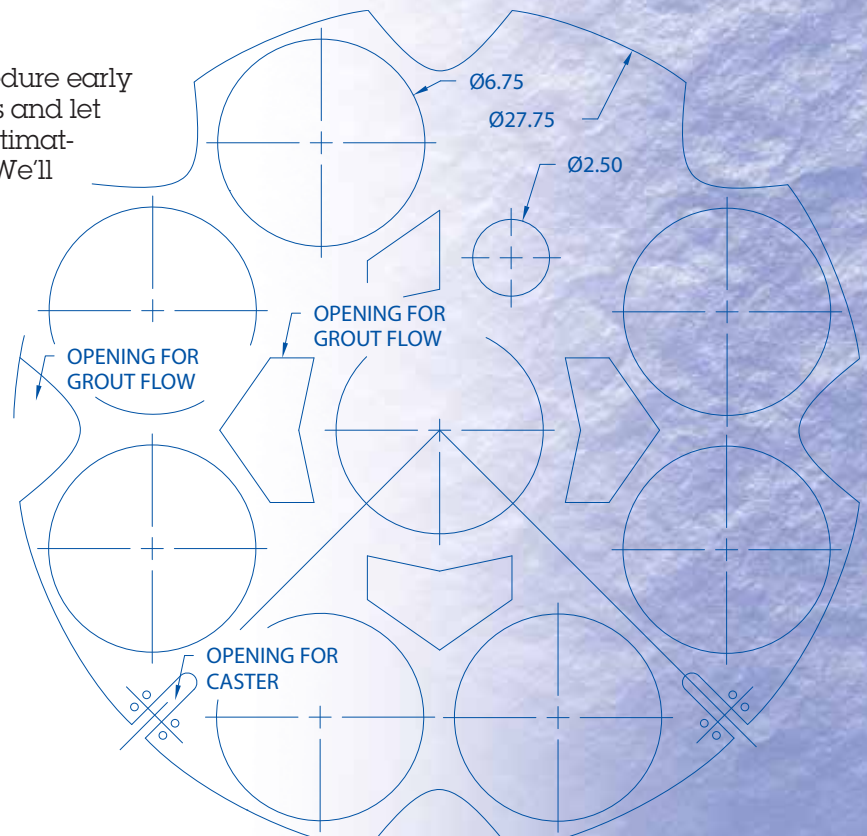
- Design** All we need is the size of the casing and the number of conduits you need to install. We'll get back to you immediately with a recommended design.
- Quotation** Once the design is approved, we will generate a quotation that spells out a guaranteed project price - and a delivery rate!
- Manufacture** Turnaround time to fill your bore spacer order is measured in days, not weeks or months. In most cases the bore spacers are ready for shipment in 10 working days or less!

Don't Forget the Hidden Benefits

The real value of Condux Bore Spacers may be in the support that's available from Condux if you need it. With our many years of experience dealing with conduit and cable installation problems, we're an excellent source of information and expertise. You can count on us at every step of the way to help you keep small problems from becoming major headaches, but more importantly, to help you set up the job right in the first place. Whatever help you need, count on Condux.

How to Order

Establish your conduit installation procedure early in the project development. Then call us and let us know what you need, or use the estimating guide on page 16 of this catalog. We'll take it from there.



Condux Bore Spacers...When the Engineering Matters



Banding/Strapping

| Part No. | Description |
|----------|---|
| 02290127 | Steel Banding 3/4" wide by 1800 ft. coil (2070 lbs) |



Tensioner

| Part No. | Description |
|----------|------------------------------|
| 02290128 | Industrial Banding Tensioner |



Sealer

| Part No. | Description |
|----------|---------------------------|
| 02290129 | Industrial Banding Sealer |





Cutter



| <u>Part No.</u> | <u>Description</u> |
|-----------------|---------------------------|
| 02290130 | Industrial Banding Cutter |

Metal Seals



| <u>Part No.</u> | <u>Description</u> |
|-----------------|--|
| 02290131 | Box of 3/4" wide steel seals (approx. 1,000 per box) |

Carts



| <u>Part No.</u> | <u>Description</u> |
|-----------------|--------------------------------------|
| 02290132 | Heavy duty deluxe steel banding cart |

Condux Customer Commitment



You can be confident when you order from Condux that every product we sell is backed by our commitment to reliable Customer Service through our network of knowledgeable Condux Representatives and our internal Customer Service personnel.

Cable Installation Equipment & Tools

For the latest in solutions, tools, and equipment for cable installation, the new Condux cable Installation Catalog is just what you need. It features over 250 photos and illustrations of the latest time and money-saving products to assist power utilities, telephone companies, and electrical contractors with installing cable. An expanded offering in fiber optic products is included in this latest edition. Products include: duct rodders, cable pullers, pulling eyes, swivels, cable guides, sheaves and much more.

To receive a catalog or place an order, contact your Condux Representative or call Condux Customer Service at the number below.



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