

Highland Bridge Services - Pipe Hangers and Supports



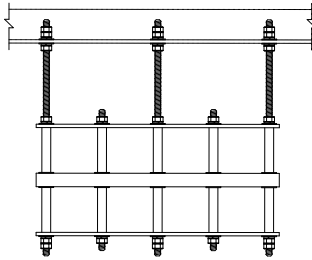
Highland is nationally renowned as a leader in design and manufacturing of standard and custom hangers and supports for bridge attached utilities, bridge drain systems, water, sewer and gas piping and custom steel mounting brackets for lighting and other bridge components.

For nearly 30 years, contractors and engineers have relied on Highland's expertise in developing bridge utility attachment solutions. Today our products can be found on the country's most iconic bridges, state highway overpasses, marine piers, rail and transit structures, utility bridges and more. Our support staff consists of design experts and installing contractors that have the experience to solve any attachment challenge, and we stand ready to provide our customers with the technical expertise required for a successful installation.

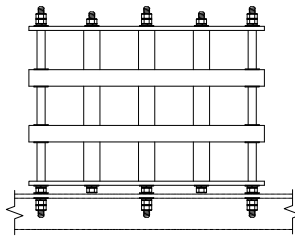
In addition to our design and manufacturing capabilities, we supply a full complement of concrete inserts, embeds, hardware and accessories to complete your hanger and support order.

Our manufactured products can be supplied plain, Hot Dipped Galvanized, 304/316 stainless or coated, and "Made in the USA" in compliance with strict Buy-America and FTA requirements.

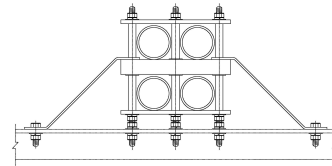
On the following pages you will find a wide sampling of hangers and supports available from Highland. Due to the many configurations available and the varying environments in which they can be installed, we recommend you contact our bridge department early in your process to ensure the appropriate design and materials are incorporated into your project.



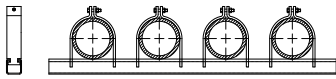
2 High x 4 Wide Intermediate Steel Mount



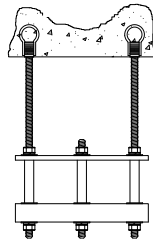
3 High x 4 Wide Base Steel Mount



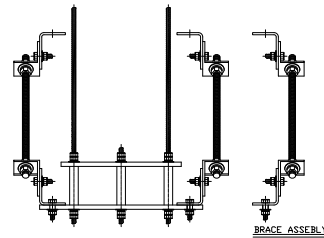
2 High x 2 Wide Base Steel Mount Anchor Point



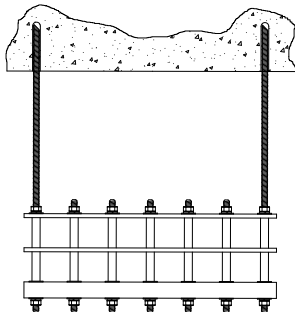
4 Wide Base Mount Pipe Strap



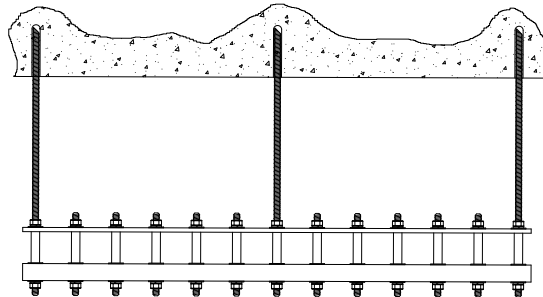
1 High x 4 Wide Intermediate Deck Mount



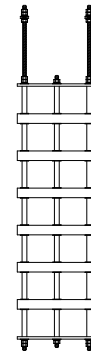
1 High x 2 Wide Intermediate Deck Mount Anchor Point



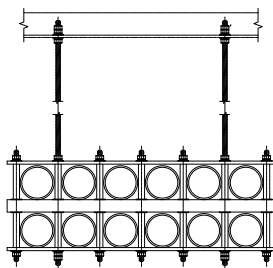
2 High x 6 Wide Intermediate Deck Mount



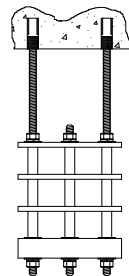
1 High x 12 Wide Intermediate Deck Mount



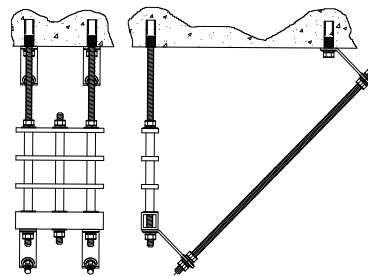
7 High x 2 Wide Intermediate



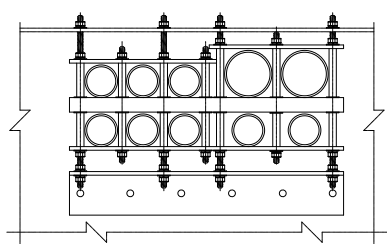
2 High x 6 Wide Intermediate Steel Channel Mount



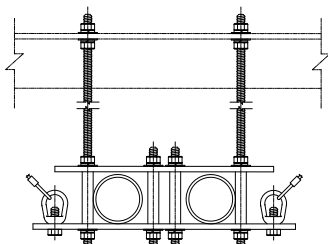
3 High x 2 Wide Intermediate Deck Mount



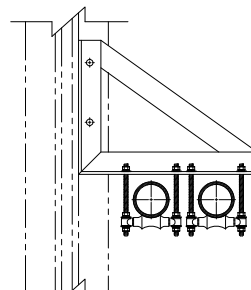
3 High x 2 Wide Intermediate Anchor Point Deck Mount



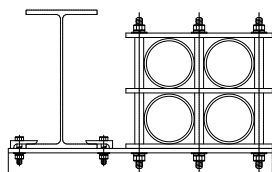
2 High x 5 Wide Multi-Conduit
Steel Base Mount



1 High x 2 Wide Intermediate
Steel Mount w/ Wind Braces



Wall Bracket w/ Roller
Hangers for Steel Conduit



2 High x 2 Wide Grid Support
w/ Beam Clamps

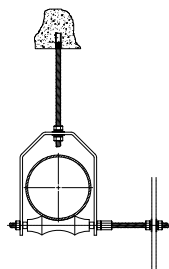
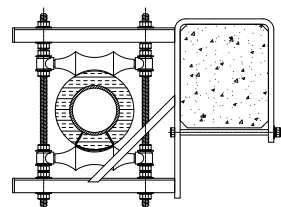
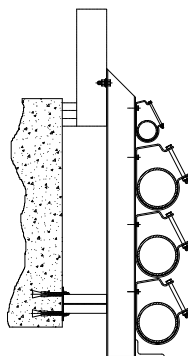


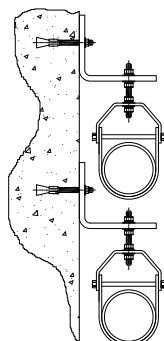
Figure 79 Roller Hanger w/
Axle Brace



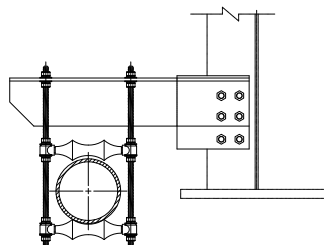
Double Roller Support for
Insulated Pipe



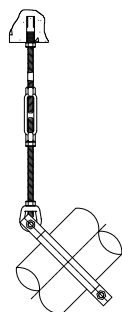
Custom Steel Mounting
Bracket for Multiple Conduits



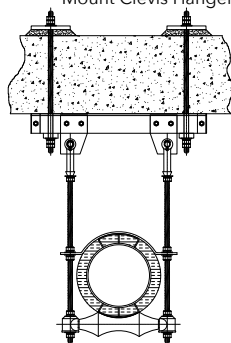
Custom L-Brackets for Side
Mount Clevis Hangers



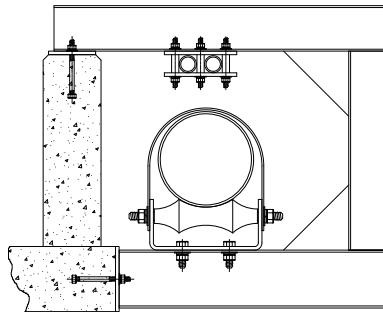
Custom Girder Bracket for
Double Roller Hanger



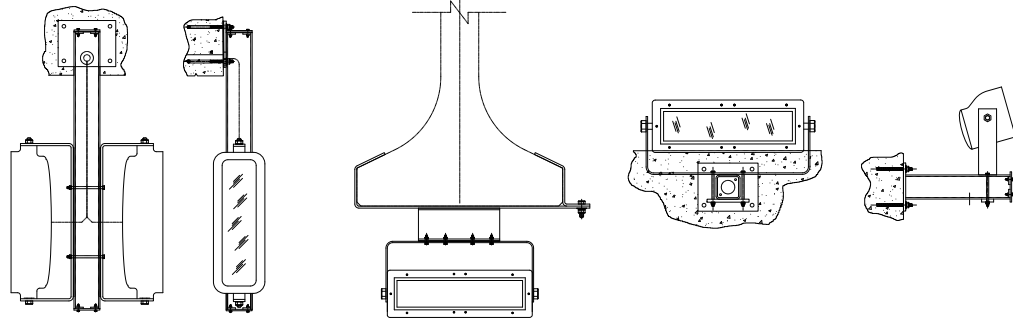
Pipe Clamp w/ Turnbuckle
and Eye Rod



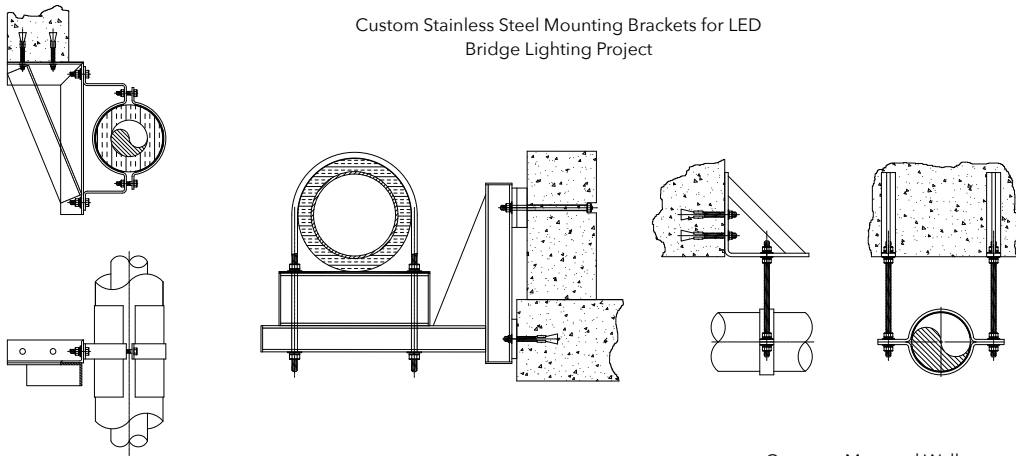
Custom Roller Hanger w/
Concrete Mounting Plates



Custom Steel Frame for Roller Hanger
and 1 High x 2 Wide Conduits



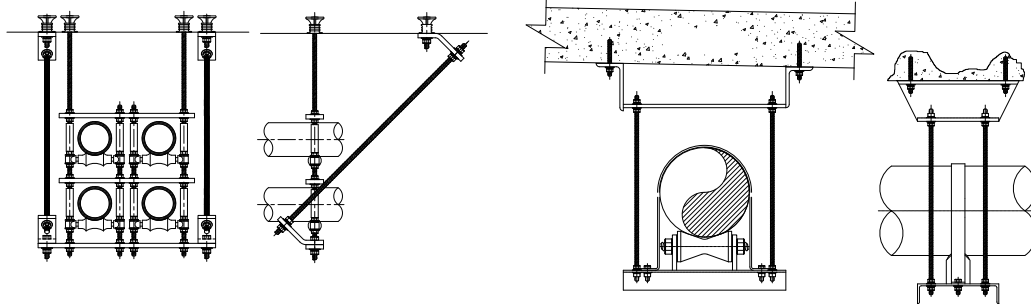
Custom Stainless Steel Mounting Brackets for LED
Bridge Lighting Project



Custom Steel Wall Bracket and Two-Piece
Pipe Clamp for Insulated Piping

Custom Steel Wall Bracket and U-
Bolt for Insulated Pipe

Concrete Mounted Wall
Bracket and Two-Piece Pipe
Clamp



2 High x 2 Wide Intermediate
Anchor Point Roller Hanger for
Steel Conduits

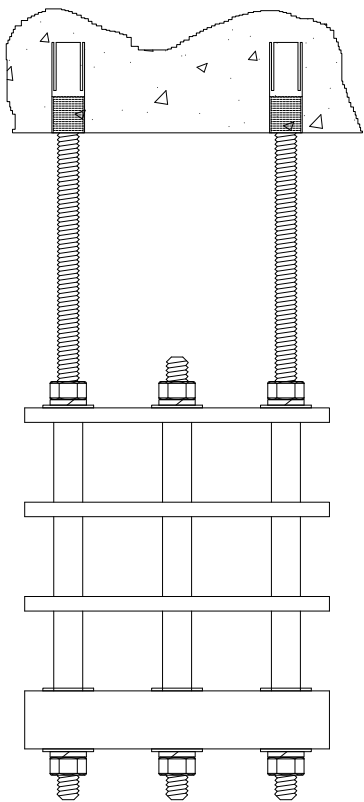
Custom Steel Deck Mounted Angle
Bracket and Roll Hanger for Water
Pipe



UTILITY GRID HANGER ORDERING GUIDE

Highland Grid Hangers and Supports are widely specified for use with fiberglass, PVC and steel conduit installations and come in a variety of intermediate, base mount and anchor point configurations. Grid hangers are comprised of fiberglass flat stock, square tubes, round tubes and steel hardware.

Ordering hangers or supports of this type is simplified by following the guide below:



When ordering hangers or supports of this type, specify the following:

1. Number of conduits to be used and their configuration. Ex. Four conduits, 3 High x 2 Wide.
2. Conduit material to be used and outside diameter (OD) Ex. 4" XHW Fiberglass, 4.5" OD.
3. Size and material type of hardware to be used. Typical sizes range from 1/2" to 7/8", in plain, HDG or 304/316SS.
4. Where will conduit be mounted: Ex. Concrete bridge deck, steel channel, base mount to steel, side mount to girder, etc.
5. If attached from concrete bridge deck, specify type of insert required. Ex. Embedded loop insert, mechanical drop-in, chemical anchor.
6. If hanging from bridge deck or steel frame, specify rod length from connection point to top of hanger.
7. Length of conduit run on bridge and number of expansion joints required (this will determine if Anchor Point Hangers will be required).

Hanger and support configurations can be modified by adding additional square tubes in the center of the hanger for added stiffness and strength, adding guy wires for high wind areas, and designing configurations for multiple sizes of conduit.

Please consult the Highland Bridge Department for assistance.



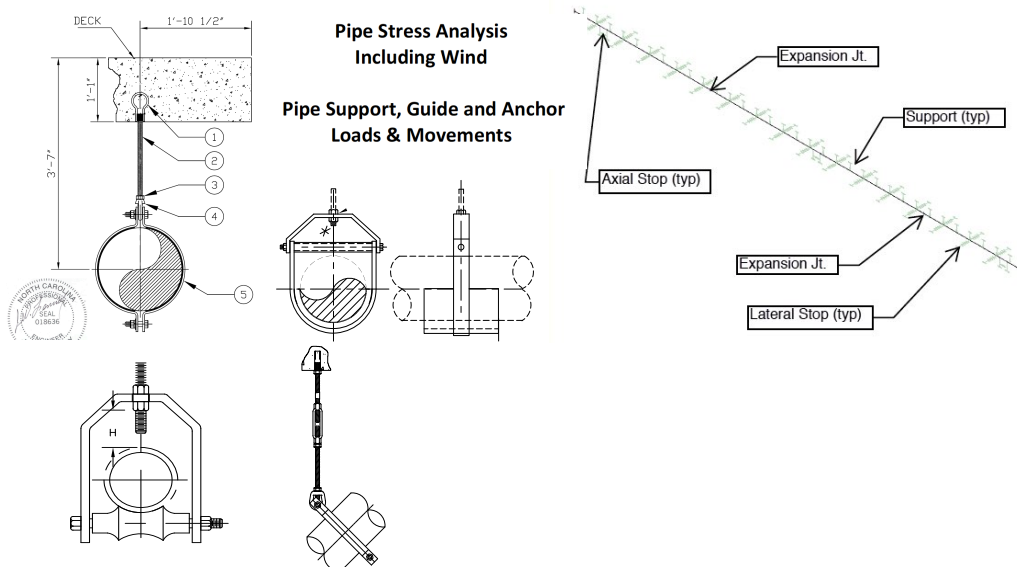
BRIDGE DRAINAGE SYSTEM HANGERS AND SUPPORTS

Highland is a leading supplier of pipe supports and hangers for Bridge Drainage Systems. We design and manufacture supports for FRP, PVC, Ductile Iron and Steel drain pipe and can also provide engineering and submittal services to accompany our products.



BRIDGE UTILITY DESIGN AND ENGINEERING SUPPORT

Highland provides full service design, pipe and support stress analysis, construction layouts and submittal packages for bridge utility conduit and piping applications. Contact our bridge department for information on our turnkey design and material supply services.



ANCHORING SYSTEMS STRUT AND HARDWARE



DROP-IN EXPANSION ANCHOR

Considered for light to heavy-duty overhead fastening in solid concrete material. Drop-in anchors are female type with national coarse threads. The designated diameter of the drop-in anchor refers to the inside threaded diameter or the diameter of threaded rod or bolt that can be used. The hole size to be drilled in the concrete is equal to the outside diameter of the drop-in anchor being installed. Drop-in anchors are available in zinc plated or stainless steel. Once placed in the hole, the setting tool is driven into the drop in anchor causing it to flare and fully set.

Bolt Size	Drill Bit Size	Minimum Embed Depth
1/2"	5/8"	2"
5/8"	7/8"	2 1/2"
3/4"	1"	3 3/16"



WEDGE ANCHOR BOLTS

The wedge anchor bolt goes into a hole drilled to the width of the wedge, and 1/2 inch longer than the bolt. When the bolt is tightened, the wedges open at the base to embed the bolt securely. Wedge anchor bolts are available in zinc plated, hot dipped galvanized and stainless steel.

Anchor Size	Anchor Length
1/2"	3 3/4", 4 1/2", 5 1/2"
5/8"	4 3/4", 6"
3/4"	4 3/4", 5 1/2", 7"
1"	6", 9", 12"



UNDERCUT ANCHORS

Undercut anchors are the strongest you can buy, and are used where you want to avoid problems with no concern for cost. They are commonly used on heavy duty load applications where human safety is paramount. Undercut anchors anchor are installed into a pre-drilled hole which has been enlarged at the bottom in the shape of a reversed cone using an undercut drill bit. They are well suited for suspended equipment, anchoring or suspending supports for large diameter pipes and safety related apparatus. Undercut anchors are available in zinc plated and stainless steel.

Anchor Size	Nom. Embed Depth	Min. Concrete Thickness
1/2"	6 5/8"	8 5/8"
5/8"	8 7/8"	12"
3/4"	11 3/8"	15 3/8"





LOOP TYPE INSERTS

The Ferrule Loop Insert is a cast-in-place embed commonly used to make structural connections for suspend pipe/conduit hangers and/or other mechanical equipment from concrete ceilings and bridge decks. The insert is available in plain, electro plated, hot dipped galvanized or stainless steel finish, and can be provided with a plastic cap to protect the threads during the concrete pour.

Bolt Diameter	Length	Safe Working Load
1/2"	2 3/4"	2000lbs
5/8"	3 1/2"	2300lbs
3/4"	3 1/2"	2400lbs
7/8"	6"	5300lbs
1"	6"	5300lbs



UNIVERSAL ADJUSTABLE CONCRETE INSERT AND NUT

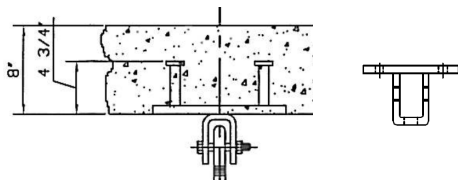
Used to suspend pipe and conduit hangers from a concrete ceiling or bridge deck. Interchangeable nut provides lateral adjustment of hanging all threaded rod.

Rod Diameter	Adjustment	Max. Load
1/2"	1 11/16"	1130lbs
5/8"	1 11/16"	1140lbs
3/4"	1 11/16"	1140lbs
7/8"	1 1/8"	1140lbs



CONCRETE ANCHOR PLATE WITH WELDED ATTACHMENT

Used to support heavy-duty pipe hangers and supports from concrete bridge decks and girders. Consult factory for additional information.



HARDWARE AND FASTENERS

Highland distributes a full line of hardware and fastening products for infrastructure construction.





CHEMICAL ANCHORING SYSTEMS

INJECTABLE ADHESIVE ANCHORS

Adhesive anchors derive their resistance to tension loads through adhesion or bond. A two-part adhesive is pumped into a hole drilled into concrete, then a threaded rod or other anchor element is inserted in the hole. As it cures, the adhesive forms a chemical bond between the concrete and the anchor. Depending on the particular system and the site conditions, the curing process can range from a few to as many as 24 hours. NOTE: The drilled holes must be cleaned out very carefully or bond strength can suffer.



ADHESIVE CAPSULES/PACKS

Adhesive capsules or packs consist of a self contained single-use tube or foil pack inserted into a specified hole depth, into which threaded anchor rod can be directly driven. Depending on the type of capsule, a chisel cut rod may be required to mix the adhesive in the hole. Most adhesive capsules and packs for conduit and pipe installations are designed for use with 1/2" through 1" diameter all threaded rod in solid concrete. Consult factory for sizes and types.



STRUT CHANNEL

The technical sales team at Highland has extensive experience supplying metal and FRP strut channel and hardware for all types of mechanical, plumbing, HVAC, fire suppression and electrical conduit installations. Contact Highland for pricing on your complete strut channel and hardware bill of materials.

