LINN BROWN & ASSOCIATES A UTILITY SERVICE COMPANY

PIPELINE BRIDGE CROSSING PRODUCTS

LIBERTY SALES & DISTRIBUTION

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NON-CONDUCTIVE PIPE ROLLERS

PREVENT THE PASSING OF CURRENT FROM THE PIPELINE TO BRIDGE STRUCTURE, REBARS, ETC.



Can be used in conjunction with **FRP Type #240 Roll-On Shields**[™]

- Maintain same support strength of pipe hanger system
- Eliminate chafing and rusting pipe caused by iron rolls
- Eliminate electrical grounding of the pipeline to the bridge
- Eliminate insulting joints at each end of bridge, and include the suspended line as part of the cathodically protected pipeline, i.e., continuity of cathodic protection.
- Absorb vibration from traffic of other sources, saving wear and tear on pipe hanger parts.
- Highest specification polyurethane compound is cast around an integral steel sleeve to form a full length bearing for the axle.
- Direct replacement for cast iron roll.

NON-CONDUCTIVE PIPE ROLLER DIMENSIONS HANGER MOUNTED MODEL



HANGER RODS, NUTS, SOCKETS AND AXLE ARE DESCRIBED IN OUR PIPE HANGER CATALOG (IN INCHES)

STEEL SLEEVE

MODEL NUMBER	NOMINAL PIPE SIZE - A	С	D	E	F
2 H	2	2 ⁵ / ₈	1 ¹ / ₄	¹³ / ₁₆	³ / ₈
2 ¹ / ₂ H*	2 1/2	3 1/4	1 1/2	7/ ₈	1/2
3 H	3	3 ³ / ₄	1 ⁵ / ₈	7/ ₈	¹ / ₂
4 H	4	4 ³ / ₄	2	1 ¹ / ₂	1/ ₂
5 H	5	5 ¹³ / ₁₆	2 ³ / ₈	1 ¹ / ₂	5/ ₈
6 H	6	6 7/8	2 ³ / ₄	1 ³ / ₄	3/4
8 H	8	8 7/8	3 ¹ / ₈	2 ¹ / ₈	7/ ₈
10 H	10	11	3 ⁵ / ₈	2 ¹ / ₈	7/ ₈
12 H	12	12 ¹ / ₂	4	2 ¹ / ₈	1
14 H	14	14 ¹ / ₂	4 1/2	2 1/2	1 ¹ / ₈
16 H	16	16 ¹ / ₄	5	2 ⁵ /8	1 ¹ / ₄
18 H	18	18 ³ /8	5 ⁹ / ₁₆	2 ³ / ₄	1 1/4
20 H	20	20 1/4	5 ³ / ₄	3 ¹ / ₂	1 ¹ / ₄
24 H	24	24 ¹ / ₄	7 ¹ / ₁₆	4 ¹ / ₈	1 ¹ / ₂
	LA	RGER SIZES ON	SPECIAL ORD	ER	

*SPECIAL ORDER

NON-CONDUCTIVE PIPE ROLLER DIMENSIONS STAND MOUNTED MODEL



(IN INCHES)

MODEL NUMBER	NOMINAL PIPE SIZE - A	С	D	E	F
2 S	2	2 ⁵ / ₈	2	¹³ / ₁₆	1/2
3 S	3	2 ⁵ / ₈	2 ¹ / ₈	1 ¹ / ₈	1/2
4 S	4	3 ³ / ₄	2 ⁹ / ₁₆	1 ¹ / ₈	1/2
5 S	5	3 ³ / ₄	2 ³ /8	1 ¹ / ₈	1/2
6 S	6	3 ³ / ₄	2	1 ¹ / ₈	1/2
8 S	8	6	3 ³ / ₈	1 ³ /8	3/4
10 S	10	6	3 1/8	1 ⁵ / ₈	3/4
12 S	12	8	3 ⁷ / ₈	2 ³ / ₄	⁷ / ₈
14 S	14	9 ¹ / ₈	4	2 ³ / ₄	7/ ₈
16 S	16	9	3 ⁷ / ₈	1 ³ / ₄	1 ¹ / ₈
18 S	18	9	4	1 ¹⁵ / ₁₆	1 ¹ / ₈
20 S	20	9	4	1 ⁷ / ₈	1 ¹ / ₈
24 S	24	10	4 ⁷ / ₁₆	2 1/4	1 1/4
SPECIAL ORDER ROLLERS AVAILABLE ON QUOTE BASES.					

*SPECIAL ORDER

PHYSICAL PROPERTIES LIST

We list below the key properties of the casting compound we use in our NON-CONDUCTIVE PIPE ROLLERS. We suggest that you accept no less a standard of excellence in order to have <u>long term</u> durability, weatherability and performance.

A roller that has cold flowed under the load placed upon it (time, temperature and weight) will develop a flat spot and cease to roll. A bound roller will pull the whole support system out of line, first in one direction and then in the other, resulting in metal fatigue and ultimate failure. A small economy in the price of your rollers can cost a thousand times the "saving" in a failed support system.

CUSTOM COMPOUNDED			
Hardness, Shore A			
Tensile Modulus, psi at 100% Tensile Strength, psi	2542		
Elongation, % Die C Tear, pli	247 477		
Spit Tear, pli	130		
Bashore Resilience, %			
Compression Modulus, psi: at 5%at 10%	500 850		
at 15%	1175		
at 20%at 25%	2125		



FRP Roll-On Shields[™]

FRP Roll-On Shields stop electrolytic wear of suspended or overhead pipe mains effectively and economically. Roll-On Shields also provide coated mains with abrasion protection and desirable weight distribution at each roller hanger or support.

General Description:

Roll-On Shields are a fiberglass reinforced plastic, $2/_3$ circular, pre-shaped method of electrical isolation for suspended pipe mains. They also are a means of abrasion control on coated pipes and are generally adaptable to any hanger or support.

Are These Your Problems?

Pipe mains, particularly those suspended at bridge crossings, have had consistent problems with vibration and movement causing the hangers to chafe or abrade through the main pipe coating. Resultant wear electrically grounds pipe to the supporting structure causing electrolytic corrosion and wearing action.

The inevitable point loading that takes place against the supports also creates a "cold flow" problem for the pipe coatings.

The Solution...

The application and use of FRP Roll-On Shields at each pipeline hanger and support. They are an inexpensive, quick and easy method for dealing with and preventing these problems.



The placement of FRP Roll-On Shields between a coated main and its hanger or support provides electrical isolation as well as desirable weight distribution and a high degree of abrasion resistance. Without this protection, the cold flow of the coating combined with the thermal expansion and contraction of the pipe would result in holidays at each support assembly.

Advantages and Benefits of FRP Roll-On Shields:

- Easy to Install Simply snap on and slide into place.
- The shields can be installed as an electrical insulator between buried steel pipes that are run parallel or may touch each other.
- No tools, banding, welding or adhesives are required.
- Hanger disassembly not required on existing pipelines.
- 240° peripheral grip holds FRP Roll-On Shield in place even when clear of supporting structures.
- Roll-On Shields are durable, flexible and light weight for ease of handling, installation or storage. Their flexibility automatically compensates for most pipeline diameter variations including coating and coverings.
- Easily installed on existing pipelines; ideally suited for new construction.
- Significantly less expensive than insulated rollers.

Roll-On Shields Application Instructions:

- 1. With two hands, simply snap the shield onto the pipe at desired location and slide into place.
- 2. Be sure shield is centered on the hanger to allow for any pipeline movement.
- 3. Observe all necessary safety precautions when working at high elevations.
- Epi-SEAL[®] Epoxy Seam Sealer is sometimes used to seal the corresponding surfaces of Roll-On Shields and uncoated mains.



FRP Roll-On Shield's unique 240° peripheral design is shown on insulated pipe with clevis hanger.

Roll-On Shield Sizes*

Shield Nos.	Fit Pipe Diams. (Nominal)	Shield Length
2	2"	6"
4	4"	6"
6	6"	9"
8	8"	12"
10	10"	12"
12	12"	12"
16	16"	12"
18	18"	12"
20	20"	12"
24	24"	12"
30	30"	12"
36	36"	12"
*42	*42"	12"
*48	*48"	12"

* Special Order

Custom lengths and thicknesses available on a quote basis.

NOTE: Please see separate insert sheet for current FRP Roll-On Shield specifications, physical properties and dimensional data.

ADJUSTABLE PIPE ROLL STANDS

Crevice corrosion typically occurs on above grade piping at each support contact. Moisture and corrosive debris tends to collect at the pipe/support contact and over time, corrode the pipe's steel surface to the point it must be repaired or replaced.



Adjustable Roller Stands, used in conjunction with Non-Conductive Rollers, offers an alternative to the epoxy type pipe chocks for preventing or correcting crevice corrosion problems.

The polyurethane based Non-Conductive Rollers will not abrade the pipe's coating and allows moisture to drain away from the bottom of the pipe. Non-Conductive Rollers do not contact enough of the pipe surface to allow moisture or organic materials (grass clippings, leaves, pine needles, etc) to collect at the pipe roller interface. Non-Conductive Rollers are particularly useful on pipes that show significant expansion and contraction.



The Adjustable Pipe Roll Stand generally includes a galvanized cast iron base, steel plate, adjusting bolts and Non-Conductive Roller with stainless steel sleeve.

The base can also be fabricated from carbon or stainless steel to standard or non-standard specifications.

Available for pipe sizes 2" through 24"



Regulations require the removal of any installed pipe chocks and hold down straps for periodic corrosion inspection of the pipes surface.

Although the **Adjustable Roll Stand** can easily be lowered it probably would not be necessary because every square inch of the pipe surface is visible. Due to the normal seasonal expansion and contraction there is no part of the pipe's surface hidden from view.



CALL, FAX, OR E-MAIL FOR COMPLETE INFORMATION.

BLUECOAT PIPE HANGER & SUPPORT HARDWARE COATING

General Description

BlueCoat is a fastener class coating material. This fluoropolymer based material is a waterborne/VOC-compliant, resin bonded, thermally cured, single film coating. It is primarily formulated for use on fasteners to prevent corrosion. BlueCoat is applied with specialized equipment, under controlled conditions, by a licensed applicator for shipment to the customer.

BlueCoat offers a superior alternative to zinc plated, hot dipped, 304 stainless steel and 316 stainless steel pipe support hardware.

Substrate Information

BlueCoat is applied to numerous substrates such as steel, aluminum, brass, high alloy steels, stainless steel, titanium and zinc plating.

Temperature Range

BlueCoat can be used continuously from $-58^{\circ}F(-50^{\circ}C)$ to $+350^{\circ}F(+176^{\circ}C)$ and can resist $+400^{\circ}F(+204^{\circ}C)$ intermittently.

Corrosion Resistance

BlueCoat applied at 1 mil dry film thickness, over zinc phosphated steel panels, has exceeded 1500 hours of ASTM B-117 salt fog test. Far superior to zinc plated, cadmium plated and hot dip galvanized steel substrates.

Physical Properties

Pencil Hardness	2-3 H
Dielectric Strength	500 V/mil
Coefficient of Friction	.05 – 0.10

Chemical Resistance

BlueCoat will withstand most solvents, waters, automotive fluids and fuels up to 200⁰F



ASTM B117 Salt Spay Test

BlueCoat treated single pipe roll support after 2500 hours.

STANDARD ASTM B117 SALT SPRAY TEST @ 350 HOURS



15% Red Rust (RR) is considered failure.

Standard salt spray tests illustrate the superior performance of BlueCoat under extremely harsh laboratory conditions.

RUST-PROOF BRUSH POT

RUST-PROOF BRUSH POTS are made from durable and recyclable polyethylene. The large brush has a high carrying capacity for leak detection fluids and other liquids such as adhesives, primers, paints, oils, inks, etc. The bristles are the high quality Shanghai type China bristle. The sturdy wooden handle is permanently attached to the lid.

THE BRUSH -TOP LID IS DESIGNED FOR EASY HANDLING. OUR LID WILL NOT CORRODE SHUT TO THE POT.



Quart Dimensions (approximate) 10" high x 5" wide

Pint Dimensions (approximate) 9" high x 4" wide





AUST PROOF BRUSH PO

Packed 12 per case, cases cannot be broken.

PINT

U-Bolt Coat

DESCRIPTION

U-Bolt Coat is a seamless, vulcanized, polyolefin material that is applied to a standard hot dipped, galvanized zinc plated or stainless steel u-bolt. They effectively control crevice corrosion on above ground piping by eliminating any possible metal to metal contact between the top and sides of the pipe. These coated u-bolts are also used with **FRP Half Rounds** to help control crevice corrosion on the bottom of a painted pipe. U-Bolt Coat type u-bolts can also help reduce vibrations and noise levels. The polyolefin coating is durable and displays excellent resistance to UV rays, heat, cold, abrasion and electrolysis.

APPLICATIONS

U-Bolt Coat type u-bolts are ideal for use on piping found in refineries, compressor stations, pumping stations, and chemical plants. They are particularly useful as non-load bearing guides on bridge mains. These coated u-bolts offer a superior long-term service life for most industrial, commercial and marine environments.

INSTALLATION

The u-bolt size and coating thickness has been taken into

consideration in order to ensure a good fit over the pipe. U-BOLT COAT type u-bolts come complete with four special hot dipped galvanized hex nuts. FRP Half Rounds or FRP Flatties are frequently used in conjunction with the u-bolts. The coated u-bolts are designed to be used on bare or painted steel pipe. Thick barrier coatings and/or FRP Shields and FRP Saddles will affect proper sizing.

AVAILABILITY

- Hot dipped galvanized long tangent u-bolts ranging in size from 3/4" to 24" are standard items.
- Larger sizes and non-standard u-bolts are available on a quote basis.

REFER TO SEPARATE SHEET FOR NON-STANDARD U-BOLT COAT DIMENSIONS





The top right picture is a typical example of accelerated corrosion occurring due to metal contact between the uncoated u-bolt and pipe. This interaction can be eliminated by utilizing U-Bolt Coat. U-BOLT • 4/08



U-Bolt Coat

COATING TECHNICAL SPECIFICATIONS

Physical Properties	Value	Test Method	Chemical Properties	Value	Test Method
Tensile Strenght	1500 psi min.	ASTM D412	Water Absorption	0.2%	ASTM D570
Elongation	300% min.	ASTM D412	Corrosive Effect	Pass	ASTM 2671
Heating Aging (168 hrs./121°C)			(16 hrs./175°F) Fluid Resistance (24 hrs./25°C)		Copper Rod
Tensile	1500 psi min.	ASTM D2671	Hydraulic Fluid		
Elongation	300% min.		(Mil-H-5606C)		
Heat Shock	No Cracks,	ASTM D2671	Tensile	90% Retained Min.	ASTM D412
	Flow or Blisters		Elongation	90% Retained Min.	ASTM D412
Low Temp. Flexibility	No Cracking	ASTM D2671	Lubricating Oil (Mil-L-7808G)		
(4 hrs./-55°C)		ASTM D792	Tensile	90% Retained Min.	ASTM D412
Specific Gravity	096	ASTM D792	Elongation	90% Retained Min.	ASTM D412
Temperature			Diesel Fuel		
Limitation	200°F		(Mil-L-23699)		
			Tensile	90% Retained Min.	ASTM D412
			Elongation	90% Retained Min.	ASTM D412

When ordering be sure to account for coating and FRP Shield thickness if applicable.





*The Coating reduces B 1/8 (.125) to 3/16 (.187) All dimensions in inches

STANDARD U-BOLT DIMENSIONS

PIPE SIZE	ROD SIZE A	WEIGHT W/NUTS (APPROX.)	В*	С	D	E	F
3/4	1/4	.12	1 1/8	1 3/8	2 3/4	2 3/8	2 7/32
1	1/4	.12	1 3/8	1 5/8	2 3/4	2 3/8	2 3/32
1 1/4	3/8	.28	1 11/16	2 1/16	2 7/8	2 3/8	2 1/32
1 1/2	3/8	.30	2	2 3/8	3	2 1/2	2 1/16
2	3/8	.33	2 7/16	2 13/16	3 1/4	2 1/2	2 1/16
2 1/2	1/2	.73	2 15/16	3 7/16	3 3/4	3	2 5/16
3	1/2	.78	3 9/16	4 1/16	4	3	2 1/4
3 1/2	1/2	.84	4 1/16	4 9/16	4 1/4	3	2 1/4
4	1/2	.90	4 9/16	5 1/16	4 1/2	3	2 1/4
5	1/2	1.0	5 5/8	6 1/8	5	3	2 7/32
6	5/8	1.97	6 3/4	7 3/8	6 1/8	3 3/4	2 13/16
8	5/8	2.33	8 3/4	9 3/8	7 1/8	3 3/4	2 13/16
10	3/4	4.91	10 7/8	11 5/8	8 3/8	4	3
12	7/8	7.73	12 7/8	13 3/4	9 5/8	4 1/4	3 1/4
14	7/8	8.28	14 1/8	15	10 1/4	4 1/4	3 1/4
16	7/8	9.15	16 1/8	17	11 1/4	4 1/4	3 1/4
18	1	13.48	18 1/8	19 1/8	12 5/8	4 3/4	3 5/8
20	1	14.57	20 1/8	21 1/8	13 5/8	4 3/4	3 5/8
24	1	16.8	24 1/8	25 1/8	15 5/8	4 3/4	3 5/8

U-BOLT-COAT SPECIALS







All dimensions are in inches

*The coating reduces B min. 1/8" (.125) - max. 3/16" (.1875)

PIPE SIZE	ROD SIZE A	WEIGHT W/NUTS (APPROX.)	В	С	D	E	F
3/4	1/4	.12	1 1/8	1 3/8	2 3/4	2 3/8	2 7/32
1	1/4	.12	1 3/8	1 5/8	2 3/4	2 3/8	2 3/32
1 1/4	3/8	.28	1 11/16	2 1/16	2 7/8	2 3/8	2 1/32
1 1/2	3/8	.30	2	2 3/8	3	2 1/2	2 1/16
2	3/8	.33	2 7/16	2 13/16	3 1/4	2 1/2	2 1/16
2 1/2	1/2	.73	2 15/16	3 7/16	3 3/4	3	2 5/16
3	1/2	.78	3 9/16	4 1/16	4	3	2 1/4
3 1/2	1/2	.84	4 1/16	4 9/16	4 1/4	3	2 1/4
4	1/2	.90	4 9/16	5 1/16	4 1/2	3	2 1/4
5	1/2	1.0	5 5/8	6 1/8	5	3	2 7/32
6	5/8	1.97	6 3/4	7 3/8	6 1/8	3 3/4	2 13/16
8	5/8	2.33	8 3/4	9 3/8	7 1/8	3 3/4	2 13/16
10	3/4	4.91	10 7/8	11 5/8	8 3/8	4	3
12	7/8	7.73	12 7/8	13 3/4	9 5/8	4 1/4	3 1/4
14	7/8	8.28	14 1/8	15	10 1/4	4 1/4	3 1/4
16	7/8	9.15	16 1/8	17	11 1/4	4 1/4	3 1/4
18	1	13.48	18 1/8	19 1/8	12 5/8	4 3/4	3 5/8
20	1	14.57	20 1/8	21 1/8	13 5/8	4 3/4	3 5/8
24	1	16.8	24 1/8	25 1/8	15 5/8	4 3/4	3 5/8

FROM_____



PHONE_____

SPECIAL COATED U-BOLT FLAT PAD DIMENSIONS





STANDARD FIBERGLASS PAD DIMENSIONS*

		Α	В	C	D
Pipe Size	Thickness	Pad Width	Pad Length	Centerline Hole to Centerline	Hole Diameter
1/2	1/8	1	2 3/4	1 3/16	3/8
3/4	1/8	1	2 3/4	1 3/8	3/8
1	1/8	1	2 3/4	1 5/8	3/8
1 1/4	1/8	1 1/4	4 1/4	2 1/16	1/2
1 1/2	1/8	1 1/4	4 1/4	2 3/8	1/2
2	1/8	1 1/4	4 1/4	2 13/16	1/2
2 1/2	1/8	2	7 3/4	3 7/16	5/8
3	1/8	2	7 3/4	4 1/16	5/8
3 1/2	1/8	2	7 3/4	4 9/16	5/8
4	1/8	2	8 1/2	5 1/16	5/8
5	1/8	2	8 1/2	6 1/8	5/8
6	1/8	2 1/4	9 3/4	7 3/8	3/4
8	1/8	2 1/4	11 3/4	9 3/8	3/4
10	1/8	2 1/2	14 1/4	11 5/8	7/8
12	1/8	2 3/4	17 1/2	13 3/4	1

*Dimensions may vary slightly

CLEVIS INSULATOR

The CLEVIS INSULATOR ensures electrical isolation from the carrier pipe and its support. The insulators are generally used in conjunction with Non-Conductive Rollers.

Clevis Insulators can be used with any standard pipe hanger







DIMENSIONS

Dimensions	in	inches	
Building			

Pipe Diameter	Hanger Rod Diameter A	Clevis (Yoke) Stock Size B	Bushing Neck Height C	I.D. Bushing
2"	3/8	1/4 - 2 1/2	11/16	25/64
3"	1/2	1/4 - 2 1/2	11/16	33/64
4"	5/8	1/4 - 2 1/2	11/16	41/64
5"	5/8	3/8 - 2 1/2	27/32	41/64
6"	3/4	3/8 - 2 1/2	27/32	25/32
8"	7/8	3/8 - 2 1/2	27/32	57/64
10"	7/8	1/2 - 2 1/2	31/32	57/64
12"	7/8	1/2 - 3	31/32	57/64

PHYSICAL PROPERTY COMPARISON

PHYSICAL PROPERTIES	ASTM	UNITS	DELRIN 150 E
Izod Impact (Notched) -40°F +73°F	D256	ft-lb/in	1.2 1.5
Tensile - Impact Strength	D1822 (long)	ft-lb/in2	170
Flex Modulus (0.05 in/min) -68°F +73°F	D790	kpsi	640 425
Compressive Stress +73°F @ 10% def	D695	kpsi	18
Modulus of Elasticity	D638	kpsi	450
Flexural Strength, Yield +73°F	D790	kpsi	14.3
Poisson's Ratio			.35
Shear Strength +73°F	D732	kpsi	9.5
Tensile Strength (0.2in/min) -68°F +73°F	D638	kpsi	14.7 10
Tensile Elongation at Break -68°F +73°F	D638	%	38 60
Moisture Absorption Comparison	24 hr, 50% RH 24 hr Immersion	Delrin .25% Delrin .90%	Nylon 1.2% Nylon 8.0%

PIPE HANGERS AND SUPPORT HARDWARE

None of the following pages of pipe hanger and support hardware illustrations, drawings, tables of dimensions, or other data is copyrighted. It has been in the public domain for decades. Feel free to make copies for your own use.

The following pages illustrate some of the more commonly used pipe hangers and supports. Non-Conductive Pipe Rollers may be used in lieu of the cast iron rolls in any of the following hanger and support assemblies. Non-Conductive Pipe Rollers can also be used in conjunction with Fiberglass Reinforced Type #240 Shields and Type #180 Saddles.

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SINGLE PIPE ROLL



SINGLE PIPE ROLL INCLUDES: 2 ADJUSTABLE SOCKETS

1 ROLL AXLE

SPECIFICATIONS MAY VARY - All Dimensions in inches



Pipe Size	Rod Size	Adj. Socket No.	Max. Load Ibs.	Wt. Ibs/ea.	A	В*	С	D	E	F	н	J
2	3/8	#1-3/8	600	.57	5 1/4	4 1/8	2 5/8	1 3/16	3/4	3/8	1 5/8	9/16
3	1/2	#2-1/2	700	1.1	6 7/8	5 1/2	3 3/4	1 7/16	7/8	1/2	2 1/4	11/16
4	5/8	#3-1/2	750	1.7	8 1/4	6 3/4	4 3/4	1 3/4	1	1/2	2 13/16	3/4
5	5/8	#3-5/8	750	2.6	9 11/16	8 1/16	5 13/16	2	1 1/8	5/8	3 7/16	7/8
6	3/4	#4-3/4	1070	4.5	11 7/16	9 9/16	6 7/8	2 5/16	1 1/4	3/4	4	1
8	7/8	#5-7/8	1350	7.2	14 1/16	11 15/16	8 7/8	2 13/16	1 1/2	7/8	5 1/8	1 1/8
10	7/8	7/8	1730	9.5	16 3/16	14 1/16	11	3 3/8	1 3/4	7/8	6 3/8	1 1/8
12	7/8	7/8	2400	15.9	17 15/16	15 13/16	12 1/2	3 7/8	2	1	7 7/16	1 1/4
14	1	1	3130	24.3	20 1/8	17 3/4	14 1/4	4 5/8	2 1/2	1 1/8	8 3/8	1 3/8
16	1	1	3970	31.9	22 1/8	19 3/4	16 1/4	5	2 5/8	1 1/4	9 7/16	1 1/2
18	1	1	4200	35.5	24 1/2	21 7/8	18 1/4	5 7/16	2 3/4	1 1/4	10 1/2	1 1/2
20	1 1/4	1 1/4	4550	47.0	27 1/4	24 1/4	20 1/4	6	3	1 1/4	11 5/8	1 5/8
24	1 1/2	1 1/2	6160	76.3	32 1/8	28 5/8	24 1/4	7 3/16	3 5/8	1 1/2	14	1 3/4
30	1 1/2	1 1/2	7290	129.9	39	35 1/2	30 1/4	8 15/16	4 1/2	1 3/4	17 7/16	2 7/16

*Axle lengths may affect B dimension. Contact supplier before pre drilling holes.

ADJUSTABLE ROLL SUPPORT





2B

ADJUSTABLE ROLL SUPPORT INCLUDES: 2 ADJUSTABLE SOCKETS - 1 ROLL AXLE 2 VERTICAL THREADED RODS - 8 HEX NUTS

1 CAST IRON ROLL (OMIT WHEN ORDERING NON-CONDUCTIVE ROLLER)

SPECIFICATIONS MAY VARY - All Dimensions in inches

Pipe Size	Wt. Ibs/ea.	A Rod Size	*В	С	D	н	Axle Dia.
2	1.3	3/8	4 1/8	2 5/8	12	1 5/8	3/8
3	2.4	1/2	5 1/2	3 3/4	12	2 1/4	1/2
4	3.8	5/8	6 3/4	4 3/4	12	2 13/16	1/2
5	4.7	5/8	8 1/16	5 13/16	12	3 7/16	1/2 *5/8
6	7.6	3/4	9 9/16	6 7/8	12	4	3/4
8	11.0	7/8	11 15/16	8 7/8	12	5 1/8	7/8
10	13.7	7/8	14 1/16	11	12	6 3/8	7/8
12	19.4	7/8	16 1/8	12 1/2	12	7 7/16	*7/8 1
14	31.2	1	17 3/4	14 1/4	18	8 3/8	1 1/8
16	42.5	1	19 3/4	16 1/4	18	9 7/16	1 1/4
18	46.6	1	21 7/8	18 1/4	18	10 1/2	1 1/4
20	66.2	1 1/4	24 1/4	20 1/4	18	11 5/8	1 1/4
24	102.5	1 1/2	28 5/8	24 1/4	24	14	1 1/2
30	186.8	1 3/4	35 1/2	30 1/4	24	17 7/16	1 3/4

*Axle lengths may affect B dimension. Contact supplier before pre drilling holes.

*Standard Stock

ADJUSTABLE ROLL GUIDE



ADJUSTABLE ROLL GUIDE INCLUDES: 4 ADJUSTABLE SOCKETS 2 ROLL AXLES 2 VERTICAL THREADED RODS 12 HEX NUTS 2 CAST IRON ROLLS (OMIT WHEN ORDERING NON-CONDUCTIVE ROLLERS)



38

SPECIFICATIONS MAY VARY - All Dimensions in inches

Pipe Size	A	*B	Axle C	Rod Size D	Е	Socket No.	Max. Load Ibs.	Wt. Ibs/ea.
2	1 9/16	4 1/8	3/8	3/8	12	#1-3/8	600	2.15
3	2 3/16	5 1/2	1/2	1/2	14	#2 -1/2	700	4.34
4	2 3/4	6 3/4	1/2	5/8	18	#3-1/2	750	6.73
5	3 7/16	8 1/16	1/2 *5/8	5/8	18	#3-1/2 #3-5/8	750	8.95
6	4	9 9/16	3/4	3/4	24	#4-3/4	1070	14.59
8	5 1/4	11 15/16	7/8	7/8	24	#5-7/8	1350	24.33
10	6 1/4	14 1/16	7/8	7/8	30	#5-7/8	1730	27.7
12	7 7/16	16 1/8	*7/8 1	7/8	30	#5-7/8 #5-1	2400	39.62
14	8 5/16	17 3/4	1 1/8	1	36	#6-1 1/8	3130	57.61
16	9 3/8	19 3/4	1 1/4	1	36	#6-1 1/4	3970	87.57
18	10 3/8	21 7/8	1 1/4	1	42	#6-1 1/4	4200	99.54
20	11 1/2	24 1/4	1 1/4	1 1/4	42	#8-1 1/4	4550	131.82
24	13 13/16	28 5/8	1 1/2	1 1/2	42	#9-1 1/2	6160	219.74

*Axle lengths may affect B dimension. Contact supplier before pre drilling holes. *Standard Stock

ADJUSTABLE ROLLER HANGER



COMMON PRACTICE TO MOVE UP ONE DIAMETER YOKE & ROLLER TO AVOID SIZING AND CONTACT PROBLEMS



ADJUSTABLE ROLL HANGER INCLUDES: 1 STEEL CLEVIS (YOKE)

1 ROLL AXLE & NUTS

1 CAST IRON ROLL (OMIT WHEN ORDERING NON-CONDUCTIVE ROLLER)

SPECIFICATIONS MAY VARY - All Dimensions in inches

Pipe Size	Rod Size A	В	С	D	Rod Take Out E	Axle F	Steel Size G	Adjust. H	Max. Load Ibs.	Wt. Ibs/ea.
2	1/2	4 1/4	2 3/4	1 5/8	2 5/8	3/8	3/16 X 1 1/4	1 7/16	225	1.6
3	1/2	6 3/8	3 7/8	2 1/4	3 1/8	1/2	3/16 X 1 1/4	1 5/8	310	2.2
4	5/8	7 9/16	4 15/16	2 13/16	3 5/8	1/2	1/4 X 1 1/2	1 5/8	475	3.2
5	5/8	9 1/8	6	3 7/16	4 1/2	1/2 *5/8	3/8 X 1 3/4	1 15/16	685	6.3
6	3/4	10 5/16	7 1/8	4	5	3/4	3/8 X 2	1 7/8	780	9.3
8	7/8	12 11/16	9 1/4	5 1/8	6 1/8	7/8	3/8 X 2 1/2	2	780	14.5
10	7/8	15 1/16	11 1/4	6 3/8	7 1/4	7/8	3/8 X 2 1/2	2 1/16	965	18.8
12	7/8	17 7/16	13 1/4	7 7/16	8 3/8	7/8	1/2 X 2 1/2	2 1/4	1200	27.7
14	1	18 7/8	14 1/2	8 3/8	8 3/4	1 1/8	1/2 X 2 1/2	2	1200	39.1
16	1	20 13/16	16 1/2	9 3/8	9 11/16	1 1/4	1/2 X 2 1/2	1 15/16	1200	49.1
18	1	23 3/4	18 1/2	10 7/16	11 7/16	1 1/4	1/2 X 3	2 13/16	1400	57.8
20	1 1/4	26	20 1/2	11 5/8	12 1/4	1 1/4	5/8 X 3	2 1/2	1600	75.9

*Standard Stock ALWAYS CHECK COATED PIPE OD AGAINST YOKE ID.

SPRING CUSHION HANGER



MAXIMUM RECOMMENDED LOAD: 3000 lbs.

- MATERIAL: Spring cushion hanger consists of a set of two springs and four retainers only.
- SERVICE: Generally used with single pipe roll. Recommended for installation where the vertical movement does not exceed 1 1/4 inches.
- APPROVALS: Complies with Federal Specification WW-H-171E (Type 50) & Manufacturers Standardization Society SP-69 (Type 49).

All Dimensions in inches

Spring Number	Max. Recom. Deflection	Load, Ib at Max. Recom. Deflection	Deflection Rate of Hanger Ib/inch	Weight (approx.) Ib. ea.	С	D	Size of Retainer Core	For Road Size	Max. Rod Size
1	1 1/4	535	428	4.5	2 21/32	6 7/16	7/16	3/8	3/4
2	1 1/4	1500	1200	14.0	4 1/8	6 1/16	9/16	1/2	3/4
3	1 1/4	3000	2400	22.0	4 1/8	9 1/16	15/16	7/8	1 1/2

ROLLER CHAIR



ROLLER CHAIR INCLUDES:

1 STEEL BASE

1 ROLL AXLE & NUTS

2 BOLTS & NUTS

1 CAST IRON ROLL (OMIT WHEN ORDERING NON-CONDUCTIVE ROLLER)

SPECIFICATIONS MAY VARY - All Dimensions in inches

Pipe Size	Wt. Ibs/ea.	A	*B	С	Bolt Size F	Steel Size G	н	Max. Load Ibs.	Axle Size
2	1.1	4	1 1/4	1 1/2	3/8 X 1 1/2	1/4 X 1 1/4	1 5/8	300	3/8
3	1.6	5 3/8	2	1 3/4	3/8 X 1 1/2	1/4 X 1 1/4	2 1/4	600	1/2
4	2.9	6 5/8	2	2 5/16	1/2 X 1 1/2	3/8 X 1 1/2	2 13/16	700	1/2
5	3.9	7 7/8	3	2 1/2	1/2 X 1 1/2	3/8 X 1 1/2	3 7/16	700	5/8
6	6.0	9 1/4	3 1/8	2 3/4	1/2 X 1 1/2	3/8 X 2	4	1000	3/4
8	9.0	11 5/8	4	3	5/8 X 1 1/2	3/8 X 2	5 1/8	1300	7/8
10	13.8	14 1/8	5 1/4	3 5/8	5/8 X 2	1/2 X 2	6 3/8	1700	7/8
12	18.9	16 1/8	5 1/2	4 1/8	5/8 X 2	1/2 X 2	7 7/16	2300	1
14	28.07	18 3/4	6 1/2	4 11/16	3/4 X 2	1/2 X 2 1/2	8 3/8	3100	1 1/8
16	34.93	21	8 1/4	5 3/8	3/4 X 2 1/2	1/2 X 3	9 3/8	3900	1 1/4
18	44.35	23 1/8	9 1/4	6	3/4 X 2 1/2	1/2 X 3	10 7/16	4200	1 1/4
20	56.34	24 5/8	10 1/4	6 1/2	3/4 X 2 1/2	1/2 X 3	11 5/8	4500	1 1/4
24	87.52	29 3/8	12 1/4	7 7/8	7/8 X 3 1/2	5/8 X 4	14	6000	1 1/2

*Axle lengths may affect B dimension. Contact supplier before pre drilling holes.



ROLLER CHAIR WITH SLOTTED HOLD DOWN STRAP



1 - HOLD DOWN STRAP

STRAPS ARE AVAILABLE WITH OR WITHOUT A POLYOLIFIN (SHRINK SLEEVE) COATING

TYPICAL DIMENSIONS CAN VARY SLIGHTLY

Pipe Size	Metal Size	*Dimension A	* Dimension B	DimensionC Slot Length
2"	¹ /4" x 1 ¹ /4"	1/2"	¹ /2"	1"
3"	¹ /4" x 1 ¹ /4"	1/2"	¹ /2"	1 ¹ /2"
4"	¹ /4" x 1 ¹ /2"	1/2"	¹ /2"	1 ³ /4"
5"	¹ /4" x 1 ¹ /2"	1/2"	¹ /2"	1 ³ /4"
6"	¹ /4" x 2"	1/2"	¹ /2"	2 ¹ /8"
8"	¹ /4" x 2"	1/2"	¹ /2"	2 ¹ /8"
10"	¹ /4" x 2"	1/2"	¹ /2"	2 ¹ /4"
12"	¹ /4" x 2"	1"	1"	2 ¹ /4"
14"	¹ /4" x 3"	1"	1"	2 ¹ /4"
16"	¹ /4" x 3"	1"	1"	2 ¹ / ₄ "

*A&B DIMENSIONS BASED ON LOWEST STRAP POSITION

6B-1 SPECS

PIPE ROLLER CAST IRON





All Dimensions in inches

Pipe Size	Α	Axle B	С	D	E	Max. Load Ibs.	Wt. Ibs/ea.
2	1 9/16	3/8	2 5/8	13/16	1 5/16	600	.32
3	3/16	1/2	3 11/16	7/8	1 7/16	700	.51
4	2 3/4	1/2	4 3/4	1	1 3/4	750	.66
5	3 7/16	5/8	5 7/8	1 1/4	2	750	1.21
6	4	3/4	6 15/16	1 5/16	2 1/4	1070	1.36
8	5 1/4	7/8	8 7/8	1 13/16	2 7/8	1350	3.75
10	6 1/4	7/8	11	1 3/4	3 1/4	1730	4.25
12	6 7/16	1	13	2	4	2400	9.00
14	8 5/16	1 1/8	14 3/8	2 5/8	4 3/4	3130	12
16	9 3/8	1 1/4	16 5/8	2 13/16	5 1/4	3970	25
18	10 3/8	1 1/4	18 3/8	2 13/16	5 9/16	4200	25
20	11 1/2	1 1/4	20 1/4	3 1/16	6	4550	32
24	13 13/16	1 1/2	24 1/4	3 5/8	7 3/16	6160	58
30	17 1/4	1 7/8	30 1/4	4 1/2	8 15/16	7290	112

PIPE ROLLER STAND



INCLUDES: 1 – STEEL BASE & 1 – ROLL AXLE (OMIT CAST IRON ROLL WHEN ORDERING NON-CONDUCTIVE ROLLER)

PIPE						DIA.	DIA.			AXLE	MAX	WEIGHT
SIZE	А	В	С	D	E	F	G	н	J	DIA.	LOAD	LBS./EA.
2	1 3/4	8 3/8	6	4	3 11/16	9/16	1	3 3/8	6 3/8	1/2	390	5.08
2 1/2	1 3/4	8 3/8	6	4	3 15/16	9/16	1	3 3/8	6 3/8	1/2	390	5.08
3	1 3/4	8 3/8	6	4	4 1/4	9/16	1	3 3/8	6 3/8	1/2	390	5.08
3 3/4	1 3/4	8 3/8	6	4	4 1/2	9/16	1	3 3/8	6 3/8	1/2	390	5.08
4	2	9 7/8	6	4 1/4	5	9/16	1	4 3/4	7 7/8	1/2	950	6.31
5	2	9 7/8	6	4 1/4	5 9/16	9/16	1	4 3/4	7 7/8	1/2	950	6.31
6	2	9 7/8	6	4 1/4	6 1/16	9/16	1	4 3/4	7 7/8	1/2	950	6.31
8	3 3/8	8 5/8	8	5	8 13/16	11/16	1	7	4	3/4	2100	13.65
10	3 3/8	8 5/8	8	5	9 7/8	11/16	1	7	4	3/4	2100	13.65
12	3 7/8	11	8	6	11 7/16	13/16	1	9	5 3/4	7/8	3075	21.00
14	3 7/8	11	8	6	12 1/16	13/16	1	9	5 3/4	7/8	3075	21.00
16	4 1/2	12 3/8	10	6 1/2	13 5/8	13/16	1	10 3/8	6 ¾	1 1/8	4980	34.23
18	4 1/2	12 3/8	10	6 1/2	14 11/16	13/16	1	10 3/8	6 3/4	1 1/8	4980	34.23
20	4 1/2	12 3/8	10	6 1/2	15 11/16	13/16	1	10 3/8	6 3/4	1 1/8	4980	34.23
24	4 3/8	13 1/2	10	6 1/2	17 11/16	13/16	1	11 1/2	7 1/2	1 1/4	6100	40
30	5 1/8	17	10	7 3/4	21 3/4	1 1/16	1	14 1/4	10	1 3/4	7500	71.32
36	5 3/4	20	12	9	25 5/16	1 3/16	1	17	12	2	12,000	103.86
42	5 3/4	20	12	9	28 5/16	1 3/16	1	17	12	2	12,000	103.86

ALL DIMENSION IN INCHES

DIMENSIONS & WEIGHTS CAN VARY SLIGHTY

ADJUSTABLE PIPE ROLLER STAND



MATERIAL: CARBON STEEL, STAINLESS STEEL

9B

FINISH: BLACK, HOT DIPPED GALVANIZED BLUECOAT, 304SS, 316SS

APPROVAL: MSS SP-58& SP-69 TYPE 46

FS WW-H-171E TYPE 47

INCLUDES: 1 – STEEL BASE, 1 – STEEL PLATE, 1 – ROLL AXLE, 4 – ADJUSTING BOLTS & LOCKING NUTS

PIPE	Α	В	С	С	D	E	F	AXLE	MAX	WEIGHT
SIZE			MIN.	MAX.				DIA.	LOAD/LBS	LBS/EA.
2	6 7/8	6 1/2	4 3/4	5 5/8	3 7/8	1	1	1/2	390	11
2 1/2	6 7/8	6 1/2	5	5 7/8	3 7/8	1	1	1/2	390	11
3	6 7/8	6 1/2	5 5/16	6 9/16	3 7/8	1	1	1/2	390	11
3 1/2	6 7/8	6 1/2	5 9/16	6 7/16	3 7/8	1	1	1/2	390	11
4	8 1/2	6	6 3/16	7 7/16	5 1/8	1	1	1/2	950	13.1
5	8 1/2	6	6 3/4	8	5 1/8	1	1	1/2	950	13.1
6	8 1/2	6	7 1/4	8 1/2	5 1/8	1	1	1/2	950	13.1
8	10 1/2	7 1/2	10 1/8	11 11/16	7 3/8	1	1	3/4	2100	29
10	10 1/2	7 1/2	11 3/16	12 3/4	7 3/8	1	1	3/4	2100	29
12	12 1/2	8 1/4	12 3/4	14 1/8	9 1/2	1	1	7/8	3075	40
14	12 1/2	8 1/4	13 3/8	14 3/8	9 1/2	1	1	7/8	3075	40
16	14 5/8	11	15 3/8	17 1/4	11 1/8	1	1	1 1/8	4980	63.84
18	14 5/8	11	16 3/8	18 1/4	11 1/8	1	1	1 1/8	4980	63.84
20	14 5/8	11	17 3/8	19 1/4	11 1/8	1	1	1 1/8	4980	63.84
24	15 3/4	11	19 1/4	21 1/4	12 1/4	1	1	1 1/4	6100	71
30	19 1/2	10 3/4	24 7/16	26 11/16	15 3/4	1	1 1/2	1 3/4	7500	125.28
36	22 1/2	12	28 3/8	31 3/4	16	1	1 1/2	2	12,000	233
42	22 1/2	12	31 1/2	34 7/8	16	1	1 1/2	2	12,000	233

(OMIT CAST IRON ROLL WHEN ORDERING NON-CONDUCTIVE ROLLERS)

DIMENSIONS IN INCHES

DIMENSIONS & WEIGHTS CAN VARY SLIGHTY

STAND PIPE ROLLER





STAND PIPE ROLLER INCLUDES: 1 CAST IRON ROLL ONLY (STAND MODEL) All Dimensions in inches

Pipe Size	А	В	С	D	Maximum Load/lbs.	Weight/Each No Rod
2	1 13/16	1/2	2 7/8	1 7/8	390	1
2 1/2	2 1/16	1/2	2 7/8	1 7/8	390	1
3	2 3/8	1/2	2 7/8	1 7/8	390	1
3 1/2	2 5/8	1/2	2 7/8	1 7/8	390	1
4	2 7/8	1/2	3 7/8	2 1/8	950	1.5
5	3 3/8	1/2	3 7/8	2 1/8	950	1.5
6	3 15/16	1/2	3 7/8	2 1/8	950	1.5
8	5 1/4	3/4	6 1/16	3 1/4	2100	4.85
10	6 3/8	3/4	6 1/16	3 1/4	2100	4.85
12	7 1/2	7/8	8 1/16	4	3075	8.9
14	8 1/8	7/8	9 1/8	4	3075	8.9
16	9 1/4	1 1/8	9 1/8	4 1/2	4980	13.2
18	10 3/8	1 1/8	9 1/8	4 1/2	4980	13.2
20	11 3/8	1 1/8	9 1/8	4 1/2	4980	13.2
24	13 3/8	1 1/4	10	4 11/16	6100	14
30	16 7/8	1 3/4	12 5/16	5 1/2	7500	24





Rod	Std.	Maxi	mum							Weight P	er C						
Dia.	a. I gth				C = Length in Inches												
A	B	650°F	750°F	8	10	12	14	18	24	30	36	42	48	54	60	66	72
3/8	6	610	540	*25	*32	*38	44	57	76	95	114	133	152	171	190	209	228
1/2	6	1130	1010	*45	*56	*67	78	100	134	167	201	235	268	302	335	369	402
5/8	6	1810	1610	*70	*86	*104	122	156	208	260	312	364	416	468	520	572	624
3/4	6	2710	2420	*100	*125	*150	174	225	300	375	450	525	600	675	750	825	900
7/8	6	3770	3360	*137	*169	*204	239	306	408	510	612	714	816	918	1020	1122	1224
1	6	4960	4420	*179	*214	*267	312	400	534	668	801	935	1068	1202	1335	1469	1602
1 1/8	8	6230	5560	*226	*280	*338	*395	507	676	845	1014	1183	1352	1521	1690	1859	2028
1 1/4	8	8000	7140	*279	*346	*417	*488	625	834	1043	1251	1460	1668	1877	2085	2294	2502
1 1/2	8	11630	10370	*402	*498	*600	*702	900	1200	1500	1800	2100	2400	2700	3000	3300	3600
1 3/4	10	15700	14000	*548	*675	*817	*947	*1225	1634	2042	2451	2860	3268	3676	4085	4493	4902
2	10	20700	18460	*717	*882	*1068	*1238	*1602	2136	2670	3204	3738	4272	4806	5340	5874	6408
2 1/4	12	27200	24260	*905	*1120	*1351	*1567	*2026	*2702	3377	4053	4728	5404	6080	6755	7430	8105
2 1/2	12	33500	29880	*1122	*1385	*1699	*1936	*2503	*3338	4172	5007	5841	6676	7510	8345	9180	10015

***CONTINUOUS THREADED ROD**

CONTINUOUS THREADED ROD



Rod Size		Max. Recom	n. Load/Ibs.	Weight Per C Feet	
A	B = Feet	650°	750°		
1/4	6 and 12	240	215	12	
3/8	6 and 12	610	540	30	
1/2	6 and 12	1130	1010	54	
5/8	6 and 12	1810	1610	85	
3/4	6 and 12	2710	2420	124	
7/8	6 and 12	3770	3360	171	
1	6 and 12	4960	4420	223	

BEAM CLAMPS HEAVY DUTY





HEAVY DUTY BEAM CLAMPS INCLUDES: TWO HALF CLAMPS BOLT WITH NUT (ASSEMBLED) All Dimensions in inches

Flange Width	Maximum Flange Thickness	Weight (approx.) Ibs. ea.
4	1/2	3.82
5	5/8	4.35
6	3/4	4.52
7	7/8	4.84
8	7/8	5.10
9	1	5.83
10	1	6.25
11	1	6.67
12	1	7.09
Bolt Size	Stock Size	Max. Recom. Load/Ibs.
5/8	1/2 x 2	3000

ADJUSTABLE BEAM CLAMP 14B



- Material: Clamps made from A-36 steel, 304 & 316 stainless steel Weldless Eye Nuts are forged steel ASTM A-235 Class C
- Finish:Black, electro galvanized or hot dipped galvanizedSpecify clamp size and finish.Weldless Eye Nut ordered separately.

	FLANGE SIZE			Δ	
SIZE	WIDTH	MAX. THICKNESS	MAX. LOAD	MAX. ROD DIAMETER	WEIGHT LBS.
1	3 – 8	5/8"	2,800 LBS.	3/4"	8
2	7 – 12	5/8"	2,800 LBS.	3/4"	12
3	3 - 8	3/4"	5,000 LBS.	1"	11
4	7 – 15	3/4"	5,000 LBS.	1"	16
5	5 – 11	1"	11,500 LBS.	1 1⁄2"	30
6	8 - 16	1"	11,500 LBS.	1 1⁄2"	48
MEDIUM WELDED STEEL BRACKET





MAXIMUM RECOMMENDED LOAD 1,500 LBS. All Dimensions in inches

Bracket #	C-C	А	E	н	В	L	Angle Size "S"	W	Weight Each LBS.
0	15 ¹ /2	12	2 ¹ / ₂	13/16	1 ¹ / ₄	18	1 ¹ / ₂ x 1 ¹ / ₂ x 3/16	4	16.10
1	21 ¹ / ₂	18	2 ¹ / ₂	13/16	1 ¹ / ₄	24	1 ³ / ₄ x 1 ³ / ₄ x 3/16	4 ¹ / ₂	26.00
2	27 ¹ / ₂	24	2 ¹ / ₂	13/16	1 ¹ / ₄	30	2 x 2 x ¹ / ₄	5	45.00





MAXIMUM RECOMMENDED LOAD 3,000 LBS.



Bracket #	C-C	А	F	E	н	В	L	Angle Size "S"	W	Weight Each LBS.
0	15 ¹ /2	12	1 Hole	23/4	13/16	1 ³ /8	18	2 X 1 ¹ / ₂ x ¹ / ₄	5	25.0
1	21 ³ /8	18	2 ¹ / ₂	23/4	15/16	1 ³ /8	24	2 x 2 x ¹ / ₄	5	38.0
2	27 ¹ / ₂	24	2 ¹ / ₂	23/4	1 ¹ / ₁₆	1 ¹ / ₄	30	2 ¹ / ₂ x 2 x ³ / ₈	6	69.0
3	33 ¹ /4	30	2 ¹ / ₂	3	1 ¹ / ₁₆	1 ¹ / ₂	36	2 ¹ / ₂ x 2 x ³ / ₈	6	82.1
4	39	36	3 ¹ / ₂	3	1 ¹ / ₁₆	1 ¹ / ₂	42	3 ¹ / ₂ x 2 ¹ / ₂ x ³ / ₈	8	130.0
5	46	42	31/2	3 ¹ / ₂	1 ¹ / ₁₆	2	50	3 ¹ / ₂ x 2 ¹ / ₂ x ³ / ₈	8	155.0

H-

ROLLER SOCKET





SIZE RANGE: 3/8" THRU 1 3/4" SHAFT THREAD MATERIAL: CAST IRON (CAN BE MACHINED FROM STAINLESS STEEL) SERVICE: TO BE USED WITH ROLLER PIPE HANGERS ORDERING: SPECIFY MODEL NUMBER, SOCKET SIZE NUMBER, SHAFT THREAD, NAME. Dimensions in inches

Shaft Size Number	Shaft Size & Threads / inch Number A	В	С	Rod Size D	E	F	Weight / Ibs. Per 100 Sockets
1	3/8 - 16	5/8	11/16	3/8	1 1/16	1/2	13
2	1/2 - 13	3/4	13/16	1/2	1 3/8	1/2	24
3	1/2 - 13	3/4	15/16	5/8	1 1/2	5/8	35
3	5/8 - 11	7/8	15/16	5/8	1 1/2	5/8	49
4	3/4 - 10	1	1 1/4	3/4	1 3/4	7/8	77
5	7/8 - 9	1 1/8	1 1/2	7/8	2 1/4	1 1/16	122
5	1-8	1 1/4	1 1/2	7/8	2 1/4	1 1/16	152
6	1 1/8 - 7	1 3/8	1 1/2	1	2 1/2	1	213
6	1 1/4 - 7	1 1/12	1 1/2	1	2 1/2	1	244
7	1 1/4 - 7	1 1/2	1 1/2	1 1/8	2 3/4	1	282
8	1 1/4 - 7	1 5/8	1 7/8	1 1/4	3 1/4	1 1/4	390
9	1 1/2 - 6	1 3/4	2 1/8	1 1/2	3 3/8	1 3/8	530
9	1 3/4 - 5	1 3/4	2 1/8	1 1/2	3 3/8	1 3/8	775

A = Diameter of Axle & Threads per Inch

D = Diameter of Hanger Rod

CLEVIS INSULATOR

17B

The CLEVIS INSULATOR ensures electrical isolation from the carrier pipe and its support. In the event the pipe were to contact the hanger the clevis insulator prevents any metal to metal contact between the main's clevis hanger and any supporting structures. The insulators are generally used in conjunction with Non-Conductive Rollers on clevis hangers because even minor alignment problems frequently result in pipe to hanger contact. Clevis insulator collars and bushings are fabricated from DuPont Delrin TM, washers are stainless steel.

Clevis Insulators can be used with any standard pipe hanger

CLEVIS INSULATOR COMPONENTS





DIMENSIONS

TYPICAL APPLICATION

Dimensions in incr	ies			
Pipe Diameter	Hanger Rod Diameter A	Clevis (Yoke) Stock Size B	Bushing Neck Height C	l.D. Bushing
2"	3/8	1/4 - 2 1/2	11/16	25/64
3"	1/2	1/4 - 2 1/2	11/16	33/64
4"	5/8	1/4 - 2 1/2	11/16	41/64
5"	5/8	3/8 - 2 1/2	27/32	41/64
6"	3/4	3/8 - 2 1/2	27/32	25/32
8"	7/8	3/8 - 2 1/2	27/32	57/64
10"	7/8	1/2 - 2 1/2	31/32	57/64
12"	7/8	1/2 - 3	31/32	57/64

1 125 - 1998

DELRIN BUSHING



ST. STL. WASHER TOP & BOTTOM

PHYSICAL PROPERTY COMPARISON

PHYSICAL PROPERTIES	ASTM	UNITS	DELRIN 150 E	
Izod Impact (Notched) -40°F +73°F	D256	ft-lb/in	1.2 1.5	
Tensile - Impact Strength	D1822 (long)	ft-lb/in2	170	
Flex Modulus (0.05 in/min) -68°F +73°F	D790 kpsi		640 425	
Compressive Stress +73°F @ 10% def	D695	kpsi	18	
Modulus of Elasticity	D638	kpsi	450	
Flexural Strength, Yield +73°F	D790	kpsi	14.3	
Poisson's Ratio			.35	
Shear Strength +73°F	D732	kpsi	9.5	
Tensile Strength (0.2in/min) -68°F +73°F	D638	kpsi	14.7 10	
Tensile Elongation at Break -68°F +73°F	D638	%	38 60	
Moisture Absorption Comparison	24 hr, 50% RH 24 hr Immersion	Delrin .25% Delrin .90%	Nylon 1.2% Nylon 8.0%	

18B

LOOP DESIGN LIGHT DUTY CONCRETE INSERT





THREADED HOLE FOR HANGER ROD

BOTTOM VIEW

HANGER ROD NOT INCLUDED

ROD DIA. & T.P.I.	Α	В	SAFE LOAD	С	D
1/2" x 13	2 3/8"	4 1/8"	2800 lbs.	1 5/8"	1 1/2"
5/8" x 11	2 13/16"	4 1/8"	3600 lbs.	1 5/8"	1 1/2"
3/4" x 10	2 13/16"	4 1/8"	3600 lbs.	1 5/8"	1 1/2"

* Dimensions can vary

Safe load rating based on 3:1 safety factor

COIL DESIGN HEAVY DUTY CONCRETE INSERT

SAFE WORKING LOADS REFLECT A 3:1 SAFETY (ULTIMATE WORKING LOAD) FOR CONCRETE COMPRESSIVE STRENGTH OF 3000 psi (20.7 MPa)



ROD DIA.	WIDTH	LENGTH	SAFE LOAD Shear	WASHER THICKNESS	Minimum Concrete Thickness
7/8"	2 5/8"	5 1/2"	6000 lbs.	3/16"	6"
1"	2 5/8"	5 1/2"	8000 lbs.	3/16"	6"
1 1/4"	3 1/8"	7 1/2"	13,200 lbs.	7/32"	8"
1 1/2"	3 1/4"	9 1/2"	18,000 lbs.	7/32"	12"

HWLCI18B-1 • 1/09

18B-1

SKYHOOK DESIGN™ CONCRETE INSERT



ADVANTAGES & IMPROVEMENTS:

SOLID one piece construction, compact design, Type 316 stainless steel throughout.

SINGLE 3/4" x 12" TYPE 316 STAINLESS STEEL REINFORCING BAR (included) has more surface area than two 1/2" bars. Bar is held in place by set screw.

LONGER AND STRONGER THREAD ENGAGEMENT for hanger rods of 3/4" up to $1 \ 1/2$ " diameter.

RINGS OF "BARRACUDA" TEETH around wedge shaped body for superior anchoring.

COMPLETE PROTECTION of tapped hanger rod hole for poured concrete.

19B

ANGLE BRACKET



Size	Max Load	A	В	Base Plate	Angle
1	610	14"	8"	1/2"x8"x8"	3/8" x 4"x4"
2	610	18"	8"	1/2"x8"x8"	3/8" x 4"x4"
3	610	24"	8"	1/2"x8"x8"	3/8" x 4"x4"

The angle bracket is generally used on bridge side walls with limited space. Fabricated from steel and available in hot dipped galvanized finish. Wedge anchors available for mounting.

Dimensions and finish can be changed upon request.



20B

SINGLE PIPE ROLL (1B)



SINGLE PIPE ROLL (1B)

PAINTED OR BARE STEEL PIPE



Recommendation: Non-Conductive Pipe Roller Reasons: Eliminates the possibility of moisture entrapment. Roller will not bind or abrade the paint. Maintains electrical isolation.

CONDITION: PAINTED OR BARE STEEL PIPE

Recommendation:

Non-Conductive Rollers should be used in lieu of, or as a direct replacement for, cast iron rolls on any bridge main installation that is, or going to be, painted. This applies for both existing and new mains. Most paints provide only a thin barrier and are extremely susceptible to abrasion damage. This is particularly true at each pipe to support contact.

Reasons:

The polyurethane based Non-Conductive Rollers are best used alone with thin coatings because they are non-abrasive and maintain a minimum surface contact. This eliminates any possibility of moisture collecting between the pipe and support. In addition, the Non-Conductive Rollers are solid and do not have the same tendency to bind as the hollow cast iron rolls. Lubricating the roller's stainless steel sleeve prior to inserting the axle seals out moisture and reduces friction.

When a pipe has a thin barrier coating the use of a FRP Shield increases the possibility of moisture entrapment between the pipe and shield interface. In most cases this would aggravate any corrosive conditions located between the pipe and the FRP Shield.

SINGLE PIPE ROLL (1B)

TAPE COATED PIPE WITH NON-CONDUCTIVE ROLLER



Recommendation: FRP Type # 240 Shield & Non-Conductive Roller Reasons: Protects tape from abrasion Prevents cold flow of the tape Ensures electrical isolation Non- Conductive Roller will not bind

CONDITION: TAPE WRAP COATING WITH NON-CONDUCTIVE ROLLER™

Recommendation:

A Type # 240 Shield needs to be installed with any factory or field applied tape. This is the case even when Non-Conductive Roller are used. The profile of a urethane roller is designed to accommodate both the tape wrap and FRP Shield. Although the Non-Conductive Rollers greatly reduce the possibility of abrasion, the tape must still be protected from cold flow damage. FRP Shields prevent damage by providing the necessary weight distribution between the pipe and its support. This is particularly important if the pipe becomes misaligned.

Reasons:

When used together, the Non-Conduction Rollers and FRP Shields provide the best possible protection for any tape type wrap. Unlike hollow cast iron rolls, the Non-Conductive Rollers are solid and do not tend to bind and will not corrode internally. The urethane composition stays flexible even in cold temperatures. This provide a degree of vibration tolerate which is one of the primary causes for alignment problems. Lubrication the roller's stainless steel sleeves seals out moisture and reduces friction. FRP Shields maintain the tape's integrity against both normal and possible abnormal loading due to misalignments and/or support failure.

SINGLE PIPE ROLL (1B)

TAPE COATED STEEL PIPE WITH CAST IRON ROLLER



Recommendation: Reasons: FRP Type # 240 Shield Protects the tape from abrasion Prevents cold flow of the tape Ensures electrical isolation

CONDITION: TAPE WRAP COATING WITH CAST IRON ROLL

Recommendation:

A Type # 240 Shield needs to be installed with any factory or field applied tape. This is particularly important when cast iron rolls are used. The profile of cast iron rolls do not accommodate thick barrier coatings. The tapes change the OD of the pipe to the point it will no longer rest in the cradle of the roll as is the case with bare or painted pipes. Instead, the pipe will rest on the peaks of the roll. This situation aggravates the point loading that normally occurs at each of the pipe's support.

Reasons:

Tape wraps are a thick barrier coating that must be protected at each support. Without protection the tape will cold flow as a result of being sandwiched between the pipe and its support. Abrasion due to even minor thermal expansion and contraction will further compromise the integrity of the tape. Fiberglass reinforcement enables the FRP Shields to tolerate the point loading and prevent abrasion damage by providing a desirable weight distribution. The FRP Shields also ensure a high degree of electrical isolation.

Unlike non-reinforced plastics, the Fiberglass Reinforced Shields do not get brittle in the cold and are resistant to UV degradation.

SINGLE PIPE ROLL (1B)



Side View: Type # 240 Shield Non- Conductive Roller

ADJUSTABLE ROLL SUPPORT (2B)



ADJUSTABLE ROLL SUPPORT (2B)

PAINTED OR BARE STEEL PIPE



Recommendation: Non-Conductive Pipe Roller Reasons: Eliminates the possibility of moisture entrapment Roller will not bind or abrade the paint Maintains electrical isolation

CONDITION: PAINTED OR BARE STEEL PIPE

Recommendation:

Non-Conductive Rollers should be used in lieu of, or as a direct replacement for, cast iron rolls on any bridge main installation that is, or is going to be, painted. This applies for both existing and new mains. Most paints provide only a thin barrier and are extremely susceptible to abrasion damage. This is particularly true at each pipe to support contact.

Reasons:

The polyurethane based Non-Conductive Rollers are best used alone with thin coatings because they are non-abrasive and maintain a minimum surface contact. This eliminates any possibility of moisture collecting between the pipe and support. In addition, the Non-Conductive Rollers are solid and do not have the same tendency to bind as the hollow cast iron rolls. Lubricating the roller's stainless steel sleeve prior to inserting the axle seals out moisture and reduces friction.

When a pipe has a thin barrier coating the use of an FRP Shield increases the possibility of moisture entrapment between the pipe and shield interface. In most cases this would aggravate any corrosive conditions located between the pipe and FRP Shield.

ADJUSTABLE ROLL SUPPORT (2B)

TAPE COATED STEEL PIPE WITH CAST IRON ROLLER



CONDITION: TAPE WRAP COATING WITH CAST IRON ROLL

Recommendation:

A Type # 240 Shield needs to be installed with any factory or field applied tape. This is particularly important when cast iron rolls are used. The profile of cast iron rolls do not accommodate thick barrier coatings. The tapes change the OD of the pipe to the point it will no longer rest in the cradle of the roll as is the case with bare or painted pipes. Instead, the pipe will rest on the peaks of the roll. This situation aggravates the point loading that normally occurs at each of the pipe's support.

Reasons:

Tape wraps are a thick barrier coating that must be protected at each support. Without protection the tape will cold flow as a result of being sandwiched between the pipe and its support. Abrasion due to even minor thermal expansion and contraction will further compromise the integrity of the tape. Fiberglass reinforcement enables the FRP Shields to tolerate the point loading and prevent abrasion damage by providing a desirable weight distribution. The FRP Shields also ensure a high degree of electrical isolation.

Unlike non-reinforced plastics, the Fiberglass Reinforced Shields do not get brittle in the cold and are resistant to UV degradation.

ADJUSTABLE ROLL SUPPORT (2B)

TAPE COATED PIPE WITH NON-CONDUCTIVE ROLLER



Ensures electrical isolation Non-Conductive Roller will not bind

CONDITION: TAPE WRAP WITH NON-CONDUCTIVE ROLLER [™]

Recommendation:

A Type # 240 Shield needs to be installed with any factory or field applied tape. This is the case even when Non-Conductive Roller are used. The profile of a urethane roller is designed to accommodate both the tape wrap and FRP Shield. Although the Non-Conductive Rollers greatly reduce the possibility of abrasion, the tape must still be protected from cold flow damage. FRP Shields prevent damage by providing the necessary weight distribution between the pipe and its support. This is particularly important if the pipe becomes misaligned.

Reasons:

When used together, the Non-Conduction Rollers and FRP Shields provide the best possible protection for any tape type wrap. Unlike hollow cast iron rolls, the Non-Conductive Rollers are solid and do not tend to bind and will not corrode internally. The urethane composition stays flexible even in cold temperatures. This provide a degree of vibration tolerate which is one of the primary causes for alignment problems. Lubrication the roller's stainless steel sleeves seals out moisture and reduces friction. FRP Shields maintain the tape's integrity against both normal and possible abnormal loading due to misalignments and/or support failure.

ADJUSTABLE ROLL SUPPORT (2B)



ADJUSTABLE ROLL GUIDE (3B)



ADJUSTABLE ROLL GUIDE (3B) PAINTEDOR BARE STEEL PIPE



Recommendation: Non-Conductive Pipe Roller Reasons: Eliminates the possibility of moisture entrapment Roller will not bind Maintains electrical isolation

CONDITION: PAINTED OR BARE STEEL PIPE

Recommendation:

Non-Conductive Rollers should be used in lieu of, or as a direct replacement for, cast iron rolls on any bridge main installation that is, or is going to be, painted. This applies for both existing and new mains. Most paints provide only a thin barrier and are extremely susceptible to abrasion damage. This is particularly true at each pipe to support contact.

Reasons:

The polyurethane based Non-Conductive Rollers are best used alone with thin coatings because they are non-abrasive and maintain a minimum surface contact. This eliminates any possibility of moisture collecting between the pipe and support. In addition, the Non-Conductive Rollers are solid and do not have the same tendency to bind as the hollow cast iron rolls. Lubricating the roller's stainless steel sleeve prior to inserting the axle seals out moisture and reduces friction.

When a pipe has a thin barrier coating the use of an FRP Shield increases the possibility of moisture entrapment between the pipe and shield interface. In most cases this would aggravate any corrosive conditions located between the pipe and FRP Shield.

ADJUSTABLE ROLL GUIDE (3B) TAPE COATED STEEL PIPE WITH CAST IRON ROLLS



CONDITION: TAPE WRAP COATING WITH CAST IRON ROLL

Recommendation:

Type #180 Saddles need to be installed with any factory or field applied tape that is used with an adjustable roll guide (3B). This is particularly important when cast iron rolls are used. The profile of cast iron rolls do not accommodate thick barrier coatings. The tapes change the OD of the pipe to the point it will no longer rest in the cradle of the roll as is the case with bare or painted pipes. Instead, the pipe will rest on the peaks of the roll. This situation aggravates the point loading that normally occurs at each of the pipe's supports.

Reasons:

Tape wraps are a thick barrier coating that must be protected at each support. Without protection the tape will cold flow as a result of being sandwiched between the pipe and its support. Abrasion due to even minor thermal expansion and contraction will further compromise the integrity of the tape. Fiberglass reinforcement enables the FRP Shields to tolerate the point loading and prevent abrasion damage by providing a desirable weight distribution. The FRP Shields also ensure a high degree of electrical isolation.

Unlike non-reinforced plastics, the Fiberglass Reinforced Shields do not get brittle in the cold and are resistant to UV degradation.

ADJUSTABLE ROLL GUIDE (3B) TAPE COATED PIPE WITH NON-CONDUCTIVE ROLLERS



CONDITION: TAPE WRAP WITH NON-CONDUCTIVE ROLLER™

Recommendation:

Type #180 Saddles need to be installed with any factory or field applied tape that is used with an adjustable roll guide (3B). This is the case even when Non-Conductive Rollers are used. The profile of a urethane roller is designed to accommodate both the tape wrap and FRP Saddle. Although the Non-Conductive Rollers greatly reduce the possibility of abrasion, the tape must still be protected from cold flow damage. FRP Saddles prevent damage by providing the necessary weight distribution between the pipe and its support. This is particularly important if the pipe becomes misaligned.

Reasons:

When used together, the Non-Conduction Rollers and FRP Shields provide the best possible protection for any tape type wrap. Unlike hollow cast iron rolls, the Non-Conductive Rollers are solid and do not tend to bind and will not corrode internally. The urethane composition stays flexible even in cold temperatures. This provide a degree of vibration tolerate which is one of the primary causes for alignment problems. Lubrication the roller's stainless steel sleeves seals out moisture and reduces friction. FRP Shields maintain the tape's integrity against both normal and possible abnormal loading due to misalignments and/or support failure.

ADJUSTABLE ROLL GUIDE (3B)



Side View: FRP Type #180 Saddles Non-Conductive Pipe Rollers

ADJUSTABLE ROLLER HANGER (4B)



ADJUSTABLE ROLLER HANGER (4B)

PAINTEDORBARESTEEL PIPE



Recommendation: Non-Conductive Pipe Roller Reasons: Eliminates the possibility of moisture entrapment Roller will not bind Maintains electrical isolation

CONDITION: PAINTED OR BARE STEEL PIPE

Recommendation:

Non-Conductive Rollers should be used in lieu of, or as a direct replacement for, cast iron rolls on any bridge main installation that is, or is going to be, painted. This applies for both existing and new mains. Most paints provide only a thin barrier and are extremely susceptible to abrasion damage. This is particularly true at each pipe to support contact.

Reasons:

The polyurethane based Non-Conductive Rollers are best used alone with thin coatings because they are non-abrasive and maintain a minimum surface contact. This eliminates any possibility of moisture collecting between the pipe and support. In addition, the Non-Conductive Rollers are solid and do not have the same tendency to bind as the hollow cast iron rolls. Lubricating the roller's stainless steel sleeve prior to inserting the axle seals out moisture and reduces friction.

When a pipe has a thin barrier coating the use of an FRP Shield increases the possibility of moisture entrapment between the pipe and shield interface. In most cases this would aggravate any corrosive conditions located between the pipe and FRP Shield.

ADJUSTABLE ROLLER HANGER (4B)

TAPE COATED STEEL PIPE WITH CAST IRON ROLLS



Recommendation: FRP Type #240 Saddles Reasons: Protects the tape from abrasion Prevents cold flow of the tape Ensure electrical isolation
PIPELINE BRIDGE CROSSINGS

CONDITION: TAPE WRAP COATING WITH CAST IRON ROLL

Recommendation:

A Type #240 Shield needs to be installed with any factory or field applied tape. This is particularly important when cast iron rolls are used. The profile of cast iron rolls do not accommodate thick barrier coatings. The tapes change the OD of the pipe to the point it will no longer rest in the cradle of the roll as is the case with bare or painted pipes. Instead, the pipe will rest on the peaks of the roll. This situation aggravates the point loading that normally occurs at each of the pipe's support.

Reasons:

Tape wraps are a thick barrier coating that must be protected at each support. Without protection the tape will cold flow as a result of being sandwiched between the pipe and its support. Abrasion due to even minor thermal expansion and contraction will further compromise the integrity of the tape. Fiberglass reinforcement enables the FRP Shields to tolerate the point loading and prevent abrasion damage by providing a desirable weight distribution. The FRP Shields also ensure a high degree of electrical isolation.

Unlike non-reinforced plastics, the Fiberglass Reinforced Shields do not get brittle in the cold and are resistant to UV degradation.

ADJUSTABLE ROLLER HANGER (4B)

TAPE COATED PIPE WITH NON-CONDUCTIVE ROLLERS



PIPELINE BRIDGE CROSSINGS

CONDITION: TAPE WRAP WITH NON-CONDUCTIVE ROLLER TM

Recommendation:

A Type # 240 Shield needs to be installed with any factory or field applied tape. This is the case even when Non-Conductive Roller are used. The profile of a urethane roller is designed to accommodate both the tape wrap and FRP Shield. Although the Non-Conductive Rollers greatly reduce the possibility of abrasion, the tape must still be protected from cold flow damage. FRP Shields prevent damage by providing the necessary weight distribution between the pipe and its support. This is particularly important if the pipe becomes misaligned.

Reasons:

When used together, the Non-Conduction Rollers and FRP Shields provide the best possible protection for any tape type wrap. Unlike hollow cast iron rolls, the Non-Conductive Rollers are solid and do not tend to bind and will not corrode internally. The urethane composition stays flexible even in cold temperatures. This provide a degree of vibration tolerate which is one of the primary causes for alignment problems. Lubrication the roller's stainless steel sleeves seals out moisture and reduces friction. FRP Shields maintain the tape's integrity against both normal and possible abnormal loading due to misalignments and/or support failure.

ADJUSTABLE ROLLER HANGER (4B)



Side View: FRP Type #240 Shield Non-Conductive Pipe Roll

STEEL BRACKETS (15B)

TAPE COATED STEEL PIPE



Recommendation: Reasons: FRP Type#240 Shield & Coated U-Bolt Protects tape from abrasion Electrically isolates pipe from support Prevents cold flow of the tape

PIPELINE BRIDGE CROSSINGS

CONDITION: TAPE COATING ON STEEL BRACKET, I-BEAM, ETC.

Recommendation:

A Type #240 Shield needs to be installed with any factory or field applied tape. This is particularly important when the main is supported by steel brackets, I-beams, etc. Using a coated, hot dipped galvanized u-bolt as a guide will prevent any possible metal to metal contact. In order to have enough clearance the u-bolt will need to be sized up or fabricated with a special ID.

Reasons:

Tape wraps are a thick barrier coating that must be protected at each support. Without protection the tape will cold flow as a result of being sandwiched between the pipe and its support. Abrasion due to even minor thermal expansion and contraction will further compromise the integrity of the tape. Fiberglass reinforcement enables the FRP Shields to tolerate the point loading and prevent abrasion damage by providing a desirable weight distribution. The FRP Shields also ensure a high degree of electrical isolation. Unlike non-reinforced plastics, the Fiberglass Reinforced Shields do not get brittle in the cold and are resistant to UV degradation.

The coated u-bolts provide a corrosion resistant guide that maintains proper pipe alignment and eliminates the possibility of any metal to metal contact on the top third of the pipe.

STEEL BRACKETS (15B)



Side View: FRP Type #240 Shield Coated U-Bolt

CORROSION RESISTANT AND REDUNDANTLY NON-CONDUCTIVE TWIN PIPE/DUCT HANGER SYSTEM WITH ALL STEEL PARTS TYPE 316 STAINLESS











NOT TO SCALE

ELEVATION VIEW

CONCRETE BRIDGE

CONCRETE BRIDGE















 \frown











LB&A, INC		
SPECIAL 6" GUIDE		
DATE		
	DWG NO. ASP6RLa	























LB&A. INC.		
Special stainless steel 20" Roller Chair		
DATE	scale none	
DRAWN BY CED	DWG NO. 6spec20	





		NONE
RAWN BY	CED	








LB&A, INC.	
4HROLLw/ U-Bolt-Coat	
DATE	none
DRAWN BY CED	4char6a









Parts List				
ITEM	QTY	SIZE	DESCRIPTION	LENGTH
1	2	L 3 x 3 x 1/4	Angle Steel	6
2	2	L 3 x 3 x 1/4	Angle Steel	34
3	2	L 3 x 3 x 1/4	Angle Steel	27
4	2	L 2.5 x 2.5 x 1/4	Angle Steel	59
5	1	8″	U-Bolt	
6	1	6″	U-Bolt	













LB&A, INC.		
ANGLE IRON SUPPORT W/PIPE,U-BOLT&120 SPACER		
DATE	NONE	
DRAWN BY CED	DWG NO. BR83E	



LB&A, INC.			
ANGLE IRON SUPPORT W/PIPE, U-BOLT & HALF RNDS			
DATE		SCALE	NONE
DRAWN BY	CED	DWG NO.	BR83D



LB&A, INC.		
BRACKET #83 W/4" CASING & U-BOLT		
DATE	SCALE NONE	
CED	DWG NO. BR83B	



LB&A, INC.		
Special12" pad mount with coated strap		
DATE	scale none	
DRAWN BY CED	DWG NO. 12pad1	









