MC 2017
Master Catalog

Ralphs-Pugh Co.

Conveyor Roller and Component Specialists

1912 Celebrating 100 Years in Business 2012

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Ralphs-Pugh Co.

Company History

Founded in 1912, William J. Pugh distributed rubber goods and products to a wide range of industries. Within two years, Isaac Ralphs, Mr. Pugh's father-in-law, became a business partner and the company began to manufacture custom conveyor belts and belt cutting machines. In 1921, the company incorporated as the Ralphs-Pugh Company. In 1959, Ralphs-Pugh made its first conveyor roller. Eventually the company closed its distribution and equipment manufacturing operations to specialize in manufacturing conveyor rollers and components. Today Ralphs-Pugh is a recognized industry leader and innovative problem solver that distinguishes itself by providing quality products, competitive prices, and the best customer support in the business.

Manufactured Products / Services

Ralphs-Pugh offers a full line of metal and plastic rollers and conveyor components. Materials include aluminum, carbon steel, stainless steel, and galvanized steel. R-P plastic rollers are made from specially formulated Hi-Impact PVC with UV stabilizers. Urethane, PVC, UHMW, and High Density Polyethlene covers with steel reinforcement are available for specialized applications. Shafts are available in various configurations, and numerous bearing styles are available to match specific applications and operating environments. Specialty products include sprocket and grooved rollers for powered systems, urethane tapered rollers, one-way rollers, and troughing units. Components include bushing/end plug inserts and commercial and precision bearing inserts for metal and plastic tubing.

Primary Markets Served

Ralphs-Pugh products are made to customer requirements and we excel at matching the product to specific operating environments resulting in optimal conveyor performance. Ralphs-Pugh serves a broad market spectrum that includes, but is not limited to:

- Agriculture
- Chemical
- Food Processing
- Bottling and Canning Operations
- Distribution and Warehousing
- Printing and Publishing
- Pulp and Paper
- Manufacturing

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Ralphs-Pugh Bearings and Bearing Units

Ralphs-Pugh offers a broad range of bearings and bearing inserts to meet the most demanding operating environments. We control our bearing manufacturing process from design through tooling, material selection, injection molding, and assembly. We've set our standards high to ensure that our products meet or exceed our customers' expectations. Ralphs-Pugh plastic housed bearings are available with labyrinth seals for applications requiring the ultimate protection against dirt, dust, and other contaminants that adversely affect bearing performance and useful life. If you do not see a particular bearing style you require, please contact our customer service department for assistance. ***Ralphs-Pugh also offers private label programs.***

Products include:

Commercial Grade

Most suitable for light to moderate loads and speeds, commercial grade bearings have hardened steel balls and raceways, and are lubricated with light oil. Grease packed units may be ordered for driven applications. Commercial bearings do not have ball retainers, and consequently the balls will contact each other during operation and are a source of conveyor noise. Commercial grade bearing styles include:

- **Plated Steel Bearings / Metal Stamped and Plastic Housings**
- **Stainless Steel Bearings / Plastic Housings**

ABEC-1 Precision

ABEC-1 precision bearings are most suitable for moderate to heavy loads and higher speeds. These bearings have hardened and ground balls and raceways with a ball retainer, and are grease packed at the factory. Several seal or shield options including Contact Rubber Seals (2RS) and Non-Contact Rubber Seals (LLB), or Non-Contact Metal Shields (ZZ) are available to help retain the grease and isolate the bearings from contaminants. ABEC-1 bearings are quiet and typically have a significantly longer life than commercial bearings. Ralphs-Pugh ABEC-1 bearing inserts are available in the following configurations:

- **Plastic Housing with Labyrinth Seal**
  Provides the highest level of protection from exposure to contaminants.
- **Plastic Housing without Labyrinth Seal**
- **Stamped Plated Steel Housing (Metal Tubes Only)**
  When plastic housings should not be used due to higher loads.
  Should be swaged into the tube for optimum performance.
- **Machined Steel Housing (Metal Tubes Only)**
  Designed for heavier loads. Ideal for SNUBBER and BELT WRAP roller applications.
  Typically welded into the tube. Swaged options are available in select sizes.

Bushings:

Non-ball bearing bushing units are designed for light to medium loads conveyed at low speeds. Typically bushings are used in push and gravity conveyors. They are ideal for sanitary, rust and corrosion resistant, low maintenance wet or dry applications. Bushing inserts are available in Ultra (Acetal plastic with internal Teflon lubricants), CS2 Acetal, UHMW, and ABS plastic. Bushing adapters are available in nylon, stainless steel, carbon steel, and Ultra. Bushings are identified with a 5 Prefix in the part number. Example - 5B5

Definition of terms and dimensions used in bearing descriptions in this section:

A Dim: Outside diameter of the flange

B Dim: Outside diameter of the body

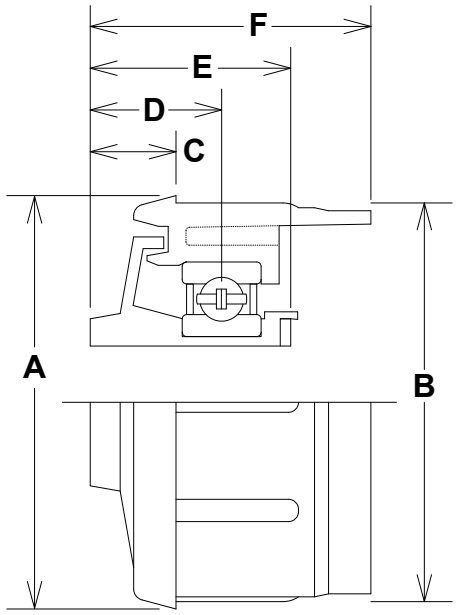
C Dim: Distance from the hub to the backside of the flange (bearing offset)

D Dim: Distance from the hub to the centerline of the ball compliment

E Dim: Distance from the front to the back of the hub

F Dim: Total length

Bore: Size and configuration (hexagonal or round) of the bore



Bearing: ABEC-1 precision or commercial non-precision bearing used in a bearing insert. Load rating for bearing is not roller load rating. Please refer to specific roller pages for roller load capacity.

Bearing BDLR: Basic Dynamic Load Rating of the ABEC–1 precision bearing: Load at which 90% of a group of bearings will still be successfully spinning at 600 RPM after 1,000,000 revolutions.

Bearing Load Rating: Load rating for commercial bearings at 600 rpm. Determined utilizing the number of balls in the bearing and their size. This load rating is not the roller load rating. Please refer to a specific roller page for the roller load capacity.

Races: These refer to the inner and outer surfaces the balls ride on. Precision ball bearing races utilize bearing quality steel. This material is then heat-treated to uniform hardness and ground to a micro-finish. Non-precision ball bearing races are made with hardened steel that provide an economical and smooth finish.

Balls: Balls in non-precision bearings are manufactured from hardened steel. These balls are then loaded into the raceway utilizing a full compliment of “loose” balls. Precision balls are made of hardened chrome alloy steel and separated in the raceway with a ball retainer or cage. This “cage” separates the balls, which greatly minimizes the noise and contact friction between adjacent balls. This also permits higher operating speeds.

Bearing Seals and Shields: Precision bearings are produced with seals or shields.

Seals: Seals are normally made of rubber and can be a “Contact Seal (2RS)” or “Non-Contact Seal (LLB)”. Both types of seals are generally in contact with the outer raceway, however, the **Contact Seal (2RS)** will also come into contact with the inner race of the bearing. Therefore, while offering a higher degree of contamination resistance versus a shielded bearing, this seal will also cause increased frictional torque.

The **Non-Contact Seal (LLB)** consists of a synthetic rubber bonded onto a steel backing ring, which is fastened to the outer race for positive sealing. Both sides of the seal edge are provided with corrugations to create an alternating series of wide and narrow gaps along the inner ring V-groove seal surface. This causes a complete labyrinth effect. The frictional torque on this bearing is low, it can be safely used in dusty environments, and is excellent for powered applications.

Non-Contact Shields (ZZ) are metallic shields press fit into the outer ring to keep foreign objects from getting into the bearing. This is a general purpose, prelubricated bearing with low frictional torque, and is widely used in both gravity and powered applications.

Labyrinth Seal: A series of intricate passageways manufactured into the plastic bearing housing designed to prevent foreign materials and contaminants from getting into the balls and raceways.

Service Life: The life of a bearing is dependent on numerous factors; load, speed, temperature, humidity, airborne contaminants, bearing materials, and lubricants. Load duration and shock loading also affect service life. Precision bearings are affected differently than commercial bearings and each factor should be considered when selecting a bearing or bearing unit. In applications where chemicals are a factor, the proper selection of engineered plastics and bearing material is critical.

Static Electricity

Static electricity is the release of stored electricity created by the sliding, rubbing, turning or separating of material that generates electrostatic voltages. Plastics, fiberglass, rubber, textiles, etc. are prime generators of static electricity, and under certain conditions can build up to 30,000-40,000 volts.

When an electrostatic charge occurs in an insulating material, the built-up charge tends to remain in the local area of contact. It will discharge in the form of an arc or spark when the material comes in contact with a body at a sufficiently different potential, such as a person or microcircuit. If electrostatic discharge (ESD) occurs to a person, the result can range from a mild to very painful shock. In extreme cases, ESD can cause loss of life. ESD can also trigger explosions or fire in any environment containing flammable liquids, solids, or gasses. Since conveyor rollers are often used in these environments it is critical that they provide a means to safely dissipate the electrical charge.

Plastic parts and components are classified as insulating materials having typical surface resistivity of $10^{16} – 10^{17}$ ohms/sq. Most electrically conductive plastics today contain insulating base resins and conductive fillers or reinforcing agents to provide for static electricity dissipation. Electrically conductive plastics are defined as:

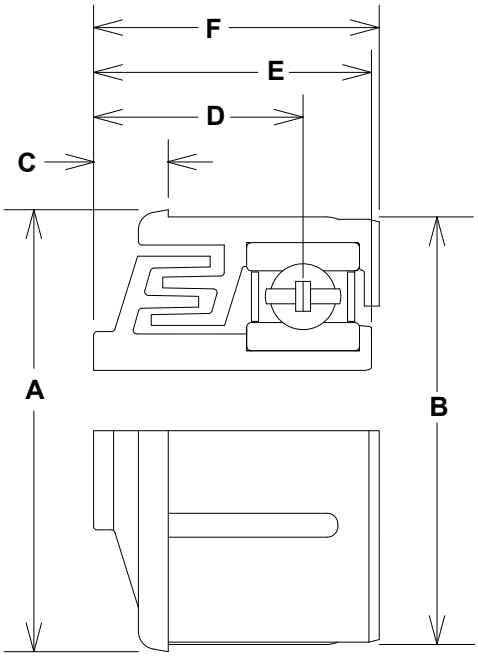
- Dissipative Composites - 10^{5} - 10^{11} ohms/sq resistivity
- Conductive Composites - 10^{2} - 10^{4} ohms/sq resistivity
- ESD Shielding Composites - 10^{-4} - 10^{1} ohms/sq resistivity

Engineered Plastics Data:

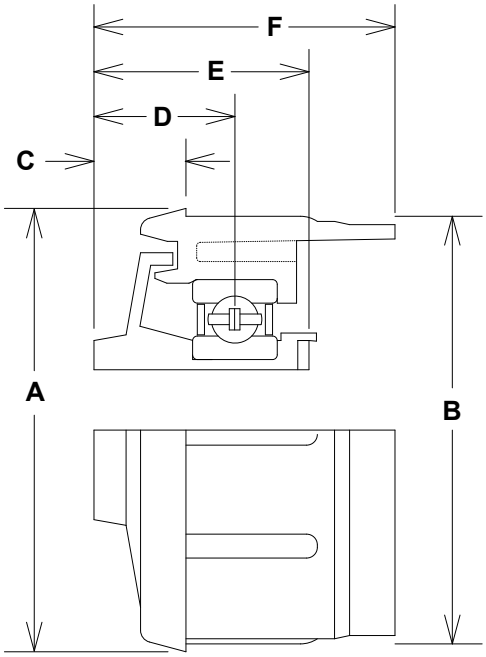
	Non-Conductive Polypropylene	**Conductive Polypropylene**	**Non-Conductive Acetal**	**Conductive Acetal**
Bearing Parts	Housings (On Request)	Housings **(STANDARD)**	Housings (On Request)	Housings (On Request)
	Internal Parts (On Request)	Internal Parts (On Request)	Internal Parts (On Request)	Internal Parts **(STANDARD)**
Chemical Resistance	Excellent	Excellent	Inquire	Inquire
FDA Approved	Yes	No	Yes	No
Normal Operating Temperatures *	10 - 150 °F *	10 - 150 °F *	10 - 200 °F *	10 - 200 °F *
Surface Resistivity (Ohms)	10^{13} - 10^{16}	10^{3} - 10^{6}	10^{13} - 10^{16}	10^{3} - 10^{6}

* Assumes no shock loading.

ABEC-1 Precision / Plastic Housing with Labyrinth Seals



2 LABYRINTH SEALS



1 LABYRINTH SEAL

• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	Bore*	Standard Bearing **	# of lab seals	Bearing BDLR
3M8	1.36	1.28	0.22	0.54	0.80	0.81	7/16 HEX	6902	1	906
3M3	1.36	1.28	0.22	0.56	0.80	0.97	5/16 HEX	R8	2	1010
3A8	1.49	1.38	0.25	0.59	0.90	0.98	7/16 HEX	6002	2	1260
3H0	1.61	1.50	0.25	0.59	0.90	1.08	7/16 HEX	6002	2	1260
3A9	1.64	1.53	0.25	0.59	0.90	1.13	7/16 HEX	6002	2	1260
3D6	1.73	1.62	0.25	0.59	0.90	1.13	7/16 HEX	6002	2	1260
3W8	1.86	1.75	0.39	0.59	0.90	1.26	7/16 HEX	6002	1	1260
3A1	1.87	1.68	0.25	0.59	0.90	1.13	7/16 HEX	6002	2	1260
3RP	1.87	1.77	0.38	0.59	0.88	0.95	7/16 HEX	6002	1	1260
3H5	1.87	1.77	0.25	0.59	0.90	1.13	7/16 HEX	6002	2	1260
3A6	1.87	1.77	0.31	0.86	1.16	1.19	7/16 HEX	6203	2	2150
3A0	1.87	1.77	0.31	0.86	1.22	1.23	5/16 HEX	6203	2	2150
3W6	1.98	1.87	0.39	0.59	0.90	1.26	7/16 HEX	6002	1	1260
3E0	1.97	1.87	0.31	0.86	1.16	1.19	7/16 HEX	6203	2	2150
3W10	2.07	1.87	0.39	0.59	0.90	1.26	7/16 HEX	6002	1	1260
3K3	2.48	2.33	0.25	0.59	0.90	1.13	7/16 HEX	6002	2	1260
3B8	2.45	2.33	0.31	0.86	1.16	1.20	7/16 HEX	6203	2	2150
3J7	2.45	2.26	0.31	0.93	1.38	1.38	5/8 HEX	6205	2	3150
3B9	2.45	2.26	0.31	0.93	1.38	1.38	11/16 HEX	6205	2	3150
3K4	2.98	2.76	0.31	0.93	1.38	1.38	11/16 HEX	6205	2	3150
3E6	3.45	3.33	0.31	0.93	1.38	1.38	11/16 HEX	6205	2	3150
3D4	3.45	3.26	0.31	0.93	1.38	1.38	11/16 HEX	6205	2	3150

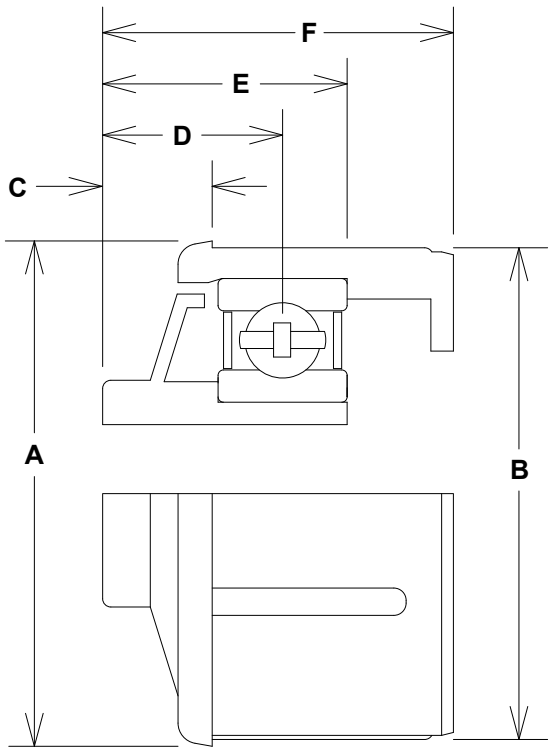
* Other bore configurations available upon request - inquire with customer service

** Other bearing seal/shield configurations available upon request - inquire with customer service

*** Bearing dimensions and configurations subject to change without notification

**** All bearings listed are available in stainless steel

ABEC-1 Precision / Plastic Housings without Labyrinth Seals



NO LABYRINTH SEAL

• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

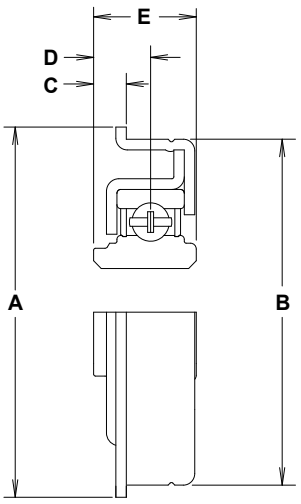
Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	Bore*	Bearing**	Bearing BDLR
3W7	1.66	1.53	0.23	0.35	0.69	0.69	7/16 HEX	6002	1260
3W1	1.87	1.77	0.39	0.65	0.89	1.30	7/16 HEX	6203	2150
3W2	1.87	1.77	0.39	0.65	0.89	1.30	5/16 HEX	6203	2150
3W3	2.45	2.33	0.39	0.65	0.89	1.30	7/16 HEX	6203	2150

* Other bore configurations available upon request - inquire with customer service

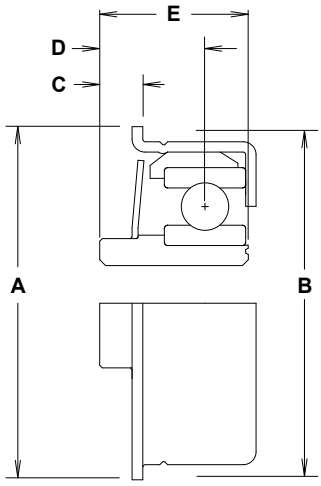
** Other bearing seal/shield configurations available upon request - inquire with customer service

*** Bearing dimensions and configurations subject to change without notification

ABEC-1 Precision / Plated Steel / Stamped Metal Housings



33RP



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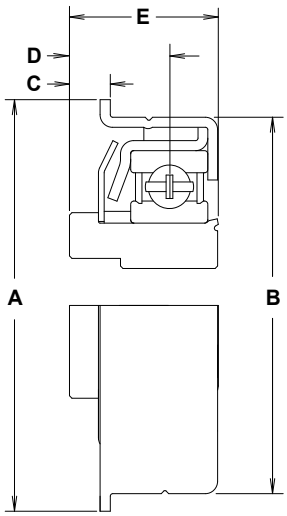
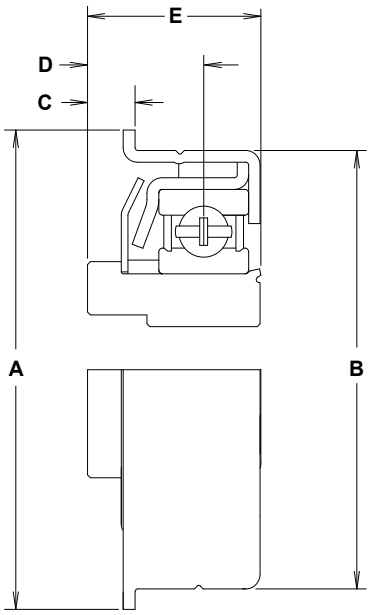


33B8



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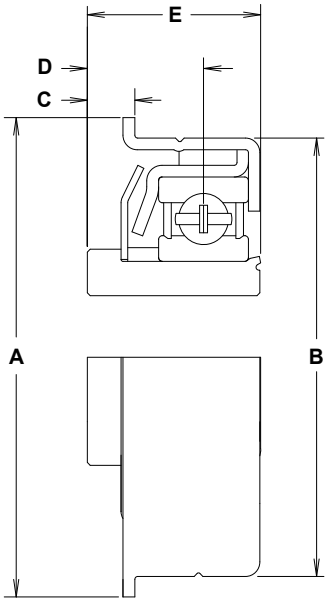
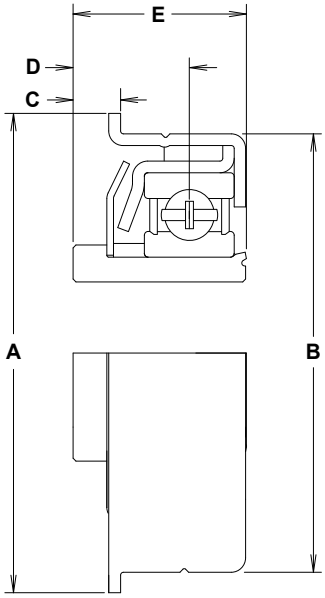


33J7



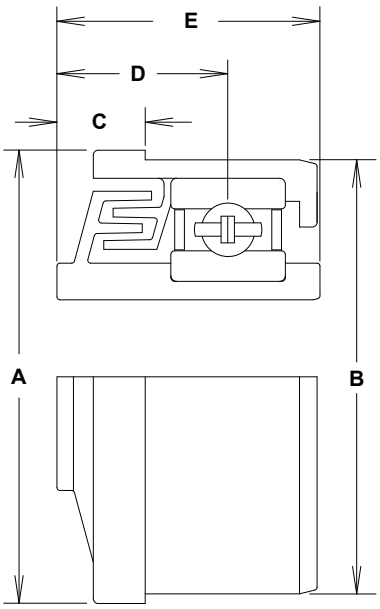
33W9

• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	Bore	Bearing	Bearing BDLR
33RP	1.90	1.78	0.17	0.30	0.54	7/16 HEX	6002 LLB	960
33W10	2.05	1.88	0.25	0.30	0.91	7/16 HEX	6203 LLB	1650
33B8	2.45	2.34	0.25	0.61	0.91	7/16 HEX	6005 LLB	1740
33C8	2.45	2.27	0.25	0.61	0.91	7/16 HEX	6005 LLB	1740
33J7	2.45	2.27	0.25	0.61	0.91	5/8 HEX	6005 LLB	1740
33W9	2.45	2.27	0.25	0.61	0.91	11/16 HEX	6005 LLB	1740

LLB = Non-contact rubber seals Swaging of tube ends is recommended for bearing retention Drawings not to scale

ABEC-1 Precision / Machined Metal Housings



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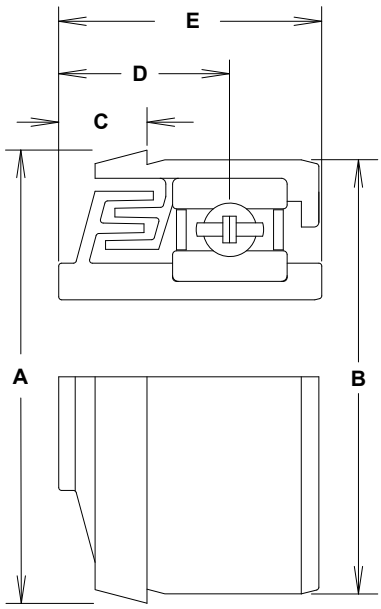

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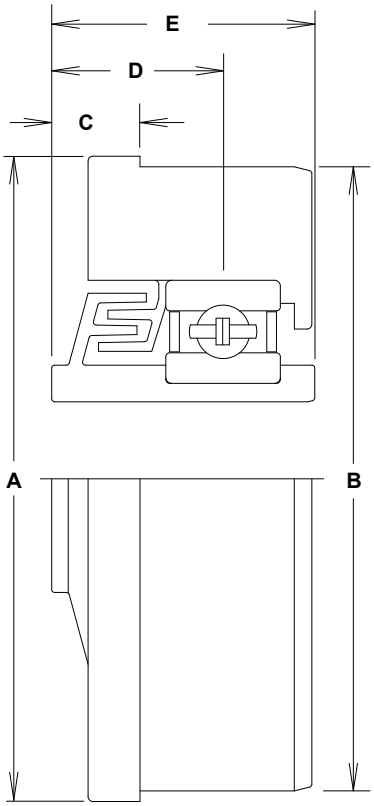


34D4

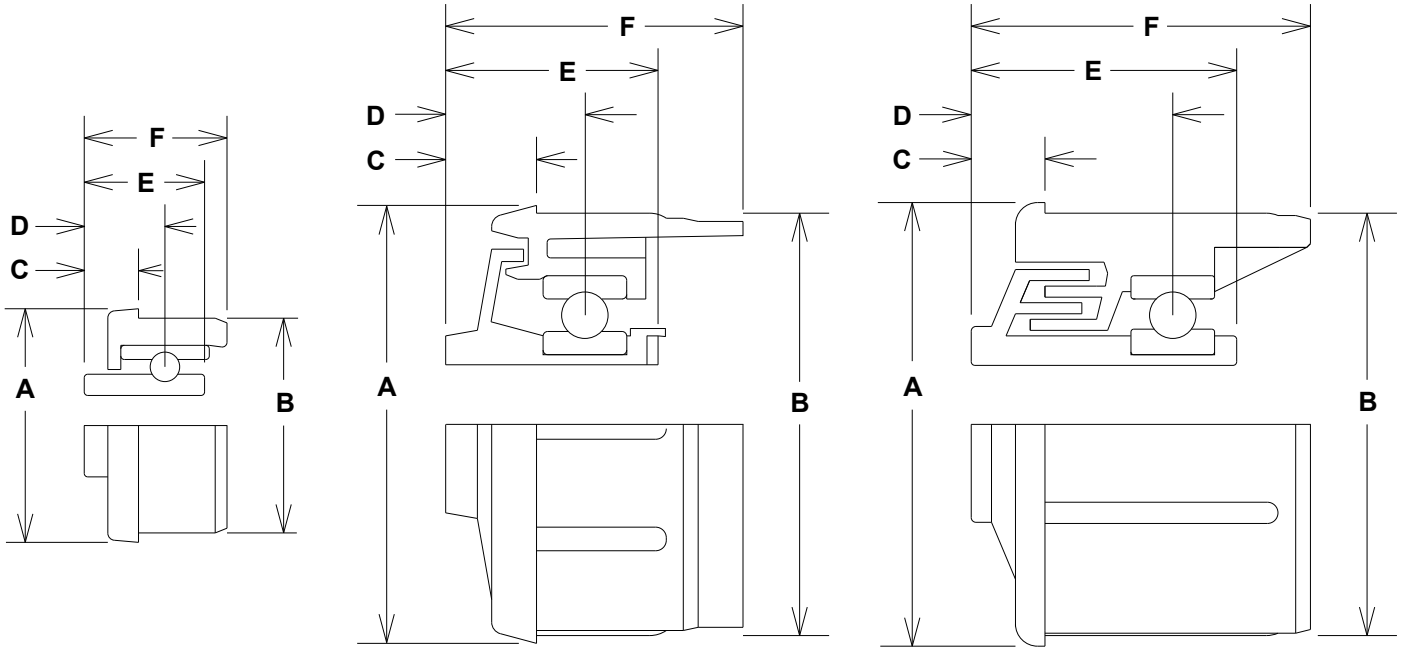
• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	Bore *	Bearing	Bearing BDLR
34B9	2.36	2.26	0.46	0.89	1.37	11/16 hex	6205 LLB	3150
35B9	2.36	2.26	0.46	0.89	1.37	11/16 hex	6205 LLB	3150
34D4	3.36	3.25	0.46	0.89	1.37	11/16 hex	6205 LLB	3150

* Bearing dimensions and configurations subject to change without notification LLB = Non-contact rubber seals

- Also available in 20MM round, 3/4" round and 5/8" hex bores. Inquire with customer service.
- Machined metal housings are typically welded into metal tubes.
- The ABEC-1 bearings are covered with a conductive plastic double labyrinth seal system.
- Ideal for heavy duty snubber and belt wrap areas in conveyor systems.
- Custom machined metal housings may be available in other sizes. Inquire with Customer Service.
- Bearing units are also available in stainless steel.

Commercial Grade / Plated Steel / Plastic Housing



2H2 **1 LABYRINTH SEAL** **2 LABYRINTH SEALS**

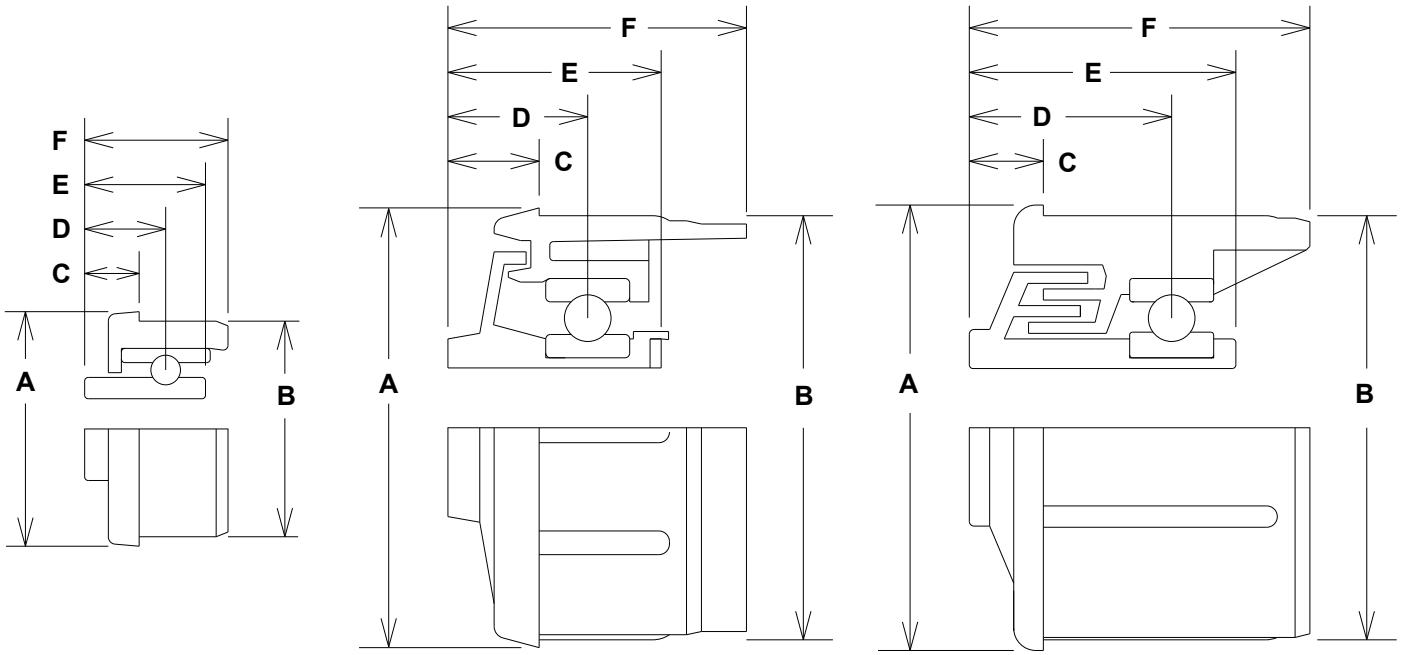
• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	# of Lab Seals	Bore*	Bearing Load Rating
2H2	0.98	0.93	0.19	0.35	0.50	0.68	0	1/4 round	31
2P7	1.49	1.38	0.25	0.59	0.90	0.98	2	7/16 hex	120
2N7	1.61	1.50	0.25	0.59	0.90	1.08	2	7/16 hex	120
2O3	1.64	1.53	0.25	0.59	0.90	1.13	2	7/16 hex	120
2O1	1.73	1.62	0.25	0.59	0.90	1.13	2	7/16 hex	120
2U3	1.86	1.75	0.39	0.59	0.90	1.26	1	7/16 hex	120
2A8	1.87	1.68	0.25	0.59	0.90	1.13	2	7/16 hex	120
2U8	1.87	1.77	0.39	0.59	0.90	1.26	1	7/16 hex	120
2A6	1.87	1.77	0.25	0.59	0.90	1.13	2	7/16 hex	120
2U1	1.98	1.87	0.39	0.59	0.90	1.26	1	7/16 hex	120
2U5	2.07	1.87	0.39	0.59	0.90	1.26	1	7/16 hex	120
2C8	2.23	2.12	0.25	0.59	0.90	1.13	2	7/16 hex	120
2D5	2.48	2.33	0.25	0.59	0.90	1.13	2	7/16 hex	120

* Other bore configurations available upon request - Inquire with customer service

** Bearing dimensions and configurations subject to change without notification

Commercial Grade / Stainless Steel / Plastic Housing



2H1 **1 LABYRINTH SEAL** **2 LABYRINTH SEALS**

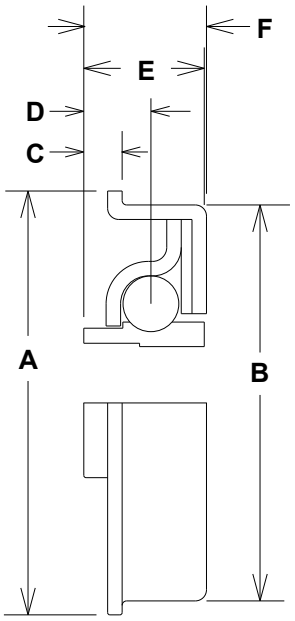
• SEE PAGE 14 FOR RECOMMENDED INSTALLATION & TUBE PREPARATION INFORMATION •

Bearing #	A dim	B Dim	C Dim	D Dim	E Dim	F Dim	# of Lab Seals	Bore*	Bearing Load Rating
2H1	0.98	0.93	0.19	0.35	0.50	0.68	0	1/4 ROUND	31
2O5	1.49	1.38	0.25	0.59	0.90	0.98	2	7/16 HEX	87
2N8	1.61	1.50	0.25	0.59	0.90	1.08	2	7/16 HEX	87
2O4	1.64	1.53	0.25	0.59	0.90	1.13	2	7/16 HEX	87
2O8	1.73	1.62	0.25	0.59	0.90	1.13	2	7/16 HEX	87
2U4	1.86	1.75	0.39	0.59	0.90	1.26	1	7/16 HEX	87
2R3	1.87	1.68	0.25	0.59	0.90	1.13	2	7/16 HEX	87
2U9	1.87	1.77	0.39	0.59	0.90	1.26	1	7/16 HEX	87
2A7	1.87	1.77	0.25	0.59	0.90	1.13	2	7/16 HEX	87
2U2	1.98	1.87	0.39	0.59	0.90	1.26	1	7/16 HEX	87
2U6	2.07	1.87	0.39	0.59	0.90	1.26	1	7/16 HEX	87
2C0	2.23	2.12	0.25	0.59	0.90	1.13	2	7/16 HEX	87
2E3	2.48	2.33	0.25	0.59	0.90	1.13	2	7/16 HEX	87

* Other bore configurations availble upon request - Inquire with customer service

** Bearing dimensions and configurations subject to change without notification

Commercial Grade / Plated Steel / Metal Housing



Bearing #	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	Bore	Bearing Load Rating
22G4	1.00	0.91	0.13	0.25	0.38	0.38	5/16 Hex	25
22L4	1.25	1.13	0.22	0.41	0.57	0.56	5/16 Hex	45
22L2	1.25	1.13	0.12	0.27	0.43	0.43	1/4 Round	45
22M2	1.38	1.28	0.22	0.16	0.56	0.56	1/4 Round	47
22M4	1.38	1.28	0.22	0.38	0.56	0.56	5/16 Hex	47
22S4	1.38	1.26	0.25	0.49	0.70	0.71	7/16 Hex	198
22R1	1.75	1.63	0.15	0.31	0.53	0.55	7/16 Hex	135
22A8	1.80	1.71	0.22	0.45	0.72	0.72	7/16 Hex	428
22A6	1.90	1.78	0.17	0.33	0.53	0.55	7/16 Hex	135
22J5	1.90	1.67	0.17	0.31	0.53	0.53	7/16 Hex	135

* Other bore configurations available upon request - Inquire with customer service

** Bearing dimensions and configurations subject to change without notification

Installation Recommendations for Bearing Units with Plastic Housings

Preparation

The inside of all tubes must be deburred.

Installation

- Scuffing must be avoided – Scuffing is indicated by a build up of “shredded” or “rolled up” plastic between the flange of the bearing and the end of the tube.
- Bearing unit should be pressed into the tube with a device that conforms to the face of the unit to exert even pressure.
- Avoid excessive and non-uniform pressure on any one component.
- Bearing units should not have any preload from spring and crimp positioning.
- Shaft should have 1/16” to 1/8” free play before contacting bearing.
- Swaging the tube ends approximately 0.020” overall should be sufficient for retaining the bearing housing.
- Tube diameter decreases in excess of 0.030” are not recommended.
- Each completed roller should be test spun to assure smooth operation.

Any deviation from the recommended practices and procedures should be carefully evaluated.

Ralphs-Pugh Plastic Rollers

Ralphs-Pugh plastic rollers are available in a wide range of bearings, tube, and shaft combinations. Plastic rollers are ideal for light duty gravity applications, humid, corrosive or wet environments. Typical applications include; food processing, chemical or acidic environments, battery handling, and package handling. The following information is provided to help match the operating environment with the proper product.

Roller Selection Criteria:

To select the right roller for the operating environment the following items must be considered:

- Conveyed Items or Materials.
  Size / Shape / Weight
- Surface Characteristics of Materials
- Operating Environment
  Heat / Humidity
  Exposure to Chemicals

Materials:

Tubes:

- Standard Gray PVC
- “Hi-Impact” White PVC with UV Stabilizers
- Polyproplene
- Steel Reinforced PVC

Drive Options:

- Grooves
- V-Guides

Shaft Configuration & Materials:

- Hex, Round - Dual spring loading is standard - Option: Fixed or Loose
- Carbon Steel, Stainless Steel, Aluminum
- Zinc and Nickel Plating Available

Shaft Extensions:

- 9/16” is standard for 3/16” round to 1/2” round or 7/16” hex
- 3/4” is standard for 5/8” - 11/16” round or hex and larger
- Measurements are from the hub of the bearing to the end of the shaft on each side.

Shaft End Options:

- Drilled and Tapped, Threaded, Drilled Holes, Milled Flats
- Plastic Flat Caps, Urethane & Plastic Adapters over an internal metal support shaft

Bearings / Bushings:

Commercial Grade / Non Precision:

Ball bearings in a plastic raceway: Economical light duty stainless steel balls in engineered plastic raceways. These bearings are ideal for wet environments where corrosion is a concern. They are free spinning and maintenance free. All plastic raceways are designed, engineered, and molded in our facility. Standard ball materials are 302 or 316 series stainless steel. Applications include food processing, clean rooms, packaging machinery, and general material handling. These bearings are identified by a 1 in the prefix of the part number. These bearings are not recommended for powered applications. Example - 1A5

Plated Steel / Plastic Housings

Designed for light to moderate loads, these commercial grade ball bearings have hardened steel balls and machined inner and outer raceways. They are available with light oil or grease lubricant for driven systems. Plastic housings are available in conductive or non-conductive material with or without labyrinth seals. The labyrinth seal(s) provide protection to the bearing from dust, dirt, and airborne contaminants. These bearings are identified by a 2 in the prefix of the part number. Example - 2A4

Stainless Steel / Plastic Housings

Designed for light to moderate loads, commercial grade stainless steel balls and raceways provide an excellent solution for corrosive operating environments. For maximum protection against contamination, some housings are available with labyrinth seal systems. Example - 2A5

Precision Grade / ABEC-1

Designed for higher speeds and heavier loads, ABEC-1 precision bearings are available in chromium steel and optional 440, 304 or 316 stainless steel. ABEC-1 ball bearings and raceways are hardened, precision ground, and incorporate a ball retainer to eliminate bearing to bearing contact. Bearings are factory lubricated. Several seal/shield configurations are offered. Standard configuration is the Non-Contact Rubber Seal (LLB). Options include; the Contact Seal (2RS) and Non-Contact Metal Shields (ZZ). Bearing housings are available in metal or plastic. Plastic housings are made with conductive or non-conductive materials and available with or without labyrinth seals. Labyrinth seals provide additional bearing protection against dirt, dust, and other airborne contaminants. ABEC-1 bearings provide the highest load and speed capabilities, the lowest noise levels, and the longest life span of any available bearing unit. These bearings are identified by a 3 in the prefix of the part number. Example - 3A4

Bushings: Non ball bearing style units are designed for low speed, light to medium load applications. Bushing surface materials include; Ultra (Acetal plastic with Teflon Additives), CS2 Acetal, UHMW, and ABS plastic. Bushing insert materials include nylon, stainless steel, carbon steel and Ultra.

Bushing style rollers are ideal for sanitary, rust and corrosion resistance applications in push and gravity conveyors. These bearings are identified by a 5 in the prefix of the part number. Example - 5A8

Load Capacities: Load capacities listed are based upon length of the roller (IF), actual load ratings for the bearing, tube deflection and shaft deflection for the materials listed. Calculations for load capacities of precision bearings allow for ¾ of 1 degree of shaft deflection while commercial bearings allow for 1 degree of shaft deflection. ***Shaft deflection will increase as a roller becomes longer and roller loads will decrease substantially as the length of the roller increases. Please note that load capacities listed are for steel shafts. Load ratings for rollers with aluminum shafts must be reduced to 33% of the value listed.***

Roller Length: I.F. = Inside Frame distance. This measurement allows 1/16" of freeplay per side for a total of 1/8" per roller. O.A. = Overall roller length. This is the measurement from bearing hub to bearing hub of the roller. For calculation purposes I.F. –1/8" = O.A.

Ordering Information:

Ralphs-Pugh roller numbering system lists the bearing part number first, the tube part number second and the shaft part number last followed by the roller length.

Example 1: Standard Roller

Bearing:	ABEC –1 precision bearing in a plastic housing – Double labyrinth seals
Tube:	1.90" outside diameter x .112" wall thickness Hi-Impact PVC tube
Shaft:	7/16" hexagonal carbon steel spring-loaded shaft with 9/16" shaft extensions
Length:	Must fit a frame measuring 18" inside frame distance (I.F.)
Max. Load:	Roller must be capable of handling a load of 50 lbs. per roller

Solution:
Find the plastic roller page designating 1.90" x .112" – 7/16" Hex - See page 37

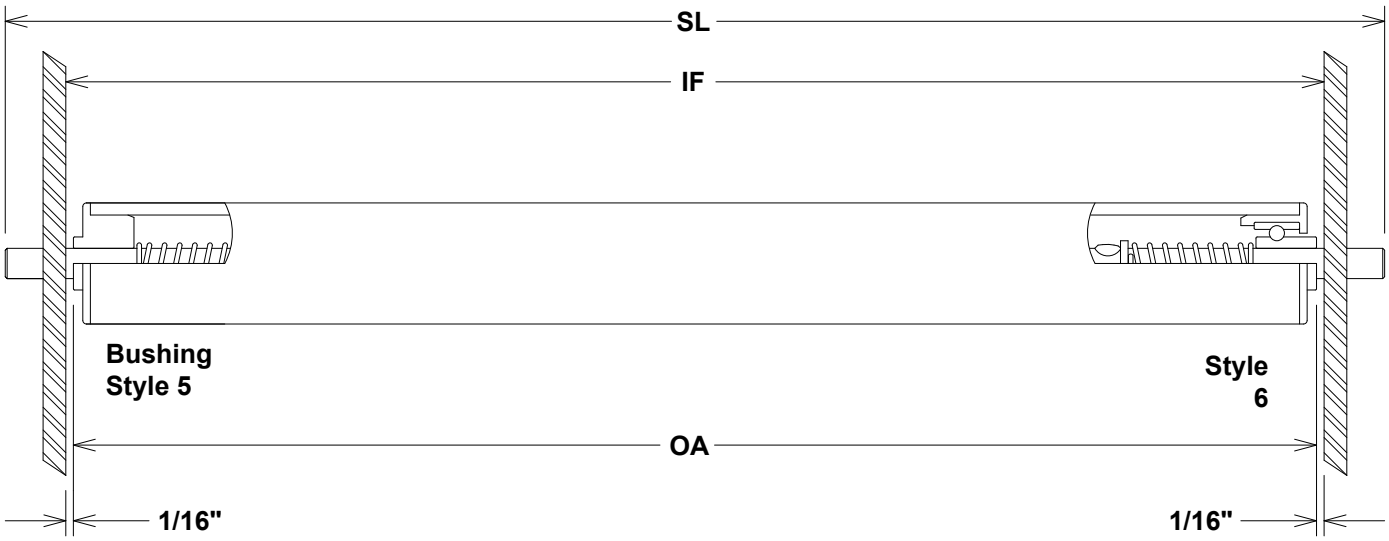
Bearing part #:	3A4
Tube part #:	H41
Shaft part #:	C68
Load per roller:	Load capacity chart indicates roller is good up to 83 lbs per roller

Roller Part # - 3A4.H41.C68 x 18" I.F.

Example 2: Rollers with Options – (Grooves, Special Shaft Lengths or Extensions, etc.)

Solution:
Check Engineering Data section for specific data, information, or drawings. Inquire with Customer Service.

.84” Dia. x .107” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel Commercial	2G1	6 / Plastic Housing - No Seals
	Stainless Steel	2G2	6 / Plastic Housing - No Seals
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	Inquire	5 / Acetal Plastic
	Bushing Style, Ultra	5H1	5 / "Ultra" Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H00	.84" x .107” Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

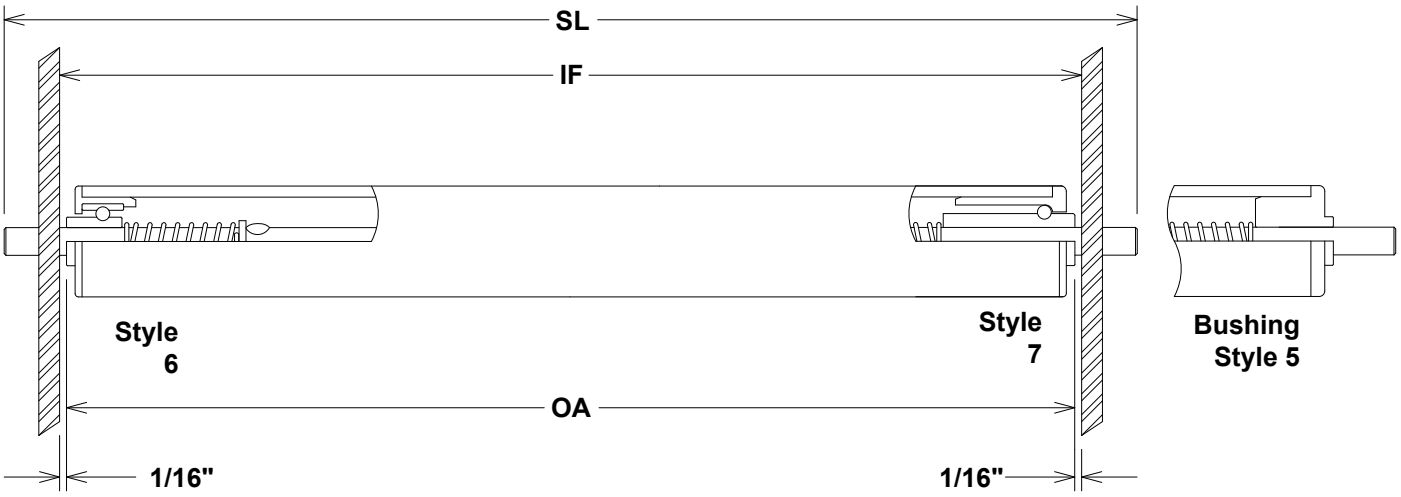
Note: Bushing style rollers are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 2G1	2G2	BUSHING	Frame I.F.	Bearing # 2G1	2G2	BUSHING
12	10	10	11	**33**	***	***	***
15	6	6	7	**36**	***	***	***
18	4	4	4	**39**	***	***	***
21	3	3	3	**42**	***	***	***
24	***	***	***	**45**	***	***	***
27	***	***	***	**48**	***	***	***
30	***	***	***	**51**	***	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.05” Dia. x .113” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1K2	7 / Stainless steel balls in a plastic housing and raceway
	Carbon Steel	2K2	6 / Plastic Housing - No Seals
	Stainless Steel	2K8	6 / Plastic Housing - No Seals
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	5H7	5 / Acetal Plastic
	Bushing Style, Ultra	Inquire	5 / "Ultra" Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H10	1.05” x .113” Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

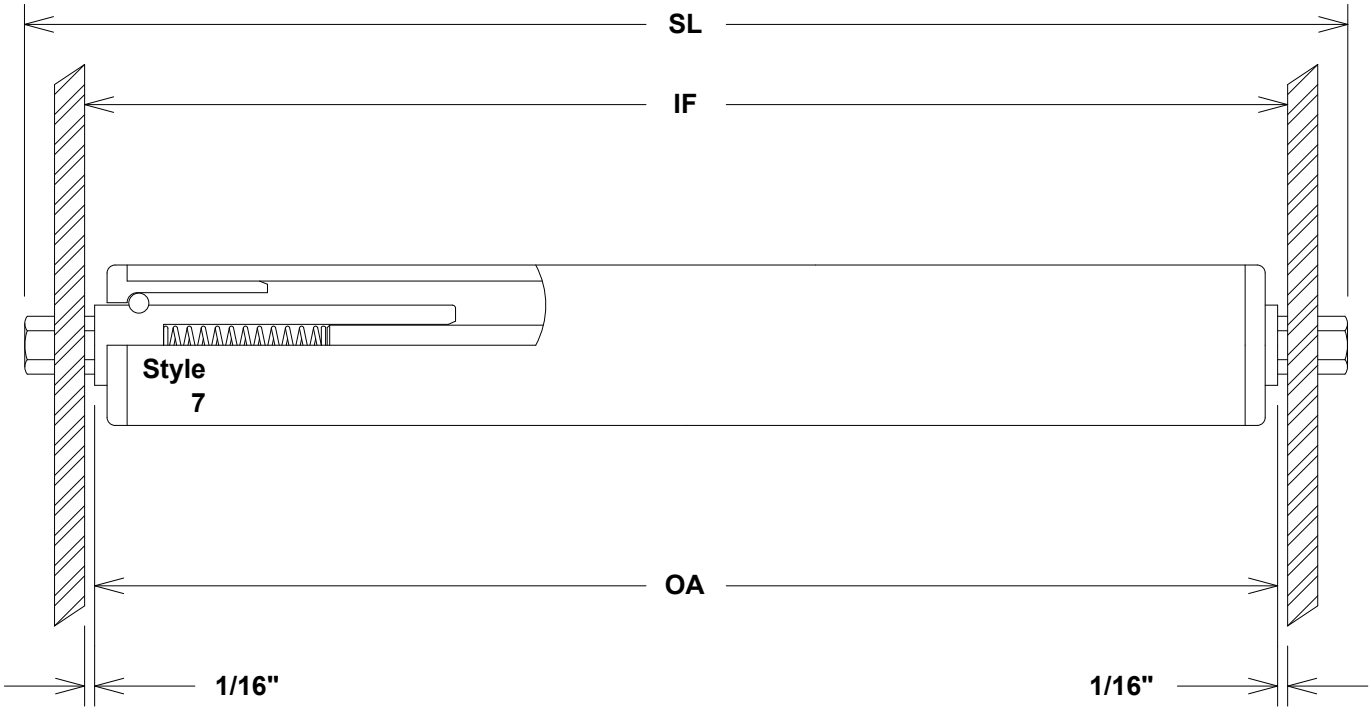
Note: 1K2 and bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1K2	2K2	2K8	BUSHING	Frame I.F.	Bearing # 1K2	2K2	2K8	BUSHING
12	10	20	20	22	**33**	***	***	***	***
15	10	14	14	14	**36**	***	***	***	***
18	9	9	9	9	**39**	***	***	***	***
21	7	7	7	7	**42**	***	***	***	***
24	5	5	5	5	**45**	***	***	***	***
27	***	***	***	***	**48**	***	***	***	***
30	***	***	***	***	**51**	***	***	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.05” Dia. x .113” Wall Thickness - 5/16” Hex Shaft Adapter



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1K1	7 / Stainless steel balls in a plastic housing and raceway
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H10	1.05" x .113” Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Acetal Adapters	C12	5/16" Hex External Adapter with 1/4" Round Internal Carbon Steel Shaft
	Acetal Adapters	S12	5/16" Hex External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	

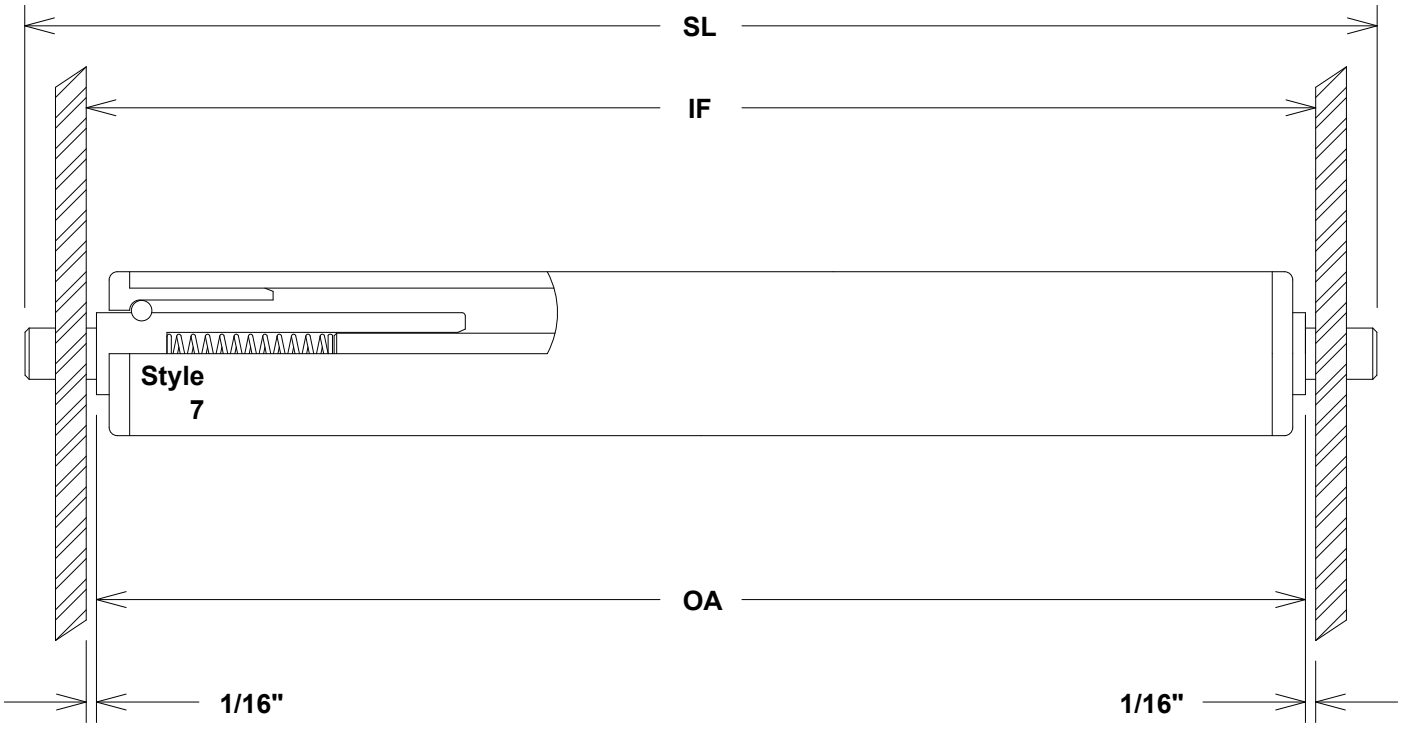
Note: 1K1 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1K1	Frame I.F.	Bearing # 1K1
12	10	**33**	***
15	10	**36**	***
18	9	**39**	***
21	7	**42**	***
24	5	**45**	***
27	***	**48**	***
30	***	**51**	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.05” Dia. x .113” Wall Thickness - 5/16” Round Shaft Adapter



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1K3	7 / Stainless steel balls in a plastic housing and raceway
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H10	1.05" x .113” Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Acetal Adapters	Inquire	5/16" Round External Adapter with 1/4" Round Internal Carbon Steel Shaft
	Acetal Adapters	Inquire	5/16" Round External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	

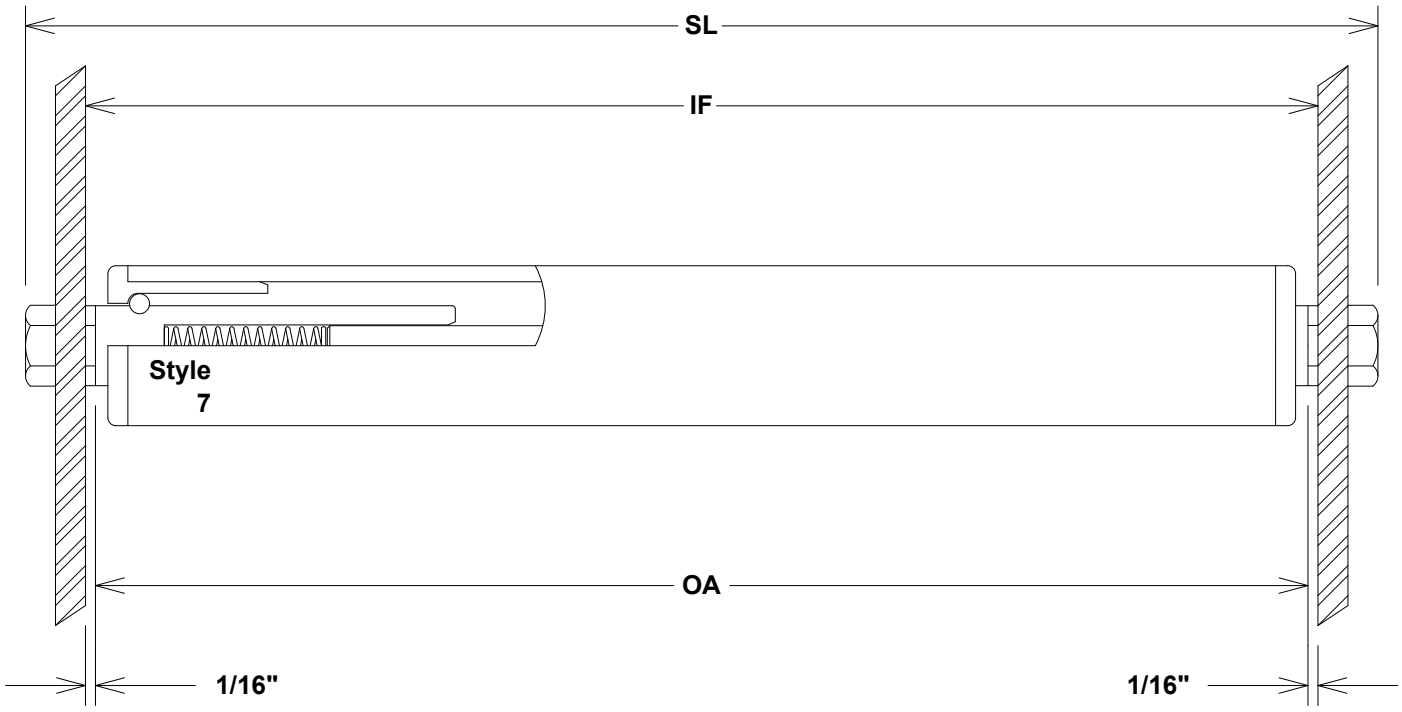
Note: 1K3 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1K3	Frame I.F.	Bearing # 1K3
12	10	**33**	***
15	10	**36**	***
18	9	**39**	***
21	7	**42**	***
24	5	**45**	***
27	***	**48**	***
30	***	**51**	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.05” Dia. x .113” Wall Thickness - 7/16” Hex Shaft Adapter



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1K4	7 / Stainless steel balls in a plastic housing and raceway
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H10	1.05" x .113" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Acetal Adapters	C07	7/16" Hex External Adapter with 1/4 Round Internal Carbon Steel Shaft
	Acetal Adapters	S07	7/16" Hex External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	

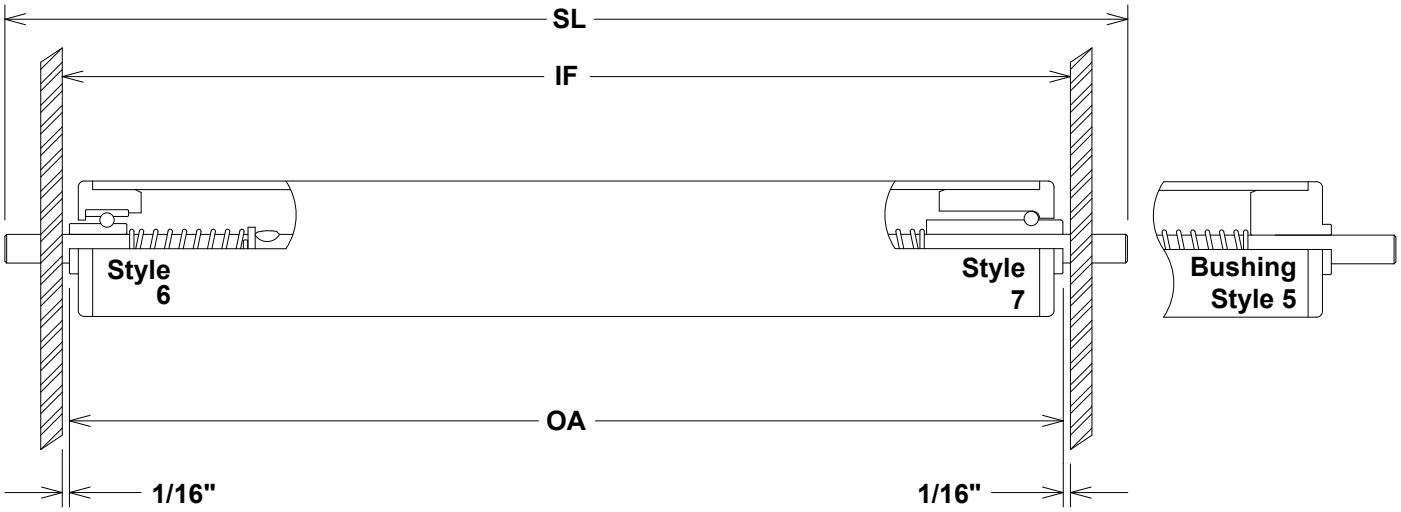
Note: 1K4 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1K4	Frame I.F.	Bearing # 1K4
12	10	**33**	***
15	10	**36**	***
18	9	**39**	***
21	7	**42**	***
24	5	**45**	***
27	***	**48**	***
30	***	**51**	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.18” Dia. x .071” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1L7	7 / Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2I1	6 / Plastic Housing - No Seals
	Stainless Steel	2I0	6 / Plastic Housing - No Seals
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	5L1	5 / Acetal Plastic
	Bushing Style, Ultra	Inquire	5 / "Ultra" Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	D17	1.18" x .071” Wall Gray PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

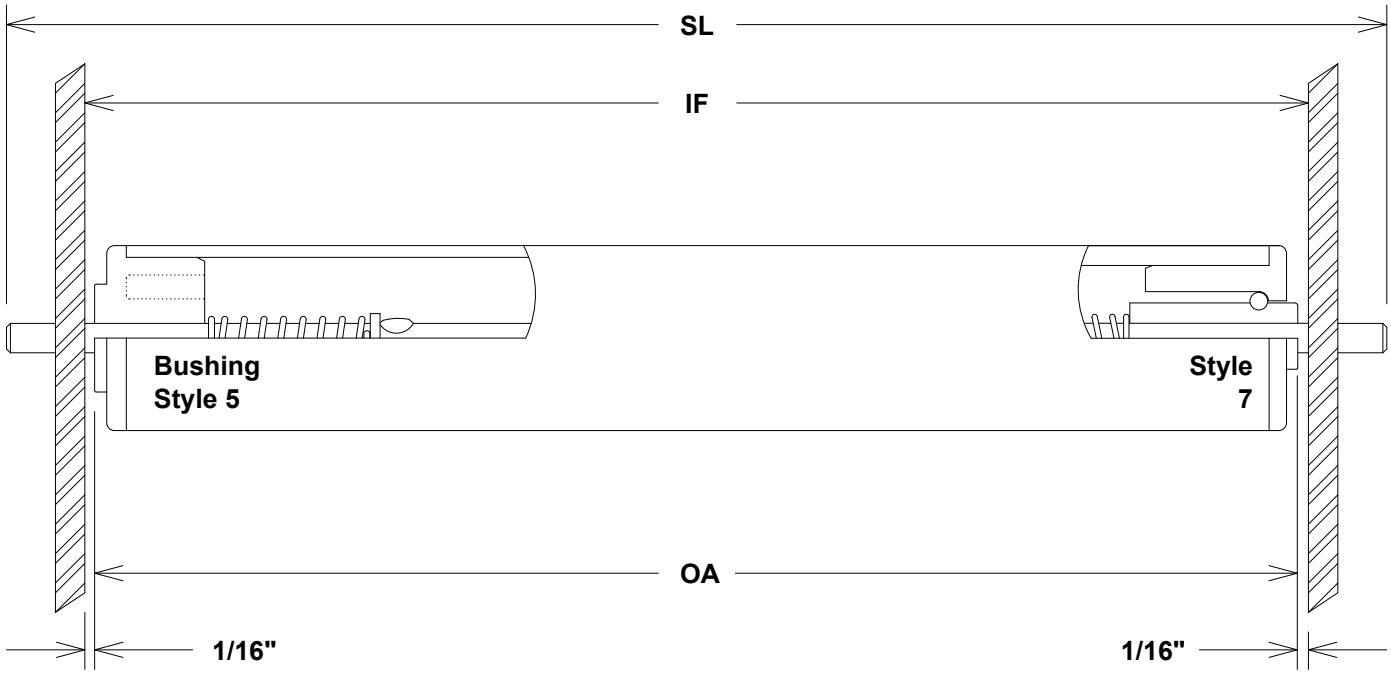
Note: 1L7 and bushing style rollers are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #				Frame	Bearing #			
I.F.	**1L7**	**2I1**	**2I0**	**BUSHING**	**I.F.**	**1L7**	**2I1**	**2I0**	**BUSHING**
12	10	23	23	23	**33**	***	***	***	***
15	10	14	14	14	**36**	***	***	***	***
18	10	10	10	10	**39**	***	***	***	***
21	7	7	7	7	**42**	***	***	***	***
24	5	5	5	5	**45**	***	***	***	***
27	***	***	***	***	**48**	***	***	***	***
30	***	***	***	***	**51**	***	***	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.18” Dia. x .071” Wall Thickness - 3/16” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1L8	7 / Stainless steel balls in a plastic housing and raceway
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	5D1	5 / Acetal Plastic
	Bushing Style, Ultra	Inquire	5 / "Ultra" Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	D17	1.18" x .071" Wall Gray PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C08	3/16" Round Carbon Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft	

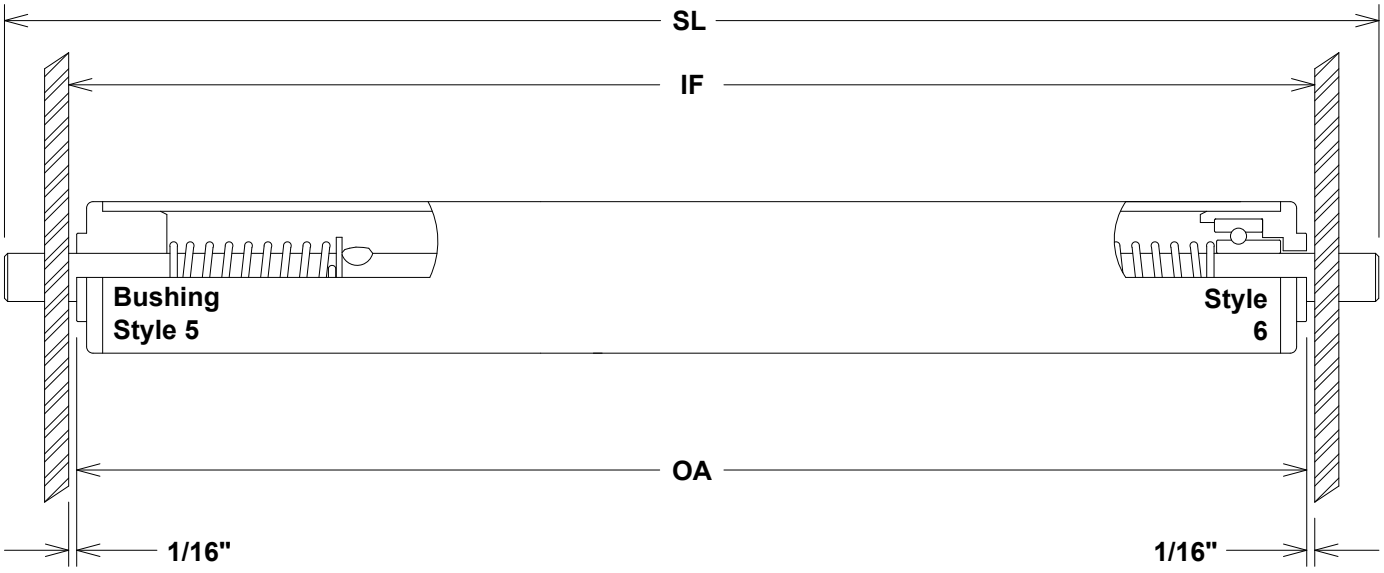
Note: Bushing style rollers are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # BUSHING	1L8	Frame I.F.	Bearing # BUSHING	1L8
12	23	10	**33**	***	***
15	14	10	**36**	***	***
18	10	10	**39**	***	***
21	7	10	**42**	***	***
24	5	9	**45**	***	***
27	***	7	**48**	***	***
30	***	***	**51**	***	***

*** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.18” Dia. x .071” Wall Thickness - 3/8” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2K6	6 / Plastic Housing - No Seals
	Stainless Steel	Inquire	6 / Plastic Housing - No Seals
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	Inquire	5 / Acetal Plastic
	Bushing Style, Ultra	5L9	5 / "Ultra" Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	D17	1.18" x .071" Wall Gray PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C20	3/8" Round Carbon Steel Shaft
	Stainless Steel	S25	3/8" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

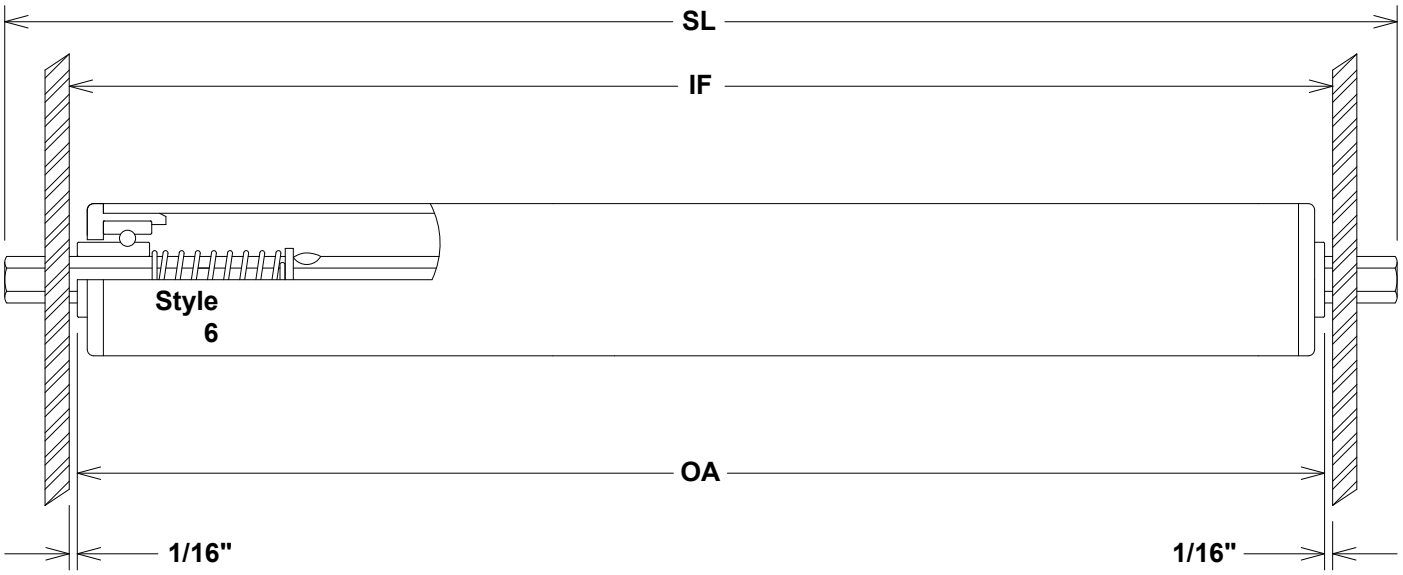
Note: Bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 2K6	Bearing # BUSHING	Frame I.F.	Bearing # 2K6	Bearing # BUSHING
12	23	23	**33**	***	***
15	14	14	**36**	***	***
18	10	10	**39**	***	***
21	7	7	**42**	***	***
24	5	5	**45**	***	***
27	***	***	**48**	***	***
30	***	***	**51**	***	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.18” Dia. x .071” Wall Thickness - 5/16” Hex Shaft



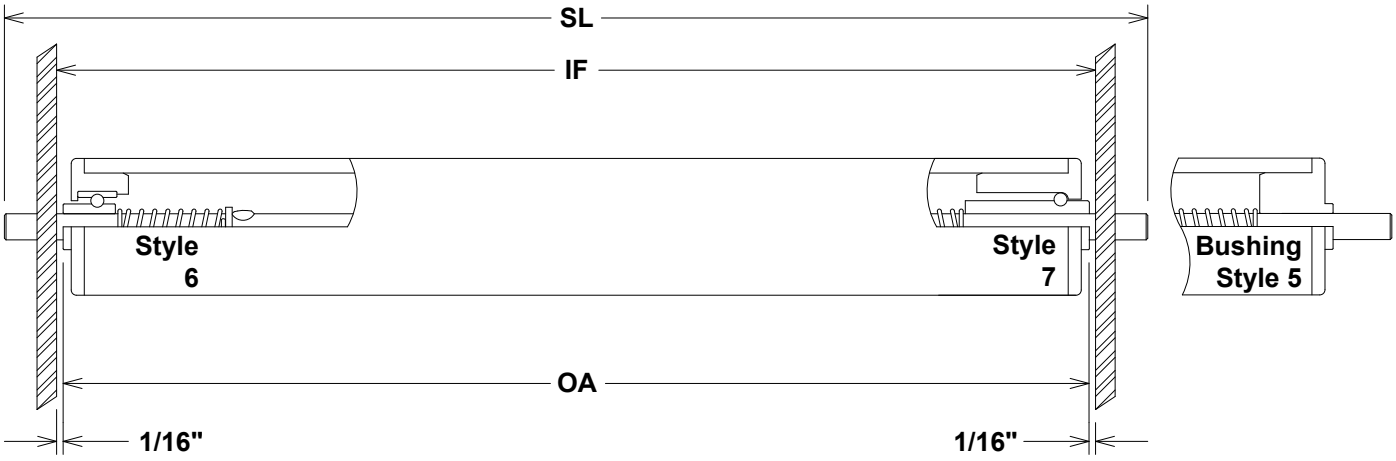
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2I7	6 / Plastic Housing - No Seals
	Stainless Steel	Inquire	6 / Plastic Housing - No Seals
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	D17	1.18" x .071" Wall Gray PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings	

Load Capacity (LBS.)

Frame I.F.	Bearing # 2I7	Frame I.F.	Bearing # 2I7
12	23	**33**	***
15	14	**36**	***
18	10	**39**	***
21	7	**42**	***
24	5	**45**	***
27	***	**48**	***
30	***	**51**	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.31” Dia. x .133” Wall Thickness - 1/4” Round Shaft



Bearings:	Type:	Part #	Style / Description:
	Stainless Steel	1L2	7 / Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2L2	6 / Plastic Housing - No Seals
	Stainless Steel	2P1	6 / Plastic Housing - No Seals
	Bushing Style, Acetal	Inquire	5 / Acetal Plastic
	Bushing Style, Ultra	5G4	5 / "Ultra" Acetal Plastic
	ABEC-1 Precision	3N8	6 / Plastic Housing - No Seals
	ABEC-1 Precision, SS	3N8SS	6 / Plastic Housing - No Seals

Tube:	Materials:	Part #	Description:
	PVC	H20	1.31" x .133" Wall “Hi-Impact” White PVC

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

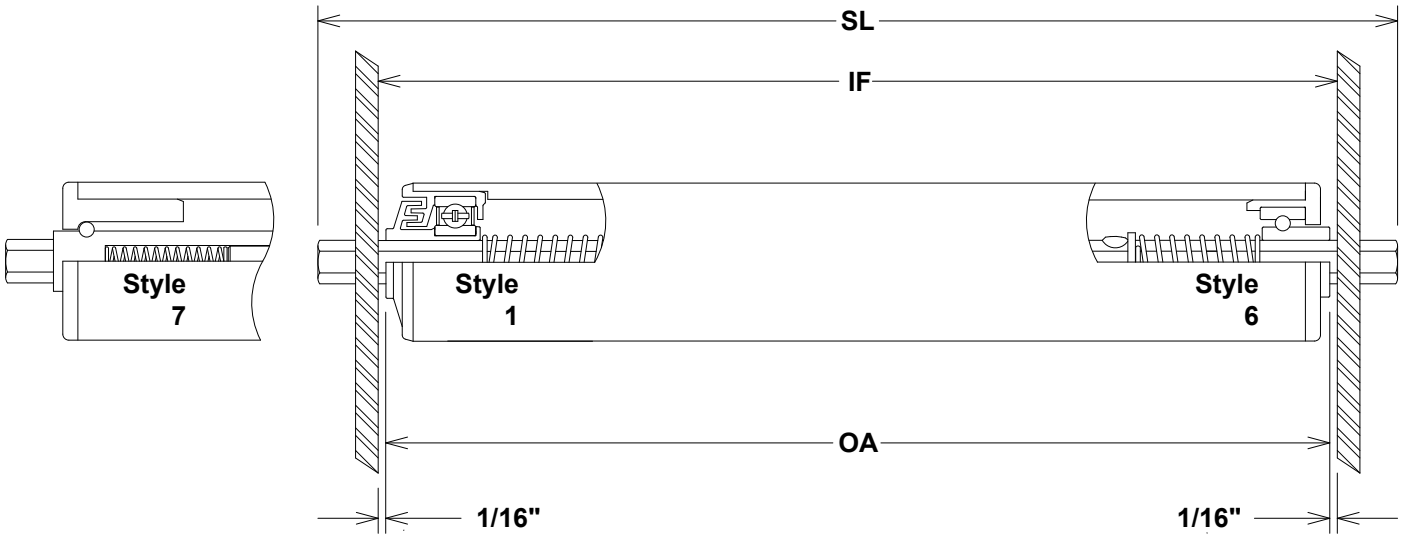
Note: 1L2 and bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1L2	2L2	2P1	BUSHING	3N8/3N8SS
12	10	37	37	37	40
15	10	23	23	23	24
18	10	16	16	16	16
21	10	11	11	11	12
24	9	9	9	9	9
27	7	7	7	7	7
30	***	***	***	***	***
33	***	***	***	***	***
36	***	***	***	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.31” Dia. x .133” Wall Thickness - 5/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3M6	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	1L4	7 / Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2L4	6 / Plastic housing - No seals
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H20	1.31" x .133" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Acetal Adapters	C12	5/16" Hex External Adapter with 1/4" Round Internal Carbon Steel Shaft
	Acetal Adapters	S12	5/16" Hex External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16" with C12 and S12, 9/16" with C14 and S14	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings	

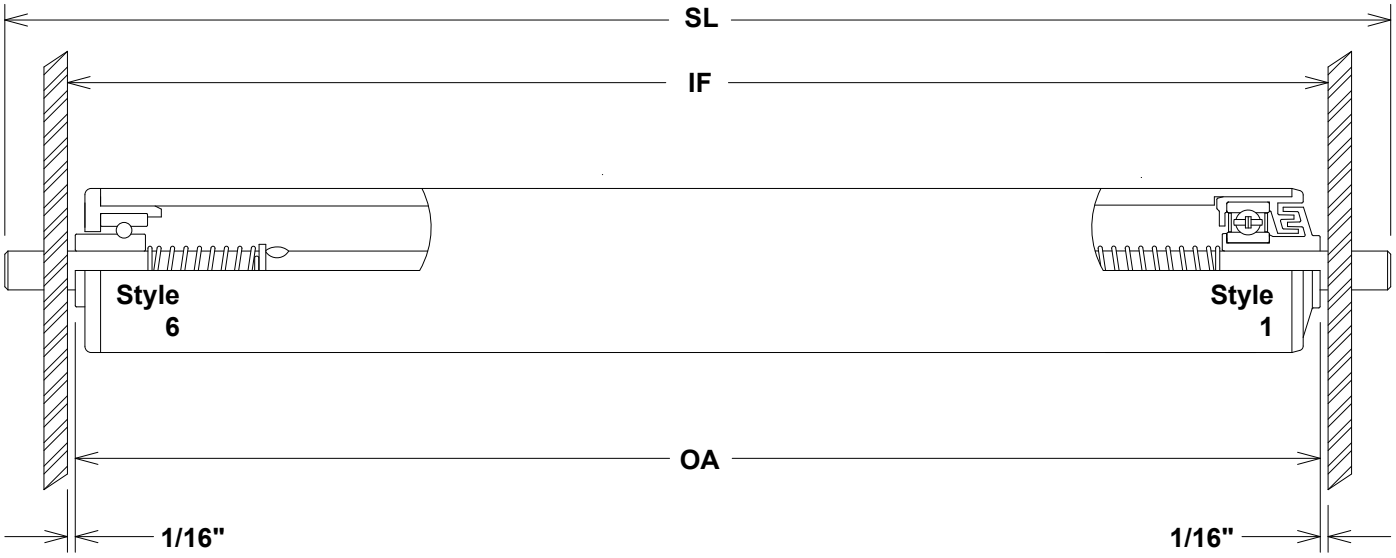
Note: 1L4 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 3M6	2L4	1L4	Frame I.F.	Bearing # 3M6	2L4	1L4
12	40	37	10	**33**	***	***	***
15	24	23	10	**36**	***	***	***
18	16	16	10	**39**	***	***	***
21	12	11	10	**42**	***	***	***
24	9	9	9	**45**	***	***	***
27	7	7	7	**48**	***	***	***
30	***	***	***	**51**	***	***	***

*** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.31” Dia. x .133” Wall Thickness - 5/16” Round Shaft



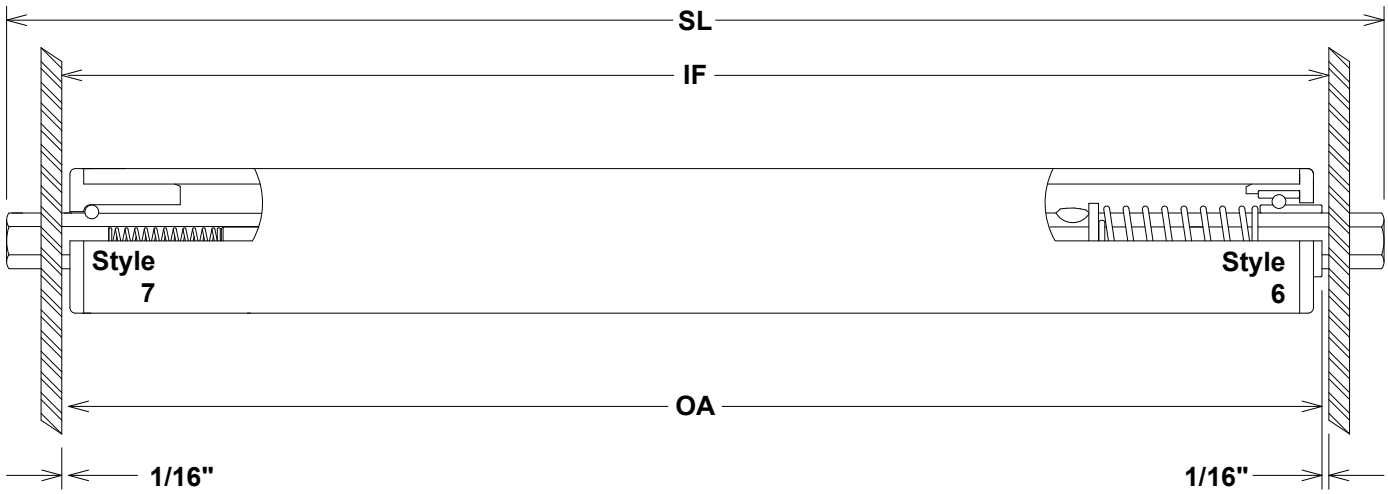
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2L3	6 / Plastic Housing - No Seals
	ABEC-1 Precision	3M6	1 / Conductive Plastic - Double Labyrinth Seal Construction
	ABEC-1 Precision, SS	3M6SS	1 / Conductive Plastic - Double Labyrinth Seal Construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H20	1.31" x .133" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C16	5/16" Round Carbon Steel Shaft
	Stainless Steel	S16	5/16" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

Load Capacity (LBS.)

Frame I.F.	Bearing # 2L3	3M6	3M6SS	Frame I.F.	Bearing # 2L3	3M6	3M6SS
12	37	40	40	**33**	***	***	***
15	23	24	24	**36**	***	***	***
18	16	16	16	**39**	***	***	***
21	11	12	12	**42**	***	***	***
24	9	9	9	**45**	***	***	***
27	7	7	7	**48**	***	***	***
30	***	***	***	**51**	***	***	***

* Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.31” Dia. x .133” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless steel	1L6	7 / Stainless steel balls in a plastic housing and raceway
	Steel, commercial	2L5	6 / Plastic housing - No seals
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H20	1.31" x .133 Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Acetal adapters	C07	7/16" Hex External Adapter with 1/4" Round Internal Carbon Steel Shaft
	Acetal adapters	S07	7/16" Hex External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16" with C07 and S07, 9/16" with all others	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, rings or pins, drilled and tapped, threaded	

Note: 1L6 style bearings are for intermittent use only.
Not recommended for powered systems.

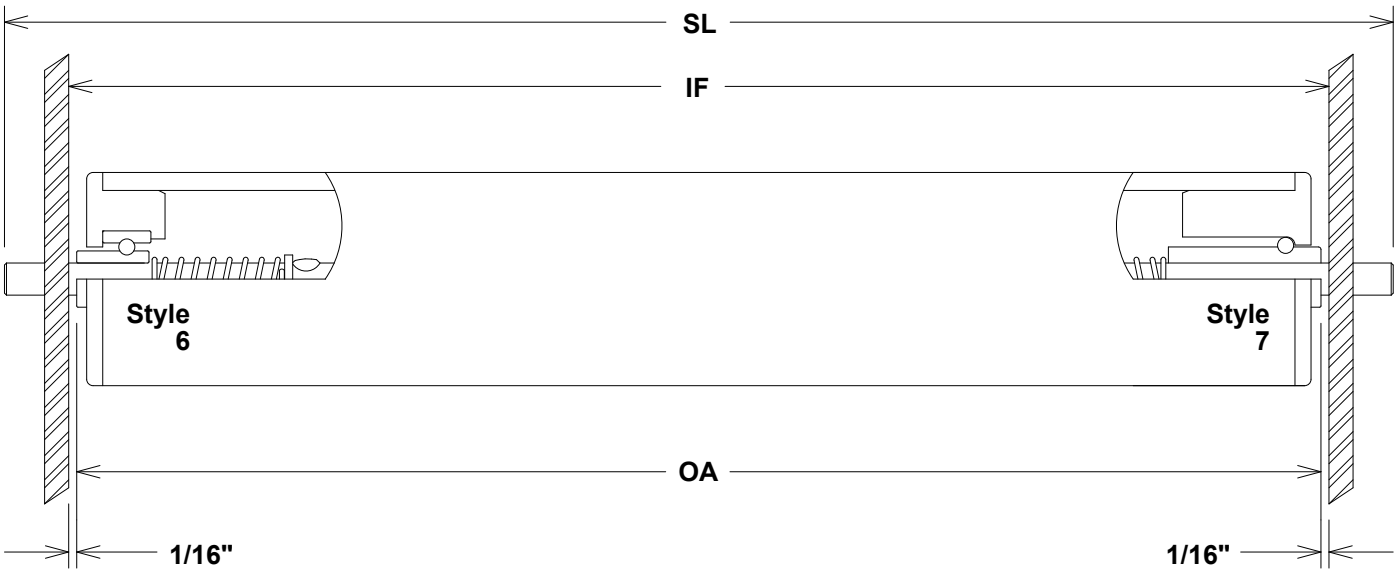
Load Capacity (LBS.)

Frame I.F.	Bearing # 1L6	Bearing # 2L5	Frame I.F.	Bearing # 1L6	Bearing # 2L5
12	10	37	**33**	***	***
15	10	23	**36**	***	***
18	10	16	**39**	***	***
21	10	11	**42**	***	***
24	9	9	**45**	***	***
27	7	7	**48**	***	***
30	***	***	**51**	***	***

* Load capacity w ith aluminum shaft is 33% of steel capacity.

*** Longer lengths are not recommended exceeding a load capacity of 5 pounds.

1.66” Dia. x .140” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1N2	7 / Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2N2	6 / Plastic housing - No Seals
	Stainless Steel	2N0	6 / Plastic housing - No Seals
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H30	1.66" x .140" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

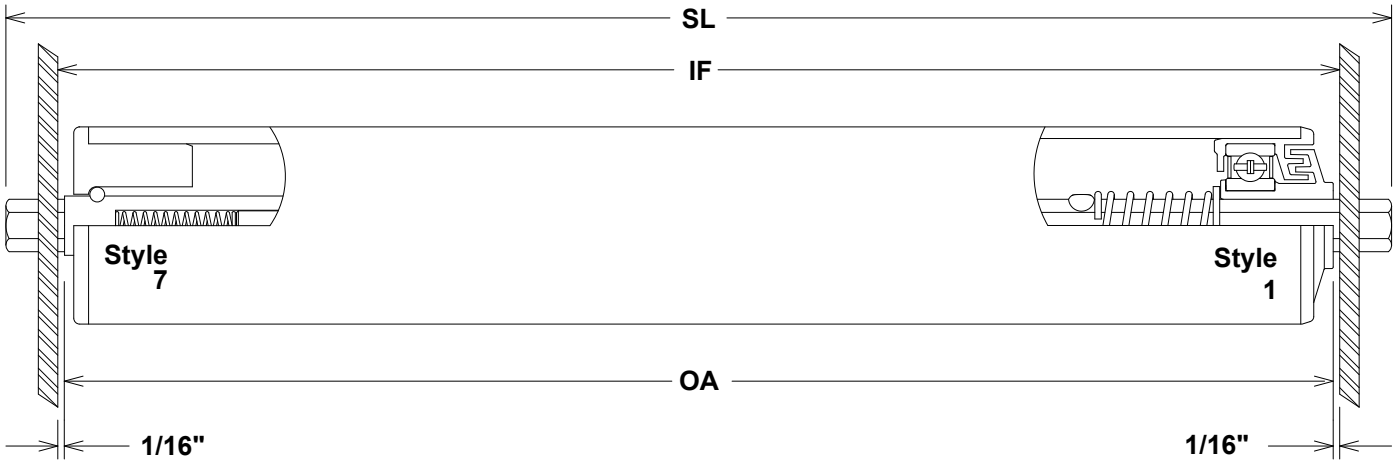
Note: 1N2 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1N2	2N2	2N0	Frame I.F.	Bearing # 1N2	2N2	2N0
12	10	60	60	**33**	10	10	10
15	10	52	52	**36**	***	***	***
18	10	35	35	**39**	***	***	***
21	10	25	25	**42**	***	***	***
24	10	19	19	**45**	***	***	***
27	10	15	15	**48**	***	***	***
30	10	12	12	**51**	***	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request.

1.66” Dia. x .140” Wall Thickness - 5/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description**
	Stainless Steel	1N4	7 / Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2N4	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2N5	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H30	1.66” x .140” Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Acetal Adapters	C12	5/16" Hex External Adapter with 1/4" Round Internal Carbon Steel Shaft
	Acetal Adapters	S12	5/16" Hex External Adapter with 1/4" Round Internal 304 Stainless Steel Shaft
	Standard Extensions:	7/16" with C12 and S12, 9/16" with C14 and S14	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings	

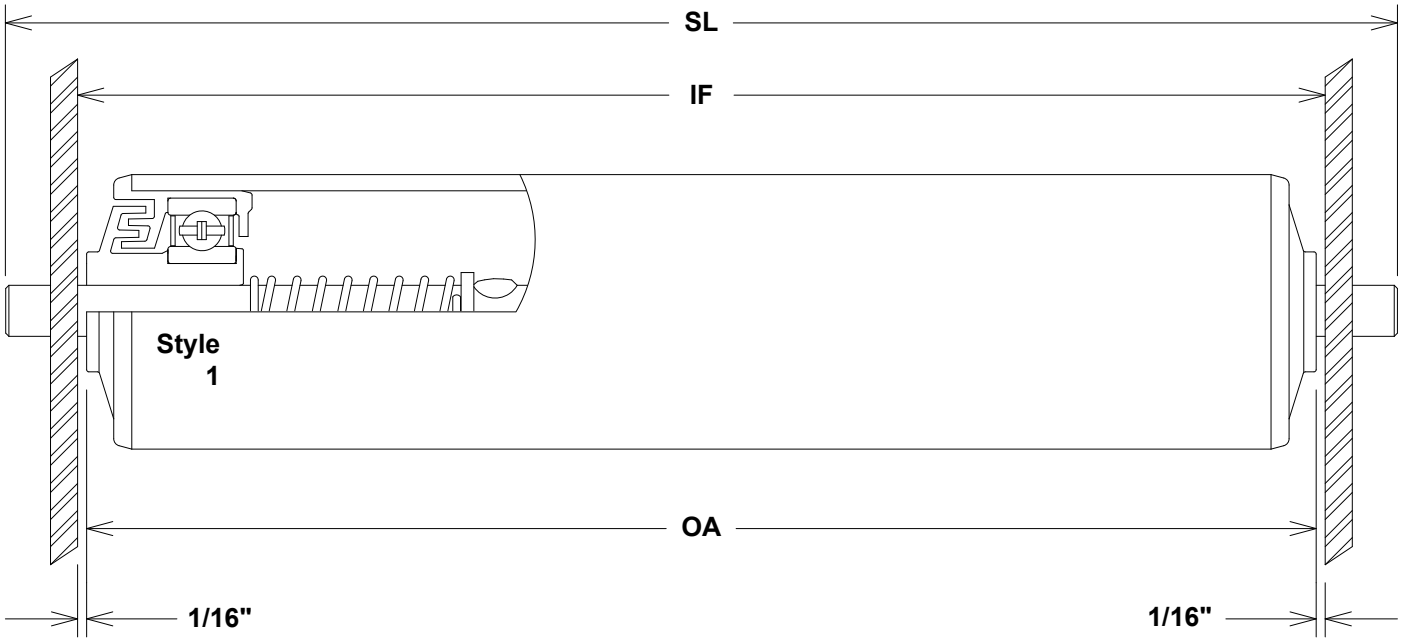
Note: 1N4 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #		Frame	Bearing #	
I.F.	**1N4**	**2N4 / 2N5**	**I.F.**	**1N4**	**2N4 / 2N5**
12	10	60	**33**	10	10
15	10	52	**36**	***	***
18	10	35	**39**	***	***
21	10	25	**42**	***	***
24	10	19	**45**	***	***
27	10	15	**48**	***	***
30	10	12	**51**	***	***

* Longer lengths are available upon request.

1.66” Dia. x .140” Wall Thickness - 5/16” Round Shaft



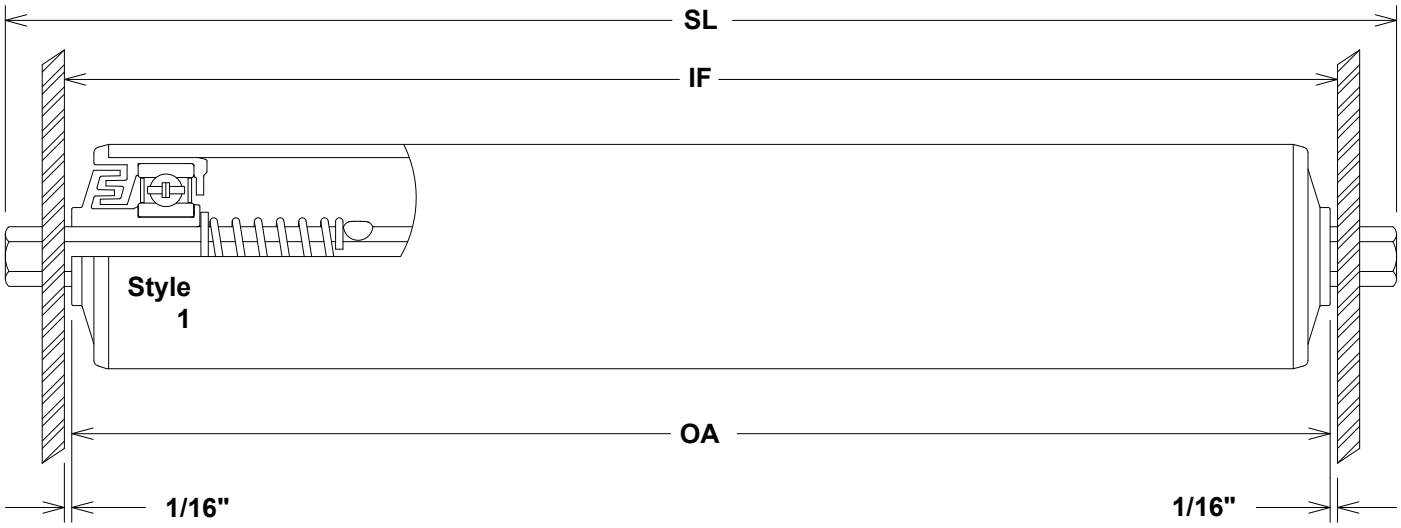
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2N3	1 / Plastic Housing with double labyrinth seal construction
	Stainless Steel	2S5	1 / Plastic Housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H30	1.66" x .140" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C16	5/16" Round Carbon Steel Shaft
	Stainless Steel	S16	5/16" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, D-shaft, threaded	

Load Capacity (LBS.)

Frame I.F.	Bearing # 2N3 / 2S5	Frame I.F.	Bearing # 2N3 / 2S5
12	60	**33**	10
15	52	**36**	***
18	35	**39**	***
21	25	**42**	***
24	19	**45**	***
27	15	**48**	***
30	12	**51**	***

* Longer lengths are available upon request.

1.66” Dia. x .140” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2N6	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	SS - Inquire	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H30	1.66" x .140" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

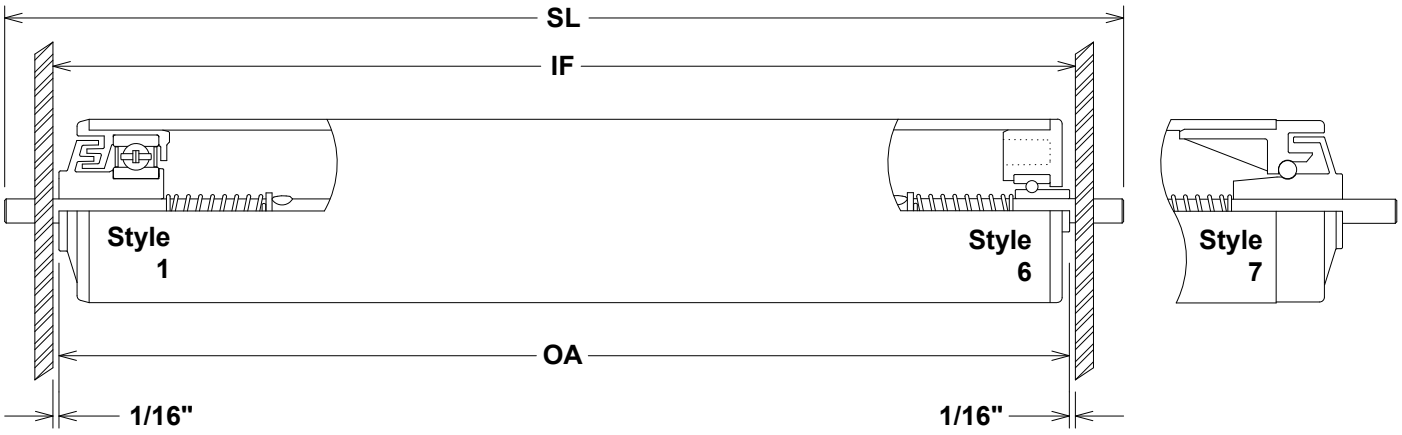
** Max Load 50 Lbs Per Roller

Load Capacity (LBS.)

Frame I.F.	Bearing # 2N6	(SS)	Frame I.F.	Bearing # 2N6	(SS)
12	60	60	**33**	10	10
15	52	52	**36**	***	***
18	35	35	**39**	***	***
21	25	25	**42**	***	***
24	19	19	**45**	***	***
27	15	15	**48**	***	***
30	12	12	**51**	***	***

** Longer lengths are available upon request.

1.90” Dia. x .112” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1A9	7 / 302 Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2Q4	6 / Plastic Housing - No Seals
	Steel, Commercial	2A1	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2A9	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H41	1.90" x .112" Wall "Hi-Impact" White PVC
	Drive options	Grooves	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded (1/4 x 20), D-shaft	

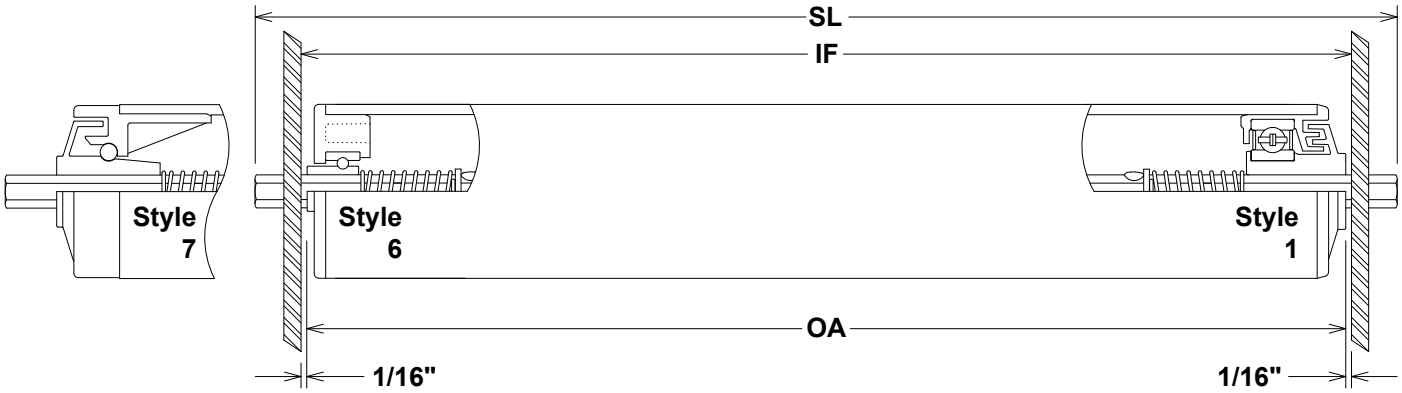
Note: 1A1 and 1A9 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1A9	2Q4	2A1	2A9
12	20	60	88	88
15	20	60	70	70
18	20	55	58	58
21	20	47	49	49
24	20	40	40	40
27	20	32	31	31
30	20	25	25	25
33	20	21	21	21
36	17	17	17	17
39	15	15	***	***

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request.

1.90” Dia. x .112” Wall Thickness - 5/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1B2	7 / 302 Stainless steel balls in a plastic housing and raceway
	Stainless Steel	1B3	7 / 316 Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2J4	6 / Plastic Housing - No Seals
	Stainless Steel	2G5	6 / Plastic Housing - No Seals
	Steel, Commercial	2A2	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2A5	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3J6	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3J6SS	1 / Conductive plastic - Double labyrinth seal construction

Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H41	1.90" x .112" Wall "Hi-Impact" White PVC
	Drive options:	Grooves	

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped	

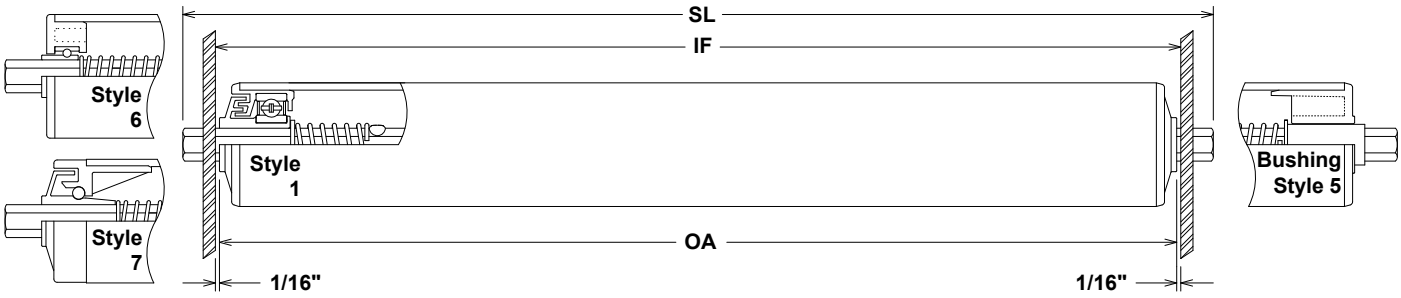
Note: 1B2 and 1B3 style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #						
I.F.	**1B2**	**1B3**	**2J4**	**2G5**	**2A2**	**2A5**	**3J6 / 3J6SS**
12	20	20	60	102	110	110	93
15	20	20	60	102	97	97	73
18	20	20	60	73	79	79	60
21	20	20	53	53	59	59	51
24	20	20	40	40	44	44	44
27	20	20	32	32	34	34	34
30	20	20	25	25	27	27	27
33	20	20	21	21	22	22	22
36	17	17	17	17	19	19	19
39	15	15	15	15	16	16	16

** Longer lengths are available upon request.

1.90” Dia. x .112” Wall Thickness - 7/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	Stainless Steel	1A5	7 / Series 302 stainless steel balls in a plastic housing and raceway
	Stainless Steel	1A8	7 / Series 316 stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2W4	6 / Ball bearing in a plastic housing - No seals
	Stainless Steel	2P8	6 / Ball bearing in a plastic housing - No seals
	Steel, Commercial	2A4	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2A5	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3A4	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3A4SS	1 / Plastic housing with double labyrinth seal construction
	Bushing Style, Stainless	5B7	5 / "Ultra" plastic housing, stainless steel bushing
	Bushing Style, Nylon	5A8	5 / "Ultra" plastic housing, Celcon bushing
	Bushing Style, Stainless	5B4	5 / "Ultra" plastic housing, SS bushing, plastic shaft adapter
	Bushing Style, Nylon	5A1	5 / "Ultra" plastic housing, nylon bushing, plastic shaft adapter

Tube:	Materials:	Part #	Description:
	PVC	H41	1.90" x .112" Wall "Hi-Impact" White PVC
	Drive Options:	Grooves	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	** Max 50 Lbs Per Roller		
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped, zinc plated	

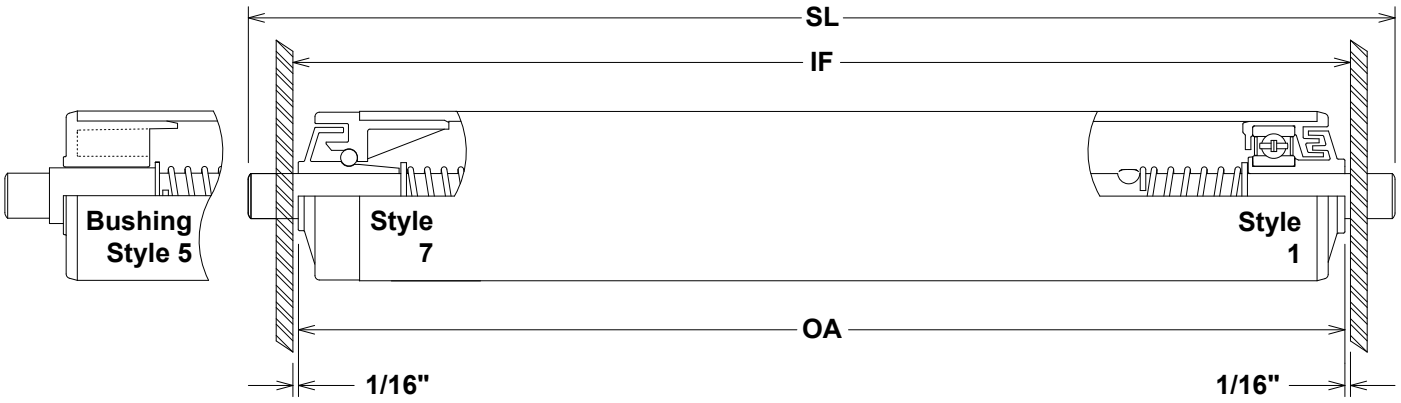
Note: 1A5,1A8 and bushing style bearings are for intermittent use only. Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #						
I.F.	1A5 / 1A8	2W4	2P8	2A4	2A5	3A4 / 34SS	BUSHING
12	20	60	60	110	110	110	100
15	20	60	60	110	110	110	100
18	20	60	60	83	83	83	85
21	20	53	53	59	59	59	60
24	20	40	40	44	44	44	45
27	20	32	32	34	34	34	35
30	20	25	25	27	27	27	28
33	20	21	21	22	22	22	23
36	17	17	17	19	19	19	19
39	***	***	***	16	16	16	16

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request but are not recommended.

1.90” Dia. x .112” Wall Thickness - 1/2” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	1B9	7 / 302 Stainless steel balls in a plastic housing and raceway
	Steel, Commercial	2A3	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2B9	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3A3	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3A3SS	1 / Plastic housing with double labyrinth seal construction
	Bushing Style, Nylon	5C0	5 / "Ultra" plastic housing, nylon bushing
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H41	1.90" x .112" Wall "Hi-Impact" White PVC
	Drive Options	Grooves	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Options:	Zinc plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded, drilled and tapped, D-shaft, flats, holes	

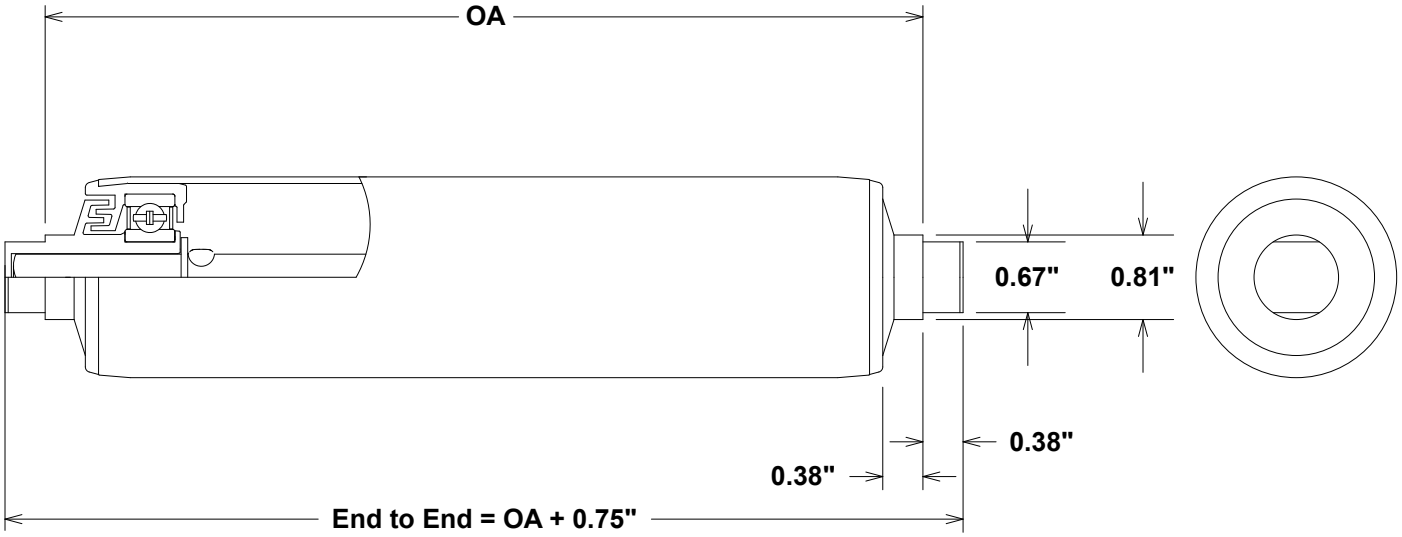
Note: 1B9 and bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1B9	2A3	2B9	3A3 / 3A3SS	BUSHING
12	20	110	110	110	100
15	20	110	110	110	100
18	20	90	90	83	85
21	20	63	63	59	60
24	20	47	47	44	45
27	20	36	36	34	35
30	20	29	29	27	28
33	20	23	23	22	23
36	17	19	19	19	19
39	***	16	16	16	16
42	***	***	***	***	***

** Longer lengths are available upon request.

1.90” Dia. x .112” Wall Thickness - .67” Plastic Flat Caps



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2E4	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2E5	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3A5	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3A5SS	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials**	**Part #**	**Description:**
	PVC	H41	1.90" x .112" Wall "Hi-Impact" White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	** Acetal Flat Caps	C64	Uses a 7/16" hex carbon steel internal shaft
	** Acetal Flat Caps	S64	Uses a 7/16" hex stainless steel internal shaft

** Max 50 Lbs. per roller

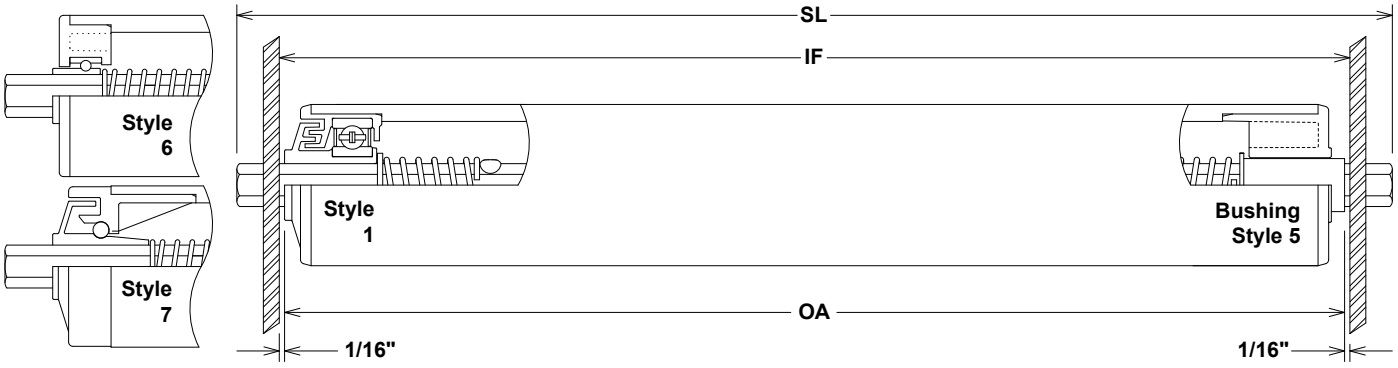
Standard Extensions: 3/8"
Standard Springs: No springs

Load Capacity (LBS.)

Frame I.F.	Bearing # 2E4	2E5	3A5 / 3A5SS	Frame I.F.	Bearing # 2E4	2E5	3A5 / 3A5SS
12	50	50	50	**33**	22	22	22
15	50	50	50	**36**	19	19	19
18	50	50	50	**39**	16	16	16
21	50	50	50	**42**	***	***	***
24	44	44	44	**45**	***	***	***
27	34	34	34	**48**	***	***	***
30	27	27	27	**51**	***	***	***

* Longer lengths are available upon request but not recommended.

1.90” Dia. x .200” Wall Thickness - 7/16” Hex Shaft



		Type:	Part #	Style / Description:
Bearings:		Stainless Steel	1A5	7 / Series 302 stainless steel balls in a plastic housing and raceway
		Stainless Steel	1A8	7 / Series 316 stainless steel balls in a plastic housing and raceway
		Steel, Commercial	2W5	6 / Plastic housing - No seals
		Stainless Steel	2P8	6 / Plastic housing - No seals
		Steel, Commercial	2B1	1 / Plastic housing with double labyrinth seal construction
		Stainless Steel	2B2	1 / Plastic housing with double labyrinth seal construction
		ABEC-1 Precision	3B1	1 / Plastic housing with double labyrinth seal construction
		ABEC-1 Precision, SS	3B1SS	1 / Plastic housing with double labyrinth seal construction
		Bushing Style, Stainless	5C2	5 / "Ultra" plastic housing, stainless steel bushing
		Bushing Style, Nylon	5A3	5 / "Ultra" plastic housing, nylon bushing
Tube:		**Materials:**	**Part #**	**Description:**
		PVC	H45	1.90" x .200" Wall "Hi-Impact" White PVC
		PVC	D45	1.90" x .200" Wall Dark Gray PVC
Shaft:		**Materials:**	**Part #**	**Description:**
		Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
		Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
		Aluminum	A66	7/16" Hex Aluminum Shaft
		Options:	Zinc Plated	
	**	Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
		Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	**	Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
		Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	**	Max 50 Lbs. Per Roller		
		Standard Extensions:	9/16"	
		Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
		Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped	

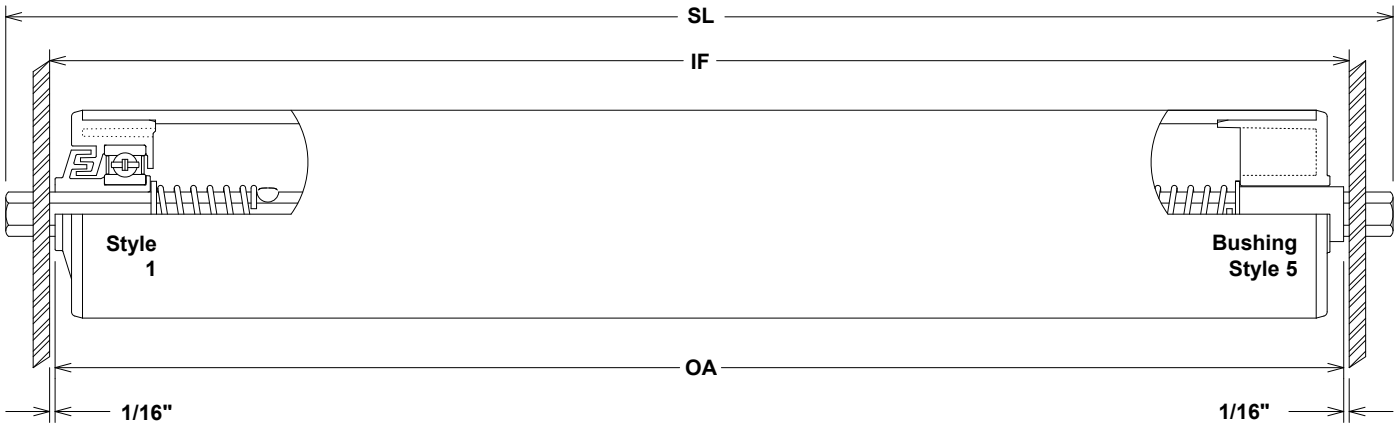
Note: 1A5, 1A8 and bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 1A5 / 1A8	2W5	2P8	2B1	2B2	3B1 / 3B1SS
12	20	60	102	110	110	110
15	20	60	102	110	110	110
18	20	60	102	110	110	110
21	20	60	82	91	91	91
24	20	60	62	68	68	68
27	20	49	49	53	53	53
30	20	39	39	42	42	42
33	20	32	32	34	34	34
36	17	27	27	29	29	29
39	***	23	23	24	24	24
42	***	20	20	21	21	21
45	***	17	17	18	18	18
48	***	15	15	16	16	16

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request but are not recommended.

2.37” Dia. x .125” Wall Thickness - 7/16” Hex Shaft



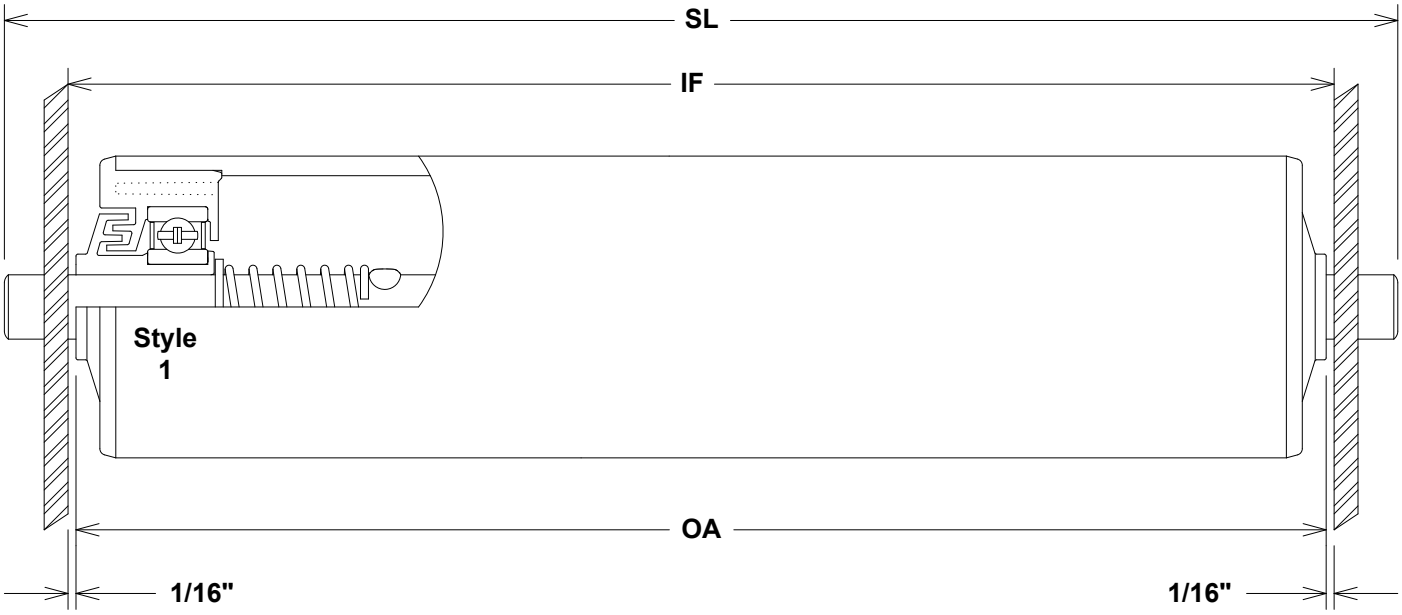
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2B5	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2B6	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3B5	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3B5SS	1 / Plastic housing with double labyrinth seal construction
	Bushing Style, Stainless	5K8	5 / "Ultra" plastic housing, stainless steel bushing
	Bushing Style, Nylon	5A0	5 / "Ultra" plastic housing, nylon bushing
	Bushing Style, Stainless	5A5	5 / "Ultra" plastic housing, SS bushing, plastic shaft adapter
	Bushing Style, Nylon	Inquire	5 / "Ultra" plastic housing, nylon bushing, plastic shaft adapter
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H51	2.37" x .125" Wall "Hi-Impact" White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	** Max 50 Lbs. Per Roller		
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped	
Note:	Bushing style rollers are for intermittent use only Not recommended for powered systems		

Load Capacity (LBS.)

Frame	Bearing #				Frame	Bearing #			
I.F.	**2B5**	**2B6**	**3B5/3B5SS**	**BUSHING**	**I.F.**	**2B5**	**2B6**	**3B5/3B5SS**	**BUSHING**
12	174	174	174	100	**33**	49	49	46	46
15	133	133	126	100	**36**	45	45	41	41
18	103	103	98	98	**39**	41	41	38	38
21	85	85	80	80	**42**	37	37	35	35
24	72	72	67	67	**45**	35	35	32	32
27	62	62	58	58	**48**	32	32	30	30
30	55	55	51	51	**51**	30	30	28	28

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request but are not recommended.

2.37” Dia. x .125” Wall Thickness - 1/2” Round Shaft



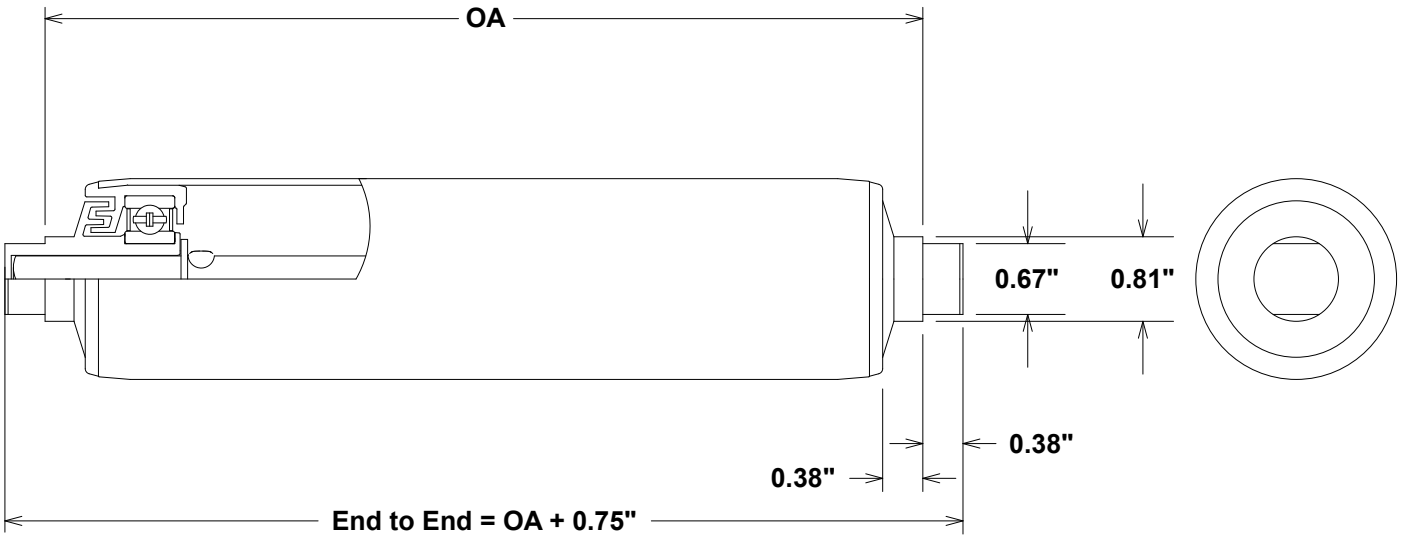
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2B3	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2E6	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3B2	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3B2SS	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H51	2.37" x .125" Wall "Hi-Impact" White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded, drilled and tapped, D-shaft, flats, holes	

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**2B3**	**2E6**	**3B2/3B2SS**	**I.F.**	**2B3**	**2E6**	**3B2/3B2SS**
12	173	173	174	**33**	58	58	46
15	135	135	129	**36**	48	48	41
18	111	111	99	**39**	41	41	38
21	94	94	80	**42**	35	35	35
24	82	82	67	**45**	30	30	32
27	72	72	58	**48**	27	27	30
30	65	65	51	**51**	23	23	28

** Longer lengths are available upon request but not recommended.

2.37” Dia. x .125” Wall Thickness - .67” Plastic Flat Caps



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2C1	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2A0	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3B7	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3B7SS	1 / Plastic housing with double labyrinth seal construction

Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H51	2.37" x .125" Wall "Hi-Impact" White PVC

Shaft:	**Materials:**	**Part #**	**Description:**
	** Plastic Flat Caps	C64	Uses a 7/16" hex carbon steel internal shaft
	** Plastic Flat Caps	S64	Uses a 7/16" hex stainless steel internal shaft

** Max 50 Lbs. Per Roller

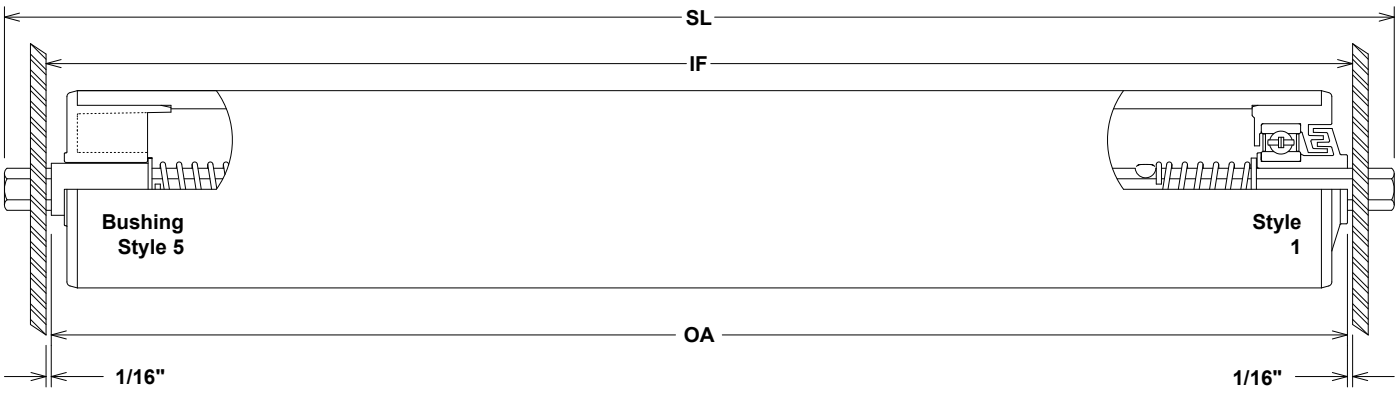
Standard Extensions 3/8"
Standard Springs: No Springs

Load Capacity (LBS.)

Frame I.F.	Bearing # 2A0	2C1	3B7/3B7SS	Frame I.F.	Bearing # 2A0	2C1	3B7/3B7SS
12	50	50	50	**33**	49	49	49
15	50	50	50	**36**	41	41	41
18	50	50	50	**39**	35	35	35
21	50	50	50	**42**	30	30	30
24	50	50	50	**45**	26	26	26
27	50	50	50	**48**	22	22	22
30	50	50	50	**51**	20	20	20

** Longer lengths are available upon request but are not recommended.

2.37” Dia. x .218” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2R7	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2D8	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3F8	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3F8SS	1 / Plastic housing with double labyrinth seal construction
	Bushing Style, Stainless	Inquire	5 / "Ultra" plastic housing, stainless steel bushing
	Bushing Style, Nylon	5D8	5 / "Ultra" plastic housing, nylon bushing
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H55	2.37" x .218" Wall “Hi-Impact” White PVC
	Options:	Plastic tube may be steel reinforced	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Steel Shaft
	*** Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Steel Shaft
	** Max 50 Lbs. Per Roller	*** Max 100 Lbs. Per Roller	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped, threaded	

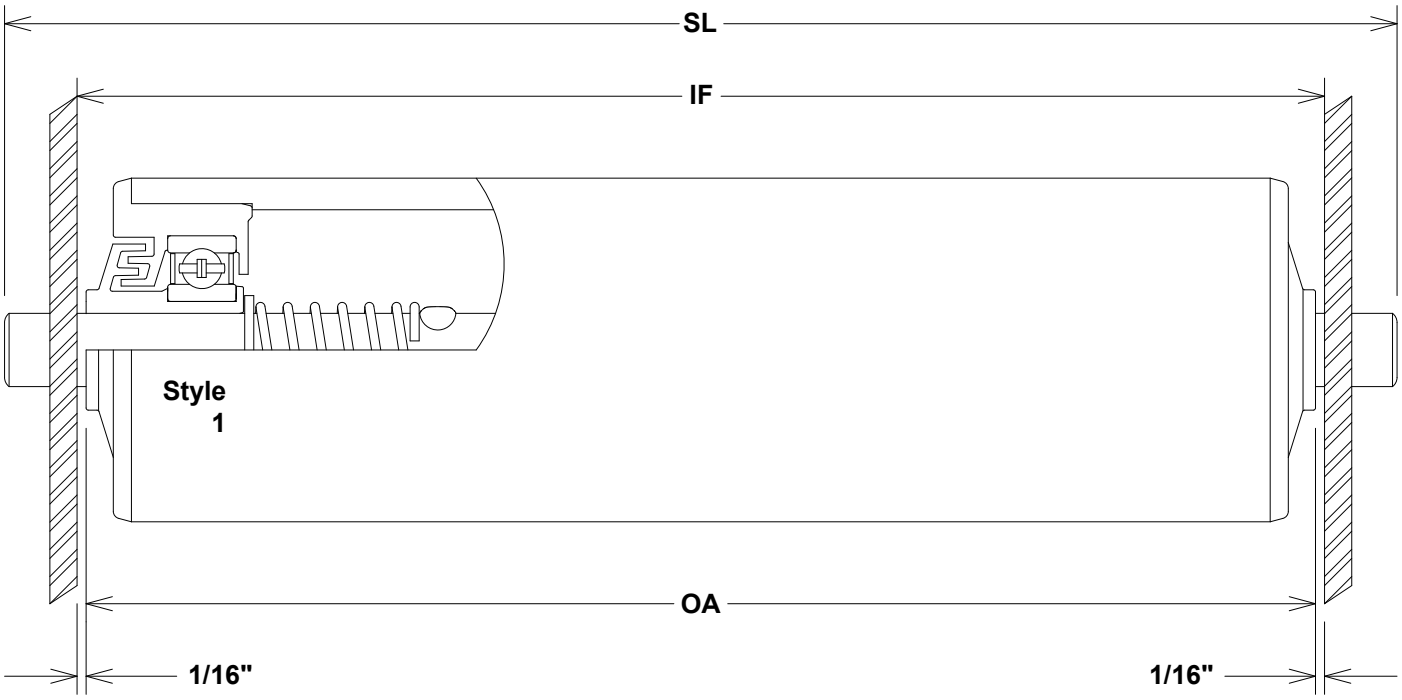
Note: Bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #				Frame	Bearing #			
I.F.	**2R7**	**2D8**	**3F8/3F8SS**	**BUSHING**	**I.F.**	**2R7**	**2D8**	**3F8/3F8SS**	**BUSHING**
12	174	174	174	100	**33**	49	49	46	46
15	133	133	126	100	**36**	45	45	41	41
18	103	103	98	98	**39**	41	41	38	38
21	85	85	80	80	**42**	37	37	35	35
24	72	72	67	67	**45**	35	35	32	32
27	62	62	58	58	**48**	32	32	30	30
30	55	55	51	51	**51**	30	30	28	28

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request but are not recommended.

2.37” Dia. x .218” Wall Thickness - 1/2” Round Shaft



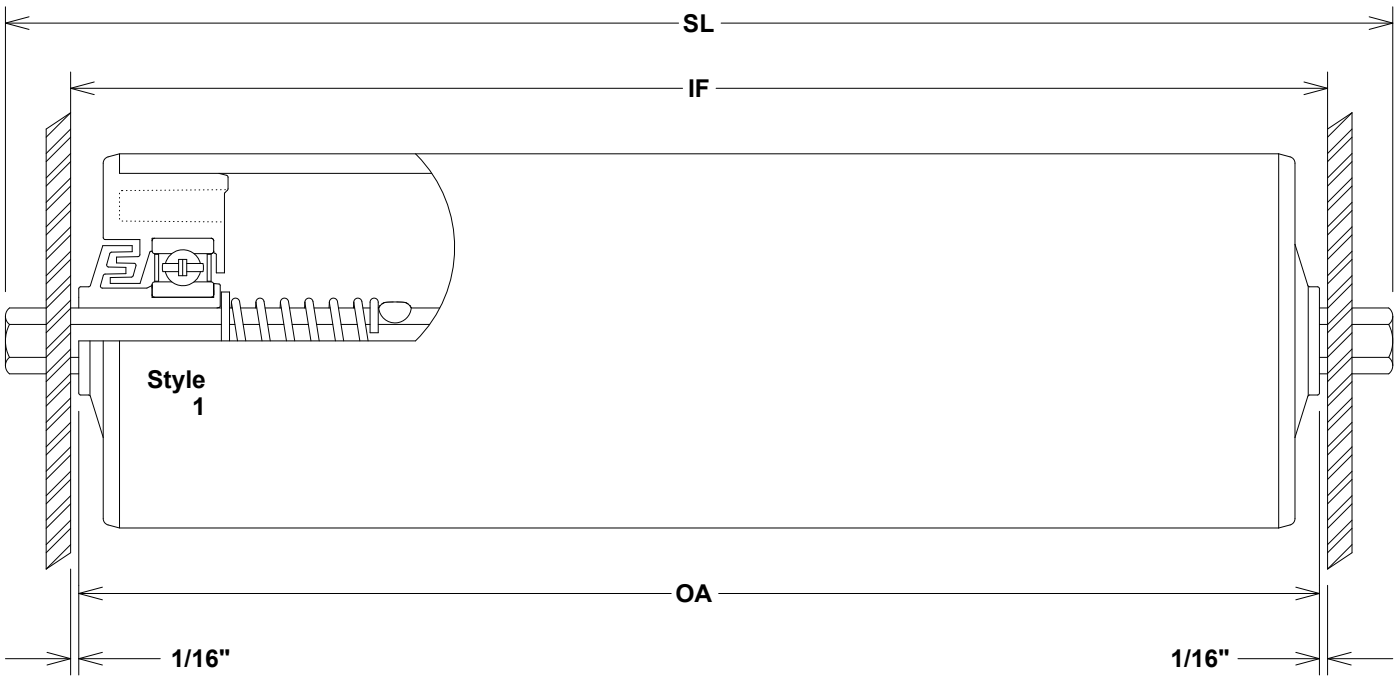
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	Inquire	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	Inquire	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	Inquire	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H55	2.37" x .218" Wall “Hi-Impact” White PVC
	Options:	Plastic tube may be steel reinforced	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded, drilled and tapped, D-shaft, flats, holes	

Load Capacity (LBS.)

Frame I.F.	Bearing # ABEC-1	Bearing # OTHER	Frame I.F.	Bearing # ABEC-1	Bearing # OTHER
12	174	173	**33**	46	58
15	129	135	**36**	41	53
18	99	111	**39**	38	49
21	80	94	**42**	35	46
24	67	82	**45**	32	40
27	58	72	**48**	30	35
30	51	65	**51**	28	30

* Longer lengths are available but not recommended.

2.87” Dia. x .150” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2F9	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	Inquire	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	Inquire	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H61	2.87" x .150" Wall "Hi-Impact" White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, pins or rings, drilled and tapped, flat caps	

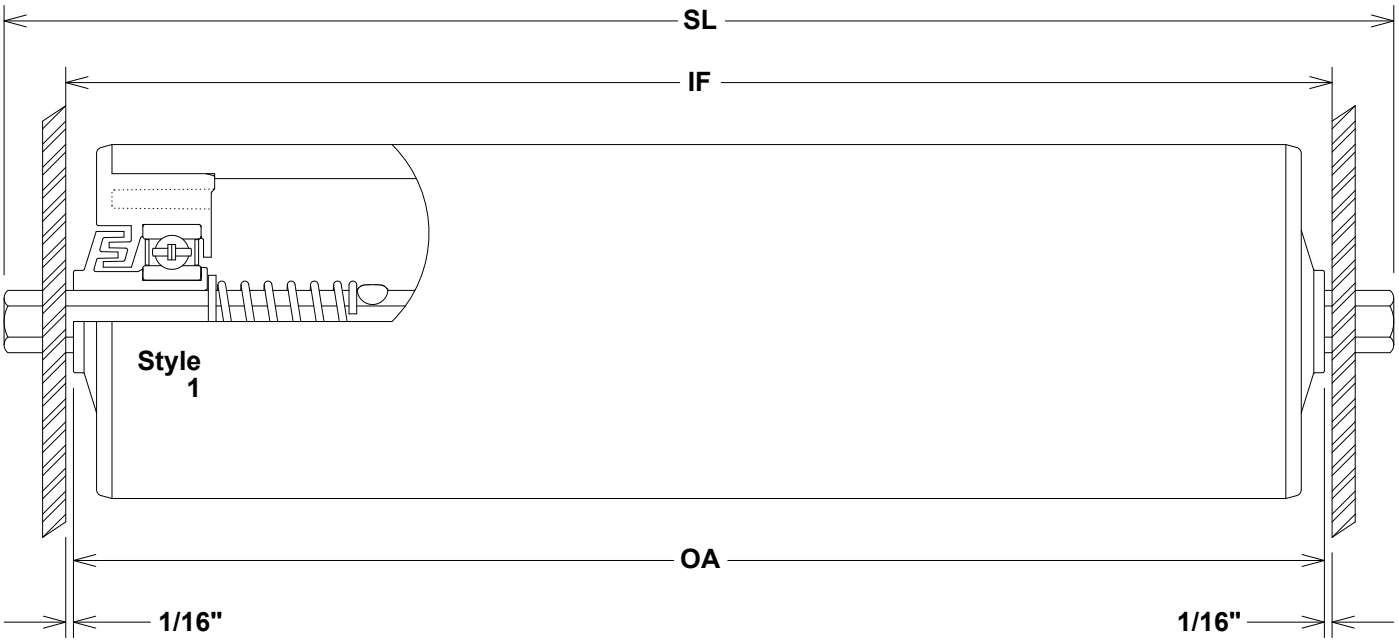
Load Capacity (LBS.)

Frame I.F.	Bearing # 2F9	Bearing # ABEC-1	Frame I.F.	Bearing # 2F9	Bearing # ABEC-1
12	174	210	**33**	85	103
15	174	210	**36**	78	88
18	167	196	**39**	71	75
21	140	166	**42**	66	64
24	121	144	**45**	59	55
27	106	127	**48**	51	48
30	94	114	**51**	45	42

* Load capacity with aluminum shaft is 33% of steel capacity.

** Longer lengths are available upon request but are not recommended.

2.87” Dia. x .276” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2E8	1 / Plastic housing with double labyrinth seal construction
	Stainless Steel	2E9	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision	3D2	1 / Plastic housing with double labyrinth seal construction
	ABEC-1 Precision, SS	3D2SS	1 / Plastic housing with double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	PVC	H65	2.87" x .276" Wall “Hi-Impact” White PVC
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	

Standard Extensions: 9/16"
Standard Springs: Dual spring loaded with shaft depressing to bearing hub
Options: Fixed shaft, through shaft, holes, pins or rings, drilled and tapped, flat caps

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**2E8**	**2E9**	**3D2/3D2SS**	**I.F.**	**2E8**	**2E9**	**3D2/3D2SS**
12	174	174	210	**33**	85	85	103
15	174	174	210	**36**	78	78	94
18	167	167	196	**39**	71	71	86
21	140	140	166	**42**	66	66	80
24	121	121	144	**45**	61	61	74
27	106	106	127	**48**	57	57	65
30	94	94	114	**51**	54	54	57

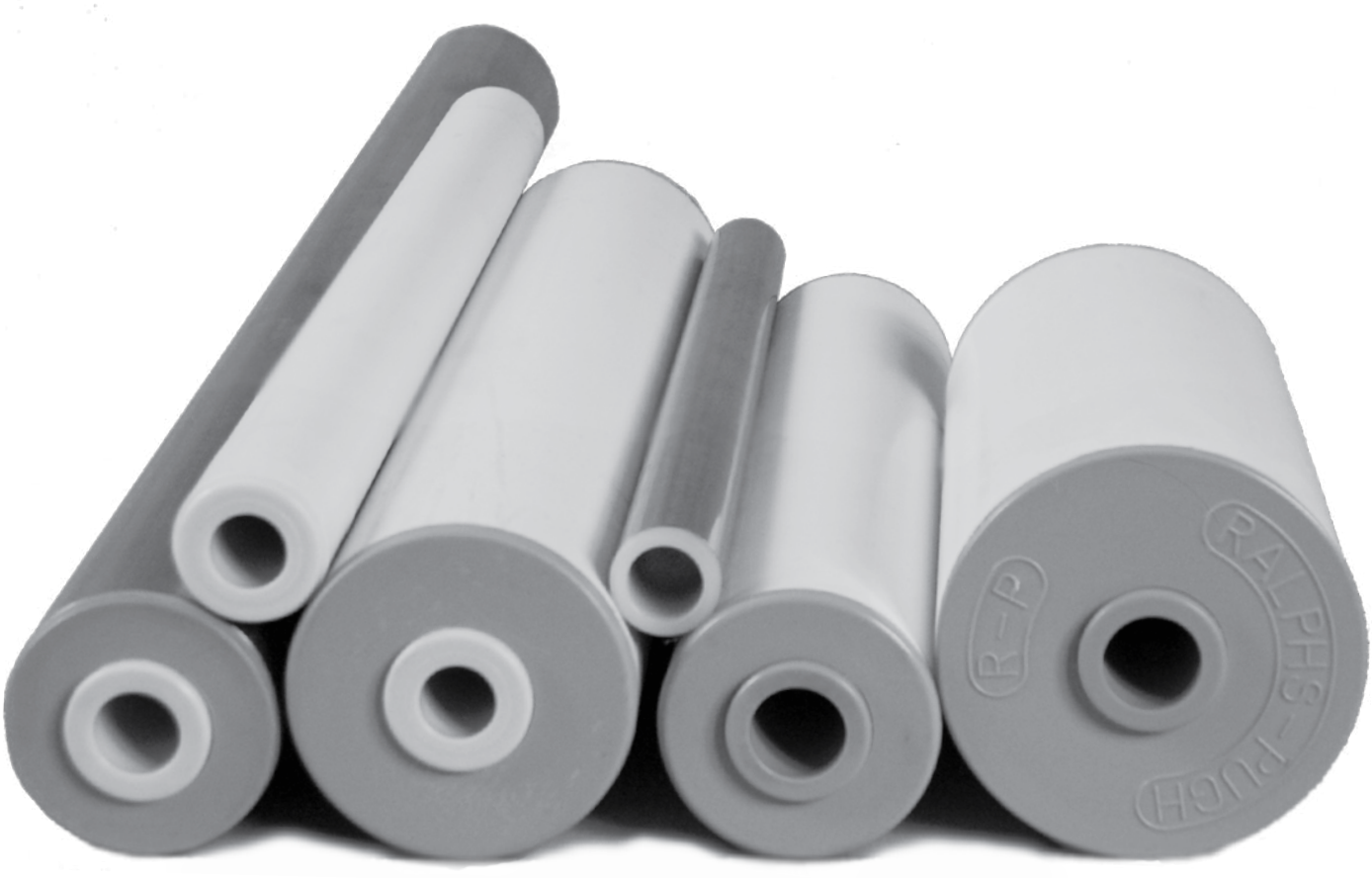
* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request but are not recommended.

Ralphs-Pugh Plastic Idler Rollers

Ralphs-Pugh plastic idler rollers are available in Through Hole, Blind Hole or Grading and Inspection configurations. Tubing is available in a “Hi-Impact” formulation, which has UV stabilizers and additional impact modifiers. Tube diameters and wall thicknesses are available for virtually every type of application. All plastic bushings and endplugs are molded in our facility ensuring the highest quality. These bushings (standard and heavy duty) are molded in acetal plastic or our best material - Ultra (Acetal plastic with Teflon additives). UHMW bushings are also available in specific sizes or upon request. Tube diameters larger than 1.05” utilize an economical ABS plastic endplug in conjunction with the specified bushings. All Ralphs-Pugh materials are FDA approved. Stainless steel bushing adapters and cap screws are also available to complete your roller requirements. **We can also manufacture custom rollers to your specifications.**

How to order:

For specific ordering information please identify the roller style for your specific application and refer to the page in this section for that style. Roller styles are listed on each page.



Plastic Idler Rollers - Through Hole (THI), Blind Hole (BHI), and Grading and Inspection (GIR)

Roller Styles:

THI = Through Hole Idler Roller
BHI = Blind Hole Idler Roller
GIR = Grading and Inspection Idler Roller

Tubes:

Tube No.	Tube O.D.	Wall Thickness
H00	0.840	0.107
H10	1.050	0.113
H20	1.310	0.133
H30	1.660	0.140
H41	1.900	0.112
H45/D45	1.900	0.200
H51	2.375	0.125
H55	2.375	0.218
H61	2.875	0.150
H65	2.875	0.276
D75	3.500	0.300
D85	4.500	0.337

Bushings:

Standard Duty (7/8" long)	Heavy Duty (1 1/2" long)	GIR (1 13/16" long)
1/4T	1/4 5T**	7/16 5B
5/16T	5/16 5T**	1/2 5B
3/8T	3/8 5T	5/8 5B
7/16T	7/16 5T	9/16 5B
1/2T	1/2 5T	3/4 5B
3/8B	9/16 5T	
1/2B*	5/8 5T	
	3/4 5T	
	1/4 5B**	
	5/16 5B**	
	3/8 5B	
	7/16 5B	
	9/16 5B*	
	5/8 5B*	
	3/4 5B	

Tube Materials:
H = "Hi-Impact" White PVC
D = Dark Gray PVC

Bushing Materials: FDA Approved
Molded acetal unless otherwise specified

Options:
UHMW
Molded "Ultra Blue" Acetal with Teflon additives
** UHMW only

5 = Heavy duty bushing - 1 1/2" long
T = Through Hole Bushing
B = Blind Hole Bushing
GIR = Grading and Inspection Bushing - 1 13/16" long
* Hardware available

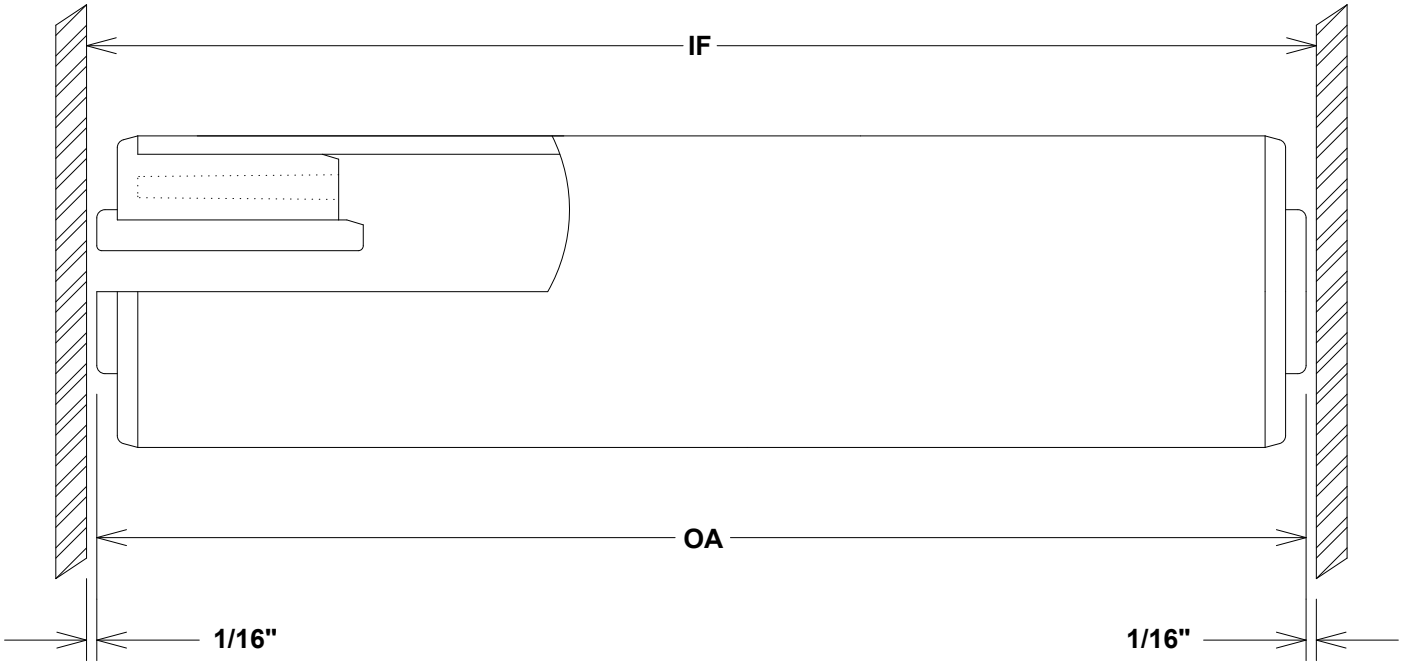
Hardware: Includes 2 each SSBA and 2 each SSCS
SSBA = Stainless steel bushing adapter drilled and tapped 5/16" - 18
SSCS = Stainless steel cap screws threaded 5/16" - 18

Through Hole Bushing

Blind Hole Bushing

Grading & Inspection Bushing

Through Hole Idler Rollers (THI) - Standard Duty Bushings



Tubes:

Tube No.	Tube O.D.	Wall Thickness
H00	0.840	0.107
H20	1.310	0.133
H41	1.900	0.112

Bushings:

Standard Duty
1/4T
5/16T
3/8T
7/16T
1/2T

Tube Materials:
H = “Hi-Impact” White PVC

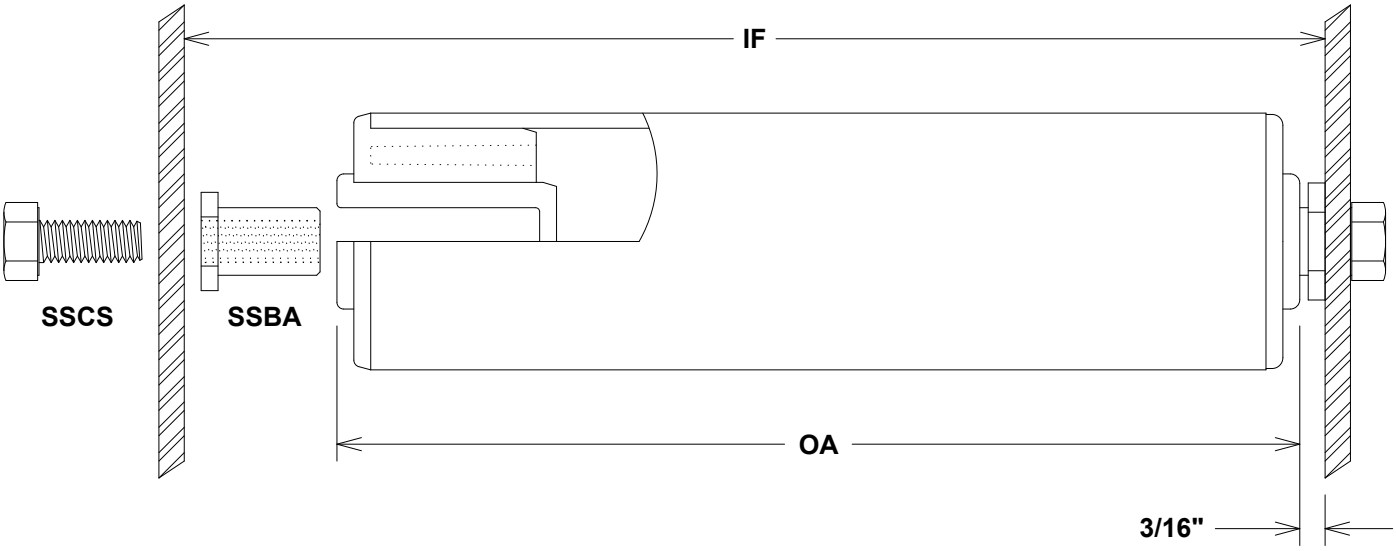
Bushing Materials: FDA Approved
Molded Acetal unless otherwise specified

Options:
Molded "Ultra Blue" Acetal with Teflon additives
UHMW (upon request)

Ordering Example: **41 - 1/2T - THI X 24" OA**
Roller O.D. and wall thickness from tube chart
Bushing size, type and duty from bushing chart
Roller Style
Length of Roller

O.A. = length of roller from outside to outside of plastic bushing
I.F. = Inside frame dimesion (will allow 1/8" endplay when roller is installed)
* Note: Minimum I.F. should be O.A. + 1/8"

Blind Hole Idler Rollers (BHI) - Standard Duty Bushings



Tubes:

Tube No.	Tube O.D.	Wall Thickness
H20	1.310	0.133
H41	1.900	0.112

Bushings:

Standard Duty
3/8B
1/2B

Tube Materials:
H = “Hi-Impact” White PVC

Bushing Materials: FDA approved
Molded Acetal unless otherwise specified

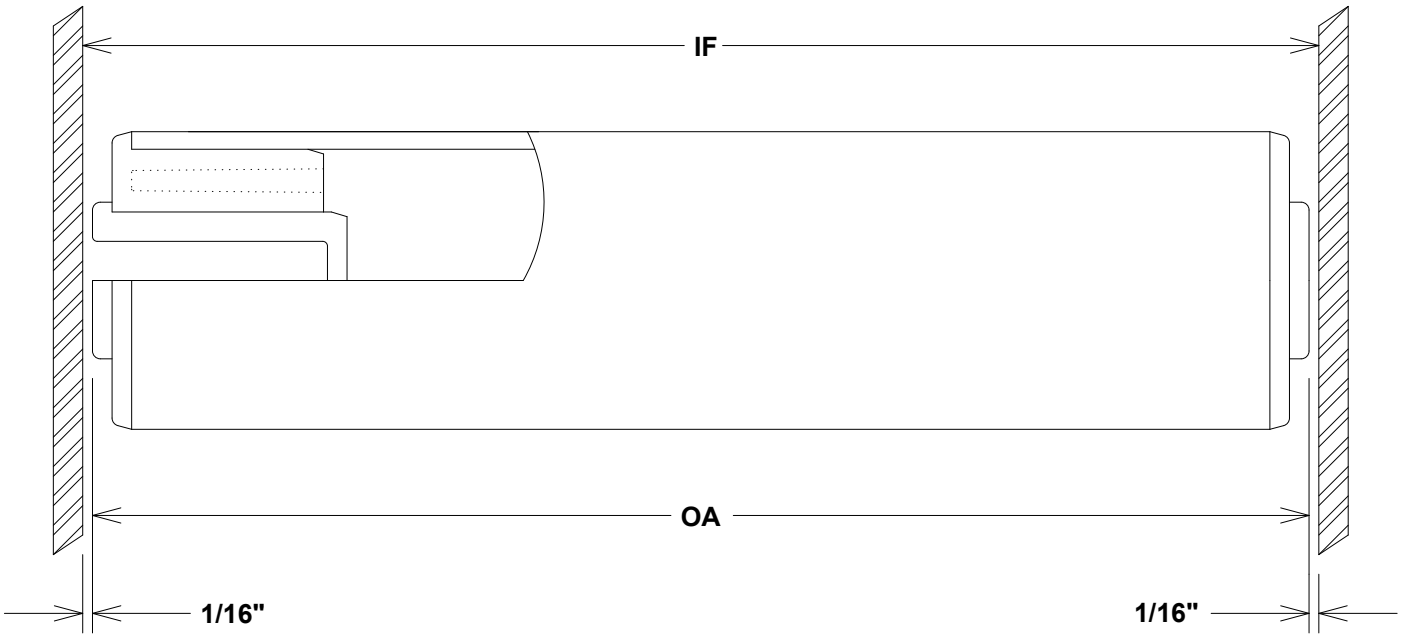
Options:
Molded "Ultra Blue" Acetal with Teflon additives
UHMW (upon request)

Hardware:
Frame hardware available for 1/2 B only consisting of; 2 each SSBA and 2 each SSCS
SSBA = Stainless steel bushing adapter drilled and tapped 5/16" - 18
SSCS = Stainless steel cap screw threaded 5/16" - 18

Ordering example: **41 - 1/2B - BHI X 24" IF with hardware**
Roller O.D. and wall thickness from tube chart
Bushing size, type and duty from bushing chart
Roller Style
Length of Roller

O.A. = Length of roller from outside to outside of plasitc bushing
I.F. = Inside frame dimension (will allow 1/8" endplay when installed). Minimum I.F. dimesion should be 3/8" greater than the O.A. so that the idler will fit in with the hardware and allow 1/8" endplay

Blind Hole Idler Rollers (BHI) - Heavy Duty Bushings - GIR



Tubes:

Tube No.	Tube O.D.	Wall Thickness
H10	1.050	0.113
H20	1.310	0.133
H30	1.660	0.140
H41	1.900	0.112
H45 / D45	1.900	0.200
H51	2.375	0.125
H55	2.375	0.218
H61	2.875	0.150
H65	2.875	0.276
D75	3.500	0.300
D85	4.500	0.337

Bushings:

Heavy Duty
7/16 5B GIR
1/2 5B GIR
9/16 5B GIR
5/8 5B GIR
3/4 5B GIR

5 = Heavy duty bushing
B = Blind hole style bushing
GIR = Grading and Inspection - 1 13/16" long

Tube Materials:
H = "Hi-Impact" White PVC
D = Dark Gray PVC

Bushing Materials: FDA Approved
Molded Acetal unless otherwise apecified

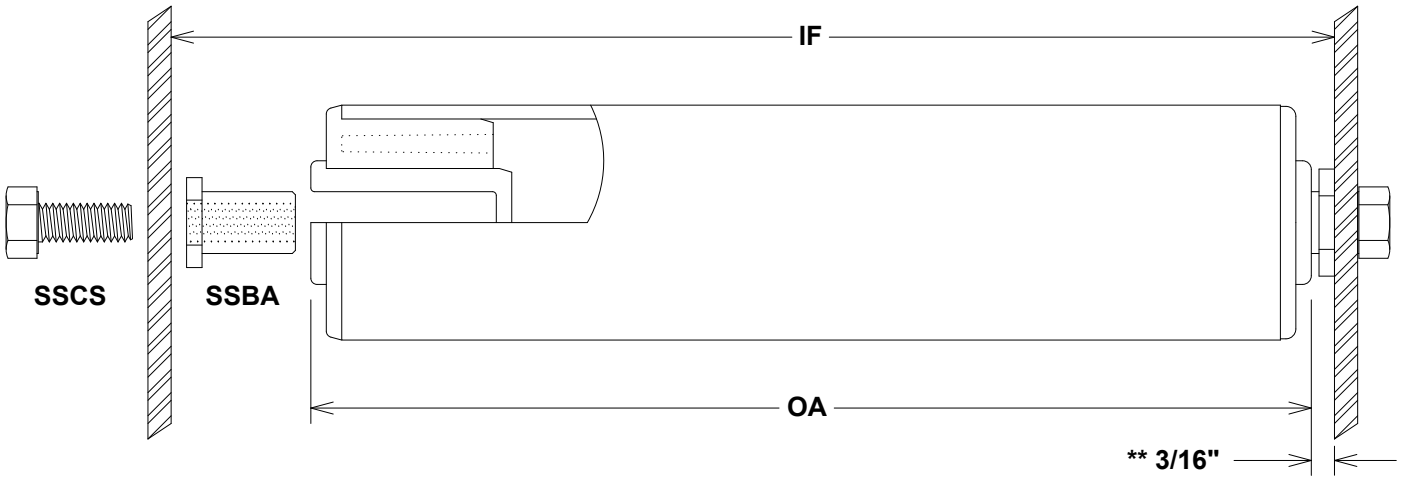
Options:
Molded "Ultra Blue" Acetal with Teflon additives
UHMW (upon request)

Hardware:
Not avalilable

Ordering example: **51 - 1/2 5B GIR X 24" OA**
Roller O.D. and wall thickness from tube chart
Bushing size, type and duty from bushing chart
Roller Style
Length of Roller

O.A. = Length of roller from outside to outside of plastic bushing
I.F. = Inside frame dimesion (will allow 1/8" endplay when roller is installed).
* Note: Minimum IF should be OA + 1/8"

Blind Hole Idler Rollers (BHI) - Heavy Duty Bushings



Tubes:

Tube No.	Tube O.D.	Wall Thickness
H10	1.050	0.113
H20	1.310	0.133
H30	1.660	0.140
H41	1.900	0.112
H45 / D45	1.900	0.200
H51	2.375	0.125
H55	2.375	0.218
H61	2.875	0.150
H65	2.875	0.276
D75	3.500	0.300
D85	4.500	0.337

Bushings:

Heavy Duty
1/4 5B*
5/16 5B*
3/8 5B
7/16 5B
9/16 5B
5/8 5B
3/4 5B

5 = Heavy duty bushing - 1 1/2" long
B = Blind hole style bushing

Tube Materials:
H = "Hi-Impact" White PVC
D = Dark Gray PVC

Bushing Materials: FDA Approved
Molded Acetal unless otherwise specified

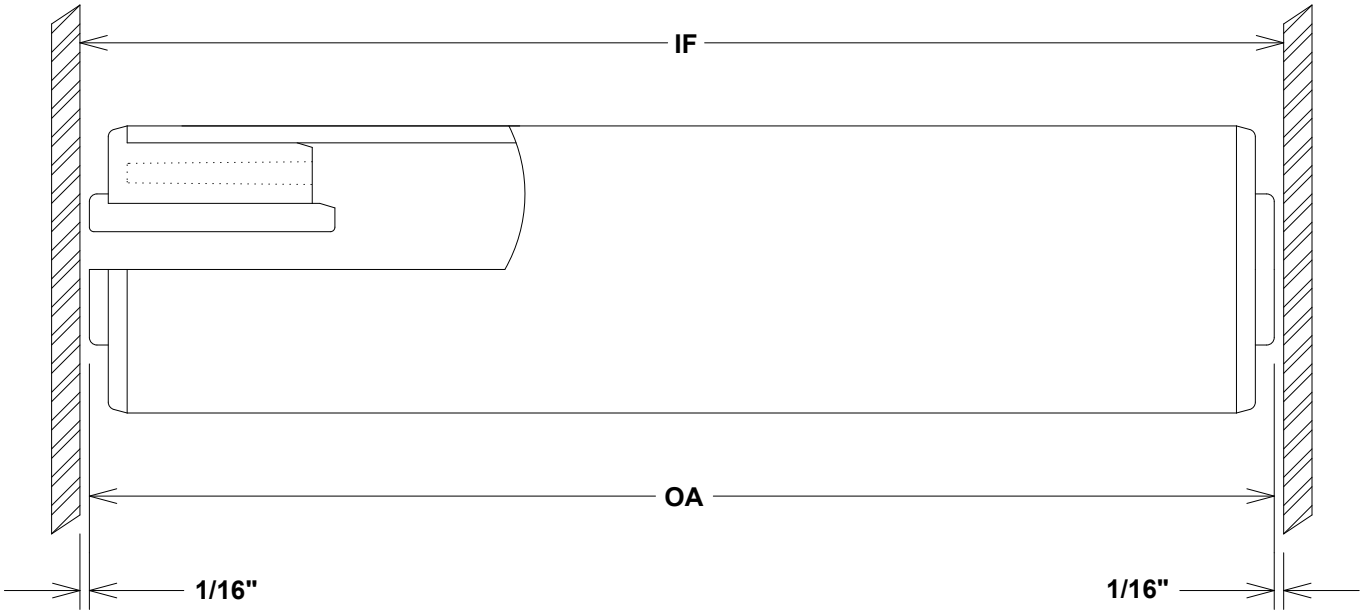
Options:
Molded "Ultra Blue" Acetal with Teflon additives
* UHMW only (upon request)
Hardware includes: 2 each SSBA and 2 each SSCS

Hardware:
Frame hardware available for 1/2 5B, 9/16 5B and 5/8 5B only
SSBA = Stainless steel bushing adapter drilled and tapped 5/16" - 18
SSCS = Stainless steel cap screw threaded 5/16" - 18

Ordering example: **41 - 1/2 5B - BHI X 24" IF with hardware**
Roller O.D. and wall thickness from tube chart
Bushing size, type and duty from bushing chart
Roller Style
Length of Roller

O.A. = length of roller from outside to outside of plastic bushing
I.F. = Inside frame dimesion (will allow 1/8" endplay when roller is installed). Minimum IF dimension should be 3/8" greater than the OA so that the idler will fit in with the hardware and allow 1/8" endplay
** Exception: 5/8" Hardware Requires 1/2" Greater Than OA

Through Hole Idler Rollers (THI) - Heavy Duty Bushings



Tubes:

Tube No.	Tube O.D.	Wall Thickness
H00	0.840	0.107
H10	1.050	0.113
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H30	1.660	0.140
H41	1.900	0.112
H45 / D45	1.900	0.200
H51	2.375	0.125
H55	2.375	0.218
H61	2.875	0.150
H65	2.875	0.276
D75	3.500	0.300
D85	4.500	0.337

Bushings:

Heavy Duty
1/4 5T*
5/16 5T*
3/8 5T
7/16 5T
1/2 5T
9/16 5T
5/8 5T
3/4 5T

5 = Heavy duty bushing - 1 1/2" long
T = Through hole style bushing

Tube Materials:
H = “Hi-Impact” White PVC
D = Dark Gray PVC

Bushing Materials: FDA Approved
Molded Acetal unless otherwise specified

Options:
Molded "Ultra Blue" Acetal with Teflon additives
* UHMW only (upon request)

Ordering example: **41 - 1/2 5T - THI X 24" OA**
Roller O.D. and wall thickness from tube chart
Bushing size, type and duty from bushing chart
Roller Style
Length of Roller

O.A. = length of roller from outside to outside of plastic bushing
I.F. = Inside frame dimesion (will allow 1/8" endplay when roller is installed)
* Note: Minimum I.F. should be O.A. + 1/8"

Ralphs-Pugh Metal Rollers

Ralphs-Pugh metal rollers are available in a wide range of bearings, tubes, and shaft combinations. Typical applications include; Food & Beverage, Agriculture, Chemical, Unit Handling, Bulk Handling, Distribution & Manufacturing. We specialize in all types of conveyor rollers for gravity and powered applications. **We can also manufacture custom rollers to your specifications.**

Roller Selection Criteria:

To select the right roller for the operating environment the following items must be considered:

- Conveyed Items or Materials.
  Size / Shape / Weight
- Surface Characteristics of Materials
- Operating Environment
  Heat / Humidity
  Exposure to Chemicals

Materials:

Tubes:

- Galvanized Steel, Carbon Steel, Stainless Steel, Aluminum

Tube Options:

- Lighter / Heavier Wall Thickness, Foam Filled

Tube Cover Options:

- Urethane Sleeves
- Urethane Tapers for turns
- HDPE (high-density polyethylene) for non-marring applications
- PVC Plastic

Tube Finishes:

- Polishing, Anodizing, Electropolishing, Passivation of Stainless Steel
- Other options available upon request.

Drive Options:

- Sprockets or Grooves
- One Way Clutch w/ 7/16” Hex or 11/16“ Hex Shafts
- Rulmeca Style Reduced Diameter Sprocket Hub

Drive Options (cont.):

- Timing Sprockets
- Removable Metal Sprocket Hubs
- V-Guides
- Poly V Grooves

Shaft Configuration & Materials:

- Hex, Round - Dual spring loading is standard - Options: Fixed or Loose
- Carbon Steel, Stainless Steel, Aluminum
- Zinc and Nickel Plating are available.

Shaft Extensions:

- 9/16” is standard for 3/16” round to 1/2” round or 7/16” hex
- 3/4” is standard for 5/8” - 11/16” round or hex and larger
- Measurements are from the hub of the bearing to the end of the shaft on each side

Springs:

- Standard is dual spring loaded with shaft depressing to the hub of the bearing

Shaft End Options:

- Plastic or Urethane Adapters over an Internal Metal Shaft
- Fixed Shaft, Through Shaft
- Threaded Ends, Drilled and Tapped Ends
- Drilled Holes
- Milled Flats
- D-Shaft Ends
- Plastic Flat Caps
- **Shaft Deburring is Standard on all Shaft Ends.**

Bearings / Bushings:

Commercial Grade / Non Precision:

Plated Steel / Stamped Metal Housings

Designed for light to moderate loads and slower speeds, they contain hardened steel balls and raceways lubricated with light oil. Grease packed bearings may be ordered for driven systems. Example - 22A6

Plated Steel / Plastic Housings

Designed for light to moderate loads, these commercial grade ball bearings have hardened steel balls and machined inner and outer raceways. They are available with light oil or grease lubricant for driven systems. Plastic housings are available in conductive or non-conductive material with or

without labyrinth seals. The labyrinth seal(s) provide protection to the bearing from dust, dirt, and airborne contaminants. These bearings are identified by a 2 in the prefix of the part number. Example - 2A6

Stainless Steel / Plastic Housings

Designed for light to moderate loads, commercial grade stainless steel balls and raceways provide an excellent solution for corrosive operating environments. For maximum protection against contamination, some housings are available with labyrinth seal systems. Example - 2A7

Precision Grade / ABEC-1

Designed for higher speeds and heavier loads, ABEC-1 precision bearings are available in chromium steel and optional 440, 304 or 316 stainless steel. ABEC-1 ball bearings and raceways are hardened, precision ground, and incorporate a ball retainer to eliminate bearing to bearing contact. Bearings are factory lubricated. Several seal/shield configurations are offered. Standard configuration is the Non-Contact Rubber Seal (LLB). Options include; the Contact Rubber Seal (2RS) and Non-Contact Metal Shields (ZZ). Bearing housings are available in metal or plastic. Plastic housings are made with conductive or non-conductive materials and available with or without labyrinth seals. Labyrinth seals provide additional bearing protection against dirt, dust, and other airborne contaminants. ABEC-1 bearings provide the highest load and speed capabilities, the lowest noise levels, and the longest life span of any available bearing unit.

ABEC-1 Precision bearings in stamped zinc plated metal housings: Economical alternative to ABEC-1 bearings in plastic housings. These bearing inserts work well in higher load and speed applications while maintaining very low noise levels. The ABEC-1 bearing has hardened and ground balls and raceways, a ball retainer and is grease packed (25% pack) at the factory. Non-Contact Rubber Seals (LLB) protect the caged ball compliment. The stamped zinc plated housing on some variations incorporates a dust shield for added protection to the precision bearing. The life expectancy of a precision bearing is many times that of a non-precision bearing. For optimum performance and bearing life we recommend the bearing units be swedged into the metal tubes. These bearings have a 33 prefix in the part number. **Available for metal tubes only.** Example - 33RP

ABEC-1 Precision bearings in Machined metal housings: The ultimate in load carrying capacity! Ideal for **SNUBBER ROLLERS** and **BELT WRAP ROLLER** applications demanding very high loads and limits. The ABEC-1 bearing has hardened and ground balls and raceways, a ball retainer and is grease packed at the factory. Non-Contact Rubber Seals (LLB) protect the caged ball compliment. The machined metal housings are welded into the tube. A plastic double labyrinth seal system covers the bearing for added protection. The life expectancy of a precision bearing is many times that of a non-precision bearing. These bearings have a 34 prefix in the part number. **Available for metal tubes only.** Example - 34B9

Bushings: Non ball bearing style units are designed for low speed, light to medium load applications. Bushing surface materials include; Ultra (Acetal plastic with Teflon Additives), CS2 Acetal, and ABS plastic. Insert materials include nylon, stainless steel and carbon steel. Bushing style rollers are ideal for sanitary, rust and corrosion resistance applications.

Load Capacities: Load capacities listed are based upon length of the roller (IF), actual load ratings for the bearing, tube deflection and shaft deflection for the materials listed. Calculations for load capacities of precision bearings allow for ¾ of 1 degree of shaft deflection while commercial bearings allow for 1 degree of shaft deflection. ***Shaft deflection will increase as a roller becomes longer and roller loads will decrease substantially as the length of the roller increases. Please note that load capacities listed are for steel shafts. Load ratings for rollers with aluminum shafts must be reduced to 33% of the value listed.***

Roller Length: I.F. = Inside Frame distance. This measurement allows 1/16" of free play per side for a total of 1/8" per roller. O.A. = Overall roller length. This is the measurement from bearing hub to bearing hub of the roller. For calculation purposes I.F. –1/8" = O.A.

Ordering Information:

Ralphs-Pugh roller numbering system lists the bearing part number first, the tube part number second and the shaft part number last followed by the roller length.

Example 1: Standard Roller

Bearing:	Precision ABEC-1 bearing in a conductive plastic housing
Tube:	1.90" outside diameter x .065" wall thickness galvanized steel tube
Shaft:	7/16" hexagonal carbon steel spring-loaded shaft.
Length:	Must fit a frame measuring 18" inside frame distance (I.F.)
Max. Load:	Roller must be capable of handling a load of 165 lbs. per roller

Solution:

Find the metal roller page designating 1.90" x .065" – 7/16" Hex - See page 77

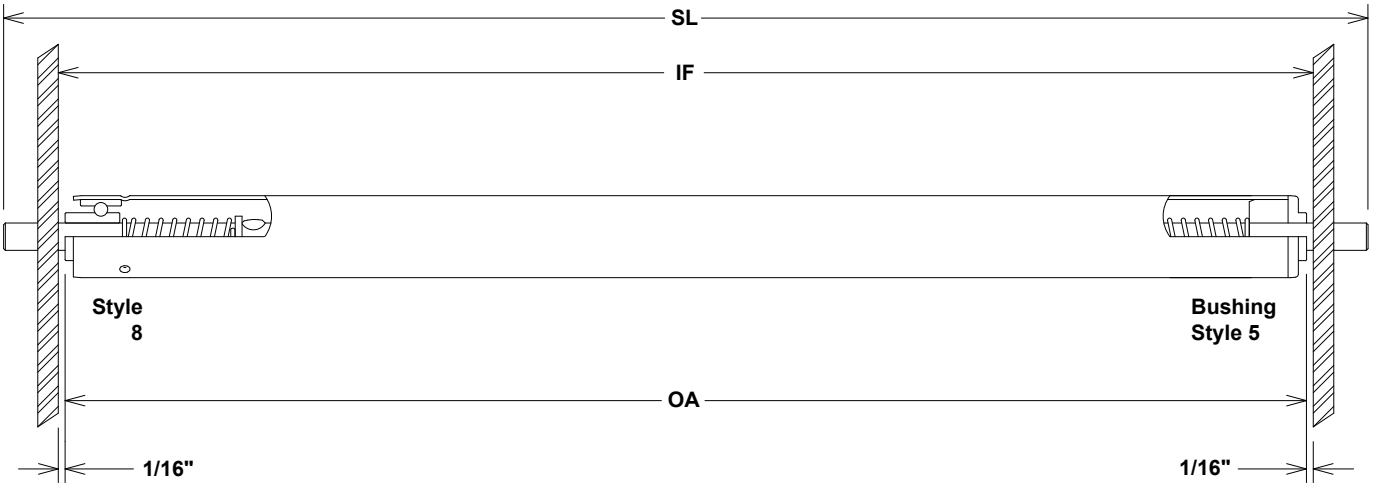
Bearing part #:	3A6
Tube part #:	G46
Shaft part #:	C68
Load per roller:	Load capacity chart indicates roller is good up to 237 lbs. per roller
Roller part #:	**3A6.G46.C68 x 18" I.F.**

Example 2: Rollers with options – (Grooves, Sprockets, Covers, Finishes, Special Shaft Lengths or Extensions, etc.)

Solution:

Check Engineering section for specific data, information, or drawings. Inquire with Customer Service.

.75” Dia. x .035” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2F2	8 / Bearing mounted directly into tube - no seals
	Stainless Steel	2F3	8 / Bearing mounted directly into tube - no seals
	Bushing Style, UHMW	5C7	5 / UHMW Plastic
	Bushing Style, Acetal	5E1	5 / Acetal Plastic
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	.75" x .035" Wall Carbon Steel
	Stainless Steel	S10	.75" x .035" Wall 304 Stainless Steel
	Aluminum	A10	.75" x .035" Wall Aluminum
	Galvanized Steel	G11	.75” x .035” Wall Galvanized Steel
	Options:		
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Anodized, Electropolished, Passivated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shafts depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded (1/4 x 20), D-shaft	

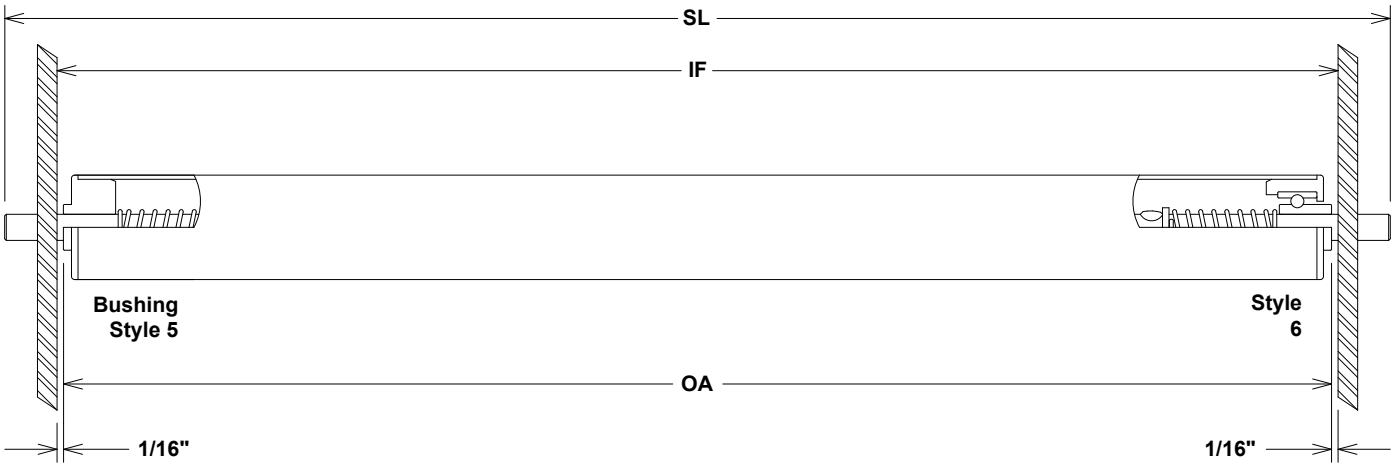
Note: Bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**2F2**	**2F3**	**BUSHING**	**I.F.**	**2F2**	**2F3**	**BUSHING**
12	62	62	60	**33**	32	32	32
15	62	62	60	**36**	***	***	***
18	59	59	59	**39**	***	***	***
21	51	51	51	**42**	***	***	***
24	44	44	44	**45**	***	***	***
27	39	39	39	**48**	***	***	***
30	35	35	35	**51**	***	***	***

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are not recommended.
*** Capacities are for uniform loading - Reduce by 50% for point loading.

1.00” Dia. x .035” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	2H2	6 / Conductive Plastic Housing - No Seals
	Stainless Steel	2H1	7 / Conductive Plastic Housing - No Seals
	Bushing Style, UHMW	Inquire	5 / UHMW Plastic
	Bushing Style, Acetal	Inquire	5 / Acetal Plastic
	Options:	Stainless steel balls in a plastic raceway and body	
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C15	1.00" x .035" Wall Carbon Steel
	Stainless Steel	S15	1.00" x .035" Wall 304 Stainless Steel
	Aluminum	A15	1.00" x .035" Wall Aluminum
	Options:	.049" and .065" Wall Thickness Available - Inquire with Customer Service	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Anodized, Electropolished, Passivated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded (1/4 x 20), D-shaft	

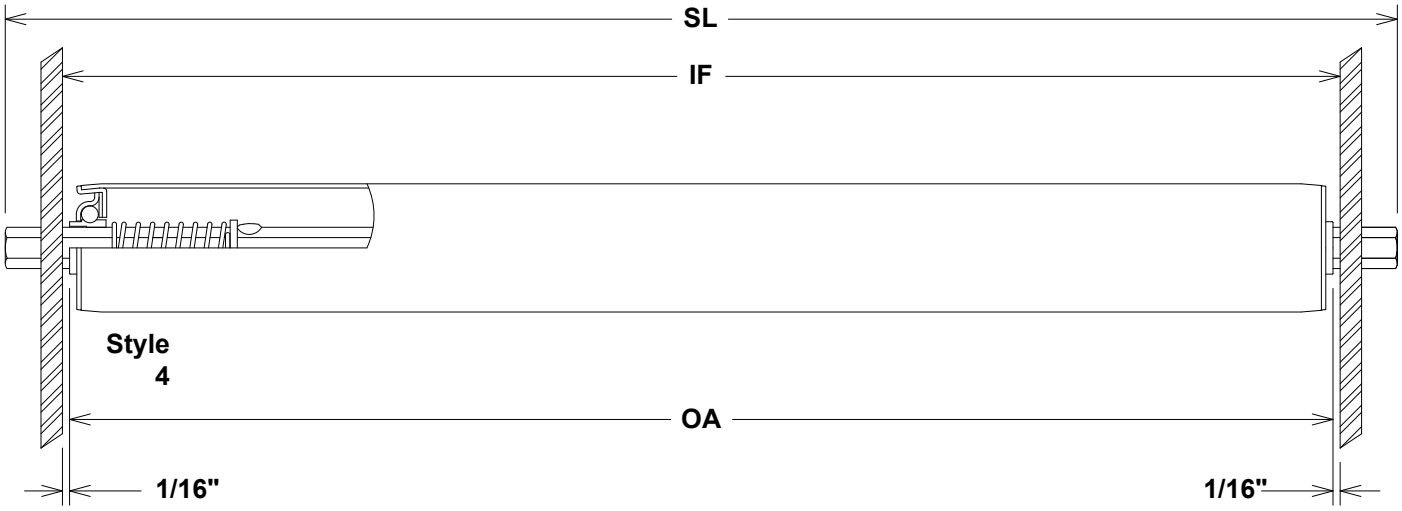
Note: Bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**2H2**	**2H1**	**BUSHING**	**I.F.**	**2H2**	**2H1**	**BUSHING**
12	62	62	60	**33**	32	32	32
15	62	62	60	**36**	***	***	***
18	59	59	59	**39**	***	***	***
21	51	51	51	**42**	***	***	***
24	44	44	44	**45**	***	***	***
27	39	39	39	**48**	***	***	***
30	35	35	35	**51**	***	***	***

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are not recommended.
*** Capacities are for uniform loading - Reduce by 50% for point loading.

1.00” Dia. x .049” Wall Thickness - 5/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Steel, Commercial	22G4	4 / Stamped Zinc Plated Steel
	Stainless Steel	Inquire	

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C13	1.00" x .049" Wall Carbon Steel
	Stainless Steel	S13	1.00" x .049" Wall 304 Stainless Steel
	Aluminum	A13	1.00" x .049" Wall Aluminum
	Galvanized Steel	G13	1.00" x .049" Wall Galvanized Steel
	Options:		.065" Wall Thickness Available - Inquire with Customer Service
	Cover Options:		Urethane Sleeves
	Finish Options:		Polished, Anodized, Electropolished, Passivated

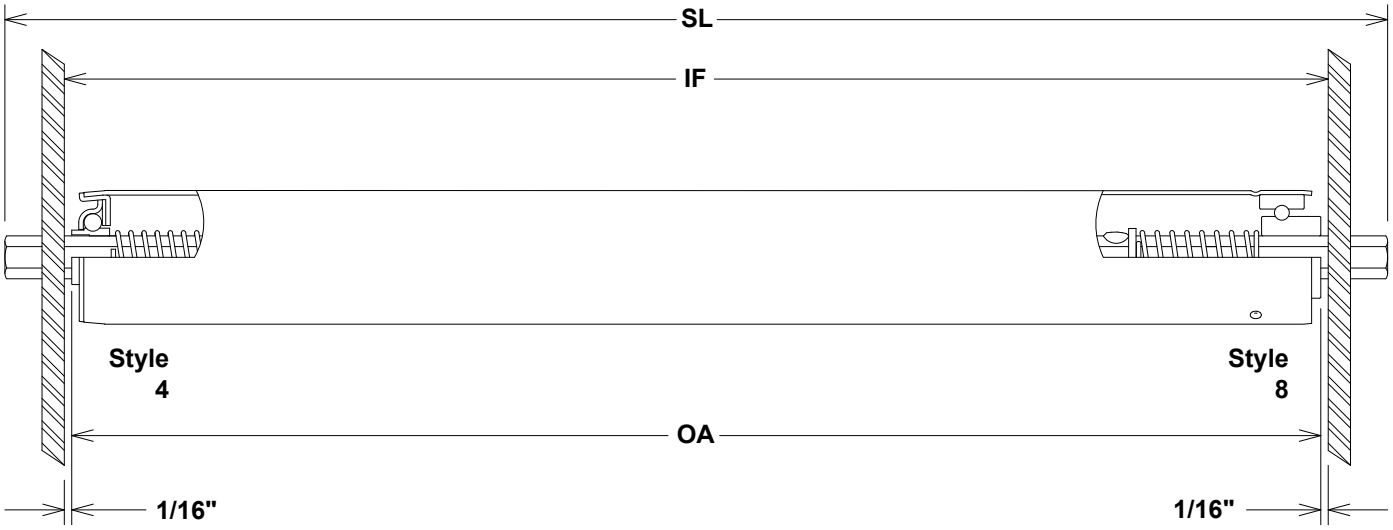
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:		9/16"
	Standard Springs:		Dual spring loaded with shaft depressing to bearing hub
	Options:		Fixed shaft, through shaft, holes

Load Capacity (LBS.)

Frame I.F.	Bearing # 22G4	Frame I.F.	Bearing # 22G4
12	60	**33**	***
15	60	**36**	***
18	60	**39**	***
21	60	**42**	***
24	60	**45**	***
27	60	**48**	***
30	60	**51**	***

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are not recommended.
*** Capacities are for uniform loading - Reduce by 50% for point loading.

1.12” Dia. x .065” Wall Thickness - 5/16” Hex Shaft



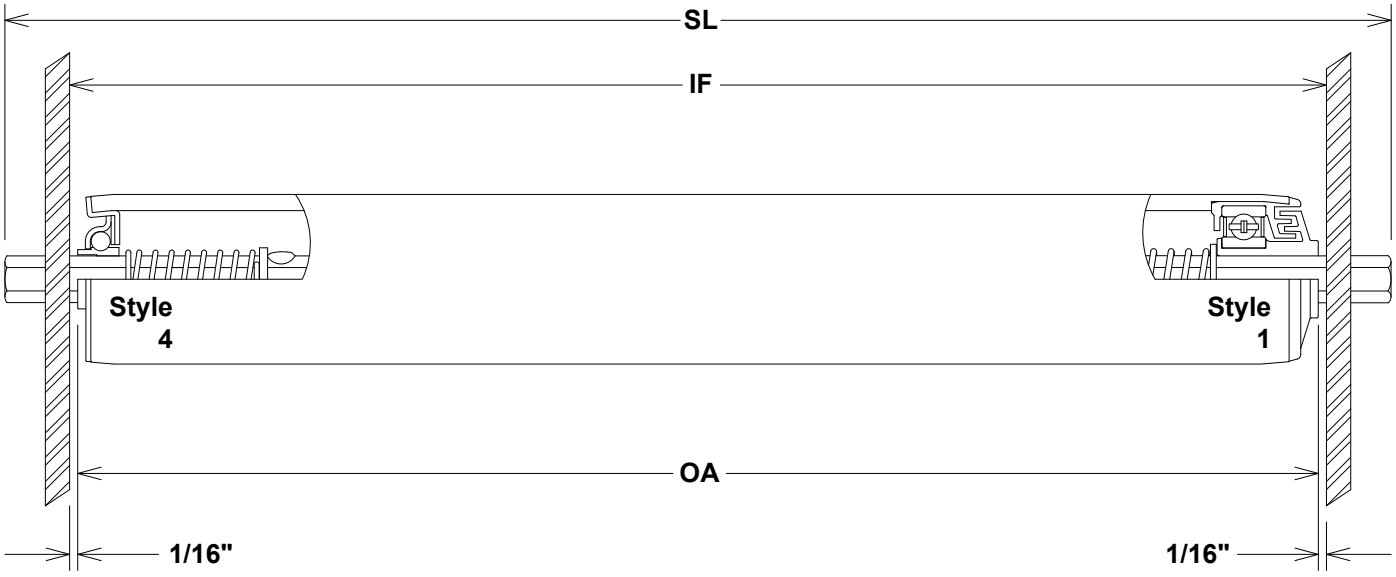
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stamped Commercial	Inquire	4 / Stamped zinc plated commercial
	Steel, Commercial	2K7	8 / Bearing mounted directly into tube - No Seals
	Stainless Steel	Inquire	8 / Bearing mounted directly into tube - No Seals
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C16	1.12" x .065" Wall Carbon Steel
	Galvanized Steel	G16	1.12" x .065" Wall Galvanized Steel
	Options:		Stainless steel and aluminum available in .035" and .049" wall thickness upon inquiry.
	Cover Options:		Urethane Sleeves
	Finish Options:		Polished, Anodized, Electroploished, Passivated
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:		9/16"
	Standard Springs:		Dual spring loaded with shaft depressing to bearing hub
	Options:		Fixed shaft, through shaft, holes

Load Capacity (LBS.)

Frame I.F.	Bearing # 2K7	Frame I.F.	Bearing # 2K7
12	60	**33**	60
15	60	**36**	60
18	60	**39**	60
21	60	**42**	60
24	60	**45**	60
27	60	**48**	60
30	60	**51**	60

* Longer lengths are available upon request.
** Capacities are for uniform loading - Reduce by 50% for point loading.

1.31” Dia. x .133” Wall Thickness - 5/16” Hex Shaft



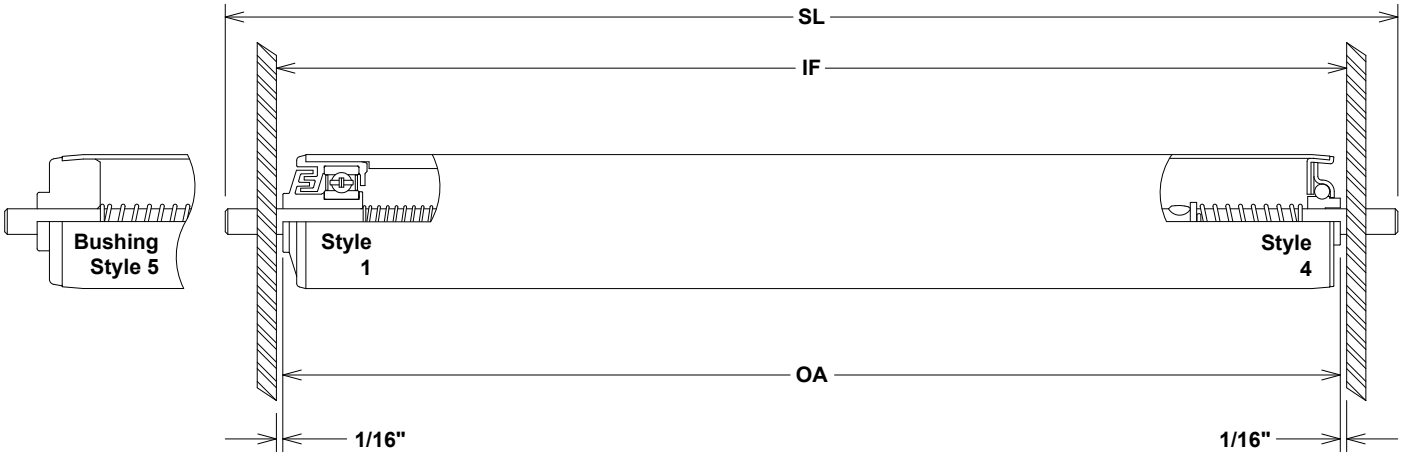
Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stamped Commercial	22L4	4 / Stamped Zinc Plated Steel
	ABEC-1 Precision	3M6	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C20	1" Schedule 40 Pipe - 1.31" O.D. x .133" Wall Carbon Steel
	Standard Finish:	Mill Finish	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes	

Load Capacity (LBS.)

Frame I.F.	Bearing # 3M6	22L4	Frame I.F.	Bearing # 3M6	22L4
12	112	90	**33**	39	90
15	88	90	**36**	35	88
18	73	90	**39**	32	81
21	62	90	**42**	***	***
24	54	90	**45**	***	***
27	47	90	**48**	***	***
30	43	90	**51**	***	***

* Longer lengths are available upon request.
** Capacities are for uniform loading - Reduce by 50% for point loading.

1.37” Dia. x .049” Wall Thickness - 1/4” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stamped Commercial	22M2	4 / Stamped Zinc Plated Steel
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction
	Bushing Style, Ultra	5G5	5 / Non conductive Ultra
	ABEC-1 Precision	3N2	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3N2SS	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C25	1.37" x .049" Wall Carbon Steel
	Galvanized Steel	G25	1.37" x .049" Wall Galvanized Steel
	Stainless Steel	S27	1.37" x .049" Wall 304 Stainless Steel
	Aluminum	A25	1.37" x .049" Wall Aluminum
	Options:	.065" Wall Thickness Available Upon Request	
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded, D-shaft	

Note: Bushing style bearings are for intermitent use only.
Not recommended for powered systems

Load Capacity (LBS.)

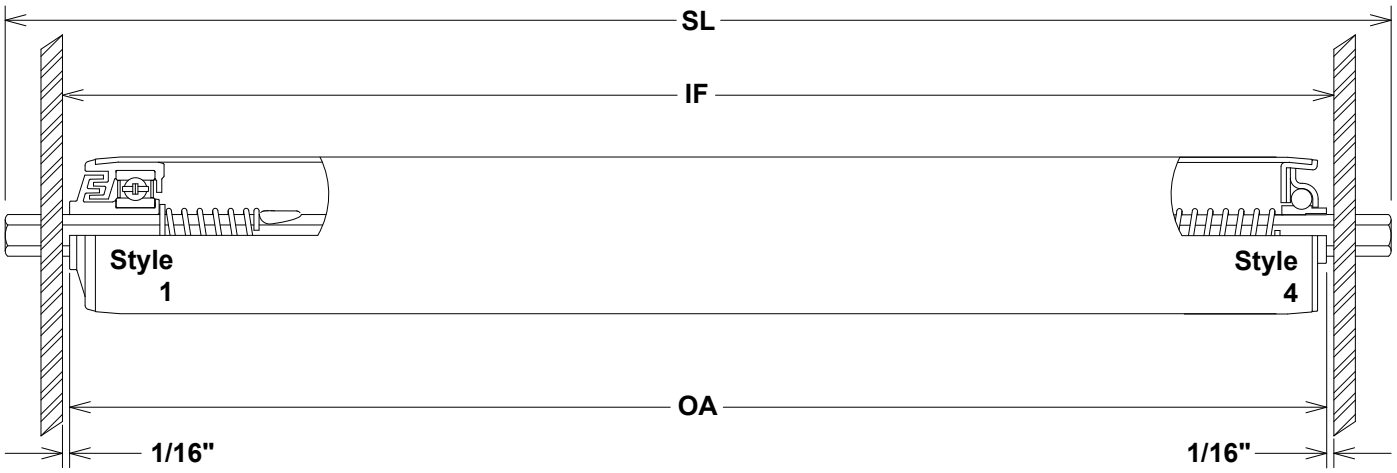
Frame	Bearing #			Frame	Bearing #		
I.F.	**3N2/3N2SS**	**22M2**	**5G5**	**I.F.**	**3N2/3N2SS**	**22M2**	**5G5**
12	94	90	60	**33**	18	32	32
15	59	72	60	**36**	***	***	***
18	43	59	59	**39**	***	***	***
21	34	51	51	**42**	***	***	***
24	28	44	44	**45**	***	***	***
27	24	39	39	**48**	***	***	***
30	21	35	35	**51**	***	***	***

* Reduce capacity by 33% for aluminum tube or shaft.

** Longer lengths are available upon request.

*** Capacities are for uniform loading only - Reduce by 50% for point loading

1.37” Dia. x .049” Wall Thickness - 5/16” Hex Shaft



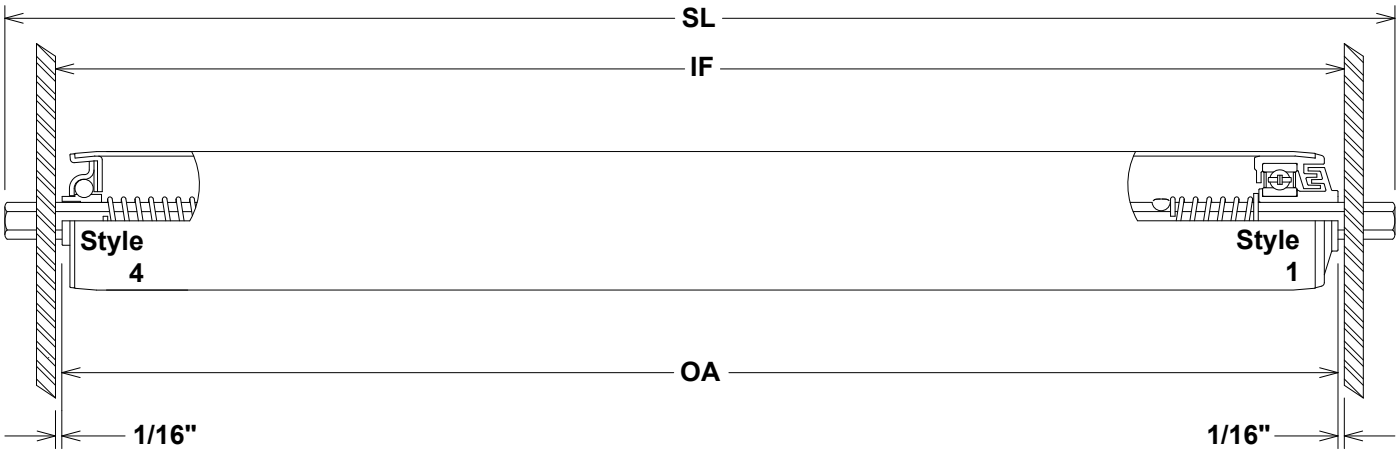
Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3M3	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3M3SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22M4	4 / Stamped zinc plated steel
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C25	1.37" x .049" Wall Carbon Steel
	Galvanized Steel	G25	1.37" x .049" Wall Galvanized Steel
	Stainless Steel	S27	1.37" x .049" Wall 304 Stainless Steel
	Aluminum	A25	1.37" x .049" Wall Aluminum
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes	

Load Capacity (LBS.)

Frame I.F.	Bearing # 3M3/3M3SS	22M4	Frame I.F.	Bearing # 3M3/3M3SS	22M4
12	100	94	**33**	34	87
15	79	94	**36**	31	80
18	65	94	**39**	29	74
21	55	94	**42**	27	68
24	48	94	**45**	25	64
27	42	94	**48**	23	60
30	38	94	**51**	22	56

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

1.37” Dia. x .065” Wall Thickness - 5/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3M1	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3M1SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	Inquire	4 / Stamped zinc plated steel
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction

Tube:	Materials:	Part #	Description:
	Carbon Steel	C24	1.37" x .065" Wall Carbon Steel
	Galvanized Steel	G24	1.37" x .065" Wall Galvanized Steel
	Stainless Steel	S24	1.37" x .065" Wall 304 Stainless Steel
	Aluminum	A24	1.37" x .065" Wall Aluminum
	Drive Options:		Grooves, Sprockets, One Way Clutch
	Cover Options:		Urethane Sleeves, Urethane Tapered Rollers
	Finish Options:		Electropolished, Passivated, Polished, Anodized

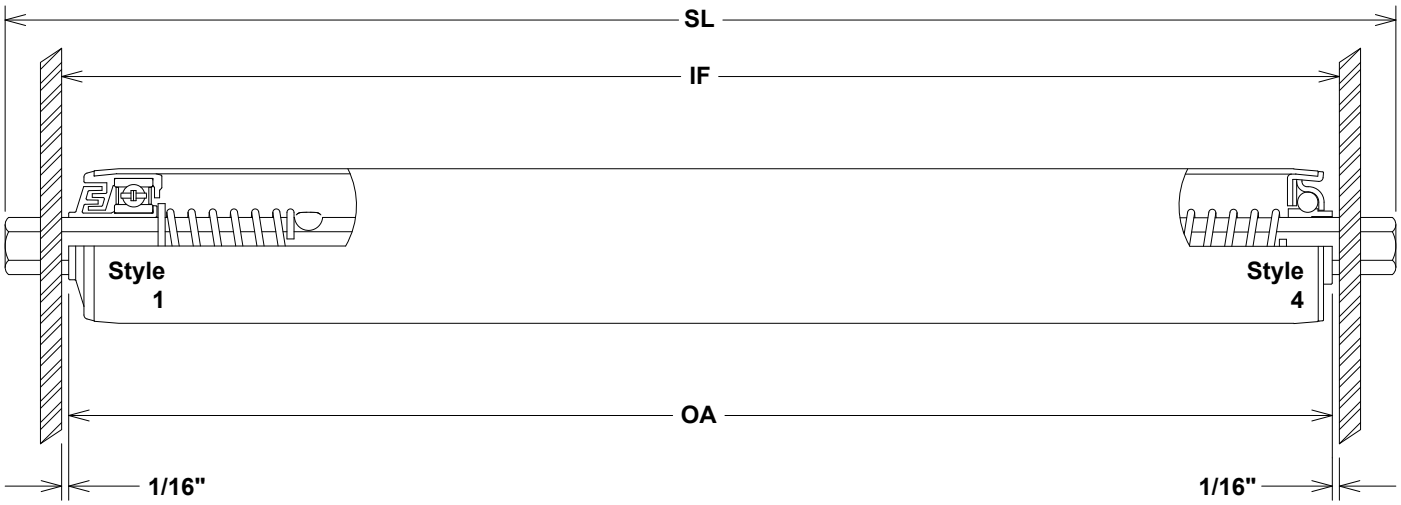
Shaft:	Materials:	Part #	Description:
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:		9/16"
	Standard Springs:		Dual spring loaded with shaft depressing to bearing hub
	Options:		Fixed shaft, through shaft, holes

Load Capacity (LBS.)

Frame I.F.	Bearing # 3M1/3M1SS	Bearing # Stamped Commercial	Frame I.F.	Bearing # 3M1/3M1SS	Bearing # Stamped Commercial
12	100	120	**33**	34	69
15	79	120	**36**	31	63
18	65	120	**39**	29	58
21	55	110	**42**	27	54
24	48	96	**45**	25	50
27	42	85	**48**	23	47
30	38	76	**51**	22	44

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

1.37” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3M7	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3M7SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22S4	4 / Stamped zinc plated steel
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C24	1.37" x .065" Wall Carbon Steel
	Galvanized Steel	G24	1.37" x .065" Wall Galvanized Steel
	Stainless Steel	S24	1.37" x .065" Wall 304 Stainless Steel
	Aluminum	A24	1.37" x .065" Wall Aluminum
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, thread	

Load Capacity (LBS.)

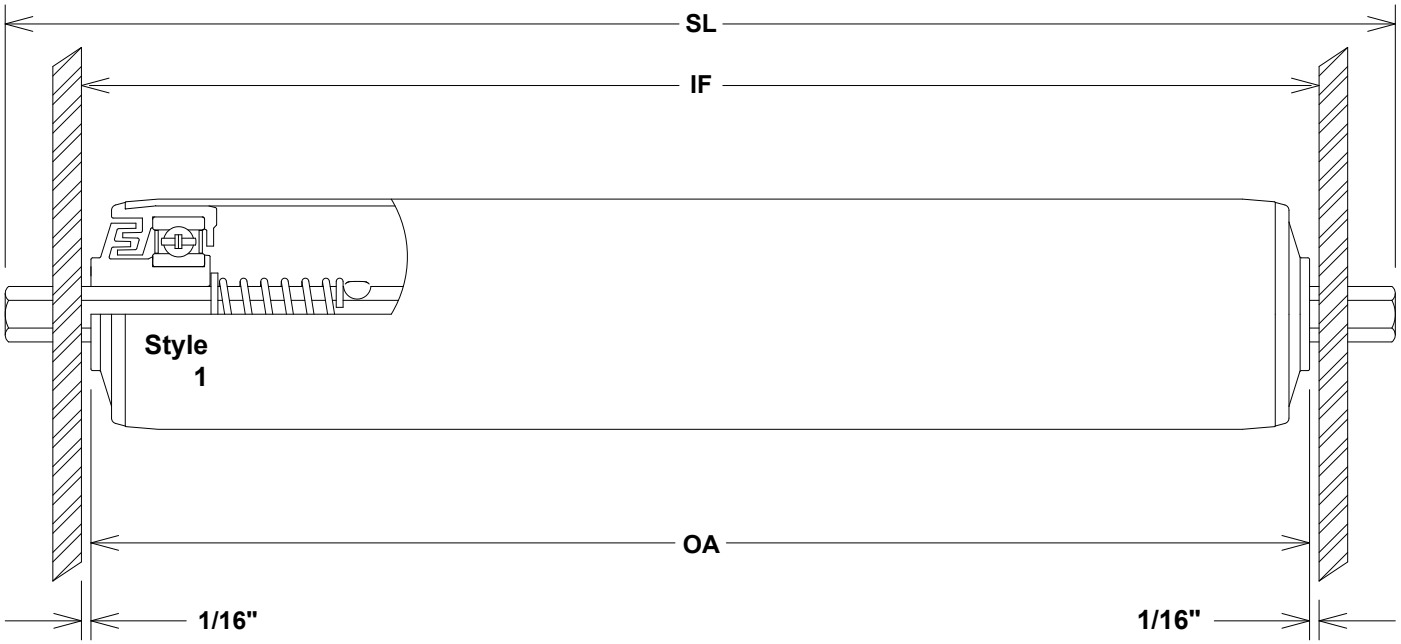
Frame I.F.	Bearing # 3M7/3M7SS	Bearing # 22S4	Frame I.F.	Bearing # 3M7/3M7SS	Bearing # 22S4
12	135	170	**33**	80	170
15	135	170	**36**	70	170
18	135	170	**39**	61	170
21	135	170	**42**	53	170
24	130	170	**45**	46	170
27	110	170	**48**	40	168
30	94	170	**51**	35	148

* Load capacity with aluminum tube or shaft is 33% of steel capacity.

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

1.51” Dia. x .065” Wall Thickness - 5/16” Hex Shaft



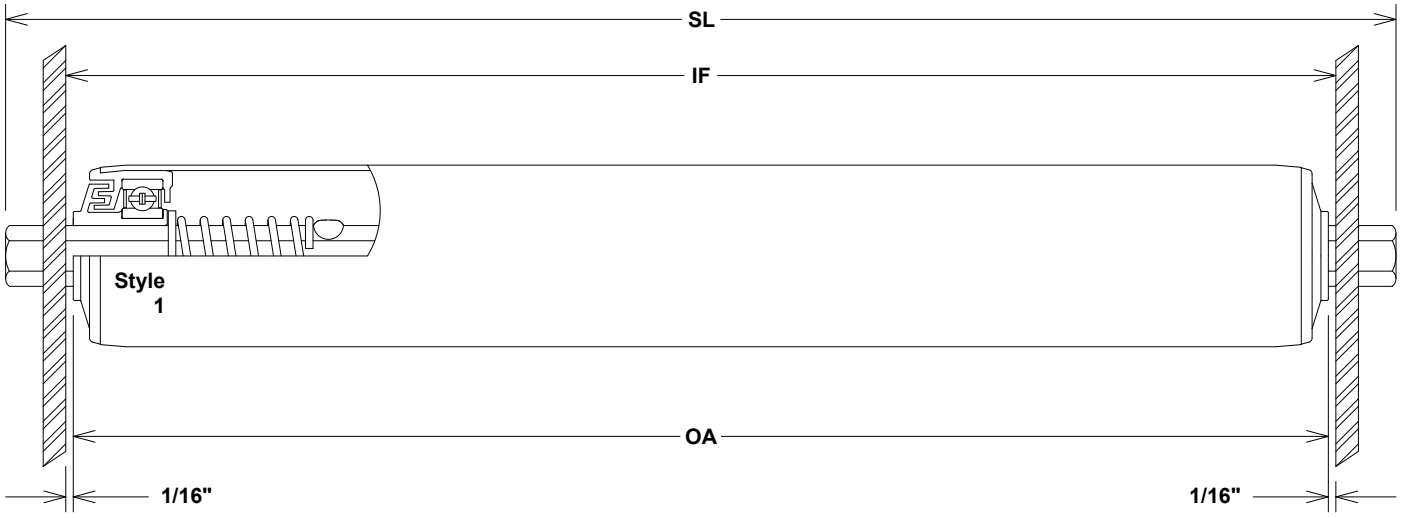
Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3H3	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3H3SS	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2V5	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2P5	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Galvanized Steel	G29	1.51" x .065" Wall Galvanized Steel
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes	

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**3H3/3H3SS**	**2V5**	**2P5**	**I.F.**	**3H3/3H3SS**	**2V5**	**2P5**
12	100	120	120	**33**	34	46	46
15	79	105	105	**36**	31	42	42
18	65	86	86	**39**	29	38	38
21	55	73	73	**42**	27	36	36
24	48	64	64	**45**	25	33	33
27	42	56	56	**48**	23	31	31
30	38	50	50	**51**	22	29	29

* Longer lengths are available upon request.

1.51” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A8	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A8SS	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2O5	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2P7	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Galvanized Steel	G29	1.51" x .065" Wall Galvanized Steel
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	** Max 50 Lbs Per Roller		
	*** Max 100 Lbs Per Roller		
	Standard Extensions:	1/2" - 9/16" with adapters, 9/16" all others	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped	

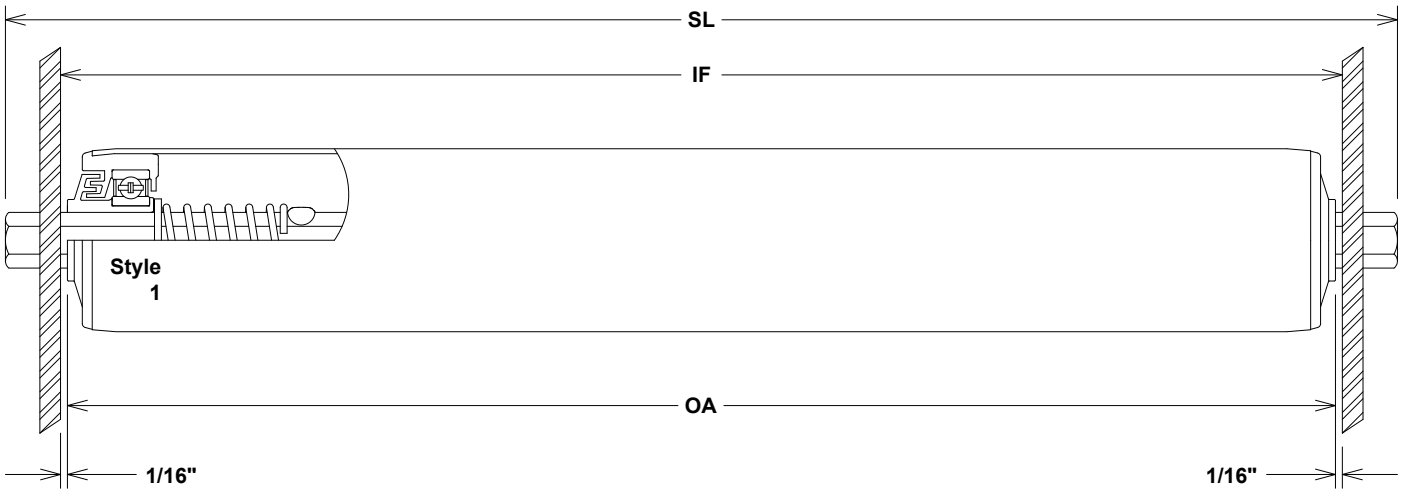
Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**3A8/3A8SS**	**2O5**	**2P7**	**I.F.**	**3A8/3A8SS**	**2O5**	**2P7**
12	190	120	120	**33**	125	116	116
15	190	120	120	**36**	115	106	106
18	190	120	120	**39**	106	98	98
21	190	120	120	**42**	98	90	90
24	175	120	120	**45**	91	84	84
27	155	120	120	**48**	85	79	79
30	139	120	120	**51**	80	74	74

* Load capacity with aluminum shaft is 33% of steel capacity.

** Longer lengths are available upon request.

1.66” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A9	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A9SS	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2O4	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2O3	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Galvanized Steel	G35	1.66" x .065" Wall Galvanized Steel
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
**	Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
***	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
**	Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
***	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
**	Max 50 Lbs per roller		
***	Max 100 Lbs per roller		
	Standard Extensions:	1/2" - 5/8" with adapters, 9/16" on all others	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped	

Load Capacity (LBS.)

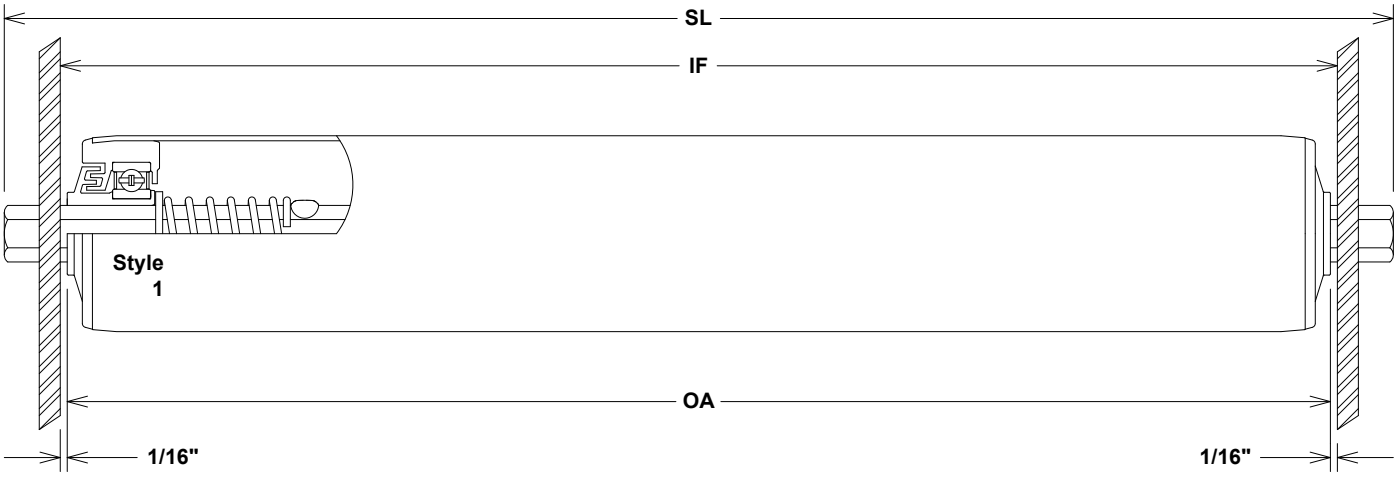
Frame	Bearing #			Frame	Bearing #		
I.F.	**3A9/3A9SS**	**2O4**	**2O3**	**I.F.**	**3A9/3A9SS**	**2O4**	**2O3**
12	190	120	120	**33**	125	116	116
15	190	120	120	**36**	115	106	106
18	190	120	120	**39**	106	98	98
21	190	120	120	**42**	98	90	90
24	175	120	120	**45**	91	84	84
27	155	120	120	**48**	85	79	79
30	139	120	120	**51**	80	74	74

* Load capacity with aluminum shaft is 33% of steel capacity.

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

1.75” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



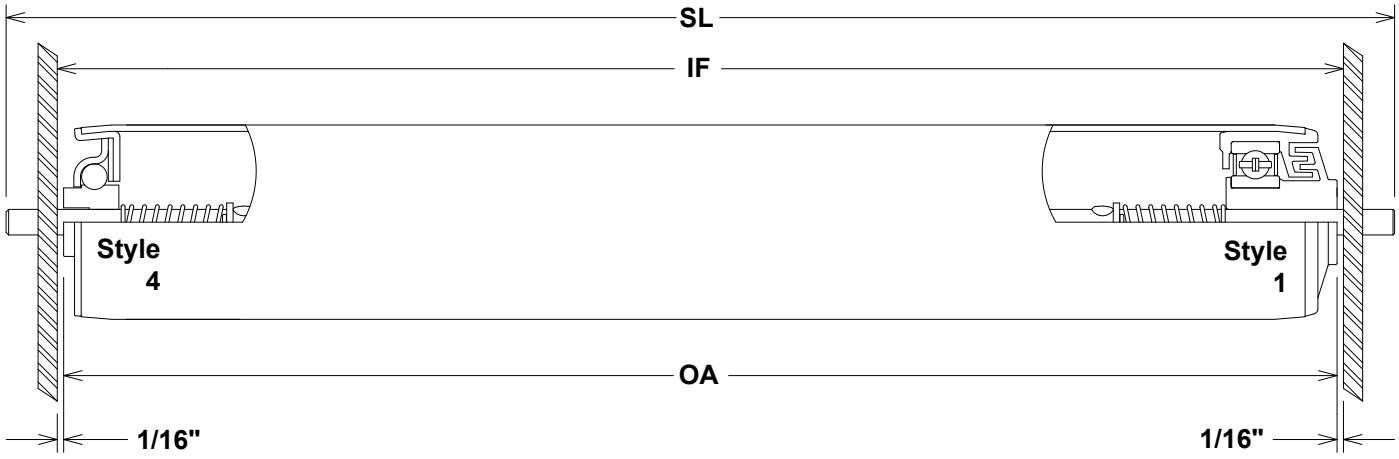
Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3D6	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3D6SS	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2O1	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2O8	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C39	1.75" x .065" Wall Carbon Steel
	Stainless Steel	S39	1.75" x .065" 304 Stainless Steel
	Drive Options:		Grooves, Sprockets, One Way Clutch
	Cover Options:		Urethane Sleeves, Urethane Tapered Rollers, PVC, HDPE
	Finish Options:		Zinc Plated
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
**	Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
***	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
**	Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
***	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
**	Max 50 Lbs Per Roller		
***	Max 100 Lbs Per Roller		
	Standard Extensions:		1/2" - 5/8" with adapters, 9/16" on all others
	Standard Springs:		Dual spring loaded with shaft depressing to bearing hub
	Options:		Fixed shaft, through shaft, holes, drilled and tapped

Load Capacity (LBS.)

Frame	Bearing #		Frame	Bearing #	
I.F.	**3D6 / 3D6SS**	**2O1 / 2O8**	**I.F.**	**3D6 / 3D6SS**	**2O1 / 2O8**
12	200	174	**33**	125	116
15	200	174	**36**	115	106
18	200	174	**39**	106	98
21	200	174	**42**	98	90
24	175	163	**45**	91	84
27	155	144	**48**	85	79
30	139	129	**51**	80	74

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

1.90” Dia. x .065” Wall Thickness - 1/4” Round Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	Inquire	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2C4	1 / Conductive plastic - Double labyrinth seal construction
	Stainles Steel	2C2	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22C4	4 / Stamped zinc plated steel

Tube:	Materials:	Part #	Description:
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum
	Drive Options:		Grooves, Sprockets
	Cover Options:		Urethane Sleeves, Urethane Tapered Rollers
	Finish Options:		Electropolished, Passivated, Polished, Anodized

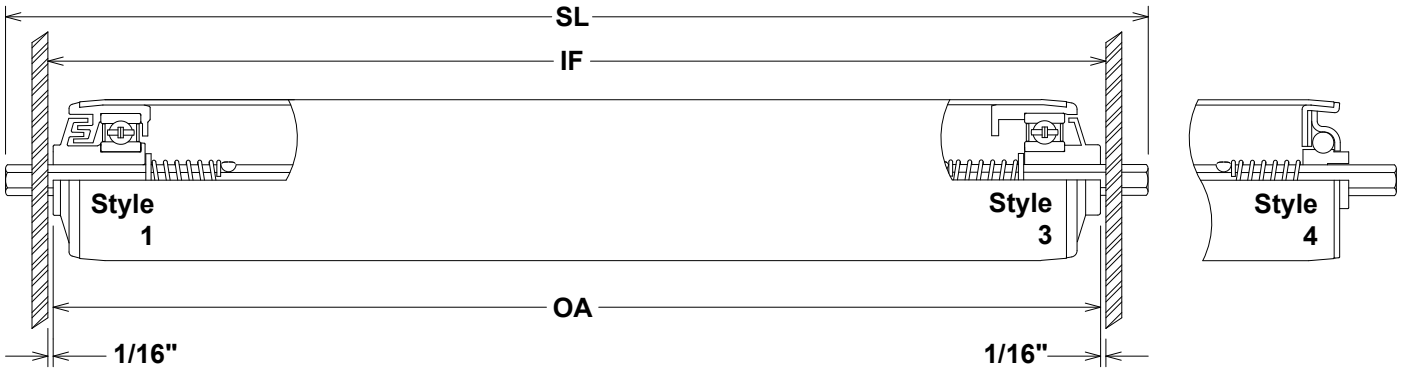
Shaft:	Materials:	Part #	Description:
	Carbon Steel	C10	1/4" Round Carbon Steel Shaft
	Stainless Steel	S10	1/4" Round 304 Stainless Steel Shaft
	Aluminum	A10	1/4" Round Aluminum Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, threaded (1/4 x 20), D-shaft	

Load Capacity (LBS.)

Frame I.F.	Bearing # 2C4	2C2	Frame I.F.	Bearing # 2C4	2C2
12	41	41	**33**	14	14
15	32	32	**36**	13	13
18	26	26	**39**	12	12
21	22	22	**42**	11	11
24	19	19	**45**	10	10
27	17	17	**48**	9	9
30	15	15	**51**	9	9

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

1.90” Dia. x .065” Wall Thickness - 5/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A0	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3A0SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3W2	3 / Conductive plastic - Without labyrinth seal construction
	ABEC-1 Precision	3W2SS	3 / Conductive plastic - Without labyrinth seal construction
	Steel, Commercial	2I3	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2V6	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22I3	4 / Stamped zinc plated steel

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum
	Drive Options:	Grooves, Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	

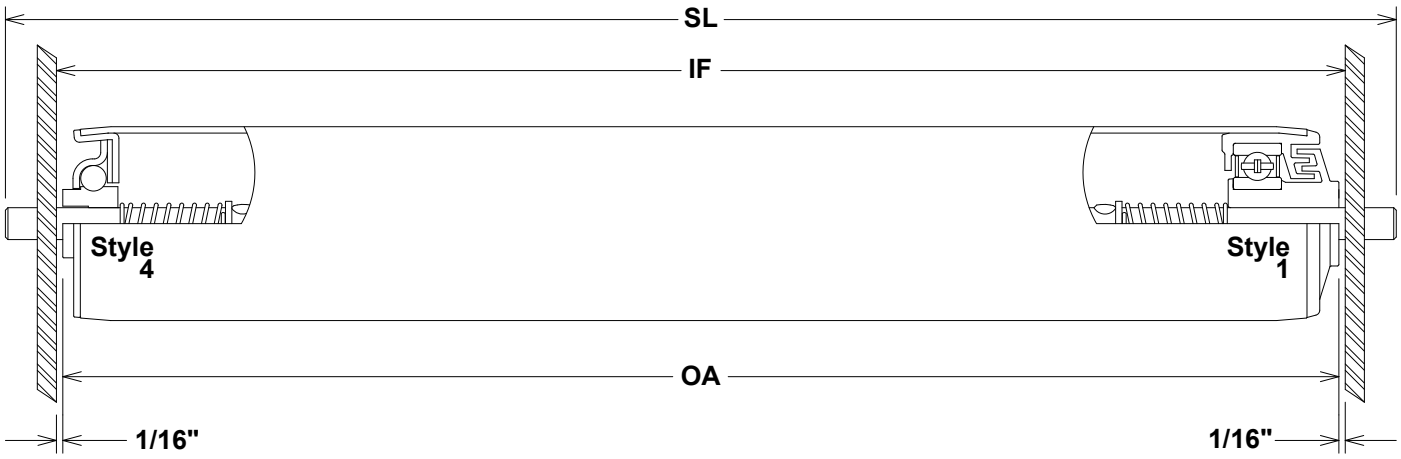
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C14	5/16" Hex Carbon Steel Shaft
	Stainless Steel	S14	5/16" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes	

Load Capacity (LBS.)

Frame	Bearing #					Frame	Bearing #				
I.F.	3A0/3A0SS	3W2/3W2SS	2I3	2V6	22I3	I.F.	3A0/3A0SS	3W2/3W2SS	2I3	2V6	22I3
12	100	100	134	134	134	**33**	34	34	46	46	46
15	79	79	105	105	105	**36**	31	31	42	42	42
18	65	65	86	86	86	**39**	29	29	38	38	38
21	55	55	73	73	73	**42**	27	27	36	36	36
24	48	48	64	64	64	**45**	25	25	33	33	33
27	42	42	56	56	56	**48**	23	23	31	31	31
30	38	38	50	50	50	**51**	22	22	29	29	29

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

1.90” Dia. x .065” Wall Thickness - 5/16” Round Shaft



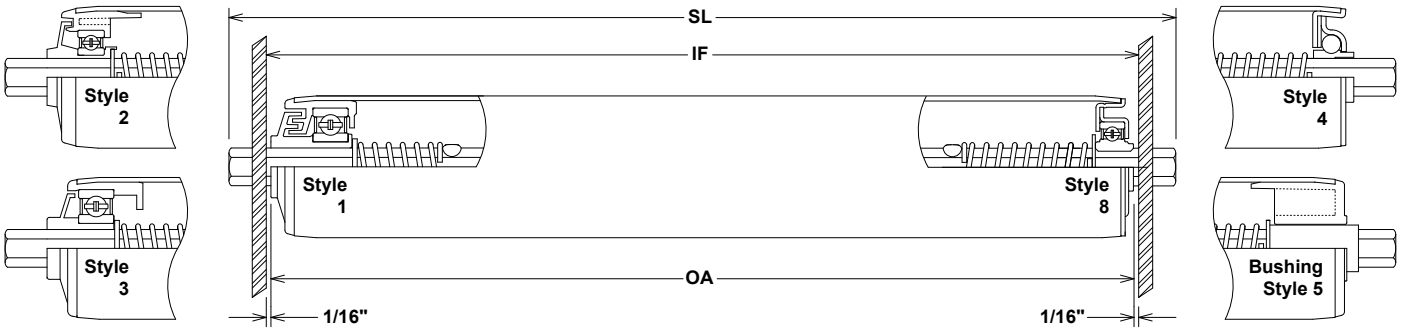
Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A0	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A0SS	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2I3	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2V6	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22I3	4 / Stamped zinc plated steel
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum
	Drive Options:	Grooves, Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C16	5/16" Round Carbon Steel Shaft
	Stainless Steel	S16	5/16" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, threaded, D-Shaft	

Load Capacity (LBS.)

Frame	Bearing #				Frame	Bearing #			
I.F.	3A0/3A0SS	2I3	2V6	22I3	I.F.	3A0/3A0SS	2I3	2V6	22I3
12	84	112	112	112	**33**	29	38	38	38
15	66	87	87	87	**36**	26	35	35	35
18	54	72	72	72	**39**	24	32	32	32
21	46	61	61	61	**42**	22	30	30	30
24	40	53	53	53	**45**	21	28	28	28
27	35	47	47	47	**48**	19	26	26	26
30	31	42	42	42	**51**	18	24	24	24

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

1.90” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3A6 / 3H5	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A6SS / 3H5SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3W1	3 / Conductive plastic - Without labyrinth seal construction
	ABEC-1 Precision	3RP	2 / Conductive plastic - Single labyrinth seal construction
	ABEC-1 Precision, SS	3RPSS	2 / Conductive plastic - Single labyrinth seal construction
	ABEC-1 Precision	33RP	8 / Stamped Zinc Plated Metal Housing
	Steel, Commercial	2A6	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2A7	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22A6	4 / Stamped zinc plated steel
	Bushing Style, Stainless	5B5	5 / Conductive acetal or non conductive "Ultra"
	Bushing Style, Nylon	5A7	5 / Conductive acetal or non conductive "Ultra"

Tube:	Materials:	Part #	Description:
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
	Other Options:	Foam Filled for Noise Reduction	

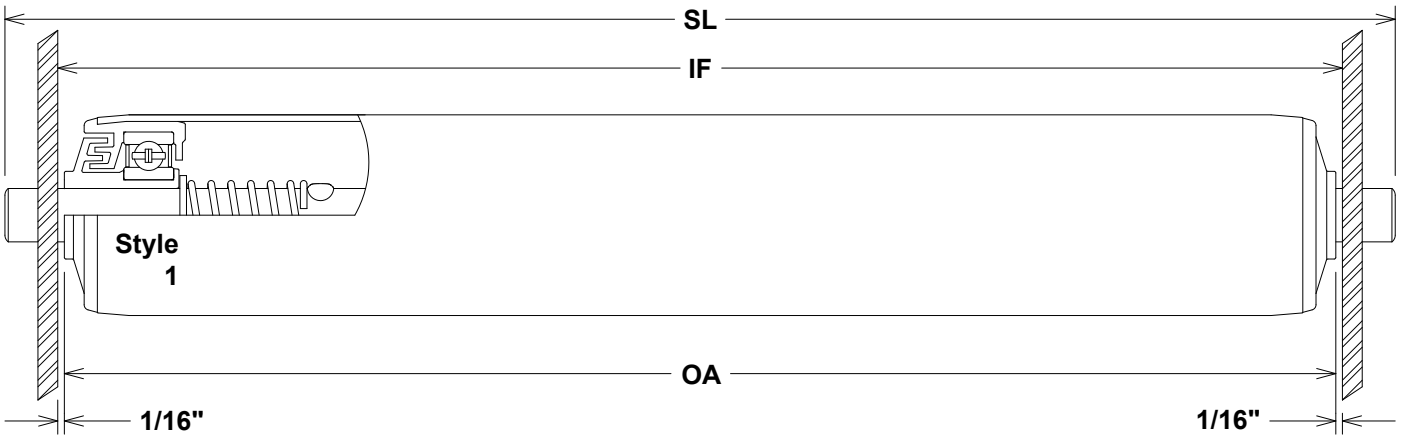
Shaft:	Materials:	Part #	Description:
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	** Max 50 Lbs Per Roller	*** Max 100 Lbs Per Roller	
	Standard Extensions:	1/2" - 5/8" with adapters, 9/16" all others	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed Shaft, Through Shaft, Holes, Drilled and Tapped, Zinc Plated	

Load Capacity (LBS.)

Frame I.F.	Bearing # 3A6/3A6SS	3W1	3H5/3H5SS	3RP/3RPSS	33RP	2A6	2A7	22A6	BUSHING
12	368	368	297	297	334	174	174	270	100
15	289	289	228	228	261	174	174	270	100
18	237	237	185	185	214	174	174	270	100
21	201	201	156	156	182	156	156	268	100
24	175	175	134	134	158	134	134	233	100
27	155	155	118	118	139	118	118	206	100
30	139	139	105	105	125	105	105	185	94
33	125	125	95	95	113	95	95	167	85
36	115	115	87	87	103	87	87	153	78
39	106	106	80	80	95	80	80	141	71
42	98	98	74	74	88	74	74	130	66
45	91	91	69	69	82	69	69	121	61
48	85	85	64	64	77	64	64	114	57
51	80	80	60	60	72	60	60	107	54

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

1.90” Dia. x .065” Wall Thickness - 1/2” Round Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3A2	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A2SS	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2E1	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2C3	1 / Conductive plastic - Double labyrinth seal construction

Tube:	Materials:	Part #	Description:
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum

Drive Options:	Grooves, Sprockets
Cover Options:	Urethane Sleeves, Urethane Tapered Rollers
Finish Options:	Electropolished, Passivated, Polished, Anodized

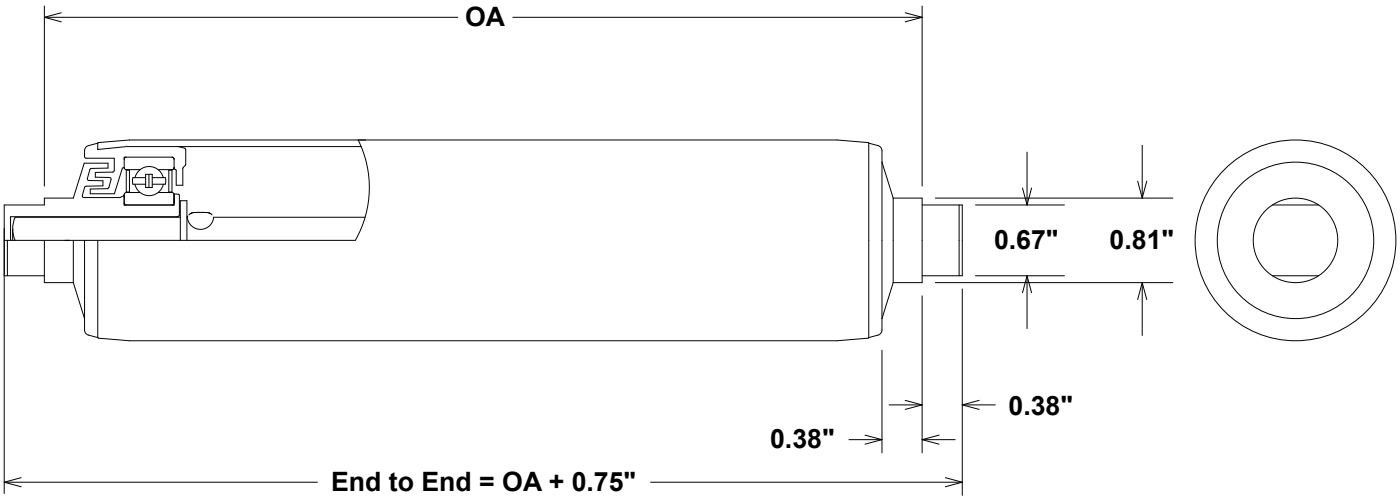
Shaft:	Materials:	Part #	Description:
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, threaded, drilled and tapped, milled flats, D-Shaft	

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	3A2/3A2SS	2E1	2C3	I.F.	3A2/3A2SS	2E1	2C3
12	368	174	174	**33**	125	95	95
15	289	174	174	**36**	115	87	87
18	237	174	174	**39**	106	80	80
21	201	156	156	**42**	98	74	74
24	175	134	134	**45**	91	69	69
27	155	118	118	**48**	85	64	64
30	139	105	105	**51**	80	60	60

* Load capacity with aluminum tube is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

1.90” Dia. x .065” Wall Thickness - .67” Plastic Flat Caps



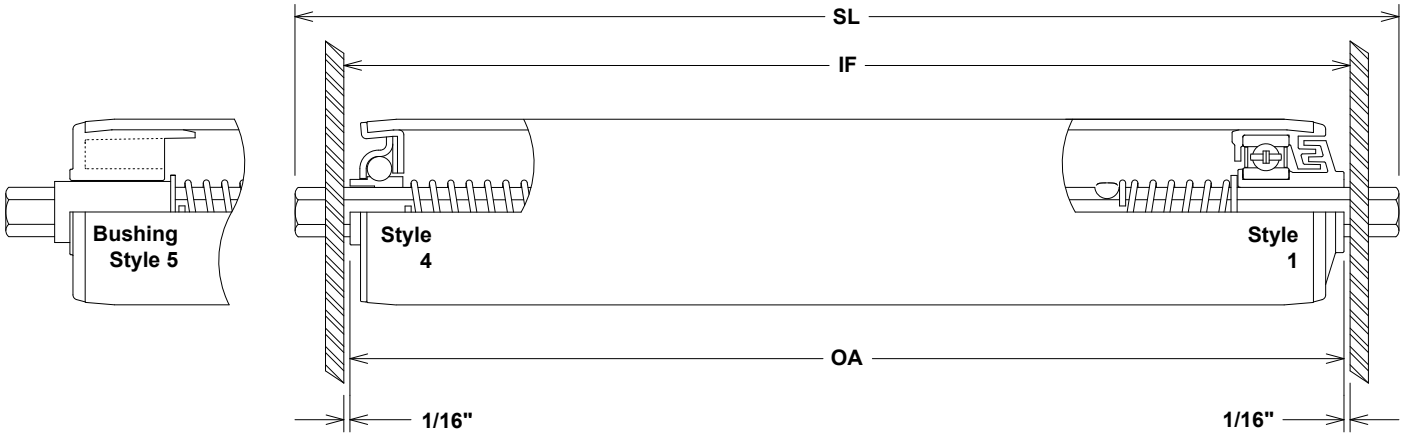
Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A7	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A7SS	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C46	1.90" x .065" Wall Carbon Steel
	Galvanized Steel	G46	1.90" x .065" Wall Galvanized Steel
	Stainless Steel	S46	1.90" x .065" Wall 304 Stainless Steel
	Aluminum	A46	1.90" x .065" Wall Aluminum
	Drive Options:	Grooves, Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, PVC	
	Finish Options:	Electropolished, Passivated, Polished, Anodized	
Shaft:	**Materials:**	**Part #**	**Description:**
	** Plastic Flat Caps	C64	Uses 7/16" hex carbon steel internal shaft
	** Plastic Flat Caps	S64	Uses 7/16" hex stainless steel internal shaft
	** Max 50 Lbs Per Roller		
	Standard Extensions:	3/8" Fixed	
	Standard Springs:	No Springs	

Load Capacity (LBS.)

Frame I.F.	Bearing # 3A7 / 3A7SS	Frame I.F.	Bearing # 3A7 / 3A7SS
12	50	**33**	46
15	50	**36**	41
18	50	**39**	38
21	50	**42**	35
24	50	**45**	32
27	50	**48**	30
30	50	**51**	28

* Load capacity with aluminum tube 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

1.90” Dia. x .109” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3A1	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3A1SS	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2A8	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2R3	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22A8	4 / Stamped zinc steel plated steel
	Bushing Style, Stainless	5B5	5 / Conductive acetal or non conductive "Ultra"
	Bushing Style, Nylon	5A7	5 / Conductive acetal or non conductive "Ultra"

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C42	1.90" x .109" Wall Carbon Steel
	Stainless Steel	S42	1.90" x .109" Wall 304 Stainless Steel
	Drive Options:	Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Electropolished, Passivated, Polished	

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

** Max load 50 lbs. per roller *** Max load 100 lbs. per roller

Standard Extensions:	1/2" - 5/8" with adapters, 9/16" all others
Standard Springs:	Dual spring loaded with shaft depressing to bearing hub
Options:	Fixed shaft, through shaft, holes, drilled and tapped, zinc plated

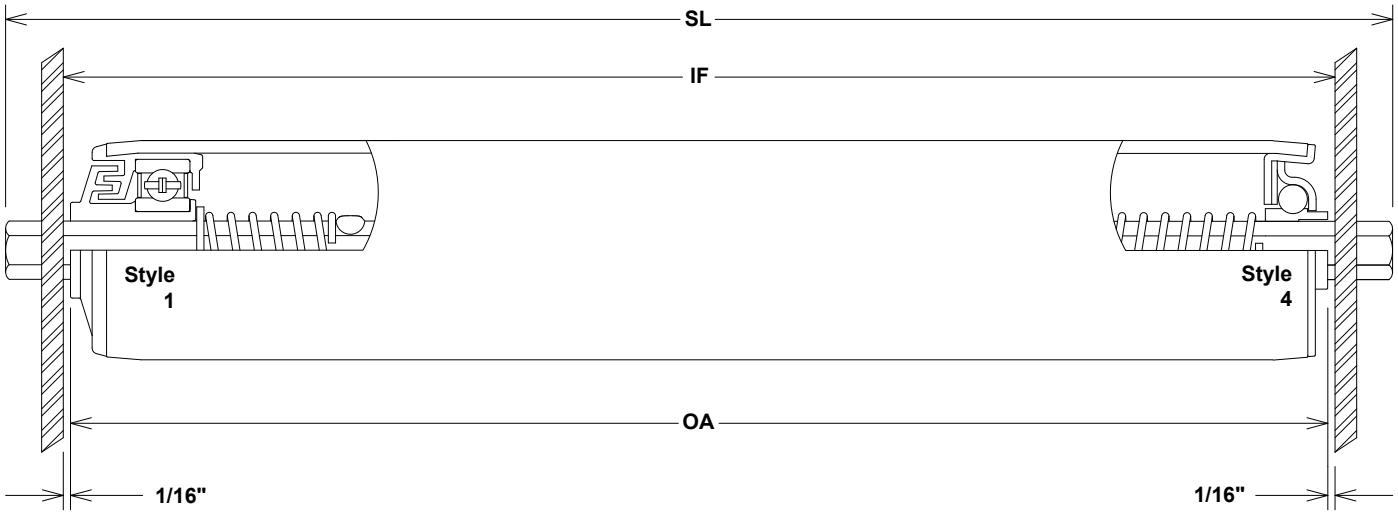
Note: Bushing style bearings are for intermittent use only. Not recommended for powered systems.

Load Capacity (LBS.)

Frame	Bearing #					Frame	Bearing #				
I.F.	**3A1/3A1SS**	**2A8**	**2R3**	**22A8**	**BUSHING**	**I.F.**	**3A1/3A1SS**	**2A8**	**2R3**	**22A8**	**BUSHING**
12	368	174	174	575	100	**33**	125	108	108	170	85
15	289	174	174	400	100	**36**	115	99	99	155	78
18	237	174	174	325	100	**39**	106	91	91	145	71
21	201	174	174	280	100	**42**	98	84	84	130	66
24	175	152	152	240	100	**45**	91	78	78	121	61
27	155	134	134	210	100	**48**	85	73	73	114	57
30	139	120	120	190	94	**51**	80	69	69	107	54

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

1.90” Dia. x .134” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3F2	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3F2SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped Commercial	22R1	4 / Stamped zinc plated steel
Tube:	**Materials:**	**Part #**	**Description:**
	Galvanized Steel	G43	1.90" x .134" Wall Galvanized Steel
	Drive Options:	Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

** Max load 50 lbs per roller *** Max load 100 lbs per roller

Standard Extensions: 1/2" - 5/8" with adapters, 9/16 all others

Standard Springs: Dual spring loaded with shaft depressing to bearing hub

Options: Fixed shaft, through shaft, holes, drilled and tapped, Zinc Plated

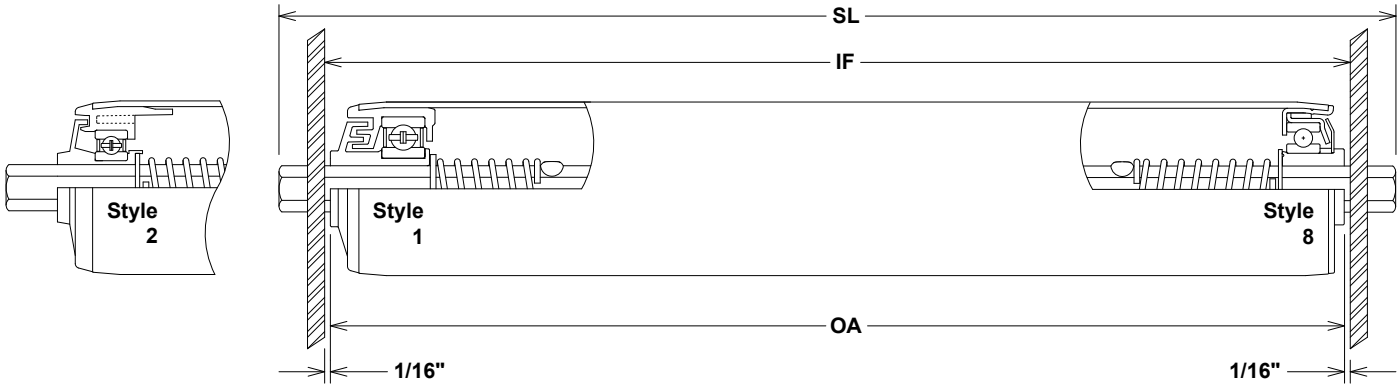
Note: Bushing style bearings are for intermittent use only.
Not recommended for powered systems.

Load Capacity (LBS.)

Frame I.F.	Bearing # 3F2 / 3F2SS	22R1	Frame I.F.	Bearing # 3F2 / 3F2SS	22R1
12	368	270	**33**	125	167
15	289	270	**36**	115	153
18	237	270	**39**	106	141
21	201	268	**42**	98	130
24	175	233	**45**	91	121
27	155	206	**48**	85	114
30	139	185	**51**	80	107

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading

2.00” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3E0	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3E0SS	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2U1	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2U2	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3W6	2 / Conductive plastic - Single labyrinth seal construction
	ABEC-1 Precision, SS	3W6SS	2 / Conductive plastic - Single labyrinth seal construction
	ABEC-1 Precision	33W10	8 / Stamped Zinc Plated Metal Housing

Tube:	Materials:	Part #	Description:
	Carbon Steel	C49	2.00" x .065 Wall Carbon Steel
	Stainless Steel	S49	2.00" x .065 Wall 304 Stainless Steel
	Galvanized Steel	G49	2.00" x .065 Wall Galvanized Steel
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, PVC	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
**	Plastic adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
***	Urethane adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
**	Plastic adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
***	Urethane adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

** Max load 50 lbs per roller *** Max load 100 lbs per roller

Standard Extensions: 1/2" - 5/8" with adapters, 9/16" all others

Standard Springs: Dual spring loaded with shaft depressing to bearing hub

Options: Fixed shaft, through shaft, holes, drilled and tapped, zinc plated

Load Capacity (LBS.)

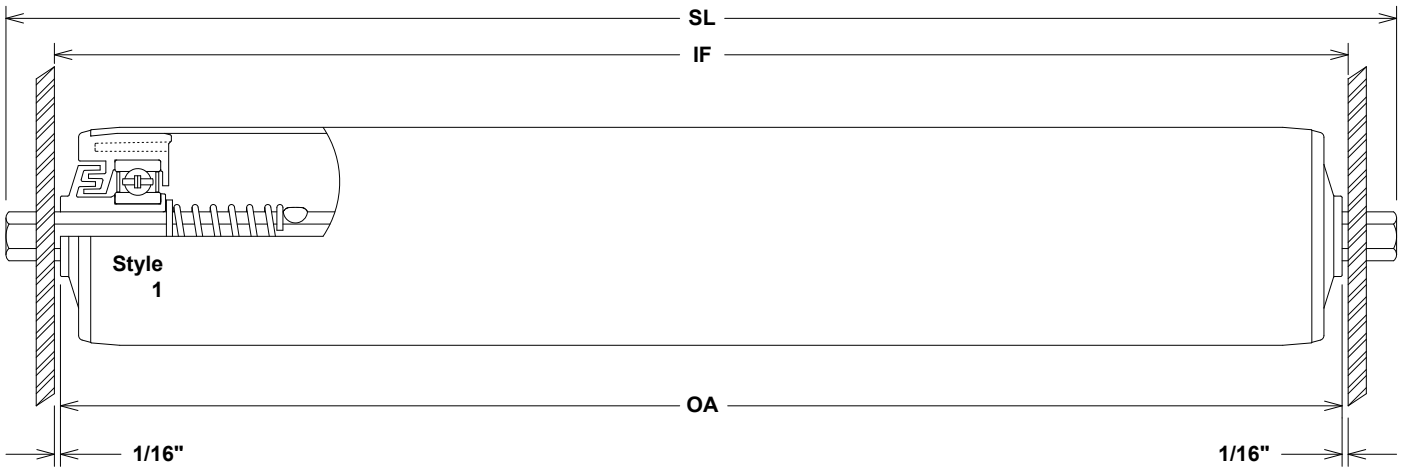
Frame	Bearing #					Frame	Bearing #				
I.F.	3E0/3E0SS	2U1	2U2	3W6/3W6SS	33W10	I.F.	3E0/3E0SS	2U1	2U2	3W6/3W6SS	33W10
12	368	174	174	297	334	**33**	125	137	137	95	113
15	289	174	174	228	261	**36**	115	125	125	87	103
18	237	174	174	185	214	**39**	106	115	115	80	95
21	201	174	174	156	182	**42**	98	107	107	74	88
24	175	174	174	134	158	**45**	91	99	99	69	82
27	155	169	169	118	139	**48**	85	93	93	64	77
30	139	151	151	105	125	**51**	80	87	87	60	72

* Load capacity with aluminum shaft is 33% of steel capacity.

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

2.25” Dia. x .065” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3B3	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3B3SS	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2C0	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2C8	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C52	2.25" x .065" Wall Carbon Steel
	Stainless Steel	S52	2.25" x .065" Wall 304 Stainless Steel
	Drive Options:	Grooves, Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

** Max load 50 lbs per roller *** Max load 200 lbs per roller

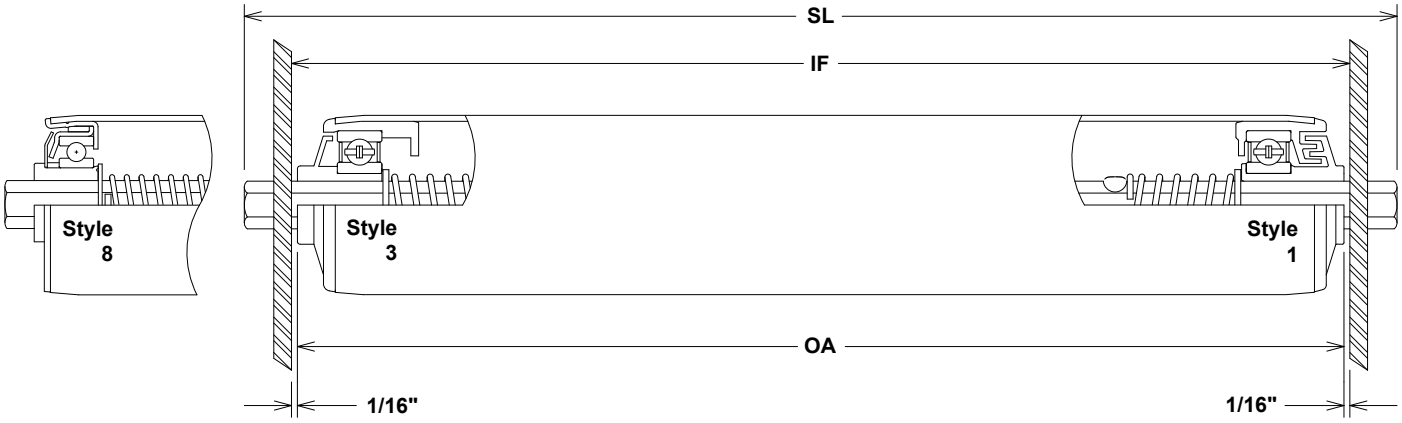
Standard Extensions:	1/2" - 5/8" with adapters, 9/16" all others
Standard Springs:	Dual spring loaded with shaft depressing to bearing hub
Options:	Fixed shaft, through shaft, holes, drilled and tapped, zinc plated

Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	**3B3 / 3B3SS**	**2C0**	**2C8**	**I.F.**	**3B3 / 3B3SS**	**2C0**	**2C8**
12	297	174	174	**33**	95	137	137
15	228	174	174	**36**	87	125	125
18	185	174	174	**39**	80	115	115
21	156	174	174	**42**	74	107	107
24	134	174	174	**45**	69	99	99
27	118	169	169	**48**	64	93	93
30	105	151	151	**51**	60	87	87

* Load capacity with aluminum shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .083” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3B8	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3B8SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3K3	3 / Conductive plastic - Single labyrinth seal construction
	ABEC-1 Precision	3K3SS	3 / Conductive plastic - Single labyrinth seal construction
	Stainless Steel	2E3	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2D5	1 / Conductive plastic - Double labyrinth seal construction
	Stamped, Precision	33B8	8 / ABEC-1 precision in a stamped zinc plated steel housing

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C57	2.50" x .083" Wall Carbon Steel
	Galvanized Steel	G57	2.50" x .083" Wall Galvanized Steel
	Stainless Steel	S57	2.50" x .083" Wall 304 Stainless Steel
	Drive Options:		Grooves, Sprockets, One Way Clutch
	Cover Options:		Urethane Sleeves, Urethane Tapered Rollers, HDPE
	Finish Options:		Polished, Electropolished, Passivated

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex 304 Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	** Plastic adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	*** Urethane adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
	** Plastic adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
	*** Urethane adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

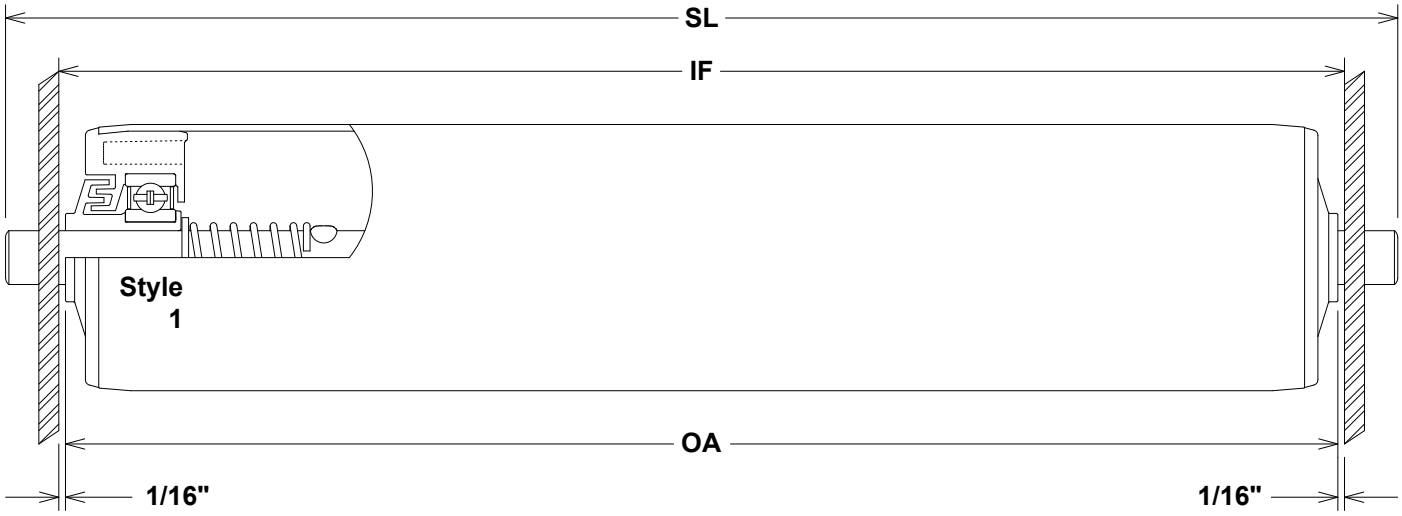
** Max load 50 lbs per roller *** Max load 100 lbs per roller
Standard Extensions: 1/2" - 5/8" with adapters, 9/16" all others
Standard Springs: Dual spring loaded with shaft depressing to bearing hub
Options: Fixed shaft, through shaft, holes, drilled and tapped, zinc plated

Load Capacity (LBS.)

Frame	Bearing #					Frame	Bearing #				
I.F.	2E3	2D5	3K3/3K3SS	3B8/3B8SS	33B8	I.F.	2E3	2D5	3K3/3K3SS	3B8/3B8SS	33B8
12	174	174	297	368	600	**33**	137	137	95	125	398
15	174	174	228	289	600	**36**	125	125	87	115	364
18	174	174	185	237	600	**39**	115	115	80	106	336
21	174	174	156	201	600	**42**	107	107	74	98	311
24	174	174	134	175	551	**45**	99	99	69	91	290
27	169	169	118	155	488	**48**	93	93	64	85	272
30	151	151	105	139	439	**51**	87	87	60	80	256

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .083” Wall Thickness - 1/2” Round Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3C5	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3C5SS	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	2D0	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2D6	1 / Conductive plastic - Double labyrinth seal construction

Tube:	Materials:	Part #	Description:
	Carbon Steel	C57	2.50" x .083" Wall Carbon Steel
	Galvanized Steel	G57	2.50" x .083" Wall Galvanized Steel
	Stainless Steel	S57	2.50" x .083" Wall 304 Stainless Steel
	Drive Options:	Grooves, Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, HDPE	
	Finish Options:	Polished, Electropolished, Passivated	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, threaded, D-shaft, zinc plated	

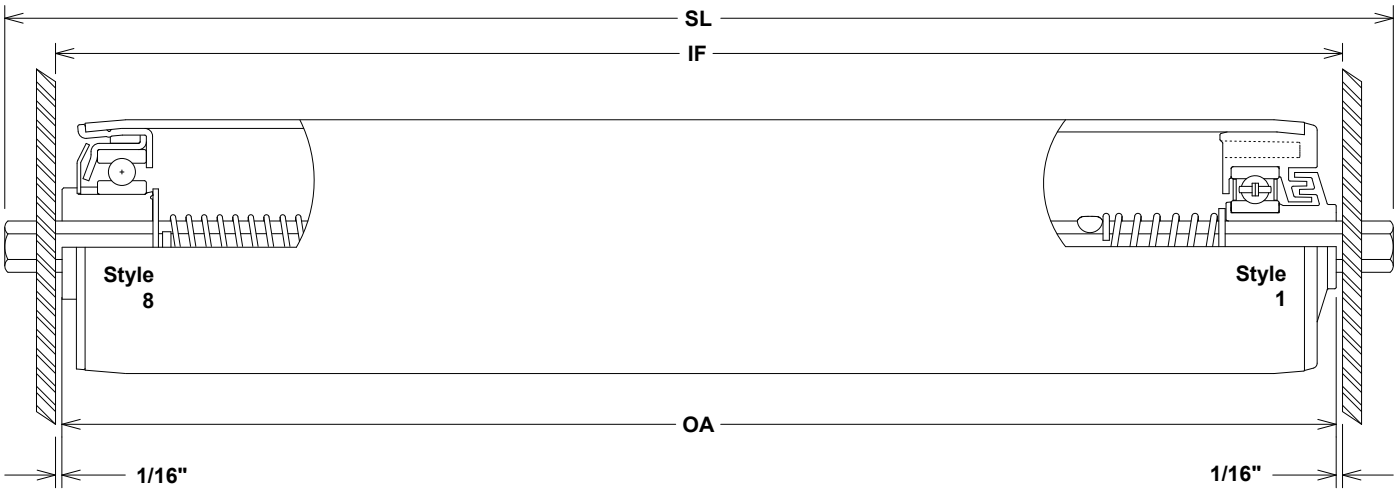
Load Capacity (LBS.)

Frame	Bearing #			Frame	Bearing #		
I.F.	3C5/3C5SS	2D0	2D6	I.F.	3C5/3C5SS	2D0	2D6
12	368	174	174	**33**	125	137	137
15	289	174	174	**36**	115	125	125
18	237	174	174	**39**	106	115	115
21	201	174	174	**42**	98	107	107
24	175	174	174	**45**	91	99	99
27	155	169	169	**48**	85	93	93
30	139	151	151	**51**	80	87	87

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .120” Wall Thickness - 7/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	Stainless Steel	2D2	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	2C9	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	3C8	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3C8SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped, Precision	33C8	8 / ABEC-1 precision in a stamped zinc plated steel housing
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C56	2.50" x .120" Wall Carbon Steel
	Galvanized Steel	G56	2.50" x .120" Wall Galvanized Steel
	Stainless Steel	S56	2.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, HDPE	
	Finish Options:	Polished, Electropolished, Passivated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C68	7/16" Hex Carbon Steel Shaft
	Stainless Steel	S70	7/16" Hex Stainless Steel Shaft
	Aluminum	A66	7/16" Hex Aluminum Shaft
	Options:	Zinc Plated	
**	Plastic Adapters	C62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
***	Urethane Adapters	UC62	7/16" Hex External Adapter with 5/16" Hex Internal Carbon Steel Shaft
**	Plastic Adapters	S62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft
***	Urethane Adapters	US62	7/16" Hex External Adapter with 5/16" Hex Internal 304 Stainless Steel Shaft

** Max load 50 lbs per roller *** Max load 100 lbs per roller

Standard Extensions: 1/2" - 5/8" with adapters, 9/16" all others

Standard Springs: Dual spring loaded with shaft depressing to bearing hub

Options: Fixed shaft, through shaft, holes, drilled and tapped

Load Capacity (LBS.)

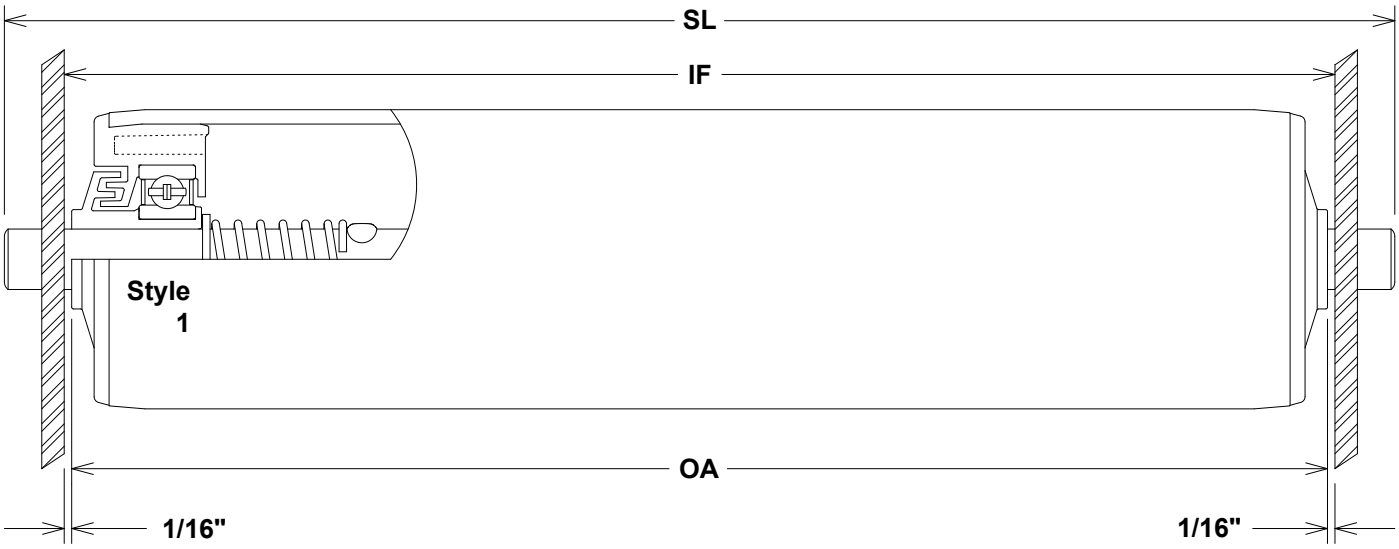
	Bearing #					Bearing #			
I.F.	**2D2**	**2C9**	**3C8/3C8SS**	**33C8**	**I.F.**	**2D2**	**2C9**	**3C8/3C8SS**	**33C8**
12	174	174	344	600	**33**	154	154	116	398
15	174	174	269	600	**36**	140	140	106	364
18	174	174	221	600	**39**	129	129	98	336
21	174	174	187	600	**42**	120	120	91	311
24	174	174	162	551	**45**	111	111	84	290
27	174	174	144	488	**48**	104	104	79	272
30	170	170	129	439	**51**	98	98	74	256

* Load capacity with aluminum shaft is 33% of steel capacity.

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .120” Wall Thickness - 1/2” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3C2	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3C2SS	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C56	2.50" x .120" Wall Carbon Steel
	Galvanized Steel	G56	2.50" x .120" Wall Galvanized Steel
	Stainless Steel	S56	2.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, HDPE	
	Finish Options:	Polished, Electropolished, Passivated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, threaded, D-shaft, zinc plated	

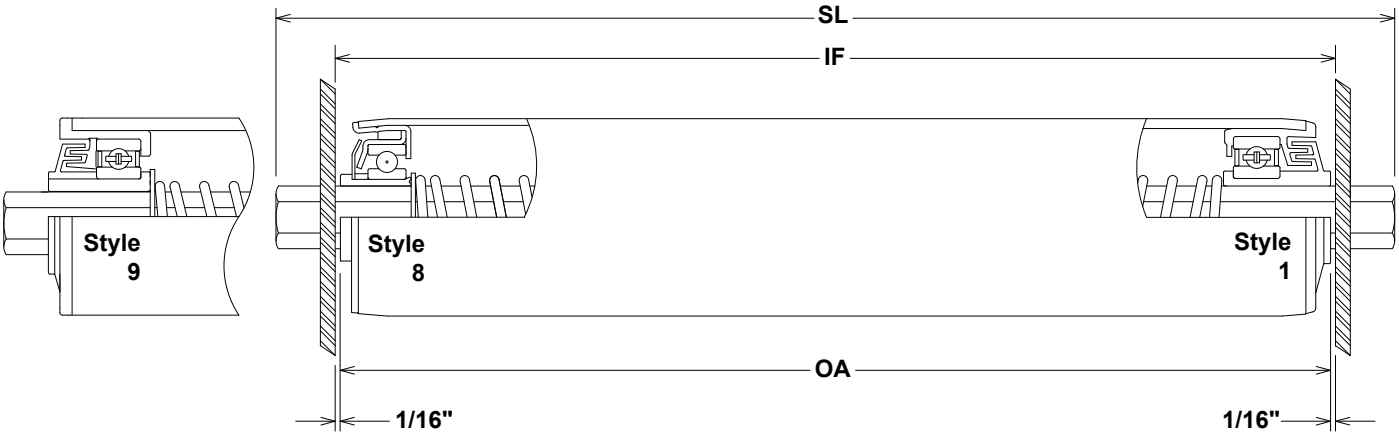
Load Capacity (LBS.)

Frame I.F.	Bearing # 3C2 / 3C2SS	Frame I.F.	Bearing # 3C2 / 3C2SS
12	344	**33**	116
15	269	**36**	106
18	221	**39**	98
21	187	**42**	91
24	162	**45**	84
27	144	**48**	79
30	129	**51**	74

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .120” Wall Thickness - 5/8” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3J7	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3J7SS	1 / Conductive plastic - Double labyrinth seal construction
	Stamped, Precision	33J7	8 / ABEC-1 precision in a stamped zinc plated steel housing
	Machined, Precision	34J7/35J7	9 / ABEC-1 precision in a fully machined metal housing with double labyrinth seal construction for heavy duty loads
	Machined, Precision, SS	34J7SS/35J7SS	9 / ABEC-1 precision in a fully machined stainless steel housing with double labyrinth seal construction for heavy duty loads

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C56	2.50" x .120" Wall Carbon Steel
	Galvanized Steel	G56	2.50" x .120" Wall Galvanized Steel
	Stainless Steel	S56	2.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, HDPE	
	Finish Options:	Polished, Electropolished, Passivated	

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C88	5/8" Hex Carbon Steel Shaft
	Stainless Steel	Inquire	5/8" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Optional Springs:	Dual spring loaded with grooves or sprockets	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped	

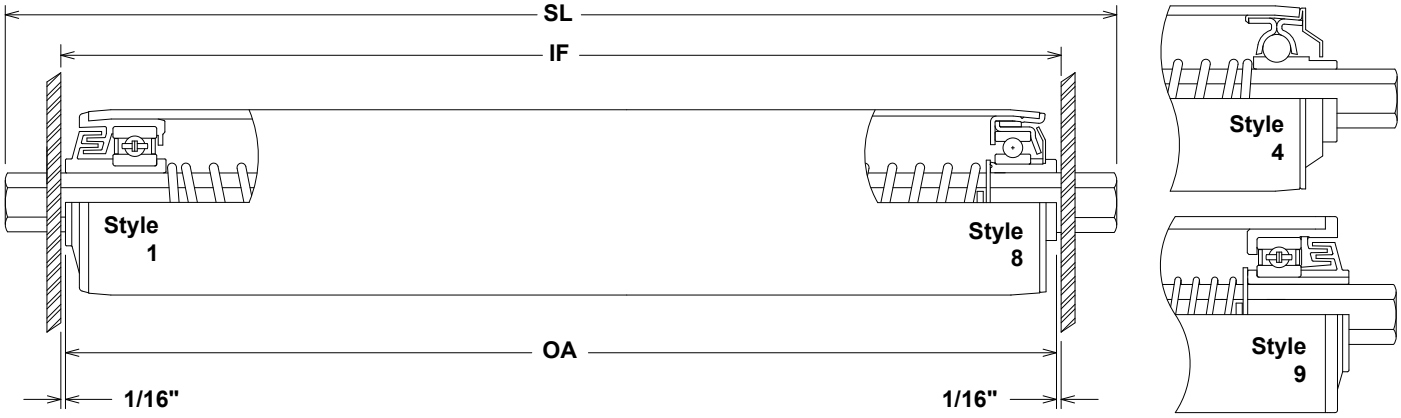
Load Capacity (LBS.)

Frame I.F.	Bearing #				Frame I.F.	Bearing #			
	3J7/3J7SS	33J7	34J7/34J7SS	35J7/35J7SS		3J7/3J7SS	33J7	34J7/34J7SS	35J7/35J7SS
12	400	1200	1350	1350	**33**	282	556	793	793
15	400	1200	1350	1350	**36**	257	508	726	726
18	400	1048	1350	1350	**39**	236	468	669	669
21	400	890	1263	1263	**42**	218	433	620	620
24	399	774	1100	1100	**45**	203	404	578	578
27	350	684	975	975	**48**	190	378	541	541
30	312	613	875	875	**51**	178	355	509	509

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” Dia. x .120” Wall Thickness - 11/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3B9	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 440 Stainless Steel	3E8	1 / Conductive plastic - Double labyrinth seal construction
	Stamped, Precision	33W9	8 / ABEC-1 precision in a stamped zinc plated steel housing
	Machined, Precision	34B9/35B9	9 / ABEC-1 precision bearing in a fully machined metal housing with plastic double labyrinth seals. For heavy duty applications.
	Machined, Precision, SS	34B9SS/35B9SS	9 / ABEC-1 precision bearing in a fully machined stainless steel housing with plastic double labyrinth seals. For heavy duty applications.

Tube:	Materials:	Part #	Description:
	Carbon Steel	C56	2.50" x .120" Wall Carbon Steel
	Galvanized Steel	G56	2.50" x .120" Wall Galvanized Steel
	Stainless Steel	S56	2.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets, One Way Clutch	
	Cover Options:	Urethane Sleeves, Urethane Tapered Rollers, HDPE	
	Finish Options:	Polished, Electropolished, Passivated	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C82	11/16" Hex Carbon Steel Shaft
	Stainless Steel	S82	11/16" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, dual spring loaded	

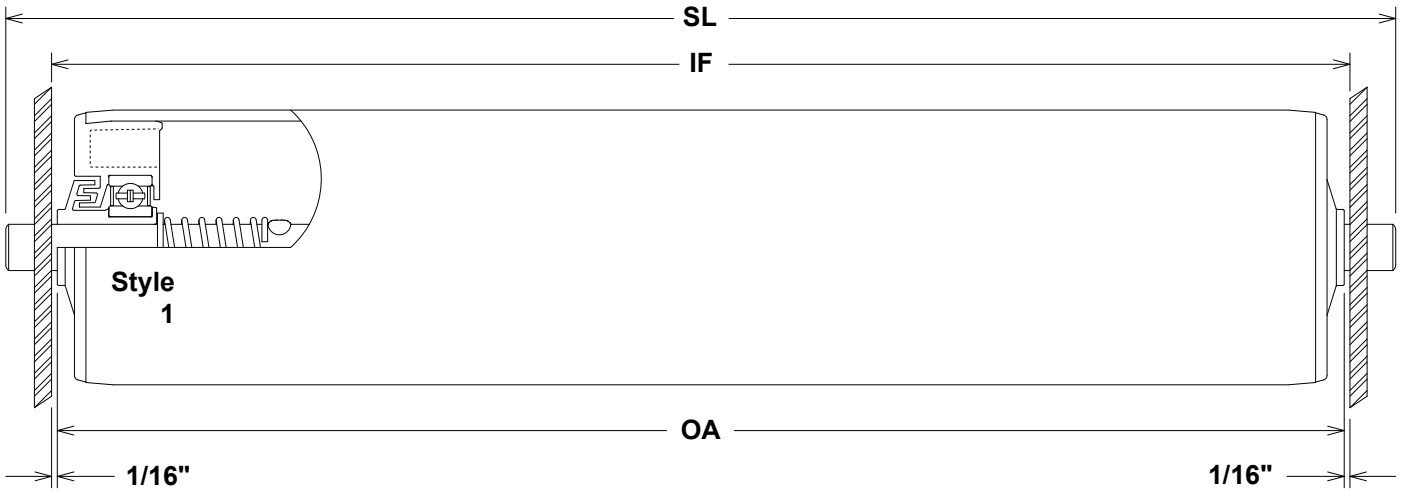
Load Capacity (LBS.)

Frame	Bearing #					Frame	Bearing #				
I.F.	3B9	3E8	33W9	34B9/34B9SS	35B9/35B9SS	I.F.	3B9	3E8	33W9	34B9/34B9SS	35B9/35B9SS
12	400	400	1200	1350	1350	**33**	400	400	809	1155	1155
15	400	400	1200	1350	1350	**36**	374	374	740	1057	1057
18	400	400	1200	1350	1350	**39**	344	344	681	974	974
21	400	400	1200	1350	1350	**42**	318	318	631	903	903
24	400	400	1127	1350	1350	**45**	296	296	588	842	842
27	400	400	997	1350	1350	**48**	276	276	551	789	789
30	400	400	893	1274	1274	**51**	259	259	517	741	741

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.00” Dia. x .120” Wall Thickness - 1/2” Round Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	Inquire	1 / Conductive plastic - Double labyrinth seal construction
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction
	Steel, Commercial	Inquire	1 / Conductive plastic - Double labyrinth seal construction
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C79	3.00" x .120" Wall Carbon Steel
	Stainless Steel	Inquire	3.00" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C30	1/2" Round Carbon Steel Shaft
	Stainless Steel	S35	1/2" Round 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, threaded, D-shaft, zinc plated	

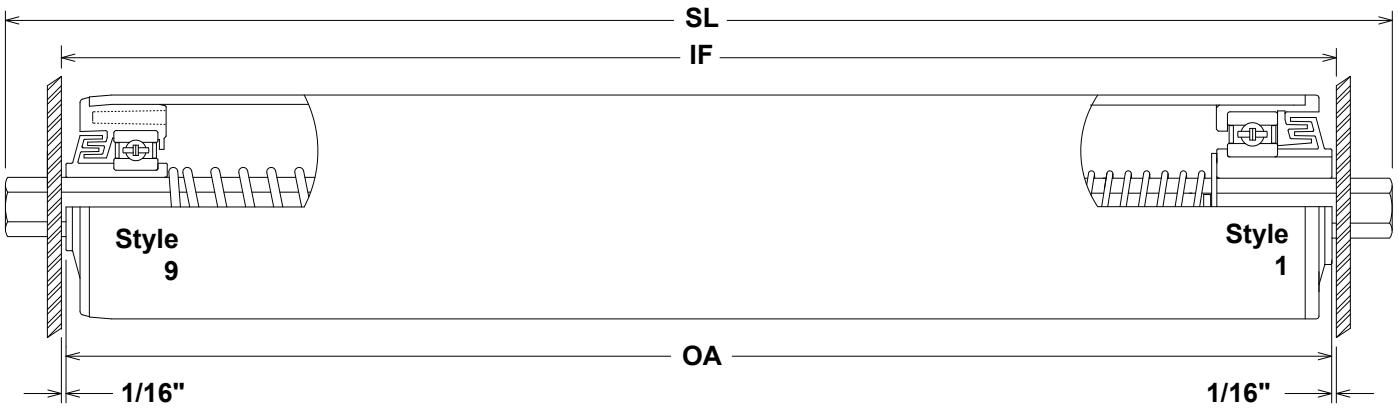
Load Capacity (LBS.)

Frame I.F.	Bearing # ABEC-1	Bearing # OTHER	Frame I.F.	Bearing # ABEC-1	Bearing # OTHER
12	499	174	**33**	169	174
15	390	174	**36**	155	174
18	320	174	**39**	142	174
21	272	174	**42**	132	169
24	236	174	**45**	123	157
27	209	174	**48**	115	147
30	187	174	**51**	108	138

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.00” Dia. x .120” Wall Thickness - 5/8” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3K4	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3K4SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	34K4	9 / ABEC-1 precision bearing in a fully machined metal housing with plastic double labyrinth seals. For heavy duty applications.
	ABEC-1 Precision, SS	34K4SS	9 / ABEC-1 precision bearing in a fully machined stainless steel housing with plastic double labyrinth seals. For heavy duty applications.
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C79	3.00" x .120" Wall Carbon Steel
	Stainless Steel	Inquire	3.00" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C88	5/8" Hex Carbon Steel Shaft
	Stainless Steel	Inquire	5/8" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, dual spring loaded	

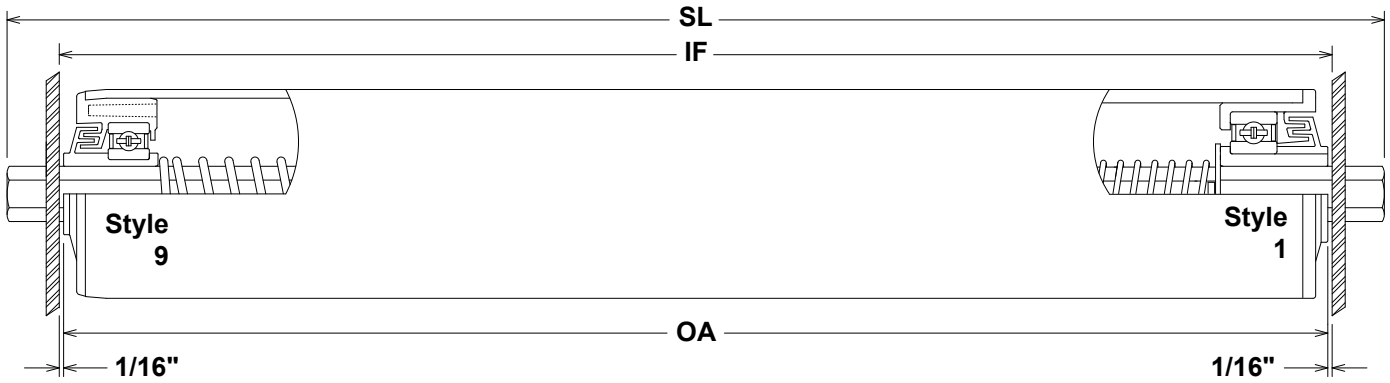
Load Capacity (LBS.)

Frame I.F.	Bearing # 3K4 / 3K4SS	Bearing # 34K4 / 34K4SS	Frame I.F.	Bearing # 3K4 / 3K4SS	Bearing # 34K4 / 34K4SS
12	400	1350	**33**	282	793
15	400	1350	**36**	257	726
18	400	1350	**39**	236	669
21	400	1263	**42**	218	620
24	399	1100	**45**	203	578
27	350	975	**48**	190	541
30	312	875	**51**	178	509

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.00” Dia. x .120” Wall Thickness - 11/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3K4	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3K4SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	34K4	9 / ABEC-1 precision bearing in a fully machined metal housing with plastic double labyrinth seals. For heavy duty applications.
	ABEC-1 Precision, SS	34K4SS	9 / ABEC-1 precision bearing in a fully machined stainless steel housing with plastic double labyrinth seals. For heavy duty applications.
	Stainless Steel	Inquire	1 / Conductive plastic - Double labyrinth seal construction

Tube:	Materials:	Part #	Description:
	Carbon Steel	C79	3.00" x .120" Wall Carbon Steel
	Stainless Steel	Inquire	3.00" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C82	11/16" Hex Carbon Steel Shaft
	Stainless Steel	S82	11/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	9/16"	
	Standard Springs:	Dual spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, zinc plated	

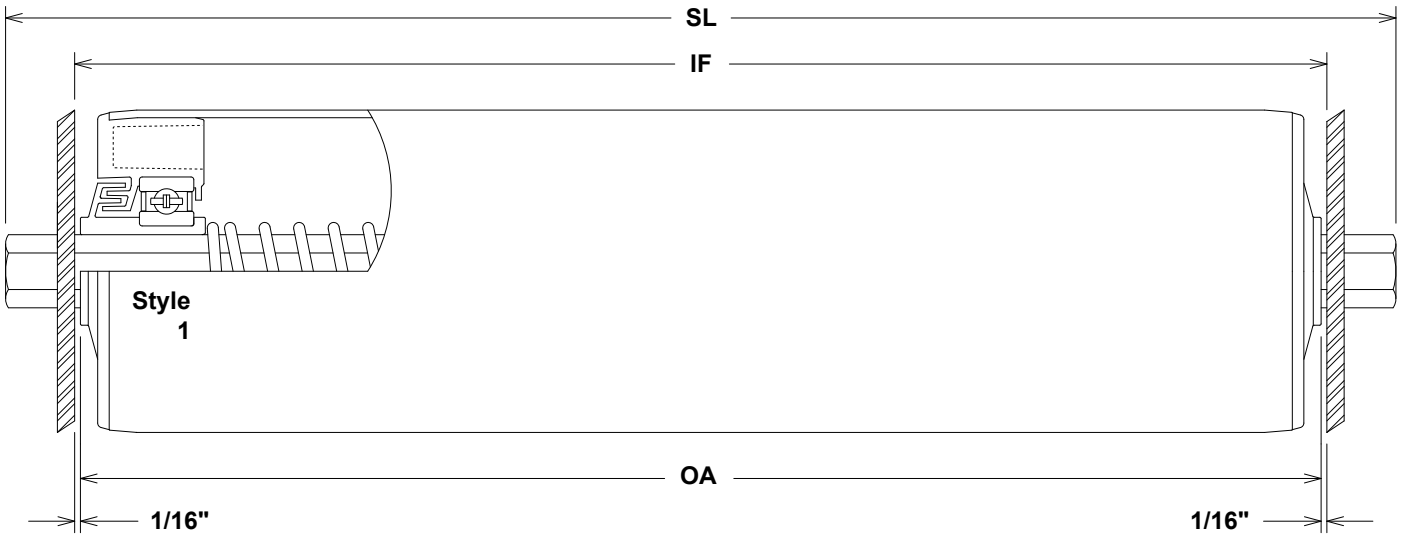
Load Capacity (LBS.)

Frame	Bearing #		Frame	Bearing #	
I.F.	3K4/3K4SS	34K4/34K4SS	I.F.	3K4/3K4SS	34K4/34K4SS
12	400	1350	**33**	282	793
15	400	1350	**36**	257	726
18	400	1350	**39**	236	669
21	400	1263	**42**	218	620
24	399	1100	**45**	203	578
27	350	975	**48**	190	541
30	312	875	**51**	178	509

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.50” Dia. x .083” Wall Thickness - 11/16” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	3E6	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3E6SS	1 / Conductive plastic - Double labyrinth seal construction

Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C71	3.50" x .083" Wall Carbon Steel
	Stainless Steel	S71	3.50" x .083" Wall 304 Stainless Steel
	Drive Options:	Grooves, Sprockets	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Polished, Electropolished, Passivated, Zinc Plated	

Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C82	11/16" Hex Carbon Steel Shaft
	Stainless Steel	S82	11/16" Hex 304 Stainless Steel Shaft
	Options:	Zinc Plated	
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Optional Springs:	Dual spring loaded with grooves or sprockets	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped	

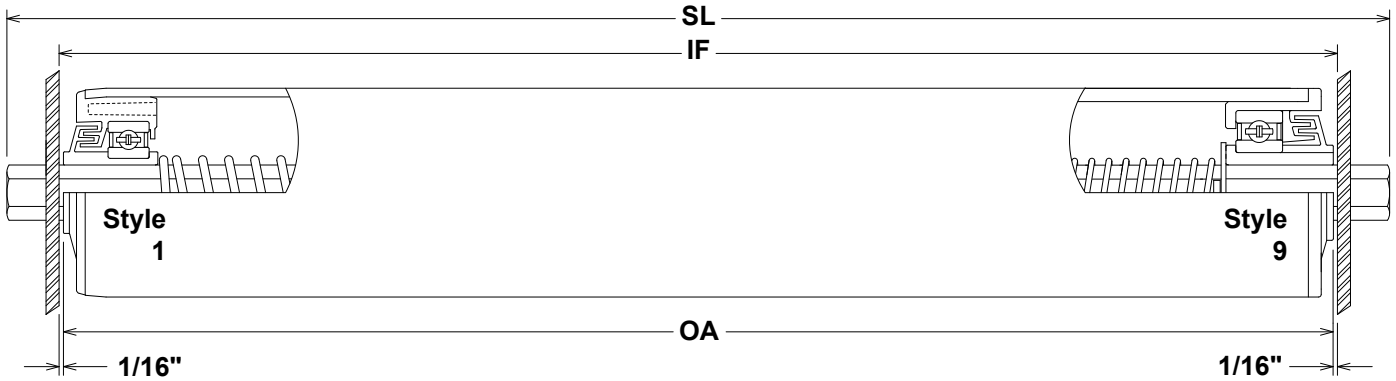
Load Capacity (LBS.)

Frame I.F.	Bearing # 3E6 / 3E6SS	Frame I.F.	Bearing # 3E6 / 3E6SS
12	400	**33**	400
15	400	**36**	374
18	400	**39**	344
21	400	**42**	318
24	400	**45**	296
27	400	**48**	276
30	400	**51**	259

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.50” Dia. x .120” Wall Thickness - 5/8” Hex Shaft



Bearings:	**Type:**	**Part #**	**Style / Description:**
	ABEC-1 Precision	Inquire	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	Inquire	9 / ABEC-1 precision bearing in a fully machined metal housing with double labyrinth seals. For heavy duty applications.
Tube:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C72	3.50" x .120" Wall Carbon Steel
	Galvanized Steel	G72	3.50" x .120" Wall Galvanized Steel
	Stainless Steel	S72	3.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves	
Shaft:	**Materials:**	**Part #**	**Description:**
	Carbon Steel	C88	5/8" Hex Carbon Steel Shaft
	Stainless Steel	Inquire	5/8" Hex 304 Stainless Steel Shaft
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, dual spring loaded, zinc plated	

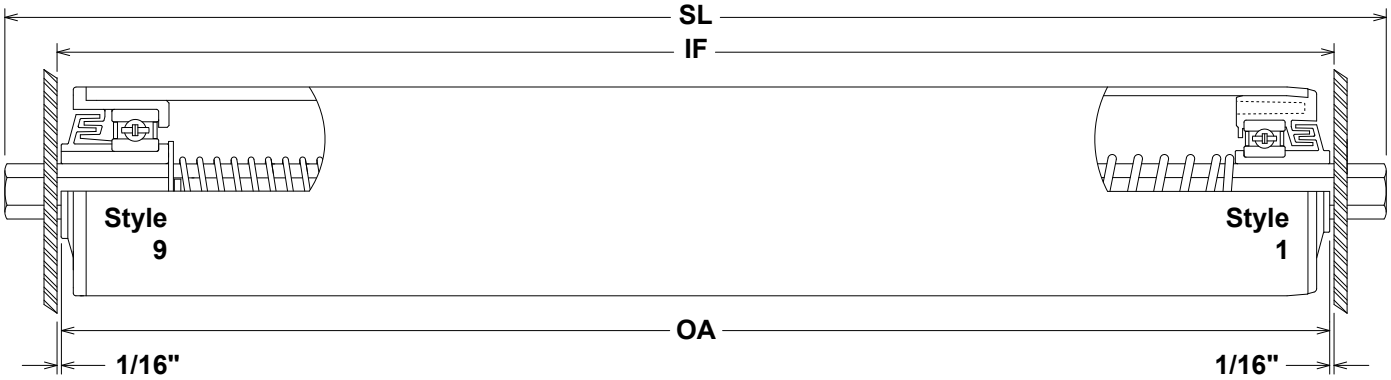
Load Capacity (LBS.)

Frame I.F.	Bearing # ABEC-1	Frame I.F.	Bearing # ABEC-1
12	400	**33**	400
15	400	**36**	374
18	400	**39**	344
21	400	**42**	318
24	400	**45**	296
27	400	**48**	276
30	400	**51**	259

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

3.50” Dia. x .120” Wall Thickness - 11/16” Hex Shaft



Bearings:	Type:	Part #	Style / Description:
	ABEC-1 Precision	3D4	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision, SS	3D4SS	1 / Conductive plastic - Double labyrinth seal construction
	ABEC-1 Precision	34D4	9 / ABEC-1 precision bearing in a fully machined metal housing with double labyrinth seals. For heavy duty applications.
	ABEC-1 Precision, SS	34D4SS	9 / ABEC-1 precision bearing in a fully machined stainless steel housing with double labyrinth seals. For heavy duty applications.

Tube:	Materials:	Part #	Description:
	Carbon Steel	C72	3.50" x .120" Wall Carbon Steel
	Galvanized Steel	G72	3.50" x .120" Wall Galvanized Steel
	Stainless Steel	S72	3.50" x .120" Wall 304 Stainless Steel
	Drive Options:	Sprockets	
	Cover Options:	Urethane Sleeves	
	Finish Options:	Zinc Plated	

Shaft:	Materials:	Part #	Description:
	Carbon Steel	C82	11/16" Hex Carbon Steel Shaft
	Stainless Steel	S82	11/16" Hex 304 Stainless Steel Shaft
	Standard Extensions:	3/4"	
	Standard Springs:	Single spring loaded with shaft depressing to bearing hub	
	Options:	Fixed shaft, through shaft, holes, drilled and tapped, dual spring loaded, zinc plated	

Load Capacity (LBS.)

Frame I.F.	Bearing # 3D4/3D4SS	Bearing # 34D4/34D4SS	Frame I.F.	Bearing # 3D4/3D4SS	Bearing # 34D4/34D4SS
12	400	1350	**33**	400	1155
15	400	1350	**36**	374	1057
18	400	1350	**39**	344	974
21	400	1350	**42**	318	903
24	400	1350	**45**	296	842
27	400	1350	**48**	276	789
30	400	1274	**51**	259	741

* Longer lengths are available upon request.

** Capacities are for uniform loading - Reduce 50% for point loading.

Ralphs-Pugh Poly V Products

1.90” Roller Tube OD Inserts

- Injection Molded
- Conductive plastic with 2 ABEC-1 ball bearings
- 43mm OD (Effective diameter) – 1.69”

Standard roller tube is 1.90” OD x .065” wall thickness.

- Other sizes available – call for information
- 43MM insert OD with belt installed is 1.84” final OD

Poly V Belt Configuration

Accommodates Hutchinson ConveyXonic “J” series - 2, 3, or 4 ribs. **Belts are available from Ralphs-Pugh.**

Ralphs-Pugh Poly V design matches directly with the Itoh motorized roller or if an alternate non powered roller motor option is chosen, Ralphs-Pugh can machine Poly V pulleys to your specification.

Ralphs-Pugh Poly V inserts are sold as a component, or as complete rollers.

Available with 2 shaft configurations

3PB44J43-4 - 7/16" Hex - Spring loaded through shafts or drilled and tapped ends 5/16-18 x 1.00” deep
3PB50J43-4 - 1/2" Round - Drilled and tapped 5/16-18 x 1.00” deep

Safety Considerations: Poly V belts have very little elongation or stretch. Guards or shields should be installed anywhere personnel could come into contact with them due to nip points.

2.50” Roller Tube OD Inserts

- Machined out of Steel or Stainless Steel
- Roller center distances start at 3.00”

Insert effective diameter (OD) is dependent on whether final diameter with belt installed must be less than roller tube diameter.

Standard roller tube is 2.50” OD x .120” wall thickness

- Insert has 1 ABEC-1 precision ball bearing.
- Insert is welded to the tube end for strength and concentricity.

Poly V Belt Configuration

Accommodates Hutchinson ConveyXonic “J” or “K” belts with up to a maximum of 8 ribs per belt dependent on roller centers and loading – See how to determine in “Application Information Required”. **Belts are available from Ralphs-Pugh.**

Ralphs-Pugh Poly V design matches directly with the Itoh motorized roller or if an alternate non powered roller motor option is chosen Ralphs-Pugh can machine Poly V pulleys to your specification.

Ralphs-Pugh Poly V inserts are sold as a component, or as complete rollers.

Standard shaft configuration is 11/16" hex, spring loaded or fixed.

Part Number – 34PB68(J or K belt)(Effective Diameter of insert) – Up to 8

Safety considerations: Poly V belts have very little elongation or stretch. Guards or shields should be installed anywhere personnel could come into contact with them due to nip points.

Application Information Required

- Roller center distance
- Zone length
- Max pallet weight
- Footprint of pallet or dimensions of load to be conveyed
- Max load per roller
- Max load per zone
- Speed of conveyer
- Will conveyor be loaded from both sides? This will determine effective diameter and guarding issues

Features of Poly V Inserts and Rollers

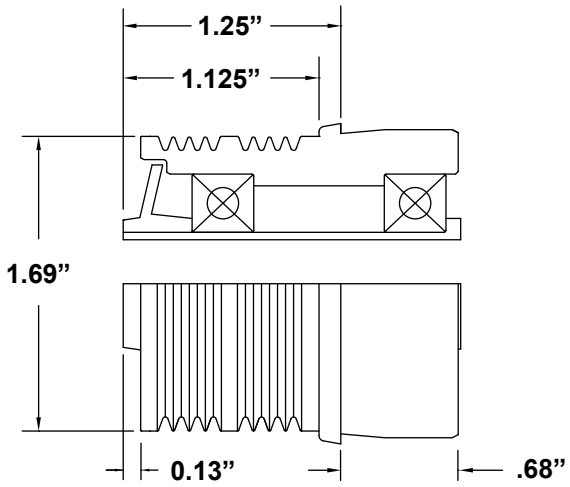
1.90" Series

- One motorized roller can power up to 30 slave rollers depending on application criteria
- Poly V belts don't slip or stretch like "O" rings and are low maintenance
- Reduced noise levels
- Can be used with robotic picking due to the accuracy of electronic stopping and starting
- Insert diameter with belt installed can be smaller in diameter than tube OD allowing product to be transferred off the system in both directions.

2.50" Series

- Reduced noise levels
- Clean – No chains, grease or gear boxes
- Close rollers centers - down to 3.00"
- Reduced maintenance - no lubrication necessary vs chain and sprocket drive systems
- Can be used with robotic picking due to the accuracy of electronic stopping and starting
- Tighter roller centers than chain and sprocket configurations
- Insert diameter with belt installed can be smaller in diameter than tube OD allowing product to be transferred off the system in both directions.
- Can move pallet loads up to 3300 pounds – dependent on application data and chosen drive method

Poly V Belt Inserts - 43MM Effective Diameter



3PB44J43-4

Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	2
Option:	ABEC-1 Precision	440SS	2

Insert Material: Conductive Plastic

Bore:	7/16" Hex	**Part #**	3PB44J43-4
	1/2" Round		3PB50J43-4

Tube: 1.90" x .065" - Standard
Options: 1.75" x .065"
2.50" x .083
Others

Roller Centers: 3.00" - Standard

Installation method: Press fit into tube and swage

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

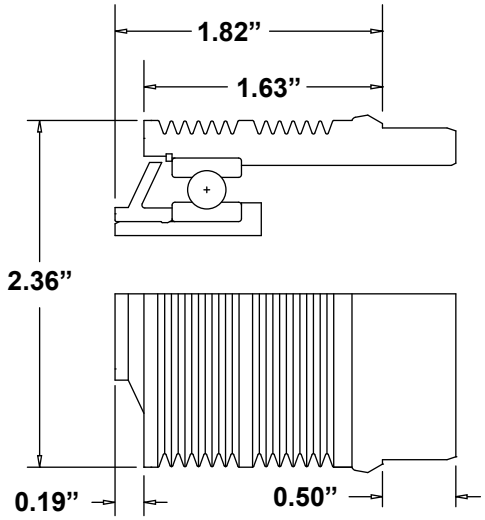
# of ribs	**Series**	**Part #**
2, 3, 4	"J"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

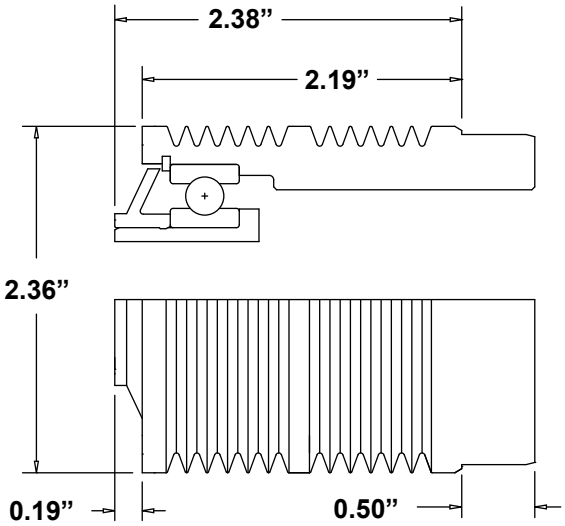
Belt Supplier: Ralphs-Pugh

Insert Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh will machine a Poly V pulley for installation with your preferred drive.

Poly V Belt Inserts - 60MM Effective Diameter - 6 Ribs



34PB68J60-6



34PB68K60-6

Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68J60-6 "J" series belts
34PB68K60-6 "K" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

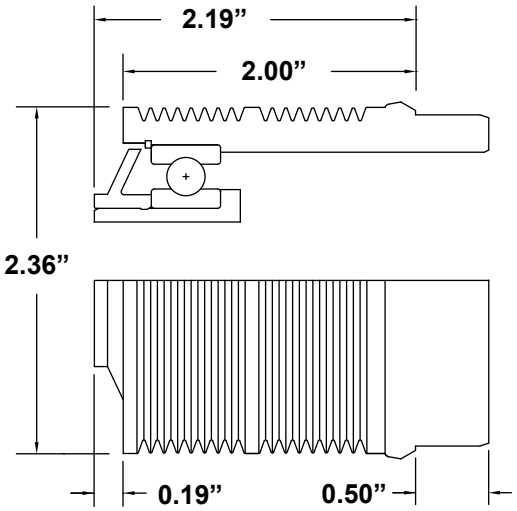
# of ribs	**Series**	**Part #**	
2 - 6	"J"	Inquire	Dependent on load requirements and roller center distances
2 - 6	"K"	Inquire	Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

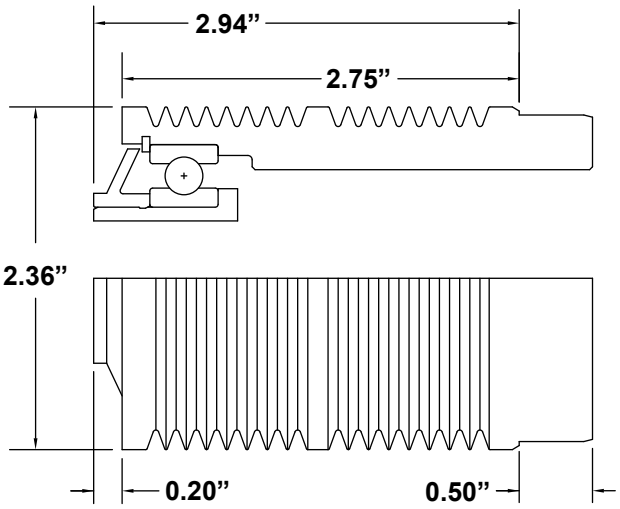
Belt Supplier: Ralphs-Pugh

Insert Drive Options: Motorized roller or Ralphs-Pugh will machine a Poly V pulley for installation with your preferred drive.

Poly V Belt Inserts - 60MM Effective Diameter - 8 Ribs



34PB68J60-8



34PB68K60-8

Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68J60-8 "J" series belts
34PB68K60-8 "K" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

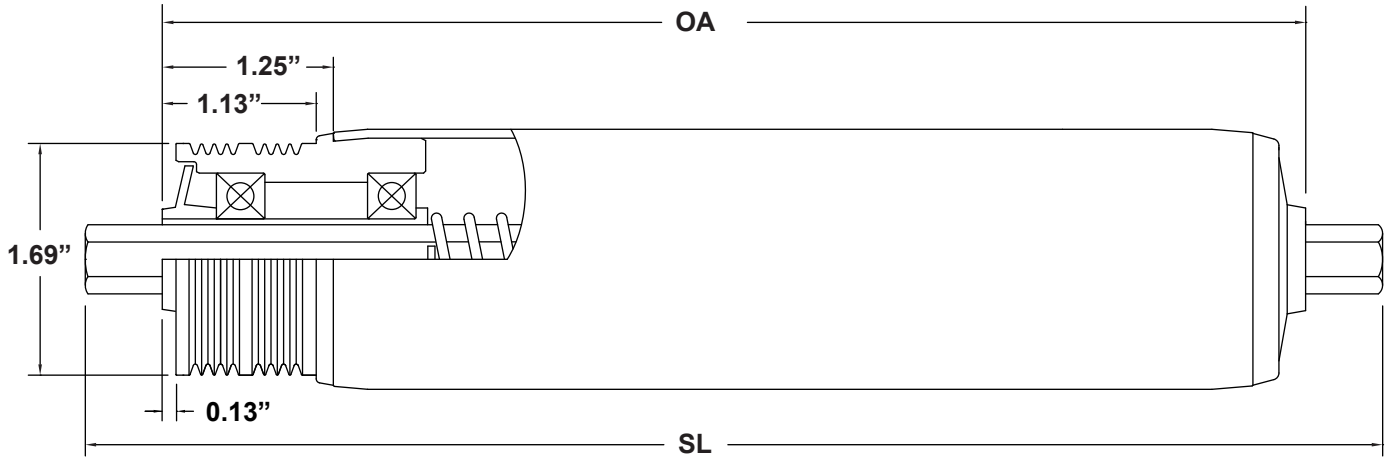
# of ribs	**Series**	**Part #**	
2 - 8	"J"	Inquire	Dependent on load requirements and roller center distances
2 - 8	"K"	Inquire	Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

Insert Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh will machine a Poly V pulley for installation with your preferred drive.

1.90” O.D. Poly V Belt Roller - 3PB44J43-4.3RP.G46.C68



Bearing:	Type:		Qty:
	ABEC-1 Precision	Chromium	2
Option:	ABEC-1 Precision	440SS	2

Insert Material: Conductive Plastic

Bore: 7/16" Hex **Part #** 3PB44J43-4

Tube: 1.90" x .065" - Standard

Roller Centers: 3.00" - Standard

Installation method: Press fit into tube and swage

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

# of ribs	Series	Part #
2, 3, 4	"J"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh can machine Poly V pulleys to your specifications for non motorized roller drive options.

Load Capacity

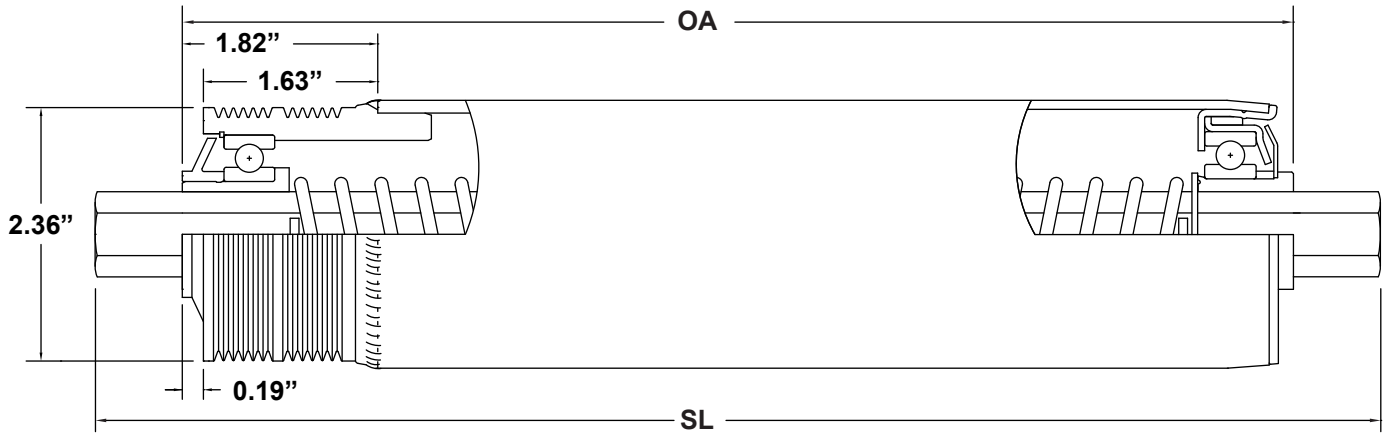
Frame I.F.	Load Capacity (lbs.)	Frame I.F.	Load Capacity (lbs.)
12	297	**33**	95
15	228	**36**	87
18	185	**39**	80
21	156	**42**	74
24	134	**45**	69
27	118	**48**	64
30	105	**51**	60

* Load capacity with aluminum tube or shaft is 33% of steel capacity.

** Longer lengths are available upon request.

*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” O.D. 6 Rib Poly V “J” Series Belt Roller - 34PB68J60-6.33W9.G56.C82



Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68J60-6 "J" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"
Options: Inquire

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

# of ribs	**Series**	**Part #**
2 - 6	"J"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

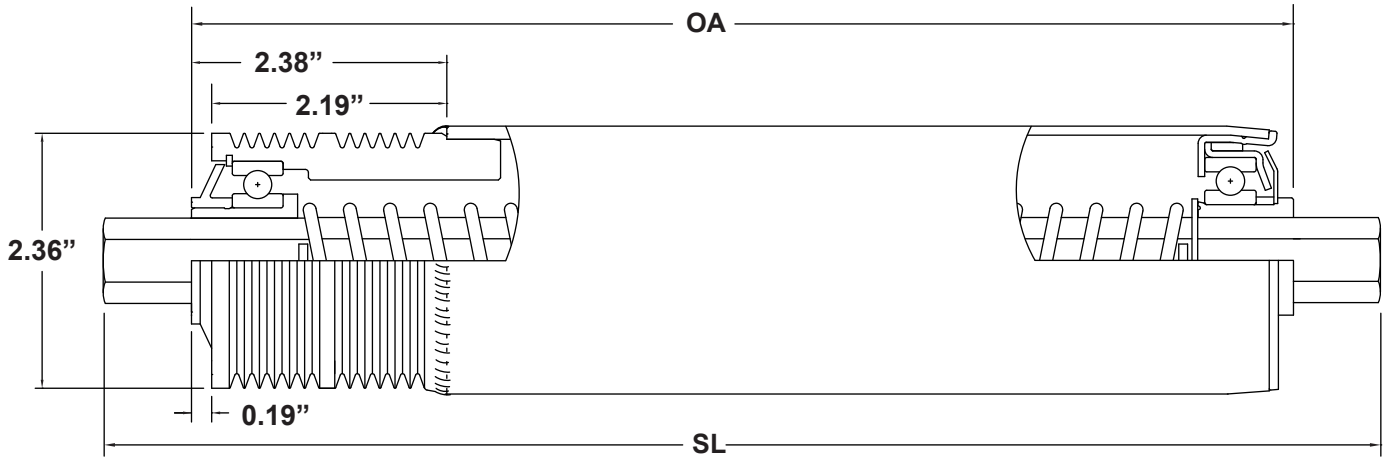
Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh can machine Poly V pulleys to your specifications for non motorized roller drive options.

Load Capacity

Frame I.F.	Load Capacity (lbs.)	Frame I.F.	Load Capacity (lbs.)
12	1000	**33**	759
15	1000	**36**	690
18	1000	**39**	631
21	1000	**42**	581
24	1000	**45**	538
27	947	**48**	501
30	843	**51**	467

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” O.D. 6 Rib Poly V “K” Series Belt Roller - 34PB68K60-6.33W9.G56.C82



Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68K60-6 "K" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"
Options: Inquire

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

# of ribs	**Series**	**Part #**
2 - 6	"K"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

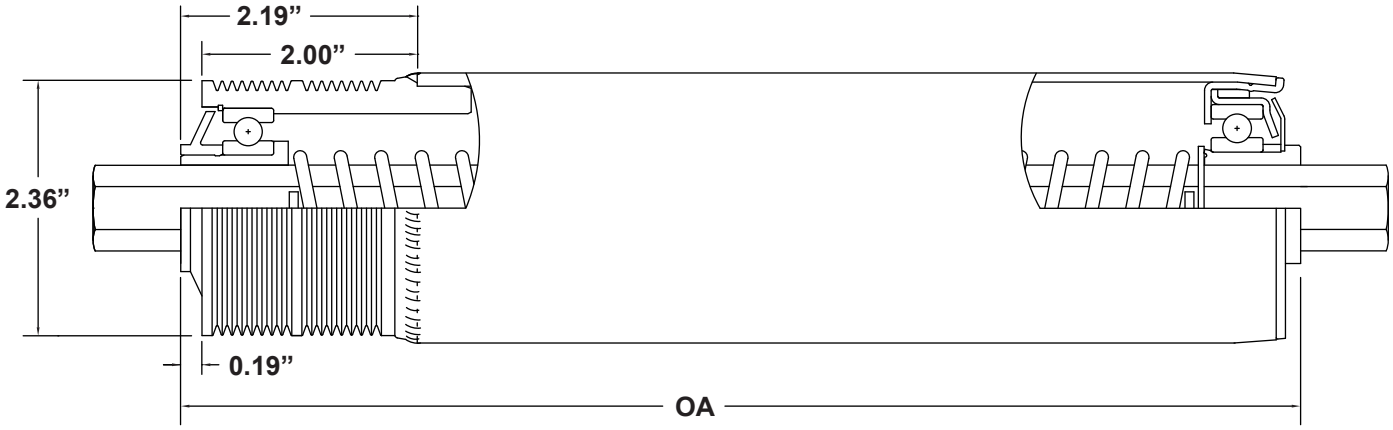
Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh can machine Poly V pulleys to your specifications for non motorized roller drive options.

Load Capacity

Frame I.F.	Load Capacity (lbs.)	Frame I.F.	Load Capacity (lbs.)
12	1000	**33**	759
15	1000	**36**	690
18	1000	**39**	631
21	1000	**42**	581
24	1000	**45**	538
27	947	**48**	501
30	843	**51**	467

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” O.D. 8 Rib Poly V “J” Series Belt Roller - 34PB68J60-8.33W9.G56.C82



Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68J60-8 "J" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"
Options: Inquire

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

# of ribs	**Series**	**Part #**
2 - 8	"J"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

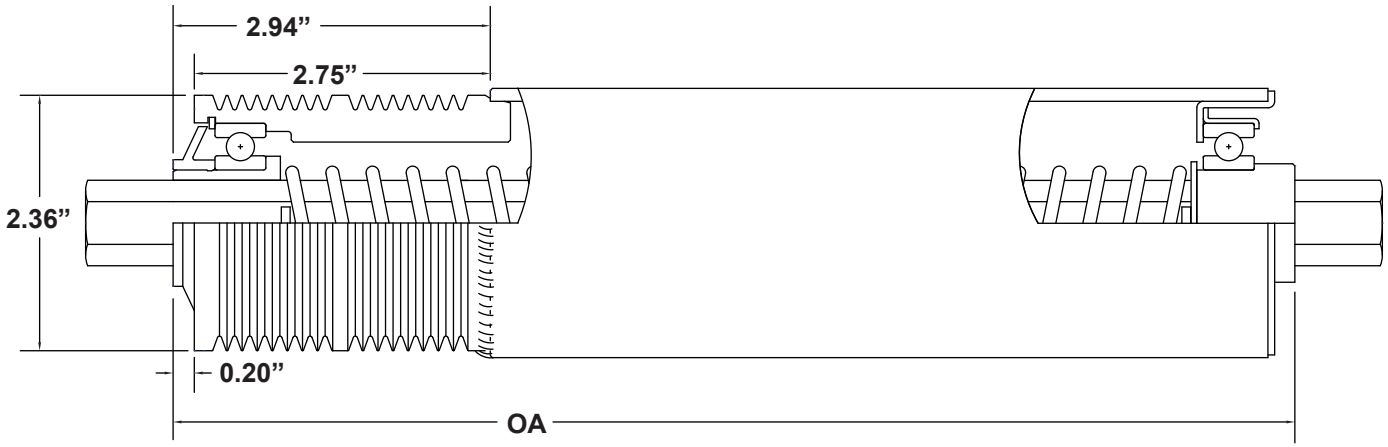
Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh can machine Poly V pulleys to your specifications for non motorized roller drive options.

Load Capacity

Frame I.F.	Load Capacity (lbs.)	Frame I.F.	Load Capacity (lbs.)
12	1000	**33**	759
15	1000	**36**	690
18	1000	**39**	631
21	1000	**42**	581
24	1000	**45**	538
27	947	**48**	501
30	843	**51**	467

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

2.50” O.D. 8 Rib Poly V “K” Series Belt Roller - 34PB68K60-8.33W9.G56.C82



Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Steel or Stainless Steel

Bore: 11/16" Hex **Part #** 34PB68K60-8 "K" series belts

Tube: 2.50" OD x .120" wall thickness - Standard
Options: Inquire

Roller Centers: 3.00" - 12.00"
Options: Inquire

Installation Method: Press fit into tube and weld

Belts: ConveyXonic® - High Tension Poly V - elastic nylon reinforced rubber

# of ribs	**Series**	**Part #**
2 - 8	"K"	Inquire - Dependent on load requirements and roller center distances

Belt Manufacturer: Hutchinson Belt Drive Systems

Belt Supplier: Ralphs-Pugh

Drive Options: Motorized roller - Ralphs-Pugh insert is a direct match to Itoh Denki motorized rollers. Ralphs-Pugh can machine Poly V pulleys to your specifications for non motorized roller drive options.

Load Capacity

Frame I.F.	Load Capacity (lbs.)	Frame I.F.	Load Capacity (lbs.)
12	1000	**33**	759
15	1000	**36**	690
18	1000	**39**	631
21	1000	**42**	581
24	1000	**45**	538
27	947	**48**	501
30	843	**51**	467

* Load capacity with aluminum tube or shaft is 33% of steel capacity.
** Longer lengths are available upon request.
*** Capacities are for uniform loading - Reduce 50% for point loading.

Ralphs-Pugh Cantilever Rollers - Plastic and Metal Tubes

Ralphs-Pugh cantilever rollers are available in many combinations of bearings, shafts and tube materials. We offer cantilever rollers for both gravity and powered applications. Cantilevered rollers are unique in that one end of the roller is capped preventing any type of contamination from reaching the bearing. The opposite end has an extended fixed shaft that can be threaded or standard finish. Typical applications are vertical guide rollers and belt guides.

Plastic Cantilever Roller Information:

Materials:

Tubes:

- "Hi-Impact" white PVC with UV stabilizers

Drive Options: Grooves

Special Options:

- Plastic tube can be internally steel reinforced

Shaft Materials:

- Carbon Steel
- Stainless Steel
- Aluminum
- Zinc and Nickel Plating Available

Shaft Configurations / Options:

- Hex, Round
- Threaded or Standard Finish

Bearings:

Commercial Grade Ball Bearings:

Steel and Stainless Steel with or without labyrinth seal systems on the extended shaft end depending on tube configuration.

ABEC-1 Precision Bearings:

Chromium alloy steel or Stainless Steel ball bearings in a plastic housing, with a labyrinth seal system on the extended shaft end.

Metal Cantilever Roller Information:

Materials:

Tubes:

- Carbon Steel, Galvanized Steel, Stainless Steel, Aluminum

Tubes Finishes:

- Zinc and Nickel Plating
- Anodizing
- Polished
- Electropolished
- Passivated

Drive Options:

- Grooves

Cover Options:

- Urethane Sleeves
- HDPE
- PVC

Shaft Materials:

- Carbon Steel
- Stainless Steel
- Aluminum
- Zinc and Nickel Plating Available

Shaft Configurations / Options:

- Hex, Round
- Threaded or Standard Finish

Bearings:

Commercial Grade Ball Bearings: Carbon Steel and Stainless Steel with or without labyrinth seal systems on the extended shaft end depending on tube configuration.

ABEC-1 Precision Bearings: Chromium alloy steel or Stainless Steel ball bearings in an engineered conductive plastic housing with a labyrinth seal system on the extended shaft end.

Ralphs-Pugh Urethane Products

Urethane elastomers are unique because they combine many of the advantages of rigid plastics, metals and ceramics with the elasticity of rubber. Urethane resists abrasion and reduces the affects of shock and impact loading on the tubes and bearings. Urethane covered rollers will not slip like PVC and in most applications will not mar conveyed materials. Urethane provides the ultimate in wear resistance and noise dampening making it the material of choice for our sleeved and tapered rollers. In addition, our urethane shaft adapters will eliminate frame wear caused by metal to metal contact and extend the life of your conveyor frame.

Ralphs-Pugh offers several types of urethane products; **Cast Sleeves and Tapers, Foam Tapers, Extruded Sleeves, and Shaft Adapters.**

Cast Urethane is a high density polymer material. Standard hardness is between 70 and 90 Shore A durometer. Cast urethane is available on tapered and sleeved rollers.

Urethane Foam is a lower density material. It is lighter than cast material and requires less power to start up on powered systems. Its hardness is typically 65 Shore A durometer. Urethane foam is limited to tapered rollers.

Extruded Sleeves are available in various lengths and colors. Standard color is black. Hardness is 85 Shore A durometer.

Urethane Shaft Adapters - 7/16” hex adapter over an interior 5/16” hex steel inner support shaft.

Urethane Limitations and Considerations:

When evaluating an application the following material limitations need to be considered:

- Temperature: **200 degrees F. maximum recommended.**
- Hydrolysis: Steam- Not suited for exposure to steam.
  Water- Wet environments okay. Note maximum temperature limit.
- Chemicals: Strong Acids and base chemicals can rapidly degrade material.
  Inquire before ordering.

Drive Options for Tapered and Sleeved Rollers: (See drawings this section)

- Grooves for line shaft or motorized slave rollers
- Sprockets on either end.
- Open area on core tube for drive belts
- Metal drive ring over urethane for drive belt

Ralphs-Pugh Urethane Product Advantages

The table below highlights the advantages of urethane versus metal, plastic, and rubber materials. For assistance in determining which type of material is best for your application, contact us today.

	Metal / Urethane	Plastic / Urethane	Rubber / Urethane
Abrasion Resistance	Urethane		
Corrosion Resistance (rust)	Urethane		
Impact Resistance	Urethane		
Noise Abatement	Urethane		
Non-Brittle Upon Impact		Urethane	
Elastomeric Memory		Urethane	
Abrasion Resistance		Urethane	
Abrasion Resistance			Urethane
Cut/Tear Resistance			Urethane
Load Bearing Capacity			Urethane
Ozone Resistance			Urethane
Harder Durometer Range			Urethane
Mold/Fungi Resistance			Urethane
Non- Marking			Urethane
Color Availability			Urethane

Notes:

Ralphs-Pugh Urethane Tapered Rollers

Ralphs-Pugh Urethane Tapered Rollers are recommended for continuous and intermittent gravity or powered turns. Our proprietary casting process ensures the urethane will not "walk". Our tapered rollers are manufactured to standard turn radius designs or custom turn radius designs offering a "True Taper". True tapers eliminate the need for sideboards and results in directionally stable package handling. Urethane offers a variety of advantages versus steel shells. Most notable advantages are shock and impact resistance, non-marking surface and superior cut, tear, and wear resistance. *When combined with* ***Ralphs-Pugh Urethane Hexagonal Shaft Adapters and precision bearings, these rollers are the quietest available.***

How to use this section:

Our Customer Service Department will require the following information to assist in the proper selection of a Urethane Tapered Roller:

- Small and Large End Diameters or Inside Turn Radius
- Durometer of Urethane
- Gravity or Powered – (if powered, grooves, sprockets or steel drive rings)
- Load and Speed
- Environment
- Shaft Size and Configuration
- I.F. – Inside Frame Dimension

Tube Information:

Tube Materials: Galvanized Steel, Carbon Steel, Stainless Steel, and Aluminum.

Drive Options: Location and dimensions of sprockets, grooves, one way clutch, or steel drive rings (see drawings in this section).

Shaft Information:

Shaft Materials: Carbon steel, stainless steel, and aluminum. Zinc and nickel plating are available.

Shaft Configurations: Hexagonal and round

Shaft Extensions: Standard is 9/16" from the hub of the bearing to the end of the shaft per side. If you require a specific shaft length, notify customer service when ordering.

Shaft Deburring: Standard on all shaft ends.

Springs: Standard is dual spring loaded with shaft depressing to the hub of the bearing.

Shaft End Options: Plastic or urethane adapters over an internal metal shaft, fixed shaft, through shaft, threaded ends, drilled and tapped ends, drilled holes, milled flats, D-shaft ends, plastic flat caps.

Bearing Information:

Stamped Commercial: An economical commercial grade plated steel bearing with hardened steel balls and raceways and a full compliment of balls. There is no ball retainer and outer raceways are either machined or stamped. Normal lubrication is light oil, however they can be ordered grease packed for powered applications. Loads and speed capabilities are classified as light to moderate. These bearings are identified by a 22 prefix in the part number. They are manufactured to our specifications by outside vendors. Example – 22A6

Steel, Commercial: These are an economical commercial grade plated steel ball bearing in an engineered conductive or non-conductive plastic housing with or without labyrinth seals. All plastic housings are designed, engineered, and molded in our facility. The raceways and full compliment of balls are hardened steel. Loads and speeds are classified as light to moderate. Normal lubrication is light oil with grease packing available for powered systems. For optimum performance and bearing life these units are swaged into the metal tubes. These bearings are identified by a 2 prefix in the part number. Example - 2A6

Stainless Steel: These are commercial grade stainless steel ball bearings in an engineered conductive or non-conductive plastic housing with or without labyrinth seals. All plastic housings are designed, engineered, and molded in our facility. The combination of stainless steel and available labyrinth seals offers the ultimate solution to wet and corrosive applications. The raceways and full compliment of balls are series 300 stainless steel. Loads and speeds are classified as light to moderate. Normal lubrication is light oil with grease packing available for powered systems. Food grade lubricants are also available. For optimum performance and bearing life, these units are swaged into the metal tubes. These bearings are identified by a 2 prefix in the part number. Example – 2A7

ABEC-1 Precision: These are ABEC – 1 precision chrome alloy steel bearings grease packed with hardened and ground balls and raceways and a ball retainer. They are housed in an engineered plastic housing designed, engineered, and molded in our facility in conductive or non-conductive materials with or without labyrinth seals. These bearings offer the highest load and speed capabilities, the lowest noise levels and have the longest life span of any available bearing unit. For optimum performance and bearing life, they are swaged into the metal tubes. These bearings are identified by a 3 prefix in the part number. Example - 3A6.

ABEC-1 Precision bearings in stamped zinc plated steel housings: Economical alternative to ABEC-1 bearings in plastic housings. These bearing inserts work well in higher load and speed applications while maintaining very low noise levels. The ABEC-1 bearing has hardened and ground balls and raceways, a ball retainer and is grease packed (25% pack) at the factory. Non-Contact Rubber Seals (LLB) protect the caged ball compliment. The stamped zinc plated housing on some variations incorporates a dust shield for added protection to the precision bearing. The life expectancy of a precision bearing is many times that of a non-precision bearing. For optimum performance and bearing life we recommend the bearing units be swedged into the metal tubes. These bearings have a 33 prefix in the part number. **Available for metal tubes only.** Example - 33RP

Bushing: These non ball bearing style bearing units are designed for light to medium loads and slow speeds. Typical installations are push conveyors and gravity conveyors. They are ideal for sanitary, rust and corrosion resistant, and maintenance free wet or dry applications. Bearing surface materials include Ultra (Acetal plastic with Teflon additives), CS2 (Acetal) and ABS plastic. Bushing inserts include nylon, stainless steel, and carbon steel. These bearings are identified by a 5 in the prefix of the part number. Example - 5B5

Urethane Information:

Color: Standard: Black
Options: Inquire with Customer Service

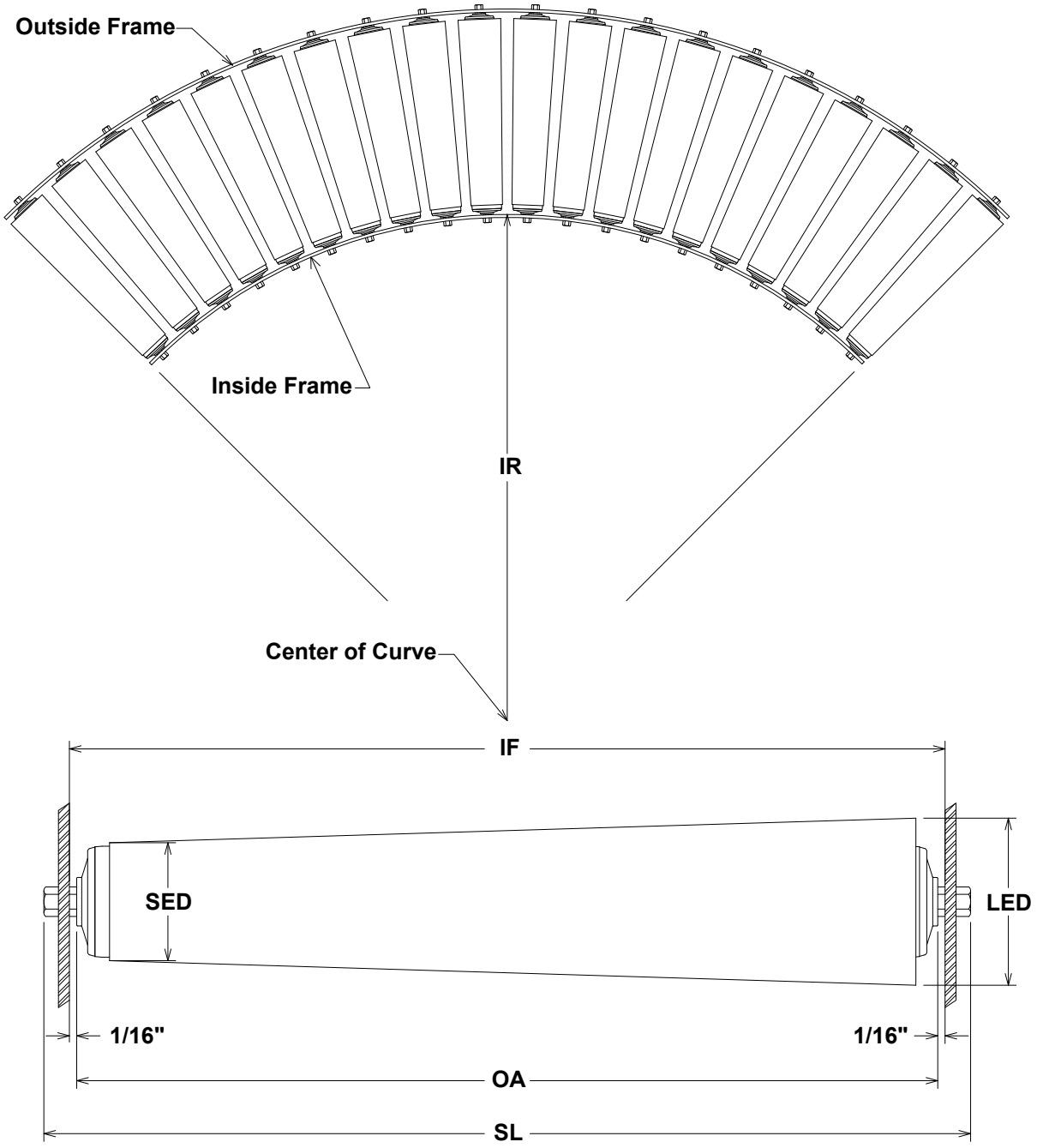
Durometer: Cast Urethane - 90 Shore A standard
Foam Tapers - 65 Shore A (+/- 5)
Options: Available, inquire with Customer Service

Optional Material: Food grade available

Roller Length: I. F. = Inside Frame distance. This measurement allows 1/16” of freeplay per side for a total of 1/8” per roller. O.A. = Overall roller length. This is the measurement from bearing hub to bearing hub of the roller. For calculation purposes I.F. –1/8” = O.A.

Drawings are provided to illustrate the required configuration and dimensional information.
Please have them available when talking to Customer Service.

Gravity Urethane Tapered Roller



Company: _____

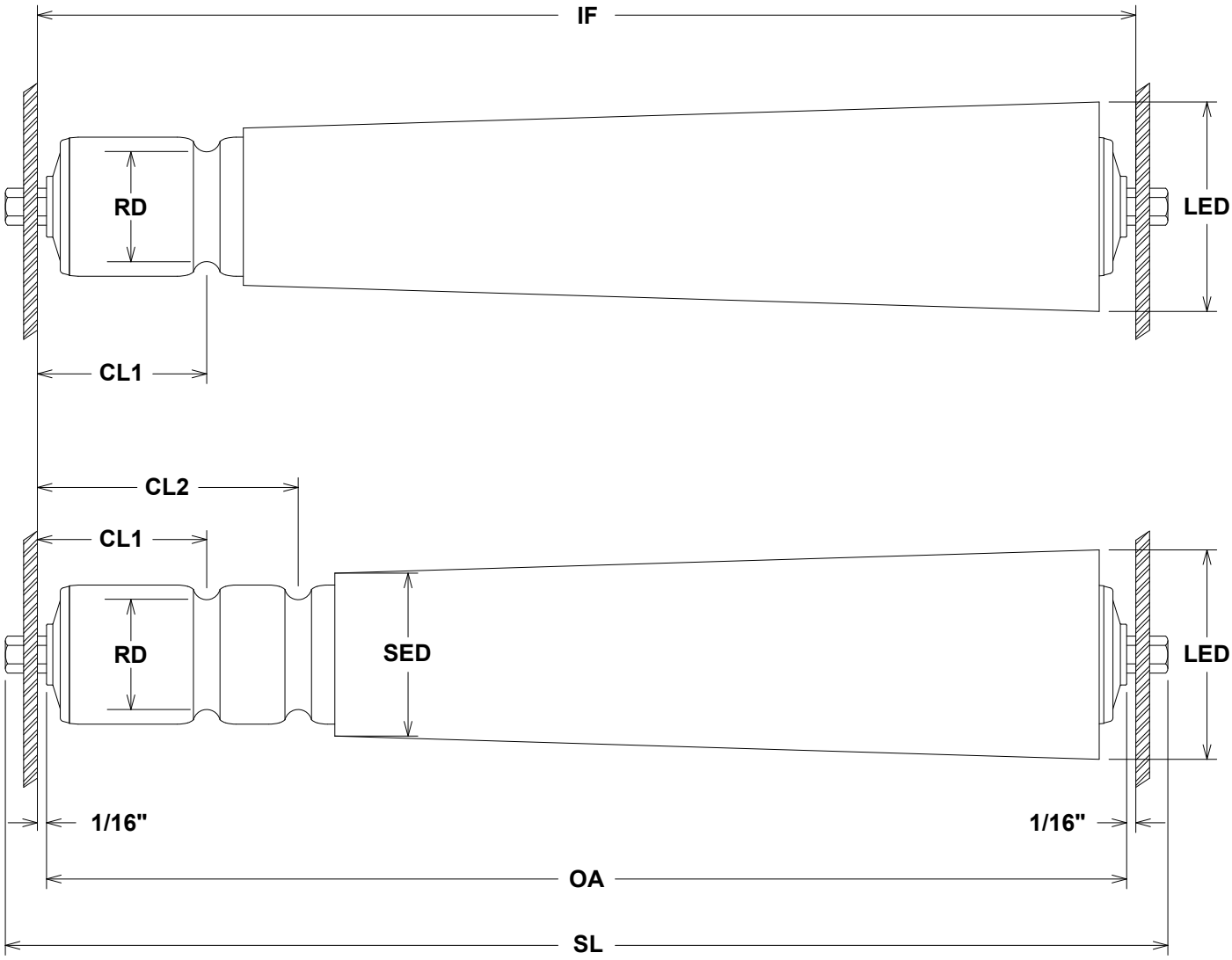
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
IR =	_____	Inside Radius of Curve
SED =	_____	Small End Diameter
LED =	_____	Large End Diameter

“O” Ring Driven Urethane Tapered Roller



Company: _____

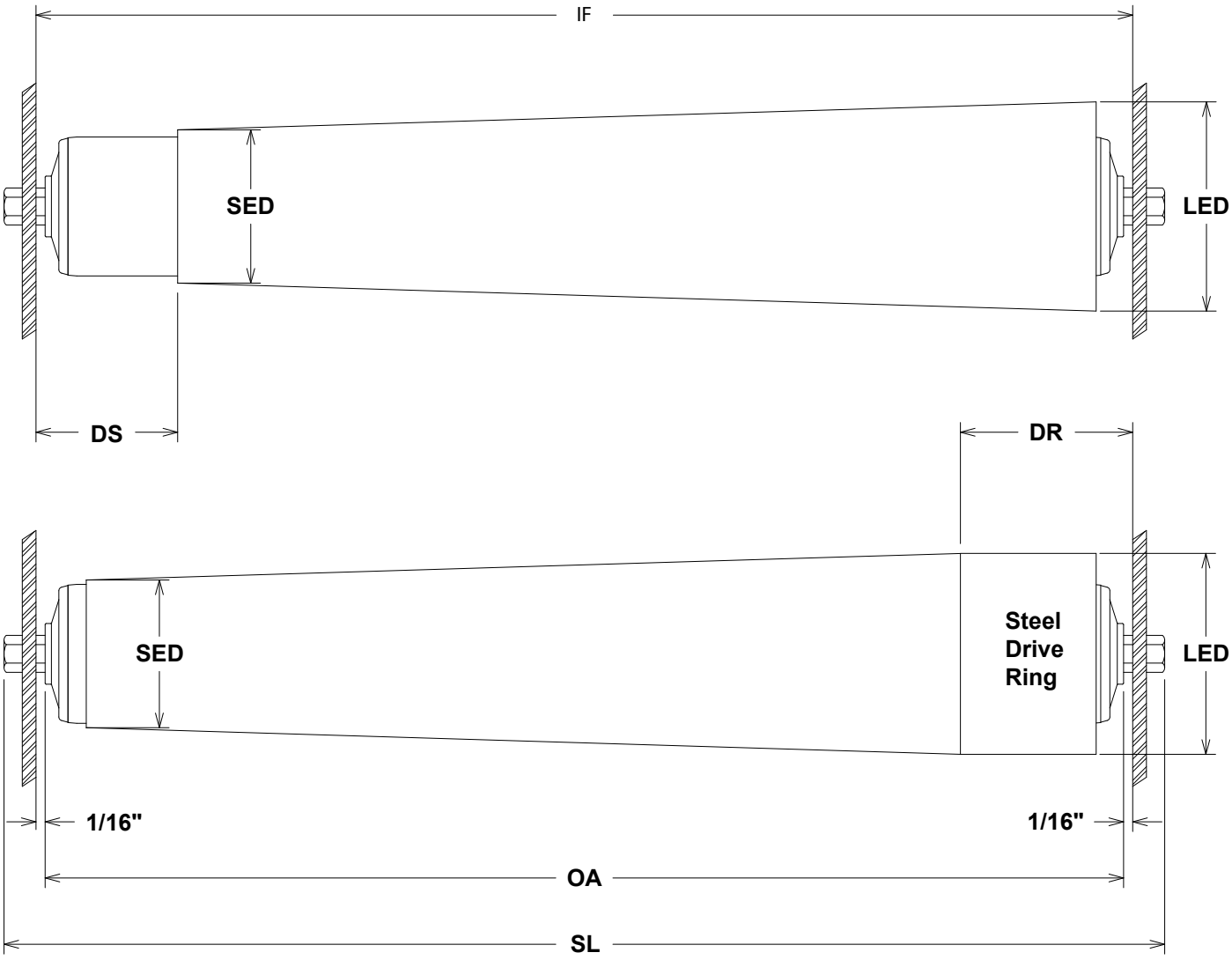
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
IR =	_____	Inside Radius of Curve
SED =	_____	Small End Diameter
LED =	_____	Large End Diameter
CL1 =	_____	Frame to Groove Center
CL2 =	_____	Frame to Groove Center
RD =	_____	Root Diameter of Grooves

“V” Belt Driven Urethane Tapered Roller



Company: _____

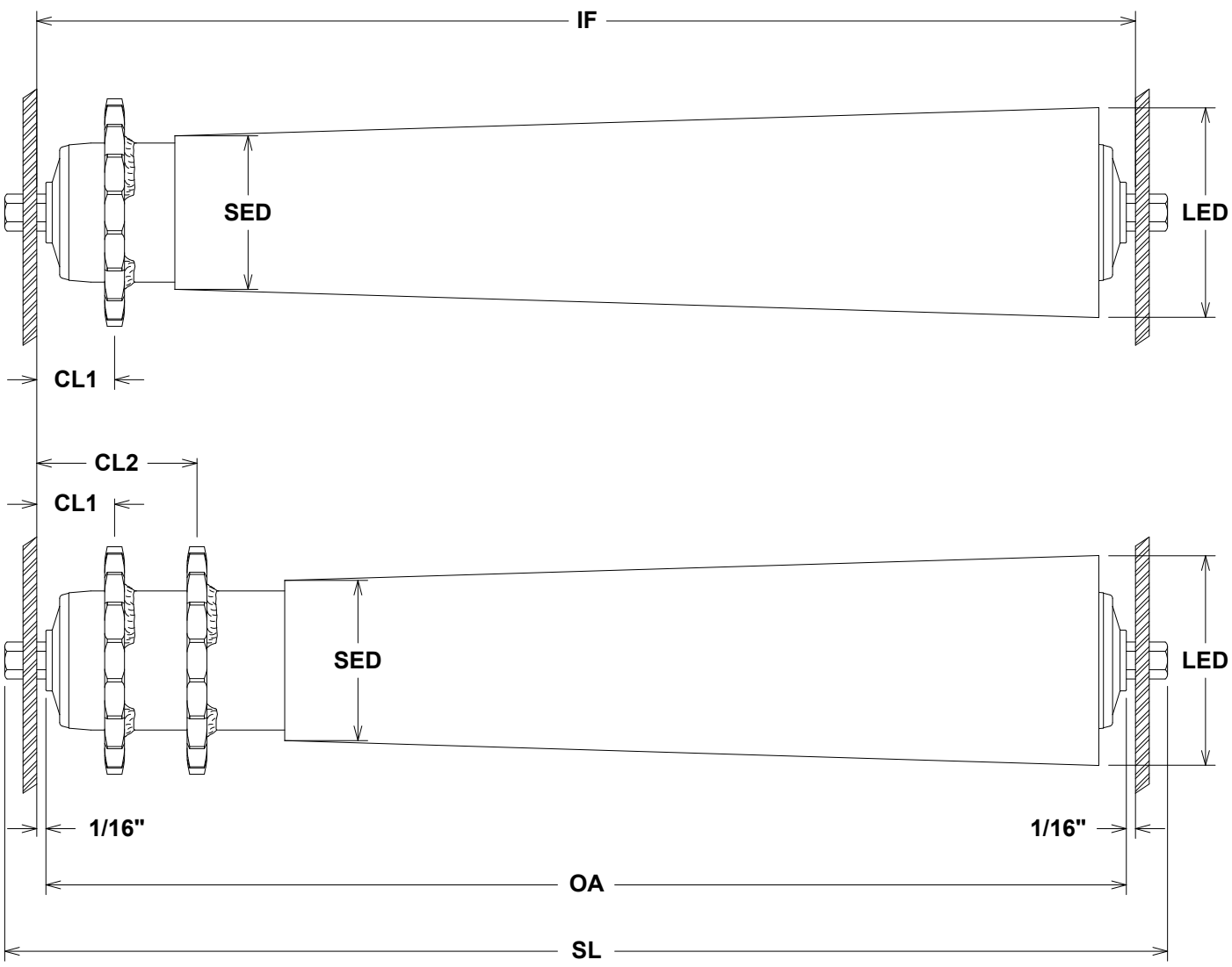
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
IR =	_____	Inside Radius of Curve
SED =	_____	Small End Diameter
LED =	_____	Large End Diameter
DS =	_____	Drive Section (BARE)
DR =	_____	Drive Ring Information

Sprocket Driven Urethane Tapered Roller



Company: _____

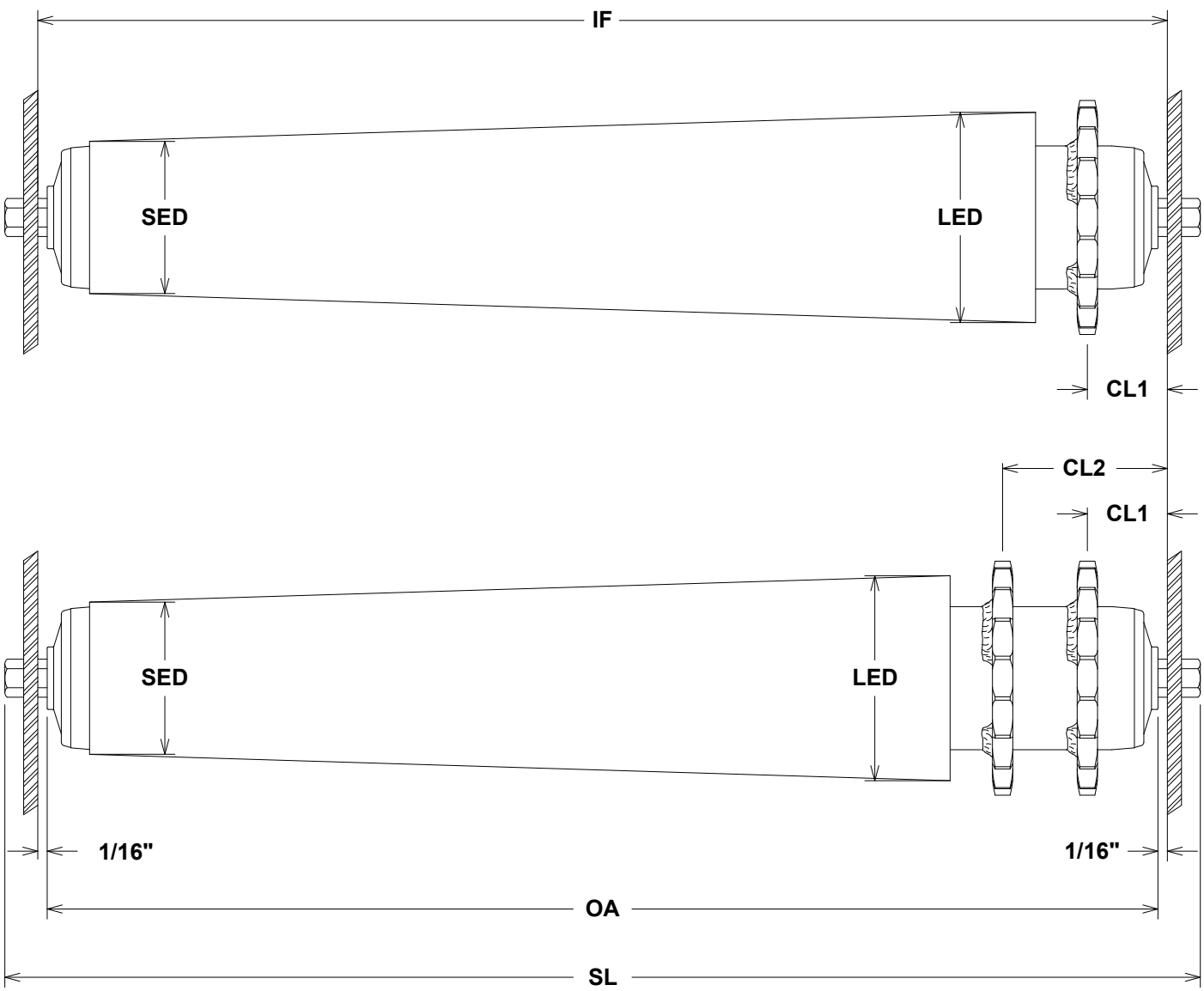
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
IR =	_____	Inside Radius of Curve
SED =	_____	Small End Diameter
LED =	_____	Large End Diameter
CL1 =	_____	Frame to Sprocket Center
CL2 =	_____	Frame to Sprocket Center
Sprocket =	_____	Chain Size / # of Teeth

Sprocket Driven Urethane Tapered Roller



Company: _____

Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
IR =	_____	Inside Radius of Curve
SED =	_____	Small End Diameter
LED =	_____	Large End Diameter
CL1 =	_____	Frame to Sprocket Center
CL2 =	_____	Frame to Sprocket Center
Sprocket =	_____	Chain Size / # of Teeth

Ralphs-Pugh Urethane Sleeved Rollers

Ralphs-Pugh urethane sleeved rollers are available in two styles, cast (for the best properties) or an extruded sleeve. Cast urethane prevents the sleeve from "walking" through the use of our proprietary casting process. Extruded sleeves utilize an interference fit. Urethane offers a variety of advantages over a standard steel tube. The most notable are shock and impact resistance, non-marking surface and superior cut, tear, and wear resistance. *When combined with* **Ralphs-Pugh Urethane Hexagonal Shaft Adapters and precision bearings, these rollers are the quietest available.**

How to use this section:

Our Customer Service department will require the following information to assist in the proper selection of a urethane sleeved roller:

- Finished diameter of sleeved roller
- Durometer of urethane
- Surface Finish – As cast (smooth) or sanded (matte)
- Gravity or powered – (if powered, grooves or sprockets)
- Load and speed
- Environment
- Shaft size and configuration
- I.F. – Inside frame dimension
- Any side impact

Tube Information:

Tube Materials: Galvanized steel, carbon steel, stainless steel and aluminum.

Drive options: Location and dimensions of sprockets or grooves, one way clutch - (See drawings in this section).

Shaft Information:

Shaft Materials: Carbon steel, stainless steel, and aluminum. Zinc and nickel plating are available.

Shaft Configurations: Hex and Round

Shaft Extensions: Standard is 9/16" from the hub of the bearing to the end of the shaft per side. If you require a specific shaft length notify Customer Service when ordering.

Shaft Deburring: Standard on all shaft ends

Springs: Standard is dual spring loaded with shaft depressing to the hub of the bearing

Shaft End Options: Plastic or urethane adapters over an internal metal shaft, fixed shaft, through shaft, threaded ends, drilled and tapped ends, drilled holes, milled flats, D-shaft ends, plastic flat caps.

Bearing Information:

Stamped Commercial: An *economical commercial grade plated steel bearing with hardened steel balls and raceways and a full compliment of balls.* There is no ball retainer and outer raceways are either machined or stamped. Normal lubrication is light oil, however they can be ordered grease packed for powered applications. Loads and speed capabilities are classified as light to moderate. These bearings are identified by a 22 in the prefix of the part number. They are manufactured to our specifications by outside vendors.
Example – 22A6

Steel, Commercial: These *are an economical commercial grade plated steel ball bearing in an engineered conductive or non-conductive plastic housing with or without labyrinth seals.* All plastic housings are designed, engineered, and molded in our facility. The raceways and full compliment of balls are hardened steel. Loads and speeds are classified as light to moderate. Normal lubrication is light oil with grease packing available for powered systems. For optimum performance and bearing life, these units are swaged into the metal tubes. These bearings are identified by a 2 in the prefix in the part number. Example - 2A6

Stainless Steel: These are commercial grade stainless steel ball bearings in an engineered conductive or non-conductive plastic housing with or without labyrinth seals. All plastic housings are designed, engineered, and molded in our facility. *The combination of stainless steel and available labyrinth seals offers the ultimate solution to wet and corrosive applications.* The raceways and full compliment of balls are series 300 stainless steel. Loads and speeds are classified as light to moderate. Normal lubrication is light oil with grease packing available for powered systems. Food grade lubricants are also available. For optimum performance and bearing life, these units are swaged into the metal tubes. These bearings are identified by a 2 in the prefix of the part number. Example – 2A7

ABEC-1 Precision: These are ABEC-1 precision chrome alloy steel bearings grease packed with hardened and ground balls and raceways and a ball retainer. They are housed in an engineered plastic housing designed, engineered, and molded in our facility in conductive or non-conductive materials with or without labyrinth seals. *These bearings offer the highest load and speed capabilities, the lowest noise levels and have the longest life span of any available bearing unit.* For optimum performance and bearing life, they are swaged into the metal tubes. These bearings are identified by a 3 in the prefix of the part number. Example - 3A6

ABEC-1 Precision bearings in stamped zinc plated steel housings: Economical alternative to ABEC-1 bearings in plastic housings. These bearing inserts work well in higher load and speed applications while maintaining very low noise levels. The ABEC-1 bearing has hardened and ground balls and raceways, a ball retainer and is grease packed (25% pack) at the factory.

Non-Contact Rubber Seals (LLB) protect the caged ball compliment. The stamped zinc plated housing on some variations incorporates a dust shield for added protection to the precision bearing. The life expectancy of a precision bearing is many times that of a non-precision bearing. For optimum performance and bearing life we recommend the bearing units be swaged into the metal tubes. These bearings have a 33 prefix in the part number. Available for metal tubes only**.** Example - 33RP

Bushing: These non ball bearing style bearing units are designed for light to medium loads and slow speeds. Typical installations are push conveyors and gravity conveyors. *They are ideal for sanitary, rust and corrosion resistant, maintenance free wet or dry applications.* Bearing surface materials include Ultra (Acetal plastic with Teflon additives), CS2 (Acetal) and ABS plastic. Bushing inserts include nylon, stainless steel, and carbon steel. These bearings are identified by a 5 in the prefix of the part number. Example - 5B5

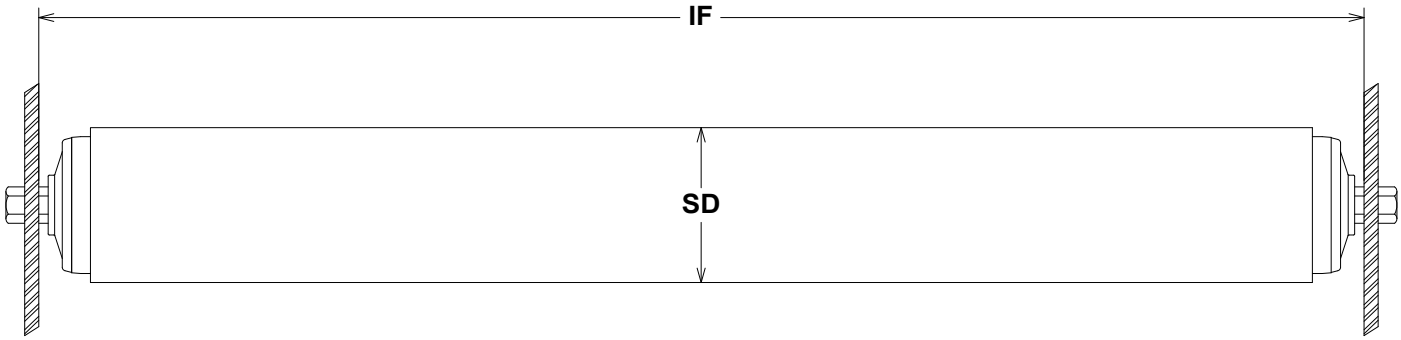
Urethane Information:

Color:	Standard: Black and orange Options: Available, inquire with Customer Service
Durometer:	Cast: 70 (shore A) Extruded: 80-85 (shore A)
Optional Material:	Food grade available

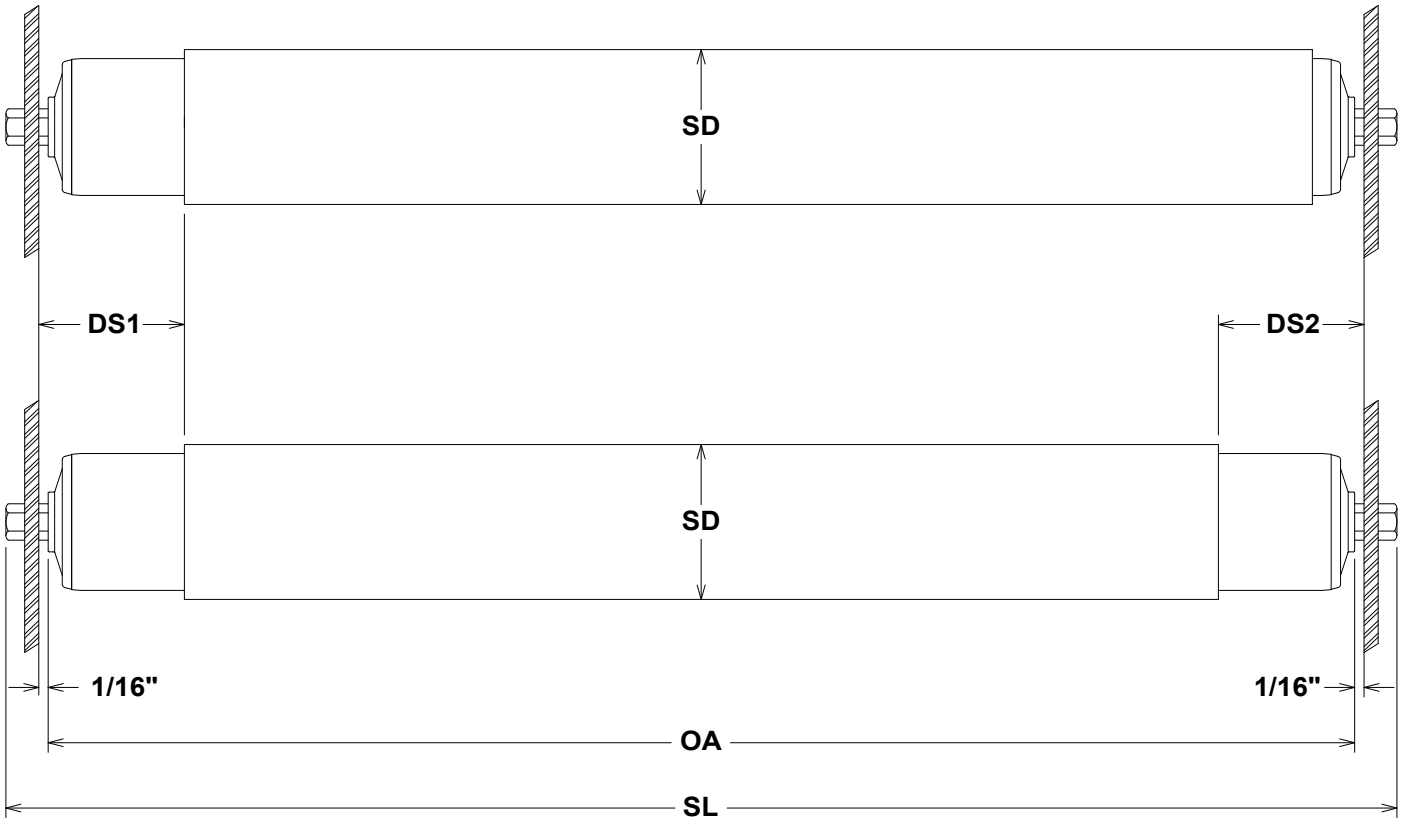
Roller Length: I. F. = Inside Frame distance. This measurement allows 1/16” of freeplay per side for a total of 1/8” per roller. O.A. = Overall roller length. This is the measurement from bearing hub to bearing hub of the roller. For calculation purposes I.F. –1/8” = O.A.

Drawings are provided to illustrate the required configuration and dimensional information.
Please have them available when talking to Customer Service.

Gravity Urethane Sleeved Roller



Belt Driven Urethane Sleeved Roller



Company: _____

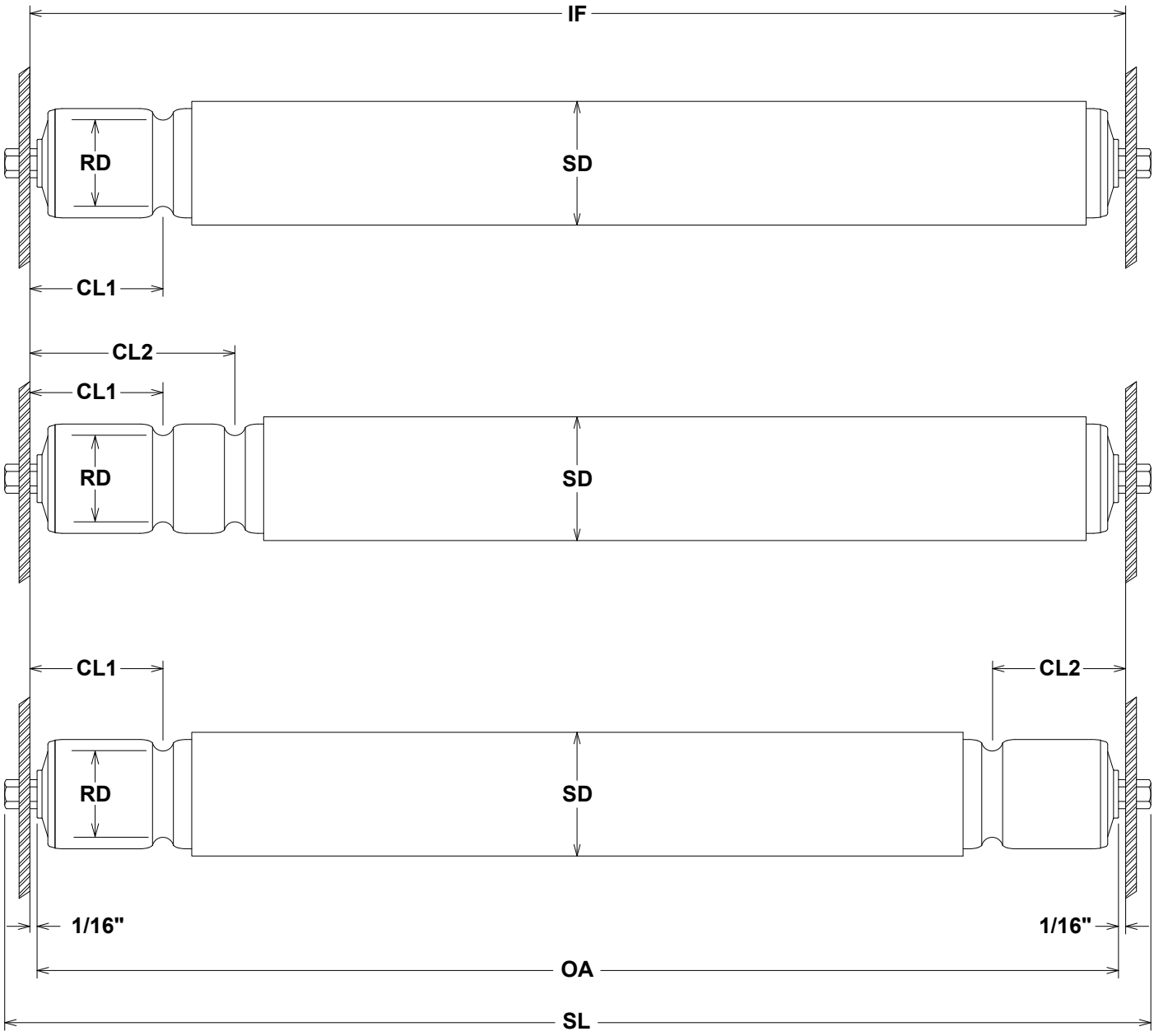
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
SD =	_____	Sleeve Diameter
DS1 =	_____	Drive Section Length
DS2 =	_____	Drive Section Length

“O” Ring Driven Urethane Sleeved Rollers



Company: _____

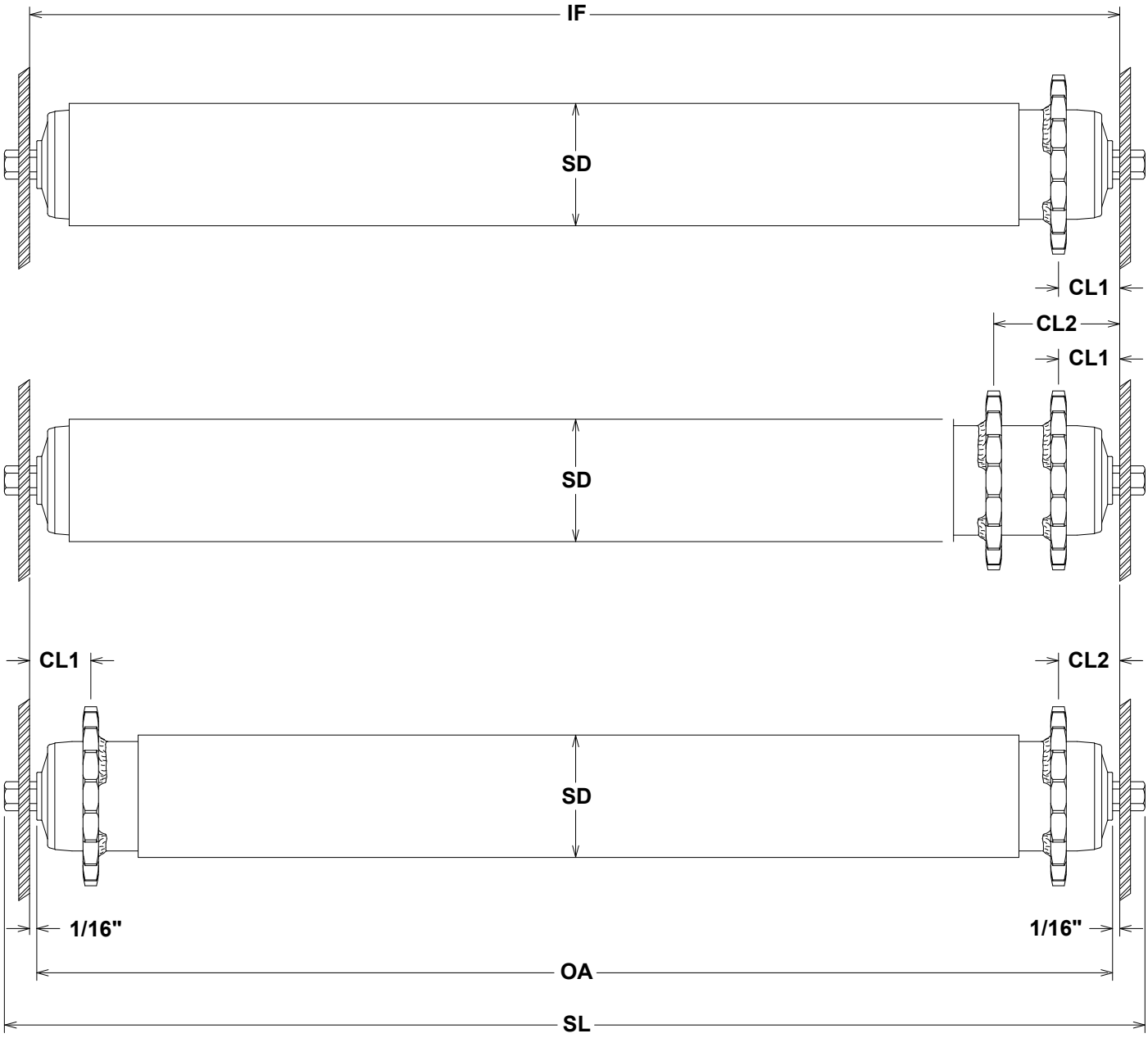
Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
SD =	_____	Sleeve Diameter
CL1 =	_____	Frame to Groove Center
CL2 =	_____	Frame to Groove Center
RD =	_____	Root Diameter of Grooves

Sprocket Driven Urethane Sleeved Rollers



Company: _____

Contact: _____

Phone: _____

Fax: _____

Bearing =	_____	Commercial / ABEC-1 (Precision)
Tube =	_____	Material - CS / SS / GALV
Shaft =	_____	Size / Configuration / Material
SL =	_____	Shaft Length Overall
OA =	_____	Overall Roller Length (hub to hub)
IF =	_____	Inside Frame Width
SD =	_____	Sleeve Diameter
CL1 =	_____	Frame to Sprocket Center
CL2 =	_____	Frame to Sprocket Center
Sprocket =	_____	Chain Size / # of Teeth

Ralphs-Pugh Conductive Urethane Hex Shaft Adapters

Question: What is the best way to protect my conveyor system against frame wear?

Answer: The Ralphs-Pugh Quiet Roller with Urethane Shaft Adapters

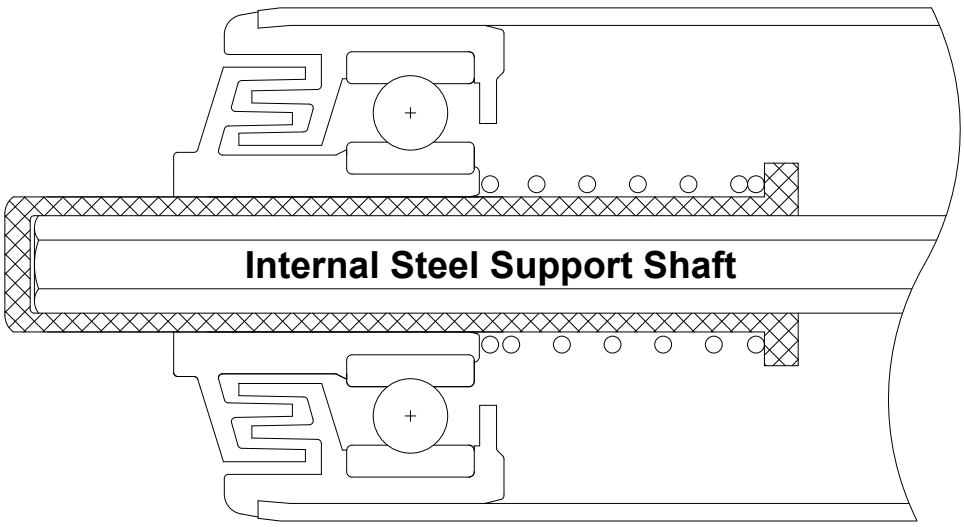
As conveyors achieve higher speeds they will vibrate due to roller tubes that are not perfectly round. Over time this vibration/chatter causes the conveyor frame and roller shafts to wear, as illustrated in the pictures. The Ralphs-Pugh Urethane shaft adapter eliminates frame and shaft wear, and metal to metal contact.

Our “Quiet Roller” features the Urethane Shaft Adapter and ABEC-1 precision ball bearings. The advantages of urethane are wear, tear, abrasion resistance, and the reduction of noise by eliminating metal to metal contact. Coupled with ABEC-1 precision bearings, the “Quiet Roller” provides the ultimate in wear resistance and noise dampening. The result is a quiet conveyor with lower maintenance, repair, and operating costs than a system with standard steel shaft rollers.

To hear the difference call us for an on-site demonstration.

Limitations and Considerations

Temperature:	Not recommended over 200°F.
Hydrolysis:	Can withstand water for years at low temperature. Cannot withstand steam.
Chemicals:	Strong acids and bases will degrade urethane rapidly. Inquire before ordering.
Loads:	Maximum load per roller is 100 lbs.



Ralphs-Pugh Troughing and Return Carrier Units

Ralphs-Pugh troughing units are available in both 2 roll (V-trough) and 3 roll configurations. Return carriers are 1 roll configuration. They are designed for the continuous bulk conveying of food products, feed, grain, fertilizer, chemicals, corrosive substances, and other materials. Ideal for replacement of fluming, hinge wall belting, and conveyors with side boards. Engineered frames provide durability and strength while the high quality rollers result in low maintenance. These units are rated for light to moderate loads with speeds up to 300 FPM. All units are easy to install, easy to clean and require very little maintenance. Replacement kits are available, please inquire with customer service. ***We can also custom manufacture to your specifications.***

Bearings:

- **ABEC-1 Chrome alloy precision ball bearings** in an engineered plastic housing with double labyrinth seals for the highest in load, speed, and contamination protection.
- **Commercial grade stainless steel ball bearings** in an engineered plastic housing with double labyrinth seals offering the best solution to wet and corrosive applications.
- **Bushing style bearings** are ideal for food grade applications and protection against corrosion. These bearings are made of Ultra (Acetal plastic with Teflon additives). They are self-lubricating, long lasting, and quiet.

Tube:

- Ralphs-Pugh Hi-Impact white PVC tubing is available in 1.90", 2.375" and 2.875" diameters. This tubing is engineered and produced to our specifications and offers the ultimate in strength, impact, and resistance to ultra violet light.
- Stainless steel tubing is available in 1.90" and 2.50" diameters.
- Galvanized steel tubing is available in 1.90" and 2.50" diameters.
- Other diameters available upon request with Customer Service.
- Outer ends of rollers are capped to prevent water or contaminants from entering the bearing resulting in a more sanitary longer lasting unit.

Frames and Mounting Bases:

- Stainless steel
- Painted carbon steel
- Wide variety of mounting bases available with 2 roll design
- Wing rolls canted forward 2 degrees for belt tracking
- Belt direction indicated on each unit
- Easy to assemble

Drawings, dimensions and ordering information is available in the following sections.

Replacement Kits Available - Inquire

Ralphs-Pugh Troughing Units - 3 Roll

General Information on part numbering system:

Example: See following page for details **S3RS-P28S-20-12**

Base Material

S - Stainless Steel
C - Painted Carbon Steel
Both bases are made from 10 gauge material with (2) 7/16” x 3/4” slotted holes.
Foot depth is 2 1/4”.

Number of rolls per unit

3R - 3 Roll troughing unit

Wing Length

S - Short (3 3/4”)
L - Long (7”)

Roller Tube Material

P - Plastic
S - Stainless Steel
G - Galvanized Steel

Roller Tube Diameters

19 - 1.900”	PVC and Steel
23 - 2.375” - (2 3/8”)	PVC only
25 - 2.500” - (2 1/2”)	Steel only
28 - 2.875" - (2 7/8”)	PVC only

Other Sizes are Available

Bearing Type

P - ABEC-1 Chrome Alloy Precision Ball Bearing in Plastic Housings
S - Commercial Grade Stainless Steel Ball Bearing in Plastic Housings
B - Bushing Style (Acetal plastic with Teflon additives) - PVC Tubes only

Wing Roller Angles

Standards are - 20 and 35 degrees

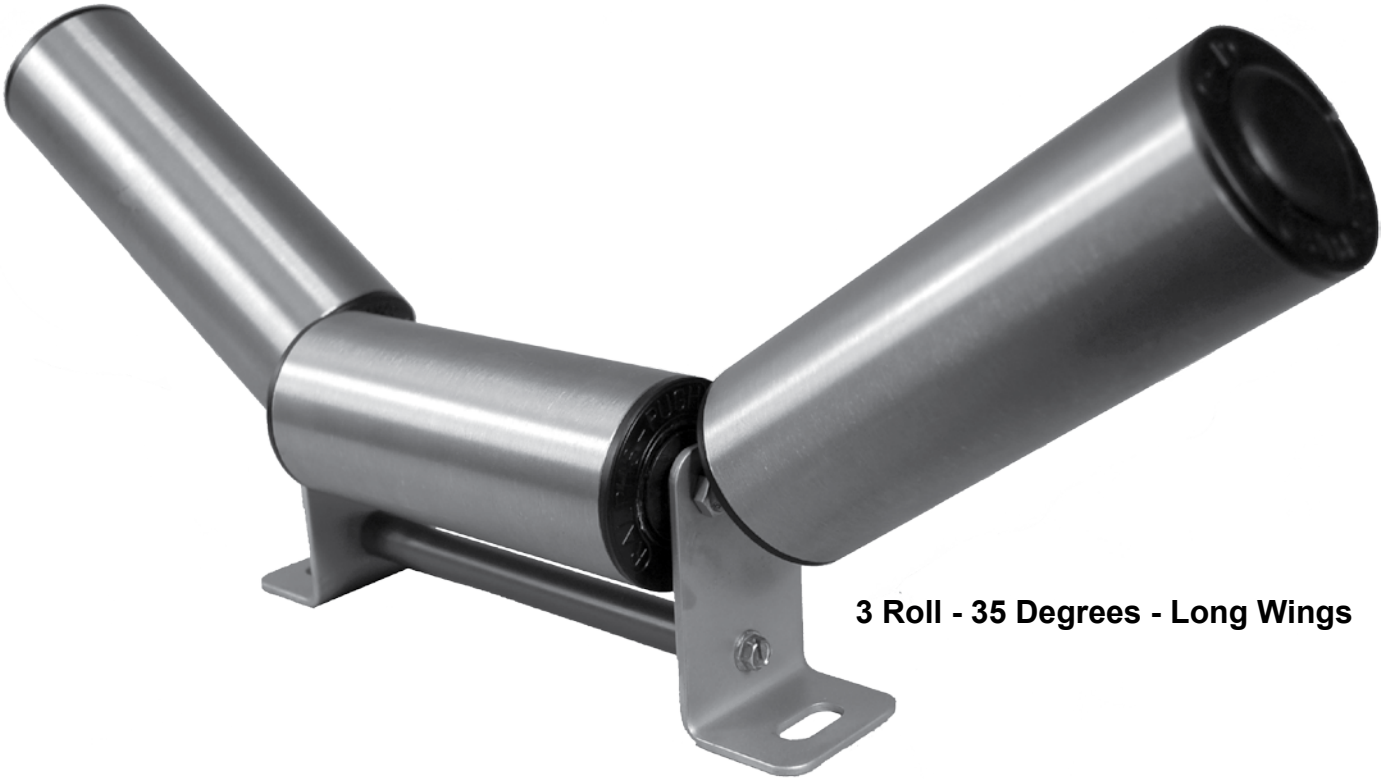
Belt Width

Short Wing Standards are - 12”, 16”, 18”, 24”, 30”, 36”, 42” and 48”
Long Wing Standards are - 18”, 24”, 30”, 36”, 42” and 48”
Options available – Inquire with Customer Service

Wing Roller tilt

Standard - Canted forward 2 degrees to help track belt for single direction conveying

Troughers - 3 Roll



3 Roll - 35 Degrees - Long Wings

3 Roll - 20 Degrees - Short Wings

Troughers - 3 Roll - 20 Degrees - Long Wings

3 Roll – 20 Degree Roller Angle – Long Wings - 1.90” Diameter Metal and Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt. Lbs
18	21.59	6.38	6.63	8.75	9.88	7.00	6.30	4.52	20.29	3.89	4.50
20	23.59	8.63	8.63	10.75	11.88	7.00	6.30	4.55	22.29	3.89	4.75
22	25.59	10.38	10.63	12.75	13.88	7.00	6.30	4.52	24.29	3.89	5.25
24	27.59	12.38	12.63	14.75	15.88	7.00	6.30	4.52	26.29	3.89	5.50
26	29.59	14.38	14.63	16.75	17.88	7.00	6.30	4.52	28.29	3.89	6.00
30	33.59	18.38	18.63	20.75	21.88	7.00	6.30	4.52	32.29	3.89	6.50
36	39.59	24.38	24.63	26.75	27.88	7.00	6.30	4.52	38.29	3.89	7.38
42	45.59	30.38	30.63	32.75	33.88	7.00	6.30	4.52	44.29	3.89	8.38
48	51.59	36.38	36.63	38.75	39.88	7.00	6.30	4.52	50.29	3.89	9.38

3 Roll – 20 Degree Roller Angle – Long Wings - 2.38” Diameter Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt. Lbs
18	21.75	6.38	6.63	8.75	9.88	7.00	6.53	4.29	20.13	4.13	4.50
20	23.75	8.63	8.63	10.75	11.88	7.00	6.53	4.29	22.13	4.13	4.75
22	25.75	10.38	10.63	12.75	13.88	7.00	6.53	4.29	24.13	4.13	5.25
24	27.75	12.38	12.63	14.75	15.88	7.00	6.53	4.29	26.13	4.13	5.50
26	29.75	14.38	14.63	16.75	17.88	7.00	6.53	4.29	28.13	4.13	6.00
30	33.75	18.38	18.63	20.75	21.88	7.00	6.53	4.29	32.13	4.13	6.50
36	39.75	24.38	24.63	26.75	27.88	7.00	6.53	4.29	38.13	4.13	7.38
42	45.75	30.38	30.63	32.75	33.88	7.00	6.53	4.29	44.13	4.13	8.38
48	51.75	36.38	36.63	38.75	39.88	7.00	6.53	4.29	50.29	4.13	9.38

3 Roll – 20 Degree Roller Angle – Long Wings - 2.50” Diameter Metal Rollers

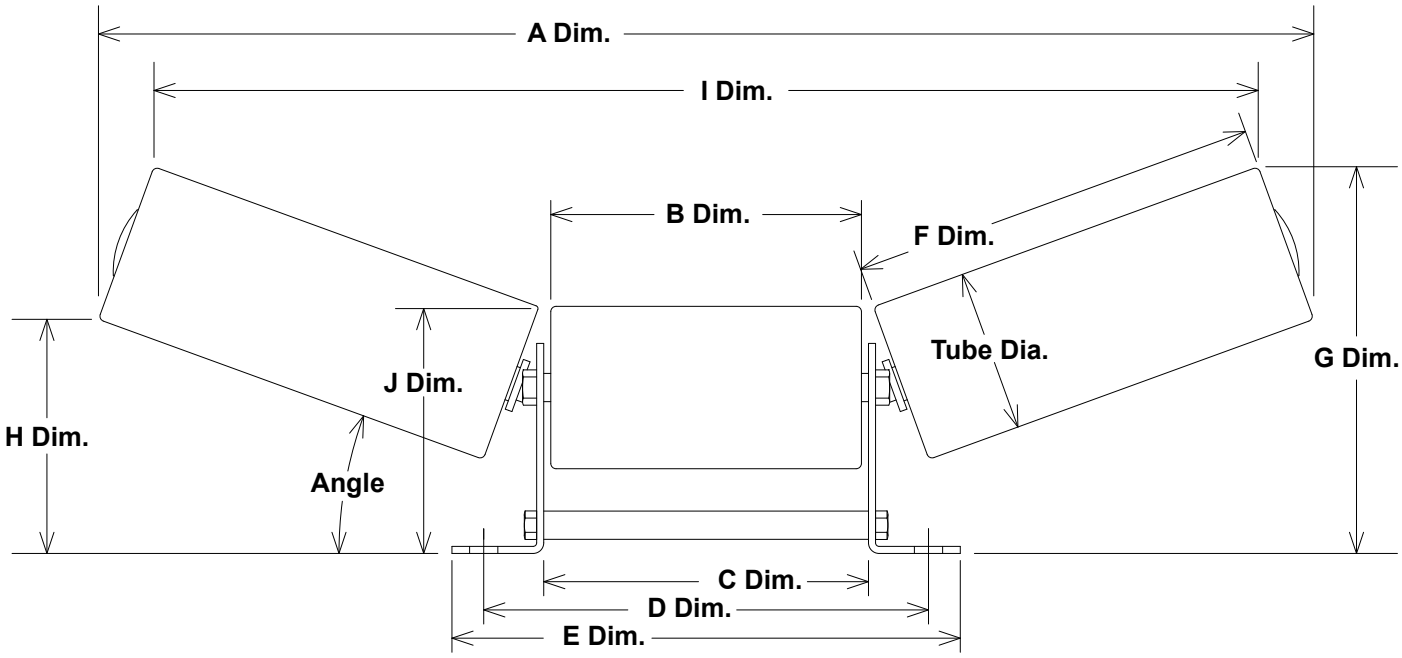
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt. Lbs
18	21.79	6.38	6.63	8.75	9.88	7.00	6.59	4.24	20.08	4.19	4.50
20	23.79	8.38	8.63	10.75	11.88	7.00	6.59	4.24	22.08	4.19	4.75
22	25.79	10.38	10.63	12.75	13.88	7.00	6.59	4.24	24.08	4.19	5.25
24	27.79	12.38	12.63	14.75	15.88	7.00	6.59	4.24	26.08	4.19	5.50
26	29.79	14.38	14.63	16.75	17.88	7.00	6.59	4.24	28.08	4.19	6.00
30	33.79	18.38	18.63	20.75	21.88	7.00	6.59	4.24	32.08	4.19	6.50
36	39.79	24.38	24.63	26.75	27.88	7.00	6.59	4.24	38.08	4.19	7.38
42	45.79	30.38	30.63	32.75	33.88	7.00	6.59	4.24	44.08	4.19	8.38
48	51.79	36.38	36.63	38.75	39.88	7.00	6.59	4.24	50.08	4.19	9.38

3 Roll – 20 Degree Roller Angle – Long wings - 2.875” Diameter Plastic Rollers

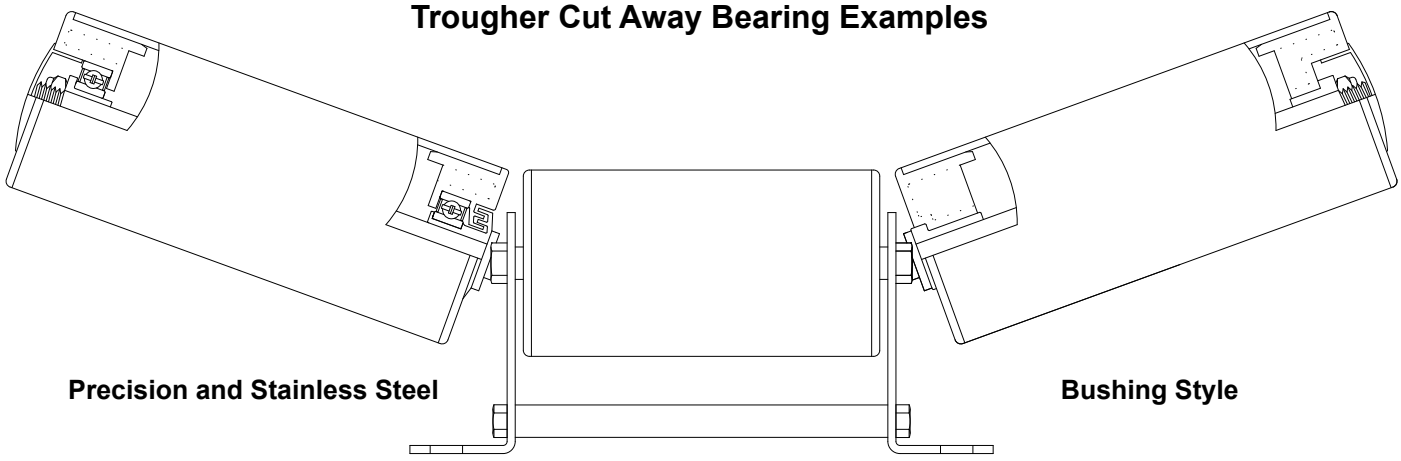
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt. Lbs
18	21.92	6.38	6.63	8.75	9.88	7.00	6.76	4.06	19.96	4.38	4.50
20	23.92	8.38	8.63	10.75	11.88	7.00	6.76	4.06	21.96	4.38	4.75
22	25.92	10.38	10.63	12.75	13.88	7.00	6.76	4.06	23.96	4.38	5.25
24	27.92	12.38	12.63	14.75	15.88	7.00	6.76	4.06	25.96	4.38	5.50
26	29.92	14.38	14.63	16.75	17.88	7.00	6.76	4.06	27.96	4.38	6.00
30	33.92	18.38	18.63	20.75	21.88	7.00	6.76	4.06	31.96	4.38	6.50
36	39.92	24.38	24.63	26.75	27.88	7.00	6.76	4.06	37.96	4.38	7.38
42	45.92	30.38	30.63	32.75	33.88	7.00	6.76	4.06	43.96	4.38	8.38
48	51.92	36.38	36.63	38.75	39.88	7.00	6.76	4.06	49.96	4.38	9.38

Troughers - 3 Roll - 20 Degrees - Long Wings

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel

Bushing Style

Troughers - 3 Roll - 20 Degrees - Short Wings

3 Roll – 20 Degree Roller Angle – Short Wings - 1.90” Diameter Metal and Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.61	5.50	5.75	7.88	9.00	3.75	5.19	3.41	13.31	3.89	3.63
14	16.61	7.50	7.75	9.88	11.00	3.75	5.19	3.41	15.31	3.89	4.00
16	18.61	9.50	9.75	11.88	13.00	3.75	5.19	3.41	17.31	3.89	4.25
18	20.61	11.50	11.75	13.88	15.00	3.75	5.19	3.41	19.31	3.89	4.50
20	22.61	13.50	13.75	15.88	17.00	3.75	5.19	3.41	21.31	3.89	4.75
22	24.61	15.50	15.75	17.88	19.00	3.75	5.19	3.41	23.31	3.89	5.25
24	26.61	17.50	17.75	19.88	21.00	3.75	5.19	3.41	25.31	3.89	5.50
26	28.61	19.50	19.75	21.88	23.00	3.75	5.19	3.41	27.31	3.89	6.00
30	32.61	23.50	23.75	25.88	27.00	3.75	5.19	3.41	31.31	3.89	6.50
36	38.61	29.50	29.75	31.88	33.00	3.75	5.19	3.41	37.31	3.89	7.38
42	44.61	35.50	35.75	37.88	39.00	3.75	5.19	3.41	43.31	3.89	8.38
48	50.61	41.50	41.75	43.88	45.00	3.75	5.19	3.41	49.31	3.89	9.38

3 Roll – 20 Degree Roller Angle – Short Wings - 2.38” Diameter Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.77	5.50	5.75	7.88	9.00	3.75	5.42	3.18	13.14	4.13	3.63
14	16.77	7.50	7.75	9.88	11.00	3.75	5.42	3.18	15.14	4.13	4.00
16	18.77	9.50	9.75	11.88	13.00	3.75	5.42	3.18	17.14	4.13	4.25
18	20.77	11.50	11.75	13.88	15.00	3.75	5.42	3.18	19.14	4.13	4.50
20	22.77	13.50	13.75	15.88	17.00	3.75	5.42	3.18	21.14	4.13	4.75
22	24.77	15.50	15.75	17.88	19.00	3.75	5.42	3.18	23.14	4.13	5.25
24	26.77	17.50	17.75	19.88	21.00	3.75	5.42	3.18	25.14	4.13	5.50
26	28.77	19.50	19.75	21.88	23.00	3.75	5.42	3.18	27.14	4.13	6.00
30	32.77	23.50	23.75	25.88	27.00	3.75	5.42	3.18	31.14	4.13	6.50
36	38.77	29.50	29.75	31.88	33.00	3.75	5.42	3.18	37.14	4.13	7.38
42	44.77	35.50	35.75	37.88	39.00	3.75	5.42	3.18	43.14	4.13	8.38
48	50.77	41.50	41.75	43.88	45.00	3.75	5.42	3.18	49.14	4.13	9.38

3 Roll – 20 Degree Roller Angle – Short Wings - 2.50” Diameter Metal Rollers

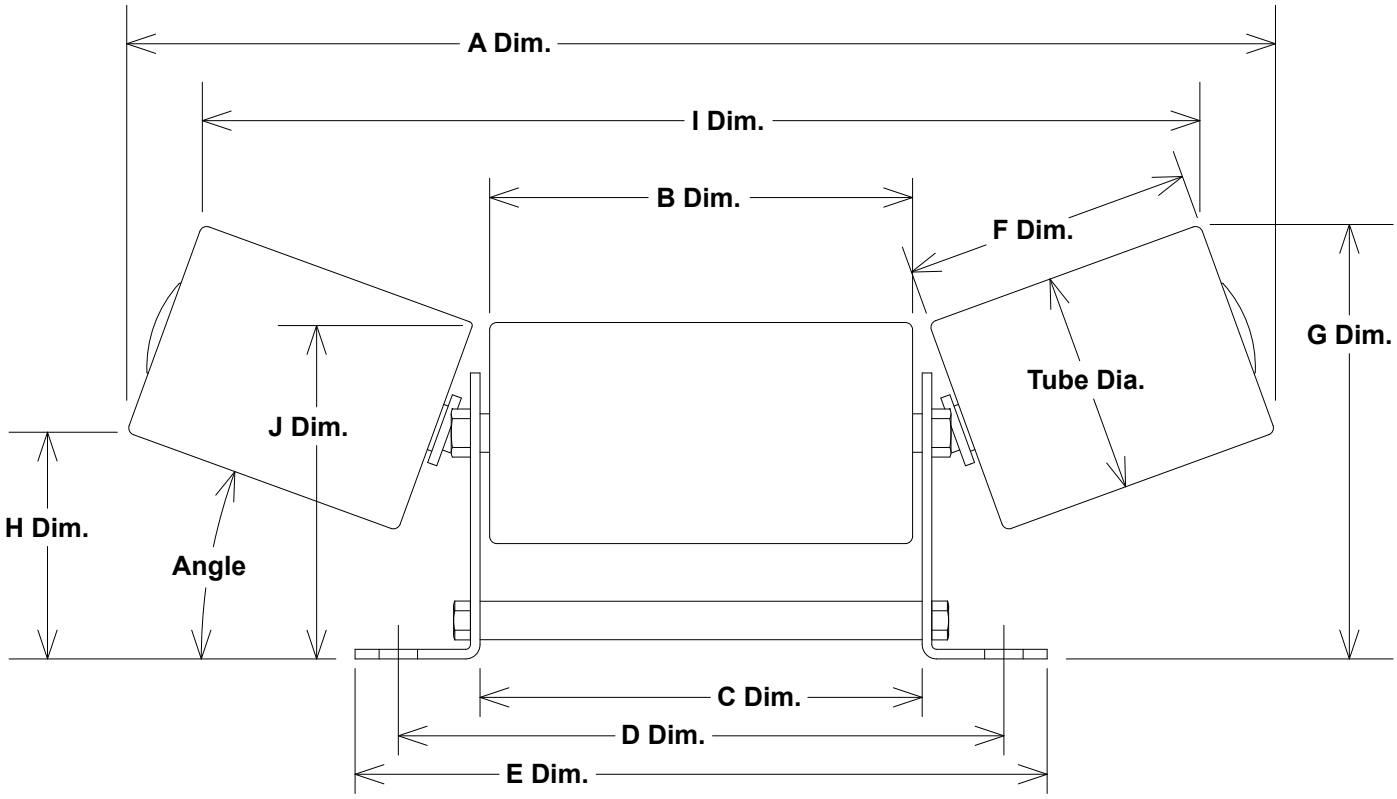
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.81	5.50	5.75	7.88	9.00	3.75	5.47	3.12	13.10	4.19	3.63
14	16.81	7.50	7.75	9.88	11.00	3.75	5.47	3.12	15.10	4.19	4.00
16	18.81	9.50	9.75	11.88	13.00	3.75	5.47	3.12	17.10	4.19	4.25
18	20.81	11.50	11.75	13.88	15.00	3.75	5.47	3.12	19.10	4.19	4.50
20	22.81	13.50	13.75	15.88	17.00	3.75	5.47	3.12	21.10	4.19	4.75
22	24.81	15.50	15.75	17.88	19.00	3.75	5.47	3.12	23.10	4.19	5.25
24	26.81	17.50	17.75	19.88	21.00	3.75	5.47	3.12	25.10	4.19	5.50
26	28.81	19.50	19.75	21.88	23.00	3.75	5.47	3.12	27.10	4.19	6.00
30	32.81	23.50	23.75	25.88	27.00	3.75	5.47	3.12	31.10	4.19	6.50
36	38.81	29.50	29.75	31.88	33.00	3.75	5.47	3.12	37.10	4.19	7.38
42	44.81	35.50	35.75	37.88	39.00	3.75	5.47	3.12	43.10	4.19	8.38
48	50.81	41.50	41.75	43.88	45.00	3.75	5.47	3.12	49.10	4.19	9.38

3 Roll – 20 Degree Roller Angle – Short Wings - 2.875” Diameter Plastic Rollers

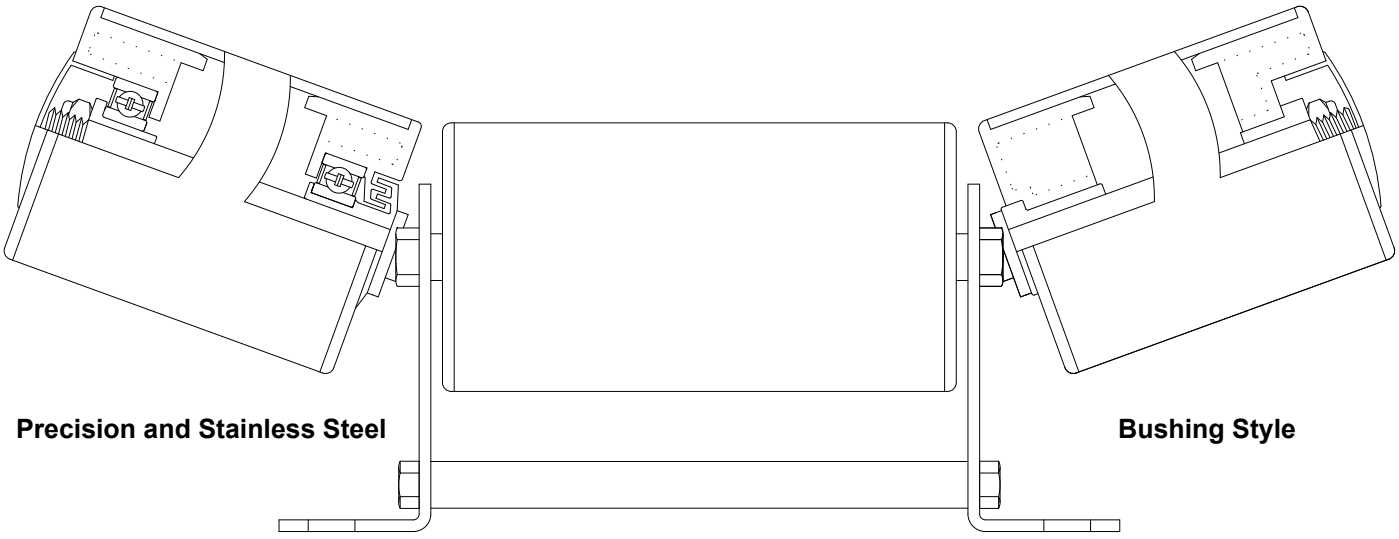
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.94	5.50	5.75	7.88	9.00	3.75	5.65	2.95	12.97	4.38	3.63
14	16.94	7.50	7.75	9.88	11.00	3.75	5.65	2.95	14.97	4.38	4.00
16	18.94	9.50	9.75	11.88	13.00	3.75	5.65	2.95	16.97	4.38	4.25
18	20.94	11.50	11.75	13.88	15.00	3.75	5.65	2.95	18.97	4.38	4.50
20	22.94	13.50	13.75	15.88	17.00	3.75	5.65	2.95	20.97	4.38	4.75
22	24.94	15.50	15.75	17.88	19.00	3.75	5.65	2.95	22.97	4.38	5.25
24	26.94	17.50	17.75	19.88	21.00	3.75	5.65	2.95	24.97	4.38	5.50
26	28.94	19.50	19.75	21.88	23.00	3.75	5.65	2.95	26.97	4.38	6.00
30	32.94	23.50	23.75	25.88	27.00	3.75	5.65	2.95	30.97	4.38	6.50
36	38.94	29.50	29.75	31.88	33.00	3.75	5.65	2.95	36.97	4.38	7.38
42	44.94	35.50	35.75	37.88	39.00	3.75	5.65	2.95	42.97	4.38	8.38
48	50.94	41.50	41.75	43.88	45.00	3.75	5.65	2.95	48.97	4.38	9.38

Troughers - 3 Roll - 20 Degrees - Short Wings

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel

Bushing Style

Troughers - 3 Roll - 35 Degrees - Long Wings

3 Roll – 35 Degree Roller Angle – Long Wings - 1.90” Diameter Metal and Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
18	20.93	6.38	6.63	8.75	9.88	7.00	8.13	6.57	18.75	3.89	4.50
20	22.93	8.38	8.63	10.75	11.88	7.00	8.13	6.57	20.75	3.89	4.75
22	24.93	10.38	10.63	12.75	13.88	7.00	8.13	6.57	22.75	3.89	5.25
24	26.93	12.38	12.63	14.75	15.88	7.00	8.13	6.57	24.75	3.89	5.50
26	28.93	14.38	14.63	16.75	17.88	7.00	8.13	6.57	26.75	3.89	6.00
30	32.93	18.38	18.63	20.75	21.88	7.00	8.13	6.57	30.75	3.89	6.50
36	38.93	24.38	24.63	26.75	27.88	7.00	8.13	6.57	36.75	3.89	7.38
42	44.93	30.38	30.63	32.75	33.88	7.00	8.13	6.57	42.75	3.89	8.38
48	50.93	36.38	36.63	38.75	39.88	7.00	8.13	6.57	48.75	3.89	9.38

3 Roll – 35 Degree Roller Angle – Long Wings - 2.38” Diameter Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
18	21.20	6.38	6.63	8.75	9.88	7.00	8.32	6.38	18.48	4.13	4.50
20	23.20	8.38	8.63	10.75	11.88	7.00	8.32	6.38	20.48	4.13	4.75
22	25.20	10.38	10.63	12.75	13.88	7.00	8.32	6.38	22.48	4.13	5.25
24	27.20	12.38	12.63	14.75	15.88	7.00	8.32	6.38	24.48	4.13	5.50
26	29.20	14.38	14.63	16.75	17.88	7.00	8.32	6.38	26.48	4.13	6.00
30	33.20	18.38	18.63	20.75	21.88	7.00	8.32	6.38	30.48	4.13	6.50
36	39.20	24.38	24.63	26.75	27.88	7.00	8.32	6.38	36.48	4.13	7.38
42	45.20	30.38	30.63	32.75	33.88	7.00	8.32	6.38	42.48	4.13	8.38
48	51.20	36.38	36.63	38.75	39.88	7.00	8.32	6.38	48.48	4.13	9.38

3 Roll – 35 Degree Roller Angle – Long Wings - 2.50” Diameter Metal Rollers

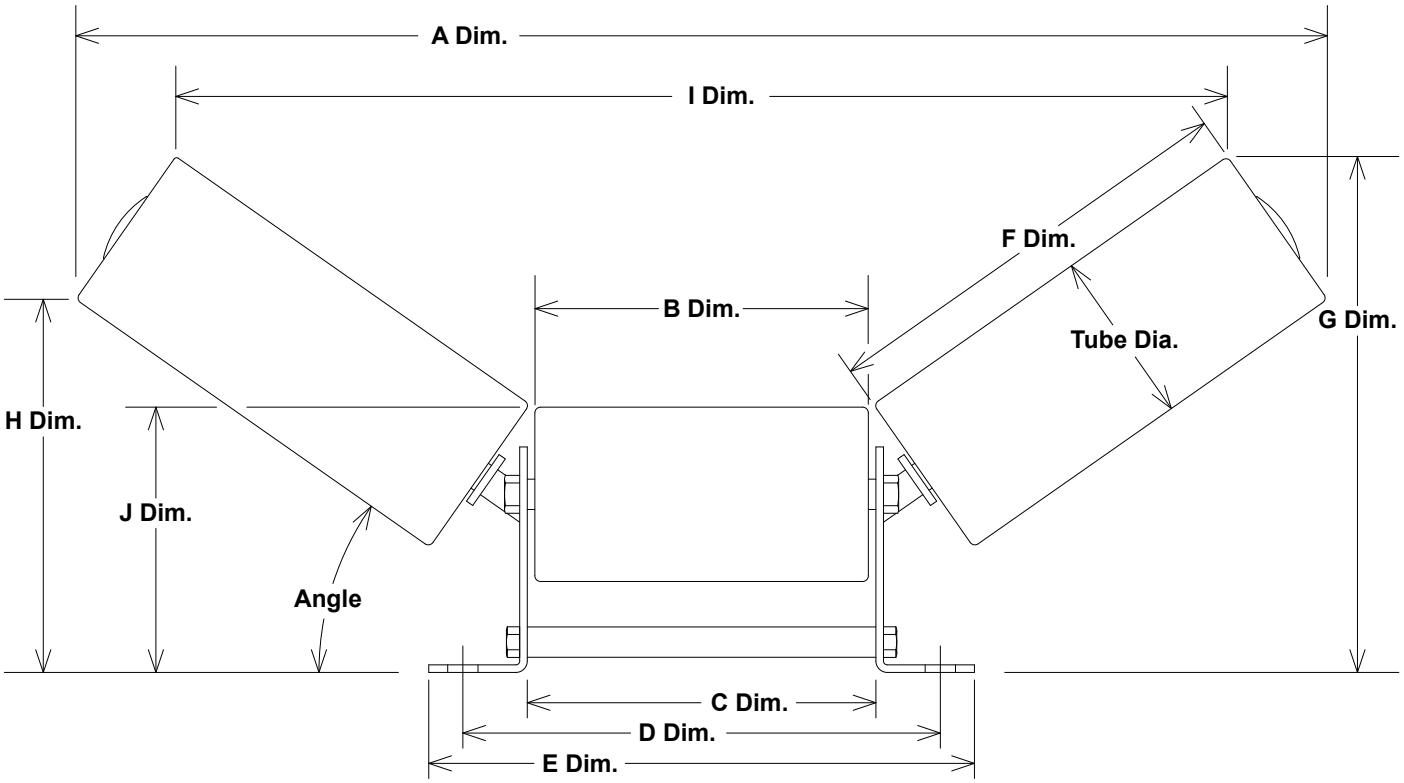
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
18	21.27	6.38	6.63	8.75	9.88	7.00	8.38	6.33	18.41	4.19	4.50
20	23.27	8.38	8.63	10.75	11.88	7.00	8.38	6.33	20.41	4.19	4.75
22	25.27	10.38	10.63	12.75	13.88	7.00	8.38	6.33	22.41	4.19	5.25
24	27.27	12.38	12.63	14.75	15.88	7.00	8.38	6.33	24.41	4.19	5.50
26	29.27	14.38	14.63	16.75	17.88	7.00	8.38	6.33	26.41	4.19	6.00
30	33.27	18.38	18.63	20.75	21.88	7.00	8.38	6.33	30.41	4.19	6.50
36	39.27	24.38	24.63	26.75	27.88	7.00	8.38	6.33	36.41	4.19	7.38
42	45.27	30.38	30.63	32.75	33.88	7.00	8.38	6.33	42.41	4.19	8.38
48	51.27	36.38	36.63	38.75	39.88	7.00	8.38	6.33	48.41	4.19	9.38

3 Roll – 35 Degree Roller Angle – Long Wings - 2.875” Diameter Plastic Rollers

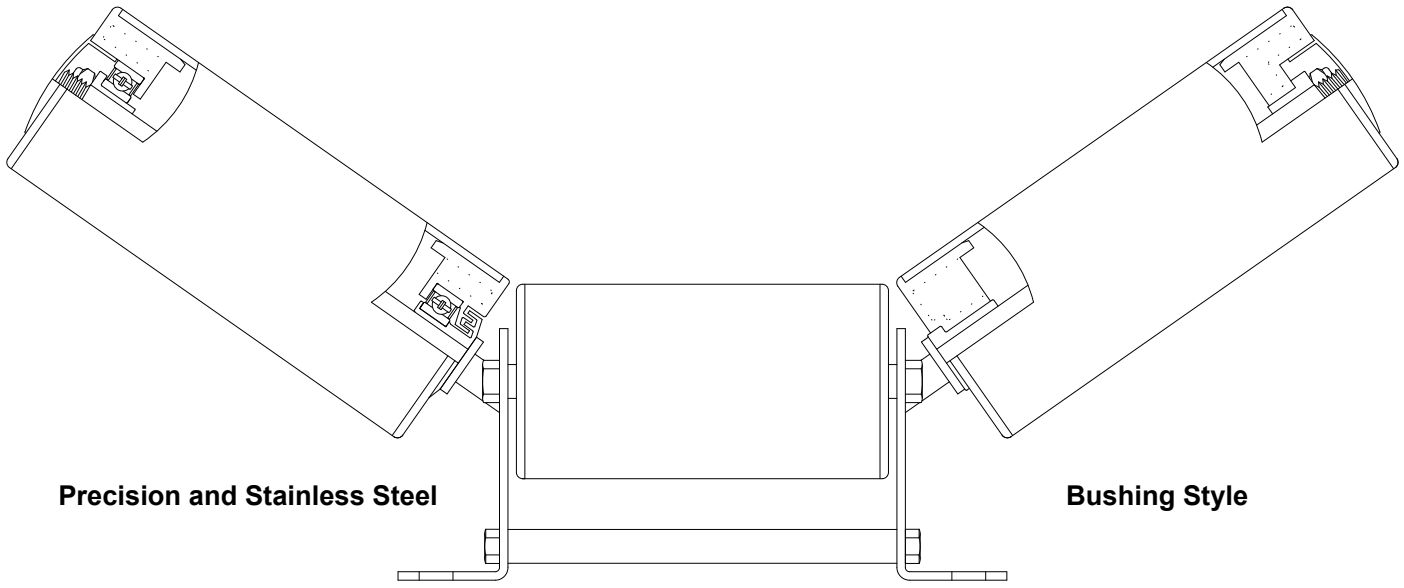
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
18	21.50	6.38	6.63	8.75	9.88	7.00	8.53	6.17	18.20	4.38	4.50
20	23.50	8.38	8.63	10.75	11.88	7.00	8.53	6.17	20.20	4.38	4.75
22	25.50	10.38	10.63	12.75	13.88	7.00	8.53	6.17	22.20	4.38	5.25
24	27.50	12.38	12.63	14.75	15.88	7.00	8.53	6.17	24.20	4.38	5.50
26	29.50	14.38	14.63	16.75	17.88	7.00	8.53	6.17	26.20	4.38	6.00
30	33.50	18.38	18.63	20.75	21.88	7.00	8.53	6.17	30.20	4.38	6.50
36	39.50	24.38	24.63	26.75	27.88	7.00	8.53	6.17	36.20	4.38	7.38
42	45.50	30.38	30.63	32.75	33.88	7.00	8.53	6.17	42.20	4.38	8.38
48	51.50	36.38	36.63	38.75	39.88	7.00	8.53	6.17	48.20	4.38	9.38

Troughers - 3 Roll - 35 Degrees - Long Wings

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel

Bushing Style

Troughers - 3 Roll - 35 Degrees - Short Wings

3 Roll – 35 Degree Roller Angle – Short Wings - 1.90” Diameter Metal and Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.47	5.50	5.75	7.88	9.00	3.75	6.17	4.61	12.29	3.89	3.63
14	16.47	7.50	7.75	9.88	11.00	3.75	6.17	4.61	14.29	3.89	4.00
16	18.47	9.50	9.75	11.88	13.00	3.75	6.17	4.61	16.29	3.89	4.25
18	20.47	11.50	11.75	13.88	15.00	3.75	6.17	4.61	18.29	3.89	4.50
20	22.47	13.50	13.75	15.88	17.00	3.75	6.17	4.61	20.29	3.89	4.75
22	24.47	15.50	15..75	17.88	19.00	3.75	6.17	4.61	22.29	3.89	5.25
24	26.47	17.50	17.75	19.88	21.00	3.75	6.17	4.61	24.29	3.89	5.50
26	28.47	19.50	19.75	21.88	23.00	3.75	6.17	4.61	26.29	3.89	6.00
30	32.47	23.50	23.75	25.88	27.00	3.75	6.17	4.61	30.29	3.89	6.50
36	38.47	29.50	29.75	31.88	33.00	3.75	6.17	4.61	36.29	3.89	7.38
42	44.47	35.50	35.75	37.88	39.00	3.75	6.17	4.61	42.29	3.89	8.38
48	50.47	41.50	41.75	43.88	45.00	3.75	6.17	4.61	48.29	3.89	9.38

3 Roll – 35 Degree Roller Angle – Short Wings - 2.38” Diameter Plastic Rollers

Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.74	5.50	5.75	7.88	9.00	3.75	6.37	4.42	12.01	4.13	3.63
14	16.74	7.50	7.75	9.88	11.00	3.75	6.37	4.42	14.01	4.13	4.00
16	18.74	9.50	9.75	11.88	13.00	3.75	6.37	4.42	16.01	4.13	4.25
18	20.74	11.50	11.75	13.88	15.00	3.75	6.37	4.42	18.01	4.13	4.50
20	22.74	13.50	13.75	15.88	17.00	3.75	6.37	4.42	20.01	4.13	4.75
22	24.74	15.50	15.75	17.88	19.00	3.75	6.37	4.42	22.01	4.13	5.25
24	26.74	17.50	17.75	19.88	21.00	3.75	6.37	4.42	24.01	4.13	5.50
26	28.74	19.50	19.75	21.88	23.00	3.75	6.37	4.42	26.01	4.13	6.00
30	32.74	23.50	23.75	25.88	27.00	3.75	6.37	4.42	30.01	4.13	6.50
36	38.74	29.50	29.75	31.88	33.00	3.75	6.37	4.42	36.01	4.13	7.38
42	44.74	35.50	35.75	37.88	39.00	3.75	6.37	4.42	42.01	4.13	8.38
48	50.74	41.50	41.75	43.88	45.00	3.75	6.37	4.42	48.01	4.13	9.38

3 Roll – 35 Degree Roller Angle – Short Wings - 2.50” Diameter Metal Rollers

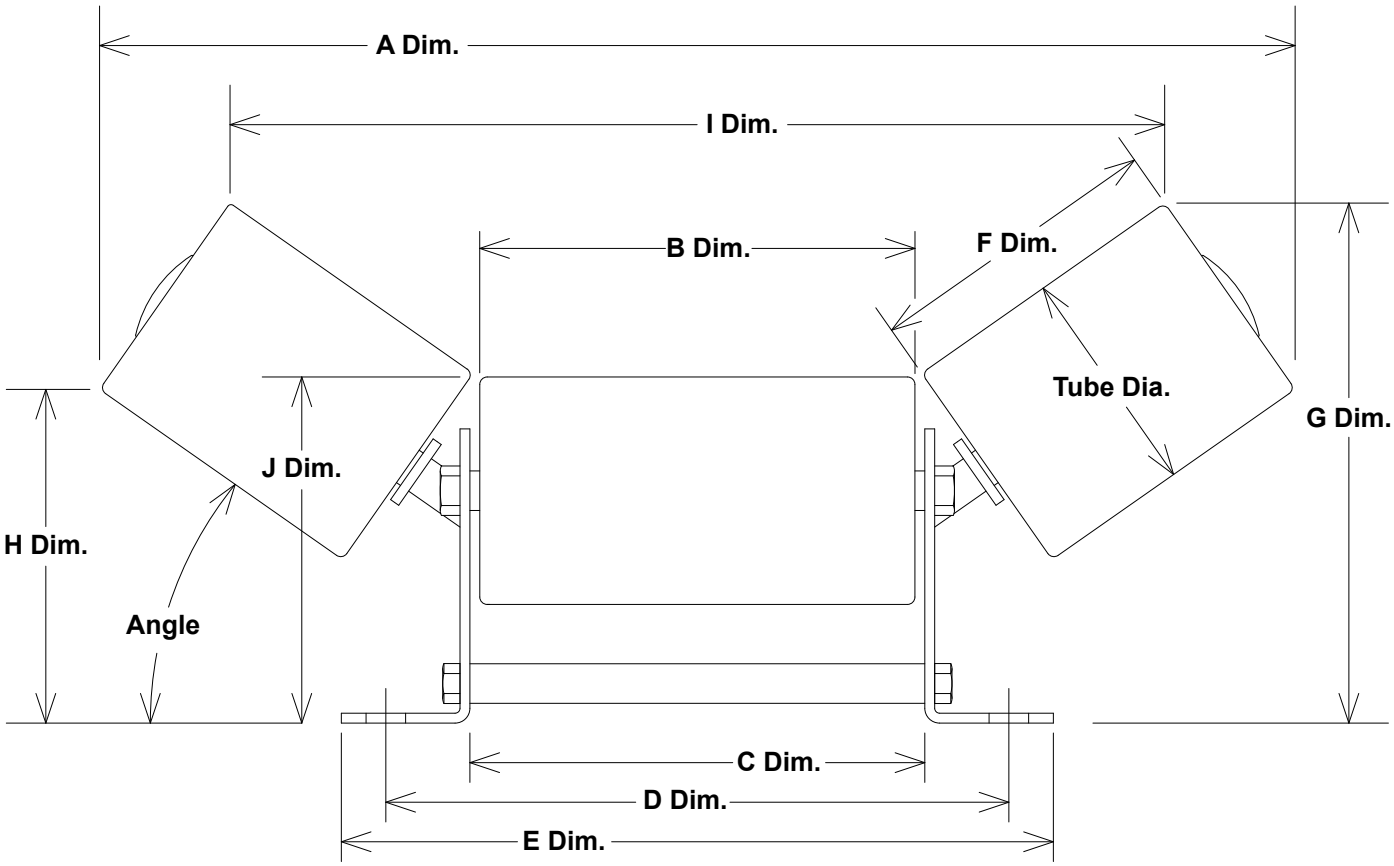
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	14.81	5.50	5.75	7.88	9.00	3.75	6.42	4.37	11.94	4.19	3.63
14	16.81	7.50	7.75	9.88	11.00	3.75	6.42	4.37	13.94	4.19	4.00
16	18.81	9.50	9.75	11.88	13.00	3.75	6.42	4.37	15.94	4.19	4.25
18	20.81	11.50	11.75	13.88	15.00	3.75	6.42	4.37	17.94	4.19	4.50
20	22.81	13.50	13.75	15.88	17.00	3.75	6.42	4.37	19.94	4.19	4.75
22	24.81	15.50	15.75	17.88	19.00	3.75	6.42	4.37	21.94	4.19	5.25
24	26.81	17.50	17.75	19.88	21.00	3.75	6.42	4.37	23.94	4.19	5.50
26	28.81	19.50	19.7.5	21.88	23.00	3.75	6.42	4.37	25.94	4.19	6.00
30	32.81	23.50	23.75	25.88	27.00	3.75	6.42	4.37	29.94	4.19	6.50
36	38.81	29.50	29.75	31.88	33.00	3.75	6.42	4.37	35.94	4.19	7.38
42	44.81	35.50	35.75	37.88	39.00	3.75	6.42	4.37	41.94	4.19	8.38
48	50.81	41.50	41.75	43.88	45.00	3.75	6.42	4.37	47.94	4.19	9.38

3 Roll – 35 Degree Roller Angle – Short Wings - 2.875” Diameter Plastic Rollers

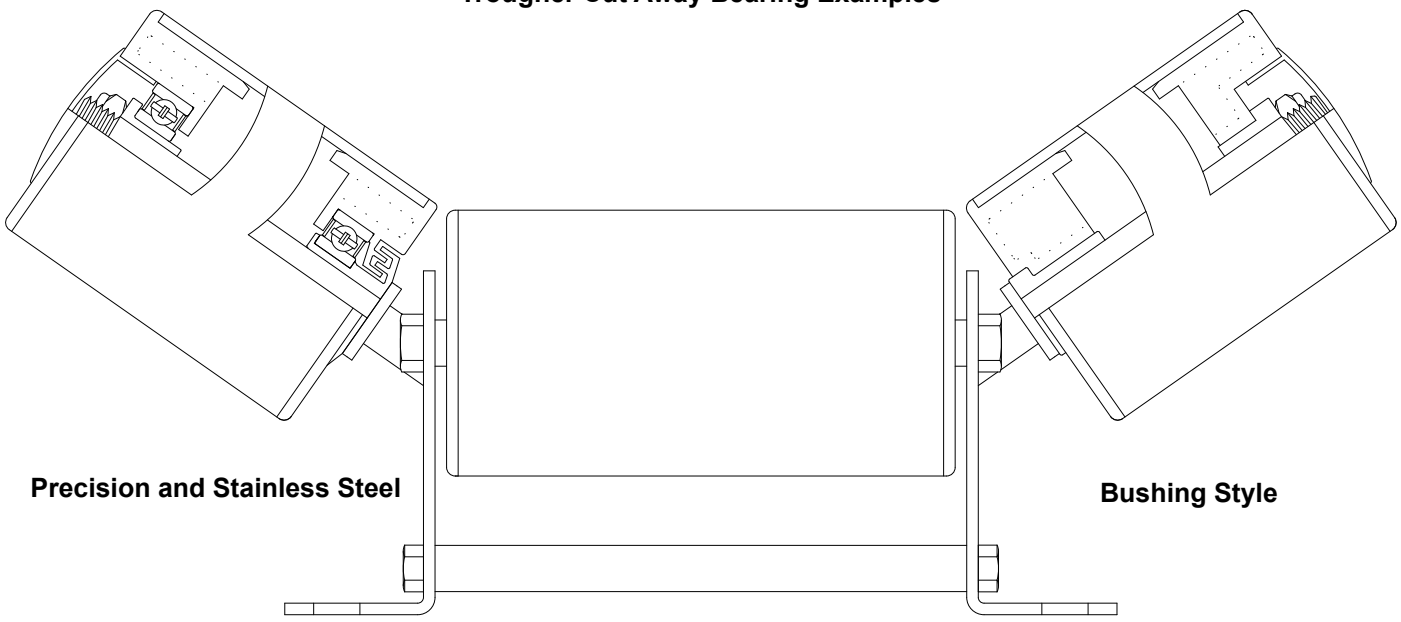
Belt Size	A Dim	B Dim	C Dim	D Dim	E Dim	F Dim	G Dim	H Dim	I Dim	J Dim	Approx Wt Lbs
12	15.03	5.50	5.75	7.88	9.00	3.75	6.57	4.22	11.73	4.38	3.63
14	17.03	7.50	7.75	9.88	11.00	3.75	6.57	4.22	13.73	4.38	4.00
16	19.03	9.50	9.75	11.88	13.00	3.75	6.57	4.22	15.73	4.38	4.25
18	21.03	11.50	11.75	13.88	15.00	3.75	6.57	4.22	17.73	4.38	4.50
20	23.03	13.50	13.75	15.88	17.00	3.75	6.57	4.22	19.73	4.38	4.75
22	25.03	15.50	15.75	17.88	19.00	3.75	6.57	4.22	21.73	4.38	5.25
24	27.03	17.50	17.75	19.88	21.00	3.75	6.57	4.22	23.73	4.38	5.50
26	29.03	19.50	19.75	21.88	23.00	3.75	6.57	4.22	25.73	4.38	6.00
30	33.03	23.50	23.75	25.88	27.00	3.75	6.57	4.22	29.73	4.38	6.50
36	39.03	29.50	29.75	31.88	33.00	3.75	6.57	4.22	35.73	4.38	7.38
42	45.03	35.50	35.75	37.88	39.00	3.75	6.57	4.22	41.73	4.38	8.38
48	51.03	41.50	41.75	43.88	45.00	3.75	6.57	4.22	47.73	4.38	9.38

Troughers - 3 Roll - 35 Degrees - Short Wings

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel

Bushing Style

Ralphs-Pugh V-Trough Units - 2 Roll

General Information on part numbering system:

Example: See following page for details **S2RA-P28S-30-14**

Base Material
- S - Stainless Steel
- C - Painted Carbon Steel

Number of rolls per unit
- 2R - 2 Roll V-Trough unit

Base design
- A - Flat base 3 3/8” x 3 3/8” square with 6 holes 1/2” x 3/8” parallel to belt travel
- B - Flat base 2” x 3 1/2” long base; side parallel to belt travel
- C - Flat base 2” x 3 1/2” long base; turned 90 degrees to belt travel
- D - Angle base 1” x 1” x 3 1/2”; ridge parallel to belt travel
- E - Angle base 1” x 1” x 3 1/2”; ridge turned 90 degrees to belt travel
- F - Flat base 2” x 5” with 2 slotted holes 7/16” x 3/4” on 3 1/2” centers
- G - Flat base 2” x 5” with 2 slotted holes 7/16” x 3/4” on 3 1/2” centers turned 90 degrees from belt travel

* All bases are 0.120” thick (11 gauge)

Roller Tube Material
- P - Plastic
- S - Stainless Steel
- G - Galvanized Steel

Roller Tube Diameters

19 - 1.900”	PVC and Steel
23 - 2.375” - (2 3/8”)	PVC only
25 - 2.500” - (2 1/2”)	Steel only
28 - 2.875" - (2 7/8”)	PVC only

Other Sizes are Available

Bearing Type
- P - ABEC-1 Chrome Alloy Precision Ball Bearing in Plastic Housings
- S - Commercial Grade Stainless Steel Ball Bearing in Plastic Housings
- B - Bushing Style Ultra (Acetal plastic with Teflon additives) - PVC Tubes only

Roller Angles

Standards are - 15, 20, 25, and 30 degrees
Options available – Inquire with Customer Service

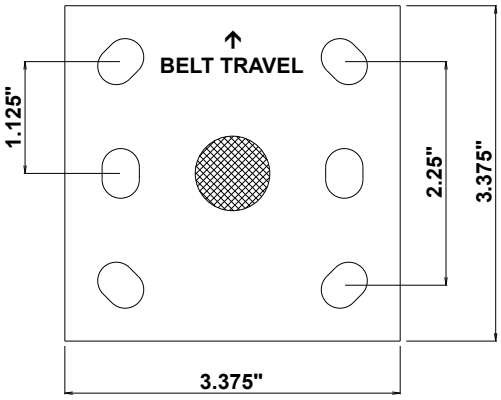
Belt Width

Standards are - 8”, 12”, 14”, 16”, 18”, 20”, 24”, 30”
Options available – Inquire with Customer Service

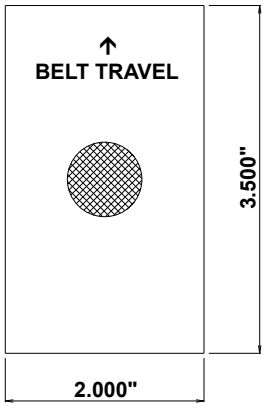
Wing Roller tilt

Standard - Canted forward 2 degrees to help track belt for single direction conveying

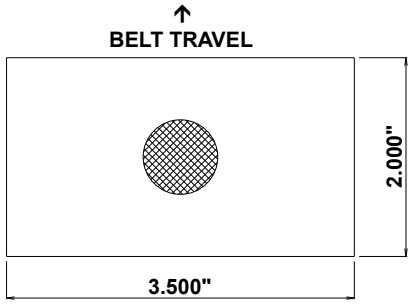
Troughers - 2 Roll Base Designs



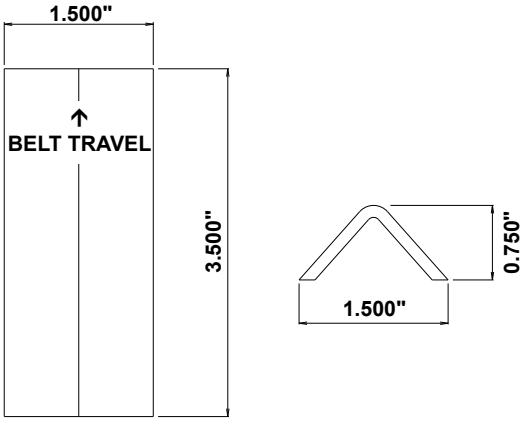
A - Flat Base



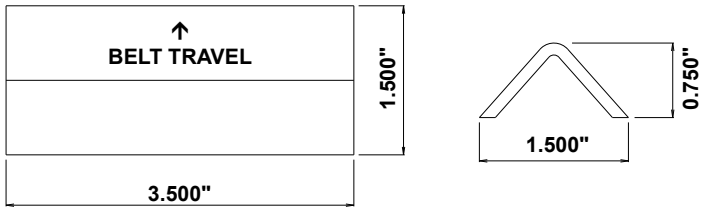
B - Flat Base



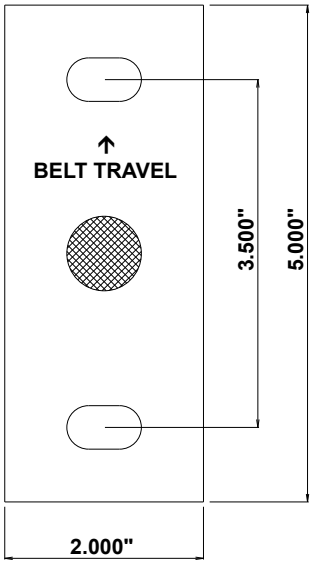
C - Flat Base



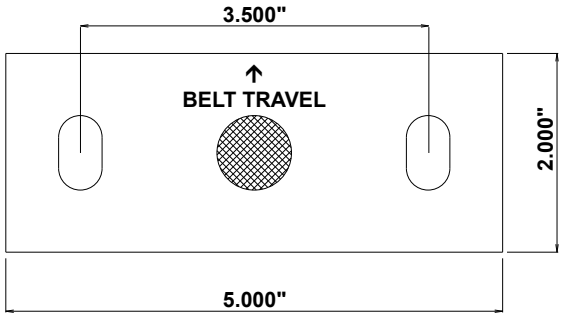
D - Angle Base



E - Angle Base



F - Flat Base



G - Flat Base

Troughers - 2 Roll - 15 Degrees

2 Roll – 15 Degree Roller Angle – 1.90” Diameter Metal and Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.64	4.81	4.25	2.41	9.55	3.00	0.25	2.25
10	12.82	5.94	4.54	2.70	11.72	3.00	0.25	2.63
12	14.99	7.06	4.83	2.99	13.90	3.00	0.25	3.00
14	16.92	8.06	5.09	3.25	15.83	3.00	0.25	3.38
16	19.09	9.19	5.38	3.54	18.00	3.00	0.25	3.75
18	21.27	10.31	5.67	3.83	20.17	3.00	0.25	4.00
20	23.44	11.44	5.96	4.13	22.35	3.00	0.25	4.38
24	27.55	13.56	6.51	4.68	26.45	3.00	0.25	5.00
30	33.70	16.75	7.34	5.50	32.61	3.00	0.25	6.00

2 Roll – 15 Degree Roller Angle – 2.38” Diameter Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.78	4.81	4.47	2.18	9.55	3.25	0.25	2.25
10	12.95	5.94	4.77	2.47	11.72	3.25	0.25	2.63
12	15.12	7.06	5.06	2.76	13.90	3.25	0.25	3.00
14	17.05	8.06	5.32	3.02	15.83	3.25	0.25	3.38
16	19.23	9.19	5.61	3.31	18.00	3.25	0.25	3.75
18	21.40	10.31	5.90	3.61	20.17	3.25	0.25	4.00
20	23.57	11.44	6.19	3.90	22.35	3.25	0.25	4.38
24	27.68	13.56	6.74	4.45	26.45	3.25	0.25	5.00
30	33.84	16.75	7.57	5.27	32.61	3.25	0.25	6.00

2 Roll – 15 Degree Roller Angle – 2.50” Diameter Metal Rollers

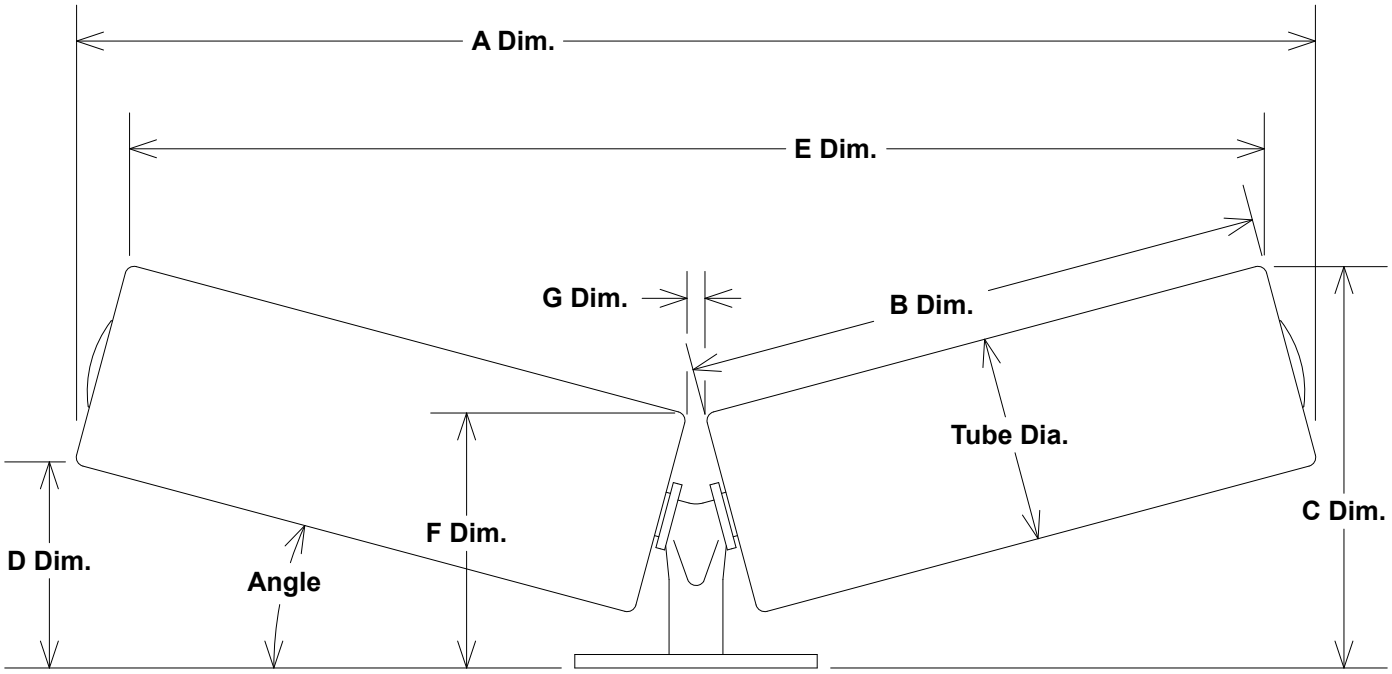
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.84	4.81	4.54	2.12	9.55	3.29	0.25	2.25
10	13.01	5.94	4.83	2.41	11.72	3.29	0.25	2.63
12	15.19	7.06	5.12	2.70	13.90	3.29	0.25	3.00
14	17.12	8.06	5.38	2.96	15.83	3.29	0.25	3.38
16	19.29	9.19	5.67	3.25	18.00	3.29	0.25	3.75
18	21.47	10.31	5.96	3.54	20.17	3.29	0.25	4.00
20	23.64	11.44	6.25	3.84	22.35	3.29	0.25	4.38
24	27.75	13.56	6.80	4.39	26.45	3.29	0.25	5.00
30	33.90	16.75	7.63	5.21	32.61	3.29	0.25	6.00

2 Roll – 15 Degree Roller Angle – 2.875” Diameter Plastic Rollers

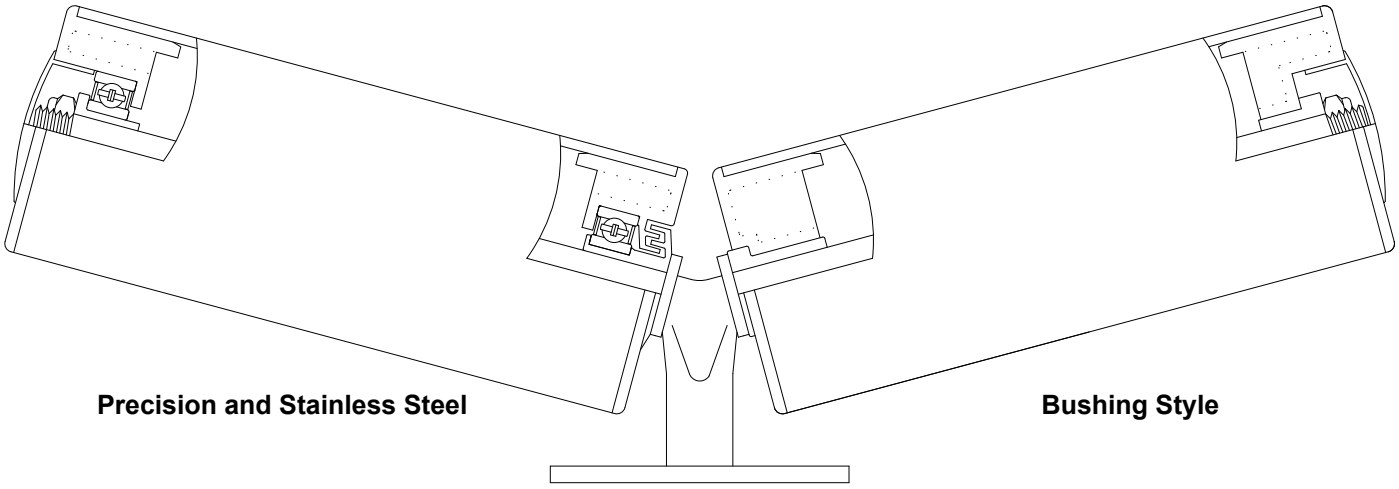
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.03	4.81	4.74	1.96	9.55	3.49	0.25	2.25
10	13.21	5.94	5.03	2.25	11.72	3.49	0.25	2.63
12	15.38	7.06	5.32	2.54	13.90	3.49	0.25	3.00
14	17.31	8.06	5.58	2.80	15.83	3.49	0.25	3.38
16	19.49	9.19	5.87	3.09	18.00	3.49	0.25	3.75
18	21.65	10.31	6.16	3.38	20.17	3.49	0.25	4.00
20	23.83	11.43	6.45	3.67	22.35	3.49	0.25	4.38
24	27.94	13.56	7.00	4.22	26.45	3.49	0.25	5.00
30	34.10	16.75	7.83	5.05	32.61	3.49	0.25	6.00

Troughers - 2 Roll - 15 Degrees

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel **Bushing Style**

Troughers - 2 Roll - 20 Degrees

2 Roll – 20 Degree Roller Angle – 1.90” Diameter Metal and Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.59	4.81	4.65	2.87	9.29	3.01	0.25	2.25
10	12.71	5.94	5.04	3.25	11.41	3.01	0.25	2.63
12	14.82	7.06	5.42	3.64	13.52	3.01	0.25	3.00
14	16.70	8.06	5.76	3.98	15.40	3.01	0.25	3.38
16	18.82	9.19	6.15	4.36	17.52	3.01	0.25	3.75
18	20.93	10.31	6.53	4.75	19.63	3.01	0.25	4.00
20	23.04	11.44	6.92	5.13	21.75	3.01	0.25	4.38
24	27.04	13.56	7.65	5.86	25.74	3.01	0.25	5.00
30	33.03	16.75	8.74	6.95	31.73	3.01	0.25	6.00

2 Roll – 20 Degree Roller Angle – 2.38” Diameter Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.92	4.81	4.91	2.67	9.29	3.26	0.25	2.25
10	13.03	5.94	5.29	3.06	11.41	3.26	0.25	2.63
12	15.15	7.06	5.68	3.44	13.52	3.26	0.25	3.00
14	17.03	8.06	6.02	3.79	15.40	3.26	0.25	3.38
16	19.14	9.19	6.40	4.17	17.52	3.26	0.25	3.75
18	21.56	10.31	6.79	4.55	19.63	3.26	0.25	4.00
20	23.37	11.44	7.17	4.93	21.75	3.26	0.25	4.38
24	27.37	13.56	7.90	5.67	25.74	3.26	0.25	5.00
30	33.35	16.75	8.99	6.76	31.73	3.26	0.25	6.00

2 Roll – 20 Degree Roller Angle – 2.50” Diameter Metal Rollers

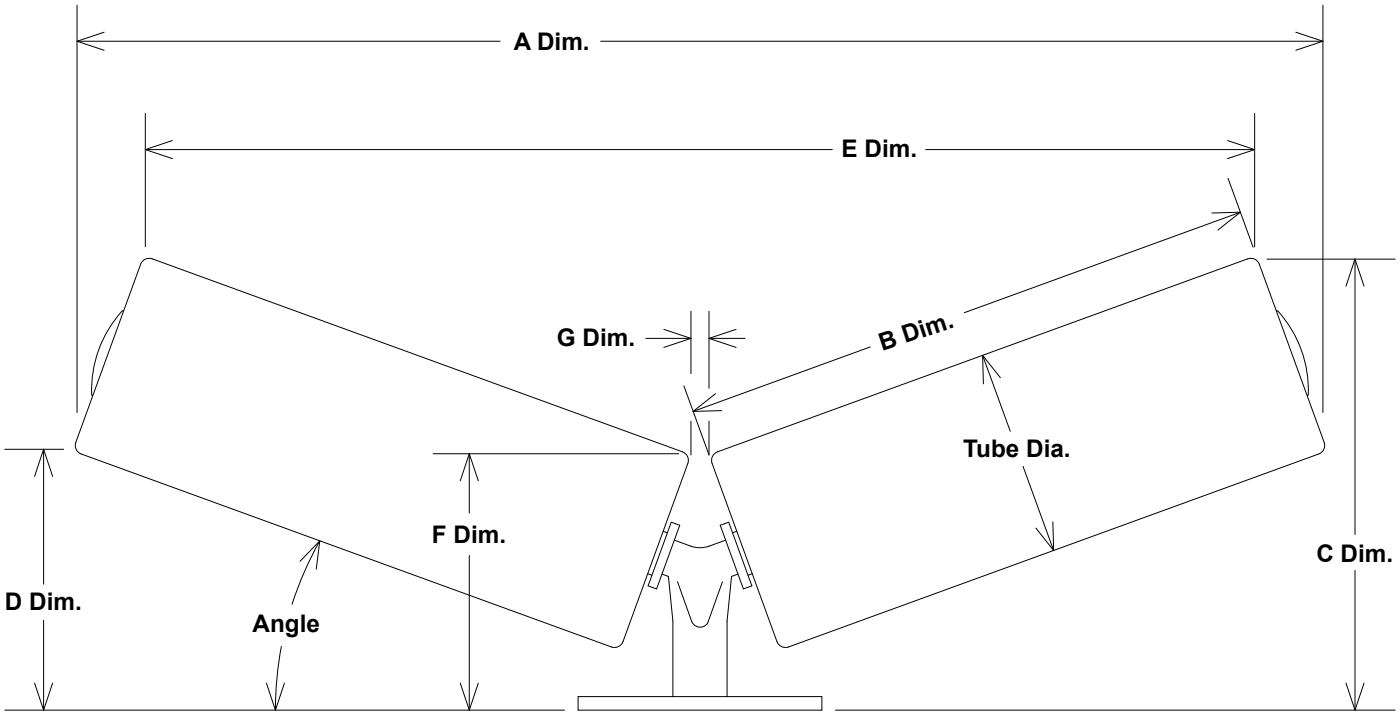
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.00	4.81	4.97	2.62	9.29	3.33	0.25	2.25
10	13.12	5.94	5.36	3.01	11.41	3.33	0.25	2.63
12	15.23	7.06	5.74	3.39	13.52	3.33	0.25	3.00
14	17.11	8.06	6.08	3.73	15.40	3.33	0.25	3.38
16	19.23	9.19	6.47	4.12	17.52	3.33	0.25	3.75
18	21.34	10.31	6.85	4.50	19.63	3.33	0.25	4.00
20	23.46	11.44	7.24	4.89	21.75	3.33	0.25	4.38
24	27.45	13.56	7.96	5.62	25.74	3.33	0.25	5.00
30	33.44	16.75	9.05	6.70	31.73	3.33	0.25	6.00

2 Roll – 20 Degree Roller Angle – 2.875” Diameter Plastic Rollers

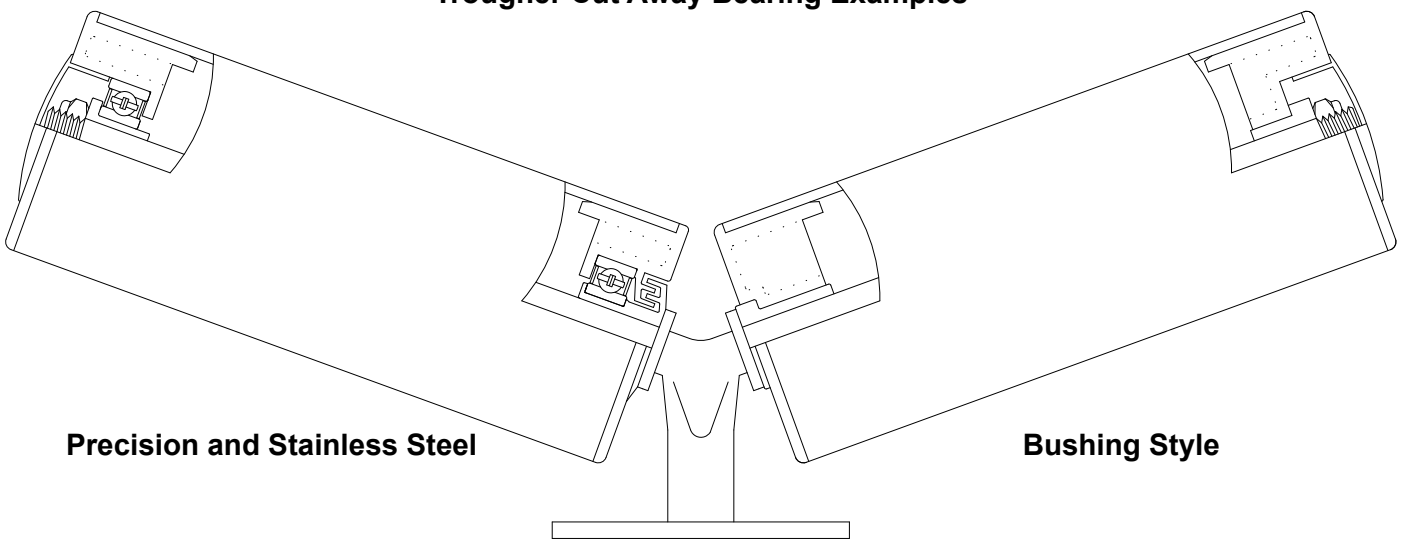
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.26	4.81	5.17	2.47	9.29	3.53	0.25	2.25
10	13.37	5.94	5.56	2.85	11.41	3.53	0.25	2.63
12	15.49	7.06	5.94	3.24	13.52	3.53	0.25	3.00
14	17.37	8.06	6.29	3.58	15.40	3.53	0.25	3.38
16	19.48	9.19	6.67	3.97	17.52	3.53	0.25	3.75
18	21.60	10.31	7.05	4.35	19.63	3.53	0.25	4.00
20	23.71	11.43	7.43	4.74	21.75	3.53	0.25	4.38
24	27.08	13.56	8.16	5.46	25.74	3.53	0.25	5.00
30	33.70	16.75	9.25	6.55	13.73	3.53	0.25	6.00

Troughers - 2 Roll - 20 Degrees

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel **Bushing Style**

Troughers - 2 Roll - 25 Degrees

2 Roll – 25 Degree Roller Angle – 1.90” Diameter Metal and Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.58	4.81	5.07	3.34	8.97	3.03	0.25	2.25
10	12.62	5.94	5.54	3.82	11.01	3.03	0.25	2.63
12	14.66	7.06	6.01	4.30	13.05	3.03	0.25	3.00
14	16.47	8.06	6.44	4.72	14.86	3.03	0.25	3.38
16	18.51	9.19	6.92	5.19	16.90	3.03	0.25	3.75
18	20.55	10.31	7.39	5.67	18.94	3.03	0.25	4.00
20	22.59	11.44	7.87	6.14	20.98	3.03	0.25	4.38
24	26.44	13.56	8.76	7.04	24.84	3.03	0.25	5.00
30	32.22	16.75	10.11	8.39	30.61	3.03	0.25	6.00

2 Roll – 25 Degree Roller Angle – 2.38” Diameter Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.98	4.81	5.32	3.18	8.97	3.29	0.25	2.25
10	13.02	5.94	5.80	3.65	11.01	3.29	0.25	2.63
12	15.06	7.06	6.28	4.13	13.05	3.29	0.25	3.00
14	16.87	8.06	6.70	4.55	14.86	3.29	0.25	3.38
16	18.91	9.19	7.18	5.02	16.90	3.29	0.25	3.75
18	20.95	10.31	7.65	5.50	18.94	3.29	0.25	4.00
20	22.99	11.44	8.13	5.98	20.98	3.29	0.25	4.38
24	26.84	13.56	9.03	6.87	24.84	3.29	0.25	5.00
30	32.62	16.75	10.37	8.22	30.61	3.29	0.25	6.00

2 Roll – 25 Degree Roller Angle – 2.50” Diameter Metal Rollers

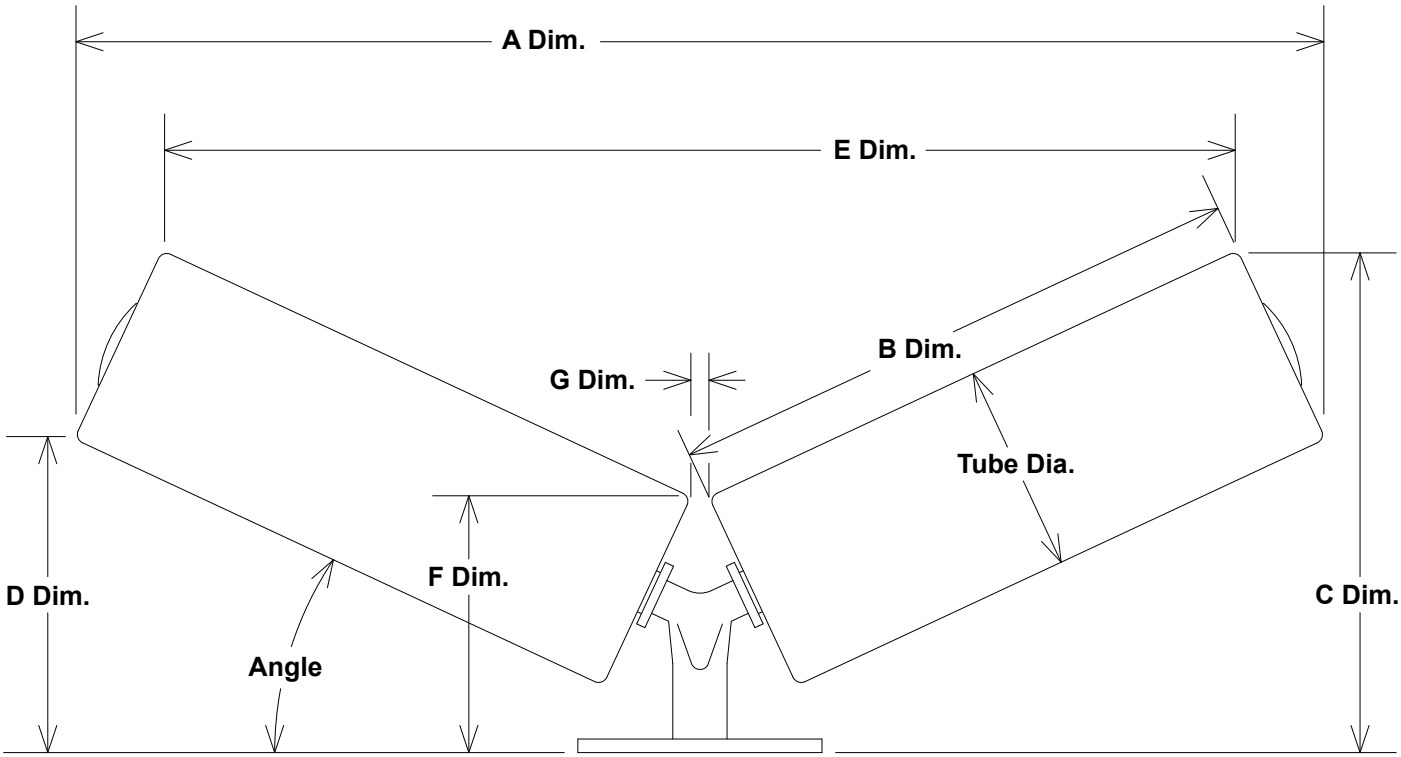
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.09	4.81	5.40	3.13	8.97	3.36	0.25	2.25
10	13.13	5.94	5.87	3.61	11.01	3.36	0.25	2.63
12	15.17	7.06	6.35	4.08	13.05	3.36	0.25	3.00
14	16.98	8.06	6.77	4.50	14.86	3.36	0.25	3.38
16	19.02	9.19	7.25	4.98	16.90	3.36	0.25	3.75
18	21.06	10.31	7.72	5.46	18.94	3.36	0.25	4.00
20	23.09	11.44	8.20	5.93	20.98	3.36	0.25	4.38
24	26.95	13.56	9.10	6.83	24.84	3.36	0.25	5.00
30	32.72	16.75	10.44	8.18	30.61	3.36	0.25	6.00

2 Roll – 25 Degree Roller Angle – 2.875” Diameter Plastic Rollers

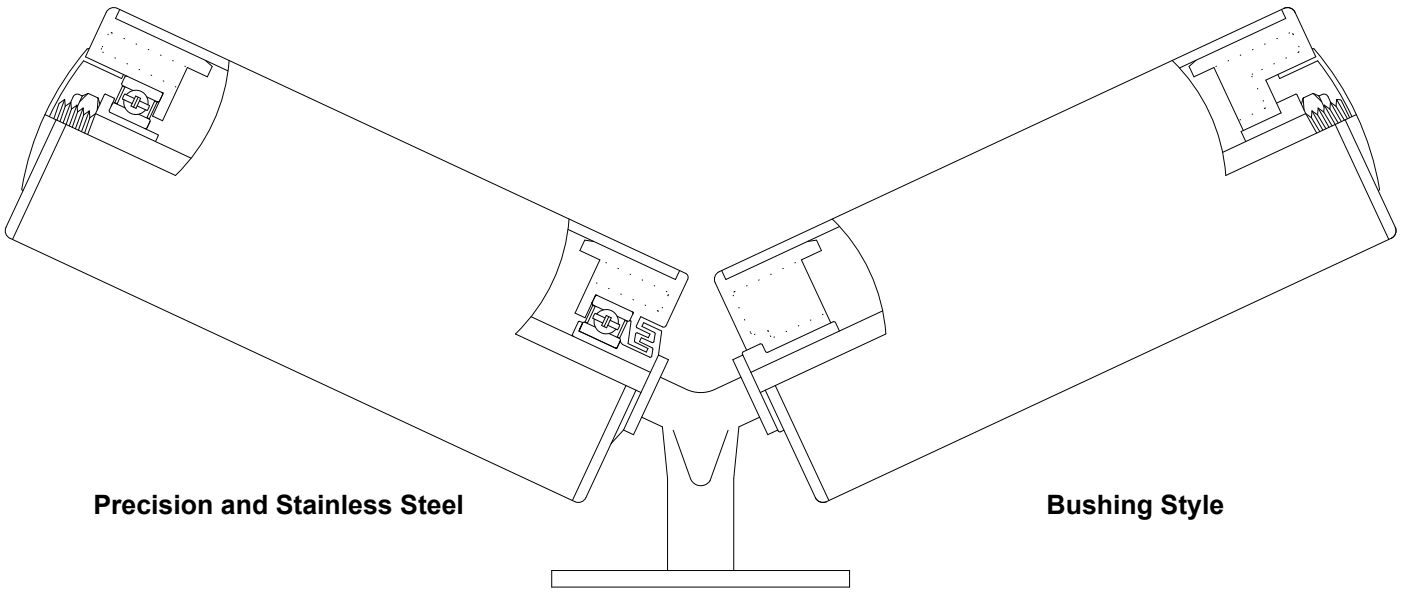
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.04	4.81	5.60	3.00	8.97	3.57	0.25	2.25
10	13.44	5.94	6.08	3.47	11.01	3.57	0.25	2.63
12	15.48	7.06	6.55	3.95	13.05	3.57	0.25	3.00
14	17.29	8.06	6.98	4.37	14.86	3.57	0.25	3.38
16	19.33	9.19	7.45	4.85	16.90	3.57	0.25	3.75
18	21.37	10.31	7.93	5.32	18.94	3.57	0.25	4.00
20	23.41	11.43	8.40	5.79	20.98	3.57	0.25	4.38
24	27.27	13.56	9.30	6.70	24.84	3.57	0.25	5.00
30	33.04	16.75	10.65	8.04	30.61	3.57	0.25	6.00

Troughers - 2 Roll - 25 Degrees

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel **Bushing Style**

Troughers - 2 Roll - 30 Degrees

2 Roll – 30 Degree Roller Angle – 1.90” Diameter Metal and Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.48	4.81	5.46	3.82	8.59	3.06	0.25	2.25
10	12.44	5.94	6.02	4.38	10.54	3.06	0.25	2.63
12	14.38	7.06	6.59	4.95	12.48	3.06	0.25	3.00
14	16.11	8.06	7.09	5.45	14.21	3.06	0.25	3.38
16	18.06	9.19	7.65	6.01	16.16	3.06	0.25	3.75
18	20.01	10.31	8.22	6.57	18.11	3.06	0.25	4.00
20	21.95	11.44	8.78	7.13	20.06	3.06	0.25	4.38
24	25.64	13.56	9.84	8.20	23.74	3.06	0.25	5.00
30	31.16	16.75	11.44	9.79	29.26	3.06	0.25	6.00

2 Roll – 30 Degree Roller Angle – 2.38” Diameter Plastic Rollers

Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	10.96	4.81	5.74	3.69	8.59	3.34	0.25	2.25
10	12.91	5.94	6.31	4.25	10.54	3.34	0.25	2.63
12	14.86	7.06	6.89	4.81	12.48	3.34	0.25	3.00
14	16.59	8.06	7.37	5.31	14.21	3.34	0.25	3.38
16	18.54	9.19	7.93	5.87	16.16	3.34	0.25	3.75
18	20.49	10.31	8.49	6.44	18.11	3.34	0.25	4.00
20	22.43	11.44	9.06	7.00	20.06	3.34	0.25	4.38
24	26.12	13.56	10.12	8.06	23.74	3.34	0.25	5.00
30	31.64	16.75	11.71	9.65	29.26	3.34	0.25	6.00

2 Roll – 30 Degree Roller Angle – 2.50” Diameter Metal Rollers

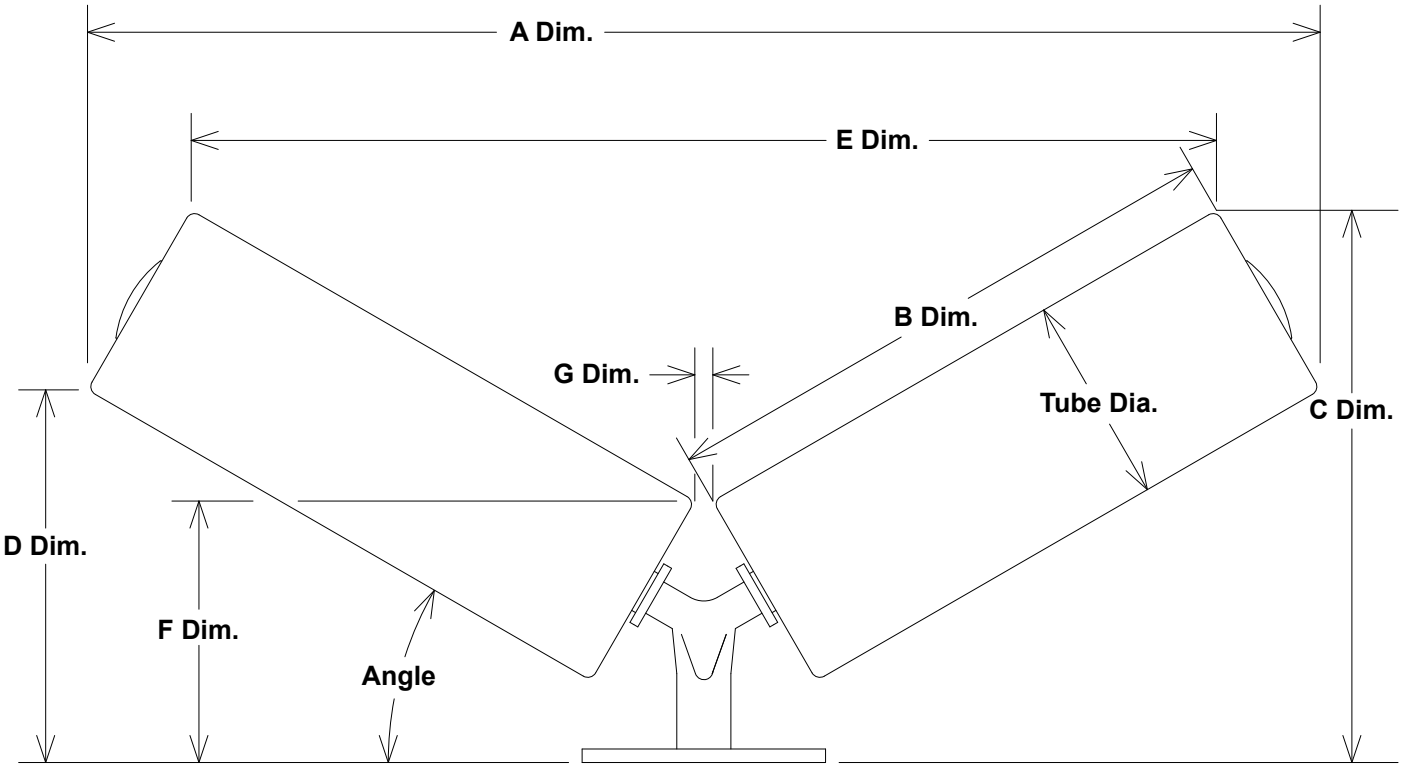
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.08	4.81	5.81	3.65	8.59	3.41	0.25	2.25
10	13.04	5.94	6.38	4.21	10.54	3.41	0.25	2.63
12	14.98	7.06	6.94	4.77	12.48	3.41	0.25	3.00
14	16.71	8.06	7.44	5.27	14.21	3.41	0.25	3.38
16	18.66	9.19	8.00	5.84	16.16	3.41	0.25	3.75
18	20.61	10.31	8.56	6.40	18.11	3.41	0.25	4.00
20	22.56	11.44	9.13	6.96	20.06	3.41	0.25	4.38
24	26.24	13.56	10.19	8.02	23.74	3.41	0.25	5.00
30	31.76	16.75	11.78	9.62	29.26	3.41	0.25	6.00

2 Roll – 30 Degree Roller Angle – 2.875” Diameter Plastic Rollers

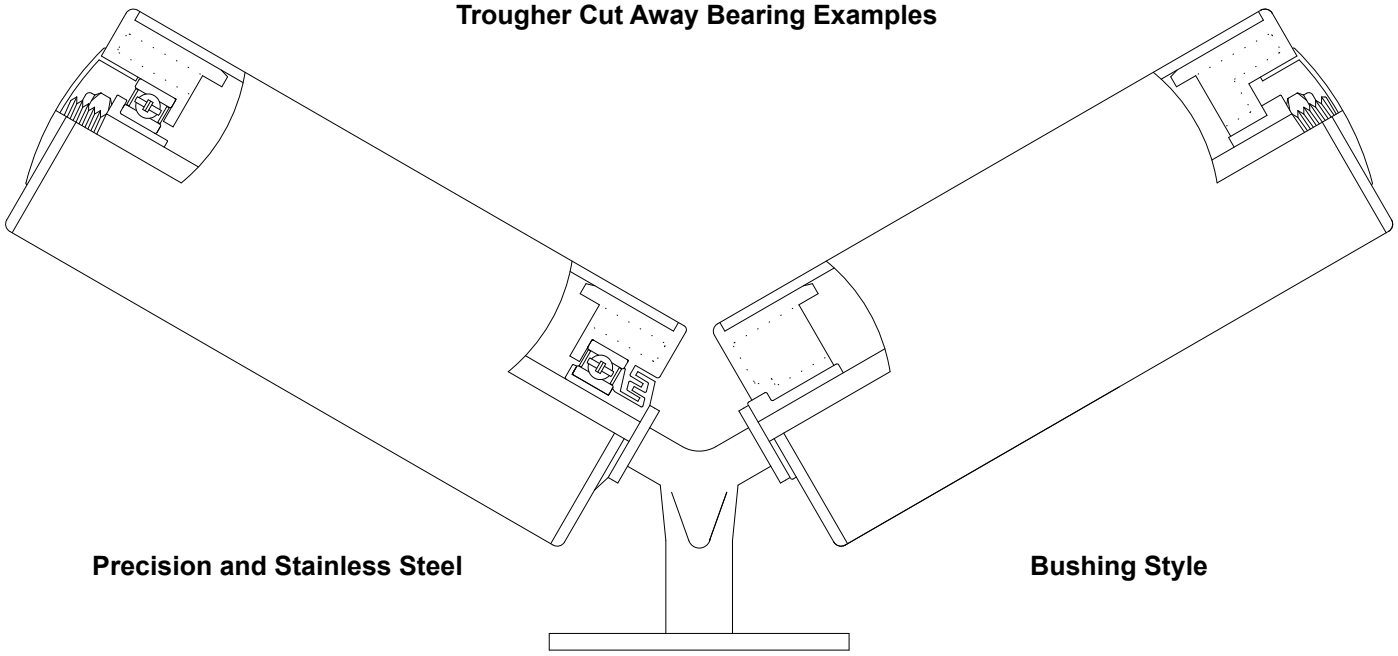
Belt Width	A DIM	B DIM	C DIM	D DIM	E DIM	F DIM	G DIM	Approx Wt Lbs
8	11.46	4.81	6.03	3.54	8.59	3.63	0.25	2.25
10	13.41	5.94	6.59	4.10	10.54	3.63	0.25	2.63
12	15.36	7.06	7.16	4.67	12.48	3.63	0.25	3.00
14	17.09	8.06	7.66	5.17	14.21	3.63	0.25	3.38
16	19.04	9.19	8.22	5.73	16.16	3.63	0.25	3.75
18	20.99	10.31	8.78	6.29	18.11	3.63	0.25	4.00
20	22.93	11.43	9.34	6.85	20.06	3.63	0.25	4.38
24	26.62	13.56	10.41	7.92	23.74	3.63	0.25	5.00
30	32.14	16.75	12.00	9.51	29.26	3.63	0.25	6.00

Troughers - 2 Roll - 30 Degrees

Trougher Dimensions



Trougher Cut Away Bearing Examples



Precision and Stainless Steel **Bushing Style**

Ralphs-Pugh Troughing Units - 1 Roll

General Information on part numbering system:

Example: **S1RL-P28S-18**

Frame Material
- S - Stainless Steel
- C - Painted Carbon Steel

Number of rolls per unit
- 1R - 1 Roll Belt Return Carrier Unit

Base design

Use "S" or "L" for 3 roll units
- S - Short wings on 3 roll troughing units
- L - Long wings on 3 roll troughing units

Match to Base Design for 2 Roll units
- A - Flat base 3 3/8" x 3 3/8" square with 6 holes 1/2" x 3/8" parallel to belt travel
- B - Flat base 2" x 3 1/2" long base; side parallel to belt travel
- C - Flat base 2" x 3 1/2" long base; turned 90 degrees to belt travel
- D - Angle base 1" x 1" x 3 1/2"; ridge parallel to belt travel
- E - Angle base 1" x 1" x 3 1/2"; ridge turned 90 degrees to belt travel
- F - Flat base 2" x 5" with 2 slotted holes 7/16" x 3/4" on 3 1/2" centers
- G - Flat base 2" x 5" with 2 slotted holes 7/16" x 3/4" on 3 1/2" centers turned 90 degrees from belt travel

* All bases are 0.120" thick (11 gauge)

Roller Tube Material
- P - Plastic
- S - Stainless Steel
- G - Galvanized Steel

Roller Tube Diameters – Standard

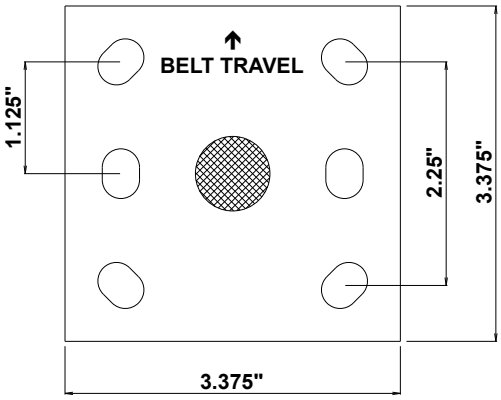
19 - 1.900"	PVC and Steel
23 - 2.375" - (2 3/8")	PVC only
25 - 2.500" - (2 1/2")	Steel only
28 - 2.875" - (2 7/8")	PVC only

Other Sizes are Available

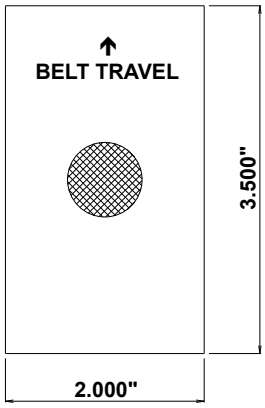
Bearing Type
- P - ABEC-1 Chrome Alloy Precision Ball Bearing in Plastic Housings
- S - Commercial Grade Stainless Steel Ball Bearing in Plastic Housings
- B - Bushing Style (Acetal plastic with Teflon additives) - PVC Tubes only

Belt Width
- 8" – 48"

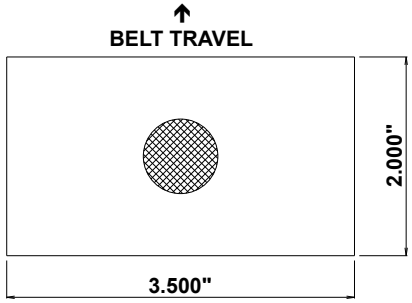
Troughers - Return Carrier - 1 Roll Base Designs



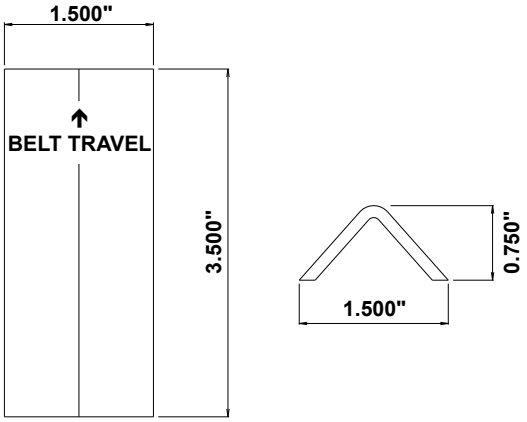
A - Flat Base



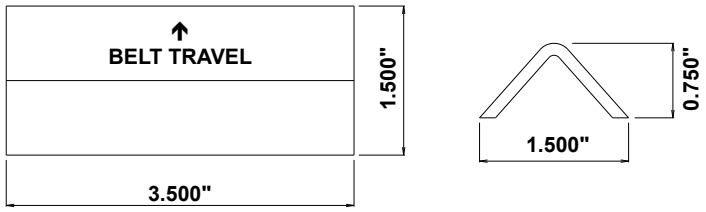
B - Flat Base



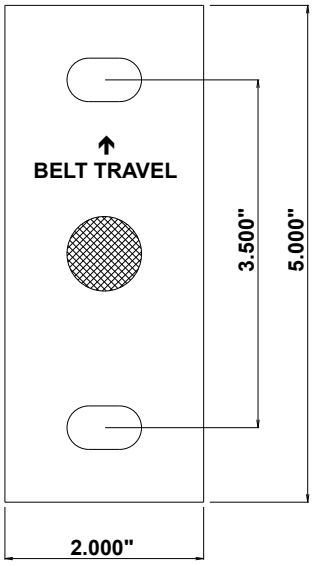
C - Flat Base



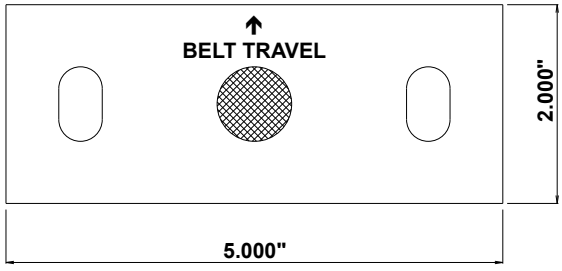
D - Angle Base



E - Angle Base



F - Flat Base



G - Flat Base

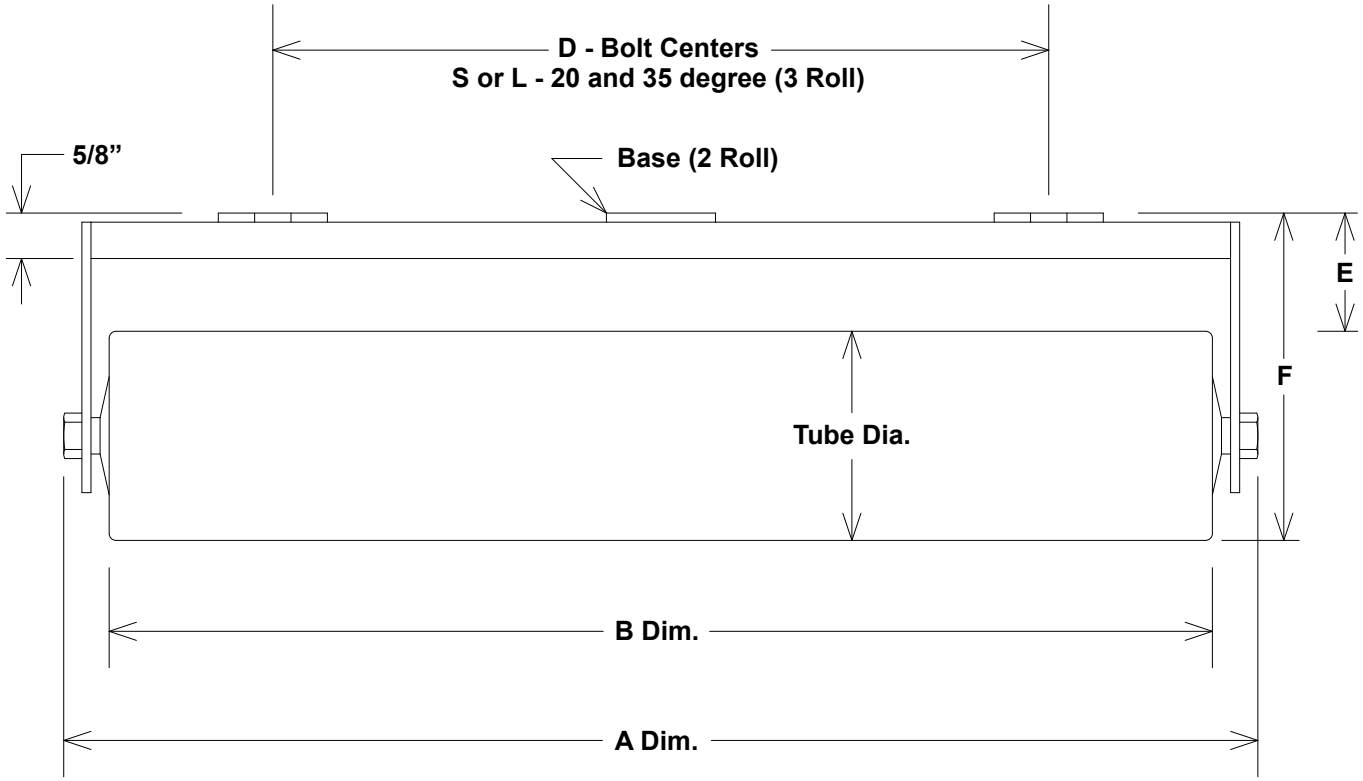
Troughers - Return Carrier - 1 Roll

Belt Width	A	B	D – 20 Degree 3R		D – 35 Degree 3R		Weight of 1 Roll Unit for	
			S	L	S	L	3 Roll Return	2 Roll Return
12	14.13	13.06	7.88	--	7.88	--	3.25	3.75
14	16.13	15.06	9.88	--	9.88	--	3.63	4.13
16	18.13	17.06	11.88	--	11.88	--	3.88	4.50
18	20.13	19.06	13.88	8.75	13.88	8.75	4.25	5.00
20	22.13	21.06	15.88	10.75	15.88	10.75	4.50	5.25
22	24.13	23.06	17.88	12.75	17.88	12.75	5.00	5.75
24	26.13	25.06	19.88	14.75	19.88	14.75	5.13	6.00
26	28.13	27.06	21.88	16.75	21.88	16.75	5.62	6.50
30	32.13	31.06	25.88	20.75	25.88	20.75	6.13	7.25
36	38.13	37.06	31.88	26.75	31.88	26.75	7.00	--
42	44.13	43.06	37.88	32.75	37.88	32.75	8.00	--
48	50.13	49.06	43.88	38.75	43.88	38.75	9.00	--

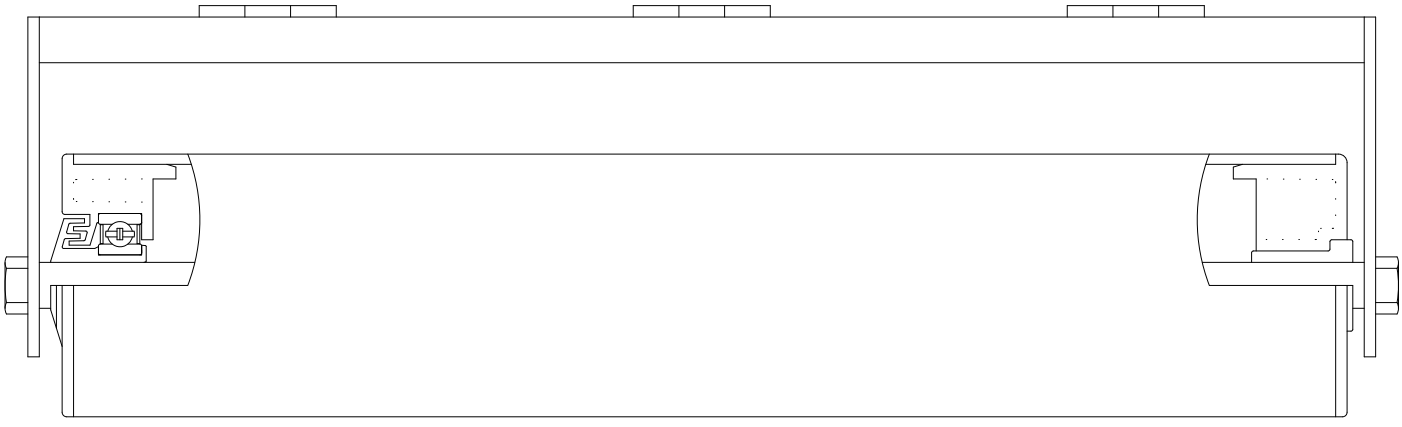
Tube Diameter	2.87” (28)	2.50” (25)	2.38” (23)	1.90 (19)
E Dim	1.51	1.69	1.69	1.99
F Dim	4.38	4.19	4.06	3.89

Troughers - Return Carrier - 1 Roll

Return Carrier Dimensions



Return Carrier Cut Away Bearing Examples



Precision and Stainless Steel **Bushing Style**

Trougher Engineering Guidelines

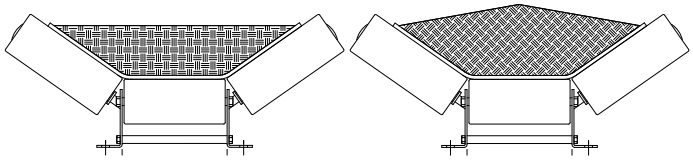
Many variables affect actual conveyor delivery - your application will require specific engineering that Ralphs-Pugh does not provide. The following information is for comparative purposes only and is only provided for 50 pounds per cubic foot material density. Find the cross sectional area (Sq. Ft.) for 0 and 10 degree surcharge of various standard troughers on charts on left. See the theoretical conveyor delivery (Tons per hour) and frame spacing (Max. center distance inches) on charts on right for various cross sectional areas (sq. ft.) and belt speeds (FPM) at 50 pounds per cubic foot density. See illustration and examples below to better understand the data provided.

Belt Size	Cross Section Area (sq. ft.)			
	2R-15		*2R*-20	
	0 Sur	10 Sur	0 Sur	10 Sur
8	0.021	0.036	0.027	0.042
10	0.035	0.059	0.045	0.069
12	0.053	0.088	0.068	0.103
14	0.073	0.124	0.094	0.144
16	0.098	0.164	0.126	0.192
18	0.125	0.211	0.161	0.247
20	0.157	0.264	0.201	0.309
24	0.230	0.387	0.295	0.452
30	0.365	0.615	0.469	0.719

Belt Size	Cross Section Area (sq. ft.)			
	2R-25		*2R*-30	
	0 Sur	10 Sur	0 Sur	10 Sur
8	0.033	0.047	0.037	0.051
10	0.054	0.078	0.061	0.085
12	0.080	0.116	0.091	0.127
14	0.112	0.163	0.127	0.177
16	0.150	0.216	0.169	0.236
18	0.192	0.278	0.217	0.303
20	0.240	0.347	0.271	0.379
24	0.352	0.509	0.398	0.555
30	0.559	0.809	0.632	0.882

Belt Size	Cross Section Area (sq. ft.)			
	*3RS-20		*3RS-35	
	0 Sur	10 Sur	0 Sur	10 Sur
12	0.053	0.088	0.085	0.116
14	0.066	0.115	0.107	0.151
16	0.079	0.145	0.129	0.189
18	0.092	0.177	0.151	0.229
20	0.105	0.212	0.173	0.272
22	0.118	0.249	0.194	0.317
24	0.131	0.288	0.216	0.365
26	0.144	0.331	0.238	0.415
30	0.170	0.422	0.282	0.522
36	0.210	0.577	0.348	0.702
42	0.249	0.755	0.414	0.903
48	0.288	0.955	0.479	1.127

Belt Size	Cross Section Area (sq. ft.)			
	*3RL-20		*3RL-35	
	0 Sur	10 Sur	0 Sur	10 Sur
12	NA	NA	NA	NA
14	NA	NA	NA	NA
16	NA	NA	NA	NA
18	0.143	0.225	0.227	0.297
20	0.169	0.272	0.269	0.359
22	0.194	0.321	0.312	0.423
24	0.219	0.372	0.354	0.490
26	0.244	0.426	0.396	0.559
30	0.295	0.541	0.481	0.705
36	0.370	0.732	0.608	0.943
42	0.446	0.945	0.735	1.202
48	0.522	1.180	0.861	1.484



0º Surcharge Angle **10º Surcharge Angle**

Cross Section Area	b) Delivery = Tons per hour at 50 lbs. / cu. ft. Belt Speed (ft. per min. FPM)						a) Max Spacing (in.) at 50 lbs. / cu. Ft.	
	50	100	150	200	250	300	*2R*	*3R*
0.02	1.5	3.0	4.5	6.0	7.5	9.0	***	***
0.03	2.3	4.5	6.8	9.0	11.3	13.5	***	***
0.04	3.0	6.0	9.0	12.0	15.0	18.0	***	***
0.05	3.8	7.5	11.3	15.0	18.8	22.5	***	***
0.06	4.5	9.0	13.5	18.0	22.5	27.0	***	***
0.07	5.3	10.5	15.8	21.0	26.3	31.5	***	***
0.08	6.0	12.0	18.0	24.0	30.0	36.0	***	***
0.09	6.8	13.5	20.3	27.0	33.8	40.5	***	***
0.10	7.5	15.0	22.5	30.0	37.5	45.0	***	***
0.12	9.0	18.0	27.0	36.0	45.0	54.0	***	***
0.14	10.5	21.0	31.5	42.0	52.5	63.0	***	***
0.16	12.0	24.0	36.0	48.0	60.0	72.0	***	***
0.18	13.5	27.0	40.5	54.0	67.5	81.0	***	***
0.20	15.0	30.0	45.0	60.0	75.0	90.0	***	***
0.23	17.3	34.5	51.8	69.0	86.3	103.5	***	***
0.26	19.5	39.0	58.5	78.0	97.5	117.0	***	***
0.29	21.8	43.5	65.3	87.0	108.8	130.5	***	***
0.32	24.0	48.0	72.0	96.0	120.0	144.0	75	***
0.35	26.3	52.5	78.8	105.0	131.3	157.5	69	***
0.38	28.5	57.0	85.5	114.0	142.5	171.0	63	***
0.41	30.8	61.5	92.3	123.0	153.8	184.5	59	***
0.44	33.0	66.0	99.0	132.0	165.0	198.0	55	***
0.47	35.3	70.5	105.8	141.0	176.3	211.5	51	***
0.50	37.5	75.0	112.5	150.0	187.5	225.0	48	72
0.55	41.3	82.5	123.8	165.0	206.3	247.5	44	65
0.60	45.0	90.0	135.0	180.0	225.0	270.0	40	60
0.65	48.8	97.5	146.3	195.0	243.8	292.5	37	55
0.70	52.5	105.0	157.5	210.0	262.5	315.0	34	51
0.75	56.3	112.5	168.8	225.0	281.3	337.5	32	48
0.80	60.0	120.0	180.0	240.0	300.0	360.0	30	45
0.85	63.8	127.5	191.3	255.0	318.8	382.5	28	42
0.90	67.5	135.0	202.5	270.0	337.5	405.0	27	40
0.95	71.3	142.5	213.8	285.0	356.3	427.5	25	38
1.00	75.0	150.0	225.0	300.0	375.0	450.0	24	36
1.10	82.5	165.0	247.5	330.0	412.5	495.0	22	33
1.20	90.0	180.0	270.0	360.0	450.0	540.0	20	30
1.30	97.5	195.0	292.5	390.0	487.5	585.0	18	28
1.40	105.0	210.0	315.0	420.0	525.0	630.0	17	26
1.50	112.5	225.0	337.5	450.0	562.5	675.0	16	24

Installation Notes:

a) Spacing of units will be dictated by troughability of belt as well as by load capacity of troughing unit. Where *** is indicated, spacing should be limited to maintain troughability of belt. Inches shown indicate the maximum center distance (at 50 lbs./Cu. Ft. materials) so as not to exceed 100 pounds per 2 roll units and 150 pounds for 3 roll units. In general, spacing should not exceed 36 to 48 inches for troughability or inches indicated for unit load capacity. Consult your engineering for specifics.

b) Roller diameter as well as belt speed and load per unit affect bearing life. For ball bearings, limit 1.9" diameter roll units to 150 FPM, 2.88" diameter roll units to 300 FPM. For bushing style bearings, limit 1.9" diameter roll units to 50 FPM, 2.88" diameter roll units to 100 FPM.

c) Pulley top elevation to bottom of belt trough affects belt stress and bearing loads in rollers. Typically; For *2R*-30, locate the top of the pulley above the trough V by 1/2" for a 12" belt to 1 1/2" for a 30" belt width. For *3RS-20, locate the top of the pulley level with the top of the center roll. For *3RL-35, locate the top of the pulley 1/2" above the top of the center roll.

d) Spacing for first unit from pulley affects belt stress and bearing loads in rollers. Typically; For *2R*, use *2R*-15 as transition unit - offset the distance from the pulley by one belt width. For *3RS, offset the distance from the pulley by one belt width. For *3RL, offset the distance from the pulley by 1.5 x belt width.

Examples: On the left, *2R*-30 @ 0° surcharge angle x 24" belt size = 0.398 Sq. Ft.
On the right under "cross section area", between 0.38 and 0.41 Sq. Ft. @ 150 FPM = approx. 90 TPH and maximum spacing of approximately 60 inches, but should be reduced for troughability.

Shaded Boxes Above

On the left, 3RL-35 @ 10° surcharge angle x 36" belt size = 0.943 Sq. Ft.
On the right under "cross section area", close to 0.95 Sq. Ft. @ 200 FPM = approx. 285 TPH and maximum spacing of 38 inches, based on unit load limit.

Ralphs-Pugh Roller Component Parts

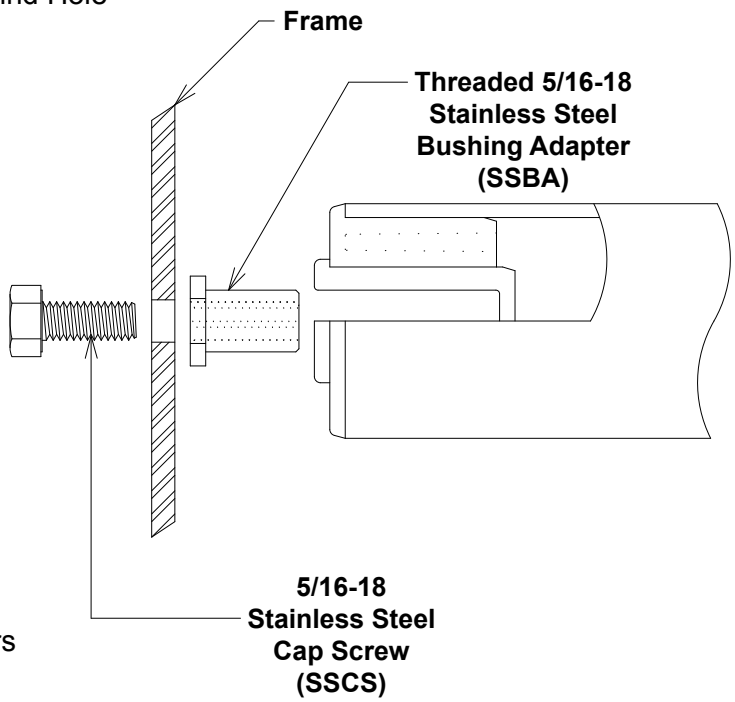
Ralphs-Pugh roller components are custom molded or fabricated at our facility insuring the highest quality possible. With complete control of design and a long-term commitment to the material handling industry, these products will enhance your roller performance. All materials are FDA approved to meet today's stringent requirements. Unique two-piece bushing/endplug combinations allow for economical replacement of bushings rather than replacing the entire endplug. ***We also custom manufacture for special requirements.***

Bushings

Materials:
- Acetal Plastic: "Ultra Blue" Acetal plastic with Teflon additives *Our best material*
- Acetal Plastic: Light blue color - Standard unless othewise specified.
- Ultra High Molecular Weight Plastic (UHMW)

Styles Available:
- Standard Duty: Thru Hole and Blind Hole
- Heavy Duty: Thru Hole and Blind Hole
- Heavy Duty Grading and Inspection (GIR): Blind Hole

Features:
- Self lubricating
- Replaceable
- Lead chamfer for easy installation



Endplugs

Materials:
- ABS Plastic

Features:
- Lead chamfer for easy installation
- Tight tolerances ensuring proper fit
- Ensured concentricity for true running rollers

Plastic Tubing

Materials:
- "High Impact" White PVC with impact modifiers for added shock resistance and Special Ultra Violet (UV) stabilizers
- Dark Gray in limited sizes

Features:
- Custom extruded for very tight tolerances assuring inside diameters

Hardware

Bushing Adapters and Cap Screws:
- 300 series stainless steel for long life and exceptional corrosion resistance. FDA approved for food industry.

Components for Metal Tubes

Plastic Endplugs

Part No.	Endplug Dimensions		Tube Dimensions			
	Flange O.D.	Body O.D.	O.D.	I.D.	Gauge	Wall
1-8P	1.320	0.963	1.315	0.957	SCH 80	0.179
1-4P	1.320	1.055	1.315	1.049	SCH 40	0.133
1 1/4 EMT	1.510	1.386	1.500	1.380	EMT	0.065
1 1/4 - 4P	1.660	1.386	1.660	1.380	SCH 40	0.140
1 1/4 - 8P	1.660	1.284	1.660	1.278	SCH 80	0.191
1 3/8 - 18	1.375	1.283	1.375	1.278	18	0.049
1 3/8 - 16	1.375	1.251	1.375	1.245	16	0.065
1 1/2 - 10	1.500	1.238	1.500	1.232	10	0.134
1 1/2 - 16	1.500	1.376	1.500	1.370	16	0.065
1 1/2 EMT	1.800	1.616	1.740	1.610	EMT	0.085
1 1/2 - 1P	1.900	1.688	1.900	1.682	SCH 10	0.109
1 1/2 - 4P	1.900	1.616	1.900	1.610	SCH 40	0.145
1 1/2 - 8P	1.900	1.506	1.900	1.500	SCH 80	0.200
1 5/8 - 16	1.625	1.501	1.625	1.495	16	0.065
1 3/4 - 16	1.750	1.627	1.750	1.620	16	0.065
1 3/4 - 14	1.750	1.590	1.750	1.584	14	0.083
1 7/8 - 16	1.875	1.751	1.875	1.745	16	0.065
2 – 18	2.000	1.908	2.000	1.902	18	0.049
2 – 16	2.000	1.876	2.000	1.870	16	0.065
2 – 14	2.000	1.840	2.000	1.834	14	0.083
2 – 13	2.000	1.816	2.000	1.810	13	0.095
2 – 11	2.000	1.766	2.000	1.760	11	0.120
2 – EMT	2.190	2.073	2.190	2.067	EMT	0.062
2 – 4P	2.375	2.073	2.375	2.067	SCH 40	0.154
2 – 8P	2.375	1.945	2.375	1.939	SCH 80	0.218
2 1/8 – 16	2.125	2.001	2.125	1.995	16	0.065
2 1/4 - 18	2.250	2.158	2.250	2.152	18	0.049
2 1/4 - 16	2.250	2.126	2.250	2.120	16	0.065
2 1/4 - 14	2.250	2.090	2.250	2.084	14	0.083
2 1/4 - 13	2.250	2.066	2.250	2.060	13	0.095
2 1/4 - 11	2.250	2.016	2.250	2.010	11	0.120
2 3/8 - 16	2.375	2.251	2.375	2.245	16	0.065
2 3/8 - 11	2.375	2.141	2.375	2.135	11	0.120
2 1/2 - 4P	2.875	2.475	2.875	2.469	SCH 40	0.203
2 1/2 - 8P	2.875	2.329	2.875	2.323	SCH 80	0.276
2 1/2 - 16	2.500	2.376	2.500	2.370	16	0.065
2 1/2 - 14	2.500	2.340	2.500	2.334	14	0.083
2 1/2 - 13	2.500	2.316	2.500	2.310	13	0.095
2 1/2 - 11	2.500	2.266	2.500	2.260	11	0.120
2 1/2 - 10	2.500	2.238	2.500	2.232	10	0.134
2 3/4 - 16	2.750	2.626	2.750	2.620	16	0.065
2 3/4 - 14	2.750	2.590	2.750	2.584	14	0.083
2 3/4 - 13	2.750	2.566	2.750	2.560	13	0.095
2 3/4 - 11	2.750	2.516	2.750	2.510	11	0.120
3 – 18	3.000	2.908	3.000	2.902	18	0.049
3 – 16	3.000	2.876	3.000	2.870	16	0.065
3 – 14	3.000	2.840	3.000	2.834	14	0.083

2 Piece Endplug / Bushing combination for press fit into metal tube

For Custom Endplugs go to the Engineering Drawings Section - CUSTOM ENDPLUG

Components for Metal Tubes

Heavy Duty Bushings

Thru Hole Part No.	Blind Hole Part No.	Inside Diameter	GIR Blind Hole	Inside Diameter
1/4-5T**	1/4-5B**	0.270	--	--
5/16-5T**	5/16-5B**	0.332	--	--
3/8-5T	3/8-5B	0.395	--	--
7/16-5T	7/16-5B	0.457	7/16-5B GIR	0.467
1/2-5T	--	0.520	1/2-5B GIR	0.530
9/16-5T	9/16-5B	0.582	9/16-5B GIR	0.592
5/8-5T	5/8-5B	0.645	5/8-5B GIR	0.655
3/4-5T	3/4-5B	0.770	3/4-5B GIR	0.780

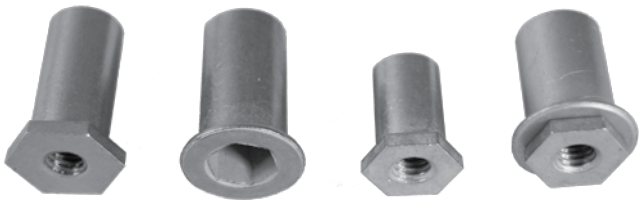
Material: Standard: Molded Acetal ** UHMW Only
Optional: Molded "Ultra Blue" Acetal Plastic Teflon Additives UHMW

Flange: 1/8" **O.D.** .881" **Length:** 1 1/2" **GIR Length:** 1 3/4"

Heavy Duty Bushings

Bushing Adapters

Part No.	Material	Body O.D.	Body Length	Flange	I.D.
SSBA 1/2x7/8	Stainless	1/2"	3/4"	1/8"	D & T 5/16-18
SSBA 9/16x1 1/4	Stainless	9/16"	1 1/8"	1/8"	D & T 5/16-18
SSBA 5/8x1 1/8	Stainless	5/8"	15/16"	3/16"	D & T 5/16-18
7/16 HEX-T	Stainless or Plastic	5/8"	1 1/8"	1/16"	7/16" Hex



Bushing Adapters

Cap Screws

Part No.	Material	Length	Threaded
SSCS 5/16x3/4	Stainless	3/4"	5/16-18

Cap Screws

Components for Plastic Tubes

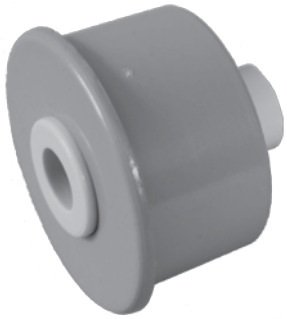
*** Commercial plastic tubing may require boring for proper fit and concentricity ***

Standard Duty Endplugs

Part No.	Flange O.D.	Body O.D.	Pipe Size
20	1.315	1.049	1" SCH 40
40	1.900	1.605	1 1/2" SCH 40
41	1.900	1.675	RPCO Tube #41

Standard Duty Bushings

Thru Hole: 1/4-T, 3/8-T, 1/2-T, 5/16-T, 7/16-T
Blind Hole: 3/8-B, 1/2-B
Endplug Material: Gray ABS
Bushing Material: Standard: Light blue Acetal
* UHMW - Upon Request
Length: Standard: 7/8”
Combined Flange Thickness: 1/4”
Other sizes available upon request



2 Piece Endplug / Bushing combination for press fit or glue into plastic tube

2 Piece Endplug / Bushing combination for press fit or glue into plastic tube

Heavy Duty Endplugs

Part No.	Flange O.D.	Body O.D.	Pipe Size
405	1.900	1.605	1 1/2" SCH 40
415	1.900	1.675	RPCO Tube #41
455	1.900	1.500	1 1/2" SCH 80
505	2.375	2.058	2" SCH 40
515	2.375	2.125	RPCO Tube #51
555	2.375	1.930	2" SCH 80
605	2.875	2.470	2 1/2" SCH 40
615	2.875	2.565	RPCO Tube #61
655	2.875	2.320	2 1/2" SCH 80
705	3.500	3.068	3" SCH 40
755	3.500	2.900	3" SCH 80
805	4.500	4.026	4" SCH 40
855	4.500	3.821	4" SCH 80

Heavy Duty Bushings

Thru Hole: 1/4-5T*, 5/16-5T*, 3/8-5T, 7/16-5T, 1/2-5T, 9/16-5T, 5/8-5T, 3/4-5T
Blind Hole: 1/4-5B*, 5/16-5B*, 3/8-5B, 7/16-5B, 9/16-5B, 5/8-5B, 3/4-5B
Endplug Material: Gray ABS
Bushing Material: Standard: Light Blue Acetal Optional: Molded “Ultra Blue” Acetal with Teflon additive
UHMW - Upon request
* UHMW only
Length: Standard: 1 1/2”
Combined Flange Thickness: 1/4”
Other sizes available upon request

PVC Tubing – Idler

Part No.	O.D. x Wall	Length	Lbs. Per Lineal Ft.
41-12	1.900 x .112	12	0.400
45-12	1.900 x .200	12	0.664
51-12	2.375 x .125	12	0.558
55-14	2.375 x .218	14	0.918
61-12	2.875 x .150	12	0.806
65-12	2.875 x .276	12	1.400
75-10	3.500 x .300	10	1.877

For Custom Endplugs go to the Engineering Drawings Section - CUSTOM ENDPLUG

Components for Plastic Tubes

Standard Duty Bushings

Thru Hole Part No.	Blind Hole Part No.	Inside Diameter
1/4-T	--	0.265
5/16-T	--	0.327
3/8-T	3/8-B	0.390
7/16-T	--	0.452
1/2-T	1/2-B	0.515

Material: Standard - Molded Acetal
Optional - Molded "Ultra Blue" Acetal plastic with Teflon additives

Flange: 1/8" **O.D.:** 0.756" **Length:** 7/8"

Heavy Duty Bushings

Standard Duty Bushings

Bushing Adapters

Heavy Duty Bushings

Thru Hole Part No.	Blind Hole Part No.	Inside Diameter	GIR Blind Hole	Inside Diameter
1/4-5T**	1/4-5B**	0.270	--	--
5/16-5T**	5/16-5B**	0.332	--	--
3/8-5T	3/8-5B	0.395	--	--
7/16-5T	7/16-5B	0.457	7/16-5B GIR	0.467
1/2-5T	--	0.520	1/2-5B GIR	0.530
9/16-5T	9/16-5B	0.582	9/16-5B GIR	0.592
5/8-5T	5/8-5B	0.645	5/8-5B GIR	0.655
3/4-5T	3/4-5B	0.770	3/4-5B GIR	0.780

Material: Standard - Molded Acetal; **UHMW Only
Optional - Molded "Ultra Blue" Acetal plastic with Teflon additives
* UHMW

Flange: 1/8" **O.D.** .881" **Length:** 1 1/2" **GIR Length:** 1 3/4"

Bushing Adapters

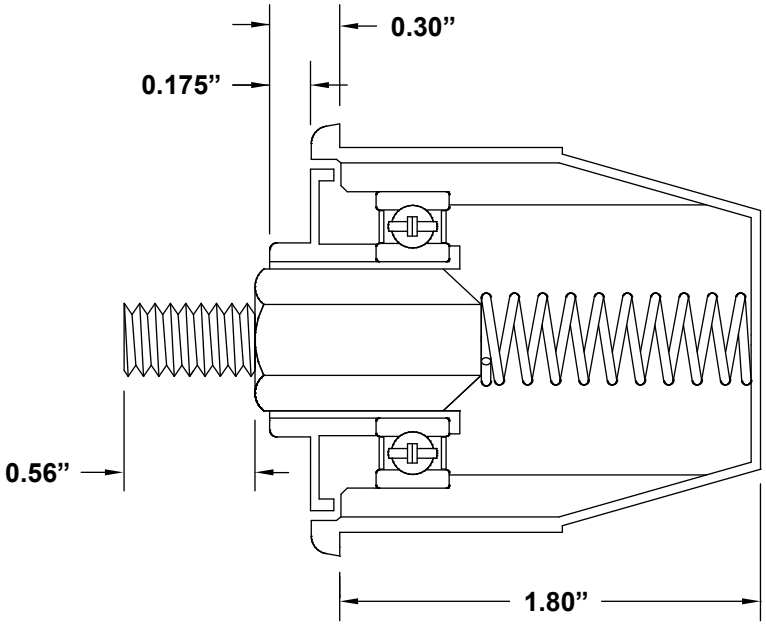
Part No.	Material	Body O.D.	Body Length	Flange	I.D.
SSBA 1/2x7/8	Stainless	1/2"	3/4"	1/8"	D & T 5/16-18
SSBA 9/16x1 1/4	Stainless	9/16"	1 1/8"	1/8"	D & T 5/16-18
SSBA 5/8x1 1/8	Stainless	5/8"	15/16"	3/16"	D & T 5/16-18
7/16 HEX-T	Stainless or Plastic	5/8"	1 1/8"	1/16"	7/16" Hex

Cap Screws

Part No.	Material	Length	Threaded
SSCS 5/16x3/4	Stainless	3/4"	5/16-18"

Cap Screws

Threaded Spring Loaded Stub Pin Bearing Insert For PVC Tube



FOR 1 1/2 SCH. 80 PVC

Bearing:	**Type:**		**Qty:**
	ABEC-1 Precision	Chromium	1
Option:	ABEC-1 Precision	440SS	1

Insert Material: Acetal Plastic

Part #

3SP8
3CP8
3SP516
3CP516

3 = ABEC-1
SP = Stainless Pin / SS Bearing
CP = Carbon Steel Pin / CR Bearing
8 = 8mm Thread
516 = 5/16-18 Thread

Tube: **1 1/2 SCHD 80 PVC**

Installation method: Press fit into tube

- Ideal for washdown (with stainless steel components)
- Option for RFID (radio frequency identification) conveyor rollers - No internal metal shafts required
- Nut & washer included

Noise Reduction Data

The table below gives a comparison between stamped commercial bearings with standard steel shafts and precision bearings with urethane shaft adapters. An electric motor mounted under a bed of 6 rollers with urethane “O” rings was used for the drive. The frame was a standard 7/16” hex punched unit on 3” centers. Speeds from 100-600 FPM were tested. The noise generated from the drive itself was measured and recorded first. Rollers were then added and the noise level measured again with the drive included. Motor noise was then backed out to reflect only the noise generated by the rollers. Results were recorded using the A scale of the decibel meter. The rollers used for the test are described as follows:

Precision with Urethane Shaft Adapters:

Tube: Galvanized 1.9” diameter x .065” wall thickness; grooved for 3/16” urethane “O” rings
Bearings: ABEC-1 precision ball bearing with C3 clearance in a conductive plastic housing
Shaft: 7/16” hex urethane adapters with a 5/16” hex internal steel support shaft

Commercial with Carbon Steel Shaft:

Tube: Galvanized 1.9” diameter x .065” wall thickness; grooved for 3/16” urethane “O” rings
Bearings: Stamped zinc plated commercial
Shaft: 7/16” hex carbon steel shaft

FPM	Drive Only	Precision w/ Urethane	Commercial w/ Steel shaft	OSHA Threshold Limit
100	49.5	36	67	85
150	49.6	50	72	85
200	52.2	51	75	85
250	52.2	53	77	85
300	52.8	53	79	85
350	52.8	53	81	85
400	53.5	53	82	85
450	54	55	84	85
500	55	55	85	85
550	55.6	56	86	85
600	56	56	87	85

Results vary with different types of drives, varying types of building construction and proximity of conveyor to walls as examples. In every test conducted in a controlled atmosphere, precision rollers with urethane shaft adapters have reduced noise levels a minimum of 9 decibels.

Your results may vary depending on a variety of variables unrelated to the roller. This data is offered as an example and guideline only.

Sprocket Information

The following data is offered as a guideline only.

The table below can be used to determine the largest tube diameter a particular sprocket can be welded onto and allow the chain to run without hitting the weld. Note the table has columns for tube diameters using a “standard weld” which allows for ½” of chain clearance and a column for “special weld” which allows for ¼” of chain clearance. With a special process it is possible to decrease the height of the weld allowing a smaller sprocket on a larger tube diameter. The formula used for this table is:

P.D. – (1/2H+1/2H+C.C.+C.C.) = Largest tube diameter (S.W. or SP.W.)

P.D. = Pitch diameter of the sprocket
H = Height of the side plate of the chain
C.C. = Chain Clearance – Chain side plate to tube
S.W. = Standard Weld
SP.W. = Special Weld

#40 Chain and Sprocket

# of Teeth	Largest Tube Diameter S.W.	Largest Tube Diameter SP.W.
14	1.28	1.53
15	1.44	1.69
16	1.60	1.85
17	1.78	2.01
18	1.91	2.16
19	2.07	2.32
20	2.23	2.48
21	2.39	2.64
22	2.55	2.8
23	2.71	2.96
24	2.87	3.12

#50 Chain and Sprocket

# of Teeth	Largest Tube Diameter S.W.	Largest Tube Diameter SP.W.
14	1.73	1.98
15	1.92	2.17
16	2.12	2.37
17	2.32	2.57
18	2.48	2.73
19	2.71	2.96
20	2.91	3.16
21	3.11	3.36
22	3.31	3.56
23	3.51	3.76
24	3.70	3.95

#60 Chain and Sprocket

# of Teeth	Largest Tube Diameter S.W.	Largest Tube Diameter SP.W.
14	2.17	2.42
15	2.40	2.66
16	2.64	2.89
17	2.88	3.13
18	3.12	3.37
19	3.36	3.61
20	3.59	3.84
21	3.83	4.08
22	4.07	4.32
23	4.31	4.56
24	4.55	4.8

#80 Chain and Sprocket

# of Teeth	Largest Tube Diameter S.W.	Largest Tube Diameter SP.W.
14	3.06	3.31
15	3.38	3.63
16	3.69	3.94
17	4.01	4.26
18	4.33	4.58
19	4.64	4.89
20	4.96	5.21
21	5.28	5.53
22	5.59	5.84
23	5.91	6.16
24	6.23	6.48

Conversion Chart

Fractions to Decimals to Millimeters

Fraction	Decimal	MM	Fraction	Decimal	MM
1/64	0.015625	0.3969	33/64	0.515625	13.0969
1/32	0.031250	0.7938	17/32	0.531250	13.4938
3/64	0.046875	1.1906	35/64	0.546875	13.8906
1/16	0.062500	1.5875	9/16	0.562500	14.2875
5/64	0.078125	1.9844	37/64	0.578125	14.6844
3/32	0.093750	2.3813	19/32	0.593750	15.0813
7/64	0.109375	2.7781	39/64	0.609375	15.4781
1/8	0.125000	3.1750	5/8	0.625000	15.8750
9/64	0.140625	3.5719	41/64	0.640625	16.2719
5/32	0.156250	3.9688	21/32	0.656250	16.6688
11/64	0.171875	4.3656	43/64	0.671875	17.0656
3/16	0.187500	4.7625	11/16	0.687500	17.4625
13/64	0.203125	5.1594	45/64	0.703125	17.8594
7/32	0.218750	5.5563	23/32	0.718750	18.2563
15/64	0.234375	5.9531	47/64	0.734375	18.6531
1/4	0.250000	6.3500	3/4	0.750000	19.0500
17/64	0.265625	6.7469	49/64	0.765625	19.4469
9/32	0.281250	7.1438	25/32	0.781250	19.8438
19/64	0.296875	7.5406	51/64	0.796875	20.2406
5/16	0.312500	7.9375	13/16	0.812500	20.6375
21/64	0.328125	8.3344	53/64	0.828125	21.0344
11/32	0.343750	8.7313	27/32	0.843750	21.4313
23/64	0.359375	9.1281	55/64	0.859375	21.8281
3/8	0.375000	9.5250	7/8	0.875000	22.2250
25/64	0.390625	9.9219	57/64	0.890625	22.6219
13/32	0.406250	10.3188	29/32	0.906250	23.0188
27/64	0.421875	10.7156	59/64	0.921875	23.4156
7/16	0.437500	11.1125	15/16	0.937500	23.8125
29/64	0.453125	11.5094	61/64	0.953125	24.2094
15/32	0.468750	11.9063	31/32	0.968750	24.6063
31/64	0.484375	12.3031	63/64	0.984375	25.0031
1/2	0.500000	12.7000	1	1.000000	25.4000

MM	Inches	MM	Inches	MM	Inches
1	0.0394	13	0.5118	25	0.9843
2	0.0787	14	0.5512	26	1.0236
3	0.1181	15	0.5906	27	1.0630
4	0.1575	16	0.6299	28	1.1024
5	0.1969	17	0.6693	29	1.1417
6	0.2362	18	0.7087	30	1.1811
7	0.2756	19	0.7480	31	1.2205
8	0.3150	20	0.7874	32	1.2598
9	0.3543	21	0.8268	33	1.2992
10	0.3937	22	0.8661	34	1.3386
11	0.4331	23	0.9055	35	1.3780
12	0.4724	24	0.9449	36	1.4173

Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Acetone	-	C	C	A	A	C	C	A	A	-
Acetaldehyde ★	100%	B	C	A	B	C	C	A	-	-
Acetic Acid	10%	A	A	A	A	A	A	A	C	-
Acetic Acid	60%	A	B	A	A	A	A	A	C	-
Acetic Anhydride ★	-	C	C	-	-	A	C	A	-	-
Air	-	A	A	A	A	-	A	A	-	-
Aluminum Chloride	All	A	A	A	A	A	A	C	B	-
Aluminum Fluoride	All	A	A	A	A	-	A	C	-	-
Aluminum Sulfate	All	A	A	A	A	-	A	B	-	-
Alums	All Types	A	A	A	A	A	A	A	-	-
Ammonia	100% dry gas	A	A	A	A	-	B	A	-	-
Ammonium Carbonate	-	A	A	A	A	C	A	B	-	-
Ammonium Chloride	Saturated	A	A	A	A	A	A	C	B	-
Ammonium Fluoride	Saturated	A	A	A	A	-	A	C	-	-
Ammonium Hydroxide	10%	A	A	A	A	C	A	A	-	-
Ammonium Hydroxide	28%	A	A	A	A	C	A	A	-	-
Ammonium Nitrate	Saturated	A	A	A	A	A	A	A	-	-
Ammonium Persulphate	Saturated	A	A	A	A	C	A	B	-	-
Ammonium Sulphate	Saturated	A	A	A	A	A	A	B	-	-
Ammonium Metaphoshate	Saturated	A	A	A	A	-	A	B	-	-
Ammonium Sulfide	Saturated	A	A	A	A	-	A	B	-	-
Amyl Acetate ★■	100%	C	C	B	C	-	C	A	A	-
Amyl Alcohol ★■	100%	A	A	A	B	A	A	A	-	-
Amyl Chloride ★■	100%	C	C	C	C	-	C	A	-	-
Aniline ★■	100%	C	C	A	A	-	C	B	-	-
Aqua Regia •	-	C	C	C	C	-	C	C	-	-
Arsenic Acid	All	A	A	A	A	-	A	A	-	-
Aromatic Hydrocarbons ´n	-	C	C	-	-	-	C	C	-	-
Ascorbic Acid	10%	A	A	A	A	-	A	-	-	-
Barium Carbonate	Saturated	A	A	A	A	A	A	B	-	-
Barium Chloride	Saturated	A	A	A	A	A	A	A	-	-
Barium Hydroxide	-	A	A	A	A	C	A	B	-	-
Barium Sulfate	Saturated	A	A	A	A	-	B	B	-	-
Barium Sulfide	Saturated	A	A	A	A	C	A	B	-	-
Beer	-	A	A	A	A	-	A	A	-	-
Benzene ★■	-	C	C	B	C	C	C	B	A	-
Benzoic Acid	All	A	A	A	A	A	A	B	-	-
Bismuth Carbonate	Saturated	A	A	A	A	-	A	A	-	-
Bleachlye	10%	A	A	A	A	-	A	A	-	-
Borax	Saturated	A	A	A	A	-	A	A	-	-
Boric Acid	All	A	A	A	A	A	A	A	-	-
Boron Trifluoride	-	A	A	-	-	-	A	-	-	-
Brine	-	A	A	A	A	-	A	C	-	-
Bromine •	Liquid	C	C	C	C	-	C	C	C	-
Bromine Water ■	Saturated	C	C	C	-	C	C	C	-	-
Butanediol ★	10%	A	A	A	A	-	-	-	-	-
Butanediol ★	60%	A	A	A	A	-	-	-	-	-
Butanediol ★	100%	A	A	A	A	-	-	-	-	-
Butter ★	-	A	A	A	A	-	-	A	-	-
n-Butyl Acetane ★■	100%	A	C	C	C	-	C	B	A	-
n-Butyl Alcohol	100%	A	A	A	-	C	A	A	B	-
Butyric Acid ★	Concentrated	C	C	-	-	A	B	B	-	-
Calcium Bisulphide	-	A	A	A	A	-	A	B	-	-
Calcium Carbonate	Saturated	A	A	A	A	-	A	B	-	-
Calcium Chlorate	Saturated	A	A	A	A	A	A	-	-	-
Calcium Chloride	Saturated	A	A	A	A	A	A	B	B	-

CODES: **HDPE** - High Density Polyethylene **PP -** Polypropylene **(-)** Information not yet available.
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(★) - Stress-Crack Agent **(■)** - Plasticizer **(•)** - Oxidizer

Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Calcium Hydroxide	Concentrate	A	A	A	A	A	A	B	-	-
Calcium Hypochlorite	Bleach Solution	A	A	A	B	A	B	C	-	-
Calcium Nitrate	50%	A	A	A	A	-	A	A	-	-
Calcium Oxide	Saturated	A	A	-	-	-	A	A	-	-
Calcium Sulphate	-	A	A	A	A	A	A	B	-	-
Camphor Oil ★■	-	C	C	C	C	-	-	A	-	-
Carbon Dioxide	All	A	A	A	A	A	A	A	-	-
Carbon Disulphide	-	C	C	B	C	C	C	B	A	-
Carbon Monoxide	-	A	A	A	A	A	A	A	-	-
Carbon Tetrachloride ■	-	C	C	C	C	B	B	B	A	-
Carbonic Acid	-	A	A	A	A	-	A	A	-	-
Caster Oil ■	Concentrated	A	A	A	A	-	-	A	-	-
Chlorine •	100% dry gas	C	C	C	C	C	C	C	C	-
Chlorineliquid •	-	C	C	C	C	C	A	C	-	-
Chlorine Water •	2% Saturated Sol.	A	A	A	B	A	A	C	-	-
Chlorobenzene ★■	-	C	C	C	C	C	C	A	-	-
Chlorofoam ★■	-	B	C	C	C	C	C	A	B	-
Chlorosulphonic Acid	100%	C	C	C	C	-	C	B	-	-
Chrome Alum	Saturated	A	A	A	A	-	A	A	B	-
Chromic Acid	80%	-	-	A	-	C	C	B	-	-
Chromic Acid	50%	A	B	A	A	C	B	B	-	-
Chromic Acid	10%	A	A	A	A	C	A	B	-	-
Cider ★	-	A	A	A	A	-	-	A	-	-
Citric Acid ★	Saturated	A	A	A	A	A	-	A	-	-
Coconut Oil Alcohols ★	-	A	A	A	A	-	A	A	-	-
Coffee	-	A	A	A	A	-	A	A	-	-
Cola Concentrates ★	-	A	A	A	A	-	A	A	-	-
Copper Chloride	Saturated	A	A	A	A	A	A	C	-	-
Copper Cyanide	Saturated	A	A	A	A	B	A	B	-	-
Copper Fluoride	2%	A	A	A	A	-	A	A	-	-
Copper Nitrate	Saturated	A	A	A	A	-	A	B	-	-
Copper Sulphate	Saturated	A	A	A	A	A	A	B	B	-
Corn Oil ★	-	A	A	A	A	-	A	A	-	-
Cottonseed Oil ★	-	A	A	A	A	-	A	A	-	-
Cuprous Chloride	Saturated	A	A	A	A	-	A	C	-	-
Detergent, Synthetic ★	-	A	A	A	A	-	A	A	-	-
Developers, Photographic	-	A	A	A	A	-	A	A	-	-
Dextrin	Saturated	A	A	A	A	-	A	A	-	-
Dextrose	Saturated	A	A	A	A	-	A	A	-	-
Diazo Salts	-	A	A	A	A	-	A	-	-	-
Dibutylphthalate ★■	-	B	B	A	B	-	C	A	-	-
Dichlorobenzene ★■	-	C	C	-	-	C	-	-	-	-
Diethyl Ketone ★■	-	B	B	-	-	-	-	-	-	-
Diethylene Glycol ★■	-	A	A	A	A	-	C	A	-	-
Digycolic Acid ★	-	A	A	-	-	-	A	A	-	-
Dimethylamine	-	C	C	-	-	-	C	A	-	-
Disodium Phosphate	-	A	A	A	A	-	A	A	-	-
Emulsions, Photographic ★	-	A	A	A	A	-	A	A	-	-
Ethyl Acetate ★■	100%	B	C	B	B	-	C	A	A	-
Ethyl Alcohol ★	100%	A	A	A	A	C	A	A	B	-
Ethyl Alcohol ★	35%	A	A	A	A	B	A	A	B	-
Ethyl Benzene ★■	-	C	C	C	C	-	-	A	-	-
Ethyl Chloride ■	-	C	C	C	C	-	C	A	-	-
Ethyl Ether ■	-	C	C	B	C	C	C	A	-	-
Ethylene Chloride ★■	-	C	C	C	C	C	C	A	-	-
Ethylene Glycol ★	-	A	A	A	A	A	A	A	-	C

CODES: **HDPE** - High Density Polyethylene **PP -** Polypropylene **(-)** Information not yet available.
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Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Fatty Acids ★	-	A	A	A	A	-	B	A	-	-
Ferric Chloride	Saturated	A	A	A	A	A	A	C	C	-
Ferric Nitrate	Saturated	A	A	A	A	A	A	A	-	-
Ferrous Chloride	Saturated	A	A	A	A	A	A	C	-	-
Ferrous Sulphate	-	A	A	A	A	A	A	A	-	-
Fish Solubles ★	-	A	A	A	A	-	A	A	-	-
Fluoboric Acid	-	A	A	A	A	B	A	C	-	-
Fluosillic Acid	Concentrated	A	B	A	B	C	A	B	-	-
Fluosillic Acid	32%	A	A	A	A	C	A	B	-	-
Formic Acid	All	A	A	A	A	C	A	C	C	-
Fructose	Saturated	A	A	A	A	-	A	A	-	-
Fruit Pulp ★	-	A	A	A	A	-	A	A	-	-
Furtural ■	100%	B	C	C	C	-	C	B	-	-
Furfuryl Alcohol ★■	-	B	C	C	C	-	-	A	-	-
Gallic Acid ★	Saturated	A	B	A	A	-	A	B	-	-
Gasoline ★■	-	B	C	B	C	B	C	A	A	-
Glucose	-	A	A	A	A	-	A	A	-	-
Glycerine ★	-	A	A	A	A	A	A	A	-	-
Glycol ★	-	A	A	A	A	-	A	A	-	-
Glycolic Acid ★	30%	A	A	A	A	-	A	A	-	-
Grape Sugar	Saturated ag.	A	A	A	A	-	A	A	-	-
n-Heptane ★■	-	B	B	-	-	A	C	A	-	-
Hexachlorobenzene	-	A	-	-	-	-	-	-	-	-
Hexanol, Tertiary ★	-	A	A	-	-	-	-	A	-	-
Hydrobromic Acid	50%	A	A	A	A	A	A	C	-	-
Hydrochloric Acid	37%	A	A	A	A	A	A	C	C	C
Hydrocyanic Acid	Saturated	A	A	-	-	A	A	C	-	-
Hydrofluoric Acid ★	60%	A	A	A	A	C	A	C	-	-
Hydrogen	100%	A	A	A	A	-	A	A	-	-
Hydrogen Chloride	Dry Gas	A	A	A	A	-	-	-	-	-
Hydrogen Peroxide	30%	B	B	A	-	C	A	B	C	-
Hydrogen Peroxide	10%	A	A	A	B	C	A	B	C	-
Hydrogen Sulphide	-	A	A	A	A	-	A	B	-	-
Hydroquinone	-	A	A	A	A	-	A	-	-	-
Hypochlorous Acid	Concentrated	A	A	A	A	C	A	-	-	-
Inks ■	-	A	A	A	A	-	A	C	-	-
Iodine ●	Ink1 Solution	B	-	-	-	-	C	C	-	-
Isopropyl Alcohol	100%	-	-	A	A	-	A	A	B	-
Lead Acetate	Saturated	A	A	A	A	A	A	A	-	-
Lead Nitrate	-	A	A	-	-	-	A	A	-	-
Lactic Acid ★	20%	A	A	A	A	A	A	B	-	-
Linseed Oil	100%	B	C	A	A	A	A	A	-	-
Magnesium Carbonate	Saturated	A	A	A	A	A	A	A	-	-
Magnesium Chloride	Saturated	A	A	A	A	A	A	A	B	-
Magnesium Hydroxide	Saturated	A	A	A	A	-	A	A	-	-
Magnesium Nitrate	Saturated	A	A	A	A	-	A	A	-	-
Magnesium Sulphate	Saturated	A	A	A	A	A	A	A	B	-
Mercuric Chloride	40%	A	A	A	A	A	A	C	C	-
Mercuric Cyanide	Saturated	A	A	A	A	-	B	C	-	-
Mercury	-	A	A	A	A	-	B	A	-	-
Methyl Alcohol ★	100%	A	A	A	A	C	A	A	B	-
Methylethyl Ketone ★■	100%	B	C	A	B	C	C	A	-	-
Methylethyl Chloride ★■	100%	C	C	B	-	-	C	A	-	-
Milk	-	A	A	A	A	-	A	A	-	-
Mineral Oils ■	-	B	C	A	B	-	A	A	A	-
Molasses	-	A	A	A	A	-	A	A	-	-

CODES: **HDPE** - High Density Polyethylene **PP -** Polypropylene **(-)** Information not yet available.
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Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Naphtha ★■	-	B	C	-	-	A	A	A	-	-
Naphthalene ★■	-	B	-	A	A	A	C	A	-	-
Nickel Chloride	Concentrated	A	A	A	A	A	A	C	-	-
Nickel Nitrate	Saturated	A	A	A	A	A	A	B	-	-
Nickel Sulphate	Concentrated	A	A	A	A	A	A	B	-	-
Nicotine ★	Dilute	A	A	A	A	-	A	-	-	-
Nitric Acid	0-30%	A	A	C	C	C	A	A	C	C
Nitric Acid •	30-50&	A	B	C	C	C	B	A	C	C
Nitric Acid •	70%	A	B	C	C	C	C	A	C	C
Nitric Acid •	95-98%	C	C	C	C	C	C	A	C	C
Nitrobenzene ★■	100%	C	C	C	C	C	C	A	-	-
n-Octane	-	A	A	-	-	-	-	-	-	-
Oleic Acid	-	B	C	A	B	A	C	B	-	-
Oxalic Acid ★	Saturated	A	A	A	B	A	A	B	-	-
Perchloroethylene ★	-	C	C	-	-	-	C	A	A	-
Phenol	-	-	-	-	-	-	-	-	C	-
Phosphoric Acid	95%	A	A	A	A	A	B	B	C	-
Photographic Solutions	-	A	A	A	A	A	A	A	-	-
Plating Solutions ★ Brass	-	A	A	A	A	-	A	A	-	-
Cadium	-	A	A	A	A	-	A	A	-	-
Chromium	-	A	A	A	A	-	A	C	-	-
Copper	-	A	A	A	A	-	A	A	-	-
Gold	-	A	A	A	A	-	A	A	-	-
Indium	-	A	A	A	A	-	A	-	-	-
Lead	-	A	A	A	A	-	A	C	-	-
Nickel	-	A	A	A	A	-	A	C	-	-
Rhodium	-	A	A	A	A	-	A	A	-	-
Silver	-	A	A	A	A	-	A	C	-	-
Tin	-	A	A	A	A	-	A	C	-	-
Zinc	-	A	A	A	A	-	A	C	-	-
Potassium Bicarbonate	Saturated	A	A	A	A	C	A	B	-	-
Potassium Bromide	Saturated	A	A	A	A	-	A	B	-	-
Potassium Bromate	10%	A	A	A	A	-	A	B	-	-
Potassium Carbonate	-	A	A	A	A	A	A	B	-	-
Potassium Chlorate	Saturated	A	A	A	A	-	A	B	-	-
Potassium Chloride	Saturated	A	A	A	A	A	A	B	-	-
Potassium Chromate	40%	A	A	A	A	-	A	B	-	-
Potassium Cyanide	Saturated	A	A	A	A	-	A	B	-	-
Potassium Dichromate	40%	A	A	A	A	A	A	B	C	-
Potassium Ferri/Ferro Cyanide	Saturated	A	A	A	A	A	A	B	-	-
Potassium Fluoride	-	A	A	A	A	-	A	B	-	-
Potassium Hydroxide	Concentrated	A	A	A	A	C	A	B	A	-
Potassium Nitrate	Saturated	A	A	A	A	A	A	B	B	-
Potassium Perborate	Saturated	A	A	A	A	-	A	B	-	-
Potassium Perchlorate	10%	A	A	A	A	-	A	B	-	-
Potassium Permanganate	20%	A	A	A	A	A	A	B	C	-
Potassium Persulphate	Saturated	A	A	-	-	A	A	B	-	-
Potassium Sulphate	Concentrated	A	A	A	A	A	A	B	-	-
Potassium Sulphide	Concentrated	A	A	A	A	-	A	B	-	-
Potassium Sulphite	Concentrated	A	A	A	A	-	A	B	-	-
Propargyl Alcohol ★	-	A	A	-	-	-	-	-	-	-
n-Propyl Alcohol ★	-	A	A	A	A	-	A	A	-	-
Propylene Dichloride ★■	100%	C	C	C	C	-	A	C	-	-
Propylene Glycol ★	-	A	A	-	-	-	C	B	-	-
Pyridine ★	-	A	-	A	-	-	C	A	A	-

CODES: **HDPE** - High Density Polyethylene **PP -** Polypropylene **(-)** Information not yet available.
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Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Resorcinal	Saturated	A	A	-	-	-	-	-	C	-
Sallcylic Acid	Saturated	A	A	-	-	-	A	A	-	-
Sea Water	-	A	A	A	A	-	A	A	-	-
Selenic Acid	-	A	A	-	-	C	A	-	-	-
Shortening ★	-	A	A	A	A	-	A	A	-	-
Silver Nitrate Solution	-	A	A	A	A	A	A	A	-	-
Soap Solution ★	Any	A	A	A	A	-	A	A	-	-
Sodium Acetate	Saturated	A	A	A	A	A	B	B	-	-
Sodium Benzoate	35%	A	A	A	A	-	A	A	-	-
Sodium Bicarbonate	Saturated	A	A	A	A	A	A	B	-	-
Sodium Bisulphate	Saturated	A	A	A	A	A	A	B	-	-
Sodium Bisulphite	Saturated	A	A	A	A	-	A	B	B	-
Sodium Borate	-	A	A	A	A	-	A	B	-	-
Sodium Bromide	Dilute	A	A	A	A	-	A	A	-	-
Sodium Carbonate	Concentrated	A	A	A	A	-	A	A	-	-
Sodium Chlorate	Saturated	A	A	A	A	C	A	B	-	-
Sodium Chloride	Saturated	A	A	A	A	A	A	C	-	-
Sodium Cyanide	-	A	A	A	A	A	A	B	-	-
Sodium Dichromate	Saturated	A	A	A	A	-	A	A	-	-
Sodium									-	-
Ferri / Ferro Cyanide	Saturated	A	A	A	A	A	A	A	-	-
Sodium Fluoride	Saturated	A	A	A	A	-	A	C	-	-
Sodium Hydroxide	Concentrated	A	A	A	A	C	A	B	A	-
Sodium Hypochlorite	-	A	A	A	B	C	B	C	B	C
Sodium Nitrate	-	A	A	A	A	A	A	B	-	-
Sodium Sulphate	-	A	A	A	A	A	A	B	B	-
Sodium Sulphide	Saturated	A	A	A	A	C	A	B	-	-
Sodium Sulphite	Saturated	A	A	A	A	B	A	B	-	-
Stannic Chloride	Saturated	A	A	A	A	A	A	C	-	-
Stannous Chloride	Saturated	A	A	A	A	A	A	A	-	-
Starch Solution ★	Saturated	A	A	A	A	-	A	A	-	-
Stearic Acid ★	100%	A	A	A	A	A	B	A	-	-
Sulphuric Acid	0-50%	A	A	A	B	A	A	C	C	C
Sulphuric Acid •	70%	A	B	A	B	C	A	C	C	C
Sulphuric Acid •	80%	A	C	C	C	C	A	C	C	C
Sulphuric Acid •	96%	B	C	C	-	C	C	C	C	C
Sulphuric Acid •	98% - Conc.	B	C	C	-	C	C	C	C	C
Sulphuric Acid •	Fuming	C	C	C	C	C	C	C	C	C
Sulphurous Acid	-	A	A	A	A	-	A	B	-	-
Tallow ■	-	A	-	A	A	-	-	A	-	-
Tannic Acid ★	Saturated	A	A	A	A	A	A	A	-	-
Tartaric Acid	-	A	A	A	A	A	A	C	-	-
Tetrolydrofuran ★■	-	B	C	C	C	-	C	A	A	-
Titanium Tetrachloride ★	Saturated	C	-	-	-	-	-	A	-	-
Toluene ★	-	B	B	C	C	B	C	A	A	-
Trichlororethylene ★■	-	C	C	C	C	-	C	B	B	-
Triethylene Glycol ★	-	A	A	-	-	-	-	A	-	-
Trisodium Phosphate	Saturated	A	A	A	A	C	A	A	-	-
Turpentine ■	-	C	C	C	C	-	B	A	A	-
Urea	30%	A	A	A	A	-	B	A	-	-
Urine	-	A	A	A	A	-	A	A	-	-
Vanilla Extract ★	-	A	A	A	A	-	-	-	-	-
Vinegar	-	A	A	A	A	-	A	A	-	-
Water	-	A	A	A	A	A	A	A	-	-
Wetting Agent ★	-	A	A	A	A	-	-	-	-	-
Whiskey ★	-	A	A	A	A	-	A	A	-	-

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Chemical Resistance Chart

Reagent	Concentration	HDPE		PP		Polyester	PVC	316SS	Nylon 66	Acetal
		70°	140°	70°	140°					
Wines ⋆	-	A	A	A	A	-	C	A	-	-
Xylene ■	-	C	C	C	C	B	C	A	A	-
Yeast	-	A	A	A	A	-	A	A	-	-
Zinc Bromide	Saturated	A	A	-	-	-	A	A	-	-
Zinc Carbonate	Saturated	A	A	-	-	-	A	A	-	-
Zinc Chloride	Saturated	A	A	A	A	A	A	A	B	-
Zinc Oxide	Saturated	A	A	A	A	-	A	A	-	-
Zinc Sterate	-	A	A	-	-	-	A	A	-	-
Zinc Sulphate	Saturated	A	A	A	A	A	A	A	-	-

CODES: **HDPE** - High Density Polyethylene **PP -** Polypropylene **(-)** Information not yet available.
(A) Resistant, no indication that serviceability would be impaired. **(B)** Variable resistance, depending on conditions of use.
(C) Unresistant, not recommended for service applications under any conditions.

(⋆) Stress-crack agent - Certain surface active materials, although they have no chemical effect on polyethylene, can accelerate the cracking of polyethylene when it is under stress.

(■) Plasticizer - Certain types of chemicals are absorbed to varying degrees by polyethylene, causing swelling, weight gain, softening, and some loss of yield strength. These plasticizing materials cause no actual chemical degradation of the resin. Some (e.g. Gasoline). Certain plasticizers are sufficiently volatile that if they are removed from contact with the polyethylene, the part will "dry" out and return to its original condition with no loss of properties.

(•) Oxidizers - Oxidizers are the only group of materials capable of chemically degrading polyethylene. The effect on polyethylene may be gradual even for strong oxidizers, and short term effects may not be measurable. However, if continuos, long-term exposure is intended, the chemical effects should be checked.

Notes:

Weight Chart

Engineering/Shipping Data - Estimated Weight Per Foot for Tubing and Shafting

Tube		Estimated Weight Per Foot		
O.D. / Wall	I.D.	Steel	Aluminum	PVC
0.75 x .035	0.680	0.267	0.094	****
0.84 x .107	0.626	****	****	0.164
1.00 x .035	0.930	0.361	0.128	****
1.00 x .049	0.902	0.498	0.175	****
1.05 x .113	0.824	****	****	0.218
1.12 x .065	0.995	0.736	0.260	****
1.18 x .055	1.070	0.700	0.246	0.138
1.31 x .133	1.049	1.679	0.581	0.324
1.37 x .049	1.277	0.694	0.245	****
1.37 x .065	1.245	0.909	0.321	****
1.50 x .065	1.370	0.996	0.352	****
1.51 x .065	1.380	1.002	0.355	****
1.66 x .065	1.530	1.127	0.396	****
1.66 x .140	1.380	****	****	0.439
1.75 x .065	1.620	1.170	0.413	****
1.90 x .065	1.770	1.275	0.441	****
1.90 x .109	1.682	2.085	0.721	****
1.90 x .112	1.676	****	****	0.4
1.90 x .120	1.660	2.283	0.788	****
1.90 x .200	1.500	****	****	0.705
2.00 x .065	1.870	1.343	0.474	****
2.25 x .065	2.120	1.517	0.533	****
2.38 x .125	2.125	****	****	0.558
2.38 x .218	1.939	****	****	0.918
2.50 x .083	2.334	2.143	0.755	****
2.50 x .120	2.260	3.050	1.081	****
2.50 x .180	2.140	4.460	1.541	****
2.88 x .150	2.575	****	****	0.806
2.88 x .276	2.323	****	****	1.4
3.00 x .065	2.870	2.037	0.714	****
3.00 x .083	2.834	2.586	0.908	****
3.00 x .120	2.760	3.691	1.306	****
3.50 x .083	3.334	3.029	1.064	****
3.50 x .120	3.800	4.332	1.530	****
3.50 x .180	3.140	6.382	2.241	****
3.50 x .188	3.124	6.650	2.350	****
3.50 x .300	2.900	****	****	1.877

Hexagonal Shafting

Size in Inches	Est. Wt. Per Foot	
	Steel	Aluminum
1/4	0.184	0.066
5/16	0.288	0.103
** 3/8	0.414	0.146
7/16	0.564	0.202
** 1/2	0.736	0.264
** 9/16	0.932	0.334
5/8	1.15	0.413
11/16	1.392	0.499
** 3/4	1.656	0.594
1	2.945	1.056
1 1/16	3.324	1.192

Round Shafting

Size in Inches	Est. Wt. Per Foot	
	Steel	Aluminum
3/16	0.094	0.034
1/4	0.167	0.06
5/16	0.261	0.094
3/8	0.376	0.135
7/16	0.511	0.183
12mm	0.595	0.213
1/2	0.668	0.24
9/16	0.845	0.303
15mm	0.93	0.334
5/8	1.043	0.374
17mm	1.194	0.428
** 11/16	1.262	0.453
** 3/4	1.502	0.539
** 13/16	1.763	0.632
** 7/8	2.044	0.733
** 15/16	2.347	0.842
** 1	2.67	0.958
** 1 1/4	4.173	1.497
** 1 7/16	5.518	1.979
** 1 1/2	6.008	2.155

**** Special Order Only**

Conductivity of Plastics (Static Electricity Dissipation)

What is Static Electricity?

Static electricity is electricity at rest. This electrical charge is the result of a transfer of electrons that occurs due to the sliding, rubbing, turning or separating of a material, which is a prime generator of electrostatic voltages - e.g.: plastics, fiberglass, rubber, textiles, etc. Under the right conditions, this induced charge can build to 30,000 - 40,000 volts.

When this happens to an insulating material, such as a plastic, the built-up charge tends to remain in the localized area of contact. This electrostatic voltage then can discharge via an arc or spark when the plastic material comes in contact with a body at a sufficiently different potential, such as a person or microcircuit.

If electrostatic discharge (ESD) occurs to a person, the result can range from a mild shock to a very painful shock. In extreme cases, ESD could even result in the loss of life. Sparks are dangerous in an environment containing flammable liquids, solids or gases, such as in a hospital operating room, grain elevator or during the assembly of explosive devices.

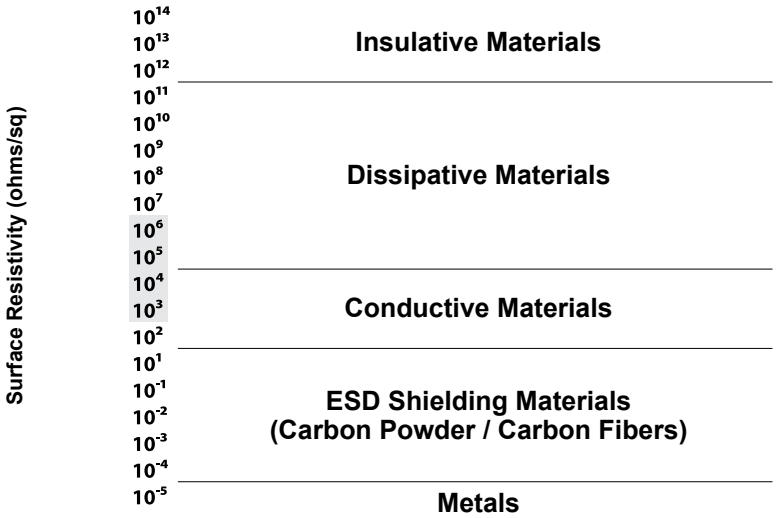
Some micro-electronic parts can be destroyed or damaged by ESD as low as 20 volts. Since people are prime causes of ESD, they often cause damage to sensitive electronic parts, especially during manufacturing and assembly.

Conductive Spectrum

Plastics are classified as insulating materials having typical surface resistivities of 10^{16} - 10^{17} ohms/sq. The electrically conductive plastics commercially available today are composite materials of electrically insulating base resins and electrically conductive fillers or reinforcing agents. Electrical conductivity is achieved via a conductive network of particles or fibers. For electrically conductive plastics, three different conductivity ranges are defined:

- Dissipative Composites
- Conductive Composites
- ESD shielding Composites

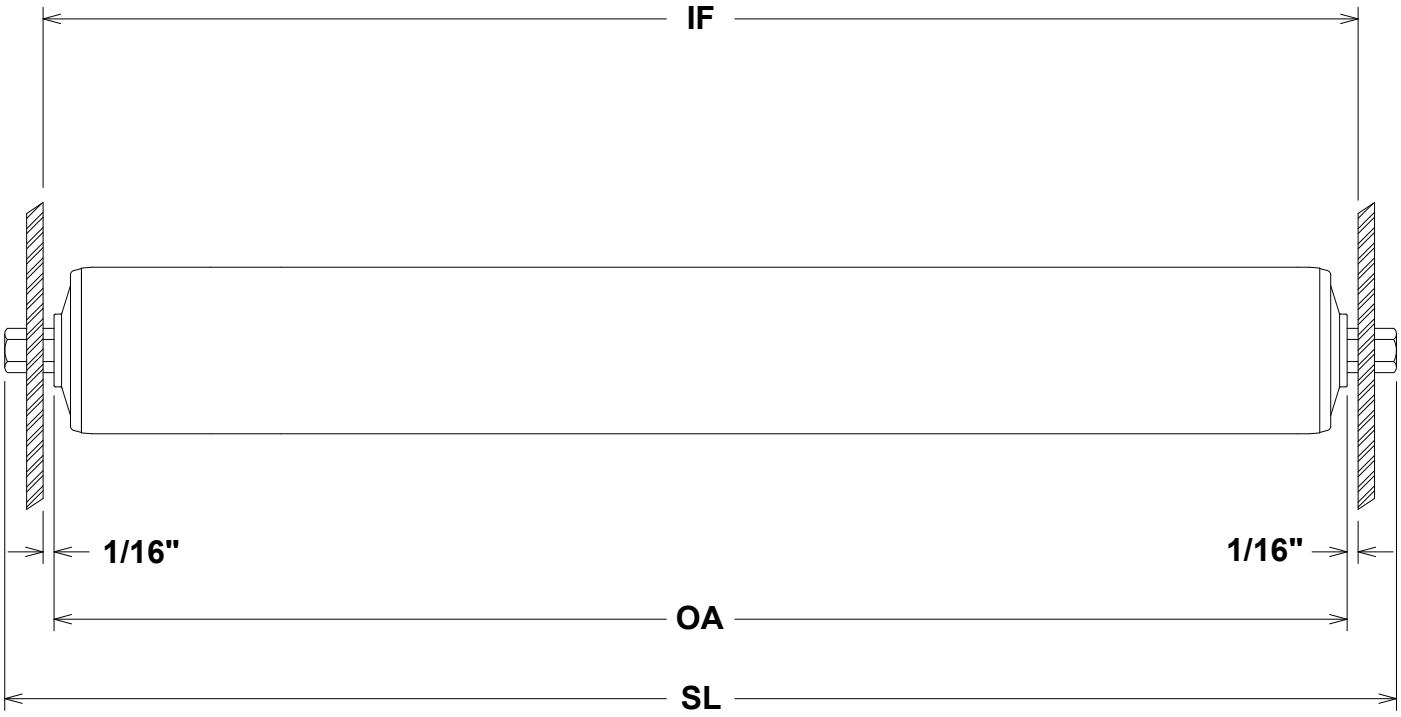
See the chart below for the surface resistivity for the above conductivity ranges.



Ralphs-Pugh conductive plastic components are designed to safely dissipate static electrical charges to ground. Typical surface resistivity for Ralphs-Pugh conductive plastic components is 10^3 - 10^6 ohms/sq.

Standard Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

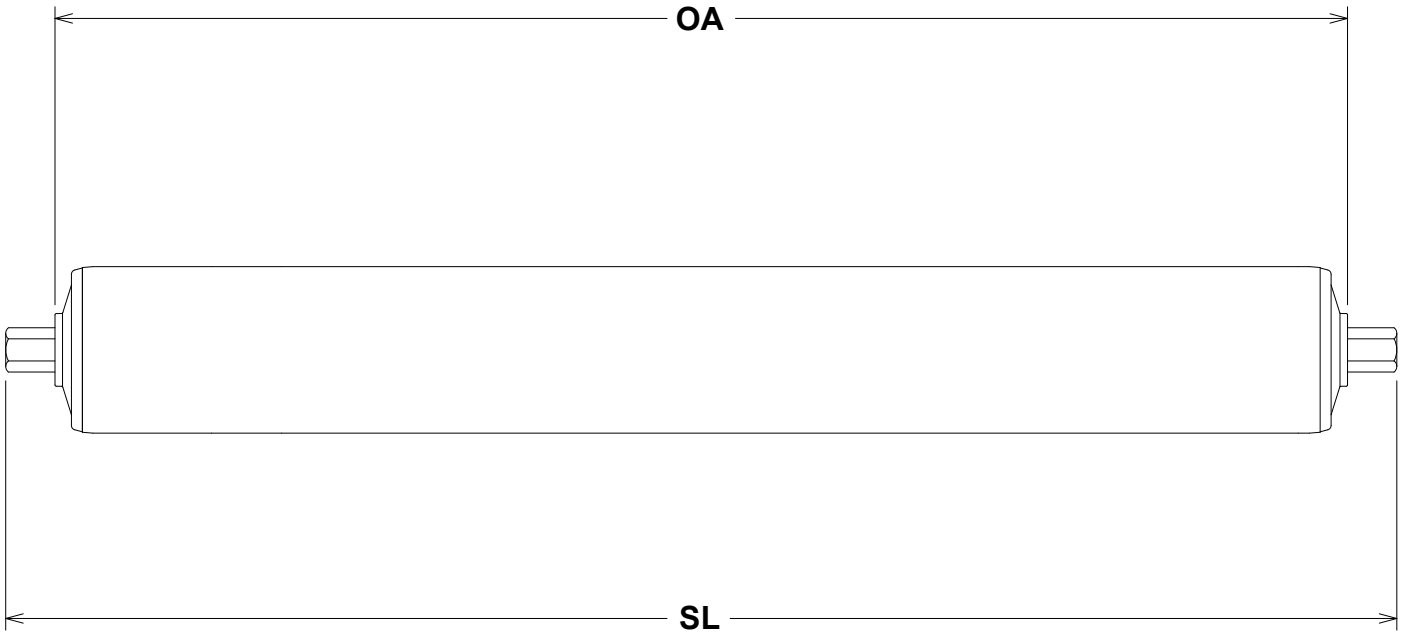
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Standard Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

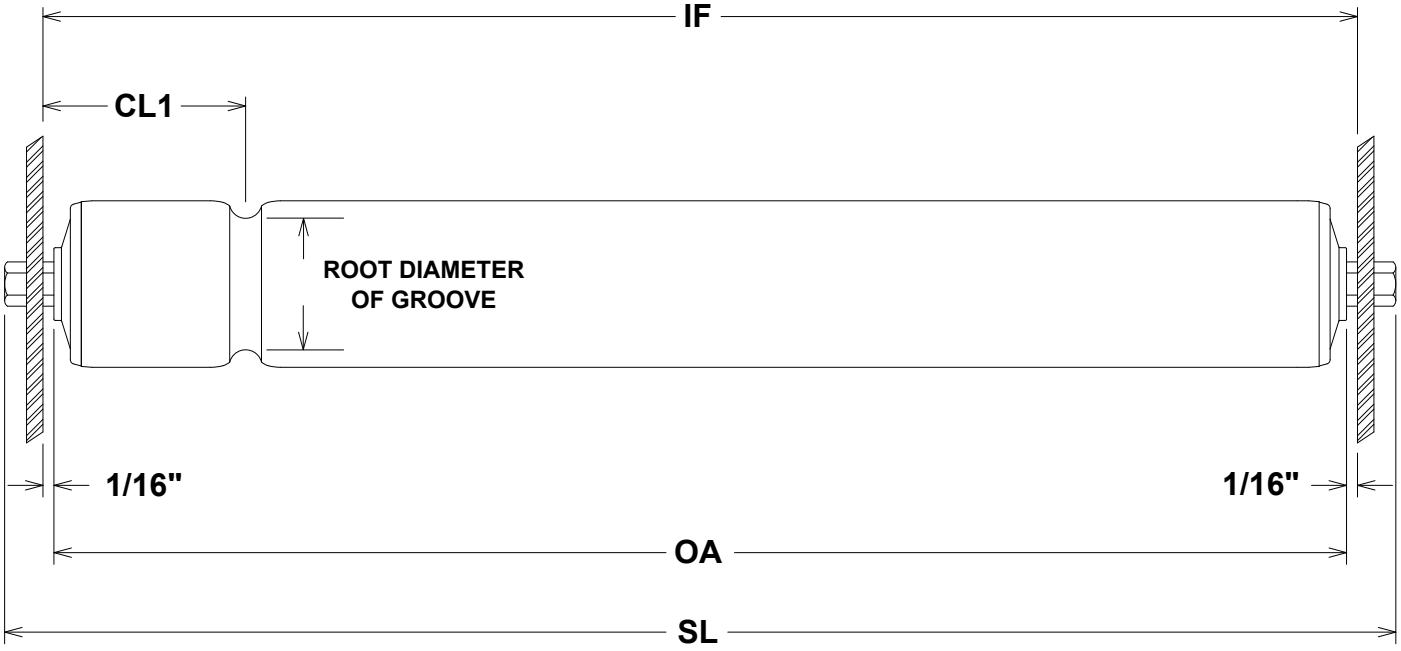
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Single Groove Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

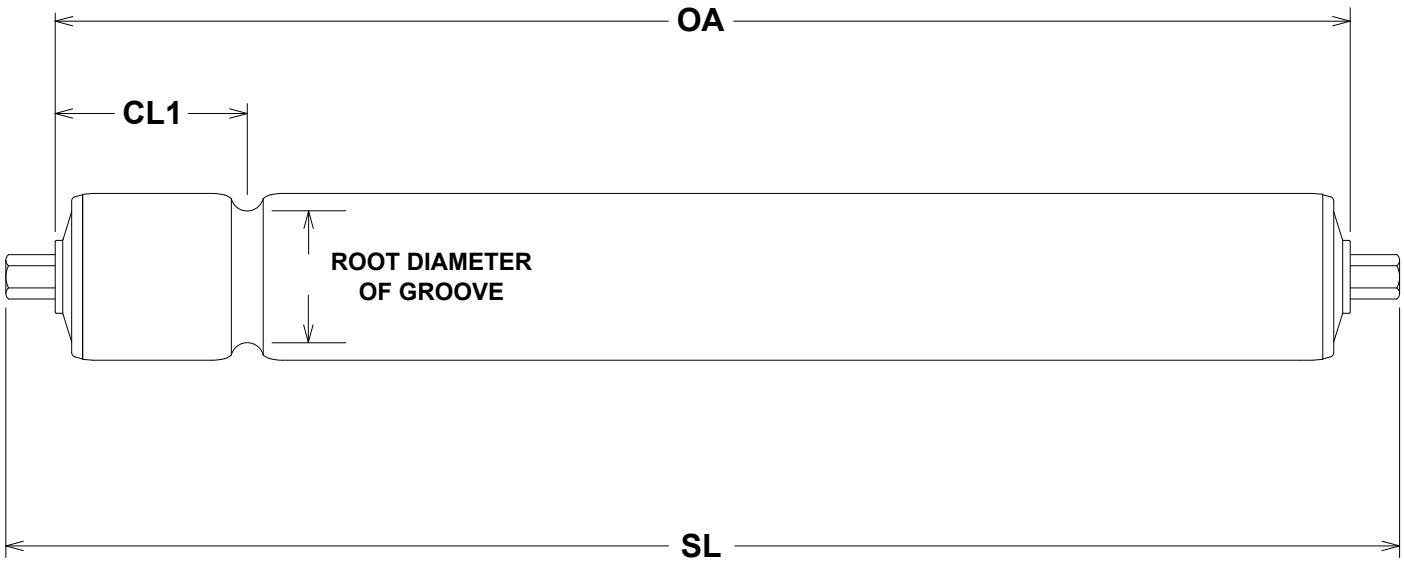
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Single Groove Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

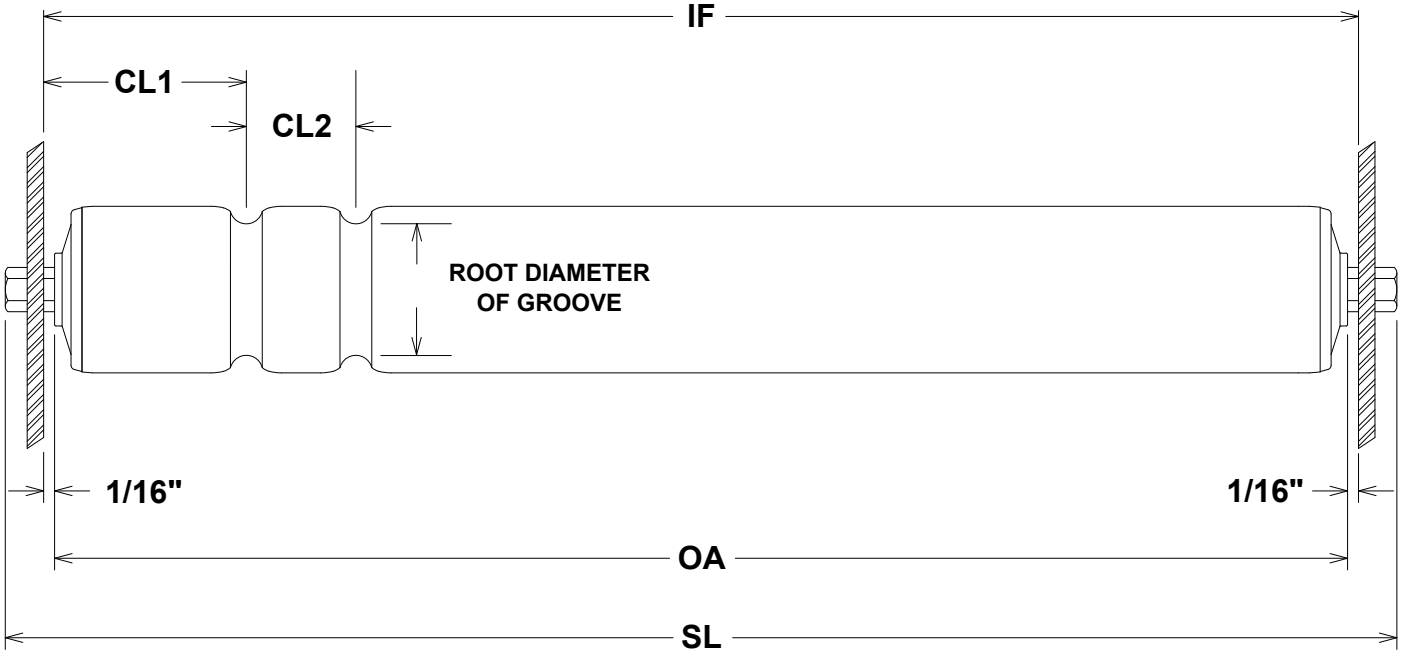
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Groove Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

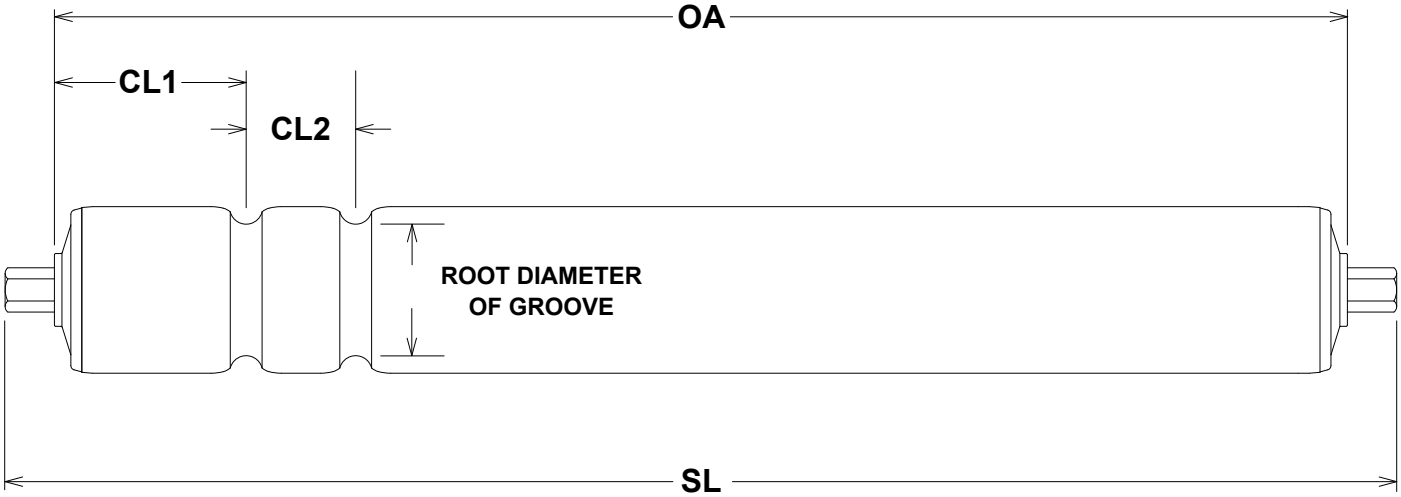
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Groove Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Groove Distance**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

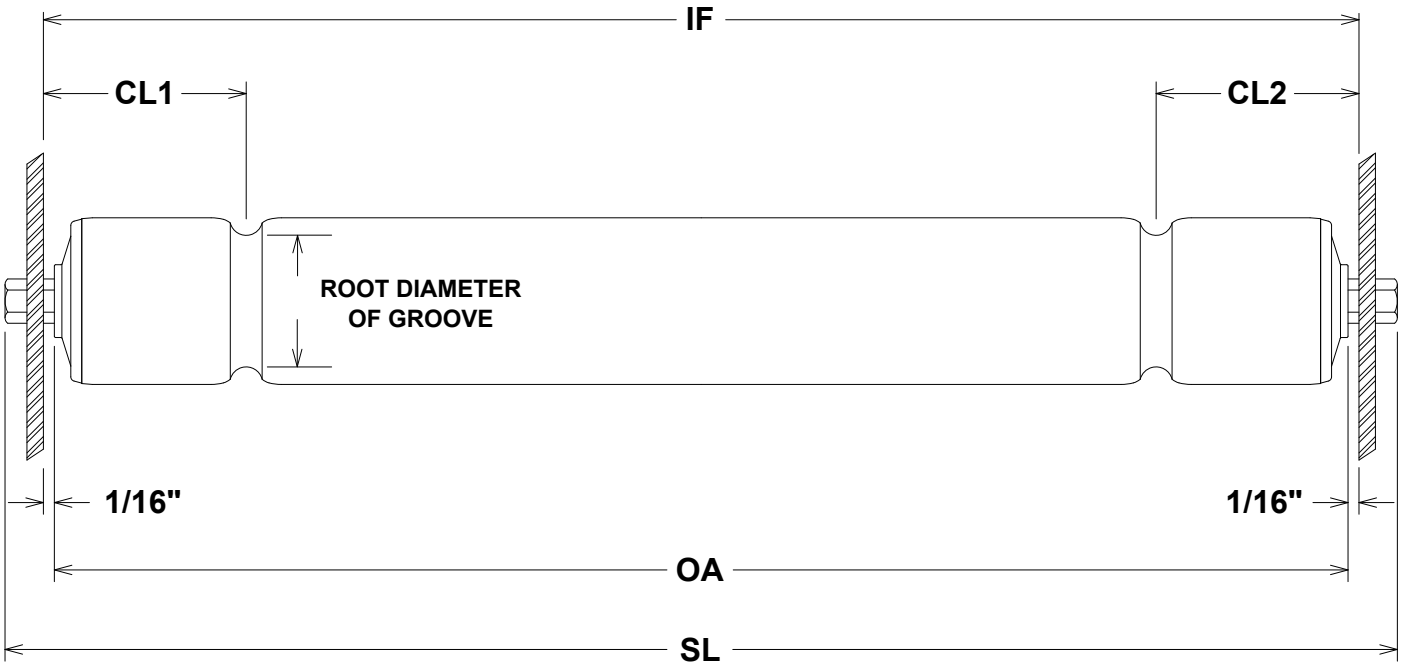
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Groove Roller - Opposite Ends

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Groove**

CL2 = _____ **Frame to Center of 2nd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

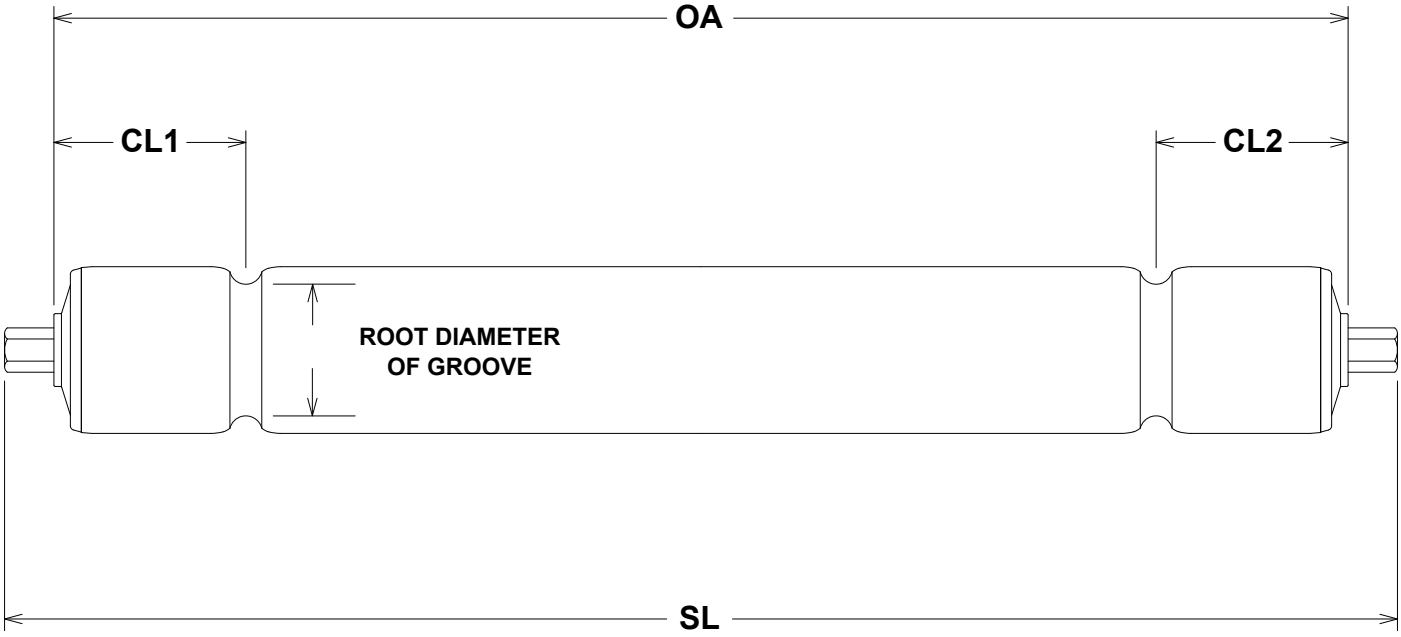
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Groove Roller - Opposite Ends

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Groove**

CL2 = _____ **OA to Center of 2nd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

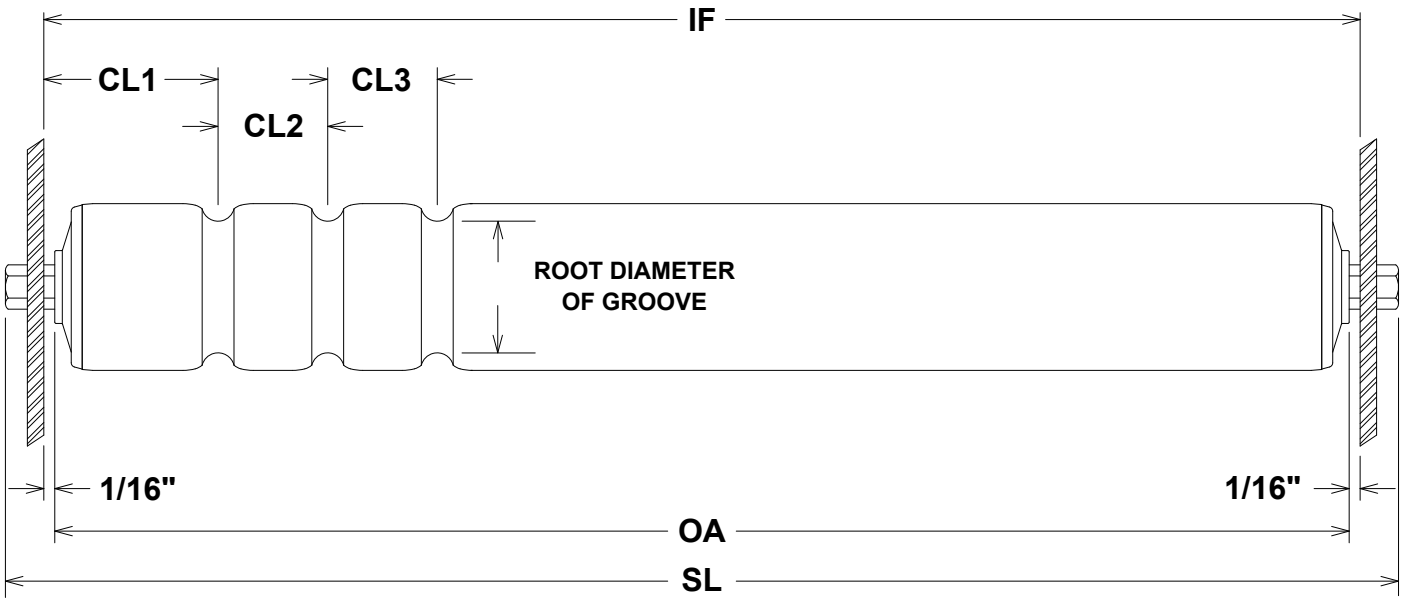
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Triple Groove Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **Center of 2nd Groove to Center of 3rd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

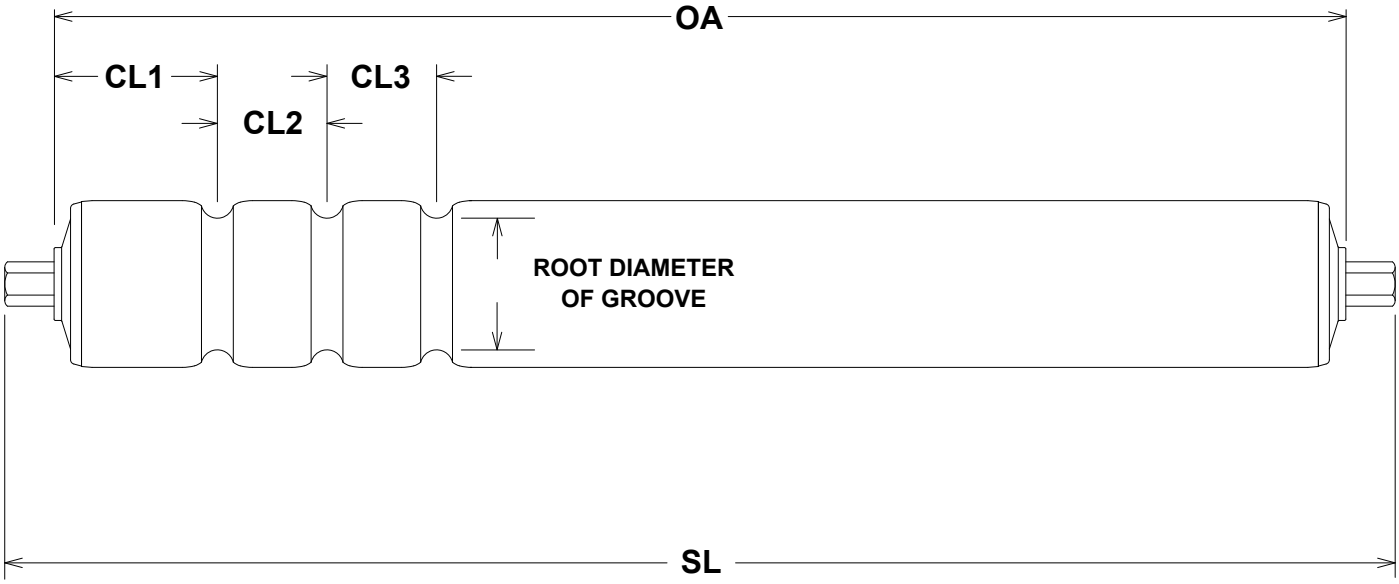
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Triple Groove Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **OA to Center of 3rd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

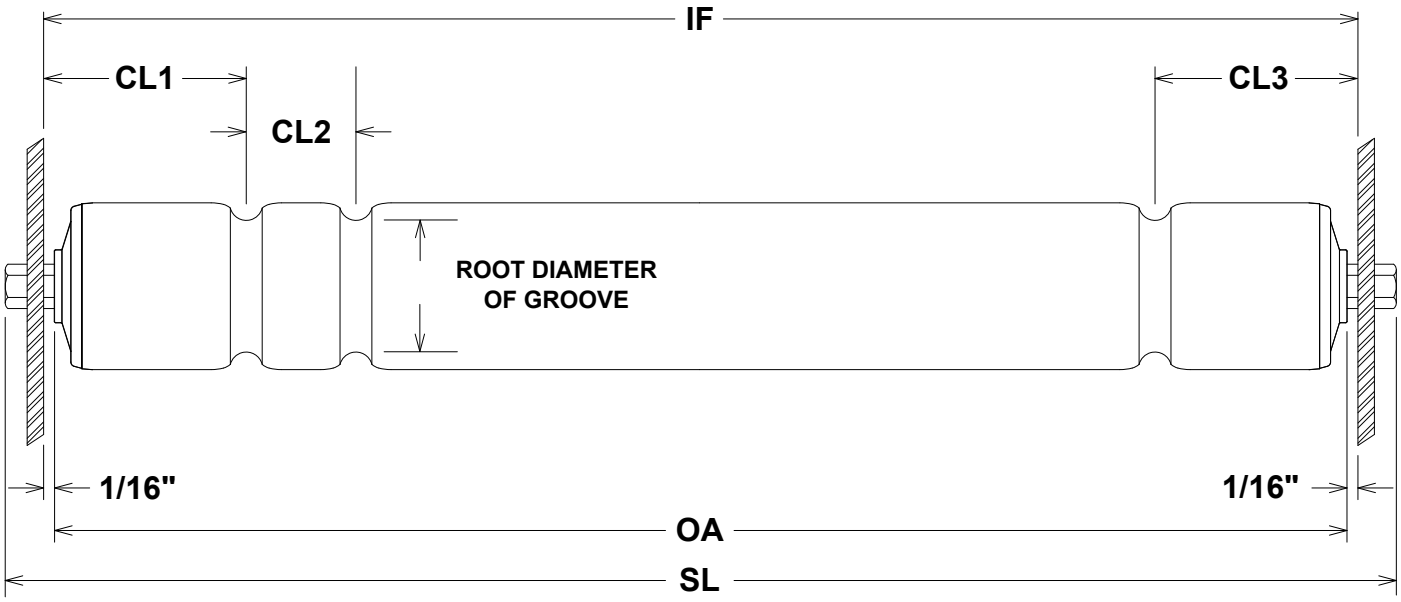
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Triple Groove Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **Center of 3rd Groove to Frame**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

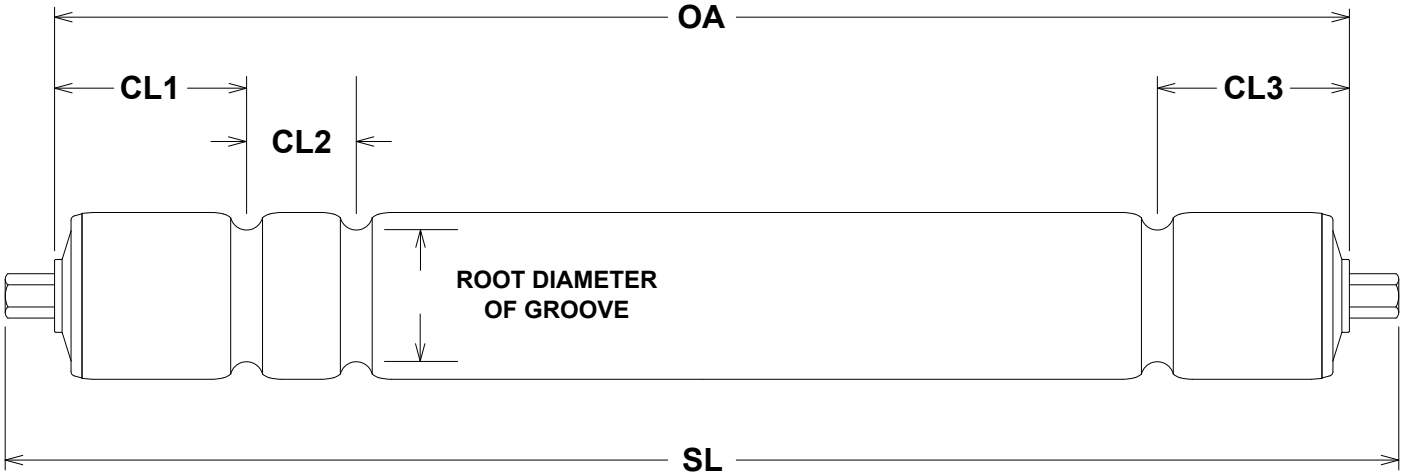
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Triple Groove Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **OA to Center of 3rd Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

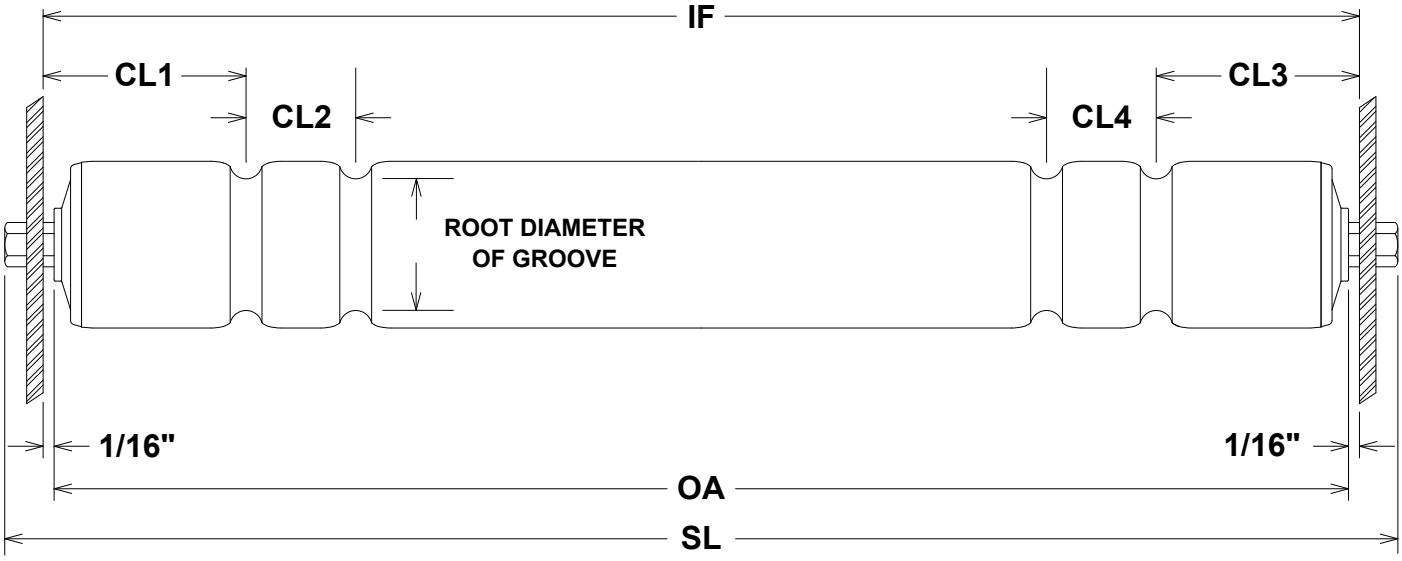
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Quad Groove Roller

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **Frame to Center of 3rd Groove**

CL4 = _____ **Center of 3rd Groove to Center of 4th Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

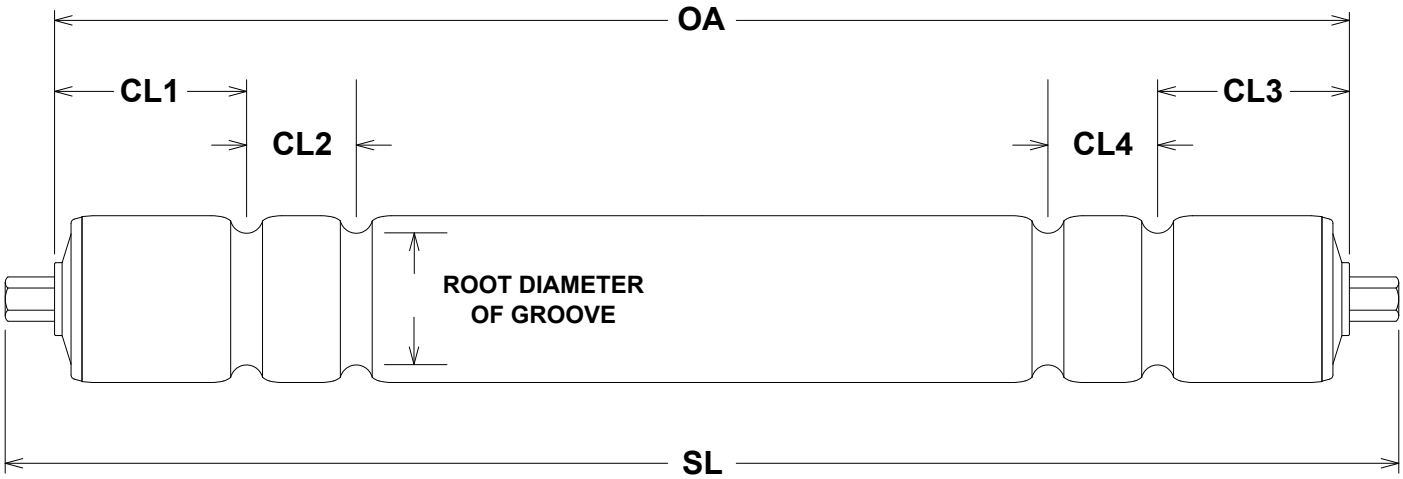
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Quad Groove Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Groove**

CL2 = _____ **Center of 1st Groove to Center of 2nd Groove**

CL3 = _____ **OA to Center of 3rd Groove**

CL4 = _____ **Center of 3rd Groove to Center of 4th Groove**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Groove Root Diameter / Belt Diameter: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

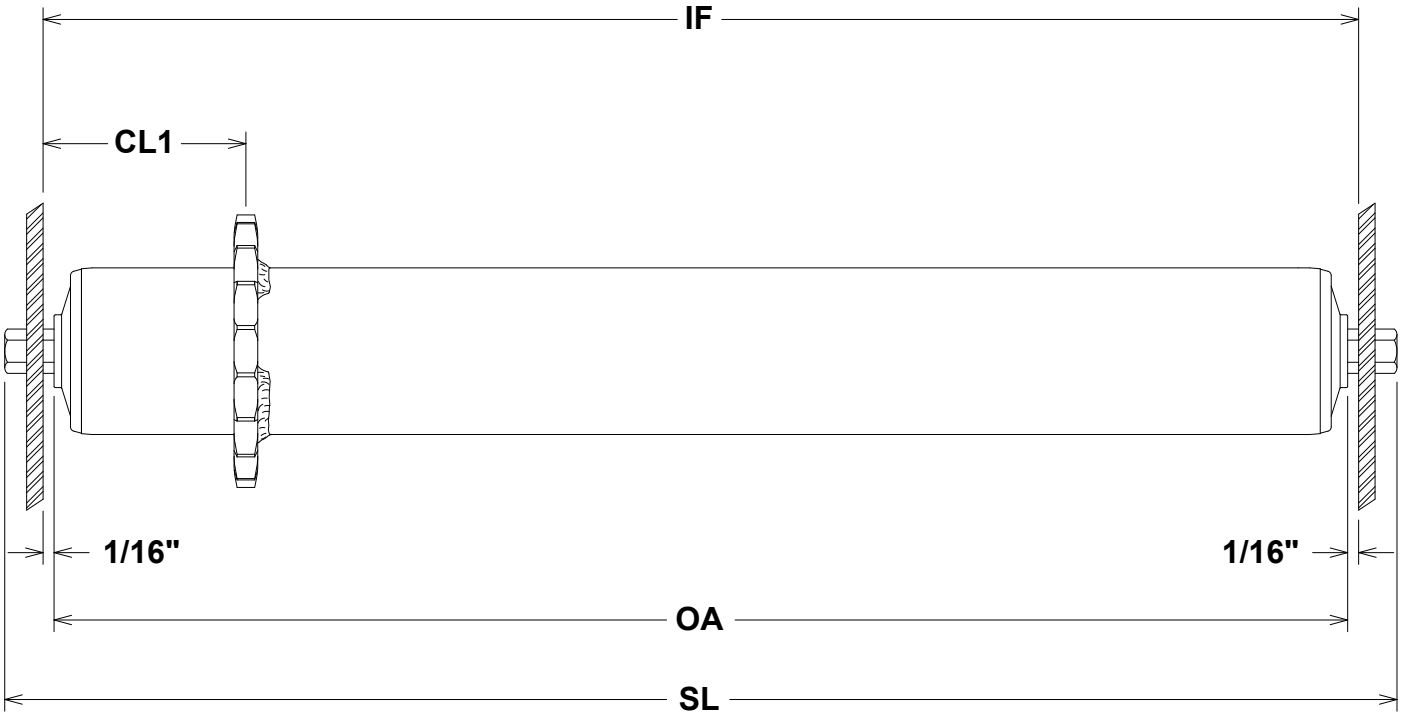
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Single Sprocket Roller (Metal Only)

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

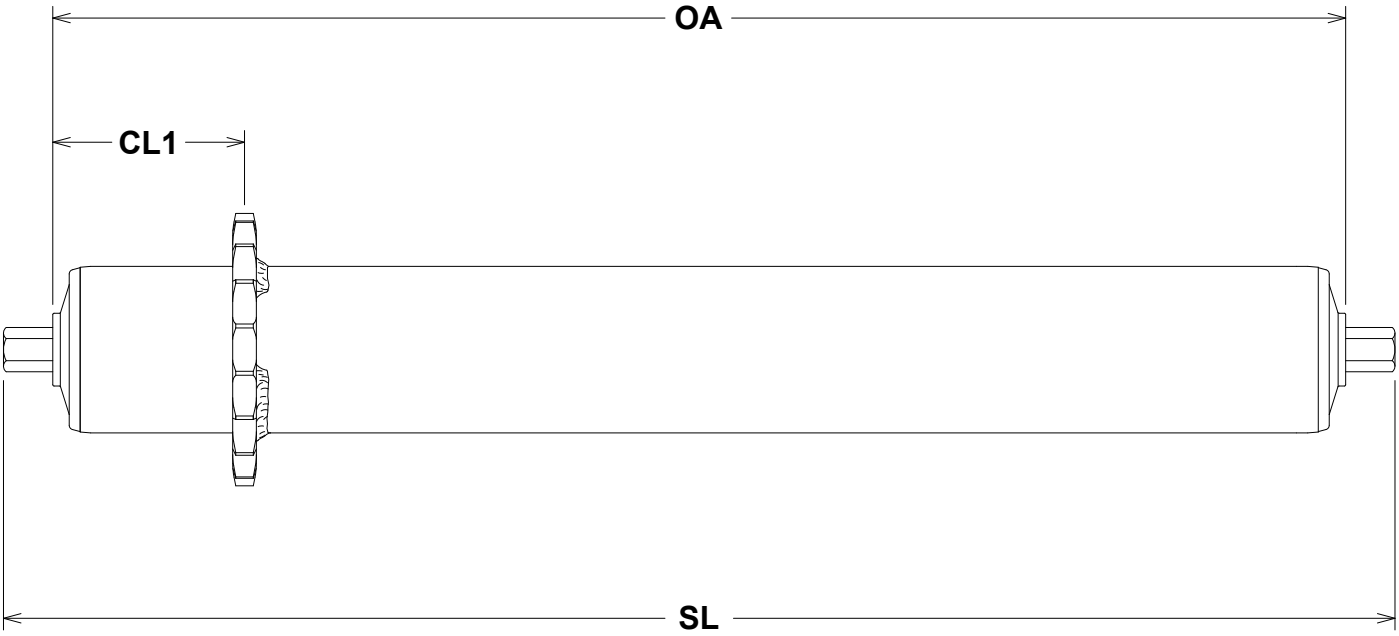
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Single Sprocket Roller (Metal Only)

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

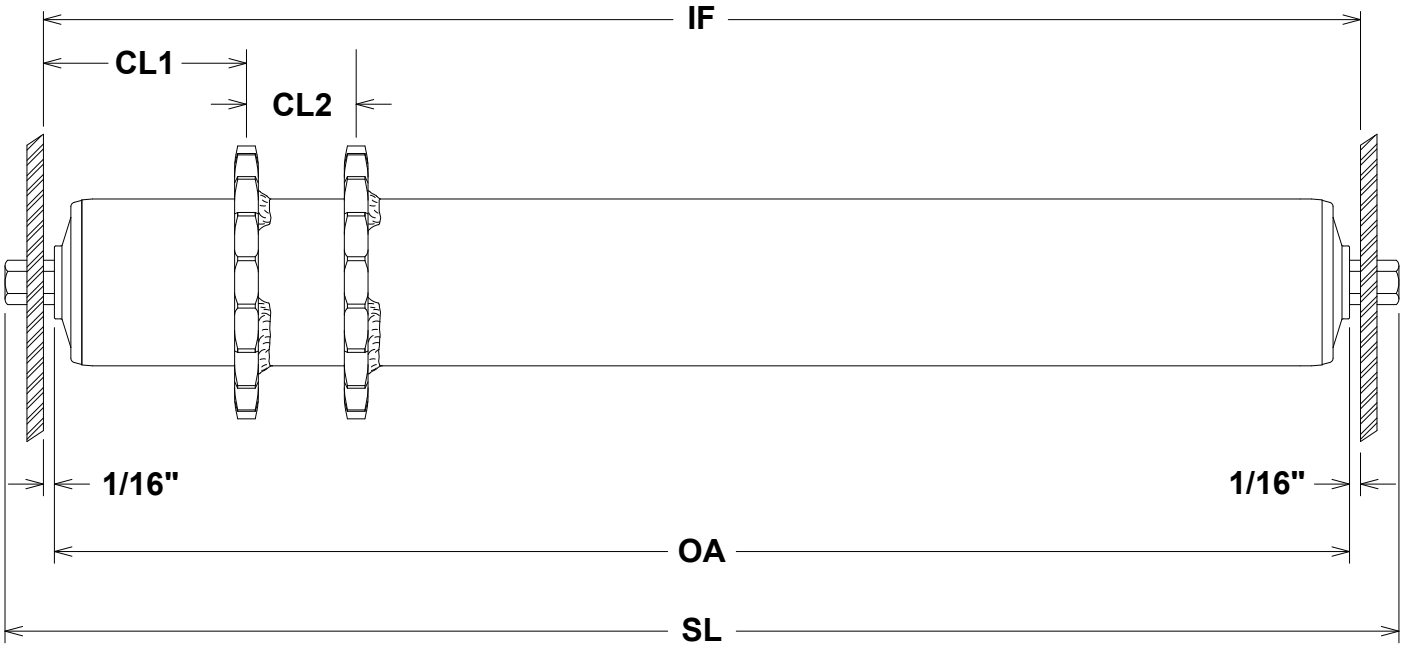
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Sprocket Roller (Metal Only)

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Sprocket**

CL2 = _____ **Center of 1st Sprocket to Center of 2nd Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Sprocket Roller (Metal Only)

Drawing Based on Overall Roller Length

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Sprocket**

CL2 = _____ **Center of 1st Sprocket to Center of 2nd Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

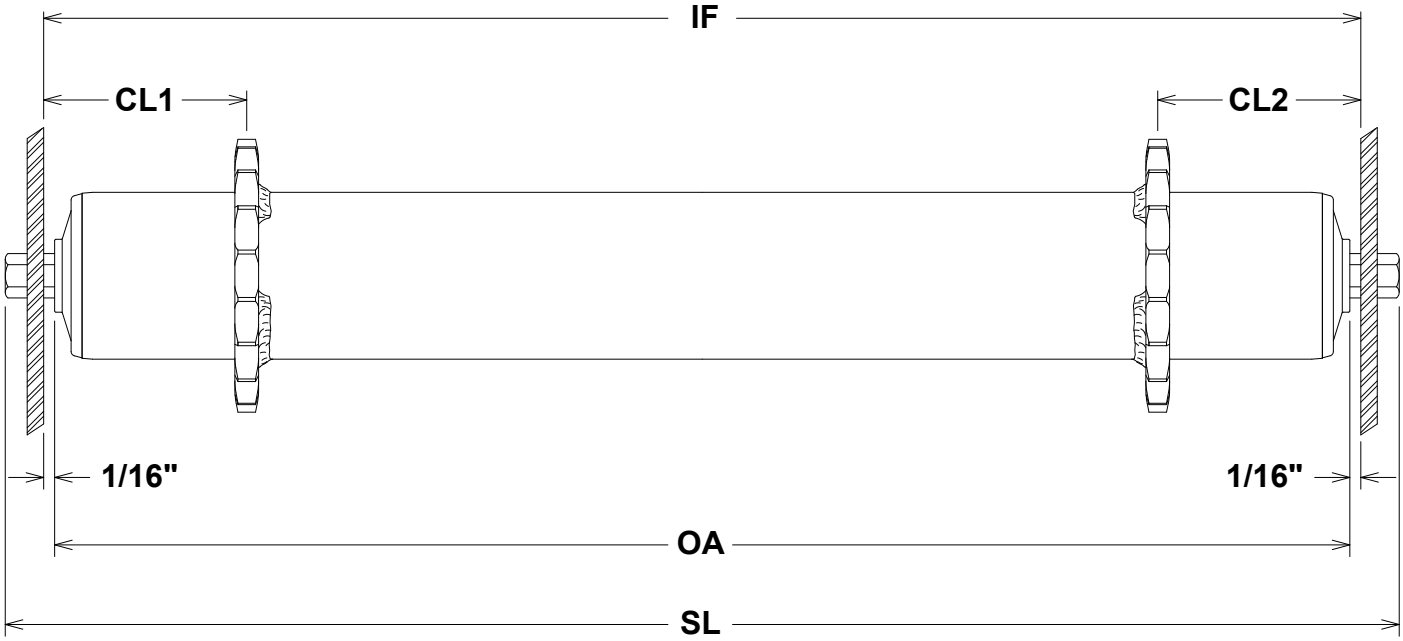
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Sprocket Roller - Opposite Ends (Metal Only)

Drawing Based on Inside Frame Dimension



IF = _____ **Inside Frame Width**

OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **Frame to Center of 1st Sprocket**

CL2 = _____ **Frame to Center of 2nd Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

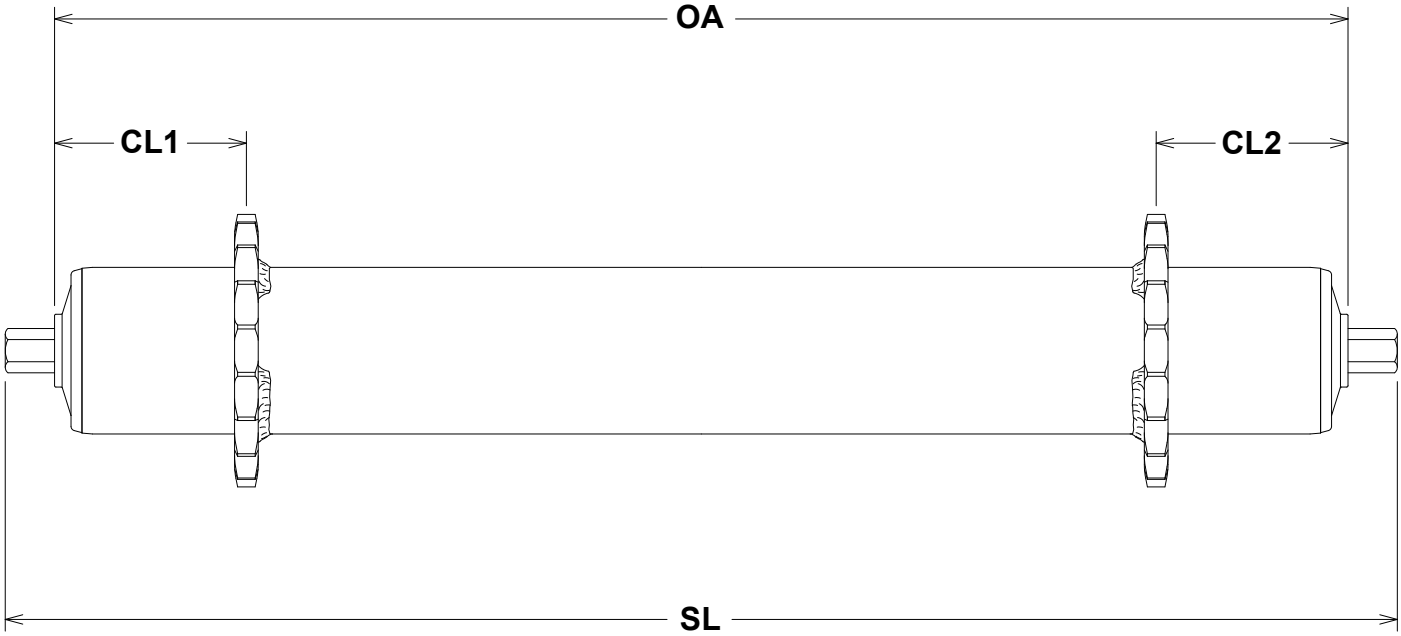
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Double Sprocket Roller - Opposite Ends (Metal Only)

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

SL = _____ **Shaft Length Overall**

CL1 = _____ **OA to Center of 1st Sprocket**

CL2 = _____ **OA to Center of 2nd Sprocket**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Sprocket - Chain Size / # of Teeth: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

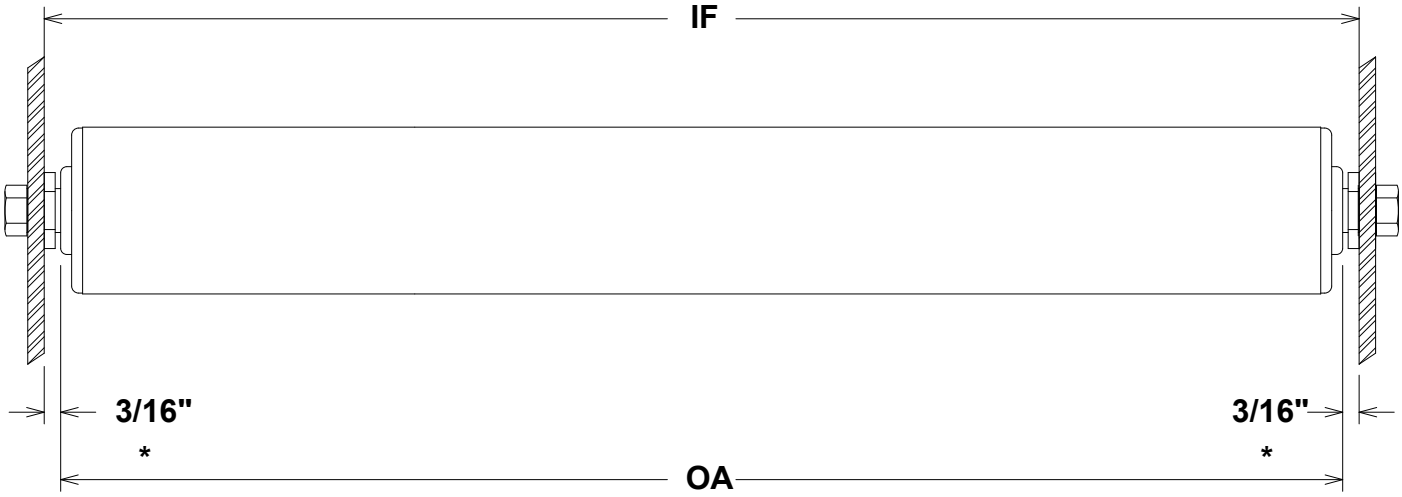
Phone: _____

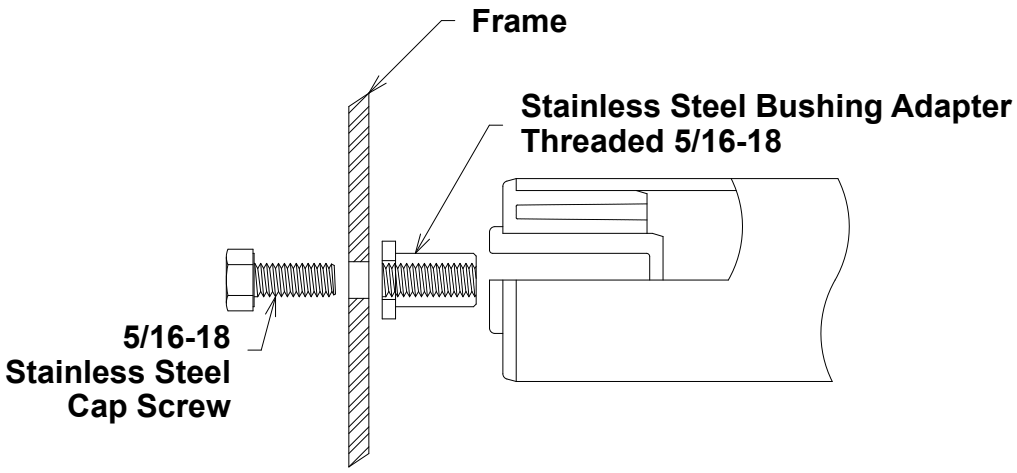
Fax: _____

Signature: _____ **Date:** _____

Blind Hole Idler Roller With Hardware

Drawing Based on Inside Frame Dimension





IF = _____ Inside Frame Width = OA + 3/8" for hardware and clearance

*** Allow 1/2" for 5/8" hardware and clearance**

OA = _____ Overall Roller Length (bushing face to bushing face)

Bore Diameter of Bushing: _____

Tube Diameter / Wall Thickness / Material: _____

Company: _____

Contact: _____

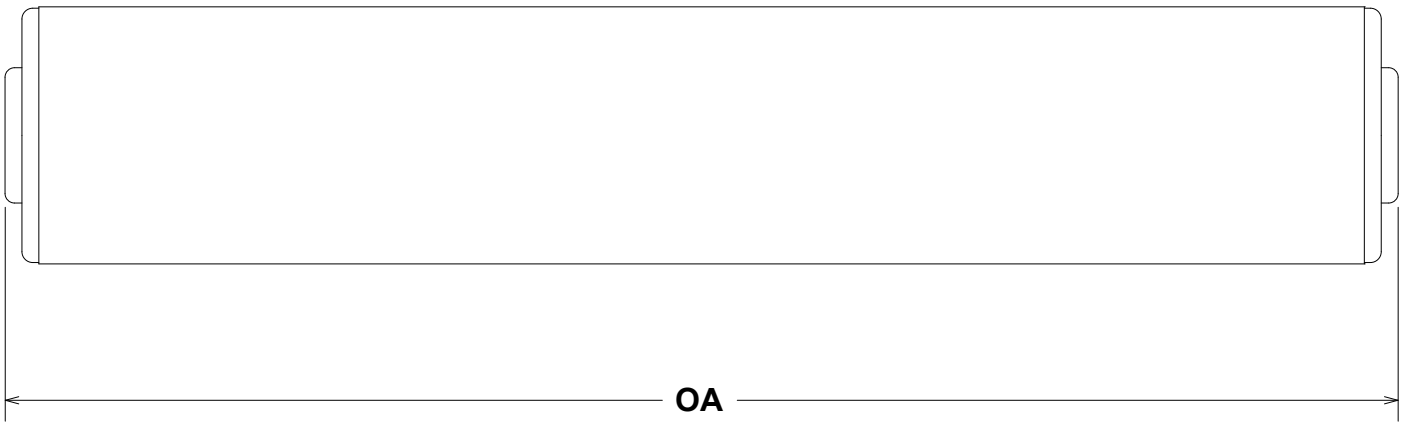
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Through Hole Idler Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bushing face to bushing face)**

Bore Diameter of Bushing: _____

Tube Diameter / Wall Thickness / Material: _____

Company: _____

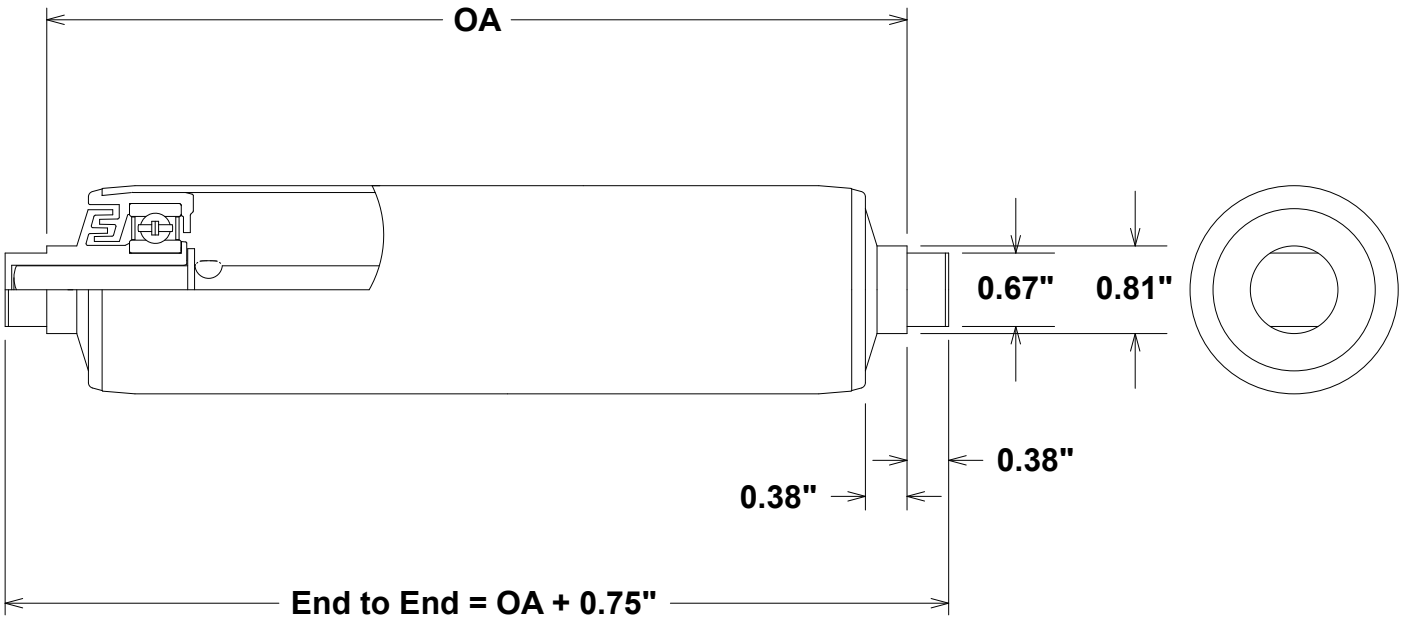
Contact: _____

Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Plastic Flat Cap Roller



OA = _____ **Overall Roller Length (flat to flat)**

Tube Diameter / Wall Thickness / Material: _____

Note: End to End Distance is Fixed by the OA of the Roller.

Bearing - Commercial / ABEC-1 (Precision):

Company: _____

Contact: _____

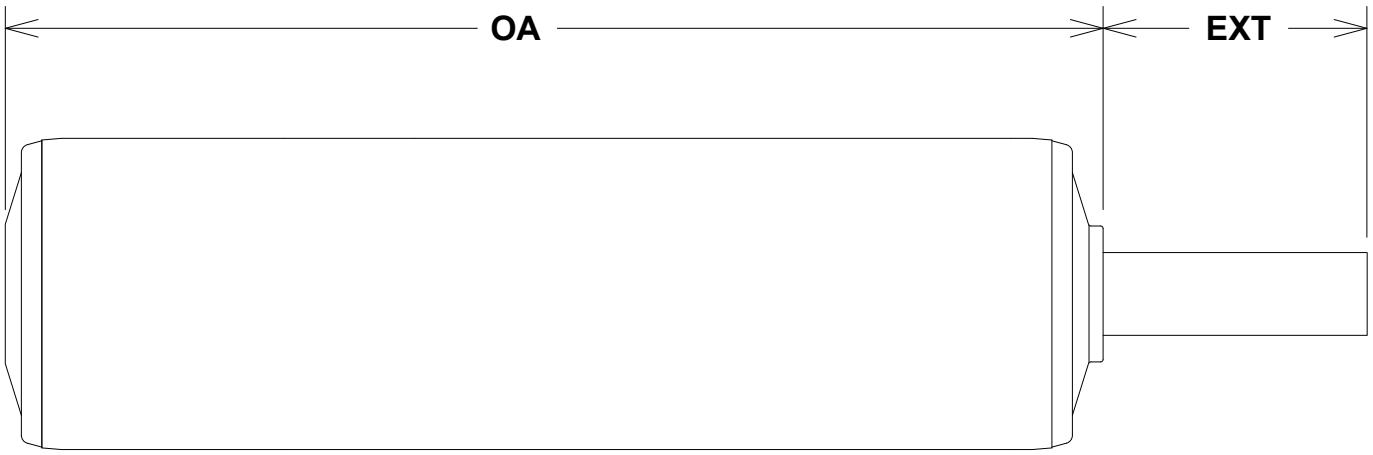
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Cantilever Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

EXT = _____ **Shaft Length Overall**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

Contact: _____

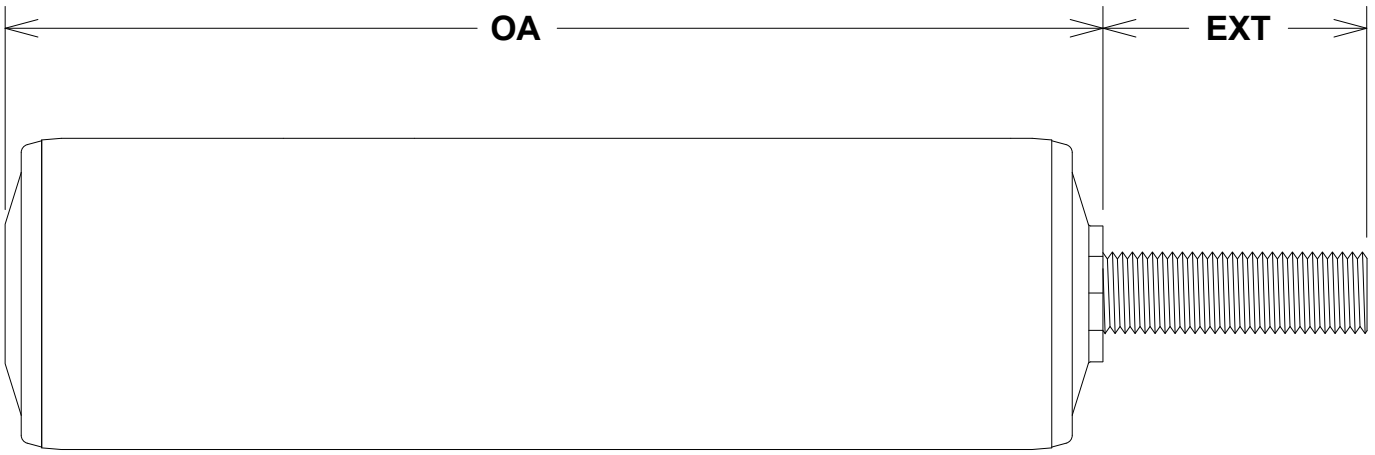
Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Cantilever Roller

Drawing Based on Overall Roller Length



OA = _____ **Overall Roller Length (bearing hub to bearing hub)**

EXT = _____ **Shaft Length Overall**

Tube Diameter / Wall Thickness / Material: _____

Shaft Size / Configuration / Material: _____

Bearing - Commercial / ABEC-1 (Precision): _____

Company: _____

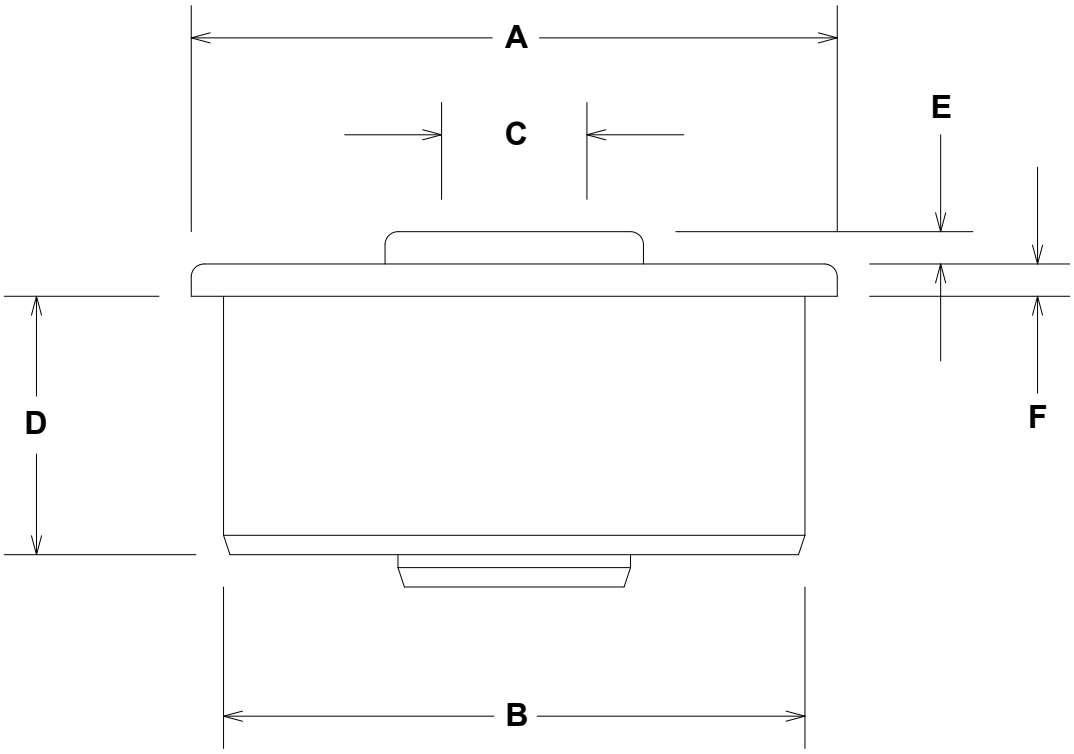
Contact: _____

Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Custom Endplug



Note: Must indicate blind hole or through hole style bushing

A = _____ **Flange Diameter**

B = _____ **Body Diameter**

C = _____ **Bore Diameter**

D = _____ **Body Length**

E = _____ **Hub Thickness (1/8” Standard)**

F = _____ **Flange Thickness (1/8” Standard)**

Bushing Style: Blind Hole / Through Hole (circle one)

Note: Commercial Plastic Tubing May Require Boring For Proper Fit and Concentricity.

Company: _____

Contact: _____

Phone: _____

Fax: _____

Signature: _____ **Date:** _____

Product Warranty

Products manufactured by Ralphs-Pugh are warranted to be free from defects in material or workmanship for a period of one year from the date of shipment. Factory liability is limited to the cost, repair, or replacement of any product or component part. For warranty consideration, products shall be returned prepaid and accompanied by a return materials authorization, and after our evaluation proved defective.

Extended warranties are available subject to an application review and approval by Ralphs-Pugh. Please contact us for details.

Ralphs-Pugh Co.

R-P

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