Push-Pull Standard

Control Cable Assembly

Our range of push-pull controls provide a means of transmitting linear motion from one location to another. They offer ease of installation as well as superior performance.

Bristow® – Economical construction for applications that do not require tight bend radii.

Utility – Adds a binder wire for structural integrity and a tighter minimum bend radius than other controls.

Low Friction EXT – Have the same advantages as Utility with an added plastic covered innermember which provides improved efficiency.

Low Friction – The standard of excellence for industrial controls. Features include a binder wire for structural integrity, tight minimum bend radius, and PTFE covered innermember for the ultimate in efficient, smooth operation. Provides long life in the most demanding applications.

Common Applications: Implement control, throttle control, PTO/4WD activation, valve actuation, remote battery disconnect, remote electrical disconnect, transmission shift, hydrostatic drives, latches

- Made of tough/durable materials
- Environmentally protected with long-lasting seals
- Temperature rated for use from -65°F to 310°F

Efficiency Factor: Input Force = (Output Load x Total Degrees of Bend x Efficiency Factor) + Output Load

Bristow & Utility = .002

Low Friction EXT & Low Friction = .001

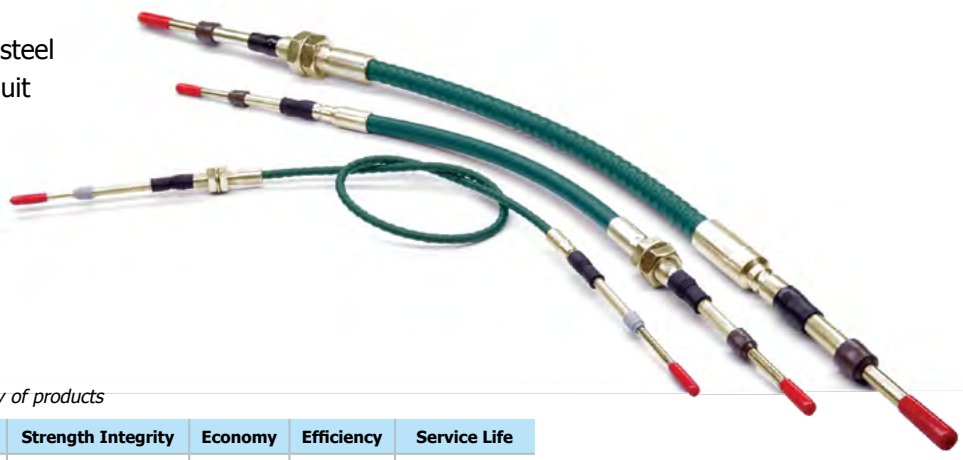
Note: Efficiency will be slightly reduced in applications when output load is substantially less than rated loads.

Material:

- Stainless steel or plated carbon steel
- Plastic coated carbon steel conduit and innermember
- Plastic seals

Suggested End Fittings:

- Full range



Comparison Chart

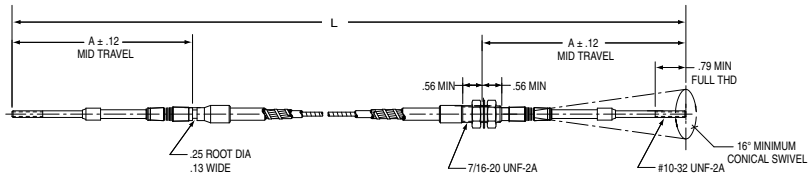
Arrows indicate relative position within the family of products

Part	Temperature	Bend Radius	Strength Integrity	Economy	Efficiency	Service Life
Bristow	↓	↓	↓	↑	↓	↓
Utility	→	↑	↑	→	↓	→
LF-EXT	→	↑	↑	→	→	↑
LF	↑	↑	↑	↓	↑	→

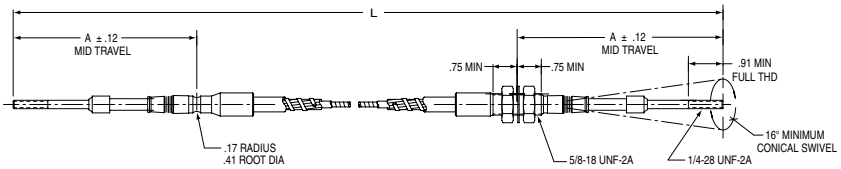
Push-Pull Standard

Push-Pull Standard Specifications (for Ordering Code see back cover)

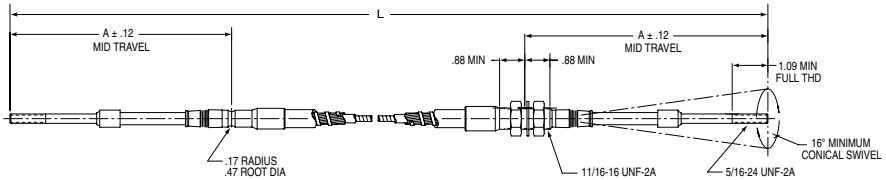
	A Dimension Grooved Swivel (in) (control at mid travel)	Minimum Travel Push-Pull (in)	Working Input Load (lbs) Push-Pull	Maximum Input Overload (lbs)	A Dimension Threaded Swivel (in) (control at mid travel)
VLD	3.69	1″	80/120	120/180	4.38
Very Light Duty	5.19	2″	80/120	120/180	5.87
	6.69	3″	70/120	110/180	7.38
Cablecraft® Min Bend Radius 2″	8.19	4″	60/120	90/180	8.87
Bristow® Min Bend Radius 5″	9.69	5″	45/120	70/180	10.38
Backlash Factor .00015 Per Deg. of Bend	11.19	6″	30/120	45/180	11.87



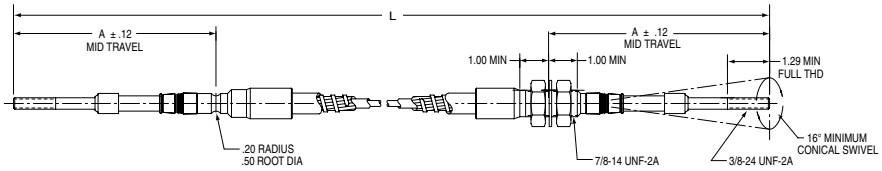
LD	4.00	1″	150/230	230/350	4.62
Light Duty	5.50	2″	150/230	230/350	6.12
	7.00	3″	125/230	190/350	7.62
Cablecraft® Min Bend Radius 3″	8.50	4″	100/230	150/350	9.12
Bristow® Min Bend Radius 7″	10.00	5″	75/230	110/350	10.62
Backlash Factor .00020 Per Deg. of Bend	11.50	6″	50/230	75/350	12.12



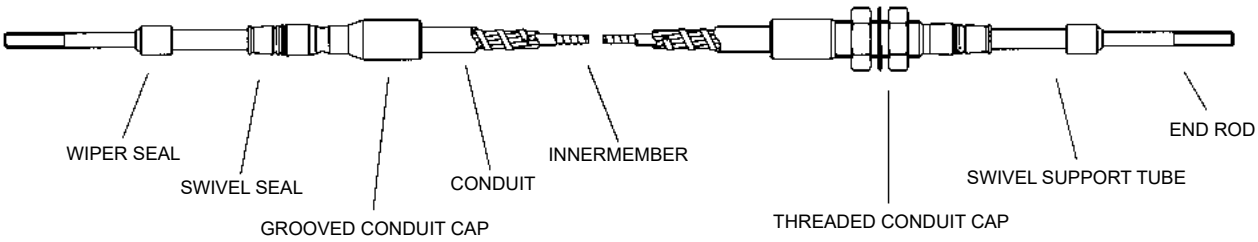
MD	4.38	1″	250/400	400/600	5.06
Medium Duty	5.87	2″	250/400	400/600	6.56
	7.38	3″	210/400	300/600	8.06
Cablecraft® Min Bend Radius 5″	8.87	4″	170/400	250/600	9.56
Bristow® Min Bend Radius 9″	10.38	5″	130/400	200/600	11.06
Backlash Factor .00025 Per Deg. of Bend	11.87	6″	100/400	150/600	12.56



HD	5.19	1″	700/1000	1000/1500	5.69
Heavy Duty	6.69	2″	700/1000	1000/1500	7.19
	8.19	3″	600/1000	900/1500	8.69
	9.69	4″	500/1000	750/1500	10.19
Cablecraft® Min Bend Radius 6″	11.19	5″	400/1000	600/1500	11.69
Backlash Factor .00030 Per Deg. of Bend	12.69	6″	30/1000	450/1500	13.19



Standard Push-Pull Cable Terminology



How to Identify Push-Pull Cables

Follow the steps below to determine your "ordering code" or part number. An example of a typical ordering code is 173-VTG-3-144.

173 - VTG - 3 - 144

Step 1: Determine cable materials depending on usage and conditions.

Utility: "The Rugged Gray Cable" is the industry-standard and is designed for a long life under rugged conditions (173, 174, 175).

Low Friction EXT: "The Green Cable" is the proper cable to use when superior efficiency is required. The extruded nylon cover over the innermember works very smoothly with the polyliner (313, 314, 315).

Low Friction: The proper cable to use when superior efficiency is required. The bonded PTFE cover over the inner operating member works very smoothly with the plastic liner (183, 184, 185).

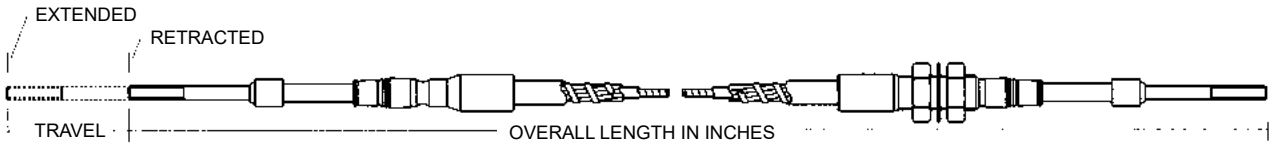
Step 2: Determine the "duty" (size) of the cable by the diameter and threads of the end rods.

V = 10-32 UNF (Very light duty)
L = 1/4-28 UNF (Light duty)
M = 5/16-24 UNF (Medium duty)
H = 3/8-24 UNF (Heavy duty)

Step 3: Determine the type of conduit end fittings (conduit caps) for left end and right end.

T = Threaded
G = Grooved
TT, GG or TG combinations

Step 4: Determine the travel of the end rod. 1" through 6" in one inch increments.



Step 5: Determine the overall length of the cable in one inch increments.

Push-Pull Standard Order Code

Cablecraft® Ordering Codes

314 – 6 – L –TT – 3 –144 –(AP)

Control Type

Low Friction-EXT
- 313 with Stainless Steel End Rods
- 314 with Stainless Steel Support Tubes and End Rods
- 315 all Exposed Fittings/Parts are Stainless Steel

Utility
- 173 with Stainless Steel End Rods
- 174 with Stainless Steel Support Tubes, End Rods and Innermember Armor
- 175 all Exposed Fittings/Parts are Stainless Steel plus Stainless Innermember Armor

Low Friction
- 183 with Stainless Steel End Rods
- 184 with Stainless Steel Support Tubes and End Rods
- 185 all Exposed Fittings/Parts are Stainless Steel

Seal Options

- 6 Use this number only if requesting optional Model 6 wiper seal, optional on all controls

Cable Size

Letter	End Rod Thread
V	10-32 UNF
L	1/4-28 UNF
M	5/16-24 UNF
H	3/8-24 UNF

End Fitting Combinations (Options: GG, TG, TT)

T Threaded Swivel G Grooved Swivel

Cable Travel: 1, 2, 3, 4, 5, 6 (inches)

Length +/-.25 (inches)

Suffix Letters for Additional Features

Use Only For Optional Feature Requests
- N End Rod Jam Nuts (2 each)
- W Extra Shake-proof Washers on Conduit Ends
- A Combination of N and W
- P Stamp with Customer Part Number
- S Stamp with Cablecraft and Customer Part Number

M Metric End Rod Conversions
- V M5 x .8
- L M6 x 1.0
- M M8 x 1.25
- H M10 x 1.5

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Warning: Since the manufacturer is unable to determine all applications in which a part may be placed, it is the user's responsibility to determine the suitability of the part for its intended use. This is especially true where safety is a factor. Incorrect application or installation may result in property damage, bodily injury, or death. For technical assistance, call 260-749-5105.

Printed in U.S.A.