

LIGHTWEIGHT + COMPACT
Rotary Union Solutions



LT Series

FLOW PASSAGE OPTIONS



LT SERIES

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About DSTI

Dynamic Sealing Technologies, Inc. (DSTI) is a global leader in rotary unions and swivel joints used to provide reliable fluid transfer and sealing for energy, defense and industrial applications.

Learn more at www.dsti.com

Did You Know?

» DSTI Exports Rotary Union Products to Over 50 Countries

What is a Rotary Union?

A rotary union (or swivel joint) is a mechanism used to transfer fluid (under pressure or vacuum) from a stationary inlet to a rotating outlet, preserving and isolating the fluid connection.

Rotary unions are engineered to endure a wide range of temperatures and pressures for a variety of conditions and environments. In addition, rotary unions may integrate multiple passages and handle different types of fluid simultaneously.

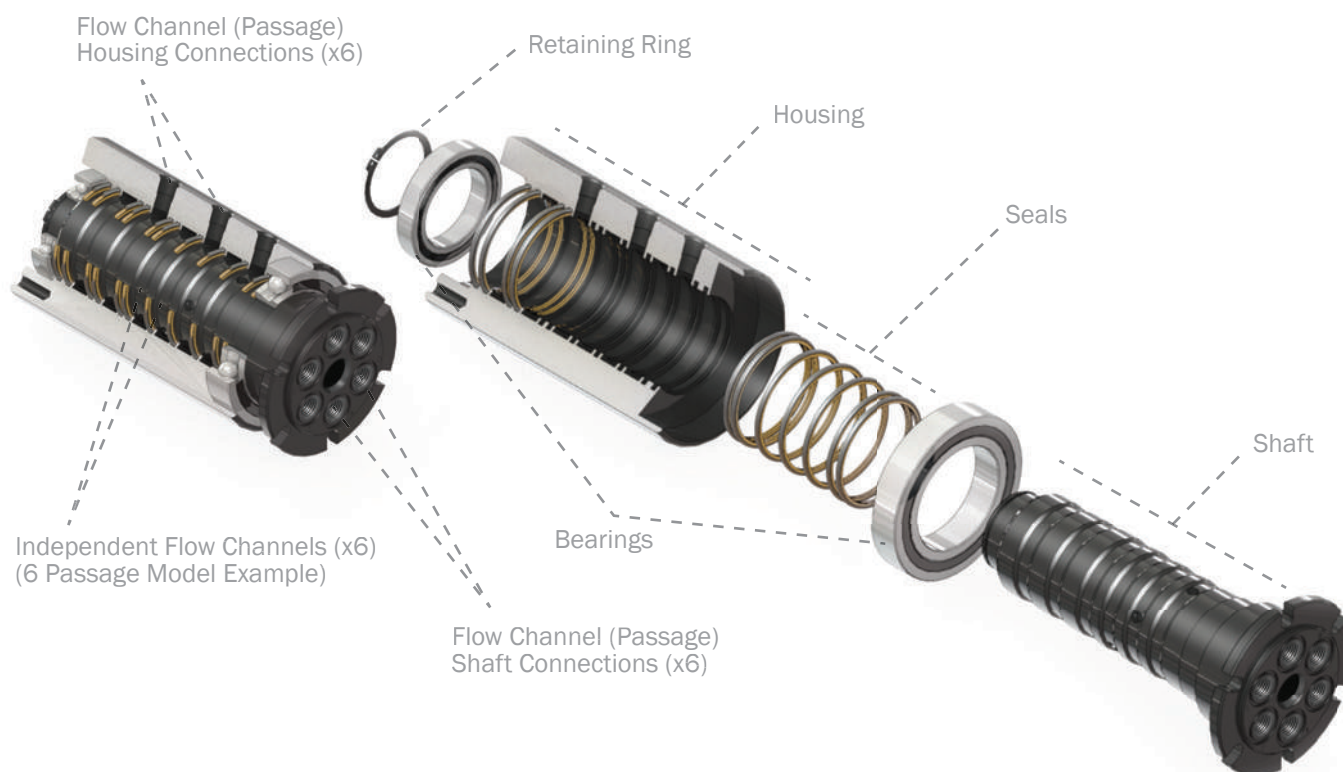
See examples at www.dsti.com/industries

How do I choose the best rotary union for my application?

Tell us about your requirements so we can make a recommendation:

- 1) Type of media(s) / fluid(s) to be transferred
- 2) Number of independent flow channels (passages)
- 3) Operating pressure
- 4) Operating temperature
- 5) Operating speed
- 6) Shaft & housing connection type
- 7) Flow channel (passage) size
- 8) Torque & load requirements
- 9) Duty cycle*

**Does the temperature, speed or pressure fluctuate or change during operation? If so, please provide the detailed ranges for each parameter and time durations of each condition.*



LT SERIES

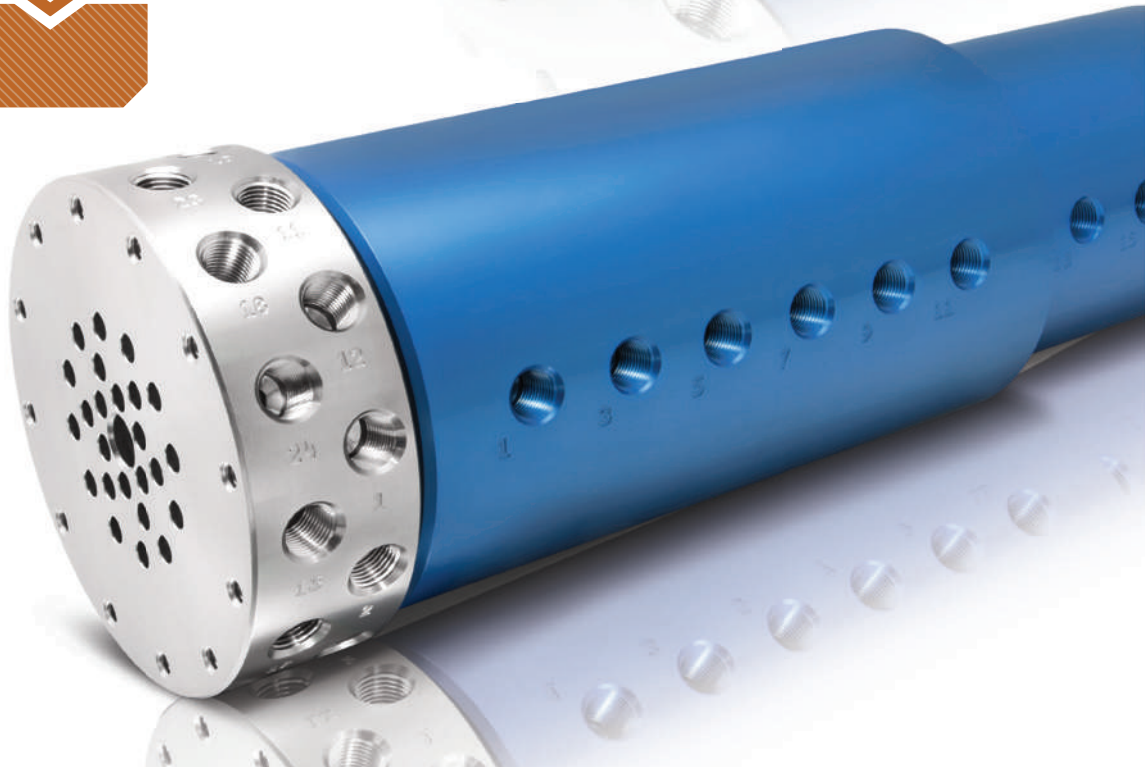
LT Series Overview

- + Low Torque Seals
- + Compact Design
- + NPT / BSPT Connection Options
- + Lightweight Construction
- + Corrosion Resistant
- + Low Heat Generation
- + Increased Seal Life Performance
- + Cost-effective
- + Customized Options

ON THE WEB

Download STEP, DWG, and PDF resources.
View interactive 3D models and more!

Learn more at www.dsti.com



How to Order: Create your Part Number

EXAMPLE

LT — **2** **1** **2** **1** — **OF** — **ES12A** — **F2** — **C1**

OPTIONS See Next Page

1 With Thru-bore

2 2 Flow Passages

4 4 Flow Passages

8 8 Flow Passages

12 12 Flow Passages

24 24 Flow Passages

1 1/8" (3.175 mm) Passage Size

3 3/8" (9.525 mm) Passage Size

2 Product Series (LT)

LT LT Series (NPT Connection)

LTM LT Series (BSPT Connection)

NOTE All LT Series rotary unions include thru-bores

EXAMPLES

LTM-2181

- LT 8 Passage, 1/8" BSPT Connections

LT-2321

- LT 2 Passage, 3/8" NPT Connections

LT-21121

- LT 12 Passage, 1/8" NPT Connections

These passage (port) connections are permanently sealed in the standard configuration.

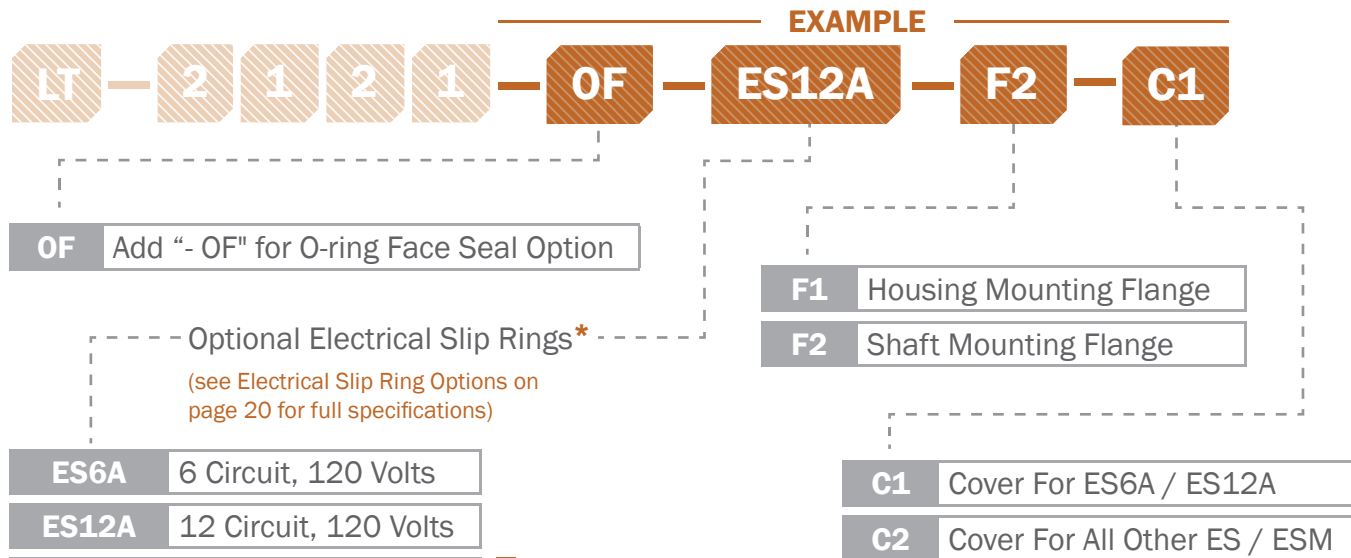
If requested, shaft face O-ring gland connections are available for face mounting a DSTI rotary union.

Please add the "-OF" option when ordering. (Example: LT-2121-OF)

Shaft side porting - standard on all LT Series models. If the "-OF" option is requested, these connections will be plugged.

LT SERIES

How to Order: Choose your Options

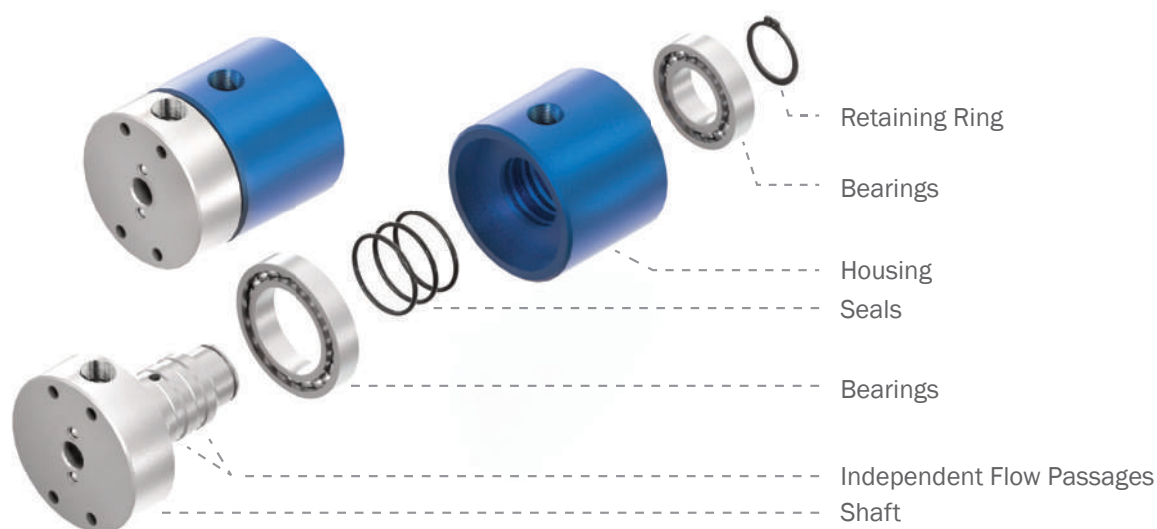


NOTE (F1) Housing flange required for slip ring assembly

* Pin connector and cord set options also available. Please contact DSTI for more information.



Specifications & Operating Information



Flow Passage Options	2	4	8	12	24
Media Types	Coolant, Gases, Oil, Steam ¹ , Water/Glycol ³				
Passage Sizes	1/8" and 3/8" (3.2 mm and 9.5 mm)				
Connection Type	NPT, R _c BSPT, O-ring Face Seal				
Max. Operating Pressure	600 PSI (40 BAR) ²				
Max. Vacuum	30 HG ²				
Max. Rotational Speed	500 RPM ²				
Operating Temperature	0° F to 220° F (-18° C to 105° C) ¹				
Body Material Type	Aluminum				
Platings and Coatings	Shaft: E-Nickel, Housing: Blue Anodize				
Thru-bore Size	3/8" (9.5 mm)				
Slip Ring Options	See Page 20				
Mounting Options	Tapped Holes in Housing and Shaft <i>(Available aluminum flange for housing and shaft mounting)</i>				

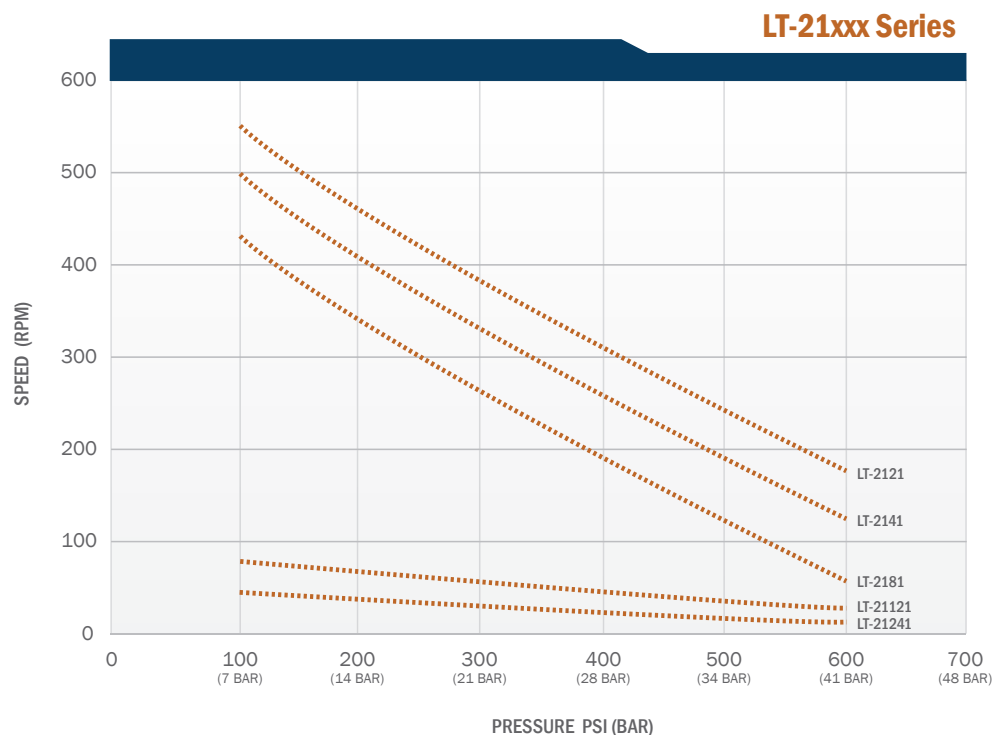
¹ Applications above 220° F (105° C) require alternative seal materials. Please consult with DSTI.

² Values are dependent on a combination of all application parameters. Please consult with DSTI.

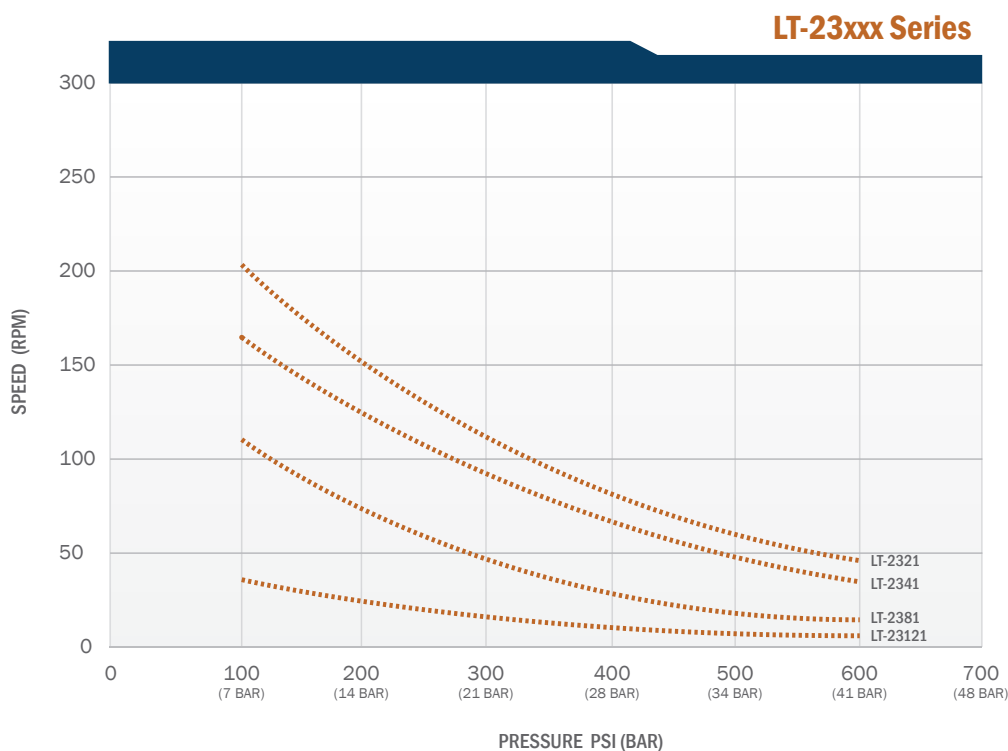
³ Use of liquid media with LT Series rotary unions should be considered at the customer's own risk.

LT SERIES

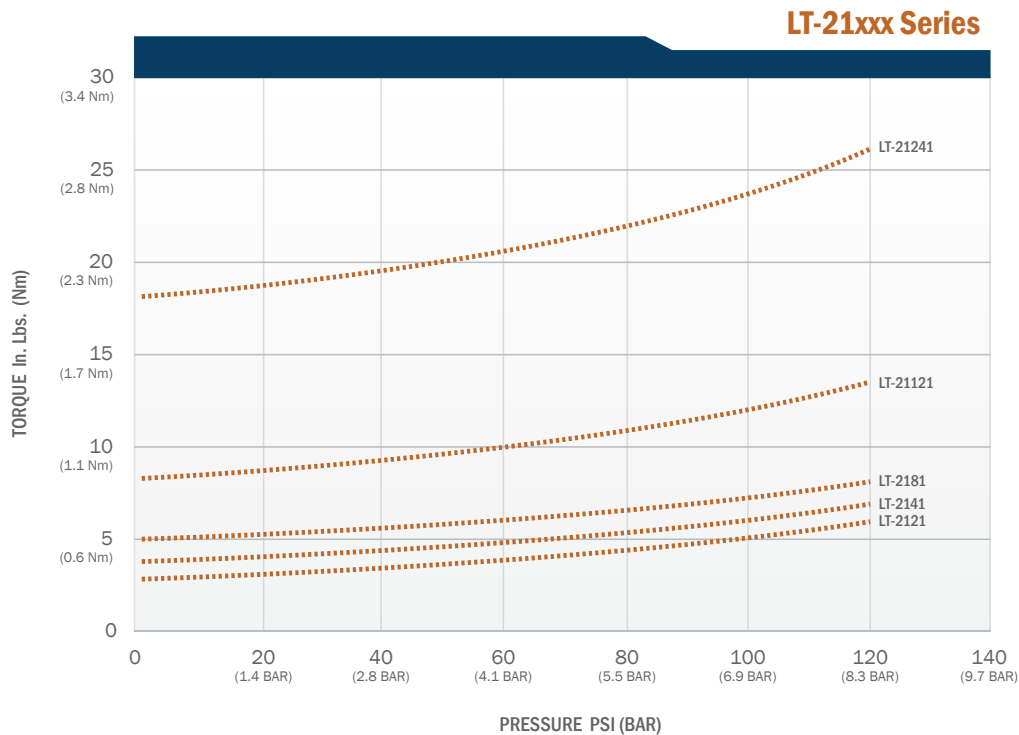
Performance Data: Pressure vs. Speed (Continuous)



* This data is to be used as a general guideline. Please consult DSTI about your specific application.

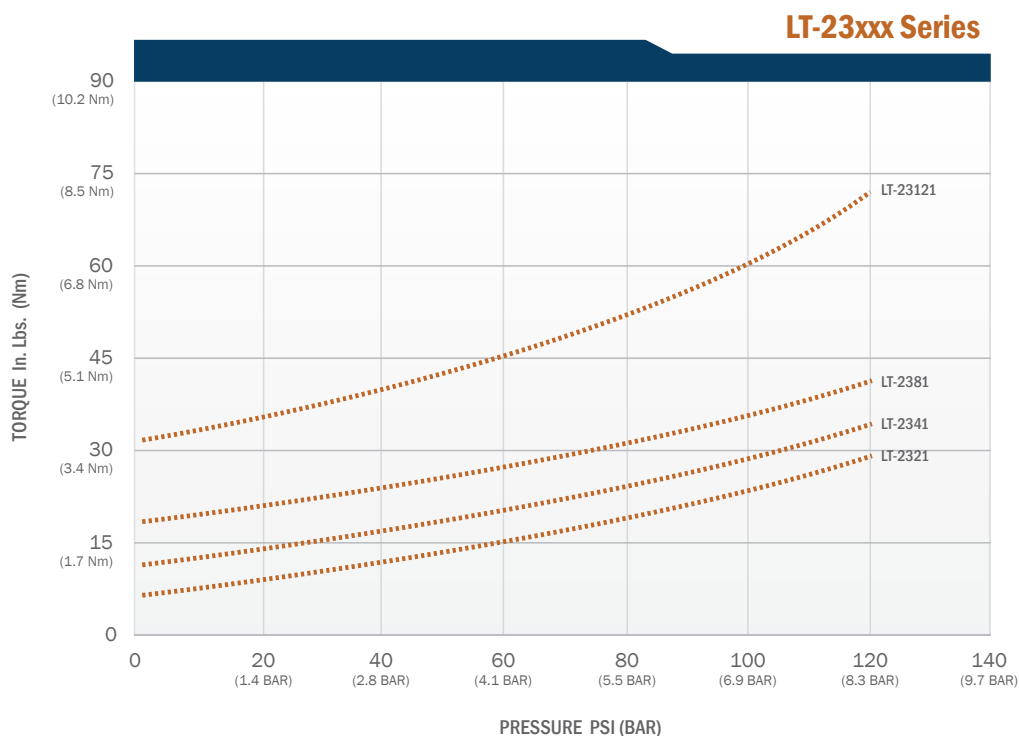


Performance Data: Pressure vs. Torque



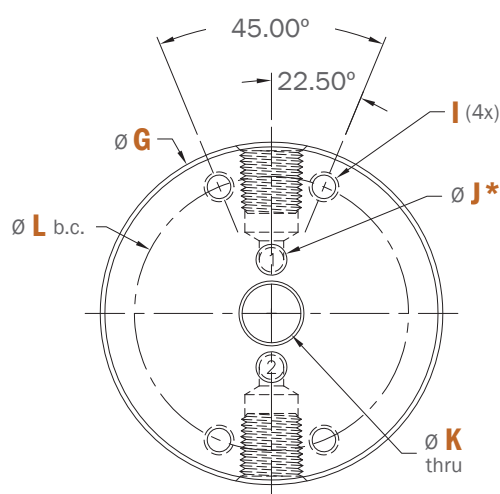
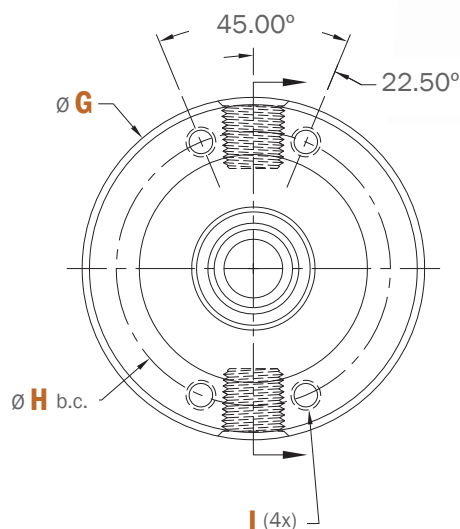
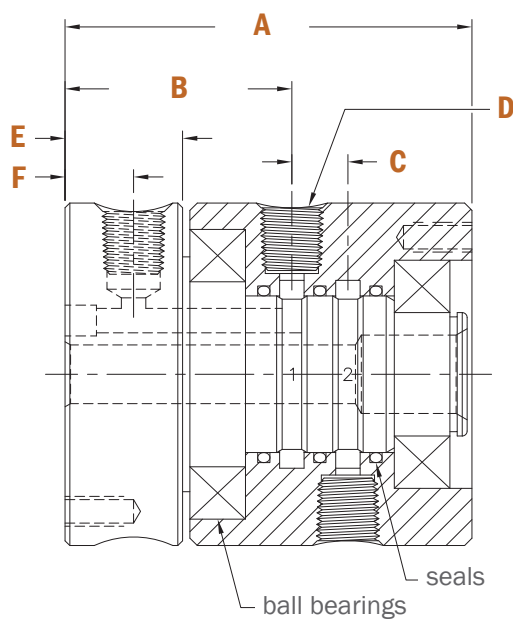
* This data is to be used as a general guideline. Please consult DSTI about your specific application.

Torque data based on all passages (ports) pressurized.



LT SERIES

LT 2 Flow Passage: Dimensions



* Porting size (Permanently plugged)

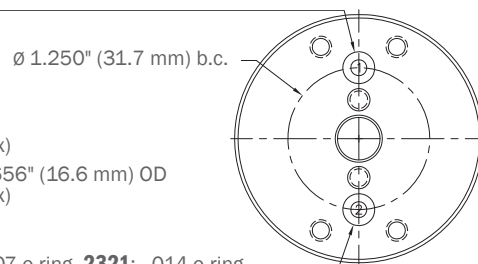
Part #	A	B	C	D	E	F
LT-2121	2.60"	1.45"	0.358"	1/8"- 27 NPT	0.750"	0.438"
LT-2321	4.62"	2.48"	0.830"	3/8"- 18 NPT	1.250"	0.750"
LTM-2121	66.0 mm	36.8 mm	9.0 mm	R _c 1/8"- 28 BSPT	19.0 mm	11.1 mm
LTM-2321	117.3 mm	62.9 mm	21.0 mm	R _c 3/8"- 19 BSPT	31.7 mm	19.0 mm

Part #	G	H	I	J	K	L
LT-2121	2.187"	1.750"	#10-24	0.156"	0.375"	1.750"
LT-2321	3.437"	3.000"	1/4"- 20	0.375"	0.375"	3.000"
LTM-2121	55.5 mm	44.4 mm	M5 x 0.8	3.9 mm	9.5 mm	44.4 mm
LTM-2321	87.3 mm	76.2 mm	M6 x 1.0	9.5 mm	9.5 mm	76.2 mm

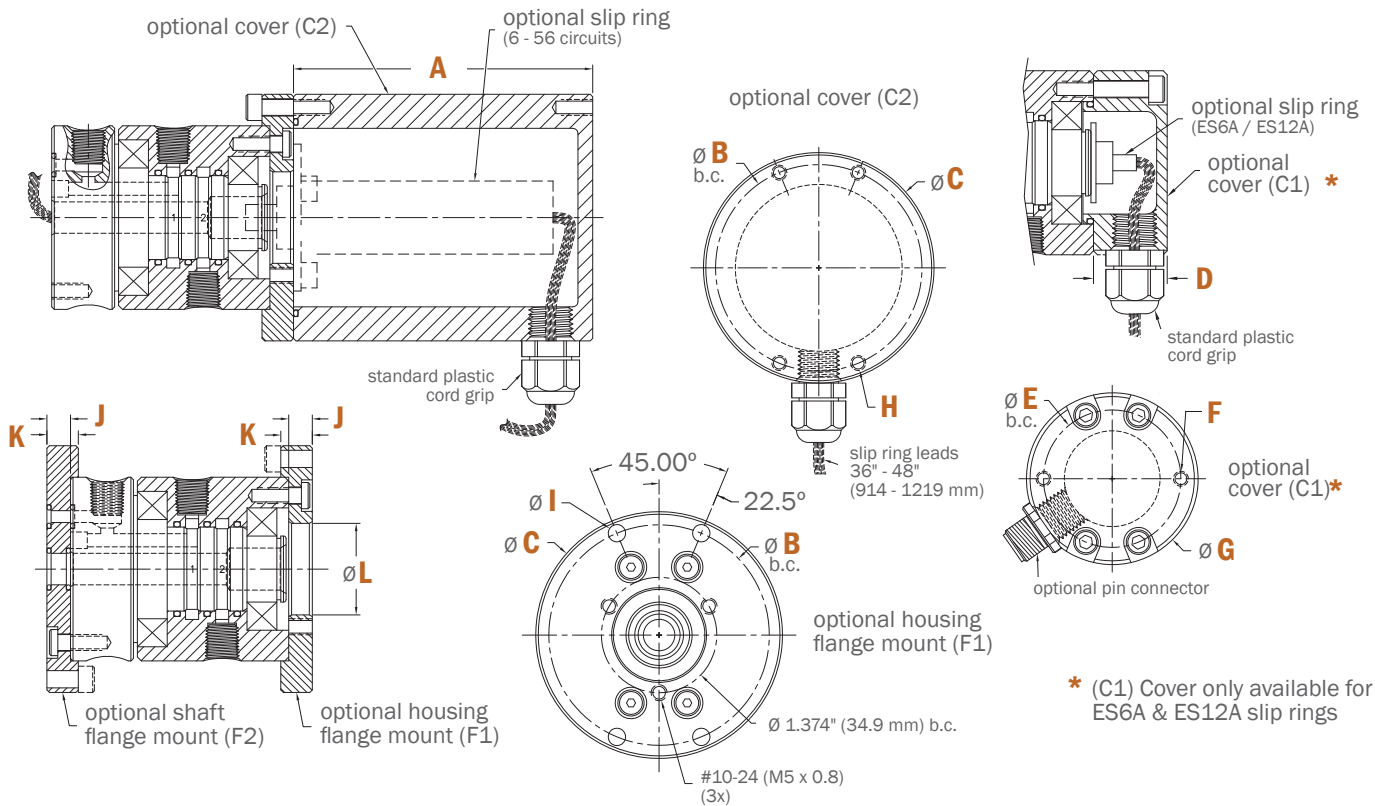
OPTIONAL O-RING FACE CONNECTION

- 2121:** c-bore Ø 0.281" (7.1 mm)
gland 0.050" (1.2 mm) dp. (2x)
- 2321:** Ø 0.500" (12.7 mm) ID x Ø 0.656" (16.6 mm) OD
gland 0.050" (1.2 mm) dp. (2x)

2121: -007 o-ring, **2321:** -014 o-ring



LT 2 Flow Passage: Optional Equipment



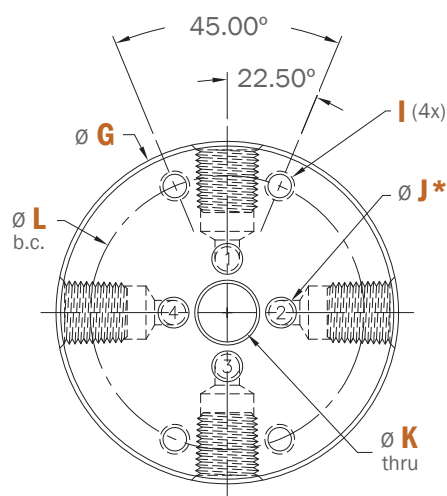
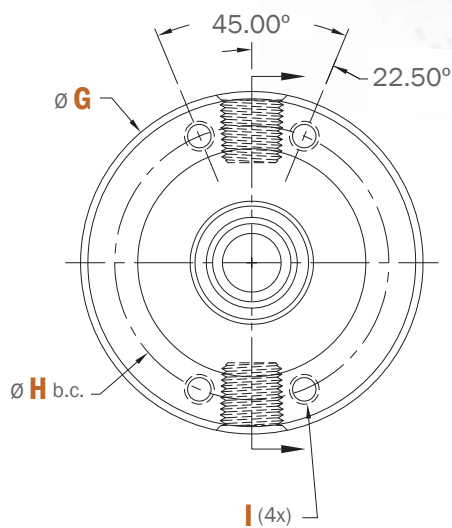
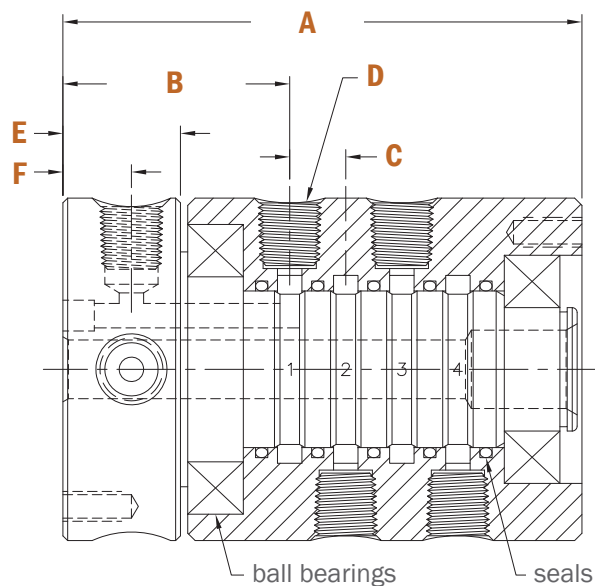
Part #	A	B	C	D	E
LT-2121	3.560"	2.625"	2.937"	0.875"	1.750"
LT-2321	3.560"	4.000"	4.437"	1.000"	3.000"
LTM-2121	90.4 mm	66.7 mm	74.6 mm	22.2 mm	44.4 mm
LTM-2321	90.4 mm	101.6 mm	112.7 mm	25.4 mm	76.2 mm

Part #	F	G	H	I	J	K
LT-2121	#10-24	2.187"	#10-24	0.206"	0.280"	0.375"
LT-2321	1/4"- 20	3.437"	1/4"- 20	0.265"	0.410"	0.500"
LTM-2121	M5 x 0.8	55.5 mm	M5 x 0.8	5.5 mm	7.1 mm	9.5 mm
LTM-2321	M6 x 1.0	87.3 mm	M6 x 1.0	6.6 mm	10.3 mm	12.7 mm

Part #	L	M	N
LT-2121	1.090"	-012	1.250"
LT-2321	1.100"	-012	1.250"
LTM-2121	27.6 mm	-012	31.7 mm
LTM-2321	27.9 mm	-012	31.7 mm

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LT 4 Flow Passage: Dimensions



* Porting size (Permanently plugged)

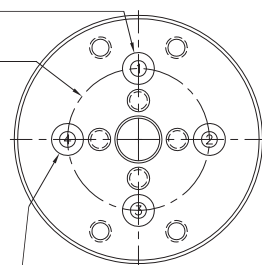
Part #	A	B	C	D	E	F
LT-2141	3.31"	1.45"	0.358"	1/8"- 27 NPT	0.750"	0.438"
LT-2341	6.28"	2.48"	0.830"	3/8"- 18 NPT	1.250"	0.750"
LTM-2141	84.0 mm	36.8 mm	9.0 mm	R _c 1/8"- 28 BSPT	19.0 mm	11.1 mm
LTM-2341	159.5 mm	62.9 mm	21.0 mm	R _c 3/8"- 19 BSPT	31.7 mm	19.0 mm

Part #	G	H	I	J	K	L
LT-2141	2.187"	1.750"	#10-24	0.156"	0.375"	1.750"
LT-2341	3.437"	3.000"	1/4"- 20	0.375"	0.375"	3.000"
LTM-2141	55.5 mm	44.4 mm	M5 x 0.8	3.9 mm	9.5 mm	44.4 mm
LTM-2341	87.3 mm	76.2 mm	M6 x 1.0	9.5 mm	9.5 mm	76.2 mm

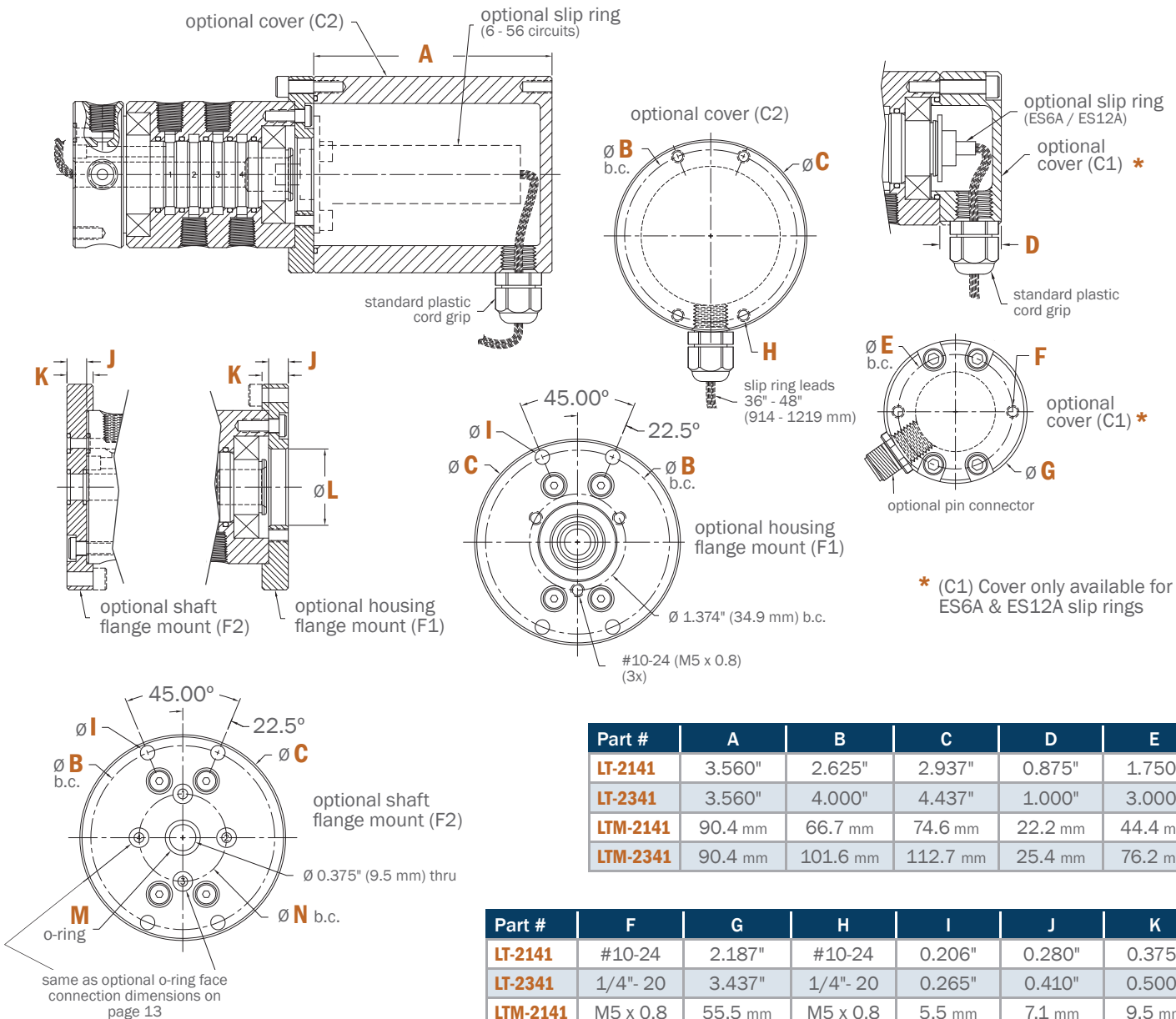
OPTIONAL O-RING FACE CONNECTION

- 2141:** c-bore Ø 0.281" (7.1 mm)
gland 0.050" (1.2 mm) dp. (4x)
- 2341:** Ø 0.500" (12.7 mm) ID x Ø 0.656" (16.6 mm) OD
gland 0.050" (1.2 mm) dp. (4x)

2141: -007 o-ring, **2341:** -014 o-ring



LT 4 Flow Passage: Optional Equipment



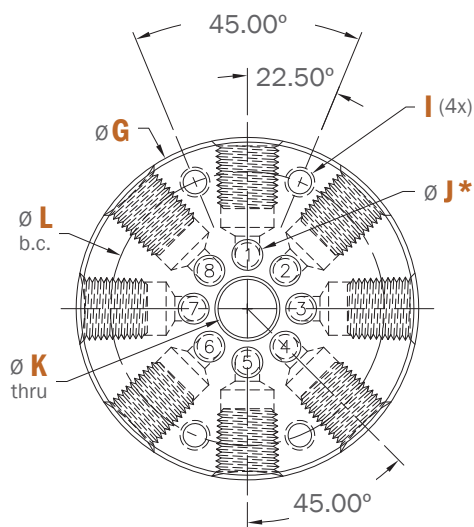
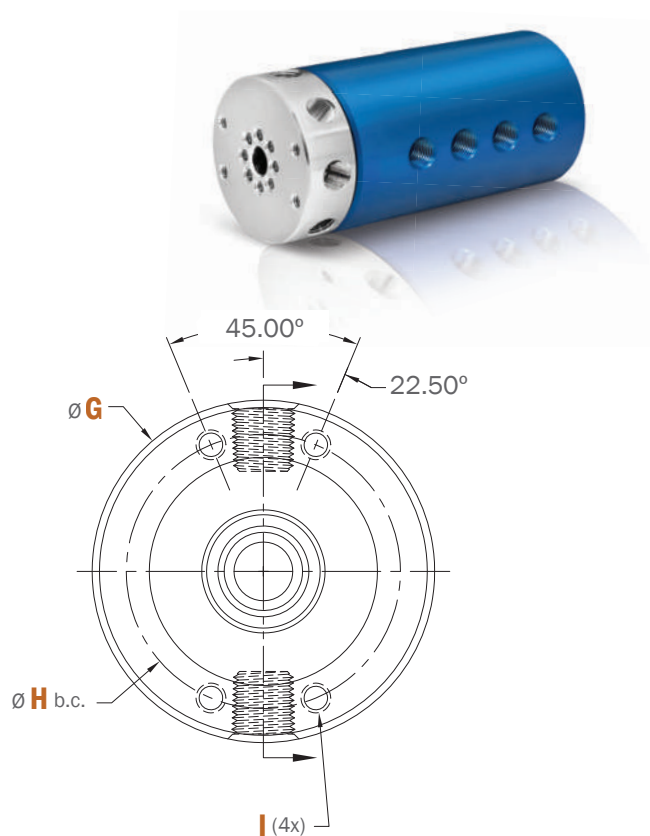
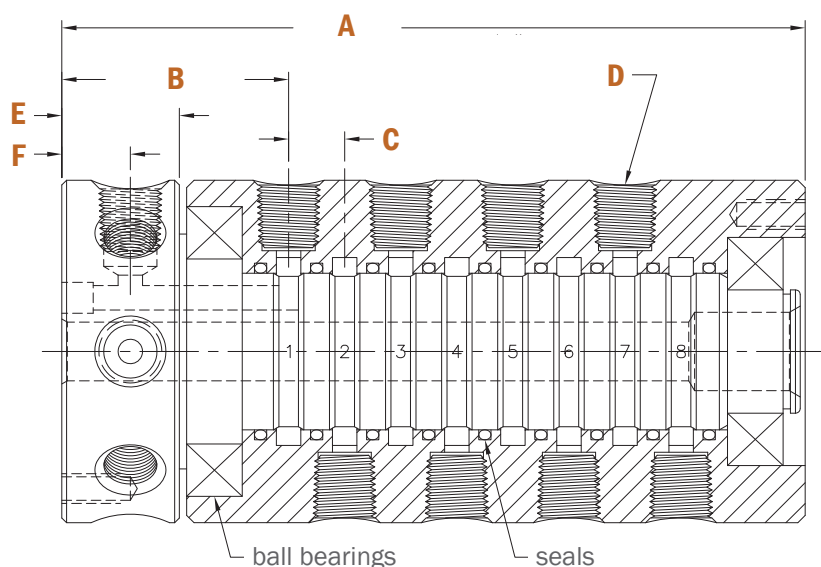
Part #	A	B	C	D	E
LT-2141	3.560"	2.625"	2.937"	0.875"	1.750"
LT-2341	3.560"	4.000"	4.437"	1.000"	3.000"
LTM-2141	90.4 mm	66.7 mm	74.6 mm	22.2 mm	44.4 mm
LTM-2341	90.4 mm	101.6 mm	112.7 mm	25.4 mm	76.2 mm

Part #	F	G	H	I	J	K
LT-2141	#10-24	2.187"	#10-24	0.206"	0.280"	0.375"
LT-2341	1/4\" - 20	3.437"	1/4\" - 20	0.265"	0.410"	0.500"
LTM-2141	M5 x 0.8	55.5 mm	M5 x 0.8	5.5 mm	7.1 mm	9.5 mm
LTM-2341	M6 x 1.0	87.3 mm	M6 x 1.0	6.6 mm	10.3 mm	12.7 mm

Part #	L	M	N
LT-2141	1.090"	-012	1.250"
LT-2341	1.100"	-012	1.250"
LTM-2141	27.6 mm	-012	31.7 mm
LTM-2341	27.9 mm	-012	31.7 mm

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LT 8 Flow Passage: Dimensions

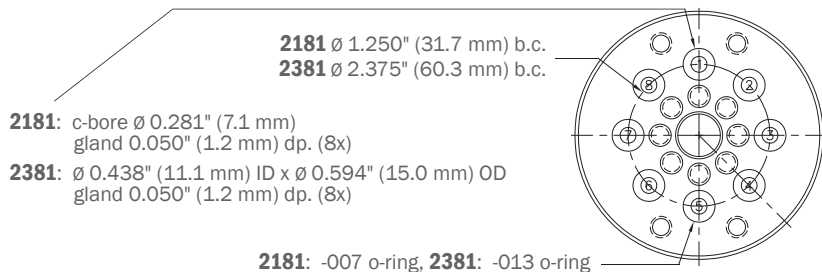


* Porting size (Permanently plugged)

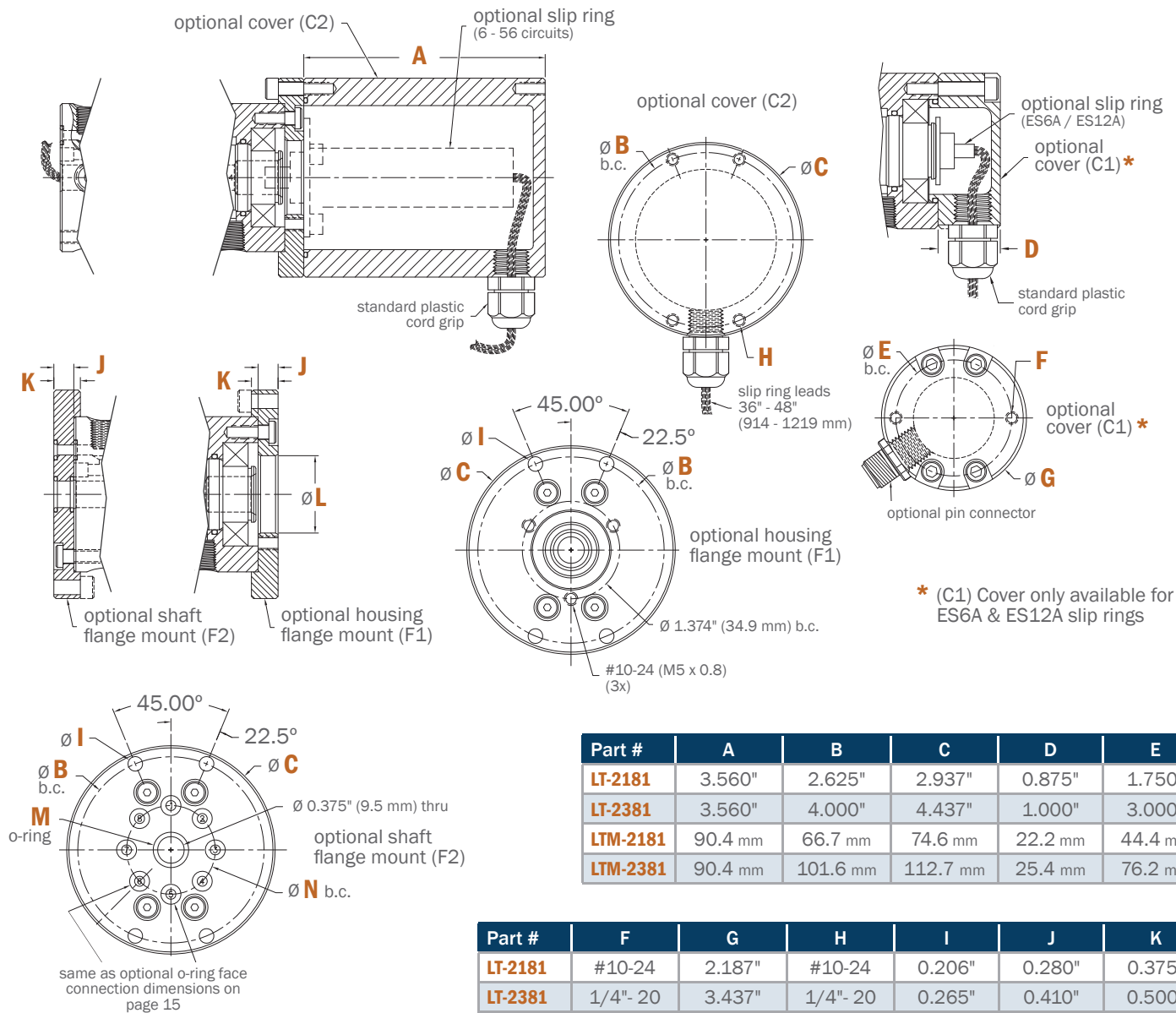
Part #	A	B	C	D	E	F
LT-2181	4.75"	1.45"	0.358"	1/8"- 27 NPT	0.750"	0.438"
LT-2381	9.61"	2.48"	0.830"	3/8"- 18 NPT	1.250"	0.750"
LTM-2181	120.6 mm	36.8 mm	9.0 mm	R _c 1/8"- 28 BSPT	19.0 mm	11.1 mm
LTM-2381	244.0 mm	62.9 mm	21.0 mm	R _c 3/8"- 19 BSPT	31.7 mm	19.0 mm

Part #	G	H	I	J	K	L
LT-2181	2.187"	1.750"	#10-24	0.156"	0.375"	1.750"
LT-2381	3.437"	3.000"	1/4"- 20	0.375"	0.375"	3.000"
LTM-2181	55.5 mm	44.4 mm	M5 x 0.8	3.9 mm	9.5 mm	44.4 mm
LTM-2381	87.3 mm	76.2 mm	M6 x 1.0	9.5 mm	9.5 mm	76.2 mm

OPTIONAL O-RING FACE CONNECTION



LT 8 Flow Passage: Optional Equipment



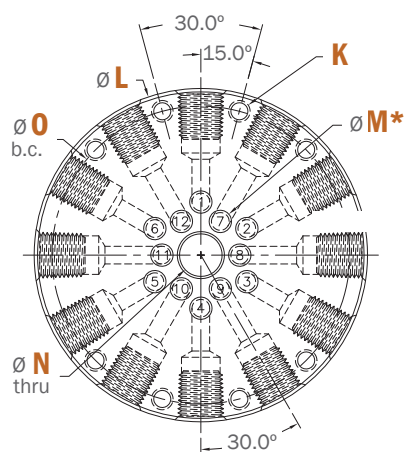
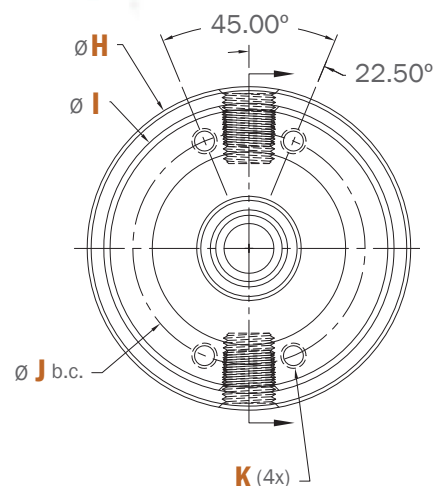
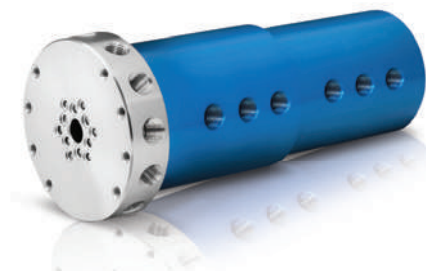
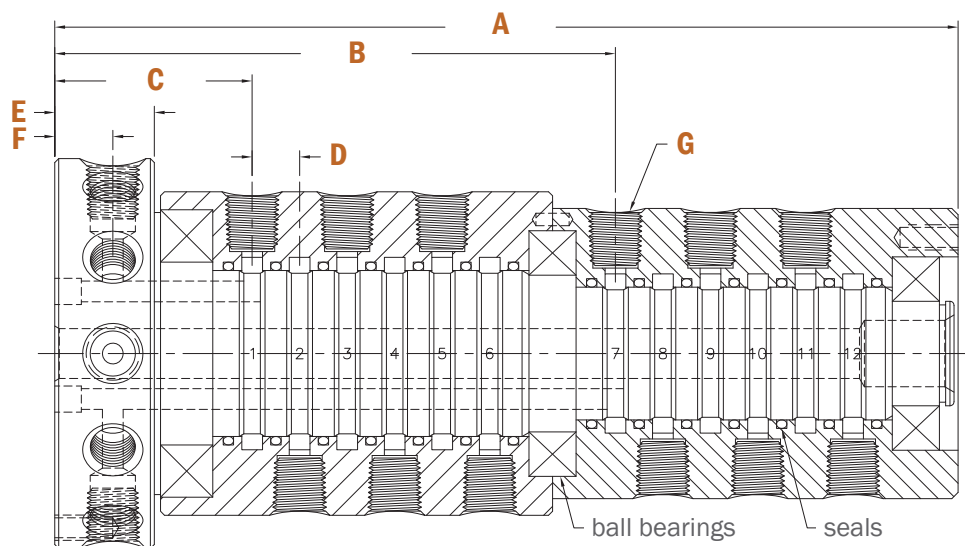
Part #	A	B	C	D	E
LT-2181	3.560"	2.625"	2.937"	0.875"	1.750"
LT-2381	3.560"	4.000"	4.437"	1.000"	3.000"
LTM-2181	90.4 mm	66.7 mm	74.6 mm	22.2 mm	44.4 mm
LTM-2381	90.4 mm	101.6 mm	112.7 mm	25.4 mm	76.2 mm

Part #	F	G	H	I	J	K
LT-2181	#10-24	2.187"	#10-24	0.206"	0.280"	0.375"
LT-2381	1/4"- 20	3.437"	1/4"- 20	0.265"	0.410"	0.500"
LTM-2181	M5 x 0.8	55.5 mm	M5 x 0.8	5.5 mm	7.1 mm	9.5 mm
LTM-2381	M6 x 1.0	87.3 mm	M6 x 1.0	6.6 mm	10.3 mm	12.7 mm

Part #	L	M	N
LT-2181	1.090"	-012	1.250"
LT-2381	1.100"	-012	1.250"
LTM-2181	27.6 mm	-012	31.7 mm
LTM-2381	27.9 mm	-012	31.7 mm

LT SERIES

LT 12 Flow Passage: Dimensions



* Porting size (Permanently plugged)

Part #	A	B	C	D	E	F
LT-21121	6.81"	4.22"	1.49"	0.358"	0.750"	0.438"
LT-23121	14.07"	8.53"	2.68"	0.830"	1.250"	0.750"
LTM-21121	172.9 mm	107.1 mm	37.8 mm	9.0 mm	19.0 mm	11.1 mm
LTM-23121	357.3 mm	216.6 mm	68.0 mm	21.0 mm	31.7 mm	19.0 mm

Part #	G	H	I	J	K
LT-21121	1/8"- 27 NPT	2.437"	2.187"	1.750"	#10-24
LT-23121	3/8"- 18 NPT	4.438"	3.437"	3.000"	1/4"- 20
LTM-21121	R _c 1/8"- 28 BSPT	61.9 mm	55.5 mm	44.4 mm	M5 x 0.8
LTM-23121	R _c 3/8"- 19 BSPT	112.7 mm	87.3 mm	76.2 mm	M6 x 1.0

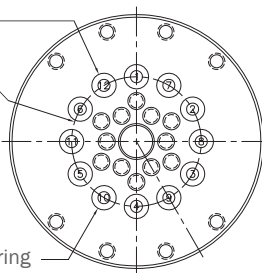
OPTIONAL O-RING FACE CONNECTION

21121 Ø 1.500" (38.1 mm) b.c.
23121 Ø 3.000" (76.2 mm) b.c.

21121: c-bore Ø 0.281" (7.1 mm)
 gland 0.050" (1.2 mm) dp. (12x)

23121: Ø 0.438" (11.1 mm) ID x Ø 0.594" (15.0 mm) OD
 gland 0.050" (1.2 mm) dp. (12x)

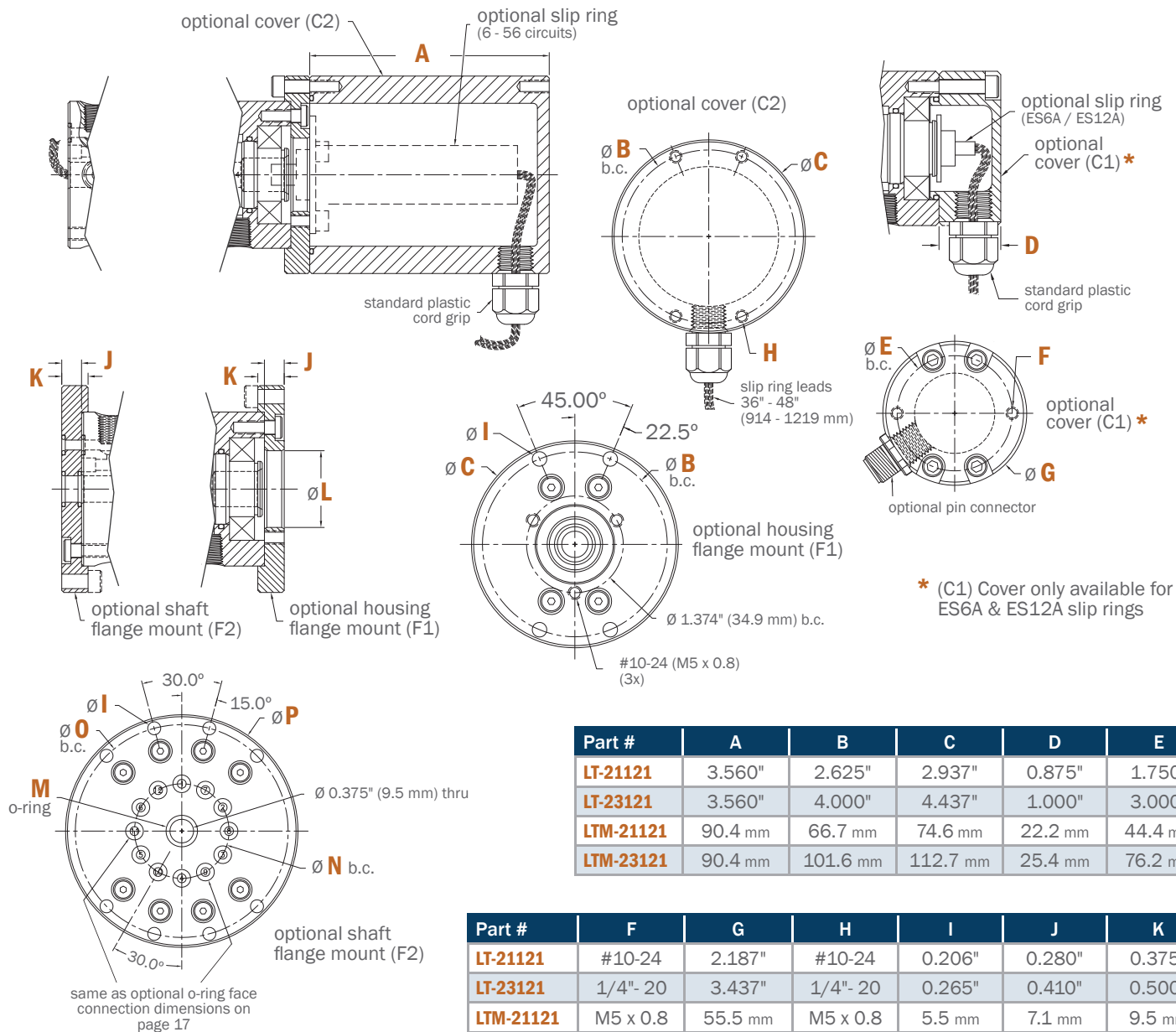
21121: -007 o-ring, **23121:** -013 o-ring



Part #	L	M
LT-21121	2.937" c	0.156"
LT-23121	4.438"	0.375"
LTM-21121	74.6 mm	3.9 mm
LTM-23121	112.7 mm	9.5 mm

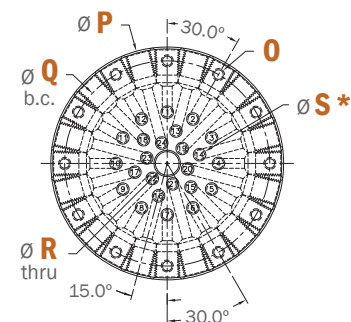
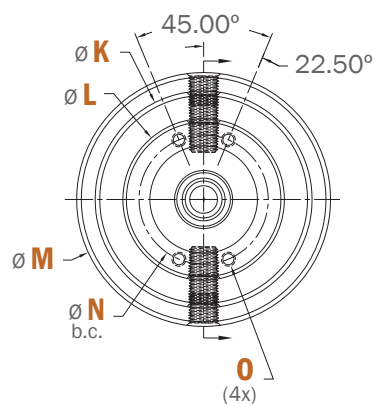
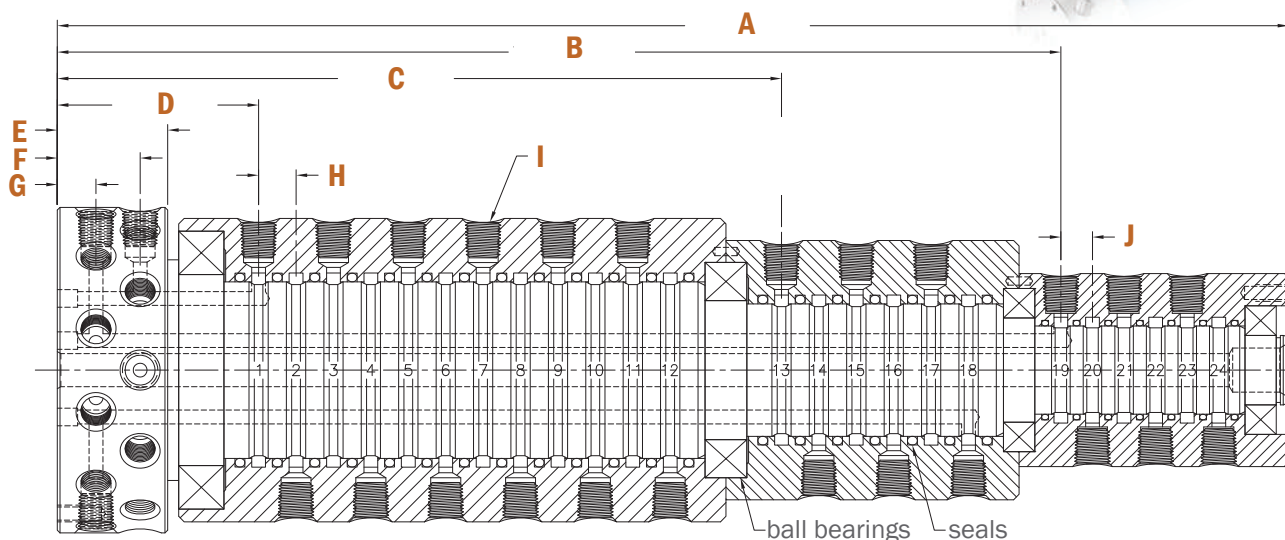
Part #	N	O
LT-21121	0.375"	2.625"
LT-23121	0.440"	4.000"
LTM-21121	9.5 mm	66.6 mm
LTM-23121	11.1 mm	101.6 mm

LT 12 Flow Passage: Optional Equipment



LT SERIES

LT 24 Flow Passage: Dimensions



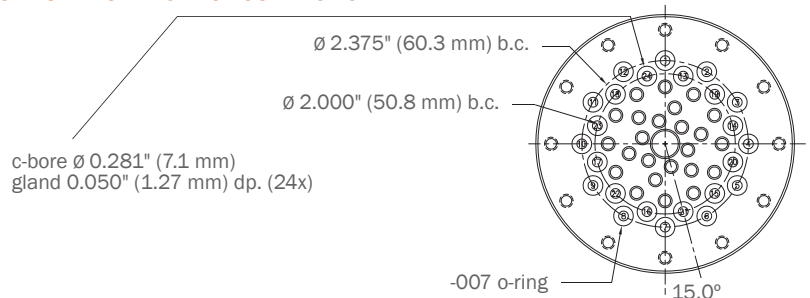
* Porting size (Permanently plugged)

Part #	A	B	C	D	E	F
LT-21241	13.95"	11.37"	8.21"	2.28"	1.250"	0.938"
LTM-21241	354.3 mm	288.8 mm	208.5 mm	57.9 mm	31.7 mm	23.8 mm

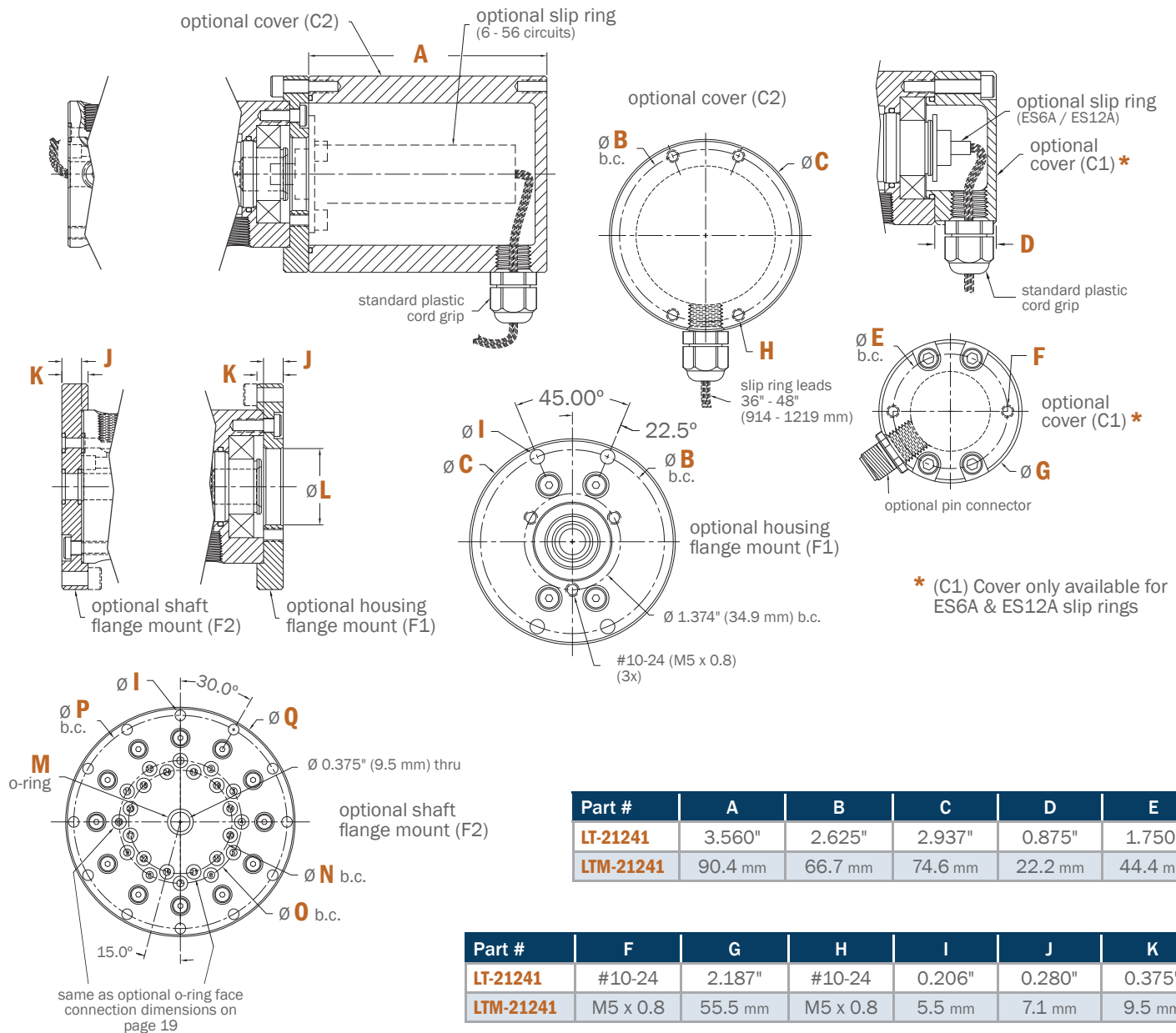
Part #	G	H	I	J	K	L
LT-21241	0.438"v	0.424"	1/8"- 27 NPT	0.358"	2.938"	2.187"
LTM-21241	11.1 mm	10.7 mm	R _c 1/8"- 28 BSPT	9.0 mm	74.6 mm	55.5 mm

Part #	M	N	O	P	Q	R	S
LT-21241	3.438"	1.750"	#10-24	3.688"	3.250"	0.375"	0.156"
LTM-21241	87.3 mm	44.4 mm	M5 x 0.8	93.6 mm	88.5 mm	9.5 mm	3.9 mm

OPTIONAL O-RING FACE CONNECTION



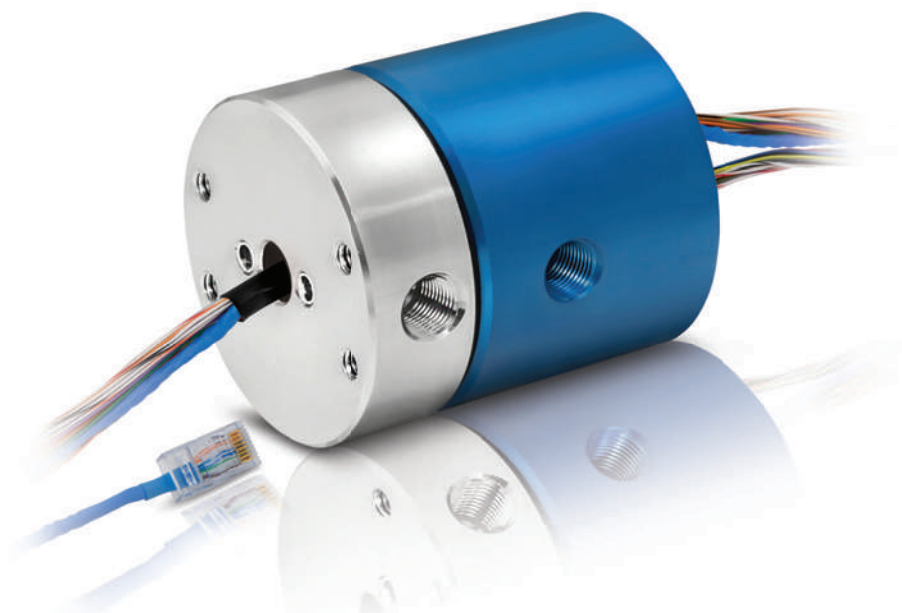
LT 24 Flow Passage: Optional Equipment



LT SERIES

Electrical Slip Ring Options

- + Ethernet Slip Rings Available
- + 100 BaseT & 1000 BaseT Ethernet Connections
- + High Quality Gold on Gold Contacts
- + Low Electrical Noise
- + Analog/Digital Transfer
- + Cord Sets & Pin Connectors Options
- + Compatible With a Range of Data Bus Protocols



AVAILABLE SLIP RINGS¹

PART #	# OF CIRCUITS	MAX AMPS/ CIRCUIT	MAX VOLTS/ CIRCUIT
ES6A	6	2	120
ES6	6	2	210
ES12A	12	2	120
ES12	12	2	210
ES18	18	2	210
ES24	24	2	210
ES36	36	2	210
ES56	56	2	210
ESE64 ²	10	(6x) 2A	240
ESE264 ²	12	(2x) 5A, (6x) 2A	240
ESE224 ²	8	(2x) 10A, (2x) 2A	240
ESE2124 ²	18	(2x) 5A, (12x) 2A	240
ESE284 ²	14	(2x) 10A, (8x) 2A	240
ESE438 ³	51	(43x) 2A	240
ESE4358 ³	47	(4x) 5A, (35x) 2A	240
ESE2358 ³	45	(2x) 10A, (35x) 2A	240
ESE8278 ³	43	(8x) 5A, (27x) 2A	240
ESE24278 ³	41	(2x) 10A, (4x) 5A, (27x) 2A	240

PART #	# OF CIRCUITS	MAX AMPS/ CIRCUIT	MAX VOLTS/ CIRCUIT
ESM36	9	(3x) 10A, (6x) 2A	210
ESM312	15	(3x) 5A, (12x) 2A	210
ESM420	24	(4x) 10A, (20x) 2A	210
ESM428	32	(4x) 5A, (28x) 2A	210
ESM440	44	(4x) 10A, (40x) 2A	210
ESM448	52	(4x) 5A, (48x) 2A	210

¹ All slip ring lead wire lengths are 48" (1219mm)

² 100 BaseT Ethernet connections

³ 1000 BaseT Ethernet connections

Installation & Mounting

THESE INSTRUCTIONS ARE INTENDED TO BE USED AS A GENERAL GUIDE, PLEASE CONSULT THE FACTORY TO DISCUSS ANY SPECIFIC QUESTIONS RELATED TO YOUR INSTALLATION.

PREPARATION:

Remove the rotary union from the shipping container. Inspect the entire assembly, including all passage connections to make sure that they are clean and no visual damage occurred during transport. If the assembly is a rotary union/electrical slip ring, the electrical slip ring may be packaged separately to protect during shipping. If this is the case, mount the electrical slip ring to the rotating union assembly using the supplied hardware.

RECOMMENDED ROTARY UNION INSTALLATION PRACTICE:

DSTI does not recommend mounting the rotary union with both the shaft & housing components solidly bolted into place. One of the two components should be mounted in a manner that allows for some movement in the event of misalignment or run-out during rotation. Using only the supply lines or hoses to fix the stationary component in place is also not recommended. An anti-rotation arm that attaches to the stationary part of the rotary union assembly and rests against part of the equipment framework is recommended (see figure 1.1).

MOUNTING A ROTARY UNION W/ AN ELECTRICAL SLIP RING:

Make sure the electrical wiring is fixed in place and protected from contact with other components or equipment. Care should be taken to make sure the slip ring area remains clean and dry during use.

SHAFT MOUNTING: O-RING MANIFOLD TYPE:

Make sure the rotary union shaft face & equipment mounting surface is clean and free from dents or chips to insure proper installation. Equipment pilot bore needs to be concentric to the center line of the rotary union shaft to assure proper function. Install face mount O-rings into groove or counter bore in rotating union shaft face. General assembly grease can be used as needed to hold O-rings into place during assembly. Align rotary union shaft with equipment pilot bore and flow passages, then insert into place. Bolt assembly into place using tapped holes or mounting flange on rotary union face.

SHAFT MOUNTING, THREADED CONNECTIONS:

When mounting the shaft using threaded connections, make sure all fittings are properly tightened & pipe thread sealant is used as required. Equipment mounting surface needs to be concentric to the center line of the rotary union shaft to assure proper function. After all fittings are in place, bolt assembly into place using tapped holes or mounting flange on rotating union shaft.

INITIAL START-UP:

After rotary union is installed, a dry run is recommended to assure proper mounting of the rotating union assembly. Begin rotation of the equipment, and verify that while rotating at the maximum operating speed there is no visible movement of the rotary union assembly due to misalignment.



WARRANTY:

DSTI Warrants, for a period of 2 years from the date of original delivery, its products to be free from defects in material and workmanship. DSTI's obligation under this warranty is limited to repair or replacement at it's factory of any part or parts of said products which shall be returned to DSTI with transportation charges prepaid and which DSTI's examination shall disclose to it's satisfaction to have been defective. Under no circumstances shall DSTI be held liable for loss, damage, cost of repair or consequential damages of any kind in connection with the sale, use or repair of any product purchased from DSTI. Warranty is subject to change.

LT SERIES

Customer Interface

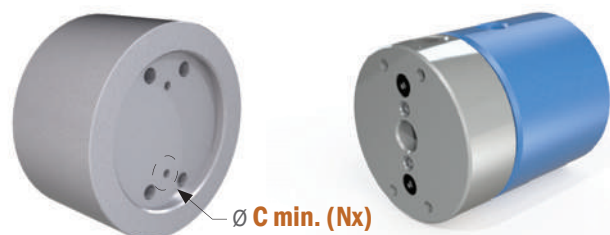
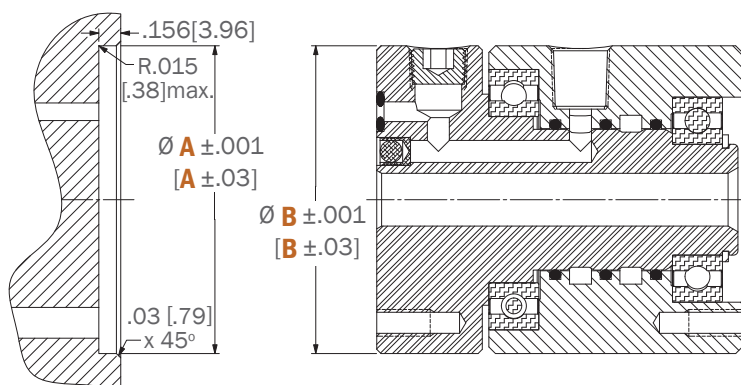
(2 - 24 passage models)

Customer
Interface Example

LT Union

Customer
Interface Example

LT Union



PART #	A	B	C (Nx)
LT(M)-2121	2.190" [55.63mm]	2.187" [55.55mm]	0.281" [7.14mm] (2x)
LT(M)-2141	2.190" [55.63mm]	2.187" [55.55mm]	0.281" [7.14mm] (4x)
LT(M)-2181	2.190" [55.63mm]	2.187" [55.55mm]	0.281" [7.14mm] (8x)
LT(M)-2321	3.440" [87.38mm]	3.437" [87.30mm]	0.656" [16.66mm] (2x)
LT(M)-2341	3.440" [87.38mm]	3.437" [87.30mm]	0.656" [16.66mm] (4x)
LT(M)-2381	3.440" [87.38mm]	3.437" [87.30mm]	0.594" [15.09mm] (8x)
LT(M)-21121	2.940" [74.68mm]	2.937" [74.60mm]	0.281" [7.14mm] (12x)
LT(M)-21241	3.691" [93.75mm]	3.688" [93.68mm]	0.281" [7.14mm] (24x)
LT(M)-23121	4.441" [112.8mm]	4.438" [112.73mm]	0.594" [15.09mm] (12x)

Notes

Proven Expertise. Trusted Solutions.

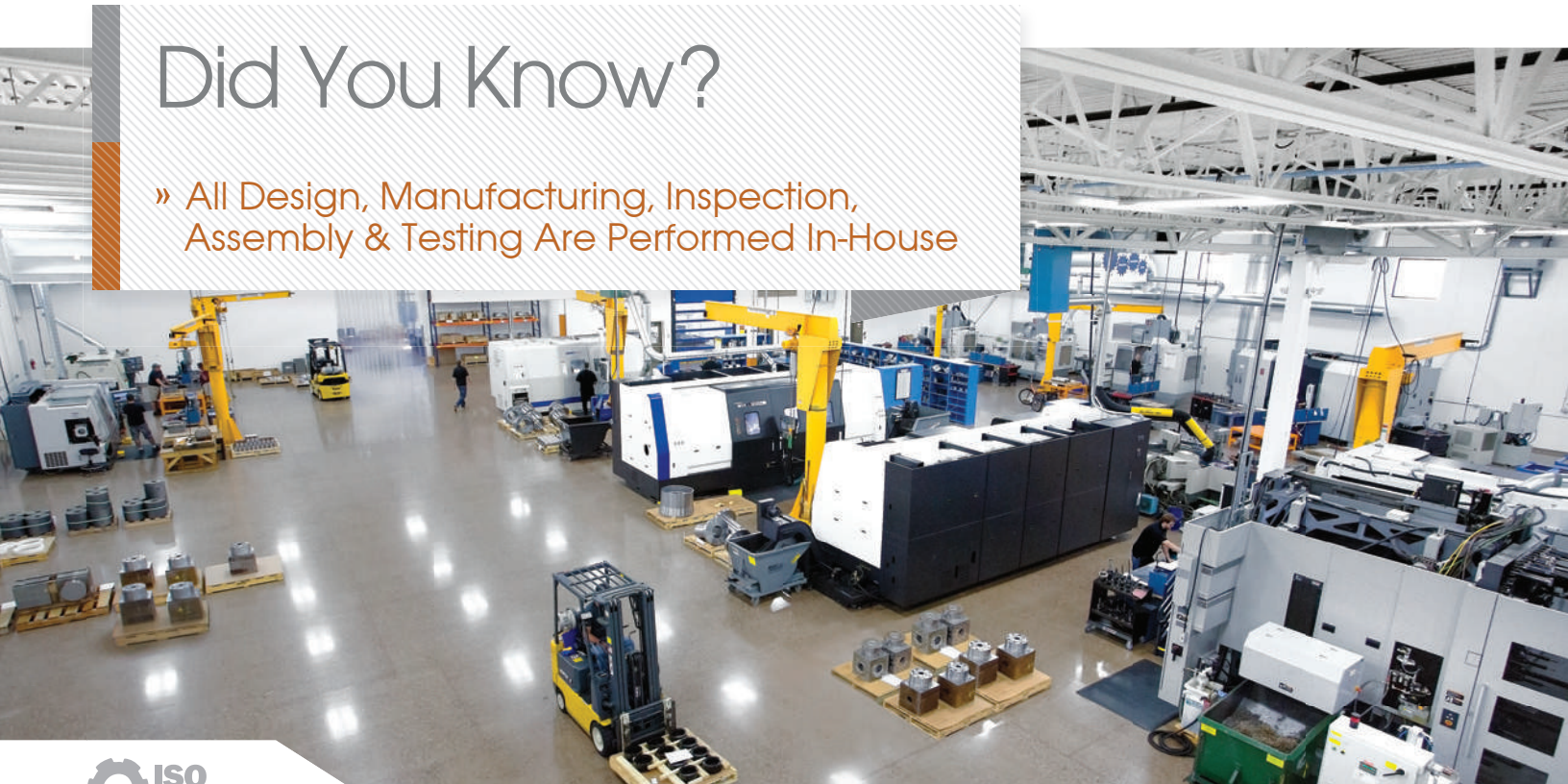
Adhering to stringent quality assurance procedures and verification processes, our team designs and manufactures **purpose-built rotary union and electrical slip ring products** tailored to meet application-specific performance requirements.

DSTI has partnered with **GE, NASA, 3M, Halliburton,** the **U.S. Army** and numerous other organizations and fortune 500 companies – with hundreds of unique and specialized designs successfully operating in a diverse range of critical environments and applications.



Did You Know?

» All Design, Manufacturing, Inspection, Assembly & Testing Are Performed In-House

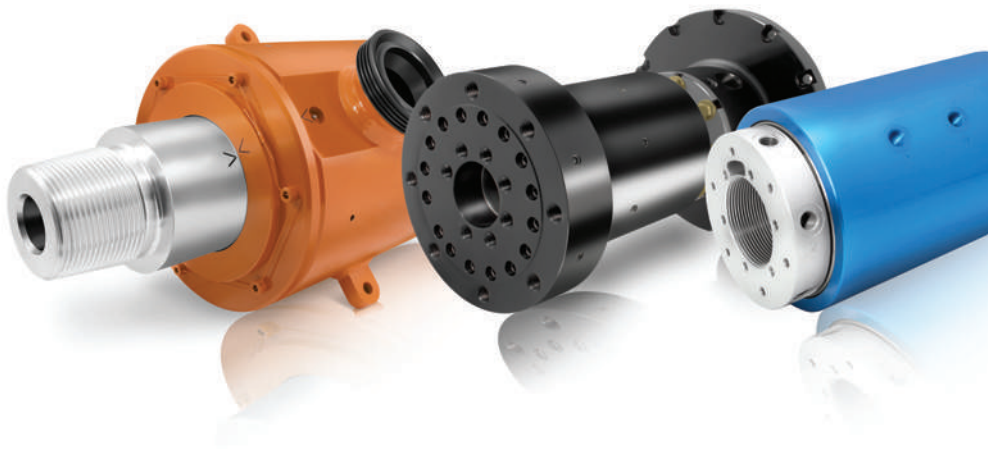


Engineered to your Needs

At DSTI, our product solutions are directly influenced by the industries we serve. If an existing product isn't a perfect fit for our customers' applications, we provide specialized design and manufacturing services to meet the needs of their specifications.

To see examples of our specialized solutions, please visit:

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