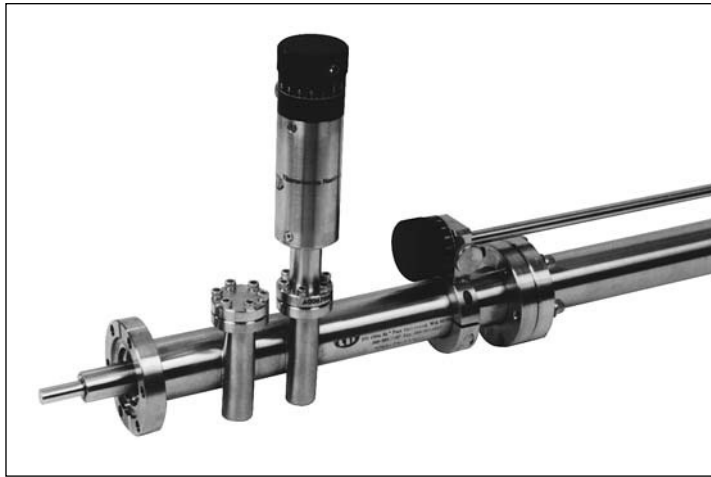


Linear-Rotary Feedthroughs — Rack & Pinion



RPLR-.75/RRO (shown with optional /RRO remote rotary operation)

Rack & Pinion Linear-Rotary Feedthrough

RPLR Series

- 3/8" O.D. rotary probe
- 3/4" O.D. linear support shaft
- 2.75" O.D. mounting flange
- Up to 50" linear travel
- Rack and pinion positive drive (rotary bellows sealed feedthrough)
- Adjustable position stop and lock
- Maximum bakeout temperature: 200°C

Options

/MC Mechanical Counter

- 40 counts per feedthrough rotation (approximately 0.034" linear travel per count on RPLR)
- Removable for bakeout
- Retrofit kit allows mounting without breaking vacuum

Price, per axis add € 352

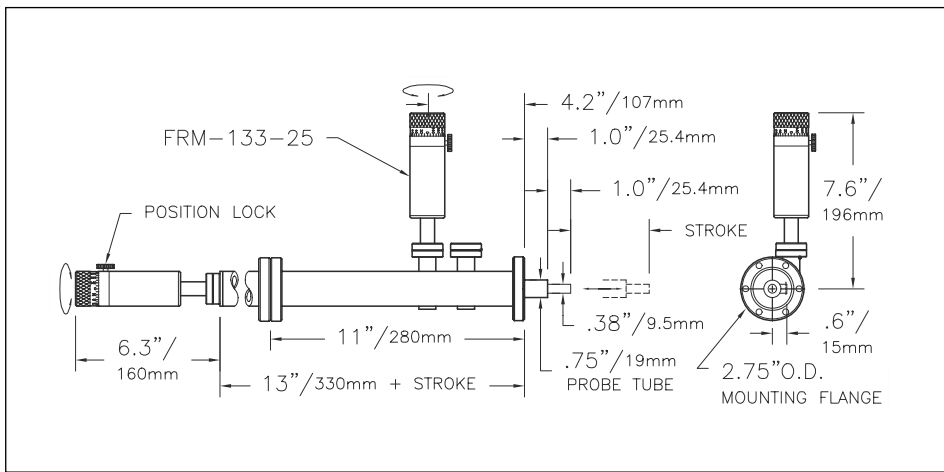
/MS Stepping or /MY Synchronous Motorized Rotary Feedthrough

- With integral motor drive
- /MS stepping or /MY synchronous motor drive
- 50 oz-in holding torque (higher torque motors available)
- Low inertia design
- Manual knob
- Motor controller sold separately

Price See table

NOTE: The /MS or /MY motor option is suitable for the rotary actuation on an RPLR and the linear actuation when the operation is horizontal. When the linear travel is other than horizontal, the /MS/W option should be used.

We strongly recommend the use of limit switches on this or any other motor drive being used to actuate the linear drive on the RPLR. The limit switch actuator assembly (or one similar) should be used to protect the RPLR from being over-driven. See the RLS rotary limit switch option on page 2-XX.



RPLR-.75

Rack & Pinion Linear-Rotary Feedthroughs — RPLR Series

Flange O.D.	Probe Diameter	Stroke	Model No.	Base Price	Motorization Options*				
					/MS ¹	/MY ¹	/SCC ^{1,2}	/MS/W	/MY/W
2.75"	0.38"	10"	RPLR-.75-10	€5.390	€523	€523	€996	€1.265	€1.265
		20"	RPLR-.75-20	€5.830	€523	€523	€996	€1.265	€1.265
		30"	RPLR-.75-30	€6.270	€523	€523	€996	€1.265	€1.265
		40"	RPLR-.75-40	€6.710	€523	€523	€996	€1.265	€1.265
		50"	RPLR-.75-50	€7.150	€523	€523	€996	€1.265	€1.265
Additional stroke, per inch					add €44				

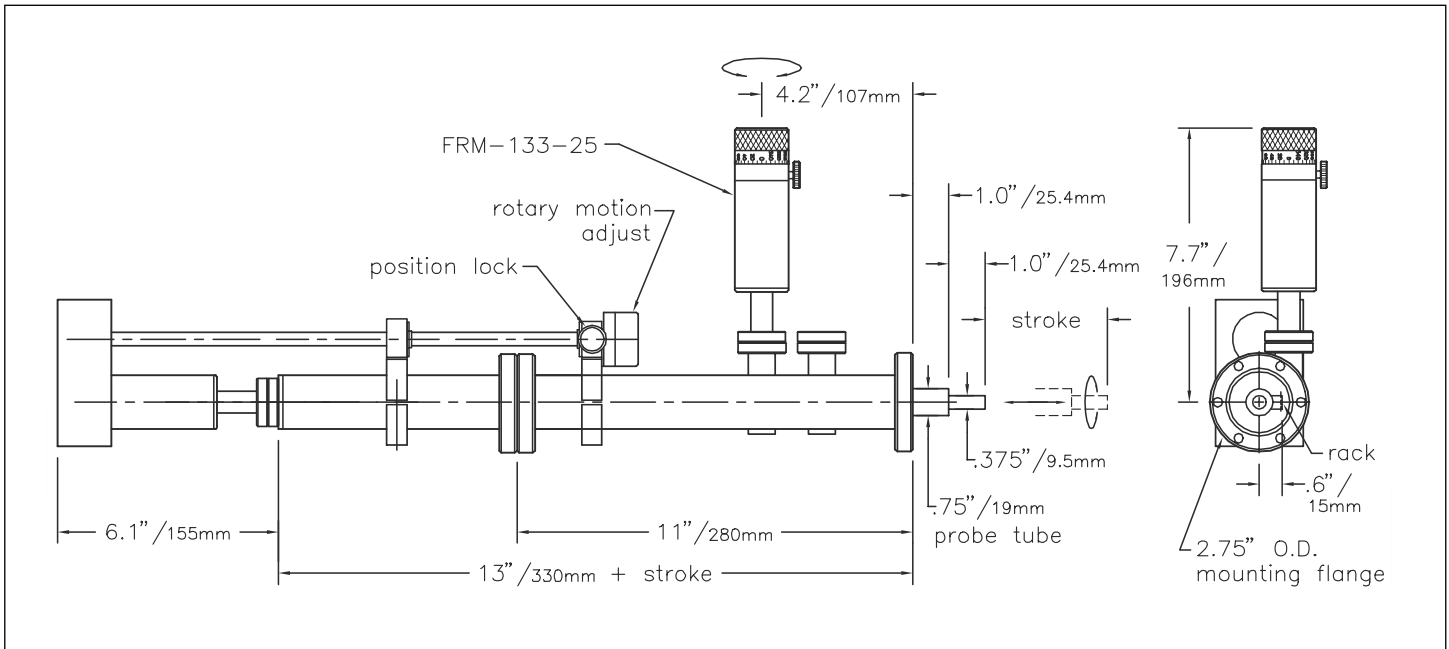
Note: Custom strokes between those listed are available.

* Add motorization option price to base price.

¹ Price, per axis

² Price includes controller. Other options do not include controller.

Linear-Rotary Feedthroughs — Rack & Pinion



RPLR-75/RRO (shown with /RRO remote rotary option)

Options (cont.)

/MS/W Stepping or /MY/W

Synchronous Motorization

- Anti-backlash worm gear drive
- Self-locking
- /MS stepping or /MY synchronous motor drive
 - Supplied with motor
 - Without controller
- Capable of driving up to 16"/min minimum at 1,000 pps
- Motor controller sold separately
- May be field-mounted without breaking vacuum, or returned to the factory for installation

Price See table on page 3-14

NOTE: This motor drive is self-locking. This is necessary to protect the probe and associated equipment from spinning down if the power is removed from the motor. However, because of the self-locking design, the drive can generate significant torque at the FRM, and thus do damage if overdriven.

/RLS Rotary Limit Switch

Actuator Assembly

On request

SMC Stepping or YMC Synchronous

Motor Controller

On request

/MC Mechanical Counter —

Motorized Operation

- Mounts to rear of stepping or synchronous drive motors
- Maximum motor speed: 2,500 pps
- 5 digit Veeder Root mechanical counter, metal case
 - 2:1 ratio gear drive
 - Adjustable counter orientation
 - Removes with motor for bakeout
 - Retrofit kit available

Price, per axis Consult Factory

/SCC Speed Control Motor Drive

- Variable speed
- Switchable direction
- 5–95 rpm with 50 oz-in torque
- Options: Higher torque motors
- Different speed ranges
- Includes controller

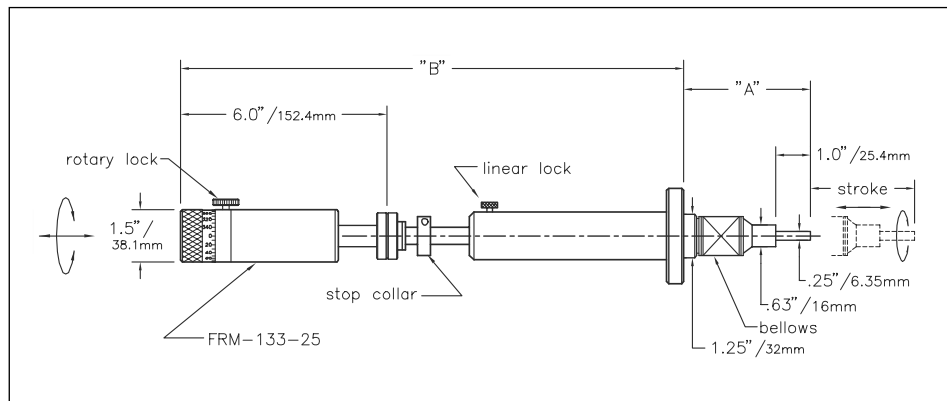
Price See table on page 3-14

/RRO Remote Rotary Operation

- For use on long stroke RPLRs
- Locates a rotary actuator knob near the linear actuator feedthrough
- Position lock

Price add € 534

Linear-Rotary Feedthroughs — Push-Pull



FLRM-275-1

Push-Pull Linear-Rotary Feedthroughs — FLRM-275 Series

Flange Probe		Stroke	A	B	Model No.	Base Price	Motorization Options*		
O.D.	O.D.						/MS	/MY	/SCC**
2.75"	0.25"	2"	3.32"	11.33"	FLRM-275-2	€2.074	€523	€523	€996
		4"	4.11"	13.33"	FLRM-275-4	€2.382	€523	€523	€996
		6"	4.89"	17.58"	FLRM-275-6	€2.690	€523	€523	€996
		10"	6.47"	21.58"	FLRM-275-10	€3.306	€523	€523	€996
		12"	7.25"	23.58"	FLRM-275-12	€3.570	€523	€523	€996

Additional stroke, per inch add €154

* Add motorization option price to base price.

** Price includes controller. Other motorization options do not include motor controller.

Push-Pull

Linear-Rotary Feedthrough

FRLM-275 Series

- 1/4" O.D. probe
- 2.75" O.D. mounting flange
- Up to 36" stroke
- Position lock
- Stainless steel bellows sealed
- Stainless steel linear shaft bearing
- Maximum bakeout temperature: 200°C

Options

ROTARY OPTIONS

/MS Stepper Motor Drive

- 200 steps per revolution
- 50 oz-in holding torque (higher torque motors available)
- Maximum speed 300 rpm
- Low inertia design
- Manual knob
- Motor controller sold separately

Price See table

/MY Synchronous Motor Drive

- Single speed, 72 rpm
- 2 directions
- 50 oz-in holding torque (higher torque motors available)
- Low inertia design
- Manual knob
- Motor controller sold separately

Price See table

SMC Stepping or YMC Synchronous Motor Controller

On request

/SCC Speed Control Motor Drive

- Variable speed
- Switchable direction
- 5–95 rpm with 50 oz-in torque
- Options:
 - Higher torque motors
 - Different speed ranges
- Includes controller

Price See table

Linear-Rotary Feedthroughs — Precision

Precision

Linear-Rotary Feedthrough

FRLC-275 Series

- With coaxial linear-rotary probes
- 3/8" O.D. tube
- 1/8" O.D. probe, micrometer adjust for 1/2" or 1" linear travel
- 9" tube length standard
- 0.1° resolution, 1° graduations
- Position lock
- Maximum bakeout temperature: 200°C



FRLC-275-0.5 & 1

Options

/FA Fine Adjust

- Utilizes a precision Klingler stage for rotary actuation
- One minute Vernier reading

Price add € 523

/CL Custom Length Probe

- Up to 24", flange face-to-tip

Price add € 220

ROTARY OPTIONS

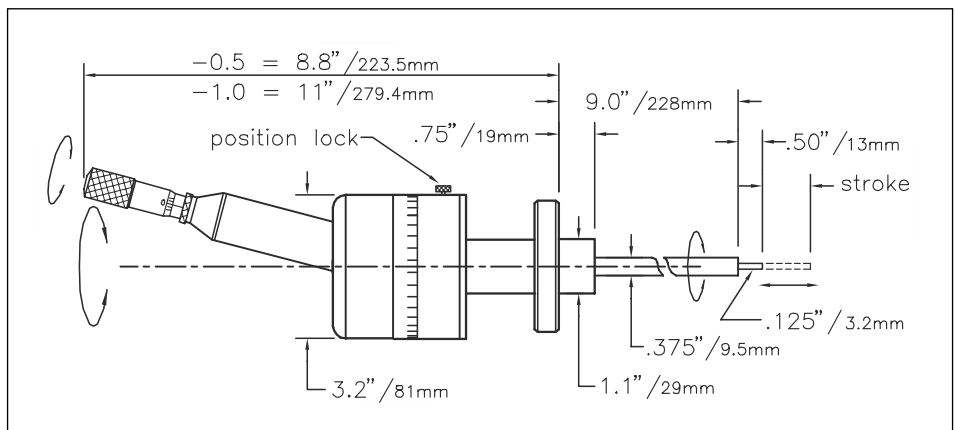
/MS/W Stepping or /MY/W Synchronous Motor Drive with High Precision Worm Drive

- Anti-backlash worm gear drive
- Self-locking
- Manual knob
- Motor controller sold separately

Price See table

SMC Stepping or YMC Synchronous Motor Controller

On request



FRLC-275-0.5 & 1

Precision Linear-Rotary Feedthroughs — FRLC-275 Series

Flange O.D.	Probe Diameter	Linear Travel	Model No.	Base Price	Motorization Options*			
					/MS/W**	/MY/W**	/MS/L**	/MY/L**
2.75"	0.38"	0.5"	FRLC-275-0.5	€1.815	€1.007	€1.007	€1.269	€1.269
2.75"	0.38"	1.0"	FRLC-275-1.0	€2.629	€1.007	€1.007	€1.269	€1.269

* Add motorization option price to base price.

** Price does not include controller.

LINEAR OPTIONS

/MS/L or /MY/L Motor Drive

- For linear actuation of FRLC
- Manual knob
- Requires limit switch knob
- Motor controller sold separately

Price See table

Retrofit Shaft Extensions

EXTS-FRLC-0.5 Shaft Extension

- Precision 3/8" O.D. stainless steel tube
- Includes 1/8" O.D. center push rod extension with return spring
- 1/2" push rod range
- Split clamp attachment to existing shaft
- Shaft extension length 3" to 24", as per customer requirements
- Simple field installation or removal
- Mounts to 3/8" O.D. shaft FRLC-275-0.5 and others

Price € 358

EXTS-FRLC-1 Shaft Extension

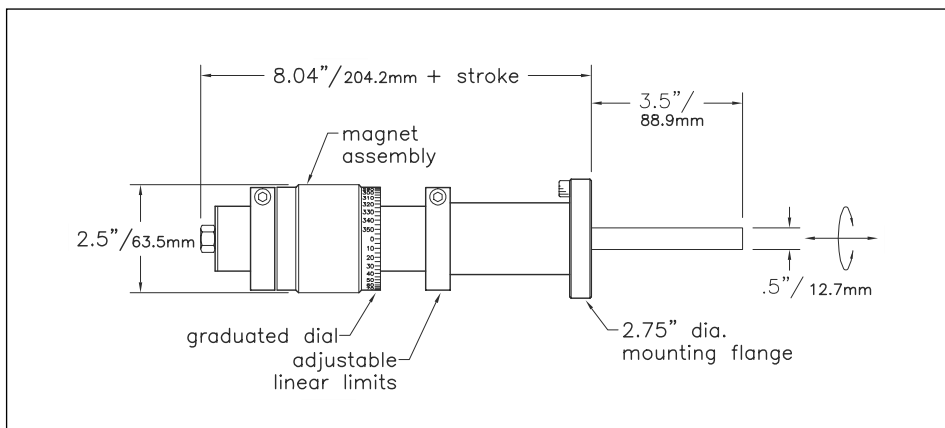
- Precision 3/8" O.D. stainless steel tube
- Includes 1/8" O.D. center push rod extension with return spring
- 1" push rod range
- Split clamp attachment to existing shaft
- Shaft extension length 3" to 24", as per customer requirements
- Simple field installation or removal
- Mounts to 3/8" O.D. shaft FRLC-275-0.5 and others

Price € 380

Linear-Rotary Feedthroughs — Magnetically Coupled



FLLRE-275-38/LD (shown with optional /LD linear magnet driver)



FLLRE-275-50

The FLLRE modular magnetic linear-rotary feedthroughs offer exceptional coupling with a small magnetic driver package. The driver is only 2.75" O.D. and 2" long. It provides more than 150 oz-in of torque and four lbs of linear force. Because of its small size, two drivers can be added together to double coupling strengths. Linear force can also be enhanced with the addition of the linear driver. The linear driver is a separate module that has been developed for its exceptional linear force.

The FLLRE stainless steel probe tube has a polished I.D. The inside traveler has no magnets, but it is made of magnetically-permeable material. The design uses eight all stainless steel bearings for long life even with repeated bakeout to 200°C (with magnets removed).

Four probe sizes are available. The selection of the probe diameter will depend on the travel distance, mass of the sample, and physical constraints of the chamber and related equipment. Please call the factory to discuss your specific requirements.

Linear-Rotary Magnetically Coupled Feedthrough

FLLRE-275 Series

- 3/8" and 1/2" O.D. probe sizes
- 2.75" O.D. mounting flange
- Up to 36" stroke (1/2" O.D. probe model)
- Mechanical torque limit: 150 oz-in
- Linear force: 4 lbs
- Eight all stainless steel bearings
- Maximum bakeout temperature: 200°C (magnetic drive removed)
- Removeable neodymium iron boron magnetic drive

Magnetically Coupled Linear-Rotary Feedthroughs — FLLRE-275

Flange O.D.	Probe O.D.	Stroke*	Model No.	Price
2.75"	0.38"	12"	FLLRE-275-38-12	€ 2.195
		18"	FLLRE-275-38-18	€ 2.415
		24"	FLLRE-275-38-24	€ 2.635
2.75"	0.50"	18"	FLLRE-275-50-18	€ 2.855
		24"	FLLRE-275-50-24	€ 3.075
		30"	FLLRE-275-50-30	€ 3.295
		36"	FLLRE-275-50-36	€ 3.515

* Other strokes available

For longer stroke applications, please see MCLR series magnetically coupled feedthroughs on page 3-20.

FLLRE linear-rotary feedthroughs are manufactured and protected under one or more of the following patents: 5,514,925

Linear-Rotary Feedthroughs — Magnetically Coupled

Options

Optional Force Packages

Available on all units and recommended for high mass payloads and longer strokes.

/LD Linear Magnet Driver

- Adds 11 lbs linear force

Price add € 715

/RD Rotary Magnet Driver

- Adds 150 oz-in torque

Price add € 715

/REM Remote Rotary Operation

- Linear and rotary actuation can be performed from several feet away
- Allows practical single operator sample transfer

Price add € 1.953

/FLS-1.5-2 Dual Axis Adjust Stage

- Micrometer actuated dual axis support for end of FLLRE
- Adjusts angular position $\pm 5^\circ$
- 1.5" I.D. bellows-sealed tilt at mounting flange
- 2.75" O.D. tapped mounting flange on tilt
- Maximum bakeout temperature: 200°C

Price add € 1.672

/RL Adjustable Rotation Limits

- Provides adjustable rotation stops

/EZ Transfer € 1815

- Includes ball bearings and linear ball bushings to increase tactile feedback
- Does not include position locks
- Includes linear driver magnet

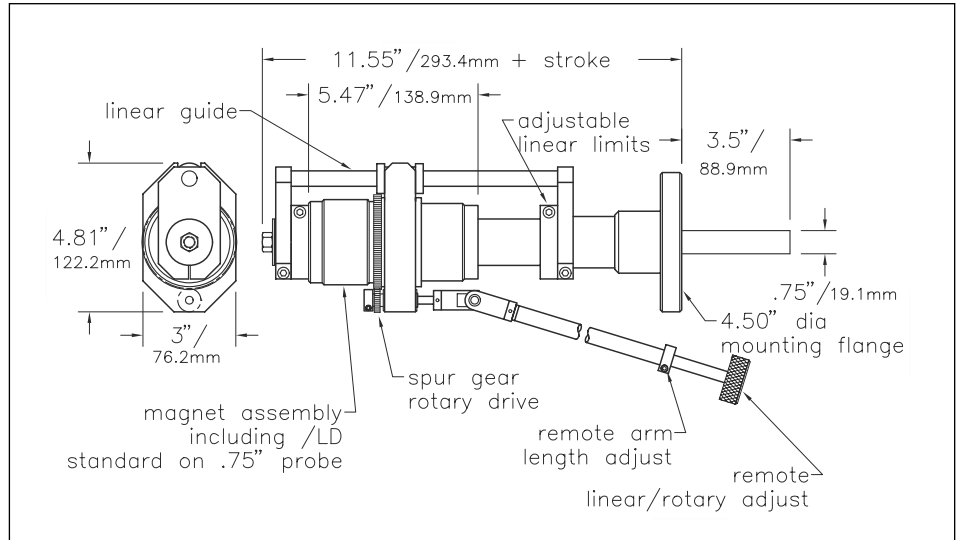
APL All position lock € 633

- Independent position lock for linear and rotary shafts

/3.38 Mounting Flange € 72

/4.50 Mounting Flange € 94

/6.00 Mounting Flange € 110



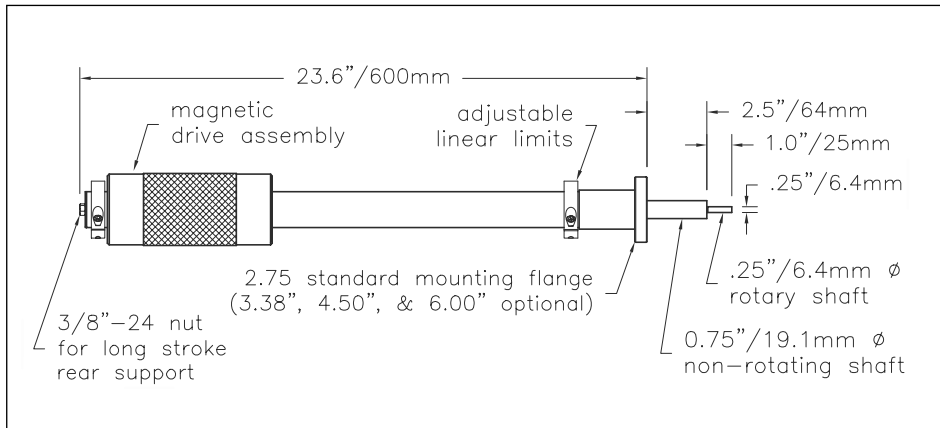
FLLRE-275-38/REM (shown with optional /REM remote rotary operation)



FLLRE-450/LD/REM (shown integrated on custom modular cart system)

For more information please contact us.

Linear-Rotary Feedthroughs — Magnetically Coupled, Coaxial



MCLR-275/BF (shown with optional /BF butterfly)

Options

/REM Remote Rotary Operation

- Linear and rotary actuation can be performed from several feet away
- Allows practical single operator sample transfer

Price add € 1.953

/VCB Vertical Mount Counterbalance

- Required for vertical mount
- Allows removal of magnet driver for bake-out
- Constant force spring
- In-vacuum counterbalance

Price add € 1.650

/FLS-1.5-2 Dual Axis Adjust Stage

- Micrometer actuated dual axis support for end of MCLR
- Adjusts angular position $\pm 5^\circ$
- 1.5" I.D. bellows-sealed tilt at mounting flange
- 2.75" O.D. tapped mounting flange on tilt
- Maximum bakeout temperature: 200°C

Price add € 1.672

/TM Tip Modification

Price Consult Factory

/EZ transfer € 1.210

- Includes ball bearings and linear ball bushings to increase tactile feedback
- Does not include position locks
- Includes linear driver magnet

/EZL transfer with position lock € 2.530

- Includes ball bearings and linear ball bushings to increase tactile feedback
- Includes independent position lock for linear and rotary shafts

/APL All position lock € 633

- Independent position lock for linear and rotary shafts

/4.50 Mounting Flange € 94

The MCLR series magnetically-coupled linear-rotary feedthrough offers unparalleled smooth rotary motion for sample introduction and transfer. Its coaxial design features a 0.75" linear support tube with rotary bearing in the tip to guide the 0.25" rotary probe. In addition to the rotary motion, the design includes a linear driver, for additional axial force and greater compliance and tactile feedback. When the butterfly option is chosen, the device rivals high-end magnetic transfer devices costing thousands more.

NEW!

Coaxial Magnetically Coupled Linear-Rotary Feedthrough

MCLR-275 Series

- Independent linear and rotary probes
- 3/4" linear support shaft
- 1/4" rotary probe
- 2.75" mounting flange
- Up to 48" stroke
- Mechanical torque limit: 150 oz-in
- Linear force: 15 lbs
- Internal precision guide bearings
- Maximum bakeout temperature: 200°C (magnetic drive removed)
- Removeable neodymium iron boron magnetic drive

Coaxial Magnetically Coupled Linear-Rotary Feedthroughs—MCLR-275 Series

Flange			
O.D.	Stroke*	Model No.	Price
2.75"	18"	MCLR-275-18	€ 3.163
	24"	MCLR-275-24	€ 3.295
	30"	MCLR-275-30	€ 3.427
	36"	MCLR-275-36	€ 3.559
	42"	MCLR-275-42	€ 3.691
	48"	MCLR-275-48	€ 3.823

* Other strokes available

Custom probe lengths available

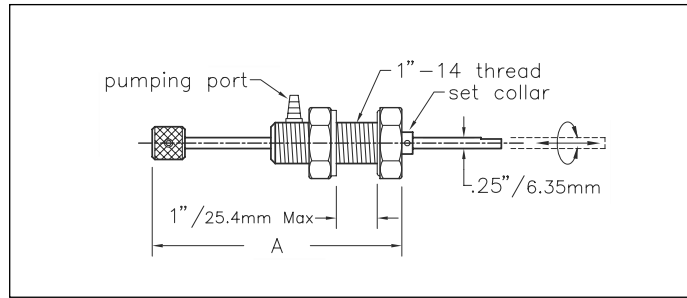
FLLRE linear-rotary feedthroughs are manufactured and protected under one or more of the following patents: 5,514,925

Linear-Rotary Feedthroughs — Baseplate — HV

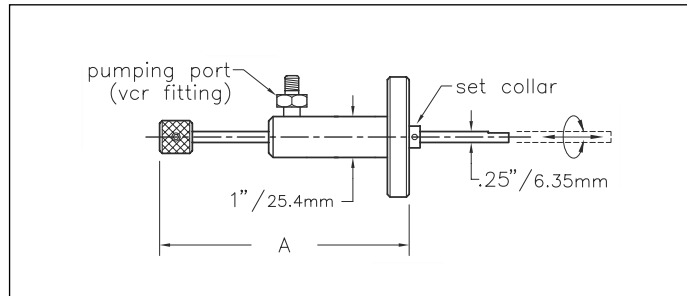
Push-Pull Linear-Rotary Baseplate Feedthrough

BPLR Series for HV Applications

- Baseplate mount
 - For 1" I.D. hole
 - Maximum baseplate thickness: 1"
- 1/4" O.D. probe
 - With clamp type stop collar
 - Hand knob
- Linear travels to 24"
- Differentially pumped Viton O-ring sealed linear-rotary action
- Stainless steel construction
- Teflon body insert
 - Insert removable for O-ring service without removal of body
- Not intended for Ultra High Vacuum applications



BPLR-10



BPLR-275-10

Push-Pull Linear-Rotary Feedthroughs — BPLR Series

Elastomer-sealed

Stroke	A	Model No.	Price
10"	15"	BPLR-10	€ 391
14"	19"	BPLR-14	€ 413
20"	25"	BPLR-20	€ 435
24"	29"	BPLR-24	€ 457

Push-Pull Linear-Rotary Feedthroughs — BPLR-275 Series

Elastomer-sealed

2.75" O.D. mounting flange
with VCR-type differential pumping port

Stroke	A	Model No.	Price
10"	15.2"	BPLR-275-10	€ 451
14"	19.2"	BPLR-275-14	€ 490
20"	25.2"	BPLR-275-20	€ 528
24"	29.2"	BPLR-275-24	€ 567