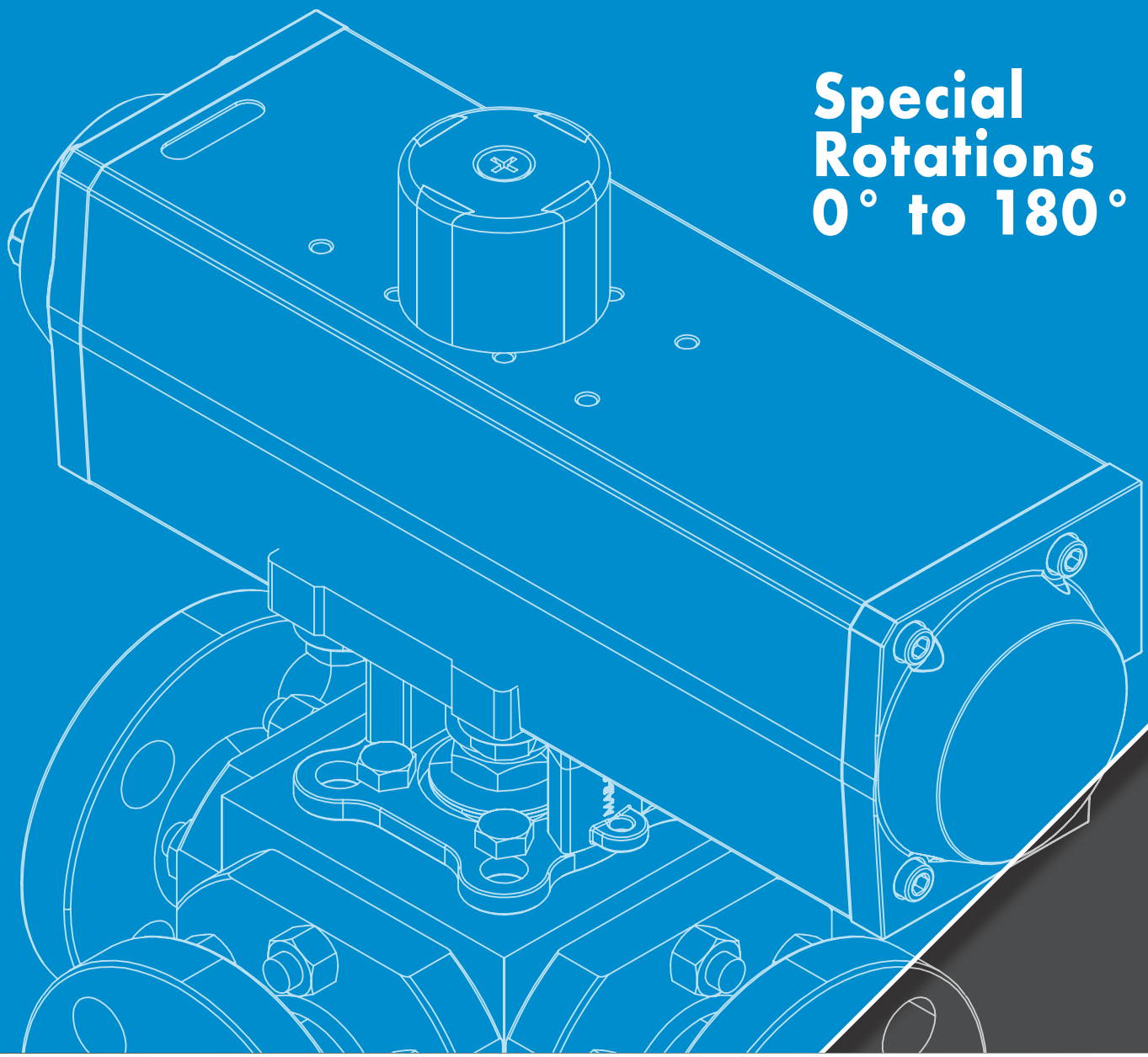
Max-Air Technology

The Best Way To Automate Your Process



Special Rotations 0° to 180°

UT 180° Series Technical Brochure

Max-Air Technology Inc. | Rotary Actuators & Valve Automation Solutions

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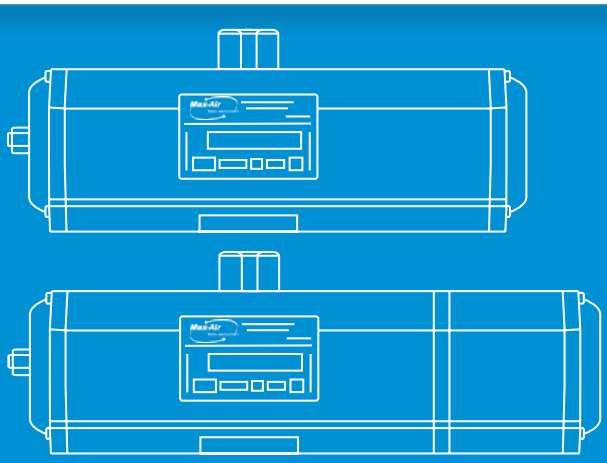
UT 180° Series Aluminum Actuators

UT 180° Series actuators offer extended rotary operation with a variety of fail positions.



UT 180° actuators offer an extended range of rotation beyond 90° quarter turn applications. Double acting actuators can be ordered in custom lengths between 120° and 180°, or extended travel stops can be used on the stock 180° actuator to adjust travel anywhere between 0° and 180°. Spring return actuators are available in a standard configuration (0°-180° travel, spring return to one end) or in "center return" configuration (0° ± 90° travel, spring return to the center). UT 180° actuators offer the same patented dual travel stop design (excluding 3 Position DA) w/ extended travel stop options and multiple mounting options for the ultimate flexibility.

UT 180° Series Part Number Builder

A — B — C | D — E — F — G — H — I | J

A - SPECIAL COATING
LMC = LockMesh Coated
EPOXY = Epoxy Coated
Omit if N/A

B - SPECIAL PINION
DD = Double-D
KYWY = Keyway
Omit if DSQ

C - SERIES
UT
3P

D - SIZE
16.180
17.180
21.180
26.180
31.180
36.180
41.180
46.180
51.180
56.180
61.180
66.180

E - CONFIGURATION
DA = Double-Acting
SR = Spring Return
CR = Center Return

F - MOUNTING
F04
F03 - F05
F05 - F07
F07 - F10
F10 - F12
F10 - F14
F16

F04/3.25
F12/3.25
5.00/3.25

G - OUTPUT DRIVE
CH11 = 11mm DSQ
CH14 = 14mm DSQ
CH17 = 17mm DSQ
CH22 = 22mm DSQ
CH27 = 27mm DSQ
CH36 = 36mm DSQ
CH46 = 46mm DSQ
.500" x .375" DD
.560" x .375" DD
.625" x .438" DD
.750" x .500" DD
.875" x .625" DD
1.181" x .866" DD
18mm x 10mm DD
14mm x 22mm DD
22mm x 14mm DD
25mm x 19mm DD
Call for keyway &
other available options

H - SEALS
SLT = Super Low Temp
LT = Low Temp
(Omit) = Standard
HT = High Temp
LTB = Low Temp BUNA

I - ROTATION
(Omit) = Standard
FO = Reverse
C = Standard Perpendicular
D = Reverse Perpendicular

J - TRAVEL
(Omit) = Standard
M = Max Extended
Z = Zero Extended
B = Set Extended

Pinion Options

Double-Square (ISO Standard) | Double-D (Optional) | Keyway (Optional)

Seal Options

SEALS	CODE	TEMP RANGE
Super Low Temp. (FVMQ)	*SLT*	*-67°F (-55°C) to 250°F continuous and 300°F cyclic*
Low Temp. (Silicone)	*LT*	*-49°F (-45°C) to 250°F continuous and 300°F cyclic*
Standard (BUNA-N)	*STD*	*-4°F (-20°C) to 176°F (80°C)*
High Temp. (VITON)	*HT*	*-10°F (-23°C) to 250°F continuous and 300°F cyclic*
Low Temp. BUNA	*LTB*	*-40°F (-40°C) to 212°F (100°C)*

*Note: 1) Not all combinations available, and special solutions not shown are possible. Please call factory for details. 2) Max-Air Technology reserves the right to change or modify products without prior notice & without incurring any obligation to make such changes on products previously or subsequently sold.

R: 12/07/21

Table of Contents

Pg - Description

02 - Part Number Builder
03 - Table of Contents
04 - Features & Benefits
06 - Reference Tables & Variations
08 - Torques & Sizing
10 - Exploded Views, Materials, & Dimensions
16 - Flow Patterns
22 - Certifications & Approvals

STANDARD WARRANTY

Max-Air Technology Inc. | The Best Way to Automate Your Process

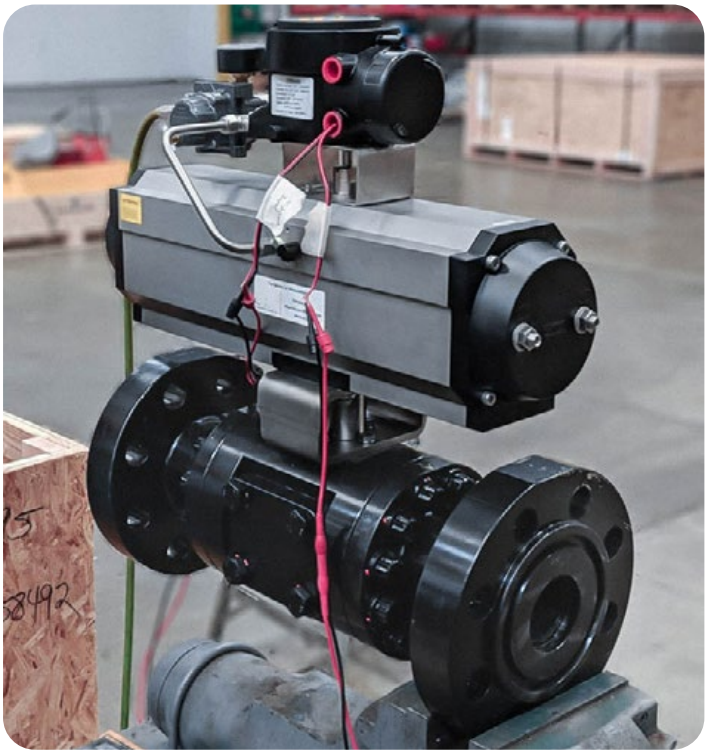
Max-Air Technology provides the following warranty regarding products manufactured by it. **THE WARRANTY STATED HEREIN IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES AND REPRESENTATIONS, EXPRESSED OR IMPLIED, OR STATUTORY, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE**. Max-Air Technology warrants its products to be free from defects in materials and workmanship when these products are used for the purpose for which they were designed and manufactured. Max-Air Technology does not warrant its products against chemical or stress corrosion or against any other failure other than from defects in materials or workmanship. The warranty period is for twelve (12) months from installation date or eighteen (18) months from shipment date, whichever date comes first. Any claims regarding this warranty must be in writing and received by Max-Air Technology before the last effective date of the warranty period. Upon Max-Air Technology's receipt of a warranty claim, Max-Air Technology reserves the right to inspect the product(s) in question at either the field location or at the Max-Air Technology Manufacturing plant. If, after inspection of the product(s) in question, Max-Air Technology determines that the purchaser's claim is covered by this warranty, Max-Air Technology's sole liability and the purchaser's sole remedy under this warranty is limited to the refunding of the purchase price or repair or replacement thereof at Max-Air Technology option. Max-Air Technology will not be liable for any repairs, labor, material or other expenses that are not specifically authorized in writing by Max-Air Technology, and in no event shall Max-Air Technology be liable for any direct or consequential damages arising out of any defect from any cause whatsoever. If any Max-Air Technology product is modified or altered at any location other than Max-Air Technology – St. Louis (Missouri) UNITED STATES or Max-Air Technology – Agrate Brianza (MB) ITALY without the express written authorization of Max-Air Technology, said product is not covered by this warranty. The warranty for such products shall be subject only to the warranty relief, if any, provided by the suppliers and/or manufacturers of such products.

Features & Benefits

UT 180° Series actuators offer extended rotary operation with a variety of fail positions.

Special Rotations

UT 180° actuators offer an extended range of rotation beyond 90° quarter turn applications. Double acting actuators can be ordered in custom lengths between 120° and 180°, or extended travel stops can be used on the stock 180° actuator to adjust travel anywhere between 0° and 180°. Spring return actuators are available in a standard configuration (0°-180° travel, spring return to one end) or in "center return" configuration (0° ± 90° travel, spring return to the center). UT 180° actuators offer the same patented dual travel stop design (excluding 3 Position DA) w/ extended travel stop options and multiple mounting options for the ultimate flexibility.



Standard Features:

- Compact Rack and Pinion Design
- 3D Models Available for All Designs and Sizes
- Direct ISO 5211 Standard Valve Mounting
- Direct NAMUR Accessory Mounting
- Anti-Blowout Bi-Directional Pinion Retention
- Configurable Beacon
- Pre-Loaded Spring Cartridges

UT 180° Series Aluminum

Max-Air's unique and patented design delivers rotation beyond 90°, with configurable stroke end positions and fail directions. Standard housing is anodized aluminum, with optional coatings available.

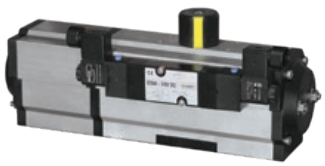
Torque Range	Up to 17,690 in-lbs (DA) & 4,210 in-lbs (SR)
Materials	Aluminum
Coating/Finish Options	Epoxy, LockMesh®
Ambient Temp. Ranges	-4°F to 176°F Standard (-67°F Low, 300°F High)

Rotation	±10° Adjustment Standard on Spring Return or Double Acting, Special Rotation Options Available
Operation Media	Gas or Low Pressure Hydraulic Fluid
Mounting	ISO 5211, NAMUR VDI/VDE 3845
Additional Options	DD Pinions, Extended Travel Stops (DA Only)

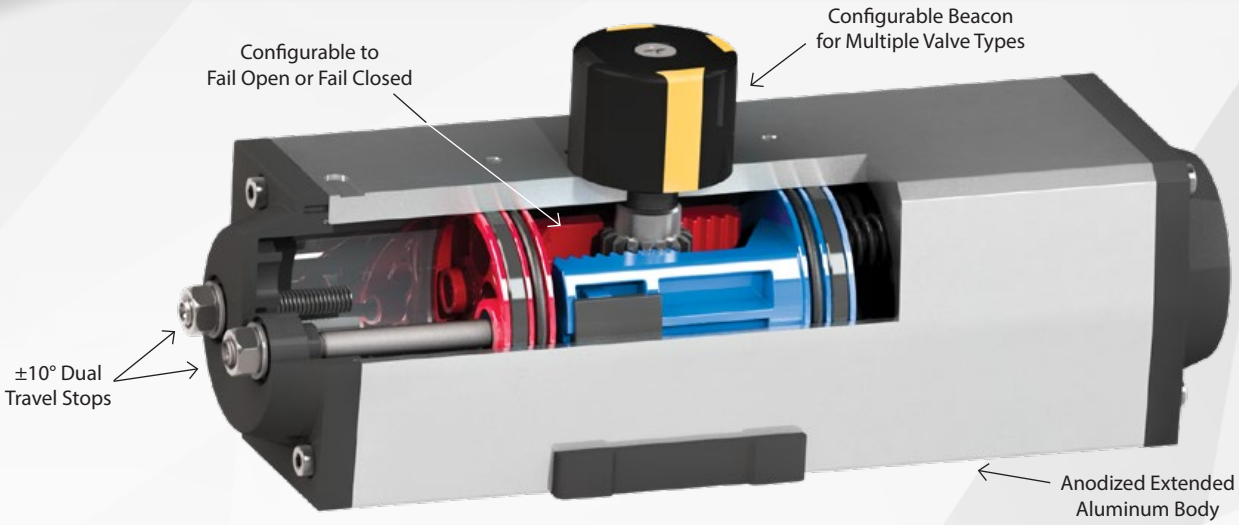
180° Rack & Pinion Series Selection

Start from the top of the chart and work down to select the correct Rack & Pinion Series.

Type	180° DA Air to 0° Air to 180°	or	180° SR Air to 180° Spring to 0°	or	180° CR Air to +90°/-90° Spring to 0°	or	180° 3P Air to +90°/-90° Air to 0°
Environment	Corrosive				Standard		
Temperature	Standard		Extreme (High/Low)		Standard		Extreme (High/Low)
Recommended Series/Options	UT/3P Series w/ Special Coating		UT/3P Series w/ Special Coating & Temp Seals		UT/3P Series		UT/3P Series w/ Temp Seals



Center-Return 180° actuator shown w/ open centers S36A solenoid valve.



UT 180° Series Aluminum

Double Acting Max-Air's 180 degree double acting actuators maintain the operating torques and many of the key features of the standard UT and MT actuators. With the same travel stop adjustability, honed bore, rugged teeth, and Namur accessory mounting, it can reliably operate multiport and other 180 degree valves and with an almost infinite travel stop adjustability, and can handle a wide variety of special travel/rotation requirements.

Spring Return The Max-Air Technology 180° actuator maintains the same high output torques as the standard MT actuators while providing a solid solution for a lifetime of consistent performance without hassling with an oversized unit.

Center Return For applications where returning to center is imperative, Max-Air Technology has this optimal solution. Specially designed and machined, this unit saves hours of engineering redesign for fail-to-center applications.

3-Position Max Air's 3-position actuator has been developed for use with multiport valves in mind. Its unique design and operating system creates hard travel stops at three distinct positions for the ultimate reliability in positioning.

Increased Corrosion Resistance & Relative Cost

Materials/Coatings w/ Properties & Limitations

Options	Aluminum: Hard Anodized (Standard)	Aluminum: Anodized w/ Polyamide Epoxy Coating
Properties	Good general corrosion properties in most "natural" environments with pH from 4.5 to 8.5. Good resistance to salt air environments. The coating is extremely hard and resistant to abrasion.	The epoxy coating is relatively thick, which creates a barrier against many of the chemicals which anodizing alone cannot adequately resist. It will resist more acidic or basic environments than anodizing alone.
Performance Limitations	Highly acidic or basic environments will break down the coating.	Good general corrosion resistance, particularly in salt or alkaline environments. Limited resistance to acids. Surface chalking will occur when exposed to UV radiation. Also suitable for low concentrations of caustic washdown solutions.

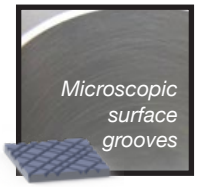
Temperature Seal Options

Available for UT180 Series Actuators.

Seals	Temperature Range
Super Low Temp. (FVMQ)	-67°F (-55°C) to 250°F continuous & 300°F cyclic
Low Temp. (Silicone)	-49°F (-45°C) to 250°F continuous & 300°F cyclic
Standard (BUNA-N)	-4°F (-20°C) to 176°F (80°C)
High Temp. (VITON)	-10°F (-23°C) to 250°F continuous & 300°F cyclic
Low Temp. Buna	-40°F (-40°C) to 212°F (100°C)

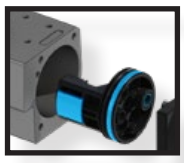
High Cycle Life Design

Precision Honed Bore, High Cycle Wear Bearings, Rugged Tooth Design



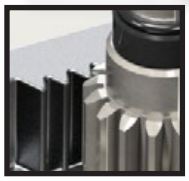
Precision Honed Bore

This high end feature is not industry standard. A uniform bore surface provides consistent seal contact and compression. Micro-scratches provide even lubrication which minimizes the "wiping" effect.



High Cycle Wear Bearings

High performace technopolymer bearings eliminate metal-to-metal sliding contact.



Rugged Tooth Rack & Pinion Design

The Rugged Tooth Design reduces "slamming" and other dynamic forces. Max-Air's tooth profile is refined for higher strength and resiliency, but with minimal backlash.

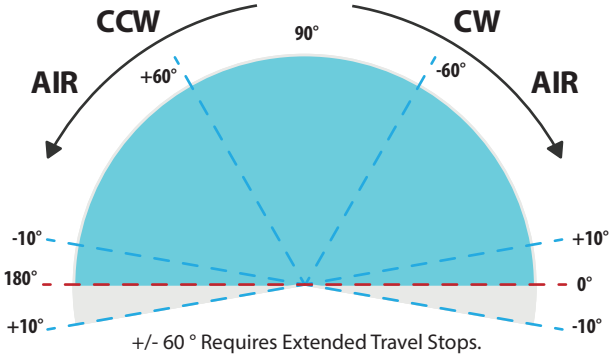
Features & Benefits Cont.

Travel Adjustment, Beacon Options, Reference Charts, & 3-Position Actuator Control Box

180° Travel Stop Reference

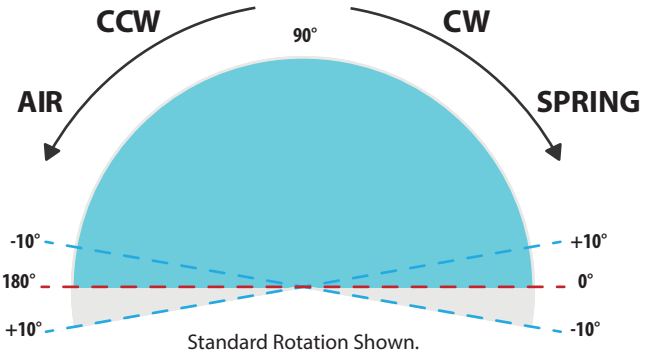
The below charts details the standard and extended travel options for our 180° Rack & Pinion Actuators.

UT180 DA
2 Positions



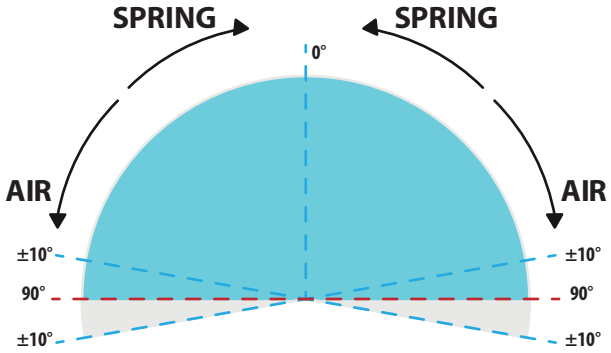
+/- 60 ° Requires Extended Travel Stops.

UT180 SR
2 Positions

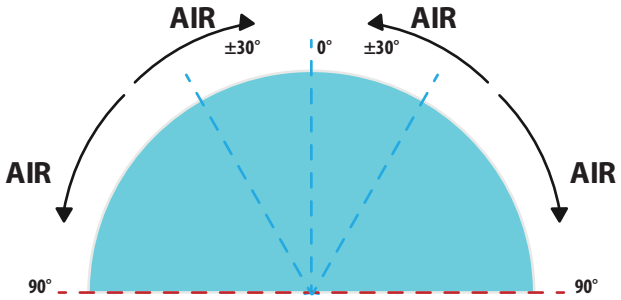


Standard Rotation Shown.

UT180 CR
2 Positions



3P180 DA
3 Positions



Extended Travel Stops (DA Only)

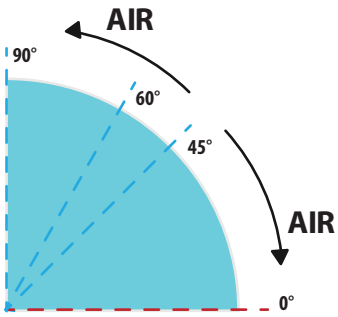
Position Adjustment :
Closed +30° or more
or Open up to full stroke
Potential Applications:
Applications where full close shutoff is not desired or Special rotations where travel is much less than 180° (i.e. 135°, 150°)

90° 3 Position Travel Stop Reference

Max-Air also provides a 90° variation of the 3 Position Rack & Pinion Actuator. The middle position has 15° of rotation. Extended travel cannot be achieved on the outer positions.

3P90 DA
3 Positions

Mid Position is adjustable from 0°-60°



Beacon Options

Interchangeable inserts allow for any combination needed to match your configuration. For additional beacon options and variation, please contact our North American Headquarters.

T-Port

L-Port

Email: sales@maxairtech.com

Back to Table of Contents

R: 12/07/21

Mounting Reference

SIZE	Drive (mm)	Drive (in)	Standard ISO Pattern	Optional Pattern
16	14	0.551	F05/F07	F04/3.25
17	14	0.551	F05/F07	F04/3.25
21	17	0.670	F05/F07	F04/3.25
26	17	0.670	F05/F07	F04/3.25
31	17	0.670	F05/F07	F04/3.25
36	22	0.866	F07/F10	3.25/5.00
41	22	0.866	F07/F10	F07/F12 3.25/F12 3.25/5.00
46	22	0.866	F07/F10	F07/F12 3.25/F12 3.25/5.00
51	27	1.063	F10/F12	n/a
56	27	1.063	F10/F12	n/a
61	36	1.417	F10/F14	F10/F12
66	36	1.417	F10/F14	F10/F12

Weights & Air Consumption

SIZE	Double Acting		Spring Return		Center Return		3-Position	
	Weight lbs	Air Cons. (cu-in)	Weight lbs	Air Cons. (cu-in)	Weight lbs	Air Cons. (cu-in)	Weight lbs	Air Cons. (cu-in)
16	5.29	42.5	7.67	21.2	CF	42.5	CF	89.4
17	8.05	53.7	10.14	25.6	CF	53.7	CF	116.1
21	8.82	73.7	11.57	38.1	CF	73.7	CF	153.7
26	11.79	118.7	15.39	58.1	CF	118.7	CF	248.0
31	14.88	150.0	19.62	71.9	CF	150.0	CF	317.0
36	22.44	237.5	30.29	113.7	CF	237.5	CF	514.4
41	27.67	293.7	36.88	141.2	CF	293.7	CF	636.8
46	39.20	462.5	51.48	221.9	CF	462.5	CF	978.1
51	54.23	656.3	77.08	316.2	CF	656.3	CF	1421.4
56	65.81	906.3	88.76	435.6	CF	906.3	CF	1942.5
61	108.91	1406.3	152.43	643.7	CF	1406.3	CF	3050.2
66	131.18	1743.8	174.83	795.6	CF	1743.8	CF	3729.5

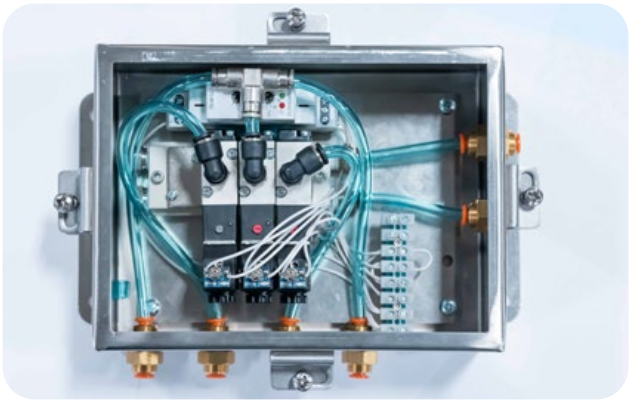
Simple Control Box for 3-Position Applications

Max-Air introduces our compact control box for use with 3P.180.DA 3-position pneumatic actuators. This device simplifies air connections and field wiring into a single air supply port and 3 signal wires (+ 1 neutral/negative). All electrical connections and operating logic are handled inside the NEMA 4/4X enclosure, and tubing can be customized from the control box to the actuator as needed.

Features:

- Available in 24VDC/120VAC
- Designed for Max-Air 3P Series 180° 3-position actuators
- 3-wire control with integral solenoids and adjustable time delay
- Achieve three positions without PLC or complex wiring
- Quick connect fittings standard for easy air hookup
- ½" Conduit entry standard w/ cable gland for field wiring
- NEMA 4/4X (IP66) enclosure for non-hazardous environments

NEMA 4/4X Enclosure



Under the Hood

Inside the enclosure is a bank of solenoid valves on a common air supply. Internal wiring w/ time-delay logic is pre-terminated with a clearly labeled terminal strip for easy field wiring. The time delay function is field-adjustable, and is used to achieve the mid-position by properly sequencing the solenoids automatically when the "Mid" signal is applied. Solenoid outputs are panel mounted to the enclosure with standard quick connect fittings for easy tubing to the actuator. Tubing can be included with the control box or customized by the installer for remote operation.

Torque Data

Double Acting, Spring Return, Center Return, & 3-Position Torques

UT180 Double Acting Torques

SIZE	40 psi	60 psi	80 psi	100 psi	120 psi
UT16.180.DA	134	201	268	336	403
UT17.180.DA	177	265	353	442	531
UT21.180.DA	244	366	490	610	732
UT26.180.DA	369	553	734	921	1106
UT31.180.DA	490	736	979	1226	1472
UT36.180.DA	786	1179	1568	1966	2359
UT41.180.DA	984	1475	1961	2460	2952
UT46.180.DA	1535	2303	3065	3838	4606
UT51.180.DA	2277	3417	4542	5692	6833
UT56.180.DA	2948	4422	5878	7370	8844
UT61.180.DA	4818	7226	9604	12046	14451
UT66.180.DA	5897	8845	11794	14742	17690

3-Position Double Acting Torques

SIZE	40 psi	60 psi	80 psi	100 psi	120 psi
3P16.180.DA	134	201	268	336	403
3P17.180.DA	177	265	353	442	531
3P21.180.DA	244	366	490	610	732
3P26.180.DA	369	553	734	921	1106
3P31.180.DA	490	736	979	1226	1472
3P36.180.DA	786	1179	1568	1966	2359
3P41.180.DA	984	1475	1961	2460	2952
3P46.180.DA	1535	2303	3065	3838	4606
3P51.180.DA	2277	3417	4542	5692	6833
3P56.180.DA	2948	4422	5878	7370	8844
3P61.180.DA	4818	7226	9604	12046	14451
3P66.180.DA	5897	8845	11794	14742	17690

UT180 Spring Return Torques

SIZE	SPRING TORQUES (IN-LBS)		40 psi		60 psi		80 psi		100 psi		120 psi	
	START	END	START	END	START	END	START	END	START	END	START	END
UT16.180.SR	112	81	54	23	121	90	188	157	255	224	322	291
UT17.180.SR	139	96	81	38	170	126	257	214	346	303	435	392
UT21.180.SR	184	138	106	60	228	182	352	306	472	426	594	548
UT26.180.SR	294	185	184	75	368	259	549	441	736	628	921	812
UT31.180.SR	375	280	211	115	456	361	702	604	947	851	1192	1097
UT36.180.SR	617	460	326	169	719	562	1108	951	1505	1349	1898	1742
UT41.180.SR	757	556	428	227	920	719	1406	1205	1904	1703	2396	2195
UT46.180.SR	1333	838	697	202	1465	970	2226	1732	3000	2505	3768	3273
UT51.180.SR	1722	1247	1030	555	2144	1660	3269	2785	4422	3937	5586	5110
UT56.180.SR	2228	1581	1366	719	2837	2193	4297	3650	5789	5142	7263	6616
UT61.180.SR	2938	2196	2622	1880	4512	3595	6891	5975	9330	8413	12256	11513
UT66.180.SR	4210	3122	2775	1687	5723	4635	8671	7584	11620	10532	14568	13481

UT180 Center Return Torques

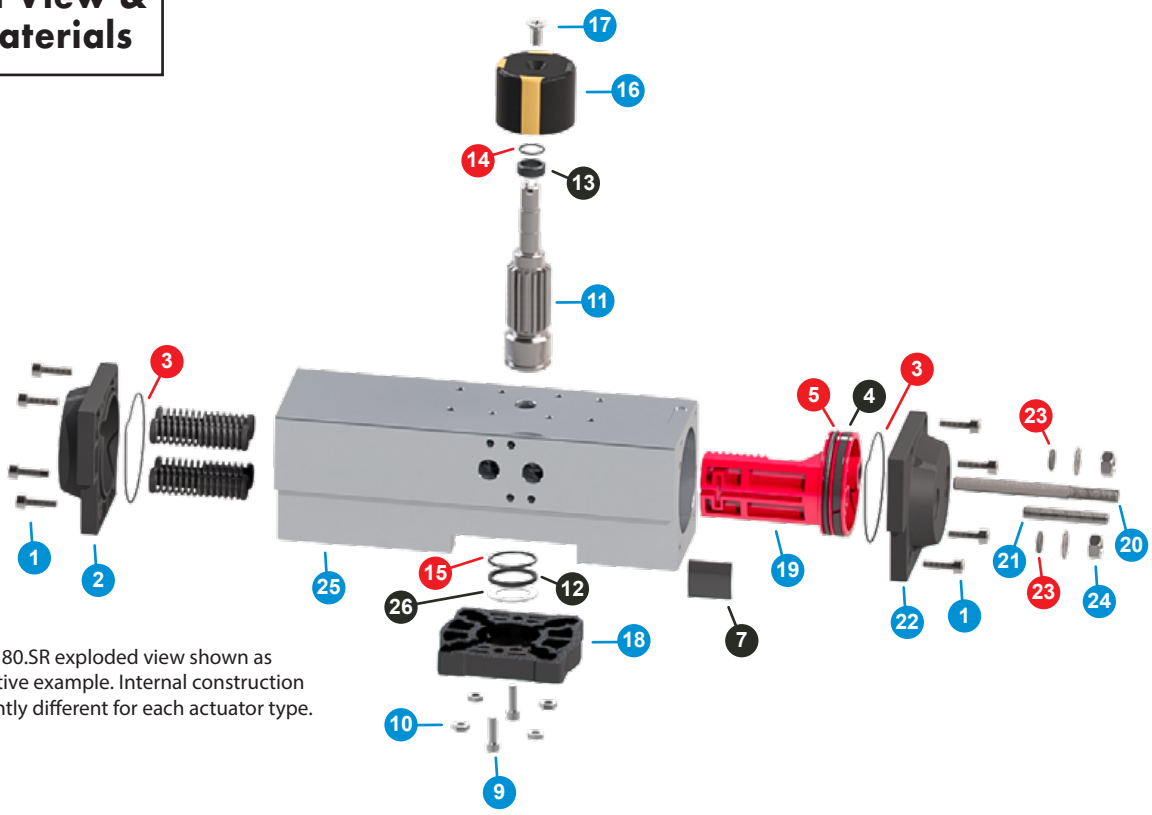
SIZE	SPRING TORQUES (IN-LBS)		40 psi		60 psi		80 psi		100 psi		120 psi	
	START	END	START	END	START	END	START	END	START	END	START	END
UT16.180.CR	112	81	54	23	121	90	188	157	255	224	322	291
UT17.180.CR	139	96	81	38	170	126	257	214	346	303	435	392
UT21.180.CR	184	138	106	60	228	182	352	306	472	426	594	548
UT26.180.CR	294	185	184	75	368	259	549	441	736	628	921	812
UT31.180.CR	375	280	211	115	456	361	702	604	947	851	1192	1097
UT36.180.CR	617	460	326	169	719	562	1108	951	1505	1349	1898	1742
UT41.180.CR	757	556	428	227	920	719	1406	1205	1904	1703	2396	2195
UT46.180.CR	1333	838	697	202	1465	970	2226	1732	3000	2505	3768	3273
UT51.180.CR	1722	1247	1030	555	2144	1660	3269	2785	4422	3937	5586	5110
UT56.180.CR	2228	1581	1366	719	2837	2193	4297	3650	5789	5142	7263	6616
UT61.180.CR	2938	2196	2622	1880	4512	3595	6891	5975	9330	8413	12256	11513
UT66.180.CR	4210	3122	2775	1687	5723	4635	8671	7584	11620	10532	14568	13481

Technical Data

Exploded View, Materials of Construction, & Dimensional Data

Example

Exploded View & Bill of Materials



***Note:** UT180.SR exploded view shown as representative example. Internal construction will be slightly different for each actuator type.

#	DESCRIPTION	MATERIALS
1	End Cap Bolts	AISI 304 Stainless Steel
2	Left Stop End Cap	Die Cast Aluminum Epoxy Coated
6	Left Piston (Not Shown)	Anodized Aluminum
8	Spring Guide (Not Shown)	Anodized Aluminum
9	Flange Bolts	ANSI 304 Stainless Steel
10	Flange Nuts	ANSI 304 Stainless Steel
11	Pinion	Nickel Plated Carbon Steel
16	Open/Closed Indicator	Polypropylene
17	Indicator Screw	AISI 304 Stainless Steel
18	Mounting Flange	Aluminum
19	Travel Stop Piston	Anodized Aluminum
20	Closed Travel Stop	AISI 304 Stainless Steel
21	Open Travel Stop	AISI 304 Stainless Steel
22	Travel Stop End Cap	Die Cast Aluminum Epoxy Coated
24	Travel Stop Nuts	AISI 304 Stainless Steel
25	Actuator Body	Extruded Aluminum (6063 or 6005)

Black = Items sold in the skates and wear bearings repair kit

Red = Items sold in the o-ring repair kit

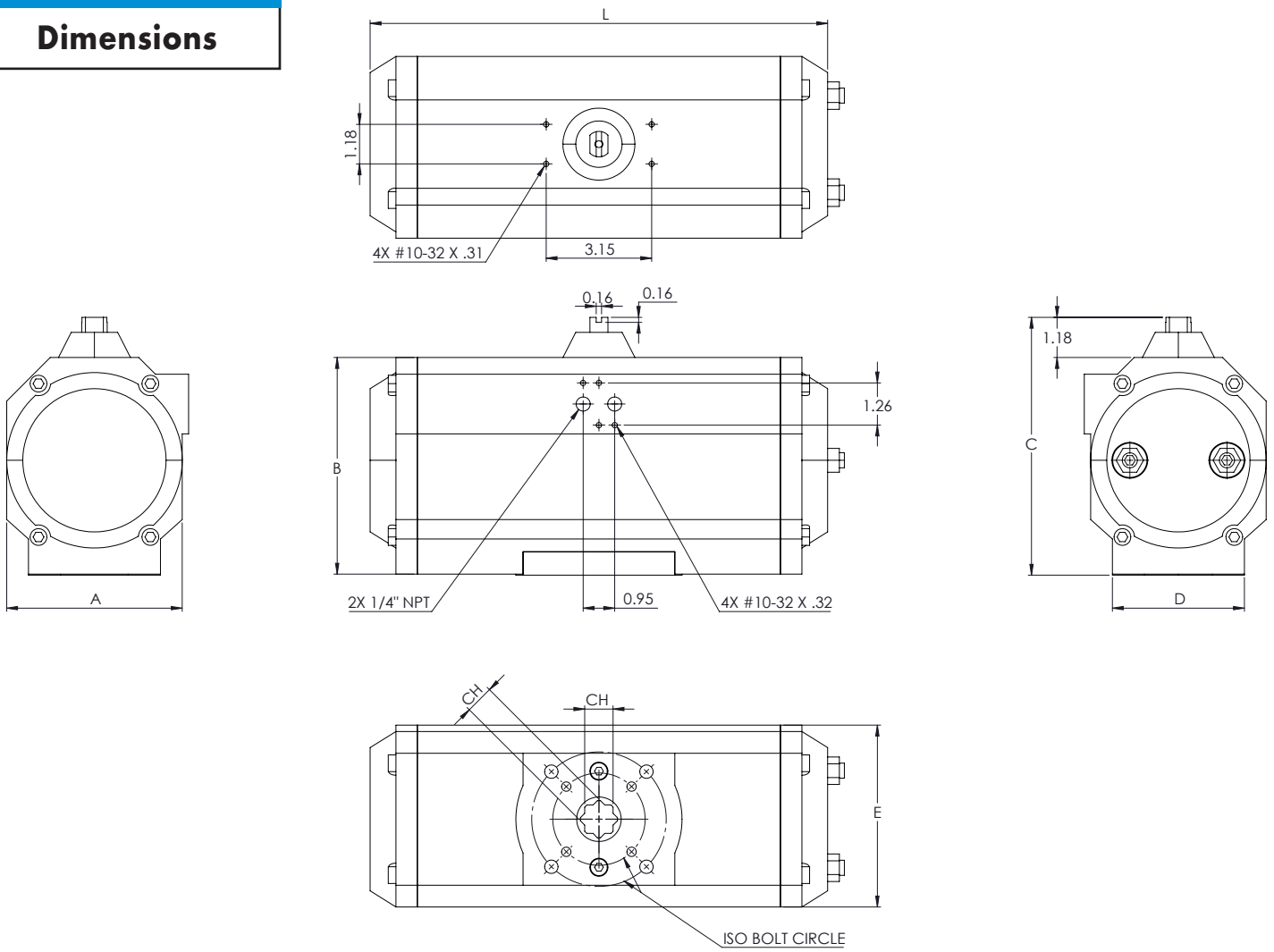
#	DESCRIPTION	MATERIALS
4	Piston Wear Bearing	Technopolymer
7	Piston Skate	Technopolymer
12	Lower Pinion Bearing	Technopolymer
13	Upper Pinion Bearing	Technopolymer
26	Lower Pinion Bearing	Stainless Steel

#	DESCRIPTION	MATERIALS
3	End Cap O-Ring	BUNA-N
5	Piston O-Ring	BUNA-N
14	Upper Pinion O-Ring	BUNA-N
15	Lower Pinion O-Ring	BUNA-N
23	Travel Stop O-Rings	BUNA-N

Note: O-Ring Materials are Different for high or low temp configurations.

UT.180.DA

Dimensions

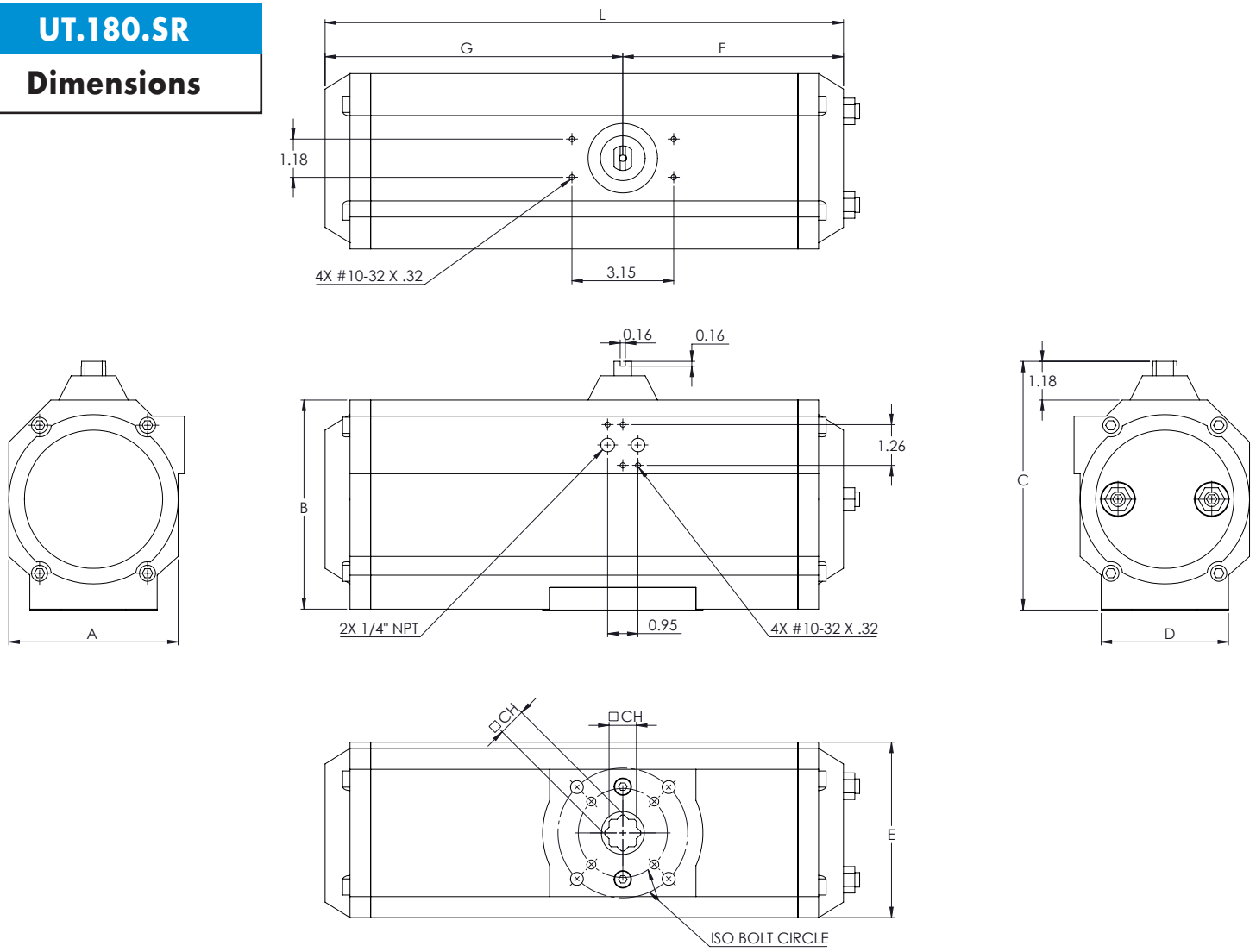


	UT16	UT17	UT21	UT26	UT31	UT36	UT41	UT46	UT51	UT56	UT61	UT66
A	2.76	2.76	3.39	3.39	4.10	5.16	5.16	5.78	7.17	7.17	9.13	9.13
B	3.54	3.54	4.41	4.41	5.16	6.50	6.50	6.97	8.54	8.54	10.79	10.79
C	4.76	4.76	5.63	5.63	6.38	7.72	7.72	8.19	9.76	9.76	12.01	12.01
D	2.52	2.52	2.76	2.76	2.76	3.40	3.40	3.40	4.72	4.72	5.51	5.51
E	3.35	3.35	3.78	3.78	4.45	5.43	5.43	5.95	7.28	7.28	9.25	9.25
L	9.21	10.79	9.92	12.99	13.03	13.66	15.79	20.00	19.65	23.90	24.29	28.66
Standard ISO	F05/F07	F05/F07	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F12	F10/F14	F10/F14
Optional ISO	F04/3.25	F04/3.25	F04/3.25	F04/3.25	F04/3.25	3.25/5.00	F07/F12/ 3.25/5	F07/F12/ 3.25/5	N/A	N/A	F10/F12	F10/F12
CH (mm)	14	14	17	17	17	22	22	22	27	27	36	36

Note*: Dimensions subject to change without notice. Dimensions in inches unless otherwise noted.

UT.180.SR

Dimensions

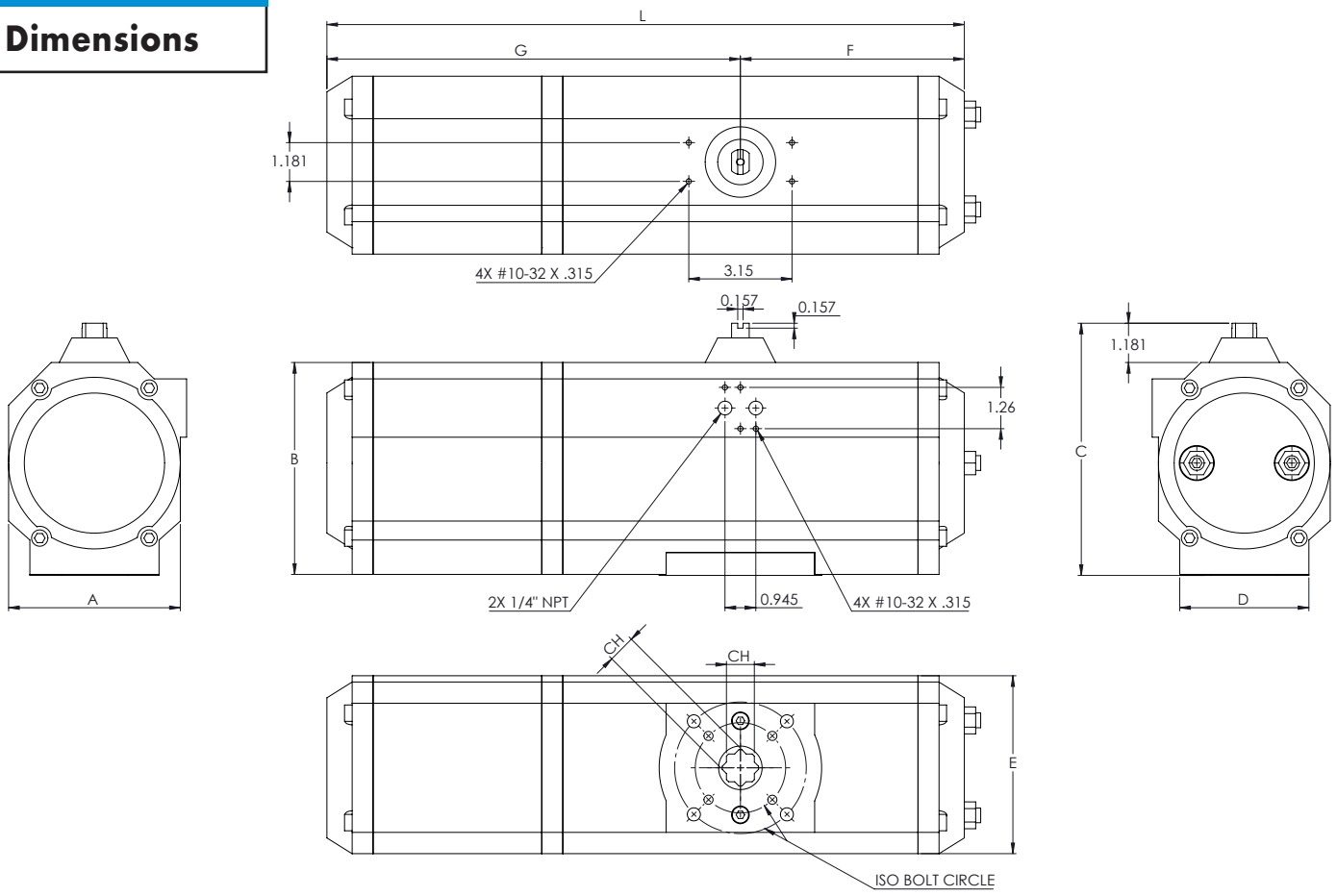


	UT16	UT17	UT21	UT26	UT31	UT36	UT41	UT46	UT51	UT56	UT61	UT66
A	2.76	2.76	3.386	3.386	4.10	5.16	5.16	5.78	7.17	7.17	9.13	9.13
B	3.54	3.54	4.409	4.409	5.16	6.50	6.50	6.97	8.54	8.54	10.79	10.79
C	4.76	4.76	5.630	5.630	6.38	7.72	7.72	8.19	9.76	9.76	12.01	12.01
D	2.52	2.52	2.756	2.756	2.76	3.40	3.40	3.40	4.72	4.72	5.51	5.51
E	3.35	3.35	3.780	3.780	4.45	5.43	5.43	5.95	7.28	7.28	9.25	9.25
F	5.39	5.39	4.96	6.50	6.52	6.83	7.89	10.00	9.82	11.95	12.15	14.33
G	7.42	7.42	6.73	9.04	8.68	9.21	10.91	13.15	13.58	15.75	16.75	18.94
L	12.82	12.82	11.69	15.53	15.197	16.04	18.80	23.15	23.15	27.70	28.90	33.27
Standard ISO	F05/F07	F05/F07	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F12	F10/F14	F10/F14
Optional ISO	F04/3.25	F04/3.25	F04/3.25	F04/3.25	F04/3.25	3.25/5.00	F07/F12/ 3.25/5	F07/F12/ 3.25/5	N/A	N/A	F10/F12	F10/F12
CH (mm)	14	14	17	17	17	22	22	22	27	27	36	36

Note*: Dimensions subject to change without notice. Dimensions in inches unless otherwise noted.

UT.180.CR

Dimensions

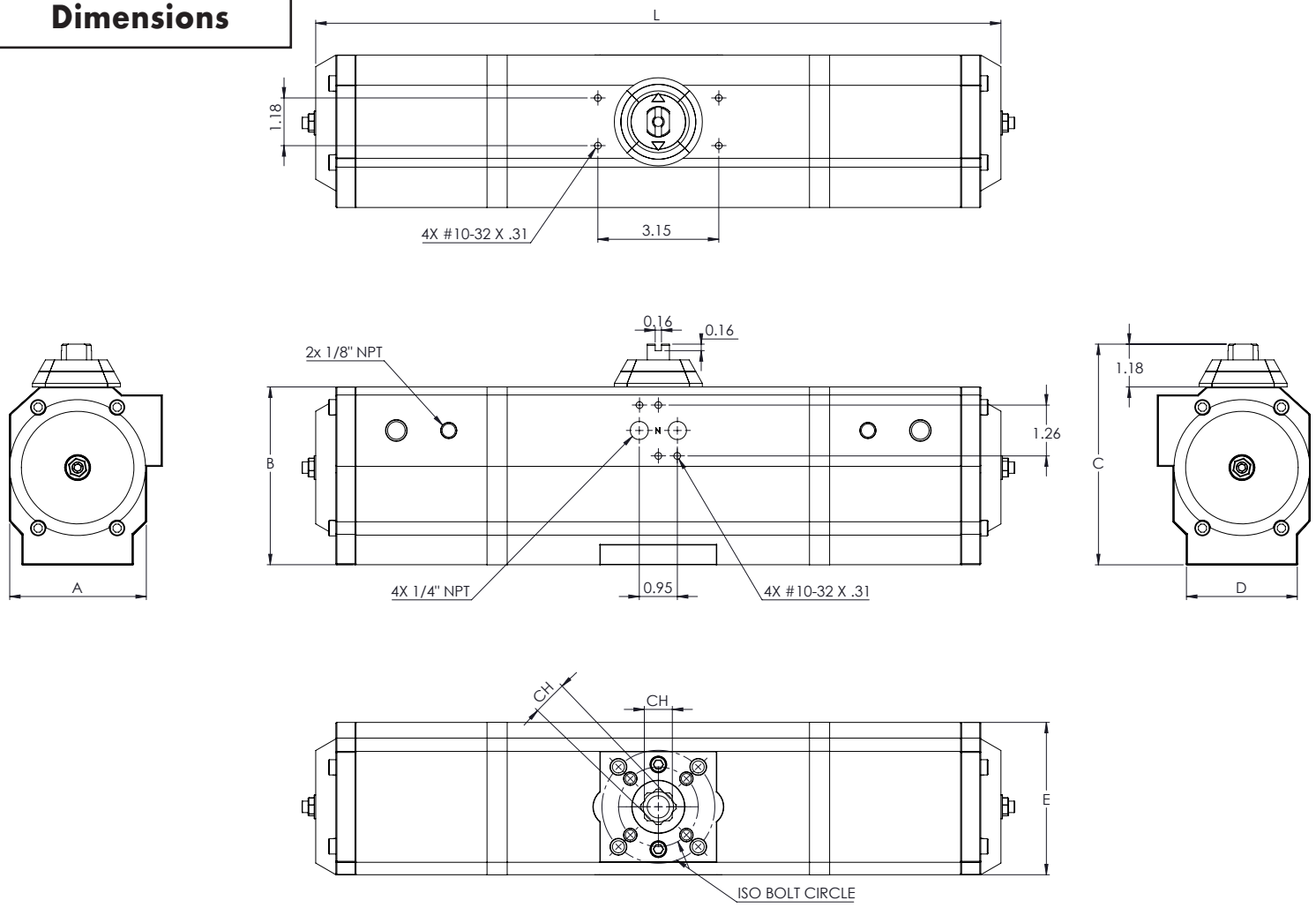


	UT16	UT21	UT26	UT31	UT36	UT41	UT46	UT51	UT56	UT61
A	2.76	3.39	3.39	4.10	5.16	5.16	5.78	7.17	7.17	9.13
B	3.54	4.41	4.41	5.16	6.50	6.50	6.97	8.54	8.54	10.79
C	4.76	5.63	5.63	6.38	7.78	7.78	8.19	9.76	9.76	12.01
D	2.52	2.76	2.76	2.76	3.40	3.40	3.40	4.72	4.72	5.51
E	3.35	3.78	3.78	4.45	5.43	5.43	5.95	7.28	7.28	9.25
	180 CR UP TO SR3									
F	8.58	9.21	10.79	11.30	12.60	14.21	17.87	17.32	21.26	21.50
G	4.61	4.96	6.50	6.54	6.86	7.91	10.00	9.84	11.97	12.17
L	13.19	14.73	17.28	17.84	191.45	22.13	27.87	27.17	33.23	33.66
Standard ISO	F05/F07	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F12	F10/F14
Optional ISO	F04/3.25	F04/3.25	F04/3.25	F04/3.25	3.25/5.00	F07/ F12/3.25/5	F07/ F12/3.25/5	N/A	N/A	F10/F12
CH (mm)	14	17	17	17	22	22	22	27	27	36

Note*: Dimensions subject to change without notice. Dimensions in inches unless otherwise noted.

3P.180.DA

Dimensions



	3P16	3P17	3P21	3P26	3P31	3P36	3P41	3P46	3P51	3P56
A	2.76	2.76	3.39	3.39	4.10	5.16	5.16	5.78	7.17	7.17
B	3.54	3.54	4.41	4.41	5.16	6.50	6.50	6.97	8.54	8.54
C	4.76	4.76	5.63	5.63	6.38	7.72	7.72	8.19	9.76	9.76
D	2.52	2.52	2.76	2.76	2.76	3.40	3.40	3.40	4.72	4.72
E	3.35	3.35	3.78	3.78	4.45	5.43	5.43	5.95	7.28	7.28
L	15.24	17.24	16.26	20.24	21.06	22.13	24.92	31.54	32.4	37.99
Standard ISO	F05/F07	F05/F07	F05/F07	F05/F07	F05/F07	F07/F10	F07/F10	F07/F10	F10/F12	F10/F12
Optional ISO	F04/3.25	F04/3.25	F04/3.25	F04/3.25	F04/3.25	3.25/5.00	F07/ F12/3.25/5	F07/ F12/3.25/5	N/A	N/A
CH (mm)	14	14	17	17	17	22	22	22	27	27

Note*: Dimensions subject to change without notice. Dimensions in inches unless otherwise noted.

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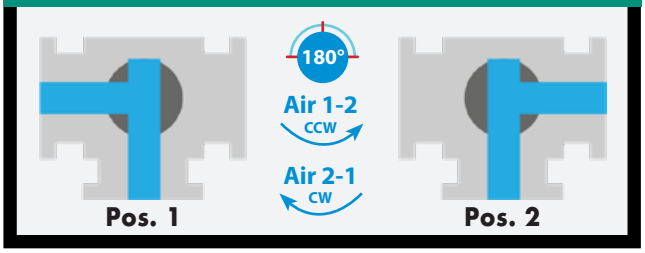
Flow Patterns

Double Acting, Spring Return, 3-Position Standard, & 3-Position Reverse

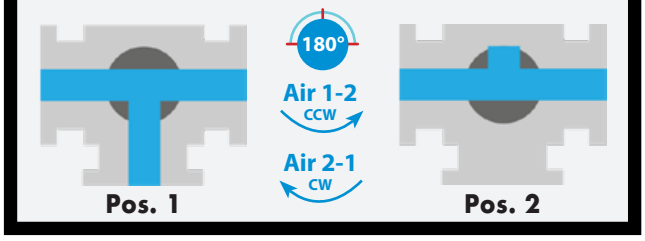
UT.180.DA - Standard

Air CCW, Air CW

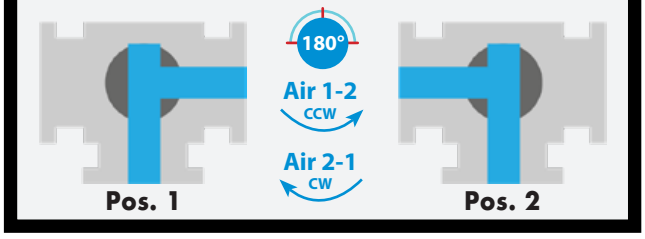
Flow Plan F - Standard



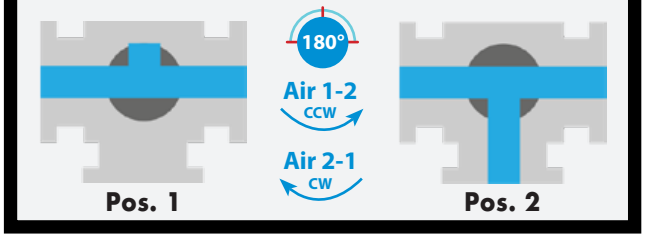
Flow Plan G - Standard



Flow Plan H - Standard



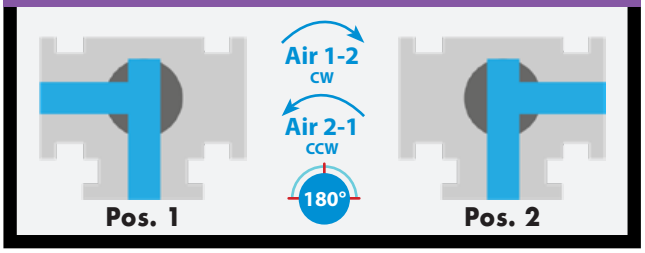
Flow Plan I - Standard



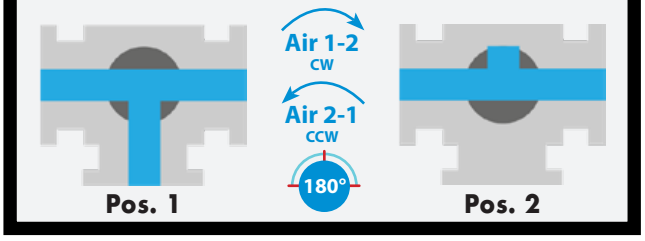
UT.180.DA - Reverse

Air CW, Air CCW

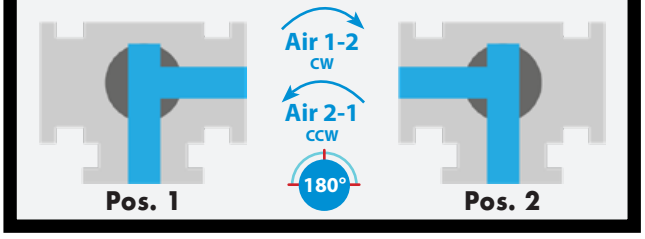
Flow Plan RF - Reverse



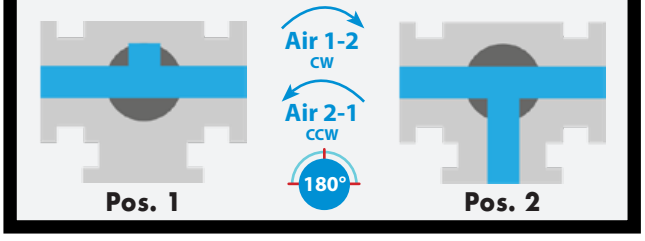
Flow Plan RG - Reverse



Flow Plan RH - Reverse



Flow Plan RI - Reverse



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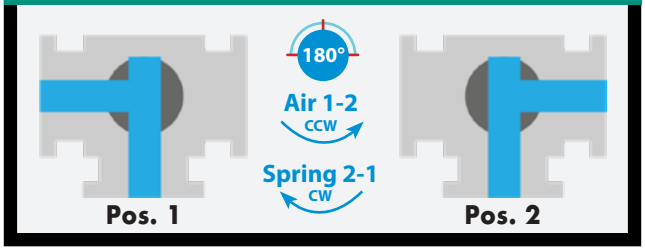
Back to Table of Contents
R: 12/07/21

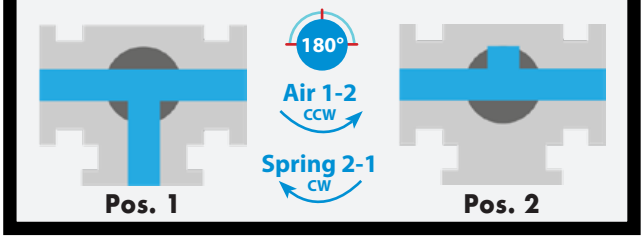
UT.180.SR - Standard

Air CCW, Spring CW

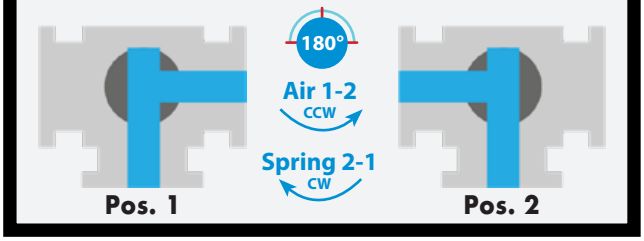
Flow Plan F - Standard



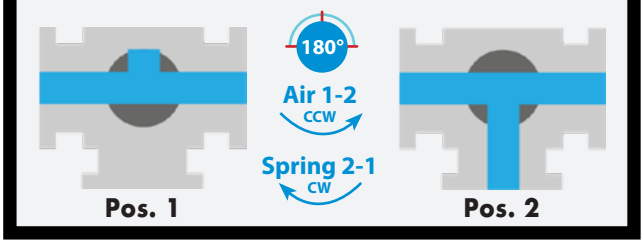
Flow Plan G - Standard



Flow Plan H - Standard



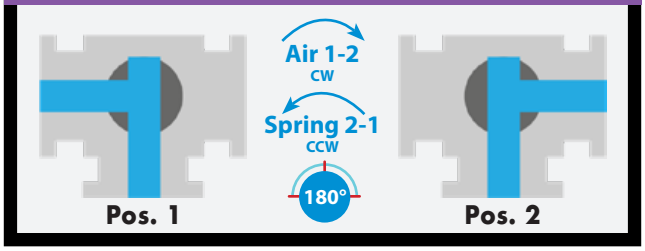
Flow Plan I - Standard



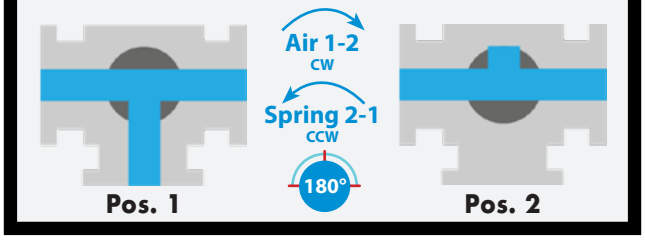
UT.180.SR - Reverse

Air CW, Spring CCW

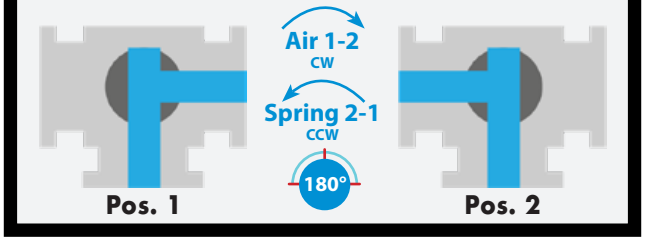
Flow Plan RF - Reverse



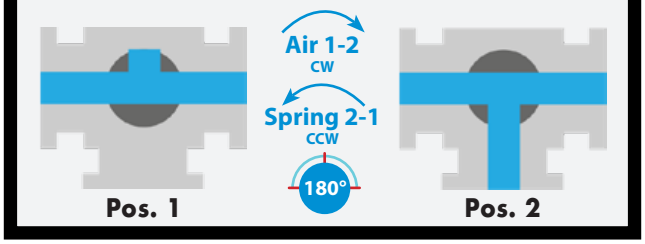
Flow Plan RG - Reverse



Flow Plan RH - Reverse



Flow Plan RI - Reverse



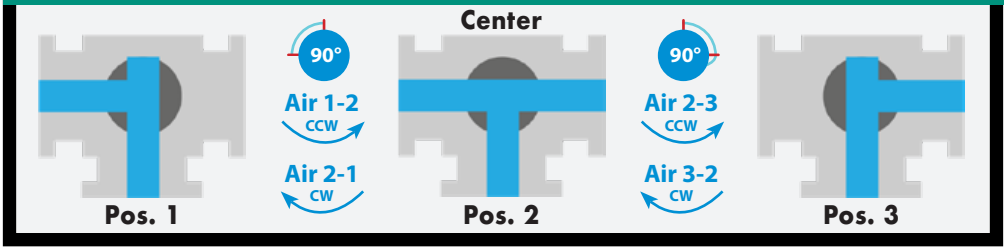
Flow Patterns Cont.

Double Acting, Spring Return, 3-Position Standard, & 3-Position Reverse

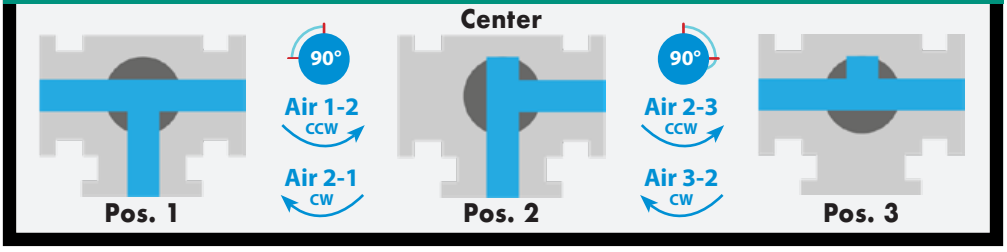
3P.180.DA - Standard

Air CCW, Air CW, Air to Center

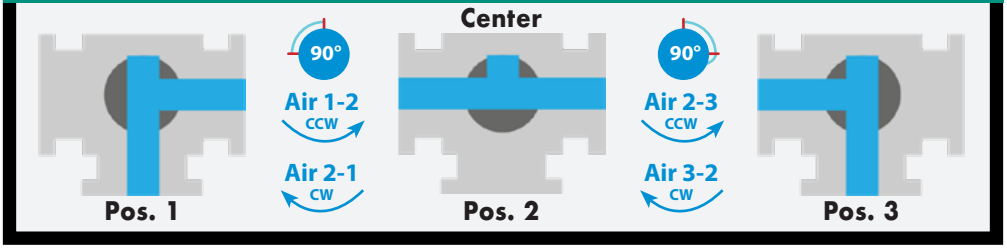
Flow Plan J - Standard



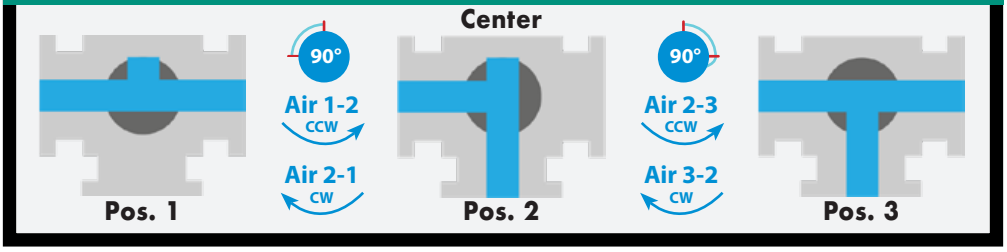
Flow Plan K - Standard



Flow Plan L - Standard



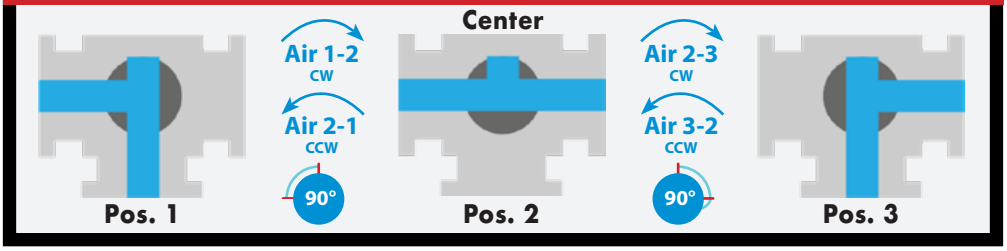
Flow Plan M - Standard



3P.180.DA - Reverse

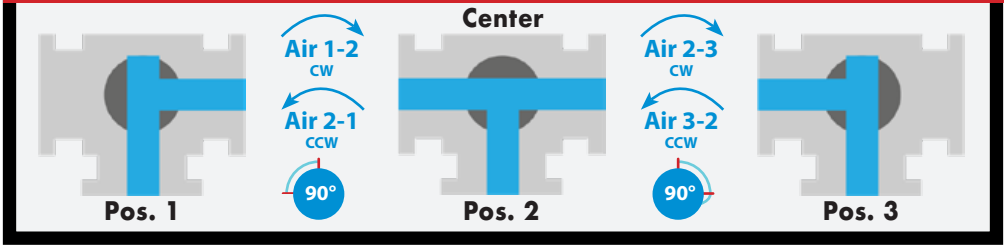
Air CW, Air CCW, Air to Center

Flow Plan RJ - Reverse



Flow Plan RK - Reverse

Flow Plan RL - Reverse



Flow Plan RM - Reverse

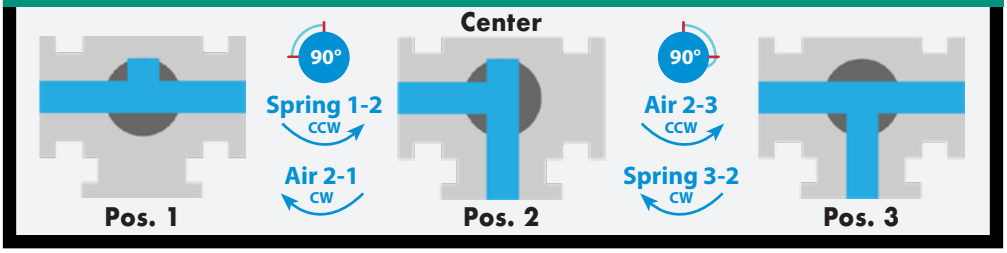
Flow Patterns Cont.

Double Acting, Spring Return, 3-Position Standard, & 3-Position Reverse

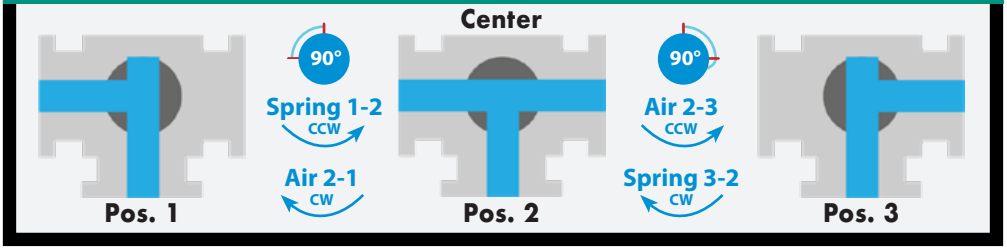
UT.180.CR - Standard

Air CCW, Air CW, Spring to Center

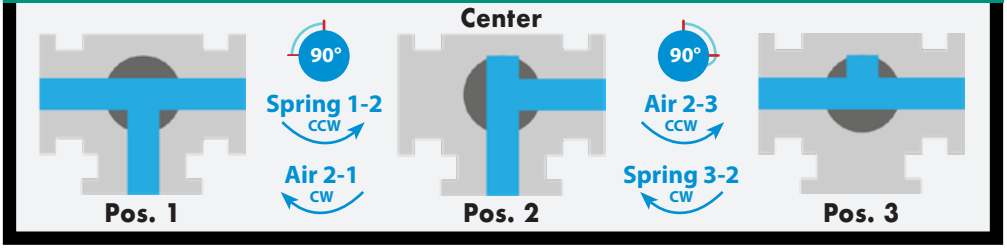
Flow Plan J - Standard



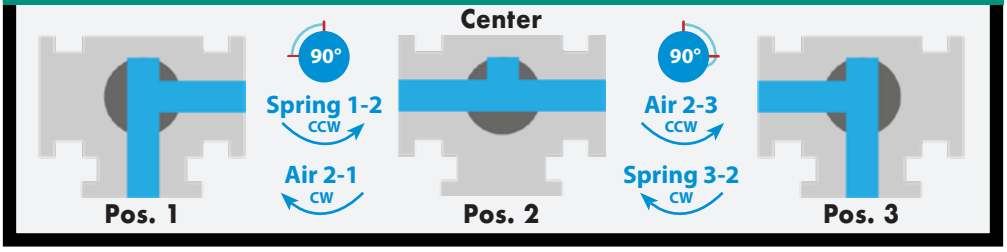
Flow Plan K - Standard



Flow Plan L - Standard



Flow Plan M - Standard



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Back to Table of Contents
R: 12/07/21

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Certifications & Approvals

ISO 5211 Mounting
This standard defines a standardized interface system between industrial valves and the part turn actuators used operate them. It details the dimensional requirements for both the mounting flanges on both devices as well as the driving and driven components. This standardization simplifies the design of or eliminates the need for interface components between part turn valves and actuators.

CE Marking
This is a mandatory conformity marking for certain products sold within the European Economic Area (EEA) since 1985. The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA. This makes the CE marking recognizable worldwide even to people who are not familiar with the European Economic Area. It is in that sense similar to the FCC Declaration of Conformity used on certain electronic devices sold in the United States. The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EC directives.

NAMUR
All UT/3P eries actuators come with NAMUR accessory interfaces according to VDI/VDE 3845. The air interface is in the ¼" size.

Atex Global Approval:
In addition to being designed and produced according to sound engineering practice, the UT/3P Series actuators have also been certified to the relevant Atex standards for safety (Machinery Direcrive, annex VIIIB). Additionally it carries a CE mark and is in compliance with Annex VIIB of the Machinery Directive and regulation 80079-36.

SIL3 Approval
The UT/3P Series actuators have been independently evaluated by approval authorities which have confirmed that our actuators are SIL 3 capable in accordance with the requirements of IEC 61508 provided that they are installed in accordance with the relevant Safety Manual.

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R: 12/07/21