MORIN

1,500 psig Operating Pressure Rating
Direct Gas/Hydraulic Actuators
Ductile Iron/Stainless Steel Quarter-turn
Double Acting and Spring Return Models

Features and Benefits

- High pressure construction eliminates undesirable regulators and relief valves for supply pressures up to 1,500 psig.
- Hydraulic dampening provides smooth “open-close” operation to prevent detrimental valve slamming.
- Ductile iron housing provides long product life with durable, cost effective operation.
- Cylinders of 316 stainless steel provide unrivaled corrosion resistance.
- Output shaft made of high strength alloy steel transmits torque without.
- Sintered bronze bushings or sealed needle bearings on output shaft eliminate sideloading of valve stem to maximize stem packing performance.
- Chrome-plated steel piston rod provides strength and corrosion resistance for enduring high-cycle applications.
- Sintered bronze piston rod bushings provide low-friction support and precise alignment of the piston rod to increase efficiency, reduce maintenance and extend actuator life.
- Heat-treated stainless steel thrust pin and rollers transfer piston force to 17-4PH stainless steel yoke by rolling to reduce friction, for longer life and more efficient torque transmission.
- Teflon® guide bands ensure low-friction piston guidance during operation to protect cylinder walls from potential scoring and extend seal performance with a continuous cylinder wiping action.
- Bi-directional travel stops provide accurate valve rotation adjustment.
- ISO 5211 mounting promotes easier valve adaption by utilizing internationally recognized mounting patterns.
- Drive slot on output shaft enables accessory-driven components to maintain a compact, low profile assembly.

- Tectyl-coated springs can be disarmed without special tools to safely and easily disassemble the actuator in the field, reducing down time and providing a “man-safe” spring.
- Easily removable housing cover provides effortless access for internal inspection.
- Dry piston seal consists of a one piece graphite filled TFE ring with an O-ring expander. Seal is self lubricating and performs well in direct gas and hydraulic service.

General Applications

Designed specifically for automating quarter-turn pipeline valves, providing control for any quarter-turn ball, plug or butterfly valve application.

Technical Data

Supply pressure: Up to 1,500 psig

Supply medium: Any pneumatic or hydraulic fluid compatible with materials of construction.

Temperature rating: -20°F to 210°F std.
-65°F to 300°F opt.

Angular rotation: 90 degrees ±8 degrees

tyco Flow Control

Principles of Construction and Scotch Yoke Torque

Using a ductile iron housing, stainless steel cylinders and carbon steel endcaps, the 79B-HP becomes the standard for low cost valve actuation while providing high quality performance.

Cylinders of 316 stainless steel provide the ultimate in corrosion resistance and increased piston seal performance while reducing maintenance costs. Any components that rotate or slide during operation, such as the high strength alloy steel plated output shaft, chrome-plated piston rod, stainless steel thrust pin or the steel piston, are all supported by replaceable friction reducing bearings.

ISO 5211 Mounting

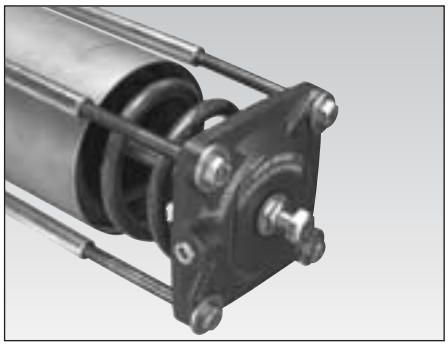
To provide the greatest flexibility for valve adaptation, each model has a mounting pattern designed in accordance with International Organization for Standardization (ISO) requirements.

Bi-directional Travel Stops

Adjustable stops on each end cap provide the flexibility of accurate valve rotation positioning at the end of the “open” and “close” stroke. Both stops are located on the cylinder centerline, the optimal position to maximize travel adjustment and eliminate any detrimental side loading on the travel stops. Adjustable from 80° to 98°.

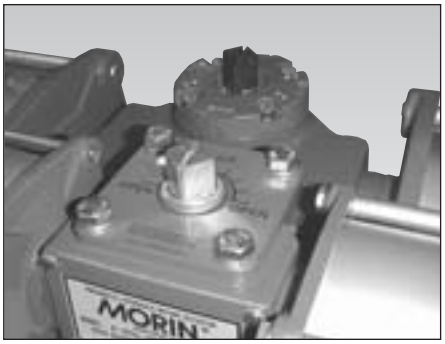
Standard Options

- Metric Mounting Threads.
- Viton® Seals.
- Low Temperature BUNA-N.
- Lock-out Device.
- Manual Handpump Override.



Spring Designed for Safety

All spring return models incorporate a “man safe” spring design that allows the actuator to be safely assembled and disassembled in the field without the need for special tools. The integral tie rods are bored and tapped to provide a means of loading and unloading the spring in a safe and convenient manner.

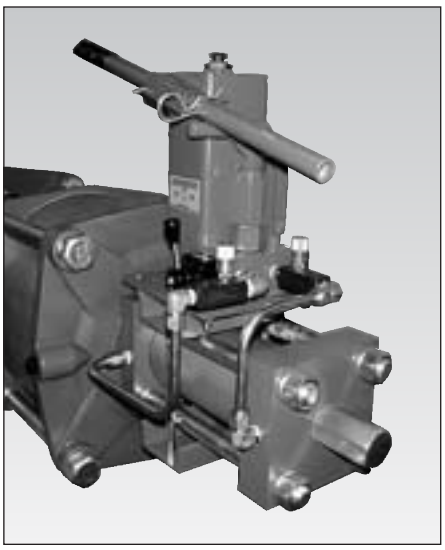


Accessory Drive Slot

Each actuator output shaft is provided with a precision machined accessory drive slot for low torque accessory devices such as limit switches and positioners. Various accessories can be directly mounted to the center body of the HP25 and HP30 without the need for extra couplings or brackets. The result is a more compact and rigid assembly.

Position Indicator and Pointer

On the HP15, the “open-shut-open” indicator plate allows the use of the same indicator and pointer when the failure mode needs to be reversed. When changing from “fail-close” to “fail-open” on spring return models, simply mount the stainless steel position indicator plate and pointer on the opposite side of the actuator. The position indicator plate and pointer can be mounted parallel or perpendicular to the actuator centerline.

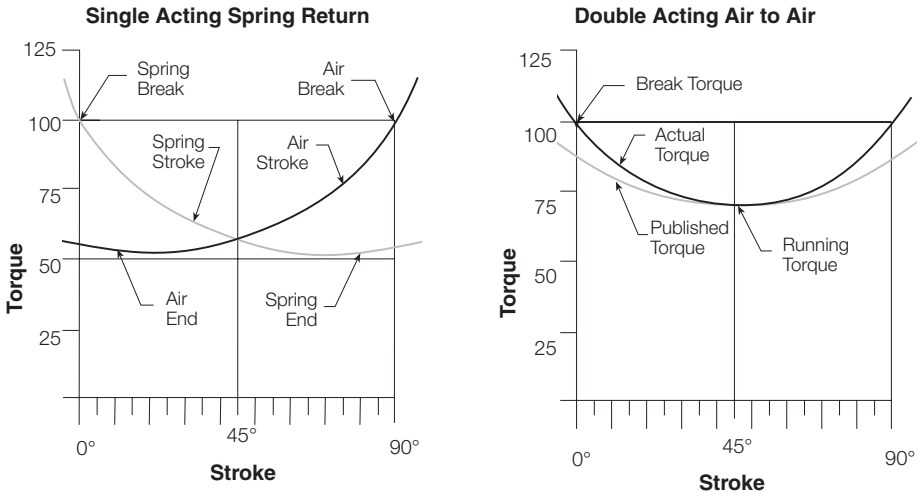


Manual Handpump Override

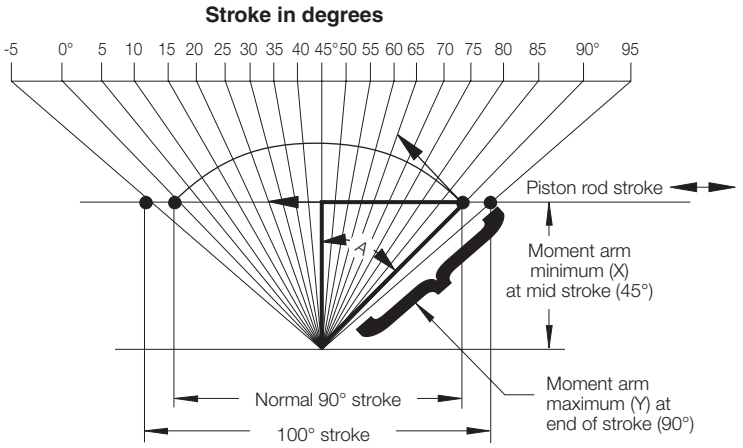
The manual handpump override is a self-contained hydraulic override that provides manual operation of the valve by operating the handpump lever.

Scotch Yoke Torque and Mechanics

Scotch Yoke Torque Characteristics

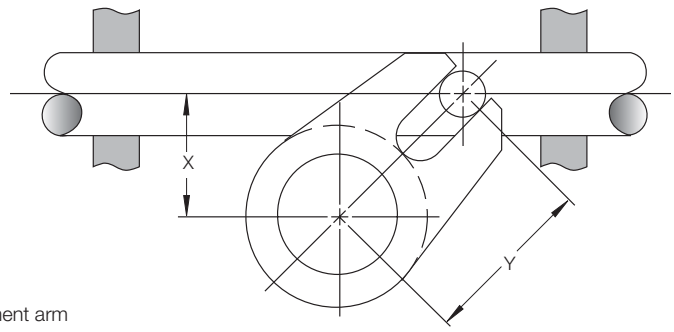


Scotch Yoke Mechanics



Note:
For max. moment arm at any stroke position multiply min. moment by decant △ A.

Conclusion: greatest torque output is at beginning and end of stroke, where it's needed.



X = Min. moment arm
Y = Max. moment arm

Dimensions

Dimensional Data (inches)

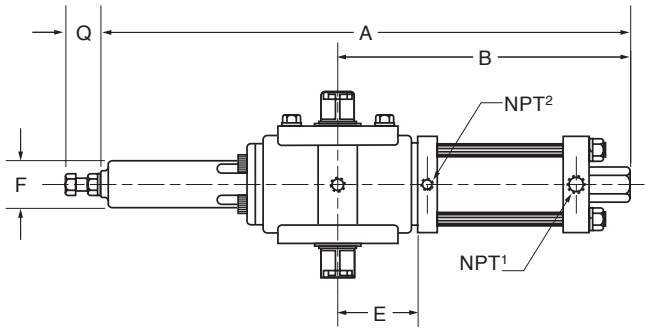
Double Acting	A	B	C[1]	C[2]	D[1]	D[2]	E	F	G	J	K	L	M	Q	NPT[1] Ports	NPT[2] Ports	ISO Flange
HP15U-2-1DA	19.81	11.00	3.50	-	5.50	-	3.06	1.75	-	2.16	4.31	6.81	2.25	1.25	3/8	1/8	F12
HP15U-2-2DA	22.00	11.00	3.50	-	5.50	-	3.06	-	-	2.16	4.31	6.81	2.25	-	3/8	-	F12
HP15U-3-1DA	25.87	17.06	5.50	-	6.50	-	3.06	1.75	-	2.16	4.31	6.81	2.25	1.25	1/2	1/8	F12
HP25U-3-1DA	34.82	19.44	5.50	-	8.13	-	5.63	2.75	-	4.38	8.13	11.82	3.19	1.75	1/2	3/8	F16
HP25U-4-1DA	37.85	22.47	7.00	-	8.88	-	5.63	2.75	-	4.38	8.13	11.82	3.19	1.75	1/2	3/8	F16
HP30U-4-1DA	44.22	24.50	7.00	-	13.62	-	7.63	3.50	-	5.44	13.62	14.81	6.88	1.75	1/2	3/8	F30
HP30U-6-1DA	45.88	26.13	9.00	-	14.62	-	7.63	3.50	0.44	5.44	13.62	14.81	6.88	1.75	1/2	3/8	F30
HP30U-8-1DA	46.38	26.63	10.63	-	15.43	-	7.63	3.50	1.25	5.44	13.62	14.81	6.88	1.75	1/2	3/8	F30
Spring Return																	
HP15U-2-1-023S	24.50	11.00	3.50	4.81	5.50	6.18	2.79	-	0.25	2.16	4.31	6.81	2.25	1.25	3/8	-	F12
HP15U-2-1-046S	24.50	11.00	3.50	4.81	5.50	6.18	2.79	-	0.25	2.16	4.31	6.81	2.25	1.25	3/8	-	F12
HP15U-2-1-072S	25.75	11.00	3.50	5.81	5.50	6.68	2.70	-	0.75	2.16	4.31	6.81	2.25	1.25	3/8	-	F12
HP15U-2-1-100S	25.75	11.00	3.50	7.12	5.50	7.34	2.70	-	1.32	2.16	4.31	6.81	2.25	1.25	3/8	-	F12
HP15U-3-1-100S	31.75	17.06	5.50	7.12	6.50	7.34	2.70	-	1.32	2.16	4.31	6.81	2.25	1.25	1/2	-	F12
HP25U-3-1-210S	45.94	19.44	5.50	11.50	8.13	11.88	4.66	-	2.00	4.38	8.13	11.82	3.19	2.12	1/2	-	F16
HP25U-3-1-420S	45.94	19.44	5.50	11.50	8.13	11.88	4.66	-	2.00	4.38	8.13	11.82	3.19	2.12	1/2	-	F16
HP25U-4-1-210S	48.97	22.47	7.00	11.50	8.88	11.88	4.66	-	2.00	4.38	8.13	11.82	3.19	2.12	1/2	-	F16
HP25U-4-1-420S	48.97	22.47	7.00	11.50	8.88	11.88	4.66	-	2.00	4.38	8.13	11.82	3.19	2.12	1/2	-	F16
HP30U-4-1-370S	56.75	24.50	7.00	13.50	13.62	16.75	6.92	-	2.69	5.44	9.50	14.81	6.88	1.75	1/2	-	F30
HP30U-4-1-740S	56.75	24.50	7.00	13.50	13.62	16.75	6.92	-	2.69	5.44	9.50	14.81	6.88	1.75	1/2	-	F30
HP30U-6-1-575S	60.63	26.13	9.00	17.00	14.62	18.50	6.39	-	4.50	5.44	9.50	14.81	6.88	2.50	1/2	-	F30
HP30U-6-1-740S	58.13	26.13	9.00	13.50	14.62	16.75	6.92	-	2.69	5.44	9.50	14.81	6.88	1.75	1/2	-	F30
HP30U-6-1-1150S	60.63	26.13	9.00	17.00	14.62	18.50	6.39	-	4.50	5.44	9.50	14.81	6.88	2.50	1/2	-	F30
HP30U-8-1-740S	58.63	26.63	10.63	13.50	15.43	16.75	6.92	-	2.69	5.44	9.50	14.81	6.88	1.75	1/2	-	F30
HP30U-8-1-1150S	61.13	26.63	10.63	17.00	15.43	18.50	6.39	-	4.50	5.44	9.50	14.81	6.88	2.50	1/2	-	F30

Mechanical Data

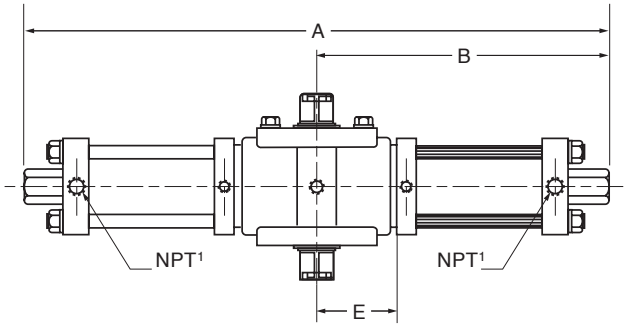
Actuator Model Double Acting	Cylinder Bore (inch)	Stroke (inch)	Volume Cubic In 95° Stroke	Weight (lbs.)	Maximum Operating Pressure (psi)	Maximum Hydrostatic Pressure (psi)
HP15U-2-1DA	2.1	3	12	30	1500	2250
HP15U-2-2DA	2.1	3	12	43	1500	2250
HP15U-3-1DA	3.2	3	25	48	700	1500
HP25U-3-1DA	3.2	5	46	155	1500	2250
HP25U-4-1DA	4.2	5	71	160	1100	2250
HP30U-4-1DA	4.2	6	101	365	1500	2250
HP30U-6-1DA	6.2	6	184	410	1000	2250
HP30U-8-1DA	8.2	6	321	460	600	2250
Spring Return						
HP15U-2-1-023S	2.1	3	12	35	1500	2250
HP15U-2-1-046S	2.1	3	12	45	1500	2250
HP15U-2-1-072S	2.1	3	12	55	1500	2250
HP15U-2-1-100S	2.1	3	12	75	1500	2250
HP15U-3-1-100S	3.2	3	25	190	1000	1500
HP25U-3-1-210S	3.2	5	46	250	1500	2250
HP25U-3-1-420S	3.2	5	46	260	1500	2250
HP25U-4-1-210S	4.2	5	71	260	1400	2250
HP25U-4-1-420S	4.2	5	71	265	1400	2250
HP30U-4-1-370S	4.2	6	101	440	1500	2250
HP30U-4-1-740S	4.2	6	101	600	1500	2250
HP30U-6-1-575S	6.2	6	184	1010	1500	2250
HP30U-6-1-740S	6.2	6	184	910	1500	2250
HP30U-6-1-1150S	6.2	6	184	1115	1500	2250
HP30U-8-1-740S	8.2	6	321	1075	900	2250
HP30U-8-1-1150S	8.2	6	321	1160	900	2250

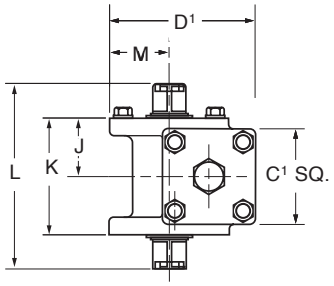
Dimensions

HP15-2-1
HP15-3-1
Double Acting

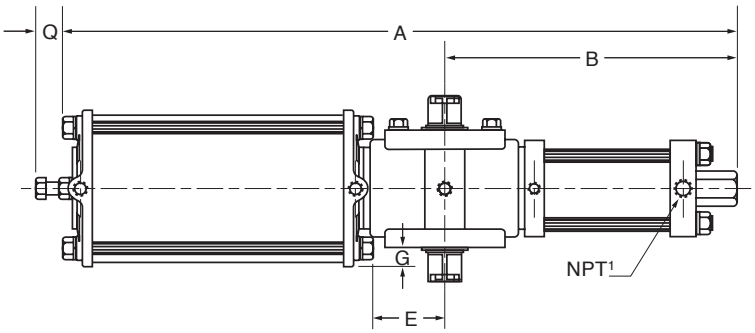


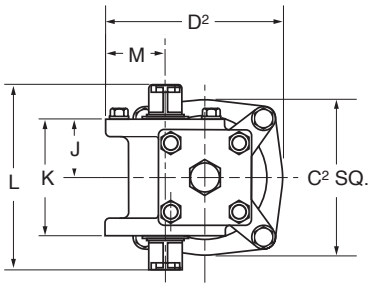
HP15-2-2
Double Acting



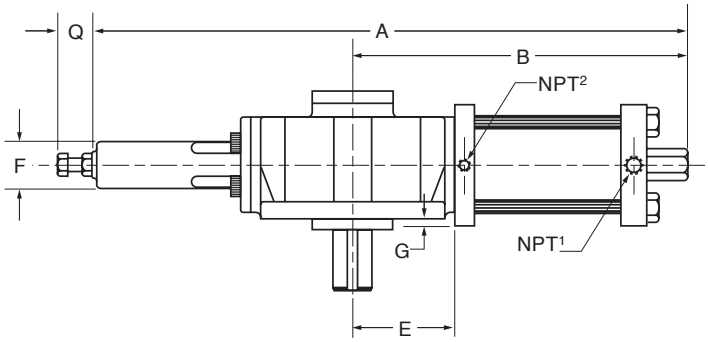


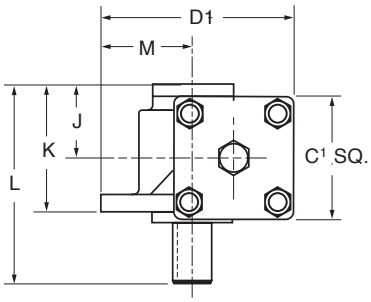
HP15
Spring Return



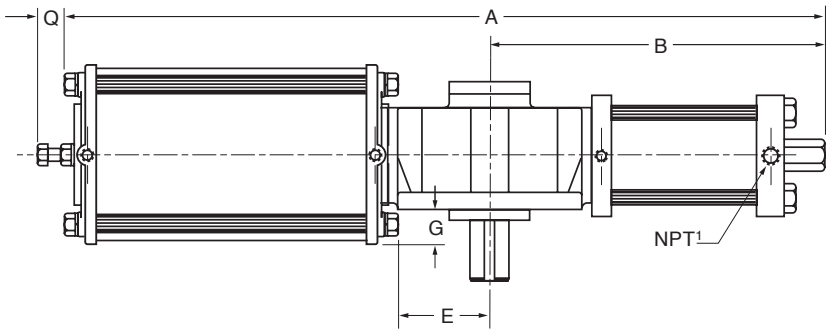


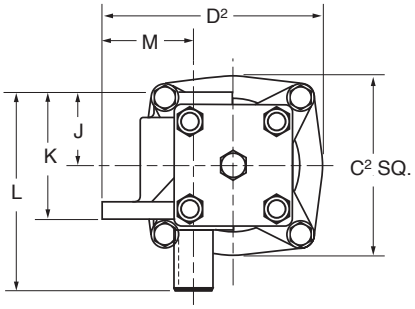
HP25 and HP30
Double Acting





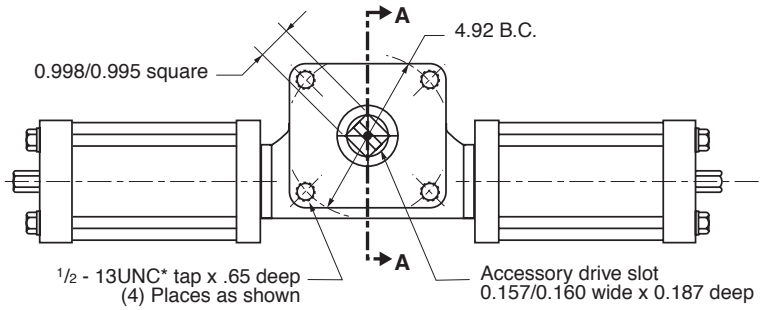
HP25 and HP30
Spring Return

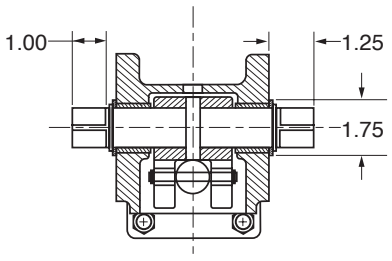




Mounting Details

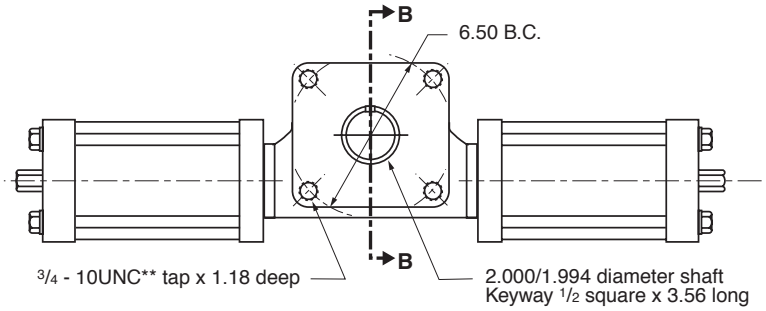
Model HP2 - Top and bottom of housing (symmetrical) - ISO 5211-F12

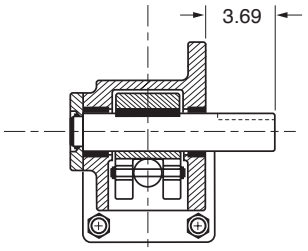




SECTION A - A

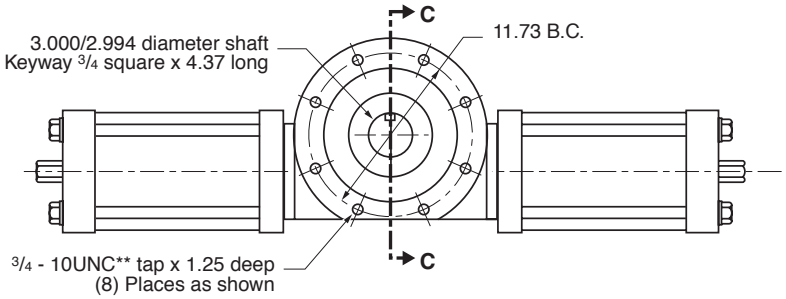
Model HP3 - Bottom of housing - ISO 5211-F16

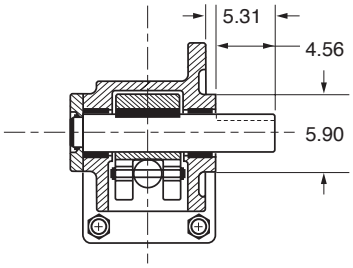




SECTION B - B

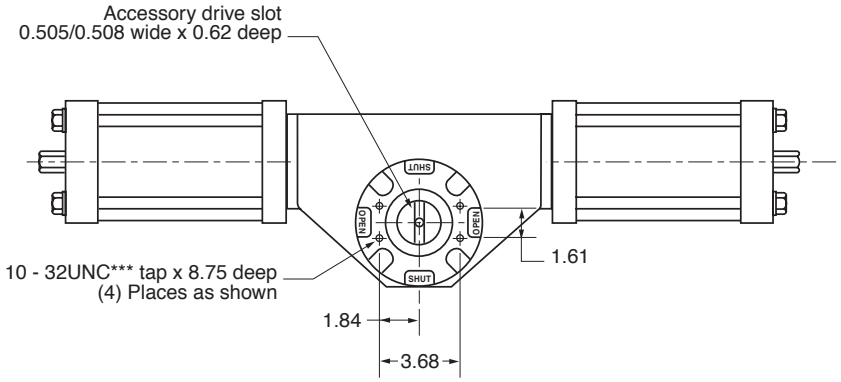
Model HP4 - Bottom of housing - ISO 5211-F30





SECTION C - C

Models HP3 and HP4 - Top of housing



Metric Thread Option	
Metric Tap	**Model Number**
*M12	HP15
**M20	HP25 and HP30
***M5	HP25 and HP30

Replace “U” with “M” in order number designation.

Output Torques

Output Torques (lb.in.) Double Acting

Actuator Model		Power Supply 400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
HP15U-2-1DA	Break	2100	2630	3160	3690	4210	4740	5270	5800	6320	6850	7375	7900
	Run	1656	2070	2484	2898	3312	3726	4140	4554	4968	5382	5796	6209
HP15U-2-2DA	Break	2700	3380	4060	4740	5410	6090	6770	7440	8120	8800	9470	10150
	Run	2127	2659	3190	3722	4254	4785	5317	5849	6381	6912	7444	7976
HP15U-3-1DA	Break	5730	7165	8600	10030								
	Run	4504	5630	6756	7882								
HP25U-3-1DA	Break	8300	10380	12460	14530	16600	18680	20760	22840	24910	26990	29060	31140
	Run	6525	8157	9788	11419	13051	14682	16313	17945	19576	21207	22839	24470
HP25U-4-1DA	Break	15800	19750	23700	27640	31590	35540	39490	43440				
	Run	12413	15516	18619	21722	24826	27929	31032	34135				
HP30U-4-1DA	Break	16860	21070	25290	29500	33720	37930	42145	46360	50570	54790	59000	63220
	R un	13247	16559	19870	23182	26494	29805	33117	36429	39741	43052	46364	49676
HP30U-6-1DA	Break	42030	52540	63050	73560	84065	94570	105080					
	Run	33029	41286	49543	57801	66058	74315	82575					
** HP30U-8-1DA	Break	76800	96000	115200									
	Run	60347	75434	90520									

Output Torques (lb.in.) Single Acting - Spring return

Actuator Model		Power Supply 400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
HP15U-2-1-XXXX*	Break	1680	2250	2615	3000	3510	4095	4095	4880	4880	5690	5690	6500
	End	905	1200	1410	1600	1890	2205	2205	2620	2620	3060	3060	3500
	Spring Pak	023S090	046S060	046S070	046S080	072S060	072S070	072S070	100S060	100S060	100S070	100S070	100S080
HP15U-3-1-XXXX*	Break	4060	4880	5690	6500	6500	-	-	-	-	-	-	-
	End	2190	2620	3060	3500	3500	-	-	-	-	-	-	-
	Spring Pak	100S050	100S060	100S070	100S080	100S080	-	-	-	-	-	-	-
HP25U-3-1-XXXX*	Break	6825	8530	10240	11945	13650	15350	17060	17060	20475	20475	23890	23890
	End	3675	4590	5510	6430	7350	8270	9190	9190	11025	11025	12860	12860
	Spring Pak	210S040	210S050	210S060	210S070	210S080	210S090	420S050	420S050	420S060	420S060	420S070	420S070
HP25U-4-1-XXXX*	Break	10240	13650	17060	20475	23890	23890	27300	30705	34120	-	-	-
	End	5510	7350	9190	11025	12860	12860	14700	16540	18380	-	-	-
	Spring Pak	210S060	420S040	420S050	420S060	420S070	420S070	420S080	420S090	420S100	-	-	-
HP30U-4-1-XXXX*	Break	12025	15030	21045	24050	27055	30060	30060	36075	42090	42090	48100	48100
	End	6475	9085	11330	12950	14570	16190	16190	19425	22660	22660	25900	25900
	Spring Pak	370S040	370S050	370S070	370S080	370S090	740S050	740S050	740S060	740S070	740S070	740S080	740S080
HP30U-6-1-XXXX*	Break	30060	37375	42090	48100	56060	65400	74750	84090	84090	93340	-	-
	End	16190	20125	22660	25900	30190	35220	40250	45280	45280	50300	-	-
	Spring Pak	740S050	575S080	740S070	740S080	1150S060	1150S070	1150S080	1150S090	1150S090	1150S100	-	-
** HP30U-8-1-XXXX*	Break	48100	65400	74750	84090	93440	93440	-	-	-	-	-	-
	End	25900	35220	40250	45280	50300	50300	-	-	-	-	-	-
	Spring Pak	740S080	1150S070	1150S080	1150S090	1150S100	1150S100	-	-	-	-	-	-

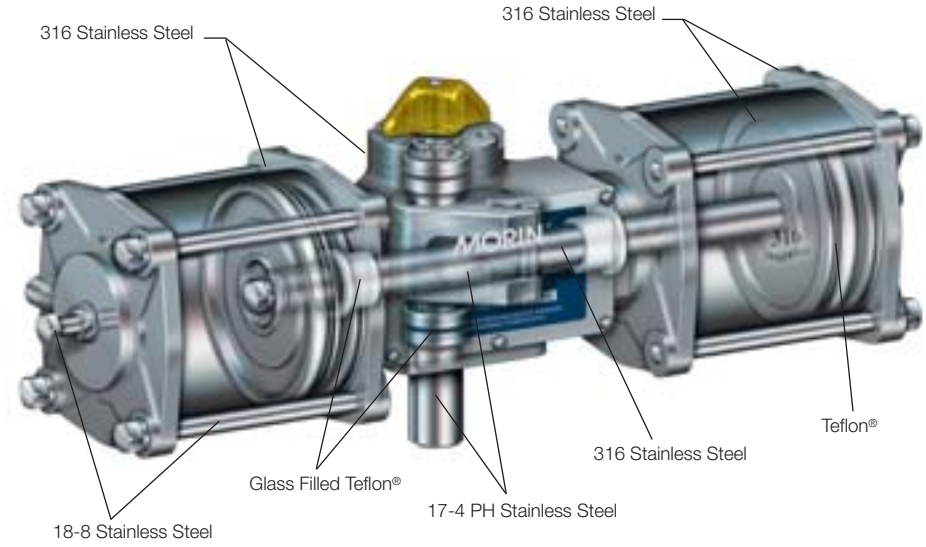
Notes: Consult your sales representative for price and availability of the HP60 model with torque output up to 240,000 lb.in.

* Spring Pak designation as suffix (e.g for 1200 lb.in. spring ending torque @ 500 psi supply pressure specify HP15U-2-1-046S060).

** HP30U-8 cylinder available in carbon steel, ENP only.

Also Available

The Series S Actuator (All Stainless)

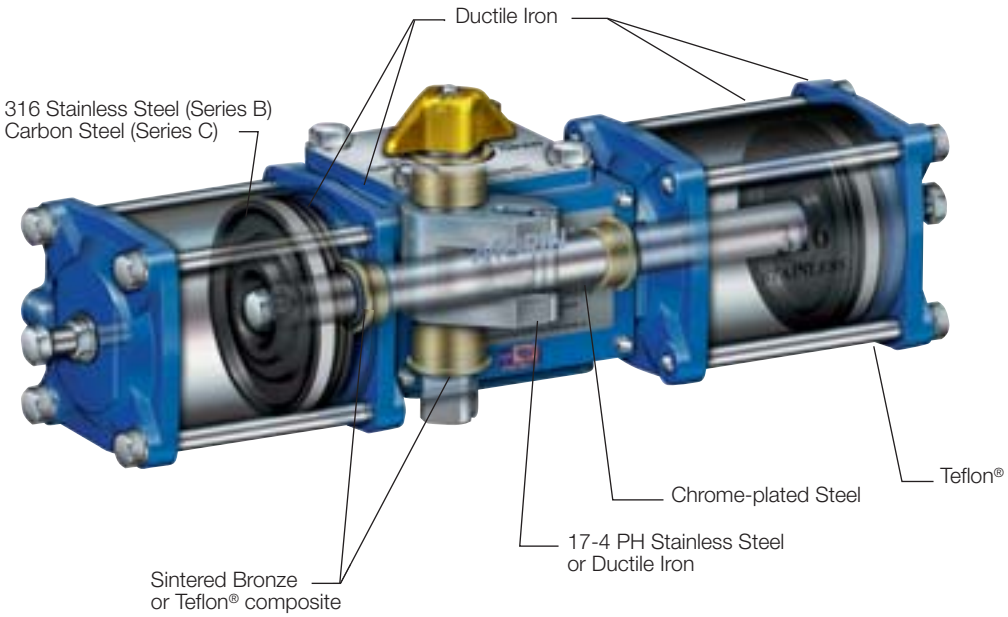


Setting an unrivaled standard in actuation at a price unexpectedly low for stainless steel.

- To 160 psig pressure rating.
- Double acting break torques to 238,000 lb.in.
- Spring end torques to 104,125 lb.in.

For additional information, refer to datasheet MORMC-0024.

The Series B and C Actuators



Setting a new standard in actuation at a price you'd expect from a commodity product.

- To 160 psig pressure rating.
- Double acting break torques to 1,374,701 lb.in.
- Spring end torques to 583,288 lb.in.

For additional information, refer to datasheet MORMC-0023.