

Max-Air TECHNOLOGY

The Best Way To Automate Your Process

Pneumatic & Hydraulic Scotch Yoke Actuators

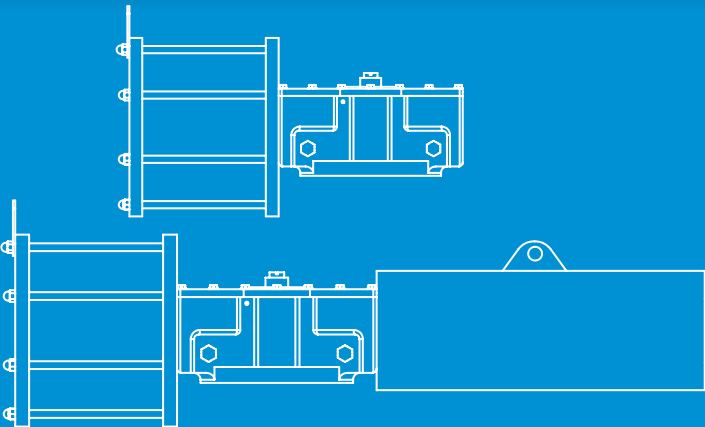


HD Series Technical Brochure

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

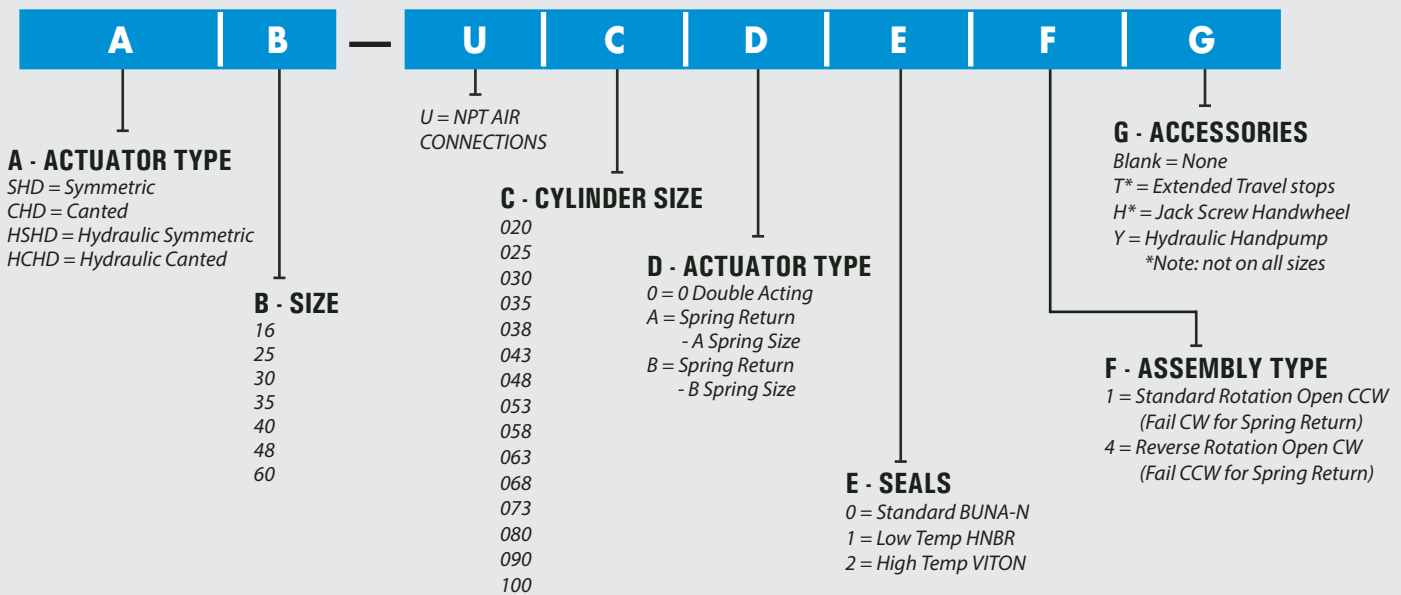
Scotch Yoke Actuators

Air or fluid powered rotary actuators for heavy duty, high torque applications.



Max-Air Technology Heavy Duty Series (HD) Scotch Yoke Actuators are available in two distinct configurations: SHD (symmetric) and CHD (canted) heavy duty selectable torque profiles are designed to perform in the most demanding applications based on valve requirement. Engineered to pneumatically automate all types of quarter turn valves (ball, butterfly, plug, damper), where reliably high torque outputs are necessary. Double Acting 13,367 to 2,738,990 in-lbs, Spring Return 5,328 to 1,320,215 in-lbs. Please refer to torque charts for specific details.

HD Series Part Number Builder



*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.

Seal Options

SEALS	CODE	TEMP RANGE
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)





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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.

Scotch Yoke Actuators

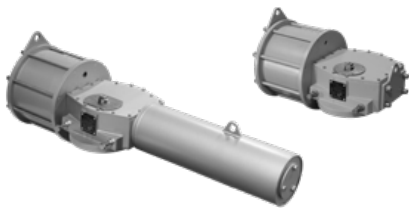
Air or fluid powered rotary actuators for heavy duty, high torque applications.

The Solution for High Torque Applications.

Max-Air Technology HD Series scotch yoke actuators are designed to be a comprehensive solution for a range of industrial, high torque applications. Our completely modular design includes a rugged high-strength center body, slide block yoke mechanism, and tensile spring compression for safe and reliable fail-safe action. Actuators can be sized and outfitted with air cylinders or high-pressure hydraulic cylinders to closely match your valve torque requirements. Manual overrides are readily available and specialty coatings upon request.

Standard Features:

- Symmetric and Canted Yoke options
- Slide Block Technology extends service life
- Hard chrome plated wear surfaces
- Three layer epoxy coating for general corrosion resistance
- Modular design w/ self-contained spring modules
- Optional Heavy Duty Polyamide Epoxy coating



HD Series Pneumatic

Max-Air's rugged, modular design features high-integrity components with symmetric and canted yoke options to allow for torque profiles that more closely match valve requirements.

Torque Range	Up to 2,000,000 in-lbs (DA) & 1,000,000 in-lbs (SR)
Materials	Coated Carbon Steel
Coating Option	Epoxy
Ambient Temp. Ranges	-4°F to 176°F Standard, (-40°F Low/ 300°F High)



HHD Series Hydraulic

Hydraulic power cylinders multiply actuator torque output in a more compact design and can reduce stroke times. Actuators can be converted from air to fluid power with stock or custom hydraulic cylinders.

Rotation	90 Degrees $\pm 6^\circ$ Adjustment Spring Return or Double Acting
Operation Media	Gas or High Pressure Hydraulic Fluid
Mounting	ISO 5211, NAMUR VDI/VDE 3845
Available Options	Manual Hand Pump Override, Custom Cylinders, Symmetric or Canted Yoke

Scotch Yoke Series Selection

Start from the top of the chart and work down to select the correct Scotch Yoke Series.

Operation Media	Gas		Hydraulic Fluid	
	1000 psi		Up to +3000 psi	
Pressure				
Temperature	Standard	Extreme (High/Low)	Standard	Extreme (High/Low)
Recommended Series/Options	HD Series	HD Series w/ Temp Seals	HHD Series	HHD Series w/ Temp Seals
Available Options	Manual Hand Pump Override Custom Cylinders Symmetric or Canted Yoke		Manual Hand Pump Override Custom Cylinders Symmetric or Canted Yoke	

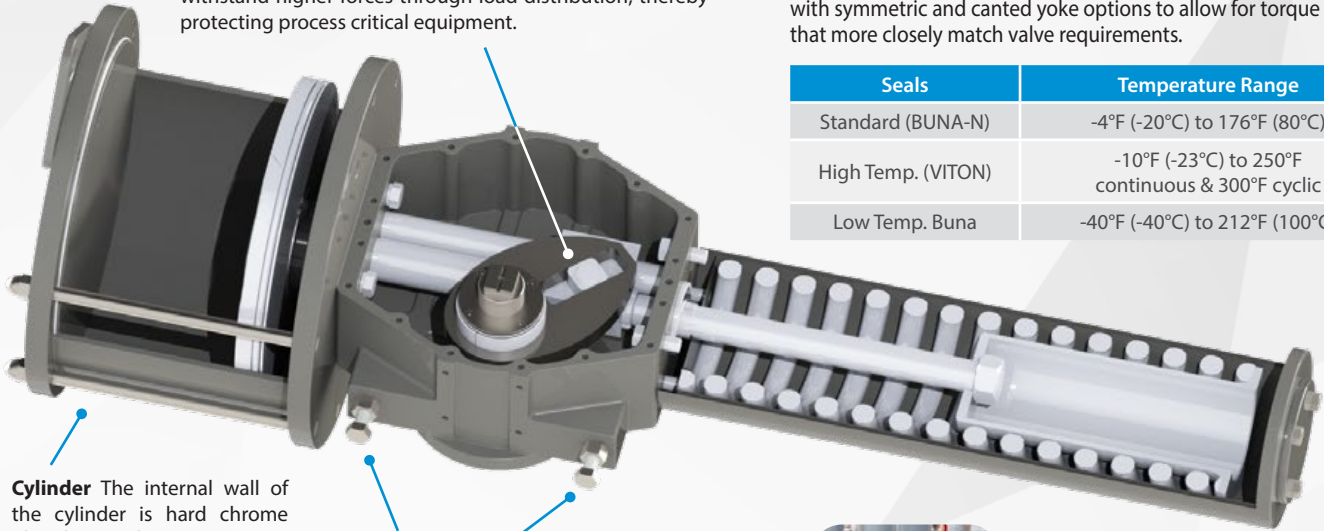
HD Series Technical Brochure

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Slide Block Technology The slide block has a wide surface contact area, impregnated with graphite, that assures lower contact forces and smoother operation and is designed to withstand higher forces through load distribution, thereby protecting process critical equipment.



Cylinder The internal wall of the cylinder is hard chrome plated in order to maximize wear and corrosion resistance.

Double Travel Stop The SHD and CHD actuators are all provided with bi-directional travel stops to allow for open and closed position location adjustments of +/- 6 degrees.

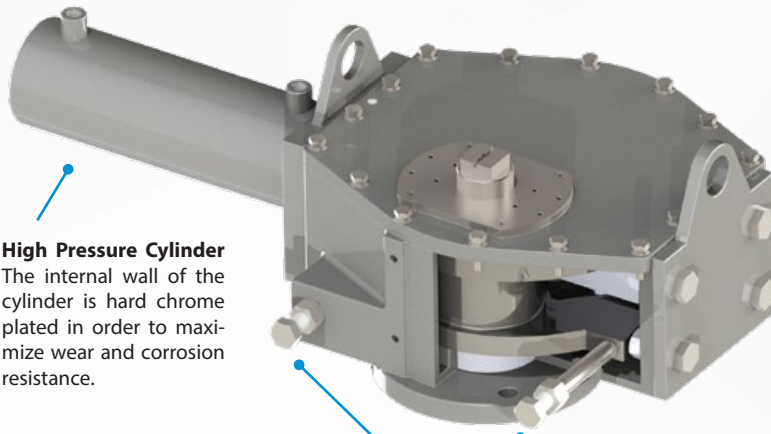
HD Series Pneumatic

Max-Air's rugged, modular design features high-integrity components with symmetric and canted yoke options to allow for torque profiles that more closely match valve requirements.

Seals	Temperature Range
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)



Manual Hydraulic Handpump Override Both the HD & HHD Series have the option for manual override via a Hydraulic Handpump. The double acting override is shown.



High Pressure Cylinder The internal wall of the cylinder is hard chrome plated in order to maximize wear and corrosion resistance.

Double Travel Stop The HSHD and HCHD actuators are all provided with bi-directional travel stops to allow for open and closed position location adjustments of +/- 6 degrees.

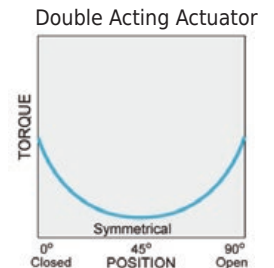
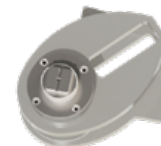
HHD Series Hydraulic

Hydraulic power cylinders multiply actuator torque output in a more compact design and can reduce stroke times. Actuators can be converted from air to fluid power with stock or custom hydraulic cylinders.

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Symmetric Torque Curves

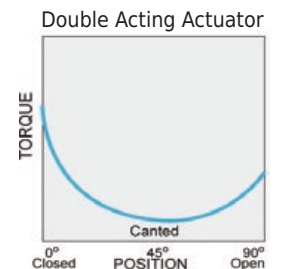
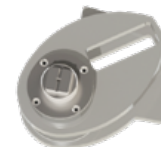
Symmetric Type



SHD series is equipped with a SYMMETRIC design yoke that produces maximum torques at both ends of the stroke (0° and 90°) and minimal in the middle, therefore this series is the optimal solution for metal seated ball valves, plug valves and for modulating service.

Canted Torque Curves

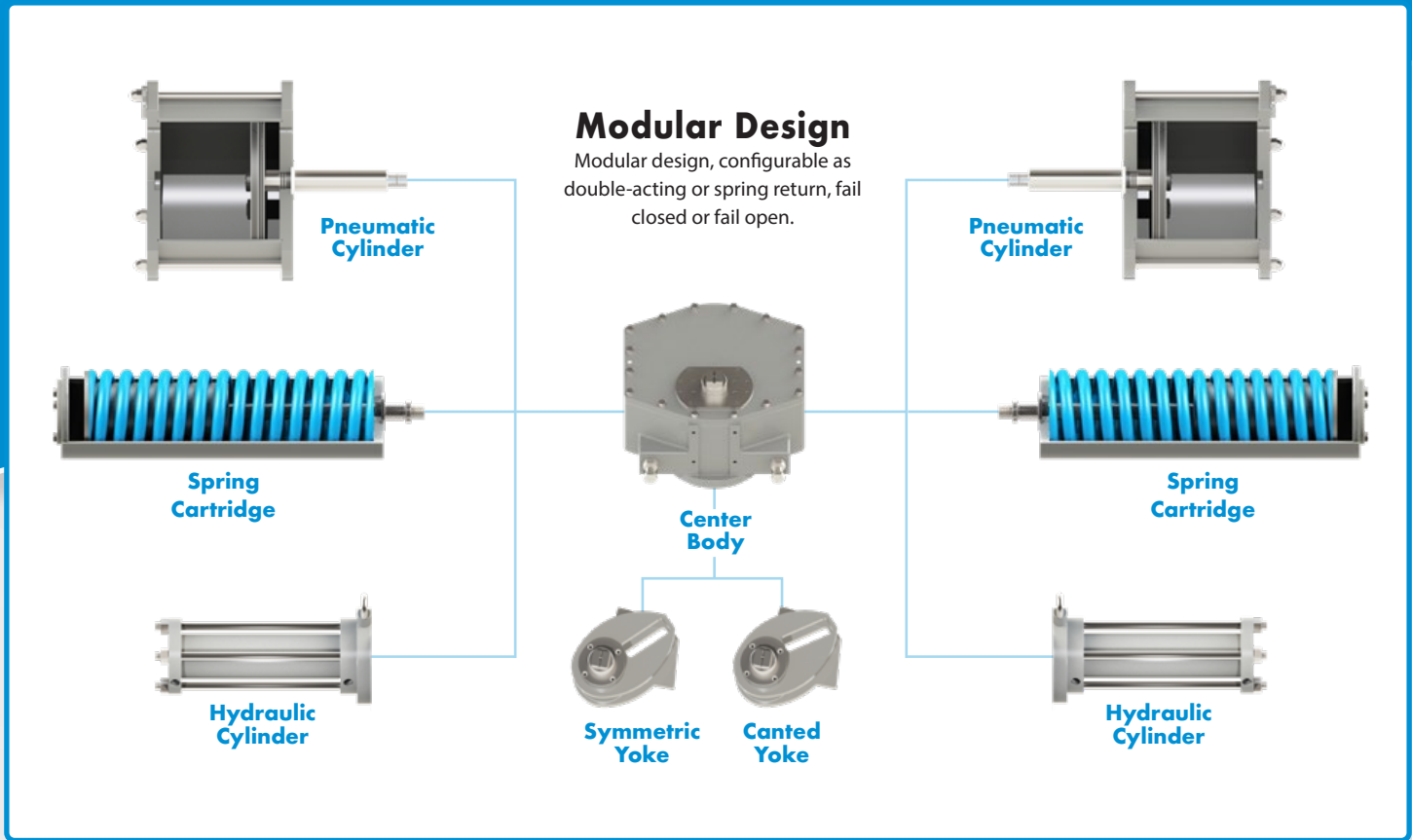
Canted Type



CHD series is equipped with a CANTED design yoke that produces a higher maximum torque at the beginning of stroke (i.e. valve unseating/reseating at 0°) and less torque at the end of stroke (90°), therefore this series is optimal solution for high performance butterfly valves.

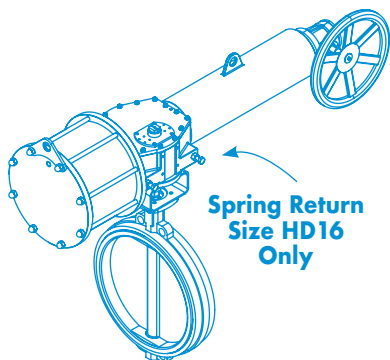
Scotch Yoke Actuators

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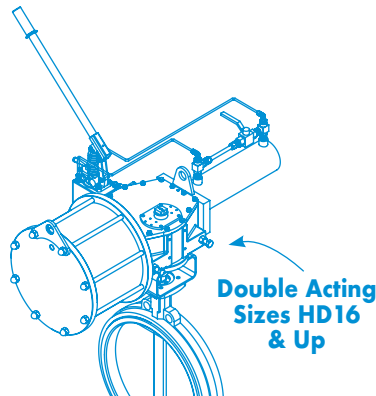
Manual Override

Jack Screw Override

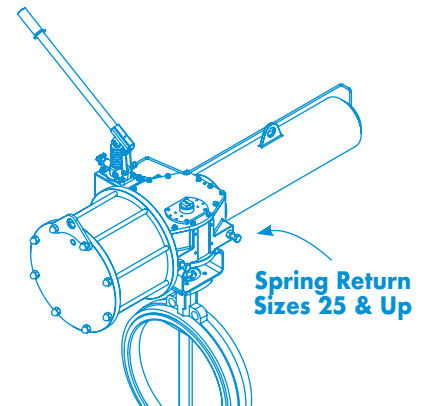


The Jack Screw Override is a Manual Override device that physically compresses the Spring mechanical means via a hand wheel. It is only available on our Size 16 Spring Return units.

Hydraulic Handpump



The Double Acting Hydraulic Handpump Override is powered by hydraulic fluid. Simply close the two way valve connecting the open and closed inlet on the hydraulic override attachment to enable to manual operation.



The Spring Return Hydraulic Handpump Override is powered by hydraulic fluid stored in additional module. Simply close the two way valve connecting the open and closed inlet on the hydraulic override attachment to enable to manual operation.

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Weights & Air Consumption

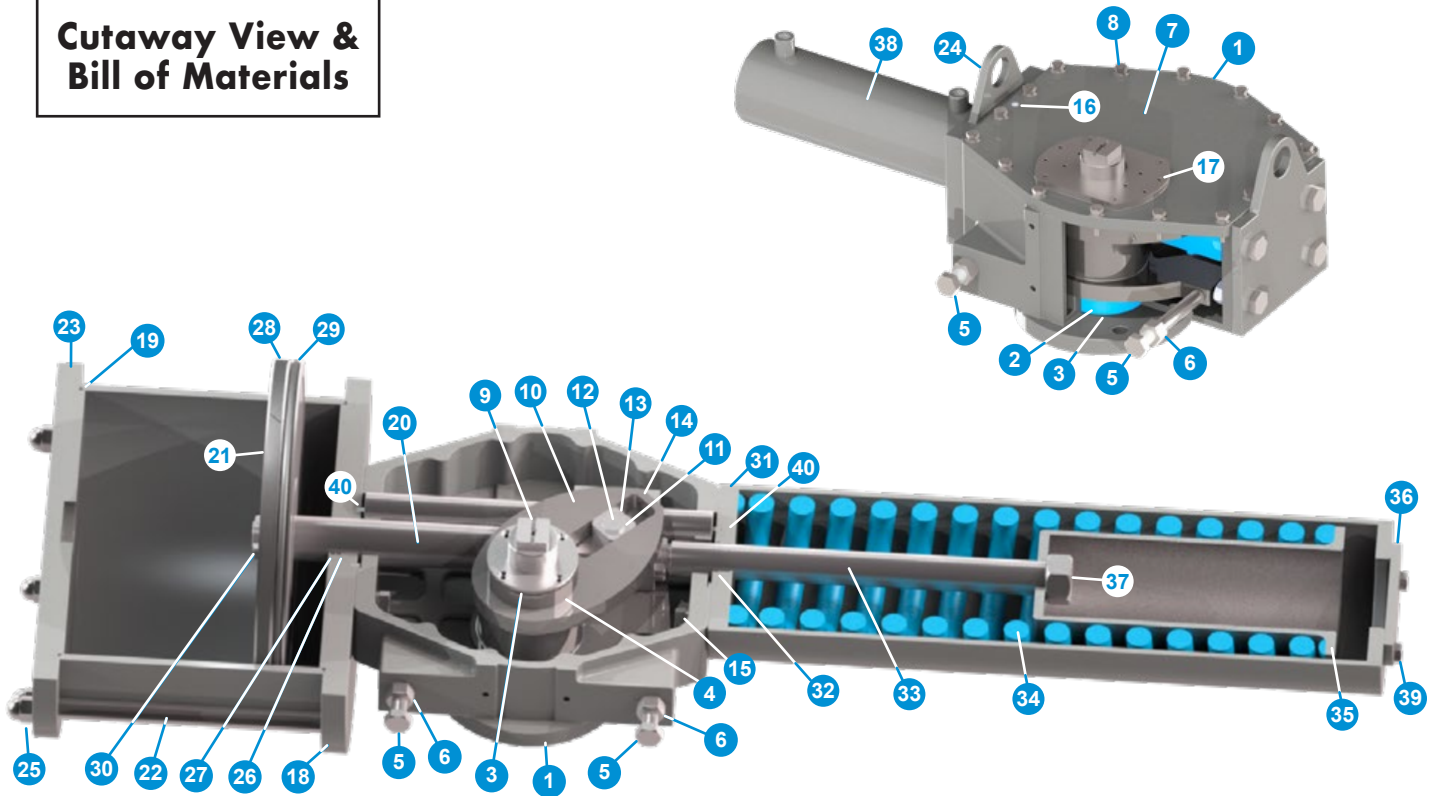
SIZE	Double Acting		Spring Return	
	Weight lbs	Air Consumption (cu-in)	Weight lbs	Air Consumption (cu-in)
SHD_CHD16-020	198	305.1	298	591.9
SHD_CHD16-025	243	488.2	353	958.1
SHD_CHD16-030	287	732.3	408	1446.3
SHD_CHD16-035	342	976.4	496	1934.5
SHD_CHD25-035	452	1159.5	694	2282.3
SHD_CHD25-038	485	1403.5	761	2770.5
SHD_CHD25-043	551	1830.7	849	3624.8
SHD_CHD30-043	683	2318.9	1080	4576.8
SHD_CHD30-048	750	2929.1	1213	5797.3
SHD_CHD30-053	827	3600.4	1411	7139.8
SHD_CHD35-053	1323	4393.7	1984	8695.9
SHD_CHD35-058	1411	5309.1	2249	10526.6
SHD_CHD35-063	1499	6224.4	2513	12357.3
SHD_CHD40-063	2161	8299.2	3527	16445.9
SHD_CHD40-068	2271	9702.8	3792	19253.0
SHD_CHD40-073	2403	11167.3	4079	22182.1
SHD_CHD48-073	3307	12631.9	4740	25019.7
SHD_CHD48-078	3439	14645.7	5291	29047.3
SHD_CHD48-080	3638	17574.8	5952	34905.6
SHD_CHD60-080	4850	22578.8	7496	44730.4
SHD_CHD60-090	5071	28681.2	8378	57545.4
SHD_CHD60-100	5401	35515.8	9259	70848.6

HD & HHD Series Technical Data

Exploded View & Materials of Construction for Pneumatic and Hydraulic Scotch Yoke Actuators

HD & HHD Series

Cutaway View & Bill of Materials



No.	DESCRIPTION	MATERIAL
1	Center Module Housing	Ductile Iron
2	Lower Bushing	Low Carbon Steel+Copper Alloy
3	Yoke O-Rings	NBR (High & Low Temp options)
4	Upper Bushing	Low Carbon Steel+Copper Alloy
5	Travel Stop	Stainless Steel / Plated Carbon Steel
6	Travel Stop Nut	Stainless Steel / Plated Carbon Steel
7	Center Cover	Ductile Iron
8	Center Cover Bolt	Stainless Steel
9	NAMUR Stem	Plated Carbon Steel
10	Yoke	Ductile Iron
11	Snap Ring	Stainless Steel
12	Yoke Pin	Alloy Steel
13	Sliding Block	High strength copper alloy+Graphite
14	Guide Block	Plated Carbon Steel
15	Spring Module Bolt	Carbon Steel
16	Cover Fixed Pin	Stainless Steel
17	NAMUR Mounting Plate (Select Sizes)	Plated Carbon Steel
18	Cylinder Inner Cap	Carbon Steel
19	Cylinder Outer O-Ring	NBR (High & Low Temp options)
20	Piston Rod	Chrome Plated Carbon Steel

No.	DESCRIPTION	MATERIAL
21	Piston	Carbon Steel
22	Tie Rod	Stainless Steel / Plated Carbon Steel
23	Cylinder Outer Cap	Carbon Steel
24	Lift Plate	Carbon Steel
25	Tie Rod Nut	Stainless Steel
26	Cylinder Cap Bushing	Low Carbon Steel+Copper Alloy
27	Cylinder Inner O-Ring	NBR (High & Low Temp options)
28	Piston Wear Bearing	PTFE bronze composite
29	Piston O-Ring	NBR (High & Low Temp options)
30	Piston Lock Nut	Carbon Steel
31	Spring Case Inner Cap	Carbon Steel
32	Spring Rod Guide Bushing	Low Carbon Steel+Copper Alloy
33	Spring Rod	Chrome Plated Carbon Steel
34	Spring	Alloy Steel
35	Spring Retainer	Carbon Steel
36	Spring Case Outer Cap	Carbon Steel
37	Spring Rod Lock Nut	Carbon Steel
38	Hydraulic Cylinder (Optional)	Carbon Steel
39	Outer Cap Bolt	Carbon Steel
40	Alignment Ring	Plated Carbon Steel

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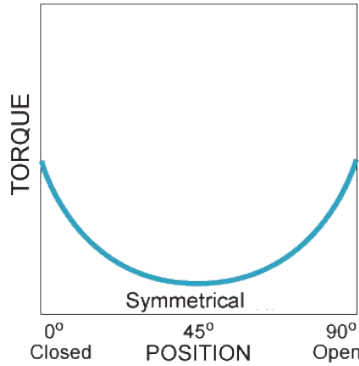
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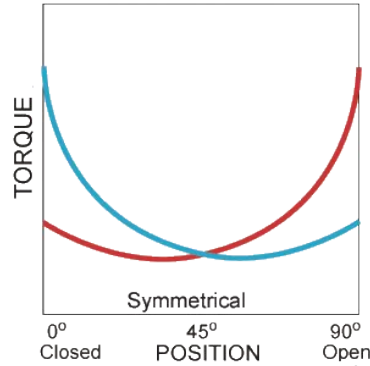
SHD Series - Symmetric Design

Double Acting & Spring Return Torques

Double Acting Actuator



Spring Return Actuator



Torque Curve — Air Torque (blue line) Spring Torque (red line)

Double Acting Torques (in-lbs)

Model	60 psi			80 psi			90 psi		
	0°	RUN	90°	0°	RUN	90°	0°	RUN	90°
SHD16-U020000	13,367	8,311	12,844	17,841	11,082	17,135	20,074	12,467	19,276
SHD16-U025000	20,907	12,988	20,376	27,876	17,313	27,170	31,360	19,478	30,564
SHD16-U030000	30,106	18,701	29,575	40,143	24,933	39,437	45,163	28,047	44,367
SHD16-U035000	40,980	25,456	40,450	54,637	33,938	53,932	61,467	38,179	60,670
SHD25-U035000	49,603	30,811	48,165	66,141	41,083	64,219	74,410	46,216	72,249
SHD25-U038000	58,473	36,321	57,035	77,964	48,428	76,042	87,710	54,482	85,549
SHD25-U043000	74,876	46,509	73,430	99,835	62,009	97,913	112,314	69,760	110,154
SHD30-U043000	96,039	59,653	93,523	128,052	79,535	124,701	144,059	89,476	140,288
SHD30-U048000	119,673	74,327	117,157	159,558	99,103	156,212	179,502	111,491	175,740
SHD30-U053000	145,899	90,620	143,390	194,535	120,827	191,184	218,852	135,930	215,082
SHD35-U053000	179,282	111,354	175,226	239,044	148,476	233,630	268,923	167,034	262,835
SHD35-U058000	214,706	133,358	210,651	286,275	177,812	280,865	322,059	200,041	315,971
SHD35-U063000	253,324	157,340	249,261	337,761	209,789	332,351	379,982	236,015	373,895
SHD40-U063000	316,218	196,408	308,310	421,619	261,874	411,078	474,320	294,608	462,465
SHD40-U068000	368,402	228,820	360,494	491,199	305,092	480,654	552,600	343,231	540,738
SHD40-U073000	424,569	263,705	416,661	566,087	351,608	555,547	636,850	395,561	624,987
SHD48-U068000	501,759	311,295	491,727	669,007	414,253	655,631	752,642	467,491	737,594
SHD48-U073000	687,799	427,214	674,033	917,065	569,616	898,713	1,031,698	640,822	1,003,780
SHD48-U080000	825,356	512,636	808,843	1,100,469	683,515	1,078,452	1,238,037	768,954	1,213,268
SHD60-U080000	1,072,944	666,417	1,051,487	1,430,592	888,559	1,401,980	1,609,416	999,624	1,577,232
SHD60-U090000	1,358,352	843,701	1,331,184	1,811,136	1,124,932	1,774,912	2,037,528	1,265,553	1,996,776
SHD60-U100000	1,676,932	1,041,567	1,643,394	2,235,910	1,388,758	2,191,192	2,515,399	1,562,348	2,465,091

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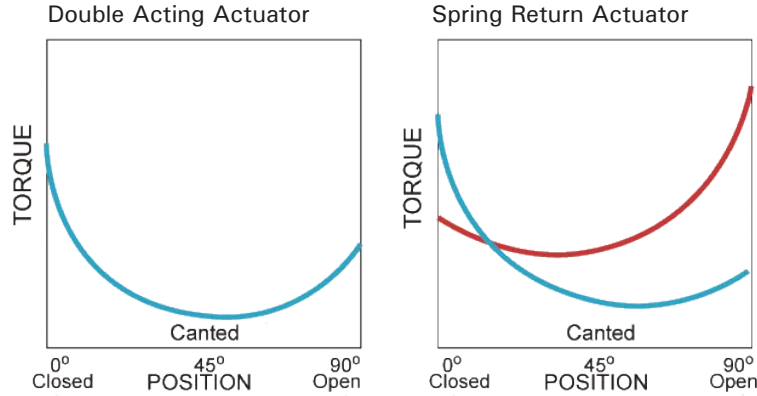
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Spring Return Torques (in-lbs)

Model		Spring Torque			60 psi			80 psi			90 psi		
		0°	RUN	90°	0°	RUN	90°	0°	RUN	90°	0°	RUN	90°
SHD16-U020*01	A	5,328	4,381	8,629	8,038	3,930	4,214	12,513	6,701	8,506	-	-	-
	B	6,992	5,753	11,329	-	-	-	10,849	5,329	5,807	13,082	6,714	7,948
SHD16-U025*01	A	8,081	6,647	13,090	12,826	6,341	7,286	19,795	10,666	14,080	-	-	-
	B	10,966	9,019	17,763	-	-	-	16,910	9,664	9,406	20,394	12,842	12,800
SHD16-U030*01	A	11,515	9,559	18,949	18,591	9,142	10,626	28,628	15,374	20,487	-	-	-
	B	15,816	13,002	25,614	-	-	-	24,326	11,931	13,823	29,347	15,045	18,753
SHD16-U035*01	A	14,409	11,966	23,711	26,571	13,490	16,739	40,228	21,972	30,220	-	-	-
	B	18,941	15,568	30,677	-	-	-	35,697	18,370	23,255	42,526	22,611	29,994
SHD25-U035*01	A	15,958	13,621	27,420	33,646	17,190	20,746	50,183	27,462	36,800	-	-	-
	B	22,711	18,764	37,076	-	-	-	43,430	22,320	27,143	51,699	27,453	35,173
SHD25-U038*01	A	21,950	18,135	35,828	36,523	18,186	21,207	56,014	30,293	40,214	-	-	-
	B	29,234	24,154	47,714	-	-	-	48,730	24,275	28,328	58,476	30,328	37,835
SHD25-U043*01	A	26,986	22,295	44,050	47,890	24,214	29,380	72,849	39,714	53,863	-	-	-
	B	36,262	31,456	63,929	-	-	-	63,573	30,553	33,984	76,053	38,304	46,225
SHD30-U043*01	A	36,881	31,588	63,743	59,158	28,065	29,780	91,171	47,947	60,958	-	-	-
	B	48,113	41,209	83,153	-	-	-	79,940	38,326	41,549	95,946	48,267	57,135
SHD30-U048*01	A	45,360	38,855	78,391	74,313	35,472	38,766	114,198	60,248	77,821	-	-	-
	B	56,698	49,405	100,651	-	-	-	102,860	49,698	55,561	122,804	62,086	75,089
SHD30-U053*01	A	54,999	47,113	95,101	90,900	43,508	48,289	139,536	73,714	96,083	-	-	-
	B	72,895	62,433	125,982	-	-	-	121,640	58,394	65,203	145,957	73,497	89,100
SHD35-U053*01	A	67,717	57,574	115,679	111,565	53,780	59,546	171,327	90,902	117,951	-	-	-
	B	90,313	76,780	154,277	-	-	-	148,731	71,696	79,353	178,610	90,254	108,558
SHD35-U058*01	A	82,277	68,443	137,523	132,429	64,915	73,128	203,998	109,369	143,342	-	-	-
	B	107,306	91,233	183,299	-	-	-	178,968	86,579	97,566	214,752	108,808	132,673
SHD35-U063*01	A	97,102	82,560	165,881	156,222	74,780	83,380	240,659	127,229	166,470	-	-	-
	B	125,034	106,297	213,586	-	-	-	212,726	103,491	118,765	254,948	129,717	160,309
SHD40-U063*01	A	119,096	102,739	208,125	197,123	93,668	100,184	302,523	159,134	202,953	-	-	-
	B	151,277	130,495	264,363	-	-	-	270,342	131,242	146,715	323,043	163,874	198,102
SHD40-U068*01	A	134,912	116,378	235,757	233,491	112,442	124,736	356,287	188,714	244,897	-	-	-
	B	181,210	156,322	316,671	-	-	-	309,989	148,770	163,983	371,390	186,909	224,067
SHD40-U073*01	A	157,685	136,018	275,559	266,884	127,686	141,102	408,402	215,590	279,988	-	-	-
	B	204,974	176,820	358,199	-	-	-	361,113	174,788	197,348	431,875	218,741	266,789
SHD48-U068*01	A	195,929	168,899	326,539	305,830	142,396	165,187	473,078	245,354	329,091	-	-	-
	B	254,707	219,569	424,499	-	-	-	414,300	194,684	231,131	497,936	247,921	313,094
SHD48-U073*01	A	268,576	231,518	447,626	419,223	195,696	226,406	648,489	338,098	451,087	-	-	-
	B	349,144	300,978	581,919	-	-	-	576,771	268,637	316,794	691,404	339,844	421,861
SHD48-U080*01	A	322,282	277,825	537,134	503,074	234,811	271,709	778,187	405,690	541,318	-	-	-
	B	418,968	361,172	698,280	-	-	-	681,502	322,342	380,172	819,070	407,782	514,988
SHD60-U080*01	A	418,968	361,181	698,280	653,976	305,236	353,207	1,011,624	527,378	703,700	-	-	-
	B	544,657	469,532	907,759	-	-	-	885,935	419,027	494,221	1,064,758	530,092	669,473
SHD60-U090*01	A	530,416	457,256	884,030	827,935	386,445	447,154	1,280,720	667,676	890,882	-	-	-
	B	689,544	594,434	1,149,243	-	-	-	1,121,592	530,498	625,669	1,347,984	671,119	847,533
SHD60-U100*01	A	654,822	564,492	1,091,368	1,022,110	477,075	552,026	1,581,088	824,267	1,099,824	-	-	-
	B	851,265	733,842	1,418,775	-	-	-	1,384,645	654,916	772,417	1,664,134	828,506	1,046,316

CHD Series - Canted Design

Double Acting & Spring Return Torques



Torque Curve — Air Torque — Spring Torque

Double Acting Torques (in-lbs)

Model	60 psi			80 psi			90 psi		
	0°	RUN	90°	0°	RUN	90°	0°	RUN	90°
CHD16-U020000	16,806	8,311	11,708	22,408	11,082	15,613	25,209	12,467	17,566
CHD16-U025000	26,261	12,988	18,298	35,012	17,313	24,396	39,387	19,478	27,443
CHD16-U030000	37,814	18,701	26,352	50,417	24,933	35,132	56,716	28,047	39,525
CHD16-U035000	51,470	25,456	35,864	68,622	33,938	47,820	77,201	38,179	53,795
CHD25-U035000	62,300	30,811	43,416	83,068	41,083	57,886	93,452	46,216	65,119
CHD25-U038000	73,439	36,321	51,177	97,922	48,428	68,231	110,162	54,482	76,762
CHD25-U043000	94,035	46,509	65,531	125,385	62,009	87,373	141,057	69,760	98,292
CHD30-U043000	120,616	59,653	84,047	160,819	79,535	112,062	180,920	89,476	126,072
CHD30-U048000	150,293	74,327	104,727	200,393	99,103	139,640	225,442	111,491	157,094
CHD30-U053000	183,237	90,620	127,760	244,317	120,827	170,250	274,854	135,930	191,529
CHD35-U053000	225,160	111,354	156,901	300,219	148,476	209,203	337,748	167,034	235,356
CHD35-U058000	269,654	133,358	187,904	359,534	177,812	250,539	404,477	200,041	281,856
CHD35-U063000	318,150	157,340	221,698	424,197	209,789	295,590	477,221	236,015	338,012
CHD40-U063000	397,136	196,408	276,739	529,513	261,874	368,983	595,704	294,608	415,105
CHD40-U068000	462,675	228,820	322,406	616,895	305,092	429,874	694,005	343,231	483,610
CHD40-U073000	533,213	263,705	371,561	710,951	351,608	495,415	799,820	395,561	557,342
CHD48-U068000	602,110	311,295	427,589	802,811	414,253	570,117	903,172	467,491	641,389
CHD48-U073000	825,358	427,214	586,113	1,100,478	569,616	781,490	1,238,037	640,822	872,852
CHD48-U080000	990,431	512,636	703,339	1,320,563	683,515	937,782	1,485,642	768,954	1,055,013
CHD60-U080000	1,287,531	666,417	914,331	1,716,711	888,559	1,219,113	1,931,300	999,624	1,371,505
CHD60-U090000	1,630,021	843,701	1,157,550	2,173,364	1,124,932	1,543,404	2,445,034	1,265,553	1,736,329
CHD60-U100000	2,012,319	1,041,567	1,429,036	2,683,092	1,388,758	1,905,383	3,018,478	1,562,348	2,143,554

HD Series Technical Brochure

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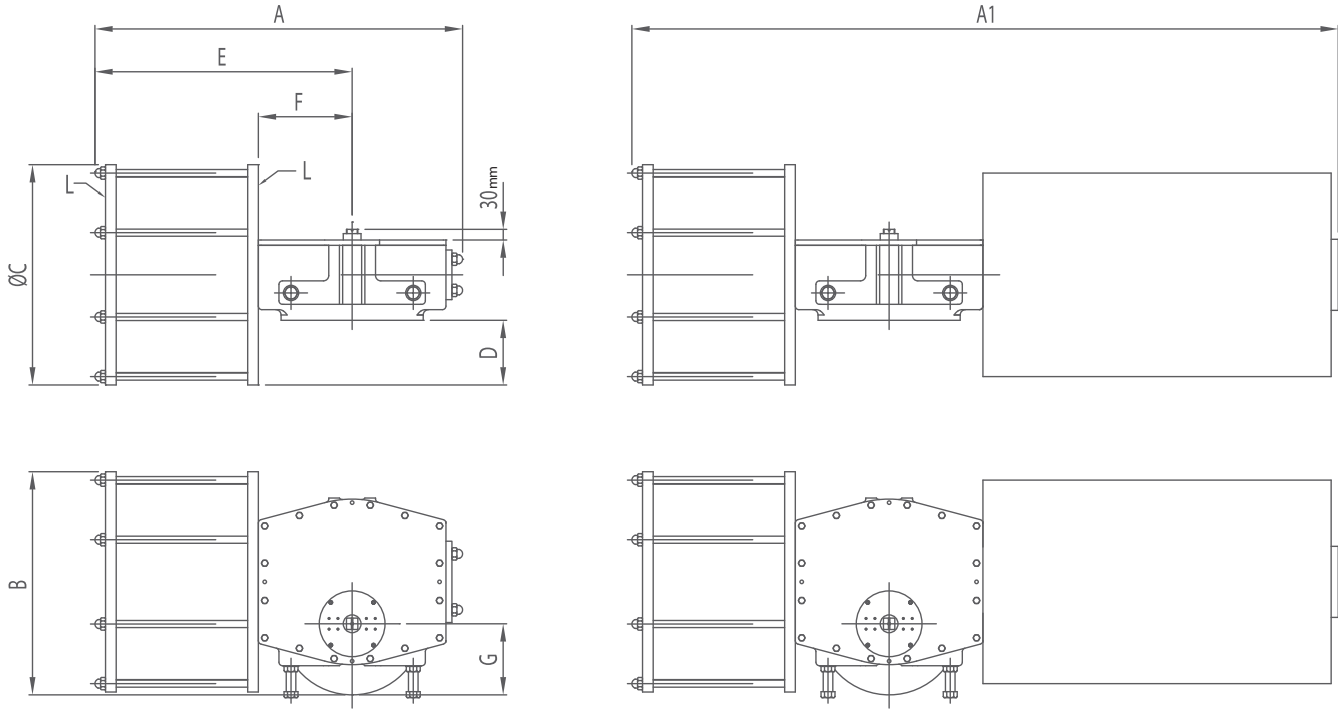
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Spring Return Torques (in-lbs)

Model		Spring Torque			60 psi			80 psi			90 psi		
		0°	RUN	90°	0°	RUN	90°	0°	RUN	90°	0°	RUN	90°
CHD16-U020*01	A	5,930	4,001	7,151	10,876	4,311	4,556	16,478	7,081	8,462	-	-	-
	B	7,753	5,231	9,346	-	-	-	14,655	5,851	6,267	17,456	7,236	8,220
CHD16-U025*01	A	9,408	6,346	11,347	16,853	6,642	6,952	25,604	10,967	13,049	-	-	-
	B	12,356	8,337	14,896	-	-	-	22,656	8,976	9,500	27,032	11,141	12,547
CHD16-U030*01	A	13,241	9,028	16,232	24,573	9,673	10,120	37,176	15,905	18,900	-	-	-
	B	18,224	12,426	22,339	-	-	-	32,193	12,507	12,793	38,492	15,621	17,185
CHD16-U035*01	A	15,993	11,170	20,348	35,476	14,286	15,516	52,629	22,768	27,472	-	-	-
	B	22,507	15,356	27,597	-	-	-	46,114	18,582	20,224	54,693	22,823	26,199
CHD25-U035*01	A	18,117	12,957	23,897	44,182	17,854	19,519	64,950	28,126	33,989	-	-	-
	B	27,375	18,569	33,270	-	-	-	55,692	22,514	24,616	66,074	27,647	31,849
CHD25-U038*01	A	24,419	17,463	32,226	49,020	18,859	18,951	73,503	30,966	36,006	-	-	-
	B	34,633	23,490	42,103	-	-	-	63,289	24,939	26,128	75,530	30,992	34,659
CHD25-U043*01	A	32,190	21,835	39,129	61,845	24,674	26,401	93,195	40,174	48,243	-	-	-
	B	44,404	30,119	53,981	-	-	-	80,981	31,890	33,392	96,652	39,641	44,311
CHD30-U043*01	A	41,908	29,561	54,149	78,708	30,092	29,899	118,910	49,974	57,913	-	-	-
	B	53,972	38,067	69,726	-	-	-	106,847	41,468	42,336	126,948	51,409	56,346
CHD30-U048*01	A	52,104	36,748	67,310	98,188	37,579	37,417	148,289	62,354	72,330	-	-	-
	B	68,629	48,405	88,658	-	-	-	131,764	50,698	50,982	156,814	63,087	68,436
CHD30-U053*01	A	62,265	43,917	80,436	120,972	46,703	47,248	182,052	76,910	89,814	-	-	-
	B	81,577	57,548	105,395	-	-	-	162,739	63,279	64,855	193,277	78,383	86,135
CHD35-U053*01	A	78,365	54,777	99,890	146,795	56,577	57,011	221,855	93,699	109,313	-	-	-
	B	104,173	72,886	132,921	-	-	-	196,046	75,590	76,282	233,575	94,149	102,435
CHD35-U058*01	A	90,233	63,132	115,131	179,420	70,226	72,774	269,301	114,680	135,409	-	-	-
	B	127,052	88,897	162,110	-	-	-	232,482	88,915	88,429	277,425	111,144	119,745
CHD35-U063*01	A	108,793	76,125	138,815	209,357	81,215	82,883	315,404	133,663	156,775	-	-	-
	B	143,010	100,067	182,476	-	-	-	281,187	109,722	113,114	334,210	135,948	150,064
CHD40-U063*01	A	128,159	91,092	167,527	268,977	105,316	109,212	401,354	170,782	201,456	-	-	-
	B	167,872	124,158	233,084	-	-	-	361,641	137,716	135,898	427,832	170,450	182,020
CHD40-U068*01	A	156,791	111,440	204,948	305,884	117,380	117,458	460,104	193,652	224,926	-	-	-
	B	195,734	144,772	271,789	-	-	-	421,160	160,321	158,085	498,271	198,459	211,821
CHD40-U073*01	A	176,944	125,760	231,288	356,269	137,944	140,274	534,007	225,848	264,127	-	-	-
	B	221,525	163,845	307,590	-	-	-	489,426	187,763	187,825	578,295	231,716	249,752
CHD48-U068*01	A	232,934	160,092	337,789	369,176	151,202	89,800	569,877	254,161	232,329	-	-	-
	B	302,819	208,125	439,139	-	-	-	499,992	206,128	130,979	600,353	259,365	202,251
CHD48-U073*01	A	319,300	219,454	463,044	506,059	207,760	123,069	781,178	350,162	318,445	-	-	-
	B	415,091	285,286	601,948	-	-	-	685,387	284,330	179,542	822,946	355,536	270,904
CHD48-U080*01	A	383,149	263,336	555,632	607,282	249,300	147,707	937,414	420,179	382,150	-	-	-
	B	498,093	342,338	722,327	-	-	-	822,470	341,177	215,455	987,548	426,616	332,686
CHD60-U080*01	A	498,111	342,347	722,345	789,420	324,070	191,994	1,218,600	546,212	496,768	-	-	-
	B	647,556	445,060	939,073	-	-	-	1,069,155	443,499	280,040	1,283,744	554,564	432,432
CHD60-U090*01	A	630,607	433,412	914,494	999,414	410,289	243,056	1,542,757	691,520	628,909	-	-	-
	B	819,800	563,438	1,188,850	-	-	-	1,353,564	561,493	354,554	1,625,234	702,115	547,479
CHD60-U100*01	A	778,529	535,072	1,129,001	1,233,790	506,495	300,035	1,904,563	853,686	776,382	-	-	-
	B		695,580	1,467,666	-	-	-	1,671,027	693,178	437,717	2,006,413	866,768	675,888

Dimensions

Overall & Flange Connection Dimensions



Overall Dimensions (inches)

Model	A	A1	B	C	D	E	f	G	L
aHD16-U020***	31.5	52.2	14.6	10.7	1.89	20.3	7.72	5.71	1/2" NPT
aHD16-U025***	31.5	52.2	15.6	12.7	2.87	20.3	7.72	5.71	1/2" NPT
aHD16-U030***	31.5	52.2	16.5	14.7	3.86	20.3	7.72	5.71	1/2" NPT
aHD16-U035***	31.5	52.2	17.5	16.1	4.61	20.3	7.72	5.71	1/2" NPT
aHD25-U035***	38.8	59.4	19.3	16.1	3.62	25.7	9.29	6.89	1/2" NPT
aHD25-U038***	38.8	59.4	19.9	18.1	4.65	25.7	9.29	6.89	1/2" NPT
aHD25-U043***	38.8	59.4	20.9	20.2	5.63	25.7	9.29	6.89	1/2" NPT
aHD30-U043***	47.8	76.2	25.2	20.2	5.04	30.0	11.3	7.48	3/4" NPT
aHD30-U048***	47.8	76.2	25.9	22.2	6.02	30.0	11.3	7.48	3/4" NPT
aHD30-U053***	47.8	76.2	26.9	24.6	7.24	30.0	11.3	7.48	3/4" NPT
aHD35-U053***	56.5	91.3	28.0	24.6	6.18	35.6	13.5	9.06	3/4" NPT
aHD35-U058***	56.5	91.3	28.8	26.6	7.20	35.6	13.5	9.06	3/4" NPT
aHD35-U063***	56.5	91.3	29.9	28.7	8.27	35.6	13.5	9.06	3/4" NPT
aHD40-U063***	67.3	108.3	32.7	29.3	7.56	44.3	16.3	10.2	3/4" NPT
aHD40-U068***	67.3	108.3	33.5	31.3	8.54	44.3	16.3	10.2	3/4" NPT
aHD40-U073***	67.3	108.3	34.4	33.3	9.57	44.3	16.3	10.2	3/4" NPT

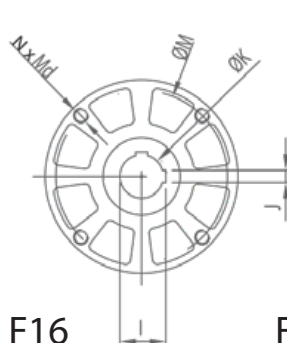
***NOTE - Replace "a" with "C" (for CHD Series) or "S" (for SHD Series)

HD Series Technical Brochure

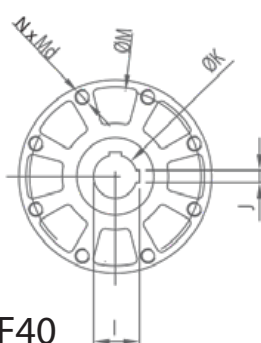
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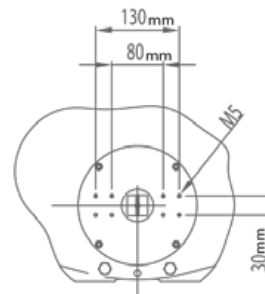
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F16



F25 - F40



ISO & NAMUR connections

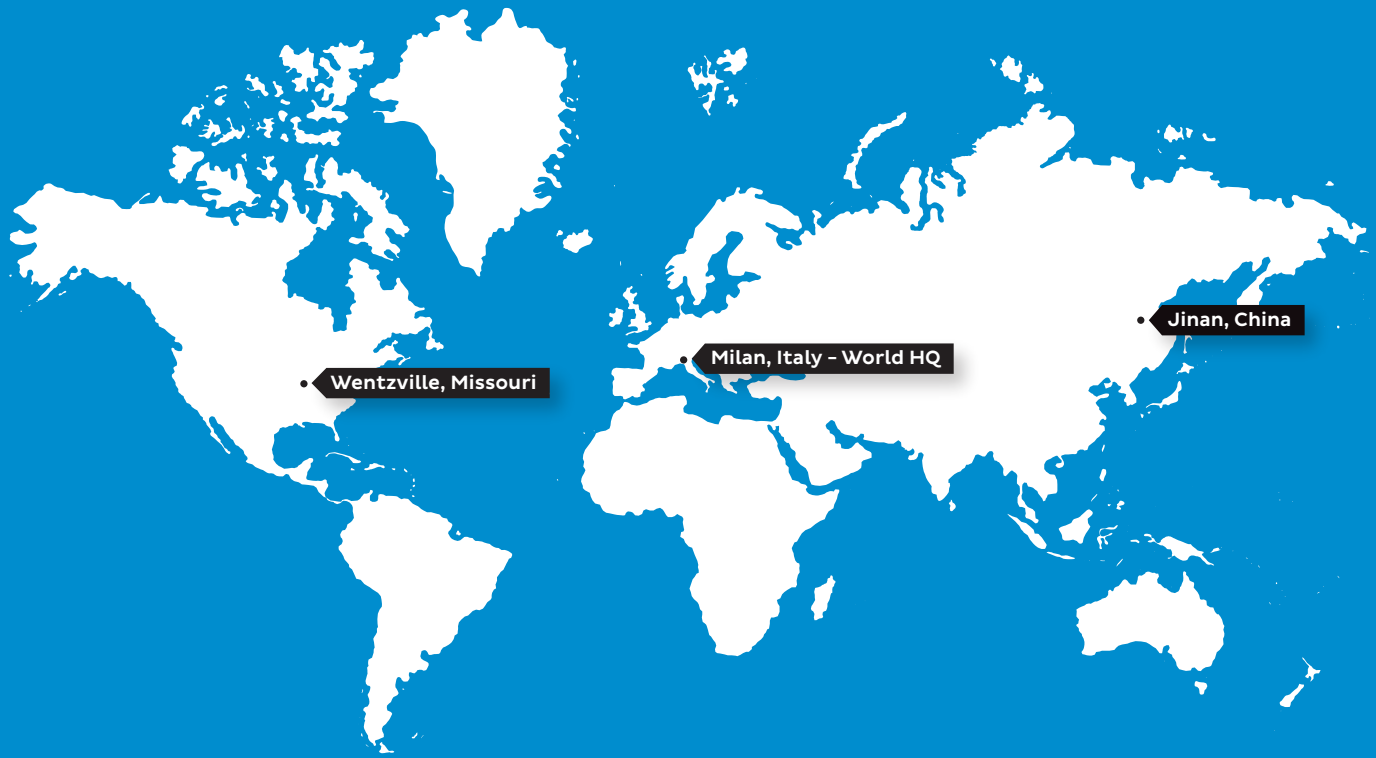
Flange Connection Dimensions (inches)

Model	Threads					I	J	Main Bore	
	ØM	N	Md	Depth	ISO			ØK	Depth
aHD16-U020***	6.50	4	3/4"-10 UNC	0.98	F16	2.13	0.551	1.969	6.14
aHD16-U025***	6.50	4	3/4"-10 UNC	0.98	F16	2.13	0.551	1.969	6.14
aHD16-U030***	6.50	4	3/4"-10 UNC	0.98	F16	2.13	0.551	1.969	6.14
aHD16-U035***	6.50	4	3/4"-10 UNC	0.98	F16	2.13	0.551	1.969	6.14
aHD25-U035***	10.00	8	5/8"-11 UNC	0.67	F25	3.35	0.787	3.150	8.03
aHD25-U038***	10.00	8	5/8"-11 UNC	0.67	F25	3.35	0.787	3.150	8.03
aHD25-U043***	10.00	8	5/8"-11 UNC	0.67	F25	3.35	0.787	3.150	8.03
aHD30-U043***	11.73	8	3/4"-10 UNC	1.34	F30	4.58	1.102	4.331	9.21
aHD30-U048***	11.73	8	3/4"-10 UNC	1.34	F30	4.58	1.102	4.331	9.21
aHD30-U053***	11.73	8	3/4"-10 UNC	1.34	F30	4.58	1.102	4.331	9.21
aHD35-U053***	14.02	8	1"-8 UNC	1.69	F35	5.41	1.260	5.118	10.98
aHD35-U058***	14.02	8	1"-8 UNC	1.69	F35	5.41	1.260	5.118	10.98
aHD35-U063***	14.02	8	1"-8 UNC	1.69	F35	5.41	1.260	5.118	10.98
aHD40-U063***	15.98	8	1-1/4"-7 UNC	1.38	F40	6.20	1.260	5.906	12.83
aHD40-U068***	15.98	8	1-1/4"-7 UNC	1.38	F40	6.20	1.260	5.906	12.83
aHD40-U073***	15.98	8	1-1/4"-7 UNC	1.38	F40	6.20	1.260	5.906	12.83

***NOTE - Replace "a" with "C" (for CHD Series) or "S" (for SHD Series)

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