



HENGLI HYDRAULICS

Setting the standard for highly reliable hydraulic power and control solutions for the global market, Hengli Hydraulic is devoted to the continuous innovation of new product development, manufacturing processes, quality control and management systems. We are focused on investments into intelligent manufacturing systems that employing efficiency improvements to reduce and offset energy consumption.

To meet the needs of your business, our team is ready to review your mobile equipment design specifications and market potential. A partnership with Hengli Hydraulic will deliver robust product design with the product supply chain consistency enjoyed by the top names in mobile industry.

What we provide

- Hydraulic Cylinder & Electric Cylinder
- Hydraulic Piston Pump & Motor
- Hydraulic Control Valve for Mobile Machinery
- Industrial Valve
- Ball Screw and Linear Guide Track
- Hydraulic Pump Unit and System
- Cartridge Valve
- Orbital Motor and Brake
- Control Components
- Non-standard Customized Equipment
- High-precision Casting
- Pneumatic Components and integrated System
- Cold-drawn Seamless Steel Pipe
- Surface Coating-Thermal Spray Treatment

For more detailed information, please visit our website at
www.henglihydraulics.com

We are looking forward to working with you!

CHINA

No.99 Longqian Road, Wujin District, Changzhou 213167
TEL: +86 400 101 8889
E-mail: hengli@henglihydraulics.com

AMERICA

580 Crossroads Parkway, Bolingbrook,
Illinois 60440
TEL: +01 630 995 3674
E-mail: sales@hengliamerica.com

JAPAN

3F, VORT Shibapark II, 2-3-9 Shiba, Minato-Ku,
Tokyo, Japan 105-0014
TEL: +81 03 6809 1696/03 6809 6515
E-mail: daizheng@henglihydraulics.com

INDONESIA

B10, Kawasan Logistik Cakung, PT Alun Indah,
Jl Raya Bekasi KM 23.5, Cakung, Jakarta
TEL: +62 81119236022
E-mail: hengliindonesia@henglihydraulics.com



Official Website



Official Wechat

GERMANY

Sperenberger Str. 13 12277 Berlin
TEL: +49 (30) 72088-0
E-mail: info@inlinehydraulik.com

MEXICO

Parqueindustrial Finsa.Lote 2BI,
Santa Catarina,Nuevo Leon,Mexico
TEL: +52 8115915136
E-mail: shirenwei@henglihydraulics.com

INDIA

PAP-B-67/1, Bhamboli-Varale Chakan MIDC Phase2,
Pune 410505
TEL: +0091 75230 85578
E-mail: suryansh.verma@henglihydraulics.com

BRAZIL

Rua Bom Sucesso, 220 Corporativo 3001
Tatuape CEP 03305-000 São Paulo-SP
TEL: +55 1198383-3104
E-mail: racrosta@henglihydraulics.com

HENGLI HYDRAULICS



Customized Solution for Spiral Rotary Actuator

HBL • HBM • HBH • HBT • HBK • HBP series





Six series of Hengli hydraulic spiral rotary actuators including more than 100 specifications have been developed currently according to the needs of different industries, different customers and different working conditions.



Work Principle

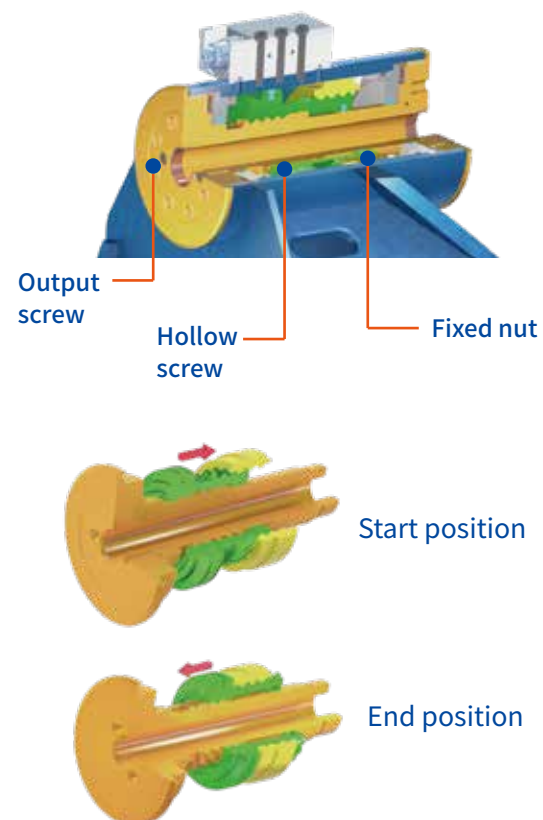
With spiral spline technology, the spiral rotary actuator can convert the general linear motion of the piston into a spiral linear motion. The spiral rotary actuator consists of a fixed part (fixed nut), two moving parts (output screw and hollow screw). The spiral spline on the outer surface of the hollow screw is meshed with the spiral spline on the inner surface of the fixed nut, and the spiral spline on the inner surface of the hollow screw is meshed with the spiral spline on the outer surface of the output screw to realize the swing at a certain angle by the mutual meshing between two sets of spiral pairs.

Start position

Fixed with fixed nut, the hollow screw is in the left limit position.

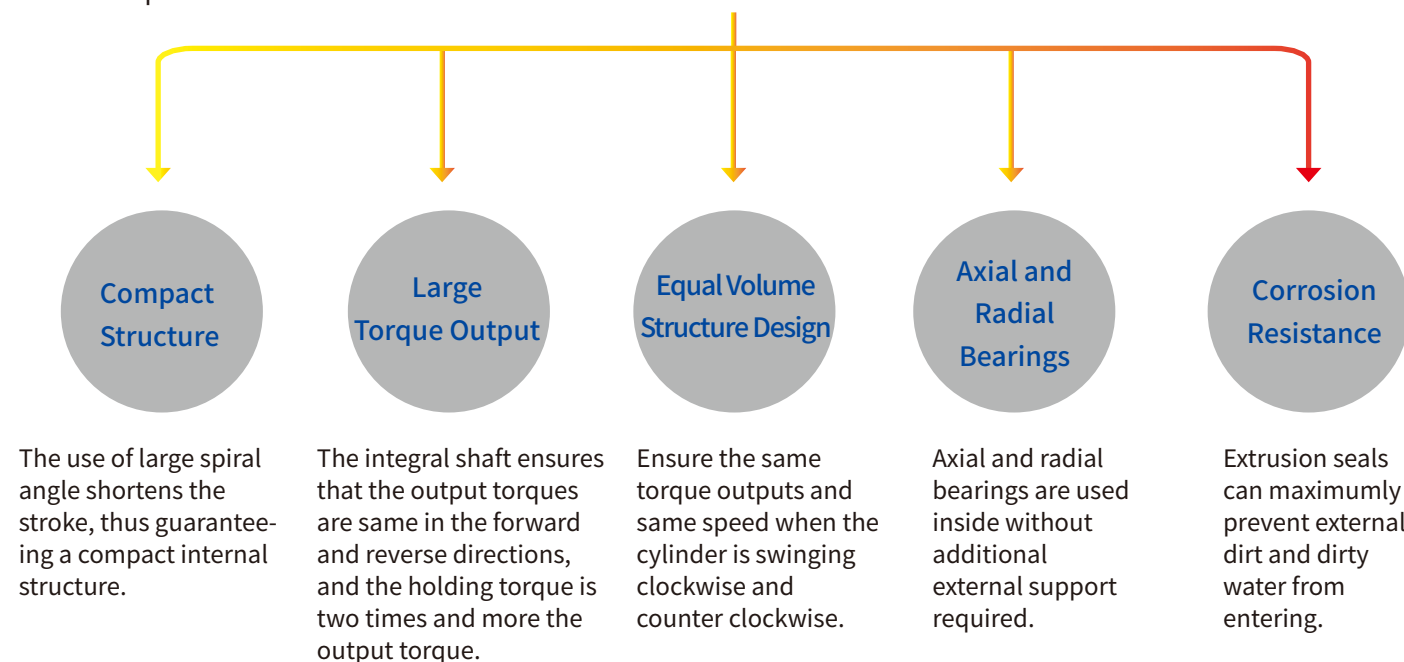
End position

When the spiral rotary actuator starts to work, the hollow screw moves to the right limit position under the hydraulic oil pressure, and the spiral drive can make the hollow screw and output screw rotate simultaneously. With the oil pressure applied in the reverse direction, the oil pressure acts above the hollow screw to return the hollow screw and output screw back to the starting position of the actuator.



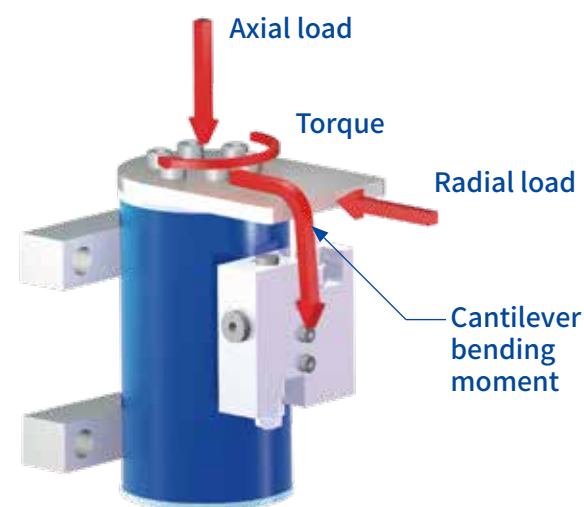
Structure Features

Hengli hydraulic spiral rotary actuator is designed to replace a rotary device composed of complex structures with multiple components and functions. Hengli hydraulic spiral rotary actuator integrates with important parts such as bracket and bearings, featuring with simple structure and with huge torque and excellent load bearing capacity in a more compact size.

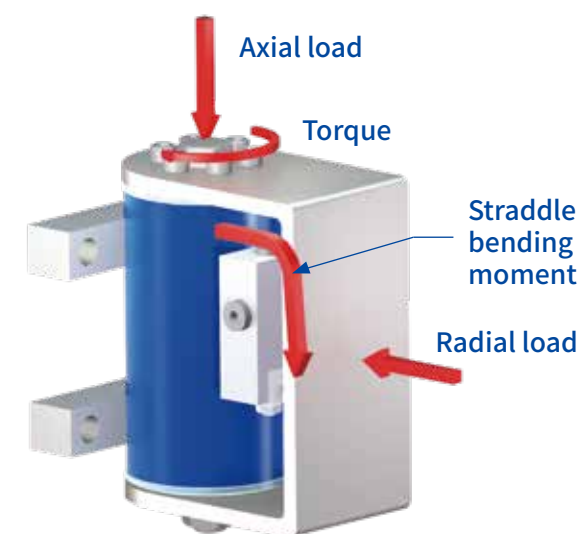


Two Load Forms

Cantilever load

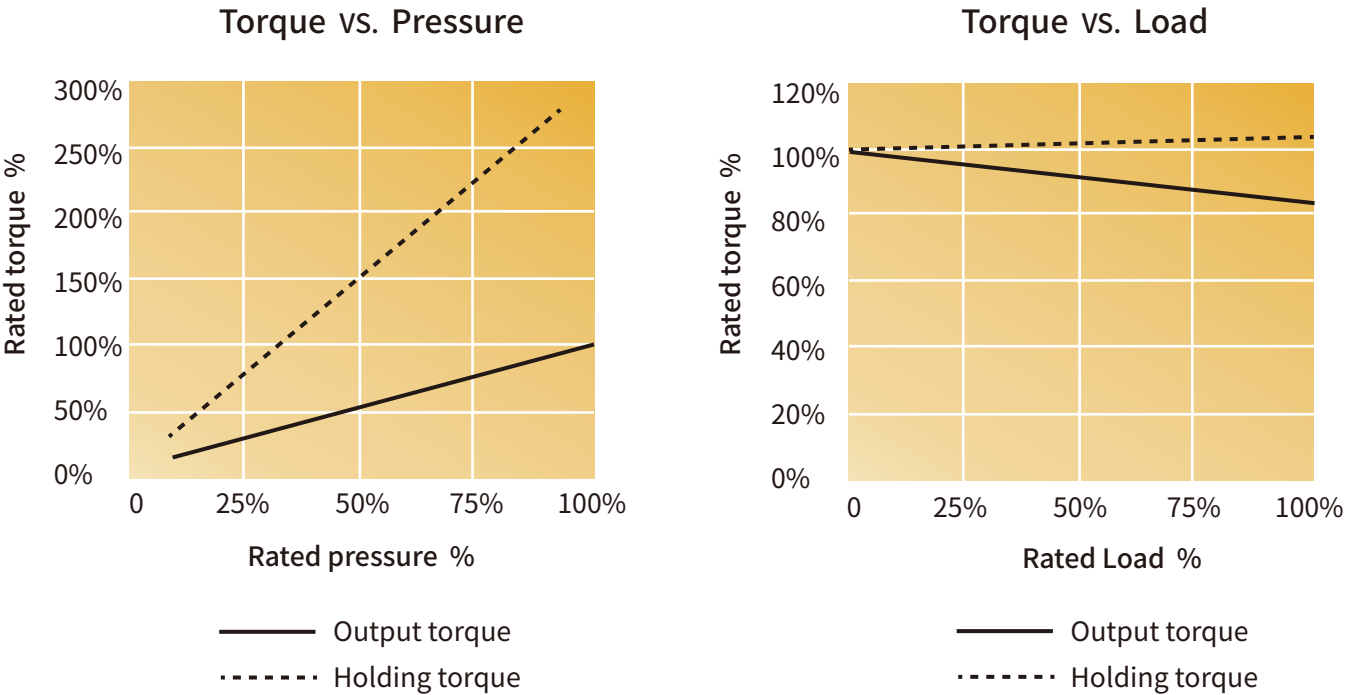


Straddle load



- Pull rod fixation:** The front end of the load bracket is bolted to the end of the output screw, and the end is fixed through the pull rod passing through the inner hole of the output screw.
- Bolt fixation:** The end is fixed to the end face of the end cover through the bolts.

Pressure, Torque and Load

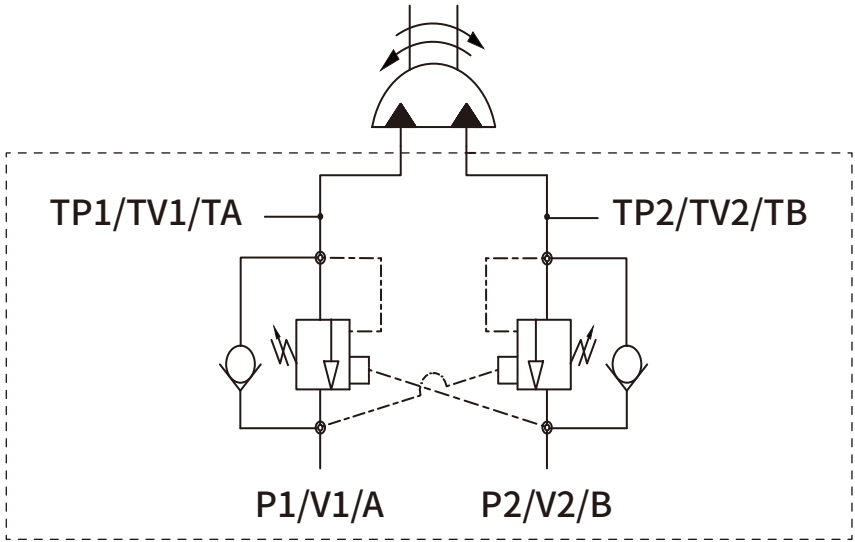


- The Output torque and holding torque are approximately linear with the hydraulic pressure.
- As the load increases, the Output torque can be reduced by up to 15%.

Valve Configuration

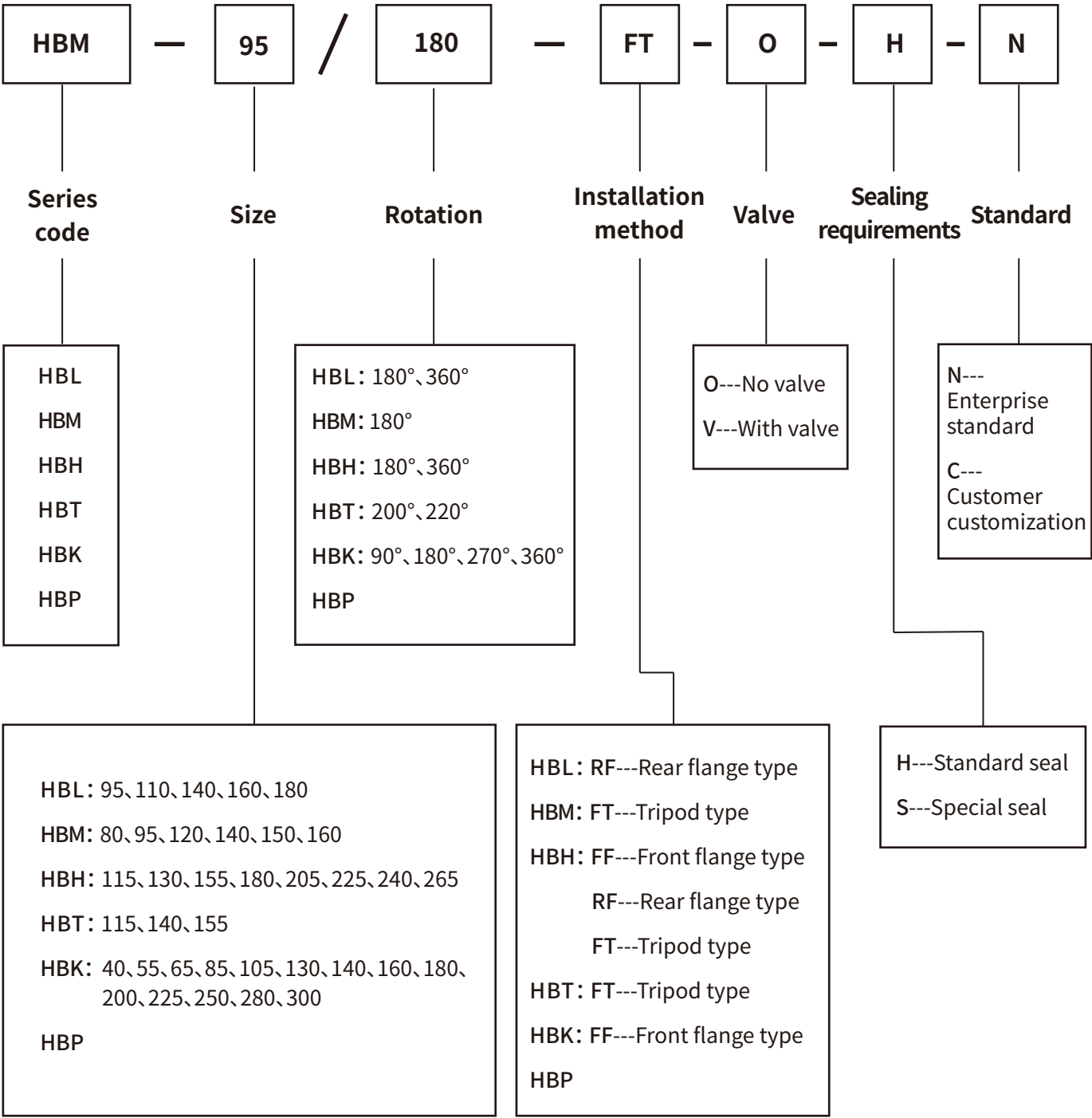
Whether the balance valve is installed or not on the Hengli hydraulic spiral rotary actuator depends on the different industry, different customer, and different working conditions.

The balance valve installed can effectively prevent the rotary actuator from continuous rotation in the event of the failure of the hydraulic line, control the rotation in case of overload, and protect the rotary actuator to prevent excessive torque applied.



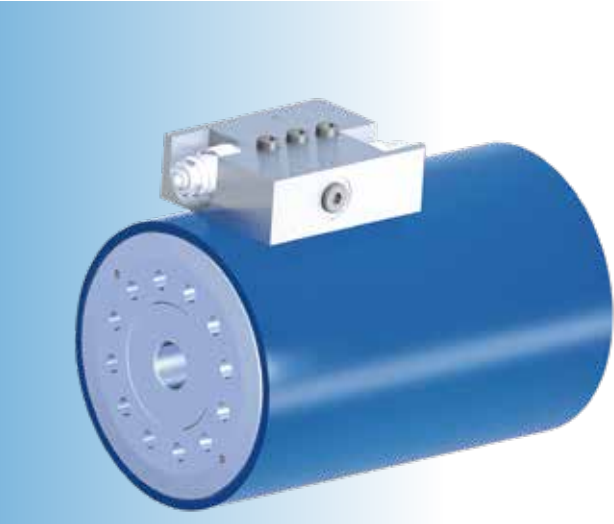
Optional balance valve hydraulic schematic diagram

Ordering Code



Note

- Not all possible configurations of the rotary actuator are available, and only some of them are used;
- The actuator mode defines the standard configuration of Hengli hydraulic spiral rotary actuator. If you have special requirements, please contact Hengli Hydraulic Co., Ltd.



Design pressure: 30 ~ 210 bar
Output torque: 339 ~ 2825 N · m
Hold torque: 1243 ~ 9379 N · m
Cantilever torque: 1017 ~ 11300 N · m
Rotation angle: 0° ~ 360°
Working temperature: -30℃ ~ +90℃
Installation method: flange type

Note: The design pressure and rotation angle can be customized according to customer requirements.

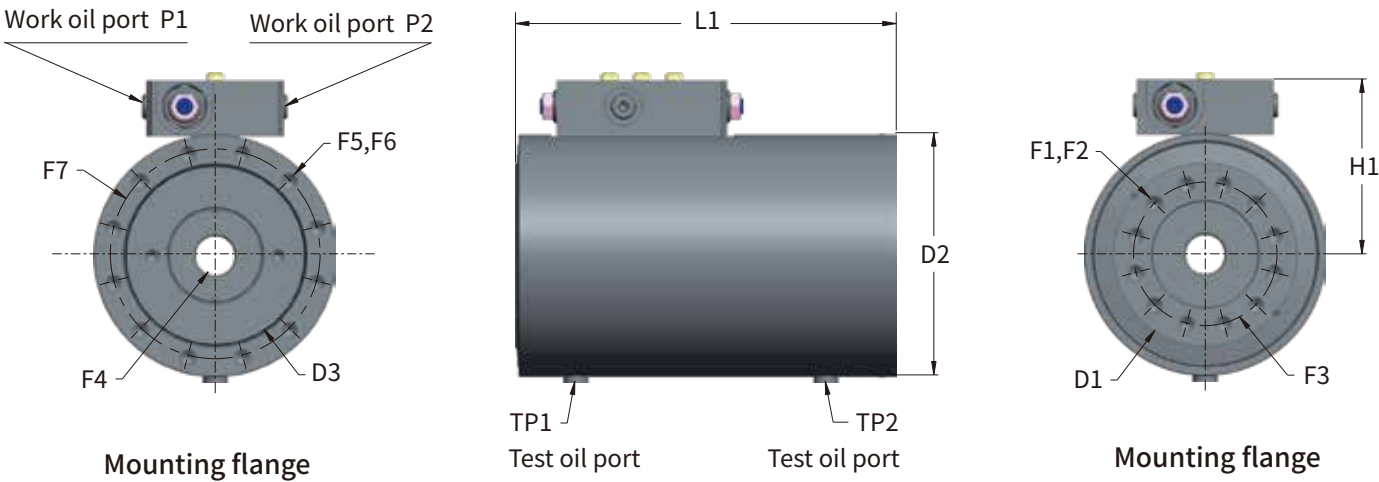
Performance Parameter

Series specifications		95	110	140	160	180
Torque (N · m@21MPa)	Output torque	339	622	1074	1695	2825
	Hold torque	1243	1921	3842	5650	9379
Bending moment (N · m)	Cantilever type	1017	2260	5650	9040	11300
Load (kg)	Radial force	1361	1814	3629	4990	6804
	Axial force	1361	1814	3629	4990	6804
Displacement (cm³)	180°	122	192	365	552	914
	360°	242	384	732	1104	1828

Applications



Overall Dimensions



Installation Dimensions

Series specifications		95	110	140	160	180
D1(Output shaft step diameter)		89	102	127	148	185
D2(Cylinder barrel diameter)		119	135	170	198	226
D3(End cover diameter)		93	105	134	157	186
L1(Total length of cylinder)	180°	143	156	184	224	241
	360°	189	212	258	311	346
F1(Output shaft thread specification)		M8 depth 12	M10 depth 15	M12 depth 19	M12 depth 19	M16 depth 25
F2(Output shaft thread quantity)		8	12	12	12	12
F3(Output shaft thread pitch circle)		73	80	102	127	140
F4(Output shaft through-hole diameter)		17	21	36	45	66
F5(Specification of barrel side threads)		M8 depth 12	M10 depth 18	M12 depth 19	M12 depth 19	M12 depth 19
F6(Number of barrel side threads)		8	12	12	12	12
F7(Pitch circle of barrel side thread)		103	117	151	175	203
H1(Valve block height)		90	98	115	129	143

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.

HBM

Series Rotary Actuator



Design pressure: 30 ~ 210 bar
Output torque: 509 ~ 4407 N·m
Hold torque: 1333 ~ 10532 N·m
Cantilever torque: 1356 ~ 15820 N·m
Straddle torque: 2543 ~ 31640 N·m
Rotation angle: 0° ~ 180°
Working temperature: -30℃ ~ +90℃
Installation method: tripod type

Note: The design pressure and rotation angle can be customized according to customer requirements.

Performance Parameter

Series specifications		80	95	120	140	150	160
Torque (N·m@21MPa)	Output torque	509	927	1695	2825	3390	4407
	Hold torque	1333	2373	4375	7108	-	10532
Bending moment (N·m)	Cantilever type	1356	2486	5424	11300	-	15820
	Straddle type	2543	4520	10170	22597	28250	31640
Load (kg)	Radial force	1383	2132	4187	5579	5579	9526
	Axial force	499	680	998	1406	1406	1769
Displacement (cm³)	180°	155	256	513	819	-	1253

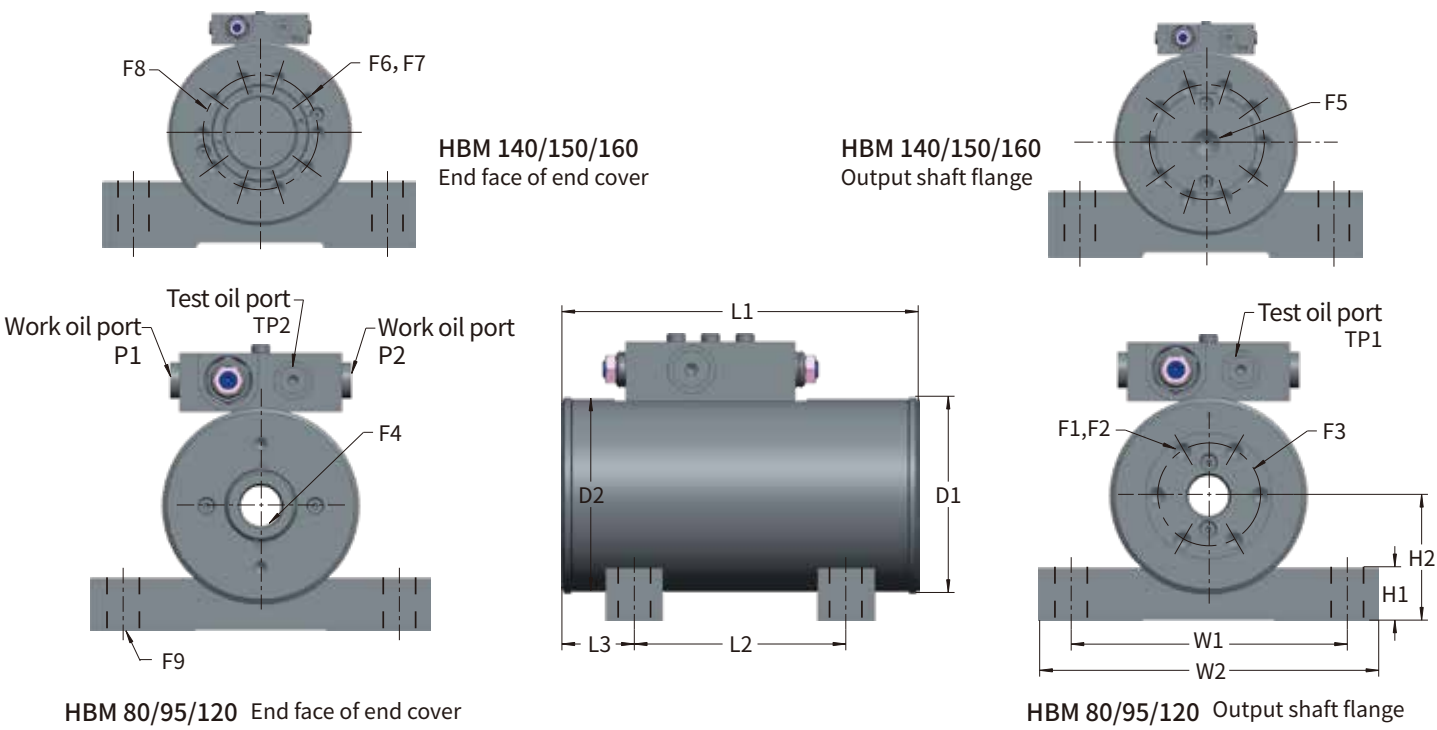
Applications



HBM

Series Rotary Actuator

Overall Dimensions



Installation Dimensions

Series specifications	80	95	120	140	150	160
D1(End cover diameter)	103	118	144	172	182	192
D2(Cylinder barrel diameter)	101	116	142	170	180	190
L1(Total length of cylinder)	188	216	248	298	381	337
L2(Mounting hole length)	111	140	153	184	-	216
L3 (Distance from the end face of output shaft to the mounting hole)	38	38	47	57	-	60
F1(Output shaft thread specification)	M10 depth 15	M10 depth 16	M12 depth 19	M20 depth 30	M20 depth 33	M20 depth 28
F2(Output shaft thread quantity)	6	8	8	8	8	10
F3(Output shaft thread pitch circle)	54	65	85	102	110	120
F4(Output shaft through-hole diameter)	21	25	25	/	/	/
F5(Output shaft screw hole)	/	/	/	M24 depth 25	M30 depth 45	M30 depth 50
F6(End cover side thread specification)	/	/	/	M12 depth 18	M16 depth 24	1-1/4-7 depth 48
F7(End cover side thread quantity)	/	/	/	8	8	10
F8(End cover side thread pitch circle)	/	/	/	108	115	121
F9(Mounting hole size)	17	21	24	26	-	30
H1(Base height)	28	33	45	63.5	-	70
H2(Height of the mounting surface to axis)	66	76	86	108	-	121
W1(Mounting hole width)	145	152	197	222	-	267
W2(Base width)	178	190	248	279	-	330

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties; HBM-150 output angle is 235°.



Design pressure: 30 ~ 210 bar
Output torque: 1921 ~ 24295 N·m
Hold torque: 4927 ~ 58760 N·m
Cantilever torque: 5187 ~ 72885 N·m
Straddle torque: 13447 ~ 170065 N·m
Rotation angle: 0° ~ 360°
Working temperature: -30℃ ~ +90℃
Installation method: tripod type, flange type

Note: The design pressure and rotation angle can be customized according to customer requirements.

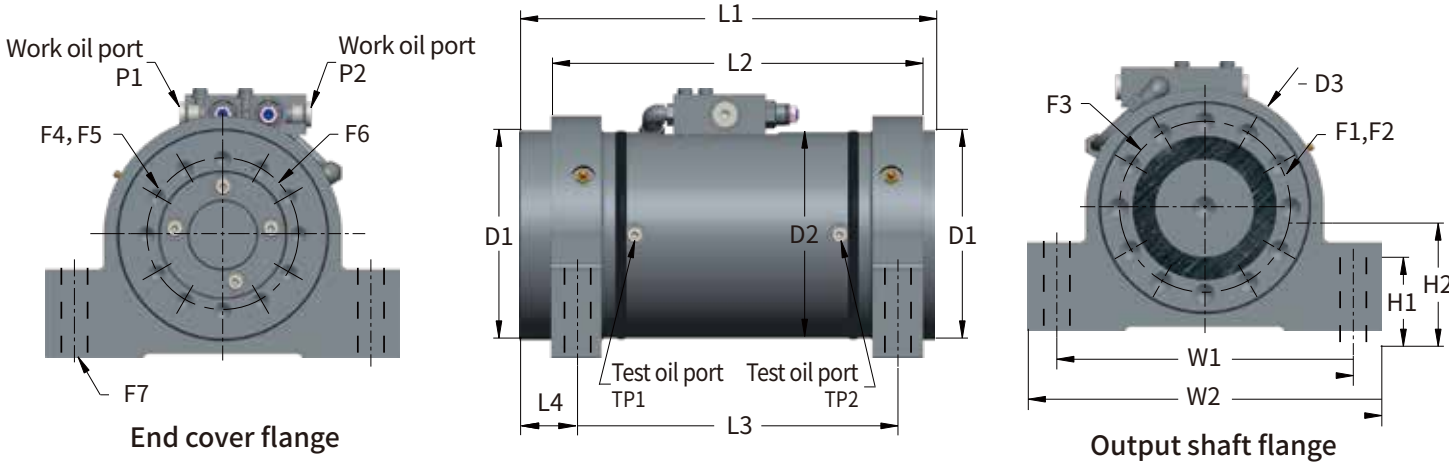
Performance Parameter

Series specifications			115	130	155	180	205	225	240	265
Torque (N·m@21MPa)	Output torque		1921	2825	4746	7345	10735	14125	18645	24295
	Hold torque		4927	6825	11639	18306	26216	34578	45652	58760
Bending moment (N·m)	Cantilever type		5187	7063	11865	18363	29521	38844	55935	72885
	Straddle type	180°	13447	16950	30849	47799	75145	98875	130515	170065
		360°	19210	24634	45426	71190	111531	146335	197750	256510
Load (kg)	Radial force		1814	2268	3629	4990	6804	8165	9979	11794
	Axial force		1361	1814	2722	3629	4536	5897	6804	8165
Displacement (cm³)	180°		488	696	1183	1868	2687	3539	4653	5997
	360°		983	1392	2359	3736	5358	7079	9324	11995

Applications



Overall Dimensions(tripod type)



Installation Dimensions(tripod type)

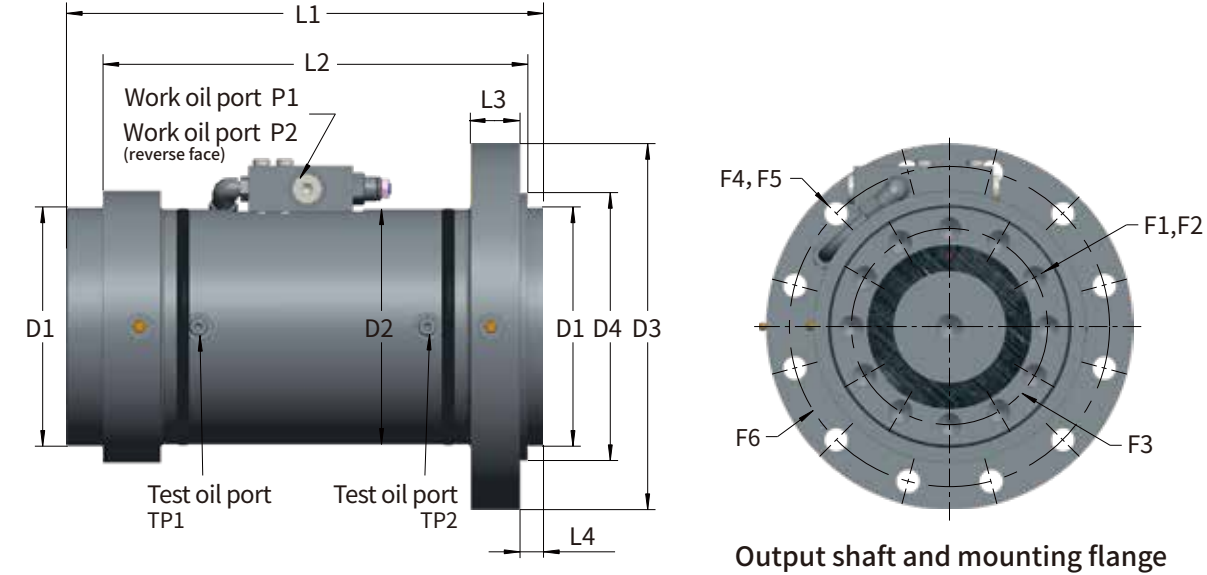
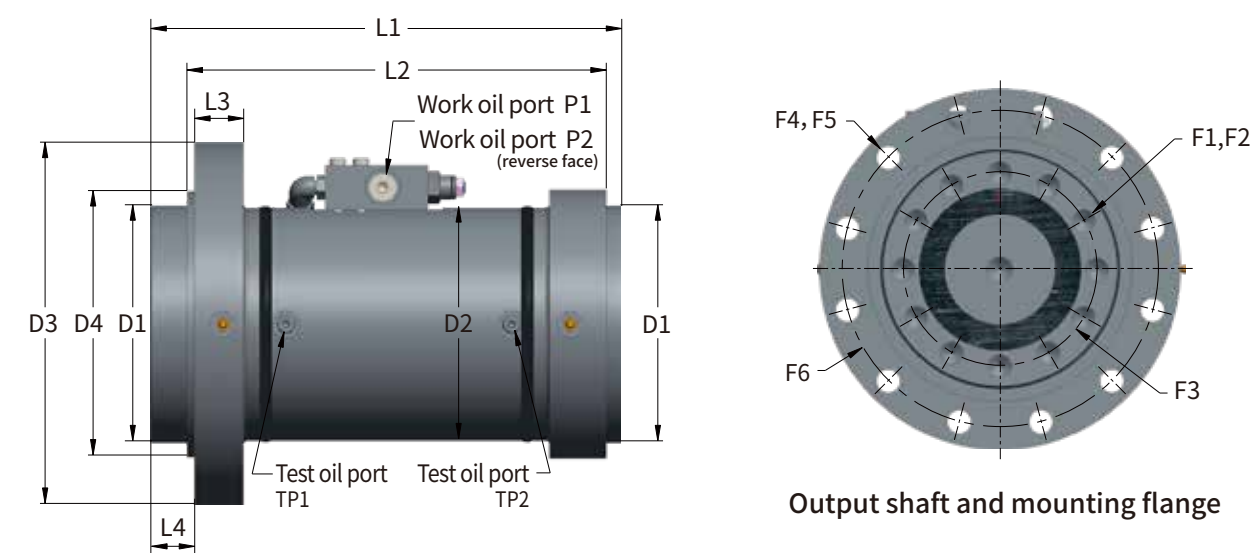
Series specifications		115	130	155	180	205	225	240	265
D1(Output shaft and end cover side diameter)		139	155	183	209	234	263	288	310
D2(Cylinder barrel diameter)		140	152	178	203	229	254	279	305
D3(Flange diameter)		155	182	208	229	275	300	325	356
L1(Total length of cylinder)	180°	298	323	365	413	475	524	554	600
	360°	427	470	538	615	705	776	836	906
L2 (Total length of cylinder barrel)	180°	261	286	323	363	431	463	493	534
	360°	392	433	496	565	661	715	775	843
L3(Mounting hole length)	180°	229	248	281	314	374	400	426	460
	360°	358	395	454	516	604	652	708	766
L4 (Distance from the end face of output shaft to the mounting hole)		38	44	50	57	60	74	76	78
F1(Output shaft thread specification)		M12 depth 18	M16 depth 24	M20 depth 30	M22 depth 33	M24 depth 36	M27 depth 40	M27 depth 40	M30 depth 45
F2(Output shaft thread quantity)		12	12	12	12	12	12	12	12
F3(Output shaft thread pitch circle)		115	125	150	170	195	215	240	255
F4(End cover side thread specification)		M10 depth 15	M12 depth 18	M16 depth 24	M20 depth 30	M22 depth 33	M24 depth 36	M24 depth 36	M27 depth 40
F5(End cover side thread quantity)		12	12	12	12	12	12	12	12
F6(End cover side thread pitch circle)		108	120	133	150	170	190	210	230
F7(Mounting hole size)		18	21	23	26	26	32.5	37	39
H1(Base height)		48	70	78	88	105	110	120	135
H2(Height of the mounting surface to axis)		80	95	108	122	140	154	165	184
W1(Mounting hole width)		190	230	260	300	340	380	410	450
W2(Base width)		222	268	310	350	400	447	484	530

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.

10

Overall Dimensions(front flange type)

Overall Dimensions(rear flange type)



Installation Dimensions(front flange type)

Installation Dimensions(rear flange type)

Series specifications		115	130	155	180	205	225	240	265
D1(Output shaft and end cover side diameter)		139	155	183	209	234	263	288	310
D2(Cylinder barrel diameter)		140	152	178	203	229	254	279	305
D3(Flange diameter)		200	235	280	315	355	396	442	475
D4(Locating step diameter)		150	175	205	230	260	290	315	340
L1(Total length of cylinder)	180°	298	323	365	413	475	524	551	600
	360°	427	470	538	615	705	776	836	906
L2(Total length of cylinder barrel)	180°	261	283	323	363	431	462	493	534
	360°	390	430	496	565	661	715	775	839
L3(Flange thickness)		25	26	31	33	40	42	46	52
L4 (Distance from the end face of output shaft to the flange face)		27	32	35	42	40	53	54	56
F1(Output shaft thread specification)		M12 depth 18	M16 depth 24	M20 depth 30	M22 depth 33	M24 depth 36	M27 depth 40	M27 depth 40	M30 depth 45
F2(Output shaft thread quantity)		12	12	12	12	12	12	12	12
F3(Output shaft thread pitch circle)		115	125	150	170	195	215	240	255
F4(Flange through-hole diameter)		11	13	18	22	23	26	30	33
F5(Number of through-holes of the flange)		12	12	12	12	12	12	12	12
F6(Flange through-hole pitch circle)		175	205	245	275	310	345	380	410

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.

Series specifications		115	130	155	180	205	225	240	265
D1(Output shaft and end cover side diameter)		139	155	183	209	234	263	288	310
D2(Cylinder barrel diameter)		140	152	178	203	229	254	279	305
D3(Flange diameter)		200	235	280	315	355	396	442	475
D4(Locating step diameter)		150	175	205	230	260	290	315	340
L1(Total length of cylinder)	180°	298	323	365	413	475	524	551	600
	360°	427	470	538	615	705	776	836	906
L2(Total length of cylinder barrel)	180°	261	283	323	363	431	462	493	534
	360°	390	430	496	565	661	715	775	839
L3(Flange thickness)		25	26	31	33	40	42	46	52
L4 (Distance from the end face of end cover to the flange face)		22	17	18	26	22	29	28	39
F1(Output shaft thread specification)		M12 depth 18	M16 depth 24	M20 depth 30	M22 depth 33	M24 depth 36	M27 depth 40	M27 depth 40	M30 depth 45
F2(Output shaft thread quantity)		12	12	12	12	12	12	12	12
F3(Output shaft thread pitch circle)		115	125	150	170	195	215	240	255
F4(Flange through-hole diameter)		11	13	18	22	23	26	30	33
F5(Number of through-holes of the flange)		12	12	12	12	12	12	12	12
F6(Flange through-hole pitch circle)		175	205	245	275	310	345	380	410

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.



Design pressure: 30 ~ 210 bar
Output torque: 2825 ~ 6780 N·m
Hold torque: 6125 ~ 14315 N·m
Straddle torque: 4238 ~ 10170 N·m
Rotation angle: 200°, 220°
Working temperature: -30°C ~ +90°C
Installation method: tripod type

Note: The design pressure and rotation angle can be customized according to customer requirements.

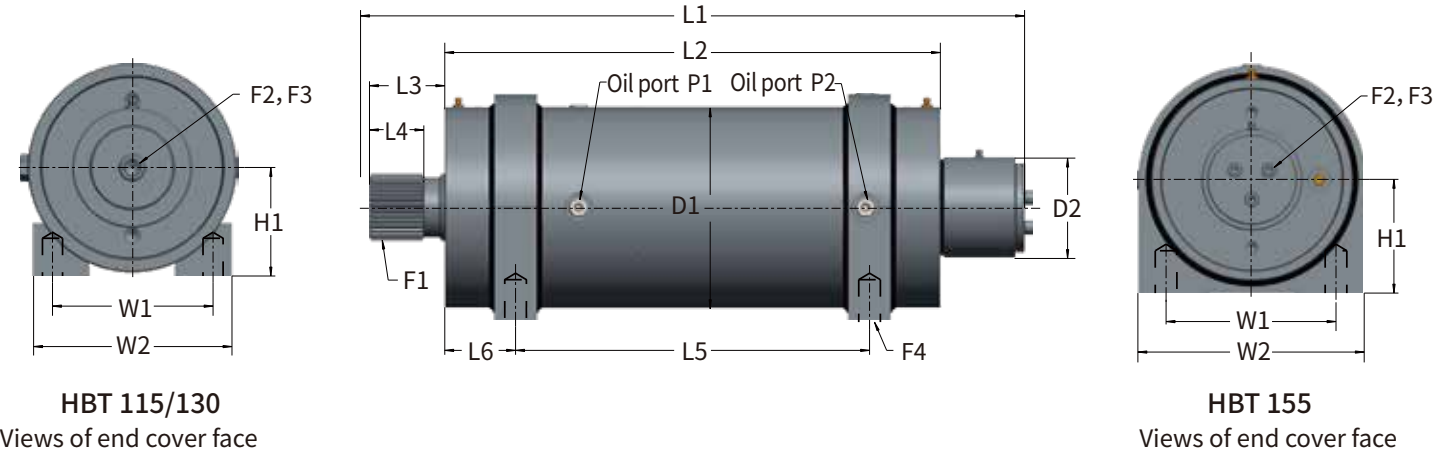
Performance Parameter

Series specifications		115	140	155
Torque (N·m@21MPa)	Output torque	2825	5085	6780
	Hold torque	6125	10622	14351
Bending moment (N·m)	Straddle type	4238	7628	10170
Load (kg)	Radial force	2041	3130	3901
	Axial force	2041	3130	3901
Displacement (cm³)	220°	775	1356	1655

Applications



Overall Dimensions



Installation Dimensions

Series specifications	115	140	155
D1(Cylinder barrel diameter)	140	165	180
D2(Spline protective cover diameter)	80	90	98
F1(Spline parameters)	Customized according to customer requirements		
F2(Output shaft thread specification)	M12 depth 35	M12 depth 35	M12 depth 35
F3(Output shaft thread quantity)	2	2	6
F4(Mounting thread specification)	M16 depth 19	M20 depth 25	M22 depth 30
L1(Total length of cylinder)	431	561	608
L2(Total length of cylinder barrel)	335	422	445
L3(Exposed length of output shaft)	42	62	68
L4(Length of spline)	22	40	49
L5(Mounting hole length)	265	320	320
L6 (Distance from the end face of cylinder barrel to the mounting hole)	34	51	62
H1(Height of the mounting surface to axis)	74	84	102
W1(Mounting hole width)	104	140	150
W2(Base width)	133	170	203

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.



- Design pressure: 30 ~ 210 bar
 - Output torque: 200 ~ 76000 N·m
 - Rotation angle: 0° ~ 360°
 - Working temperature: -30°C ~ +90°C
 - Installation method: flange type
 - Output form: flat key output, spline output
- Note: The design pressure and rotation angle can be customized according to customer requirements.

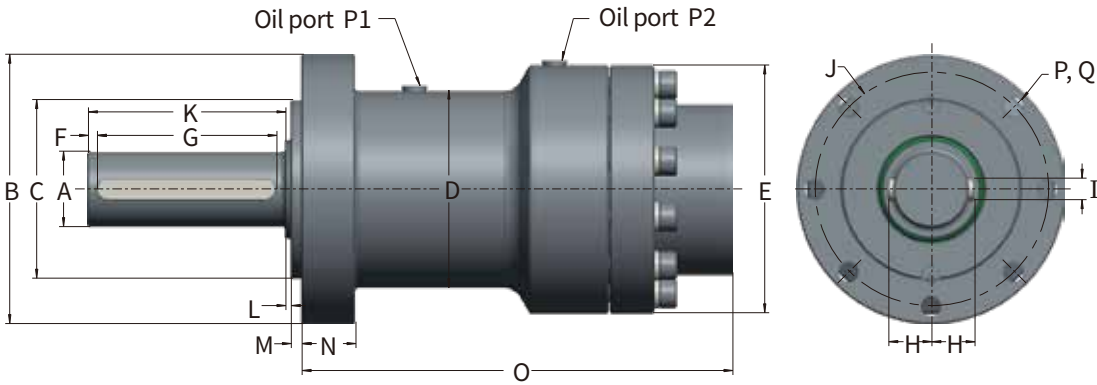
Performance Parameter

Series specifications		40	55	65	85	105	130	140	160	180	200	225	250	280	300
Torque (N·m@21MPa)	Output torque	200	340	650	1300	2500	5107	7100	11300	16200	22300	32000	44000	60800	76000
	Hold torque	/	/	/	/	/	/	/	/	/	/	/	/	/	/
Load (kg)	Radial force	160	303	445	803	1147	1791	1816	3704	3836	6858	7040	7959	8632	9122
	Axial force	816	1020	1428	1943	2540	3479	3551	4714	4836	6326	6438	6785	7244	7755
Displacement (cm³)	90°	20	28	58	131	255	518	759	1145	1678	2261	3388	4607	6348	7930
	180°	40	56	117	262	509	1036	1518	2290	3356	4522	6676	9214	12695	15862
	270°	60	84	176	391	763	1554	2277	3435	5034	6783	10014	13821	19043	23790
	360°	80	113	235	521	1018	2071	3036	4580	6712	9044	13352	18429	25391	31724

Applications



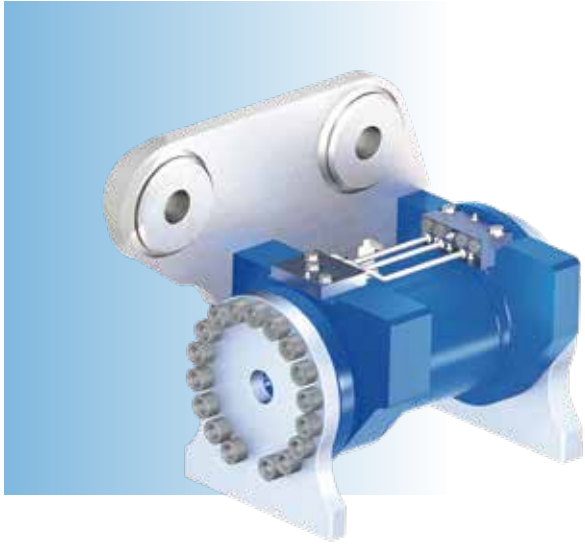
Overall Dimensions



Installation Dimensions

Series specifications		40	55	65	85	105	130	140	160	180	200	225	250	280	300
A(Output shaft diameter)		22	28	35	42	55	70	80	100	105	120	140	150	170	180
B(Mounting flange diameter)		98	110	128	150	178	222	250	278	298	325	385	450	490	555
C(Locating step diameter)		55	68	80	100	115	150	160	190	210	235	260	300	340	380
D(Cylinder barrel diameter)		65	72	87	108	130	167	187	206	138	255	300	346	394	440
E(Cylinder bottom diameter)		75	82	95	118	147	183	210	240	270	295	350	385	435	470
F(Flat key positioning length)		2.5	2	5	5	5	7	5	5	5	5	5	10	10	10
G(Flat key length)		45	56	70	100	100	125	140	200	200	200	250	280	280	280
H(Flat key width)		8	8	10	12	16	20	22	28	28	32	36	36	40	45
I(Flat key thickness)		14	17	20.5	24	31.5	39.5	45	56	58.5	67	78	83	94	100
J(Mounting flange pitch circle)		84	90	108	130	155	195	220	245	265	290	345	400	450	500
K(Output shaft length)		50	60	80	110	110	140	150	210	210	210	260	300	300	300
L(Exposed length of output shaft)		3	3	3.5	3	4	4	7	5	5	4	6	6	6	6
M(Locating step length)		4	4	5	6	6	8	10	12	12	10	15	20	20	20
N(mounting flange width)		16	18	25	30	31	37	40	43	47	54	64	90	100	110
O (Cylinder barrel length)	90°	124	133	152	187	241	272	304	364	435	438	570	710	790	840
	180°	149	164	200	240	311	392	401	474	565	584	732	875	1000	1060
	270°	182	200	245	290	366	480	499	592	702	725	900	1060	1205	1285
	360°	210	232	284	345	432	532	597	708	880	876	1069	1261	1408	1510
P (Number of through-holes of the mounting flange)		5	5	5	7	7	8	8	8	11	11	15	15	19	19
Q (Diameter of through-holes of the mounting flange)		9	9	11	11	14	18	18	22	22	22	22	26	26	32

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.



- Design pressure: 30 ~ 210 bar
 - Output torque: 930 ~ 44300 N · m
 - Hold torque: 2260 ~ 111800 N · m
 - Rotation angle: 0° ~ 360°
 - Working temperature: -30℃ ~ +90℃
 - Installation method: tripod type
- Note: The design pressure and rotation angle can be customized according to customer requirements.

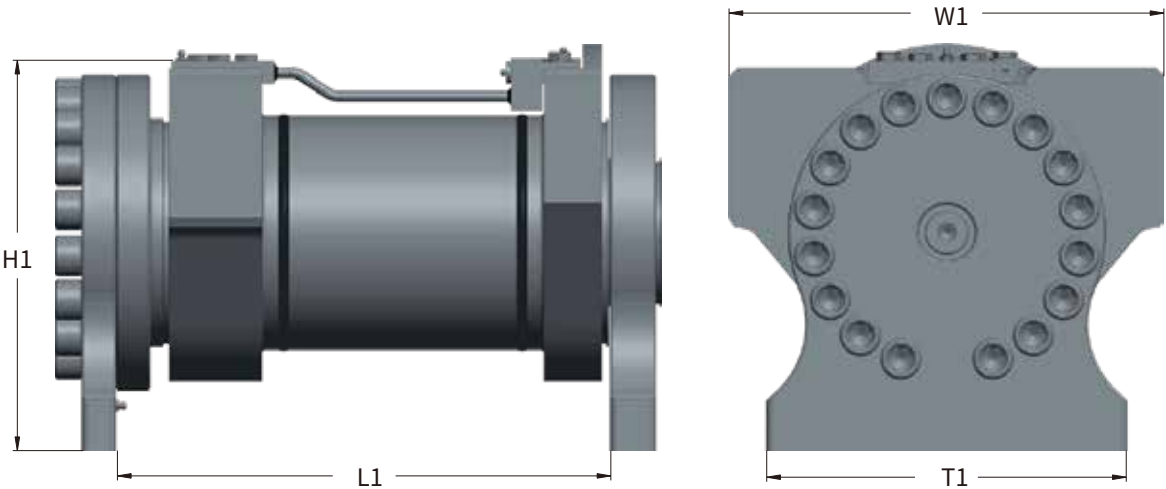
Performance Parameter

Series specifications		4.5	30	50	70	100	180	240	300	465
Torque (N · m@21MPa)	Output torque	930	1630	2600	4375	6650	13300	17875	24860	44300
	Hold torque	2260	6430	9350	14850	20450	40725	53100	70280	111800

Applications



Overall Dimensions



Installation Dimensions

Series specifications	4.5	30	50	70	100	180	240	300	465
L1(Distance between two connecting plates)	215	242	270	343	378	432	495	535	583
W1(Flange width)	190	190	218	254	280	380	465	480	550
H1(Cylinder height)	203	170	193	259	285	294	375	382	418
T1(Width of connecting plate)	98	120	130	160	180	310	330	350	400

*Note: The product performance and standard size in the table are for reference only, and the actual size shall refer to the drawings finally confirmed by both parties.