

HYDRAULIC ROTARY ACTUATORS

Ningbo Tech Hydro Co. Ltd.



TECH HYDRO HYDRAULIC ROTARY ACTUATORS

The rotary actuators offer simple and cost-effective solutions to move, support and position rotating loads in countless applications. The actuators are designed to replace multiple components and function as a rotating device, mounting bracket and bearing, all-in-one. They feature tremendous torque output and exceptional load bearing capability in compact dimensions.



FEATURES

POWERFUL

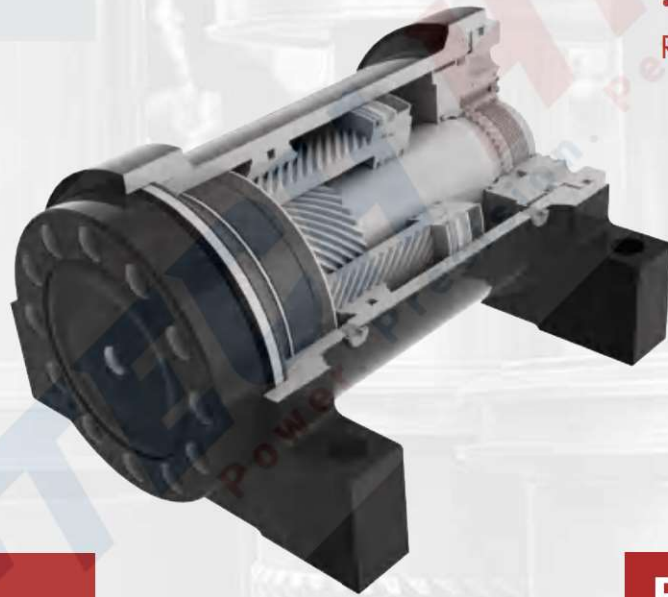
- High Torque
- High Bearing Capacity

COMPACT

- High Power Density
- Fit In Tight Spaces

HOLD POSITION

- Zero Internal Leakages
- Smooth Operation
- No External Break Required



SIMPLIFIES

- Eliminates Bearing
- Linkages & Brackets
- Reduces Bill of Materials
- Simplifies Supply Chain
- Assembly & Maintenance

BACK DRIVES IN OVERLOAD CONDITIONS

- Hydraulic Fuse
- Prevents Mechanical Damage

DURABLE

- Suitable for Harsh Environments
- Moving Parts Enclosed

MODEL CODE

TH10

SERIES

 TH10 TH20 TH30
 TH40 TH50

003

MODEL(TORQUE/100)

 TH10: 002, 003, 006, 010, 016, 027
 TH20: 005, 009, 016, 027, 042
 TH300: 019, 028, 047, 073, 105, 140, 180, 240
 TH40: 028, 050, 067
 TH50: Customized, 006~240

360

ROTATION

 TH10: 180°, 360° TH10-002: 180° only
 TH20: 180°
 TH30: 180°, 360°
 TH40: 200°, 220°
 TH50: 110°, 134°, 180°

Q

OUTPUT MODE

 TH10: Q- Front Flange
 TH20: Q- Front Flange | S-Double Flanges
 TH30: Q-Front Flange | S-Double Flanges
 TH40: Z-Shaft Output | H- Spline
 TH50: Customized

H

MOUNTING OPTIONS

 TH10: H- Rear Flange
 TH20: D- Foot
 TH30: D- Foot | H- Rear Flange | Q-Front Flange
 TH40: D- Foot
 TH50: Welded, Screw connected

Y

VALVE OPTIONS

 Y: Counterbalance Valve
 W: No Valve

J

SEALS

 J: Standard
 D: Low Temp
 G: High Temp

E

MEASUREMENT SYSTEM

 E: Imperial
 M: Metric
 D: Customized

The model codes information is for your ordering reference only. The model codes defines standard configurations of TECH HYDRO rotary actuators. For special requirements, please contact us.

MOUNTING OPTIONS

CANTILEVER MOUNT

The load works on one side flange of actuator only. This type is not recommended for aerial work platforms or other critical and safety-related applications.

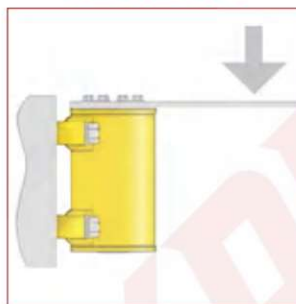
STRADDLE MOUNT

The load is supported by flanges from both sides.

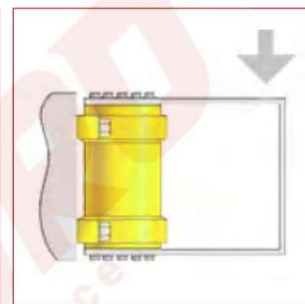
OTHERS

Rail mount, Clevis mount or any customized mount.

CANTILEVER MOUNT



STRADDLE MOUNT



RAIL MOUNT



CLEVIS MOUNT



COUNTERBALANCE VALVE

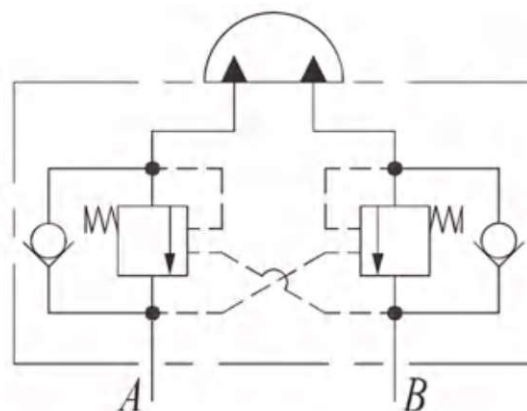
The counterbalance valve protects rotation in the event of a hydraulic line failure and protect the actuator against excessive torque loading.

TH10, TH20 AND TH40 SERIES:

Pressure 228 bar, pilot ratio 3:1

TH30 SERIES:

Pressure 250 bar, pilot ratio 3:1



OPERATING INFORMATION

TH10 SERIES

ROTATION	180°, 360°
MAX. DRIVE TORQUE	180-2700NM
MAX. HOLDING TORQUE	630-9400NM
MAX. STRADDLE MOMENT	560-11200NM
MOUNTING	Flange



TH20 SERIES

ROTATION	180°
MAX. DRIVE TORQUE	500-4200NM
MAX. HOLDING TORQUE	1300-10500NM
MAX. STRADDLE MOMENT	2500-31600NM
MAX. CANTILEVER MOMENT	1360-15800NM
MOUNTING	Foot



TH30 SERIES

ROTATION	180°, 360°
MAX. DRIVE TORQUE	1900-43000NM
MAX. HOLDING TORQUE	4900-110000NM
MAX. STRADDLE MOMENT	19200-170000NM
MAX. CANTILEVER MOMENT	5200-64400NM
MOUNTING	Foot, Flange



OPERATING INFORMATION

TH40 SERIES

ROTATION	200°, 220°
MAX. DRIVE TORQUE	2800-6700NM
MAX. HOLDING TORQUE	6100-14300NM
MAX. STRADDLE MOMENT	4200-10100NM
MOUNTING	Foot



TH50 SERIES (Non-Standard Series)

ROTATION	110°, 134°, 180°
MAX. DRIVE TORQUE	600-24000NM
MAX. HOLDING TORQUE	1900-50000NM
MOUNTING	Welded, Screw connected

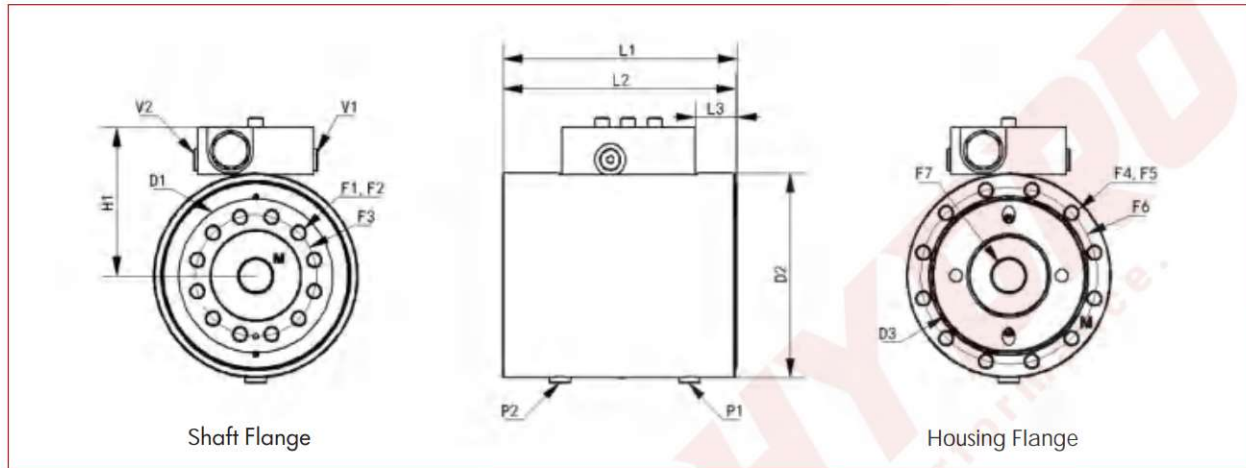


More Customized Models

Contact TECH HYDRO for special requirements



SPECIFICATIONS OF TH10 SERIES



TECHNICAL PARAMETERS

MODEL	TH10-002	TH10-003	TH10-006	TH10-010	TH10-016	TH10-027
DRIVE TORQUE NM@21MPA	180	320	600	1000	1600	2700
HOLDING TORQUE NM@21MPA	630	1200	1900	3800	5700	9400
MAX CANTILEVER MOMENT CAPACITY NM	560	1000	2200	5600	9000	11200
RADIAL CAPACITY KG	900	1350	1850	3600	4980	6700
AXIAL CAPACITY KG	900	1350	1850	3600	4980	6700
DISPLACEMENT 180° CC	63.9	121	192	365	552	914
DISPLACEMENT 360° CC	-	243	384	733	1105	1829
WEIGHT 180° KG	6.4	10	14.2	26	43.3	57
WEIGHT 360° KG	-	12.8	19.2	35	54.5	83

MOUNTING DIMENSIONS

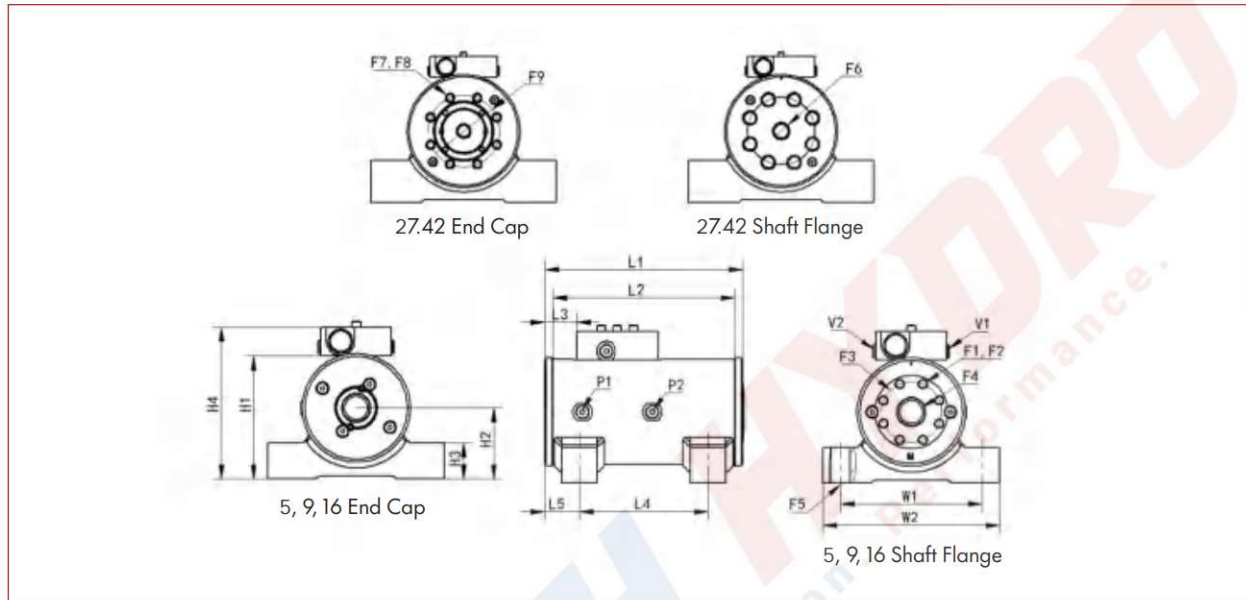
MODEL	D1 MOUNTING FLANGE DIA MM	D2 HOUSING DIA MM	F1 MOUNTING HOLE MM	F2 QTY OF MOUNTING HOLES	F3 BOLT CIRCLE DIA OF SHAFT FLANGE MM	F4 MOUNTING HOLE MM	F5 QTY OF MOUNTING HOLES	F6 BOLT CIRCLE DIA OF ENDCAP FLANGE MM	F7 SHAFT THROUGH HOLE DIA MM
TH10-002	77.2	100	M8X1.25	8	54	M8X1.25	8	86	14.3
TH10-003	89	119	M8X1.25	8	73	M8X1.25	8	103	17
TH10-006	102	135	M10X1.5	12	80	M10X1.5	12	117	21.4
TH10-010	127	170	M12X1.75	12	102	M12X1.75	12	151	35.7
TH10-016	148	198	M12X1.75	12	127	M12X1.75	12	175	45.7
TH10-027	185	226	M16X2	12	140	M12X1.75	12	203	66.7

MODEL	H1 HEIGHT MM	L1 LENGTH 180° MM	L1 LENGTH 360° MM	L2 LENGTH 180° MM	L2 LENGTH 360° MM	L3 DISTANCE TO VALVE 360° MM	L3 DISTANCE TO VALVE 180° MM
TH10-002	80	140	-	138	-	25.4	-
TH10-003	90	143	189	142	188	26.9	22.6
TH10-006	98	156	212	154	211	27.7	24.6
TH10-010	115	184	258	182	256	27.9	42.7
TH10-016	129	224	311	221	308	38.6	60.2
TH10-027	143	241	346	239	344	43.9	70.4

MODEL	P1, P2 PORT	V1, V2 PORT
TH10-002	ISO-1179-1/BSPP 'G' series, size 1/8 ~1/4. See drawing for details.	ISO-11926/SAE series, size 7/16. See drawing for details.
TH10-003		
TH10-006		
TH10-010		
TH10-016		
TH10-027		

*Specification charts are for general reference only, please consult drawing for actual values and tolerances.

SPECIFICATIONS OF TH20 SERIES



TECHNICAL PARAMETERS

MODEL	TH20-005	TH20-009	TH20-016	TH20-027	TH20-042
DRIVE TORQUE NM@21MPA	500	900	1600	2680	4200
HOLDING TORQUE NM@21MPA	1300	2400	4400	7100	10500
MAX STRADDLE MOMENT CAPACITY NM	2500	4500	10200	16400	31600
MAX CANTILEVER MOMENT CAPACITY NM	1360	2480	5420	11300	15800
RADIAL CAPACITY KG	1380	2130	4190	5580	9530
AXIAL CAPACITY KG	500	680	1000	1400	1770
DISPLACEMENT 180° CC	132	234	436	726	1070
WEIGHT 180° KG	12.5	17	30	51	77

MOUNTING DIMENSIONS

MODEL	D1 MOUNTING FLANGE DIA MM	D2 HOUSING DIA MM	F1 MOUNTING HOLE OF SHAFT FLANGE MM	F2 QTY OF SHAFT FLANGE MOUNTING HOLES	F3 BOLT CIRCLE DIA OF SHAFT FLANGE MM	F4 CLEARANCE HOLE FOR SHAFT THROUGH BOLT DIA MM	F5 MOUNTING HOLES OF HOUSING FOOT	F6 SHAFT CENTER HOLE MM	F7 MOUNTING HOLE OF ENDCAP FLANGE MM	F8 QTY OF ENDCAP FLANGE MOUNTING HOLE
TH20-005	104	101	M10X1.5	6	53.9	M20	M16	-	-	-
TH20-009	117	114	M10X1.5	8	65	M24	M20	-	-	-
TH20-016	142	139	M12X1.75	8	85	M24	M24	-	-	-
TH20-027	170	165	M20X2.5	8	102	-	M24	M24x3	M12x1.75	8
TH20-042	196	191	M20X2.5	10	121	-	M30	1-1/4-7	M16x2	10

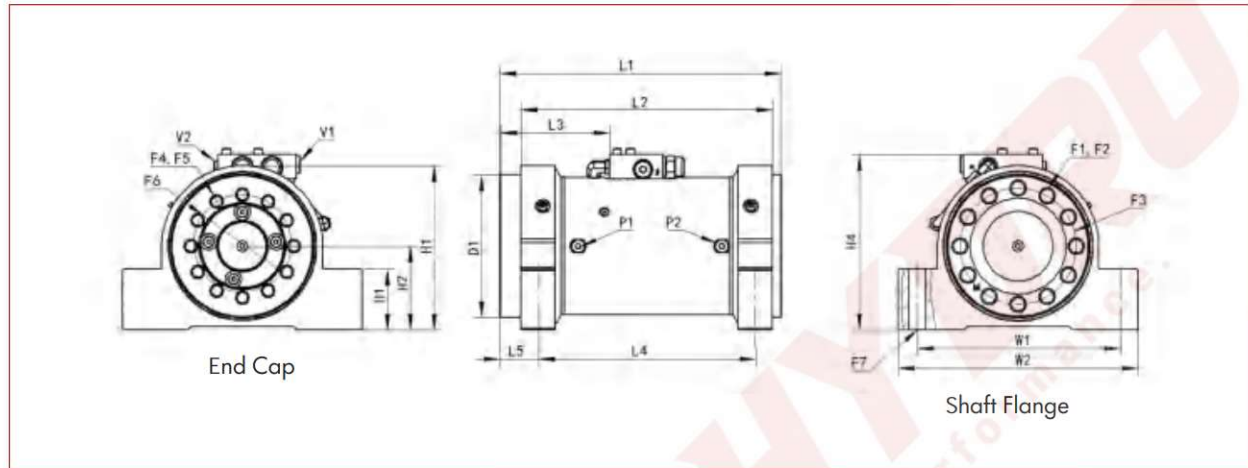
MODEL	F9 BOLT CIRCLE DIAMETER OF ENDCAP FLANGE	H1 HEIGHT WITHOUT COUNTER BALANCE VALVE MM	H2 HEIGHT TO CENTERLINE MM	H3 FOOT HEIGHT MM	H4 OVERALL HEIGHT MM	L1 OVERALL LENGTH MM	L2 LENGTH WITHOUT ROTATING FLANGEMM	L3 SHAFT FLANGE TO COUNTER- BALANCE VALVE MM	L4 MOUNTING LENGTH MM	L5 SHAFT FLANGE TO MOUNTING HOLE MM
TH20-005	-	119	66	34.3	146	188	173	32	111	37.9
TH20-009	-	135	76.2	38.1	163	216	197	34.5	140	37.6
TH20-016	-	158	85.9	44.5	185	248	229	44.7	152	47
TH20-027	108	193	108	63.5	220	298	276	48.8	184	57.2
TH20-042	121	218	121	70	245	337	314	49	216	60.5

MODEL	W1 MOUNTING WIDTH MM	W2 OVERALL WIDTH MM	P1, P2 PORT	V1, V2 PORT
TH20-005	145	178	ISO-1179-1/BSPP 'G' series, size 1/8-1/4. See drawing for details.	ISO-11926/SAE series, size 7/16. See drawing for details.
TH20-009	152	191		
TH20-016	197	248		
TH20-027	222	279		
TH20-042	267	330		

*Specification charts are for general reference only, please consult drawing for actual values and tolerances.

SPECIFICATIONS OF TH30 SERIES

(FOOT MOUNT)



TECHNICAL PARAMETERS

MODEL	TH30-019	TH30-028	TH30-047	TH30-073	TH30-105	TH30-140	TH30-180	TH30-240
DRIVE TORQUE NM@21MPA	1900	2800	4700	7300	10500	14000	18000	24000
HOLDING TORQUE NM@21MPA	4900	6800	12000	18000	26000	35000	46000	59000
MAX CANTILEVER MOMENT CAPACITY NM	5200	7100	11900	18400	29500	38800	55900	72900
MAX STRADDLE MOMENT CAPACITY 180° NM	13400	16900	30800	47800	75100	98900	130500	170000
MAX STRADDLE MOMENT CAPACITY 360° NM	19200	24600	45400	71200	111500	146000	197700	256500
RADIAL CAPACITY KG	1800	2300	3600	5000	6800	8200	10000	11800
AXIAL CAPACITY KG	1400	1800	2700	3600	4500	5900	6800	8200
DISPLACEMENT 180° CC	492	688	1180	1870	2680	3540	4650	6000
DISPLACEMENT 360° CC	980	1390	2360	3740	5360	7080	9320	12000
WEIGHT 180° KG	34.5	50	72.5	110	160	220	280	360
WEIGHT 360° KG	45.5	63.4	100	140	200	290	370	455

MOUNTING DIMENSIONS

MODEL	D1 MOUNTING FLANGE DIA MM	D2 HOUSING DIA MM	F1 MOUNTING HOLE OF SHAFT FLANGE MM	F2 QTY OF SHAFT FLANGE MOUNTING HOLE	F3 BOLT CIRCLE DIA OF SHAFT FLANGE MM	F4 MOUNTING HOLE OF ENDCAP FLANGE MM	F5 QTY OF ENDCAP FLANGE MOUNTING HOLE	F6 BOLT CIRCLE OF DIAMETER OF ENDCAP FLANGE	F7 MOUNTING HOLES OF HOUSING FOOT
TH30-019	139	140	M12x1.75	12	115	M10x1.5	12	108	M16
TH30-028	155	152	M16x2	12	125	M12x1.75	12	120	M20
TH30-047	183	178	M20x2.5	12	150	M16x2	12	133	M22
TH30-073	209	203	M22x2.5	12	170	M20x2.5	12	150	M24
TH30-105	234	229	M24x3	12	195	M22x2.5	12	170	M27
TH30-140	263	254	M27x3	12	215	M24x3	12	190	M30
TH30-180	288	279	M27x3	12	240	M27x3	12	210	M36
TH30-240	310	305	M30x3.5	12	255	M27x3	12	230	M36

MODEL	H1 HEIGHT WITHOUT COUNTER- BALANCE VALVE MM	H2 HEIGHT TO CENTERLINE MM	H3 FOOT HEIGHT MM	H4 OVERALL HEIGHT MM	L1 OVERALL LENGTH 180° MM	L1 OVERALL LENGTH 360° MM	L2 LENGTH WITHOUT ROTATING FLANGE 180° MM	L2 LENGTH WITHOUT ROTATING FLANGE 360° MM
TH30-019	156	80	48	179	298	427	261	392
TH30-028	186	94.9	70	201	323	470	286	433
TH30-047	212	108	78	226	365	538	323	496
TH30-073	240	122	88	271	413	615	363	565
TH30-105	276	140	105	283	475	705	431	661
TH30-140	305	154	110	310	524	776	463	715
TH30-180	327	165	120	334	551	836	493	775
TH30-240	362	184	135	366	600	906	534	843

MOUNTING DIMENSIONS

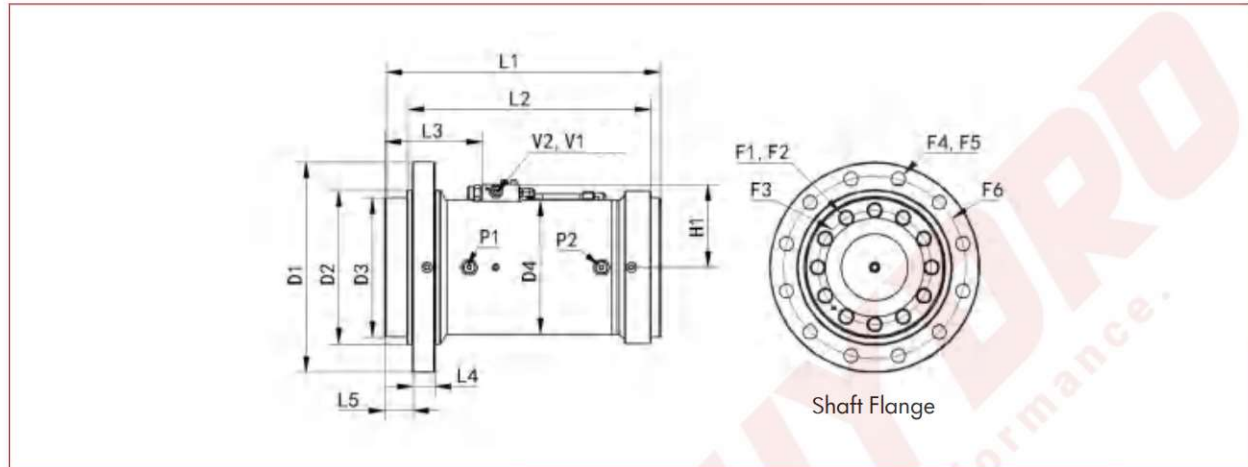
MODEL	L3 SHAFT FLANGE TO COUNTERBALANCE VALVE 180° MM	L3 SHAFT FLANGE TO COUNTERBALANCE VALVE 360° MM	L4 MOUNTING LENGTH 180° MM	L4 MOUNTING LENGTH 360° MM	L5 SHAFT FLANGE TO MOUNTING HOLE 180° MM
TH30-019	75.2	149	229	358	38.1
TH30-028	134	157	248	395	43.9
TH30-047	143	197	281	454	50
TH30-073	130	232	314	516	56.9
TH30-105	152	267	374	604	59.9
TH30-140	185	308	400	652	74.2
TH30-180	196	338	426	708	75.9
TH30-240	221	374	460	766	80

MODEL	W1 MOUNTING WIDTH MM	W2 OVERALL WIDTH MM	P1, P2 PORT	V1, V2 PORT
TH30-019	190	222	ISO-1179-1/BSPP 'G' series, size 1/8-1/4. See drawing for details.	ISO-11926/SAE series, size 7/16. See drawing for details.
TH30-028	230	268		
TH30-047	260	310		
TH30-073	300	350		
TH30-105	340	400		
TH30-140	380	447		
TH30-180	410	484		
TH30-240	450	530		

*Specification charts are for general reference only, please consult drawing for actual values and tolerances.

SPECIFICATIONS OF TH30 SERIES

(FLANGE MOUNT)



TECHNICAL PARAMETERS

MODEL	TH30-019	TH30-028	TH30-047	TH30-073	TH30-105	TH30-140	TH30-180	TH30-240
DRIVE TORQUE NM@21MPA	1900	2800	4700	7300	10500	14000	18000	24000
HOLDING TORQUE NM@21MPA	4900	6800	12000	18000	26000	35000	46000	59000
MAX CANTILEVER MOMENT CAPACITY NM	5200	7100	11900	18400	29500	38800	55900	72900
MAX STRADDLE MOMENT CAPACITY 180° NM	13400	16900	30800	47800	75100	98900	130500	170000
MAX STRADDLE MOMENT CAPACITY 360° NM	19200	24600	45400	71200	111500	146000	197700	256500
RADIAL CAPACITY KG	1800	2300	3600	5000	6800	8200	10000	11800
AXIAL CAPACITY KG	1400	1800	2700	3600	4500	5900	6800	8200
DISPLACEMENT 180° CC	492	688	1180	1870	2680	3540	4650	6000
DISPLACEMENT 360° CC	980	1390	2360	3740	5360	7080	9320	12000
WEIGHT 180° KG	34.5	50	72.5	110	160	220	280	360
WEIGHT 360° KG	45.5	63.4	100	140	200	290	370	455

MOUNTING DIMENSIONS

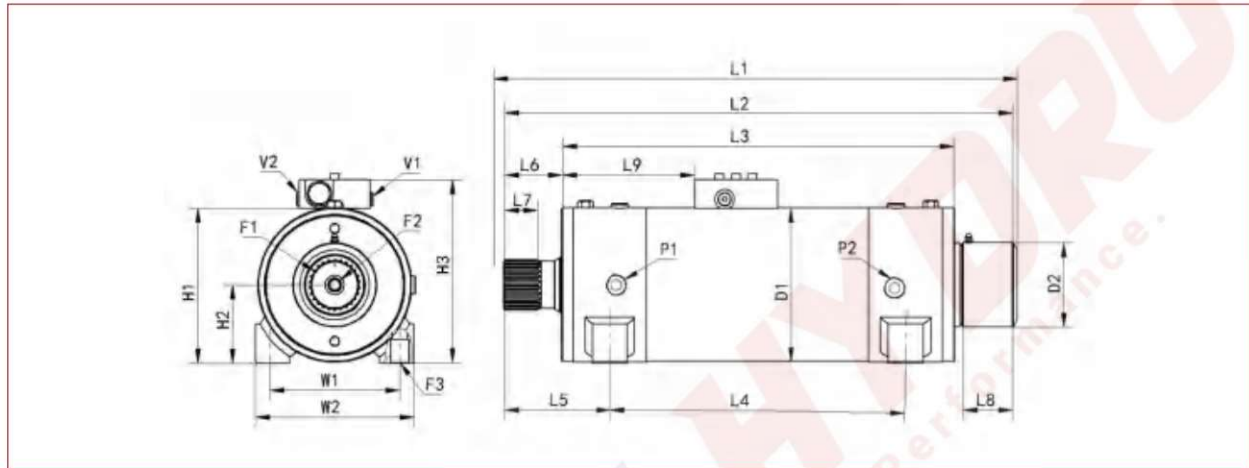
MODEL	D1 MOUNTING FLANGE DIA MM	D2 PILOT DIA MM	D3 SHAFT AND ENDCAP FLANGE DIA MM	D4 HOUSING DIA MM	F1 MOUNTING HOLE OF SHAFT FLANGE MM	F2 QTY OF SHAFT FLANGE MOUNTING HOLES	F3 BOLT CIRCLE DIA OF SHAFT FLANGE	F4 MOUNTING HOLE OF ENDCAP FLANGE MM	F5 QTY OF ENDCAP FLANGE MOUNTING HOLE
TH30-019	200	150	139	140	M12x1.75	12	115	M10x1.5	12
TH30-028	235	175	155	152	M16x2	12	125	M12x1.75	12
TH30-047	280	205	183	178	M20x2.5	12	150	M16x2	12
TH30-073	315	230	209	203	M22x2.5	12	170	M20x2.5	12
TH30-105	355	260	234	229	M24x3	12	195	M22x2.5	12
TH30-140	396	290	263	254	M27x3	12	215	M24x3	12
TH30-180	442	315	288	279	M27x3	12	240	M27x3	12
TH30-240	475	340	310	305	M30x3.5	12	255	M27x3	12

MODEL	F6 BOLT CIRCLE DIAMETER OF ENDCAP FLANGE	H1 CENTERLINE TO VALVE TOP MM	L1 OVERALL LENGTH 180° MM	L1 OVERALL LENGTH 360° MM	L2 LENGTH WITHOUT ROTATING FLANGE 180° MM	L2 LENGTH WITHOUT ROTATING FLANGE 360° MM	L3 SHAFT FLANGE TO COUNTER- BALANCE VALVE 180° MM	L3 SHAFT FLANGE TO COUNTER- BALANCE VALVE 360° MM	L4 MOUNTING FLANGE THICKNESS MM	L5 SHAFT FLANGE TO MOUNTING FLANGE FACE MM
TH30-019	175	99.1	298	427	261	392	75.2	149	25.2	27
TH30-028	206	106	323	470	286	433	134	157	26	32
TH30-047	245	118	365	538	323	496	143	197	31	35
TH30-073	275	131	413	615	363	565	130	232	33	42
TH30-105	310	144	475	705	431	661	152	267	40	40
TH30-140	345	156	524	776	463	715	185	308	42	53
TH30-180	380	169	551	836	493	775	196	338	46	54
TH30-240	410	182	600	906	534	843	221	374	52	56

P1, P2 PORT	ISO-1179-1/BSPP 'G' series, size 1/8-1/4. See drawing for details.
V1, V2 PORT	ISO-11926/SAE series, size 7/16. See drawing for details.

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SPECIFICATIONS OF TH40 SERIES



TECHNICAL PARAMETERS

MODEL	TH40-028	TH40-050	TH40-067
DRIVE TORQUE NM@21MPA	2800	5000	6700
HOLDING TORQUE NM@21MPA	6100	10600	14300
STANDARD ROTATION	220°	220°	200°
MAX STRADDLE MOMENT CAPACITY NM	4200	7600	10100
RADIAL CAPACITY KG	2040	3130	3900
AXIAL CAPACITY KG	2040	3130	3900
DISPLACEMENT 180° CC	775	1360	1650
WEIGHT KG	33.6	58	75

MOUNTING DIMENSIONS

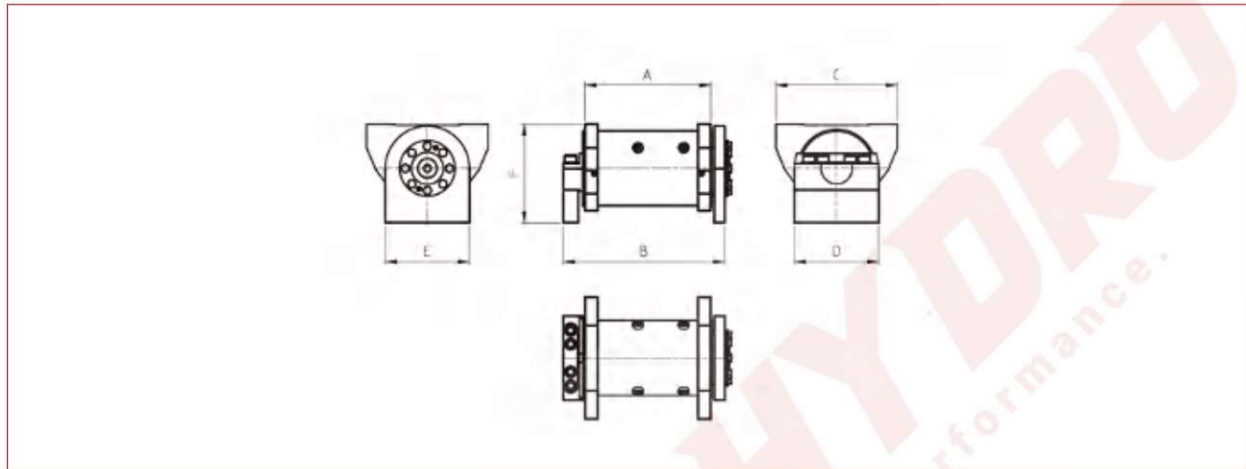
MODEL	D1 HOUSING DIA MM	D2 OPTIONAL SPLINE ADAPTER DIA MM	F1 SHAFT SPLINE MM	F2 SHAFT SPLINE MOUNTING HOLE MM	F3 FOOT MOUNTING HOLE MM	H1 HEIGHT WITHOUT COUNTER- BALANCE VALVE MM	H2 HEIGHT TO CENTERLINE MM	H3 OVERALL HEIGHT MM
TH40-028	140	80	See drawing for details	M12x1.75	M16x2	150	73.2	173
TH40-050	165	89.9		M12x1.75	M20x2.5	176	83.9	196
TH40-067	178	98.3		M12x1.75	M22x2.5	203	102	220

MODEL	L1 OVERALL LENGTH WITH OPTIONAL ADAPTER MM	L2 OVERALL LENGTH WITHOUT OPTIONAL ADAPTER MM	L3 OVERALL LENGTH WITHOUT ROTATION MM	L4 LENGTH OF FOOT MOUNTING MM	L5 MOUNTING HOLE TO END OF SHAFT MM	L6 SHAFT EXTENSION MM	L7 SPLINE LENGTH MM	L8 LENGTH OF OPTIONAL ADAPTER MM
TH40-028	431	417	335	265	75.1	40.9	20.6	32.5
TH40-050	561	546	422	320	113	61.9	40	52.6
TH40-067	608	579	445	320	130	67.6	49	60.5

MODEL	W1 MOUNTING WIDTH MM	W2 OVERALL WIDTH MM	P1, P2 PORT	V1, V2 PORT
TH40-028	104	133	ISO-1179-1/BSPP 'G' series, size 1/8-1/4. See drawing for details.	ISO-11926/SAE series, size 7/16. See drawing for details.
TH40-050	140	170		
TH40-067	150	203		

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SPECIFICATIONS OF TH50 SERIES



TECHNICAL PARAMETERS

MODEL	TH50-05	TH50-06	TH50-07	TH50-08	TH50-09	TH50-10	TH50-11	TH50-12
DRIVE TORQUE NM@21MPA	930	2870	4300	7350	10020	13770	18830	23770
HOLDING TORQUE NM@21MPA	2260	7270	10800	17250	26450	36420	47840	62110
WEIGHT KG	25	52	84	110	182	220	320	430
DISPLACEMENT CC	3-6	3-6	6-12	12-20	24-28	24-32	32-44	36-52
ROTATION	180°	180°	180°	180°	134°	134°	134°	134°
MAX MACHINE WEIGHT KG	1800	3800	6800	9100	13000	20000	27000	35000

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