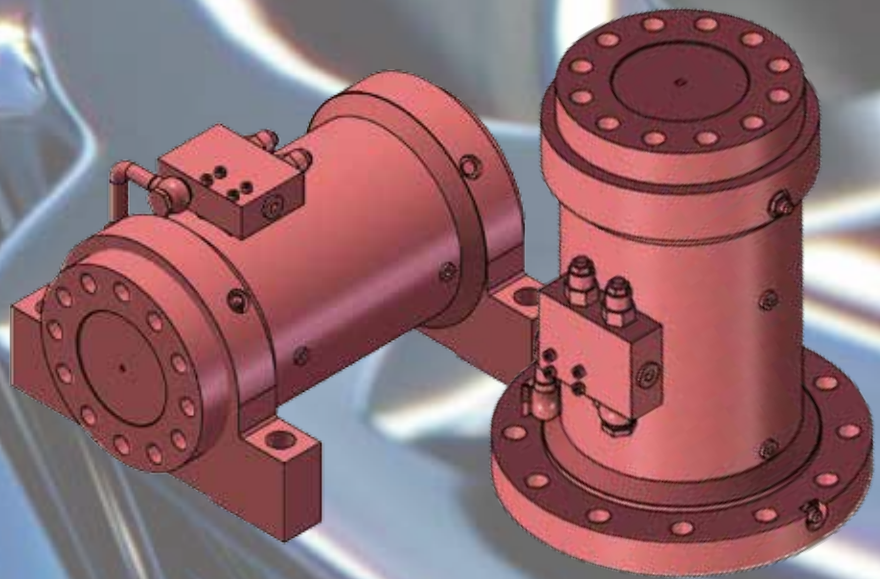


**COYO<sup>®</sup>**

**Shanghai Dunke Machinery Co.,Ltd**  
**Rotary actuators**



**Small bulk Big loading**





## Company Profile

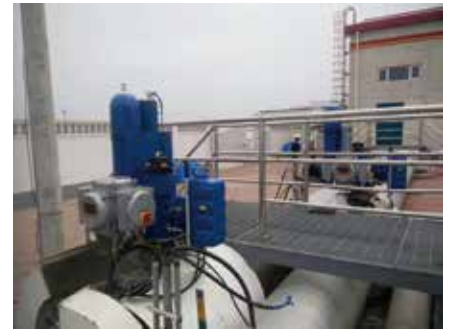
Shanghai Dunke Machinery Co., Ltd, is located in Shanghai Lingang Free Trade New Area. The self-owned property factory covers an area of 23,000 square meters and has more than 100 engineers and technicians. The company was established in 2004, passed the ISO9001: 2000 quality system certification in 2008, and passed ISO9001: 2015 international quality system certification in 2018. The company has self-support import and export rights, and was awarded the title of “New High-tech Enterprise” in 2020. Since its establishment, the company has been committed to the hydraulic industry. It has long been providing supporting cylinders and hydraulic systems for engineering machinery, metallurgy, energy, marine, military, mining and other industries, and has won praise from customers. In 2012, the company invested heavily in the research and development of rotary actuators and successfully obtained a number of patented technologies. And in 2015, the rotary actuators were promoted to the domestic and foreign markets. In the same year, our company’s rotary actuators were tested by foreign customers and domestic customers for reliability performance tests and millions of fatigue tests, which verified that the company’s rotary actuators can be on a par with the same products abroad. Some performance of the products even exceed the European and American brands. At present, the products have been successfully applied to: construction machinery such as bucket inclinators, drill jambo, hydraulic aerial cage, wet spray trolleys, and three-way narrow-track forklifts and their accessories. Our company has a complete system from independent research and development, to design, manufacturing, sales and to after-sales service. With the advantages of strong technology, talents and processing equipment, the company focuses on the research and development and manufacture of rotary actuators. In order to adapt the needs of various working conditions, our company has successfully developed A, B, C, D, E, F, DT, TR, RT, a total of 9 series with 72 specifications, and continues to explore and research in new application areas.

At present, our company’s main business sections include:

- I. Hydraulic rotary actuator
- II. Rotary lift combinations
- III. Excavator attachment tilter & tilting quick change
- IV. Hydraulic system



## Some application cases



## The internal structure of the rotary actuator

### Compact structure

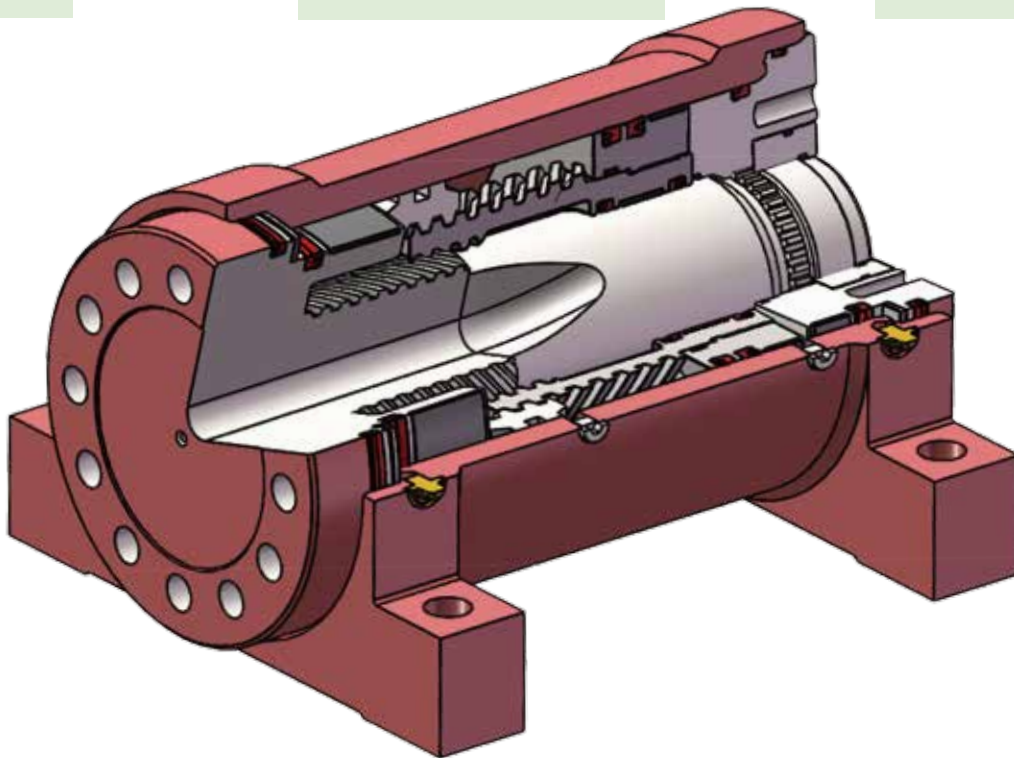
The internal helical teeth are designed with a large helix angle to make the actuator very compact

### High bearing capacity

Special structural design allows the actuator to withstand axial and radial loads

### Load direct connection

Load direct-connected actuator with extremely simplified mounting mechanism reduces maintenance costs



### Zero leakage

Actuator with unique seal design has only a very small amount of leakage approaching zero

### High-efficient torque

Compact structure and efficient torque output

### Customized module

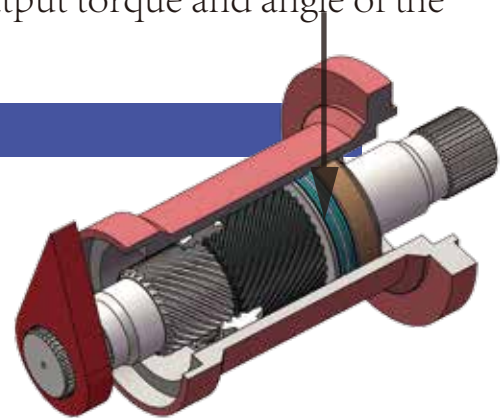
Customized production according to different requirements of customers

## Working principle

The working principle of the hydraulic rotary actuator is, via the relative movement between the two pairs of screw pairs, to translate the linear motion of the piston into a powerful rotary motion by the intermeshing of the inner spiral of the actuator body and the inner and outer spirals on the piston sleeve and the outer spiral on the output shaft, so as to achieve output torque and angle of the output shaft or output flange.

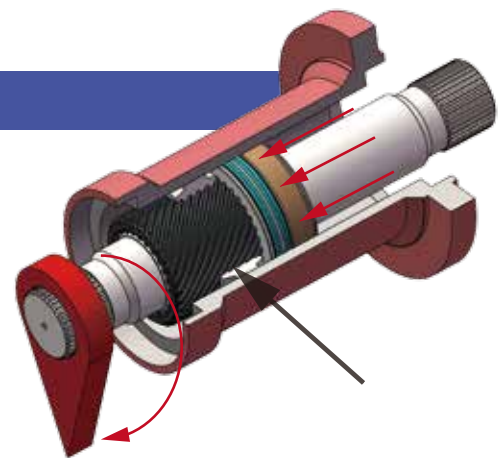
### Starting position of piston

The piston is completely bottomed up. The position indicated by the vertical bar is the starting position of the piston and shaft. The housing with internal teeth remains stationary.



### Ending position of piston

The actuator has two working oil outlets. When the hydraulic pressure is pressurized to the oil outlet at the starting position of the piston, and the pressure acts on the piston, it will move axially to the ending position. At this time, the helical gear drives the piston and the shaft to rotate simultaneously; When the oil outlet at the ending position is pressurized, the piston will be pushed to the starting position and the shaft will rotate in the opposite direction.





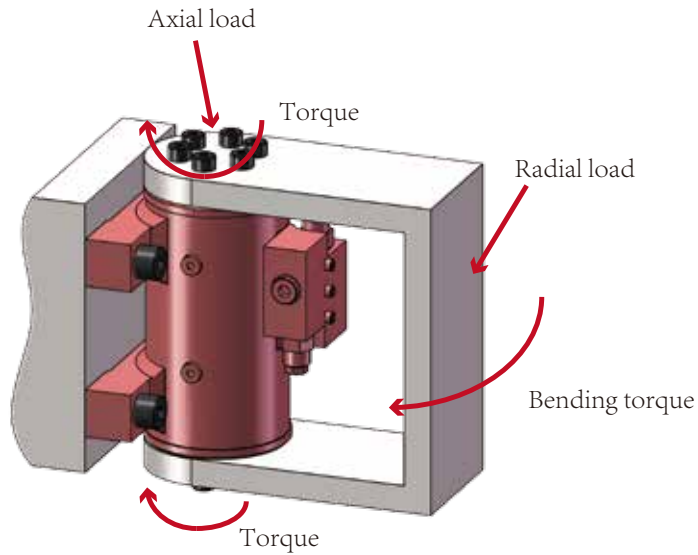
# Force diagram of mounting load

## Straddle mount



### Caution

Improper selection, installation, and use of this product or system can result in malfunction, death, personal injury or property damage.

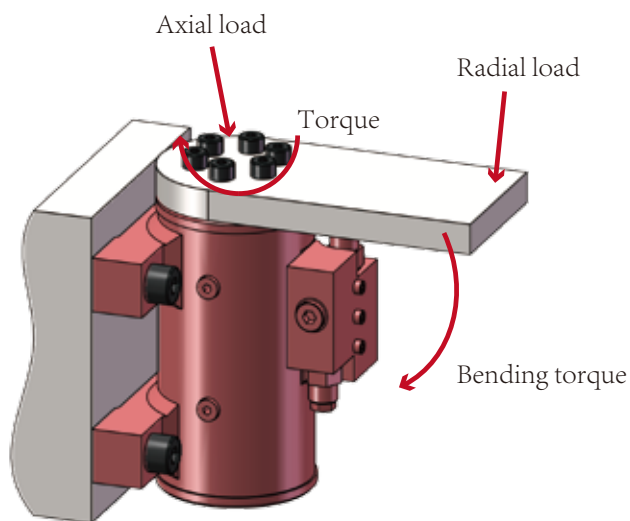


## Cantilever mount



### Caution

Improper selection, installation, and use of this product or system can result in malfunction, death, personal injury or property damage.



## Method (1) of mounting load



### Caution

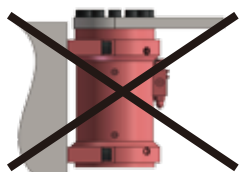
Improper selection, installation, and use of this product or system can result in malfunction, death, personal injury or property damage.

Cantilever mount: The load is mounted to the shaft flange and supported only by one end of the shaft.

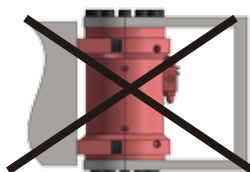
Straddle mount: the load is supported by both ends.

#### DKX-A series

Cantilever mount



Straddle mount



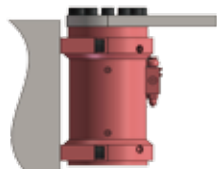
Direct connection



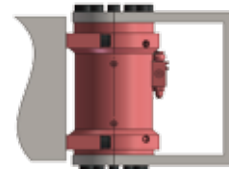
The loads of the DKX-A series cannot be mounted in cantilever or straddle way, but can only supply torque in the form of shaft or internal spline.

#### DKX-B series

Cantilever mount



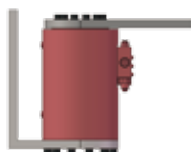
Straddle mount



The upper part of the bracket is bolted to the shaft flange, and the lower part is fixed by a connecting rod through the center hole of the shaft.

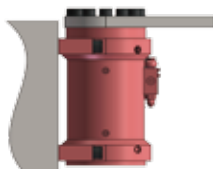
#### DKX-C series

Cantilever mount

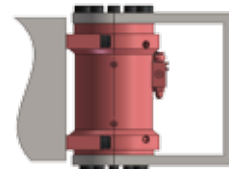


#### DKX-D series

Cantilever mount



Straddle mount



The upper part of the bracket is bolted to the shaft flange and the lower part is bolted to the end cap flange.



## Method (2) of mounting load

Cantilever mount: The load is mounted to the shaft flange and supported only by one end of the shaft.

Straddle mount: the load is supported by both ends.

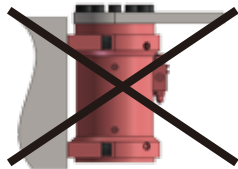


### Caution

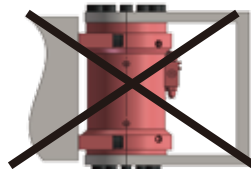
Improper selection, installation, and use of this product or system can result in malfunction, death, personal injury or property damage.

#### DKX-E series

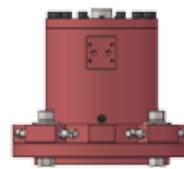
Cantilever mount



Straddle mount



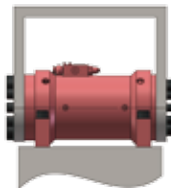
Direct connection



The DKX-E series is a special valve actuator for butterfly valve opening and closing. The load cannot be mounted in cantilever or straddle way, but can only supply torque in the form of shaft or internal spline.

#### DKX-F series

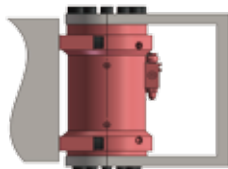
Straddle mount



The output mode of the DKX-F series is double-shaft spline, it can only be installed in straddle way.

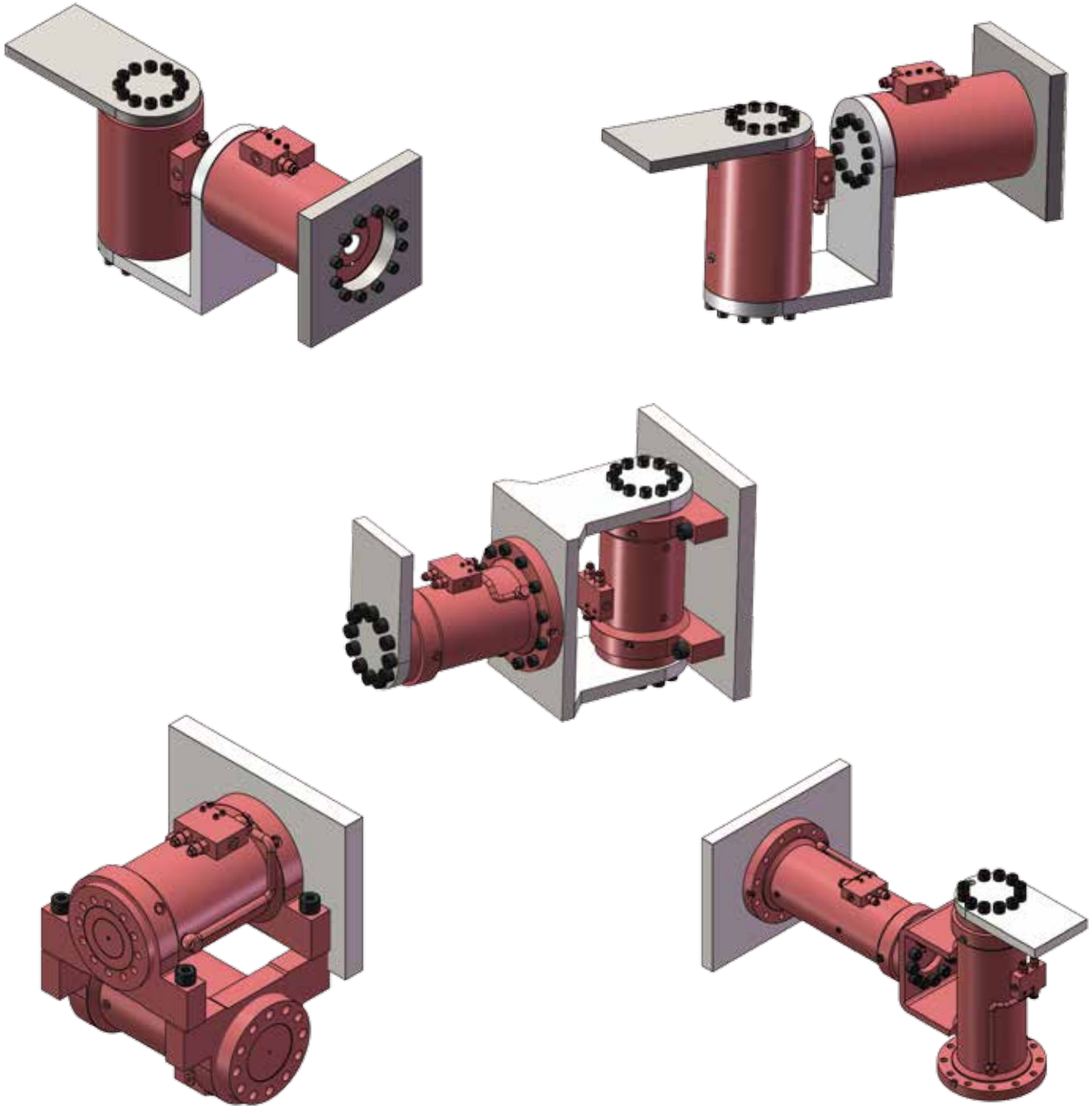
#### DKX-DT series

Straddle mount



The DKX-DT series is specially designed for the excavator bucket inclinators, which can tilt any bucket due to the large load and can only be mounted in straddle way.

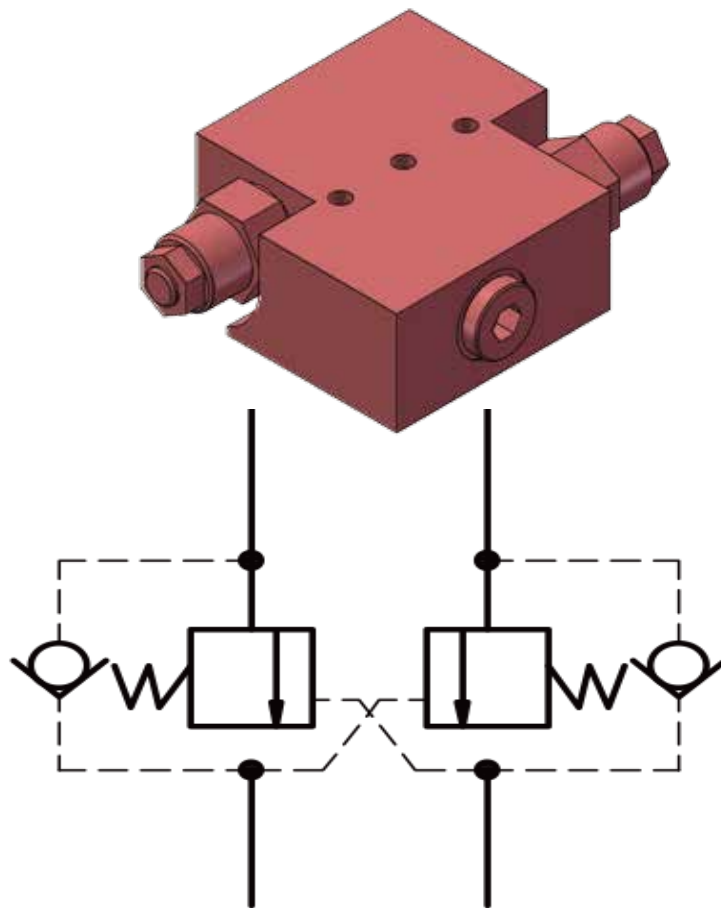
With double-axis solutions of helical hydraulic rotary actuators



## Balance valve

Two cartridge-type balance valve spools are inserted into the block body to form a balance valve block, which is directly mounted on the rotary actuator body surface. The function of the balance valve is as follows:

1. Prevent the rotary actuator from causing abnormal phenomena such as stall and jitter due to over-loading. Ensure the smooth running of rotary actuator by adjusting the back pressure of the balance valve;
2. Play the role of safety protection. Lock the working pressure of the rotary actuator when the rotary actuator is at the rest position, for example, under the working condition of the drill jambo, it protects the drill jambo arm no shifting;
3. Prevent the safety accidents caused by the sudden burst of the hydraulic pipeline;



## Schematic optional of hydraulic balance valve

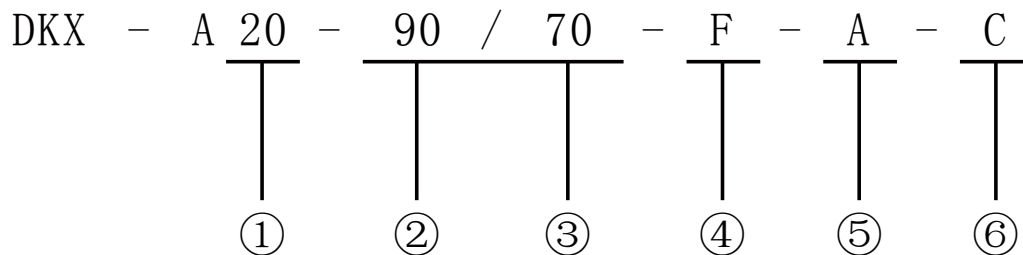


## DKX-A series



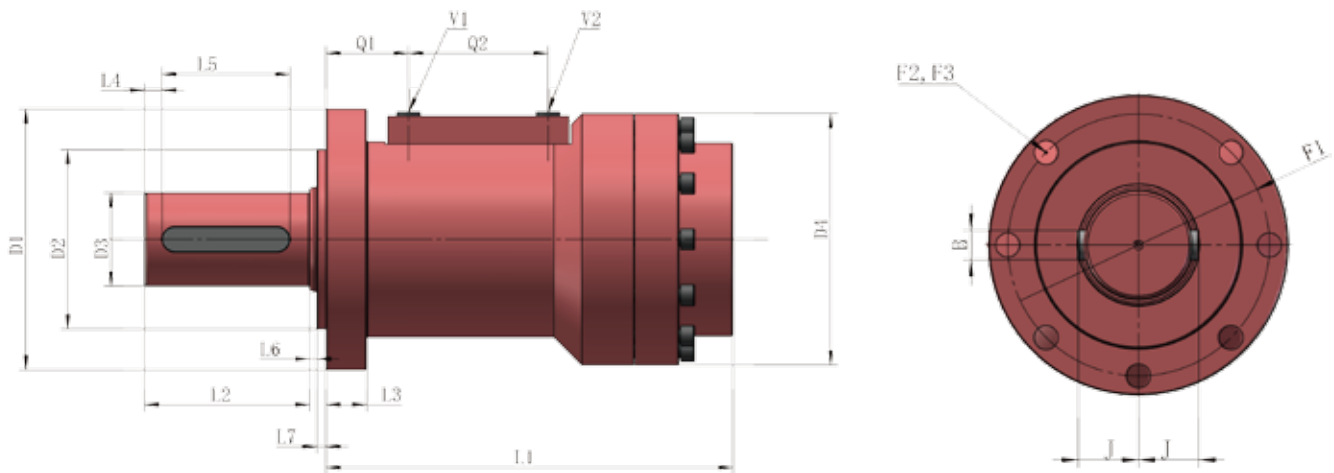
DKX-A is commonly used for station shifting, opening/closing doors, sanitation and environmental protection equipment, agricultural light industrial automation equipment and other equipment that requires horizontal or vertical turning. In response to customer requirements, the latest A series actuator can achieve zero degree and maximum angle adjustment, which is convenient for customers to install and fix it on the equipment.

## Code reference for model selection



①	Model	20, 35, 65, 135 250 500 700 1100 1600 2200 3200 3900 4400 6000 7600
②	Standard rotation angle	90=90° 180=180° 270=270° 360=360°
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation please indicate the required angle
④	Mounting type of actuator body	F= flange mounting
⑤	Torque output form	A= single shaft flat key B= single axis spline C= inner flat key S= internal spline
⑥	Accessories	C= balance valve 0= without balance valve B= cushion valve
Note:	I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary.	
	II. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized,	

## DKX-A Series Performance and Parameter Table (1)



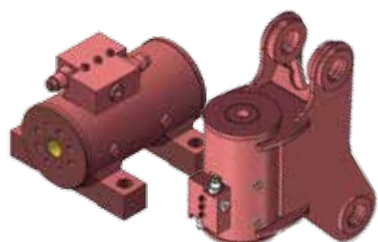
Model		20	35	65	135	250	500	700	1100	1600	2200	3200	3900	4400	6000	7600
Torque 210bar (Nm)	Driving	200	340	650	1350	2500	5100	7100	11300	16200	22300	32000	38920	44000	60800	76000
	Holding	300	490	940	1930	3650	8150	10080	17000	23000	31750	44800	54400	61200	85100	106000
Bending moment (Nm)	Straddle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cantilever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Load (KG)	Axial	800	1000	1400	1900	2500	3410	3480	4620	4700	6200	6310	6310	6650	7100	7600
	Radial	160	300	430	760	1200	1750	1780	3630	3760	6720	6900	6900	7800	8460	8940
Displacement (cm <sup>3</sup> )	90°	20	28	58	131	255	518	759	1145	1678	2261	3388	4127	4607	6348	7930
	180°	40	56	117	262	509	1036	1518	2290	3356	4522	6676	8245	9214	12695	15862
	270°	60	84	176	391	763	1554	2277	3435	5034	6783	10015	12368	13821	19043	23790
	360°	80	113	235	521	1018	2071	3036	4580	6712	9044	13352	16491	18429	25391	31724
Weight (KG)	90°	4.3	6	8.5	16.7	24.1	47	74	114	150	195	405	487	630	874	1126
	180°	4.8	6.8	9.8	19.1	29.2	55	87	136	187	238	488	543	726	1011	1308
	270°	5.8	7.8	12.9	21.5	34	63.5	101	154	213	265	565	637	815	1164	1489
	360°	6.2	8.7	14	24	38.5	72.5	115	170	245	306	630	684	912	1292	1677
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional

## DKX-A Series Performance and Parameter Table (2)

Model		20	35	65	135	250	500	700	1100	1600	2200	3200	3900	4400	6000	7600
D1 (Φ)		98	110	128	150	178	222	250	278	298	325	385	385	450	490	555
D2 (Φ)		55	68	80	100	115	150	160	190	210	235	260	260	300	340	380
D3 (Φ)		22	28	35	42	55	70	80	100	105	120	140	140	150	170	180
D4 (Φ)		75	82	95	118	147	183	210	240	270	295	350	350	385	435	470
L1 (mm)	90°	142	149	172	212	245	298	335	395	475	479	645	765	725	865	930
	180°	167	182	220	262	311	392	431	503	595	633	807	880	910	1075	1150
	270°	200	218	265	315	381	482	529	622	742	766	975	1070	1095	1280	1375
	360°	228	250	305	368	442	557	627	734	900	915	1140	1295	1286	1483	1600
L2 (mm)		50	60	80	110	110	140	150	210	210	210	260	260	300	300	300
L3 (mm)		16	18	25	30	31	37	40	43	47	54	64	64	90	100	110
L4 (mm)		2.5	2	5	5	5	7	5	5	5	5	5	5	10	10	10
L5 (mm)		45	56	70	100	100	125	140	200	200	200	250	250	280	280	280
L6 (mm)		3	3	3.5	3	4	4	7	5	5	10	6	6	6	6	6
L7 (mm)		4	4	5	6	6	8	10	12	12	10	15	15	20	20	20
F1 (Φ)		84	90	108	130	155	195	220	245	265	290	345	345	400	450	500
F2 (Φ)		9	9	11	11	14	18	18	22	22	22	22	22	26	26	32
F3 (quantity)		5	5	5	7	7	8	8	8	11	11	15	15	15	19	19
T		60°	60°	60°	45°	45°	40°	40°	40°	40°	30°	22.5°	22.5°	22.5°	18°	18°
B (mm)		8	8	10	12	16	20	22	28	28	32	36	36	36	40	45
J (mm)		14	17	21	24	31.5	39.5	45	56	58.5	67	78	78	83	94	100
Q1 (mm)		39	39	48	57	65	74	78	94	127	125	155	155	224	261	271
Q2 (mm)	90°	28	31	37	37	57	76	82	110	114	125	159	175	155	183	194
	180°	41	48	57	74	89	119	130	168	186	196	240	276	245	287	302
	270°	55	65	79	101	122	163	180	224	253	266	321	381	343	392	414
	360°	69	81	99	125	154	207	229	281	321	340	403	484	437	493	528
V1, V2		G1/8	G1/8	G1/4	G3/8	G1/2	G1/2	G1/2	G3/4	G1	G1	G1	G1	G1	G1	G1

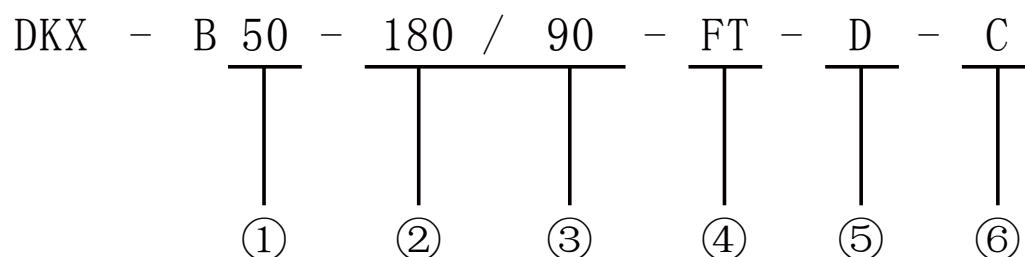


## DKX-B series



DKX-B series rotary actuators are widely used in the swing of aerial work platforms and straight arms/curved arms.

### Code reference for model selection



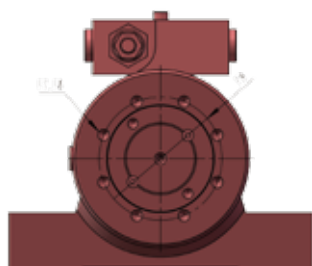
①	Model	50, 95, 180, 280, 300, 440, 580	
②	Standard rotation angle	180=180° , 360=360°	
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation - please indicate the angle required.	
④	Mounting type of actuator body	FT= foot mounting	FH= horseshoe mounting (installation size based on user needs)
⑤	Torque output form	D= single flange	E= double flange
⑥	Accessories	C= balance valve	O= without balance valve      B= cushion valve

I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary.

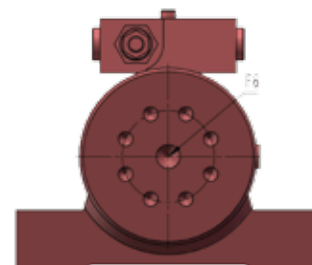
注:

II. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized.

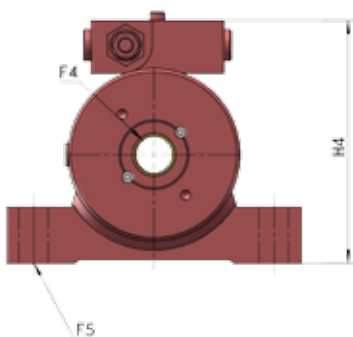
## DKX-B Series Performance and Parameter Table (1)



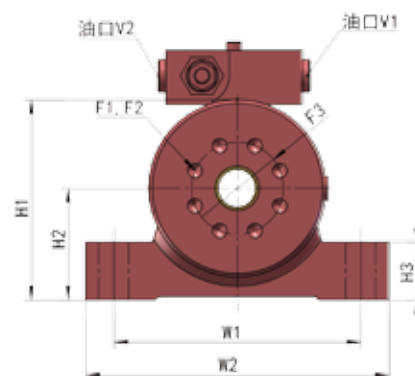
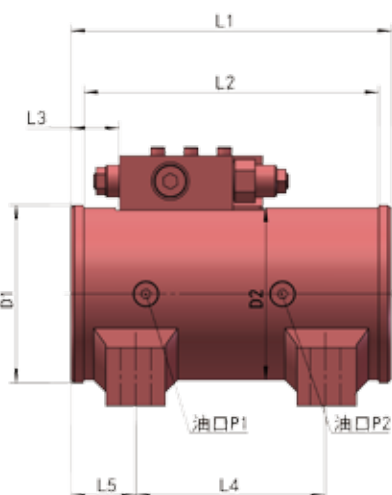
B280, 300, 440, 580 end cap



B280, 300, 440, 580 shaft flange



B50, 95, 180 end cap



B50, 95, 180 shaft flange

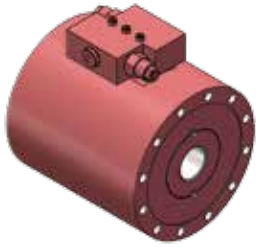
Model		50	95	180	280	300	450	580
Torque 210bar (Nm)	Driving	508	960	1690	2830	3150	4400	5870
	Holding	1300	2400	4400	7100	4480	10530	8040
Bending moment (Nm)	Straddle	2500	4500	1020	16400	18000	31600	18000
	Cantilever	1356	2485	5420	11300	6500	15820	6500
Load (KG)	Axial	500	680	1000	1410	1200	1770	4000
	Radial	1380	2130	4190	5580	4000	9530	4000
Displacement (cm <sup>3</sup> )	180°	132	234	436	726	711	1077	1270
	360°	-	-	-	-	-	-	-
Weight (KG)	180°	12.2	16.8	29.9	51.3	47	76.7	50
	360°	-	-	-	-	-	-	-
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional

## DKX-B Series Performance and Parameter Table (2)

Model		50	95	180	280	300	440	580
D1 (Φ)		104	117	142	170	169	196	159
D2 (Φ)		101	114	139	165	167	191	167
F1	Metric	M10	M10	M12	M20	M12	M20	M12
	Depth	12.7	15.2	19.1	30	18	28	20
F2 (quantity)		6	8	8	8	8	10	12
F3 (Φ)		53.9	65	85	102	108	121	85
F4		M20	M24	M24	-	-	-	-
	Through hole	Through hole	Through hole	Through hole	-	Through hole	-	-
F5		M16	M20	M24	M24	M26	M30	M12
F6		-	-	-	M25	-	M32	-
		-	-	-	25	-	2	-
F7		-	-	-	M12	M12	M16	M12
		-	-	-	18	20	23	20
F8 (quantity)		-	-	-	8	8	10	12
F9 (PHI)		-	-	-	108	86	121	85
H1 (mm)		119	135	158	193	-	218	-
H2 (mm)		66	76.2	85.9	108	108	121	86
H3 (mm)		34.3	38.1	44.5	63.5	48	70	34
H4 (mm)		146	163	185	220	222	245	207
L1 (mm)	180°	188	216	248	298	298	337	398
	360°	-	-	-	-	-	-	-
L2 (mm)	180°	173	197	229	276	258	314	356
	360°	-	-	-	-	-	-	-
L3 (mm)		32	35	45	49	-	49	-
L4 (mm)	180°	111	140	152	184	184	216	250
	360°	-	-	-	-	-	-	-
L5 (mm)		37.9	37.6	47	57	57	61	74
W1 (mm)		145	152	197	222	222	267	128
W2 (mm)		178	191	248	279	270	330	159
P1, P2 V1, V2		The 'G' series oil outlet is available in dimensions from 1/8 to 1. See the drawings for details.						

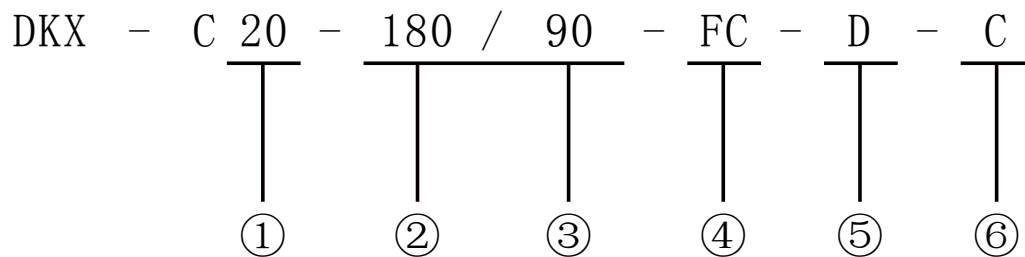


## DKX-C series



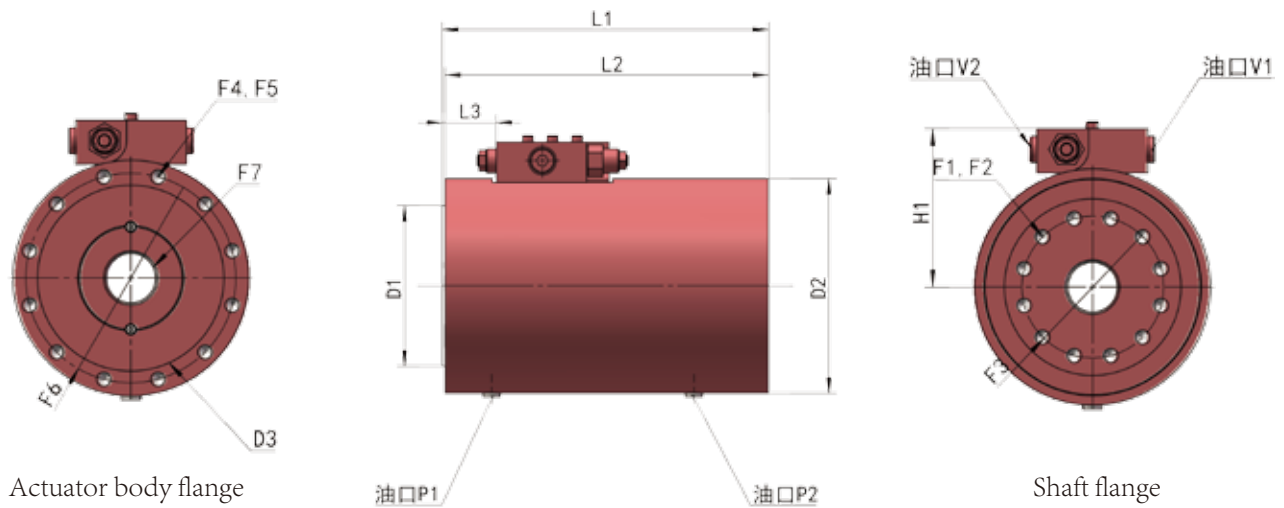
The DKX-C series has the most compact axial length and is widely used in municipal engineering equipment (work platform rotation), engineering vehicles (steering), robotic equipment (joint movement) and cantilever cranes (cantilever rotation), and many other positioning, lifting and swinging applications.

### Code reference for model selection



①	Model	20, 30, 60, 100, 160, 280
②	Standard rotation angle	180=180° , 360=360°
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation please indicate the angle required.
④	Mounting type of actuator body	FF = flange mounting
⑤	Torque output form	D= single flange
⑥	Accessories	C= balance valve      0= without balance valve      B= cushion valve
Note:	I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary.  II. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized.	

## DKX-C Series Performance and Parameter Table (1)



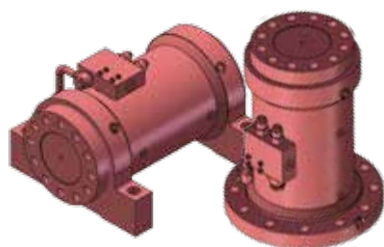
Model		20	30	60	100	160	280
Torque 210bar (Nm)	Driving	190	340	620	1075	1695	2825
	Holding	630	1200	1900	3800	5700	9400
Bending moment (Nm)	Cantilever	565	1020	2260	5650	9040	11300
Load (KG)	Axial load	907	1360	1850	3630	4990	6800
	Radial load	907	1360	1850	3630	4990	6800
Displacement (cm <sup>3</sup> )	180°	63.9	121	192	365	552	914
	360°	-	243	384	733	1105	1829
Weight (KG)	180°	6.35	10	14.1	25.9	43.1	56.7
	360°	-	12.7	19.1	34.9	54.4	83
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional

## DKX-C Series Performance and Parameter Table (2)

Model		20	30	60	100	160	280
D1 (Φ)		77.2	89	102	127	148	185
D2 (Φ)		100	119	135	170	198	226
D3 (Φ)		76.6	93	105	134	157	186
F1		M8	M8	M10	M12	M12	M16
		11.9	12	15.2	19.1	19.1	25.4
F2 (quantity)		8	8	12	12	12	12
F3 (Φ)		54	73	80	102	127	140
F4	Metric	M8	M8	M10	M12	M12	M12
	Depth	11.9	12	18	19.1	19.1	19.1
F5 (quantity)		8	8	12	12	12	12
F6 (Φ)		86	103	117	151	175	203
F7 (Φ)		14.3	17	21.4	35.7	45.7	66.7
H1 (mm)		80	89.7	97.8	115	129	143
L1 (mm)	180 °	140	143	156	184	224	241
	360 °	-	189	212	258	311	346
L2 (mm)	180 °	138	142	154	182	221	239
	360 °	-	188	211	256	308	344
L3 (mm)	180 °	25.4	26.9	27.7	27.9	38.6	43.9
	360 °	-	22.6	24.6	42.7	60.2	70.4
P1, P2		The 'G' series oil outlet is available in dimensions from 1/8 to 1. See the drawings for details.					
V1, V2							

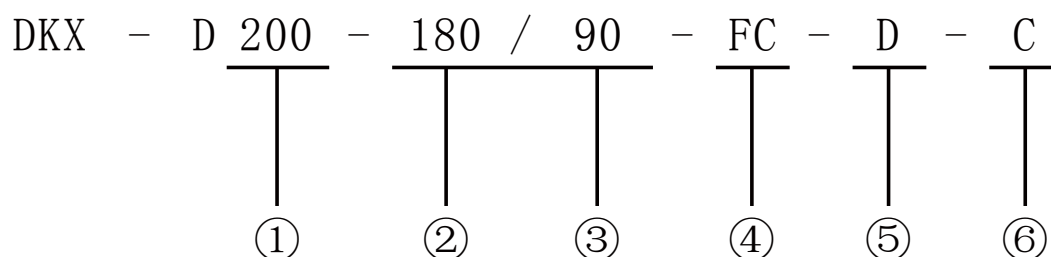


## DKX-D series



The DKX-D series is widely used in tunnel drilling rigs, mining machinery and other heavy machinery, such as wet spray trolleys, drill jumbo, rock bolting jumbo, scaling jumbo, three-way narrow-track forklifts, rescue vehicles, which are required to realize the working condition of heavy-duty mechanical cantilever swinging.

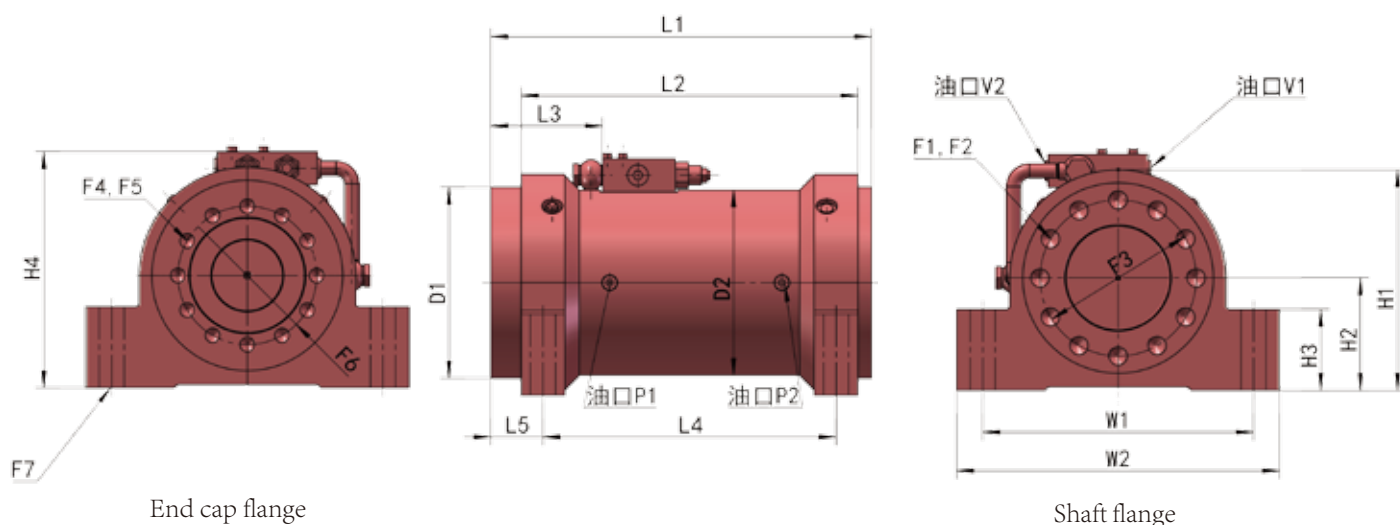
### Code reference for model selection



①	Model	200, 280, 300, 470, 500, 750, 1000, 1150, 1400, 1800, 2500, 4200		
②	Standard rotation angle	180=180° , 360=360°		
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation Please indicate the angle required.		
④	Mounting type of actuator body	FT= foot mounting	FF= front flange	RF= rear flange
⑤	Torque output form	D= single flange	E= double flange	
⑥	Accessories	C= balance valve	O= without balance valve	B= cushion valve

- Note:
- I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary.
  - II. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized.

## DKX-D series foot mounting - performance and dimension parameter table (1)

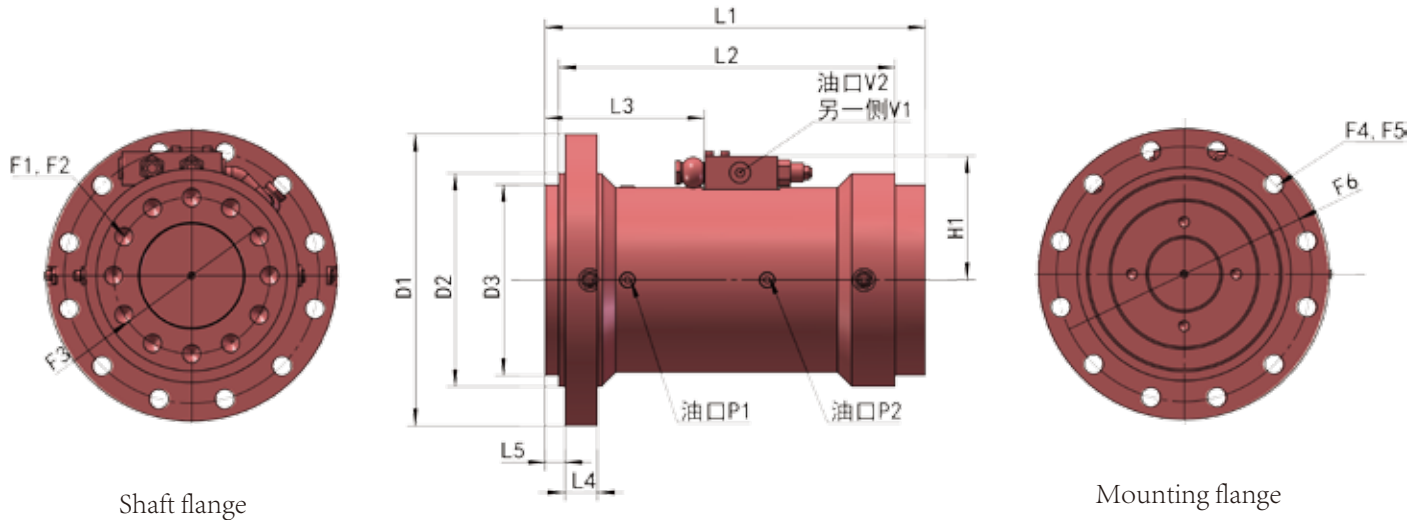


Model		200	280	300	470	500	750	1000	1150	1400	1800	2500	4200	
Torque 210 bar (Nm)	Driving	1920	2820	3100	4750	5100	7340	10700	11500	14100	18600	24300	42900	
	Holding	4900	6800	5000	12000	8100	18000	26000	18500	35000	46000	59000	110000	
Bending moment (Nm)	Cantilever	5200	7100	7500	11900	12000	18400	29500	30000	38800	55900	72900	64400	
	Straddle	180 °	13400	16900	17500	3080	31000	47800	75100	75000	90900	130500	170000	170000
		360 °	19200	24600	17500	45400	31000	71200	111500	75000	146000	197700	256500	170000
Load (KG)	Axial	1400	1800	1800	2700	3000	3600	4500	7000	5900	6800	8200	8200	
	Radial	1800	2300	2500	6600	3600	5000	6800	7000	8200	10000	11800	11800	
Displacement (cm <sup>3</sup> )	180 °	492	688	716	1180	1161	1870	2688	2680	3540	4654	6000	10200	
	360 °	983	1390	1420	2360	2323	3740	5360	5360	7080	9325	12000	-	
Weight (KG)	180 °	34 . 5	49 . 9	60	72 . 6	85	110	160	180	220	280	360	500	
	360 °	45 . 4	63 . 5	75	100	110	140	200	240	290	370	455	-	
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	

## DKX-D series foot mounting - performance and dimension parameter table (2)

Model		200	280	300	470	500	750	100	1150	1400	1800	2500	4200
D1 (Φ)		139	155	150	183	183	209	234	234	263	288	310	310
D2 (Φ)		140	152	177	178	202	203	229	265	254	279	305	305
F1	Metric	M12	M16	M12	M20	M16	M22	M24	M22	M27	M27	M30	M30
	Depth	18	23.9	18	30	24	33	36.1	33	40.6	40.6	44.9	44.9
F2 (quantity)		12	12	12	12	12	12	12	12	12	12	12	12
F3 (Φ)		115	125	120	150	133	170	195	170	215	240	255	255
F4	Metric	M10	M12	M16	M16	M20	M20	M22	M24	M24	M24	M27	M27
	Depth	15	18	25	23.9	35	30	33	36	36.1	36.1	40.1	40.1
F5 (quantity)		12	12	12	12	12	12	12	12	12	12	12	12
F6 (Φ)		108	120	125	133	150	150	170	195	190	210	230	230
F7		M16	M20	M22	M22	M24	M24	M24	M30	M30	M30	M36	M36
H1 (mm)		156	186	-	212	-	240	276	-	305	327	362	362
H2 (mm)		80	94.9	95	108	108	122	140	140	154	165	184	184
H3 (mm)		48	69.9	49	77.9	58	88.1	105	78	110	120	135	135
H4 (mm)		179	201	118.5	226	136	271	298	175	310	334	366	366
L1 (mm)	180°	298	323	323	365	365	413	475	475	524	551	600	906
	360°	427	470	470	538	538	615	705	705	776	836	906	-
L2 (mm)	180°	261	286	292	323	323	363	431	431	463	493	534	848
	360°	392	433	439	496	496	565	661	661	715	775	843	-
L3 (mm)	180°	75.2	134	-	143	-	130	152	-	185	196	221	374
	360°	149	157	-	197	-	232	267	-	308	338	374	-
L4 (mm)	180°	229	248	248	281	281	314	374	374	400	426	460	766
	360°	358	395	395	454	454	516	604	604	652	708	766	-
L5 (mm)		38.1	43.9	44	50	50	56.9	59.9	60	74.2	75.9	80	80
W1 (mm)		190	230	230	260	260	300	340	340	380	410	450	450
W2 (mm)		222	268	268	310	310	350	400	400	447	484	530	530
P1, P2	The 'G' series oil outlet is available in dimensions from 1/8 to 1. See the drawings for details.												
V1, V2													

DKX-D series rear flange mounting-performance and dimension parameter table(1)



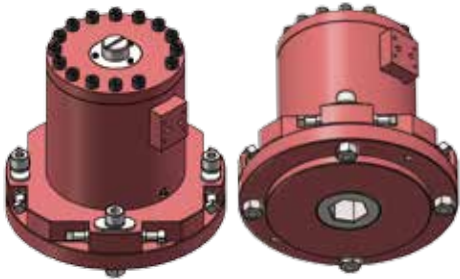
Model		200	280	300	470	500	750	1000	1150	1400	1800	2500	4200
Torque 210bar (Nm)	Driving	1920	2820	3100	4750	5100	7340	10700	11500	14100	18600	24300	42900
	Holding	4900	6800	5000	12000	8100	18000	26000	18500	35000	46000	59000	110000
Bending moment (Nm)	Cantilever	5200	7100	7500	11900	12000	18400	29500	30000	38800	55900	72900	64400
Load (KG)	Axial	1400	1800	1800	2700	3000	3600	4500	7000	5900	6800	8200	8200
	Radial	1800	2300	2500	6600	3600	5000	6800	7000	8200	10000	11800	11800
Displacement (cm3)	180°	492	688	716	1180	1161	1870	2688	2680	3540	4654	6000	10200
	360°	983	1390	1420	2360	2323	3740	5360	5360	7080	9325	12000	-
Weight (KG)	180°	34.5	49.9	60	72.6	85	110	160	180	220	280	360	500
	360°	45.4	63.5	75	100	110	140	200	240	290	370	455	-
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional



## DKX-D series rear flange mounting-performance and dimension parameter table(2)

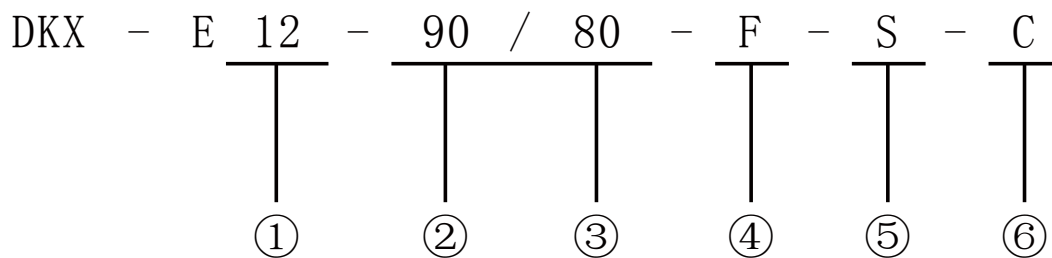
Model		200	280	300	470	500	750	1000	1150	1400	1800	2500	4200
D 1 (Φ)		200	235	235	280	280	315	355	365	396	442	475	475
D 2 (Φ)		150	175	175	205	205	230	260	260	290	315	340	340
D 3 (Φ)		139	155	150	183	183	209	234	234	263	288	310	310
D 4 (Φ)		140	152	177	178	202	203	229	265	254	279	305	305
F 1	Metric	M 12	M 16	M 16	M 2 0	M 20	M 2 2	M 24	24	M 27	M 27	M 30	M 30
	depth	18	23 . 9	23	30	35	33	36 . 1	36	40 . 6	40 . 6	44 . 9	44 . 9
F 2 (quantity)		12	12	12	12	12	12	12	12	12	12	12	12
F 3 (Φ)		115	127	125	149	150	171	195	195	216	240	254	254
F 4		M 10	M 12	M 13	M 16	M 17	M 2 0	M 2 2	M 23	M 24	M 27	M 30	M 30
F 5 (quantity)		12	12	12	12	12	12	12	12	12	12	12	12
F 6 (Φ)		175	206	205	245	245	275	310	310	345	380	410	410
H 1 ( mm )		99 . 1	106	118 . 5	118	136	131	144	167 . 5	156	169	182	182
L 1 ( mm )	180 °	298	298	323	365	365	413	475	475	524	551	600	906
	360 °	427	427	470	538	538	615	705	705	776	836	906	-
L 2 ( mm )	180 °	261	283	292	323	323	363	431	431	462	493	534	840
	360 °	390	430	439	496	496	565	661	661	715	775	839	-
L 3 ( mm )	180 °	75 . 2	134	-	142	-	130	152	-	184	199	221	374
	360 °	202	157	-	197	-	232	267	-	308	340	374	-
L 4 ( mm )		25 . 2	25 . 9	26	30 . 9	31	33	40 . 1	40	41 . 9	45 . 9	52	52
L 5 ( mm )		26 . 9	32	32	35 . 1	35	41 . 9	40 . 1	40	53 . 1	54 . 1	55 . 9	55 . 9
P 1, P 2	The 'G' series oil outlet is available in dimensions from 1 / 8 to 1. See the drawings for details.												
V 1, V 2													

## DKX-E series



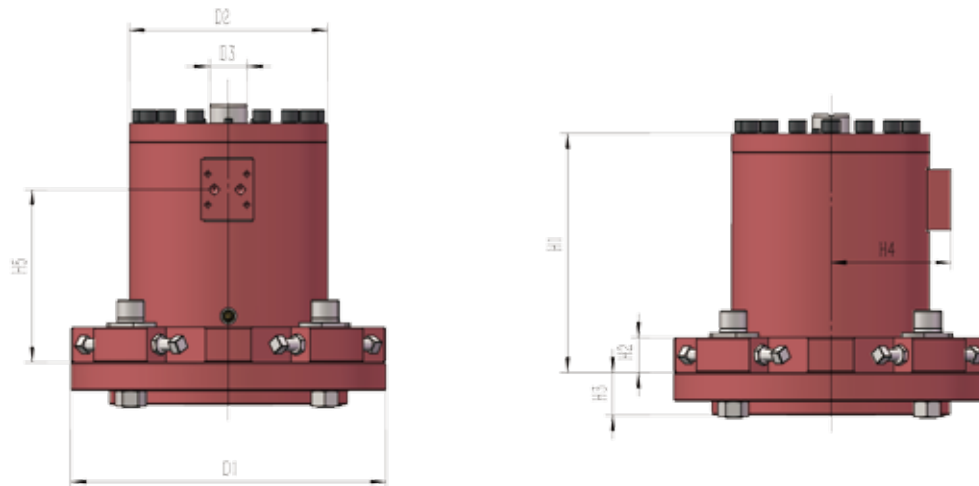
The DKX-E series is a hydraulic actuator developed for marine and petroleum valves, allowing the valve to open and close. This series features zero-degree and maximum rotation angle adjustment, has a flexible torque output connection that can be easily installed on all types of valves, and is equipped with quick closing valve actuators and single-acting actuators for customers to choose (contact Dunke for details). In addition, the company offers complete solutions for hydraulic power units, electrical integration and valve actuators.

### Code reference for model selection



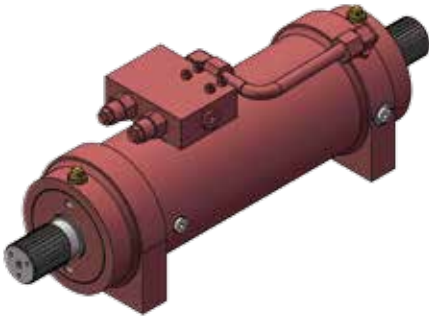
①	Model	12, 25, 50, 100, 200, 400, 800, 1600, 3200
②	Standard rotation angle	90=90°
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation Please indicate the angle required.
④	Mounting type of actuator body	F=Actuator flange mounting
⑤	Torque output form	S= internal spline    X= hexagon    C= inner flat key    Z= special - specified by customer
⑥	Accessories	C= balance valve    0= without balance valve    B= cushion valve
Note:	I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary;	
	I. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized.	

## DKX-E series performance and dimension parameter table



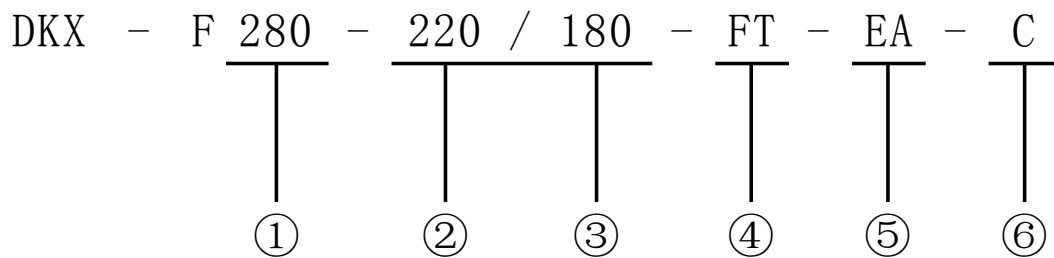
Model		12	25	50	100	200	400	800	1600	3200
Torque 135 bar (Nm)	Driving	125	250	500	1000	2000	4000	8000	16000	32000
	Standard rotation angle	90°	90°	90°	90°	90°	90°	90°	90°	90°
Valve (optional)	Balance valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
D1 (Φ)		105	125	155	180	208	258	419	440	500
D2 (Φ)		88	104	126	145	165	215	264	300	380
H1 (mm)		115	161.5	153	185	220	255	319	400	500
H2 (mm)		15	16.5	20	24	26	32	47	54	70
H3 (mm)		20	23	23	28	37	57	57	63	73
H4 (mm)		65	74	89	100	110	133	160	180	210
Oil outlet		The 'G' series oil outlet is available in dimensions from 1/8 to 1. See the drawings for details.								

## DKX-F series



The DKX-F series is mainly used in hoist system of the sanitation vehicle, which simplifies the mechanical structure of the existing hoist system and increases the space available for the vehicle, thus greatly improving the work efficiency.

## Code reference for model selection



①	Model	280, 500, 680
②	Standard rotation angle	220=220°
③	Special rotation angle	Standard design with internal limit mechanism to limit the angle of rotation Please indicate the angle required.
④	Mounting type of actuator body	FT= foot mounting
⑤	Torque output form	EA=double-end spline
⑥	Accessories	C= balance valve      O= without balance valve      B= cushion valve

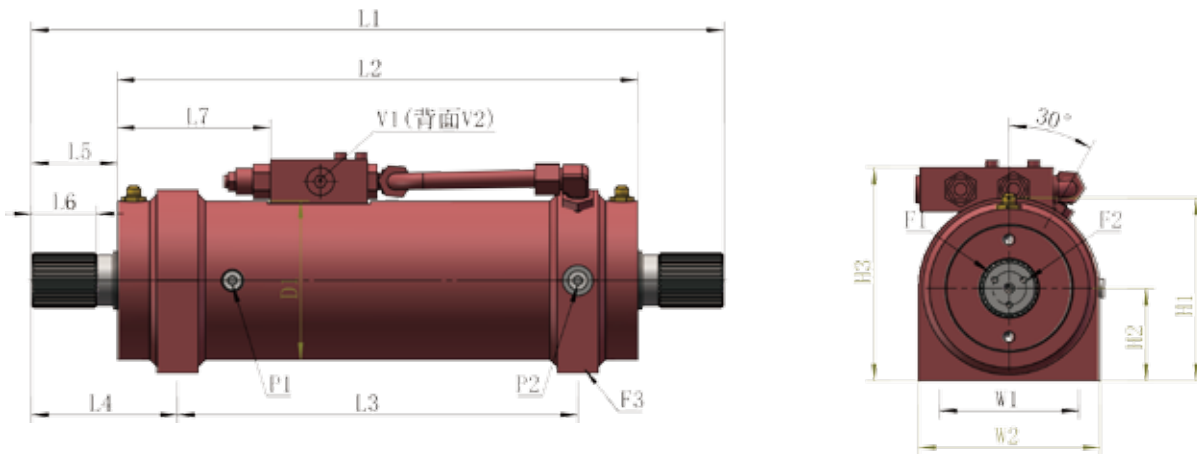
Note:

I. The rotary actuator can be installed with an angle encoder. Please specify it if necessary;

II. Special rotary actuator with non-standard rotation angle, torque and installation form, etc., can be customized.



## DKX-F series performance and dimension parameter table (1)



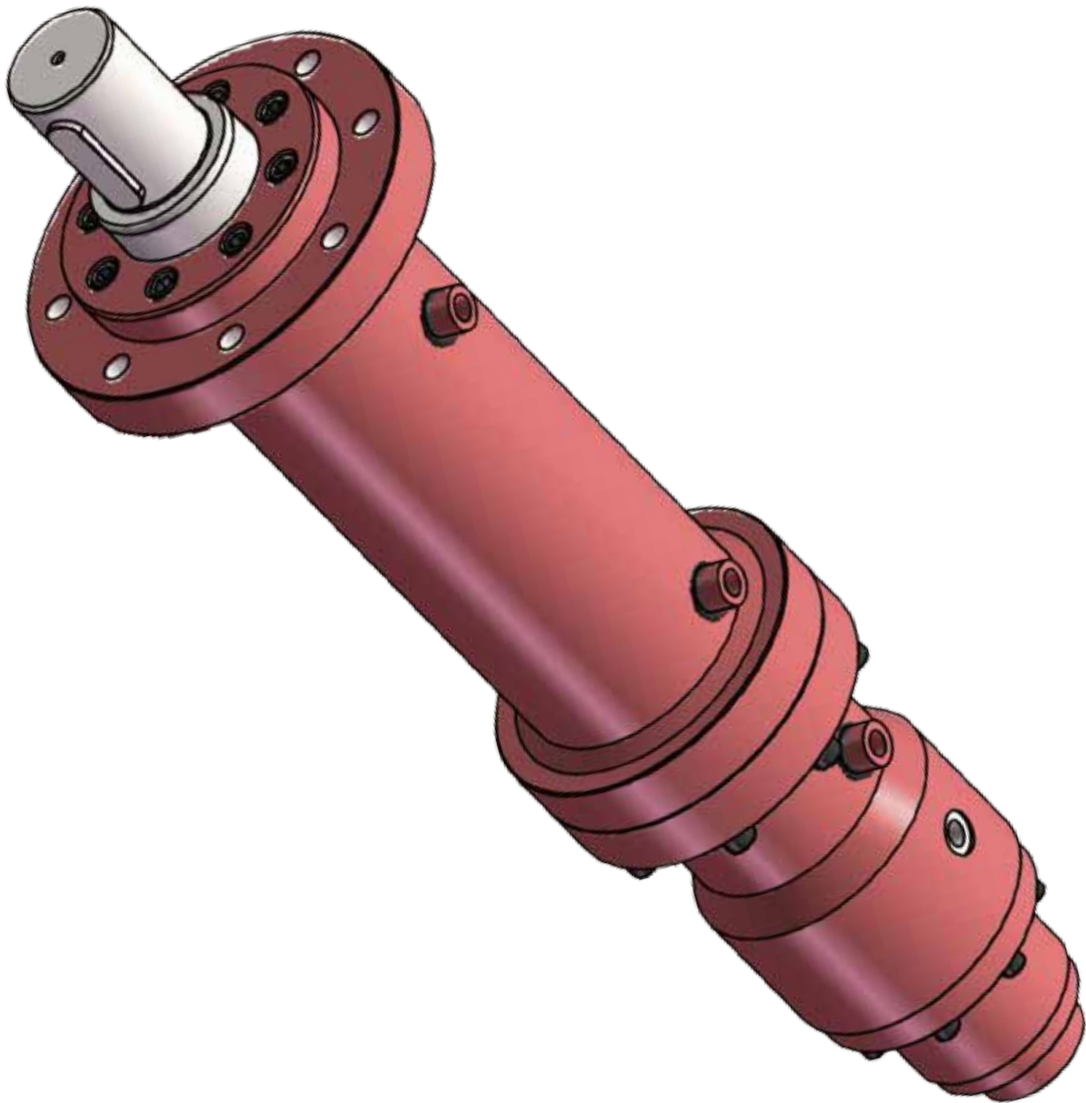
Model		280	500	680
Torque 210bar (Nm)	Driving	2830	5090	6780
	Holding	6100	10600	14350
Bending moment (Nm)	Straddle	4240	7630	10170
Load (KG)	Axial	2040	3130	3900
	Radial	2040	3130	3900
Standard rotation angle		220°	220°	220°
Displacement (cm <sup>3</sup> )	180°	775	1357	1652
Weight (KG)	180°	33.6	58.1	75.3
Valve (optional)	Balance valve	Optional	Optional	Optional
	Cushion valve	Optional	Optional	Optional

## DKX-F series performance and dimension parameter table (2)

Model		280	500	680
D1 (Φ)		140	165	178
D2/spline connector (Φ)		80	165	99
F1/double-end shaft spline		In accordance with DIN 5480. See drawings for details		
F2	Metric	M12 *1.75	M12 *1.75	M12 *1.75
	Depth	35	35	35
F3	Metric	M16 *2	M20 * 2.5	M22 *2.5
	Depth	19	25	30
H1/without valve (mm)		150	176	203
H2 (mm)		74	84	102
H3/including valve (mm)		173	196	220
L1/ without connector (mm)		417	546	579
L2 (mm)		335	422	445
L3 (mm)		265	320	320
L4 (mm)		75	113	130
L5 (mm)		41	62	68
L6 (mm)		21.6	40	49
L7 (mm)		87	126	142
W1		104	140	150
W2		133	170	203
P1, P2		The 'G' series oil outlet is available in dimensions from 1/8 to 1. See the drawings for details		
V1, V2				

## DKX-TR/RT series (linear expansion + rotary combination)

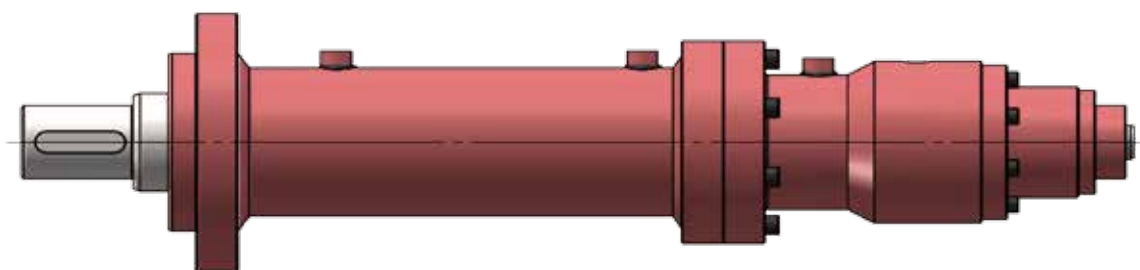
The TR series load is connected by a linear telescopic actuator.  
The RT series load is connected by a rotary actuator.



## Introduction to DKX-TR/RT Series

The DKX-TR/RT series, as a combination of a rotary actuator and a linear actuator, perfectly integrates the two and reduces the volume to the extreme, and provides an optimized solution for some special applications that require both translation and rotation.

The DKX-TR/RT series can be used in applications such as machine tools, glass manufacturing, bending machines, production transmission lines, shipbuilding, chemical machinery, automotive and ventilation technology, fire trucks and heavy-duty vehicle suspension steering systems where multi-plane and multi-station conversion is required.



## DKX-TR series selection and performance table

Model	Maximum working pressure ( bar )	Maximum torque ( Nm )	Unit pressure torque ( Nm / bar )	Maximum thrust ( N )	Maximum pulling force ( N )
DKX - TR - 6	100	65	0 . 65	12000	9700
DKX - TR - 20	160	200	1 . 25	30000	21500
DKX - TR - 45	160	440	2 . 75	47000	35000
DKX - TR - 85	160	850	5 . 31	75000	33000
DKX - TR - 200	160	1950	12 . 18	110000	60000
DKX - TR - 400	160	3950	24 . 68	160000	87000
DKX - TR - 850	160	8400	52 . 5	270000	130000
DKX - TR - 1600	160	16000	100	360000	180000



**The Maximum angle is 180 degree for any tilting attachments.**



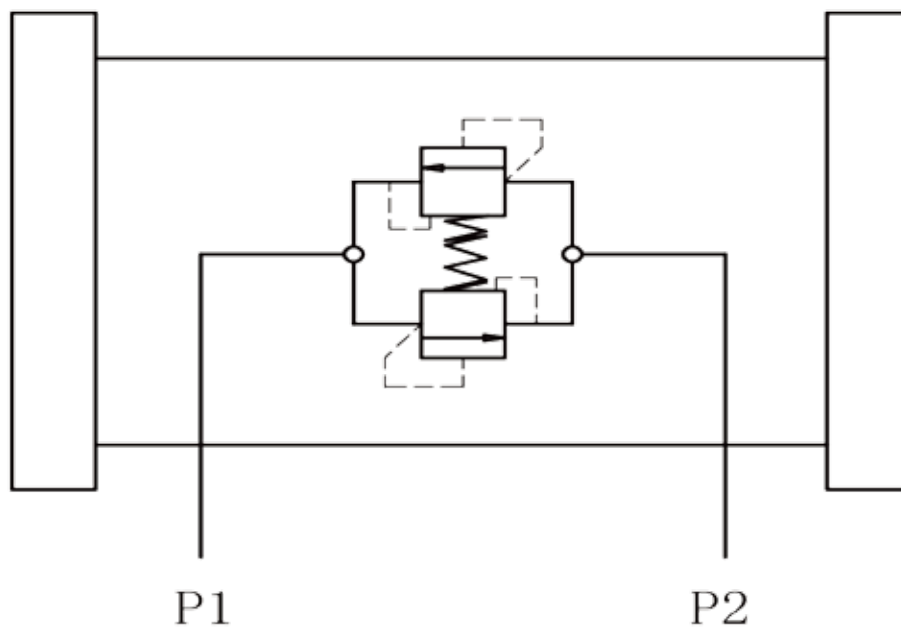
**Tilt rotary actuators for construction equipment.**

## Tilting hydraulic rotary actuators (tilt rotate)

**Quick connectors for excavators are also called quick-change connectors and quick coupler. The quick-change can quickly install and switch various configurations on the excavator, which can expand the scope of use of the excavator, meanwhile it save time and improve work efficiency. With the increase of customers' demands for multiple functions in one machine, our company has developed the DT series, a special hydraulic rotary actuators for quick-change excavators. This series is designed to provide multiple degrees of freedom for the front-end tools of construction machinery.**

**A notable feature of the DT series is its extremely high efficiency and very compact structure. By increasing the degree of freedom (rotate) of the front end of the excavator's mechanical arm, the working range of the excavator is greatly expanded, which is equivalent to putting a wrist on the excavator. The upper and working devices, the lower and the attachments are quickly connected through the automatic quick-change connection system. With the kinds of attachments, it is equivalent to forming an engineering team with an excavator. Demolition, loosening, crushing, loading and unloading, digging Trenching, logging, milling, rotary digging, etc., for example, the excavator's shovel can use the DT series swing cylinder to swing an angle according to the slope requirements, and then excavate, so that the required slope can be excavated at one time, so extremely Greatly improve work efficiency and reduce construction costs. Construction machinery equipped with DKX-DT series can be used for the following work: gardening and agricultural work, demolition/soil loosening work, foundation work, slope work, embankment work, road construction, excavation work, Building backfilling, soil excavation, disaster relief, etc.**

## The protection setting for Tilt rote actuators

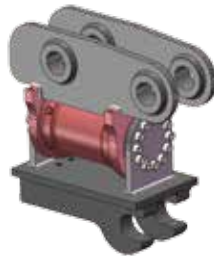


安全阀设定溢流压力：19MPa

Note: In order to prevent the pressure of the hydraulic bucket tilter from being too high, a two-way overflow valve is integrated inside the rotary actuator to prevent damage to the rotary actuator due to excessive load.

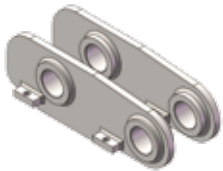
# The way of combination:

Titling motor



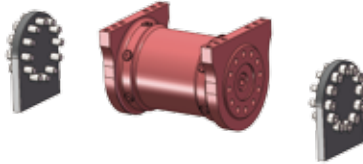
Quick-change could connect various configuration( The max of angle is 180 degree)

Fixed arm connection plate



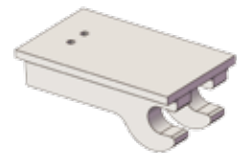
Connecting plate available for construction robot boom Suitable for excavators of various brands and different tonnages

Actuators & Mounting flange plate



Connecting plate available for the front end tool (accessory) of the construction robot boom

Quick change

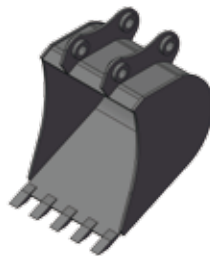


It is connected to the mounting flange plate to quickly change a variety of front-end tools (accessories) for multi-function. The quick change device is available in either semi-automatic type or fully automatic type.

Titling motor

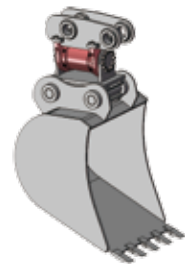


Attachments (bucket)

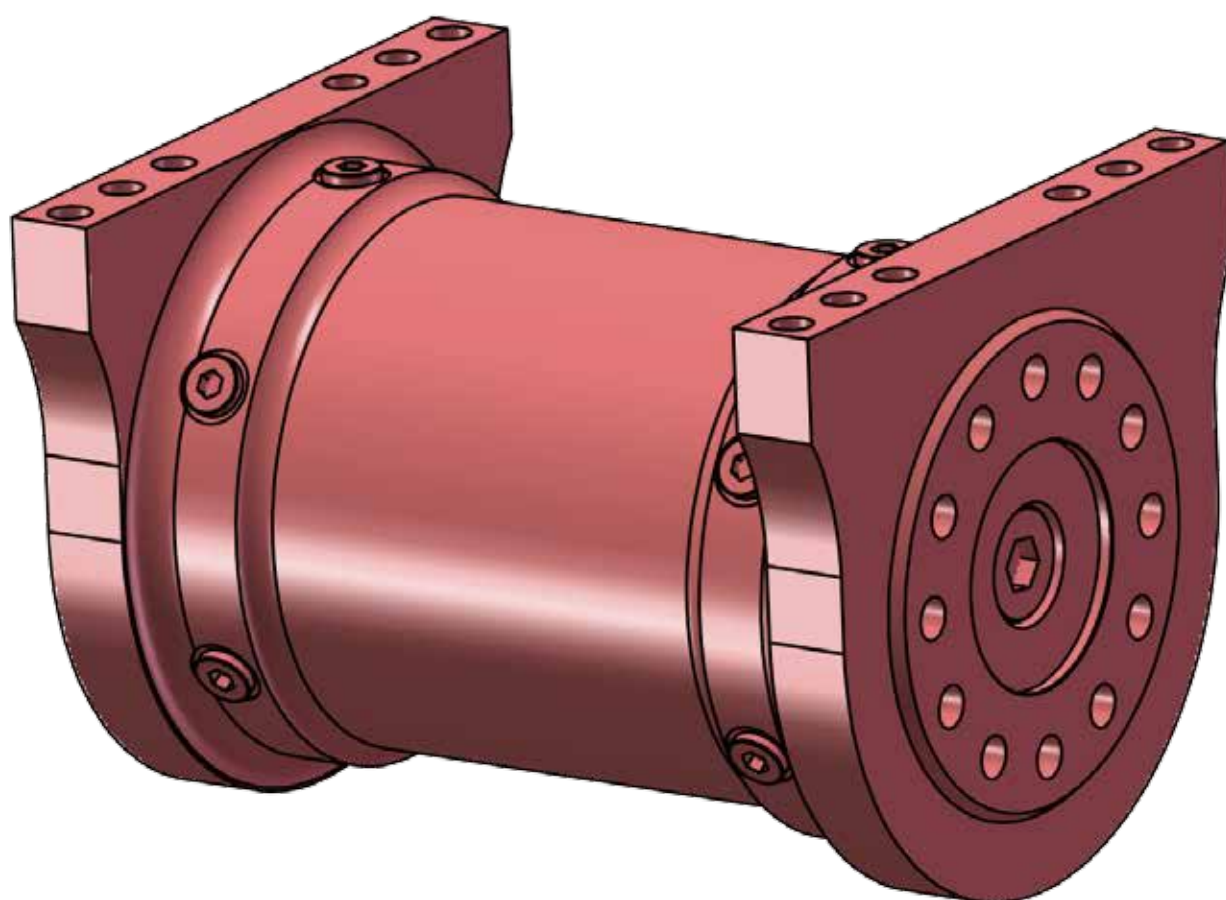


It could be replaced with other accessories

The completed combination

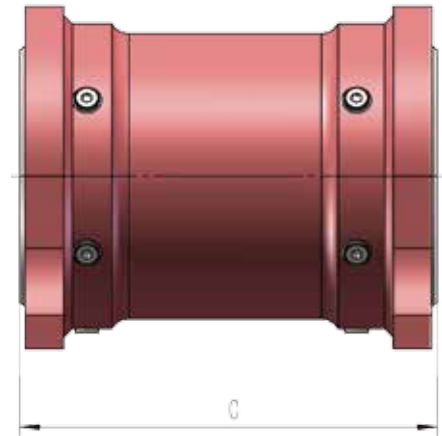
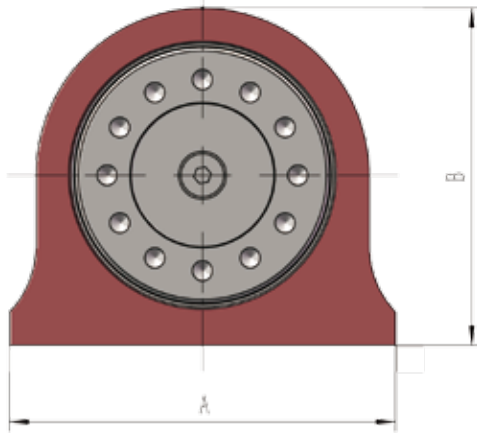


## The series of DTA & DTB :



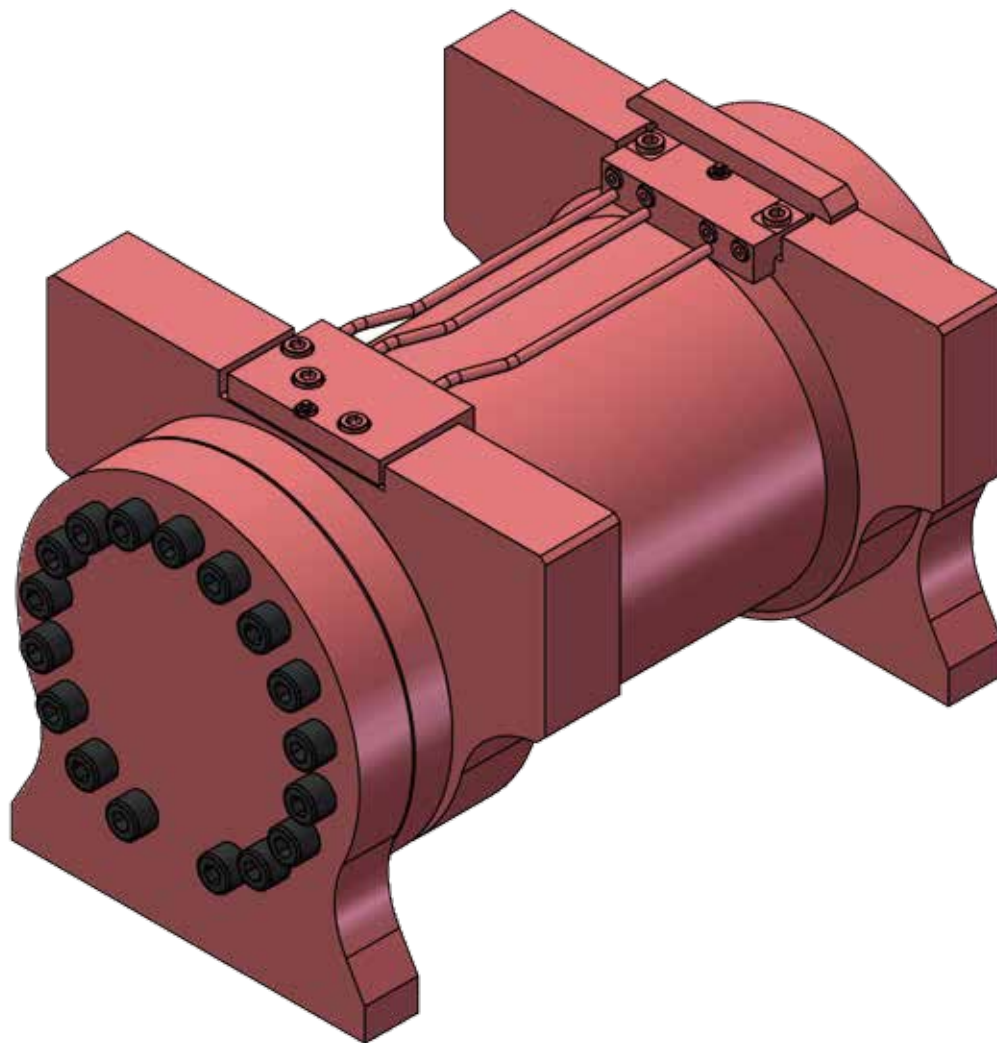


## The parameters of DTA & DTB series

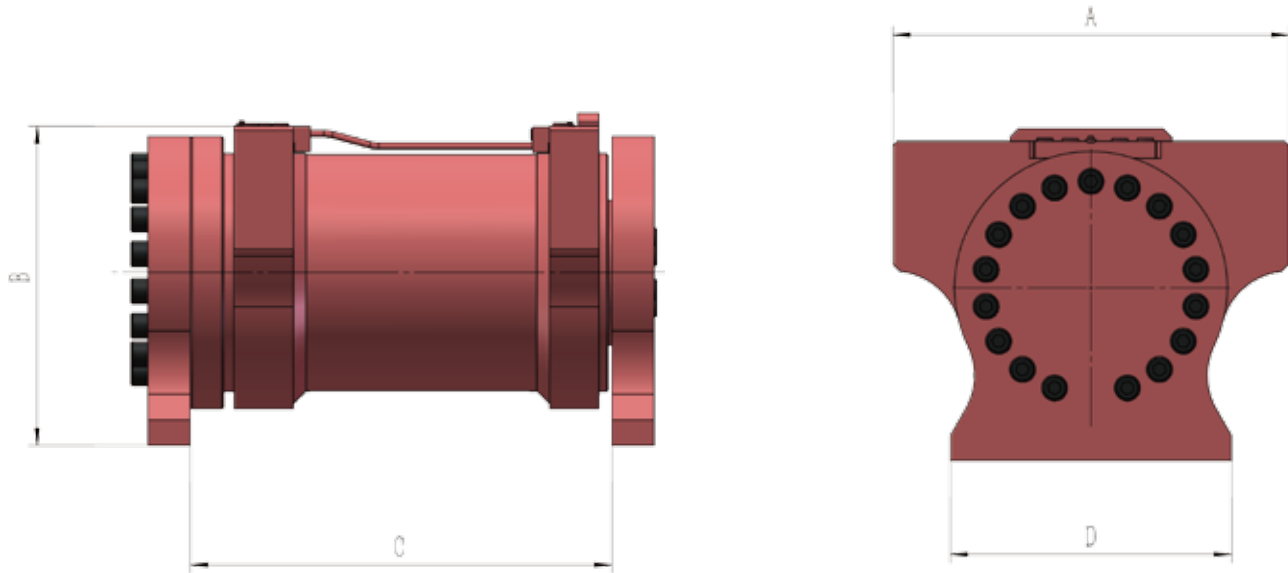


Cooperating with excavator (T)	Model	Rotation angle	Maximum working pressure (bar)	Drive torque (N. M)	Keeping torque (N. M)	weight (KG)	A (mm)	B (mm)	C (mm)
<1.8	DTA-01	100°	190	800	2100	19	150	152	197
		140°				21			221
		180°				22			245
1.8~3.8	DTB-01	180°	210	800	2400	26	190	179	205
		100°				42			264
		140°				47			206
1.8~3.8	DTA-02	180°	190	1100	4300	52	220	187	344
		100°				26			275
		140°				42			206
3.0~5.5	DTB-02	180°	210	1100	4300	26	220	192	275
		100°				51			267
		140°				57			305
3.0~5.5	DTA-03	180°	190	2000	6600	62	220	212	345
		100°				61			275
		140°				57			305
4~6.8	DTB-03	180°	210	2000	8200	61	224	232	275
		100°				59			267
		140°				64			305
4~6.8	DTA-04	180°	190	4300	11000	70	270	227	345
		100°				88			275
		140°				64			305
6.5~9	DTB-04	180°	210	4300	13500	88	300	266	275
		100°				87			291
		140°				95			337
6.5~9	DTA-05	180°	190	7400	17500	104	300	266	383
		100°				113			360
		140°				95			337
8.5~11	DTB-05	180°	210	7400	17500	113	290	273	360
		100°				121			319
		140°				135			371
8.5~11	DTA-06	180°	190	6950	16500	149	332	290	423
		100°				182			354
		140°				186			412
11~16	DTB-06	180°	210	10500	34000	206	390	328	470
		100°				191			440
		140°				186			412
11~16	DTA-07	180°	190	10500	34000	206	380	328	440
		100°				202			368
		140°				236			430
15~23	DTB-07	180°	210	10500	34000	191	380	328	440
		100°				264			492
		140°				269			420
15~23	DTA-08	180°	190	16000	40000	264	412	353	492
		100°				269			420
		140°				301			482
22~26	DTB-08	180°	210	20000	43000	344	450	380	548
		100°				334			460
		140°				374			534
22~26	DTA-09	180°	190	20000	43000	344	450	380	548
		100°				414			608
		140°				374			534
25~29	DTB-09	180°	210	23000	54000	414	492	400	608
		100°				555			540
		140°				622			612
25~29	DTA-10	180°	190	23000	54000	414	492	400	608
		100°				555			540
		140°				622			612
28~38	DTB-10	180°	210	33000	90000	696	570	478	565
		100°				622			612
		140°				696			565
28~38	DTA-11	180°	190	33000	90000	696	570	478	565
		100°				760			641
		140°				696			565
37~50	DTB-11	180°	210	43000	100000	760	608	515	641
		100°				760			641
		140°				760			641

## The DTC & DTD Series :



## The parameters of DTC & DTD:



Cooperating with excavator (T)	Model	Rotation angle	Maximum working pressure (bar)	Drive torque (N. M)	Keeping torque (N. M)	weight (KG)	A (mm)	B (mm)	C (mm)	D (mm)
<1.8	DTC-01	180°	210	930	2470	26	190	203	215	98
1.9~3.0	DTC-02	180°	210	2800	5600	47	216	230	261	127
	DTD-02	180°	210	1625	6430	31	190	170	242	120
3~5	DTC-03	180°	210	2800	5600	47	216	230	261	127
	DTD-03	180°	210	2600	9350	45.5	218	193	270	130
5~7	DTC-04	180°	210	4375	9400	84	276	280	323	152
	DTD-04	180°	210	4375	14850	78	254	259	343	160
7~10	DTC-05	180°	210	7100	14200	118	276	295	384	151
	DTD-05	180°	210	6650	20450	103	280	285	378	180
11~14	DTC-06	120°	210	10600	21200	165	375	301	396	210
11~18	DTD-06	120°	210	13300	40725	180	380	294	432	310
15~23	DTC-07	120°	210	14640	36420	235	445	347	444	254
18~23	DTD-07	120°	210	17875	53100	277	465	375	495	330
24~27	DTC-08	120°	210	20300	47840	312	480	395	502	267
24~32	DTD-08	120°	210	24900	70330	318	480	382	535	350
28~35	DTC-09	120°	210	24900	62100	430	530	446	539	270
32~50	DTC-10	120°	210	44300@310bar	111800@324bar	411	550	418	583	400

## The Company photos



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## ⚠ Notice:

- 1.Pay attention to the operating conditions & application and the industrial standard of usage.
- 2.In case of any mistakes, Please double check the part-number & outline-drawing.
- 3.For any recommend parts for sample test,it' s better to use the load test to decide whether the actuator is suitable for its application.
- 4.All thing without Shanghai Dunke' s confirmation could not be effective.