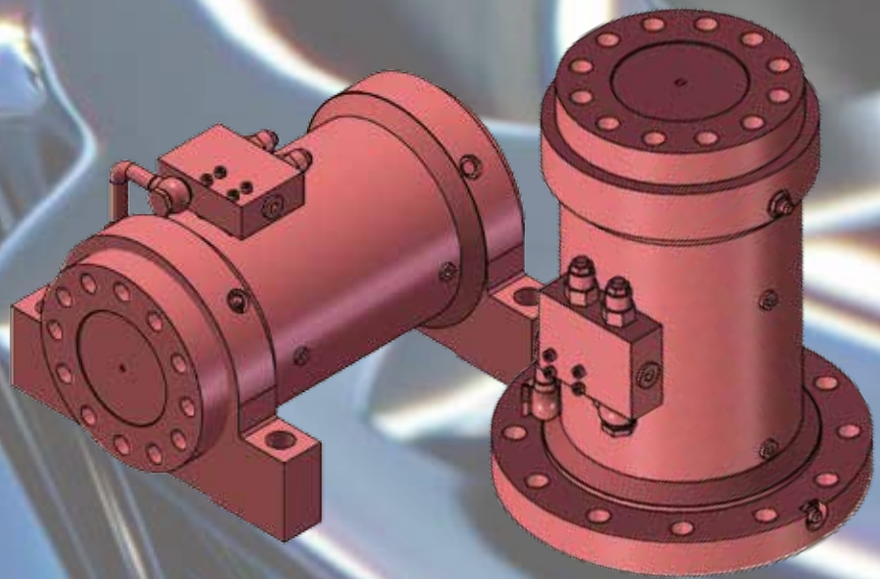


COYO[®]

Shanghai Dunke Machinery Co.,Ltd
Rotary actuators



Small bulk Big loading

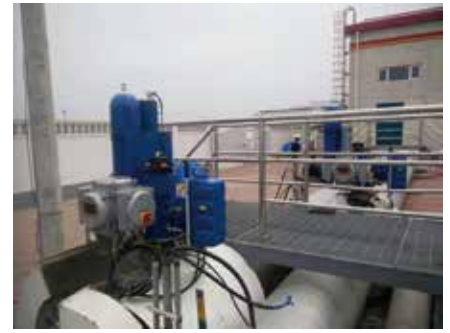
Company Profile

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

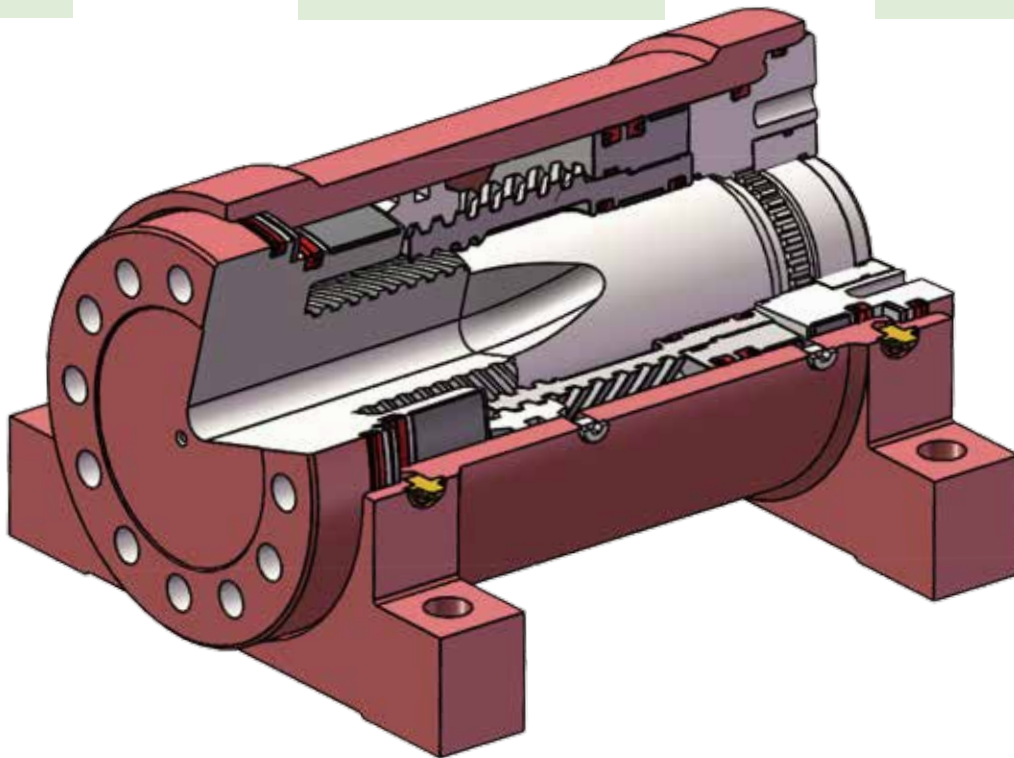
The internal helical teeth are designed with a large helix angle to make the actuator very compact

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

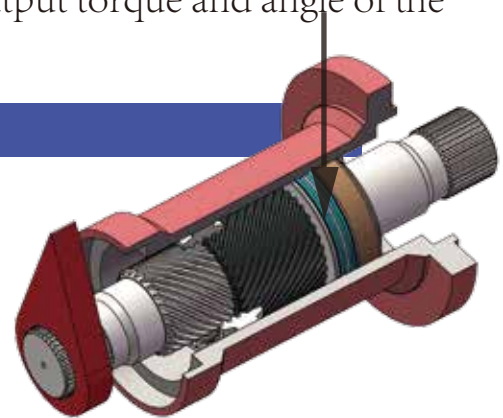
Customized production according to different requirements of customers

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.

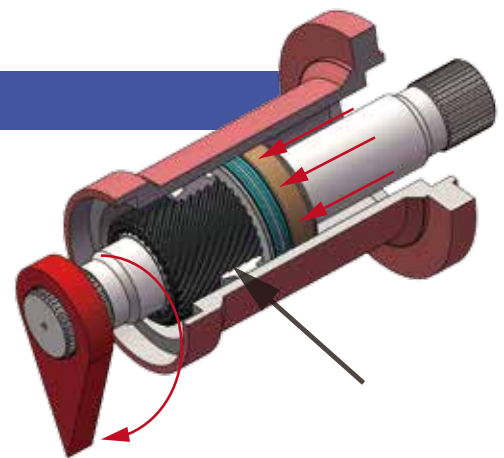
Starting position of piston

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.



The Maximum angle is 180 degree for any tilting attachments.



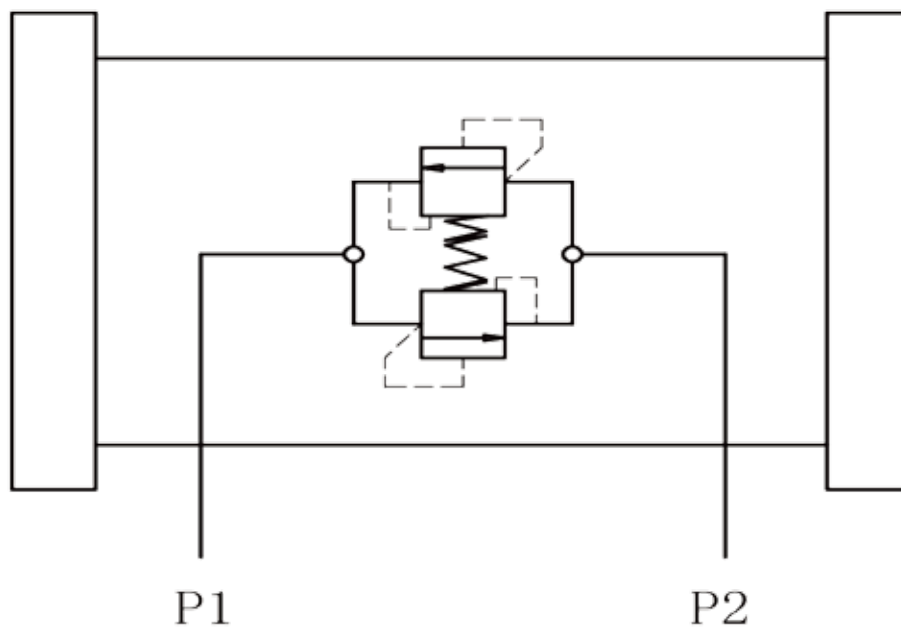
Tilt rotary actuators for construction equipment.

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.

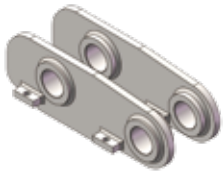
The way of combination:

Titling motor



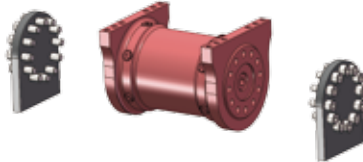
Quick-change could connect various configuration(The max of angle is 180 degree)

Fixed arm connection plate



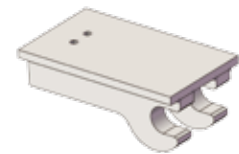
Connecting plate available for construction robot boom Suitable for excavators of various brands and different tonnages

Actuators & Mounting flange plate



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

Quick change

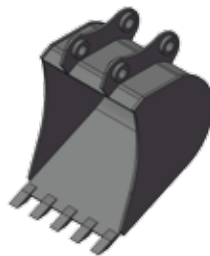


It is connected to the mounting flange plate to quickly change a variety of front-end tools (accessories) for multi-function. The quick change device is available in either semi-automatic type or fully automatic type.

Titling motor

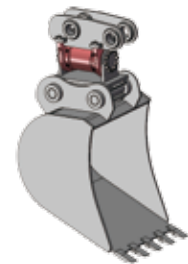


Attachments (bucket)

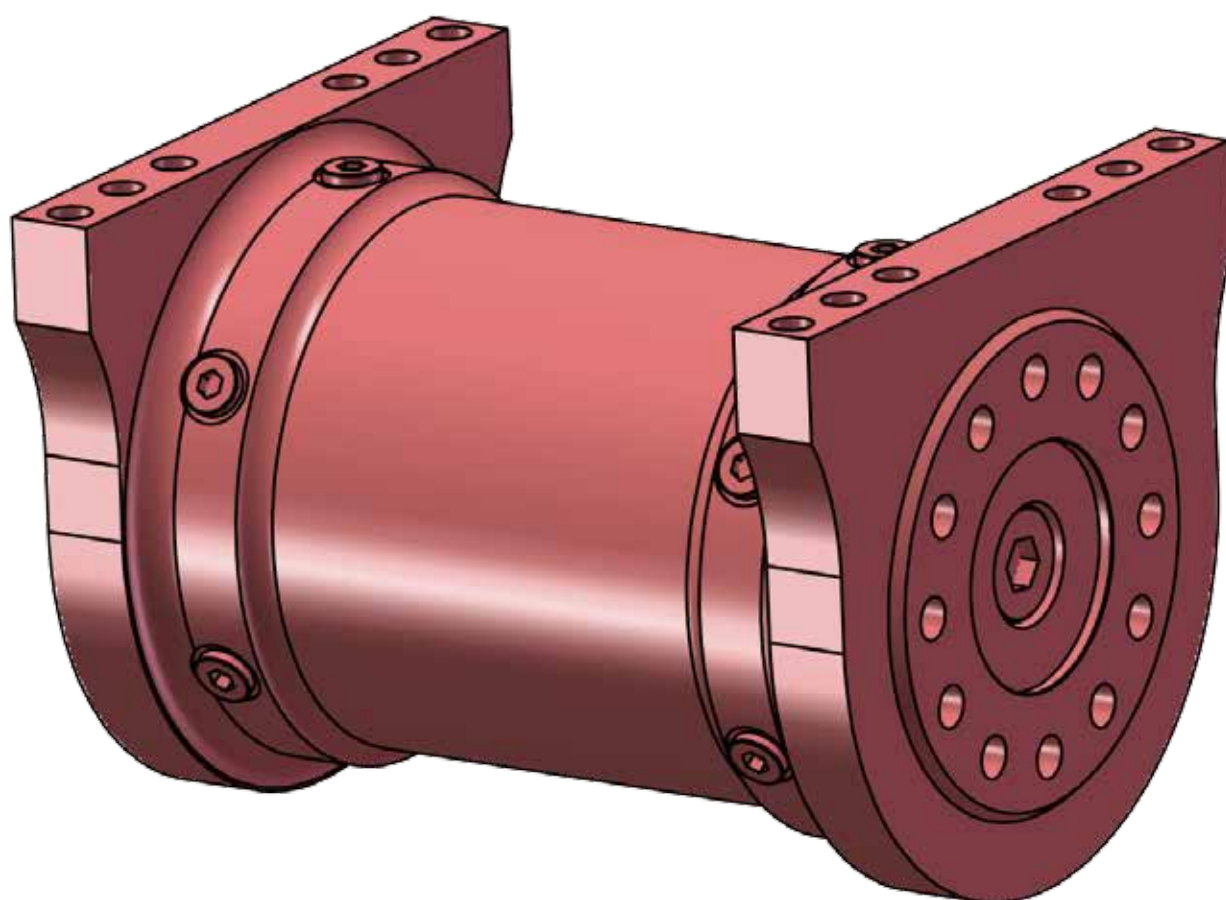


It could be replaced with other accessories

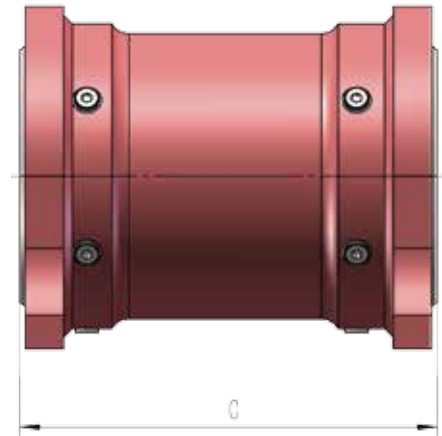
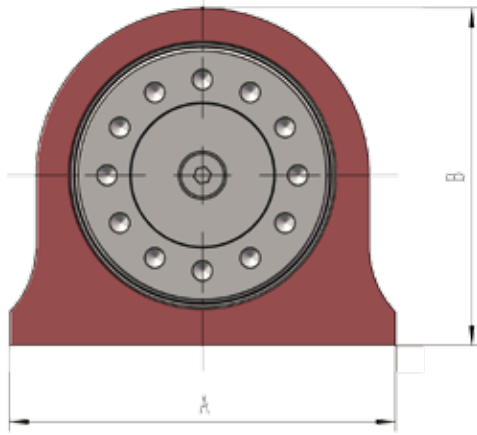
The completed combination



The series of DTA & DTB :

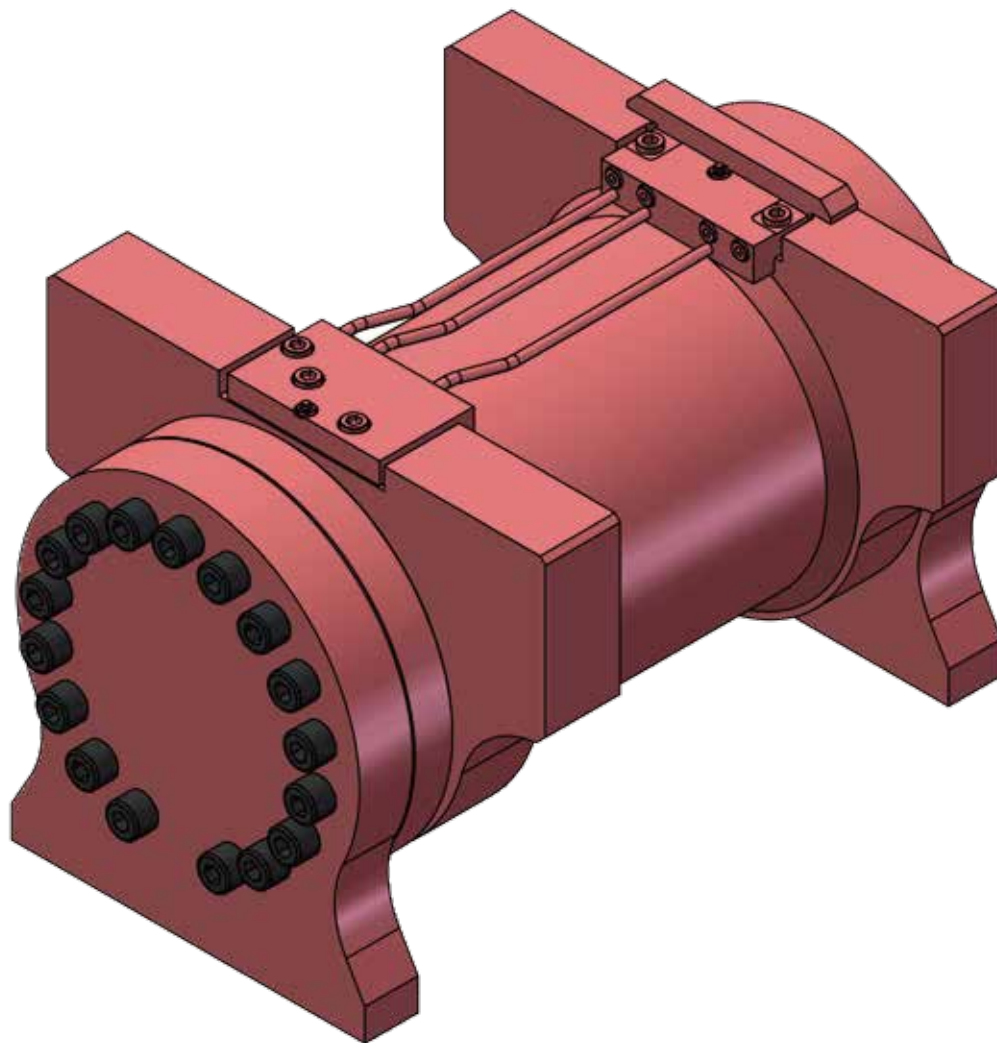


The parameters of DTA & DTB series

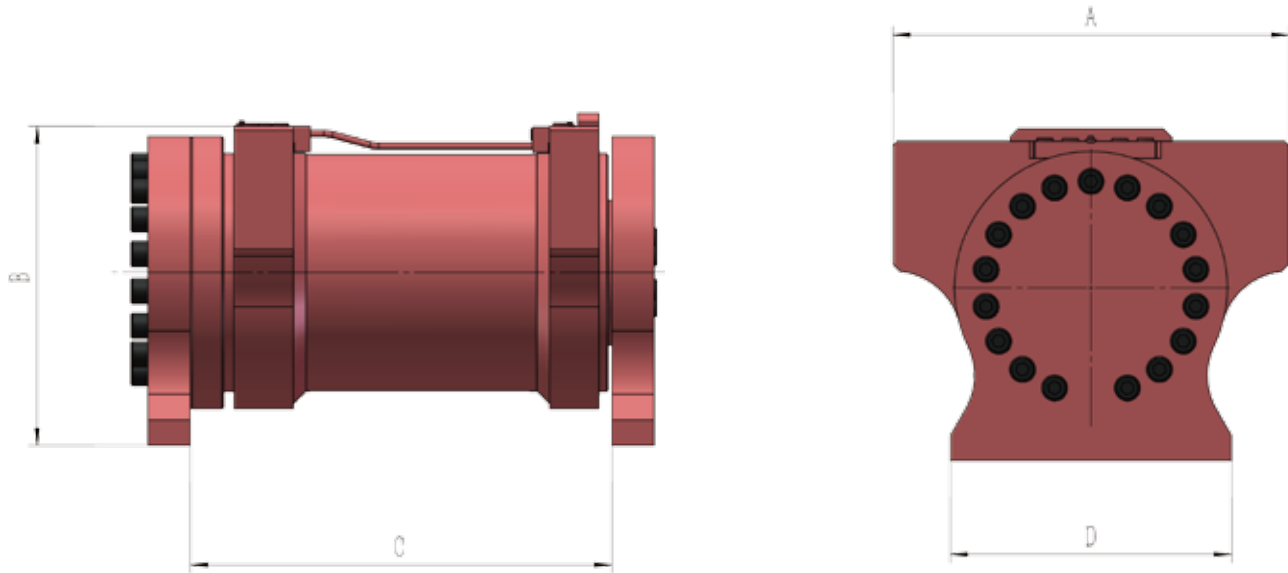


| Cooperating with excavator (T) | Model | Rotation angle | Maximum working pressure (bar) | Drive torque (N. M) | Keeping torque (N. M) | weight (KG) | A (mm) | B (mm) | C (mm) |
|--------------------------------|--------|----------------|--------------------------------|---------------------|-----------------------|-------------|--------|--------|--------|
| <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° | | | | 26 | | | 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° | | | | 61 | | | 232 |
| 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° | | | | 88 | | | 266 |
| 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° | | | | 113 | | | 273 |
| 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° | | | | 191 | | | 328 |
| 11~16 | DTA-07 | 180° | 190 | 10500 | 34000 | 191 | 380 | 328 | 440 |
| | | 100° | | | | 202 | | | 368 |
| | | 140° | | | | 236 | | | 430 |
| 15~23 | DTB-07 | 180° | 210 | 10500 | 34000 | 202 | 412 | 353 | 368 |
| | | 100° | | | | 264 | | | 492 |
| | | 140° | | | | 264 | | | 430 |
| 15~23 | DTA-08 | 180° | 190 | 16000 | 40000 | 269 | 450 | 380 | 420 |
| | | 100° | | | | 301 | | | 482 |
| | | 140° | | | | 301 | | | 380 |
| 22~26 | DTB-08 | 180° | 210 | 20000 | 43000 | 344 | 492 | 400 | 548 |
| | | 100° | | | | 334 | | | 460 |
| | | 140° | | | | 374 | | | 534 |
| 22~26 | DTA-09 | 180° | 190 | 23000 | 54000 | 414 | 570 | 478 | 608 |
| | | 100° | | | | 555 | | | 540 |
| | | 140° | | | | 555 | | | 612 |
| 25~29 | DTB-09 | 180° | 210 | 33000 | 90000 | 622 | 608 | 515 | 641 |
| | | 100° | | | | 696 | | | 565 |
| | | 140° | | | | 696 | | | 515 |
| 25~29 | DTA-10 | 180° | 190 | 43000 | 100000 | 760 | 608 | 515 | 641 |
| | | 100° | | | | 760 | | | 641 |
| | | 140° | | | | 760 | | | 641 |
| 28~38 | DTB-10 | 180° | 210 | 43000 | 100000 | 760 | 608 | 515 | 641 |
| | | 100° | | | | 760 | | | 641 |
| | | 140° | | | | 760 | | | 641 |
| 28~38 | DTA-11 | 180° | 190 | 33000 | 90000 | 696 | 570 | 478 | 612 |
| | | 100° | | | | 622 | | | 540 |
| | | 140° | | | | 622 | | | 612 |
| 37~50 | DTB-11 | 180° | 210 | 43000 | 100000 | 760 | 608 | 515 | 641 |
| | | 100° | | | | 760 | | | 641 |
| | | 140° | | | | 760 | | | 641 |
| 37~50 | DTA-12 | 180° | 190 | 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



we serve the world



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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.