

ACTO 25



ACTO 400



**Double acting
hydraulic actuators**

**ACTO 25, 50, 100 and 200:
rack and pinion kinematics**

**ACTO 400, 800 and 1600:
scotch-yoke kinematics**

**ACTO 3200, 6400 and 12500:
Rod and crank kinematic**

Output torques up to 150000 Nm

Applications

- All sectors of market.

General information

- Designed for the operation of ¼ turn valves (butterfly valves, ball valves).
- The mounting plate is in accordance with ISO 5211 standard.
- Equipped with an interchangeable insert, they can be easily fitted on different valve shaft (square end, flat end, key....).
- In standard version, these actuators are equipped with a visual pointer (ACTO 25 to 12500) and with adjustable mechanical travel stops (ACTO 25 to 1600).
- Operation with biodegradable and non-flammable oil.

Protection

- They are hose and fine dust proof and are protected against accidental immersion effects (protection degree: IP 67).

External coating

- Standard:
 - Anti-corrosion primary coating (cataphoresis), thickness 15–25 µm, colour black
 - Anti-corrosion secondary coating by polyurethane paint, thickness 80–100 µm, colour dark grey RAL 7016.
- For submersible actuators:
 - Anti-corrosion primary coating (cataphoresis), thickness 15–25 µm, colour black
 - Anti-corrosion finition touch by bituminous epoxy paint, thickness 80–100 µm, colour black.

Working temperature range

- Standard:
 - ACTO 25 to 1600: from –20° to +80° C
 - ACTO 3200 to 12500: from –10° to +80° C
- Variant:
 - ACTO 25 to 1600: from –20° to +120° C

Remarks

- Spare parts: Refer to the cards Kit ACTO.

Options

- Declutchable manual override (RMD),
- Emergency control by hydraulic hand pump.

General features

Designed for the operation of ¼ turn valves (butterfly valves, ball valves, ...), the ACTO series of double acting hydraulic actuators develop output torques up to 150000 Nm.

The production range consists of 10 units:

- ACTO 25, ACTO 50, ACTO 100 and ACTO 200, based on rack and pinion kinematics, developing constant output torque, throughout the stroke,
- ACTO 400, ACTO 800 and ACTO 1600 based on scotch-yoke kinematics, developing variable torque well suited for operation of ¼ turn valves of larger size with significant hydrodynamic torque.
- ACTO 3200, ACTO 6400 and ACTO 12500 based on rod and crank kinematiks.

ACTO 25 to 1600: In standard version, these actuators can be submerged under 40 m of water (soft water or sea water), in crude oil or other products (protection degree equivalent to IP 68), when they are coupled in the tight way with the valve.

A construction specially designed for use in refined oil products (white products) is available.

ACTO 3200 to 12500: IP 67

They are equipped in standard version with two devices including adjustable travel stops, purging and hand pump connection (refer to page 7) and with a visual pointer.

Working temperature range:

Standard: from -20° C to + 80° C,

Variant: from -20° C to + 120° C: Please, consult us.

Output torques

Maximum oil pressure, 160 bar: For higher pressure, please consult us.

Due to the symmetry of the unit, the capacity of the opening and closing chambers are identical.

| Actuator | Maximal allowable output torque in Nm | Output torque in Nm according to oil pressure | | | Chamber capacity in cm ³ |
|------------|---------------------------------------|---|--------|---------|-------------------------------------|
| | | 60 bar | 90 bar | 120 bar | |
| ACTO 25 | 280 | 125 | 187,5 | 250 | 39,5 |
| ACTO 50 | 550 | 250 | 375 | 500 | 80,5 |
| ACTO 100 | 1100 | 500 | 750 | 1000 | 156 |
| ACTO 200 | 2200 | 1000 | 1500 | 2000 | 317 |
| ACTO 400 | 4400 | 2790 | 4180 | 4400 | 964,6 |
| ACTO 800 | 8800 | 5800 | 8700 | 8800 | 2037,4 |
| ACTO 1600 | 17600 | 12000 | 17600 | 17600 | 4246,5 |
| ACTO 3200 | 50000 | 40000 | 50000 | 50000 | 10178 |
| ACTO 6400 | 125000 | 60000 | 90000 | 125000 | 15268 |
| ACTO 12500 | 150000 | 143000 | 150000 | 150000 | 31855 |

Adaptation on valves

Due to their mounting plate according to ISO 5211 standard, they can be fitted directly onto any valve in accordance with this standard. They can also be fitted on other ¼ turn valves by means of an adaptation piece.

Equipped with an interchangeable insert, they can be easily mounted on different valve shaft end (square shaft end, flat shaft end, keyed shaft). They can be positioned in four positions, at intervals of 90°.

| Actuator | ISO 5211 mounting plate* | Maximal allowable dimensions for the shaft | | | Height |
|------------|--------------------------|--|-----------------|--------------------|--------|
| | | Driving by square | Driving by flat | Driving by key | |
| ACTO 25 | F07 and F10 | 19 | 19 | Please, consult us | 35 |
| ACTO 50 | F10 and F12 | 27 | 27 | | 45 |
| ACTO 100 | F12 | 36 | 36 | | 55 |
| ACTO 200 | F14 | 50 | 46 | | 65 |
| ACTO 400 | F16 | 60 | 55 | | 80 |
| ACTO 800 | F16 and F25 | 70 | 75 | | 95 |
| ACTO 1600 | F25 and F30 | 90 | 85 | | 110 |
| ACTO 3200 | F30 and F35 | 130 | - | | 180 |
| ACTO 6400 | F40 and F48 | 130 | - | | 200 |
| ACTO 12500 | F48 | 140 | - | | 250 |

* Direct adaptation onto identical mounting plate.

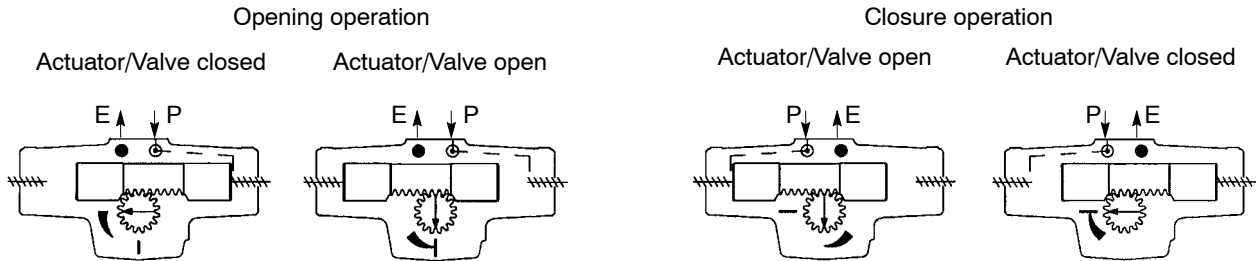
Adaptation by intermediate flange onto different plate (different size or shape).

Operation

In standard version, the ACTO actuators are designed to ensure clockwise valve closure.

ACTO 25 to 200: rack and pinion kinematics

The rack and pinion kinematics develops constant output torque throughout the stroke.



ACTO 400 to 1600: yoke and slide kinematics

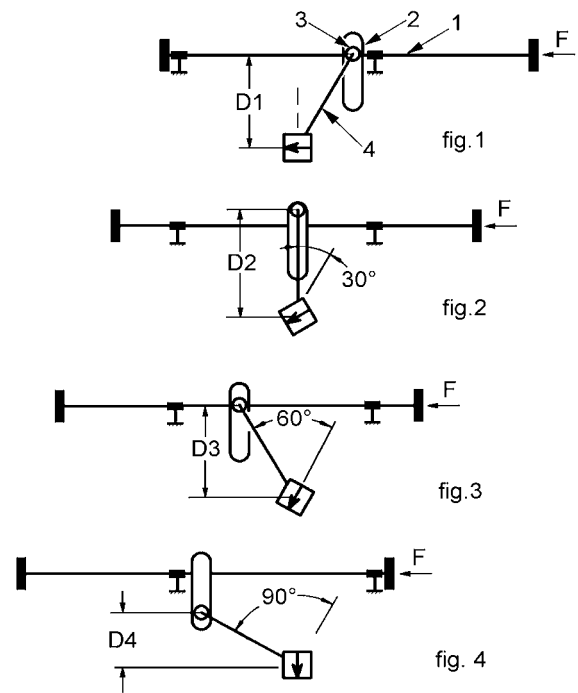
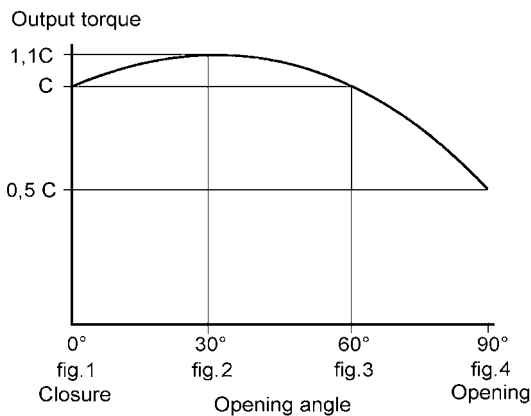
The yoke and slide kinematics develops variable output torque very well suited to the operation of 1/4 turn valves with hydrodynamic torque.

The movement transmission is achieved by means of the piston system ①, the slide operating nut ②, the rolling pad ③ and the yoke ④.

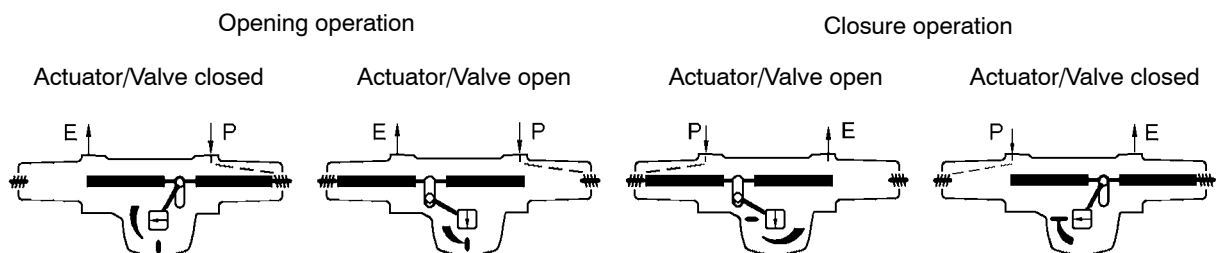
The translation of the piston ① secured by the pressure in the actuator cylinder causes the linear travel of the operating nut ②.

This movement drives the sliding of the pads ③ in the slides of the operating nut ② and allows the rotation of the yoke ④ integral with the valve shaft.

Curve of the yoke and slides kinematics



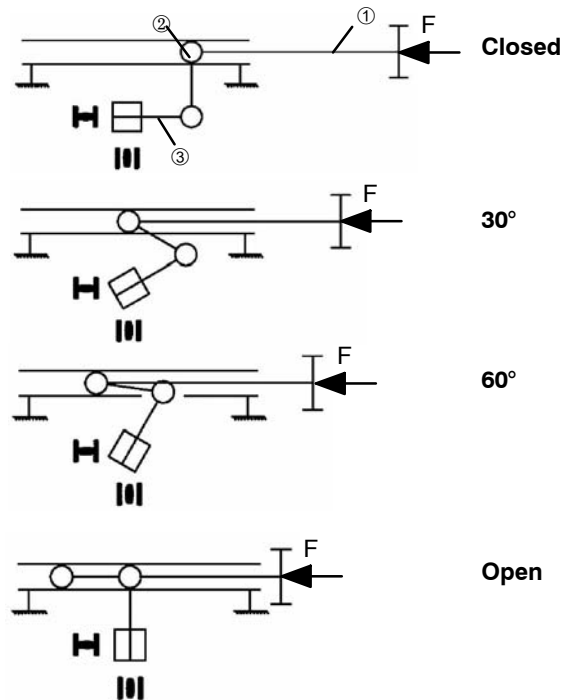
Output torque for F constant: $C = F \times D$



ACTO 3200 to 12500: Rod and crank kinematic

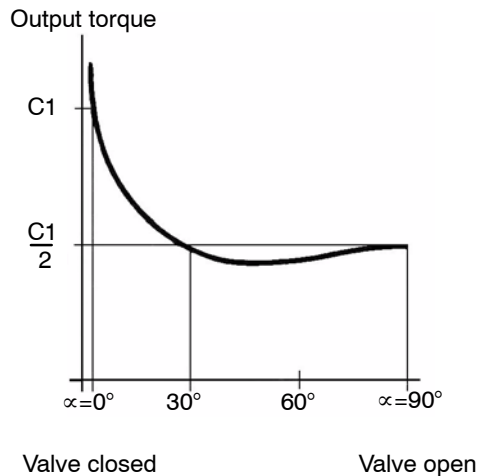
The rod and crank kinematics develops variable output torque very well suited to the operation of 1/4 turn valves.

The translation of hydraulic actuator ① causes the translation of arm ②.
This translation movement is converted into a 1/4 turn rotational movement of chuck ③, integral with the valve shaft.
This conversion movement is effected via the connecting rods whose length defines an exact and invariable position of the chuck during the closing operation.



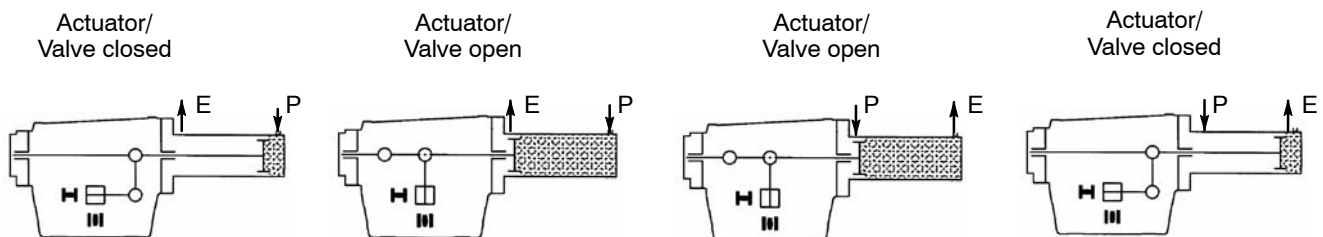
Curve of the rod and crank kinematics

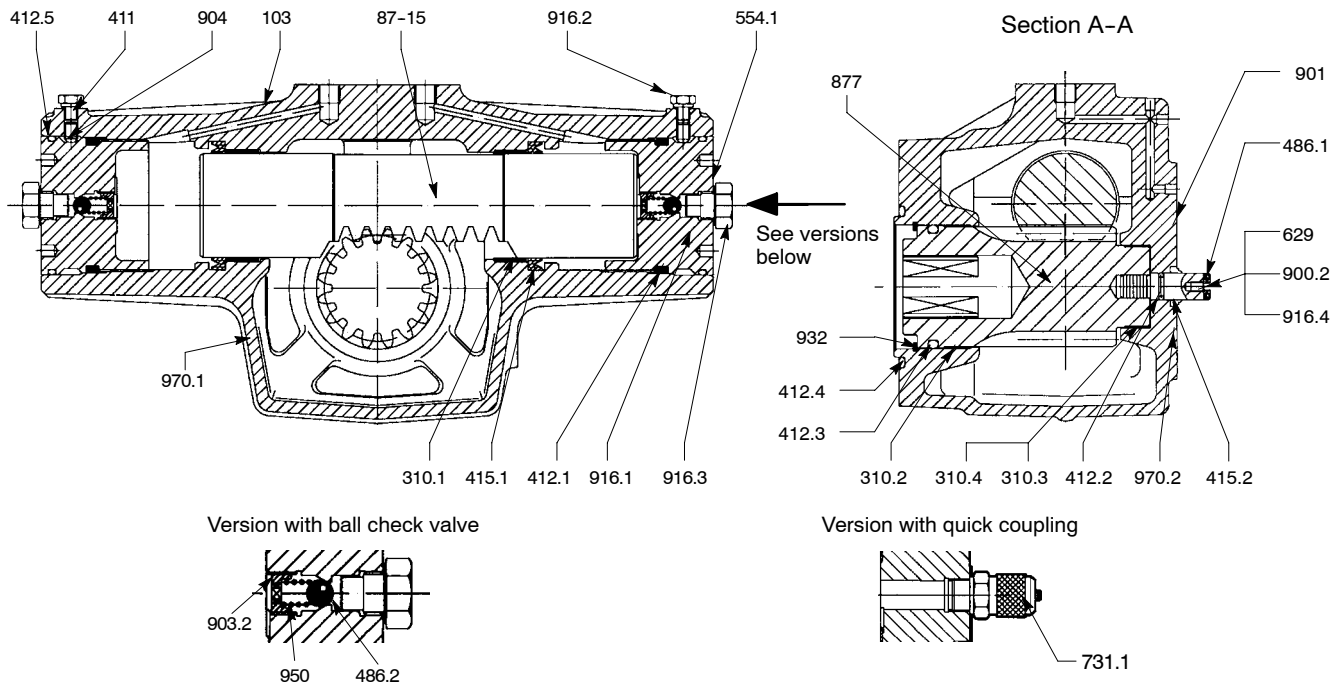
With a constant force applied to the nut, the actuator output torque, fairly constant since $\alpha=90^\circ$ (full opening of valve) up to $\alpha=30^\circ$ increases towards infinite for total closure ($\alpha=0^\circ$).
In practice, this torque is limited by the resistance of the mechanical assembly. The torque C_1 is define as the nominal working torque.



Opening operation

Closing operation

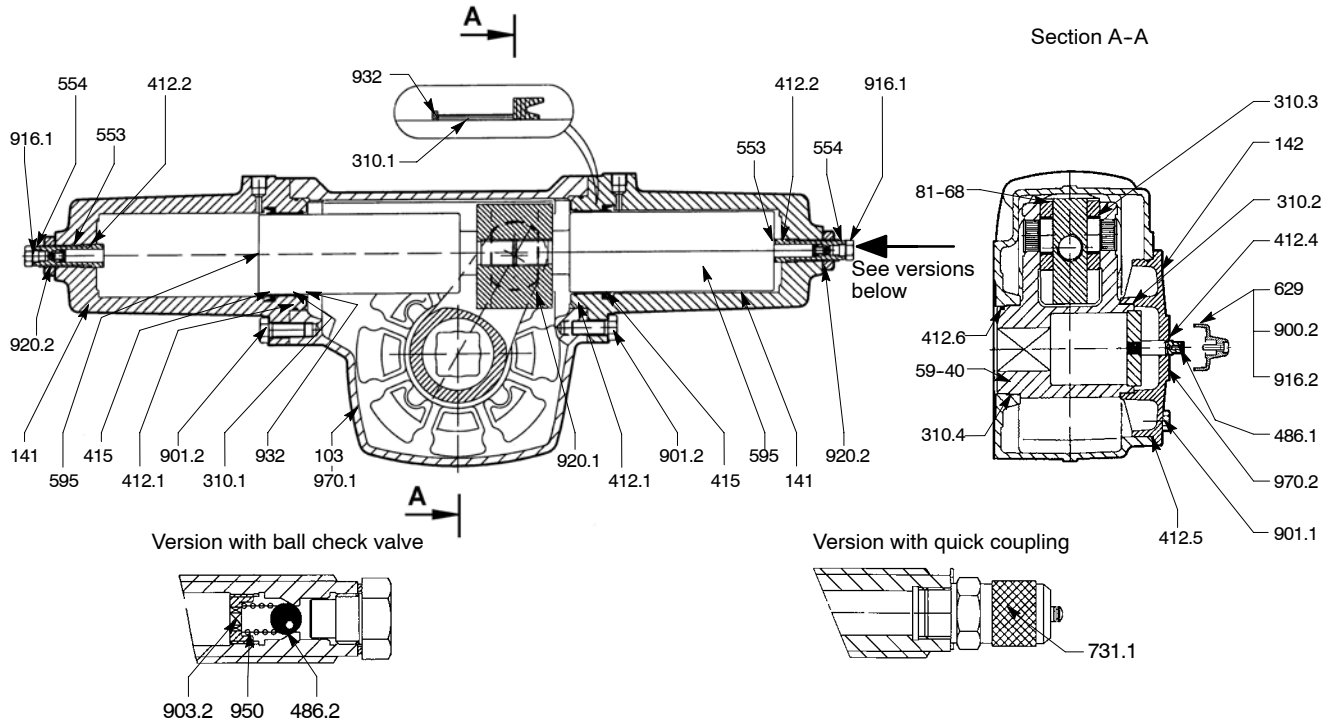


ACTO 25 to 200 – Construction


| Item | Designation | Materials |
|-------|--------------------------|--|
| 103 | Housing | ASTM A536 gr.60-40-18 * ductile iron |
| 310.1 | Self-lubricating bearing | Steel + bronze + PTFE |
| 310.2 | Self-lubricating bearing | Stainless steel + PTFE |
| 310.3 | Self-lubricating bearing | Stainless steel + PTFE (ACTO 25, 50 and 100 actuators) |
| 310.4 | Self-lubricating bearing | Stainless steel + PTFE (ACTO 200 actuator only) |
| 411 | Sealing washer | Copper |
| 412.1 | O-Ring | Nitrile |
| 412.2 | O-Ring | Nitrile ** |
| 412.3 | O-Ring | Nitrile ** |
| 412.4 | O-Ring | Nitrile * *(ACTO 50, 100 and 200 actuators) |
| 412.5 | O-Ring | Nitrile ** |
| 415.1 | Lip seal ring | Nitrile |
| 415.2 | Lip seal ring | Nitrile ** |
| 486.1 | Ball | Stainless steel |
| 486.2 | Ball | Stainless steel |
| 554.1 | Washer | Stainless steel A4 |
| 629 | Pointer | Polyamide 6-6 + treatment against U.V. rays |
| 731.1 | Quick coupling | Stainless steel type 316 |
| 87-15 | Rack | Treated steel |
| 877 | Pinion + pointer | Treated steel + Stainless steel |
| 900.2 | Cheese head screw | Stainless steel A4 |
| 901 | Hexagon head screw | Stainless steel A4 |
| 903.2 | Plug | Bronze |
| 904 | Socket screw | Steel |
| 916.1 | Cylinder cover | Steel + cataphoresis coating |
| 916.2 | Plug | Stainless steel A4 |
| 916.3 | Check valve plug | Stainless steel A4 |
| 916.4 | Protection plug | Polyethylene |
| 932 | Ring | Phosphated steel |
| 950 | Check valve spring | Steel |
| 970.1 | Identity plate | Stainless steel |
| 970.2 | Position plate | Stainless steel |

* GGG 40.3 ductile iron on request

** VITON® for version submersible in white oil products.

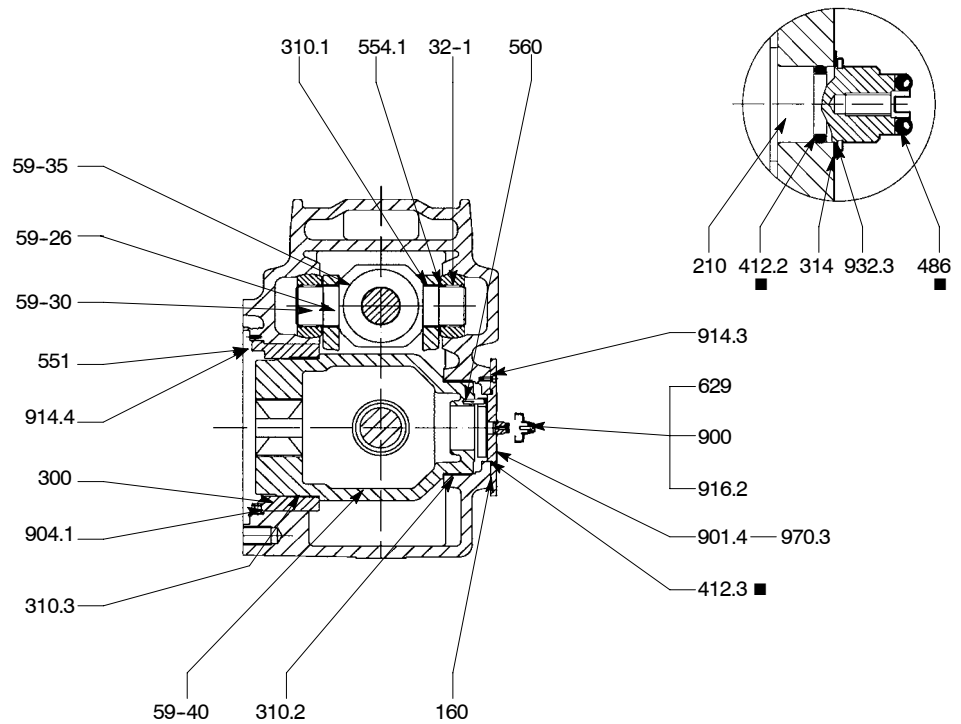
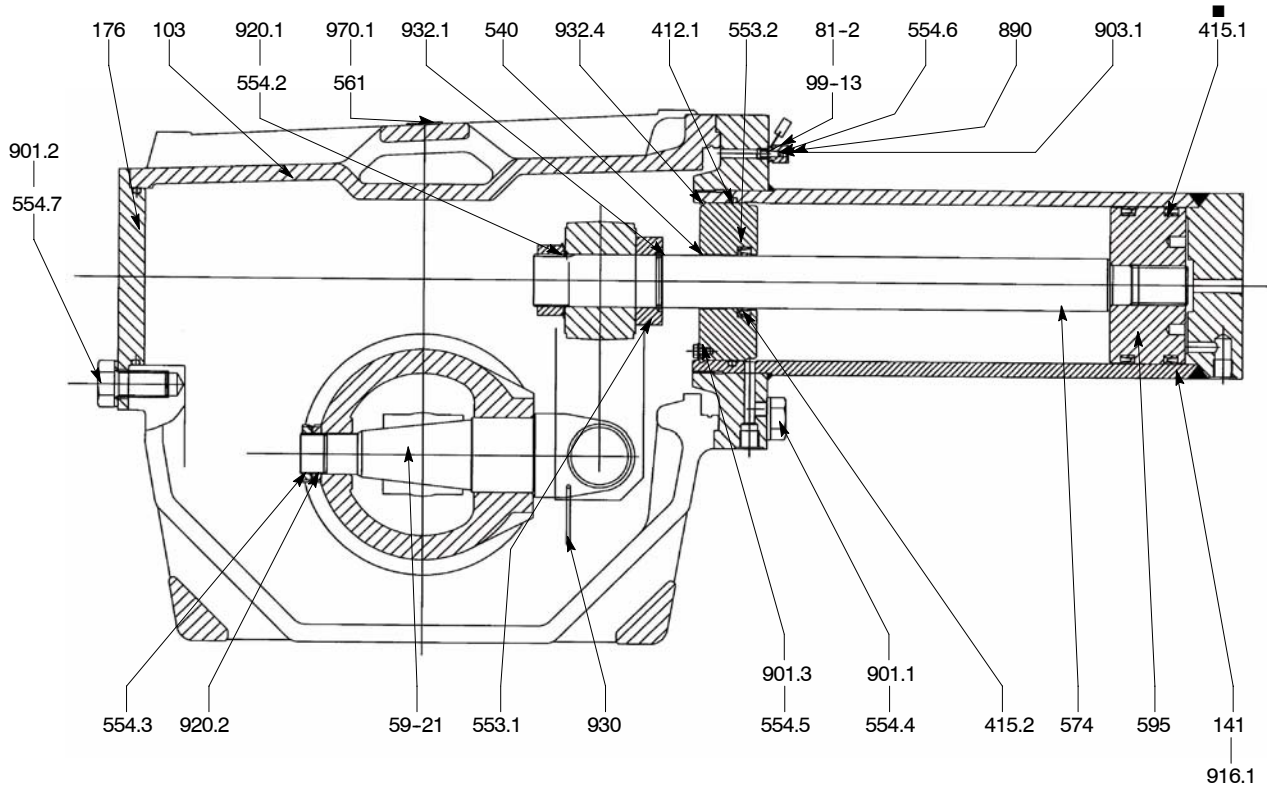
ACTO 400 to 1600 – Construction


| Item | Designation | Materials |
|-------|--------------------------|---|
| 103 | Housing | JL 1040 ⁽¹⁾ cast iron or JS 1030 ⁽²⁾ ductile iron |
| 141 | Cylinder | ASTM A536 gr.60-40-18 ductile iron |
| 142 | Cover | JL 1040 ⁽¹⁾ cast iron or JS 1030 ⁽²⁾ ductile iron |
| 310.1 | Self-lubricating bearing | Stainless steel + PTFE |
| 310.2 | Self-lubricating bearing | Stainless steel + PTFE |
| 310.3 | Self-lubricating bearing | Stainless steel + PTFE (ACTO 800 and 1600 actuators only) |
| 310.4 | Self-lubricating bearing | Stainless steel + PTFE |
| 412.1 | O-Ring | Nitrile * |
| 412.2 | O-Ring | Nitrile * |
| 412.4 | O-Ring | Nitrile * |
| 412.5 | O-Ring | Nitrile * |
| 412.6 | O-Ring | Nitrile * |
| 415 | Leap seal ring | Nitrile |
| 486.1 | Ball | Stainless steel |
| 486.2 | Ball | Stainless steel |
| 553 | Thrust insert | Stainless steel type 316 |
| 554.1 | Washer | Stainless steel A4 |
| 595 | Piston | Steel |
| 59-40 | Chuck + pointer shaft | JS 1030 ⁽²⁾ ductile iron + stainless steel |
| 629 | Pointer ** | Polyamide 6-6 + treatment against U.V. rays |
| 731.1 | Quick coupling | Stainless steel type 316 |
| 81.68 | Pressure pad | Nitrured steel |
| 900.2 | Cheese head screw ** | Stainless steel A4 |
| 901.1 | Hexagon head screw | Stainless steel A4 |
| 901.2 | Hexagon head screw | Stainless steel A4 |
| 903 | Plug | Bronze |
| 916.1 | Check valve plug | Stainless steel A4 |
| 916.2 | Protection plug ** | Polyethylene |
| 920.1 | Operating nut | JS 1060 ⁽³⁾ ductile iron |
| 920.2 | Hexagon nut | Stainless steel A4 |
| 932 | Ring | Stainless steel |
| 950 | Check valve spring | Treated steel |
| 970 | Identity plate | Stainless steel |
| 970.2 | Position plate | Stainless steel |

* VITON® for version submersible in white oil products.

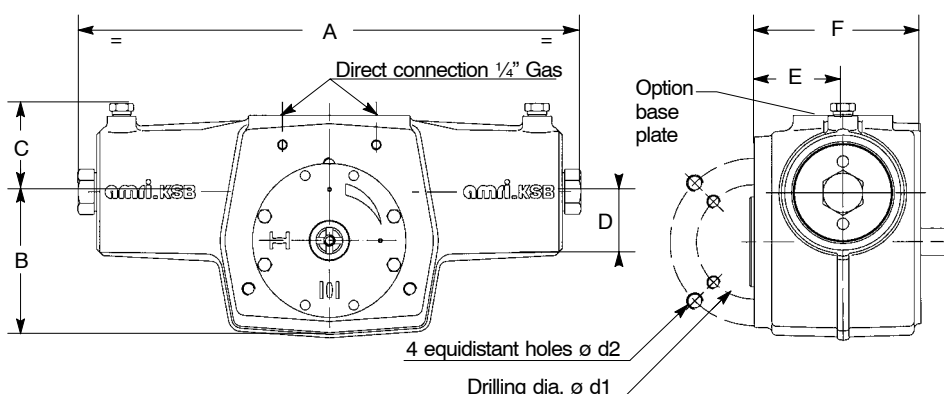
** In case of actuator with visual signalisation.

ACTO 3200 to 12500 – Construction

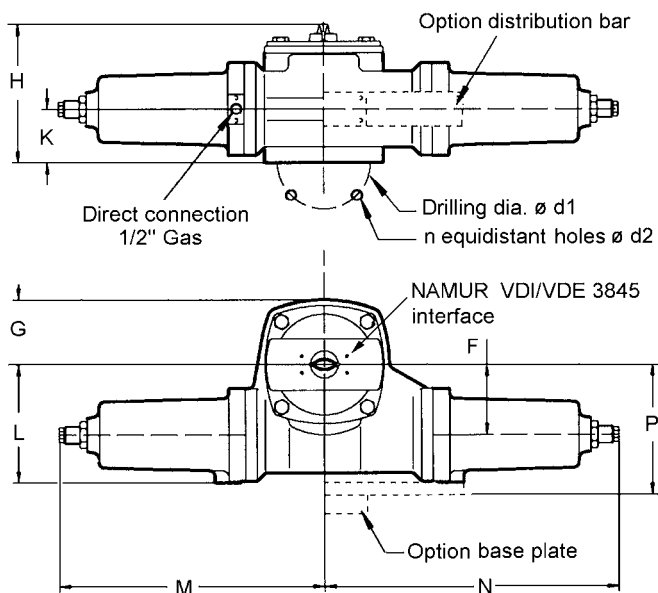


ACTO 3200 to 12500 – Construction

| Item | Designation | Materials |
|-------|---------------------------|------------------------------------|
| 103 | Housing | JS 1030 ductile iron |
| 141 | Cylinder | ASTM A536 gr.60-40-18 ductile iron |
| 160 | Cover | JS 1030 ductile iron |
| 176 | Bottom | Steel |
| 210 | Shaft | Steel |
| 300 | Bearing | Stainless steel + PTFE |
| 310.1 | Self-lubricating | Stainless steel + PTFE |
| 310.2 | Self-lubricating | Stainless steel + PTFE |
| 310.3 | Self-lubricating | Stainless steel + PTFE |
| 314 | Thrust bearing | Stainless steel |
| 32-1 | Needle | Treated steel |
| 412.1 | O-Ring | Nitrile |
| 412.2 | O-Ring | Nitrile |
| 412.3 | O-Ring | Nitrile |
| 415.1 | Leap seal ring | Nitrile |
| 415.2 | Leap seal ring | Nitrile |
| 486 | Ball | Stainless steel |
| 540 | Bush | Phosphated steel |
| 551 | Space washer | Steel |
| 553.1 | Arm thrust | Phosphated steel |
| 553.2 | Thrust | Stainless steel type 316 |
| 554.1 | Washer | Treated steel |
| 554.2 | Locking washer | Treated steel |
| 554.3 | Locking washer | Treated steel |
| 554.4 | Plain washer | Treated steel |
| 554.5 | Plain washer | Stainless steel |
| 554.6 | Washer | Stainless steel |
| 554.7 | Plain washer | Stainless steel |
| 560 | Grooved pin | Stainless steel |
| 561 | Grooved nail | Stainless steel |
| 574 | Rod | Treated steel |
| 595 | Piston | Steel |
| 59-21 | Fork | Steel |
| 59-26 | Connection rod | Steel |
| 59-30 | Roller | Steel |
| 59-35 | Arm | Steel |
| 59-40 | Chuck | Steel |
| 629 | Pointer | Polyamide |
| 81-2 | Wire | Inox |
| 890 | Embase | bronze |
| 900 | Hexagon head screw | Stainless steel A4 |
| 901.1 | Hexagon head screw | Stainless steel A4 |
| 901.2 | Hexagon head screw | Stainless steel A4 |
| 901.3 | Hexagon head screw | Stainless steel A4 |
| 901.4 | Hexagon head screw | Stainless steel A4 |
| 903.1 | Threaded plug | Nitrile |
| 904.1 | Grub screw | Steel |
| 914.3 | Hexagon socket head screw | Stainless steel A4 |
| 914.4 | Screw | Stainless steel A2-70 |
| 916.1 | Protection plug | Polyethylene |
| 916.2 | Protection plug | Polyethylene |
| 920.1 | Hexagon nut | JS 1060 ductile iron |
| 920.2 | Nut with notches | Steel |
| 930 | Retainer | Stainless steel |
| 932.1 | Ring | Stainless steel |
| 932.3 | Spring retaining ring | Stainless steel |
| 932.4 | Ring | Stainless steel |
| 970.1 | Identity plate | Stainless steel |
| 970.3 | Position plate | Stainless steel |
| 99-13 | Label | Stainless steel |

Dimensions (mm) and weight (kg)
ACTO 25 to 200


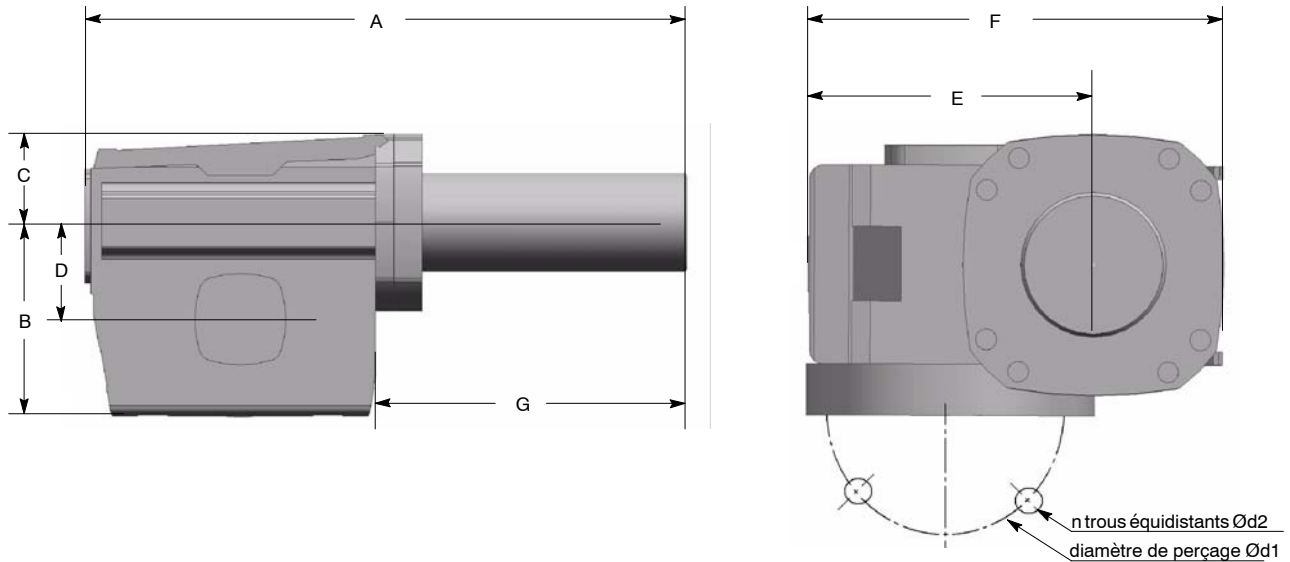
| Type | A | B | C | D | E | F | ISO 5211 interface | | | Weight |
|----------|-----|-----|----|----|-----|-----|--------------------|------|------|--------|
| | | | | | | | ref. | ø d1 | ø d2 | |
| ACTO 25 | 311 | 90 | 47 | 30 | 54 | 121 | F07 | 70 | M8 | 13,0 |
| | | | | | | | F10 | 102 | M10 | |
| ACTO 50 | 367 | 107 | 61 | 38 | 72 | 151 | F10 | 102 | M10 | 19,5 |
| | | | | | | | F12 | 125 | M12 | |
| ACTO 100 | 429 | 132 | 73 | 50 | 100 | 187 | F12 | 125 | M12 | 33,5 |
| ACTO 200 | 538 | 165 | 88 | 64 | 110 | 213 | F14 | 140 | M16 | 63,0 |

ACTO 400 to 1600


| Type | F | G | H | K | L | M | N | P | ISO 5211 interface | | | | Weight |
|-----------|-----|-------|-----|-------|-----|-----|-----|-----|--------------------|------|------|---|--------|
| | | | | | | | | | ref. | ø d1 | ø d2 | n | |
| ACTO 400 | 125 | 115 | 246 | 95 | 210 | 471 | 523 | 237 | F16 | 165 | M20 | 4 | 95 |
| ACTO 800 | 140 | 154,5 | 280 | 108,5 | 248 | 525 | 585 | 275 | F16 | 165 | M20 | 4 | |
| | | | | | | | | | F25 | 254 | M16 | 8 | |
| ACTO 1600 | 180 | 180 | 330 | 130 | 320 | 653 | 728 | 347 | F25 | 254 | M16 | 8 | 328 |
| | | | | | | | | | F30 | 298 | M20 | 8 | |

Dimensions (mm) and weight (kg)

ACTO 3200 to 12500



| Type | A | B | C | D | E | F | G | ISO 5211 interface | | | Weight | |
|------------|--------------------|-----|-----|-----|-----|-----|-----|--------------------|------|------|--------|------|
| | | | | | | | | ref. | ø d1 | ø d2 | | n |
| ACTO 3200 | 1292 | 415 | 176 | 200 | 220 | 407 | 593 | F30 | 248 | 20 | 4 | 580 |
| | | | | | | | | F35 | 356 | 30 | 4 | |
| ACTO 6400 | 1769 | 575 | 235 | 300 | 280 | 538 | 810 | F40 | 406 | 36 | 8 | 1240 |
| | | | | | | | | F48 | 483 | 36 | 12 | |
| ACTO 12500 | Please, consult us | | | | | | | | | | | |

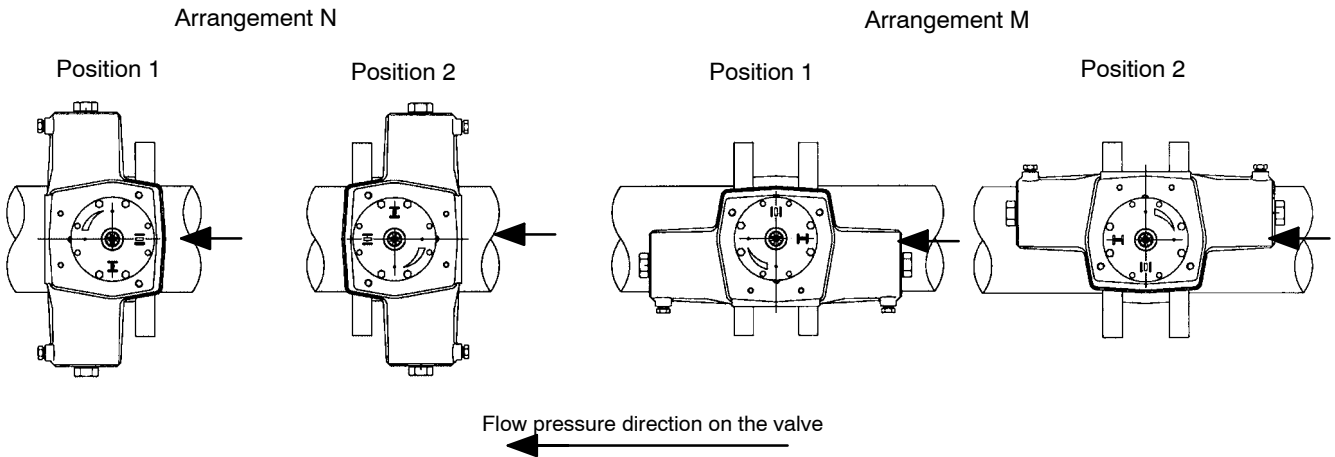
Mounting on valves

The actuator can be positioned in four positions, at intervals of 90°.

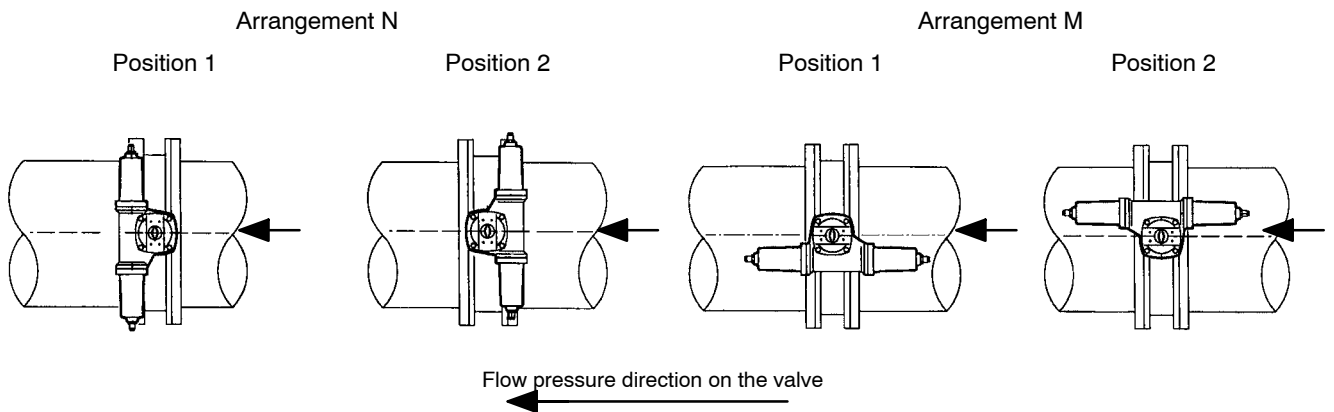
When the actuator is supplied on a valve and unless otherwise stated on the order, the actuator is mounted according to the arrangement N position 1.

If the actuator is equipped with a declutchable manual override, the actuator is mounted in accordance with the arrangement M position 2.

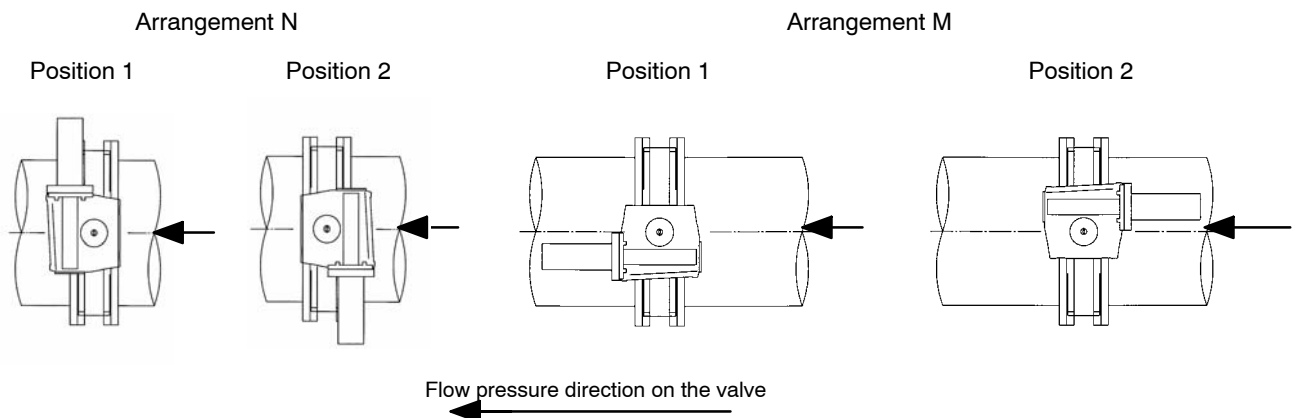
ACTO 25 to 200



ACTO 400 to 1600



ACTO 3200 to 12500



Device adjustable travel stops, purging and hand pump connection: ACTO 25 to 1600 application

The ACTO hydraulic actuators are equipped, at each cylinder end, with a special device allowing the three following functions :

- mechanical adjustable travel stops on open and closed positions. The adjustment range is $\pm 2^\circ$ for ACTO 25 to 200 actuators and $\pm 2,5^\circ$ for ACTO 400 to 1600 actuators. These travel stops are factory adjusted during the fitting of the actuator on the valve,
- purging of the cylinder chambers,
- connection of an emergency control by hydraulic hand pump.

2 versions are available for the draining and hydraulic hand pump connection functions (see pages 4 and 5):

- version with ball check valve,
- version with quick coupling.

External coating - Protection

Standard protection:

- anti-corrosion primary coating (cataphoresis), thickness 15–25 μm .
- anti-corrosion secondary coating by polyurethane paint, thickness 80–100 μm , colour dark grey RAL 7016.
This protection has been tested in our laboratories for use in saline fog, according to NFX 41-002 standard.

Submersible actuators :

- anti-corrosion primary coating (cataphoresis), thickness 15–25 μm .
- anti-corrosion finition touch by bituminous epoxy paint, thickness 80–100 μm , colour black.
This protection has been tested in our laboratories for use in saline fog, according to NFX 41-002 standard.

Other protections :

On request, other coatings can be made in accordance with customer specifications. Please consult us.

Version suited for immersion in refined petroleum products: "clean oils": please consult us.

Characteristics of the cataphoresis primer

The cataphoretic paint coating is obtained from an aqueous solution paint type acting as an electrolyte.

The paint particles have the ability to migrate on the part to be protected and to sediment thereon as uniform protective layers.

This EPOXY type organic coating has a thickness in the range of 15 to 25 μm and ensures excellent corrosion resistance with:

- Excellent chemical inertness and outstanding corrosion resistance (neutral salt spray test per NFX 41-002),
- Good solvent resistance, good insulation resistance,
- Good mechanical properties,...

This flexible coating can withstand scratches and impacts.

Oil characteristics

Mineral oil, biodegradable and non-flammable (HFA - HFB - HFC).

Viscosity: 10 cst (mm^2/sec) to 100 cst (mm^2/sec).

Cleanliness class: class 9 according to NAS 1638, equivalent to class 18/15 in accordance with ISO 4408 standard. Filtration is recommended.

Variant: Hydraulic fluid type HFD: Please, consult us.

Hydraulic connections

Standard version: direct connection

The oil connection is done directly onto the housing:

- ACTO 25 to 200: by means of two 1/4" Gas threaded ports,
- ACTO 400 to 1600: by means of two " Gas threaded ports.
- ACTO 3200 to 12500: by means of two 1/2" Gas threaded ports.

Caution : In this case, the position holding of the actuator is achieved by the oil pressure holding. If the piloting accessories cannot ensure this function, the use of a distribution plate with piloted check valves (BSP) is recommended. See below.

Optional version with distribution plate: ACTO 25 to 1600 application

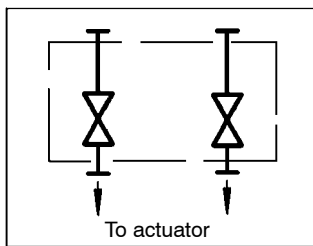
The oil connection is done by means of an hydraulic distribution box:

- ACTO 25 to 200: fitted directly onto the housing,
- ACTO 400 to 1600: fitted on a distribution bar.

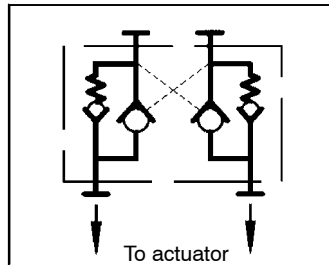
The oil connection on the hydraulic box is via two 1/4" Gas threaded ports.

Four distribution boxes are available, according to the diagrams below.

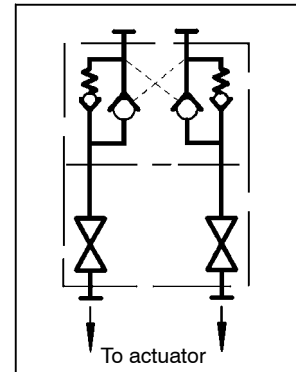
Distribution plate with isolating valves (RI)



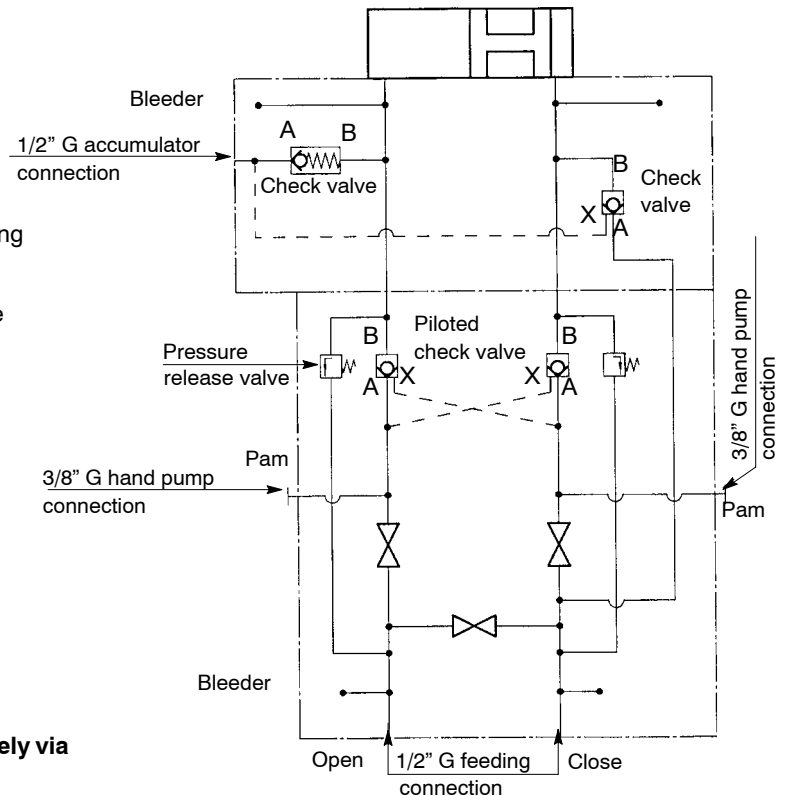
Distribution plate with piloted check valves (BSP)



Distribution plate with isolating valves and piloted check valves (RI + BSP)



"ESD" block ("Emergency shut Down")



This block allows the emergency control in closing for the valve thanks to an oil accumulator under pressure. In order to be effective, ESD control must not be enabled during opening operation.

Note: In all cases, control is performed remotely via an hydraulic power pack.

Hydraulic connection

Version with control via AMTRONIC PowerPack: ACTO 25 to 800 application

The micro-power pack system is fitted directly onto the actuator with direct hydraulic connections.

This system includes:

- A hydraulic pump driven by an electrical motor,
- An oil tank,
- Open/close detection and position feedback,
- Integrated System to control the electrical motor and monitor position,
- Communication via fieldbus (Option).

The hydraulic actuator fitted with the AMTRONIC PowerPack system doesn't need to be connected to a central PowerPack.

AMTRONIC PowerPack system may be used remotely. In such a case it is connected to the hydraulic actuator by means of tubes.

Consult Type series booklet AMTRONIC PowerPack ref. 8535.1-10

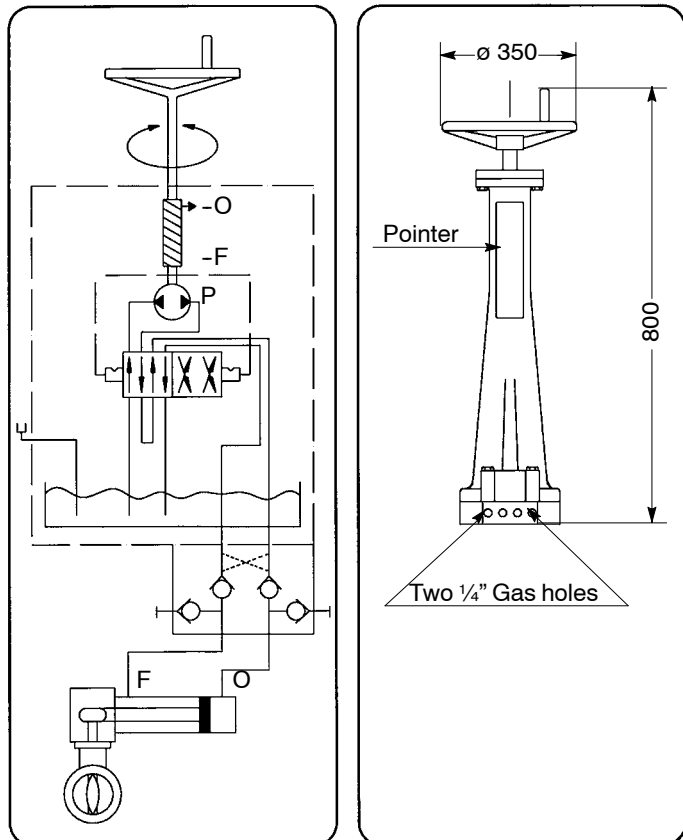


Version with remote actuation via a hydrostatic control: ACTO 25 to 12500 application

Manual remote control via a hydraulic system composed of:

- Deck stand with handwheel and actuating screw,
- Pump and hydraulic distributor,
- The deck stand also functions as the hydraulic fluid tank.

The hydraulic connections to the actuator are by means of flexible or rigid tubes.



Indication function: ACTO 25 to 12500 application

Limit switch box AMTROBOX-R

This limit switch box is made of cast iron with a suitable corrosion resistant coating.

Open/close detection and position feedback:

- On/off position detection by means of microswitches or inductive proximity detectors (1/O, 1/C, 1 on intermediate position on request).
- Proportional distribution for resistive angular position sensor, (voltage or 4-20 mA pilot).

Enclosure protection: IP 67

Options:

- Intrinsically safe version EEx-ia IICT6
- Visual indication of valve position by flag.

Consult Type series booklets ref. 8524.11-10 and 8525.11-10.



Explosion-proof limit switch box type EEx-d

Protection box: EEx-dIIBT6

Consult Type series booklet ref. 8526.11-10



Options for manual override

Dec clutchable manual override: ACTO 25 to 1600 application

The manual override using a declutchable gear box may be fitted between the valve mounting plate and the actuator. This manual override will override with the pneumatic actuator and can be set in clutched or declutched positions. This device is based on worm wheel and screw kinematics.

In this case, the hydraulic actuator is always fitted with a bypass system allowing the communication of the 2 chambers and the safe use of the disengageable control.

Please consult us.

Note: The manual override should only be used under the following recommendations:

- **absence of air pressure in the actuator,**
 - **Leakage to air free of all the cylinders of the actuator.**
- The manual override should not be declutched when pressure is in the actuator.**

Construction:

- Housing, cover and extension in JL 1040 grey cast iron,
- Handwheel in welded iron,
- Screw in steel,
- Worm in JS 1030 spheroidal graphite cast iron,
- Drive shaft, clutch lever, locking pointer, adjustable mechanical travel stops (+/-5°) and external bolting in stainless steel.

Protection :

They are hose and fine dust proof (protection degree: IP 65).
 Construction for protection degree IP 67 on request: please, consult us.

External coating:

Polyurethane paint (colour dark grey RAL 7016, 80 µm thickness).

Working temperature range:

From -20° C to +80° C.

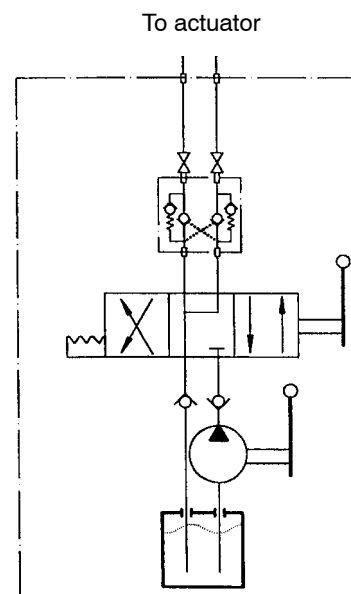
Consult Type series booklet ref 5350.1-10



Emergency control by hydraulic hand pump ACTO 25 to 12500 application

Emergency control system using a hand pump and manual control hydraulic distributor.

This control may be fixed or portable.



This leaflet is not contractual and may be amended without notice.

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