



**Single acting hydraulic actuators with
gas cartridge (Nitrogen)**

**ENNACTO 200 to 1600:
scotch-yoke kinematic**

**ENNACTO 3200 to 12500:
Rod and crank kinematic**

Output torques up to 125 000 Nm

CE

amri

KSB 

General features

Designed for the operation of ¼ turn valves (butterfly valves, ball valves, ...), the ENNACTO series of single acting hydraulic actuators with gas cartridge (Nitrogen) develop output torques up to 125 000 Nm.

The production range consist of 7 units:

- ENNACTO 200, ENNACTO 400, ENNACTO 800 and ENNACTO 1600, based on scotch-yoke kinematics,
- ENNACTO 3200 , ENNACTO 6400 and ENNACTO 12500, based on rod and crank kinematics.

The energy accumulator is a compressed gas cartridge (Nitrogen).

In the standard version, these actuators are hose and fine dust proof and are protected against accidental effects immersion (protection degree equivalent to IP 67).

They are equipped in standard version with a visual pointer.

Option: IP 68 construction for immersion under 30-meter water column.

This range of single-acting hydraulic actuators is completed by the ACTO range of dual-acting hydraulic actuators and the DYNACTO range of spring return hydraulic actuators.

Consult the type series booklets for ACTO 25 to 1600 ref. 8506.1-10 and DYNACTO 12 to 400 ref. 8556.11-10.

Working temperature range:

ENNACTO 200, 400, 800 and 1600

- Standard: from -10° C to + 65° C,
- Option: from -20° C to + 65° C: Please, consult us.

ENNACTO 3200, 6400 and 12500

- Standard: from -10° C to + 45° C,
- Option: from -10° C to + 65° C: please, consult us.

Adaptation on valves

These actuators are fitted with a mounting plate ISO 5211 standard, and they can be mounted directly onto any valve according this standard. They can also be mounted onto any other type of ¼ turn valve by means of an adapter. 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			
		Driving by square	Driving by flat	Driving by key	Height
ENNACTO 200	F16	60	55	Please, consult us	80
ENNACTO 400	F16 and F25	70	75		95
ENNACTO 800	F25 and F30	90	85		110
ENNACTO1600	F25 and F30	90	85		110
ENNACTO 3200	F35	130	-		180
ENNACTO 6400	F40	160	-		200
ENNACTO 12500	F48	160	-		250

* Direct adaptation onto identical mounting plate.

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

CE marking

The complete inert gas (nitrogen) cartridge unit and its assembly onto the actuator assembly meet the safety requirements of the pressure Equipments Directive 97/23/EC (PED) appendix.

As such the gas cartridge bears the CE marking.

ATEX variant

T4 temperature class in accordance with the 94/9/EC directive: Please, consult us.

Output torques

Output torques (in Nm) as a function of control fluid pressure and safety function.

In order to ensure the safety function (closing or opening) in case of missing control fluid, the single-acting actuators ENNACTO Type are fitted with an energy accumulator in the form of a factory-pressurized nitrogen gas cartridge.

The energy accumulator inflation pressure is determined in accordance with the available control fluid pressure.

In the standard version, the nitrogen gas cartridge is fitted with a pressure gauge + inflation nipple subunit allowing:

- permanent monitoring of the nitrogen gas cartridge inflation pressure,
- new pressurization of the gas cartridge as required.

The torque values shown below are calculated at 15 °C

ENNACTO	Output torque delivered by energy accumulator (gas/ Nitrogen cartridge)		Output torque during compression phase of energy accumulator versus control fluid supply pressure						Chamber capacity in cm ³
			60 bar (oil)		90 bar (oil)		120 bar (oil)		
Closing function									
	Start (90°)	End (0°)	Start (0°)	End (90°)	Start (0°)	End (90°)	Start (0°)	End (90°)	
200	800	1360	1260	610	-	-	-	-	964,6
	800	2000	-	-	1930	800	-	-	
	800	2450	-	-	-	-	2760	800	
400	1600	2800	2760	1335	-	-	-	-	2037,4
	1600	4200	-	-	4140	1600	-	-	
	1600	5400	-	-	-	-	5690	1600	
800	3200	6300	5340	2540	-	-	-	-	4246,5
	3200	8930	-	-	8470	3200	-	-	
	3200	11560	-	-	-	-	11610	3200	
1600	3200	9980	9210	3200	-	-	-	-	7023,0
	3200	14710	-	-	14050	3200	-	-	
	3200	16000	-	-	-	-	17820	3200	
3200	15110	25810	22770	4710	-	-	-	-	10178,0
	21820	37270	-	-	35920	8100	-	-	
	27690	47310	-	-	-	-	50850	12530	
6400	22700	37780	35300	7010	-	-	-	-	15268,0
	34050	56670	-	-	52960	10520	-	-	
	41620	69260	-	-	-	-	78390	18700	
12500	49190	81850	76570	15220	-	-	-	-	31855,0
	68110	113330	-	-	126510	29840	-	-	
	68110	113330	-	-	-	-	215330	67810	
Opening function									
	Start (0°)	End (90°)	Start (90°)	End (0°)	Start (90°)	End (0°)	Start (90°)	End (0°)	
200	1370	700	800	1250	-	-	-	-	964,6
	2050	800	-	-	800	1880	-	-	
	2620	800	-	-	-	-	800	2610	
400	2800	1412	1600	2750	-	-	-	-	2037,4
	4340	1600	-	-	1600	4010	-	-	
	5610	1600	-	-	-	-	1600	5500	
800	5900	3034	3200	5690	-	-	-	-	4246,5
	9180	3200	-	-	3200	8250	-	-	
	11800	3200	-	-	-	-	3200	11390	
1600	9830	3200	3200	9340	-	-	-	-	7023,0
	14430	3200	-	-	3200	14310	-	-	
	19670	3200	-	-	-	-	3200	18690	
3200	25800	7870	13650	22770	-	-	-	-	10178,0
	36850	11240	-	-	21170	36450	-	-	
	49760	15170	-	-	-	-	27990	47840	
6400	38600	11410	20950	34290	-	-	-	-	15268,0
	55140	16300	-	-	32440	54850	-	-	
	74430	22000	-	-	-	-	42910	72000	
12500	79950	23630	46770	78920	-	-	-	-	31855,0
	121310	35860	-	-	69650	116670	-	-	
	148880	44010	-	-	-	-	97560	171450	

The maximum oil pressure should not exceed 160 bar.

The hydraulic cylinder is equipped with a device including adjustable travel stops and purging.

Operation

ENNACTO 200 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.

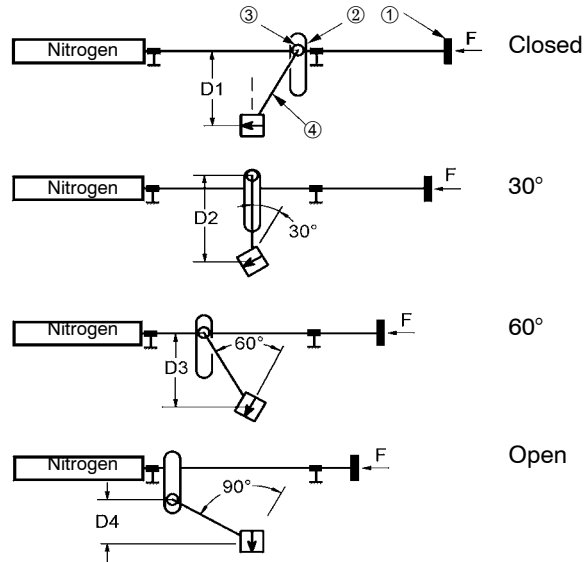
The movement transmission is achieved by means of the piston system ①, the slide operating nut ②, the rolling pad ③ and the yoke ④.

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 2 slides of the operating nut ② and allows the rotation of the yoke ④ integral with the valve shaft.

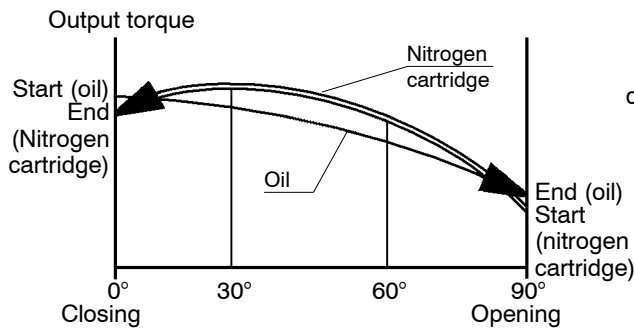
The control fluid pressure ensures at once the valve operation and the compression of the gas/nitrogen cartridge.

The gas/nitrogen cartridge reset the valve in safety position when the pressure is cut-off.

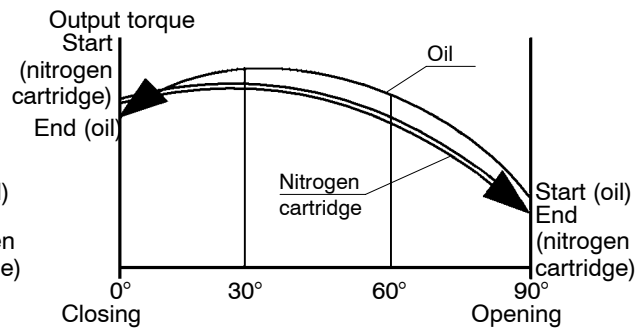


Curve of the yoke and slides kinematics

Closing by lack of control fluid



Opening by lack of control fluid

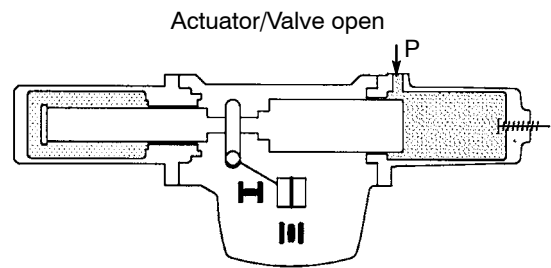
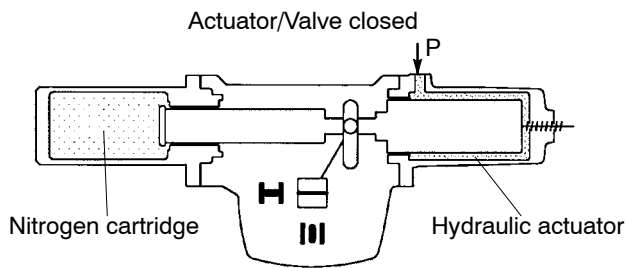


During the operation under control fluid pressure, the holding in position is only achieved by the pressure in the chambers.

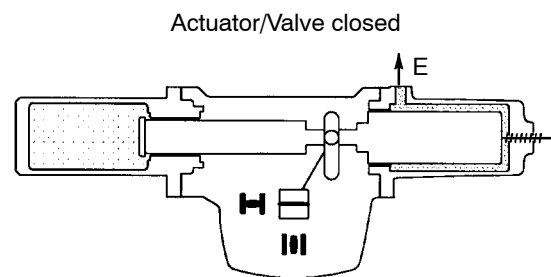
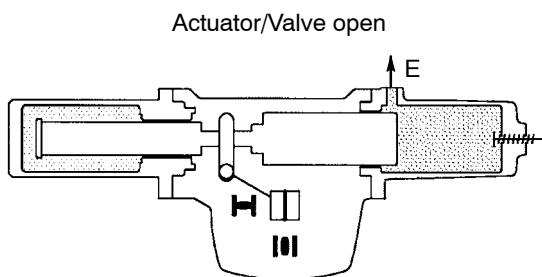
ENNACTO 200 to 1600

Version with closing upon missing oil pressure

Opening by control oil pressure

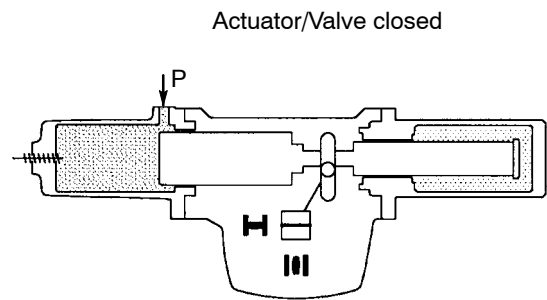
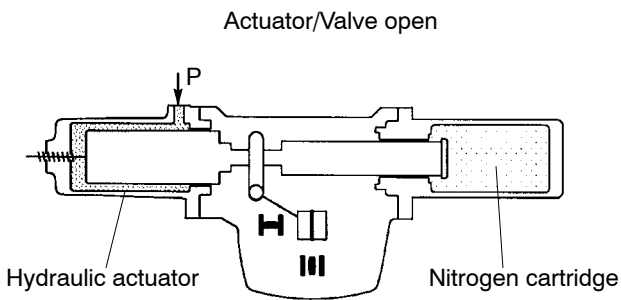


Closing operation with nitrogen cartridge

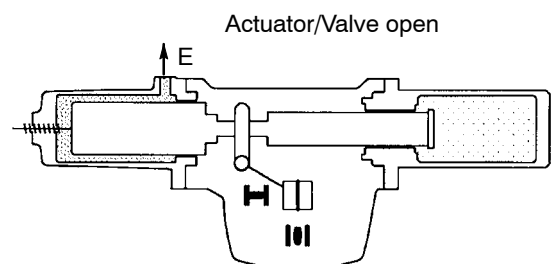
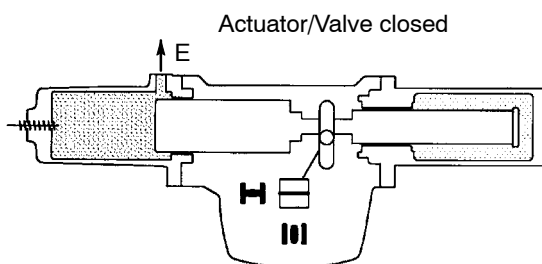


Version with opening upon missing oil pressure

Closing by control oil pressure



Opening operation with nitrogen cartridge



ENNACTO 3200 to 12500: Rod and crank kinematics

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

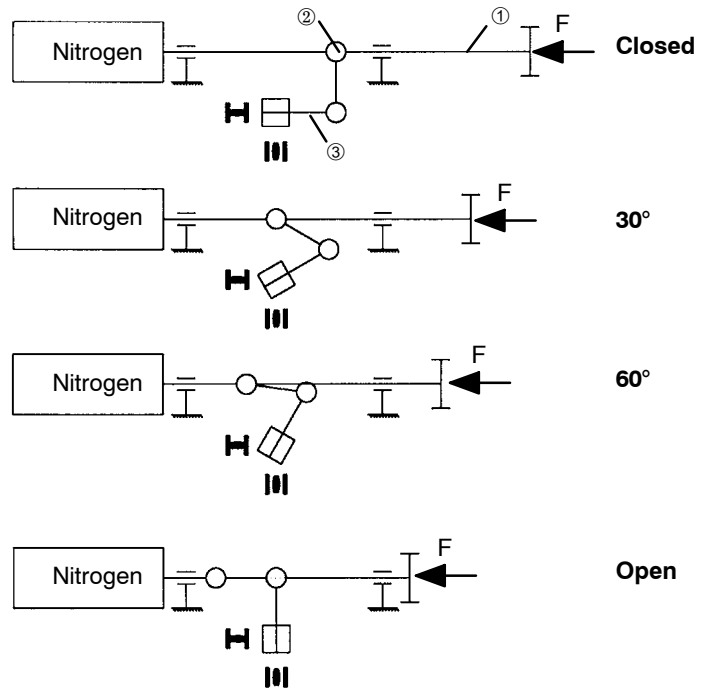
The translation of hydraulic actuator ① causes the translation of arm ②.

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.

The control fluid pressure ensures at once the valve operation and the compression of the restoring system (nitrogen gas cartridge).

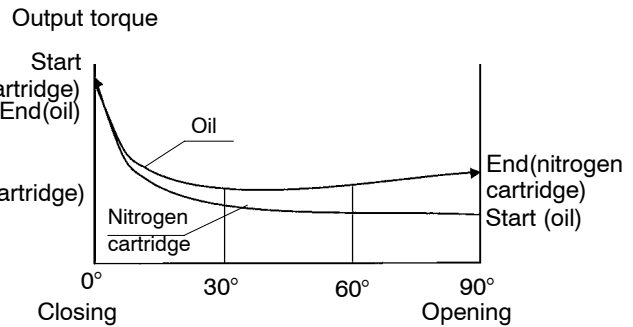
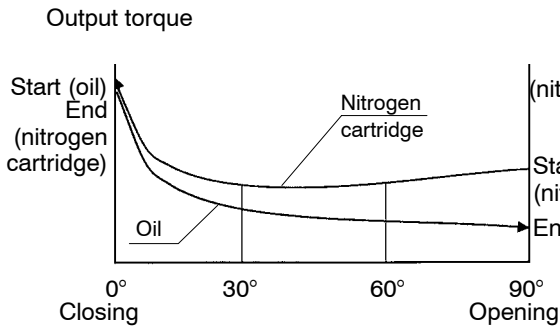
The nitrogen gas cartridge reset the valve in safety position when the pressure is cut-off.



Curve of the rod and crank kinematics

Closing by lack of control fluid

Opening by lack of control fluid

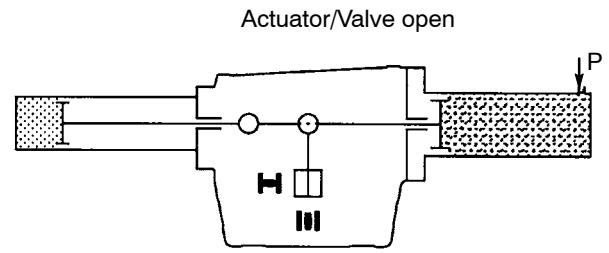
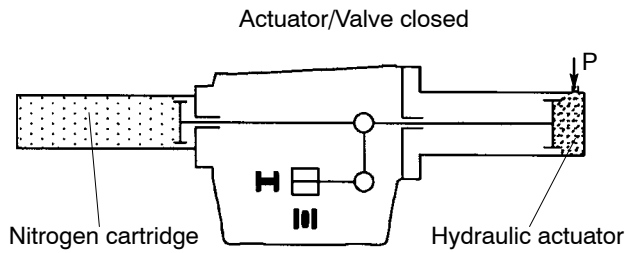


During the operation under control fluid pressure, the holding in position is only achieved by the pressure in the chambers.

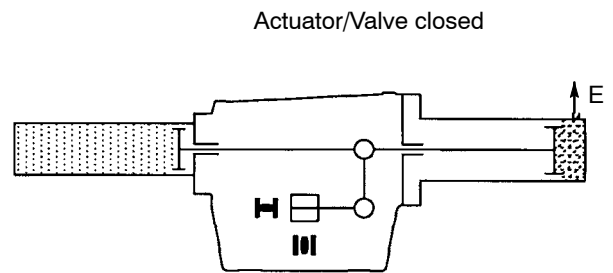
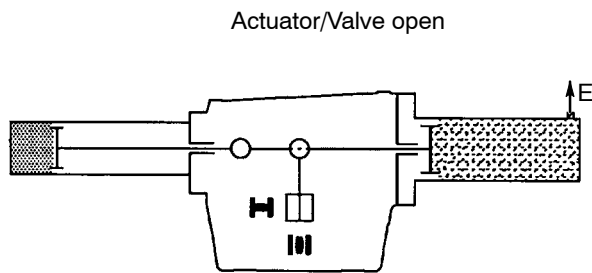
ENNACTO 3200 to 12500

Version with closing upon missing oil pressure

Opening by control oil pressure

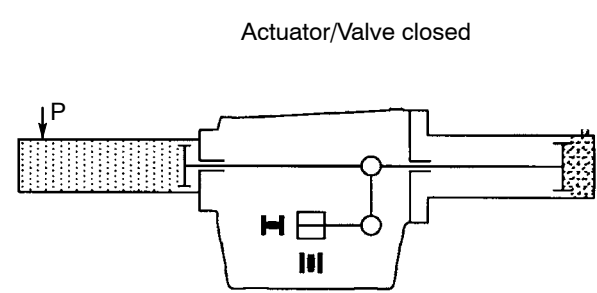
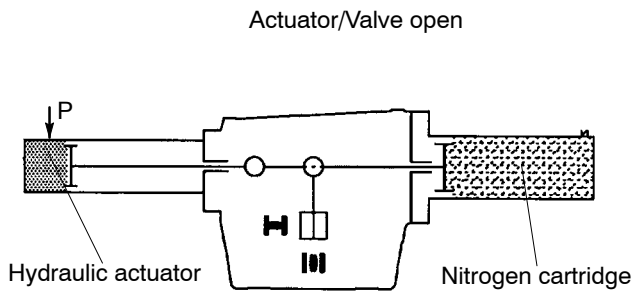


Closing operation with nitrogen cartridge

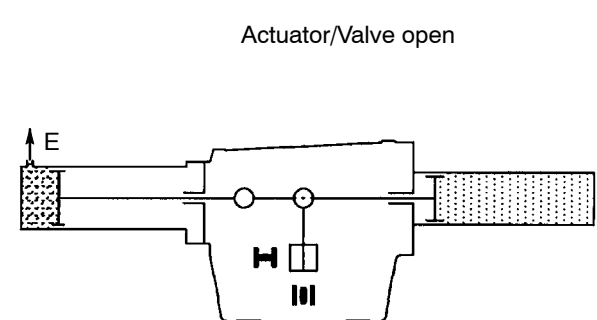
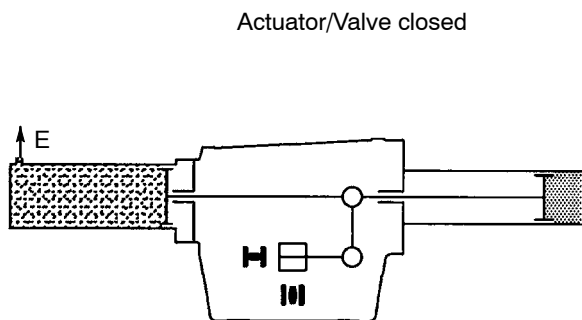


Version with opening upon missing oil pressure

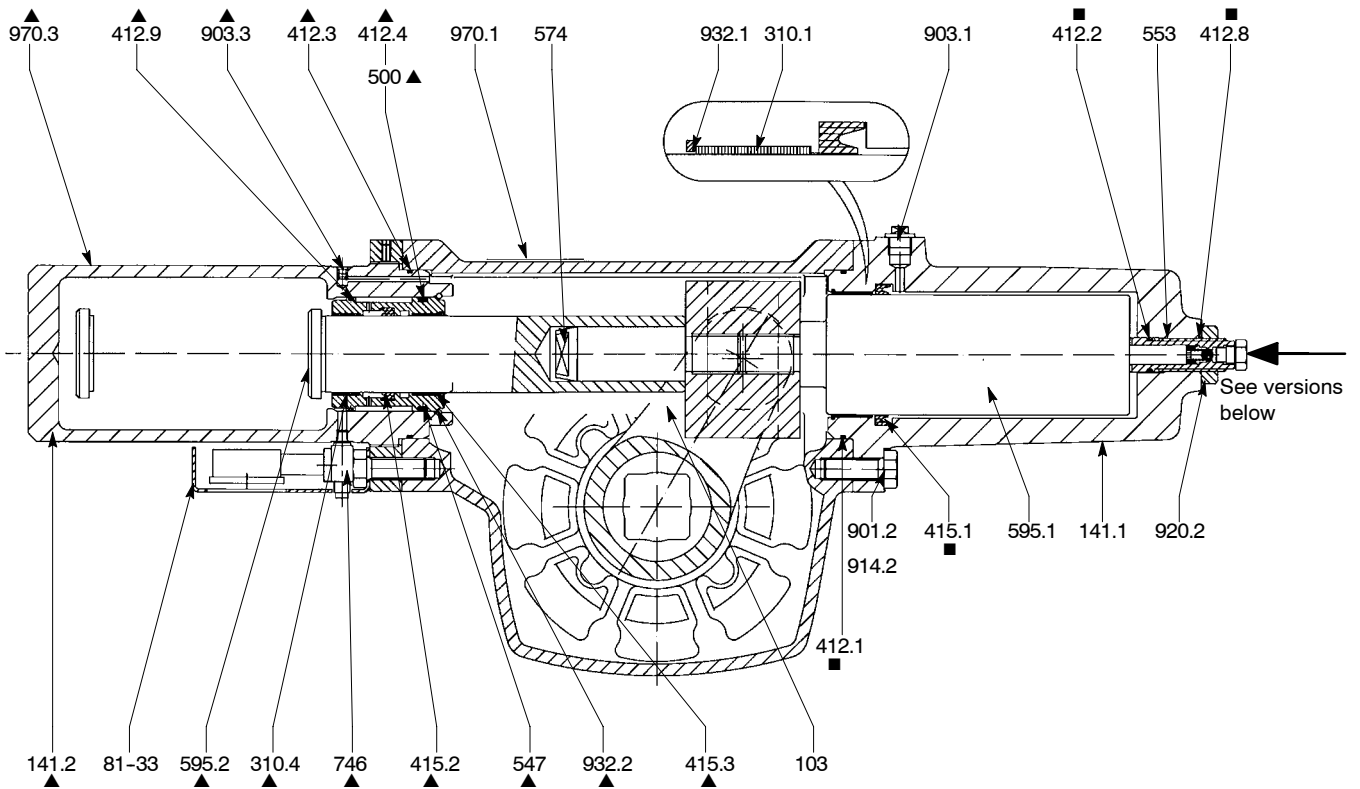
Closing by control oil pressure



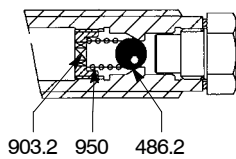
Opening operation with nitrogen cartridge



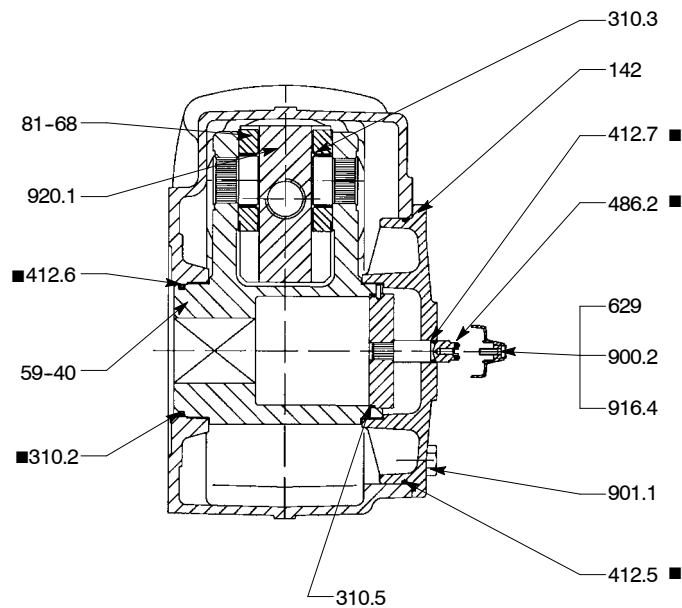
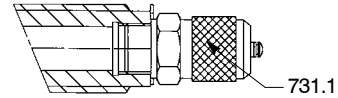
ENNACTO 200 to 1600 – Construction



Version with ball check valve



Version with quick coupling



■ Parts included in the spare parts N° 1

■ + ▲ Parts included in the spare parts N° 2

Note: The nitrogen gas cartridge subunit is supplied fully assembled (parts marked with ▲). Do not dismantle this assembly.

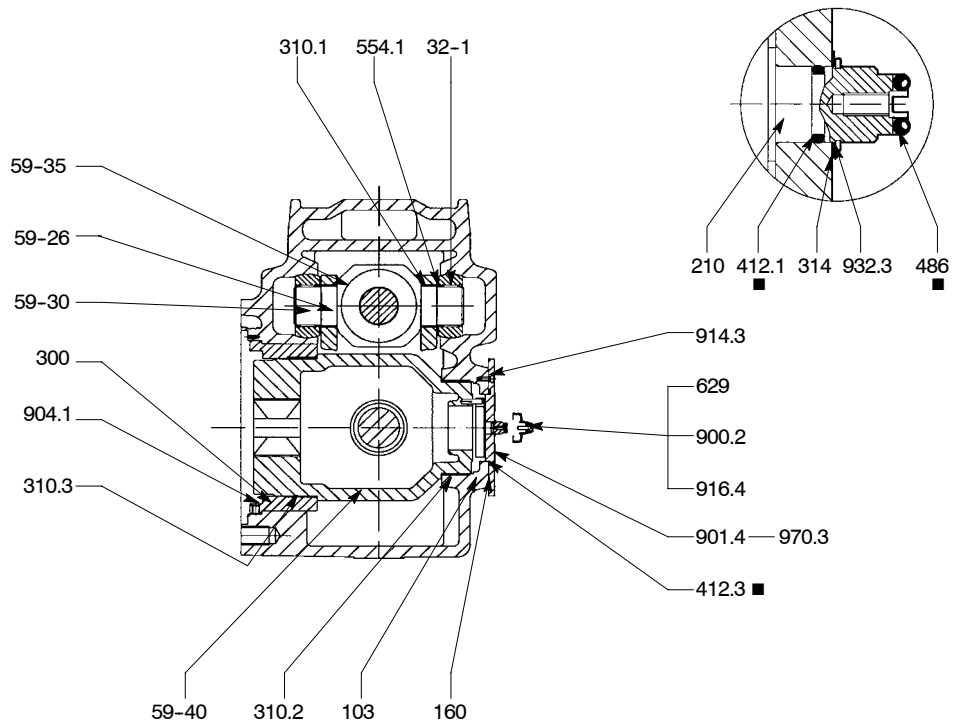
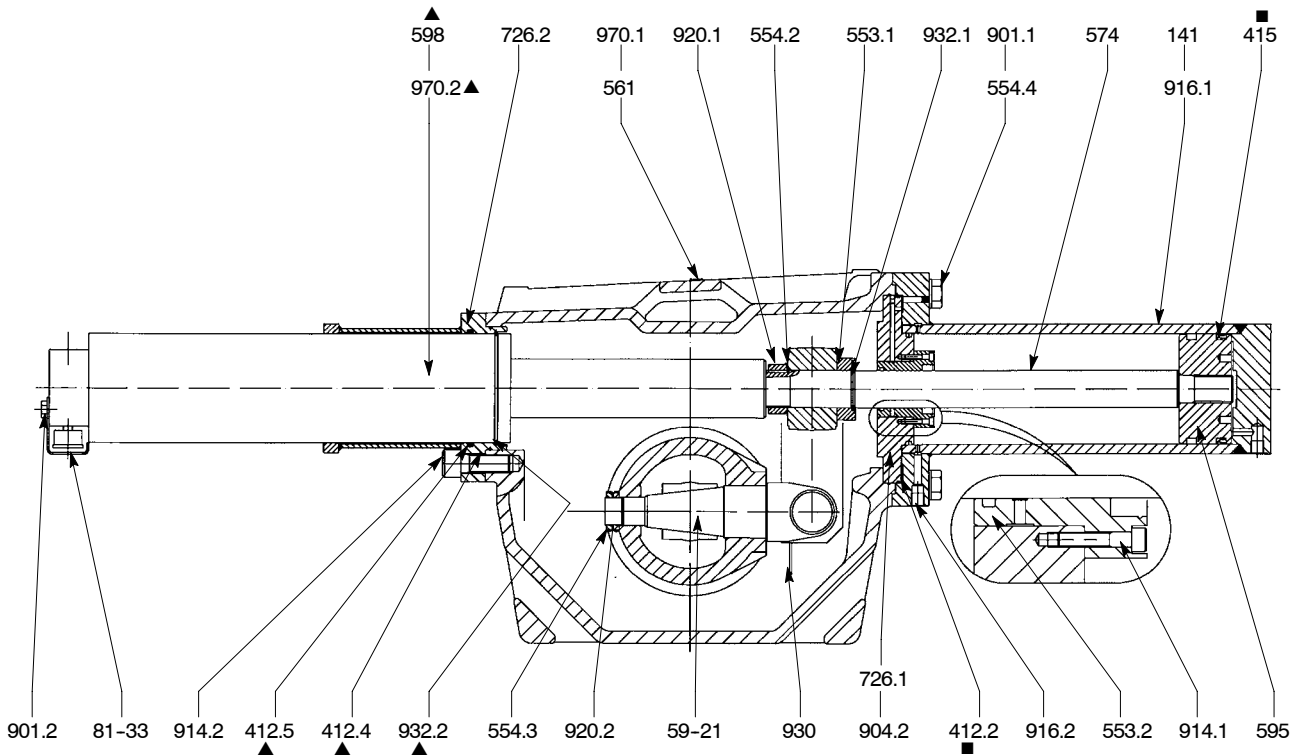
ENNACTO 200 to 1600 – Construction

Item	Designation	Materials
103	Housing	JS 1030 ductile iron
141.1	Cylinder	ASTM A536 gr.60-40-18 ductile iron
141.2 ▲	Cylinder	ASTM A536 gr.60-40-18 ductile iron
142	Cover	JS 1030 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
310.4 ▲	Self-lubricating bearing	Stainless steel + PTFE
310.5	Self-lubricating bearing	Stainless steel + PTFE
412.1	O-Ring	Nitrile
412.2 ■	O-Ring	Nitrile
412.3 ▲	O-Ring	Nitrile
412.4 ▲	O-Ring	Nitrile
412.5 ■	O-Ring	Nitrile
412.6 ■	O-Ring	Nitrile
412.7 ■	O-Ring	Nitrile
412.8 ■	O-Ring	Nitrile
412.9 ▲	O-Ring	Nitrile
415.1 ■	Leap seal ring	Nitrile
415.2 ▲	Leap seal ring	Nitrile
415.3 ▲	Leap seal ring	Nitrile
486.1	Ball	Stainless steel
486.2 ■	Ball	Stainless steel
500 ▲	Ring	Phosphated steel
547 ▲	Guide bush	Phosphated steel
553	Thrust insert	Stainless steel type 316
574	Rod	Treated steel
59-40	Chuck + pointer shaft	JS 1030 ductile iron + Stainless steel
595.1	Hydraulic piston	Steel
595.2 ▲	Gas piston	Steel
629	Pointer	Polyamide 6-6 + treatment against U.V. rays
731.1	Quick coupling	Stainless steel type 316
746 ▲	Pressure gauge unit	Stainless steel
81-33	Protection sheet	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
903.1	Plug	Bronze
903.2	Plug	Bronze
903.3 ▲	Plug	Bronze
914.2	Cheese head screw only for ENNACTO 1600	Stainless steel A4
916.4	Protection plug	Polyethylene
920.1	Operating nut	JS 1060 ductile iron
920.2	Hexagon nut	Stainless steel A4
932.1	Ring	Stainless steel
932.2 ▲	Ring	Stainless steel
950	Check valve spring	Treated steel
970.1	Identity plate	Stainless steel
970.2	Position plate	Stainless steel
970.3 ▲	Safety plate	Stainless steel

■ Parts included in the spare parts N° 1

Spare parts N° 2 is composed of the parts included in spare parts N° 1 (parts marked with ■) and of the nitrogen gas cartridge subunit supplied fully assembled (parts marked with ▲).

ENNACTO 3200 – Construction



- Parts included in the spare parts N° 1
- + ▲ Parts included in the spare parts N° 2

Note: The nitrogen gas cartridge subunit is supplied fully assembled (parts marked with ▲).
Do not dismantle this assembly.

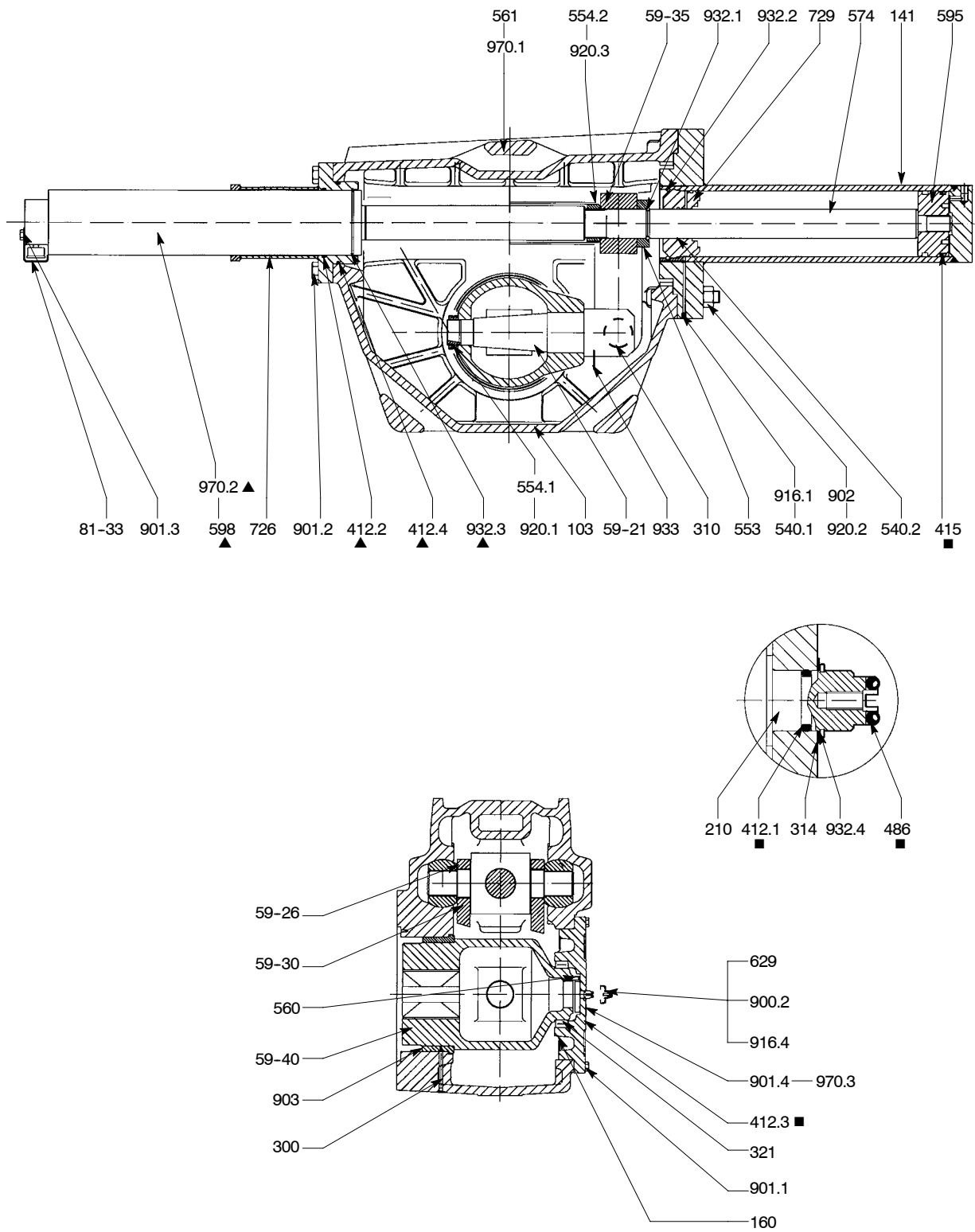
ENNACTO 3200 – Construction

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
210	Shaft	Steel
300	Bearing	Stainless steel + PTFE
310.1	Self-lubricating bearing	Stainless steel + PTFE
310.2	Self-lubricating bearing	Stainless steel + PTFE
310.3	Self-lubricating bearing	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
412.4 ▲	O-Ring	Nitrile
412.5 ▲	O-Ring	Nitrile
415 ■	Lip seal ring	Nitrile
486 ■	Ball	Stainless steel
553.1	Arm thrust insert	Phosphated steel
553.2	Opening thrust insert	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
561	Grooved nail	Stainless steel
574	Rod	Treated steel
595	Piston	Steel
598 ▲	Gas cartridge	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
726.1	Guide flange	Steel
726.2	Centering flange	Steel
81-33	Protection sheet	Stainless steel type 316
900.2	Hexagon head screw	Stainless steel A4
901.1	Hexagon head screw	Stainless steel A4
901.2	Hexagon head screw	Stainless steel A4
901.4	Hexagon head screw	Stainless steel A4
904.1	Socket screw	Steel
904.2	Socket screw	Steel
914.1	Hexagon socket head cap screw	Steel
914.2	Hexagon socket head cap screw	Stainless steel A4
914.3	Hexagon socket head cap screw	Stainless steel A4
916.1	Protection plug	Polyethylene
916.2	Protection plug	Polyethylene
916.4	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
932.2 ▲	Ring	Stainless steel
932.3	Ring	Stainless steel
970.1	Identity plate	Stainless steel
970.2 ▲	Safety instructions plate	Stainless steel
970.3	Position plate	Stainless steel

■ Parts included in the spare parts N° 1

Spare parts N° 2 is composed of the parts included in spare parts N° 1 (parts marked with ■) and of the nitrogen gas cartridge subunit supplied fully assembled (parts marked with ▲).

ENNACTO 6400 and 12500 – Construction



- Parts included in the spare parts N° 1
- +▲ Parts included in the spare parts N° 2

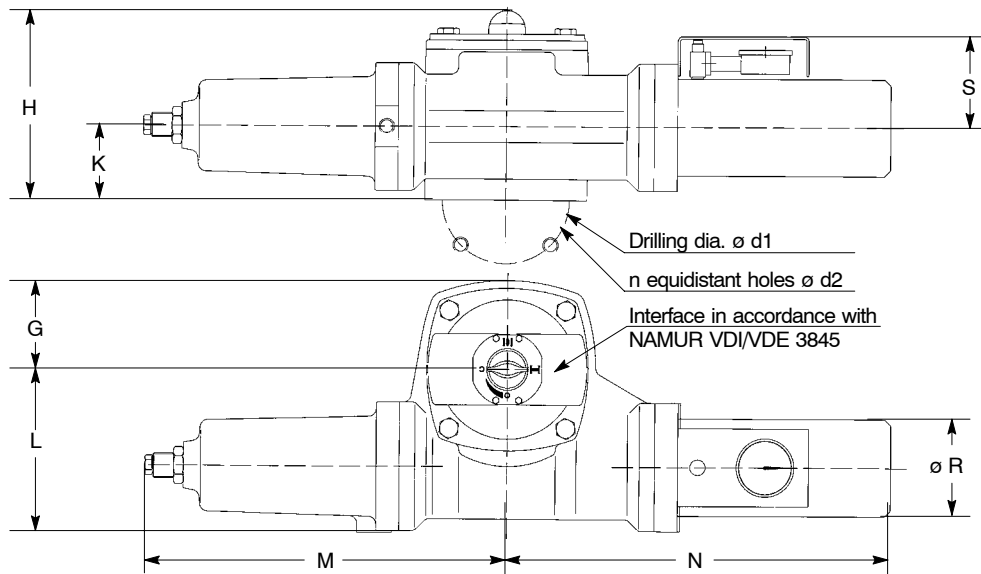
Note: The nitrogen gas cartridge subunit is supplied fully assembled (parts marked with ▲).
Do not dismantle this assembly.

ENNACTO 6400 and 12500 – Construction

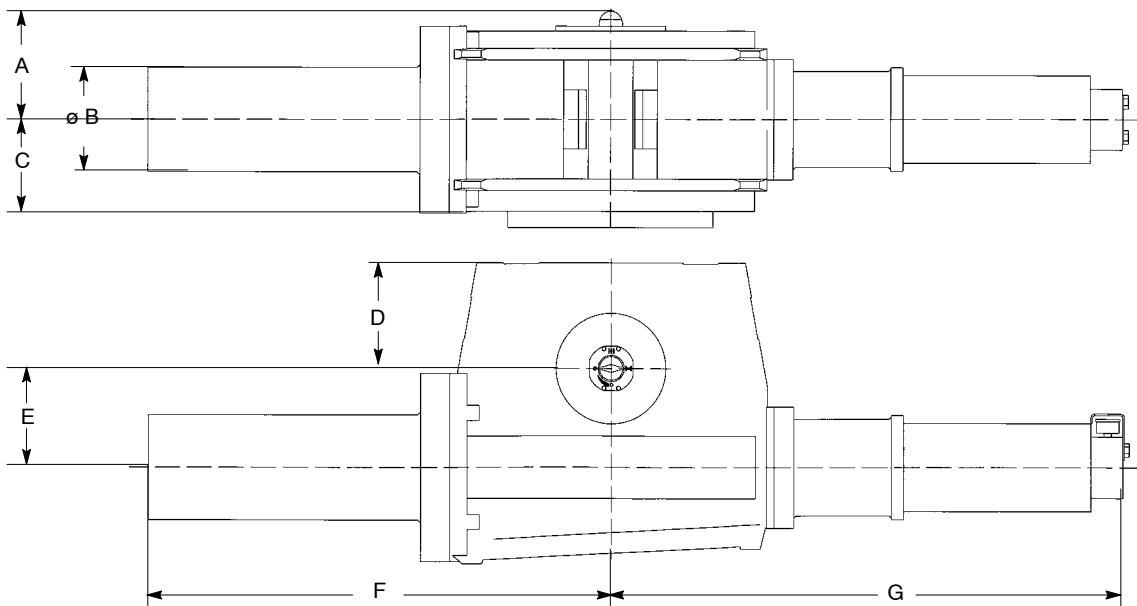
Item	Designation	Materials
103	Housing	JS 1030 ductile iron
141	Cylinder	ASTM A536 gr.60-40-18 ductile iron
160	Cover	ASTM A536 gr.60-40-18 ductile iron
210	Shaft	Bronze
300	Bearing	Bronze
310	Self-lubricating bearing	Stainless steel + PTFE
314	Thrust bearing	Stainless steel type 304
321	Ball bearing	Treated steel
412.1 ■	O-Ring	Nitrile
412.2 ▲	O-Ring	Nitrile
412.3 ■	O-Ring	Nitrile
412.4 ▲	O-Ring	Nitrile
415 ■	Leap seal ring	Nitrile
486 ■	Ball	Stainless steel
540.1	Bush	Phosphated steel
540.2	Bush	Phosphated steel
553	Thrust insert	Stainless steel type 316
554.1	Washer	Steel
554.2	Washer	Steel
560	Grooved pin	Stainless steel
561	Grooved nail	Stainless steel
574	Rod	Treated steel
595	Piston	JS 1030 ductile iron
598 ▲	Gas cartridge	Steel
59-21	Fork	Steel
59-26	Connection rod	Phosphated steel
59-30	Roller	Steel
59-35	Arm	Steel
59-40	Chuck	JS 1030 ductile iron + Stainless steel
629	Pointer **	Polyamide 6-6 + treatment against U.V. rays
726	Guide flange	Steel
729	Flange	Steel
81-33	Protection sheet	Stainless steel type 316
900.2	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
902	Stud	Stainless steel
903	Threaded plug	Stainless steel
916.1	Protection plug	Polyethylene
916.4	Protection plug	Polyethylene
920.1	Hexagon nut	JS 1060 ductile iron
920.2	Hexagon nut	Stainless steel A4
920.3	Nut	Steel
932.1	Ring	Stainless steel
932.2	Ring	Stainless steel
932.3 ▲	Ring (cartridge)	Stainless steel
932.4	Spring retaining ring	Steel
933	Pin	Steel
970.1	Identity plate	Stainless steel
970.2 ▲	Position plate	Stainless steel
970.3	Safety plate	Stainless steel

■ Parts included in the spare parts N° 1

Spare parts N° 2 is composed of the parts included in spare parts N° 1 (parts marked with ■) and of the nitrogen gas cartridge subunit supplied fully assembled (parts marked with ▲).

Dimensions (mm) and weight (kg)
ENNACTO 200 to 1600


Type	G	H	K	L	M	N	Ø R	S	ISO 5211 Interface				Weight
									réf.	Ø d1	Ø d2	n	
ENNACTO 200	115,0	246	95,0	210,0	471,0	499,0	125	118	F16	165	M20	4	105
ENNACTO 400	154,5	280	108,5	248,0	525,0	580,5	162	135	F16	165	M20	4	170
									F25	254	M16	8	
ENNACTO 800	180,0	330	130,0	320,0	653,0	771,0	230,0	170,0	F25	254	M16	8	340
									F30	298	M20	8	
ENNACTO 1600	180,0	339	130,0	320,0	693,5	771,0	230,0	170,0	F25	254	M16	8	375
									F30	298	M20	8	

ENNACTO 3200 to 12500


Type	A	Ø B	C	D	E	F	G	Ø H	ISO 5211 Interface				Weight
									réf.	Ø d1	Ø d2	n	
ENNACTO 3200	220	212	220	215	200	949	1061	210	F35	356	M30	8	640
ENNACTO 6400	266	212	280	275	300	1272	1346	210	F40	406	M36	8	1360
ENNACTO 12500	Consult us												

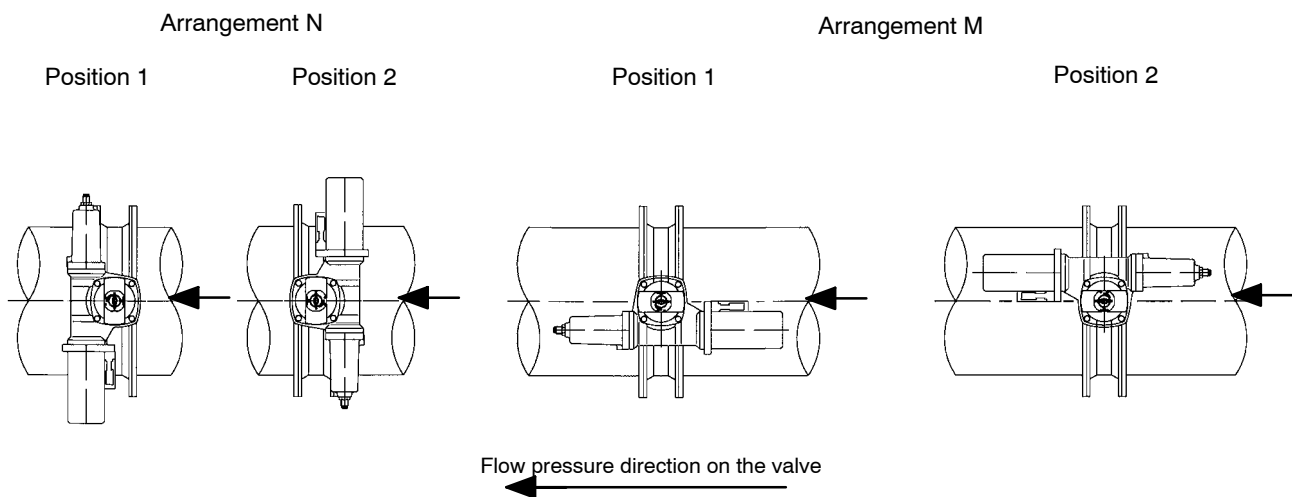
Mounting on valves

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

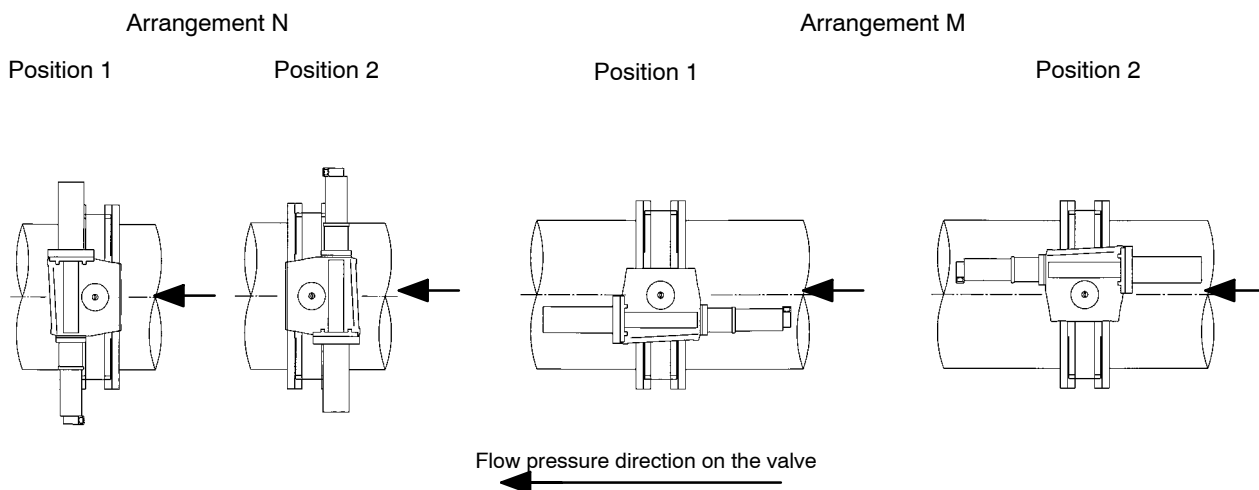
When the actuator is supplied on a valve and unless otherwise stated on the order, the actuator is mounted according to the arrangement N position 1.

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

ENNACTO 400 to 1600



ENNACTO 3200 to 12500



Device adjustable travel stops, purging and hand pump connection

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

- mechanical adjustable travel stop on open and closed positions. The adjustment range is $\pm 2,5^\circ$.
- This travel stop are factory adjusted during the fitting of the actuator on the valve,
- purging of the cylinder chamber,
- connection of an emergency control by hydraulic hand pump.

2 versions are available for the draining and hydraulic hand pump connection functions (see pages 9 and 10):

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

External coating - Protection

Standard protection:

- anti-corrosion primary coating (cataphoresis), thickness 20–25 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 20–25 μm .
- anti-corrosion finish 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.

Characteristics of cataphoretic 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 10 to 20 μm and ensures excellent corrosion resistance with:

- Excellent chemical inertness and outstanding corrosion resistance (neutral salt spray test per NFX 41002),
- Good solvent resistance, good insulation resistance,
- Good mechanical properties,...

This flexible coating can withstand scratches and impacts.

The cataphoretic paint coating is obtained from an aqueous solution paint that behaves as an electrolyte.

The paint particles are able to migrate on the part to be protected and to sediment thereon in uniform protective layers.

Other protections :

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

Version adapted for an immersion in the refined petroleum products: "white products": Please consult us.

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.

Hydraulic connection

Standard version: direct connection

The oil connection is done directly onto the housing by means of one 1/2 Gas threaded port.

Note: In this case, control actuator is performed remotely via an hydraulic power pack.

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, we recommende to mount an isolating valve onto the hydraulic pipe. Please, consult us..*

Version with control via AMTRONIC PowerPack: Please, consult us

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



Indication function

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 booklet ref. 8524.11-10.



Indication function

Explosion-proof limit switch box type EEx-d

Protection box: EEx-dIIBT6

Consult type series booklet ref. 8526.11-10

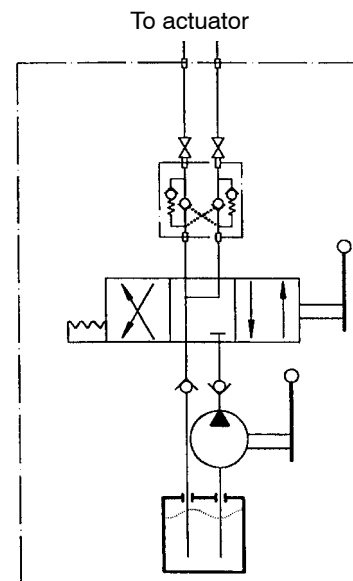


Options Manual override

Emergency control by hydraulic hand pump

Emergency control system via hand pump and manually operated hydraulic distributor.

This control system can be stationary or portable. In this case, the actuator is fitted with quick couplings for direct connection of the hydraulic hand pump.





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