



# HYDRAULIC DOUBLE ACTING LINEAR ACTUATOR

**series HD**

**SERVOVALVE spa**

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# HYDRAULIC LINEAR ACTUATOR

## DOUBLE ACTING

SERIES HD

### TECHNICAL DESCRIPTION

Servo valve actuator type HD consists of hydraulic double acting cylinders designed to operate linear valves as globe or gate valves any other valve with linear shaft motion.

In this catalogue are described standard actuators with cylinder diameter sizes up to 250 mm. For greater thrusts larger cylinder diameters can be provided and special execution can be realised on customer request.

HD actuator is designed and manufactured so as to operate in the heaviest work condition in every environment according to the international specification.

Typical features are the extremely simple and reliable construction, the special care in the components material selection in order to reduce the corrosion phenomenon.

All actuators are designed to guarantee a weather proof construction.

HD actuator can be equipped with mechanical or hydraulic manual emergency device.

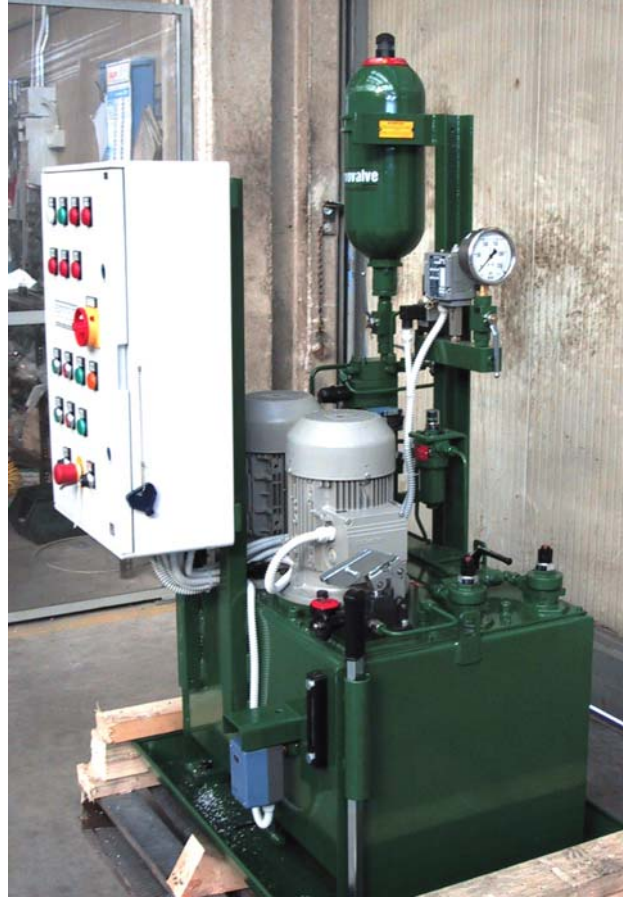
A PTFE charged slide guarantees a perfect drive and alignment of the piston under all load conditions allowing gasket seals long life.

Each execution can be supplied with electro-hydraulic equipment and device for local or remote control.



Chromium plated carbon steel shaft and PTFE charged bushings reduce the sliding friction of the actuator moving components.

Standard cylinder is realised in chromium plated carbon steel in order to prevent corrosion phenomenon and guarantee a smooth piston linear movement.



HD actuator is supplied with a standard epoxy painting surface protection, applied on shot blasted surfaces. Different coating procedures can be provided on request.

The inner parts of HD actuator are lifetime lubricated, therefore only replacement of the rubber gaskets may become necessary after a long working time.

All HD actuators are fully tested before delivery to customer for being valve assembling.

The modular elements system, with which the actuators are built, allows an easy and sure assembly and a safe and easy maintenance.

SERVOVALVE is certified by DNV and actuators are designed, manufactured and tested according to ISO EN 9001-2000 and, if requested, according to 97/23/CE directive (PED) and 94/9/CE directive (ATEX).

# HYDRAULIC LINEAR ACTUATOR

## DOUBLE ACTING

SERIES **HD**

### TECHNICAL STANDARD PERFORMANCE

- ◆ oil working pressure: 40 ÷ 220 bar
- ◆ standard design pressure: 250 bar
- ◆ oil test pressure: 1,5 working pressure
- ◆ standard temperature range: -20 ÷ +80 °C

### MEDIUM

- ◆ mineral oil
- ◆ special medium type on request
- ◆ different operating pressure on request

### EXECUTION ON REQUEST

- \* on-off or modulating execution
- \* equipped with adapter or bracket and hub for coupling to the valve
- \* equipped with adjustable mechanical stop-screws
- \* subsea or waterproof execution for marine service
- \* execution for special environmental condition
- \* execution for low temperature environmental or high temperature
- \* suitable for explosion-proof area

### OPTIONAL EQUIPMENT

- hydraulic and electric equipment (limit switches – solenoid valve – etc.)
- electro-hydraulic circuit or hydraulic power unit for remote and local control of valve
- oil accumulator and equipment for fail safe action

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SERIES **HD**

### LINEAR ACTUATOR CODE MODE

#### MODEL

**P C V**  **4 2 0 / 2 /**  **1 0 2 / 1 1 0 N**  **5 5 B P**

#### MEDIUM

- **P** air or gas
- **H** oil or other liquid

#### SPRING ACTION

- **C** close
- **A** open
- **D** double acting

#### OPTIONAL DEVICE

- **V** handwheel
- **R** reductor
- **H** hydraulic pump
- **A** damper
- **Z** hydraulic pump and damper
- **X** special execution

#### BELLEVILLE SPRING

- **T** belleville springs  
(missing for double acting or helicoidal springs)

#### CYLINDER NOMINAL SIZE

#### NUMBER OF CYLINDER

- **2** n°2 cylinders
- **3** n°3 cylinders  
(missing for n°1 cylinder)

#### TYPE OF SPRING

- spring code  
(missing for double acting or belleville springs)

#### MAX SPRING BENCH

#### TEMPERATURE RANGE

- **N** -20°/+80°
- **B** -40°/+80°
- **A** -50°/+60°
- **G** -60°/+60°
- **H** -20°/+150°
- **S** special temperature

#### CYLINDER STROKE

#### COUPLING

- **B** bracket
- **C** columns
- **U** columns with flange
- **F** flange

#### CONTROL CIRCUIT

- **P** included
- **N** not included

#### MECHANICAL END TRAVEL STOP

- **O** open position
- **C** closed position
- **D** open and closed position  
(missing for standard execution without mechanical end travel stop)

# HYDRAULIC LINEAR ACTUATOR

**DOUBLE ACTING**

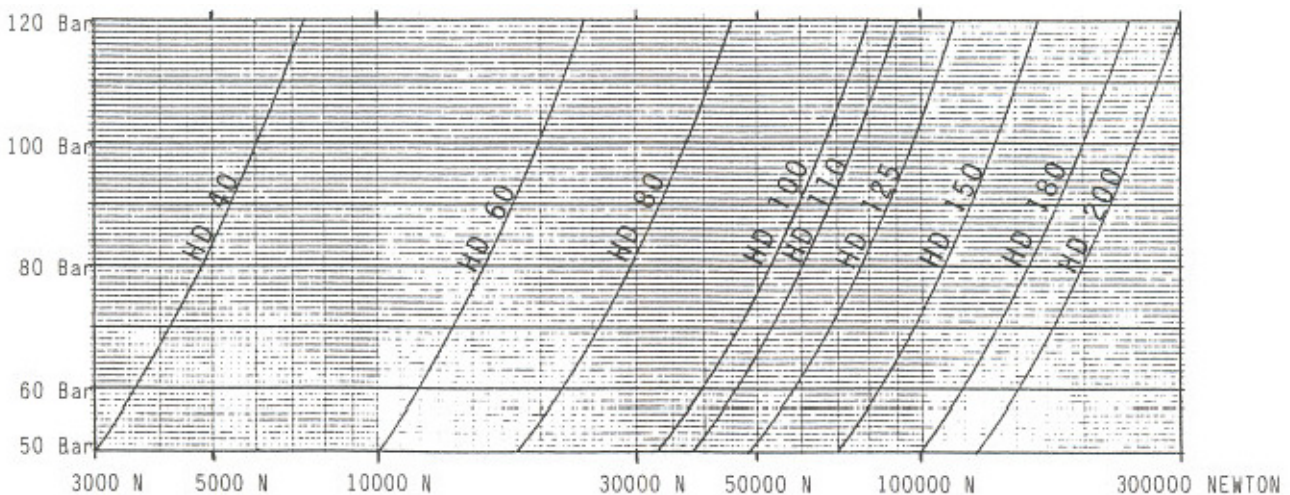
**SERIES HD**

## ACTUATORS THRUST (N)

ACTUATOR TYPE	MINIMUM OPERATING OIL PRESSURE			
	50 BAR	80 BAR	100 BAR	120 BAR
HD 40	3000	4800	6000	7200
HD 60	10000	16000	20000	24000
HD 80	18500	30000	37000	45000
HD 100	33000	53000	66000	80000
HD 110	38000	60000	75000	90000
HD 125	48000	78000	97000	115000
HD 150	70000	110000	138000	165000
HD 180	100000	160000	200000	240000
HD 200	125000	200000	250000	300000

OTHER SIZES ON REQUEST

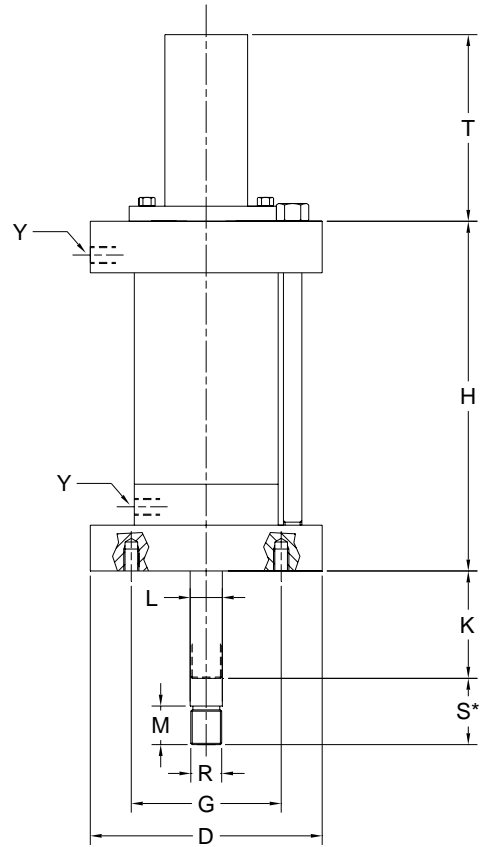
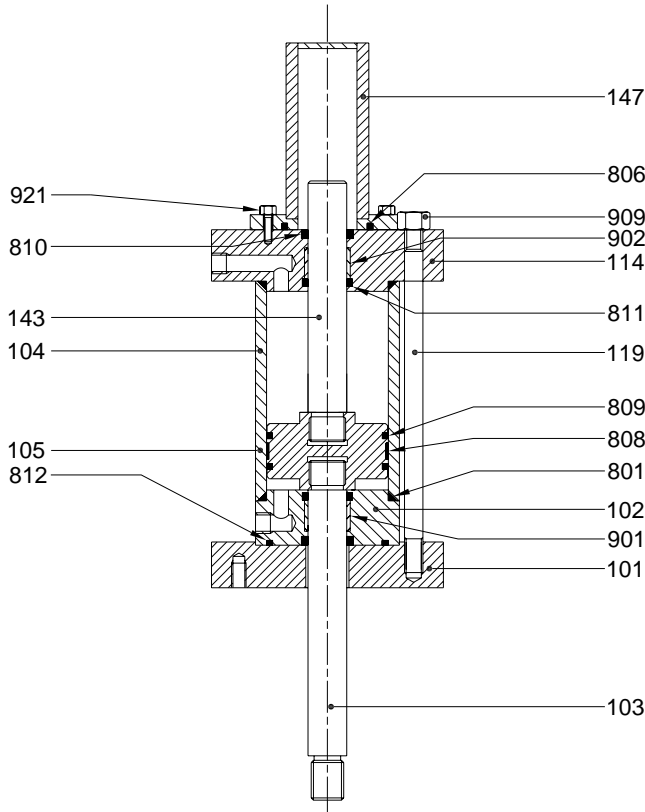
## DIAGRAM OF THRUST (N)



# HYDRAULIC LINEAR ACTUATOR

**DOUBLE ACTING**

**TYPE HD**



## OVERALL DIMENSIONS (mm)

TYPE	ØD	n° x F	Ø G	H	K	Ø L	M	R	T	Y
HD 40	130	4 x M 12	105	140+S*	60	25	30	M 24	100+S*	¼" G
HD 60	150	4 x M 12	125	140+S*	60	25	30	M 24	100+S*	¼" G
HD 80	200	4 x M 16	170	150+S*	60	30	35	M 27	100+S*	¼" G
HD 100	260	8 x M 16	220	150+S*	80	35	40	M 33	100+S*	¼" G
HD 110	260	8 x M 16	220	150+S*	80	35	40	M 33	100+S*	¼" G

S\* = CYLINDER STROKE

SINCE THE ACTUATOR ARE SPECIAL EX. DIMENSIONS ARE INDICATIVE.

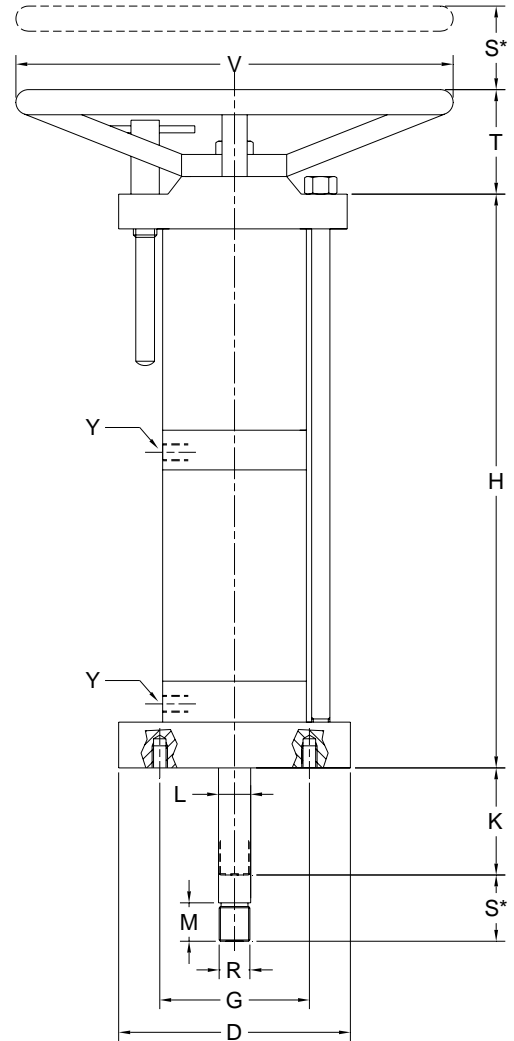
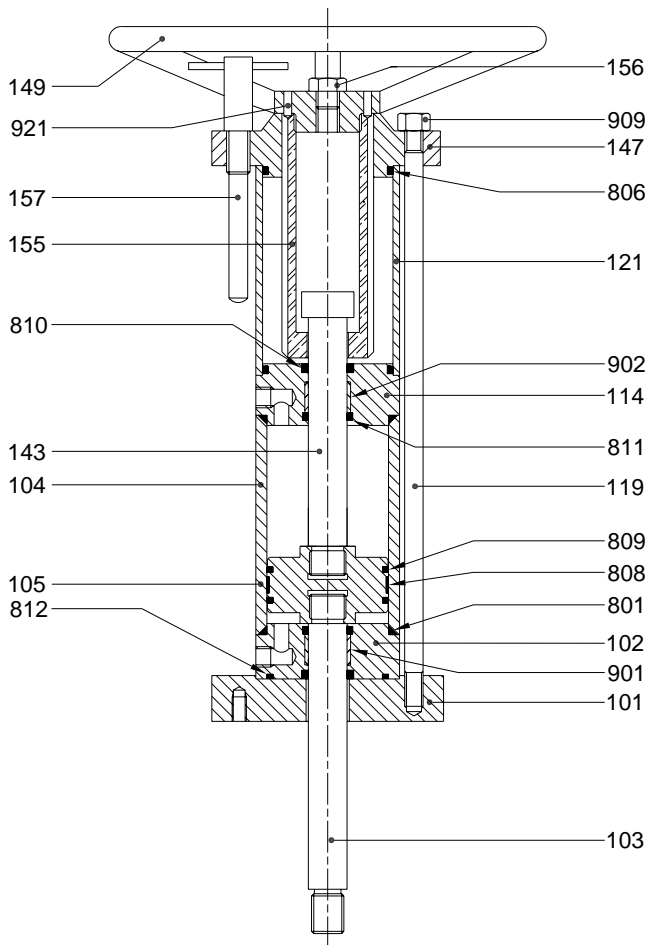
## PART LIST

POS	DESCRIPTION	MATERIAL	POS	DESCRIPTION	MATERIAL
801	O-RING	* N. B. R.	921	SCREW	8.8 EN 20898
147	COVER	S 235 JR EN 10025	909	NUT	6 EN 20898
143	SUP. SHAFT (chrom. pl. steel)	42CrMo4 EN 10083	902	BUSHING	SINTERIZED BRONZE
119	STAY BOLT	42CrMo4 EN 10269	901	BUSHING	SINTERIZED BRONZE
114	INTERMEDIATE HEAD	S275 JR EN 10025	812	O-RING	* N. B. R.
105	HYDRAULIC PISTON	S275 JR EN 10025	811	LIP GASKET	* POLYURETHANE
104	HYDRAULIC CYLINDER	E 355 EN 10297	810	WIPER RING	* N. B. R.
103	INF. SHAFT (chrom. pl. steel)	42CrMo4 EN 10083	809	PISTON GASKET	* POLYURETHANE
102	INFERIOR HEAD	S275 JR EN 10025	808	PISTON SLIDE	* PTFE+GRAPHITE
101	FLANGE	S275 JR EN 10025	806	O-RING	* N. B. R.
				SPARE PARTS	*

# HYDRAULIC LINEAR ACTUATOR

## DOUBLE ACTING

## TYPE HDV



### OVERALL DIMENSIONS (mm)

TYPE	ØD	n° x F	Ø G	H	K	Ø L	M	R	T	ØV	Y
HDV 40	130	4 x M 12	105	150+2S*	60	25	30	M 24	80	250	¼" G
HDV 60	150	4 x M 12	125	150+2S*	60	25	30	M 24	80	350	¼" G
HDV 80	200	4 x M 16	170	160+2S*	60	30	35	M 27	80	350	¼" G
HDV 100	260	8 x M 16	220	160+2S*	80	35	40	M 33	100	500	¼" G
HDV 110	260	8 x M 16	220	160+2S*	80	35	40	M 33	100	500	¼" G

S\* = CYLINDER STROKE

SINCE THE ACTUATOR ARE SPECIAL EX. DIMENSIONS ARE INDICATIVE.

### PART LIST

POS	DESCRIPTION	MATERIAL	POS	DESCRIPTION	MATERIAL
156	CAP	P.V.C.	921	DOWEL	8.8 EN 20898
155	DRIVE NUT	CAST IRON EN 1563	909	NUT	6 EN 20898
149	HANDWHEEL	CARBON STEEL	902	BUSHING	SINTERIZED BRONZE
147	SCREW THREAD	CAST IRON EN 1563	901	BUSHING	SINTERIZED BRONZE
143	SUP. SHAFT (chrom. pl. steel)	42CrMo4 EN 10083	812	O-RING	* N. B. R.
121	CYLINDER	S 235 JR EN 10025	811	LIP GASKET	* POLYURETHANE
119	STAY BOLT	42CrMo4 EN 10269	810	WIPER RING	* N. B. R.
114	INTERMEDIATE HEAD	S275 JR EN 10025	809	PISTON GASKET	* POLYURETHANE
105	HYDRAULIC PISTON	S275 JR EN 10025	808	PISTON SLIDE	* PTFE+GRAPHITE
104	HYDRAULIC CYLINDER	E 355 EN 10297	806	O-RING	* N. B. R.
103	INF. SHAFT (chrom. pl. steel)	42CrMo4 EN 10083	801	O-RING	* N. B. R.
102	INFERIOR HEAD	S275 JR EN 10025	157	PIN	X20Cr13 EN 10088
101	FLANGE	S275 JR EN 10025		SPARE PARTS	*