



DVG AUTOMATION

the excellence in flow control automation



"LA" SERIES Pneumatic/Hydraulic
LINEAR ACTUATORS

INTRODUCTION

DVG Automation "LA" linear actuator series are compact in design and are suitable to operate every type of linear valve either in modulating or heavy-duty services.

OPERATING RANGE

Pneumatic operating pressure for the **LA pneumatic series** ranges between

2 barg (35 psig) to 12 barg (175 psig)

Standard design construction allows operating temperature from

-30 degC (-22 degF) to +100 degC (+212 degF)

Low temperature design extends operating range down to

-60 degC (-76 degF)

Supply medium:

Instrument air, nitrogen, sweet gas. Special version available for sour gas

Hydraulic operating pressure for the **LA hydraulic Series** ranges between

20 barg (290 psig) to 350 barg (5.000 psig)

Standard design construction allows operating temperature from

-30 degC (-22 degF) to +100 degC (+212 degF)

Low temperature option extends operating range down to

-60 degC (-76 degF)

Supply medium:

Hydraulic oil mineral based (standard). Special versions

are available for fire-resistant or water based fluids

Pneumatic High Pressure, Gas Over Oil and Electric Hydraulic are also available



KEY DESIGN FEATURES & ADVANTAGES

External Tie Rod:

External tie-rods, coated with a zinc based chemical layer which resists 500 – 1000 hours of salt fog, maintain cylinder integrity.

Water ingress protection:

Totally enclosed and weather-proof actuator is engineered to meet IP66, IP67, IP67M and NEMA 4 & 4X specifications.

Materials:

Cylinder Tube & all structural parts are manufactured in carbon steel material: no cast/grey iron or aluminium parts are used. All pressure containing parts are supplied with 3.1 Certificate according to EN10204. DVG Automation guarantees, where applicable, that actuators are designed and manufactured according to PED (97/23 CE) Directive.

Corrosion Prevention:

Cylinder tube is internally nickel-plated lined (minimum 25µm). Nickel-plating layer can be increased upon request.

External coating provides higher reliability in harsh environmental conditions as per ISO 12944 (Expected Durability) and in compliance with NORSOK M-CR-501 requirements.

Hard chromium plated piston rod in alloy steel, or stainless steel upon request, for corrosion resistance and minimum friction on dynamic seal.

Seal:

Piston seal design prevents sticking phenomena after prolonged operation-less period and ensures reduced hysteresis and high sensitivity.

Bearing:

Dual piston PTFE sliding guide are mounted with steel bronze Teflon coated bushing to minimize wearing effect and obtain higher sensitivity.

Labelling:

316 Stainless Steel embossed name plate ensures long lasting information preservation, thus guaranteeing lifetime traceability.

Travel stops:

External travel stop with protective cap ensures precise upward linear stroke adjustment whilst downward stroke adjustment is carried out using the stem coupling joint.

On thrust seated valves downward stroke and thrust is to be borne directly by valve.

Stem coupling:

Coupling joint in stainless steel with nitriding treatment for corrosion prevention.

Visual indicator:

Visual indicator to show the exactly stem valve position stroke, mounted on the stem coupling joint, is available upon request.

Safety:

Lifting point by means of DIN certified eyelet located on actuator.



CONTROL SYSTEM

Actuator Control Systems are integral part of any automated valve package. Our LA Series Actuators can be equipped with an extensive range of auxiliary components specifically engineered and integrated to meet the largest variety of Customers' requests either for ON/OFF or modulating duty.

Our Control Systems can be housed within cabinet or onto a stainless steel (SS 316) back-plate with upper portion folded over to form a sun-shade, and assembled on actuator or at remote location.

DVG Automation has already pre-engineered different solutions to meet the most commonly required control systems. These solutions, based on standard components, offer reduced lead time, simplified purchasing, commissioning and start-up activities. Please contact factory for any additional detail.



- Actuator control system



- Position transmitter with antirotation device

MANUAL OVERRIDE OPTION

Jackscrew (MO) is available for the DVG Automation LA pneumatic Series where force demand permits. It is important to note that, when equipped with jackscrew, separate upward stroke travel stop adjustment screw is maintained thus avoiding any inaccurate positioning of the override and of the valve automated package. Jackscrew offers the following benefits:

- Full rated force is developed by the actuator in case of pneumatic supply failure;
- Available with declutchable and locking devices to avoid spurious actuator operation;

Alternatively DVG Automation provides hydraulic manual override (MH) to operate the valve in absence of power supply. Hydraulic manual override is mounted directly on actuator cylinder and includes:

hand-pump, directional control valve, oil tank, relief valve & check valve (for single acting units). Remote hydraulic power units are available: contact factory for details.



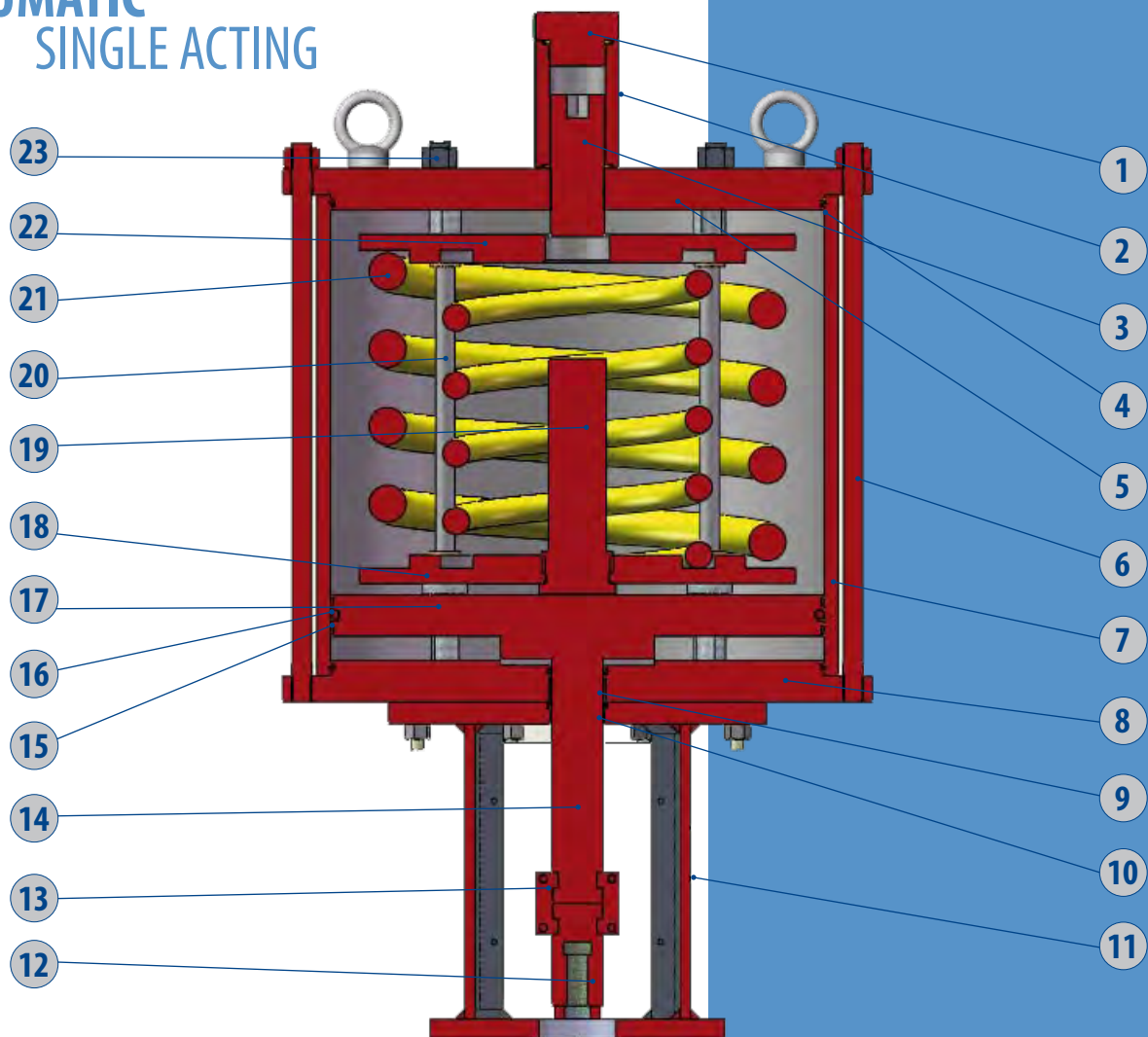
- Hydraulic manual override

REQUEST DATA

To allow us to process correctly enquiries and orders and to extend the most cost effective solution(s) we kindly request that the following table be completed and attached to enquiry package.

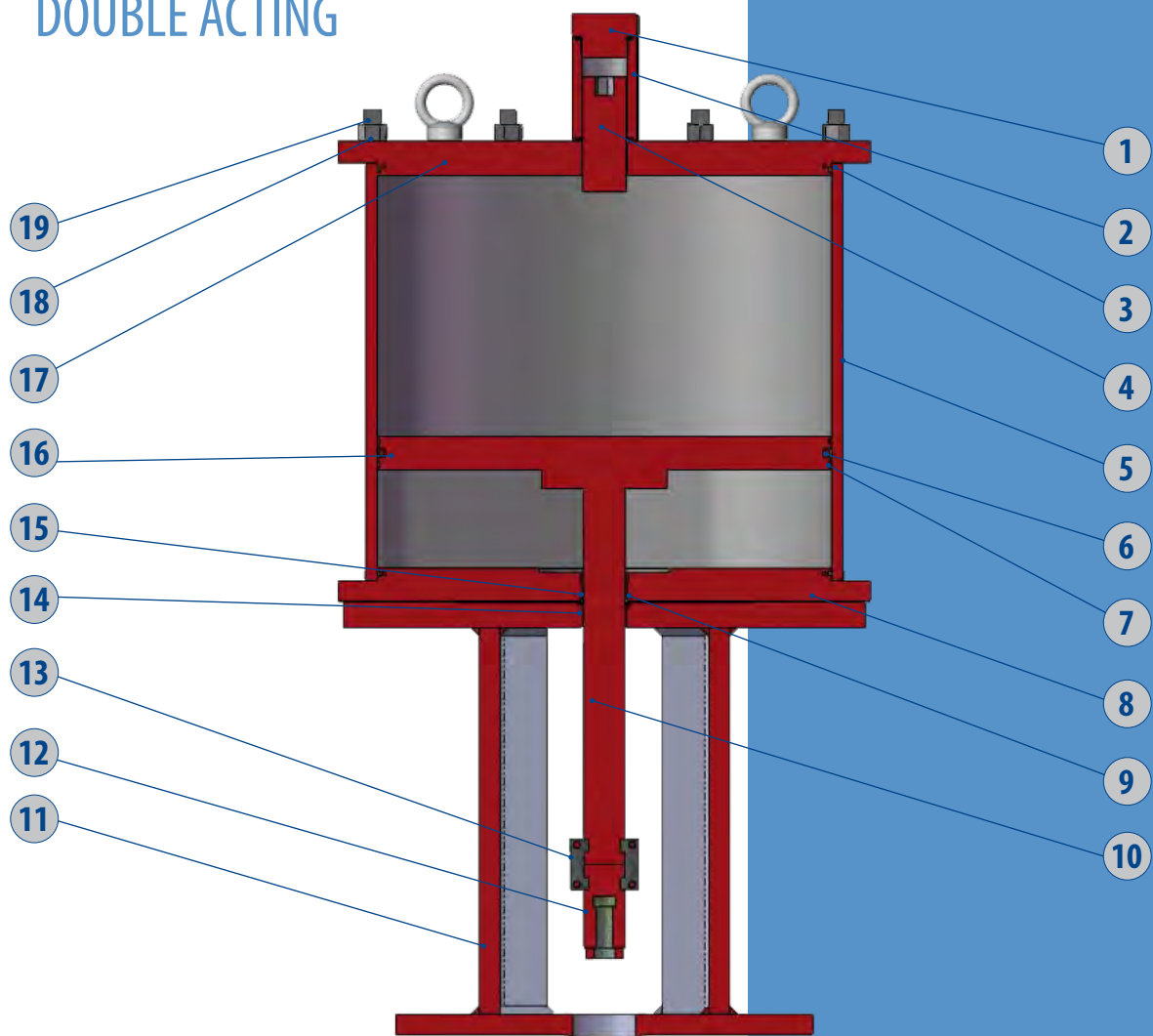
Linear Valve / Actuator Data					
Rev. 1					
Valve type					
Gate Solid Wedge					
Gate Flexible Wedge					
Gate Parallel Slide					
Gate Expanding					
Gate Double Disc					
Globe (flow tends to close)					
Globe (flow tends to open)					
Thrust	N	kgf	lbf	Other (pls. specify)	
Start to Open					☐ Upwards ☐ Downwards
Run to Open					
End to Open					
Start to Close					☐ Upwards ☐ Downwards
Run to Close					
End to Close (ETC)					
Max. Acceptable Thrust (downward)					
Max. Acceptable Thrust (upward)					
Valve Stroke	mm	inch			
Nominal stroke					
Wear stroke					
End Travel Stops					
To Open					
None (valve is thrust seated)					
Mechanical (valve is position seated)					
To Close					
None (valve is thrust seated)					
Mechanical (valve is position seated)					
Break to Open / End to Close Ratio					
Not required					
Required (indicate numerical value)					
Other Valve requirements					
Required Safety Factor					
Supply Medium					
Air					
Sweet Gas					
Sour Gas (gas composition is required)					
Oil (external / self generated)					
Supply Pressure	kPag	barg	psig	Other (pls. specify)	
Minimum					
Normal					
Maximum					
Design					
Actuator					
Spring Return					
Double Acting					
Fail Action					
Open					
Close					
Steady					
Manual Override					
None					
Jackscrew (MO)					
Note: MO manual override can be used only when the rim force remains within the limits defined by specification.					
Hydraulic (MH)					
Notes					

PNEUMATIC SINGLE ACTING



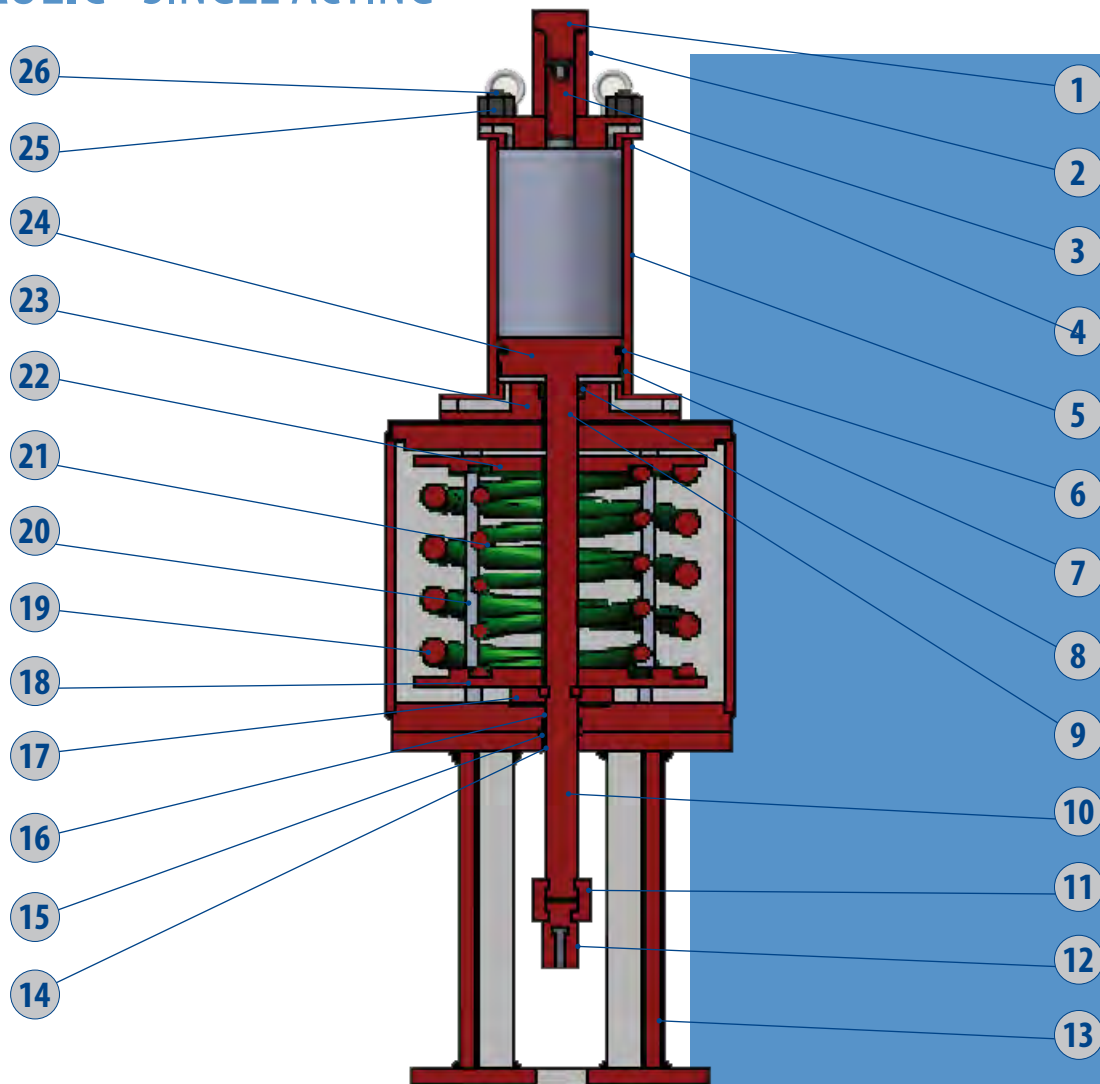
Item	Description	EN Material	Equivalent to ASTM Material
1	Plug	S235 JR EN 10025	ASTM A283 Gr.C
2	Stop screw protection	S235 JR EN 10025	ASTM A283 Gr.C
3	Travel stop screw	Class 45H ISO 4026	Class 45H ISO 4026
4	O-Ring	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
5	Cylinder End flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
6	Tie rod	ASTM A320L7	ASTM A320L7
7	Cylinder tube	E355K2+N EN10297 – E355+N EN10305	ASTM A570 Grade 60
8	Cylinder Head flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
9	Bushing	Carbon steel + Bronze + PTFE	Carbon steel + Bronze + PTFE
10	Stem scraper	PTFE + NBR	PTFE + NBR
11	Adaptor	S355 EN 10025 + E355 10297	ASTM A283 Gr.D
12	Valve stem coupling	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
13	Coupling shell	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
14	Stem	42CrMo4 EN10083	AISI (9840)
15	Piston sliding guide	PTFE+Graphite	PTFE+Graphite
16	Piston seal	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
17	Piston	S355 J2G3 EN 10025	ASTM A570 Gr. 60
18	Lower thrust flange	S355 EN 10025	ASTM A283 Gr.D
19	Mechanical stopper	S355JR EN 10025	ASTM A570 Gr 50
20	Guide bar	42CrMo4 EN10083	AISI (9840)
21	Spring	EN 10270-2-FDSiCr	ASTM A-401
22	Upper thrust flange	S355 EN 10025	ASTM A283 Gr.D
23	Nuts	ASTM A194 Gr.4	ASTM A194 Gr.4

PNEUMATIC DOUBLE ACTING



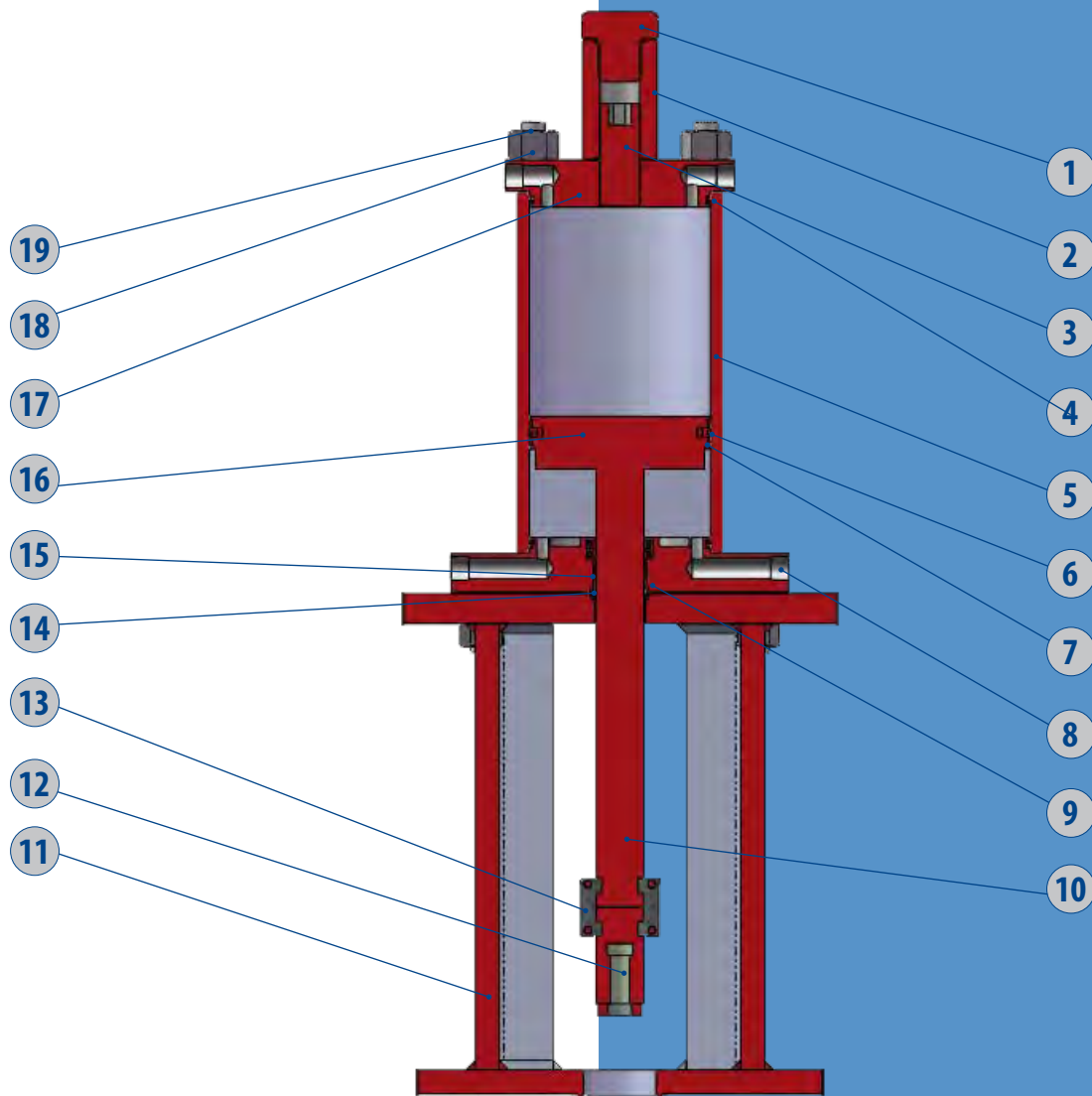
Item	Description	EN Material	Equivalent to ASTM Material
1	Plug	S235 JR EN 10025	ASTM A283 Gr.C
2	Stop screw protection	S235 JR EN 10025	ASTM A283 Gr.C
3	O-Ring	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
4	Travel stop screw	Class 45H ISO 4026	Class 45H ISO 4026
5	Cylinder tube	E355K2+N EN10297 – E355+N EN10305	ASTM A570 Grade 60
6	Piston sliding guide	PTFE+Graphite	PTFE+Graphite
7	Piston seal	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
8	Cylinder Head flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
9	O-Ring	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
10	Stem	42CrMo4 EN10083	AISI (9840)
11	Adaptor	S355 EN 10025 + E355 10297	ASTM A283 Gr.D
12	Valve stem coupling	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
13	Coupling shell	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
14	Stem scraper	PTFE + NBR	PTFE + NBR
15	Bushing	Carbon steel + Bronze + PTFE	Carbon steel + Bronze + PTFE
16	Piston	S355 J2G3 EN 10025	ASTM A570 Gr. 60
17	Cylinder End flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
18	Nuts	ASTM A194 Gr.4	ASTM A194 Gr.4
19	Tie rod	ASTM A320L7	ASTM A320L7

HYDRAULIC - SINGLE ACTING



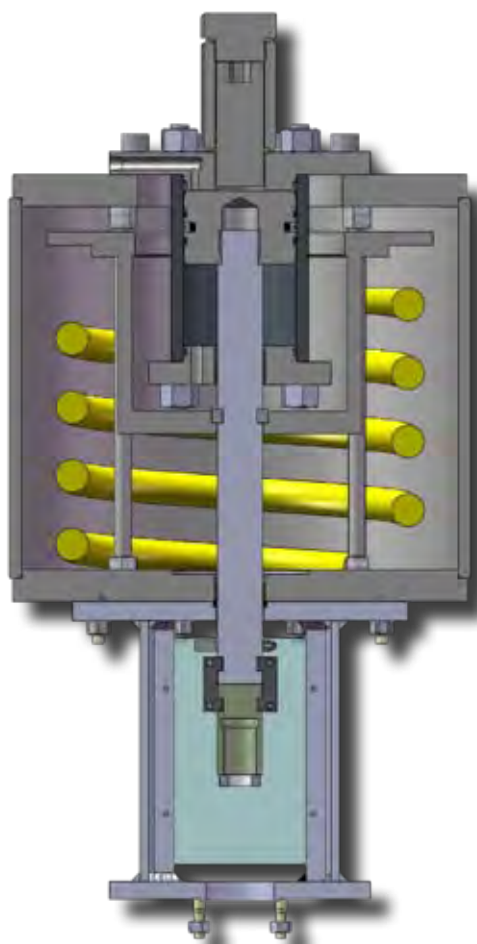
Item	Description	EN Material	Equivalent to ASTM Material
1	Plug	S235 JR EN 10025	ASTM A283 Gr.C
2	Stop screw protection	S235 JR EN 10025	ASTM A283 Gr.C
3	Travel stop screw	Class 45H ISO 4026	Class 45H ISO 4026
4	O-Ring	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
5	Cylinder tube	E355K2+N EN10297 – E355+N EN10305	ASTM A570 Grade 60
6	Piston sliding guide	PTFE+Graphite	PTFE+Graphite
7	Piston seal	NBR (FKM – MFQ – CR) + PTFE	NBR (FKM – MFQ – CR) + PTFE
8	Piston rod seal	NBR (FKM – MFQ – CR) + PTFE	NBR (FKM – MFQ – CR) + PTFE
9	Bushing	Carbon steel + Bronze + PTFE	Carbon steel + Bronze + PTFE
10	Stem	42CrMo4 EN10083	AISI (9840)
11	Coupling shell	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
12	Valve stem coupling	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
13	Adaptor	S355 EN 10025 + E355 10297	ASTM A283 Gr.D
14	Stem scraper	PTFE + NBR	PTFE + NBR
15	Bushing	Carbon steel + Bronze + PTFE	Carbon steel + Bronze + PTFE
16	Ring	42CrMo4 EN10083	AISI (9840)
17	Flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
18	Lower thrust flange	S355 EN 10025	ASTM A283 Gr.D
19	Spring	EN 10270-2-FDSiCr	ASTM A-401
20	Guide bar	42CrMo4 EN10083	AISI (9840)
21	Spring	EN 10270-2-FDSiCr	ASTM A-401
22	Upper thrust flange	S355 EN 10025	ASTM A283 Gr.D
23	Cylinder Head flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
24	Piston	S355 J2G3 EN 10025	ASTM A570 Gr. 60
25	Nuts	ASTM A194 Gr.4	ASTM A194 Gr.4
26	Tie rod	ASTM A320L7	ASTM A320L7

HYDRAULIC - DOUBLE ACTING

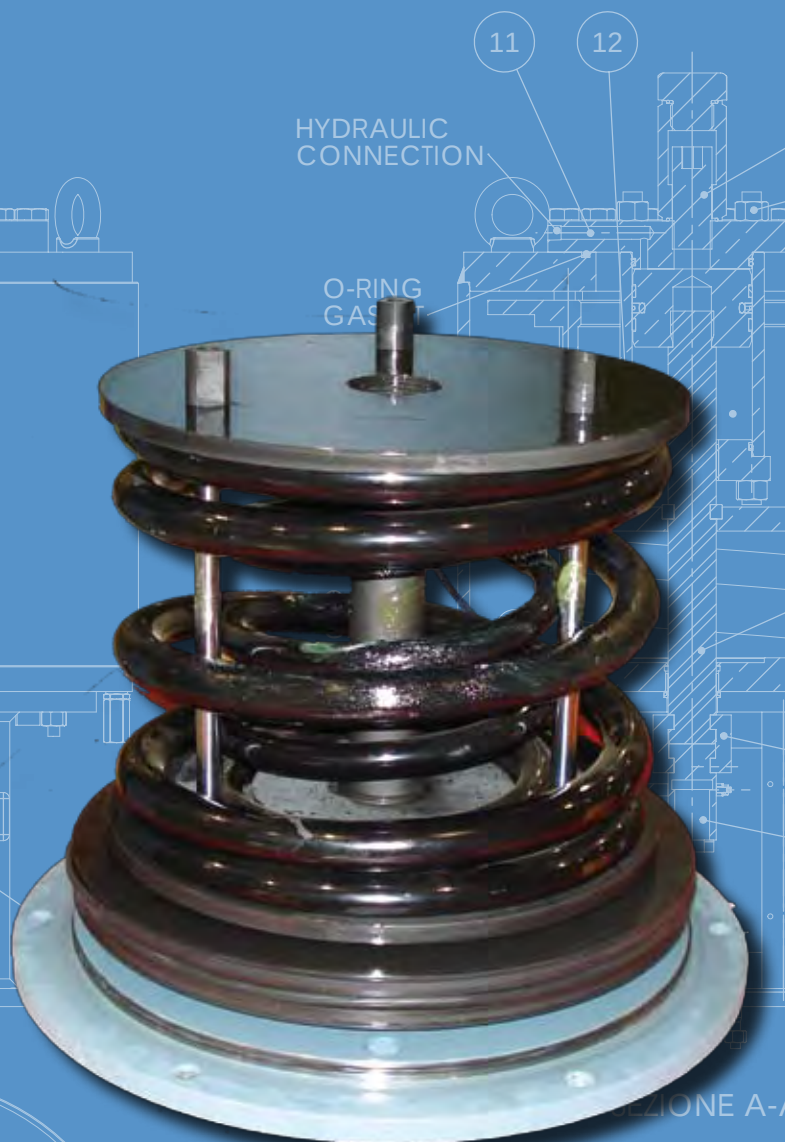


Item	Description	EN Material	Equivalent to ASTM Material
1	Plug	S235 JR EN 10025	ASTM A283 Gr.C
2	Stop screw protection	S235 JR EN 10025	ASTM A283 Gr.C
3	Travel stop screw	Class 45H ISO 4026	Class 45H ISO 4026
4	Seal	NBR (FKM – MFQ – CR)	NBR (FKM – MFQ – CR)
5	Cylinder tube	E355K2+N EN10297 – E355+N EN10305	ASTM A570 Grade 60
6	Piston sliding guide	PTFE+Graphite	PTFE+Graphite
7	Piston seal	NBR (FKM – MFQ – CR) + PTFE	NBR (FKM – MFQ – CR) + PTFE
8	Cylinder Head flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
9	Piston Rod Seal	NBR (FKM – MFQ – CR) + PTFE	NBR (FKM – MFQ – CR) + PTFE
10	Stem	42CrMo4 EN10083	AISI (9840)
11	Adaptor	S355 EN 10025 + E355 10297	ASTM A283 Gr.D
12	Valve stem coupling	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
13	Coupling shell	17/4 PH ASTM A564/564M TP630	17/4 PH ASTM A564/564M TP630
14	Stem scraper	PTFE + NBR	PTFE + NBR
15	Bushing	Carbon steel + Bronze + PTFE	Carbon steel + Bronze + PTFE
16	Piston	S355 J2G3 EN 10025	ASTM A570 Gr. 60
17	Cylinder End flange	S355 J2G3 EN 10025	ASTM A570 Gr. 60
18	Nuts	ASTM A194 Gr.4	ASTM A194 Gr.4
19	Tie rod	ASTM A320L7	ASTM A320L7

COMPACT DESIGN



- Hydraulic actuator



- Pneumatic actuator



LINEAR ACTUATOR



DVG AUTOMATION S.p.A.

Represented by

ABRA

Mühendislik Kontrol Sistemleri San. Tic. Ltd. Şti.



RINA

ISO 9001 · ISO 14001
OHSAS 18001
Certified Integrated Systems

LA112010

NBDESIGN - OCT'10