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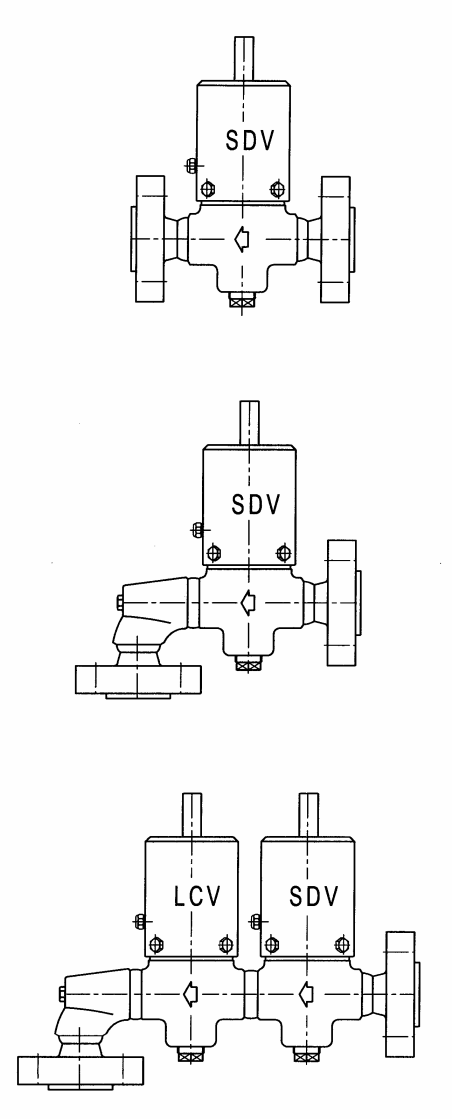
ACTUATED GATE VALVE

GV 20000N SERIES

USE AND MAINTENANCE MANUAL



ACTUATED GATE VALVE

Characteristics

- *Line connections : 1”-1½”-2”ANSI/API flanged*
  1” NPT-female;
- *max. press. Line : 700 bar*
  (or as per flange rating);
- *orifice **Ø LV** : Ø 3 - 4 - 6 - 8 - 10 - 12 - 18 mm*
  ***Ø SDV** : Ø 12 - 16 - 18 - 24 mm;*
- *supply : 4 - 21 bar;*
- *supply connection : ¼”NPT-female;*
- *maximum temperature : 150°C;*
- *execution : see table.*

Accessories

- *Pneumatic control panel;*
- *electro-pneumatic control panel;*
- *electrical limit switches;*
- *manual override;*
- *mechanical counter.*

ORIFICE SELECTION

MAXIMUM FLOW RATE

$$Q = 14{,}38 \cdot Cv \cdot \sqrt{\frac{\Delta P}{G}}$$

COEFFICIENT CALCULATION

$$Cv = \frac{Q}{14{,}38 \cdot \sqrt{G / \Delta P}}$$

WITH:
Q = [l / min]
P = [bar]
G = [kg / l]

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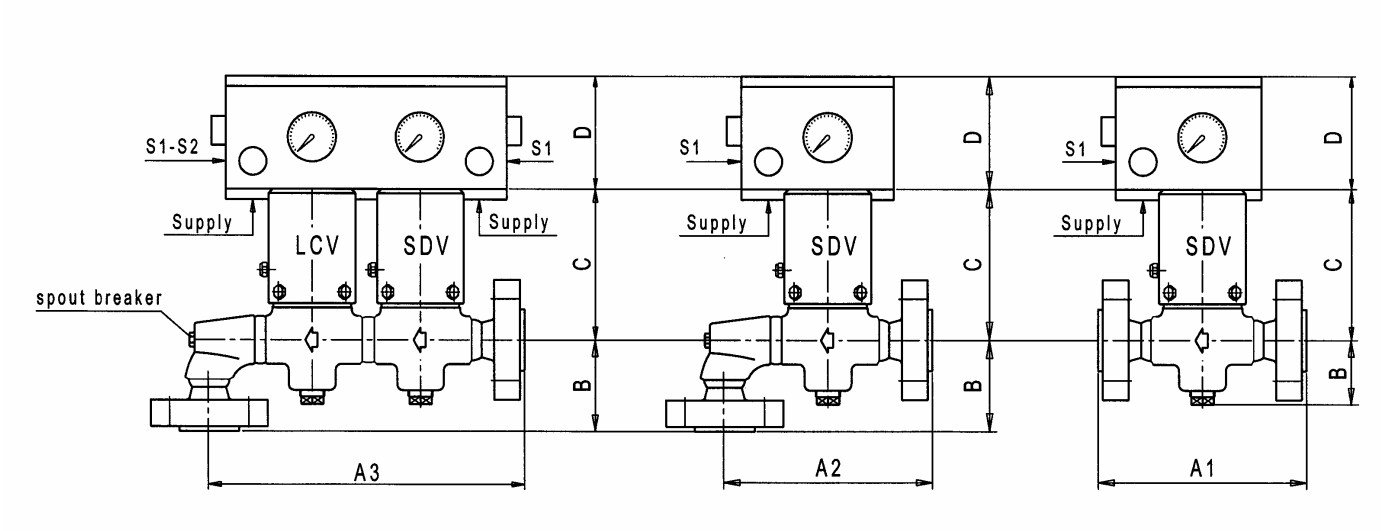
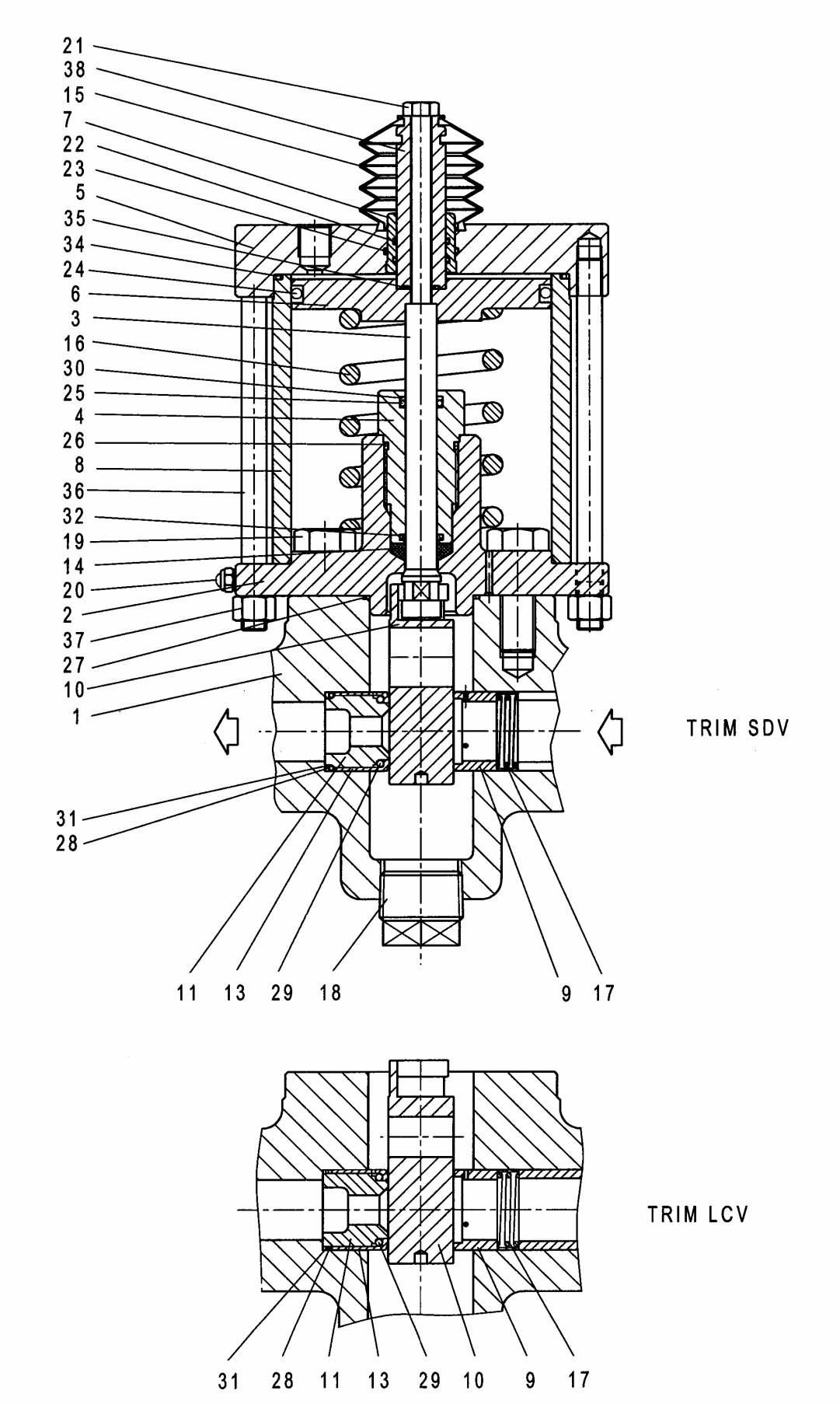


Connections				Dimensions (mm.)					
DN	ANSI	DN	API	A1	A2	A3	B	C	D
1"	600	1.11/16"	2.000	239	264	414	104	200	120
	900		3.000	262	275	425	115		
	1.500		5.000	262	275	425	115		
	2.500			275	281	432	122		
			10.000	285	290	440	127		
1½"	600	1.13/16"	2.000	250	269	419	109	200	120
	900		3.000	278	283	433	122		
	1.500		5.000	278	283	433	122		
	2.500			317	302	452	142		
			10.000	290	290	440	127		
2"	600	2.1/16"	2.000	256	272	422	112	200	120
	900		3.000	304	296	446	135		
	1.500		5.000	304	296	446	135		
	2.500			330	309	459	149		
			10.000	300	295	445	135		

LV *Orifice*										
Æ **mm.**	3	4	5	6	8	10	12	14	16	18
Cv	0,35	0,65	1	1,5	2,5	3,7	5,5	7,2	10,5	13
We are be able to supply also other orifices										

SDV *Orifice*				
Æ **mm.**	12	16	18	24
Cv	5,5	10,5	13	16
We are be able to supply also other orifices				



Actuated Gate Valve GV 20000N Series

*The actuated gate valve **GV 20000N** Series are used principally to discharge condensation from the separators installed in natural gas extraction wells. The valves can operated up to 700 bar and be utilized either with liquids or with gaseous fluids. The valves have an integral pneumatic actuator and can also be furnished with various accessories designed to automate the operation.*
All trims are interchangeable with all sizing.

1. INSTALLING

Before installing the valve on the plant make sure that:

- *the line fluid is indicated on the construction declaration or is compatible with what stated in it;*
- *the inlet piping of the valve is devoid of impurities, slag etc. and eventually remove them.*
- *the inlet and discharge piping are dimensioned in such a way that they generate the minimum possible stress of pressure.*

Once the valve has been installed on the plant make sure that:

- *no external and unusual forces loadings, are used with the valve;*
- *the discharge is properly conveyed.*

1.1 SETTING UP

Before shipment all the valve are hydrostatically tested and set at the setting pressure required by the client.

2. DISASSEMBLING

2.1 VALVE WITHOUT ACCESSORIES

In order to execute disassembling carry out progressively the following operations:

CAUTION : ***before disassembling the valve make sure that the plant on which it is mounted is not "under pressure" and that no pressure inside the valve itself has remained.***

- *remove the valve from the plant;*
- *remove the bellows (15) ;*
- *unscrew the nut (37) the studs (36) and remove the upper flange (5) and the cylinder (8);*

CAUTION : ***turn counter clockwise the screw (21) to unload completely the spring (16);***

- *remove the upper stem (38), the piston (6) and the spring (16);*
- *remove the plug (18);*
- *remove the screws (19) and extract the bonnet (2) with all internal parts and the gate (10);*
- *remove the gate (10) from the stem (3);*
- *remove the stem (3) from the bonnet (2);*
- *lock the bonnet (2), unscrew completely the guide (4) and take out the spacer (14);*
- *remove the bush (9) and the spring (17);*
- *remove the guide (13) and the seat (11).*

CAUTION : ***In case the actuated gate valve is double-body type all the operations described in point 2) have to be carried out on both actuators.***

2.2 VALVE WITH STD CONTROL PANEL (RIF.00-0076-00)

In order to execute disassembling carry out progressively the following operations:

CAUTION : ***before disassembling the valve make sure that the plant on which it is mounted is not "under pressure" and that no pressure inside the valve itself has remained. Check that pressure is " zero " in gauges inserted into the control panel.***

For disassembling the control panel carry out the following operations progressively:

- *remove the bonnet (2);*
- *disconnect the pipe fitting supply (4);*
- *unscrew the screw (14) on the base of the panel and remove from the valve;*

3. ASSEMBLING

3.1 VALVE WITHOUT ACCESSORIES

*For assembling carry out the same operations of point **2.1)** but in reverse order.*

3.2 VALVE WITH STD CONTROL PANEL

*For assembling carry out the same operations of point **2.2)** but in reverse order.*

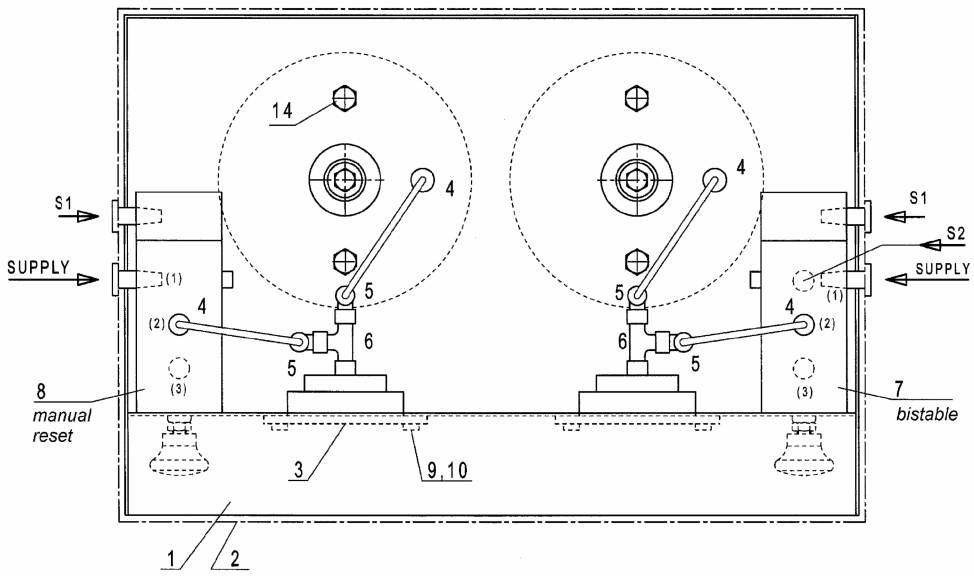
4. MAINTENANCE

*The actuated gate valve requires an ordinary but careful maintenance **(SEE MAINTENANCE PLANT)** and in case it would be necessary , follow the operation stated in point **2)** for disassembling , and in point **3)** for assembling.*
In case of seats and gate damaging it is necessary to carry out a new lapping: this operation has to be executed by skilled workers.
*In case inconvenience should occur to the valve, verify if in the **DAMAGES TABLE** are contained some useful instructions for solving the problem.*
In case the inconvenience is of different nature from what stated in the table, contact our Service Dept.

WARNING

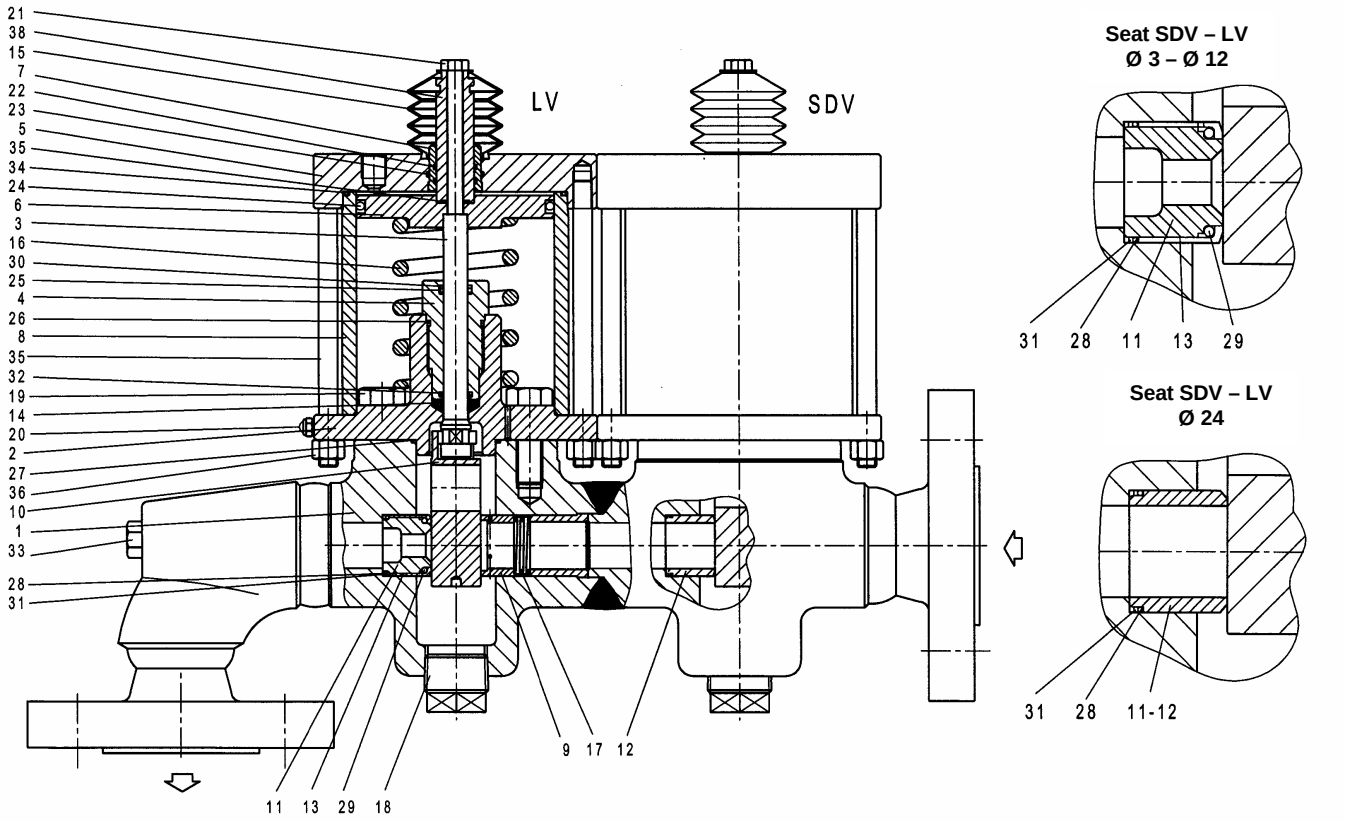
- ***The actuated gate valve should not be subjected to bumps or such stresses that could compromise the working.***
- ***The actuated gate valve must be used only exclusively for the use stated in the construction declaration.***
- ***In case of valve with control panel do not stand on the valve or leave heavy loadings on the bonnet, in order to not interfere with the correct working of the valve.***

00-0076-00



ORDINARY MAINTENANCE PLAN	
Check of the seat and disc on the plant	*Every 2000 cycles of open/close or every 3 months working*
Check of the seal gasket on the plant from piston-cylinder and stem-cylinder.	*Every 150 cycles of open/close or every 3 months working.*
Check of the painting condition on the plant.	*every 6 months.*
Ordinary maintenance of the valve removed from the plant including the disassembling, the seat and disc check and the gasket substitution.	*Every 8000 cycles of open/close or every 24 months of working.*
General maintenance of the valve removed from the plant including the disassembling, the seat and the disc substitution , gaskets substitution, painting restoration and inspection on the test bench.	*Every 15000 cycles of open/close or every 36 months of working.*

DAMAGES TABLE		
INCONVENIENT	**POSSIBLE DAMAGE**	**ACTION TO BE CARRIED OUT**
Fluid leakage in line	*Seat wear and tear*	*Nozzle substitution or revision*
	Disc wear and tear	*Disc substitution or revision*
	Seat and disc damaging	*Nozzle and disc revision*
	Impurities presence between seat and disc	*Nozzle and disc cleaning and revision*
	Valve use with fluid different from the one stated in the purchase order.	*Nozzle and disc revision*
External discharge fluid leakage	*Valve gaskets damaging*	*Gasket substitution*
	Valve body-bonnet damaging	*Gasket substitution*
External leakage of supply fluid.	*Circuit of supply damaging*	*Revision or substitution control panel components*
	Gasket piston-cylinder damaging	*Gasket substitution*
	Cylinder damaging	*Cylinder substitution or revision*
Short time valve intervention and closing the gate valve for lower level sensor intervention	*Seat wear and tear*	*Nozzle substitution or revision*
	Disc wear and tear	*Disc substitution or revision*
	Seat gasket damaging	*Gasket substitution*
Unsuccessful valve intervention (continuos fluid leakage in line)	*Seat wear and tear*	*Nozzle substitution or revision*
	Disc wear and tear	*Disc substitution or revision*
	Seat gasket damaging	*Gasket substitution*
Difficult closing the valve	*Stem damaging*	*Stem substitution or revision*
	Spring release	*Spring substitution*
Difficult opening the valve	*Stem damaging*	*Stem substitution or revision*
	Gasket piston-cylinder damaging	*Gasket substitution*



ITEM.	PARTS	MATERIAL CLASS 11	21
1	BODY	A 105	A 182 F5
2	BONNET	A350LF2	AISI 410
3	STEM	AISI 630	
4	GUIDE	COPPER-ALUMINIUM	
5	UPPER FLANGE	CARB. STEEL	
6	PISTON	CARB. STEEL	
7	BUSH	PTFE / GRAPHITE	
8	CYLINDER	CARB. STEEL	
9	BUSH	AISI 303	
10	GATE	AISI 410 + NICKEL	
11	SEAT LV	TUNGSTEN CARBIDE	
12	SEAT SDV	TUNGSTEN CARBIDE	
13	BUSH (seat)	COPPER-ALUMINIUM	
14	SPACER	NYLON	
15	BELLOWS	RUBBER	
16	SPRING	ALLOY STEEL	
17	SPRING	AISI 316	
18	PLUG	A 105 NICKELATED	
19	SCREW	ALLOY STEEL	

ITEM.	PARTS	MATERIAL CLASS 11 / 21
20	FILTER 1/8" GAS	BRASS + AISI 304
21	SCREW	AISI 304
22	O-RING 2081	FPM RUBBER
23	O-RING 2106	FPM RUBBER
24	O-RING 6375	FPM RUBBER
25	O-RING 3050	FPM RUBBER
26	O-RING 3106	FPM RUBBER
27	O-RING 2175	FPM RUBBER
28	O-RING 2112	FPM RUBBER
29	O-RING 3087	FPM RUBBER
30	BACK UP 8-112	RUBBER
31	BACK UP 8-024	RUBBER
32	SEAL RING	PTFE / FPM
33	SPOUT	AISI 316L STELL.
34	O-RING 3450	FPM RUBBER
35	O-RING 114	FPM RUBBER
36	STUD	ST.STEEL
37	NUT	ST.STEEL
38	UPPER STEM	AISI 316L