

## **Special Versions**

### **Pneumatic Mastic Regulator**



**INCORPORATION DECLARATION (DIRECTIVE 98/37/CE from the 22<sup>nd</sup> June 1998)**  
**DECLARACION DE INCORPORACIÓN (DIRECTIVA 98/37/CE de 22 Juegos)**  
**EINGLIEDERUNGSERKLÄRUNG (DIREKTIVE 98/37/CE des 22 Juni 1998)**  
**DICHIARAZIONE D'INCORPORAZIONE (DIRETTIVA 98/37/CE del 22 Giugno 1998)**

Le fabricant / *The manufacturer* / El fabricante / *Der Hersteller* / Il Costruttore :

**SAMES KREMLIN GmbH**  
**Moselstr. 19**  
**41464 NEUSS - Germany**  
**TÉL.: +49 (0) 2131 3692 0 - FAX: +49 (0) 2131 3692 110**  
**www.sames-kremlin.com**

...déclare que la machine ou le sous-ensemble désigné ci-dessous / ...  
*declara que la máquina o el sub-conjunto así como designado aquí abajo /*  
...declares that the machine or the under group mentioned hereunder /  
*...deklariert daß die Maschine oder die Untergruppe die unten beschrieben ist / ...*  
dichiara che la macchina o i sottoinsieme qui sotto descritti :

**Désignation / Designation / Designación /**

**Designation / Descrizione :**

**Numéro de l'équipement / Equipment number / Número del equipo /**

**Nummer der Maschine / Numero della macchina :**

**Número de série / Serial number / Número de serie /**

**Serien Nummer / Numero di serie :**

**Marque / Trademark / Marca /**

**Marke / Marca:**

PNEUMATIC FLUID  
PRESSURE REGULATOR  
B901001/B901002

EXEL Automotive Deutschland GmbH

*...ne pourra être mis en service avant que la machine dans laquelle il sera incorporé ne soit déclarée conforme aux dispositions de la directive 98/37CE et à la législation nationale la transposant /*  
*...could not be used before the equipment with which it will be incorporated is declared in conformity with the 98/37/CE directive clauses and international rules /*  
*...no podría ser puesto en servicio antes que la máquina en la cual debe ser incorporado sea declarada conforme a las disposiciones de la directiv 98/37/CE y a la legislación nacional la transponando.*  
*...nicht in gang gesetzt werden kann, solange die Maschine in die es eingebaut wird, nicht den Direktiven 98/37/CE*  
*und den nationalen Gesetzen für ihre transponierung entsprechend anerkannt worden ist /*  
*...non potrà essere messo in servizio prima che la macchina nella quale sarà incorporato non sarà dichiarata conforme*  
*alle disposizioni della direttiva 98/37CE ed alla legislazione nazionale per la sua trasposizione :*

*...est également conforme aux dispositions des directives européennes suivantes /*  
*...applies to the clauses of following european directive /*  
*...así como es conforme a las disposiciones de las directriz europeas siguientes /*  
*...und ebenfalls den folgenden Europäischen Direktiven entspricht /*  
*...è inoltre conforme alle disposizioni delle direttive europee seguenti :*

ATEX/94/9/CE

*...est conforme aux dispositions des normes européennes harmonisées suivantes /*  
*...and the following dispositions of the harmonised european norm /*  
*...así como es conforme a las disposiciones de las normas europeas armonizadas siguientes /*  
*...und den folgenden Dispositionen der europäischen Normen angemessen sind /*  
*...è conforme alle disposizioni delle norme europee armonizzate seguenti :*

EN 292 / EN 418 / EN 809

*...est également conforme aux normes nationales et aux dispositions techniques suivantes /*  
*...applies to the national norms and the following technical clauses /*  
*...así como es conforme a las normas nacionales y a las disposiciones tecnicas siguientes /*  
*...und ebenfalls den folgenden nationalen und technischen Normen angemessen sind /*  
*...è inoltre conforme alle norme nazionali ed alle seguenti disposizioni tecniche :*

Our scope of supply only includes the materials specified in our proposals and offers. The acceptance of our offers does also imply the acceptance of our delivery terms. We do reserve the right to make modifications or improvements, even after receipt of an order. Our materials are controlled and tested before shipment. To be valid, any claim concerning an ordered material must be formulated in written within 10 days after delivery.

## **WARRANTY**

*EXEL Automotive Deutschland GmbH* warrants all equipment manufactured by us, as long as it is fitted with the original identification plate, for a period of one year from ex-works date (for a single 8 h shift per day), to be free from defects in material and workmanship. Warranty claims found to be defective shall be verified and confirmed by *EXEL Automotive Deutschland GmbH*. Our warranty does not cover fair wear and tear (including parts which are not indicated on our instruction leaflets), damage or wear caused by misuse, non-observance of *EXEL Automotive Deutschland GmbH* recommendations and inadequate or improper maintenance. Our warranty only consists of replacing the parts returned carriage paid to our plant and proven defective by us. We shall not be liable for any losses resulting from a production breakdown. Upon request, we can carry out service work at your premises but all expenses (accommodation & transportation) for the *EXEL Automotive Deutschland GmbH* technicians will be chargeable. Equipments found to of been tampered with will invalidate the warranty. Material bought in equipment will be subject to the manufacturer's warranty.

## **CONFORMITY**

The *EXEL Automotive Deutschland GmbH* equipment complies with the "MACHINES European Regulation (98/37/CE).

## **SAFETY**

The operating of our materials, which are using products submitted to different rules, including the rules specific to the country of the consignee, must be made in accordance with safety regulations. These regulations, and the ones described in this manual, as well as the user notices supplied by the manufacturers and the suppliers of the products to be used must be known by the users and can in no case commit our responsibility.

# Mastic Regulator



**SAMES KREMLIN GmbH**  
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 info@exel-gmbh.com



NIP HAZARD  
 REF. 91480



WEAR OF  
 GLASSES IS  
 OBLIGATORY  
 REF.91490



WARNING : MOVING  
 ELEVATOR  
 REF. 91483



WARNING :  
 MOVING  
 SHOVEL  
 REF. 91484



WARNING :  
 HOT PARTS  
 OR AREAS  
 RREF. 91494



RELIEF OR DRAIN  
 VALVE  
 REF. 91487



WARNING :  
 HOSE UNDER  
 PRESSURE  
 REF. 91488



READ THE USER  
 'INSTRUCTIONS  
 MANUAL  
 REF. 91481



PRODUCT VAPORS  
 HAZARDS  
 REF. 91491



WARNING :  
 ELECTRICAL  
 HAZARD  
 REF. 91492



WARNING :  
 MOVING PARTS  
 REF. 91485



EXPLOSION  
 HAZARDS  
 REF. 91495



DO NOT EXCEED  
 THIS PRESSURE  
 REF. 91482



WEAR OF GLOVES  
 IS OBLIGATORY  
 REF. 91489



GROUNDING



WARNING :  
 HIGH PRESSURE  
 HAZARDS  
 REF. 91486



WARNING :  
 FIRE HAZARDS  
 REF. 91493



WARNING  
 (USER)



WARNING  
 (MATERIALS)



WARNING  
 SERIOUS  
 INJURIES



## GENERAL SAFETY INSTRUCTIONS

Before the use of the equipment, it is important that the users have read and understood all instructions and warnings of this instructions manual, as well as the instructions in the manuals of further installed parts and accessories.

Faulty operation of the equipment may cause serious injury. This equipment is only for professional use. It must be used only for what it has been designed for.



**Never modify nor amend the material. The parts and accessories must only be supplied by EXEL Automotive Deutschland GmbH or must be in conformance with EXEL Automotive Deutschland GmbH regulations. The material must be regularly inspected. Defective or worn parts must be replaced. Never exceed the working maximal pressures. The regulations concerning security, fire risks, electricity in force in the country of final destination of the material must be carefully followed. Use only products and solvents which are compatible with the parts which are in contact with the product. (Refer to data sheet of the product manufacturer).**



Before any service work or commissioning of the machine, carefully read the PRESSURE RELIEF INSTRUCTIONS. **Check the right working of the air relief valve or of "drain" valve.**

## PRESSURE HAZARDS

The safety requires an **AIR RELIEF** shut off valve to let the air off when closing the supply circuit.

**A PRODUCT DRAIN VALVE** must be mounted in the product pipe to relieve the pressure before any servicing on the material.

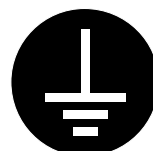


## FIRE - EXPLOSION - ELECTRIC ARCS-STATIC - ELECTRICITY

A wrong grounding or sparks may cause explosion or fire.

To avoid these risks, specially during use of motor pumps, it is strongly advised to :

- Ground material, parts to be handled, cleaner cans.
- Ensure an adequate ventilation.
- Keep the working area clean from cloths, paper, solvents...
- Never use electrical switches with vapours or during application.
- Stop immediately working in case of electrical arcs.
- Keep all liquids out of the work area.





## INJECTION HAZARDS

*The high pressure pump and application technology demands lot of precaution. Hazardous leaks with injection risks in exposed parts of body that may cause severe injuries or amputation risks.*

*- A product injection under the skin or in other parts of the body (eyes, fingers...) requires immediate medical care.*



- *Never point the spray gun at anyone. Never try to stop the spray with the body (hands, fingers...) or with rags or similar things.*
- ***Follow imperatively the air relief & drain instructions before any work for cleaning, checking or servicing of the material or cleaning of the gun nozzles.***
- *Keep the H.P. flexible hoses out of the circulation areas, of the moving parts & hot surfaces.*
- *Never expose standard "high pressure" product hoses to temperatures higher than 140°F / 60°C or lower than -104°F / - 40°C.*
- *Never pull on the H.flexible hoses to move the material.*
- *Tighten all couplings & H.P. flexible hoses before set-ting up the equipment.*
- *Check daily the H.P. flexibles hoses & couplings. Replace damaged or worn parts. The couplings of high pressure flexible hoses can not be repaired.*



## TOXICAL PRODUCT HAZARDS

*Toxic products or vapours may cause severe injury through contact with the body, eyes, under the skin but also through swallow or inhalation.*

*It is imperative to :*

- *Know the product & possible hazards.*
- *Store the product to be used in the appropriate areas.*
- *Keep the product used during dispensing in a suitable container.*
- *Dispose the product according to the regulation of hazardous products in force in the country where the product is used.*
- *Wear protective equipment designed for that use.*
- *Wear glasses, gloves, shoes, clothes & mask for breath.*





**WARNING: IT IS FORBIDDEN** using any solvents with halogen carbide base - and also products made with these solvents - facing **ALUMINIUM & ZINC**.  
Serious or fatal injuries may occur.



#### **USED PRODUCTS**

**Considering the variety of products and the impossibility to consider all chemical data, of possible reactions of chemicals to each other and their long term evolution, EXEL Automotive Deutschland GmbH can not be hold responsible for: the bad compatibility of fluids to each other, for risks for staff and surroundings, for worn or out of order parts, for wrong working of equipments or units, as well as for the qualities of final product. The user must know and prevent the possible risks owing to toxic vapours, fires or explosions due to used products. He shall determine the risks of immediate reactions or the cumulative effects pursuant to repeated exposures of the staff.**



**EXEL Automotive Deutschland GmbH shall not be liable for expenses or claims for bodily or psychic injuries or direct and indirect material damages further to the use of chemicals.**

## **Selection of the right Valve Size**

The *EXEL standard regulator* is equipped with an eight 8 mm ball in the seat.  
This seat should be used for a flow rate between 10cm<sup>3</sup>/s and 50cm<sup>3</sup>/s = 0,6 l/min – 3,0 l/min  
(low viscous PVC)

For special applications *EXEL* has developed special inserts.

#### **Small valve ball 6mm (part no. code z = 0)**

For high inlet pressures and low flow rates up to 15cm<sup>3</sup>/s = 0,9l/min

#### **Standard valve ball 8mm (part no. code z = 1)**

For medium flow rates up to 50 cm<sup>3</sup>/s = 3,0 l/min

#### **Big valve ball 12mm (part no. code z = 2)**

For high flow rates up to 150 cm<sup>3</sup>/s = 9 l/min

## **Selection of the Control Piston**

#### **Big Control Piston**

Regulated pressure max. 200 bar – for robot application max. 160 bar = 4 diaphragms  
Each diaphragm increases the control range by 40 bar.

#### **Small Control Piston**

Regulated pressure max. 320 bar = 3 diaphragms  
Each diaphragm increase the control range by 80 bar.

**GENERAL FEATURES**

Product inlet : Ø 3/4"BSP  
 Product outlet: Ø 3/4"BSP  
 Air inlet : Ø 1/4"BSP  
 Maximum inlet product pressure : 400 bars – 5800 psi  
 Max. air pressure : 6 bars – 87 psi

**Regulator aluminium                      Art.-No. B901001.wxyz**  
**Regulator stainless steel                Art.-No. B901002.wxyz**

**Definition of \*.wxyz**

	<b>w</b>	<b>x</b>	<b>y</b>	<b>z</b>
<b>0</b>	Control Piston "big"	Inlet "side"	No. of pressure stages	6mm Valve
<b>1</b>	Control Piston "small"	Inlet "bottom"		8mm Valve
<b>2</b>				12mm Valve
<b>3</b>				
<b>4</b>				
<b>5</b>				

**Examples 'w, x, y and z'**

      w x y z  
 B901001.0 0 1 2 →  
 Aluminium Regulator – "Big" Piston (40mm) – Inlet from the side –  
 one pressure stage = control range 40bar – 12mm Ball (Ind.16+17)

      w x y z  
 B901001.1 1 1 0  
 Aluminium Regulator – "Small" piston (28mm) – Inlet from below –  
 one pressure stage = control range 80bar – 6mm Ball (Ind.16+17)

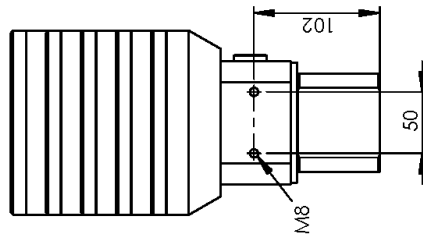
      w x y z  
 B901002.0 1 2 0  
 Stainless Steel Regulator – "Big" piston (40mm) – Inlet from bottom–  
 two pressure stages (diaphragms) = control range 80bar – 6mm Ball (Ind.16+17)



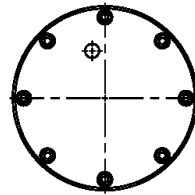
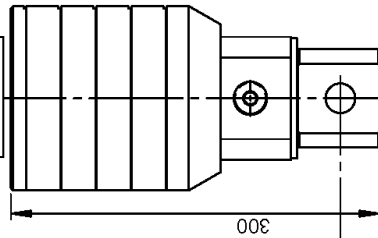
# Mastic Regulator



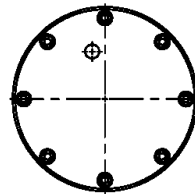
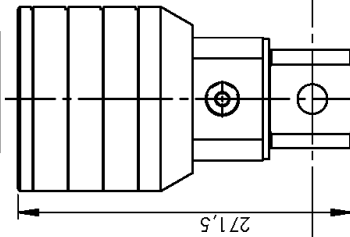
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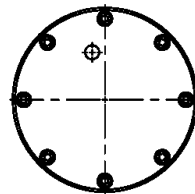
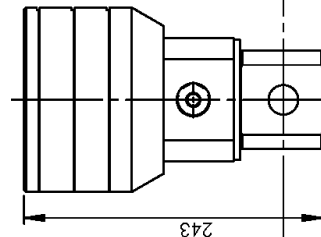
Regulator with five stages  
 B9001001.wx5z  
 B9001002.wx5z



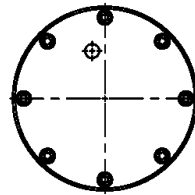
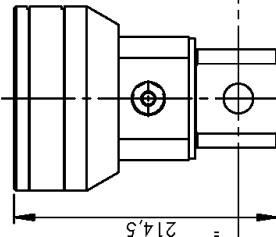
Regulator with four stages  
 B9001001.wx4z  
 B9001002.wx4z



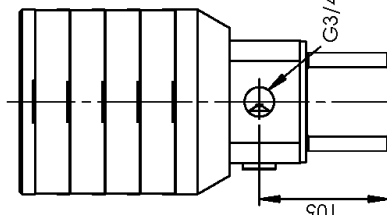
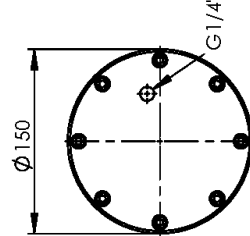
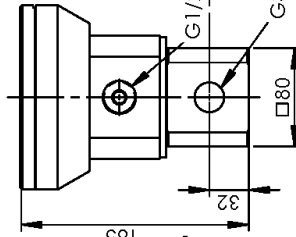
Regulator with three stages  
 B9001001.wx3z  
 B9001002.wx3z

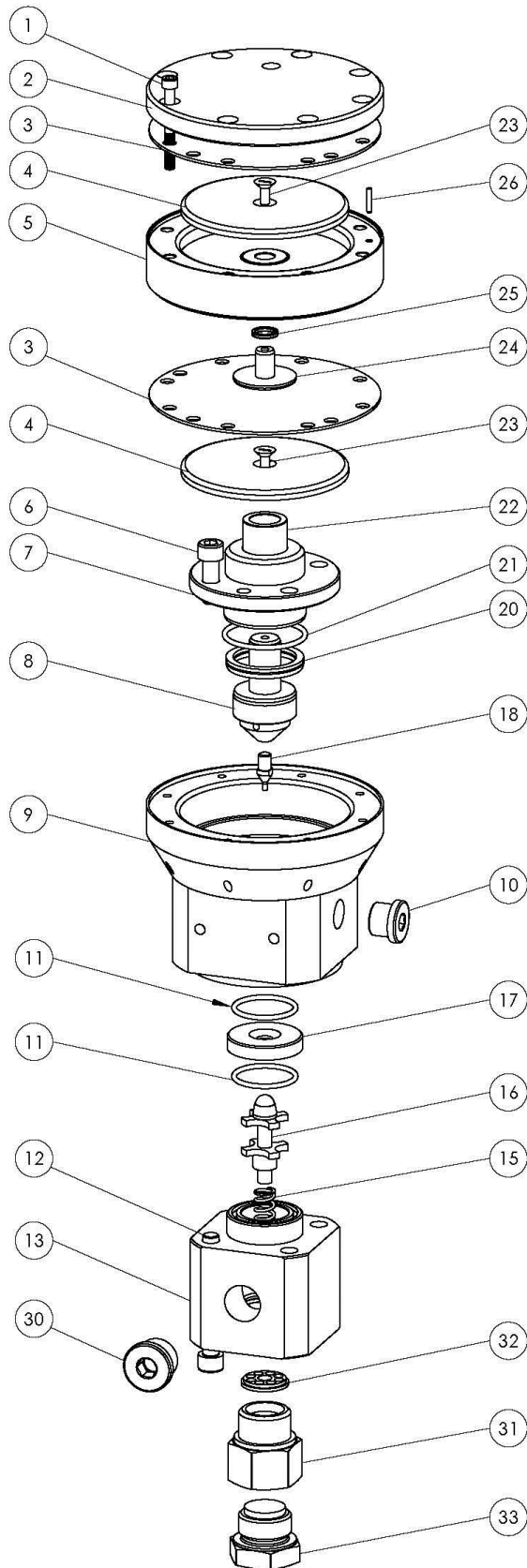


Regulator with two stages  
 B9001001.wx2z  
 B9001002.wx2z



Regulator with one stage  
 B9001001.wx1z  
 B9001002.wx1z





## Parts List 1

Ind.	Option	pcs.	B901001.wxyz	B901002.wxyz	Description
1	y = 1	6	933 151 332	933 151 332	Screw
	y = 2	6	88 138	88 138	Screw
	y = 3	6	88 140	88 140	Screw
	y = 4	6	88 617	88 617	Screw
	y = 5	6	88 755	88 755	Screw
2	-	1	204 819	204 819	Cover
3	y = 1	1	204 818	204 818	Diaphragm (PU)
	y = 2	2			
	y = 3	3			
	y = 4	4			
	y = 5	5			
4	y = 1	1	204 820	204 820	Plate
	y = 2	2			
	y = 3	3			
	y = 4	4			
	y = 5	5			
5	y = 1	0	204 822	204 822	Spacer
	y = 2	1			
	y = 3	2			
	y = 4	3			
	y = 5	4			
6	-	4	88 189	88 189	Screw
7	w = 0	1	204 823	B001354	Piston Housing
	w = 1	1	B001418	B001418	
8	w = 0	1	204 828	B001352	Control Piston
	w = 1	1	B001417	B001417	
9	-	1	204 824	B001351	Body
10	-	1	B001372	B001419	Plug
11	-	2	631 121	631 121	O-Ring
12	-	4	88 176	88 176	Srew
13	x = 0	1	206 827	B001384	Inlet block
	x = 1	1	204 993		
15	-	1	203 617	B001374	Spring
16	z = 0	1	B001431	B001431	Valve Ball with guide
	z = 1	1	204 826	B001322	
	z = 2	1	B001313	B001313	
17	z = 0	1	B001429	B001429	Seat
	z = 1	1	204 825	B001321	
	z = 2	1	B001312	B001312	

**Parts List 2**

Pos.	Variante	Stk.	B901001.wxyz	B901002.wxyz	Benennung
18	-	1	B001355	B001355	Push Pin
20	w = 0	1	84 163	84 163	Seal
	w = 1	1	B001416	B001416	
21	-	1	84 173	84 173	O-Ring
22	w = 0	1	90 025	90 025	Ball bearing traveller
	w = 1	1	B001392	B001392	
23	y = 1	1	204 915	204 915	Screw
	y = 2	2			
	y = 3	3			
	y = 4	4			
	y = 5	5			
24	y = 1	0	204 821	204 821	Pressure transfer element
	y = 2	1			
	y = 3	2			
	y = 4	3			
	y = 5	4			
25	y = 1	0	85 010	85 010	Air module seal
	y = 2	1			
	y = 3	2			
	y = 4	3			
	y = 5	4			
26	y = 1	0	88 427	88 427	Pin
	y = 2	1			
	y = 3	2			
	y = 4	3			
	y = 5	4			
30	x = 0	0	-	-	Plug
	x = 1	1	-	B001385	
31	x = 0	0	-	-	Inlet
	x = 1	1	-	B001365	
32	x = 0	0	-	-	Diffusor
	x = 1	1	-	B001385	
33	x = 0	0	-	B001373	Plug
	x = 1	1	-	-	

## MAINTENANCE

Before dismantling or doing any operation on the regulator, it is essential to decompress the material, to avoid any serious injury that may be caused by product splashing into the eyes or being injected under the skin and causing blood poisoning.

Maintenance consists in checking the seals and diaphragms as well as the all parts of the regulator consequently to some leaks or just for preventive maintenance.

It is advisable to replace the parts showing an unusual wear.

## BRINGING THE EQUIPMENT INTO SERVICE

The regulators are tested in our workshops with a neutral lubricant.

Before putting the equipment into service you have to rinse the lubricant with a solvent (naphta or chlorinated solvent for example), if it is not compatible with the product to be pumped.

## DISMANTLING

First - **decompress the regulator**, then loosen the product inlet and outlet fittings, unplug the regulator air feeding and remove the regulator.

### **A - REPLACING THE DIAPHRAGMS**

- 1 - Unscrew the 8 screws (Ind. 1),
- 2 - Take off the cover (Ind. 2),
- 3 - Take off, check and replace if necessary, the diaphragm (Ind. 3),

### **B - DISMANTLING THE LOWER VALVE**

- 1 - Unscrew the 4 screws (Ind. 12),
- 2 - Take the fitted inlet block out,
- 3 - Keep the seat holder (Ind. 17), check its seat and replace the whole unit if necessary,
- 4 - Take out and check the O-rings (Ind. 11), replace them if necessary,
- 5 - Remove the valve (Ind. 16).
- 6 - Remove and check the spring (Ind. 15).
- 7 - Remove the inlet block (Ind. 13).

**NOTE:** Check the seat. Should be damaged, replacing the seat/seat holder unit systematically leads to replacing the valve.

### **C - REPLACING THE NEEDLE AND THE UPPER VALVE SEALS**

- 1 - Unscrew the screw (Ind. 23),
- 2 - Keep the plate (Ind. 4),
- 3 - Unscrew the 4 screws (Ind. 6),
- 4 - Take the fitted valve guide,
- 5 - Take out and check the seals (Ind. 21), replace it if necessary, and **(Ind. 20), This seal should be replaced systematiquely at each remounting,**
- 6 - Keep the valve rod (Ind. 8),
- 7 - Unscrew the needle (Ind. 18), replace if necessary. **The needle (Ind. 18) and the valve rod (Ind. 8) should be assembled with "Loctite n° 243" glue or equivalent.**
- 8 - Remove the valve guide (Ind. 7),

## **MAINTENANCE**

When using an abrasive product, it is recommended to make a periodical preventive maintenance after a determined number of hours or operation which is defined by the plant maintenance department. This is according to the type of product, the operation rate, the flow rate and the operation pressure.

Maintenance consists in checking the seals and the sealing bushes.

- Replace the parts which show an unusual wear,
- Lubricate generously the parts which are subjected to some frictions,
- Check that these parts have no scratch,
- Clean carefully all parts without using any metal item or abrasive materials,
- Always check that the seals have no cut or scratch.

**IMPORTANT NOTE** : When assembling the unit always sure that no seal is damaged, should one of them be cut this could cause bad functioning of the regulator

## **REASSEMBLING**

Proceed inversely to dismantling in accordance with above recommendations.

## TROUBLE SHOOTINGS

PROBLEMS	LIKELY CAUSE	SOLUTION
No regulation	Seat worn out	Change the seat
	Seat dirty	Clean the seat
	Mechanical unit blocked in low position	Dismantle, clean and check the mechanical unit
	Diaphragm damaged Spring broken	Replace the spring
No output pressure	No piloting air	Check the above air network
	Push pin broken	Replace the pin
Bad regulation	Pressure or feeding output too low	Increase piloting pressure on the pump motor
	Air module seal damaged Ball cage damaged	Replace the air module seal(s) Replace the ball cage
Too low output pressure	Piloting pressure too low	Increase piloting pressure
	Hole(s) in the diaphragm(s)	Replace the diaphragm(s)
Air leak	Diaphragm damaged	Replace diaphragm
	Air module seal damaged	Replace the air module seal(s)
Product leak through vent hole	Control Piston seal worn out	Replace the seal