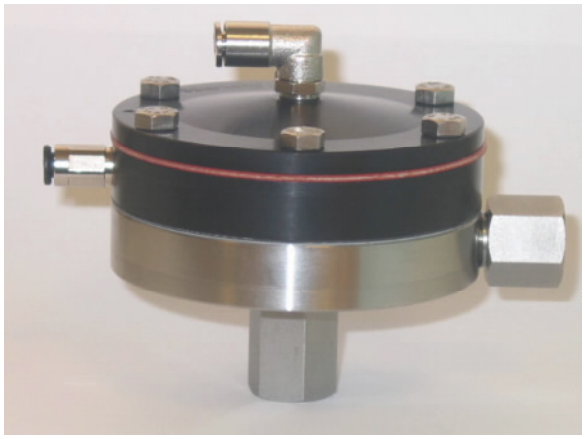
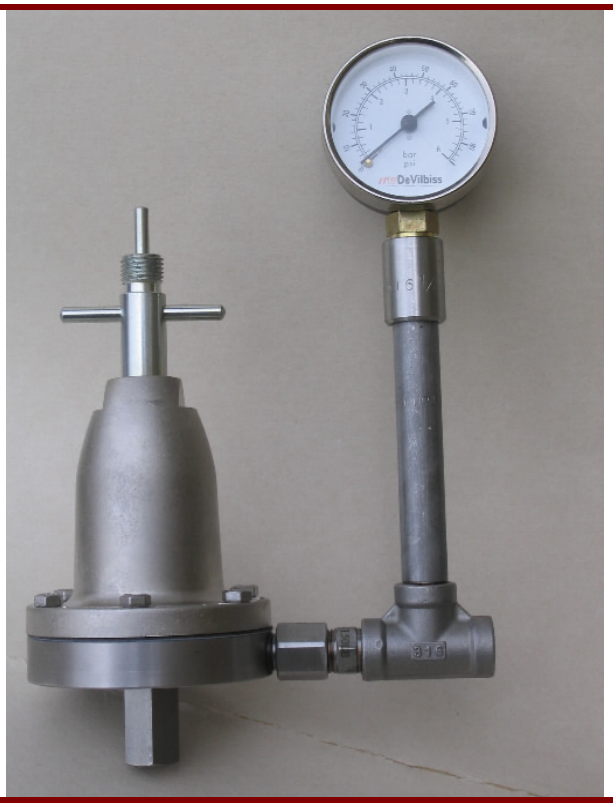
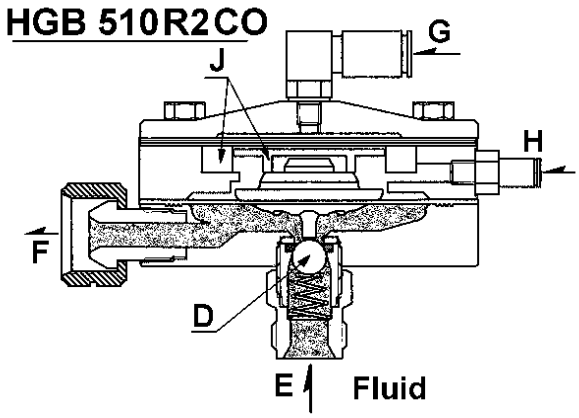
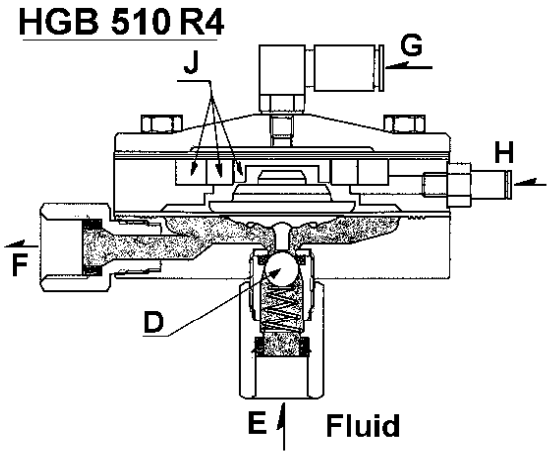
SB-6-HGB-H

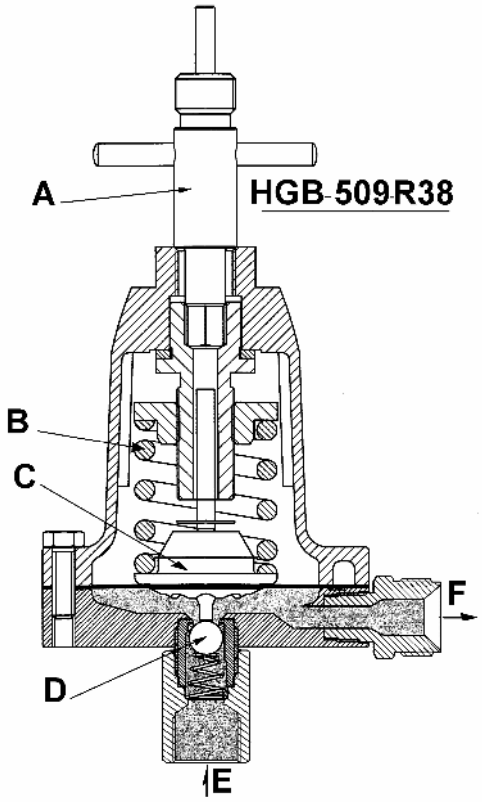
HGB-509 / HGB-510 / HGB-609











	F	GB	D	I	E
A	Clé de réglage manuel	Manual Adjustment Key	Stellschlüssel	Chiave per regolazione manuale	Clave de regulación manual
B	Ressort	Spring	Feder	Molla della membrana	Muelle de membrana
C	Ensemble membrane	Diaphragm Assy.	Membransatz	Membrana prodotto	Membrana fluido
D	Clapet à bille	Ball valve	Kugelventil	Sfera	Rosca
E	Entrée produit	Fluid Inlet	Produkteintritt	Entrata prodotto	Entrada del fluido
F	Sortie produit	Fluid outlet	Produktaustritt	Salida prodotto	Salida del fluido
G	Air pilotage pneumatique	Pneumatic Air command	Pneumatiksteu-erung	Aria di comando	Aire demando
H	Air pilotage rinçage	Flushing air command	Spülsteuerung	aria della risciacquatura	Aire del enjuague
J	Piston et rondelles de réglage	Piston & adjusting washer.	Kolben & Stellscheiben	Piano e anello per regolatore	Plato y arandela para regulador

■ SAFETY WARNINGS

Important Read and follow all instructions recommendations and safety precautions before using this equipment.

FIRE AND EXPLOSION

Solvents and coating materials can be highly flammable or combustible, especially when sprayed .
*Work stations must be provided with adequate ventilation / exhaust to prevent the build-up of flammable.
*Smoking and naked flames must not be allowed in the spraying mixing areas.
*Fire extinguishing equipment must be provided in the spraying and mixing areas.
Users must be comply with all local and national codes of practice and insurance company requirements governing ventilation, fire precautions, operation, maintenance and housekeeping of work station..
HALOGENATED HYDROCARBON SOLVENTS :for example 1.1.1 Trichloroethane Chloride can chemically react with aluminum and galvanized or zinc coated parts and cause an explosion hazard. Read the label and data sheet for the material you intend to spray.
DO NOT USE SPRAY MATERIAL CONTAINING THESE SOLVENTS EXCEPT WITH EQUIPMENT SPECIALLY DESIGNATED BY THE MANUFACTURER AS BEING SUITABLE FOR SUCH USE.
STATIC ELECTRICITY . Is generated by fluid moving through pipes and hoses. A static spark, capable of igniting certain solvents and coating materials could be produced by high fluid flow rates. To prevent the risk of fire or explosion, earth continuity to all equipment should be maintained. The fluid regulator HGB-510 or 509 have stainless steel body and fluid connectors. Check earth continuity with ohmmeter equipment, a resistance below 10^6 ohm is recommended.

PERSONAL PROTECTIVE EQUIPMENT

Toxic vapors when sprayed certain materials may poisonous, create irritation or otherwise be harmful to health. Always read carefully all labels and safety performance data for the material being sprayed and follow any recommendations. IF IN DOUBT CONSULT THE MATERIAL SUPPLIER.
The use of respiratory protective equipment is recommended at all times when sprayed.
The type of respiratory protective equipment used must be compatible with the material being sprayed and level of concentration.

- Always wear eye protection when spraying or cleaning the equipment.
- Gloves must be worn for spraying or cleaning the equipment when certain coating materials and solvents are used.

TRAINING

Personnel should be given adequate training in the safe use and maintenance of this equipment. Training courses on all aspects of the equipment are available. For details contacts your local representative. The instructions and safety precautions contained in this literature supplied with the coating material should be read and understood before the equipment is used.

MISURE

- Never exceed the recommended safe working pressures for any equipment used.
- The fitting of non recommended or non original accessories or spare parts may create hazardous condition
- Before dismantling the equipment for cleaning or maintenance all pressures air and material, may be isolated and released.

The disposal of non metallic materials must be carried out in an approved manner . Burning may generate toxic fumes. The removal of waste solvents and coating materials should be carried out by an authorized local waste disposal service.
The fluid section materials used in the construction of this equipment are solvent resistant.
However, the regulator and or the manometer must not be left inside gun washing machine on plunged inside solvent in order to do not damaged the gasket or membrane.

The solvents used in the gun washing machine should be regularly checked to ensure that the equipment is not flushed through with contaminated material. Follow the recommendations of the machine manufacturer.

DESCRIPTION

Manually adjusted or remote air pressure controlled, these fluid regulators can provide material at constant pressure for one or two spray guns, using stainless steel ball valve and spring, "Perlast" valve seat. Especially design for application with low paint viscosity and needing accurate fluid flow regulation (Low hysteresis level).

SPECIFICATIONS

Type Reg	Order number	Thread		Inlet pressure min-max.**bar**	Outlet pressure max.**bar**	Fluid flow maximum **L/min**	Mano-meter **bar**
		Inlet	Outlet				
Manual spring	HGB-509-5-R38	Female 3/8 BSP	Male 3/8 NPS / BSP	2 - 12,5	5	13	No
	HGB-609-1.2-R38			1 - 8	1.2	8,3	0 - 2,5
	HGB-609-5-R38			2 - 12,5	5	13	0 - 6
	HGB-609-9-R38			3 - 15	9	13	0 - 10
Pneumatic Adjustment	HGB-510-R1	Female 1/4 BSP	Female 1/4 BSP	2 - 15	15	1,6 (Tip 1.1mm)	No
	HGB-510-R2			1 - 15	7	1,3 (Tip 1.1mm)	No
	HGB-510-R4			1 - 15	4	0,8 (Tip 1.1mm)	No
	HGB-510-R1-CO	Male 3/8NPS/ BSP	Female 3/8 NPS	2 - 15	15	1,6 (Tip 1.1mm)	No
	HGB-510-R2-CO			1 - 15	7	1,3 (Tip 1.1mm)	No
	HGB-510-R4-CO			1 - 15	4	0,8 (Tip 1.1mm)	No

All the fluid passages are in stainless steel (303), membrane in PTFE, cover in aluminum nickel treatment for manual model or anodized for remote air control.
The regulators HGB-609 are equipped with stainless steel tee and riser tube and a manometer. The tightness of these connections ought to be perfect so to protect the manometer.
See drawings on « Accessories ».

IMPORTANT : These regulators may be used with most common coating and finishing materials. However, there are not designed for use with highly corrosive materials which have such characteristics, it must be expected that frequent and thorough cleaning will be required and/or the necessity for replacement of parts will be increased.

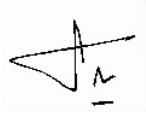
DÉCLARATION DE CONFORMITÉ CE

We, ITW Surfaces et Finitions, 163,171 avenue des Auréats BP 1453, 20014 Valence Cedex France, as the manufacturer of Fluid regulator model HGB-510/509/609, declare under our sole responsibility, that the equipment to which this document relates is in conformity with the following standards or other normative documents :

EN 292-1 PARTS 1 & 2: 1991, EN 1953: 1999; and thereby conform to the requirements of; Council Directive 98/37/EC relating to Machinery Safety Directive.

These regulators are classed as components, by the **ATEX directive 94/9/EC** "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres" and are in conformity with the provisions of the directive, **protection level II 2 G**

Director : Claude FERRET



ITW Surfaces & Finition reserve the right to modify equipment specification without prior notice.

■ INSTALLATION

- The regulators must be fitted in horizontal position to remove heavy fluid particle deposit. The riser tube for manometer must be in vertical position. The manometer will be protected by air staying into the top of the riser tube. A good sealing ought to be done on the connectors so to remove any air leakage to protect the manometer.
- Connect the fluid supply line, coming from pump or pressure feed tank, under the regulator at the ¼'' BSP or 3/8'' NPS/BSP universal (See on page 11 depend of version used).
- Connect the regulated fluid line, to supply one or two spray gun, side port of the regulator at the ¼'' BSP or 3/8'' NPS/BSP universal (See on page 11 depend of version used).
  Swivel connector female is used for "CO" version on remote control.
- The regulator must be earthed to dissipate any electrostatic charge which may be created by fluid or air flows. This can be achieved in using one of the screw ref 3A or 3B.
  Electrical bond from the regulator to earth should be checked with an ohmmeter.
  A resistance of less than 10^6 Ohms is recommended.
- Assume that during the installation, the regulator will filled completely the cavity under the diaphragm, this is to obtain the full accurate regulation specially in use at lower fluid flow delivery.

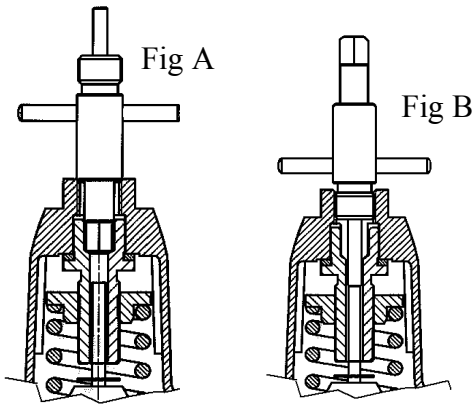
CAUTION

It is recommended that at the initial installation the material supply line should not be flushed through the regulator because pipe compound chips, scale, etc. may lodge on the valve seat USE AN IN LINE FILTER.

■ OPERATION

Manuel regulator

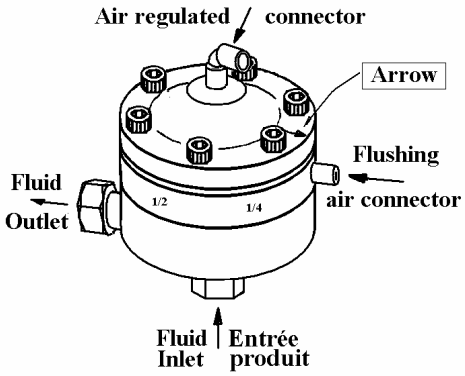
Fluid pressure adjustment is done with the specific manual key. Insert the square side key into the central top hole of the regulator manual. See Fig A
Screw to increase fluid pressure, unscrew to decrease.
To flush the regulator for cleaning operation introduce the cylindrical side of the key into the regulator and screw at maximum to push the pin on the membrane support and open the regulator in order to have optimum flushing fluid flow



Pneumatic adjustment regulator

For models HGB-510-R1, R2 or R4.
The fluid pressure regulation is adjusted by remote air pressure regulator, for that connect Rilsan tube on the top connector on cover. To flush the regulator, connect air tube on the side connector (R1/R2/R4) and set the air pressure to full open the valve regulator. It's useful to fit the air regulator close to the fluid regulator to obtain the accurate regulation at a low fluid flow. If it's not the case, you can obtain this accurate regulation in piercing the Rilsan tube with sewing needle near of the connector to create a small air leakage.
To flush the fluid line with solvent, connect the flushing air command to the right connector on the side of the regulator.

HGB-510- R1 / R2 / R4



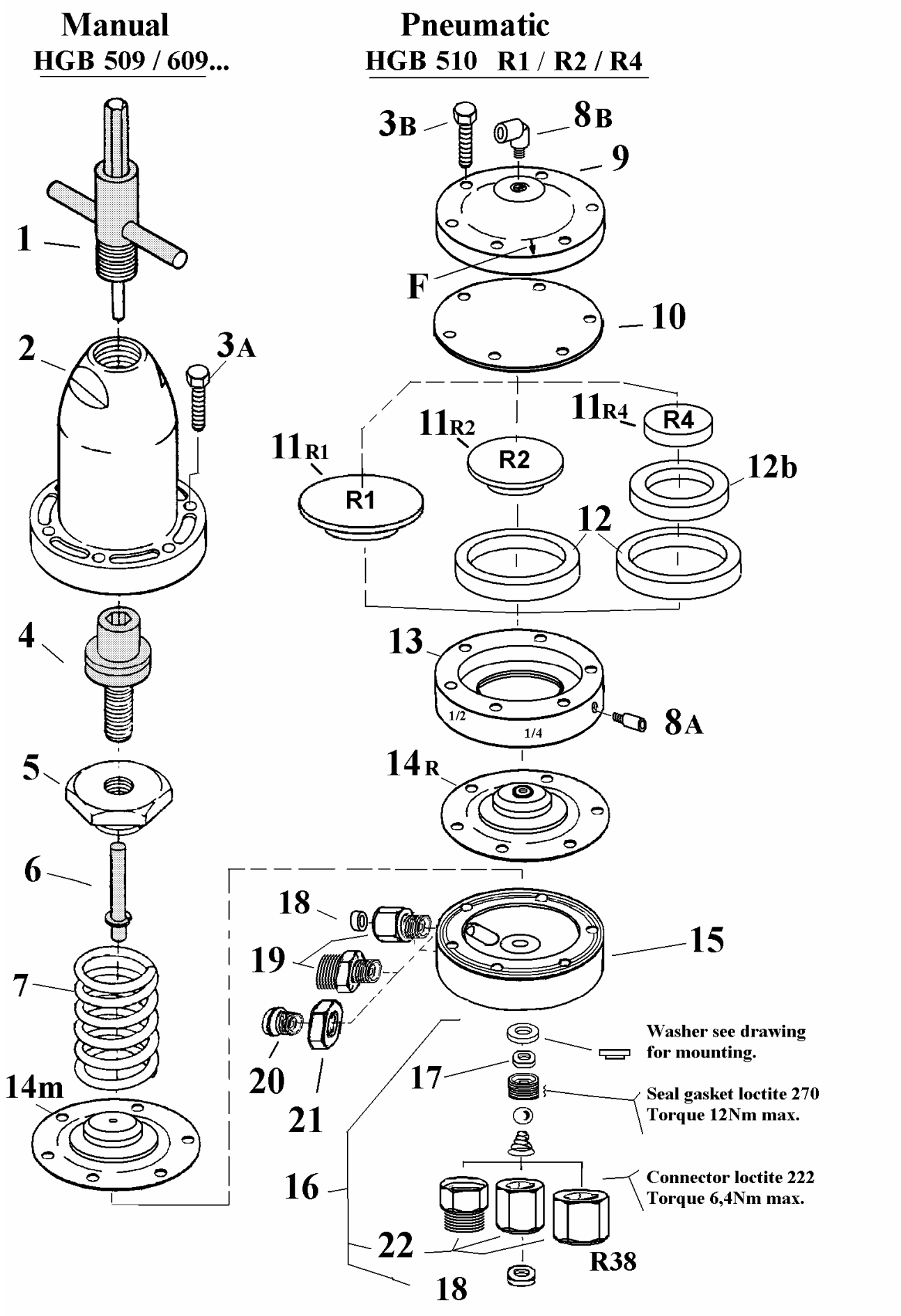
DO NOT EXCEED THE FLUSHING AIR COMMAND MORE THAN 1 BAR OVER THE SOLVENT PRESSURE.

Note : To come back at the initial set up after cleaning operation, purge the air line so to have no air pressure on intermediary chamber. This intermediary chamber can be used as a safe area if the membrane brakes and fluid leakage goes through the air line.
To know and differentiate what is your regulator model, an arrow is marked above the cover which is either in direction of the flushing air inlet connector for the R1 model or in direction of the 1/ 4 or 1/ 2 printed on the intermediary plate. Take care during the re assembling operation after maintenance to fit the cover in the right place corresponding to the model of regulator used.

■ PART LIST

For the arrangement of the parts, refer the exploded view at the end of the manual.

Rep.	Order number	Description	Qty
1	HGB-404-1	Adjusting key	1
2	HGB-28	Cover	1
3A 3B	S-1309-H S-1330-H	For HGB-509-5-R38 or 609-x-R38, Screw M5 * 16 For HGB-510-R1, R2 & R4, or (CO), Screw M5 * 25	6
4	HGB-408-H	Adjusting screw assembly	1
5	HGB-7	Adjusting nut	1
6	HGB-403-H	Stem kit	1
7	HGB-13-H HGB-42 HGB-43	Spring for diaphragm for HGB-509-5-R38 or HGB-609-5-R38. Spring for diaphragm for HGB-609-1.2-R38. Spring for diaphragm for HGB-609-9-R38.	1
8A 8B	S-24383 SSP-6462	Connector M5 for Rilsan tube. 2.7 *4 mm Elbow connector M5 for rilsan tube 2.7*4 mm	1 1
9	HGB-54	Cover for HGB-510	1
10	HGB-55-K	Air diaphragm HGB-510	1
11R1 11R2 11R4	HGB-67 HGB-56 HGB-63	Disc for HGB-510-R1 or R1CO Disc for HGB-510-R2 or R2CO Disc for HGB-510-R4 or R4CO	1
12 12b	HGB-68 HGB-64	Intermediary washer for R2 & R4 Intermediary washer for R4	1
13	HGB-57-1	Intermediary body	1
14m 14R	HGB-422 HGB-424	Fluid diaphragm assy. for HGB-509, 609. Fluid diaphragm assy. for HGB-510-R1/R2/R4 or 1CO, 2CO, 4CO	1
15		Regulator body	1
16	HGB-426-CO HGB-426 HGB-426-R38	Kit of Fluid inlet & ball valve with spring (3/8''BSP/NPS Male). Kit of Fluid inlet & ball valve with spring (1/4''BSP Female). Kit of Fluid inlet & ball valve with spring (3/8''BSP/NPS Female).	1
17	S-28216	Gasket "D" shape	1
18	HGB-62	PTFE gasket	1 / 2
19	HGB-61 HGB-81 HGB-82	Fluid outlet connector for HGB-510-Rx, 1/4'' Female Fluid outlet connector for HGB-509-5-R38, 3/8'' universal Male Fluid outlet connector for HGB-609-xx-R38, 1/4'' BSP Male	1
20	HGB-49	Fluid outlet insert connector for HGB-510-Rx-CO	1
21	HC-1000	Fluid outlet swivel connector for HGB-510-Rx-CO	1
22	HGB-60 HGB-59 HGB-80	Fluid inlet connector Female 1/4''BSP for HGB-510-Rx Fluid inlet connector Male 3/8''universal for HGB-510-Rx-CO Fluid inlet connector Female 3/8''BSP for HGB-509/609-R38	1


Manual
HGB 509 / 609...
Pneumatic
HGB 510 R1 / R2 / R4
1
2
3A
4
5
6
7
14m
3B
8B
9
F
10
11R1
R1
11R2
R2
11R4
R4
12b
12
13
1/2
1/4
8A
14R
18
19
20
21
15
17
16
22
18
R38
Washer see drawing for mounting.
Seal gasket loctite 270
Torque 12Nm max.
Connector loctite 222
Torque 6,4Nm max.

■ PREVENTIVE MAINTENANCE

Periodic cleaning of regulator with a solvent compatible with the material being used is recommended. To clean material from the regulated material line and the regulator, these steps should be followed :

1. Relieve supply line pressure.
2. Put the regulator in flushing position (See "Operation"). This holds the valve off its seat.
3. Blow material back through the regulated line by introducing air pressure into the line down stream from the regulator. With spray gun attached this can be done by loosening air cap ring on gun, holding a rag over air cap and pulling gun trigger. This forces air in a reverse path through spray gun and air forces material back through regulated material line.
4. Unscrew the fluid inlet connector remove the spring and the ball valve. Clean all the parts and the gasket inside the valve body. If the gasket is damaged replace it. Please follow the instruction described on page 6. If the gasket is ok put thread locking compound (loctite 222) on the connector thread and tighten to a maximum torque of 6.4Nm.

Periodically clean exterior of regulator with solvent soaked rag.

■ REPLACEMENT OF PARTS

Note : Relieve the line pressure before servicing for pneumatic model (HGB-510). For manual model HGB-509 & 609, Relieve spring forces by unscrewing the adjusting screw rep 4 at the maximum (FIG A).

TO REPLACE DIAPHRAGM

1. Remove the 6 hex. head cap screws.
2. The diaphragm is sold complete with its washer and its fluid flow plastic deflector. These parts could be not separated, if diaphragm or the deflector is damaged replace it.
3. Install the new diaphragm kit into the regulator body.
4. Put the cover on the regulator and screw the 6 screws at 7.5 to 8 mN.
5. For the pneumatic model HGB510, reassemble all the parts in the right order and position. It's recommended before to set the regulator that the two diaphragms work about 10 time so to be in full condition, this operation could be done in using the connector Rep 8 and pressurize the flushing cavity at 4 bar.

TO SERVICE VALVE ASSEMBLY

"Perlast D shape" seat and Ball valve.

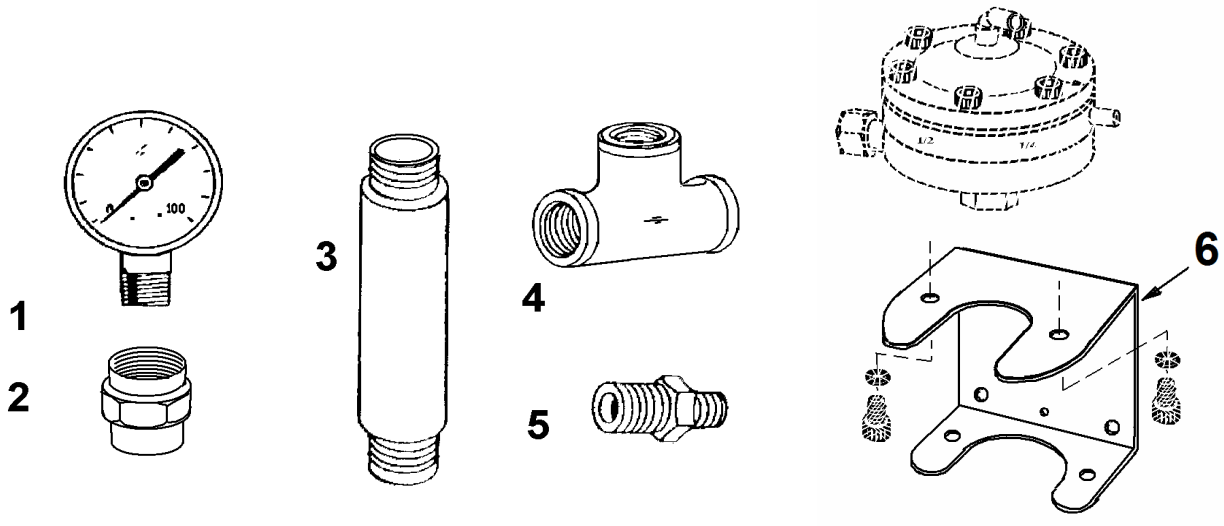
1. Unscrew the fluid inlet valve and connector rep 16 from the regulator body.
2. Clean and check the valve, if the parts are damaged, replace the parts in using the valve kit.
3. Fit the washer in the right position small dimension in front of the "D" gasket, Screw the valve body on the regulator body with a sealing compound "loctite 270" on the third thread and tight at maximum torque 12Nm, **Do not exceed this torque, over torque will damaged the regulator body**.
4. Wait a few minutes for the loctite to dry and fit the ball valve and the spring
5. Clean the thread on the fluid inlet connector, use a thread locking compound like Loctite 222.
6. Apply a maximum torque 6.4Nm.

■ SERVICE CHECKS

CONDITION	CAUSES	REMEDES
Regulated pressure creep.	Improper seating of valve stem on seat.	Be sure that seat and ball valve are not damaged, worm or dirty.
	Diaphragm leaking.	Replace.
Regulated pressure drop.	Restriction in main material line or at valve seat inlet.	Clear l'obstruction
	Diaphragm damaged.	Replace.
Fluid leakage from under bonnet.	Loose cap screws.	Screw the 6 screws at a torque 8 mN.
	Diaphragm damaged.	Replace.

■ ACCESSORIES

1/ MA-25, GA-333, GA-288 : Manometer 2.5b, 6b or 10bar.
2/ S-3008 : Stainless steel adapter 1/4'' BSP female / female
3/ S-3007 : Stainless steel riser tube 1/4''BSP – male/male
4/ S-3006 : Tee in stainless steel 1/4'' BSP – Female
5/ HGB-66 : Stainless steel reducer 1/4''x 3/8 '' BSP male/male (no retention)
S-3009 : Stainless steel coupling 1/4''BSP Male/Male
6/ HGB-65 : Regulator support in steel, Regulator can be fitted above the support by using 2 screw standard (Not supplied) in Stainless steel M5*10 added 2 washers



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(ITW SF - 22 Mai 2007)