

INSTRUCTION MANUAL

PNEUMATIC MOTOR FOR PUMPS

Stroke: 120 mm / 4.72 in.

Series 7120 : # 105270 Series 9120 : # 105290

Manual : 574.150.112 - 1111 «MOT1»

Date: 21/11/11 - Supersede: 01/06/07

Modif.: Update

TRANSLATION OF THE ORIGINAL MANUAL

IMPORTANT: Before assembly and start-up, please read and clearly understand all the documents relating to this equipment (professional use only).

THE PICTURES AND DRAWINGS ARE NON CONTRACTUAL. WE RESERVE THE RIGHT TO MAKE CHANGES WITHOUT PRIOR NOTICE.

KREMLIN - REXSON

150, avenue de Stalingrad 93 245 - STAINS CEDEX – France

www.kremlin-rexson.com



INSTRUCTION MANUAL PNEUMATIC MOTOR FOR PUMPS

TABLE OF CONTENTS

01. WARRANTY	2
02. SAFETY INSTRUCTIONS	2
03. INSTALLATION	6
04. OPERATING	8
05. USE	8
06. PNEUMATIC CABLING	10
07. MAINTENANCE	12
08. EXPLODED VIEW AND PARTS' LIST	15

Dear Customer,

You are the owner of our new equipment and we would like to take this opportunity to thank you.

To make sure your investment will provide full satisfaction, special care has been taken by KREMLIN REXSON during all designing and manufacturing processes.

To obtain the best result, safe and efficient operation of your equipment, we advice you to read and make yourself familiar with this instruction and service manual. Indeed, the non-compliance with instructions and precautions stated in this manual could reduce the equipment working life, result in operating trouble and create unsafe conditions.

01. WARRANTY

We reserve the right to make changes; these changes may be carried out after the receipt of the order. No claim will be accepted as a consequence of any change carried out in the instruction manuals or in the selection guides.

Our equipment is checked and tested prior to shipment. In the case of a problem arising with the equipment, this must be in writing, within ten days from the delivery date.

KREMLIN REXSON warrants all equipment manufactured bearing its name, to be free from defect in material or workmanship for a period of 12 months (one shift per day or 1800 hours - 1 term reached) from the date of delivery. Work life is based on single shift working - 8 hours per day. Warranty claims for defective items will only be accepted in writing and will be verified and confirmed by us.

The warranty does not cover fair wear and tear, damage or wear caused by misuse, improper maintenance or non-observance of our recommendations.

KREMLIN REXSON will repair or replace parts (carriage paid to our plant and accepted as 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; all expenses (travelling and accommodation) for KREMLIN REXSON technicians will be chargeable.

In the event that it is found that equipment has been tampered with, this will invalidate the warranty. Equipment that it is bought in will be subject to the suppliers' warranty.

02. SAFETY INSTRUCTIONS

GENERAL SAFETY INSTRUCTIONS



CAUTION: The equipment can be dangerous if you do not follow our instructions concerning installation and servicing described in this manual and in accordance with applicable European standards and local national safety regulations.

Please carefully read all the instruction literature before operating your equipment.

Only trained operators can use the equipment (To acquire an essential training, please contact the "KREMLIN REXSON University" training center - Stains).

The foreman must ensure that the operator has understood the safety instructions for this equipment as well as the instructions in the manuals for the different parts and accessories.

Read carefully all instruction manuals, label markings before operating the equipment.

Incorrect use may result in injury. This equipment is for professional use only. It must be used only for what it has been designed for. Never modify the equipment. The parts and accessories supplied must be regularly inspected. Defective or worn parts must be replaced.

Guards (air motor cover, coupling shields, housings,...) have been designed for a safe use of the equipment.

The manufacturer will not be held responsible for bodily injury or failure and / or damage to property due to removal or partial removal of the guards.

Never exceed the equipment components' maximum working pressure.

Comply with regulations concerning safety, fire risks, electrical regulations in force in the country of final destination of the material. Use only products or solvent compatible with the parts in contact with the material (refer to data sheet of the material manufacturer).

PICTOGRAMS

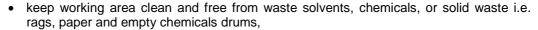


FIRE - EXPLOSION - SPARKS - STATIC ELECTRICITY HAZARDS

A poor earth connection, inadequate ventilation, sparks or static electricity can cause an explosion or fire. to avoid these risks when using or servicing KREMLIN REXSON equipment, the following safety procedures must be followed:

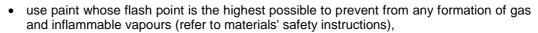


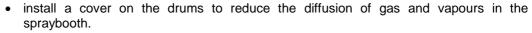
- ensure a good earth connection and ground the parts to be handled i.e. solvents, materials, components and equipment,
- · ensure adequate ventilation,





- never use electrical switches / power if in an atmosphere of volatile solvent vapour,
- stop working immediately in case of electrical arcs,
- never store chemicals and solvents in the working area.





TOXIC PRODUCT HAZARDS

Toxic products or vapours can cause severe injury not only though contact with the body, but also if the products are ingested or inhaled. It is imperative:



- to know the material products and their risks,
- notified or hazardous materials must be stored in accordance with the regulations,



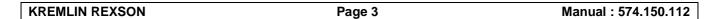
 the material must be stored in an appropriate container, never place materials in a container where there is a risk of spillage or leakage,



 a procedure must be applied for the safe disposal of waste material. It must comply with all prevailing regulations and legislations of the country where the equipment is to be used,



- protective clothing should always be worn in compliance with the material manufacturers' recommendations,
- depending on the application and chemical safety instructions, safety glasses, hearing
 protective earplug, gloves, foot wear, protective masks and possible breathing
 equipment should be worn to comply with the regulations (Refer to chapter "Safety
 equipment of KREMLIN selection guide).





CAUTION!



It is forbidden to use material containing high concentrations of halogenated hydrocarbon solvents with **aluminium** or **zinc fillers** .Non-compliance with the instructions may cause explosion risk causing serious or fatal injury.

EQUIPMENT REQUIREMENTS

Guards (air motor cover, coupling shields, housings,...) have been designed for a safe use of the equipment.

The manufacturer will not be held responsible for bodily injury or failure and / or damage to property due to removal or partial removal of the guards.

PUMP



Before carrying out any work, it is imperative to read and clearly understand the disassembly and reassembly instructions before servicing. The operator must understand the equipment and the safety instructions. These instructions are available in the equipment manuals.



The air motor is designed to be mounted with a pump. Never modify any components or couplings. When operating, please keep hands away from moving parts. Before starting up the equipment, please read the PRESSURE RELIEF instructions. Please ensure that any relief or drain valves fitted are in good working order.

HOSES

- · Keep hoses out of circulation areas, moving parts or hot surfaces,
- Never expose product hoses to temperature higher than + 60°C / 140° F or lower than 0°C / 32° F,
- Never pull or use the hoses to move the equipment,
- Tighten all fittings as well as the hoses before operating the equipment,
- · Check the hoses regularly; change them if they are damaged,
- Never exceed the working pressure (WP) indicated on the hose.

USED PRODUCTS

Considering the wide variety of products that are available and can be used in our equipment it is impossible to check and make recommendations for all chemical data, regarding the risks of possible chemical attack and their long term chemical reaction

KREMLIN REXSON can not be held liable for:

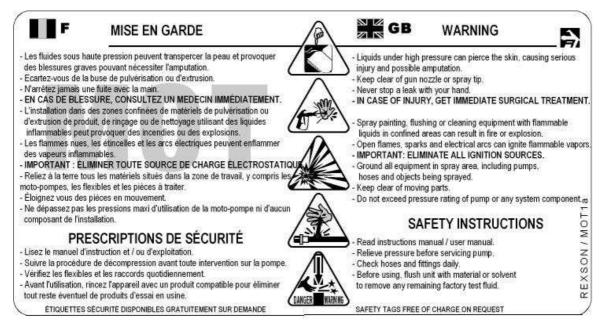
- · Compatibility of wetted parts,
- · Risks to staff and the surroundings,
- for worn or defective parts, for faulty equipment or units, or the quality of final product.

It is the responsibility of the user to know and prevent any possible risks such as toxic vapours, fires or explosions. He shall determine the risks of immediate reactions or pursuant to repeated exposures of the staff,

KREMLIN REXSON shall not be liable for physical injuries, direct or indirect material damages caused by the use of chemicals.

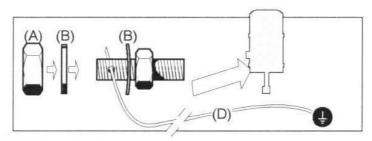
SPECIFIC SAFETY INSTRUCTIONS

MOTOR LABEL



GROUNDING OF THE PUMP





Unscrew the lock-nut (A), introduce between the washers (B) the end of a ground wire (D) (minimum section : 1,5 mm² in the hole of the terminal). Tighten the lock-nut. Connect the other end of the wire to a real "ground", according to the national rules.

A qualified electrician must check the ground continuity. If the continuity is not correct, check the terminal, the electric wire, the U bolt and the ground point. Never operate pump without revolving the trouble.

CONNECTION TO THE COMPRESSED AIR SUPPLY

For a correct operating and a long duration life of the motor, supply air must be filtered and not lubricated (Cf § Maintenance).

- You must install a pressure relief valve after the air regulator and near to the inlet motor to follow the pressure relief instructions (refer to pump instruction manual - § Troubleshooting chart).
- The motor air supply hose should have an internal diameter of at least 19 mm / 0.75".
- The motors are tested prior to their sending. Nonetheless, before coupling the motor to the pump, you must operate the no load motor during a few minutes to a maximum pressure of 1 bar / 14.5 psi.

Then, comply with the instructions as follows:

- 1/ Couple the motor to the required fluid section,
- 2/ Connect the main air supply to the motor,
- 3/ Adjust the pressure by means of the air regulator.

03. INSTALLATION

HANDLING

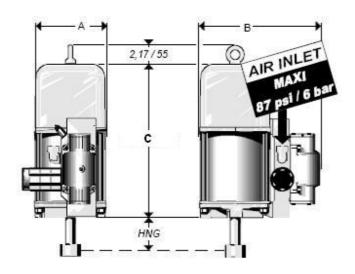
The ring located above the cover is designed for the hoisting of the motor and **must not be used for the handling of the complete machine.**

Never immerse the motor.

STORING

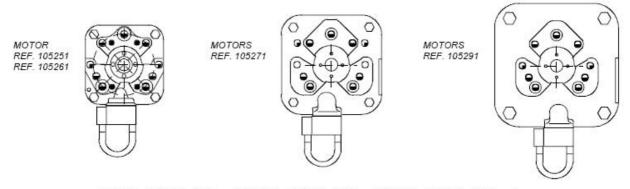
Place the equipment safe from dampness after having closed the different air inlets and ports (plugs).

■ DIMENSIONS AND FEATURES



Motor - #	105 251	105 261	105 270	105 271	105 290	105 291
A (mm / ")	204 / 8	204 / 8	262 / 10.3	262 / 10.3	324 / 12.7	324 / 12.7
B (mm / ")	345 / 13.5	345 / 13.5	400 / 15.7	400 / 15.7	462 / 18.2	462 / 18.2
C (mm / ")		440 /17.3				
High neutral grear (HNG) (mm / ")	63.5 / 2.5	137 / 5.4	237 / 9.3	137 / 5.4	237 / 9.3	137 / 5.4
Cylinder bore Ø (mm /")	190 / 7.5	190 / 7.5	250 / 9.8	250 / 9.8	310 /12.2	310 / 12.2
Practical stroke (mm / ")		120 / 4.7				
Maximum stroke (mm / ")		132 / 5.2				
Air supply Ø	3/4" G					
Muffler	1"					
Noise level (average)	70					
Kg / Lbs	21 / 46.3	21 / 46.3	26 / 57.3	26 / 57.3	35 / 77.1	35 / 77.1

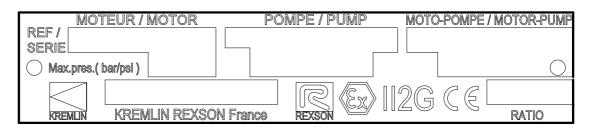
■ TAPPING OF THE LOWER FLANGES



M12 (on Ø 5,20 in. / 132 mm)
 M18 (on Ø 7,09 in. / 180 mm)
 M18 (on Ø 6,30 in. / 160 mm)

■ DESCRIPTION OF THE LABEL MARKING

Marking in accordance with the ATEX directive



KREMLIN REXSON STAINS FRANCE	Name and address of the manufacturer
MOTEUR /MOTOR	Motor part number and serial number. The two first numbers indicate the manufacturing year.
POMPE / PUMP	-
MOTO-POMPE / MOTOR-PUMP	-
€	II : group II 2 : class 2 Surface equipment meant to area where explosive atmospheres due to gas, vapours, mists or air mixtures with dusts are liable to appear from time to time in usual operating. G : gas

■ CONNECTIONS OF THE SUBSETS

<u>PNEUMATIC SUPPLY</u>: Any restrictive operation on motor air supply and/or exhaust can reduce its efficiency. The maximum air supply is 6 bars / 87 psi.

04. OPERATING

EXPECTED USE

These pneumatic motors are designed to be coupled with the recommended KREMLIN REXSON fluid section to get the required ratio and flow rate (refer to the document concerning the pumps).

OPERATING DESCRIPTION

The KREMLIN REXSON pneumatic motors with rectilinear alternative motions operate thanks to compressed air supply. The reversing system is carried out by means of :

- a distributor, model 4/2,
- two sensors,
- a distributor, model 5/2.

05. USE

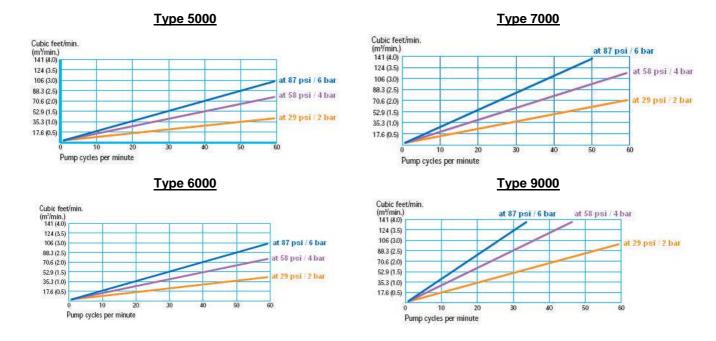
Guards (air motor cover, coupling shields, housings,...) have been designed for a safe use of the equipment.

The manufacturer will not be held responsible for bodily injury or failure and / or damage to property due to removal or partial removal of the guards.

ADJUSTMENT

The increase of the motor supply air pressure (via the air regulator) leads to an increase of the number of pump piston returns/mn (cycles) which leads to a flow rate increase and to an outlet pressure increase of the pumped material.

AIR CONSUMPTION OF THE MOTORS				
Pressure of the motors at 6 bar / 87 psi				
Series	daN			
5000	1700			
6000	1700			
7000	2940			
9000	4520			



■ TROUBLESHOOTING CHART

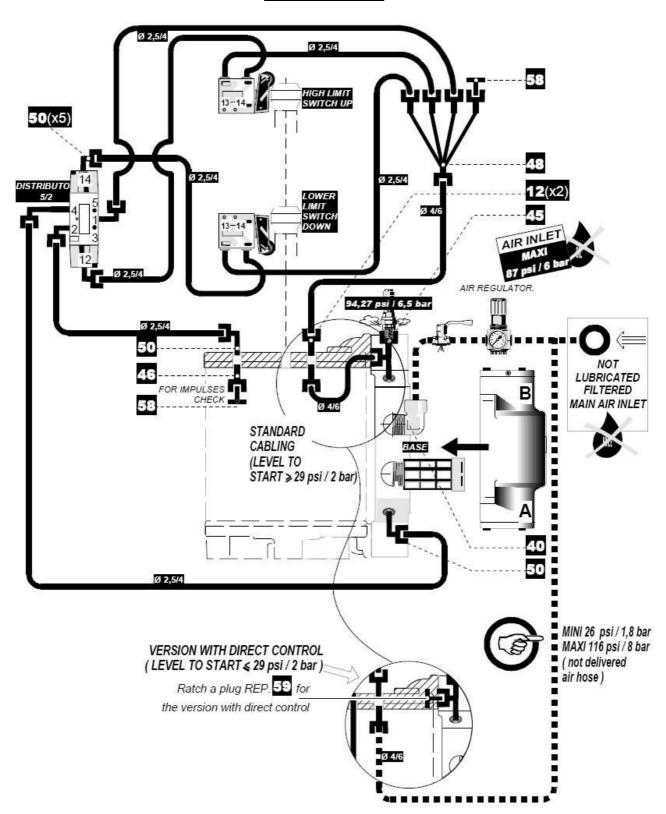
Carry out the pressure release instructions before any intervention :

- shut off the air inlet using the release pressure valve to evacuate the residual air,
- depressurize the material circuit opening the pump drain valve or the gun.

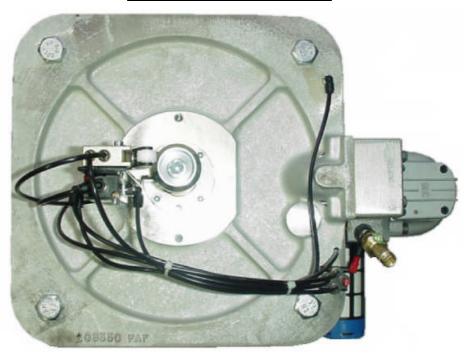
Caution: Check the conformity of the cabling before any intervention.

TROUBLES	CAUSES	SOLUTIONS			
	Defective sensors	Adjust or change the sensor (s).			
Motor piston locked	Defective control distributor	Check the operating, change if necessary.			
	Defective power distributor	Check the operating, change if necessary.			
Material flow rate drop	Leakage during the exhaust	Check the seals of the piston; change them if necessary.			
	Leakage during the exhaust	Check the seals of the distributor; change them if necessary			
	Muffler clogged up	Clean or change the muffler.			
Important leakage during the	Distributor base seal incorrectly mounted	Mount the seal correctly.			
exhaust	Power distributor defective	Check the operating; change if necessary.			

Pneumatic diagram



Series: 5000 - 6000 - 7000 - 9000

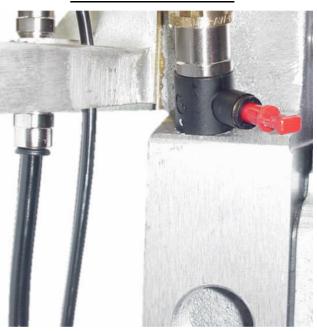


Standard cabling



The motors mounted in our plant are cabled in **standard piloting.** The threshold of the motor starting is about 1.5 bar / 21.7 psi.

Version with direct control



If the user wants to get a motor starting with a pressure of about 0.5 bar / 7.25 psi, the cabling can be modified in **direct piloting**.

07. MAINTENANCE

PREVENTIVE MAINTENANCE



CAUTION

BEFORE ANY INTERVENTION, PLEASE FOLLOW THE PRESSURE RELEASE INSTRUCTIONS AND THE SAFETY INSTRUCTIONS.

The motor is manufactured under the ATEX agreement and can not be modified. KREMLIN REXSON will not be held responsible for any failure to comply with that instruction

Guards (air motor cover, coupling shields, housings,...) have been designed for a safe use of the equipment.

The manufacturer will not be held responsible for bodily injury or failure and / or damage to property due to removal or partial removal of the guards.

The motor is designed to have a minimum maintenance (supply air filtered). We advice you to carry out a preventive maintenance after an operating of 12 months. Check :

- if the air filter is clogged,
- that there is no air leakage,
- that air hoses are not damaged,
- that the connections between fittings and hoses are correct,
- the correct condition of the supply hoses (rubber, setting,...), regulators and gauges,
- the tightening of the components,
- the condition of the muffler (s),
- the fixing of the cover,
- the correct operating of the safety valve,
- the condition of the relief valve.

DISASSEMBLY / ASSEMBLY



CAUTION

READ THE SPARE PARTS' LIST AND THE SERVICING KITS AVAILABLE.

Guards (air motor cover, coupling shields, housings,...) have been designed for a safe use of the equipment.

The manufacturer will not be held responsible for bodily injury or failure and / or damage to property due to removal or partial removal of the guards.

The maintenance consists in changing the damaged parts and cleaning the parts with compatible materials without using abrasive materials which can damage them. The O-Rings are mounted with a "pneumatic" grease. Make sure during the assembly that the seals are not damaged to avoid a bad operating of the motor.

Disassembly of the motor and of the fluid section:

- 1/ Adjust the air regulator to 0 bar / 0 psi,
- 2/ Shut off the air supply from the motor, then carry out the pressure release and drain instructions,
- 3/ Take off the axis lock (21),
- 4/ Lift the closing ring (25),
- 5/ Take off the two half bushes (26) and put aside the closing ring,
- 6/ Remove the fixing screws of the motor,
- 7/ Put aside the motor.

Disassembly of the distributors and of the sensors:

- 1/ Unscrew the 2 screws (27) and remove the washers (28),
- 2/ Take off the cover (2) and disconnect the air hoses,
- 3/ Unscrew the 4 screws (34), put aside the distributor (33) and remove the base seal (F),
- 4/ Unscrew the 4 screws (38) and put aside the base (43),
- 5/ Remove the 2 base seals (44),
- 6/ Unscrew the 2 screws (30) and remove the U-bolt (4),
- 7/ Unscrew the screws (27) and put aside the distributor/sensors assembly,
- 8/ Unscrew the 2 screws (10) and remove the distributor (9),
- 9/ Unscrew the screws (7) and put aside the sensors (6),
- 10/ Remove the screw (31) and the cam (32),
- 11/ Change the defective parts.

The assembly is carried out in the reverse order of the disassembly sequence. Caution to the following instructions:

- During the changing of the sensors (6), push them in the opposite direction of the piston rod, then tighten the screws,
- The wheels must flush up the piston rod,
- Cable once again the parts according to the pneumatic diagrams,
- Orientate the distributor base seal (33) according to the A and B indexes.

Changing the seals of the upper and lower flanges and of the piston:

- 1/ Unscrew the screw (31) and remove the cam (32),
- 2/ Unscrew the 4 nuts (24), remove the washers (23) and the 4 screws (5),
- 3/ Remove the upper flange assembly (14), the cylinder (20) (2 components polyurethan paint protection), the lower flange assembly (22) and the rod/piston assembly,
- 4/ Check the O-Rings (15) of the flanges, change them if necessary,
- 5/ Remove the screws (42), take off the stop flange (2 parts) (19) and the adapter (2 parts) (17),
- 6/ Take off the rod (8) downstream and remove the piston assembly,
- 7/ Check the O-Ring (13), change it if necessary,
- 8/ Check the piston O-Ring (16), change it if necessary then put aside the piston (18).

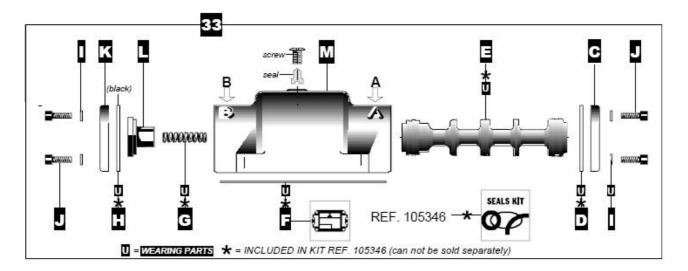
The assembly is carried out in the reverse order of the disassembly sequence. Caution to the following instructions :

- <u>Stage 5</u>: Applicate "ONE SEAL LOCTITE N° 518" paste on the adapter (2 parts) (17) as well as on the screws (42) to ensure the tightness between piston and rod,
- <u>Stage 8</u>: <u>Assembly of the piston floating seal (16)</u>: First, insert the seal (with a light coating of pneumatic grease) in the groove of the piston. Position the rod/piston/seal assembly above the cylinder. Press on the sides of the seal until the piston/rod assembly slides inside the cylinder.

Changing the bearing seals:

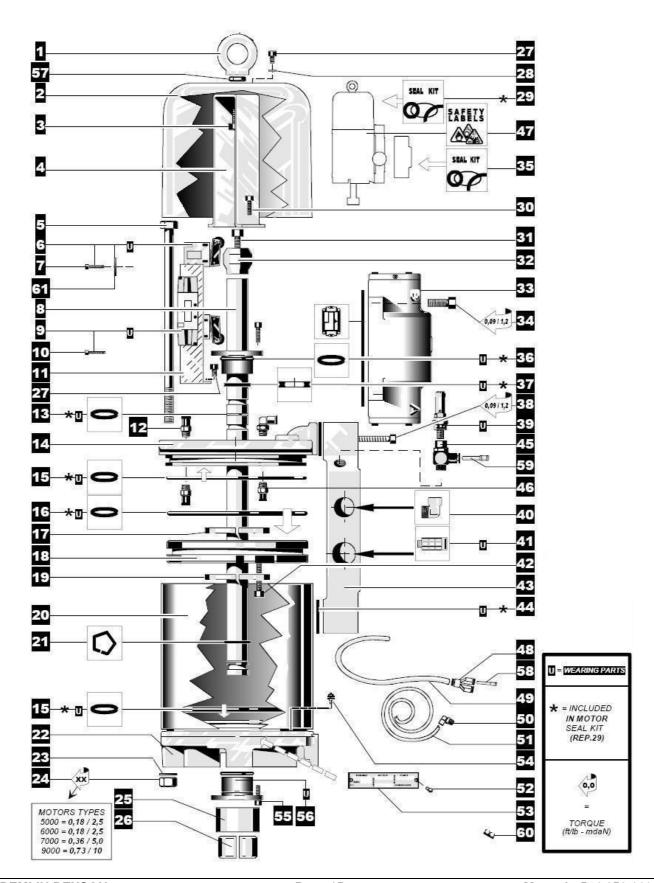
- 1/ Unscrew the 4 screws (55),
- 2/ Remove the bearing assembly (if necessary, use the M6 tapping holes,
- 3/ Remove and check the seals (36 & 37); change them if necessary.

Disassembly of the distributor (33):



- 1/ Disconnect the air hoses,
- 2/ Unscrew the 4 screws (34) which fix the distributor on the base, remove the seal (F); check it and change it if necessary,
- 3/ Unscrew the 4 screws (J) which fix the cover (C) to the body (M) (side A); check the seal (D), change it if necessary,
- 4/ Unscrew the 4 screws (J) which fix the cover (K) to the body (M) (side B); check the seal (H) and change it if necessary,
- 5/ Take off the valve (E), the spring guide (L) and the spring (G),
- 6/ Carry out the assembly in the reverse order of the disassembly sequence.

08. EXPLODED VIEW AND PARTS' LIST



		105 251	105 261	105 270	105 271	105 290	105 291	
Ind	Description			‡	#			Qty
1	Hoisting ring	91 422					1	
2	Cover	209 376	209 376 209 376 209 366 209 366 209 356 209 356					1
3	Screw, HM 12x25			88	069			1
4	U bolt			209	359			1
5	Screw	91 434	91 434	91 434	91 434	91 435	91 435	4
*6	Sensor (x2)			151 80	00 002			1
7	Screw, CHc 4x20			933 1	51 273			4
8	Piston rod	210 446	205 591	206 585	205 591	206 585	205 591	1
*9	Distributor, 5/2			91	424			1
10	Screw, CHc 3x25			932 1	51 326			2
11	Support			209	358			1
12	Fitting			905 12	24 901			2
*13	O-Ring seal			NCS	/ NSS			1
14	Upper flange	209 370	209 370	209 360	209 360	209 350	209 350	1
*15	O-Ring seal		NCS / NSS					2
*16	O-Ring seal		NCS / NSS					1
17	Adapter (2 parts)		205 593					1
18	Piston	209 373	209 373	209 363	209 363	209 353	209 353	1
19	Stop flange (2 parts)			205	592			1
20	Cylinder	205 478	205 478	205 209	205 209	9 009	9 009	1
21	Axis lock	90 040	90 165	90 165	90 165	90 165	90 165	1
22	Lower flange	209 371	209 371	209 361	209 361	209 351	209 351	1
23	Washer	963040023	963040023	963040023	963040023	963040025	963040025	4
24	Nut	953010023	953010023	953010023	953010023	953010025	953010025	4
25	Closing ring	205 094	205 212	205 212	205 212	205 212	205 212	1
26	Bush (2 parts)	209 394	205 211	205 211	205 211	205 211	205 211	1
27	Screw, CHc 6x10			88	130			4
28	Washer, MU6			963 04	40 016			2
*29	Seal kit- motor	105 263	105 263	105 273	105 273	105 293	105 293	1
30	Screw, CHC M8x20		88 151				2	
31	Screw, CHc M10x30		88 189				1	
32	Cam	209 364				1		
*33	Distributor, 4/2	91 433				1		
34	Screw	88 514				4		
*35	Seal kit - distributor	105 346					1	
*36	O-Ring seal	NCS / NSS					2	
*37	Seal	NCS / NSS					2	
38	Screw, CHC M8x60		88 908					4

		105 251	105 261	105 270	105 271	105 290	105 291	
Ind	Description	#				Qty		
*39	Safety valve		903 080 401				1	
40	Elbow			552	434			1
*41	Muffler	90 167	91 766	91 766	91 766	91 766	91 766	1
42	Screw	88 735	88 735	88 735	88 735	88 735	88 735	6
43	Base			209	357			1
*44	Base seal			NCS	/ NSS			2
45	Fitting		552 542					1
46	Fitting		905 120 907					1
48	Air fitting		552 226					1
49	Air hose, Ø 4x6		76 607					0,2m
50	Elbow fitting	905 120 926					7	
51	Air hose, Ø 2,5x4	76 764					3,1m	
52	Rivet		-					2
53	Identification plate		-				1	
54	Ground		104 790					1
55	Screw, CHc 6x20	88 134				8		
*56	Bearing	205 606				2		
57	Nut, HM 12	88 321				1		
58	Plug	905 120 937				2		
59	Plug	905 120 924				1		
60	Rack	-				1		
61	Washer, MU4	963 040 012				4		

	Seal kit - Motor	
#	Description	Qty
105 263 105 273 105 293	Seal kit (ind. 13, 15(x2), 16, 36(x2), 37(x2), 44(x2)	1

^{*} Preceding the index number denotes a suggested spare part NSS: Denotes parts are not serviceable separately.