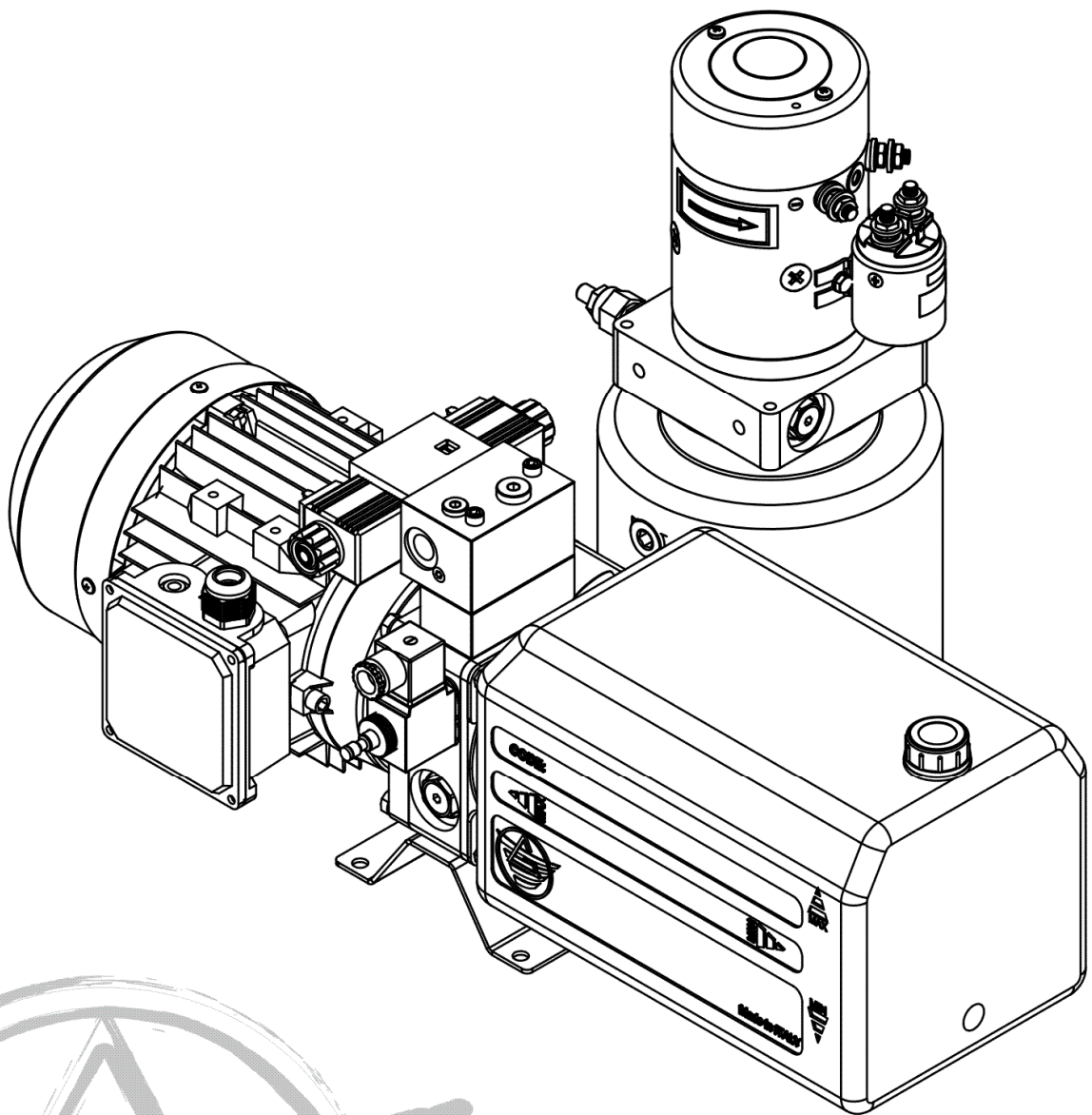


# ***GALLERIA SRL***

## **HYDRAULIC POWER PACK USE AND MAINTENANCE MANUAL**



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## **PREFACE**

Understanding function and components of an equipment, as well as complying with the instruction given for the use and maintenance of a machine, constitute an essential preface to operate the same profitably, thus ensuring maximum lifetime.

Before connecting the power pack (or installation) and setting it at work, we strongly recommend to read this manual attentively.

Should you encounter any problem during operation or while setting the unit at work, we advise to directly consult the equipment or installation manufacturer, or to contact the Customer Care of **GAZZERA Srl**.

## **NOTICE FOR THE USE AND MAINTENANCE OF THIS MANUAL**

This manual has been edited making in the different chapters reference to the components, which are usually employed when assembling hydraulic unit of different types, according to installation interlocking requirements. Therefore, in the different chapters you may find information about components that are not part of the unit described on the manual cover.

In this case do not consider the related information.

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**For any problem that might arise during the machine life, and in any case not included in this manual, please contact our technical department, in order to solving the problem in the shortest time possible.**

# 1 – IMPORTANT SAFETY INFORMATION – WARNING

## 1.1 GENERAL RULES

Incautious and improper use of the appliance can be cause of great risk for people or things. Therefore it is mostly important, before getting started, to carefully read this manual and observe following guidelines:

- Never use the power pack for other purpose, not connect it to other machine than the one for which the unit has been designed and manufactured.
- Provide a properly machine connection.
- Any possible modification of the power pack made on one's own initiative, will relieve the manufacturer of the responsibility for any damage caused by machine alteration; **at the same time this will invalidate any form of warranty.**
- **Never** perform maintenance working while equipments or parts of the machine are in motion or live.
- Daily check the correct operation of all safety devices and switches.
- Safety devices shall never be removed or made ineffective.
- Do not try to start the power pack until its operation has been fully understood.
- **Never** start the power pack until all the staff in the area close to the unit have been warned and moved away. Furthermore they must be aware of all the safety-related instruction and shall be familiar with the function and position of the eventually emergency, start and stop buttons.
- Never try reckless solution: every maintenance, adjustment or general operation shall be carried out by authorized staff only, who will have to operate exclusively with the unit disconnected from the machine.
- Keep the area close to the power pack clear and in safty conditions.
- Always wear the proper personal protection equipment (glasses, hearing protectors). Pay the greatest attention to all the warning and danger signs placed on the machine.
- Don't wear clothes or accessories that might entangled in the moving members.
- All plates and sign applied on the power pack shall be kept in perfect conditions. In case of damage, they shall be promptly replaced. You can contact **Gazzera Srl**.
- Replace parts deemed to be broken with original spare parts, warranted by the manufacturing company.
- Always comply with and ensure compliance with safety rules; in case of doubts, please consult this manual again before taking any action.
- Before starting the power pack, the operator shall verify the possible presence of visible defects on the safety devices and on the power pack. In this case, immediately contact Gazzera Srl.
- For any doubts, despite having carefully and entirely read this manual, please contact Gazzera Srl technical department.

## 1.2 WORKING CONSTRAINTS

The hydraulic power pack **must** be stored in an area protected from every adverse weather condition. The storage of the power pack in environments other than those indicated herewith, or dangerous environments like fire risk areas, shall void the warranty.

- 1.2.1 Environment temperature: -15 +40 °C (with peaks of 50°C)
- 1.2.2 Oil viscosity: min 12 mm<sup>2</sup>/s  
max 80 mm<sup>2</sup>/s  
max viscosity at start up 500 mm<sup>2</sup>/s
- 1.2.3 Pressure: maximum pressure depending on pump and relief valve used

## 1.3 CORRECT USE OF THE HYDRAULIC POWER PACK

The hydraulic power pack of **Gazzera Srl** injects hydraulic oil under constant and controlled pressure inside a circuit prepared by the customer, consequently the hydraulic power pack cannot be used for purposes other than those indicated in the order confirmation determining its destination and use.

The hydraulic power pack of **Gazzera Srl** is manufactured following provisions under UNI EN 982, hence, it has to be mounted in a system conceived on the basis of such technical standard.

Pursuant decree-law 459/96, the hydraulic power pack is component to be mounted on more complex systems, consequently before commissioning the hydraulic power pack it is necessary to make sure the whole assembly complies with decree-law 459/96 trasposing the Machinery directive.

## 1.4 HYDRAULIC POWER PACK FEATURES

The technical features of the hydraulic power pack are indicated in the sheet enclosed to the manual.

## 2 – STORAGE AND HANDLING

### 2.1 STORAGE

The hydraulic power pack has always been submitted to inspection before delivery; therefore, even if it has been delivered without lubricating oil, the machine components are sufficiently protected by the residues of lubrication for a fairly long period of time.

Nevertheless, when interval between delivery and installation (i.e. setting at work) is considerably long, following guidelines must be observed:

- 2.1.1 Store the power pack in a dry sheltered place to protect it against bad weather.
- 2.1.2 Avoid the stay in a dusty area; the tank, even if equipped with gaskets, is not dustproof.  
Dust and moisture might penetrate through the filter of drain plug, or through possible additional vents.
- 2.1.3 Since the motor is the heaviest part of the power pack, for storage it must be positioned horizontally: never position it vertically with tank down and motor up (the tank has to be drained from hydraulic fluid).

### 2.2 HANDLING

The hydraulic power pack have to be handled with care.

Some of the protruding parts, like valves, filler cap or the engine cover fan, might be subject to break or shocks. Special care has to be devoted if the hydraulic power pack is equipped with manifolds. In this case, the latter have to be protected from shocks and dents in order to prevent dangerous bending which might lead to irreversible damage.

Another components subject to damages is the tank which can get dented in case of steel tank and break or deformations in case of plastic tank.

## 3 – INSTALLATION

### 3.1 INSTALLATION CONDITIONS – FEATURES OF THE EQUIPMENT

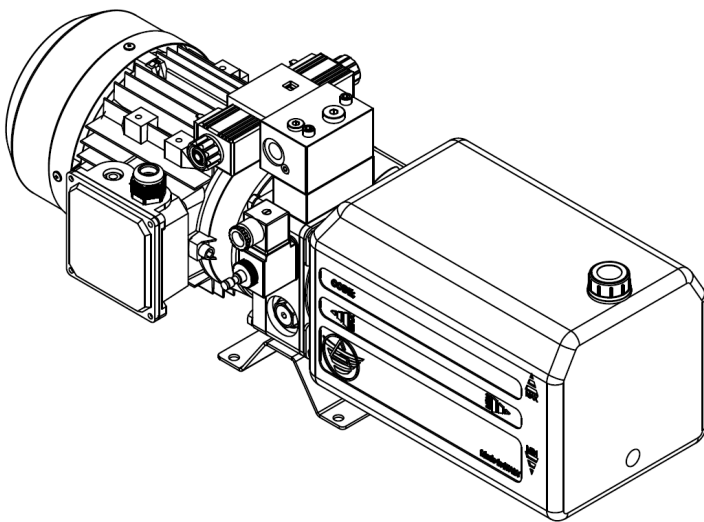
Pay special attention to the environment where the unit has to be installed; following guidelines must be observed:

- 3.1.1 The rest base should bear the unit avoiding any vibration.
- 3.1.2 The surrounding environment should not be too dusty.  
**Be careful especially with abrasive powders.**
- 3.1.3 Avoid rooms with a too high moisture degree; oil might be contaminated.
- 3.1.4 Room temperature should never be too high or too low;
- 3.1.5 The supplied equipment is foreseen to operate with mineral oil:  
**Check the possible presence of fire risk.**

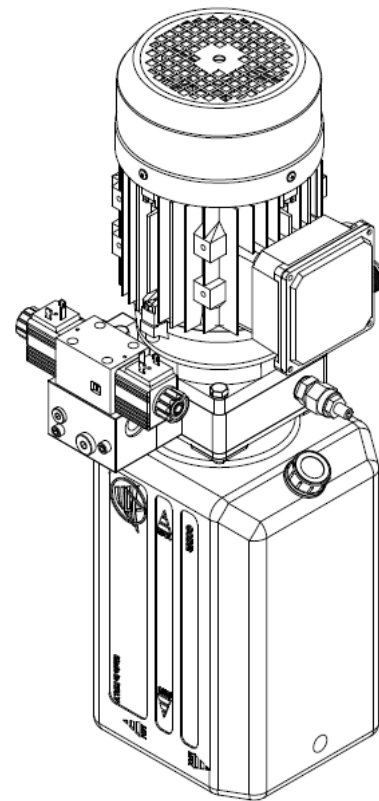
To run the installation optimally, it is important to pay attention to both oil temperature and viscosity range.

- 3.1.6 Oil viscosity: the viscosity range must be between 12 and 80 mm<sup>2</sup>/sec (cst). Oil must be chosen according to minimum room temperature and maximum oil temperature.  
To this purpose following table (paragraph 4.4) can be used as reference.

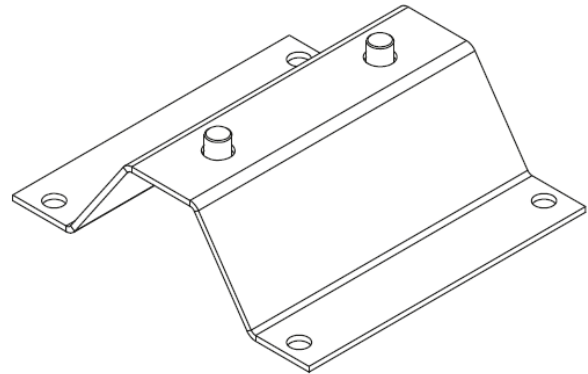
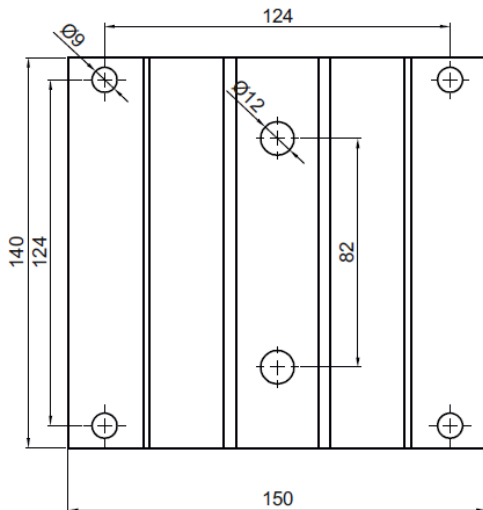
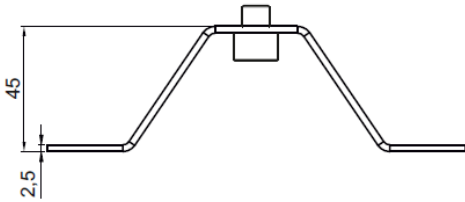
### 3.2 MOUNTING OF THE HYDRAULIC POWER PACK



**HORIZONTAL MOUNTING**



**VERTICAL MOUNTING**



**FOOT MOUNTING** – Optional, but essential for horizontal mounting

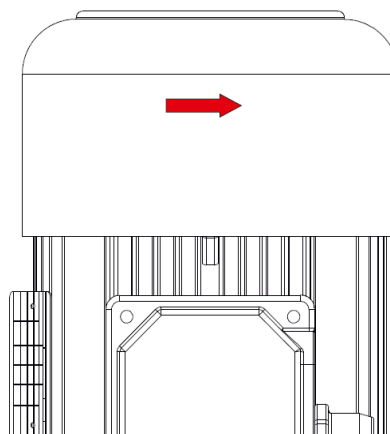
### 3.3 TANK CHARGE

For shipment the hydraulic power pack is completely drained from circuit oil, consequently as soon as after installation its tank has to be recharged. To carry out this operation:

- 3.3.1 Check the tank cleanness;
- 3.3.2 Fill the tank through the relevant hole of inlet/outlet;
- 3.3.3 The level of filling must reach the maximum point of the optical indicator;
- 3.3.4 Avoid fluid spillover;
- 3.3.5 **WARNING:** fluids on the market usually contain a lot of impurities. It is therefore recommended to filter before use through suitable filtration elements with a higher or equal retention of those already existing on the unit (10micron). **Never use exhausted oil.**

### 3.4 MOTOR ROTATION DIRECTION

At any time it's possible to easily check the motor rotation direction by the arrow on the component. To be sure of the correct information, with the motor electrically connected, we suggest to check by a very short pulse to determinate the direction by looking the rotation of the fan.

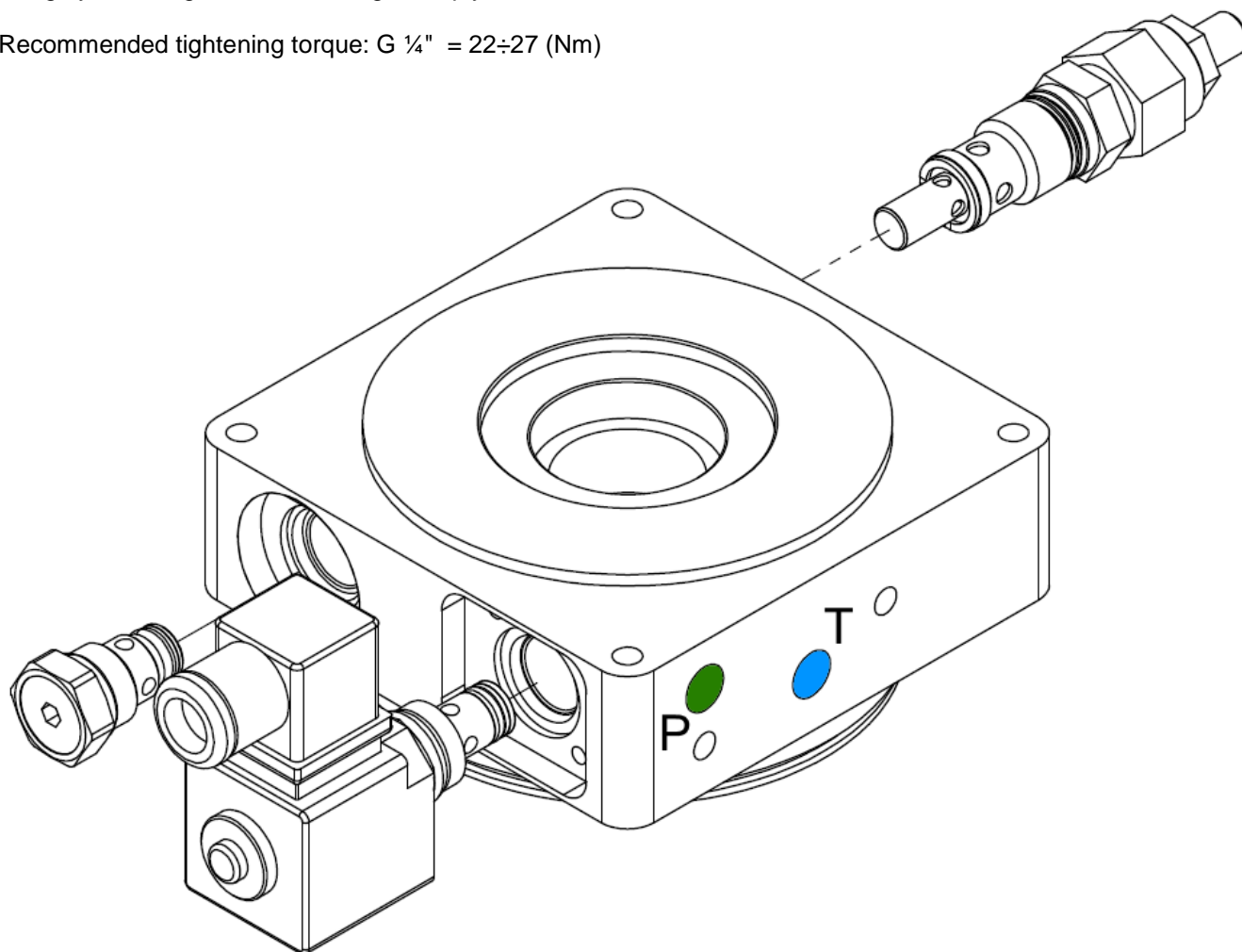




### 3.5 HYDRAULIC CONNECTIONS

On the central manifold are foreseen two ports G ¼" where is possible the hydraulic connection. This is possible using cylindrical gaskets and fittings comply with UNI-ISO 228 standard.

Recommended tightening torque: G ¼" = 22÷27 (Nm)



### 3.5 REGULATION OF THE PRESSURE RELIEF VALVE

The relief valve can be regulated by simply fitting a pressure gauge to the system.

The first essential step, with the help of the data sheet, is to determinate the working range of the valve by detect the code of the latter. The possible solutions are:

**VMDC35\_10 (M20x1,5):**

A = 10 ÷ 90 bar  
B = 20 ÷ 210 bar  
C = 70 ÷ 350 bar

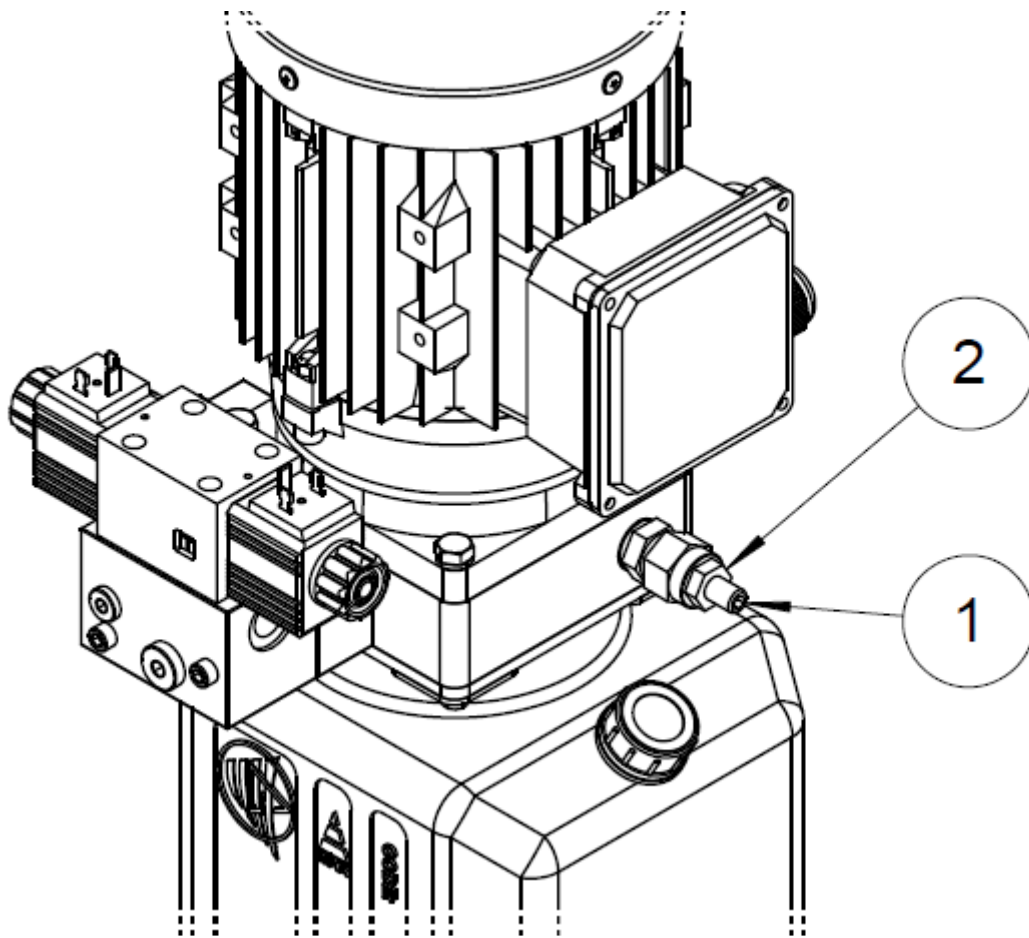
**VMDC20\_10 (3/4"-16 UNF):**

A = 5 ÷ 30 bar  
B = 10 ÷ 100 bar  
C = 50 ÷ 200 bar  
D = 150 ÷ 350 bar

In order to regulate the valve, the operation are:

- Loosen the nut(1);
- Turn the screw (2) to reach desired regulation;
- Lock the nut (1) while holding the screw (2);
- Check the value on the pressure gauge (repeat firsts steps if necessary).

This kind of general operation shall be carried out by authorized staff only. **GAZZERA Srl** is not responsible for malfunctions or general damages caused by the unauthorised use of the hydraulic power pack or interventions and/or modifications by third parties being not authorised by **GAZZERA Srl**.



## 4 – HYDRAULIC POWER PACK MAINTENANCE

Safety and correct operation of the system also depend on a correct and scheduled maintenance of the hydraulic power pack. It is recommended to carry out some basic planned checks as well as performing a preventive maintenance, according to following guidelines.

### 4.1 SCHEDULED MAINTENANCE

After a short run-in under maximum working pressure conditions check the correct clamping of screws, nuts, fittings and pipes. Pulses and vibrations might cause the slackening of the above components and at the same time can cause looseness to the power pack. Check periodically against possible leakages and seal the fitting concerned.

It is advisable to replace the filter at every oil change: since the filter change involves the tank dismounting, it is recommended to clean it accurately to free from residues on its bottom and check the gasket too.

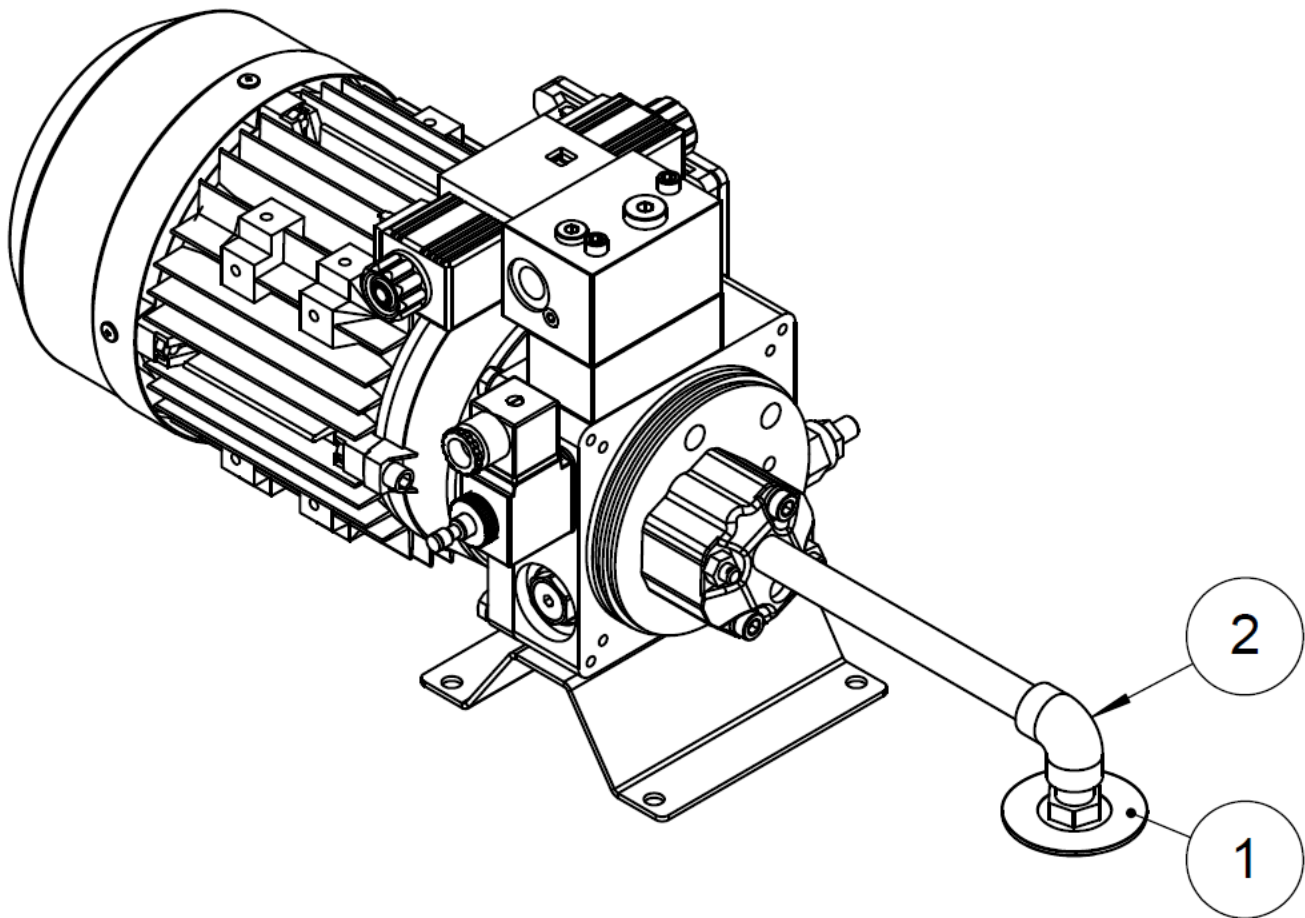
### 4.2 FILTER ELEMENT REPLACEMENT

It is advisable to replace the filter element as follows:

- after the first 300 working hours;
- subsequently, every 1000 working hours;
- every fluid change.

To change the filter follow instructions below (authorized staff only):

- unscrew the filter (1) by holding the fitting (2) and the pipe to prevent its unscrewing;
- screw the new filter along the same useful threaded section of the pipe, force the thread so as to fit the metal thread on the filter on the pipe to ensure hydraulic and mechanic tightness.
- Check for eventually scraps. In presence of the latter, remove them.



### 4.3 HYDRAULIC FLUID

At least weekly check the fluid level through the relevant optical indicator.

- 4.3.1 In case of constant use of the hydraulic power pack, change the fluid after a number of hours according to manufacturer suggestions. Good practice suggest a frequency of 3000 – 5000 working hours.
- 4.3.2 If the hydraulic power pack is used only occasionally, change the fluid once a year.
- 4.3.3 Fluid must be changed at shorter intervals in case it is subject to high temperature.
- 4.3.4 If necessary charge the fluid through a filter having the same level of filtering of working filters.
- 4.3.5 After long stops drain any steam before starting.
- 4.3.6 Carry out an additional filtering by means of a portable filtering tool.
- 4.3.7 Consider summer and winter working conditions in case the fluid does not cover both ranges of temperature, to always best viscosity.
- 4.3.8 Clean the tank at every oil change.
- 4.3.9 Fill with new oil only through a filter. Level of filtering shall be the same as that of working filters. Portable electronically controlled pumping and filtering units are also used.

#### **WASTE OIL DISPOSAL**

The hydraulic oil contained in this equipment, **under no circumstances can be disposed in the environment.** For its disposal follow the current provision. The hydraulic fluid may be a pollutant; prevent hydraulic fluid leaks by using collection tanks and be ready to contain any fluid spills or accidental leak by using absorbent products. **During disposal fully comply with regulations in force in the relevant country.** Store polluting materials such as oils and solvents in metal drums.

#### **SUGGEST FLUID**

The mineral oil hydraulic fluid we suggest is AGIP ARNICA 46, with ISO viscosity class of VG 46 category HVLP (under DIN 51524, part 2 and 3).

Different brands and oils can be used keeping in mind the climate conditions of the area the hydraulic power pack is used by always sticking to HVLP category.

When choosing the type of oil ask the supplier for the viscosity – temperature chart to find out the most suitable ISO viscosity class.

The next chapter shows a table which is merely indicative and shows the list of available hydraulic fluids.

### 4.4 TABLE OF OILS AND GREASES

ISO-Viscosity class	VG22	VG32		VG46		VG68		VG100
Manufacturer ↓	HLP	HVLP	HLP	HVLP	HLP	HVLP	HLP	HLP
<b>ADDINOL</b>	Hydraulic oil HLP 22	Hydraulic oil HLVP 32	Hydraulic oil HLP 32	Hydraulic oil HLVP 46	Hydraulic oil HLP 46	Hydraulic oil HLVP 68	Hydraulic oil HLP 68	Hydraulic oil HLP 100
<b>ARAL</b>	Aral Vietnam GF 22	Aral Vietnam HF 32	Aral Vietnam GF 32	Aral Vietnam HF 46	Aral Vietnam GF 46		Aral Vietnam GF 68	Aral Vietnam GF 100
<b>AVIA</b>	Avia Fluid RSL 22	Avia Fluid HVI 32	Avia Fluid RSL 32	Avia Fluid HVI 46	Avia Fluid RSL 46 Avia Fluid ZAD 46	Avia Fluid HVI 68	Avia Fluid RSL 68	Avia Fluid RSL 100
<b>BELGIN MADENI YAGLER</b>			HIDROTEX BS32		HIDROTEX BS46		HIDROTEX BS68	HIDROTEX BS100
<b>BEST LUBRICANT BLENDING LTD</b>			Hercules (LISHI) Zona Hydraulic Oil VG 32		Hercules (LISHI) Zona Hydraulic Oil VG 46		Hercules (LISHI) Zona Hydraulic Oil VG 68	Hercules (LISHI) Zona Hydraulic Oil VG 100
<b>BP</b>	Energol HLP-HM 22 Bartran 22 Bartran HVX 22	Bartran HV 32 Bartran HVX 32	Energol HLP-HM 32 Bartran 32 Autran MBX	Bartran HV 46 Bartran HVX 46	Energol HLP-HM 46 Bartran 46 Bartran SHF-S46	Bartran HV 68 Bartran HVX 68	Energol HLP-HM 68 Bartran 68	Energol HLP-HM 100 Bartran 100
<b>Brugarolas</b>	Fluid Drive HM-22	Beslux Divol HV 32	Fluid Drive HM-32	Beslux Divol HV 46	Fluid Drive HM-46	Beslux Divol HV 68	Fluid Drive HM-68	Fluid Drive HM-100
<b>Bucher &amp; CIE Motorex AG</b>	COREX HLP 22	COREX EP VI 360	COREX HLP 32	COREX EP VI 510 COREX HV 515 Alpine Granat HV 515	COREX HLP 46	COREX EP VI 610	COREX HLP 68	COREX HLP 100
<b>CALTEX</b>	Rando HD 22	Rando HDZ 32	Rando HD 32	Rando HDZ 46	Rando HD 46	Rando HDZ 68	Rando HD 68	Rando HD 100
<b>CASTROL</b>	HYSPIN AWS 22	HYSPIN AWH 32	HYSPIN AWS 32 Paradene 32 AW TQ-D	HYSPIN AWH 46	HYSPIN AWS 46 Paradene 46 AW	HYSPIN AWH 68	HYSPIN AWS 46 Paradene 68 AW	HYSPIN AWS 100
<b>CEPSA LUBRICANTES, S.A.</b>		CEPSA HIDROSTAR HVLP 32		CEPSA HIDROSTAR HVLP 46	CEPSA Hidraulico HM 46	CEPSA HIDROSTAR HVLP 68		
<b>CHEVRON</b>	Hydraulic Oil AW 22 Chevron Rando HD ISO 22	Mechanism LPS 32	Hydraulic Oil AW 32 Chevron Rykon Oil AW ISO 32 Chevron Rando HD ISO 32	Mechanism LPS 46	Hydraulic Oil AW 46 Chevron Rykon Oil AW ISO 46 Chevron Rando HD ISO 46	Mechanism LPS 68	Hydraulic Oil AW 68 Chevron Rykon Oil AW ISO 68 Chevron Rando HD ISO 68	Hydraulic Oil AW 100 Chevron Rando HD ISO 100
<b>COFRAN</b>	Cofraline extra 22 S	Hydroline Equigrade 32 Speziale 32	Cofraline extra 32 S	Hydroline Equigrade 46	Cofraline extra 46 S	Hydroline Equigrade 68 Speziale 68	Cofraline extra 68 S	Cofraline extra 100 S
<b>CONOCO</b>			Hydroclear AW Hydraulic ISO 32 Super Hydraulic Oil ISO 32		Hydroclear AW Hydraulic ISO 46 Super Hydraulic Oil ISO 46		Hydroclear AW Hydraulic ISO 68	

ISO-Viscosity class	VG22	VG32		VG46		VG68		VG100
Manufacturer ↓	HLP	HVLP	HLP	HVLP	HLP	HVLP	HLP	HLP
<b>ENGEN</b>		Engen TQH 10/32	Engen TQH 20/32	Engen TQH 10/46	Engen TQH 20/46	Engen TQH 10/68	Engen TQH 20/68	Engen TQH 20/100
<b>ENI S.p.A.</b>	OSO 22 ARNICA 22 Precis HLP 22 Autol Hys 22	ARNICA 32	OSO 32  Precis HLP 32	ARNICA 46 H Lift 46  Autol Hys 46	OSO 46  Precis HLP 46	ARNICA 68	OSO 68  Precis HLP 68 Autol Hys 68	OSO 100
<b>ESSO</b>	NUTO H 22	UNIVIS N 32	NUTO H 32  Hydraulic Oil HLP 32	UNIVIS N 46	NUTO H 46  Hydraulic Oil HLP 46	UNIVIS N 68	NUTO H 68  Hydraulic Oil HLP 68	NUTO H 22
<b>EUROL</b>	Eurol HLP 22	Eurol HV 32	Eurol HLP 32 HLP 32 VA	Eurol HV 46	Eurol HLP 46 HLP 46 VA	Eurol HV 68	Eurol HLP 68 HLP 68 VA	Eurol HLP 100
<b>FUCHS</b>	RENOLIN MR 5 VG 22  RENOLIN B5 VG 22  RENOLIN ZAF 22 B	RENOLIN MR 32 MC  RENOLIN B 32 HVI RENOLIN ZAF 32 MC	RENOLIN MR 10 VG 32  RENOLIN B10 VG 32 RENOLIN ZAF 32 B	RENOLIN MR 46 MC  RENOLIN B 46 HVI RENOLIN ZAF 46 MC	RENOLIN MR 15 VG 46  RENOLIN B15 VG 46 RENOLIN ZAF 46 B	RENOLIN MR 68 MC  RENOLIN B 68 HVI RENOLIN ZAF 68 MC	RENOLIN MR 20 VG 68  RENOLIN B20 VG 68 RENOLIN ZAF 68 B	RENOLIN MR 30 VG 100 RENOLIN B30 VG 100  RENOLIN ZAF 100 B
<b>Galp Energia</b>					Galp HIDROLEP 46			
<b>Hassol Lubrication</b>	Hydraulic oil HLP 22	Hydraulic oil HVLP 32	Hydraulic oil HLP 32	Hydraulic oil HVLP 46	Hydraulic oil HLP 46	Hydraulic oil HVLP 68	Hydraulic oil HLP 68	Hydraulic oil HLP 100
<b>Gazpromneft Lubricants</b>		Gazpromneft Hydraulic HVLP 32	Gazpromneft Hydraulic HLP 32	Gazpromneft Hydraulic HVLP 46	Gazpromneft Hydraulic HLP 46  Gazpromneft Hydraulic HD 46		Gazpromneft Hydraulic HLP 68	
<b>KLÜBER</b>			LAMORA HLP 32		LAMORA HLP 46		LAMORA HLP 68	
<b>Kompressol</b>	Kompressol CH 22	Kompressol CH 32 V	Kompressol CH 32	Kompressol CH 46 V	Kompressol CH 46	Kompressol CH 68 V	Kompressol CH 68	Kompressol CH 100
<b>KUWAIT Petroleum Q8</b>	Q8 Haydn 22	Q8 Händel 32 Heller 32	Q8 Haydn 32 Holst 32 Hydraulik S32	Q8 Hoffmeister HVLP-D-46  Q8 Händel 32 Heller 32	Q8 Haydn 46 Holst 46 Hydraulik S46	Q8 Händel 68 Heller 68	Q8 Haydn 68 Holst 68 Hydraulik S68	Q8 Haydn 100
<b>LIQUI MOLY</b>	HLP 22 ISO	HVLP 32 ISO	HLP 32 ISO	HVLP 46 ISO	HLP 46 ISO	HVLP 68 ISO	HLP 68 ISO	HLP 100 ISO
<b>LUBRICANT COMPANY, SINOPEC CORP.</b>			SINOPEC HM32		SINOPEC HM46  SINOPEC METALLURGY SPECIAL HYDRAULIC OIL		SINOPEC HM68	
<b>LUKOIL Lubricants Company</b>			LUKOIL GEYSER ST 32  LUKOIL GEYSER ZF 32		LUKOIL GEYSER ST 46  LUKOIL GEYSER ZF46		LUKOIL GEYSER ST 68  LUKOIL GEYSER ZF 68	
<b>LOTOS Oil</b>					Hydromil Super L-HM 46			

ISO-Viscosity class	VG22	VG32		VG46		VG68		VG100
Manufacturer ↓	HLP	HVLP	HLP	HVLP	HLP	HVLP	HLP	HLP
<b>MOBIL</b>	Mobil DTE 22 Mobil DTE Excel 22	Mobil DTE 13 M Mobil DTE 10 Excel 32	Mobil DTE 24 Mobil DTE Excel 32	Mobil DTE 15 M Mobil DTE 10 Excel 46	Mobil DTE 25 Mobil DTE Excel 46	Mobil DTE 16 M Mobil DTE 10 Excel 68	Mobil DTE 26 Mobil DTE Excel 68	Mobil DTE 27 Mobil DTE Excel 100
<b>MOL RT Ungarn</b>	MOL HYDRO HME22	MOL HYDRO HV32	MOL HYDRO HM32 HME32 HLPD32	MOL HYDRO HV46	MOL HYDRO HM46 HME46 HLPD46	MOL HYDRO HV68	MOL HYDRO HM68 HME68 HLPD68	MOL HYDRO HME100
<b>Morris Lubricants</b>			LIQUIMATIC 4		LIQUIMATIC 5		LIQUIMATIC 6	
<b>MRD</b>	PENNASOL HLP 22	PENNASOL HVLP 32	PENNASOL HLP 32	PENNASOL HVLP 46	PENNASOL HLP 46	PENNASOL HVLP 68	PENNASOL HLP 68	PENNASOL HLP 100
<b>ÖMV</b>	HLP 22	HLP-M 32	HLP 32 ZNF 32	HLP-M 46 HLP-S	HLP 46 ZNF 46	HLP-M 68	HLP 68 ZNF 68	HLP 100
<b>Orlen Oil</b>					Hydrol® L-HM/HLP 46			
<b>PAKELO</b>	Raisol Oil 22		Raisol Oil 32		Raisol Oil 46		Raisol Oil 68	Raisol Oil 100
<b>PANOLIN</b>	HLP 22 HLP Plus 22	HLP Universal 32	HLP 32 HLP Plus 32	HLP Universal 46	HLP 46 HLP Plus 46	GP 55	HLP 68 HLP Plus 68	HLP 100
<b>PETRO-CANADA</b>	HYDREX AW 22 HYDREX MV 22	HYDREX MV 32 ENVIRON MV32 / Premium ECO 32	HYDREX AW 32 ENVIRON AW 32 Purity FG AW 32	HYDREX XV ENVIRON MV46 / Premium ECO 46	HYDREX AW 46 ENVIRON AW 46 Purity FG AW 46	HYDREX MV 60	HYDREX AW 68 ENVIRON AW 68 Purity FG AW 68	HYDREX AW 100 Purity FG AW 100
<b>PETROFER</b>	Isolubric VG 22		Isolubric VG 32		Isolubric VG 46		Isolubric VG 68	Isolubric VG 100
<b>REPSOL</b>	Telex E 22	Telex HVLP 32	Telex E 32	Telex HVLP 46	Telex E 46	Telex HVLP 68	Telex E 68	Telex HVLP 100
<b>SHELL (Previous name)</b>	Shell Tellus S2 M 22 (Shell Tellus 22) Shell Tellus S2 MA 22 (Shell Tellus DO 22) Shell Tellus S 22	Shell Tellus S2 V 32 (Shell Tellus T 32) Shell Tellus S2 VA 32 (Shell Tellus TD 32) Shell Tellus S3 V 32 (Shell Tellus STX 32)	Shell Tellus S2 M 32 (Shell Tellus 32) Shell Tellus S2 MA 32 (Shell Tellus DO 32) Shell Tellus S 32 Shell Tellus S4 ME 32 (Shell Tellus EE 32) Shell Tellus SX-Z 32	Shell Tellus S2 V 46 (Shell Tellus T 46) Shell Tellus S2 VA 46 (Shell Tellus TD 46) Shell Tellus S 32 Shell Tellus S4 ME 46 (Shell Tellus EE 46) Shell Tellus S3 V 46 (Shell Tellus STX 46)	Shell Tellus S2 M 46 (Shell Tellus 46) Shell Tellus S2 MA 46 (Shell Tellus DO 46) Shell Tellus S 46 Shell Tellus S4 ME 46 (Shell Tellus EE 46) Shell Tellus SX-Z 46	Shell Tellus S2 V 68 (Shell Tellus T 68) Shell Tellus S2 VA 68 (Shell Tellus TD 68) Shell Tellus S 68 Shell Tellus S4 ME 68 (Shell Tellus EE 68) Shell Tellus S3 V 68 (Shell Tellus STX 68)	Shell Tellus S2 M 68 (Shell Tellus 68) Shell Tellus S2 MA 68 (Shell Tellus DO 68) Shell Tellus S 68 Shell Tellus S4 ME 68 (Shell Tellus EE 68) Shell Tellus SX-Z 68	Shell Tellus S2 M 100 (Shell Tellus 100) Shell Tellus S2 MA 100 (Shell Tellus DO 100) Shell Tellus S 100 Shell Tellus S4 ME 68 (Shell Tellus EE 68)
<b>STATOIL</b>	HYDRAWAY HMA 22	HYDRAWAY HVXA 32	HYDRAWAY HMA 32	HYDRAWAY HVXA 46	HYDRAWAY HMA 46	HYDRAWAY HVXA 68	HYDRAWAY HMA 68	HYDRAWAY HMA 100
<b>Strub &amp; Co Schmiertechnik CH-Reiden</b>	Vulcolube HLP 22	Vulcolube EP VI 32	Vulcolube HLP 32	Vulcolube EP VI 46	Vulcolube HLP 46	Vulcolube EP VI 68	Vulcolube HLP 68	Vulcolube HLP 100
<b>TEXACO</b>	Rando HD 22	Rando HDZ 32	Rando HD 32	Rando HDZ 46	Rando HD 46	Rando HDZ 68	Rando HD 68	Rando HD 100

ISO-Viscosity class	VG22	VG32		VG46		VG68		VG100
Manufacturer ↓	HLP	HVLP	HLP	HVLP	HLP	HVLP	HLP	HLP
<b>Tide Water Oil Co. India Limited</b>							VEEDOL AVALON HLP 68 SC-6	
<b>LLC TNK Lubricants</b>		TNK Hydraulic HVLP 32	TNK Hydraulic HLP 32 TNK Hydraulic ZF 32	TNK Hydraulic HVLP 46	TNK Hydraulic HLP 46 TNK Hydraulic ZF 46	TNK Hydraulic HVLP 68	TNK Hydraulic HLP 68 TNK Hydraulic ZF 68	
<b>TOTAL FINA ELF</b>	Total Azolla ZS 22	Total Equivis ZS 32	Total Azolla ZS 32 Total Azolla DZF 32	Total Equivis ZS 46	Total Azolla ZS 46 Total Azolla DZF 46	Total Equivis ZS 68	Total Azolla ZS 68 Total Azolla DZF 68	Total Azolla ZS 100
<b>TRIBOL</b>	Tribol 1840/22 Tribol 943 AW 22		Tribol 771 Tribol 1840/32 Tribol 943 AW 32		Tribol 772 Tribol 1840/46 Tribol 943 AW 46		Tribol 773 Tribol 1840/68 Tribol 943 AW 68	Tribol 775
<b>UNIL</b>	HFO 22		HFO 32		HFO 46		HFO 68	HFO 100
<b>Van Meeuwen</b>	Black Point Turbin 22	Black Point Turbin HVI 32	Black Point Turbin 32	Black Point Turbin HVI 46	Black Point Turbin 46	Black Point Turbin HVI 68	Black Point Turbin 68	Black Point Turbin 100
<b>Vulpercan Spain</b>		Hidroval 32 HV Vesta HV 32	Hidroval 32 HLP	Hidroval 46 HV Vesta HV 46	Hidroval 46 HLP	Hidroval 68 HV Vesta HV 68	Hidroval 68 HLP	Hidroval 100 HLP
<b>SK Energy</b>			ZIC SUPERVIS AW 32		ZIC SUPERVIS AW 46			
<b>SRS</b>	WIOLAN HS 22 WIOLAN HX 22	WIOLAN HV 32	WIOLAN HS 32 WIOLAN HX 32	WIOLAN HV 46	WIOLAN HS 46 WIOLAN HX 46	WIOLAN HV 68	WIOLAN HS 68 WIOLAN HX 68	WIOLAN HS 100 WIOLAN HX 100
<b>YORK Ginouves</b>	YORK 772 VG 22	YORK 775 VG 32 YORK 779 VG 32	YORK 772 VG 32	YORK 775 VG 46 YORK 779 VG 46	YORK 772 VG 46	YORK 775 VG 68 YORK 779 VG 68	YORK 772 VG 68	YORK 772 VG 100
<b>XADO Germany</b>				XADO Atomic Oil VHLP46				
<b>SAE-Motorenöle</b>	SAE 5 W		SAE 10 W	SAE 10 W 30		SAE 10 W 30	SAE 20 W 20	SAE 30



## 5 – WARRANTY

- 5.1 The warranty applies for a period of 24 months from the date of purchase and covers against defects in materials and workmanship
- 5.2 The warranty will become null if the appliance has been used improperly and without complying with the standards of use and maintenance
- 5.3 The warranty does not cover all wearing materials like pumps, filter elements, flexible couplings, valves, solenoid valves, etc.
- 5.4 The warranty does not cover the electrical parts if the same have been supplied incorrectly or if the electric motor does work overloaded.
- 5.5 The defective parts must be returned to **GAZZERA Srl** and according to the repair service's unquestionable opinion will be repaired.
- 5.6 **The shipping costs are at customer's expense**
- 5.7 The defective parts that have not been manufactured by our company will be sent to the relevant Manufacturer to be examined. The warranty will cover possible replacement only after Manufacturer's authorization.

### WARRANTY CERTIFICATE

Every unit we supply has been submitted to accurate testing and is covered for a period of 24 months by a warranty against manufacturing defects.

The warranty becomes effective starting from delivery date. The date is the one quoted on shipping documents (delivery note or invoice).

The company undertakes to repair defects or replace at no charge the parts which may show manufacturing fault defects within the warranty period.

Should any defect not being clearly ascribable to material or manufacturing, this have to be checked by our service and charged according to results.

It is excluded from this warranty any possible accidental damage caused by transport (even if goods have been delivered carriage through carrier) or other damages caused by carelessness or bad treatment, improper use, wear and tear of components, and any possible condition not depending from the normal operation or use of the equipment.

The warranty becomes invalid if the equipment has been repaired or handled by a third parts without authorization.

It is excluded from this warranty the equipment replacement and the extension of the warranty period in consequence of a failure.

The repair of defective parts shall be realized in our premises and the equipment shall be shipped carriage free, i.e. cost of freight at customer's charge.

### LIABILITY

**GAZZERA Srl** reserve the right to stop the production or modify the technical and dimensional of all own products in every moment without notice and without obligation.

**GAZZERA Srl** shall not be held responsible for malfunctions or general damages caused by unauthorised use of the hydraulic power pack or interventions and/or changes by third parties being not authorised by **GAZZERA Srl**.

## 6 – HOW TO ORDER

### 6.1 HOW TO REQUEST TECHNICAL ASSISTANCE

Each request of technical assistance shall be send to **GAZZERA Srl**. In order to processing the request in the shortest time possible specifying:

- o The identification number of the hydraulic power pack;
- o Description of the problem, including the date and type of work it was doing when the issue has arisen;
- o If possible every attached file that can help to figure the problem (for example photographic documentation).

The request shall be send to the attention of the technical department of **GAZZERA Srl** at the email address info@gazzeraitaly.com with subject "**TECHNICAL ASSISTANCE REQUEST**"

### 6.2 HOW TO ORDER SPARE PARTS

Here below you can find the **GAZZERA Srl** spare parts codes:

	CODE	DESCRIPTION
<b>CENTRAL MANIFOLDS</b>	G00	Central manifold 2 cavities
	G10	Central manifold 3 cavities
	G12	Central manifold 3 cavities (relief valve cavity 3/4"-16 UNF)
	G20	Central manifold 4 cavities
	G30	Central manifold 5 cavities
	G40	Reversible central manifold
<b>SINGLE GEAR PUMPS</b>	PA109	Aluminium gear pump group 1 LF – 0,9 cc/rev
	PA111	Aluminium gear pump group 1 LF – 1,1 cc/rev
	PA113	Aluminium gear pump group 1 LF – 1,3 cc/rev
	PA116	Aluminium gear pump group 1 LF – 1,6 cc/rev
	PA121	Aluminium gear pump group 1 LF – 2,1 cc/rev
	PA126	Aluminium gear pump group 1 LF – 2,6 cc/rev
	PA132	Aluminium gear pump group 1 LF – 3,2 cc/rev
	PA137	Aluminium gear pump group 1 LF – 3,7 cc/rev
	PA142	Aluminium gear pump group 1 LF – 4,2 cc/rev
	PA148	Aluminium gear pump group 1 LF – 4,8 cc/rev
	PA158	Aluminium gear pump group 1 LF – 5,8 cc/rev
	PA180	Aluminium gear pump group 1 LF – 8,0 cc/rev
<b>REVERSIBLE PUMPS</b>	PR109	Reversible gear pump – 0,9 cc/rev
	PR121	Reversible gear pump – 1,2 cc/rev
	PR117	Reversible gear pump – 1,7 cc/rev
	PR122	Reversible gear pump – 2,2 cc/rev
	PR126	Reversible gear pump – 2,6 cc/rev
	PR132	Reversible gear pump – 3,2 cc/rev
	PR138	Reversible gear pump – 3,8 cc/rev
	PR143	Reversible gear pump – 4,3 cc/rev
	PR149	Reversible gear pump – 4,9 cc/rev
	PR159	Reversible gear pump – 5,9 cc/rev
	PR165	Reversible gear pump – 6,5 cc/rev
	PR178	Reversible gear pump – 7,8 cc/rev
	PR198	Reversible gear pump – 9,8 cc/rev
<b>VALVES AND PLUGS</b>	VMDC35A1	Relief valve M20x1,5 – 30 l/min - 10 ÷ 90 bar
	VMDC35B1	Relief valve M20x1,5 – 30 l/min - 20 ÷ 210 bar
	VMDC35C1	Relief valve M20x1,5 – 30 l/min - 70 ÷ 350 bar
	VMDC20A1	Relief valve 3/4"-16 UNF – 20 l/min - 5 ÷ 30 bar
	VMDC20B1	Relief valve 3/4"-16 UNF – 20 l/min - 20 ÷ 100 bar
	VMDC20C1	Relief valve 3/4"-16 UNF – 20 l/min - 50 ÷ 200 bar
	VMDC20D1	Relief valve 3/4"-16 UNF – 20 l/min - 150 ÷ 350 bar
	VUC200	Check valve - 25l/min - 350 bar max
	VSC600	Not adjustable compensated throttle 3/4"-16UNF - Closed
	VSC6A0	Not adjustable compensated throttle 3/4"-16UNF – 1,0 lt/min

	VSC6B0	Not adjustable compensated throttle 3/4"-16UNF - 2,0 lt/min
	VSC6C0	Not adjustable compensated throttle 3/4"-16UNF - 3,0 lt/min
	VSC6D0	Not adjustable compensated throttle 3/4"-16UNF - 4,0 lt/min
	VSC6E0	Not adjustable compensated throttle 3/4"-16UNF - 5,0 lt/min
	VSC6F0	Not adjustable compensated throttle 3/4"-16UNF - 6,0 lt/min
	VSC6G0	Not adjustable compensated throttle 3/4"-16UNF - 7,0 lt/min
	VSC6H0	Not adjustable compensated throttle 3/4"-16UNF - 8,0 lt/min
	VSC6I0	Not adjustable compensated throttle 3/4"-16UNF - 10 lt/min
	VSC6L0	Not adjustable compensated throttle 3/4"-16UNF - 12 lt/min
	VSC100	Not adjustable compensated throttle 1/4" – Closed
	VSC1A0	Not adjustable compensated throttle 1/4" – 1,0 lt/min
	VSC1B0	Not adjustable compensated throttle 1/4" – 2,0 lt/min
	VSC1C0	Not adjustable compensated throttle 1/4" – 3,0 lt/min
	VSC1D0	Not adjustable compensated throttle 1/4" – 4,0 lt/min
	VSC1E0	Not adjustable compensated throttle 1/4" – 5,0 lt/min
	VSC1F0	Not adjustable compensated throttle 1/4" – 6,0 lt/min
	VSC1G0	Not adjustable compensated throttle 1/4" – 7,0 lt/min
	VSC1H0	Not adjustable compensated throttle 1/4" – 8,0 lt/min
	VSC1I0	Not adjustable compensated throttle 1/4" – 10 lt/min
	VSC1L0	Not adjustable compensated throttle 1/4" – 12 lt/min
	CMF0590	In line Body M 1/4" - F 1/4" for VSC01
	CMF0600	In line Body F 1/4" - F 1/4" for VSC01
	MSV3000*	NC 2/2 solenoid valve single locking
	MSV30E0*	NC solenoid valve 2/2 single locking with manual override
	MSV3100*	NO solenoid valve 2/2 single locking
	MSV31E0*	NO solenoid valve 2/2 single locking with manual override
	MDV30E0*	NC solenoid valve double locking 2/2 double locking with manual override
	CPE04P0	Button operated two-ways directional valve
	VPN0	Pneumatic operated two-ways directional valve
	CSC04A10	Adjustable compensated throttle 3/4"-16UNF – 0,6 ÷ 2,2 lt/min
	CSC04B10	Adjustable compensated throttle 3/4"-16UNF – 0,8 ÷ 3,0 lt/min
	CSC04C10	Adjustable compensated throttle 3/4"-16UNF – 1,3 ÷ 5,1 lt/min
	CSC04D10	Adjustable compensated throttle 3/4"-16UNF – 1,9 ÷ 6,8 lt/min
	CSC04E10	Adjustable compensated throttle 3/4"-16UNF – 2,6 ÷ 9,1 lt/min
	CSC04F10	Adjustable compensated throttle 3/4"-16UNF – 4,0 ÷ 14,4 lt/min
	CSC04G10	Adjustable compensated throttle 3/4"-16UNF – 7,2 ÷ 18,0 lt/min
	CSB04	Adjustable flow regulator 3/4"-16UNF
	CM04L	Lever operated two-ways directional valve
	PM02	Manual pump 2cc
	T0A4	Plug A4 scheme
	T0C1	Plug C1 scheme
	T0A3	Plug A3 scheme
	T0A2	Plug A2 scheme
	T0C2	Plug C2 scheme
	T0VM	Closed plug M20x1,5
<b>JUNCTION ELEMENTS</b>	KIT1471	Coupling kit for B14 size 71 motors
	KIT1480	Coupling kit for B14 size 80 motors
	KIT1490	Coupling kit for B14 size 90 motors
	KIT14100	Coupling kit for B14 size 100/112 motors
<b>ELECTRIC MOTORS</b>	-	Consult our catalogue
<b>MODULAR MANIFOLDS</b>	BL004	Spacer element
	BL004-1	Spacer element h30 with additional 1/4" G port
	BL004-2	Spacer element h40 with additional 1/4" G port
	BL008	Modular manifold with rear 3/8" G port
	BL009	90° rotation manifold with additional 1/4" G port
	BL010	Modular manifold with lateral 3/8" G port
	BL011	Manifold for additional single acting circuit (consult our catalogue)
	BL015	Manifold with pilot check valve
	BL016	Manifold with pilot check valve on A
	BL017	Manifold with pilot check valve on B

	BL021	Manifold for MSV and MDV valves
	BL022	Modular manifold for MSV and MDV valves
	BL023	Hand pump modular manifold
<b>CETOP 03 SOLENOID VALVES</b>	DM01*	Single solenoid valve CETOP3 scheme 01 PA-BT with coil
	DM02*	Single solenoid valve CETOP3 scheme 02 ABPT with coil
	DM03*	Single solenoid valve CETOP3 scheme 03 CC with coil
	DM04*	Single solenoid valve CETOP3 scheme 04 tandem with coil
	DD01*	Double solenoid valve CETOP3 scheme 01 CC with coils
	DD02*	Double solenoid valve CETOP3 scheme 02 ABPT with coils
	DD03*	Double solenoid valve CETOP3 scheme 03 ABT with coils
	DD04*	Double solenoid valve CETOP3 scheme 04 tandem with coils
	DD05*	Double solenoid valve CETOP3 scheme 05 PA-BT with coils
	<b>OIL TANKS</b>	PE05_
PE08_		Plastic tank – 8 liters   O = horizontal mounting V = vertical mounting
PE12_		Plastic tank – 12 liters   O = horizontal mounting V = vertical mounting
LM07		Rectangular tank – 7 lt - with plugs and oil level
LM15		Rectangular tank – 15 lt - with plugs and oil level
LM20		Rectangular tank – 20 lt - with plugs and oil level
LM30		Rectangular tank – 30 lt - with plugs and oil level
LM07TF		Rectangular tank – 7 lt watertight - with plugs and oil level
CS01_		Cylindrical steel tank – 1,5 lt liters   O = horizontal mounting V = vertical mounting
CS02_		Cylindrical steel tank – 2,5 lt liters   O = horizontal mounting V = vertical mounting
CS05_		Cylindrical steel tank – 5 lt liters   O = horizontal mounting V = vertical mounting
CS08_		Cylindrical steel tank – 8 lt liters   O = horizontal mounting V = vertical mounting
CS10_		Cylindrical steel tank – 10 lt liters   O = horizontal mounting V = vertical mounting
CS12_		Cylindrical steel tank – 12 lt liters   O = horizontal mounting V = vertical mounting
PC05_		Cylindrical plastic tank – 5 liters   O = horizontal mounting V = vertical mounting
PC07_		Cylindrical plastic tank – 7 liters   O = horizontal mounting V = vertical mounting
PC09_		Cylindrical plastic tank – 9 liters   O = horizontal mounting V = vertical mounting
PC11_		Cylindrical plastic tank – 11 liters   O = horizontal mounting V = vertical mounting
<b>ACCESSORIES</b>	F01	Mounting foot support
	ES290	Pressure gauge isolator in-line connection
	ES291	Pressure gauge isolator 90° connection
	9022031	Pressure gauge 1/4" radial connection ø63 0 – 60 bar
	9022040	Pressure gauge 1/4" radial connection ø63 0 – 100 bar
	9022058	Pressure gauge 1/4" radial connection ø63 0 – 160 bar
	9022066	Pressure gauge 1/4" radial connection ø63 0 – 250 bar
	FFPL	Mounting kit for PE tanks
	FFPC	Mounting kit for PC tanks
	FLTK	Collar for steel tanks

\*for voltage, consult our catalogue

For more detail we strongly recommend to consult our catalogue or visit our web site.



