

INSTALLATION GUIDE

INSTALLATION VALVES



LSV 40
LSV 60

LSV 95
LSV 150

rev 1.1

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1. GENERAL

1.1. APPLICATIONS

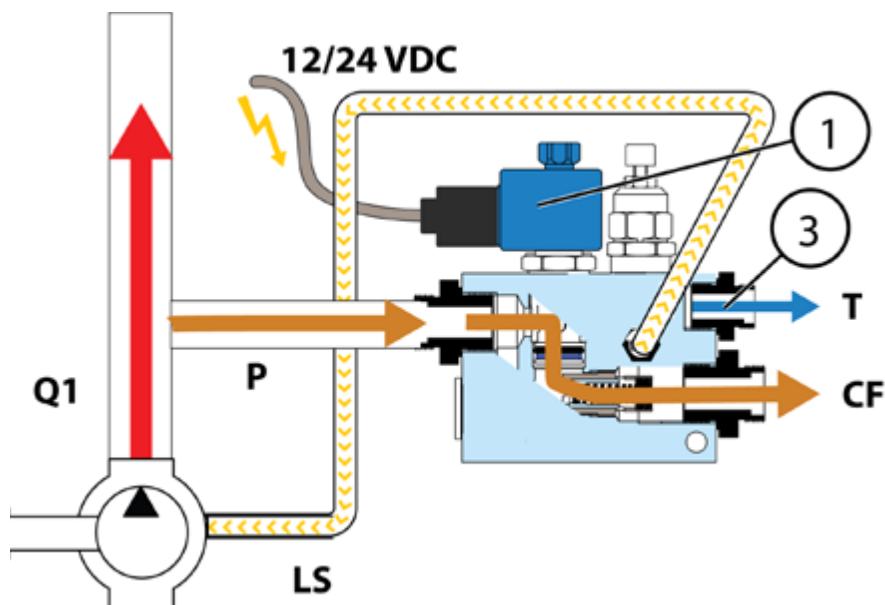
DYNASET LSV load sensing valves are designed to enable easy and reliable installation of DYNASET hydraulic products to closed centre hydraulic systems.

DYNASET LSV-valve enables you to operate your DYNASET unit simultaneously with other hydraulic equipment already installed into the base machines hydraulic system.

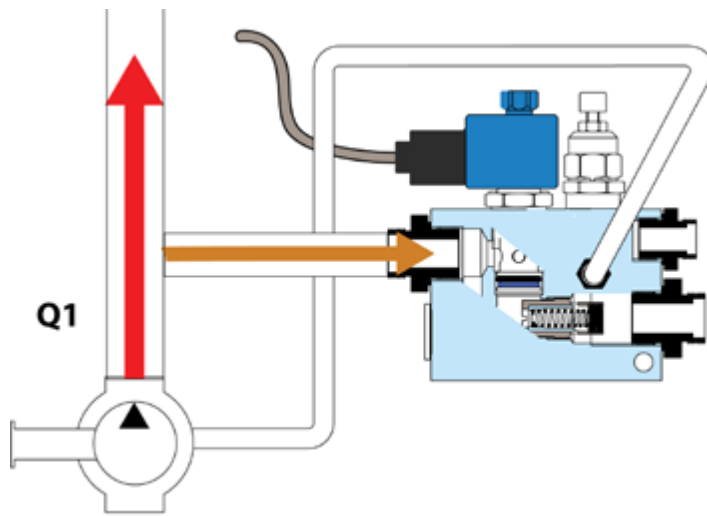
DYNASET LSV-valve ensures the prioritised and non-fluctuating hydraulic flow to your DYNASET unit.

The LSV valve is designed to work together with hydraulic pump's control.

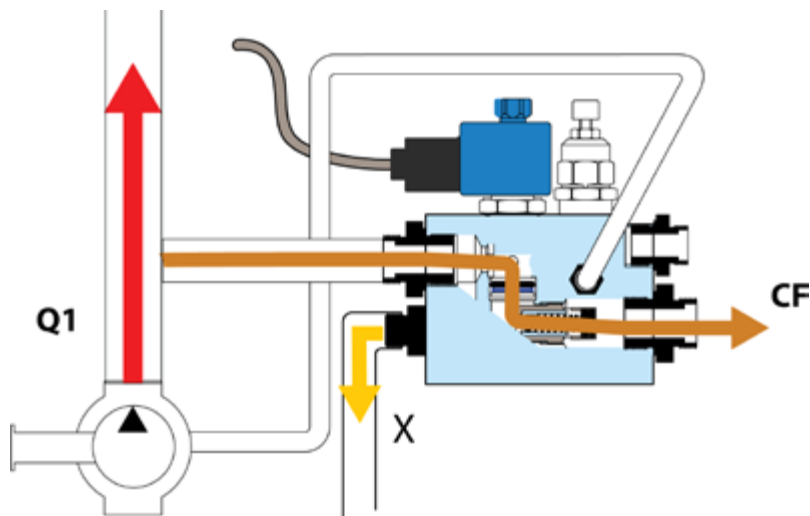
1.2. OPERATING PRINCIPLE



1. When the solenoid valve is opened the prioritised control flow (CF) is directed to start the appliance.
2. The CF flow is controlled and stabilized by the LS-pressure to the corrected level.
3. The pressure relief valve opens the flow to the tank line when the pressure raises too high. It protects the appliance from having too much pressure.



1. When the solenoid valve is closed the the CF flow to the appliance stops and the main flow (Q1) from the pump is not altered and the whole hydraulic flow is available to the rest of the system.




Also additional equipment can be attached to the X port that normally is plugged. From this port the flow is controlled by the On/Off solenoid valve but by the VR flow limiter valve. X port can be used simultaneously with the CF port.

2. SAFETY

ATTENTION!

Operator and maintenance personnel must act in compliance with the laws, regulations and recommendations issued by the local work safety authorities.


 **WARNING**

HIGH PRESSURE OIL!

Can cause severe injuries.
Always wear appropriate clothing
and safety equipment.




The pressure in hydraulic circuits is considerably high. Therefore the condition of your equipment are to be kept under constant observation. All couplings, valves and hoses are to be kept tight and clean. Leaks in the hydraulic system must be repaired immediately to avoid injuries caused by high pressure and oil blowouts.

 **WARNING**

RISK OF BURNS!

Parts of the unit, oil, and oil filler cap
can be hotter than 80 °C!

Wear personal safety equipment!



ATTENTION!

Before beginning any maintenance, repair or disassembly to the hydraulic system and DYNASET product, ensure that the system is stopped and depressurized. Make sure that the system can not start accidentally.

NOTE!

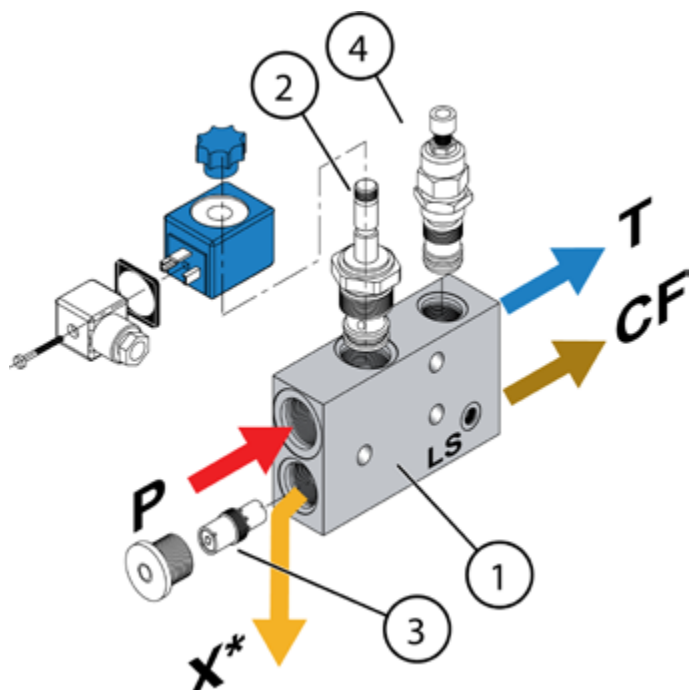
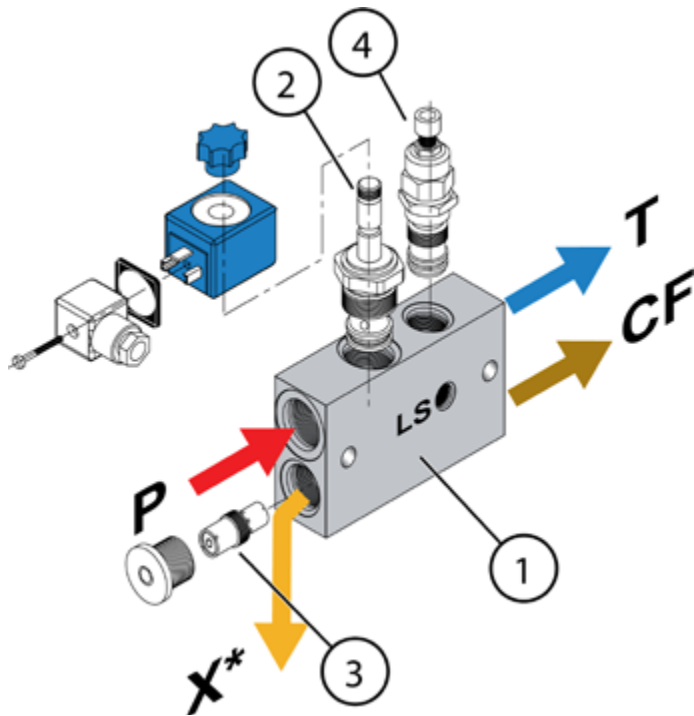
When carrying out any maintenance to DYNASET unit and the hydraulic system keep the components clean. This is to ensure safe, reliable and longlife operation of your equipment.

When working with DYNASET unit or its accessories, wear appropriate protective clothing, safety goggles, gloves, ear protection.

3. TECHNICAL SPECIFICATIONS

DYNASET LSV valve has following components

1. LSV-VALVE that includes components 2-4
2. Solenoid valve 12/24V
3. Flow limiting valve
4. Pressure relief valve

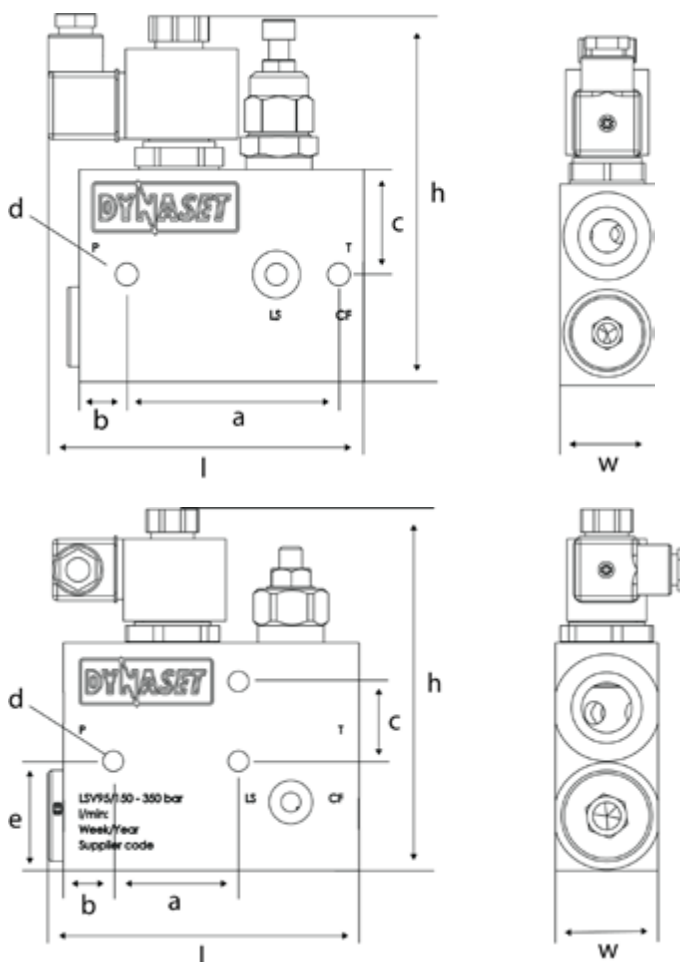


*Option. Plugged as standard.

MODEL	p max. bar (psi)	Q CF max.* l/min (gpm)	HYDRAULIC PORTS				
			P	CF	LS	T	X**
LSV40-xxlpm-12/24V	315 (4600)	40 (10.56)	G 3/4	G 3/4	G 1/8	G 1/2	G 3/4
LSV60-xxlpm-12/24V	315 (4600)	60 (15.84)	G 3/4	G 3/4	G 1/8	G 1/2	G 3/4
LSV95-xxlpm-12/24V	350 (5100)	95 (25.08)	G 1	G 1	G 1/8	G 3/4	G 1
LSV150-xxlpm-12/24V	350 (5100)	150 (39.60)	G 1	G 1	G 1/8	G 3/4	G 1

*CF value is adjusted at the factory according to the customers specifications.

**Option. Plugged as standard.

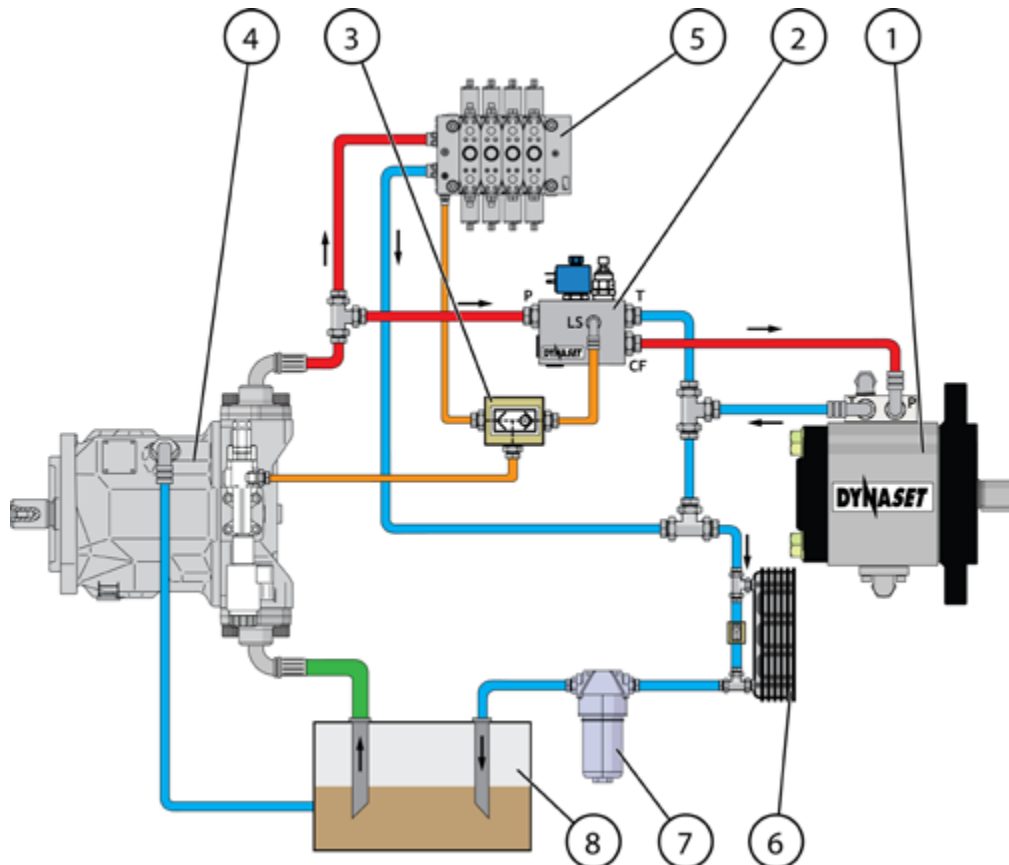


		l	h	w	a	b	c	d	e
LSV40-xxlpm-12/24V	mm (in)	127 (5)	146 (5.75)	40 (1.57)	85 (3.35)	19 (0.75)	42 (1.65)	Ø9 (0.35)	-
LSV60-xxlpm-12/24V	mm (in)	127 (5)	146 (5.75)	40 (1.57)	85 (3.35)	19 (0.75)	42 (1.65)	Ø9 (0.35)	-
LSV95-xxlpm-12/24V	mm (in)	135 (5.31)	159 (6.26)	45 (1.77)	55 (2.16)	22 (0.87)	35 (1.38)	Ø9 (0.35)	48 (1.89)
LSV150-xxlpm-12/24V	mm (in)	135 (5.31)	159 (6.26)	45 (1.77)	55 (2.16)	22 (0.87)	35 (1.38)	Ø9 (0.35)	48 (1.89)

4. INSTALLATION

4.1. BASIC INSTALLATION DIAGRAM WITH SHUTTLE VALVE IN LS-LINE

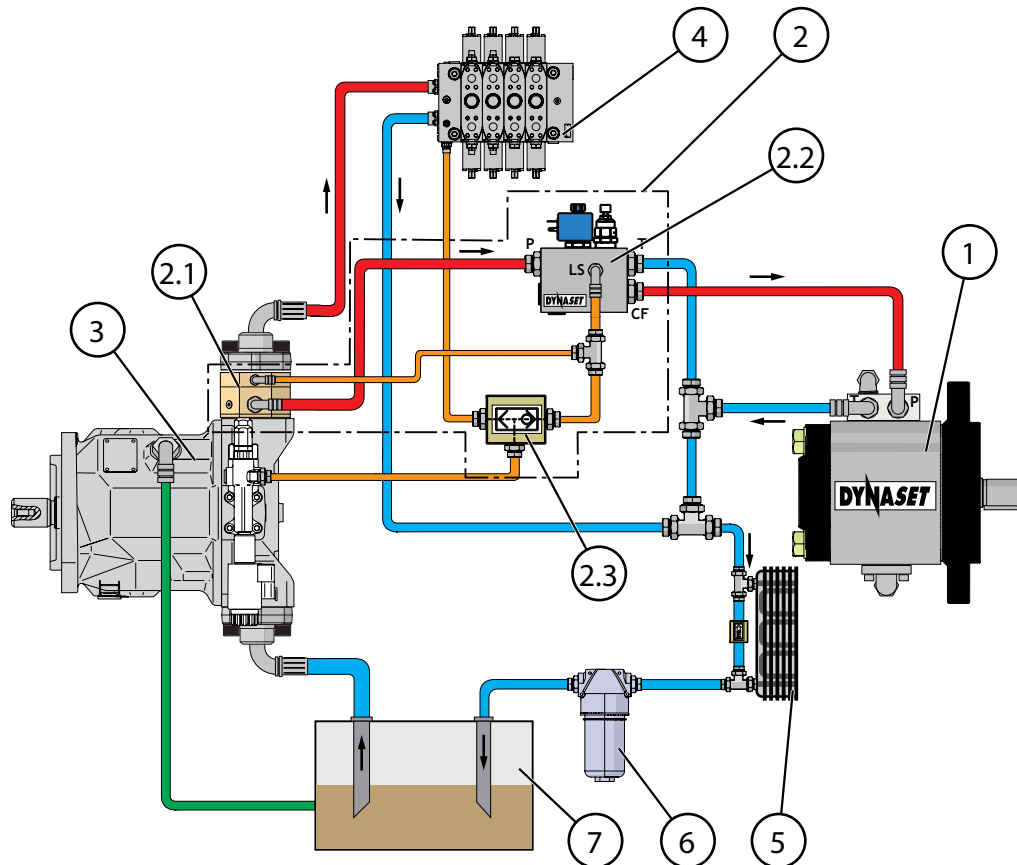
The shuttle valve is optional accesorie available by request only.



- | | |
|--|---|
| 1. DYNASET hydraulic equipment | 5. Closed centre directional control valves |
| 2. DYNASET LSV Load Sensing valve | 6. Oil cooler |
| 3. DYNASET Shuttle valve (optional) | 7. Oil filter |
| 4. Base machine's variable displacement pump | 8. Oil tank |

4.2. INSTALLATION DIAGRAM TO SYSTEM WITH PARALLEL LS-CONNECTION

This installation diagram is for reference only. Take contact to DYNASET in need for more information. The check valve is optional accesorie available by request only.



- | | |
|--|--|
| 1. DYNASET hydraulic equipment | 3. Base machine's variable displacement pump |
| 2. DYNASET Priority valve PV-SAE | 4. Open centre directional control valves |
| 2.1. DYNASET PC-SAE pressure compensator | 5. Oil cooler |
| 2.2. DYNASET LSV Load Sensing valve | 6. Oil filter |
| 2.3. Check valve (Optional) | 7. Oil tank |

4.3. HYDRAULIC FLUIDS

Wide range of standard hydraulic fluids can be used with the DYNASET hydraulic equipment. Depending on the operating temperature, following mineral hydraulic oils are recommended:

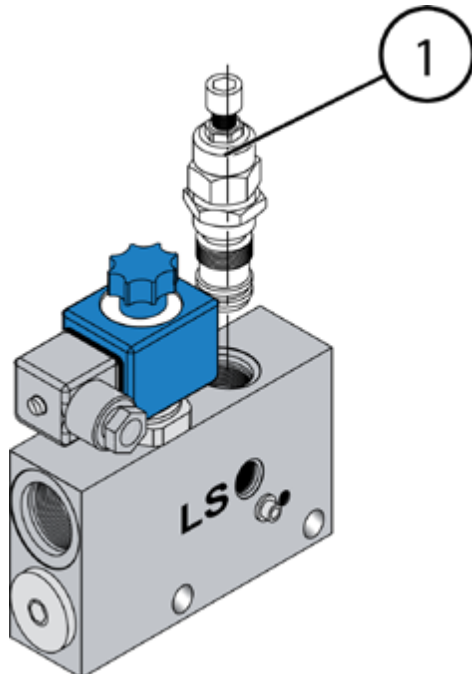
MINERAL HYDRAULIC OIL	OPERATION TEMPERATURE UP TO
ISO VG 32S	60 °C (140 °F)
ISO VG 46S	70 °C (158 °F)
ISO VG 68S	80 °C (176 °F)

Synthetic and bio oils can also be used if their viscosity characteristics and lubricating efficiency are corresponding to the mineral oils.

Automatic transmission fluids and even engine oils can be used, provided that they are allowed to be used in the hydraulic system of your base machine.

Hydraulic fluid change interval is according to the base machine's maintenance instructions. To use special hydraulic fluid with DYNASET equipment, please contact nearest DYNASET representative for an advice.

5. SPARE PARTS



	POS.	PART NO.	DESIGNATION	DETAILS	DETAILS 2
LSV	1	V100113101	LSV40	Pressure relief valve	
	1	V100113102	LSV95*	Pressure relief valve	Aluminium frame
	1	V100113103	LSV150*	Pressure relief valve	Aluminium frame
	1	V100113104	LSV60	Pressure relief valve	
	1	V100113105	LSV95/150*	Pressure relief valve*	Steel frame
	1	V100113106	LSV40/60-12VDC	On/Of fSolenoid valve	
	1	V100113107	LSV40/60-24VDC	On/Of fSolenoid valve	
	1	V100113108	LSV95/150-12VDC	On/Of fSolenoid valve	
	1	V100113109	LSV95/150-24VDC	On/Of fSolenoid valve	
	1	V100113110	LSV95/150	Pressure relief valve	

*Older model.

6. MANUFACTURERS LIMITED WARRANTY

1. Warranty coverage

All hydraulic accessories manufactured by DYNASET OY are subject to the terms and conditions of this limited warranty. Products are warranted to the original purchaser to be free from defects in materials or workmanship. Exclusions from warranty are explained in item Exclusions from warranty.

2. Beginning of warranty period

Warranty period begins from the delivery date of the product. Delivery is considered to be done on the date when installation has been accomplished or purchaser has taken the product in use. Product is considered as taken in use at the date when DYNASET OY has delivered the product to purchaser, unless separately agreed otherwise by written agreement.

3. Warranty period

Warranty period is twenty four (24) months based on maximum of 2000 hours usage during this time period. In cases where the system is provided complete with certain special components (e.g. drive unit), those components are considered as a subject to their manufacturer's warranty.

4. Warranty procedures

Immediately upon identifying a problem which purchaser believes to be a failure subject to the product's limited warranty, purchaser must contact primary to the seller of the product. Contact must be made as soon as possible, latest thirty (30) days after the problem was identified. Seller and/or manufacturer technical staff determines the nature of the problem primarily by phone or e-mail. Purchaser commits to give necessary information and to perform routine diagnostic procedures in order to determine the nature of the problem and necessary procedures.

5. Warranty repairs

If the product is found to be defective during the warranty period, DYNASET OY will, at its option, either repair the product, author it to be repaired at its authorized workshop or exchange the defective product. If the product must be repaired elsewhere than premises of DYNASET OY or authorized workshop, all costs excluded from this warranty (traveling and waiting hours, daily allowance, traveling expenses and uninstallation/reinstallation costs) will be charged from the purchaser.

If the problem is not covered by this limited warranty, DYNASET OY has the right to charge purchaser of troubleshooting and repairing.

6. Delivery terms of warranty repair

If the product is found possible to be defective under this limited warranty and it needs to be repaired, DYNASET OY gives Warranty Return Number (WRN). Items being returned must be shipped, at the purchaser's cost, adequately packed for shipment, to the DYNASET OY or to other location authored by DYNASET OY.

Shipment documents must contain:

Purchaser's name and contact information

Receipt of original purchase

WRN code

Problem description

7. Warranty of repaired product

Warranty period of the product repaired under this limited warranty continues to the end of original warranty period.

8. Exclusions from warranty

This warranty shall not apply to:

- Failures due to normal wear and tear, improper installation, misuse, abuse, negligence, purchaser selection of improper product to intended use, accident, improper filtration of hydraulic oil or intake water or lack of maintenance.
- Cost of maintenance, adjustments, installation or startup.
- Coating, hydraulic oil, quick couplings and interconnection hoses (internal or external to system assemblies).
- Products altered or modified in a manner not authorized by DYNASET OY in writing.
- Products which have been repaired during warranty period by others than DYNASET OY or its authorized workshop.
- Costs of any other damage or loss, whether direct, indirect, incidental, special or consequential, arising out of the use of, or the inability to use, the product.
- Telephone or other communications expense.
- Product that is used in exceptional conditions, considered to cause excessive wear and tear.
- Faults caused by nature phenomenon's like flood, thunder, etc.

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7. PRODUCT DISPOSAL

Dispose and recycle all the DYNASET products and their packaging environmentally responsible way.

Do not dispose used oils, electrical components, batteries or any other hazardous waste with normal waste. They are harmful for the environment and can be recycled for re-use.

Contact your local waste recycling facility for more information about recycling hazardous waste.

! NOTE!

Always act according to the waste legislation, regulations and recommendations in waste disposal and waste recycling issued by your local authorities.

8. DECLARATION OF CONFORMITY

We hereby declare that the design and manufacture of the product stated below are in conformity with the provisions of the European Parliament and Councils on the harmonization of the laws of Member States on the safety of machine's.

Machine directive 2006/42/EC

LVD directive 2014/35/EU

EMC directive 2014/30/EU

RoHs directive 2011/65/EU

Applied conformity standards:

CEN EN ISO 4413: EN ISO 4413:2010 Hydraulic fluid power - General rules and safety requirements for systems and their components.

EN60204-1 Safety of machinery – Electrical equipment of machine's.

Manufacturer: **DYNASET Oy**
Menotie 3, FI-33470 Ylöjärvi, Finland

Product group: INSTALLATION VALVES

Product: LSV modular installation valves

If the device has been modified by someone other than the manufacturer or without the manufacturer's permission, this declaration is not valid.



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ELECTRICITY

HG Hydraulic Generator
HGV POWER BOX Variable Hydraulic Generator System
HGV Variable Hydraulic Generator System
HWG Hydraulic Welding Generator
HGG Hydraulic Ground Power Generator



HIGH PRESSURE WATER

HPW Hydraulic High Pressure Water Pump
HPW Hydraulic Power Washer
KPL High Pressure Street Washing Unit
HPW-DUST High Pressure Dust Suppression System
PPL High Pressure Pipe Cleaning Unit
HPW-FIRE High Pressure Firefighting System
FP Fire Fighting Piercing Kit
HDF Hydraulic Drilling Fluid Pump
JPL High Pressure Bin Washing System
HSP Hydraulic Submersible Pump



COMPRESSED AIR

HK Hydraulic Piston Compressor
HKL Hydraulic Rotary Vane Compressor
HKR Hydraulic Screw Compressor



MAGNET POWER

HMG PRO Hydraulic Magnet Generator
MAG Lift Magnet
HMAG PRO Hydraulic Magnet



VIBRATION

HVB Hydraulic Vibra
HVD Hydraulic Directional Vibra
HRC Hydraulic Reversal Cylinder



POWER BOOSTING

HPI Hydraulic Pressure Intensifier
HPI-C Hydraulic Pressure Intensifier for Cylinder



KNOW-HOW

Hydraulic Power Take-off (PTO)
Hydraulic Power Unit Technology
De-Icing Technology
Installation Valves
HHK Hydraulic Grinder
HV/HVY Hydraulic Winch / Winch Unit

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