



FOP VIKTOR KNYAZYEV

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Registartion no. 2 556 000 0000 139668 / Tax. no. 1869801971

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INVOICE-OFFER No 39 Sperre Air Compressor

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line	Description	Amount
1	HV1/85 Sperre HV1-85 water cooled Air Compressor Sketches and Spare Parts. Available maintenance kits.	32
2	HV1/120 Sperre HV1-120 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
3	HV1/140A Sperre HV1-140A water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
4	HV1/156A Sperre HV1-156A water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
5	HV2/200 Sperre HV2-200 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
6	HV2/210 Sperre HV2-210 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
7	HV2/219 Sperre HV2-219 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
8	HV2/220 Sperre HV2-220 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
9	HV2/240 Sperre HV2-240 water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
10	HV2/270A Sperre HV2-270A water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
11	HV2/285A Sperre HV2-285A water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
12	HV2/300A Sperre HV2-300A water cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	32
13	HL2/77 Sperre HL2-77 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
14	HL2/90 Sperre HL2-90 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
15	HL2/105 Sperre HL2-105 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24

16	HL2/120	Sperre HL2-120 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
17	HL2/140	Sperre HL2-140 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
18	HL2/160	Sperre HL2-160 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
19	HLF2/77	Sperre HLF2-77 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
20	LL2/77	Sperre LL2-77 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
21	LL2/90	Sperre LL2-90 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
22	LL2/105	Sperre LL2-105 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
23	LL2/120	Sperre LL2-120 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
24	LL2/140	Sperre LL2-140 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24
25	LL2/160	Sperre LL2-160 air cooled Air Compressor Instruction Manual with Sketches and Spare Parts. Available maintenance kits.	24

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Important remark: To avoid any delay with acceptance your payment please point in your bank instruction

1) Invoice number, 2) Date of Invoice 3) Technical Manuals.

Sample: Inv# 30, 01-Jun-2022, Tech manual.

Account for USD

Beneficiary: FOP Viktor Knyazyev
Name of the bank: PJSC CB "PRIVATBANK",
Bank Address: 1D HRUSHEVSKOHO STR., KYIV, 01001, UKRAINE.
SWIFT Code: PBANUA2X
IBAN (Bank account): UA703052990000026002034913056

Correspondent bank: JP Morgan Chase Bank, New York, USA

SWIFT Code: CHASUS33

Account: 001-1-000080

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Beneficiary: FOP Viktor Knyazyev
Name of the bank: PJSC CB "PRIVATBANK",
Bank Address: 1D HRUSHEVSKOHO STR., KYIV, 01001, UKRAINE.
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
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Each compressor folder included:

-  Sketches
-  Available maintenance kits HL2-77.pdf
-  Instruction manual HL2-77.pdf
-  Service routines HL2-77.xls
-  Spare part list HL2-77.xls

HV1-85 – Without Instruction manual

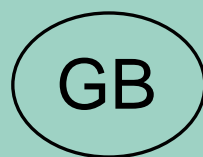
Sketches Folder included:

-  1133MK - HP cylinder kit.pdf
-  1135MK - LP cylinder kit.pdf
-  1403MK - Crankshaft kit.pdf
-  1424MK - Connecting rod kit.pdf
-  3036MK - LP valve kit.pdf
-  3036MK2 - LP valve overhaul kit.pdf
-  3037MK - HP valve kit.pdf
-  3037MK2 - HP valve overhaul kit.pdf
-  3352MK - HP piston kit.pdf
-  3354MK - LP piston kit.pdf
-  4120 - Gasket kit.pdf
-  7934 - Overhaul kit routine B.pdf
-  7964 - Overhaul kit routine C.pdf
-  Complete compressor HL2-77.pdf

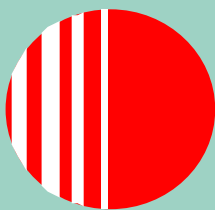
Instruction contains Parts List and Sketch.

Sketch for kids have details marked by black which included in Kit

INSTRUCTION MANUAL
AIR COMPRESSOR



HL2/77



SPERRE

PREFACE

Sperre has produced this instruction manual in order to provide users of its compressor equipment with information about the compressor's construction and operation, as well as basic information about inspection and maintenance.

It is important that the operator should familiarise himself with the contents of this instruction manual, so as to ensure that installation, use and maintenance work is carried out in a correct and safe manner from the outset.

The maintenance intervals and individual technical data are average values based on experience, and may vary, depending on the compressor's operational parameters.

The supplier accepts no responsibility for damage resulting from careless operation or inadequate maintenance. Keep the compressor in good mechanical condition, and remember that preventive maintenance of the equipment reduces the danger of damage and unnecessary operational interruptions.

Sperre reserves the right to modify details without prior warning.

Ellingsøy, February 2006
Sperre Industri A/S

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PERSONAL SAFETY

The installation, operation and maintenance of the compressor should be carried out by trained personnel who are familiar with the contents of this instruction manual.

The compressor must only be used to compress air.

Unauthorised remodelling or modification of the compressor may result in a safety hazard, and are not permitted.

Before any form of work is commenced on the compressor the electrical power must be turned off at the starter panel and at the main switchboard, and the switch on the main switchboard must be marked with a notice indicating that repair work is in progress. The discharge valve of the compressor must be closed, and the pressure must be released in all pressurised parts of the compressor.

The safety valves for LP and HP air and any other safety equipment must be inspected regularly. Damaged components should be replaced with new, original parts. Adjustment of the safety valves shall only be carried out by authorised personnel. The compressor must never be used if the safety equipment is defective.

GENERAL DESCRIPTION

This is a two cylinder, two stage compressor. The cylinders are fitted in a V-shape at 90° angle to each other. Cylinders and compressed air coolers are air-cooled by a built in fan. Supply pressure is determined by adjusting the safety valve.

Cooling air is supplied by a well-dimensioned fan fitted in flywheel.

The compressor and motor are normally supplied fitted together on a strong bedplate. The compressor and motor are connected by means of a heavy duty flexible coupling.

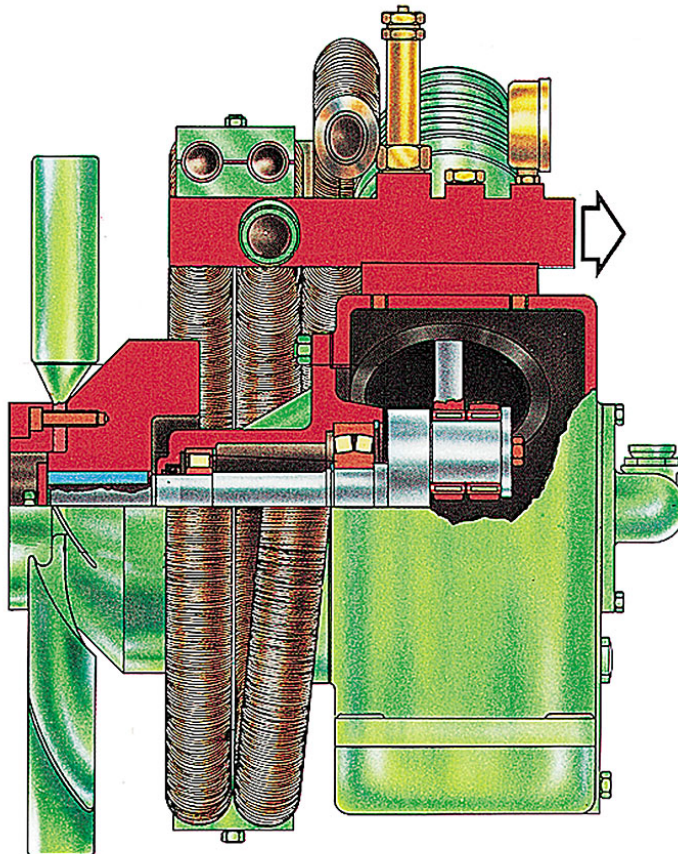
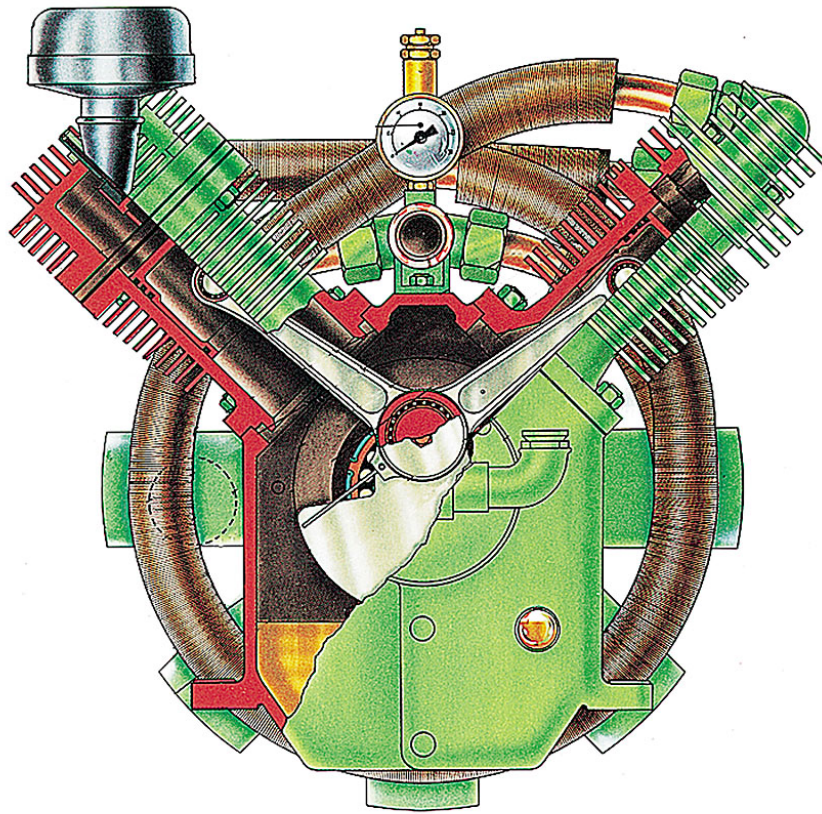
All the materials used are of first class quality, thoroughly tested and in accordance with the requirements of the classification societies.

Instrumentation is supplied in accordance with classification society requirements and if desired the compressor can be fitted with equipment for fully automatic operation.

Bearings and cylinder walls are splash lubricated. The oil level in the sump can be checked through a sight glass. An automatic low oil level alarm can be supplied as an optional extra.

The compressor is normally supplied without a relief mechanism for the LP cylinder suction valve. However, a relief mechanism can be ordered from SPERRE if required.

The compressor unit can be supplied either for bolting directly to the foundation, or for flexible installation by means of resilient mountings fitted under the bedplate.



TOLERANCES - WEAR LIMITS

1. End tolerances for piston rings

Push a piston without piston rings halfway into the cylinder, and place the piston ring in the cylinder so that it presses against the top of the piston. Withdraw the piston and using a feeler gauge, measure the clearance between the piston ring ends.

Piston diameter	Clearance for new rings in new cylinder	Maximum Permissible clearance
50 mm	0,2 - 0,35 mm	0,7 mm
77 mm	0,3 - 0,45 mm	0,8 mm

2. Height clearance in piston ring grooves

Clean piston rings and ring grooves. Fit ring in groove and measure the height clearance of the ring in the groove using a feeler gauge.

	Clearance for new rings in new piston	Maximum Permissible clearance
Top ring	0,015 - 0,04 mm	0,06 mm
All other rings	0,00 - 0,025 mm	0,04 mm

These values apply to both piston diameters.

3. Clearance between piston and cylinder

Measure the clearance by means of a dial gauge, measuring the cylinder and piston separately. Alternatively the piston can be placed in the cylinder and the clearance measured with thickness gauges. The piston clearance should be measured in the area above the upper ring groove.

The clearance listed in the table below is the difference in diameter for the two parts.

Piston diameter	Clearance for new piston in new cylinder	Maximum Permissible clearance
50 mm	0,20 mm	0,60 mm
77 mm	0,25 mm	0,65 mm

4. Clearance between piston top and cylinder head/valve.

The clearance between the piston crown and the cylinder head (valve) should be not less than 0,75 mm. The normal gasket thickness is approx. 1,0 mm, and the piston crown may project a maximum of 0,25 mm above the cylinder at top dead centre.

SPARE PART LIST

Qty.	Description	Part no.	Qty.	Description	Part no.
1	Crankcase.....	1018	1	Guard	3794
1	Bearing housing.....	1052	1	Seeger ring.....	3802
1	Crankcase cover.....	1070	1	Seeger ring.....	3804
1	Flywheel.....	1080	4	Seeger ring.....	3813
1	Cylinder, HP.....	1133	1	Sealing ring	3857
1	Cylinder, LP	1135	1	Ball bearing	3871
1	Cylinder head, HP.....	1281	1	Ball bearing	3872
1	Cylinder head, LP	1283	2	Needle bearing.....	3877
1	Manifold	1346	2	Needle bearing.....	3878
1	Drive coupling	1374	1	Bolt	3882
1	Crankshaft.....	1403	1	Bolt	3883
2	Conncting rods.....	1424	1	Valve sealing ring.....	3918
1	Coupling,.....	1981	2	Valve sealing ring.....	3919
1	Coupling housing.....	1985	1	Copper gasket.....	3925
1	Fan.....	1995	1	Copper gasket.....	3926
1	Cranked bracket	2040	1	Copper gasket.....	3927
1	Right-angle bracket.....	2042	3	Copper gasket.....	3929
1	Valve, LP.....	3036	2	Copper gasket.....	3930
1	Valve, HP	3037	2	Copper gasket.....	3932
1	Valve plate, LP.....	3122	2	Serrated washer	3939
1	Valve plate, HP	3123	11	Bolt	3945
1	Valve plate, HP	3124	4	Bolt	3946
1	Washer.....	3131	2	Bolt	3947
1	Valve bolt	3203	1	Gasket	4075
1	Valve nut.....	3236	1	Gasket	4076
1	Crankshaft end disc	3247	2	Gasket	4077
1	Flywheel end disc	3248	1	Gasket	4095
2	Valve spring	3279	1	Gasket	4096
2	Valve spring	3280	1	Set of gaskets.....	4120
1	Guide ring	3298	2	Lock nut.....	4131
1	Filter elbow.....	3343	2	Lock nut.....	4133
1	Plain nipple	3345	2	Clamp (pair).....	4150
1	Oil scoop.....	3348	7	Stud bolt	4192
1	Tubular, pin	3350	1	Stud bolt	4193
1	Piston, HP	3352	4	Stud bolt	4195
1	Piston, LP.....	3354	4	Stud bolt	4199
1	Catch plate, lower	3432	1	Stud bolt	4200
1	Catch plate, upper	3433	8	Stud bolt	4205
1	Gudgeon pin, HP	3451	16	Nuts	4238
1	Gudgeon pin, LP.....	3452	8	Nuts	4239
2	Compression ring, stepped.....	3487	11	Lock nut.....	4251
2	Compression ring, stepped.....	3488	2	Lock nut.....	4253
1	Compression ring, plain	3501	2	Set screw.....	4268
1	Oil ring, HP.....	3528	1	Nipple muff	4283
2	Oil ring, LP	3529	1	Threaded plug	4293
1	Inspection glass	3634	1	Threaded plug	4296
1	Intercooler, complete	3659	2	Threaded plug	4297
1	Aftercooler, complete.....	3660	1	Threaded plug	4298
1	Key.....	3675	2	Bolt	4401
1	Air relief valve	3700	6	Bolt	4405
1	Air filter.....	3711	2	Elbow.....	4410
1	Pressure gauge, HP	3773	2	Nipple	4412
1	Grille.....	3788	16	Washer	4414

Qty.	Description	Part no.
2	Washer.....	4416
1	Safety valve, HP	4420
1	Safety valve, LP	4421
1	Plain union	4481
1	Plain union	4482
1	Flexible coupling insert	4515
6	Bolt.....	4603
6	Washer.....	4650

SPARE-PART & MAINTENANCE KITS

SPERRE's kits of genuine spare-parts include the wear parts you must change when you overhaul the compressor. For example, if you replace a valve, it is strongly recommended to replace the valve gaskets at the same time. With a spare-part kit available, all necessary parts are at hand together with clear installation instructions.

For model HL2/77 following kits are available:

Description	Part no.	Content of kit
Gasket kit	4120	All flat gaskets, O-rings, sealing rings, and valve gaskets.
Crankshaft	1403MK	Crankshaft with all bearings, flywheel key and nut, Seeger-rings, endplate and screw.
Valve LP	3036MK	Valve and necessary copper rings and/or gaskets.
Valve HP	3037MK	Valve and necessary copper rings and/or gaskets.
Overhaul kit - LP valve	3036MK2	Valve springs, plates and gaskets.
Overhaul kit - HP valve	3037MK2	Valve springs, plates and gaskets.
Piston LP	3354MK	Piston, gudgeon pin with Seeger-rings and piston rings.
Piston HP	3452MK	Piston, gudgeon pin with Seeger-rings and piston rings.
Connecting rod	1424MK	Connecting rod with small- and big-end bearings, oil scoop with set screw.
Cylinder LP	1135MK	Cylinder with gaskets, stud bolts/nuts and fittings.
Cylinder HP	1133MK	Cylinder with gaskets, stud bolts/nuts and fittings.
Overhaul kit Routine B	7934	All parts needed for 5 000-hours' maintenance: Overhaul kits for valves complete with gaskets and guide rings, piston rings, connecting rod bearings, gudgeon pins, Seeger-rings, gaskets and ventilator.
Overhaul kit Routine C	7964	All parts needed for 10 000-hours' maintenance: Same as kit B, plus complete valves, crankshaft bearings and seal ring.

Maintenance kits:

- **All necessary parts at hand when you need them**
- **With clear installation instructions enclosed**

Genuine Sperre parts give you peace of mind at sea!

LL2/77, LL2/90, LL2/105 HLF2/77, HLF2/77, HL2/90, HL2/105

1424MK – Connecting rod LP

