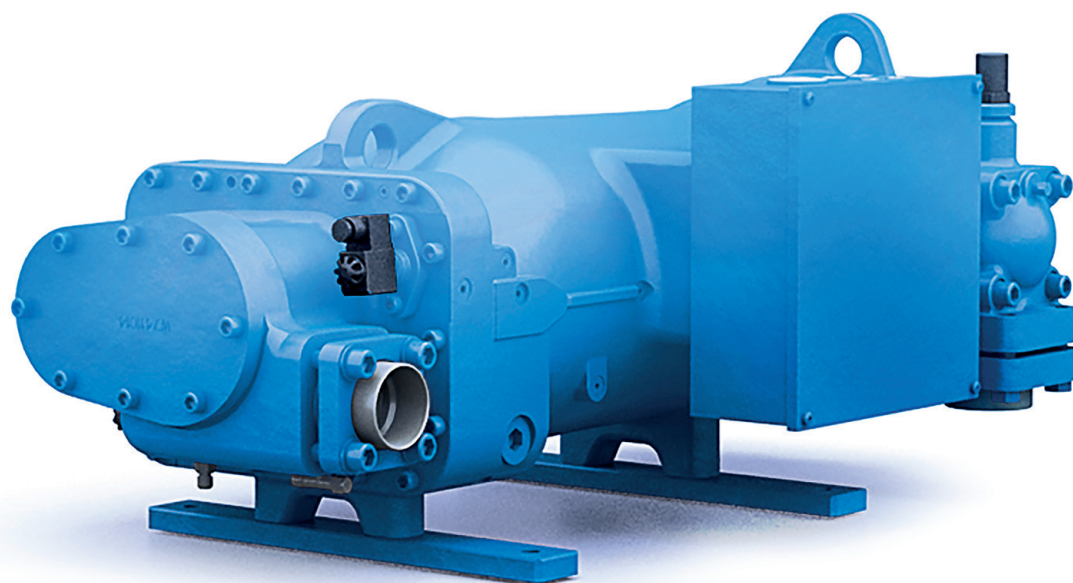


# FVR SERIES

Semi-hermetic screw compressors



50Hz & 60Hz

**frascold**<sup>®</sup>  
*Blue is better*



# INDEX

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4	About the company
5	Segments and solutions
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# ABOUT THE COMPANY

Frascold manufactures over 70.000 screw and reciprocating compressors a year. Our 53.000 m<sup>2</sup> factory outside of Milan (Italy) houses our advanced engineering, manufacturing and testing facilities. More than 200 employees work in the Headquarters and in the Subsidiaries based in the United States, China and India, with distribution partners and service centers in 86 countries.

The infographic is an isometric illustration divided into four numbered sections. Section 1 shows a large industrial factory building with two chimneys. Section 2 shows a group of 200 stylized human figures. Section 3 shows a large number of screw and reciprocating compressor units. Section 4 shows a world map with several flags and a laptop computer with a pen and paper next to it.

**53.000 m<sup>2</sup> factory outside Milan (Italy)** hosting our advanced engineering manufacturing and testing facilities. ①

**More than 200 employees** working in Italy, China, India and United States. ②

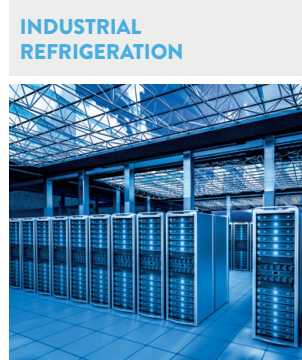
**Over 70.000 screw and reciprocating compressors** manufactured every year. ③

**Distribution partners and service centers** in **86** countries. ④

*More than 85 years ago Frascold was born as a small family owned Company developing solutions in refrigeration and conditioning industry. Today we invest more and more in people, products, technologies and services aiming to become the best partner for our Customers and the touchstone for the market.*

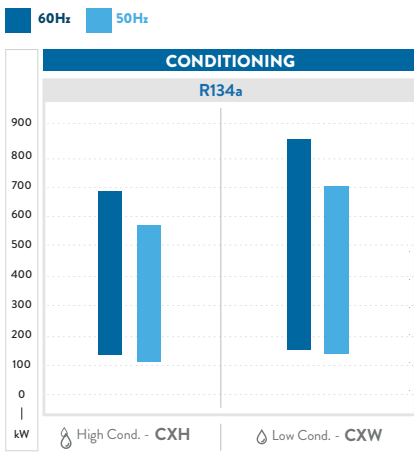
**GIUSEPPE GALLI** - Frascold Executive Managing Director

# SEGMENTS

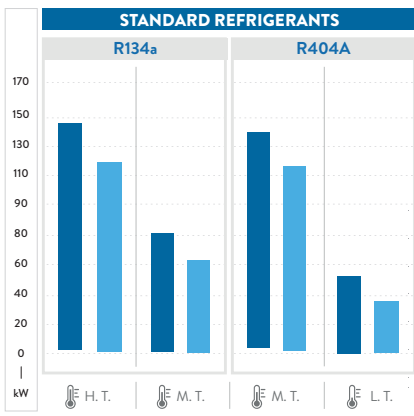


# SOLUTIONS

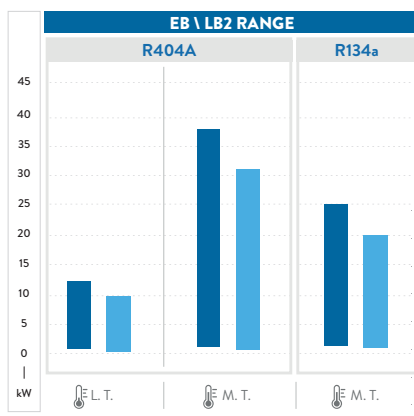
Cooling capacity range @50Hz & @60Hz



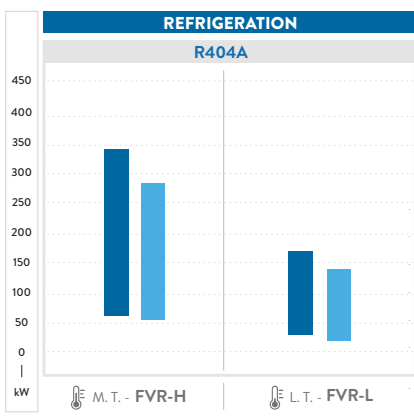
Testing conditions data reference:  
 H. Cond.: evap. T. +2°C; cond. T. +50°C; superheating 10K; subcooling 5K  
 L. Cond.: evap. T. +3°C; cond. T. +38°C; superheating 10K; subcooling 5K



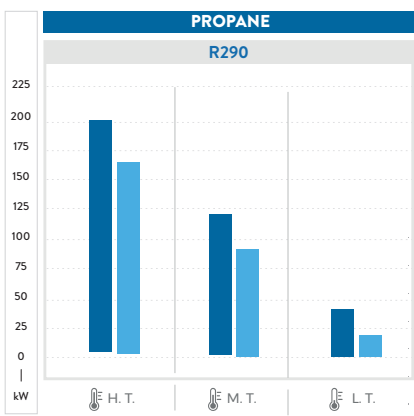
Testing conditions data reference:  
 H.T.: evap. T. +5°C; cond. T. +50°C  
 M.T.: evap. T. -10°C; cond. T. +45°C  
 L.T.: evap. T. -35°C; cond. T. +40°C



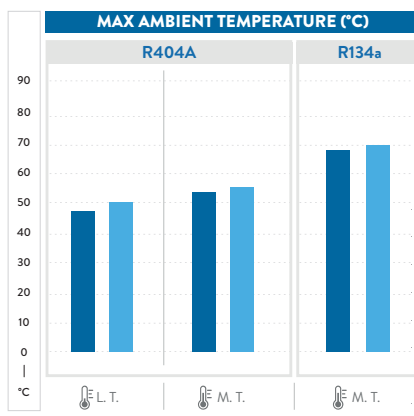
Testing conditions data reference:  
 M.T.: cooling capacity @32°C ambient T.; evap. T. -10°C  
 L.T.: cooling capacity @32°C ambient T.; evap. T. -35°C



Testing conditions data reference:  
 M.T.: evap. T. -10°C; cond. T. +45°C  
 L.T.: evap. T. -35°C; cond. T. +40°C ECO



Testing conditions data reference:  
 H.T.: evap. T. +5°C; cond. T. +50°C  
 M.T.: evap. T. -10°C; cond. T. +45°C  
 L.T.: evap. T. -35°C; cond. T. +40°C



Testing conditions data reference:  
 M.T.: evap. T. -10°C  
 L.T.: evap. T. -35°C



# FVR-H / L SEMI-HERMETIC SCREW COMPRESSORS

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The FVR-H and FVR-L Series screw compressors are the result of our many years of experience building quiet, efficient and reliable compressors.

The FVR Series consists of **45 models** ranging from 30 to 300 Hp and with displacements from 120 to 910 m<sup>3</sup>/h. **It is compatible with HFCs, HFOs, and natural refrigerants.** This series is ideal for many uses, including industrial, pharmaceutical, retail, marine and heat pump applications.

# FEATURES AND BENEFITS



*Excellent reliability*



*High efficiency*



*Compact design*



*Easy installation*



*Silent*

Perfect mechanical balancing means low vibrations, pulsations and noise.



*Plug&Play: easy installation & service*



*VFD Compatible*



*Refrigerants*

HFCs, HFOs and natural refrigerants.



*Flexibility*

The right compressor for any application: Commercial refrigeration, Air conditioning, Industrial refrigeration, Retail cooling systems, Pharmaceutical manufacturing, Liquid chillers, Process chillers, Marine cooling systems, Cryogenic systems & Heat Pumps.



*Advanced protection systems (Optional)*

# CONFORMITY DECLARATION

**Frascold Screw compressors for refrigeration** are intended for installation in refrigeration systems. The machine or partly completed machines shall comply with local safety regulation and standards of the place of installation (within the EU according to the EU Directives 2006/42/EC Machinery Directive, 2014/68/EU Pressure Equipment Directive, 2006/95/EC Low Voltage Directive). The compressor may be put into operation only if it has been installed in accordance with the assembly instructions provided in the installation manual.

Commissioning is only possible if the entire system into which it is integrated has been inspected and approved in accordance to the provisions of legal regulations.

The standards applied are described in the Manufacturer Declaration of incorporation, according to the 2006/42/EC, and available at: [www.frascold.it](http://www.frascold.it)

## 8 PERFORMANCE DATA FSS3 SOFTWARE

Please refer to our [Frascold Selection Software FSS3](#) to check performances of all our compressors.



①

① Operating limits



②

② Cooling capacity



③

③ All operating data with any kind of refrigerant



④

④ European standard EN12900 at 50Hz



⑤

⑤ Technical information



⑥

⑥ Drawings



⑦

⑦ Manuals



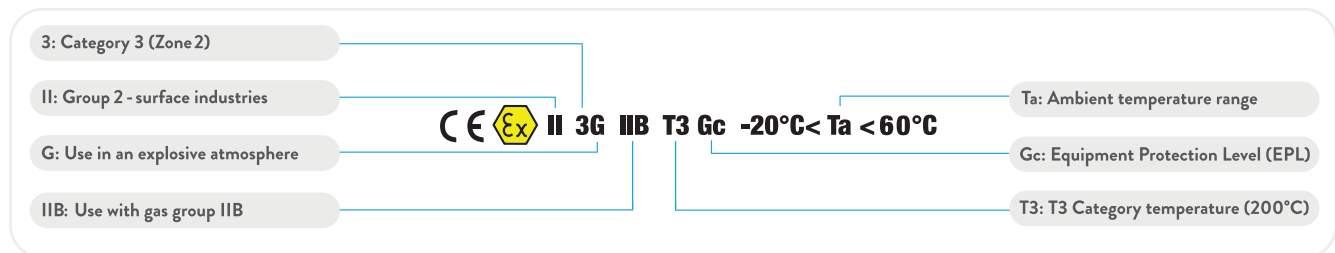
⑧

⑧ Catalogues and certifications

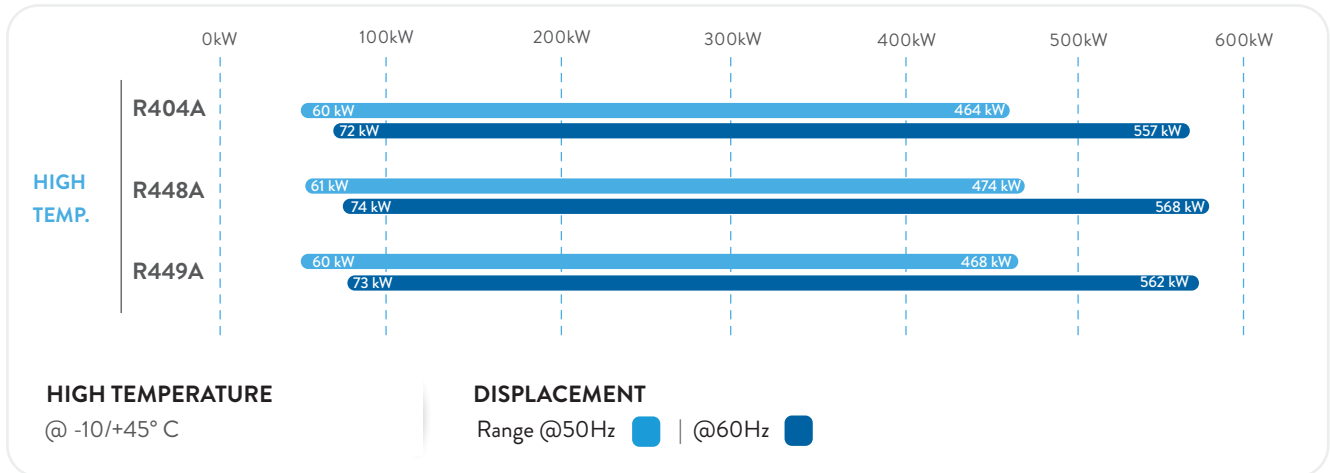
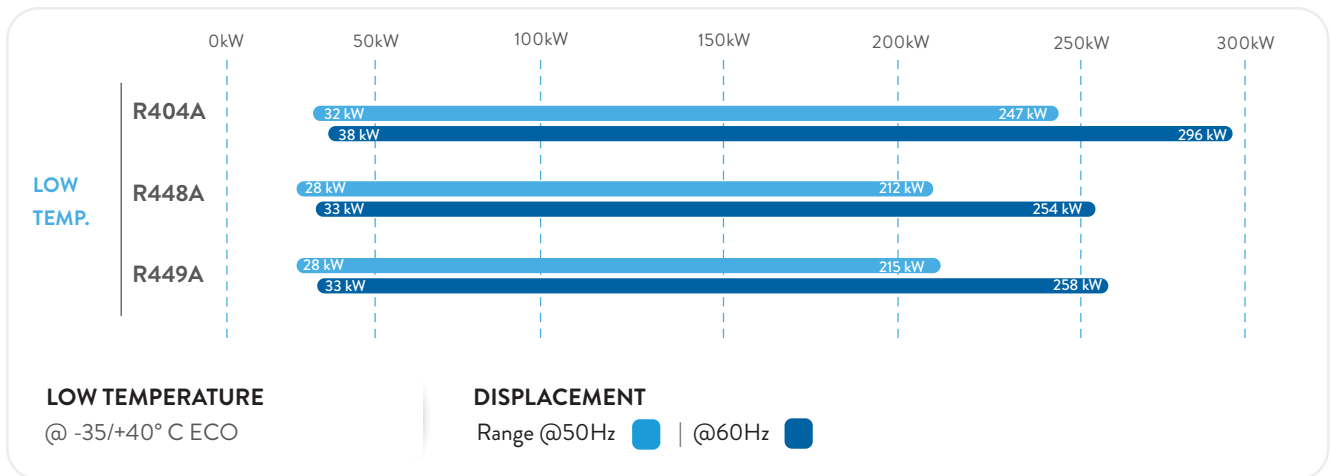


# ATEX CERTIFICATION

The ATEX directive (2014/34/EU) is a certification for equipment and protective systems intended for use in potentially explosive atmospheres, caused by the presence of gases or solid dust. **Our complete range of reciprocating and screw compressors is 100% certified in category 3G:** devices or protection systems that guarantee a very high level of protection Zone 2, an area where an explosive atmosphere may be present, but only in rare cases or for short periods. The compressor label includes the following ATEX assembly marking, usually placed on the wiring box:



# COOLING CAPACITY



**LEGAL DISCLAIMER:**  
While Frascold has made every effort at the time of publication to ensure the accuracy of the information provided herein, product specifications and performances could be subject to change without notice. You can find the most updated information in our Frascold Selection Software FSS3 at the link: <https://www.frascold.it/en/software>

# PRODUCT RANGE

## FVR-H, FVR-L MODELS RANGE

40 - 300 HP

120 - 910 m<sup>3</sup>/h @50Hz | 144 - 1092 m<sup>3</sup>/h @60Hz

### FVR H SERIES

High &  
Medium Temperature

30 Models

### FVR L SERIES

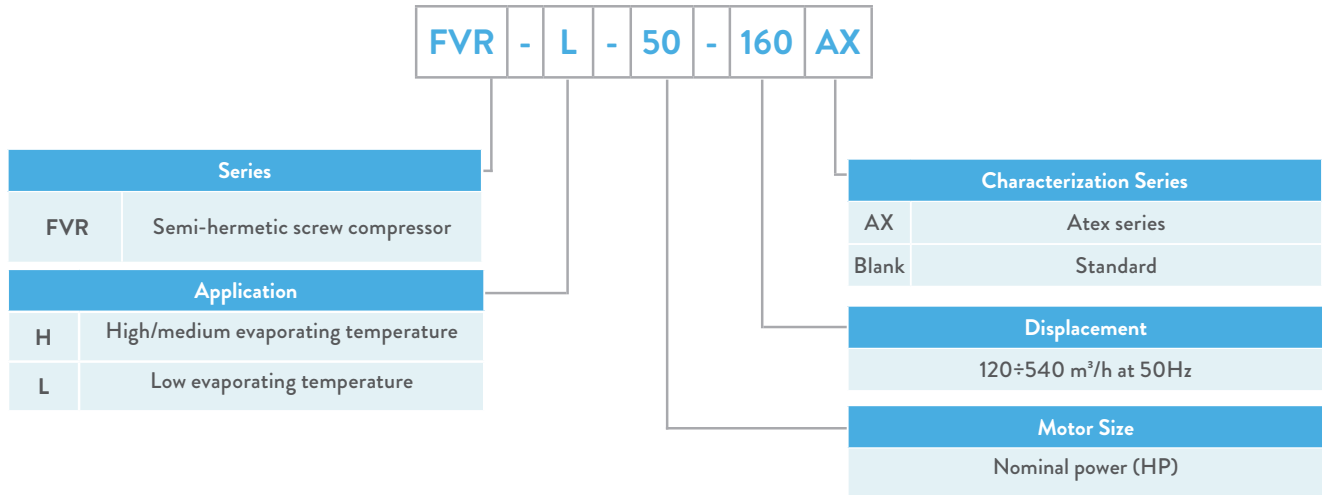
Low Temperature

15 Models

30 - 280 HP

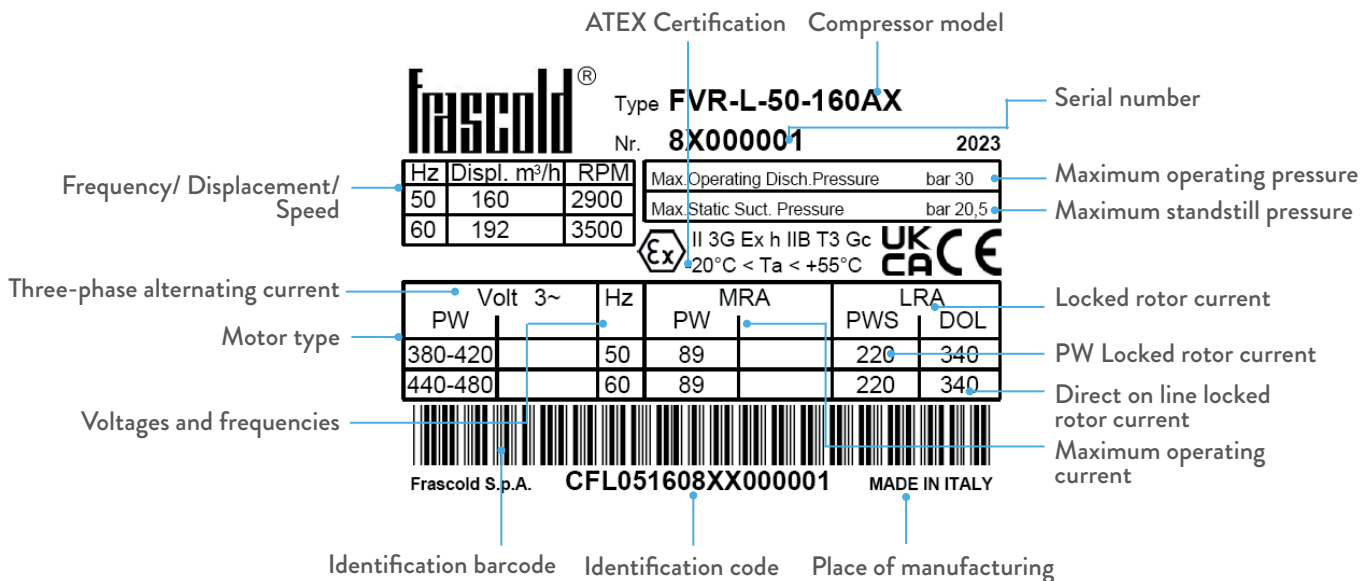
120 - 910 m<sup>3</sup>/h @50Hz | 144 - 1092 m<sup>3</sup>/h @60Hz

# MODEL DESIGNATION



# INFORMATION PLATE

All the important information to identify the compressor is displayed on the nameplate. The date of production is contained in the serial number. The user is responsible for indicating the refrigerant type.



# STANDARD EQUIPMENT AND OPTIONAL ACCESSORIES

Description	FVR	
	Std.	Opt.
Part winding (PWS) electric motor 380-420 V / 3 / 50 Hz (440-480 V / 3 / 60 Hz)		•
Suction shut-off valves with soldering connections [OPT for FVR H / L 620 - 700 - 810 - 910]	•	
Suction flanges with soldering connections [FVR H / L 620 - 700 - 810 - 910]	•	
Discharge shut-off valves with soldering connections		•
Discharge flanges with soldering connections	•	
Integrated check valve and safety valve	•	
Steps capacity control and unloaded start	•	
IP65 terminal box	•	
Discharge temperature PTC sensor	•	
INT69 FRY electronic protection module with manual reset	•	
Rotalock connection for oil injection	•	
Integrated oil filter and oil flow switch [FVR H/L 370 - 430 - 460 - 540]	•	
Oil injection kit: oil filter, oil flow switch, solenoid valve, oil sight glass [FVR]	•	
Oil injection kit: solenoid valve, oil sight glass [FVR H / L 370 - 430 - 460 - 540]	•	
Nitrogen protective charge	•	
Packing ensuring proper handling and adequate protection	•	
Special voltage for electric motor		•
Rubber vibration dampers (4 pcs)		•
Valve connection kit for ECO		•
Electronic Alarm Control Module for oil flow switch		•
Oil Filter Clogging Differential Pressure Switch (Electronic)		•
Bridges for DOL Start (STD for FVR H/L 120-140-160)		•
Special painting		•
INT69 FRYL Diagnose electronic protection module		•

# CONTROL PROTECTION DEVICE

## Standard compressor protection:

All the compressors are supplied complete with an **INT69 FRY** electronic protection module connected to a chain of PTC thermistors inserted into the electric motor, and a sensor of discharge temperature. If a problem is encountered, the module will shut the compressor down to prevent damage.

## Optional compressor protection:

Optionally, all compressors can be equipped with the new **Kriwan INT69 FRYL® Diagnose** protection module. This provides data logging, diagnostic, and protection features that can improve reliability and service life of the compressor. Logged data can be used to aid in system optimization, identify problems and prevent malfunctions before they happen. The **INT69 FRYL® Diagnose** protection device has a dedicated connection port for the following compressor protection devices:

- Thermistor PTC (1, 2)
- Discharge temperature sensor (3, 4)
- Oil level check (5, 6)
- Oil filter clogging sensor (7, 8)
- Oil flowswitch (9, 10)



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## Protection features:

Data logged on the **INT69 FRYL® Diagnose** device can be downloaded via USB or DP-Modbus. This data can be used by technicians to correct system issues or conduct preemptive maintenance. The Kriwan mobile app for reading data may be downloaded directly and free of charge from the Google Play Store or from the App Store. In the event of a compressor malfunction, the device makes available the following features and data:

### Safety Features

- Phase control
- Monitoring the number of start-ups
- Oil temperature check (and of discharge)
- Motor temperature check
- Oil level check
- Oil filter clogging check
- Oil flow check

### Statistical Data

- Detailed list of the last 20 errors
- Number of on/off cycles
- Number of compressor start-ups
- Run times of compressor and accessories
- Number of start-ups over the last 7 days
- Maximum number of re-starts in an hour

# CAPACITY REGULATION

Frascold's FVR compressors capacity can be regulated with:

1. CAPACITY CONTROL (CC)
2. VARIABLE FREQUENCY DRIVE (VFD)

## CAPACITY CONTROL (CC)

Under conditions of reduced thermal load, the compressor can bring the system to the correct temperature in a shorter time. Thanks to the capacity control the number of start/stop is reduced, allowing more efficiency and more reliability for the entire system. The following steps are possible:

	Steps
FVR 120-160	75 / 100%
FVR 200-910	50 / 75 / 100 %

The step system for the FVR-H/L 370-910 series allows an additional partialisation step to be used during start/stop phase as an unloaded start. The capacity control is carried out by the operation of three solenoid valves. The control sequence of the solenoid valves and the operational diagram are shown below:

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## Solenoid activation Diagram

Model Series	Capacity Control (1)			
	Full load (100%)	1. Step (75%)	2. Step (50%)	Start/Stop (2)
FVR-H/L 120-140-160	V1= ●	V1= ○	-	-
FVR-H/L 200-230-260 FVR-H/L 300-350-380	V1= ● V2= ●	V1= ● V2= ○	V1= ○ V2= ○	-
FVR-H/L 370-430-460-540	V1= ● V2= ○ V3= ○	V1= ● V2= ○ V3= ●	V1= ● V2= ● V3= ○	V1= ○ V2= ○ V3= ○
FVR-H/L 620-700-810-910	V1= ◐ V2= ○ V3= ○ V4= ○	V1= ◐ V2= ○ V3= ● V4= ○	V1= ◐ V2= ● V3= ○ V4= ○	V1= ○ V2= ○ V3= ○ V4= ●

1: The effective capacity of the stages depends on the operating conditions.

2: The start/stop step can only be used during the start-up and stopping phases.

○ Coil de-energized

● Coil energized

◐ Coil alternatively 4s energized and 20s de-energized

## VARIABLE FREQUENCY DRIVE (VFD)

All the compressors are designed to be compatible with inverter technology and are suitable for operating within the frequency range (30÷70 Hz). In some conditions of use, a restriction on the range of frequency might apply. In particular, the maximum frequency depends on the maximum operational current (MRA). For performance data at the various frequencies and the maximum limits under each condition, see Frascold selection software.

### Calculate maximum frequency

Within the limits of use of each specific compressor and refrigerant for each work point, there is a maximum frequency not to be exceeded, which can be calculated using the following formula:

$f(\text{Max})$  = maximum possible frequency [Hz]

MRA = maximum operational current [A]

$I_e$  = current absorbed at the work point at 50 Hz [A]

$$f(\text{Max}) = \frac{\text{MRA} \times 50 \text{ Hz}}{I_e}$$

### Calculate corresponding capacity

The refrigeration capacity is calculated as a function of the frequency using the following formula:

$Q_0(f)$  = refrigeration capacity at working frequency [W]

$f_a$  = actual frequency applied to the compressor [Hz]

$Q_0 50 \text{ Hz}$  = refrigeration capacity at 50 Hz [W]

$$Q_0(f) = \frac{f_a \times Q_0 50 \text{ Hz}}{50 \text{ Hz}}$$

# TECHNICAL DATA AND OPERATING LIMITS

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## FVR Series

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You can find the most updated information in our Frascold Selection Software FSS3 at the link:

<https://www.frascold.it/en/software>





## Technical data

Standard motor Voltage - PWS 400 (+/-10%) V/3/50Hz // 460 (+/-10%) V/3/60Hz

Models	Motor Vers.	Displacement		Nominal power 50Hz [HP]	Capacity control [%]	MRA [A]	LRA, PWS motor [A]	LRA, DOL motor [A]	Frequency min. [Hz]	Frequency max. [Hz]	Protection Index
		50Hz	60Hz								
		[m³/h]	[m³/h]								
FVR-H-30-120	1	120	144	30	75%	61	125	216	30	70	IP65
FVR-H-40-140	1	140	168	40	75%	68	171	294	30	70	IP65
FVR-H-50-160	1	160	192	50	75%	89	220	340	30	70	IP65
FVR-H-60-200	1	200	240	60	75% - 50%	108	262	425	30	70	IP65
FVR-H-70-230	1	230	276	70	75% - 50%	128	298	518	30	70	IP65
FVR-H-80-270	1	270	324	80	75% - 50%	145	373	600	30	70	IP65
FVR-H-90-300	1	300	360	90	75% - 50%	163	405	649	30	70	IP65
FVR-H-100-350	1	350	420	100	75% - 50%	183	488	767	30	70	IP65
FVR-H-110-370	1	370	444	110	75% - 50%	154	434	720	30	70	IP65
FVR-H-110-380	1	380	456	110	75% - 50%	211	505	793	30	70	IP65
FVR-H-115-430	1	430	516	115	75% - 50%	184	434	720	30	70	IP65
FVR-H-125-460	1	460	552	125	75% - 50%	218	530	838	30	70	IP65
FVR-H-140-540	1	540	648	140	75% - 50%	245	587	921	30	70	IP65
FVR-H-40-120	2	120	144	40	75%	68	171	294	30	70	IP65
FVR-H-50-140	2	140	168	50	75%	89	220	340	30	70	IP65
FVR-H-60-160	2	160	192	60	75%	108	262	425	30	70	IP65
FVR-H-70-200	2	200	240	70	75% - 50%	128	298	518	30	70	IP65
FVR-H-80-230	2	230	276	80	75% - 50%	145	373	600	30	70	IP65
FVR-H-90-270	2	270	312	90	75% - 50%	163	405	649	30	70	IP65
FVR-H-100-300	2	300	360	100	75% - 50%	183	488	767	30	70	IP65
FVR-H-115-350	2	350	420	115	75% - 50%	211	505	793	30	70	IP65
FVR-H-125-370	2	370	444	125	75% - 50%	218	530	838	30	70	IP65
FVR-H-125-380	2	380	456	125	75% - 50%	226	560	880	30	70	IP65
FVR-H-140-430	2	430	516	140	75% - 50%	245	587	921	30	70	IP65
FVR-H-160-460	2	460	552	160	75% - 50%	282	729	1114	30	70	IP65
FVR-H-180-540	2	540	648	180	75% - 50%	304	786	1209	30	70	IP65
FVR-H-210-620	2	620	744	210	75%-50%	332	465	1442	30	70	IP65
FVR-H-240-700	2	700	840	240	75%-50%	356	586	1853	30	70	IP65
FVR-H-280-810	2	810	972	280	75%-50%	427	650	2029	30	70	IP65
FVR-H-300-910	2	910	1092	300	75%-50%	474	805	2520	30	70	IP65
FVR-L-30-120	-	120	144	30	75%	61	125	216	30	70	IP65
FVR-L-40-140	-	140	168	40	75%	68	171	294	30	70	IP65
FVR-L-50-160	-	160	192	50	75%	89	220	340	30	70	IP65
FVR-L-60-200	-	200	240	60	75% - 50%	108	262	425	30	70	IP65
FVR-L-70-230	-	230	276	70	75% - 50%	128	298	518	30	70	IP65
FVR-L-80-270	-	270	312	80	75% - 50%	145	373	600	30	70	IP65
FVR-L-90-300	-	300	360	90	75% - 50%	163	405	649	30	70	IP65
FVR-L-100-350	-	350	420	100	75% - 50%	183	488	767	30	70	IP65
FVR-L-110-380	-	380	456	110	75% - 50%	211	505	793	30	70	IP65
FVR-L-125-430	-	430	516	125	75% - 50%	218	530	838	30	70	IP65
FVR-L-160-540	-	540	648	160	75% - 50%	287	729	1114	30	70	IP65
FVR-L-180-620	-	620	744	180	75%-50%	283	436	1364	30	70	IP65
FVR-L-200-700	-	700	840	200	75%-50%	332	465	1442	30	70	IP65
FVR-L-240-810	-	810	972	240	75%-50%	356	586	1853	30	70	IP65
FVR-L-280-910	-	910	1092	265	75%-50%	427	650	2029	30	70	IP65

Find the most updated information in our Frascold Selection Software FSS3 at the link:  
<https://www.frascold.it/en/software>

## Technical data

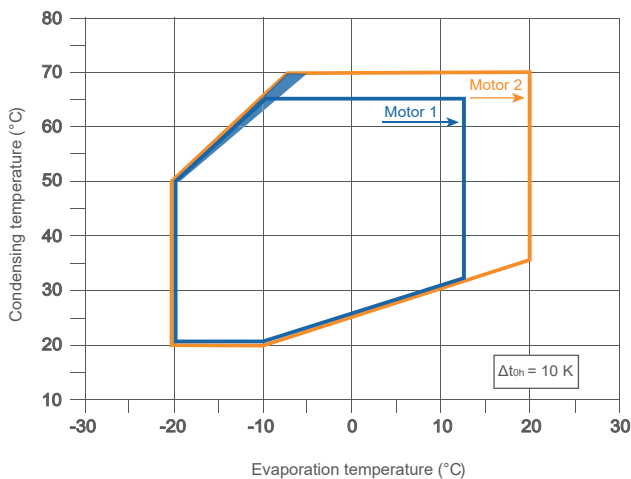
	Max. allowable standstill pressure	Max. allowable operative pressure	Suction Valve (SV)	Suction Valve (SV)	Discharge Line (DL)	Discharge Line (DL)	Net Weight	Models
	[bar]	[bar]	[mm]	[inch]	[mm]	[Inch]	[kg]	
	20,5	30	54	2" 1/8	42	1" 5/8	210	FVR-H-30-120
	20,5	30	54	2" 1/8	42	1" 5/8	223	FVR-H-40-140
	20,5	30	54	2" 1/8	42	1" 5/8	223	FVR-H-50-160
	20,5	30	80	-	54	2" 1/8	324	FVR-H-60-200
	20,5	30	80	-	54	2" 1/8	339	FVR-H-70-230
	20,5	30	80	-	54	2" 1/8	352	FVR-H-80-270
	20,5	30	80	-	67	-	430	FVR-H-90-300
	20,5	30	80	-	67	-	432	FVR-H-100-350
	20,5	30	105	4 1/8"	DN80	-	711	FVR-H-110-370
	20,5	30	80	-	67	-	435	FVR-H-110-380
	20,5	30	105	4 1/8"	DN80	-	732	FVR-H-115-430
	20,5	30	105	4 1/8"	DN80	-	735	FVR-H-125-460
	20,5	30	105	4 1/8"	DN80	-	749	FVR-H-140-540
	20,5	30	54	2" 1/8	42	1" 5/8	215	FVR-H-40-120
	20,5	30	54	2" 1/8	42	1" 5/8	223	FVR-H-50-140
	20,5	30	54	2" 1/8	42	1" 5/8	226	FVR-H-60-160
	20,5	30	80	-	54	2" 1/8	326	FVR-H-70-200
	20,5	30	80	-	54	2" 1/8	341	FVR-H-80-230
	20,5	30	80	-	54	2" 1/8	354	FVR-H-90-270
	20,5	30	80	-	67	-	432	FVR-H-100-300
	20,5	30	80	-	67	-	434	FVR-H-115-350
	20,5	30	105	4 1/8"	DN80	-	734	FVR-H-125-370
	20,5	30	80	-	67	-	437	FVR-H-125-380
	20,5	30	105	4 1/8"	DN80	-	742	FVR-H-140-430
	20,5	30	105	4 1/8"	DN80	-	749	FVR-H-160-460
	20,5	30	105	4 1/8"	DN80	-	765	FVR-H-180-540
	20,5	30	105	4 1/8"	DN80	-	903	FVR-H-210-620
	20,5	30	105	4 1/8"	DN80	-	923	FVR-H-240-700
	20,5	30	DN125	-	105	4 1/8"	950	FVR-H-280-810
	20,5	30	DN125	-	105	4 1/8"	959	FVR-H-300-910
	20,5	30	54	2" 1/8	42	1" 5/8	210	FVR-L-30-120
	20,5	30	54	2" 1/8	42	1" 5/8	218	FVR-L-40-140
	20,5	30	54	2" 1/8	42	1" 5/8	223	FVR-L-50-160
	20,5	30	80	-	54	2" 1/8	324	FVR-L-60-200
	20,5	30	80	-	54	2" 1/8	339	FVR-L-70-230
	20,5	30	80	-	54	2" 1/8	352	FVR-L-80-260
	20,5	30	80	-	67	-	430	FVR-L-90-300
	20,5	30	80	-	67	-	432	FVR-L-100-350
	20,5	30	80	-	67	-	435	FVR-L-110-380
	20,5	30	105	4 1/8"	DN80	-	735	FVR-L-125-430
	20,5	30	105	4 1/8"	DN80	-	762	FVR-L-160-540
	20,5	30	105	4 1/8"	DN80	-	885	FVR-L-180-620
	20,5	30	105	4 1/8"	DN80	-	900	FVR-L-200-700
	20,5	30	DN125	-	105	4 1/8"	925	FVR-L-240-810
	20,5	30	DN125	-	105	4 1/8"	943	FVR-L-280-910

# OPERATING LIMITS

Diagrams published in this catalogue are to be considered as a general diagram for the full range of semi-hermetic screw compressors. For specific model and refrigerant performance data, please use the **FSS3 Frascold Selection Software** available for free download at [www.frascold.it](http://www.frascold.it).

Diagrams assume a full compressor load with a power supply frequency of 50 Hz. Performance displayed for R134a, R404A, R507A, R448A, R449A, R407F, R407A, and R290. Data on other refrigerants available on request. Capacities are shown in accordance with European EN12900 standard and at 50Hz operation. To calculate capacity in other conditions and at 60 Hz, please use the Frascold Selection Software (download free at <https://www.frascold.it/en/software>).

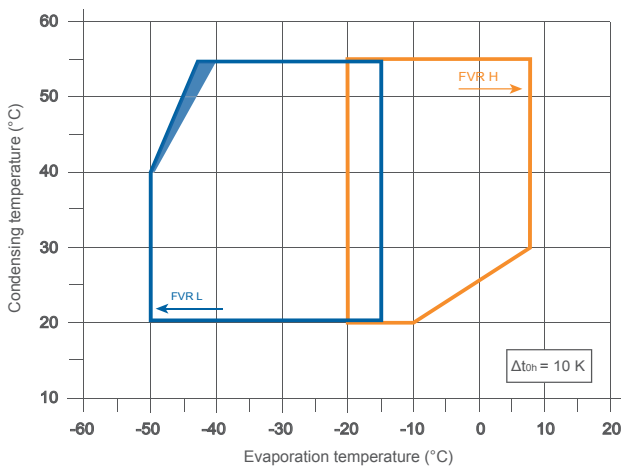
## R134a



### Standard application diagram

Motor size 1 - 2  
Compressor capacity 100%  
Overheating = 10K

## R404A - R507A

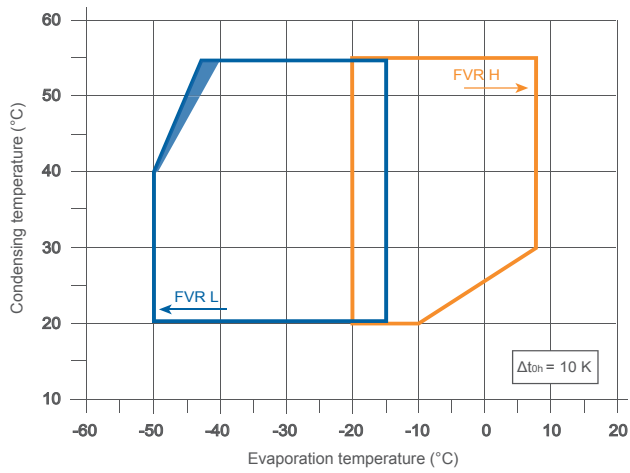


### Standard application diagram

FVR H/L  
Compressor capacity 100%  
Overheating = 10K

■ For operation in this zone, please contact Frascold.

### R448A - R449A



#### Standard application diagram

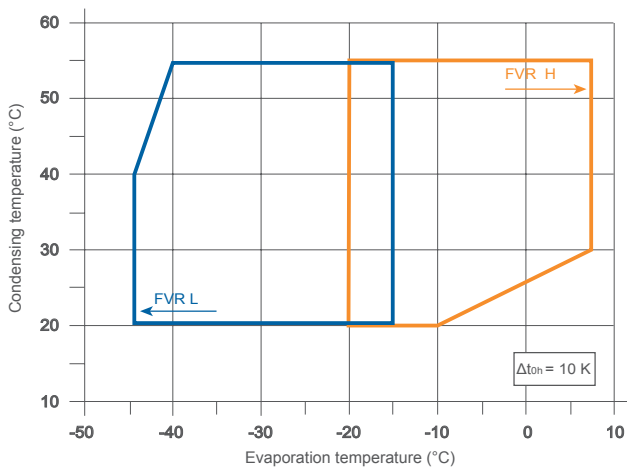
FVR H/L

Compressor capacity 100%

Overheating = 10K

■ For operation in this zone, please contact Frascold.

### R407F - R407A



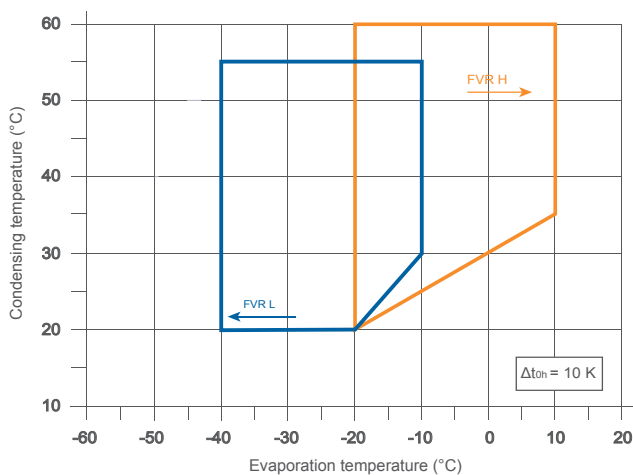
#### Standard application diagram

FVR H/L

Compressor capacity 100%

Overheating = 10K

### R290



#### Standard application diagram

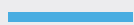
FVR H/L

Compressor capacity 100%

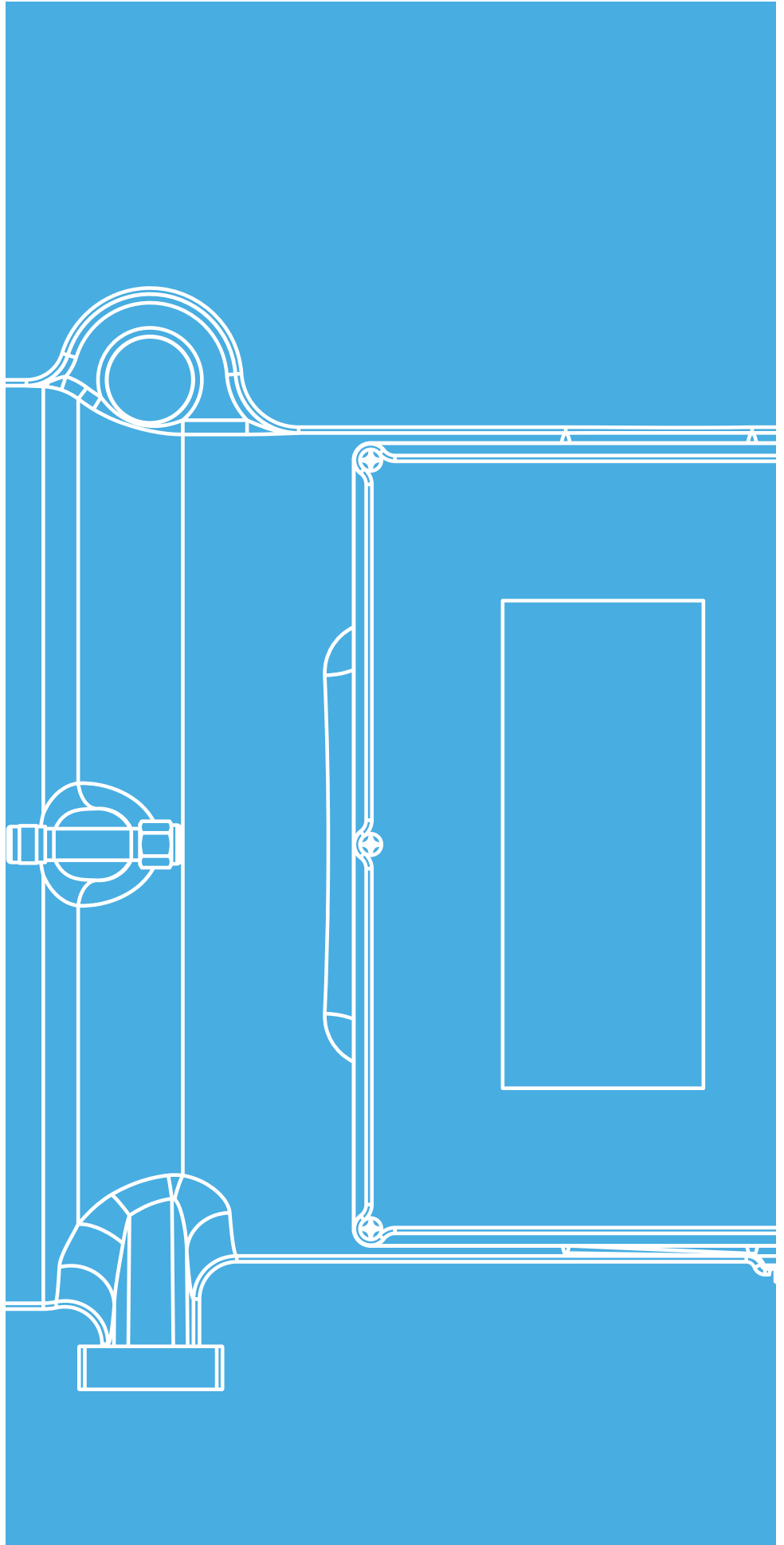
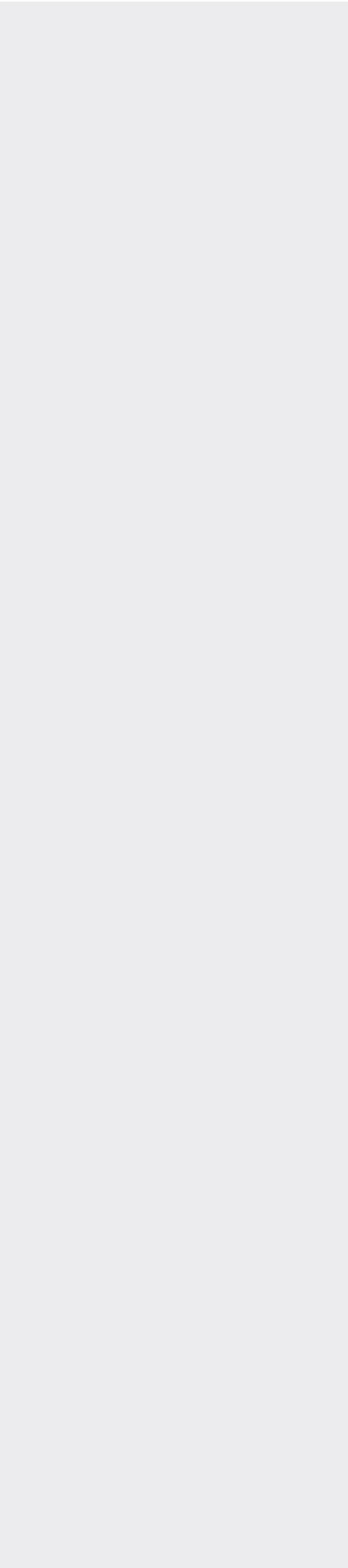
Overheating = 10K

# TECHNICAL DRAWINGS AND DIMENSIONS

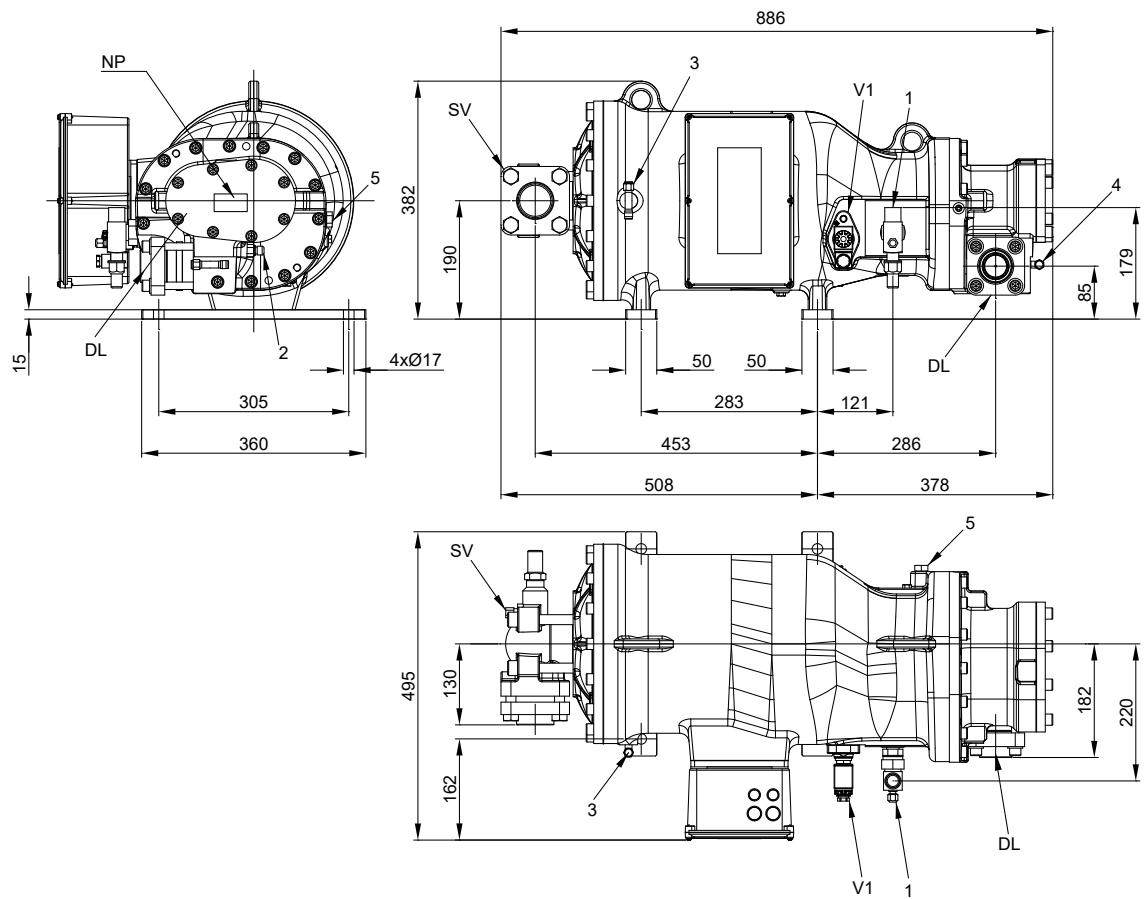
22



FVR Series



FVRH/L 120 - 140 - 160

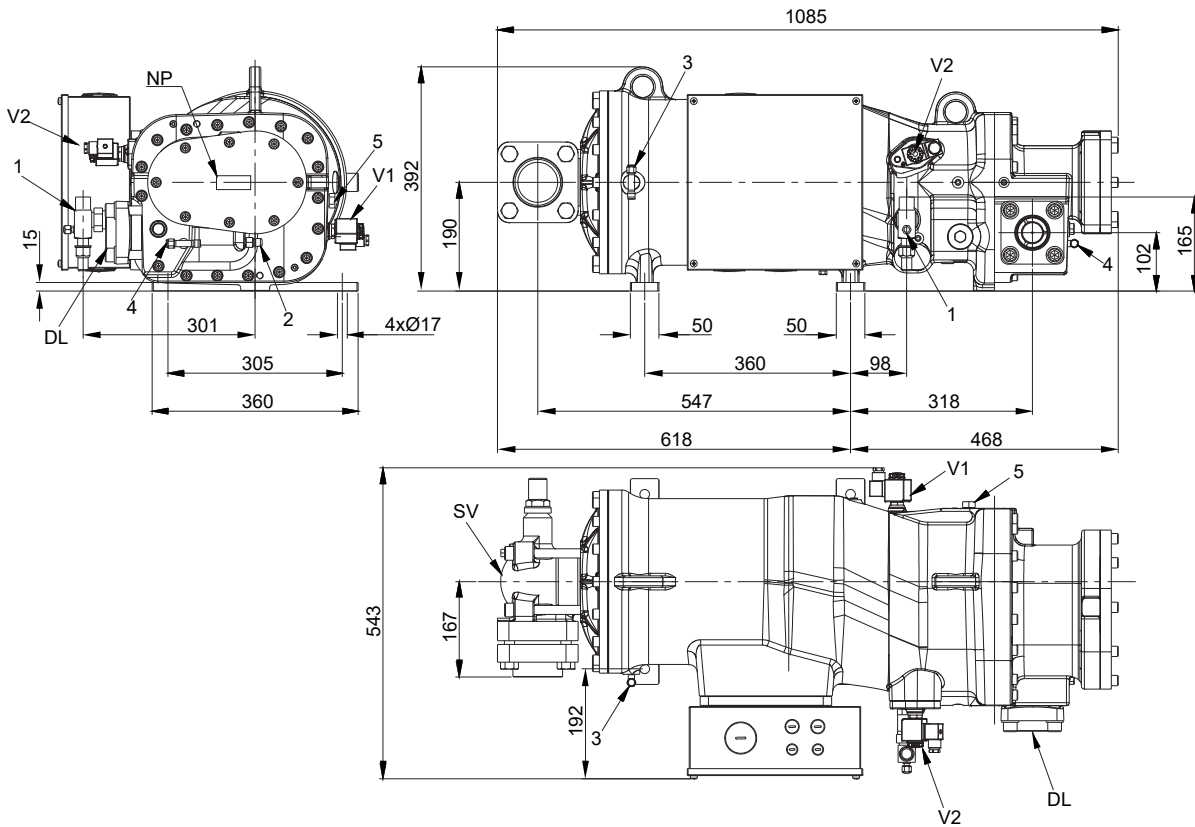


1	Oil return connection	
2	Discharge temperature sensor	
3	Low pressure connection	
4	High pressure connection	
5	Connection for ECO	1/2" SAE
V1	Capacity control valve (step 1)	
SV	Suction valve	2-1/8" - 54,0 mm
DL	Discharge line	1-5/8" - 42,0 mm
NP	Information plate	



## Dimensional drawing

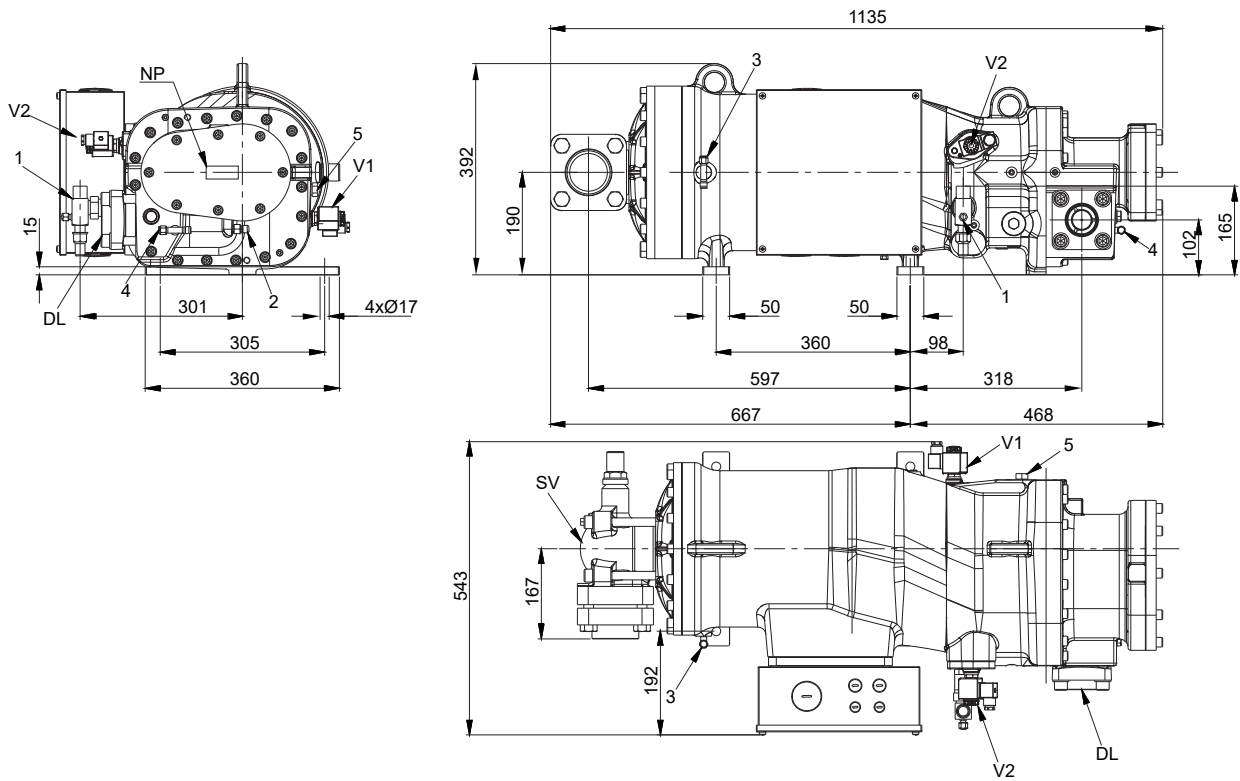
### FVRH/L 200 - 230 - 270



25

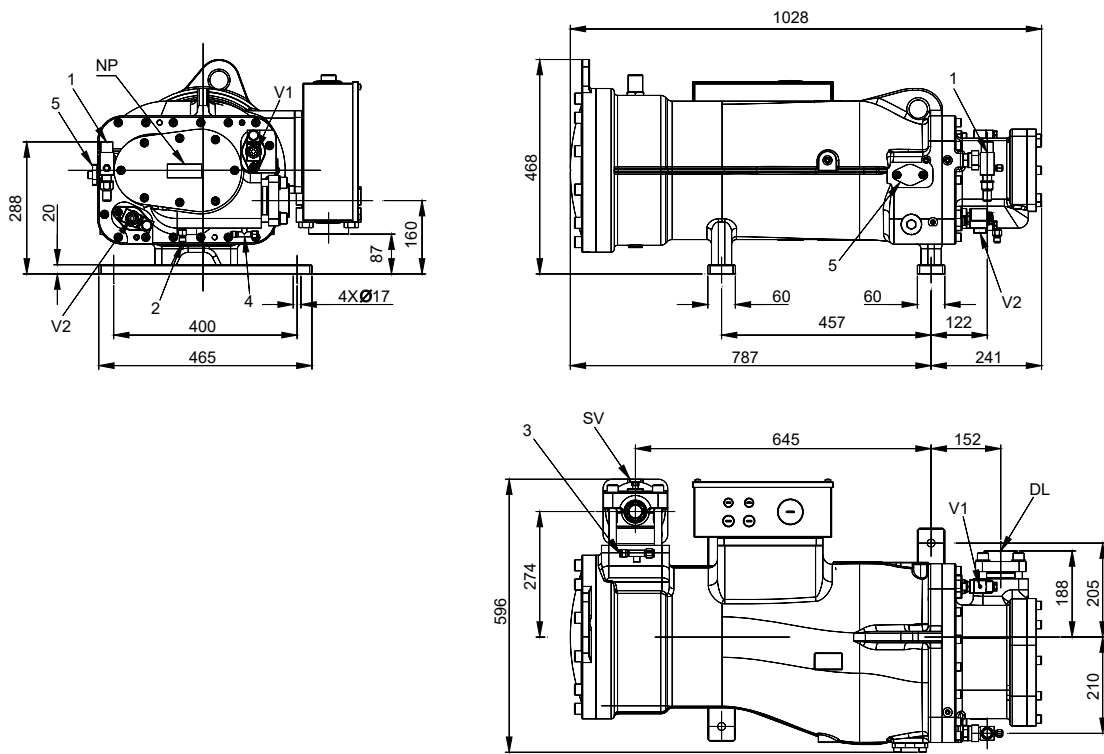
1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
SV	Suction valve	3-1/8" - 80 mm
DL	Discharge line	2-1/8" - 54 mm
NP	Information plate	

FVRH/L 90 - 270



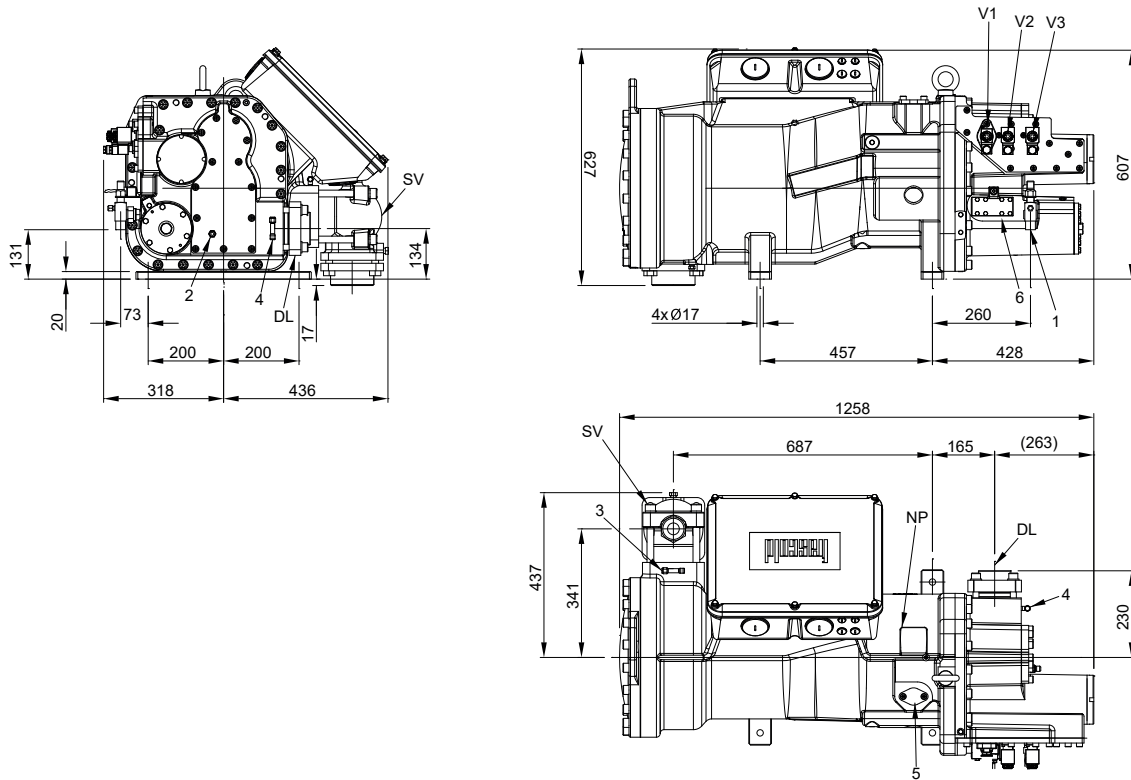
1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
SV	Suction valve	3-1/8" - 80 mm
DL	Discharge line	54 mm
NP	Information plate	

FVRH/L 300 - 350 - 380



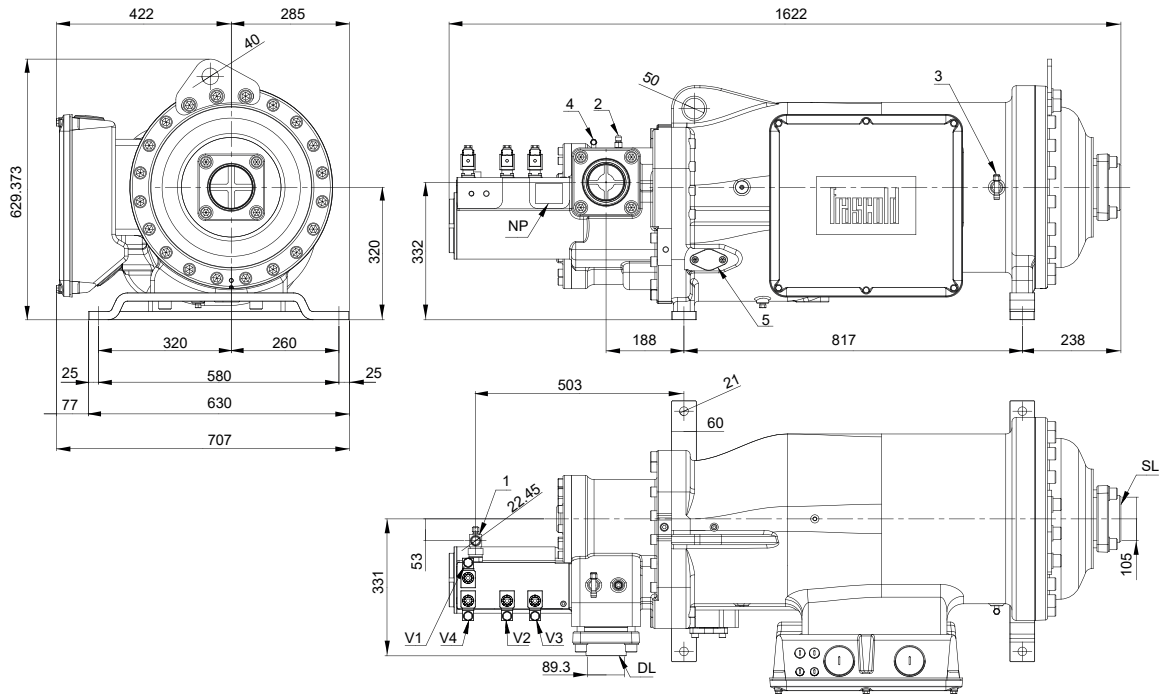
1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
SV	Suction valve	3-1/8" - 80 mm
DL	Discharge line	67 mm
NP	Information plate	

FVRH/L 370 - 430 - 460 - 540



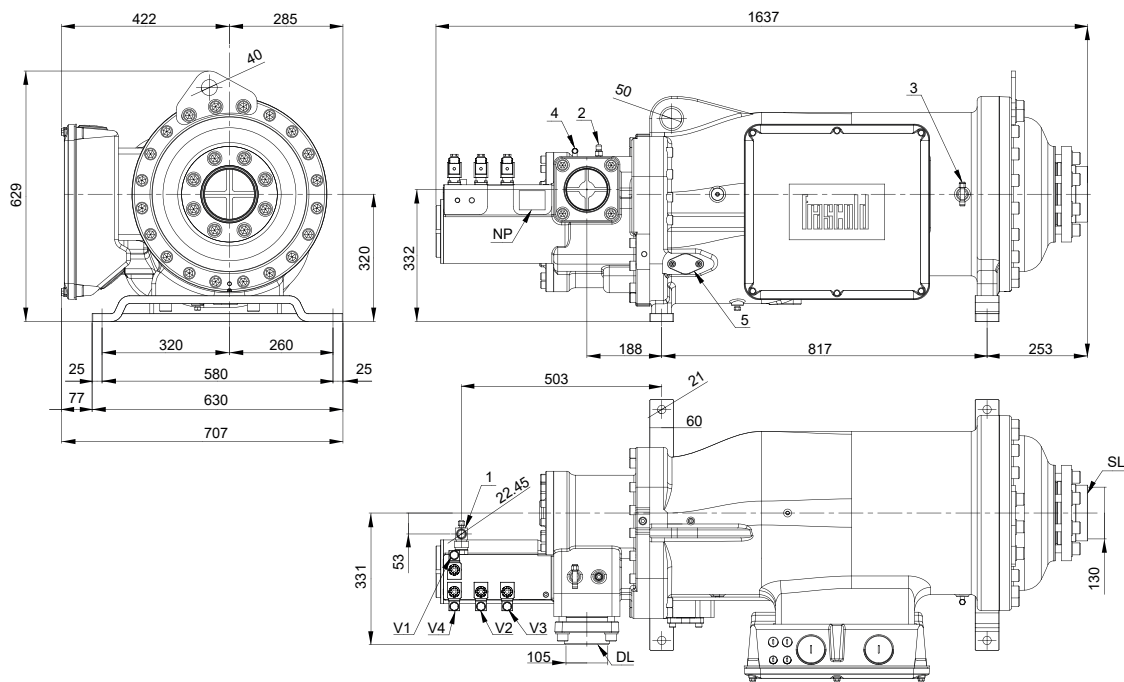
1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
V3	Capacity control valve	
SV	Suction valve	4-1/8" - 105 mm
DL	Discharge line	80 mm
NP	Information plate	

FVRH/L 620 - 700



1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
V3	Capacity control valve	
V4	Capacity control valve	
SL	Suction line	4-1/8" - 105 mm
DL	Discharge line	DN80
NP	Information plate	

FVRH/L 810 - 900



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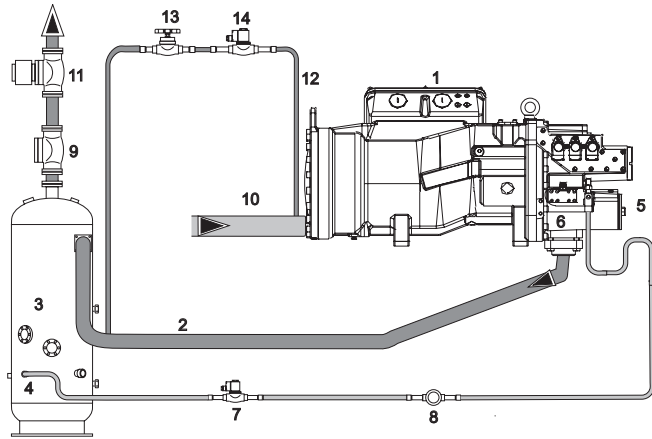
1	Oil return line connection	
2	Discharge temperature sensor	
3	Low pressure connection LP	
4	High pressure connection HP	
5	Connection for ECO	
V1	Capacity control valve	
V2	Capacity control valve	
V3	Capacity control valve	
V4	Capacity control valve	
SL	Suction line	DN125
DL	Discharge line	4-1/8" - 105 mm
NP	Information plate	

# OIL INJECTION KIT

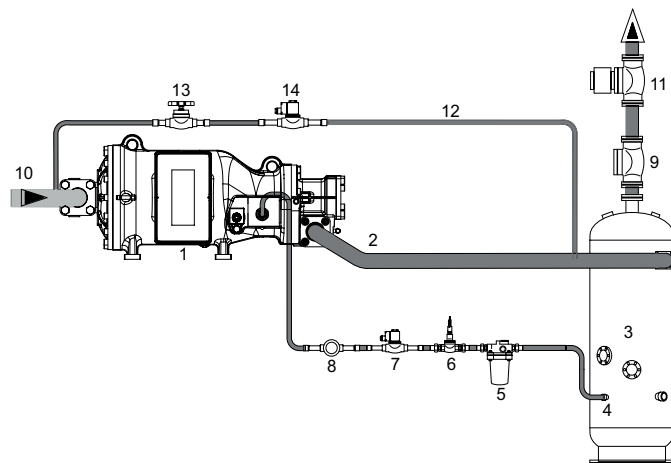
- The standard Frascold oil injection kit includes:
- Oil filter
  - Flowswitch with electronic control module
  - Solenoid valve
  - Oil flow sight glass

## Oil circuit diagram for FVR-H/L-370-430-460-540

In the FVR Models, the flowswitch and the oil filter are integrated with the compressor.



## Oil circuit diagram for all other models.



- |    |   |
|----|---|
| 1  | Compressor  |
| 2  | Discharge line  |
| 3  | Remote oil separator with thermostat, resistance and level detector |
| 4  | Oil return line to the compressor                                   |
| 5  | Oil filter  |
| 6  | Oil flowswitch  |
| 7  | Solenoid valve  |
| 8  | Oil sight glass   |
| 9  | Check valve   |
| 10 | Suction line  |
| 11 | Discharge pressure regulation valve                                 |
| 12 | External equalization line  |
| 13 | Shut off valve  |
| 14 | Solenoid valves   |

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