



### ENGLISH

#### Technical data

Viscosity range: 2.5 to 450 cSt.  
 Pump speed: Max. 3600 min<sup>-1</sup>  
 at max. pressure 25 bar  
 Max. 2800 min<sup>-1</sup>  
 at max. pressure 40 bar  
 Factory setting: Minimum pressure  
 Oil temperature: Max. 180°C  
 Max. feed pressure: 5 bar.

#### Connection

P = Nozzle port G 1/2  
 S = Suction port G 1/2  
 R = Return port G 1/2  
 P<sub>n</sub> = Pressure gauge G 1/4  
 P<sub>s</sub> = Pressure gauge suction/feed pressure G 1/4  
 All connections have spot faced surfaces for standard washer.

Fig. 1 and fig. 2 show the placing of connection ports for RH and LH pumps

#### Note

KSV is for two pipe application. Used as one pipe pump with positive feed pressure an external bypass has to be made between the return port and the suction port.

#### Installation

A prefilter must be installed in accordance with current rules/practice.

#### Media

The pump specification stipulates mineral-based fuel oil or media of a corresponding or higher classification.

#### First-time start

Before starting the pumps the following points must be observed.  
 Check direction of rotation of the pump.  
 Secure that there is oil in the pump for lubrication at start, otherwise fill up the pump with oil.

Make sure that all connections and pipes on the suction side are air tight.  
 Open all valves on suction side to create minimum vacuum at start-up.  
 Open a port on the pressure side, start the motor and bleed the suction line and the pump until no more air is coming out of the pump. Possibly use a transparent plastic tube. Close the P-port again.  
 Insert a pressure gauge to adjust the pump to the wanted pressure. See fig. 3.  
 Make sure that all valves are in position for normal operation and that the burner is operating satisfactory.  
 Stop the pump, remove the pressure gauge and restart the pump.

#### Tank installation

Make sure that both suction and return pipe are below the surface of the oil and that suction inlet is placed at a level where sludge from the tank bottom is avoided (at least 10 cm above the bottom) and the return pipe is placed so far away from the suction pipe that interference is avoided.

Tank and filter producing companies have guidelines for installation and also the DIN 4755 gives information on installations.

#### Accessories

KSV pumps can be used as feed/transport pumps when using a different pressure regulating spring.

The KSV pumps have a connection Ø 6,5 x 42 for heating cartridge. See fig. 3

Accessories	Voltage	Code no.	Cable length
Spring. Pressure range 1.0 to 4.0 bar		070H0000	
Spring. Pressure range 2.0 to 9.0 bar		070H0001	
Heating cartridge 125 W	230 V	070H0002	300 mm
Heating cartridge 125 W	230 V	070H0003	600 mm
Heating cartridge 125 W	110 V	070H0004	450 mm
Screwed cable connection M8 x 1		070H0005	

#### Oil pump type VBGR (KSV)

##### Port designations

In a transitional period replacement pumps for KSA400, 630, 1000 will occur with the designations VBGR and KSV. See table.

Connection ports on VBGR will have the normal SAFAG designations.

On KSV, designation of the ports will be in accordance with normal Danfoss standard.

Function	Thread	Danfoss designation	SAFAG designation
Suction port	G 1/2	S	A
Pressure port	G 1/2	P	S
Pressure gauge	G 1/4	P <sub>n</sub>	
Suction gauge	G 1/4	P <sub>s</sub>	
Return port	G 1/2	R	R or (BP)
Direction of rotation		RH (right) LH (left)	DC (right) IC (left)

#### Conversion KSA to KSV (VBGR)

	Code no.		SAFAG	Old Code no.	Danfoss	New Code no.	Pressure (bar)*	Capacity (l/h)
KSA 400	071F2000	⇒	VBGRMMDC-3-S5030	070H4633	<b>KSV 400</b>	<b>070H2100</b>	6-25	400
KSA 400	071F2000	⇒	VBGRMMDC-4-S5030	070H4634	<b>KSV 400</b>	<b>070H2000</b>	15-40	400
KSA 400	071F2001	⇒	VBGRMMIC-3-S5030	070H4733	<b>KSV 400</b>	<b>070H2101</b>	6-25	400
KSA 400	071F2001	⇒	VBGRMMIC-4-S5030	070H4734	<b>KSV 400</b>	<b>070H2001</b>	15-40	400
KSA 630	071F2002	⇒	VBGRPDC-3-S5030	070H4643	<b>KSV 630</b>	<b>070H2102</b>	6-25	630
KSA 630	071F2002	⇒	VBGRPDC-4-S5030	070H4644	<b>KSV 630</b>	<b>070H2002</b>	15-40	630
KSA 630	071F2003	⇒	VBGRPIC-3-S5030	070H4743	<b>KSV 630</b>	<b>070H2103</b>	6-25	630
KSA 630	071F2003	⇒	VBGRPIC-4-S5030	070H4744	<b>KSV 630</b>	<b>070H2003</b>	15-40	630
KSA 1000	071F2004	⇒	VBGRMDC-3-S5030	070H4663	<b>KSV 950</b>	<b>070H2104</b>	6-25	950
KSA 1000	071F2004	⇒	VBGRMDC-4-S5030	070H4664	<b>KSV 950</b>	<b>070H2004</b>	15-40	950
KSA 1000	071F2005	⇒	VBGRMIC-3-S5030	070H4763	<b>KSV 950</b>	<b>070H2105</b>	6-25	950
KSA 1000	071F2005	⇒	VBGRMIC-4-S5030	070H4764	<b>KSV 950</b>	<b>070H2005</b>	15-40	950
KSA 1000	071F2004	⇒	VBGRGDC-3-S5030	070H4693	<b>KSV 1100</b>	<b>070H2114</b>	6-25	1100
KSA 1000	071F2004	⇒	VBGRGDC-4-S5030	070H4694	<b>KSV 1100</b>	<b>070H2014</b>	15-40	1100
KSA 1000	071F2005	⇒	VBGRGIC-3-S5030	070H4793	<b>KSV 1100</b>	<b>070H2115</b>	6-25	1100
KSA 1000	071F2005	⇒	VBGRGIC-4-S5030	070H4794	<b>KSV 1100</b>	<b>070H2015</b>	15-40	1100

If pressure range is not stated by customer choose pressure range 15 to 40 bar