

OIL SEPARATOR SVA

SVA24

GENERAL

The SVA 24 screw compressor unit is equipped with a vertical oil separator having a diameter of 550 mm.

Oil that is injected into the compressor bearings and compression chamber must be separated from the gaseous refrigerant before it flows out into the system. This is accomplished by the oil separator which is installed immediately after the compressor. See Fig. 1.

At the input to the oil separator, the gaseous refrigerant, together with the oil, passes through a coarse separator consisting of a fine-mesh strainer system. The gaseous refrigerant, together with the oil mist, both of which are now moving at reduced speed) then pass through the fine separator which consists two replaceable filter cartridges.

The oil removed by the coarse separator is collected at the bottom of the oil separator and sent back to the compressor. The oil that is removed by the fine separator proceeds via a small-bore pipeline equipped with filter directly back to the connection on the suction side of the compressor.

- The oil separator is available as standard with SA approval (drawing No. 1903 677-A) and with TÜV approval (drawing No. 1903 678-A).

SERVICE INSTRUCTIONS

The filter cartridges must be changed after no more than 5000 hours of operation or whenever the pressure drop across the filter cartridges exceeds 60 kPa (0.6 bar). The best way to measure the pressure drop is with a pressure gauge connected to valve I (see Fig. 1) and then valve II. The difference between the readings obtained for valve I and valve II must not exceed 60 kPa (0.6 bar) at 100% compressor capacity. This pressure drop must be checked every 2500 hours of operation.

To replace the filter cartridges, proceed as follows (see Fig.2):

1. Close the valves before and after the compressor unit and equalize the pressure to the low pressure side by opening the service valve (located upstream from the compressor suction valve). Then close the service valve and blow the remaining refrigerant out of the compressor unit.
2. Remove cover (4).
3. Back off and remove nuts (60) and lift off flange rings (16)
4. Remove filter cartridges (15)
5. Gaskets (46) must always be changed when the filter is changed.
6. Mount a new filter, fit flange rings (16) and tighten nuts (60). It is important to see that the gaskets are seated properly so that they provide a tight seal.
7. Replace O-ring (65) before fitting cover (4)
8. Evacuate all air from the oil separator before opening the valves again.
9. — Check the oil level in the oil separator each day. Top up if required.
— Check the pressure drop across the filter cartridges.
— Replace the filter cartridges if the pressure drop exceeds 60 kPa (0.6 bar) or after 5000 hours of operation, whichever occurs first.

STAL-MINI screw compressor

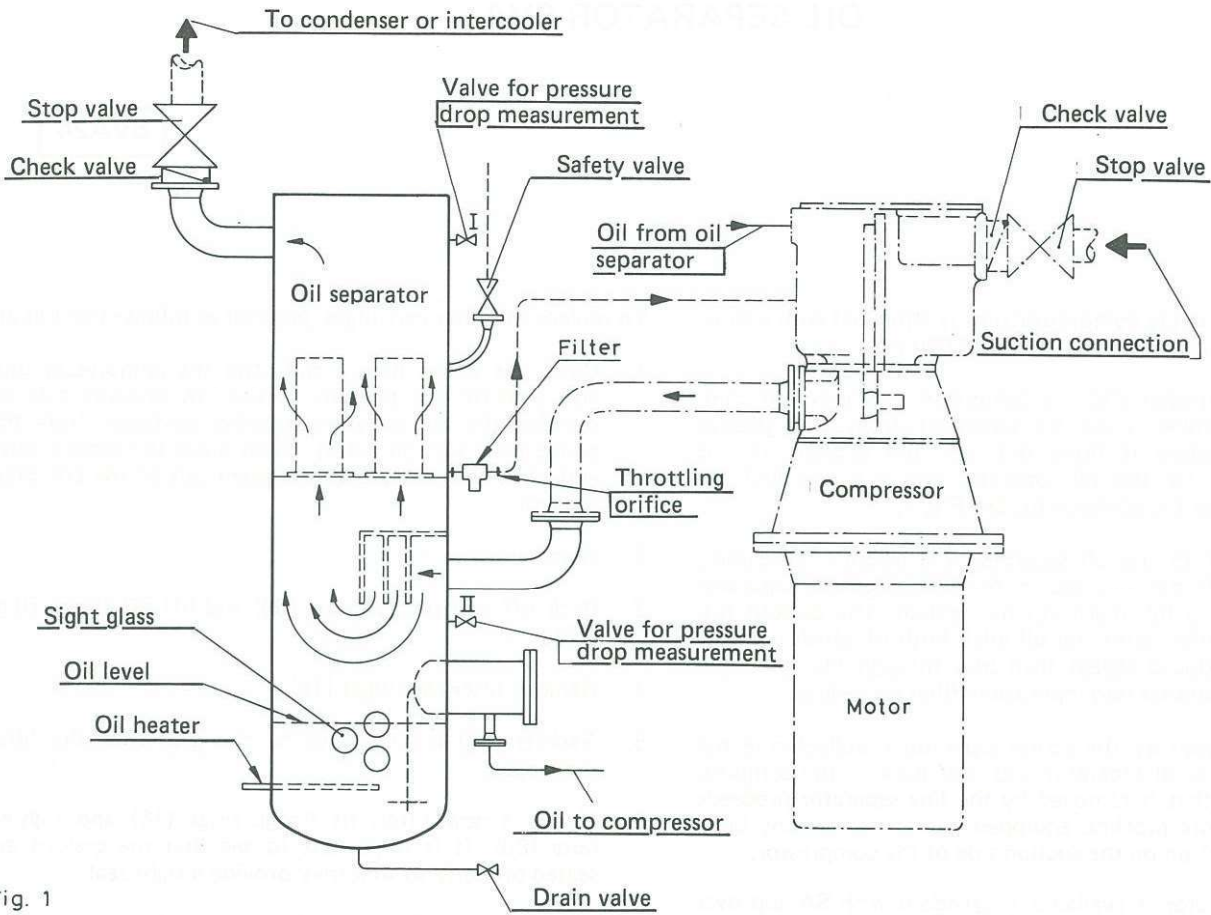


Fig. 1

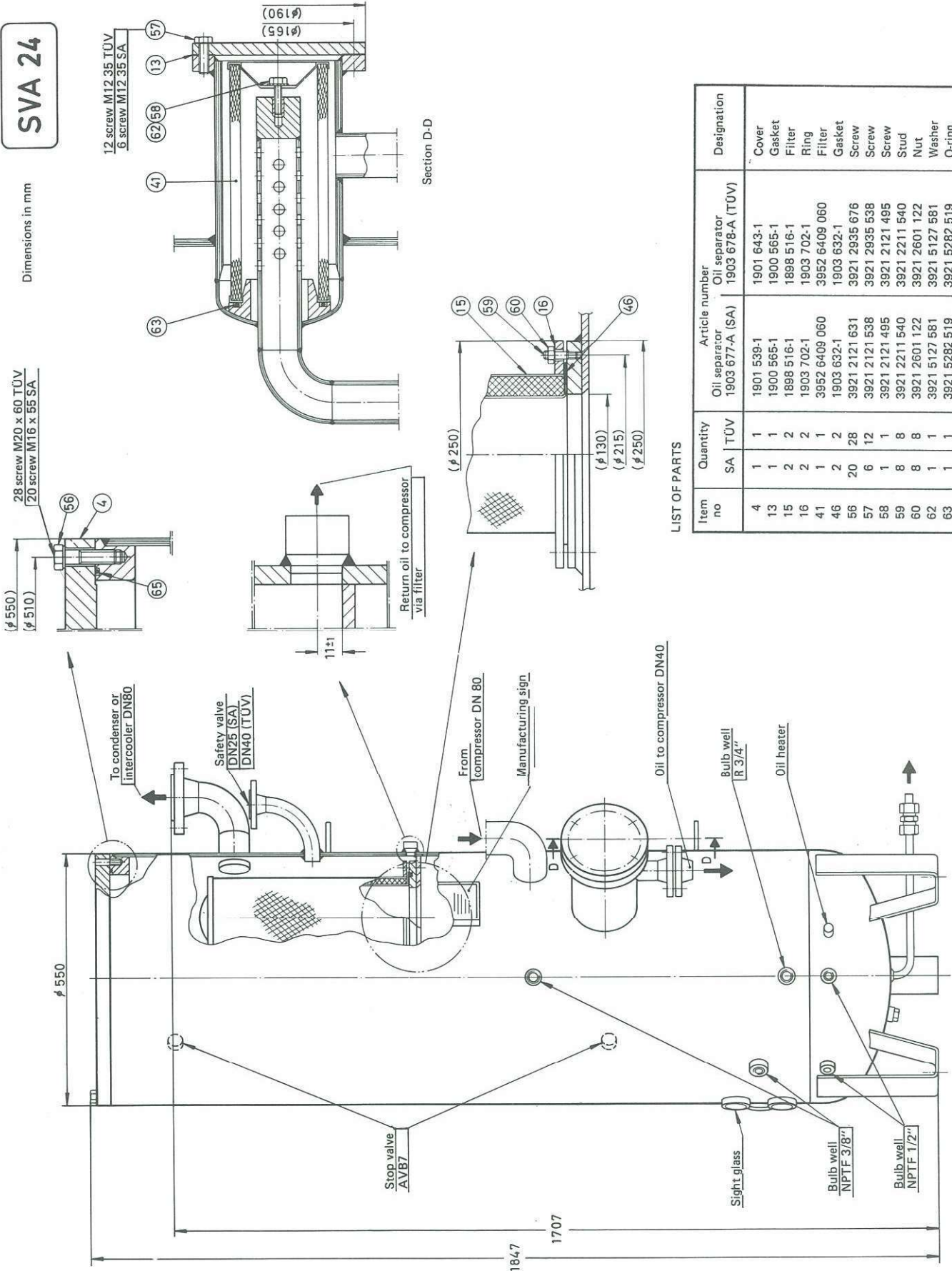
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SVA 24

Dimensions in mm



LIST OF PARTS

Item no	Quantity		Article number		Designation
	SA	TUV	Oil separator 1903 677-A (SA)	Oil separator 1903 678-A (TUV)	
4	1	1	1901 539-1	1901 643-1	Cover
13	1	1	1900 565-1	1900 565-1	Gasket
15	2	2	1898 516-1	1898 516-1	Filter
16	2	2	1903 702-1	1903 702-1	Ring
41	1	1	3952 6409 060	3952 6409 060	Filter
46	2	2	1903 632-1	1903 632-1	Gasket
56	20	28	3921 2121 631	3921 2935 676	Screw
57	6	12	3921 2121 538	3921 2935 538	Screw
58	1	1	3921 2121 495	3921 2121 495	Screw
59	8	8	3921 2211 540	3921 2211 540	Stud
60	8	8	3921 2601 122	3921 2601 122	Nut
62	1	1	3921 5127 581	3921 5127 581	Washer
63	1	1	3921 5282 519	3921 5282 519	O-ring
65	1	1	3921 5282 562	3921 5282 561	O-ring

Fig. 2 Oil separator with filter insert



VERTICAL OIL SEPARATOR Type TAS ... B

Order procedure

SVA, SVB, SVR

In refrigerating plants incorporating screw compressor units of type SVA, SVB and SVR, the units must be connected to a free-standing oil separator.

When there are demands on low oil carry-over an oil separator of type TAS ...B should be installed. The amount of the oil carry-over is shown in diagrams 1 and 2 and in table 1.

In refrigerating plants, where a major amount of oil carry-over than what is obtained with type TAS ...B, can be accepted and by plants with R12 and R22, where the pressure drop must be low (heat pumps), an oil separator of type TAD is to be chosen according to manual sheet 4840-N-8.

Two or more compressor units must not be connected to one common oil separator.

When choosing an oil separator start from diagram 1 or 2. In order to obtain the magnitude of the oil carry-over the diagram value should be multiplied by the appropriate factor according to table 1. The magnitude of the received oil carry-over is to consider as guide value. For STALOMIZER connected compressors the oil carry-over is ca 10% higher than what will be obtained from the diagrams and table 1.

With regard to the amount of oil carry-over when refrigerants other than R22 and NH₃ are used, inquiries should be made from case to case.

Table 1.

Compressor size	Correction factors for oil carry-over with different combinations compressor - oil separator							
	Oil separator type							
	TAS600B		TAS700B		TAS850B		TAS1000B	
	NH ₃	R22	NH ₃	R22	NH ₃	R22	NH ₃	R22
S51	0.8		0.7	0.5	-		-	
S57	1.5	1.7	1.0		0.9	0.8	-	
S71	-		1.7	1.8	1.2		1.0	0.7
S73	-		-		2.2	2.3	1.3	
S75	-		-		-		2.0	
S93	-		-		-		-	

The oil separator is designed in accordance with Swedish Pressure-Vessel Standards. When compliance with other standard is required, this must be stated in the order specification.

See also manual sheet 4840-H-10 and 4840-N-7.

Table 2

Oil separator type	Order No. for oil separator	Compulsory extra items to be specified														
		Safety valve 1910 374-D 1)	Oil heater 3932 6015 823 for 220 Volt 3932 6015 812 for 110 Volt	Balloon spring for oil heater 3932 6015 901	Check valve, can be closed manually ABC 65V	Straight nipple 2) 3951 3041 809	Nut 3951 3091 810	Joint ring 3951 3081 810	Check valves			Sealing rings				Oil charge, litres
									ABB125	ABB150	ABB180	3921 5211 802	3921 5211 804	3921 5211 812	3921 5211 815	
Quantity																
TAS 600 B	1901 600-A	1	1	2	1	2	2	2	1			1	6	4		75
TAS 700 B	1901 602-A	1	1	2	1	2	2	2		1		1	6		4	105
TAS 850 B	1901 604-A	1	1	2	1	2	2	2		1		1	6		4	165
TAS 1000 B	1901 606-A	1	1	2	1	2	2	2			1	1	6		4	250

1) In those cases where the standards so permit, a safety valve with a sealed stop valve can be used. The order number for a valve of this kind is 1823 665-A.

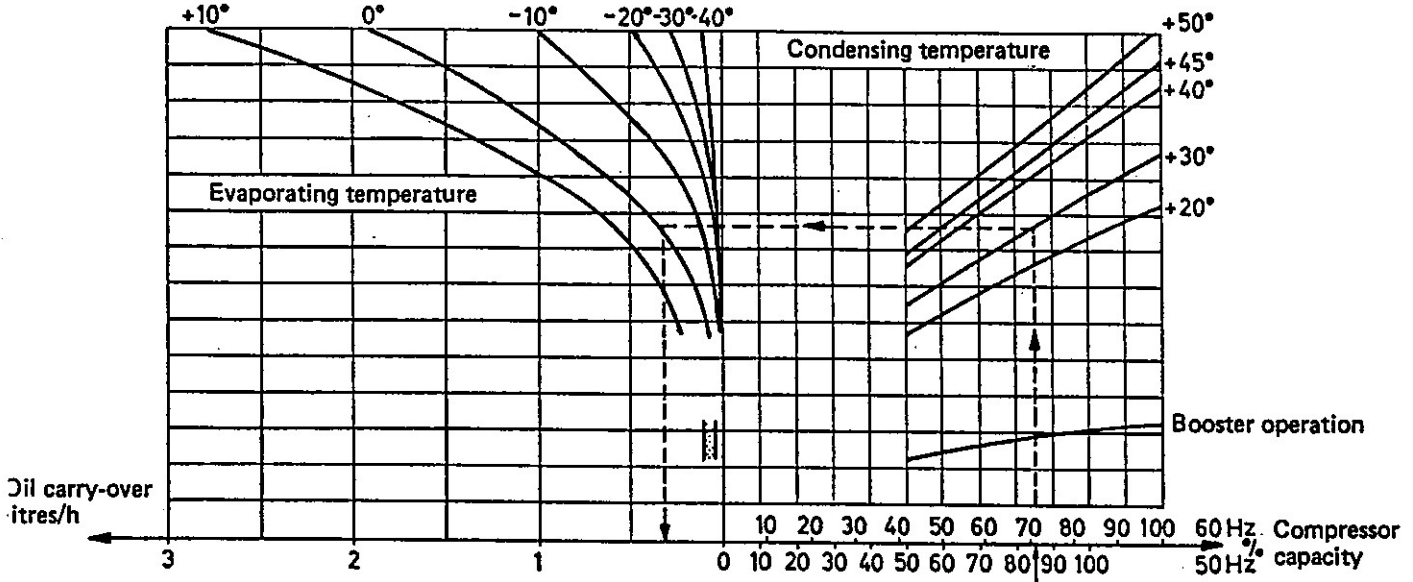
2) The oil drain line of size 10.2/6.2 is drawn to stop valve placed on the suction strainer of the compressor and suitable pipe length must be specified as a plant item.

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Diagram 1

R22



EXAMPLE

Oil carry-over at the following operating data:

- Condensing temperature: +30°C
- Evaporating temperature: 0°C
- Compressor capacity: 85%, 50 Hz
- Refrigerant: R22

According to the line shown, an oil carry-over of 0.3 litres/h is obtained, which then should be multiplied by the corresponding correction factor for the intended combination of the compressor and oil separator according to table 1.

Diagram 2

NH3

