

Technical brochure

High Pressure Sight Glass Up to 46 bar MWP Type SG+



Introduction



Sight glasses are used to indicate:

1. The condition of the refrigerant in the liquid line of the plant.
2. The flow in the oil return line from the oil separator.
3. The moisture content in the refrigerant.

The SGM+ are mainly used to indicate the condition of the refrigerant as well as the liquid level in the receiver or the oil level in the compressor.

The SGN+ are equipped with sensitive indicators that reflects a colour, depending on the moisture content in the refrigerant.

Approvals



Available types

 Solder version	SGM+: Without moisture indicator	 Solder version	SGN+: With HFC moisture indicator
 Flare version		 Flare version	

Features

Type SGM+

- For CFC / HCFC / HFC
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Indicates liquid level in receiver
- Indicates oil level in compressor
- Flare /solder connection

Type SGN+

- For HFC refrigerants
- Indicates too high water content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Flare / solder connection

Choice of sight glass

Before choosing a sight glass with moisture indicator, the following should be considered:

- type of refrigerant
- water solubility of refrigerant
- the level on which a danger signal is required.

Be aware that polyester oil for HFC refrigerants, e.g. R134a, R404A, R407C and R410A react with water in a hydrolysis generating acid and alcohol.

The recommended levels of moisture content are usually between 30 and 75 ppm, where hermetic compressors only tolerate very low moisture content, while semi-hermetic and other compressors normally tolerate higher moisture contents in the refrigerant.

The color on the sight glass indicator depends on the moisture content of the refrigerant.

The values under “green/dry” are to be considered as perfect condition meaning full protection against harmful effects from moisture. In other words, the filter drier is working perfectly.

If the green color starts to fade, the color change has begun and the indicator should therefore be watched more carefully. If the color changes to yellow it is a clear signal, that the capacity of the filter drier is exceeded and should be replaced as soon as possible.

Technical data

 Ambient temperature
 -50°C → +80°C / -58°F → +175°F

 Max. working pressure
 PS/MWP = 46 bar/667 psi

SGN+ for HFC refrigerants						
Moisture content ppm = parts per million						
SGN+						
	25°C / 77°F			43°C / 109°F		
	Green/ dry	Intermed. color	Yellow/ wet	Green/ dry	Intermed. color	Yellow/ wet
R134a	< 30	30 - 100	>100	< 45	45 - 170	>170
R404A	< 20	20 - 70	> 70	< 25	25 - 100	>100
R407C	< 30	30 - 140	>140	< 60	60 - 225	>225
R507	< 15	15 - 60	> 60	< 30	30 - 110	>110
R410A	< 66	66 - 266	>266	< 135	135 - 540	>540

Note: For moisture values of other refrigerants (e.g. CO₂), please contact Danfoss.

Ordering
Monitor

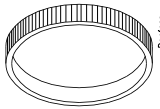
	Type	Version	Connection in.	Connection mm	Code no.	Code no. (Industrial Pack for OEM)
	SGM+ 10	Flare ext. × ext.	$\frac{3}{8} \times \frac{3}{8}$	10 × 10	014F0080	
	SGM+ 12s SGM+ 16s	ODF × ODF solder	$\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$	16 × 16	014F0086 014F0087	

HFC/HCFC

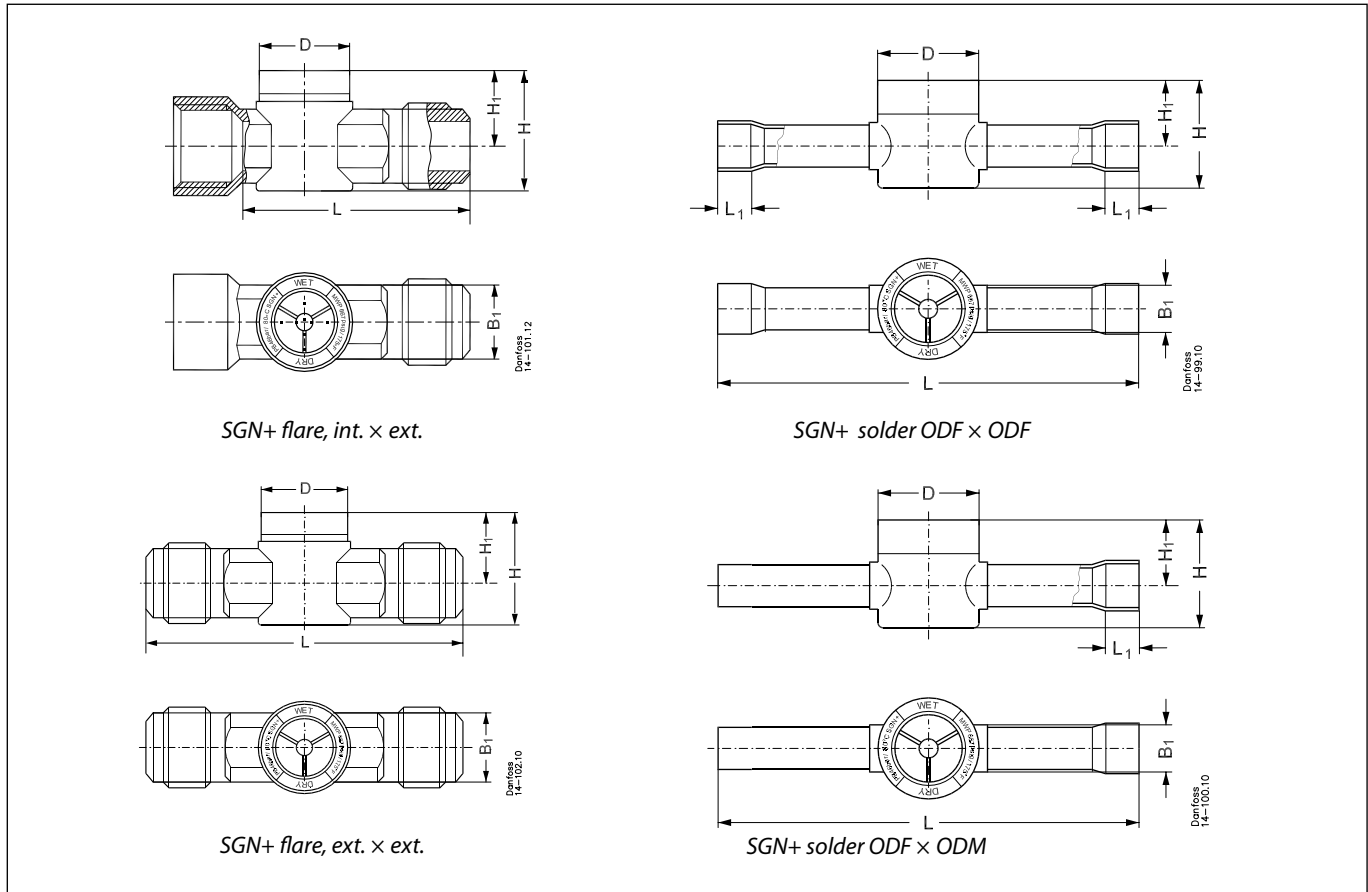
	Type	Version	Connection in.	Connection mm	Code no.	Code no. (Industrial Pack for OEM)
	SGN+ 6 SGN+ 10 SGN+ 12 SGN+ 16 SGN+ 19	Flare ext. × ext.	$\frac{1}{4} \times \frac{1}{4}$ $\frac{3}{8} \times \frac{3}{8}$ $\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$ $\frac{3}{4} \times \frac{3}{4}$	6 × 6 10 × 10 12 × 12 16 × 16 19 × 19	014F0161 014F0162 014F0163 014F0165 014F0166	014F1131 014F0250
	SGN+ 6 SGN+ 10 SGN+ 12 SGN+ 16 SGN+ 19	Flare int. × ext. ¹⁾	$\frac{1}{4} \times \frac{1}{4}$ $\frac{3}{8} \times \frac{3}{8}$ $\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$ $\frac{3}{4} \times \frac{3}{4}$	6 × 6 10 × 10 12 × 12 16 × 16 19 × 19	014F0171 014F0172 014F0173 014F0174 014F0175	014F1132 014F0124 014F1128 014F1129
	SGN+ 6s SGN+ 10s SGN+ 12s SGN+ 16s SGN+ 19s SGN+ 22s SGN+ 22s	ODF × ODF solder	$\frac{1}{4} \times \frac{1}{4}$ $\frac{3}{8} \times \frac{3}{8}$ $\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$ $\frac{3}{4} \times \frac{3}{4}$ $\frac{7}{8} \times \frac{7}{8}$ $1\frac{1}{8} \times 1\frac{1}{8}$	16 × 16 19 × 19 22 × 22	014F0181 014F0182 014F0183 014F0184 014F0185 014F0186 014F0187	014F0148 014F1224 014F0117 014F0199 014F0200 014F1133
	SGN+ 6s SGN+ 10s SGN+ 12s SGN+ 18s	ODF × ODF solder		6 × 6 10 × 10 12 × 12 18 × 18	014F0191 014F0192 014F0193 014F0195	014F1020 014F0197 014F1130
	SGN+ 6s SGN+ 10s SGN+ 12s SGN+ 16s SGN+ 22s	ODF × ODM solder	$\frac{1}{4} \times \frac{1}{4}$ $\frac{3}{8} \times \frac{3}{8}$ $\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$ $\frac{7}{8} \times \frac{7}{8}$	16 × 16 22 × 22	014F0201 014F0202 014F0203 014F0204 014F0206	014F1201 014F1202 014F1203 014F1204 014F1206

1) Can be screwed directly into the filter drier.

Accessories

Cap Cover		
	Sight glasses	Code no.
	size 6 - 10 size 12 - 22	014F5481 014F5480

Dimensions and weights



Type	Version	L		L ₁		H		H ₁		B ₁		Ø D		Weight	
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb
SGN+ 6	Flare ext. x ext.	67	2.6			25	1.0	17	0.7	10	0.4	24	0.9	0.06	0.13
SGN+ 10		82	3.2			27	1.1	18	0.7	14	0.5	24	0.9	0.10	0.22
SGN+ 12		88	3.5			32	1.3	21	0.8	17	0.6	29	1.2	0.15	0.33
SGN+ 16		104	4.1			35	1.4	23	0.9	20	0.8	29	1.2	0.21	0.46
SGN+ 19		110	4.3			39	1.5	25	1.0	24	0.9	29	1.2	0.27	0.60
SGN+ 6	Flare int. x ext.	46	1.8			25	1.0	17	0.7	10	0.4	24	0.9	0.07	0.15
SGN+ 10		57	2.2			27	1.1	18	0.7	15	0.6	24	0.9	0.08	0.18
SGN+ 12		59	2.3			32	1.3	21	0.8	17	0.6	29	1.2	0.15	0.33
SGN+ 16		71	2.8			35	1.4	23	0.9	20	0.8	29	1.2	0.16	0.35
SGN+ 19		75	3.0			39	1.5	25	1.0	24	0.9	29	1.2	0.26	0.57
SGN+ 6s	ODF x ODF solder	101	4.0	7	0.3	25	1.0	17	0.7			24	0.9	0.04	0.09
SGN+ 10s		119	4.7	9	0.4	25	1.0	17	0.7			24	0.9	0.05	0.11
SGN+ 12s		146	5.7	10	0.4	32	1.3	20	0.8			29	1.2	0.09	0.20
SGN+ 16s		146	5.7	12	0.5	32	1.3	20	0.8			29	1.2	0.11	0.24
SGN+ 18s		173	6.8	14	0.6	42	1.7	25	1.0			29	1.2	0.15	0.33
SGN+ 22s		173	6.8	17	0.7	42	1.7	25	1.0			29	1.2	0.19	0.42
SGN+ 22s over size		173	6.8	22	0.9	42	1.7	25	1.0			29	1.2	0.19	0.44
SGN+ 6s	ODF x ODM solder	101	4.0	7	0.3	25	1.0	17	0.7			24	0.9	0.04	0.09
SGN+ 10s		119	4.7	9	0.4	25	1.0	17	0.7			24	0.9	0.05	0.11
SGN+ 12s		146	5.7	10	0.4	32	1.3	20	0.8			29	1.2	0.09	0.20
SGN+ 16s		146	5.7	12	0.5	32	1.3	20	0.8			29	1.2	0.11	0.24

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without substantial changes being necessary in specifications already agreed. All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.