



Sight glasses, type SG, SGR, SGI, SGN, SGH, SGRI, SGRN and SGRH

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 SG and SGR 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 SGI/N/H and SGRI/N/H are equipped with sensitive indicators that reflects a colour, depending on the moisture content in the refrigerant.

Available types

 Solder version	<p>SG: Without moisture indicator</p>
 Flare version	

 Socket	<p>SGR: Socket type without moisture indicator</p>
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 Solder version	<p>SGI: With CFC/HCFC moisture indicator</p> <p>SGN: With HFC moisture indicator</p> <p>SGH: With special R410A moisture indicator</p>
 Flare version	

 Socket	<p>SGRI: Saddle sight glass with CFC/HCFC moisture indicator</p>
 Saddle	<p>SGRN: Saddle sight glass with HFC moisture indicator</p>
	<p>SGRH: Saddle sight glass with R410A moisture indicator</p>

Features

Type SG / SGR

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

Type SGI / SGRI

- For CFC and HCFC refrigerants
- Indicates too high water content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Flare-/solder connection or socket type

Type SGN / SGRN

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

Type SGH / SGRH

- For R410A specific
- Indicates too high water content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Flare-/solder connection or socket type

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

Max. working pressure

SG PS/MWP = 35 bar
 SGI / SGN PS/MWP = 35 bar
 SGR / SGRI / SGRN PS/MWP = 35 bar
 SGH 6, 6s -22s / SGRH PS/MWP = 46 bar

SGI / SGRI for CFC and HCFC refrigerants

	Moisture content ppm = parts per million					
	SGI					
	25°C			43°C		
	Green/dry	Intermed. color	Yellow/wet	Green/dry	Intermed. color	Yellow/wet
R22	< 150	150 - 300	>300	< 250	250 - 500	> 500

SGN / SGRN for HFC and HCFC refrigerants



	Moisture content ppm = parts per million					
	SGN / SGRN					
	25°C			43°C		
	Green/dry	Intermed. color	Yellow/wet	Green/dry	Intermed. color	Yellow/wet
R22	< 30	30 - 120	>120	< 50	50 - 200	> 200
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

SGH / SGRH for HFC refrigerants





	Moisture content ppm = parts per million					
	SGH					
	25°C			43°C		
	Green/dry	Intermed. color	Yellow/wet	Green/dry	Intermed. color	Yellow/wet
R410A	< 20	20 - 165	> 165	< 40	40 - 350	>350

Note: For moisture values of other refrigerants, please contact Danfoss.

Ordering

	Type	Version	Connection in.	Connection mm	Code no.
	SG 10	Flare ext. × ext.	$\frac{3}{8} \times \frac{3}{8}$	10 × 10	014-0080
	SG 12 SG 16	ODF × ODF solder	$\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$	16 × 16	014-0086 014-0087





CFC/HCFC

	Type	Version	Connection in.	Connection mm	Code no.
	SGI 6 SGI 10 SGI 12 SGI 16 SGI 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	014-0007 014-0008 014-0009 014-0024 014-0028
	SGI 6 SGI 10 SGI 12 SGI 16 SGI 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	014-0021 014-0022 014-0025 014-0026 014-0043
	SGI 6s SGI 10s SGI 12s SGI 16s SGI 19s SGI 22s	ODF × ODF solder	$\frac{1}{4} \times \frac{1}{4}$ $\frac{3}{8} \times \frac{3}{8}$ $\frac{1}{2} \times \frac{1}{2}$ $\frac{5}{8} \times \frac{5}{8}$ $\frac{3}{4} \times \frac{3}{4}$ $\frac{7}{8} \times \frac{7}{8}$	16 × 16 19 × 19 22 × 22	014-0034 014-0035 014-0036 014-0044 014-0047 014-0039
	SGI 6s SGI 10s SGI 12s SGI 18s	ODF × ODF solder		6 × 6 10 × 10 12 × 12 18 × 18	014-0040 014-0041 014-0042 014-0045
	SGI 6s SGI 10s SGI 12s SGI 16s SGI 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	014-0125 014-0126 014-0127 014-0128 014-0130



¹⁾ Can be screwed directly into the filter drier.

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Ordering (cont.)
HFC

	Type	Version	Connection in.	Connection mm	Code no.
	SGN 6 SGN 10 SGN 12 SGN 16 SGN 19	Flare ext. × ext.	$1/4 \times 1/4$ $3/8 \times 3/8$ $1/2 \times 1/2$ $5/8 \times 5/8$ $3/4 \times 3/4$	6 × 6 10 × 10 12 × 12 16 × 16 19 × 19	014-0161 014-0162 014-0163 014-0165 014-0166
	SGN 6 SGN 10 SGN 12 SGN 16 SGN 19	Flare int. × ext. ²⁾	$1/4 \times 1/4$ $3/8 \times 3/8$ $1/2 \times 1/2$ $5/8 \times 5/8$ $3/4 \times 3/4$	6 × 6 10 × 10 12 × 12 16 × 16 19 × 19	014-0171 014-0172 014-0173 014-0174 014-0175
	SGN 6s SGN 10s SGN 12s SGN 16s SGN 19s SGN 22s SGN 22s	ODF × ODF solder	$1/4 \times 1/4$ $3/8 \times 3/8$ $1/2 \times 1/2$ $5/8 \times 5/8$ $3/4 \times 3/4$ $7/8 \times 7/8$ $1 1/8 \times 1 1/8$	16 × 16 19 × 19 22 × 22	014-0181 014-0182 014-0183 014-0184 014-0185 014-0186 014-0187
	SGN 6s SGN 10s SGN 12s SGN 18s	ODF × ODF solder		6 × 6 10 × 10 12 × 12 18 × 18	014-0191 014-0192 014-0193 014-0195
	SGN 6s SGN 10s SGN 12s SGN 16s SGN 22s	ODF × ODM solder	$1/4 \times 1/4$ $3/8 \times 3/8$ $1/2 \times 1/2$ $5/8 \times 5/8$ $7/8 \times 7/8$	16 × 16 22 × 22	014-0201 014-0202 014-0203 014-0204 014-0206




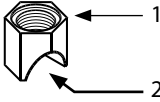

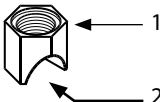
R410A

	Type	Version	Connection in.	Connection mm	Code no.
	SGH 6	Flare ext. × ext.	$1/4 \times 1/4$	6 × 6	014-1660
	SGH 6s SGH 10s SGH 12s SGH 16s SGH 22s SGH 22s	ODF × ODF solder	$1/4 \times 1/4$ $3/8 \times 3/8$ $1/2 \times 1/2$ $5/8 \times 5/8$ $7/8 \times 7/8$ $1 1/8 \times 1 1/8$	16 × 16 22 × 22	014-1090 014-1092 014-1091 014-1094 014-1096 014-1098

²⁾ Can be screwed directly into the filter drier.

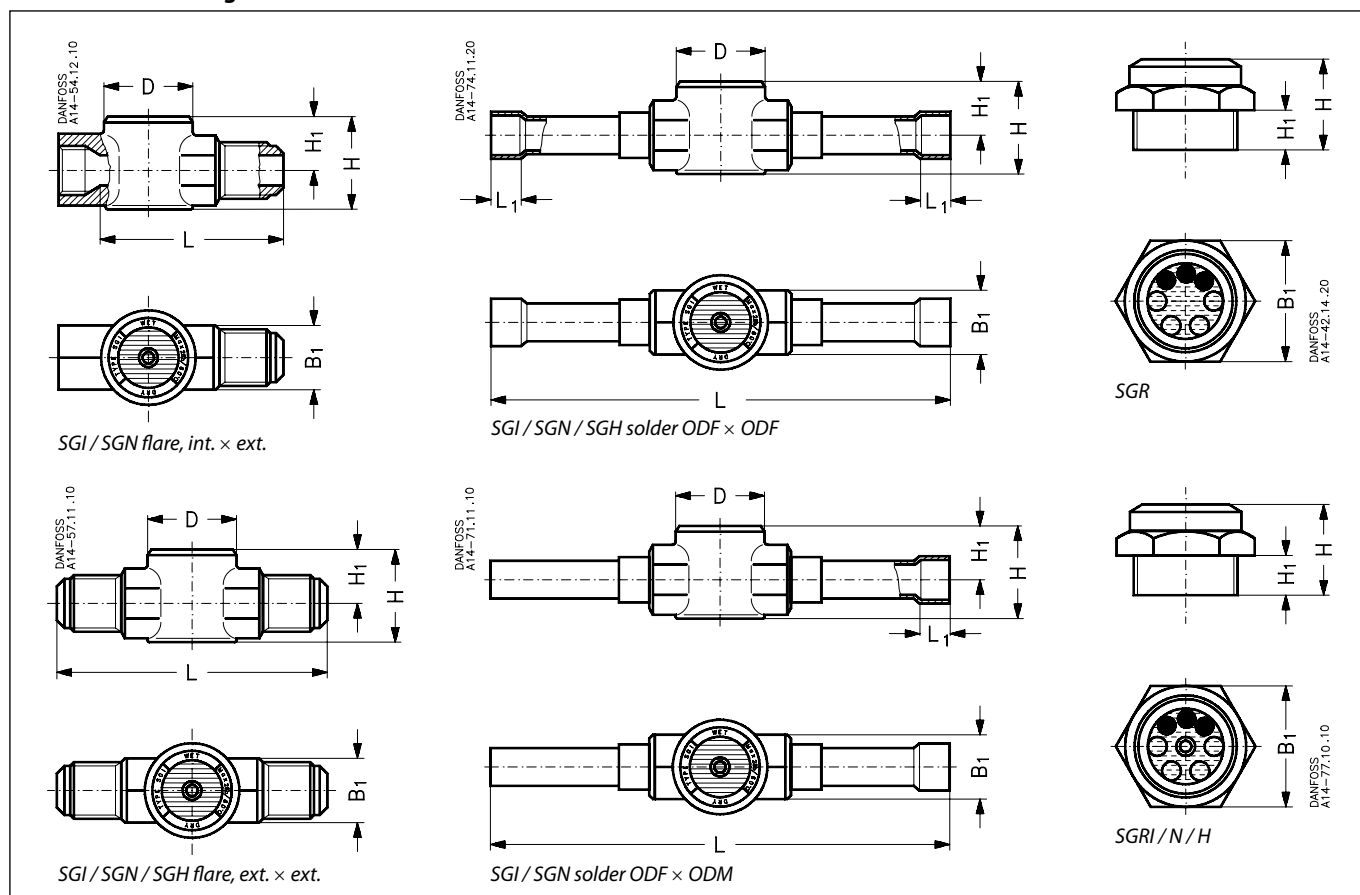
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Ordering (cont.)

	Type	Version	Connection		Code no.
			1	2	
 ← 1	SGR 3/4 SGR 3/4 SGR 1/2	Pipe thread NPT NPT	G3/4 A ¹⁾ 3/4 NPT 1/2 NPT		014-0004 014-0005 014-0002
 ← 1	SGRI SGRI	SGRI SGRI for saddle	1/2 - 14 NPT M24 × 1		014-0131 014-1154
 ← 1	SGRN SGRN	SGRN SGRN for saddle	1/2 NPT M24 × 1		014-0006 014-1155
 ← 1 ← 2	Sight glass saddle	Tube fitting	M24 × 1	7/8	014-1059
	Sight glass saddle	Tube fitting	M24 × 1	1 1/8	014-1056
	Sight glass saddle	Tube fitting	M24 × 1	1 3/8	014-1057
	Sight glass saddle	Tube fitting	M24 × 1	1 5/8	014-1058
	Sight glaas saddle	Tube fitting	M24 × 1	2 1/8	014-1067
	Sight glaas saddle	Tube fitting	M24 × 1	3 1/8	014-1068
	Sight glaas saddle	Tube fitting	M24 × 1	4 1/8	014-1069
 ← 1	SGRH	SGRH for saddle	M20 × 1.5		014-1601
 ← 1 ← 2	Sight glass saddle for SGRH only	Tube fitting	M20 × 1.5	3 1/8	014-1072

1) ISO 228/1

Dimensions and weights



Type	Version	L mm	L ₁ mm	H mm	H ₁ mm	B ₁ mm	Ø D mm	Weight kg
SGI/SGN/SGH 6	Flare ext. x ext.	67		24	14	14	27	0.1
SGI/SGN 10		82		28	16	19	32	0.2
SGI/SGN 12		88		30	18	22	32	0.3
SGI/SGN 16		104		37	21	27	37	0.4
SGI/SGN 19		110		41	22	32	37	0.4
SGI/SGN 6	Flare int. x ext.	46		24	14	16	27	0.1
SGI/SGN 10		57		30	18	22	32	0.2
SGI/SGN 12		59		30	18	24	32	0.3
SGI/SGN 16		71		37	21	27	37	0.4
SGI/SGN 19		75		41	22	32	37	0.6
SGI/SGN/SGH 6s	ODF x ODF solder	101	7	24	14	14	27	0.1
SGI/SGN/SGH 10s		119	9	24	14	14	27	0.1
SGI/SGN/SGH 12s		146	10	28	16	19	27	0.2
SGI/SGN/SGH 16s		146	12	30	18	22	27	0.2
SGI/SGN 18s		173	14	37	21	27	37	0.2
SGI/SGN/SGH 22s		173	17	37	21	27	27	0.2
SGI/SGN 6s	ODF x ODM solder	101	7	24	14	14	27	0.1
SGI/SGN 10s		119	9	24	14	14	27	0.1
SGI/SGN 12s		146	10	28	16	19	27	0.2
SGI/SGN 16s		146	12	30	18	22	27	0.2
SGR 1/2	NPT			30	18	27		0.1
SGR 3/4	Pipe thread			23	10	32		0.1
SGR 3/4	NPT			31	18	32		0.1
SGRN 1/2	NPT			30	18	27		0.1

