

## Sight glasses type SGI, SGN, SGR and SGRN

### Introduction



Sight glasses are used to indicate:

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

The SGI, SGN, SGR or SGRN can be used for present, long-term and drop-in refrigerants.

The SGI and SGR are fitted with an indicator which changes colour to show the moisture content in the refrigerant. The SGR is used to indicate the liquid level in a receiver or the oil level in a compressor crankcase. The SGRN is a sight glass like SGR, but supplied with a moisture indicator. The moisture indicator in the sight glasses are dirt repelling.

### Features

#### Type SGI

- For CFC refrigerants
- Indicates too high water contents in the refrigeration system
- Indication of lack of subcooling
- Indication of refrigerant deficiency
- Flare- or solder connection

#### Type SGN

- For HFC and HCFC refrigerants
- Indicates too high water contents in the refrigeration system
- Indication of lack of subcooling
- Indication of refrigerant deficiency
- Flare- or 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 conscious that polyester oil for HFC refrigerants, e.g. R 134a, R 404A and R 407C 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.

If you have any questions, please ask your compressor supplier.

### Technical data

*Ambient temperature*  
–50°C → +80°C

#### *Max. working pressure*

SGI / SGN: 6 → 12:	PB = 35 bar
SGI / SGN: 16s (solder):	PB = 35 bar
SGI / SGN: 16 (flare):	PB = 28 bar
SGI / SGN 19 → 22:	PB = 28 bar
SGR / SGRN:	PB = 35 bar

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### Technical data (continued)

*Indicator is colour dependent on moisture content of refrigerant*  
The values under "green/dry" are to be taken as the max. permissible if full protection against the harmful effects of moisture is to be ensured.

When the green colour starts to fade, the colour change has begun and the indicator should therefore be watched more carefully.  
If the colour changes to yellow, the filter drier must be replaced.

### Present refrigerants

Refrigerants	Moisture content ppm W = parts per million of water											
	SGI						SGN					
	25°C <sup>1)</sup>			43°C <sup>1)</sup>			25°C <sup>1)</sup>			43°C <sup>1)</sup>		
	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet
R 22	<150	150 - 300	>300	<330	330 - 710	>710	<30	30 - 120	>120	<50	50 - 200	>200
R 12	< 10	10 - 25	> 25	< 35	35 - 65	> 65						
R 502	< 75	75 - 170	>170	<110	110 - 230	>230	<10	10 - 50	> 50	<15	15 - 90	> 90

### Long-term refrigerants

Refrigerants	Moisture content ppm W = parts per million of water											
	SGI						SGN					
	25°C <sup>1)</sup>			43°C <sup>1)</sup>			25°C <sup>1)</sup>			43°C <sup>1)</sup>		
	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet
R 134a	<180	180 - 270	>270	<310	310 - 500	>500	<30	30 - 100	>100	<45	45 - 150	>150
R 404A	< 75	75 - 180	>180	<110	110 - 240	>240	<10	10 - 55	> 55	<15	15 - 100	>100
R 407A	<115	115 - 235	>235	<180	180 - 360	>360	<25	25 - 95	> 95	<35	35 - 145	>145
R 407C	<110	110 - 215	>215	<170	170 - 340	>340	<20	20 - 90	> 90	<35	35 - 135	>135
R 410A	< 90	90 - 175	>175	<140	140 - 280	>280	<20	20 - 70	> 70	<30	30 - 115	>115
R 507	< 70	70 - 140	>140	<120	120 - 240	>240	<15	15 - 60	> 60	<25	25 - 95	> 95
FX 40	< 75	75 - 150	>150	<125	125 - 250	>250	<15	15 - 60	> 60	<25	25 - 100	>100






### Drop-inrefrigerants

Refrigerants	Moisture content ppm W = parts per million of water											
	SGI						SGN					
	25°C <sup>1)</sup>			43°C <sup>1)</sup>			25°C <sup>1)</sup>			43°C <sup>1)</sup>		
	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet	Green/dry	Intermed. colour	Yellow/wet
MP 33	<130	130 - 270	>270	<200	200 - 400	>400	<25	25 - 105	>105	<40	40 - 160	>160
R 401C	<125	125 - 250	>250	<190	190 - 380	>380	<25	25 - 100	>100	<40	40 - 150	>150
R 401B	<140	140 - 280	>280	<220	220 - 430	>430	<30	30 - 115	>115	<45	45 - 170	>170
R 401A	<140	140 - 280	>280	<200	200 - 400	>400	<30	30 - 110	>110	<40	40 - 160	>160
R 402A	<110	110 - 220	>220	<170	170 - 350	>350	<20	20 - 90	> 90	<35	35 - 140	>140
R 402B	<125	125 - 250	>250	<190	190 - 380	>380	<25	25 - 100	>100	<40	40 - 150	>150
R 408A	<100	100 - 200	>200	<160	160 - 330	>330	<20	20 - 80	> 80	<30	30 - 130	>130
69 L	< 95	95 - 190	>190	<150	150 - 310	>310	<20	20 - 80	> 80	<30	30 - 125	>125
69 S	<120	120 - 240	>240	<180	180 - 370	>370	<25	25 - 95	> 95	<35	35 - 145	>145

<sup>1)</sup> The values apply to liquid temperatures of +25°C and +43°C






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### Ordering

	Type	Version	Connection in	Connection mm	Code no.	
	SGI 6	Flare ext. x ext.	1/4 x 1/4	6 x 6	014-0007	
	SGI 10		3/8 x 3/8	10 x 10	014-0008	
	SGI 12		1/2 x 1/2	12 x 12	014-0009	
	SGI 16		5/8 x 5/8	16 x 16	014-0024	
	SGI 19		3/4 x 3/4	19 x 19	014-0028	
	SGI 6	Flare int. x ext. 1)	1/4 x 1/4	6 x 6	014-0021	
	SGI 10		3/8 x 3/8	10 x 10	014-0022	
	SGI 12		1/2 x 1/2	12 x 12	014-0025	
	SGI 16		5/8 x 5/8	16 x 16	014-0026	
	SGI 19		3/4 x 3/4	19 x 19	014-0043	
	SGI 6s	ODF x ODF solder	1/4 x 1/4	16 x 16	014-0034	
	SGI 10s		3/8 x 3/8		014-0035	
	SGI 12s		1/2 x 1/2		014-0036	
	SGI 16s		5/8 x 5/8	014-0044		
	SGI 19s		3/4 x 3/4	19 x 19	014-0047	
	SGI 22s	ODF x ODM solder	7/8 x 7/8	22 x 22	014-0039	
	SGI 6s		ODF x ODF solder		6 x 6	014-0040
	SGI 10s				10 x 10	014-0041
	SGI 12s				12 x 12	014-0042
	SGI 18s				18 x 18	014-0045
SGI 6s	ODF x ODM solder	1/4 x 1/4			16 x 16	014-0125
SGI 10s		3/8 x 3/8	014-0126			
SGI 12s		1/2 x 1/2	014-0127			
SGI 16s		5/8 x 5/8	014-0128			
SGI 19s		3/4 x 3/4	19 x 19	014-0129		
	SGI 22s	Pipe thread NPT	7/8 x 7/8	22 x 22	014-0130	
	SGR 3/4		G 3/4 A 2) 3/4 NPT 1/2 NPT		014-0004	
	SGR 3/4				014-0005	
SGR 1/2	014-0002					

1) Can be screwed directly into the filter drier.

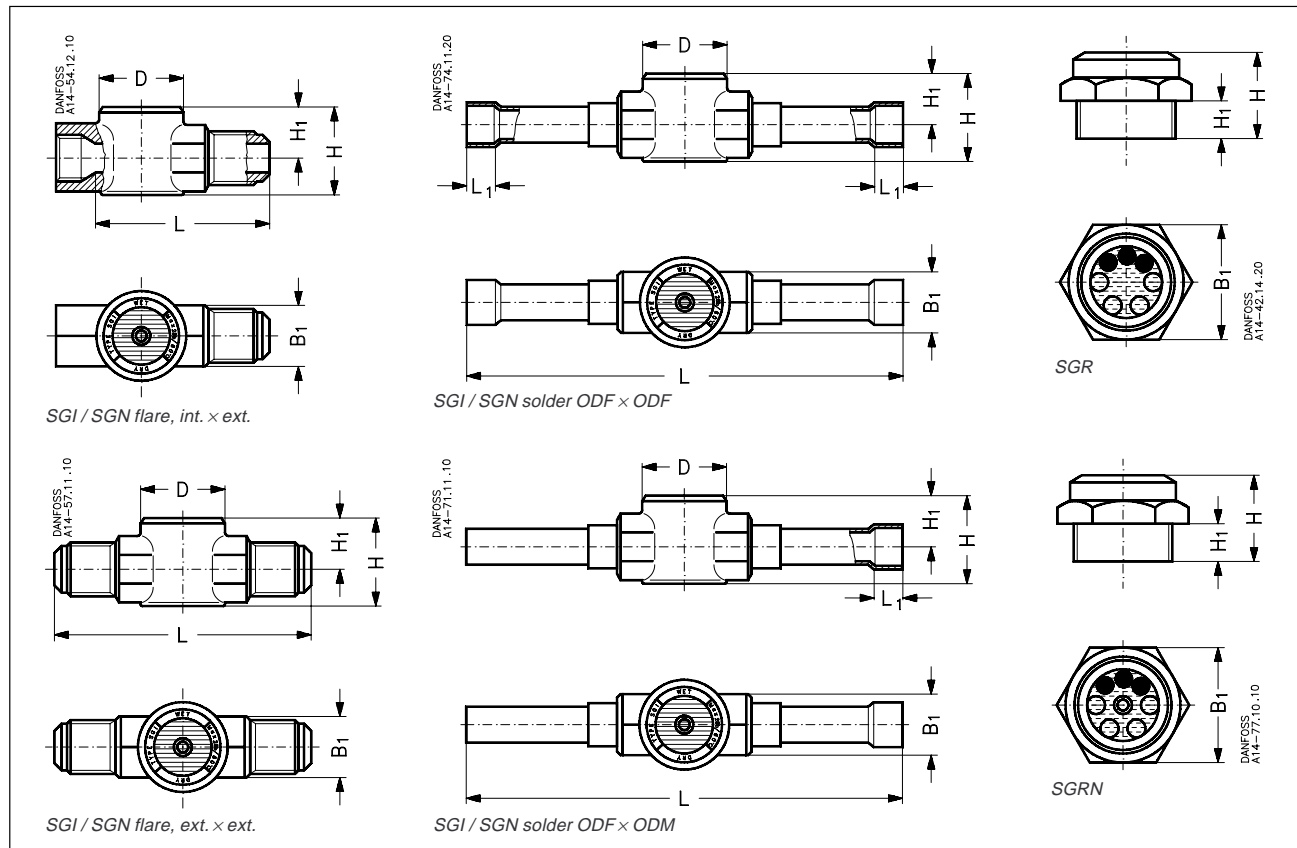
2) ISO 228/1.

	SGN 6	Flare ext. x ext.	1/4 x 1/4	6 x 6	014-0161	
	SGN 10		3/8 x 3/8	10 x 10	014-0162	
	SGN 12		1/2 x 1/2	12 x 12	014-0163	
	SGN 16		5/8 x 5/8	16 x 16	014-0165	
	SGN 19		3/4 x 3/4	19 x 19	014-0166	
	SGN 6	Flare int. x ext. 1)	1/4 x 1/4	6 x 6	014-0171	
	SGN 10		3/8 x 3/8	10 x 10	014-0172	
	SGN 12		1/2 x 1/2	12 x 12	014-0173	
	SGN 16		5/8 x 5/8	16 x 16	014-0174	
	SGN 19		3/4 x 3/4	19 x 19	014-0175	
	SGN 6s	ODF x ODF solder	1/4 x 1/4	16 x 16	014-0181	
	SGN 10s		3/8 x 3/8		014-0182	
	SGN 12s		1/2 x 1/2		014-0183	
	SGN 16s		5/8 x 5/8	014-0184		
	SGN 19s		3/4 x 3/4	19 x 19	014-0185	
	SGN 22s	ODF x ODM solder	7/8 x 7/8	22 x 22	014-0186	
	SGN 6s		ODF x ODF solder		6 x 6	014-0191
	SGN 10s				10 x 10	014-0192
	SGN 12s				12 x 12	014-0193
	SGN 18s				18 x 18	014-0195
SIGN 6s	ODF x ODM solder	1/4 x 1/4			16 x 16	014-0201
SIGN 10s		3/8 x 3/8	014-0202			
SIGN 12s		1/2 x 1/2	014-0203			
SIGN 16s		5/8 x 5/8	014-0204			
SIGN 19s		3/4 x 3/4	19 x 19	014-0205		
	SIGN 22s	NPT	7/8 x 7/8	22 x 22	014-0206	
	SGRN		1/2 NPT		014-0006	

1) Can be screwed directly into the filter drier.

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### Dimensions and weights



Type	Version	L mm	L <sub>1</sub> mm	H mm	H <sub>1</sub> mm	B <sub>1</sub> mm	Ø D mm	Weight kg
SGI/SGN 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 6s	ODF x ODF 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	32	0.2
SGI/SGN 16s		146	12	30	18	22	32	0.2
SGI/SGN 18s		173	14	37	21	27	37	0.2
SGI/SGN 19s		173	14	37	21	27	37	0.2
SGI/SGN 22s		173	17	37	21	27	37	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	32	0.2
SGI/SGN 16s		146	12	30	18	22	32	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