

Data sheet

Sight glass (Low pressure)

Types SG, SGI, SGN, SGR, SGRI and SGRN



SG is sight glasses for low pressure application (Max Working Pressure 35 bar / 500 psig).

SG is available with flare, solder and socket connections, and with and without moisture indicators.

SGI / SGN and SGRI / SGRN are equipped with sensitive indicators that reflects a changes colour, depending on the moisture content in the refrigerant.

SG and SGR, without moisture indicator, are mainly used to indicate the condition of the refrigerant in the liquid line or the flow in the oil return line from the oil separator.

Features

Type SG / SGR (without indicator)

- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Indicates liquid level in receiver
- Indicates oil level in compressor
- Solder / solder connection or socket type

Type SGI / SGRI (with I type indicator)






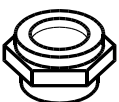


- For refrigerants with mineral oil, e.g. R22
- Indicates too high water content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Flare / flare, solder / solder connection or socket type

Type SGN / SGRN (with N type indicator)

- For refrigerants: R22, R134a, R404A, R407C, R507, R407A, R407F, R448A, R449A, R450A, R452A, R513A
- Indicates too high water content in the refrigeration system
- Indicates lack of subcooling
- Indicates refrigerant deficiency
- Flare / flare, solder / solder connection or socket type

Sight glass (Low pressure) | Types SG, SGI, SGN, SGR, SGRI and SGRN

Available types

Flare Internal x External  SGI and SGN with indicator	Solder version ODF x ODF  SG without indicator	
Solder version ODF x ODM  SGI and SGN with indicator	Solder version ODF x ODF  SGI and SGN with indicator	Flare external x External  SGI and SGN with indicator
Soket  SGR without indicator	Soket  SGRI and SGRN with indicator	Saddle  SGS

Choice of sight glass moisture indication

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 non-flammable HFC refrigerants, e.g. R134a, R404A, R407C 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.

⚠ Note: when storing, transporting or installing the Sight Glass, avoid the chemical indicator to get in contact with non-refrigerant medium or fluid (like water, oil, ect.)

The colour 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 immediately.

REACH requirements

Note:

All Danfoss products fulfill the requirements in REACH.

One of the obligations in REACH is to inform customers about presence of Candidate list substances if any, we hereby inform you about one substance on the candidate list:

A moisture indicator in a sight glass contains a paper which is impregnated with Cobalt Dichloride (CAS no: 7646-79-9) in a concentration above 0.1% w/w. If the valve has been damaged or dismantled:

- Avoid skin contact with the paper
- Do not inhale the dust from the paper
- The paper must be disposed as hazardous waste

Sight glass (Low pressure) | Types SG, SGI, SGN, SGR, SGR I and SGRN
Technical data

Media temperature: -50 – 80 °C / -58 – 175 °F
 Max. working pressure: PS / MWP = 35 bar / 500 psig
 Max. testing pressure: 58 bar / 841 psig

SGI / SGR I for refrigerants with mineral oil

	Moisture content ppm = parts per million					
	SGI / SGR I					
	Media temperature 25 °C			Media temperature 43 °C		
	Green / dry	Intermed. color	Yellow / wet	Green / dry	Intermed. color	Yellow / wet
Refrigerants with mineral oil, e.g. R22	< 150	150 – 300	> 300	< 250	250 – 500	> 500


SGN / SGRN for R22, R134a, R404A, R407C, R507, R407A, R407F, R448A, R449A, R450A, R452A, R513A

	Moisture content ppm = parts per million					
	SGN / SGRN					
	Media temperature 25 °C			Media temperature 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	> 70	25 – 100	> 100
R407C	< 30	30 – 140	> 140	< 60	60 – 225	> 225
R507	< 15	15 – 60	> 60	< 30	30 – 110	> 110
R407A	< 29	29 - 115	> 115	< 48	48 - 192	> 192
R407F	< 30	30 - 168	> 168	< 60	60 - 240	> 240
R448A	< 28	28 - 110	> 110	< 70	70 - 227	> 227
R449A	< 29	29 - 105	> 105	< 53	53 - 200	> 200
R450A	< 23	23 - 148	> 148	< 46	46 - 245	> 245
R452A	< 20	20 - 79	> 79	< 30	30 - 143	> 143
R513A	< 22	22 - 75	> 75	< 22	22 - 123	> 123





Notes:

- For colours reflecting moisture values of other refrigerants, please contact Danfoss
- For complete list of approved refrigerants, go to <http://products.danfoss.com/all-products/>

Ordering
SG without indicator

	Type	Connection type	Connection		Code no.
			[inch]	[mm]	
	SG 10s	Solder ODF × ODF	3/8	-	014-0037
	SG 22s	Solder ODF × ODF	7/8	22	014-1207

SGI with I type indicator

	Type	Connection type	Connection		Code no.
			[inch]	[mm]	
	SGI 6	Flare ext. × ext.	1/4	6	014-0007
	SGI 10	Flare ext. × ext.	3/8	10	014-0008
	SGI 12	Flare ext. × ext.	1/2	12	014-0009
	SGI 16	Flare ext. × ext.	5/8	16	014-0024
	SGI 19	Flare ext. × ext.	3/4	19	014-0028
	SGI 6	Flare int. × ext. ¹⁾	1/4	6	014-0021
	SGI 10	Flare int. × ext. ¹⁾	3/8	10	014-0022
	SGI 12	Flare int. × ext. ¹⁾	1/2	12	014-0025
	SGI 16	Flare int. × ext. ¹⁾	5/8	16	014-0026
	SGI 19	Flare int. × ext. ¹⁾	3/4	19	014-0043
	SGI 6s	Solder ODF × ODF	1/4	-	014-0034
		Solder ODF × ODF	-	6	014-0040
	SGI 10s	Solder ODF × ODF	3/8	-	014-0035
		Solder ODF × ODF	-	10	014-0041
	SGI 12s	Solder ODF × ODF	1/2	-	014-0036
		Solder ODF × ODF	-	12	014-0042
	SGI 16s	Solder ODF × ODF	5/8	16	014-0044
	SGI 18s	Solder ODF × ODF	-	18	014-0045
	SGI 19s	Solder ODF × ODF	3/4	19	014-0047
SGI 22s	Solder ODF × ODF	7/8	22	014-0039	
	SGI 6s	Solder ODF × ODM	1/4	-	014-0125
	SGI 10s	Solder ODF × ODM	3/8	-	014-0126
	SGI 12s	Solder ODF × ODM	1/2	-	014-0127
	SGI 16s	Solder ODF × ODM	5/8	16	014-0128
	SGI 22s	Solder ODF × ODM	7/8	22	014-0130

¹⁾ Can be screwed directly into the filter drier

Ordering
(continued)
SGN with N type indicator

	Type	Connection type	Connection		Code no.
			[inch]	[mm]	
	SGN 6	Flare ext. x ext.	¼	6	014-0161
	SGN 10	Flare ext. x ext.	⅜	10	014-0162
	SGN 12	Flare ext. x ext.	½	12	014-0163
	SGN 16	Flare ext. x ext.	⅝	16	014-0165
	SGN 19	Flare ext. x ext.	¾	19	014-0166
	SGN 6	Flare int. x ext. ¹⁾	¼	6	014-0171
	SGN 10	Flare int. x ext. ¹⁾	⅜	10	014-0172
	SGN 12	Flare int. x ext. ¹⁾	½	12	014-0173
	SGN 16	Flare int. x ext. ¹⁾	⅝	16	014-0174
	SGN 19	Flare int. x ext. ¹⁾	¾	19	014-0175
	SGN 6s	Solder ODF x ODF	¼	-	014-0181
		Solder ODF x ODF	-	6	014-0191
	SGN 10s	Solder ODF x ODF	⅜	-	014-0182
		Solder ODF x ODF	-	10	014-0192
	SGN 12s	Solder ODF x ODF	½	-	014-0183
		Solder ODF x ODF	-	12	014-0193
	SGN 16s	Solder ODF x ODF	⅝	16	014-0184
	SGN 18s	Solder ODF x ODF	-	18	014-0195
	SGN 19s	Solder ODF x ODF	¾	19	014-0185
SGN 22s	Solder ODF x ODF	⅞	22	014-0186	
SGN 22s ²⁾	Solder ODF x ODF	1 ⅛	-	014-0187	
	SGN 6s	Solder ODF x ODM	¼	-	014-0201
	SGN 10s	Solder ODF x ODM	⅜	-	014-0202
	SGN 12s	Solder ODF x ODM	½	-	014-0203
	SGN 16s	Solder ODF x ODM	⅝	16	014-0204
	SGN 22s	Solder ODF x ODM	⅞	22	014-0206

¹⁾ Can be screwed directly into the filter drier

²⁾ Oversize connections

Sight glass (Low pressure) | Types SG, SGI, SGN, SGR, SGRI and SGRN
Ordering
(continued)
Socket sight glass without indicator

	Valve type	Indicator	Connection type	Connection	Floating ball [pc]	O-ring	Code no. Multi pack
	SGR	No	Pipe thread	G ¾ A ¹⁾	1	No	014-0004
	SGR	No	NPT	¾ - 14 NPT ²⁾	1	No	014-0005
	SGR	No	NPT	½ - 14 NPT ²⁾	3	No	014-0002

Socket sight glass with indicator

	Valve type	Indicator	Connection type	Connection	Floating ball [pc]	O-ring	Code no. Multi pack
	SGRI	I type	NPT	½ - 14 NPT ²⁾	3	No	014-0131
	SGRI	I type	M thread	M24 × 1	No	Yes	014-1154
	SGRN	N type	NPT	½ - 14 NPT ²⁾	3	No	014-0006
	SGRN	N type	M thread	M24 × 1	No	Yes	014-1155

¹⁾ ISO 228-1

²⁾ ANSI/ASME B1.20.1

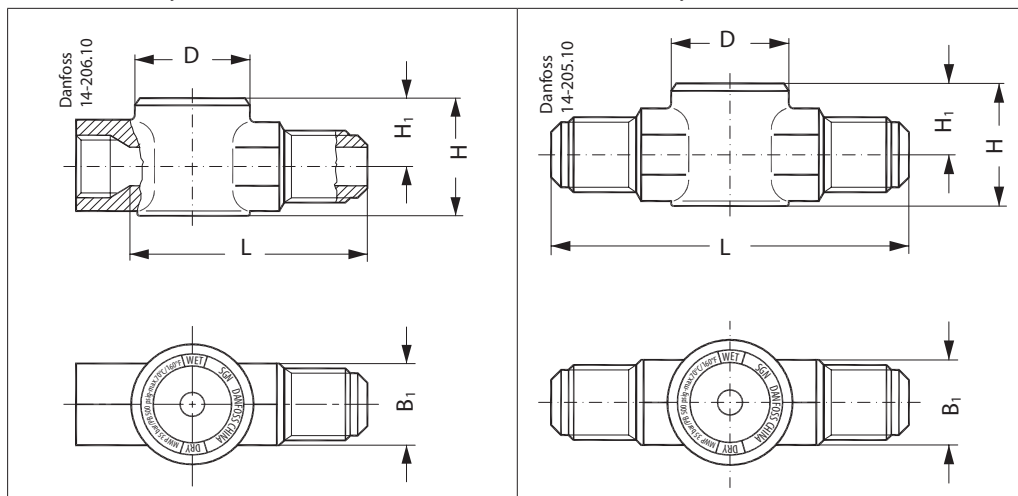
Sight glass saddle

	Valve type	Connection type	Connection	Tube connection [inch]	Industrial pack [pcs]	Code no.
	SGS	Tube fitting	M20 × 1.5	1 ½	80	014-1071
		Tube fitting	M20 × 1.5	1 ¾	80	014-1074
		Tube fitting	M24 × 1	¾	80	014-1059
		Tube fitting	M24 × 1	1 ½	80	014-1056
		Tube fitting	M24 × 1	1 ¾	80	014-1057
		Tube fitting	M24 × 1	1 ¾	80	014-1058
		Tube fitting	M24 × 1	2 ½	80	014-1067

Dimensions and weights

SGI / SGN flare, int. x ext.

SGI / SGN flare, ext. x ext.

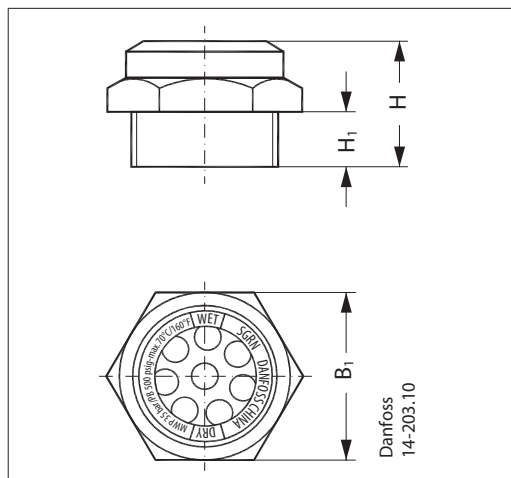


SI Units

Type	Connection type	L	H	H ₁	B ₁	øD	Net weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[Kg]
SGI / SGN 6	Flare ext. x ext.	67	23	14	14	27	0.1
SGI / SGN 10		82	28	15	19	32	0.2
SGI / SGN 12		88	30	17	22	32	0.3
SGI / SGN 16		104	37	21	27	37	0.4
SGI / SGN 19		110	41	22	32	37	0.5
SGI / SGN 6	Flare int. x ext.	46	23	14	16	27	0.1
SGI / SGN 10		57	30	17	22	32	0.2
SGI / SGN 12		59	30	17	24	32	0.3
SGI / SGN 16		71	37	21	27	37	0.4
SGI / SGN 19		75	41	22	32	37	0.5

US Units

Type	Connection type	L	H	H ₁	B ₁	øD	Net weight
		[inch]	[inch]	[inch]	[inch]	[inch]	[lbs]
SGI / SGN 6	Flare ext. x ext.	2.64	0.91	0.55	0.55	1.06	0.22
SGI / SGN 10		3.23	1.10	0.59	0.75	1.26	0.44
SGI / SGN 12		3.46	1.18	0.67	0.87	1.26	0.66
SGI / SGN 16		4.09	1.46	0.83	1.06	1.46	0.88
SGI / SGN 19		4.33	1.61	0.87	1.26	1.46	1.10
SGI / SGN 6	Flare int. x ext.	1.81	0.91	0.55	0.63	1.06	0.22
SGI / SGN 10		2.24	1.18	0.67	0.87	1.26	0.44
SGI / SGN 12		2.32	1.18	0.67	0.94	1.26	0.66
SGI / SGN 16		2.80	1.46	0.83	1.06	1.46	0.88
SGI / SGN 19		2.95	1.61	0.87	1.26	1.46	1.10

Dimensions and weights
(continued)
SG socket

SI Units

Type	Connection type	Connection	H	H ₁	B ₁	Net weight
			[mm]	[mm]	[mm]	[kg]
SGR	Pipe thread	G ¾ A ¹⁾	23	10	32	0.1
SGR	NPT	½ – 14 NPT ²⁾	30	18	27	0.1
SGR	NPT	¾ – 14 NPT ²⁾	31	18	32	0.1
SGRI / SGRN	NPT	½ – 14 NPT ²⁾	30	18	27	0.1
SGRI / SGRN	M thread	M24 × 1	28	15	32	0.1

¹⁾ ISO 228-1

²⁾ ANSI/ASME B1.20.1

US Units

Type	Connection type	Connection	H	H ₁	B ₁	Net weight
			[inch]	[inch]	[inch]	[lbs]
SGR	Pipe thread	G ¾ A ¹⁾	0.91	0.39	1.26	0.22
SGR	NPT	½ – 14 NPT ²⁾	1.18	0.71	1.06	0.22
SGR	NPT	¾ – 14 NPT ²⁾	1.22	0.71	1.26	0.22
SGRI / SGRN	NPT	½ – 14 NPT ²⁾	1.18	0.71	1.06	0.22
SGRI / SGRN	M thread	M24 × 1	1.10	0.59	1.26	0.22

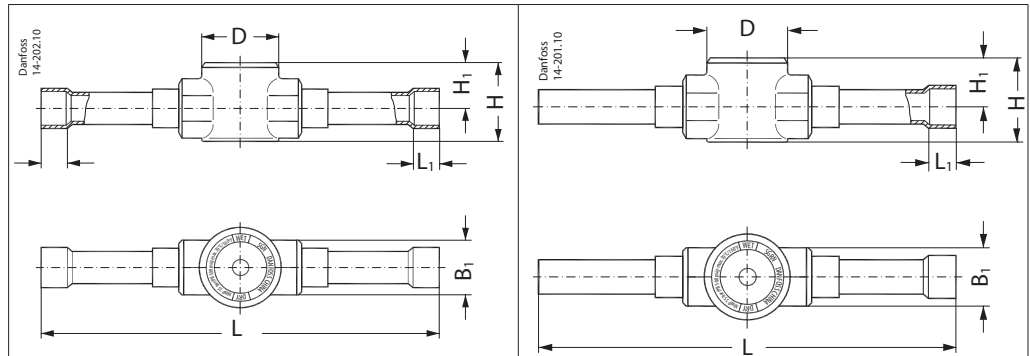
¹⁾ ISO 228-1

²⁾ ANSI/ASME B1.20.1

Dimensions and weights
(continued)

SGI / SGN solder ODF × ODF

SGI / SGN solder ODF × ODM



SI Units

Type	Connection type	L	L ₁	H	H ₁	B ₁	øD	Net weight
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
SGI / SGN 6s	Solder ODF × ODF	101	7	23	14	14	27	0.1
SGI / SGN 10s		119	9	23	14	14	27	0.1
SGI / SGN 12s		146	10	28	15	19	27	0.2
SGI / SGN 16s		146	12	30	17	22	27	0.2
SGI / SGN 18s		173	14	37	21	27	37	0.3
SGI / SGN 19s		173	14	37	21	27	37	0.3
SGI / SGN 22s		173	17	37	21	27	32	0.3
SGI / SGN 22s ¹⁾		173	22	37	21	27	32	0.3
SGI / SGN 6s	Solder ODF × ODM	101	7	23	14	14	27	0.1
SGI / SGN 10s		119	9	23	14	14	27	0.1
SGI / SGN 12s		146	10	28	15	19	27	0.2
SGI / SGN 16s		146	12	30	17	22	27	0.2
SGI / SGN 22s		173	17	37	21	27	32	0.3

¹⁾ Oversize connections

US Units

Type	Connection type	L	L ₁	H	H ₁	B ₁	øD	Net weight
		[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[lbs]
SGI / SGN 6s	Solder ODF × ODF	3.98	0.28	0.91	0.55	0.55	1.06	0.22
SGI / SGN 10s		4.69	0.35	0.91	0.55	0.55	1.06	0.22
SGI / SGN 12s		5.75	0.39	1.10	0.59	0.75	1.06	0.44
SGI / SGN 16s		5.75	0.47	1.18	0.67	0.87	1.06	0.44
SGI / SGN 18s		6.81	0.55	1.46	0.83	1.06	1.46	0.66
SGI / SGN 19s		6.81	0.55	1.46	0.83	1.06	1.46	0.66
SGI / SGN 22s		6.81	0.67	1.46	0.83	1.06	1.26	0.66
SGI / SGN 22s ¹⁾		6.81	0.87	1.46	0.83	1.06	1.26	0.66
SGI / SGN 6s	Solder ODF × ODM	3.98	0.28	0.91	0.55	0.55	1.06	0.22
SGI / SGN 10s		4.69	0.35	0.91	0.55	0.55	1.06	0.22
SGI / SGN 12s		5.75	0.39	1.10	0.59	0.75	1.06	0.44
SGI / SGN 16s		5.75	0.47	1.18	0.67	0.87	1.06	0.44
SGI / SGN 22s		6.81	0.67	1.46	0.83	1.06	1.26	0.66

¹⁾ Oversize connections

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