



Spiratec ST14, ST16 and ST17 Sensor Chambers and Sensors

Spiratec sensor chamber description

The Spiratec trap fault detection system is designed to operate on saturated steam systems only, to indicate whether a steam trap is leaking steam. When combined with the R1C or R16C automatic trap monitor and WLS1 waterlogging sensor assembly, it will detect if a steam trap has failed closed or is blocked.

As standard - The sensor chamber has the sensor connection on the right hand side of the chamber when viewed from the direction of flow. If required - Chambers can be supplied with the sensor connections on the left hand side 'L', but must be requested when placing an order, i.e. ½" ST141L.

Chambers are available in two configurations:

1. Fitted with an SS1 standard sensor for steam leak detection only.
2. Without a sensor fitted. A WLS1 waterlogging sensor assembly is available separately for steam leak and waterlogging applications.

Spiratec sensor description

Spiratec sensors are designed to fit into Spiratec sensor chambers as part of the Spiratec trap fault detection system.

Available types:

SS1 standard sensor: For the detection of steam leaks when used in conjunction with a sensor chamber and a Type 30 or Type 40 hand held indicator, R1C or R16C automatic trap monitor.

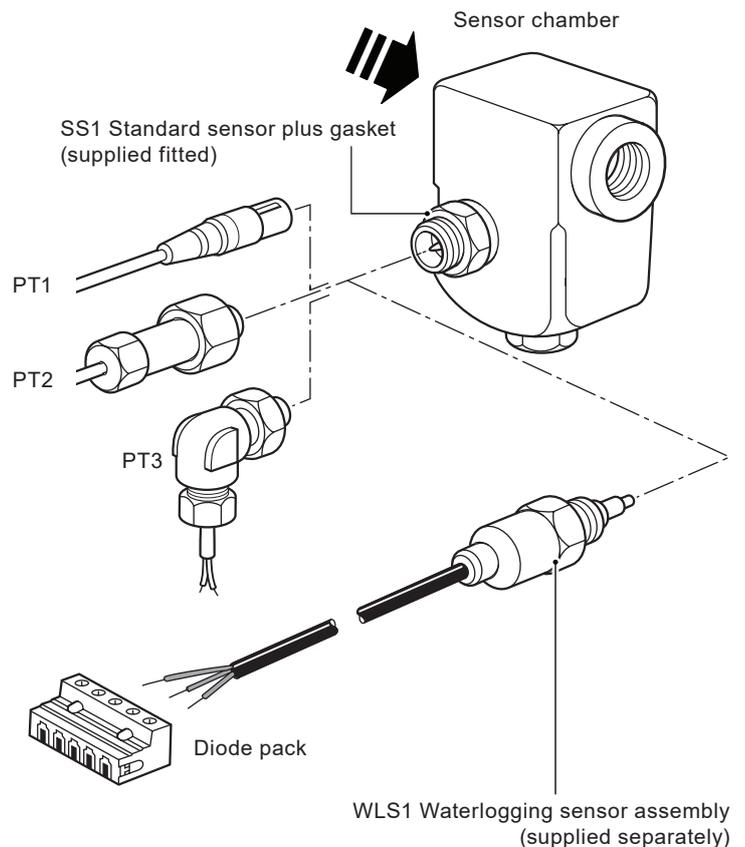
SS1's are normally supplied already fitted into the sensor chamber.

WLS1 waterlogging sensor assembly: For the detection of steam leaks or traps that have failed closed or are blocked when used in conjunction with an R1C or R16C automatic trap monitor. WLS1's are normally supplied as separate items for fitting into a sensor chamber on site.

Note: sensor chambers without sensors are available from stock.

Optional extras

A sensor blanking plug is available at extra cost, to protect the external connection of the SS1 standard sensor chamber from dirt.



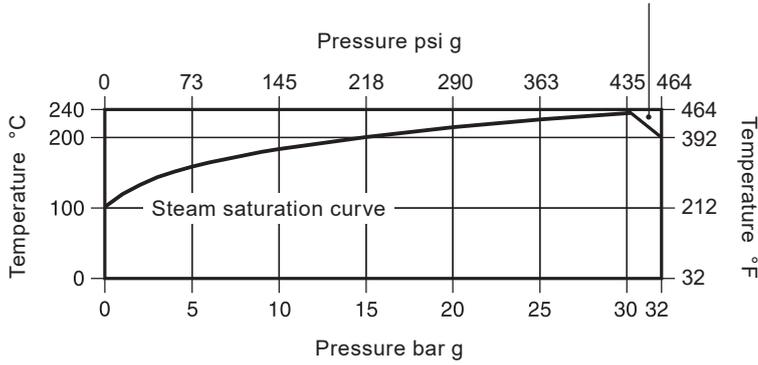
Sensor chambers and sensor - Available types, sizes and pipe connections

	Type	Body material	Connection	DN15 1/2"	DN20 3/4"	DN25 1"	DN40 1 1/2"	DN50 2"
Spiratec sensor chamber	ST141	Steel body	Screwed BSP or NPT	•	•	•	•	•
	ST142	Steel body	Socket weld ends to BS 3799	•	•	•	•	•
	ST143	Steel body	Flanged EN 1092 PN40, ANSI 150, ANSI 300, BS 10 Table H and Table J	•	•	•	•	•
	ST161	Stainless steel body	Screwed BSP or NPT	•	•	•	-	-
	ST162	Stainless steel body	Socket weld ends to BS 3799	•	•	•	-	-
	ST163	Stainless steel body	Flanged EN 1092 PN40, ANSI 150, ANSI 300, BS 10 Table H and Table J Note: JIS 20 connections are available on request.	•	•	•	-	-
	ST171	SG iron body	Screwed BSP or NPT	•	•	•	-	-
Spiratec sensor	SS1	The SS1 standard sensor is threaded 3/8" parallel BSP for assembly into the Spiratec sensor chamber. An external screw thread (M22 x 1.5) is provided to allow permanent installation using the PT2 or PT3 connector. Three standard types of connector are available for use with the SS1 standard sensor:						
	WLS1	Waterlogging sensor assembly is supplied complete with 1 m (3.28 ft) of high temperature three core cable for connection to an R1C automatic trap monitor. It can also be connected to an R16C automatic trap monitor using a special diode pack.						
Spiratec sensor connections	PT1	A plug in connector for use with SS1 standard sensors. Supplied with Type 30 or Type 40 hand held indicators complete with 1 m (3.28 ft) of high temperature cable and male plug.						
	PT2	A threaded in-line connector for use with SS1 standard sensors for permanent installations for use with the R1C or R16C automatic trap monitors (non waterlogging applications only).						
	PT3	A right angled connector for use with SS1 standard sensors for permanent installations for use with R1C or R16C automatic trap monitors (non waterlogging applications only).						

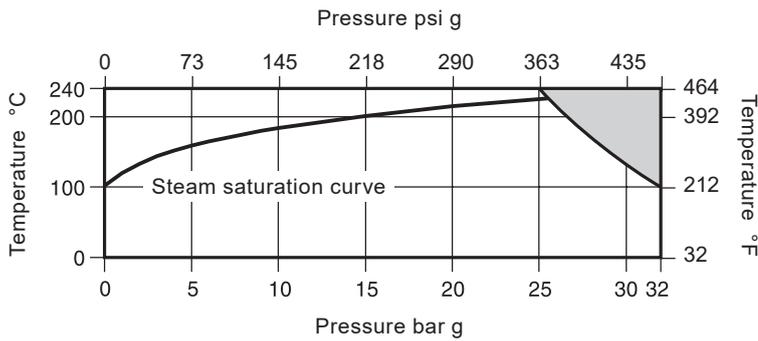
Pressure/temperature limits

* CRN approved ST14 DN40 and DN50 units must not be used in this region.

ST14

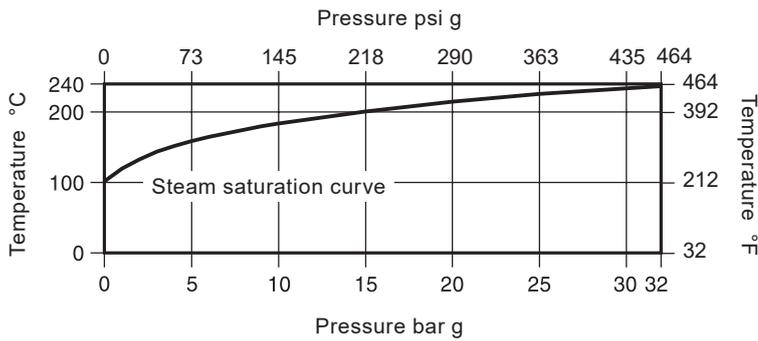


ST16



 The product **must not** be used in this region.

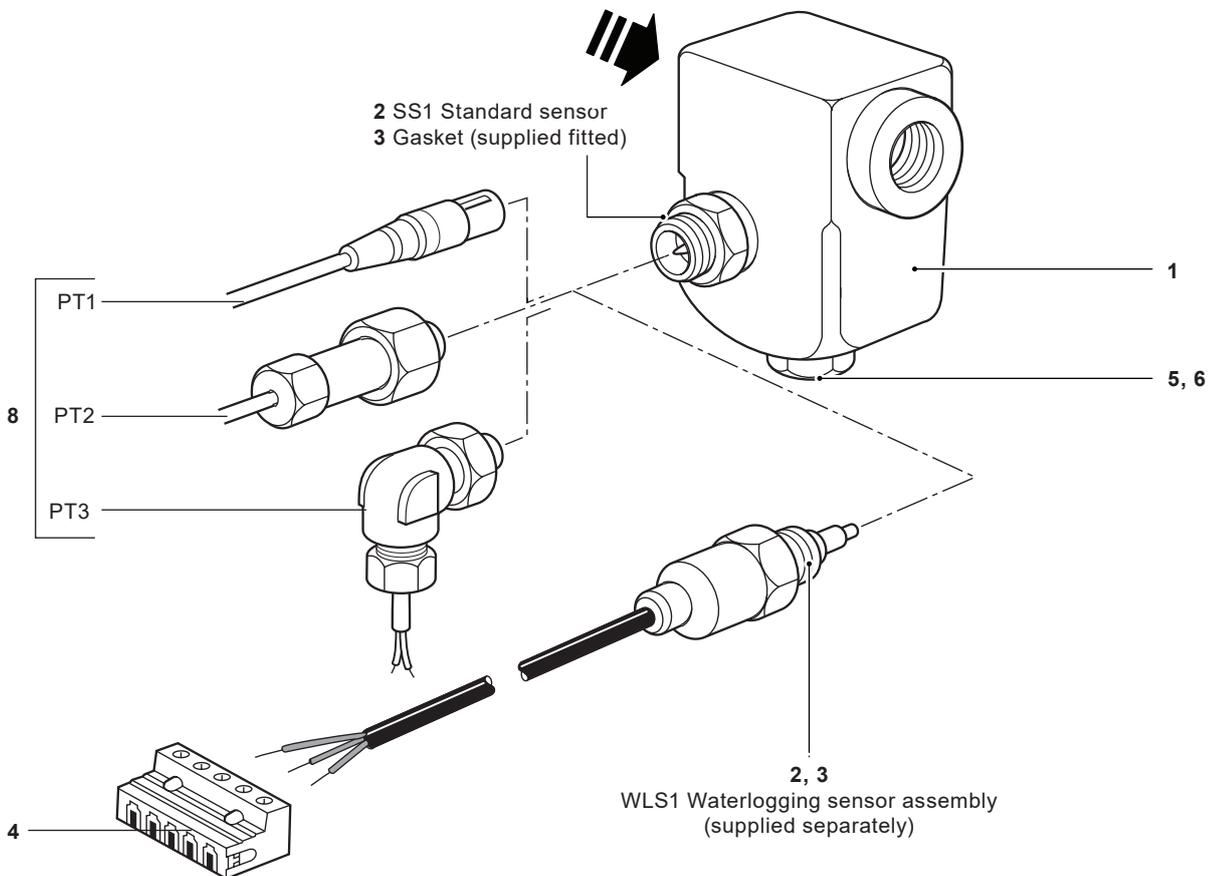
ST17



Body design conditions		PN40
PMA	Maximum allowable pressure	32 bar g 464 psi g
TMA	Maximum allowable temperature	240 °C 464 °F
Minimum allowable temperature		0 °C 32 °F
PMO	Maximum operating pressure for saturated steam service	ST14 32 bar g 464 psi g
		*CRN approved DN40 (1½") and DN50 (2") 30 bar g 435 psi g
		ST16 25 bar g 363 psi g
		ST17 32 bar g 464 psi g
TMO	Maximum operating temperature	240 °C 464 °F
Minimum operating temperature		0 °C 32 °F
ΔPMX Maximum differential pressure is limited to the PMO		
Designed for a maximum cold hydraulic test pressure:		60 bar g 870 psi g
Note: With sensor fitted, test pressure must not exceed:		32 bar g 464 psi g

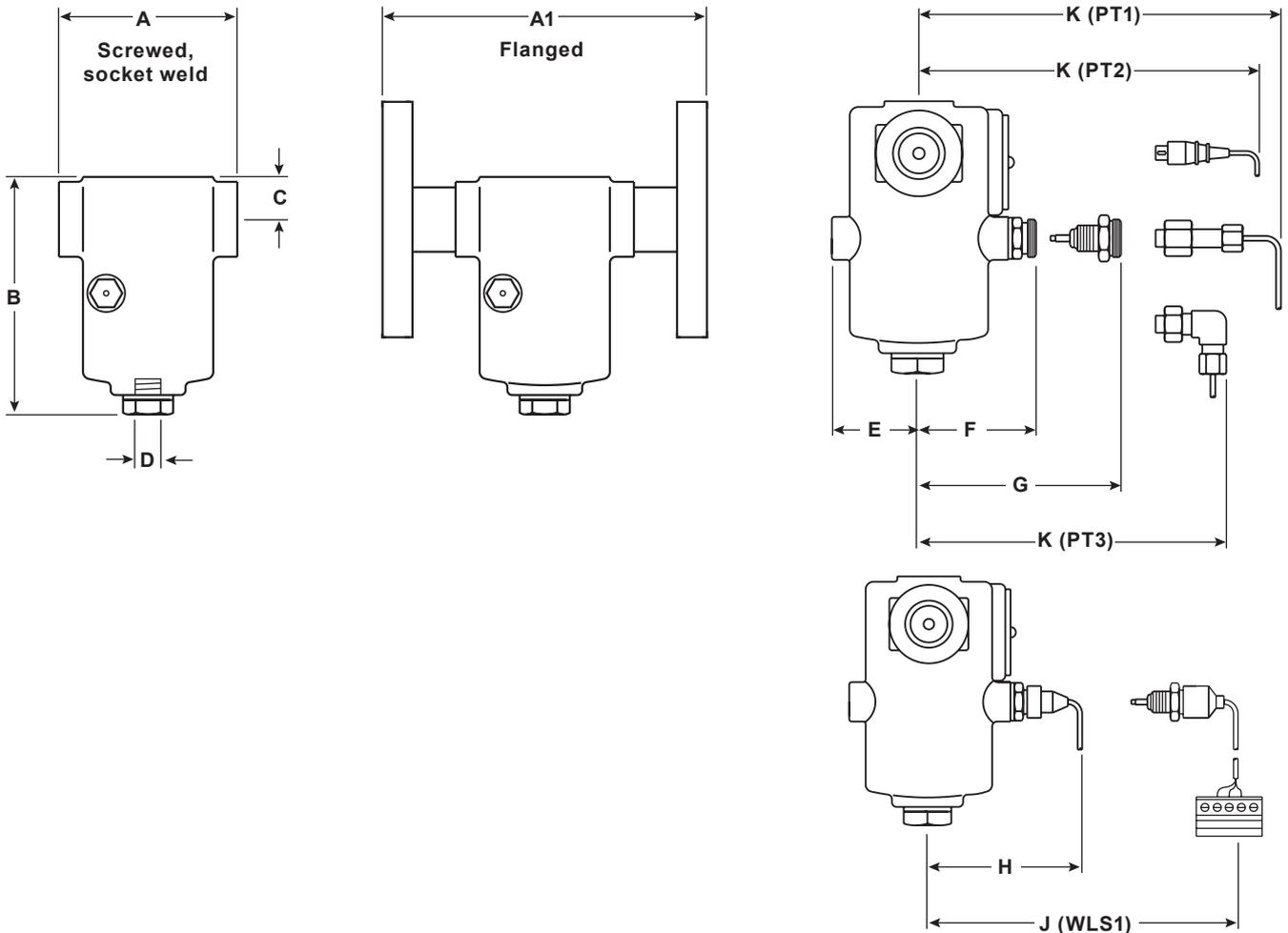
Materials

No.	Part	Material	
1	Sensor chamber	ST14	Steel DIN 17425 GS C 25
		ST16	Stainless steel AISI 316L
		ST17	SG iron DIN 1693 GGG 40
2	SS1 standard sensor	Stainless steel	BS 970, 303, S31 and PEEK plastic
	WLS1 waterlogging sensor assembly	Stainless steel	BS 970, 303, S31 and PEEK plastic
3	Sensor gasket	Stainless steel	BS 1449 304 S16
4	Diode pack	Polyamide	6 - 6
5	Plug	ST14	Stainless steel BS 970 431 S29
		ST16	Stainless steel AISI 316L
		ST17	Stainless steel BS 970 431 S29
6	Plug gasket	ST14	Stainless steel BS 1449 304 S16
		ST16	Stainless steel AISI 316L
		ST17	Stainless steel BS 1449 304 S16
7	Flanges	ST14	DN15 to DN25 (½" to 1") Steel Mat No. 1.0460
		ST14	DN40 and DN50 (1½" and 2") Steel BS 1501 151 430
		ST16	Stainless steel AISI 316L
8	PT1 connector	RYTON plastic	
	PT2 connector	RYTON plastic and brass (nickel plated)	
	PT3 connector	RYTON plastic and brass (nickel plated)	



Dimensions/weights (approximate) in mm (inches) and kg (lb)

Type	Size	A	A1	B	C	D	E	F	G	H	Withdrawal distance				Weight	
											WLS1	PT1	PT2	PT3	Scr.	Flg.
ST14	DN15 - 1/2"	75 (2.95)	130 (5.12)	101 (3.98)	23 (0.91)	1/2"	33 (1.30)	46 (1.81)	85 (3.35)	88 (3.46)	127 (5)	119 (4.69)	129 (5.08)	97 (3.82)	0.82 (1.81)	2.3 (5.07)
	DN20 - 3/4"															2.8 (6.17)
	DN25 - 1"	120 (4.72)	185 (7.28)	120 (4.72)	28 (1.10)	3/4"	40 (1.57)	53 (2.09)	91 (3.58)	95 (3.74)	134 (5.28)	126 (4.96)	136 (3.35)	104 (4.09)	2.20 (4.85)	4.6 (10.1)
	DN40 - 1 1/2"	252 (9.92)	393 (15.5)	215 (8.46)	45 (1.77)	1"	82 (3.23)	95 (3.74)	133 (5.24)	137 (5.39)	176 (6.93)	167 (6.57)	177 (6.97)	145 (5.71)	22.00 (48.5)	27.5 (60.6)
DN50 - 2"	29.0 (63.9)															
ST16	DN15 - 1/2"	75 (2.95)	130 (5.12)	101 (3.98)	23 (0.91)	1/2"	33 (1.30)	46 (1.81)	85 (3.35)	88 (3.46)	127 (5)	119 (4.69)	129 (5.08)	97 (3.82)	1.20 (2.65)	2.5 (5.51)
	DN20 - 3/4"															3.0 (6.61)
	DN25 - 1"	120 (4.72)	185 (7.28)	120 (4.72)	28 (1.10)	3/4"	40 (1.57)	53 (2.09)	91 (3.58)	95 (3.74)	134 (5.28)	126 (4.96)	136 (3.35)	104 (4.09)	2.20 (4.85)	4.6 (10.1)
ST17	1/2"	72 (2.83)	-	89 (3.50)	23 (0.91)	-	34.5 (1.36)	47 (1.85)	87 (3.43)	88 (3.46)	127 (5)	119 (4.69)	129 (5.08)	97 (3.82)	1.20 (2.65)	-
	3/4"															-
	1"	120 (4.72)	-	120 (4.72)	28 (1.10)	3/4"	40 (1.57)	54 (2.13)	93 (3.66)	95 (3.74)	134 (5.28)	126 (4.96)	136 (3.35)	104 (4.09)	1.20 (2.65)	-



Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

Installation note:

The sensor chamber should be installed immediately upstream of the steam trap (i.e. close coupled) in a horizontal pipeline with the direction of flow in accordance with the flow arrow on the body.

How to order

Example: 1 off Spirax Sarco DN25 Spiratec ST143 (ST143L if a left hand sensor fitting is required) sensor chamber assembly with end connections flanged EN 1092 PN40 fitted with SS1 standard sensor or Spiratec WLS1 waterlogging sensor.

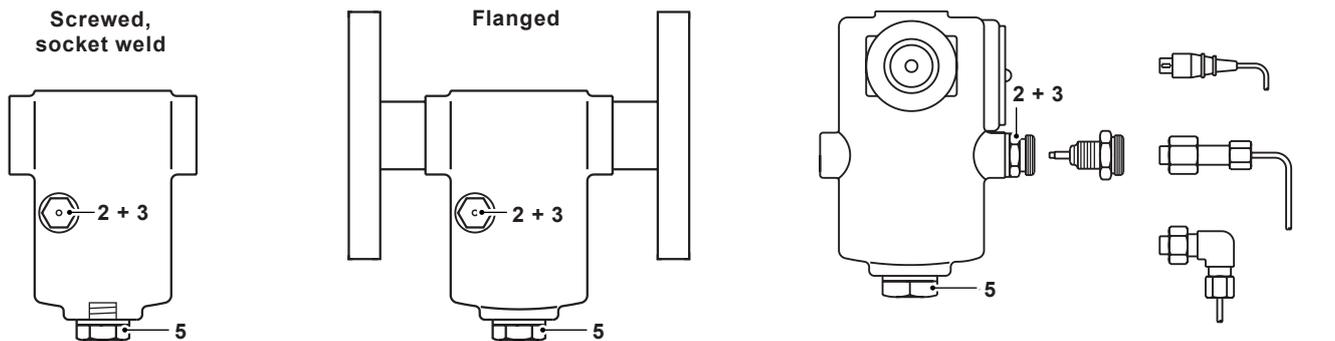
Note: State if the WLS1 is to be supplied with or without a diode pack.

Spare parts

The spare parts available are detailed below. No other parts are supplied as spares.

Available spares

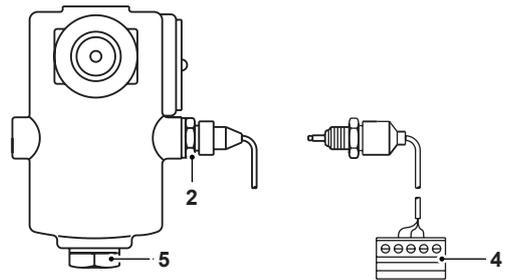
SS1 standard sensor and gasket	2, 3
WLS1 waterlogging sensor assembly and gasket	2, 3
WLS1 diode pack	4
Sensor gaskets (packs of 10)	3
Sensor blanking plug (optional extra - not shown)	



How to order spares

Always order the spares by using the description given in the column headed 'Available spares' and state the size of model of the sensor chamber.

Example: 1 - Sensor blanking plug for a ½" Spirax Sarco Spiratec ST141 sensor chamber.



Recommended tightening torques

Item	Part	 mm	N m
2	Sensor	24 A/F	50 - 56
5	Plug	½" and ¾"	54 - 60
		1"	84 - 93
		1½" and 2"	130 - 145