



Type 20 and Type 40 Direct Steam Injection (SI) Humidifiers

Description

Spirax Sarco direct steam injection (SI) humidifiers are designed to inject dry steam into a ducted air system in such a manner as to ensure efficient mixing of the steam and air, and to raise the moisture content of the air stream with no condensate carryover.

Available types

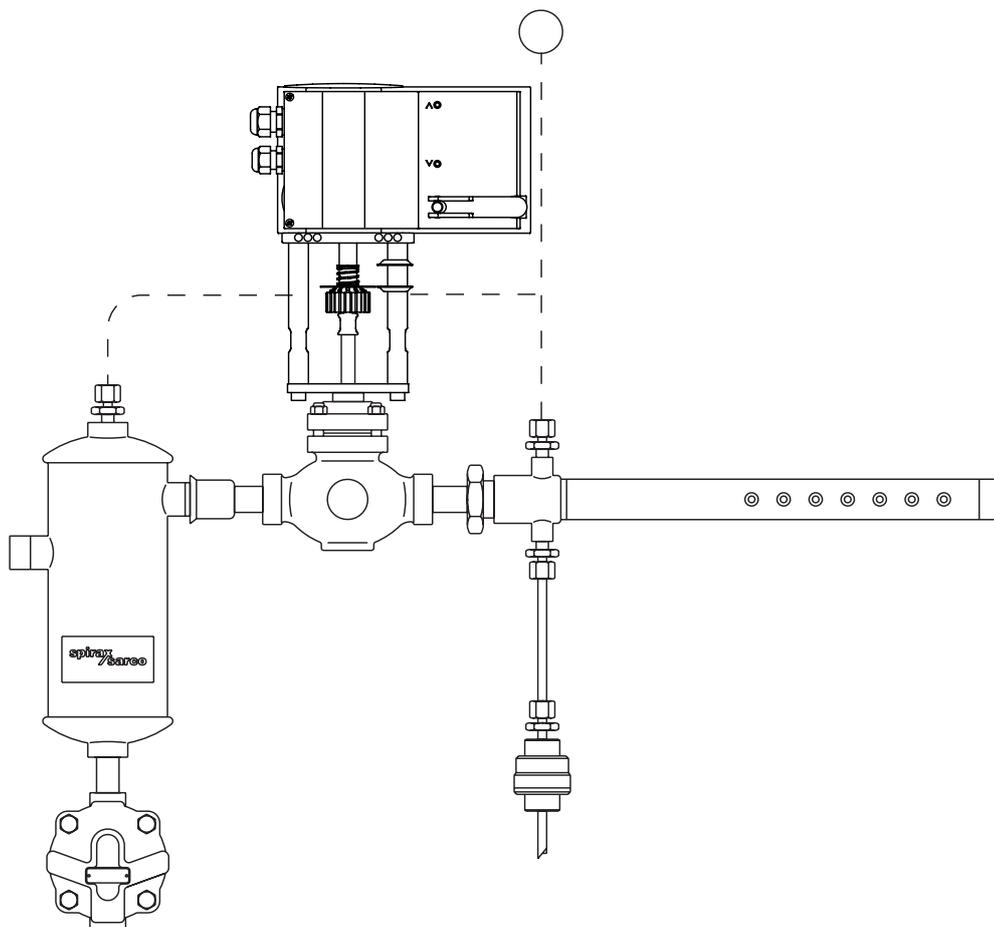
The SI systems are available in two versions - **Type 20** and **Type 40**. For each version there are a range of 13 standard length lances to cover duct widths from 280 mm to 3 950 mm. The selection is dependent upon the steam humidification load.

Control valves and actuators

Standard options for Spirax Sarco valves and electric actuators are given in the selection table (see page 2). The unit may be supplied without a valve and/or actuator. Spirax Sarco offer a wide range of other makes that are available to order.

Standard control options

- Pneumatic 0.2 - 1.0 bar
- Electric Valve motor drive 230 V, 100/110 V or 24 V
- Electronic 0 -10 V dc or 4-20 mA



Technical details

Separator body design conditions	PN6
Maximum operating pressure	4 bar g
Maximum operating temperature	150 °C
Maximum recommended tracer circuit operating pressure	4 bar g
Minimum recommended tracer circuit operating pressure	1 bar g

Note: The assembly can be operated down to 0.35 bar g

Assembly

When Spirax Sarco supply a valve as part of the product, the valve and separator will be assembled. Where requested, actuators can be fitted to the valve, and commissioned to the specific control signal. Where no valve is ordered, the ancillary pipe fittings (see TI-P795-01) will be supplied connected to the separator.

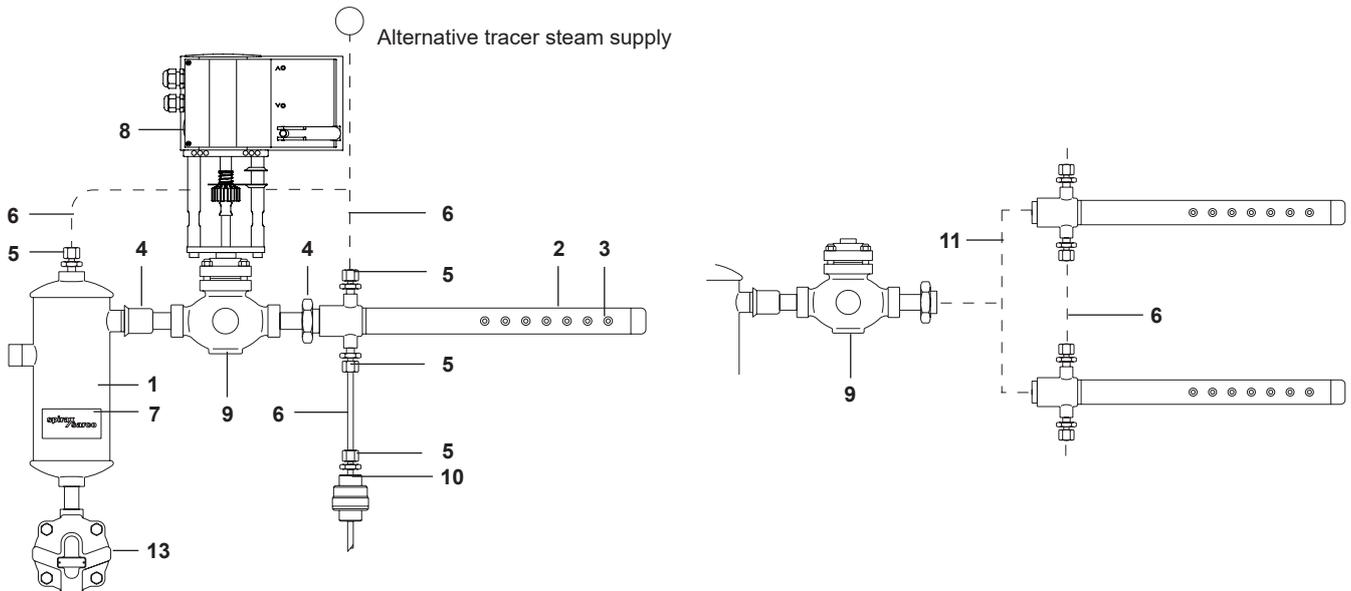
Each lance and separator are supplied with 2 x 8 mm O/D tube compression fittings (5).

The separator drain connection 'Q' should be fitted with a Spirax Sarco float trap (13) with automatic air vent. This will ensure that the separator is kept free of condensate at all times. The tracer heating system should be drained by a Spirax Sarco balanced pressure MST21 trap with 'E' fill, (10). These traps must be ordered specifically.

Installation

Spirax Sarco Steam humidifiers are designed to provide and deliver dry steam into the installation, and with minimum noise. This can only be achieved if the total installation is correct. Full Installation and Maintenance Instructions are provided with each unit.

Materials



No.	Part	Material
1	Separator	Shell Stainless steel 304 (S14/S11)*
		Internals Stainless steel 304 S11*
2	Lance	Body Stainless steel BS 3146 ANC3B*
		Tracer tube Stainless steel 304L*
		Main tube Stainless steel 304L*
		End cap Stainless steel 304 S11*
		Spring clips Stainless steel 304 (S14/S11)*
3	Nozzles	Stainless steel 304 (S14/S11)*
4	Pipe fittings	Malleable iron *
5	Compression fittings	Bright zinc plated mild steel *
6	Pre-heat tracer pipe 8 mm O/D tube	Spirax Sarco or customer to supply
7	Name-plate	Aluminium
8	Actuator	See specific Technical Information sheet (TI) for Spirax Sarco actuators
		Spirax Sarco valves Refer to specific Technical Information sheet (TI) for material specification
9		LE31 (screwed) Cast iron
		LE33 (flanged) Cast iron
		KE71 (screwed) SG iron
		KE73 (flanged) SG iron
		KE63 (flanged) Stainless steel
10	Tracer system	MST21(E) Stainless steel
11	Lance interconnecting pipework	Installer to supply
12	Escutcheon plates	Galvanised steel
13	Separator drain trap	FT14 SG iron DIN 1639 GGG40

* **Note:** 316L stainless steel option is available on request.

Valve and actuator selection

Kvs	Size	Valve selection		Actuator selection			
		Inlet pressure 4 bar g Cast iron		Pneumatic 0.2 - 1.0 bar spring range	Electric, 230 Vac, VMD, 0-10 Vdc, 4-20 mA	Electric, 100/110 Vac, VMD, 0-10 Vdc, 4-20 mA	Electric, 24 Vac/dc, VMD, 0-10 Vdc, 4-20 mA
		Screwed	Flanged				
0.4	DN15	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
1.0	DN15	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
1.6	DN15	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
4.0	DN15	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
6.3	DN20	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
10.0	DN25	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
16.0	DN32	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E
25.0	DN40	LE31	LE33	PN9220E	AEL3E	AEL3E	AEL3E

Note: Please contact Spirax Sarco for other actuators and valves that are available from their range. Should a positioner be required for the selected pneumatic actuator then please refer to the relevant Technical Information (TI) sheet.

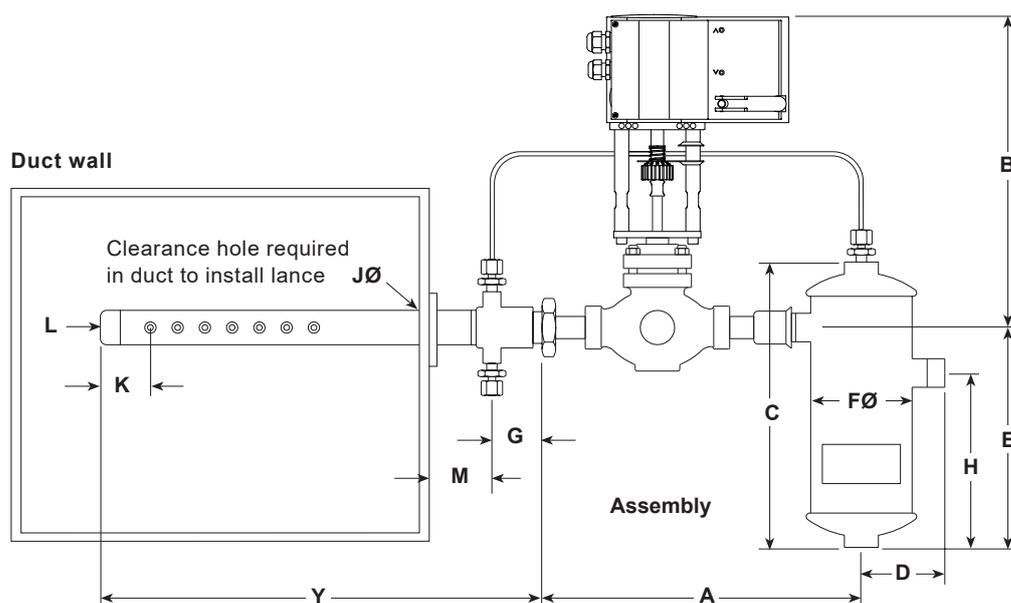
Assembly dimensions (approximate) in mm

Valve size	Dimension A		Dimension B				
	Type 20		Type 40		Actuator type		
	Screwed	Flanged	Screwed	Flanged	Pneumatic	VMD	VMD to Electric
DN15	213	300	-	-	403	375	446
DN20	192	290	340	440	403	375	446
DN25	-	-	330	405	403	385	446
DN32	-	-	340	430	433	390	475
DN40	-	-	270	375	433	390	475

Dimensions (approximate) in mm

	C	D	E	FØ	G	H	JØ	K	L	M min.	M max.
Type 20	270	85	208	105	40	165	38	60	M10	50 mm	80 mm
Type 40	395	120	316	152	48	246	54	60	M10	50 mm	80 mm

Ø Clearance hole required in duct to install lance



Pipe connections (approximate) in inches

	N	P	Q	R	S
Type 20	1/4"	1/4"	1/2"	3/4"	1"
Type 40	1/4"	1/4"	1"	1 1/2"	1 1/2"

Escutcheon plates (approximate) in mm

	T	V	W	X
Type 20	115	65	5	17.5
Type 40	115	65	5	25.5

Weights and dimension 'Y' (approximate) in mm

Lance model	Type 20		Type 40	
	Y	Weight (kg)	Y	Weight (kg)
1.0	338	0.88	345	1.54
1.5	513	1.14	520	1.97
2.0	688	1.40	695	2.39
3.0	958	1.80	965	3.03
4.0	1268	2.26	1275	3.78
5.0	1528	2.65	1535	4.40
6.0	1838	3.11	1845	5.15
7.0	2138	3.65	2145	5.87
8.0	2438	4.00	2445	6.59
9.0	2748	4.46	2755	7.34
10.0	3058	4.92	3065	8.08
11.0	3358	5.37	3365	8.80
12.0	3688	5.83	3675	9.55
Separator	-	1.46	-	3.70

Duct wall

