

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 over). 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 or 24 V
Electronic	0-10 V dc signal with 24 V power supply.

Technical data

Separator body design conditions	PN6
Maximum operating pressure	4 bar g
Maximum operating temperature	152°C
Maximum recommended tracer circuit operating pressure	4 bar g
Minimum recommended tracer circuit operating pressure (The assembly can be operated down to 0.35 bar g)	1 bar g

Assembly

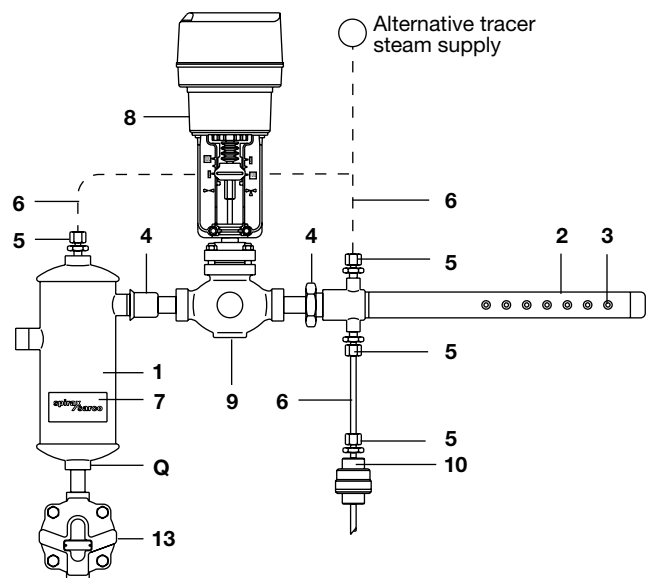
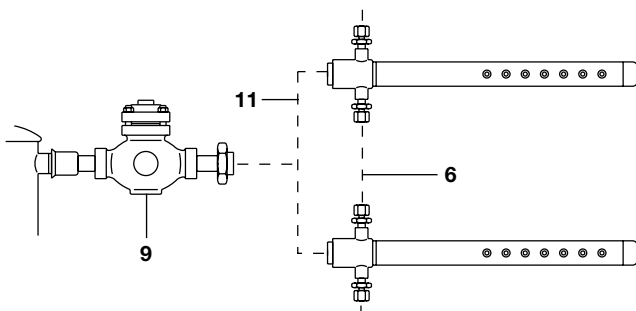
When Spirax Sarco supply a valve as part of the product, the valve and separator will be assembled. Where requested, actuators can be fitted to the valve, and commissioned to the specific control signal. Where no valve is ordered, the ancillary pipe fittings (see TI-P795-01) will be supplied connected 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*
		Body	Stainless steel BS 3146 ANC3B*
		Tracer tube	Stainless steel 304L*
2	Lance	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	
9	Spirax Sarco valves		Refer to specific Technical Information sheet (TI) for material specification
		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: a 316L stainless steel option is available on request.

Valve and actuator selection

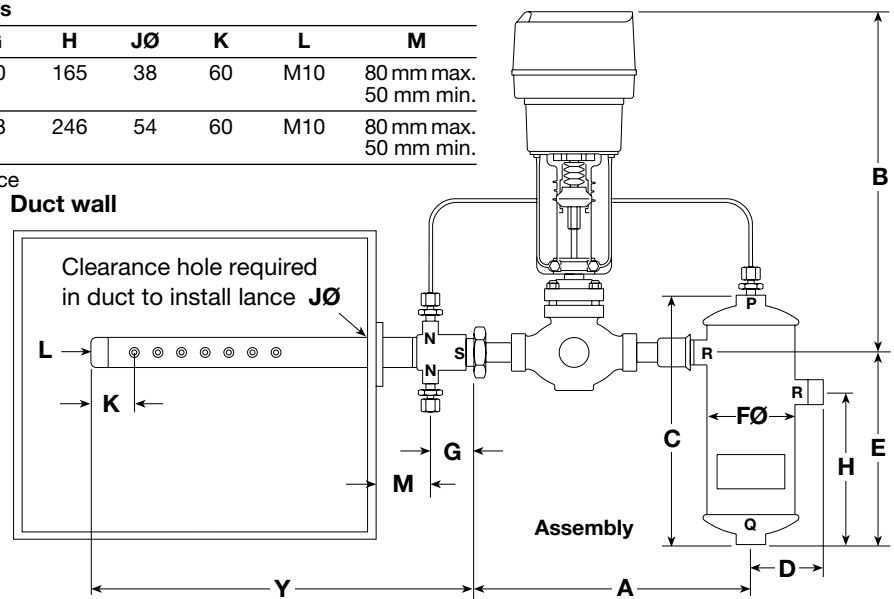
Kvs	Size	Valve selection Inlet pressure 4 bar g Cast iron		Pneumatic 0.2 - 1.0 bar spring range	Actuator selection		
		Screwed	Flanged		230 Vac VMD	Electric 24 V VMD	0 - 10 Vdc 24 V
0.4	DN15	LE31	LE33	PN9120E	EL3501SE	EL3502SE	EL3512SE
1.0	DN15	LE31	LE33	PN9120E	EL3501SE	EL3502SE	EL3512SE
1.6	DN15	LE31	LE33	PN9120E	EL3501SE	EL3502SE	EL3512SE
4.0	DN15	LE31	LE33	PN9120E	EL3501SE	EL3502SE	EL3512SE
6.3	DN20	LE31	LE33	PN9120E	EL3501SE	EL3502SE	EL3512SE
10.0	DN25	LE31	LE33	PN9220E	EL3501SE	EL3502SE	EL3512SE
16.0	DN32	LE31	LE33	PN9220E	EL3501SE	EL3502SE	EL3512SE
25.0	DN40	LE31	LE33	PN9220E	EL3501SE	EL3502SE	EL3512SE

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.

Dimensions (approximate) in millimetres

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

Ø Clearance hole required in duct to install lance



Assembly dimensions

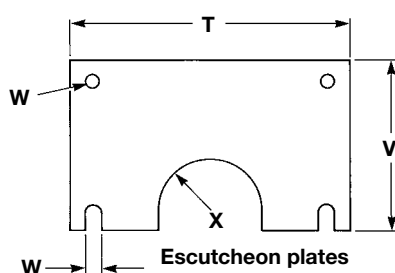
Valve size	Dimension A				Dimension B Actuator type		
	Type 20		Type 40		Pneumatic	VMD	0 - 10 Vdc
	Screwed	Flanged	Screwed	Flanged			
DN15	213	300	-	-	345	375	375
DN20	192	290	340	440	345	375	375
DN25	-	-	330	405	355	385	385
DN32	-	-	340	430	383	390	390
DN40	-	-	270	375	383	390	390

Pipe connections

	N	P	Q	R	S
Type 20	¼"	¼"	½"	¾"	1"
Type 40	¼"	¼"	1"	1½"	1½"

Escutcheon plates

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



Weights and dimension 'Y'

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