

# MSA, MSB & SL Minislim & Slimline Unit

## Features and Benefits

- Performance range up to 0.9m<sup>3</sup>/s
- Motor Insulation Class B minimum
- Standard Thermal Overload Protection (S.T.O.P.)
- Anodised aluminium pentapost frame
- Double skinned panels
- Low profile direct drive units
- 1 Year Guarantee

## Low profile direct drive Air Handling Unit - Duties from 0.05m<sup>3</sup>/s to 0.92m<sup>3</sup>/s

Designed specifically for applications with limited available height such as ceiling voids. Access (to be specified at time of ordering) can be from above or below with heater and motor connections on the left or right hand side.

The casing comprises of an AA25 anodised aluminium frame with high density glass reinforced nylon corners and double skinned panels of 0.7mm galvanised steel enclosing 25mm of 60kg/m<sup>3</sup> mineral fibre insulation. All panels are retained by proprietary fasteners. All panels are sealed by a purpose designed leak seal gasket fully retained into the aluminium framework.

## Minislim Unit - Duties from 0.05m<sup>3</sup>/s to 0.26m<sup>3</sup>/s

Similar to the Slimline unit but even more compact for smaller duties with a choice of 2 fan sizes within one unit size. The standard

unit comprises; - inlet flexible connector, EU5 bag filter, l.p.h.w. or electric heater, direct drive fan and outlet flexible connector. Access is top or bottom. The unit is suitable for internal mounting only.

## Slimline Unit - Duties from 0.05m<sup>3</sup>/sec to 0.92m<sup>3</sup>/sec

Low profile direct drive units with forward curved centrifugal fans designed for applications where restricted height is a problem and top or bottom access is required. There are two sizes of unit each with four different fan options. All units are single phase with the exception of the SL081-4. They are all speed controllable and have Standard Thermal Overload Protection (S.T.O.P.). The standard unit comprises; -inlet flexible connector, EU5 bag filter, l.p.h.w. or electric heater, direct drive fan and outlet flexible connector. The unit is suitable for internal mounting only.

## Specification

Direct Drive Fans have forward curved centrifugal impellers factory matched to an external rotor motor and statically and dynamically balanced to ISO 1940 as a complete assembly. The external rotor motors have sealed for life ball bearings. They incorporate Standard Thermal Overload Protection and are fully speed controllable. Insulation is Class B and the enclosure IP44 to DIN 40050 with the electrical design corresponding to DIN IEC 38. The motors are suitable for ambient temperatures of up to 40°C and atmospheres up to 95% R.H.

## Flexible Connectors

The Flexible Connectors are manufactured from Revertex JPT 20 with ductmate flanges to DW142.

## Bag Filters

Bag Filters are manufactured from fire retardant synthetic material with galvanised steel frames. The filter grade is EU5 to Eurovent 4/5.

## L.P.H.W. Heater Batteries

L.P.H.W. Heater Batteries are constructed from copper tube, mechanically bonded to aluminium fins with the complete assembly housed in a galvanised steel casing. The coil headers and return bends are totally enclosed within the air handling unit casing. Flow and return connections are located on the same side of the unit and have male B.S.P. thread. L.P.H.W. Heater Batteries are pressure tested under water to 250p.s.i.

## Electric Heater Batteries

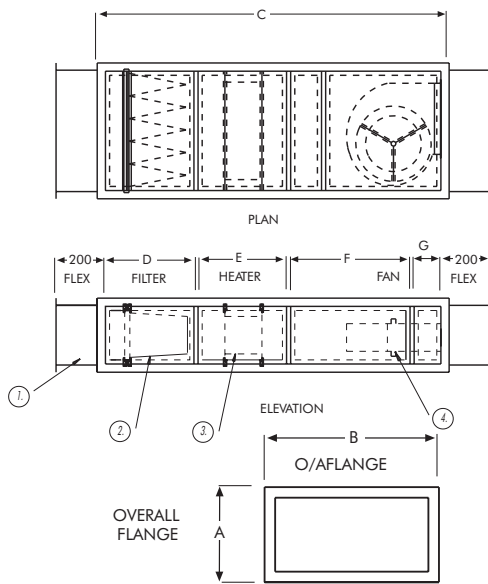
Electric Heater Battery elements are constructed from Nichrome 5 spiral resistance wire surrounded by magnesium oxide powder and sheathed in stainless steel. The elements are carried on a galvanised steel frame. All electric heaters incorporate a thermal cut out device. Electrical connections are via a flush mounted terminal box on the outside of the air handling unit casing.



## Insertion loss for standard silencers

	Octave band mid frequency Hz								Length mm
	63	125	250	500	1k	2k	4k	8k	
Minislim	-4	-6	-12	-20	-27	-27	-20	-16	900
Minislim	-5	-9	-17	-28	-37	-37	-29	-24	1200
SL066	-5	-9	-17	-28	-37	-37	-29	-24	1200
SL066	-7	-12	-25	-35	-50	-50	-38	-30	1500
SL066	-8	-15	-28	-42	-50	-50	-46	-34	1800
SL081	-5	-9	-17	-28	-37	-37	-29	-24	1200
SL081	-7	-12	-25	-35	-50	-50	-38	-30	1500
SL081	-8	-15	-28	-42	-50	-50	-46	-34	1800

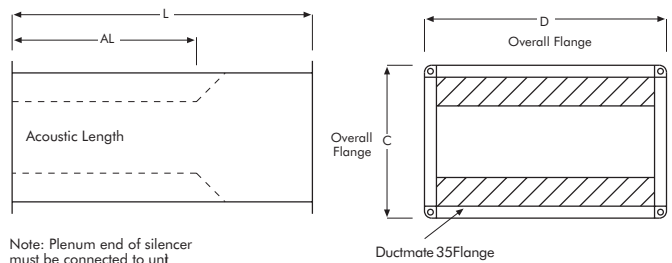
## Unit Dimensions (mm)



Unit	SPIGOT						
	A	B	C	D	E	F	G
Minislim	360	660	1560	580	430	280	130
SL066	360	660	1860	580	430	580	130
SL081	360	810	1860	580	430	580	130

No.	Description
1	200mm Flexible Conn.
2	305mm Bag Filter
3	LPHW Heater (1, 2 or 3 row) or Electric Heater Battery
4	Fan

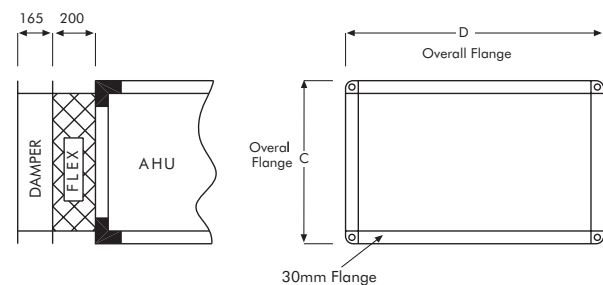
## Accessories Dimensions (mm)



Note: Plenum end of silencer must be connected to unit

Ref. No.	Dimensions in mm				Approx Wgt kg
	L	AL	C	D	
Minislim	900	600	360	660	20
Minislim	1200	900	360	660	29
Minislim	1200	900	360	660	29
SL066	1500	1200	360	660	33
SL066	1800	1500	360	660	39
SL066	1200	900	360	810	37
SL081	1500	1200	360	810	42
SL081	1800	1500	360	810	48

## Inlet Damper



Dampers are supplied with extended spindles - suitable for motorisation as standard.

Unit	Inlet Damper Stock Ref. No	Dim in mm		Approx Wgt kg
		C	D	
Minislim	57CD-66	360	660	6
SL066	57CD-66	360	660	6
SL081	57CD-81	360	810	7

# MSA, MSB & SL Minislim & Slimline Units

Typical performance for standard unit with bag filter, heater and fan section

Stock Ref.	m <sup>3</sup> /s at Pa															
	0	25	50	75	100	125	150	200	250	300	350	400	450	500	550	600
MS-A	0.21	0.203	0.194	0.183	0.173	0.162	0.152	0.127	0.103	0.077	-	-	-	-	-	-
MS-B	0.269	0.266	0.262	0.258	0.253	0.246	0.242	0.227	0.21	0.181	0.141	0.076	-	-	-	-
SL066-1	0.305	0.294	0.283	0.270	0.253	0.230	0.200	0.124	-	-	-	-	-	-	-	-
SL066-2	0.395	0.385	0.371	0.357	0.340	0.323	0.303	0.254	0.155	-	-	-	-	-	-	-
SL066-3	0.480	0.466	0.450	0.433	0.416	0.399	0.378	0.330	0.270	0.15	-	-	-	-	-	-
SL066-4	0.497	0.488	0.476	0.465	0.451	0.441	0.426	0.399	0.364	0.32	0.259	-	-	-	-	-
SL081-1	0.525	0.512	0.500	0.485	0.475	0.460	0.445	0.415	0.376	0.328	0.227	-	-	-	-	-
SL081-2	-	-	-	-	-	-	-	0.560	0.532	0.500	0.452	0.390	0.292	0.170	-	-
SL081-3	-	-	-	-	-	-	0.782	0.764	0.748	0.726	0.704	0.677	0.645	0.602	0.548	0.463
SL081-4	0.923	0.912	0.899	0.888	0.870	0.862	0.845	0.819	0.793	0.768	0.736	0.705	0.668	0.628	0.582	0.522

## Resistance Details

Speed Ref.	Motor r.p.m	FL.C kW	S.C. Amps	Supply Amps	Speed V/Hz/Ph	Controller
MS-A	1700	0.175	0.77	4.4	230/50/1	SPM 5020 / RTRE 20
MS-B	2050	0.30	1.31	6.0	230/50/1	SPM 5020 / RTRE 20
SL-066-1	1180	0.36	1.90	8.0	230/50/1	SPM 5035 / RTRE 35
SL-066-2	1230	0.49	2.30	10.0	230/50/1	SPM 5035 / RTRE 35
SL-066-3	1230	0.78	3.70	14.0	230/50/1	SPM 5060 / RTRE 60
SL-066-4	1130	0.89	4.20	17.0	230/50/1	SPM 5060 / RTRE 60
SL-081-1	1130	0.89	4.20	17.0	230/50/1	SPM 5060 / RTRE 60
SL-081-2	1180	0.97	4.60	18.0	230/50/1	SPM 5060 / RTRE 60
SL-081-3	1160	1.75	8.30	32.0	230/50/1	SPM 5090
SL-081-4	1300	2.40	4.30	18.0	400/50/3	RDTK 7

Note: Other types of speed controllers are available as are D.O.L. starters and electric heater controllers.

## Sound power levels dBW re 10-12W (at full speed)

The dBA quoted is the mean A weighted sound pressure level measured at a distance of 3m with spherical sound level propagation. It is included for comparative purposes only and the mean sound level experienced will depend on the area being served.

Ref. No.		Octave band mid frequency Hz								dBA@ 3m
		63	125	250	500	1k	2k	4k	8k	
MS-A	Outlet	79	77	69	63	64	63	59	55	51
MS-A	Surroundings	71	69	53	33	30	30	26	22	34
MS-B	Outlet	89	87	79	73	74	73	69	65	61
MS-B	Surroundings	81	79	63	43	40	40	36	32	44
SL066-1	Outlet	80	78	77	75	73	71	63	57	58
SL066-1	Surroundings	72	70	61	45	39	38	30	24	37
SL066-2	Outlet	83	80	79	77	75	70	67	59	59
SL066-2	Surroundings	75	72	63	47	41	37	34	26	39
SL066-3	Outlet	90	87	86	81	82	78	73	63	65
SL066-3	Surroundings	82	79	70	51	48	45	40	30	36
SL066-4	Outlet	86	84	84	80	73	71	68	59	61
	Surroundings	78	76	68	50	39	38	35	26	43
SL081-1	Outlet	86	84	84	80	73	71	68	59	61
	Surroundings	78	76	68	50	39	38	35	26	43
SL081-2	Outlet	81	78	77	77	70	70	68	65	58
	Surroundings	73	70	61	47	36	37	35	32	37
SL081-3	Outlet	89	88	84	82	78	73	70	62	64
	Surroundings	81	80	68	52	44	40	37	29	46
SL081-4	Outlet	92	89	89	86	82	79	75	64	68
	Surroundings	84	81	73	56	48	46	42	41	48

The dBA quoted is the mean A weighted sound pressure level measured at a distance of 3m with spherical sound level propagation. It is included for comparative purposes only and the mean sound level experienced will depend on the area being served.

## Silencer resistance (Pa) standard length silencer

Size	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.8	0.9	1.0
MS	2	4	7	11	16	-	-	-	-	-	-	-	-	-	-	-
SL066	2	4	7	11	16	22	29	37	-	-	-	-	-	-	-	-
SL081	1.5	3	5	8	11	15	19	24	30	36	43	51	59	77	97	120

## Performance data for standard 1 and 2 row LPHW heaters at 82°C flow 71°C return

Air on		Leaving Air Temp °C @ m³/sec															
Ref. No.	Temp	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.9
Minislim	-5°C	21.5	19.5	17.5	16	14.5	-	-	-	-	-	-	-	-	-	-	-
1 - Row	0°C	25	22.5	21	19.5	18	-	-	-	-	-	-	-	-	-	-	-
Minislim	-5°C	33.5	31	28.5	26.5	24	-	-	-	-	-	-	-	-	-	-	-
2 - Row	0°C	36	33.5	31.5	29.5	27	-	-	-	-	-	-	-	-	-	-	-
SL-066	-5°C	24	22	20.5	19	17.5	16.5	15	14	12.5	-	-	-	-	-	-	-
1 - Row	0°C	27	25	23.5	22.5	21	20	18.5	17.5	16.5	-	-	-	-	-	-	-
SL-066	-5°C	40	37	35	33	31.5	29.5	28	26	24.5	-	-	-	-	-	-	-
2 - Row	0°C	-	-	37.5	35.5	34	32.5	30.5	29	27.5	-	-	-	-	-	-	-
SL-081	-5°C	26.5	24.5	23	22	20.5	19.5	18.5	17.5	16.5	16	15	14	13	12	11	9
1 - Row	0°C	29.5	27.5	26	25	24	23	22	21	20	19.5	18.5	17.5	17	16	15	13
SL-081	-5°C	-	38	36.5	34.5	33	32	30.5	29.5	28	26.5	25.5	24	23	21.5	20	17.5
2 - Row	0°C	-	-	38.5	37	35.5	34.5	33	32	31	29.5	28.5	27	26	25	23.5	21

## Single Phase - Electric Heater

kW	1 Step	2 Step	3 Step	4 Step
	Heater	Heater	Heater	Heater
0.5	Yes	-	-	-
0.75	Yes	-	-	-
1.0	Yes	Yes	-	-
1.5	Yes	Yes	Yes	-
2.0	Yes	Yes	-	Yes
2.5	Yes	-	-	-
3.0	Yes	Yes	Yes	Yes
4.0	Yes	Yes	-	Yes
4.5	Yes	-	Yes	-
5.0	Yes	Yes	-	-
6.0	Yes	Yes	Yes	Yes
7.5	Yes	-	Yes	-
8.0	Yes	Yes	-	Yes
9.0	Yes	-	Yes	-
10.0	Yes	Yes	-	Yes
12.0	Yes	Yes	Yes	Yes

## Three Phase - Electric Heater

kW	1 Step	2 Step	3 Step	4 Step
	Heater	Heater	Heater	Heater
3.0	Yes	Yes	-	-
4.5	Yes	Yes	Yes	-
6.0	Yes	Yes	-	Yes
7.5	Yes	-	-	-
9.0	Yes	Yes	Yes	Yes
12.0	Yes	Yes	-	Yes
13.5	Yes	-	Yes	-
15.0	Yes	Yes	-	-
18.0	Yes	Yes	Yes	Yes
22.5	Yes	-	Yes	-
24.0	Yes	Yes	-	Yes

## Damper resistance (Pa)

Size	Air Volume m³/sec															
	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.8	0.9	1.0
MS	1	1.5	2.5	4	6	-	-	-	-	-	-	-	-	-	-	-
SL066	1	1.5	2.5	4	6	8	10	13	16	-	-	-	-	-	-	-
SL081	1	1.5	2	2.5	3.5	5	6.5	8	10	12	14.5	17	20	26	32	40