



Induction Terminal Units

HM30 Horizontal Induction Units

Product Information Release V.2—August 2010



Breathing Life Into Your Building



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General Information

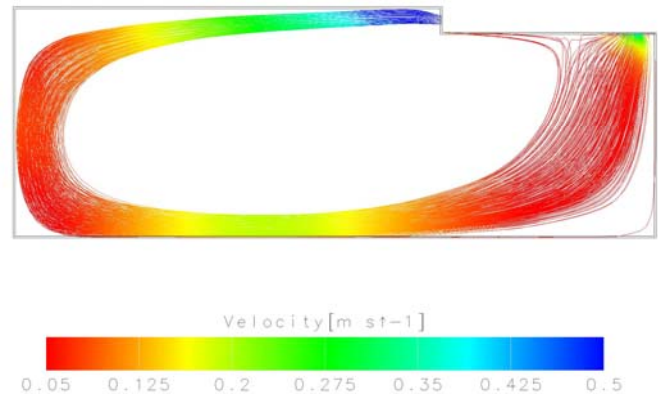
Dadanco Starline™ HM30 Bulkhead Mounted Induction Terminal Units are well suited to hidden active chilled beam applications where a ceiling bulkhead is available as a return air plenum. Starline™ HM30 Horizontal Induction Terminal Units provide efficient, effective and whisper-quiet air conditioning for almost any perimeter zone application at lower static pressures than older generation induction terminal units.

HM30 Induction Terminal Units are ideally suited for horizontal ceiling bulkhead mounted installations in perimeter zones with supply air discharged away from the façade.

Secondary room air is induced from the conditioned space through the ceiling bulkhead plenum to provide a compact terminal unit suited for conventional low resistance individual or continuous air grilles.

Both return air and supply air grilles (supplied by others) must be provided for in the ceiling bulkhead.

HM30 Induction Terminal Units provide an efficient purging of the conditioned space by returning room air through the ceiling bulkhead at low velocities.



Induction Terminal Unit Advantages

Dadanco HM30 Induction Terminal Units supply cooling, heating and the outdoor air required for ventilation in the conditioned space

Compact dimensions and intrinsically smaller duct sizes offer real savings in under-sill enclosures and ceiling bulkheads for new construction and HVAC refurbishment projects

Fan power requirement is dramatically reduced. The primary air is typically only 30% of the total air supplied by Dadanco HM30 Induction Terminal Units due to the use of efficient induction technology.

Secondary air is induced over the secondary heat exchanger, delivering localized cooling, for NO FAN ENERGY REQUIREMENT

HM30 Induction Terminal Units are designed for ceiling bulkhead installations with horizontal air discharge through individual or continuous grilles

HM30 Induction Terminal Units deliver more cooling capacity using less treated air than any all-air system

HM30 Induction Terminal Units offer 2-stage capacity control through control of secondary water flow separate from primary air control

Noise radiated from Dadanco HM30 Induction Terminal Units is very low...

Starline HM30 Induction Terminal Units require minimal maintenance (no moving parts)

Application Data – HM30

COOLING	40 to 250 W/m ²
LENGTH	Unit lengths from 700mm to 1500mm available on request for any application
FEATURES	Side or End entry primary air connections Optional Condensate Drain Tray Secondary Air Lint Screen
DEPTH	380 - 445mm 6 & 8 Tube High Unit Versions
INSULATION	Thermal insulation for the primary air plenum is standard
GRILLE	Suitable for use with low resistance individual or continuous sidewall single or double-deflection grilles (by others)
CONTROLS	HM30 units can be controlled individually or in groups of units

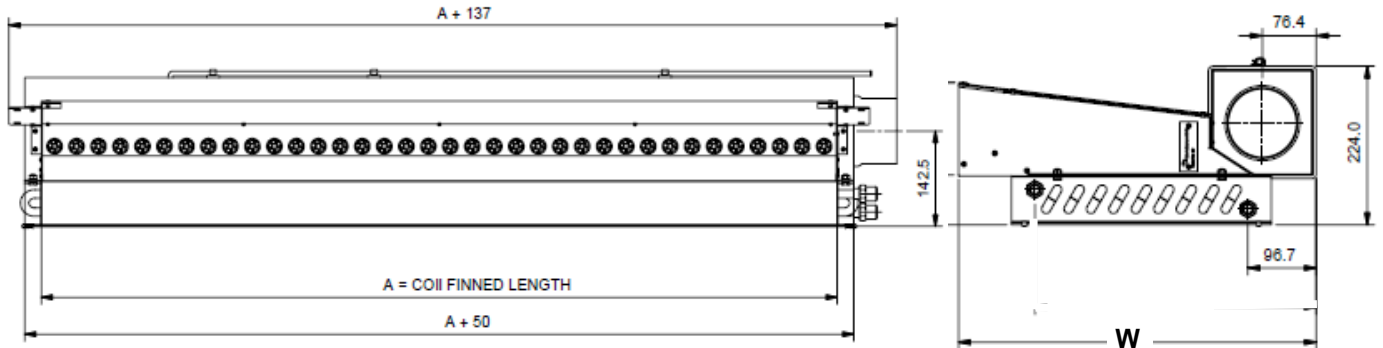
APPLICATIONS:

Dadanco Induction Terminal Units HM30 are designed specifically for ceiling bulkhead mounted perimeter installations in:

- New Construction and HVAC Refurbishment Projects
- Ceiling bulkhead mounted induction unit replacements
- Schools and Institutional Buildings
- Healthcare Installations
- Airports

STARLINE

General Information HM30 Horizontal ACB



General Product Technical Data

MODEL	Coil Finned Length (mm)	Air Plenum Length (mm)	W = Unit Width (mm)		Unit Height (mm)	Primary Air Flow Range (≤250Pa) (L/s) *	Sensible Cooling Capacity Range (W)
			6 Tube	8 Tube			
HM30-0700	700	750	379	443	224	6.0 ~ 29.6	296 ~ 1210
HM30-0800	800	850				6.0 ~ 34.2	304 ~ 1430
HM30-0900	900	950				6.4 ~ 37.6	310 ~ 1550
HM30-1000	1000	1050				6.7 ~ 42.1	330 ~ 1660
HM30-1100	1100	1150				7.4 ~ 46.7	367 ~ 1830
HM30-1200	1200	1250				8.1 ~ 50.1	403 ~ 1995
HM30-1300	1300	1350				8.8 ~ 54.7	438 ~ 2060
HM30-1400	1400	1450				9.6 ~ 59.2	473 ~ 2220
HM30-1500	1500	1550				10.3 ~ 63.8	507 ~ 2380

NOTE: Nominal cooling capacities @ 24°C room air, 12°C primary air, 13°C Secondary Chilled Water & 0.09 L/s Secondary Water Flow

Different performance results can be achieved for varying secondary water flow rates, entering water temperatures, primary air conditions and primary air static pressures.

For selections at conditions other than those nominated above please contact DADANCO for further assistance.

New Technologies

Dadanco's Starline™ multi-lobe high performance induction nozzles and superior fluid dynamics design are combined into Dadanco Starline™ HM30 Induction Terminal Units for improved performance and lower noise characteristics.

Rather than relying on high primary air velocities and pressures as with older induction units, Dadanco Starline™ range of Induction Terminal Units require less primary air pressure for delivery of equal or greater amounts of primary air to induce higher rates of secondary room air through the secondary cooling coil; delivering improved cooling performance in one simple ceiling mounted package.

All Dadanco HM30 Induction Terminal Units incorporate Starline™ Multi-Lobe induction nozzles for enhanced performance per liter/second of primary air delivered.

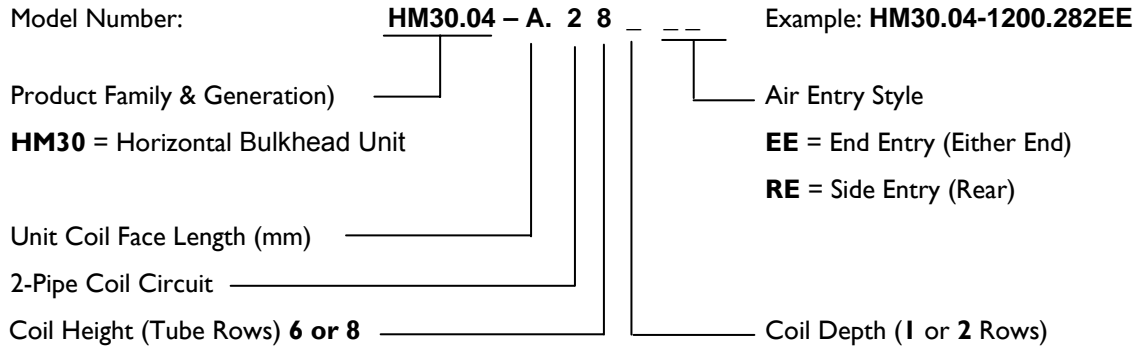
DISCLAIMER

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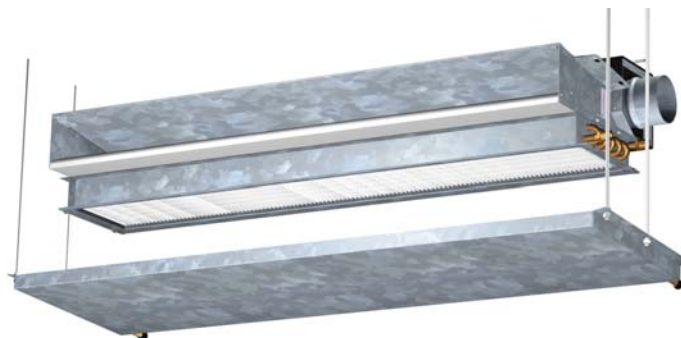
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UNIT NOMENCLATURE



Unit Model	Unit Weight (Kg)	
	6 Row	8 Row
HM30.04 - 700.--	11.6	12.0
HM30.04 - 800.--	13.5	13.7
HM30.04 - 900.--	14.0	15.5
HM30.04 -1000.--	15.7	17.2
HM30.04 -1100.--	17.4	18.9
HM30.04 -1200.--	19.0	20.6
HM30.04 -1300.--	21.5	22.3
HM30.04 -1400.--	23.2	24.0
HM30.04 -1500.--	24.9	25.8

GENERAL CONFIGURATION



HM30 Horizontal Unit with Suspended Drain Tray

WATER HANDING OPTIONS

Side Entry Primary Air—Left or Right Hand fittings as viewed from the secondary coil finned surface side
End Entry Primary Air—Left or Right Hand fittings as viewed from the secondary coil finned surface side

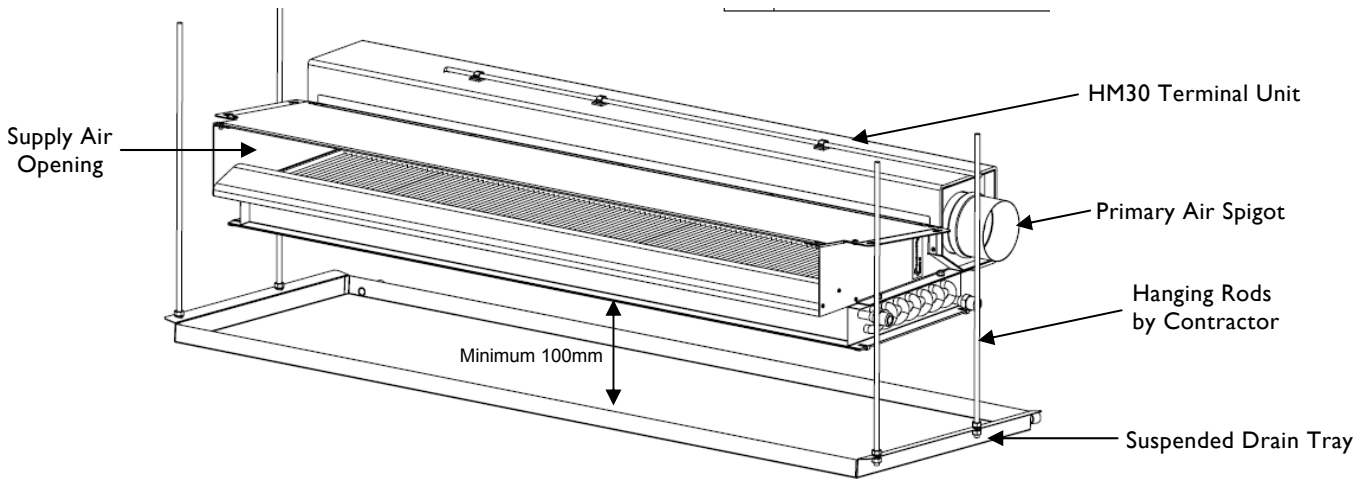
STANDARD FEATURES

- 1/2" male BSP flat face tapered thread fittings
- Insulated condensate drain tray
- Insulated primary air plenum
- Ø100mm round primary air spigot (End Entry)
- Secondary air lint screen (Fitted)

OPTIONAL FEATURES

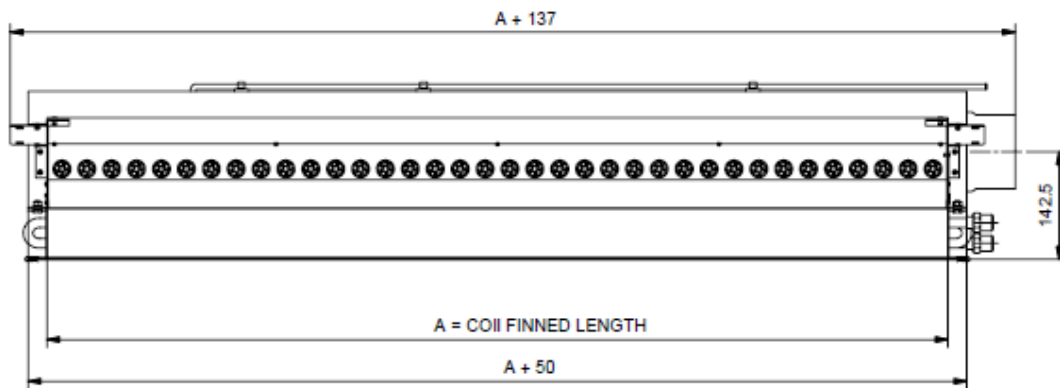
- Plain copper connections or other brass fittings
- Un-Insulated primary air plenum
- Supply Air Grille (on request)
- Special configurations (custom designs)
- Ø150mm ovalised primary air spigot (Top or Rear Entry)

Product Details HM30

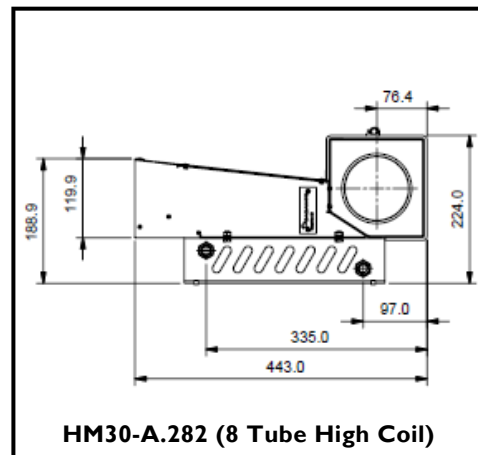
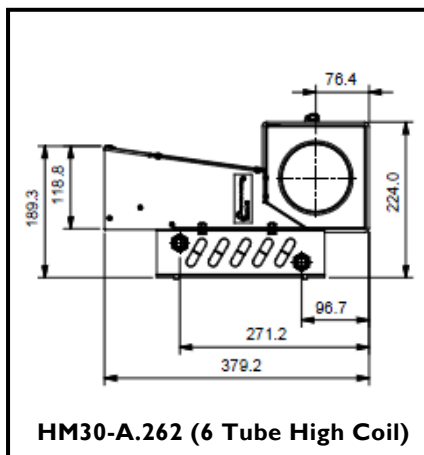


HM30-A. General Dimensions (Front View)

NOTE: HM30 Horizontal Bulkhead unit dimensions shown without suspended drain tray.



HM30-A. General Dimensions (End View)



HM30 Unit Width (W)	
HM30.04-A.262 6 Tube High Coil	HM30.04-A.282 8 Tube High Coil
379mm	443mm

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HM30 Quick Selections

The following pages provide quick selection data for determining HM30 unit sensible cooling performance for a nominated range of primary air pressure and air quantities, primary air temperature and fixed secondary water temperature and flow rate.

Quick Selections

Step 1: Choose the preferred unit length and locate the correct table

Step 2: Choose the preferred unit height 6 or 8 Tube High unit and locate the correct column in the respective table

Step 3: Determine the design primary air quantity and read the sensible cooling performance value from one of the selection table columns, or

Determine the required sensible cooling capacity for the preferred unit length and coil height and read the primary air quantity necessary to achieve that performance at the fixed operating parameters.

HM30 Unit Width (W)	
HM30-1100.262 6 Tube High Coil	HM30-1100.282 8 Tube High Coil
379mm	443mm

Step 1

HM30-1100 Quick Selection @ 150Pa		
Sensible Cooling (Watts)		
Primary Air (L/s)	HM30-1100.262 6 Tube High Coil	HM30-1100.282 8 Tube High Coil
14	637	888
16	689	938
18	749	1031
20	824	1099
22	915	1168
24	1018	1237
26	1073	1307
28	1138	1347
30	1199	1402
32	1289	1430

Step 2

Step 3

NOTE: Due to the wide range of primary air quantities for any given coil length and height, and these influences on coil efficiency, interpolation of water side cooling performance is not permitted.

HM30 2-pipe - Cooling Only Unit	
Room Design Temperature (°C) =	24
Chilled Water Supply Temperature (°C) =	13
Chilled Water ΔT (°C) =	1.5-3.0
Min. Chilled Water Flow Rate (L/s) =	0.09
Primary Air Supply Temperature (°C) =	12
Primary Air Inlet Static Pressure (Pa) =	As Stated

NOTE: Different performance results can be achieved for varying secondary water flow rates, entering water temperatures, primary air conditions and primary air static pressures. Consult Dadanco for assistance with selections at different operating parameters.

HM30 Quick Selections

HM30 Unit Width (W)	
HM30-0700.262 6 Tube High Coil	HM30-0700.282 8 Tube High Coil
379mm	443mm

700mm Active Coil Length

HM30-0700 Quick Selection @ 150Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-0700.262 6 Tube High Coil	HM30-0700.282 8 Tube High Coil
10	432	612
12	492	684
14	583	756
16	695	829
18	762	890
20	826	928
22	887	953
Water (kPa)	8.60	11.4

HM30-0700 Quick Selection @ 250Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-0700.262 6 Tube High Coil	HM30-0700.282 8 Tube High Coil
12	559	774
14	611	835
16	700	910
18	771	968
20	850	1040
22	880	1077
24	958	1129
26	1033	1169
28	1100	1198
30	1142	1210
Water (kPa)	8.60	11.4

NOTE 1: The range of primary air quantities listed for each unit length represents the minimum to maximum primary air capability for that unit length for the nominated static pressure value. To achieve higher or lower primary air values, static pressure or unit length can be changed. Please consult Dadanco for design assistance.

NOTE 2: Due to the wide range of primary air quantities for any given coil length and height, and these influences on coil efficiency, interpolation of water side cooling performance is not permitted.

HM30 2-pipe - Cooling Only Unit	
Room Design Temperature (°C) =	24
Chilled Water Supply Temperature (°C) =	13
Chilled Water ΔT (°C) =	1.5-3.0
Min. Chilled Water Flow Rate (L/s) =	0.09
Primary Air Supply Temperature (°C) =	12
Primary Air Inlet Static Pressure (Pa) =	As Stated

NOTE: Different performance results can be achieved for varying secondary water flow rates, entering water temperatures, primary air conditions and primary air static pressures. Consult Dadanco for assistance with selections at different operating parameters.

HM30 Quick Selections

1100mm Active Coil Length

HM30-1100 Quick Selection @ 150Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-1100.262 6 Tube High Coil	HM30-1100.282 8 Tube High Coil
14	637	888
16	689	938
18	749	1031
20	824	1099
22	915	1168
24	1018	1237
26	1073	1307
28	1138	1347
30	1199	1402
32	1289	1430
34	1346	1457
36	1401	1477
Water (kPa)	11.5	15.3

HM30-1100 Quick Selection @ 250Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-1100.262 6 Tube High Coil	HM30-1100.282 8 Tube High Coil
18	822	1311
20	876	1192
22	951	1278
24	1005	1330
26	1096	1405
28	1162	1452
30	1266	1520
32	1338	1564
34	1348	1624
36	1421	1675
38	1457	1697
40	1527	1738
42	1570	1773
44	1664	1805
46	1730	1830
Water (kPa)	11.5	15.3

HM30 2-pipe - Cooling Only Unit	
Room Design Temperature (°C) =	24
Chilled Water Supply Temperature (°C) =	13
Chilled Water ΔT (°C) =	1.5-3.0
Min. Chilled Water Flow Rate (L/s) =	0.09
Primary Air Supply Temperature (°C) =	12

HM30 Quick Selections

1500mm Active Coil Length

HM30-1500 Quick Selection @ 150Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-1500.262 6 Tube High Coil	HM30-1500.282 8 Tube High Coil
20	868	1219
22	919	1282
24	975	1348
26	1042	1412
28	1147	1496
30	1238	1558
32	1337	1619
34	1440	1679
36	1443	1718
38	1535	1758
40	1593	1812
42	1649	1845
44	1703	1874
46	1782	1914
48	1833	1935
Water (kPa)	14.4	19.3

HM30-1500 Quick Selection @ 250Pa		
Primary Air (L/s)	Sensible Cooling (Watts)	
	HM30-1500.262 6 Tube High Coil	HM30-1500.282 8 Tube High Coil
24	1105	1495
27	1185	1576
30	1284	1673
33	1363	1741
36	1479	1828
39	1603	1912
42	1700	1975
45	1760	2060
48	1827	2133
51	1925	2209
54	1989	2253
57	2084	2311
60	2179	2358
63	2244	2381
Water (kPa)	14.4	19.3

NOTE: Different performance results can be achieved for varying secondary water flow rates, entering water temperatures, primary air conditions and primary air static pressures. Consult Dadanco for assistance with selections at different operating parameters.



HM30 Bulkhead Mounted Induction Units

Guide Specification

Scope

Supply DADANCO horizontal bulkhead mounted induction terminal units type STARLINE HM30-____.____, or equal and approved, fitted with low-noise, high efficiency patented nozzles capable of delivering the primary air quantities as listed in the specification schedule.

Connect the units to the primary air duct and secondary water loop in the configuration shown on the drawings.

Construction

The STARLINE HM30 induction terminal unit shall be manufactured to provide a compact unit with a primary air plenum, mounting support points, air entrainment chamber with supply air outlet, secondary heat exchanger and an inlet air lint screen.

Plenum: The medium pressure primary air plenum shall be manufactured of 0.8mm wall thickness galvanised sheet steel designed to incorporate DADANCO multi lobe induction nozzles of the nominated number and size to discharge the specified primary air quantity into the air entrainment chamber.

Nozzles shall be DADANCO multi-lobed induction nozzles of flexible fire retardant polymer, designed for low noise generation and rapid secondary air entrainment.

Provide a circular sheet metal spigot of 100mm equivalent diameter for the primary air flexible duct connection at one end of the unit, or alternatively provide an ovalised sheet metal spigot of 100mm or 150mm equivalent diameter in the centre rear or bottom of the primary air plenum as indicated on the drawings.

Insulation (if required): Self adhesive, fire retardant foil faced cellular thermal insulation to the exterior of the primary air plenum to prevent condensation forming on the outside of the unit.

The secondary air entrainment chamber shall be constructed of galvanized sheet steel end panels and back plate sealed as an integral part to the primary air plenum. The entrainment chamber will facilitate mounting of the secondary heat exchanger and provide mounting points for installing the unit.

Secondary cooling coil: Fit a removable single two-row (2-Pipe or 4-Pipe) secondary air coil of the specified length required to achieve the specified secondary cooling capacity. Coil shall be constructed of galvanised steel end plates and frames with ½" copper tubes mechanically expanded into 0.145mm thickness rippled edge aluminium fins. Provide ½" BSP male flat face tapered thread fittings on all coil connections.

Secondary coil maximum recommended site test pressure not to exceed 2500 kPa (25 Bar) with continuous maximum recommended operating pressure of 1680 kPa (16.8 Bar). Coil to be factory pressure tested to 2500 kPa and conform to a burst pressure rating of 13,000 kPa (130 Bar) at 50°C.

Coil capacities shall be equal to the specified secondary air sensible cooling capacity when operated at the scheduled secondary chilled water flow and inlet temperature.

Lint screen (if required): Fit a serviceable lint screen with frame over the face of the secondary heat exchanger. Fabricate the lint screen from fine plastic fabric mesh, as specified, held in a rectangular aluminium frame. Provide fixing clips to secure the lint screen frame to the secondary heat exchanger coil.

The unit shall be mounted by its support brackets to a suitable frame or support structure in a manner to ensure leak free connection to the primary air spigot, supply air discharge grille and unrestricted secondary air entry to the unit.

Where fitted with condensate drain pan, the drain pan must be installed on separate threaded rods with a minimum clearance of 100mm to the secondary coil finned surface and with a positive fall to the rear of the unit to facilitate condensate removal.

HM30 Product Information

HM30 Secondary Coil water pressure drop, kPa

Unit	Water Flow in L/s																											
	0.03		0.04		0.05		0.06		0.07		0.08		0.09		0.10		0.11		0.12		0.13		0.14		0.15			
	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH	6TH	8TH
HM30-0700	1.3	1.7	2.1	2.8	3.1	4.1	4.2	5.6	5.5	7.4	7.0	9.3	8.6	11.4	10.3	13.7	12.1	16.2	14.1	18.8	16.2	21.6	18.4	24.6	20.8	27.7		
HM30-0800	1.4	1.8	2.3	3.0	3.3	4.5	4.6	6.1	6.0	8.0	7.6	10.1	9.3	12.4	11.2	14.9	13.2	17.6	15.3	20.5	17.6	23.5	20.1	26.8	22.6	30.2		
HM30-0900	1.5	2.0	2.4	3.3	3.6	4.8	4.9	6.6	6.5	8.6	8.2	10.9	10.0	13.4	12.1	16.1	14.2	19.0	16.6	22.1	19.1	25.4	21.7	29.0	24.5	32.7		
HM30-1000	1.6	2.1	2.6	3.5	3.8	5.1	5.3	7.1	6.9	9.2	8.8	11.7	10.8	14.4	12.9	17.3	15.3	20.4	17.8	23.8	20.5	27.4	23.4	31.2	26.4	35.2		
HM30-1100	1.7	2.2	2.8	3.7	4.1	5.5	5.6	7.5	7.4	9.9	9.4	12.5	11.5	15.3	13.8	18.5	16.4	21.8	19.1	25.4	22.0	29.3	25.0	33.4	28.3	37.7		
HM30-1200	1.8	2.4	2.9	3.9	4.4	5.8	6.0	8.0	7.9	10.5	9.9	13.3	12.2	16.3	14.7	19.6	17.4	23.2	20.3	27.1	23.4	31.2	26.7	35.6	30.1	40.2		
HM30-1300	1.9	2.5	3.1	4.2	4.6	6.1	6.4	8.5	8.3	11.1	10.5	14.1	13.0	17.3	15.6	20.8	18.5	24.7	21.6	28.8	24.8	33.1	28.3	37.8	32.0	42.7		
HM30-1400	2.0	2.6	3.3	4.4	4.9	6.5	6.7	8.9	8.8	11.7	11.1	14.8	13.7	18.3	16.5	22.0	19.6	26.1	22.8	30.4	26.3	35.0	30.0	40.0	33.9	45.1		
HM30-1500	2.1	2.8	3.4	4.6	5.1	6.8	7.1	9.4	9.3	12.4	11.7	15.6	14.4	19.3	17.4	23.2	20.6	27.5	24.1	32.1	27.7	37.0	31.6	42.2	35.7	47.6		

Acoustic Data

HM30 Summary		Full Octave									Spigot Velocity m/s	Weighted dB(A)
Primary Air		63	125	250	500	1K	2K	4K	8K			
100mm spigot		Lw - Sound Power level (zero weighted) dB										
Primary Air - Ls	Pa											
9.6	100	34	29	22	18	15	14	17	19	1.22	21	
14.2	100	32	32	24	20	16	14	17	19	1.81	22	
19.7	100	33	32	25	22	17	14	16	19	2.51	22	
26.1	100	33	31	28	26	20	16	17	19	3.32	25	
11.9	150	36	36	25	23	19	16	17	20	1.52	24	
17.5	150	36	35	28	25	21	17	21	21	2.23	26	
24.4	150	38	37	32	30	25	18	17	19	3.11	29	
32.3	150	37	37	33	32	26	20	19	19	4.11	30	
13.8	200	39	38	30	28	23	18	18	20	1.76	27	
20.4	200	40	37	33	30	27	21	22	23	2.60	30	
28.4	200	41	38	36	34	30	22	20	19	3.62	33	
37.5	200	41	37	36	35	30	23	22	21	4.77	33	
15.5	250	41	38	34	31	27	20	19	20	1.97	30	
22.9	250	42	38	35	33	30	26	25	24	2.92	33	
31.9	250	44	40	39	37	33	27	21	21	4.06	36	
42.1	250	42	40	38	38	33	27	24	23	5.36	36	
17.1	300	43	45	36	34	30	24	21	20	2.18	34	
25.1	300	43	40	38	36	33	29	28	26	3.20	36	
35.1	300	44	43	42	40	36	30	25	22	4.47	39	
46.3	300	44	40	40	40	36	30	27	24	5.90	38	
Measured Reverberation Time (Sec)			6.0	6.0	5.7	4.9	3.7	2.5	1.1			

Date: 11 June 2008

Room Dimensions: 4.72 x 6.84 x 25.65 (179.7m³)

Octave band sound pressure levels measured in University of Adelaide reverberation chamber

A-weighted values in Sound Power Level dB(A)

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