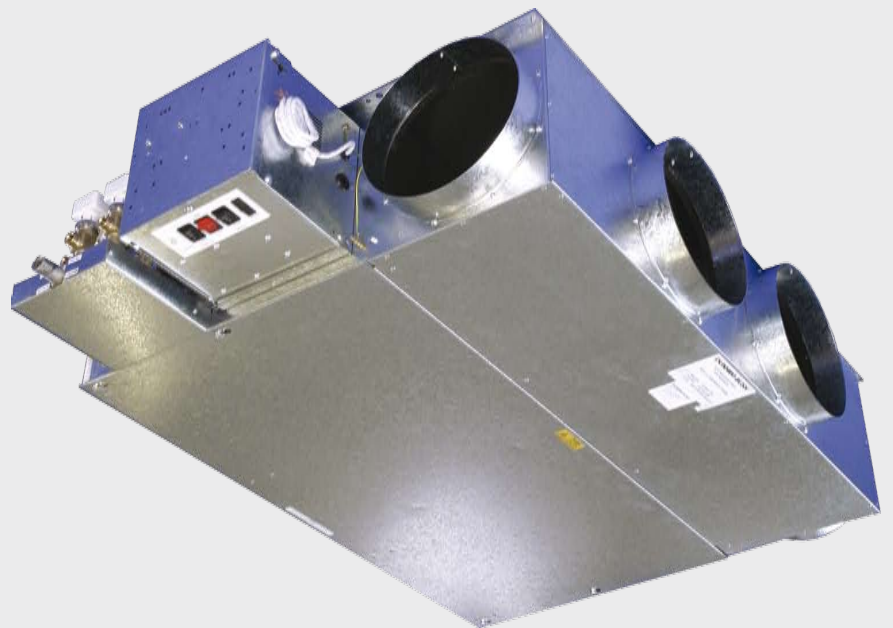




Lynx Fan Coil



280mm Deep Horizontal
Waterside Control

INTRODUCTION

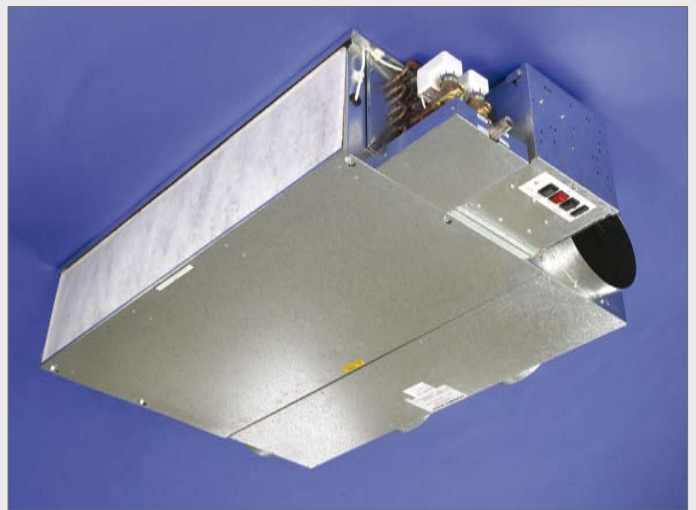
'Lynx', designed and manufactured to ISO9001 : 2008 by Dunham-Bush Ltd, is a cost effective fan coil unit designed for quiet, powerful and resilient performance.

'Lynx' fan coil units are built to 'best value' engineering standards, with the latest design and manufacturing technology, 'Lynx' is the ideal solution to meet thermal and noise criteria within a limited budget.

Careful consideration has been given to safe site handling and ease of access to all serviceable items. Designed to offer maximum site flexibility, the 'Lynx' is a versatile and user-friendly product.

Flexibility Is The Key

'Lynx' uses a non-handed, dual-purpose coil block within a galvanized steel 'V' formed condensate pan, terminating with a central drain connection at it's lowest point. A single design is used on both RH and LH configurations allowing the complete coil and condensate pan assembly to be reversible on site. The discharge plenum is supplied with spigots fitted at customer specified positions and single blanking plates, screw-fixed to allow spigot interchange on site. The additional facility to re-locate the control box from one side of the unit to the other enables site layout changes and client fit-outs.



Access For Maintenance

Filters are simple to remove, they withdraw from either the rear or side of the unit without the use of tools or the need to remove panels. Sizes 4 to 7 are supplied with split filters for easier removal and handling.

The main access panel is secured using four setscrews, which are retained during the removal of the panel due to the use of 'keyhole' slots, and provides access to the condensate pan and fan/motor assemblies. Each fan/motor is independently mounted onto the main bulkhead to enable easy removal.

The condensate pan is held in place using four corrosion proof quarter turn 'quick release' fasteners, allowing removal for both cleaning and coil access.

Electrical work can be easily performed via two hinged covers giving access to all components in the control box.



Fan Assemblies

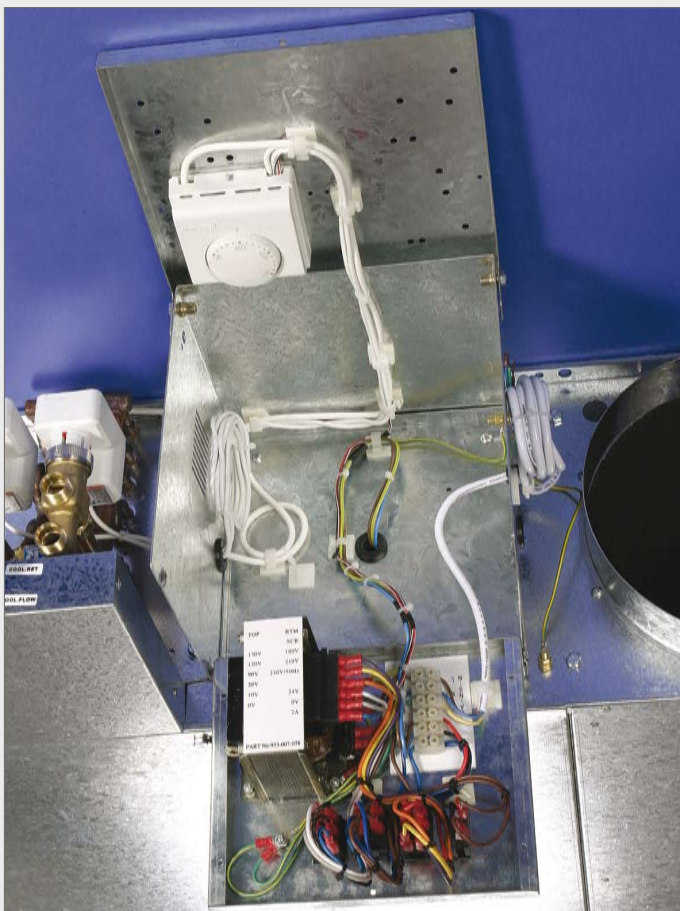
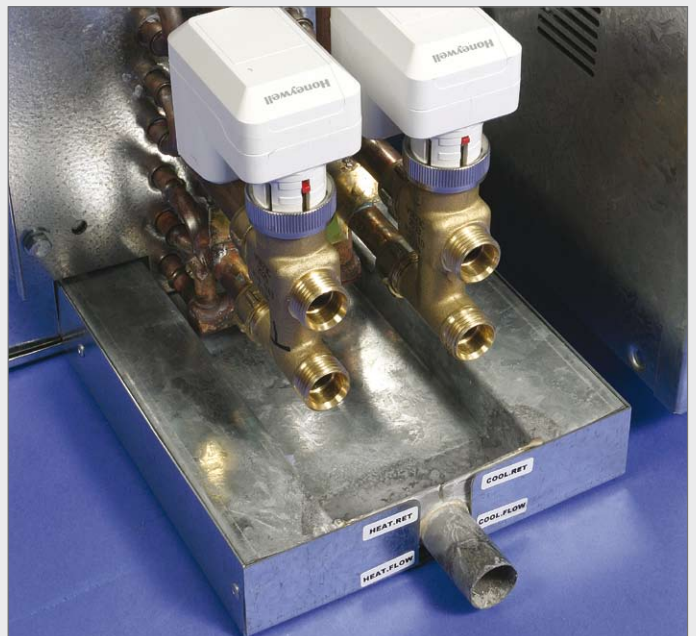
'Lynx' incorporates thermally protected internal rotor motors fitted with 'sealed for life' bearings.

Each fan/motor assembly is independently mounted onto the floating bulkhead, isolating them from the unit chassis, reducing resonance and casing breakout noise. Fan speed control is via an autotransformer. Six main transformer tapplings, together with three fine adjustment tapplings, provide seventeen fan speeds available for accurate commissioning.

Condensate Pans

'Lynx' fan coil units feature a condensate pan formed from hot dipped galvanised steel. The 'V' formed pan creates a positive seal against the coil preventing any air bypass and is fabricated to provide a positive fall in two directions to the central outlet at its lowest end. (The rigidity of the folded component offers extra protection against accidental site damage).

The 22mm OD drain connection is located in a sump to ensure the condensate drains completely.



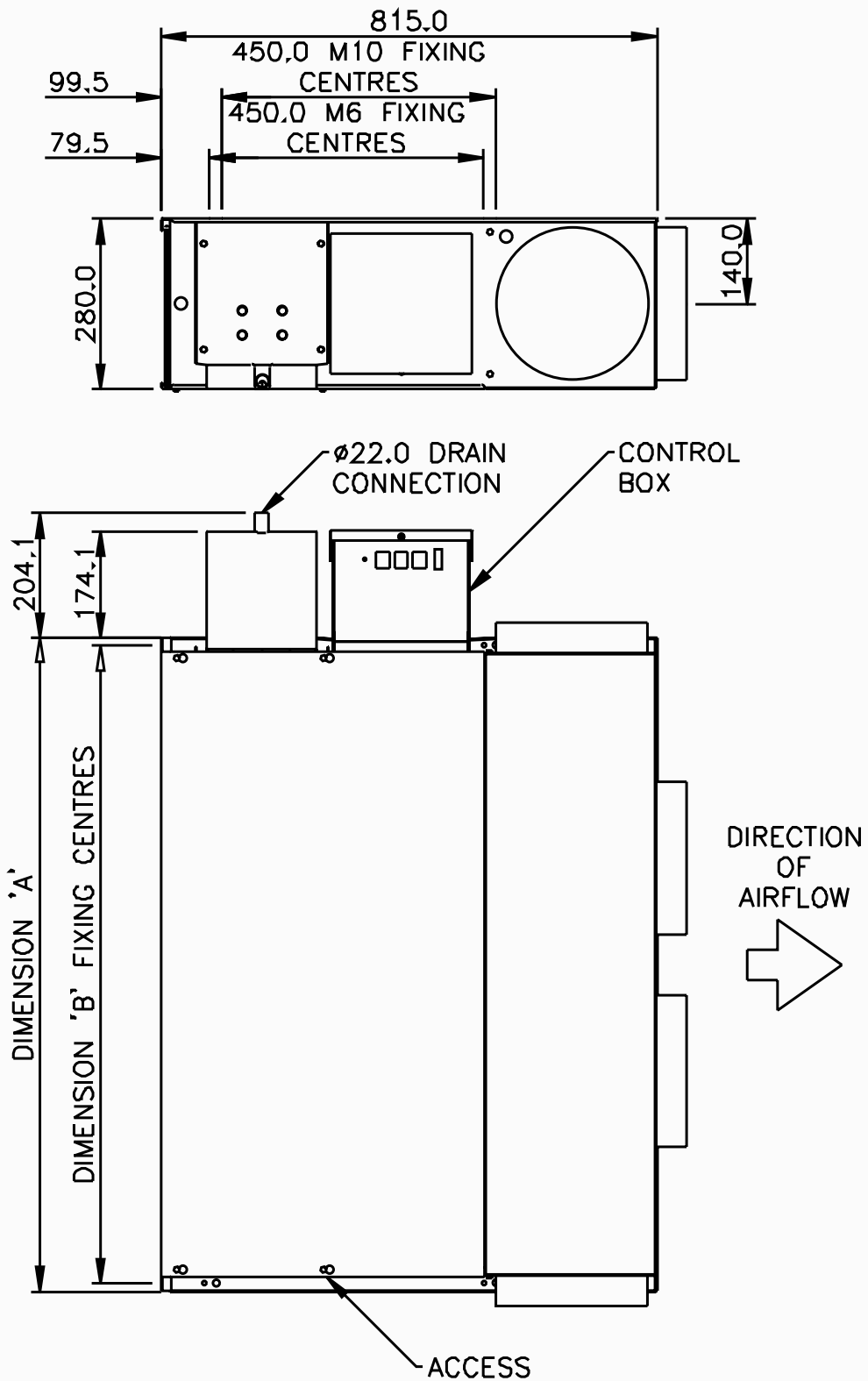
Adaptable Controls Box

'Lynx' units are supplied with a well ventilated IP20 control box fitted with a one metre flying lead for connection to an adjacent fused spur.

Also housed in the box are the mains fuse holder complete with a spare fuse, auto-transformer, 'fan speed' and 'fine adjustment' switches. The control box features two hinged lids to provide improved access to either stand-alone or DDC controls. It is electrically connected to the fan/motor(s) via a quick release connector, a feature that enables it to be disconnected from the unit for refurbishment or to be retrofitted subsequent to the installation of the unit.

The autotransformer incorporates, as standard, a 30VA 24V AC isolated supply for the operation of the control loop.

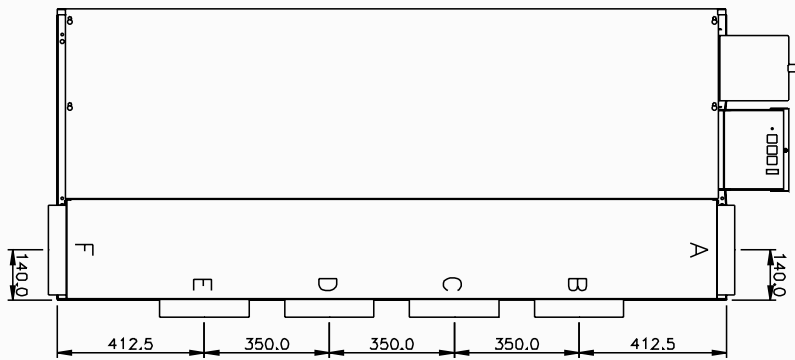
DIMENSIONS



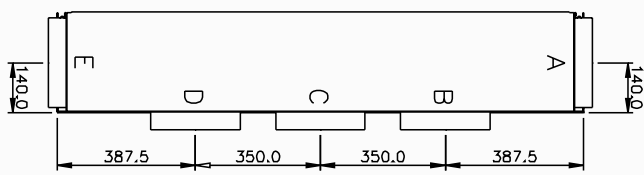
Model	Dim' A (mm)	Dim' B (mm)	Dry Weight (kg)
Lynx 1	675	648	31
Lynx 2 & 3	1075	1048	47
Lynx 4 & 5	1475	1448	70
Lynx 6 & 7	1875	148	85

LH Unit shown, RH opposite.

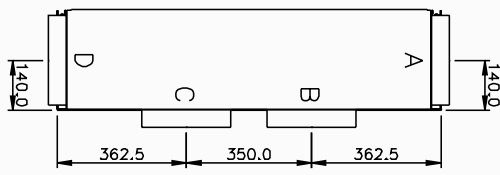
Note: unit handings are viewed looking against the direction of air flow.



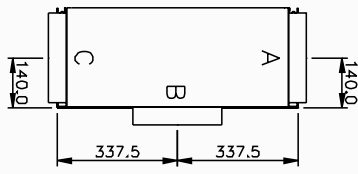
Models Lynx 6 & 7



Models Lynx 4 & 5



Models Lynx 2 & 3

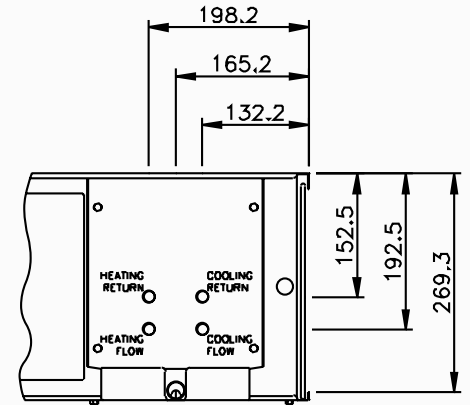
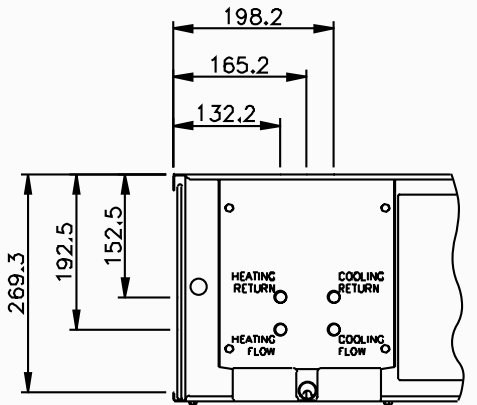


Model Lynx 1

Standard Spigot Sizes
Ø250
Ø225
Ø200
Ø180
Ø150

LH Pipework detail

RH Pipework detail



Ø22mm Drain Connection

MAXIMUM COOLING DATA

				Chilled Water							
				5.5/11 °C		6/12°C		8/13 °C		10/14 °C	
Model	Fan Speed	Voltage (V)	Air Volume (l/s)	Sens (kW)	Total (kW)	Sens (kW)	Total (kW)	Sens (kW)	Total (kW)	Sens (kW)	Total (kW)
Lynx 1	1 Ultra Low	170	98	1.37	1.62	1.25	1.42	1.17	1.26	1.06	1.06
	2 Extra Low	190	117	1.62	1.92	1.52	1.74	1.40	1.50	1.26	1.26
	3 Low	210	135	1.87	2.22	1.75	2.00	1.60	1.72	1.45	1.45
	4 Medium	230	153	2.13	2.52	1.98	2.26	1.82	1.95	1.65	1.65
Lynx 2	1 Ultra Low	180	114	1.63	1.96	1.50	1.72	1.36	1.46	1.22	1.22
	2 Extra Low	200	134	1.92	2.30	1.80	2.09	1.65	1.78	1.48	1.48
	3 Low	220	154	2.20	2.64	2.06	2.39	1.89	2.04	1.70	1.70
	4 Medium	230	164	2.34	2.81	2.19	2.54	2.01	2.17	1.81	1.81
Lynx 3	1 Ultra Low	150	188	2.69	3.24	2.52	2.92	2.30	2.49	2.08	2.08
	2 Extra Low	170	231	3.34	4.03	3.11	3.61	2.85	3.08	2.58	2.58
	3 Low	190	271	3.91	4.72	3.64	4.22	3.34	3.61	3.02	3.02
	4 Medium	220	321	4.54	5.42	4.22	4.85	3.86	4.16	3.50	3.50
Lynx 4	1 Ultra Low	130	143	2.18	2.70	1.97	2.30	1.87	2.06	1.68	1.68
	2 Extra Low	160	213	3.26	4.05	3.06	3.65	2.79	3.07	2.52	2.52
	3 Low	180	260	4.01	5.01	3.76	4.50	3.43	3.79	3.09	3.09
	4 Medium	210	328	5.14	6.46	4.81	5.80	4.39	4.87	3.95	3.95
Lynx 5	1 Ultra Low	130	183	2.79	3.46	2.62	3.13	2.39	2.63	2.15	2.15
	2 Extra Low	150	253	3.91	4.87	3.65	4.37	3.33	3.68	3.01	3.01
	3 Low	180	344	5.41	6.81	5.06	6.11	4.61	5.13	4.16	4.16
	4 Medium	190	371	5.83	7.34	5.46	6.59	4.97	5.53	4.48	4.48
Lynx 6	1 Ultra Low	130	188	2.92	3.65	2.75	3.32	2.51	2.78	2.25	2.25
	2 Extra Low	150	266	4.17	5.24	3.92	4.73	3.56	3.96	3.21	3.21
	3 Low	180	363	5.78	7.33	5.42	6.61	4.94	5.52	4.44	4.44
	4 Medium	210	453	7.32	9.34	6.89	8.46	6.24	7.03	5.61	5.61
Lynx 7	1 Ultra Low	120	221	3.44	4.31	3.24	3.90	2.95	3.27	2.65	2.65
	2 Extra Low	140	315	4.98	6.28	4.67	5.66	4.25	4.74	3.83	3.83
	3 Low	160	404	6.48	8.24	6.09	7.45	5.53	6.20	4.97	4.97
	4 Medium	170	450	7.26	9.27	6.83	8.39	6.20	6.98	5.57	5.57

Maximum cooling performance data is based on an entering air condition of 23°C dry bulb and 16°C wet bulb, and a system pressure of 30Pa.

MAXIMUM HEATING DATA

				Hot Water			Electrical Data			
				82/71°C	60/50°C	50/40°C	Nominal (W)	FLC (A)	SC (A)	SFP (W l/s)
Model	Fan Speed	Voltage (V)	Air Volume (l/s)	Duty (kW)	Duty (kW)	Duty (kW)				
Lynx 1	1 Ultra Low	170	98	2.26	1.29	0.73	56	0.25	0.75	0.57
	2 Extra Low	190	117	2.55	1.45	0.85	68	0.27	0.81	0.58
	3 Low	210	135	2.81	1.60	0.96	80	0.30	0.90	0.59
	4 Medium	230	153	3.06	1.74	1.07	88	0.33	0.99	0.58
Lynx 2	1 Ultra Low	180	114	3.07	1.82	1.22	58	0.27	0.81	0.51
	2 Extra Low	200	134	3.42	2.02	1.36	68	0.30	0.90	0.51
	3 Low	220	154	3.77	2.22	1.49	80	0.33	0.99	0.52
	4 Medium	230	164	3.93	2.31	1.55	88	0.34	1.02	0.54
Lynx 3	1 Ultra Low	150	188	4.31	2.53	1.69	84	0.54	1.62	0.45
	2 Extra Low	170	231	4.95	2.91	1.94	100	0.58	1.74	0.43
	3 Low	190	271	5.52	3.24	2.15	120	0.62	1.86	0.44
	4 Medium	220	321	6.18	3.62	2.40	144	0.64	1.92	0.45
Lynx 4	1 Ultra Low	130	143	4.44	2.58	1.52	68	0.45	1.35	0.48
	2 Extra Low	160	213	5.82	3.36	2.12	96	0.53	1.59	0.45
	3 Low	180	260	6.64	3.83	2.49	115	0.58	1.74	0.44
	4 Medium	210	328	7.78	4.47	2.90	144	0.65	1.95	0.44
Lynx 5	1 Ultra Low	130	183	5.24	3.04	1.86	92	0.65	1.95	0.50
	2 Extra Low	150	253	6.52	3.76	2.45	120	0.75	2.25	0.47
	3 Low	180	344	8.04	4.62	2.99	158	0.85	2.55	0.46
	4 Medium	190	371	8.46	4.86	3.14	180	0.90	2.70	0.49
Lynx 6	1 Ultra Low	130	188	5.90	3.48	2.31	96	0.65	1.95	0.51
	2 Extra Low	150	266	7.46	4.38	2.91	120	0.75	2.25	0.45
	3 Low	180	363	9.21	5.38	3.57	161	0.86	2.58	0.44
	4 Medium	210	453	10.71	6.25	4.12	212	0.95	2.85	0.47
Lynx 7	1 Ultra Low	120	221	6.57	3.86	2.58	112	0.88	2.64	0.51
	2 Extra Low	140	315	8.36	4.89	3.25	144	0.98	2.94	0.46
	3 Low	160	404	9.90	5.78	3.82	180	1.08	3.24	0.45
	4 Medium	170	450	10.66	6.22	4.11	202	1.13	3.39	0.45

Maximum heating performance data is based on an entering air condition of 20°C and a system pressure of 30Pa.

AIR VOLUME DATA

Model	Fan Speed	Voltage (V)	Air Volume Flow Rate (l/s)									
			External Resistance (Pa)									
			0	10	20	30	40	50	60	70	80	90
Lynx 1	1 Ultra Low	170	120	113	105	98	90	83	75	68	60	53
	2 Extra Low	190	138	131	124	117	110	103	96	89	82	75
	3 Low	210	157	150	143	135	128	121	113	106	99	91
	4 Medium	230	176	168	161	153	145	138	130	122	115	107
Lynx 2	1 Ultra Low	180	136	128	121	114	107	100	93	85	78	71
	2 Extra Low	200	155	148	141	134	127	120	113	106	99	92
	3 Low	220	177	169	162	154	146	139	131	124	116	109
	4 Medium	230	188	180	172	164	156	148	140	132	124	116
Lynx 3	1 Ultra Low	150	224	212	200	188	176	165	153	141	129	118
	2 Extra Low	170	266	254	242	231	219	207	195	184	172	160
	3 Low	190	309	296	284	271	259	246	234	221	209	196
	4 Medium	220	365	350	336	321	306	291	277	262	247	232
Lynx 4	1 Ultra Low	130	191	175	159	143	126	110	92	77	61	44
	2 Extra Low	160	255	241	227	213	199	185	171	157	143	129
	3 Low	180	302	287	273	260	246	232	219	204	190	176
	4 Medium	210	374	358	343	328	312	297	282	266	251	235
Lynx 5	1 Ultra Low	130	255	232	207	183	159	134	108	85	61	37
	2 Extra Low	150	315	294	273	253	233	212	192	171	151	131
	3 Low	180	405	385	364	344	323	303	283	262	242	221
	4 Medium	190	434	413	392	371	350	329	310	288	267	246
Lynx 6	1 Ultra Low	130	277	247	218	188	159	129	98	71	41	12
	2 Extra Low	150	333	311	289	266	243	220	197	175	152	130
	3 Low	180	428	406	385	363	341	319	296	276	254	232
	4 Medium	210	524	500	477	453	430	407	383	360	337	314
Lynx 7	1 Ultra Low	120	325	290	256	221	186	151	118	81	64	30
	2 Extra Low	140	404	374	345	315	286	256	228	197	168	138
	3 Low	160	488	460	432	404	377	349	321	293	265	238
	4 Medium	170	533	506	478	450	422	394	365	339	311	283

Note: When sizing the discharge (supply air) duct work, ensure that an adequate number and size of spigots are selected. In normal applications, duct velocity should not exceed the recommended maximum of 3.0m/s. For special low noise applications, lower duct velocities may be required. Contact our Technical Sales Office for assistance.

ACOUSTIC DATA

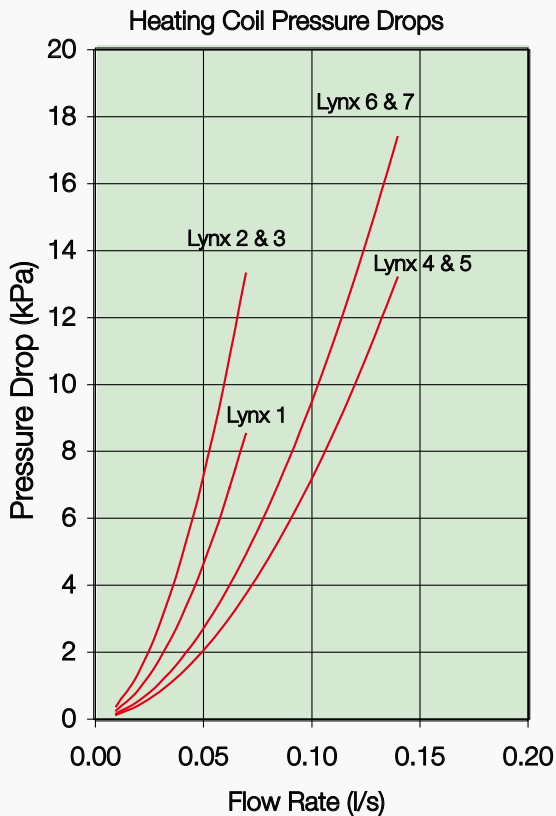
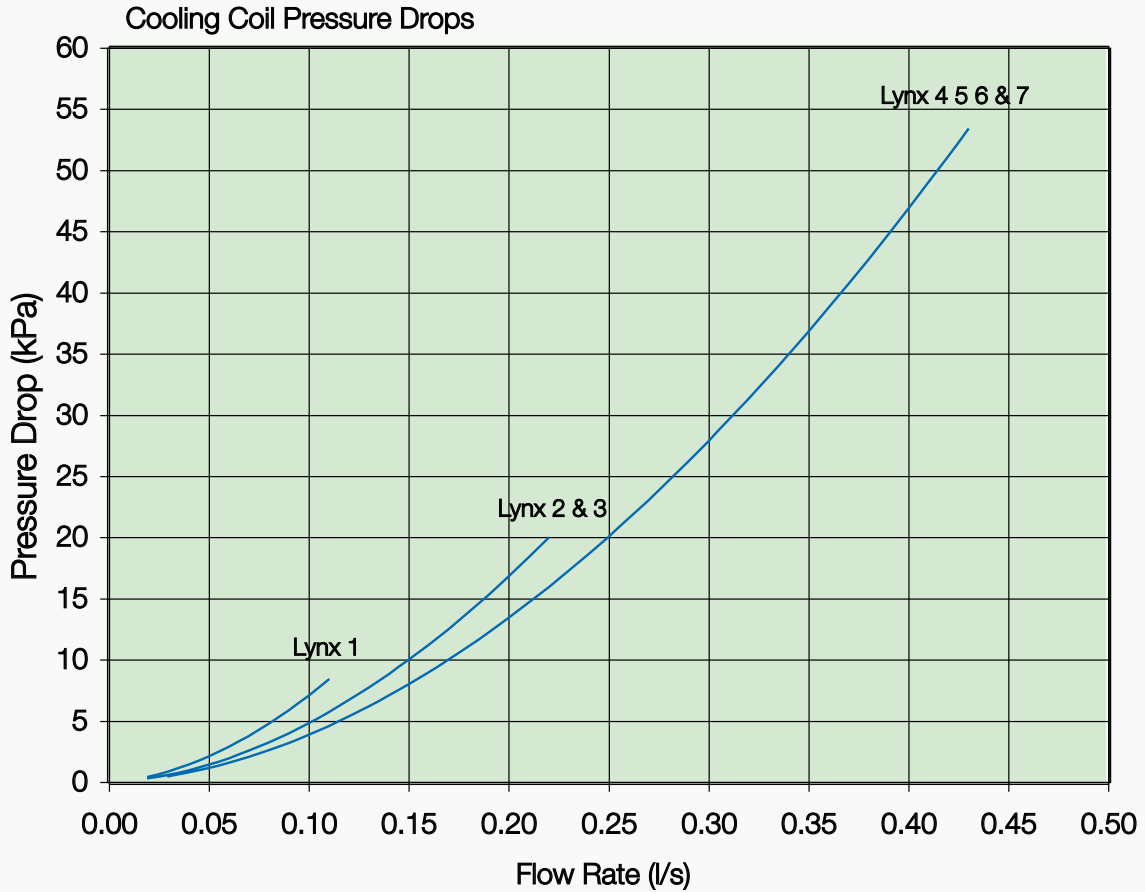
Model	Fan Speed	Voltage (V)	Radiated Sound Power (L_w) dB re $10^{-12}W$											
			Discharge Radiated						Inlet/Case Radiated					
			Frequency (Hz)						Frequency (Hz)					
			125	250	500	1k	2k	4k	125	250	500	1k	2k	4k
Lynx 1	1 Ultra Low	170	43	44	36	25	11	10	47	46	44	38	33	24
	2 Extra Low	190	47	46	38	28	17	12	50	49	47	41	36	29
	3 Low	210	49	49	40	31	21	16	52	52	49	44	39	33
	4 Medium	230	52	52	42	33	25	19	55	54	51	46	41	35
Lynx 2	1 Ultra Low	180	45	45	36	22	8	<5	51	47	41	36	30	22
	2 Extra Low	200	48	48	38	25	15	7	54	50	43	38	33	27
	3 Low	220	51	50	41	29	20	12	57	53	45	40	36	30
	4 Medium	230	52	52	42	30	21	15	59	54	46	41	37	32
Lynx 3	1 Ultra Low	150	44	45	38	26	7	6	48	47	47	40	35	27
	2 Extra Low	170	48	49	42	30	11	13	52	50	50	44	39	33
	3 Low	190	52	52	45	33	14	15	55	53	52	47	43	38
	4 Medium	220	54	55	47	39	18	18	59	55	54	50	46	41
Lynx 4	1 Ultra Low	130	43	42	40	27	7	<5	45	45	43	37	30	20
	2 Extra Low	160	48	48	43	34	19	15	52	51	47	44	39	31
	3 Low	180	52	51	46	37	23	20	55	54	50	47	42	36
	4 Medium	210	55	54	48	41	28	25	59	57	52	51	46	40
Lynx 5	1 Ultra Low	130	42	43	39	28	8	8	45	47	45	37	31	21
	2 Extra Low	150	46	47	43	33	14	12	50	50	48	42	37	29
	3 Low	180	51	52	46	38	20	18	55	56	53	48	43	36
	4 Medium	190	52	53	48	40	22	20	56	57	53	49	44	38
Lynx 6	1 Ultra Low	130	42	42	40	28	11	8	47	47	45	37	31	21
	2 Extra Low	150	46	45	43	32	18	14	51	51	47	42	37	29
	3 Low	180	52	51	47	38	24	20	57	56	52	47	42	36
	4 Medium	210	55	54	49	41	29	25	60	60	54	50	46	41
Lynx 7	1 Ultra Low	120	41	43	40	28	8	5	46	49	46	38	32	22
	2 Extra Low	140	46	47	43	33	15	12	51	53	50	43	38	30
	3 Low	160	50	51	47	37	20	18	55	57	53	47	43	36
	4 Medium	170	52	52	48	39	23	20	57	58	54	49	45	38

In-Duct Correction Values	Frequency (Hz)					
	125	250	500	1k	2k	4k
Lynx 1, 2 & 3 (dB re $10^{-12}W$)	7	3	1	0	0	0
Lynx 4, 5, 6 & 7 (dB re $10^{-12}W$)	2	1	0	0	0	0

Lynx models 1, 2, and 3 were tested using 2 off 350 x 255 supply grilles and Lynx models 4, 5, 6, and 7 were tested using 4 off 350 x 255 supply grilles, connected via Ø250mm flexible duct, with a system pressure of 30Pa applied to the Extra Low speed setting. To obtain in-duct sound power levels, the correction values shown in the above table should be added to the discharge spectrum.

The above sound power levels have been derived using the 'Real Room' test method.

HYDRAULIC DATA



Model	Water Content of Coil (litres)	
	Cooling	Heating
Lynx 1	1.65	0.19
Lynx 2 & 3	2.50	0.27
Lynx 4 & 5	3.63	0.39
Lynx 6 & 7	4.48	0.50

SPECIFICATION

The 'Lynx' Series Fan Coil Units shall be manufactured by Dunham-Bush Limited, Downley Road, Havant, Hampshire, PO9 2JD. Units shall be selected to achieve the required performance whilst operating against the specified design parameters.

'Lynx' Fan Coil units shall be of a draw through design and comprise of a washable air filter, dual purpose coil with separate connections for cooling and heating, galvanised steel condensate pan, internal rotor motors/fans, integral multi-outlet discharge plenum and an electrical/controls enclosure.

Unit Chassis – Chassis shall be of a riveted construction manufactured from a minimum thickness of 0.9mm galvanised steel. Stiffeners and strengthening folds shall be used to form a solid robust structure. Mounting holes able to accept either M6 or M10 drop rods or mounting bolts are provided for installation whilst a combination of panel design and use of fillet radii minimises sharp edges. Fan/motor assemblies shall be mounted on a 1.6mm thick galvanised steel 'floating' bulkhead, isolated from the case of the unit to prevent radiated noise.

Discharge (Supply Air) Plenum – An integral acoustically lined multi-outlet discharge plenum shall form part of the unit chassis complete with spigots, with various diameter options to satisfy most ductwork configurations. Rectangular and oval spigots are also available upon request.

Access - Access to all serviceable items, namely filters, condensate pan, coil, and fans/motors, shall be via a single insulated panel retained using M6 setscrews into captive 'nutserts'. The use of keyhole slots shall enable the removal of the panel whilst the setscrews remain in position.

Insulation – Unit chassis and panel work shall be insulated both acoustically and thermally using 95kg/m³, CFC and HFC free, class 'O' open cell expanded foam, having a maximum thermal conductivity of 0.047W/m/K, fully complying with London Borough and CAA flammability and toxicity requirements. The adhesive is a modified acrylic, light and ageing resistant synthetic resin with high temperature tolerance.

Coils – A single dual-purpose coil block divided into two sections shall provide both cooling and heating. The coil shall be constructed from $\frac{3}{8}$ " seamless copper tube mechanically expanded into aluminium fins and brazed into copper headers. Fins shall have die formed collars to provide maximum contact and optimum heat transfer. Coils shall be circuited to provide low hydraulic resistance under normal operating conditions whilst being designed to prevent air locks, ensuring positive venting and draining via easily accessible slotted hexagonal vent and drain plugs. Coils shall terminate with 15mm copper tails, spaced at 40mm centres to accept most standard 4-port & 2-port valves. Tails to be contained within a plate providing sufficient support for both valves and adjoining pipe work. Coils shall be tested by dry air under water to 30bar.

Condensate Pan – The condensate pan shall be formed from hot dipped galvanised steel and fabricated to provide a positive fall in two directions ensuring the free flow of condensate to the 22mm OD end connection. Condensate pans shall be externally insulated with 3mm closed cell class 'O' thermal insulation.

Air Filter – The filter mat shall be formed from bonded synthetic polyester fibres, to EN779 class G2 (EU2), and fire rated to class F1 to DN 53 438. The washable media shall be secured over a copper coated mild steel wire frame. Filters shall be easily removable from either the side or the rear of the unit without the need to remove any panel work.

Fans/Motors – Fans shall be direct driven, double inlet, forward curved, centrifugal type. Manufactured from aluminium, each impeller shall be both statically and dynamically balanced and secured directly to a motor shaft using a grub screw. Resiliently mounted, totally enclosed, permanent split capacitor start and run motors shall be used. Motors shall be thermally protected and have sealed for life sleeve bearings. Combinations of single and double shaft shall be used to produce the entire range.

Fans/ motors shall be selected to comply with specific fan power requirements in approved documents part L1 & L2.

Fan Motor Speed Control – Control shall be effected by means of a auto-transformer with seventeen possible outputs, plus a 30VA 24VAC an isolated supply for operation of a controls package. A 'fine fan speed' switch shall be pre-wired to the transformer, the tappings selected, where possible, such that the design duty is satisfied at the second of the three settings. A separate 'fine adjustment' switch enables accurate commissioning at each of the main speeds.

Speed control transformers shall be fitted within a ventilated control box mounted on the side of the unit.

Controls Box – Each unit shall be provided with a well-ventilated IP20 electrical box complete with a removable/hinged lid. The box shall contain a terminal block, auto-transformer, 'on/off' switch, 'fan speed' and 'fine adjustment' switches, and a mains fuse holder complete with a spare fuse. Whilst also providing sufficient space to accommodate most commercially available temperature controllers, along with, if required any associated relays. The control box shall be provided with a one metre flying lead for connection to a adjacent fused spur.

Temperature Controls – Temperature controls shall be provided in accordance with the project specification and will comprise of modulating 2 or 4 port valves and actuators acting in conjunction with an electronic stand alone or DDC temperature controller wired to a return air or room sensor. A wide variety of controls packages are available, either supplied and fitted by Dunham-Bush, or 'Free Issued' to Dunham-Bush for factory fitting only.



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Manufacturer reserves the right to
change any product specification
without notice

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