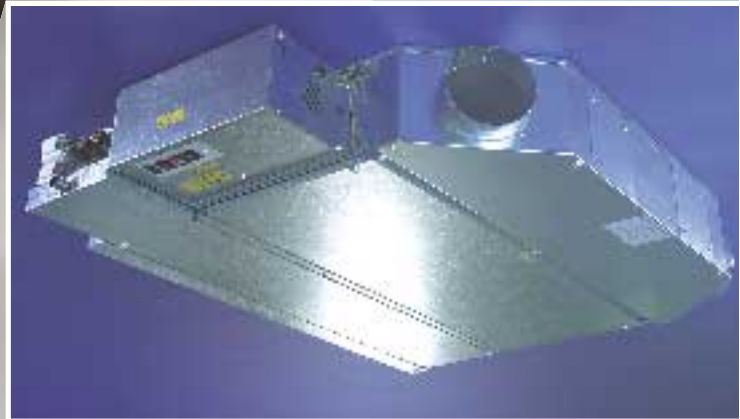
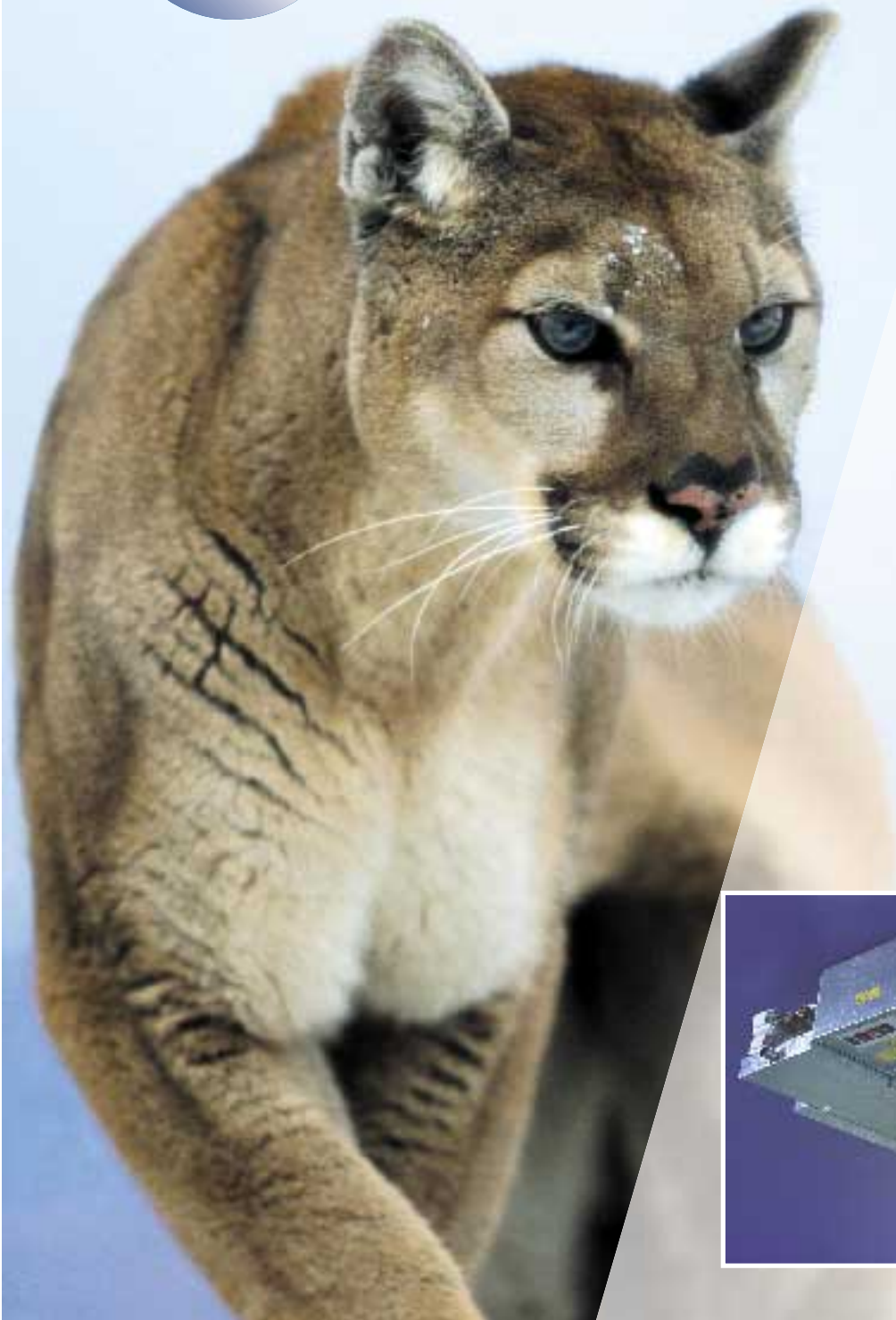


# DUNHAM-BUSH®

INHERENTLY  
QUIET AND  
POWERFUL



**cougar**  
FAN COIL UNITS

180 MM DEEP SLIMLINE  
HORIZONTAL WATERSIDE  
CONTROL - IN CEILING



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**The ‘Cougar’, manufactured by Dunham-Bush is a high quality, compact, ‘slim-line’ range of fan coil units, designed to fit in to the shallowest of ceiling voids and perform quietly and powerfully for many years to come.**

**‘Cougar’ fan coil units are built to no-compromise engineering standards using only the most modern and reliable components available. Combined with the very latest design and manufacturing technology, the ‘Cougar’ provides the ideal solution where ceiling void space is at a premium.**

**Careful consideration has been given to safe site handling, fast / simple installation and ease of access for maintenance. Designed to offer maximum site flexibility, the ‘Cougar’ is one of the most versatile and user-friendly products available in today’s market.**

### **Flexibility Is The Key**

The ‘Cougar’ uses a non-handed, dual-purpose coil block covered by a stainless steel ‘V’ formed condensate pan, terminating with a central drain point at the lowest end of the tray. This universal design is used on both RH and LH configurations and allows the complete coil and condensate pan assembly to be site reversible without the need for any additional parts or metalwork. The discharge plenum is supplied with a combination of spigots and blanking plates that are screw fixed to the plenum for ease of site interchange. The added facility to re-locate the controls box from one side of the unit to the other gives the ‘Cougar’ the flexibility to accommodate site layout changes and client fit-outs.



### **Simple Access For Maintenance**

**Removing large panels secured by 10-20 screws and then getting them through a 600mm x 600mm ceiling grid, all whilst stood on a stepladder, has made life difficult for the maintenance engineer in the past. Special consideration has been given to overcoming these problems and the resultant ‘Cougar’ now brings a ‘breath of fresh air’ to maintenance tasks.**

Filters are simple to remove for cleaning; they withdraw from either the rear or side of the unit without the use of tools or need to remove panels. The main unit access panel is secured by quarter turn ‘quick release’ fasteners and gives access for inspecting the fan/motor assemblies. Each fan/motor is mounted separately onto the main bulkhead plate to facilitate easy removal of an individual assembly in the unlikely event of needing to be replaced. On model sizes 4-7 both the

filters and fan access panels are split into two smaller sections for easier removal and handling. Electrical and controls work can be easily carried out via a hinged cover giving access to all components housed in the box. The stainless steel condensate pan can also be easily removed for cleaning via its own separate access panel.





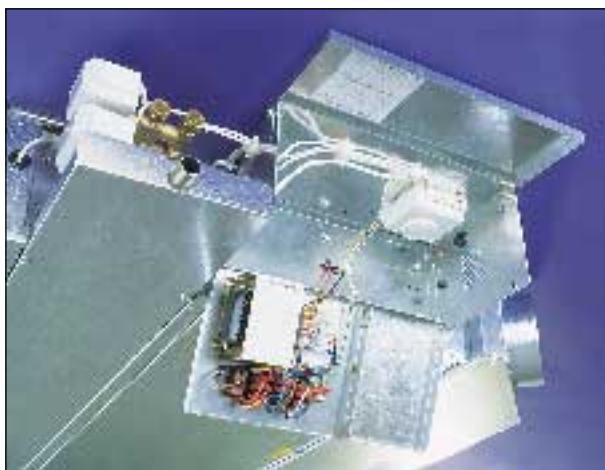


## Long Life Stainless Steel Condensate Pans

'Cougar' fan coil units incorporate stainless steel condensate pans as standard. By using stainless steel, cleaning is made easier whilst the resistance to corrosion is increased, vastly improving the longevity of the pan. The fully welded 'V' formed pan creates a positive seal against the coil preventing any air bypass. The pan is mounted to provide a positive fall in two directions to the central outlet at the lowest end of the pan. The 22mm stainless steel outlet is welded flush with the bottom of the pan ensuring that condensate flows freely and completely away. The externally insulated pan is mounted in a separate galvanised steel carriage, removing the need for screw fixings in the actual pan. This carriage combined with the inherent strength of the stainless steel pan and outlet offers vital protection against accidental site damage.

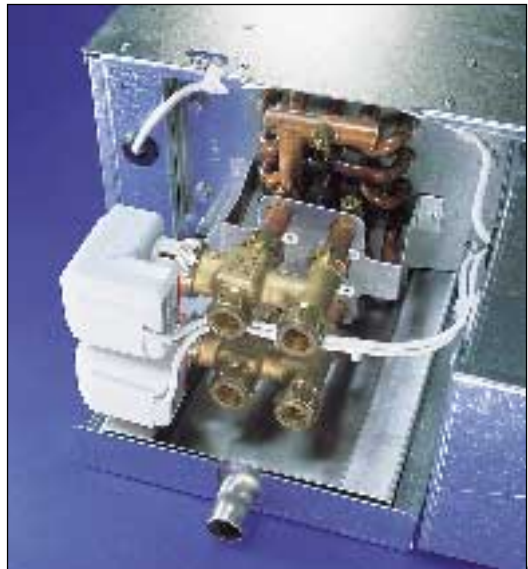
## Adaptable Controls Box

'Cougar' units are supplied with a well-ventilated controls box supplied with a one metre flying lead for connection to an adjacent fused spur. The box wired in accordance with I.E.E regulations,



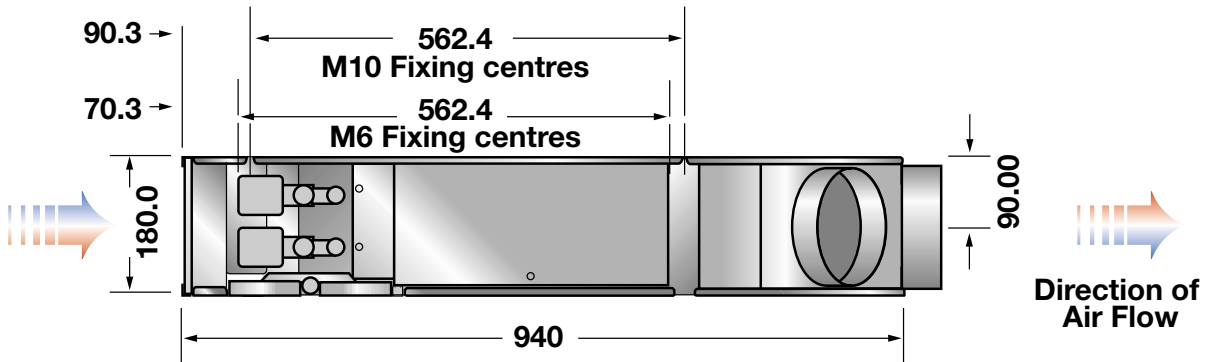
## Quiet, Powerful Operation

The 'Cougar' incorporates high performance, single inlet, external rotor motor fans as standard. The fan / motor assemblies are individually mounted on to a 'floating' bulkhead plate, isolating them from the rest of the unit chassis, reducing resonance and casing breakout noise. Controlling the fans via the auto- transformer ensures greater performance flexibility. Twelve fan speeds are available via four main transformer tapings each linked to three 'fine adjustment' settings for accurate site commissioning. Use of the highest quality components available is never more important than in the case of the fans / motors to ensure that quiet and powerful operation is consistently achieved year after year.

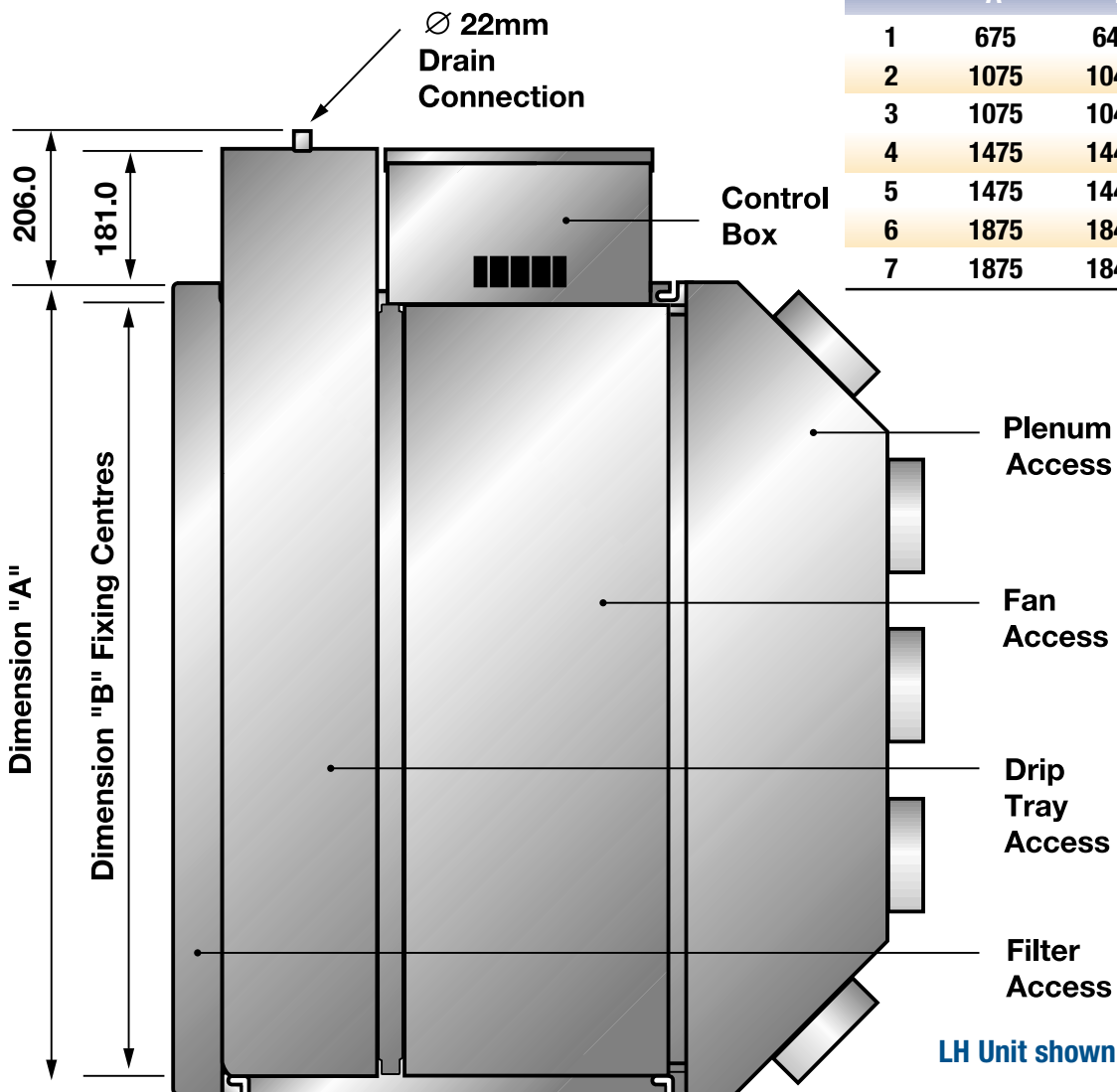


has been designed to accommodate most available temperature controllers and associated electrical components. Also housed in the box are the auto-transformer, on/off, fan speed selector and 'fine adjustment' switches. The control box lid conveniently hinges to facilitate any on-site electrical or DDC controls work. The lid can also be removed in the case of an obstruction to the opening circle. The complete control box has the added benefit of being connected to the fan/motor electrical loom via a plug in connector mounted in the side panel of the unit. This feature allows the complete control box to be disconnected from the unit for any major electrical / controls refurbishment, or enables the controls box to be retrofitted after the unit has been installed.

# Dimensions



Model	Dimension 'A'	Dimension 'B'	Dry Weights (Kg)
1	675	641.2	43
2	1075	1041.2	61
3	1075	1041.2	66
4	1475	1441.2	83
5	1475	1441.2	88
6	1875	1841.2	104
7	1875	1841.2	109



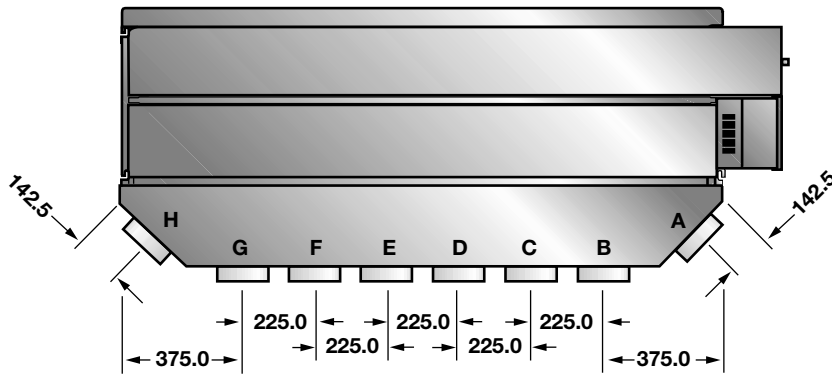
LH Unit shown, RH opposite.

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

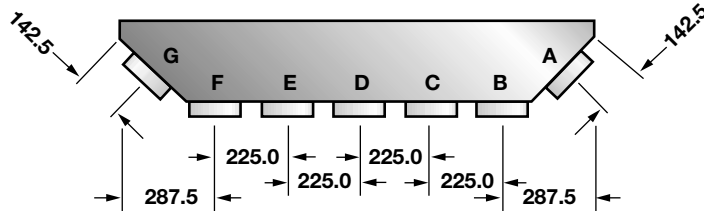
Do not scale. Contact our technical office for certified drawings

# Useful Information

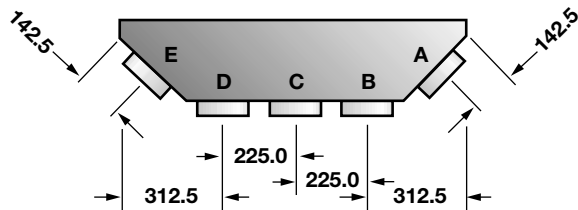
**Models  
Cou 6 & 7**



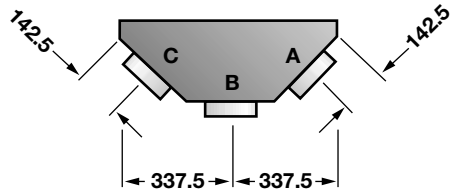
**Models  
Cou 4 & 5**



**Models  
Cou 2 & 3**



**Model  
Cou 1**



**Standard  
Spigot Sizes**

160 ∅

150 ∅

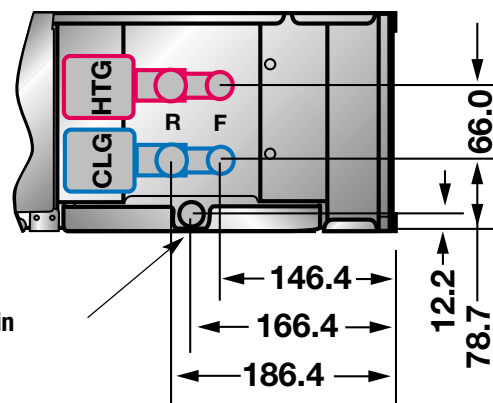
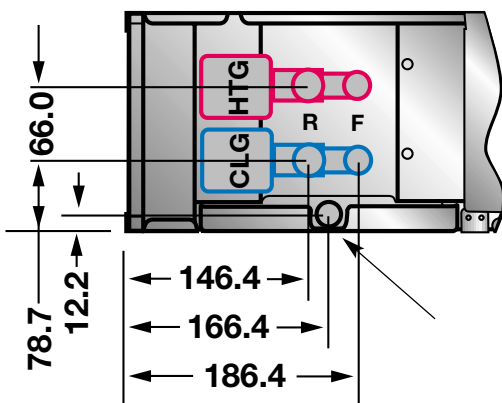
125 ∅

100 ∅

Rectangular or Flat  
Oval Spigots  
are available on all  
models

**LH Pipework detail**

**RH Pipework detail**



∅ 22mm Drain  
Connection

**Do not scale. Contact our technical office for certified drawings**

# Maximum Cooling Data

Model	Fan Speed	Voltage (V)	Air Volume (l/s)	Chilled Water							
				5.5/11 °C		6/12 °C		8/13 °C		10/14 °C	
				Sens (kW)	Total (kW)	Sens (kW)	Total (kW)	Sens (kW)	Total (kW)	Sens (kW)	Total (kW)
Cou 1	1 Ultra Low	150	79	1.13	1.42	1.05	1.27	0.96	1.10	0.88	0.95
	2 Ex Low	170	95	1.31	1.61	1.21	1.43	1.11	1.25	1.01	1.09
	3 Low	200	116	1.55	1.89	1.41	1.65	1.30	1.46	1.20	1.30
	4 Med	220	131	1.73	2.09	1.56	1.82	1.45	1.62	1.34	1.45
Cou 2	1 Ultra Low	160	88	1.40	1.91	1.29	1.69	1.19	1.46	1.08	1.21
	2 Ex Low	190	113	1.78	2.38	1.64	2.11	1.51	1.82	1.37	1.52
	3 Low	220	134	2.07	2.73	1.91	2.44	1.76	2.10	1.59	1.76
	4 Med	230	141	2.13	2.80	1.99	2.53	1.82	2.17	1.64	1.81
Cou 3	1 Ultra Low	130	126	2.01	2.67	1.84	2.36	1.70	2.04	1.54	1.71
	2 Ex Low	150	160	2.52	3.28	2.32	2.92	2.13	2.52	1.94	2.13
	3 Low	170	192	2.96	3.80	2.74	3.42	2.52	2.94	2.28	2.49
	4 Med	190	220	3.32	4.20	3.10	3.83	2.84	3.29	2.56	2.78
Cou 4	1 Ultra Low	130	135	2.15	2.88	1.98	2.54	1.82	2.20	1.65	1.84
	2 Ex Low	150	168	2.64	3.49	2.43	3.10	2.24	2.66	2.04	2.25
	3 Low	170	201	3.10	4.05	2.87	3.60	2.63	3.11	2.39	2.62
	4 Med	190	232	3.50	4.53	3.27	4.09	3.00	3.51	2.70	2.96
Cou 5	1 Ultra Low	130	204	3.23	4.22	2.99	3.76	2.75	3.24	2.48	2.73
	2 Ex Low	140	229	3.56	4.63	3.32	4.15	3.04	3.57	2.75	3.01
	3 Low	160	277	4.17	5.33	3.93	4.88	3.60	4.19	3.22	3.51
	4 Med	170	300	4.44	5.64	4.22	5.22	3.84	4.44	3.43	3.73
Cou 6	1 Ultra Low	140	231	3.68	4.83	3.38	4.24	3.12	3.68	2.83	3.11
	2 Ex Low	150	255	4.01	5.23	3.69	4.62	3.40	4.00	3.09	3.39
	3 Low	170	303	4.67	6.03	4.32	5.37	3.97	4.64	3.60	3.94
	4 Med	190	349	5.26	6.74	4.92	6.08	4.51	5.24	4.06	4.43
Cou 7	1 Ultra Low	120	235	3.73	4.89	3.44	4.31	3.16	3.73	2.87	3.16
	2 Ex Low	140	300	4.62	5.98	4.28	5.32	3.94	4.60	3.57	3.91
	3 Low	150	332	5.06	6.50	4.70	5.82	4.32	5.02	3.90	4.26
	4 Med	160	361	5.41	6.90	5.07	6.26	4.66	5.40	4.18	4.55

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

Model	Fan Speed	Voltage (V)	Air Volume (l/s)	Hot Water			Electrical Data		
				82/71°C	60/50°C	50/40°C	Nominal Motor Power (Watts)	FLC (Amps)	SC (Amps)
Cou 1	1 Ultra Low	150	79	2.33	1.30	0.51	66	0.39	1.17
	2 Ex Low	170	95	2.65	1.47	0.59	79	0.43	1.29
	3 Low	200	116	3.03	1.68	0.74	102	0.49	1.47
	4 Med	220	131	3.28	1.81	0.91	117	0.52	1.56
Cou 2	1 Ultra Low	160	88	3.06	1.79	1.15	71	0.42	1.26
	2 Ex Low	190	113	3.66	2.13	1.40	95	0.47	1.41
	3 Low	220	134	4.13	2.40	1.58	121	0.53	1.59
	4 Med	230	141	4.28	2.49	1.63	130	0.55	1.65
Cou 3	1 Ultra Low	130	126	3.96	2.30	1.51	94	0.68	2.04
	2 Ex Low	150	160	4.67	2.71	1.77	119	0.77	2.31
	3 Low	170	192	5.29	3.06	2.00	148	0.85	2.55
	4 Med	190	220	5.80	3.34	2.18	179	0.91	2.73
Cou 4	1 Ultra Low	130	135	4.66	2.77	1.87	96	0.69	2.07
	2 Ex Low	150	168	5.46	3.24	2.18	119	0.78	2.34
	3 Low	170	201	6.21	3.67	2.46	145	0.86	2.58
	4 Med	190	232	6.85	4.04	2.71	179	0.92	2.76
Cou 5	1 Ultra Low	130	204	6.27	3.71	2.49	140	1.06	3.18
	2 Ex Low	140	229	6.79	4.01	2.68	160	1.13	3.39
	3 Low	160	277	7.75	4.56	3.05	202	1.23	3.69
	4 Med	170	300	8.17	4.80	3.21	221	1.28	3.84
Cou 6	1 Ultra Low	140	231	7.47	4.46	3.04	163	1.15	3.45
	2 Ex Low	150	255	8.01	4.78	3.25	184	1.20	3.60
	3 Low	170	303	9.02	5.38	3.65	224	1.29	3.87
	4 Med	190	349	9.95	5.92	4.01	265	1.38	4.14
Cou 7	1 Ultra Low	120	235	7.56	4.52	3.07	155	1.27	3.81
	2 Ex Low	140	300	8.96	5.34	3.62	205	1.44	4.32
	3 Low	150	332	9.61	5.72	3.88	231	1.53	4.59
	4 Med	160	361	10.19	6.06	4.10	256	1.57	4.71

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



# Acoustic Data

Radiated Sound Power Levels (SWL) dB ref.10 <sup>-12</sup> W														
Model	Fan Speed	Voltage/V	Discharge Radiated (dB)						Inlet / Case Radiated (dB)					
			Frequency/Hz						Frequency/Hz					
			125	250	500	1k	2k	4k	125	250	500	1k	2k	4k
Cou 1	1 Ultra Low	150	39	33	30	19	<5	<5	48	43	44	39	35	25
	2 Ex Low	170	40	36	32	23	7	<5	48	47	47	42	38	30
	3 Low	200	42	40	36	28	15	9	51	51	50	46	43	36
	4 Med	220	44	43	38	30	18	12	52	53	51	48	45	39
Cou 2	1 Ultra Low	160	39	32	29	21	12	<5	48	43	42	39	36	27
	2 Ex Low	190	41	37	33	27	21	10	51	47	46	44	41	34
	3 Low	220	43	41	36	32	27	18	52	50	49	48	44	39
	4 Med	230	44	42	37	33	29	20	52	51	50	49	45	40
Cou 3	1 Ultra Low	130	40	31	30	23	<5	<5	48	42	43	38	32	22
	2 Ex Low	150	42	36	35	27	11	<5	50	45	47	42	37	29
	3 Low	170	43	39	38	31	17	9	52	48	49	45	41	34
	4 Med	190	45	42	40	34	21	14	52	51	50	48	44	37

In-Duct Correction Values/dB re 10 <sup>-12</sup>	Frequency/Hz					
	125	250	500	1k	2k	4k
	16	12	9	6	2	3

Cougar models 1, 2, and 3 were tested using 2 off 350 x 255 supply grilles, connected via  $\varnothing$ 150mm acoustic flexible duct, with a system pressure of 30Pa applied to the 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.

Radiated Sound Power Levels (SWL) dB ref.10 <sup>-12</sup> W														
Model	Fan Speed	Voltage/V	Discharge Radiated (dB)						Inlet / Case Radiated (dB)					
			Frequency/Hz						Frequency/Hz					
			125	250	500	1k	2k	4k	125	250	500	1k	2k	4k
Cou 4	1 Ultra Low	130	38	32	31	24	8	<5	51	43	43	40	33	22
	2 Ex Low	150	40	35	35	28	12	<5	52	47	47	43	38	30
	3 Low	170	43	39	38	32	17	10	53	49	50	47	42	35
	4 Med	190	45	42	42	36	21	15	55	53	52	50	45	39
Cou 5	1 Ultra Low	130	38	35	32	26	11	<5	48	44	45	40	35	24
	2 Ex Low	140	39	37	35	29	13	<5	50	46	47	42	37	28
	3 Low	160	43	41	38	33	17	10	52	50	50	46	41	33
	4 Med	170	44	42	40	35	19	12	52	51	51	47	43	35
Cou 6	1 Ultra Low	140	39	34	32	26	9	<5	51	45	45	41	36	26
	2 Ex Low	150	41	37	34	28	12	7	52	47	47	43	38	30
	3 Low	170	44	41	38	32	17	12	52	49	50	47	42	35
	4 Med	190	46	43	40	36	21	17	54	53	52	50	45	39
Cou 7	1 Ultra Low	120	43	34	32	26	11	<5	50	43	45	40	33	21
	2 Ex Low	140	46	38	36	31	15	7	53	48	49	44	39	29
	3 Low	150	46	40	38	33	16	10	54	50	51	46	41	32
	4 Med	160	46	42	40	35	19	13	54	51	52	47	43	35

In-Duct Correction Values/dB re 10 <sup>-12</sup> W	Frequency/Hz					
	125	250	500	1k	2k	4k
	11	10	8	6	2	3

Cougar models 4, 5, 6, and 7 were tested using 4 off 350 x 255 supply grilles, connected via  $\varnothing$ 150mm acoustic flexible duct, with a system pressure of 30Pa applied to the 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.

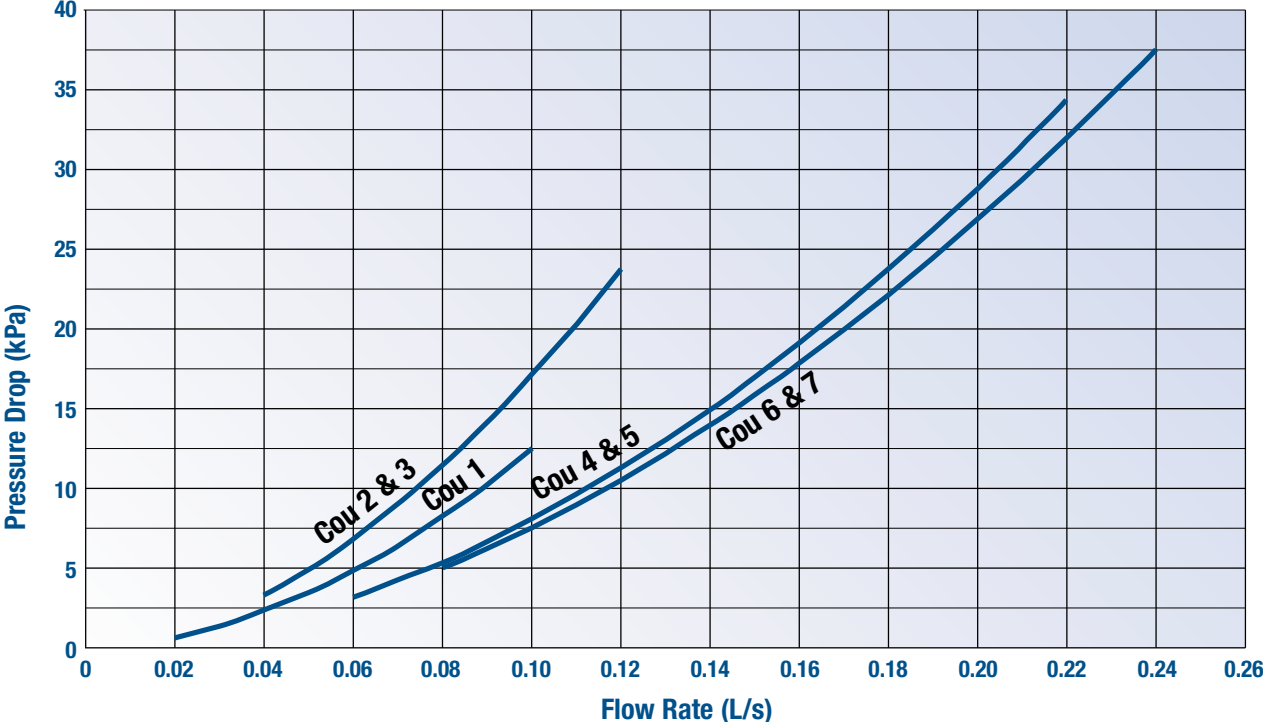


# Air Volume Data

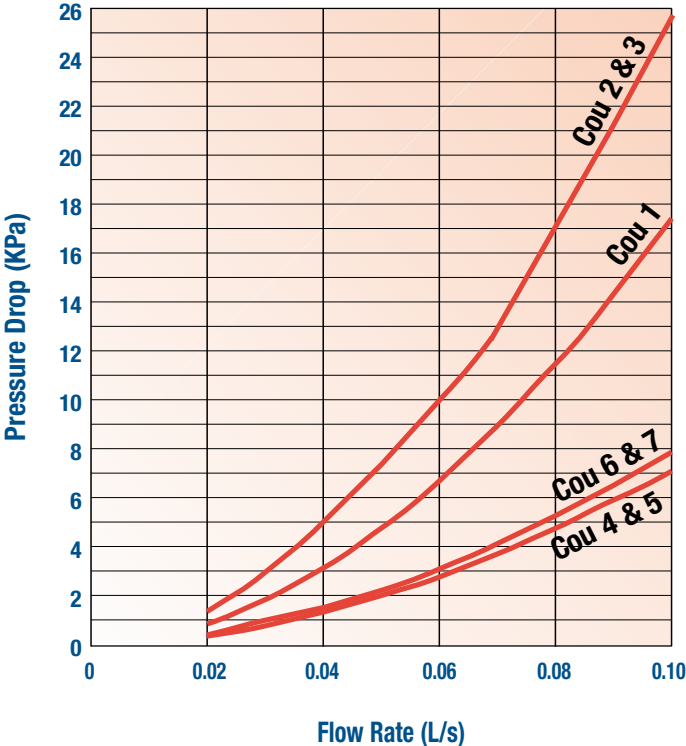
			Air Volume (L/S)									
			External Resistance (Pa)									
Model	Fan Speed	Voltage/V	0	10	20	30	40	50	60	70	80	90
Cou 1	1 Ultra Low	150	88	85	82	79	76	73	70	68	65	62
	2 Ex Low	170	103	100	97	95	92	89	86	83	81	78
	3 Low	200	124	121	119	116	114	111	109	106	104	101
	4 Med	220	140	137	134	131	128	125	122	119	115	112
Cou 2	1 Ultra Low	160	100	95	91	88	84	81	77	74	70	67
	2 Ex Low	190	123	119	116	113	110	107	104	101	98	95
	3 Low	220	142	139	137	134	132	129	127	124	121	119
	4 Med	230	148	146	143	141	139	136	134	131	129	126
Cou 3	1 Ultra Low	130	147	140	133	126	119	112	105	98	91	84
	2 Ex Low	150	178	172	166	160	155	149	143	137	131	125
	3 Low	170	210	204	198	192	186	180	174	168	163	157
	4 Med	190	236	231	225	220	214	208	203	197	192	186
Cou 4	1 Ultra Low	130	153	147	141	135	129	123	117	112	106	100
	2 Ex Low	150	189	181	175	168	162	155	148	142	135	129
	3 Low	170	225	216	208	201	193	185	178	170	162	155
	4 Med	190	256	248	240	232	224	216	209	201	193	185
Cou 5	1 Ultra Low	130	227	220	212	204	197	189	181	173	165	157
	2 Ex Low	140	252	244	237	229	222	214	206	199	191	183
	3 Low	160	298	292	285	277	270	262	255	247	240	233
	4 Med	170	322	316	308	300	291	283	275	267	259	250
Cou 6	1 Ultra Low	140	257	247	239	231	224	216	209	201	194	186
	2 Ex Low	150	280	270	263	255	248	240	232	225	217	210
	3 Low	170	326	318	311	303	295	287	280	272	264	257
	4 Med	190	368	364	356	349	341	334	327	319	312	304
Cou 7	1 Ultra Low	120	274	261	248	235	222	209	196	183	171	158
	2 Ex Low	140	335	323	312	300	288	276	264	253	241	229
	3 Low	150	365	354	343	332	321	310	299	288	277	266
	4 Med	160	395	384	372	361	350	339	328	317	305	294

**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.

## Cooling Coil Pressure Drops



## Heating Coil Pressure Drops



	Water Content of Coil (Litres)	
	Cooling	Heating
Cou 1	1.23	0.20
Cou 2 & 3	1.84	0.28
Cou 4 & 5	2.66	0.40
Cou 6 & 7	3.27	0.51

# Specification

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

'Cougar' 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, stainless steel condensate pan, low noise external rotor motors/fans, integral multi-outlet discharge plenum and an electrical / controls enclosure.

**Unit Chassis** - Chassis shall be of a rivetted construction manufactured from a minimum thickness of 1.2mm galvanised steel. Stiffeners and strengthening folds shall be used to form a solid robust structure. Recessed, reinforced mounting slots able to accept either M6 or M10 drop rods or mounting bolts are provided for installation whilst the panel design and use of 'dutch folds' produce a flush external finish with no sharp edges. Fan/Motor assemblies shall be mounted on a 1.6mm 'floating' bulkhead plate, isolated from the rest of the unit to prevent noise resonance through the unit casing. Panels shall be designed to allow separate unhindered access to the serviceable items, namely filters, condensate pan, coil, fans / motors and controls.

**Discharge (Supply Air) Plenums** - A mitred, integral acoustically lined discharge plenum shall form part of the unit chassis with multi-outlet spigots with various size options available to match most ductwork configurations. Use of interchangeable circular spigots and blanking plates, secured to the plenum by screws allow outlet positions to be easily moved or extra spigots to be added in the event of a site layout changes or client fit-out.

**Access** - Access for inspection and service to the fans/motors shall be via an insulated panel secured with 1/4 turn captive quick release fasteners. On model sizes 4 - 7 this panel is to be split into two sections to allow easy removal by a single engineer through a standard ceiling grid. Access to the condensate pan / coil, filters and discharge plenum are via separate insulated panels retained by M6 setscrews into captive nutserts. All access panels form a positive airtight seal against the main unit chassis

**Insulation** - Unit chassis and panel work shall be both thermally and acoustically insulated with 95kg/m<sup>3</sup>, CFC & HFC free, Class 'O' open cell expanded foam insulation, having a maximum thermal conductivity of 0.047 W/mK, 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.

**Air Filters** - Filters shall be fully framed, washable, polyester EU2 media with a dust holding capacity of 450g/m<sup>2</sup>. Filters shall be easily removable from either the rear or side of the unit without the need to remove any panel work.

**Coils** - Coils shall be single block, dual purpose, divided into two sections to provide both cooling and heating. To be constructed from 3/8" seamless copper tube mechanically expanded into aluminium fins and brazed into copper headers. Aluminium fins shall be spaced at 12 F.P.I and have die formed collars to provide maximum contact and optimised heat transfer. Coils shall be circuited to provide low hydraulic pressure drops under normal operating conditions whilst being designed to prevent air locks, ensuring positive venting via easily accessible slotted hexagonal vent plugs. Coils to terminate with 15mm copper tails, spaced at 40mm centres to accept most standard 4-port valves. Tails are to terminate within a restraining plate providing adequate support to the control valves and adjoining pipework. Coils shall be tested by dry air under water to 30 bar.

**Condensate Pan** - The condensate pan shall be of a one-piece construction manufactured from 1.2mm grade 316L stainless steel with fully welded corners. Pans to be 'V' formed and mounted to provide a positive fall in two directions ensuring the free flow of condensate to the 22mm diameter stainless steel end connection. Pans shall be externally insulated with 3mm closed cell class 'O' thermal insulation. Pans to be enclosed within a galvanised steel carriage providing both protection against damage and easy removal for cleaning.

**Fans/ Motors** - Fan/Motor assemblies shall be high quality low noise combined external rotor motor type, dynamically balanced in two planes to DIN ISO 1940. Fans shall be single inlet, direct drive, centrifugal type with low noise, forward curved, multi blade 'tab lock' galvanised steel impellers housed in galvanised steel scrolls. Motors shall be high efficiency, external rotor type with permanent split capacitors. Bearings shall be sealed for life, maintenance free ball race type with a minimum life expectancy of 50,000 hours under normal operating conditions. Overload protection shall be by way of auto re-setting thermal contactors incorporated into the windings. Insulation shall be to Class 'B' with enclosure to IP44 and electrical supply of 230/240V 1ph. 50Hz. Fan/Motor assemblies shall be mounted separately onto a 'floating' bulkhead to isolate noise resonance from the rest of the unit and facilitate easy removal of an individual fan/motor for replacement. Alternatively the complete 'floating' bulkhead can be removed from the unit for major attention.

**Fan Motor Speed Control** - Speed control shall be effected by means of a multi-tapped auto-transformer with twelve outputs, plus a screened 24 volt a.c (30VA) output for operation of a controls package. Transformers shall be pre-wired to a selector switch providing three main speeds to suit the unit duty requirements, whilst a separate three position 'fine tuning' switch allows accurate commissioning on each of the main speeds. Speed control transformers shall be fitted within a ventilated controls box mounted on the side of the unit.

**Controls Box** - Each unit shall be provided with a well-ventilated electrical box complete with a removable/hinged lid for ease of access. The box shall contain a terminal block, auto transformer, on/off switch, three speed and 'fine tuning' fan selector switches, and mains fuse whilst also providing space to accommodate most available temperature controllers along with any associated relays (if required). The control box shall be wired to current I.E.E regulations and be provided with a 1 metre flying lead for site connection to an adjacent fused spur. The complete control box shall be provided with a quick release electrical plug & socket connector attaching the box to the side of the fan coil unit, allowing the box to be simply removed from the unit for any major refurbishment/warranty work or retrofitting of DDC controls by others.

**Temperature Controls** - Temperature controls shall be provided in accordance with the project specification and will comprise of modulating 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.



# O Quality

Dunham-Bush operates a quality control system and is a registered firm of Associated Capability ISO9001 - 1987/EN29001.

Whatever the product, wherever its eventual destination, Dunham-Bush design and manufacturing policy has always been firmly based on technical quality.

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## Other Dunham-Bush Products:

**Other Big Cat Series Fan Coil Units**

**F Series Fan Coil Units**

**Packaged Chillers**

**Voidpak Air Handling Units**

**Finvector Perimeter Heating**

**Trench Finvector Heating**

**Series AM, BM and CM Fan Convectors**

**Series L Fan Convectors**

**Warmsafe LST radiators**

**Series UH Unit Heaters**

**Dunham Strip Radiant Heating**

**Evolution Radiant Panels**

**Air Curtains**

**Gas fired products**

Manufacturer reserves the right to change any product specification without notice.

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PDS-1000-F-0214-01  
November 2001



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