

TNS / Kantar Media

Technical Submittal

BARB & MI Comms Room Air Conditioning Equipment

<i>Project name</i>	TNS / Kantar Media
<i>Project address</i>	3 rd Floor 222 Grays Inn Road London WC1X 8XF
<i>Reference</i>	ACq1348 Rev T2
<i>Client name</i>	Peldon Rose Ltd



ADAPTIVE COOLING

L I M I T E D

COMMS ROOM (BARB) AIR COOLED PRECISION COOLING UNITS

SELECTION: 2No T-17A each c/w DCRA26-6 condenser

Unit 1
The Courtyard Business Centre
Farmhouse Mews
Thatcham
Berkshire
RG18 4NW

Tel: 01635 873485 Fax: 01635 873400

Designed for IT applications

The GEA DENCO T-Range



- The T-Range is ideal for application in server and computer rooms, telecommunications facilities, control and switching centres, laboratories, printing and graphics areas, sales zones, chip production, and high-tech offices
- Compact full-function units
- Fully modulating chilled-water operation
- Equipped as standard with high-quality, directly driven fans
- Air directions upflow or downflow
- Air-cooled, water-cooled, and split-system versions
- Optimised for environmentally friendly refrigerants
- Equipped as standard with fully hermetic scroll compressors (twin-compressor technology/VRF)
- Large number of standard options
- User-friendly, networkable control systems
- Complete front access for easy service and operation
- Units also available in weatherproof versions, with all functions (Box size 5 – 42)
- Large selection of matching accessories and options: e.g., electronic expansion valves, VRF technology and EC fans

Models in the T-Range are available in 5 versions, for cooling duties between 5 and 136 kW. They are provided with environmentally friendly refrigerants.

Features of the GEA DENCO T-Range

The GEA Denco close control units from the T-Range are compact and are available with various heat-rejection systems. Fully hermetic scroll compressors operate inside the units; they are also optionally available in twin version for energy-efficient VRF application. The air direction of the units can be either upflow or downflow. The models can be fitted with various supply air and return air configurations. An intelligent electronic system controls the units: it assures that precise tolerances are maintained for temperature and humidity, and it allows energy-saving operations. This close control system also allows the units to be networked together for master-slave operation, or as individual units. Data entry takes place via a matching soft-touch keypad, which is either mounted with the display on the close control unit, or is used as a remote control system. The heat exchangers are designed for maximum heat exchange area, minimum pressure drop, and quiet operation. The units in the T-Range are equipped with direct-drive fans, the fitting of EC fans is also possible as an option.

TW models: T-Range units in weatherproof version

The weatherproof models of the T-Range are installed in water- and dustproof enclosures with outer panels having a high-quality synthetic coating on a metal substrate. This solution means that they effectively resist the worst of storms and rain and can be easily installed on outside walls. The close control units of the TW models have cooling duties of 3 to 42 kW. The units are splashproof in accordance with IP54.





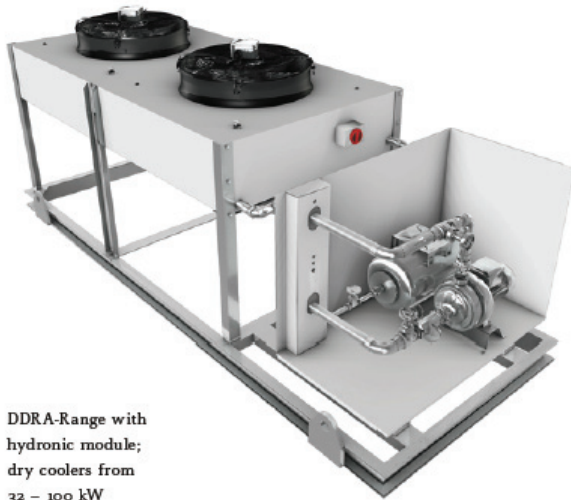
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Outdoor units

The GEA DENCO DCRA and DDRA-Range



DDRA-Range with
hydronic module;
dry coolers from
32 – 100 kW

The condensers in the DCRA-Range are available in ratings from 3 to 75 kW – and the dry coolers in the DDRA-Range from 32 to 100 kW.

The two ranges are absolutely identical when seen from the outside. They have the same dimensions, and are designed and manufactured for installation outdoors in accordance with quality standard ISO 9001:2008.

The condensers and dry coolers are equipped with directly driven, quiet-running axial fans with protection guards according to DIN 31001 and 24167.

Selection is possible in 3 sound power classes (6, 8, or 12-pole motors). The fans are statically and dynamically balanced with balancing quality Q 6.3. They are outstandingly suited for air-intake temperatures of -25 to +55 °C. The weather-protected and maintenance-free motors have an IP54 class of enclosure protection, and class F for insulating material. The frame, enclosure, and feet are made of aluzinc steel sheet.

Functions of the DCRA/DDRA-Range

- Emergency-off main switch
- Horizontal or vertical air routing
- Refrigerants R407C, R134a, and R410A or chilled water
- 3 sound power classes, with 6-pole motor as standard (8 or 12-pole motor as option)
- Blygold coating, optional

Accessories of the DDRA-Range

- Hydronic module (hydraulic kit), mounted on the common equipment frame
- Accessories of the hydronic module:
 - Expansion tank
 - Separate pumpset
 - Manual shut-off valve
 - Copper and steel fittings, or copper and brass
 - Soldered or threaded connections

Accessories of the DCRA-Range

- Temperature-controlled, separate speed regulation (not necessary for use with any GEA DENCO A-Type indoor unit)
- Winter start kit (down to -40 °C)
- Stacking kit



DCRA-Range: air-cooled condensers from 3 – 75 kW



ADAPTIVE COOLING LIMITED

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The Courtyard Business Centre
Farmhouse Mews
Thatcham
Berkshire
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C3-05 controller

Air conditioning controls

C3-05 controls Display details and functions



Graphical display

-  **UNIT RUN** shown when unit fan(s) are running
-  **COOL** shown when cooling demand is greater than 0 %
-  **HEAT** shown when heating demand is greater than 0 %
-  **HUMIDIFY** shown when humidification is greater than 0 %
-  **DEHUMIDIFY** shown when dehumidification is greater than 0 %

Graphical display comprises:

- Unit ON/OFF key, providing "master" control of the local unit
- Graphical liquid crystal display, providing icon status of the unit functions, parameter menus, historic data logging, alarm buffer, and access to other controllers via the network system
- Four programming keys, providing access to display features
- Alarm key to view active alarms

The 8 row LCD indicates unit function via the icons on rows 1 and 2. The remaining rows show the selected data, updated in real time. The programming keys (↑ ↓ ← →) have to be pressed in a coded sequence in order to enter or change the function currently being accessed. Current alarm status can be reviewed by using the ← key to access the alarm buffer from the timeout display.

Functions

The C3-05 controller consists of a 32-byte microprocessor that operates the GEA DENCO application software that caters for all the requirements for close control air conditioning. The multi-functional C3-05 controller utilises 18 digital outputs, 6 analogue outputs, 18 digital inputs, and 9 analogue inputs to operate functions, such as:

- Variable-speed fan control
- Up to four stages of direct-expansion cooling
- Electronic expansion-valve control
- Energy-efficient freecooling system (AmbiCool)
- Dual cooling system (CombiCool)
- Chilled-water cooling
- Up to three stages of electric heating
- Low pressure hot water heating
- Reverse-cycle heat pump control complete with defrost control

The C3-05 controller can interface with many of the most commonly used serial communication standards, such as:

- BACnet MS/TP
- BACnet I/P
- Lonworks
- Modbus
- SNMP
- Webpage monitoring via Ethernet

Please refer to the C3-05 controls operation & maintenance manual for full details.



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GEA DENCO T-Range DX A models 5 – 28

Technical data

DX A version Model size		5	8	10	12	17	19	21	23 ¹⁾	28 ¹⁾
Cooling²⁾										
Gross total duty (AC)	kW	5.8	9.2	12.6	15.4	17.0	19.7	22.6	27.3	31.7
Net sensible duty (AC)	kW	5.1	7.8	9.9	11.8	14.8	16.4	19.3	23.0	24.9
EER (AC)		3.2	3.2	3.1	3.0	3.1	3.1	2.9	3.1	3.1
Gross total duty (EC) ³⁾	kW	–	9.2	12.7	15.4	17.1	20.1	22.5	26.9	31.4
Net sensible duty (EC)	kW	–	8.2	10.6	12.2	16.1	18.5	20.3	23.1	25.1
EER (EC)		–	3.8	3.5	3.3	3.8	3.8	3.5	3.5	3.4
CombiCool option⁴⁾										
CW-Coil total duty (AC)	kW	–	5.4	6.3	7.5	12.0	12.0	14.9	16.6	16.6
CW-Coil sensible duty (AC)	kW	–	5.4	6.3	7.5	12.0	12.0	14.9	16.6	16.6
CW-Coil total duty (EC)	kW	–	5.4	6.5	7.4	12.5	13.1	14.6	15.6	16.0
CW-Coil sensible duty (EC)	kW	–	5.4	6.5	7.4	12.5	13.1	14.6	15.6	16.0
Fans										
Airflow (AC)	m³/s	0.44	0.60	0.76	1.02	1.31	1.31	1.85	2.22	2.22
	m³/h	1,584	2,160	2,736	3,658	4,720	4,720	6,674	7,992	7,992
Airflow (EC)	m³/s	–	0.60	0.80	1.00	1.40	1.50	1.80	2.00	2.09
	m³/h	–	2,160	2,880	3,600	5,040	5,400	6,480	7,200	7,524
Ext. static (AC)	Pa	20	20	20	20	20	20	20	20	20
Ext. static (EC)	Pa	–	20	20	20	20	20	20	20	20
Sound pressure level⁵⁾										
Downflow (AC)	dB(A)	45	52	53	54	56	56	57	58	60
Downflow (EC)	dB(A)	–	44	51	56	51	52	56	58	58
Electrical data⁶⁾										
Power input (AC)	kW	1.82	2.85	4.03	5.06	5.50	6.31	7.66	8.93	10.15
Power input (EC)	kW	–	2.40	3.62	4.61	4.53	5.28	6.48	7.80	9.24
Humidifier										
Capacity humidifier (AC)	kg/h	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Capacity humidifier (EC)	kg/h	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Power input (AC)	kW	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Power input (EC)	kW	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Heating										
Electrical heating	kW	3.0	6.0	6.0	6.0	12.0	12.0	12.0	12.0	12.0
LPHW heating	kW	3.0	6.0	6.0	6.0	12.0	12.0	12.0	12.0	12.0
Air-cooled condensers										
Model size	DCRA	08-6	13-6	21-6	26-6	26-6	32-6	32-6	26-6	32-6
Number of condensers		1	1	1	1	1	1	1	2	2



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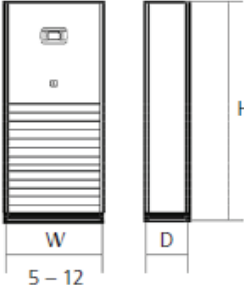
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The Courtyard Business Centre
Farmhouse Mews
Thatcham
Berkshire
RG18 4NW

Tel: 01635 873485 Fax: 01635 873400

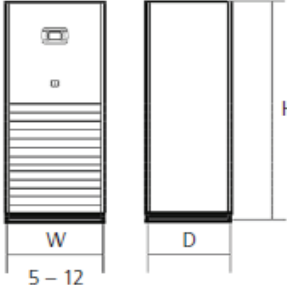
Weights and dimensions

GEA Denco T-Range DX A models 5 – 28

DX A version Model size		5	8	10	12	17	19	21	23 ¹⁾	28 ¹⁾
Weights and dimensions										
Weight	kg	165	255	255	255	445	445	445	445	445
Height (H)	mm	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940
Width (W)	mm	665	665	665	665	1,250	1,250	1,250	1,250	1,250
Depth (D)	mm	385	685	685	685	685	685	685	685	685

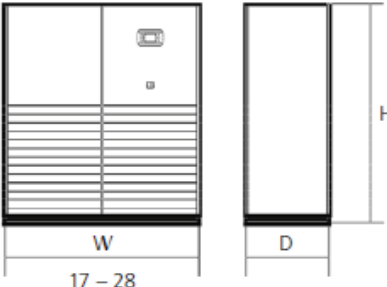


5 – 12



17 – 28





17 – 28



¹⁾ VRF option available (standard from model size 48)

²⁾ Return air conditions: 24 °C / 45 % relative humidity / 35 °C ambient temperature

³⁾ Available in downflow only

⁴⁾ Return air conditions: 24 °C / 45 % relative humidity / 0 % glycol / water: 7/12 °C

⁵⁾ Sound pressure level in 2-metre free field

⁶⁾ Data for "cooling only" mode of operation



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COMMS ROOM (MI) AIR COOLED PRECISION COOLING UNITS

SELECTION: 3No T-53A each c/w 2No DCRA32-6 condenser

GEA DENCO T-Range DX A models 32 – 103

Technical data

DX A version Model size		32 ¹⁾	37 ¹⁾	42 ¹⁾	48	53	63	73	83	103
Cooling²⁾										
Gross total duty (AC)	kW	34.2	40.2	43.8	54.1	61.8	65.8	78.4	87.7	–
Net sensible duty (AC)	kW	29.3	34.1	36.4	44.8	48.0	56.4	66.4	70.9	–
EER (AC)		3.1	3.0	3.0	3.1	3.0	3.2	2.9	3.1	–
Gross total duty (EC) ³⁾	kW	33.7	39.2	43.2	53.6	61.3	67.2	76.7	85.4	116.9
Net sensible duty (EC)	kW	30.5	34.1	36.5	46.5	49.7	59.2	65.0	69.0	96.6
EER (EC)		3.7	3.5	3.3	3.6	3.5	3.7	3.2	3.5	3.2
CombiCool option⁴⁾										
CW-Coil total duty (AC)	kW	22.8	25.6	25.6	31.6	31.6	40.5	48.4	48.4	–
CW-Coil sensible duty (AC)	kW	22.8	25.6	25.6	31.6	31.6	40.5	48.4	48.4	–
CW-Coil total duty (EC)	kW	21.3	22.8	24.3	44.3	44.3	57.4	64.6	64.6	92.6
CW-Coil sensible duty (EC)	kW	21.3	22.8	24.3	44.3	44.3	57.0	64.6	64.6	92.6
Fans										
Airflow (AC)	m³/s	2.79	3.38	3.38	4.09	4.09	4.61	6.19	6.19	–
	m³/h	10,051	12,168	12,168	14,724	14,724	16,596	22,284	22,284	–
Airflow (EC)	m³/s	2.50	2.80	3.10	4.00	4.00	4.60	5.40	5.40	8.10
	m³/h	9,000	10,080	11,160	14,400	14,400	16,560	19,440	19,440	29,160
Ext. static (AC)	Pa	20	20	20	20	20	20	20	20	–
Ext. static (EC)	Pa	20	20	20	20	20	20	20	20	20
Sound pressure level⁵⁾										
Downflow (AC)	dB(A)	59	59	59	61	61	61	62	62	–
Downflow (EC)	dB(A)	56	59	61	63	63	64	68	68	70
Electrical data⁶⁾										
Power input (AC)	kW	10.96	13.47	14.71	17.46	20.30	20.66	27.00	27.92	–
Power input (EC)	kW	9.00	11.13	13.16	14.74	17.50	18.32	23.61	24.53	36.36
Humidifier										
Capacity humidifier (AC)	kg/h	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	–
Capacity humidifier (EC)	kg/h	3.0	3.0	3.0	8.0	8.0	8.0	8.0	8.0	15.0
Power input (AC)	kW	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	11.3
Power input (EC)	kW	2.3	2.3	2.3	6.0	6.0	6.0	6.0	6.0	11.3
Heating										
Electrical heating	kW	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
LPHW heating	kW	12.0	12.0	12.0	–	–	–	–	–	–
Air-cooled condensers										
Model size	DCRA	32-6	32-6	32-6	50-6	50-6	50-6	50-6	75-6	75-6
Number of condensers		2	2	2	2	2	2	2	2	2



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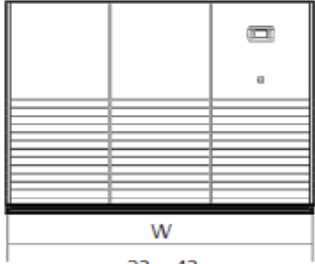
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Weights and dimensions

GEA DENCO T-Range DX A models 32 – 103

DX A version Model size		32 ¹⁾	37 ¹⁾	42 ¹⁾	48	53	63	73	83	103
Weights and dimensions										
Weight	kg	520	520	520	860	860	1,010	1,010	1,010	1,190
Height (H)	mm	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940	1,940
Width (W)	mm	1,840	1,840	1,840	1,250	1,250	1,840	1,840	1,840	2,450
Depth (D)	mm	685	685	685	985	985	985	985	985	985



W
32 – 42

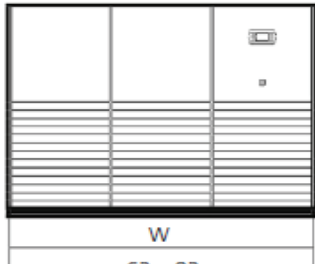


H
D

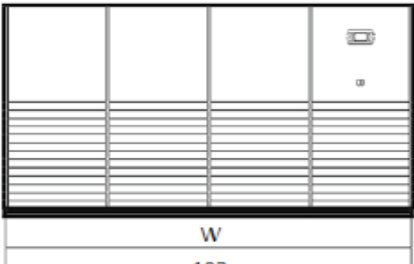




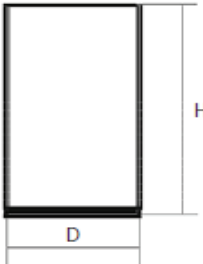
W
48 – 53



W
63 – 83



W
103



H
D

¹⁾ VRF option available (standard from model size 48)

²⁾ Return air conditions: 24 °C / 45 % relative humidity / 35 °C ambient temperature

³⁾ Available in downflow only

⁴⁾ Return air conditions: 24 °C / 45 % relative humidity / 0 % glycol / water: 7/12 °C

⁵⁾ Sound pressure level in 2-metre free field

⁶⁾ Data for "cooling only" mode of operation



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GEA DENCO DCRA-Range

Technical data, weights, and dimensions

DCRA-Range Air-cooled condensers								
6-pole motor models ¹⁾	DCRA	08-6	13-6	21-6	26-6	32-6	50-6	75-6
Gross total duty	kW	7.7	13.5	21.4	26.5	31.4	54.0	75.0
Airflow	m ³ /s	0.72	1.20	2.00	2.40	2.60	4.80	6.70
	m ³ /h	2,590	4,320	7,200	8,640	9,360	17,300	24,120
Number of fans		1	1	1	1	1	2	3
Full load current	Amps	0.87	1.65	3.30	3.30	3.30	6.60	9.90
Sound pressure level upflow ⁴⁾	dB(A)	45	47	49	50	52	53	55
8-pole motor models ²⁾	DCRA	05-8	10-8	15-8	20-8	25-8	40-8	60-8
Gross total duty	kW	5.6	10.0	15.0	20.0	25.0	40.0	60.0
Airflow	m ³ /s	0.45	0.80	1.15	1.60	1.95	3.00	4.20
	m ³ /h	1,620	2,880	4,140	5,760	7,020	10,800	15,120
Number of fans		1	1	1	1	1	2	3
Full load current	Amps	0.61	0.72	1.15	1.25	1.65	2.50	3.75
Sound pressure level upflow ⁴⁾	dB(A)	36	39	40	42	43	45	47
12-pole motor models ³⁾	DCRA	04-12	07-12	11-12	14-12	17-12	29-12	39-12
Gross total duty	kW	–	7.2	10.8	15.4	17.1	29.4	40.4
Airflow	m ³ /s	–	0.52	0.75	1.05	1.2	1.95	2.95
	m ³ /h	–	1,870	2,700	3,780	4,320	7,020	10,620
Number of fans		–	1	1	1	1	2	3
Full load current	Amps	–	0.5	1.1	1.1	1.3	2.6	3.9
Sound pressure level upflow ⁴⁾	dB(A)	–	27	28	29	30	33	35
Weights and dimensions 6, 8 and 12-pole motor models								
Dry weight	kg	35	45	50	70	80	135	210
Vertical airflow version ⁵⁾								
Height (H)	mm	690	790	810	945	950	950	950
Width (W)	mm	650	830	980	1,130	1,230	2,100	2,780
Depth (D)	mm	581	717	867	1,021	1,121	1,067	1,067
Horizontal airflow version ⁶⁾								
Height (H)	mm	602	738	888	1,042	1,142	1,088	1,088
Width (W)	mm	645	825	975	1,125	1,225	2,095	2,760
Depth (D)	mm	530	600	600	620	620	620	620

¹⁾ 6-pole models: standard versions

²⁾ 8-pole models: quiet and residential versions

³⁾ 12-pole models: super-quiet versions for special applications

⁴⁾ Sound pressure level in 10-metre free field

⁵⁾ Vertical airflow version: vertical discharge, see page 69

⁶⁾ Horizontal airflow version: horizontal discharge, see page 69



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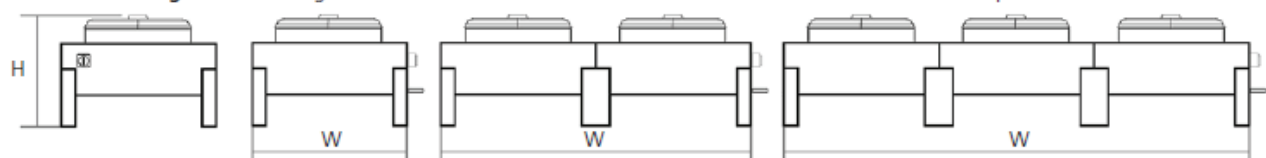
Vertical and horizontal discharge

GEA Denco DDRA and DCRA-Range

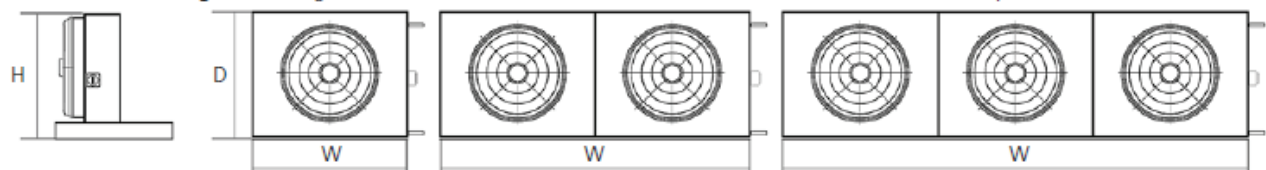
DDRA and DCRA-Range
Discharge of dry coolers and air-cooled condensers



Vertical discharge



Horizontal discharge



Standard Version

6 Pole Model	Noise Level @ 3 m dB(A) / NR	Noise Level @ 5 m dB(A) / NR	Noise Level @ 10 m dB(A) / NR
DCRA 08 - 6	58 / 52	52 / 46	45 / 39
DCRA 13 - 6	60 / 54	54 / 48	47 / 41
DCRA 21 - 6	62 / 56	56 / 50	49 / 43
DCRA 26 - 6	63 / 57	57 / 51	50 / 44
DCRA 32 - 6	65 / 59	59 / 53	52 / 46
DCRA 50 - 6	66 / 60	60 / 54	53 / 47
DCRA 75 - 6	68 / 62	62 / 56	55 / 49

Noise figures are typical sound pressure levels in an external environment.