PRODUCT BROCHURE

Fan coil units for suspended ceilings HyPower-Geko[®]

Energy efficient – Powerful – Hygienic – Low noise







The HyPower-Geko fan coil units generate a whisperquiet and comfortable feel-good climate at maximum energy efficiency and optimal air treatment.

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ECONOMY AND ECOLOGY IN HARMONY

The signs of the times are clear

Investors, plant engineers, planners, and architects no longer ask "whether" but "how" they can enhance the degree of sustainability of their plants and building management systems. Buildings are unique objects. Location, size, construction quality, and – increasingly, building engineering technology – determine values and returns. Energy matters substantially gain in significance since buildings absorb about 40 % of the world energy consumption and produce 21 % of world-wide greenhouse gas emissions. Energy costs will increasingly become a "second rent" for users and residents.

Where air conditioning is required for rooms and buildings, DencoHappel contributes to technological advances. We offer highly efficient air treatment and supply with the greatest possible reduction of energy consumption over the entire service life of the plants: This pays off in cents and euros, comfort and work productivity. In highly sensitive areas, such as clinical and clean room applications, our solutions reliably satisfy all international standards and achieve high rankings in the demanding classification of the "Eurovent Compliance Committee for Air Handling Units". They furthermore set new standards for sustainability and perfect system integration in modern sport arenas, factory buildings, airport facilities, and swimming pools, as well as in offices, museums and hotels.



We design we the most efficient demand-controlled solution for your requirements



NOT JUST HOT AIR, ONLY FULL POWER

The new dimensions of innovative air handling

HyPower-Geko[®] means:

- High Power
- Hygienic Power
- Hydronic Power



Certified according to VDI 6022

HyPower-Geko – The innovative fan coil unit in recirculating air mode convinces in three ways with an integral concept, that sets new standards: On maximum capacity with maximum energy efficiency and greatest possible demand on hygiene, HyPower-Geko performs individual air-conditioning at its best.

Maximum power with precision

- Maximum cooling capacity at highest speed (25 kW)
- Powerful thanks to external pressure up to 150 Pa
- Modular construction system enables a flexible design, low-noise operation
- Certified hygiene conformity (VDI6022)
- Variable capacity stages: 2-pipe and 4-pipe
- Individual installation, e.g. in a discreet position in the false ceiling

Comprehensive concept – maximum use

We optimize your total operating costs continuously and sustainably: highly-efficient fans are integrated in the unit and precisely tailored to our MATRIX control technology. Besides, our reliable software enables individual configuration and layout of your system.



POWER IS IN THE AIR

Concentrated power, efficiency and comfort for a perfect room climate

EC fans made by quality manufacturer ebm-pabst

Maximum cooling and heating capacity with minimum electric power consumption - excellently awarded: EUROVENT energy label FCEER/FCOOP (class A)

Condensate pump MaxiBlue

Harmony all along the line: powerful, energy-efficient, low-noise and reliable owing to a new rotation-membrane principle.

MATRIX control system

Diverse control options in different stages of expansion - including: "Plug and Play" function, power-optimized operation and competent service with service tool.

Compact controller CET-EC

Equipped with auto and manual mode in 3 speeds: heating and cooling/only heating or cooling. Compatible with open/close valves. The fan is continuously controlled in auto mode.





INTELLIGENT CONTROL TECHNOLOGY

Always the right idea for the right climate with the MATRIX

Comprehensive control possibilities:

- Control functions in various expansion stages
- Bus interface to analog and digital devices
- Plug-and-play functionality
- Energy-optimized equipment operation
- Equipment ready to operate and highly competent service
- Global add-on modules
- LON connection
- Service tool available



If requested as option, the proven MATRIX control unit will be integrated into the HyPower Geko at the factory. Thus, only completely tested equipment will be supplied to your construction site.

The MATRIX is available in the configuration levels 3000 and 4000, in accordance with various applications. The model variants provide a 2-core MATRIX.NET bus system that allows communication among all MATRIX units. As a result, it is simple to implement daytime and nighttime switching actions, or to control pumps and collect error messages at a single point. MATRIX can also be connected to higher-level bus systems.

MATRIX furthermore ensures an energy-optimized operation of the HyPower-Geko units. A coordinated switchover function, for example, prevents heating and cooling circulation systems from working against each other. With summer compensation, MATRIX takes the outside temperature influence into consideration and thereby prevents an energy-intensive climate control.

Hardware and software are developed entirely at DencoHappel. As a result of close collaboration in the company, DencoHappel engineers can systematically adjust the control system to match every component – and in turn optimally exploit the possibilities of the fan coil units. Service and support also benefit from this arrangement, and can rapidly and competently react whenever questions arise. Numerous additional global modules are available as function expansions of the standard local connections of the MATRIX control system, such as intra-group control units and clock modules, modules for activation control of chillers, expansion of analog or digital input and output signals, inputs and outputs for valves, and integration into a LON bus system in accordance with the LonWorks standard.

All modules can be simply and easily integrated via the MATRIX.Net bus system. Furthermore, the service tool MATRIX.PC can be deployed for the parameterization, commissioning, maintenance and data recording of the MATRIX control system.

CONTROL PANELS

for MATRIX 3000 *and* MATRIX 4000



MATRIX OP 30 with key MATRIX OP 31 with economy mode key

- Casing without display, pure white
- Recirculating air mode, IP 20 enclosureprotection class
- Setpoint temperature setting
- Speed selector switch for continuous/ automatic operation
- LED display of operation / malfunction / external control
- Integrated room-temperature sensor



MATRIX OP 44

- As for the OP31 control panel, but also with
- Toggle between heating/cooling/ automatic mode
- All control panels without display and optionally with protective cover



Compact controller CET.ECH

- White casing, similar to RAL 9016
- Recirculating air mode
- Protection class IP 30
- Setpoint temperature setting
- Speed selector switch for continuous/ automatic operation
- Integrated room-temperature sensor
- Input via volt on-site floating contact by others
- Contact for external sensor
- Room frost protection



MATRIX OP 50 without clock MATRIX OP 51 with clock

- Casing with display, pure white
- Recirculating air mode
- IP 20 class
- Operation with rotary navigator
- LCD display with plain-text display
- Status report by pictograms
- Integrated room-temperature sensor



MATRIX.IR infrared remote control unit

• Functions like OP 44 control panel, however

without operational / error messages without messages on ext. influence without integrated room sensor

- Black casing, similar to RAL 9004
- LCD display 45 x 30 mm
- Transmission range about 20 m

HyPower-Geko®

Max. dimensions and weights



BASIC UNIT - VERSION A

Without chamber for fans

Free intake On-site filter must be provided									
Size	Width*	Depth	Height						
	mm	mm	mm						
1	803	595	340						
2	1108	595	340						
3	1413	595	340						
4	1833	595	340						
Weight i	including v	vater cha	rge						
Size		Max. (kg))						
1		31							
2		42							
3		55							
4		69							



With chamber for fans											
Without insulation of the fan chamber With integrated flat filter Duct and accessory connection possible											
Size	Width*	Depth	Height								
	mm	mm	mm								
1	803	705	340								
2	1108	705	340								
3	1413	705	340								
4	1833	705	340								
Weight	including v	vater cha	rge								
Size	Size Max. (kg)										
1	1 37										
2		50									
3		66									

84



With chamber for fans Like version B. but with interior acoustic insulation of the fan chamber Size Width* Depth Height mm mm mm 1 803 705 340 2 1108 705 340 1413 705 340 3 4 1833 705 340 Weight including water charge Size Max. (kg) 40 1

> 53 69

88

2

3

4



EXTENDED CONDENSATE PAN

Optional for cooling operation

Additional equipment

Additional extended condensate pan at mounted valves and connection fixtures

An additional 264 mm is then added to the entire width of the unit



BASIC UNIT IN HYGIENE CONFIGURATION

On request

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Only available for authorized sales regions

Heat exchanger cover plates on the front and back side to provide optical covering and protect the hydraulics and copper pipes from damage during installation

Condensate pan, extended and powder-coated

Increased distance between hydraulic system and electric terminal box

* plus 264 mm when using the extended condensate pan

HyPower-Geko®

Accessory items



Optional selectable accessories

- Spare filters (G2 or G4)
- Flexible connection (intake or discharge)
- Air-intake plenum with round connectors DN 250 (insulated or non-insulated)
 - Number of round connectors:
 - Model size 1 = 3 pcs.
 - Model size 2 = 4 pcs.
 - Model size 3 = 5 pcs.
 - Model size 4 = 6 pcs
- Seal cap DN 250 for round connector
- Transition piece for accessories
- Sound attenuator (intake/discharge)
- Suspension rail for ceiling mounting

COOLING - RECIRCULATING AIR

2-pipe system – chilled water

Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Cooling capacity PCW 6/12°C Air intake 27°C/46% Capacity stage		Sound power level at capacity stage 1			Motor data EC motor 1 ~ 230 Volt			
Size	Speed	Max.	CS1	CS2	CS3	Intake	Discharge	Casing	Max.	Max.	
1	1	340 m³/h	1.70 kW	2.30 kW	2.60 kW	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A	
	3	620 m³/h	2.70 kW	3.90 kW	4.40 kW	57 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A	
	5	920 m³/h	3.60 kW	5.50 kW	6.40 kW	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A	
2	1	420 m³/h	2.20 kW	2.90 kW	3.20 kW	37 dB(A)	40 dB(A)	30 dB(A)	19 W	0.18 A	
	3	970 m³/h	4.20 kW	6.00 kW	6.70 kW	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A	
	5	1,525 m³/h	5.90 kW	8.80 kW	10.10 kW	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A	
3	1	630 m³/h	3.20 kW	4.30 kW	4.90 kW	45 dB(A)	48 dB(A)	36 dB(A)	36 W	0.30 A	
	3	1,410 m³/h	6.00 kW	8.70 kW	10.00 kW	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A	
	5	2,090 m³/h	8.10 kW	12.10 kW	14.20 kW	70 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A	
4	1	735 m³/h	4.00 kW	5.30 kW	6.10 kW	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A	
	3	1,735 m³/h	7.80 kW	11.10 kW	12.70 kW	61 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A	
	5	2,800 m³/h	10.70 kW	16.70 kW	19.70 kW	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A	



2-pipe system – warm water

Air volu	Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Thermal output PWW 70/50°C Air intake 20°C Capacity stage			So at	und power le capacity stag	Motor data EC motor 1 ~ 230 Volt				
Size	Speed	Max.	CS1	CS2	CS3	Intake	Discharge	Casing	Max.	Max.		
1	1	340 m³/h	3.50 kW	4.50 kW	4.70 kW	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A		
	3	620 m³/h	5.60 kW	7.70 kW	8.20 kW	57 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A		
	5	920 m³/h	7.70 kW	10.90 kW	12.00 kW	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A		
2	1	420 m³/h	4.50 kW	5.60 kW	5.70 kW	37 dB(A)	40 dB(A)	30 dB(A)	19 W	0.18 A		
	3	970 m³/h	8.80 kW	11.90 kW	12.70 kW	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A		
	5	1,525 m³/h	12.50 kW	17.80 kW	20.00 kW	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A		
3	1	630 m³/h	6.70 kW	8.50 kW	9.00 kW	45 dB(A)	48 dB(A)	36 dB(A)	36 W	0.30 A		
	3	1,410 m³/h	12.70 kW	17.40 kW	19.30 kW	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A		
	5	2,090 m³/h	17.20 kW	24.60 kW	27.80 kW	70 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A		
4	1	735 m³/h	8.10 kW	10.30 kW	10.90 kW	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A		
	3	1,735 m³/h	16.30 kW	22.20 kW	24.30 kW	61 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A		
	5	2,800 m³/h	23.60 kW	33.80 kW	38.00 kW	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A		

2-pipe system chilled or warm water

Air volu	Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Cooling capacity PCW 6/12°C Air intake 27°C/46% Capacity stage		Sound power level at capacity stage 1			Motor data EC motor 1 ~ 230 Volt				
Size	Speed	Max.	CS1	CS2	CS3	Intake	Discharge	Casing	Max.	Max.		
1	1	340 m³/h	1.70 kW	2.30 kW	2.60 kW	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A		
	3	620 m³/h	2.70 kW	3.90 kW	4.40 kW	57 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A		
	5	920 m³/h	3.60 kW	5.50 kW	6.40 kW	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A		
2	1	420 m³/h	2.20 kW	2.90 kW	3.20 kW	37 dB(A)	40 dB(A)	30 dB(A)	19 W	0.18 A		
	3	970 m³/h	4.20 kW	6.00 kW	6.70 kW	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A		
	5	1,525 m³/h	5.90 kW	8.80 kW	10.10 kW	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A		
3	1	630 m³/h	3.20 kW	4.30 kW	4.90 kW	45 dB(A)	48 dB(A)	36 dB(A)	36 W	0.30 A		
	3	1,410 m³/h	6.00 kW	8.70 kW	10.00 kW	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A		
	5	2,090 m³/h	8.10 kW	12.10 kW	14.20 kW	70 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A		
4	1	735 m³/h	4.00 kW	5.30 kW	6.10 kW	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A		
	3	1,735 m³/h	7.80 kW	11.10 kW	12.70 kW	61 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A		
	5	2,800 m³/h	10.70 kW	16.70 kW	19.70 kW	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A		

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2-pipe system chilled or warm water

Air volu	Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Thermal output PWW 70/50°C Air intake 20°C Capacity stage			So at	und power le capacity stag	Motor data EC motor 1 ~ 230 Volt				
Size	Speed	Max.	CS1	CS2	CS3	Intake	Discharge	Casing	Max.	Max.		
1	1	340 m³/h	3.50 kW	4.50 kW	4.70 kW	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A		
	3	620 m³/h	5.60 kW	7.70 kW	8.20 kW	57 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A		
	5	920 m³/h	7.70 kW	10.90 kW	12.00 kW	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A		
2	1	420 m³/h	4.50 kW	5.60 kW	5.70 kW	37 dB(A)	40 dB(A)	30 dB(A)	19 W	0.18 A		
	3	970 m³/h	8.80 kW	11.90 kW	12.70 kW	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A		
	5	1,525 m³/h	12.50 kW	17.80 kW	20.00 kW	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A		
3	1	630 m³/h	6.70 kW	8.50 kW	9.00 kW	45 dB(A)	48 dB(A)	36 dB(A)	36 W	0.30 A		
	3	1,410 m³/h	12.70 kW	17.40 kW	19.30 kW	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A		
	5	2,090 m³/h	17.20 kW	24.60 kW	27.80 kW	70 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A		
4	1	735 m³/h	8.10 kW	10.30 kW	10.90 kW	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A		
	3	1,735 m³/h	16.30 kW	22.20 kW	24.30 kW	61 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A		
	5	2,800 m³/h	23.60 kW	33.80 kW	38.00 kW	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A		

COOLING AND HEATING – RECIRCULATING AIR

4-pipe system – chilled and warm water

Air volu	Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Cooling capacity PCW 6/12°C Air intake 27°C/46% Capacity stage		Sound power level at capacity stage 1			Motor data EC motor 1 ~ 230 Volt				
Size	Speed	Max.	CS1	CS2	-	Intake	Discharge	Casing	Max.	Max.		
1	1	335 m³/h	2.10 kW	2.20 kW	-	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A		
	3	610 m³/h	3.40 kW	3.80 kW	-	57 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A		
	5	910 m³/h	4.70 kW	5.30 kW	-	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A		
2	1	400 m³/h	2.50 kW	2.70 kW	-	37 dB(A)	40 dB(A)	30 dB(A)	19 W	0.18 A		
	3	920 m³/h	5.10 kW	5.70 kW	-	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A		
	5	1,460 m³/h	7.40 kW	8.40 kW	-	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A		
3	1	600 m³/h	3.80 kW	4.20 kW	-	45 dB(A)	48 dB(A)	36 dB(A)	36 W	0.30 A		
	3	1,340 m³/h	7.50 kW	8.40 kW	-	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A		
	5	1,995 m³/h	10.20 kW	11.70 kW	-	70 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A		
4	1	710 m³/h	4.70 kW	5.10 kW	-	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A		
	3	1,665 m³/h	9.60 kW	10.70 kW	-	61 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A		
	5	2,695 m³/h	14.10 kW	16.10 kW	-	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A		

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COOLING AND HEATING – RECIRCULATING AIR

4-pipe system – chilled and warm water

Air volu	Air volume flow V at external pressure of 50 Pa in speed 3 and capacity stage 1											
		v	Co F A C	Cooling capacity PKW 70/50°C Air intake 20% Capacity stage			und power le capacity stag	Motor data EC motor 1 ~ 230 Volt				
Size	Speed	Max.	CS1	CS2	-	Intake	Discharge	Casing	Max.	Max.		
1	1	335 m³/h	2.30 kW	3.30 kW	-	41 dB(A)	44 dB(A)	36 dB(A)	20 W	0.13 A		
	3	610 m³/h	3.50 kW	5.30 kW	-	56 dB(A)	60 dB(A)	50 dB(A)	100 W	0.72 A		
	5	910 m³/h	4.60 kW	7.40 kW	-	67 dB(A)	71 dB(A)	59 dB(A)	213 W	1.54 A		
2	1	400 m³/h	2.90 kW	4.10 kW	-	37 dB(A)	39 dB(A)	30 dB(A)	19 W	0.18 A		
	3	920 m³/h	5.30 kW	8.00 kW	-	56 dB(A)	59 dB(A)	46 dB(A)	136 W	0.89 A		
	5	1,460 m³/h	7.30 kW	11.60 kW	-	66 dB(A)	70 dB(A)	57 dB(A)	296 W	2.09 A		
3	1	600 m³/h	4.20 kW	6.20 kW	-	45 dB(A)	47 dB(A)	36 dB(A)	36 W	0.30 A		
	3	1,340 m³/h	7.50 kW	11.80 kW	-	61 dB(A)	64 dB(A)	53 dB(A)	258 W	1.84 A		
	5	1,995 m³/h	9.90 kW	16.10 kW	-	69 dB(A)	73 dB(A)	61 dB(A)	510 W	3.43 A		
4	1	710 m³/h	5.10 kW	7.50 kW	-	43 dB(A)	42 dB(A)	35 dB(A)	34 W	0.29 A		
	3	1,665 m³/h	9.50 kW	15.00 kW	-	60 dB(A)	60 dB(A)	51 dB(A)	259 W	1.75 A		
	5	2,695 m³/h	13.40 kW	21.80 kW	-	71 dB(A)	72 dB(A)	61 dB(A)	591 W	3.76 A		

DencoHappel is a globally operating company with great expertise in air treatment, air conditioning and filtration technology.

Our nearest consulting and service teams will be glad to discuss ideas and develop creative and effective solutions with you.





www.dencohappel.com