

Company :	VZT PROJEKT, s.r.o.	Date :	14/02/2019
To :	Ing. Peter Hanák, vztprojekt@vztprojekt.sk	From :	
Subject :	MŠ Hrubá Borša - 1.0_450m3/h		
Reference :	PLC1900026	Page :	1 / 6

Model :	CLASS UNIT PX 1000 (Weight: 236,0 kg)
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The CLASS UNIT PX is a decentralized double flow ventilation unit with high efficiency energy recovery (counter-flow heat exchanger, $\mu = 90\%$) and equipped with TAC control technology. It is specially designed for classrooms or meeting rooms, particularly in the case of refurbishment since no ducting work is needed. Its design allows silent ventilation, adapted to the needs of the moment. The color of the sheet metal is RAL9002.

TAC technology control takes care of everything:

- Easy to configure it can operate with a configurable weekly time table, and take into account holidays periods...
- Easy to link with an air quality sensor (CO2 or VOC) and to link the actual delivered airflow to the measurement.
- It allows ventilating between 0 and 100% of the maximum flow rate while maintaining a high efficiency.
- Communication with the control is done either by a basic remote control, either by a graphical interface, a wifi signal and an app, an ethernet signal and an app, or a BMS system.

The ClassUnit is also available in a hygiene version with VDI6022 compliant insulation.

Supply : Fans + Controls + Electric coil KWout

Voltage : 1 x 230V - 50 Hz
 Intensity : 16 A max.
 Electrical protection : D20A - 10KA - AC3

Fans - TAC

Units are equipped with high efficiency TAC (Total Airflow Control) technology fans. They are driven by electronically commutated motors and allow accurate control of the fan's actual working point. The efficiency of the motor remains between 85% and 60%, regardless of the working point. The motor is a permanent magnet DC driven motor but AC power supplied.

	<u>Supply</u>	<u>Exhaust</u>		Fan name :	DS 10-4 TAC 1/3
Airflow :	450	450	m3/h	Number of fans :	1 + 1
Internal pressure drop :	38	48	Pa		
External pressure drop :	50	50	Pa		
Extra available pressure drop :	502	492	Pa		
Rotation speed :	739	771	rpm		
Voltage :	230	230	V		
Intensity :	0,36	0,37	A		
Power :	45	47	W		
Selection at x % from max of the unit :	14,9	16,6	%		
Specific fan power, SFPv (clean filters) :	0,74 kW/(m3/s)				

Sound level

Sound level are established for balanced supply and exhaust airflows (calculated for supply airflow) without pressure loss, and are measured at 1 meter below the unit and 1 meter in front of the unit in a room where the reverberation time is 0,3s.

Sound level : 24,5 dBA

Controls

The units are delivered fully pre-wired as standard ('plug & play') with complete control of the unit. The latter includes all the necessary components and is fully wired to T° probes, fans, by-pass. Connect the power supply and configure the parameters and the unit is ready to run.

The controller monitors each component:

- Setting and piloting of TAC fans in selected mode: CA (constant flow) or LS (link with signal 0 - 10V, for example a CO2 or VOC air quality sensor).
- The CO2-sensor can be integrated inside of the unit (option).
- Automatic freecooling control with modulating bypass
- Antifrost system of the air/air heat exchanger (airflow or bypass modulation).
- Control of post-heating electrical coil (option)
- Open/Close motorized dampers
- Time slot management (scheduling)
- Alarms management (fire, pressure, maintenance, component failure,...)
- Display and management of all system parameters via TACtouch, BMS or web page (option)
- MODBUS RTU or MODBUS TCP
- KNX
- BACnet RTU communication
- Network communication in wifi or ethernet via Smartphone or tablet (Android, IOS)

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Heat Recovery unit - CF

The heat exchanger is an air/air high efficiency counterflow heat exchanger, executed in sea water resistant aluminium, at a temperature of up to 80°C. The airtightness tests according to DIN1946 show a leakage rate of 0.017 % at 400 Pa difference between the 2 air streams. The heat exchanger is compliant to standard EN 308. The technical selection as presented below is realised with the Eurovent certified selection software from the manufacturer of the heat exchanger.

Eurovent Certification Diploma N° : 05.03.243 & 11.07.006

Updates of this document are available via: <http://www.eurovent-certification.com>.

Air pressure :	1013 mbar						
	<u>Fresh air</u>	<u>Stale air</u>			<u>Supply</u>	<u>Exhaust</u>	
Airflow :	450	450	m3/h	Air outlet temperature :	19,7	-0,1	°C
	0,13	0,13	m3/s	Relative humidity out :	8,6	94,8	%
Airspeed through HRU :	0,64	0,72	m/s	Humidity out :	1,2	3,5	g/kg
Air inlet temperature :	-12,0	22,0	°C	Capacity (W.B.) :	4,8		kW
Relative humidity in :	90,0	45,0	%	Efficiency HRU (W.B.) :	93,2		%
Humidity in :	1,2	7,4	g/kg	Capacity (D.B.) :	4,4		kW
Pressure drop in HRU :	29	38	Pa	Efficiency HRU (D.B.) :	85,0		%

Internal post-heating (Electric) - KWout

An electrical heating coil allows a better outlet temperature control, thus enhancing the comfort level on the premises. It is delivered completely pre-wired with its controls; it allows adding up to 10°C to the resultant temperature after the heat exchanger. All you need to do is to key in the assignment temperature; the regulator will then modulate the power supply of the heating coil, according to the resultant temperature after the heat exchanger, to reach the assigned temperature. The electrical coil is equipped with two high limit thermostats. The coil is automatically switched off when the surface temperature exceeds 75°C (automatic reset) or 110°C (manual reset).

Maximal capacity :	3 KW	Air speed :	0,69 m/s	Air inlet temperature :	19,7 °C
Supply :	1 x 230V - 50 Hz	Pressure drop :	1 Pa	Air outlet temperature :	39,4 °C (3,0 kW)

Filter - G/F

The heat recovery ventilation unit is equipped with ePM10?50% class plane filters at the inlet of the polluted air and ePM10?50% class plane filters at inlet of the fresh air, to correctly protect the heat exchanger and guarantee optimum air quality inside the building. Filters are easily accessible through the access doors for maintenance purposes.

Eurovent Diploma N° : 08.10.044

<http://www.eurovent-certification.com>.

				<u>Supply</u>	<u>Exhaust</u>	
Filter class :	ePM10 50% Mini pleat	Dimensions :	500 x 410 x 50 mm	Air speed :	0,61	m/s
		Quantity :	1	Initial filter pressure drop :	8	Pa
				Final filter pressure drop :	68	Pa
Filter class :	ePM10 50% Mini pleat	Dimensions :	397 x 415 x 50 mm	Air speed :	0,76	m/s
		Quantity :	1	Initial filter pressure drop :	10	Pa
				Final filter pressure drop :	70	Pa

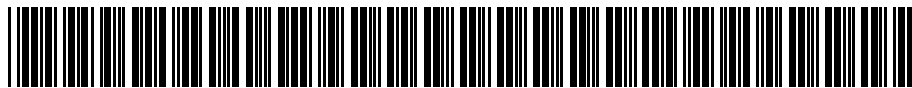
Circular inlet - ER o 315 mm

Circular outlet - SR o 315 mm

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Manufacturing info	
884256	883045



Detail	
<u>IDCode</u>	<u>Description</u>
884256	CLASS UNIT PX 1000
883045	CLASS UNIT PX kit CO2

Accessories (included)		
<u>IDCode</u>	<u>Quantity</u>	<u>Description</u>
372096	1	HMI TACtouch touchscreen user interface
025071	1	SAT WIFI Communication satellite Modbus (TCP/IP)

KLEMENS, s.r.o., Šebastovská 10, 080 06 Lubotice, Slovakia, www.klemens.sk, ICO: 46089161, DIC: 2023224280, IC DPH: SK2023224280, Tel.+421 917 350 013, Fax., jozef.kascak@klemens.sk,

Regulation No 1253/2014 (Ecodesign Lot 6)

CLASS UNIT PX 1000 at nominal point

Manufacturer		P. Lemmens Company
Product identification code		884256
Typology		NRVU / BVU
Motorization		Variable speed
Type heat exchanger		Counterflow
Thermal efficiency (%)	@ nominal	81
Nominal airflow (m3/s)		0,28
Electrical power absorbed (W)	@ nominal	483
SFP int (W/(m3/s))	@ nominal	994
Face velocity (m/s)	Supply	1,36
	Exhaust	1,69
Nominal external static pressure (Pa)		100
Internal pressure drop of ventilation components (Pa)	Supply	131
	Exhaust	136
Fan static efficiency as No 327/2011 (%)		40
External leakage rate (%)	@ 400 Pa	2
Internal leakage rate or EATR (%)	@ 250 Pa	4
Radiated sound power level of the unit (dBA)	@ nominal	56
Energy consumption of the filters	Supply	NA
	Exhaust	NA
Disassembly instructions on internet		www.klemens.sk

To learn more about the directive Ecodesign, visit <http://eur-lex.europa.eu>

Regulation No 1253/2014 (Ecodesign Lot 6)**CLASS UNIT PX 1000 at working point**

Dry thermal efficiency (supply) (%)	85
Dry thermal efficiency limit (2018) (%)	73
Efficiency bonus 'E' (2018) (W/(m3/s))	360
Filter correction 'F' (2018) (W/(m3/s))	190
SFP_int (W/(m3/s))	341
SFP_int limit (2018) (W/(m3/s))	1251
Selection conform to regulation No 1253/2014 (ERP2018-Lot 6)?	Yes