

**TFD**  
CLIMA

**35 - 160**

DYNAMIC FLOW TECHNOLOGY  
CLIMA

**INTELLIGENT USE OF ENERGY**



# TFD

C L I M A

## 35 - 160

**DYNAMIC FLOW TECHNOLOGY  
CLIMA**

An air handling unit with fresh air supply and an integrated hydronic battery that, connected to the heating/cooling system of the building, allows dehumidification (in summer) and integration (in summer and winter), optimizing overall comfort.



Counter-current flow heat recuperator with 85%+ efficiency



Flow rate: 355 m<sup>3</sup> /h with 100 Pa of useful pressure in ventilation mode

Flow rate: 1600 m<sup>3</sup> /h with 100 Pa of useful pressure in ventilation + recirculation mode

Flow rate: 1520 m<sup>3</sup> /h with 100 Pa of useful pressure in recirculation mode



Dehumidification and integration through a hydronic battery



Recovery bypass damper (for free-cooling/free-heating) and integrated circulation damper



Energy efficient, EC centrifugal fans with backward-curved blades



Low pressure drop F7 filters (ePM1 70%), both for extraction and fresh air



Self-supporting structure in pre-painted sheet metal; 10 mm-thick polyethylene thermal/sound insulation



Remote LCD display with integrated temperature, humidity and CO<sub>2</sub> sensors



Unit operated through remote contacts, remote display or via ModBus protocol on RS485



Nominal voltage: 230 V 1F 50-60 Hz

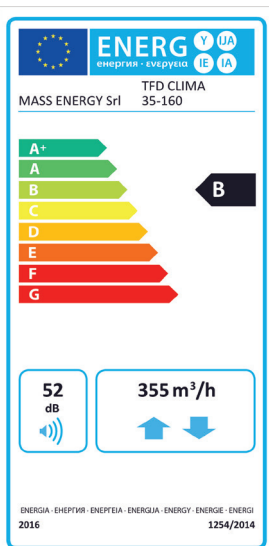


Max absorption: 3.6A 430W

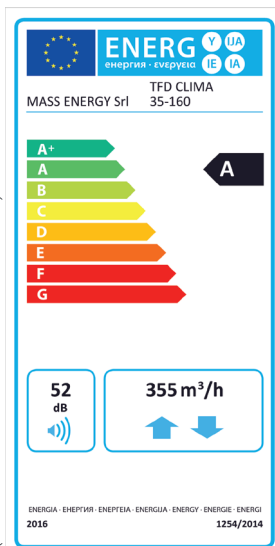


Operating conditions: ambient temperature 10°C - 40°C, humidity <80%

Energy label  
(manual control or clock control)

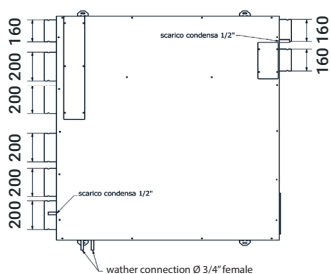
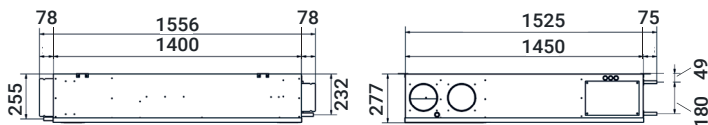


Energy label  
(central demand control or local demand control)





## DIMENSIONS



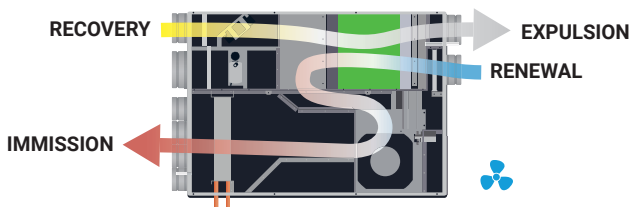
Dimensions, excluding sleeves and condensation drain (l x w x h):  
1400x1450x270 mm

Nominal pipe size:  
3x Ø160 mm + 2x Ø200 mm +  
(3x Ø200 o bocca quadra)

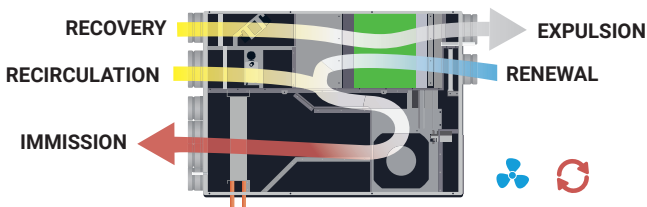
Weight:  
80 kg

## FLows AND MODES

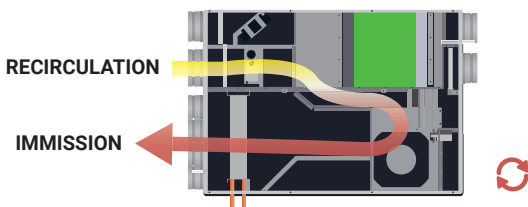
### VENTILATION MODE FLOWS



### VENTILATION + RECIRCULATION MODE FLOWS (dehumidification/integration)



### RECIRCULATION MODE FLOWS (dehumidification/integration)





# PRODUCT SHEET

According to EU regulations no. 1253/2014 and no. 1254/2014



# TFD

CLIMA

Brand Supplier MASS ENERGY S.r.l.

MASS ENERGY S.r.l.

Model identifier		TFD CLIMA 35-160			
Specific energy consumption in kWh (m <sup>2</sup> . a) for each climate zone and SEC class	cold climate	- 65.0 kWh/m <sup>2</sup> .a	-66.8 kWh/m <sup>2</sup> .a	-70.4 kWh/m <sup>2</sup> .a	-76.6 kWh/m <sup>2</sup> .a
	mild climate	-29.6 kWh/m <sup>2</sup> .a	-31.1 kWh/m <sup>2</sup> .a	-34.0 kWh/m <sup>2</sup> .a	-39.1 kWh/m <sup>2</sup> .a
	hot climate	-6.6 kWh/m <sup>2</sup> .a	-8.0 kWh/m <sup>2</sup> .a	-10.6 kWh/m <sup>2</sup> .a	-15.0 kWh/m <sup>2</sup> .a
Energy class		B	B	A	A
Product type		TFD CLIMA bidirectional	TFD CLIMA bidirectional	TFD CLIMA bidirectional	TFD CLIMA bidirectional
Type of motorisation		Variable speed	Variable speed	Variable speed	Variable speed
Heat recovery system		countercurrent recovery	countercurrent recovery	countercurrent recovery	countercurrent recovery
Thermal efficiency of heat recovery*		80.1%	80.1%	80.1%	80.1%
Peak flow rate (m <sup>3</sup> /h)*		355 m <sup>3</sup> /h	355 m <sup>3</sup> /h	355 m <sup>3</sup> /h	355 m <sup>3</sup> /h
Electrical power absorbed at peak flow rate (W)*		222 W	222 W	222 W	222 W
Sound power level (Lwa in dB(A))		52 dB(A)	52 dB(A)	52 dB(A)	52 dB(A)
Flow rate reference (m <sup>3</sup> /s)*		0.069 m <sup>3</sup> /s	0.069 m <sup>3</sup> /s	0.069 m <sup>3</sup> /s	0.069 m <sup>3</sup> /s
Pressure difference (Pa)*		50 Pa	50 Pa	50 Pa	50 Pa
Specific absorbed power (W/(m <sup>3</sup> /h))		0.40 W/(m <sup>3</sup> /h)	0.40 W/(m <sup>3</sup> /h)	0.40 W/(m <sup>3</sup> /h)	0.40 W/(m <sup>3</sup> /h)
Type of control		manual control	control with timer	centralized environmental control	local environmental control
Control coefficient		1.00	0.95	0.85	0.65
Cooling rate (%)	internal	3.9 %	3.9 %	3.9 %	3.9 %
	external	3.2 %	3.2 %	3.2 %	3.2 %
	recycling	not applicable	not applicable	not applicable	not applicable
Mixing rate (%)		not applicable	not applicable	not applicable	not applicable
Location and description of the visual warning signal for the filters		Alarm displayed on the control unit and or on the remote display, as well as signalling via ModBus and configurable alarm contact.			
Installation for new air immission		not applicable	not applicable	not applicable	not applicable
Internet address with preassembly and disassembly instructions		www.massenergy.it	www.massenergy.it	www.massenergy.it	www.massenergy.it
Sensitivity of air flow to pressure changes at + 20Pa and - 20 Pa (%)		not applicable	not applicable	not applicable	not applicable
Internal / external air seal (m <sup>3</sup> /h)		not applicable	not applicable	not applicable	not applicable
Annual electricity consumption (AEC) specific for a house of 100m <sup>2</sup> (kWh of electricity / a)**	cold climate	1088.1 kWh elet./a	1038.8 kWh elettr./a	947.7 kWh elettr./a	795.8 kWh elettr./a
	mild climate	551.1 kWh elettr./a	501.8 kWh elettr./a	410.7 kWh elettr./a	258.8 kWh elettr./a
	hot climate	506.1 kWh elettr./a	456.8 kWh elettr./a	365.7 kWh elettr./a	213.8 kWh elettr./a
Annual heating savings specific for a house of 100m <sup>2</sup> (kWh primary energy /a)**	cold climate	8346.5 kWh en.prim./a	8408.5 kWh en.prim./a	8532.51 kWh en.prim./a	8780.5 kWh en.prim./a
	mild climate	4266.6 kWh en.prim./a	4298.3 kWh en.prim./a	4361.6 kWh en.prim./a	4488.4 kWh en.prim./a
	hot climate	1929.3 kWh en.prim./a	1943.6 kWh en.prim./a	1972.3 kWh en.prim./a	2029.6 kWh en.prim./a

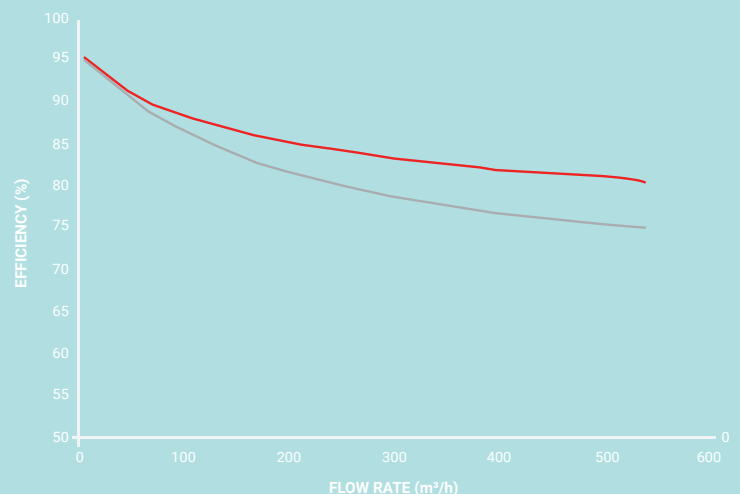
\* as per regulation n° 1253/2014

\*\* calculated as per regulation 1254/2014



## THERMAL EFFICIENCY OF HEAT RECUPERATOR

- Efficiency of recuperator according to UNI308: outside -5°C 80% - inside 20°C 50%
- Efficiency of recuperator according to 1253/14: outside 7°C 80% - inside 20°C (dry)





# TECHNICAL DATA

## VENTILATION MODE



Air flow intake	355	m <sup>3</sup> /h
of which in recirculation	0	m <sup>3</sup> /h
Delivery pressure	100	Pa
Air flow in expulsion	355	m <sup>3</sup> /h
Expulsion pressure	100	Pa
Fan calibration speed	100	%
Absorbed power	0.222	kW
Electricity	1.9	A

## Dehumidification/integration MODE



Air flow intake	1600	m <sup>3</sup> /h
of which in recirculation	1350	m <sup>3</sup> /h
Delivery pressure	100	Pa
Air flow in expulsion	250	m <sup>3</sup> /h
Expulsion pressure	100	Pa
Fan calibration speed (immission/ejection)	100/75	%

## COOLING AND DEHUMIDIFICATION

room temperature 26 °C and 60% U.R.  
outdoor temperature 30 °C and 60% U.R.

Cooling power (recuperator + battery)	0,3 + 12,1	kW
Water temperature	7	°C
Water flow rate	2100	l/h
Pressure loss	28	kPa
Condensing capacity	8.0	l/h

## HEATING

room temperature 20 °C and 50% U.R.  
outdoor temperature -5 °C and 80% U.R.

Heating power (recuperator + battery)	1.7 + 11.9	kW
Water temperature	50	°C
Water flow rate	2070	l/h
Pressure loss	23	kPa
Absorbed power	0.46	kW
Electricity	3.5	A

## Dehumidification/integration MODE



Air flow intake	1520	m <sup>3</sup> /h
of which in recirculation	1520	m <sup>3</sup> /h
Delivery pressure	100	Pa
Air flow in expulsion	0	m <sup>3</sup> /h
Expulsion pressure	0	Pa
Fan calibration speed (immission/ejection)	100/0	%

## COOLING AND DEHUMIDIFICATION

room temperature 26 °C and 60% U.R.  
outdoor temperature 30 °C and 60% U.R.

Cooling power (battery only)	11.5	kW
Water temperature	7	°C
Water flow rate	2000	l/h
Pressure loss	26	kPa
Condensing capacity	7.6	l/h

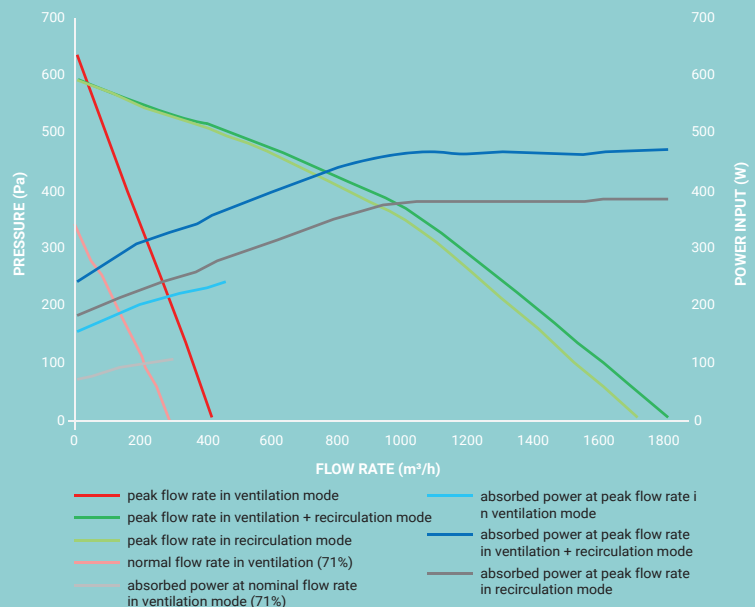
## HEATING

room temperature 20 °C and 50% U.R.  
outdoor temperature -5 °C and 80% U.R.

Heating power (battery only)	11.3	kW
Water temperature	50	°C
Water flow rate	1970	l/h
Pressure loss	21	kPa
Absorbed power	0.38	kW
Electricity	3.2	A



# AERAILIC PERFORMANCES





# MASS ENERGY

INTELLIGENT USE OF ENERGY

DESIGN

REALIZATION

SUPPLY

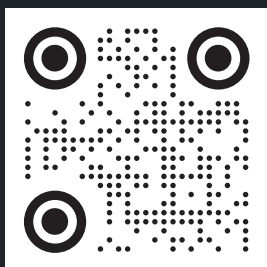
INSTALLATION

TESTING

AFTER SALES SERVICE



TURNKEY SUPPLY  
FOR TAILOR-MADE SOLUTIONS



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