UT REC - R

HEAT-RECOVERY UNITS WITH
ENTHALPY/ROTARY HEAT EXCHANGER

TECHNICAL MANUAL

CONTENTS

GENERAL FEATURES ... 3
Scope of the unit ... 3
Available configurations ... 3
Description of the components ... 3
TECHNICAL FEATURES ... 4
Technical data ... 4
Heating capacity of Recovery Unit Model UT-REC R 33 ... 5
Heating capacity of Recovery Unit Model UT-REC R 55 ... 5
Heating capacity of Recovery Unit Model UT-REC R 110 ... 6
Heating capacity of Recovery Unit Model UT-REC R 175 ... 6
Heating capacity of Recovery Unit Model UT-REC R 220 ... 7
Heating capacity of Recovery Unit Model UT-REC R 255 ... 7
Heating capacity of Recovery Unit Model UT-REC R 320 ... 8
CHARACTERISTIC CURVES ... 9
Mod. UT-REC R 33 ... 9
Mod. UT-REC R 55 ... 9
Mod. UT-REC R 110 ... 9
Mod. UT-REC R 175 ... 9
Mod. UT-REC R 220 ... 9
Mod. UT-REC R 255 ... 9
Mod. UT-REC R 320 ... 9
OVERALL DIMENSIONS, CONFIGURATION WEIGHTS ... 10
Overall Dimensions ... 10
Possible configurations ... 10
ACCESSORIES ... 11
Accessories ... 11
Electric post-heating element, BE-R ... 11
Air side pressure loss BE-R section ... 11
Section with water coil, BW-R ... 11
Heating capacity section BW-R model UT-REC R 110 ... 12
Heating capacity section BW-R model UT-REC R 175 ... 12
Heating capacity section BW-R model UT-REC R 220 ... 12
Heating capacity section BW-R model UT-REC R 255 ... 12
Heating capacity section BW-R model UT-REC R 320 ... 13
Control damper SER-R ... 13
Dimensions ... 13
Servo motor for control damper, SC ... 13
Kit of 4 circular connectors, SPC ... 13
Speed controller VVM 300W - VVM 600W (MOD. 33 – 55) ... 13
Speed Switch COM3 ... 14
PCO Unit control panel ... 14
Dirty filters pressure switch, PRF ... 14
Frost protection thermostat, TA ... 14

GENERAL FEATURES

Scope of the unit

The **UT-REC R** series is comprised of double flow fan units with rotary hygroscopic heat recovery unit and centrifugal fans. The rotor consists of alternating flat and corrugated sheets of aluminum wrapped around each other.
This results in a honeycomb structure through whose ducts pass the two air flows in opposite directions.
The surface, which has been made porous by means of special treatments, allows the humidity to be absorbed. Half of the rotor is immersed in the discharged air flow, which (during winter operating mode) gives up its heat and humidity to the matrix; due to the effect of the rotation, through these ducts subsequently flows fresh air and their sensible heat as well as their accumulated humidity content (latent heat) is transferred to it.
The **UT-REC R** series rotary heat exchanger makes it possible, during winter operating mode, to recover not only the sensible heat, but also the latent heat contained in the humidity of the discharged air. This allows a maximum efficiency on the order of 90% to be achieved. In the summer operating mode a portion of the humidity from outdoors is transferred to the discharged air, thereby achieving similar efficiency values. As a result of the high yield, the fresh air in the winter operating mode can be introduced directly into the space, without any need to install post-heating sections. The intake fan directs air to the heat recovery unit: in this manner any leakage of air from the fresh air circuit is directed toward the discharge air circuit.
With the adoption of the **UT-REC R** series' hygroscopic recovery, condensate does not form: a portion of the humidity contained in an air flow is absorbed by the porous surface, but it is then completely transferred to the opposite air flow. Therefore, neither collection pans nor discharge tubing are necessary.
The capability of stopping the heat exchanger's rotation, while the fans continue to operate, allows the changing of the air to occur in any case, thus creating a virtual bypass that is useful between seasons.

Available configurations

The unit is available only in the horizontal configuration.

Description of the components

The basic unit consists of:

Structure: constructed of completely removable panels made of aluzink sheet lined internally with 20 mm thick (on average) sheets of polyethylene and polyester to reduce noise emissions during operation.

Heat-recovery unit: high yield rotary type made of aluminum with a hygroscopic surface. The air flows are kept separate by means of special seals. Electric induction motor with transmission of motion to the rotor by means of a belt and pulley. Due to its technical features, the unit does not require a condensate collection tray. The heat recovery motor can easily be removed from the side for routine maintenance.

Fan motor unit: Simple intake type (for models UT REC-R 33 and 55) or double intake three speed type (for the other models available in the range) centrifugal fans for fresh air intake or discharge, with statically and dynamically balanced impellers; noise and vibrations are reduced to a minimum in accordance with the product's commercial use.

Filter section: constructed with a stage of cells with class G3 synthetic corrugated sound-proofing elements (85% weighted efficiency – EU3), which are easily removed to allow periodic cleaning.

Power board: To facilitate connection to mains power, a terminal board has been installed in the machine to which is connected the fans' terminals and the heat recovery motor's power supply. For all the sizes, the terminal board is protected by relays.

TECHNICAL FEATURES

Technical data

MODEL		**33**	**55**	**110**	**175**	**220**	**255**	**320**
Air flow	m3/h	310	650	1050	1800	2220	2600	3250
Available static pressure (1)	Pa	50	65	80	130	100	110	125
Tot. max. input	A	1,0	2,0	2,5	4,8	5,2	5,6	8,7
Sound pressure level (2)	dB (A)	40	48	47	46	50	48	50
FAN		**33**	**55**	**110**	**175**	**220**	**255**	**320**
Available shaft power	W	92 (3)	170 (3)	147	350	350	350	550
Poles	No.	4						
Fan speeds	No.	1 (4)		3 (5)				
Protection level	IP	44					55	44
Insulation class		F						
Power supply	V/ph/Hz	230/1/50						
HEAT-RECOVERY UNIT		**33**	**55**	**110**	**175**	**220**	**255**	**320**
Winter operating mode (7)								
Efficiency (sensible/ latent)	%	85/75	72/63	71/63	72/63	72/63	73/63	69/63
Recovered heating capacity	kW	3,5	6,3	10	17,4	21,3	25,2	30,5
Treated air temperature	°C	16,1	13	12,7	13	12,8	13,1	12,2
Treated air humidity	%	52,5	57,6	58,5	57,6	58,3	57,2	60,5
Summer operating mode (8)								
Efficiency (sensible/ latent)	%	92/63	80/63	79/63	80/63	79/63	80/63	77/63
Recovered heating capacity	kW	1,3	2,5	4	6,9	8,5	10	12,3
Treated air temperature	°C	26,5	27,2	27,3	27,2	27,3	27,2	27,4
Treated air humidity	%	55,9	53,6	53,4	53,6	53,4	53,7	53
FILTERS (1)		**33**	**55**	**110**	**175**	**220**	**255**	**320**
Efficiency	G	3						
Air front speed	m/s	1,0	1.9	2,0	2,5	2,8	1,8	2,6

(1) Values refer to the rated air flow rate after the recovery unit and filters.
(2) Sound pressure level: free-field values at 1.5 meters from the machine's intake.
The operating noise level generally departs from the specified values depending on the operating conditions, reflected noise, and peripheral noise.
(3) Mains power absorbed.
(4) Electronically adjustable by means of VVM control.
(5) Selectable by means of COM3 or PCO control.
(6) Rated winter conditions: outside air temperature -5°C dry bulb, relative humidity 80%; ambient air temperature 20°C dry bulb, relative humidity 50%.
(7) Rated winter conditions: outside air temperature 32°C dry bulb, relative humidity 50%; ambient air temperature 26°C dry bulb, relative humidity 50%.

TECHNICAL FEATURES

Heating capacity of Recovery Unit Model UT-REC R 33

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	R.H., %	Sensible heat	Latent heat	W
190	20	50	-10	80	16,3	55	87,7	84,0	2760
190	20	50	-5	80	17,4	50,3	89,7	79,8	2300
190	20	50	0	70	18,1	44,1	90,7	66,2	1780
190	20	50	5	60	18,7	43,1	91,5	63,0	1360
190	20	50	10	50	19,3	42,4	92,5	59,9	960
190	26	50	28	50	26,1	52	95,7	63,0	250
190	26	50	30	50	26,1	54,4	96,4	63,0	520
190	26	50	32	50	26,2	56,9	96,4	63,0	800
190	26	50	34	50	26,2	60	97,2	63,0	1090
250	20	50	-10	80	15,6	56,3	85,4	81,9	3540
250	20	50	-5	80	16,7	51,7	86,8	77,7	2930
250	20	50	0	70	17,7	44,2	88,4	63,0	2260
250	20	50	5	60	18,3	44	88,9	63,0	1760
250	20	50	10	50	19,0	43,2	90,4	60,9	1260
250	26	50	28	50	26,1	51,8	93,6	63,0	330
250	26	50	30	50	26,3	54	93,5	63,0	670
250	26	50	32	50	26,4	56,4	94,1	63,0	1040
250	26	50	34	50	26,5	59,1	94,1	63,0	1410
310	20	50	-10	80	14,9	57,7	83,1	79,8	4270
310	**20**	**50**	**-5**	**80**	**16,1**	**52,5**	**85,0**	**75**	**3520**
310	20	50	0	70	17,1	46	85,3	63,0	2740
310	20	50	5	60	18,0	45,1	86,4	63,0	2130
310	20	50	10	50	18,8	43,9	87,6	60,9	1530
310	26	50	28	50	26,2	51,7	90,5	63,0	400
310	26	50	30	50	26,4	53,7	90,9	63,0	820
310	**26**	**50**	**32**	**50**	**26,5**	**55,9**	**92,0**	**63,0**	**1270**
310	26	50	34	50	26,7	58,4	91,5	63,0	1730

Heating capacity of Recovery Unit Model UT-REC R 55

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
410	20	50	-10	80	13,8	59,7	79,3	75,6	5370
410	20	50	-5	80	15,2	50	80,6	63,0	4290
410	20	50	0	70	16,3	48,4	81,4	63,0	3500
410	20	50	5	60	17,4	46,7	82,7	63,0	2740
410	20	50	10	50	18,4	44,9	84,0	60,9	1970
410	26	50	28	50	26,3	51,4	86,9	63,0	520
410	26	50	30	50	26,5	53,2	87,3	63,0	1070
410	26	50	32	50	26,7	55,2	87,7	63,0	1650
410	26	50	34	50	27,0	57,5	88,1	63,0	2260
540	20	50	-10	80	12,3	63	74,3	71,4	6650
540	20	50	-5	80	13,9	54,8	75,6	64,1	5420
540	20	50	0	70	15,4	51,3	76,8	63,0	4430
540	20	50	5	60	16,7	48,9	77,8	63,0	3470
540	20	50	10	50	17,9	46,3	79,2	60,9	2500
540	26	50	28	50	26,4	51,2	82,3	63,0	670
540	26	50	30	50	26,7	52,6	82,5	63,0	1370
540	26	50	32	50	27,0	54,2	82,8	63,0	2120
540	26	50	34	50	27,3	59,6	83,2	63,0	2900
650	20	50	-10	80	11,3	64,4	71,0	67,2	7600
650	**20**	**50**	**-5**	**80**	**13,0**	**57,6**	**72,0**	**63,0**	**6270**
650	20	50	0	70	14,6	53,8	73,1	63,0	5160
650	20	50	5	60	16,2	50,5	74,4	63,0	4060
650	20	50	10	50	17,6	47,4	75,6	60,9	2930
650	26	50	28	50	26,4	51	78,8	63,0	790
650	26	50	30	50	26,8	52,2	79,0	63,0	1620
650	**26**	**50**	**32**	**50**	**27,2**	**53,6**	**80,0**	**63,0**	**2500**
650	26	50	34	50	27,6	55,3	79,7	63,0	3430

Heating capacity of Recovery Unit Model UT-REC R 110

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
800	20	50	-10	80	12,7	60,8	75,5	70,4	9910
800	20	50	-5	80	14,2	53,3	76,7	63,0	8080
800	20	50	0	70	15,6	50,6	77,8	63,0	6630
800	20	50	5	60	16,8	48,4	79,0	63,0	5190
800	20	50	10	50	18,0	46	80,3	60,9	3730
800	26	50	28	50	26,3	51,2	83,4	63,0	1000
800	26	50	30	50	26,6	52,8	83,8	63,0	2050
800	26	50	32	50	27,0	54,5	84,1	63,0	3150
800	26	50	34	50	27,3	56,5	84,3	63,0	4320
930	20	50	-10	80	11,8	62,4	72,5	67,2	11040
930	20	50	-5	80	13,4	56,1	73,5	63,0	9110
930	20	50	0	70	15,0	52,6	74,8	63,0	7500
930	20	50	5	60	16,4	49,8	76,0	63,0	5880
930	20	50	10	50	17,7	46,9	77,1	60,9	4240
930	26	50	28	50	26,4	51,1	80,6	63,0	1140
930	26	50	30	50	26,8	52,4	80,9	63,0	2350
930	26	50	32	50	27,1	53,9	81,2	63,0	3610
930	26	50	34	50	27,5	55,7	81,5	63,0	4960
1050	20	50	-10	80	11,0	63,4	70,0	64,1	11980
1050	**20**	**50**	**-5**	**80**	**12,7**	**58,5**	**71,0**	**63,0**	**10040**
1050	20	50	0	70	14,4	54,4	72,2	63,0	8270
1050	20	50	5	60	16,0	51	73,4	63,0	6500
1050	20	50	10	50	17,5	48,2	74,7	63,0	4760
1050	26	50	28	50	26,4	50,9	78,0	63,0	1270
1050	26	50	30	50	26,9	52,1	78,4	63,0	2610
1050	**26**	**50**	**32**	**50**	**27,3**	**53,4**	**79,0**	**63,0**	**4030**
1050	26	50	34	50	27,7	55,1	79,0	63,0	5530

Heating capacity of Recovery Unit Model UT-REC R 175

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
1000	20	50	-10	80	14,5	57,6	81,6	76,7	13430
1000	20	50	-5	80	15,7	52,1	82,9	71,4	11070
1000	20	50	0	70	16,8	46,8	83,9	63,0	8730
1000	20	50	5	60	17,8	48,6	85,2	63,0	6820
1000	20	50	10	50	18,6	44,8	86,3	63,0	4940
1000	26	50	28	50	26,2	51,6	89,6	63,0	1290
1000	26	50	30	50	26,4	53,5	89,9	63,0	2640
1000	26	50	32	50	26,6	55,6	90,2	63,0	4060
1000	26	50	34	50	26,8	58,1	90,5	63,0	5560
1450	20	50	-10	80	12,6	56,5	75,2	63,0	17320
1450	20	50	-5	80	14,1	53,4	76,5	63,0	14610
1450	20	50	0	70	15,5	50,9	77,5	63,0	11980
1450	20	50	5	60	16,8	48,5	78,8	63,0	9390
1450	20	50	10	50	18,0	46,1	79,9	60,9	6750
1450	26	50	28	50	26,3	51,2	83,4	63,0	1810
1450	26	50	30	50	26,7	52,8	83,7	63,0	3710
1450	26	50	32	50	27,0	54,4	84,0	63,0	5710
1450	26	50	34	50	27,3	56,5	84,3	63,0	7830
1800	20	50	-10	80	11,3	63	70,9	65,1	20840
1800	**20**	**50**	**-5**	**80**	**13,0**	**57,6**	**72,0**	**63,0**	**17360**
1800	20	50	0	70	14,6	53,7	73,2	63,0	14300
1800	20	50	5	60	16,2	50,6	74,4	63,0	11230
1800	20	50	10	50	17,6	47,4	75,5	60,9	8100
1800	26	50	28	50	26,4	51	79,0	63,0	2190
1800	26	50	30	50	26,8	52,2	79,3	63,0	4500
1800	**26**	**50**	**32**	**50**	**27,2**	**53,6**	**80**	**63,0**	**6940**
1800	26	50	34	50	27,6	55,3	79,9	63,0	9520

TECHNICAL FEATURES

Heating capacity of Recovery Unit Model UT-REC R 220

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
1100	20	50	-10	80	14,7	58,1	82,2	78,8	14970
1100	20	50	-5	80	15,8	52,7	83,4	73,5	12340
1100	20	50	0	70	16,9	46,5	84,4	63,0	9640
1100	20	50	5	60	17,9	45,4	85,7	63,0	7530
1100	20	50	10	50	18,7	44,2	86,7	60,9	5380
1100	26	50	28	50	26,2	51,6	89,8	63,0	1420
1100	26	50	30	50	26,4	53,5	90,0	63,0	2910
1100	26	50	32	50	26,6	55,7	90,4	63,0	4470
1100	26	50	34	50	26,7	58,2	90,7	63,0	6130
1500	20	50	-10	80	13,2	61,2	77,4	74,6	19240
1500	20	50	-5	80	14,7	53,8	78,6	67,2	15710
1500	20	50	0	70	15,9	49,4	79,7	63,0	12630
1500	20	50	5	60	17,1	47,5	80,9	63,0	9880
1500	20	50	10	50	18,2	45,5	82,0	60,9	7090
1500	26	50	28	50	26,3	51,4	85,2	63,0	1890
1500	26	50	30	50	26,6	53	85,5	63,0	3870
1500	26	50	32	50	26,8	54,8	85,9	63,0	5970
1500	26	50	34	50	27,1	57	86,2	63,0	8180
2220	20	50	-10	80	11,0	64,7	70,1	66,2	25620
2220	**20**	**50**	**-5**	**80**	**12,8**	**58,3**	**72,0**	**63,0**	**21270**
2220	20	50	0	70	14,5	54,3	72,3	63,0	17510
2220	20	50	5	60	16,0	51	73,5	63,0	13740
2220	20	50	10	50	17,5	47,6	74,8	60,9	9920
2220	26	50	28	50	26,4	50,9	78,0	63,0	2690
2220	26	50	30	50	26,9	52,1	78,3	63,0	5520
2220	**26**	**50**	**32**	**50**	**27,3**	**53,4**	**79,0**	**63,0**	**8510**
2220	26	50	34	50	27,7	55,1	79,0	63,0	11680

Heating capacity of Recovery Unit Model UT-REC R 255

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
1200	20	50	-10	80	15,1	57	83,7	79,8	16600
1200	20	50	-5	80	16,3	52,3	85,1	75,6	13770
1200	20	50	0	70	17,2	45,6	86,1	63,0	10670
1200	20	50	5	60	18,1	44,8	87,2	63,0	8310
1200	20	50	10	50	18,8	43,7	88,4	60,9	5940
1200	26	50	28	50	26,2	51,7	91,5	63,0	1560
1200	26	50	30	50	26,3	53,8	91,7	63,0	3200
1200	26	50	32	50	26,5	56	92,1	63,0	4920
1200	26	50	34	50	26,6	58,6	92,3	63,0	6730
1850	20	50	-10	80	13,2	61,1	77,5	74,6	23750
1850	20	50	-5	80	14,7	53,6	78,8	67,2	19390
1850	20	50	0	70	15,9	49,4	79,7	63,0	15580
1850	20	50	5	60	17,1	47,5	81,0	63,0	12190
1850	20	50	10	50	18,2	45,5	82,1	60,9	8750
1850	26	50	28	50	26,3	51,3	85,3	63,0	2330
1850	26	50	30	50	26,6	53	85,6	63,0	4780
1850	26	50	32	50	26,8	54,8	85,9	63,0	7360
1850	26	50	34	50	27,1	57	86,2	63,0	10080
2600	20	50	-10	80	11,4	61	71,3	63,0	29900
2600	**20**	**50**	**-5**	**80**	**13,1**	**57,2**	**73,0**	**63,0**	**25190**
2600	20	50	0	70	14,7	53,5	73,5	63,0	20720
2600	20	50	5	60	16,2	50,4	74,7	63,0	16260
2600	20	50	10	50	17,6	47,3	75,8	60,9	11720
2600	26	50	28	50	26,4	51	79,1	63,0	3170
2600	26	50	30	50	26,8	52,2	79,4	63,0	6500
2600	**26**	**50**	**32**	**50**	**27,2**	**53,7**	**80,0**	**63,0**	**10030**
2600	26	50	34	50	27,6	55,4	80,1	63,0	13760

Heating capacity of Recovery Unit Model UT-REC R 320

Flow Rate	Ambient Air		Fresh Air		Treated Air		Yield, %		Recovered power
m3/h	°C	R.H., %	°C	R.H., %	°C	m3/h	°C	R.H., %	°C
2100	20	50	-10	80	13,0	60,1	76,7	71,4	26420
2100	20	50	-5	80	14,5	53,3	78,0	65,1	21660
2100	20	50	0	70	15,8	46,9	79,0	63,0	17570
2100	20	50	5	60	17,0	47,9	80,1	63,0	13750
2100	20	50	10	50	18,1	45,7	81,3	60,9	9870
2100	26	50	28	50	26,3	51,3	84,7	63,0	2640
2100	26	50	30	50	26,6	52,9	85,0	63,0	5410
2100	26	50	32	50	26,9	54,7	85,4	63,0	8330
2100	26	50	34	50	27,1	56,8	85,7	63,0	11420
2700	20	50	-10	80	11,5	62,6	71,8	66,2	31670
2700	20	50	-5	80	13,2	56,7	72,9	63,0	26290
2700	20	50	0	70	14,8	53,1	74,0	63,0	21630
2700	20	50	5	60	16,3	50,2	75,2	63,0	16970
2700	20	50	10	50	17,6	44,2	76,4	60,9	12220
2700	26	50	28	50	26,4	51	79,8	63,0	3300
2700	26	50	30	50	26,8	52,3	80,1	63,0	6780
2700	26	50	32	50	27,2	53,8	80,5	63,0	10450
2700	26	50	34	50	27,5	55,5	80,8	63,0	14340
3250	20	50	-10	80	10,4	65,4	67,8	63,0	36100
3250	**20**	**50**	**-5**	**80**	**12,2**	**60,5**	**69,0**	**63,0**	**30450**
3250	20	50	0	70	14,0	55,9	70,1	63,0	25090
3250	20	50	5	60	15,7	51	71,3	59,9	19360
3250	20	50	10	50	17,2	48,3	72,4	60,9	14260
3250	26	50	28	50	26,5	50,8	75,9	63,0	3890
3250	26	50	30	50	27,0	51,8	76,2	63,0	7992
3250	**26**	**50**	**32**	**50**	**27,4**	**53**	**77,0**	**63,0**	**12330**
3250	26	50	34	50	27,9	54,5	76,8	63,0	16920

CHARACTERISTIC CURVES

The curves reproduced below show the residual pressure for the various flow rates.
The graphs take into account the pressure loss on the air side of the heat recovery unit and filters.

Mod. UT-REC R 33

Mod. UT-REC R 55

Mod. UT-REC R 110

Mod. UT-REC R 175

Mod. UT-REC R 220

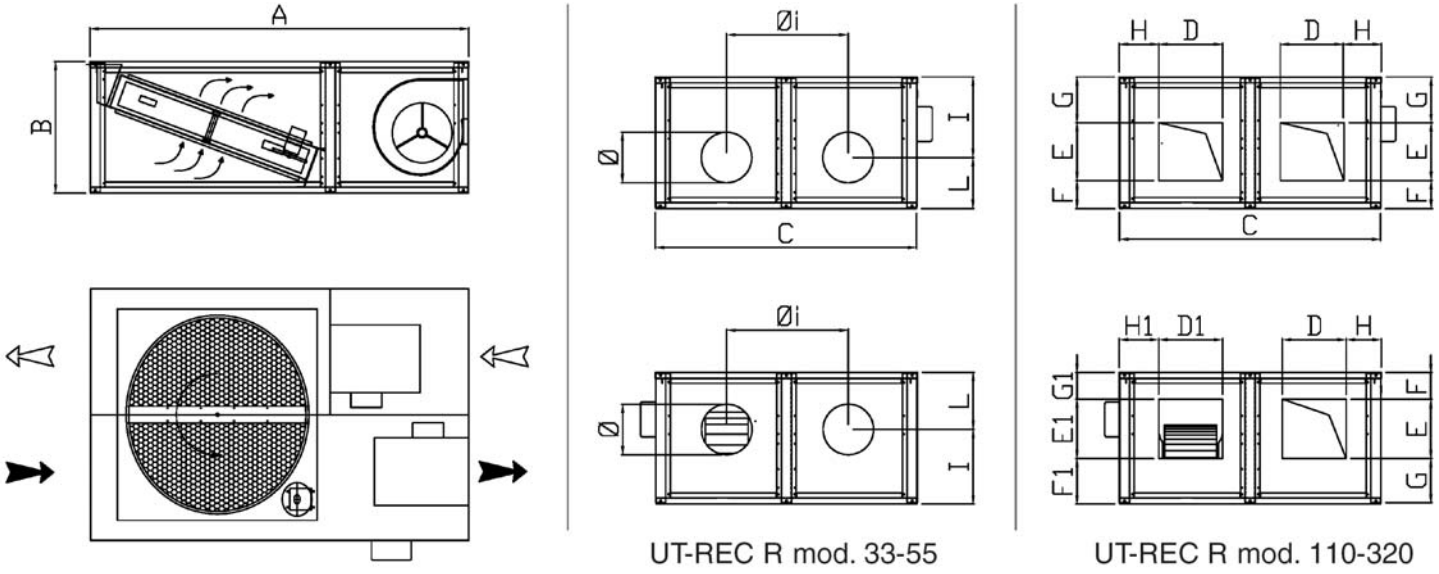
Mod. UT-REC R 255

Mod. UT-REC R 320

OVERALL DIMENSIONS, CONFIGURATION WEIGHTS

Overall Dimensions

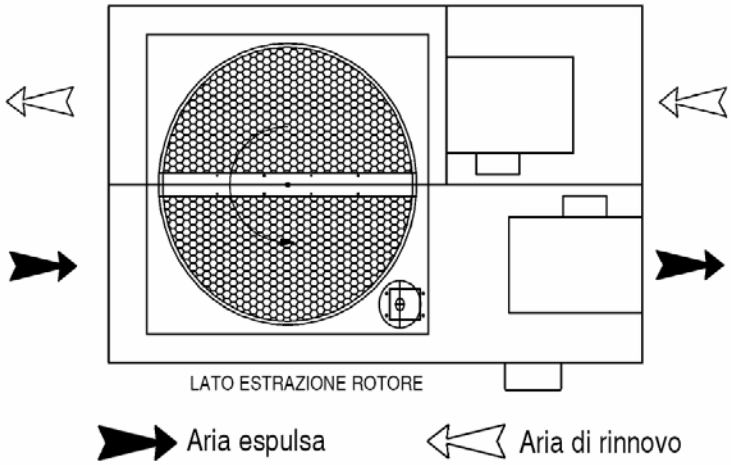
Dimension		Model						
		UT REC-R 33	**UT REC-R 55**	**UT REC-R 110**	**UT REC-R 175**	**UT REC-R 220**	**UT REC-R 255**	**UT REC-R 320**
A	mm	1075	1075	1205	1400	1540	1720	1720
B	mm	425	425	460	530	560	600	600
C	mm	750	750	860	860	960	1230	1230
D	mm	/	/	260	290	290	410	410
D1	mm	/	/	225	225	225	288	325
E	mm	/	/	220	310	310	410	410
E1	mm			200	255	255	255	280
F	mm	/	/	63	70	75	77	77
F1	mm	/	/	162	170	160	170	200
G	mm	/	/	177	150	175	113	113
G1	mm	/	/	98	105	145	175	120
H	mm	/	/	112	112	104	112	112
H1	mm	/	/	110	112	136	150	150
I	mm	260	260	/	/	/	/	/
L	mm	165	165	/	/	/	/	/
Ø	mm	200	200	/	/	/	/	/
Øi	mm	355	355	/	/	/	/	/
Weigh	kg	67	71	102	139	152	178	194



UT-REC R mod. 33-55

UT-REC R mod. 110-320

Possible configurations



The configuration shown refers to the machine viewed from above.

ACCESSORIES

Accessories

- Electric post-heating element, **BE-R**
- Section with water coil, **BW-R** (mod. 110, 220, 320)
- Control damper **SER-R**
- Servo motor for control damper, **SC**
- Kit of 4 circular connectors, **SPC**
- Speed controller **VVM 300W** - **VVM 600W** (mod. 33 – 55)
- Speed switch **COM3**
- Unit control panel **PCO**
- Dirty filters pressure switch **PRF**
- Antifreeze thermostat **TA**

Electric post-heating element, BE-R

We recommend the use of a heater **BE-R** when post-heating is required but no water is available. The heater **BE-R** is a filament heater designed to limit pressure loss.
This heater (which requires a 400/3/50 three-phase supply for models 110-320) can be controlled by the PCO control panel and comes complete with safety thermostats and control relays, whereas protection for the supply line must be provided by the installer.

ELECTRIC SECTION, BE-R		UT REC-R 33	UT REC-R 55	UT REC-R 110	UT REC-R 175	UT REC-R 220	UT REC-R 255	UT REC-R 320
Rated flow rate	kW	1.5	3	3	6	6	12	12
Voltage	V	230	230	400	400	400	400	400
Phases	n°	1	1	3	3	3	3	3
Stages	n°	1	1	1	1	1	1	1
Input	A	6.5	13	4.3	8.65	8.65	17.3	17.3
Air outlet temp. (Δ)	°C	26,4	25,8	20.6	29	20,2	25,8	23,1
Weight	kg	1.5	1.5	2.5	2.5	2.5	5	5

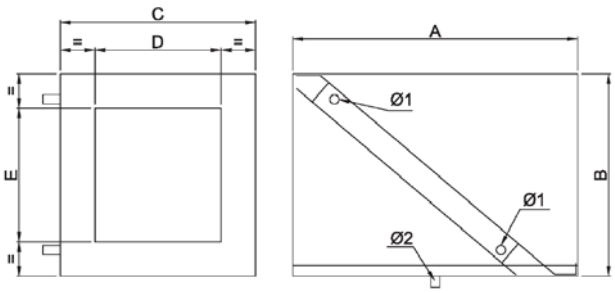
(Δ) Values in reference to air Tin = 12°C and rated air flow rate

Air side pressure loss BE-R section
Pressure loss of the electrical coil ranges from 2 to 10 Pa.

Section with water coil, BW-R

The **BW-R** module contains a water coil; it is placed outside of the machine in front of the inlet. The condensate collection tank is made of stainless steel and has a connector for condensate discharge from underneath.

UT REC-R	110	175	220	255-320
A (mm)	500	600	700	700
B (mm)	410	500	500	600
C (mm)	450	450	480	660
D (mm)	260	290	310	410
E (mm)	210	310	330	410
Ø1 (GAS)	3/4”	3/4”	3/4”	3/4”
Ø2 (mm)	22	22	22	22



Section with water coil, BW-R		UT REC-R 110	UT REC-R 175	UT REC-R 220	UT REC-R 255	UT REC-R 320
Configuration		2522	2522	2522	2522	2522
Tubes per row	n°	16	22	25	26	26
Rows	n°	3	3	3	3	3
Louver spacing	mm	2,1	2,1	2,1	2,1	2,1
Heating						
Heating capacity (*)	kW	12,3	19,7	24,8	31,5	36,4
Air outlet temperature	°C	45,2	43,2	43,8	46,5	43,9
Water flow rate	m3/h	1,02	1,65	2,08	2,64	3,1
Water pressure loss	kPa	4	11	20	18	22
Air pressure loss	Pa	28	41	39	27	40
Cooling						
Cooling capacity (**)	kW	5,4	10,1	13,2	16,3	19,6
Sensible cooling capacity	kW	3,8	6,7	8,7	10,6	12,7
Air outlet temperature	°C	19,2	19,3	18,9	17,9	18,82
Water flow rate	m3/h	0,92	1,65	2,16	2,87	3,2
Water side pressure loss drop	kPa	4	15	27	26	30
Air side pressure loss	Pa	38	50	53	45	48

(*) Values in reference to: air Tin 12°C, inlet/outlet water temperature 70/60 °C; rated air flow rate.
(**) Values in reference to: air Tin 30°C, relative humidity 50%. inlet/outlet water temperature 7/12 °C; rated air flow rate.

Heating capacity section BW-R model UT-REC R 110

Fixed Values				Calculated Values						
Water		Air		Air			Water			
Tin (°C)	Tu (°C)	Qa (m3/h)	Ti (°C)	Tu (°C)	Vel (m/s)	Dp (Pa)	Pw (L/s)	Vel (m/s)	Dp (kPa)	Pot (kW)
70	60	1050	6	43	2,3	27	0,32	0,75	5	13
70	60	1050	8	43,7	2,3	28	0,31	0,72	5	13,2
70	60	1050	10	44,4	2,3	28	0,3	0,69	4	12,7
70	**60**	**1050**	**12**	**45.2**	**2,3**	**28**	**0.28**	**0.67**	**4**	**12,3**
70	60	1050	20	48	2,3	29	0,24	0,57	3	10,4
45	40	1050	6	28,7	2,3	25	0,39	0,91	9	8,4
45	40	1050	8	29,4	2,3	25	0,36	0,86	8	7,9
45	40	1050	10	30,2	2,3	27	0,34	0,8	7	7,5
45	40	1050	12	30,9	2,3	27	0,32	0,76	6	6,9
45	40	1050	20	33,7	2,3	28	0,23	0,55	3	5

Heating capacity section BW-R model UT-REC R 175

Fixed Values				Calculated Values						
Water		Air		Air			Water			
Tin (°C)	Tu (°C)	Qa (m3/h)	Ti (°C)	Tu (°C)	Vel (m/s)	Dp (Pa)	Pw (L/s)	Vel (m/s)	Dp (kPa)	Pot (kW)
70	60	1800	6	40,6	2,8	41	0,51	1,19	14	21,9
70	60	1800	8	41,5	2,8	41	0,49	1,16	13	21,2
70	60	1800	10	42,3	2,8	41	0,48	1,12	12	20,5
70	**60**	**1800**	**12**	**43,2**	**2,8**	**41**	**0,46**	**1,08**	**11**	**19,7**
70	60	1800	20	46,5	2,8	42	0,39	0,9	8	16,7
45	40	1800	6	27,3	2,8	39	0,62	1,46	22	13,4
45	40	1800	8	28,1	2,8	39	0,59	1,38	19	12,7
45	40	1800	10	29	2,8	40	0,55	1,3	17	12
45	40	1800	12	29,8	2,8	40	0,52	1,22	16	11,2
45	40	1800	20	33	2,8	41	0,38	0,89	8	8,3

Heating capacity section BW-R model UT-REC R 220

Fixed Values				Calculated Values						
Water		Air		Air			Water			
Tin (°C)	Tu (°C)	Qa (m3/h)	Ti (°C)	Tu (°C)	Vel (m/s)	Dp (Pa)	Pw (L/s)	Vel (m/s)	Dp (kPa)	Pot (kW)
70	60	2220	6	41,3	2,8	38	0,64	1,5	24	27,5
70	60	2220	8	42,1	2,8	38	0,62	1,45	22	26,6
70	60	2220	10	42,9	2,8	38	0,6	1,4	21	25,7
70	**60**	**2220**	**12**	**43,8**	**2,8**	**39**	**0,58**	**1,36**	**20**	**24,8**
70	60	2220	20	47	2,8	40	0,49	1,15	15	21,1
45	40	2220	6	27,7	2,8	36	0,78	1,83	37	16,9
45	40	2220	8	28,5	2,8	36	0,74	1,73	33	16,1
45	40	2220	10	29,3	2,8	37	0,7	1,63	30	15,1
45	40	2220	12	30,2	2,8	37	0,65	1,53	27	14,2
45	40	2220	20	33,4	2,8	38	0,48	1,13	16	10,4

Heating capacity section BW-R model UT-REC R 255

Fixed Values				Calculated Values						
Water		Air		Air			Water			
Tin (°C)	Tu (°C)	Qa (m3/h)	Ti (°C)	Tu (°C)	Vel (m/s)	Dp (Pa)	Pw (L/s)	Vel (m/s)	Dp (kPa)	Pot (kW)
70	60	2600	6	44,3	2,2	27	0,81	1,4	22	35
70	60	2600	8	45,1	2,2	27	0,79	1,39	21	33,8
70	60	2600	10	45,8	2,2	27	0,76	1,34	19	32,7
70	**60**	**2600**	**12**	**46,5**	**2,2**	**27**	**0,73**	**1,29**	**18**	**31,5**
70	60	2600	20	49,4	2,2	28	0,63	1,1	13	26,9
45	40	2600	6	29,6	2,2	26	0,99	1,75	34	21,5
45	40	2600	8	30,3	2,2	26	0,94	1,65	31	20,4
45	40	2600	10	31	2,2	26	0,88	1,56	28	19,2
45	40	2600	12	31,7	2,2	26	0,83	1,47	24	18,1
45	40	2600	20	34,5	2,2	27	0,61	1,08	14	13,3

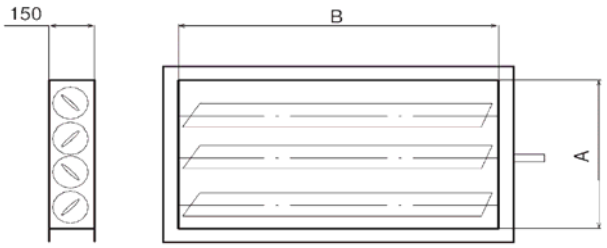
ACCESSORIES

Heating capacity section BW-R model UT-REC R 320

Fixed Values				Calculated Values						
Water		Air		Air			Water			
Tin (°C)	Tu (°C)	Qa (m3/h)	Ti (°C)	Tu (°C)	Vel (m/s)	Dp (Pa)	Pw (L/s)	Vel (m/s)	Dp (kPa)	Pot (kW)
70	60	3250	6	41,4	2,8	39	0,94	1,66	26	40,4
70	60	3250	8	42,3	2,8	39	0,91	1,6	25	39,1
70	60	3250	10	43,1	2,8	39	0,88	1,55	23	37,8
70	**60**	**3250**	**12**	**43,9**	**2,8**	**40**	**0,85**	**1,49**	**22**	**36,4**
70	60	3250	20	47,2	2,8	41	0,72	1,27	16	31,1
45	40	3250	6	27,8	2,8	37	1,15	2,02	41	24,9
45	40	3250	8	28,6	2,8	37	1,09	1,92	37	23,5
45	40	3250	10	29,4	2,8	38	1,02	1,8	33	22,2
45	40	3250	12	30,2	2,8	38	0,96	1,7	29	20,8
45	40	3250	20	33,4	2,8	39	0,71	1,25	17	15,3

Control damper SER-R

The control damper SER comprises a galvanised sheet steel frame with adjustable slats.

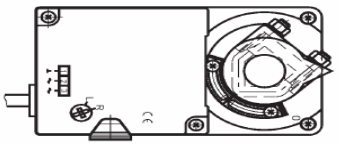


Dimensions

Model	B (mm)	A (mm)
UT REC-R 110	260	210
UT REC-R 175	290	310
UT REC-R 220	330	310
UT REC-R 255-320	410	410

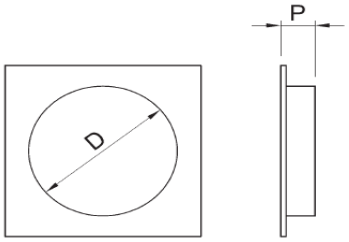
Servo motor for control damper, SC

The **SC** servo motor allows the SER-R dampers to be motorized.



Kit of 4 circular connectors, SPC

The **SPC** connectors make it possible to quickly connect units to circular ducts for the intake and discharge of air. The rings made of galvanized sheet metal possess appropriate dimensions, depending on the heat recovery unit, as shown in the table.



Dimensions

UT REC-R	**110**	**175-220**	**255-320**
D (mm)	315	355	400
P (mm)	100	100	100

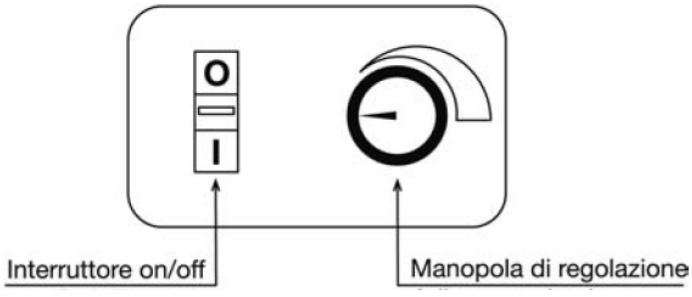
Speed controller VVM 300W - VVM 600W (MOD. 33 – 55)

The speed controller **VVM** is wall-mounted and enables the fan to be adjusted by the single-phase motor. There are available two models of regulators depending on the power output of the fan motor: **VVM 1.5** and **VVM 3**.

The following controls are on the front panel:
- the ON/OFF switch
- the continuous speed adjustment knob.

Technical features

Model	VVM 1,5	VVM 3,0
Electric Power Supply	230 / 1 / 50	230 / 1 / 50
Rated current	1,5 A	3 A
Maximum current	3 A	5 A
Adjustment range	40% - 100% Vmax	40% - 100% Vmax

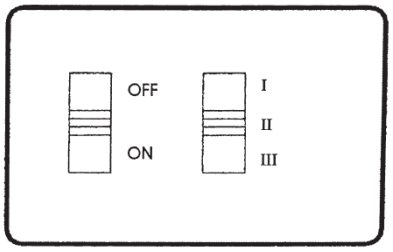


ACCESSORIES

Speed Switch COM3

This wall-mounted control enables the three speeds of the electric fan to be selected.
The **COM3** has the following controls:
- ON/OFF switch;
- three speed switch (minimum, medium, maximum)

230V supply



Technical features

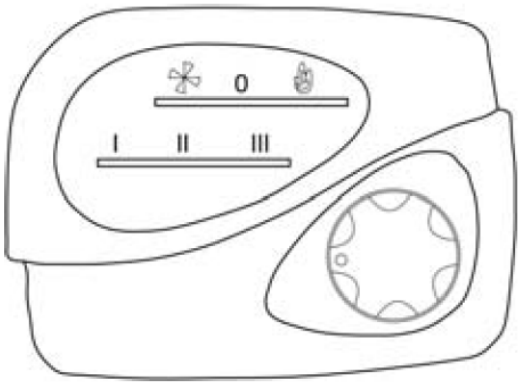
Power supply:	230 +/- 10% Va.c; 50/60Hz
Adjustments:	Manual Switch: On / Off Three-speed Switch: Min / Med / Max
Max. charge that can be connected:	2A a/at 250 V a.c
Level of Protection:	IP 30
Operating temp.:	0°C -40°C

PCO Unit control panel

The **PCO** panel, a wall-mounted device, enables the ambient temperature to be controlled both in summer and winter mode. It gives consent for the activation or deactivation of a water coil or electric element and it selects the fan's operating speed from among minimum, medium, and maximum (with the exception of models 33 and 55 for which there is just one speed).

The following controls are on the front panel:
- "Summer / Off / Winter" selector switch;
- "Speed" selector switch;
- temperature adjustment knob;

230 V supply

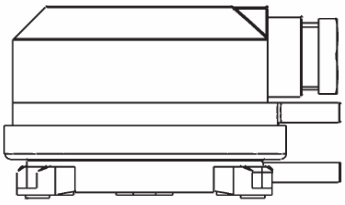


Technical features

Power supply:	230 V ac -15 / +10% Vac; 50/60Hz
Power consumption:	3 VA
Cut-out Relay:	5A a/at 250 V ac
Adjustments:	Room Thermostat Knob Manual Switch: Winter/Off/Summer Three-speed Switch: Min / Med / Max
Operating temp.:	0°C -40°C
Adjustment range:	10°C -30°C
Level of Protection:	IP 20

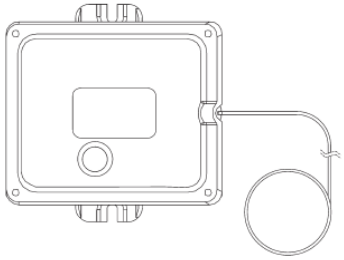
Dirty filters pressure switch, PRF

Suitable to be installed on the machine. It allows the desired pressure differential to be set so that the filter's condition can be checked regarding clogging.



Frost protection thermostat, TA

Suitable to be installed on the machine. It makes it possible to check that the temperature does not drop below a set value.



The manufacturer declines all responsibility for any printing or transcription errors contained in the present document.

Ferroli
i migliori gradi centigradi

AVVISO PER GLI OPERATORI COMMERCIALI:
Nell'ottica della ricerca del miglioramento continuo della propria gamma produttiva, al fine di aumentare il livello di soddisfazione del Cliente, l'Azienda precisa che le caratteristiche estetiche e/o dimensionali, i dati tecnici e gli accessori possono essere soggetti a variazione.

Occorre pertanto prestare la massima cura affinché ogni documento tecnico e/o commerciale (listini, cataloghi, depliants ecc...) fornito al Cliente finale risulti essere aggiornato con l'ultima edizione. I prodotti del presente documento possono essere considerati coperti da garanzia se acquistati e installati in Italia.

L'Organizzazione Commerciale e quella dei Centri di Assistenza Tecnica sono reperibili sulle PAGINE GIALLE alle voci "CALDAIE A GAS" e "CONDIZIONAMENTO ARIA", sul sito internet www.ferroli.it.

Per qualsiasi informazione riguardante i prodotti e l'Assistenza Tecnica contattare:

Numero Verde
800-59-60-40

GRUPPO FERROLI

Ferroli spa ¬ 37047 San Bonifacio (Verona) Italy ¬ Via Ritonda 78/A
tel. +39.045.6139411 ¬ fax +39.045.6103595 ¬ www.ferroli.it