> UT REC R

SINGLE PANEL ROTARY HEAT RECOVERY UNITS

Units Series

Unit type

UT REC R horizontal configuration

Unit specification

The UT-REC R horizontal heat recovery units feature compact dimensions and easy assembly. The rotary heat exchanger is made from aluminium sheets, alternatevely plane and corrugated, one another wrapped. The result is a honey-comb structure in wich conducts pass both the fresh air and the stale air flows. The exchanger surface, made porous and hygroscopic by some treatments, allows to absorb the humidity. Half the rotor is immersed in the stale air flow which (in winter conditions) yields heat and humidity to the hygroscopic matrix; then, as a consequence of rotation, the fresh air flows in these conducts , recovering both heat and humidity (latent heat). The two fans are centrifugal type.

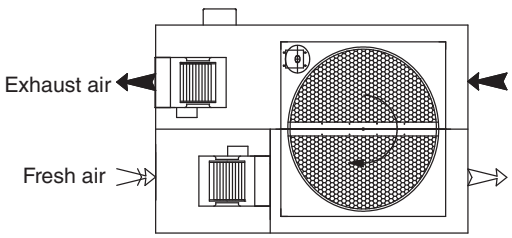
The rotary exchanger allows, in winter conditions, to recover both the sensible and the latent heat. So it's possible to achieve peak efficiency up to 90%. In summer conditions a part of the humidity contained in the inlet flow is ceded to the expulsion flow, achieving analogous peak efficiency.
Thanks to this high efficiency, the fresh air in winter conditions can be directly introduced in air-conditioned rooms, without installing post-heating sections.
The inlet fan is pressing on the heat exchanger, so the air blow-by direction is from the fresh air to the stale air flow.
The drain pan collector is not present because the humidity contained in one of air flows is partially absorbed by the porous surface but then completely transferred to the opposite flow: therefore the humidity condensation is avoided.
With the fans working, it is possible to stop the heat exchanger rotation: so we realize a "virtual bypass", useful during the between seas.

Main accessories/Options

BE Electric post-heating section
BFW Water coil section
SER Regulation damper
SC Damper actuators
SPC N. 4 connections for circular ducts kit
VVM Electronic speed controller (only for mod. 33-55)
COM3 Speed controller COM3
PCO Unit control panel
2xPRF Pressure switch for dirty filter signal
TA Anti-freeze thermostat

CONFIGURATION

Depending on the configuration of the plant duct are available four possible configuration of recovery.



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MODEL - UT-REC R	33	55	110	175	220	255	320	410	530	
Nominal air flow	310	650	1050	1800	2220	2600	3250	4290	5300	m3/h
Static pressure (1)	260	65	80	130	100	110	125	130	145	Pa
Absorption max. total machine	1,2	1,8	2,5	4,8	5,2	5,6	8,7	5,4	6,6	A
Sound pressure level (2)	47	51	47	51	50	48	50	54	58	db (A)
FANS	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	**530**	
Power available to the axis	90 x 2	90 x 2	147 x 2	350 x 2	350 x 2	350 x 2	550 x 2	750 x 2	800 x 2	W
Poli	2					4				n°
number of speeds	1 (3)				3 (4)			2 (4)		n°
Degree of protection			44			55	44	55	20	IP
Class of insulation					F					
power Supply				230/1/50				400/3/50		V/ph/Hz

(1) Referred to the nominal air flow after plate heat exchanger and G4 standard filters.
(2) Sound pressure level: data referred to 1,5 meters from inlet in free field. The actual operation noise level generally differs from the values shown in the table, depending on the operation conditions, on the reflected noise and on the surrounding noise.
(3) Adjustable with electronic speed controller VVM (optional)
(4) Selectionable with COM3 or PCO control (optional)

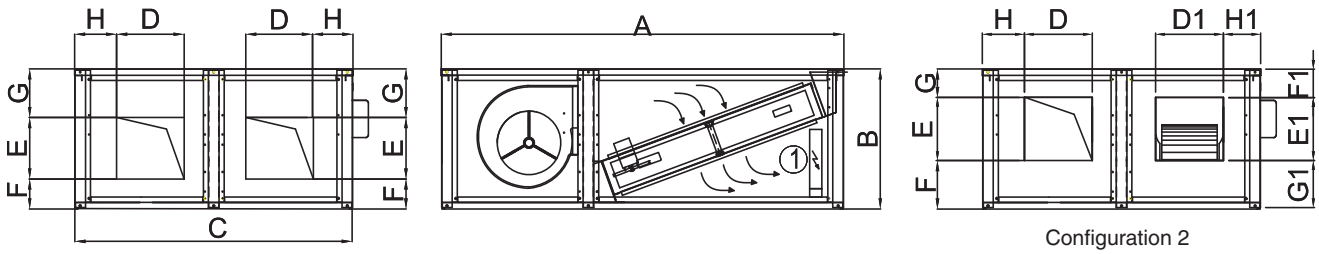
Technical data

HEAT RECOVERY	33	55	110	175	220	255	320	410	530	
Winter conditions (5)										
Efficiency (temperature / enthalpy)	79/76	72/69	71/68	72/69	72/69	72/69	69/67	63/63	64/62	%
Thermal power recovered	3,0	6,3	10,0	17,4	21,3	25,2	30,5	38,0	42,0	kW
Treated air temperature	14,7	13,0	12,7	12,9	12,9	13,1	12,3	10,6	11,1	°C
Humidity treated air	56,0	57,6	58,7	57,6	57,9	57,2	60,3	67,5	62,1	%
Summer conditions (6)										
Efficiency (temperature / enthalpy)	79/74	80/69	79/69	80/69	79/69	80/69	77/68	70/66	70/66	%
Thermal power recovered	1,3	2,5	4,0	6,9	8,5	10,0	12,3	15,7	19,4	kW
Treated air temperature	27,3	27,2	27,3	27,2	27,3	27,2	27,4	27,8	27,8	°C
Humidity treated air	52,0	53,7	53,4	53,7	53,4	53,7	53,1	51,9	52,1	%
ELECTRICAL RESISTANCE HEATING POST - BE	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	**530**	
Power rating	1,5	3	3	6	6	12	12	12	18	kW
Voltage	230	230	400	400	400	400	400	400	400	V
Phases	1	1	3	3	3	3	3	3	3	n
Stadiums	1	1	1	1	1	1	1	1	1	n
Absorption	6,5	13	4,3	8,65	8,65	17,3	17,3	17,3	26	A
T air outlet (9)	26,4	25,8	20,6	21,8	20,2	25,8	23,1	20,4	22,0	°C
Weight	1,5	1,5	2,5	2,5	2,5	5	5	5	8	kg
SECTION WITH WATER COIL HOT / COLD - BFW	**33**	**55**	**110**	**175**	**220**	**255**	**320**	**410**	**530**	
Geometry	2522	2522	2522	2522	2522	2522	2522	2522	2522	-
Tubes for rank	13	13	16	22	25	26	26	26	32	n°
Ranks	3	3	3	3	3	3	3	3	3	n°
Fin spacing	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1	21	mm
Heat output (7)	4,5	7,9	12,3	19,7	24,8	31,5	36,4	45,4	57,0	kW
Leaving air temperature	53,6	46,8	45,2	43,2	43,8	46,5	43,9	42,4	43,1	°C
Water flow	0,4	0,7	1,0	1,7	2,1	2,6	3,1	3,7	5,0	m³/h
Water pressure drops	3	7	4	11	20	18	22	21	34	kPa
Pressure drop air	11	38	28	41	39	27	40	53	60	Pa
Cooling capacity (8)	2,1	3,6	5,4	9,5	12,4	16,1	18,5	22,1	27,1	kW
Sensible cooling capacity	1,3	2,4	3,6	6,3	8,2	10,4	12,1	14,7	18,1	kW
Leaving air temperature	17,0	19,0	19,6	19,4	18,8	17,9	18,7	19,6	19,6	°C
Water flow	0,4	0,6	0,9	1,7	2,2	2,9	3,2	3,8	4,6	m³/h
Water pressure drop	2,8	7,5	4	15	27	26	30	30	37	kPa
Loss of air cargo	14	38	38	50	53	45	48	60	76	Pa

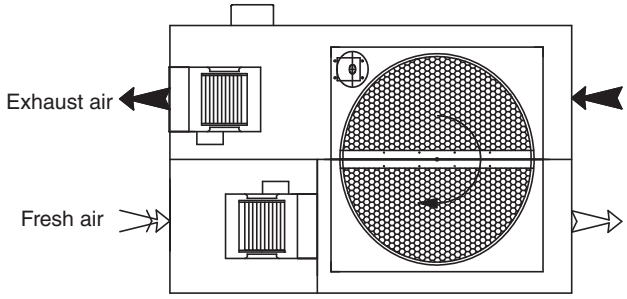
(5) Nominal winter conditions:
outside air: -5°C DB, RH 80 % - ambient air: 20°C DB, RH 50 %
(6) Nominal summer conditions:
Outdoor air: 32 ° C DB, 50% RH - Ambient air: 26 ° C DB, 50% RH
(7) Amounts refer to: Ting. air 12 ° C, water temperature in / out 70/60 ° C, nominal air flow
(8) Amounts refer to: Ting. air 30 ° C, 50% RH Water in / out 7/12 ° C, air flow rate nominal
(9) Amounts refer to: Ting. air 12 ° C and nominal air flow

DIMENSIONS

(drawing indicative of the series)



Configuration 2



Mod.	33	55	110	175	220	255	320	410	530
A mm	1075	1075	1205	1400	1540	1720	1720	1720	1900
B mm	425	425	460	530	560	600	600	600	700
C mm	750	750	860	860	960	1230	1230	1230	1400
D mm	200	200	260	290	290	410	410	410	510
D1 mm	224	224	225	225	225	288	325	325	325
E mm	210	210	220	310	310	410	410	410	510
E1 mm	100	100	200	255	255	255	280	280	280

Mod.	33	55	110	175	220	255	320	410	530
F mm	75	75	63	70	75	77	77	77	77
F1 mm	195	195	162	170	160	170	200	200	200
G mm	140	140	177	150	175	113	113	113	113
G1 mm	130	130	98	105	145	175	120	120	220
H mm	92	92	112	112	104	112	112	112	105
H1 mm	85	85	110	112	136	150	150	150	195
Weight kg	67	71	102	139	152	178	194	207	225