Ferroli

UT-REC DP F

HEAT-RECOVERY UNITS WITH DOUBLE LAYER PANEL AND BUILT-IN HEAT EXCHANGER

TECHNICAL MANUAL

INTRODUCTION

UT-REC DP F heat recovery units combine maximum ambient comfort with guaranteed energy savings. Existing air-handling and conditioning units require forced ventilation which results in the treated air being expelled, involving high energy consumption and increased costs.

The **UT-REC DP F** series is designed to solve these problems by using a static heat-recovery unit that saves over 50% of the energy which would otherwise be wasted. These units, which can easily be incorporated into conventional systems made up of fan coil, radiators and conditioning units, operate in both winter and summer mode.

The **UT-REC DP F** series includes five models which offer flow rates ranging from 500 m^3/h to 4000 m^3/h. The high static pressures generated enable ducting to be installed which allows air to be extracted from or admitted into several rooms. These units are fitted with a four-row exchanger as standard to cool the outside air as it leaves the recovery unit

CONTENTS

1. CONSTRUCTION FEATURES OF THE UT-REC DP F UNIT

STRUCTURE: made of sturdy extruded aluminium sections and double panelling comprising galvanised sheet steel on the inside and pre-painted galvanised sheet steel on the outside with 23 mm-thick hot-injected expanded polyurethane sound- and heat-proofing.
HEAT-RECOVERY UNIT: static aluminium unit recovering the expelled heat which would otherwise be dispersed. High-quality insulation guarantees optimum efficiency.
CONDENSATE TRAY: made of sheet steel and positioned underneath the recovery unit in order to collect the condensate during summertime operation.
AIR FILTER: made of corrugated filtering cells, the filtering medium comprising Class G4 polyester fibres (weighted eff. 90.1%), with a metal frame and electro-welded mesh container that can be easily extracted from the side.
FAN MOTOR: this direct drive unit has a three-speed fan/motor unit with built-in thermal protection and a permanently-connected condenser, having an impeller that is both statically and dynamically balanced to cut vibration and noise to a minimum.
HEAT EXCHANGER: made of copper pipes arranged in staggered rows to increase heat exchange and aluminium fins secured by the mechanical expansion of the pipes, with four rows for air-conditioning and heating.

2. TECHNICAL DATA

2.1 FAN TECHNICAL DATA

UT-REC DP F		005	01	02	03	04
Air flow	m^3/h	500	1000	2000	3000	4000
Available static pressure*	Pa	125	167	148	220	127
Weight	kg	118	140	172	252	328
Available shaft power	W	45x2	184x2	350x2	550x2	1100x2
Poles	No.	4	4	4	4	6
Maximum current input	A	0,74x2	1,9x2	3,0x2	5,9x2	7,8x2
Fan speeds	No.	3	3	3	3	1
International protection		IP 32	IP 55	IP 44	IP 20	IP 20
Insulation class		B	F	F	F	B
Power supply	V/ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
Noise level	dB(A)	56,2	59,6	63,0	64,8	69

* *Available static pressure in the system, in relation to the nominal air-flow rate*

2.2 CAPACITY PERFORMANCES

UT-REC DP F		005	01	02	03	04
Efficiency	%	43	48,5	45,2	48,9	49,5
Capacity **	kW	0,6	1,3	2,5	4,0	5,4
Return air outlet temp. **	°C	31,6	31,1	31,4	31,1	31,0
Outlet relative humidity	%	55	55	55	56	55
Capacity ***	kW	0,3	0,7	1,2	2,0	2,7
Return air outlet temp.***	°C	30,3	30,1	30,2	30,0	30,0
Outlet relative humidity	%	55	55	55	56	55

*** Recovery from cold values based on the following conditions: outside air T=35°C, RH 40%, ambient air T=27°C, RH 48%; nominal air flow rate*

**** Recovery from cold values based on the following conditions: outside air T=32°C, RH 50%, ambient air T=28°C, RH 50%; nominal air flow rate*

2.3 WATER EXCHANGER

2.3.1 Conditioning Performance

UT-REC DP F		005	01	02	03	04
Rows	No.	4	4	4	4	4
Cooling cap. with water at 7°/12°C*	kW	4,8	6,5	15,0	20,0	29,2
Air outlet temperature*	°C	14,9	19,2	18,5	19,2	18,3
Cooling cap. with water at 7°/12°C**	kW	4,8	6,5	15,0	20,0	29,2
Air outlet temperature**	°C	14,9	19,2	18,5	19,2	18,3
Air side pressure drop	Pa	31	74	71	88	71
Water side pressure drop	kPa	3	11,4	22,2	23,4	8,2

** Values measured with air entering the exchanger in recovery-unit outlet temperature conditions, assuming:*
- outside air being conditioned T=35°C, RH 40%, inside air T=27°C, RH 48% ; nominal air flow rate

*** Values measured with air entering the exchanger:*
- T=30°C, RH 55%; nominal air flow rate

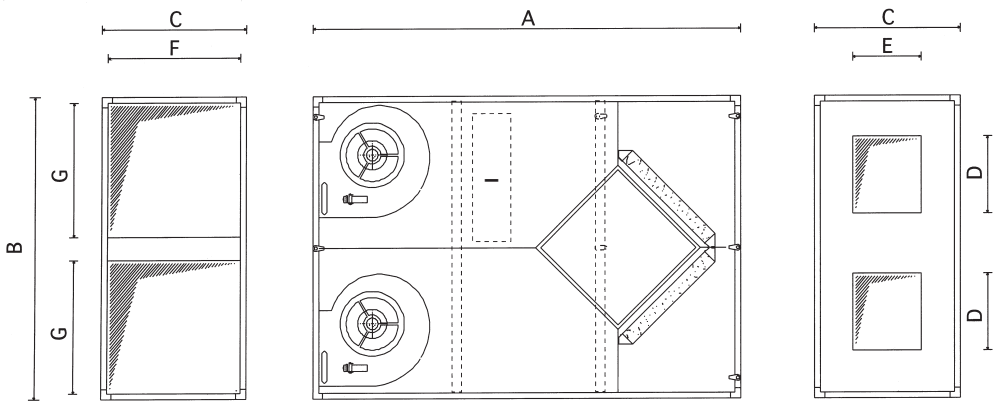
2.3.2 Heating Performance

UT-REC DP F		005	01	02	03	04
Rows	No.	4	4	4	4	4
Heating cap. with water at 45°/40°C***	kW	4,7	7,8	16,7	23,0	25,9
Air outlet temperature***	°C	35,1	31,4	31,8	31,1	27,9
Heating cap. with water at 50°/30°C***	kW	3,6	6,0	13,7	18,5	24,4
Air outlet temperature***	°C	28,7	26,0	27,5	26,8	26,8
Air side pressure drop	Pa	31	74	71	88	71

**** Values measured with air entering the exchanger in recovery-unit outlet temperature conditions, assuming:*
- outside air being heated T=-5°C, inside air T=20°; nominal air flow rate

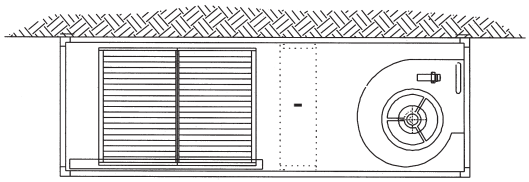
N.B. *- To ensure that the unit operates correctly when heating, the maximum permissible water delivery temperature is T=50°C. We therefore recommend connection to a condensation boiler. If the unit is connected to a conventional boiler, a three-way valve must be used so that the system's delivery temperature can be adjusted.*

3. DIMENSIONS



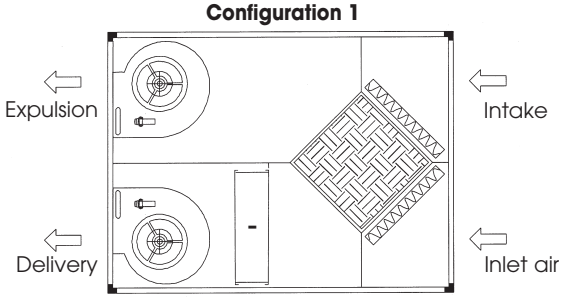
UT-REC DP F			005	01	02	03	04
Dimensions	**A**	mm	1290	1540	1540	1790	2040
	B	mm	1040	1040	1400	1790	2040
	C	mm	400	500	500	600	650
	D	mm	135	205	265	295	395
	E	mm	225	235	235	265	341
	F	mm	320	420	420	520	570
	G	mm	380	380	380	640	640

ARRANGEMENT (H)

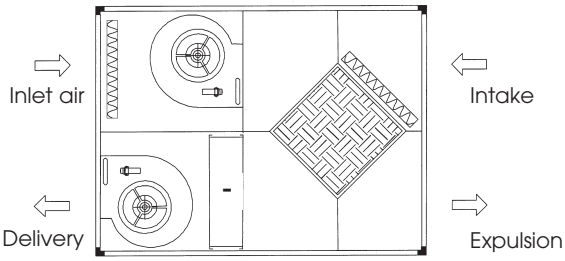


4. POSSIBLE CONFIGURATIONS

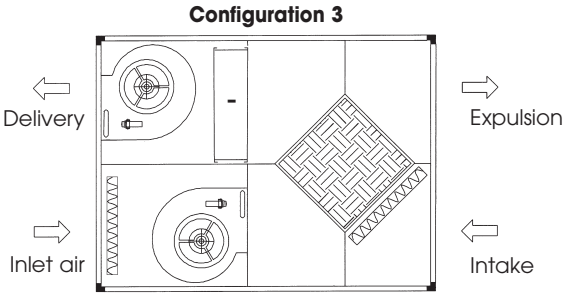
Configuration 1



Configuration 2



Configuration 3

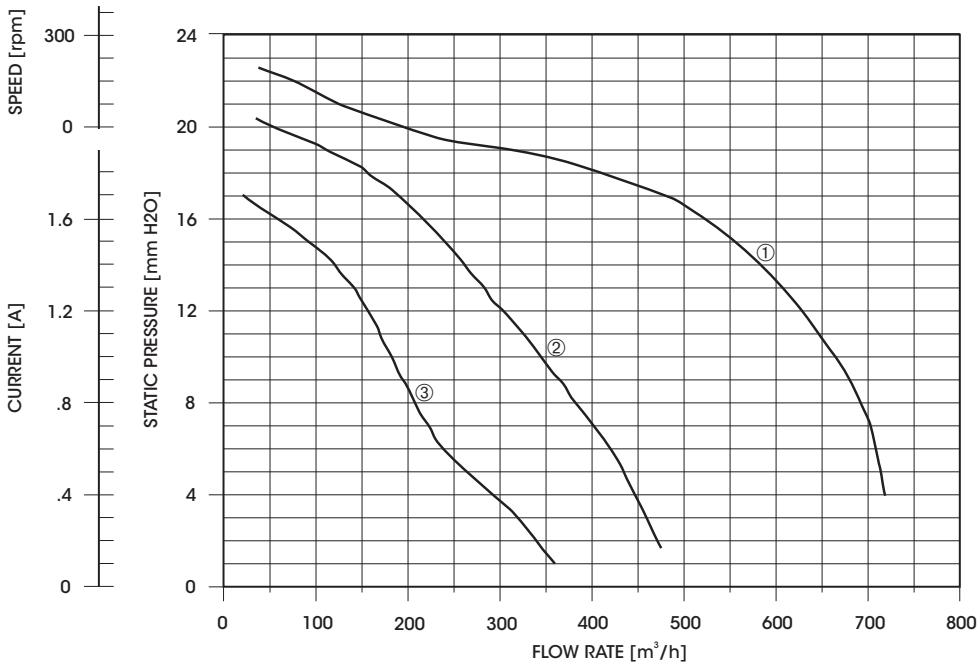


5. ACCESSORIES AVAILABLE

- Safety micro-switch on the inspection door (**MS**)
- Three speed switch (**CP**)

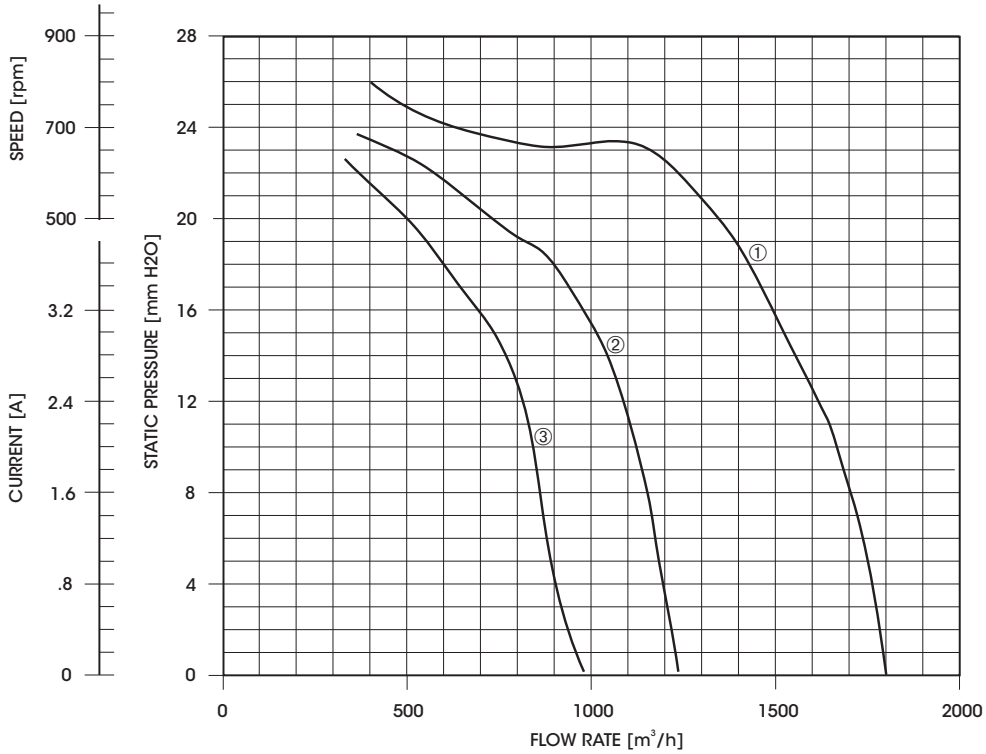
6. AIR FLOW CHARTS

UT-REC DP F 005

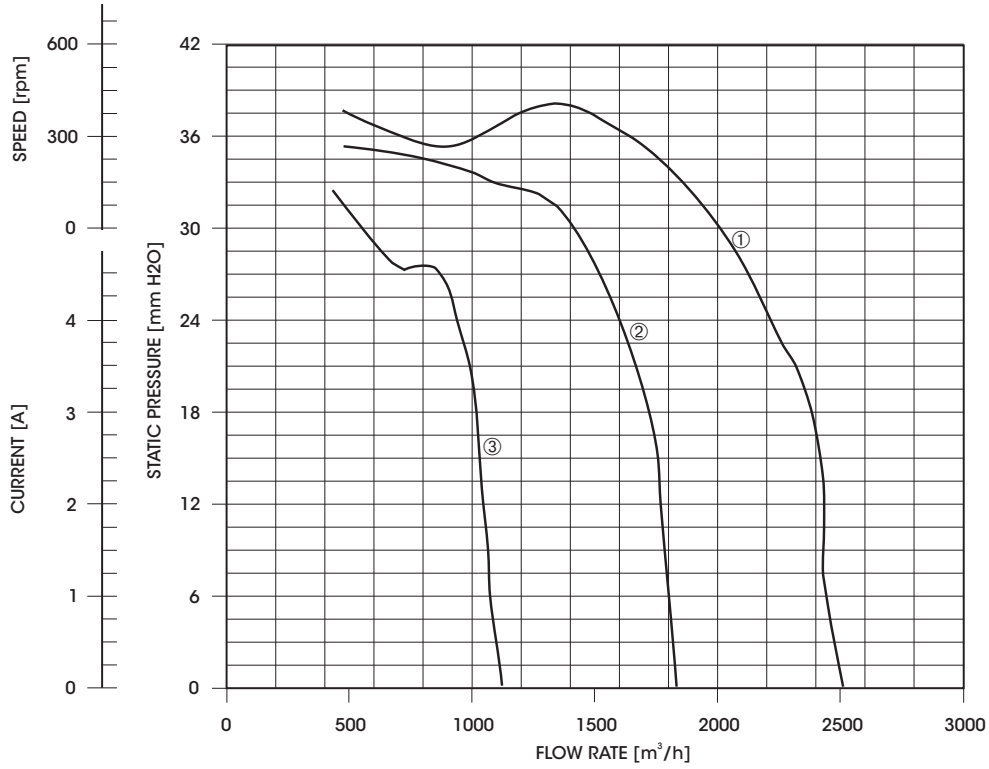


UT-REC DP F 01

① HIGH SPEED
② MEDIUM SPEED
③ LOW SPEED

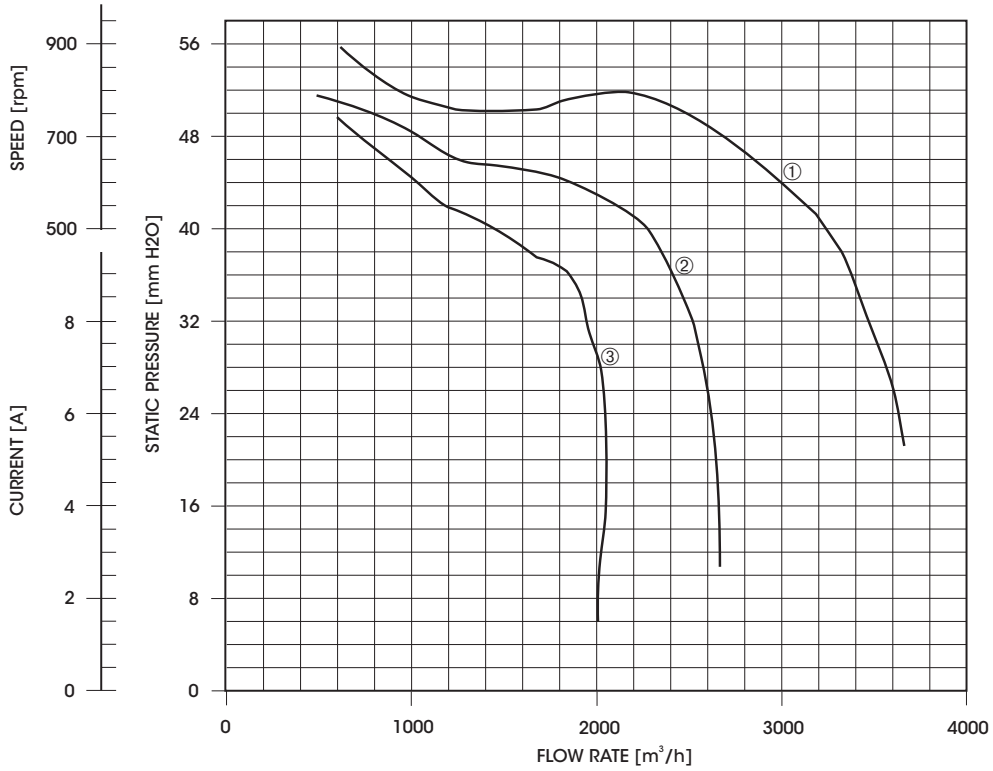


UT-REC DP F 02

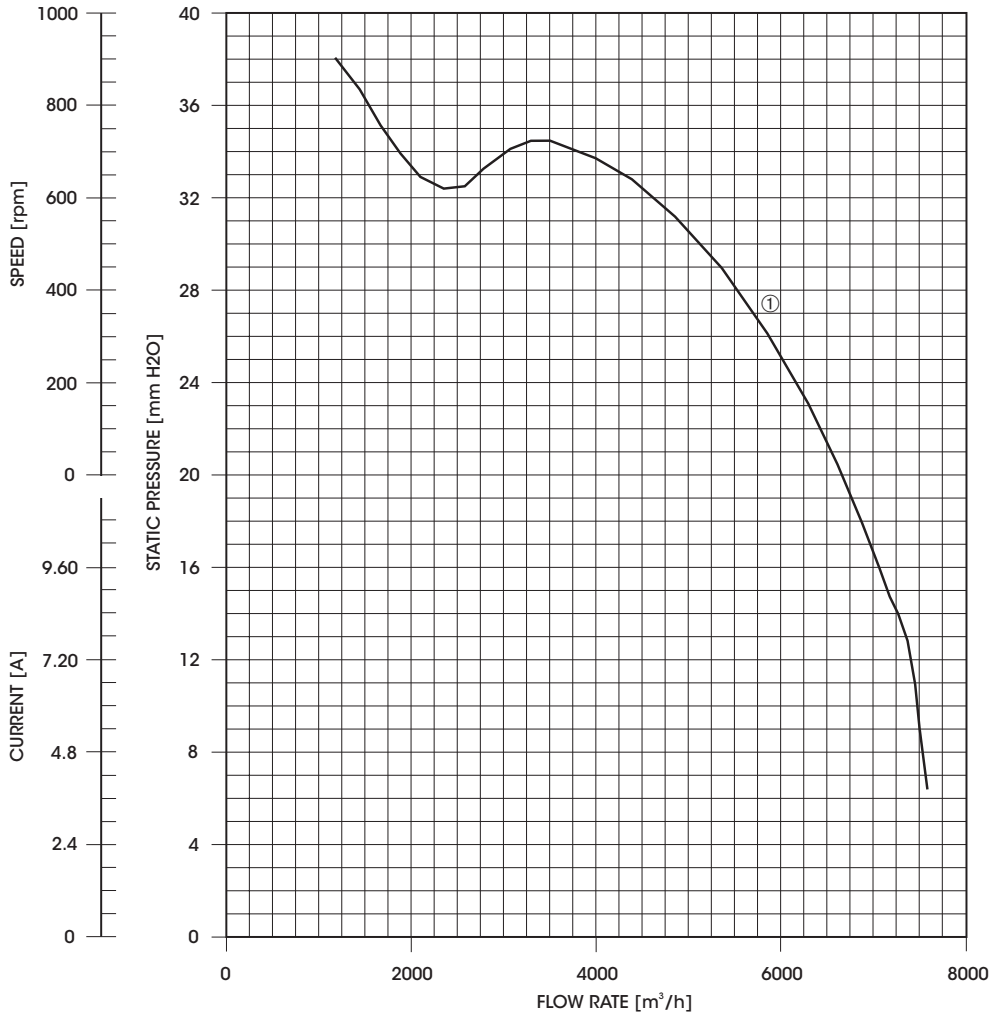


① HIGH SPEED
② MEDIUM SPEED
③ LOW SPEED

UT-REC DP F 03



UT-REC DP F 04



① 240 V

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