

Description

The GE 5090 is a ventilation unit consisting of a countercurrent heat exchanger, supply and extract fans with belt drive and 1 speed motors, bagfilter F5 and an internal bypass.

The GE 5090 base model can be supplied with the following optional extras:

- Cooling aggregat 5090 C
- Roof + sealing for outdoor assemblage
- Plastic-coated lightgrey (RAL 7035)
- Two-speed motors (Dahlander winding)
- Fans with backward curved fanblades
- Other motor sizes and belt drive gearing
- Water reheater with 2 or 3 tube range
- Electric reheater (for duct assemblage)
- Outdoor air damper with spring return motor
- Outdoor air damper with
- Exhaust air damper with motor
- Filters F7 or F8
- Frost protection thermostat
- Filter sensors
- Fan sensors
- Icing sentinel
- Antivibration mountings
- Plastic-coated in other colors

Used in area

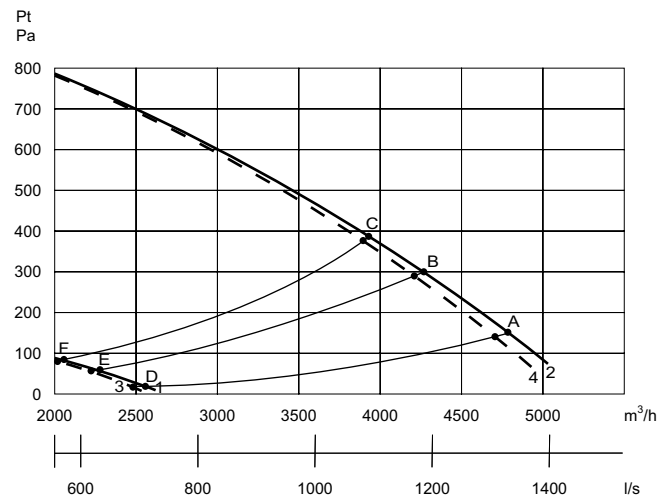
GE 5090 is used for ventilation systems, where there is a wish for extract and supply air, and where there is a wish for high efficiency and low energy consumption.

If you have the need for cooling, the aggregate 5090 C can be directly linked to the GE 5090.



Output

The output graph shows the pressure available for the duct system. The pressure loss in the unit has been deducted.

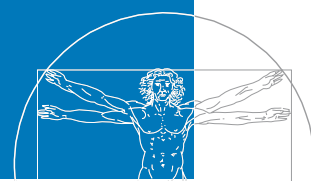


The full drawn lines are GE 5090 at respectively 1/2 (1) and 1/1 (2) speed.

The dot and dash lines are GE 5090 + 5090 C at respectively 1/2 (3) and 1/1 (4) speed.

Pick up effect (pr. fan)

	A	B	C	D	E	F
kW	2,230	2,110	1,930	0,510	0,500	0,490



Construction

Main dimensions:

(h x l x d) incl. supports and ex. connecting pieces and electric box.

1342 x 3142 x 1046/1602 mm

The aggregat will be delivered divided in 3.

If the aggregate is delivered with a cooling section the whole length is 4102 mm.

Cabinet construction:

Double-enclosed, hot-galvanised sheet with 50 mm insulation (as BS 30 construction).

Duct connection:

∅500 mm (coupling connector) with rubber ring seal

Doors:

Four doors with handles and cover bolts. 1 door with screws. Cooling sector with 2 gates

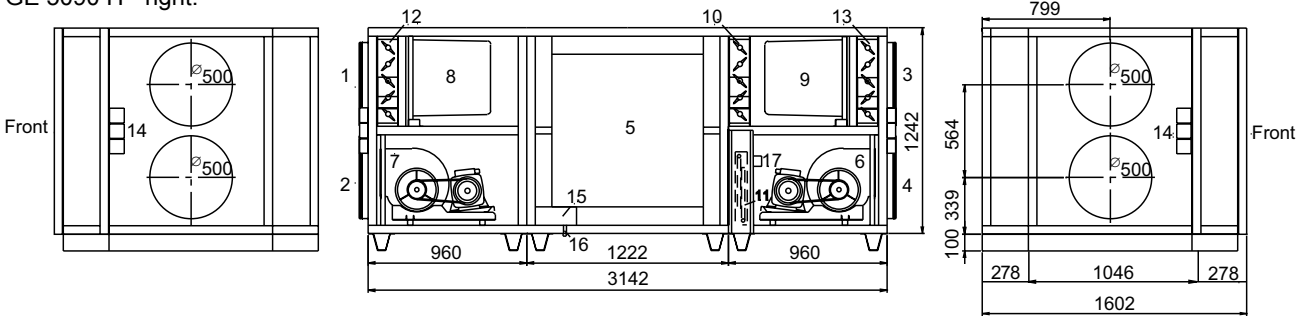
Counter-flow heat exchanger

See water resistand aluminium

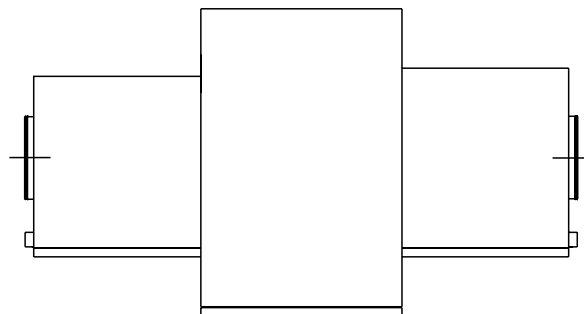
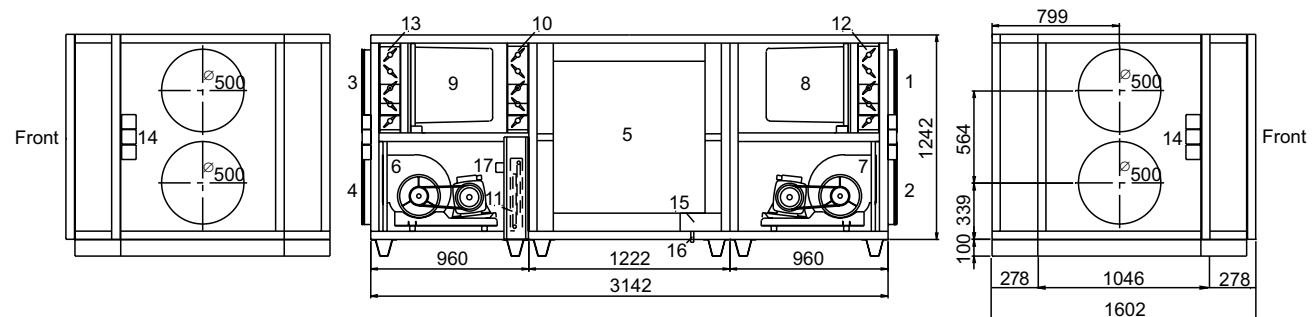
Dimensions

Dimensions in mm

GE 5090 H - right:



GE 5090 V - left:



- | | | |
|--------------------------------|-----------------------|---------------------------------|
| 1: Fresh air | 7: Extract air fan | 13: Exhaust air damper |
| 2: Extract air | 8: Fresh air filter | 14: Electrical contact box |
| 3: Exhaust air | 9: Extract air filter | 15: Condensate reservoir |
| 4: Supply air | 10: Bypassdamper | 16: Condensate drain ∅25 mm |
| 5: Counter flow heat exchanger | 11: Water reheater | 17: Frost protection thermostat |
| 6: Supply air fan | 12: Fresh air damper | |

Condensate drain:

Stainless connection piece ∅25 mm (outside) on the heat exchanger- and cooling section

Bag filters:

F5 as standard on both supply and extract air. F7 and F8 can be supplied.

Bypass:

Bypass as standard mounted on extract air side.

Water reheater:

Water after heat coil 2 or 3 tube range can be delivered integrated in the aggregate

Electric reheater:

Electric after heat coil will be delivered for duct assemblage on the supply air duct. Duct connection ∅500 mm (coupling connector)

Antivibration mountings:

∅50 mm can be supplied.

Weight:

905 kg (205+470+230 kg)

Cooling section 280 kg



Technical data

Electrical connection

With water reheater 3x400 V + N + PE, 16 A, 50 Hz
 With electrical reheater 3x400 V + N + PE, 50 A, 50 Hz
 With cooling aggregate 3x400 V + N + PE, 32 A, 50 Hz

Motors:

Normmotors IEC
 Isolation class B
 Class IP 54
 Power supply 3x400 V

Motor data (2 motors) 1/1 speed:

Rpm 1420
 kW (max. pr. motor) 2,2 kW
 A (max. pr. motor) 5,2 A

Dahlander winding motors 1/2 / 1/1 speed:

Rpm 700/1415
 kW (max. pr. motor) 0,5/2,0 kW
 A (max. pr. motor) 2,0/4,8 A
 Fan GE-D 270-270
 Belt drive SPZ profil, tape locksystem, 2 tracks

Standard belt pulley:

Supply air motor / fan $\varnothing d/\varnothing d$ $\varnothing 112/\varnothing 85$ mm
 Extract motor / fan $\varnothing d/\varnothing d$ $\varnothing 112/\varnothing 85$ mm

Bypass damper:

With modulating motor 24 V

Fans with backward curved fan blades (not standard)

Fan HRZ 280

Motor data (2 motors) 1/1 speed:

Rpm 2850
 kW (max. pr. motor) 2,2 kW
 A (max. pr. motor) 4,55 A

Dahlander winding motors 1/2 / 1/1 speed:

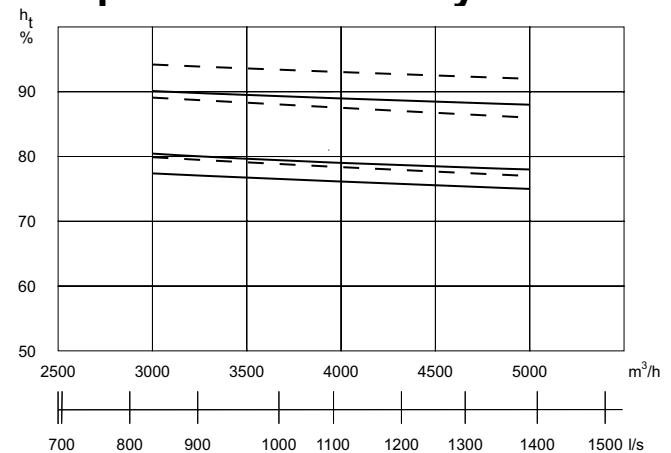
Rpm 1430/2840
 kW (max. pr. motor) 0,5/2,0 kW
 A (max. pr. motor) 1,2/4,55 A
 The belt drive is dimensioned according to the project.

Sound data

Measuring point	1 m in front of unit	Extract duct	Supply duct
Airflow rate	1/2 - 1/1	1/2 - 1/1	1/2 - 1/1
	Lo dB	Lwu dB	Lwi dB
63 Hz	56 67	84 93	87 96
125 Hz	54 64	77 91	85 91
250 Hz	45 55	69 85	77 88
500 Hz	42 45	60 79	77 85
1000 Hz	35 46	53 69	79 86
2000 Hz	36 50	49 64	72 83
4000 Hz	32 48	37 56	67 81
8000 Hz	28 38	33 49	60 77
Average	Lo dB(A)	Lwu dB(A)	Lwi dB(A)
	44 56	68 82	80 87

1/2: indicates an airflow rate of 2500 m³/h
 1/1: indicates an airflow rate of 4500 m³/h

Temperature efficiency



Temperaturvirkningsgrad, Massestrømmen $m_{ind} = m_{ud}$							
		A	B	C	D	E	F
Udsugning	°C	20	20	20	20	20	20
Relativ fugtighed	%	30	50	70	30	50	70
Udeluft	°C	4	4	4	-12	-12	-12

Possible icing up of the heat exchanger at low outdoor temperatures has not been taken into account.

A complete control system is available for the GE5090. It consists of a switchboard with Optima control panel, display, on which functions and operating status are shown, and remote control panel, on which the installation's current operating status can easily be changed for a period.

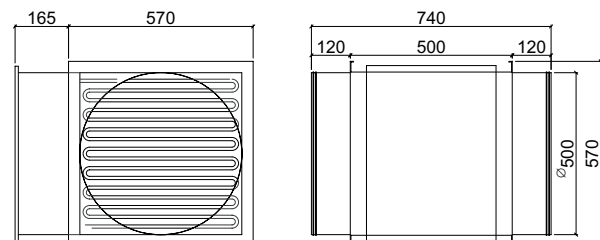
Genvex automatic Optima

Electric after heat coil - accessories

5090 EL

It is possible to deliver electrical after heat coil for integrating in $\varnothing 500$ mm duct. $\varnothing 500$ mm (coupling connector) with rubber ring sealing

Effect: 24 kW
 Voltage: 3 x 400 V
 Current consumption: 3 x 34,7 A
 Control: Continuously adjustable 0-10V
 Safety fuse of electric after heat coil:
 1 piece 120°C fire thermostat with manual reset, 1 piece 70°C overheating fuse with automatic reclosing.

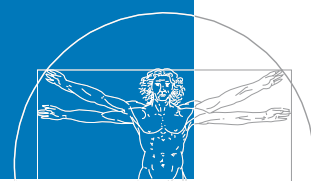


Damper - accessories

Supply air damper with springreturn motor 24 V AC (with water reheater)

Supply air damper with motor 24 V AC (with electrical reheater)

Exhaust damper with motor 24 V AC.



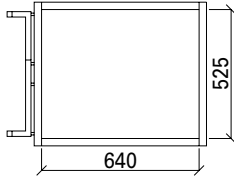
Water reheater - accessories

5090 VA

Water reheater with double or triple pipes built into the unit are available.

Water connection 3/4" pipe thread.

Dimensions in mm



Supply Air control:

air in 12°C, air out 21°C

Water 70/40°C - double pipes

Airflow rate m³/h	Heat output kW	Water flow rate l/h	Water pressure loss kPa
3800	11,6	333	0,5
4200	12,8	368	0,6
4600	14,0	402	0,7
5000	15,3	440	0,8

Air in 12°C, air out 21°C

Water 50/35°C - double pipes

Airflow rate m³/h	Heat output kW	Water flow rate l/h	Water pressure loss kPa
3800	11,6	666	1,7
4200	12,8	736	2,0
4600	14,0	804	2,3
5000	15,3	880	2,7

Room control:

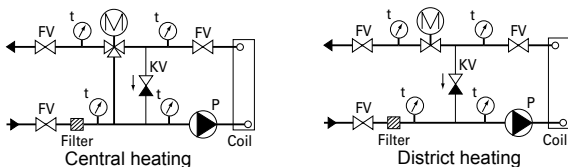
Air in 12°C - Water 70/40°C - triple pipes

Airflow rate m³/h	Heat output kW	Air out °C	Water flow rate l/h	Water pressure loss kPa
3800	27,2	33	780	3,0
4200	28,8	32	827	3,2
4600	30,3	31	870	3,6
5000	31,8	30	913	3,9

Air in 12°C - Water 50/35°C - triple pipes

Airflow rate m³/h	Heat output kW	Air out °C	Water flow rate l/h	Water pressure loss kPa
3800	19,9	28	1145	6,1
4200	21,1	27	1215	6,8
4600	22,3	26	1280	7,5
5000	23,4	25	1345	8,2

The following diagrams can be used for connection to central heating/district heating:



Dimensioning of motorized valve

From the capacity table of the heat coils is it possible to see the dimensioning water amount and in the table below can the valve dimensions 2- and 3-ways valve be chosen.

Valve size ventil	Water flow rate l/h	Kws value	Water pressure loss kPa
15-1,0	240-400	1,0	7-15
15-1,6	400-750	1,6	7-15
20-2,5	750-1100	2,5	8-15
20-4,0	1100-1600	4,0	9-15

Cooling aggregat - accessories

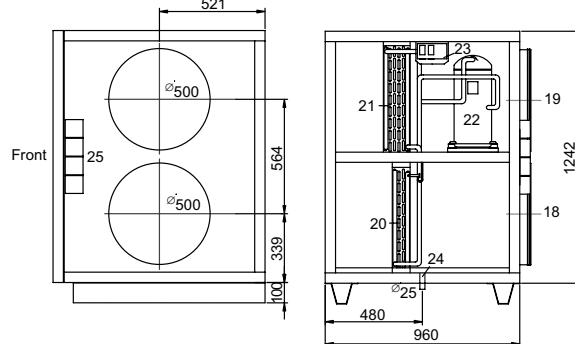
5090 C

The cooling aggregat 5090 C can be coupled directly to GE 5090 on air supply- and air extraction site.

5090 C-H Right-handed (as sketch):

5090 C-V Left-handed

Dimensions in mm



- 18: Supply
- 19: Exhaust
- 20: Evaporator (cooling coil)
- 21: Condenser
- 22: Compressor
- 23: HP/LP pressostat
- 24: Condensate drain $\varnothing 25$ mm
- 25: Electrical contact box

Technical data

Compressor:

Scroll.....ZR 72
Voltage.....3 x 400 V
Power consumption (max).....14,8 A

Capacity

Airflow rate 4500 m³/h, exhaust air temperature 26°C RF 50%

Outdoor temp. °C	Relative humidity %	Total cooling performance kW	Take up effect compressor kW	Supply air temp. °C
26	60	20,300	5,250	16
30	50	19,920	5,490	19
34	40	19,580	6,140	22

Automatic

The capacity of the cooling performance will be modulate regulated between 15% and 100% by an energy optimizing of the compressor with a frequency- and pulse regulation.