

ultracool mini 2001 (type 0010 to 0240)

The ultimate water chiller

Application

Cooling and temperature control of water flow. The ultracool can be used to cool down lasers, ozone generators, plastic applications, vacuum pumps, cutting and welding machines, solvents recovery, X-ray machines, and many others. The ultracool chillers increase productivity, shorten cycle time and **reduce** manufacturing **costs**.

How does the ultracool work?

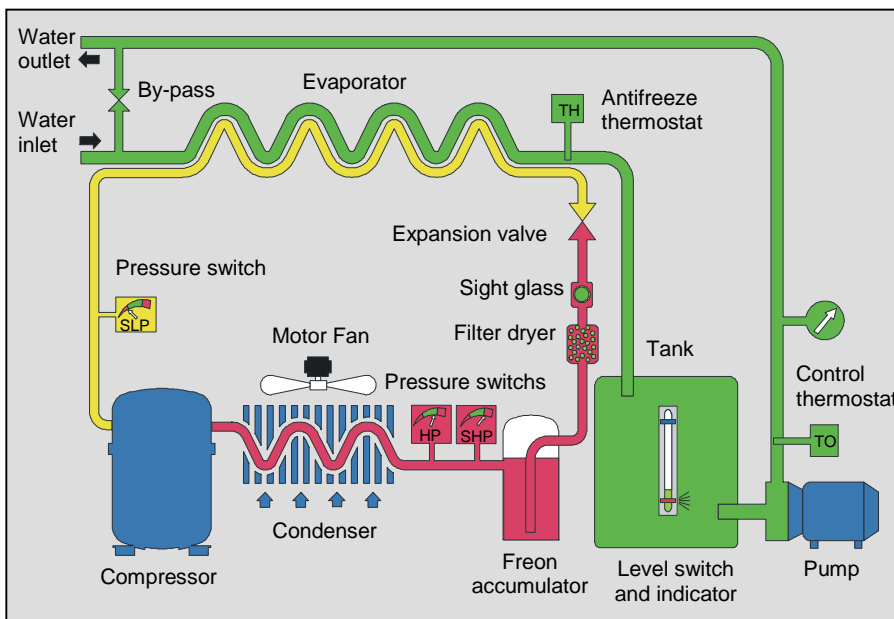
The hot water enters the ultracool unit through the evaporator of the refrigerant circuit where, due to the low refrigerant temperature, it is cooled to the required temperature. In the superplus version, the cold water is stored in the internal tank, properly insulated to avoid thermal losses. The internal tank keeps the temperature constant even under varying load conditions. Then the cold water is pushed by the centrifugal pump, also incorporated in its interior, towards its use. A calibrated by-pass orifice between the water inlet and outlet ensures correct operation independently of the position of the outlet valve.



The ultracool condenser and evaporator are very oversized in order to achieve the maximum fridge efficiency and reduce electrical consumption.

Options

- Auto filling kit (only for SP version)
- 3 bar pump (included on SP version)
- 5 bar pump
- Motor fan speed regulator
- Water stability $\pm 0,7^{\circ}\text{C}$
- Water flow meter
- Wheels
- Refrfluid (glycol + bactericide + anticorrosive)
- External by-pass
- Free of voltage contact alarm
- Pre-heater
- Design for deionised water
- Water-cooled version



superplus

Technical alterations reserved (Date 02/05)



Features:	Benefits:
Refrigerant Environmentally friendly R-134a	High efficiency of refrigerant allows ambient temperatures of up to 50 °C
Housings in galvanised steel and externally coated with epoxy resin	Corrosion resistant even in aggressive environments
Evaporator in stainless steel AISI 316L, water pipes of PE	No iron materials for even higher resistance
Protection degree: IP54 from UC-0060	Can be installed outdoors
Highly precise thermostat	Control of cold water temperature
Antifreeze thermostat, thermal flow switch	Evaporator protection
Refrigerant pressure gauges from UC-0100	Easy to service
Oversized condenser	Low electrical consumption
Large cold water tank of PE	Keeps the water temperature constant even under varying load conditions.
Level switch, Level indicator	Pump protection in case of lack of water, Control of water level in water tank
Pump: Impeller, intermediate chambers and shaft in stainless steel. Suction and discharge in stainless steel or cast iron depending on model.	High resistance against corrosion
Internal calibrated by-pass orifice	Allows any water flow from 0% to 100%
Water filter included from UC-0060	Keeps water free of particles

Correction: cold water temperature F_1						
Outlet temperature (°C)	≥ 20	15	10	5	0	-5
F_1	1,25	1,17	1	0,75	0,5	0,38

Correction: ambient temperature F_2						
Ambient temperature (°C)	≤ 25	30	35	40	45	50
F_2	1	0,9	0,85	0,78	0,73	0,66

UC	Cooling capacity		Water flow	Water pressure (1)		Water tank (1)	Motor fan	Power kW		
	kW	kcal/h	l/h	3 bar	5 bar	l	m3/h	ST	SP 3bar	SP 5bar
0010	0,70	602	120	3,6	0,6 (2)	6	500	-	1,02	0,57 (2)
0020	1,96	1686	337	3,5	5,4	35	1500	0,92	1,49	1,82
0030	3,59	3087	617	3,5	5,2	35	2200	1,18	1,75	2,08
0040	4,81	4137	827	3,4	5,1	35	2500	1,38	1,95	2,28
0060	7,00	6020	1204	3,3	5,5 (3)	75	6000	2,27	2,89	3,37
0080	9,29	7989	1598	3,0	5,4 (3)	75	6000	2,87	3,49	3,97
0100	11,72	10079	2016	2,8	5,3 (3)	100	8800	3,71	4,33	4,81
0140	15,28	13141	2628	2,8	5,1 (3)	100	8300	4,66	5,35	5,76
0180	21,82	18765	3753	3,5 (3)	5,5 (3)	200	13000	6,28	7,03	8,13
0240	29,32	25215	5043	2,8 (3)	5,3 (3)	200	12600	8,28	9,03	10,13

Related to nominal conditions: Water outlet temperature 10°C and ambient temperature 25°C

(1)- superplus units (2)-Special unit with recirculating pump (3)- Entirely stainless steel pump

Technical alterations reserved (Date 02/05)

Donaldson Filtration Deutschland GmbH, Büssingstrasse 1 · D-42781 Haan · Phone ++49/2129/5 69-0 · Fax ++49/21 29/5 69-100

Technical data

Temp. and pressure range for cold water (outlet water)
t_{\min} : - 5°C (with ethylene glycol)
t_{\max} : 25°C
P_{\max} : 6 bar _g

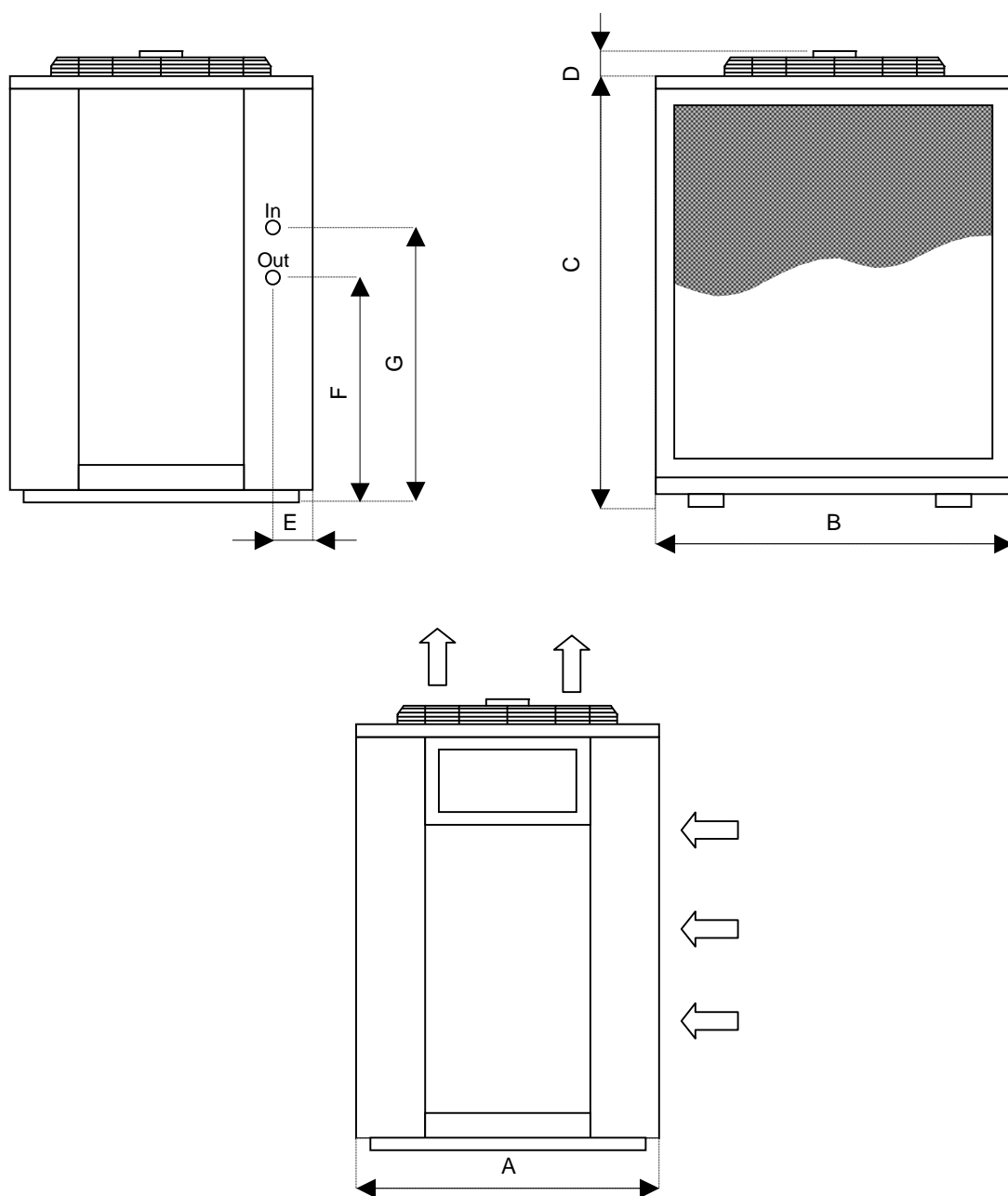
Ambient temperature
t_{\max} : 50°C
t_{\min} : -15°C with speed regulator option, 5°C otherwise

Power supply
<ul style="list-style-type: none"> UC 0010-0040: 230/1/50 Hz UC 0060-0240: 400/3/50 Hz

Noise level
Less than 60 dB (A) measured at 5 m from the Unit and 1 m from the ground

Approval
CE, all components UL and CSA listed

Selection example
$C_{NOM} = C_{WORK} / (F_1 \cdot F_2)$ Example: $C_{WORK} = 10 \text{ kW}$ Cold water temperature: 20°C Ambient temperature: 30°C $C_{NOM} = 10 / (1,25 \cdot 0,9) = 8,89 \text{ kW}$ ULTRACOOOL UC-0080 4% oversized



UC	Water connection	Weight (kg)		A	B	C	D	E	F	G
		ST	SP	mm	mm	mm	mm	mm	mm	mm
0010	3/8"	-	60	520	415	632	0	0	330	584
0020	1/2"	100	115	530	630	890	0	80	345	627
0030	1/2"	105	120	585	713	1120	0	80	580	855
0040	1/2"	110	125	585	713	1120	0	80	580	855
0060	3/4"	165	185	800	880	1135	120	105	350	876
0080	3/4"	180	200	800	880	1135	120	105	350	876
0100	1"	215	235	845	990	1235	120	130	340	890
0140	1"	235	260	845	990	1235	120	130	340	890
0180	1"	345	375	950	1140	1635	120	130	343	1065
0240	1"	365	400	950	1140	1635	120	130	343	1065

Technical alterations reserved (Date 02/05)