

# F400 / F401 [water cooled]

## Technical data sheet

CFC / HCFC free:	yes
Climate class:	SN
Ambient temperature range °C (°F):	from +10 to +32 ( from 50 to 89.6 )
Max. relative humidity:	75%
<b>Voltage V:</b>	<b>230</b>
<b>Frequency Hz:</b>	<b>50</b>
Fuse Amp:	10
Power W:	1300
Running current A:	8.0
Energy consumption Kwh/24h:	5.4
Heat ejection Kcal/h:	193 [ 90 ]
Running time %:	50
Noise level dB(A) (in 1m height +1m distance):	60
Accu data / function time:	12V -7.0 AH / 48 hours
Defrosting technique:	hot gas
Compressor manufacturer:	Embraco
Compressor type:	NT2210U
Cooling capacity W (ASHRAE):	1282
Capillary tube, inner diam x length mm (inch):	Expansion valve
Refrigerant type:	R290
Refrigerant quantity g (oz):	150 ( 5.29 )
Door insulation mm (inch):	65 to 82 ( 2.56 to 3.23 ) with 20mm VIP, not heated
Cabinet insulation mm (inch):	77 to 82 ( 3.03 to 3.23 ) with 20-30mm VIP
K value W/m²xK at 20°C (68°F):	N/A
Hold over time h at °C (°F):	2.5 from -41 to -18°C ( from -41.8 to -0.4°F ), @25°C ( 77°F )
Net volume l (cu ft):	384 ( 13.561 )
Gross volume l (cu ft):	451 ( 15.927 )
Internal width mm (inch):	447 ( 17.60 )
Internal depth mm (inch):	713 ( 28.07 )
Internal height mm (inch):	1370 ( 53.94 )
External width mm (inch):	699 ( 27.52 )
External depth mm (inch):	1039 ( 40.91 )
External height mm (inch):	1988 ( 78.27 )
Net weight with standard equipment kg (lbs):	276 ( 608.48 )
EMC directive:	2014/30/EU
Low voltage directive:	2014/35/EU
GS certificate:	no
Medical device directive:	F400: 93/42/EEC, Class I // F401: 93/42/EEC, Class IIa
GMP-clean room classification:	class ISO5/EC GMP A
ATEX-categorie III, zone 2, interior:	no

Subject to changes without prior notice !

Revision: 07.02.2019

### Measurement conditions:

Setpoint -41°C ( -41.8°F ) @ +25°C ( 77°F ) ambient temperature, unless otherwise stated  
All appliances without load

# F400 / F401 [water cooled]

## Technical data sheet

CFC / HCFC free:	yes
Climate class:	SN
Ambient temperature range °C (°F):	from +10 to +32 ( from 50 to 89.6 )
Max. relative humidity:	75%
<b>Voltage V:</b>	<b>220</b>
<b>Frequency Hz:</b>	<b>60</b>
Fuse Amp:	10
Power W:	1300
Running current A:	8
Energy consumption Kwh/24h:	5.0
Heat ejection Kcal/h:	178 [ 83 ]
Running time %:	40
Noise level dB(A) (in 1m height +1m distance):	61
Accu data / function time:	12V -7.0 AH / 48 hours
Defrosting technique:	hot gas
Compressor manufacturer:	Embraco
Compressor type:	NT2210UV
Cooling capacity W (ASHRAE):	1040
Capillary tube, inner diam x length mm (inch):	Expansion valve
Refrigerant type:	R290
Refrigerant quantity g (oz):	150 ( 5.29 )
Door insulation mm (inch):	65 to 82 ( 2.56 to 3.23 ) with 20mm VIP, not heated
Cabinet insulation mm (inch):	77 to 82 ( 3.03 to 3.23 ) with 20-30mm VIP
K value W/m²xK at 20°C (68°F):	N/A
Hold over time h at °C (°F):	2.5 from -41 to -18°C ( from -41.8 to -0.4°F ), @25°C ( 77°F )
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External height mm (inch):	1988 ( 78.27 )
Net weight with standard equipment kg (lbs):	276 ( 608.48 )
EMC directive:	not applicable
Low voltage directive:	not applicable
GS certificate:	no
Medical device directive:	not applicable
GMP-clean room classification:	class ISO5/EC GMP A
ATEX-categorie III, zone 2, interior:	no

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Max. relative humidity:	75%
<b>Voltage V:</b>	<b>115-127</b>
<b>Frequency Hz:</b>	<b>60</b>
Fuse Amp:	20
Power W:	1300
Running current A:	16
Energy consumption Kwh/24h:	4.9
Heat ejection Kcal/h:	176 [ 82 ]
Running time %:	40
Noise level dB(A) (in 1m height +1m distance):	58
Accu data / function time:	12V -7.0 AH / 48 hours
Defrosting technique:	hot gas
Compressor manufacturer:	Embraco
Compressor type:	NT2210UV
Cooling capacity W (ASHRAE):	1070
Capillary tube, inner diam x length mm (inch):	Expansion valve
Refrigerant type:	R290
Refrigerant quantity g (oz):	150 ( 5.29 )
Door insulation mm (inch):	65 to 82 ( 2.56 to 3.23 ) with 20mm VIP, not heated
Cabinet insulation mm (inch):	77 to 82 ( 3.03 to 3.23 ) with 20-30mm VIP
K value W/m <sup>2</sup> xK at 20°C (68°F):	N/A
Hold over time h at °C (°F):	2.5 from -41 to -18°C ( from -41.8 to -0.4°F ), @25°C ( 77°F )
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## Electronic data sheet

Electronic type:	Premium electronic
RS 485:	not available
°B Connected monitoring software:	Option
Data transmission:	standard
Wireless data transmission:	not available
Display range °C (°F):	-99.0°C to +99.0°C (-146°F to 210°F)
Display indication step K:	0.1
Preset set point °C (°F):	-41 (-41.8)
Set point range °C (°F):	F400: -20 to -41 (-4 to -41.8) / F401: -32 to -41 (-25.6 to -41.8)
Set point adjustable step K:	0.1
Temperature distribution acc. to FDX 15-140 K:	5 [ 10 during defrost ]
Preset warm alarm °C (°F):	-32 (-25.6)
Preset cold alarm °C (°F):	-46 (-50.8)
Alarm adjustable step K:	0.1
Min alarm difference to set point K:	5.0
Alarm indication:	optically + acoustically
Remote alarm relais:	change-over switch
Remote alarm relais output:	temperature and system error
Additional remote alarm:	yes as standard: powerfail, system fault and door alarm
Regulation sensor type:	PT1000 2-WIRE 1/3DIN CL.B
Regulation sensor measuring accuracy:	at -80 to 180°C ± 0,2°C (at -112 to 356°F ± 35.6°F)
Display sensor type:	PT1000 2-WIRE 1/3DIN CL.B
Display sensor measuring accuracy:	at -80 to 180°C ± 0,2°C (at -112 to 356°F ± 35.6°F)
Display sensor reference body:	100ml DOW corning 200-5CST (silicon oil)
Safety thermostat at °C (°F) / type:	not available
Safety thermostat measuring accuracy:	not available
Evaporator sensor type:	PT1000 2-WIRE CL.B
Evaporator sensor measuring accuracy:	at -80 to 180°C ± 0,6°C (at -112 to 356°F ± 33.1°F)
Ambient temp sensor as option, type:	PT1000 2-WIRE CL.B
Ambient temp sensor measuring accuracy:	at -80 to 180°C ± 0,6°C (at -112 to 356°F ± 33.1°F)

**F400 / F401****Material and equipment****Material specifications**

Inner body material:	stainless steel - 1.4301
Outer body material:	DX51D + Z100, with a white/grey coating
Inner door material:	stainless steel - 1.4301
Outer door material:	DX51D + Z100, with a white/grey coating
Wire shelf material:	wire DIN 177, white PA11 coated RAL9010
Drawer material:	stainless steel - 1.4301
Shuttle rack material:	polycarbonate (PC) transparent

**Equipment***Standard equipment inside:*

5 wire shelves / 2 additional inner doors made in aluminium

<i>Lots of shelves, recommend / maximum:</i>	5 / 13
<i>Lots of drawers, recommend / maximum:</i>	5 / 5
<i>Lots of shuttle racks per shelf, maximum:</i>	3
<i>Door hinge standard / option:</i>	right / left
<i>Light:</i>	not available
<i>Castors:</i>	4 castors with integrated feet
<i>Water cooling:</i>	as option
<i>External unit:</i>	not available
<i>Recorder as option, range / sensor type:</i>	from -50 to 0°C (from -58 to 32°F) / PT1000
<i>Recorder sensor measuring accuracy:</i>	at +25°C ± 0,5°C (at 77°F ± 32.9°F)
<i>Recorder sensor reference body:</i>	100ml DOW coming 200-5CST (silicon oil)
<i>PT100 sensor additional as option:</i>	yes, type class B, 3-wire
<i>PT100 sensor measuring accuracy:</i>	at +25°C ± 0,2°C (at 77°F ± 32.4°F)
<i>PT100 sensor reference body:</i>	100ml DOW coming 200-5CST (silicon oil)
<i>Packing standard / option:</i>	EPS corners, plastic foil and wooden palette / -

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