Data Sheet

Pharmaceutical Refrigerator with Freezer | MPR-N450FH/FSH

Natural Refrigerants and Inverter Technology

Naturally occurring hydrocarbon (HC) refrigerants have minimal effect on the environment and are compliant with environmental legislation for climate control. Combined with inverter technology, these refrigerants also provide more efficient cooling without compromising performance and ambient tolerance and recovery speeds following door openings.

Temperature Distribution

The refrigerator includes a high performance refrigeration system with a forced air, back wall plenum. This provides even, horizontal airflow across the solid, adjustable glass shelves at each shelf level. A uniform freezer temperature is maintained through a cold wall refrigeration system with natural circulation.

Security Control and Monitoring

The microprocessor controller and OLED display are door mounted at eye level. Control buttons allow convenient but secure user control. Refrigerator and freezer temperatures can be displayed in 0.1°C increments simultaneously or individually. Minimum/maximum temperatures are automatically displayed every 12/24 hours. All alarm conditions are displayed and recorded. Data transfer is through a USB memory port.

Model Number		MPR-N450FH-PE / MPR-N450FSH-PE / MPR-N450FH-PA / MPR-N450FSH-PA MPR-N450FH-PK /MPR-N450FSH-PK	
		Refrigerator	Freezer
External dimensions (W x D x H) [1]	mm	800 x 640 x 1810	
Internal dimensions (W x D x H)	mm	720 x 516 x 913	680 x 470 x 415
Volume	litres	326	136
Net weight	kg	129 (FH) / 121 (FSH)	
Performance			
Temperature control range [2]	°C	2 to 14	-30 to -20
Control			
Controller		Microprocessor with non-volatile memory	
Display		Digital (White graphic OLED), 1°C (increment of 0.1)	
Temperature sensor		Thermistor	
Refrigeration			
Cooling method		Fan forced air circulation	Direct cooling
Defrost method		Cyclical defrost	Manual
Refrigerant		HC refrigerant	
Insulation		PUF (Rigid polyurethane foamed insulation)	
Construction			
Exterior material		Colored Steel	
Interior material		ABS Resin	Painted Steel
Outer doors	qty	4 (glass window (2 (FH) / 0 (FSH))	
Outer door lock		Yes	
Shelves	qty	Tempered glass (3)	Coated steel wires (2)
Max. load - per shelf	kg	25	15
Access port	qty	R (1) / F (1)	
Access port position		Back	
Access port diameter	Ø mm	30	
Casters	qty	4 (2 leveling feet)	
Interior light		LED	–
Alarms		(V = Visual Alarm, B = Buzzer Alarm, M = Message, R = Remote Alarm)	
Power failure [3]		R [3]	
High temperature		V-B-M-R	
Low temperature		V-B-M-R	
Door open		V-B-M	
Electrical and Noise Level			
Power supply	V	PE: 220/230/240V, 50Hz / PA: 115V, 60Hz / PK: 220V, 60Hz	
Power Consumption (230V/50Hz) SV: 5°C / -30°C	kWh/day	AT23°C: 3.97 AT32°C: 4.76	
Noise level [4]	dB (A)	41	
Options			
Temperature recorders: Continuous strip type - Chart paper - Recorder housing		MTR-0621LH-PE/PA RP-06-PW MPR-S30W-PW	– – –
Temperature recorders: Circular type - Chart paper - Ink pen - Recorder housing		MTR-G3504C-PE/MTR-G3504A-PA RP-G3504-PW PG-RB-PW MPR-S7-PW [5]	– – –
Temperature recorders: Continuous strip type - Chart paper - Recorder housing		– – –	MTR-4015LH-PE/PA RP-40-PW MPR-S30W-PW
Battery kit for power failure alarm		MPR-48B2-PW	
Containers inside freezer		–	MPR-45FSC-PW
Blackout panel		MPR-45BP-PW	–
Additional shelf kit for freezer		MPR-450ST-PW	
Optional Communication Systems			
Digital interface (RS232C/RS485) [6]		MTR-480-PW	
Ethernet interface (LAN) [6]		MTR-L03-PW	

[1] Exterior dimensions of main cabinet only, excluding external projections - See dimensions drawings on website for full details.
[2] Air temperature measured at refrigeration compartment centre and freezer compartment centre, ambient temperature +35°C, no load.
[3] Remote alarm includes optional power failure alarm MPR-48B2-PW (V-B-M-R alarm).
[4] Nominal value - Background noise 20dB (A)
[5] When installing temperature recorder MTR-G3504A, optional mounting hardware is necessary.
[6] Only for MTR-5000 (data acquisition system) users.

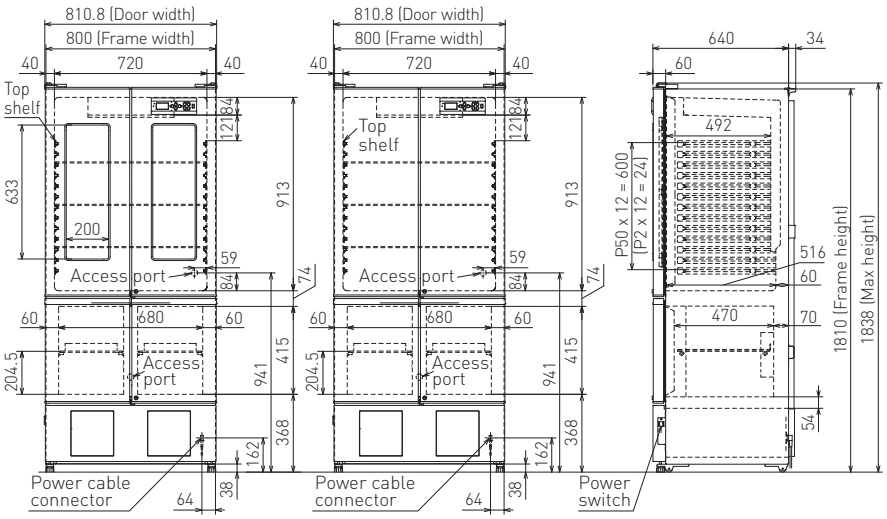
- Appearance and specifications are subject to change without notice.

Caution: PHC Corporation guarantees this product under certain warranty conditions. However, please note that PHC Corporation shall not be responsible for any loss or damage to the contents stored in the product.

MPR-N450FH

MPR-N450FSH

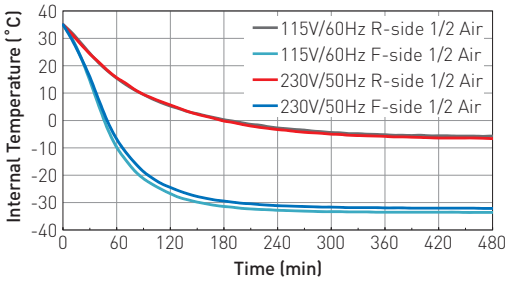
Dimensions



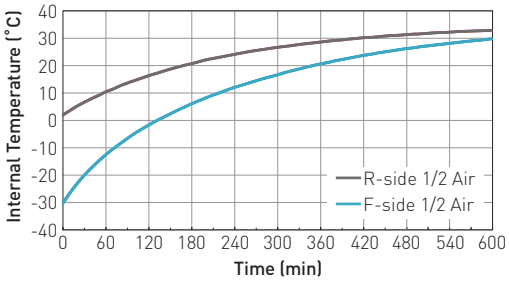
MPR-N450FH MPR-N450FSH Unit : mm

Performance Data

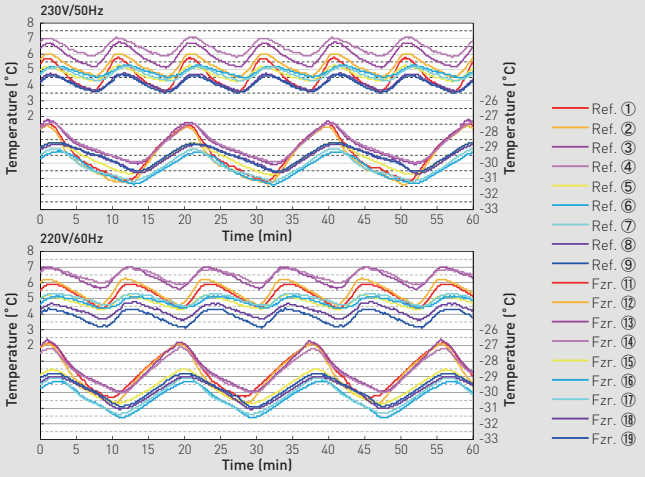
AT35˚C Pull-down Temperature / Pull-down speed (No load)



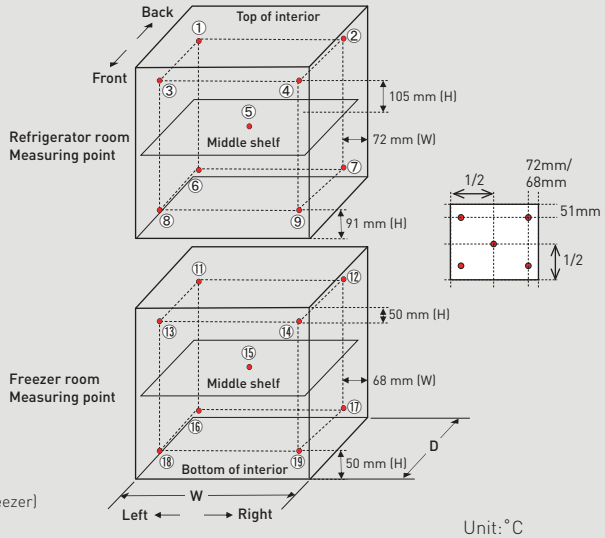
AT35˚C Pull-up Temperature / Pull-up speed, 230V/50Hz (No load)



Cycle running Condition: SV 5˚C/-30˚C, AT23˚C, no load (Refrigerator/Freezer)



Temperature uniformity - 19 points measuring



Internal Temperature Uniformity (Reference Data)

Distribution data Temperature of the cycle in each area (SV: 5C°/-30C°, air temperature) (Refrigerator/Freezer)

Ambient temperature 23C˚ 230V/50Hz No Load

Unit:˚C

	Refrigerator									
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	Average
Maximum	5.8	6.0	6.8	7.1	5.3	5.3	5.2	4.8	4.7	—
Minimum	3.6	4.5	5.1	5.8	4.2	4.5	4.3	3.6	3.5	—
Middle of cycle	4.6	5.3	5.9	6.4	4.7	4.9	4.7	4.2	4.1	5.0

Freezer										
⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	Average
-27.5	-27.6	-27.2	-27.4	-28.7	-29.2	-29.1	-28.8	-28.7	—
-31.2	-31.3	-30.1	-29.9	-30.7	-31.4	-31.2	-30.6	-30.5	—
-29.5	-29.8	-28.8	-28.8	-29.7	-30.3	-30.2	-29.5	-29.5	-29.6

Ambient temperature 23C˚ 220V/60Hz No Load

Unit:˚C

	Refrigerator									
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	Average
Maximum	5.9	6.3	7.0	7.0	5.2	5.2	5.3	4.8	4.4	—
Minimum	4.4	4.6	5.6	5.9	4.3	4.4	4.5	3.6	3.1	—
Middle of cycle	5.2	5.5	6.3	6.5	4.8	4.8	5.0	4.2	3.8	5.1

Freezer										
⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	Average
-26.8	-26.9	-26.6	-27.1	-28.5	-29.3	-29.1	-29.0	-28.8	—
-30.3	-30.7	-30.0	-30.0	-30.7	-31.6	-31.4	-31.1	-30.9	—
-28.8	-29.0	-28.6	-28.8	-29.7	-30.4	-30.3	-29.9	-29.8	-29.5

(Note) Disclaimer

- Specification may change without notice. • The performance data was measured by inhouse test data of PHC. • The Performance data is a reference data and not guaranteed.
- Not all the products available in all countries.

PHC Corporation

https://www.phchd.com/global/biomedical/

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