

## DYNAMIC CLIMATE CHAMBERS

### Series MKF: Dynamic climate chambers for rapid temperature changes with humidity control

A MKF series environmental simulation chamber is ideally suited for any cold and heat testing based on current temperature and climate testing methods according to DIN and IEC standards. The comprehensive standard equipment for this environmental simulation chamber ensures ease of operation.

**Features:**

- Temperature range: -40 °C to 180 °C
- Humidity range: 10\*%) to 98 % RH
- Integrated water-storage tank, 20 liters (not MKF056)
- 4 zero-voltage relay contacts
- APT.line™ preheating chamber technology
- Intuitive touchscreen controller with time-segment and real-time programming with integrated chart recorder
- Internal data logger, read out in open format via USB
- Programmable condensation protection for test material
- Heated door/viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification
- APT-COM™ Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Access port with silicone plug (056, 115, 240, 400: 50 mm, left)
- 2 access ports with silicone plugs (720, 1020: 80 mm, left and right)
- Class 2 adjustable temp. safety device with visual alarm
- 4 castors, two with brakes
- Computer interface: Ethernet
- Adjustable ramp function
- Real-time clock
- Alarm notification in the event of insufficient water in fresh water tank (Models 115, 240, 400, 720, 1020)
- Complete safety connection kit for water supply and drainage, up to 1 m height
- Inner chamber made of stainless steel with 1 SS Rack
- CFC-free refrigerant R-452A

\*%) 5 ....98% r. H. with optional orderable compressed air dryer (Automotive Tests)

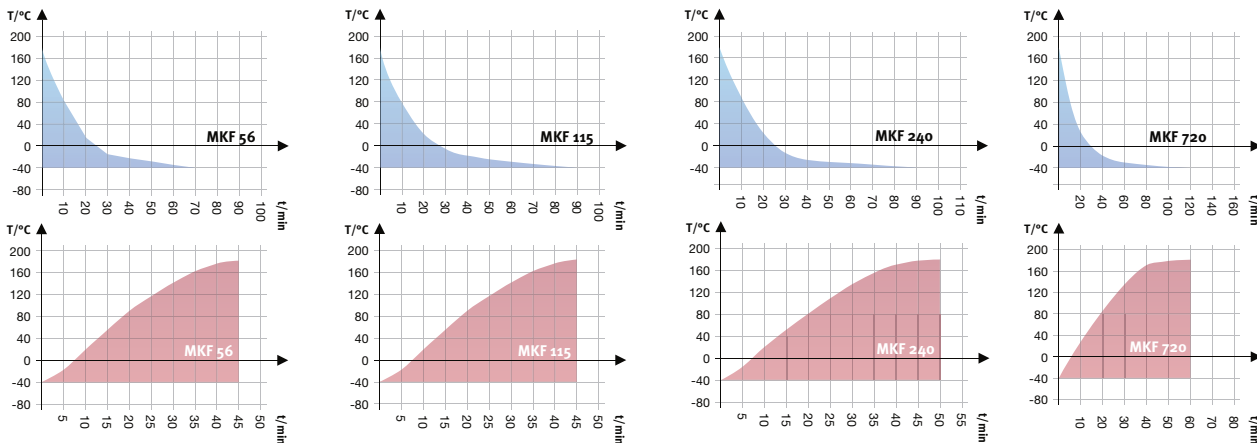


MKF 240

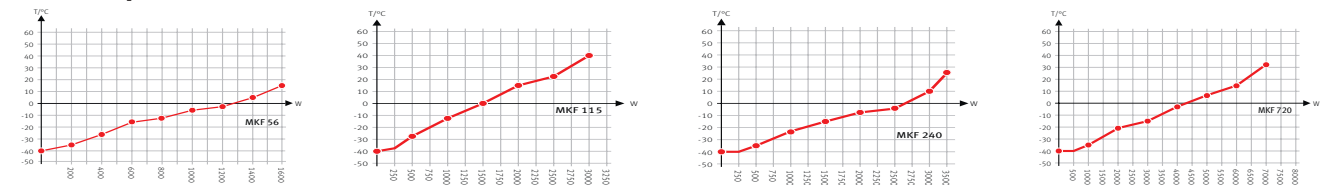


MKF 240

**Heating up / Cooling down times:**



**Heat compensation:**



## Technical data:

	MKF056	MKF115	MKF240	MKF400	MKF720	MKF1020
	230V *	400V *	400V *	400V *	400V *	400V *
Article Number	9020-0378	9020-0379	9020-0380	9020-0408	9020-0381	9020-0409
<b>Performance Data Temperature</b>						
Temperature range [°C]	-40...180	-40...180	-40...180	-40...180	-40...180	-40...180
Temperature variation depending on setpoint [± K]	0,5...1,5	0,1...1,3	0,1...1,5	0,1...1,2	0,1...1,8	0,1...1,8
Temperature fluctuation depending on setpoint [± K]	0,1...0,5	0,1...0,6	0,1...0,5	0,1...0,5	0,1...0,5	0,1...0,5
Average heating-up rate according to IEC 60068-3-5 [K/min]	5	5,5	5	5	4,8	5,5
Heating up time from -40 °C to -40 °C [min]	60	60	60	55	85	60
Cooling down time from 180 °C to -40 °C [min]	90	100	120	115	120	120
Average cooling down time acc. to IEC 60068-3-5 [K/min]	5	4,5	5	5	4,8	5
Max. heat compensation at 20 °C [W]	-	-	-	4500	-	6000
Max. heat compensation at 25 °C [W]	1200	2100	2800	-	5800	-
<b>Performance Data Climate</b>						
Temperature range [°C]	10...95	10...95	10...95	10...95	10...95	10...95
Temperature variation depending on setpoint [± K]	0,5...1,5	-	-	0,1...1,5	-	0,1...2
Temperature fluctuation depending on setpoint [± K]	0,1...0,5	0,1...1,3	0,1...1,3	0,1...1,3	0,2...1,5	0,1...1,5
Humidity range [% RH]	10...98	10...98	10...98	10...98	10...98	10...98
Humidity fluctuation depending on setpoint [± %] r.F.	≤2,5	≤2,5	≤2,5	2,5	≤2,5	2,5
Dew point temperature range [°C]	5...94	5...94	5...94	5...94	5...94	5...94
<b>Electrical data</b>						
Rated Voltage [V]	200...230	400	400	400	400	400
Power frequency [Hz]	50	50	50	50	50	50
Nominal power [kW]	2,8	4,8	6,8	8	11	12,5
Unit fuse [A]	16	16	16	16	32	32
Phase (Nominal voltage) [ph]	1~	3~	3~	3~	3~	3~
<b>Outer dimensions</b>						
Width net [mm]	720	980	1115	1115	1580	1580
Height net [mm]	1445	1725	1715	1710	2005	2005
Depth net [mm]	780	865	925	1400	1140	1140
Wall clearance back [mm]	300	300	300	500	300	300
Wall clearance sidewise [mm]	200	200	200	300	200	200
Viewing window width [mm]	288	288	508	508	508	508
Viewing window height [mm]	255	222	300	300	300	300
<b>Doors</b>						
Unit doors	1	1	1	1	1	1
<b>Internal Dimensions</b>						
Width [mm]	400	600	735	735	1200	1200
Height [mm]	420	480	700	700	1020	1020
Depth [mm]	348	400	443	810	600	810
<b>Further Dimension</b>						
Interior volume [L]	60	115	228	417	734	991
Net weight of the unit (empty) [kg]	175	280	360	432	590	636
permitted load [kg]	60	60	70	150	160	160
Load per rack [kg]	15	30	30	30	40	40
<b>Environment-specific data</b>						
Sound-pressure level [dB(A)]	59	62	65	65	65	69
<b>Fixtures</b>						
Number of shelves (std./max.)	1/4	1/4	1/6	1/6	1/11	1/11

\* All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.

## Series MKFT: Dynamic climate chambers for rapid temperature changes with humidity control and extended low temperature range

The environmental simulation cabinet of the MKFT series is the specialist for dynamic climate changes between -70 °C and 180 °C. Large power reserves and fast cooling make it a high-class product for complex standard-compliant climate tests.

### Features:

- Temperature range: -70 °C to 180 °C
- Humidity range: 10\*) % to 98 % RH
- Integrated water-storage tank, 20 liters
- 4 zero-voltage relay contacts
- APT.line™ preheating chamber technology
- Programmable condensation protection for test material
- Intuitive touchscreen controller with time-segment and real-time programming and integrated chart recorder
- Internal data logger, values can be read out via USB
- Heated door/viewing window with LED interior lighting
- Humidity regulation with capacitive humidity sensor and vapor humidification
- APT-COM™ Basic Edition communication software
- Troubleshooting system with visual and audible alarms
- Class 2 independent adjustable temperature safety device (DIN 12880) with visual alarm
- Access port with silicone plug (115, 240: 50 mm, left)
- 2 access ports with silicone plugs (720: 80 mm, left and right)
- 4 castors, two with brakes
- Computer interface: Ethernet
- Adjustable ramp function
- Real-time clock
- Alarm notification in the event of insufficient water in fresh water tank
- Complete safety connection kit for water supply and drainage, up to 1 m in height
- Inner chamber made of stainless steel with 1 SS-rack
- CFC-free refrigerants R-452A and R-23

\*) 5 ...98% r. H. with optional orderable compressed air dryer (Automotive Tests)

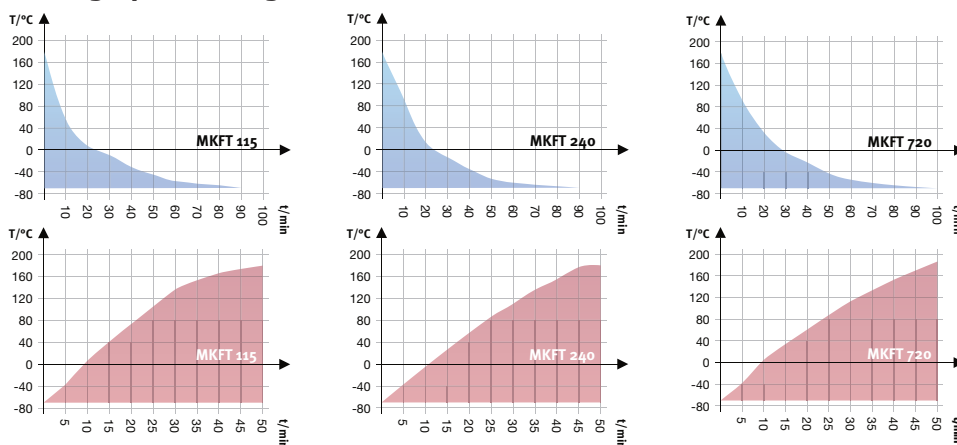


MKFT 115

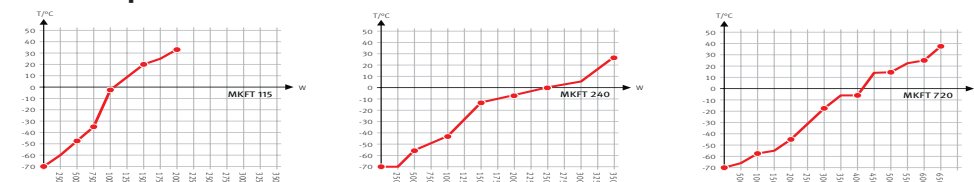


MKFT 115

### Heating up / Cooling down times:



### Heat compensation:



**Technical data:**

	MKFT115	MKFT240	MKFT720
	400V *	400V *	400V *
Article Number	9020-0382	9020-0383	9020-0384
<b>Performance Data Temperature</b>			
Temperature range [°C]	-70...180	-70...180	-70...180
Temperature variation depending on setpoint [± K]	0,1...1,3	0,2...1,8	0,3...2,0
Temperature fluctuation depending on setpoint [± K]	0,1...0,1	0,1...0,5	0,1...0,1
Average heating-up rate according to IEC 60068-3-5 [K/min]	5,5	5	4,8
Average cooling down time according to IEC 60068-3-5 [K/min]	4,2	4,2	4
Max. heat compensation at 25 °C [W]	1500	3000	4500
<b>Performance Data Climate</b>			
Temperature range [°C]	10...95	10...95	10...95
Temperature fluctuation depending on setpoint [± K]	0,1...1	0,1...1,5	0,1...1
Humidity range [% RH]	10...98	10...98	10...98
Humidity fluctuation depending on setpoint	≤2,5 ± % r.F.	≤2,5 ± % r.F.	≤2,5 ± % r.F.
Dew point temperature range [°C]	5...94	5...94	5...94
<b>Electrical data</b>			
Rated Voltage [V]	400	400	400
Power frequency [Hz]	50	50	50
Nominal power [kW]	5,0	6,0	11
Unit fuse [A]	16	16	32
Phase (Nominal voltage) [ph]	3~	3~	3~
<b>Outer dimensions</b>			
Width net [mm]	980	1115	1580
Height net [mm]	1725	1940	2005
Depth net [mm]	865	925	1140
Wall clearance back [mm]	300	300	300
Wall clearance sidewise [mm]	200	200	200
Viewing window width [mm]	288	508	508
Viewing window height [mm]	222	300	300
<b>Doors</b>			
Unit doors	1	1	1
<b>Internal Dimensions</b>			
Width [mm]	600	735	1200
Height [mm]	480	700	1020
Depth [mm]	400	443	600
<b>Further Dimension</b>			
Interior volume [L]	115	228	734
Net weight of the unit (empty) [kg]	330	415	635
permitted load [kg]	60	70	160
Load per rack [kg]	30	30	40
<b>Environment-specific data</b>			
Sound-pressure level [dB(A)]	64	67	69
<b>Fixtures</b>			
Number of shelves (std./max.)	1/4	1/6	1/11

\* All technical data is specified for unloaded units with standard equipment at an ambient temperature of +22 °C ±3 °C and a power supply voltage fluctuation of ±10 %. The temperature data is determined in accordance to BINDER factory standard following DIN 12880, observing the recommended wall clearances of 10 % of the height, width, and depth of the inner chamber. Technical data refers to 100 % fan speed. All indications are average values, typical for units produced in series. We reserve the right to change technical specifications at any time.