



## DESCRIPTION

The copper coated disinfecting heat exchanger is a special heat exchanger with patent for disinfection. It is treated with copper different from former aluminized process. The copper itself has a disinfecting function to stop the breeding of various bacteria so it is possible to maintain the indoor condition pleasantly. The series of Century Marine Type Water Cooled Packaged Air Conditioner is provided with the latest technological features, to ensure reliable and efficient cooling operating for ducted and free-blow air conditioning system. Each unit is composed of compressor(s), sea and fresh water cooled condenser(s), an evaporator and evaporator fans including protection and control devices, and located in a floor-standing cabinet which blends with interior of a ship. And also the heater and humidifier can be provided upon customer's request. These factory-assembled, completely packaged and self-control units are ideal for quick and low cost installation, guarantee economical and reliable operation.

## FEATURES AND BENEFITS

- **accurate choice** – this properly sized product assures accurate cooling load matching and optimum air distribution. Plenum chamber type packaged air conditioners (free blow type) are capable of adjusting air discharge. The air discharge grilles are mounted on a plenum chamber on the top of the unit. Duct type packaged air conditioners designed for ducted air distribution systems, thereby enabling central air conditioning;
- **high durability** – this air conditioners are specifically designed in consideration of unique conditions of a ship such as bending, torsion and elongation caused by rolling and pitching of a ship, etc.;
- **energy saving component** – the highly efficient compressor, evaporator, fans, motor, and sea and fresh water cooled condenser need less power by adopting optimum design;
- **optional heating and humidifying operation** – two types of heaters are available, first one is an electric type, and second is a steam type. A spray type humidifier is also available;
- **reliable protection system** – the compressor is protected by a three-phase thermal type overcurrent relay and a pressure switch to protect against refrigerant system default;
- **quiet operation** – to reduce the noise from the evaporator unit, a compressor and a fan with low noise and sound-absorbing materials are used. Vibration-proof rubber bushing under the compressor helps to reduce noise and vibration.

## APPLICATION

Packaged air conditioners contain all the necessary components in a compact casing. They provide excellent cooling when power is supplied and the drain and cooling water piping are connected. They can be installed almost anywhere in new or old ships in a minimum amount of space. Furthermore the attractive casing is designed to harmonize with the interior decoration of cabins. They are especially good for air conditioning saloons, mess rooms, office and dining rooms. In addition, they are ideal for air conditioning engine control rooms.

## TECHNICAL SPECIFICATION

Model		MP-G3HS(F)3	MP-G5HS(F)3	MP-G7.5HS(F)3	MP-G10HS(F)3	MP-G15HS(F)3	MP-G20HS(F)3	
Power source	Main	Standard 3 ph, 440V, 60Hz AC						
	Control	Standard 1 ph, 220V, 60Hz AC						
Painting colour								
Munsell No. 7.5 BG 7/2 (new light blue)								
Cooling water specification	Sea	Fresh	Sea	Fresh	Sea	Fresh	Fresh	
	[kW]	10.5	17.4	26.2	34.9	31.4	52.3	
Cooling capacity	[10 <sup>3</sup> kcal/h]	9	15	22.5	30	27	45	
		3.47	5.44	8.58	11.58	23.34	23.34	
Condenser press. drop [mAq]		2.5		5.0		6.0		
Hermetic reciprocating gas compressor								
Compressor	Type							
	Model	MTZ-36-4	MTZ-56-4	MTZ-80-4	MTZ-100-4	2x MTZ-80-4	2x MTZ-100-4	
	Nominal input [kW]	4.1(2 pole)	6.6(2 pole)	10.1(2 pole)	9.8 (2 pole)	2x 10.1 (2 pole)	2x 9.8 (2 pole)	
Oil heater		PTC 35W		PTC 35W		PTC 35W		
	Refrigerant oil	POE-160PZ (POLYOLESTER OIL)						
Condenser	Type	Horizontal shell & tube type						
	Model	SC-M3HA3		SC-M5HA3		SC-M10HA3		
Evaporator	Type	Multi-pass cross finned tube type						
	Type & drive	Double suction Multi blade centrifugal fan (Sirocco fan)						
Fan	Discharge type	Cham.	Duct	Cham.	Duct	Cham.	Duct	
		34	34	44	44	66	66	
	Air volume [m <sup>3</sup> /min]	0	15	0	15	0	15	15
		0.25	0.55	0.25	0.55	0.75	1.5	1.5
External static press. [mmAq]	0		0		0		0	
	Motor [kW] (4 pole)	0.25		0.35		0.55		0.75
Outer finishing								
Electric deposition painting & Synthetic resin painting backed on steel sheet								
Protective devices								
Over-current relay (comp. & fan motor), dual (high/low) pressure switch								
Internal thermostat for compressor								
Fusible plug (melting temperature 72±2°C)								
Refrigerant control								
Thermal expansion valve								
Piping connection	Condenser in/outlet	25A (JIS 5K)		40A (JIS 5K)		40A (JIS 5K)		
	Condenser drain	PT 1" (Female)						
Refrigerant	Type	R404A						
	Charged [kg]	2.5		5		10		
Air filter								
Washable vinyl chloride fibre								
Weight [kg]	215		185		285		245	
	340		295		425		370	
735		675		1045		980		

**R407C unit standard specification**

Model		MP-G3HS(F)5	MP-G5HS(F)5	MP-G7.5HS(F)5	MP-G10HS(F)5
Refrigerant	Type	R407C			

**R134a unit standard specification**

Model		MP-G3HS(F)4	MP-G5HS(F)4	MP-G7.5HS(F)4	MP-G10HS(F)4
Compressor	Model	MTZ-56-4	MTZ-80-4	MTZ-100-4	MTZ-80X2SET
Refrigerant	Type	R134a			
Condenser	Model	SC-M5HA4	SC-M7.5HA4	SC-M10HA4	SC-M15HA4

**Packaged Air Conditioner Selection Guide**

Item model	MP-G(N)3HS(F)3	MP-G(N)5HS(F)3	MP-G(N)7.5HS(F)3	MP-G(N)10HS(F)3	MP-G(N)15HS(F)3	MP-G(N)20HS(F)3
Saloon and mess room	96~132	155~204	240~324	312~408	480~648	624~816
Dining room	96~108	156~180	240~276	312~360	480~552	624~720
Entrance	77~96	132~156	192~240	264~312	384~480	528~624
Hall	96~132	156~204	240~324	312~408	480~648	624~816
Cabin (total, volume)	120~132	180~204	288~324	360~408	576~648	720~816
Engine control room	77~96	132~156	192~240	264~312	384~480	528~624

The above values are based on the walls being insulated with 20 mm of non flammable material and of 2.4m ceiling height.

**Specification of optional accessories**

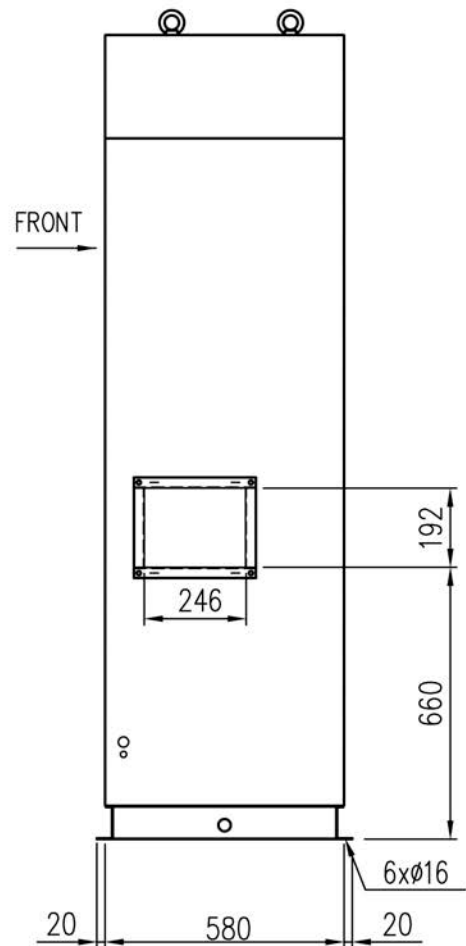
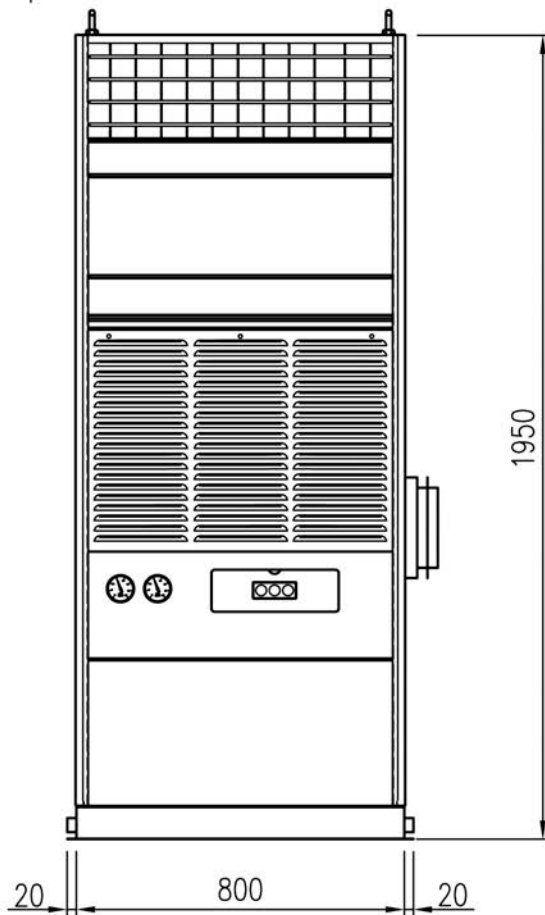
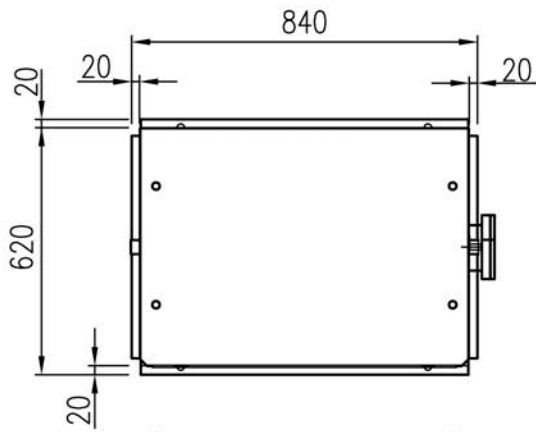
Item model			MP-G3HS(F)3	MP-G5HS(F)3	MP-G7.5HS(F)3	MP-G10HS(F)3
Electric heater	Output	kW (kcal/h)	9 (7,740)	15 (12,900)	24 (20,640)	30 (25,800)
	Stage	Step	3	3	3	3
Steam heater	Capacity	kcal/h	9,000	20,500	29,000	38,000
	Row		2	2	2	2
Steam inlet pipe connection			25A	25A	25A	25A
Steam outlet pipe connection			15A	15A	15A	15A
Humidifier capacity [kg/h]			3	4.5	6	10
Humidifier source steam [kg/cm <sup>2</sup> G]			6	6	6	6
Steam humidifier connection			15A	15A	15A	15A
Fresh air intake connection			ø	ø	ø	ø
Rear suction duct connection			ø	ø	ø	ø
Attachment of plenum chamber			ø	ø	ø	ø
Alternation of piping direction			ø	ø	ø	ø
Regulation valve for cooling water			ø	ø	ø	ø
Pressure gauge for cooling water			ø	ø	ø	ø
Failure switch for cooling water			ø	ø	ø	ø
Stop valve for each press. gauge & switch			ø	ø	ø	ø
3-way test valve for each press. gauge & switch			ø	ø	ø	ø

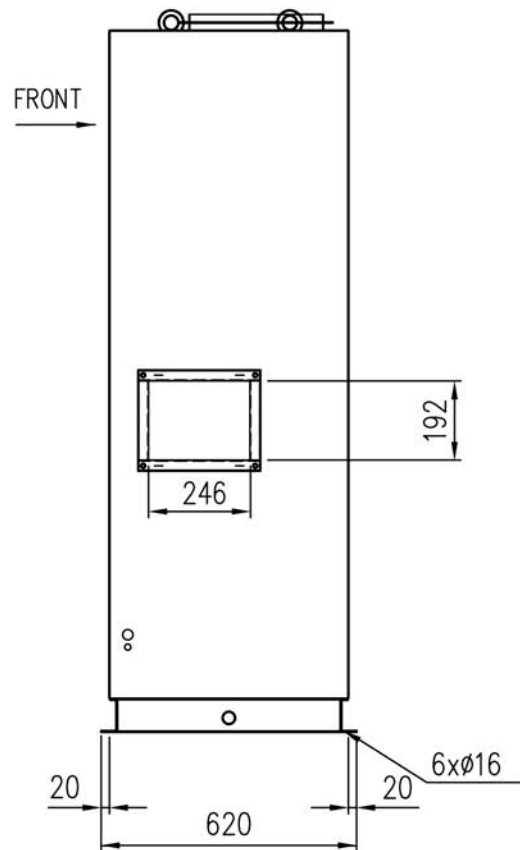
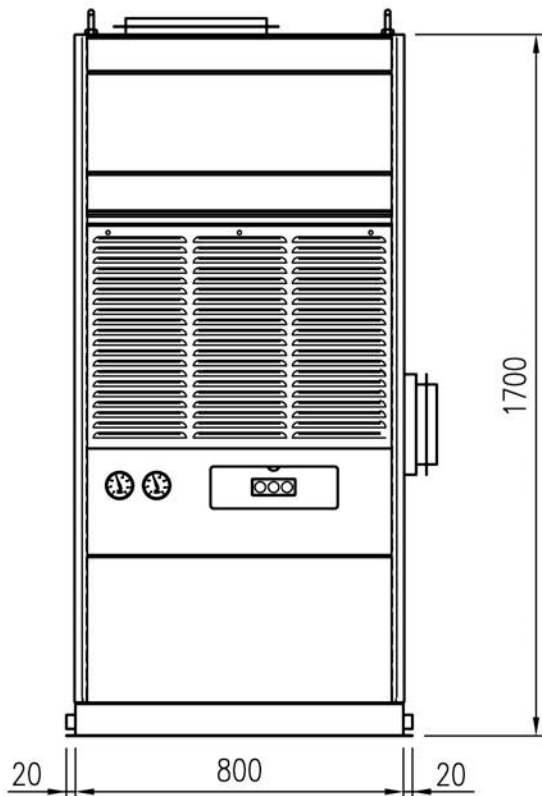
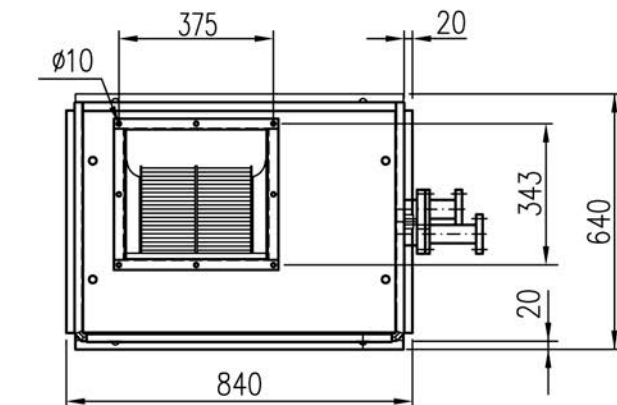
ø Means attachable.

Right – hand pipe connection is standard.

Nominal steam is based on standard working condition shown as: entering air temp. 18°C; entering steam press. 6 kg/cm<sup>2</sup>G.

Steam heating coil piping is JIS 10K with companion flange.

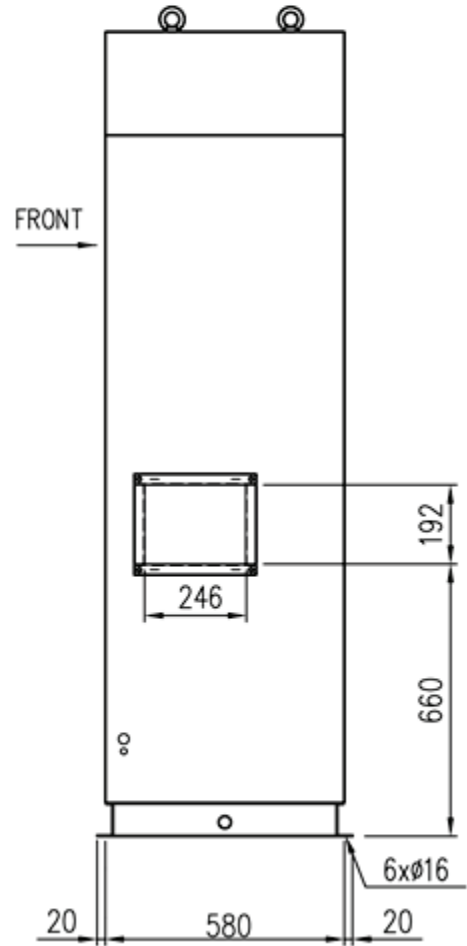
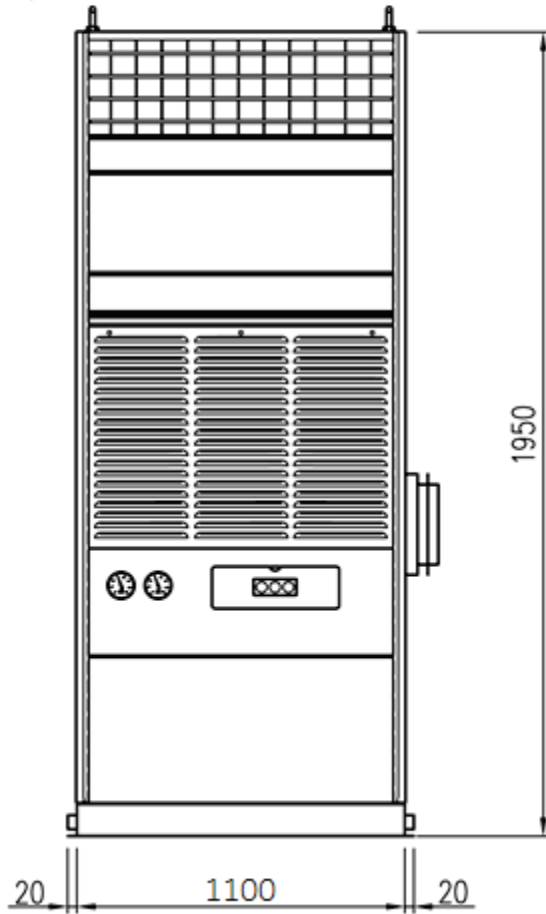
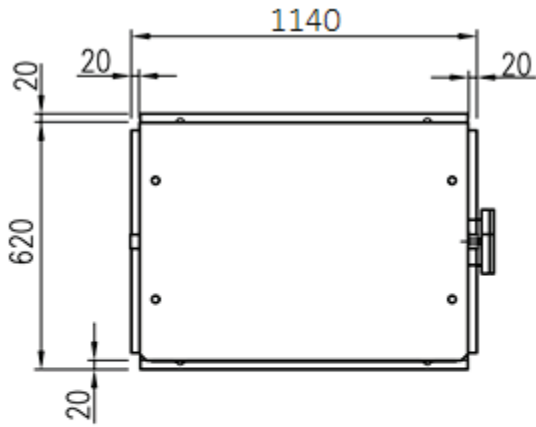
**DIMENSIONS****MP-G3 CHAMBER TYPE**

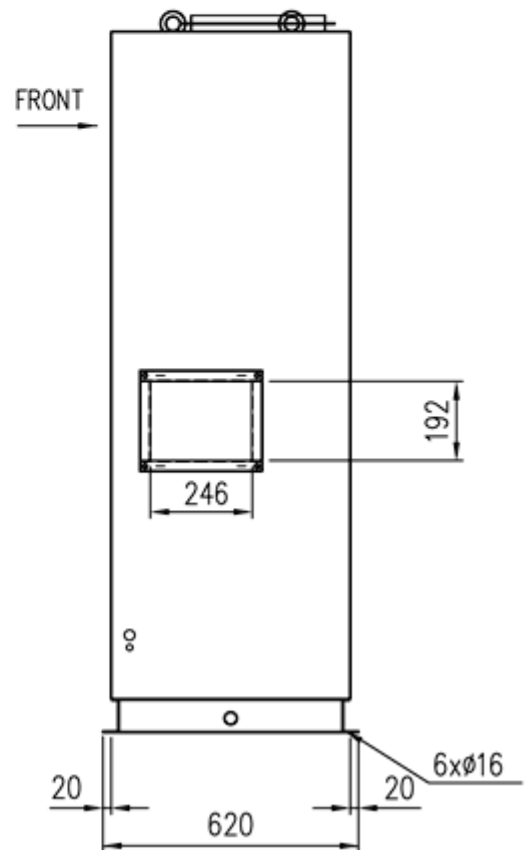
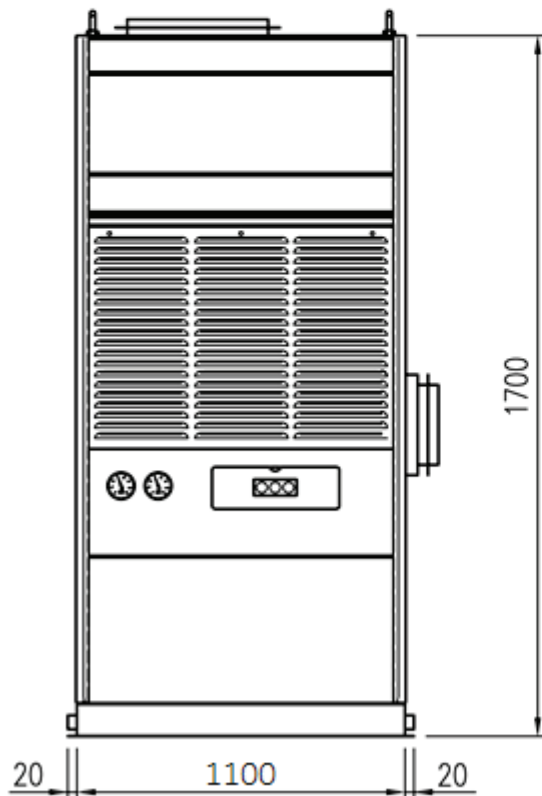
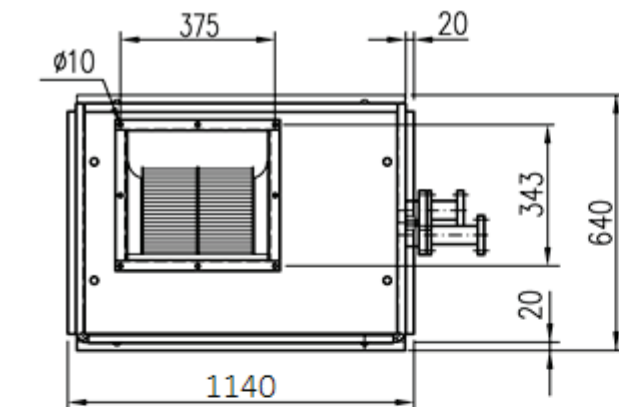
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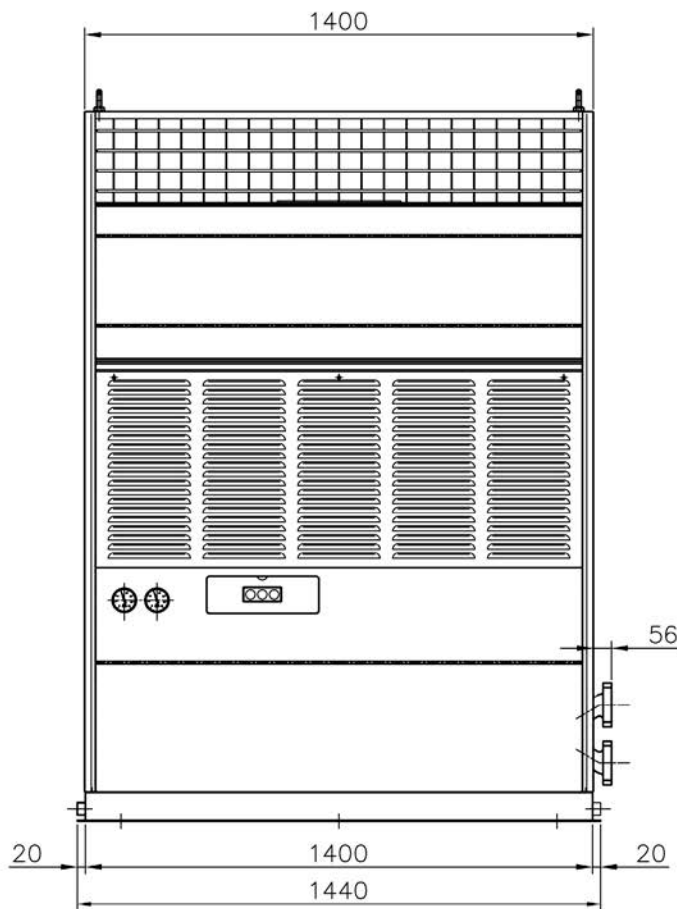
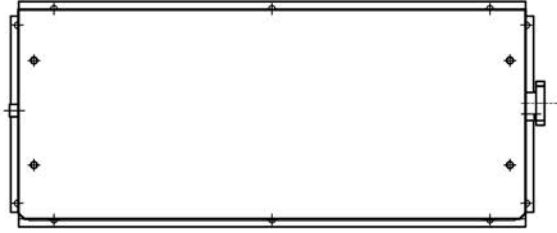
**MP-G5**

**CHAMBER TYPE**

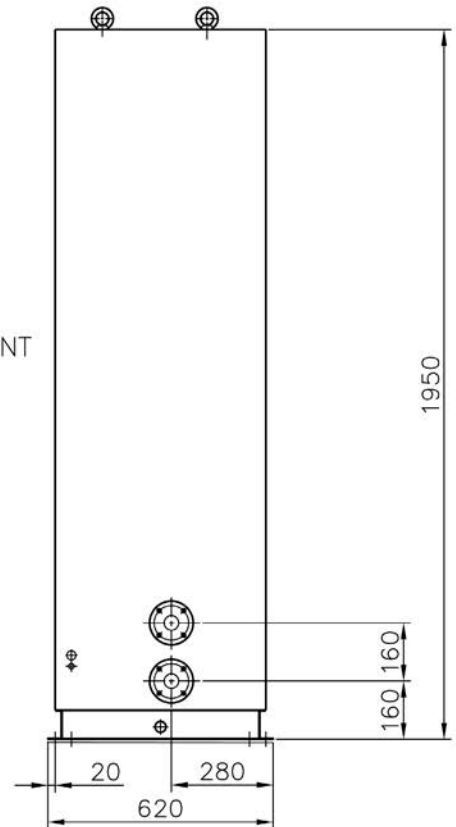


**MP-G5 DUCT TYPE**

**MP-G7.5~10 CHAMBER TYPE**

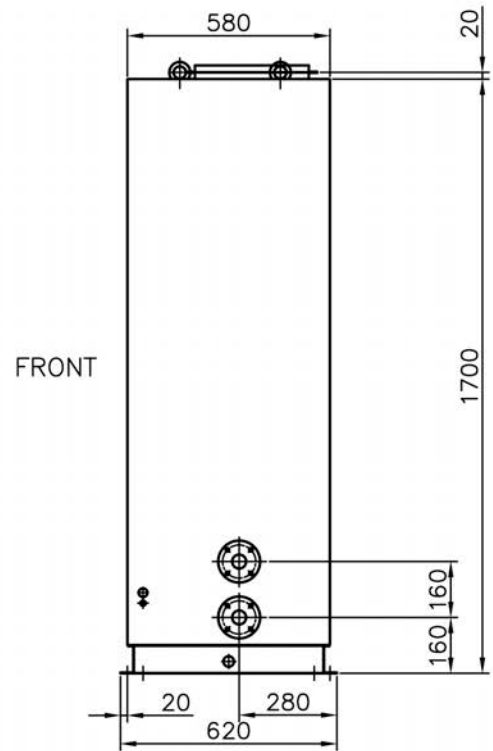
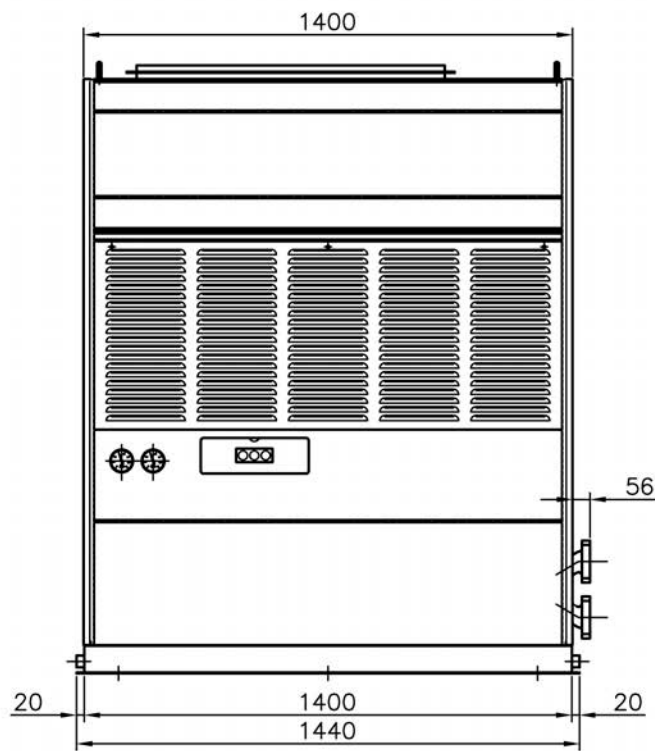
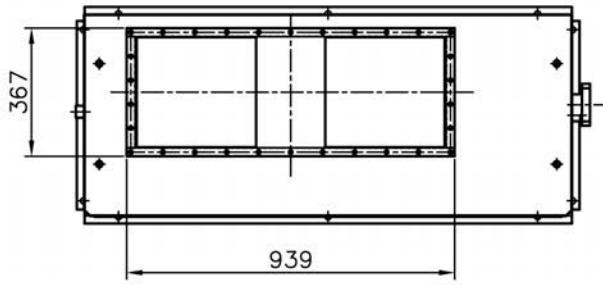


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**MP-G7.5~10 DUCT TYPE**



**MP-G15~20**