



MCWY NR

*Water cooled
Not Reversible heat pumps
from 18 kW to 75 kW*



*Scroll Compressor
R 410A*

Series:	MCW NR	Leaflet:	DE 59
Issue:	03/13	Supersedes:	---

Identification code

MCWY – 15/1 NR PAC

1 2 3 4 5 6 7 8

1	M	mini series < 50 kW
2	C	Chiller unit
3	W	Water cooled
4	Y	Refrigerant R410a
5	15	Power factor
6	1	Number of circuits
7	NR	Not Reversible Heating pump version
8	PAC	Storage tank + Pump
	P1	1 pump
	P2	2 pumps
	LN	Low noise
	VLN	Very low noise

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MCWY NR Water cooled water chiller with scroll compressors Not reversible heat pump version

General features

FRAME

Self-supporting, galvanized steel frame coated with polyester powder paint.

COMPRESSOR

Hermetic "scroll" type with crankcase heater and klixon for overload protection. The compressors are mounted on rubber shock absorbers.

EVAPORATOR

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. The insulation is with a flexible closed-cell lining. It is advisable to fit a differential pressure switch which will stop the unit in case there is no water circulation on the plate to plate evaporator.

CONDENSER

Braze welded plate to plate type.

This serie is a independent refrigerant circuits and a water circuit. The insulation is with a flexible closed-cell lining.

REFRIGERANT CIRCUIT

Each unit include: filter dryer, sight glass, electronic thermostatic expansion valve, solenoid valve, service valve.

To protect the refrigerant circuit the following devices are fitted: manual reset high pressure switch, automatic reset low pressure switch, antifreeze thermostat.

ELECTRICAL BOARD

Weather proof type protected to IP54 standard.

It Includes:

main circuit automatic breaker switch with door locking device, main fuses, compressor contactor, auxiliary circuits transformer. Microprocessor to automatically control the unit with a display to indicate the functions as well as alarm conditions.

Versions

P1

This version is equipped with hydraulic kit. It includes: one or two pumps (one as stand-by), expansion vessel, gauge, flow switch, safety valve, air purger, shut off valve and hydraulic circuit insulated. In case of stand-by pump a non-return valve is mounted. Relevant electrical circuit. As option, pumps with higher ESP are available

PAC1

This version is equipped with hydraulic kit and inertial storage tank insulated and installed on the return line.

LN

Low noise version equipped with soundproof material covering the compressors.

VLN

Very low noise version. In addition to the LN devices is equipped with insulated panels on the compressor box.

OPTIONS

- Power factor condensing capacitors.
- Differential pressure switch.
- Oversized evaporator.
- Condensing control pressost. valve
- Flowswitch not mounted (standard mounted on MCWY NR...PAC and P1 versions)
- Shut off valves
- Water pumps with higher ESP.
- Compressor discharge and liquid shut-off valves.
- Gauges with shut-off valves.
- Programmable clock.
- Remote control panel.
- RS 485 Modbus protocol
- Evaporator electric heater.
- Evaporator electric heater for PAC version.
- Rubber shock absorbers.
- Spring rubbers
- Wooden crate packing.

MCWY NR technical data – Plate to plate exchanger

SIZE		15/1	17/1	19/1	21/1	25/1
Heating mode MCWY NR						
Heating capacity (1)	kW	20,5	24	27,5	30	35
Cooling capacity (1)	kW	16.2	18.9	21.7	23.8	28
Abs. Power (2)	kW	4.3	5,1	5,8	6,2	7
COP	-	4.77	4.7	4.74	4.83	5
Heating mode MCWY NR						
Heating capacity (3)	kW	19	21	24	26	30.5
Cooling capacity (3)	kW	13.9	15	17.2	18.8	22.2
Abs. power (2)	kW	5,1	6	6,8	7,2	8,3
COP		3.72	3.5	3.52	3.61	3.67
Compressor (scroll type)						
Quantity	n°	1				
Refrigerant circuit	n°	1				
Capacity step	n°	1				
Refrigerant	-	R410A				
WELL WATER - EVAPORATOR (1)						
Water flow	m³/h	2.7	3.2	3.7	4	4.8
Pressure drop	kPa	27	35	35	40	30
Water volume	L	1,8	1,8	2	2	2,2
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
USER - CONDENSER (1)						
Water flow	m³/h	3.5	4.1	4.7	5.1	6
Pressure drop	kPa	46	61	59	69	50
Water volume	L	1,8	1,8	2	2	2,2
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
Unit electrical data						
Max abs. Current	A	16	20	20	21	26
LRC	A	69	80	106	100	116
Electrical supply	V/f/Hz	400/3N/50				
Sound pressure at 1 m (4)						
STD version	dB(A)	59	59	61	61	61
LN version	dB(A)	57	57	58	58	58
VLN version	dB(A)	55	55	56	56	56

Notes:

- 1) Heating mode: user circuit inlet water temperature 40 / 45 °C; well water temperature 15/10 °C.
- 2) Compressors only.
- 3) Heating mode EUROVENT conditions: user circuit inlet water temperature 47 / 55 °C; well water temperature 10/7 °C.
- 4) Sound pressure free field

MCWY NR technical data – Plate to plate exchanger

SIZE		30/1	35/1	40/1	45/1	50/1
Heating mode MCWY NR						
Heating capacity (1)	kW	40	44	50,5	59,5	75
Cooling capacity (1)	kW	33.2	34.8	39.9	47.4	59.3
Abs. Power (2)	kW	8.3	9.2	10.6	12.1	15.7
COP	-	4.81	4.78	4.76	4.91	4.77
Heating mode MCWY NR						
Heating capacity (3)	kW	35	39	44	52	66
Cooling capacity (3)	kW	25.3	28.3	31.8	38.1	47.8
Abs. power (2)	kW	9.7	10.7	12.2	13.9	18.2
COP	-	3.6	3.64	3.6	3.74	3.62
Compressor (scroll type)						
Quantity	n°	1				
Refrigerant circuit	n°	1				
Capacity step	n°	1				
Refrigerant	-	R410A				
WELL WATER – EVAPORATOR (1)						
Water flow	m³/h	5.7	5.9	6.8	8.1	10
Pressure drop	kPa	40	34	43	32	35
Water volume	L	4,7	5,2	6,1	7,6	9
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
USER - CONDENSER (1)						
Water flow	m³/h	6.8	7.5	8.6	10.2	12.9
Pressure drop	kPa	68	59	75	55	60
Water volume	L	4,7	5,2	6,1	7,6	9
Water connections	Ø	1" 1/4	1" 1/4	1" 1/4	1" 1/4	1" 1/4
Unit electrical data						
Max abs. Current	A	27	30	36	39	45
LRC	A	123	123	145	179	230
Electrical supply	V/f/Hz	400/3N/50				
Sound pressure at 1 m (4)						
STD version	dB(A)	62	62	62	64	64
LN version	dB(A)	59	59	59	61	61
VLN version	dB(A)	57	57	57	59	59

Notes:

- 1) Heating mode: user circuit inlet water temperature 40 / 45 °C; well water temperature 15/10 °C.
- 2) Compressors only.
- 3) Heating mode EUROVENT conditions: user circuit inlet water temperature 47 / 55 °C; well water temperature 10/7 °C.
- 4) Sound pressure free field

MCWY NR : Performance plate to plate exchanger

HEATING CAPACITY AND ABSORBED POWER

MOD.	WELL	USER water temperature in / out °C											
	Tw °C IN / OUT												
		25	30	30	35	35	40	40	45	45	50	50	55
		kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa	kWf	kWa
15	20 > 15	26,0	3,4	25,1	3,7	24,3	4,0	23,5	4,4	22,8	4,9	23,4	5,4
	15 > 10	22,5	3,3	21,7	3,6	21,1	3,9	20,5	4,3	20,0	4,8	23,3	5,3
	10 > 5	19,3	3,2	18,8	3,5	18,3	3,8	17,8	4,2	17,4	4,7	22,4	5,2
	* 6 > 2	17,4	3,1	17,0	3,4	16,5	3,8	16,2	4,2	15,9	4,7	15,6	5,1
	* 0 > -3	14,8	3,0	14,5	3,3	14,2	3,7	14,0	4,1	13,8	4,6	-	-
	* -2 > -5	13,8	2,9	13,7	3,3	13,3	3,7	13,1	4,1	13,1	4,5	-	-
17	20 > 15	30,5	4,0	29,4	4,3	28,5	4,8	27,6	5,2	26,7	5,8	27,4	6,4
	15 > 10	26,3	3,9	25,4	4,2	24,7	4,7	24,0	5,1	23,4	5,7	27,3	6,2
	10 > 5	22,6	3,7	22,0	4,1	21,4	4,6	20,9	5,0	20,4	5,6	26,3	6,2
	* 6 > 2	20,4	3,7	19,8	4,0	19,4	4,5	18,9	4,9	18,6	5,5	18,3	6,1
	* 0 > -3	17,3	3,5	16,9	3,9	16,6	4,4	16,3	4,8	16,1	5,4	-	-
	* -2 > -5	16,2	3,4	16,0	3,9	15,6	4,4	15,4	4,8	15,3	5,4	-	-
19	20 > 15	34,9	4,5	33,7	4,9	32,6	5,4	31,6	5,9	30,6	6,6	31,4	7,2
	15 > 10	30,1	4,4	29,1	4,8	28,3	5,3	27,5	5,8	26,8	6,4	31,3	7,1
	10 > 5	25,9	4,3	25,2	4,7	24,5	5,2	23,9	5,7	23,4	6,3	30,1	7,0
	* 6 > 2	23,4	4,2	22,7	4,6	22,2	5,1	21,7	5,6	21,3	6,3	21,0	6,9
	* 0 > -3	19,8	4,0	19,4	4,4	19,1	5,0	18,7	5,5	18,5	6,1	-	-
	* -2 > -5	18,6	3,9	18,3	4,5	17,9	5,0	17,6	5,5	17,5	6,1	-	-
21	20 > 15	38,1	4,8	36,8	5,3	35,6	5,8	34,4	6,4	33,4	7,0	34,2	7,7
	15 > 10	32,9	4,7	31,8	5,1	30,9	5,7	30,0	6,2	29,3	6,9	34,1	7,6
	10 > 5	28,3	4,6	27,5	5,0	26,8	5,5	26,1	6,1	25,5	6,8	32,8	7,5
	* 6 > 2	25,5	4,5	24,8	4,9	24,2	5,5	23,6	6,0	23,3	6,7	22,9	7,4
	* 0 > -3	21,6	4,3	21,2	4,7	20,8	5,3	20,4	5,9	20,2	6,6	-	-
	* -2 > -5	20,3	4,2	20,0	4,8	19,5	5,3	19,2	5,8	19,1	6,5	-	-
25	20 > 15	44,4	5,5	42,9	6,0	41,5	6,5	40,2	7,2	39,0	7,9	39,9	8,7
	15 > 10	38,4	5,3	37,1	5,8	36,1	6,4	35,0	7,0	34,1	7,8	39,8	8,6
	10 > 5	33,0	5,1	32,0	5,6	31,2	6,3	30,4	6,9	29,8	7,7	38,3	8,4
	* 6 > 2	29,8	5,1	28,9	5,6	28,2	6,2	27,6	6,8	27,1	7,6	26,7	8,4
	* 0 > -3	25,2	4,8	24,7	5,3	24,3	6,0	23,8	6,6	23,5	7,4	-	-
	* -2 > -5	23,6	4,7	23,3	5,4	22,8	6,0	22,4	6,6	22,3	7,4	-	-

Notes:

Tw - IN / OUT Well water temperature *Water/Glycol (30%)

kWt - Heating capacity

kWa - Abs. Power

MCWY NR : Performance plate to plate exchanger

HEATING CAPACITY AND ABSORBED POWER

MOD.	WELL	USER water temperature in / out °C											
	Tw °C IN / OUT												
		25	30	30	35	35	40	40	45	45	50	50	55
		kWt	kWa	kWt	kWa	kWt	kWa	kWt	kWa	kWt	kWa	kWt	kWa
30	20 > 15	50,8	6,5	49,0	7,1	47,4	7,8	45,9	8,5	44,6	9,4	45,6	10,4
	15 > 10	43,8	6,3	42,4	6,9	41,2	7,6	40,0	8,3	39,0	9,2	45,5	10,2
	10 > 5	37,7	6,1	36,6	6,7	35,7	7,4	34,8	8,1	34,0	9,1	43,8	10,0
	* 6 > 2	34,0	6,0	33,1	6,6	32,3	7,3	31,5	8,0	31,0	9,0	30,5	9,9
	* 0 > -3	28,8	5,7	28,2	6,3	27,7	7,2	27,2	7,9	26,9	8,8	-	-
	* -2 > -5	27,0	5,6	26,6	6,4	26,0	7,1	25,6	7,8	25,5	8,7	-	-
35	20 > 15	55,8	7,2	53,9	7,8	52,2	8,6	50,5	9,4	49,0	10,4	50,2	11,5
	15 > 10	48,2	7,0	46,6	7,6	45,3	8,4	44,0	9,2	42,9	10,2	50,1	11,3
	10 > 5	41,4	6,8	40,3	7,4	39,2	8,2	38,2	9,0	37,4	10,1	48,1	11,1
	* 6 > 2	37,4	6,7	36,4	7,3	35,5	8,1	34,7	8,9	34,1	10,0	33,5	11,0
	* 0 > -3	31,7	6,3	31,1	7,0	30,5	7,9	30,0	8,7	29,6	9,8	-	-
	* -2 > -5	29,7	6,2	29,3	7,1	28,6	7,9	28,2	8,7	28,0	9,7	-	-
40	20 > 15	64,1	8,3	61,9	9,0	59,9	9,9	58,0	10,9	56,3	12,0	57,6	13,2
	15 > 10	55,3	8,0	53,5	8,8	52,0	9,7	50,5	10,6	49,2	11,8	57,5	13,0
	10 > 5	47,6	7,8	46,2	8,6	45,0	9,5	43,9	10,4	43,0	11,6	55,2	12,8
	* 6 > 2	42,9	7,7	41,8	8,4	40,8	9,3	39,8	10,3	39,1	11,5	38,5	12,7
	* 0 > -3	36,4	7,3	35,7	8,1	35,0	9,1	34,4	10,1	33,9	11,2	-	-
	* -2 > -5	34,1	7,1	33,6	8,2	32,9	9,1	32,4	10,0	32,2	11,2	-	-
45	20 > 15	75,5	9,5	72,9	10,3	70,6	11,3	68,3	12,4	66,3	13,7	67,8	15,1
	15 > 10	65,2	9,1	63,0	10,0	61,3	11,0	59,5	12,1	58,0	13,5	67,7	14,8
	10 > 5	56,0	8,9	54,4	9,8	53,1	10,8	51,7	11,9	50,6	13,2	65,1	14,6
	* 6 > 2	50,6	8,8	49,2	9,6	48,0	10,7	46,9	11,7	46,1	13,1	45,3	14,5
	* 0 > -3	42,8	8,3	42,0	9,2	41,2	10,4	40,5	11,5	40,0	12,8	-	-
	* -2 > -5	40,2	8,1	39,6	9,3	38,7	10,4	38,1	11,4	37,9	12,8	-	-
50	20 > 15	95,2	12,3	92,0	13,4	89,0	14,7	86,1	16,1	83,6	17,8	85,5	19,6
	15 > 10	82,2	11,9	79,4	13,0	77,3	14,3	75,0	15,7	73,1	17,5	85,4	19,2
	10 > 5	70,7	11,5	68,6	12,7	66,9	14,0	65,2	15,4	63,8	17,2	82,1	18,9
	* 6 > 2	63,8	11,4	62,0	12,5	60,5	13,8	59,1	15,2	58,1	17,0	57,2	18,8
	* 0 > -3	54,0	10,8	53,0	11,9	52,0	13,5	51,1	14,9	50,4	16,6	-	-
	* -2 > -5	50,6	10,5	50,0	12,1	48,8	13,4	48,1	14,8	47,8	16,5	-	-

Notes:

Tw - IN / OUT Well water temperature *Water/Glycol (30%)

kWt - Heating capacity

kWa - Abs. Power

Operating range

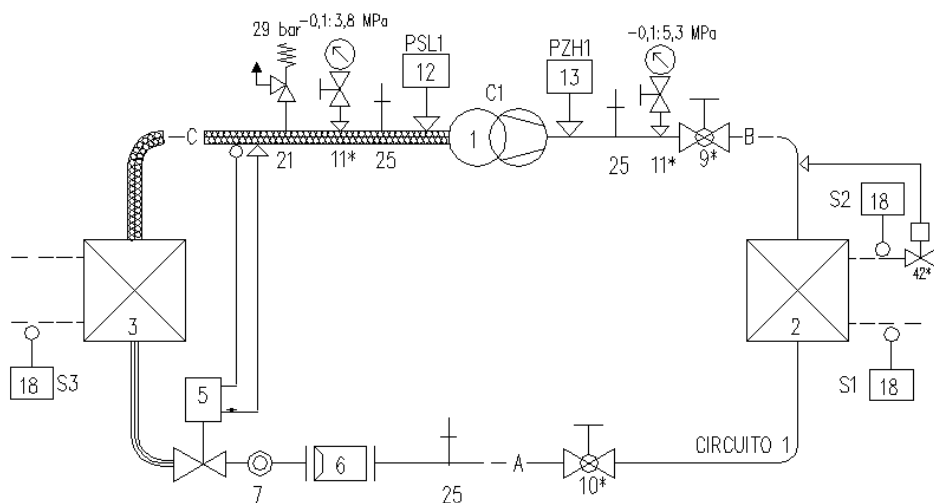
INLET WATER TEMP. EVAPORATOR	Max °C	20
	Min °C	-3 *
OUTLET WATER TEMP. EVAPORATOR	Max °C	15
	Min °C	-6 *
INLET WATER TEMP. CONDENSER	Max °C	50
	Min °C	25
OUTLET WATER TEMP. CONDENSER	Max °C	55
	Min °C	30

* WATER / GLYCOL USE

CORRECTION FACTORS

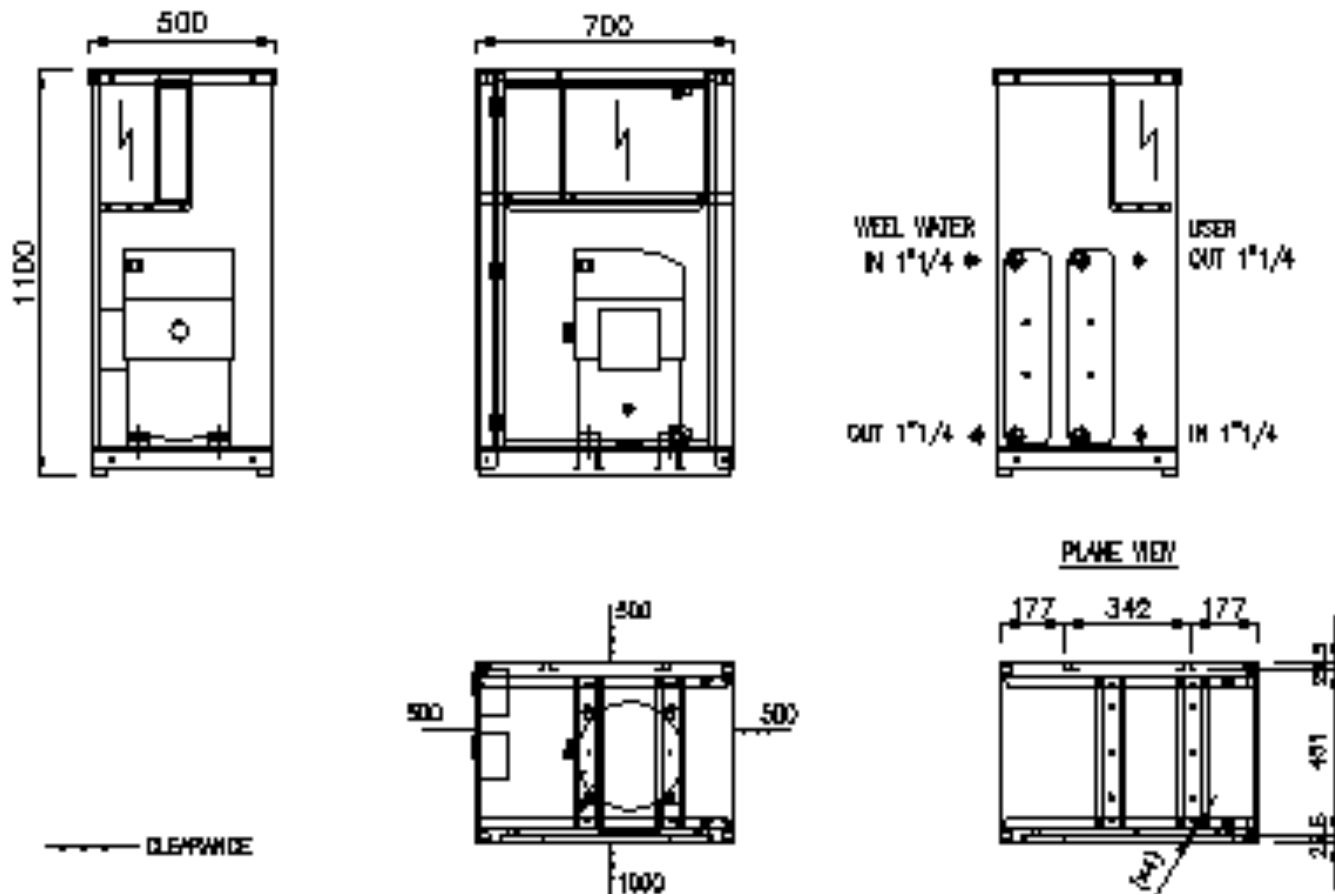
Ethylene glycol percentage by weight (%)	10	20	30	40	50
Freezing point (°C)	-3,6	-8,7	-15,3	-23,5	-35,5
Cooling capacity	0,986	0,980	0,973	0,966	0,960
Power input	1,000	0,995	0,990	0,985	0,975
Mixture flow	1,023	1,054	1,092	1,140	1,200
Pressure drop	1,061	1,114	1,190	1,244	1,310

Refrigerant circuit **MCWY NR (not reversible)**



- 1 = Compressor
- 2 = Condensator
- 3 = Evaporator
- 21 = Relief valve
- 5 = Thermal expansion valve
- 6 = Refrigerant filter
- 9 = Supply cock**
- 10 = Liquid line cock**
- 7 = Humidity indicator
- 10 = Schrader service valve
- 12 = Low pressure switch
- 13 = High pressure switch
- 11 = Gauge**
- 18 = Temperature probe
- 42 = Water pressure valve **
- 25 = Schrader service valve

Fig. A

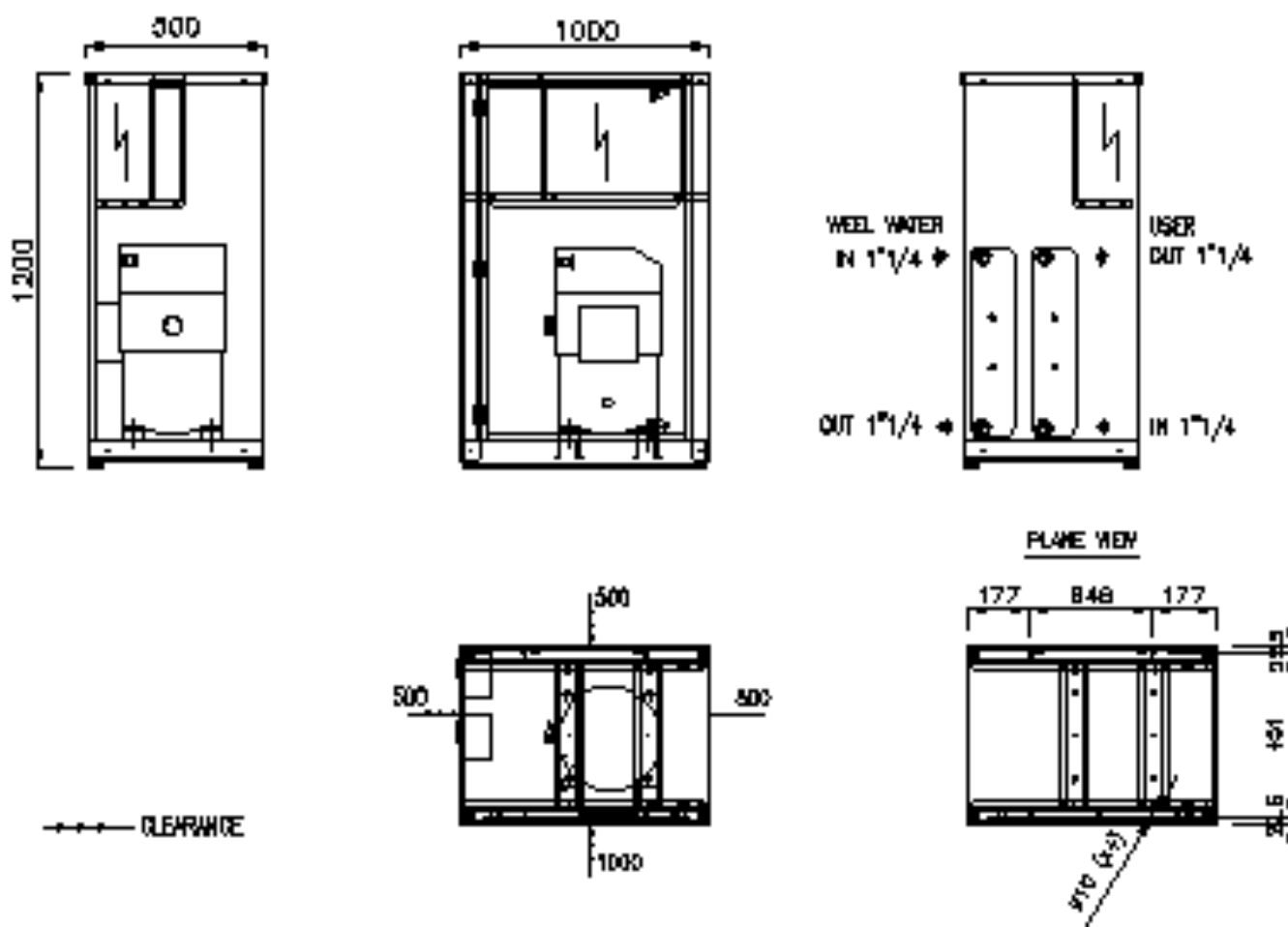


WEIGHTS

VERSION	STD					LN					VLN				
Size	15/1	17/1	19/1	21/1	25/1	15/1	17/1	19/1	21/1	25/1	15/1	17/1	19/1	21/1	25/1
Fig.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Operating kg.	330	357	370	400	420	353	393	410	440	460	395	410	440	488	502
Transport kg.	315	342	355	387	398	338	378	395	437	448	360	395	435	468	488

(1) The data has to be added to the evaporator and condensor water volume with regard to the selected model

Fig. B



WEIGHTS

VERSION	STD					LN					VLN				
Size	30/1	35/1	40/1	45/1	50/1	30/1	35/1	40/1	45/1	50/1	30/1	35/1	40/1	45/1	50/1
Fig.	A	A	B	B	B	A	A	B	B	B	A	A	B	B	B
Operating kg.	455	485	505	555	610	455	505	525	575	630	515	535	555	605	660
Transport kg.	420	450	475	510	565	450	470	495	520	585	480	500	525	550	615

(1) The data has to be added to the evaporator and condensor water volume with regard to the selected model

Technical data shown in this booklet are not binding. ACM Kälte Klima reserves the right to modify the data without any prior notices

Kälte Klima

NOTES:

[illegible]



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