

ARCTIC AL

REFRIGERATION UNIT



ARCTIC AL

commercial refrigeration units

Arctic AL refrigeration units are the ideal solution for commercial refrigeration.

The compact design ensures easier handling and installation in small spaces. Installation is applicable in all climate conditions thanks to its corrosion resistant design.

With Arctic AL units, customers can choose a wide range of additional options and adjust the system to their requirements.

They are an ideal choice for a quick and compact cooling solution.

Easier on-site preparation thanks to floor stands or wall mounting brackets.

NOMENCLATURE:

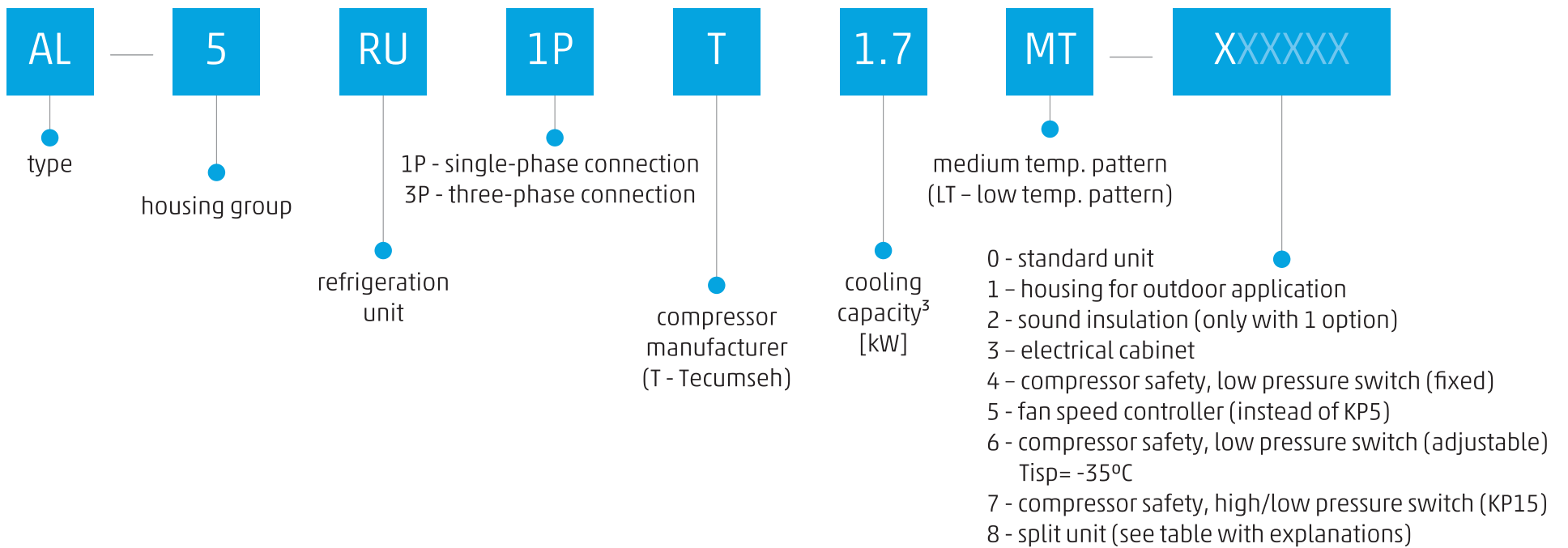


TABLE WITH OPTIONS

	EQUIPMENT	NOTE
BASIC EQUIPMENT	<ul style="list-style-type: none"> hermetic compressor crankcase heater for units with higher capacity compressor air-cooled condenser with fan liquid receiver safety valve² filter-drier with sight glass vibration absorbers 	<ul style="list-style-type: none"> when choosing a refrigeration unit, in addition to unit's name please also specify the number of the option. e. g. unit AL - 5RU1PT1.7MT - 0; with standard units only (see left) e.g. unit AL - 5RU1PT1.7MT - 134; with protective housing, power supply and protection and a fixed protective pressure switch of the LP compressor e.g. unit AL - 5RU1PT1.7MT - 8; contains all equipment from option 1 and option 3, and comes with an evaporator unit and a control unit
	<ul style="list-style-type: none"> protect. pressure switch of the HP compressor pressostatic regulation of cond. pressure 	<ul style="list-style-type: none"> protect. pressure switch of the compressor
OPTIONS	EQUIPMENT	NOTE
OPTION 1	<ul style="list-style-type: none"> housing for outdoor application 	<ul style="list-style-type: none"> standard with option 8
OPTION 2	<ul style="list-style-type: none"> sound insulation 	<ul style="list-style-type: none"> only with option 1
OPTION 3	<ul style="list-style-type: none"> power supply and protection - compressor switch, el. heater, condenser fans, main switch (option 3) 	<ul style="list-style-type: none"> power distribution cabinet to choose only with option 1. Electrical cabinet power dist. cabinet standard with option 8 - plus stand. equipment (see left), power dist. cabinet has consumer fuses (evaporator fans, el. defrost heater)
OPTION 4	<ul style="list-style-type: none"> compressor safety, low pressure switch (fixed) 	<ul style="list-style-type: none"> automatic reset
OPTION 5	<ul style="list-style-type: none"> fan speed controller 	<ul style="list-style-type: none"> the fan speed controller regulates pressure in the condenser so by selecting option 5 the pressure switch is removed from the stand. equipment
OPTION 6	<ul style="list-style-type: none"> adjustable protective pressure switch of the LP compressor for Tisp= -35°C 	<ul style="list-style-type: none"> with option 6, an adjust. prot. pressure switch of the compressor is installed applied in case when the desired evaporating of the LT model is -35°C
OPTION 7	<ul style="list-style-type: none"> adjustable prot. pressure switch of the HP/LP compresso 	<ul style="list-style-type: none"> with option 7, an adjust. high/low pressure switch of the compressor is installed with option 7 the fixed LP protective pressure switch is not installed options 4 and 6 are not added with option 7
OPTION 8	<ul style="list-style-type: none"> split unit protective housing for outdoor use power supply and protection - compressor switch, consumer fuses (condenser and evaporator fans, electric defrost heater), main switch 	<ul style="list-style-type: none"> option 8 completes the cooling system (condensing unit, evaporator unit and control unit)

2 Except for AL-3RU1PT0.7MT and AL-3RU1PT0.8MT

3 under conditions:

For R449A

•MT Te/Ta = -10 °C/+32 °C

•LT Te/Ta = -30 °C/+32 °C

• superheat 10 K

• subcooling 2 K

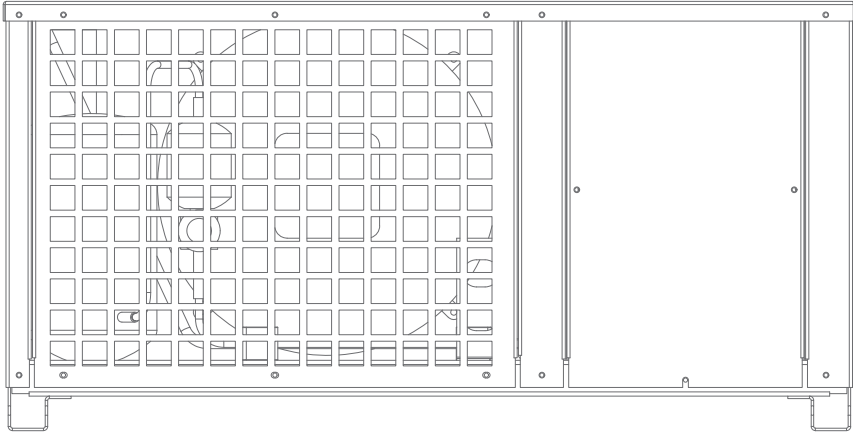
• Te evaporation temperature

• Ta ambient temperature

Note: The system can be filled with other refrigerant (R404A, R407F, R448A).

Cooling capacities differ from those shown in the table in this data sheet. When option 8 is chosen, the cooling system may only be filled with R449A or R448A).

▶ REFRIGERATION outside the cold room



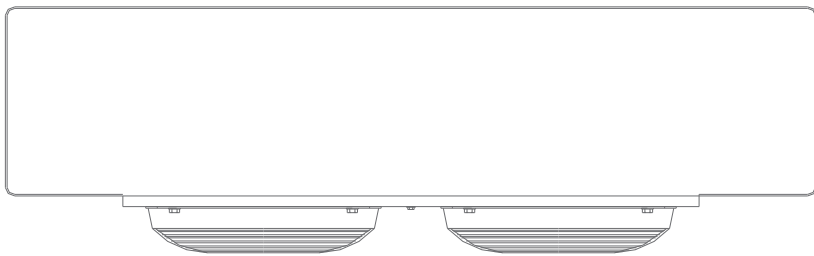
STANDARD UNIT

- hermetic compressor
- oil sump heater for higher power compressors¹
- air-cooled condenser with fan
- liquid operating substance tank
- safety valve²
- filter-drier with inspection glass
- fixed protective pressure switch of the HP compressor
- regulation of condensation pressure via pressure switch
- anti-vibrants on units where $\sigma SL \geq 22\text{mm}$

STANDARD UNIT (with option 8)

- protective housing for outdoor use
- fixed protective pressure switch of the LP compressor, automatic
- power supply and protection - compressor switch, consumer fuses (condenser and evaporator fans, electric defrost heater), main switch

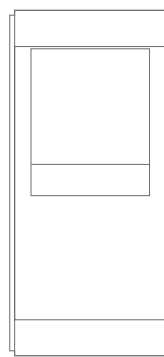
▶ EVAPORATOR UNIT inside the cold room



STANDARD UNIT (option 8):

- SmartCella
- two temperature probes

▶ CONTROL UNIT outside the cold room



STANDARD UNIT (option 8):

- SmartCella
- two temperature probes

FEATURES:

- compact design
- PED I
- easy mounting
- design with anti-corrosion protection
- refrigerant with GWP(GWP=1397), R449A

ASSEMBLY ACCESSORIES:

- floor stand
- mounting brackets

ACCESSORIES (see table with options):

- protective housing for outdoor use (standard with option 8)
- sound insulation (with protective housing only)
- power supply and protection (with protective housing only; standard with option 8)
- fixed protective pressure switch of the LP compressor
- fan speed controller
- fixed protective pressure switch of the LP compressor for $T_{isp} = -35\text{ °C}$
- adjustable protective pressure switch of the HP/LP compressor
- refrigeration units

² Except for 3CU1PT0.7MT and 3CU1PT0.8MT

Note: The system can be filled with other refrigerants (R404A, R407F, R448A). Cooling capacities differ from those shown in the table in this data sheet. With option 8, the cooling system may only be filled with R449A or R448A).

▶ COOLING CAPACITY:

Refrigeration unit MT MODEL	Condensing unit				Evaporator unit (option 8) ⁴
	Compressor	Cooling capacity [kW] ³	Connections		
			Te/Ta	øSL øLL	
		-10°C/+32°C			
AL-3RU1PT0.7MT	AE 4450 Z	0,7	10	6	EVS 61 ED
AL-3RU1PT0.8MT	AE 4460 Z	0,8	10	6	EVS 101 ED
AL-4RU1PT1.1MT	CAJ 9480 Z	1,1	12	10	EVS 131 ED
AL-4RU1PT1.3MT	CAJ 9510 Z	1,3	16	10	EVS 201 ED
AL-5RU1PT1.7MT	CAJ 9513 Z	1,7	16	10	EVS 201 ED
AL-5RU1PT1.9MT	CAJ 4517 Z	1,9	16	10	EVS 181 ED
AL-6RU1PT2.5MT	CAJ 4519 Z	2,5	16	10	EVS 291 ED
AL-6RU3PT2.8MT ¹	TFH 4524 Z	2,8	16	10	EVS 391 ED
AL-6RU3PT3.6MT ¹	TFH 4531 Z	3,6	22	10	EVS 521 ED
AL-7RU3PT4.7MT ¹	TFH 4540 Z	4,7	22	10	GCE 254E8 ED
AL-7RU3PT5.7MT ¹	TAG 4553 Z	5,7	22	10	GCE 352E8 ED
AL-7RU3PT6.6MT ¹	TAG 4561 Z	6,6	28	10	GCE 313F8 ED
AL-7RU3PT7.8MT ¹	TAG 4568 Z	7,8	28	10	GCE 314F8 ED
AL-7RU3PT8.4MT ¹	TAG 4573 Z	8,4	28	10	GCE 314F8 ED

Refrigeration unit LT MODEL	Condensing unit				Evaporator unit (option 8) ⁴
	Compressor	Cooling capacity [kW] ³	Connections		
			Te/Ta	øSL øLL	
		-10°C/+32°C			
AL-4RU1PT0.8LT	CAJ 2464 Z	0,8	16	10	GCE 251E8R ED
AL-5RU1PT1.1LT ¹	FH 2480 Z	1,1	16	10	GCE 251E8 ED
AL-5RU3PT1.1LT ¹	TFH 2480 Z	1,1	16	10	GCE 251E8 ED
AL-5RU3PT1.4LT ¹	TFH 2511 Z	1,4	16	10	GCE 252G8 ED
AL-7RU3PT1.8LT ¹	TAG 2516 Z	1,8	22	10	GCE 253E8 ED
AL-7RU3PT2.3LT ¹	TAG 2519 Z	2,3	22	10	GCE 253E8 ED
AL-7RU3PT2.6LT ¹	TAG 2522 Z	2,6	22	10	GCE 253E8 ED

REPLACEMENT FOR FH/TFH compressors

- TECUMSEH is replacing FH and TFH compressors with new FH2 compressors to be installed when the stock of existing FH and TFH runs out.
- The table below shows the new designation of the compressor that is being replaced in the Arctic AL product series.

	FH/TFH	FH2
LT MODELS	FH2480Z-FZ	FH2480Z-XC3A
	TFH2480Z-TZ	FH2480ZXG1A
	TFH2511Z-TZ	FH2511Z-XG1A
MT MODELS	TFH4524Z-TZ	FH4524-XG1A
	TFH4531Z-TZ	FH4532-XG1A
	TFH4540Z-TZ	FH4538Z-XG1A

• XC- single-phase • XG - three-phase

³ Under conditions:
For R449A

- MT Te/Ta = -10 °C/+32 °C
- LT Te/Ta = -30 °C/+32 °C

- superheat 10 K
- subcooling 2 K
- Te evaporation temperature
- Ta ambient temperature
- 4 applies only for R449A

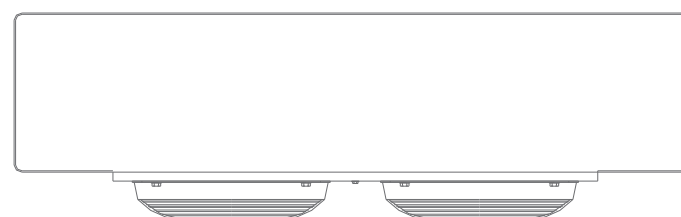
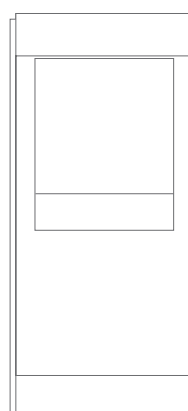
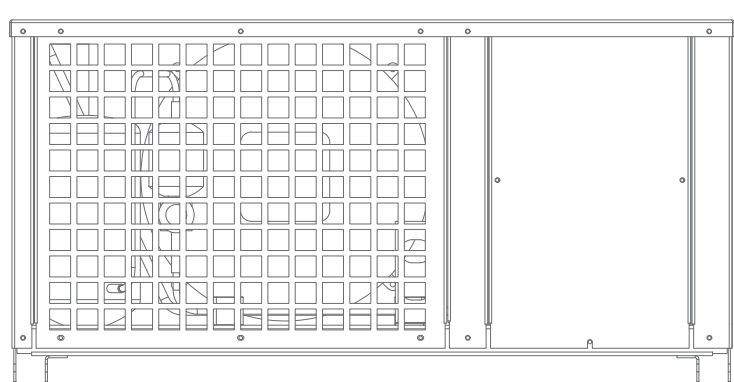
øSL suction line
øLL liquid line

▶ CHOOSING A SPLIT UNIT (OPTION 8):

The table below refers to temperature maintenance in rooms i.e. goods enter the room already cooled. Cold rooms must be properly insulated.

Max. room volume			
Cooling temperature	0°C/+2°C	+4°C	+6°C
AL-3RU1PT0.7MT	4 m ³	5 m ³	6 m ³
AL-3RU1PT0.8MT	6 m ³	8 m ³	9 m ³
AL-4RU1PT1.1MT	10 m ³	12 m ³	14 m ³
AL-4RU1PT1.3MT	14 m ³	16 m ³	18 m ³
AL-5RU1PT1.7MT	18 m ³	22 m ³	25 m ³
AL-5RU1PT1.9MT	20 m ³	24 m ³	27 m ³
AL-6RU1PT2.5MT	28 m ³	32 m ³	35 m ³
AL-6RU3PT2.8MT	38 m ³	45 m ³	50 m ³
AL-6RU3PT3.6MT	50 m ³	60 m ³	65 m ³
AL-7RU3PT4.7MT	70 m ³	80 m ³	90 m ³
AL-7RU3PT5.7MT	80 m ³	90 m ³	100 m ³
AL-7RU3PT6.6MT	95 m ³	105 m ³	110 m ³
AL-7RU3PT7.8MT	120 m ³	130 m ³	140 m ³
AL-7RU3PT8.4MT	140 m ³	150 m ³	160 m ³

Max. room volume	
Cooling temperature	-20°C/-18°C
AL-4RU1PT0.8LT	5 m ³
AL-5RU1PT1.1LT	8 m ³
AL-5RU3PT1.1LT	8 m ³
AL-5RU3PT1.4LT	15 m ³
AL-7RU3PT1.8LT	25 m ³
AL-7RU3PT2.3LT	30 m ³
AL-7RU3PT2.6LT	40 m ³



▶ POWER SUPPLY:

Refrigeration unit MT MODEL	Condensing unit				Evaporator unit			
	Compressor	Power supply	I _{max} [A]	P _{max} [kW]	Evaporator	Power supply	I _{max} [A]	P _{max} [kW]
AL-3RU1PT0.7MT	AE 4450 Z (FZ)	230 V/1~/50 Hz	6,2	0,7	EVS 61 ED	230 V/1~/50 Hz	2,4	0,5
AL-3RU1PT0.8MT	AE 4460 Z (FZ)	230 V/1~/50 Hz	7,5	0,8	EVS 101 ED	230 V/1~/50 Hz	3,5	0,8
AL-4RU1PT1.1MT	CAJ 9480 Z (F/T)	230 V/1~/50 Hz	7,6	1,1	EVS 131 ED	230 V/1~/50 Hz	3,7	0,8
AL-4RU1PT1.3MT	CAJ 9510 Z (F/T)	230 V/1~/50 Hz	9,2	1,3	EVS 201 ED	230 V/1~/50 Hz	3,7	0,8
AL-5RU1PT1.7MT	CAJ 9513 Z (F/T)	230 V/1~/50 Hz	11,6	1,6	EVS 201 ED	230 V/1~/50 Hz	3,7	0,8
AL-5RU1PT1.9MT	CAJ 4517 Z (F/T)	230 V/1~/50 Hz	13,0	1,8	EVS 181 ED	230 V/1~/50 Hz	5,7	1,3
AL-6RU1PT2.5MT	CAJ 4519 Z (F/T)	230 V/1~/50 Hz	15,6	2,5	EVS 291 ED	230 V/1~/50 Hz	6,3	1,4
AL-6RU3PT2.8MT ¹	TFH 4524 Z	400 V/3~/50 Hz	8,1	2,7	EVS 391 ED	230 V/1~/50 Hz	6,3	1,4
AL-6RU3PT3.6MT ¹	TFH 4531 Z	400 V/3~/50 Hz	8,9	3,5	EVS 521 ED	230 V/1~/50 Hz	8,4	1,8
AL-7RU3PT4.7MT ¹	TFH 4540 Z	400 V/3~/50 Hz	9,8	4,5	GCE 254E8 ED	400 V/3~/50 Hz	9,1	4,8
AL-7RU3PT5.7MT ¹	TAG 4553 Z	400 V/3~/50 Hz	14,0	5,6	GCE 352E8 ED	400 V/3~/50 Hz	6,5	3,6
AL-7RU3PT6.6MT ¹	TAG 4561 Z	400 V/3~/50 Hz	16,9	6,4	GCE 313F8 ED	400 V/3~/50 Hz	8,7	5,2
AL-7RU3PT7.8MT ¹	TAG 4568 Z	400 V/3~/50 Hz	19,4	7,2	GCE 314F8 ED	400 V/3~/50 Hz	11,21	6,8
AL-7RU3PT8.4MT ¹	TAG 4573 Z	400 V/3~/50 Hz	20,6	8,0	GCE 314F8 ED	400 V/3~/50 Hz	11,21	6,8

Refrigeration unit LT MODEL	Condensing unit				Evaporator unit			
	Compressor	Power supply	I _{max} [A]	P _{max} [kW]	Evaporator	Power supply	I _{max} [A]	P _{max} [kW]
AL-4RU1PT0.8LT	CAJ 2464 Z	230 V/1~/50 Hz	10,8	1,6	GCE 251E8R ED	230 V/1~/50 Hz	3,9	0,8
AL-5RU1PT1.1LT ¹	FH 2480 Z	230 V/1~/50 Hz	16,3	2,3	GCE 251E8 ED	230 V/1~/50 Hz	5,6	1,2
AL-5RU3PT1.1LT ¹	TFH 2480 Z	400 V/3~/50 Hz	5,1	2,3	GCE 251E8 ED	230 V/1~/50 Hz	5,6	1,2
AL-5RU3PT1.4LT ¹	TFH 2511 Z	400 V/3~/50 Hz	7,5	3,0	GCE 252G8 ED	230 V/1~/50 Hz	11,1	2,4
AL-7RU3PT1.8LT ¹	TAG 2516 Z	400 V/3~/50 Hz	10,1	4,0	GCE 253E8 ED	400 V/3~/50 Hz	5,5	3,6
AL-7RU3PT2.3LT ¹	TAG 2519 Z	400 V/3~/50 Hz	11,0	4,2	GCE 253E8 ED	400 V/3~/50 Hz	5,5	3,6
AL-7RU3PT2.6LT ¹	TAG 2522 Z	400 V/3~/50 Hz	14,0	5,0	GCE 253E8 ED	400 V/3~/50 Hz	5,5	3,6

REPLACEMENT FOR FH/TFH compressors

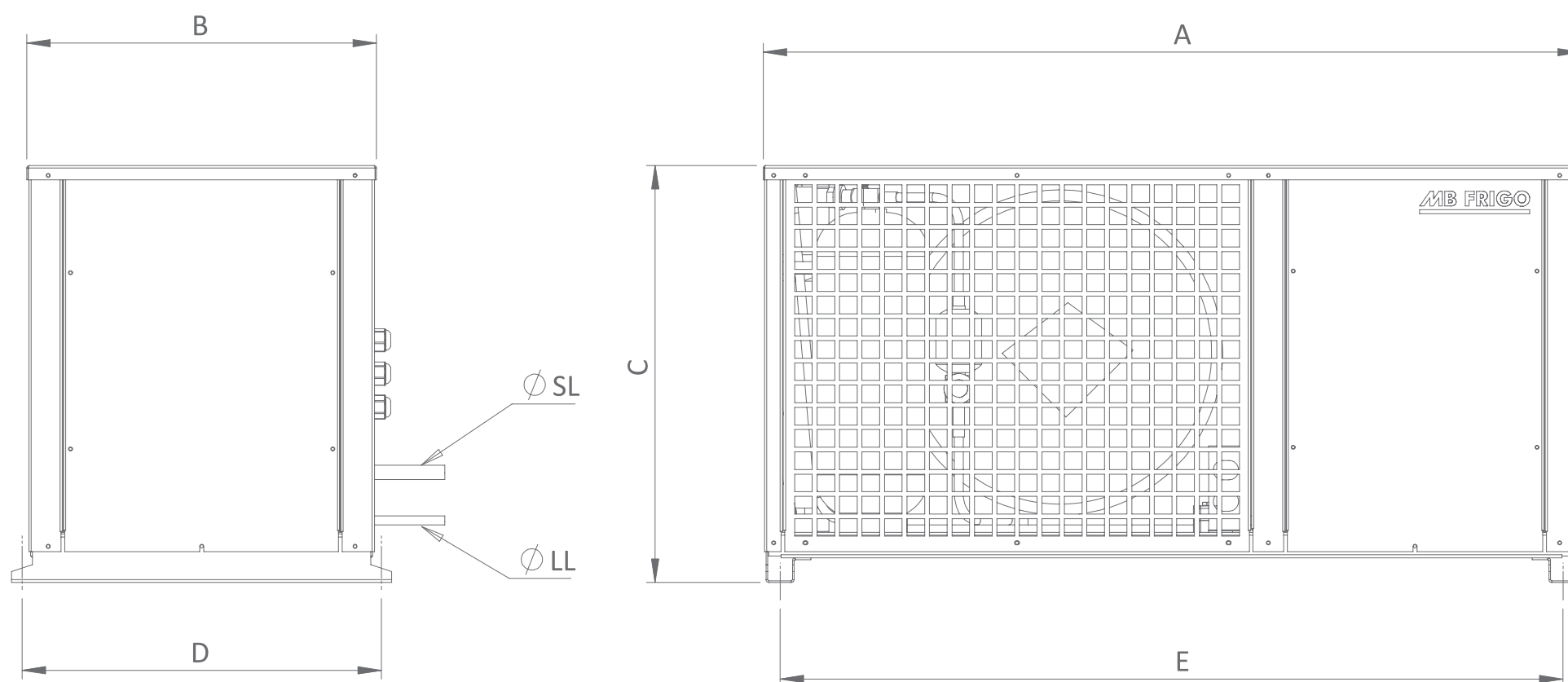
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- The table below shows the new designation of the compressor that is being replaced in the Arctic AL product series.

	FH/TFH	FH2
LT MODELS	FH2480Z-FZ	FH2480Z-XC3A
	TFH2480Z-TZ	FH2480ZXG1A
	TFH2511Z-TZ	FH2511Z-XG1A
MT MODELS	TFH4524Z-TZ	FH4524-XG1A
	TFH4531Z-TZ	FH4532-XG1A
	TFH4540Z-TZ	FH4538Z-XG1A

• XC- single-phase • XG- three-phase

• P_{max} maximum electrical power
• I_{max} maximum electric current

▶ CONDENSING UNIT outside the cold room

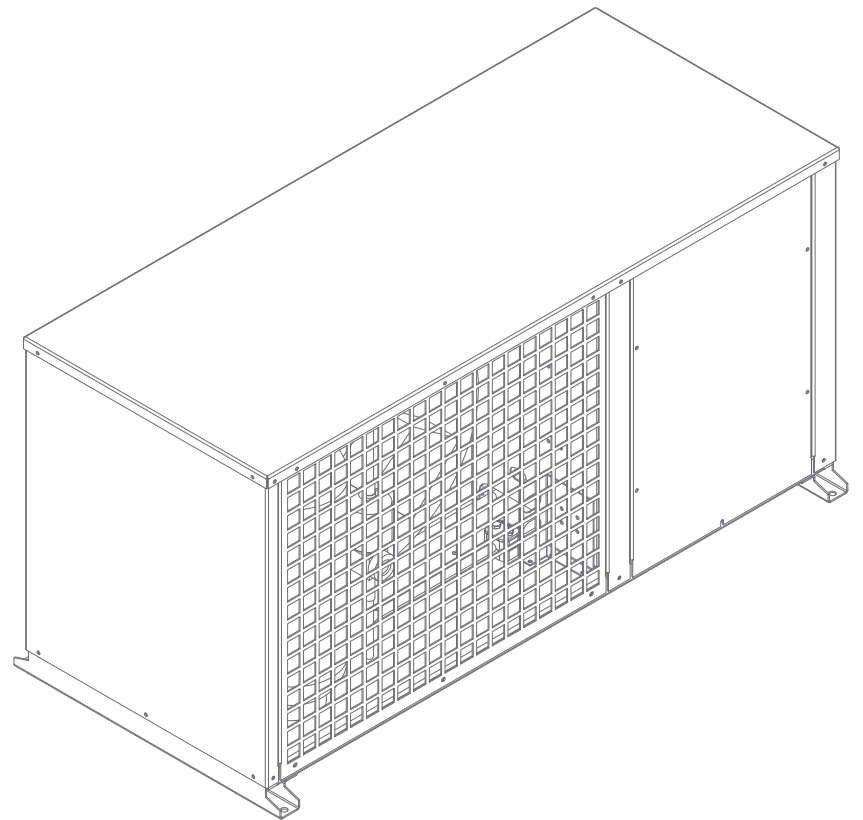
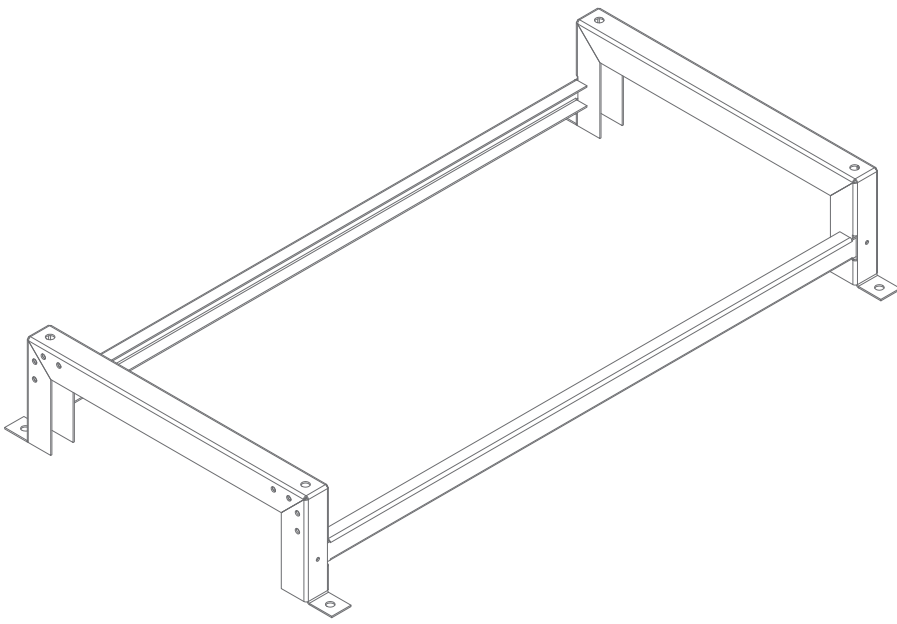


Refrigeration unit MT MODEL	Dimensions [mm]					Weight ⁵
	A	B	C	D	E	[kg]
AL-3RU1PT0.7MT	691	367	348	383	651	30
AL-3RU1PT0.8MT	691	367	348	383	651	31
AL-4RU1PT1.1MT	846	367	398	383	806	57
AL-4RU1PT1.3MT	846	367	398	383	806	58
AL-5RU1PT1.7MT	978	397	473	413	938	66
AL-5RU1PT1.9MT	978	397	473	413	938	68
AL-6RU1PT2.5MT	1052	454	573	470	1012	86
AL-6RU3PT2.8MT	1052	454	573	470	1012	95
AL-6RU3PT3.6MT	1052	454	573	470	1012	96
AL-7RU3PT4.7MT	1359	553	674	564	1319	131
AL-7RU3PT5.7MT	1359	553	674	564	1319	131
AL-7RU3PT6.6MT	1359	553	674	564	1319	144
AL-7RU3PT7.8MT	1359	553	674	564	1319	146
AL-7RU3PT8.4MT	1359	553	674	564	1319	146

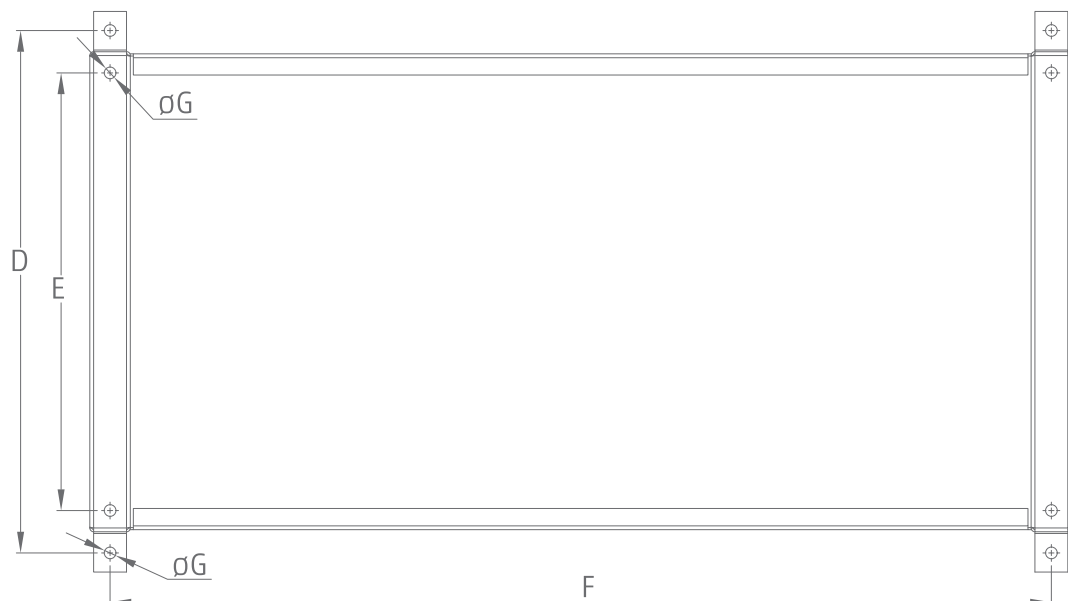
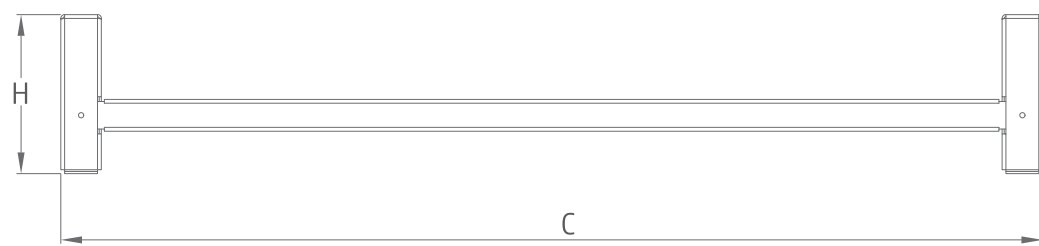
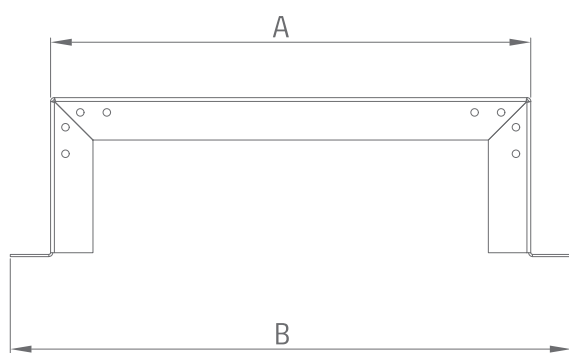
Refrigeration unit IT MODEL	Dimensions [mm]					Weight ⁵
	A	B	C	D	E	[kg]
AL-4RU1PT0.8IT	846	367	398	383	806	59
AL-5RU1PT1.1IT	978	397	473	413	938	83
AL-5RU3PT1.1IT	978	397	473	413	938	78
AL-5RU3PT1.4IT	978	397	473	413	938	79
AL-7RU3PT1.8IT	1359	553	674	564	1319	145
AL-7RU3PT2.3IT	1359	553	674	564	1319	145
AL-7RU3PT2.6IT	1359	553	674	564	1319	165

⁵ Units weight includes housing for outdoor application, power supply and protection. Weights are approximate and are subject to change.

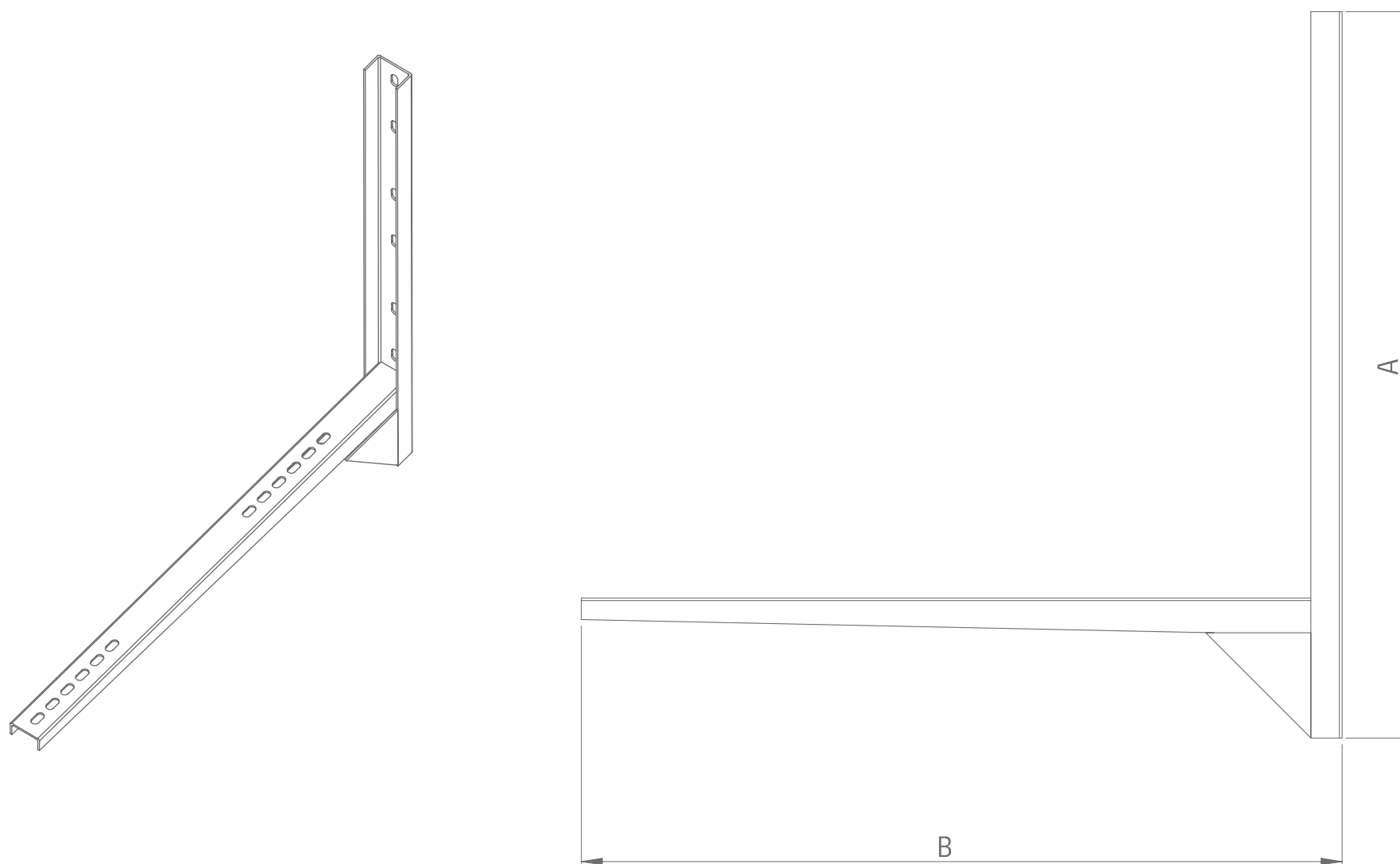
▶ FLOOR STANDS



Housing group	A	B	C	D	E	F	G	H
3	423	499	689	463	383	651	11	150
4	423	499	842	463	383	806	11	150
5	453	529	976	493	413	938	11	150
6	510	586	1050	550	470	1012	11	150
7	610	686	1357	650	570	1319	11	150



▶ MOUNTING BRACKETS



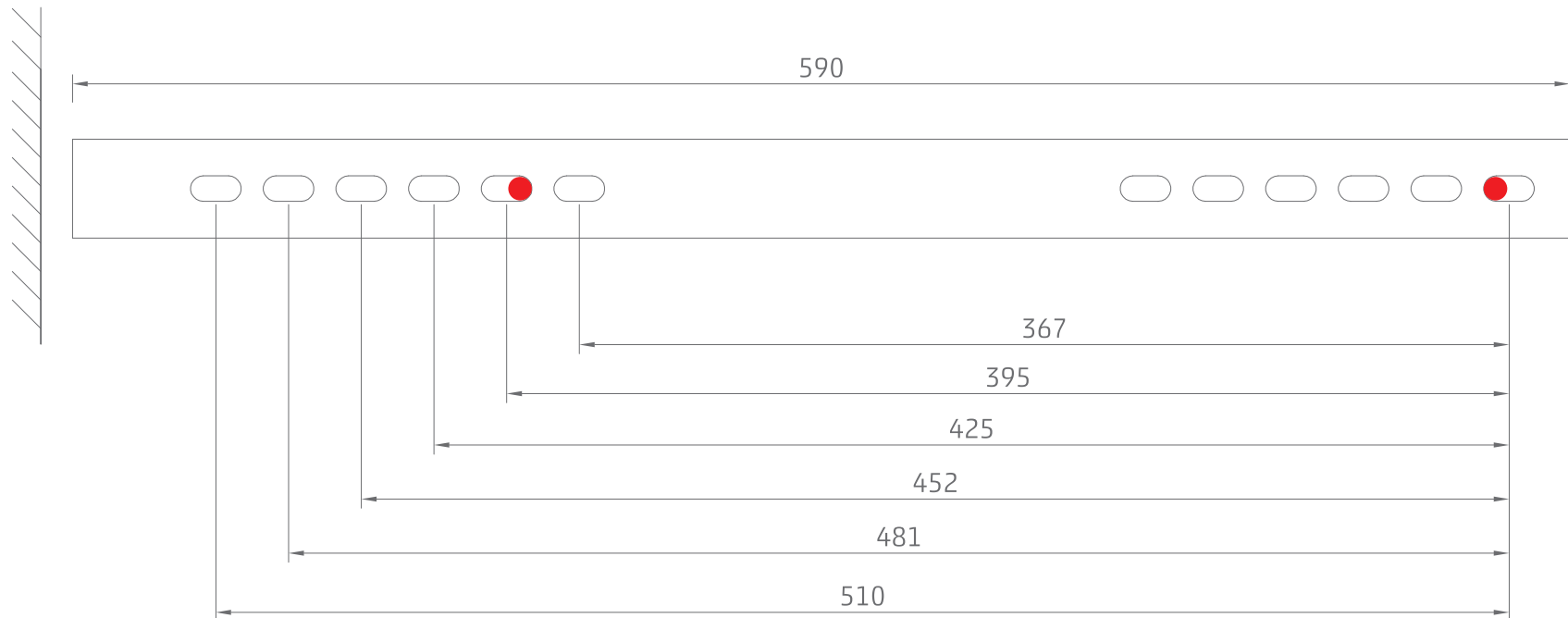
Housing group	Name	A	B	Slots
3 and 4	Floor bracket C - Zn	590	590	∅10x20
3 and 4	Floor bracket C - Zn + Pl	590	590	∅10x20
5 and 6	Wall bracket 5/6CU - Zn	690	720	∅10x20
5 and 6	Wall bracket 5/6CU - Zn + Pl	690	720	∅10x20
5, 6 and 7	Wall bracket 7CU - Zn	770	800	∅10x20
5, 6 and 7	Wall bracket 7CU - Zn + Pl	770	800	∅10x20

• slots layout for wall brackets are given on the following page

▶ SLOT LAYOUT FOR MOUNTING BRACKETS

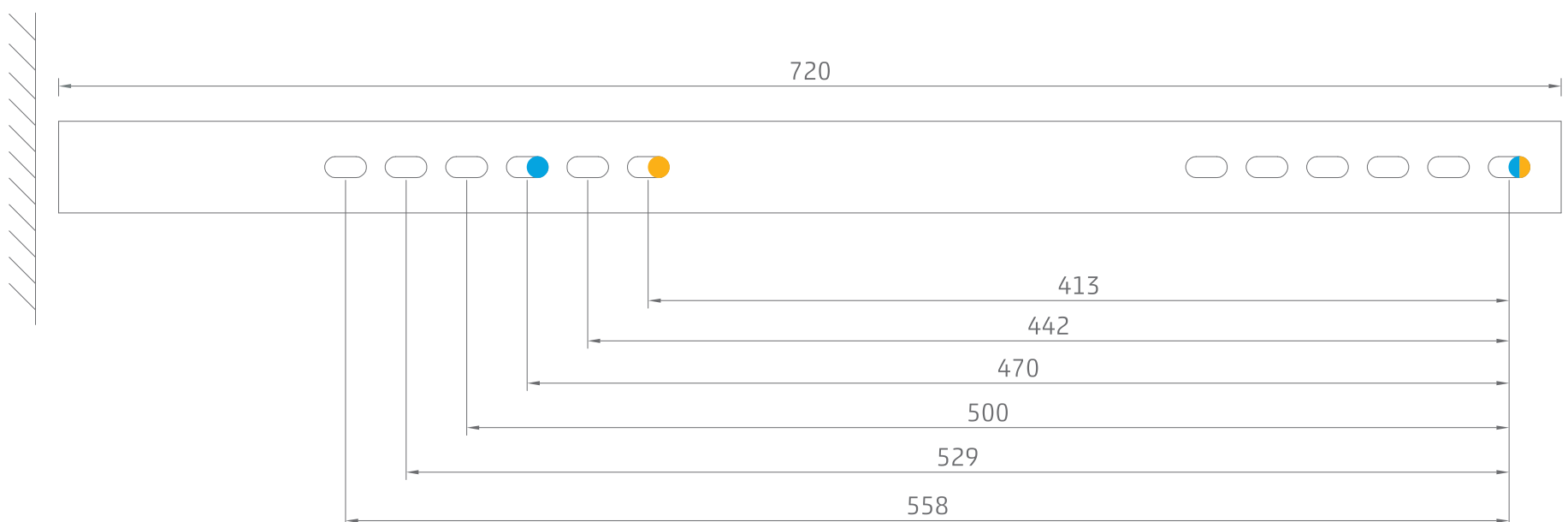
▶ Wall bracket for design groups 3 and 4

- mounting brackets 15339 (galvanized) and wall bracket 33497 (plasticized)



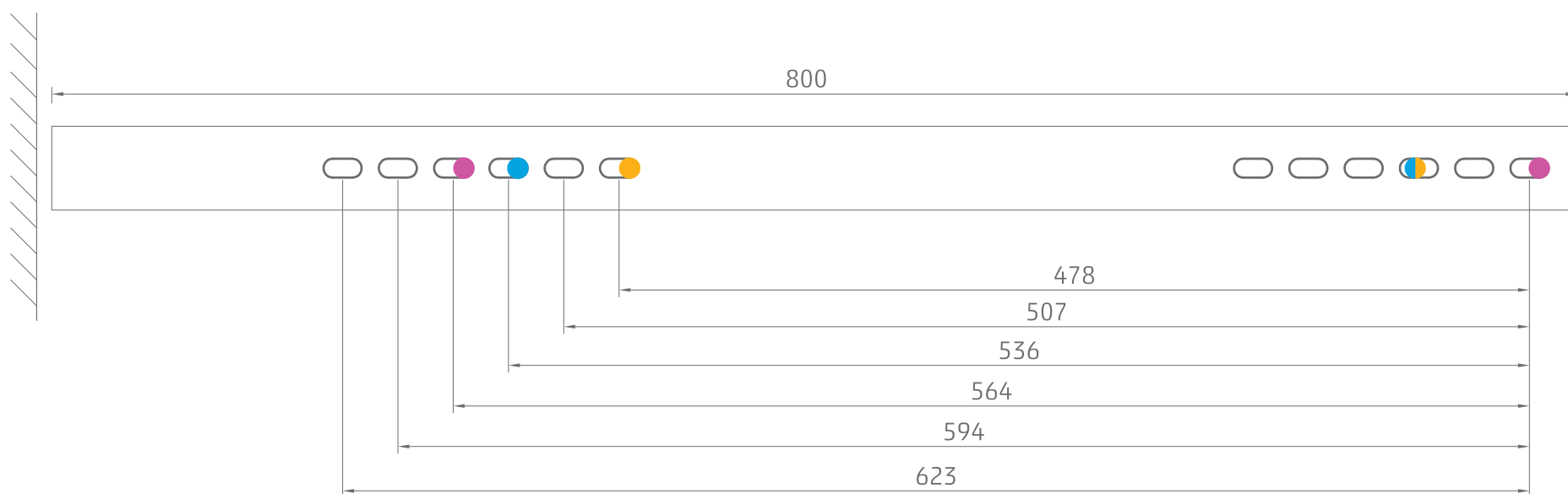
▶ Mounting brackets for design groups 5 and 6

- mounting brackets 38964 (galvanized) and wall bracket 38965 (plasticized)



▶ Mounting brackets for design groups 5, 6 and 7

- Mounting brackets 38966 (galvanized) and wall bracket 38967 (plasticized)
- If need be, this bracket may also be used for groups 5 and 6



- design groups 3 and 4
- design group 5
- design group 6
- design group 7

▶ EVAPORATOR UNIT inside the cold room

Evaporator	Dimensions			Weight
	D	Š	V	[kg]
EVS 61 ED	411	433	120	4,6
EVS 101 ED	611	433	120	6,7
EVS 131 ED	611	433	120	7,3
EVS 201 ED	605	435	170	10,7
EVS 181 ED	1111	433	120	10,5
EVS 291 ED	1111	433	120	11,5
EVS 391 ED	1105	435	170	17
EVS 521 ED	1455	435	170	23
GCE 254E8 ED	2124	509	431	39
GCE 313F8 ED	1974	561	468	45
GCE 314F8 ED	2524	561	424	58,5
GCE 251E8R ED	674	409	390	12
GCE 251E8 ED	774	509	431	13,5
GCE 252G8 ED	1224	509	431	20
GCE 253E8 ED	1674	509	431	31
GCE 352E8 ED	1130	608	499	39,5