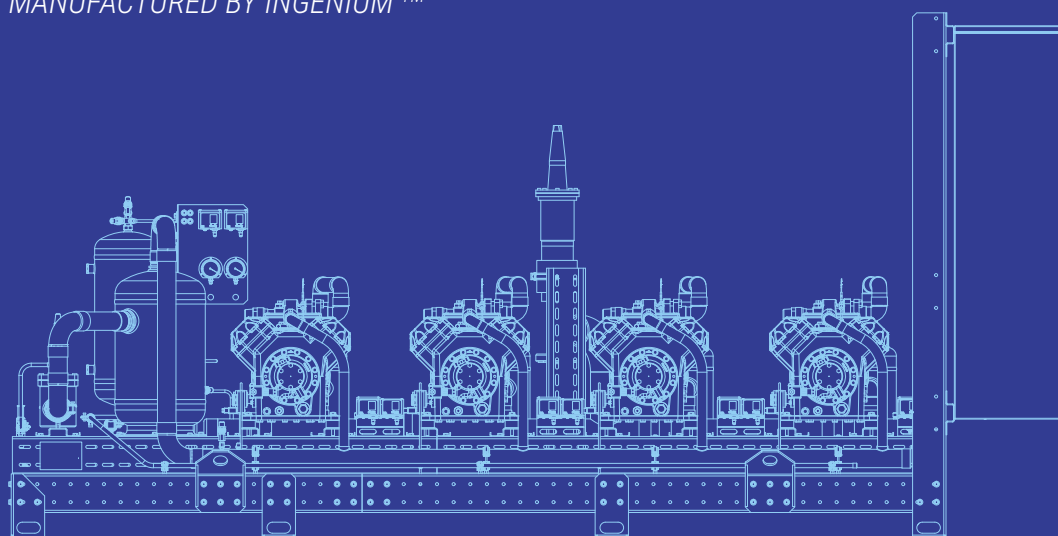


## TECHNICAL CATALOGUE



## PRODUCT CATALOGUE

MANUFACTURED BY INGENIUM™



# I-CU series cooling units

**Semi-hermetic piston compressor type**  
units with cooling capacity from 1 kW to 460 kW

**Semi-hermetic screw compressor type**  
units with cooling capacity from 12 to 1710 kW

**Hermetic scroll compressor type**  
units with cooling capacity from 2 to 228 kW

**Compressor-condenser unit**  
cooling capacity from 3 to 1500 kW

**Heat pump unit**  
with capacity from 3 to 1500 kW

# I-CC series cooling units

Liquid cooling systems - chillers

**Semi-hermetic screw compressor type**  
units with cooling capacity from 65 to 1600 kW

**Semi-hermetic piston compressor type**  
units with cooling capacity from 1,5 to 460 kW

**Hermetic scroll compressor type**  
units with cooling capacity from 2 to 150 kW

# I-RU series receiver units

# I-PU series pumping units

Cooling units are completed with the original INGENIUM control panels

# Field of Application

- Food and Processing Industry**
- edible food and food raw material process cooling and freezing
  - food storage maintenance (meat, poultry, fish, milk, cheese, vegetable oil, beer, beverages, bread, confectionary products and etc.)
  - vegetable and fruit long-term CA-storage maintenance (vegetable and fruit storehouse type implementation)
  - handling and storage
  - process air-conditioning of manufacturing areas

**Chemical Industry**  
clean ethylene, propane, propylene content intake from petroleum and natural gas refinery, synthetic material and nitrogenous fertilizers industrial manufacturing

**Construction**  
indoor climate control systems

**Nuclear Industry**  
cooling units

**Mining Industry**  
soil freezing in hole drilling process

**Sports facilities**  
ice rinks and arenas, winter sports

**Data processing centers**  
temperature control in enclosed space within desired limits

**Logistics and Retail**  
low-temperature food storage facilities, distribution centers, wholesale distribution centers, hypermarkets, industrial freezers and freezing chambers

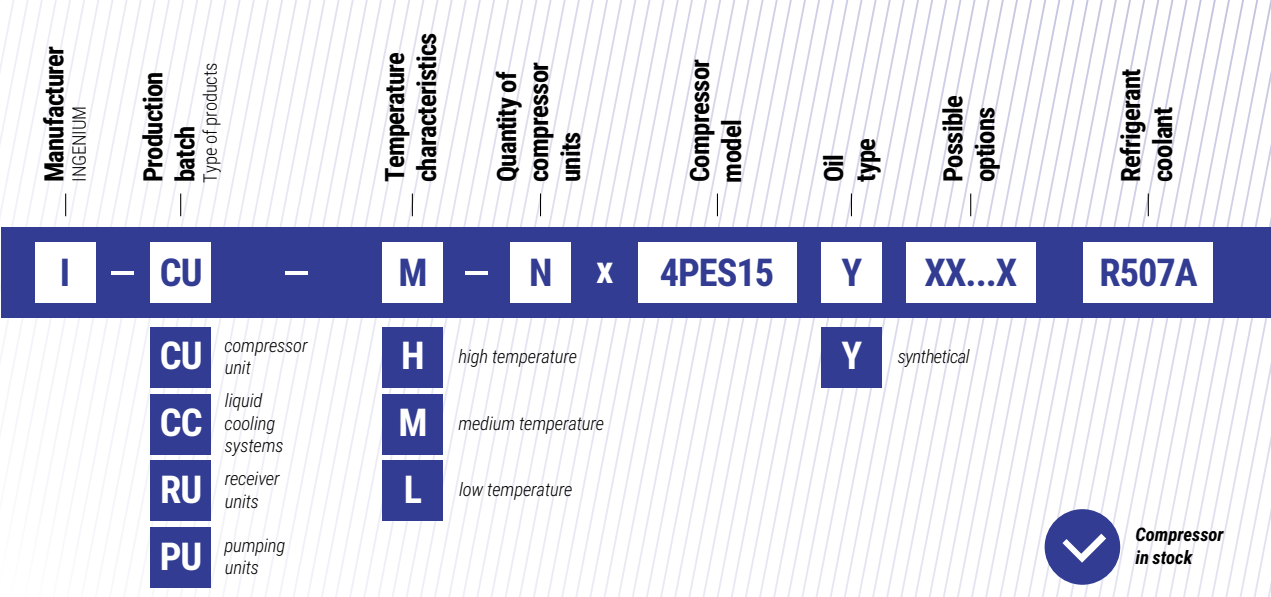
**Pharmaceutical Industry**  
Industrial freezing facilities in drug manufacturing

**Metallurgical engineering**  
cooling systems in processing: wet blast furnace gas cleaning system

**Plastic products**  
plastic and polymeric materials processing, PET manufacturing, PVC processing, PAP manufacturing, plastic window profile, packing units, cooling systems in injection molding machines and process extrusion lines processing, calender rollers and extruders operating

**Shipbuilding Industry**  
cooling units for fishery products freezing and storage maintenance

# Nomenclature

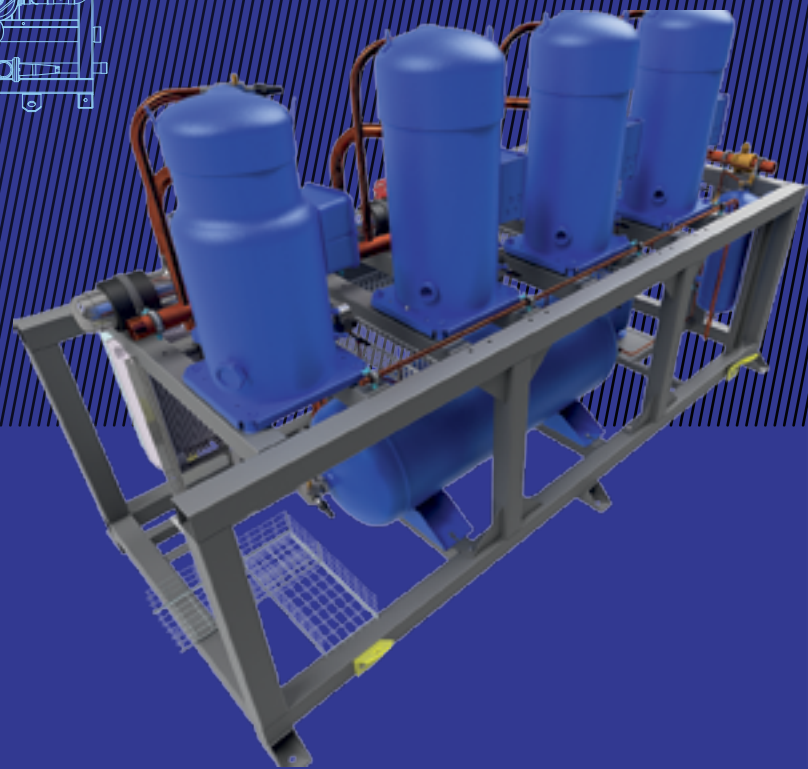
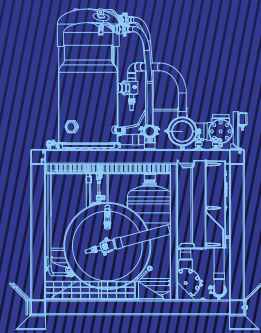
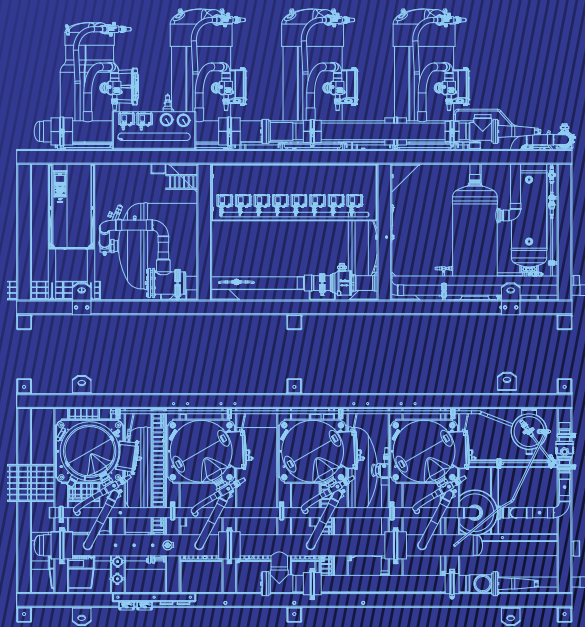


# End-to-end options description

- Option A – vibration dampers**  
**A1** – vibration isolators set for each compressor  
**A2** – vibrating bearings set under frame-mounted compressor unit
- Option B – economizer, liquid and steam injector**  
**B1** – mechanically controlled TEV economizer  
**B2** – electronically controlled TEV economizer  
**B3** – liquid injection system  
**B4** – steam injection system
- Option C – check valve**  
**C1** – discharge reinforced check valve for each compressor unit  
**C2** – discharge line check valve following the oil separator
- Option D – liquid level sensor**  
**D1** – refrigerant receiver LLS  
**D2** – refrigerant receiver LLS  
**D3** – oil receiver tank LLS  
**D4** – oil receiver tank HLS  
**D5** – oil separator chamber LLS
- Option E – control panel**  
**E1** – control cabinet without controller. Suitable for units without capacity control options  
**E2** – control cabinet with a controller for stepwise capacity regulation. Applies to options Q1 and Q2  
**E5** – ontrol cabinet with a controller for smooth performance control. Applies to option Q5
- Option F – cylinder heads blowdown fan**
- Option H – hot gas delivery line for operating the consumers defrosting system**
- Option K – oil cooling set**  
**K1** – ODAF system  
**K2** – thermosyphon-type oil cooling system  
**K3** – liquid-type oil cooling system
- Option L – heat insulated liquid separator on suction line for each compressor**
- Option M – high- and low-pressure gauge**
- Option O – oil separator chamber equipped with heater, shutoff valve, filter and inspection window**  
**O1** – oil level indication line equalization line  
**O2** – oil level electrically controlled adjusters
- Option P – high- and low-pressure switch on suction and discharge line manifold**  
**P1** – high pressure control switch for condensing fans cooling, single item  
**P2** – high pressure control switch for condensing fan cooling, two items  
**P3** – high pressure control switch for condensing fan cooling, three items
- Option Q – capacity control**  
**Q1** – compressor capacity regulation per one cylinder block (50..100%)  
**Q2** – compressor capacity regulation for two cylinder blocks (10..100%)  
**Q3** – master compressor capacity control for three cylinders’ modules  
**Q4** – compressor capacity digital control  
**Q5** – frequency control of compressor capacity  
**Q6** – two master compressors’ capacity frequency control unit
- Option R – receiver module and liquid channel**  
**R1** – receiver unit equipped with shutoff valves, one relief damper, filter drain, inspection window and liquid flow line frame-mounted shutoff valve  
**R2** – receiver unit equipped with shutoff valves, two relief dampers and three-way valve, as well as with filter drain, inspection window and liquid line frame-mounted shutoff valve  
**R3** – two relief dampers with three-way valve mounted on refrigerant receiver
- Option S – UV rays shielded insulation, IP55-compliant pressure switch protection, additional compressor crankcase heating**
- Option T – tubular electric heating element, heating**  
**T1** – refrigerant receiver heating system
- Option V – shutoff valves set**
- Option W – condensing pressure control system for discharge line**



Hermetic scroll compressor  
type liquid chilling systems



Liquid chilling systems item name

I-CC – M – 4 x MLZ66T – E2LMVW R407C

1 2 3 4 5 6

- 1. Unit type  
I-CC – Ingenium compressor chiller
- 2. Temperature level  
(evaporation temperature)  
L/M/H – Low/Medium/High
- 3. Compressor units' quantity  
No number marking in case of single
- 4. Compressor unit short name  
In case of different compressor types  
usage, the marking is indicated with "I"
- 5. Options  
refer to "End-to-end options description"
- 6. Refrigerant used (optional)

Hermetic scroll compressor type liquid chilling systems  
(standard package + options)

Standard item list
Hermetic scroll compressor with shutoff valves, crankcase heater and engine protection gear, and high- and low- pressure safety switch per each compressor unit
Discharge manifold
Refrigerant receiver unit equipped with shutoff valves and relief damper, filter drained liquid flow line system, inspection window, shutoff valve, solenoid valve and electrically controlled TE-valve
Heat insulated plate-type evaporator, flow switch, drainage and air exhaust service valves
Oil separator chamber equipped with heater, shutoff valve, filter and inspection window
Receiver unit equipped with shutoff valves, pressure differential valve and one shutoff valve separating oil receiver unit and suction manifold. Shutoff valve to be installed on the oil delivery line, and electrically operated oil level regulator to be provided for each compressor unit
Heat insulated suction manifold
Painted metal frame
Documentation set

Additional options	
Item name	Marking
Vibration isolator set per 1 compressor unit	A1
Vibrating bearings set under frame-mounted compressor unit	A2
Liquid injection system	B3
Steam injection system	B4
Discharge line reinforced check valve per 1 compressor unit	C1
Discharge line check valve following the oil separator	C2
Refrigerant receiver LLS	D1
Refrigerant receiver HLS	D2
Oil receiver LLS	D3
Oil receiver HLS	D4
Control panel	E
Heat insulated liquid separator within each compressor unit suction line	L
High- and low- pressure gauges	M
Suction and discharge manifold equipped with low- and high- pressure switches	P
One high-pressure switch to control condensing fans	P1
Two high-pressure switches to control condensing fans	P2
Three high-pressure switches to control condensing fans	P3
UV rays shielded insulation, IP55-compliant pressure switch protection, additional compressor crankcase heating	S
Shutoff valves set	V
Condensing pressure control system on the discharge line	W

Compressor units can be equipped with extra-standard items with additional options to be provided on request

Hermetic scroll compressor  
type liquid chilling systems

Model	Cooling capacity, kW	Power consumption, kW	Maximum current rating, A	Overall dimensions, LxWxH, mm	Weight, kg	Oil receiver chamber volume, dm	Discharge line, mm	Condensing unit drain line, mm	Liquid flow line, mm	Refrigerant input- output, mm
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Meduim temperature chillers

R404A/R507A, t<sub>k</sub>= 45°C, t<sub>o</sub>= −10°C, SH=10K, SC=2K

I-CU-M-MLZ15T	3,2	1,8	8,0	1100X600X1500	263	16	10	10	10	Дy15
I-CU-M-MLZ19T	4,3	2,2	10,5	1100X600X1500	276	16	10	10	10	Дy15
I-CU-M-MLZ21T	4,6	2,3	10,5	1100X600X1500	276	16	10	10	10	Дy15
I-CU-M-MLZ26T	5,6	2,9	11,0	1100X600X1500	289	16	10	10	10	Дy15
I-CU-M-MLZ30T	6,8	3,4	14,0	1100X600X1500	304	16	10	10	10	Дy20
I-CU-M-MLZ38T	8,2	3,9	16,0	1100X600X1500	319	16	12	12	12	Дy20
I-CU-M-MLZ45T	9,9	4,9	16,0	1100X600X1500	335	16	12	12	12	Дy20
I-CU-M-MLZ48T	10,9	5,4	17,0	1100X600X1500	352	16	12	16	16	Дy20
I-CU-M-MLZ58T	12,5	6,5	21,0	1100X600X1500	352	16	12	16	16	Дy20
I-CU-M-MLZ66T	14,5	7,0	25,0	1100X600X1500	369	25	12	16	16	Дy20
I-CU-M-MLZ76T	16,7	7,9	26,0	1100X600X1500	388	25	16	16	16	Дy20
I-CU-M-SZ148-4	20,2	9,5	33,0	1100X600X1500	407	25	16	16	16	Дy20
I-CU-M-SZ161-4	21,3	11,0	33,0	1100X600X1500	407	25	16	16	16	Дy20
I-CU-M-SZ175-4	22,9	11,7	36,0	1100X600X1500	418	25	16	16	16	Дy25
I-CU-M-SZ185-4	24,6	12,5	36,0	1100X600X1500	428	25	22	22	22	Дy25

I-CU-M-2xMLZ15T	6,4	3,6	15,0	1500X600X1500	470	16	10	10	10	Дy20
I-CU-M-2xMLZ19T	8,6	4,4	20,0	1500X600X1500	540	16	12	12	12	Дy20
I-CU-M-2xMLZ21T	9,2	4,6	20,0	1500X600X1500	565,0	16	12	12	12	Дy20
I-CU-M-2xMLZ26T	11,2	5,8	21,0	1500X600X1500	593	16	12	16	16	Дy20
I-CU-M-2xMLZ30T	13,6	6,8	27,0	1500X600X1500	623	25	12	16	16	Дy20
I-CU-M-2xMLZ38T	16,4	7,8	31,0	1500X600X1500	654	25	16	16	16	Дy20
I-CU-M-2xMLZ45T	19,8	9,8	31,0	1500X600X1500	687	25	16	16	16	Дy20
I-CU-M-2xMLZ48T	21,8	10,8	33,0	1500X600X1500	721	25	16	16	16	Дy20
I-CU-M-2xMLZ58T	25,0	13,0	41,0	1500X600X1500	757	25	22	22	22	Дy25
I-CU-M-2xMLZ66T	29,0	14,0	49,0	1500X600X1500	795	50	22	22	22	Дy32
I-CU-M-2xMLZ76T	33,4	15,8	51,0	1500X600X1500	835	50	22	22	22	Дy32
I-CU-M-2xSZ148-4	40,4	19,0	65,0	1500X600X1500	744	50	22	22	22	Дy40
I-CU-M-2xSZ161-4	42,6	22,0	65,0	1500X600X1500	744	50	22	22	22	Дy40
I-CU-M-2xSZ175-4	45,8	23,4	71,0	1500X600X1500	755	50	22	22	22	Дy40
I-CU-M-2xSZ185-4	49,2	25,0	71,0	1500X600X1500	755	50	22	22	22	Дy40

I-CU-M-3xMLZ15T	9,6	5,4	22,0	2200X1000X1800	356	16	12	12	12	Дy25
I-CU-M-3xMLZ19T	12,9	6,6	29,5	2200X1000X1800	380	32	16	16	16	Дy25
I-CU-M-3xMLZ21T	13,8	6,9	29,5	2200X1000X1800	369	25	12	16	16	Дy25
I-CU-M-3xMLZ26T	16,8	8,7	31,0	2200X1000X1800	388	25	12	16	16	Дy25
I-CU-M-3xMLZ30T	20,4	10,2	40,0	2200X1000X1800	407	25	16	16	16	Дy32
I-CU-M-3xMLZ38T	24,6	11,7	46,0	2200X1000X1800	428	32	22	22	22	Дy32
I-CU-M-3xMLZ45T	29,7	14,7	46,0	2200X1000X1800	435	32	22	22	22	Дy32
I-CU-M-3xMLZ48T	32,7	16,2	49,0	2200X1000X1800	457	50	22	22	22	Дy32
I-CU-M-3xMLZ58T	37,5	19,5	61,0	2200X1000X1800	480	50	22	22	22	Дy32
I-CU-M-3xMLZ66T	43,5	21,0	73,0	2200X1000X1800	504	50	22	28	28	Дy32
I-CU-M-3xMLZ76T	50,1	23,7	76,0	2200X1000X1800	529	50	28	28	28	Дy50
I-CU-M-3xSZ148-4	60,6	28,5	97,0	2600X1000X1800	561	50	28	28	28	Дy50
I-CU-M-3xSZ161-4	63,9	33,0	97,0	2600X1000X1800	561	50	28	28	28	Дy50
I-CU-M-3xSZ175-4	68,7	35,1	106,0	2600X1000X1800	589	50	28	28	28	Дy50
I-CU-M-3xSZ185-4	73,8	37,5	106,0	2600X1000X1800	589	50	28	28	28	Дy50

I-CU-M-4xMLZ15T	12,8	7,2	30,0	3100X600X1800	380	25	16	16	16	Дy25
I-CU-M-4xMLZ19T	17,2	8,8	40,0	3100X600X1800	398	25	16	16	16	Дy25
I-CU-M-4xMLZ21T	18,4	9,2	40,0	3100X600X1800	418	25	16	16	16	Дy25
I-CU-M-4xMLZ26T	22,4	11,6	42,0	3100X600X1800	439	25	16	16	16	Дy20

Hermetic scroll compressor  
type liquid chilling systems

Model	Cooling capacity, kW	Power consumption, kW	Maximum current rating, A	Overall dimensions, LxWxH, mm	Weight, kg	Oil receiver chamber volume, dm	Discharge line, mm	Condensing unit drain line, mm	Liquid flow line, mm	Refrigerant input- output, mm
I-CU-M-4xMLZ30T	27,2	13,6	54,0	3100X600X1800	461	32	22	22	22	Дy32
I-CU-M-4xMLZ38T	32,8	15,6	62,0	3100X600X1800	484	32	22	22	22	Дy32
I-CU-M-4xMLZ45T	39,6	19,6	62,0	3100X600X1800	509	50	22	28	28	Дy32
I-CU-M-4xMLZ48T	43,6	21,6	66,0	3100X600X1800	534	50	22	28	28	Дy32
I-CU-M-4xMLZ58T	50,0	26,0	82,0	3300X600X1800	561	50	28	28	28	Дy50
I-CU-M-4xMLZ66T	58,0	28,0	98,0	3300X600X1800	589	50	28	28	28	Дy50
I-CU-M-4xMLZ76T	66,8	31,6	102,0	3300X600X1800	618	50	28	28	28	Дy50
I-CU-M-4xSZ148-4	80,8	38,0	130,0	3400X600X1800	748	50	28	28	28	Дy50
I-CU-M-4xSZ161-4	85,2	44,0	130,0	3400X600X1800	748	50	28	28	28	Дy65
I-CU-M-4xSZ175-4	91,6	46,8	142,0	3400X600X1800	785	50	28	28	28	Дy65
I-CU-M-4xSZ185-4	98,4	50,0	142,0	3400X600X1800	785	50	28	28	28	Дy65

High temperature chillers

R404A/R507A, t<sub>k</sub>= 45°C, t<sub>o</sub>= 2°C, SH=10K, SC=2K

I-CU-H-MLZ15T	5,1	1,7	8,0	1100X600X1500	263	16	10	10	10	Дy15
I-CU-H-MLZ19T	6,8	2,1	10,5	1100X600X1500	276	16	10	10	10	Дy15
I-CU-H-MLZ21T	7,3	2,3	10,5	1100X600X1500	276	16	10	10	10	Дy15
I-CU-H-MLZ26T	9,0	2,9	11,0	1100X600X1500	289	16	10	10	10	Дy15
I-CU-H-MLZ30T	11,0	3,3	14,0	1100X600X1500	304	16	10	10	10	Дy20
I-CU-H-MLZ38T	13,0	3,9	16,0	1100X600X1500	319	16	12	12	12	Дy20
I-CU-H-MLZ45T	16,0	4,9	16,0	1100X600X1500	335	16	12	12	12	Дy20
I-CU-H-MLZ48T	17,5	5,4	17,0	1100X600X1500	352	16	12	16	16	Дy20
I-CU-H-MLZ58T	20,3	6,2	21,0	1100X600X1500	352	16	12	16	16	Дy20
I-CU-H-MLZ66T	23,7	7,2	25,0	1100X600X1500	369	25	12	16	16	Дy20
I-CU-H-MLZ76T	26,5	8,1	26,0	1100X600X1500	388	25	16	16	16	Дy20
I-CU-H-SZ148-4	32,7	10,7	33,0	1100X600X1500	407	25	16	16	16	Дy20
I-CU-H-SZ161-4	35,2	11,0	33,0	1100X600X1500	407	25	16	16	16	Дy20
I-CU-H-SZ175-4	37,9	11,7	36,0	1100X600X1500	418	25	16	16	16	Дy25
I-CU-H-SZ185-4	40,5	12,6	36,0	1100X600X1500	428	25	22	22	22	Дy25

I-CU-H-2xMLZ15T	10,2	3,4	15,0	1500X600X1500	470	16	10	10	10	Дy20
I-CU-H-2xMLZ19T	13,6	4,2	20,0	1500X600X1500	540	16	12	12	12	Дy20
I-CU-H-2xMLZ21T	14,6	4,6	20,0	1500X600X1500	565,0	16	12	12	12	Дy20
I-CU-H-2xMLZ26T	18,0	5,8	21,0	1500X600X1500	593	16	12	16	16	Дy20
I-CU-H-2xMLZ30T	22,0	6,6	27,0	1500X600X1500	623	25	12	16	16	Дy20
I-CU-H-2xMLZ38T	26,0	7,8	31,0	1500X600X1500	654	25	16	16	16	Дy20
I-CU-H-2xMLZ45T	32,0	9,8	31,0	1500X600X1500	687	25	16	16	16	Дy20
I-CU-H-2xMLZ48T	35,0	10,8	33,0	1500X600X1500	721	25	16	16	16	Дy20
I-CU-H-2xMLZ58T	40,6	12,4	41,0	1500X600X1500	757	25	22	22	22	Дy25
I-CU-H-2xMLZ66T	47,4	14,4	49,0	1500X600X1500	795	50	22	22	22	Дy32
I-CU-H-2xMLZ76T	53,0	16,2	51,0	1500X600X1500	835	50	22	22	22	Дy32
I-CU-H-2xSZ148-4	65,4	21,4	65,0	1500X600X1500	744	50	22	22	22	Дy40
I-CU-H-2xSZ161-4	70,4	22,0	65,0	1500X600X1500	744	50	22	22	22	Дy40
I-CU-H-2xSZ175-4	75,8	23,4	71,0	1500X600X1500	755	50	22	22	22	Дy40
I-CU-H-2xSZ185-4	81,0	25,2	71,0	1500X600X1500	755	50	22	22	22	Дy40

I-CU-H-3xMLZ15T	15,3	5,1	23,0	2200X1000X1800	356	16	12	12	12	Дy25
I-CU-H-3xMLZ19T	20,4	6,3	30,5	2200X1000X1800	380	32	16	16	16	Дy25
I-CU-H-3xMLZ21T	21,9	6,9	30,5	2200X1000X1800	369	25	12	16	16	Дy25
I-CU-H-3xMLZ26T	27,0	8,7	32,0	2200X1000X1800	388	25	12	16	16	Дy25
I-CU-H-3xMLZ30T	33,0	9,9	41,0	2200X1000X1800	407	25	16	16	16	Дy32
I-CU-H-3xMLZ38T	39,0	11,7	47,0	2200X1000X1800	428	32	22	22	22	Дy32
I-CU-H-3xMLZ45T	48,0	14,7	47,0	2200X1000X1800	435	32	22	22	22	Дy32
I-CU-H-3xMLZ48T	52,5	16,2	50,0	2200X1000X1800	457	50	22	22	22	Дy32
I-CU-H-3xMLZ58T	60,9	18,6	62,0	2200X1000X1800	480	50	22	22	22	Дy32

Hermetic scroll compressor  
type liquid chilling systems

Model	Cooling capacity, kW	Power consumption, kW	Maximum current rating, A	Overall dimensions, LxWxH, mm	Weight, kg	Oil receiver chamber volume, dm	Discharge line, mm	Condensing unit drain line, mm	Liquid flow line, mm	Refrigerant input- output, mm
I-CU-H-3xMLZ66T	71,1	21,6	74,0	2200X1000X1800	504	50	22	28	28	Дy32
I-CU-H-3xMLZ76T	79,5	24,3	77,0	2200X1000X1800	529	50	28	28	28	Дy50
I-CU-H-3xSZ148-4	98,1	32,1	98,0	2600X1000X1800	561	50	28	28	28	Дy50
I-CU-H-3xSZ161-4	105,6	33,0	98,0	2600X1000X1800	561	50	28	28	28	Дy50
I-CU-H-3xSZ175-4	113,7	35,1	107,0	2600X1000X1800	589	50	28	28	28	Дy50
I-CU-H-3xSZ185-4	121,5	37,8	107,0	2600X1000X1800	589	50	28	28	28	Дy50
I-CU-H-4xMLZ15T	20,4	6,8	30,0	3100X600X1800	380	25	16	16	16	Дy25
I-CU-H-4xMLZ19T	27,2	8,4	40,0	3100X600X1800	398	25	16	16	16	Дy25
I-CU-H-4xMLZ21T	29,2	9,2	40,0	3100X600X1800	418	25	16	16	16	Дy25
I-CU-H-4xMLZ26T	36,0	11,6	42,0	3100X600X1800	439	25	16	16	16	Дy20
I-CU-H-4xMLZ30T	44,0	13,2	54,0	3100X600X1800	461	32	22	22	22	Дy32
I-CU-H-4xMLZ38T	52,0	15,6	62,0	3100X600X1800	484	32	22	22	22	Дy32
I-CU-H-4xMLZ45T	64,0	19,6	62,0	3100X600X1800	509	50	22	28	28	Дy32
I-CU-H-4xMLZ48T	70,0	21,6	66,0	3100X600X1800	534	50	22	28	28	Дy32
I-CU-H-4xMLZ58T	81,2	24,8	82,0	3300X600X1800	561	50	28	28	28	Дy50
I-CU-H-4xMLZ66T	94,8	28,8	98,0	3300X600X1800	589	50	28	28	28	Дy50
I-CU-H-4xMLZ76T	106,0	32,4	102,0	3300X600X1800	618	50	28	28	28	Дy50
I-CU-H-4xSZ148-4	130,8	42,8	130,0	3400X600X1800	748	50	28	28	28	Дy50
I-CU-H-4xSZ161-4	140,8	44,0	130,0	3400X600X1800	748	50	28	28	28	Дy65
I-CU-H-4xSZ175-4	151,6	46,8	142,0	3400X600X1800	785	50	28	28	28	Дy65
I-CU-H-4xSZ185-4	162,0	50,4	142,0	3400X600X1800	785	50	28	28	28	Дy65





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