

Dry Cooler

High Performance Air Conditioning

Dry Coolers

Liebert HIROSS Dry Coolers units are designed in a wide range of cooling capacities to cover many in field applications.

This product line can be used in “close control” air conditioning applications like computer rooms, telecommunications, laboratories, to supply water cooling to condensers or cool water to free cooling coils. Many applications are provided by industrial process cooling, as replacement of cooling tower and generally when any natural water is available for cooling condensers.

Main specs guidelines for these units' design were robust frame, aluminium and stainless steel against ambient corrosion, horizontally or vertically air flow fittings, CE Mark for the best unit safety and reliability with a better service for the end users, compact size, good service access, low noise level version. None water temperature controls is included as standard, but many optionals are available for a wider choice from the customers.

The Dry Coolers products' range will be available in the following basic configurations:

1. Standard versions with 4 - 8 poles fan motors, H / V air flow: DSM , DST models
2. Low noise versions with 6 - 12 poles fan motors, H / V air flow: DLM , DLT models

where:

- Smaller cooling size are equipped with single phase fans units: 230 Vac / 1 ph. / 50 Hz (R + N)
- Bigger cooling sizes are equipped with three phase fans units: 400 Vac / 3 ph. / 50 Hz (R S T + N)

*Copper Aluminium Coil
ø 5/8" 60x30 mm
or ø 1/2" 30x26 mm
geometry*



Stainless steel support legs

Aluminium Frame

Units and electrical boxes are manufactured according CE mark regulations.





*Fan motor insul. F
protec IP54*



*Special electrical
execution on request*



Speed controller

*Copper headers with
flanges on request*



Cooling capacities

The values displayed on this catalogue are referred to the external air temperature of 35°C, to a water temperature inlet / outlet respecting of 45 / 40°C.

Fin and tube heat exchanger

The coils are manufactured with 1/2" or 5/8" copper tubes diameter, respecting with geometry 30 x 26 and 60 x 30 mm staggered pitch and assembled with aluminium fins designed for a high efficiency heat exchange. A fin spacing of 2,1 mm is used for all standard models.

All the tubes inside are rigorously cleaned during manufacturing process. Subsequently all the coil blocks are degreased and tested in water with dry air at 30 bar of internal pressure.

Frame

The Dry Coolers panels and the external frame are manufactured in Al Mg of 2,0 and 2,5 mm of thickness while support legs and the frame are made with stainless steel sheets: this is to ensure a robust design and reliability on the field.

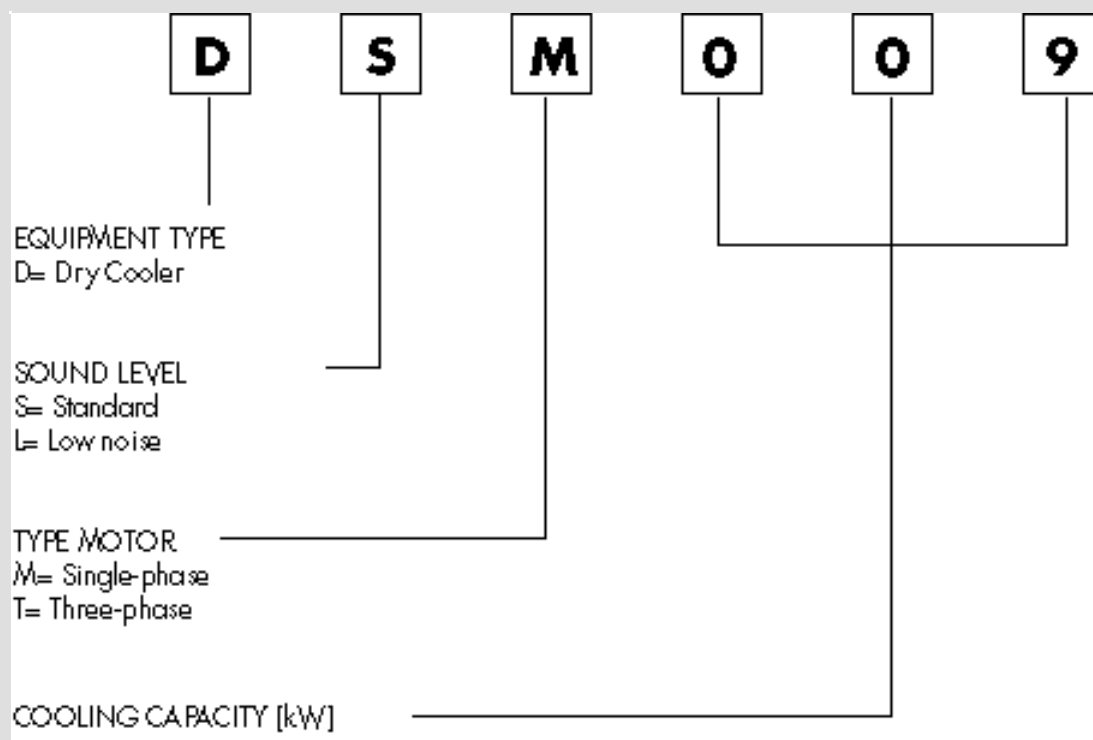
All standard models are finished with plastic film to protect the external metal sheets during transport and installation.

Fan motors

All the standard models are provided with fans with protection IP54 and a voltage of 230/1/50 or 400/3/50 Hz for standard models, according to DIN 40050 standards.

Sound levels showed on the catalogue are given from the fan-manufacturer according to the DIN 45635 standards (Sound Pressure Level at 10 m).

Identification code



Options available:

- None water temperature control is supplied as standard.

Optionals available:

1. a thermostat with probe on the outlet water connection;
2. a kit specially designed to work with Liebert HIROSS freecooler units;
3. a continuous fans' speed controller, for a more precise temperature control.

- Vertical installation (feets supplied).
- Fins made with aluminium pre-painted with epoxidic resin or with copper.
- Steel flanges PN16 welded on standard copper manifolds.

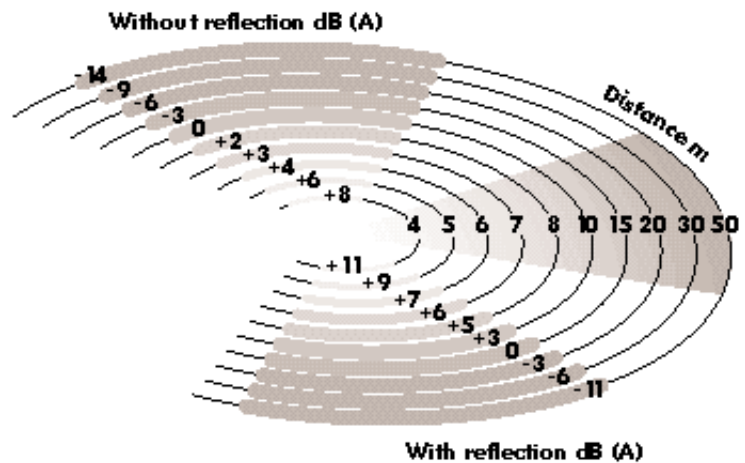
Special executions

In addition to the wide range of standard models Liebert HIROSS is able to manufacture special execution or additional models according to clients specifications.

Hereby listed the most common special solutions required:

- External frame made in stainless steel - or pre-painted galvanised steel frame with ordered RAL colours painting.
- Different voltage or frequency values of power supply.
- Feet or frame with different heights.
- Three phase fans motor powered with star connections.

Values to add or deduct from sound level in case of different distances or conditions.



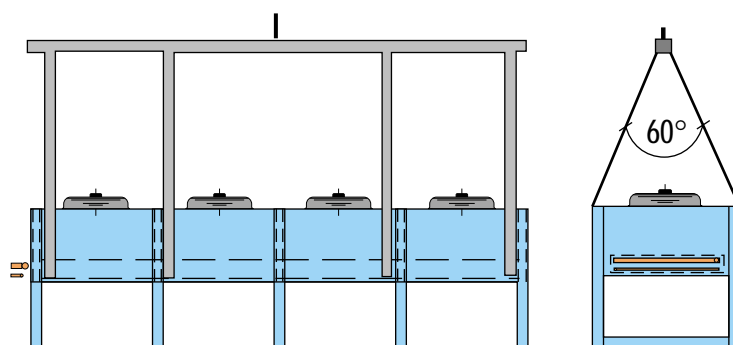
Trans-shipping

In order to avoid damage during the lifting and positioning operations it is necessary to respect the delivered instructions as for our drawings: it is necessary to employ some lifting bars with two sling points and for the largest models four points as for our drawing. Standard packaging for single phase units are pallets and fixed cardboard and for three phase units are a closed wooden crate that enable unit shipping inside containers. Others packaging types than standard one has to be requested as special execution.

Documentation on board

Each shipped unit will contain the requested CE documentation on board:

- Declaration of conformity
- Service manual
- Wiring scheme
- Dimensional drawing with unit weight and water connections type / positioning.

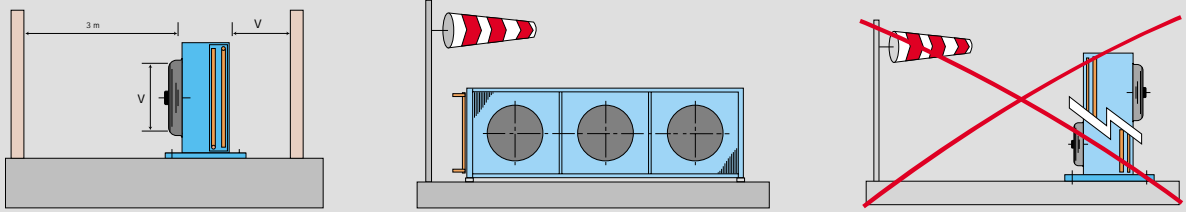


Technical features and drawings

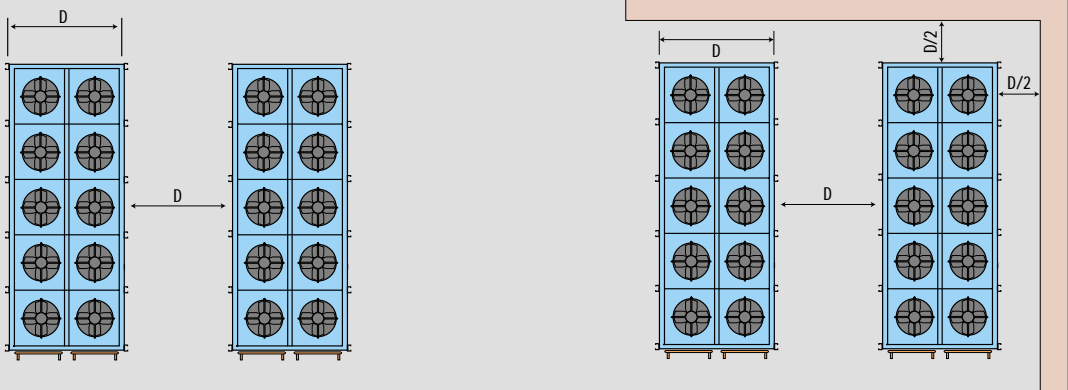
MOD.	Qn kW	Ma m ³ /h	LS dB(A)	Δpw KPa	MOTOR				Vw dm ³	St m ²	P kg	A	B	C	D	E	Q	F	d
					rpm	poles	kW	FLA											
DSM009	9	6600	50	8	1220	4	1x0,64	1x3	6	30	75	880	70	490	900	820	300	830	1"1/2
DSM013	13,5	5100	50	12	1220	4	1x0,64	1x3	15	89	90	880	70	490	900	820	300	830	1"1/2
DSM018	17,6	13200	53	5	1220	4	2x0,64	2x3	11	59	130	1660	70	490	900	820	300	1610	1"1/2
DSM022	22,4	12600	53	11	1220	4	2x0,64	2x3	15	89	140	1660	70	490	900	820	300	1610	1"1/2
DSM028	27,5	18900	54	15	1220	4	3x0,64	3x3	15	89	180	2440	70	490	900	820	300	2390	1"1/2
DST030	33	20500	55	15	870	6	2x0,72	2x1,4	30	213	200	2400	70	640	1260	1180	300	2340	1"1/2
DST040	39	20000	55	12	870	6	2x0,72	2x1,4	38	284	210	2400	70	640	1260	1180	300	2340	1"1/2
DST050	50	30750	57	15	870	6	3x0,72	3x1,4	44	320	275	3540	80	640	1260	1180	300	3480	2"
DST060	58	30000	57	10	870	6	3x0,72	3x1,4	56	427	300	3540	80	640	1260	1180	300	3480	2"
DST070	68	28350	57	7	870	6	3x0,72	3x1,4	81	640	340	3540	80	640	1260	1180	300	3480	2"
DST080	80	40000	58	25	870	6	4x0,72	4x1,4	80	569	380	4680	100	640	1260	1180	300	2315	3"
DST110	108	52500	59	25	880	6	3x1,45	3x2,9	99	739	440	4620	100	700	1640	1540	300	1500	2"1/2
DST135	134	70000	60	8	880	6	4x1,45	4x2,9	132	985	580	6120	100	700	1640	1540	300	1500	3"
DST175	175	110000	64	12	810	6	4x3,2	4x5,9	126	985	615	6120	100	770	1640	1540	300	1500	3"
DST220	220	106000	64	9	810	6	4x3,2	4x5,9	182	1478	705	6120	135	770	1640	1540	300	1500	4"
DST270	270	132500	65	15	810	6	5x3,2	5x5,9	224	1847	875	7620	135	770	1640	1540	300	1500	4"
DST290	284	204000	67	13	810	6	8x3,2	8x5,9	178	1397	985	5720	135	770	2420	2320	300	1400	4"
DST330	326	208000	63	17	650	8	8x2,2	8x4,2	226	1786	1390	6920	135	770	2440	2440	300	1700	4"
DST360	362	255000	68	24	810	6	10x3,2	10x5,9	218	1747	1215	7120	135	770	2420	2320	300	1400	4"
DST400	400	190000	63	12	650	8	8x2,2	8x4,2	330	2680	1560	6920	135	770	2440	2440	300	1700	4"
DST450	447	235000	68	17	810	6	10x3,2	10x5,9	320	2620	1380	7120	135	770	2420	2320	300	1400	4"
DST500	500	237500	64	23	650	8	10x2,2	10x4,2	407	3350	1920	8620	135	770	2440	2440	300	1700	4"
DLM008	7,5	4700	39	17	910	6	1x0,29	1x1,65	6	30	75	880	70	490	900	820	300	830	1"1/2
DLM011	10,5	3700	39	18	910	6	1x0,29	1x1,65	15	89	90	880	70	490	900	820	300	830	1"1/2
DLM015	15,5	9500	42	15	910	6	2x0,29	2x1,65	11	59	130	1660	70	490	900	820	300	1610	1"1/2
DLM018	18	9000	42	8	910	6	2x0,29	2x1,65	15	89	140	1660	70	490	900	820	300	1610	1"1/2
DLM023	23	14000	43	11	910	6	3x0,29	3x1,65	15	89	180	2440	70	490	900	820	300	2390	1"1/2
DLT027	27,5	15000	47	11	640	8	2x0,35	2x0,77	30	213	200	2400	70	640	1260	1180	300	2340	1"1/2
DLT030	30	14500	47	8	640	8	2x0,35	2x0,77	38	284	210	2400	70	640	1260	1180	300	2340	1"1/2
DLT040	40	22500	49	10	640	8	3x0,35	3x0,77	44	320	275	3540	80	640	1260	1180	300	3480	2"
DLT047	47	21750	49	7	640	8	3x0,35	3x0,77	56	427	300	3540	80	640	1260	1180	300	3480	2"
DLT055	54	20250	49	14	640	8	3x0,35	3x0,77	81	640	340	3540	80	640	1260	1180	300	3480	2"
DLT065	65	29000	50	18	640	8	4x0,35	4x0,77	80	569	380	4680	100	640	1260	1180	300	2315	3"
DLT085	84	40500	54	16	680	8	3x0,72	3x1,8	99	739	440	4620	100	700	1640	1540	300	1500	2"1/2
DLT110	112	54000	55	6	680	8	4x0,72	4x1,8	132	985	580	6120	100	700	1640	1540	300	1500	3"
DLT130	130	67000	51	7	530	10	4x0,93	4x2,1	126	985	615	6120	100	770	1640	1540	300	1500	3"
DLT160	157	62000	51	33	530	10	4x0,93	4x2,1	182	1478	705	6120	135	770	1640	1540	300	1500	4"
DLT190	190	77500	52	8	530	10	5x0,93	5x2,1	224	1847	875	7620	135	770	1640	1540	300	1500	4"
DLT210	212	123000	54	8	530	10	8x0,93	8x2,1	178	1397	985	5720	135	770	2420	2320	300	1400	4"
DLT250	253	132000	51	11	420	12	8x0,86	8x2,0	226	1786	1390	6920	135	770	2440	2440	300	1700	4"
DLT270	270	153750	55	14	530	10	10x0,93	10x2,1	218	1747	1215	7120	135	770	2420	2320	300	1400	4"
DLT290	290	118000	51	7	420	12	8x0,86	8x2,0	330	2680	1560	6920	135	770	2440	2440	300	1700	4"
DLT310	310	137500	55	9	530	10	10x0,93	10x2,1	320	2620	1380	7120	135	770	2420	2320	300	1400	4"
DLT350	350	147500	52	11	420	12	10x0,86	10x2,0	407	3350	1920	8620	135	770	2440	2440	300	1700	4"

All informations given in this catalogue is intended as indicative only. The manufacturer reserves the right to change specifications without prior notice.

Positioning



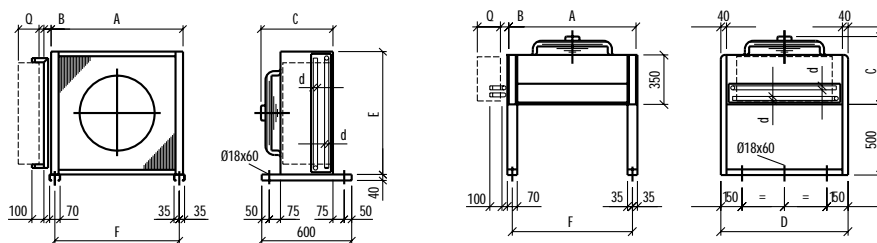
Minimum distance advisable from the walls.



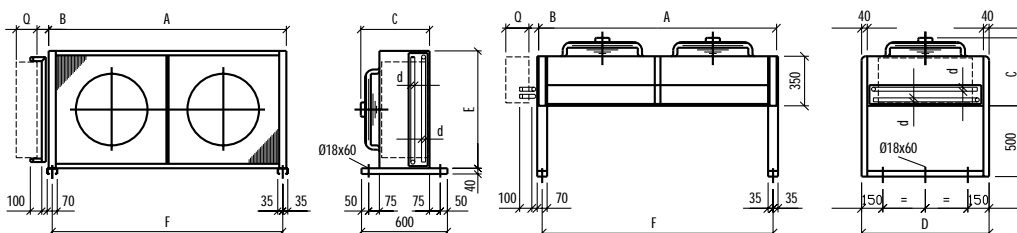
Minimum distance advisable between different models.

Minimum distance advisable between models and walls.

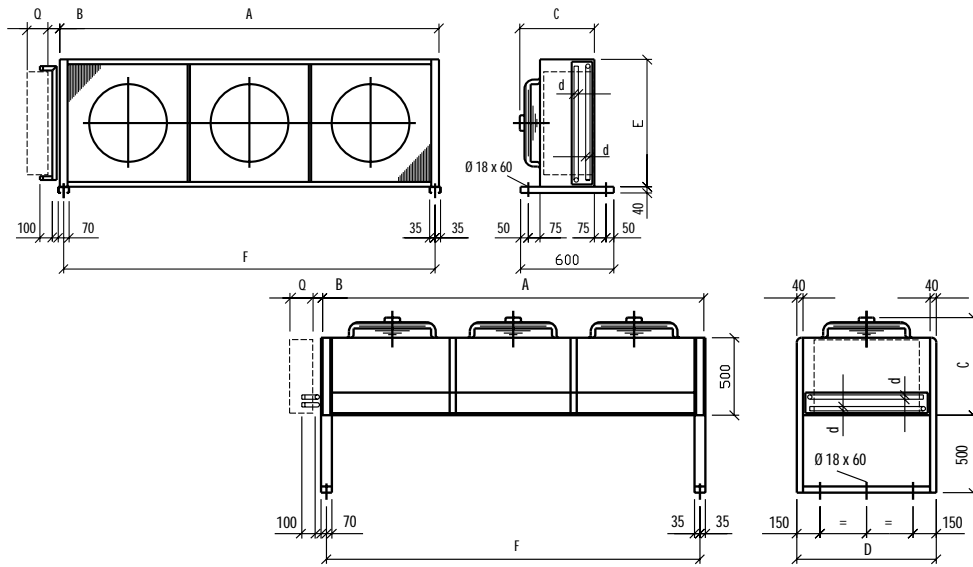
DSM009-013 / DLM008-011



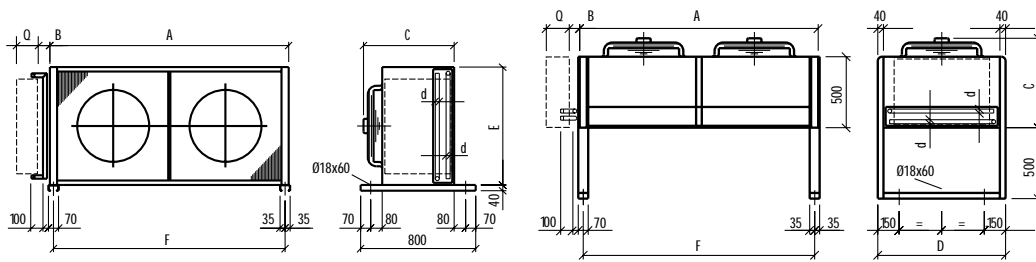
DSM018-022 / DLM015-018



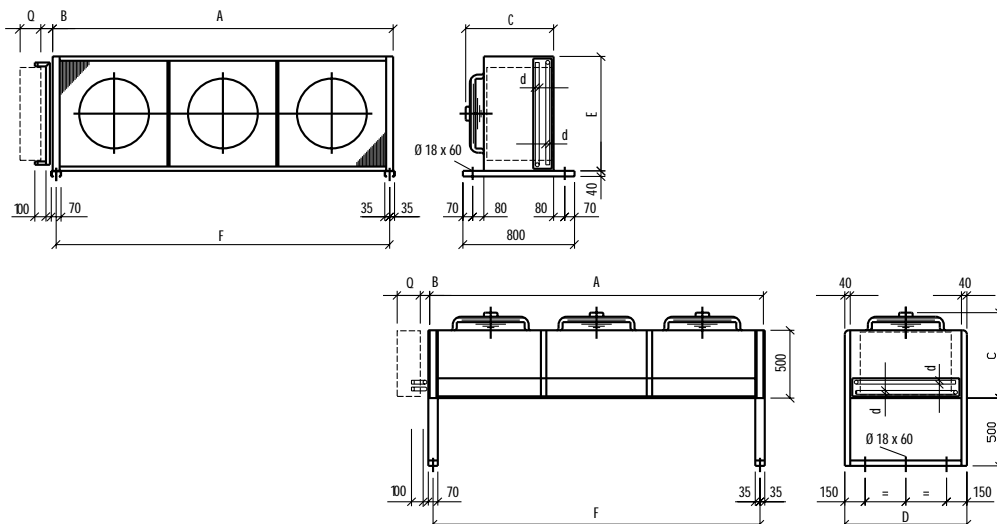
DSM028 / DLM023



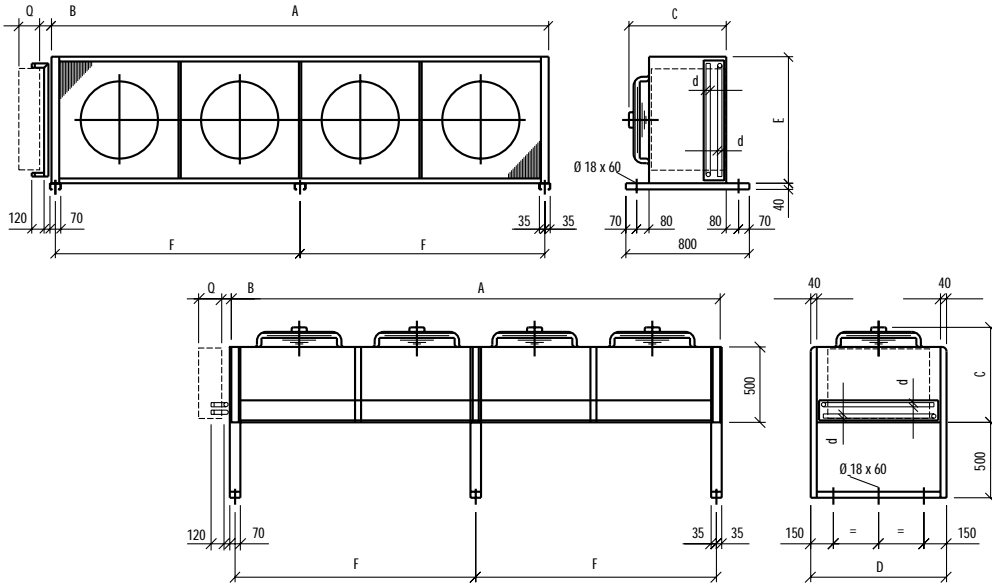
DST030-040 / DLT027-030



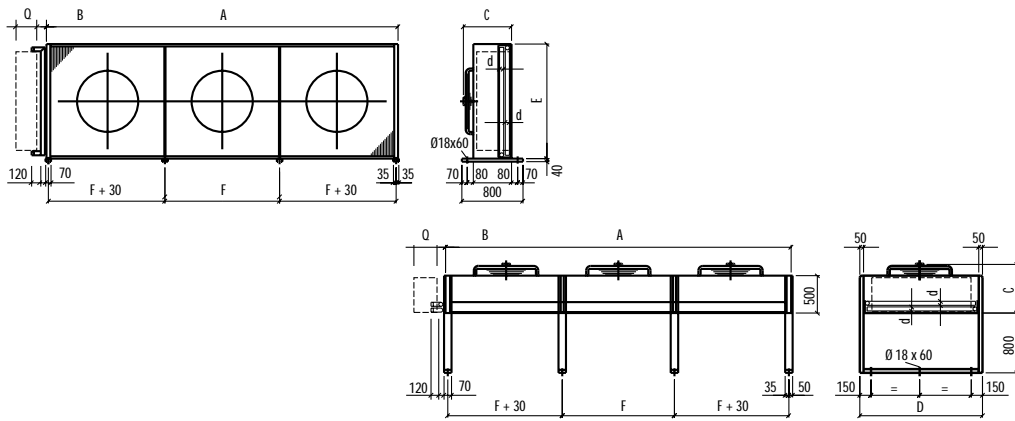
DST050-060-070 / DLT040-047-055



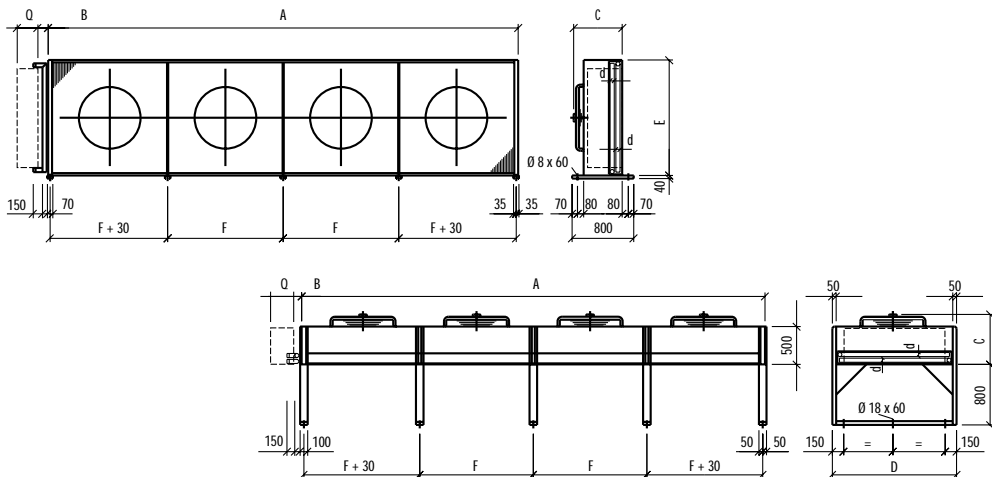
DST080 / DLT065



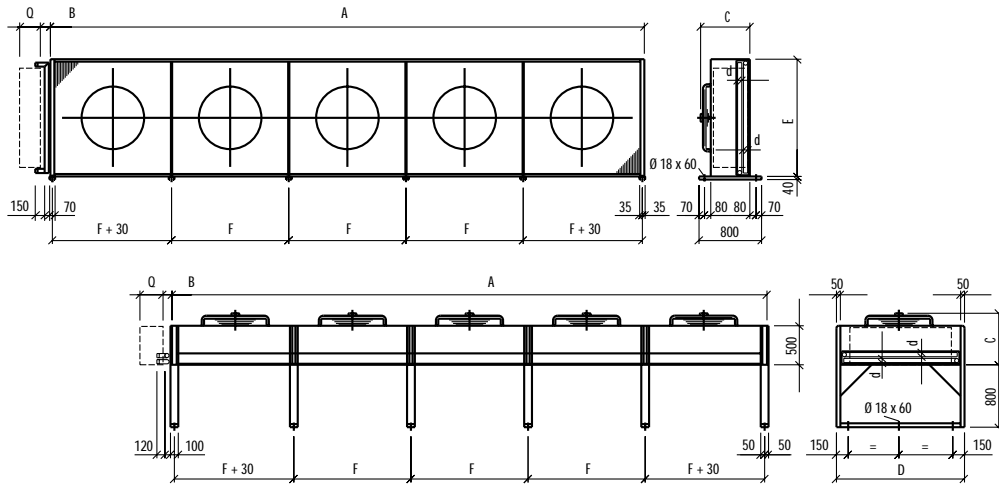
DST110 / DLT085



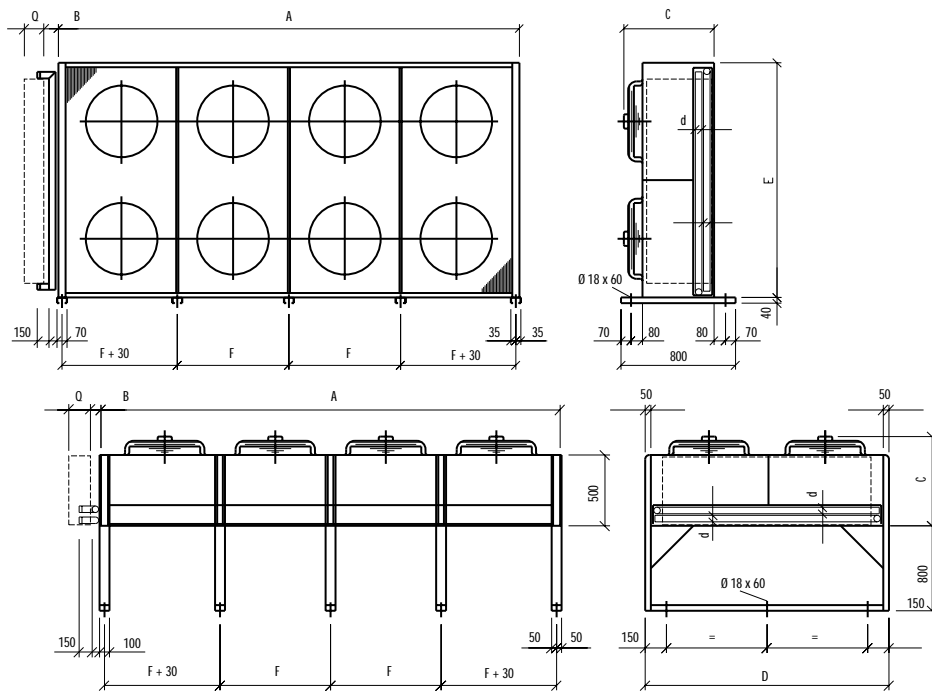
DST135-175-220 / DLT110-130-160



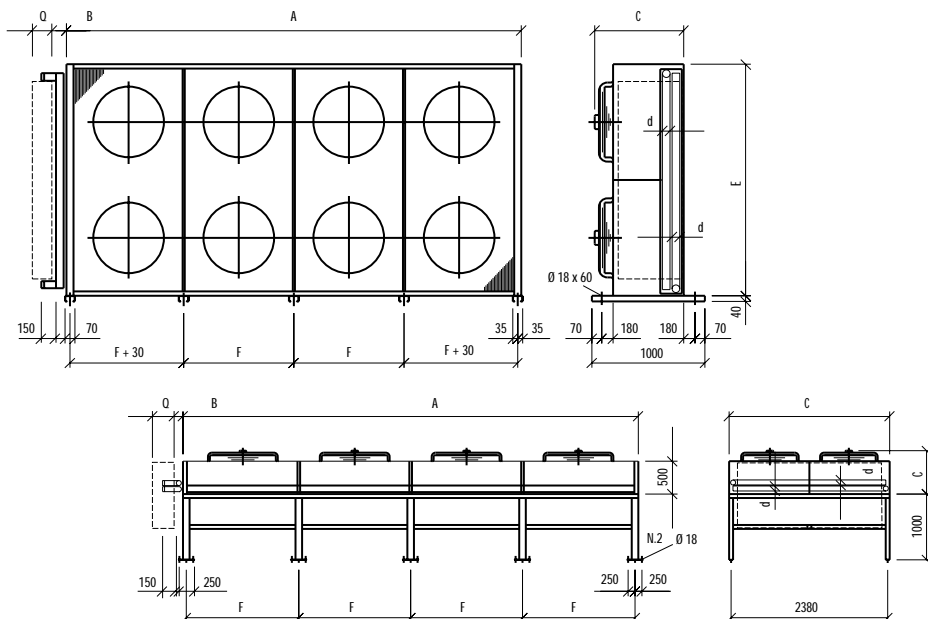
DST270 / DLT190



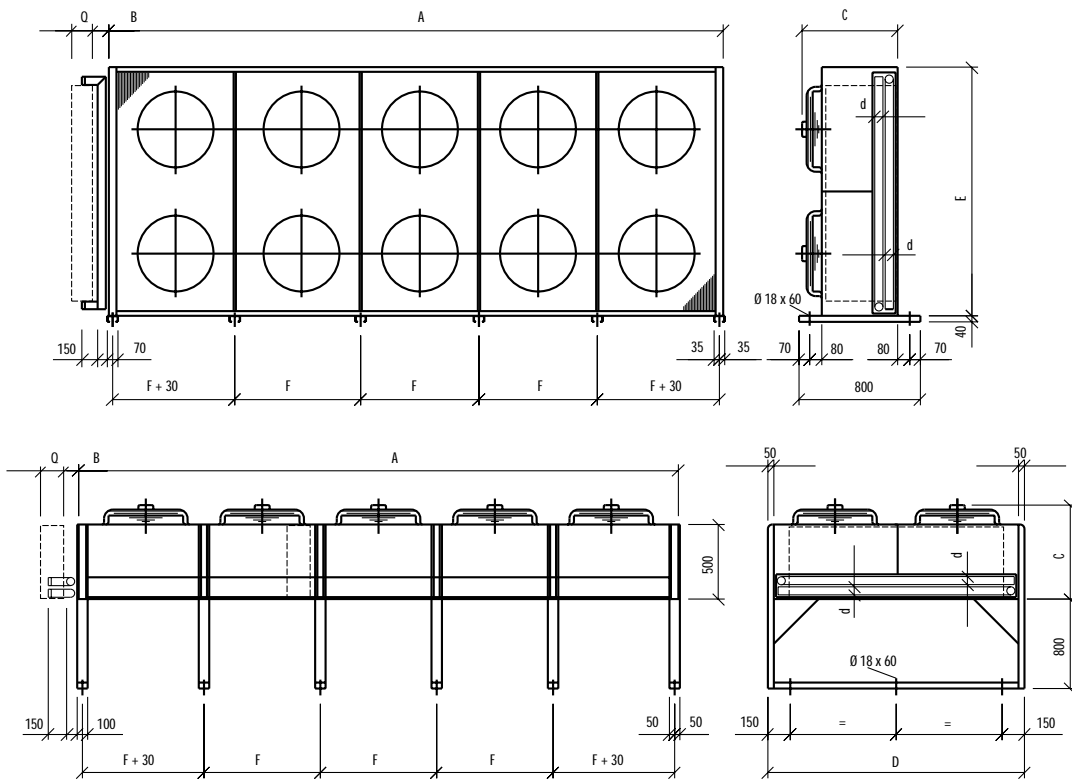
DST290 / DLT210



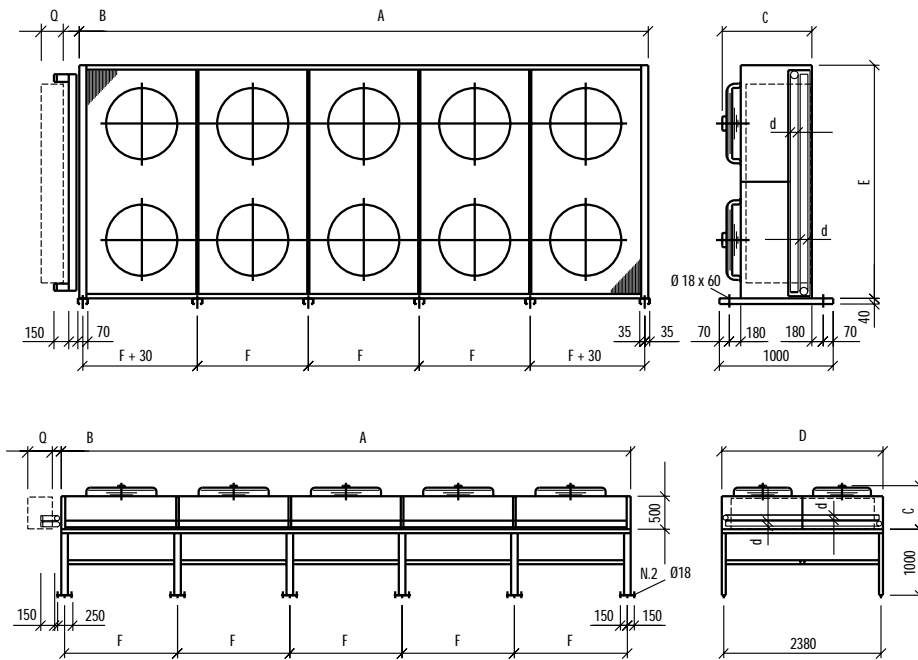
DST330-400 / DLT250-290



DST360-450 / DLT270-310



DST500 / DLT350



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