

GEA Küba MS Condenser

Condensers for commercial cooling applications

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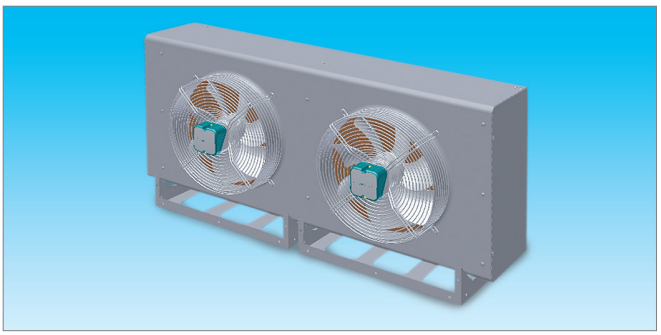
The MS condenser

The MS condenser series consists of a total of nine basic models, with the additional option of a 4-pole or 6-pole fan unit. The result is a total of 18 possible combinations, covering a condenser capacity range of 5.1 to 26.2 KW.

The frame legs supplied with the MS condenser allow it to be installed either horizontally or vertically – wall mounting is also possible.

The radial fans, which are of German manufacture, meet the highest quality and performance requirements and have been optimised for use in the MS condenser. As a result the MS condensers have very low noise levels.

Heat Exchanger and fan are supplied separately.

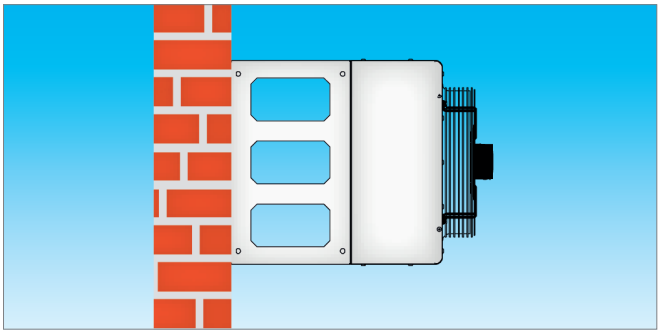


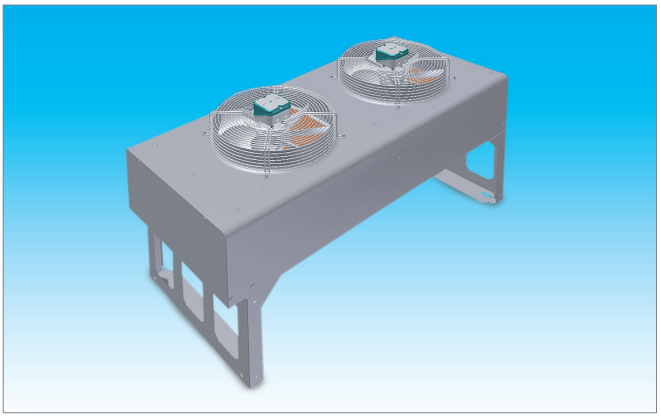
Heat exchanger

The heat exchanger consists of 8 mm copper tubing, with internal ribbing, and high-performance aluminium fins with a fin spacing of 2.1 mm.
The formed fin collar allows very high levels of heat transfer to be obtained, as well as permanent and efficient heat transfer between the central tube and fins.

Casing

The casing is made of sendzimir galvanized steel plate with UV resistant powder coating (RAL 9018). This surface coating ensures excellent weather resistance and corrosion protection. All screws and rivets are made from rust-resistant stainless steel.





Radial fans

A low-noise compact unit consisting of a motor with fan blade and anti-touch guard to DIN 31001/24176, of corrosion and weather-proof design.
Fan blade Ø 350 mm, with dynamic counterbalancing to quality level G 6.3 of DIN ISO 1940. Two different speeds are available:

4-pole: 230 ± 10% V-1, 50 Hz, IP 44, motor protection via thermal contacts, internally wired, ambient temperature for motor from –25°C to +60°C, 1295 RPM

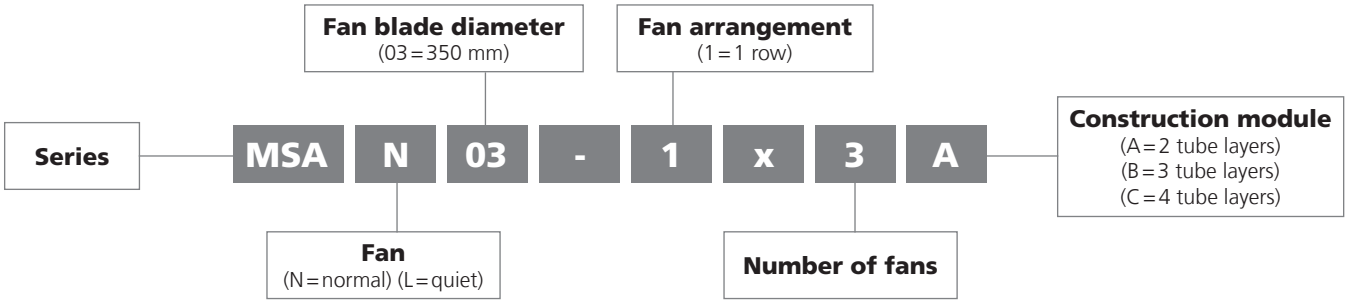
6-pole: 230 ± 10% V-1, 50/60 Hz, IP 44, motor protection via thermal contacts, internally wired, ambient temperature for motor from –25°C to +60°C, 880 RPM

Fully adjustable speed control by means of phase control or voltage reduction.

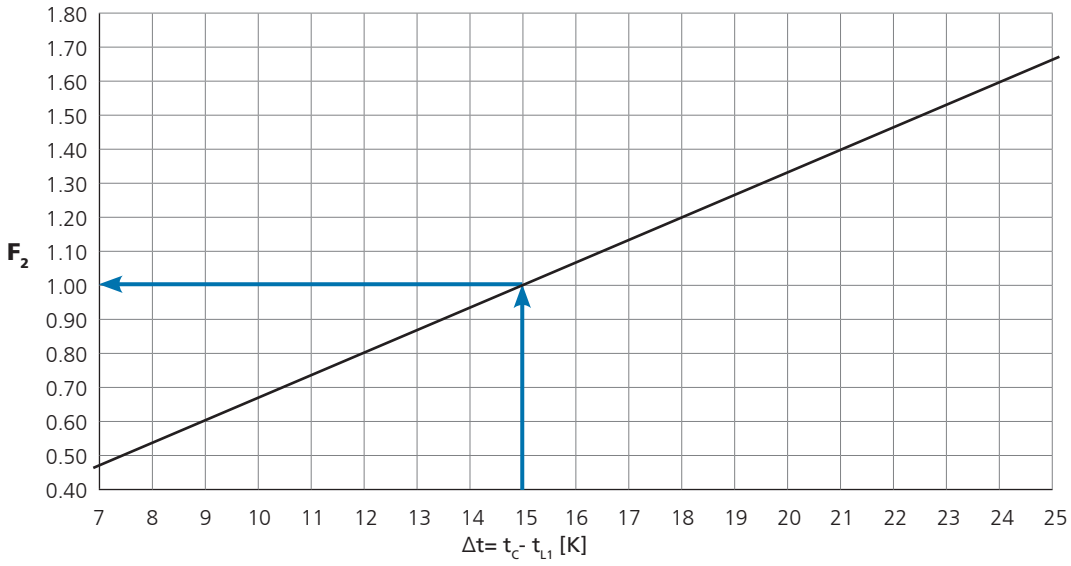
MS Condenser – *Compact Systems*



Nomenclature



Determining condenser capacity



$$Q_{C(N)} = \frac{Q_C}{F_1 \times F_2 \times F_3}$$

Factor F_1

R134A	$F_1 = 0.93$
R22	$F_1 = 0.96$
R404A	$F_1 = 1.00$
R407A	$F_1 = 0.83$
R407C	$F_1 = 0.87$
R507	$F_1 = 1.00$

Factor F_3

0 ft above sea level	$F_3 = 1.00$
1,640 ft above sea level	$F_3 = 0.96$
3,281 ft above sea level	$F_3 = 0.91$
4,921 ft above sea level	$F_3 = 0.87$
6,562 ft above sea level	$F_3 = 0.83$
8,202 ft above sea level	$F_3 = 0.80$

$Q_{C(N)}$ Nominal capacity condenser (at Δt = 15K, R404A)
Q_C Condenser capacity
F_1 Correction factor for refrigerant
F_2 Correction factor for temperature difference
F_3 Correction factor for geodetic height
t_C Condensing temperature
t_{L1} Air inlet temperature

Performance data & connection values

	Type	Capacity* $Q_{C(N)}$ (nominal capacity)	Sound power level L_{WA}	Sound pressure L_{PA} in 10 m	Airflow $\dot{V}$	Power consumption P_{el}	Energy efficiency class	Current consumption I	Number of fans	Tube rows	Surface	Tube volume	Connections	
													Inlet	Outlet
		kW	dB(A)	dB(A)	m³/h	W		A	n		m²	l	mm	mm
4-pole	MSA N03-1x1A	6.6	70	39	2,628	150	D	0.75	1	2	11.3	1.4	15	15
	MSA N03-1x1B	8.2	70	39	2,376	150	C	0.75	1	3	17.0	1.9	15	15
	MSA N03-1x1C	8.7	70	39	2,268	150	C	0.75	1	4	22.7	2.5	15	15
	MSA N03-1x2A	13.2	73	42	5,220	300	D	1.50	2	2	22.7	2.4	22	22
	MSA N03-1x2B	16.4	73	42	4,788	300	C	1.50	2	3	34.0	3.5	22	22
	MSA N03-1x2C	17.5	73	42	4,500	300	C	1.50	2	4	45.3	4.5	22	22
	MSA N03-1x3A	19.7	75	44	7,848	450	D	2.25	3	2	33.5	3.4	22	22
	MSA N03-1x3B	24.6	75	44	7,164	450	C	2.25	3	3	51.0	5.0	22	22
	MSA N03-1x3C	26.2	75	44	6,768	450	C	2.25	3	4	67.9	6.7	22	22
6-pole	MSA L03-1x1A	5.1	61	30	1,620	70	B	0.14	1	2	11.3	1.4	15	15
	MSA L03-1x1B	6.1	61	30	1,476	70	B	0.14	1	3	17.0	1.9	15	15
	MSA L03-1x1C	6.5	61	30	1,368	70	B	0.14	1	4	22.7	2.5	15	15
	MSA L03-1x2A	10.2	64	33	3,204	140	B	0.28	2	2	22.7	2.4	22	22
	MSA L03-1x2B	12.2	64	33	2,952	140	B	0.28	2	3	34.0	3.5	22	22
	MSA L03-1x2C	12.9	64	33	2,736	140	B	0.28	2	4	45.3	4.5	22	22
	MSA L03-1x3A	15.3	66	35	4,824	210	B	0.42	3	2	33.5	3.4	22	22
	MSA L03-1x3B	18.3	66	35	4,428	210	B	0.42	3	3	51.0	5.0	22	22
	MSA L03-1x3C	19.4	66	35	4,104	210	B	0.42	3	4	67.9	6.7	22	22

* Δt= 15K; Refrigerant: R404A

Sound pressure correction L_{PA} for other distances

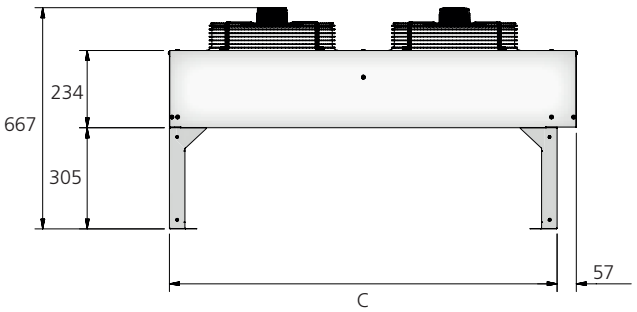
Distance [in m]	1	2	3	4	5	7	10	15	20	30	50	
Sound pressure correction value L_{PA} [in dB(A)]	+17	+13	+10	+7	+6	+3	0	-3	-6	-9	-14	1-2 fans
Sound pressure correction value L_{PA} [in dB(A)]	+16	+12	+9	+7	+6	+3	0	-3	-6	-9	-14	3 fans

The sound pressure changes for other distances using the enveloping surface method depend on the dimensions of the unit.
So the correction values ΔL_{PA} are reference values.

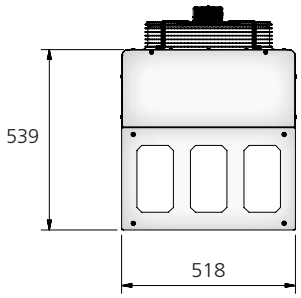
Dimensions & installation & construction

Type	Tube rows	Fan	Dim. A	Dim. B	Dim. C	Weight (without fan)	Weight (with fan)
			mm	mm	mm	kg	kg
MSA…1x1A	2	1	570	–	620	20	25
MSA…1x1B	3	1	570	–	620	22	27
MSA…1x1C	4	1	570	–	620	24	29
MSA…1x2A	2	2	1,120	100	1,170	29	39
MSA…1x2B	3	2	1,120	100	1,170	33	43
MSA…1x2C	4	2	1,120	100	1,170	37	47
MSA…1x3A	2	3	1,670	650	1,720	38	53
MSA…1x3B	3	3	1,670	650	1,720	44	59
MSA…1x3C	4	3	1,670	650	1,720	50	65

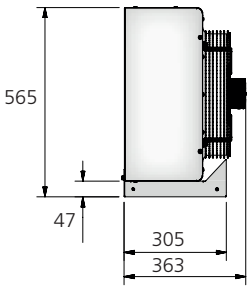
Vertical air flow



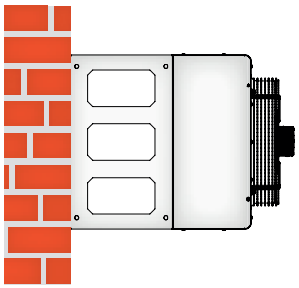
Vertical air flow



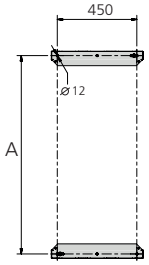
Horizontal air flow



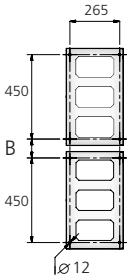
Mounted on a wall



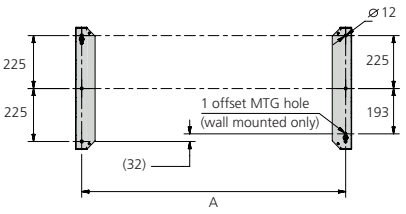
Leg dimensions for floor installation
(vertical air flow)



Leg dimensions for floor installation
(horizontal air flow)

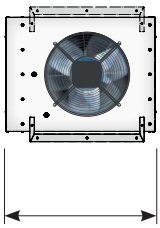


Leg dimensions for wall-mounting



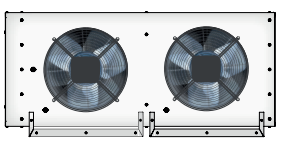
MSA… 1x1A, 1x1B, 1x1C

Leg fitted on top of unit for packing (1 fan unit only)



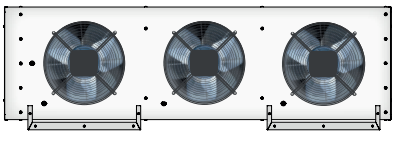
677 mm total length

MSA… 1x2A, 1x2B, 1x2C



1227 mm total length

MSA… 1x3A, 1x3B, 1x3C



1777 mm total length

For transport purposes the frame legs are screwed onto the unit.

Excellence Passion Integrity Responsibility GEA-versity

GEA Group is a global mechanical engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX Europe 600 Index.

GEA Heat Exchangers

GEA Küba GmbH

Kühler Weg 1 · 82065 Baierbrunn · Germany
Phone: ++49(0)89/744 73-0 · Fax: ++49(0)89/744 73-107
kueba@geagroup.com · www.kueba.com

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