



# Systems and components for industrial enclosures

Edition ■ 2018/1



Italian Company







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Most of our products are available in the industrial engineering software:



# Air flow management

Increasingly often, the causes behind malfunctions or faults in electrical and electronic equipment housed in control panels or fitted as an integral part of a machine, are due to heat problems. In reality, the life span of components depends on the temperature and level of humidity inside the electrical cabinet.

The normal recommended average operating temperature inside a cabinet is 35°C with relative humidity of no more than 60%.

Fandis offers a wide range of solutions for efficiently disposing of dissipated heat from electrical components suitable for different applications.

## NATURAL CONVECTION



The use of exhaust filter ensures the passage of air and the removal of heat in a natural manner. This solution can be considered for dissipating low level of heat in dusty environments.

## FORCED CONVECTION



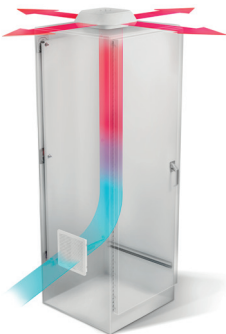
Forced ventilation is an inexpensive and efficient solution for preventing the formation of air pockets inside electrical cabinets. The best configuration includes fitting a fan filter to an exhaust filter.

The fan filter positioned at the bottom of the cabinet, takes in and filters air from the outside (standard air flow) while the exhaust filter at the top expels hot air. The pressure generated by the ventilation prevents unfiltered air from entering through holes or openings.



An inverted air flow version - reverse flow - is also available (fan filter at top and exhaust filter at bottom).

The system can be controlled by a thermostat that turns the fan on when high temperatures are detected.



Hot air can also be expelled from the roof of the cabinet if, for instance, the sides of the cabinet are covered by obstacles, walls or by the sides of other cabinets. In a perfect configuration, an exhaust filter is positioned at the bottom of the cabinet. The lower pressure generated by the roof unit sucks in air from the outside through the exhaust filter to enhance internal air flow and the dissipation of heat.



The use of a swivelling fan is an alternative solution for a better air circulation inside the electrical cabinet. This fan distributes heat to reduce the temperature, cools local hot spots and disperses cold air emitted by cooling units.



### FF series filters

- Free-tool clip mounting system
- Plate thickness: FF08 from 1 to 2mm; FF12, FF13 from 1.3 to 3.2mm; FF15, FF20 from 1.3 to 3.7mm (up to 4mm with cut-out max tolerance)
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1, 3R and EMC

Model	Dimensions mm	Cut-Out mm	Weight Kg	Approvals
FF08U	106.5x106.5x23.2	91.5X91.5	0.10	CE; cURus; cCSAus;
FF12U	150x150x29.2	124X124	0.20	CE; cURus; cCSAus;
FF13U	203.9x203.9x29.5	177X177	0.36	CE; cURus; cCSAus;
FF15U	250x250x33.8	223X223	0.57	CE; cURus; cCSAus;
FF20U	325x325x34	291X291	0.98	CE; cURus; cCSAus;

### FF series IP55 filters

- IP55 protection degree

Model	Dimensions mm	Cut-Out mm	Weight Kg	Approvals
FF12U5	150x150x29.2	124X124	0.20	CE; cURus; cCSAus;
FF13U5	203.9x203.9x29.5	177X177	0.36	CE; cURus; cCSAus;
FF15U5	250x250x33.8	223X223	0.58	CE; cURus; cCSAus;
FF20U5	325x325x34	291X291	0.99	CE; cURus; cCSAus;

### FF series EMC filters

- Electromagnetic shielding

Model	Dimensions mm	Cut-Out mm	Weight Kg	Approvals
FF08UC	106.5x106.5x23.2	91.5X91.5	0.10	CE; cURus; cCSAus;
FF12UC	150x150x29.2	124X124	0.21	CE; cURus; cCSAus;
FF13UC	203.9x203.9x29.5	177X177	0.37	CE; cURus; cCSAus;
FF15UC	250x250x33.8	223X223	0.60	CE; cURus; cCSAus;
FF20UC	325x325x34	291X291	1.03	CE; cURus; cCSAus;



### FF series Type 3R filters

- Ideal for outdoor applications
- Plastics construction against atmospheric deterioration
- UV resistant
- IP55 protection degree

Model	Dimensions mm	Cut-Out mm	Weight Kg	Approvals
FF12N53	150x150x29.2	124X124	0.29	CE; cURus;
FF13N53	203.9x203.9x29.5	177X177	0.47	CE; cURus;
FF15N53	250x250x33.8	223X223	0.89	CE; cURus;
FF20N53	325x325x34	291X291	1.16	CE; cURus;



## FF series fan filters

- Free-tool clip mounting system
- Plate thickness: FF08 from 1 to 2mm; FF12, FF13 from 1.3 to 3.2mm; FF15, FF20 from 1.3 to 3.7mm (up to 4mm with cut-out max tolerance)
- Quick electrical connection by screwless terminal block
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1, 3R and EMC
- Frequency: 50/60 Hz

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m³/h	Pa	°C	
FF08A115UN	106.5x106.5x66.6	91.5X91.5	115 V a.c.	9.0/7.0	12/15	23/33	-10 ÷ +55	CE; cURus; cCSAus;
FF08A115UNR	106.5x106.5x66.6	91.5X91.5	115 V a.c.	9.0/7.5	16/21	45/64	-10 ÷ +55	CE; cURus; cCSAus;
FF08A230UF	106.5x106.5x66.6	91.5X91.5	230 V a.c.	14/11	10/13	16/25	-10 ÷ +60	CE;
FF08A230UN	106.5x106.5x66.6	91.5X91.5	230 V a.c.	10/8.0	12/15	23/33	-10 ÷ +55	CE; cURus; cCSAus;
FF08A230UNR	106.5x106.5x66.6	91.5X91.5	230 V a.c.	10/8.0	16/21	45/64	-10 ÷ +55	CE; cURus; cCSAus;
FF08D12UN	106.5x106.5x53.6	91.5X91.5	12 V d.c.	2.0	16	28	-10 ÷ +55	CE; cURus; cCSAus;
FF08D12UNR	106.5x106.5x53.6	91.5X91.5	12 V d.c.	2.2	23	44	-10 ÷ +55	CE; cURus; cCSAus;
FF08D24UN	106.5x106.5x53.6	91.5X91.5	24 V d.c.	2.0	16	28	-10 ÷ +55	CE; cURus; cCSAus;
FF08D24UNR	106.5x106.5x53.6	91.5X91.5	24 V d.c.	2.2	23	44	-10 ÷ +55	CE; cURus; cCSAus;
FF08D48UF	106.5x106.5x53.6	91.5X91.5	48 V d.c.	3.0	12	19	-10 ÷ +60	CE;
FF08GA115UF	106.5x106.5x79.5	92.5x92.5	115 V a.c.	12/10	21/26	40/55	-10 ÷ +55	CE; cURus; cCSAus;
FF08GA115UNR	106.5x106.5x63.7	92.5x92.5	115 V a.c.	12/9.0	16/20	40/60	-10 ÷ +55	CE; cURus; cCSAus;
FF08GA230UF	106.5x106.5x79.5	92.5x92.5	230 V a.c.	12/11	21/26	40/55	-10 ÷ +55	CE; cURus; cCSAus;
FF08GA230UNR	106.5x106.5x63.7	92.5x92.5	230 V a.c.	12/10	16/20	40/60	-10 ÷ +55	CE; cURus; cCSAus;
FF08GD24UN	106.5x106.5x77.1	92.5x92.5	24 V d.c.	15	50	160	-10 ÷ +55	CE; cURus; cCSAus;
FF08GD24UNR	106.5x106.5x77.1	92.5x92.5	24 V d.c.	17	60	200	-10 ÷ +55	CE; cURus; cCSAus;
FF08GD48UF	106.5x106.5x77.1	92.5x92.5	48 V d.c.	17	48	144	-10 ÷ +60	CE;
FF12A115UF	150x150x73.2	124X124	115 V a.c.	16/15	45/50	55/62	-10 ÷ +55	CE; cURus; cCSAus;
FF12A115UFR	150x150x73.2	124X124	115 V a.c.	16/15	47/52	72/82	-10 ÷ +55	CE; cURus; cCSAus;
FF12A115UN	150x150x73.2	124X124	115 V a.c.	19/17	67/79	73/86	-10 ÷ +55	CE; cURus; cCSAus;
FF12A115UNR	150x150x73.2	124X124	115 V a.c.	19/17	60/70	86/115	-10 ÷ +55	CE; cURus; cCSAus;
FF12A230UF	150x150x73.2	124X124	230 V a.c.	18/17	45/50	55/62	-10 ÷ +55	CE; cURus; cCSAus;
FF12A230UFR	150x150x73.2	124X124	230 V a.c.	18/17	47/52	72/82	-10 ÷ +55	CE; cURus; cCSAus;
FF12A230UN	150x150x73.2	124X124	230 V a.c.	18/16	67/79	73/86	-10 ÷ +55	CE; cURus; cCSAus;
FF12A230UNR	150x150x73.2	124X124	230 V a.c.	18/16	60/70	86/115	-10 ÷ +55	CE; cURus; cCSAus;
FF12A24UF	150x150x73.2	124X124	24 V a.c.	15/15	39/44	43/41	-10 ÷ +55	CE;
FF12A24UFR	150x150x73.2	124X124	24 V a.c.	15/15	50/52	59/40	-10 ÷ +55	CE;
FF12D24UN	150x150x73	124X124	24 V d.c.	7.4	47	56	-10 ÷ +55	CE; UR; cCSAus;
FF12D24UNR	150x150x73	124X124	24 V d.c.	7.4	64	79	-10 ÷ +55	CE; UR; cCSAus;
FF12D48UN	150x150x73	124X124	48 V d.c.	8.6	47	56	-10 ÷ +55	CE; UR; cCSAus;
FF12D48UNR	150x150x73	124X124	48 V d.c.	8.6	64	79	-10 ÷ +55	CE; UR; cCSAus;
FF13PA115UF	203.9x203.9x95.5	177X177	115 V a.c.	19/18	100/110	55/60	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA115UFR	203.9x203.9x95.5	177X177	115 V a.c.	18/18	100/110	70/80	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA115UN	203.9x203.9x95.5	177X177	115 V a.c.	16/15	110/130	80/100	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA115UNR	203.9x203.9x95.5	177X177	115 V a.c.	20/18	110/135	100/120	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA230UF	203.9x203.9x95.5	177X177	230 V a.c.	18/18	100/110	55/60	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA230UFR	203.9x203.9x95.5	177X177	230 V a.c.	18/18	100/110	70/80	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA230UN	203.9x203.9x95.5	177X177	230 V a.c.	19/17	110/130	80/100	-10 ÷ +55	CE; cURus; cCSAus;
FF13PA230UNR	203.9x203.9x95.5	177X177	230 V a.c.	19/18	110/135	100/120	-10 ÷ +55	CE; cURus; cCSAus;
FF13PD24UN	203.9x203.9x95.3	177X177	24 V d.c.	8.2	100	60	-10 ÷ +55	CE; UR; cCSAus;

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m³/h	Pa	°C	
FF13PD24UNR	203.9x203.9x95.3	177X177	24 V d.c.	8.5	113	83	-10 ÷ +55	CE; UR; cCSAus;
FF15A115UF	250x250x124.2	223X223	115 V a.c.	31/31	230/270	115/155	-10 ÷ +55	CE; cURus; cCSAus;
FF15A115UFR	250x250x124.2	223X223	115 V a.c.	31/31	245/290	165/210	-10 ÷ +55	CE; cURus; cCSAus;
FF15A115UN2	250x250x112.2	223X223	115 V a.c.	39/41	230/270	150/195	-10 ÷ +55	CE; cURus; cCSAus;
FF15A115UNR2	250x250x112.2	223X223	115 V a.c.	39/41	238/283	195/252	-10 ÷ +55	CE; cURus; cCSAus;
FF15A230UF	250x250x124.2	223X223	230 V a.c.	32/36	230/270	115/155	-10 ÷ +55	CE; cURus; cCSAus;
FF15A230UFR	250x250x124.2	223X223	230 V a.c.	32/36	245/290	165/210	-10 ÷ +55	CE; cURus; cCSAus;
FF15A230UN2	250x250x112.2	223X223	230 V a.c.	42/45	230/272	150/195	-10 ÷ +55	CE; cURus; cCSAus;
FF15A230UNR2	250x250x112.2	223X223	230 V a.c.	42/45	238/283	195/252	-10 ÷ +55	CE; cURus; cCSAus;
FF15D24UF	250x250x125.4	223X223	24 V d.c.	31	275	150	-10 ÷ +55	CE; cURus; cCSAus;
FF15D24UFR	250x250x125.4	223X223	24 V d.c.	31	295	205	-10 ÷ +55	CE; cURus; cCSAus;
FF15D24UN	250x250x125.4	223X223	24 V d.c.	17	245	100	-10 ÷ +55	CE; UR; cCSAus;
FF15D24UNR	250x250x125.4	223X223	24 V d.c.	17	285	148	-10 ÷ +55	CE; UR; cCSAus;
FF15D48UF	250x250x125.4	223X223	48 V d.c.	43	295	175	-10 ÷ +55	CE;
FF15D48UFR	250x250x125.4	223X223	48 V d.c.	43	310	250	-10 ÷ +55	CE;
FF15D48UN	250x250x125.4	223X223	48 V d.c.	16	238	100	-10 ÷ +55	CE; UR; cCSAus;
FF15D48UNR	250x250x125.4	223X223	48 V d.c.	16	272	145	-10 ÷ +55	CE; UR; cCSAus;
FF15MA115UF	250x250x111.2	223X223	115 V a.c.	16/15	130/145	63/39	-10 ÷ +60	CE;
FF15MA115UFR	250x250x111.2	223X223	115 V a.c.	16/15	140/155	80/55	-10 ÷ +60	CE;
FF15MA230UF	250x250x111.2	223X223	230 V a.c.	21/20	130/145	63/39	-10 ÷ +60	CE;
FF15MA230UFR	250x250x111.2	223X223	230 V a.c.	21/20	140/155	80/55	-10 ÷ +60	CE;
FF15PA115UF	250x250x111.8	223X223	115 V a.c.	17/16	105/120	54/57	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA115UFR	250x250x111.8	223X223	115 V a.c.	17/16	110/120	66/70	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA115UN	250x250x112.2	223X223	115 V a.c.	20/19	125/145	80/100	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA115UNR	250x250x112.2	223X223	115 V a.c.	20/19	130/150	100/120	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA230UF	250x250x111.8	223X223	230 V a.c.	18/17	105/120	54/57	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA230UFR	250x250x111.8	223X223	230 V a.c.	18/17	110/120	66/70	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA230UN	250x250x112.2	223X223	230 V a.c.	19/17	125/145	80/100	-10 ÷ +55	CE; cURus; cCSAus;
FF15PA230UNR	250x250x112.2	223X223	230 V a.c.	19/18	130/150	100/120	-10 ÷ +55	CE; cURus; cCSAus;
FF15PD24UN	250x250x111.6	223X223	24 V d.c.	7.6	140	62	-10 ÷ +55	CE; UR; cCSAus;
FF15PD24UNR	250x250x111.6	223X223	24 V d.c.	7.6	150	84	-10 ÷ +55	CE; UR; cCSAus;
FF15PD48UN	250x250x111.6	223X223	48 V d.c.	8.6	140	62	-10 ÷ +55	CE; UR; cCSAus;
FF15PD48UNR	250x250x111.6	223X223	48 V d.c.	8.6	150	84	-10 ÷ +55	CE; UR; cCSAus;
FF20A115UE	325x325x160.2	291X291	115 V a.c.	77/92	445/490	131/141	-10 ÷ +60	CE;
FF20A115UE1	325x325x160.2	291X291	115 V a.c.	74/83	445/485	129/140	-10 ÷ +55	CE; cURus; cCSAus;
FF20A115UER	325x325x160.2	291X291	115 V a.c.	77/92	530/577	206/216	-10 ÷ +60	CE;
FF20A115UER1	325x325x160.2	291X291	115 V a.c.	74/83	530/575	195/207	-10 ÷ +55	CE; cURus; cCSAus;
FF20A230UE	325x325x160.2	291X291	230 V a.c.	79/96	460/510	136/148	-10 ÷ +60	CE;
FF20A230UE1	325x325x160.2	291X291	230 V a.c.	70/85	455/503	134/146	-10 ÷ +55	CE; cURus; cCSAus;
FF20A230UER	325x325x160.2	291X291	230 V a.c.	79/96	540/595	204/219	-10 ÷ +60	CE;
FF20A230UER1	325x325x160.2	291X291	230 V a.c.	70/85	540/590	207/221	-10 ÷ +55	CE; cURus; cCSAus;
FF20A400TUE	325x325x160.2	291X291	400 V 3 ~	99/124	537/632	186/236	-10 ÷ +60	CE;
FF20GA115UE	325x325x158.7	291X291	115 V a.c.	143/177	708/775	188/181	-10 ÷ +60	CE;
FF20GA115UE1	325x325x158.7	291X291	115 V a.c.	110/156	675/738	183/170	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA115UEA	325x325x158.7	291X291	115 V a.c.	146/179	875/960	200/189	-10 ÷ +60	CE;
FF20GA115UEA1	325x325x158.7	291X291	115 V a.c.	110/156	893/960	200/176	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA115UER	325x325x158.7	291X291	115 V a.c.	124/192	760/845	282/258	-10 ÷ +60	CE;
FF20GA115UER1	325x325x158.7	291X291	115 V a.c.	102/145	760/850	280/254	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA115UERA	325x325x158.7	291X291	115 V a.c.	124/124	820/920	279/255	-10 ÷ +60	CE;



Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m <sup>3</sup> /h	Pa	°C	
FF20GA115UERA1	325x325x158.7	291X291	115 V a.c.	102/145	820/925	279/251	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA230UE	325x325x158.7	291X291	230 V a.c.	155/194	705/790	200/206	-10 ÷ +60	CE;
FF20GA230UE1	325x325x158.7	291X291	230 V a.c.	120/158	680/765	200/210	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA230UEA	325x325x158.7	291X291	230 V a.c.	158/198	850/960	213/216	-10 ÷ +60	CE;
FF20GA230UEA1	325x325x158.7	291X291	230 V a.c.	120/158	895/998	220/222	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA230UER	325x325x158.7	291X291	230 V a.c.	170/208	773/870	306/291	-10 ÷ +60	CE;
FF20GA230UER1	325x325x158.7	291X291	230 V a.c.	120/157	760/860	308/304	-10 ÷ +55	CE; cURus; cCSAus;
FF20GA230UERA	325x325x158.7	291X291	230 V a.c.	171/210	840/958	302/289	-10 ÷ +60	CE;
FF20GA230UERA1	325x325x158.7	291X291	230 V a.c.	120/157	825/930	305/295	-10 ÷ +55	CE; cURus; cCSAus;
FF20GEA400TUE	325x325x149	291X291	400 V 3 ~	137	485	180	-10 ÷ +55	CE;
FF20GEA400TUER	325x325x149	291X291	400 V 3 ~	137/173	645/695	240/255	-10 ÷ +55	CE;
FF20PA115UF	325x325x160.2	291X291	115 V a.c.	45/45	310/350	107/111	-10 ÷ +55	CE; cURus;
FF20PA115UFR	325x325x160.2	291X291	115 V a.c.	45/45	339/374	141/135	-10 ÷ +55	CE; cURus;
FF20PA230UF	325x325x160.2	291X291	230 V a.c.	45/45	315/345	106/108	-10 ÷ +55	CE; cURus;
FF20PA230UFR	325x325x160.2	291X291	230 V a.c.	45/45	334/367	135/125	-10 ÷ +55	CE; cURus;



### FPF series filters

- Snap-mounting system with elastic hooks
- Plate thickness between 1.5 and 2.2mm
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1 and EMC

Model	Dimensions	Cut-Out	Weight	Approvals
	mm	mm	Kg	
FPF08KUG-101	105x105x21	91.5X91.5	0.10	CE; cURus;
FPF12KUG-100	150x150x28	125X125	0.22	CE; cURus;
FPF13KUG-100	204x204x28	177X177	0.36	CE; cURus;
FPF15KUG-100	250x250x31	223X223	0.55	CE; cURus;
FPF20KUG-100	325x325x33	291X291	0.94	CE; cURus;



### FPF series fan filters

- Snap-mounting system with elastic hooks
- Plate thickness between 1.5 and 2.2mm
- Standard color RAL 7035, other colors available on request, subject to quantity
- Standard protection ratings: IP54 and Type 12. Optional versions: IP55, Type 1 and EMC
- Frequency: 50/60 Hz

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m <sup>3</sup> /h	Pa	°C	
FPF08KU115B-110	105x105x67	91.5X91.5	115 V a.c.	9.0/7.0	23/30	42/62	-10 ÷ +50	CE; cURus;
FPF08KU115BR-110	105x105x67	91.5X91.5	115 V a.c.	9.0/7.0	23/30	42/62	-10 ÷ +50	CE; cURus;
FPF08KU230B-110	105x105x67	91.5X91.5	230 V a.c.	10/8.0	23/30	42/62	-10 ÷ +50	CE; cURus;
FPF08KU230BR-110	105x105x67	91.5X91.5	230 V a.c.	10/8.0	23/30	42/62	-10 ÷ +50	CE; cURus;

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m³/h	Pa	°C	
FPF08KUD12B-110	105x105x54	91.5X91.5	12 V d.c.	2.2	15	24	-10 ÷ +60	CE;
FPF08KUD24B-110	105x105x54	91.5X91.5	24 V d.c.	3.6	15	24	-10 ÷ +50	CE; cURus;
FPF08KUD24BR-110	105x105x54	91.5X91.5	24 V d.c.	3.6	20	35	-10 ÷ +50	CE; cURus;
FPF12KU115BE-110	150x150x71	125X125	115 V a.c.	20/18	57/61	66/73	-10 ÷ +50	CE; cURus;
FPF12KU115BER-110	150x150x71	125X125	115 V a.c.	20/18	57/61	66/73	-10 ÷ +50	CE; cURus;
FPF12KU230BE-110	150x150x71	125X125	230 V a.c.	20/19	57/61	66/73	-10 ÷ +50	CE; cURus;
FPF12KU230BER-110	150x150x71	125X125	230 V a.c.	20/19	57/61	66/73	-10 ÷ +50	CE; cURus;
FPF12KU24BER-110	150x150x71	125X125	24 V a.c.	15/16	57/61	66/73	-10 ÷ +50	CE;
FPF12KUD24B-110	150x150x71	125X125	24 V d.c.	9.6	60	66	-10 ÷ +50	CE; cURus;
FPF12KUD24BR-110	150x150x71	125X125	24 V d.c.	9.6	60	66	-10 ÷ +50	CE; cURus;
FPF12KUD48B-110	150x150x71	125X125	48 V d.c.	7.7	60	66	-10 ÷ +55	CE;
FPF13KPU115BE-110	204x204x98	177X177	115 V a.c.	20/18	110/120	68/82	-10 ÷ +50	CE; cURus;
FPF13KPU115BER-110	204x204x98	177X177	115 V a.c.	20/18	110/120	68/82	-10 ÷ +50	CE; cURus;
FPF13KPU230BE-110	204x204x98	177X177	230 V a.c.	20/19	110/120	68/82	-10 ÷ +50	CE; cURus;
FPF13KPU230BER-110	204x204x98	177X177	230 V a.c.	20/19	110/120	68/82	-10 ÷ +50	CE; cURus;
FPF13KU115BE-110	204x204x98	177X177	115 V a.c.	14/12	120/135	84/100	-10 ÷ +50	CE; cURus;
FPF13KU115BER-110	204x204x98	177X177	115 V a.c.	14/12	120/135	84/100	-10 ÷ +50	CE; cURus;
FPF13KU230BE-110	204x204x98	177X177	230 V a.c.	23/21	120/135	84/100	-10 ÷ +50	CE; cURus;
FPF13KU230BER-110	204x204x98	177X177	230 V a.c.	23/21	120/135	84/100	-10 ÷ +50	CE; cURus;
FPF15KEU230BER-110	250x250x121	223X223	230 V a.c.	35/30	208/207	60/73	-10 ÷ +50	CE;
FPF15KGU115BE-120	250x250x125	223X223	115 V a.c.	50/64	360/400	160/180	-10 ÷ +55	CE;
FPF15KGU115BER-120	250x250x125	223X223	115 V a.c.	50/64	360/400	160/180	-10 ÷ +55	CE;
FPF15KGU230BE-120	250x250x125	223X223	230 V a.c.	67/87	360/400	160/180	-10 ÷ +50	CE;
FPF15KGU230BER-120	250x250x125	223X223	230 V a.c.	67/87	360/400	160/180	-10 ÷ +50	CE;
FPF15KGU400TBE-120	250x250x125	223X223	400 V a.c.	71/93	360/400	160/180	-10 ÷ +55	CE;
FPF15KGU400TBER-120	250x250x125	223X223	400 V a.c.	71/93	360/400	160/180	-10 ÷ +55	CE;
FPF15KMU115BE-110	250x250x113	223X223	115 V a.c.	14/12	130/150	75/92	-10 ÷ +50	CE; cURus;
FPF15KMU230BE-110	250x250x113	223X223	230 V a.c.	23/21	130/150	75/92	-10 ÷ +50	CE; cURus;
FPF15KMU230BER-110	250x250x113	223X223	230 V a.c.	23/21	130/150	75/92	-10 ÷ +50	CE; cURus;
FPF15KPU230BE-110	250x250x113	223X223	230 V a.c.	20/19	115/125	51/59	-10 ÷ +50	CE; cURus;
FPF15KPU230BER-110	250x250x113	223X223	230 V a.c.	20/19	115/125	51/59	-10 ÷ +50	CE; cURus;
FPF15KPU24B-110	250x250x113	223X223	24 V d.c.	9.6	145	76	-10 ÷ +50	CE; cURus;
FPF15KU115BE-110	250x250x121	223X223	115 V a.c.	30/30	240/270	111/134	-10 ÷ +50	CE; cURus;
FPF15KU115BER-110	250x250x121	223X223	115 V a.c.	30/30	240/270	111/134	-10 ÷ +50	CE; cURus;
FPF15KU230BE-110	250x250x121	223X223	230 V a.c.	29/29	240/270	111/134	-10 ÷ +50	CE; cURus;
FPF15KU230BER-110	250x250x121	223X223	230 V a.c.	29/29	240/270	111/134	-10 ÷ +50	CE; cURus;
FPF15KUD24B-110	250x250x121	223X223	24 V d.c.	23	250	65	-10 ÷ +50	CE; cURus;
FPF15KUD48B-110	250x250x121	223X223	48 V d.c.	18	250	65	-10 ÷ +55	CE;
FPF20KGU115B-110	325x325x151	291X291	115 V a.c.	120/135	650/730	186/213	-10 ÷ +55	CE;
FPF20KGU115B-130	325x325x151	291X291	115 V a.c.	102/145	660/745	220/222	-10 ÷ +55	CE; cURus;
FPF20KGU115BE-120	325x325x124	291X291	115 V a.c.	107/143	660/745	220/222	-10 ÷ +55	CE;
FPF20KGU115BE-130	325x325x124	291X291	115 V a.c.	102/145	660/745	220/222	-10 ÷ +55	CE; cURus;
FPF20KGU115BER-120	325x325x124	291X291	115 V a.c.	107/143	660/745	220/222	-10 ÷ +55	CE;
FPF20KGU115BR-110	325x325x151	291X291	115 V a.c.	120/135	650/730	186/213	-10 ÷ +55	CE;
FPF20KGU230B-110	325x325x151	291X291	230 V a.c.	140/185	650/730	186/213	-10 ÷ +55	CE;
FPF20KGU230B-130	325x325x151	291X291	230 V a.c.	130/150	660/745	220/222	-10 ÷ +55	CE; cURus;
FPF20KGU230BE-120	325x325x124	291X291	230 V a.c.	111/140	660/745	220/222	-10 ÷ +55	CE;
FPF20KGU230BE-130	325x325x124	291X291	230 V a.c.	150/160	660/745	220/222	-10 ÷ +55	CE; cURus;
FPF20KGU230BER-120	325x325x124	291X291	230 V a.c.	111/140	660/745	220/222	-10 ÷ +55	CE;
FPF20KGU230BR-110	325x325x151	291X291	230 V a.c.	106/147	650/730	186/213	-10 ÷ +50	CE;

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m <sup>3</sup> /h	Pa	°C	
FPF20KUG400TB-110	325x325x151	291X291	400 V a.c.	93/123	650/730	186/213	-10 ÷ +55	CE;
FPF20KU115BE-120	325x325x161	291X291	115 V a.c.	50/64	520/580	160/186	-10 ÷ +55	CE;
FPF20KU115BE-130	325x325x161	291X291	115 V a.c.	68/70	520/580	160/186	-10 ÷ +55	CE; cURus;
FPF20KU115BER-120	325x325x161	291X291	115 V a.c.	50/64	520/580	160/186	-10 ÷ +55	CE;
FPF20KU230BE-120	325x325x161	291X291	230 V a.c.	77/92	520/580	160/186	-10 ÷ +50	CE;
FPF20KU230BE-130	325x325x161	291X291	230 V a.c.	70/85	520/580	160/186	-10 ÷ +55	CE; cURus;
FPF20KU230BER-120	325x325x161	291X291	230 V a.c.	67/87	520/580	160/186	-10 ÷ +50	CE;
FPF20KU400TBE-120	325x325x161	291X291	400 V a.c.	71/93	520/580	160/186	-10 ÷ +55	CE;



### GF series filters

- Patented mounting system with jacks for plastic or plate enclosures
- Plate thickness: up to 8mm and by cutting the jacks up to 16mm
- Standard color RAL 7035, other colors available on request, subject to quantity
- IP54 protection degree

Model	Dimensions	Cut-Out	Weight	Approvals
	mm	mm	Kg	
GF12KUG	150x150x31	125X125	0.17	CE;
GF15KUG	250x250x32	223X223	0.33	CE;
GF20KUG	325x325x32.5	290X290	0.74	CE;



### GF series fan filters

- Patented mounting system with jacks for plastic or plate enclosures
- Plate thickness: up to 8mm and by cutting the jacks up to 16mm
- Standard color RAL 7035, other colors available on request, subject to quantity
- IP54 protection degree
- Frequency: 50/60 Hz

Model	Dimensions	Cut-Out	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	mm	V	W	m <sup>3</sup> /h	Pa	°C	
GF12KU230BE	150x150x75.6	125X125	230 V a.c.	17/16	46/53	52/58	-10 ÷ +55	CE;
GF12KU230BER	150x150x75.6	125X125	230 V a.c.	17/16	42/47	59/70	-10 ÷ +55	CE;
GF12KUD24B	150x150x75.6	125X125	24 V d.c.	7.0	46	54	-10 ÷ +50	CE;
GF12KUD24BR	150x150x75.6	125X125	24 V d.c.	7.0	55	71	-10 ÷ +50	CE;
GF15KPU230BE	250x250x105	223X223	230 V a.c.	18/18	118/132	56/57	-10 ÷ +55	CE;
GF15KU115BE	250x250x118	223X223	115 V a.c.	32/35	224/270	110/148	-10 ÷ +50	CE;
GF15KU230BE	250x250x118	223X223	230 V a.c.	32/34	224/270	110/148	-10 ÷ +50	CE;
GF15KU230BER	250x250x118	223X223	230 V a.c.	32/35	248/290	158/202	-10 ÷ +50	CE;
GF20KUG230B	325x325x142	290X290	230 V a.c.	159/125	583/680	214/216	-10 ÷ +55	CE;
GF20KU230BE	325x325x153	290X290	230 V a.c.	76/92	475/535	140/156	-10 ÷ +50	CE;



### TP series roof exhaust unit without fan

- Plastic structure with aluminum top
- Plate thickness: any
- Available in 3 protection degree: IP24, IP54 and IP55
- Standard color RAL 7035, other colors available on request, subject to quantity

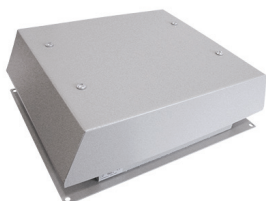
Model	Protection Degree	Approvals
	IP	
TP19U1	IP24	CE; cURus; cCSAus;
TP19U541	IP54	CE; cURus; cCSAus;
TP19U551	IP55	CE; cURus; cCSAus;



### TP series roof exhaust unit

- Plastic structure with aluminum top
- Plate thickness: any
- Available in 4 protection degree: IP24, IP44, IP54 and IP55
- Standard color RAL 7035, other colors available on request, subject to quantity
- Frequency: 50/60 Hz

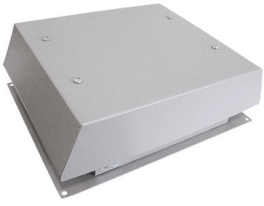
Model	Rated Voltage	Rated power	Max air flow	Static Pressure	Protection Degree	Approvals
	V	W	m³/h	Pa	IP	
TP19U115B	115 V a.c.	62/75	500/575	335/465	IP24	CE;
TP19U115B1	115 V a.c.	97	575	465	IP24	CE; cURus; cCSAus;
TP19U115B441	115 V a.c.	97	560	470	IP44	CE; cURus; cCSAus;
TP19U115B54	115 V a.c.	66/74	420/490	340/480	IP54	CE;
TP19U115B541	115 V a.c.	97	490	480	IP54	CE; cURus; cCSAus;
TP19U115B55	115 V a.c.	66/74	420/490	340/480	IP55	CE;
TP19U115B551	115 V a.c.	97	490	480	IP55	CE; cURus; cCSAus;
TP19U230B	230 V a.c.	67/83	500/575	335/465	IP24	CE;
TP19U230B1	230 V a.c.	70/81	500/575	335/465	IP24	CE; cURus; cCSAus;
TP19U230B44	230 V a.c.	69/81	485/560	330/470	IP44	CE;
TP19U230B441	230 V a.c.	70/81	485/560	330/470	IP44	CE; cURus; cCSAus;
TP19U230B54	230 V a.c.	70/83	420/490	340/480	IP54	CE;
TP19U230B541	230 V a.c.	70/81	420/490	340/480	IP54	CE; cURus; cCSAus;
TP19U230B55	230 V a.c.	70/83	420/490	340/480	IP55	CE;
TP19U230B551	230 V a.c.	70/81	420/490	340/480	IP55	CE; cURus; cCSAus;



### T series roof exhaust unit without fan

- Metal structure
- Plate thickness: any
- IP23 protection degree
- Standard color RAL 7035 and RAL 7032

Model	Approvals
T19UK	CE;



### T series roof exhaust unit

- Metal structure
- Plate thickness: any
- IP23 protection degree
- Standard color RAL 7035 and RAL 7032
- Frequency: 50/60 Hz

Model	Rated Voltage	Rated power	Max air flow	Static Pressure	Approvals
	V	W	m³/h	Pa	
T19R115B	115 V a.c.	58/71	550/590	370/510	CE;
T19R230B	230 V a.c.	62/78	550/590	370/510	CE;
T19U115B	115 V a.c.	58/71	550/590	370/510	CE;
T19U230B	230 V a.c.	62/78	550/590	370/510	CE;
T22R115B	115 V a.c.	130/170	800/850	520/650	CE;
T22R230B	230 V a.c.	125/161	800/850	520/650	CE;
T22U115B	115 V a.c.	130/170	800/850	520/650	CE;
T22U230B	230 V a.c.	125/161	800/850	520/650	CE;



### Orienable fan

- Prevents hot spots inside the cabinet
- Vertical/horizontal adjustable positioning
- Quick electrical connection with screwless terminal
- Metal protection guards on both sides
- Frequency: 50/60 Hz

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Working Temp. Range	Approvals
	mm	V	W	m³/h	Pa	°C	
OF-A12B23SWBAQ130	119x119x38	230 V a.c.	21/21	163/182	60/62	-10 ÷ +70	CE;



### Accessories - Adaptors

- Allow fan filter installation in a semi built-in position in the electric cabinet, reducing the internal dimensions
- Available for FF, FPF and GF series in 150x150mm, 204x204mm and 325x325mm sizes
- Standard color RAL 7035 and RAL 7032

Model	Description
FPFA12-7032G	FF12, FPF12, GF12
FPFA12-7035G	FF12, FPF12, GF12
FPFA12-9005G	FF12, FPF12, GF12
FPFA15-7032G	FF15, FPF15, GF15
FPFA15-7035G	FF15, FPF15, GF15
FPFA20-7011G	FF20, FPF20, GF20
FPFA20-7032G	FF20, FPF20, GF20
FPFA20-7035G	FF20, FPF20, GF20



### Accessories - Stainless steel cover

- Particularly suitable for outdoors applications or in the food&beverage industry (water protection)
- Available for FF, FPF and GF series in all sizes
- AISI 304 stainless steel cover of 1mm thickness
- Cover with bayonet joint system
- IP56 protection degree in combination with an IP54 filter

Model	Description
SSC-08	FF08, FPF08
SSC-12	FF12, FPF12, GF12
SSC-13	FF13, FPF13
SSC-15	FF15, FPF15, GF15
SSC-20	FF20, FPF20, GF20



### Accessories - Document holder

- Holds documents in A4 format
- Fixing through a pre-arranged double side adhesive tape
- Standard color RAL 7035

Model
TPD-A4



### Accessories - Filter media

- Filter media can be cleaned, up to 10 times, by careful washing, blowing dry and lightly beating
- Available for FF, FPF and GF series in all sizes
- G4 not available for FF08 and FPF08 models
- 6 pcs. per kit

Model	Description	Filtration Class
M08FPFK	FF08, FPF08	G3
M12FPF5K	FF12, FPF12	G4
M12FPFK	FF12, FPF12	G3
M12GFK	GF12	G3
M13FPF5K	FF13, FPF13	G4
M13FPFK	FF13, FPF13	G3
M15FPF5K	FF15, FPF15	G4
M15FPFK	FF15, FPF15	G3
M15GFK	GF15	G3
M20FPF5K	FF20, FPF20	G4
M20FPFK	FF20, FPF20	G3
M20GFK	GF20	G3



### Accessories - Pressure compensation device

- Avoids the pressure compensation for temperature fluctuations across the seal. Air pressure changes are compensated and the ingress of dirt and water is prevented
- Easy installation to any cabinet, even retrospectively
- Standard color RAL 7035
- IP55 protection degree

Model
CP-U55-00



### AC axial frame fans - Costech

- AC shaded pole or capacitor fans
- Wire (W) or terminal (T) connection
- Motor protection: impedance or thermal
- Support system: ball or sleeve bearing
- Frameless versions (A12W and A12Z models)
- Frequency: 50/60 Hz

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m <sup>3</sup> /h	Pa	dB(A)		
A06G12HWBF00	60x60x30	115 V a.c.	5.0/4.0	14/17	18/27	27.0/28.0	Ball	CE; cURus;
A06G23HWBF00	60x60x30	230 V a.c.	5.0/4.0	14/17	17/27	27.0/28.0	Ball	CE; cURus;
A08A12HWBF00	80x80x25	115 V a.c.	14/11	36/41	40/55	32.0/35.0	Ball	CE; cURus;
A08A12HWSF00	80x80x25	115 V a.c.	14/11	36/41	40/55	32.0/35.0	Sleeve	CE; cURus;
A08A23HWBF00	80x80x25	230 V a.c.	16/14	32/39	35/55	32.0/35.0	Ball	CE; UR;
A08A23HWSF00	80x80x25	230 V a.c.	16/14	32/39	35/55	32.0/35.0	Sleeve	CE; UR;
A08B12HWBF00	80x80x38	115 V a.c.	12/9	41/51	40/55	32.0/36.0	Ball	CE; cURus;
A08B12HWSF00	80x80x38	115 V a.c.	14/12	41/51	40/55	32.0/36.0	Sleeve	CE; cURus;
A08B12LWBF00	80x80x38	115 V a.c.	12/9.0	33/42	25/40	28.0/32.0	Ball	CE; cURus;
A08B12LWSF00	80x80x38	115 V a.c.	12/9.0	33/42	25/40	28.0/32.0	Sleeve	CE; cURus;
A08B23HWBF00	80x80x38	230 V a.c.	14/12	41/51	40/55	32.0/36.0	Ball	CE; UR;
A08B23HWSF00	80x80x38	230 V a.c.	14/12	41/51	40/55	32.0/36.0	Sleeve	CE; UR;
A08B23LWBF00	80x80x38	230 V a.c.	14/12	33/42	25/40	28.0/32.0	Ball	CE; UR;
A08B23LWSF00	80x80x38	230 V a.c.	14/12	33/42	25/40	28.0/32.0	Sleeve	CE; UR;
A09A12HTBF00	92x92x25	115 V a.c.	14/11	56/68	37/54	32.0/36.0	Ball	CE; cURus;
A09A12HTSF00	92x92x25	115 V a.c.	14/11	56/68	37/54	32.0/36.0	Sleeve	CE; cURus;
A09A23HTBF00	92x92x25	230 V a.c.	16/14	56/68	37/54	32.0/36.0	Ball	CE; UR;
A09A23HTSF00	92x92x25	230 V a.c.	16/14	56/68	37/54	32.0/36.0	Sleeve	CE; UR;
A09A23LTBF00	92x92x25	230 V a.c.	16/14	39/53	17/32	28.0/32.0	Ball	CE;
A09A23LTSF00	92x92x25	230 V a.c.	16/14	39/53	17/32	28.0/32.0	Sleeve	CE; cURus;
A09A23MTBF00	92x92x25	230 V a.c.	16/14	51/63	30/45	28.0/32.0	Ball	CE; UR;
A09A23MTSF00	92x92x25	230 V a.c.	16/14	51/63	30/45	28.0/32.0	Sleeve	CE; UR;
A12W12HWBW00	113x113x38	115 V a.c.	20/18	150/167	66/81	43.0/48.0	Ball	CE; cURus;
A12W23HWBW00	113x113x38	230 V a.c.	20/19	148/182	65/80	46.0/49.0	Ball	CE; cURus;
A12W23SWBW00	113x113x38	230 V a.c.	22/21	165/182	62/95	48.0/50.0	Ball	CE;
A12Z12HWBW00	113x113x38	115 V a.c.	19/18	150/167	66/81	43.0/48.0	Ball	CE;
A12Z12HWSW00	113x113x38	115 V a.c.	19/18	150/167	66/81	43.0/48.0	Sleeve	CE;
A12Z23HWBW00	113x113x38	230 V a.c.	18/18	148/182	65/80	46.0/49.0	Ball	CE;
A12Z23HWSW00	113x113x38	230 V a.c.	18/18	148/182	65/80	46.0/49.0	Sleeve	CE;
A12A12HTBF00	120x120x25	115 V a.c.	14/11	99/117	42/40	38.0/42.0	Ball	CE; cURus;
A12A12HTSF00	120x120x25	115 V a.c.	14/11	99/117	42/40	38.0/42.0	Sleeve	CE; cURus;
A12A12MTBF00	120x120x25	115 V a.c.	14/11	87/105	27/32	33.0/35.0	Ball	CE; cURus;
A12A12MTSF00	120x120x25	115 V a.c.	14/11	87/105	27/32	33.0/35.0	Sleeve	CE; cURus;
A12A23HTBF00	120x120x25	230 V a.c.	16/14	109/127	52/52	38.0/42.0	Ball	CE; UR;
A12A23HTSF00	120x120x25	230 V a.c.	16/14	109/127	52/52	38.0/42.0	Sleeve	CE; UR;
A12A23MTBF00	120x120x25	230 V a.c.	16/14	87/102	27/32	34.0/36.0	Ball	CE; UR;
A12A23MTSF00	120x120x25	230 V a.c.	16/14	87/102	27/32	34.0/36.0	Sleeve	CE; UR;
A12B05HTBW00	120x120x38	24 V a.c.	14/14	129/142	55/40	45.0/48.0	Ball	CE;
A12B05HTSW00	120x120x38	24 V a.c.	13.2/13.2	147/142	55/50	46.0/45.0	Sleeve	CE;
A12B12HTBW00	120x120x38	115 V a.c.	20/18	148/182	65/80	46.0/49.0	Ball	CE; cURus; VDE;
A12B12HTSW00	120x120x38	115 V a.c.	20/18	138/178	55/75	44.0/48.0	Sleeve	CE; cURus; VDE;



Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
A12B12HNBW00	120x120x38	115 V a.c.	20/18	136/168	57/80	46.0/49.0	Ball	CE; cURus; VDE;
A12B12LTBW00	120x120x38	115 V a.c.	11/11	133/122	35/32	42.0/40.0	Ball	CE; cURus; VDE;
A12B12LTSW00	120x120x38	115 V a.c.	11/11	115/104	35/20	41.0/37.0	Sleeve	CE; cURus; VDE;
A12B12MTBW00	120x120x38	115 V a.c.	16/15	136/143	52/62	44.0/46.0	Ball	CE; cURus; VDE;
A12B12MTSW00	120x120x38	115 V a.c.	16/15	129/141	50/52	44.0/46.0	Sleeve	CE; cURus; VDE;
A12B12STBW00	120x120x38	115 V a.c.	22/20	165/182	75/95	48.0/50.0	Ball	CE; cURus; VDE;
A12B12STSW00	120x120x38	115 V a.c.	22/23.8	165/182	62/95	47.0/50.0	Sleeve	CE; cURus; VDE;
A12B23ETSW00	120x120x38	230 V a.c.	6.5/6.0	83/82	16/16	29.0/28.0	Sleeve	CE;
A12B23HTBW00	120x120x38	230 V a.c.	20/19	139/182	60/80	46.0/49.0	Ball	CE; cURus; VDE;
A12B23HTSW00	120x120x38	230 V a.c.	20/19	138/178	55/75	44.0/48.0	Sleeve	CE; cURus; VDE;
A12B23HNBW00	120x120x38	230 V a.c.	20/19	148/182	65/80	46.0/49.0	Ball	CE; cURus; VDE;
A12B23HNSW00	120x120x38	230 V a.c.	20/19	148/182	65/80	46.0/49.0	Sleeve	CE; cURus; VDE;
A12B23LTBW00	120x120x38	230 V a.c.	11/10	114/102	27/22	44.0/42.0	Ball	CE; cURus; VDE;
A12B23LTSW00	120x120x38	230 V a.c.	11/10	115/104	35/20	41.0/37.0	Sleeve	CE; cURus; VDE;
A12B23LNBW00	120x120x38	230 V a.c.	11/10	114/102	27/22	43.0/42.0	Ball	CE; cURus; VDE;
A12B23LNSW00	120x120x38	230 V a.c.	11/10	116/104	36/20	41.0/38.0	Sleeve	CE; cURus; VDE;
A12B23MTBW00	120x120x38	230 V a.c.	16/15	133/143	47/57	43.0/45.0	Ball	CE; cURus; VDE;
A12B23MTSW00	120x120x38	230 V a.c.	16/15	129/141	50/52	44.0/46.0	Sleeve	CE; cURus; VDE;
A12B23MNBW00	120x120x38	230 V a.c.	16/15	133/143	35/52	43.0/45.0	Ball	CE; cURus; VDE;
A12B23NSTW00	120x120x38	230 V a.c.	22/21	143/199	62/97	47.0/50.0	Ball	CE; cURus; VDE;
A12B23STSW00	120x120x38	230 V a.c.	22/21	141/182	62/95	47.0/50.0	Sleeve	CE; cURus; VDE;
A12B23SNBW00	120x120x38	230 V a.c.	22/21	143/199	62/97	48.0/50.0	Ball	CE; cURus; VDE;
A12B23VTBW00	120x120x38	230 V a.c.	10/10	98/105	27/27	37.0/38.0	Ball	CE; VDE;
A12R23HTBW00	120x120x38	230 V a.c.	20/19	150/167	66/81	48.0/54.0	Ball	CE; cURus; VDE;
A12R23HTSW00	120x120x38	230 V a.c.	20/19	150/167	66/81	48.0/54.0	Sleeve	CE; cURus; VDE;
A13B12HTBF00	127x127x38	115 V a.c.	14/12	174/204	72/28	46.0/50.0	Ball	CE; cURus;
A13B23HTBF00	127x127x38	230 V a.c.	17/15	174/204	72/28	46.0/50.0	Ball	CE; cURus;
A17C12HNBWF00	172x150x51	115 V a.c.	32/28	290/331	105/95	50.0/55.0	Ball	CE; cURus;
A17C23HNBWF00	172x150x51	230 V a.c.	35/30	290/331	105/95	50.0/55.0	Ball	CE; cURus;
C17B12HTBF00	172x150x38	115 V a.c.	29/28	300/360	167/187	54.0/58.0	Ball	CE; cURus;
C17B23HTBF00	172x150x38	230 V a.c.	27/26	300/360	167/187	54.0/58.0	Ball	CE; cURus;
C17C12HTBF00	172x150x51	115 V a.c.	31/31	348/384	157/197	53.0/58.0	Ball	CE; cURus;
C17C23HTBF00	172x150x51	230 V a.c.	29/29	348/384	157/197	53.0/58.0	Ball	CE; cURus;
C18C12HTBF00	172x172x51	115 V a.c.	31/31	348/384	157/197	50.0/55.0	Ball	CE; cURus;
C18C23HTBF00	172x172x51	230 V a.c.	29/29	348/384	157/197	50.0/55.0	Ball	CE; cURus;
C22S12HKBD00	218x218x83	115 V a.c.	79/96	855/930	190/201	64.6/67.4	Ball	CE;
C22S12HKBU00	218x218x83	115 V a.c.	68/70	800/895	163/175	64.6/67.4	Ball	CE; cURus;
C22S23HKBD00	218x218x83	230 V a.c.	78/94	855/930	197/211	65.0/68.0	Ball	CE;
C22S23HKBU00	218x218x83	230 V a.c.	70/85	837/937	173/192	65.0/68.0	Ball	CE; cURus;
C22S40HKBD00	218x218x83	400 V 3 ~	174	970	265	61.0	Ball	CE;
C25S12HKBE00	280x280x80	115 V a.c.	107/138	1,680/1,920	299/270	64.6/67.4	Ball	CE;
C25S12HKBE01	280x280x80	115 V a.c.	95/124	1,450/1,680	255/240	67.8/72.0	Ball	CE;
C25S12HKBU00	280x280x80	115 V a.c.	102/145	1,450/1,680	255/240	67.8/72.0	Ball	CE; cURus;
C25S23HKBE00	280x280x80	230 V a.c.	101/127	1,630/1,865	280/280	67.0/70.0	Ball	CE;
C25S23HKBE01	280x280x80	230 V a.c.	104/135	1,660/1,835	250/220	67.8/72.0	Ball	CE;
C25S23HKBU00	280x280x80	230 V a.c.	150/160	1,660/1,835	250/220	67.8/72.0	Ball	CE; cURus;
C25S40HKBE00	280x280x80	400 V 3 ~	86/117	1,540/1,680	280/275	67.0/69.0	Ball	CE;



### AC fan filter kit - Costech

- Fan filter kit composed by a.c. fan, mounting frame, fiberglass net, cover, metal fan guard and hardware
- Shaded pole motor
- Terminal connection
- Impedance protected motor
- Frequency: 50/60 Hz

Model	Max air flow	Static Pressure	Approvals
	m³/h	Pa	
A12B23MTBAQ109	110/115	56/44	CE;



### EC axial frame fans - Costech

- EC green technology for high performances
- Brushless motor
- Wire connection
- Impedance protected motor
- Ball bearing system
- Frequency: 50/60 Hz

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
E08B12HWBL00	80x80x38	115 V a.c.	5.0/5.0	64/68,5	46/53	35.0/37.0	Ball	CE;
E08B23HWBL00	80x80x38	230 V a.c.	5.0/5.0	68/73	53/61	37.0/39.0	Ball	CE;
E12B23HWBL00	120x120x38	230 V a.c.	6.0/6.0	198/206	79/77	45.0/46.8	Ball	CE;
E12B23HWBLF0	120x120x38	230 V a.c.	6/7	190/200	70/75	45.0/46.8	Ball	CE;
E12B23LWBL00	120x120x38	230 V a.c.	2.5/2.5	132/138	32/37	34.0/35.7	Ball	CE;
E12B23MWBL00	120x120x38	230 V a.c.	4.0/4.0	169/176	55/58	40.0/41.8	Ball	CE;



### DC axial frame fans - Costech

- Brushless motor
- Wire connection
- Motor protection: impedance or IC
- Support system: ball, sleeve or hypro bearing
- Alarm or speed sensor output (optionally)

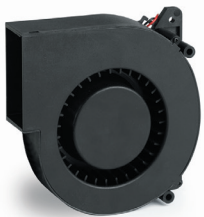
Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D20E01LWBA00	20x20x10	5 V d.c.	4...6	0.40	1.0	12	20.0	Ball	CE;
D20E01MWBA00	20x20x10	5 V d.c.	4...6	0.70	1.4	20	26.0	Ball	CE;
D20E04LWBA00	20x20x10	12 V d.c.	10.8...13.2	0.72	0.85	10	15.0	Ball	CE;
D20E04MWBA00	20x20x10	12 V d.c.	10.8...13.2	0.84	1.0	15	22.0	Ball	CE;
D02E01HWBZ00	25x25x10	5 V d.c.	4.5...5.5	0.70	4.3	50	29.0	Ball	CE; cURus;
D02E01MWBZ00	25x25x10	5 V d.c.	4.5 - 5.5	0.60	3.6	37	23.0	Ball	CE; cURus;
D02E04HWBZ00	25x25x10	12 V d.c.	10.8 - 13.2	1.08	4.3	50	30.5	Ball	CE; cURus;
D02E04MWBZ00	25x25x10	12 V d.c.	10.8 - 13.2	0.96	3.6	37	23.0	Ball	CE; cURus;
D03E01LWBA00	30x30x10	5 V d.c.	4...6	0.60	5.5	30	20.2	Ball	CE;
D03E01MWBA00	30x30x10	5 V d.c.	4...6	0.65	6.4	42	28.0	Ball	CE;
D03E04LWBA00	30x30x10	12 V d.c.	10.8...13.2	0.72	5.1	32	26.0	Ball	CE;
D03E04MWBA00	30x30x10	12 V d.c.	10.8-13.2	1.44	5.6	37	30.0	Ball	CE;
D04D04HWBZ00	40x40x20	12 V d.c.	10.8 - 13.2	1.3	15	70	36.0	Ball	CE; cURus;
D04D04HWSZ00	40x40x20	12 V d.c.	10.8 - 13.2	1.3	14	65	35.0	Sleeve	CE; cURus;
D04D04MWBZ00	40x40x20	12 V d.c.	7...13	0.96	13	60	28.5	Ball	CE; cURus;
D04D04MWSZ00	40x40x20	12 V d.c.	7...13	0.96	13	60	28.5	Sleeve	CE; cURus;
D04D05HWBZ00	40x40x20	24 V d.c.	21.6 - 26.4	2.16	15	70	36.0	Ball	CE; cURus;
D04D05HWHZ00	40x40x20	24 V d.c.	21.6 - 26.4	2.16	14	65	35.0	Hypro	CE; cURus;
D04D05MWBZ00	40x40x20	24 V d.c.	21.6 - 26.4	1.7	13	58	33.0	Ball	CE; cURus;
D04D05MWSZ00	40x40x20	24 V d.c.	21.6 - 26.4	1.7	13	47	32.0	Sleeve	CE; cURus;
D04E01HWBT00	40x40x10	5 V d.c.	4.5...5.5	0.95	11	25	26.0	Ball	CE; cURus;
D04E01HWHT00	40x40x10	5 V d.c.	4.5 - 13.2	0.95	11	25	31.0	Hypro	CE; cURus;
D04E01MWBT00	40x40x10	5 V d.c.	4.5 - 5.5	0.55	8.5	19	22.0	Ball	CE; cURus;
D04E01MWHT00	40x40x10	5 V d.c.	4.5 - 5.5	0.55	8.5	19	22.0	Hypro	CE; cURus;
D04E04HWBT00	40x40x10	12 V d.c.	10.8...13.2	1.2	11	25	26.0	Ball	CE; cURus;
D04E04HWHT00	40x40x10	12 V d.c.	10.8 - 13.2	1.2	11	25	26.0	Hypro	CE; cURus;
D04E04MWBT00	40x40x10	12 V d.c.	10.8 - 13.2	0.96	8.5	19	22.0	Ball	CE; cURus;
D04E04MWST00	40x40x10	12 V d.c.	7...13	0.96	8.5	19	22.0	Sleeve	CE; cURus;
D04E05HWBT00	40x40x10	24 V d.c.	21.6...26.4	2.16	11	25	26.0	Ball	CE; cURus;
D04E05HWHT00	40x40x10	24 V d.c.	21.6 - 26.4	2.16	11	25	26.0	Hypro	CE; cURus;
D04E05MWBT00	40x40x10	24 V d.c.	17...27	1.9	8.5	19	22.0	Ball	CE; cURus;
D04E05MWST00	40x40x10	24 V d.c.	17...27	1.9	8.5	19	22.0	Sleeve	CE; cURus;
D04F04HWBA00	40x40x15	12 V d.c.	7...13	1.4	15	61	39.3	Ball	CE; cURus;
D04F04HWSA00	40x40x15	12 V d.c.	7...13	1.4	15	61	39.3	Sleeve	CE; cURus;
D04F04LWBA00	40x40x15	12 V d.c.	7...13	0.96	11	35	27.5	Ball	CE; cURus;
D04F04LWSA00	40x40x15	12 V d.c.	7...13	0.96	11	35	27.5	Sleeve	CE; cURus;
D04F04MWBA00	40x40x15	12 V d.c.	7...13	1.2	13	45	31.8	Ball	CE; cURus;
D04F04MWSA00	40x40x15	12 V d.c.	7...13	1.2	13	45	31.8	Sleeve	CE; cURus;
D45E01HWBA00	45x45x10	5 V d.c.	4...6	0.20	15	25	27.4	Ball	CE;
D45E01HWSA00	45x45x10	5 V d.c.	4...6	0.20	15	25	27.4	Sleeve	CE;
D45E01MWBA00	45x45x10	5 V d.c.	4...6	0.30	12	18	22.0	Ball	CE;

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D45E01MWSA00	45x45x10	5 V d.c.	4...6	0.30	12	18	22.0	Sleeve	CE;
D45E04HWBA00	45x45x10	12 V d.c.	7...13	1.1	15	25	27.4	Ball	CE;
D45E04HWSA00	45x45x10	12 V d.c.	7...13	1.1	15	25	27.4	Sleeve	CE;
D45E04MWBA00	45x45x10	12 V d.c.	7...13	0.84	12	18	22.0	Ball	CE;
D45E04MWSA00	45x45x10	12 V d.c.	7...13	0.84	12	18	22.0	Sleeve	CE;
D50E04LWBA00	50x50x10	12 V d.c.	7...13	1.2	10	10	20.0	Ball	CE;
D50E04LWSA00	50x50x10	12 V d.c.	7...13	1.2	10	10	20.0	Sleeve	CE;
D50E04MWBA00	50x50x10	12 V d.c.	7...13	1.4	15	20	24.0	Ball	CE;
D50E04MWSA00	50x50x10	12 V d.c.	7...13	1.4	15	20	24.0	Sleeve	CE;
D50F04HWBA00	50x50x15	12 V d.c.	10.8 - 13.2	1.7	24	32	30.2	Ball	CE; cURus;
D50F04HWSA00	50x50x15	12 V d.c.	10.8 - 13.2	1.7	24	32	34	Sleeve	CE; cURus;
D50F04LWSA00	50x50x15	12 V d.c.	10.8 - 13.2	0.96	19	17	25	Sleeve	CE; cURus;
D50F04MWSA00	50x50x15	12 V d.c.	10.8 - 13.2	1.2	22	25	30	Sleeve	CE; cURus;
D50F04SWBA00	50x50x15	12 V d.c.	10.8...13.2	2.4	28	45	37.5	Ball	CE; cURus;
D50F04SWSA00	50x50x15	12 V d.c.	9...13	2.4	29	48	33.8	Sleeve	CE; cURus;
D06A04HWBA00	60x60x25	12 V d.c.	10.8...13.2	2.8	42	50	36.8	Ball	CE; cURus;
D06A04HWSA00	60x60x25	12 V d.c.	10.8...13.2	2.8	42	50	35.2	Sleeve	CE; cURus;
D06A04LWBA00	60x60x25	12 V d.c.	10.8 - 13.2	1.20	22	20	18.9	Ball	CE; cURus;
D06A04LWSA00	60x60x25	12 V d.c.	10.8 - 13.2	0.96	22	20	18.1	Sleeve	CE; UR;
D06A04MWBA00	60x60x25	12 V d.c.	10.8 - 13.2	1.56	30	38	28.1	Ball	CE; cURus;
D06A04MWSA00	60x60x25	12 V d.c.	10.8 - 13.2	1.7	31	30	28.6	Sleeve	CE; UR;
D06A04SWBA00	60x60x25	12 V d.c.	10.8 - 13.2	2.16	45	73	38.5	Ball	CE; cURus;
D06A04SWHA00	60x60x25	12 V d.c.	10.8 - 13.2	2.76	40	63	33.1	Hypro	CE; cURus;
D06A05HWBA00	60x60x25	24 V d.c.	21.6 - 26.4	2.88	40	63	33.1	Ball	CE; cURus;
D06A05HWSA00	60x60x25	24 V d.c.	21.6 - 26.4	3.6	42	50	35.2	Sleeve	CE; cURus;
D06A05LWBA00	60x60x25	24 V d.c.	21.6 - 26.4	1.9	22	16	18.1	Ball	CE; UR;
D06A05LWHA00	60x60x25	24 V d.c.	21.6 - 26.4	1.44	22	20	18.9	Hypro	CE; cURus;
D06A05MWBA00	60x60x25	24 V d.c.	21.6 - 26.4	2.16	30	38	28.1	Ball	CE; cURus;
D06A05MWSA00	60x60x25	24 V d.c.	21.6 - 26.4	1.92	31	30	28.6	Sleeve	CE; UR;
D06A05SWBA00	60x60x25	24 V d.c.	21.6 - 26.4	3.12	44	70	37.1	Ball	CE; cURus;
D06A05SWSA00	60x60x25	24 V d.c.	21.6 - 26.4	3.8	47	60	37.6	Sleeve	CE; cURus;
D06D04HWBA00	60x60x20	12 V d.c.	7...13	1.9	28	34	31.0	Ball	CE;
D06D04HWSA00	60x60x20	12 V d.c.	7...13	1.9	28	34	31.0	Sleeve	CE;
D06D04LWBA00	60x60x20	12 V d.c.	7...13	0.96	21	21	23.5	Ball	CE; UR;
D06D04LWSA00	60x60x20	12 V d.c.	7...13	0.96	21	21	23.5	Sleeve	CE;
D06D04MWBA00	60x60x20	12 V d.c.	7...13	1.6	23	25	26.4	Ball	CE;
D06D04MWSA00	60x60x20	12 V d.c.	7...13	1.6	23	25	26.4	Sleeve	CE;
D06D05LWBA00	60x60x20	24 V d.c.	17...27	1.7	21	21	23.5	Ball	CE;
D06D05LWSA00	60x60x20	24 V d.c.	17...27	1.7	21	21	23.5	Sleeve	CE;
D06D05MWBA00	60x60x20	24 V d.c.	17...27	1.9	23	25	26.4	Ball	CE;
D06D05MWSA00	60x60x20	24 V d.c.	17...27	1.9	23	25	26.4	Sleeve	CE;
D06E01HWST00	60x60x10	5 V d.c.	4...6	0.75	24	27	33.1	Sleeve	CE;
D06E01MWBT00	60x60x10	5 V d.c.	4...6	0.75	20	20	28.7	Ball	CE;
D06E01MWST00	60x60x10	5 V d.c.	4...6	0.75	20	20	28.7	Sleeve	CE;
D06E04HWST00	60x60x10	12 V d.c.	7...13	1.8	24	27	33.1	Sleeve	CE;
D06E04MWST00	60x60x10	12 V d.c.	7...13	1.6	20	20	28.7	Sleeve	CE;
D06F01HWHA00	60x60x15	5 V d.c.	4.5 - 5.5	1.85	26	38	35.2	Hypro	CE; cURus;
D06F01MWBA00	60x60x15	5 V d.c.	4.5 - 5.5	1.25	24	29	28.8	Ball	CE; cURus;
D06F01MWSA00	60x60x15	5 V d.c.	4.5 - 5.5	1.25	24	29	28.8	Sleeve	CE; cURus;
D06F04HWSA00	60x60x15	12 V d.c.	10.8 - 13.2	1.56	26	38	35.2	Sleeve	CE; cURus;

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D06F04MWBA00	60x60x15	12 V d.c.	10.8 - 13.2	1.32	24	29	28.8	Ball	CE; cURus;
D06F04MWWHA00	60x60x15	12 V d.c.	10.8 - 13.2	1.32	24	29	28.8	Hypro	CE; cURus;
D06F05HWBA00	60x60x15	24 V d.c.	21.6 - 26.4	2.16	26	38	35.2	Ball	CE;
D06F05HWWHA00	60x60x15	24 V d.c.	21.6-26.4	2.64	31	48	35.5	Hypro	CE;
D06F05MWBA00	60x60x15	24 V d.c.	21.6 - 26.4	1.68	24	29	28.8	Ball	CE;
D06F05MWWHA00	60x60x15	24 V d.c.	21.6 - 26.4	1.92	28	40	31.7	Hypro	CE;
D07A04HWWHA00	70x70x25	12 V d.c.	10.8 - 13.2	2.28	54	52	39.0	Hypro	CE;
D07A04MWBA00	70x70x25	12 V d.c.	7...13	1.9	55	44	32.0	Ball	CE;
D07A04MWSA00	70x70x25	12 V d.c.	7...13	1.9	55	44	32.0	Sleeve	CE;
D07A05HWBA00	70x70x25	24 V d.c.	17...27	3.1	61	55	35.5	Ball	CE;
D07A05HWSA00	70x70x25	24 V d.c.	17...27	3.1	61	55	35.5	Sleeve	CE;
D07A05MWBA00	70x70x25	24 V d.c.	17...27	2.6	55	44	32.0	Ball	CE;
D07A05MWSA00	70x70x25	24 V d.c.	17...27	2.6	55	44	32.0	Sleeve	CE;
D08A04HWBA00	80x80x25	12 V d.c.	7...13	1.9	68	38	33.4	Ball	CE; cURus;
D08A04HWSA00	80x80x25	12 V d.c.	10.8 - 13.2	3.0	68	38	33.4	Sleeve	CE; cURus;
D08A04LWBA00	80x80x25	12 V d.c.	7...13	0.72	47	20	21.6	Ball	CE; UR;
D08A04LWSA00	80x80x25	12 V d.c.	7...13	0.72	47	20	21.6	Sleeve	CE; UR;
D08A04MWBA00	80x80x25	12 V d.c.	7...13	1.1	57	29	28.3	Ball	CE; UR;
D08A04MWSA00	80x80x25	12 V d.c.	7...13	1.1	57	29	28.3	Sleeve	CE; cURus;
D08A04SWBA00	80x80x25	12 V d.c.	10.8 - 13.2	5.4	89	66	40.8	Ball	CE; cURus;
D08A04SWSA00	80x80x25	12 V d.c.	10.8 - 13.2	5.4	89	66	40.8	Sleeve	CE; cURus;
D08A05HWBA00	80x80x25	24 V d.c.	21.6 - 26.4	3.84	68	38	33.4	Ball	CE; UR;
D08A05HWSA00	80x80x25	24 V d.c.	21.6 - 26.4	3.84	68	38	33.4	Sleeve	CE; UR;
D08A05LWBA00	80x80x25	24 V d.c.	21.6...26.4	2.2	43	17	22.7	Ball	CE; cURus;
D08A05LWSA00	80x80x25	24 V d.c.	21.6...26.4	2.2	43	17	22.7	Sleeve	CE; UR;
D08A05MWBA00	80x80x25	24 V d.c.	21.6 ~ 26.4	2.4	55	25	29.4	Ball	CE; cURus;
D08A05MWSA00	80x80x25	24 V d.c.	24.6 - 26.4	2.4	53	23	28.6	Sleeve	CE; cURus;
D08A05SWBA00	80x80x25	24 V d.c.	21.6...26.4	6.2	89	66	40.8	Ball	CE; cURus;
D08A05SWSA00	80x80x25	24 V d.c.	21.6...26.4	6.2	89	66	40.8	Sleeve	CE; cURus;
D08A07HWBA00	80x80x25	48 V d.c.	43.2 - 52.8	5.28	68	38	33.4	Ball	CE; cURus;
D08D04HWBA00	80x80x20	12 V d.c.	10.8 - 13.2	2.9	49	37	34.9	Ball	CE; UR;
D08D04HWSA00	80x80x20	12 V d.c.	10.8 - 13.2	2.9	49	37	34.0	Sleeve	CE; UR;
D08D04MWBA00	80x80x20	12 V d.c.	7...13	1.9	40	24	27.0	Ball	CE; cURus;
D08D04MWSA00	80x80x20	12 V d.c.	7...13	1.9	40	24	27.0	Sleeve	CE; cURus;
D08D05HWBA00	80x80x20	24 V d.c.	21.6...26.4	3.6	49	37	32.4	Ball	CE; UR;
D08D05HWSA00	80x80x20	24 V d.c.	21.6 - 26.4	3.6	47	39	34.0	Sleeve	CE; UR;
D08D05MWBA00	80x80x20	24 V d.c.	17...27	3.1	40	24	27.0	Ball	CE; cURus;
D08D05MWSA00	80x80x20	24 V d.c.	17...27	3.1	40	24	27.0	Sleeve	CE; cURus;
D08F01HWSA00	80x80x15	5 V d.c.	4...6	0.44	51	32	31.4	Sleeve	CE; UR;
D08F01MWBA00	80x80x15	5 V d.c.	4...6	1.2	38	21	26.0	Ball	CE; UR;
D08F01MWSA00	80x80x15	5 V d.c.	4...6	1.2	38	21	26.0	Sleeve	CE; UR;
D08F04HWBA00	80x80x15	12 V d.c.	7...13	2.3	51	32	31.4	Ball	CE; UR;
D08F04HWSA00	80x80x15	12 V d.c.	10.8 - 13.2	2.28	50	30	34.4	Sleeve	CE; cURus;
D08F04MWBA00	80x80x15	12 V d.c.	10.8...13.2	1.8	38	21	26.0	Ball	CE; UR;
D08F04MWSA00	80x80x15	12 V d.c.	10.8 - 13.2	1.8	37	19	24.9	Sleeve	CE; UR;
D08F05HWSA00	80x80x15	24 V d.c.	17...27	3.1	51	32	31.4	Sleeve	CE; UR;
D08F05MWBA00	80x80x15	24 V d.c.	17...27	2.4	38	21	26.0	Ball	CE; UR;
D08F05MWSA00	80x80x15	24 V d.c.	17...27	2.4	38	21	26.0	Sleeve	CE; UR;
D09A04EWBZ00	92x92x25	12 V d.c.	10.8 - 13.2	1.08	51	8	19.1	Ball	CE; cURus;
D09A04HWBZ00	92x92x25	12 V d.c.	10.8 - 13.2	3.0	95	36	37.5	Ball	CE; cURus;

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D09A04HWSZ00	92x92x25	12 V d.c.	10.8-13.2	3.0	87	34	35.4	Sleeve	CE; cURus;
D09A04LWBZ00	92x92x25	12 V d.c.	10.8-13.2	1.56	69	20	29.2	Ball	CE; cURus;
D09A04LWSZ00	92x92x25	12 V d.c.	10.8-13.2	1.56	62	17	25.9	Sleeve	CE; cURus;
D09A04MWBZ00	92x92x25	12 V d.c.	7...13	2.0	76	25	31.2	Ball	CE; cURus;
D09A04MWSZ00	92x92x25	12 V d.c.	7...13	2.0	76	25	31.2	Sleeve	CE; cURus;
D09A04SWBZ00	92x92x25	12 V d.c.	7...13	4.7	105	47	39.4	Ball	CE; cURus;
D09A04SWSZ00	92x92x25	12 V d.c.	10.8...13.2	4.7	105	47	42.2	Sleeve	CE; cURus;
D09A05HWBZ00	92x92x25	24 V d.c.	21.6...26.4	3.6	95	36	37.5	Ball	CE; cURus;
D09A05HWSZ00	92x92x25	24 V d.c.	21.6 - 26.4	3.6	87	34	35.4	Sleeve	CE; cURus;
D09A05LWBZ00	92x92x25	24 V d.c.	17...27	1.9	66	18	28.7	Ball	CE; cURus;
D09A05LWSZ00	92x92x25	24 V d.c.	17...27	1.9	66	18	28.7	Sleeve	CE; cURus;
D09A05MWBZ00	92x92x25	24 V d.c.	17...27	2.9	76	25	31.2	Ball	CE; cURus;
D09A05MWSZ00	92x92x25	24 V d.c.	17...27	2.9	76	25	31.2	Sleeve	CE; cURus;
D09A05SWBZ00	92x92x25	24 V d.c.	21.6...26.4	5.0	105	47	42.2	Ball	CE; cURus;
D09A05SWSZ00	92x92x25	24 V d.c.	21.6 - 26.4	5.0	105	47	42.2	Sleeve	CE; cURus;
D09B05HWBZ00	92x92x38	24 V d.c.	21.6...26.4	13.2	185	125	52.5	Ball	CE;
D09D04HWSA00	92x92x20	12 V d.c.	7...13	3.0	56	26	32.8	Sleeve	CE;
D09D04MWBZ00	92x92x20	12 V d.c.	7...13	1.9	49	21	28.9	Ball	CE;
D09D04MWSA00	92x92x20	12 V d.c.	7...13	1.9	49	21	28.9	Sleeve	CE;
D09D05HWSA00	92x92x20	24 V d.c.	17...27	3.4	56	26	32.8	Sleeve	CE;
D09D05MWBZ00	92x92x20	24 V d.c.	17...27	2.4	49	21	28.9	Ball	CE;
D09D05MWSA00	92x92x20	24 V d.c.	17...27	2.4	49	21	28.9	Sleeve	CE;
D12A04HWSZ00	120x120x25	12 V d.c.	10.8 - 13.2	5.28	149	33	39.1	Sleeve	CE; cURus;
D12A04LWBZ00	120x120x25	12 V d.c.	7...13	2.88	122	23	34.4	Ball	CE; cURus;
D12A04LWSZ00	120x120x25	12 V d.c.	10.8 - 13.2	2.88	122	23	34.4	Sleeve	CE; UR;
D12A04MWBZ00	120x120x25	12 V d.c.	10.8 - 13.2	3.96	138	28	38.0	Ball	CE; cURus;
D12A04MWSZ00	120x120x25	12 V d.c.	10.8 - 13.2	4.08	138	28	38.0	Sleeve	CE; cURus;
D12A04SWBZ00	120x120x25	12 V d.c.	10.8 - 13.2	6.0	168	43	43.3	Ball	CE; cURus;
D12A04SWSZ00	120x120x25	12 V d.c.	10.8-13.2	6.0	168	43	43.3	Sleeve	CE; cURus;
D12A05HWBZ00	120x120x25	24 V d.c.	21.6 - 24.6	4.56	134	35	39.3	Ball	CE; cURus;
D12A05HWSZ00	120x120x25	24 V d.c.	21.6-26.4	5.76	149	33	39.1	Sleeve	CE; cURus;
D12A05LWBZ00	120x120x25	24 V d.c.	21.6-26.4	3.36	122	23	34.4	Ball	CE; cURus;
D12A05LWSZ00	120x120x25	24 V d.c.	17...27	3.4	122	23	34.4	Sleeve	CE; cURus;
D12A05MWBZ00	120x120x25	24 V d.c.	21.6-26.4	4.08	138	28	38.0	Ball	CE; cURus;
D12A05MWSZ00	120x120x25	24 V d.c.	21.6-26.4	4.8	138	28	38.0	Sleeve	CE; cURus;
D12A05SWBZ00	120x120x25	24 V d.c.	21.6-26.4	6.0	168	43	43.3	Ball	CE; cURus;
D12A05SWSZ00	120x120x25	24 V d.c.	21.6-26.4	6.0	168	43	43.3	Sleeve	CE; cURus;
D12A07HWBZ00	120x120x25	48 V d.c.	43.2-52.8	5.76	149	33	39.1	Ball	CE;
D12B04HWBZ00	120x120x38	12 V d.c.	10.8 - 13.2	6.0	179	66	46.7	Ball	CE; UR;
D12B04HWSZ00	120x120x38	12 V d.c.	10.8...13.2	6.0	179	66	46.7	Sleeve	CE; UR;
D12B04LWBZ00	120x120x38	12 V d.c.	10.8...13.2	2.9	122	32	36.2	Ball	CE; UR;
D12B04LWSZ00	120x120x38	12 V d.c.	10.8 - 13.2	2.9	122	32	36.2	Sleeve	CE; UR;
D12B04MWSZ00	120x120x38	12 V d.c.	7...13	4.2	160	56	41.0	Sleeve	CE; UR;
D12B04SWBZ00	120x120x38	12 V d.c.	7...13	8.4	204	80	48.0	Ball	CE; UR;
D12B04SWSZ00	120x120x38	12 V d.c.	7...13	8.4	204	80	48.0	Sleeve	CE; UR;
D12B05HWBA91	120x120x38	24 V d.c.	21.6...26.4	23.5	340	155	61.0	Ball	CE; cURus; TUV;
D12B05HWBZ00	120x120x38	24 V d.c.	21.6 - 26.4	7.68	179	66	46.7	Ball	CE; cURus;
D12B05HWSZ00	120x120x38	24 V d.c.	21.6 - 26.4	7.68	179	66	46.7	Sleeve	CE; cURus;
D12B05LWBZ00	120x120x38	24 V d.c.	17...27	3.4	123	22	32.9	Ball	CE; cURus;

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D12B05LWSZ00	120x120x38	24 V d.c.	17...27	3.4	123	22	32.9	Sleeve	CE; cURus;
D12B05MWBZ00	120x120x38	24 V d.c.	17...27	5.5	160	56	41.0	Ball	CE; cURus;
D12B05MWSZ00	120x120x38	24 V d.c.	17...27	5.5	160	56	41.0	Sleeve	CE; cURus;
D12B05SWBZ00	120x120x38	24 V d.c.	21.6...26.4	9.6	204	83	48.0	Ball	CE; cURus;
D12B05SWSZ00	120x120x38	24 V d.c.	21.6 - 26.4	9.6	204	83	48.0	Sleeve	CE; cURus;
D12B05VWBA91	120x120x38	24 V d.c.	21.6...26.4	7.2	220	74	48.5	Ball	CE; cURus;
D12B07HWBZ00	120x120x38	48 V d.c.	43.02 - 52.8	9.6	179	66	46.7	Ball	CE; cURus;
D12B07HWSZ00	120x120x38	48 V d.c.	43.2...52.8	9.6	179	66	46.7	Sleeve	CE; UR;
D12B07LWBZ00	120x120x38	48 V d.c.	35...53	4.8	123	22	32.9	Ball	CE; UR;
D12B07LWSZ00	120x120x38	48 V d.c.	35...53	4.8	123	22	32.9	Sleeve	CE; UR;
D12B07MWBZ00	120x120x38	48 V d.c.	43.2...52.8	6.7	164	57	45.0	Ball	CE; UR;
D12B07MWSZ00	120x120x38	48 V d.c.	43.2 - 52.8	6.7	164	57	45.0	Sleeve	CE; UR;
D12G05HWBA00	120x120x32	24 V d.c.	21.6 - 26.4	6.0	190	60	43.3	Ball	CE;
D17C05HWBA00	172x150x51	24 V d.c.	12 - 26	24	450	187	58.8	Ball	CE; cURus;
D17C07HWBA00	172x150x51	48 V d.c.	33...72	24	450	190	58.8	Ball	CE; cURus;
D22S07HKBD00	218x218x83	48 V d.c.	36...60	60	1,030	210	67.0	Ball	CE;



DC blowers - Costech

- Brushless motor
- Wire connection
- IC protected motor
- Support system: ball and sleeve bearing

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
DC6G04HWBA00	75x75x30	12 V d.c.	10.8 - 13.2	3.12	18	97	36.9	Ball	CE;
DC6G04HWSA00	75x75x30	12 V d.c.	7...13	3.6	18	89	38.5	Sleeve	CE;
DC6G04MWBA00	75x75x30	12 V d.c.	10.8 - 13.2	1.8	15	50	27.7	Ball	CE;
DC1G05MWBA01	120x120x31	24 V d.c.	21.6...26.4	9.4	48	220	49.0	Ball	CE; cURus;
DC6G05MWBA00	75x75x30	24 V d.c.	21.6 - 26.4	2.88	18	97	36.9	Ball	CE;
DC6G05MWSA00	75x75x30	24 V d.c.	17...27	3.4	13	58	34.9	Sleeve	CE;



IP55 AC fans - Costech

- Water jet resistant and dustproof
- Shaded pole motor
- Wire (W) or terminal (T) connection
- Motor protection: impedance or thermal
- Ball bearing system
- Frequency: 50/60 Hz

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
A06G23HWBFF0	60x60x30	230 V a.c.	5.0/4.0	14/17	17/27	27.0/28.0	Ball	CE;
A08B12HWBFF0	80x80x38	115 V a.c.	14/12	41/51	40/55	32.0/36.0	Ball	CE;
A08B23HWBFF0	80x80x38	230 V a.c.	14/12	41/51	40/55	32.0/36.0	Ball	CE;

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
A09A23HTBFF0	92x92x25	230 V a.c.	16/14	56/68	45/65	32.0/36.0	Ball	CE;
A09A23HWBFF0	92x92x25	230 V a.c.	16/14	56/68	45/65	32.0/36.0	Ball	CE;
A12B12ETBKF0	120x120x38	115 V a.c.	6.0/5.5	78/84	15/15	27.0/28.0	Ball	CE;
A12B12LTBKF0	120x120x38	115 V a.c.	7.0/7.0	120/114	35/22	32.0/30.0	Ball	CE;
A12B23ETBKF0	120x120x38	230 V a.c.	6.5/6.0	78/84	15/15	27.0/28.0	Ball	CE;
A12B23HTBKF0	120x120x38	230 V a.c.	15/14	162/192	74/88	37.0/41.0	Ball	CE;
A12B23HWBWF0	120x120x38	230 V a.c.	20/19	148/182	65/80	46.0/49.0	Ball	CE;
A12B23LTBKF0	120x120x38	230 V a.c.	7.5/7.5	120/114	35/22	32.0/30.0	Ball	CE;
A12B23LWBWF0	120x120x38	230 V a.c.	11/10	114/102	27/22	43.0/42.0	Ball	CE;
A12W23HWBWF0	113x113x38	230 V a.c.	20/19	150/180	66/80	46.0/49.0	Ball	CE;
A12W23SWBWF0	113x113x38	230 V a.c.	22/21	165/182	62/95	48.0/50.0	Ball	CE;
A12Z23HWBWF0	113x113x38	230 V a.c.	18/18	148/182	66/81	46.0/49.0	Ball	CE;
A17M12SWBMF0	172x150x55	115 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE;
A17M23SWBMF0	172x150x55	230 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE;



### IP55 DC fans - Costech

- Water jet resistant and dustproof
- Brushless motor
- Wire connection
- Motor protection: impedance or IC
- Ball bearing system

Model	Dimensions	Rated Voltage	Voltage Range	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	V	W	m³/h	Pa	dB(A)		
D04D05HWBZF0	40x40x20	24 V d.c.	21.6 - 26.4	2.16	15	70	36.0	Ball	CE; cURus;
D04E05MWBTF0	40x40x10	24 V d.c.	21.6 - 26.4	1.9	8.5	19	22.0	Ball	CE;
D06A04LWBAF0	60x60x25	12 V d.c.	10.8...13.2	0.96	24	17	18.1	Ball	CE;
D06A05HWBAF0	60x60x25	24 V d.c.	17...27	3.6	41	44	35.2	Ball	CE;
D06A05SWBAF0	60x60x25	24 V d.c.	17...27	3.8	46	60	37.9	Ball	CE;
D07A04HWBAF0	70x70x25	12 V d.c.	7...13	2.3	61	55	35.5	Ball	CE;
D08A04HWBAF0	80x80x25	12 V d.c.	10.8 - 13.2	3.0	68	38	33.4	Ball	CE; cURus;
D08A04LWBAF0	80x80x25	12 V d.c.	10.8 - 13.2	1.44	45	19	21.6	Ball	CE; cURus;
D08A05HWBAF0	80x80x25	24 V d.c.	21.6 - 26.4	3.84	75	44	35.4	Ball	CE; cURus;
D08A05MWBFAF0	80x80x25	24 V d.c.	21.6 - 26.4	2.64	57	29	28.3	Ball	CE; cURus;
D08A05SWBAF0	80x80x25	24 V d.c.	21.6 - 26.4	6.24	89	66	40.8	Ball	CE;
D09A05HWBZF0	92x92x25	24 V d.c.	17...27	3.6	95	36	37.5	Ball	CE;
D12A05HWBZF0	120x120x25	24 V d.c.	17...27	4.6	150	34	39.1	Ball	CE;
D12A07HWBZF0	120x120x25	48 V d.c.	43...53	5.8	149	33	39.1	Ball	CE;
D12B04HWBAF0	120x120x38	12 V d.c.	10.8...13.2	6.0	179	66	46.7	Ball	CE;
D12B05HWBAF0	120x120x38	24 V d.c.	21.6...26.4	7.7	179	66	46.7	Ball	CE;
D12B07HWBAF0	120x120x38	48 V d.c.	43.2...52.8	9.6	179	66	46.7	Ball	CE;





### High temperature resistant AC fans - Costech

- High temperature resistant up to 90°C
- All metal construction
- Shaded pole motor
- Wire (W) or terminal (T) connection
- Motor protection: impedance or thermal
- Ball bearing system(B)
- Frequency: 50/60 Hz

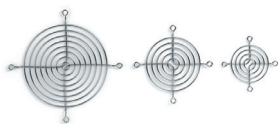
Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
A09B12HWBMT0	92x92x38	115 V a.c.	12/11	75/87	60/75	37.0/42.0	Ball	CE;
A09B23HTBMT0	92x92x38	230 V a.c.	12/11	75/87	59/74	37.0/42.0	Ball	CE;
A12B12HTBMT0	120x120x38	115 V a.c.	17/15	150/175	64/60	42.0/46.0	Ball	CE;
A12B12LTBMT0	120x120x38	115 V a.c.	17/15	110/115	25/22	33.0/35.0	Ball	CE;
A12B23HTBMT0	120x120x38	230 V a.c.	17/15	150/175	64/59	42.0/46.0	Ball	CE; cURus;
A12B23LTBMT0	120x120x38	230 V a.c.	17/15	107/110	25/22	33.0/35.0	Ball	CE; cURus;
A17M12SWBMT0	172x150x55	115 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE; cURus;
A17M23SWBMT0	172x150x55	230 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE; cURus;
A17T12SWBMT0	172x150x55	115 V a.c.	45/45	383/434	123/123	58.0/61.0	Ball	CE; cURus;
A17T23SWBMT0	172x150x55	230 V a.c.	45/45	383/434	123/123	58.0/61.0	Ball	CE; cURus;



### All metal AC fans - Costech

- Metal fan blades for good corrosion resistant
- Shaded pole motor
- Wire (W) or terminal (T) connection
- Motor protection: impedance or thermal
- Ball bearing system
- Frequency: 50/60 Hz

Model	Dimensions	Rated Voltage	Rated power	Max air flow	Static Pressure	Noise	Bearing	Approvals
	mm	V	W	m³/h	Pa	dB(A)		
A09B12HWBM00	92x92x38	115 V a.c.	12/11	75/87	60/75	37.0/42.0	Ball	CE; cURus;
A09B23HWBM00	92x92x38	230 V a.c.	12/11	75/87	60/75	37.0/42.0	Ball	CE; cURus;
A12B12HTBM00	120x120x38	115 V a.c.	15/13	151/175	64/60	42.0/46.0	Ball	CE; cURus;
A12B12LTBM00	120x120x38	115 V a.c.	17/15	107/114	25/22	33.0/35.0	Ball	CE; cURus;
A12B23HTBM00	120x120x38	230 V a.c.	17/15	151/175	65/60	42.0/46.0	Ball	CE; cURus;
A12B23LTBM00	120x120x38	230 V a.c.	17/15	107/114	25/22	33.0/35.0	Ball	CE; cURus;
A17M12SWBM00	172x150x55	115 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE; cURus;
A17M23SWBM00	172x150x55	230 V a.c.	42/42	332/391	137/157	49.0/53.0	Ball	CE; cURus;
A17T12SWBM00	172x150x55	115 V a.c.	45/45	383/434	123/126	58.0/61.0	Ball	CE; cURus;
A17T23SWBM00	172x150x55	230 V a.c.	45/45	383/434	123/126	58.0/61.0	Ball	CE; cURus;

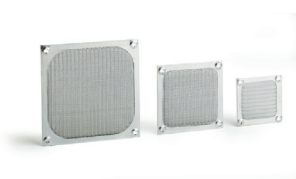


### Accessories - Metal fan guards

• A: fan guard diameter

Model	A
	mm
25	24
40	29.1
45	38.3
50	42
60	53
80	76
92	90

Model	A
	mm
120	115.6
127	115.6
150	154.4
150/S	154.4
GMP200NK	215
GMP250NK	278



### Accessories - Metal filters

Model	Dimensions
	mm
FM/60	60x60
FM/80	83.8x82.8
FM/92	92x92
FM/120	119x119
FM/150	182x182



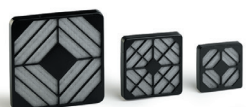
### Accessories - Metal ventilation louvres

Model	Dimensions
	mm
G120M-7035	120x120



### Accessories - Plastic fan guards

Model	Dimensions
	mm
G40	42.3x42.3
G60	60x60
G80	81x81
G92	92x92
G120	121x121
G150	173x173



### Accessories - Plastic filters

Model	Dimensions
	mm
F40/MR	46.4x46.4
F60/MR	64x64
F80/MR	86x86
F92/MR	97x97
F120/MR	126x126
F150/MR	179x179



### Accessories - Spare filter media (for plastic filters)

Model	Dimensions
	mm
M40	42x42
M60	60x60
M80	81x81
M92	92x92
M120	120x120
M150	172x172



### Accessories - Fast assembly plastic fan guards

Model	Dimensions
	mm
G80/S	80x80
G120/S	120x120
G127/S	127.5x127.5



### Accessories - Plastic rivets

• A: plastic rivet length

Model	Description	A	Color
		mm	
FAR175TPN	Flat	17	9005 (Black)
FAR175TPR	Flat	17	7032 (Grey)
FAR175TSN	V-shaped	17	9005 (Black)
FAR175TSR	V-shaped	17	7032 (Grey)
FAR225TPN	Flat	22	9005 (Black)
FAR225TPR	Flat	22	7032 (Grey)
FAR225TSN	V-shaped	22	9005 (Black)
FAR225TSR	V-Shaped	22	7032 (Grey)



### Accessories - Elastic rivets

Model
EAR4401N



### Accessories - Fan power leads

Model	Length of cable	Description
	mm	
C60	1,520	Straight
C80	2,030	Straight
C80E	2,030	Straight
C100	2,540	Straight
CM500E	5,000	Straight
C24	610	Straight
C24-45	610	45°
C36	910	Straight
C36-45	910	45°



### H series heaters with cable

- Metal (M) or touch-safe plastic (P) cover
- 3x20AWG cable with 500mm length
- Clip fastening system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	mm	W	V	Kg	
HWM005	78x28x49	5	110-240 V a.c./d.c.	0.110	CE; cURus;
HWM010	78x28x49	10	110-240 V a.c./d.c.	0.110	CE; cURus;
HWM015	78x28x49	15	110-240 V a.c./d.c.	0.110	CE; cURus;
HWM015X	78x28x49	15	110-240 V a.c./d.c.	0.110	CE;
HWM020	78x28x49	20	110-240 V a.c./d.c.	0.110	CE; cURus;
HWM025	108x28x49	25	110-240 V a.c./d.c.	0.150	CE; cURus;
HWM030	108x28x49	30	110-120 V a.c./d.c.	0.150	CE; cURus;
HWM030X	108x28x49	30	110-240 V a.c./d.c.	0.150	CE;
HWM045	108x61.5x85	45	110-240 V a.c./d.c.	0.400	CE; cURus;
HWM045X	108x61.5x85	45	110-240 V a.c./d.c.	0.400	CE;
HWM060	108x61.5x85	60	110-240 V a.c./d.c.	0.400	CE; cURus;
HWM060X	108x61.5x85	60	110-240 V a.c./d.c.	0.400	CE;
HWM080	158x61.5x85	80	110-240 V a.c./d.c.	0.550	CE; cURus;
HWM100	158x61.5x85	100	110-240 V a.c./d.c.	0.550	CE; cURus;
HWM150	208x61.5x85	150	110-240 V a.c./d.c.	0.750	CE; cURus;
HWMS080X	108x61.5x85	80	110-240 V a.c./d.c.	0.425	CE;
HWMS100X	108x61.5x85	100	110-240 V a.c./d.c.	0.425	CE;
HWMS150X	158x61.5x85	150	110-240 V a.c./d.c.	0.575	CE;
HWP045	108x61.5x85	45	110-240 V a.c./d.c.	0.400	CE; cURus;
HWP060	108x61.5x85	60	110-240 V a.c./d.c.	0.400	CE; cURus;
HWP080	158x61.5x85	80	110-240 V a.c./d.c.	0.550	CE; cURus;
HWP100	158x61.5x85	100	110-240 V a.c./d.c.	0.550	CE; cURus;
HWP150	208x61.5x85	150	110-240 V a.c./d.c.	0.750	CE; cURus;



### H series heaters with terminal block

- Metal (M) or touch-safe plastic (P) cover
- 3 screwless terminals
- Clip fastening system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	mm	W	V	Kg	
HTM045	138x61.5x85	45	110-240 V a.c./d.c.	0.450	CE; cURus;
HTM060	138x61.5x85	60	110-240 V a.c./d.c.	0.450	CE; cURus;
HTM080	188x61.5x85	80	110-240 V a.c./d.c.	0.600	CE; cURus;
HTM100	188x61.5x85	100	110-240 V a.c./d.c.	0.600	CE; cURus;
HTM150	238x61.5x85	150	110-240 V a.c./d.c.	0.800	CE; cURus;
HTMS080X	138x61.5x85	80	110-240 V a.c./d.c.	0.455	CE;

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	mm	W	V	Kg	
HTMS100X	138x61.5x85	100	110-240 V a.c./d.c.	0.455	CE;
HTMS150X	188x61.5x85	150	110-240 V a.c./d.c.	0.625	CE;
HTP045	138x61.5x85	45	110-240 V a.c./d.c.	0.450	CE; cURus;
HTP060	138x61.5x85	60	110-240 V a.c./d.c.	0.450	CE; cURus;
HTP080	188x61.5x85	80	110-240 V a.c./d.c.	0.600	CE; cURus;
HTP100	188x61.5x85	100	110-240 V a.c./d.c.	0.600	CE; cURus;
HTP150	238x61.5x85	150	110-240 V a.c./d.c.	0.800	CE; cURus;



### H series heaters with fan

- Metal (M) or touch-safe plastic (P) cover
- 3 screwless terminals
- Clip fastening system for DIN rail TS35
- Heating element consists of a self-regulating PTC resistor with integrated bimetal thermal protector

Model	Dimensions	Heating Power	Rated Voltage	Weight	Approvals
	mm	W	V	Kg	
HVMS200THP-115	143x61.5x85	200	115 V a.c.	0.550	CE; cURus;
HVMS200THP-230	143x61.5x85	200	230 V a.c.	0.550	CE;
HVMS250THP-115	193x61.5x85	250	115 V a.c.	0.700	CE; cURus;
HVMS250THP-230	193x61.5x85	250	230 V a.c.	0.700	CE; cURus;
HVMS350THP-115	243x61.5x85	350	115 V a.c.	0.900	CE; cURus;
HVMS350THP-230	243x61.5x85	350	230 V a.c.	0.900	CE;
HVPS200THP-115	143x61.5x85	200	115 V a.c.	0.550	CE; cURus;
HVPS200THP-230	143x61.5x85	200	230 V a.c.	0.550	CE;
HVPS250THP-115	193x61.5x85	250	115 V a.c.	0.700	CE; cURus;
HVPS250THP-230	193x61.5x85	250	230 V a.c.	0.700	CE; cURus;
HVPS350THP-115	243x61.5x85	350	115 V a.c.	0.900	CE; cURus;
HVPS350THP-230	243x61.5x85	350	230 V a.c.	0.900	CE;



### DC thermoelectric units

- Solid-state device with Peltier technology
- Suitable for any plate thickness
- No chlorofluorocarbons (CFC) and compressor
- Reversible process heat/cool
- Operation in any orientation
- Not sensitive to vibration
- Virtually free maintenance - No moving parts (except the fans)

Model	Cooling Power	Rated Voltage	Rated Current	Max Current	Operating Temp. Range	Rated Voltage Range	Weight	Approvals
	W	V	A	A	°C	V	Kg	
TCU501240IP55-7035	50	12 Vd.c.	5.0	5.8	-20 ~ +70	7 ~ 13	4	CE;
TCU1002440IP55-7035	100	24 Vd.c.	4.7	5.7	-20 ~ +70	17 ~ 27	6	CE;
TCU2002440IP55-7035	200	24 Vd.c.	9.5	11.5	-20 ~ +70	17-27 Vd.c.	12	CE;
TCU502440IP55-7035	50	24 Vd.c.	2.4	2.8	-20 ~ +70	10 ~ 27.6	4	CE;
TCU1004840IP55-7035	100	48 Vd.c.	2.4	3.0	-20 ~ +70	34 ~ 54	6	CE;
TCU2004840IP55-7035	200	48 Vd.c.	4.8	6.0	-20 ~ +70	34-54 Vd.c.	12	CE;



### AC thermoelectric units

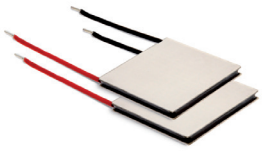
- Solid-state device with Peltier technology
- Suitable for any plate thickness
- Stainless steel external cover
- Integrated AC/DC power supply on the outer cover
- No chlorofluorocarbons (CFC) and compressor
- Operation in any orientation
- Not sensitive to vibration
- Virtually free maintenance - No moving parts (except the fans)

Model	Cooling Power	Rated Voltage Range	Input Power	Max Input Power	Operating Temp. Range	Weight	Approvals
	W	V	W	W	°C	Kg	
TCU200AC40-SIP	201	88-264 Va.c.	245	306	-20 ~ +50	14	CE;



Thermoelectric cooling units are used to cool and dehumidify the air inside electrical cabinets and to separate the internal and exterior environments.

This units are usually used when outside temperatures are unfavorable i.e. over 35°C and the atmosphere is contaminated by oil or dust.



### Thermoelectric modules

- Semiconductor-based electronic components
- Core system of the thermoelectric units
- No chlorofluorocarbons (CFC)
- Reversible process heat/cool
- Not sensitive to vibration

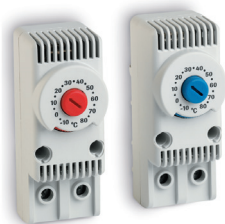
Model	Dimensions	Max Current	Max Voltage	Max Cooling Power	Max Temp. Differential	Max Operating Temp.
	mm	A	V	W	°C	°C
TM1-1273050-HXHP	30x30x2.9	5.0	15.2	47.1	66	125
TM1-1274060-HXHP	40x40x3.8	6.0	15.3	60.0	67	125



### Accessories - Drip trays

- Stainless steel accessory used to collect the condensate generated on the cold heat sink inside the enclosure
- Suitable for vertical installation of the thermoelectric units

Model	Description
RC-TCU100-1001	for TCU100
RC-TCU200-1001	for TCU200 / TCU200AC
RC-TCU50-1001	for TCU50



### NO-NC Thermostats

- Normally Closed (NC) and normally Open (NO) versions
- Patented snap-on fastening system on DIN rails TS35/15/32
- Wide temperature setting range with °C or °F scales
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage Range	Rated Current	Contact Current	Setting Range	Setting Range	Differential (referred to set point)	Accuracy	Approvals
	V	A	A	°C	°F	K	K	
TRT-10A230V-NC	60 V d.c.;110-250 V a.c.	10	15	-10 ~ 80		-3	±3	CE; cURus;
TRT-10A230V-NCF	60 V d.c.;110-250 V a.c.	10	15		14 ~ 176	-3	±3	CE; cURus;
TRT-10A230V-NO	60 V d.c.;110-250 V a.c.	10	15	-10 ~ 80		+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;
TRT-10A230V-NOF	60 V d.c.;110-250 V a.c.	10	15		14 ~ 176	+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;



### Change-over thermostats

- Change over contact
- Snap-on fastening system on DIN rail TS35
- Standard color RAL 7035

Model	Rated Voltage Range	Rated Current	Contact Current	Setting Range	Differential (referred to set point)	Accuracy	Approvals
	V	A	A	°C	K	K	
TRT-230V-S01	230 V a.c.	(Heating) a.c. 10(4) d.c. 30W-(Cooling) a.c. 5(2)	10	5 ~ 60	1 (with thermal retroaction)	±3	CE;





## Twin thermostats

- Normally Closed/Normally Open (NC-NO), Normally Closed/Normally Closed (NC-NC) and Normally Open/ Normally Open (NO-NO) versions
- Separate adjustment and operation of the devices
- Snap-on fastening system on DIN rail TS35
- Wide temperature setting range with °C or °F scales
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage Range	Rated Current	Contact Current	Setting Range	Setting Range	Differential (referred to set point)	Accuracy	Approvals
	V	A	A	°C	°F	K	K	
TRT2-10A230V-NCNC	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	-10 ~ 80		-3	±3	CE; cURus;
TRT2-10A230V-NCNCF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15		14 ~ 176	-3	±3	CE; cURus;
TRT2-10A230V-NCNO	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	-10 ~ 80		-3 (NC) / +4 if A < 5 ; +7 if A > 5 (NO)	±3	CE; cURus;
TRT2-10A230V-NCNOF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15		14 ~ 176	-3 (NC) / +4 if A < 5 ; +7 if A > 5 (NO)	±3	CE; cURus;
TRT2-10A230V-NONO	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15	-10 ~ 80		+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;
TRT2-10A230V-NONOF	60 V d.c.; 110-250 V a.c.	10 + 10	15 + 15		14 ~ 176	+4 if A < 5 ; +7 if A > 5	±3	CE; cURus;



## Hygrostats

- Snap-on fastening system on DIN rail TS35
- Disc setting by hand or tool
- Standard color RAL 7035

Model	Rated Voltage	Rated Current	Setting Range	Differential average	Accuracy	Approvals
	V	A	%RH	%RH	%RH	
IGR35F	120-240 V a.c.	12 - 6 ; 6 - 3	10 - 90	5	± 5	CE; cURus;



### Door limit switches

- Versions available: plain plunger (FC-001), plain plunger with manual reset (FC-002), roller plunger (FC-003), roller plunger with adjustable lever (FC-004), plain plunger with 3 NC contacts (FC-005)
- No. 1 Normally Open (NO) contact and No. 1 Normally Closed (NC) contact, except for FC-005 model

Model	a.c. Rated Voltage Range	a.c. Rated Current Range	d.c. Rated Voltage Range	d.c. Rated Current Range	Approvals
	V	A	V	A	
FC-001	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-002	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-003	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-004	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;
FC-005	24 - 400	10 - 4	24 - 250	6 - 0.4	CE; cULus;



### Accessories - Slide limit switch

- Plastic support for simple positioning of FC series door limit switch
- The kit consist of No.1 slide for limit switch, No.2 screws and No.2 nuts

Model
SA-FC01K



### Flashing signal devices

- Versions available: flashing device (FD01), flashing device with FC-001 (FD02), flashing device with FC-001 and FC-002 (FD03)
- 3 red flashing lights indicating live voltage presence
- Suitable for connection to single or three-phase systems
- Auxiliary kit with limit or interlock switches
- Closed door simulation (FD03)

Model	Rated Voltage Range	Working Temp. Range	Approvals
	V	°C	
FD01	110-290 V~; 220-500 V 3~	-25°C ~ 70°C	CE; cURus;
FD02	110-290 V~; 220-500 V 3~	-25°C ~ 70°C	CE;
FD03	110-290 V~; 220-500 V 3~	-25°C ~ 70°C	CE;



## FLL series AC LED lamps

- Long life and low energy consumption by LED technology
- ON/OFF switch or PIR movement sensor
- Standard screw-in or, optionally, magnetic fastening for metallic surfaces (-IRM or -SM models)
- Wieland (-IRV or -SV models) or screwless wiring system
- Daisy chain connection (up to 10 units), except for models with Wieland connection
- Adjustable light beam
- Multi-voltage version available (FLL-300)
- Frequency: 50/60 Hz

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Lum. Flux	Approvals
	mm	V	W		K	lm	
FLL-120565U-IR	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRM	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRV	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-IRVM	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-S	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SM	356	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SV	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-120565U-SVM	364	115 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-IR	356	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-IRM	356	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-IRV	364	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-IRVM	364	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-S	356	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-SM	356	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-SV	364	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-230565U-SVM	364	230 V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IR	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRM	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRV	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-IRVM	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-S	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SM	356	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SV	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;
FLL-300565U-SVM	364	115-230V a.c.	5.0	40	7,100	315	CE; cURus;



new

## FLL series DC LED lamps

- Long life and low energy consumption by LED technology
- ON/OFF switch or PIR movement sensor
- Standard screw-in or, optionally, magnetic fastening for metallic surfaces (-IRM or -SM models)
- Wieland (-IRV or -SV models) or screwless wiring system
- Daisy chain connection (up to 10 units), except for models with Wieland connection
- Adjustable light beam

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Lum. Flux	Approvals
	mm	V	W		K	lm	
FLL-D120565U-IR	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRM	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRV	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-IRVM	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-S	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-SM	356	12 V d.c.	4.5	39	7,100	315	CE; cURus;

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Lum. Flux	Approvals
	mm	V	W		K	lm	
FLL-D120565U-SV	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D120565U-SVM	364	12 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IR	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRM	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRV	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-IRVM	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-S	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SM	356	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SV	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D240565U-SVM	364	24V a.c./d.c.	5.5/5.5 / 4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IR	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRM	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRV	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-IRVM	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-S	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SM	356	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SV	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;
FLL-D480565U-SVM	364	48 V d.c.	4.5	39	7,100	315	CE; cURus;

Accessories for LED **Serie FLL** lamps

Model	Description
FLL-2MA	Magnets kit (2pcs.)
CE-006WF	2-pole female Wieland connector
CVFLL-01	Power cable 2x18 AWG Wieland F L=3000 white
CVFLL-02	Power cable 2x18 AWG Wieland F L=3000 orange



### CLG-L series LED lamps

- Long life and low energy consumption by LED technology
- ON/OFF switch
- Metal fixing brackets for an adjustable lamp positioning
- Daisy chain connection

Model	Length	Rated Voltage	Rated power	No. of led	Color Temp.	Approvals
	mm	V	W		K	
CLG-L307	400	115-230V a.c.	7	12	6,400	CE;



### CLG series fluorescent lamps

- Equipped with fluorescent lamp type: T5 with lamp holder G5 type for CLG-R models; T4 with lamp holder G5 type for CLG-T models; T8 with lamp holder G13 type for CLG-S models
- ON/OFF switch
- Magnetic mounting system for CLG-T models available
- Schuko socket version (CLG-SS) and French socket version (CLG-SF)

Model	Length	Rated Voltage	Rated power	Light type lamp holder	Cable length	Approvals
	mm	V	W		mm	
CLG-R2313	581	230 V a.c.	13	T5 / G5	1,800	CE;
CLG-R236	277	230 V a.c.	6	T5 / G5	1,300	CE; GS;
CLG-R238	354	230 V a.c.	8	T5 / G5	1,800	CE;
CLG-SF2310	498	230 V a.c.	10	T8 / G13	-	CE;
CLG-SS2310	498	230 V a.c.	10	T8 / G13	-	CE;
CLG-T2312	425	230 V a.c.	12	T4 / G5	1,800	CE; GS;
CLG-T2316	516	230 V a.c.	16	T4 / G5	1,800	CE;
CLG-T2320	616	230 V a.c.	20	T4 / G5	1,800	CE;
CLG-T236	270	230 V a.c.	6	T4 / G5	1,800	CE; GS;
CLG-T238	390	230 V a.c.	8	T4 / G5	1,800	CE; GS;

#### Accessories for Fluorescent lamps

Model	Description
<b>CONNECTION CABLE</b>	
CVL01-200	2000 mm
CVL01-25	250 mm
<b>MAGNETIC SUPPORT</b>	
CLG-TSM1	-



### Signaling devices

Signal towers provide visual and acoustic signaling of the machine status in automated processes. Fandis towers offer a flexible combinations of up to 7 stackable elements, including steady, flashing or rotating lights and a buzzer. IP64 protection degree and a practical bayonet fixing system type Ba 15d.

- S70 Signal towers – modular structure
- ST30 Pre-assembled signal towers ø 30mm
- ST45 Pre-assembled signal towers ø 45mm
- SL62 Signal lamps ø 62mm
- SL150 Signal lamps ø 150mm

# Protection ratings

## ENVIRONMENTAL TYPE RATINGS















	Enclosure Types
Type 1	Primarily indoor use to provide protection against contact with the enclosed equipment and against a limited amount of falling dirt.
Type 12	Indoor use to provide a degree of protection against dust, dirt, fiber flying, dripping water, and external condensation of non-corrosive liquids.
Type 3R	Outdoor use to provide a degree of protection against falling rain; undamaged by the formation of ice on the enclosure.

Description according to UL50E standard

## "IP" PROTECTION DEGREE TABLE

Protection degree against solid foreign object and against access to hazardous parts (1<sup>st</sup> numeral)

Protection degree against water (2<sup>nd</sup> numeral)

IP	Symbol	Description	IP	Symbol	Description
0		non-protected	0		non-protected
1		protected against solid foreign objects of 50 mm Ø or greater and against access to hazardous parts with the back of a hand	1		protected against vertically falling water drops
2		protected against solid foreign objects of 12.5 mm Ø or greater and against access to hazardous parts with a finger	2		protected against vertically falling water drops at any angle up to 15°
3		protected against solid foreign objects of 2.5 mm Ø or greater and against access to hazardous parts with a tool	3		protected against spraying water at any angle up to 60° from the vertical
4		protected against solid foreign objects of 1.0 mm Ø or greater and against access to hazardous parts with a wire	4		protected against splashing water from any direction
5		dust-protected and protected against access to hazardous parts with a wire	5		protected against water jets from any direction
6		dust-tight and protected against access to hazardous parts with a wire	6		protected against powerful water jets from any direction

Description according to rule CEI EN 60529

#### **LIMITED LIABILITY AND WARRANTY DISCLAIMER**

The Manufacturer hereby makes no representation or warranties expressed or implied, statutory or otherwise. All implied warranties, including those of merchantability or fitness for use are hereby disclaimed.

The product is made in conformity with the cogent standards provided for by European Health and Safety legislation.

Where expressly indicated, the product conforms to the standard of Safety and Performance defined by recognised international bodies and subject to their periodic verification.

Any loss or damage, both incidental and consequential, for any failure to perform or delay to perform due to wrong use or wrong installation of the product, as well as to the non-observance of technical specifications, are not covered by the Manufacturer's warranty.

The buyer alone is responsible to determine the suitability of the product.

The data indicated in the catalogue is purely indicative. The product is subject to wear.

Electrical connections must be carried out in compliance with pertinent national, state or local health and safety laws.

If the apparatus in which the product is incorporated should guarantee continuous use without variation or interruption in performance, the product must be utilised only in the presence of a device which immediately signals any functional anomaly or arrest, allowing immediate intervention or the activation of an auxiliary product.

If installed and/or integrated in other apparatus, the use and maintenance manual of the apparatus must also indicate the correct use of our product and its working characteristics and must prescribe its estimated life, before the product actually reaches the maximum working hours shown in the data sheets, that is to say, taking account of all the specific conditions of use and of the technical specifications supplied and must supply exhaustive information allowing the user to substitute the product (removal & substitution).

Any fan found to be defective within the limits of the warranty, will be replaced free of charge. Costs of labour or other extra subsequent costs relative to the removal, restitution or new installation of the fan are not covered by the product warranty.

**Sales Conditions and Data Sheets available on [www.fandis.it](http://www.fandis.it)**

**Other models are available on request, subject to quantities.**

# Colors of engineering.

**Fandis** is an international point of reference for thermal management systems (thermal solutions) in industrial and professional fields.

Forever oriented to service excellence, Fandis quality is certified for the entire process of production and research into the design of advanced solutions.

**Fandis** today, thanks to experience accumulated over 30 years of activity, provides a valued technological partnership for all its clients.



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