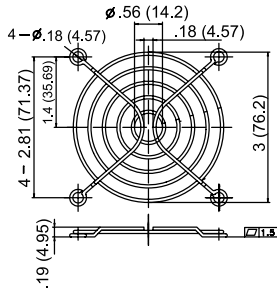


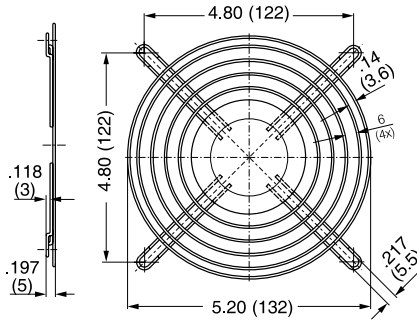
ACCESSORIES

| Frame Size | Fan Series | Plastic Finger Guards Thru Holes | Plastic Finger Guards Barbed Insert | .25" Plastic Filter with Foam Pad | Metal Finger Guard | Plug & Cord Set | Shock & Vibration Mount | Spacer | Mounting Screw Clip | Metal Mesh Filter | Screen | Bracket | Temp Sensor |
|------------|--|----------------------------------|-------------------------------------|-----------------------------------|--------------------------------|--|-------------------------|--------|---------------------|-------------------|--------|---------|-------------|
| 40 mm | 400, 400F, 400J | | | | LZ29-1 | | | | | | | | |
| 60 mm | 600, 600F, 600N, 600NG, 600NV, 620 | | | | LZ28 | | | | | | | | |
| 60 mm | 620J | | | | LZ28-1 | | | | | | | | |
| 80 mm | 8200J | | LZ32-3 | | LZ32-4 | | | | | | | | |
| 80 mm | 8000A, 8000N, 8000V, 8100 | LZ32-2, LZ32P | LZ32-3 | 10020-1-5170 | LZ22N | LZ120, LZ126 | 2678-2-2945 | | | LZ60-8 | | | LZ370 |
| 80 mm | 8300, 8300V | | LZ32-3 | | LZ22N | | | LZ260 | LZ212 | LZ60-8 | | | LZ370 |
| 80 mm | 8400, 8400N, 8400V | | | | LZ22N | | | LZ261 | | LZ60-8 | | | |
| 92 mm | 3000, 3600, 3900 | | LZ23-3 | 10023-1-5170 | LZ23 | LZ120, LZ126 | | | | | | | |
| 92 mm | 3300, 3300V | | LZ23-3 | | LZ23 | | | LZ260 | LZ212 | | | | LZ370 |
| 92 mm | 3400, 3400N, 3400NV | | LZ23-3 | | LZ23 | | | LZ261 | | | | | LZ370 |
| 92 mm | 3200J | | LZ23-3 | | LZ23-1 | | | | | | | | |
| 119 mm | 4000, 4000AX, 4000N, 4000Z, 4100N, 4200, 4200N, 4400F, 4600N, 4600AX | LZ30-5, LZ30P | LZ30-6 | 10021-1-5170 | LZ30 | LZ120, LZ126 | 2678-2-2945 | | LZ210 | LZ60 | LZ40N | LZ40-1 | |
| 119 mm | 4300, 4300N, 4300V | | LZ30-6 | | LZ30 | | | LZ260 | LZ212 | | | | LZ370 |
| 119 mm | DV4100 | | LZ30-6 | | LZ30 | | | | | | | | |
| 119 mm | 9900 | LZ30-5, LZ30P | LZ30-6 | 10021-1-5170 | LZ30 | | | | LZ210 | LZ60 | LZ40N | LZ40-1 | |
| 127 mm | W2G115 | 88601-2-2929 | | 10024-1-5170 | 09496-2-4039 50951-2-4039 | 01433-4-6711 01478-4-6711 01357-4-6711 | | | | | | | |
| 127 mm | W2K121 | | | 10024-1-5170 | | | | | LZ210 | | | | |
| 127 mm | 5200N, DV5200, 5900 | LZ33-1 | LZ33-2 | | LZ35 | | | | | | | | |
| 135 mm | 5100N, 5600 | | | | LZ25 | LZ120, LZ126 | | | LZ210 | | | | |
| 150 mm | W2G130 | | | | 09498-2-4039 | | | | | | | | |
| 150 mm | W2S130 | | | | 09498-2-4039 50950-2-4039 | | | | | | | | |
| 150 mm | 7100N, 7200N | | | | LZ24 | | | | LZ210 | | | | |
| 150 mm | W2E142 | | | | 03749-2-4039 50950-2-4039 | 01434-4-6711 01477-4-6711 01505-4-6711 | | | | | | | |
| 172 mm | 6200N, 6200NT, 6200NTD | | | | | | | | | | | | |
| 172 mm | 6400, DV6400, 6400T | | | | LZ37 | LZ120, LZ126 | | | LZ215 | | | | |
| 172 mm | DV6200, DV6200TD | | | | LZ38 | | | | | | | | |
| 172 mm | W2E143 | | | | LZ37 (inlet) LZ39 (exhaust) | | | | | | | | |
| 172 mm | W2E143 | | | | 04013-2-4039 | 01434-4-6711 01477-4-6711 01505-4-6711 | | | | | | | |
| 200 mm | W1G180 | | | | 26386-2-4039 | | | | | | | | LZ370 |
| 225 mm | W1G200T | | | | 78128-2-4039 | | | | | | | | |
| 225 mm | W2E200T | | | | 78128-2-4039 | | | | | | | | |
| 280 mm | W1G250T | | | | 09418-2-4039 | | | | | | | | |
| 280 mm | W2E250T | | | | 09418-2-4039 | | | | | | | | |
| 280 mm | VARIOFAN | | | | | | | | | | | | LZ370 |

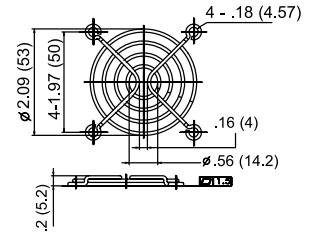
LZ22N Series 8000



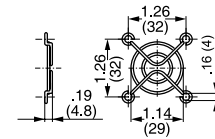
LZ25 Series 5100/5600



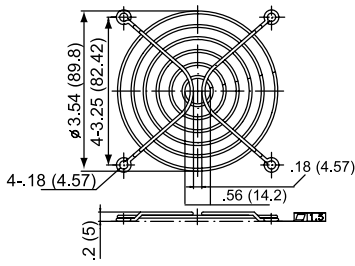
LZ28 Series 600



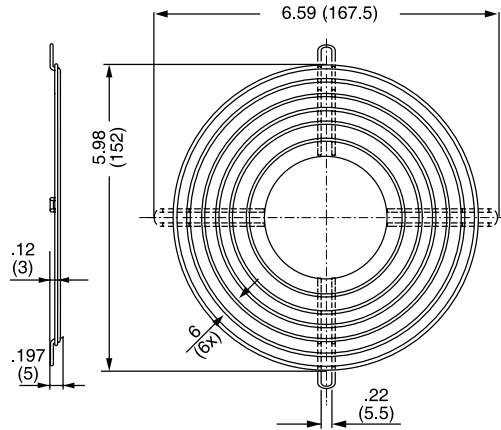
LZ29-1 Series 400



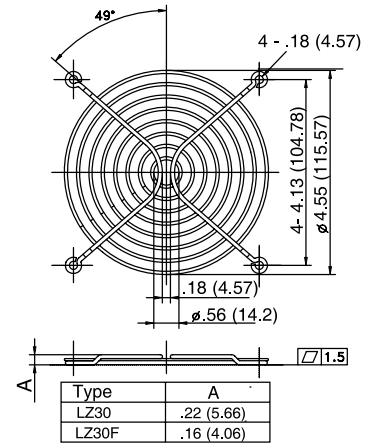
LZ23 Series 3000



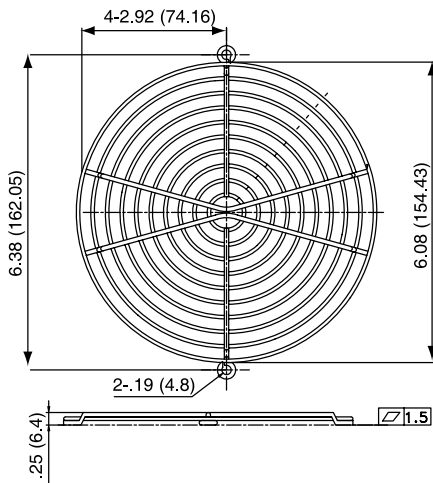
LZ26 Series 6000



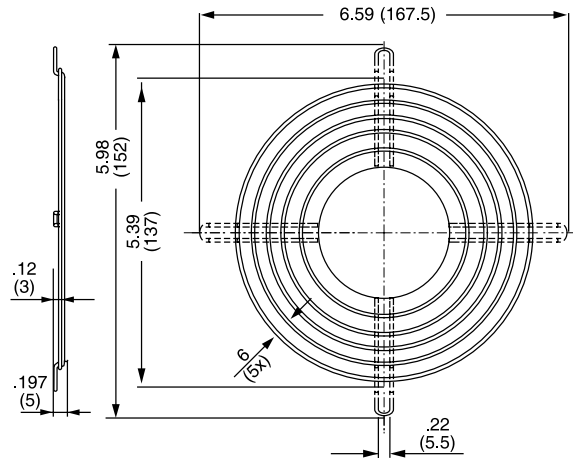
LZ30/LZ30F Series 4000/9000



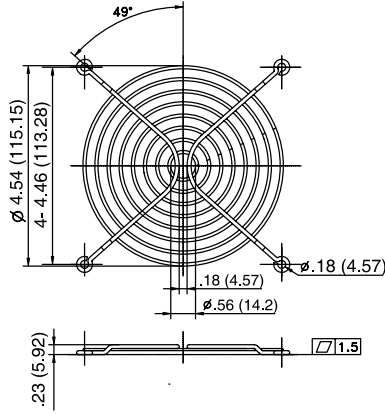
LZ24 Series 7000



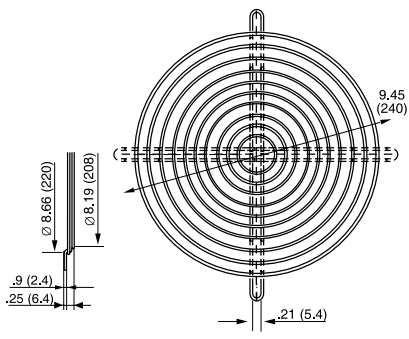
LZ27 Series 7000



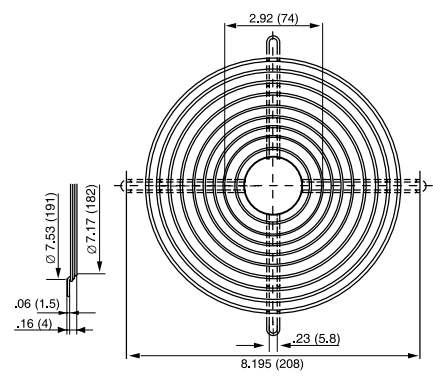
09496-2-4039-1 Series W2G115



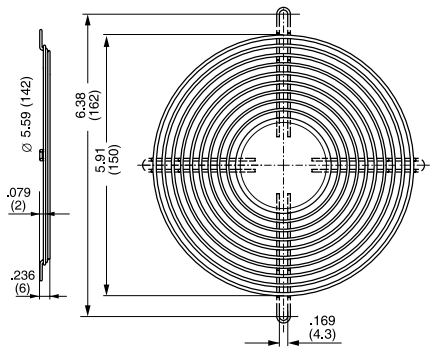
78128-2-4039 Series W1G200/W2E200



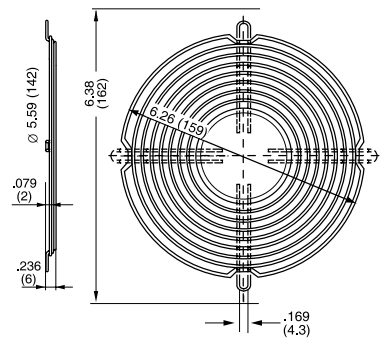
26388-2-4039 Series W1G180



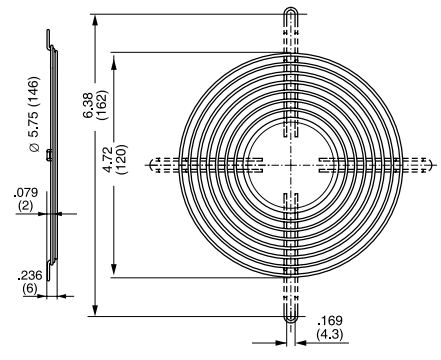
50950-2-4039 Series W2E142



50952-2-4039 Series W2E143



50951-2-4039 Series W2G115

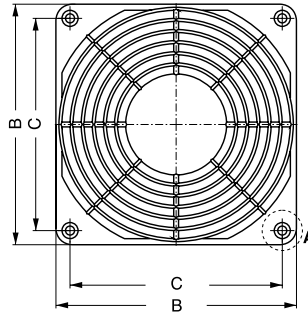
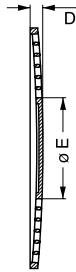


Part Number Changes -

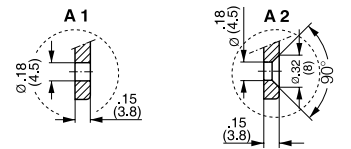
| Old Part | New Part |
|---------------|----------|
| 9480-2-4039-1 | LZ22N |
| 9483-2-4039-1 | LZ23 |
| 9497-2-4039-1 | LZ30 |
| 9497-2-4039-2 | LZ30F |
| 9498-2-4039-1 | LZ24 |
| 92163-2-2929 | LZ32P |
| 92165-2-2929 | LZ30P |

Accessories - Plastic Finger Guards Tubeaxial Fan

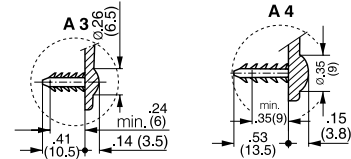
| Part Number | Fan series | Dimensions LZ 32.. | | | | | |
|-------------|------------|--------------------|----------|-------------|--------------|-----------|-----------|
| | | Finger Guards | Mounting | B | C | D | E |
| LZ32-2 | 8000 | LZ32-2 | A 1 | 3.15 (80) | 2.82 (71.5) | .28 (7) | 1.34 (34) |
| LZ32-3 | 8000 | LZ32-3 | A 3 | 3.15 (80) | 2.82 (71.5) | .28 (7) | 1.34 (34) |
| LZ23-2 | 3000 | LZ23-2 | A 1 | 3.64 (92.5) | 3.25 (82.5) | .26 (6.5) | 1.81 (46) |
| LZ23-3 | 3000 | LZ23-3 | A 3 | 3.64 (92.5) | 3.25 (82.5) | .26 (6.5) | 1.81 (46) |
| LZ30-5 | 9000 | LZ30-5 | A 2 | 4.69 (119) | 4.14 (105) | .26 (6.5) | 1.97 (50) |
| LZ30-6 | 9000 | LZ30-6 | A 4 | 4.69 (119) | 4.14 (105) | .26 (6.5) | 1.97 (50) |
| LZ30P | 9000 | LZ33-1 | A 2 | 5.0 (127) | 4.47 (113.5) | .26 (6.5) | 1.97 (50) |
| LZ30-5 | 4000 | LZ33-2 | A 4 | 5.0 (127) | 4.47 (113.5) | .26 (6.5) | 1.97 (50) |
| LZ30-6 | 4000 | | | | | | |
| LZ30P | 4000 | | | | | | |
| LZ33-1 | 5200 | | | | | | |
| LZ33-2 | 5200 | | | | | | |
| LZ33-1 | 5900 | | | | | | |
| LZ33-2 | 5900 | | | | | | |



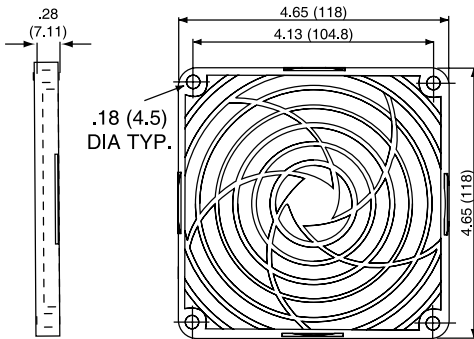
Screw connection



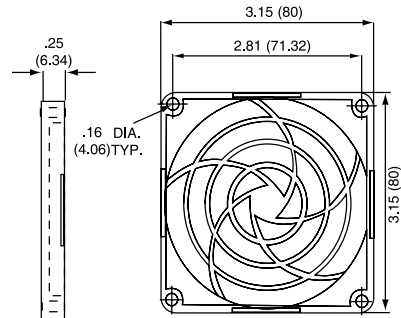
Barbed inserts



LZ30P



LZ32P



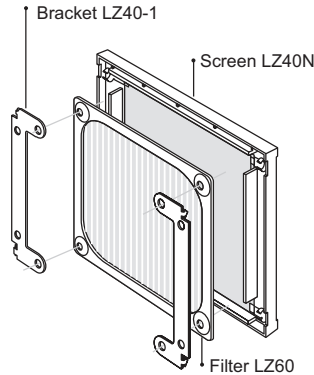
| Part Number | Series |
|-------------|----------|
| LZ212 | 8300 |
| LZ260 | 8300 |
| LZ261 | 8400 |
| LZ212 | 3300 |
| LZ260 | 3300 |
| LZ210 | 9000 |
| LZ40N | 9000 |
| LZ40-1 | 9000 |
| LZ60 | 9000 |
| LZ210 | 4000 |
| LZ40N | 4000 |
| LZ40-1 | 4000 |
| LZ60 | 4000 |
| LZ212 | 4300 |
| LZ260 | 4300 |
| LZ210 | 5100 |
| LZ210 | 5600 |
| LZ210 | 5200 |
| LZ210 | 5900 |
| LZ210 | 7000 |
| LZ370 | VARIOFAN |

Filter Kit for 119mm fans

| | |
|--------------|-----------------------------|
| 10016-1-5170 | Grill Guard |
| 10017-1-5170 | Grill Guard and Filter |
| 10018-1-5170 | Grill Guard, Filter, Spacer |

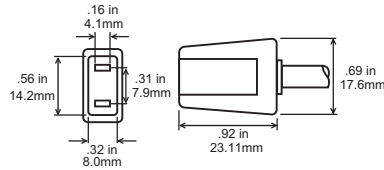
LZ 40N / LZ 40-1 / LZ 60

LZ40N of black, fiberglass reinforced plastic with inserted aluminium wire mess LZ60. Mounting with brackets LZ40-1.



LZ 120

Connecting cable with molded plug. (PVC, black). Stranded wires with multi-core cable ends. For all types of fans with flat pins .12 x .02 in (3.0 x 0.5 mm).



| Type | Cable Length in. (mm) | Pins |
|-------|-----------------------|----------|
| LZ120 | 24 (610) | .02 (.5) |
| LZ126 | 39.4 (1000) | .02 (.5) |

Additional versions are available on special order

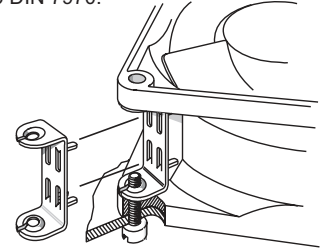
Plug and Cord Sets

.110 x .02 inch (2.8 x .5 mm)

| RIGHT ANGLE CONNECTION | |
|------------------------|----------------|
| 24 inch (610mm) | 1434-4-6711-1 |
| 36 inch (914mm) | 1434-4-6711-3 |
| 80 inch (2032mm) | 1434-4-6711-80 |

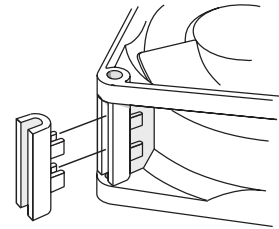
LZ 212

Screw clip of rust-resistant spring steel. For mounting fans with threaded pin 3.5 DIN 7970.



LZ 260 / LZ 261

Spacer of fiberglass reinforced plastic. For screw mounting over both fan and mounting flanges.



LZ 370

Temperature sensor for speed-controlled fan operation. Temperature range 30...50 C.



Required performance date:

| | |
|------------------|--------------|
| R ₂₅ | = 100 KΩ ±5% |
| B-value | = 4190 ± 2% |
| P _{max} | = 0,25 W |

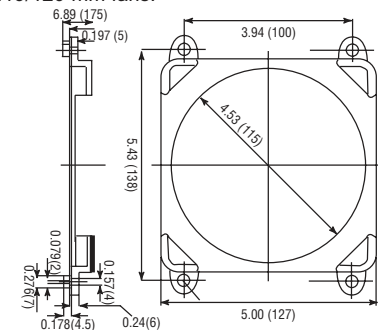
LZ 210

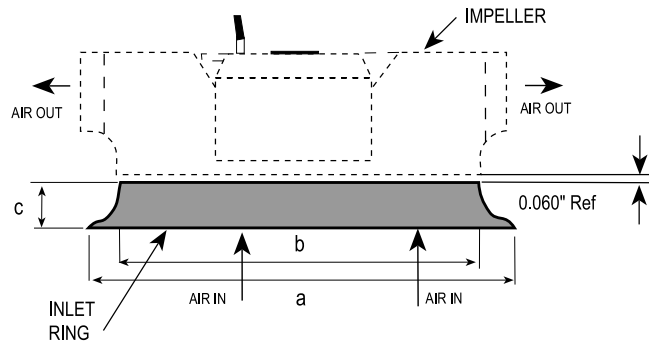
Screw clip of hardened steel. For mounting fans with threaded pin 6-32 UNC and/or 3.5 DIN 7970.



2678-2-2945

Plastic shock and vibration mount for 119/120 mm fans.

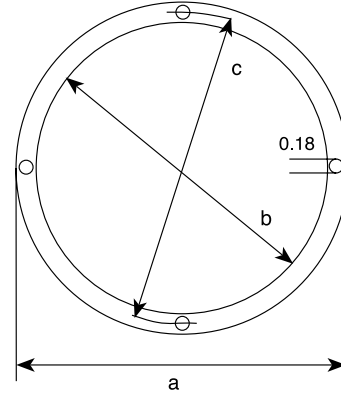




| Part Number | Impeller Number | Max. Dimensions (inches) | | |
|--------------|----------------------------------|--------------------------|---------------|--------------|
| | | a | b | c |
| 9566-2-4013 | 133 | 5.08 (129) | 3.43 (87) | 0.51 (13) |
| 9588-2-4013 | 175, 180 & 190 | 7.28 (185) | 5.12 (130) | 0.67 (17) |
| 9609-2-4013 | 220 | 9.96 (253) | 6.10 (155) | 0.79 (20) |
| 9597-2-4013 | R1G225 R4E225-AR R2E225-BB | 8.27 (210) | 5.87 (149) | 1.10 (28) |
| 9607-2-4013 | R4S225 R4E225-AC 250 | 8.78 (223) | 6.57 (167) | 0.87 (22) |
| 9614-2-4013 | 280 | 10.04 (255) | 7.40 (188) | 0.98 (25) |
| 9621-2-4013 | 310 | 11.81 (300) | 7.60 (193) | 1.69 (43) |
| 51357-2-4013 | 355 | 13.78 (350) | 8.90 (226) | 2.36 (60) |

| Part Number | Blower Wheel Size | Max. Dim.- in. (mm) | | |
|-------------|-------------------|---------------------|--------------|--------------|
| | | a | b | c |
| 9489-2-4039 | 085 | 3.5 (90) | 2.9 (74) | 3.3 (84) |
| 9485-2-4039 | 097 ? | - | - | 4.5 (114) |
| 9490-2-4039 | 108 | 5.0 (126) | 4.3 (110) | 4.7 (118) |
| 9494-2-4039 | 120 | 5.5 (140) | 4.9 (124) | 5.2 (132) |
| 9500-2-4039 | 133 ? | - | - | 5.7 (145) |
| 9492-2-4039 | 140/146 | 6.6 (168) | 6.0 (152) | 6.2 (158) |
| 9503-2-4039 | 160 | 7.1 (180) | 6.4 (162) | 6.9 (175) |
| 9493-2-4039 | 180 | 8.1 (205) | 7.2 (183) | 7.6 (194) |

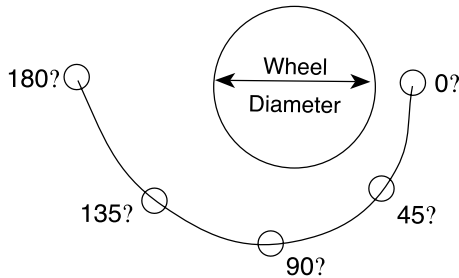
? – Dual inlet wire guard with three holes at 120°



Material is galvanized wire.

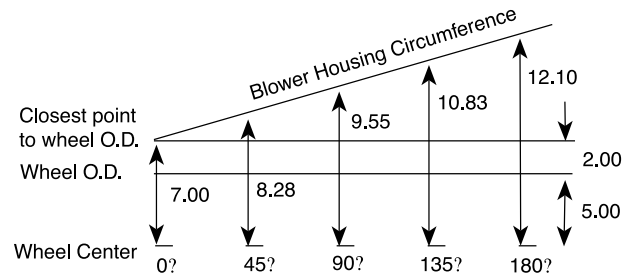
Technical Note on Scroll Housing

18° EXPANSION, FOR REFERENCE ONLY



Forward Curved Wheels use 6° - 12° expansion, 10° normal
Backward Curved Wheel normally uses 18° half scroll
MODIFY TO SUIT YOUR NEEDS

REFERENCE ONLY BASED ON A 10 INCH DIAMETER WHEEL

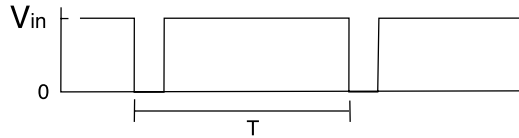


ANGLE AROUND WHEEL FROM STARTING POINT
(a half scroll housing expands for approx. 180 degrees)
NOTE: Expansion angle must always increase.

Hall Effect Monitor

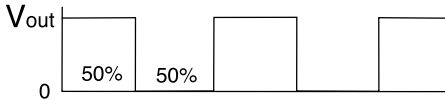
Selected ebm blowers ordered with this option monitor the speed of the blower with a device consisting of a magnet and solid state switch built into the motor. The output signal is a low voltage DC pulse train that can be incorporated into the end product to trigger an audible or visual alarm or to initiate an orderly system shutdown. This device is suited for telecommunications, computer, peripheral and copier applications, or others as required.

Hall Effect Monitor for AC Models



Input = 4.5 to 16 VDC; $T = 60/\text{RPM}$; $V_{out} \approx V_{in}$
Output Impedance = 4.7 K nominal.

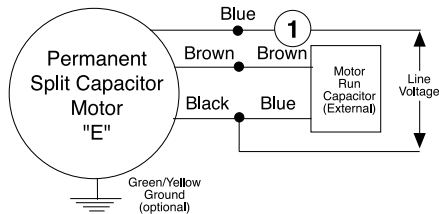
Hall Effect Monitor for Brushless DC Models



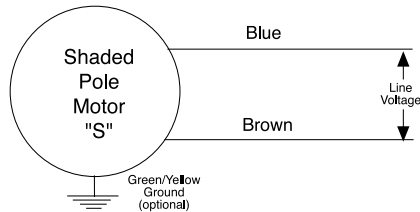
2 pulse / revolution – $V_{out} \approx 5v$; Output current = 5mA max.

MOTOR WIRING DIAGRAMS

A. PSC "Type E" Motor

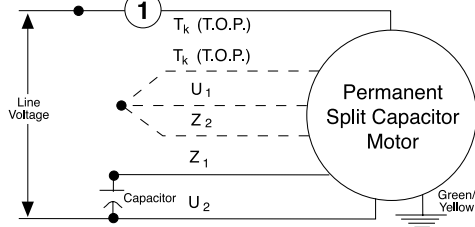


B. Shaded Pole Motor

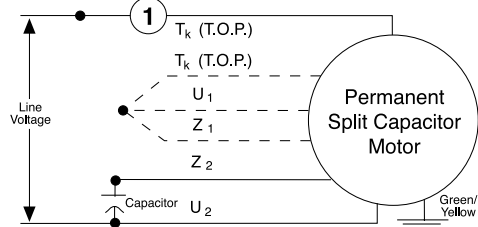


① An extra capacitor can be connected in series to yield lower RPM for multi-speed requirements

C. PSC Motor



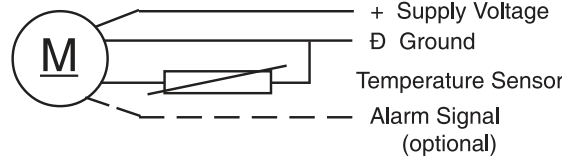
D. PSC Motor



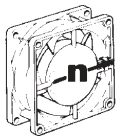
Dotted lines not supplied on all designs

Accessories - Wiring Diagrams and Signals

VarioFans have Temperature Dependent Speed Control

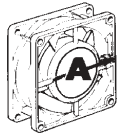


Alarms & Connectors for ebm/Papst Tubeaxial Fans



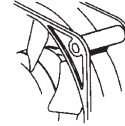
S /2 /12

Speed Sensor
DC Fan with integrated sensor for externally speed monitoring



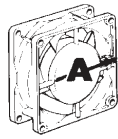
/5 /17

Alarm Circuit
DC Fan with integrated alarm circuit for speed monitoring



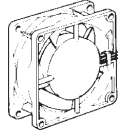
D

Housing Reinforcement
Fan housing with stiffening ribs. For mounting over both flanges



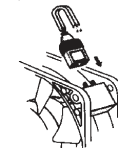
/10

Alarm Signal
DC Fan with integrated fan failure sensor



W

Connection Leads
Electrical connection via 2 leads AWG 22, 310 mm long



Connector Design

Type 6 = 2,8 x 0,8 mm 6
Type 8 = 2,8 x 0,5 mm 8



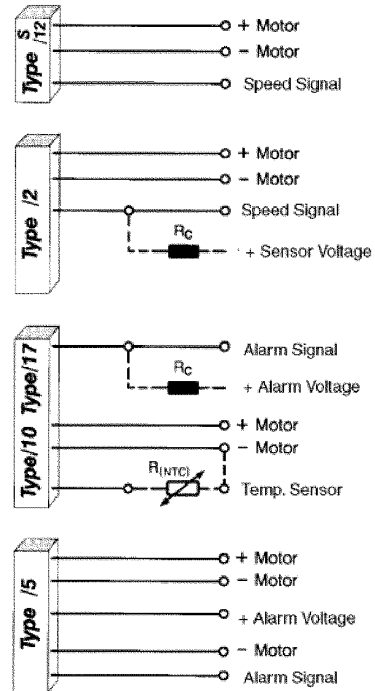
Type 7 = 2,8 x 0,8 mm 7
Type 9 = 2,8 x 0,5 mm 9

Characteristics of Fan Signals and Operation with different Alarm Signals

Speed Sensor Type: S, /2, /12
These fans produce speed-proportional square-wave signals via an integrated sensor. This 'electronic' tachometer is used to monitor the fan speed.

Alarm Signal Type: /10
These fans produce a continuous signal output when operating interference-free. When fan speed falls below 75 - 85% of the nominal speed, short low impulses are generated. The greater the fall below the alarm speed, the greater the low impulse width becomes. At rest there is a continuous low signal.

Alarm Switching Signal Type: /5, /17
These fans produce speed-dependent, directly usable high/low square-wave signals via integrated alarm switching circuits.
/5 models: Switching circuit is galvanically separated with a separate current supply.
/17: Direct current supply via motor; the switching circuit is not separate.



Accessories - Capacitors

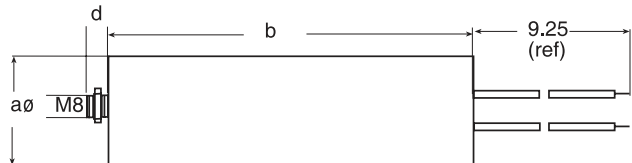
HOW TO USE CAPACITORS FOR MULTI-SPEED BLOWERS

It is possible to make any ebm blower with a PSC motor a multi-speed blower by adding a second or third capacitor on the load line (blue) at or near the value of the motor run capacitor. Actual capacitor value and RPM achieved are dependent on the nature of each application.

PLASTIC CAPACITORS

| Part Number | Size (mfd) | Temp. Range (°C) | Max. Dim in. (mm) | | |
|--------------|------------|------------------|-------------------|-------------|-------------|
| | | | a | b | d |
| 02100-4-7320 | 1 | -25 to +85 | 1.1 (28) | 2.2 (55) | 0.5 (12) |
| 99282-4-7320 | 1.5 | -25 to +85 | 1.1 (28) | 2.2 (55) | 0.5 (12) |
| 99283-4-7320 | 2 | -25 to +85 | 1.1 (28) | 2.2 (55) | 0.5 (12) |
| 02103-4-7320 | 2.5 | -25 to +85 | 1.1 (28) | 2.2 (55) | 0.5 (12) |
| 02102-4-7320 | 3 | -25 to +85 | 1.1 (28) | 2.2 (55) | 0.5 (12) |
| 99284-4-7320 | 4 | -25 to +85 | 1.3 (32) | 2.2 (55) | 0.5 (12) |
| 02101-4-7320 | 5 | -25 to +85 | 1.4 (36) | 2.3 (58) | 0.5 (12) |
| 99285-4-7320 | 6 | -25 to +85 | 1.4 (36) | 2.8 (70) | 0.5 (12) |
| 99286-4-7320 | 8 | -25 to +85 | 1.6 (40) | 2.6 (67) | 0.5 (12) |
| 99287-4-7320 | 10 | -25 to +85 | 1.6 (40) | 2.8 (70) | 0.5 (12) |

(For larger sizes consult factory)



METAL CAPACITORS

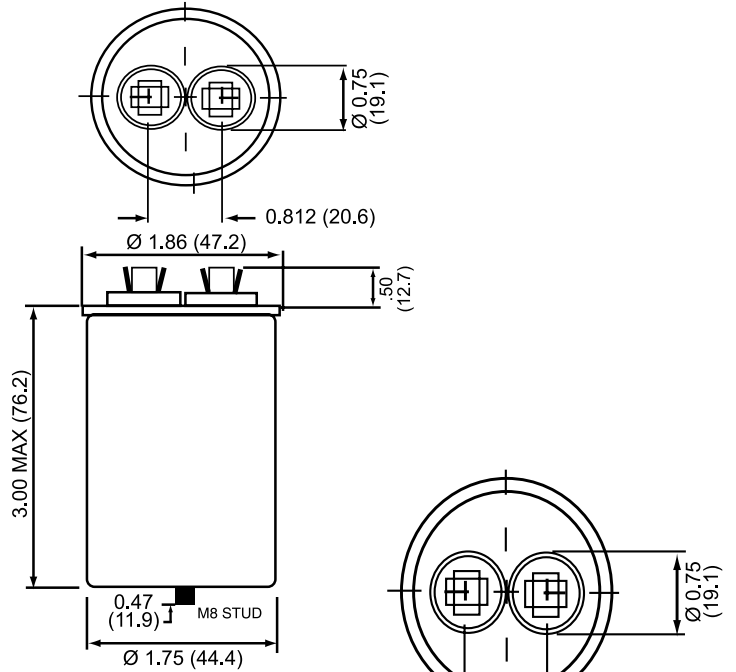
| Part Number | Size (mfd) | Temp. Range (°C) | Max. Dim in. (mm) | | |
|-------------|------------|------------------|-------------------|--------------|-------------|
| | | | a | b | c |
| 2151-4-7320 | 1 | -25 to +85 | 1.0 (25) | 2.9 (74) | 1.1 (29) |
| 2155-4-7320 | 1.5 | -25 to +85 | 1.0 (25) | 2.9 (74) | 1.1 (29) |
| 2156-4-7320 | 2 | -25 to +85 | 1.0 (25) | 2.9 (74) | 1.1 (29) |
| 2159-4-7320 | 2.5 | -25 to +85 | 1.2 (30) | 2.8 (71) | 1.3 (34) |
| 2160-4-7320 | 3 | -25 to +85 | 1.2 (30) | 3.9 (99) | 1.3 (34) |
| 2161-4-7320 | 4 | -25 to +85 | 1.2 (30) | 4.1 (104) | 1.3 (34) |
| 2162-4-7320 | 5 | -25 to +85 | 1.4 (35) | 4.1 (104) | 1.5 (39) |
| 2163-4-7320 | 6 | -25 to +85 | 1.4 (35) | 4.0 (101) | 1.5 (38) |
| 2164-4-7320 | 7 | -25 to +85 | 1.6 (40) | 4.0 (101) | 1.7 (43) |
| 2165-4-7320 | 8 | -25 to +85 | 1.4 (35) | 4.0 (101) | 1.5 (38) |
| 2166-4-7320 | 10 | -25 to +85 | 1.4 (35) | 3.9 (99) | 1.5 (39) |
| 2167-4-7320 | 12 | -25 to +85 | 1.6 (40) | 3.9 (99) | 1.7 (43) |
| 2168-4-7320 | 16 | -25 to +75 | 1.8 (46) | 6.3 (160) | 1.9 (48) |
| 2169-4-7320 | 20 | -25 to +75 | 1.8 (46) | 6.3 (160) | 1.9 (48) |
| 2170-4-7320 | 25 | -25 to +75 | 1.8 (46) | 6.3 (160) | 1.9 (48) |



Accessories - Metal Capacitors

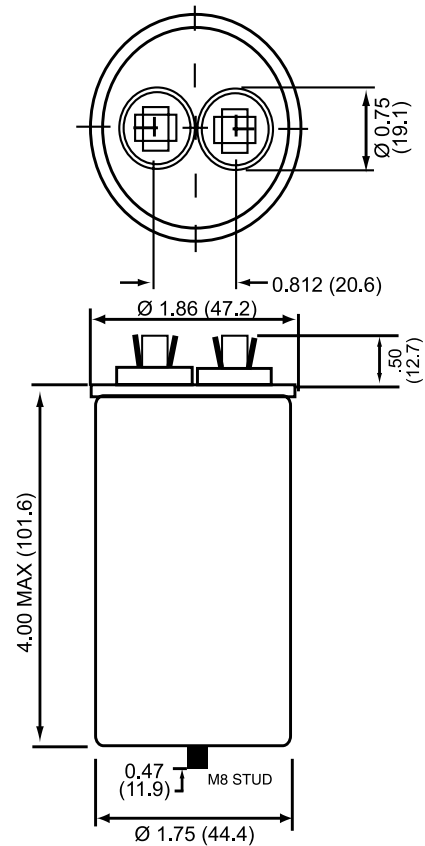
with UL, CSA and VDE Approvals

| Part Number | Size (mfd) | Temp Range ?C |
|-------------|------------|---------------|
| 450-20-0017 | 1 | -20 to +85 |
| 450-20-0018 | 1.5 | -20 to +85 |
| 450-20-0019 | 2 | -20 to +85 |
| 450-20-0020 | 2.5 | -20 to +85 |
| 450-20-0021 | 3 | -20 to +85 |
| 450-20-0022 | 4 | -20 to +85 |
| 450-20-0023 | 5 | -20 to +85 |
| 450-20-0024 | 6 | -20 to +85 |
| 450-20-0025 | 7 | -20 to +85 |
| 450-20-0026 | 8 | -20 to +85 |
| 450-20-0027 | 10 | -20 to +85 |
| 450-20-0028 | 12 | -20 to +85 |



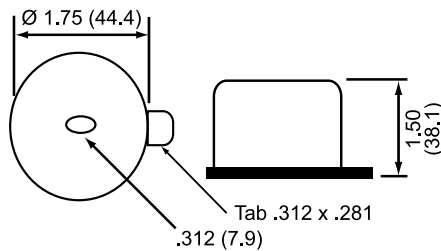
LARGER SIZE (see drawing)

| Part Number | Size (mfd) | Temp Range ?C |
|-------------|------------|---------------|
| 450-20-0029 | 16 | -20 to +85 |
| 450-20-0030 | 20 | -20 to +85 |
| 450-20-0031 | 25 | -20 to +85 |
| 450-20-0033 | 30 | -20 to +85 |
| 450-20-0034 | 40 | -20 to +85 |



| | |
|----------------------|-------------|
| Part Number for Boot | 710-00-0042 |
|----------------------|-------------|

Boot Dimensions



* UL File # for capacitors E133000(N)
 CSA File # for capacitors LR96263
 UL File # for Boot SA6016(N)

Accessories - EC Remote Drive And Control Unit

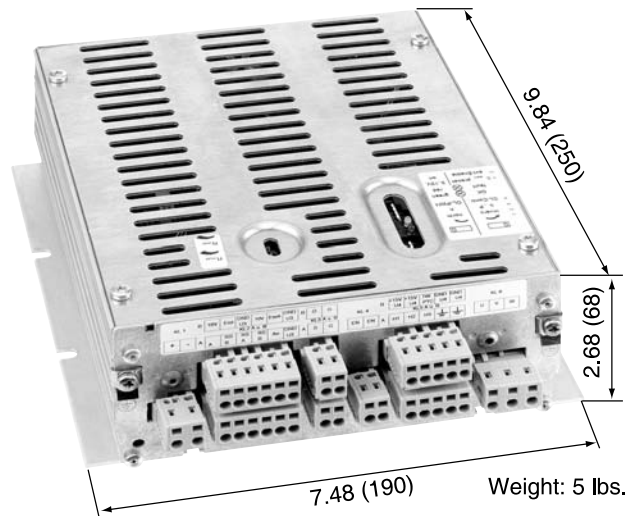
Part Numbers:

CHW050-AA01-70

CHW050-AA01-71

RATINGS:

100-120 VAC, 50/60 Hz, 250 W input
200-277 VAC, 50/60 Hz, 500 W input
2.4 A
Power Factor: >0.98 at 500 W
Leakage Current: 10 mA
Maximum ambient temperature: 40° C



STANDARDS:

| | |
|-----------------|---|
| UL508C | Power Conversion Equipment file # E208140 |
| EN50081-1 | RFI Emissions |
| EN50082-2 | RFI Susceptibility |
| DIN EN61000-3-2 | Harmonics |

Standard features with CHW050-AA01-71:

Digital ebm BUS interface
Green power ON indicator LED
Red ALARM indicator LED
Alarm relay NC
Alarm relay NO
Temperature and locked rotor
protection
Short circuit protection
Limited ground fault protection
Cage clamp connector included

Additional features with CHW050-AA01-70:

Open collector tach Output (3 pulses/rev.)
0-10 V external sensor input
0-10 V control input
Enable input
Potentiometers for MIN and MAX settings
10 VDC / 20 mA stabilized power supply
18 VDC / 25 mA non-stabilized power supply

Available Accessories:

25711-2-0199 Application software LISA
21487-1-0174 Transceiver RS232 / RS485
25710-1-0174 Repeater RS485