

FE2 Series Explosion-Proof Electric Air Heaters



FE2 heaters are CE Marked & ATEX Approved to Directive 94/9/EC for use in hazardous locations. They are designed for dry indoor industrial applications such as oil refineries, petrochemical plants, pulp and paper mills, hazardous waste storage facilities, wastewater treatment plants, etc., where specific explosive gases or dusts maybe present. IP55 rated units available.

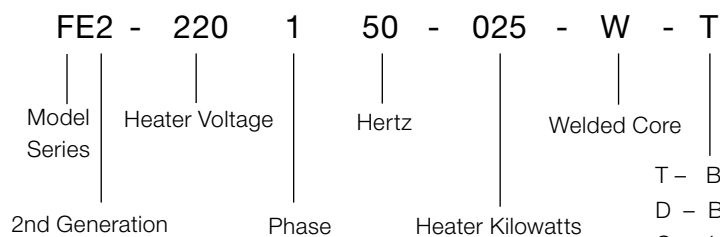
All FE2 heaters utilize the VacuCore® liquid-to-air heat exchanger. The induced vacuum within the sealed core provides greater efficiency, even distribution of heat across the face of the exchanger, and a faster warm-up. When necessary, the entire core can be safely and easily replaced with a new exchanger or core.

The heater core assembly is contained in a sturdy, epoxy-coated, 12-gauge steel cabinet which also carries the motor and fan assembly. Adjustable louvres allow directional control of the airflow. A narrow gap, two-piece fan guard is provided to shield all moving parts. All fasteners are zinc plated for corrosion protection.

All aspects and details of the FE2 are subjected to exhaustive technical analysis and testing during design and development, and are manufactured under a registered quality assurance program. As a result, they have consistently proven their safety and reliability.



Model Coding



- T – Built-in thermostat
- D – Built-in disconnect switch
- C – Heresite® coating
- A – Stainless steel cabinet
- U – Continuous fan
- B – Low ambient option -50°F (-50°C)
- M25 – M25 adapter field entry
- L – Large junction box

Table 9 – Performance Data for 50 Hertz FE2

CE DEMKO 10 ATEX 0910365X  II 2 G, Ex d IIB T3 Gb  1 Ex d IIB T3 Gb X

| Volts | Model | Nominal Wattage | BTU/hr | Phase | Air Temperature Rise | | |
|-------|-----------------|-----------------|---------|-------|----------------------|------|------|
| | | kW | | | Total Current A | °C | °F |
| 220 | FE2-220150-025 | 2.5 | 8,550 | 1 | 11.4 | 10.6 | 19.2 |
| | FE2-220150-042 | 4.2 | 14,350 | | 19.1 | 17.9 | 32.2 |
| | FE2-220150-063 | 6.3 | 21,500 | | 28.6 | 15.8 | 28.4 |
| | FE2-220150-084 | 8.4 | 28,700 | | 38.2 | 21 | 37.8 |
| | FE2-220150-126 | 12.6 | 43,050 | | 57.3 | 15.3 | 27.6 |
| 230 | FE2-230150-028 | 2.8 | 9,550 | | 12 | 12 | 21.6 |
| | FE2-230150-046 | 4.6 | 15,700 | | 20 | 19.8 | 35.6 |
| | FE2-230150-069 | 6.9 | 23,550 | | 29.9 | 17.4 | 31.4 |
| | FE2-230150-092 | 9.2 | 31,400 | | 39.9 | 23.2 | 41.8 |
| | FE2-230150-138 | 13.8 | 47,150 | | 59.9 | 17 | 30.5 |
| 240 | FE2-240150-030 | 3 | 10,250 | | 12.4 | 12.8 | 23.1 |
| | FE2-240150-050 | 5 | 17,100 | | 20.8 | 21.4 | 38.5 |
| | FE2-240150-075 | 7.5 | 25,600 | | 31.2 | 18.8 | 33.9 |
| | FE2-240150-100 | 10 | 34,150 | | 41.7 | 25.1 | 45.2 |
| | FE2-240150-150 | 15 | 51,250 | | 62.5 | 18.3 | 32.9 |
| 380 | FE2-380350-025 | 2.5 | 8,550 | | 3.8 | 11.2 | 20.1 |
| | FE2-380350-042 | 4.2 | 14,350 | | 6.4 | 18.7 | 33.7 |
| | FE2-380350-063 | 6.3 | 21,500 | | 9.6 | 16.5 | 29.7 |
| | FE2-380350-084 | 8.4 | 28,700 | | 12.8 | 22 | 39.7 |
| | FE2-380350-125 | 12.5 | 42,700 | | 19 | 15.9 | 28.7 |
| | FE2-380350-167 | 16.7 | 57,050 | 25.4 | 21.3 | 38.3 | |
| | FE2-380350-209 | 20.9 | 71,400 | 31.8 | 12.9 | 23.3 | |
| 400 | FE2-400350-028 | 2.8 | 9,550 | 4.1 | 12.3 | 22.1 | |
| | FE2-400350-046 | 4.6 | 15,700 | 6.6 | 20.2 | 36.3 | |
| | FE2-400350-069 | 6.9 | 23,550 | 10 | 17.8 | 32.1 | |
| | FE2-400350-093 | 9.3 | 31,750 | 13.4 | 24 | 43.2 | |
| | FE2-400350-139 | 13.9 | 47,450 | 20.1 | 17.4 | 31.4 | |
| | FE2-400350-185 | 18.5 | 63,200 | 26.7 | 23.2 | 41.8 | |
| | FE2-400350-231 | 23.1 | 78,900 | 33.3 | 14.1 | 25.4 | |
| 415 | FE2-415350-037 | 3.7 | 12,650 | 5.1 | 16.2 | 29.1 | |
| | FE2-415350-075 | 7.5 | 25,600 | 10.4 | 19.2 | 34.6 | |
| | FE2-415350-149 | 14.9 | 50,900 | 20.7 | 18.6 | 33.4 | |
| | FE2-415350-187* | 18.7 | 63,850 | 26 | 23.3 | 41.9 | |
| | FE2-415350-224 | 22.4 | 76,500 | 31.2 | 13.6 | 24.4 | |
| | FE2-415350-262* | 26.2 | 89,500 | 36.5 | 15.9 | 28.6 | |
| 440 | FE2-440350-042 | 4.2 | 14,350 | 5.5 | 19.3 | 34.8 | |
| | FE2-440350-084 | 8.4 | 28,700 | 11 | 21.8 | 39.2 | |
| | FE2-440350-168 | 16.8 | 57,400 | 22 | 21 | 37.9 | |
| | FE2-440350-210 | 21 | 71,700 | 27.6 | 12.7 | 22.9 | |
| | FE2-440350-252* | 25.2 | 86,050 | 33.1 | 15.2 | 27.4 | |
| | FE2-440350-294* | 29.4 | 100,400 | 38.6 | 17.8 | 32 | |

Note:

*Available on "B" models only.

1. Minimum conductor size for 30°C (86°F) ambient. Derate conductor for ambient temperature. Use minimum 90°C (194°F) insulation.
2. Heater is functioning normally if at rated voltage the amp draw is within 10% of the value in this table.
3. Operation at lower voltage will result in reduced heat output and amp draw.
4. Add "T" to model number when adding a built-in thermostat.

5. Add "D" to model number for units with disconnect switch option.
6. Add "A" to model number for units with stainless-steel cabinet.
7. Add "C" to model number for Heresite® coated panels and core.
8. Add "U" to model number for units with a continuous fan.
9. Add "B" for minimum ambient temperature of -50°C. Contact factory for available models.
10. Add "M25" for M25 adapter field entry.

Table 10 – Performance Data for 60 Hertz FE2

CE DEMKO 10 ATEX 0910365X Ex II 2 G, Ex d IIB T3 Gb EAC 1 Ex d IIB T3 Gb X

| Volts | Model | Nominal Wattage | BTU/hr | Phase | Total Current | | Air Temperature Rise | |
|-------|-----------------|-----------------|---------|-------|---------------|------|----------------------|--|
| | | kW | | | A | °C | °F | |
| 220 | FE2-220160-025 | 2.5 | 8,550 | 1 | 11.4 | 8.8 | 15.8 | |
| | FE2-220160-042 | 4.2 | 14,350 | | 19.1 | 14.8 | 26.6 | |
| | FE2-220160-063 | 6.3 | 21,500 | | 28.6 | 13 | 23.4 | |
| | FE2-220160-084 | 8.4 | 28,700 | | 38.2 | 17.4 | 31.3 | |
| | FE2-220160-126 | 12.6 | 43,050 | | 57.3 | 12.7 | 22.8 | |
| 230 | FE2-230160-028 | 2.8 | 9,550 | | 12 | 9.8 | 17.7 | |
| | FE2-230160-046 | 4.6 | 15,700 | | 20 | 16.2 | 29.1 | |
| | FE2-230160-069 | 6.9 | 23,550 | | 29.9 | 14.3 | 25.7 | |
| | FE2-230160-092 | 9.2 | 31,400 | | 39.9 | 19 | 34.2 | |
| | FE2-230160-138 | 13.8 | 47,150 | | 59.9 | 13.9 | 24.9 | |
| 240 | FE2-240160-030 | 3 | 10,250 | | 12.4 | 10.5 | 19 | |
| | FE2-240160-050 | 5 | 17,100 | | 20.8 | 17.6 | 31.7 | |
| | FE2-240160-075 | 7.5 | 25,600 | | 31.2 | 15.5 | 27.9 | |
| | FE2-240160-100 | 10 | 34,150 | | 41.7 | 20.7 | 37.2 | |
| | FE2-240160-150 | 15 | 51,250 | | 62.5 | 15.1 | 27.1 | |
| 440 | FE2-440360-042 | 4.2 | 14,350 | | 5.5 | 14.8 | 26.6 | |
| | FE2-440360-084 | 8.4 | 28,700 | | 11 | 17.4 | 31.3 | |
| | FE2-440360-168 | 16.8 | 57,400 | | 22 | 16.9 | 30.4 | |
| | FE2-440360-210 | 21 | 71,700 | | 27.6 | 10.2 | 18.4 | |
| | FE2-440360-252* | 25.2 | 86,050 | | 33.1 | 13.4 | 24.1 | |
| | FE2-440360-294* | 29.4 | 100,400 | | 38.6 | 15.6 | 28.1 | |
| 480 | FE2-480360-030 | 3 | 10,250 | | 3.6 | 10.5 | 19 | |
| | FE2-480360-050 | 5 | 17,100 | | 6 | 17.6 | 31.7 | |
| | FE2-480360-075 | 7.5 | 25,600 | 9 | 15.5 | 27.9 | | |
| | FE2-480360-100 | 10 | 34,150 | 12 | 20.7 | 37.2 | | |
| | FE2-480360-150 | 15 | 51,250 | 18 | 15.1 | 27.1 | | |
| | FE2-480360-200 | 20 | 68,300 | 24.1 | 20.1 | 36.1 | | |
| | FE2-480360-250* | 25 | 85,400 | 30.1 | 12.2 | 22.9 | | |
| | FE2-480360-300* | 30 | 102,450 | 36.1 | 14.6 | 27.5 | | |
| | FE2-480360-350* | 35 | 119,550 | 42.1 | 17.1 | 32 | | |

Note:

*Available on "B" models only.

1. Minimum conductor size for 30°C (86°F) ambient. Derate conductor for ambient temperature. Use minimum 90°C (194°F) insulation.
2. Heater is functioning normally if at rated voltage the amp draw is within 10% of the value in this table.
3. Operation at lower voltage will result in reduced heat output and amp draw.
4. Add "T" to model number when adding a built-in thermostat.

5. Add "D" to model number for units with disconnect switch option.
6. Add "A" to model number for units with stainless-steel cabinet.
7. Add "C" to model number for Heresite® coated panels and core.
8. Add "U" to model number for units with a continuous fan.
9. Add "B" for minimum ambient temperature of -50°C. Contact factory for available models.
10. Add "M25" for M25 adapter field entry.

Installation Instructions

- The FE2 Series Electric Air Heaters are for dry indoor use only. Do not immerse in water. Do not store or use in areas exposed to rain or snow.
- The FE2 heaters are to be used only in atmospheres having an ignition temperature higher than Temperature Code T3 200°C (329°F) for Class I & II.
- Altitude restrictions apply - see specifications above.
- Heaters should be connected to a fixed power supply and must be permanently mounted in a level, upright position during operation.
- Read and be aware of the terms of our Warranty located in the owner's manual.
- Refer to the Owner's Manual.

Table 11 – Specifications for 50 Hertz FE2

| | | Nominal kW | | | | | | | |
|--|----------------|------------|-----------|-----------|------------|-------------|-----------|-----------|-------------|
| | | 2.5 – 3.0 | 3.7 – 5.0 | 6.3 – 7.5 | 8.4 – 10.0 | 12.5 – 13.9 | 14.9 – 20 | 20.9 – 21 | 22.4 – 29.4 |
| Altitude (max.) | ft | 12,000 | 8,000 | 10,000 | 7,000 | 10,000 | 7,000 | 10,000 | 7,000 |
| | m | 3,658 | 2,438 | 3,048 | 2,134 | 3,048 | 2,134 | 3,048 | 2,134 |
| Air Flow (min.) | @ 70°F (CFM) | 387 | | 678 | | 1,404 | | 2,905 | |
| | @ 21°C (m³/hr) | 658 | | 1,152 | | 2,385 | | 4,936 | |
| Horizontal Air Throw | ft | 13 | | 25 | | 35 | | 60 | |
| | m | 4.0 | | 7.6 | | 10.7 | | 18.2 | |
| Maximum Mounting Height (to underside) | ft | 7 | | 10 | | 10 | | 20 | |
| | m | 2.1 | | 3.0 | | 3.0 | | 6.1 | |
| Motor Speed (min.) | RPM | 1360 | | | | | | | |
| Fan Diameter | in | 12 | | | 16 | | | 20 | |
| | mm | 305 | | | 406 | | | 508 | |
| Net Weight | without DS5 | lbs | 174 | | 202 | | 235 | | |
| | | kg | 79 | | 92 | | 107 | | |
| | with DS5 | lbs | 186 | | 214 | | 247 | | |
| | | kg | 84 | | 97 | | 112 | | |
| Shipping Weight | without DS5 | lbs | 228 | | 252 | | 286 | | |
| | | kg | 103 | | 114 | | 130 | | |
| | with DS5 | lbs | 240 | | 264 | | 298 | | |
| | | kg | 109 | | 120 | | 135 | | |

*Weights are an approximate maximum.

Table 12 – Specifications for 60 Hertz FE2

| | | Nominal kW | | | | | | | |
|--|----------------|------------|-----------|-----------|----------|-------------|-----------|-----------|-------------|
| | | 2.5 – 3.0 | 3.7 – 5.0 | 6.3 – 7.5 | 8.4 – 10 | 12.5 – 13.9 | 14.9 – 20 | 20.9 – 21 | 22.4 – 35.0 |
| Altitude (max.) | ft | 12,000 | 8,000 | 10,000 | 7,000 | 10,000 | 7,000 | 10,000 | 7,000 |
| | m | 3,658 | 2,438 | 3,048 | 2,134 | 3,048 | 2,134 | 3,048 | 2,134 |
| Air Flow (min.) | @ 70°F (CFM) | 394 | | 670 | | 1,380 | | 2,838 | |
| | @ 21°C (m³/hr) | 669 | | 1138 | | 2,345 | | 4,822 | |
| Horizontal Air Throw | ft | 15 | | 30 | | 40 | | 70 | |
| | m | 4.6 | | 9.1 | | 12.2 | | 21.3 | |
| Maximum Mounting Height (to underside) | ft | 7 | | 10 | | 10 | | 20 | |
| | m | 2.1 | | 3.0 | | 3.0 | | 6.1 | |
| Motor Speed (min.) | RPM | 1360 | | | | | | | |
| Fan Diameter | in | 12 | | | 16 | | | 20 | |
| | mm | 305 | | | 406 | | | 508 | |
| Net Weight | without DS5 | lbs | 174 | | 202 | | 235 | | |
| | | kg | 79 | | 92 | | 107 | | |
| | with DS5 | lbs | 186 | | 214 | | 247 | | |
| | | kg | 84 | | 97 | | 112 | | |
| Shipping Weight | without DS5 | lbs | 228 | | 252 | | 286 | | |
| | | kg | 103 | | 114 | | 130 | | |
| | with DS5 | lbs | 240 | | 264 | | 298 | | |
| | | kg | 109 | | 120 | | 135 | | |

*Weights are an approximate maximum.

General Specifications

| | |
|---|--|
| 1. Approvals | ATEX Approved (Directive 2014/34/EU) |
| 2. Hazardous Location Classifications | <p>CE DEMKO 10 ATEX 0910365X</p> <p>Ex II 2 G, Ex d IIB T3 Gb</p> <p>ERC 1 Ex d IIB T3 Gb X</p> |
| 3. Enclosures | NEMA Type 7 & 9. For dry, indoor use only. Do not immerse in water. Do not store or use in areas exposed to rain or snow |
| 4. Motor Type | Explosion-proof. Thermally protected. Permanently lubricated ball bearings 1425 RPM @ 50 Hz or 1725 RPM @ 60 Hz |
| 5. Fan | Aluminum blade. Steel spider and hub with 19 mm (3/4") bore |
| 6. Fan Guard | Split design with close wire spacing. Meets latest EN standards |
| 7. Mounting Holes | Four 16 mm (5/8") diameter holes at top of heater |
| 8. Heating Elements | Three long-life, low watt-density, high grade metal-sheathed elements |
| 9. Temperature High-Limit | Automatic reset type, snap-action bimetal, open on temperature rise. Rated 100,000 cycles at 10 amps, handles 0.130 amps |
| 10. Control Circuit | 115 V, 0.130 amps, 15 VA. (Grounded) |
| 11. Optional Built-in Thermostat | Explosion-proof. 2°C to 28°C (36°F to 82°F) Explosion-proof XTE 412. 0°C to 40°C (43°F to 104°F) |
| 12. Control Transformer | Multi-tap primary, 115 V secondary, 50 VA |
| 13. Contactor | 75 amp. Rated for 1,000,000 mechanical operations. 120 V, 15 VA coil (separately fused - protected) |
| 14. Heat Transfer Fluid | Long life formulated Propylene Glycol and water, freeze protected to -45°C (-49°F) |
| 15. Cabinet Material | 12-gauge (0.075" / 2 mm) steel. Epoxy coated with five-stage pretreatment, including iron phosphate |
| 16. Core | Steel with integral aluminum fins, vacuum charged and hermetically sealed |
| 17. Conduit Material | Heavy wall, 0.122" (3 mm) steel-plated |
| 18. Overpressure Protection | Preset 690 kPa (100 psig) seep pressure relief valve, aluminum body, not field serviceable |
| 19. Operational Temperature Limitations | -20°C to 40°C (-4°F to 104°F) and -50°C to 40°C for "B" units |
| 20. Ingress Protection | IP55 on select models |

Table 13 – Cabinet Length, Net Weight, and Shipping Weight

| | | Nominal kW | | | |
|-----------------|-----|-------------------------|-----------------------------|------------------|-----------------------------|
| | | 0.75 – 2.69 & 3.6 (T2A) | 3.01 – 3.59, 3.6 (T3) & 4.8 | 4.76, 5.28 – 7.6 | 3.13, 3.47, 3.74, 5.0, 6.26 |
| Cabinet Length | in | 31.3 | 49.4 | 59.5 | 71.8 |
| | mm | 796 | 1256 | 1511 | 1823 |
| Net Weight | lbs | 55 | 80.7 | 92.8 | 117.0 |
| | kg | 25.1 | 36.6 | 42.1 | 53.2 |
| Shipping Weight | lbs | 65 | 95 | 105 | 142 |
| | kg | 30 | 44 | 48 | 65.5 |