

THE FULL RANGE OF ZUCCATO ENERGIA ORC SYSTEMS

MARCH 2021 (v14) EDITION - OVERRIDES ALL PREVIOUS EDITIONS

Technical Specs for ULH and CHP – Series ORC Modules

| General Specifications | ZE-30-ULH | ZE-40-ULH | ZE-50-ULH | ZE-100-ULH | ZE-105-CHP |
|--|---|---------------------|---------------------|----------------------|-----------------------------|
| Thermal power input | 350 kW _T | 450 kW _T | 550 kW _T | 1200 kW _T | 1280 kW _T |
| Electric power output | 30 kW _E | 40 kW _E | 50 kW _E | 100 kW _E | 105 kW _E |
| System efficiency | 8.50 % | 8.90 % | 9.10 % | 8.30 % | 8.20 % |
| Skid dimensions (L x W x H) | 3.3 x 1.35 x 2.5 m | | 4.0 x 1.3 x 2.5 m | 5.5 x 2.5 x 3.2 m | 5.5 x 2.5 x 3.2 m |
| Weight (incl. working fluid) | ~ 3100 Kg | | ~ 4500 Kg | ~ 6500 Kg | ~ 6500 Kg |
| Vector Fluid | | | | | |
| Vector fluid | Hot Water | | | | Overheated Water |
| Vector fluid input temperature | ≥94°C | | | | ≥160°C |
| Vector fluid output temperature | 86°C | | | | 140°C |
| Vector fluid nominal flowrate | 10.20 kg/s | 13.40 kg/s | 16.42 kg/s | 28.50 kg/s | 14.88 kg/s |
| Condensation Stage | | | | | |
| Thermal power dissipation | 310 kW _T | 390 kW _T | 470 kW _T | 1100 kW _T | 1157 kW _T |
| Cooling water input temperature | 26°C | | | 27°C | 60°C |
| Cooling water output temperature | 31°C | | | 35°C | 80°C |
| Cooling water nominal flowrate | 14.81 kg/s | 18.65 kg/s | 22.46 kg/s | 32,50 kg/s | 13,82 kg/s |
| Turbine | | | | | |
| Type | | | | | |
| Working fluid temperature | 85°C input / ~60°C output | | | | 145°C input / ~100°C output |
| Stage pressure | PS4,42 (tested up to 10 bar) | | | | PS16 (tested up to 24 bar) |
| Materials | | | | | |
| Working Fluid | | | | | |
| Type | Environmentally friendly, non-flammable HFC mixture | | | | |
| Operating temperature range | 60°C < T < 165 °C | | | | |
| Operating pressure | ≤ 20 bar | | | | |
| Toxicity / Biodegradability / Ozone layer impact | Non-toxic / 100% biodegradable / Ozone-friendly | | | | |

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THE FULL RANGE OF ZUCCATO ENERGIA ORC SYSTEMS (CONT.)

Technical Specifications – LT Series ORC Modules

| General Specifications | ZE-75-LT | ZE-100-LT | ZE-150-LT | ZE-175-LT | ZE-200-LT | ZE-400-LT | ZE-500-LT |
|--|---|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Thermal power input | 550 kW _T | 740 kW _T | 1100 kW _T | 1280 kW _T | 1400 kW _T | 2630 kW _T | 3500 kW _T |
| Electric power output | 75 kW _E | 100 kW _E | 150 kW _E | 175 kW _E | 200 kW _E | 420 kW _E | 561 kW _E |
| System efficiency | 13.60 % | 13.50 % | 13.60 % | 13.60 % | 14,30 % | 16.00 % | 16.00 % |
| Skid dimensions (L x W x H) | 4.1 x 2.0 x 2.7 m | 5.6 x 2.3 x 2.65 m | | | | 10.5 x 4.5 x 4.6 m | |
| Weight (incl. working fluid) | ~ 4000 Kg | ~ 6500 Kg | ~ 6200 Kg | | | ~ 21.500 Kg | |
| Vector Fluid | | | | | | | |
| Vector fluid | Pressurized, Overheated water | | | | | | |
| Vector fluid input temperature | ≥160°C | | | | | | |
| Vector fluid output temperature | 145°C | | 140°C | | | 145°C | |
| Vector fluid nominal flowrate | 8.49 kg/s | 11.91 kg/s | 13.14 kg/s | 14.88 kg/s | 21.65 kg/s | 40.63 kg/s | 54.03 kg/s |
| Condensation Stage | | | | | | | |
| Thermal power dissipation | 471 kW _T | 640 kW _T | 940 kW _T | 1075 kW _T | 1180 kW _T | 2186 kW _T | 2909 kW _T |
| Cooling water input temperature | 32°C | 26°C | | | | 28°C | |
| Cooling water output temperature | 40°C | 36°C | | | | 38°C | |
| Cooling water nominal flowrate | 14.07 kg/s | 15.60 kg/s | 22.46 kg/s | 25.69 kg/s | 28.25 kg/s | 52.16 kg/s | 69.41 kg/s |
| Turbine | | | | | | | |
| Type | Single stage, radial inflow turbine with fixed nozzles, directly coupled to generator | | | | | | |
| Working fluid temperature | 145°C input / ~100°C output | | | | | | |
| Stage pressure | PS16 (tested up to 24 bar) | | | | | | |
| Materials | CNC Machined steel body / Aluminium alloy impeller | | | | | | |
| Working Fluid | | | | | | | |
| Type | Environmentally friendly, non-flammable HFC mixture | | | | | | |
| Operating temperature range | 60°C < T < 165 °C | | | | | | |
| Operating pressure | ≤ 20 bar | | | | | | |
| Toxicity / Biodegradability / Ozone layer impact | Non-toxic / 100% biodegradable / Ozone-friendly | | | | | | |

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