

# TEDOM CHP System Datasheet

## Key features of Kinsley TEDOM Combined Heat and Power Systems

**Complete, integrated CHP systems** - engineered, built and tested in a high-quality factory environment

**Full range of power ratings** - from 35 kW to 4.0 MW in a single engine

**Customizable, engineered solutions** to meet the specific needs of each application, including:

- fuel - natural gas, biogas, propane
- heat recovery - hot water, steam, chilled water
- emissions control - rich-burn, low NOx lean-burn, SCR
- packaging - indoor open module, indoor sound enclosure, outdoor container

**Comprehensive long-term service** by Kinsley, including 24/7 remote monitoring and U.S. parts management

|             |                    |
|-------------|--------------------|
| TEDOM Model | <b>Cento M555</b>  |
| Fuel Input  | <b>Natural Gas</b> |



| System Performance    | % rated load        | 100%      | 75%       | 50%       | Notes                       |
|-----------------------|---------------------|-----------|-----------|-----------|-----------------------------|
| Electrical Output     | <i>kW</i>           | 555       | 416       | 278       |                             |
| Electrical Efficiency | <i>%, LHV</i>       | 38.8%     | 37.7%     | 35.1%     |                             |
| Fuel Consumption      | <i>BTU/hr, HHV</i>  | 5,424,124 | 4,186,790 | 2,997,949 |                             |
| Max Hot Water Output  | <i>BTU/hr</i>       | 2,306,607 | 1,818,671 | 1,344,383 | Jacket Water + Exhaust Heat |
| Thermal Efficiency    | <i>%, LHV</i>       | 47.2%     | 48.3%     | 49.8%     |                             |
| Overall Efficiency    | <i>%, LHV</i>       | 86.0%     | 86.0%     | 84.9%     |                             |
| Heat Rate             | <i>BTU/kWh, LHV</i> | 8,796     | 9,053     | 9,723     |                             |

| Heat Recovery  | % rated load  | 100%      | 75%       | 50%     | Notes                                   |
|--|---------------|-----------|-----------|---------|---|
| Jacket Water Heat  | <i>BTU/hr</i> | 1,381,917 | 1,068,000 | 788,204 | includes lube oil heat                  |
| Turbo Intercooler Heat (low temp)                                | <i>BTU/hr</i> | 170,640   | 122,861   | 85,320  | not included in hot water output above  |
| Exhaust Heat   | <i>BTU/hr</i> | 924,690   | 750,671   | 556,179 | cooled to 250F                          |
| Engine Exhaust Temp  | <i>°F</i>     | 748       |           |         |   |
| Exhaust Mass Flow, Wet   | <i>lbs/hr</i> | 6,655     | 5,012     | 3,450   |   |
| <b>Hot Water</b>   |               |           |           |         |   |
| Maximum Supply Temperature                                       | <i>°F</i>     | 194       | 194       | 194     | Option for 210 F                        |
| Maximum Return Temperature                                       | <i>°F</i>     | 158       | 158       | 158     | 158 F is maximum for full heat recovery |
| Nominal Flow Rate (water)  | <i>GPM</i>    | 128       | 101       | 75      |   |
| <b>Chilled Water (with single-effect absorber)</b>               |               |           |           |         |   |
| Chilled Water Output   | <i>RTons</i>  | 144       | 114       | 84      | COP=0.75 using max hot water output     |
| <b>Steam (with exhaust heat recovery steam generator (HRSG))</b> |               |           |           |         |   |
| Steam @ 15 psig  | <i>lbs/hr</i> | 860       |           |         |   |
| Steam @ 120 psig   | <i>lbs/hr</i> | 649       |           |         | maximum practical pressure              |

| Engine Specifications                 |                        |                 | Notes                                     |
|---------------------------------------|------------------------|-----------------|---|
| Manufacturer Model # / Cylinders      |                        | MAN E3262 LE202 |   |
| Speed                                 | <i>RPM</i>             | 1800            |   |
| Oil consumption, ave/max              | <i>grams/kWh</i>       | 0.16 / 0.32     | at rated power                            |
| Oil volume, engine/replenishment tank | <i>gallons</i>         | 24 / 34         | Additional clean/waste oil tank available |
| Major overhaul interval               | <i>operating hours</i> | 40,000          |   |

| Generator Specifications    |                       |                         | Notes       |
|-----------------------------|-----------------------|-------------------------|-------------|
| Manufacturer / Model #      |                       | Leroy Somer LSA 49.3 M6 | synchronous |
| Voltage / Frequency / Speed | <i>VAC / Hz / RPM</i> | 480 / 60 / 1800         |             |
| Rated Power                 | <i>kVA</i>            | 693                     |             |
| Rated Current               | <i>A</i>              | 835                     |             |
| Power Factor                |                       | 0.8 - 1.0               |             |

| Fuel                          |                |             | Notes                    |
|-------------------------------|----------------|-------------|--------------------------|
| Fuel type                     |                | Natural Gas | biogas options available |
| Lower heating value (minimum) | <i>BTU/SCF</i> | 912         |                          |
| Methane Number (minimum)      |                | 80          |                          |
| Gas Pressure                  | <i>psi</i>     | 0.7 - 1.4   |                          |
| Gas Temperature (maximum)     | <i>°F</i>      | 95          |                          |

| Combustion, Exhaust & Ventilation Air |              |           | Notes                                     |
|---------------------------------------|--------------|-----------|---|
| Combustion Air Flow Rate              | <i>CFM</i>   | 1,360     |   |
| Exhaust Gas Flow Rate                 | <i>CFM</i>   | 1,410     |   |
| Exhaust Temperature, nom/max          | <i>°F</i>    | 248 / 302 |   |
| Exhaust Back Pressure Allowed         | <i>psi</i>   | 0.15      | after exhaust heat exchanger and silencer |
| Heat Rejection to Ventilation Air     | <i>BTU/h</i> | 198,000   |   |
| Ventilation Air Flow, max             | <i>CFM</i>   | 9,707     | SE, C at 122F ventilation outlet temp.    |
| Ventilation Inlet Air Temp, min/max   | <i>°F</i>    | 32 / 95   | Indoor OM and SE installations            |
| Outdoor Air Temp, min/max             | <i>°F</i>    | -4 / 95   | Outdoor C installations                   |

| Emissions (@ 15% O <sub>2</sub> in exhaust) |                | Standard | Reduced | With SCR | Notes                              |
|---|----------------|----------|---------|----------|------------------------------------|
| NO <sub>x</sub>                             | <i>g/bHP-h</i> | 1.10     | 0.54    | <0.05    | lean-burn engine                   |
| CO  | <i>g/bHP-h</i> | 1.40     | 0.65    | <0.05    | system includes oxidation catalyst |

| Dimensions & Noise |               | Open Module (OM) | Sound Enclosure (SE) | Outdoor Container (C) | Notes   |
|--------------------|---------------|------------------|----------------------|-----------------------|---|
| Length             | <i>ft, in</i> | 15' 9"           | 15' 11"              | 19' 11"               | Dimensions do not include accessories including exhaust silencer, exhaust heat exchanger, and cooling modules. See drawings for more details. |
| Width              | <i>ft, in</i> | 5' 7"            | 5' 9"                | 8' 0"                 |   |
| Height             | <i>ft, in</i> | 7' 3"            | 8' 4"                | 8' 6"                 |   |
| Operating weight   | <i>lbs</i>    | 19,513           | 21,607               | 37,482                |   |
| Noise Emissions    | <i>dBA</i>    | 96 @ 3 ft        | 80* @ 3 ft           | 65 @ 33 ft            | * option for 65 dBA @ 3 ft  |

System performance subject to change without notice.

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