Wide range of water heaters designed for use with pressure jet oil and gas burners • Compatible with other forced draft plant • Riello gas and oil burners supplied as standard. Other burners that meet the combustion specifications can be used if required • Universal burner mounting plate • Simple and easy accessible controls • Waterway access cover for comprehensive waterside tank maintenance • Replaceable magnesium anodes • Voltage-free contact for general fault indication • Optional ancillaries: Unvented kits • Destratication pump kit • Powered anodes
## Technical specifications

### Gas data gas 2H (G20)

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong> kW</td>
<td>66.6</td>
<td>83.8</td>
<td>99.9</td>
<td>127.7</td>
<td>149.9</td>
<td>194.3</td>
</tr>
<tr>
<td><strong>Output</strong> kW</td>
<td>50.4</td>
<td>63.0</td>
<td>75.6</td>
<td>96.9</td>
<td>113.4</td>
<td>147.0</td>
</tr>
<tr>
<td><strong>Inlet pressure mbar</strong></td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td><strong>Gas consumption</strong> m³/h</td>
<td>6.3</td>
<td>7.9</td>
<td>9.5</td>
<td>12.2</td>
<td>14.3</td>
<td>18.5</td>
</tr>
<tr>
<td><strong>Burner model</strong></td>
<td>912 T1</td>
<td>912 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
</tr>
</tbody>
</table>

### Gas data butane (G30)

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong> kW</td>
<td>65.0</td>
<td>81.3</td>
<td>97.5</td>
<td>125.0</td>
<td>146.7</td>
<td>189.7</td>
</tr>
<tr>
<td><strong>Output</strong> kW</td>
<td>50.4</td>
<td>63.0</td>
<td>75.6</td>
<td>96.6</td>
<td>113.4</td>
<td>147.0</td>
</tr>
<tr>
<td><strong>Inlet pressure mbar</strong></td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td><strong>Gas consumption</strong> kg/h</td>
<td>4.7</td>
<td>5.9</td>
<td>7.1</td>
<td>9.1</td>
<td>10.6</td>
<td>13.8</td>
</tr>
<tr>
<td><strong>Burner model</strong></td>
<td>912 T1</td>
<td>912 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
</tr>
</tbody>
</table>

### Gas data propane (G31)

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong> kW</td>
<td>65.2</td>
<td>81.5</td>
<td>97.8</td>
<td>125.0</td>
<td>146.7</td>
<td>190.2</td>
</tr>
<tr>
<td><strong>Output</strong> kW</td>
<td>50.4</td>
<td>63.0</td>
<td>75.6</td>
<td>96.6</td>
<td>113.4</td>
<td>147.0</td>
</tr>
<tr>
<td><strong>Inlet pressure mbar</strong></td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td><strong>Gas consumption</strong> kg/h</td>
<td>4.7</td>
<td>5.8</td>
<td>7.0</td>
<td>8.9</td>
<td>10.5</td>
<td>13.6</td>
</tr>
<tr>
<td><strong>Burner model</strong></td>
<td>912 T1</td>
<td>912 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
<td>913 T1</td>
</tr>
</tbody>
</table>

### Oil data (HBO I)

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong> (lower value) kW</td>
<td>62.8</td>
<td>75.4</td>
<td>87.9</td>
<td>113.0</td>
<td>138.0</td>
<td>201.0</td>
</tr>
<tr>
<td><strong>Output</strong> kW</td>
<td>52.8</td>
<td>63.3</td>
<td>73.8</td>
<td>94.9</td>
<td>115.9</td>
<td>168.8</td>
</tr>
<tr>
<td><strong>Pump pressure</strong> kPa (bar)</td>
<td>1200 (12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oil flow rate</strong> kg/h</td>
<td>5.3</td>
<td>6.3</td>
<td>7.4</td>
<td>9.5</td>
<td>11.6</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Burner model</strong></td>
<td>RG 2</td>
<td>RG 2</td>
<td>RG 3</td>
<td>RG 3</td>
<td>RG 3</td>
<td>RG 45</td>
</tr>
</tbody>
</table>

### General

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Efficiency (gross)</strong> %</td>
<td>76</td>
<td>76</td>
<td>76</td>
<td>76</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td><strong>Weight empty</strong> kg</td>
<td>230</td>
<td>230</td>
<td>240</td>
<td>265</td>
<td>265</td>
<td>305</td>
</tr>
<tr>
<td><strong>Maximum weight (incl. burner)</strong> kg</td>
<td>582</td>
<td>582</td>
<td>588</td>
<td>577</td>
<td>577</td>
<td>594</td>
</tr>
<tr>
<td><strong>Storage capacity</strong> l</td>
<td>322</td>
<td>322</td>
<td>318</td>
<td>282</td>
<td>282</td>
<td>259</td>
</tr>
<tr>
<td><strong>Max. temperature setting</strong> °C</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td><strong>Maximum working pressure</strong> kPa (bar)</td>
<td>800 (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Draw-off capacity

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tcold = 10°C / Tset = Tmax</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>30 min. ∆T=44°C l/h</strong></td>
<td>853</td>
<td>964</td>
<td>1070</td>
<td>1209</td>
<td>1356</td>
<td>1623</td>
</tr>
<tr>
<td><strong>60 min. ∆T=44°C l/h</strong></td>
<td>1346</td>
<td>1580</td>
<td>1808</td>
<td>2153</td>
<td>2465</td>
<td>3059</td>
</tr>
<tr>
<td><strong>90 min. ∆T=44°C l/h</strong></td>
<td>1838</td>
<td>2193</td>
<td>2547</td>
<td>3097</td>
<td>3573</td>
<td>4498</td>
</tr>
<tr>
<td><strong>120 min. ∆T=44°C l/h</strong></td>
<td>2331</td>
<td>2811</td>
<td>3286</td>
<td>4041</td>
<td>4681</td>
<td>5932</td>
</tr>
<tr>
<td><strong>Continuous ∆T=44°C l/h</strong></td>
<td>985</td>
<td>1231</td>
<td>1478</td>
<td>1888</td>
<td>2216</td>
<td>2873</td>
</tr>
<tr>
<td><strong>Heating-up time ∆T=44°C min.</strong></td>
<td>16</td>
<td>17</td>
<td>19</td>
<td>20</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td><strong>30 min. ∆T=50°C l/h</strong></td>
<td>751</td>
<td>848</td>
<td>941</td>
<td>1064</td>
<td>1194</td>
<td>1428</td>
</tr>
<tr>
<td><strong>60 min. ∆T=50°C l/h</strong></td>
<td>1184</td>
<td>1390</td>
<td>1591</td>
<td>1894</td>
<td>2169</td>
<td>2692</td>
</tr>
<tr>
<td><strong>90 min. ∆T=50°C l/h</strong></td>
<td>1618</td>
<td>1932</td>
<td>2242</td>
<td>2725</td>
<td>3144</td>
<td>3956</td>
</tr>
<tr>
<td><strong>120 min. ∆T=50°C l/h</strong></td>
<td>2051</td>
<td>2474</td>
<td>2892</td>
<td>3556</td>
<td>4119</td>
<td>5221</td>
</tr>
<tr>
<td><strong>Continuous ∆T=50°C l/h</strong></td>
<td>867</td>
<td>1084</td>
<td>1300</td>
<td>1662</td>
<td>1951</td>
<td>2528</td>
</tr>
<tr>
<td><strong>Heating-up time ∆T=50°C min.</strong></td>
<td>18</td>
<td>15</td>
<td>10</td>
<td>9</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>30 min. ∆T=55°C l/h</strong></td>
<td>682</td>
<td>771</td>
<td>856</td>
<td>967</td>
<td>1085</td>
<td>1288</td>
</tr>
<tr>
<td><strong>60 min. ∆T=55°C l/h</strong></td>
<td>1077</td>
<td>1264</td>
<td>1447</td>
<td>1722</td>
<td>1972</td>
<td>2447</td>
</tr>
<tr>
<td><strong>90 min. ∆T=55°C l/h</strong></td>
<td>1471</td>
<td>1756</td>
<td>2038</td>
<td>2477</td>
<td>2858</td>
<td>3597</td>
</tr>
<tr>
<td><strong>120 min. ∆T=55°C l/h</strong></td>
<td>1865</td>
<td>2249</td>
<td>2629</td>
<td>3233</td>
<td>3745</td>
<td>4746</td>
</tr>
<tr>
<td><strong>Continuous ∆T=55°C l/h</strong></td>
<td>788</td>
<td>985</td>
<td>1182</td>
<td>1510</td>
<td>1773</td>
<td>2299</td>
</tr>
<tr>
<td><strong>Heating-up time ∆T=55°C min.</strong></td>
<td>25</td>
<td>20</td>
<td>16</td>
<td>11</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical data

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power consumption</strong> W</td>
<td>180</td>
<td>180</td>
<td>385</td>
<td>385</td>
<td>385</td>
<td>390</td>
</tr>
<tr>
<td><strong>Power supply</strong> VAC/Hz</td>
<td>230 (-15% +10%) / 50 (± 1 Hz)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Shipping data

<table>
<thead>
<tr>
<th></th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 295</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight incl. packaging (incl. burner)</strong> kg</td>
<td>240</td>
<td>240</td>
<td>250</td>
<td>275</td>
<td>275</td>
<td>315</td>
</tr>
<tr>
<td><strong>Width packaging</strong> mm</td>
<td>770</td>
<td>770</td>
<td>770</td>
<td>770</td>
<td>770</td>
<td>770</td>
</tr>
<tr>
<td><strong>Height packaging (excl. burner)</strong> mm</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2150</td>
<td>2280</td>
</tr>
<tr>
<td><strong>Depth packaging</strong> mm</td>
<td>970</td>
<td>970</td>
<td>970</td>
<td>970</td>
<td>970</td>
<td>970</td>
</tr>
</tbody>
</table>

* Gas data on gross value
** Gas consumption at 15°C and 1013.25 mbar
*** Oil flow rate at 20°C and 1013.25 mbar
Dimensions

<table>
<thead>
<tr>
<th>Model</th>
<th>COF 199</th>
<th>COF 245</th>
<th>COF 315</th>
<th>COF 385</th>
<th>COF 455</th>
<th>COF 700</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1900</td>
<td>1900</td>
<td>1900</td>
<td>1900</td>
<td>1900</td>
<td>1900</td>
</tr>
<tr>
<td>D</td>
<td>705</td>
<td>705</td>
<td>705</td>
<td>705</td>
<td>705</td>
<td>705</td>
</tr>
<tr>
<td>E</td>
<td>725</td>
<td>725</td>
<td>725</td>
<td>725</td>
<td>725</td>
<td>725</td>
</tr>
<tr>
<td>G</td>
<td>150</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>250*</td>
</tr>
<tr>
<td>K</td>
<td>295</td>
<td>295</td>
<td>295</td>
<td>295</td>
<td>295</td>
<td>330</td>
</tr>
<tr>
<td>M</td>
<td>685</td>
<td>685</td>
<td>685</td>
<td>640</td>
<td>640</td>
<td>765</td>
</tr>
<tr>
<td>N</td>
<td>1700</td>
<td>1700</td>
<td>1720</td>
<td>1650</td>
<td>1650</td>
<td>1770</td>
</tr>
<tr>
<td>P</td>
<td>620</td>
<td>620</td>
<td>620</td>
<td>620</td>
<td>620</td>
<td>755</td>
</tr>
<tr>
<td>R</td>
<td>540</td>
<td>540</td>
<td>585</td>
<td>605</td>
<td>605</td>
<td>670</td>
</tr>
<tr>
<td>S</td>
<td>1700</td>
<td>1700</td>
<td>1700</td>
<td>1630</td>
<td>1630</td>
<td>1750</td>
</tr>
</tbody>
</table>

1. Cold water supply Rp11/2
2. Hot water outlet Rp11/2
3. T & P valve 1 4 NPT
4. Tank drain valve 3 4 - 14 NPT
5. Cleaning and inspection opening 95x70

* After installing flue reducer

Dimensions in mm.

Installation diagrams

Vented

Unvented

Further installation and connection details can be found in the Installation & Commissioning Manual.

A.O. Smith unvented system kits utilise combination valves.
Flue system

A COF water heater should be installed according category B23.

Maximum flue length for the COF 199 to 700 is 100 metres. Subtract three meters for each bend. When the flue system exceeds 10 metres, a condensation drain should be installed.

Note:
- On the COF 199 & 700 units a flue adaptor ring must be installed.
- For oil-fired units a stainless steel flue system should be utilised.
- Horizontal flue runs must be installed with a fall of at least 5 mm per metre.

Water heater- and flue gas check
Before the water heater is commissioned, the items below need to be checked and/or adjusted (also see installation manual).

<table>
<thead>
<tr>
<th>Check/Adjust at Location</th>
<th>Gas</th>
<th>Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td>Burner pressure</td>
<td>Top angle nozzle (80°)</td>
</tr>
<tr>
<td></td>
<td>Combustion figures</td>
<td>(brand = Delavan)</td>
</tr>
<tr>
<td>Adjust at location</td>
<td>Burner head</td>
<td>Burner head</td>
</tr>
<tr>
<td></td>
<td>Air valve</td>
<td>Air valve</td>
</tr>
<tr>
<td></td>
<td>Switch point of air proving switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gas pressure switch (inlet gas control)</td>
<td></td>
</tr>
</tbody>
</table>