Radial riveting technology

- The world’s market leader for riveting machines
- High-quality process
- Efficient and at the same time gentle deformation
- Innovative Process-Control

...joining is our business
Welcome at BalTec!

BalTec Maschinenbau AG, founded in 1983, specializes in the manufacture of riveting systems for fastening technology. The company, with a workforce of about 50, has marketing, engineering and service companies in Switzerland, Germany, England, France, and the USA.

In addition, we have about 40 distributors around the world who advise customers locally. BalTec maintains its position as a riveting technology leader through continuous innovation, today and in the future.

Visit us at www.baltec.com
BalTec Radial Riveting process – the rose-petal principle

- The forming tool describes a rose-petal path. In doing so a flowing, gentle deformation with the least possible force is obtained.
- Excellent surface structure of the riveting
- Low component loading
- Long life cycle of machines and tools
- Economically optimal for the whole machine life (TCO)
The complete workstation consists of:

- Riveting unit with drive motor
- Stable cast stand and pedestal
- Vertical adjustment and clamping
- Machine controller
- Complete compressed air maintenance unit for pneumatic models or hydraulic unit for hydraulic models
- Machine lamp
- Two-hand operation
### Dimensions und weights

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>K</th>
<th>L</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN 081</td>
<td>75</td>
<td>75</td>
<td>–</td>
<td>150</td>
<td>58–83</td>
<td>528–625</td>
<td>162</td>
<td>–</td>
<td>42–139</td>
<td>ø 75</td>
<td>45</td>
</tr>
<tr>
<td>RN 181/RN 181 red.</td>
<td>75</td>
<td>130</td>
<td>594</td>
<td>260</td>
<td>126–156</td>
<td>702–858</td>
<td>171</td>
<td>287</td>
<td>69–225</td>
<td>ø 75</td>
<td>75</td>
</tr>
<tr>
<td>RN 231</td>
<td>75</td>
<td>130</td>
<td>594</td>
<td>260</td>
<td>146–186</td>
<td>722–868</td>
<td>171</td>
<td>287</td>
<td>39–185</td>
<td>ø 75</td>
<td>90</td>
</tr>
<tr>
<td>RN 281</td>
<td>120</td>
<td>185</td>
<td>662</td>
<td>320</td>
<td>167–207</td>
<td>832–982</td>
<td>192</td>
<td>308</td>
<td>78–228</td>
<td>ø 125</td>
<td>170</td>
</tr>
<tr>
<td>RN 331</td>
<td>125</td>
<td>220</td>
<td>707</td>
<td>350</td>
<td>208–258</td>
<td>951–1145</td>
<td>210</td>
<td>322</td>
<td>78–272</td>
<td>ø 125</td>
<td>260</td>
</tr>
<tr>
<td>RN 381</td>
<td>125</td>
<td>180</td>
<td>667</td>
<td>350</td>
<td>198–248</td>
<td>947–1149</td>
<td>–</td>
<td>322</td>
<td>87–289</td>
<td>ø 125</td>
<td>320</td>
</tr>
<tr>
<td>RN 481</td>
<td>only available as RNE (see page 6) and RNS (see page 12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**technical changes reserved**

### Performance of each model

<table>
<thead>
<tr>
<th>Model</th>
<th>081</th>
<th>181</th>
<th>181 red.</th>
<th>231</th>
<th>281</th>
<th>331</th>
<th>381</th>
<th>481</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivet shank¹ max. Ø in mm</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>2,3</td>
<td>6</td>
<td>1,5</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Air pressure in bar</td>
<td>2–6</td>
<td>2–6</td>
<td>2–6</td>
<td>2–6</td>
<td>2–6</td>
<td>2–6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Hydraulic pressure in bar</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>10–65</td>
<td>145</td>
</tr>
<tr>
<td>Riveting force² in kN</td>
<td>2,3</td>
<td>6</td>
<td>1,5</td>
<td>12</td>
<td>17</td>
<td>33</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>Working stroke in mm</td>
<td>2–25</td>
<td>5–30</td>
<td>5–30</td>
<td>5–40</td>
<td>5–40</td>
<td>5–50</td>
<td>5–50</td>
<td>5–90</td>
</tr>
</tbody>
</table>

¹ Steel 370 N/mm² (St. 37), ² max. riveting in kN

**technical changes reserved**
For each application the appropriate sized machine

- The optimum range of sizes enables their riveting performance to be fully utilized.
- All riveting units may be installed in special machines, rotary indexing tables or transfer installations – in any desired orientation.
- The riveting force is generated hydraulically or pneumatically, depending on the model.

### Performance of each model

<table>
<thead>
<tr>
<th>Model</th>
<th>081</th>
<th>181</th>
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<th>381</th>
<th>481</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivet shank max. Ø in mm</td>
<td>4</td>
<td>6</td>
<td>2</td>
<td>8.5</td>
<td>12</td>
<td>16</td>
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<td>2–6</td>
<td>2–6</td>
</tr>
<tr>
<td>Hydraulic pressure in bar</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>10–65</td>
<td>145</td>
</tr>
<tr>
<td>Riveting force in kN</td>
<td>2.3</td>
<td>6</td>
<td>1.5</td>
<td>12</td>
<td>17</td>
<td>33</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>Working stroke in mm</td>
<td>2–25</td>
<td>5–30</td>
<td>5–30</td>
<td>5–40</td>
<td>5–40</td>
<td>5–50</td>
<td>5–50</td>
<td>5–90</td>
</tr>
</tbody>
</table>

* Steel 370 N/mm² (St. 37), * max. riveting in kN

technical changes reserved
### Dimensions und weights

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<thead>
<tr>
<th>Model</th>
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<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>RNE 081</td>
<td>416–441</td>
<td>132</td>
<td>112</td>
<td>58–83</td>
<td>75</td>
<td>115</td>
<td>ø 75</td>
<td>20</td>
</tr>
<tr>
<td>RNE 181/RNE 181 red.</td>
<td>528–558</td>
<td>173</td>
<td>142</td>
<td>126–156</td>
<td>110</td>
<td>126</td>
<td>ø 75</td>
<td>30</td>
</tr>
<tr>
<td>RNE 231</td>
<td>578–618</td>
<td>185</td>
<td>142</td>
<td>146–186</td>
<td>110</td>
<td>150</td>
<td>ø 75</td>
<td>45</td>
</tr>
<tr>
<td>RNE 281</td>
<td>633–673</td>
<td>211</td>
<td>160</td>
<td>166–206</td>
<td>125</td>
<td>172</td>
<td>ø 125</td>
<td>60</td>
</tr>
<tr>
<td>RNE 331</td>
<td>718–768</td>
<td>275</td>
<td>180</td>
<td>208–258</td>
<td>160</td>
<td>230</td>
<td>ø 125</td>
<td>110</td>
</tr>
<tr>
<td>RNE 381</td>
<td>705–755</td>
<td>200</td>
<td>180</td>
<td>198–248</td>
<td>120</td>
<td>160</td>
<td>ø 125</td>
<td>80</td>
</tr>
<tr>
<td>RNE 481</td>
<td>899–989</td>
<td>271</td>
<td>196</td>
<td>296–386</td>
<td>160</td>
<td>222</td>
<td>ø 180</td>
<td>180</td>
</tr>
</tbody>
</table>

*technical changes reserved*
**Process-Control**

**The decisive advantage**

- Process-Control allows you to maintain a predefined degree of quality in a cost-effective manner.
- Process analysis tracks the quality of the riveting process.
- All process data are automatically evaluated and stored and are available in various formats.
- Less scrap and reworking costs.
- For the proof of process capability and product liability.
- You will gain the confidence of your customers sustainably!
High Performance Package HPP-25
Cutting-edge riveting process monitoring

- Easy touchscreen operation
- 6 control parameters available
- Rivet start detected after 2 mm of form tool travel
- Ethernet and USB interfaces
- Integrated data logger
- Newest generation of processor: faster data recording and analysing
- Displays status in-/outputs: easier start-up and error diagnostics
- Integrated recording of the riveting curve: easy riveting process analysis
- PC-Software (optional) with backup, diagnostics and logger functions
Accessories and options

**Roller burnishing head**
- Perfect for large diameters and thin walls
- With the roller burnishing head you can achieve the form you require using thin-walled tubes without the tubing wall bulging or collapsing.

**MRX – multiple riveting head**
- Within a certain area you can carry out several riveting operations simultaneously. The riveting positions may lie at different heights.
  - MRX1 (for RN 081, 181, 231)
    Distance between tools in mm: min. 8, max. 70
  - MRX2 (for RN 281, 331, 381)
    Distance between tools in mm: min. 15.5, max. 85
  - MRX3 (for RN 281, 331, 381)
    Distance between tools in mm: min. 15.5, max. 120

**FSG – Finger guard device**
- Highest security and moreover faster and flexible
- Both hands are free, the riveting is initiated by foot switch
- There is no need of a fixation nor a sliding table
Pressure pad
- To secure the work pieces firmly in the workholder
- To join or to pretension before the riveting
- Pretension forces of the hold-down device are client specific, between 0.1 to 20 kN possible
- Pressure pads are manufactured corresponding to the workholder

Sliding table
- For inserting work pieces outside the riveting station
- With initiator as an option, to control the sliding table in the riveting station
- Manually or pneumatically operable sliding table available

NHE – riveting stroke limit switch unit
2 assembly sizes available, scanning sensor operates as hold-down device on basis of workpiece, pretensioning force between 20 to 300 N
Versions:
- NHE-E; to control the constant closing head height, also with external control
- NHE-U; projection measurement, autocompensation, in connection with process-controller HPP-25
- NHE-H; to control the constant closing head height, with projection measurement and autocompensation, in connection with process-controller HPP-25

Riveting machine control RC-20
- Basic control for all machines
- Machine and program configuration by means of setup function
- Menu operation with softkeys
- Counter for total stroke, operation hours, total hours
CNC coordinate riveting

Module 1
BalTec radial riveting unit, electro-pneumatic, at C-stand

Module 2
Coordinates riveting unit with X, Y traversing units

Module 3
Basic coordinates riveting station, machine frame heavy welded construction, indexing table and X, Y traversing units

Module 4
RNC 231 riveting machine as complete and autonomous workstation

This automatic, individually configurable riveting machine doubles or triples throughput even in small to medium runs. According to the required riveting force, 4 different riveting units can be applied.

Technical data of the CNC coordinate riveting machine

<table>
<thead>
<tr>
<th>Riveting range</th>
<th>X axis travel [mm]</th>
<th>300**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y axis travel [mm]</td>
<td>200**</td>
</tr>
<tr>
<td></td>
<td>X/Y axis speed [mm/s]</td>
<td>12000</td>
</tr>
<tr>
<td>Indexing table</td>
<td>Table Ø [mm]</td>
<td>870**</td>
</tr>
<tr>
<td></td>
<td>Number of stations, option</td>
<td>2/4</td>
</tr>
<tr>
<td></td>
<td>Slew time for 90° [s]</td>
<td>1.5*</td>
</tr>
<tr>
<td></td>
<td>Clamping weight max. [kg]</td>
<td>4x9</td>
</tr>
<tr>
<td>Coordinate riveting station</td>
<td>RNC 181</td>
<td>RNC 231</td>
</tr>
<tr>
<td>Diameter handled [mm]</td>
<td>6</td>
<td>8,5</td>
</tr>
<tr>
<td>Riveting force max. 6 bar [kN]</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Tool stroke [mm]</td>
<td>10 – 30</td>
<td>10 – 40</td>
</tr>
<tr>
<td>Machine controller</td>
<td>Machine controller (for Module 4): variable menu display on Window panel PC, process controller integrated (HPP-25)</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Key switch for set-up modes, cycle start with two-hand-, foot-switch or PLC interface</td>
<td></td>
</tr>
<tr>
<td>Installation data</td>
<td>Overall weight [kg]</td>
<td>840</td>
</tr>
<tr>
<td></td>
<td>Rated power [kW]</td>
<td>3,4</td>
</tr>
<tr>
<td></td>
<td>Line voltage [V]</td>
<td>400 ± 10%</td>
</tr>
<tr>
<td></td>
<td>Frequency [Hz]</td>
<td>50/60 ± 1%</td>
</tr>
<tr>
<td></td>
<td>Compressed air [bar]</td>
<td>6</td>
</tr>
</tbody>
</table>

*With reduced clamping weight on order, also with shorter switching time / **Other axis travel on request / ***Other table diameter on request technical changes reserved
Further models

Forming tools

Main tool profiles

<table>
<thead>
<tr>
<th>Models</th>
<th>Radius</th>
<th>Tool length</th>
<th>Free height</th>
<th>Shank diam.</th>
<th>Angle of inclination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RN/RNE</td>
<td>Rp</td>
<td>Ls</td>
<td>H</td>
<td>Ds</td>
<td>α</td>
</tr>
<tr>
<td>081, 181, 231</td>
<td>65</td>
<td>39</td>
<td>18</td>
<td>10</td>
<td>6° 02'</td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>54</td>
<td>33</td>
<td>10</td>
<td>4° 47'</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>74</td>
<td>53</td>
<td>10</td>
<td>3° 34'</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>94</td>
<td>73</td>
<td>10</td>
<td>3° 04'</td>
</tr>
<tr>
<td></td>
<td>132</td>
<td>106</td>
<td>85</td>
<td>10</td>
<td>2° 46'</td>
</tr>
<tr>
<td>281, 331, 381</td>
<td>100</td>
<td>68</td>
<td>28</td>
<td>20</td>
<td>5° 37'</td>
</tr>
<tr>
<td></td>
<td>116</td>
<td>84</td>
<td>44</td>
<td>20</td>
<td>4° 47'</td>
</tr>
<tr>
<td></td>
<td>122</td>
<td>100</td>
<td>60</td>
<td>20</td>
<td>4° 10'</td>
</tr>
<tr>
<td></td>
<td>148</td>
<td>116</td>
<td>76</td>
<td>20</td>
<td>3° 41'</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>138</td>
<td>98</td>
<td>20</td>
<td>3° 10'</td>
</tr>
<tr>
<td></td>
<td>191</td>
<td>159</td>
<td>119</td>
<td>20</td>
<td>2° 49'</td>
</tr>
<tr>
<td></td>
<td>240</td>
<td>208</td>
<td>168</td>
<td>20</td>
<td>2° 13'</td>
</tr>
<tr>
<td>481</td>
<td>148</td>
<td>100</td>
<td>45</td>
<td>30</td>
<td>6° 15'</td>
</tr>
<tr>
<td></td>
<td>196</td>
<td>148</td>
<td>93</td>
<td>30</td>
<td>4° 36'</td>
</tr>
<tr>
<td></td>
<td>240</td>
<td>192</td>
<td>137</td>
<td>30</td>
<td>3° 45'</td>
</tr>
<tr>
<td></td>
<td>290</td>
<td>242</td>
<td>187</td>
<td>30</td>
<td>3° 04'</td>
</tr>
</tbody>
</table>

The tool length (Ls) and the radius of the holder (Rp) result from your desired free height (H).

All machines are fitted as standard with tool holder and pressure cup.

For detailed information please ask for our separate flyers.
BalTec offers solutions for different branches. Here you find a small range of high-quality joints:

**Automotive**

- locking system
- hinge for luggage space
- brake pad piston
- striker
- drive coupling
- seat belt buckle
Medical device Industry

- dissection instrument
- surgical device

Fitting Industry

- fitting for folding bed
- kitchen fitting

Electrical and household appliances

- electrical plug
- peeler
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