Foreword

Must be followed!
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1 Introduction

1.1 Read the manual

- Please read this manual carefully and completely before using the product.
- This manual is part of the product. Keep it in a safe and easily accessible location.

1.2 This is what operating instructions look like

1. - n. are placed before steps that must be done in sequence.
   ► is placed before a step.
   ▶ describes the result of a step.

1.3 This is what lists look like

- indicates an item in a list.

1.4 This is what menu items and softkeys look like

[ ] frame menu items and softkeys.

Example:
[Start]- [Applications]- [Excel]

1.5 This is what the safety instructions look like

Signal words indicate the severity of the danger involved when measures for preventing hazards are not followed.

⚠ DANGER

Warning of personal injury
DANGER indicates death or severe, irreversible personal injury which will occur if the corresponding safety measures are not observed.

► Take the corresponding safety precautions.

⚠ WARNING

Warning of hazardous area and/or personal injury
WARNING indicates that death or severe, irreversible injury may occur if appropriate safety measures are not observed.

► Take the corresponding safety precautions.

⚠ CAUTION

Warning of personal injury.
CAUTION indicates that minor, reversible injury may occur if appropriate safety measures are not observed.

► Take the corresponding safety precautions.
NOTICE

Warning of damage to property and/or the environment.
NOTICE indicates that damage to property and/or the environment may occur if appropriate safety measures are not observed.

- Take the corresponding safety precautions.

Note:

User tips, useful information, and notes.

1.6 Hotline

Phone: +49.40.67960.444
Fax: +49.40.67960.474
eMail: help@minebea-intec.com
2 Safety instructions

2.1 General notes

**NOTICE**

Warning of damage to property and/or the environment.
The product was in perfect condition with regard to safety features when it left the factory.

▲ To maintain this condition and to ensure safe operation, the user must follow the instructions and observe the warnings in this manual.

2.2 Intended use

The load cell Inteco® has been designed especially for weighing silos, tanks, and process vessels.
The load cell Inteco® may only be used as intended for weighing tasks.
In intrinsically safe circuits, only load cells Inteco®/..E may be used.
The dimensions of all mounting and structural components must be calculated so that sufficient overload capacity is ensured for all loads which may occur while taking the relevant standards into account. In particular, upright weighing objects must be safeguarded against the weighing installation turning over or being shifted, thus eliminating danger to people, animals, or goods even in the case of a break in a load cell or mounting element.
Installation and repair work must only be carried out by expert/qualified personnel.
The load cell reflects the state of the art. The manufacturer does not accept any liability for damage caused by third-party system components or due to incorrect use of the product.

2.3 Initial inspection

Check the contents of the consignment for completeness. Check the contents visually to determine whether any damage has occurred during transport. If there are grounds for rejection of the goods, a claim must be filed with the carrier immediately. The Minebea Intec sales or service organization must also be notified.

2.4 Before operational startup

**NOTICE**

Perform visual inspection.
▲ Before operational startup as well as after storage or transport, inspect the load cell visually for signs of mechanical damage.
3 Recommendations for installation

3.1 Load cell and constrainer arrangement

Examples:

Key

* Do not constrain this position.

Constrainer

Load application

Possible direction of movement
- The supporting structure of the scale (i.e. the load cell support) and the vessel must be stable enough to withstand the specified loads, be horizontal (water level!) and flat.
- Vessels should preferably be supported by 3 load cells, platforms by 4 or 6 load cells (see figure).
- Transverse and/or horizontal forces and torques exceeding the permissible limits are disturbances which can generate measuring errors and, in the worst case, may damage the load cell.
- If the object to be measured is constrained properly, damage and measuring errors can be prevented without affecting the required space for movement in the direction of the measurement.

Consideration should be given to the fact that thermal expansion and contractions may constrict the required space for movement of the object to be weighed and could thereby lead to significant falsification of the measuring results.

Therefore, special attention should be paid to the design, arrangement, and condition of the constrainers.

3.2 Location of load cells and pivots

**Key**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pivot PR 6101</td>
</tr>
<tr>
<td>*</td>
<td>Do not constrain this position.</td>
</tr>
<tr>
<td></td>
<td>Constrainer</td>
</tr>
<tr>
<td></td>
<td>Load application</td>
</tr>
<tr>
<td></td>
<td>Possible direction of movement</td>
</tr>
</tbody>
</table>
3.3 Additional lift-off protection

For safety reasons, a lift-off protection has to be generally provided on vessels. This can be constructed separately or additionally installed in the mounting kit (see Chapter 11.2.1). For this purpose, the simplest version requires the following components:

- 1× threaded bar (1)
- 3× nut (2)
- 1× washer (3)

Assembly:
- Mount the threaded bar (1) so that it has sufficient free moving space in the drill hole.
- Lock the nuts (2) so that there is a remaining distance \(A^*\) from the washer (3).

* \(A = 2\) mm

This distance is essential to avoid force shunts.

3.4 Selecting maximum capacity

Forces exceeding the safe load limit \(E_{\text{lim}}\) in the measuring direction may change the characteristics of the load cell or damage it.

If the safe load limit \(E_{\text{lim}}\) of the load cell can be exceeded, e.g. by falling loads, then mechanical limiting in load direction is strongly recommended.

If the destructive load \(E_d\) of the load cell is exceeded, there is danger of mechanical destruction.
4 Specifications

4.1 Equipment supplied with the load cell

4.1.1 Load cells Inteco®/500 kg...75 t

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Load cell</td>
</tr>
<tr>
<td>2</td>
<td>Supporting ring</td>
</tr>
<tr>
<td>3</td>
<td>Lower load disc</td>
</tr>
<tr>
<td>4</td>
<td>Flexible copper strap</td>
</tr>
</tbody>
</table>

Positions not shown:

5 Quick guide

6 Calibration Certificate

7 Only with Ex-load cells:
   Safety information for Ex-load cells

4.2 General information

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoring force</td>
<td>For each mm of displacement that the top of the load cell is shifted from the vertical axis, a horizontal restoring force is generated:</td>
</tr>
<tr>
<td>$E_{\text{max}} \leq 10 \text{ t}$</td>
<td>$0.65%$ of the load resting vertically on the load cell</td>
</tr>
<tr>
<td>$E_{\text{max}} \geq 20 \text{ t}$</td>
<td>$1.55%$ of the load resting vertically on the load cell</td>
</tr>
</tbody>
</table>

Material for load cell housing

Stainless steel 1.4301 acc. to DIN EN 10088-3 (corresponds to AISI 304, B.S. 304S11/S15)

Protection against environmental influences

Hermetically sealed by welding.
Filled with inert gas.
Protection classes in compliance with EN 60529

**IP68/IP69:**
Dust-proof and leak-tight against water, with harmful effects when immersed, (1.5 m water depth, 10,000 h) and water jets (high pressure and temperature).

**Explosion:**
Suitable for explosion subgroup IIC and IIIC.

<table>
<thead>
<tr>
<th>Protection type</th>
<th>Intrinsic safety for Inteco®/.E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature in the Ex area</td>
<td>see additional information “safety instructions for Ex load cells”</td>
</tr>
<tr>
<td>Cable diameter</td>
<td>5 mm</td>
</tr>
<tr>
<td>Cable gauge</td>
<td>4×0.35 mm²</td>
</tr>
</tbody>
</table>
| Cable bend radius | ≥25 mm (fixed installation)  
| | ≥75 mm (flexible installation) |
| Cable sheath material | Thermoplastic elastomer (TPE) |
| Cable sheath color | Gray (standard version)  
| | Blue (Ex version) |

### 4.3 Possible marking of the load cell for the Ex area

<table>
<thead>
<tr>
<th>Zone</th>
<th>Marking</th>
<th>Certificate no.</th>
<th>for</th>
</tr>
</thead>
</table>
| 0 and 1 | II 1G Ex ia IIC T6 Ga  
Ex ia IIC T6 Ga | BVS 17 ATEX E 111X  
IECEx BVS 17.0092X | only Inteco®/.E |
| 20 and 21 | II 1D Ex ta IIIC T160 °C Da  
Ex ta IIIC T160 °C Da | TÜV 03 ATEX 2301X  
IECEx TUN 17.0025X | all Inteco® without /.E |
| 2 | II 3G Ex nA IIC T6 Gc | MIN16ATEX001X | all Inteco® without /.E |
| 22 | II 3D Ex tc IIIC T85 °C Dc | MIN16ATEX001X | all Inteco® without /.E |

<table>
<thead>
<tr>
<th>Zone</th>
<th>Marking</th>
<th>Certificate no.</th>
<th>for</th>
</tr>
</thead>
</table>
| 0 and 1 | II 1G Ex ia IIC T6 Ga  
Ex ia IIC T6 Ga | BVS 17 ATEX E 111X  
IECEx BVS 17.0092X | only Inteco®/.E |
| 20 and 21 | II 1D Ex ta IIIC T160 °C Da  
Ex ta IIIC T160 °C Da | TÜV 03 ATEX 2301X  
IECEx TUN 17.0025X | all Inteco® without /.E |
| 2 | II 3G Ex nA IIC T6 Gc | MIN16ATEX001X | all Inteco® without /.E |
| 22 | II 3D Ex tc IIIC T85 °C Dc | MIN16ATEX001X | all Inteco® without /.E |

**IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G Enti-ty - 4012 101 5688**

**NI CL I, II, III, DIV 2, GP A, B, C, D, E, F, G - 4012 101 5688; NIFW**

**T4A Ta= -40°C to 70°C; T5 Ta= -40°C to 55°C**

**FM17US0276**

**IS CL I, II, III, DIV 1, GP A, B, C, D, E, F, G Enti-ty - 4012 101 5688**

**NI CL I, II, III, DIV 2, GP A, B, C, D, E, F, G - 4012 101 5688; NIFW**

**T4A Ta= -40°C to 70°C; T5 Ta= -40°C to 55°C**

**FM17CA0138**

**all Inteco® without /.E**
**NOTICE**

Installation in the Ex area

- For installations in the Ex area, it is imperative to observe the Ex safety instructions in the installation manuals.

### 4.4 Dimensions

#### 4.4.1 Load cells Inteco®/500 kg...75 t

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>b [mm]</th>
<th>c [mm]</th>
<th>d [mm]</th>
<th>e [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lower load disc</td>
<td>15</td>
<td>150</td>
<td>24</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>Supporting ring</td>
<td>15</td>
<td>150</td>
<td>34</td>
<td>44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>b [mm]</th>
<th>c [mm]</th>
<th>d [mm]</th>
<th>e [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inteco®/500 kg...3 t</td>
<td>15</td>
<td>150</td>
<td>24</td>
<td>32</td>
</tr>
<tr>
<td>Inteco®/5...10 t</td>
<td>15</td>
<td>150</td>
<td>34</td>
<td>44</td>
</tr>
<tr>
<td>Inteco®/20...75 t</td>
<td>35</td>
<td>220</td>
<td>56</td>
<td>62</td>
</tr>
</tbody>
</table>

All dimensions in mm
4.5 Ordering information

4.5.1 Load cells Inteco®/500 kg...75 t

<table>
<thead>
<tr>
<th>Model</th>
<th>Max. capacity $E_{\text{max}}$</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inteco®/500 kg</td>
<td>500 kg</td>
<td>../D1/D1E</td>
</tr>
<tr>
<td>Inteco®/1 t</td>
<td>1 t</td>
<td>../D1/D1E</td>
</tr>
<tr>
<td>Inteco®/2 t</td>
<td>2 t</td>
<td>../D1/D1E/C3/C3E</td>
</tr>
<tr>
<td>Inteco®/3 t</td>
<td>3 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/5 t</td>
<td>5 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/10 t</td>
<td>10 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/20 t</td>
<td>20 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/30 t</td>
<td>30 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/50 t</td>
<td>50 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/60 t</td>
<td>60 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
<tr>
<td>Inteco®/75 t</td>
<td>75 t</td>
<td>../D1/D1E/C3/C3E/C6/C6E</td>
</tr>
</tbody>
</table>

4.6 Technical data

4.6.1 Load cells PR 6203/500 kg...75 t

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Abbr.</th>
<th>D1, D1E</th>
<th>C3, C3E</th>
<th>C6, C6E</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy class</td>
<td></td>
<td>0.04</td>
<td>0.015</td>
<td>0.008</td>
<td>% $E_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td>Minimum dead load</td>
<td>lowest limit of specified measuring range</td>
<td>$E_{\text{min}}$</td>
<td>0</td>
<td>% $E_{\text{max}}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum capacity</td>
<td>highest limit of specified measuring range</td>
<td>$E_{\text{max}}$</td>
<td>See Chapter 4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe load limit</td>
<td>maximum load without irreversible damage up to $E_{\text{max}} = 50$ t</td>
<td>$E_{\text{lim}}$</td>
<td>150</td>
<td>% $E_{\text{max}}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{\text{max}} = 60$ t</td>
<td>$E_{\text{lim}}$</td>
<td>125</td>
<td>% $E_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{\text{max}} = 75$ t</td>
<td>$E_{\text{lim}}$</td>
<td>100</td>
<td>% $E_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td>Destructive load</td>
<td>danger of mechanical destruction up to $E_{\text{max}} = 50$ t</td>
<td>$E_{d}$</td>
<td>300</td>
<td>% $E_{\text{max}}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{\text{max}} = 60$ t</td>
<td>$E_{d}$</td>
<td>250</td>
<td>% $E_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{\text{max}} = 75$ t</td>
<td>$E_{d}$</td>
<td>200</td>
<td>% $E_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td>Minimum LC verifica-</td>
<td>minimum load cell scale interval, $v_{\text{min}} = E_{\text{max}}/Y$</td>
<td>Y</td>
<td>see following tables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tion</td>
<td></td>
<td>$E_{\text{max}} = 500$ kg</td>
<td>Y</td>
<td>2500</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Designation</td>
<td>Description</td>
<td>Abbr.</td>
<td>D1, D1E</td>
<td>C3, C3E</td>
<td>C6, C6E</td>
<td>Unit</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------</td>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>E_{\text{max}} = 1 t</td>
<td></td>
<td>Y</td>
<td>5000</td>
<td>...</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} = 2 t</td>
<td></td>
<td>Y</td>
<td>5000</td>
<td>10000</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} = 3...10 t</td>
<td></td>
<td>Y</td>
<td>5000</td>
<td>14000</td>
<td>14000</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} = 20...75 t</td>
<td></td>
<td>Y</td>
<td>5000</td>
<td>14000</td>
<td>20000</td>
<td></td>
</tr>
</tbody>
</table>

Minimum preload signal recurrence
recurrence of the minimum preload signal (DR = \(\frac{1}{2} \times E_{\text{max}}/Z\))

<table>
<thead>
<tr>
<th>Rated output</th>
<th>relative output signal at maximum capacity</th>
<th>C_{n}</th>
<th>2</th>
<th>mV/V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance on rated output</td>
<td>permissible deviation from rated output C_{n}</td>
<td>d_{C}</td>
<td>&lt;0.25</td>
<td>&lt;0.07</td>
</tr>
<tr>
<td>Zero output signal</td>
<td>load cell output signal under unloaded condition</td>
<td>S_{\text{min}}</td>
<td>0 ±1.0</td>
<td>% C_{n}</td>
</tr>
<tr>
<td>Repeatability</td>
<td>max. change in load cell output for repeated loading</td>
<td>(\varepsilon_{\text{R}})</td>
<td>&lt;0.01</td>
<td>&lt;0.005</td>
</tr>
<tr>
<td>Creep</td>
<td>max. change of output signal at (E_{\text{max}}) during 30 minutes</td>
<td>d_{cr}</td>
<td>&lt;0.03</td>
<td>&lt;0.015</td>
</tr>
<tr>
<td>Non-linearity</td>
<td>deviation from best straight line through zero</td>
<td>d_{\text{Lin}}</td>
<td>&lt;0.03</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>max. difference in LC output between loading and unloading</td>
<td>d_{\text{hy}}</td>
<td>&lt;0.04</td>
<td>&lt;0.015</td>
</tr>
<tr>
<td>Temperature effect on S_{\text{min}}</td>
<td>max. change of S_{\text{min}} in (T_{K})</td>
<td>T_{Ks_{\text{min}}}</td>
<td>&lt;0.028</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Temperature effect on C</td>
<td>max. change of C in (T_{K})</td>
<td>T_{Kc}</td>
<td>&lt;0.03</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Input impedance</td>
<td>between supply terminals</td>
<td>R_{LC}</td>
<td>650 ±6</td>
<td>(\Omega)</td>
</tr>
<tr>
<td>Output impedance</td>
<td>between measuring terminals up to (E_{\text{max}} = 50) t</td>
<td>R_{O}</td>
<td>610 ±1</td>
<td>610 ±0.5</td>
</tr>
<tr>
<td>E_{\text{max}} = 60 t</td>
<td></td>
<td>R_{O}</td>
<td>510 ±1</td>
<td>510 ±0.5</td>
</tr>
<tr>
<td>E_{\text{max}} = 75 t</td>
<td></td>
<td>R_{O}</td>
<td>410 ±1</td>
<td>410 ±0.5</td>
</tr>
<tr>
<td>Insulation impedance</td>
<td>between measuring circuit and housing, (U_{DC} = 100) V</td>
<td>R_{IS}</td>
<td>&gt;5000</td>
<td>M(\Omega)</td>
</tr>
<tr>
<td>Designation</td>
<td>Description</td>
<td>Abbr.</td>
<td>D1, D1E</td>
<td>C3, C3E</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Insulation voltage</td>
<td>between circuit and housing (../E versions only)</td>
<td></td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Recommended supply voltage</td>
<td>to hold the specified performance</td>
<td>Bu</td>
<td>4...24</td>
<td></td>
</tr>
<tr>
<td>Max. supply voltage</td>
<td>permissible for continuous operation without damage</td>
<td>U_{\text{max}}</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>..../E versions:</td>
<td></td>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Nominal ambient temp. range</td>
<td>to hold the specified performance</td>
<td>B_{T}</td>
<td>-10...+40</td>
<td></td>
</tr>
<tr>
<td>Usable ambient temp. range</td>
<td>permissible for continuous operation without damage</td>
<td>B_{T,u}</td>
<td>-40...+95</td>
<td></td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>without electrical and mechanical stress</td>
<td>B_{T,i}</td>
<td>-40...+95</td>
<td></td>
</tr>
<tr>
<td>Permissible eccentricity</td>
<td>permissible displacement from nominal load line at the head of the load cell</td>
<td>S_{ex}</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} \leq 10 t</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>resistance against oscillations (IEC 60068-2-6-Fc)</td>
<td></td>
<td>20 g, 100 h, 10...150 Hz</td>
<td></td>
</tr>
<tr>
<td>Barometric pressure influence</td>
<td>influence of barometric pressure on output up to E_{\text{max}} = 3 t</td>
<td>P_{K,s_{\text{min}}}</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} = 5...10 t</td>
<td></td>
<td>P_{K,s_{\text{min}}}</td>
<td>330</td>
<td></td>
</tr>
<tr>
<td>E_{\text{max}} = 20...75 t</td>
<td></td>
<td>P_{K,s_{\text{min}}}</td>
<td>420</td>
<td></td>
</tr>
<tr>
<td>Nominal deflection</td>
<td>elastic deformation under maximum capacity up to E_{\text{max}} = 5 t</td>
<td>s_{\text{nom}}</td>
<td>\leq 0.3</td>
<td>mm</td>
</tr>
<tr>
<td>E_{\text{max}} = 10...20 t</td>
<td></td>
<td>s_{\text{nom}}</td>
<td>\leq 0.5</td>
<td>mm</td>
</tr>
<tr>
<td>E_{\text{max}} = 30...50 t</td>
<td></td>
<td>s_{\text{nom}}</td>
<td>\leq 0.8</td>
<td>mm</td>
</tr>
<tr>
<td>E_{\text{max}} = 60...75 t</td>
<td></td>
<td>s_{\text{nom}}</td>
<td>\leq 1.2</td>
<td>mm</td>
</tr>
</tbody>
</table>

Definitions acc. to VDI/VDE 2637
The technical data given are intended solely as a product description and should not be interpreted as guaranteed properties in the legal sense.
### Accuracy classes and min. scale interval of the load cells $v_{min}$ for Inteco®/500 kg…Inteco®/10 t

<table>
<thead>
<tr>
<th>Type</th>
<th>Divisions $n_{max}$</th>
<th>500 kg</th>
<th>1 t</th>
<th>2 t</th>
<th>3 t</th>
<th>5 t</th>
<th>10 t</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIML R60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>1000</td>
<td>0.20</td>
<td>0.20</td>
<td>0.40</td>
<td>0.60</td>
<td>1.00</td>
<td>2.00</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>3000</td>
<td>...</td>
<td>...</td>
<td>0.20</td>
<td>0.22</td>
<td>0.36</td>
<td>0.72</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>6000</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>0.22</td>
<td>0.36</td>
<td>0.72</td>
<td>kg</td>
</tr>
<tr>
<td>NTEP class III multiple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>1000</td>
<td>0.20</td>
<td>0.20</td>
<td>0.40</td>
<td>0.60</td>
<td>1.00</td>
<td>2.00</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>5000</td>
<td>...</td>
<td>...</td>
<td>0.20</td>
<td>0.22</td>
<td>0.36</td>
<td>0.72</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>10000</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>0.22</td>
<td>0.36</td>
<td>0.72</td>
<td>kg</td>
</tr>
<tr>
<td>NTEP class III L multiple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>2000</td>
<td>...</td>
<td>...</td>
<td>0.20</td>
<td>0.20</td>
<td>0.34</td>
<td>0.67</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>10000</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>0.20</td>
<td>0.20</td>
<td>0.24</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>10000</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>0.20</td>
<td>0.20</td>
<td>0.24</td>
<td>kg</td>
</tr>
</tbody>
</table>

### Accuracy classes and min. scale interval of the load cells $v_{min}$ for Inteco®/20 t…Inteco®/75 t

<table>
<thead>
<tr>
<th>Type</th>
<th>Divisions $n_{max}$</th>
<th>20 t</th>
<th>30 t</th>
<th>50 t</th>
<th>60 t</th>
<th>75 t</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIML R60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>1000</td>
<td>4.00</td>
<td>6.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>3000</td>
<td>1.43</td>
<td>2.15</td>
<td>3.58</td>
<td>4.29</td>
<td>5.36</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>6000</td>
<td>1.00</td>
<td>1.50</td>
<td>2.50</td>
<td>3.00</td>
<td>3.75</td>
<td>kg</td>
</tr>
<tr>
<td>NTEP class III multiple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>1000</td>
<td>4.00</td>
<td>6.00</td>
<td>10.00</td>
<td>12.00</td>
<td>15.00</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>5000</td>
<td>1.43</td>
<td>2.15</td>
<td>3.58</td>
<td>4.29</td>
<td>5.36</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>10000</td>
<td>1.00</td>
<td>1.50</td>
<td>2.50</td>
<td>3.00</td>
<td>3.75</td>
<td>kg</td>
</tr>
<tr>
<td>NTEP class III L multiple</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1/D1E</td>
<td>2000</td>
<td>1.34</td>
<td>2.00</td>
<td>3.34</td>
<td>4.00</td>
<td>5.00</td>
<td>kg</td>
</tr>
<tr>
<td>C3/C3E</td>
<td>10000</td>
<td>0.48</td>
<td>0.72</td>
<td>1.20</td>
<td>1.43</td>
<td>1.79</td>
<td>kg</td>
</tr>
<tr>
<td>C6/C6E</td>
<td>10000</td>
<td>0.34</td>
<td>0.50</td>
<td>0.84</td>
<td>1.00</td>
<td>1.25</td>
<td>kg</td>
</tr>
</tbody>
</table>
5 Installation

5.1 Safety instructions

**NOTICE**

Welding or lightning strike current flowing through the cell can damage it.

All electrical welding on the weighing system must be finished before mounting the load cells.

- When installing the load cell, immediately bypass the load cell with the flexible copper strap provided for this purpose (included in the equipment supplied, see Chapter 4.1).

During any additional electrical welding work near the load cell:
- Disconnect the load cell cables.
- Bypass the load cell using the flexible copper strap.
- Make sure that the grounding clamp of the welding set is fitted as closely as possible to the welding joint.

The following must be observed during installation:
- Do not lift or transport the load cell by pulling on the cable.
- Avoid shock stress (falling down, hard shocks).
- The load cell must be installed vertically and centrally in the mounting kit.
- Load forces must act in the measuring direction of the load cell.
- The load disc must not be subjected to transverse forces.
- All contact points between load cell and load disc must be adequately greased.
  Load cell grease order no., see Chapter 11.1.

**NOTICE**

Changes of temperature >15 K/h may influence the measuring accuracy.

- Make sure to protect the load cells from direct heating or cooling effects (sun, wind, heat radiation, fan heaters), e.g., heat protection screens or heat protection housings are to be installed if necessary.

**NOTICE**

Force shunts may cause measuring errors.

- All incoming and outgoing lines (hoses, pipes, cables) must be coupled to the measured object as flexibly as possible.
5.2 Aligning the load cell

Load cells must be installed so that their axis is vertical when not in use.
Even minor deviations can lead to unexpected effects.
When the PR 6001/.. mounting kit is used, the correct position of the adjustment notches ensures that it is positioned properly (vertical and not jammed or wedged).
If the load cell is installed on a slant accidentally, then this changes its characteristic value.
Under no circumstances can this be compensated for electrically (e.g. by resistances in the junction box). Instead, all load cells have to be carefully aligned: Refer to figure.
To make it easier to get an exact vertical alignment, the PR 6001/.. mounting kit is equipped with a mounting aid.

\[ \gamma \leq 1^\circ \]
The maximum permissible inclination must be strictly observed so that measuring accuracy is not adversely overly affected (see figure).

**Note:**
The material properties and the shape of the load cells and load discs are perfectly matched to one another. Always use load discs from Minebea Intec, see also Chapter 11.2.2.

**Procedure:**
- Lift up weighing object approx. 5 mm using a jack-up or corresponding lifting device.
- Correct the position of the load cell using the supporting ring on the lower load disc.
- Set the weighing object back down on the mounting kit and make sure that the load cell is vertical and the load cell dome is positioned in the exact center of the load disc.
- Check to ensure that the adjustment notches are in the correct position.

**Note:**
Further installation instructions can be found in the manuals of the respective mounting kits.
5.3  Installation of the upper load disc for max. capacity of 500 kg...75 t

Note:
The figures below shows a schematic of load cell and upper load disc.

<table>
<thead>
<tr>
<th>Small load cell radius (15 mm)</th>
<th>Large load cell radius (35 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$E_{\text{max}} = 500 \text{ kg...10 t}$</td>
<td>$E_{\text{max}} = 20...75 \text{ t}$</td>
</tr>
</tbody>
</table>

Note:
Load discs made of stainless steel are marked with a double groove.
Further installation instructions can be found in the manuals of the respective mounting kits.
6 Connection

6.1 General information

- Protect the cable ends against contamination. Moisture must not get into the open end of the cable.
- Do not shorten the load cell connecting cable. Connect the prepared cable end and roll up the remaining cable.
- The screen of the load cell cable and the screen of the connecting cable must not be connected inside the cable junction box if connection of both ends is not permissible according to the regulations for installation in the explosion-prone area.
- Keep the load cell cables away from power cables.
- The distance between measurement cables and power cables and/or components under high voltage should be at least 1 m (reference value).
- We recommend laying the load cell cables in separate cable trays or armored steel pipes.
- Power cables should be crossed at right angles while taking into account the minimum distance of 1 m (reference value).

6.2 Load cell

**Color Code**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>rd</td>
<td>red</td>
</tr>
<tr>
<td>gn</td>
<td>green</td>
</tr>
<tr>
<td>bu</td>
<td>blue</td>
</tr>
<tr>
<td>gy</td>
<td>gray</td>
</tr>
</tbody>
</table>

**Typ D1, D1E, C3, C3E, C6, C6E**

\[
\begin{array}{ccc}
\text{rd} & \text{gn} & \text{bu} \\
+ \text{supply/LC in} & + \text{meas./LC out} & - \text{supply/LC in} \\
+ \text{supply voltage/ load cell input} & + \text{measuring voltage/ load cell output} & - \text{supply voltage/ load cell input} \\
\text{bu} & \text{gn} & \text{rd} \\
- \text{meas./LC out} & + \text{meas./LC out} & + \text{supply/LC in} \\
- \text{measuring voltage/ load cell output} & + \text{measuring voltage/ load cell output} & - \text{supply/LC in} \\
\text{S} & \text{S} & \\
\text{screen} & \text{Screen} & \\
\end{array}
\]
6.2.1 Load cell cable

The load cell cables are inseparably connected to the load cells in the factory and their individual resistance and temperature effect are equalized with the load cells. Therefore, never shorten the cables, rather simply roll up the extra length and secure it. The special sheathing material and the integrated strain relief with Kevlar thread ensure extremely long service life even under difficult operating conditions. However, despite the robust nature of the materials used, the cable should be protected from excessive chemical and mechanical stresses. Preventing water from penetrating the end of the cable is also important "life insurance" for the system.

6.3 Cable connections

<table>
<thead>
<tr>
<th>Color code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bk</td>
<td>black</td>
</tr>
<tr>
<td>bu</td>
<td>blue</td>
</tr>
<tr>
<td>gn</td>
<td>green</td>
</tr>
<tr>
<td>gy</td>
<td>gray</td>
</tr>
<tr>
<td>rd</td>
<td>red</td>
</tr>
<tr>
<td>wh</td>
<td>white</td>
</tr>
</tbody>
</table>
Compression load cell Inteco® PR 6203

Instrument

 Junction box

The cable screen is connected to the load cell housing.

PR 6135/.., PR 6136/..

(1) ≥10 mm² Cu

Equipotential bonding conductor

Minebea Intec

EN-21
7 Preparing for calibration

7.1 General notes

Note:
For calibration of the measuring system, please refer to the manual of the corresponding indicator.

7.2 Smart Calibration

When using Minebea Intec devices, we recommend always running "Smart Calibration" first.
This allows all required values to be extracted from the Calibration Certificate supplied.

- The "Hysteresis correction values for Smart Calibration" listed on the Calibration Certificate are entered for [Correction A] and [Correction B] under [Hysteresis error] - [specified] in the indicator.
  If the values are not available on the Calibration Certificate, [Hysteresis error] - [not specified] must be selected.
- The value listed under "Output at max. capacity" on the Calibration Certificate is entered in the indicator under [LC output at max. capacity].
- The value listed under "Output impedance" on the Calibration Certificate is entered in the indicator under [LC output impedance].

By performing these steps, a logical and highly accurate reading (typically better than 0.1%) is generated before the scale is even loaded for the first time.

7.3 Mechanical height adaptation

To distribute the load over the load cells as evenly as possible, height adaptation is required in systems with more than 3 load cells prior to calibration.

Procedure:
1. Place the dead load (e.g. empty vessel) onto the load cells of the scale structure.
2. Energize the load cells in parallel with a stabilized voltage (e.g.: \(U_\text{DC} = 12\) V).
3. Measure the output voltages of each individual load cell by means of a digital voltmeter and compare the individual values.
   ➤ Given deviation between the output voltages of the load cells, the load on the load cell with the lowest output voltage must be increased by putting shims between mounting plate and weighing construction.
4. Lift the weighing object immediately beside the affected load cell.
5. Place thin, deburred sheets of metal (0.5–2 mm thick) between the upper mounting plate and the scale structure.
6. Measure the output voltages of the load cells again and adjust the height of this load cell or of another one.
8 Troubleshooting

8.1 General Notes

The following hints will enable a technician to do an initial diagnostic or help in case of incorrect or non-reproducible weighing results after commissioning and calibration.

8.2 Visual inspection

<table>
<thead>
<tr>
<th>Component</th>
<th>Possible errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighing object</td>
<td>Are all pipes, hoses and cables free from shunt forces? Are the connections pliable and connected horizontally? Are elements with a solid connection to the scale in direct contact with the surroundings? Has friction developed between the weighing object and its surroundings (e.g. dusty openings, …)?</td>
</tr>
<tr>
<td>Cable junction box</td>
<td>Has moisture intruded? Do all soldering and screw connections have secure contact?</td>
</tr>
<tr>
<td>Connecting cables</td>
<td>Is the sheath damaged? Has moisture intruded?</td>
</tr>
<tr>
<td>Mounting kit</td>
<td>Is the lift-off protection in contact with the scale? Are the constrainers stuck?</td>
</tr>
<tr>
<td>Load cell</td>
<td>Is the load cell vertical? Is the adjustment chamber cover damaged? Is the sheath of the load cell cable damaged? Has moisture penetrated into the load cell cable?</td>
</tr>
</tbody>
</table>

8.3 Metrological controls

8.3.1 Checking the zero output signal of the load cell

- Unload load cell.
- Disconnect the load cell measuring outputs.
- Check whether the output voltage without load is within the limits.

<table>
<thead>
<tr>
<th>Type</th>
<th>Output voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1, C3, C6</td>
<td>0 mV ±0.02 mV/V</td>
</tr>
</tbody>
</table>

8.3.2 Checking the strain gauge bridge of the load cell

- Do not exceed the test voltage.
- Check whether the values of the resistors are within the permissible limits.

Max. test voltage

- Standard version $U_{DC} = 32$ V
- Intrinsically safe version (Inteco®/..E) $U_{DC} = 25$ V
### 8.3.3 Checking the insulation impedance of the load cell

**NOTICE**

**Possible destruction of load cell**
- Never apply test voltage between two cores of the load cell cable.
- Insulate the load cell cores.

**Max. test voltage**
- Standard version $U_{DC} = 100$ V
- Intrinsically safe version (Inteco®/..E) $U_{AC} = 500$ V

<table>
<thead>
<tr>
<th>Insulation impedance</th>
<th>Core – housing</th>
<th>&gt;5000 MΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core – screen</td>
<td>&gt;5000 MΩ</td>
</tr>
<tr>
<td></td>
<td>Screen – housing</td>
<td>&lt;0.2 Ω</td>
</tr>
</tbody>
</table>

### 8.3.4 Checking the insulation impedance of the connecting cable

- Disconnect connecting cable from measuring instrument and load cells.
- Insulate the cores of the connecting cable.

<table>
<thead>
<tr>
<th>Insulation impedance</th>
<th>Core – core</th>
<th>&gt;120 MΩ × km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core – screen</td>
<td>&gt;120 MΩ × km</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Input impedance (red core, blue core)</th>
<th>Output impedance (green core, gray core)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>650 Ω ±6 Ω</td>
<td>up to $E_{max} = 50$ t: 610 Ω ±1 Ω</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{max} = 60$ t: 510 Ω ±1 Ω</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{max} = 75$ t: 410 Ω ±1 Ω</td>
</tr>
<tr>
<td>C3, C6</td>
<td>650 Ω ±6 Ω</td>
<td>up to $E_{max} = 50$ t: 610 Ω ±0.5 Ω</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{max} = 60$ t: 510 Ω ±0.5 Ω</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$E_{max} = 75$ t: 410 Ω ±0.5 Ω</td>
</tr>
</tbody>
</table>
9 Maintenance/repairs/cleaning

9.1 Maintenance

The load cell PR 6203 is maintenance-free.
The contact surfaces between the load cell and load discs should be protected by load cell grease. Load cell grease order no. see Chapter 11.1.
Off-shore all-weather protection spray can be applied extensively to the load cell in aggressive environments.

9.2 Repairs

The load cell PR 6203 is designed to be as robust as possible for the required measuring accuracy and is highly reliable.
Should an electrical or mechanical defect nevertheless occur, the load cell must be replaced.
Load cell repair is not possible.

9.3 Cleaning

Dirt on the load cell and movable parts of the scale must be cleaned as quickly as possible
- if it influences weighing, or
- if it is corrosive to the cell or cable material.

NOTICE

Some cleaning agents may not be compatible with the load cell material.
► When using cleaning agents, ensure that their compatibility with the load cell material has been tested and approved (see Chapter 4.2).
10 Disposal

If the packaging is no longer required, please take it to your local waste disposal facility and/or a reputable disposal company or collection point. The packaging largely consists of environmentally friendly materials which can be used as secondary raw materials. It is not permitted—even for small businesses—to dispose of this product with the regular household waste or at collection points run by local public waste disposal companies. EU legislation requires its Member States to collect electrical and electronic equipment and dispose of it separately from other unsorted municipal waste so that it can then be recycled.

Before disposing of or scrapping the product, any batteries should be removed and taken to a suitable collection point. Please see our T&Cs for further information.

Service addresses for repairs are listed in the product information supplied with the product and on our website (www.minebea-intec.com). We reserve the right not to accept products that are contaminated with hazardous substances (ABC contamination) for repair. Should you have any further questions, please contact your local service representative or our service center.

Minebea Intec GmbH
Repair center
Meiendorfer Strasse 205 A
22145 Hamburg, Germany
Phone: +49.40.67960.666
service.HH@minebea-intec.com
11 Spare parts and accessories

11.1 Replacement parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Max. capacity</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Flexible copper thread, 400 mm long</td>
<td></td>
<td>5312 321 28057</td>
</tr>
<tr>
<td>2</td>
<td>Lower load disc with supporting ring</td>
<td>500 kg–10 t</td>
<td>5322 693 91416</td>
</tr>
<tr>
<td>3</td>
<td>Lower load disc with supporting ring</td>
<td>20 t, 30 t, 50 t, 60 t, 75 t</td>
<td>5322 693 91165</td>
</tr>
<tr>
<td>4</td>
<td>Supporting ring, default</td>
<td>500 kg–75 t</td>
<td>5322 532 70298</td>
</tr>
<tr>
<td>5</td>
<td>Supporting ring, food-safe</td>
<td>500 kg–75 t</td>
<td>5322 532 70317</td>
</tr>
<tr>
<td>6</td>
<td>Load cell grease incl. usage instructions</td>
<td></td>
<td>5312 390 12002</td>
</tr>
<tr>
<td>7</td>
<td>Fastening set incl. connector (Connexx modul)</td>
<td></td>
<td>5312 693 98162</td>
</tr>
</tbody>
</table>

11.2 Accessories

11.2.1 Mounting kits

To install the load cell, the following mounting kits / pivots are recommended:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Max. capacity</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mounting kit PR 6001/00N</td>
<td>500 kg–10 t</td>
<td>9405 360 01001</td>
</tr>
<tr>
<td>2</td>
<td>Mounting kit PR 6001/00S</td>
<td>500 kg–10 t</td>
<td>9405 360 01002</td>
</tr>
<tr>
<td>3</td>
<td>Mounting kit PR 6001/01N</td>
<td>20–75 t</td>
<td>9405 360 01011</td>
</tr>
<tr>
<td>4</td>
<td>Mounting kit PR 6001/01S</td>
<td>20–75 t</td>
<td>9405 360 01012</td>
</tr>
<tr>
<td>5</td>
<td>Mounting kit PR 6145/00N incl. lower load disc with supporting ring PR 6143/54S @ 20–50 t</td>
<td>500 kg–10 t</td>
<td>9405 361 45001</td>
</tr>
<tr>
<td>6</td>
<td>Mounting kit PR 6145/00S incl. lower load disc with supporting ring PR 6143/54S @ 20–50 t</td>
<td>500 kg–10 t</td>
<td>9405 361 45002</td>
</tr>
<tr>
<td>7</td>
<td>Pivot PR 6101/53N</td>
<td>5 t</td>
<td>9405 561 01531</td>
</tr>
<tr>
<td>8</td>
<td>Pivot PR 6101/53S</td>
<td>5 t</td>
<td>9405 561 01532</td>
</tr>
<tr>
<td>9</td>
<td>Pivot PR 6101/24N</td>
<td>20 t</td>
<td>9405 561 01241</td>
</tr>
<tr>
<td>10</td>
<td>Pivot PR 6101/24S</td>
<td>20 t</td>
<td>9405 561 01242</td>
</tr>
<tr>
<td>11</td>
<td>Pivot PR 6101/54N</td>
<td>60 t, 75 t</td>
<td>9405 561 01541</td>
</tr>
<tr>
<td>12</td>
<td>Pivot PR 6101/54S</td>
<td>60 t, 75 t</td>
<td>9405 561 01542</td>
</tr>
</tbody>
</table>

N = steel zinc plated, passivated and sealed (RoHS-compliant)
S = stainless steel
### Load discs

To install the load cell, the following load discs are recommended:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Max. capacity</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Upper load disc, standard PR 6143/50N</td>
<td>500 kg–75 t</td>
<td>9405 361 43501</td>
</tr>
<tr>
<td>2</td>
<td>Upper load disc, PR 6143/50S</td>
<td>500 kg–75 t</td>
<td>9405 361 43502</td>
</tr>
<tr>
<td>3</td>
<td>Lower load disc with supporting ring PR 6143/24S</td>
<td>500 kg–10 t</td>
<td>9405 361 43242</td>
</tr>
<tr>
<td>4</td>
<td>Lower load disc with supporting ring PR 6143/54S</td>
<td>20–75 t</td>
<td>9405 361 43542</td>
</tr>
</tbody>
</table>

N = steel zinc plated, passivated and sealed (RoHS-compliant)
S = stainless steel

### Connecting cables

To connect the junction box to the weighing electronics, we recommend using the following connecting cables:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PR 6135/xx</td>
<td>9405 361 35xx2</td>
</tr>
<tr>
<td>2</td>
<td>PR 6135/01A (armored)</td>
<td>9405 361 35019</td>
</tr>
<tr>
<td>3</td>
<td>PR 6136/xx (for installation inside the explosion-hazarded area)</td>
<td>9405 361 36xx1</td>
</tr>
<tr>
<td>4</td>
<td>PR 6136/01A (armored, for installation inside the explosion-hazarded area)</td>
<td>9405 361 36019</td>
</tr>
</tbody>
</table>
11.2.4 Cable junction boxes

We recommend using the following junction boxes:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PR 6130/04 (aluminum, 1–4 load cells, IP67; not for Inteco®/..D1E, ..C3E, ..C6E)</td>
<td>9405 361 30044</td>
</tr>
<tr>
<td>2</td>
<td>PR 6130/08 (polycarbonate, 1–8 load cells, IP65; not for Inteco®/..D1E, ..C3E, ..C6E)</td>
<td>9405 361 30084</td>
</tr>
<tr>
<td>3</td>
<td>PR 6130/34Sa (1.4301, 1–4 load cells, IP68, IP69, verifiable; not for Inteco®/..D1E, ..C3E, ..C6E)</td>
<td>9405 361 30344</td>
</tr>
<tr>
<td>4</td>
<td>PR 6130/35S (1.4301, 1–4 load cells, IP68, IP69, verifiable; not for Inteco®/..D1E, ..C3E, ..C6E)</td>
<td>9405 361 30354</td>
</tr>
<tr>
<td>5</td>
<td>PR 6130/38S (1.4404, 1–8 load cells, IP68, IP69, verifiable; not for Inteco®/..D1E, ..C3E, ..C6E)</td>
<td>9405 361 30384</td>
</tr>
<tr>
<td>6</td>
<td>PR 6130/64Sa (1.4301, 1–4 load cells, IP68, IP69, verifiable, ATEX, IECEx, FM)</td>
<td>9405 361 30644</td>
</tr>
<tr>
<td>7</td>
<td>PR 6130/65S (1.4301, 1–4 load cells, IP68, IP69, verifiable, ATEX, IECEx, FM)</td>
<td>9405 361 30654</td>
</tr>
<tr>
<td>8</td>
<td>PR 6130/68S (1.4404, 1–8 load cells, IP68, IP69, verifiable, ATEX, IECEx, FM)</td>
<td>9405 361 30684</td>
</tr>
</tbody>
</table>

11.2.5 Connexx module
11.2.5.1 Specifications
11.2.5.1.1 Equipment supplied

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connexx module incl. retaining plate (1a)</td>
</tr>
</tbody>
</table>

Not shown:

2 Fixing bracket incl. knurled screw
3 Washers (4×; for various screw sizes)
4 Rail holder
11.2.5.2 Connection of Connexx modules

The load cell is firmly attached to the Connexx module.
The load cell cable is 0.7...1.0 m long.
The mounting options for the module are described in Chapter 11.2.5.3.

Cable lengths

<table>
<thead>
<tr>
<th>Connecting part</th>
<th>Recommended length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between the individual Connexx modules</td>
<td>max. 10 m</td>
</tr>
</tbody>
</table>

Connections

<table>
<thead>
<tr>
<th>Color abbreviations</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>wh</td>
<td>white</td>
<td>+ Supply voltage</td>
</tr>
<tr>
<td>bu</td>
<td>blue</td>
<td>- Supply voltage</td>
</tr>
<tr>
<td>bn</td>
<td>brown</td>
<td>GNDC</td>
</tr>
<tr>
<td>gy</td>
<td>gray</td>
<td>CAN_L bus signal (material PUR)</td>
</tr>
<tr>
<td>gr/ye</td>
<td>green/yellow</td>
<td>CAN_L bus signal (material PVC)</td>
</tr>
<tr>
<td>bk</td>
<td>black</td>
<td>CAN_H bus signal</td>
</tr>
</tbody>
</table>
Connection example, shown as a diagram

1. Potential equalization
2. Terminating resistor
3. D-Sub 9-pin plug connector, male
4. D-Sub 9-pin plug connector, female
5. Input voltage $U_{DC} = 24\, \text{V}$ (only for connected external voltage supply)
6. M12 plug connector, male
7. M12 plug connector, female
8. Voltage supply $U_{AC} = 230\, \text{V}$
9. Output voltage $U_{DC} = 24\, \text{V}$ (only for connected external voltage supply)
10. External voltage supply (only required when connecting >4 Connexx modules)
11. Switch to turn on a bus-terminating resistor
11.2.5.3 Mounting options

The Connexx module is delivered with mounting elements.
It is possible to mount the Connexx module in the following ways:
- Mounting using a retaining plate, see Chapter 11.2.5.3.1
- Mounting using a mounting bracket, see Chapter 11.2.5.3.2
- Mounting using a mounting rail holder, see Chapter 11.2.5.3.3

11.2.5.3.1 Mounting using a retaining plate

When using a retaining plate, the Connexx module is attached to the weighing device (e.g. the leg of a container).

Note:
Minebea Intec recommends using a stainless-steel cable tie when mounting using a retaining plate.

Thread the stainless-steel cable tie through the lugs (1) on the retaining plate (2) and attach to the weighing device.
### 11.2.5.3.2 Mounting using a fixing bracket

When using a fixing bracket, the Connexx module is attached to the mounting kit.

1. Place the fixing bracket (1) on the lower plate (2) of the mounting kit.
2. Depending on the mounting kit, bend the appropriate lugs (1a) downwards using a tool to prevent the fixing bracket from twisting.

3. Slide the fixing bracket (1) onto the lower plate (2) of the mounting kit.

4. Place one of the enclosed washers (4) over the bolt and tighten the nut (3).

The fixing bracket is now secured against twisting.
5. Mount the Connexx module (5) on the fixing bracket (1).
6. Tighten the knurled screw (6) by hand to fix the module in place.
11.2.5.3.3 Mounting using a mounting rail holder

When using a mounting rail holder, the Connexx module is attached to the weighing device (e.g. frame with a mounting rail).

1. Remove the screw (3).
2. Remove the retaining plate (2).
3. Install the rail holder (4) and tighten the screws (3).
4. Click the Connexx Module into the rail holder.
### 11.2.5.4 Connecting parts for the Connexx module

To connect the Connexx module, the following connecting parts are required:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PR 5510/05 CANopen interface for PR 5410</td>
<td>9405 355 10051</td>
</tr>
<tr>
<td>2</td>
<td>PR 6154/03 Connexx connecting kit for three load cells (comprising: 2× PR 6155/05, 1× PR 6152/25, 1× PR 6153/99)</td>
<td>9405 361 54031</td>
</tr>
<tr>
<td>3</td>
<td>PR 6154/04 Connexx connecting kit for four load cells (comprising: 3× PR 6155/05, 1× PR 6152/25, 1× PR 6153/99)</td>
<td>9405 361 54041</td>
</tr>
<tr>
<td>4</td>
<td>PR 6154/06 Connexx connecting kit for six load cells (comprising: 5× PR 6155/10, 1× PR 6152/25, 1× PR 6153/99)</td>
<td>9405 361 54061</td>
</tr>
<tr>
<td>5</td>
<td>PR 6154/08 Connexx connecting kit for eight load cells (comprising: 7× PR 6155/10, 1× PR 6152/25, 1× PR 6153/99)</td>
<td>9405 361 54081</td>
</tr>
<tr>
<td>6</td>
<td>PR 6155/05 Connecting cable between individual Connexx modules (M12 plug connector, male → M12 plug connector, female); 5 m</td>
<td>9405 361 55051</td>
</tr>
<tr>
<td>7</td>
<td>PR 6155/10 Connecting cable between individual Connexx modules (M12 plug connector, male → M12 plug connector, female); 10 m</td>
<td>9405 361 55101</td>
</tr>
<tr>
<td>8</td>
<td>PR 6152/10 Connecting cable between Connexx module and CANopen interface (M12 plug connector, female → D-Sub 9-pin plug connector, female); 10 m</td>
<td>9405 361 52101</td>
</tr>
<tr>
<td>9</td>
<td>PR 6152/11 Connecting cable between Connexx module and CANopen interface (M12 female → open cable ends incl. D-Sub 9-pin plug connector, female with screw connectors); 10 m</td>
<td>9405 361 52111</td>
</tr>
<tr>
<td>10</td>
<td>PR 6152/25 Connecting cable between Connexx module and CANopen interface (M12 plug connector, female → open cable ends incl. D-Sub 9-pin plug connector, female); 25 m</td>
<td>9405 361 52251</td>
</tr>
<tr>
<td>11</td>
<td>PR 6152/26 Connecting cable between Connexx module and CANopen interface (M12 plug connector, female → open cable ends incl. D-Sub 9-pin plug connector, female with screw connectors); 25 m</td>
<td>9405 361 52261</td>
</tr>
<tr>
<td>12</td>
<td>PR 6152/40 Connecting cable between Connexx module and CANopen interface (M12 plug connector, female → D-Sub 9-pin plug connector, female); 40 m</td>
<td>9405 361 52401</td>
</tr>
<tr>
<td>13</td>
<td>PR 6152/41 Connecting cable between Connexx module and CANopen interface (M12 plug connector, female → open cable ends incl. D-Sub 9-pin plug connector, female with screw connectors); 40 m</td>
<td>9405 361 52411</td>
</tr>
<tr>
<td>14</td>
<td>PR 6153/98 Split cable gland for connecting cable PR 6152/.. with D-Sub plug connector, female</td>
<td>9405 361 53981</td>
</tr>
<tr>
<td>15</td>
<td>PR 6153/99 Terminating resistor for Connexx module (M12 plug connector, male)</td>
<td>9405 361 53991</td>
</tr>
</tbody>
</table>
## Appendix

### 12.1 Certificates/safety instructions/control drawing

<table>
<thead>
<tr>
<th>Ser. no.</th>
<th>Description</th>
<th>Document no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EU-Type Examination Certificate</td>
<td>BVS 17 ATEX E 111X</td>
</tr>
<tr>
<td>2</td>
<td>Certificate of Conformity</td>
<td>IECEx BVS 17.0092X</td>
</tr>
<tr>
<td>3</td>
<td>EU-Type Examination Certificate</td>
<td>TÜV 03 ATEX 2301X</td>
</tr>
<tr>
<td>4</td>
<td>Certificate of Conformity</td>
<td>IECEx TUN 17.0025X</td>
</tr>
<tr>
<td>5</td>
<td>Manufacturer's Certificate</td>
<td>MIN16ATEX001X</td>
</tr>
<tr>
<td>6</td>
<td>Certificate of Conformity FM</td>
<td>FM17CA0138</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM17US0276</td>
</tr>
<tr>
<td>7</td>
<td>Control drawing FM</td>
<td>4012 101 5688</td>
</tr>
<tr>
<td>8</td>
<td>EU-Declaration of Conformity</td>
<td>MEU18005</td>
</tr>
<tr>
<td>9</td>
<td>Declaration of Conformity</td>
<td>MDC17003</td>
</tr>
<tr>
<td>11</td>
<td>Test Certificate (NMi)</td>
<td>TC11162</td>
</tr>
<tr>
<td>12</td>
<td>Certificate of Conformance (NTEP)</td>
<td>17-111</td>
</tr>
<tr>
<td>13</td>
<td>Certificate of Approval (NTEP-New York)</td>
<td>10034</td>
</tr>
</tbody>
</table>
EU-Baumusterprüfbescheinigung

Geräte zur bestimmungsgemäßen Verwendung in explosionsgefärdeten Bereichen Richtlinie 2014/34/EU

Nr. der EU-Baumusterprüfbescheinigung: BVS 17 ATEX E 111 X

Produkt: Wägezelle Typ PR62** / ** ** E
Hersteller: Minebea Intec GmbH
Anschrift: Meendorfer Straße 205 A, 22145 Hamburg, Deutschland

Die Bauart dieses Produktes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.


Die wesentlichen Gesundheits- und Sicherheitsanforderungen werden erfüllt durch Übereinstimmung mit den Normen:

EN 60079-0:2012 + A11:2013 Allgemeine Anforderungen
EN 60079-11:2012 Eigensicherheit „i“

Falls das Zeichen „X“ hinter der Bescheinigungsnummer steht, wird in der Anlage zu dieser Bescheinigung auf besondere Bedingungen für die sichere Anwendung des Produktes hingewiesen.

Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf den Entwurf und Bau der beschriebenen Produkte.
Für den Herstellungsprozess und die Abgabe der Produkte sind weitere Anforderungen der Richtlinie zu erfüllen, die nicht durch diese Bescheinigung abgedeckt sind.

Die Kennzeichnung des Produktes muss die folgenden Angaben enthalten:

** II 1G Ex ia IIC T6 Ga

DEKRA EXAM GmbH
Bochum, den 03.01.2018

[Signature]

Zertifizierer

[Signature]

Fachzertifizierer
13 Anlage zur
14 EU-Baumusterprüfbescheinigung
BVS 17 ATEX E 111 X

15 Beschreibung des Produktes

15.1 Gegenstand und Typ
Wägezelle Typ PR62** / ** ** E
Anstelle der *** werden in der vollständigen Benennung Buchstaben und Ziffern eingefügt, die unterschiedliche Ausführungen kennzeichnen:

Wägezelle Typ PR62 ** / ** ** E

Version 03

Laststufe (nicht Ex-relevant)
Genauigkeit (nicht Ex-relevant)

15.2 Beschreibung
Die Wägezelle Typ PR62** / ** ** E dient zur Umwandlung von Kraft in ein elektrisches Signal.
Die Wägezelle hat ein Metallgehäuse mit eingebautem Dehnungsmessstreifen.
Der elektrische Anschluss erfolgt über eine fest angeschlossene Leitung.
Die Wägezelle ist ein „einfaches elektrisches Betriebsmittel“

15.3 Kenngrößen
Maximale Eingangsspannung \( U_e \) DC 25 V
Maximaler Eingangsstrom \( I_e \) 160 mA
Maximale Eingangsleistung \( P_e \) 2 W
Innere wirksame Kapazität \( C_i \) vernachlässigbar
Innere wirksame Induktivität \( L_i \) vernachlässigbar

Für die Kapazität und Induktivität der Anschlussleitung (maximal 25 m Länge) sind die folgenden Werte zu berücksichtigen:
Kapazitätsbelag \( C_c \) 200 pF/m
Induktivitätsbelag \( L_c \) 1 \( \mu \)H/m
Umgebungstemperaturbereich \( T_a \) -30 °C bis +55 °C

16 Prüfprotokoll
BVS PP 18.2002 EU, Stand 03.01.2018

17 Besondere Bedingungen für die Verwendung
Das Gerät ist so zu errichten, dass elektrostatische Aufladungen auszuschließen sind,
Wesentliche Gesundheits- und Sicherheitsanforderungen

Die wesentlichen Gesundheits- und Sicherheitsanforderungen sind durch die unter Abschnitt 9 gelisteten Normen abgedeckt.

Zeichnungen und Unterlagen

Die Zeichnungen und Unterlagen sind in dem vertraulichen Prüfprotokoll gelistet.
Translation
EU-Type Examination Certificate

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: BVS 17 ATEX E 111 X

Product: Load cell type PR62** / ** E
Manufacturer: Minebea Intec GmbH
Address: Meierorfer Straße 205 A, 22145 Hamburg, Germany

This product and any acceptable variations thereto are specified in the appendix to this certificate and
the documents referred to therein.

DEKRA EXAM GmbH, Notified Body number 0158, in accordance with Article 17 of Directive
2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this
product has been found to comply with the Essential Health and Safety Requirements relating to the
design and construction of products intended for use in potentially explosive atmospheres given in
Annex II to the Directive.
The examination and test results are recorded in the confidential Report No. BVS PP 18.2002 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013 General requirements
EN 60079-11:2012 Intrinsic Safety “I”

If the sign “X” is placed after the certificate number, it indicates that the product is subject to the
Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified
product. Further requirements of the Directive apply to the manufacturing process and supply of this
product. These are not covered by this certificate.

The marking of the product shall include the following:

Ex II 1G Ex ia IIC T6 Ga

DEKRA EXAM GmbH
Bochum, 2018-01-03

Signed: Jörg Koch
Certifier

Signed: Dr. Franz Eickhoff
Approver
13 Appendix

14 EU-Type Examination Certificate

BVS 17 ATEX E 111 X

15 Product description

15.1 Subject and type

Load cell type PR62** / ** ** E

Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the different modifications:

Load cell type PR62 ** / ** ** E

Version 03

Load level (not Ex relevant)

Precision (not Ex relevant)

15.2 Description

The load cell type PR62** / *** ** E is used for converting a load into an electrical signal. The load cell has a metal enclosure with inside fixed resistance strain gauge. The electrical connection is carried out by a permanently connected cable. The load cell is a “simple apparatus”

15.3 Parameters

Maximum input voltage $U_i$ DC 25 V

Maximum input current $I_i$ 160 mA

Maximum input power $P_i$ 2 W

Effective internal capacitance $C_i$ negligible

Effective internal inductance $L_i$ negligible

For the capacitance and inductance of the connection cable (max. 25 m length) the following values shall be used:

Cable capacitance $C_{c}$ 200 pF/m

Cable inductance $L_{c}$ 1 μH/m

Ambient temperature range $T_a$ -30 °C up to +55 °C

16 Report Number

BVS PP 18.2002 EU, as of 2018-01-03

17 Special Conditions for Use

The apparatus has to be installed in such a way that electrostatic charging hazards can be excluded.
18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 Drawings and Documents

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original. In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
Bochum, dated 2018-01-03
BVS-Hil/Mu A 20171008

Certifier

Approver
IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

<table>
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<th>issue No.:0</th>
<th>Certificate history:</th>
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<td></td>
</tr>
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<td>Date of Issue:</td>
<td>2018-01-15</td>
<td>Page 1 of 4</td>
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</tr>
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<td>Minebea Intec GmbH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Meindersrer Straße 205 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22145 Hamburg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Germany</td>
<td></td>
<td></td>
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<tr>
<td>Equipment:</td>
<td>Load cell type PR62** / ** ** E</td>
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<td>Optional accessory:</td>
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<td>Type of Protection:</td>
<td>Equipment protection by intrinsic safety &quot;I&quot;</td>
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<td></td>
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<tr>
<td>Marking:</td>
<td>Ex ia IIC T6 Ga</td>
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<td>Approved for issue on behalf of the IECEx Certification Body: Jörg Koch</td>
<td></td>
<td></td>
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<td>Position:</td>
<td>Head of Certification Body</td>
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</table>

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.
Certificate No.: IECEx BVS 17.0092X
Date of Issue: 2018-01-15
Issue No.: 0

Manufacturer: Minebea Intec GmbH
Meiendorfer Straße 205 A
22145 Hamburg
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition: 6.0

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR18.0001/00

Quality Assessment Report:
DE/PTB/QAR13.0007/02
Certificate No.: IECEx BVS 17.0092X
Date of Issue: 2018-01-15
Issue No.: 0
Page 3 of 4

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

Description
The load cell is used for converting a load into an electrical signal. The load cell has a metal enclosure with inside fixed resistance strain gauge. The electrical connection is carried out by a permanently connected cable. The load cell is a "simple apparatus".

Subject and Type
See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

The apparatus has to be installed in such a way that electrostatic charging hazards can be excluded.
EQUIPMENT (continued):

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum input voltage</td>
<td>$U_i$ DC 25 V</td>
</tr>
<tr>
<td>Maximum input current</td>
<td>$I_i$ 160 mA</td>
</tr>
<tr>
<td>Maximum input power</td>
<td>$P_i$ 2 W</td>
</tr>
<tr>
<td>Effective internal capacitance</td>
<td>$C_i$ negligible</td>
</tr>
<tr>
<td>Effective internal inductance</td>
<td>$L_i$ negligible</td>
</tr>
</tbody>
</table>

For the capacitance and inductance of the connection cable (max. 25 m length) the following values shall be used:

- Cable capacitance: $C_c$ 200 pF/m
- Cable inductance: $L_c$ 1 µH/m
- Ambient temperature range: $T_a$ -30 °C up to +55 °C
Certificate No.: IECEx BVS 17.0092X
Annex
Page 1 of 1

Subject and Type
Load cell type PR62** / ** ** E
Instead of the *** in the complete denomination letters and numerals will be inserted which characterize the different modifications:

Load cell type PR62 ** / ** ** E

Version 03

Load level (not Ex relevant)
Precision (not Ex relevant)
(1) EU-Baumusterprüfbescheinigung

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen, Richtlinie 2014/34/EU

(3) Bescheinigungsnummer: TÜV 03 ATEX 2301 X Ausgabe: 00

(4) für das Produkt: Wägezellen Typ PR 62…/… und MP76/…

(5) des Herstellers: Minebea Intec GmbH
(6) Anschrift: Meindorfer Str. 205 A, 22145 Hamburg
Auftragsnummer: 8000475687
Ausstellungsdatum: 14.11.2017

(7) Die Bauart dieses Produktes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage und den darin aufgeführten Unterlagen zu dieser EU-Baumusterprüfbescheinigung festgelegt.


(9) Die wesentlichen Gesundheits- und Sicherheitsanforderungen werden erfüllt durch Übereinstimmung mit:
ausgenommen die unter Abschnitt 18 der Anlage gelisteten Anforderungen.

(10) Falls das Zeichen “X” hinter der Bescheinigungsnummer steht, wird auf die Besonderen Bedingungen für die Verwendung des Produktes in der Anlage zu dieser Bescheinigung hingewiesen.


(12) Die Kennzeichnung des Produktes muss die folgenden Angaben enthalten:

Ex  II 1 D Ex ta IIIC T160 °C Da

TÜV NORD CERT GmbH, Langenarckstraße 20, 45141 Essen, notifiziert durch die Zentralstelle der Länder für Sicherheitstechnik (ZLS), Ident. Nr. 0044, Rechtsnachfolger der TÜV NORD CERT GmbH & Co. KG Identy. Nr. 0032
Der Leiter der notifizierten Stelle

Meyer
Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover, Tel. +49 511 998-61455, Fax +49 511 998-61590

Diese Bescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung der TÜV NORD CERT GmbH
(13) **ANLAGE**

(14) **EU-Baumusterprüfbescheinigung Nr. TÜV 03 ATEX 2301 X Ausgabe 00**

(15) **Beschreibung des Produktes**


Der zulässige Umgebungstemperaturbereich beträgt -20 °C ... 55°C.

**Auflistung der Typen und Gehäuseformen**

<table>
<thead>
<tr>
<th>Typen</th>
<th>Gehäuseform</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 6201/...</td>
<td>Zylinder</td>
</tr>
<tr>
<td>PR 6202/...</td>
<td>Zylinder</td>
</tr>
<tr>
<td>PR 6203/...</td>
<td>Zylinder</td>
</tr>
<tr>
<td>PR 6221/...</td>
<td>Zylinder</td>
</tr>
<tr>
<td>PR 6211/...</td>
<td>Kreisplatte</td>
</tr>
<tr>
<td>PR 6212/...</td>
<td>Kreisplatte</td>
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<tr>
<td>PR 6251/...</td>
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<tr>
<td>PR 6261/...</td>
<td>Kreisplatte</td>
</tr>
<tr>
<td>PR 6241/...</td>
<td>S-Form</td>
</tr>
<tr>
<td>PR 6246/...</td>
<td>S-Form</td>
</tr>
<tr>
<td>MP 76/...</td>
<td>S-Form</td>
</tr>
</tbody>
</table>

**Elektrische Daten**

Versorgungs- und Signalstromkreis ......................... (fest angeschlossenes Kabel)

nur zum Anschluss an einen bescheinigten eigensicheren Stromkreis

Höchstwert: 

$P_1 = 2 \text{ W}$

Die wirksame innere Induktivität und Kapazität sind vernachlässigbar klein.

**Verwendung als EPL Da-Betriebsmittel**

Schutzniveau des Stromkreises: ia

**Verwendung als EPL Db-Betriebsmittel**

Schutzniveau des Stromkreises: ia oder ib

(16) **Zeichnungen und Dokumente sind im ATEX Prüfungsbericht Nr. 17 203 206448 aufgelistet.**
Anlage zur EU-Baumusterprüfbescheinigung Nr. TÜV 03 ATEX 2103 X Ausgabe 00

(17) Besondere Bedingungen für die Verwendung

1. Die freien Leitungsenden der Anschlüsse sind außerhalb des explosionsgefährdeten Bereiches oder in einem geeigneten, für den Einsatz in durch Staub explosionsgefährdeten Bereichen bescheinigten Klemmenkasten zu verdrahten.


3. Die Wäzezellen sind so zu errichten, dass die Gehäuse sicher mit Erdpotential verbunden sind (z. B. über die Erdungsklemme; die Betriebsanleitung des Herstellers ist zu beachten).

(18) Wesentliche Gesundheits- und Sicherheitsanforderungen
keine zusätzlichen

- Ende der Bescheinigung -
Translation

(1) EU-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

(3) Certificate Number TÜV 03 ATEX 2301 X issue: 00

(4) for the product: Load cell type PR 62/... and MP76/...

(5) of the manufacturer: Minebea Intec GmbH
(6) Address: Meendorfer Str. 205 A, 22145 Hamburg
Order number: 8000475687

Date of issue: 2017-11-14

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 17 203 206448.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.

11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

Ex II 1 D Ex ta IIIC T160 °C Da

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body

Meyer

Hanover office, Am TÜV 1, 30519 Hannover, Tel. +49 511 998-61455, Fax +49 511 998-61590
(13) **SCHEDULE**

(14) EU-Type Examination Certificate No. TÜV 03 ATEX 2301 X issue 00

(15) **Description of product**

The load cells type PR62/... and MP76/... according to the table mentioned below are used for measuring forces by means of a strain gauge with resistors for compensation and adjustment.

The housings of the load cells as well as the used membranes consist of stainless steel. All parts of the housing and the membranes are welded gas-tight.

The load cells are allowed to be installed in explosion hazardous areas caused by dust for EPL Da apparatus resp. for EPL Db apparatus.

The permissible ambient temperature range is -20 °C ... 55 °C.

**Listing of types and shape of housings**

<table>
<thead>
<tr>
<th>Types</th>
<th>Shape of housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 6201/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6202/...</td>
<td>Cylinder</td>
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<tr>
<td>PR 6203/...</td>
<td>Cylinder</td>
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<tr>
<td>PR 6221/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6211/...</td>
<td>Circle plate</td>
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<tr>
<td>PR 6212/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6251/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6261/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6241/...</td>
<td>S-shape</td>
</tr>
<tr>
<td>PR 6246/...</td>
<td>S-shape</td>
</tr>
<tr>
<td>MP 76/...</td>
<td>S-shape</td>
</tr>
</tbody>
</table>

**Supply- and signal circuit**

(Cable connected fixed)

only for connection to a certified intrinsically safe circuit

Maximum value:

\( P_1 = 2 \) W

The effective internal inductance and capacitance are negligibly small.

**Use as EPL Da apparatus**

Level of protection of the circuit: ia

**Use as EPL Db apparatus**

Level of protection of the circuit: ia or ib

(16) **Drawings and documents are listed in the ATEX Assessment Report No. 17 203 206448**
(17) Specific Conditions for Use

1. The free cable ends of the connections have to be wired outside of the explosion hazardous area or in a suitable terminal box, suitably certified for the application in explosion hazardous areas caused by dust.

2. The connection of non-intrinsically safe circuits
   - with a safe limitation of the available power of 2 W and
   - a safe galvanic separation from earth potential (necessary for load cells without an additional earth connection)
   to the load cells of EPL Db is permissible.

3. The load cells have to be installed in such a way, that the housings are safely connected with earth potential (e. g. via the earth terminal; observe manual of the manufacturer).

(18) Essential Health and Safety Requirements

no additional ones

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<td>Minebea Intec GmbH</td>
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<td></td>
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<tr>
<td></td>
<td>22145 Hamburg</td>
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<td>Type of Protection:</td>
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<td>Andreas Meyer</td>
<td></td>
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<td>Position:</td>
<td>Head of IECEx Certification Body</td>
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<td></td>
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1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany
IECEx Certificate of Conformity

Certificate No.: IECEx TUN 17.0025X
Date of Issue: 2017-11-14
Issue No.: 0
Page 2 of 3

Manufacturer: Minebea Intec GmbH
Meiendorfer Str. 205
22145 Hamburg
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition: 6.0
IEC 60079-31 : 2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition: 2

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/TUN/EXTR17.0023/00

Quality Assessment Report:
DE/PTB/QAR13.0007/02
IECEx Certificate of Conformity

Certificate No.: IECEx TUN 17.0025X
Date of Issue: 2017-11-14
Issue No.: 0
Page 3 of 3

Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The load cells type PR62/... and MP76/... according to the table mentioned below are used for measuring forces by means of a strain gauge with resistors for compensation and adjustment.
The housings of the load cells as well as the used membranes consist of stainless steel. All parts of the housing and the membranes are welded gas-tight.
The load cells are allowed to be installed in explosion hazardous areas caused by dust for EPL Da apparatus resp. for EPL Db apparatus.
The permissible ambient temperature range is -20 °C ... +55 °C.

See attachment for further details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The free cable ends of the connections have to be wired outside of the explosion hazardous area or in a suitable terminal box, certified for the application in explosion hazardous areas caused by dust.

2. The connection of non intrinsically safe circuits
   - with a safe limitation of the available power of 2W and
   - a safe galvanic separation from earth potential (necessary for load cells without an additional earth connection)
   to the load cells of the category 2 is permissible.

3. The load cells have to be installed in such a way, that the housings are connected with earth potential.

Annex: Attachment_load cells TUN 17.0025 X (2).pdf
The load cells type PR62/... and MP76/... according to the table mentioned below are used for measuring forces by means of a strain gauge with resistors for compensation and adjustment. The housings of the load cells as well as the used membranes consist of stainless steel. All parts of the housing and the membranes are welded gas-tight. The load cells are allowed to be installed in explosion hazardous areas caused by dust for category 1 apparatus resp. for category 2 apparatus. The permissible ambient temperature range is -20 °C ... 55 °C.

### Listing of types and shape of housings

<table>
<thead>
<tr>
<th>Types</th>
<th>Shape of housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 6201/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6202/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6203/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6221/...</td>
<td>Cylinder</td>
</tr>
<tr>
<td>PR 6211/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6212/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6251/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6261/...</td>
<td>Circle plate</td>
</tr>
<tr>
<td>PR 6241/...</td>
<td>S-shape</td>
</tr>
<tr>
<td>PR 6246/...</td>
<td>S-shape</td>
</tr>
<tr>
<td>MP 76/...</td>
<td>S-shape</td>
</tr>
</tbody>
</table>

Supply- and signal circuit (Cable connected fixed) only for connection to a certified intrinsically safe circuit

Maximum value: P = 2 W, The effective internal inductance and capacitance are negligibly small.

**Use as category 1 apparatus**
Level of protection of the circuit: ia

**Use as category 2 apparatus**
Level of protection of the circuit: ia or ib

### Specific Conditions of Use

1. The free cable ends of the connections have to be wired outside of the explosion hazardous area or in a suitable terminal box, suitably certified for the application in explosion hazardous areas caused by dust.

2. The connection of non intrinsically safe circuits - with a safe limitation of the available power of 2 W and - a safe galvanic separation from earth potential (necessary for load cells without an additional earth connection) to the load cells of the category 2 is permissible.

3. The load cells have to be installed in such a way, that the housings are safely connected with earth potential (e. g. via the earth terminal; observe manual of the manufacturer).
Herstellerbescheinigung
Manufacturer's certificate

Nummer  Number
MIN16ATEX001X

Hersteller  Manufacturer
Minebea Intec GmbH
Meiendorfer Straße 205A
22145 Hamburg, Germany

erklärt in alleiniger Verantwortung, dass das Produkt
declares under sole responsibility that the product

Geräteart  Device type
Wägezelle
Load cell

Baureihe  Type series
PR 6201, PR 6202, PR 6203, PR 6207, PR 6211 D1(500kg-10t), PR 6212, PR 6221, PR 6241,
PR 6246, PR 6251, PR 6261, MP 76  | (ohne Typ / without type LA or LT)

auf das sich diese Bescheinigung bezieht, mit der/den folgenden Norm(en) oder normativen
Dokument(en) übereinstimmt (siehe Seite 2) gemäß den Bestimmungen der „Richtlinie
Harmonisierung der Rechtsvorschriften der Mitgliedstaaten für Geräte und Schutzsysteme zur
bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen“. Das Produkt wird wie
folgt gekennzeichnet:

to which this certification relates is in conformity with the following standard(s) or other normative
document(s) (see page 2) pursuant to the provisions of the "Directive 2014/34/EU of the
European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of
the Member States relating to equipment and protective systems intended for use in potentially
explosive atmospheres ". This product is labelled as follows:

Kennzeichnung  Marking
II 3G Ex nA IIC T6 Gc
II 3D Ex tc IIIC T85°C Dc
MIN16ATEX001X

Minebea Intec GmbH
Hamburg, 09.03.2020

W.D. Schulze  Torben Hiller
Managing Director  EX Approval Manager

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten EU-Richtlinien, ist jedoch keine Zusicherung von
Eigenschaften. Bei einer mit uns nicht abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit. Die
Sicherheitshinweise der zugehörigen Produktdokumentation sind zu beachten.

This declaration certifies conformity with the above mentioned EC Directives, but does not guarantee product attributes.
Unauthorized product modifications make this declaration invalid. The safety information in the associated product
documentation must be observed.

MIN16ATEX001X Rev. 3
Herstellerbescheinigung
Manufacturer's certificate

Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit:
Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**Normen**

**Standards**

EN 60079-0:2012 + A11:2013
Explosionsgefährdete Bereiche – Teil 0: Geräte - Allgemeine Anforderungen
*Explosive atmospheres – Part 0: Equipment - General requirements*

EN 60079-15:2010
Explosionsfähige Atmosphäre – Teil 15: Geräteschutz durch Zündschutzart „n”
*Explosive atmospheres – Part 15: Equipment protection by type of protection „n”*

EN 60079-31:2014
Explosionsfähige Atmosphäre – Teil 31: Geräte-Staubexplosionsschutz durch Gehäuse „t”
*Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure „t”*

Diese Bescheinigung wurde auf Basis des folgenden Prüfberichts erstellt:
This certificate was drawn on the basis of the following test report:

**Prüfbericht**

**Test Report**

MTR0001
Minebea Intec GmbH, Hamburg, Germany

**Sicherheitshinweise**

**Safety instructions**

949905947901

**Umgebungstemperatur**

**Ambient temperature**

-30°C ... +55°C

**IP-Schutz**

**IP protection**

IP6X

Für diese Produkt gelten folgende besonderen Bedingungen für den sicheren Gebrauch:
For this product the following special conditions for safe use apply:

**besondere Bedingungen**

**special Conditions**

Für Anwendungen in Umgebungen mit brennbaren Stäuben ist eine elektrostatische Aufladung zu vermeiden.
For application in environments with combustible dust, electrostatic charging shall be avoided.

Bei Verwendung der Zündschutzart "Ex nA" ist eine Transientenschutzeinrichtung vorzusehen welche einen Maximalwert von 140% des Spitzenspannungswertes von 85V sicherstellt.
When applied in type of protection non sparking "Ex nA", a transient protection device shall be set at a level not exceeding 140% of the peak rated voltage value of 85 V.
CERTIFICATE OF CONFORMITY

1. HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

2. Certificate No:   FM17CA0138

3. Equipment:       Model PR 6201, PR 6202, PR 6203, PR 6211, PR 6212, PR
                    6221, PR 6241, PR 6246, PR 6251, PR 6261 Load Cells

4. Name of Listing Company: Minebea Intec GmbH

5. Address of Listing Company: Meiendorfer Str. 205A
                                    22145 Hamburg
                                    Germany

6. The examination and test results are recorded in confidential report number:

   3053046 dated 22nd July 2014

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:


8. If the sign ‘X’ is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.

9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

10. Equipment Ratings:

    Intrinsically safe (Entity) for use in Class I,II and III Division 1, Groups A, B, C, D, E, F and G indoor and outdoor Hazardous Locations, Temperature Class T4A Ta= -40°C to +70°C and T5 Ta= -40°C to +55°C when installed per Control Drawing 4012 101 5688.
    Nonincendive (NIFW) for use in Class I, Division 2, Groups A, B, C, and D indoor and outdoor Hazardous Locations, Temperature Class T4A Ta= -40°C to +70°C and T5 Ta= -40°C to +55°C when installed per Control Drawing 4012 101 5688.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems
30 July 2020
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300   F: +1 (1) 781 762 9375   E-mail: information@fmapprovals.com  www.fmapprovals.com

F 348 (Mar 16)
Dust Ignition protected for Class II, III Division 2, Groups E, F and G indoor and outdoor Hazardous Locations, Temperature Class T4A Ta= -40°C to +70°C and T5 Ta= -40°C to +55°C when installed per Control Drawing 4012 101 5688

11. The marking of the equipment shall include:

IS CL I, II, III, DIV 1, GP A,B,C,D,E,F,G Entity - 4012 101 5688
NI CL I, II, III, DIV 2, GP A,B,C,D, E, F, G - 4012 101 5688; NIFW
T4A Ta= -40°C to 70°C; T5 Ta= -40°C to 55°C

12. Description of Equipment:

General - The Model PR 62xx Series Load Cells are precision compression load cells designed to meet the specific requirements of a wide range of weighing installations.

Construction - The Model PR 62xx Series Load Cells are constructed of welded stainless steel, hermetically sealed, and filled with inert gas.

Ratings - The Model PR 62xx Series Load Cells are rated for an operating temperature range of -40°C to 70°C. Entity and Nonincendive Field Wiring parameters are as defined below.

PR 62a/bc d e. Load Cell.

Entity/Nonincendive Field Wiring Parameters:
Ui = 25 V, Ii = 160 mA, Pi = 2 W; Ci= 0 μF, Li= 0 mH.

a = 01, 02, 03, 11, 12, 21, 41, 46, 51, 61
b = up to three numbers denoting the maximum capacity (may be separated by a dot)
c = Unit of measurement: blank or t
d = Accuracy: up to three numbers or letters (may be separated by dots)
e = Special: F or blank

13. Specific Conditions of Use:

None

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE
SCHEDULE

Canadian Certificate Of Conformity No: FM17CA0138

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22\textsuperscript{nd} July 2014</td>
<td>Original Issue.</td>
</tr>
<tr>
<td>10\textsuperscript{th} November 2017</td>
<td>Supplement 4: Report Reference: – RR211742 dated 10\textsuperscript{th} November 2017. Description of the Change: Addition of option a = 03.</td>
</tr>
<tr>
<td>24\textsuperscript{th} October 2018</td>
<td>Supplement 5: Report Reference: – RR215447 dated 24\textsuperscript{th} October 2018. Description of the Change: Update lower operating temperatures from -30°C to -40°C.</td>
</tr>
</tbody>
</table>
CERTIFICATE OF CONFORMITY

1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS
2. Certificate No: FM17US0276
3. Equipment: Model PR 6201, PR 6202, PR 6203, PR 6211, PR 6212, PR 6221, PR 6241, PR 6246, PR 6251, PR 6261 Load Cells
4. Name of Listing Company: Minebea Intec GmbH
5. Address of Listing Company: Meinderser Str. 205A 22145 Hamburg Germany
6. The examination and test results are recorded in confidential report number: 3001200 dated 12th August 1999
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:
8. If the sign ‘X’ is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. Equipment Ratings:
    Intrinsically safe (Entity) for use in Class I, II and III Division 1, Groups A, B, C, D, E, F and G indoor and outdoor Hazardous (Classified) Locations, Temperature Class T4A Ta= -40°C to +70°C and T5 Ta= -40°C to +55°C when installed per Control Drawing 4012 101 5688.
    Nonincendive (NIFW) for use in Class I, II and III Division 2, Groups A, B, C, D, E, F and G indoor and outdoor Hazardous (Classified) Locations, Temperature Class T4A Ta= -40°C to +70°C and T5 Ta= -40°C to +55°C when installed per Control Drawing 4012 101 5688.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

30 July 2020
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com
11. The marking of the equipment shall include:

IS Cl I, II, III, DIV 1, GP A,B,C,D,E,F,G Entity - 4012 101 5688
NI Cl I, II, III, DIV 2, GP A,B,C,D,E,F,G - 4012 101 5688; NIFW
T4A Ta= -40°C to 70°C; T5 Ta= -40°C to 55°C

12. Description of Equipment:

   General - The Model PR 62xx Series Load Cells are precision compression load cells designed to meet the specific requirements of a wide range of weighing installations.

   Construction - The Model PR 62xx Series Load Cells are constructed of welded stainless steel, hermetically sealed, and filled with inert gas.

   Ratings - The Model PR 62xx Series Load Cells are rated for an operating temperature range of -40°C to 70°C. Entity and Nonincendive Field Wiring parameters are as defined below.

   **PR 62a/bc d e. Load Cell.**

   Entity/Nonincendive Field Wiring Parameters:
   
   $U_i = 25 \text{ V}$, $I_i = 160 \text{ mA}$, $P_i = 2 \text{ W}$; $C_i = 0 \mu\text{F}$, $L_i = 0 \text{ mH}$.

   a = 01, 02, 03, 11, 12, 21, 41, 46, 51, 61
   b = up to three numbers denoting the maximum capacity (may be separated by a dot)
   c = Unit of measurement: blank or t
   d = Accuracy: up to three numbers or letters (may be separated by dots)
   e = Special: F or blank

13. Specific Conditions of Use:

   None

14. Test and Assessment Procedure and Conditions:

   This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

   A copy of the technical documentation has been kept by FM Approvals.
16. **Certificate History**

Details of the supplements to this certificate are described below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th August 1999</td>
<td>Original Issue.</td>
</tr>
</tbody>
</table>
Hazardous (Classified) Location
Class I, II, III, Division 1, Groups A,B,C,D,E,F,G

1) In the USA: The installation must be in accordance with the National Electrical Code®, NFPA 70 and ANSI / ISA-RP 12.06.01.
In Canada: The installation must be in accordance with the Canadian Electrical Code®, Part 1.

2) The apparatus must not be connected to any device that uses or generates in excess of 250Vrms or DC.
   $U_m = 250V$.

3) In the USA: The apparatus must be connected to a suitable ground electrode per National Electrical Code®, NFPA 70, Article 504. The resistance of the ground pad must be less than 1 ohm.
   In Canada: The apparatus must be connected to a suitable ground electrode per Canadian Electrical Code®, Part 1. The resistance of the ground pad must be less than 1 ohm.

   The load cell ground (housing) must be insulated from the surface on which it is mounted or be at the same potential of the NRTL approved apparatus ground as per installation drawings.

4) Connection must be made in accordance with the manufacturer’s instructions of the NRTL approved apparatus.

5) The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of $V_o$ and $I_o$ of the associated apparatus are less than or equal to $V_i$ and $I_i$ of the intrinsically safe apparatus and the approved values of $C_o$ and $L_o$ of the associated apparatus are greater than $C_i$ and $L_i$ of the intrinsically safe apparatus plus all cable parameters.

7) Ambient temperature range:
   -40°C .... +55°C (-40°F .... +131°F) for T5 and -40°C .... +70°C (-40°F .... +158°F) for T4A.

8) WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY.

   AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ INTRINSÈQUE.

---

**Notes**

- **Hazardous (Classified) Location**
  - Class I, II, III, Division 1, Groups A,B,C,D,E,F,G
  - **FM Approved Apparatus (USA)** or product is suitably certified for use in Canada with Entity Concept parameters (see note 5) ($V_o$, $I_o$, $C_o$, $L_o$) appropriate for connection to intrinsically safe apparatus with Entity Concept parameters

- **Hazardous (Classified) Location**
  - Class I, II, III, Division 2, Groups A,B,C,D,E,F,G
  - **FM Approved Apparatus (USA)** or product is suitably certified for use in Canada with nonincendive field wiring and output voltage of 25Vmax to the load cells.
1. Product model / product number / solely valid for project number:

   Compression Load Cell Inteco ®/ PR 6203 / ----

2. Name and address of the manufacturer (2.1) and his authorized representative (2.2):
   2.1 Minebea Intec GmbH, Meinderser Straße 205 A, 22145 Hamburg, Germany
   2.2 /

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.

4. Object(s) of the declaration:
   4.1 PR 6203
   4.2 PR 6203 (A.1)
   4.3 PR 6203 (A.2)
   4.4 PR 6203/ _____E

5. The object(s) of the declaration described above is in conformity with the relevant Union harmonization legislation:

<table>
<thead>
<tr>
<th>(4.1)</th>
<th>(4.2)</th>
<th>(4.3)</th>
<th>(4.4)</th>
</tr>
</thead>
</table>
   5.1 2014/30/EU  | (6.1) | (6.1) | (6.1) | (6.1) |
   5.2 2014/34/EU  | (6.2) | (6.2) | (6.2) | (6.2) |
   5.3 2014/34/EU  | (6.3) | (6.4) | (6.4) | (6.5) |

6. References to the relevant harmonized standards used or references to the other technical specifications in relation to which conformity is declared:

<table>
<thead>
<tr>
<th>(4.1)</th>
<th>(4.2)</th>
<th>(4.3)</th>
<th>(4.4)</th>
</tr>
</thead>
</table>
   6.1 2014/30/EU  | EN 61326-1:2013, EN 61000-4-20:2010 |
   6.2 2014/34/EU  | EN 50581:2012 |

7. The notified body w performed x and issued the certificate y relevant for z:

<table>
<thead>
<tr>
<th>w</th>
<th>x</th>
<th>y</th>
<th>z</th>
</tr>
</thead>
</table>
   7.1 | /                              | Manufacturer's certificate       | MIN16ATEX001X        | (4.2)                |
   7.2 | 0032                           | EC-Type Examination Certificate  | TÜV 03 ATEX 2301 X   | (4.3)                |
   7.3 | 0158                           | EC-Type Examination Certificate  | BVS 17 ATEX E 111X   | (4.4)                |
   7.4 | 0102                           | Production Quality Assessment Notification | PTB 02 ATEX Q010 | (4.3), (4.4)          |

---

Minebea Intec GmbH
Hamburg, 08 Jul 2019

[Signatures]

Wolf Dieter Schulze
Managing Director

Oliver Freitag
CE Certification

Torben Hiller
Ex Approval Manager
### EU-Declaration of Conformity

#### A. Additional information on ( ):

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A.1</strong></td>
<td>(7.1)</td>
<td>Marking</td>
</tr>
<tr>
<td></td>
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<td>II 3G Ex nA IIIC T6 Gc</td>
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<td>II 3D Ex tc IIIC T85°C Dc</td>
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<tr>
<td></td>
<td></td>
<td>MIN16ATEX001X</td>
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<tr>
<td><strong>A.2</strong></td>
<td>(7.2)</td>
<td>Marking</td>
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<td></td>
<td></td>
<td>TÜV 03 ATEX 2301 X</td>
</tr>
<tr>
<td><strong>A.3</strong></td>
<td>(7.3)</td>
<td>Marking</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<td>BVS 17 ATEX E 111X</td>
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</tbody>
</table>
**EU-Declaration of Conformity**

<table>
<thead>
<tr>
<th>български (bg)</th>
<th>čeština (cs)</th>
<th>Dansk (da)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Декларация за съответствие</td>
<td>Prohlášení o shodě</td>
<td>Overensstemmelseserklæring</td>
</tr>
<tr>
<td>1. Модел на продукта / Номер на продукта / gilt ausschließlich für Projekt-Nr.:</td>
<td>1. Model výrobku / číslo výrobku / platné pouze pro číslo projektu:</td>
<td>1. Produktmodel / Produktkumnummer / gelder kun for projektnummer:</td>
</tr>
<tr>
<td>2. Наименование и адрес на производителя</td>
<td>2. Jméno a adresa výrobce (2.1) a jeho příslušným zástupce (2.2):</td>
<td>2. Fabrikantens (2.1) og dennes bemindigedé repræsentants (2.2) navn og adresse:</td>
</tr>
<tr>
<td>3. Настоящата декларация за съответствие е издадена на отговорността на производителя.</td>
<td>Toto prohlášení o shodě se vydává na výhradní odpovědnost výrobce.</td>
<td>Denne overensstemmelseserklæring udstedes på fabrikantens ansvar.</td>
</tr>
<tr>
<td>4. Предмет(ы) на декларацията:</td>
<td>4. Předmět(y) prohlášení:</td>
<td>4. Genstand(e) for erklæringen:</td>
</tr>
<tr>
<td>5. Настоящата декларация за съответствие е издадена на отговорността на производителя.</td>
<td>5. Výše popsané předměty prohlášení je jsou ve shodě s příslušnými harmonizačními právními předpisy Uniie:</td>
<td>5. Genstand(e) er erklæringen, som beskrevet ovenfor, er i overensstemmelse med den relevante EU-harmoniseringslovgivning:</td>
</tr>
<tr>
<td>6. Позоваване на използваните хармонизирани стандарти или позоваване на други технически спецификации, по отношение на които се декларира съответствие:</td>
<td>6. Odkazy na příslušné harmonizované normy, které byly použity, nebo na jiné technické specifikace, na jejichž základě se shoda prohlašuje:</td>
<td>6. Referencer til de relevante anvendte harmoniserede standarder eller til de andre tekniske specifikationer, som der erklæres overensstemmelse med:</td>
</tr>
<tr>
<td>7. Опознаване на орган, нюхател или промоторна или други технически спецификации, по отношение на които се декларира съответствие:</td>
<td>7. Oznámený subjekt w provedl x a vydal certifikát y z hlediska z:</td>
<td>7. Det bemyndigede organ w har foretaget x og udstedt attesten y, der gælder for z:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deutsch (de)</th>
<th>Elliniká (el)</th>
<th>Español (es)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konformitätserklärung</td>
<td>Δήλωση συμμόρφωσης</td>
<td>Declaración de conformidad</td>
</tr>
<tr>
<td>1. Produktmodell / Produktkumnummer / gilt ausschließlich für Projekt-Nr.:</td>
<td>1. Μοντέλο προϊόντος / αριθμός προϊόντος / ισχύει μόνο για τον αριθμό του έργου:</td>
<td>1. Modelo de producto/número de producto / únicamente válido para el número de proyecto:</td>
</tr>
<tr>
<td>2. Name und Anschrift des Herstellers (2.1) und seines Bevollmächtigten (2.2):</td>
<td>2. Όνομα και διεύθυνση του κατασκευαστή (2.1) και του εξουσιοδοτημένου αντιπροσώπου του (2.2):</td>
<td>2. Nombre y dirección del fabricante (2.1) y de su representante autorizado (2.2):</td>
</tr>
<tr>
<td>3. Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.</td>
<td>3. Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική ευθύνη του κατασκευαστή.</td>
<td>3. La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante.</td>
</tr>
<tr>
<td>4. Gegenstände der Erklärung:</td>
<td>4. Στόχος της δήλωσης:</td>
<td>4. Objet(s) de la declaración:</td>
</tr>
<tr>
<td>5. Die oben beschriebenen Gegenstände der Erklärung erfüllen die einschlägigen Harmonisierungsrechtsschutzvorschriften der Union:</td>
<td>5. Ο στόχος της δήλωσης που περιγράφεται παραπάνω είναι σύμφωνος με τη σχετική ενωσιακή νομοθεσία εναρμόνισης:</td>
<td>5. El/Los objetivo(s) de la declaración descritos anteriormente son conformes con la legislación de armonización pertinente de la Unión Europea:</td>
</tr>
<tr>
<td>6. Angabe der einschlägigen harmonisierten Normen oder der anderen technischen Spezifikationen, die der Konformitätserklärung zugrunde gelegt wurden:</td>
<td>6. Παραπομπές στα σχετικά εναρμονισμένα πρότυπα που χρησιμοποιήθηκαν ή παραπομπές στις λοιπές τεχνικές προδιαγραφές σε σχέση με τις οποίες δηλώνεται η συμμόρφωση:</td>
<td>6. Referencias a las normas armonizadas pertinentes utilizadas o referencias a las otras especificaciones técnicas respecto a las cuales se declara la conformidad:</td>
</tr>
<tr>
<td>7. Die genutzte Stelle w hat x und die für z relevante Bescheinigung y ausgestellt:</td>
<td>7. Ο κοινοποιημένος οργανισμός w διεξήγε x και εξέδωσε το πιστοποιητικό Y όπως απαιτείται για z:</td>
<td>7. El organismo notificado W ha efectuado X y expedido el certificado Y relevante para Z:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A. Zusatzangaben zu ( ):</th>
<th>A. Προσθήκη στη δήλωση για ( ):</th>
<th>A. Información adicional en ( ):</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1 Kennzeichnung</td>
<td>A.1 Σήμανση</td>
<td>A.1 Marcado</td>
</tr>
<tr>
<td>A.2 Kennzeichnung</td>
<td>A.2 Σήμανση</td>
<td>A.2 Marcado</td>
</tr>
<tr>
<td>A.3 Kennzeichnung</td>
<td>A.3 Σήμανση</td>
<td>A.3 Marcado</td>
</tr>
</tbody>
</table>
EU-Declaration of Conformity

Vastavusdeklaratsioon
1. Tootemudel / tootenumber / kehtib vaid järgmise projekti puhul:
2. Tootja nimi ja aadress (2.1) ning tema volitatud esindaja (2.2):
4. Deklareeritav toode:
5. Ülalkirjeldatud deklareeritav toode on kooskõlas asjaomaste liidu ühtlustamisaktidega:
6. Viited kasutatud harmoniseeritud standarditele või viited muudele tehnilistele spetsifikatsioonidele, millele vastavust deklarieritakse:
7. Teavitatud asutus w teostas x ja andis välja tõendid y-le:

A. Lisateave järgmise kohta ( ):
EU-Declaration of Conformity

**Deklaracja zgodności**

1. Model produktu / numer produktu / ważny
2. Nazwa i adres producenta (2.1) oraz jego
3. Niniejsza deklaracja zgodności wydana zostaje
4. Deklaracjiach priekšmets vai priekšmets vai
5. Iepriekš aprakstītais deklarācijas priekšmets vai
6. Atsauces uz attiecīgajiem izmantojami
7. Jednostka notyfikowana w przeprowadziła

**Deklarация та' конформитăт**

1. Модел тал-продukt / нумер тал-продukt / валидна
2. Л-нам и л-индирекс тал-манфактур (2.1) и тар-
3. Дин id-дикярарзиони та' конформитăт тинхарёг
4. L-ghanjiet tad-dikjarazzjoni: 
5. L-ghanja(ie)j tad-dikjarazzjoni deskripti(ri) bawn 
6. Il-referenzi ghall-standards armonizzati 
7. Il-kkop notifikat in wettag x u hareg iċ-

**Deklaracja de conformidade**

1. Modelo do produto / número do produto /
2. Nome e endereço do fabricante (2.1) e do seu
3. A presente declaração de conformidade é emitida sob a exclusiva responsabilidade do 
4. Praznosti(y) deklaracije: 
5. Wymieniony powyżej przedmiot lub
6. Odwołania do odniesionych norm
7. Jednostka notyfikowana w przeprowadziła 

**Deklaración de conformitate**

1. Modelul de produs / numărul produs / valabil
2. Adresa producătorului (2.1) și a
3. Prezentă declarație de conformitate este emisă pe 
4. Preluarea(e) de declarație: 
5. Obiectul (obiectele) declarației: 
6. Trimiteri la standardele armonizate relevante 

**Declaración de conformita**

1. Model del producto / número del producto /
2. Nombre y dirección del fabricante (2.1) y del 
3. Declaración de conformidad es emitida por la 
4. Páginas(y) de declaración: 
5. Otro(s) objeto(s) de la declaración acerca del(los)

**Declarație de conformitate**

1. Modelul de produs / Numărul produs / valabil
2. Adresa producătorului (2.1) și a
3. Prezentă declarație de conformitate este emisă pe 
4. Obiectul (obiectele) de declarației: 
6. Trimiteri la standardele armonizate relevante 

**EU-Declaration of Conformity**

<table>
<thead>
<tr>
<th>slovenčina (sk)</th>
<th>slovenščina (sl)</th>
<th>suomi (fi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vyhlásenie o zhode</td>
<td>Izjava o skladnosti</td>
<td>Vaatimustenmukaisuusvakuutus</td>
</tr>
<tr>
<td>1. Model výrobku / číslo výrobku / platné len pre číslo projektu:</td>
<td>1. Model proizvoda / serijka številka proizvoda / veljavno samo za številka projekta:</td>
<td>1. Tuotemalli / tuotenumero / koskee vain projektinumeroa:</td>
</tr>
<tr>
<td>2. Meno/názov a adresa výrobcu (2.1) a jeho splnomocneného zástupcu (2.2):</td>
<td>2. Ime in naslov proizvajalca (2.1) ter njegovega pooblaščenega zastopnika (2.2):</td>
<td>2. Valmistajan (2.1) ja valtuutetun edustajan (2.2) nimi ja osoite:</td>
</tr>
<tr>
<td>3. Tohto vyhlásenia o zhode sa vydáva na vlastnú zodpovednosť výrobcu.</td>
<td>3. Za izdajo te izjave o skladnosti je odgovoren izključno proizvajalec.</td>
<td>3. Tämä vaatimustenmukaisuusvakuutus on annettu valmistajan yksinomaissa vastuulla.</td>
</tr>
<tr>
<td>5. Uvedený predmet či uvedené predmety vyhlásenia si v zhode s príslušnými harmonizačnými právnymi predpismi Únie:</td>
<td>5. Predmet(i) navedene izjave je (so) v skladu z ustreznjo zakonodajo Unije o harmonizaciji:</td>
<td>5. Edella kuvattua (kuvatteja) vakuutuksen kohde (kohteet) on (ovat) asiaa koskevan unionin yhdenmukaistamissääädännön vaatimusten mukainen (mukaisia):</td>
</tr>
<tr>
<td>7. Notifikovaný orgán v wykonal x a vydal certifikát y relevantý pre z:</td>
<td>7. Priglašeni organ w je izvedel x in izdal certifikat y, pomenben za z:</td>
<td>7. Ilmoitettu laitos w suoritti x ja antoi todisteen y liittyen z:</td>
</tr>
</tbody>
</table>

| A. Dodatne informacije o ( ): | **A.** Ytterligare information om ( ): | **A.** Lisätietoja ( ): |
| A.1 Označenie | A.1 Oznaka | A.1 Merkintä |
| A.2 Označenie | A.2 Oznaka | A.2 Merkintä |
| A.3 Označenie | A.3 Oznaka | A.3 Merkintä |
Konformitätserklärung

Declaration of conformity

Die Firma
The Company

Minebea Intec GmbH
Meiendorfer Straße 205A
22145 Hamburg, Germany

eklärt hiermit, dass folgende Geräte den angegebenen IP-Schutzarten entsprechen
declares that the following devices fulfill the requirement of the mentioned IP ratings

<table>
<thead>
<tr>
<th>Gerät</th>
<th>Beschreibung</th>
<th>IP-Schutzart</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 6201</td>
<td>Drucklast-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td></td>
<td>Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6202</td>
<td>Hygienische Drucklast-Wägezelle</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td></td>
<td>Hygienic Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6203</td>
<td>Drucklast-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td></td>
<td>Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6204</td>
<td>Digitale Behälterwaagen-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td>(Pendeo® Process)</td>
<td>Digitale Behälterwaagen-Wägezellen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital Process Vessel Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6207</td>
<td>Biegestab-Wägezellen</td>
<td>IP67</td>
</tr>
<tr>
<td></td>
<td>Beam Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6211</td>
<td>Kompakt-Drucklast-Wägezellen</td>
<td>IP68</td>
</tr>
<tr>
<td>30kg – 300kg</td>
<td>Compact Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6211</td>
<td>Kompakt-Drucklast-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td>500kg – 10t</td>
<td>Compact Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6212</td>
<td>Kompakt-Drucklast-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td></td>
<td>Compact Compression Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6221</td>
<td>Fahrzeugwaagen-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td></td>
<td>Weighbridge Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6224</td>
<td>Digitale Fahrzeugwaagen-Wägezellen</td>
<td>IP68 / IP69</td>
</tr>
<tr>
<td>(Pendeo® Truck)</td>
<td>Digitale Fahrzeugwaagen-Wägezellen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital Weighbridge Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6241</td>
<td>S-Type Drucklast-Wägezellen</td>
<td>IP68</td>
</tr>
<tr>
<td></td>
<td>Compression S-Type Load Cell</td>
<td></td>
</tr>
<tr>
<td>PR 6241</td>
<td>Hygienische Wägmodule</td>
<td>IP69</td>
</tr>
<tr>
<td>(Contego®)</td>
<td>Hygienic Mount</td>
<td></td>
</tr>
</tbody>
</table>
## Konformitätserklärung

**Declaration of conformity**

<table>
<thead>
<tr>
<th>Gerät</th>
<th>Beschreibung</th>
<th>IP-Schutzart</th>
</tr>
</thead>
</table>
| PR 6246 | S-Type Zuglast-Wägezellen  
          | Tension S-Type Load Cell   | IP68         |
| PR 6251 | PanCake Füllstands-Sensoren  
          | PanCake Level Sensor       | IP68         |
| PR 6261 (Novego®) | Hygienische Wägezelle  
                            | Hygienic Load Cell        | IP68 / IP69  |

Minebea Intec GmbH  
Hamburg, 22.03.2018

---

Marcel Pfnister  
Product Manager

Torben Hiller  
Product Compliance Manager
OIML Certificate

OIML Member State
The Netherlands

Issuing authority
NMI Certin B.V.
Person responsible: C. Oosterman

Applicant and Manufacturer
Minebea Intec GmbH
Meiendorfer Strasse 205 A
D-22145 Hamburg
Germany

Identification of the certified type
A compression load cell, with strain gauges,
Type: PR 6203

Characteristics
See next page

This OIML Certificate is issued under scheme A.

This Certificate attests the conformity of the above identified Type (represented by the sample(s) identified in the OIML Test Report) with the requirements of the following Recommendation of the International Organization of Legal Metrology (OIML):

OIML R 60 - Edition 2000 (E) for accuracy class C

This Certificate relates only to the metrological and technical characteristics of the type of measuring instrument covered by the relevant OIML International Recommendation above-identified. This Certificate does not bestow any form of legal international approval.

Important note: Apart from the mention of the Certificate's reference number and the name of the OIML Member State in which the Certificate was issued, partial quotation of the Certificate and of the associated OIML Test Report(s) is not permitted, although either may be reproduced in full.

Issuing Authority
NMI Certin B.V., OIML Issuing Authority NL1
4 May 2018

C. Oosterman
Head Certification Board

This document is issued under the provision that no liability is accepted and that the applicant shall indemnify third-party liability.

The notification of NMI Certin B.V. as Issuing Authority can be verified at www.oiml.org
The conformity was established by the results of tests and examinations provided in the associated OIML Test Reports:
- No. NMI-1901376-01 dated 30 August 2017 that includes 68 pages;
- No. NMI-1901376-02 revision 1 dated 11 September 2017 that includes 68 pages;
- No. NMI-1901376-03 dated 30 August 2017 that includes 68 pages;
- No. NMI-1901376-04 dated 30 August 2017 that includes 74 pages;
- No. NMI-1901376-05 dated 30 August 2017 that includes 68 pages;
- No. NMI-1901376-06 dated 30 August 2017 that includes 9 pages.

### Characteristics of the load cell:

<table>
<thead>
<tr>
<th>Maximum capacity (E&lt;sub&gt;max&lt;/sub&gt;)</th>
<th>0.5 t</th>
<th>1 t</th>
<th>2 t</th>
<th>3 t up to 20 t</th>
<th>20 t up to and including 100 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum dead load</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Output</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum number of load cell intervals (n)&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>1000</td>
<td>3000</td>
<td>6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of minimum LC Verification interval&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>Y = E&lt;sub&gt;max&lt;/sub&gt; / V&lt;sub&gt;min&lt;/sub&gt;</td>
<td>2500</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
</tr>
<tr>
<td>Ratio of minimum dead load output return&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td>Z = E&lt;sub&gt;max&lt;/sub&gt; / (2 * DR)</td>
<td>1000</td>
<td>10000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input impedance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraction p&lt;sub&gt;ic&lt;/sub&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe overload</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output impedance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended excitation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Excitation maximum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transducer material</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atmospheric protection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
1. The characteristics for n<sub>max</sub>, Y and Z can be reduced separately.
2. The tolerance of the output impedance is ± 1 Ω for C1 accuracy class.

Each load cell produced is provided with an accompanying document with information about its characteristics.
The above identified Type (represented by the sample(s) identified in the OIML Test Report) have been found to comply with the additional national requirements established by the United States of America (NIST Handbook 44 and NCWM Publication 14), included in the MAA Declaration of Mutual Confidence:
- R 60 DoMC-01 rev.0, Additional requirements from the United States;
- R 60 DoMC-02 rev.0, Additional requirements from the United States.

Revision History

This revision replaces the previous version.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Change(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>30 April 2018</td>
<td>Original issue</td>
</tr>
<tr>
<td>1</td>
<td>4 May 2018</td>
<td>Typing error in page numbers.</td>
</tr>
</tbody>
</table>
Test Certificate
Parts Certificate

Number TC11162 revision 2
Project number 1902356
Page 1 of 1

Issued by
NMi Certin B.V.

In accordance with

Producer
Minebea Intec GmbH
Meiendorfer Strasse 205 A
D-22145 Hamburg
Germany

Measuring instrument
A compression load cell, with strain gauges tested as a part of a weighing instrument.

Brand : Minebea Intec GmbH
Designation : PR 6203

Further properties are described in the annexes:
- Description TC11162 revision 2;
- Documentation folder TC11162-1.

An overview of performed tests is given in the annex:
- Description TC11162 revision 2.

Remarks
This revision replaces the earlier versions, except for its documentation folder.

Issuing Authority
NMi Certin B.V.
30 April 2018

C. Cremerman
Head Certification Board

This document is issued under the provision that no liability is accepted and that the producer shall indemnify third party liability.

Reproduction of the complete document only is permitted.
1 General information about the load cell

All properties of the load cell, whether mentioned or not, shall not be in conflict with the standards mentioned in this certificate.

This certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC 8.8. The complete measuring system must be covered by an EC type-approval certificate, an EC-type examination certificate or an EU-type examination certificate.

1.1 Essential parts

<table>
<thead>
<tr>
<th>Number</th>
<th>Pages</th>
<th>Description</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>11162/0-01</td>
<td>1</td>
<td>Outline drawing PR 6203 (500 kg - 75 t)</td>
<td>Mechanical</td>
</tr>
<tr>
<td>11162/0-02</td>
<td>1</td>
<td>Outline drawing PR 6203 (100 t)</td>
<td>Mechanical</td>
</tr>
<tr>
<td>11162/0-03</td>
<td>1</td>
<td>Circuit diagram</td>
<td>Electrical</td>
</tr>
</tbody>
</table>

Cable:
- If the load cell is provided with a 4-wire system:
  - The cable length is mentioned in the accompanying load cell document / on the label;
  - The cable length shall not be modified.
- If the load cell is provided with a 6-wire system (="Remote-sensing"):
  - The cable length is not limited.

The cable is shielded; the shield is connected to the load cell.
1.2 Essential characteristics

<table>
<thead>
<tr>
<th></th>
<th>0,5 t</th>
<th>1 t</th>
<th>2 t</th>
<th>3 t up to 20 t</th>
<th>20 t up to and including 100 t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum capacity ($E_{\text{max}}$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum dead load</td>
<td>0 kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy Class</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Output</td>
<td>2,0 mV/V</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum number of load cell intervals ($n$)</td>
<td>1000</td>
<td>3000</td>
<td>6000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of minimum LC Verification interval ($Y = E_{\text{max}} / \nu_{\text{min}}$)</td>
<td>2500</td>
<td>5000</td>
<td>10000</td>
<td>15000</td>
<td>20000</td>
</tr>
<tr>
<td>Ratio of minimum dead load output return ($Z = E_{\text{max}} / (2 \times DR)$)</td>
<td>1000</td>
<td>10000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output impedance</td>
<td>$610 \Omega \pm 0,5 \Omega / 610 \Omega \pm 1 \Omega$</td>
<td>$510 \Omega \pm 0,5 \Omega / 510 \Omega \pm 1 \Omega$</td>
<td>$410 \Omega \pm 0,5 \Omega / 410 \Omega \pm 1 \Omega$</td>
<td>(for 60 t only)</td>
<td>(for 75 t only)</td>
</tr>
<tr>
<td>Input impedance</td>
<td>$650 \Omega \pm 6,0 \Omega$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>$-10 ^\circ \text{C} / + 40 ^\circ \text{C}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraction $p_{\text{DC}}$</td>
<td>0,7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humidity Class</td>
<td>CH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safe overload</td>
<td>150 % of $E_{\text{max}}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended excitation</td>
<td>10 V AC / DC</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Excitation maximum</td>
<td>24 V AC / DC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transducer material</td>
<td>Stainless steel</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Atmospheric protection</td>
<td>Hermetically welded</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks:
1. The characteristics for $n_{\text{max}}$, $Y$ and $Z$ can be reduced separately.
2. The tolerance of the output impedance is $\pm 1 \Omega$ for C1 accuracy class.

1.3 Essential shapes

<table>
<thead>
<tr>
<th>Number</th>
<th>Pages</th>
<th>Description</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>11162/0-01</td>
<td>1</td>
<td>Outline drawing PR 6203 (500 kg - 75 t)</td>
<td>Mechanical</td>
</tr>
<tr>
<td>11162/0-02</td>
<td>1</td>
<td>Outline drawing PR 6203 (100 t)</td>
<td>Mechanical</td>
</tr>
</tbody>
</table>
The descriptive markings plate is secured against removal by sealing or will be destroyed when removed and contains at least the information and markings as described in OIML R 60 (2000) and:
- This certificate number TC11162 (in the countries where it is mandatory);
- Producers name or mark.

2  Seals

The connecting cable of the load cell or the junction box is provided with possibility to seal.

3  Conditions for conformity assessment

Each load cell produced is provided with an accompanying document with information about its characteristics.

The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in WELMEC 2, 2015 clause 10, at the time of putting into use.

Other parties may use this certificate without the written permission of the producer (WELMEC 8.8).

4  Reports

An overview of performed tests is given in the reports:
- No. NMi-1901376-01 dated 30 August 2017 that includes 68 pages;
- No. NMi-1901376-02 revision 1 dated 11 September 2017 that includes 68 pages;
- No. NMi-1901376-03 dated 30 August 2017 that includes 68 pages;
- No. NMi-1901376-04 dated 30 August 2017 that includes 74 pages;
- No. NMi-1901376-05 dated 30 August 2017 that includes 68 pages;
- No. NMi-1901376-06 dated 30 August 2017 that includes 9 pages.

A report can be a test report, an evaluation report, a type evaluation report and/or a pattern evaluation report.
Certificate Number: 17-111

The National Conference on Weights and Measures (NCWM) does not approve, recommend or endorse any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

For:
Load Cell
Compression
Model: PR 6203 Series
n_{\text{max}}: 2000 to 10 000, Class III, Multiple Cell
2000 to 10 000, Class IIII, Multiple Cell
Capacity: 500 kg to 100 000 kg
Accuracy Class: III/IIIIl

Submitted By:
Minebea Intec GmbH
Meiendorfer Strasse 205 A
22145 Hamburg
Germany
Tel: +49.40.67960-238
Fax: +49.40.67960-500
Contact: Juergen Stolte
Email: juergen.stolte@minebea-intec.com
Web site: www.minebea-intec.com

Standard Features and Options
- The specific load cell models, capacities and v_{\text{min}} and n_{\text{max}} values covered by this Certificate are listed in the table on Page 2.
- Nominal Output: 2.0 mV/V
- Stainless Steel
- 4 and 6 Wire Design
- Minimum Dead Load: 0 kg

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

James Cassidy
Chairman, NCWM, Inc.

Kristin Macey
Chairman, National Type Evaluation Program Committee
Issued: September 14, 2017

1135 M Street, Suite 110 / Lincoln, Nebraska 68508
Minebea Intec GmbH
Load Cell / PR 6203 Series

Application: The load cells may be used in multiple cell applications Class III and IIII consistent with the model designations, number of scale divisions, and parameters specified in this certificate. Load cells of a given accuracy class may be used in applications with lower accuracy class requirements provided the number of scale divisions, the $v_{\text{min}}$ value, and temperature range are suitable for the application. The manufacturer may market the load cell with fewer divisions ($n_{\text{max}}$) and with greater $v_{\text{min}}$ values than those listed on the certificate. However, the load cells will come with the appropriate $n_{\text{max}}$ and $v_{\text{min}}$ for which the load cell may be used.

Specific Capacities, $n_{\text{max}}$ and $v_{\text{min}}$ Values:

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>$v_{\text{min}}$ (kg)</th>
<th>$n_{\text{max}}$</th>
<th>$v_{\text{min}}$ (kg)</th>
<th>$n_{\text{max}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR 6203 Series</td>
<td>500 kg</td>
<td>0.20</td>
<td>2000</td>
<td>0.20</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>1000 kg</td>
<td>0.20</td>
<td>2000</td>
<td>0.20</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>2000 kg</td>
<td>0.20</td>
<td>5000</td>
<td>0.20</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>3000 kg</td>
<td>0.20</td>
<td>10 000</td>
<td>0.20</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>5000 kg</td>
<td>0.33</td>
<td>10 000</td>
<td>0.20</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>10 000 kg</td>
<td>0.67</td>
<td>10 000</td>
<td>0.22</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>20 000 kg*</td>
<td>1.00</td>
<td>10 000</td>
<td>0.33</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>25 000 kg</td>
<td>1.25</td>
<td>10 000</td>
<td>0.42</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>30 000 kg</td>
<td>1.50</td>
<td>10 000</td>
<td>0.50</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>40 000 kg</td>
<td>2.00</td>
<td>10 000</td>
<td>0.67</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>50 000 kg</td>
<td>2.50</td>
<td>10 000</td>
<td>0.83</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>60 000 kg</td>
<td>3.00</td>
<td>10 000</td>
<td>1.00</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>75 000 kg</td>
<td>3.75</td>
<td>10 000</td>
<td>1.25</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>100 000 kg</td>
<td>5.00</td>
<td>10 000</td>
<td>1.67</td>
<td>10 000</td>
</tr>
</tbody>
</table>

Identification: An adhesive identification badge located on the cell, states manufacturer name, model, serial number, accuracy class and rated capacity. Other pertinent information will be specified on the Calibration Certificate accompanying the cell.

Test Conditions: A 500 kg, 1000 kg, 2000 kg, 3000 kg and a 20 000 kg capacity load cell were tested by the NMi Certain B.V. at The Netherlands facility. Testing was conducted in accordance with the OIML DoMC Mutual Acceptance Arrangement, signed by the NCWM as a utilizing participant for load cell testing. Testing was conducted using deadweights as the reference standard. The load cells were tested over a temperature range of -10 °C to 40 °C with tests run on each cell at each temperature. The temperature effect on zero was measured and a time dependence (creep) test was performed. The barometric pressure test to determine sensitivity of the load cell design to changes in barometric pressure was conducted. The data were analyzed for multiple load cell applications. OIML R60 selection criteria were used to determine cells tested.

Evaluated By: S.J. Koeman, M.M.J. Meijer (NMi)


Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: J. Truex (NCWM)
Example of Device:
Certificate of Approval
for Weighing and Measuring Devices

New York State Certificate Number: 10034
Effective Date: November 2, 2017
NTEP Certificate of Conformance Number: 17-111

For:
Load Cell
Compression
Model: PR 6203 Series
nmax: 2000 to 10 000, Class III, Multiple Cell
2000 to 10 000, Class III, Multiple Cell
Capacity: 500 kg to 100 000 kg
Accuracy Class: III/III.

Submitted By:
Minebea Intec GmbH
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Web site: www.minebea-intec.com

This certifies that the items specified in the above National Type Evaluation Program (NTEP) Certificate of Conformance are hereby approved for sale or use in the State of New York.

The NTEP Certificate of Conformance, as issued by the National Conference on Weights and Measures, is accepted under the terms of 1NYCRR Part 220.1. Evaluation results and device characteristics necessary for inspection and use in commerce are stated in the NTEP Certificate of Conformance. Copies of the NTEP Certificate of Conformance are available on request and are available for inspection at the Bureau’s Metrology Office at 6 Harriman Campus Road, Albany, NY 12206.

Michael Sikula, Director
NYS Bureau of Weights and Measures

WM-23 (rev. 02/15) Duplicate Original NTEP