

InstruMate co., Limited

PED REPORT

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| Prepared For : | InstruMate co., Limited |
| Product Name: | Stainless Steel Pressure Gauge |
| Model(s): | 113AA, 113AF, 113GS |
| Prepared By : | WTEST(SHANGHAI)TEST TECHNICAL CO.,LTD. |
| Assessment Date: | Sep 23, 2020 |
| Date of Report : | Sep 23, 2020 |
| Report No.: | WST20060002P |

PED REPORT

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| Report Reference No: | WST20060002P |
| Date of issue.....: | Sep 23, 2020 |
| Total number of pages.....: | 13 |
| Assessment Laboratory: | WTEST(SHANGHAI)TEST TECHNICAL CO.,LTD. |
| Address.....: | Room 206, building 1, No.30, Lane 429, Shenglong Road, Jiuting Town, Shanghai. |
| Applicant name: | INSTRUMATE CO., LIMITED |
| Address.....: | No.15, Lane 777, Qingfeng Rd, Cicheng Town, Jiangbei District ,Ningbo, China. |
| Assessment specification: | |
| Standards.....: | EN 837-1:1998 EN 837-2:1998 |
| Non-standard test method.....: | N/A |
| Assessment Report Form No: | -- |
| Test Report Form(s) Originator.....: | WTEST |
| Master TRF.....: | Dated: 2020-08 |
| This report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of WTEST. | |
| Test item description: | Stainless Steel Pressure Gauge |
| Trade Mark.....: | N/A |
| Manufacturer.....: | INSTRUMATE CO., LIMITED |
| Model/Type reference.....: | 113AA |
| Ratings.....: | N/A |

Assessment procedure and location:**Assessment Laboratory**.....: **WTEST(SHANGHAI)TEST TECHNICAL CO.,LTD.**Address.....: Room 206, building 1, No.30, Lane 429, Shenglong Road,
Jiuting Town, Shanghai.

Date of Assessment.....: Sep 23, 2020

Assessed by (name + signature)..... : **Eric.Zhang****Reviewed by (name + signature)**..... : **Yanlei.Jia****Approved by (name + signature)**.....: **Xun.Su**

List of Attachments (including a total number of pages in each attachment):**Attachment I : Photo documentation.****Summary of assessment:**

Assessment performed (name of assessment and assessment clause):

- EN 837-1:1998

- EN 837-2:1998

The submitted samples were found to comply with the requirements of above specification.

Assessment location:

Room 206, building 1, No.30, Lane 429, Shenglong Road, Jiuting Town, Shanghai.

No EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**Copy of marking plate:****Stainless Steel Pressure Gauge**

Model(s): 113AA

Input:

Output:



Manufacturer: InstruMate co., Limited

Importer:

Address: X

Remark on above marking:

1, The height of CE symbols is more than 5 mm;

2, The height of WEEE symbols is more than 7 mm;

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| Assessment item particulars..... : | |
| Classification of installation and use.....: | Class I |
| Supply Connection.....: | Screw terminal |
| Possible assessment case verdicts: | |
| - assessment case does not apply to the object.....: | N/A(Not applicable) |
| - assessment object does meet the requirement.....: | P (Pass) |
| - assessment object does not meet the requirement....: | F (Fail) |
| Date of receipt of assessment item..... : | Sep 23, 2020 |
| Date (s) of performance of assessment..... : | Sep 22, 2020~ Sep 23, 2020 |
| General remarks: | |
| <p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma / point is used as the decimal separator.</p> <p>Clause numbers between brackets refer to clauses in 837</p> | |
| Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1: | |
| The application for obtaining a Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....: | Not applicable |
| General product information: | |

Part I: EN 837-1 report

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| 4 | Nominal sizes | | P |
| 5 | Pressure ranges | | P |
| | The SI units kilopascal (kPa) and megapascal (MPa) should follow the bar series from 0 to 60 kPa up to 1000 kPa, then change to 0 MPa to 1,6 MPa up to a maximum of 160 MPa. | | P |
| 6 | Accuracy classes | | P |
| | For gauges with a pointer stop, the accuracy class will cover 10 % to 100% of the range. For gauges with a free zero, the accuracy class will cover 0 % to 100% of the range and zero shall be used as an accuracy check point. | Understood | P |
| 7 | Dimensions | | P |
| 7.1 | General tolerances | | P |
| 7.2 | Cases and flanges | | P |
| 7.3 | Pressure connection | | P |
| 7.3.1 | Screw threads | | P |
| 7.3.2 | Shanks with parallel pipe threads | | P |
| 7.3.3 | High pressure shank (HP)for connection with lens seal | | P |
| 7.3.4 | Shanks with taper pipe threads | | P |
| 7.3.5 | Parallel threaded tapped holes | | P |
| 7.3.6 | Sealing washers | | P |
| 7.3.7 | Sealing lens | | P |
| 7.4 | Type of mounting and connection position | | P |
| | The different mounting types of gauges shall be as given in table 9. When mounting, ensure that there is enough free space for the blow-out device, if any. | | P |
| 8 | Pressure element assembly | | P |
| 9 | Requirements | | P |
| 9.1 | Accuracy | | P |
| | The total errors of indication at reference temperature 20°C of the gauge shall not exceed the values given in table 11. Installation of the pressure gauges shall not cause any change of readings. | Considered | P |
| 9.2 | Hysteresis | | P |
| | Hysteresis error in pressure gauges shall not exceed the absolute value of the limits of permissible error at reference temperature 20°C. | | P |

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| 9.3 | Temperature effect | | P |
| | The variation of indication caused by effects of temperature shall not exceed the percentage values given by the formula: $\pm 0,04 \times (t - t_1) \%$ of the span | | P |
| 9.4 | Endurance | | P |
| | Gauges shall withstand the steady pressure, over-pressures and cyclic pressures as described below without exceeding the specified change of accuracy (see 10.4.3). | | P |
| 9.4.1 | Gauge suitable for maximum steady working pressure 75% of the maximum scale value | | P |
| 9.4.1.1 | Steady pressure | | P |
| | The gauge shall withstand a steady pressure equal to the maximum scale value for an extended period. | | P |
| 9.4.1.2 | Over-pressure | | P |
| | The gauge shall withstand the over-pressure shown in table 12 for a short period. | | P |
| 9.4.1.3 | Cyclic pressure | | P |
| 9.4.2 | Gauges suitable for maximum steady working pressure equal to the maximum scale value | | P |
| 9.4.2.1 | Steady pressure and over-pressure | | P |
| | The gauge shall withstand a steady pressure of 1,3 times the maximum scale value for an extended period | | P |
| 9.4.2.2 | Cyclic pressure | | P |
| | The gauge shall withstand a pressure fluctuating between 30% and 95% of the maximum scale value for 200 000 cycles. 15000 cycles are sufficient for gauges of classes 0,1; 0,25 and 0,6. | | P |
| 9.5 | Operating conditions | | P |
| 9.5.1 | Rated temperatures in service | | P |
| | Minimum and maximum temperature in service for liquid-filled gauges shall be in accordance with the liquid properties. | | P |
| 9.5.2 | Rated storage temperature | | P |
| | The gauge shall not change its appearance. The dial and pointer shall not crack, blister or change colour. | | P |
| 9.5.3 | Protection against ingress of water and foreign particles (degree of protection) | | P |
| | Recommended minimum protection ratings in accordance with EN 60529: - for indoor use: IP 31; - for outdoor use: IP 44. | IP 44 | P |
| 9.5.4 | Effect of mechanical shock | | P |
| | After the application of shock loads of 150 m/s ² , the gauge shall remain within its accuracy class. | | P |
| 9.5.5 | Effect of mechanical vibration | | P |

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| | The change of indication after the vibration test shall not exceed 0,5times class. | | P |
| 9.5.6 | Leak rate | | P |
| | The leak rate shall not exceed 5×10^{-3} mbar·1/s. | | P |
| 9.5.7 | Mounting position | | P |
| | A variation of the nominal mounting position of $\pm 5^\circ$ shall not give a change of indication of more than 0.5 times class. | | P |
| 9.6 | Dials and pointers | | P |
| 9.6.1 | Scale angle | | P |
| 9.6.2 | Scale interval | | P |
| 9.6.3 | Scale marks | | P |
| 9.6.4 | Scale numbering | | P |
| 9.6.5 | Pointer dimensions | | P |
| 9.6.6 | Mirror scales | | P |
| 9.6.7 | Information on dial | | P |
| 9.6.8 | Pointer stop | | P |
| 9.7 | Safety | | P |
| | Safety gauges shall protect an operator from failure of the pressure-responsive element and the release of high pressure gases into the case by deflecting the blast and debris away from the front of the gauge. | | P |
| 9.7.1 | Brow-out device gauges | | P |
| 9.7.2 | Safety pattern gauges | | P |
| 9.8 | Gauges for use with oxygen or acetylene | | P |
| | The gauges shall be of safety pattern type. All materials liable to come into contact with oxygen or acetylene shall comply with EN 29539. | | P |
| 9.8.1 | Gauges for use with oxygen | | P |
| 9.8.2 | Gauges for use with acetylene | | P |
| 9.9 | Liquid-filled gauges | | P |
| | Liquid-field gauges shall have an appropriate device in order to assure atmospheric compensation. | | P |
| 9.10 | Additional constructional requirements for gauges subject to Legal Metrology Control | | P |
| 9.10.1 | The pressure-responsive element, the movement, the pointer, and the dial shall be installed inside an enclosing case, which can be sealed by a securing seal in order to prevent access to the parts mentioned without destruction of surrounding components. | | P |
| 9.10.2 | The motion of the pressure-responsive element and pointer shall not be obstructed on either side of the zero mark, e.g. by means of a pointer stop, within a range corresponding to twice the permissible error in 9.1. | | P |

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| 9.10.3 | The error caused by the friction of movement components shall not exceed one half of the permissible error in 9.1. | | P |
| 9.10.4 | The scale numbering shall directly reflect the value of the pressure to be measured. The use of a factor is not permitted. | | P |
| 9.10.5 | A place to accommodate the control mark shall be provided on the window, on a sealing lead or on the case of the gauge. | | P |
| 10 | Testing | | P |
| 10.1 | Type approval and production piece tests | | P |
| 10.2 | Accuracy and hysteresis | | P |
| 10.3 | Temperature effect | | P |
| 10.4 | Endurance | | P |
| 10.5 | Rated temperatures in service | | P |
| 10.6 | Rated storage temperatures | | P |
| 10.7 | Protection against ingress of water and foreign particles (degree of protection) | | P |
| 10.8 | Effect of mechanical shock | | P |
| 10.9 | Effect of mechanical vibration | | P |
| 10.10 | Leak test | | P |
| 10.11 | Mounting position | | P |
| 10.12 | Safety | | P |
| 11 | Packaging for transportation | | P |
| | In consideration of the means of transportation selected, gauges shall be packed so as to preserve measurement properties, exclude damage and main accuracy within the limits of permissible error. | | P |
| 12 | Designation | | P |

Part II: EN 837-2 report

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| 4 | Selection | | P |
| 4.1 | Selection of pressure sensitive element | | P |
| 4.2 | Safety | | P |
| 4.2.1 | Pressure range | | P |
| | The range should be such that the maximum working pressure does not exceed 75% of the maximum scale value for steady pressure or 65% of the maximum scale value for cyclic pressures. | | P |
| 4.2.2 | Safety design | | P |
| | The safety design shall be selected in consideration of safety requirements of the specific applications. | | P |
| 4.3 | Materials | | P |
| | <p>Pressure gauges are manufactured with pressure responsive elements that can be made from various materials. It is therefore necessary to choose from these materials the one best suited to the type of process fluid and its pressure. The purchase shall indicate to the manufacturer all information concerning the materials which are compatible with the fluid in relation to the specific conditions of measurement.</p> <p>If none of the standard materials are suitable, it shall be necessary to interpose a separator between the process fluid and the pressure gauge.</p> <p>The filling of a chemical seal pressure gauge assembly shall always be done by the manufacturer and these two instruments shall never be uncoupled.</p> | | P |
| 4.4 | Accuracy | | P |
| | The accuracy class required shall be selected from EN 837-1 or EN 837-3. | | P |
| 4.5 | Pressure connection | | P |
| | The pressure connection shall be selected from EN 837-1 or EN 837-3. | | P |
| 4.6 | Nominal size | | P |
| | The size of gauge required shall be selected from EN 837-1 or EN837-3. | | P |
| 4.7 | Mounting | | P |
| | Type of mounting required shall be selected from EN 837-1 or EN 837-3. | | P |
| 4.8 | Other criteria | | P |
| 5 | Transport | | P |
| 6 | Storage prior to installation | | P |
| 7 | Installation | | P |
| 7.1 | General | | P |
| 7.2 | Special conditions | | P |

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|-------|--|--|---|
| 7.2.1 | Mechanical shocks | | P |
| 7.2.2 | Vibrations | | P |
| 7.2.3 | Pressure pulses | | P |
| 7.2.4 | Overpressure | | P |
| 7.2.5 | Temperature | | P |
| 7.2.6 | Cleanliness | | P |
| 7.2.7 | Effect of liquid columns | | P |
| 8 | Putting into service | | P |
| | An installation shall always be brought into service carefully to avoid surges or sudden variations in temperature. Isolating valves shall therefore be opened slowly. | | P |
| 9 | Maintenance | | P |
| | Verification and recalibration shall be carried out by competent personnel using appropriate test equipment. | | P |

Attachment I :
Photo documentation

(1)



(2)



Notice

1. This evaluation report is for samples only.
2. This evaluation report has assessed the basic requirements of the sample according to relevant standards.
3. This evaluation report is invalid without authorized signature.
4. This assessment report shall not be altered or deleted,
5. This assessment report shall not be used as a forensic expertise.
6. This assessment report is internal data and does not have the ability of public disclosure.
7. Client shall put forward demurrer within 15days after received report. laboratory shall refuse disposal if exceeded the time limit.
8. The assessment results presented in this report relate only to the object assessment.