

# HOI LUEN HARDWARE CO., LTD.

## MILL TEST CERTIFICATE (EN 10204-3.1)

Buyer:

Goods Description: FORGED CARBON STEEL FLANGES  
Material: CARBON STEEL P235GH

Certificate No: HL200330

Invoice No: HH-HL1903

Date of report: 2020-03-30

Mark of Manufacturer: HL

| Item No. | Quantity |     | Description                    | Size | Heat No. | Specimen No |
|----------|----------|-----|--------------------------------|------|----------|-------------|
| 35       | 50       | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 3"   | 5254     | HL200330-5  |
| 36       | 30       | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 4"   | 5254     | HL200330-5  |
| 37       | 40       | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 6"   | 5254     | HL200330-5  |
| 38       | 20       | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 8"   | 5254     | HL200330-5  |
| 39       | 10       | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 10"  | 5254     | HL200330-5  |
| 40       | 5        | PCS | EN1092 PN16 FLANGE(RF) TYPE 05 | 14"  | 5254     | HL200330-5  |
| 41       | 10       | PCS | EN1092 PN10 FLANGE(RF) TYPE 05 | 8"   | 5254     | HL200330-5  |
| 42       | 5        | PCS | EN1092 PN10 FLANGE(RF) TYPE 05 | 12"  | 5254     | HL200330-5  |
|          |          |     |                                |      |          |             |
|          |          |     |                                |      |          |             |

### Chemical Analysis: ( % )

| Heat No. | C%   | Si%  | Mn%  | P%    | S%    | Cr%  | Mo% | Al% | Ni% | Cu% | Ti% | V% | Nb% | CE% |
|----------|------|------|------|-------|-------|------|-----|-----|-----|-----|-----|----|-----|-----|
| Min      |      |      | 0.40 |       |       |      |     |     |     |     |     |    |     |     |
| Max      | 0.16 | 0.35 | 1.20 | 0.030 | 0.025 | 0.30 |     |     |     |     |     |    |     |     |
| 5254     | 0.14 | 0.25 | 0.63 | 0.024 | 0.014 | 0.17 |     |     |     |     |     |    |     |     |

### Mechanical Properties :

| Specimen No | Dim. of Specimen |       | Sampling of Specime |            |           | Test Temp | A370-2007                |                         |            |                   |          | A370-2007                                                                                      |    |    |
|-------------|------------------|-------|---------------------|------------|-----------|-----------|--------------------------|-------------------------|------------|-------------------|----------|------------------------------------------------------------------------------------------------|----|----|
|             |                  |       |                     |            |           |           | Yield Strength           | Tensile Strength        | Elongation | Reduction of Area | Hardness | Energy of Impact Test<br>(ISO -V Specimen)<br><br>Charpy Size<br>Tm: 23.5 °C<br>10mm×10mm×55mm |    |    |
|             | Thickn ess       | Width | Location            | Directi on | Positio n |           | R <sub>eH</sub><br>N/mm² | R <sub>m</sub><br>N/mm² | A %        | Z %               | HB       | Joule(>27)                                                                                     |    |    |
|             | mm               | mm    |                     | Tr         |           |           | °C/RT                    | ≥235                    | 360-480    | ≥25               | ≥30      | 180≥                                                                                           | 1  | 2  |
| HL200330-5  | Φ12.5            |       |                     | Tr         |           | 20        | 265                      | 430                     | 33         | 45                | 155      | 43                                                                                             | 45 | 44 |

T : top, B : bottom, L : longitudinal, Tr : transverse, RT : room temperature

Visual inspection including marking:

Without Complaint

Dimensional check :

Without Complaint

Surface crack inspection:

Without Complaint

Quality system is approved according to the Annex I Point 4.3 of Directive 97/23/EC(PED) by Technicka inspekcia a.s.

We hereby certify that the materials described herein have been manufactured, inspected and tested in accordance with the customer's specification(s), and that they satisfy the requirements.

Manufacturer: HOI LUEN HARDWARE CO., LTD.    www.hoiluenhardware.com