

INSPECTION CERTIFICATE

| | |
|--------------|-----------------------------------|
| MESSRS | UNIMECH ENGINEERING (M) SDN. BHD. |
| DELIVER To | |
| JOB NAME | |
| JOB No. | |
| P.O.No. | APO-2004-0010 |
| PRODUCT CODE | |
| | |

Certificate No.

1020330662-020-01-01

Date : 2020/07/03

KITZ

SPECIFICATION

| | |
|-------------|---|
| Manuf No. | 1020330662-020 |
| Description | 20K DUCTILE IRON GLOBE VALVE SCREWED ENDS |
| Figure | 20SY2 |
| Size | 2 inch(B) |
| Quantity | 5 |
| Valve No. | |
| Item No. | 28 |
| Kiki No. | |

MAIN PARTS

| No. | Name of parts | Material |
|-----|---------------|--------------|
| 001 | BODY | Gr. 60-40-18 |
| 002 | BONNET | Gr. 60-40-18 |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

TEST

| Pressure test | Judge. | Inspection fluid and pressure | | |
|---------------|--------|-------------------------------|-----|-----|
| Shell | Good | Hydro | 4.2 | MPa |
| | Good | Air | 2.8 | MPa |
| Seat | | Hydro | - | |
| | Good | Air | 0.6 | MPa |
| Back seat | | Hydro | - | |
| | | Air | - | |
| | | | | |
| | | | | |

| Item | Judge. | Attached sheet |
|-----------|--------|----------------------|
| Material | Good | Material Test Result |
| Dimension | Good | |
| Visual | Good | |
| Operation | Good | |
| | | |
| | | |
| | | |
| | | |

NONDESTRUCTIVE EXAMINATION

| Type of examination and judgement | Attached sheet |
|-----------------------------------|----------------|
| | |

REMARKS

| |
|--|
| REPRESENTATIVE TEST BY HYDRAULIC SHELL TEST HAS BEEN PERFORMED |
|--|

Witnessed by*R. Miyazawa***KITZ CORPORATION**
QC Manager

MATERIAL TEST RESULT

| | |
|--------------|-----------------------------------|
| MESSRS | UNIMECH ENGINEERING (M) SDN. BHD. |
| JOB NAME | |
| JOB No. | |
| P.O.No. | APO-2004-0010 |
| PRODUCT CODE | |
| | |

Certificate No.
1020330662-020-01-01-Z1

Date : 2020/07/03



| | | | |
|--------|----------------------------------|-------------|---------------|
| Figure | 20SY2 | Valve No. | |
| | Material ASTM A 395 Gr. 60-40-18 | Item No. | 28 |
| | Charge No. | Display No. | Name of Parts |
| 1 | 138 | | BODY |
| 2 | 13F | | BONNET |
| 3 | | | |
| 4 | | | |

CHEMICAL COMPOSITION %

| Element | C | Si | P | Mn | | | | | | | | | | | |
|---------|------|------|-------|------|--|--|--|--|--|--|--|--|--|--|--|
| Spec. | Min | *Max | Max | | | | | | | | | | | | |
| | 3.00 | 2.50 | 0.080 | | | | | | | | | | | | |
| 1 | 3.61 | 2.59 | 0.021 | 0.26 | | | | | | | | | | | |
| 2 | 3.61 | 2.60 | 0.019 | 0.29 | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| Element | | | | | | | | | | | | | | | |
| Spec. | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |

TENSION TEST

IMPACT TEST

| Item | | | Tensile str. | Yield str. | Elongation | | | | |
|-------|--|--|--------------|------------|------------|--|--|--|--|
| Unit | | | MPa | MPa | % | | | | |
| Spec. | | | Min | Min | Min | | | | |
| 1 | | | 430 | 281 | 21 | | | | |
| 2 | | | 430 | 282 | 21 | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |

| Item | Hardness | Microstructure | | | | | | | |
|-------|----------|----------------|--|--|--|--|--|--|--|
| Unit | HBW | % | | | | | | | |
| Spec. | 143 | Min | | | | | | | |
| | 187 | 90 | | | | | | | |
| 1 | 143 | 90 | | | | | | | |
| 2 | 143 | 90 | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |

HEAT TREATMENT °C

| Spec. | | | | |
|-------|--|--|--|--|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |

N:Normalizing A:Annealing T:Tempering Q:Quenching AC:Air Cooling
 WQ:Water Quenching OQ:Oil Quenching WC:Water Cooling FC:Furnace Cooling ST:Solution Treatment

REMARKS

* Every 0.01% P reduction enables 0.08% Si increase each within the maximum 2.75%.
 EN10204 Type 2.2

 Reviewed by

R. Miyazawa
KITZ CORPORATION
 QC Manager