

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Safety Valve for Boiler and Pressure Vessel**with type designation(s)
JSV-FF21

Issued to

Jokwang I.L.I. Co., Ltd.
Yangan-si, Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****K. factor: 0.864 (Steam & Gas (air)) - 0.6 (Liquid)**Issued at **Høvik** on **2020-09-01**for **DNV GL**This Certificate is valid until **2025-05-27**.DNV GL local station: **Gimhae Station**Approval Engineer: **Mehdi Rowshan**

Zeinab Sharifi
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-024628-2**
Certificate No: **TAP00000FV**
Revision No: **2**

Product description

Full lift type & full bore type safety valves – designation JSV-FF21

Body material : SC480 (Carbon Steel Castings) / GS-52 (Steel castings) / ASTM A27 Grade 70-36 (Cast Carbon Steel) / BC6 (Bronze) / A216 WCB (Carbon Steel Castings)
Stem : ASTM A276 304 / A276 410
Seat: SCS13,14,16/ A351 CF8,CF8M,CF3M
Disc: A276 304,316,316L
Gasket: PTFE, Non Asbestos, Graphite
O-ring (Packed Lever Type): NBR

Application

The safety valves may be used in the following systems: Steam, gas (air) and liquid in below design conditions:

Set pressure range 0.35 ~ 22 kgf/cm²
Temperature range 0 °C to 250 °C

Limitation

Valves covered by this certificate shall not be installed on LNG/LPG applications.

The valves covered by this certificate are not to be considered fire safe, and shall not be installed in systems where fire safe application is required.

Safety valves of ordinary type with seats of less than 38 mm inside diameter and full lift safety valves with the inside seat diameter of less than 20 mm shall not to be used on boilers.

Production test

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the design pressure.

Each valve shall be subject to leakage test (at 90% of set pressure) after reset and have set pressure sealed and verified.

Certification

Boiler safety valves shall be delivered with a DNV GL product certificate.

For Valves installed on equipment other than boilers, the DNV GL product certificates for sizes greater than 100 mm and design pressure greater than 16 bar. Otherwise, works certificate will be accepted.

Material certificates for valve bodies shall be according to DNV GL Pt.4 Ch.6 Sec.2 Table 3.

Type Approval documentation

Test reports JK-QATV-2010-0322-1&-2&-3, JK-QATH-2010-0322-1&-2&-3, JK-QATF-2010-0322-1 (Hydrostatic test report, Functionality & capacity test reports)

Drawings: JKS-C1321001 Rev.2, JKS-C1321002 Rev.2, JKS-C1321003 Rev.2, JKS-C1321004 Rev.2, JKS-C1321005 Rev.2, JKS-C1321006 Rev.2, JKS-C1321007 Rev.2, JKS-C1321008 Rev.2, JKS-S1321001 Rev.2, JKS-S1321002 Rev.2, JKS-S1321003 Rev.2, JKS-S1321004 REV.2, JKS-S1321005 Rev.2, JKS-S1321006 Rev.2, JKS-S1321007 Rev.2, JKS-S1321008 Rev.2

Calculation sheet of safety valve capacity dated 2010-02-02

Capacity certification number JOK-M89007


Tests carried out

Hydrostatic test report, Functionality & capacity test reports

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturer's name or trade mark



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- Design or type designation
- Size (pipe size of valve inlet)
- Set pressure and capacity
- Arrow to indicate direction of flow

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Safety Valve for Boiler and Pressure Vessel**with type designation(s)
JSV-FF41

Issued to

Jokwang I.L.I. Co., Ltd.
Yangsan-si, Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****K. factor: 0.864 (Steam & Gas (air)) - 0.6 (Liquid)**Issued at **Høvik** on **2020-09-18**for **DNV GL**This Certificate is valid until **2025-05-27**.DNV GL local station: **Gimhae Station**Approval Engineer: **Mehdi Rowshan**

Zeinab Sharifi
Head of Section

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Job Id: **262.1-024629-2**
Certificate No: **TAP00000FW**
Revision No: **2**

Product description

Full life type & full bore type safety valves – designation JSV-FF41

Body material : SC480 (Carbon Steel Castings) / GS-52 (Steel castings) / ASTM A27 Grade 70-36 (Cast Carbon Steel) / A216 WCB (Carbon Steel Castings)
Stem : ASTM A276 304/ A276 410
Gasket: PTFE, non asbestos, Graphite
Seat: SCS13,14,16 / A351 CF8,CF8M,CF3M
Disc: A276 304, 316, 316L

Application

The safety valves may be used in the following systems: Steam, gas (air) & liquid in below design conditions:

Set pressure range 22.1 ~ 33 kgf/cm²
Temperature range 0°C to 400 °C

Limitation

Valves covered by this certificate shall not be installed on LNG/LPG applications.

The valves covered by this certificate are not to be considered fire safe, and shall not be installed in systems where fire safe application is required.

Safety valves of ordinary type with seats of less than 38 mm inside diameter and full lift safety valves with the inside seat diameter of less than 20 mm shall not to be used on boilers.

Production test

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the design pressure.

Each valve shall be subject to leakage test (at 90% of set pressure) after reset and have set pressure sealed and verified.

Certification

Boiler safety valves shall be delivered with a DNV GL product certificate.

For Valves installed on equipment other than boilers, the DNV GL product certificates for sizes greater than 100 mm and design pressure greater than 16 bar. Otherwise, works certificate will be accepted.

Material certificates for valve bodies shall be according to DNV GL Pt.4 Ch.6 Sec.2 Table 3.

Type Approval documentation

Test reports JK-QATV-2010-0322-4&-5&-6, JK-QATH-2010-0322-4&-5&-6, JK-QATF-2010-0322-1 (Hydrostatic test report, Functionality & capacity test reports) dated April 2010.

JKS-S1381001 Rev.2, JKS-S1381002 Rev.2, JKS-S1381003 Rev.2

Calculation sheet of safety valve capacity dated 2010-02-02

Capacity certification number JOK-M89007

Tests carried out

Hydrostatic test report, Functionality & capacity test reports

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturer's name or trade mark
- Design or type designation
- Size (pipe size of valve inlet)
- Set pressure and capacity
- Arrow to indicate direction of flow

Job Id: **262.1-024629-2**
Certificate No: **TAP00000FW**
Revision No: **2**

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Safety Valve for Boiler and Pressure Vessel**with type designation(s)
JSV-LT12

Issued to

Jokwang I.L.I. Co., Ltd.
Yongsan-si, Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****K. factor: 0.82 (Steam & Gas (air)) - 0.45 (Liquid)**Issued at **Høvik** on **2020-09-01**for **DNV GL**This Certificate is valid until **2025-05-27**.DNV GL local station: **Gimhae Station**Approval Engineer: **Mehdi Rowshan**

Zeinab Sharifi
Head of Section

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Job Id: **262.1-024630-3**
Certificate No: **TAP00000FX**
Revision No: **2**

Product description

Low lift type safety valves – designation JSV-LT12

Material:

Bonnet:	BC6 (Bronze)
Base:	C3771 or CAC406(BC6)
Stem	A276 304
O-ring	FPM
Gasket	PTFE

Application

The safety valves may be used in the following systems: Steam, gas(air) and liquid in below design conditions:

Set pressure range	0.35 ~ 11 kgf/cm ²
Temperature range	-20°C to 220 °C

Limitation

Valves covered by this certificate shall not be installed on LNG/LPG applications.

The valves covered by this certificate are not to be considered fire safe, and shall not be installed in systems where fire safe application is required.

Safety valves of ordinary type with seats of less than 38 mm inside diameter and full lift safety valves with the inside seat diameter of less than 20 mm shall not to be used on boilers.

Production test

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the design pressure.

Each valve shall be subject to leakage test (at 90% of set pressure) after reset and have set pressure sealed and verified.

Certification

Boiler safety valves shall be delivered with a DNV GL product certificate.

For Valves installed on equipment other than boilers, the DNV GL product certificates for sizes greater than 100 mm and design pressure greater than 16 bar. Otherwise, works certificate will be accepted.

Material certificates for valve bodies shall be according to DNV GL Pt.4 Ch.6 Sec.2 Table 3.

Type Approval documentation

Test reports JK-QATV-2010-0322-7 & -8, JK-QATH-2010-0322-7 & -8, JK-QATF-2010-0322-1 (Hydrostatic test report, Functionality & capacity test reports) dated April 2010.

Drawing number JKS-C1192001 Rev.2

Calculation sheet of safety valve capacity dated 2010-02-02

Capacity certification number JOK-M89007


Tests carried out

Hydrostatic test report, Functionality & capacity test reports

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturer's name or trade mark
- Design or type designation
- Size (pipe size of valve inlet)
- Set pressure and capacity
- Arrow to indicate direction of flow



Job Id: **262.1-024630-3**
Certificate No: **TAP00000FX**
Revision No: **2**

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Safety Valve for Boiler and Pressure Vessel**with type designation(s)
JSV-HT41

Issued to

Jokwang I.L.I. Co., Ltd.
Yangsan-si, Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****K. factor: 0.8 (Steam & Gas (air)) - 0.55 (Liquid)**Issued at **Høvik** on **2020-09-01**for **DNV GL**This Certificate is valid until **2025-05-27**.DNV GL local station: **Gimhae Station**Approval Engineer: **Mehdi Rowshan**

Zeinab Sharifi
Head of Section

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Job Id: **262.1-024631-2**
Certificate No: **TAP00000FY**
Revision No: **2**

Product description

High lift type safety valves – designation JSV-HT41

Material:

Body (seat): ASTM A276 304 (austenitic stainless steel)
Bonnet: ASTM B62 C83600 (Bronze)
Disc: ASTM A276 304
Stem: ASTM A276 304
Gasket: PTFE

Application

The safety valves may be used in the following systems: Steam, gas (air) and liquid in below design conditions:

Set pressure range 0.5 ~ 33 kgf/cm²
Temperature range 0°C to 220 °C

Limitation

Valves covered by this certificate shall not be installed on LNG/LPG applications.

The valves covered by this certificate are not to be considered fire safe, and shall not be installed in systems where fire safe application is required.

Safety valves of ordinary type with seats of less than 38 mm inside diameter and full lift safety valves with the inside seat diameter of less than 20 mm shall not to be used on boilers.

Production test

Each valve body shall be subjected to a hydrostatic pressure test at 1.5 times the design pressure.

Each valve shall be subject to leakage test (at 90% of set pressure) after reset and have set pressure sealed and verified.

Certification

Boiler safety valves shall be delivered with a DNV GL product certificate.

For Valves installed on equipment other than boilers, the DNV GL product certificates for sizes greater than 100 mm and design pressure greater than 16 bar. Otherwise, works certificate will be accepted.

Material certificates for valve bodies shall be according to DNV GL Pt.4 Ch.6 Sec.2 Table 3.

Type Approval documentation

Test reports JK-QATV-2010-0322-9 &-10, JK-QATH-2010-0322-9 &-10, JK-QATF-2010-0322-1 (Hydrostatic test report, Functionality & capacity test reports) dated April 2010.

Drawing number JKS-C1272001 Rev.2

Calculation sheet of safety valve capacity dated 2010-02-02

Capacity certification number JOK-M89007


Tests carried out

Hydrostatic test report, Functionality & capacity test reports

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturer's name or trade mark
- Design or type designation
- Size (pipe size of valve inlet)
- Set pressure and capacity
- Arrow to indicate direction of flow



Job Id: **262.1-024631-2**
Certificate No: **TAP00000FY**
Revision No: **2**

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.