

| Sheet No. | 1 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| | | | | | Checked | S.M.PARK | Approved | J.W.HONG |
|-----------|---|--------|----------|--------------------------|--|-------------------|---|--------------------------|
| | Drawing No.(or P&ID No.) | | 1 | | CALCULA | TION | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71651 | CALCULA | LIOIN | | |
| | Service Line | | 3 | For Technical HVAC A | | | | |
| ا ہـِ ا | Quantity | | 4 | 1 | * Calculated of | f Area | | |
| ∦ | Nozzle Type. Full or Semi | | 5 | Full Nozzle | 44 | W | 1 | |
| GENERAL | Design Type | | 6 | | A1 = | | T/ | |
| 0 | A. Safety or Relief | | | Safety Valve | $C' \times K_d \times$ | $(P \times 1.1 +$ | $\cdot 1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 |
| | B. Conventional or Balanced-Bellows | | | Conventional | " | | 7 1/21 | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0.84* | (26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | <u>0.0</u> | mm² |
| | Outlet Connection | inch | 10 | PF 5/8 | | | | |
| | Body & Seat | | 11 | C 3771 | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated o | f Capacity | / | |
| FS | Disc | | 13 | TEFLON | _ | | | 14 |
| MATERIALS | Valve Stem | | 14 | N/A | $W = C' \times K_2 \times A \times (P \times 1.1 + 1.033) \times \frac{M}{M} \times 0.9$ | | | $\frac{M}{-} \times 0.9$ |
| ╽┇╽ | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | ZT |
| È | Gasket (Body) | | 16 | N/A | | | , | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(| (26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9 |
| | Сар | | 18 | N/A | _ | | | |
| ၂ က္က | Cap. Screwed or bolted | | 19 | Screw Type | _ | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | = | | <u>365</u> | kg/hr |
| 🎖 | Test Gag | | 21 | No | 4 | | | |
| \vdash | Paint Color | | 22 | N/A | 4 | | | |
| ၂ ပ္ | Code | | 23 | KS B6216 for Gas & Vapor | | | | |
| BASIC | Cause of Overpressure | | 24 | No | 4 | | | |
| H | Allowable Overpressure | | 25 | 10% | W = Valve Capacity ······ | | | |
| | Fluid and State | | 26 | GAS | W1 = Required Capacity | | | kg/hr |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ····· | | | _ |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for calcu | ılation] | | 26.0 kgf/m²g |
| | Viscosity | cP | 29 | 0 | 4 | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area ········· | | | 25.3 mm2 |
| l l | Operating / Relieving Temp | оС | 31 | / 200 | A1 = Calculated Area ····· | | | 0.0 mm2 |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of Disch | arge ····· | | 0.840 |
| [2] | Superimposed Variable Back Pressure | barg | 33 | 0 | 1 | | | 0.05 |
| 8 | Built-up Back Pressure | barg | 34 | 0 | C' = Ratio of Specific Hea | | | |
| | Total Back Pressure | barg | 35 | 0 | T = Absolute Temperatur | | | |
| | Closing Pressure | barg | 36 | 21.68 | M = Molecular Weight ···· | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility Factor | וע | | 1.000 |
| | Set Pressure Tolerance | | 38 39 | ±3% of Set Pressure | - | | | |
| | Compressibility Factor Ratio of Specific Heats | | 39 40 | 1.000 | - | | | |
| \vdash | Calculated Area | mm2 | 41 | 0.0 | ┨ | | | |
| | Selected Area | mm2 | 42 | 25.3 | REMARK | | | |
| ORIFICE | Orifice Dimension | mm | 43 | 11.5 | - KEWAKK | | | |
| 🖺 | Valve Capacity | kg/hr | 43 | 365 | 1 | | | |
| | Model No. | ry/III | 45 | HSV-3S1 | 1 | | | |
| Cert. | Approved by | | 46 | N/A | 1 | | | |
| Gert. | CDTP | | 47 | 25.50 | 1 | | | |
| | עטור | | 4/ | ∠5.50 | | | | |



| Sheet No. | 2 of 10 | Rev. No. | 0 |
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| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| | | | | | Checked S. | M.PARK | Approved | J.W.HONG |
|-----------|-------------------------------------|-------|----|--------------------------|--|-------------------|-------------------------------------|----------------|
| | Drawing No.(or P&ID No.) | | 1 | | CALCULA | TION | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71652 | CALCULA | 11011 | | |
| | Service Line | | 3 | For Technical HVAC B | | | | |
| ا ہـِ ا | Quantity | | 4 | 1 | * Calculated of | Area | | |
| ∦ | Nozzle Type. Full or Semi | | 5 | Full Nozzle | 4.4 | W | 1 | |
| GENERAL | Design Type | | 6 | | A1 = | | T/ | |
| 0 | A. Safety or Relief | | | Safety Valve | $C' \times K_d \times$ | $(P \times 1.1 +$ | $1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 |
| | B. Conventional or Balanced-Bellows | | | Conventional | u u | | 7 1/21 | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0.84*(2 | 26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | <u>0.0</u> | mm² |
| | Outlet Connection | inch | 10 | PF 5/8 | | | | |
| | Body & Seat | | 11 | C 3771 | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated of | Capacity | / | |
| T | Disc | | 13 | TEFLON | _ | | | <u>,,</u> |
| 🖁 | Valve Stem | | 14 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | M × 0.9 |
| MATERIALS | Adjust Ring | | 15 | N/A | $W = C \times R_d \times A \times (F \times 1.1 + 1.033) \times \sqrt{\overline{ZT}} \times 0.9$ | | | ZT |
| 🖹 | Gasket (Body) | | 16 | N/A | | | ١ | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(2 | 26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9 |
| | Cap | | 18 | N/A | | | | |
| ဖြွ | Cap. Screwed or bolted | | 19 | Screw Type | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | = | | <u>365</u> | kg/hr |
| 🇯 | Test Gag | | 21 | No | | | | |
| \Box | Paint Color | | 22 | N/A | | | | |
| ပ္ | Code | | 23 | KS B6216 for Gas & Vapor | | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | |
| Щ | Allowable Overpressure | | 25 | 10% | W = Valve Capacity ········ | | | ·· 365 kg/hr |
| | Fluid and State | | 26 | GAS | W1 = Required Capacity ·· | | | kg/hr |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ····· | | | ·· 25.500 barg |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for calcula | ation] | | 26.0 kgf/m²g |
| | Viscosity | cP | 29 | 0 | _ | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area ·········· | | | 25.3 mm2 |
| l l | Operating / Relieving Temp | оС | 31 | / 200 | A1 = Calculated Area ······ | | | 0.0 mm2 |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of Dischar | rge ····· | | 0.840 |
| ਨੂੰ | Superimposed Variable Back Pressure | barg | 33 | 0 | _ | | | |
| S | Built-up Back Pressure | barg | 34 | 0 | C' = Ratio of Specific Heat | | | |
| | Total Back Pressure | barg | 35 | 0 | T = Absolute Temperature | | | |
| | Closing Pressure | barg | 36 | 21.68 | M = Molecular Weight ······ | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility Factor | · | | 1.000 |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | 4 | | | |
| | Compressibility Factor | | 39 | 1.000 | 4 | | | |
| \vdash | Ratio of Specific Heats | 0 | 40 | 1.400 | - | | | |
| ,,, | Calculated Area | mm2 | 41 | 0.0 | DEMARK | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | <u>REMARK</u> | | | |
| 🖺 | Orifice Dimension | mm | 43 | 11.5 | 4 | | | |
| | Valve Capacity | kg/hr | 44 | 365 | 4 | | | |
| Carret | Model No. | | 45 | HSV-3S1 | - | | | |
| Cert. | Approved by | | 46 | N/A | 4 | | | |
| | CDTP | | 47 | 25.50 | II | | | |



| Sheet No. | 3 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| | | | | | Checked | S.M.PARK | Approved | J.W.HONG |
|----------------------|-------------------------------------|-------|----|-------------------------------|--|----------------------------|--------------------------------------|----------------|
| | Drawing No.(or P&ID No.) | | 1 | | CALCUL | Λ ΤΙΩΝΙ | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-70951A | CALCUL | ATION | | |
| | Service Line | | 3 | For Air Con Unit, Provision-A | | | | |
| ╽┊╽ | Quantity | | 4 | 1 | * Calculated | of Area | | |
| ☆ [| Nozzle Type. Full or Semi | | 5 | Full Nozzle | 44 | W | 1 | |
| GENERAL | Design Type | | 6 | | A1 = | | T/ | |
| 0 | A. Safety or Relief | | | Safety Valve | $C' \times K_d$ | \times (P \times 1.1 + | $(1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 |
| | B. Conventional or Balanced-Bellows | | | Conventional | u u | , | 7 1/21 | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0.84 | 4*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | <u>0.0</u> | mm² |
| | Outlet Connection | inch | 10 | PF 5/8 | _ | | | |
| | Body & Seat | | 11 | C 3771 | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated | of Capacity | / | |
| TS | Disc | | 13 | TEFLON | _ | | | <u>,,</u> |
| MATERIALS | Valve Stem | | 14 | N/A | $W = C' \vee K \cdot \vee A \vee (P \vee 1.1 \pm 1.033) \vee \frac{M}{2} \vee 0.0$ | | | M × 0.9 |
| ╽┇╽ | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | ZT ^ O. |
| 🖹 | Gasket (Body) | | 16 | N/A | _ | | , | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3 | 3*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9 |
| | Cap | | 18 | N/A | 4 | | | |
| ၂ က္က | Cap. Screwed or bolted | | 19 | Screw Type | _ | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | _ = | | <u>365</u> | kg/hr |
| ੪ੵ | Test Gag | | 21 | No | _ | | | |
| | Paint Color | | 22 | N/A | 4 | | | |
| ပူ | Code | | 23 | KS B6216 for Gas & Vapor | | | | |
| BASIC | Cause of Overpressure | | 24 | No | 4 | | | |
| | Allowable Overpressure | | 25 | 10% | W = Valve Capacity ····· | | | ·· 365 kg/hr |
| | Fluid and State | | 26 | GAS | W1 = Required Capacit | | | kg/hr |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ······· | | | ·· 25.500 barg |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for cal- | culation] | | 26.0 kgf/m²g |
| | Viscosity | сP | 29 | 0 | 4 | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area ······ | | | 25.3 mm2 |
| 11 | Operating / Relieving Temp | оС | 31 | / 200 | A1 = Calculated Area ·· | | | 0.0 mm2 |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of Disc | charge ····· | | 0.840 |
| 🕍 | Superimposed Variable Back Pressure | barg | 33 | 0 | 4 | | | |
| S | Built-up Back Pressure | barg | 34 | 0 | C' = Ratio of Specific H | | | |
| | Total Back Pressure | barg | 35 | 0 | T = Absolute Temperat | | | |
| | Closing Pressure | barg | 36 | 21.68 | M = Molecular Weight · | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility Fac | ctor ····· | | 1.000 |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | - | | | |
| | Compressibility Factor | | 39 | 1.000 | - | | | |
| $\vdash\vdash\vdash$ | Ratio of Specific Heats | 0 | 40 | 1.400 | 4 | | | |
| ,,, | Calculated Area | mm2 | 41 | 0.0 | DEMARK | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | REMARK | | | |
| 🖺 | Orifice Dimension | mm | 43 | 11.5 | - | | | |
| | Valve Capacity | kg/hr | 44 | 365 | - | | | |
| Carré | Model No. | | 45 | HSV-3S1 | - | | | |
| Cert. | Approved by | | 46 | N/A | 4 | | | |
| | CDTP | | 47 | 25.50 | II | | | |



| Sheet No. | 4 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S M PARK | Annroved | T M HONG |

| 120 | V CO., L1D. | | | | Checked | S.M.PARK | Approved | J.W.HONG |
|------------|-------------------------------------|-------|----------|-------------------------------|--|--------------------------------------|---|-------------------|
| | Drawing No.(or P&ID No.) | | 1 | | CALCII | LATION | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-70951B | T CALCO | LATION | | |
| | Service Line | | 3 | For Air Con Unit, Provision-B | 1 | | | |
| ا پر ا | Quantity | | 4 | 1 | * Calculate | d of Area | | |
| <u>R</u> | Nozzle Type. Full or Semi | | 5 | Full Nozzle | W1 | | | |
| GENERAL | Design Type | | 6 | | A1 = | | | |
| 5 | A. Safety or Relief | | | Safety Valve | C' × I | $K_{\bullet} \times (P \times 1.1 +$ | $\cdot 1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 |
| | B. Conventional or Balanced-Bellows | | | Conventional | 1 | -a ~ (- ^ = -1 | ZT √ZT | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65* | 0.84*(26.0*1.1+1.0 | 33)*√{28.01/(1.0*47 | 3)}*0.9] |
| | Bonnet Type, Open or Close | | 7 | Closed Type | 1 | | | |
| | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | 1 | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | 1 = | | 0.0 | mm² |
| ŏ | Outlet Connection | inch | 10 | PF 5/8 | 1 | | | |
| | Body & Seat | | 11 | C 3771 | 1 | | | |
| | Bonnet | | 12 | C 3771 | * Calculate | d of Capacity | V | |
| (၁ | Disc | | 13 | TEFLON | | | | |
| ₹ | Valve Stem | | 14 | N/A | M 00 | | | M |
| MATERIALS | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | ${ZT} \times 0.9$ |
| ĕ | Gasket (Body) | | 16 | N/A | \2. | | | |
| - | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(26.0*1.1+1.033)*\{28.01/(1.0*473)}*0.9 | | | |
| | Сар | | 18 | N/A | 1 | • | , , , | ,, |
| <u>ر</u> ا | Cap. Screwed or bolted | | 19 | Screw Type | 1 | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | 1 = | | 365 | kg/hr |
| 5 | Test Gag | | 21 | No | 1 | | | |
| 4 | Paint Color | | 22 | N/A | 1 | | | |
| S | Code | | 23 | KS B6216 for Gas & Vapor | 1 | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | |
| B | Allowable Overpressure | | 25 | 10% | W = Valve Capacity | <i>y</i> ······ | | ·· 365 kg/hr |
| | Fluid and State | | 26 | GAS | W1 = Required Cap | oacity ····· | | kg/hr |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ··· | | | · 25.500 barg |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for | r calculation] | | 26.0 kgf/m³g |
| | Viscosity | cР | 29 | 0 | | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area | | | 25.3 mm2 |
| | Operating / Relieving Temp | оС | 31 | / 200 | A1 = Calculated Are | ea | | 0.0 mm2 |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of | Discharge ····· | | 0.840 |
| | Superimposed Variable Back Pressure | barg | 33 | 0 | _ | | | |
| SE | Built-up Back Pressure | barg | 34 | 0 | | | cient ····· | |
| | Total Back Pressure | barg | 35 | 0 | | | | |
| | Closing Pressure | barg | 36 | 21.68 | 11 | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility | Factor ····· | | 1.000 |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | _ | | | |
| | Compressibility Factor | | 39 | 1.000 | _ | | | |
| \Box | Ratio of Specific Heats | | 40 | 1.400 | 4 | | | |
| | Calculated Area | mm2 | 41 | 0.0 | <u> </u> | | | |
| [등 | Selected Area | mm2 | 42 | 25.3 | <u>REMARK</u> | | | |
| ORIFICE | Orifice Dimension | mm | 43 | 11.5 | 4 | | | |
| 0 | Valve Capacity | kg/hr | 44 | 365 | 4 | | | |
| | Model No. | | 45 | HSV-3S1 | 4 | | | |
| | | | 46 | NI/A | 11 | | | |
| Cert. | Approved by CDTP | | 40 47 | N/A 25.50 | 4 | | | |



| Sheet No. | 5 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S M PARK | Annroyed | LW HONG |

| 774 | v CO., L1D. | | | | | Checked | S.M.PARK | Approved | J.W.HONG | |
|------------------|-------------------------------------|-------------|----------|-----------------------------|--------------------------------|--|----------------------------|--------------------------------------|-----------------------------|----------|
| | Drawing No.(or P&ID No.) | | 1 | | | CALCUI | ∧ TION | | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71651 | | CALCUI | TATION | | | |
| | Service Line | | 3 | for Air Con Unit, LQ Normal | A1 | | | | | |
| ا بِ ا | Quantity | | 4 | 1 | | * Calculated | l of Area | | | |
| 🕍 | Nozzle Type. Full or Semi | | 5 | Full Nozzle | | 44 | W | '1 | | |
| GENERAL | Design Type | | 6 | | | A1 = | | TM. | | |
| 👨 | A. Safety or Relief | | | Safety Valve | | $C' \times K$ | $d \times (P \times 1.1 +$ | $(1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 | |
| | B. Conventional or Balanced-Bellows | | | Conventional | | , | | , 1/21 | | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | | = 0.0 / [2.65*0 | .84*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*4 | '3)}*0.9] | |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | | | |
| Ι _Ζ Ι | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | | = | | <u>0.0</u> | <u>)</u> mm² | |
| L | Outlet Connection | inch | 10 | PF 5/8 | | | | | | |
| | Body & Seat | | 11 | C 3771 | | | | | | |
| | Bonnet | | 12 | C 3771 | | * Calculated | l of Capacity | / | | |
| MATERIALS | Disc | | 13 | TEFLON | | | | | T., | |
| ≱ | Valve Stem | | 14 | N/A | | $W = C' \times K$ | . × 4 × (P × 1 | 1 ± 1 033) × | $\frac{M}{\sim} \times 0.9$ | |
| ╽╠║ | Adjust Ring | | 15 | N/A | | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | | |
| 🖹 | Gasket (Body) | | 16 | N/A | | , | | | | |
| | Spring | | 17 | SWOSC-B | | = 2.65*0.84*25.3*(26.0*1.1+1.033)*\{28.01/(1.0*473)}*0.9 | | | | |
| | Сар | | 18 | N/A | | | | | | |
| ၂ က | Cap. Screwed or bolted | | 19 | Screw Type | | | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | | = | | <u>368</u> | kg/hr | |
| 8 | Test Gag | | 21 | No | | | | | | |
| \square | Paint Color | | 22 | N/A | | | | | | |
| ပ္ | Code | | 23 | KS B6216 for Gas & Vap | por | | | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | | | |
| ٣ | Allowable Overpressure | | 25 | 10% | | W = Valve Capacity | | | ··· 365 kg/hr | r |
| | Fluid and State | | 26 | GAS | | W1 = Required Capa | | | kg/hr | |
| | Required Capacity | kg/hr | 27 | | | P = Set Pressure ····· | | | ·· 25.500 barg | |
| | Mol. Weight | | 28 | 28.01 | | [Conversion unit for o | calculation] | | 26.0 kgf/a | m³g |
| | Viscosity | cP | 29 | 0 | | | | | | |
| | Operating / Set Pressure | barg | 30 | / 25. | | A = Selected Area ··· | | | 25.3 mm2 | |
| ا ا | Operating / Relieving Temp | oC | 31 | / 200 | 0 | A1 = Calculated Area | | | 0.0 mm2 | <u>}</u> |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | | Kd = Coefficient of D | ischarge ····· | | 0.840 | |
| 🕍 | Superimposed Variable Back Pressure | barg | 33 | 0 | | | | | | |
| 8 | Built-up Back Pressure | barg | 34 | 0 | | C' = Ratio of Specific | | | | |
| | Total Back Pressure | barg | 35 | 0 | | T = Absolute Tempe | | | | |
| | Closing Pressure | barg | 36 | 21.68 | | M = Molecular Weigh | | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | | Z = Compressibility F | -actor | | ·· 1.000 | |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | | | | | | |
| | Compressibility Factor | | 39 | 1.000 | | | | | | |
| \vdash | Ratio of Specific Heats | n | 40 | 1.400 | \parallel | | | | | |
| [,, | Calculated Area | mm2 | 41 | 0.0 | ∦ | DEM A DIZ | | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | $-\!\!-\!\!\!\parallel$ | <u>REMARK</u> | | | | |
| | Orifice Dimension | mm ka/hr | 43 | 11.5 | \parallel | | | | | |
| $ ^{\circ} $ | Valve Capacity | kg/hr | 44 | 365 | $-\!\!-\!\!\!\parallel$ | | | | | |
| Cart | Model No. | | 45 46 | HSV-3S1 | \parallel | | | | | |
| Cert. | Approved by | | 46 | N/A | $-\!\!-\!\!\!-\!\!\!\parallel$ | | | | | |
| | CDTP | | 47 | 25.50 | | | | | | |



| Sheet No. | 6 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S M PARK | Approved | J.W.HONG |

| | v CO., L1D. | | | | Checked | S.M.PARK | Approved | J.W.HONG |
|-----------------|--|--|--|--|---|---|-------------------------------------|---|
| | Drawing No.(or P&ID No.) | | 1 | | CALCII | LATION | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71652 | | LATION | | |
| | Service Line | | 3 | for Air Con Unit, LQ Normal A2 | | | | |
| ا یا ا | Quantity | | 4 | 1 | * Calculate | d of Area | | |
| 월 | Nozzle Type. Full or Semi | | 5 | Full Nozzle | W1 | | | |
| GENERAL | Design Type | | 6 | | A1 = | | - T | |
| 5 | A. Safety or Relief | | | Safety Valve | $C' \times F$ | $C_{\bullet} \times (P \times 1.1 +$ | $1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 |
| | B. Conventional or Balanced-Bellows | | | Conventional | | · a · · · · · · · · · · | \ZT | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0 | 0.84*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | |
| \overline{z} | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | 0.0 | mm² |
| انا | Outlet Connection | inch | 10 | PF 5/8 | | | | |
| | Body & Seat | | 11 | C 3771 | | | | |
| | Bonnet | | 12 | C 3771 | * Calculate | d of Capacity | / | |
| ၂ ၁၂ | Disc | | 13 | TEFLON | | | | |
| MATERIALS | Valve Stem | | 14 | N/A | $W = C \vee V$ | . V A V / D V 1 | 1 + 1 022) > | $M \sim 0.0$ |
| 1 🖺 | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | $\overline{ZT} \times 0.9$ |
| ₹ | Gasket (Body) | | 16 | N/A | | | ٧ | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(26.0*1.1+1.033)*\{28.01/(1.0*473)}*0.9 | | | |
| | Сар | | 18 | N/A | | | | |
| S | Cap. Screwed or bolted | | 19 | Screw Type | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | = | | <u>365</u> | kg/hr |
| ၂႘၂ | Test Gag | | 21 | No | | | | |
| ◀ | Paint Color | | 22 | N/A | | | | |
| ပ | Code | | 23 | KS B6216 for Gas & Vapor | | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | |
| | Allowable Overpressure | | 25 | 10% | - ∥ ' ' | | | 365 kg/hr |
| | Fluid and State | | 26 | GAS | W1 = Required Cap | acity ····· | | kg/hr |
| | | | - | | 11 | | | |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ··· | | | 25.500 barg |
| | Required Capacity Mol. Weight | kg/hr | 27 28 | 28.01 | P = Set Pressure ··· [Conversion unit for | | | 25.500 barg 26.0 kgf/cm³g |
| | | kg/hr | - | 28.01 0 | [Conversion unit for | calculation] | | · · |
| | Mol. Weight | | 28 29 30 | | [Conversion unit for A = Selected Area | calculation] | | · · |
| | Mol. Weight Viscosity | сР | 28 29 30 31 | 0 | [Conversion unit for A = Selected Area | calculation] | | 26.0 kgf/m²g |
| ICE | Mol. Weight Viscosity Operating / Set Pressure | cP barg | 28 29 30 31 32 | 0 / 25.5 | [Conversion unit for A = Selected Area - A1 = Calculated Are | calculation] | | 26.0 kgf/m²g 25.3 mm2 |
| RVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp | cP barg | 28 29 30 31 32 33 | 0 / 25.5 / 200 | [Conversion unit for A = Selected Area A1 = Calculated Are Kd = Coefficient of I | calculation] pa Discharge | | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure | cP barg oC barg | 28 29 30 31 32 33 34 | 0 / 25.5 / 200 0 | [Conversion unit for A = Selected Area - A1 = Calculated Area Kd = Coefficient of I C' = Ratio of Specif | calculation] pa Discharge ic Heats to the Coeffic | cient ······ | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure | cP barg oc barg barg | 28 29 30 31 32 33 34 35 | 0 / 25.5 / 200 0 0 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Tempo | calculation] ea Discharge ic Heats to the Coefficerature | cient ······ | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure | cP barg oC barg barg | 28 29 30 31 32 33 34 35 36 | 0 / 25.5 / 200 0 0 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test | cP barg oC barg barg barg barg | 28 29 30 31 32 33 34 35 36 37 | 0 / 25.5 / 200 0 0 0 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | cient ······ | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance | cP barg oC barg barg barg barg barg | 28 29 30 31 32 33 34 35 36 37 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor | cP barg oC barg barg barg barg barg | 28 29 30 31 32 33 34 35 36 37 38 39 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats | cP barg oC barg barg barg barg barg barg barg | 28 29 30 31 32 33 34 35 36 37 38 39 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area | cP barg oC barg barg barg barg barg barg barg barg | 28 29 30 31 32 33 34 35 36 37 38 39 40 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig Z = Compressibility | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area Selected Area | cP barg oC barg barg barg barg barg barg barg mm2 | 28 29 30 31 32 33 34 35 36 37 38 39 40 41 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 25.3 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area Selected Area Orifice Dimension | cP barg oC barg barg barg barg barg barg mm2 mm2 | 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 25.3 11.5 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig Z = Compressibility | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| ORIFICE SERVICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area Selected Area Orifice Dimension Valve Capacity | cP barg oC barg barg barg barg barg barg barg mm2 | 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 | 0 / 25.5 / 200 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 25.3 11.5 365 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig Z = Compressibility | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| ORIFICE | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area Selected Area Orifice Dimension Valve Capacity Model No. | cP barg oC barg barg barg barg barg barg mm2 mm2 | 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 | 0 / 25.5 / 200 0 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 25.3 11.5 365 HSV-3S1 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig Z = Compressibility | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |
| | Mol. Weight Viscosity Operating / Set Pressure Operating / Relieving Temp Superimposed Constant Back Pressure Superimposed Variable Back Pressure Built-up Back Pressure Total Back Pressure Closing Pressure Hydrostatic Test Set Pressure Tolerance Compressibility Factor Ratio of Specific Heats Calculated Area Selected Area Orifice Dimension Valve Capacity | cP barg oC barg barg barg barg barg barg mm2 mm2 | 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 | 0 / 25.5 / 200 0 0 0 0 21.68 49.50 ±3% of Set Pressure 1.000 1.400 0.0 25.3 11.5 365 | [Conversion unit for A = Selected Area - A1 = Calculated Are Kd = Coefficient of I C' = Ratio of Specif T = Absolute Temp M = Molecular Weig Z = Compressibility | calculation] pa Discharge ic Heats to the Coefficerature | ient ····· | 26.0 kgf/m²g 25.3 mm2 0.0 mm2 0.840 2.65 473.0 ° K 28.010 |



| Sheet No. | 7 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| | , | | | | Checked | S.M.PARK | Approved | J.W.HONG | | |
|----------------------|-------------------------------------|-------|----|--------------------------------|--|----------------------------|-------------------------------|-----------------------------|--|--|
| | Drawing No.(or P&ID No.) | | 1 | | CALCUL | Δ ΤΙΩΝΙ | | | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71653 | CALCUL | ATION | | | | |
| | Service Line | | 3 | for Air Con Unit, LQ Normal B1 | | | | | | |
| ╽┊╽ | Quantity | | 4 | 1 | * Calculated of Area | | | | | |
| ☆ [| Nozzle Type. Full or Semi | | 5 | Full Nozzle | W1 | | | | | |
| GENERAL | Design Type | | 6 | | $A1 = \frac{1}{C' \times K_d \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9}$ | | | | | |
| 0 | A. Safety or Relief | | | Safety Valve | $C' \times K_d$ | \times (P \times 1.1 + | $(1.033) \times \frac{M}{77}$ | × 0.9 | | |
| | B. Conventional or Balanced-Bellows | | | Conventional | | , | 7 1/21 | | | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0.8 | 34*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] | | |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | <u>0.0</u> | mm² | | |
| | Outlet Connection | inch | 10 | PF 5/8 | | | | | | |
| | Body & Seat | | 11 | C 3771 | | | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated | of Capacity | y | | | |
| | Disc | | 13 | TEFLON | | | | | | |
| MATERIALS | Valve Stem | | 14 | N/A | $W = C' \vee K$. | × 4 × (P v 1 | .1 + 1.033) × | $\frac{M}{\sim} \times 0.9$ | | |
| | Adjust Ring | | 15 | N/A | W - C \ \ \ \ \ \ d | ^n^(1 ^ 1 | 11 + 1.055) ^ | ZT ^ 0.5 | | |
| 🖹 | Gasket (Body) | | 16 | N/A | | | ١ | | | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25. | 3*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9 | | |
| | Cap | | 18 | N/A | _ | | | | | |
| ₀ | Cap. Screwed or bolted | | 19 | Screw Type | | | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | _ | | <u>365</u> | kg/hr | | |
| ੪ੵ | Test Gag | | 21 | No | _ | | | | | |
| | Paint Color | | 22 | N / A | _∥ | | | | | |
| ပူ | Code | | 23 | KS B6216 for Gas & Vapor | | | | | | |
| BASIC | Cause of Overpressure | | 24 | No | 4 | | | | | |
| | Allowable Overpressure | | 25 | 10% | W = Valve Capacity ··· | | | ·· 365 kg/hr | | |
| | Fluid and State | | 26 | GAS | W1 = Required Capac | | | kg/hr | | |
| | Required Capacity | kg/hr | 27 | | P = Set Pressure ······ | | | ·· 25.500 barg | | |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for ca | alculation] | | 26.0 kgf/m²g | | |
| | Viscosity | сP | 29 | 0 | 4 | | | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area ····· | | | 25.3 mm2 | | |
| 11 | Operating / Relieving Temp | оС | 31 | / 200 | A1 = Calculated Area | | | 0.0 mm2 | | |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of Dis | scharge ····· | | 0.840 | | |
| 🕍 | Superimposed Variable Back Pressure | barg | 33 | 0 | 4 | | | | | |
| S | Built-up Back Pressure | barg | 34 | 0 | C' = Ratio of Specific I | | | | | |
| | Total Back Pressure | barg | 35 | 0 | T = Absolute Tempera | | | | | |
| | Closing Pressure | barg | 36 | 21.68 | M = Molecular Weight | | | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility Fa | actor | | 1.000 | | |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | 4 | | | | | |
| | Compressibility Factor | | 39 | 1.000 | 4 | | | | | |
| $\vdash\vdash\vdash$ | Ratio of Specific Heats | 0 | 40 | 1.400 | 4 | | | | | |
| ,,, | Calculated Area | mm2 | 41 | 0.0 | DEMARK | | | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | REMARK | | | | | |
| 🖺 | Orifice Dimension | mm | 43 | 11.5 | | | | | | |
| 0 | Valve Capacity | kg/hr | 44 | 365 | | | | | | |
| Carré | Model No. | | 45 | HSV-3S1 | - | | | | | |
| Cert. | Approved by | | 46 | N/A | 4 | | | | | |
| | CDTP | | 47 | 25.50 | 1 | | | | | |



| Sheet No. | 8 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | SMPARK | Annroved | LW HONG |

| 120 | V CO., L1D. | | | | Ch | necked | S.M.PARK | Approved | J.W.HONG | G |
|--------------|-------------------------------------|-------|----|--------------------------------|--|----------------------|--------------------------|-------------------------------------|----------------|--------|
| | Drawing No.(or P&ID No.) | | 1 | | | CALCULATION | | | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71654 | \Box | JALCUI | ATION | | | |
| | Service Line | | 3 | for Air Con Unit, LQ Normal B2 | | | | | | |
| ا بِ ا | Quantity | | 4 | 1 | * | Calculated | of Area | | | |
| & | Nozzle Type. Full or Semi | | 5 | Full Nozzle | | | W | 1 | | |
| GENERAL | Design Type | | 6 | | | A1 = | | | | |
| 5 | A. Safety or Relief | | | Safety Valve | | $C' \times K$ | $\times (P \times 1.1 +$ | $1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 | |
| | B. Conventional or Balanced-Bellows | | | Conventional | | 5 / 1.0 | (| ZIZT | | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | | = 0.0 / [2.65*0. | 84*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*4 | 73)}*0.9] | |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | | | |
| | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | | = | | 0.0 |) mm² | |
| اقا | Outlet Connection | inch | 10 | PF 5/8 | - | | | | | |
| | Body & Seat | | 11 | C 3771 | | | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated of Capacity | | | | | |
| ၂ ဟု | Disc | | 13 | TEFLON | | | | | | |
| MATERIALS | Valve Stem | | 14 | N/A | | | | | | |
| 🖆 | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | | | |
| ¥ | Gasket (Body) | | 16 | N/A | | \ | | | | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(26.0*1.1+1.033)*\{28.01/(1.0*473)}*0.9 | | | | | |
| | Сар | | 18 | N/A | | | | | | |
| | Cap. Screwed or bolted | | 19 | Screw Type | | | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | | = | | 36 | 5 kg/hr | |
| 5 | Test Gag | | 21 | No | | | | | _ | |
| 4 | Paint Color | | 22 | N/A | | | | | | |
| ပ | Code | | 23 | KS B6216 for Gas & Vapor | | | | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | | | |
| B | Allowable Overpressure | | 25 | 10% | W : | = Valve Capacity · | | | ··· 365 k | g/hr |
| | Fluid and State | | 26 | GAS | W1 | 1 = Required Capa | city ····· | | k | g/hr |
| | Required Capacity | kg/hr | 27 | | P = | Set Pressure ····· | | | ··· 25.500 b | arg |
| | Mol. Weight | | 28 | 28.01 | [Co | onversion unit for o | alculation] | | 26.0 k | gf/m²g |
| | Viscosity | cР | 29 | 0 | | | | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | A = | = Selected Area ···· | | | 25.3 m | nm2 |
| | Operating / Relieving Temp | оС | 31 | / 200 | A1 | = Calculated Area | | | 0.0 m | nm2 |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd | = Coefficient of Di | scharge ····· | | 0.840 | |
| <u>N</u> | Superimposed Variable Back Pressure | barg | 33 | 0 | | | | | | |
| S | Built-up Back Pressure | barg | 34 | 0 | | | | cient ····· | | |
| | Total Back Pressure | barg | 35 | 0 | | | | | | K |
| | Closing Pressure | barg | 36 | 21.68 | | | | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = | Compressibility F | actor ····· | | 1.000 | |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | | | | | | |
| | Compressibility Factor | | 39 | 1.000 | | | | | | |
| \vdash | Ratio of Specific Heats | | 40 | 1.400 | _ | | | | | |
| | Calculated Area | mm2 | 41 | 0.0 | | | | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | <u>F</u> | REMARK | | | | |
| I R | Orifice Dimension | mm | 43 | 11.5 | _ | | | | | |
| | Valve Capacity | kg/hr | 44 | 365 | _ | | | | | |
| | Model No. | | 45 | HSV-3S1 | _ | | | | | |
| Cert. | Approved by | | 46 | N/A | _ | | | | | |
| 1 | CDTP | | 47 | 25.50 | | | | | | |



| Sheet No. | 9 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| <u></u> | | | | | Checked | S.M.PARK | Approved | J.W.HONG | | |
|----------------------|---|--------------|----------|-------------------------------|--|----------------------------|-------------------------------|--------------------------|--|--|
| | Drawing No.(or P&ID No.) | | 1 | | CALCUI | ΔΤΙΩΝΙ | | | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71655 | CALCUI | ZATION | | | | |
| | Service Line | | 3 | for Air Con Unit, Emergency A | | | | | | |
| ا ہ _ا ا | Quantity | | 4 | 1 | * Calculated of Area | | | | | |
| ☆ [| Nozzle Type. Full or Semi | | 5 | Full Nozzle | W1 | | | | | |
| GENERAL | Design Type | | 6 | | A1 = | | | | | |
| 0 | A. Safety or Relief | | | Safety Valve | $C' \times K$ | $a \times (P \times 1.1 +$ | $(1.033) \times \frac{M}{77}$ | × 0.9 | | |
| | B. Conventional or Balanced-Bellows | | | Conventional | $C' \times K_d \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | | | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65*0. | .84*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9] | | |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = | | <u>0.0</u> | mm² | | |
| | Outlet Connection | inch | 10 | PF 5/8 | | | | | | |
| | Body & Seat | | 11 | C 3771 | | | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated | l of Capacity | / | | | |
| FS | Disc | | 13 | TEFLON | _∥ | | | 14 | | |
| MATERIALS | Valve Stem | | 14 | N/A | $W = C' \times K$ | , x A x (P x 1 | 1 + 1.033) × | $\frac{M}{-} \times 0.9$ | | |
| # | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | | | |
| È | Gasket (Body) | | 16 | N/A | _ | | , | | | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25 | 5.3*(26.0*1.1+1.03 | 33)*√{28.01/(1.0*47 | 3)}*0.9 | | |
| Ш | Сар | | 18 | N/A | 4 | | | | | |
| ၂ က္က | Cap. Screwed or bolted | | 19 | Screw Type | 1 | | | | | |
| 👸 | Lever(Plain/Packed) or Closed | | 20 | None | = | | <u>365</u> | kg/hr | | |
| ACCESS | Test Gag | | 21 | No | 4 | | | | | |
| \vdash | Paint Color | | 22 | N/A | 4 | | | | | |
| မှု | Code | | 23 | KS B6216 for Gas & Vapor | | | | | | |
| BASIC | Cause of Overpressure | | 24 | No | 4 | | | | | |
| H | Allowable Overpressure | | 25 | 10% | | | | | | |
| | Fluid and State | | 26 | GAS | W1 = Required Capa | | | kg/hr | | |
| | Required Capacity | kg/hr | 27 | | -11 | | | _ | | |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for o | calculation | | 26.0 kgf/m²g | | |
| | Viscosity | cP | 29 | 0 | - | | | 05.0 | | |
| 1 1 | Operating / Set Pressure | barg | 30 | / 25.5 | A = Selected Area ···· | | | 25.3 mm2 | | |
| اسا | Operating / Relieving Temp | 0C | 31 | / 200 | A1 = Calculated Area | | | 0.0 mm2 | | |
| \bigsilon | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of Di | iscnarge ····· | | 0.840 | | |
| SERVICE | Superimposed Variable Back Pressure | barg | 33 34 | 0 | CI - Datia of Casaifia | Llasta to the Castin | cient ······ | 0.05 | | |
| ° | Built-up Back Pressure Total Back Pressure | barg | 34 35 | 0 | | | cient | | | |
| | Closing Pressure | barg | 36 | 21.68 | | | | | | |
| | Hydrostatic Test | barg barg | 37 | 49.50 | ⊣ I | | | | | |
| | Set Pressure Tolerance | baiy | 38 | ±3% of Set Pressure | 2 - Complessibility F | uoloi | | 1.000 | | |
| | Compressibility Factor | | 39 | 1.000 | 1 | | | | | |
| | Ratio of Specific Heats | | 40 | 1.400 | 1 | | | | | |
| $\vdash\vdash\vdash$ | Calculated Area | mm2 | 41 | 0.0 | 1 | | | | | |
| ا ښ | Selected Area | mm2 | 42 | 25.3 | REMARK | | | | | |
| ORIFICE | Orifice Dimension | mm | 43 | 11.5 | | | | | | |
| | Valve Capacity | kg/hr | 44 | 365 | 1 | | | | | |
| | Model No. | | 45 | HSV-3S1 | 1 | | | | | |
| Cert. | Approved by | | 46 | N/A | 1 | | | | | |
| | CDTP | | 47 | 25.50 | 1 | | | | | |
| \perp | - • | | | | | | | | | |



| Sheet No. | 10 of 10 | Rev. No. | 0 |
|--------------|------------|----------|----------|
| Project No. | | | |
| Project Name | | | |
| Date | 2025-09-12 | Ву | S.R.HONG |
| Checked | S.M.PARK | Approved | J.W.HONG |

| 224 | V CO., L1D. | | | | Checked | S.M.PARK | Approved | J.W.HONG | | |
|----------------|-------------------------------------|-------------|----------|-------------------------------|--|--------------------------------------|-------------------------------------|-----------------------------|--|--|
| | Drawing No.(or P&ID No.) | | | CALCULATION | | | | | | |
| | Valve No. (or Tag No.) | | 2 | SHP-PSV-71656 | T CALCO | LATION | | | | |
| | Service Line | | 3 | for Air Con Unit, Emergency B | | | | | | |
| ا یا ا | Quantity | | 4 | 1 | * Calculate | d of Area | | | | |
| 월 | Nozzle Type. Full or Semi | | 5 | Full Nozzle | . | W | 1 | | | |
| GENERAL | Design Type | | 6 | | A1 = | | | | | |
| 5 | A. Safety or Relief | | | Safety Valve | C' × i | $K_{\bullet} \times (P \times 1.1 +$ | $1.033) \times \sqrt{\frac{M}{ZT}}$ | × 0.9 | | |
| | B. Conventional or Balanced-Bellows | | | Conventional | | -u · · (- · · · - · · · | 127 | | | |
| | C. Full Bore, Low or High Lift | | | Low Lift Type | = 0.0 / [2.65* | 0.84*(26.0*1.1+1.0 | 33)*√{28.01/(1.0*47 | 3)}*0.9] | | |
| | Bonnet Type, Open or Close | | 7 | Closed Type | | | | | | |
| z | Size. Inlet / Outlet | | 8 | 1/2" x 5/8" | | | | | | |
| CONN | Inlet. Connection | inch | 9 | PT 1/2 | = <u>0.0</u> mm² | | | | | |
| ° | Outlet Connection | inch | 10 | PF 5/8 | | | | | | |
| | Body & Seat | | 11 | C 3771 | | | | | | |
| | Bonnet | | 12 | C 3771 | * Calculated of Capacity | | | | | |
| LS | Disc | | 13 | TEFLON | | | | | | |
| MATERIALS | Valve Stem | | 14 | N/A | $W - C' \vee V$ | 7. V 4 V (D V 1 | 1 ± 1 022) ∨ | $\frac{M}{\sim}$ ~ 0.0 | | |
| 閏 | Adjust Ring | | 15 | N/A | $W = C' \times K_d \times A \times (P \times 1.1 + 1.033) \times \sqrt{\frac{M}{ZT}} \times 0.9$ | | | | | |
| × | Gasket (Body) | | 16 | N/A | ٧ | | | | | |
| | Spring | | 17 | SWOSC-B | = 2.65*0.84*25.3*(26.0*1.1+1.033)*\{28.01/(1.0*473)}*0.9 | | | | | |
| | Сар | | 18 | N/A | | | | | | |
| ၂ တ | Cap. Screwed or bolted | | 19 | Screw Type | | | | | | |
| ACCESS | Lever(Plain/Packed) or Closed | | 20 | None | _ | | <u>365</u> | kg/hr | | |
| 0 | Test Gag | | 21 | No | | | | | | |
| Ľ | Paint Color | | 22 | N/A | | | | | | |
| <u>ပ</u> | Code | | 23 | KS B6216 for Gas & Vapor | | | | | | |
| BASIC | Cause of Overpressure | | 24 | No | | | | | | |
| Щ | Allowable Overpressure | | 25 | 10% | ⊣ II ' ' | | | ·· 365 kg/hr | | |
| | Fluid and State | | 26 | GAS | | pacity | | kg/hr | | |
| | Required Capacity | kg/hr | 27 | | | | | · 25.500 barg | | |
| | Mol. Weight | | 28 | 28.01 | [Conversion unit for | r calculation] | | 26.0 kgf/m²g | | |
| | Viscosity | сP | 29 | 0 | | | | | | |
| | Operating / Set Pressure | barg | 30 | / 25.5 | | | | 25.3 mm2 | | |
| ا ا | Operating / Relieving Temp | оС | 31 | / 200 | | ea | | 0.0 mm2 | | |
| SERVICE | Superimposed Constant Back Pressure | barg | 32 | 0 | Kd = Coefficient of | Discharge ····· | | 0.840 | | |
| ਨੂੰ | Superimposed Variable Back Pressure | barg | 33 | 0 | | | | | | |
| S | Built-up Back Pressure | barg | 34 | 0 | | | cient ····· | | | |
| | Total Back Pressure | barg | 35 | 0 | | | | | | |
| | Closing Pressure | barg | 36 | 21.68 | | | | | | |
| | Hydrostatic Test | barg | 37 | 49.50 | Z = Compressibility | Factor ····· | | . 1.000 | | |
| | Set Pressure Tolerance | | 38 | ±3% of Set Pressure | _ | | | | | |
| | Compressibility Factor | | 39 | 1.000 | | | | | | |
| $\vdash\vdash$ | Ratio of Specific Heats | m0 | 40 | 1.400 | - | | | | | |
| ا س ا | Calculated Area | mm2 | 41 | 0.0 | DEMARK | | | | | |
| ORIFICE | Selected Area | mm2 | 42 | 25.3 | REMARK | | | | | |
| 🖁 | Orifice Dimension | mm ka/br | 43 | 11.5 | | | | | | |
| | Valve Capacity | kg/hr | 44 45 | 365 | - | | | | | |
| Cert. | Model No. Approved by | | 45 | HSV-3S1 N/A | - | | | | | |
| cert. | CDTP | | 46 | 25.50 | - | | | | | |
| 1 1 | OUTF | | 4/ | ∠5.50 | | | | | | |