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| | | LESER Job N° | (WETTED) |

| Sizing - Medium | | | | |
|-----------------|-------------------------|-----------------------|-------|---------|
| 1000 | Designation | PSV-2121-A/B/C WETTED | | |
| 1004 | Formula | | | |
| 1001 | Molar mass | M | 20.05 | kg/kmol |
| 1002 | Ratio of specific heats | k | 1.245 | |
| 1003 | Compressibility factor | Z | 0.975 | |

| Sizing - Firecase | | | | |
|-------------------|----------------------------|------|------------------|-------|
| 1050 | Calculation type | | Wetted | |
| 1051 | Type of vessel | | Vertical | |
| 1052 | Vessel head design | | Ellipsoidal head | |
| 1053 | Vessel elevation | H | 1,000 | mm |
| 1054 | Vessel diameter | D | 900 | mm |
| 1055 | Vessel length | L | 3,000 | mm |
| 1056 | Liquid depth | Y | 950 | mm |
| 1066 | Effective liquid level | Yeff | 950 | mm |
| 1061 | Wetted surface, calculated | Awet | 3,322,234.231 | mm² |
| 1062 | Wetted surface, manual | Awet | | |
| 1057 | Drainage presence | | No | |
| 1058 | Type of isolation | | Bare vessel | |
| 1059 | Environment factor | F | 1.000 | |
| 1060 | Heat of evaporation | Hvap | 1,994 | kJ/kg |
| 1072 | Minimum required mass flow | W | 342.892 | kg/h |

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| Sizing - Service condition | | | | |
|----------------------------|--|--------|----------|-------|
| 1009 | Case for blow off | | Firecase | |
| 1100 | Maximum allowable working pressure | | | |
| 1101 | Set pressure | p | 9 | bar-g |
| 1102 | Constant superimposed back pressure | paf | | |
| 2102 | Variable superimposed back pressure | | | |
| 1103 | Built up back pressure | paе | 3 | bar |
| 1104 | Backpressure | | 3 | bar-g |
| 1105 | Overpressure | dp | 21.00 | % |
| 1106 | Environmental pressure | pu | 1.013 | bar |
| 1107 | Relieving Temperature | T | 182.6 | °C |
| 1111 | Operating Temperature | | 36.78 | °C |
| 1108 | Required massflow | qm,ab | 342.893 | kg/h |
| 1109 | Volume flow to be discharged (working condition) | qvb,ab | 53.084 | m³/h |
| 1110 | Volume flow to be discharged (std condition) [T=60 °F P=14.7 psi] | qvn,ab | 394.93 | m³/h |
| 1120 | Rupture disc correction factor | Kc | 1.000 | |

| Initial Sizing according to API 520 for BALANCE safety valve | | |
|--|------------------------------|-------------|
| 1150 | NPS inlet Orifice NPS outlet | 1D2 |
| 1151 | PR inlet x PR outlet | #150 x #150 |
| 1152 | Material | WCB |
| 1153 | Required orifice | D |
| 1154 | Selected orifice | D |

| Sizing - Calculation | | | | |
|----------------------|---|---------|---------|------|
| 1200 | Certified massflow | qm,zu | 438.967 | kg/h |
| 1201 | Certified volume flow (operating condition) | qvb,zu | 67.957 | m³/h |
| 1203 | Certified volume flow (standard condition) | qvn,zu | 505.584 | m³/h |
| 1204 | Maximum mass flow | qm,max | 487.742 | kg/h |
| 1205 | Maximum volume flow (working condition) | qvb,max | 75.508 | m³/h |
| 1206 | Maximum volume flow (standard condition) | qvn,max | 561.76 | m³/h |
| 1207 | Capacity exceed | | 28.02 | % |

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| Valve - General | | | |
|-----------------|--|------------------------------|---------------------|
| 1500 | Article number | | 5262.0012 |
| 1512 | Reseller article number | | |
| 1513 | Quantity of safety valve | | 1 |
| 1501 | Certified coefficient of discharge for steam and gases | K,DG | 0.455 |
| 1502 | Certified coefficient of discharge for liquid | K,F | 0.343 |
| 1453 | Orifice | | D |
| 1505 | Bonnet / Lifting device | | Cap H2 |
| 1506 | Body-/ Inlet base material | | 1.0619 / SA 216 WCB |
| 1511 | Bonnet | | Closed Bonnet |
| 1514 | Order code | 5262.0012-9 bar_g-H64H79-3.1 | |


| Inlet connection | | |
|------------------|---------------------|--------------------|
| 1303 | Connection standard | acc. to ASME B16.5 |
| 1304 | DN / NPS | 1" |
| 1305 | PN / PR | #150 |
| 1306 | Flange facing | RF |

| Outlet connection | | |
|-------------------|---------------------|--------------------|
| 1353 | Connection standard | acc. to ASME B16.5 |
| 1354 | DN / NPS | 2" |
| 1355 | PN / PR | #150 |
| 1356 | Flange facing | RF |

| Valve - Dimensions | | | | |
|--------------------|--|----|---------|-----------------|
| 1400 | Discharge area | Ao | 153.938 | mm ² |
| 1401 | Discharge diameter | do | 14 | mm |
| 1402 | Centre to Face dimensions | a | 105 | mm |
| 1403 | Centre to Face dimensions | b | 114 | mm |
| 1405 | Height | H | 440 | mm |
| 1406 | Weight | M | 17.3 | kg |
| 1411 | Inlet flange thickness incl. raised face | S1 | 30 | mm |


| Lift | | | | |
|------|----------|--|-------|------|
| 1507 | Standard | | 0.059 | inch |

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| Valve - Calculation | | | | |
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| 1206 | Maximum volume flow (standard condition) | qvn,max | 561.76 | m³/h |
| 1207 | Capacity exceed | | 28.02 | % |
| 1600 | Required actual discharge area | Ao, req | 120.246 | mm² |
| 1601 | Required discharge diameter | do,req | 12.373 | mm |
| 1617 | Back pressure correction factor | Kb | 0.954 | |
| 1618 | Cold differential test pressure | CDTP | 9 | bar-g |
| 1620 | Cold differential test pressure, manually | CDTP | | |

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| Valve - Part list | | | | | |
|-------------------|-------|-----------------------|----|---------------------------------|-------------------------|
| | PosNo | Denomination | Q | Material ASME | Material DIN |
| 12010 | 1 | Body | 1 | SA 216 WCB | 1.0619 |
| 12050 | 5 | Full nozzle | 1 | CF8M or 316L | 1.4408 or 1.4404 |
| 12060 | 6 | Adjusting ring | 1 | CF8M | 1.4408 |
| 12070 | 7 | Disc | 1 | Hardened Stainless steel | 1.4122 |
| 12080 | 8 | Guide | 1 | Carbon steel/chrome st. Tenifer | 1.0501 / 1.4104 tenifer |
| 12090 | 9 | Bonnet | 1 | SA 216 WCB | 1.0619 |
| 12120 | 12 | Spindle | 1 | 420 | 1.4021 |
| 12140 | 14 | Split ring | 2 | Chrome steel | 1.4104 |
| 12160 | 16 | Spring plate | 1 | Steel | 1.0718 |
| 12170 | 17 | Spring plate | 1 | Steel | 1.0718 |
| 12180 | 18 | Adjusting screw | 1 | Chrome steel | 1.4104 |
| 12190 | 19 | Lock nut | 1 | Steel | 1.0718 |
| 12220 | 22 | Lift stopper | 1 | 316L | 1.4404 |
| 12400 | 40 | Cap H2 | 1 | SA 105 | 1.0460 |
| 12540 | 54 | Spring | 1 | High temperature alloy steel | 1.8159 |
| 12550 | 55 | Bolt | 4 | B8M | 1.4401 |
| 12560 | 56 | Nut | 4 | 8M | 1.4401 |
| 12570 | 57 | Ball | 15 | 316 | 1.4401 |
| 12600 | 60 | Gasket | 1 | Graphite / 316 | Graphit / 1.4401 |
| 12610 | 61 | Ball washer | 1 | Hardened stainless steel | 1.3541 |
| 12660 | 66 | Hex. nut | 1 | B8M | 1.4401 |
| 12690 | 69 | Thrust needle bearing | 1 | 316L | 1.4404 |
| 12730 | 73 | Locking screw | 1 | 8M | 1.4404 |
| 12870 | 87 | Plug | 1 | B8M | 1.4401 |

LESER is free to upgrade materials without further notice.

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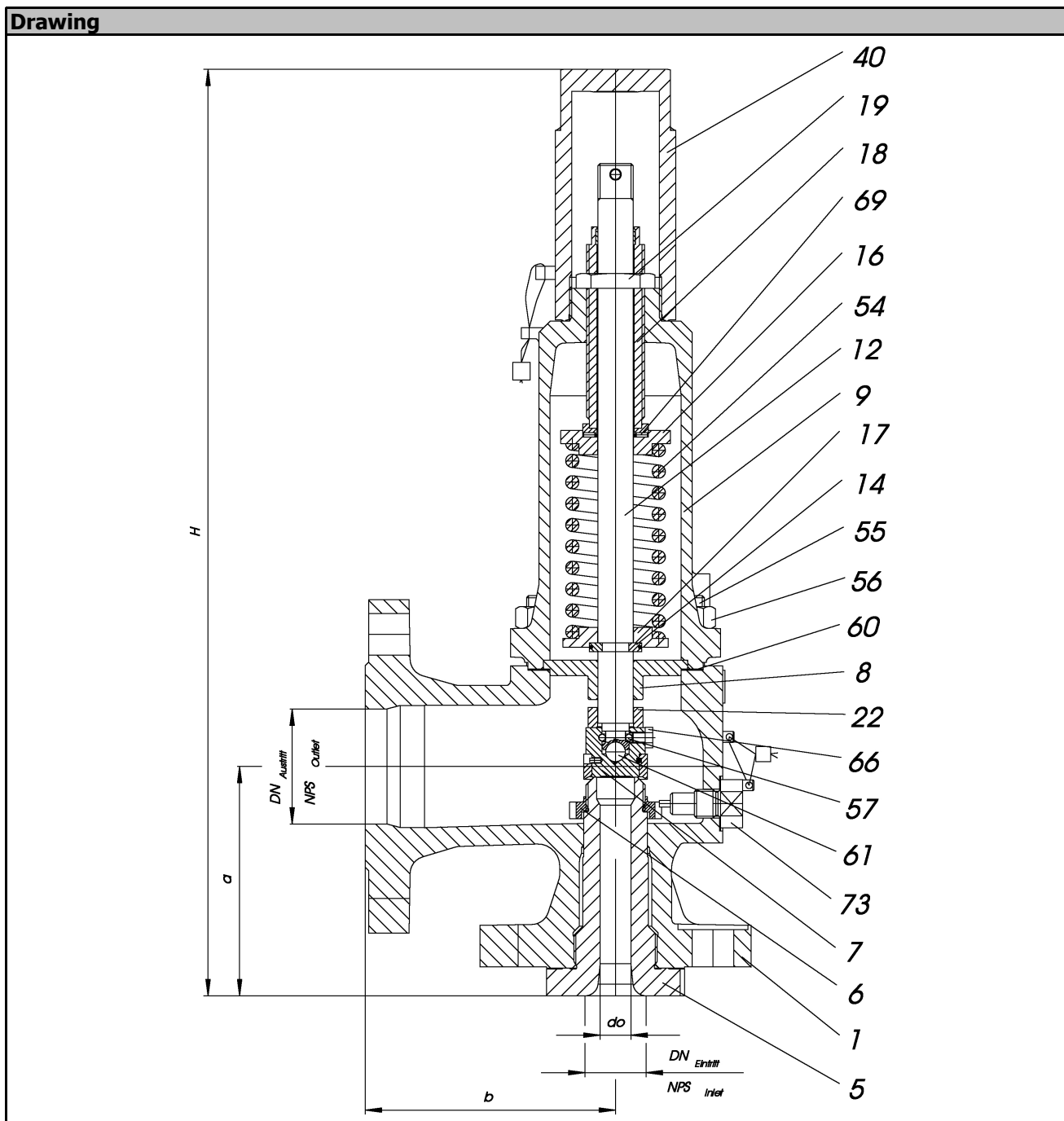
Drawing



Drawing is a view; the effective geometry could deviate from this view.

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Drawing is a view; the effective geometry could deviate from this view.

Messages

Built-up back pressure has too high value. Maximum allowed pressure is $p_{ae} = 0.15 \cdot (p - p_{af}) = 1.35$ [bar].

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| Messages |
|---|
| Bellow is needed. |
| Ask LESER if this valve works properly. |

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