

VALVESTAR® 7

Training lectures – Walk through



LESER

The-Safety-Valve.com

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Introduction

These **Training Lectures for VALVESTAR® 7** must be used by all teachers of VALVESTAR 7 to ensure the most efficient training and the highest quality of training.

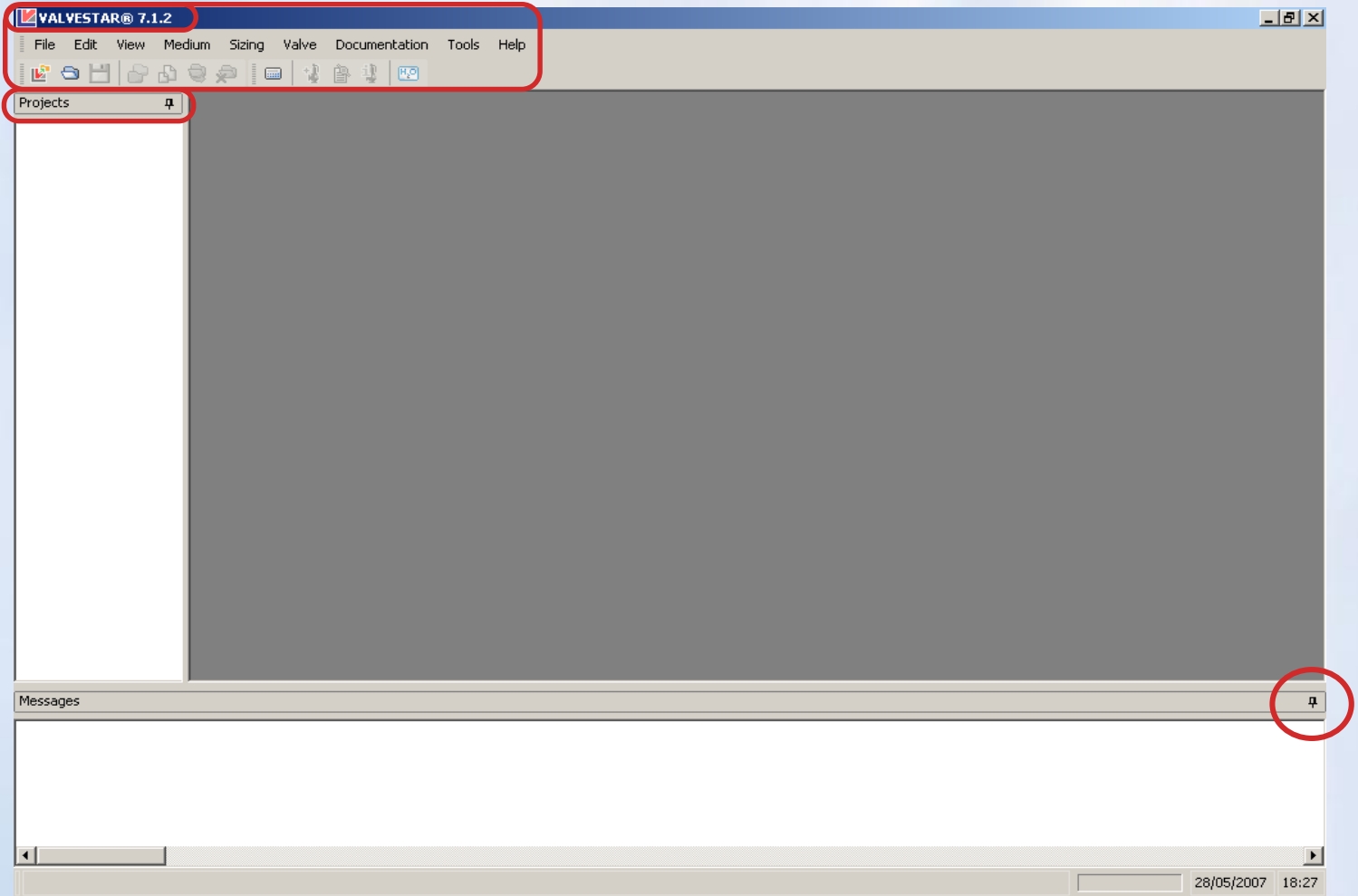
VALVESTAR® 7, the sizing tool of LESER, is more than only a calculation tool:

- VALVESTAR® is a calculation tool for Safety Valves according all world wide known and used rules and standards
- VALVESTAR® is a sizing tool for LESER Safety Valves with an option configuration tool
- VALVESTAR® is a product register of LESER Safety Valves with all the product specific data in “VALVE INFO”
- VALVESTAR® is a medium database with several specific liquid- and gaseous medium data
- VALVESTAR® is a visual database with all drawings of LESER Safety Valves and spotlights of possible options
- VALVESTAR® is a documentation tool with three different types of documents and many different available formats.
- VALVESTAR® is easy to handle with the Wizard which leads you through the sizing

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Introduction

Pop-up view of VALVESTAR 7.1.2 and higher



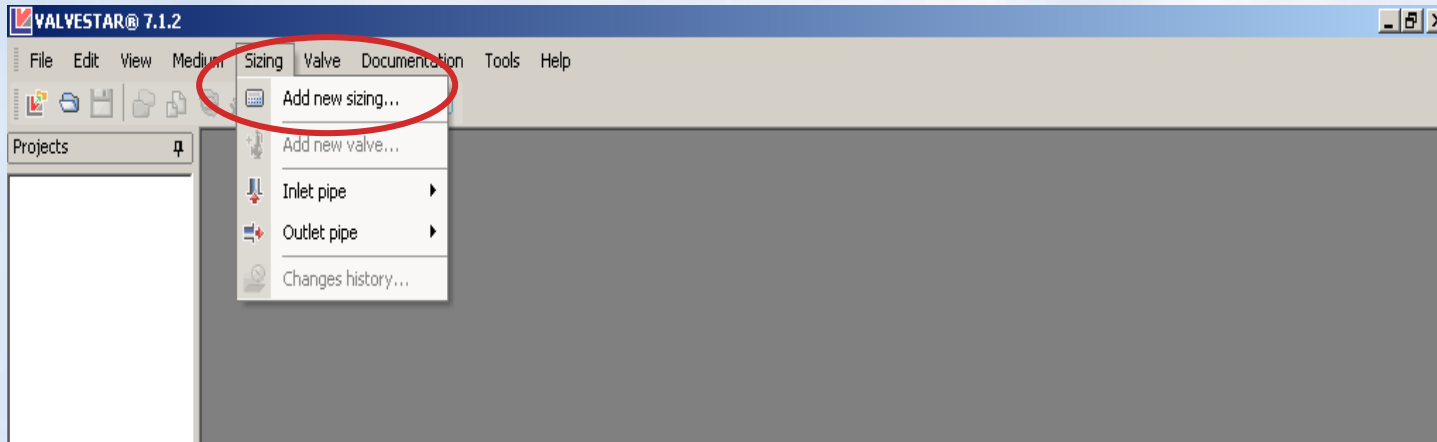
Sizing

Sizing according to ASME, (steam/gases)

Service condition: Air, Set pressure = 10bar g, required massflow = 11500kg/h

Valve construction: Type 441, semi nozzle, Carbon Steel body (1.0619/WCB), closed bonnet, lifting device cap H4

1. Step: How to start



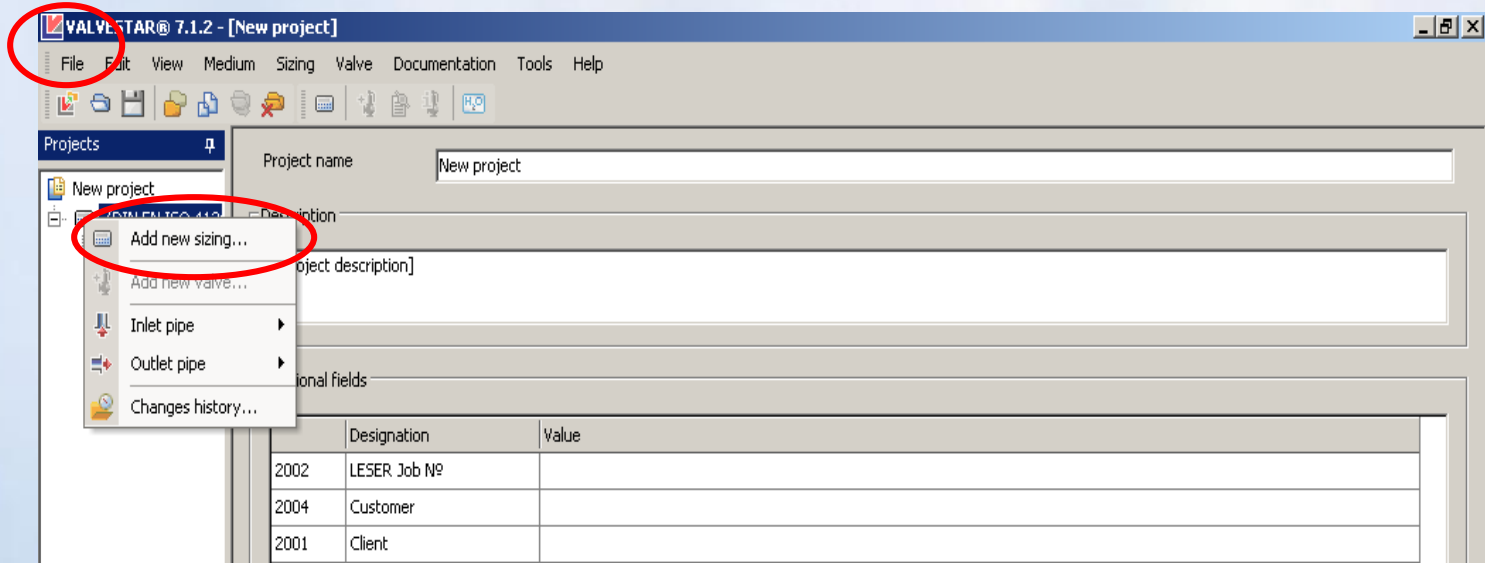
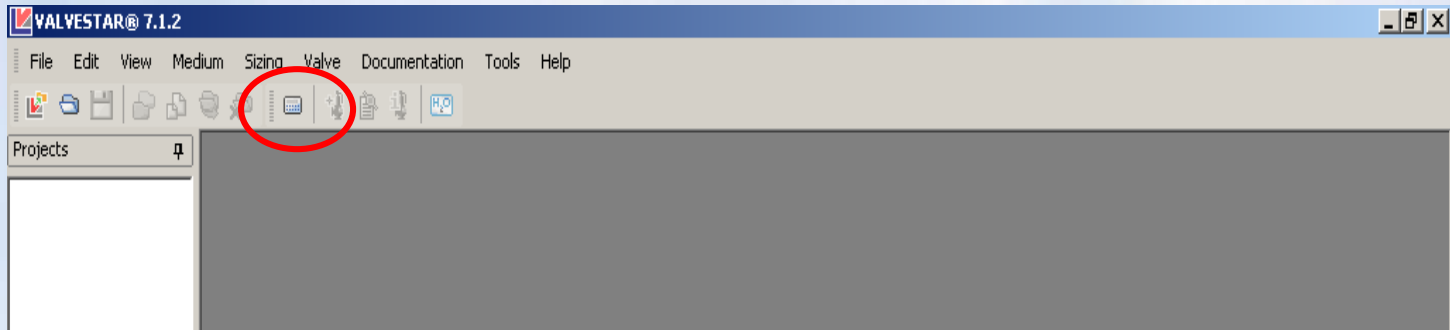
or: see next page

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (steam/gases)

1. Step: How to start



Sizing

Sizing according to ASME, (steam/gases)

2. Step: Sizing standard and additional calculation

Create new sizing wizard - Sizing Type and Medium Selection
? X

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | | | |
|------------------|-------------------------------------|--|--|
| Tag No. | | | |
| Medium | Gas | | |
| Sizing standard | ASME VIII | | |
| Selected units | ASME VIII | | |
| CDTP Calculation | <input checked="" type="checkbox"/> | | |

Additional calculations

| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|--------------------------|--------------------------|--------------------------|
| Reaction force | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Noise | <input type="checkbox"/> | <input type="checkbox"/> | |
| Fire Case | | <input type="checkbox"/> | |
| Pressure drop inlet line | <input type="checkbox"/> | | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input type="checkbox"/> | | <input type="checkbox"/> |

Sizing

Sizing according to ASME, (steam/gases)

3. Step: Medium database and medium selection

Create new sizing wizard - Medium selection

Medium selection
Use this page to select a medium.

Air (-) 0 %

| Name | Formula | Molar mass | | k | % |
|------|---------|------------|---------|-----|--------|
| Air | | 29 | kg/kmol | 1,4 | 100,00 |

Total percentage 100,00%

| | | | | | |
|-------------|--------|-------------------------|---|-------|---------|
| Designation | Air | Molar mass | M | 29 | kg/kmol |
| Type of mix | Volume | Ratio of specific heats | k | 1,400 | |
| | | Compressibility factor | Z | 1,000 | |

Sizing

Sizing according to ASME, (steam/gases)

4. Step: Service condition

Create new sizing wizard - Service condition

Service Condition

At this step you need to set values for Input Pressure, Temperature, Massflow or Volumeflow.

| | | |
|---|--------|-------|
| Maximum allowable working pressure (MAWP) | - | psi-g |
| Set pressure | p | psi-g |
| Superimposed back pressure | paf | 0 |
| Superimposed back pressure | paf | psi-g |
| Built up back pressure | pae | - |
| Built up back pressure | pae | psi |
| Overpressure | dp | 10,00 |
| Overpressure | dp | % |
| Temperature | T | °R |
| Required massflow | qm,ab | - |
| Required massflow | qm,ab | lb/h |
| Volume flow to be discharged (working condition) | qvb,ab | - |
| Volume flow to be discharged (working condition) | qvb,ab | ft³/h |
| Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | - |
| Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | SCFM |

Options

| | |
|----------------------|------|
| Volume flow standard | ASME |
| Case for blow off | |

Installations

| | | |
|--------------------------------|--------------------------|-------|
| Rupture disc correction factor | <input type="checkbox"/> | 1,000 |
|--------------------------------|--------------------------|-------|

Buttons: Help, Back, Next, Finish, Cancel

Sizing

Sizing according to ASME, (steam/gases)

5. Step: Service condition

Create new sizing wizard - Service condition ? X

Service Condition

At this step you need to set values for Input Pressure, Temperature, Massflow or Volumeflow.

| | | | |
|---|--------|------------|-------|
| Maximum allowable working pressure (MAWP) | | - | psi-g |
| Set pressure | p | 10 | bar-g |
| Superimposed back pressure | paf | 0 | psi-g |
| Built up back pressure | pae | - | psi |
| Overpressure | dp | 10,00 | % |
| Temperature | T | 20 | °C |
| Required massflow | qm,ab | 11.500 | kg/h |
| Volume flow to be discharged (working condition) | qvb,ab | 28.412,535 | ft³/h |
| Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | 5.527,018 | SCFM |

Options

| | |
|----------------------|------|
| Volume flow standard | ASME |
| Case for blow off | |

Installations

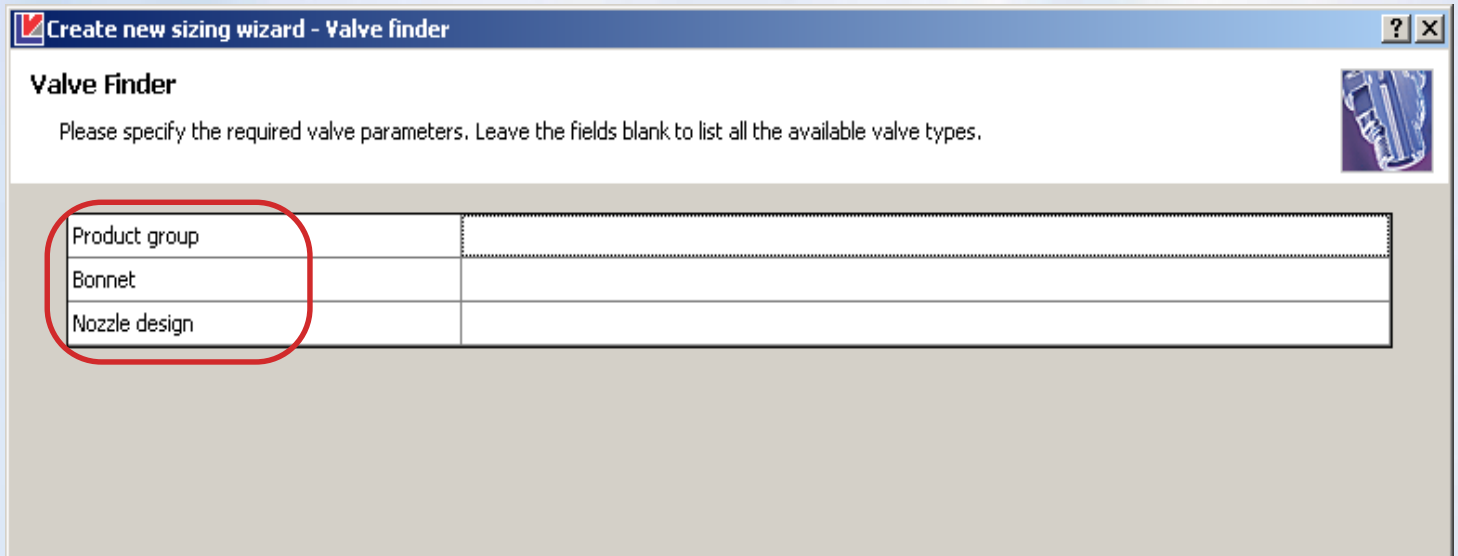
| | | |
|--------------------------------|--------------------------|-------|
| Rupture disc correction factor | <input type="checkbox"/> | 1,000 |
|--------------------------------|--------------------------|-------|

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (steam/gases)

6. Step: Valve Finder



Sizing

Sizing according to ASME, (steam/gases)

7. Step: Processing of all possible safety valves

Create new sizing wizard - Valve selection

Valve Selection
First, choose a valve group and then any one valve from that group.

| Type | Diameter range | Body material |
|------------------|----------------|---------------------|
| 441, 442 DIN | DN 20 - 200 | 1.0619 / SA 216 WCB |
| 441, 442 Full... | NPS 1" - 4" | Lifting device |
| 441, 442 Full... | DN 25 - 50 | Cap H2 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|-----|------------------|
| -74,18 | 2.969,642 | 4412.4512 | 25x40 | 23 | Type 4412 DN 25 |
| -58,95 | 4.721,113 | 4412.4522 | 32x50 | 29 | Type 4412 DN 32 |
| -33,17 | 7.685,141 | 4412.4532 | 40x65 | 37 | Type 4412 DN 40 |
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |
| 75,73 | 20.209,281 | 4412.4552 | 65x100 | 60 | Type 4412 DN 65 |
| 167,31 | 30.740,562 | 4412.4562 | 80x125 | 74 | Type 4412 DN 80 |
| 313,17 | 47.514,265 | 4412.4572 | 100x150 | 92 | Type 4412 DN 100 |
| 368,82 | 53.913,871 | 4412.4582 | 125x200 | 98 | Type 4412 DN 125 |
| 662,73 | 87.713,894 | 4412.4592 | 150x250 | 125 | Type 4412 DN 150 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |


Total: capacity exceed 3,29 [%], certified massflow 11.878,566 [kg/h]

Sizing

Sizing according to ASME, (steam/gases)

8. Step: Connections

Create new sizing wizard - Valve connections ? X

Valve connections 

Specify the inlet and outlet parameters.

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |

Possible inlet connections

| Type | Flanged connection |
|--------------------------|------------------------------------|
| 1303 Connection standard | acc. to DIN EN 1092 |
| 1304 DN / NPS | 50 |
| 1305 PN / PR | PN 40 |
| 1306 Flange facing | DIN EN 1092-1 Form B1 (DIN 2526... |

Selected inlet connection

| | |
|--------------------------|---|
| 1303 Connection standard | acc. to DIN EN 1092 |
| 1304 DN / NPS | 50 |
| 1305 PN / PR | PN 40 |
| 1306 Flange facing | DIN EN 1092-1 Form B1 (DIN 2526 Form C) |

Possible outlet connections

| Type | Flanged connection |
|--------------------------|------------------------------------|
| 1353 Connection standard | acc. to DIN EN 1092 |
| 1354 DN / NPS | 80 |
| 1355 PN / PR | PN 16 |
| 1356 Flange facing | DIN EN 1092-1 Form B1 (DIN 2526... |

Selected outlet connection

| | |
|--------------------------|---|
| 1353 Connection standard | acc. to DIN EN 1092 |
| 1354 DN / NPS | 80 |
| 1355 PN / PR | PN 16 |
| 1356 Flange facing | DIN EN 1092-1 Form B1 (DIN 2526 Form C) |

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (steam/gases)

Flange Guide

Flange guide _ □ ×

| Service condition | | | Additional service condition | |
|-------------------|----|-------|------------------------------|---|
| Set pressure | 10 | bar-g | Set pressure | - |
| Temperature | 20 | °C | Temperature | - |

Flanges

| | |
|---------------------|---------------------|
| Connection standard | acc. to DIN EN 1092 |
| DIN | 50 |

Legend ✓ permissible pressure rating ✗ non permissible pressure rating

Sizing

Sizing according to ASME, (steam/gases)

9. Step: Options

Create new sizing wizard - Valve accessories [?] [X]

Valve accessories

Select the required extra valve accessories.

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |

Available accessories

| | | |
|--------------------------|-----|---|
| <input type="checkbox"/> | H29 | Heating jacket: material 1.4541, heating connect. male screwed G 3/8 DIN 2986 - 1.4571 |
| <input type="checkbox"/> | H30 | Heating jacket: material 1.4541, heating connect. male screwed G 3/4 DIN 2986 - 1.4571 |
| <input type="checkbox"/> | H31 | Heating jacket: material 1.4541, heating connection flange DN 15, PN 25 - 1.4571/1.4404 |
| <input type="checkbox"/> | H32 | Heating jacket: material 1.4541, heating connection flange DN 25, PN 25 - 1.4571/1.4404 |
| <input type="checkbox"/> | H33 | Bonnet spacer: heated |
| <input type="checkbox"/> | J18 | Drain hole: G 1/4 plugged (plug screw 1.4401) |
| <input type="checkbox"/> | J19 | Drain hole: G 1/2 plugged (plug screw 1.4401) |
| <input type="checkbox"/> | J20 | O-ring disc: FFKM "C", (Kalrez) |
| <input type="checkbox"/> | J21 | O-ring disc: "K", CR (Neoprene, Baypren) |
| <input type="checkbox"/> | J22 | O-ring disc: "D", EPDM (Dutral, Keltan, Vistalon) |

Add/Edit custom accessories...

Inspections

| | | |
|--------------------------|-----|--|
| <input type="checkbox"/> | H03 | Certificate for testing of body acc. to DIN EN 10204-3.1 |
| <input type="checkbox"/> | M33 | Certificate for test pressure acc. to DIN EN 10204-3.2 |

Add/Edit custom inspections...

Help
Back
Next
Finish
Cancel

Sizing

Sizing according to ASME, (steam/gases)

10. Step: Materialist

Create new sizing wizard - Valve partlist

Valve partlist

Check out the list of the selected valve parts.

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |

Parts

| | Pos No | Denomination | Q | Material (EU) | Material (US) | Certificate |
|-------|--------|-----------------|---|----------------------|-----------------------|--------------------------|
| 12010 | 1 | Body | 1 | 1.0619 | SA 216 WCB | <input type="checkbox"/> |
| 12050 | 5 | Seat | 1 | 1.4404 | 316L | <input type="checkbox"/> |
| 12070 | 7 | Disc | 1 | 1.4122 | Hardened Stainless... | <input type="checkbox"/> |
| 12080 | 8 | Guide | 1 | 1.0501/1.0038/1.4104 | Steel | |
| 12090 | 9 | Bonnet | 1 | 0.7040 | Ductile Gr. 60-40-18 | <input type="checkbox"/> |
| 12120 | 12 | Spindle | 1 | 1.4021 | 420 | |
| 12140 | 14 | Split ring | 2 | 1.4104 | SA 479 430 | |
| 12160 | 16 | Spring plate | 1 | 1.0718/1.0570 | Steel | |
| 12170 | 17 | Spring plate | 1 | 1.0718/1.0570 | Steel | |
| 12180 | 18 | Adjusting screw | 1 | 1.4104 | SA 479 430 | |
| 12190 | 19 | Lock nut | 1 | 1.0718 | Steel | |
| 12400 | 40 | Cap H2 | 1 | 1.0718 | Steel | <input type="checkbox"/> |
| 12540 | 54 | Spring | 1 | 1.1200 | Carbon steel | <input type="checkbox"/> |
| 12550 | 55 | Bolt | 4 | 1.1181 | Steel | |

Sizing

Sizing according to ASME, (steam/gases)

11. Step: Valve Dimensions

Create new sizing wizard - Valve dimensions

Valve dimensions
Dimensions for the valve.

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 3,29 | 11.878,566 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |

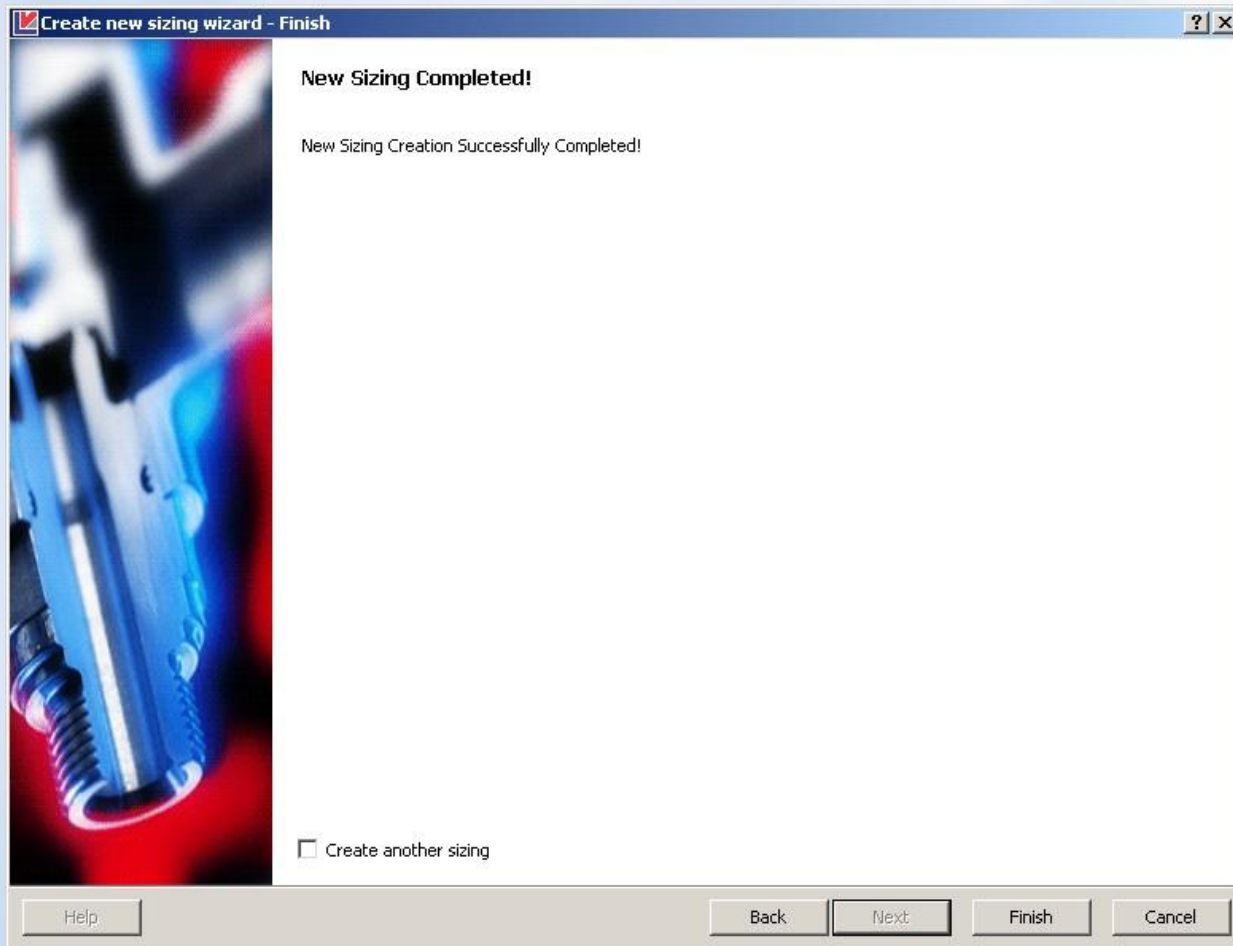
| | | | | |
|------|---------------------------|----|--------|-----------------|
| 1400 | Discharge area | Ao | 2,576 | in ² |
| 1401 | Discharge diameter | do | 1,811 | inch |
| 1402 | Centre to Face dimensions | a | 5,906 | inch |
| 1403 | Centre to Face dimensions | b | 4,724 | inch |
| 1405 | Height | H | 22,402 | inch |
| 1406 | Weight | M | 48,502 | lb |

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (steam/gases)

12. Step: Finish Sizing



- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (steam/gases)

13. Step: Valve Calculation

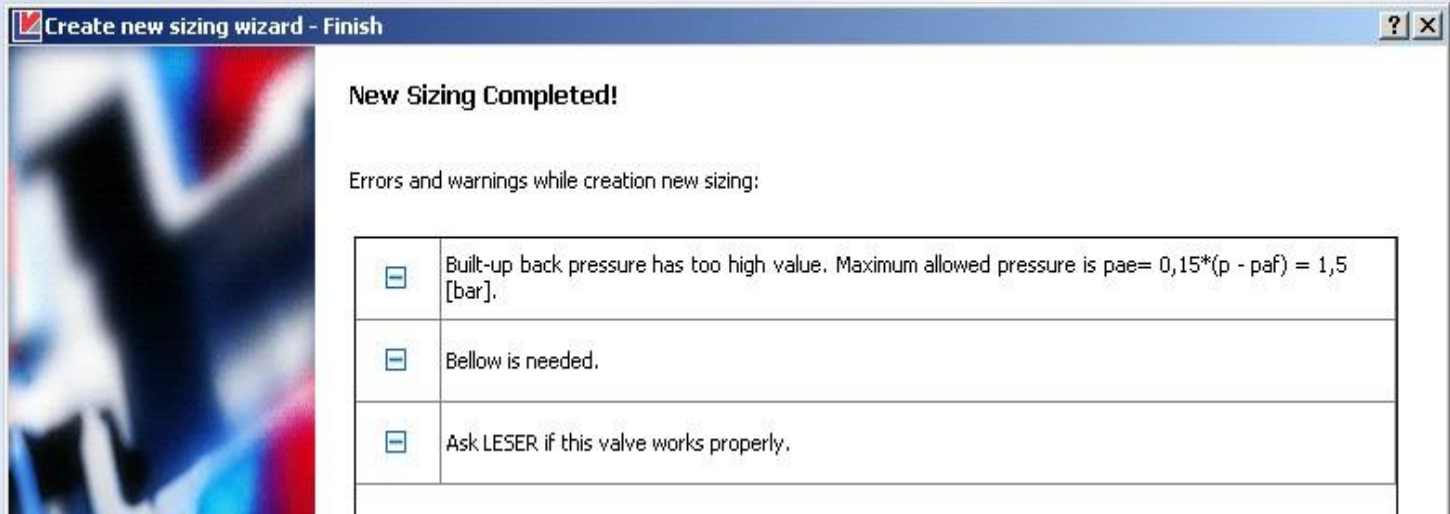
The screenshot shows the VALVESTAR@ 7.1.2 software interface. The main window displays a table of parameters for a valve calculation. The parameters are organized into sections: General, Medium, Service condition, and Sizing. The 'Medium' section is currently selected, showing properties for Air. The 'Service condition' section lists various pressures and temperatures. The 'Sizing' section shows certified massflow and volume flow values.

| General | | | |
|-------------------|---|--------|--------------------------------|
| 1008 | Tag No | | |
| 1009 | Case for blow off | | |
| Medium | | | |
| 1000 | Designation | | Air |
| 1004 | Formula | | |
| 1001 | Molar mass | M | 29 kg/kmol |
| 1002 | Ratio of specific heats | k | 1,400 |
| 1003 | Compressibility factor | Z | 1,000 |
| Service condition | | | |
| 1100 | Maximum allowable working pressure (MAWP) | MAWP | - psi-g |
| 1101 | Set pressure | p | 10 bar-g |
| 1102 | Superimposed back pressure | paf | 0 psi-g |
| 1103 | Built up back pressure | pae | - psi |
| 1104 | Backpressure | | 0 psi-g |
| 1105 | Overpressure | dp | 10,00 % |
| 1106 | Environmental pressure | pu | 14,696 psi |
| 1107 | Temperature | T | 20 °C |
| 1108 | Required massflow | qm,ab | 11.500 kg/h |
| 1109 | Volume flow to be discharged (working condition) | qvb,ab | 28.412,535 ft³/h |
| 1110 | Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | 5.527,018 SCFM |
| | Default volume flow standard | | ASME |
| 1120 | Rupture disc correction factor | Kc | 1,000 <input type="checkbox"/> |
| Sizing | | | |
| 1200 | Certified massflow | qm,zu | 26.187,754 lb/h |
| 1201 | Certified volumeflow (operating condition) | qvb,zu | 29.347,841 ft³/h |
| 1203 | Certified volumeflow (standard condition) | qvn,zu | 9.700,867 m³/h |
| 1204 | Maximum mass flow | qm,max | 29.097,505 lb/h |

Sizing

Sizing according to ASME, (steam/gases)

14 Step: ERRORS and Warnings



Errors and warnings are shown at the end of a sizing or:

during sizing, indicated by the **flashing yellow label**.

Click on the symbol for a listing of the errors and warnings.



Sizing

Sizing according to ASME, (liquids)

Service condition: Heavy Oil, Set pressure = 500 bar g, Temperature 20°C, required massflow = 100000kg/h, viscosity = 0,038 Pa s.

Valve construction: Type 526, Fullnozzle, Carbon Steel body (1.0619/WCB), closed bonnet, lifting device cap H2, stainless steel bellows design.

1. Step: Sizing Standard and additional calculation

Create new sizing wizard - Sizing Type and Medium Selection

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | |
|------------------|--------------------------|
| Tag No. | |
| Medium | Liquid |
| Sizing standard | ASME VIII |
| Selected units | ASME VIII |
| CDTP Calculation | <input type="checkbox"/> |

Additional calculations

| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|--------------------------|--------------------------|--------------------------|
| Reaction force | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pressure drop inlet line | <input type="checkbox"/> | | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input type="checkbox"/> | | <input type="checkbox"/> |

Sizing

Sizing according to ASME, (liquids)

2. Step: Medium database and medium selection

Create new sizing wizard - Medium selection

Medium selection
Use this page to select a medium.

Heavy fuel oil (-) 0 %

| Name | Formula | Density | | % |
|----------------|---------|---------|-------------------|--------|
| Heavy fuel oil | | 950 | kg/m ³ | 100,00 |

Total percentage 100,00%

| | | | | | |
|-------------|----------------|-----------|---|--------|--------------------|
| Designation | Heavy fuel oil | Density | ρ | 59,307 | lb/ft ³ |
| Type of mix | Volume | Viscosity | μ | 0,036 | Pa·s |

Sizing

Sizing according to ASME, (liquids)

3. Step: Service condition

Create new sizing wizard - Service condition

Service Condition
At this step you need to set values for Input Pressure, Temperature, Massflow or Volumeflow.

| | | | |
|--|-------|--------|-------|
| Maximum allowable working pressure (MAWP) | | - | psi-g |
| Set pressure | p | 50 | bar-g |
| Superimposed back pressure | paf | 0 | psi-g |
| Built up back pressure | pae | - | psi |
| Overpressure | dp | 10,00 | % |
| Temperature | T | 20 | °C |
| Required massflow | qm,ab | 100000 | kg/h |
| Volume flow to be discharged (working condition) | qv,ab | - | ft³/h |

Options

Case for blow off

Installations

Rupture disc correction factor 1,000

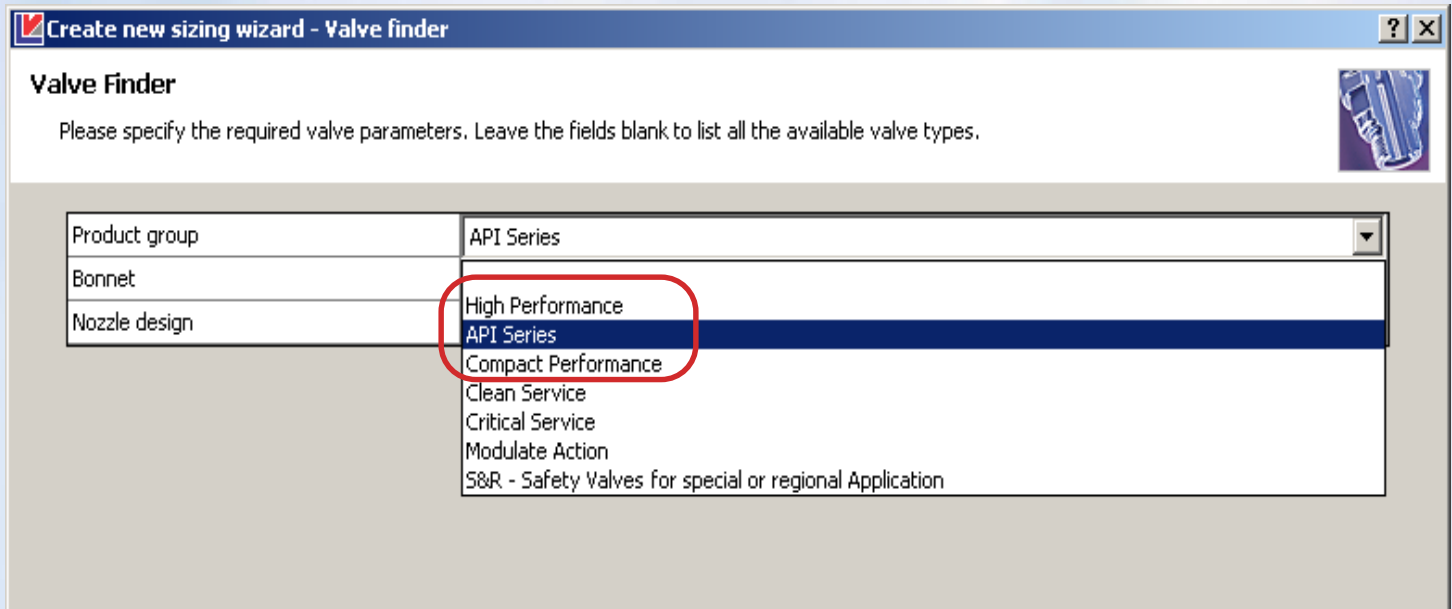
Help Back Next Finish Cancel

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (liquids)

4. Step: Valve Finder



Sizing

Sizing according to ASME, (liquids)

5. Step: Processing of all possible safety valves

Create new sizing wizard - Valve selection

Valve Selection

First, choose a valve group and then any one valve from that group.

| Type | Diameter range | Body material | Lifting device |
|------|----------------------------|---------------------|----------------|
| 526 | NPS 1" - 8", Orifice D - T | 1.0619 / SA 216 WCB | Cap H2 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|------|----------------------------|
| -17,16 | 82.840,645 | 5262.0482 | 1 1/2G3 | 22,5 | Type 5262 Orifice G #600 |
| -17,16 | 82.840,645 | 5262.0492 | 1 1/2G3 | 22,5 | Type 5262 Orifice G #900 |
| -17,16 | 82.840,645 | 5262.0502 | 2G3 | 22,5 | Type 5262 Orifice G #1500 |
| -17,16 | 82.840,645 | 5262.0512 | 2G3 | 22,5 | Type 5262 Orifice G #2500 |
| 32,52 | 132.521,913 | 5262.1422 | 1 1/2H3 | 28,3 | Type 5262 Orifice H #150 |
| 32,52 | 132.521,913 | 5262.1432 | 1 1/2H3 | 28,3 | Type 5262 Orifice H #300 L |
| 32,52 | 132.521,913 | 5262.1442 | 2H3 | 28,3 | Type 5262 Orifice H #300 |
| 32,52 | 132.521,913 | 5262.1452 | 2H3 | 28,3 | Type 5262 Orifice H #600 |
| 32,52 | 132.521,913 | 5262.1462 | 2H3 | 28,3 | Type 5262 Orifice H #900 |

Select

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|------|--------------------------|
| 32,52 | 132.521,913 | 5262.1442 | 2H3 | 28,3 | Type 5262 Orifice H #300 |

Total: capacity exceed 32,52 [%], certified massflow 132.521,913 [kg/h]

Remove

Help
Back
Next
Finish
Cancel

Sizing

Sizing according to ASME, (liquids)

6. Step: Connection

Create new sizing wizard - Valve connections
? X

Valve connections

Specify the inlet and outlet parameters.

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|------|--------------------------|
| 32,52 | 132.521,913 | 5262.1442 | 2H3 | 28,3 | Type 5262 Orifice H #300 |

Possible inlet connections

| Type | Flanged connection |
|------|--|
| 1303 | Connection standard acc. to ASME B16.5 |
| 1304 | DN / NPS 2" |
| 1305 | PN / PR #300 |
| 1306 | Flange facing RF |

Possible outlet connections

| Type | Flanged connection |
|------|--|
| 1353 | Connection standard acc. to ASME B16.5 |
| 1354 | DN / NPS 3" |
| 1355 | PN / PR #150 |
| 1356 | Flange facing RF |

Selected inlet connection

| | | |
|------|---------------------|--------------------|
| 1303 | Connection standard | acc. to ASME B16.5 |
| 1304 | DN / NPS | 2" |
| 1305 | PN / PR | #300 |
| 1306 | Flange facing | RF |

Selected outlet connection

| | | |
|------|---------------------|--------------------|
| 1353 | Connection standard | acc. to ASME B16.5 |
| 1354 | DN / NPS | 3" |
| 1355 | PN / PR | #150 |
| 1356 | Flange facing | RF |

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing

Sizing according to ASME, (liquids)

7. Step: Sizing finished



Sizing of inlet pressure drop

(according AD 2000-Markblatt A2)

1. Step: Additional calculation

When starting a new sizing:

✔ Create new sizing wizard - Sizing Type and Medium Selection
?
✕

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | |
|------------------|-------------------------------------|
| Tag No. | |
| Medium | Gas |
| Sizing standard | ASME VIII |
| Selected units | ASME VIII |
| CDTP Calculation | <input checked="" type="checkbox"/> |

Additional calculations

| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|-------------------------------------|--------------------------|--------------------------|
| Reaction force | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Noise | <input type="checkbox"/> | <input type="checkbox"/> | |
| Fire Case | | <input type="checkbox"/> | |
| Pressure drop inlet line | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input type="checkbox"/> | | <input type="checkbox"/> |

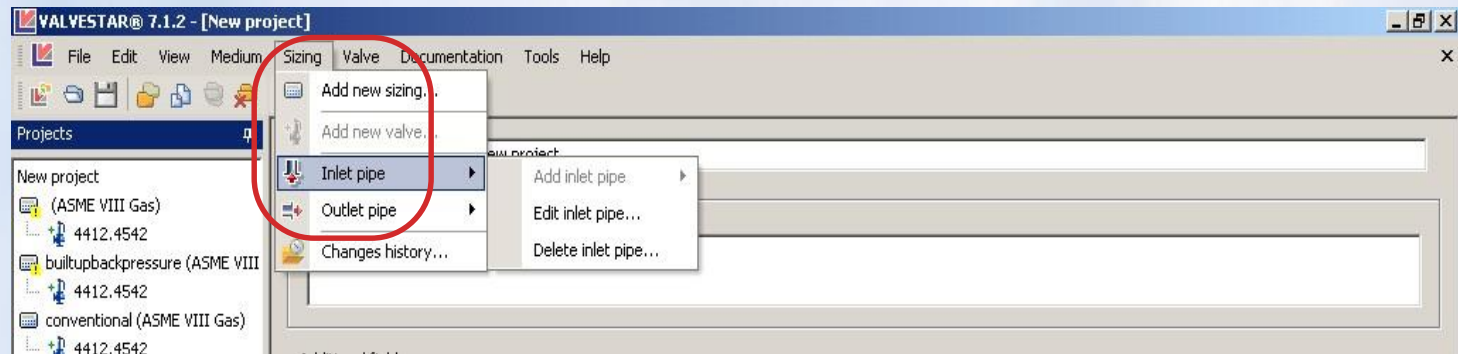
- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing of inlet pressure drop

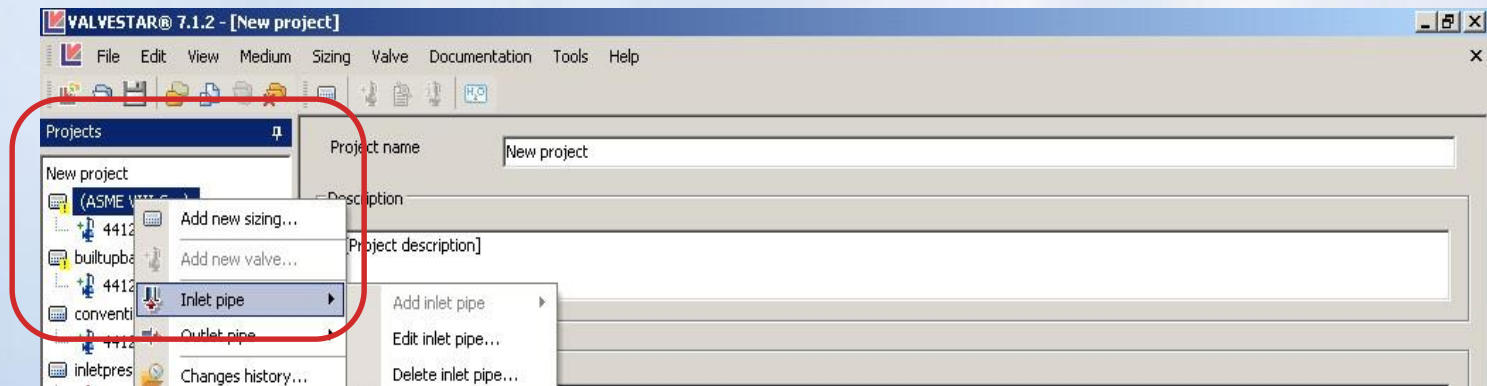
(according AD 2000-Markblatt A2)

1. Step: Additional calculation

You can also start inlet pressure drop calculation in menu



... or start in project tree



Sizing of inlet pressure drop

(according AD 2000-Markblatt A2)

2. Step: Dimension of inlet pipe and pipe components

Create new sizing wizard - Inlet pipe components

Inlet Pipe Components
Specify the required inlet pipe components, their amount and technical characteristics.

Available pipe components
 Pipe bend DN 50 version 3 acc. to DIN 2605 part 1 - line 3

| | | | | |
|----------------|----|---------|-------|-------|
| Radius | R | 76 mm | Angle | 90 ° |
| Inner diameter | De | 54,5 mm | Zeta | 0,248 |

Count:

Selected components

| | Quantity | Zeta | Total |
|--|----------|------|-------|
| | | | |

Pipe data

| | | | | | |
|--------|----|-------|--|---|--------|
| Length | Le | 0,5 m | Equivalent pipe roughness | K | 0,070 |
| | | | Allowed pressure loss based on p-paf (%) | | 3,00 % |

Sizing of inlet pressure drop

(according AD 2000-Markblatt A2)

3. Step: Dimension of inlet pipe and pipe components

Create new sizing wizard - Inlet pipe

Inlet Pipe
Select inlet pipe

| DN / NPS [mm] | Designation | Lmax [m] | Δp [%] |
|---------------|---|----------|--------|
| 54,5 | Straight line DN 50 acc. to DIN 2605 part 1 - line 3 | 0,82 | 1,84 |
| 70,3 | Straight line DN 65 acc. to DIN 2605 part 1 - line 3 | 3,47 | 0,45 |
| 82,5 | Straight line DN 80 acc. to DIN 2605 part 1 - line 3 | 8,23 | 0,19 |
| 107,1 | Straight line DN 100 acc. to DIN 2605 part 1 - line 3 | 32,88 | 0,05 |
| 134,5 | Straight line DN 125 acc. to DIN 2605 part 1 - line 3 | 108,84 | 0,01 |

Select

| | | | |
|----------------------|----|------|----|
| Length of inlet pipe | Le | 0,5 | m |
| Inlet pipe diameter | De | 54,5 | mm |

Help Back Next Finish Cancel

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Sizing of built-up backpressure

1. Step: Dimension of inlet pipe and pipe components

When starting a new sizing:

Create new sizing wizard - Sizing Type and Medium Selection
? X

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | |
|------------------|-------------------------------------|
| Tag No. | |
| Medium | Gas |
| Sizing standard | ASME VIII |
| Selected units | ASME VIII |
| CDTP Calculation | <input checked="" type="checkbox"/> |

Additional calculations

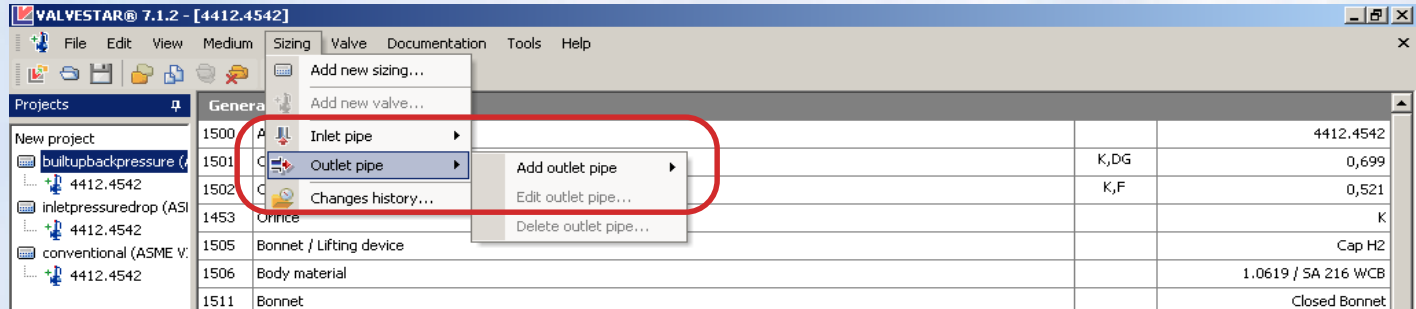
| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|-------------------------------------|--------------------------|--------------------------|
| Reaction force | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Noise | <input type="checkbox"/> | <input type="checkbox"/> | |
| Fire Case | | <input type="checkbox"/> | |
| Pressure drop inlet line | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input checked="" type="checkbox"/> | | <input type="checkbox"/> |

- Introduction
- Sizing**
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

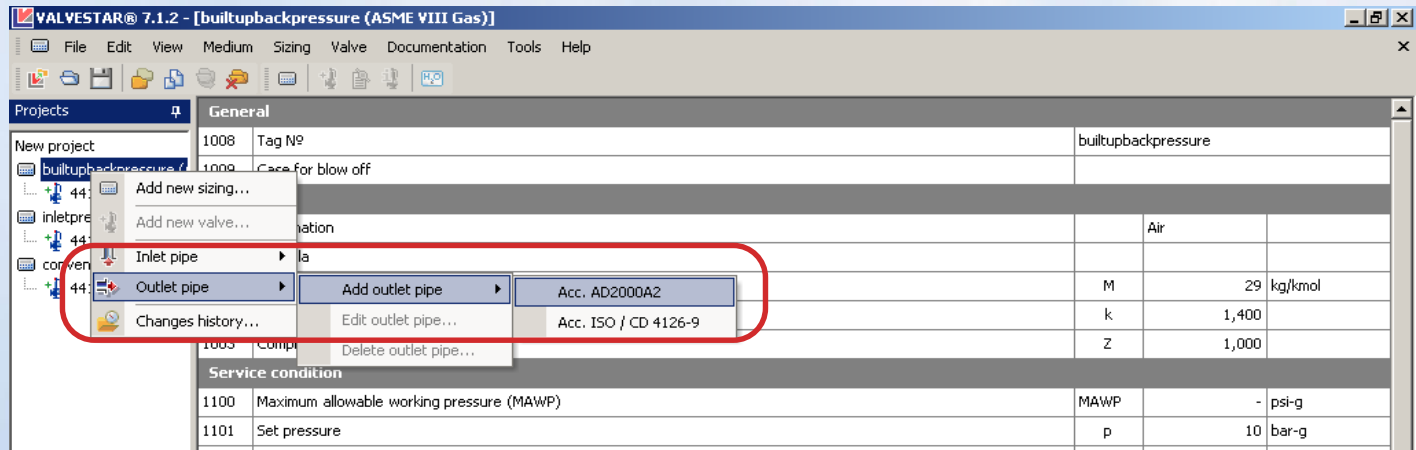
Sizing of built-up backpressure

1. Step: Dimension of outlet pipe and pipe components

You can also start built-up backpressure calculation in menu



... or start in project three



Sizing of built-up backpressure

2. Step: Dimension of outlet pipe and pipe components

Outlet Pipe designer

| | Pipe #1 | Pipe #2 | Pipe #3 | Pipe #4 |
|-------------|---------|---------|---------|---------|
| DN | | | | |
| Diameter | | | | |
| Roughness | 0,070 | 0,070 | 0,070 | 0,070 |
| Length | - | - | - | - |
| Max. length | | | | |

Eff. resistance ζ

| Summary | Warnings |
|---|----------|
| Pressure drop of silencer Δp | |
| Coefficient of resistance permitted ζ_i | |
| Built up back pressure p_{ae} | |
| Built-up backpressure ratio | |

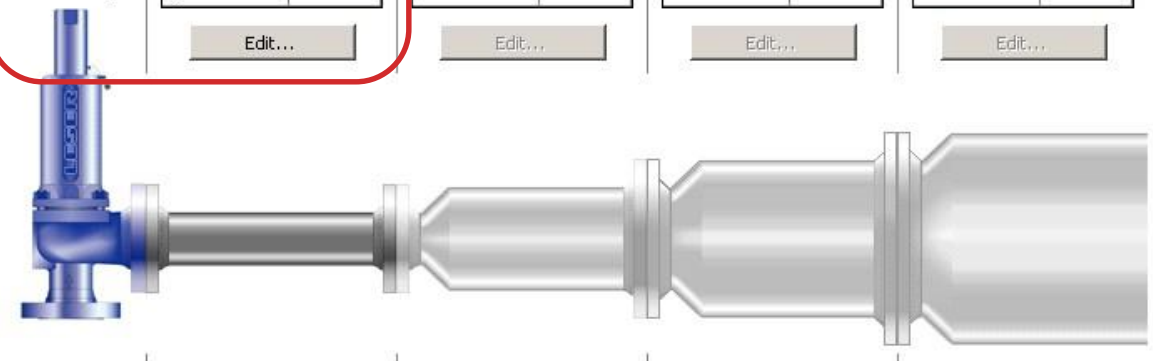
OK Cancel

Sizing of built-up backpressure

3. Step: Calculation and warning

Outlet Pipe designer

| | <input checked="" type="checkbox"/> Pipe #1 | <input type="checkbox"/> Pipe #2 | <input type="checkbox"/> Pipe #3 | <input type="checkbox"/> Pipe #4 |
|-------------|---|----------------------------------|----------------------------------|----------------------------------|
| DN | DN 80 | - | - | - |
| Diameter | 82,5 mm | - inch | - inch | - inch |
| Roughness | 0,070 | 0,070 | 0,070 | 0,070 |
| Length | 0,5 m | - inch | - inch | - inch |
| Max. length | 0,4 m | - inch | - inch | - inch |
| | Edit... | Edit... | Edit... | Edit... |



| | | | | |
|-------------------------|-------|---|---|---|
| Eff. resistance ζ | 0,114 | - | - | - |
|-------------------------|-------|---|---|---|

| Summary | | Warnings | |
|-------------------------------------|------------|----------|-----|
| Pressure drop of silencer | Δp | 0,5 | bar |
| Coefficient of resistance permitted | ζ_j | 0,114 | |
| Built up back pressure | pae | 1,557 | bar |
| Built-up backpressure ratio | | 15,60 | % |

Warnings

Built-up back pressure has too high value.
 Maximum allowed pressure is $p_{ae} = 0,15 \cdot (p - p_{af}) = 1,5$ [bar].
 Bellow is needed.
 Ask LESER if this valve works properly.

Fire case according to API RP 521

3. Step: Calculation and warning

Service condition: water, temperature = 20°C, Set pressure = 10bar g, effect of fire on the wetted surface of vessel, wetted surface = 10m², no drainage, bare vessel, heat of evaporation 1998,5 kJ/kg

Valve construction: Type 526, full nozzle, Carbon Steel body (1.0619/WCB), closed bonnet, lifting device cap H2

API RP 521

Create new sizing wizard - Sizing Type and Medium Selection

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | |
|------------------|-------------------------------------|
| Tag No. | |
| Medium | Gas |
| Sizing standard | API 520 |
| Selected units | AD 2000:A2 / TRD 421 |
| CDTP Calculation | <input checked="" type="checkbox"/> |

Additional calculations

| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|--------------------------|-------------------------------------|--------------------------|
| Reaction force | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Noise | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fire Case | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Pressure drop inlet line | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Fire case according to API RP 521

API RP 521

Create new sizing wizard - Medium selection

Medium selection
Use this page to select a medium.

water (fire case) (H2O) 0 %

| Name | Formula | Molar mass | k | % |
|-------------------|---------|------------|-----|--------|
| water (fire case) | H2O | 18 kg/kmol | 1,3 | 100,00 |

Total percentage 100,00%

| | | | | | |
|-------------|-------------------|-------------------------|---|-------|---------|
| Designation | water (fire case) | Molar mass | M | 18 | kg/kmol |
| Type of mix | Volume | Ratio of specific heats | k | 1,300 | |
| | | Compressibility factor | Z | 1,000 | |

- Introduction
- Sizing
- Fire Case**
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Fire case according to API RP 521

API RP 521

✔ Create new sizing wizard
? X

External Fire

Use this page to specify type of effect of fire on the vessel

| | |
|--|-------------------------------------|
| Effect of Fire on the Wetted Surface of a Vessel | <input checked="" type="checkbox"/> |
| Effect of Fire on the Unwetted Surface of a Vessel | <input type="checkbox"/> |

Help
Back
Next
Finish
Cancel

- Introduction
- Sizing
- Fire Case**
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Fire case according to API RP 521

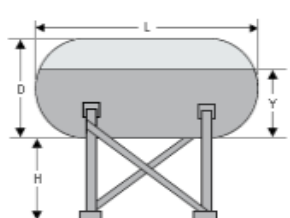
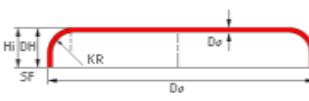
API RP 521

Create new sizing wizard - Fire case

Fire case

Use this page to specify a type and size of a vessel, its head design, the height of a medium in the vessel along with other related

| | | | |
|----------------------------|------|-------------|----------------|
| Calculation type | | Wetted | |
| Type of vessel | | Horizontal | |
| Vessel head design | | Flat head | |
| Vessel elevation | H | - | m |
| Vessel diameter | D | - | m |
| Vessel length | L | - | m |
| Liquid depth | Y | - | m |
| Effective liquid level | Yeff | - | m |
| Wetted surface, calculated | Awet | - | m ² |
| Wetted surface, manual | Awet | 10 | m ² |
| Drainage presence | | No | |
| Type of isolation | | Bare vessel | |
| Environment factor | F | 1,000 | |
| Heat of evaporation | Hvap | 1.998,5 | kJ/kg |
| Minimum required mass flow | W | 844,512 | kg/h |

Help
Back
Next
Finish
Cancel

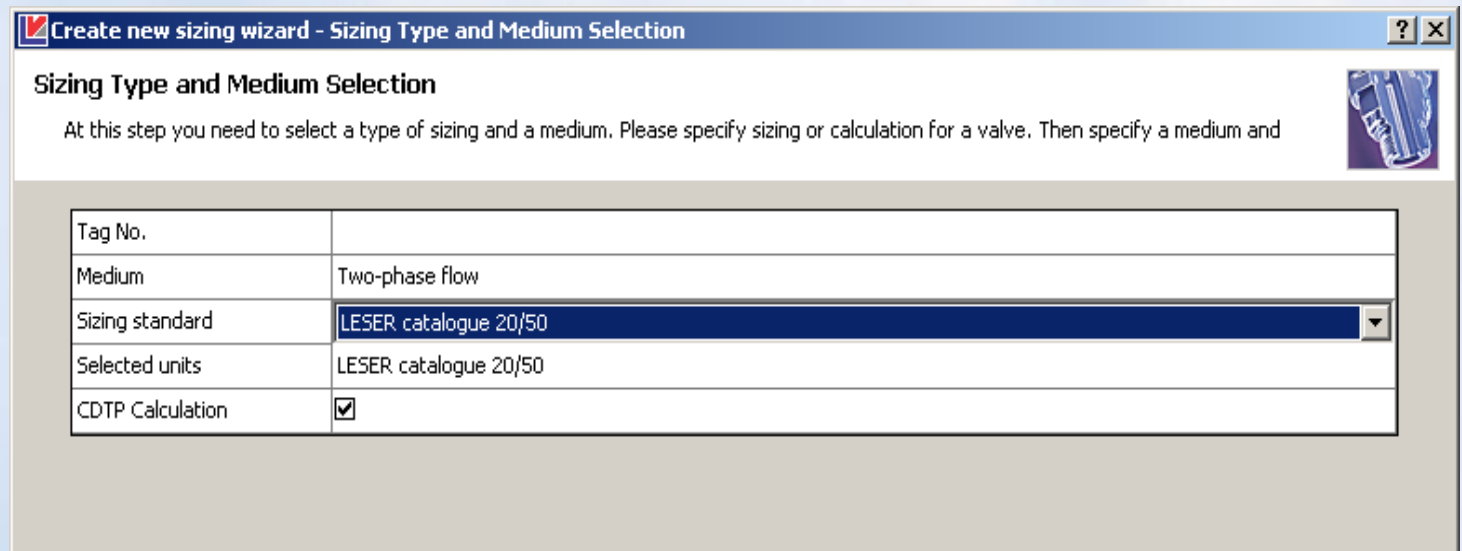
- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

LESER mixed formula

Service condition: hot water, temperature = 150°C, Set pressure = 10bar g, required massflow = 10000kg/h

Valve construction: Type 441, semi nozzle, Carbon Steel body (1.0619/WCB), closed bonnet, lifting device cap H2, evaporation while depressuring from 10bar g to environmental pressure in case of blow off.



Two Phase Flow

LESER mixed formula

Create new sizing wizard - Service condition

Service Condition

At this step you need to set values for Input Pressure, Temperature, Massflow or Volumeflow.

| | | | |
|----------------------------|-------|--------------------------|-------|
| Set pressure | p | 10 | bar-g |
| Superimposed back pressure | paf | 0 | bar-g |
| Overpressure | dp | 10,00 | % |
| Temperature | T | 150 | °C |
| Required massflow | qm,ab | 10000 | kg/h |
| Saturated state | | <input type="checkbox"/> | |

Options

Case for blow off

Create new sizing wizard - Valve finder

Valve Finder

Please specify the required valve parameters. Leave the fields blank to list all the available valve types.

| | |
|---------------|------------------|
| Product group | High Performance |
| Bonnet | |
| Nozzle design | |

Two Phase Flow

LESER mixed formula

Create new sizing wizard - Valve selection

Valve Selection

First, choose a valve group and then any one valve from that group.

| Type | Diameter range | Body material |
|------------------|----------------|---------------------|
| 441, 442 ANSI | NPS 1" - 4" | 1.0619 / SA 216 WCB |
| 441, 442 DIN | DN 20 - 200 | Lifting device |
| 441, 442 Full... | NPS 1" - 4" | Cap H2 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|------------------|
| -30,01 | 6.999,137 | 4412.4502 | 20x40 | 18 | Type 4412 DN 20 |
| 14,28 | 11.427,603 | 4412.4512 | 25x40 | 23 | Type 4412 DN 25 |
| 81,68 | 18.167,513 | 4412.4522 | 32x50 | 29 | Type 4412 DN 32 |
| 195,74 | 29.573,514 | 4412.4532 | 40x65 | 37 | Type 4412 DN 40 |
| 357,10 | 45.710,414 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |
| 677,68 | 77.768,19 | 4412.4552 | 65x100 | 60 | Type 4412 DN 65 |
| 1082,94 | 118.294,057 | 4412.4562 | 80x125 | 74 | Type 4412 DN 80 |
| 1728,42 | 182.841,655 | 4412.4572 | 100x150 | 92 | Type 4412 DN 100 |
| 1974,68 | 207.468,248 | 4412.4582 | 125x200 | 98 | Type 4412 DN 125 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 14,28 | 11.427,603 | 4412.4512 | 25x40 | 23 | Type 4412 DN 25 |

Total: capacity exceed 14,28 [%], certified massflow 11.427,603 [kg/h]

All the next steps until finish are not shown.

- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

LESER mixed formula

Result: Documentation on screen

The screenshot shows the VALVESTAR 7.1.2 software interface. The main window displays the 'LESER catalogue 20/50 Two-phase flow' configuration. The interface includes a menu bar (File, Edit, View, Medium, Sizing, Valve, Documentation, Tools, Help) and a toolbar. A 'Projects' sidebar on the left shows a list of projects, with '(LESER catalogue 20/50)' selected. The main area is divided into several sections: General, Medium, Service condition, and Sizing. Each section contains a table of parameters and their values.

| General | | | |
|-------------------|--|---------|------------------------|
| 1008 | Tag Nº | | |
| 1009 | Case for blow off | | |
| Medium | | | |
| 1000 | Designation | | Water |
| 1004 | Formula | | H2O |
| 1002 | Ratio of specific heats | k | 1,288 |
| 1010 | Pressure medium coefficient (Gas phase) | Xg | 1,849 |
| 1011 | Pressure medium coefficient (Liquid phase) | Xl | 0,021 |
| 1012 | Enthalpy of water (working condition) | h | 632,699 kJ/(kg·K) |
| 1013 | Enthalpy of water [T=99,6 °C, P=1 bar-a] | h' | 417,436 kJ/(kg·K) |
| 1014 | Heat of evaporation at P0 | r | 1.985.086,733 J/(kg·K) |
| Service condition | | | |
| 1101 | Set pressure | p | 10 bar-g |
| 1102 | Superimposed back pressure | paf | 0 bar-g |
| 1105 | Overpressure | dp | 10,00 % |
| 1106 | Environmental pressure | pu | 1,013 bar |
| 1107 | Temperature | T | 150 °C |
| 1108 | Required massflow | qm,ab | 10.000 kg/h |
| Sizing | | | |
| 1200 | Certified massflow | qm,zu | 11.427,603 kg/h |
| 1201 | Certified volumeflow (operating condition) | qv,b,zu | - m³/h |

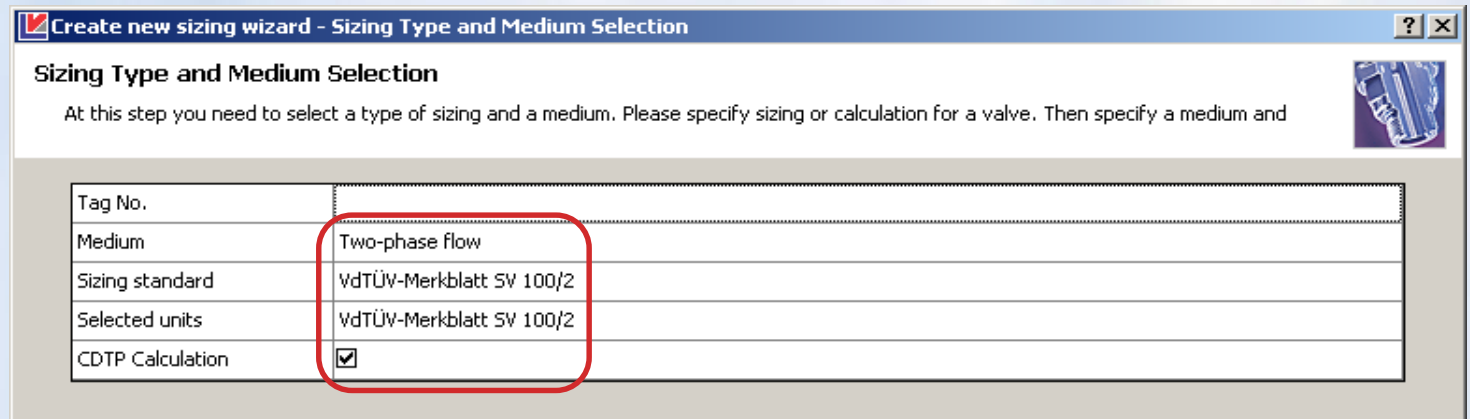
- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

VdTÜV Merkblatt 100

Service condition: Butane, Set pressure = 10bar g, required massflow = 10000kg/h

Valve construction: Type 441, semi nozzle, Carbon Steel body (1.0619/WCB), closed bonnet, lifting device cap H2



Two Phase Flow

VdTÜV Merkblatt 100

Create new sizing wizard - Medium selection

Medium selection
Use this page to select a medium.

Butane (n) (C4 H10) 0 %

| Name | Formula | Molar mass | k | % |
|------------|---------|--------------|------|--------|
| Butane (n) | C4 H10 | 58,1 kg/kmol | 1,09 | 100,00 |

Total percentage 100,00%

| | | | | | |
|-------------|------------|-------------------------|---|-------|---------|
| Designation | Butane (n) | Molar mass | M | 58,1 | kg/kmol |
| Type of mix | Volume | Ratio of specific heats | k | 1,090 | |
| | | Compressibility factor | Z | 1,000 | |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

VdTÜV Merkblatt 100

Create new sizing wizard - Service condition

Service Condition

At this step you need to set values for Input Pressure, Temperature, Massflow or Volumeflow.

| | | | |
|-------------------|--------|-------|-------|
| Set pressure | p | 10 | bar-g |
| Overpressure | dp | 10,00 | % |
| Required massflow | qm, ab | 10000 | kg/h |

Options

| | |
|-------------------|--|
| Case for blow off | |
|-------------------|--|

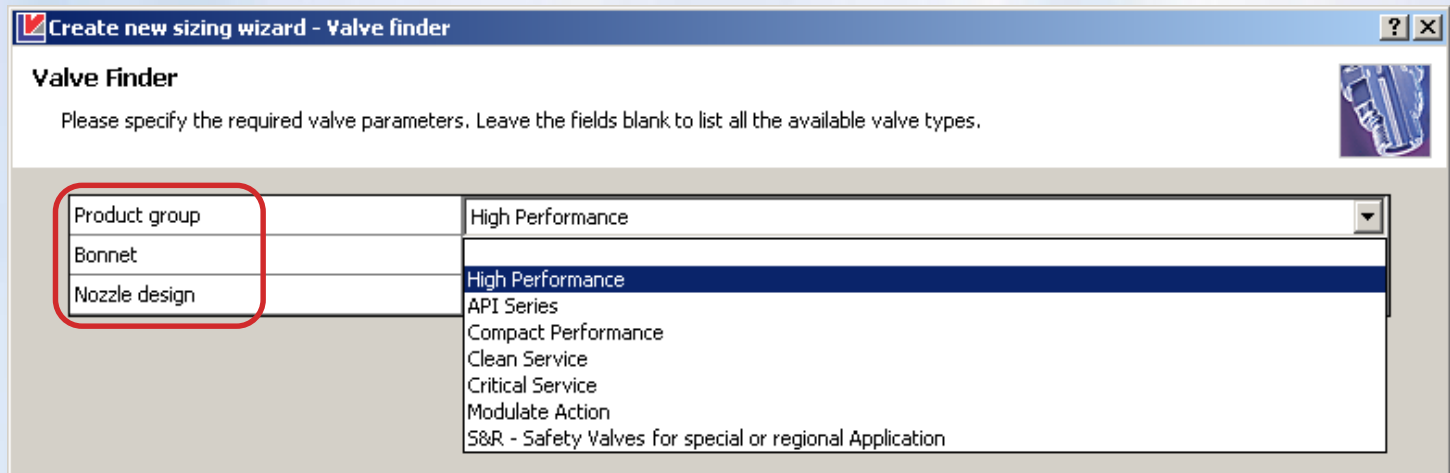
Remark: According to J.C. LEUNG [1] it is proved that the function $Y = \sqrt{p}$ for pressures between 4 bar und 150 bar in double logarithmic coordinate system is following nearly a straight line also for chemical different mediums, like propane, propen, n-butane, n-butene and water. Other mediums shall be estimated according to [1], because there might be other courses for Y.

Help Back Next Finish Cancel

- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

VdTÜV Merkblatt 100



Two Phase Flow

VdTÜV Merkblatt 100

Create new sizing wizard - Valve selection

Valve Selection

First, choose a valve group and then any one valve from that group.

| Type | Diameter range | Body material |
|------------------|----------------|---------------------|
| 441, 442 ANSI | NPS 1" - 4" | 1.0619 / SA 216 WCB |
| 441, 442 DIN | DN 20 - 200 | Lifting device |
| 441, 442 Full... | NPS 1" - 4" | Cap H2 |

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|------------------|
| -47,97 | 5.203,188 | 4412.4502 | 20x40 | 18 | Type 4412 DN 20 |
| -15,05 | 8.495,329 | 4412.4512 | 25x40 | 23 | Type 4412 DN 25 |
| 35,06 | 13.505,807 | 4412.4522 | 32x50 | 29 | Type 4412 DN 32 |
| 119,85 | 21.985,077 | 4412.4532 | 40x65 | 37 | Type 4412 DN 40 |
| 239,81 | 33.981,317 | 4412.4542 | 50x80 | 46 | Type 4412 DN 50 |
| 478,13 | 57.813,204 | 4412.4552 | 65x100 | 60 | Type 4412 DN 65 |
| 779,40 | 87.940,307 | 4412.4562 | 80x125 | 74 | Type 4412 DN 80 |
| 1259,25 | 135.925,267 | 4412.4572 | 100x150 | 92 | Type 4412 DN 100 |
| 1442,33 | 154.232,782 | 4412.4582 | 125x200 | 98 | Type 4412 DN 125 |

Select

| Capacity exceed [%] | Certified massflow [kg/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|-----------------|
| 35,06 | 13.505,807 | 4412.4522 | 32x50 | 29 | Type 4412 DN 32 |

Total: capacity exceed 35,06 [%], certified massflow 13.505,807 [kg/h]

Remove

Help
Back
Next
Finish
Cancel

- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

VdTÜV Merkblatt 100

Result: Documentation on screen

The screenshot shows the VALVESTAR@ 7.1.2 software interface. The main window displays a data table with the following sections highlighted by a red rounded rectangle:

| General | | | |
|-------------------|--|------------|-----------------|
| 1008 | Tag N° | | |
| 1009 | Case for blow off | | |
| Medium | | | |
| 1000 | Designation | Butane (n) | |
| 1004 | Formula | C4 H10 | |
| 1001 | Molar mass | M | 58,1 kg/kmol |
| 1002 | Ratio of specific heats | k | 1,090 |
| 1003 | Compressibility factor | Z | 1,000 |
| Service condition | | | |
| 1101 | Set pressure | p | 10 bar-g |
| 1105 | Overpressure | dp | 10,00 % |
| 1106 | Environmental pressure | pu | 1,013 bar |
| 1108 | Required massflow | qm,ab | 10.000 kg/h |
| Sizing | | | |
| 1200 | Certified massflow | qm,zu | 13.505,807 kg/h |
| 1201 | Certified volumeflow (operating condition) | qvb,zu | - m³/h |
| 1203 | Certified volumeflow (standard condition) | qvn,zu | - m³/h |
| 1204 | Maximum mass flow | qm,max | 15.006,452 kg/h |
| 1205 | Maximum volume flow (working condition) | qvb,max | - m³/h |
| 1206 | Maximum volume flow (standard condition) | qvn,max | - m³/h |
| 1207 | Capacity exceed | | 35,06 % |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow**
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Two Phase Flow

Omega method according API 520 Appendix D

Service condition: Propene; Set pressure = 10bar g,
required massflow = 10000kg/h

Valve construction: Type 441, semi nozzle, Carbon Steel body (1.0619/WCB),
closed bonnet, lifting device cap H2

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force**
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Additional Sizings, Noise Level, Reaction Forces

1. Step: Reaction force and noise level

Create new sizing wizard - Sizing Type and Medium Selection
? X

Sizing Type and Medium Selection

At this step you need to select a type of sizing and a medium. Please specify sizing or calculation for a valve. Then specify a medium and

| | |
|------------------|-------------------------------------|
| Tag No. | |
| Medium | Gas |
| Sizing standard | ASME VIII |
| Selected units | ASME VIII |
| CDTP Calculation | <input checked="" type="checkbox"/> |

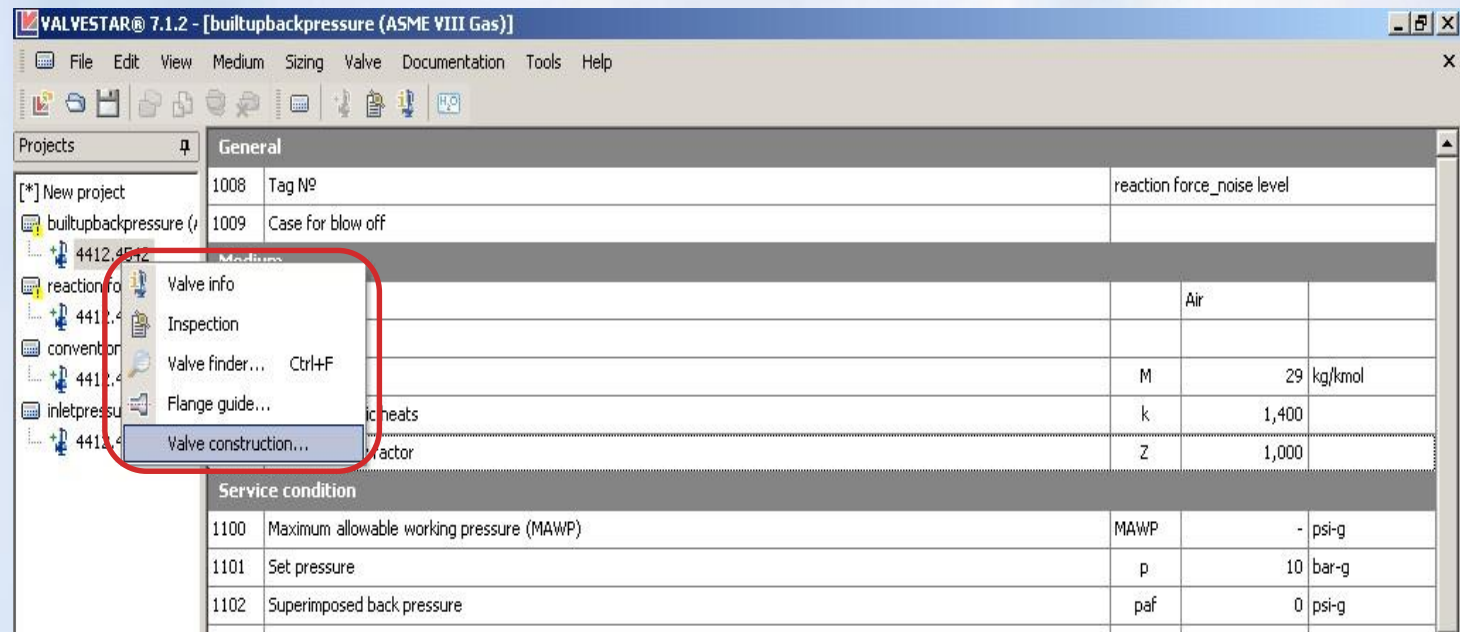
Additional calculations

| | AD2000:A2 | API 520 | ISO / CD 4126-9 |
|------------------------------------|-------------------------------------|--------------------------|--------------------------|
| Reaction force | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Noise | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Fire Case | | <input type="checkbox"/> | |
| Pressure drop inlet line | <input type="checkbox"/> | | <input type="checkbox"/> |
| Built up back pressure outlet pipe | <input type="checkbox"/> | | <input type="checkbox"/> |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force**
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Additional Sizings, Noise Level, Reaction Forces

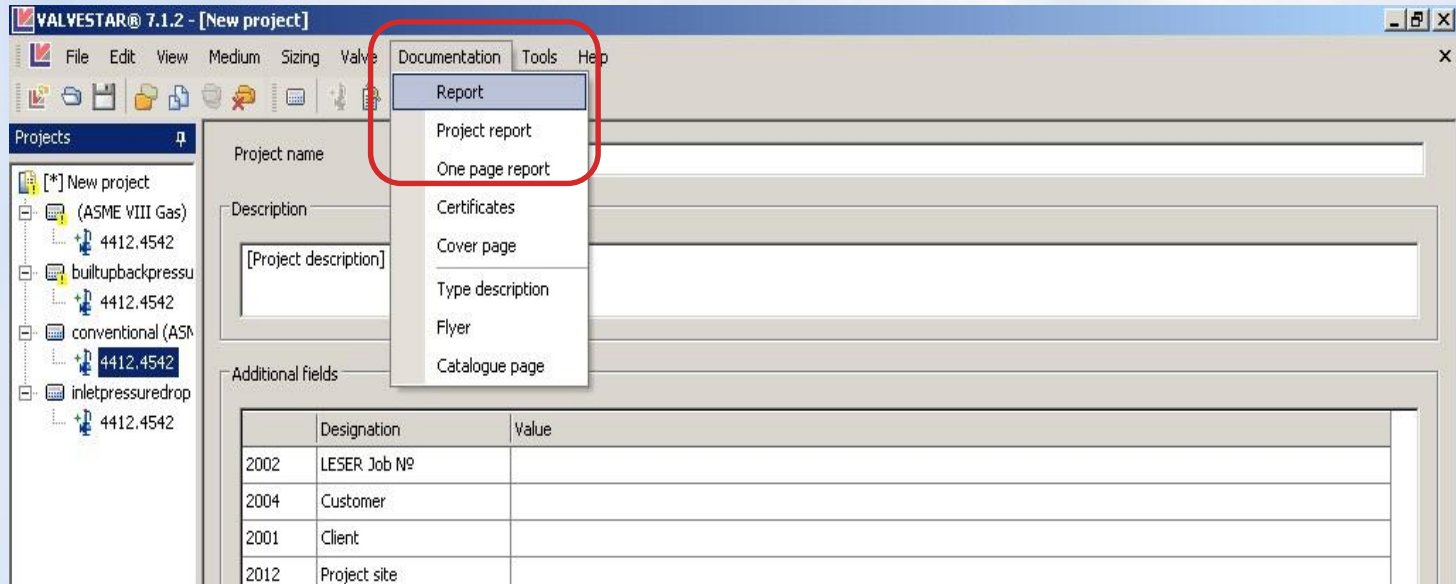
1. Step: Reaction force and noise level



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

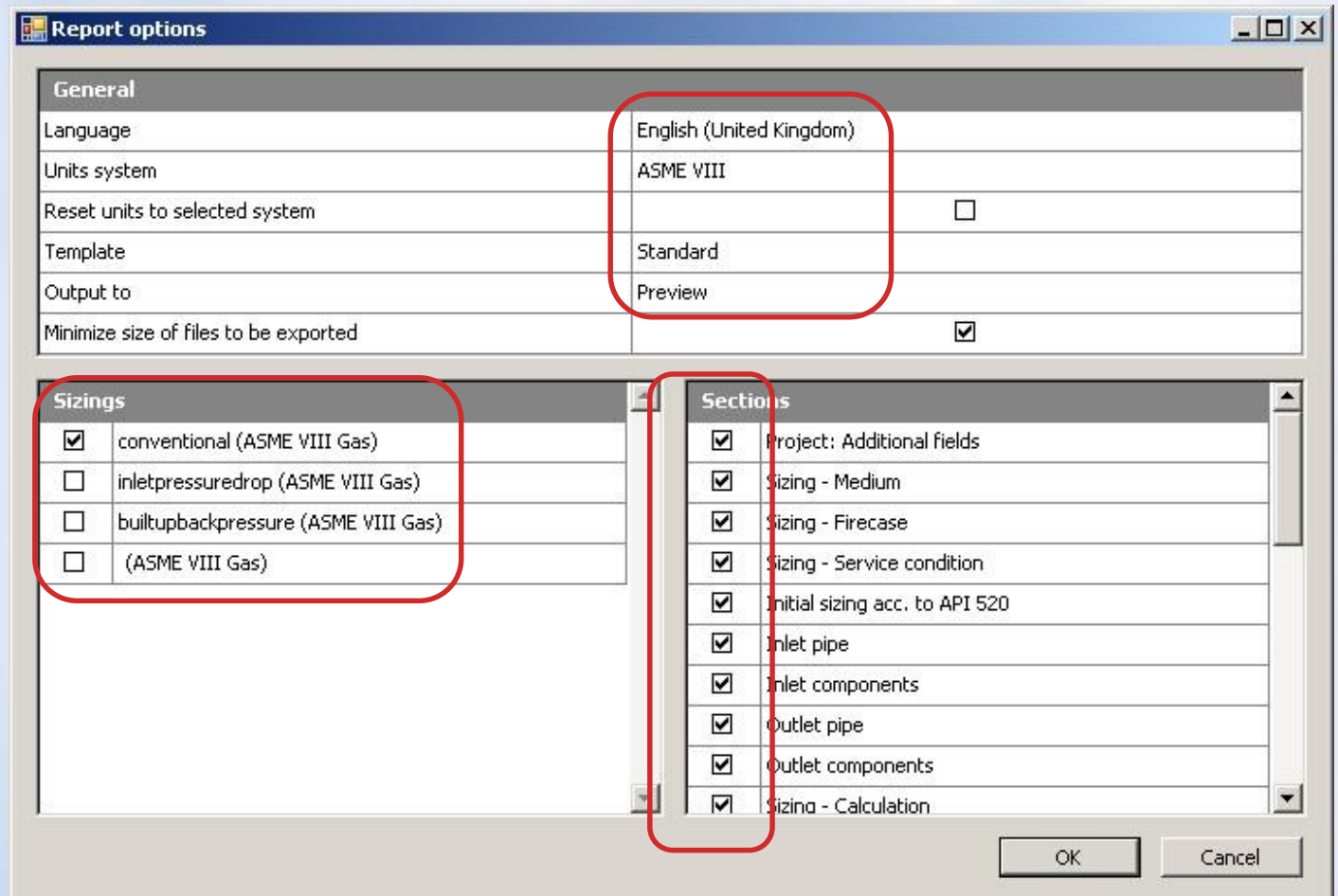
Reporting

1. Step: Create a report



Reporting

1. Step: Create a report



Reporting

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level,
Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

www.valvestar.com

Spare Parts

Report options

General

| | |
|---------------------------------------|-------------------------------------|
| Language | English (United Kingdom) |
| Units system | ASME VIII |
| Reset units to selected system | <input type="checkbox"/> |
| Template | Standard |
| Output to | Preview |
| Minimize size of files to be exported | <input checked="" type="checkbox"/> |

Sizings

- (ASME VIII Gas)

Main sections

- Sizing - Medium
- Sizing - Service condition
- Sizing - Calculation
- Valves
- Valve - General
- Inlet connection

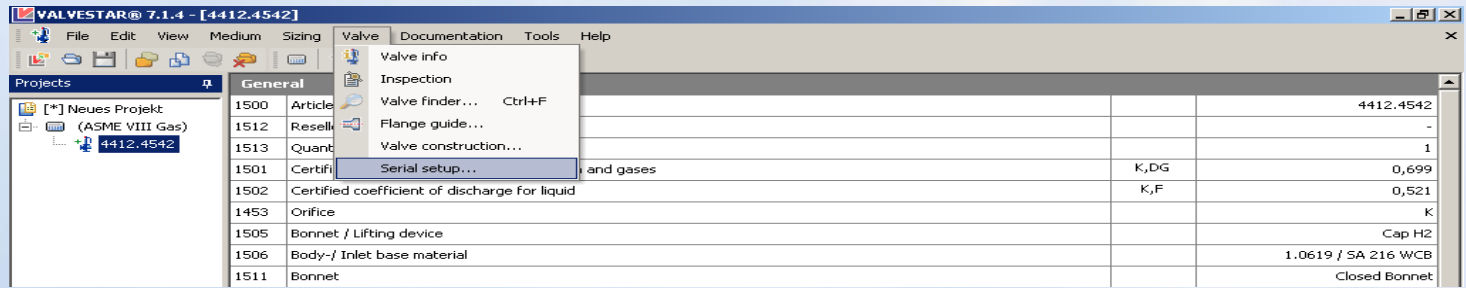
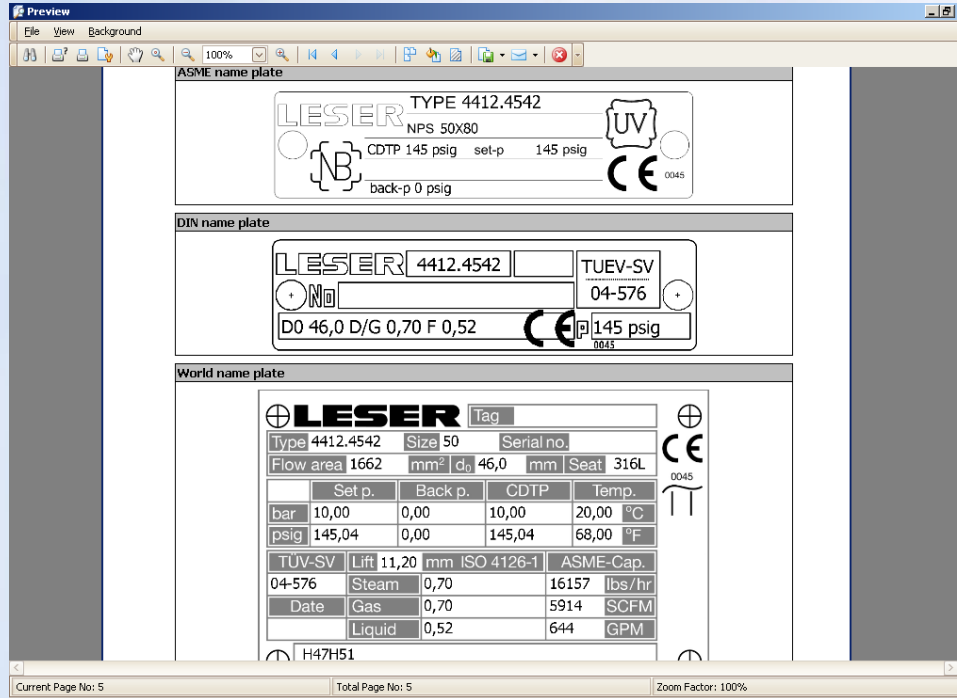
Additional sections

- Comments
- Coloured
- Sectional with item no
- ASME nameplate
- DIN nameplate
- World nameplate

OK Cancel

Reporting

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts



Reporting

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

| Nº | Tag Nº | Article Nº | Order code | Serial number | Date |
|----|--------|------------|-------------------------------|---------------|-----------------|
| 1 | | 4412.4542 | 4412.4542-10 bar-g-H47H51 ... | 2000000 | Samstag , 23. F |

Preview

File View Background

100%

ASME name plate

LESER TYPE 4412.4542
NPS 50X80
CDTP 145 psig set-p 145 psig
2000000 23/02/2008
back-p 0 psig

DIN name plate

LESER 4412.4542 23/02/2008 TUV-SV
2000000 04-576
D0 46,0 D/G 0,70 F 0,52 145 psig

World name plate

| LESER Tag | | CE | |
|------------|---------------------|----------------|--------------|
| Type | 4412.4542 | Size | 50 |
| Flow area | 166 mm ² | d ₀ | 46,0 mm |
| Seat | 316L | Set p. | 145,04 bar |
| | | Back p. | 0,00 bar |
| | | CDTP | 10,00 bar |
| | | Temp. | 20,00 °C |
| | | | 68,00 °F |
| TUV-SV | Lift 11,20 mm | ISO 4126-1 | ASME-Cap. |
| 04-576 | Steam | 0,70 | 16157 lbs/hr |
| Date | Gas | 0,70 | 5914 SCFM |
| 23/02/2008 | Liquid | 0,52 | 644 GPM |

Current Page No: 5 Total Page No: 5 Zoom Factor: 100%

Start VALVESTAR@ 7... D:\Temp 703-41-EN_Cal... 703-41_Cal.doc... Preview 21:18

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

1. Step: Create a report

LESER
The-Safety-Valve.com

Sizing acc. to ASME VIII for Gas VALVESTAR® - v.7.1.522.0

| | |
|---------------|---------------------|
| Page: | 1 of 5 |
| Date: | 05/29/2007 09:39:25 |
| Project: | New project |
| Tag No: | conventional |
| LESER Job No: | |

| Sizing - Medium | | | |
|-----------------|-------------------------|---|------------|
| 1000 | Designation | | Air |
| 1004 | Formula | | |
| 1001 | Molar mass | M | 29 kg/kmol |
| 1002 | Ratio of specific heats | k | 1,400 |
| 1003 | Compressibility factor | Z | 1,000 |

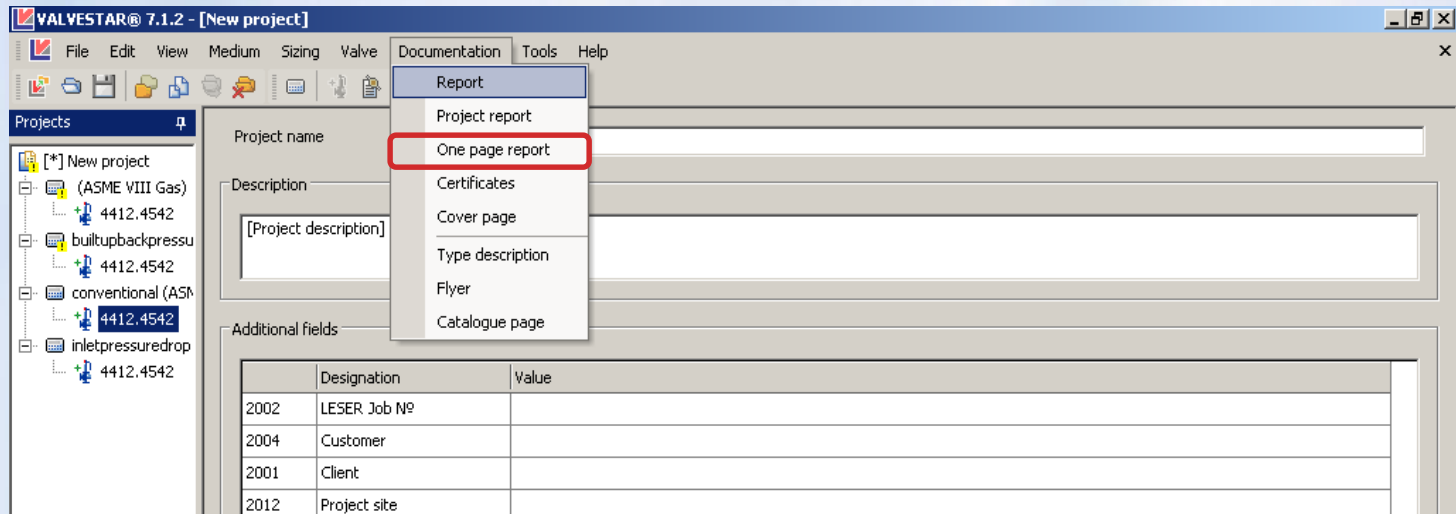
| Sizing - Service condition | | | |
|----------------------------|---|--------|------------------|
| 1100 | Maximum allowable working pressure (MAWP) | MAWP | |
| 1101 | Set pressure | p | 10 bar-g |
| 1102 | Superimposed back pressure | paf | 0 psi-g |
| 1103 | Built up back pressure | pae | |
| 1104 | Backpressure | | 0 psi-g |
| 1105 | Overpressure | dp | 10,00 % |
| 1106 | Environmental pressure | pu | 14,696 psi |
| 1107 | Temperature | T | 20 °C |
| 1108 | Required massflow | qm,ab | 11.500 kg/h |
| 1109 | Volume flow to be discharged (working condition) | qvb,ab | 28.412,535 ft³/h |
| 1110 | Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | 5.527,018 SCFM |
| 1120 | Rupture disc correction factor | Kc | 1,000 |

| Sizing - Calculation | | | |
|----------------------|--------------------|-------|-----------------|
| 1200 | Certified massflow | qm,zu | 26.187,754 lb/h |

Current Page No: 1 | Total Page No: 5 | Zoom Factor: 100%

Reporting

2. Step: Create a one page report



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

2. Step: Create a one page report

One page report options

| Header data | |
|------------------|-------------------------------|
| Order No | |
| Serial No | |
| Customized No | |
| Customer No | |
| LESER Order Code | 4412.4542-10 bar-g-H47H51-3.1 |
| Remark | |

| Settings | |
|---------------------------------------|--------------------------|
| Language | English (United Kingdom) |
| Units system | ASME VIII |
| Reset units to selected system | <input type="checkbox"/> |
| Template | Vertical |
| Output to | Preview |
| Minimize size of files to be exported | <input type="checkbox"/> |

Reporting

2. Step: Create a one page report

Order data

LESER
The Safety-Valve.com

LESER
The Safety-Valve.com

LESER Order Code: 4412.4542-10 barg-H47H51-3.1

Order No.: conventional
Tag No.:
Serial No.:
Customized No.:

Customer No.:

Contact:
Phone:
Fax:
E-Mail:

LESER Order Specification
Safety relief valve in acc. to
ASME VIII

| PartNo | Denomination | Q | Material ASME | Material DIN | MTC |
|--------|-----------------|---|-----------------------|---------------------|-----|
| 1 | Body | 1 | SA 216 WCB | 1.0619 | |
| 5 | Seat | 1 | 1.316L | 1.4404 | |
| 7 | Disc | 1 | Hardened Stainless | 1.4122 | |
| 8 | Guide | 1 | Steel | 1.0501/1.0038/1.414 | |
| 9 | Bonnet | 1 | Ductile Gr. 60-40-180 | 7040 | |
| 12 | Spindle | 1 | 1.420 | 1.4021 | |
| 18 | Adjusting screw | 1 | SA 479 430 | 1.4104 | |
| 40 | Cap H2 | 1 | Steel | 1.0718 | |
| 54 | Spring | 1 | Carbon steel | 1.1200 | |
| 56 | Nut | 4 | ZH | 1.0501 | |
| 60 | Gasket | 1 | Graphite/1.4401 | Renngraphit + 1.44 | |
| 61 | Ball washer | 1 | Hardened Stainless | 1.3541/1.4401 | |

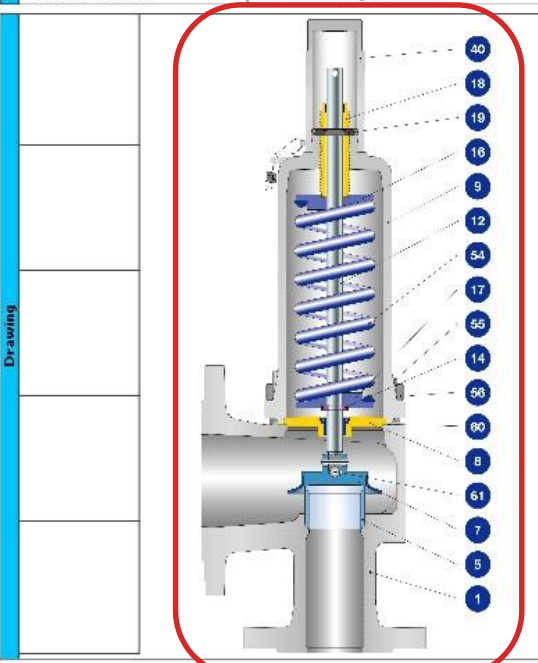
MTC: Material Test Certificates
LESER CGA (Certificate Global Application)
[required] [not required]

| Type | 4412.4542 | |
|---------------|-----------|-------------------|
| Inlet | Size | DN 50 |
| Inlet | Rating | PN PN 40 |
| Inlet | Facing | DIN EN 1092-1 For |
| Outlet | Size | DN 80 |
| Outlet | Rating | PN PN 16 |
| Outlet | Facing | DIN EN 1092-1 For |
| Flow diameter | d0 | 1.811 inch |
| Weight | M | 48,502 lb |
| | a | 5,906 inch |
| Dimension | b | 4,724 inch |
| | H | 22,402 inch |
| Set. pressure | P | 10 barg |
| | pcdp | 145,038 psi-g |

Remark:

| Rev | Name | Default user |
|--------|------------|--------------|
| Date | 05/29/2007 | |
| Rev.No | 1 | |

| Approved by LESER/SUBSIDIARY | | Approved by customer | |
|------------------------------|------------|----------------------|-----|
| Date | 29/05/2007 | Date | / / |
| Signature: | | Signature: | |



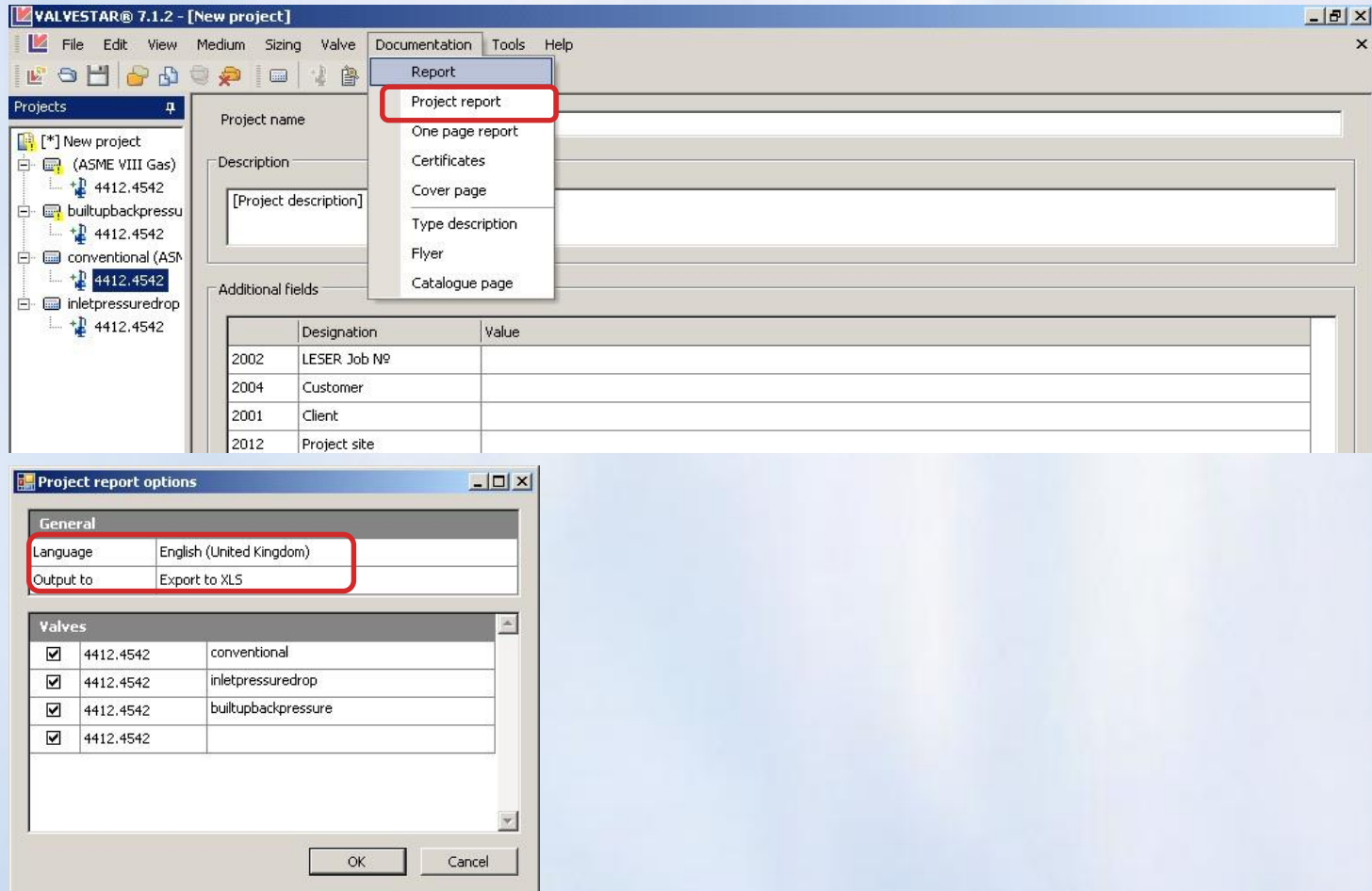
Current Page No: 1

Total Page No: 1

Zoom Factor: 76%

Reporting

3. Step: Create a project report



Reporting

3. Step: Create a project report

The screenshot shows a Microsoft Excel spreadsheet with two main sections. The top section is an inquiry form with the following data:

| | | |
|---|----------|---------------------|
| 1 | Inquiry | |
| 2 | Project | New project |
| 4 | Date | 05/29/2007 09:58:46 |
| 6 | Prepared | |
| 7 | Rev. | |
| 8 | Company | LESER GmbH & Co. KG |

The bottom section is a table with the following columns: Item-No., PSV-No., Item, Spec, LESER-Type, Orifice, d0, Connection, Size, Rating, Facing, and Body material. The table contains two rows of data:

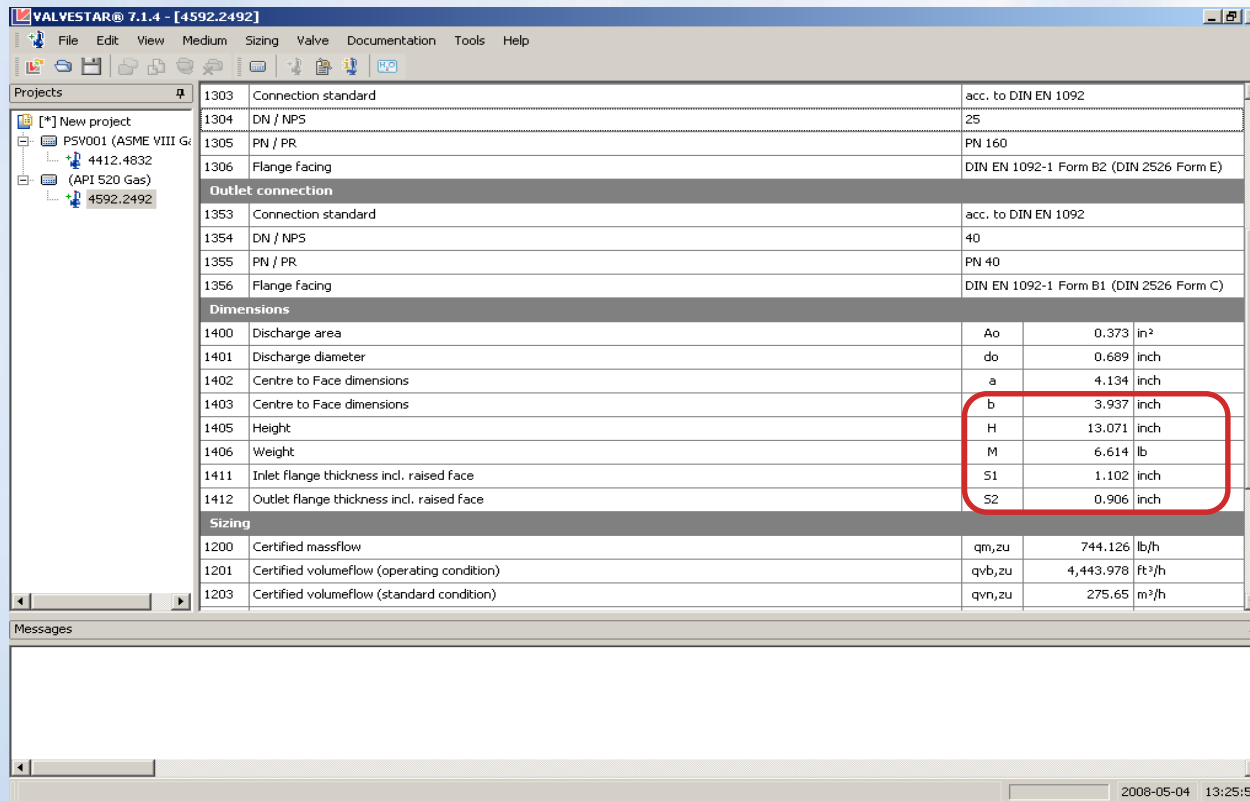
| Item-No. | PSV-No. | Item | Spec | LESER-Type | Orifice | d0 [mm] | Connection | | Size | | Rating | | Facing | | Body material |
|----------|---------|--------------------|------|------------|---------|---------|---------------------|---------------------|-------|--------|--------|--------|---|---|---------------------|
| | | | | | | | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet | Inlet | Outlet | |
| 1 | | conventional | | 44124542 | 1,847 | 46 | acc. to DIN EN 1092 | acc. to DIN EN 1092 | 50 | 80 | PN 40 | PN 16 | DIN EN 1092-1 Form B1 (DIN 2526 Form C) | DIN EN 1092-1 Form B1 (DIN 2526 Form C) | 1.0619 / SA 216 WCB |
| 2 | | inletpressure drop | | 44124542 | 1,847 | 46 | acc. to DIN EN 1092 | acc. to DIN EN 1092 | 50 | 80 | PN 40 | PN 16 | DIN EN 1092-1 Form B1 (DIN 2526 Form C) | DIN EN 1092-1 Form B1 (DIN 2526 Form C) | 1.0619 / SA 216 WCB |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is new for dimensions S1, S2, c?

These data have been added to the database for all slip on flange based safety valve and all full nozzle safety valve to get the correct bolt length or thread length.



Reporting

How I find it in the documentation

In the report full-version the additional dimensions are listed if these are available

The screenshot shows a software window titled 'Preview' with a menu bar (File, View, Background) and a toolbar. The main content area displays a technical report with several tables. A red circle highlights the 'Valve - Dimensions' table.

| Inlet connection | | | |
|------------------|---------------------|--|---|
| 1303 | Connection standard | | acc. to DIN EN 1092 |
| 1304 | DN / NPS | | 25 |
| 1305 | PN / PR | | PN 160 |
| 1306 | Flange facing | | DIN EN 1092-1 Form B2 (DIN 2526 Form E) |

| Outlet connection | | | |
|-------------------|---------------------|--|---|
| 1353 | Connection standard | | acc. to DIN EN 1092 |
| 1354 | DN / NPS | | 40 |
| 1355 | PN / PR | | PN 40 |
| 1356 | Flange facing | | DIN EN 1092-1 Form B1 (DIN 2526 Form C) |

| Valve - Dimensions | | | |
|--------------------|---|----|----------------------|
| 1400 | Discharge area | Ao | 0.373 m ² |
| 1401 | Discharge diameter | do | 0.689 inch |
| 1402 | Centre to Face dimensions | a | 4.134 inch |
| 1403 | Centre to Face dimensions | b | 3.937 inch |
| 1405 | Height | H | 13.071 inch |
| 1406 | Weight | M | 6.614 lb |
| 1411 | Inlet flange thickness incl. raised face | S1 | 1.102 inch |
| 1412 | Outlet flange thickness incl. raised face | S2 | 0.906 inch |

| Lift | | | |
|------|----------|--|------------|
| 1507 | Standard | | 0.154 inch |

| Valve - Calculation | | | |
|---------------------|--|---------|------------------------------|
| 1200 | Certified massflow | qm,zu | 744.126 lb/h |
| 1201 | Certified volumeflow (operating condition) | qvb,zu | 4,443.978 ft ³ /h |
| 1203 | Certified volumeflow (standard condition) | qvn,zu | 275.65 m ³ /h |
| 1204 | Maximum mass flow | qm,max | 826.806 lb/h |
| 1205 | Maximum volume flow (working condition) | qvb,max | 4,937.753 ft ³ /h |
| 1206 | Maximum volume flow (standard condition) | qvn,max | 306.278 m ³ /h |

Current Page No: 2 Total Page No: 6 Zoom Factor: 100%

Reporting

How I find it in the documentation

In the one-page report the additional dimensions are listed if these are available

LESER The-Safety-Valve.com

Safety relief valve Compact Performance Type 459

LESER Order Code: 4592.2492-15 psi-g-132149-3.1

| Rev | Name | Date | RevNo |
|-----|---------------------|---------------------|-------|
| | IAD 2000-Merkbar A2 | 2008-05-04 13:23:50 | 1 |

| PosNo | Denomination | Q | Material ASME | Material DIN | MTC | Type | 4592.2492 |
|-------|-----------------|---|-----------------|---------------|-----|--------|---------------------|
| 1 | Inlet body | 1 | 316L | 1.4404 | | Inlet | Size DN 25 |
| 2 | Outlet body | 1 | SA 216 WCB | 1.0619 | | Inlet | Rating PN PN 160 |
| 7 | Disc | 1 | Hardened Stainl | 1.4122 | | Inlet | Facing DIN EN 1092- |
| 8 | Guide | 1 | Steel | 1.0501/1.0038 | | Outlet | Size DN 140 |
| 9 | Bonnet | 1 | SA 216 WCB | 1.0619 | | Outlet | Rating PN PN 40 |
| 12 | Spindle | 1 | 420 | 1.4021 | | | |
| 18 | Adjusting screw | 1 | SA 479 430 | 1.4104 | | | |
| 40 | Cap H2 | 1 | Steel | 1.0718 | | | |
| 54 | Spring | 1 | Carbon steel | 1.1200 | | | |
| 61 | Ball washer | 1 | Hardened Stainl | 1.3541/1.4401 | | | |

Partlist - VALVE DIMENSION

| | | |
|---------------|----|------------|
| Flow diameter | d0 | 0.689inch |
| Weight | M | 6.614lb |
| Dimension | a | 4.134inch |
| | b | 3.927inch |
| | H | 13.071inch |
| | S1 | 1.102inch |
| | S2 | 0.906inch |

MTC: Material Test Certificates
LESER CGA (Certificate Global Application)
 required not required

Set pressure: P 15 psi-g pcdtp 15 psi-g

LESER Order operation Safety relief valve in acc. to API 520

Approved by LESER/LESERDIARY
Date: 2008-05-04
Signature:

Approved by customer
Date:
Signature:

LESER Drawing

Current Page No: 1 Total Page No: 1 Zoom Factor: 80%

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level, Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

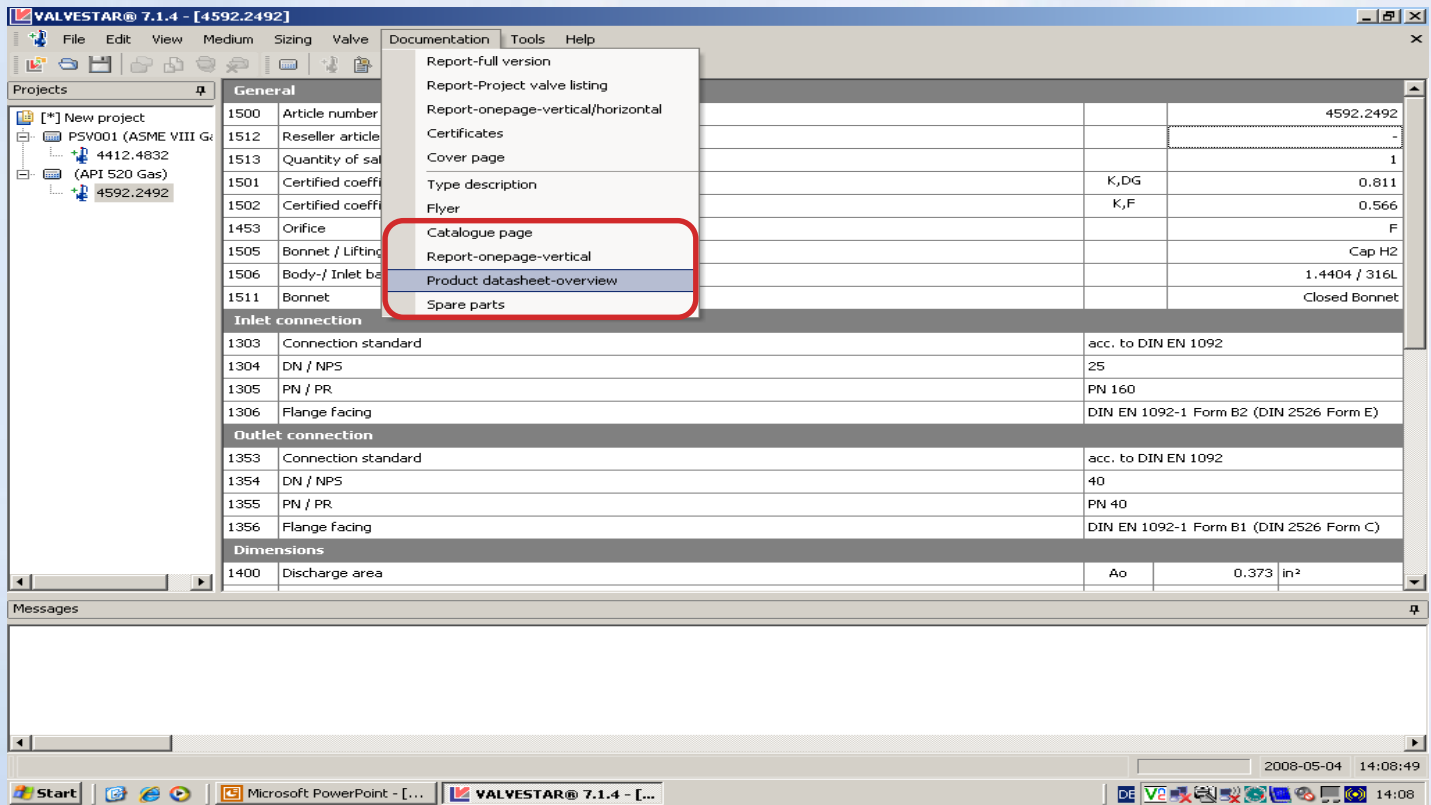
www.valvestar.com

Spare Parts

Reporting

What is the Product datasheet ?

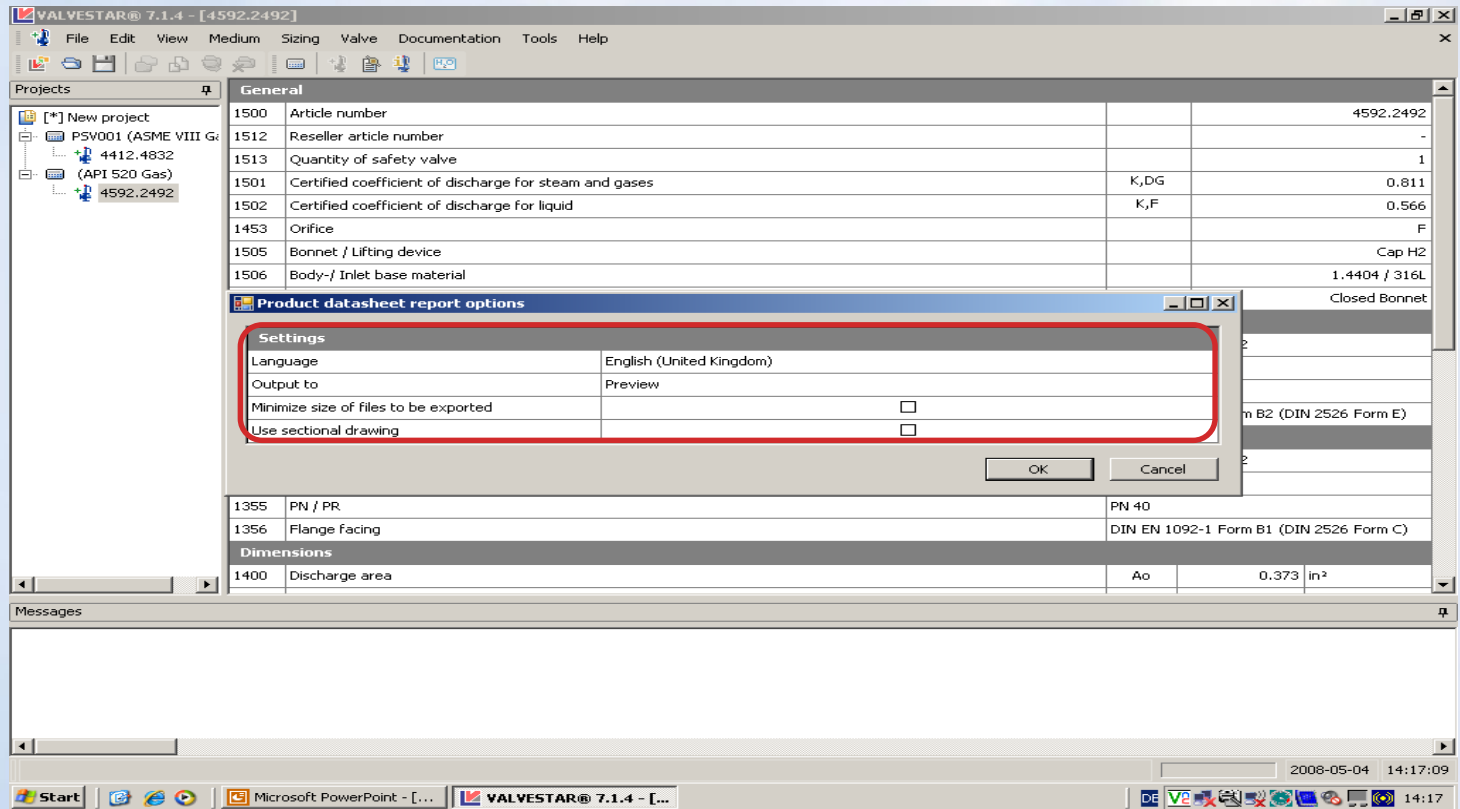
The product datasheet is an overview of a single safety valve and its main features like drawing, dimensions and weight, possible options, approval, ...



Reporting

What is the Product datasheet ?

For product datasheet two different drawings as main drawing could be selected: coloured drawing as standard and sectional drawing if needed.



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the Product datasheet ?

With coloured drawing as standard

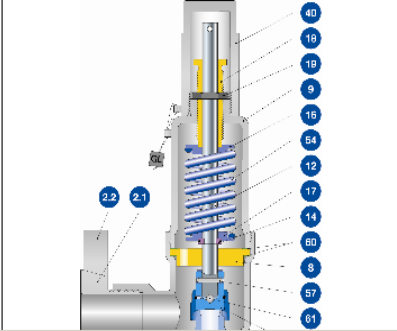
Preview

File View Background

100%

LESER
The-Safety-Valve.com

Productdatasheet

| Valve Design and Dimensions | | Valve Partlist | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|-----------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| LESER-Art.-No. | 4592.2492 | Item | Denomination | | | | | | | | | | | | | | | | | | | | | |
| Productgroup | Compact Performance | Q | DIN/ASME | | | | | | | | | | | | | | | | | | | | | |
| Design Type | | 1 | Inlet body | | | | | | | | | | | | | | | | | | | | | |
| Code base | | 2 | Outlet body | | | | | | | | | | | | | | | | | | | | | |
| Flow diameter | d0 17.5 0.689 mm/inch | 7 | Disc | | | | | | | | | | | | | | | | | | | | | |
| Orifice | 0.310 mm/inch | 8 | Guide | | | | | | | | | | | | | | | | | | | | | |
| a | 105 4.134 mm/inch | 9 | Bonnet | | | | | | | | | | | | | | | | | | | | | |
| b | 100 3.937 mm/inch | 12 | Spindle | | | | | | | | | | | | | | | | | | | | | |
| c | 0 0 mm/inch | 18 | Adjusting screw | | | | | | | | | | | | | | | | | | | | | |
| S1 | mm/inch | 40 | Cap H2 | | | | | | | | | | | | | | | | | | | | | |
| S2 | mm/inch | 54 | Spring | | | | | | | | | | | | | | | | | | | | | |
| H | 332 13.071 mm/inch | 61 | Ball washer | | | | | | | | | | | | | | | | | | | | | |
| M | 3 6.614 kg/lb | | | | | | | | | | | | | | | | | | | | | | | |
| Standard | DN PN Facing Standard | | | | | | | | | | | | | | | | | | | | | | | |
| Inlet | 25 PN 160 DIN EN 1092-1 acc. to DIN EN 1092 | | | | | | | | | | | | | | | | | | | | | | | |
| Outlet | 40 PN 40 DIN EN 1092-1 acc. to DIN EN 1092 | | | | | | | | | | | | | | | | | | | | | | | |
| Drawing | | Options | | | | | | | | | | | | | | | | | | | | | | |
|  | | <table border="1" style="width: 100%; height: 100%; border-collapse: collapse;"> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table> | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

Current Page No: 1 Total Page No: 1 Zoom Factor: 100%

Reporting

What is the Product datasheet ?

With sectional drawing

LESER The-Safety-Valve.com

Productdatasheet

| Valve Design and Dimensions | | | |
|-----------------------------|---------------------|------|----------------|
| LESER-Art.- No. | 4592.2492 | | |
| Productgroup | Compact Performance | | |
| Design Type | | | |
| Code base | | | |
| Flow diameter | d0 | 17.5 | 0.689 mm/inch |
| Orifice | D _{0.310} | | mm/inch |
| Dimension | a | 105 | 4.134 mm/inch |
| | b | 100 | 3.937 mm/inch |
| | c | 0 | 0 mm/inch |
| | S1 | | mm/inch |
| | S2 | | mm/inch |
| Weight | H | 332 | 13.071 mm/inch |
| | M | 31 | 6.614 kg/lb |

| Valve Partlist | | | |
|----------------|-----------------|---|------------------------------|
| Item | Denomination | Q | DIN/ASME |
| 1 | Inlet body | 1 | 1.4404 / 316L |
| 2 | Outlet body | 1 | 1.0619 / SA 216 WCB |
| 7 | Disc | 1 | 1.4122 / Hardened Stainless |
| 8 | Guide | 1 | 1.0501/1.0038/1.4104 / Steel |
| 9 | Bonnet | 1 | 1.0619 / SA 216 WCB |
| 12 | Spindle | 1 | 1.4021 / 420 |
| 18 | Adjusting screw | 1 | 1.4104 / SA 479 430 |
| 40 | Cap H2 | 1 | 1.0718 / Steel |
| 54 | Spring | 1 | 1.1200 / Carbon steel |
| 61 | Ball washer | 1 | 1.3541/1.4401 / Hardened St |

| Standard | DN | PN | Facing | Standard |
|----------|----|--------|---------------|---------------------|
| Inlet | 25 | PN 160 | DIN EN 1092-1 | acc. to DIN EN 1092 |
| Outlet | 40 | PN 40 | DIN EN 1092-1 | acc. to DIN EN 1092 |

Drawing

Options

| | | |
|--|--|--|
| | | |
| | | |
| | | |
| | | |

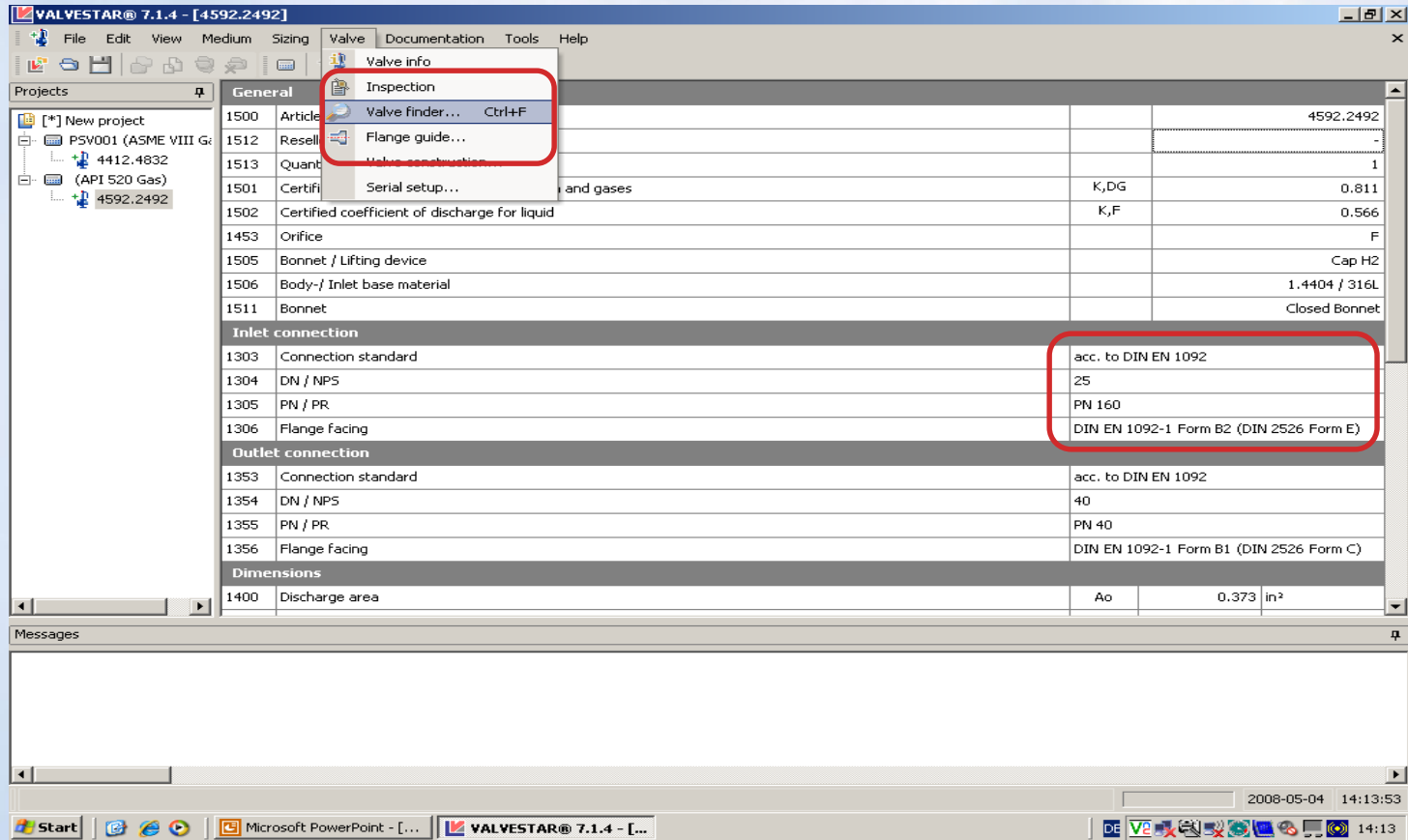
Current Page No: 1 Total Page No: 1 Zoom Factor: 100%

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is different to a report or one-page report?

The product datasheet is also available without sizing, with the feature “Valve finder”



Reporting

What is different to a report or one-page report?

All possible options are listed and shown

LESER The-Safety-Valve.com

Productdatasheet

Valve Design and Dimensions

LESER-Art.-No. 4592.2492

Productgroup Compact Performance

Design Type

Code base

Flow diameter d0 17.5 0.689 mm/inch

Orifice

| | | | |
|---|------|-------|---------|
| a | 55.5 | 2.185 | mm/inch |
| b | 75 | 2.953 | mm/inch |
| c | 22 | 0.866 | mm/inch |

Dimension

| | | | |
|----|-------|--------|---------|
| S1 | | | mm/inch |
| S2 | | | mm/inch |
| H | 304.5 | 11.988 | mm/inch |
| M | 3 | 6.614 | kg/lb |

Weight

| | | | | |
|----------|-------|----|--------|----------------------|
| Standard | DN | PN | Facing | Standard |
| Inlet | 1 1/2 | | | G - Male thread acc. |
| Outlet | 1 1/2 | | | G - Male thread acc. |

Drawing

Valve Partlist

| Item | Denomination | Q | DIN/ASME |
|------|-----------------|---|------------------------------|
| 1 | Inlet body | 1 | 1.4404 / 316L |
| 2 | Outlet body | 1 | 1.0619 / SA 216 WCB |
| 7 | Disc | 1 | 1.4122 / Hardened Stainless |
| 8 | Guide | 1 | 1.0501/1.0038/1.4104 / Steel |
| 9 | Bonnet | 1 | 1.0619 / SA 216 WCB |
| 12 | Spindle | 1 | 1.4021 / 420 |
| 18 | Adjusting screw | 1 | 1.4104 / SA 479 430 |
| 40 | Cap H2 | 1 | 1.0718 / Steel |
| 54 | Spring | 1 | 1.1200 / Carbon steel |
| 61 | Ball washer | 1 | 1.3541/1.4401 / Hardened St |

Options

| | | |
|-----|-----|-----|
| H29 | J25 | J44 |
| J48 | J49 | L20 |

Current Page No: 1 Total Page No: 1 Zoom Factor: 100%

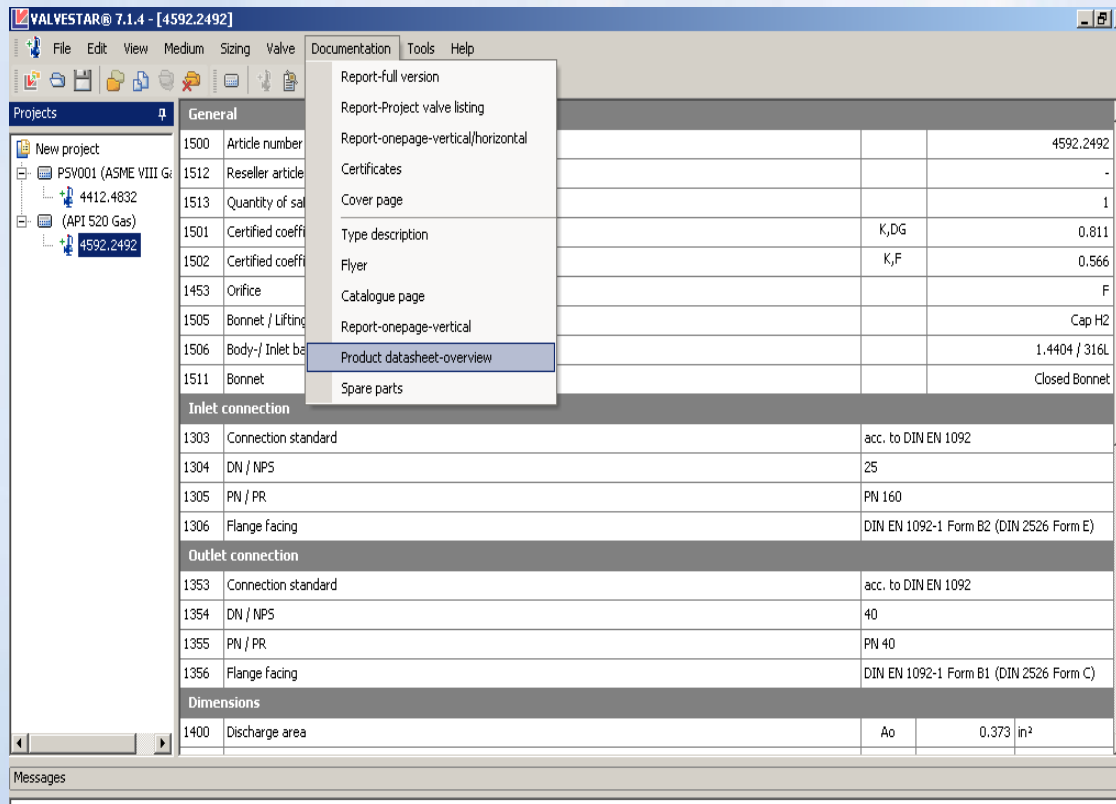
- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the report one-page-vertical ?

This report is an advanced one-page report with additional data which are necessary for completeness

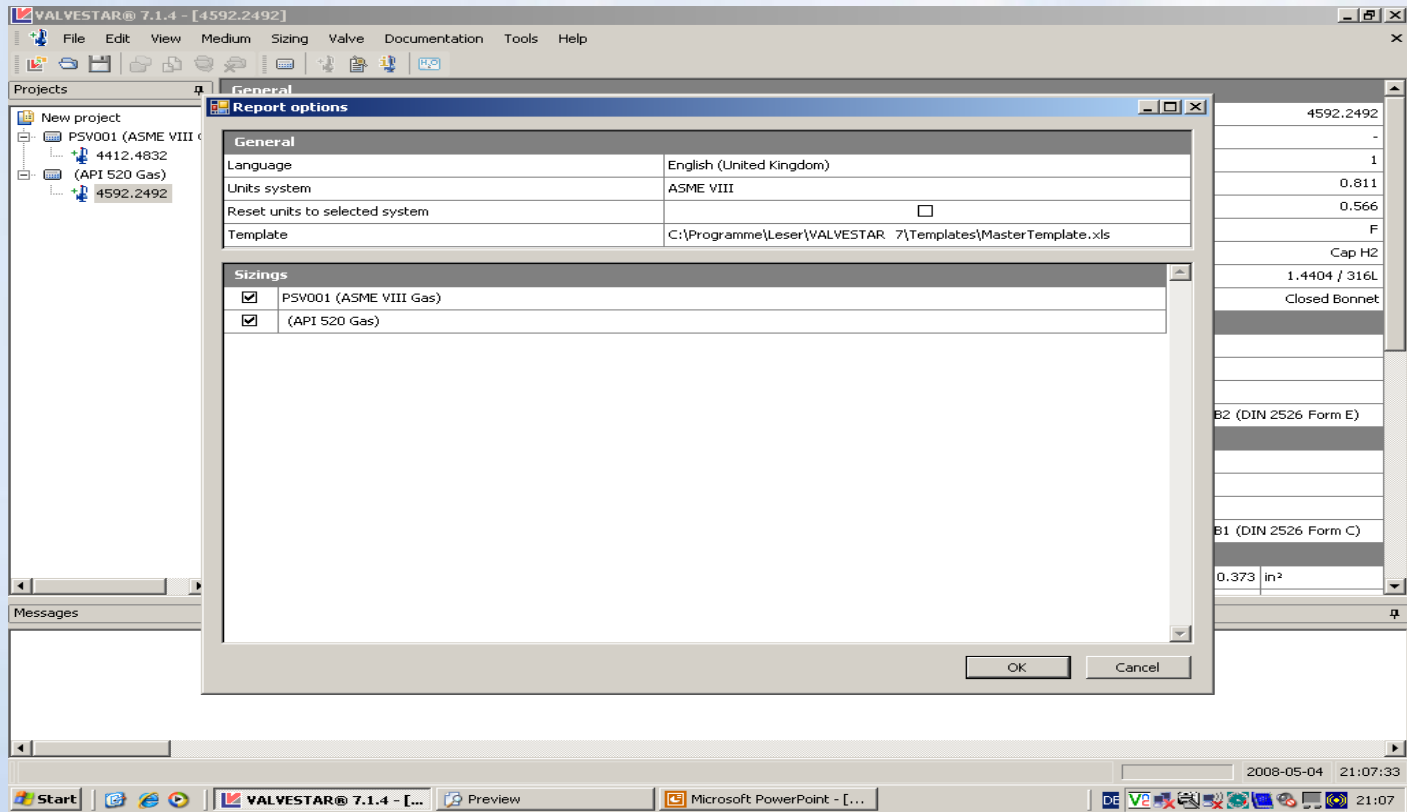


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the report onepage-vertical ?

This report is available as xls-file to change data for future redesign. The source of template is preset.

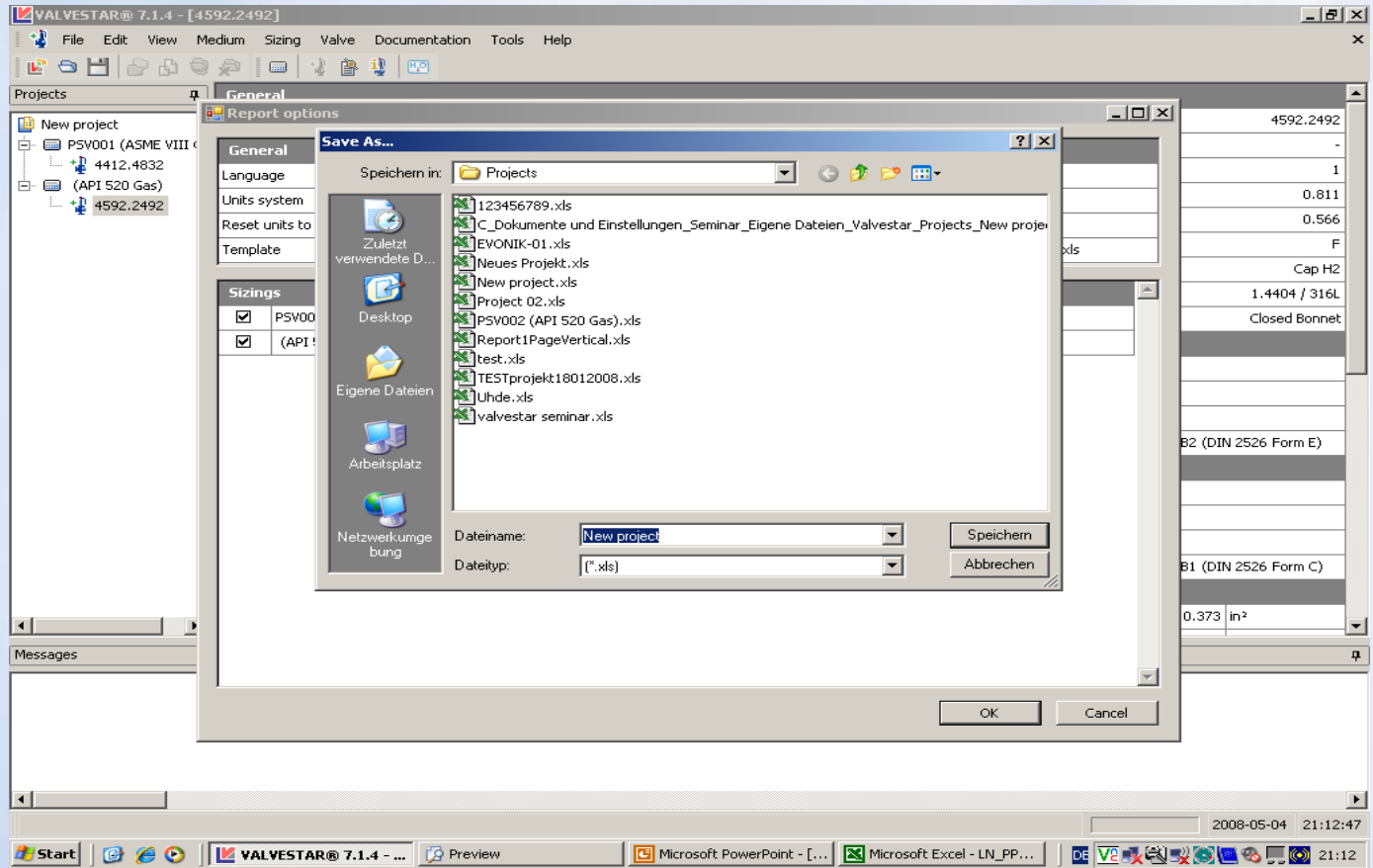


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the report one-page-vertical ?

Define a file

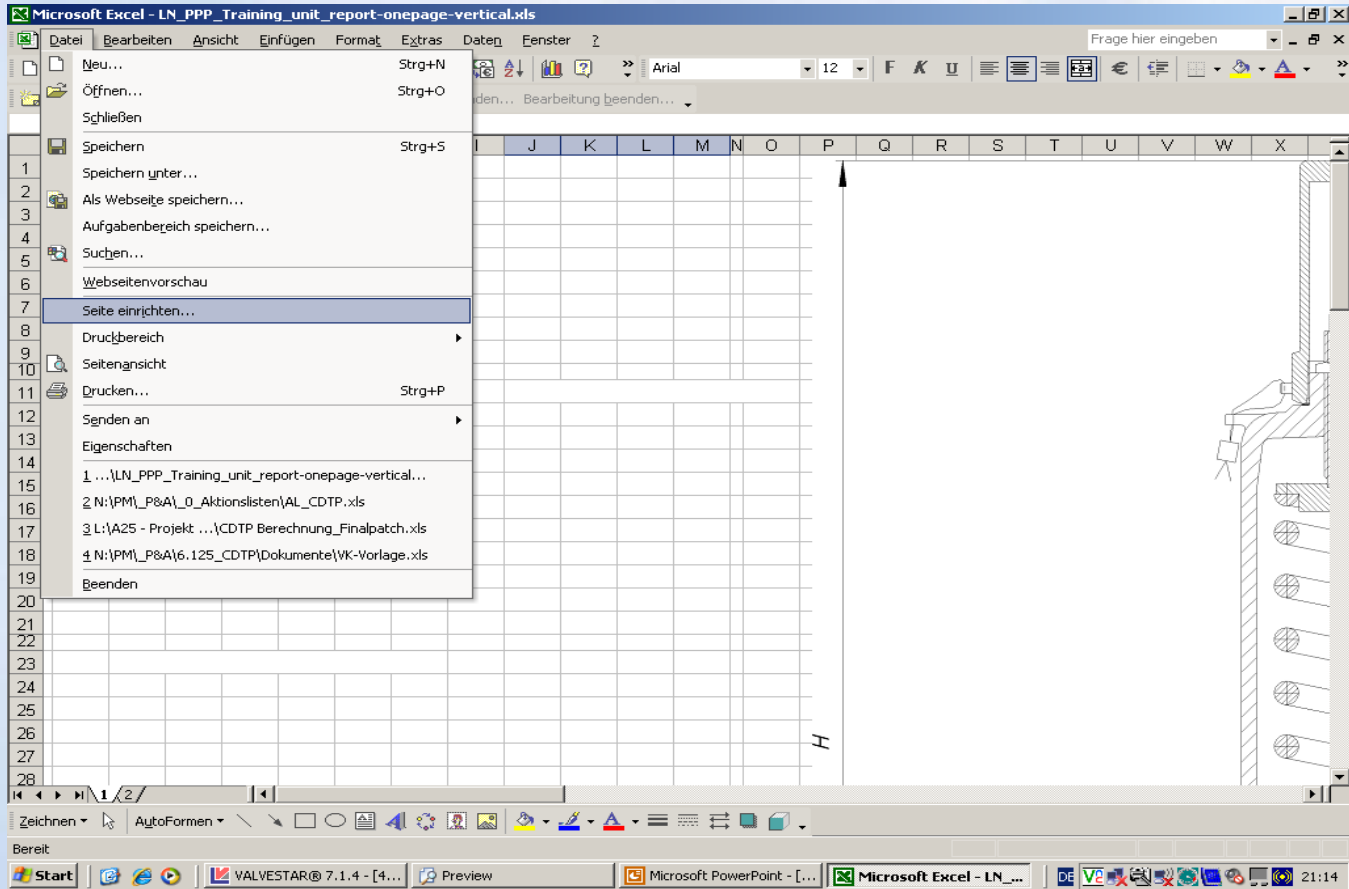


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the report one-page-vertical ?

The page has to be adjusted to an A4-format

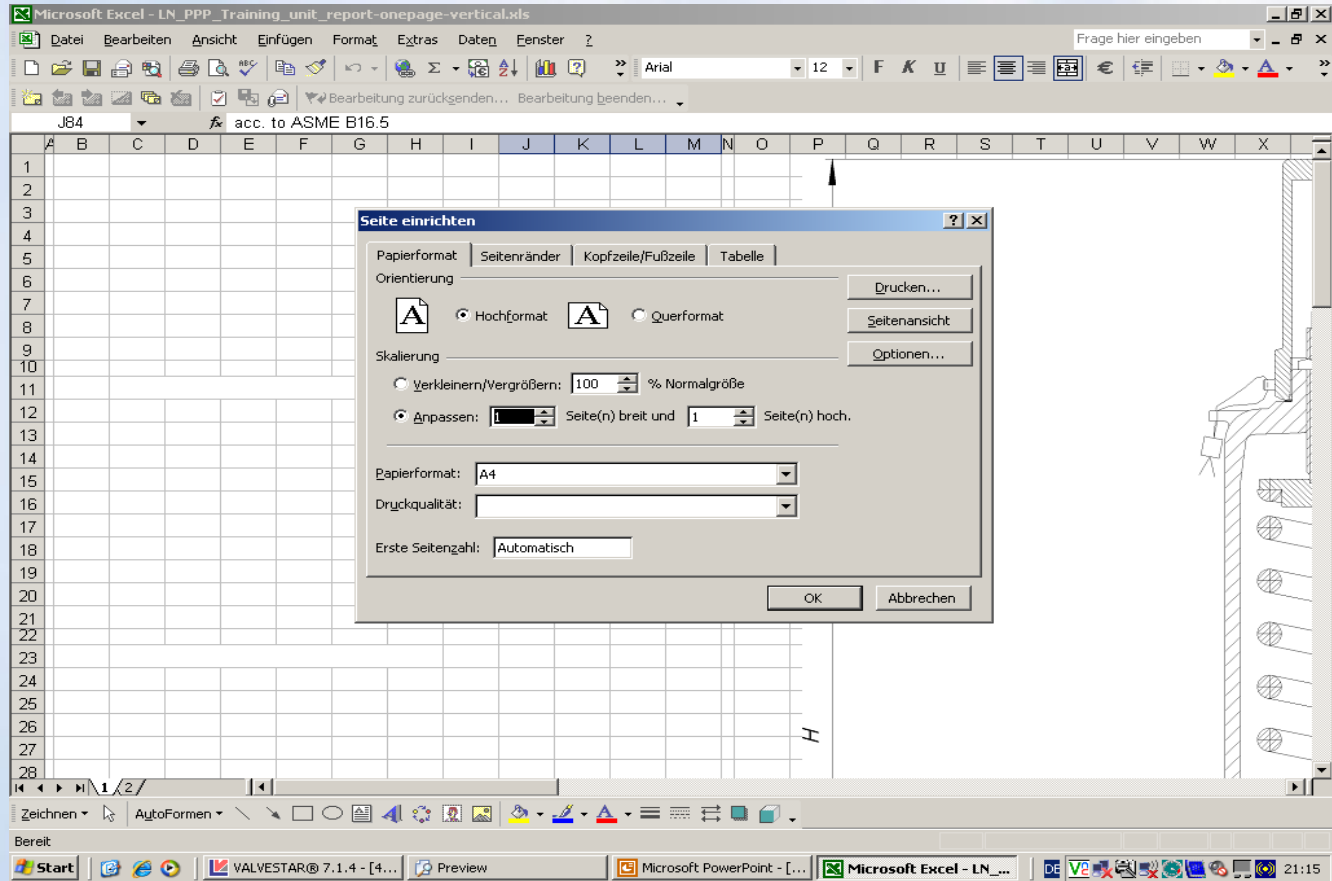


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the report one-page-vertical ?

The page has to be adjusted to an A4-format



Reporting

What is the report one-page-vertical ?

The EXCEL-file can be added with additional data from user.

Main data are picked from sizing data

Valve Design and Dimensions

| | | | |
|----------------------|-------------------------------|--------|-------|
| ESER-Art.-No. | 4412.4832 | | |
| Rep-Art.-No. | CUSTOMVALVE 1234 | | |
| Order-Code: | 4412.4832-15 psi-g-H65H79-3.1 | | |
| Design Type: | | | |
| Code basis: | | | |
| Other basis: | | | |
| Set pressure | p | 15 | psi-g |
| Cold diff. test pres | odtp | 15 | psi-g |
| Flow diameter | d _f | 1.457 | inch |
| Orifice | | | |
| | a | 4.882 | inch |
| | b | 4.764 | inch |
| Dimension | c | | |
| | S ₁ | | |
| | S ₂ | | |
| Weight | H | 19.528 | inch |
| | m | 35.274 | lb |

Valve Partlist

| Item | Description | Qty. | Recommended Spare Subject-No. | qtz. | DIN / ASME | MTC |
|------|-----------------|------|-------------------------------|------|------------------------------------|-----|
| 1 | Body | 1 | | | 1.0619 / SA 216 WCB | |
| 5 | Seat | 1 | 1.4404 / 316L | | 1.4404 / 316L | |
| 7 | Disc | 1 | 200.5239.3041 | 1 | 1.4122 / Hardened Stainless steel | |
| 8 | Guide | 1 | 1.05011.0039/1.4104 / Steel | | 1.05011.0039/1.4104 / Steel | |
| 9 | Bonnet | 1 | 0.7040 / Ductile Gr. 60-40-18 | | 0.7040 / Ductile Gr. 60-40-18 | |
| 12 | Spindle | 1 | 241.1039.0000 | 1 | 1.4021 / 420 | |
| 14 | Split ring | 2 | | | 1.4104 / SA 479 430 | |
| 16 | Spring plate | 1 | | | 1.0718/1.0570 / Steel | |
| 17 | Spring plate | 1 | | | 1.0718/1.0570 / Steel | |
| 18 | Adjusting screw | 1 | | | 1.4104 / SA 479 430 | |
| 19 | Lock nut | 1 | | | 1.0718 / Steel | |
| 40 | Cap H2 | 1 | | | 1.0718 / Steel | |
| 54 | Spring | 1 | | | 1.1200 / Carbon steel | |
| 55 | Bolt | 4 | | | 1.1181 / Steel | |
| 56 | Nut | 4 | | | 1.0501 / 2H | |
| 57 | Pin | 1 | 480.0705.0000 | 1 | 1.4310 / Stainless steel | |
| 59 | Securing ring | 1 | | | 1.4571 / 316Ti | |
| 60 | Gasket | 1 | 500.1007.0000 | 1 | Reingraphit + 1.4401 / Graphite/ | |
| 61 | Ball washer | 1 | 510.0205.0000 | 1 | 1.14401 / Hardened Stainless steel | |

Revision:

| Rev. | Date | By |
|------|------------|----|
| 01 | 2008-05-04 | |
| 02 | 2009-05-04 | |
| 03 | | |

LESER The-Safety-Valve.com

Safety Valve: **High Performance**

Order Job / Item:
Serial No.:
Consignee:
Rep. / Item:
Fax:
E-Mail:
Rep. No.: **PSV001**

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level, Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

www.valvestar.com

Spare Parts

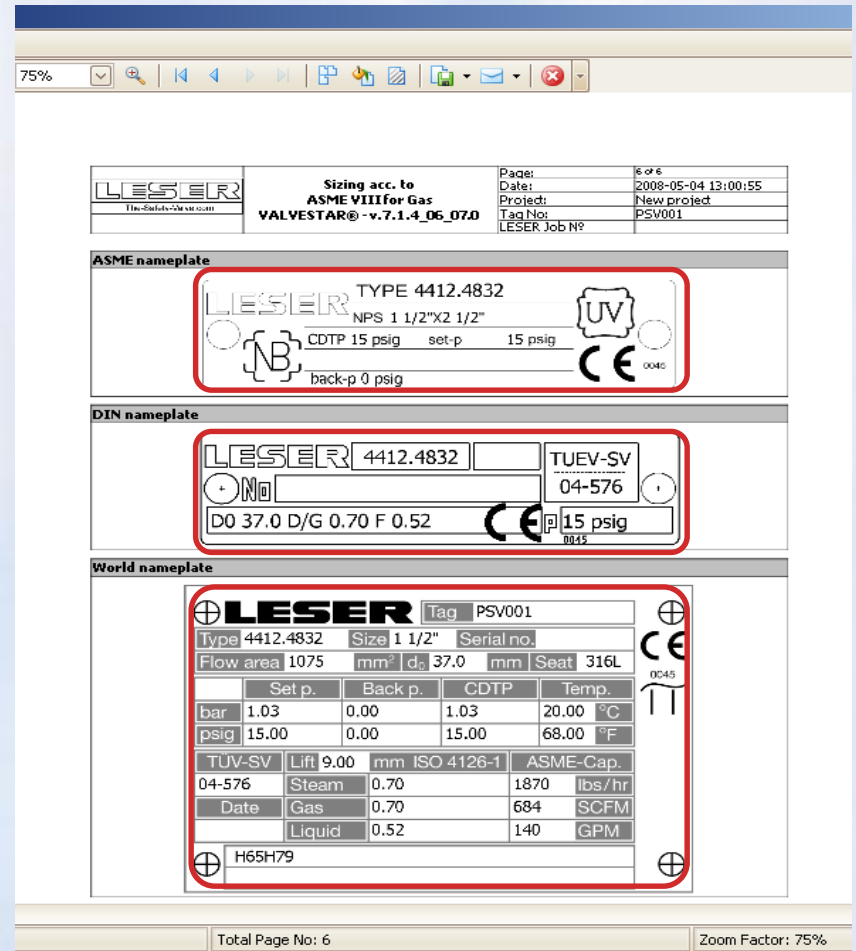


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

What is the feature “name plate”?

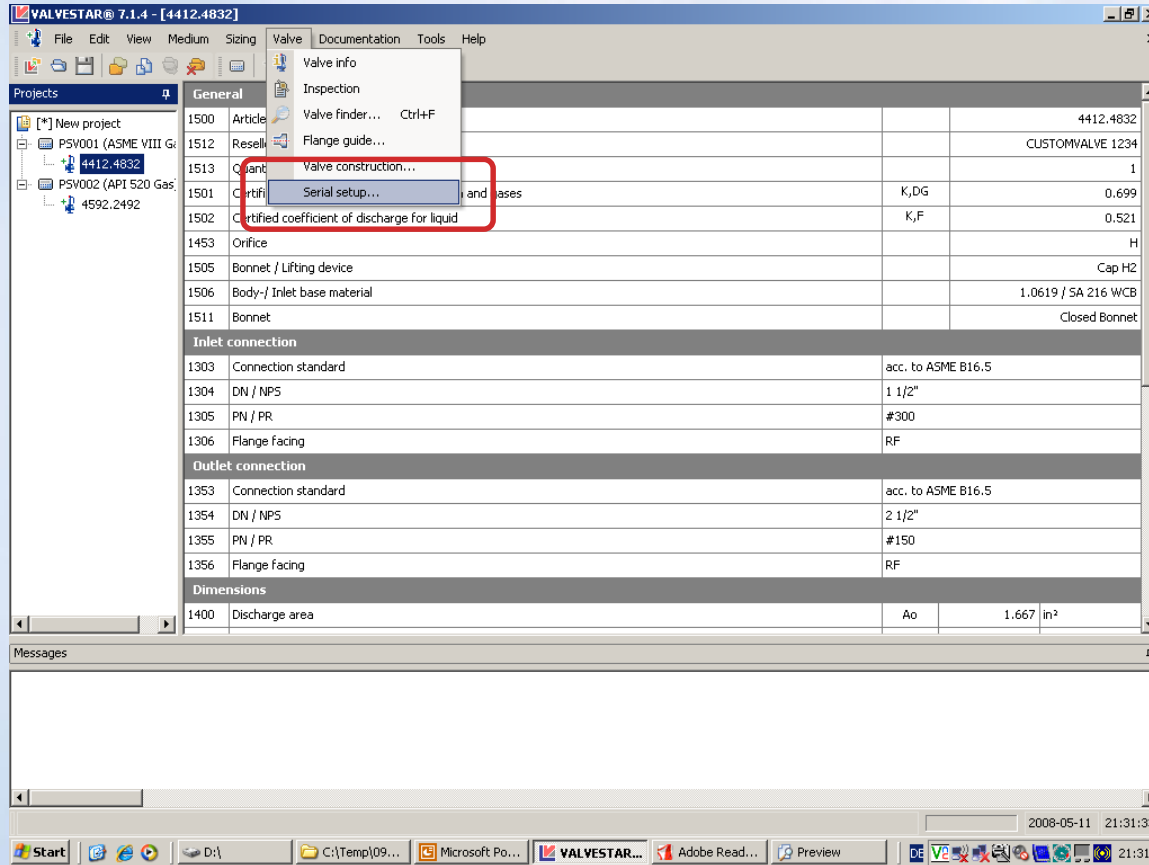
Three current nameplates are printed in the “report full-version”



Reporting

How can I add data to the initial “name plate”?

It is possible to add serial numbers and date of delivery later



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting**
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Reporting

How can I add data to the initial “name plate”?

| N° | Tag N° | Article N° | Order code | Serial number | Date |
|----|--------|------------|--------------------------------|---------------|------------|
| 1 | PSV001 | 4412.4832 | 4412.4832-15 psi-g-H65H79- ... | 12345678 | 11/05/2008 |
| 2 | PSV001 | 4412.4832 | 4412.4832-15 psi-g-H65H79- ... | 12345679 | 11/05/2008 |
| 3 | PSV002 | 4592.2492 | 4592.2492-15 psi-g-I32I49-3.1 | 12345680 | 11/05/2008 |

Reporting

After adding, what is new on “name plate”?

The screenshot displays three nameplate templates for a VALVESTAR® v.7.1.4_06_07.0 valve. The interface includes a toolbar at the top with a zoom level of 80% and a status bar at the bottom showing 'Total Page No: 6' and 'Zoom Factor: 80%'.

ASME nameplate: TYPE 4412.4832, LESER, NPS 1 1/2" x 1/2", CDTP 15 psig, set-p 15 psig, 12345678, 05/08, back-p 0 psig. Includes UV and CE marks. A red box highlights the serial number and date. A red text box below states: "This nameplate is valid for additional serial numbers, 12345679".

DIN nameplate: LESER 4412.4832, 05/08, TUEV-SV, 04-576, 12345678, D0 37.0 D/G 0.70 F 0.52, 15 psig. Includes CE mark. A red box highlights the serial number and date. A red text box below states: "This nameplate is valid for additional serial numbers, 12345679".

World nameplate: LESER, Tag PSV001, Type 4412.4832, Size 1 1/2", Serial no. 12345678, Flow area 1075 mm², d₀ 37.0 mm, Seat 316L. Includes CE and TT marks. A table below provides pressure and temperature ratings:

| | Set p. | Back p. | CDTP | Temp. |
|------|--------|---------|-------|----------|
| bar | 1.03 | 0.00 | 1.03 | 20.00 °C |
| psig | 15.00 | 0.00 | 15.00 | 68.00 °F |

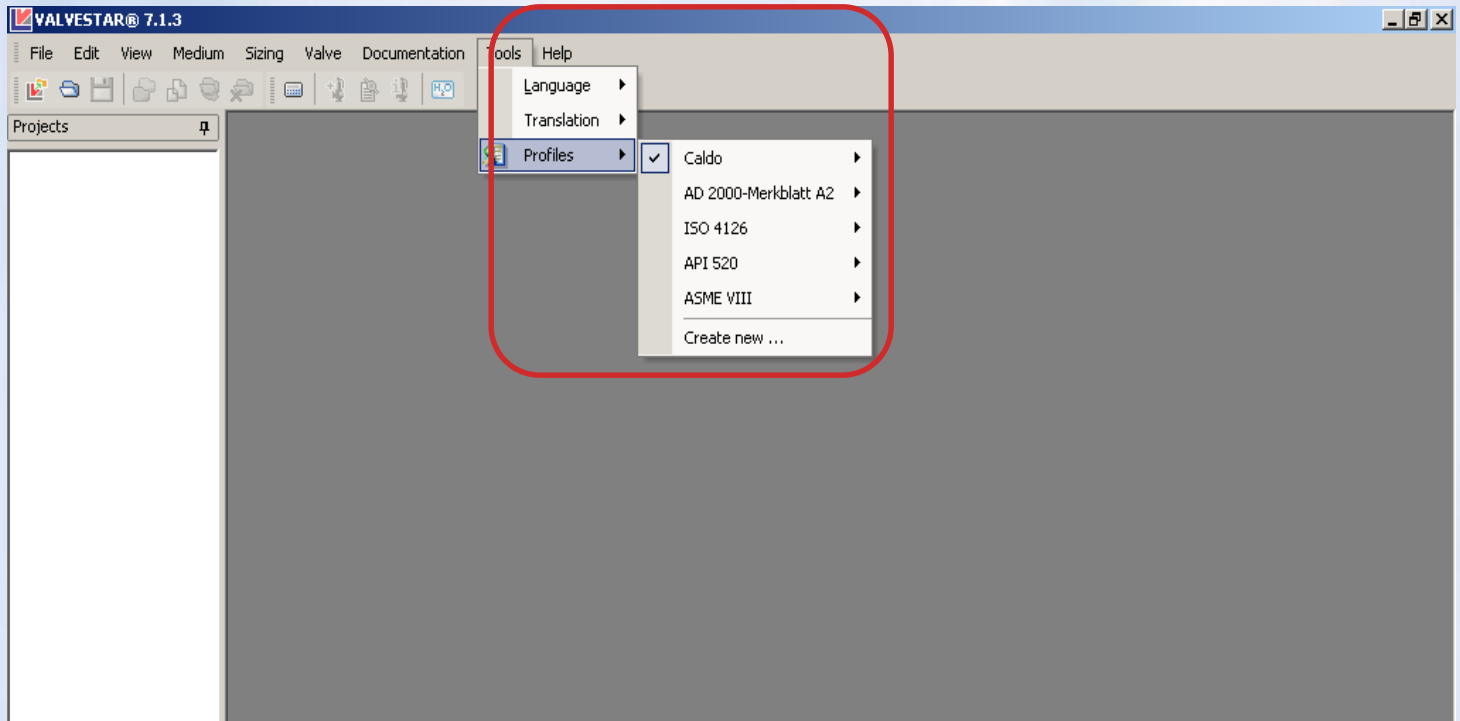
Additional table data:

| TUV-SV | Lift | mm ISO 4126-1 | ASME-Cap. |
|--------|--------|---------------|-------------|
| 04-576 | Steam | 0.70 | 1870 lbs/hr |
| | Gas | 0.70 | 684 SCFM |
| | Liquid | 0.52 | 140 GPM |

A red box highlights the serial number and date. A red text box below states: "This nameplate is valid for additional serial numbers, 12345679".

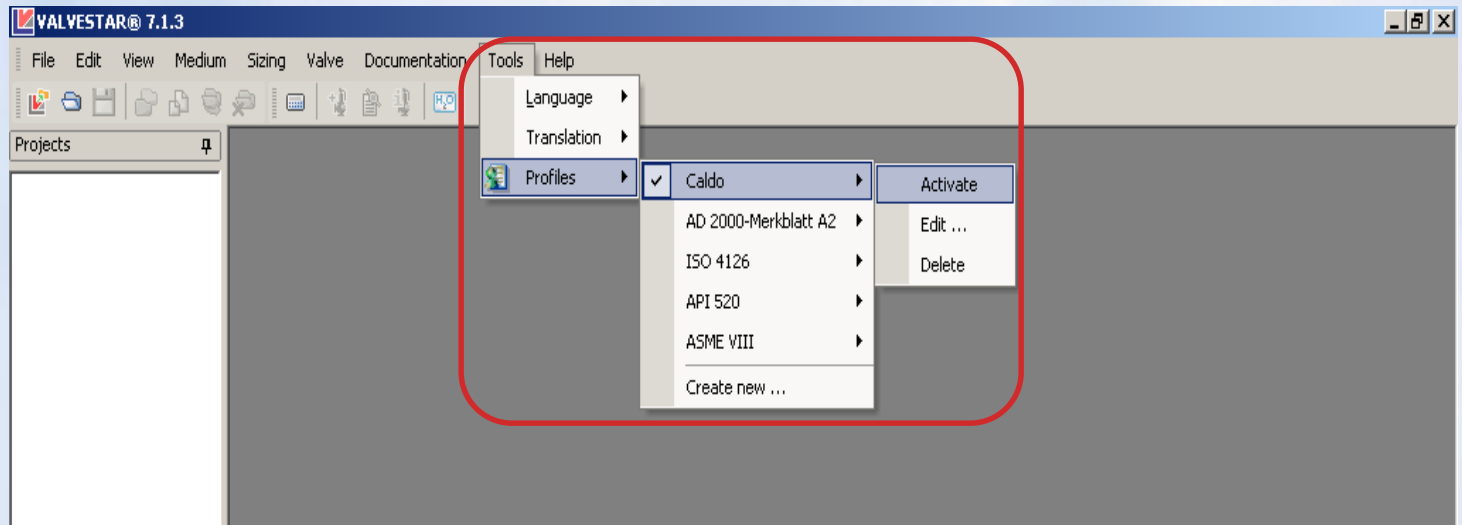
- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings Profiles



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings Profiles





- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings

Profiles

Profile
X

General | User information | Configuration | Unit settings | Valve settings | Volume flow standards | Preferences for report

| | |
|----------------|---|
| Company | LESER GmbH & Co. KG |
| Street | |
| City | |
| Zip | |
| State | |
| Country | |
| E-mail | |
| Phone | |
| Phone mobile | |
| Fax | |
| Company logo |  The-Safety-Valve.com |
| Company logo 2 |  The-Safety-Valve.com |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings Profiles

| Profile | |
|---|--------------------|
| General User information Configuration Unit settings Valve settings Volume flow standards Preferences for report | |
| User name | Andreas Caldonazzi |
| Short name for revision | Caldo |
| E-mail | |
| Phone | |
| Phone mobile | |
| Fax | |
| Approved by customer | |

| | | | | | |
|--------|---------------------|---------------------|--|--|--|
| Name | Default user | Andreas Caldonazzi | | | |
| Date | 08/15/2007 07:25:16 | 08/17/2007 11:47:28 | | | |
| Rev.No | 1 | 2 | | | |

| Profile | |
|---|-------------------|
| General User information Configuration Unit settings Valve settings Volume flow standards Preferences for report | |
| Environmental pressure | 1,013 bar |
| Decimal separator | , |
| Group separator | . |
| Application mode | Super user |
| Isentropic exponent source | DIN EN ISO 4126-1 |
| Default sizing standard | DIN EN ISO 4126-1 |
| Default volume flow standard | DIN ISO 2533 |
| Projects storage | N:\PM\MA\Cal |
| Default paper size | A4 |
| Automatic updates | Daily |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings

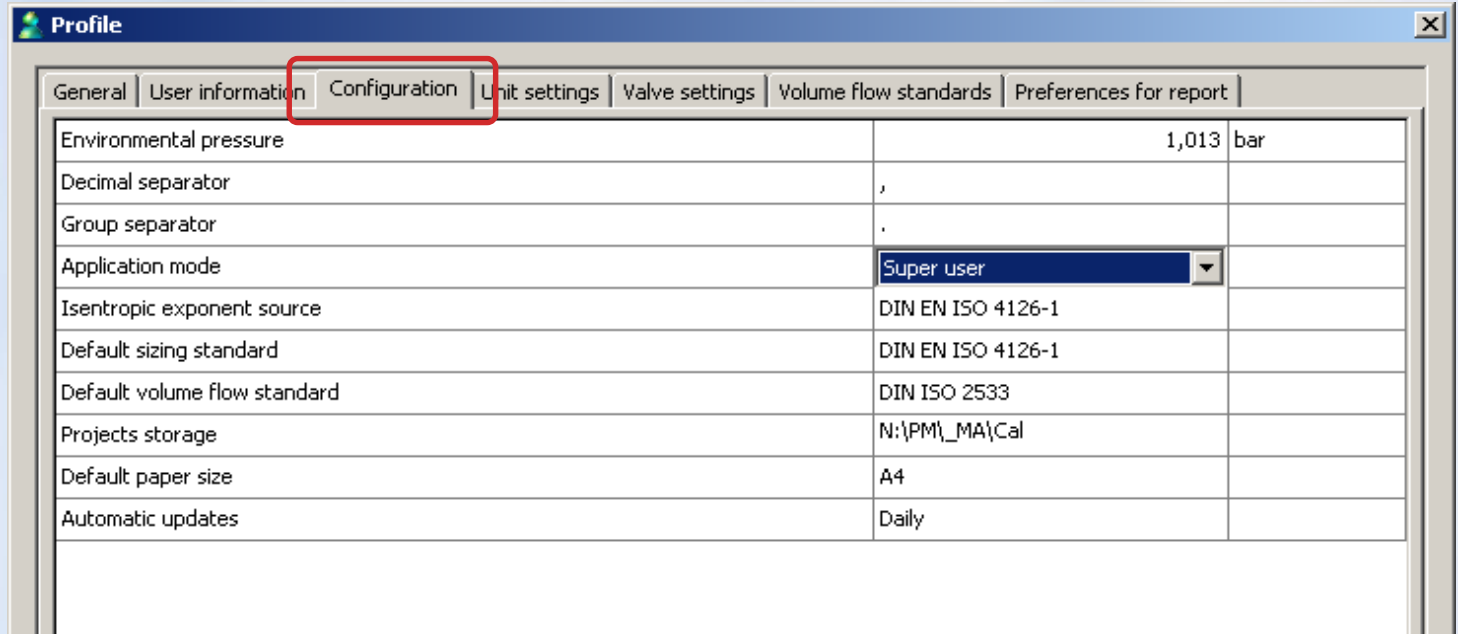
Profiles

| Profile | |
|---|--------------------|
| General User information Configuration Unit settings Valve settings Volume flow standards Preferences for report | |
| User name | Andreas Caldonazzi |
| Short name for revision | Caldo |
| E-mail | |
| Phone | |
| Phone mobile | |
| Fax | |
| Approved by customer | |

| | | | | | |
|--------|---------------------|---------------------|--|--|--|
| Name | Default user | Andreas Caldonazzi | | | |
| Date | 08/15/2007 07:25:16 | 08/17/2007 11:47:28 | | | |
| Rev.No | 1 | 2 | | | |

Settings

Profiles



Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level,
Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

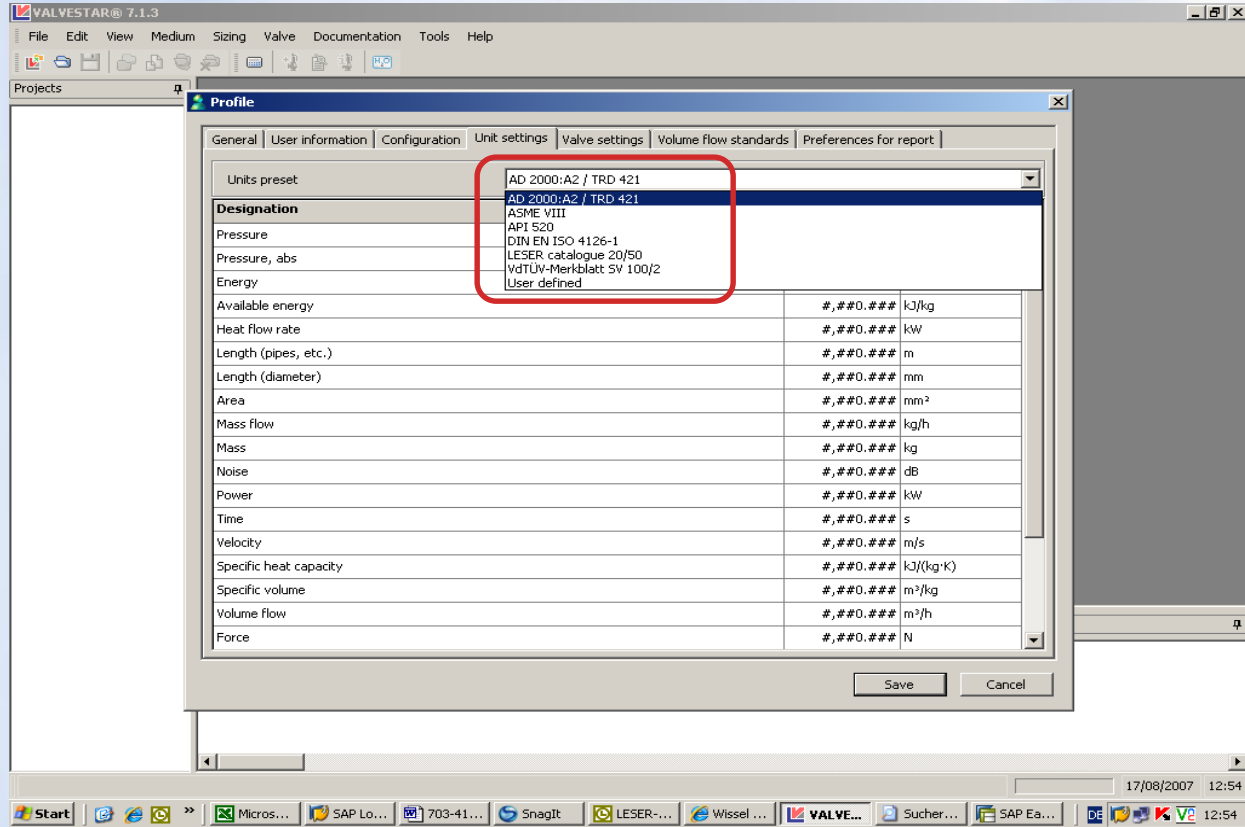
Update via Internet

www.valvestar.com

Spare Parts

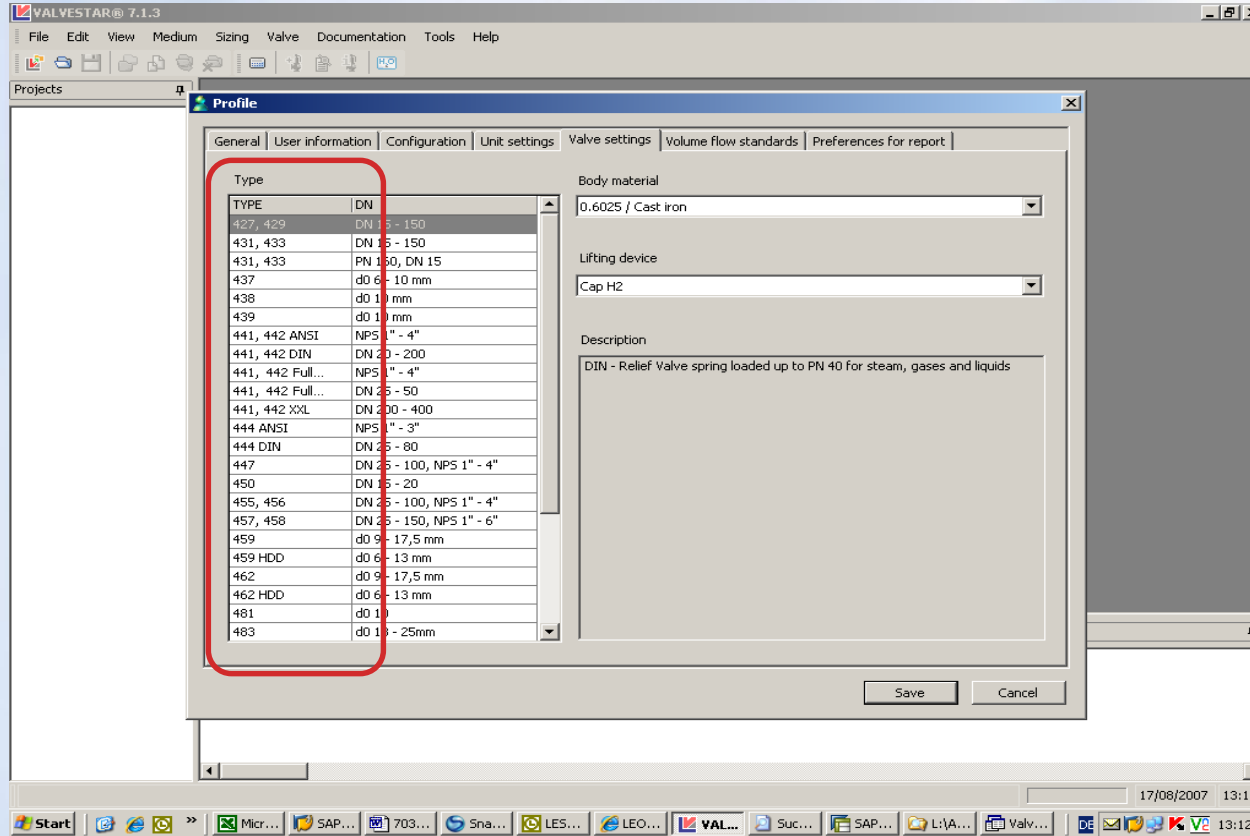
Settings

Profiles



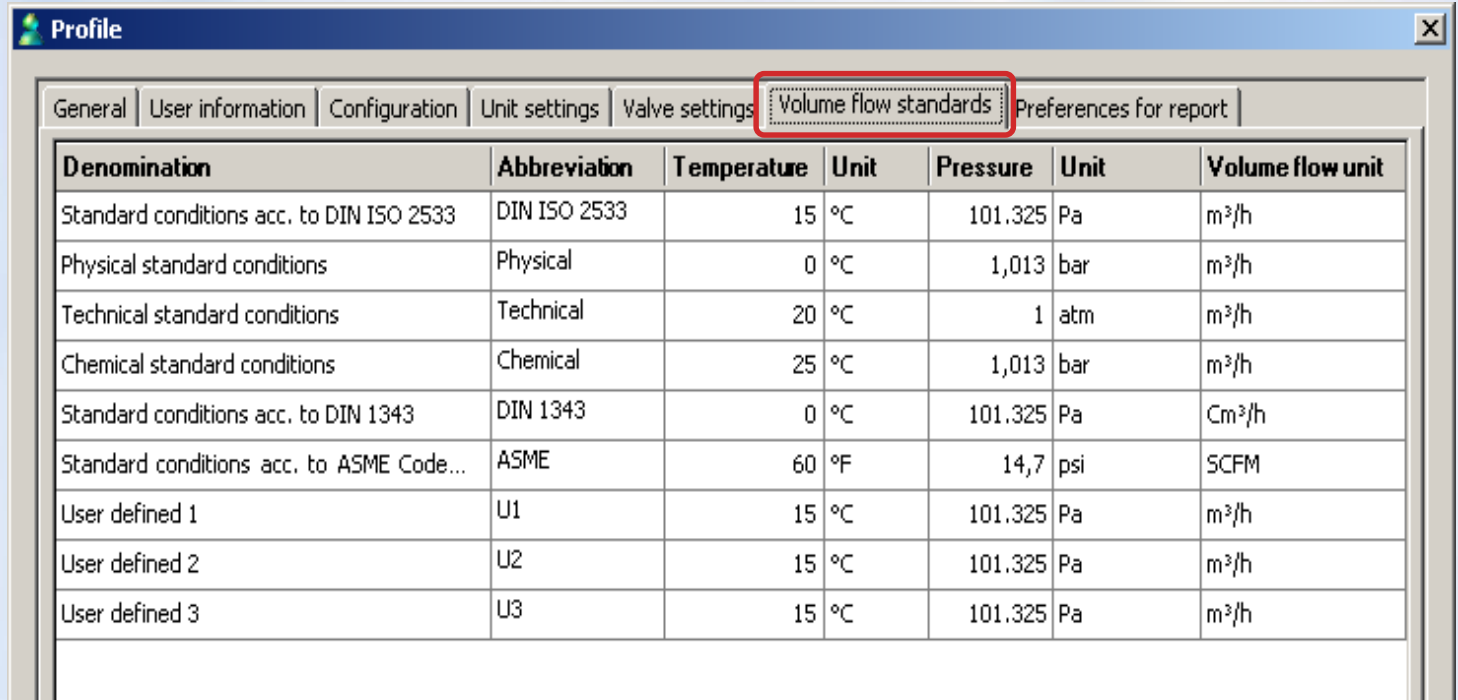
- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings**
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Settings Profiles



Settings

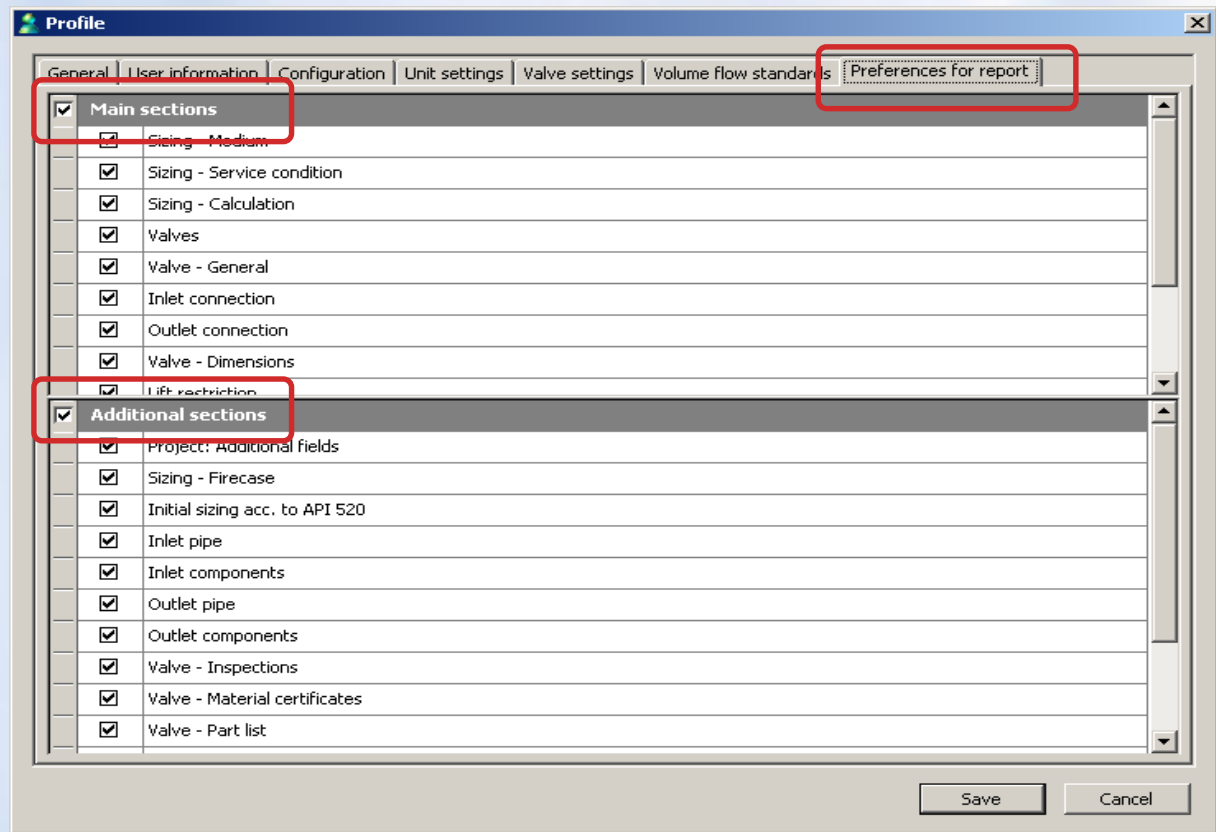
Profiles



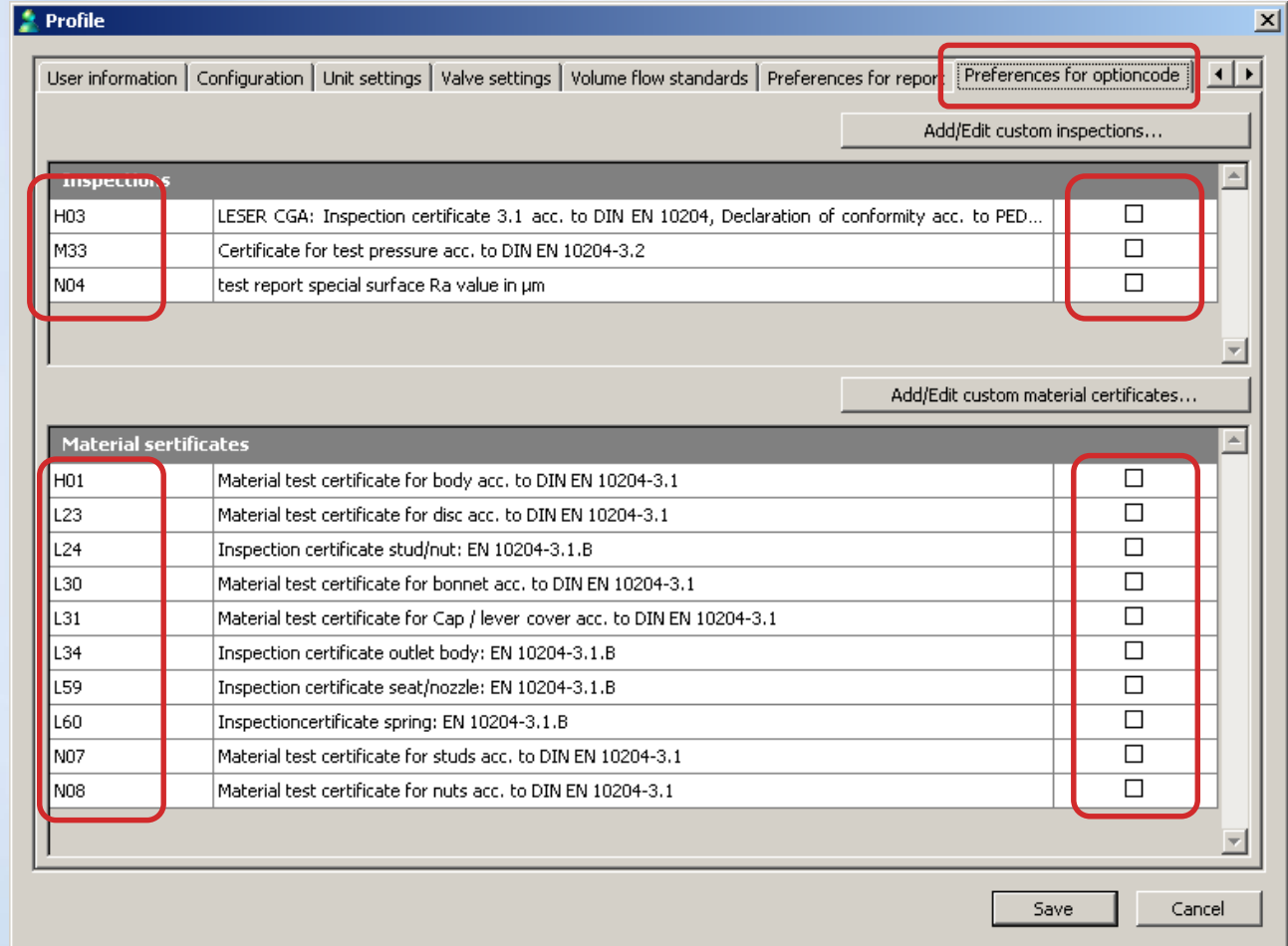
| Denomination | Abbreviation | Temperature | Unit | Pressure | Unit | Volume flow unit |
|--|--------------|-------------|------|----------|------|--------------------|
| Standard conditions acc. to DIN ISO 2533 | DIN ISO 2533 | 15 °C | | 101.325 | Pa | m ³ /h |
| Physical standard conditions | Physical | 0 °C | | 1,013 | bar | m ³ /h |
| Technical standard conditions | Technical | 20 °C | | 1 | atm | m ³ /h |
| Chemical standard conditions | Chemical | 25 °C | | 1,013 | bar | m ³ /h |
| Standard conditions acc. to DIN 1343 | DIN 1343 | 0 °C | | 101.325 | Pa | Cm ³ /h |
| Standard conditions acc. to ASME Code... | ASME | 60 °F | | 14,7 | psi | SCFM |
| User defined 1 | U1 | 15 °C | | 101.325 | Pa | m ³ /h |
| User defined 2 | U2 | 15 °C | | 101.325 | Pa | m ³ /h |
| User defined 3 | U3 | 15 °C | | 101.325 | Pa | m ³ /h |

Settings

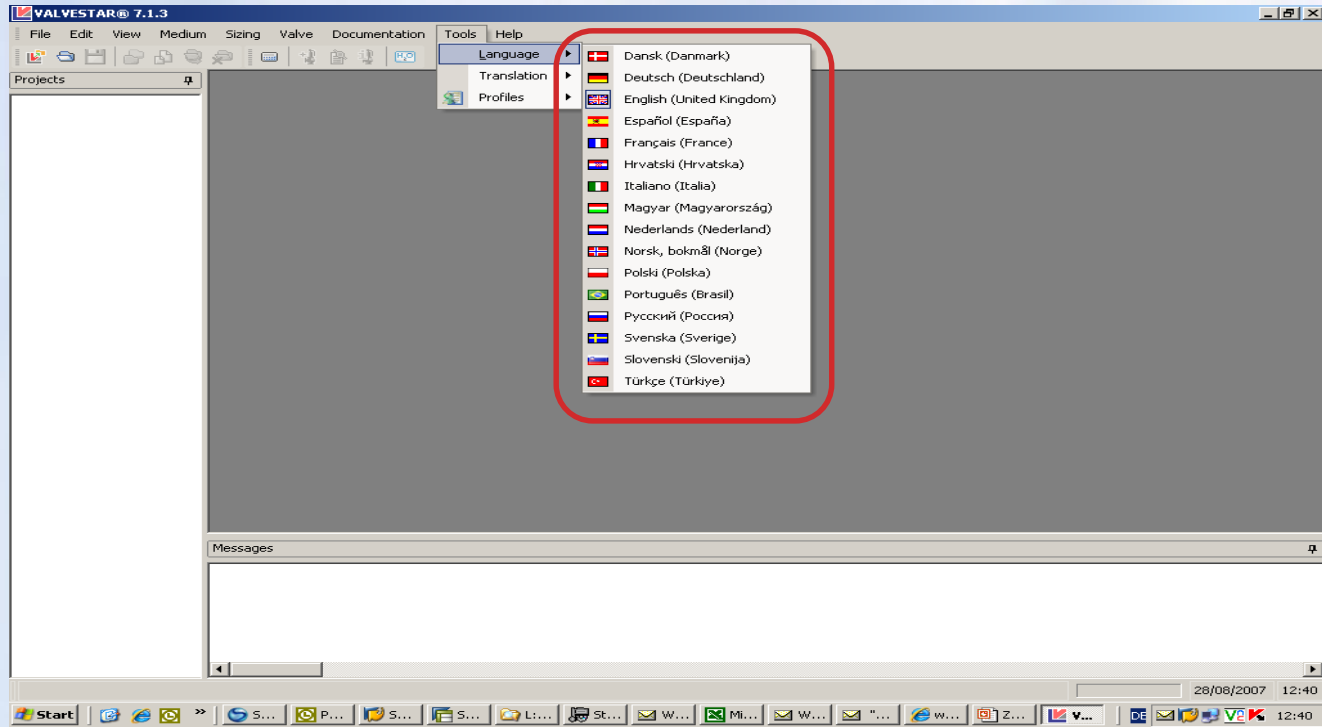
Profiles



Settings Profiles



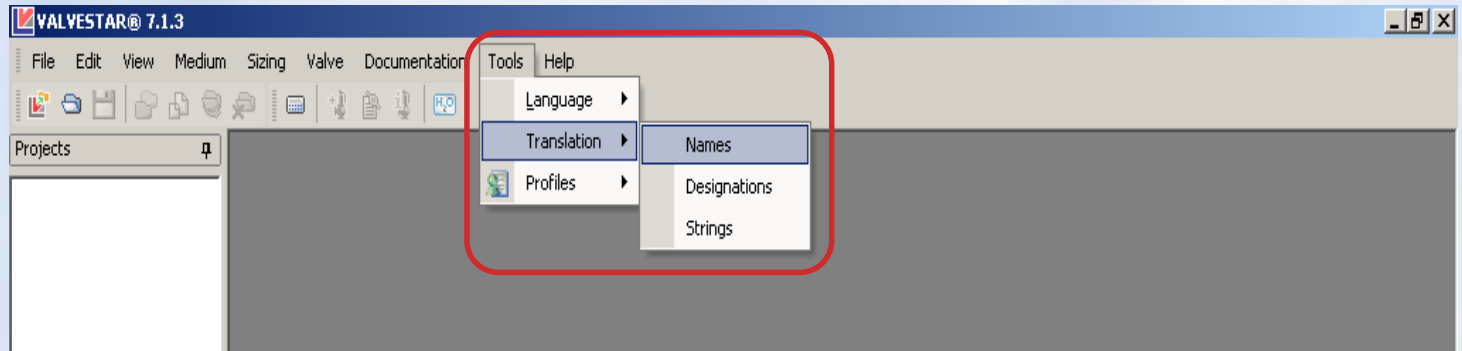
Language



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language**
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

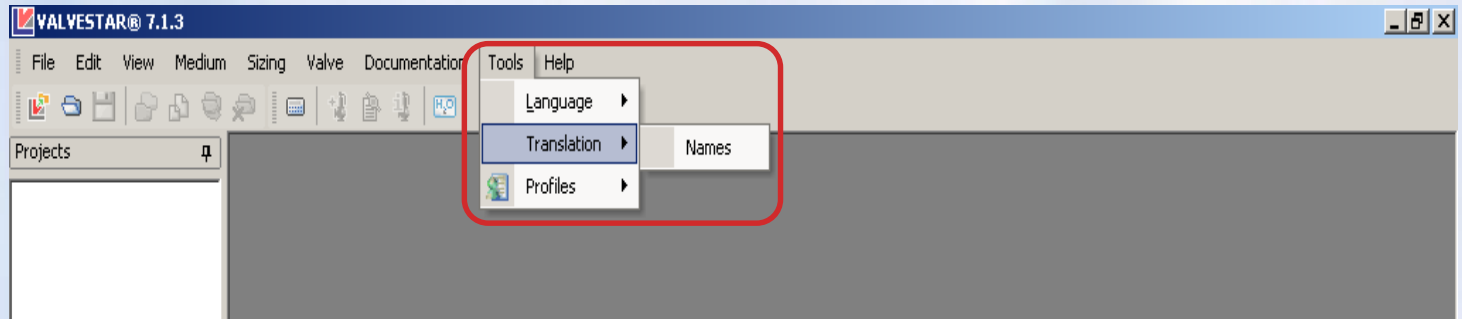
- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation**
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Translation



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation**
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Translation



How to change data

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level,
Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

www.valvestar.com

Spare Parts

VALVESTAR@ 7.1.3 - [PSV 004 (ASME VIII Gas)]

File Edit View Medium Sizing Valve Documentation Tools Help

Projekte

- [*] Project 2007
 - PSV 001 (ASME VIII Gas) 5262.5902
 - PSV 002 (ASME VIII Gas) 5262.5902
 - PSV 003 (ASME VIII Gas) 5262.5902
 - PSV 004 (ASME VIII Gas) 5262.5902
 - PSV 005 (ASME VIII Gas) 5262.5902

| | | | |
|--------------------------|---|------------|--------------------------------|
| 1008 | Tag No | PSV 005 | |
| 1009 | Case for blow off | | |
| Medium | | | |
| 1000 | Designation | Butane (n) | |
| 1004 | Formula | C4 H10 | |
| 1001 | Molar mass | M | 58,1 kg/kmol |
| 1002 | Ratio of specific heats | k | 1,090 |
| 1003 | Compressibility factor | Z | 1,000 |
| Service condition | | | |
| 1100 | Maximum allowable working pressure (MAWP) | MAWP | - psi-g |
| 1101 | Set pressure | p | 15 psi-g |
| 1102 | Superimposed back pressure | paf | 0 psi-g |
| 1103 | Built up back pressure | pae | - psi |
| 1104 | Backpressure | | 0 psi-g |
| 1105 | Overpressure | dp | 3,00 psi |
| 1106 | Environmental pressure | pu | 14,696 psi |
| 1107 | Temperature | T | 400 °F |
| 1108 | Required massflow | qm,ab | 10.000 lb/h |
| 1109 | Volume flow to be discharged (working condition) | qvb,ab | 48.564,256 ft³/h |
| 1110 | Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | 1.088,13 SCFM |
| | Default volume flow standard | | ASME |
| 1120 | Rupture disc correction factor | Kc | 1,000 <input type="checkbox"/> |

Nachrichten

05/09/2007 13:00

How to change data

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data**
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

The screenshot shows the VALVESTAR 7.1.3 software interface. The 'General' tab is active, displaying a table of parameters for a project. The 'Inlet connection' section is highlighted, and a red callout box points to the 'acc. to ASME B16.5' value in the 'Connection standard' row. Another red callout box points to the 'PSV 005 (ASME VIII Gas)' entry in the project list. A third red callout box points to the 'Inlet connection' section with the text 'Not possible to change'.

| General | | | | |
|-------------------|--|------|-------|---------------------|
| 1500 | Article number | | | 5262.5902 |
| 1501 | Certified coefficient of discharge for steam and gases | K,DG | | 0,801 |
| 1502 | Certified coefficient of discharge for liquid | K,F | | 0,579 |
| 1453 | Orifice | | | N |
| 1505 | Bonnet / Lifting device | | | Cap H2 |
| 1506 | Body material | | | 1.0619 / SA 216 WCB |
| 1511 | Bonnet | | | Closed Bonnet |
| Inlet connection | | | | |
| 1303 | Connection standard | | | acc. to ASME B16.5 |
| 1304 | DN / NPS | | | 4" |
| 1305 | PN / PR | | | #150 |
| 1306 | Flange facing | | | RF |
| Outlet connection | | | | |
| 1353 | Connection standard | | | acc. to ASME B16.5 |
| 1354 | DN / NPS | | | 6" |
| 1355 | PN / PR | | | #150 |
| 1356 | Flange facing | | | RF |
| Dimensions | | | | |
| 1400 | Discharge area | Ao | 5,303 | in ² |
| 1401 | Discharge diameter | do | 2,598 | inch |
| 1402 | Centre to Face dimensions | a | 7,756 | inch |

How to change data

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data**
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

Valve connections
Specify the inlet and outlet parameters.

| Capacity exceed [%] | Certified massflow [lb/h] | Article No. | DN inlet x DN outlet | d0 | Description |
|---------------------|---------------------------|-------------|----------------------|----|--------------------------|
| 8,57 | 10.856,718 | 5262.5902 | 4N6 | 66 | Type 5262 Orifice N #150 |

Possible inlet connections

| Type | Flanged connection |
|--------------------------|--------------------|
| 1303 Connection standard | acc. to ASME B16.5 |
| 1304 DN / NPS | 4" |
| 1305 PN / PR | #150 |
| 1306 Flange facing | RF |

Possible outlet connections

| Type | Flanged connection |
|--------------------------|--------------------|
| 1353 Connection standard | acc. to ASME B16.5 |
| 1354 DN / NPS | 6" |
| 1355 PN / PR | #150 |
| 1356 Flange facing | RF |

Selected inlet connection

| | |
|--------------------------|--|
| 1303 Connection standard | |
| 1304 DN / NPS | |
| 1305 PN / PR | |
| 1306 Flange facing | |

Selected outlet connection

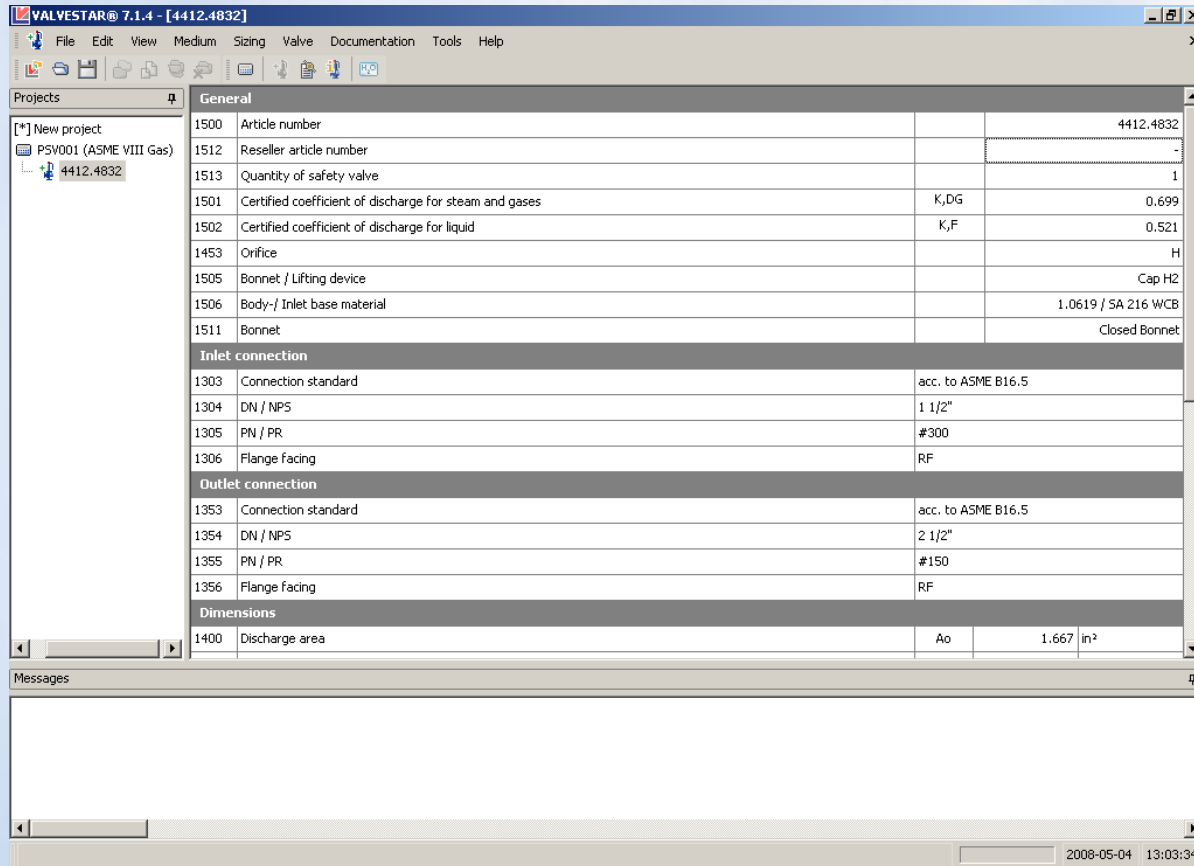
| | |
|--------------------------|--------------------|
| 1353 Connection standard | acc. to ASME B16.5 |
| 1354 DN / NPS | 6" |
| 1355 PN / PR | #150 |
| 1356 Flange facing | RF |

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data**
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts

How to change data

How to manually input a reseller article no.

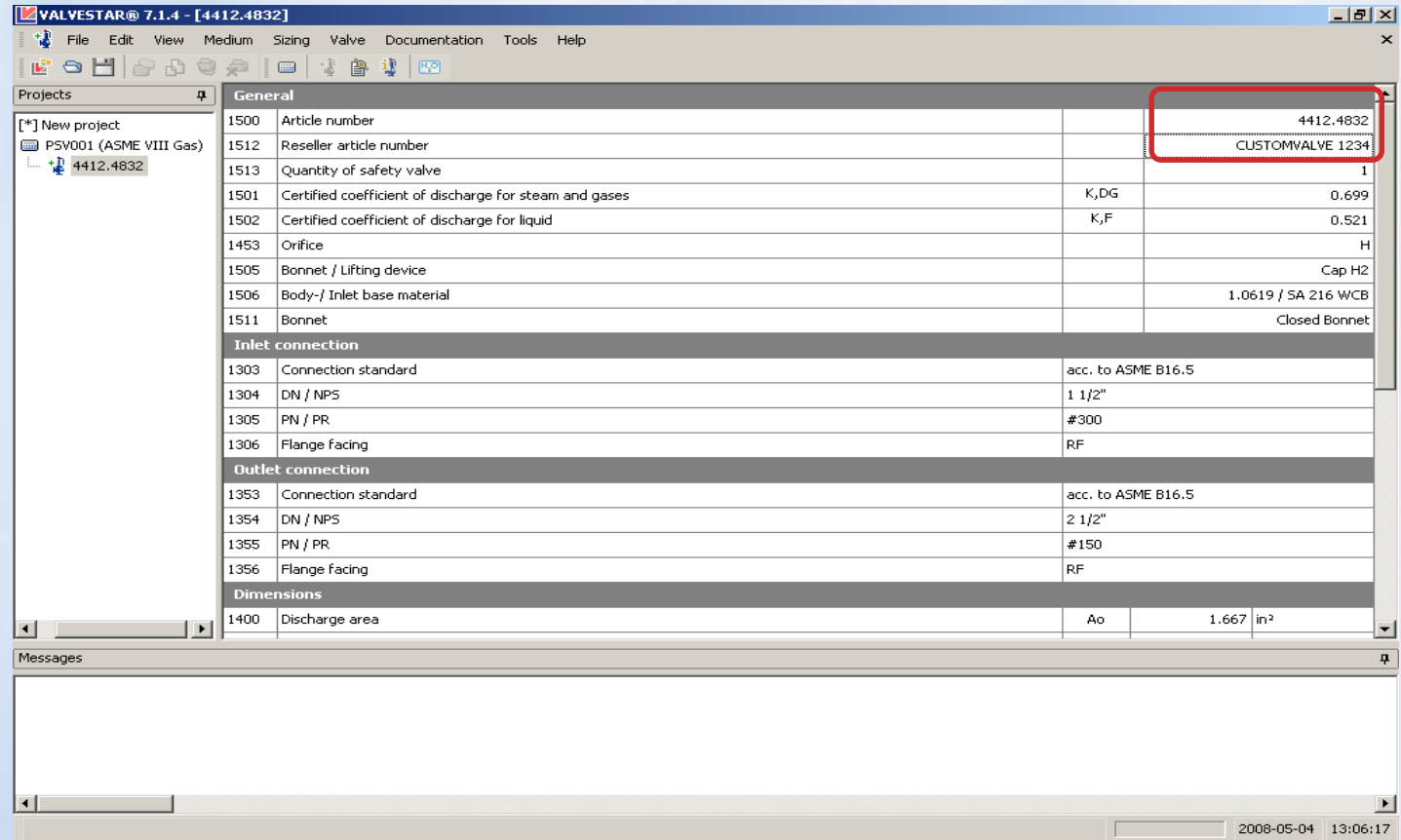
First: Do a standard sizing



How to change data

How to manually input a reseller article no.

Second: Add a reseller article no.



Copy and Paste

The screenshot shows the VALVESTAR 7.1.3 software interface. The 'Edit' menu is open, with 'Copy' and 'Paste' options highlighted. The main window displays a table of properties for a valve assembly. The table is divided into sections: 'Medium' and 'Service condition'.

| Medium | | | |
|-------------------|---|--------|------------------|
| 1000 | Designation | | Butane (n) |
| 1004 | Formula | | C4 H10 |
| 1001 | Molar mass | M | 58,1 kg/kmol |
| 1002 | Ratio of specific heats | k | 1,090 |
| 1003 | Compressibility factor | Z | 1,000 |
| Service condition | | | |
| 1100 | Maximum allowable working pressure (MAWP) | MAWP | - psi-g |
| 1101 | Set pressure | p | 15 psi-g |
| 1102 | Superimposed back pressure | paf | 0 psi-g |
| 1103 | Built up back pressure | pae | - psi |
| 1104 | Backpressure | | 0 psi-g |
| 1105 | Overpressure | dp | 3,00 psi |
| 1106 | Environmental pressure | pu | 14,696 psi |
| 1107 | Temperature | T | 400 °F |
| 1108 | Required massflow | qm,ab | 10.000 lb/h |
| 1109 | Volume flow to be discharged (working condition) | qv,ab | 48.564,256 ft³/h |
| 1110 | Volume flow to be discharged (std condition) [T=60 °F P=14,7 psi] | qvn,ab | 1.088,13 SCFM |
| | Default volume flow standard | | ASME |

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level, Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

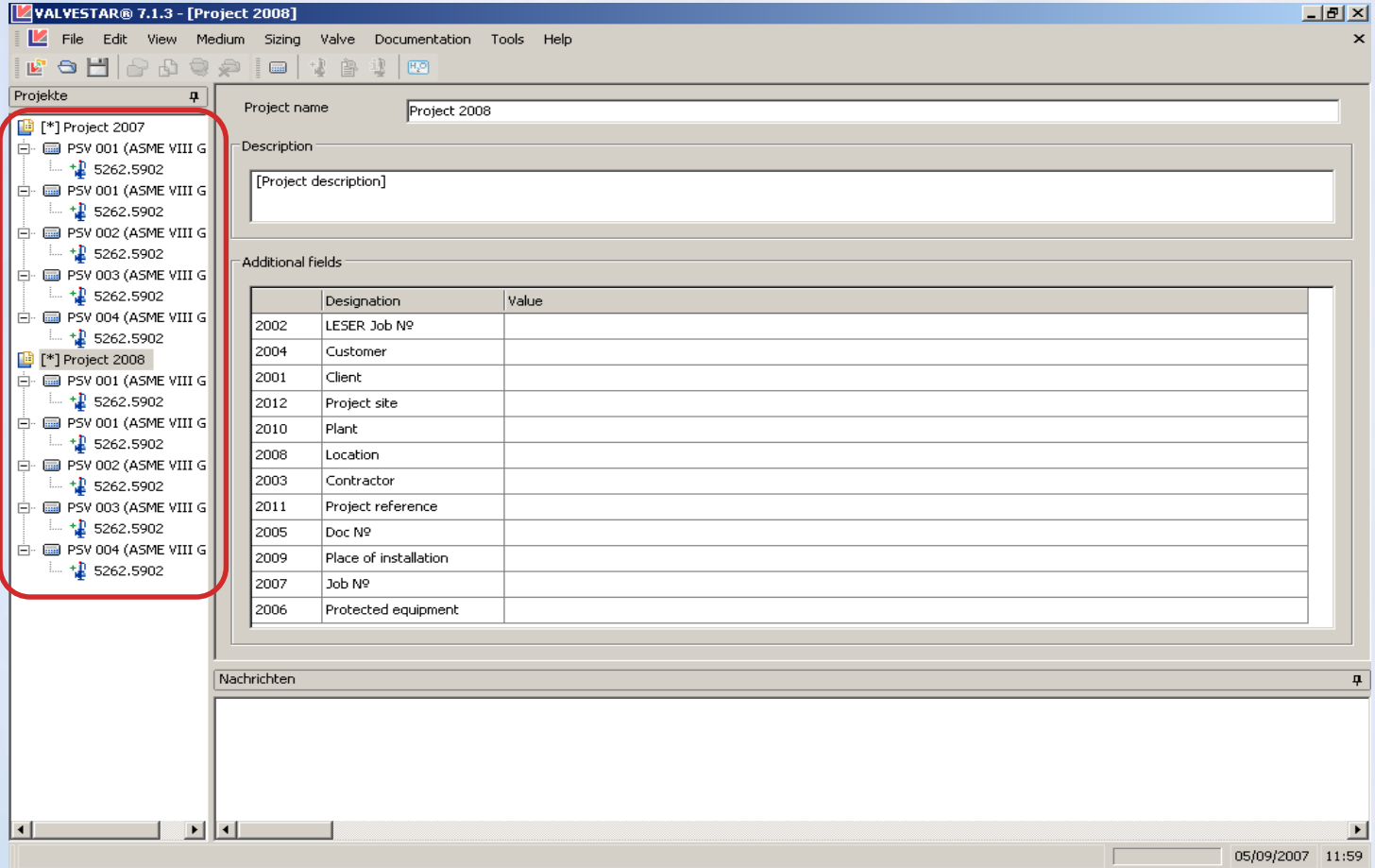
Update via Internet

www.valvestar.com

Spare Parts

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste**
- Update via Internet
- www.valvestar.com
- Spare Parts

Copy and Paste

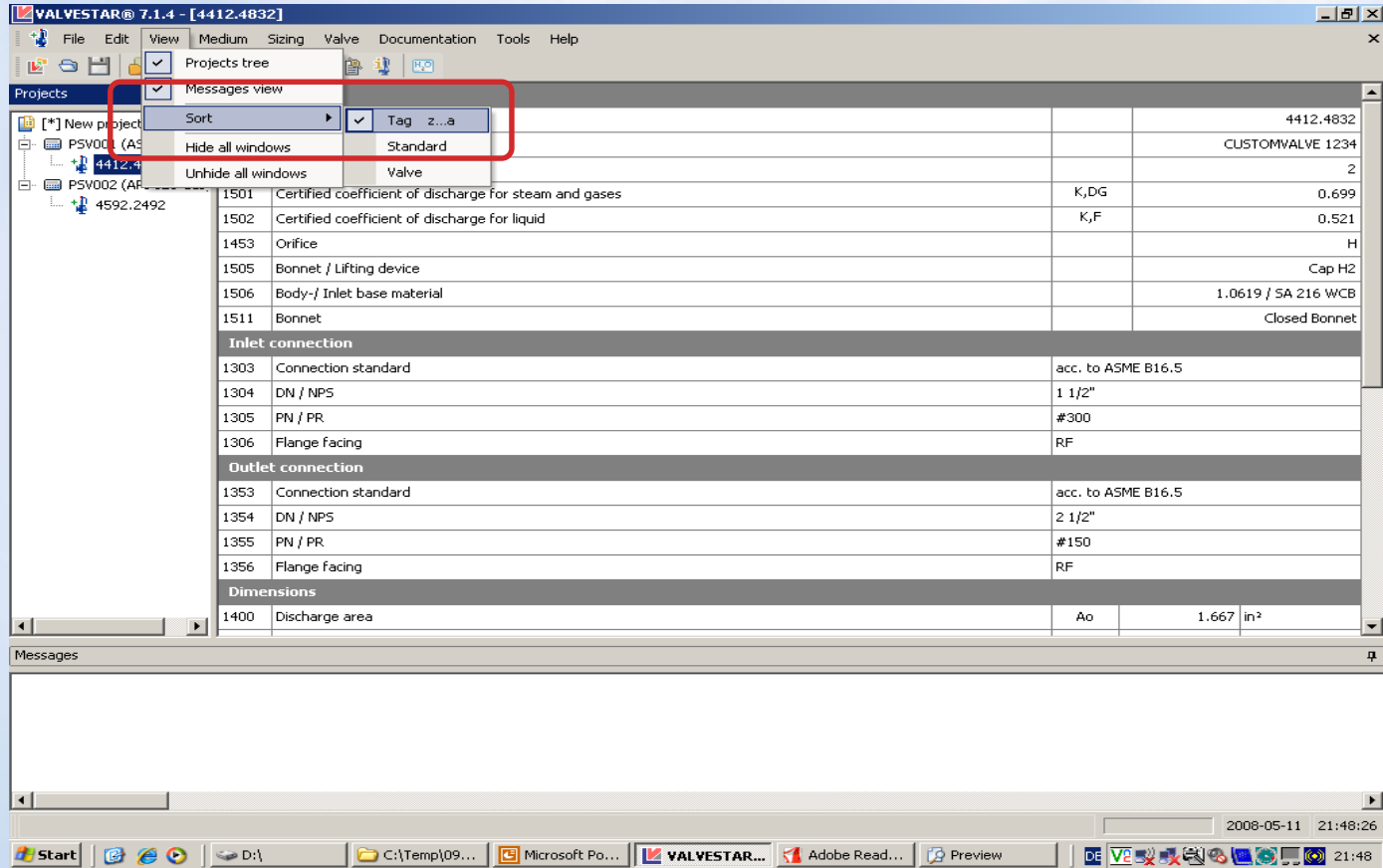


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste**
- Update via Internet
- www.valvestar.com
- Spare Parts

How to change data

What are the features for better handling?

Sort function in menue "View"

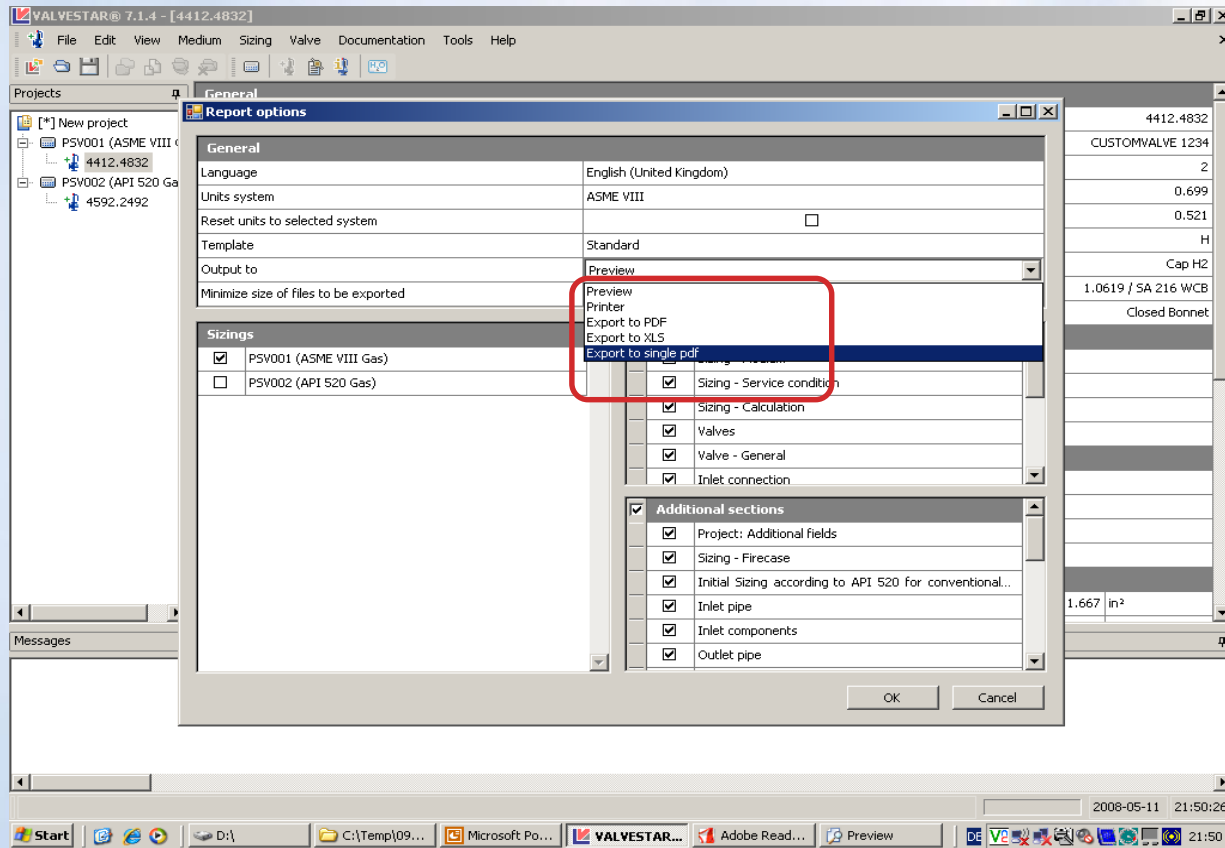


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste**
- Update via Internet
- www.valvestar.com
- Spare Parts

How to change data

What are the features for better handling?

Printing in one pdf-file for all sizings of one project can be done with documentation “report full-version”

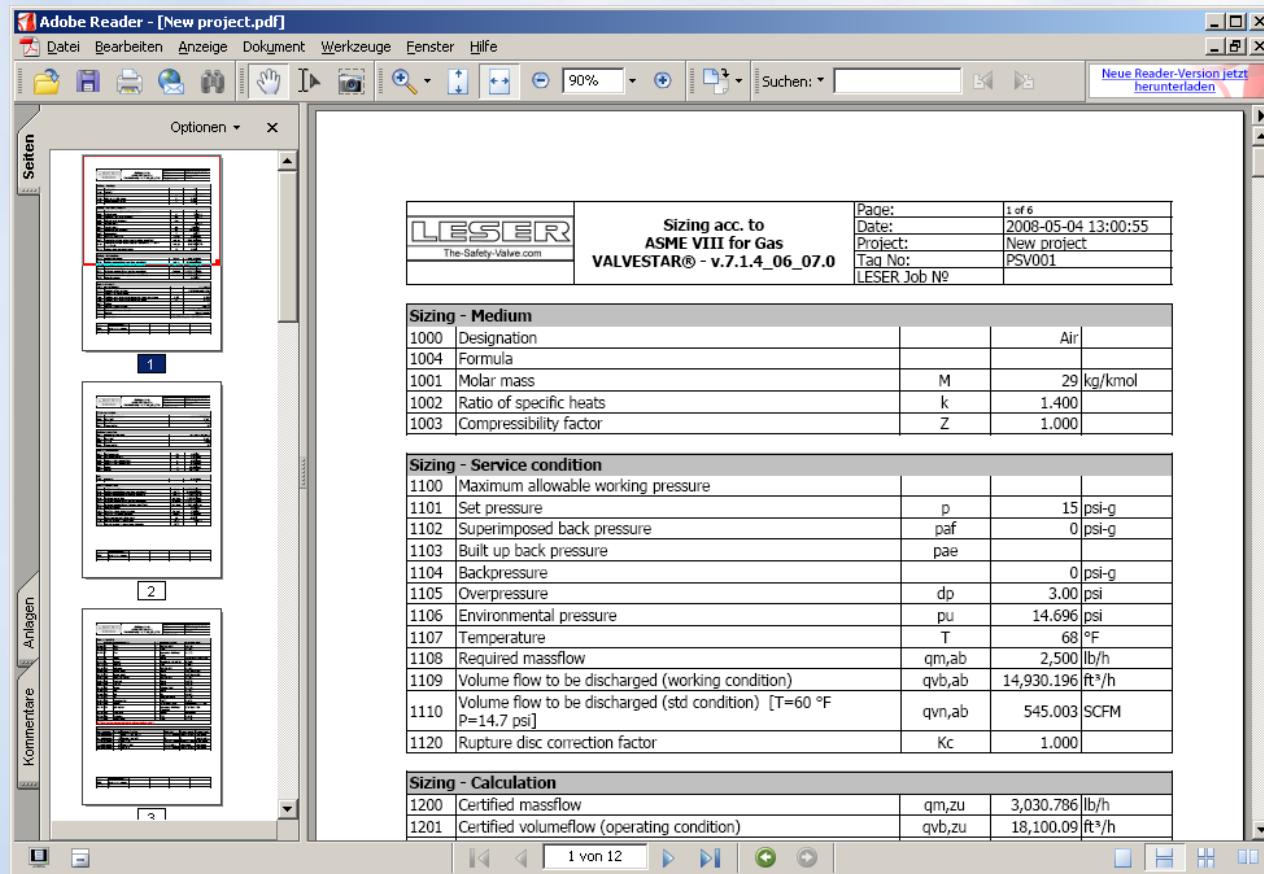


- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste**
- Update via Internet
- www.valvestar.com
- Spare Parts

How to change data

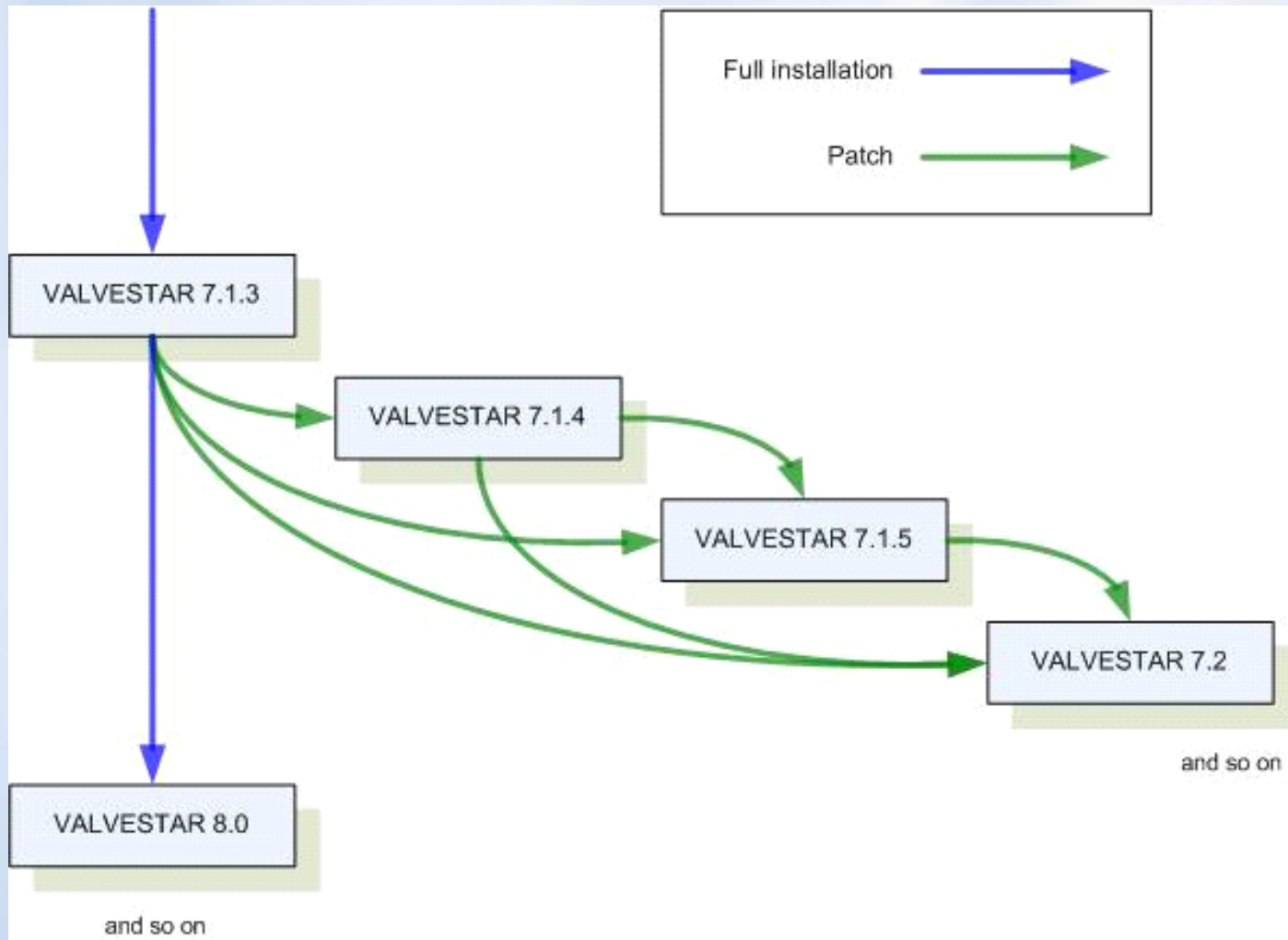
Where is the pdf-filed automatically?

Filed in the project storage”



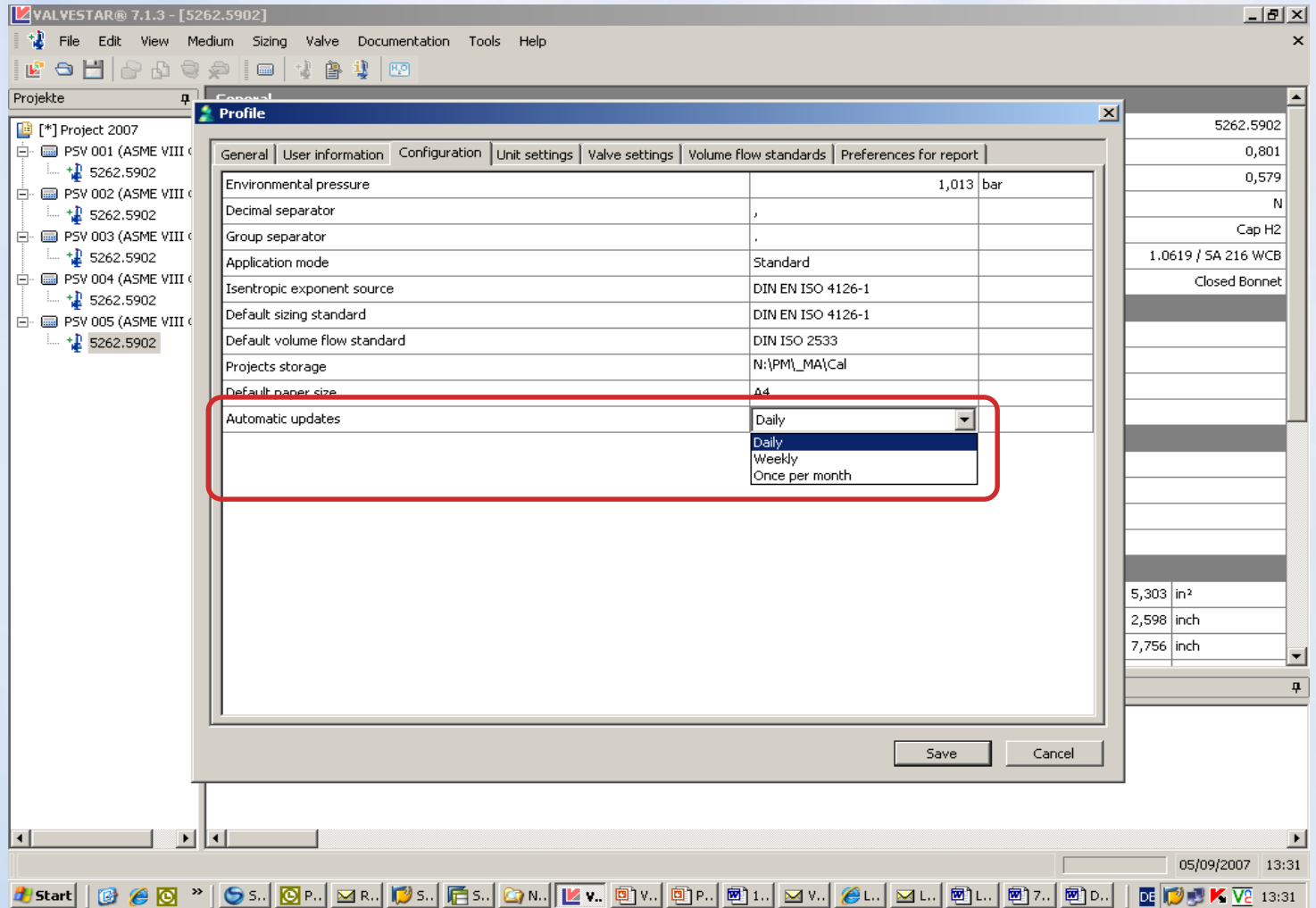
- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet**
- www.valvestar.com
- Spare Parts

Update via Internet



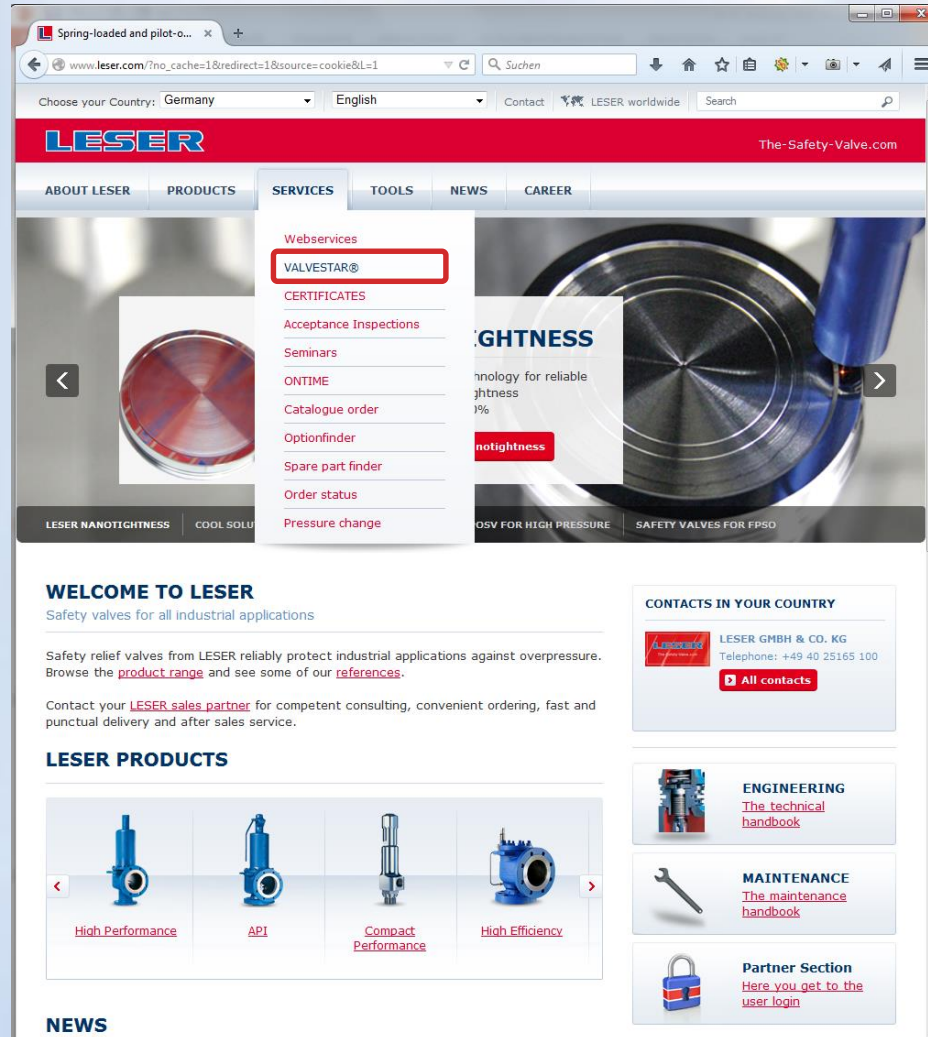
Update via Internet

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet**
- www.valvestar.com
- Spare Parts



Update via Internet

Homepage – www.leser.com



Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level, Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

www.valvestar.com

Spare Parts



The-Safety-Valve.com

Update via Internet

www.leser.com/en/services/valvestar


English Contact LESER worldwide Search

LESER The Safety-Valve.com

ABOUT LESER PRODUCTS SERVICES TOOLS NEWS CAREER

You are here: [LESER GmbH & Co. KG](#) > [Services](#) > VALVESTAR®

VALVESTAR®



VALVESTAR® is the LESER-developed program for sizing of safety valves. It takes into account all leading global standards and codes. In addition to calculation and sizing the program also offers variable, individually-arranged reports for technical documentation and archiving. VALVESTAR® is unique in nature, scope, and quality. More than 5000 users are already using either VALVESTAR® or VALEVSTAR®-Web.

If you have questions please contact:
Andreas Caldonazzi
E-Mail: valvestar@leser.com

PROGRAM-HIGHLIGHTS

SIZING

- Sizing of safety valves in accordance with the leading global standards and codes (i.e. API 526, ASME Sec. VIII Div. 1, ISO 4126-1/ -4, AD 2000-Merkblatt A2).
- Calculates two-phase flow in accordance with API 520 Appendix C and fire case according to API 521
- Calculates inlet pressure loss, back pressure, reaction forces, and noise level.

DOCUMENTATION

- Various types of documents are selectable (i.e. Project Reports, single-page reports, and ISA data sheets)
- Customizable report layouts (customer logo, address, etc.)
- Exportable in different data formats (i.e. XLS, HTML, PDF, etc.)
- Integrated parts lists and sectional drawings of all LESER safety valves
- Spare parts lists- Spereist

DESIGN UND USE

- User friendly wizard function leads you step by step through the sizing process
- Microsoft.Net architecture offers the most modern graphical user interface for simple operation and better performance.

PRESETS

Customizable user interface:

- User-specific profile set-up with pre-selectable units of measure, calculation methods, and more.
- More than 15 selectable languages.

THE FOLLOWING OPTIONS ARE AVAILABLE TO YOU:

| | | |
|---------------------|---|-----------------------------------|
| VALVESTAR®-Web | web-based use of VALVESTAR® without need of administrative rights | to VALVESTAR®-Web |
| Download VALVESTAR® | Download VALVESTAR® 7.3.0 as a program (approx. 300 MB) | |
| Update | Update your version to VALVESTAR® 7.3.0 (ca. 10 MB, requires 7.2.3) | |

Introduction

Sizing

Fire Case

Two Phase Flow

Add. Sizing, Noise Level,
Reaction Force

Reporting

Settings

Language

Translation

How to change data

Copy and paste

Update via Internet

www.valvestar.com

Spare Parts

- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com**
- Spare Parts

VALVESTAR Web - Microsoft Internet Explorer bereitgestellt von LESER GmbH & Co KG

http://www.valvestar.com/UI/MainForm/Workspace/Authentication/Authentication.aspx

LESER The Safety-Valve.com

New user registration Language

About LESER VALVESTAR ®

VALVESTAR ®, the sizing program for safety valves developed by LESER, supports all leading worldwide codes and standards.

In addition to calculations and sizing the program provides user designed and configurable individual reports for technical documentation and archiving. VALVESTAR ® is unique in form, functionality and quality.

www.leser.com

Agreement

The VALVESTAR ® software is based on the existing Safety Valve construction standards currently enforced in the Federal Republic of Germany, USA and other countries.

Liability for damages suffered as a result of using VALVESTAR ® is restricted to intention. Any further liability is excluded.

Agree

Authentication (Why Authentication?)

Please provide authentication information

Login:

Password:

Log on **New user registra**

LESER provides authenticated user free disk space at the VALVESTAR server

- to save projects
- to save personally settings

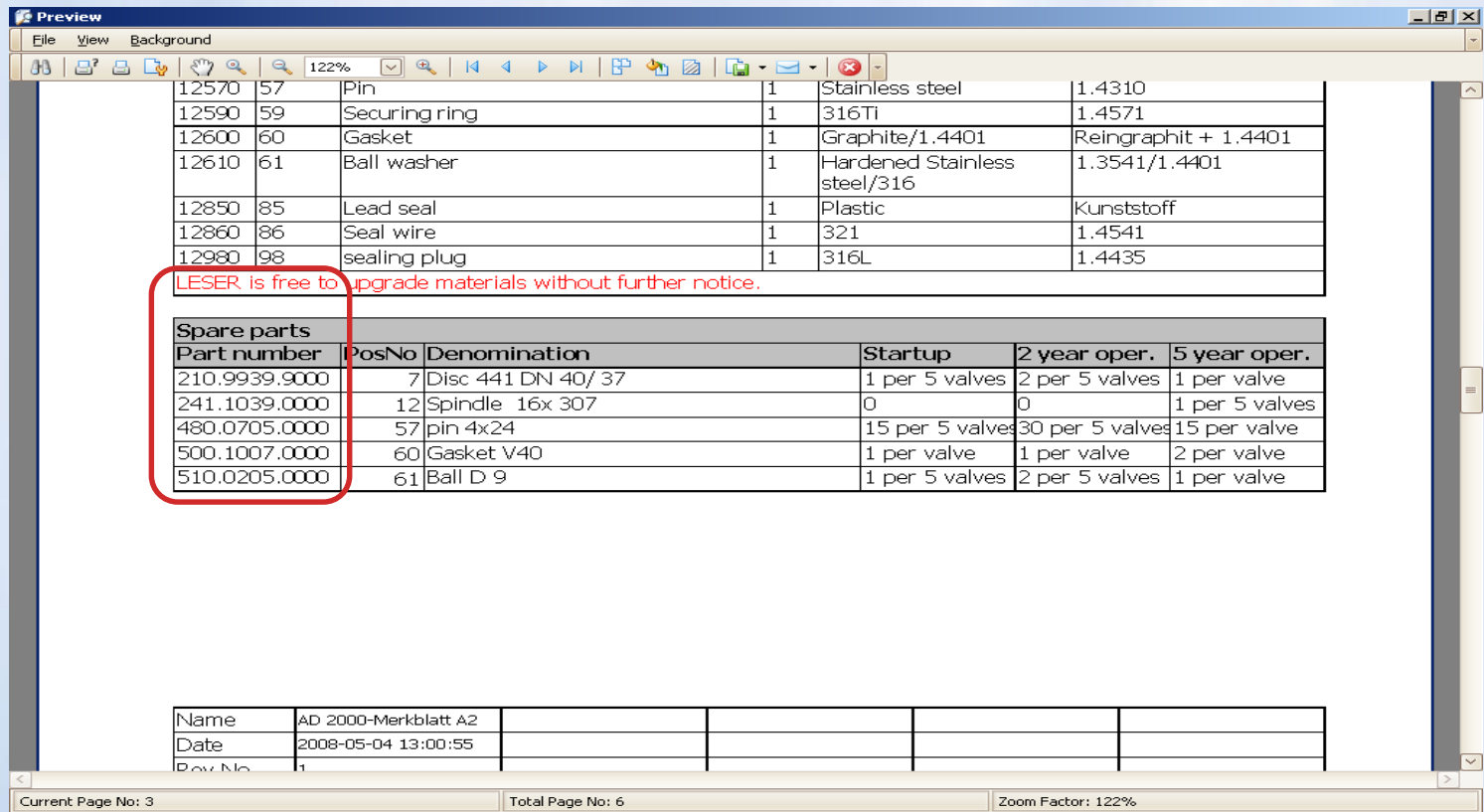
LESER guarantee safe data and do not give data to third party

The Software is for free use, no costs for the user and no user licence is necessary.

Spare Parts

What is the new feature spare parts?

Two different listings of spare parts are available. Listing while single sizing in the “report full-version” and a spir list of complete project spare parts.



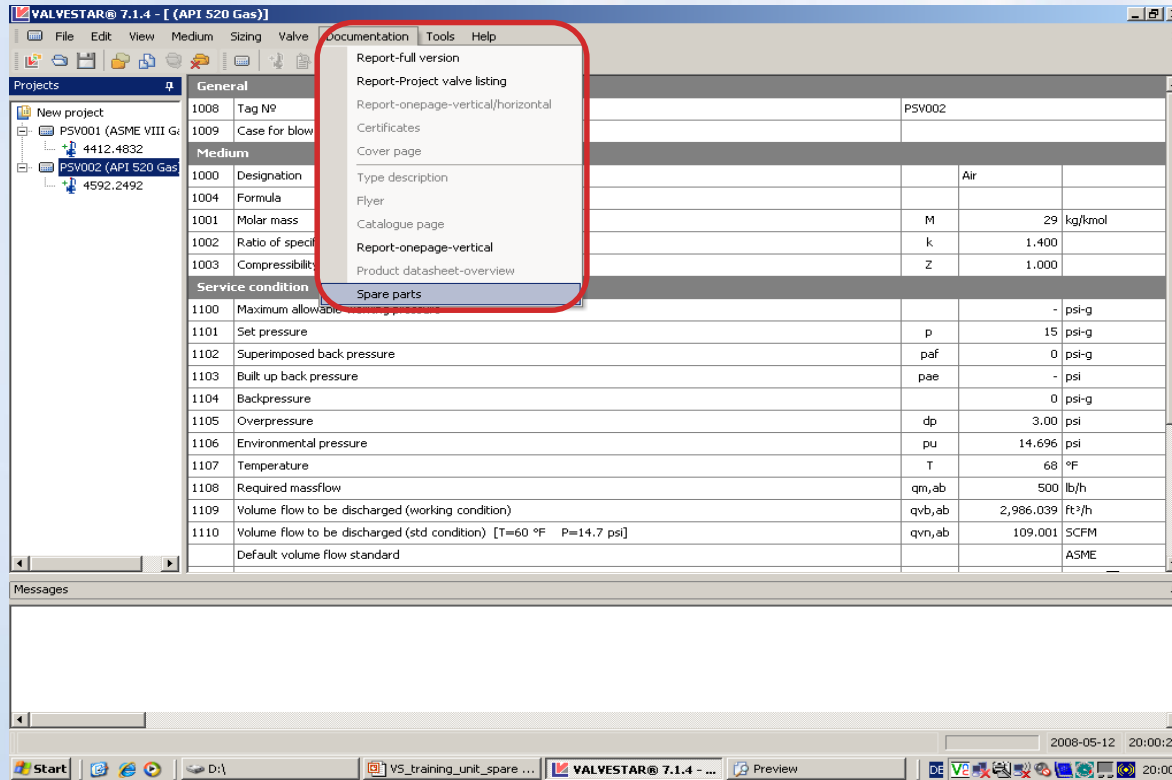
LESER is free to upgrade materials without further notice.

| Part number | PosNo | Denomination | Startup | 2 year oper. | 5 year oper. |
|---------------|-------|--------------------|-----------------|-----------------|----------------|
| 210.9939.9000 | 7 | Disc 441 DN 40/ 37 | 1 per 5 valves | 2 per 5 valves | 1 per valve |
| 241.1039.0000 | 12 | Spindle 16x 307 | 0 | 0 | 1 per 5 valves |
| 480.0705.0000 | 57 | pin 4x24 | 15 per 5 valves | 30 per 5 valves | 15 per valve |
| 500.1007.0000 | 60 | Gasket V40 | 1 per valve | 1 per valve | 2 per valve |
| 510.0205.0000 | 61 | Ball D 9 | 1 per 5 valves | 2 per 5 valves | 1 per valve |

Spare Parts

What is a spir list and how I generate a spir list?

A spir list is a summerize of spare parts which are generated of a complete project. If equal parts are used in different sized valves this will affect the maximum quantity of parts which are shown in the spir list



- Introduction
- Sizing
- Fire Case
- Two Phase Flow
- Add. Sizing, Noise Level, Reaction Force
- Reporting
- Settings
- Language
- Translation
- How to change data
- Copy and paste
- Update via Internet
- www.valvestar.com
- Spare Parts**

Spare Parts

What is a spir list and how I generate a spir list?

LESER The-Safety-Valve.com

Spare parts
New project

Page: 1 of 2
Date:
Project: New project
LESER Job No:

| Tag No: | Article No | Count |
|------------------------------|------------|-------|
| PSV001 (ASME VIII Gas)PSV001 | 4412.4832 | 1 |
| PSV002 (API 520 Gas)PSV002 | 4592.2492 | 1 |

| Part number | Denomination | Used in types | Count | | |
|---------------|---------------------------|---------------|---------|--------------|--------------|
| | | | Startup | 2 year oper. | 5 year oper. |
| 136.3649.9211 | Inlet body 459 D017.5 V60 | 4592.2492 | 0 | 0 | 1 |
| 200.2239.9000 | Disc 459 D0 17.5 | 4592.2492 | 0 | 0 | 1 |
| 210.9939.9000 | Disc 441 DN 40/ 37 | 4412.4832 | 0 | 0 | 1 |
| 241.1039.0000 | Spindle 16x 307 | 4412.4832 | 0 | 0 | 1 |
| 242.4539.0000 | Spindle 12x 202 | 4592.2492 | 0 | 0 | 1 |
| 480.0505.0000 | pin 3x20 | 4592.2492 | 3 | 6 | 1 |
| 480.0705.0000 | pin 4x24 | 4412.4832 | 3 | 6 | 1 |
| 500.1007.0000 | Gasket V40 | 4412.4832 | 1 | 1 | 1 |
| 500.2407.0000 | Gasket T459 | 4592.2492 | 1 | 1 | 1 |
| 510.0105.0000 | Ball D 6 | 4592.2492 | 0 | 0 | 1 |
| 510.0205.0000 | Ball D 9 | 4412.4832 | 0 | 0 | 1 |

Current Page No: 1 | Total Page No: 2 | Zoom Factor: 122%

LESER The-Safety-Valve.com

Spare parts
New project

Page: 2 of 2
Date:
Project: New project
LESER Job No:

| Article No | 4412.4832 | Count | | | |
|---------------|----------------------|---------|--------------|--------------|---|
| Part number | PosNo Denomination | Startup | 2 year oper. | 5 year oper. | |
| 210.9939.9000 | 7 Disc 441 DN 40/ 37 | 0 | 0 | 0 | 1 |
| 241.1039.0000 | 12 Spindle 16x 307 | 0 | 0 | 0 | 1 |
| 480.0705.0000 | 57 pin 4x24 | 3 | 6 | 1 | 1 |
| 500.1007.0000 | 60 Gasket V40 | 1 | 1 | 1 | 1 |
| 510.0205.0000 | 61 Ball D 9 | 0 | 0 | 0 | 1 |

| Article No | 4592.2492 | Count | | | |
|---------------|-----------------------------|---------|--------------|--------------|---|
| Part number | PosNo Denomination | Startup | 2 year oper. | 5 year oper. | |
| 136.3649.9211 | 1 Inlet body 459 D017.5 V60 | 0 | 0 | 0 | 1 |
| 200.2239.9000 | 7 Disc 459 D0 17.5 | 0 | 0 | 0 | 1 |
| 242.4539.0000 | 12 Spindle 12x 202 | 0 | 0 | 0 | 1 |
| 480.0505.0000 | 57 pin 3x20 | 3 | 6 | 1 | 1 |
| 500.2407.0000 | 60 Gasket T459 | 1 | 1 | 1 | 1 |
| 510.0105.0000 | 61 Ball D 6 | 0 | 0 | 0 | 1 |

Current Page No: 2 | Total Page No: 2 | Zoom Factor: 122%