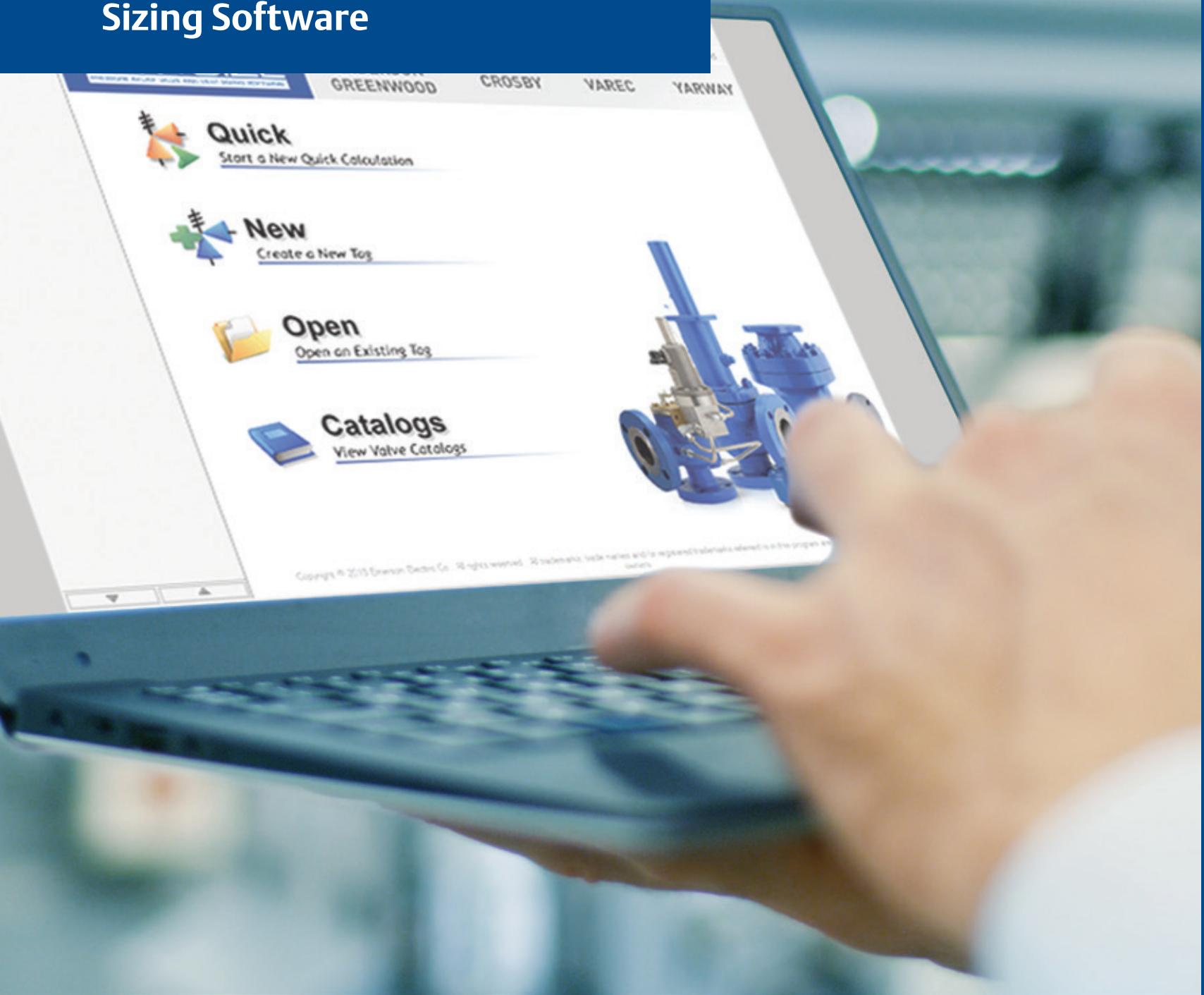


Pressure Relief Valve Sizing Software



Emerson PRV²SIZE
Pressure relief valve sizing software



Pressure Relief Valve and Vent Sizing Software



PRV²SIZE is a comprehensive and easy-to-use program that offers a thorough and integrated approach for sizing all types of pressure relief devices, including low-pressure tank protection and recirculation control valve products in a single sizing, selection and configuration platform.

Sizing Methodologies:



- **ASME Section VIII:** API 520, Part I, 9th edition gas, liquid and steam phases
- **ASME Section I:** Steam phase
- **ISO 4126-7:** Gas, liquid and steam phases
- **API 521:** Fire sizing tank flow rate calculation method for gas and liquid filled vessels
- **Two-Phase:** API 520, Part I, 9th ed., 7th ed., and 6th ed. and ASME Appendix 11
- **ARC Sizing:** Yarway™ Automatic recirculation control (ARC) valve sizing
- **API 2000/ISO 28300:** Tank vent and flame arrester sizing

Reference Library:



- **Catalogs:** Emerson Anderson Greenwood™, Crosby™, Yarway and Varec™ product catalogs
- **PRV²SIZE Quick Start Guide:** Features and functionality guide
- **Material Compatibility:** Metals, soft goods, NACE and chemical compatibility reference
- **Emerson PRV Engineering Handbook:** Technical information resource
- **Two-phase Data Form:** Application data form for 9th and 7th editions
- **Valve Features:** Product model features
- **PRV Overview:** Emerson models overview

Sizing and Valve Selection:



- **Sizing:** Enter data in USC or SI units and values are converted when units are modified
- **Valve Filtering:** Limit selection based on product category and dataset (API or ASME)
- **Generic Sizing:** Generate drawing and calculation for special coefficients, dimensions or weight
- **Multiple Valves:** Select and stagger multiple valve set pressures for high flowrate applications
- **Selection:** Sort valves based on brand, model, type, size, required area and rated flow

Valve Configuration:



- **Standard Configuration:** Valid options identified in dropdowns with errors list
- **Custom Configuration:** Update material and dimensions for custom configuration
- **Accessory:** Valve accessories selection option
- **Special Requirements:** Project quality and documentation options
- **Notes:** Enter detailed custom configuration or project tag notes to be displayed on reports
- **Calculations:** Review or modify reaction force, noise and restricted lift calculations
- **Valve Dimensions:** Dimensions and weight display for standard or customized configuration
- **Valve Features:** Summary feature list and image of selected valve

Reports:



- **Format:** Reports can be generated in excel or PDF format
- **Datasheet Report:** Includes configuration, calculation and selection summary with tag notes
- **Calculation Report:** Variables, symbols, data input values, units, equations and results summary
- **Drawing Sheet:** Displays outline drawings with dimensions and weight
- **Configuration Report:** Includes ERP code for each selected option in valve configuration
- **Flow Curves:** Pressure and vacuum relief valve flow curves for Varec models
- **Tank Calculations:** Fire sizing capacity calculations for gas and liquid filled vessels

Software Utilities:



- **Backup Tag Data:** Tags database back up for replacing on new computer
- **View Error List:** Displays warnings and errors for sizing and invalid models for selection
- **Show Program Data Folders:** Provides quick access to program data folders
- **Omega 9 Calculator:** Liquid and gas density calculation using two phase mixture density

Project Management:



- **Tag Management:** Update tag properties, copy, delete and move single or multiple tags
- **Project Management:** Set preferences for units and fluid, flowrate, valve or vessel properties
- **Project/Tag Summary Report:** Includes summary of sizing, selection and configuration data
- **Export/Import Feature:** Allows exporting and importing single or multiple project tags
- **Fluid Property Database:** Add new fluids or modify default gas, liquid or two-phase properties

Emerson PRV²SIZE Website

<https://valvesizing.emerson.com>

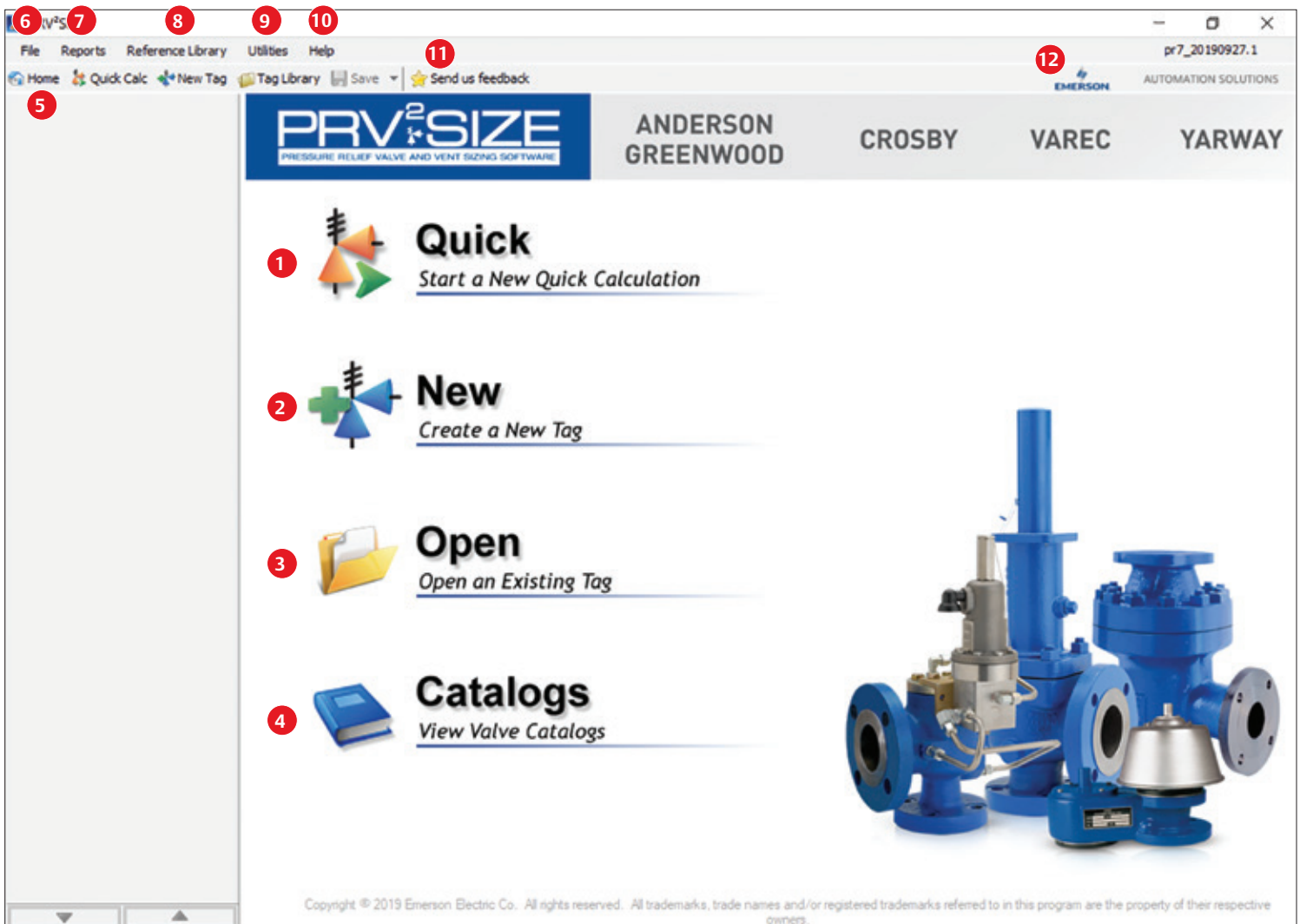


Screenshots



Home Screen

1. **Quick Calculation:** Size a tag without saving
2. **New Tag:** Create and save new company, project and tag
3. **Open Tag:** Open tags in tag library
4. **Catalogs:** View, save or print most catalogs
5. **Home:** Access home screen
6. **File Menu:**
 - Export and import multiple project tags
 - Preferences allow default units set up, fluid properties database update and two phase 7th or 6th edition method activation
7. **Reports Menu:** Generate datasheet, calculation, drawing, configuration, tank calculation, flow curve and tag summary reports
8. **Reference Library:** Access software quick start guide, product catalogs, PRV engineering handbook, metals and soft goods compatibility and two-phase application data form
9. **Utilities:**
 - *Back up tag data to location:* Tags database back up for replacing on new computer
 - View Errors List displays warnings and errors for open tag
 - *Show Program Data Folders:* Provides quick access to program data folders
 - *Omega 9 Calculator:* Liquid and gas density calculation using two phase mixture density
10. **Help:** Check for program updates, request special features and identify program version
11. **Send Feedback:** Report problem, send suggestion or feedback to software team
12. **Sizing Website:** Click Emerson logo to be redirected to <https://valvesizing.emerson.com>



Screenshots (continued)



Sizing Method Selection

- 1. Gas/Vapor:** ASME Section VIII code API 520 part I, 9th edition, non-code API 520 part I, non-code API 2000 and ISO4126-7, 2nd edition sizing methods
- 2. Liquid:** ASME Section VIII code API 520 part I, 9th edition, non-code API 520 Part I and ISO4126-7, 2nd edition methods
- 3. Steam:** ASME Section VIII code API 520 part I, 9th edition, non-code API 520 Part I, ASME section I and ISO4126-7, 2nd edition sizing methods
- 4. Fire:** Calculate required vapor flow rate for liquid filled (wetted) or gas filled (unwetted) vessels using API 521
- 5. Two-Phase:** API 520, part I, 9th edition, annex C mass flux direct integration (C.2.1), omega (C.2.2 and C.2.3), 7th edition (D.2.1, D.2.2 and D.2.3), separated flow method (6th edition) and ASME appendix 11 sizing methods
- 6. Flame Arrester:** Flame arrester sizing for tank vents
- 7. Tank Vent:** API 2000/ISO 28300, 6th edition pressure relief valve and free vent sizing
- 8. ARC:** Yarway™ Automatic recirculation control (ARC) valve sizing

QuickCalc001 - PRV SIZE

File Reports Reference Library Utilities Help

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1 Calculation Type 2 Sizing & Selection 3 Configuration 4 Reports

QuickCalc001

Pressure Relief

Flame Arrester

Tank Vent

ARC®

1 Gas/Vapor
Calculate the maximum flow rate and/or the required office area for fluids in the gas/vapor state for ASME Section VIII and Non-Code applications using API 520 Part I (9th), API 2000 (9th), or ISO 4126-7 (2nd).

ASME Section VIII (API 520, Part I, 9th edition)
Non-Code (API 520, Part I, 9th edition)
Non-Code (API 2000 / ISO 28300, 9th edition)
ISO 4126-7 (2nd Edition)

2 Liquid
Calculate the maximum flow rate and/or the required office area for fluids in the liquid state for ASME Section VIII and Non-Code applications using API 520 Part I (9th) or ISO 4126-7 (2nd).
[Click here to see options.](#)

3 Steam
Calculate the maximum flow rate and/or the required office area for saturated, superheated, or supercritical steam for ASME Code and Non-Code applications using Section I, API 520 Part I (9th), or ISO 4126-7 (2nd).
[Click here to see options.](#)

4 Fire
Calculate the required vapor flow rate for wetted (liquid filled) and unwetted (vapor filled) vessel configurations using API 521. Then calculate the required office area for the calculated vapor flow rate and the maximum flow rate for a selected office area for a fluid state of gas or vapor using methodology.
[Click here to see options.](#)

5 2-Phase
Calculate the required office area for a required flow rate and the maximum flow rate for a selected office area for a mixed phase fluid (liquid + gas/vapor) or for a flashing liquid using methodology from API 520, Part I, or ASME Appendix 11.
[Click here to see options.](#)

Screenshots (continued)



Sizing and Selection

- 1. Data Entry:** Enter process data in USC or SI units and values are converted when units are modified
- 2. Error Triangle:** Filter bar triangle lists errors for invalid model and sizing process data warnings
- 3. Valve Type:** Filter valves based on valve type
- 4. Dataset:** Select API or ASME dataset for K and A values
- 5. Multivalve:** Select multivalve option and stagger set pressures for high flowrate applications
- 6. Valve Selection:** Sort valves based on model, valve type, size/orifice, calculated area and rated flow rate

Fluid Properties

Fluid Name: Argon

Molecular Weight: 39.950 | Sp. Gravity: 1.379

k, (Cp / Cv): 1.670

Compressibility: 1.000

Temperatures

Relieving: 100 °F

Operating: 100 °F

Design Min.: -20 °F

Design Max.: 300 °F

Normal System: 80 °F

What is Normal System Temperature?

Pressures

Atm. Pressure: 14.696 psia

System MAWP: 120 psig

Operating Pressure: 80 psig

Set Pressure: 100 psig

Over Pressure %: 50 %

Over Pressure: 50 psig

Back Pressure

Built-Up: 50 psig

Constant Superimposed: 0 psig

Variable Superimposed: 0 psig

Total Back Pressure: 18 psig

Inlet Loss %: 0 %

Inlet Loss: 0 psig

Flow Capacity

Required Pressure flow: 1500 SCFM

Has Rupture Disc? Kc: 1

Valve Selection Table

Click to select	Brand	Model	Valve Type	Valve Type	Size / Orifice	Required Orifice Area for Pressure (in ²)	Rated Pressure Flow Capacity (SCFM)
Select	Crosby®	JBS-E	Balanced Bellows, Direct Spm...	BB	H	0.870	1529.403
Select	Crosby®	JBS-BP-E	Balanced Bellows + Balanced ...	BB	H	0.870	1529.403
Select	Crosby®	JLT-JBS-BP-E	Balanced Bellows + Balanced ...	BB	H	0.865	1538.045
Select	Crosby®	JLT-JBS-E	Balanced Bellows, Direct Spm...	BB	H	0.965	1538.045
Select	Anderson Greenwood	546	Pilot-Op. Modulating, Flowing ...	PO	H	0.858	1595.506
Select	Anderson Greenwood	249	Pilot-Op. Pop Acting, Non-Flw...	PO	H	0.858	1595.506
Select	Anderson Greenwood	443	Pilot-Op. Modulating, Non-Flw...	PO	H	0.858	1595.506
Select	Anderson Greenwood	243	Pilot-Op. Pop Acting, Non-Flw...	PO	H	0.858	1595.506

Screenshots (continued)



Configuration

- 1. Configuration:** Model and ERP number is updated based on selected valid options in configuration drop down and errors are displayed for invalid configuration
- 2. Customize Configuration:** Customize material, soft goods, connections or other configuration options approved for special configuration
- 3. Accessories:** Model and ERP number is updated for selected accessories
- 4. Special Requirements:** Project quality and special requirements selection option
- 5. Notes:** Enter detailed custom configuration or project tag notes to be displayed on reports
- 6. Calculations:** Review or modify reaction force, noise and restricted lift calculations
- 7. Valve Dimensions:** Dimensions and weight display for standard or customized configuration
- 8. Valve Features:** Summary feature list and image of selected valve

QuickCalc001 - PRV²SIZE

File Reports Reference Library Utilities Help pr7_20190927.1

Home Quick Calc New Tag Tag Library Save Send us feedback

EMERSON AUTOMATION SOLUTIONS

1 Calculation Type ✓ 2 Sizing & Selection ✓ 3 Configuration ✓ 4 Reports

QuickCalc001 Configuration 443.

1 Configuration

2 Custom Config.

3 Accessories

4 Special Req.

5 Notes

6 Valve Calculations

7 Valve Dimensions

8 Valve Features

Valve Size 4x6 inch

Inlet Connection 150#

Inlet Connection Face Raised Face - RF

Outlet Connection 150# RF

Main Valve Body Type Integral Flanged Inlet and Outlet

NACE Standard (NACE not req'd)

Main Valve Seat Ethylene Propylene

Main Valve Soft Goods Ethylene Propylene

Pilot Soft Goods CUSTOM - Kalrez 7020

Fitting Type SS CPI Fittings

Remote Sense Remote Sense

Block Body No Block Body (Standard)

Catalog Number 44305H46/S1/SPL

ERP Number 4AAAEAOBKBZCFBWBAAHAMDLKT1DLXKDLWFGXHGXHXCFV

Remember to fill out report fields affected by the custom configuration.

Type	Errors
ComboInclusion	The following items cannot be chosen together: Full Lift, API Office, H Office, 4x6 inch
ComboExclusion	4x6 inch and H Office cannot be selected at the same time.

Material Compatibility Reference

Metals

Non-Metals

Done

Screenshots (continued)



Reference Library

1. **PRV²SIZE Quick Start Guide:** Software utilities, features and functionality guide
2. **Catalogs:** Emerson Anderson Greenwood™, Crosby™, Yarway™ and Varec™ product catalogs
3. **Technical Reference:** Includes Emerson PRV engineering handbook, two-phase application data form, material compatibility for metals, soft goods, NACE and chemical compatibility reference
4. **Marketing:** Includes valve features drop down for product model features and PRV overview for all product models

The screenshot displays the PRV²SIZE software interface. The top menu bar includes 'File', 'Reports', 'Reference Library', 'Utilities', and 'Help'. The 'Reference Library' menu is open, showing a tree view with 'Quick Start Guide', 'Valve Catalogs', 'Technical', and 'Marketing'. The 'Valve Catalogs' sub-menu is expanded, listing 'View Catalog Browser', 'Varec', 'Anderson Greenwood', 'Crosby', and 'Yarway'. The 'Crosby' option is selected, and a sub-menu is open showing 'Style JB - Large Orifice Pressure Relief Valve', 'OMNI-TRIM - Direct Spring Pressure Relief Valves', 'H-Series - Direct Spring Safety Valves', and 'J-Series - Direct Spring Pressure Relief Valves'. The main window displays a grid of product catalog entries, each with a PDF icon, a title, a file name, and a date. The entries include various valve models such as Type 4110, Type 4142, Type 4020, J-Series, OMNI-TRIM, Series 90, Series 221, Series 2010B, Series 5400A, Series 5000, and Series 7000. A 'Close' button is visible at the bottom right of the window.

Screenshots (continued)



Project Management

1. **Tag Management:** Update tag properties, copy, delete and move single or multiple tags
2. **Project Management:** Set preferences for units and fluid, flowrate, valve or vessel properties
3. **Project/Tag Summary Report:** Includes summary of sizing, valve selection and configuration data
4. **Export/Import Feature:** Allows exporting and importing single or multiple project tags
5. **Fluid Property Database:** Add new fluids or modify default gas, liquid or two-phase properties

Edit Project

Company:

Project Name:

Location:

Project Reference No.:

Quote Reference No.:

End User Reference No.:

Set Project Defaults

Display Unit System: Calculation Method:

System Properties

Atm. Pressure:

Pressure: Temperature:

Fluid Properties

Liquid Viscosity: Specific Heat: Mass Flux:

Specific Volume: Latent Heat of Vaporization:

Density: Heat Input:

Flowrate Properties

Gas: API 521 Fire: Subcooled (2-phase):

Liquid: 2-Phase: Tank Blanket Regulator:

Steam:

Valve Properties

Data Set:

Orifice Area: Reaction Force:

Dimension: Weight:

Distance from Valve:

Vessel Properties

Dimensions: Surface Area: Volume:

This company already contains this project name.

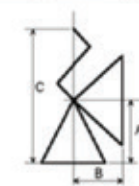
OK Cancel

Sample Reports



Datasheet Report

- 1. Selection and Configuration Summary:** Displays project/tag ID, type, material of construction, connections, valve calculations, selection summary with tag notes and dimensions
- 2. Process Data:** Includes fluid properties, sizing coefficients, required capacity, pressure and temperature values

Emerson Automation Solutions 3950 Green Briar, Stafford, TX 7		Pressure Relief Valve Sizing & Selection Report			
EMERSON United States of America		2	CD		5-Jul-2016
Quote Number: QUO-75832-H2R45		No	Prpd.	Chk.	Appr.
Client: EMERSON		Date		Revision	
Location:		End-User Ref. No.:		Project Ref. No.:	
Project: REPORTS					
1	Valve ID		41	SIZING DATA	
2	Tag No.	DATASHEET REPORT		42	Design Code ASME Section VIII Sizing Std. API 520
3	Service	R410A		43	Sizing Basis Fire Case
4	PID No.	PG848-200-01 PAGE 2 OF 4		44	Fluid State at Inlet Gas / Vapor
5	Line No.	BRINE CHILLER B-1	Quantity	45	Relieving Case Pressure Relief
6			1	46	Fluid Properties
7	GENERAL			47	Fluid Name R410A
8	Valve Type	Conventional Direct Spring-Op		48	Molecular Weight, M 72.6
9	Safety / Relief	Safety	Balanced No	49	Compressibility, Z 0.861
10	Nozzle	Full	Bonnet Closed	50	Ratio of Sp. Heats, k (Cp / Cv) 1.265
11	CONNECTIONS			51	Gas Constant, C 343.6
12	Inlet	2" Flgd. 300# RF Standard		52	
13	Outlet	3" Flgd. 150# RF ASME B16.5		53	
14	MATERIALS OF CONSTRUCTION			54	
15	Body / Base	CS SA216-WCBWCC		55	
16	Bonnet / Cylinder	CS SA216-WCBWCC		56	
17	Nozzle	316 SST		57	
18	Disc	316 SST		58	
19	Seat	Metal		59	Sizing Coefficients Unit -
20	Spindle	316 SST		60	K, Gas Kd, Gas 0.866 0.962
21	Guide	SS A297 Gr. HE		61	Kb Kc 1 1
22	Spring	Chrome Steel - Corr. Resist		62	
23	Gaskets	316 SST		63	
24	Bellows	N/A		64	Required Capacity Unit lb/hr
25	Cap Type	Screwed		65	Total 37506.95
26	NACE MR0175 / ISO 15156:2015	No		66	
27	Accessories			67	Pressures Unit psig
28				68	MAWP Operating 413 62.1
29				69	Set CDP 413 413.00
30				70	Over Pressure 86.73 21%
31	SIZING / SELECTION SUMMARY			71	
32	Valve Model No.	2H3JOS-E3554J		72	Back Pressure Constant Superimposed 0
33	Brand	Crosby®		73	Variable Superimposed 0
34	Area	Calculated Selected	0.711 0.887	74	Built-Up 0
35	(in ²)	Delta Sel Orifice	ASME H	75	Total 0
36	Flow	Unit Required	lb/hr 37506.95	76	Inlet Loss 0 0%
37		Rated Actual	48796.605 51996.228	77	Atmospheric (Barometric) 14.696 psia
38				78	Temperatures Unit °F
39	Reaction Force, Open Discharge	223.05 daN		79	Normal System Operating Relieving 10.5 250
40	Noise Level (db), Open Discharge	114.1 at 100-ft		80	Design Min Design Max -20 250
Tag Notes				Valve Dimensions	
				A 5.13	
				B 4.88	
				C 23.50	
				Weight 60	
					

Sample Reports (continued)



Calculation Report

- 1. Calculation Summary:** Includes variable type, name, symbols, input values, units and summary of calculated and selected orifice area for required flow rate
- 2. Equations:** Equations and formulas with calculated results are displayed as per the sequence followed by API or ISO standard for sizing calculations

Emerson Automation Solutions 3950 Green Briar, Stafford, TX 77771 EMERSON United States of America		Pressure Relief Valve Calculation Report					
Quote Number: QUO-75832-H2R45		No	Prpd.	Chk.	Appr.	Date	Revision
Client: EMERSON		End-User Ref. No.:					
Location:		Project Ref. No.:					
Project: REPORTS							
1	VALVE ID		11	CALCULATION NOTES			
2	Tag No.	REPORTS	12				
3	Valve Model No.	2HJJS-E35S4J	13	Qty.	1		
4	SIZING DATA		14				
5	Design Code	ASME Section VIII	15	Sizing Std.	API 520		
6	Fluid State at Inlet	Gas / Vapor		16			
7	CALCULATION SUMMARY						
8	Flow	Required	37506.95 lb/hr	18	Area	Required	0.711 in ²
9		Rated	46796.605 lb/hr	19		Selected	0.887 in ²
10	Reaction Force, Open Discharge	223.05 daN	20	Noise Level (db), Open Discharge	114.1 at 100 ft		
Variable Type	Variable Name	Symbol	Input Value	Equation Value			
Fluid Properties	Molecular Weight	M	72.6	72.6			
	Ratio of Specific Heats	k	1.265	1.265			
	Compressibility	Z	0.861	0.861			
Process Cond.	Required Mass Flow	Wreq	37506.95 lb/hr	37506.95 lb/hr			
	Set Pressure	Pset	413 psig	413 psig			
	Over Pressure	Pover	86.73 psig	86.73 psig			
	Inlet Line Loss	Ploss	0 psig	0 psig			
	Back Pressure	Pback	0 psig	0 psig			
	Atmospheric Pressure	Patm	14.696 psia	14.696 psia			
	Relieving Temperature	T	250 °F	709.670 °R			
	Distance from Valve (noise)	r	100 ft	100 ft			
	Rupture Disc CCF	Kc	1	1			
Valve Data	Discharge Coefficient (actual)	Kd	0.962	0.962			
	Discharge Coefficient (derated)	K	0.866	0.866			
	Orifice Area	A	0.887 in ²	0.887 in ²			
	Back Press. Correction Factor	Kb	1	1			
	Outlet Diameter	Do	3.068 in	3.068 in			
Calculate Inlet Relieving Pressure, Outlet Pressure, Absolute Pressure Ratio							
P1 = Pset + Pover - Ploss + Patm		P1	514.426 psia				
P2 = Pback + Patm		P2	14.696 psia				
PR = P2 / P1		PR	0.029				
Calculate Gas Constant							
C = 520 * (k * [2 / (k + 1)] ^{0.5} / [(k - 1) / (k + 1)] ^{0.5})		C	343.6				
Calculate Mass Critical Flow							
W = A * C * K * P1 * Kb * Kc * (M / (T * Z)) ^{0.5}		W	46796.605 lb/hr	46796.605 lb/hr			
Calculate Required Orifice Area							
Areq = A * Wreq / W		Areq	0.711 in ²	0.711 in ²			


Sample Reports (continued)



Configuration Report

- 1. Header:** Includes project and tag information with process data and valve sizing information
- 2. Configuration Summary:** Displays selected valve configuration options description with ERP and model number code for all configuration features, accessories and special requirement options

PRV²SIZE Software



Summary Report

Project Information 1

Company: <u> EMERSON_101 </u>	Project: <u> 4_REPORTS </u>
Location: <u> </u>	Project Ref. No.: <u> </u>

Tag Information

Tag Number: <u> REPORTS </u>	Last Modified: <u> 5/16/2019 7:35:55 PM </u>	
Revision: <u> 2 </u>	Checked By: <u> </u>	Approved By: <u> </u>
Prepared By: <u> CD </u>		

Specific Tank Data

Sized Using User Defined Flow

Pressure Fluid:	<u> R410A </u>
Pressure Set Point:	<u> 413 psig </u>
Allowed Over Pressure:	<u> 86.73 psig </u>
Pressure Flow Rate:	<u> 37506.95 </u>

Valve Sizing Information

Valve Type:	<u> JOS-E, H </u>	Quantity to Order:	<u> 1 </u>
Part Number:	<u> 2H3JOS-E35S4J </u>		
Max Pressure Flow Capacity:	<u> 46796.605 lb/hr </u>		

Selected Valve Description 2

Code	Category	Description
N	Bug Screen for Bellows Valves	No Bug Screen for Bellows Valves
N	Weather Hood	No Weather Hood Required
N	High Pressure Steam Trim	Steam Trim <= 450 psi
O	PRV2SIZE HPST FILTER	Other - Not Steam Service
SGPR1	Soft Good Pressure Range	>= 50 psig
E	PRV2SIZE PRESSURE RANGE	Greater than 300 psig
/S1	Low Pressure	Standard Orifice
JOS	Valve Model	JOS-E, DSO PRV, Gas/Vapor Service
8	Code Section	ASME Section VIII
-	Restricted Lift (Stafford Plant)	Full Lift - No Restriction
3STD	Valve Service	Gas other than "Air"
PR4	Pressure Ranges	101 to 450 PSIG
3	Temperature Ranges	(J)5,STD,-55°Fto650°F for Carbon
H	Valve Orifice	H Orifice
D	Connection Size	2.0x3.0
3	Valve Inlet x Outlet Connection	300# x 150#
1	Flange Face	RF x RF
N	NACE	Standard (without NACE)
C	Body/Bonnet Material	Carbon Steel (SA216-WCB/WCC)
SS	Seat/Trim/Spindle Material	SST / SST / 316 SST (S, S4, S6)
C	Spring Material	Ctd. Chrome Steel - (Std)
N	Bolting Material	Standard Bolting for Selected Valve
1	Seat Material	Metal Seat
J	Cap Type	Type J - (Standard) Screwed Cap
1	Code Case	No code case
1	Nameplate Units	STANDARD NAME PLATE
BLN	Block Body	No Block Body
G1	Body/Trim/Spring Matl	CS Body / 316 Trim / Ctd. Chrome Steel Spring(S4-CS)
JOS	Group - MOD - A	JOS

Printed On: 17-May-2019
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Sample Reports (continued)



Drawing Report

- Weights:** Weights displayed for standard configuration and can be updated for special configuration
- Dimensions:** Dimensions displayed for standard configuration and can be updated for special configuration
- Outline Drawing:** Displays selected valve's outline drawing with applicable dimensions

 Emerson Automation Solutions 3950 Green Briar, Stafford, TX 77771 United States of America		Pressure Relief Valve Dimensional Drawing					
Quote Number: QUO-75832-H2R45		No.	Prpd.	Chk.	Appr.	Date	Revision
Client: _EMERSON Location: Project: REPORTS		End-User Ref. No.: Project Ref. No.:					
Valve ID		SELECTION SUMMARY					
1	Tag No. REPORTS	7	Valve Model No.		2H3JOS-E35S4J		
2	Service R410A	8	Brand		Crosby®		
3	PID No. PG848-200-01 PAGE 2 OF 4	9	CONNECTIONS				
4	Line No. BRINE CHILLER B-1	10	Inlet	2"	Fingd.	300#	RF Standard
5	Quantity	11	Outlet	3"	Fingd.	150#	RF ASME B16.5
6	1	12					
		1 Wt.= 60 lb = 27.22 kg A= 5.13 in = 130.302 mm 2 B= 4.88 in = 123.952 mm C= 23.50 in = 596.900 mm D= 1.81 in = 45.97 mm E= = F= = G= = H= =					
Tag Notes		Dimension Notes <ul style="list-style-type: none"> Accessories not shown. Actual valve may vary from image. 					
Printed On: 16-May-2019		PRV'SIZE Software Version pr7_20190226.1				Page : 1	
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Sample Reports (continued)



Tank Calculation Report

- 1. Vessel Data:** Includes tank dimensions, geometry, orientation, calculated heat input and required flow rate for wetted and unwetted vessels
- 2. Tank Schematic:** Displays cut away image for selected tank geometry with dimensions utilized for wetted or unwetted area calculations

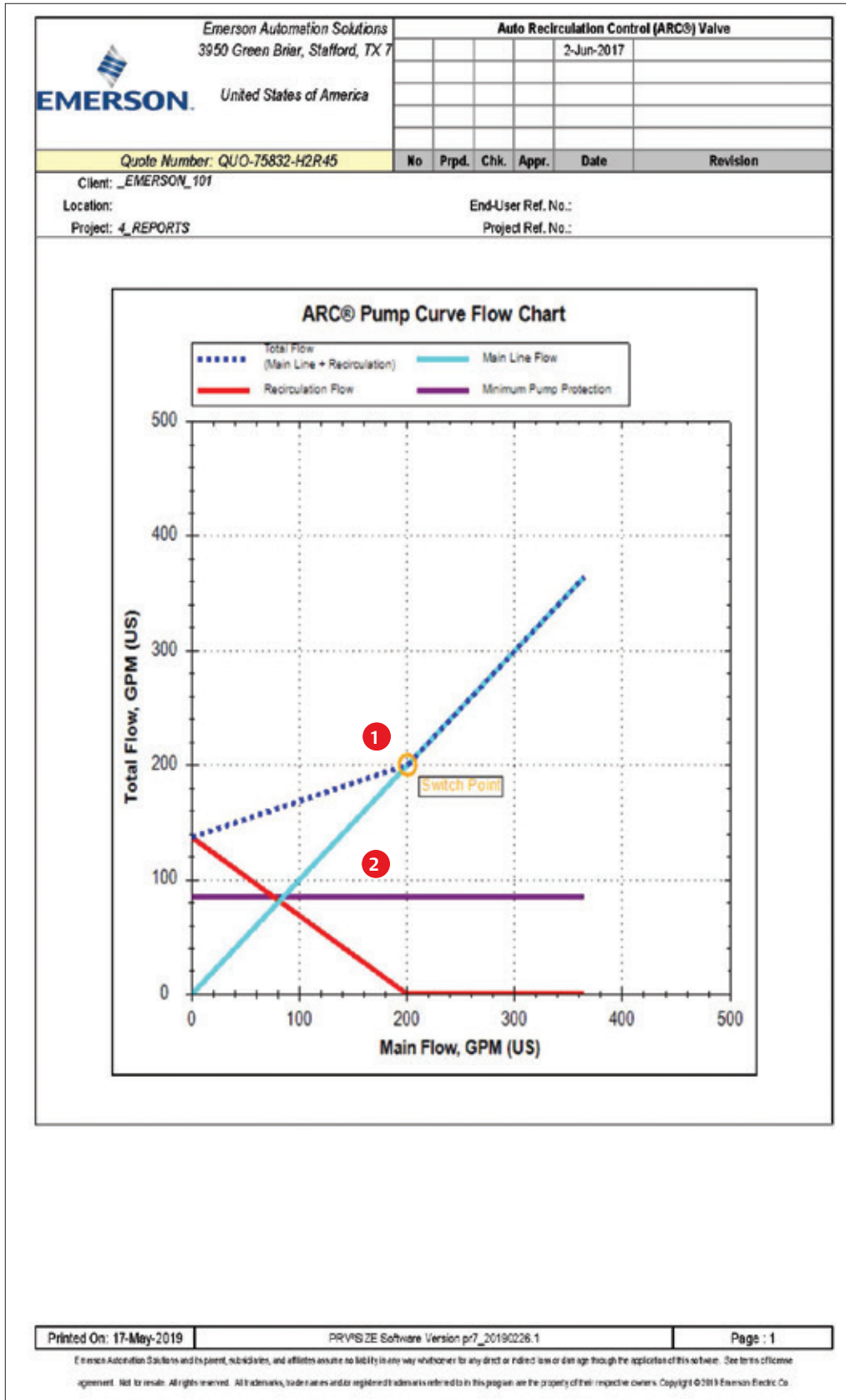
Emerson Automation Solutions 3950 Green Briar, Stafford, TX 77771 EMERSON United States of America		API 521 Fire Sizing Calculation						
Quote Number: QUO-75832-H2R45		No	Prpd.	Chk.	Appr.	Date	Revision	
Client: <i>_EMERSON</i>		End-User Ref. No.:						
Location:		Project Ref. No.:						
Project: <i>REPORTS</i>								
1	Valve ID		41	SIZING DATA				
2	Tag No.	<i>REPORTS</i>	42	Design Code	<i>ASME Section VIII</i>	Sizing Std.	<i>API 520</i>	
3	Service	<i>R#10A</i>	43	Sizing Basis	<i>Fire Sizing - API 521</i>			
4	PID No.	<i>PG848-200-01 PAGE 2 OF 4</i>	44	Method	<i>Wetted (Liquid Filled) Vessel</i>			
5	Line No.	<i>BRINE CHILLER B-1</i>	45					
6	Quantity	<i>1</i>	46					
7	VESSEL SCHEMATIC		47	1 VESSEL DATA				
8			48	Surface Area Determination	<i>Calculated</i>			
9			49	Prompt-Fire Fighting Efforts and Adequate Drainage	<i>No</i>			
10			50	Geometry	<i>Cylindrical</i>			
11			51	Orientation	<i>Horizontal</i>			
12			52	End Types	<i>2:1 Elliptical</i>			
13			53	Diameter	<i>d</i>	<i>5.7</i>	<i>ft</i>	
14			54	Height	<i>h</i>			
15			55	Liquid Depth	<i>f</i>	<i>4.5</i>	<i>ft</i>	
16			56	Elevation	<i>H</i>	<i>4.3</i>	<i>ft</i>	
17			57	Seam-to-Seam Length	<i>Ls</i>	<i>20.3</i>	<i>ft</i>	
18	58	End-to-End Length	<i>L1</i>	<i>23.2</i>	<i>ft</i>			
19	59	Wetted Surface Area	<i>Awet</i>	<i>312.47</i>	<i>ft²</i>			
20	60	Environmental Factor	<i>F</i>	<i>1.0</i>				
21			61	$Q = 34500 \cdot F \cdot Awet^{0.82}$				
22			62	where $Q=BTU/hr$, $Awet=ft^2$				
23			63					
24			64					
25			65	Heat Input from Fire Exposure	<i>Q</i>			
26			66	Latent Heat of Vaporization	<i>Hvap</i>	<i>102.2</i>	<i>BTU/lb</i>	
27			67					
28			68	$W = Q / Hvap$				
29			69	where $W=lb/hr$, $Q=BTU/hr$, $Hvap=BTU/lb$				
30			70					
31			71	Required Capacity	<i>W</i>	<i>37506.95</i>	<i>lb/hr</i>	
32			72					
33			73					
34			74					
35			75					
36			76					
37			77					
38			78	SIZING / SELECTION SUMMARY				
39			79	Valve Model No.	<i>2HSJOS-E35S4J</i>			
40			80	Brand	<i>Crosby®</i>			
Tag Notes								

Sample Reports (continued)



ARC Pump Curve

1. **Switch Point Flow:** Identifies switch point flow when bypass begins to open
2. **Pump Flow:** Displays main line, recirculation and minimum pump protection flow





Notes

Pressure Relief Valve Sizing Software

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