

**CURTISS -
WRIGHT**

**VALVES
DIVISION**



1890/1896 SERIES

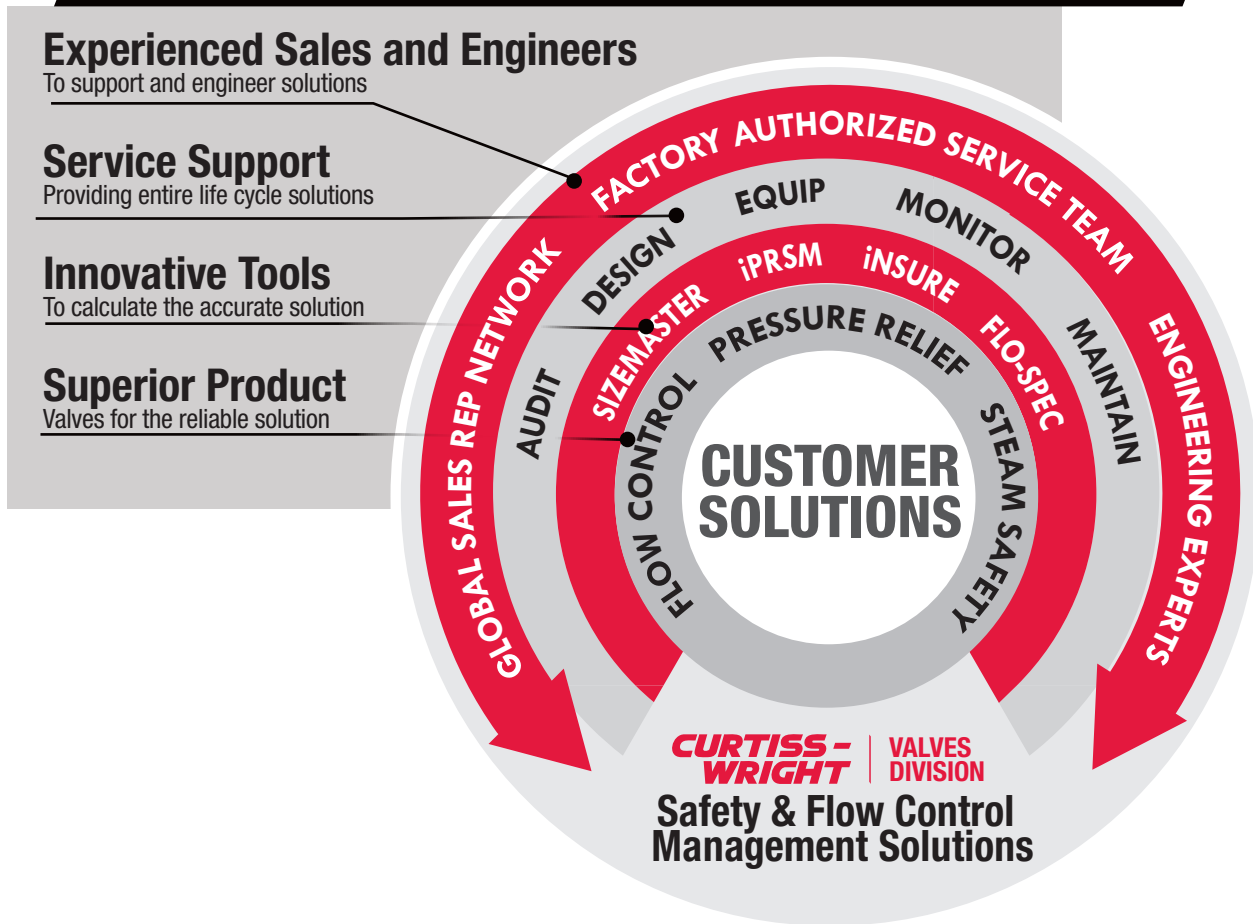
**Pressure Relief Valves ASME Section VIII for
Air, Steam, Vapor & Liquid Service**

Curtiss-Wright is a worldwide leader in delivering solutions to improve safety, plant flexibility, reliability, and efficiency. Farris Engineering, a division of Curtiss-Wright, has been at the forefront in the design and manufacture of spring-loaded and pilot-operated pressure relief valves since 1943.

Our Commitment: To provide customers with total pressure and flow control management solutions supporting a facility's entire life cycle, transforming and ensuring plant safety.

Focused On Customer Solutions

Experienced Engineers • Solution Management • Superior Products



Factory Authorized Service Team

Sales Representative Network

- Factory trained technicians in OEM specifications
- Local service and in-line testing reducing maintenance cost.
- Capability to track and manage relief valve maintenance and repair history
- Access to sales network, and keeping global inventory local

<https://www.cw-valvegroup.com/en-gb/contact-us>



Solutions Management and Innovative Tools



SOFTWARE MANAGEMENT TOOL FOR PRESSURE RELIEF SYSTEMS

Software Capabilities

- Overpressure analysis with relief load calculations
- Inlet and outlet piping hydraulic calculations
- Header blowdown and knockout drum calculations
- Acoustic induced vibration analysis

VALVE SIZING AND SELECTION SOFTWARE



- Provides sizing for vapor, liquid, steam and two-phase flow
- Capable of multi-scenario sizing. Multi-valve algorithm to easily size from multiple valves

- Built-in catalog selector ensures the proper product appropriate based on pressure and temperature
- Compliant with ASME and API



- Capable of multi-scenario sizing. Multi-valve algorithm to easily size from multiple valves
- Develop, dimensional drawings

- Maintain project data
- Generate orders to be sent direct to production

Product Training and Seminars



We offer technical training courses learning about valve management and industry scenarios.

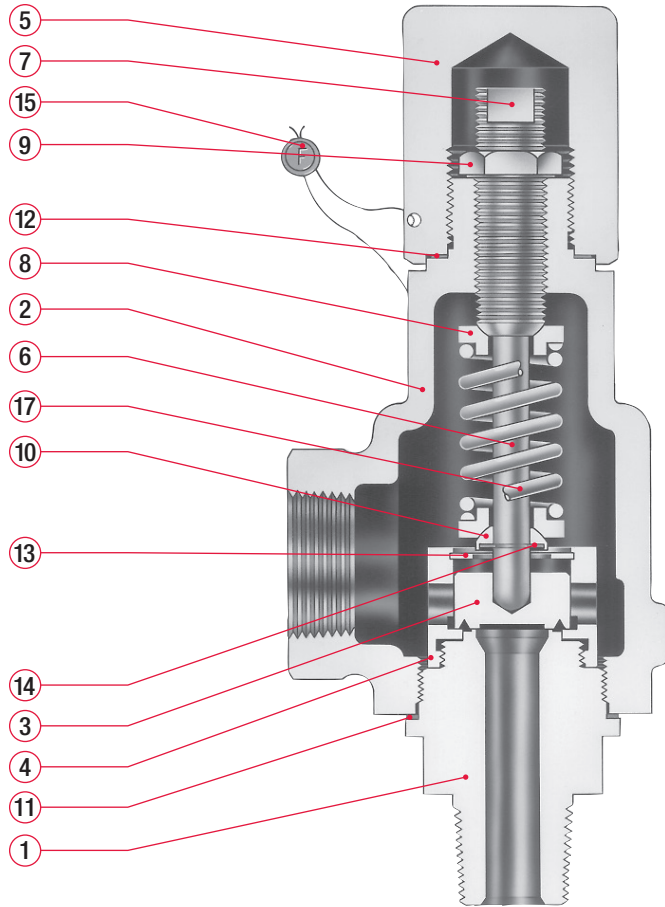
SOME AVAILABLE CLASSES

- Pressure relief valve functionality
- Sizing requirements
- Material selection
- Sizing software training
- Maintenance and repair
- Mitigating overpressure scenarios

Contact your sales rep for more information.

Applications include:

- Set pressures to 800 psig.
- Stainless steel body and trim.
- Carbon steel bonnet and cap.
- Flat seats for easy maintenance.



Bill of Materials		
Item No.	Part Name	Material 1890 & 1892
1	Body	SA-479 Type 316 St. St.
2	Bonnet	SA-216 Gr. WCB Carbon Steel
3	Disc	316 St. St.
4	Guide	Stainless Steel
5	Cap, Plain Screwed	Carbon Steel
6	Stem	Stainless Steel
7	Spring Adj. Screw	Stainless Steel
8	Spring Button	Stainless Steel
9	Jam Nut	Stainless Steel
10	Stem Shoulder	Stainless Steel
11	Body Gasket	316 St. St.
12	Cap Gasket	316 St. St.
13	Lift Stop Ring	Stainless Steel
14	Retaining Ring-Stem Shoulder	Stainless Steel
15	Wire Seal	Stainless Steel Wire/Lead Seal
16	Nameplate (not shown)	Stainless Steel
17	Spring (-20°F to +400°F)	316 St. St.
	Spring (+401°F to +750°F)	Chrome Alloy Rust Proofed



Selection Table (Connections: MNPT x FNPT)										
Type Number ²	Service	Valve Size Inlet x Outlet	Maximum Set Pressure, psig ¹		Maximum Set Pressure, barg ¹		Maximum Back Pressures		Materials ¹	
			-20°F to +400°F	+401°F to +750°F	-28.9°C to +204°C	+205°C to +399°C	psig @ 100°F	barg @ 37.8°C	Body / Bonnet	Spring
18902-M20	Air, Steam & Vapor	1/2 x 1	800	800	55	55	50	3.45	316 St. St. / Carbon St.	See Bill of Materials
18903-M20		3/4 x 1								
1890L2-M20	Liquid	1/2 x 1								
1890L3-M20		3/4 x 1								

General Notes:

- For high temperature range (+401°F to 750°F / +205°C to +399°C) change fourth digit of type number from "0" to "2".
Example: 18902-M20 becomes 18922-M20. Spring changes to Chrome Alloy, Rust Proofed.
- Type numbers shown designate valves with plain screwed caps. Test lever required for air, steam or hot water service (above 140°F / 60°C).
For packed lever change the three digit type number suffix from "-M20" to "-M40". Example: 18902-M20 becomes 18902-M40.

Series 1890 Capacity Tables

ASME Pressure Vessel Code (UV)

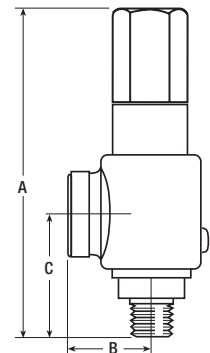
Air – 10% Overpressure	
Capacities in Standard Cubic Feet Per Minute at 60° F ¹	
Set Pressure (psig)	Air Capacity
15	51
20	59
30	74
40	92
50	109
60	126
70	144
80	161
90	178
100	195
120	230
140	264
160	299
180	334
200	368
220	403
240	437
260	472
280	506
300	541
320	576
340	610
360	645
380	679
400	714
420	748
440	783
460	817
480	852
500	887
600	1059
700	1232
800	1405

Steam – 10% Overpressure	
Capacities in Lbs. Per Hour at Saturation Temperature ¹	
Set Pressure (psig)	Steam Capacity
15	144
20	166
30	210
40	258
50	307
60	356
70	404
80	453
90	501
100	550
120	647
140	744
160	841
180	938
200	1035
220	1132
240	1229
260	1326
280	1424
300	1521
320	1618
340	1715
360	1812
380	1909
400	2006
420	2103
440	2200
460	2297
480	2394
500	2492
600	2977
700	3462
800	3948

Water – 10% Overpressure	
Capacities in U.S. Gallons Per Minute at 70° F ^{1,2}	
Set Pressure (psig)	Water Capacity
15	9.3
20	10.6
30	12.7
40	14.6
50	16.3
60	17.9
70	19.4
80	20.7
90	22.0
100	23.1
120	25.4
140	27.4
160	29.3
180	31.1
200	32.7
220	34.3
240	35.9
260	37.3
280	38.8
300	40.1
320	41.4
340	42.7
360	44.0
380	45.2
400	46.3
420	47.5
440	48.6
460	49.7
480	50.8
500	51.8
600	56.8
700	61.3
800	65.5

Actual Orifice Areas				
Inlet Size	Air, Gas & Steam ³		Liquid ⁴	
	sq in	sq mm	sq in	sq mm
1/2" or 3/4"	0.110	71	0.110	71

Dimensions and Weights				
Type Number	A (max) All Cap Constructions	B	C	Approx. Weight Lbs/Kgs
1890	in	1-11/16	2-5/8	3.5
	mm	203	43	67

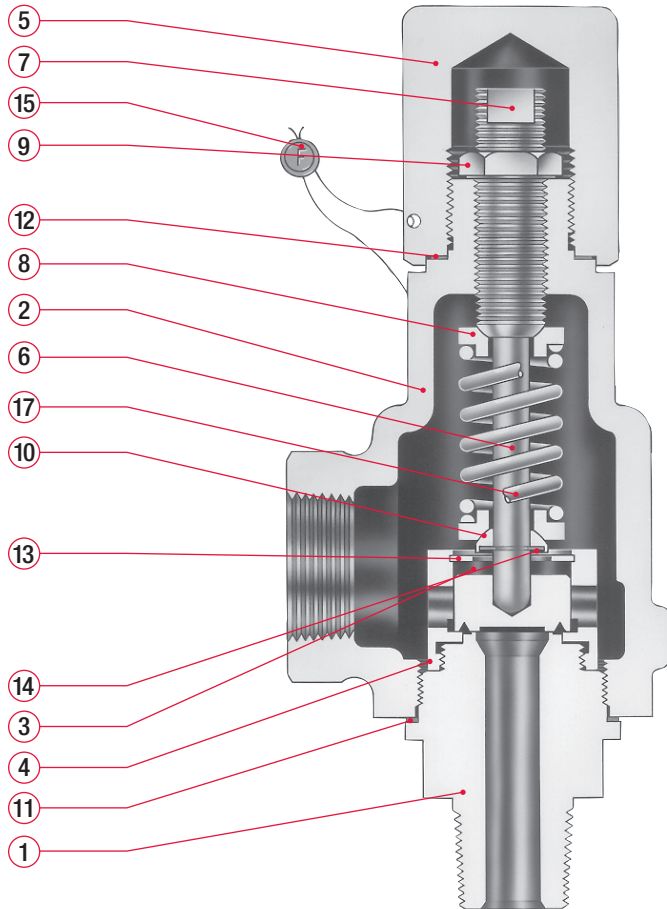


General Notes:

1. Capacities at 30 psig and below are based on 3 psi overpressure.
2. To determine water capacity at 25% overpressure, multiply the capacity at 10% by 1.066.
3. For sizing purposes, the coefficient of discharge K_d is 0.779 for air, gas, steam and vapor.
4. For liquid service, use the ASME liquid equation with a coefficient of discharge K_d equal to 0.529.

Applications include:

- Set pressures to 300 psig.
- Brass body and trim.
- Bronze bonnet and cap.
- Flat seats for easy maintenance.



Bill of Materials

Item No.	Part Name	Material
1	Body	ASTM B16 H.H. Brass
2	Bonnet	SB-62 Bronze
3	Disc	ASTM B16 H.H. Brass
4	Guide	Brass
5	Cap, Plain Screwed	Brass
6	Stem	St. St.
7	Spring Adj. Screw	Brass
8	Spring Button	St. St.
9	Jam Nut	Brass
10	Stem Shoulder	St. St.
11	Body Gasket	316 St. St.
12	Cap Gasket	316 St. St.
13	Lift Stop Ring	St. St.
14	Retaining Ring- Stem Shoulder	St. St.
15	Wire Seal	Stainless Steel Wire/ Lead Seal
16	Nameplate (not shown)	St. St.
17	Spring	316 St. St.



Selection Table (Connections: MNPT x FNPT)								
Type Number ¹	Service	Valve Size Inlet x Outlet	Maximum Set Pressure ²		Maximum Back Pressure		Materials	
			psig -400°F to +400°F	barg -240°C to +204°C	psig @ 100°F	barg @ 37.8°C	Body / Bonnet	Spring
1896M2-M20	Air, Steam & Vapor	1/2 x 3/4	300	20.7	50	3.45	Brass / Bronze	316 St. St.
1896M3-M20		3/4 x 3/4						
1896ML2-M20	Liquid	1/2 x 3/4						
1896ML3-M20		3/4 x 3/4						

General Notes:

- Type numbers shown designate valves with plain screwed caps. Test lever required for air, steam or hot water service (above 140°F / 60°C). For packed lever change the three digit type number suffix from "-M20" to "-M40". Example: 1896M2-M20 becomes 1896M2-M40.
- Maximum set pressure for steam service is 240 psig (saturation temperature of 400°F).

Series 1896M Capacity Tables

ASME Pressure Vessel Code (UV)

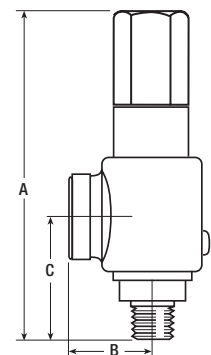
Air – 10% Overpressure	
Capacities in Standard Cubic Feet Per Minute at 60° F ¹	
Set Pressure (psig)	Air Capacity
15	51
20	59
30	74
40	92
50	109
60	126
70	144
80	161
90	178
100	195
120	230
140	264
160	299
180	334
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220	403
240	437
260	472
280	506
300	541

Steam – 10% Overpressure	
Capacities in Lbs. Per Hour at Saturation Temperature ¹	
Set Pressure (psig)	Steam Capacity
15	144
20	166
30	210
40	258
50	307
60	356
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80	453
90	501
100	550
120	647
140	744
160	841
180	938
200	1035
220	1132
240	1229

Water – 10% Overpressure	
Capacities in U.S. Gallons Per Minute at 70° F ^{1,2}	
Set Pressure (psig)	Water Capacity
15	9.3
20	10.6
30	12.7
40	14.6
50	16.3
60	17.9
70	19.4
80	20.7
90	22.0
100	23.1
120	25.4
140	27.4
160	29.3
180	31.1
200	32.7
220	34.3
240	35.9
260	37.3
280	38.8
300	40.1

Actual Orifice Areas				
Inlet Size	Air, Gas & Steam ⁴		Liquid ⁵	
	sq in	sq mm	sq in	sq mm
1/2" or 3/4"	0.110	71	0.110	71

Dimensions and Weights				
Type Number	A (max) All Cap Constructions	B	C	Approx. Weight Lbs/Kgs
1896M	in	7-1/2	1-9/16	3
	mm	190	40	1.4



General Notes:

1. Capacities at 30 psig and below are based on 3 psi overpressure.
2. To determine water capacity at 25% overpressure, multiply the capacity at 10% by 1.066.
3. Maximum set pressure for steam service is 240 psig (saturation temperature of 400°F).
4. For sizing purposes, the coefficient of discharge K_d is 0.779 for air, gas, steam and vapor.
5. For liquid service, use the ASME liquid equation with a coefficient of discharge K_d equal to 0.529.



WARRANTY

Curtiss-Wright products have a warranty period of twelve months from first installation or eighteen months from delivery, whichever is sooner. All other warranty terms are as per Curtiss-Wright Industrial Standard Terms and Conditions, a copy which is available at www.cw-industrialgroup.com/About/Group-Policies/Terms-Conditions.aspx. or contact your local representative.

Certifications, Compliances, and Approvals

- ASME V, UV, NV and NPT
- National Board Approval, NB
- NACE MR0175 / ISO15156
- ISO 9001:2015
- ISO 4126
- PED 2014/68/EU (European Pressure Equipment Directive)
- ATEX 2014/34/EU (European Potentially Explosive Atmospheres)
- CRN B51, N285.0 (Canadian Registration)
- CSQL (China Safety Quality License)
- Customs Union Certificates TR CU 010/2001 and TR CU 023/2013
- US Coast Guard
- API 526
- Nuclear Quality - 10 CFR 50 Appendix B, NCA-4000, NQA-1, N285.0 CSA N299.2/3/4"
- First Point Assessment Limited
- KGS (Korea Gas Safety)
- UKCA (United Kingdom) Conformity Assessed)



CURTISS - WRIGHT | **VALVES DIVISION**

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