

# Flanged Steel Pressure Relief Valves

API STANDARD 526  
FIFTH EDITION, JUNE 2002



**Helping You  
Get The Job  
Done Right.<sup>SM</sup>**

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**Downstream Segment**

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## FOREWORD

This standard is a purchase specification for flanged steel pressure relief valves, including direct spring loaded pressure relief valves and pilot-operated pressure relief valves.

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# Flanged Steel Pressure Relief Valves

## 1 General

### 1.1 SCOPE

This standard is a purchase specification for flanged steel pressure relief valves. Basic requirements are given for direct spring-loaded pressure relief valves and pilot-operated pressure relief valves as follows:

- Orifice designation and area.
- Valve size and pressure rating, inlet and outlet.
- Materials.
- Pressure-temperature limits.
- Center-to-face dimensions, inlet and outlet.

For the convenience of the purchaser, a sample specification sheet is given in Appendix A.

Nameplate nomenclature and requirements for stamping are detailed in Appendix B.

### 1.2 REFERENCED PUBLICATIONS

The latest edition or revision of the following standards, codes, and specifications shall, to the extent specified, form a part of this standard.

#### API

- RP 520     *Sizing, Selection, and Installation of Pressure Relieving Devices in Refineries, Parts I and II*  
Std 527     *Seat Tightness of Pressure Relief Valves*

#### ASME<sup>1</sup>

##### *Boiler and Pressure Vessel Code*

Section VIII, Pressure Vessels, Division 1 and 2

Section II—Material Specifications

- SA 216     *Carbon-Steel Castings Suitable for Fusion Welding for High-Temperature Service*  
SA 217     *Martensitic Stainless Steel and Alloy Steel Castings for Pressure-Containing Parts Suitable for High-Temperature Service*  
SA 351     *Austenitic Steel Castings for Pressure Containing Parts*  
SA 494     *Nickel and Nickel Alloy Castings*

#### ASME/ANSI<sup>2</sup>

- B16.5     *Pipe Flanges and Flanged Fittings*  
B16.34     *Valves—Flanged, Threaded, and Welding End*

<sup>1</sup>American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017.

<sup>2</sup>American National Standards Institute, 11 West 42nd Street, New York, New York 10036.

#### NACE Int<sup>3</sup>

- MR0175-90     *Sulfide Stress Cracking Resistant Metallic Materials for Oil Field Equipment*

### 1.3 DEFINITIONS

Pressure relief valve terminology is defined in API Recommended Practice 520, Part I.

### 1.4 RESPONSIBILITY

The purchaser is primarily responsible for the following:

- Selecting the type of pressure relief valve and the required pressure-temperature ratings.
- Specifying materials that will satisfactorily resist corrosion from the process fluid and environmental conditions.
- Selecting the minimum required orifice area based upon relieving conditions derived from full knowledge of the pressure-relieving system and the requirements of the applicable codes and regulations.
- Providing data for sizing and selection.

The manufacturer is primarily responsible for the following:

- Designing and manufacturing pressure relief valves to satisfy the requirements of this standard and the purchaser's specification.
- Publishing relieving capacities based upon certified test data.
- Advising the purchaser of any nonconformance to the purchaser's specification.
- Final sizing verification using the manufacturer's actual orifice area and certified coefficient of discharge.

### 1.5 CONFLICTING REQUIREMENTS

Whenever the information included on the purchaser's specification sheet or purchase order conflicts with the provisions of this standard, the purchaser's specification sheet or purchase order shall govern. Where conflicting requirements exist, the manufacturer shall call them to the attention of the purchaser.

### 1.6 ORIFICE AREAS AND DESIGNATIONS

The standard effective orifice areas and the corresponding letter designations are listed in Table 1. These effective areas are valid only when used with the sizing equations contained in API RP 520, Part I.

<sup>3</sup>NACE International, P.O. Box 218340, Houston, Texas 77218.

Table 1—Standard Effective Orifice Areas  
and Letter Designations

Designation	Effective Orifice Area (square in.)
D	0.110
E	0.196
F	0.307
G	0.503
H	0.785
J	1.287
K	1.838
L	2.853
M	3.60
N	4.34
P	6.38
Q	11.05
R	16.00
T	26.00

## 2 Design

### 2.1 GENERAL

Pressure relief valves discussed in this standard shall be designed and manufactured in accordance with the applicable requirements of Section VIII of the ASME Boiler and Pressure Vessel Code for pressure relief devices.

### 2.2 DETERMINATION OF EFFECTIVE ORIFICE AREA

The minimum required effective orifice area shall be determined in accordance with API RP 520, Part I.

### 2.3 VALVE SELECTION

For valves described in this standard, inlet and outlet flange sizes and pressure-temperature ratings shall conform to the data in Tables 2 – 15 for spring-loaded valves and Tables 16 – 29 for pilot-operated valves. Inlet and outlet pressure limits are governed by the flange pressure/temperature limits or by the manufacturer's design limits, whichever is lower.

### 2.4 DIMENSIONS

Center-to-face dimensions shall be in accordance with Tables 2 – 15 for spring-loaded valves and Tables 16 – 29 for

pilot-operated valves, with tolerances of plus or minus  $\frac{1}{16}$  in. for valve inlet sizes up to and including 4 in., and plus or minus  $\frac{1}{8}$  in. for valve inlet sizes larger than 4 in.

Flange facings and dimensions shall be in accordance with ASME/ANSI B16.5.

For some valve designs, the inlet raised face height may substantially exceed the nominal dimension specified in ASME/ANSI B16.5. Consult the manufacturer for exact dimensions.

### 2.5 LIFTING LEVERS

Lifting levers shall be provided when required by the ASME *Boiler and Pressure Vessel Code* or when designated on the purchaser's specification sheet.

As allowed by the Code for pilot-operated pressure relief valves, means in lieu of lifting levers may be specified for connecting and applying adequate pressure to the pilot to verify that the moving parts critical to proper operation are free to move.

### 2.6 SPECIAL CONSTRUCTION FEATURES

Construction features beyond the scope of this standard shall be provided as agreed upon by the manufacturer and the purchaser and shall be designated on the drawings provided to the purchaser.



### 3 Material

#### 3.1 GENERAL

Materials generally used for construction are covered in this section. For special corrosion problems and applications beyond the pressure-temperature limits of this standard, construction materials shall be those agreed upon by the manufacturer and the purchaser.

#### 3.2 SPRING-LOADED PRESSURE RELIEF VALVES

The body, bonnet, and spring materials shall be in accordance with Tables 2 – 15 for the required temperature range. The body and bonnet may be of different materials but must meet the minimum pressure-temperature requirement. The body and bonnet materials shall be equivalent to or better than the following types and grades:

Carbon steel	ASME SA 216, Grade WCB
Chromium molybdenum steel	ASME SA 217, Grade WC6
Austenitic stainless steel	ASME SA 351, Grade CF8M
Nickel/Copper Alloy	ASME SA 494 Grade M35-1
Alloy 20	ASME SA 351 Grade CN7M

Material for the internal parts of the valve shall be in accordance with the manufacturer's standards for the temperature and service or as indicated on the purchaser's specification sheet.

#### 3.3 PILOT-OPERATED PRESSURE RELIEF VALVES

The body material shall be in accordance with Tables 16 – 29 for the required temperature range. The body material shall be equivalent to or better than the following types and grades:

Carbon steel	ASME SA 216, Grade WCB
Austenitic stainless steel	ASME SA 351, Grade CF8M
Nickel/Copper Alloy	ASME SA 494, Grade M35-1
Alloy 20	ASME SA 351, Grade CN7M

Material for the pilot and internal parts of the valve shall be in accordance with the manufacturer's standards for the temperature and service or as indicated on the purchaser's specification sheet.

### 4 Inspection and Shop Tests

#### 4.1 INSPECTION

The purchaser reserves the right to witness the shop tests and inspect the valves in the manufacturer's plant to the extent specified on the purchase order.

#### 4.2 SET PRESSURE TEST

All pressure relief valves shall be adjusted to the specified set pressure in accordance with the ASME *Boiler and Pressure Vessel Code*, the manufacturer's standard practice as published, or as designated by the purchaser. All set pressure adjustments shall be sealed.

#### 4.3 SEAT LEAKAGE TEST

All pressure relief valves shall be seat leakage tested in accordance with API Std 527, or as agreed upon by the manufacturer and the purchaser.

### 5 Identification and Preparation for Shipment

#### 5.1 IDENTIFICATION

Each pressure relief valve shall have a corrosion-resistant nameplate permanently attached to the body or bonnet. This nameplate shall be stamped with the data specified in Appendix B. Pilot-operated pressure relief valves shall have an additional nameplate permanently attached to the pilot. The pilot nameplate shall be stamped with the manufacturer's name, pilot type, set pressure, and serial number.

Each pressure relief valve shall be tagged with the purchaser's valve number or other identification as specified on the purchase order. The data may be stamped on the nameplate or on a separate corrosion-resistant tag that is permanently attached to the valve.

#### 5.2 PREPARATION FOR SHIPMENT

Each pressure relief valve shall be prepared for shipment as follows:

- a. After test and inspection, all exterior surfaces, except flange facings, shall be painted as agreed upon by the manufacturer and the purchaser. Corrosion-resistant materials need not be painted. Flange facings shall be coated with a suitable corrosion inhibitor.
- b. Threaded openings shall be plugged with suitable protective devices. Temporary plugs should be readily distinguishable from permanent metal plugs.
- c. Inlet and outlet flanges shall be protected to prevent damage from or entrance of foreign material during shipment.

**Table 2—Spring-loaded Pressure Relief Valves**  
**“D” Orifice (Effective Orifice Area = 0.110 square in.)**

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	1D2	150	150			285	185	80		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2 (4)	300	150			285	285	285		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150			740	615	410		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150			1480	1235	825		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	900	300			2220	1845	1235		600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	1500	300			3705	3080	2060		600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D3	2500	300			6000	5135	3430		740	500	5 <sup>1</sup> / <sub>2</sub>	7
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	1D2	300	150					510	215	285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150					1015	430	285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	900	300					1525	650	600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	1500	300					2540	1080	600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D3	2500	300					4230	1800	740	500	5 <sup>1</sup> / <sub>2</sub>	7
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	1D2	150	150	275	275	275	180	80	20	275	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2 (4)	300	150	275	275	275	180	80	20	275	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150	720	720	720	495	420	350	275	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150	1440	1440	1440	990	845	700	275	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	900	300	2160	2160	2160	1485	1265	1050	600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	1500	300	3600	3600	3600	2480	2110	1750	600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D3	2500	300	4000	6000	6000	4130	3520	2915	720	500	5 <sup>1</sup> / <sub>2</sub>	7
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	1D2	150	150			140	140	140		140	140	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2 (4)	300	150			140	140	140		140	140	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150			360	360	360		140	140	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150			720	720	720		140	140	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	1D2	150	150			230	180			230	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2 (4)	300	150			230	180			230	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150			600	465			230	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150			1200	930			230	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	900	300			1800	1395			600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D2	1500	300			3000	2330			600	500	4 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> D3	2500	300			5000	3880			600	500	5 <sup>1</sup> / <sub>2</sub>	7

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 3—Spring-loaded Pressure Relief Valves  
 “E” Orifice (Effective Orifice Area = 0.196 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	1E2	150	150			285	185	80		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2 (4)	300	150			285	285	285		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	300	150			740	615	410		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	600	150			1480	1235	825		285	230	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1½E2	900	300			2220	1845	1235		600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E2	1500	300			3705	3080	2060		600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E3	2500	300			6000	5135	3430		740	500	5½	7
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	1E2	300	150					510	215	285	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	600	150					1015	430	285	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1½E2	900	300					1525	650	600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E2	1500	300					2540	1080	600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E3	2500	300					4230	1800	740	500	5½	7
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	1E2	150	150	275	275	275	180	80	20	275	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2 (4)	300	150	275	275	275	180	80	20	275	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	300	150	720	720	720	495	420	350	275	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	600	150	1440	1440	1440	975	845	700	275	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1½E2	900	300	2160	2160	2160	1485	1265	1050	600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E2	1500	300	3600	3600	3600	2480	2110	1750	600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E3	2500	300	4000	6000	6000	4130	3520	2915	720	500	5½	7
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	1E2	150	150			140	140	140		140	140	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2 (4)	300	150			140	140	140		140	140	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	300	150			360	360	360		140	140	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	600	150			720	720	720		140	140	4 <sup>1</sup> / <sub>8</sub>	4½
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	1E2	150	150			230	180			230	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2 (4)	300	150			230	180			230	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	300	150			600	465			230	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1E2	600	150			1200	930			230	230	4 <sup>1</sup> / <sub>8</sub>	4½
	1½E2	900	300			1800	1395			600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E2	1500	300			3000	2330			600	500	4 <sup>1</sup> / <sub>8</sub>	5½
	1½E3	2500	300			5000	3880			600	500	5½	7

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

**Table 4—Spring-loaded Pressure Relief Valves**  
**“F” Orifice (Effective Orifice Area = 0.307 square in.)**

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
		Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, –20°F to 800°F Inclusive													
Carbon Steel	1½F2	150	150			285	185	80		285	230	47/8	43/4
	1½F2 (4)	300	150			285	285	285		285	230	47/8	43/4
	1½F2	300	150			740	615	410		285	230	47/8	6
	1½F2	600	150			1480	1235	825		285	230	47/8	6
	1½F3	900	300			2220	1845	1235		740	500	47/8	6½
	1½F3	1500	300			3705	3080	2060		740	500	47/8	6½
	1½F3	2500	300			5000	5000	3430		740	500	5½	7
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	1½F2	300	150					510	215	285	230	47/8	6
	1½F2	600	150					1015	430	285	230	47/8	6
	1½F3	900	300					1525	650	740	500	47/8	6½
	1½F3	1500	300					2540	1080	740	500	47/8	6½
	1½F3	2500	300					4230	1800	740	500	5½	7
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	1½F2	150	150	275	275	275	180	80	20	275	230	47/8	43/4
	1½F2 (4)	300	150	275	275	275	180	80	20	275	230	47/8	43/4
	1½F2	300	150	720	720	720	495	420	350	275	230	47/8	6
	1½F2	600	150	1440	1440	1440	975	845	700	275	230	47/8	6
	1½F3	900	300	2160	2160	2160	1485	1265	1050	600	500	47/8	6½
	1½F3	1500	300	2200	3600	3600	2480	2110	1750	600	500	47/8	6½
	1½F3	2500	300	3400	5000	5000	4130	3520	2915	720	500	5½	7
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	1½F2	150	150			140	140	140		140	140	47/8	43/4
	1½F2 (4)	300	150			140	140	140		140	140	47/8	43/4
	1½F2	300	150			360	360	360		140	140	47/8	6
	1½F2	600	150			720	720	720		140	140	47/8	6
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	1½F2	150	150			230	180			230	230	47/8	43/4
	1½F2 (4)	300	150			230	180			230	230	47/8	43/4
	1½F2	300	150			600	465			230	230	47/8	6
	1½F2	600	150			1200	930			230	230	47/8	6
	1½F3	900	300			1800	1395			600	500	47/8	6½
	1½F3	1500	300			3000	2330			600	500	47/8	6½
	1½F3	2500	300			5000	3880			600	500	5½	7

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 5—Spring-loaded Pressure Relief Valves  
 “G” Orifice (Effective Orifice Area = 0.503 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	1½G3	150	150			285	185	80		285	230	47⁄8	43⁄4
	1½G3 (4)	300	150			285	285	285		285	230	47⁄8	43⁄4
	1½G3	300	150			740	615	410		285	230	47⁄8	6
	1½G3	600	150			1480	1235	825		285	230	47⁄8	6
	1½G3	900	300			2220	1845	1235		740	470	47⁄8	6½
	2G3	1500	300			3705	3080	2060		740	470	6¹⁄8	6¾
	2G3	2500	300			3705	3705	3430		740	470	6¹⁄8	6¾
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	1½G3	300	150					510	215	285	230	47⁄8	6
	1½G3	600	150					1015	430	285	230	47⁄8	6
	1½G3	900	300					1525	650	740	470	47⁄8	6½
	2G3	1500	300					2540	1080	740	470	6¹⁄8	6¾
	2G3	2500	300					3705	1800	740	470	6¹⁄8	6¾
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	1½G3	150	150	275	275	275	180	80	20	275	230	47⁄8	43⁄4
	1½G3 (4)	300	150	275	275	275	180	80	20	275	230	47⁄8	43⁄4
	1½G3	300	150	720	720	720	495	420	350	275	230	47⁄8	6
	1½G3	600	150	1440	1440	1440	975	845	700	275	230	47⁄8	6
	1½G3	900	300	2160	2160	2160	1485	1265	1050	600	470	47⁄8	6½
	2G3	1500	300	2450	3600	3600	2480	2110	1750	600	470	6¹⁄8	6¾
	2G3	2500	300	2600	3600	3600	3600	3520	2915	720	470	6¹⁄8	6¾
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	1½G3	150	150			140	140	140		140	140	47⁄8	43⁄4
	1½G3 (4)	300	150			140	140	140		140	140	47⁄8	43⁄4
	1½G3	300	150			360	360	360		140	140	47⁄8	6
	1½G3	600	150			720	720	720		140	140	47⁄8	6
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	1½G3	150	150			230	180			230	230	47⁄8	43⁄4
	1½G3 (4)	300	150			230	180			230	230	47⁄8	43⁄4
	1½G3	300	150			600	465			230	230	47⁄8	6
	1½G3	600	150			1200	930			230	230	47⁄8	6
	1½G3	900	150			1800	1395			600	470	47⁄8	6½
	2G3	1500	150			3000	2330			600	470	6¹⁄8	6¾
	2G3	2500	150			5000	3880			600	470	6¹⁄8	6¾

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

**Table 6—Spring-loaded Pressure Relief Valves**  
**“H” Orifice (Effective Orifice Area = 0.785 square in.)**

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F – 800°F Inclusive													
Carbon Steel	1½H3	150	150			285	185	80		285	230	5⅛	47⁄8
	1½H3 (4)	300	150			285	285	285		285	230	5⅛	47⁄8
	2H3	300	150			740	615	410		285	230	5⅛	47⁄8
	2H3	600	150			1480	1235	825		285	230	6⅛	63⁄8
	2H3	900	150			2220	1845	1235		285	230	6⅛	63⁄8
	2H3	1500	300			2750	2750	2060		740	415	6⅛	63⁄8
Temperature Range, 801°F – 1000°F Inclusive													
Chrome Molybdenum Steel	2H3	300	150					510	215	285	230	5⅛	47⁄8
	2H3	600	150					1015	430	285	230	6⅛	63⁄8
	2H3	900	150					1525	650	285	230	6⅛	63⁄8
	2H3	1500	300					2540	1080	740	415	6⅛	63⁄8
Temperature Range, – 450°F – 1000°F Inclusive													
Austenitic Stainless Steel	1½H3	150	150	275	275	275	180	80	20	275	230	5⅛	47⁄8
	1½H3 (4)	300	150	275	275	275	180	80	20	275	230	5⅛	47⁄8
	2H3	300	150	720	720	720	495	420	350	275	230	5⅛	47⁄8
	2H3	600	150	1440	1440	1440	975	845	700	275	230	6⅛	63⁄8
	2H3	900	150	1485	2160	2160	1485	1265	1050	600	230	6⅛	63⁄8
	2H3	1500	300	1600	2750	2750	2480	2110	1750	600	415	6⅛	63⁄8
Temperature Range, – 20°F – 600°F Inclusive													
Nickel/Copper Alloy (5)	1½H3	150	150			140	140	140		140	140	5⅛	47⁄8
	1½H3 (4)	300	150			140	140	140		140	140	5⅛	47⁄8
	2H3	300	150			360	360	360		140	140	5⅛	47⁄8
	2H3	600	150			720	720	720		140	140	6⅛	63⁄8
Temperature Range, – 20°F – 300°F Inclusive													
Alloy 20 (6)	1½H3	150	150			230	180			230	230	5⅛	47⁄8
	1½H3 (4)	300	150			230	180			230	230	5⅛	47⁄8
	1½H3	300	150			600	465			230	230	5⅛	47⁄8
	2H3	600	150			1200	930			230	230	6⅛	63⁄8
	2H3	900	150			1800	1395			230	230	6⅛	63⁄8
	2H3	1500	300			3000	2330			600	415	6⅛	63⁄8

## Notes:

- Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
- Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
- Chrome alloy springs may be used above 450°F.
- Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
- Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
- Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

**Table 7—Spring-loaded Pressure Relief Valves**  
**“J” Orifice (Effective Orifice Area = 1.287 square in.)**

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
				Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F – 800°F Inclusive													
Carbon Steel	2J3	150	150			285	185	80		285	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3 (4)	300	150			285	285	285		285	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	3J4	300	150			740	615	410		285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	600	150			1480	1235	825		285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	900	150			2220	1845	1235		285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300			2700	2700	2060		600	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, 801°F – 1000°F Inclusive													
Chrome Molybdenum Steel	3J4	300	150					510	215	285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	600	150					1015	430	285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	900	150					1525	650	285	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300					2540	1080	600	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 450°F – 1000°F Inclusive													
Austenitic Stainless Steel	2J3	150	150	275	275	275	180	80	20	275	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3 (4)	300	150	275	275	275	180	80	20	275	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	3J4	300	150	500	720	720	495	420	350	275	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	600	150	625	1440	1440	975	845	700	275	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	900	150	800	2160	2160	1485	1265	1050	275	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300	800	2700	2700	2480	2110	1750	600	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F – 600°F Inclusive													
Nickel/Copper Alloy (5)	2J3	150	150		140	140	140	140		140	140	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3 (4)	300	150		140	140	140	140		140	140	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	3J4	300	150		360	360	360	360		140	140	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	600	150		720	720	720	720		140	140	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F – 300°F Inclusive													
Alloy 20 (6)	2J3	150	150		230	230	180			230	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3 (4)	300	150		230	230	180			230	230	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	3J4	300	150		600	600	465			230	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	600	150		1200	1200	930			230	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	900	150		1800	1800	1395			230	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300		3000	3000	2330			600	230	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>

## Notes:

- Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
- Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
- Chrome alloy springs may be used above 450°F.
- Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
- Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
- Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

**Table 8—Spring-loaded Pressure Relief Valves**  
**“K” Orifice (Effective Orifice Area = 1.838 square in.)**

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F – 800°F Inclusive													
Carbon Steel	3K4	150	150			285	185	80		285	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4 (4)	300	150			285	285	285		285	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150			740	615	410		285	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150			1480	1235	825		285	200	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K6	900	150			2220	1845	1235		285	200	7 <sup>13</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>2</sub>
	3K6	1500	300			2220	2220	2060		600	200	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>
Temperature Range, 801°F – 1000°F Inclusive													
Chrome Molybdenum Steel	3K4	300	150					510	215	285	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150					1015	430	285	200	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K6	900	150					1525	650	285	200	7 <sup>13</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>2</sub>
	3K6	1500	300					2220	1080	600	200	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F – 1000°F Inclusive													
Austenitic Stainless Steel	3K4	150	150	275	275	275	180	80	20	275	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4 (4)	300	150	275	275	275	180	80	20	275	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150	525	720	720	495	420	350	275	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150	600	1440	1440	975	845	700	275	200	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K6	900	150	600	2160	2160	1485	1265	1050	275	200	7 <sup>13</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>2</sub>
	3K6	1500	300	750	2220	2220	2480	2110	1750	600	200	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F – 600°F Inclusive													
Nickel/Copper Alloy (5)	3K4	150	150			140	140	140		140	140	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4 (4)	300	150			140	140	140		140	140	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150			360	360	360		140	140	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150			720	720	720		140	140	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F – 300°F Inclusive													
Alloy 20 (6)	3K4	150	150			230	180			230	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4 (4)	300	150			230	180			230	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150			600	465			230	150	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150			1200	930			230	200	7 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K6	900	150			1800	1395			230	200	7 <sup>13</sup> / <sub>16</sub>	8 <sup>1</sup> / <sub>2</sub>
	3K6	1500	300			3000	2330			600	200	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.



Table 9—Spring-loaded Pressure Relief Valves  
 “L” Orifice (Effective Orifice Area = 2.853 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	3L4	150	150			285	185	80		285	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	3L4 (4)	300	150			285	285	285		285	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	4L6	300	150			740	615	410		285	170	7 <sup>1</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	600	150			1000	1000	825		285	170	7 <sup>1</sup> / <sub>16</sub>	8
	4L6	900	150			1500	1500	1235		285	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4L6	1500	150					1500		285	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	4L6	300	150					510	215	285	170	7 <sup>1</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	600	150					1000	430	285	170	7 <sup>1</sup> / <sub>16</sub>	8
	4L6	900	150					1500	650	285	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4L6	1500	150					1500	1080	285	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	3L4	150	150	275	275	275	180	80	20	275	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	3L4 (4)	300	150	275	275	275	180	80	20	275	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	4L6	300	150	535	720	720	495	420	350	275	170	7 <sup>1</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	600	150	535	1000	1000	975	845	700	275	170	7 <sup>1</sup> / <sub>16</sub>	8
	4L6	900	150	700	1500	1500	1485	1265	1050	275	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	3L4	150	150			140	140	140		140	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	3L4 (4)	300	150			140	140	140		140	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	4L6	300	150			360	360	360		140	120	7 <sup>1</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	600	150			720	720	720		140	120	7 <sup>1</sup> / <sub>16</sub>	8
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	3L4	150	150			230	180			230	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	3L4 (4)	300	150			230	180			230	100	6 <sup>1</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>
	4L6	300	150			600	465			230	170	7 <sup>1</sup> / <sub>16</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	600	150			1200	930			230	170	7 <sup>1</sup> / <sub>16</sub>	8
	4L6	900	150			1800	1395			230	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4L6	1500	150			3000	2330			230	170	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>

## Notes:

- Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
- Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
- Chrome alloy springs may be used above 450°F.
- Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
- Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
- Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 10—Spring-loaded Pressure Relief Valves  
“M” Orifice (Effective Orifice Area = 3.60 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	4M6	150	150			285	185	80		285	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6 (4)	300	150			285	285	285		285	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	300	150			740	615	410		285	160	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	600	150			1100	1100	825		285	160	7	8
	4M6	900	150					1100		285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	4M6	300	150					510	215	285	160	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	600	150					1000	430	285	160	7	8
	4M6	900	150					1100	650	285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	4M6	150	150	275	275	275	180	80	20	275	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6 (4)	300	150	275	275	275	180	80	20	275	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	300	150	525	720	720	495	420	350	275	160	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	600	150	600	1000	1000	975	845	700	275	160	7	8
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	4M6	150	150			140	140	140		140	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6 (4)	300	150			140	140	140		140	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	300	150			360	360	360		140	160	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	600	150			720	720	720		140	160	7	8
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	4M6	150	150			230	180			230	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6 (4)	300	150			230	180			230	80	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	300	150			600	465			230	160	7	7 <sup>1</sup> / <sub>4</sub>
	4M6	600	150			1100	930			230	160	7	8
	4M6	900	150			1100	1100			230	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 11—Spring-loaded Pressure Relief Valves  
“N” Orifice (Effective Orifice Area = 4.34 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	4N6	150	150			285	185	80		285	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6 (4)	300	150			285	285	285		285	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150			740	615	410		285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150			1000	1000	825		285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4N6	900	150					1000		285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	4N6	300	150					510	215	285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150					1000	430	285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4N6	900	150					1000	650	285	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	4N6	150	150	275	275	275	180	80	20	275	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6 (4)	300	150	275	275	275	180	80	20	275	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150	450	720	720	495	420	350	275	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150	500	1000	1000	975	845	700	275	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	4N6	150	150			140	140	140		140	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6 (4)	300	150			140	140	140		140	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150			360	360	360		140	140	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150			720	720	720		140	140	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	4N6	150	150			230	180			230	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6 (4)	300	150			230	180			230	80	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150			600	465			230	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150			1000	930			230	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>
	4N6	900	150			1000	1000			230	160	7 <sup>3</sup> / <sub>4</sub>	8 <sup>3</sup> / <sub>4</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 12—Spring-loaded Pressure Relief Valves  
 “P” Orifice (Effective Orifice Area = 6.38 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	4P6	150	150			285	185	80		285	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6 (4)	300	150			285	285	285		285	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6	300	150			525	525	410		285	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	600	150			1000	1000	825		285	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	900	150					1000		285	150	8 <sup>7</sup> / <sub>8</sub>	10
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	4P6	300	150					510	215	285	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	600	150					1000	430	285	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	900	150					1000	650	285	150	8 <sup>7</sup> / <sub>8</sub>	10
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	4P6	150	150	175	275	275	180	80	20	275	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6 (4)	300	150	175	275	275	180	80	20	275	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6	300	150	300	525	525	495	420	350	275	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	600	150	480	1000	1000	975	845	700	275	150	8 <sup>7</sup> / <sub>8</sub>	10
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	4P6	150	150			140	140	140		140	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6 (4)	300	150			140	140	140		140	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6	300	150			360	360	360		140	140	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	600	150			720	720	720		140	140	8 <sup>7</sup> / <sub>8</sub>	10
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	4P6	150	150			230	180			230	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6 (4)	300	150			230	180			230	80	7 <sup>1</sup> / <sub>8</sub>	9
	4P6	300	150			525	465			230	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	600	150			1000	930			230	150	8 <sup>7</sup> / <sub>8</sub>	10
	4P6	900	150			1000	1000			230	150	8 <sup>7</sup> / <sub>8</sub>	10

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 13—Spring-loaded Pressure Relief Valves  
 “Q” Orifice (Effective Orifice Area = 11.05 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	6Q8	150	150			165	165	80		115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8 (4)	300	150			165	165	165		115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150			300	300	300		115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150			600	600	600		115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	6Q8	300	150					165	165	115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150					600	430	115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	6Q8	150	150	165	165	165	165	80	20	115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8 (4)	300	150	165	165	165	165	80	20	115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150	250	300	300	300	300	300	115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150	300	600	600	600	600	600	115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	6Q8	150	150			140	140	140		115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8 (4)	300	150			140	140	140		115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150			360	360	360		115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150			720	720	720		115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	6Q8	150	150			165	165			115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8 (4)	300	150			165	165			115	70	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150			300	300			115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150			600	600			115	115	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 14—Spring-loaded Pressure Relief Valves  
 “R” Orifice (Effective Orifice Area = 16.00 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
				Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temperature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temperature Alloy Steel	High Temperature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conventional Valves	Bellows Valves		
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	6R8	150	150			100	100	80		60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8 (4)	300	150			100	100	100		60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R10	300	150			230	230	230		100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
	6R10	600	150			300	300	300		100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	6R8	300	150					100	100	60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R10	600	150					300	300	100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	6R8	150	150	55	100	100	100	80	20	60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8 (4)	300	150	55	100	100	100	80	20	60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R10	300	150	150	230	230	230	230	230	100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
	6R10	600	150	200	300	300	300	300	300	100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	6R8	150	150			100	100	100		60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8 (4)	300	150			100	100	100		60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R10	300	150			230	230	230		100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
	6R10	600	150			300	300	300		100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	6R8	150	150			100	100			60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8 (4)	300	150			100	100			60	60	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R10	300	150			230	230			100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>
	6R10	600	150			300	300			100	100	9 <sup>7</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 451°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 101°F to 450°F column are limited to 300°F.

Table 15—Spring-loaded Pressure Relief Valves  
 “T” Orifice (Effective Orifice Area = 26.00 square in.)

Materials (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)									
Body/Bonnet	Inlet by Orifice by Outlet	Inlet	Outlet	Conventional and Balanced Bellows Valves									
				Spring Materials (3)									
				Low Temper- ature Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	Carbon Steel or Chrome Alloy Steel	High Temper- ature Alloy Steel	High Temper- ature Alloy Steel	Outlet Pressure Limit (1)		Center to Face Dimensions (in.)	
										Conven- tional Valves	Bellows Valves		
				– 450°F to – 76°F	– 75°F to – 21°F	– 20°F to 100°F	101°F to 450°F	451°F to 800°F	801°F to 1000°F	100°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 800°F Inclusive													
Carbon Steel	8T10	150	150			65	65	65		30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10 (4)	300	150			65	65	65		30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150			120	120	120		60	60	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150			300	300	300		100	100	10 <sup>7</sup> / <sub>8</sub>	11
Temperature Range, 801°F to 1000°F Inclusive													
Chrome Molybdenum Steel	8T10		150					120				10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150					300	225	60 100	60 100	10 <sup>7</sup> / <sub>8</sub>	11
Temperature Range, – 450°F to 1000°F Inclusive													
Austenitic Stainless Steel	8T10	150	150	50	65	65	65	65	20	30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10 (4)	300	150	50	65	65	65	65	20	30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150	65	120	120	120	120	120	60	60	10 <sup>7</sup> / <sub>8</sub>	11
Temperature Range, – 20°F to 600°F Inclusive													
Nickel/Copper Alloy (5)	8T10	150	150			65	65	65		30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10 (4)	300	150			65	65	65		30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150			120	120	120		60	60	10 <sup>7</sup> / <sub>8</sub>	11
Temperature Range, – 20°F to 300°F Inclusive													
Alloy 20 (6)	8T10	150	150			65	65			30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10 (4)	300	150			65	65			30	30	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150			120	120			60	60	10 <sup>7</sup> / <sub>8</sub>	11

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Chrome alloy springs may be used above 450°F.
4. Set pressure limited for low pressure applications where a Class 300 flange is preferred over a Class 150 flange.
5. Material limited to 600°F. Pressure ratings indicated in the 45°F to 800°F column are limited to 600°F.
6. Material limited to 300°F. Pressure ratings indicated in the 10°F to 450°F column are limited to 300°F.

**Table 16—Pilot-operated Pressure Relief Valves**  
**“D” Orifice (Effective Orifice Area = 0.110 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
Temperature Range, – 20°F to 500°F									
Carbon Steel	1D2	150	150		285	170	285	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150		740	600	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150		1480	1200	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	900	300		2220	1795	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	1500	300		3705	2995	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	2500	300		6170	4990	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	150	150		285	170	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	300	150		740	600	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	600	150		1480	1200	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	900	300		2220	1795	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	1500	300		3705	2995	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	2500	300		6170	4990	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F – 500°F									
Austenitic Stainless Steel	1D2	150	150	275	275	170	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150	720	720	480	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150	1440	1440	955	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	900	300	2160	2160	1435	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	1500	300	3600	3600	2390	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	2500	300	6000	6000	3980	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	150	150	275	275	170	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	300	150	720	720	480	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	600	150	1440	1440	955	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	900	300	2160	2160	1435	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	1500	300	3600	3600	2390	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	2500	300	6000	6000	3980	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F – 500°F									
Nickel/Copper Alloy	1D2	150	150		140	140	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150		360	360	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150		720	720	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	900	300		1080	1080	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	1500	300		1800	1800	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	2500	300		3000	3000	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	150	150		140	140	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	300	150		360	360	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	600	150		720	720	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	900	300		1080	1080	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	1500	300		1800	1800	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	2500	300		3000	3000	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F – 300°F									
Alloy 20 (3)	1D2	150	150		230	180	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	300	150		600	465	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	600	150		1200	930	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1D2	900	300		1800	1395	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	1500	300		3000	2330	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1D2	2500	300		5000	3880	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	150	150		230	180	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	300	150		600	465	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	600	150		1200	930	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ D2	900	300		1800	1395	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	1500	300		3000	2330	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ D2	2500	300		5000	3880	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.



Table 17—Pilot-operated Pressure Relief Valves  
 “E” Orifice (Effective Orifice Area = 0.196 square in.)

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				−450°F to −21°F	−20°F to 100°F	500°F	100°F	Inlet	Outlet
Temperature Range, −20°F to 500°F									
Carbon Steel	1E2	150	150		285	170	285	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	300	150		740	600	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	600	150		1480	1200	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	900	300		2220	1795	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	1500	300		3705	2995	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	2500	300		6170	4990	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	150	150		285	170	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	300	150		740	600	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	600	150		1480	1200	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	900	300		2220	1795	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	1500	300		3705	2995	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	2500	300		6170	4990	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, −450°F to 500°F									
Austenitic Stainless Steel	1E2	150	150	275	275	170	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	300	150	720	720	480	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	600	150	1440	1440	955	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	900	300	2160	2160	1435	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	1500	300	3600	3600	2390	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	2500	300	6000	6000	3980	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	150	150	275	275	170	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	300	150	720	720	480	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	600	150	1440	1440	955	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	900	300	2160	2160	1435	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	1500	300	3600	3600	2390	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	2500	300	6000	6000	3980	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, −20°F to 500°F									
Nickel/Copper Alloy	1E2	150	150		140	140	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	300	150		360	360	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	600	150		720	720	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	900	300		1080	1080	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	1500	300		1800	1800	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	2500	300		3000	3000	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	150	150		140	140	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	300	150		360	360	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	600	150		720	720	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	900	300		1080	1080	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	1500	300		1800	1800	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	2500	300		3000	3000	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, −20°F to 300°F									
Alloy 20 (3)	1E2	150	150		230	180	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	300	150		600	465	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	600	150		1200	930	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1E2	900	300		1800	1395	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	1500	300		3000	2330	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1E2	2500	300		5000	3880	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	150	150		230	180	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	300	150		600	465	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	600	150		1200	930	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	900	300		1800	1395	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	1500	300		3000	2330	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1 <sup>1</sup> / <sub>2</sub> E2	2500	300		5000	3880	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 18—Pilot-operated Pressure Relief Valves**  
**“F” Orifice (Effective Orifice Area = 0.307 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 500°F									
Carbon Steel	1F2	150	150		285	170	285	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	300	150		740	600	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	600	150		1480	1200	285	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	900	300		2220	1795	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	1500	300		3705	2995	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	2500	300		6170	4990	740	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	150	150		285	170	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	300	150		740	600	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	600	150		1480	1200	285	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	900	300		2220	1795	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	1500	300		3705	2995	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	2500	300		6170	4990	740	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	1F2	150	150	275	275	170	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	300	150	720	720	480	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	600	150	1440	1440	955	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	900	300	2160	2160	1435	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	1500	300	3600	3600	2390	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	2500	300	6000	6000	3980	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	150	150	275	275	170	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	300	150	720	720	480	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	600	150	1440	1440	955	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	900	300	2160	2160	1435	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	1500	300	3600	3600	2390	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	2500	300	6000	6000	3980	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	1F2	150	150		140	140	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	300	150		360	360	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	600	150		720	720	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	900	300		1080	1080	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	1500	300		1800	1800	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	2500	300		3000	3000	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	150	150		140	140	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	300	150		360	360	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	600	150		720	720	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	900	300		1080	1080	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	1500	300		1800	1800	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	2500	300		3000	3000	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	1F2	150	150		230	180	275	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	300	150		600	465	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	600	150		1200	930	275	4 <sup>3</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>2</sub>
	1F2	900	300		1800	1395	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	1500	300		3000	2330	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1F2	2500	300		5000	3880	720	4 <sup>15</sup> / <sub>16</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	150	150		230	180	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	300	150		600	465	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	600	150		1200	930	275	4 <sup>7</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>
	1½ F2	900	300		1800	1395	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	1500	300		3000	2330	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>
	1½ F2	2500	300		5000	3880	720	5 <sup>7</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 19—Pilot-operated Pressure Relief Valves**  
**“G” Orifice (Effective Orifice Area = 0.503 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 500°F									
Carbon Steel	1½G3	150	150		285	170	285	5⅛	4⅞
	1½G3	300	150		740	600	285	5⅛	4⅞
	1½G3	600	150		1480	1200	285	5⅛	4⅞
	1½G3	900	300		2220	1795	740	6⅜	6¾
	1½G3	1500	300		3705	2995	740	6⅜	6¾
	1½G3	2500	300		6170	4990	740	6⅜	6¾
	2G3	150	150		285	170	285	5⅜	4⅞
	2G3	300	150		740	600	285	5⅜	4⅞
	2G3	600	150		1480	1200	285	5⅜	4⅞
	2G3	900	300		2220	1795	740	6⁹⁄₁₆	6¾
	2G3	1500	300		3705	2995	740	6⁹⁄₁₆	6¾
	2G3	2500	300		6170	4990	740	7	6¾
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	1½G3	150	150	275	275	170	275	5⅛	4⅞
	1½G3	300	150	720	720	480	275	5⅛	4⅞
	1½G3	600	150	1440	1440	955	275	5⅛	4⅞
	1½G3	900	300	2160	2160	1435	720	6⅜	6¾
	1½G3	1500	300	3600	3600	2390	720	6⅜	6¾
	1½G3	2500	300	6000	6000	3980	720	6⅜	6¾
	2G3	150	150	275	275	170	275	5⅜	4⅞
	2G3	300	150	720	720	480	275	5⅜	4⅞
	2G3	600	150	1440	1440	955	275	5⅜	4⅞
	2G3	900	300	2160	2160	1435	720	6⁹⁄₁₆	6¾
	2G3	1500	300	3600	3600	2390	720	6⁹⁄₁₆	6¾
	2G3	2500	300	6000	6000	3980	720	7	6¾
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	1G2	150	150		140	140	275	4⅛	4½
	1G2	300	150		360	360	275	4⅜	4½
	1G2	600	150		720	720	275	4⅜	4½
	1G2	900	300		1080	1080	720	4¹⁵⁄₁₆	4¾
	1G2	1500	300		1800	1800	720	4¹⁵⁄₁₆	4¾
	1G2	2500	300		3000	3000	720	4¹⁵⁄₁₆	4¾
	1½G2	150	150		140	140	275	4⅞	4¾
	1½G2	300	150		360	360	275	4⅞	4¾
	1½G2	600	150		720	720	275	4⅞	4¾
	1½G2	900	300		1080	1080	720	5⅞	5½
	1½G2	1500	300		1800	1800	720	5⅞	5½
	1½G2	2500	300		3000	3000	720	5⅞	5½
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	1G2	150	150		230	180	275	4⅛	4½
	1G2	300	150		600	465	275	4⅜	4½
	1G2	600	150		1200	930	275	4⅜	4½
	1G2	900	300		1800	1395	720	4¹⁵⁄₁₆	4¾
	1G2	1500	300		3000	2330	720	4¹⁵⁄₁₆	4¾
	1G2	2500	300		5000	3880	720	4¹⁵⁄₁₆	4¾
	1½G2	150	150		230	180	275	4⅞	4¾
	1½G2	300	150		600	465	275	4⅞	4¾
	1½G2	600	150		1200	930	275	4⅞	4¾
	1½G2	900	300		1800	1395	720	5⅞	5½
	1½G2	1500	300		3000	2330	720	5⅞	5½
	1½G2	2500	300		5000	3880	720	5⅞	5½

## Notes:

- Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
- Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
- Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 20—Pilot-operated Pressure Relief Valves**  
**"H" Orifice (Effective Orifice Area = 0.785 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 500°F									
Carbon Steel	1½H3	150	150		285	170	285	5⅛	4⅞
	1½H3	300	150		740	600	285	5⅛	4⅞
	1½H3	600	150		1480	1200	285	5⅛	4⅞
	1½H3	900	300		2220	1795	740	6⅜	6¾
	1½H3	1500	300		3705	2995	740	6⅜	6¾
	1½H3	2500	300		6170	4990	740	6⅜	6¾
	2H3	150	150		285	170	285	5⅜	4⅞
	2H3	300	150		740	600	285	5⅜	4⅞
	2H3	600	150		1480	1200	285	5⅜	4⅞
	2H3	900	300		2220	1795	740	6⁹⁄₁₆	6¾
	2H3	1500	300		3705	2995	740	6⁹⁄₁₆	6¾
	2H3	2500	300		6170	4990	740	7	6¾
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	1½H3	150	150	275	275	170	275	5⅛	4⅞
	1½H3	300	150	720	720	480	275	5⅛	4⅞
	1½H3	600	150	1440	1440	955	275	5⅛	4⅞
	1½H3	900	300	2160	2160	1435	720	6⅜	6¾
	1½H3	1500	300	3600	3600	2390	720	6⅜	6¾
	1½H3	2500	300	6000	6000	3980	720	6⅜	6¾
	2H3	150	150	275	275	170	275	5⅜	4⅞
	2H3	300	150	720	720	480	275	5⅜	4⅞
	2H3	600	150	1440	1440	955	275	5⅜	4⅞
	2H3	900	300	2160	2160	1435	720	6⁹⁄₁₆	6¾
	2H3	1500	300	3600	3600	2390	720	6⁹⁄₁₆	6¾
	2H3	2500	300	6000	6000	3980	720	7	6¾
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	1H2	150	150		140	140	275	4⅛	4½
	1H2	300	150		360	360	275	4⅜	4½
	1H2	600	150		720	720	275	4⅜	4½
	1H2	900	300		1080	1080	720	4⅞⁄₁₆	4¾
	1H2	1500	300		1800	1800	720	4⅞⁄₁₆	4¾
	1H2	2500	300		3000	3000	720	4⅞⁄₁₆	4¾
	1½H2	150	150		140	140	275	4⅞	4¾
	1½H2	300	150		360	360	275	4⅞	4¾
	1½H2	600	150		720	720	275	4⅞	4¾
	1½H2	900	300		1080	1080	720	5⅞	5½
	1½H2	1500	300		1800	1800	720	5⅞	5½
	1½H2	2500	300		3000	3000	720	5⅞	5½
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	1H2	150	150		230	180	275	4⅛	4½
	1H2	300	150		600	465	275	4⅜	4½
	1H2	600	150		1200	930	275	4⅜	4½
	1H2	900	300		1800	1395	720	4⅞⁄₁₆	4¾
	1H2	1500	300		3000	2330	720	4⅞⁄₁₆	4¾
	1H2	2500	300		5000	3880	720	4⅞⁄₁₆	4¾
	1½H2	150	150		230	180	275	4⅞	4¾
	1½H2	300	150		600	465	275	4⅞	4¾
	1½H2	600	150		1200	930	275	4⅞	4¾
	1½H2	900	300		1800	1395	720	5⅞	5½
	1½H2	1500	300		3000	2330	720	5⅞	5½
	1½H2	2500	300		5000	3880	720	5⅞	5½

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

Table 21—Pilot-operated Pressure Relief Valves  
 “J” Orifice (Effective Orifice Area = 1.287 square in.)

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F	Inlet	Outlet
Temperature Range, – 20°F to 500°F									
Carbon Steel	2J3	150	150		285	170	285	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	300	150		740	600	285	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	600	150		1480	1200	285	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	900	300		2220	1795	740	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	1500	300		3650	2995	740	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	2500	300		3650	3650	740	7	6 <sup>3</sup> / <sub>4</sub>
	3J4	150	150		285	170	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	300	150		740	600	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	600	150		1480	1200	285	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	900	300		2220	1795	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300		3705	2995	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	2J3	150	150	275	275	170	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	300	150	720	720	480	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	600	150	1440	1440	955	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	900	300	2160	2160	1435	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	1500	300	3550	3550	2390	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	2500	300	3550	3550	3550	720	7	6 <sup>3</sup> / <sub>4</sub>
	3J4	150	150	275	275	170	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	300	150	720	720	480	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	600	150	1440	1440	955	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	900	300	2160	2160	1435	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300	3600	3600	2390	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	2J3	150	150		140	140	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	300	150		360	360	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	600	150		720	720	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	900	300		1080	1080	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	1500	300		1800	1800	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	2500	300		3000	3000	720	7	6 <sup>3</sup> / <sub>4</sub>
	3J4	150	150		140	140	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	300	150		360	360	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	600	150		720	720	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	900	300		1080	1080	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300		1800	1800	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	2J3	150	150		230	180	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	300	150		600	465	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	600	150		1200	930	275	5 <sup>3</sup> / <sub>8</sub>	4 <sup>7</sup> / <sub>8</sub>
	2J3	900	300		1800	1395	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	1500	300		3000	2330	720	6 <sup>9</sup> / <sub>16</sub>	6 <sup>3</sup> / <sub>4</sub>
	2J3	2500	300		5000	3880	720	7	6 <sup>3</sup> / <sub>4</sub>
	3J4	150	150		230	180	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	300	150		600	465	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	600	150		1200	930	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3J4	900	300		1800	1395	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3J4	1500	300		3000	2330	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 22—Pilot-operated Pressure Relief Valves**  
**“K” Orifice (Effective Orifice Area = 1.838 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F		
Temperature Range, – 20°F to 500°F									
Carbon Steel	3K4	150	150		285	170	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150		740	600	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150		1480	1200	285	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	900	300		2220	1795	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K4	1500	300		3705	2995	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	3K4	150	150	275	275	170	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150	720	720	480	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150	1440	1440	955	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	900	300	2160	2160	1435	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K4	1500	300	3600	3600	2390	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	3K4	150	150		140	140	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150		360	360	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150		720	720	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	900	300		1080	1080	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K4	1500	300		1800	1800	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	3K4	150	150		230	180	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	300	150		600	465	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	600	150		1200	930	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3K4	900	300		1800	1395	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3K4	1500	300		3000	2330	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 23—Pilot-operated Pressure Relief Valves**  
**“L” Orifice (Effective Orifice Area = 2.853 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
Temperature Range, – 20°F to 500°F									
Carbon Steel	3L4	150	150		285	170	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	300	150		740	600	285	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	600	150		1240	1200	285	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	900	300		2220	1795	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3L4	1500	300		2900	2900	740	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	150	150		285	170	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	300	150		740	600	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	600	150		1480	1200	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	900	300		2220	1795	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
4L6	1500	300		3705	2995	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	3L4	150	150	275	275	170	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	300	150	720	720	480	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	600	150	1200	1200	955	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	900	300	2160	2160	1435	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3L4	1500	300	2825	2825	2390	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	150	150	275	275	170	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	300	150	720	720	480	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	600	150	1440	1440	955	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	900	300	2160	2160	1435	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
4L6	1500	300	3600	3600	2390	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	3L4	150	150		140	140	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	300	150		360	360	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	600	150		720	720	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	900	300		1080	1080	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3L4	1500	300		1800	1800	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	150	150		140	140	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	300	150		360	360	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	600	150		720	720	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	900	300		1080	1080	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
4L6	1500	300		1800	1800	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	3L4	150	150		230	180	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	300	150		600	465	275	6 <sup>1</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	600	150		1200	930	275	6 <sup>3</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
	3L4	900	300		1800	1395	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	3L4	1500	300		3000	2330	720	7 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>
	4L6	150	150		230	180	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	300	150		600	465	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	600	150		1200	930	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4L6	900	300		1800	1395	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
4L6	1500	300		3000	2330	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>	

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 24—Pilot-operated Pressure Relief Valves**  
**“M” Orifice (Effective Orifice Area = 3.60 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
Temperature Range, – 20°F to 500°F									
Carbon Steel	4M6	150	150		285	170	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	300	150		740	600	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	600	150		1480	1200	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	900	300		2220	1795	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4M6	1500	300		3705	2995	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	4M6	150	150	275	275	170	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	300	150	720	720	480	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	600	150	1440	1440	955	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	900	300	2160	2160	1435	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4M6	1500	300	3600	3600	2390	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	4M6	150	150		140	140	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	300	150		360	360	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	600	150		720	720	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	900	300		1080	1080	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4M6	1500	300		1800	1800	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	4M6	150	150		230	180	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	300	150		600	465	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	600	150		1200	930	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4M6	900	300		1800	1395	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4M6	1500	300		3000	2330	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.



Table 25—Pilot-operated Pressure Relief Valves  
 “N” Orifice (Effective Orifice Area = 4.34 square in.)

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
				100°F	Inlet	Outlet			
Temperature Range, –20°F to 500°F									
Carbon Steel	4N6	150	150		285	170	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150		740	600	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150		1480	1200	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	900	300		2220	1795	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4N6	1500	300		3705	2995	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	4N6	150	150	275	275	170	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150	720	720	480	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150	1440	1440	955	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	900	300	2160	2160	1435	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4N6	1500	300	3600	3600	2390	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	4N6	150	150		140	140	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150		360	360	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150		720	720	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	900	300		1080	1080	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4N6	1500	300		1800	1800	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	4N6	150	150		230	180	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	300	150		600	465	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	600	150		1200	930	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4N6	900	300		1800	1395	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4N6	1500	300		3000	2330	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 26—Pilot-operated Pressure Relief Valves**  
**“P” Orifice (Effective Orifice Area = 6.38 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
							100°F	Inlet	Outlet
Temperature Range, – 20°F to 500°F									
Carbon Steel	4P6	150	150		285	170	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	300	150		740	600	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	150		1305	1200	285	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	300		1480	1200	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	900	300		2220	1795	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	300		3080	2995	740	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	600		3705	2995	1480	9 <sup>13</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	4P6	150	150	275	275	170	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	300	150	720	720	480	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	300	1440	1440	955	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	900	300	2160	2160	1435	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	600	3600	3600	2390	1440	9 <sup>13</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	4P6	150	150		140	140	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	300	150		360	360	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	150		720	720	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	900	300		1080	1080	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	300		1800	1800	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	600		1800	1800	1440	9 <sup>13</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	4P6	150	150		230	180	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	300	150		600	465	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	150		1200	930	275	7 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>4</sub>
	4P6	600	300		1200	930	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	900	300		1800	1395	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	300		3000	2330	720	9 <sup>13</sup> / <sub>16</sub>	9 <sup>3</sup> / <sub>16</sub>
	4P6	1500	600		3000	2330	1440	9 <sup>13</sup> / <sub>16</sub>	10 <sup>3</sup> / <sub>8</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 27—Pilot-operated Pressure Relief Valves**  
**“Q” Orifice (Effective Orifice Area = 11.05 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F	100°F		
Temperature Range, – 20°F to 500°F									
Carbon Steel	6Q8	150	150		285	170	285	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150		740	600	285	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150		1330	1200	285	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	300		1480	1200	740	9 <sup>11</sup> / <sub>16</sub>	10 <sup>7</sup> / <sub>16</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	6Q8	150	150	275	275	170	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150	720	720	480	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150	1285	1285	955	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	300	1440	1440	955	720	9 <sup>11</sup> / <sub>16</sub>	10 <sup>7</sup> / <sub>16</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	6Q8	150	150		140	140	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150		360	360	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150		720	720	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	300		720	720	720	9 <sup>11</sup> / <sub>16</sub>	10 <sup>7</sup> / <sub>16</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	6Q8	150	150		230	180	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	300	150		600	465	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	150		1200	930	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6Q8	600	300		1200	930	720	9 <sup>11</sup> / <sub>16</sub>	10 <sup>7</sup> / <sub>16</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 28—Pilot-operated Pressure Relief Valves**  
**“R” Orifice (Effective Orifice Area = 16.00 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
Temperature Range, – 20°F to 500°F									
Carbon Steel	6R8	150	150		285	170	285	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	300	150		740	600	285	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	600	150		915	915	285	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	6R8	150	150	275	275	170	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	300	150	720	720	480	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	600	150	885	885	885	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	6R8	150	150		140	140	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	300	150		360	360	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	600	150		720	720	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	6R8	150	150		230	180	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	300	150		600	465	275	9 <sup>7</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>
	6R8	600	150		1200	930	275	9 <sup>11</sup> / <sub>16</sub>	9 <sup>1</sup> / <sub>2</sub>

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

**Table 29—Pilot-operated Pressure Relief Valves**  
**“T” Orifice (Effective Orifice Area = 26.00 square in.)**

Material (2)	Valve Size	ANSI Flange Class		Maximum Pressure (psig)				Center to Face Dimensions (in.)	
Body	Inlet by Orifice by Outlet	Inlet	Outlet	Set Pressure Limit			Outlet Pressure Limit (1)		
				– 450°F to – 21°F	– 20°F to 100°F	500°F			
Temperature Range, – 20°F to 500°F									
Carbon Steel	8T10	150	150		285	170	285	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150		740	600	285	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	600	150		900	900	285	11 <sup>11</sup> / <sub>16</sub>	11
Temperature Range, – 450°F to 500°F									
Austenitic Stainless Steel	8T10	150	150	275	275	170	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150	720	720	480	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	600	150	885	870	870	275	11 <sup>11</sup> / <sub>16</sub>	11
Temperature Range, – 20°F to 500°F									
Nickel/Copper Alloy	8T10	150	150		140	140	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150		360	360	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	600	150		720	720	275	11 <sup>11</sup> / <sub>16</sub>	11
Temperature Range, – 20°F to 300°F									
Alloy 20 (3)	8T10	150	150		230	180	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	300	150		600	465	275	10 <sup>7</sup> / <sub>8</sub>	11
	8T10	600	150		1200	930	275	11 <sup>11</sup> / <sub>16</sub>	11

## Notes:

1. Outlet pressure limit for temperatures above 100°F shall not exceed the rating in ANSI/ASME B 16.34.
2. Materials given are minimum requirements for the pressure and temperature ratings. Other suitable materials may be used, as required, for the service involved.
3. Material limited to 300°F. Pressure ratings indicated in the 500°F column are limited to 300°F.

## **APPENDIX A— PRESSURE RELIEF VALVE SPECIFICATION SHEETS**

## INSTRUCTIONS

### SPRING-LOADED PRESSURE RELIEF VALVE SPECIFICATION SHEET

**Line  
No.**

1. Fill in item number.
2. Fill in user's pressure relief valve identification number.
3. Specify service, line, or equipment to be protected.
4. Specify number of valves required.
5. Specify the applicable Code(s) and whether Code Symbol nameplate stamping is required.
6. Valve should comply with API Std 526.
7. Check fire or specify other basis of selection.
8. Specify whether a rupture disk is being used under the valve inlet.
9. Specify whether valve is conventional, balanced bellows, and/or balanced piston.
10. Give description of valve inlet (full nozzle, semi-nozzle, or other type).
11. Specify open or closed bonnet.
12. Specify metal-to-metal or resilient seat.
13. If other than API Std 527, specify seat test requirements.
14. Specify pipe size of inlet, flange rating, and type of facing.
15. Specify pipe size of outlet, flange rating, and type of facing.
16. Specify type of connection if other than flanged (e.g., threaded, socket weld, etc.).
17. Specify material of body.
18. Specify material of bonnet.
19. Specify material of seat or nozzle and disk.
20. If a resilient seat is required, specify material.
21. Specify material of guide.
22. Specify material of adjusting ring or rings.
23. Specify material of spring and spring washer.
24. Specify material of bellows.
25. Specify material of balanced piston.
26. Materials selected should be listed in NACE MR0175.
27. Specify any other special material requirements.
28. Specify screwed or bolted cap.
29. Specify if the valve is to have a plain or packed lifting lever or none.
30. Specify whether a test gag is required.
31. Specify whether a bug screen in the bonnet vent of a bellows or balanced piston valve is required.
32. Specify other accessories that are required (e.g., limit switch).
33. Indicate flowing fluid and state (liquid, gas, or vapor).

34. Specify quantity of fluid that the valve is required to relieve at relieving conditions and unit of measure (such as pounds per hr, gal per min., or cu. ft. per min.).
35. Specify the molecular weight or specific gravity of the fluid at the flowing temperature.
36. Specify viscosity and unit of measure at the flowing temperature.
37. Specify operating pressure and unit of measure.
38. Specify set pressure and unit of measure.
39. Specify maximum blowdown as a percent of set pressure, if different than manufacturer's standard.
40. Specify the latent heat of vaporization and unit of measure.
41. Specify the operating temperature and unit of measure.
42. Specify the actual temperature at relieving conditions and unit of measure.
43. Specify the increase in pressure in the discharge header as a result of flow.
44. Specify the amount of superimposed back pressure that normally exists on the valve outlet and unit of measure. If back pressure is variable, specify the minimum and maximum.
45. Specify the set pressure at which the valve is adjusted to open on the test stand. The cold differential test pressure includes corrections to the set pressure for the service conditions of back pressure or temperature or both.
46. Specify the overpressure allowed, as a percent of set pressure or as a unit of measure.
47. Specify the compressibility factor, if used.
48. Give the specific heat ratio as  $k_p = C_p/C_v$ .
49. Specify the calculated orifice area, in square in.
50. Specify the selected effective orifice area in square in.
51. Specify the letter designation of the selected orifice.
52. Fill in the name of the manufacturer, if desired.
53. Fill in the manufacturer's model or type numbers, if desired.
54. Fill in the manufacturer's orifice area (in square in.) if desired.
55. Fill in the manufacturer's coefficient of discharge, if desired.
56. Confirmation of orifice sizing calculations required from vendor.



## SPRING-LOADED PRESSURE RELIEF VALVE SPECIFICATION SHEET

Page \_\_\_\_\_ of \_\_\_\_\_  
 Requisition No. \_\_\_\_\_  
 Job No. \_\_\_\_\_  
 Date \_\_\_\_\_  
 Revised \_\_\_\_\_  
 By \_\_\_\_\_

GENERAL				BASIS OF SELECTION			
1.	Item Number:			5.	Code: ASME VIII [ ] Stamp Req'd: Yes [ ] No [ ]		
2.	Tag Number:				Other [ ] Specify:		
3.	Service, Line, or Equipment Number:			6.	Comply With API Std 526: Yes [ ] No [ ]		
4.	Number Required:			7.	Fire [ ] Other [ ] Specify:		
				8.	Rupture Disk: Yes [ ] No [ ]		
VALVE DESIGN				MATERIALS			
9.	Design Type:			17.	Body		
	Conventional [ ] Bellows [ ] Balanced Piston [ ]			18.	Bonnet:		
10.	Nozzle Type: Full [ ] Semi [ ]			19.	Seat (Nozzle): Disk:		
	Other [ ] Specify:			20.	Resilient Seat:		
11.	Bonnet Type: Open [ ] Closed [ ]			21.	Guide		
12.	Seat Type: Metal to Metal [ ] Resilient [ ]			22.	Adjusting Ring(s):		
13.	Seat Tightness: API Std 527 [ ]			23.	Spring: Washer:		
	Other [ ] Specify:			24.	Bellows:		
CONNECTIONS				25.	Balanced Piston:		
14.	Inlet Size	Rating	Facing	26.	Comply With NACE MR0175: Yes [ ] No [ ]		
15.	Outlet Size	Rating	Facing	27.	Other (Specify):		
16.	Other (Specify):						
SERVICE CONDITIONS				ACCESSORIES			
33.	Fluid and State:			28.	Cap: Screwed [ ] Bolted [ ]		
34.	Required Capacity Per Valve & Units:			29.	Lifting Lever: Plain [ ] Packed [ ] None [ ]		
35.	Molecular Weight or Specific Gravity:			30.	Test Gag: Yes [ ] No [ ]		
36.	Viscosity at Flowing Temperature & Units:			31.	Bug Screen: Yes [ ] No [ ]		
37.	Operating Pressure & Units:			32.	Other (Specify):		
38.	Set Pressure & Units:						
39.	Blowdown: Standard [ ] Other [ ]						
40.	Latent Heat of Vaporization & Units:			SIZING AND SELECTION			
41.	Operating Temperature & Units:			49.	Calculated Orifice Area (in square in.):		
42.	Relieving Temperature & Units:			50.	Selected Orifice Area (in square in.):		
43.	Built-up Back Pressure & Units:			51.	Orifice Designation (letter):		
44.	Superimposed Back Pressure & Units:			52.	Manufacturer:		
45.	Cold Differential Test Pressure & Units:			53.	Model Number:		
46.	Allowable Overpressure in Percent or Units:			54.	Manufacturer's Orifice Area (in square in.):		
47.	Compressibility Factor, Z:			55.	Manufacturer's Coefficient of Discharge:		
48.	Ratio of Specific Heats:			56.	Vendor Calculations Required: Yes [ ] No [ ]		

Note: Indicate items to be filled in by the manufacturer with an asterisk (\*).

## INSTRUCTIONS

### SPRING-LOADED PRESSURE RELIEF VALVE SPECIFICATION SHEET

**Line  
No.**

1. Fill in item number.
2. Fill in user's pressure relief valve identification number.
3. Specify service, line, or equipment to be protected.
4. Specify number of valves required.
5. Specify the applicable Code(s) and whether Code Symbol nameplate stamping is required.
6. Valve should comply with API Std 526.
7. Check fire or specify other basis of selection.
8. Specify whether a rupture disk is being used under the valve inlet.
9. Specify type of main valve operation.
10. Specify number of pilots per main valve.
11. Specify if pilot is flow or non-flowing type.
12. Specify type of action, pop or modulating.
13. Specify sensing point as integral at main valve inlet or at a remote location.
14. Specify metal-to-metal or resilient seat.
15. If other than API Std 527, specify seat tightness test requirements.
16. Specify if pilot venting is to atmosphere, valve outlet, or other closed system.
17. Specify pipe size of inlet, flange rating, and type of facing.
18. Specify pipe size of outlet, flange rating, and type of facing.
19. Specify type of connection if other than flanges (e.g., threaded, socket weld, etc.).
20. Specify material of body.
21. Specify material of seat or nozzle and piston.
22. Specify material of resilient seat (if required) and seals.
23. Specify material of piston seal.
24. Specify material of piston liner or guide.
25. Specify material of diaphragm or bellows.
26. Specify material of pilot body and bonnet.
27. Specify material of pilot internals.
28. Specify material of seat and seals of the pilot.
29. Specify material of diaphragm.
30. Specify material of tubing and fittings.
31. Specify material of filter body and cartridge.
32. Specify material of spring.
33. Materials selected should be listed in NACE MR0175.

34. Specify any other special material requirements.
35. Specify if external filter is required.
36. Specify if valve is to have a plain or packed lifting lever or none.
37. Specify if field test connection is required.
38. Specify if field test indicator is required.
39. Specify if backflow preventer is required.
40. Specify if manual blowdown valve is required.
41. Specify if test gag is required.
42. Specify other accessories that are required.
43. Indicate flowing fluid and state (liquid, gas, or vapor).
44. Specify quantity of fluid that the valve is required to relieve at relieving conditions and unit of measure (such as pounds per hr, gal per min., or cu. ft. per min.).
45. Specify the molecular weight or specific gravity of the fluid at the flowing temperature.
46. Specify viscosity and unit of measure at the flowing temperature.
47. Specify operating pressure and unit of measure.
48. Specify set pressure and unit of measure.
49. Specify the maximum blowdown as a percent of set pressure, if different than manufacturer's standard.
50. Specify the latent heat of vaporization and unit of measure.
51. Specify the operating temperature and unit of measure.
52. Specify the actual temperature at relieving conditions and unit of measure.
53. Specify the increase in pressure in the discharge header as a result of flow.
54. Specify the amount of superimposed back pressure that normally exists on the valve outlet and unit of measure. If back pressure is variable, specify the minimum and maximum.
55. Specify the set pressure at which the valve is adjusted to open on the test stand. The cold differential test pressure includes corrections to the set pressure for the service conditions of back pressure or temperature or both.
56. Specify the overpressure allowed, as a percent of set pressure or as a unit of measure.
57. Specify the compressibility factor, if used.
58. Give the specific heat ratio as  $k_p = C_p/C_v$ .
59. Specify the calculated orifice area, in square in.
60. Specify the selected effective orifice area in square in.
61. Specify the letter designation of the selected orifice.
62. Fill in the name of the manufacturer, if desired.
63. Fill in the manufacturer's model or type numbers, if desired.
64. Fill in the manufacturer's orifice area (in square in.), if desired.
65. Fill in the manufacturer's coefficient of discharge, if desired.
66. Confirmation of orifice sizing calculations required from vendor.

## PILOT-OPERATED PRESSURE RELIEF VALVE SPECIFICATION SHEET

Page \_\_\_\_\_ of \_\_\_\_\_

Requisition No. \_\_\_\_\_

Job No. \_\_\_\_\_

Date \_\_\_\_\_

Revised \_\_\_\_\_

By \_\_\_\_\_

GENERAL				BASIS OF SELECTION			
1. Item Number:				5. Code: ASME VIII [ ] Stamp Req'd: Yes [ ] No [ ]			
2. Tag Number:				Other [ ] Specify:			
3. Service, Line, or Equipment Number:				6. Comply With API Std 526: Yes [ ] No [ ]			
4. Number Required:				7. Fire [ ] Other [ ] Specify:			
				8. Rupture Disk: Yes [ ] No [ ]			
VALVE DESIGN				MATERIALS			
9. Design Type: Piston [ ] Diaphragm [ ] Bellows [ ]				20. Body:			
10. Number of Pilots:				21. Seat (Nozzle):                      Piston:			
11. Pilot Type: Flowing [ ] Non-flowing [ ]				22. Resilient Seat:                      Seals:			
12. Pilot Action: Pop [ ] Modulating [ ]				23. Piston Seal:			
13. Pilot Sense: Internal [ ] Remote [ ]				24. Piston Liner/Guide:			
14. Seat Type: Metal to Metal [ ] Resilient [ ]				25. Diaphragm/Bellows:			
15. Seat Tightness: API Std 527 [ ]				MATERIALS, PILOT			
Other [ ] Specify:							
16. Pilot Vent: Atmosphere [ ] Outlet [ ]				26. Body/Bonnet:			
Other [ ] Specify:				27. Internals:			
CONNECTIONS				28. Seat:                                      Seals:			
				29. Diaphragm:			
17. Inlet Size                      Rating                      Facing				30. Tubing/Fittings:			
18. Outlet Size                      Rating                      Facing				31. Filter Body:                              Cartridge:			
19. Other (Specify):				32. Spring:			
				33. Comply With NACE MRO175: Yes [ ] No [ ]			
				34. Other (Specify):			
SERVICE CONDITIONS				ACCESSORIES			
43. Fluid and State:				35. External Filter: Yes [ ] No [ ]			
44. Required Capacity Per Valve & Units:				36. Lifting Lever: Plain [ ] Packed [ ] None [ ]			
45. Molecular Weight or Specific Gravity:				37. Field Test Connection: Yes [ ] No [ ]			
46. Viscosity at Flowing Temperature & Units:				38. Field Test Indicator: Yes [ ] No [ ]			
47. Operating Pressure & Units:				39. Backflow Preventer: Yes [ ] No [ ]			
48. Set Pressure & Units:				40. Manual Blowdown Valve: Yes [ ] No [ ]			
49. Blowdown: Standard [ ] Other [ ]				41. Test Gag: Yes [ ] No [ ]			
50. Latent Heat of Vaporization & Units:				42. Other (Specify):			
51. Operating Temperature & Units:				SIZING AND SELECTION			
52. Relieving Temperature & Units:							
53. Built-up Back Pressure & Units:							
54. Superimposed Back Pressure & Units							
55. Cold Differential Test Pressure & Units:							
56. Allowable Overpressure in Percent or Units:							
57. Compressibility Factor, Z:							
58. Ratio of Specific Heats:							
				59. Calculated Orifice Area (in square in.):			
				60. Selected Orifice Area (in square in.):			
				61. Orifice Designation (letter):			
				62. Manufacturer:			
				63. Model Number:			
				64. Manufacturer's Orifice Area (in square in.):			
				65. Manufacturer's Coefficient of Discharge:			
				66. Vendor Calculations Required: Yes [ ] No [ ]			

Note: Indicate items to be filled in by the manufacturer with an asterisk (\*).

## APPENDIX B— PRESSURE RELIEF VALVE NAMEPLATE NOMENCLATURE

Nomenclature	Description
Manufacturer's name or identifying trademark	Identification of manufacturer
Size	Nominal pipe size, inlet by outlet
Type, style, model, or figure no.	Manufacturer's designation
Orifice	Valve orifice size, standardized letter designations
Capacity at 10% overpressure	Pounds per hour of saturated steam, standard cu. ft. per min. of air, at 60°F and 14.7 psia or U.S. gal per min. of water at 70°F
Serial no. or shop no.	Manufacturer's identification
Set pressure, pounds per square in. gauge	Valve inlet pressure at which the pressure relief valve is adjusted to open under service conditions
Back pressure, pounds per square in. gauge	Constant (For example, 50 psig) Variable (For example, 0 – 50 psig)
Cold differential test pressure, pounds per square in. gauge (if applicable)	The pressure at which the pressure relief valve is adjusted to open on the test stand. The cold differential test pressure includes corrections to the set pressure for the service conditions of back pressure or temperature or both (See examples below)

### Example 1—Conventional Valve

Set pressure, psig	200
Back pressure, psig	Atmospheric (or 0)
Temperature, °F	400
Cold differential test pressure, psig	200 + manufacturer's recommended temperature correction

### Example 2—Balanced Bellows Valve

Set pressure, psig	200
Back pressure, psig	50, or 0 – 50
Temperature, °F	400
Cold differential test pressure, psig	200 + manufacturer's recommended temperature correction

### Example 3—Conventional Valve

Set pressure, psig	200
Back pressure, psig	50, constant superimposed
Temperature, °F	400
Cold differential test pressure, psig	200 – 50 + manufacturer's recommended temperature correction

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E-Mail: \_\_\_\_\_

Quantity	Product Number	Title	SO★	Unit Price	Total
	<b>C52017</b>	<b>RP 520, Sizing, Selection and Installation of Pressure-relieving Devices in Refineries, Part I—Sizing and Selection</b>		<b>\$125.00</b>	
	<b>C52024</b>	<b>RP 520, Sizing, Selection and Installation of Pressure-relieving Devices in Refineries, Part II—Installation</b>		<b>\$63.00</b>	
	<b>C52104</b>	<b>RP 521, Guide for Pressure-relieving and Depressuring Systems</b>		<b>\$136.00</b>	
	<b>C52604</b>	<b>Std 526, Flanged Steel Pressure Relief Valves</b>		<b>\$80.00</b>	
	<b>C52700</b>	<b>Std 527, Seat Tightness of Pressure Relief Valves</b>		<b>\$46.00</b>	
	<b>C20005</b>	<b>Std 2000, Venting Atmospheric and Low-pressure Storage Tanks</b>		<b>\$86.00</b>	

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