

Water Pressure Reducing Valves

A water pressure reducing valve is designed to limit system outlet pressure in a fire protection system. These valves are used in standpipe systems to actively regulate outlet pressures in both static and flowing conditions, and are required for outlets of systems where static pressure could exceed 175 psi (1207 kPa). Water pressure reducing valves employ an active mechanism that compensates for variations in inlet pressures by balancing water pressure in an internal chamber or chambers.

Approval specifications require that a 3/8 inch or larger pressure relief valve must be supplied for installation with every water pressure reducing valve. The pressure relief valve must have an adjustment range of 50 psi (345 kPa) or less to 200 psi (1380 kPa) maximum. Approval Specifications also require that a position indicator or pressure gauges must be provided to give a visual indication of all conditions of the water pressure reducing valve, and that means shall be provided to lock or seal the pressure reducing valve at the adjusted pressure setting. FM Approved pressure reducing valves should only be used in accordance with the requirements of FM Global Property Loss Prevention Data Sheet 3-11 for installation, testing and maintenance.

Model 42T

Model 42T, diaphragm type pressure reducing valve that operates on a 20 psi (140 kPa) or greater differential between inlet and outlet pressures. Model 42T working conditions are as follows:

Nominal Size (in.)	End Connections	Body Shape	Pressure Rating, psi (kPa)	Flow gpm (m ³ /hr)	Outlet Pressure, psi (kPa)	Friction Loss, psi	Remarks
1-1/2	Class #150 flanged Grooved Threaded	Straight	235 (1620)	20-106 (4-24)	30-175 (210-1205)	1.8 at 100 gpm (at 380 L/min)	a, b, c
1-1/2	Class #300 flanged Grooved Threaded	Straight	365 (2520)	20-106 (4-24)	30-175 (210-1205)	1.8 at 100 gpm (at 380 L/min)	a, b, c
2	Class #150 flanged Grooved	Straight	235 (1620)	20-172 (4-39)	30-175 (210-1205)	5.2 at 200 gpm (at 760 L/min)	a, b, c
2	Class #300 flanged Grooved	Straight	365 (2520)	20-172 (4-39)	30-175 (210-1205)	5.2 at 200 gpm (at 760 L/min)	a, b, c
2-1/2	Class #150 flanged Grooved	Straight	235 (1620)	20-247 (4-56)	30-175 (210-1205)	5.0 at 250 gpm (at 950 L/min)	a, b, c
2-1/2	Class #300 flanged Grooved	Straight	365 (2520)	20-247 (4-56)	30-175 (210-1205)	5.0 at 250 gpm (at 950 L/min)	a, b, c
3	Class #150 flanged Grooved	Straight	235 (1620)	20-360 (4-82)	30-175 (210-1205)	3.5 at 400 gpm (at 1515 L/min)	a, b, c

3	Class #300 flanged Grooved	Straight	365 (2520)	20-360 (4-82)	30-175 (210-1205)	3.5 at 400 gpm (at 1515 L/min)	a, b, c
4	Class #150 flanged Grooved	Straight	235 (1620)	20-640 (4-145)	30-175 (210-1205)	4.0 at 750 gpm (at 2840 L/min)	a, b, c
4	Class #300 flanged Grooved	Straight	365 (2520)	20-640 (4-145)	30-175 (210-1205)	4.0 at 750 gpm (at 2840 L/min)	a, b, c
6	Class #150 flanged Grooved	Straight	235 (1620)	20-1450 (4-330)	30-175 (210-1205)	3.1 at 1500 gpm (at 5680 L/min)	a, b, c
6	Class #300 flanged Grooved	Straight	365 (2520)	20-1450 (4-330)	30-175 (210-1205)	3.1 at 1500 gpm (at 5680 L/min)	a, b, c
8	Class #150 flanged Grooved	Straight	235 (1620)	20-2570 (4-580)	30-175 (210-1205)	3.6 at 3000 gpm (at 11355 L/min)	a, b, c
8	Class #300 flanged Grooved	Straight	365 (2520)	20-2570 (4-580)	30-175 (210-1205)	3.6 at 3000 gpm (at 11355 L/min)	a, b, c
10	Class #150 flanged Grooved	Straight	235 (1620)	45-4000 (10-910)	30-175 (210-1205)	9.5 at 4900 gpm (at 18550 L/min)	a, b, c
10	Class #300 flanged Grooved	Straight	300 (2070)	45-4000 (10-910)	30-175 (210-1205)	9.5 at 4900 gpm (at 18550 L/min)	a, b, c

Remarks:

- a. Must be installed with an FM Approved pressure relief valve size 1/2 inch or larger
b. Approved when supplied with a main control valve body in one the following materials: ASTM A536 ductile iron, ASTM A351 stainless steel, ASTM A216 steel, ASTM B148 nickel aluminum bronze, ASTM A351 duplex and ASTM B336 hastelloy
c. Approved when supplied with a pilot valve body in one the following materials: ASTM B584 brass, ASTM A351 stainless steel, ASTM B148 nickel aluminum bronze, ASTM B336 hastelloy and ASTM B367 titanium

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Company Website:	http://www.bermad.com
New/Updated Product Listing:	No
Listing Country:	United States of America
Certification Type:	FM Approved