



Continental Disc[®]
Corporation

ASME

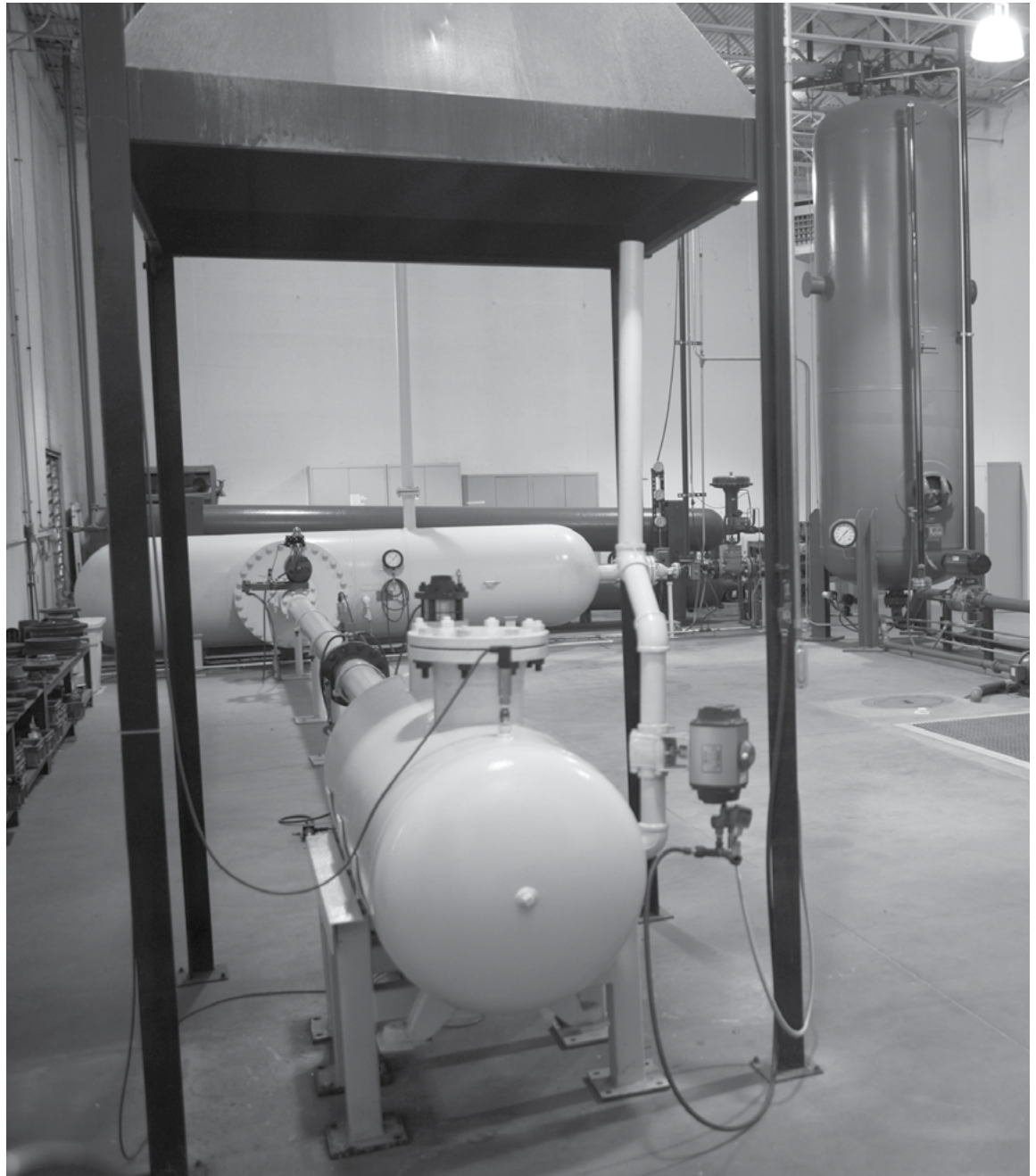
COMBINATION CAPACITY FACTORS



COMBINATION CAPACITY FACTORS

The following Continental Disc Corporation rupture disc and pressure relief valve combination capacity factors were determined by testing the rupture disc device mounted directly beneath the valve inlet in accordance with ASME Pressure Vessel Code, Section VIII, Division I, and certified by The National Board of Boiler and Pressure Vessel Inspectors. The information provided is to be used as a multiplier to make appropriate changes in the ASME rated relieving capacity of the pressure relief valve. It is applicable only to the combination of pressure relief valve and rupture disc designs tested.

ASME allows the use of a 0.9 multiplier for those combinations not tested. Capacity factors are not applied to rupture discs installed at the outlet of a pressure relief valve.



Continental Disc Corporation maintains an ASME accepted flow lab for conducting flow tests of rupture discs, pressure relief valves, and rupture disc / pressure relief valve combinations.

COMBINATION CAPACITY FACTORS

To determine the combination capacity of the listed rupture disc/pressure relief valve combinations, the ASME rated capacity of the pressure relief valve is multiplied by the capacity factor for the combination. The factors listed may be used for sizes equal to or larger and pressures equal to or greater than the rupture disc/pressure relief valve combinations tested (except where limited range is indicated).

EXAMPLE: 6" Crosby Model JOS-156R8 pressure relief valve with a set pressure of 80 psig and a published relieving capacity of 29248 SCFM air.

Assume that a rupture disc is required to isolate the inlet side of the valve and a Continental ULTRX® Rupture Disc of Alloy C276 material has been selected.

To determine the calculated capacity of the rupture disc/pressure relief valve combination:

1. Refer to the ULTRX Rupture Discs tested.
2. Select the largest size less than or equal to the 6" size.
Use the 3" size for this example.
3. Select the desired rupture disc material and pressure range from the chart.
For this example, use Alloy C276 for 60 psig plus.
4. From the chart, find the factor in column "Crosby JOS/JBS."

The ASME rated relieving capacity of the Crosby type JOS valve and ULTRX Rupture Disc combination is:
 $29248 \times 0.987 = 28868 \text{ SCFM}$



COMBINATION CAPACITY FACTORS

Rupture Disc			Pressure Relief Valve Model							
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
ULTRX® Rupture Disc with ULTRX® holder or MINTRX® Rupture Disc with MINTRX® holder or STAR X® Rupture Disc with STAR X® holder	1.0	316 SS	60 Plus	–	–	0.980	–	0.989	–	–
	1.0	Alloy C276	60 Plus	–	–	0.987	–	0.992	–	–
	1.0	Alloy 600	60 Plus	0.997	–	0.984	–	0.994	–	–
	1.0	Alloy 400	60 Plus	0.999	–	0.980	–	0.993	–	–
	1.0	Nickel	60 Plus	1.000	–	0.981	–	0.982	–	–
	1.0	Nickel/ Fluoropolymer Liner	60 Plus	–	–	–	–	–	–	0.984
	1.5	316 SS	30-59	0.989	0.978	0.984	0.993	0.991	–	–
	1.5	316 SS	60 Plus	0.989	0.978	0.980	0.993	0.989	–	–
	1.5	Nickel/ Fluoropolymer Liner	30 Plus	–	0.967	–	–	–	–	–
	1.5	Alloy C276	30-59	–	0.970	0.986	1.000	0.987	–	–
	1.5	Alloy C276	60 Plus	–	0.970	0.987	1.000	0.992	–	–
	1.5	Alloy 600	30-59	–	0.973	0.989	0.991	0.988	–	–
	1.5	Alloy 600	60 Plus	0.997	0.973	0.984	0.991	0.994	–	–
	1.5	Alloy 400	30-59	–	0.976	0.987	0.994	0.989	–	–
	1.5	Alloy 400	60 Plus	0.999	0.976	0.980	0.994	0.993	–	–
	1.5	Nickel	30-59	–	0.977	0.981	1.000	0.986	–	–
	1.5	Nickel	60 Plus	1.000	0.977	0.981	1.000	0.982	–	–
	1.5	Nickel/ Fluoropolymer Liner	30 Plus	–	0.951	–	–	–	–	–
	1.5	Nickel/ Fluoropolymer Liner	60 Plus	–	–	–	–	–	–	0.984
	1.5	Tantalum	30 Plus	–	–	0.978	–	–	–	–
	3.0	316 SS	15-29	0.978	0.970	0.985	–	0.998	–	–
	3.0	316 SS	30-59	0.978	0.978	0.984	0.993	0.991	–	–
	3.0	316 SS	60 Plus	0.978	0.978	0.980	0.993	0.989	–	–
	3.0	Nickel/ Fluoropolymer Liner	15-29	–	0.954	–	–	–	–	–
	3.0	Nickel/ Fluoropolymer Liner	30 Plus	–	0.967	–	–	–	–	–
	3.0	Alloy C276	15-29	–	0.984	0.992	–	1.000	–	–
	3.0	Alloy C276	30-59	–	0.970	0.986	1.000	0.987	–	–
	3.0	Alloy C276	60 Plus	–	0.970	0.987	1.000	0.992	–	–
	3.0	Alloy 600	15-29	0.995	0.980	0.991	–	0.999	–	–
	3.0	Alloy 600	30-59	0.995	0.973	0.989	0.991	0.988	–	–
	3.0	Alloy 600	60 Plus	0.997	0.973	0.984	0.991	0.994	–	–
	3.0	Alloy 400	15-29	0.989	0.975	0.987	–	1.000	–	–
	3.0	Alloy 400	35-59	0.989	0.976	0.987	0.994	0.989	–	–
	3.0	Alloy 400	60 Plus	0.999	0.976	0.980	0.994	0.993	–	–
	3.0	Nickel	15-29	0.984	0.982	0.981	–	0.997	–	–
	3.0	Nickel	30-59	0.984	0.977	0.981	1.000	0.986	–	–
	3.0	Nickel	60 Plus	1.000	0.977	0.981	1.000	0.982	–	–
	3.0	Nickel/Fluoropolymer Liner	15-29	–	0.956	–	–	–	–	–
	3.0	Nickel/ Fluoropolymer Liner	30 Plus	–	0.951	–	–	–	–	–
	3.0	Nickel/ Fluoropolymer Liner	60 Plus	–	–	–	–	–	–	0.984

COMBINATION CAPACITY FACTORS

Rupture Disc			Pressure Relief Valve Model							
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
ZAP Rupture Disc with ZAP Holder	1.0	316 SS	60-74	–	–	0.985	–	–	–	–
	1.0	316 SS	75 Plus	–	–	0.985	0.987	0.980	–	–
	1.0	Alloy 600/ Fluoropolymer Liner	60 Plus	0.985	–	–	–	–	–	–
	1.0	Alloy 600	60 Plus	0.987	–	0.988	–	0.989	–	–
	1.0	Alloy 400/ Fluoropolymer Liner	60 Plus	0.982	–	–	–	–	–	–
	1.0	Alloy 400	60-74	0.982	–	0.985	–	–	–	–
	1.0	Alloy 400	75 Plus	0.982	–	0.985	0.990	0.986	–	–
	1.0	Nickel/ Fluoropolymer Liner	60 Plus	0.986	–	–	–	–	–	–
	1.0	Nickel	50-59	0.989	0.984	–	–	–	0.988	0.996
	1.0	Nickel	60 Plus	0.985	0.984	0.992	–	0.994	0.988	0.996
	1.5	316 SS	30-49	0.993	–	0.955	–	–	–	–
	1.5	316 SS	50-59	0.993	–	0.955	0.976	0.981	–	–
	1.5	316 SS	60-74	0.993	–	0.985	0.976	0.981	–	–
	1.5	316 SS	75 Plus	0.993	–	0.985	0.987	0.980	–	–
	1.5	Alloy 600/ Fluoropolymer Liner	60 Plus	0.985	–	–	–	–	–	–
	1.5	Alloy 600	30-59	0.985	–	–	–	–	–	–
	1.5	Alloy 600	60 Plus	0.987	–	0.988	–	0.989	–	–
	1.5	Alloy 400	30-49	0.981	–	0.955	–	–	–	–
	1.5	Alloy 400	50-59	0.981	–	0.955	0.983	0.980	–	–
	1.5	Alloy 400	60-74	0.982	–	0.985	0.983	0.980	–	–
	1.5	Alloy 400	75 Plus	0.982	–	0.985	0.990	0.986	–	–
	1.5	Nickel	30-49	–	–	0.965	–	0.975	–	–
	1.5	Nickel	50-59	0.989	0.984	0.965	–	0.975	0.988	0.996
	1.5	Nickel	60 Plus	0.985	0.984	0.992	–	0.994	0.988	0.996
	3.0	316 SS	15-29	0.963	0.966	–	–	–	–	–
	3.0	316 SS	30-34	0.993	0.966	0.955	–	–	–	–
	3.0	316 SS	35-49	0.993	0.966	0.970	–	–	–	–
	3.0	316 SS	50-59	0.993	0.966	0.970	0.976	0.981	–	–
	3.0	316 SS	60-74	0.993	0.966	0.985	0.976	0.981	–	–
	3.0	316 SS	75 Plus	0.993	0.966	0.985	0.987	0.980	–	–

COMBINATION CAPACITY FACTORS

Rupture Disc			Pressure Relief Valve Model							
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
ZAP Rupture Disc with ZAP Holder continued	3.0	Alloy 600/ Fluoropolymer Liner	60 Plus	0.985	—	—	—	—	—	—
	3.0	Alloy 600	15-29	0.967	0.968	—	—	—	—	—
	3.0	Alloy 600	30-34	0.985	0.968	—	—	—	—	—
	3.0	Alloy 600	35-59	0.985	0.968	0.992	—	—	—	—
	3.0	Alloy 600	60 Plus	0.987	0.968	0.988	—	0.989	—	—
	3.0	Alloy 400/ Fluoropolymer Liner	60 Plus	0.982	—	—	—	—	—	—
	3.0	Alloy 400	15-29	0.966	0.966	—	—	—	—	—
	3.0	Alloy 400	30-34	0.981	0.966	0.956	—	—	—	—
	3.0	Alloy 400	35-49	0.981	0.966	0.982	—	—	—	—
	3.0	Alloy 400	50-59	0.981	0.966	0.982	0.983	0.980	—	—
	3.0	Alloy 400	60-74	0.982	0.966	0.985	0.983	0.980	—	—
	3.0	Alloy 400	75 Plus	0.982	0.966	0.985	0.990	0.986	—	—
	3.0	Nickel/ Fluoropolymer Liner	15-59	—	0.958	—	—	—	—	—
	3.0	Nickel/ Fluoropolymer Liner	60 Plus	0.986	0.958	—	—	—	—	—
	3.0	Nickel	15-59	0.964	0.967	—	—	—	—	—
	3.0	Nickel	30-34	0.964	0.967	0.965	—	0.975	—	—
	3.0	Nickel	35-49	0.985	0.984	1.000	—	0.975	0.992	—
	3.0	Nickel	50-59	0.989	0.984	1.000	—	0.975	0.992	0.996
	3.0	Nickel	60 Plus	0.985	0.984	0.992	—	0.994	0.992	0.996
KBA Rupture Disc with KBA Holder	1.0	Alloy 400	60 Plus	—	—	—	0.984	—	—	—
MICRO X® Rupture Disc with UNISERT® Holder	1.0	Alloy 400	150 Plus	—	—	—	0.990	—	—	—
	1.0	Nickel	150 Plus	—	—	—	0.990	—	—	—
	2.0	316 SS	80 Plus	—	—	—	0.991	—	—	—
	2.0	Alloy 600	80 Plus	—	—	—	0.997	—	—	—
	2.0	Alloy 400	80-149	—	—	—	0.988	—	—	—
	2.0	Alloy 400	150 Plus	—	—	—	0.984	—	—	—
	2.0	Nickel	80-149	—	—	—	0.992	—	—	—
	2.0	Nickel	150 Plus	—	—	—	0.990	—	—	—

COMBINATION CAPACITY FACTORS

Rupture Disc			Pressure Relief Valve Model							
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
CDC Light Lip Rupture Disc with 30° Seat Light Lip Holder	1.0	Alloy 600/ Fluoropolymer	60 Plus	0.974	—	—	—	—	—	—
	1.0	Alloy 400/ Fluoropolymer	60 Plus	0.976	—	0.971	—	—	—	—
	1.5	316 SS/ Fluoropolymer	30 Plus	0.966	0.973	—	—	—	—	—
	1.5	Alloy 600/ Fluoropolymer	30-59	0.970	0.963	—	—	—	—	—
	1.5	Alloy 600/ Fluoropolymer	60 Plus	0.974	0.963	—	—	—	—	—
	1.5	Alloy 400/ Fluoropolymer	30-59	0.968	0.970	—	—	—	—	—
	1.5	Alloy 400/ Fluoropolymer	60 Plus	0.976	0.970	0.971	—	—	—	—
	1.5	Nickel/ Fluoropolymer	30 Plus	0.976	0.971	—	—	—	—	—
	3.0	316 SS/ Fluoropolymer	15-29	—	0.977	—	—	—	—	—
	3.0	316 SS/ Fluoropolymer	30 Plus	0.966	0.973	—	—	—	—	—
	3.0	Alloy 600/ Fluoropolymer	15-29	—	0.973	—	—	—	—	—
	3.0	Alloy 600/ Fluoropolymer	30-59	0.970	0.963	—	—	—	—	—
	3.0	Alloy 600/ Fluoropolymer	60 Plus	0.974	0.963	—	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer	15-29	—	0.985	—	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer	30-59	0.968	0.970	—	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer	60 Plus	0.976	0.970	0.971	—	—	—	—
	3.0	Nickel/ Fluoropolymer	15-29	—	0.980	—	—	—	—	—
	3.0	Nickel/ Fluoropolymer	30 Plus	0.976	0.971	—	—	—	—	—

COMBINATION CAPACITY FACTORS

Rupture Disc			Pressure Relief Valve Model							
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
CDCV Light Lip Rupture Disc with 30° Seat Light Lip Holder	1.0	316 SS/ Fluoropolymer/316 SS	60 Plus	—	—	0.978	—	—	—	—
	1.0	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	—	—	0.960	—	—	—	—
	1.0	Alloy 600/ Fluoropolymer/Alloy 600	60 Plus	0.969	—	—	—	—	—	—
	1.0	Alloy 400/ Fluoropolymer/Alloy 400	60 Plus	0.969	—	0.961	—	—	—	—
	1.0	Nickel/ Fluoropolymer/Nickel	60 Plus	0.976	—	—	—	—	—	—
	1.5	316 SS/ Fluoropolymer/316 SS	30-59	—	—	0.959	—	—	—	—
	1.5	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	—	—	0.960	—	—	—	—
	1.5	Alloy 600/ Fluoropolymer/Alloy 600	60 Plus	0.969	—	—	—	—	—	—
	1.5	Alloy 400/ Fluoropolymer/Alloy 400	30-59	—	—	0.958	—	—	—	—
	1.5	Nickel/ Fluoropolymer/Nickel	30-59	—	—	0.953	—	—	—	—
	3.0	316 SS/ Fluoropolymer/316 SS	15-29	0.965	0.950	0.953	—	—	—	—
	3.0	316 SS/ Fluoropolymer/316 SS	30-34	0.965	0.950	0.959	—	—	—	—
	3.0	316 SS/ Fluoropolymer/316 SS	35-59	0.965	0.950	0.978	—	—	—	—
	3.0	316 SS/ Fluoropolymer/316 SS	60 Plus	0.965	0.950	0.978	—	—	—	—
	3.0	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	—	—	0.960	—	—	—	—
	3.0	Alloy 600/ Fluoropolymer/Alloy 600	15-59	0.976	0.953	—	—	—	—	—
	3.0	Alloy 600/ Fluoropolymer/Alloy 600	60 Plus	0.969	0.953	—	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer/Alloy 400	15-29	0.973	0.956	0.979	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer/Alloy 400	30-34	0.973	0.956	0.958	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer/Alloy 400	35-59	0.973	0.956	0.994	—	—	—	—
	3.0	Alloy 400/ Fluoropolymer/Alloy 400	60 Plus	0.969	0.956	0.961	—	—	—	—
	3.0	Nickel/ Fluoropolymer/Nickel	15-29	0.992	0.950	—	—	—	—	—
	3.0	Nickel/ Fluoropolymer/Nickel	30-59	0.992	0.950	0.953	—	—	—	—
	3.0	Nickel/ Fluoropolymer/Nickel	60 Plus	0.976	0.950	0.953	—	—	—	0.966

COMBINATION CAPACITY FACTORS

Rupture Disc				Pressure Relief Valve Model						
Type	Size	Material	Set Pressure psig	Teledyne Farris 2600 & 4500	Dresser 1900 1900-30 1900-35	Crosby JOS/JBS	Crosby JB	Crosby JO	Kunkle 5000 thru 5999	Lonergan D & DB
CDC Flat Seat Rupture Disc with UNISERT® Holder	3.0	Alloy 400/ Fluoropolymer	15 Plus	–	–	0.986	–	–	–	–
CDCV Flat Seat Rupture Disc with UNISERT® Holder	1.0	316 SS/ Fluoropolymer/316 SS	60 Plus	–	–	0.983	–	–	–	–
	1.0	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	–	–	0.983	–	–	–	–
	1.5	316 SS/ Fluoropolymer/316 SS	30-59	–	–	0.976	–	–	–	–
	1.5	316 SS/ Fluoropolymer/316 SS	60 Plus	–	–	0.985	–	–	–	–
	1.5	Alloy C276/ Fluoropolymer/Alloy C276	30-59	–	–	0.973	–	–	–	–
	1.5	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	–	–	0.983	–	–	–	–
	3.0	316 SS/ Fluoropolymer/316 SS	15-29	–	–	0.982	–	–	–	–
	3.0	316 SS/ Fluoropolymer/316 SS	30-59	–	–	0.976	–	–	–	–
	3.0	316 SS/ Fluoropolymer/316 SS	60 Plus	–	–	0.985	–	–	–	–
	3.0	Alloy C276/ Fluoropolymer/Alloy C276	15-29	–	–	0.981	–	–	–	–
	3.0	Alloy C276/ Fluoropolymer/Alloy C276	30-59	–	–	0.973	–	–	–	–
	3.0	Alloy C276/ Fluoropolymer/Alloy C276	60 Plus	–	–	0.983	–	–	–	–

Rupture Disc						Pressure Relief Valve Model	
Type	Min. Size NPS	Material	Min. Set Pressure psig	CCF	Code Section	Manufacturer	Valve Type
HPX (Air/Gas)	1	All	15	0.999	VIII Div. 1	Broady Flow Control, Ltd	3500
	1	All	15	0.998	VIII Div. 1	Dresser, LLC	1900D-2, 1900-30D-2
	1	All	15	0.995	VIII Div. 1	Dresser, LLC	1900E-2, 1900-30E-2
	1.5	All	15	1	VIII Div. 1	Dresser, LLC	1900, 1900-30, 1900-35
	1	All	15	1	VIII Div. 1	Emerson	JOS-E/JBS-E/JOS-H-E 8400
	1	All	15	1	VIII Div. 1	Farris Engineering	2600 & 2600S
	1	All	15	1	VIII Div. 1	Leser GmbH & Co	526



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