

Opti-Gard SoLo (OPS) Technical Information

Including specifications, performance data, temperature ranges and schematic

General specifications

Size range	25mm to 150mm (1" to 6")
Burst pressure range	0.14 barg to 4.14 barg (2 psig to 60 psig)
Temperature range	-200°C to 600°C
Materials available	Stainless Steel as standard, others available on request
Maximum operating ratio	95% of minimum burst pressure (92% of nominal burst pressure)
Performance tolerance	+/- 3% (zero manufacturing design range)
Fragmenting / non-fragmenting	Non-fragmenting
Vacuum service	Full vacuum
Fluid compatibility	Liquid, gas, vapour
K _r value	0.8
Torque sensitive	No
Cycle life	Tested to over 1 million pressure vacuum cycles*
Reversal ratio	n/a with offset tag and System-Loc
Damage ratio	Fail-safe
Protective linings	Product specific
Relief valve isolation	Excellent
Leak tightness	Excellent
Disc surface finish	n/a

(*from full vacuum to 95% of the minimum burst pressure)

Burst pressure ranges in barg (psig) at 15-30°C (59-86°F)

Liquid and gas applications with/without vacuum

Nominal bore		Material			
		Hastelloy		Stainless Steel	
mm	inch	min	max	min	max
25	1	1.31 (19)	4.14 (60)	1.24 (18)	4.14 (60)
40	1.5	1.03 (15)	2.07 (30)	0.97 (14)	2.07 (30)
50	2	0.69 (10)	1.38 (20)	0.62 (9)	1.38 (20)
65	2.5	0.69 (10)	1.38 (20)	0.62 (9)	1.38 (20)
80	3	0.41 (6)	0.9 (13)	0.34 (5)	0.9 (13)
100	4	0.41 (6)	0.9 (13)	0.34 (5)	0.9 (13)
150	6	0.41 (6)	0.9 (13)	0.34 (5)	0.9 (13)

NB: Not suitable for liquid only applications (gas cap required). Minimum tolerance on gas and liquid applications is +/-0.14barg (2psig)

Gas only applications with vacuum

Nominal bore		Material			
		Hastelloy		Stainless Steel	
mm	inch	min	max	min	max
25	1	1.1 (16)	4.14 (60)	1.03 (15)	4.14 (60)
40	1.5	0.83 (12)	2.07 (30)	0.76 (11)	2.07 (30)
50	2	0.48 (7)	1.38 (20)	0.41 (6)	1.38 (20)
65	2.5	0.48 (7)	1.38 (20)	0.41 (6)	1.38 (20)
80	3	0.28 (4)	0.9 (13)	0.21 (3)	0.9 (13)
100	4	0.28 (4)	0.9 (13)	0.21 (3)	0.9 (13)
150	6	0.28 (4)	0.9 (13)	0.21 (3)	0.9 (13)

Gas only applications without vacuum

Nominal bore		Material			
		Hastelloy		Stainless Steel	
mm	inch	min	max	min	max
25	1	1.03 (15)	4.14 (60)	0.97 (14)	4.14 (60)
40	1.5	0.76 (11)	2.07 (30)	0.69 (10)	2.07 (30)
50	2	0.41 (6)	1.38 (20)	0.35 (5)	1.38 (20)
65	2.5	0.41 (6)	1.38 (20)	0.35 (5)	1.38 (20)
80	3	0.28 (4)	0.9 (13)	0.21 (3)	0.9 (13)
100	4	0.14 (2)	0.9 (13)	0.14 (2)	0.9 (13)
150	6	0.21 (3)	0.9 (13)	0.21 (3)	0.9 (13)

Free flow area / Minimum net flow area (MNFA)

Nominal bore		With no vacuum support (XXX)		With non-opening vacuum support (NVS)	
mm	inch	mm ²	inch ²	mm ²	inch ²
25	1	596	0.93	383	0.594
40	1.5	1,288	2.01	905	1.403
50	2	2,185	3.41	1,493	2.314
65	2.5	3,207	5	2,155	3.36
80	3	5,236	8.17	3,598	5.61
100	4	8,332	12.9	5,110	7.96
150	6	17,849	27.84	11,187	17.43

Performance tolerance (Zero manufacturing design range)

Burst Pressure	Tolerance	Burst Pressure	Tolerance
≤0.97 barg	+/- 0.07 barg	≤14 psig	+/- 1 psig
>0.97 - ≤4.48 barg	+/- 0.14 barg	>14 - ≤65 psig	+/- 2 psig
>4.48 barg	+/-3%	>65 psig	+/-3%

NB: Minimum tolerance on Gas and Liquid applications is +/-0.14barg (2psig)

Standard temperature ranges °C (°F)

Please note: For temperatures below zero, caution is needed if shock loading is involved.

Metals

Metal	Min temp	Max temp
Hastelloy B2 SB33 5N10665	-200 (-328)	426 (800)
Hastelloy C22 SB574 N06022	-196 (-321)	600 (1112)
Hastelloy C276 SB575 N10276	-196 (-321)	600 (1112)
Inconel Alloy SB 166 N06600	-196 (-321)	482 (900)
Inconel Alloy SB 443 N06625	-196 (-321)	400 (750)
Inconel Alloy SB 425 N08825	-182 (-296)	400 (750)
Monel Alloy SB 164 N04400 Annealed	-182 (-296)	400 (750)
Monel Alloy SB 164 N04400 Hot Worked	-253 (-423)	537 (1000)
Nickel Alloy 2200	-185 (-301)	315 (600)
Nickel Alloy 2201	-185 (-301)	400 (750)
Steel - Stainless Steel (316 & 304)	-196 (-321)	600 (1112)
Steel - Duplex Steel UNS31803 UN32205	-50 (-58)	300 (572)
Titanium SB348 R50400 Gr2	-196 (-321)	315 (600)
Zirconium SB550 R60702 (Zr)	No info	371 (700)
Zirconium SB550 R60705 (Zr +5%Nb)	No info	371 (700)

PFA, PTFE and graphite

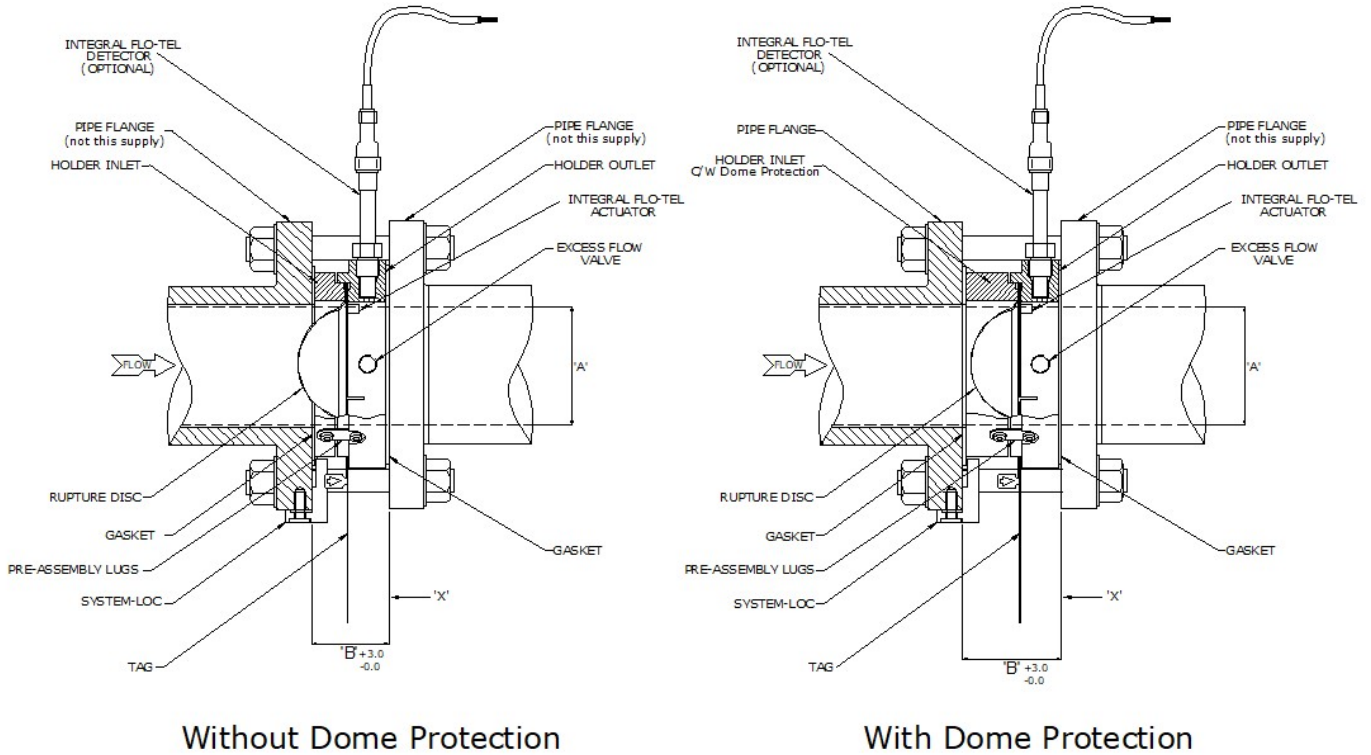
Material	Min temp	Max temp
PFA	-200 (-392)	200 (392)*
PTFE	-200 (-392)	200 (392)*
Graphite MXAS600	-50 (-58)	180 (356)

*Low temperature embrittlement is at -268°C (-450.4°F)

Standard testing ranges °C (°F)

Discs up to 200mm	-45°C (-49°F) to 450°C (842°F)
Discs up to 500mm	Ambient to 450°C (842°F)
OEM products	-75°C (-103°F) to 450°C (842°F)

Product Schematic



Without Dome Protection

With Dome Protection

Nominal Bore (A)		Face to Face (B)	
mm	Inch	Dome Protection mm	No Dome Protection mm
25	1	40.4 (Std)	-
40	1.5	42.4 (Std)	-
50	2	44.4 (Std)	-
65	2.5	50 (Std)	-
80	3	55 (Std)	-
100	4	58 (Std)	-
150	6	74 (Std)	-
200	8	91	52 (Std)
250	10	106	52 (Std)
300	12	121	52 (Std)
350	14	158	82 (Std)
400	16	179	92 (Std)
450	18	195	92 (Std)
500	20	214	98 (Std)
600	24	251	106 (Std)

Flange Specifications	
EN 1092-1 PN Designated	BS EN 1759-1 ANSI Designated
PN 6	ANSI 150
PN 10	ANSI 300
PN 16	ANSI 600
PN 20	ANSI 900
PN 25	ANSI 1500
PN 40	ANSI 2500
PN 50	-
PN 63	-
PN 100	-

Face to face dimensions account for the disc and holder assembly only. They do not account for gasket thickness.