

## Flat Composite (FCD) Technical Information

Including specifications, performance data, temperature ranges and schematic

### General specifications

Size range	25mm to 800mm (1" to 32")
Burst pressure range	0.07 barg to 3.5 barg (1 psig to 50 psig)
Materials available	Stainless Steel as standard, others available on request
Maximum operating ratio	40% of minimum burst pressure (36% of nominal burst pressure)
Performance tolerance	+/- 5% (zero manufacturing design range)
Fragmenting / non-fragmenting	Non-fragmenting
Vacuum service	Back pressure support required
Fluid compatibility	Liquid, gas, vapour
K <sub>r</sub> value	3.94
Torque sensitive	No
Cycle life	Poor
Reversal ratio	<1 fail-safe (dependent on back pressure support)
Damage ratio	<1 fail-safe
Protective linings	Not available
Relief valve isolation	Suitable
Leak tightness	Good
Disc surface finish	n/a

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

Nominal bore		Material			
		Nickel top section (Fluoropolymer seal)		Stainless Steel/Inconel top section (Fluoropolymer seal)	
mm	inch	min	max	min	max
25	1	0.21(3)	1.04(15)	0.42(6)	2.07(30)
40	1.5	0.14(2)	0.7(10)	0.28(4)	1.38(20)
50	2	0.14(2)	0.7(10)	0.28(4)	1.38(20)
65	2.5	0.14(2)	0.7(10)	0.28(4)	1.38(20)
80	3	0.14(2)	0.7(10)	0.28(4)	1.38(20)
100	4	0.14(2)	0.7(10)	0.28(4)	1.38(20)
150	6	0.07(1)	0.35(5)	0.14(2)	0.7(10)
200	8	0.07(1)	0.35(5)	0.14(2)	0.7(10)
250	10	0.07(1)	0.35(5)	0.14(2)	0.7(10)
300	12	0.07(1)	0.35(5)	0.14(2)	0.7(10)
350	14	-	-	0.07(1)	0.6(8.7)
400	16	-	-	0.07(1)	0.5(7.25)
450	18	-	-	0.07(1)	0.5(7.25)
500	20	-	-	0.07(1)	0.5(7.25)
600	24	-	-	0.07(1)	0.5(7.25)
700	28	-	-	0.07(1)	0.5(7.25)
800	32	-	-	0.07(1)	0.5(7.25)

### Free flow area / Minimum net flow area (MNFA)

Nominal bore		With no vacuum support (XXX)		With non-opening vacuum support (NVS)	
mm	inch	mm <sup>2</sup>	inch <sup>2</sup> (UD range)	mm <sup>2</sup>	inch <sup>2</sup> (UD range)
25	1	448	0.607	270	0.42
40	1.5	1,164	1.655	721	1.12
50	2	1,908	2.774	1,199	1.86
65	2.5	3,166	4.678	1,912	2.96
80	3	4,839	7.216	3,412	5.29
100	4	7,869	11.81	4,736	7.34
150	6	17,319	26.246	9,253	14.34
200	8	30,946	47.19	17,182	26.63
250	10	48,500	74.22	28,084	43.53
300	12	69,980	107.4	-	-
350	14	94,569	146.5	-	-
400	16	123,785	191.9	-	-
450	18	156,929	243.2	-	-
500	20	188,574	292.3	-	-
600	24	273,397	422.6	-	-
700	28	373,928	578.9	-	-
800	32	490,167	764.77	-	-

### Performance tolerance (Zero manufacturing design range)

Burst Pressure	Tolerance	Burst Pressure	Tolerance
≤ 0.24 barg	+/- 0.026 barg	≤ 3.5 psig	+/- 0.375 psig
>0.24 – ≤ 0.5	+/- 0.053 barg	>3.5 – ≤ 7.25	+/- 0.75 psig
>0.5	+/- 5%	>7.25	+/- 5%

## 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

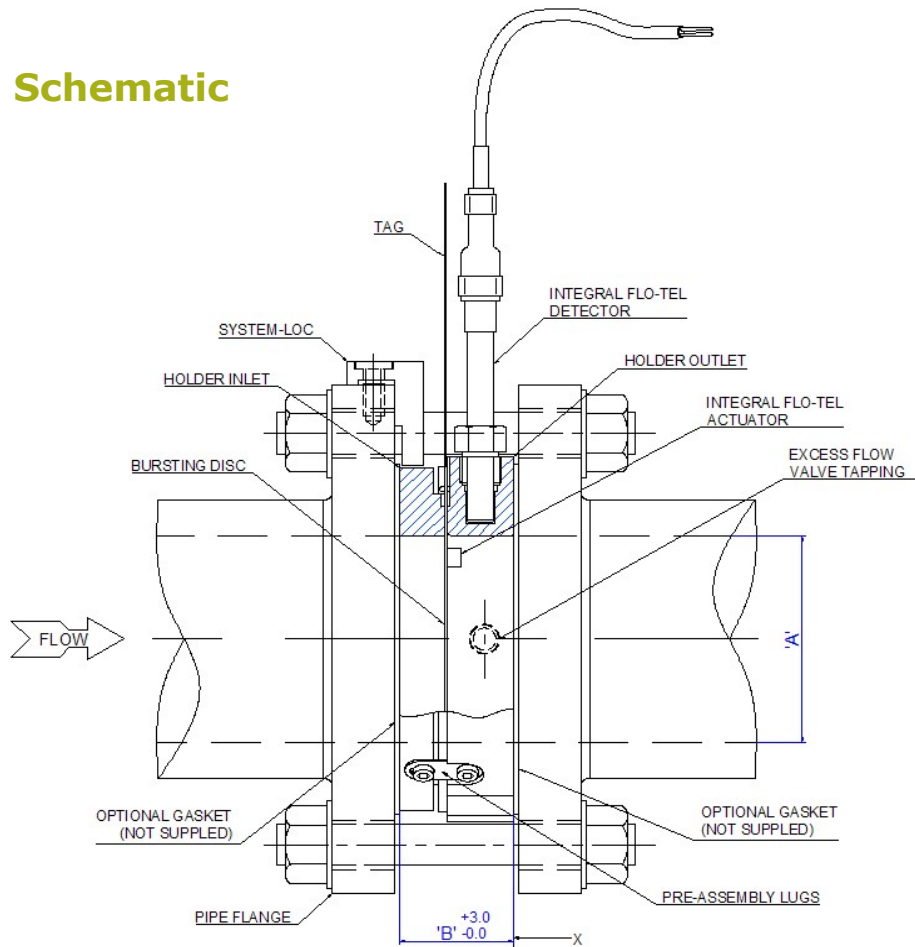
Material	Min temp	Max temp
PFA	-200 (-392)	200 (392)*
PTFE	-200 (-392)	200 (392)*
Graphite MXAS600	-50 (-58)	180 (356)

\*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



Nominal Bore (A)		Face To Face (B)
mm	Inch	mm
25	1	37.9
40	1.5	37.9
50	2	37.9
65	2.5	40
80	3	42
100	4	46.5
150	6	62
200	8	58
250	10	58
300	12	58
350	14	50
400	16	50
450	18	50
500	20	50
600	24	50

Flange Specifications		
EN 1092-1 PN Designated	BS EN 1759-1 Designated	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.