

COLUMN COMPONENTS

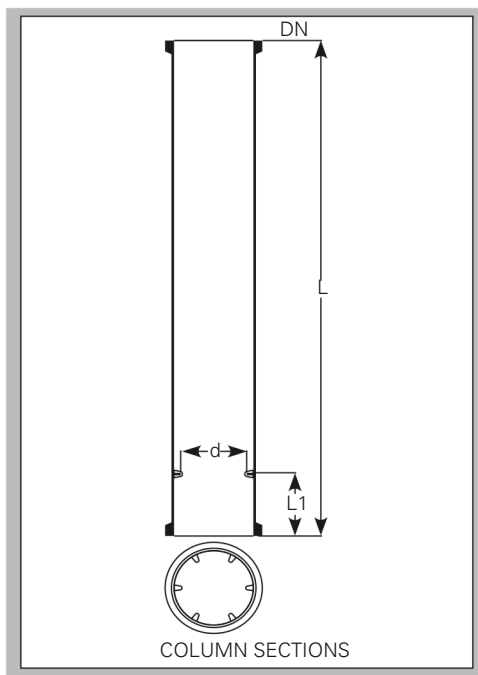


In many operations like reaction, extraction & absorption, the transparency of glass is particular advantage. For such process a range of column components are available in Borosilicate glass which offers many advantages like:

1. Inert to almost all chemicals hence no risk of contamination.
2. Transparency allows visual monitoring of the process flow patterns, colour changes etc.
3. Almost universal resistance to corrosion.
4. Smooth surface permits easy cleaning & prevents fouling.

COLUMN COMPONENTS

COLUMN SECTIONS

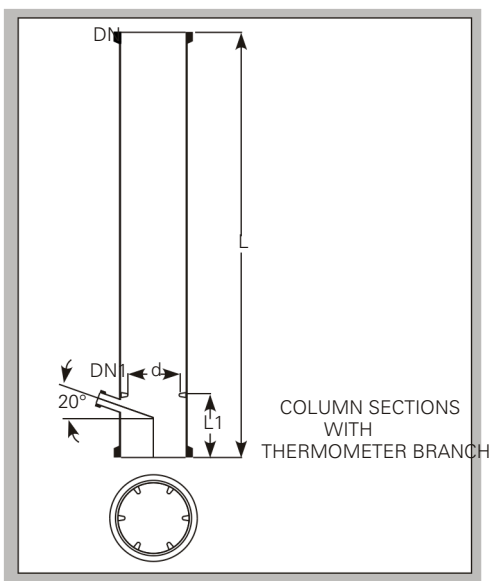


Column can be constructed either by using pipe sections with support plates or using column sections with packing supports.

Column sections are provided with fused shelf where packing support can rest.

Cat.Ref.	DN	L	L1	Usual packing Size	Usual packing Size
CS3/1000	80	1000	75	9	12
CS4/1000	100	1000	75	12	15
CS6/1000	150	1000	75	15	25
CS6/1500	150	1500	75	15	25
CS9/1000	225	1000	100	20	25
CS9/1500	225	1500	100	20	25
CS12/1000	300	1000	100	25	25
CS12/1500	300	1500	100	25	25
CS16/1000	400	1000	150	25	25
CS16/1500	400	1500	150	25	25
CS18/1000	450	1000	150	25	25
CS18/1500	450	1500	150	25	25
CS24/1000	600	1000	200	40	40

COLUMN SECTIONS WITH THERMOMETER BRANCH



Above column sections can be provided with a thermometer branch below the packing shelf at 20° slope

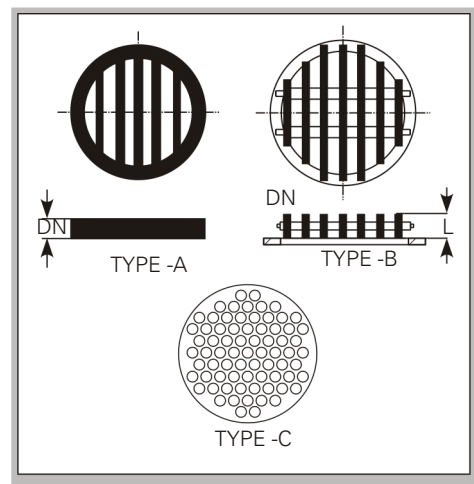
Cat.Ref.	DN	DN1	L	L1	d
CST3/1000	80	25	1000	125	50
CST4/1000	100	25	1000	125	75
CST6/1000	150	25	1000	125	125
CST6/1500	150	25	1500	125	125
CST9/1000	225	25	1000	150	175
CST9/1500	225	25	1500	150	175
CST12/1000	300	25	1000	150	250
CST12/1500	300	25	1500	150	250
CST16/1000	400	25	1000	200	250
CST16/1500	400	25	1500	200	350
CST18/1000	450	25	1000	200	400
CST18/1500	450	25	1500	200	400
CST24/1000	600	25	1000	250	540

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PACKING SUPPORTS

Packing supports Type A are made of fused glass rods. Packing supports Type B (heavy duty) are made of PTFE Blocks with holes.

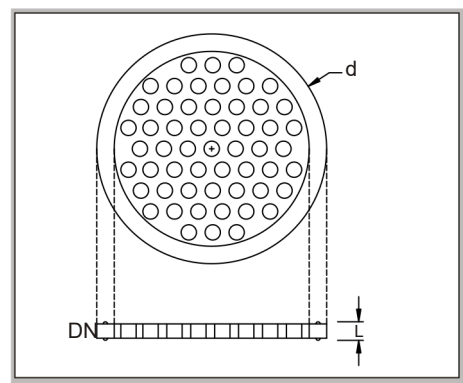
Cat.Ref. Size	DN	L	Cross Section Area	Max. Load Kgs.	Minimum Packing	Type
CP3*	80	10	45%	10	12	A
CP4*	100	12	50%	15	15	A
CP6*	150	15	55%	30	25	A
CP9*	225	19	60%	50	25	A
CP12*	300	19	65%	75	25	A
HD16	400	70	70%	150	25	B
HD18	450	70	70%	200	25	B
HD24	600	95	70%	300	40	B
HDP16	400	45-50	57%	100	25	C
HDP18	450	45-50	54%	100	25	C
HDP24	600	45-50	58%	150	40	C



PTFE PERFORATED PLATES

These are used as packing retainers to prevent the packing from lifting due to vapour velocity. These can be clamped between two components without using any gasket.

Cat.Ref.	DN	d	L
TCP3	80	99	7
TCP4	100	132	9
TCP6	150	184	10
TCP9	225	254	12
TCP12	300	340	16
TCP16	400	463	25
TCP18	450	525	25
TCP24	600	689	30



Packings require for various pipe sections (Kgs.)

Pipe Section	Packing size						
	Vol (L)	FCB	FCB 12	FCB 15	FCB 25	FCB 40	FCB 50
PS3/1000	5	3	3	2	-	-	-
PS4/1000	8	-	4	3	3	-	-
PS6/1000	18	-	9	7	7	-	-
PS9/1000	37	-	-	15	15	15	-
PS12/1000	66	-	-	17	30	25	-
PS16/1000	125	-	-	-	65	50	53
PS18/1000	165	-	-	-	90	65	70
PS24/1000	295	-	-	-	-	115	125

Notes of use of Column Packing

- Due to their low bulk densities, Glass Raschig rings are particularly suitable for packing glass columns.
- Generally, the ratio of Column diameter to packing diameter should not be less than 8:1 .
- When using smaller packing size, a small layer of larger packing should be used on packing support, to prevent the smaller packing falling through.
- In vacuum application and applications involving high vapour velocities, packing may be lifted and may damage to other parts. To prevent this, a packing retainer (PTFE perforated plates) should be used above the packed section.

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COLUMN PACKING-RASCHIG RINGS

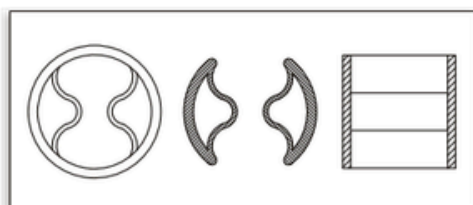
Raschig ring ranging from 8 mm to 50 mm are available in 3.3. Borosilicate glass.



Cat.Ref.	Size	Bulk Density Kg/Ltr	Specific Surface m ² /m ³	Glass
FCB8	8x8	0.66	633	Borosilicate
FCB10	10x10	0.52	487	Borosilicate
FCB12	12x12	0.48	425	Borosilicate
FCB15	15x15	0.43	330	Borosilicate
FCB20	20x20	0.30	300	B orosilicate
FCB25	25x25	0.28	240	Borosilicate
FCB30	30x30	0.27	180	B orosilicate
FCB40	40x40	0.22	160	B orosilicate
FCB50	50x50	0.19	120	B orosilicate

PALL RINGS

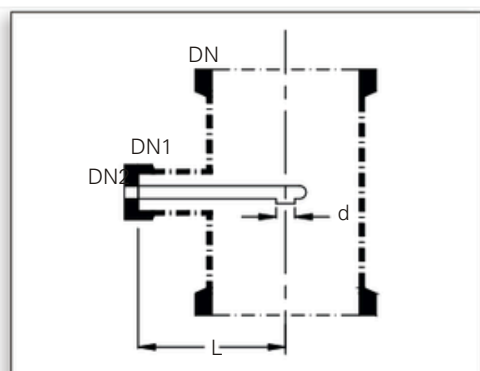
Pall Rings are also available for column packing as per below specification.



Cat.Ref.	Size	Bulk Density Kg/Ltr	Specific Surface m ² /m ³	Glass
FCP30	30x30	0.38	234	Borosilicate
FCP40	40x40	0.32	187	Borosilicate
FCP50	50x50	0.26	140	Borosilicate

COLUMN FEED PIPE

Feed pipe directs the process fluid to the centre of the column.

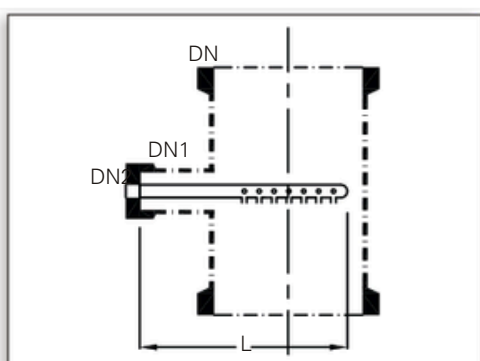


Cat.Ref.	DN	DN1	DN2	L	d
FP3	80	25	25	100	12
FP4	100	25	25	125	12
FP6	150	40	25	150	19
FP9	225	40	25	175	19
FP12	300	40	25	225	19
FP16	400	40	25	275	19
FP18	450	40	25	300	19
FP24	600	50	40	450	25

DN refers the nominal diameter of the column.

COLUMN FEED SPARGERS

In column feed spargers, holes are provided at three sides of pipe.



Cat.Ref.	DN	DN1	DN2	L	Holes
SPG3	80	25	25	125	21x2mm
SPG4	100	25	25	150	21x2mm
SPG6	150	40	25	200	27x2mm
SPG9	225	40	25	275	27x2mm
SPG12	300	40	25	350	30x3mm
SPG16	400	40	25	450	39x3mm
SPG18	450	40	25	500	39x3mm
SPG24	600	50	40	650	60x3mm

DN refers the nominal diameter of the column.