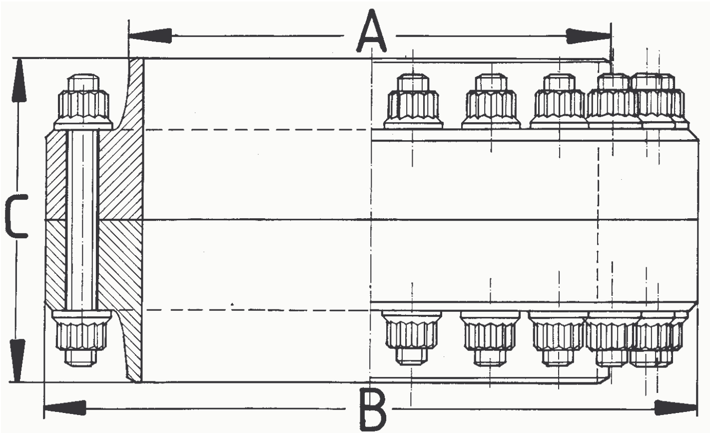
VERAX Standard	**Non-gasketed, flanged pipe connection Pressure rating : 900# (Max. working pressure: 190 bar)**	***VCF 104*** Edition 3 Ratified by: Jan Webjörn 1999-04-12

This standard covers the geometry, general dimensions and weight of a series of VCF-joints of a certain pressure rating. Such data (except inside diameter) are the same for all VCF-joints (within a certain pressure rating) regardless of material. Proof test pressure is 50% above max. working pressure. For applications at operating temperature in excess of +450 °C, consult VERAX for special design.

”VCF-joint” stands for pipe connection according to the **V**ERAX **C**ompact **F**lange **S**ystem



DN	Nominal size	A	B	C	Weight of complete joint
	inch	mm	mm	mm	kg
15	½	21,3	Use VCF 107		
20	¾	26,7	Use VCF 107		
25	1	33,4	Use VCF 107		
32	1 ¼	42,2	71	54	0,7
40	1 ½	48,3	77	54	0,8
50	2	60,3	94	64	1,5
65	2 ½	73,0	110	64	1,9
65	2 ½	76,1	110	64	1,9
80	3	88,9	129	74	2,9
100	4	114	154	74	3,9
125	5	141	186	88	6,2
150	6	168	213	88	7,8
200	8	219	275	110	16
250	10	273	341	132	29
300	12	324	403	156	47
350	14	356	446	176	66
400	16	406	496	180	78
450	18	457	574	226	138
500	20	508	625	228	158
600	24	610	749	274	271
750	30	762	936	344	528

See next page for load capacity

Load Capacity of Class 900 VCF-joints

On most pipe connections not only fluid pressure, but also bending moments and axial loads, act on the joint to pull it apart and to make it leak. When engineering a bolted joint of any kind, the most important part of the work is to establish the magnitude and the character of such loads, either by detailed computations, actual measurements and experiements or by ”guesstimates”. This involves by far the major and most important part of the work.

In those special cases, where a high bending moment or a high axial load, are expected, an analysis of the effects is possible just by adding all load cases together. The design criterium is, that a breakaway situation must be avoided, that in particular no bolt may develop exececessive plastic deformation. It follows that the relationship between various load cases, using denomations as follows:

F = actual max. axial load — F_{max} = the maximum axial load permissible
M = actual bending moment — M_{max} = the max. bending moment permissible
P = required fluid pressure capacity — P_{max} = the max. fluid pressure permissible

Is it readily understood, that if F/F_{max} is 0,5 and M/M_{max} say 0,3 then P/P_{max} may not exceed 0,2 what may be expressed as follows

$$\frac{F}{F_{max}} + \frac{M}{M_{max}} + \frac{P}{P_{max}} <= 1$$

In the following table the load carrying capacities for this series VCF-joints are listed

DN	Nominal size	Maximum axial load F_{max}	Maximum bending moment M_{max}	Maximum fluid pressure P_{max}
	inch	kN	kNm	bar
15	½		Use VCF 107	
20	¾		Use VCF 107	
25	1		Use VCF 107	
32	1 ¼	82	2,2	450
40	1 ½	102	2,9	450
50	2	174	5,8	520
65	2 ½	230	9,2	430
65	2 ½	230	9,2	430
80	3	290	13,5	405
100	4	460	26	420
125	5	630	43	375
150	6	950	73	440
200	8	1 ´500	150	410
250	10	2 ´300	285	430
300	12	3 ´150	460	415
350	14	3 ´600	590	385
400	16	4 ´750	860	400
450	18	6 ´350	1 ´300	425
500	20	7 ´400	1 ´670	385
600	24	10 ´700	2 ´900	395
750	30	17´000	5 ´700	425