

Gasket Factors



Gasket factors are parameters that define the capability of a gasket material to achieve the joint tightness. They are specific for each gasket material. Through the gasket factors one can calculate the gasket stress that is required to ensure the joint tightness, as a function of the service conditions and joint geometry. They are, therefore, first of all *design parameters*.

Most common gasket factors are:

- ASME code, BS 5500, VSR: gasket factors y , m (based on mechanical criteria only)
- DIN E 2505 / DIN E 28090: gasket factors $\sigma_{VU/L}$, $\sigma_{BU/L}$, $m_{/L}$ (based on both mechanical and leakage criteria)
- EN 1591 / EN 13555: gasket factors $Q_{min}(L)$, $Q_{smin}(L)$, Q_{max} (based on both mechanical and leakage criteria)
- PVRC: gasket factors G_b , a , G_s (based on ROom Temperature Tightness test)

Experimental Gasket Factors for a selection of *Euroguarco* Gasket Materials to be used on GUARCOAID programmes

GuarcoAid program		EN / DIN / ASME			PVRC - ROTT			Max. assembly stress**
Gasket factors		$y/\sigma_{VU}/Q_{min}$ MPa	$m_{/1}$	$m_{/0,1}$	G_b MPa	a	G_s MPa	σ_{Vo}/Q_{max} MPa
FASIT OMNIA	mm 1.5	20	2.5	3.0	6.4	0.25	0.0011	310
	mm 2.0	22	3.0	4.0	13.1	0.21	0.0970	240
	mm 3.0	25	4.0	5.0				150
GUAFLON BLUSEAL	mm 1.5	18	2.0	3.0	3.6	0.36	0.0016	180
	mm 2.0	20	2.5	3.5	3.0	0.40	0.0100	150
	mm 3.0	23	3.0	4.0	3.5	0.40	0.0640	120
GUAFLON WHITE-SEAL	mm 1.5	13	2.0	2.5	3.4	0.26	$4 \cdot 10^{-6}$	280
	mm 2.0	15	2.0	2.5	3.0	0.28		240
	mm 3.0	18	2.0	2.5	3.4	0.33	0.0001	130
GUAFLON PINK-SEAL	mm 1.5	16	1.5	2.0	10.3	0.227	0.007	300
	mm 2.0	21	1.5	2.0	11.0	0.570		240
	mm 3.0	25	1.5	2.0	12.1	0.300		150
GUAFLON SOFT-SEAL	mm 1.5	10	1.5	2.0	9.7	0.22	0.0005	300
	mm 2.0	12	1.5	2.0				240
	mm 3.0	15	1.5	2.0	11.7	0.22	0.0005	200
GRAFLEX GR	mm 1.5	18	3.0	4.0	6.7	0.36	$3 \cdot 10^{-4}$	320
	mm 2.0	20	3.5	4.5				300
	mm 3.0	23	4.5	5.0				230
GRAFLEX R	mm 1.5	13	3.0	4.0	6.3	0.4	$8 \cdot 10^{-4}$	240
	mm 2.0	15	3.5	4.5				220
	mm 3.0	18	4.0	5.0				160
GRAFLEX RX	mm 1.5	20	3.0	4.0	9.5	0.32	$7 \cdot 10^{-5}$	440
	mm 2.0	20	3.0	4.0				430
	mm 3.0	20	3.0	4.0				390

- (*) y , σ_{VU} , Q_{min} : *minimum required stress for seating at assembly*
 m : *maintenance factor* for a 49x92 mm gasket in a DIN ISO DN40 PN40 flange, in service with N_2 at 40 bar
 tightness criterium: $m_{/1}$: leakage rate = 1 mg/s·m
 $m_{/0,1}$: leakage rate = 0,1 mg/s·m

Note: ASME code 2-5.1 indicates the following gaskets factors for all the above gasket styles, for flange design purpose:

	1/32 in. thick	1/16 in. thick	1/8 in. thick
y :	44,8 MPa	25,5 MPa	11,02 MPa
m :	3,5	2,75	2,00

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Since they are not experimentally related to performance of specific gasket materials, their use for calculation of actual assembly parameters is not recommended.