

“Excellent!”

Report on the FE tension analysis of split loose flanges NB 25, 40, 80, 100:

The FMEA (failure mode and effect analysis) revealed that none of the flanges exceeded the permissible tension limits. The loose flanges are, as a consequence, clearly sufficiently dimensioned and, as a result, have a high potential safety factor.

The following split loose flanges were subjected to FMEA for adequate dimensioning:

NB	flange thickness desired	flange thickness actual
25	8 mm	14 mm
40	8 mm	14 mm
50	9 mm	16 mm
80	12 mm	18 mm
100	14 mm	20 mm

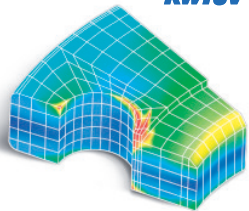
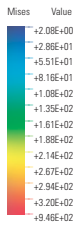


Illustration: tension plot, average

RWTÜV

GLASS LINING TECHNOLOGIES

- JOBBING FOUNDRY
- FITTINGS AND VALVES
- DRAINAGE TECHNOLOGY
- ENGINEERING

GLASS LINING TECHNOLOGIES



Loose flange connection

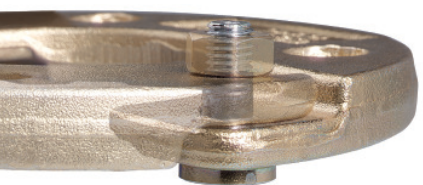
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Snap fit, fasten and the job is done ... it couldn't be easier!

The unique Düker snap fit flange is a further development based on the well known DIN loose flanges. The two halves are simply clipped together without tools and can be mounted with every other conventional flange to provide a safe, reliable flange connection.

- proven millions of times as a standard flange
- low-weight
- optimized "one-man fitting"
- reduced installation costs
- no loose parts
- homogenous introduction of flange forces
- minimized leakage rates
- high residual torques after thermal stress

Nominal diameters	Versions
from NB 25 to NB 200	galvanised, yellow passivated, special finishes to order



Calculated, tested, tried and proven!

Bolting torque studies and determination of leakage rate of flange connections for glass lined pipeline parts

Even under extreme temperature stress the Düker flange connections have unbeatable low leakage rates (between 10⁻⁵ and 10⁻⁶ mbar l/s). This is due to the homogenous introduction of the flange forces. The proven high residual torques and studies ensure permanent tightness even under changing temperatures.



Determined leakage rates in mbar xl/s						
	after installation	after heating up to 50 °C	after heating up to 100 °C	after heating up to 150 °C	after heating up to 200 °C	after heating up to 250 °C
0-measur.	2 x 10 ⁻⁷	1 x 10 ⁻⁸	1 x 10 ⁻⁸	1 x 10 ⁻⁸	3 x 10 ⁻⁸	6 x 10 ⁻⁸
B	5 min.	8 x 10 ⁻⁸	3 x 10 ⁻⁸	2 x 10 ⁻⁸	1 x 10 ⁻⁸	9 x 10 ⁻⁸
	10 min.	5 x 10 ⁻⁷	2 x 10 ⁻⁷	1 x 10 ⁻⁷	2 x 10 ⁻⁸	1 x 10 ⁻⁸
	15 min.	9 x 10 ⁻⁷	5 x 10 ⁻⁷	3 x 10 ⁻⁷	2 x 10 ⁻⁸	1 x 10 ⁻⁸
	20 min.	2 x 10 ⁻⁷	1 x 10 ⁻⁸	6 x 10 ⁻⁷	4 x 10 ⁻⁷	7 x 10 ⁻⁸
C	5 min.	8 x 10 ⁻⁸	8 x 10 ⁻⁸	4,5 x 10 ⁻⁸	1,5 x 10 ⁻⁸	3 x 10 ⁻⁸
	10 min.	6 x 10 ⁻⁷	2 x 10 ⁻⁷	1,5 x 10 ⁻⁷	2 x 10 ⁻⁸	2,51 x 10 ⁻⁸
	15 min.	1 x 10 ⁻⁶	3 x 10 ⁻⁷	2 x 10 ⁻⁷	2 x 10 ⁻⁸	1,5 x 10 ⁻⁸
	20 min.	6 x 10 ⁻⁷	1,5 x 10 ⁻⁸	3 x 10 ⁻⁷	2 x 10 ⁻⁷	9 x 10 ⁻⁸
D	5 min.	2 x 10 ⁻⁷	1 x 10 ⁻⁷	1,5 x 10 ⁻⁷	2 x 10 ⁻⁸	9 x 10 ⁻⁸
	10 min.	1,5 x 10 ⁻⁶	5,5 x 10 ⁻⁷	4 x 10 ⁻⁷	4 x 10 ⁻⁸	8 x 10 ⁻⁸
	15 min.	2 x 10 ⁻⁶	9 x 10 ⁻⁷	4 x 10 ⁻⁷	4 x 10 ⁻⁸	6 x 10 ⁻⁸
	20 min.	6 x 10 ⁻⁷	9 x 10 ⁻⁷	9 x 10 ⁻⁷	4,5 x 10 ⁻⁷	4 x 10 ⁻⁸