



Technical Information

Bolted connections for fabric expansion joints

RAL-GZ 719

TI-007

Rev. 2 – 10/07

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1. Following guidelines for bolted connections have to be respected to achieve flue gas tightness acc. to TI-002 or nekal tightness acc. to TI-003. Attention: The bolt torques are not valid for clamp bands, straps and external clamps.

2. Bolting torque

To control the setting of the different expansion joint materials, the conditions and instructions of the manufacturer regarding the retorquing of the bolting or the use of spring washers need to be observed. Guideline valid for ambient temperature acc. to the following chart.

bolt	fabric expansion joint						elastomer expansion joint					
	width of clamp bar / back-up bar [mm]						width of clamp bar / back-up bar [mm]					
	30	40	50	60	70	80	30	40	50	60	70	80
	bolting torque [Nm]						bolting torque [Nm]					
M8	20						20					
M10	30	40					30	30				
M12		50	60					40	50			
M16		65	80	100	115	130		50	65	75	90	100
M20			100	120	140	160			75	90	110	125
M24			115	140	165	190			85	105	125	145

bolting torque +/- 10% valid for MoS₂ lubricated bolting and design acc. to item 3.

3. Guidelines for the design of clamp bars / back-up bars

width	30	40	50	60	70	80	mm
thickness	6/8	8/10	8/10/12	10/12	10/12	12	mm
bolt spacing	60	80	100	100	120	120	mm
bolts M	8/10	10/12	12/16	12/16	16	16	

The stiffness of the duct flange should be at least the same as the stiffness of the clamp bar / back-up bar

4. Bolting material of galvanized quality 5.6 and 8.8 should be preferred for expansion joint fixation.

5. The combination of stainless steel bolting material and fabric expansion joint material is in some extend problematic. This material should be avoided if possible.

6. High temperature resistant bolts should only be used for temperatures higher than 300°C (570°F) at the bolt.

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7. Reduction of the mechanical strength of the bolting in respect of higher temperature

class of strength	temperature				
	+20°C	+100°C	+200°C	+250°C	+300°C
	modulus of elasticity ReL [N/mm ²]				
4.6	240	210	190	170	140
5.6	300	270	230	215	195
8.8	640	590	540	510	408
10.9	940	875	790	745	705
12.9	1100	1020	925	875	825

values in reference to EN ISO 898-1:1999 annex A

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