

# Certificate

## Concerning connection parts and joints of thermal solar collectors and systems

**Test number: J03001**

### **Validity of the certificate:**

This certificate is valid for 5 years, from September 2001 to September 2006.

### **Test requirements and boundary conditions:**

(Detailed description of test procedure available at Institut für Solartechnik SPF)

- The requirements of temperature durability equals the load of flat plate collector fields of today's construction methods (single cover, solar selective absorber coating)
- Max. system operation pressure: 6 bar, max. system test pressure: 10 bar
- Heattransferfluids: Technical inhibited Glycol / Water mixture (Ethylen- or Propylenglycol)

### **Description of test sample:**

- Manufacturer: BRUGG Rohrsysteme GmbH., D-31515 Wunstorf
- Denotation, model: Tube adapter fitting "LUNARPHIT" to LUNARFLEX® stainless steel corrugated tube
- Detailed description of test sample see Appendix A und B
- Tested dimension DN 20, the results are also valid for DN 15 and DN 25

### **Load capacity:**

In accordance with the testmethod for connection parts and joints of thermal solar collectors, the candidates were exposed to controlled temperature and pressure conditions. The tests were carried out only for the static conditions; if external deformations should be included, expansion thighs according to the manufacturer's instruction must be made.

### **Remarks**

Based on the results, the "LUNARPHIT" tube adapter fitting in connection with the LUNARFLEX® stainless steel tube can be used in the circuit of solar thermal fields with flat plate collectors. The test results only apply to liquid Glycol / water heattransferfluids, the behavior with vaporous heattransferfluids (vaporization and condensation effects) is not part of this test.

This work has been performed, based on our General Business Terms

Rapperswil, 27. September 2001

Head Institut für Solartechnik SPF

U. Frei

## Appendix A:

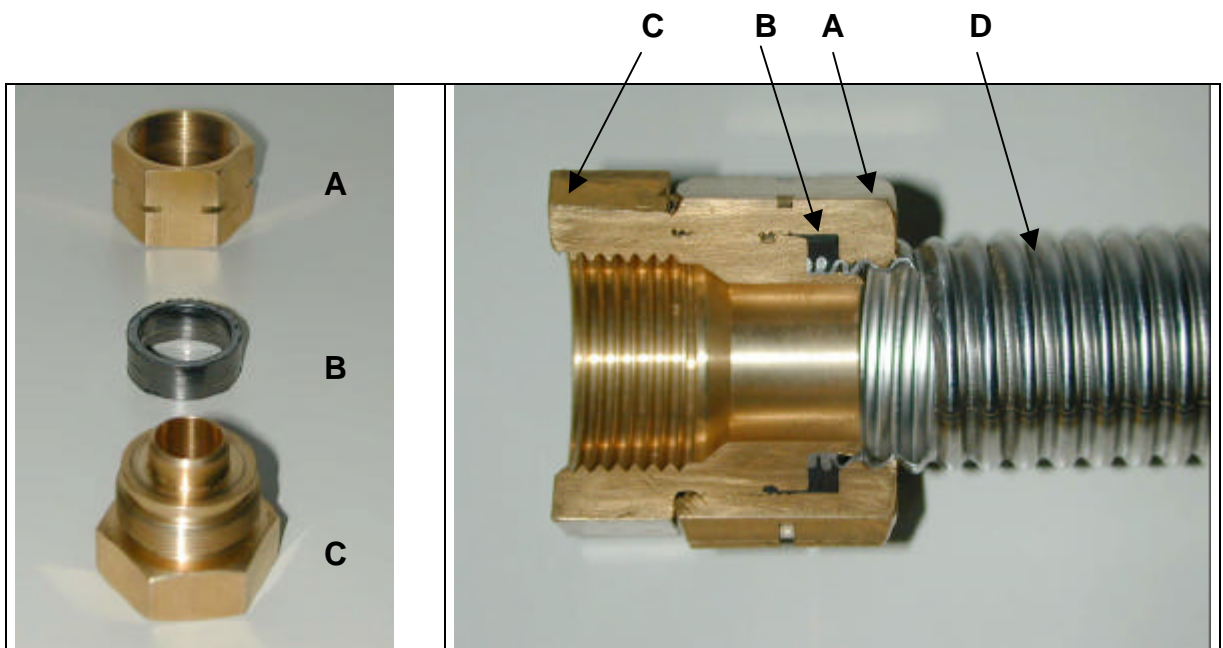
### Description of test sample **J03001**:

#### Materials:

Connection: Brass screw parts: pressure ring (A) and connector (C)  
sealing ring: graphite (B)

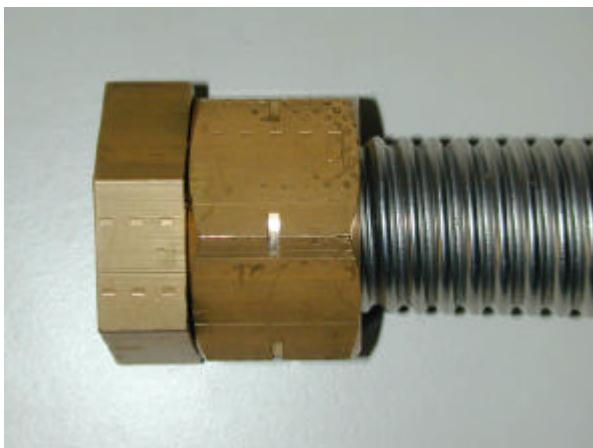
Tube: Corrugated stainless steel tube (D), material (1.4401)  
see drawing appendix B, tested size: DN 20 / 3/4"

Sealing: The sealing is given by a graphite sealing element (B)



Components LUNARPHIT

Cross section through the screwed connection LUNARPHIT

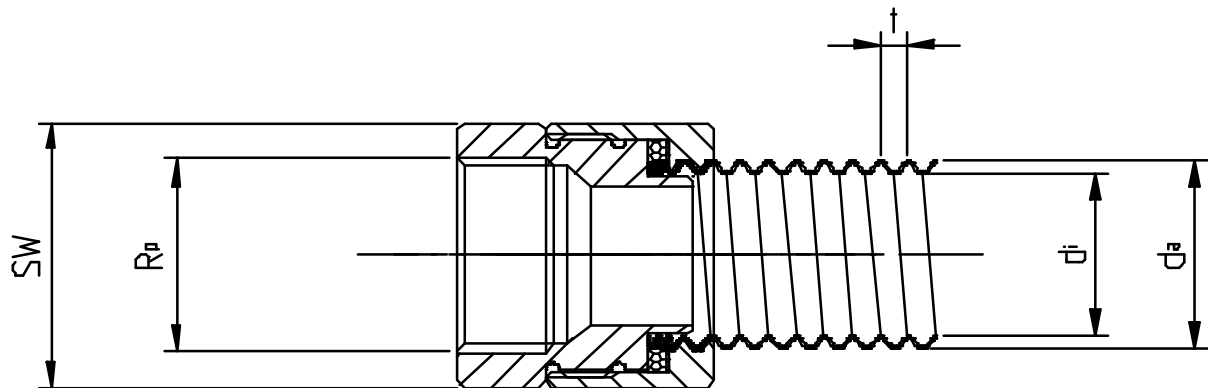


Screwed connection LUNARPHIT

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## Appendix B:

Technical drawing Inner Tube **J03001**:



Dimension LUNARFLEX®	Model LUNARFLEX®	Wrench size SW	Thread $R_p$
DN 15	4	30	1/2"
DN 20	5	36	3/4"
DN 25	6	46	1"

Dimension LUNARFLEX®	Model LUNARFLEX®	$d_i$	$d_a$	$t$
DN 15	4	16,5	20	3,2
DN 20	5	22	25,5	3,8
DN 25	6	30	34	4,7

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