

Orderer:

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# Certificate and test report Nr. J114CON

Connectors for solar thermal systems.

Test according to SPF test procedure: Test class A1



**Conex >B< Press**

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## 1. Description of the sample

### 1.1 Product information and technical description

Manufacturer:	IBP Conex Limited
Model:	Conex >B< Press
Connection Type:	Press Fitting
Application range	Fittings for solar thermal installations.
Nominal fitting length:	n.a.
Nominal diameter:	15 mm / 22 mm / 28 mm
Description of sample:	Press fitting system for copper tubes. Bead with integrated O-Ring.
Materials	Red Brass, Copper, FKM
Heat transfer media	Inhibited Water Glycol mixtures
Application limitations	not specified

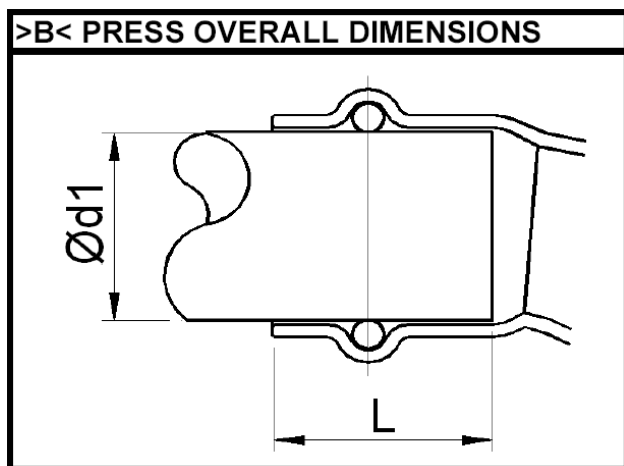


Fig. 1  
Cross section of the press fitting

## 2. Test methods and results

### 2.1 General remarks

The test procedure is intended to assess the resistance of the connectors against the assumed thermal load encountered during the lifetime of a typical solar installation with state-of-the-art solar collectors (selective absorber coating, solar glazing). The fitting was tested in the three sizes as listed above. Three pipe-work samples including each three sizes of the fittings were assembled and installed by the manufacturer in a professional manner.

### 2.2 Test procedure and test parameters

Test according to SPF standard. Test Class A1 reduced to the thermal loads.

Three pipe work samples each including three different sizes of the fittings are tested in parallel. None of the samples is allowed to fail for passing the test. During the test procedure the samples are flowed through with a water glycol mixture at a pressure of 8 bars maximum. The test samples were installed without any static misalignment (installation tolerance) and the SPF test procedure is reduced to the thermal shocks. No static or dynamic mechanical loads are applied during the whole test procedure.

The test procedure is made up of 500 thermal shocks as follows:

The temperature of the fluid (and hence the fitting) is increased up to the maximum temperature  $T_{\text{high}}=180^{\circ}\text{C}$  ( $\pm 5^{\circ}\text{C}$ ). Upon thermal stabilisation of the whole system a thermal shock is triggered and the samples are flushed with fluid at the lower temperature level  $T_{\text{low}}<80^{\circ}\text{C}$ . The decay time of the shock is in the range of 5 seconds.

The time required for one complete temperature cycle is approx. 15 minutes.

These thermal shocks represent the thermal loads that occur during the filling procedure of a drained collector system.

### 2.3 Photographs of test samples

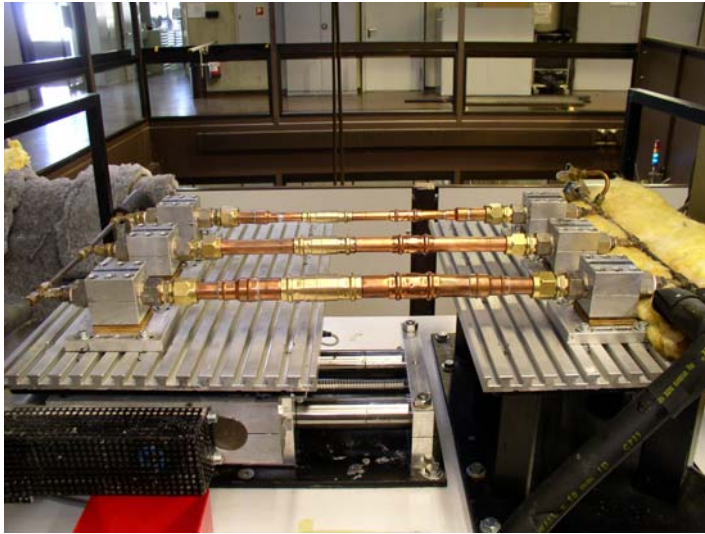


Figure 1: (before test start)  
Test samples installed before start of testing.



Figure 2: (before test start)  
Detail of installed test samples before testing.

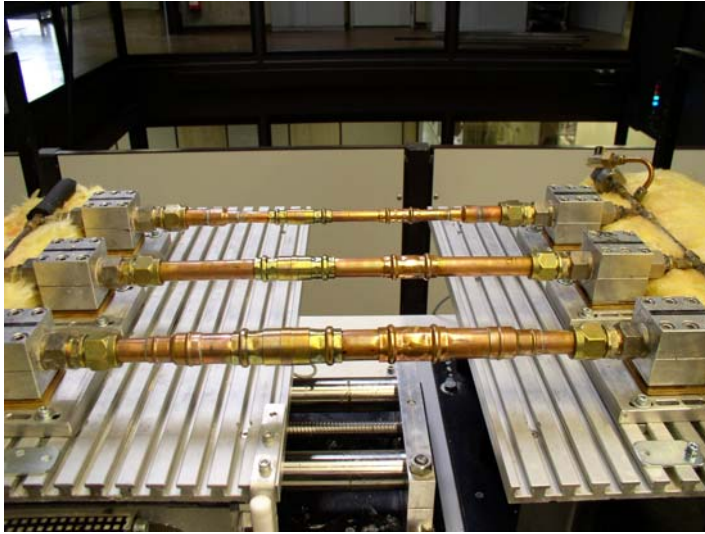


Figure 3: (after test)  
Test samples on test stand after completion of test.



Figure 4: (after test)  
Test sample ready for inspection.

## 2.4 Notes

The test results and the certificate is valid for diluted water-glycol mixtures in the liquid phase. The behaviour of the fitting for vaporous heat transfer media as well as evaporation and condensation effects are not assessed with the present test procedure.

The fittings must be used in conjunction with pipe elements that are able to absorb mechanical movements caused by thermal elongations, mechanical misalignment and similar.

## 2.5 Result

No leakage, deficiency and no other failures have been observed during the test. The fittings are considered as suitable for the use in solar thermal installations.

The **Conex >B< Press** fittings in the tested dimensions therefore fulfil the requirements of the SPF test procedure class A1 and are certified under the SPF number J114CON.

The certificate is valid for 5 years.

## 3 Remarks

This report must not be copied except in full.  
The test results only refer to the tested sample.

Rapperswil, 29.08.2007



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