



FAR 3722 Issue 3

Comparison Between the SNAP Prototype Collar Tested in FP 4428 and the SNAP LP100R Collar

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 - The date when the service should have been completed in the event of any alleged non-performance.
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- c. Without limiting clause b above, the Client shall guarantee, hold harmless and indemnify BRANZ and its officers, employees, agents or subcontractors against all claims (actual or threatened) by any party for loss, damage or expense of whatsoever nature including all legal expenses and related costs arising out of:
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 - iv. any changes, modifications or alterations to the Products the subject of the Services.

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1. CLIENT

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2. PROPOSAL

This report gives BRANZ's assessment of the SNAP LP100R (low profile retrofit floorwaste collar) with a comparison of the materials used and dimensions of the collar against the prototype collar tested in FP 4428.

Further assessment is included for the use of the SNAP LP100R in a stack application as opposed to the floor waster configuration as tested in FP 4428.

3. BACKGROUND


In BRANZ pilot fire resistance test FP 4428 the test specimen consisted of three pipe collar systems in a 170 mm thick concrete floor slab. Two of the collars were grouted into the floor system. One of the specimens consisted of a retro fit collar mounted to the exposed face of the floor slab. This report only refers to the retro fit collar assembly identified in FP 4428 as "type B" collar fitted to specimen 2. The pipe service consisted of a floor waste manufactured from ABS plastic. The floor waste was glued to a short length of Iplex Novodrain DN100 PVC DWV measuring 111 mm outside diameter x 3.2 mm average wall thickness. The "type B" collar was secured to the exposed face of the concrete slab with a single Hilti® DB2 6/4.5 wedge anchor at each angle bracket.

The test was conducted in accordance with the furnace conditions and acceptance criteria of AS 1530.4-2005 with reference to AS 4072.1-2005. Specimen 2 as described above maintained the Integrity and Insulation criteria of the test standard for 245 minutes without failure.

The collar remained attached to the concrete floor for the duration of the test and exhibited no signs of significant distortion. The masonry anchors were still fully engaged with the collar angle brackets.


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4. DISCUSSION

BRANZ has been asked to confirm that the prototype collar identified as “type B’ in fire resistance test report FP 4428 is the same assembly marketed as the SNAP LP100R collar. The following are the critical dimensions of the tested specimen against a sample of the SNAP LP100R collar.

Part Description	Measured dimensions	
	Type B (FP4428)	SNAP LP100R
Nominal outside diameter of Collar	140 mm	140 mm
Height of Collar	56.5 mm	61 mm
Galvanised steel collar body thickness	0.95 mm	0.95 mm
Galvanised lip return length	12 mm	10.5 mm
Spring leg length	53 mm	53 mm
No of turns on spring	5	5
Intumescent	6.5 mm x 50 mm	6.5 mm x 50 mm
Stainless steel mesh at inner and outer face of intumescent tube	0.25 mm thick	0.37 mm thick

The critical elements of the collar assembly are the thickness of the galvanised steel body and the size of the intumescent, both the prototype and the SNAP LP100R are identical. The client has confirmed that the intumescent material used in the pilot test is the same as used in the SNAP LP100R collar assembly. Also the stainless steel mesh used on the SNAP LP100R assembly measures very slightly thicker, this is not expected to have any detrimental affect to the collars performance.

There is a minor difference in the fabricated galvanised steel body of the collar assemblies. Both collar assemblies comprise 12 segments formed from folding the galvanised steel at nominally 30 mm centres. The prototype included a 20 mm long slit cut along the fold line at the middle of the section. The SNAP LP100R does not include the 20 mm slit along the fold lines. It is considered that this will not be detrimental to the fire resistance of the collar assembly.

The minor difference in the length of the galvanised lip return will have no impact to the performance of the collar. The lip return is essentially used to retain the intumescent within the body of the collar. There is a slight difference in the measured heights of the collar assemblies. This measured difference probably accounts for the slight reduction in length of the lip and will be due to minor dimensional discrepancies within the manufacturing process. It is considered that the above minor dimensional discrepancies’ would not be detrimental to the performance of the SNAP LP100R collar assembly.

The notes, photographs and drawings of the tested prototype and the physical specimen of a SNAP LP100R have been examined and it is considered that for all intent and purposes the SNAP LP100R is the same collar assembly as the specimen tested in FP 4428.


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4.1 Masonry Anchors

In FP 4428 the type B collar assembly was secured to the exposed face of the floor slab with a single Hilti® DB2 6/4.5 wedge anchor at each angle bracket. The installation instructions supplied with the SNAP LP100R collar indicate that the masonry anchors should be 6.5 mm diameter x 35 mm long sleeve anchors. It is considered that the minor operation and dimensional differences between the sleeve anchor and the as tested wedge anchor system would not be detrimental to the performance of the SNAP LP100R collar assembly.

4.2 Pipe Stack Application

In BRANZ pilot fire resistance test FP 4428, specimen “2” was a floor waste with the “type B” prototype collar fitted to the exposed face as described in section 3. A single thermocouple was placed on the centre of the floor waste grate. During heating it is necessary for the collar to activate and seal off the penetration very quickly to ensure the thermocouple attached to the grate does not exceed the 180°C temperature rise criterion. This is a more onerous test than on a pipe stack application where thermocouples are placed on the side of the pipe 25 mm from the face of the floor. The thermocouples in this application are not in the direct path of the furnace gases or the heated exhaust fumes from the combustible pipe components. It is therefore considered that a 100 mm PVC DWV pipe stack application with a SNAP LP100R collar fitted to the exposed face of the concrete floor would not prejudice the Integrity and Insulation criteria for 240 minutes when tested in accordance with AS 1530.4-2005.

5. CONCLUSION

It is considered that the SNAP LP100R collar is for all intent and purposes the same collar assembly as the type B collar tested as specimen 2 in FP 4428. The minor dimensional differences noted above and the use of the 6.5 mm x 35 mm long sleeve anchor in lieu of the Hilti® DB2 6/4.5 wedge anchor will not be detrimental to the fire resistance of the SNAP LP100R collar when tested in accordance with AS1530.4-2005 with reference to AS 4072.1 – 2005 with the same pipe service as fitted in FP 4428.

It is further considered that a 100 mm PVC DWV pipe stack application with a SNAP LP100R collar fitted to the exposed face of the concrete floor would not prejudice the Integrity and Insulation criteria for 240 minutes when tested in accordance with AS 1530.4-2005 with reference to AS 4072.1 – 2005.

6. LIMITATION

This assessment report is provided on the basis of the accuracy and completeness of the information provided by the client. Should any data come to BRANZ’s attention relating to the fire resistance of the items discussed herein, BRANZ reserve the right to amend this report.


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Figure 1 Type B collar as tested in FP 4428

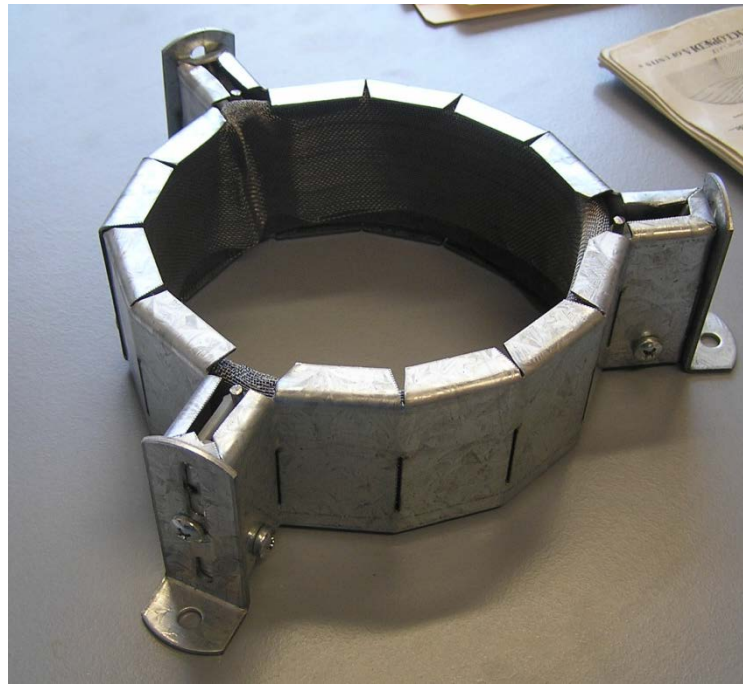



Figure 2 SNAP LP100R Collar



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