

FIRE ASSESSMENT REPORT

FC11840-001

ASSESSMENT OF THE FIRE RESISTANCE OF SNAP METAL RETRO COLLARS APPLIED TO PROTECTING PEX-AL-PEX PIPE PENETRATIONS IN A HEBEL PANEL WALL

CLIENT
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ASSESSMENT OBJECTIVE

To assess the fire resistance of SNAP Gas Collars applied to protecting penetrations of Pex-Al-Pex pipes in a 75 mm thick Hebel panel wall.

CONCLUSION

It is considered that the SNAP Gas Collars fitted each side of a 75 mm thick Hebel panel wall protecting 16 mm to 50 mm diameter Pex-Al-Pex pipes would achieve the FRLs as specified in the following table if tested in accordance with AS 1530.4:2014 and AS 4072.1 – 2005.

Summary Table for SNAP Gas Collars with Pex-Al-Pex pipe penetrations in a 75 mm Hebel panel wall

Pipe Material	Pipe Diameter, mm	Collar Code	FRL
Pex-Al-Pex	50	50GAS	-/120/60
Pex-Al-Pex	40	50GAS	-/120/60
Pex-Al-Pex	32	32GAS	-/120/120
Pex-Al-Pex	25	32GAS	-/120/120
Pex-Al-Pex	20	32GAS	-/120/120
Pex-Al-Pex	16	32GAS	-/120/120

LIMITATION

This report is subject to the accuracy and completeness of the information supplied.

BRANZ reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved.

This assessment report may only be quoted or reproduced in full.

TERMS AND CONDITIONS

This report is issued in accordance with the Terms and Conditions as detailed and agreed in BRANZ Services Agreement for this work.

The results reported here relate only to the item/s described in this report.

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1. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance in accordance with AS 1530.4:2014 and AS 4072.1 - 2005 of the fire resistance of a range of SNAP Gas Collars applied to Pex-Al-Pex pipes when installed as penetrations in a 75 mm thick Hebel autoclaved aerated concrete (ACC) panel wall system.

2. BACKGROUND

This assessment is considered on the basis of the fire resistance performance of SNAP Gas Collars established in CSIRO fire resistance tests FSP 1807, FSP 1822 and FSP 1783 as summarised in Table 1.

Table 1: Summary of supporting test results of SNAP Gas Collars in a 75 mm thick Hebel panel wall

Test Report	Pen. #	Product	Pipe dia, mm	Pipe type	FRL
FSP 1807	5	GAS50	50	Pex-Al-Pex	-/120/60
FSP 1822	2	GAS32	32	Pex-Al-Pex	-/120/120
FSP 1822	6	GAS32	25	Pex-Al-Pex	-/120/120
FSP 1822	7	GAS32	20	Pex-Al-Pex	-/120/120
FSP 1783	8	GAS32	16	Pex-Al-Pex	-/120/120

Fire tests, FSP 1807, FSP 1822 and FSP 1783 were performed in accordance with AS 1530.4-2014 "Fire resistance Tests of Elements of Building Construction", and AS 4072.1-2005 "Service Penetrations and Control Joints".

3. DISCUSSION

This assessment considers the fire resistance performance of SNAP Gas Collars applied to Pex-Al-Pex pipes passing through a 75 mm thick Hebel ACC panel wall.

3.1 Assessment of SNAP Gas Collars on Pex-Al-Pex pipes

The test results in Table 1 are considered in assessing the FRL of a 40 mm diameter Pex-Al-Pex pipe size with respective collar in a 75 mm Hebel panel wall.

The 50GAS collar protecting a 50 mm Pex-Al-Pex pipe in test FSP 1807 penetration #5 was successfully closed by 5 minutes indicated by a peak in the temperature rise measured on the pipe 25 mm from the collar. No smoke was observed from the pipe stack which is a further evidence of a rapid closure.

The 32GAS collar protecting a 32 mm Pex-Al-Pex pipe in test FSP 1822 penetration #2 was successfully closed by 5 minutes indicated by a peak in the temperature rise measured on the pipe 25 mm from the collar. No smoke was observed from the pipe stack which is further evidence of a rapid closure.

A feature of the 50GAS collar is that, in addition to the two layers of 85 mm wide x 4 mm thick intumescent material, the closing mechanism includes a stainless steel spring bound with a nylon fuse link. The observed closure was positive, and the Fire Resistance Level achieved in

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FSP 1807 for penetration #5 was Integrity 121 minutes NF (no failure) and Insulation 79 minutes. The insulation failure occurred on the Hebel wall followed by an insulation failure on the collar after 90 minutes. No failure occurred on the pipe for the 121 minutes duration of the test.

Given the positive closure of the 50GAS collar with the assistance of the spring it is likely that the smaller 40 mm diameter Pex-Al-Pex pipe will similarly be closed and an FRL of -/120/60 is expected to be achieved.

4. CONCLUSION

It is considered that the SNAP Gas Collars fitted each side of a 75 mm thick Hebel panel wall protecting 16 mm to 50 mm diameter Pex-Al-Pex pipes would achieve the FRLs as specified in the following table if tested in accordance with AS 1530.4:2014 and AS 4072.1 – 2005.

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