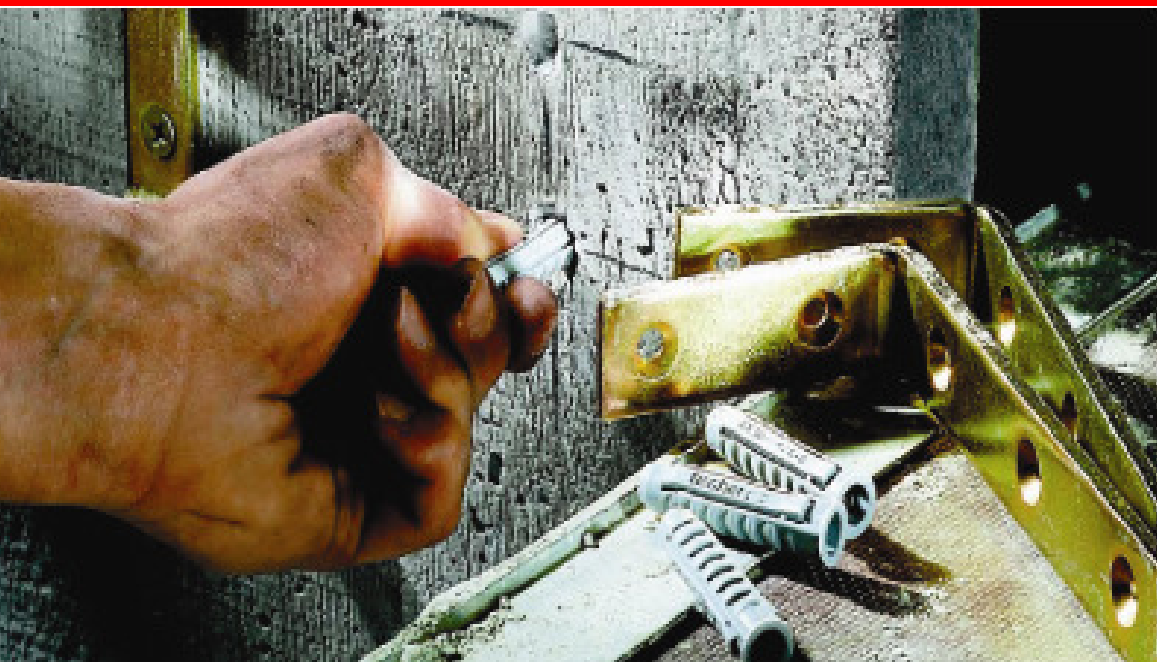


fischer Test Report



Fixing Tests for Lafarge Megadecco



Testing on Lafarge Megdecco

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KD8	Gravity toggle
HM 8 x 55 SS	Cavity fixing
HM 6 x 52 S	Cavity fixing
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3. Results

Megadecco 15mm

4. Summary

5. Conclusion

1. Test Parameters

Various fixings were tested into Lafarge boards. The fixings were installed and tested in a wall configuration mocked up for Swindon Hospital.

The tests were carried out at:

Carillion Building
Special Projects
Project Office
PMH Relocation
Coate
Swindon. SN3 6AA

All tests were carried out using a calibrated 2.5kN and 5.0kN Hydrajaws tensile tester.

2. Fixings tested

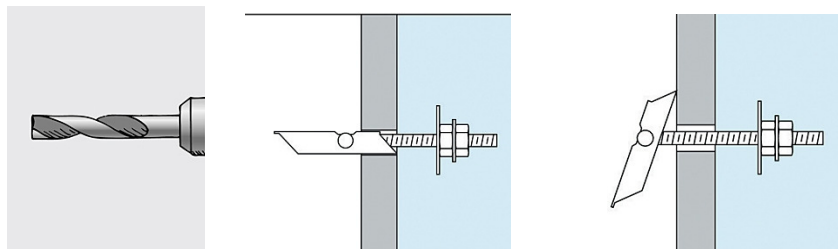
fischer KD8 Gravity Toggle

Material: Fixing-Steel, Zinc plated pasivate

Range: M3-M8



The fischer KD Toggle is the versatile cavity fixing. This fixing can be used in most every kinds of substrate providing it has a cavity, it ranges from M3 to M8 and comes in varying lengths, it is made from mild steel grade 5.8 and is zinc pasivate. The installation procedure is simple and produces very high loads. Smaller versions of the KD toggle come with spring loaded toggle fixing and a selection of threaded attachments from hooks to eyelets.



fischer HM Metal Cavity Fixing

Material: Steel, Zinc plated

Range: M4-M8

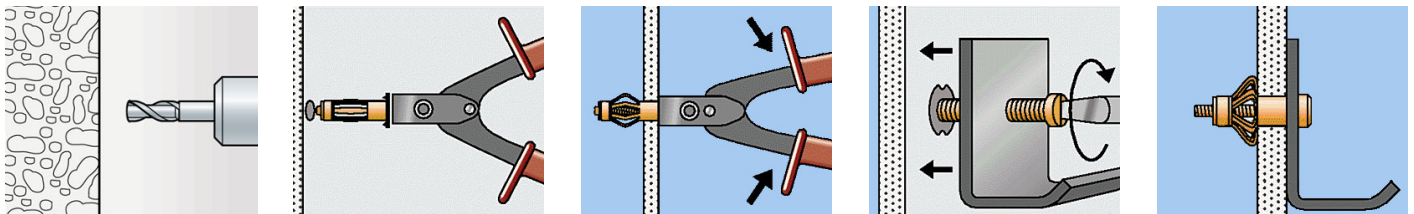
32-80 mm Long



The fischer HM Metal Cavity Fixing is a practical cavity fastening system for metric screws. Its simple but effective system allows ease of installation for high load bearing applications, for fixing into a wide range of cavity materials. The fixing will accommodate materials from 3mm to 50mm thick and comes with a wide range of head finishes from hook to eyelet. There is an installation tool available for this product HM Z1 for large applications

Material: Zinc Plated.

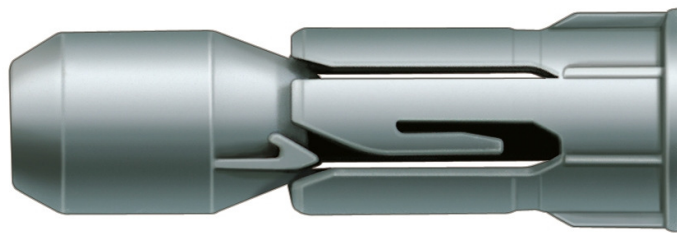
Range: M6 with various head types



fischer PD Board Fixing

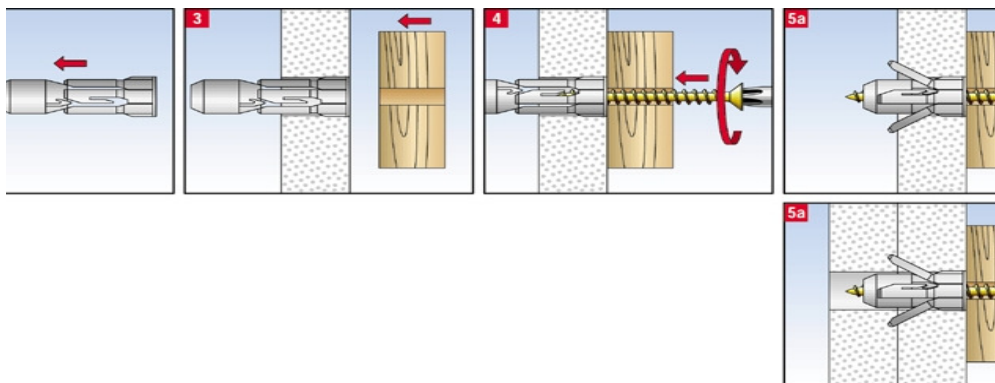
Material: Plug- Nylon (Polyamide 6)
Screw-Steel grade 5.8

Range: 8, 10 & 12



The fischer PD Board Fixing is the latest development in board and cavity fixings. This unique fixing offers ultimate load bearing capability for a simple but effective lightweight anchor.

The anchor has an extra short expansion zone allowing minimal space required in boards and short embedment depth in solid materials, another feature of this fixing is the 'lock-in mechanism' allowing the screw to be installed and un-installed several times. There are several longitudinal ribs to prevent the anchor from turning on installation and a small rim prevents the anchor from falling through the hole, all in all this is a good performance anchor.

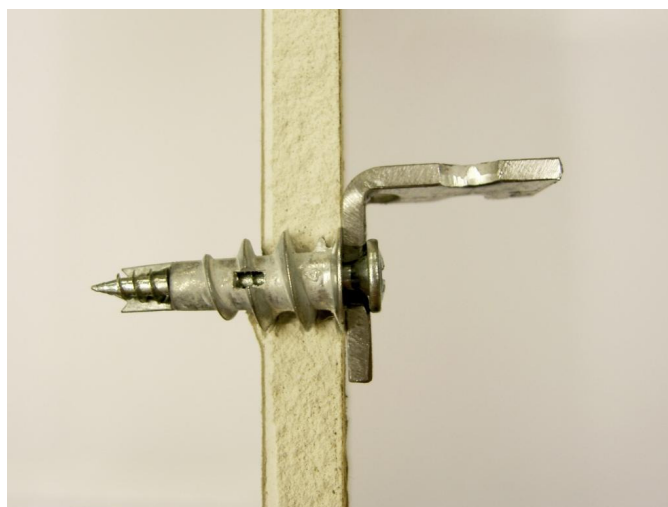


fischer PDM100 Cavity Fixing

37mm Long + 4,2 x 30mm long screw



The fischer PDM100 is a self tapping fixing that cuts into the plasterboard until the head is flush with the surface. Installation with a standard Pozi bit means that no special setting tools or pre-drilling is required.
For wood screws of between 4mm and 5mm



3. Results

HM type fixings were set by using the HM Z1 professional setting tool. The setting tool ensures an even form-lock of the fixing and a quick setting time

Lafarge Megadeco 15mm + HM 8x55 SS						
Test No	Fixing tested	Drill Ø	Axial spacing	Load	Type of Failure	Remarks
		mm	mm			
1	HM 8 x 55 SS	13	300	1.10kN	Board Failure	-
2	HM 8 x 55 SS	13	300	1.20kN	Board Failure	Fixing installed near board joint
3	HM 8 x 55 SS	13	300	1.15kN	Board Failure	-
4	HM 8 x 55 SS	13	300	1.20kN	Board Failure	-
5	HM 8 x 55 SS	13	300	1.30kN	Board Failure	-
6	HM 8 x 55 SS	13	300	1.00kN	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into Megadeco only				1.16kN		
7	HM 8 x 55 SS	13	300	1.40kN	Board Failure	Fixing installed into metal stud partition

Fixings performed well and will be highly suitable for heavy duty applications.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

Lafarge Megadeco 15mm + HM 6x52 S

Test No	Fixing tested	Drill Ø	Axial spacing	Load	Type of Failure	Remarks
		mm	mm			
1	HM 6 x 52 S	13	300	1.05kN	Board Failure	-
2	HM 6 x 52 S	13	300	0.75kN	Board Failure	Fixing installed near board joint
3	HM 6 x 52 S	13	300	1.15kN	Board Failure	-
4	HM 6 x 52 S	13	300	1.10kN	Board Failure	-
5	HM 6 x 52 S	13	300	1.20kN	Board Failure	-
6	HM 6 x 52 S	13	300	0.95kN	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into Megadeco only				1.03kN		
7	HM 6 x 52 S	13	300	1.50kN	Board Failure	Fixing installed into metal stud partition

As predicted the 6mm diameter fixing performed slightly lower than the 8mm and would obviously be suitable for medium duty applications.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

Lafarge Megadeco 15mm + HM 5x37 S

Test No	Fixing tested	Drill Ø	Axial spacing	Load	Type of Failure	Remarks
		mm	mm			
1	HM 5 x 37 S	12	300	0.6kN	Board Failure	-
2	HM 5 x 37 S	12	300	0.8kN	Board Failure	Fixing installed near board joint
3	HM 5 x 37 S	12	300	0.8kN	Board Failure	-
4	HM 5 x 37 S	12	300	0.8kN	Board Failure	-
5	HM 5 x 37 S	12	300	0.8kN	Board Failure	-
6	HM 5 x 37 S	12	300	0.8kN	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into Megadeco only				1.03kN		
7	HM 5 x 37 S	12	300	1.20kN	Board Failure	Fixing installed into metal stud partition

This fixing is suitable for medium to light duty applications.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

Lafarge Megadecco 15mm + HM 4x46 S

Test No	Fixing tested	Drill Ø mm	Axial spacing mm	Load	Type of Failure	Remarks
1	HM 4 x 46 S	8	300	0.50kN	Board Failure	-
2	HM 4 x 46 S	8	300	0.55kN	Board Failure	Fixing installed near board joint
3	HM 4 x 46 S	8	300	0.55kN	Board Failure	-
4	HM 4 x 46 S	8	300	0.50kN	Board Failure	-
5	HM 4 x 46 S	8	300	0.48kN	Board Failure	-
6	HM 4 x 46 S	8	300	0.58kN	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into Megadecco only				0.52kN		
7	HM 4 x 46 S	8	300	1.00kN	Board Failure	Fixing installed into metal stud partition

Fixings are suitable for lightweight applications.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

The PDM100 is a self drilling plasterboard fixing.

Lafarge Megadecco 15mm + PDM100						
Test No	Fixing tested	Drill Ø	Axial spacing	Load	Type of Failure	Remarks
		mm	mm			
1	PDM100	None	300	0.40	Board Failure	-
2	PDM100	None	300	0.55	Board Failure	Fixing installed near board joint
3	PDM100	None	300	0.40	Board Failure	-
4	PDM100	None	300	0.33	Board Failure	-
5	PDM100	None	300	0.28	Board Failure	-
6	PDM100	None	300	0.35	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into				0.38kN		

As the PDM100 is self-drilling the installation process is quicker, the PDM100 provides a light weight application fixing alternative for speed of installation, therefore cost saving.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

Lafarge Megadeco 15mm + KD 8						
Test No	Fixing tested	Drill Ø	Axial spacing	Load	Type of Failure	Remarks
		mm	mm			
1	KD 8	20	300	1.45	Board Failure	-
2	KD 8	20	300	1.25	Board Failure	Fixing installed near board joint
3	KD 8	20	300	1.40	Board Failure	-
4	KD 8	20	300	1.25	Board Failure	-
5	KD 8	20	300	1.25	Board Failure	-
6	KD 8	20	300	1.40	Board Failure	Fixing installed adjacent to metal stud partition
Average Ultimate load into Megadeco only				1.33kN		
7	KD 8	20	300	4.75	Board Failure	Fixing installed into metal stud partition

The ultimate load for the KD 8 is slightly higher than that of the HM 8x55. The KD 8 is suitable for heavy duty applications. The KD 8 was not affected by being installed next to the metal stud partition as the toggle section can be rotated to avoid such obstacles.

Tests 2 and 6 were purposely installed near a plasterboard joint or next to the metal partition to obtain pull out values in common eventualities.

4. Summary

Megadeco 15mm		
Fixing Tested	Average Ultimate load	Safe working load
KD 8	1.33kN	0.33kN
HM 8 x 55 SS	1.16kN	0.29kN
HM 6 x 52 S	1.03kN	0.25kN
HM 5 x 37 S	0.76kN	0.19kN
HM 4 x 46 S	0.52kN	0.13kN
PDM100	0.38kN	0.09kN

Using a global safety factor of 4

Megadeco 15mm + Metal stud partition		
Fixing Tested	Average Ultimate load	Safe working load
KD 8	4.75kN	1.18kN
HM 8 x 55 SS	1.40kN	0.35kN
HM 6 x 52 S	1.50kN	0.37kN
HM 5 x 37 S	1.20kN	0.30kN
HM 4 x 46 S	1.00kN	0.25kN

Using a global safety factor of 4

5. Conclusion

Four types of fixing were selected for their suitability and the test results collated. All the fixings were installed in accordance with the manufacture guidelines.

The test results for all of the fixings tested show a good variation in ultimate loads. This allows the Engineer/Architect/End-user to have a wide range of anchors to choose from, depending on function and load performance.

Failure of the fixings was determined by substrate failure.

Axial spacing's are given in the results and should be used as a guide only.

For further information regarding the test report please contact fischer technical department. Tel: 01941 827920.