



A GUIDE TO FOAR FUEL PROOF 7116 & FLOW PROOF 6690

Choosing the Correct Sealant and the Correct Joint & Crack Reservoir Dimensions

Choosing the Correct Sealant

US FAA Item P-605: Joint Sealants for Pavements only approves the following three types of sealants:

1. ASTM D 5893 – Cold Applied Single Component Chemically Curing Silicone Sealant for Concrete Pavements
2. ASTM D 6690 – Hot Applied Joint and Crack Sealants for Concrete and Asphalt Pavements
3. ASTM D 7116 – Hot Applied Jet Fuel Resistant Joint Sealants for Concrete Pavements

FOAR Fuel Proof 7116 complies with both ASTM D 7116 Type I and ASTM D 3569. Given the extreme heat found in Pakistan FOAR Fuel Proof 7116 is the ideal sealant where both sidewalls of a joint are concrete. It is also suitable as a crack filler for concrete pavements.

FOAR Flow Proof 6690 complies with ASTM D 6690 Types II & III and ASTM D 3406. FOAR developed this sealant for composite joints (one side is concrete and one side is asphalt) as well as a crack filler for asphalt pavements.

An asphalt compatible sealant complying with both ASTM D 6690 Type III (the most durable ASTM D 6690 type) and ASTM D 3406 was to ensure the maximum heat and flow resistance possible while remaining asphalt compatible.

FOAR Fuel Proof 7116 has a much higher heat and flow resistance compared to FOAR Flow Proof 6690. Given Pakistan's hot climate use of FOAR Flow Proof 6690 should be limited to composite joints and asphalt cracks.

Cold applied silicone sealants complying with ASTM D 5893 cost approximately ten times as much as hot applied sealants complying with ASTM D 7116 or ASTM D 6690.

Correct Joint Dimensions

Whether preparing a joint or a crack reservoir to be filled the proper joint width to sealant depth ratio lies between 1:2 to 1:1.

The table below provides a guideline to the correct dimensions for a durable concrete or composite joint filled with a hot applied sealant.

Joint Width	Joint Under-filling	Minimum Sealant Depth	W : D Ratio	Backer Rod Height	Total Joint Depth
10 mm	6 mm	20 mm	1 : 2	13 mm (1/2")	41 mm
13 mm	6 mm	20 mm	1 : 1.5	16 mm (5/8")	44 mm
19 mm	6 mm	20 mm	1 : 1	25 mm (1")	53 mm
20 mm	6 mm	20 mm	1 : 1	25 mm (1")	53 mm
25 mm	6 mm	25 mm	1 : 1	32 mm (1 1/4")	65 mm

Note: Total depth figure includes 2 mm of breathing room below backer rod to accommodate for double disc cutting peak

Backer rods being used in joints must comply with ASTM D 5249 Type I and be heat resistant up to 200 °C. The uncompressed diameter of a backer rod should be approx. 25% greater than the width of the joint.

Correct Crack Reservoir Dimensions

For 1/4" (6 mm) to 1/2" (13 mm) wide cracks that develop on a concrete or asphalt surface it is recommended to cut at least 3 mm away from each side of the crack edge.

The table below provides a guideline to the correct crack reservoir dimensions for an asphalt or concrete crack to be filled with a hot applied sealant. No backer rod is needed.

Crack Width	Reservoir Width After Cutting	Reservoir Under-filling	Reservoir Sealant Depth After Cutting	W : D Ratio	Total Reservoir Depth
6 mm	13 mm	3 mm	20 mm	1 : 1.5	23 mm
13 mm	19 mm	3 mm	20 mm	1 : 1	23 mm
13 mm	20 mm	3 mm	20 mm	1 : 1	23 mm

Note: Reservoir underfilling will accommodate for the puffing of an asphalt compatible sealant in extremely hot weather

As sealants have no strength of their own it is best to use a hot applied asphalt aggregate filled mastic for cracks greater than 13 mm.

FOAR Innovative Technologies (Pvt.) Ltd.