



Kinetics Controls & Innovation Ltd

UK Southern North Sea Platform Project, Product & Deployment Overview

Procedure: Fill void with Mac-Seal 02

REVISION HISTORY

Rev	date	Description	Author	Checked	Project
01	16-09-14	Issued for internal Review	MA	GW	MA
02	25-11-14	Issued for external Review	AR	AP	AR
03					

KCI Reference: AB1119MA

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FINAL PROCEDURE



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Mac-Seal - Viscosity 02 - Mixing and Deployment Review Sheet

The KCI Mac-Seal is a compound deployed in a fluid state against pressure (if required). The Mac-Seal is designed to flow around existing materials and annulus areas as a filler and will establish a pressure energised seal. The Mac-Seal product is to be deployed by KCI trained and registered personnel only.

The product is provided in two parts, the compound and the activator. Review the information labels attached to the sealant products.

Both products combined provide a package to meet a specified setting time. The activator measure is subject to curing time requirements and can not be adjusted. If further information is required contact the KCI office for advice.

Standard setting time is 6 to 8 hours subject to temperature

Deployment time of the mixed sealant components is 1 to 1-1/2 hours subject to temperature.

Mixing:

Use in well ventilated area. (View SDS)

KCI provide a large container to support mixing

Stir product in the container provided, stir gently.

Empty activator into same container and continue to stir for a minimum of 5 minutes.

Deployment: Subject to viscosity

Deployment Tool: A 3000psi Cylinder complete with interface fitting. A deployment manifold and feed lines. A hydraulic pump will drive the cylinders piston.

Pump the sealant to displace any grease within the feed line prior to connecting to the manifold assembly.

If the sealant is being deployed through an existing grease / injection fitting. Remove the manifold and inject a small amount of grease to flush the check valve only.

Cleaning the tools and accessories:

Return to KCI for redress and assessment unless otherwise advised.

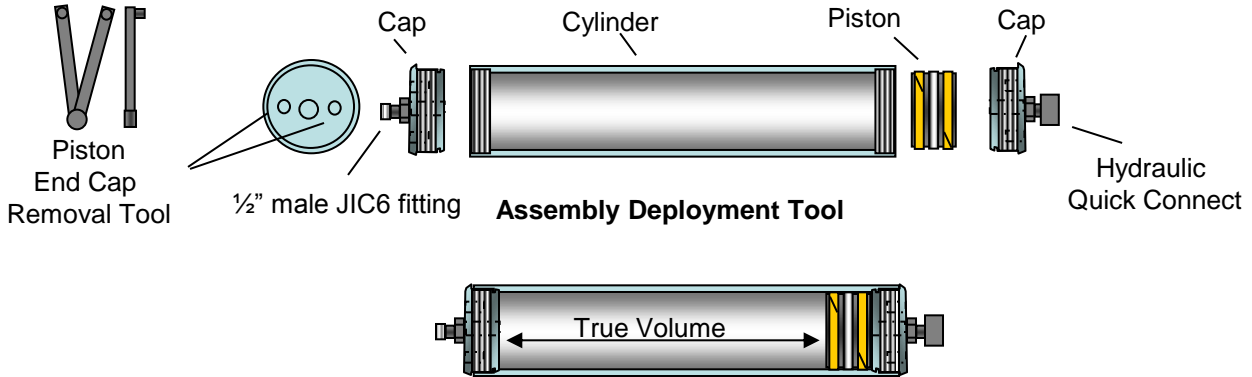


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KCI Mac-Seal and Deployment Tools

Cylinders are provided as the preferred method of deploying the sealant. These are designed as a simple process for preparation, handling, deployment and refurbishment.

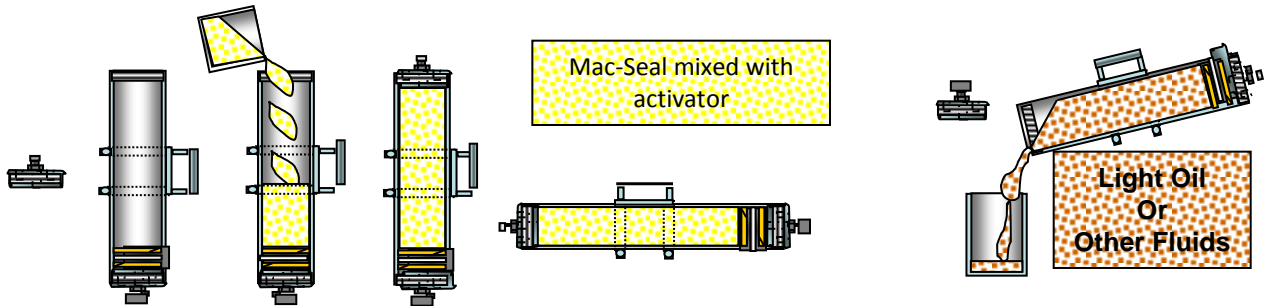
The cylinders have been designed to operate with seawater and range from 500mls, 1,2,and 3 litre deployment volumes. Working pressure is 3,000 psi.



Mixing Instructions

The Mac-Seal and MS-Sealant are supplied as a two part product containing a compound and a catalyst. The product has been provided with set volumes of 500mls , 1,2 and 3litre packs of compound (white) and activator.

Pour the set volume of activator into the compound tub and mix until the sealant is mixed thoroughly. Pour the mixed compound and activator into the cylinder and attach the feed line.



Note:

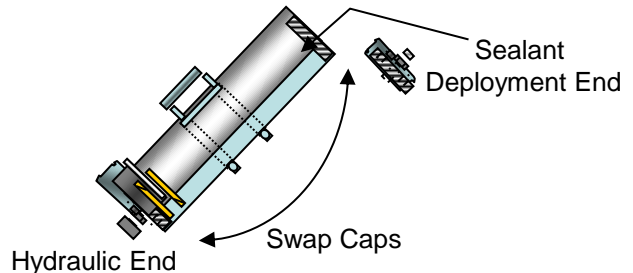
Prepare all cylinders to receive the sealant prior to mixing.

Sealant curing time:

6-8 hours, however this can be as long as 12-24 hours subject to the temperature.

Sealant deployment time:

1/1.5 hours after mixing.



In the event that more than one package is required the cylinder can be re-used by emptying the hydraulic fluid and swapping the caps.



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Pre job void fill

Serial	Statement	Action	Complete	Comment
1.1	Liase with WSS to raise PTW and conduct toolbox talk with all parties on work scope requirements.	KCI		
1.2	KCI personnel to ensure tooling and product is prepared and tested for operations on arrival. All anomalies to be recorded.	KCI		
1.3	Confirm with WSS to identify Well Anglia A7 Slot 4 and porting. Prior to the sealant operation and testing operations, confirm the status of casing hanger.	KCI / ITHAC A		
1.4	Refer to procedure drawings during rig up. (AB1119MA).	KCI / ITHAC A		

Evaluation of void

Step	Description	Resp	Initials
1.5	Vent / bleed down annulus A & B, sting test ports 1 and 2 (Port numbers might be different on wellhead)	ITHACA	
1.6	Prior to any work connect KCI deployment manifold and pressure test 3000psi. Connect KCI manifold to test port 1 and Inject 10 litres of light oil through test port 1 and look for returns through test port 2. If no communication is seen then swap the ports and inject oil through test port 2 and look for oil displacement at test port 1.	ITHACA/ KCI	
1.7	Close port 2 and continue to inject test fluid through port 1 to establish a PBU (customer to advise test pressure). Determine the well status and pressure within the wellhead.	ITHACA/ KCI	
1.8	Record leak rate to assess if a part fill is required.	ITHACA/ KCI	

Mac-Seal 02 deployment into the void

Part Fill Mac-Seal 02

Step	Description	Resp	Initials
2.0	Vent / bleed down annulus, void and sting test ports 1 and 2	ITHACA	
2.1	Sting and vent both ports 1 & 2.	ITHACA	
2.2	Inject 4 litres of Mac-Seal 02 through port1 and displace test fluid through port 2.	ITHACA/ KCI	
2.3	Close port 2 and inject up to 100ml of grease through port 1.	ITHACA/ KCI	
2.4	Inject 500mlsof test fluid through port 1,this will displace the Mac-Seal 02 down through the mandrel hanger.	ITHACA/ KCI	
2.5	Leave a sample of sealant on the wellhead to confirm condition prior to any testing.	KCI	

Full Fill Mac-Seal 02

Step	Description	Resp	Initials
2.0	Vent / Flatten both 'B' and 'C' Annuli's.	ITHACA	
2.1	Sting and vent both ports 1 & 2.	ITHACA/ KCI	
2.2	Connect KCI deployment manifold and pressure test to 3000psi. Inject 6 litres of Mac-Seal 02 through port1 and displace Mac-Seal 02 through port 2.	ITHACA/ KCI	
2.3	Close port 2 and continue to inject the remaining sealant in through port 1. A PBU maybe possible (customer to advise pressure test values). Observe gain in PBU.	ITHACA/ KCI	
2.4	Leave a sample of sealant on the wellhead to confirm condition prior to any testing. Keep the KCI manifold intact till the Mac-Seal 02 has been cured	KCI	