

Product Technical Data
and Certification

PASSPORT OF GOODS

Q-SEAL SYSTEM

(multiple seal)

Ruma Products BV. Hoogeveen Holland.

OBLIQUE
advancing sealing solutions

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Background Information

Note: Ruma Products supports the aim and objectives of the U.S. legislation on the supply of “conflict minerals”. Ruma Products assures that their products and processes are free from the specified metals.

1. A Q-Multiple Seal is a bonded-to-pipe swelling seal system with 2 mounted bright zincplated steel Centraliser / Running guides and locking section.
2. The Q-Multiple Seal is designed to be bonded onto “Oil Country Tubular Goods” at a desired position.
3. Bonding is achieved by the use of primer, bonding agent and vulcanizing of the elastomer onto “Oil Country Tubular Goods”.
4. The Integral Elastomer sections are intended to swell in Contact with a Motive Fluid to create multiple pressure barrier seals between the outside of the tubing it is bonded to and the Inside Diameter of the Containment section.
5. The Q-Multiple Seal by its nature is a one-time-use item that cannot be re-used.
6. The Q-Multiple Seal can be used in all markets without limitation
7. The Q-Multiple Seal does not contain or use “Conflict Minerals”
8. The Q-Multiple Seal is manufactured according to ISO 9001-2008 certification.
9. The Q-Multiple Seal is manufactured in ISO 14001 certified facilities
10. The Q-Multiple Seal is produced by Ruma Products BV, The Netherlands

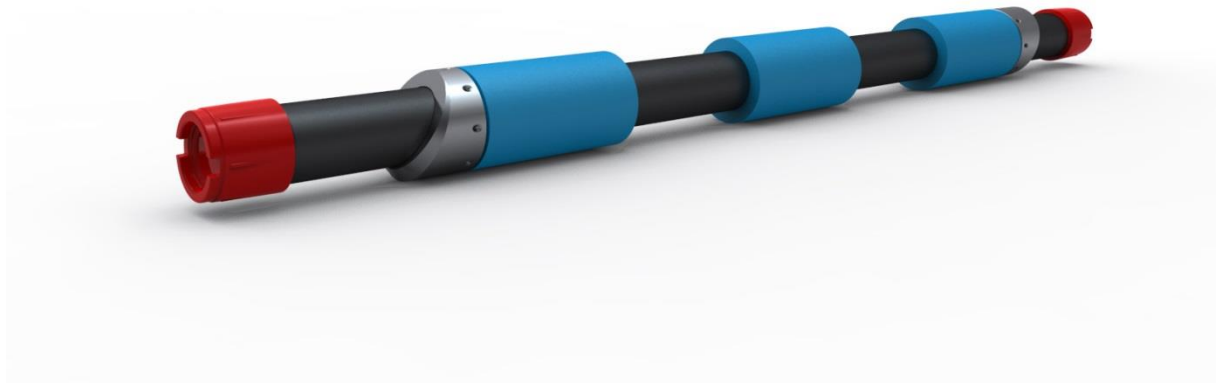
Composition

1. One Q-Multiple Seal Consists of:
 - Multiple Swelling Elastomeric Sealing Sections
 - 2 pieces bright zincplated steel running guides/centralizers
 - A series of Stainless Steel Locking Grub ScrewsThe individual pieces cannot be used separately from another and constitute a completed Whole.

Function and External Views

The Q-Multiple Seal is Used as a bonded-to-pipe Swelling Seal to be vulcanized onto OCTG to enable swelling Sealing barriers to be fitted to on site.

Q-Multiple Seal External View



Note for illustration the Seal sections are illustrated in three water swelling elements for clarity.

Technical Features

1. Q-Multiple Seal Size is
 - a. Number of seals XX pcs
 - b. Diameter XXX Inches
 - c. length XX Inches
 - d. OCTG Size XX Inches.

2. Operating Temperature range is XX to XXX degree Celsius

3. Q-Multiple Seal Components are manufactured from
 - a. Base pipe XXX
 - b. Connections XXX Box x Pin
 - c. Sealing elements (Oil) X-XX Swelling Elastomer
 - d. Sealing elements (Water) X-XX Swelling Elastomer

4. Swelling Elastomer is designed to operate in
 - a. Oil Swelling motive fluid Type OBM
 - b. Water Swelling motive fluid Type Water based fluid
 - c. Motive Fluid Salinity XX%
 - d. Operating Temperature XX to XXX Celsius
 - e. Time to First Contact XX - XXX Hours
 - f. Time to Seal XXX Hours
 - g. Maximum Operating pressure XXX Bar

Q-Multiple Seal Running Instructions.

1. Ensure that packaging has not been damaged and is in place. In the event that packaging has been damaged visually inspect the Swelling Seal Elastomer for both damage and localised swelling. If damage is present or swelling has occurred quarantine this item and use backup seal. Make good detailed colour photos of the damage and or swelling and contact Ruma Products with copies from these for advice on next step with this Item.
2. On the Rig Floor remove all wrapping material and install the Swelling Seal in the Tubing string, ensure that care is taken not to damage the swelling sealing surfaces. Please note the following.
 - Record the Swelling Q-Multiple Seal Serial Number and technical Information.
 - Check the Equipment to be run is the correct Item as specified in the Company Completion Program.
 - The Q-Multiple Seal is fitted with running guides in front of and behind the both outside Seal Sections. These are factory fitted with a 5-10 mm gap between the outside seals and the running guides. Ensure that this is correct and that this has not been altered.
 - In extreme Cold Conditions Elastomer can be extremely brittle and will shatter if mechanically shocked. Ensure the Q-Multiple Seal has a temperature higher than -10 Celsius to ensure this cannot occur.
 - Ensure that the anticipated completion time to get Q-Multiple Seal to Depth corresponds with the delivered swelling versus time curve. Note: In worse case conditions the curve should allow for time to get to depth as well as time to pull back to surface.

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- Ensure care is taken when running through the BOP and proceed to run into the well in a similar manner to all normal completion equipment. Be aware that time should NOT be allowed to slip during the running procedure. Swelling is CONTINUOUS once in contact with well fluids.
3. Important Information: Water swelling elastomers and their speed and degree of swell is Influenced by the following factors:
- Fluid temperature. The Higher the temperature the more rapid is the swell.
 - Fluid Salinity: The sweeter the Fluid The more rapid is the swell.

In the event of delays and difficulties with running Long liners the following needs to be considered. To delay water swell Hold the Completion Brine as cold as possible and as saline as conditions allow. In the event that these conditioning steps are not possible consider ADDING GLYCOL or SIMILAR to the completion Brine. GLYCOL has the effect of altering the Diffusion Gradient of the Completion Brine, reducing and or stopping the rate of swell. This Completion Mixture would have to be circulated out of the well once the problems requiring its use have been eliminated.

Maintenance

No maintenance is required Item is not to be exposed to rain water or other water sources.

Transport and Storage.

- Store in a dry dark warehouse in original transport packaging.
- Item can be transported by plane, ship, rail or road and requires no specific special or specific handling or safety instructions.

Manufacture Certification



CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

**Ruma Products B.V.
Zeppelinstraat 5
7903 BR Hoogeveen
The Netherlands**

has been approved by Lloyd's Register Quality Assurance
to the following Quality Management System Standard:

ISO 9001 : 2008

The Quality Management System is applicable to:

**According to specifications the design and
development, engineering, testing, manufacturing
and delivery of swelling sealing products.**

Approval Certificate No: RQA666229	Original Approval	:	3 December 2012
	Current Certificate	:	3 December 2012
	Certificate Expiry	:	2 December 2015


Issued by: Lloyd's Register Nederland B.V.



This document is subject to the provision on the reverse
K.P. van der Mandelelaan 41a, 3062 MB Rotterdam, The Netherlands - KvK nr. 24247948
This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.



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CERTIFICATE OF APPROVAL

This is to certify that the Environmental Management System of:

Ruma Products B.V.
Zeppelinstraat 5
7903 BR Hoogeveen
The Netherlands

has been approved by Lloyd's Register Quality Assurance
to the following Environmental Management System Standard:

ISO 14001 : 2004

The Environmental Management System is applicable to:

**According to specifications the design and
development, engineering, testing, manufacturing
and delivery of swelling sealing products.**

Approval Certificate No: RQA667117	Original Approval	:	31 January 2014
	Current Certificate	:	31 January 2014
	Certificate Expiry	:	30 January 2017

Issued by: Lloyd's Register Nederland B.V.



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RP-PP-Q-Seal (Multiple Seal)

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Manufacture Stamp and Signature

