

**James Walker**

# Tank Container Sealing Guide

- *Full range of well-proven seals & gaskets*
- *Custom developed for tank containers*
- *Worldwide supply with full technical support*
- *Plus reconditioning service for valves*



High Performance Sealing Technology



# Tank container sealing guide

## Introduction

**James Walker and the tank container division of Stolt-Nielsen have co-operated in the design and development of a standard range of seals and gaskets for use on the vast majority of tank containers.**

**These products are now available for use by all tank container operators and manufacturers. We offer:**

- Highly proven range of sealing products for all tank containers.
- *Best value* with guaranteed quality.
- Worldwide supply, with distribution facilities in the Netherlands, Singapore, South Africa and Houston, Texas.
- Full technical support.
- Valve reconditioning services in the Netherlands and Singapore.

We claim unrivalled experience in high performance sealing technology. Back in the 1880s, James Walker was the first company to apply engineering science to the design of high-pressure steam packings for the marine industry.

By the 1940s we were developing and supplying sealing products of all types to the chemical processing, storage and transportation sectors.

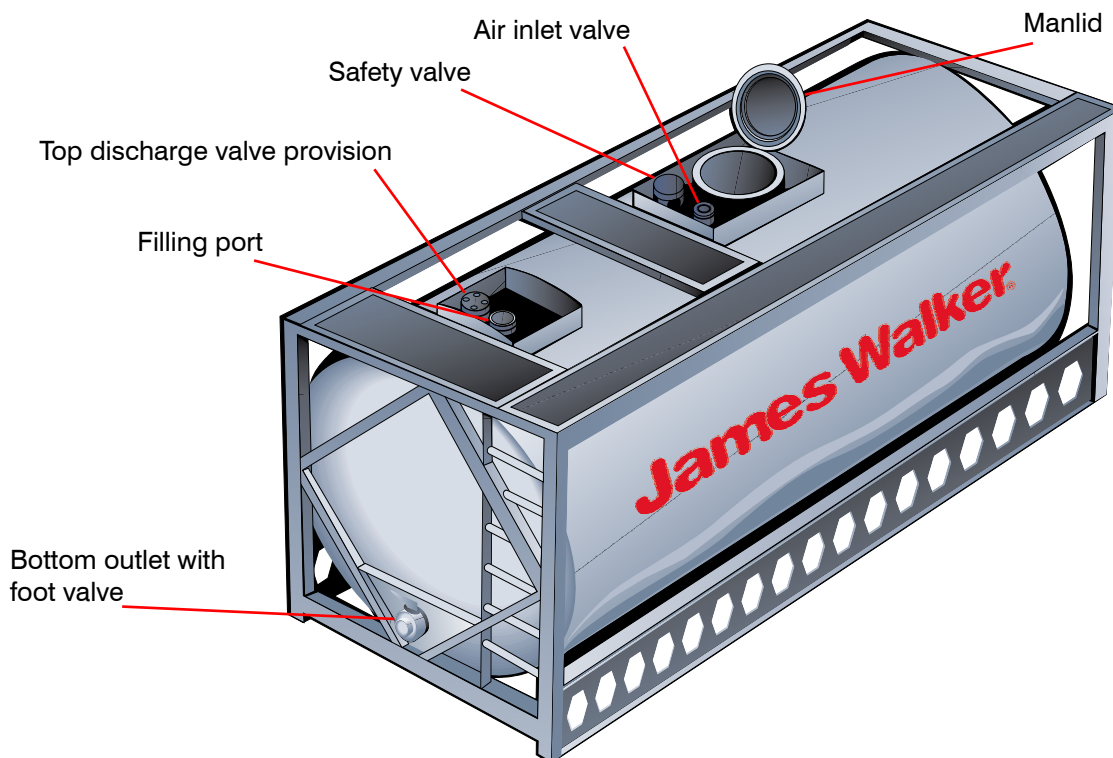
As the tank container market expanded to cater for an ever widening range of chemicals, petroleum products and foodstuffs, so James Walker developed new products to seal the lids and fittings of these tanks.

Our research and development work continues — with focus on improved sealing integrity, *best value* products and cost reductions for our customers.

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### Our special range will seal these vital components



# Manlid seals for tank containers

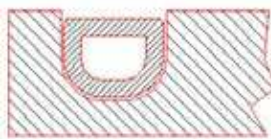
## Halo manlid seal



### Description

A specially developed and patented manlid seal that comprises a D-section endless ring of PTFE. Halo's unique profile enables it to provide very high integrity sealing on most common designs of recess manlid hatches. It will efficiently replace any known manlid seal.

Fort Vale lid



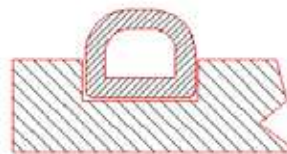
### Prime features

- Very competitively priced.
- Suitable for use with chemicals and foodstuffs.
- Far greater chemical resistance than moulded seals of nitrile (NBR) rubber or fluoroelastomer (FKM).
- Higher pressure rating than braided PTFE lid packings.
- Can be used for several cargo loads before replacement.

### Chemical properties

Halo's construction of 100% virgin PTFE makes it chemically inert to media in the range pH 0-14 including all bulk liquid cargoes in all IMO classes. It is non-absorbent, non-tainting, and hygienic for use with foodstuffs and edible oils.

Perolo lid



### Service capabilities

Tank working pressure  
 PV valve setting: 4.4bar  
 Tank test pressure: 6.0bar  
 Maximum temperature: +150°C  
 Minimum temperature: -50°C

### How supplied

To fit 500mm and 300mm hatches. Full fitting instructions are supplied.

### JW tank container seal order codes

For 300mm hatches: **Halo 295320**  
 For 500mm hatches: **Halo 490518**



## Tankatite® 880 & 880 Super braided manlid seals



### Description

Clean length form braided packings for lids and fittings on static and mobile tank containers.

**Tankatite® 880** is manufactured from an inert reinforced polypropylene yarn, impregnated with PTFE and an inert resin to provide a non-stick surface.

**Tankatite® 880 Super** is designed for use on tanks that handle aggressive cargoes under an inert gas blanket. It is similar in construction to Tankatite 880, but contains a resilient core of elastomer for improved sealing performance.

### Prime features

- Excellent value for money.
- Equivalent performance to moulded rubber seals.
- Easy to cut and fit in small lid recesses.
- Excellent sealing capability on repeated opening/closing cycles.
- Controls emission levels from tanks.
- Protects tank contents from external contamination.
- Withstands arduous cleaning systems.
- Part of the comprehensive range of Tankatite tank lid sealing products.

### Chemical properties

Inert to media in the range pH 0-14 (except HF and certain fluorine containing compounds) and totally compatible with a full range of cargoes including chemicals, petroleum products and foodstuffs.

### Service capabilities

Tank maximum pressure: 2bar  
 Maximum temperature: +120°C  
 Minimum temperature: -50°C

### How supplied

As coil form packing, cut lengths, or endless rings, in sections to fit popular lid recess dimensions. Full fitting instructions are supplied. Non standard sizes made to order.

### Tankatite 880 — JW tank container seal order codes

**Size** 14mm x 14mm section x 1625mm cut length: **STZS 14141625**

**Size** 14mm x 14mm section, supplied by the metre, in coiled lengths up to 50m maximum: **ZS 101414DL**

**Size** 10mm x 15mm section x 1625mm cut length: **STZS 10151625**

**Size** 10mm x 15mm section, supplied by the metre, in coiled lengths up to 50m maximum: **ZS 101015D**

**Tankatite 880 Super** — contact your local James Walker company or distributor for full supply details.



# Manlid seals for tank containers

## Fluoroelastomer (FKM) manlid seal



### Description

A high-integrity seal, precision moulded in James Walker's FR10/90 high quality grade of dipolymer-based fluoroelastomer (FKM) with low compression set.

### Prime features

- Low compression set for excellent sealing after repeated opening/closing cycles.
- High integrity sealing at elevated temperatures and under severe chemical conditions.

### Chemical properties

FKM materials operate efficiently under severe chemical conditions where many other seal materials cannot survive. Excellent resistance to petroleum fuels and mineral based oils.

### Service capabilities

Tank maximum pressure: 6bar  
Maximum temperature: +200°C  
Minimum temperature: -18°C

### How supplied

Precision moulded endless seal for 500mm hatches. Seal size 490mm ID x 520mm OD x 10mm thick, with a rectangular cross-section. Other sizes manufactured to order.

### JW tank container seal order code

For 500mm hatches: **RQ 01000490**



## PTFE/NBR manlid seal



### Description

This manlid seal combines the resilience and compression set resistance of nitrile NBR rubber with the outstanding chemical resistance of PTFE.

The seal's rectangular elastomeric core is enveloped on three sides (ie, top and bottom sealing faces and the inside diameter) with virgin PTFE.

### Prime features

- Excellent chemical resistance.
- Withstands repeated opening/closing cycles without loss of sealing integrity.

### Chemical properties

The PTFE envelope makes the sealing faces and inside diameter chemically inert to media in the range pH 0-14 including all bulk liquid cargoes in all IMO classes.

The virgin PTFE is non-absorbent, non-tainting, and hygienic for use with foodstuffs and edible oils.



### Service capabilities

Tank maximum pressure: 4bar  
Maximum temperature: +110°C  
Minimum temperature: -25°C

### How supplied

Four standard sizes

**Type 500**: for 500mm hatches, with seal section of 14mm x 14mm.

**Type 500**: for 500mm hatches, with seal section of 10mm x 14mm.

**Type 475**: for 475mm hatches, with seal section of 10mm x 10mm.

**Type 300**: for 300mm hatches, with seal section of 14mm x 14mm.

### JW tank container seal order codes

**Type 500** (14mm x 14mm): **TC 0000500**

**Type 500** (10mm x 14mm): **TC 1014500**

**Type 475** (10mm x 10mm): **TC 0000475**

**Type 300** (14mm x 14mm): **TC 0000300**

# PTFE envelope gaskets for valves & tanks

## General description

Our PTFE envelope gaskets for tank container applications combine the chemical inertness and hygienic qualities of 100% virgin PTFE with the mechanical properties of the compressed fibre sheet. They comprise a filler of resilient 'blue grade' compressed non-asbestos fibre encased in a PTFE envelope of 0.5mm minimum thickness.

## Applications

These gaskets are designed for flanged joints handling aggressive fluid media that would swiftly destroy the integrity of other materials, and for duties with foodstuffs where cleanliness and non-contamination are essential.

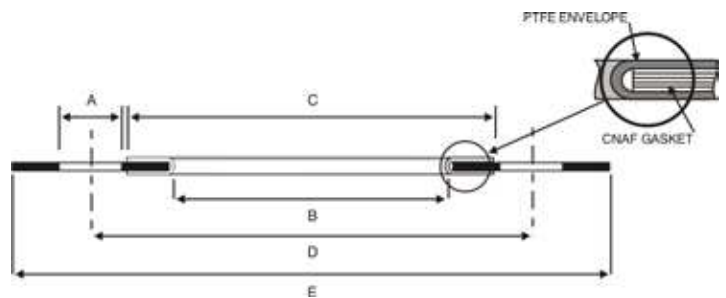
## PTFE envelope design/manufacture

Our PTFE envelopes are machined from the highest quality PTFE. They have a U-round inner diameter (see diagram) for low-turbulence flow through the jointed flange.

The envelope covers the complete raised face of the flanges to ensure that the fluid medium does not contact the compressed fibre filler.

## Service capabilities

Tank working pressure: 4.4bar  
 Easily meets tank test pressure: 6.0bar  
 Maximum temperature: 250°C



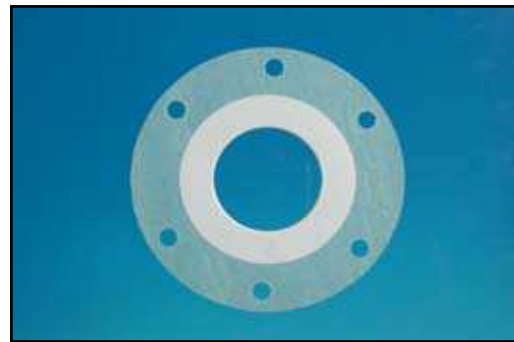
PTFE envelope gasket construction

## Blind flange gasket



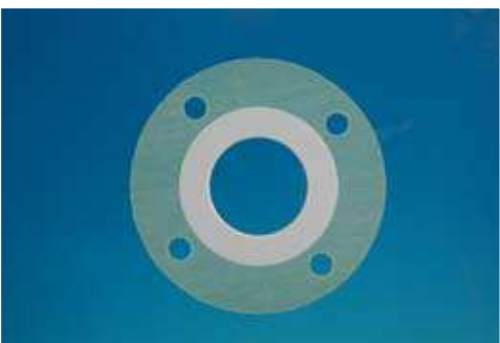
JW tank container seal order code: **STFL RB 008289**

## Footvalve/ball valve gasket



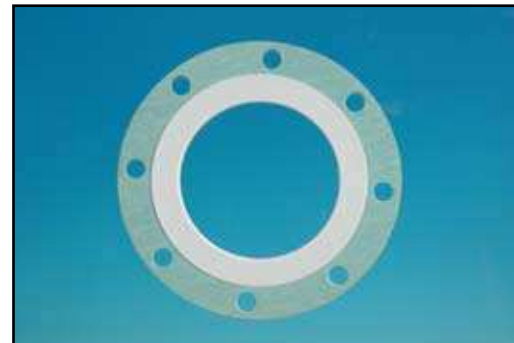
JW tank container seal order code: **STFL RB 008286**

## Footvalve/tank gasket — 4 bolt holes



JW tank container seal order code: **STFL RB 008292**

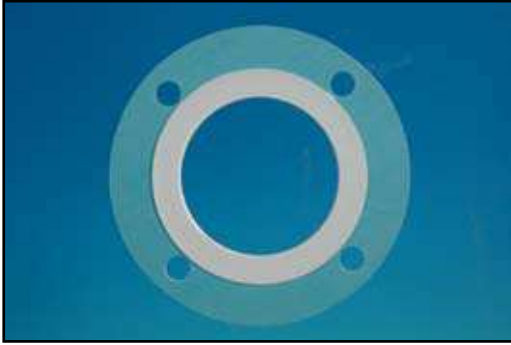
## Footvalve/tank gasket — 8 bolt holes



JW tank container seal order code: **STFL RB 008291**

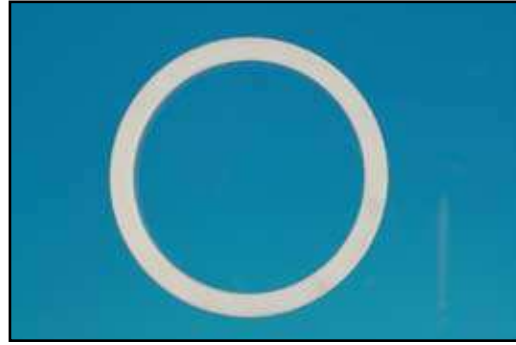
## PTFE envelope gaskets for valves & tanks

**Butterfly gasket — 4 bolt holes**



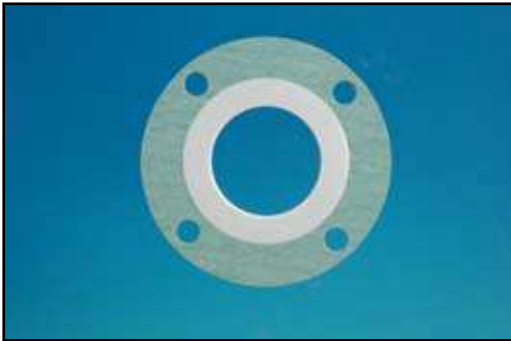
JW tank container seal order code: **STFL RB008287**

**PV valve mounting gasket**



JW tank container seal order code: **STFL 00008285**

**4-bolt envelope gasket**



JW tank container seal order code: **STFL RB 008288**

**PV valve envelope gasket**



JW tank container seal order code  
Size 50mm ID x 80mm OD x 3 mm thick: **STFL 06000051**

**Multi-fit envelope gasket  
4 slotted bolt holes**



JW tank container seal order code: **STFL 06000093**

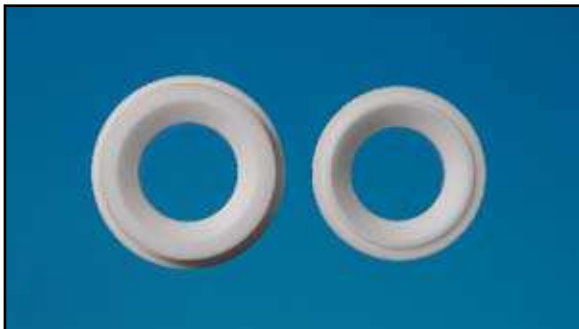
**Footvalve/ball valve gasket application**  
(see page 5)



## PTFE profile rings for valves

All these profile rings are made from the highest quality PTFE compounds supplied by world leading manufacturers. They are precision manufactured components designed specifically to give long life with high integrity sealing.

### Rear & front seals for 1.5-inch Fort Vale ball valve



JW tank container seal order codes  
Rear seal: **FL 010019**. Front seal: **FL 010020**

### Rear & front seals for 1.5-inch Perolo ball valve



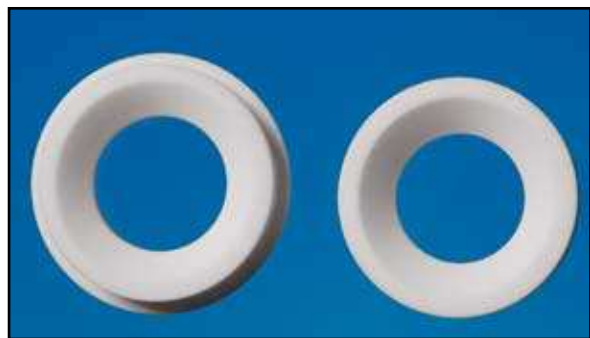
JW tank container seal order codes  
Rear seal: **TC 000057**. Front seal: **TC 000056**

### Seat set for 1.5-inch Meca airline valve



JW tank container seal order code (set of two seats):  
**FL 031920**

### Seat set for 1.5-inch Gestra airline valve



JW tank container seal order codes (two separate seats):  
**FL 020019 + FL 020020**

### 3-inch main seal for butterfly valves

Fits and seals both Fort Vale and Perolo applications



JW tank container seal order code: **TC 000023**

### 2-inch main seal for Fort Vale airline butterfly valve



JW tank container seal order code: **TC 000015**



# FEP-encapsulated 'O' rings & seals for PV valves

## FEP-encapsulated 'O' rings

Our FEP-encapsulated 'O' rings have a resilient core of silicone (VMQ) elastomer completely covered with a bleedline-free sheath of FEP fluoropolymer.

They are fully interchangeable with standard elastomeric 'O' rings and solid PTFE 'O' rings.

Their many advantages include:

- Excellent chemical resistance to a wide range of fluid media.
- High level of hygiene for use with foodstuffs and edible oils.
- Far better elasticity and sealability than solid PTFE rings.
- Operational temperature range of -60°C to +200°C.

Other 'O' ring material available on request.

## Seals for PV valves

### PV valve pressure side seal

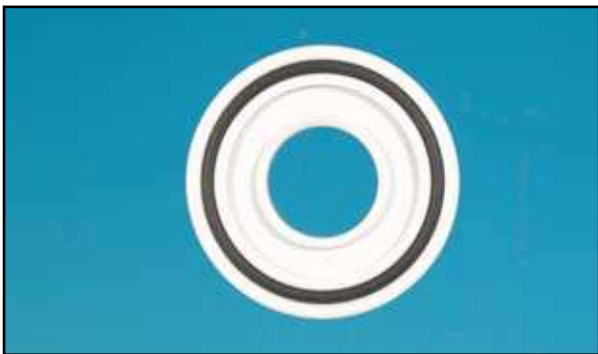


JW tank container seal order code

**Size 66.8mm ID x 5.7mm diameter section: OB 007606\*\***

### Seal set for PV valve

PTFE profile ring + fluoroelastomer (FKM) 'O' ring



JW tank container seal order code (set of two items)

**Size PTFE ring 36.5mm ID x 89mm OD x 6.5mm thick + FKM 'O' ring 70mm ID x 4.5mm diameter section: TC 0000102**

### Footvalve seal

FEP-encapsulated 'O' ring



JW tank container seal order codes

**Size 79.12mm ID x 5.33mm diameter section: OB 007639\*\***

**Size 79.12mm ID x 5.70mm diameter section: OB 3000 79105Q**

**Size 81.00mm ID x 5.33mm diameter section: OB 3000 810053**

**Size 81.92mm ID x 5.33mm diameter section: OB 3000 819053**

### PV valve vacuum poppet seal

FEP-encapsulated 'O' ring



JW tank container seal order code

**Size 31.34mm ID x 3.53mm diameter section: OB 007179\***

### PV valve application





## Other special seals for tank containers

### Dust cap seals



Manufactured in either virgin PTFE; SWR sweet white rubber (food-quality white nitrile NBR); or fluoroelastomer (FKM).

Supplied in three standard sizes:

**1-inch** dust cap seal — size 22mm ID x 32mm OD x 2mm thick.

**2-inch** dust cap seal — size 42mm ID x 60mm OD x 2mm thick.

**3-inch** dust cap seal — size 72mm ID x 90mm OD x 2mm thick.

#### JW tank container seal order codes

**1-inch PTFE** dust cap seal: **STFL 0020 0024**

**1-inch NBR (SWR)** dust cap seal: **STNI 1020 0022**

**1-inch FKM** dust cap seal: **STVI 0020 0022**

**2-inch PTFE** dust cap seal: **STFL 0020 0228**

**2-inch NBR (SWR)** dust cap seal: **STNI 1020 0042**

**2-inch FKM** dust cap seal: **STVI 0020 0042**

**3-inch PTFE** dust cap seal: **STFL 0020 0231**

**3-inch NBR (SWR)** dust cap seal: **STNI 1020 0072**

**3-inch FKM** dust cap seal: **STVI 0020 0072**

### Solid PTFE gasket — 4 slotted bolt holes

For valves and tanks



JW tank container seal order code: **STFL 00200079**

### Double envelope gasket for footvalves



Gasket of sheet neoprene (chloroprene, CR) rubber covered totally by two overlapping envelopes of virgin PTFE — one envelope covers from gasket ID outwards, the other from gasket OD inwards.

JW tank container seal order code for PTFE/neoprene gasket  
**Size** 70mm ID x 94.5mm OD x 5mm thickness: **STFL 00008480**

Other material combinations can be supplied to order, such as Gore-Tex® expanded-PTFE envelopes over Supagraf® expanded graphite filler.

### Standard & customised gaskets



We have vast stocks of cut gaskets for flanges to all national and international standards. Non-standard and custom gaskets can be cut accurately and economically within minutes.

For this we use highly accurate abrasive water-jet cutters that work directly from customers' CAD files sent via email — or digitised profiles from drawings, samples or templates. No tooling is needed!

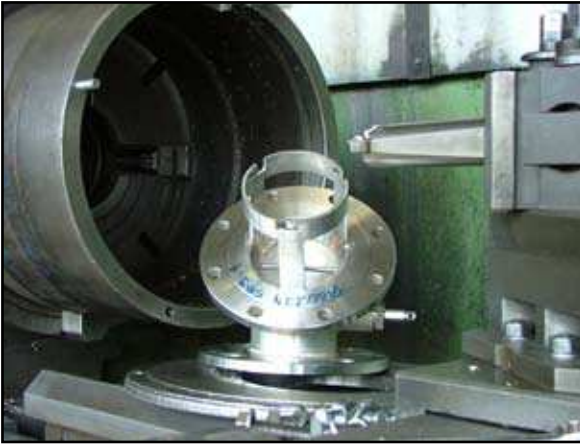
Our stocked materials for cut gaskets include

- Non-asbestos sheet jointings: Chieftain®, Centurion®, Sentinel® and Inca.
- Expanded graphite: Supagraf® Plain Jointing, Supagraf® Tanged Jointing T10, Supagraf® Laminated Jointings S10 & N7.
- Stabilised PTFE sheet.
- PTFE sheet: Fluolion® virgin PTFE and many filled materials, plus wide range of Gore-Tex® materials.
- Cork-elastomer jointings: 10 grades of Nebar®.
- Elastomer sheet: large ranges of specification and commercial grade materials.

## Valve conditioning services

We provide a full service for the reconditioning of valves for tank containers. The work is carried out by skilled craftsmen at our dedicated workshops in either the Netherlands or Singapore.

### Footvalve reconditioning, welding & machining



Each reconditioned valve is tested and, where required, certified before it is reinstalled.

### Ball valve reconditioning



### Butterfly valve reconditioning



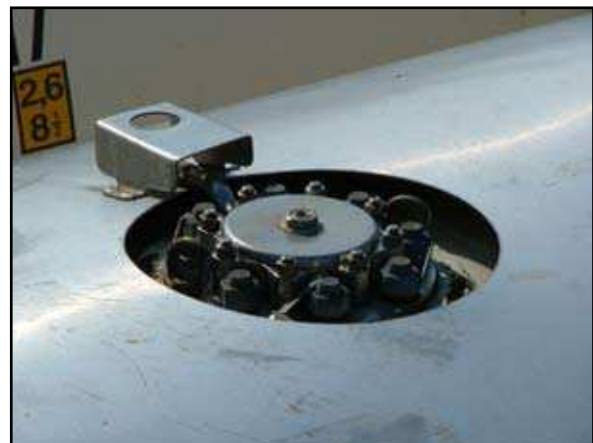
### PV valve reconditioning



### Gas valve reconditioning



### Gas safety valve reconditioning





## Tank container sealing guide



### Trademark acknowledgements

James Walker acknowledges the following trademark as mentioned in this document. All other names bearing the ® symbol are registered trademarks of James Walker.

Gore-Tex® WL Gore & Associates (UK) Ltd

### General information

Health warning: If PTFE or fluoroelastomer (eg, FKM, FFKM, FEPM) products are heated to elevated temperatures, fumes will be produced which may give unpleasant effects, if inhaled. Whilst some fumes are emitted below 250°C from fluoroelastomers or below 300°C from PTFE, the effect at these temperatures is negligible. Care should be taken to avoid contaminating tobacco with particles of PTFE or fluoroelastomer, or with PTFE dispersion, which may remain on hands or clothing. Material Safety Data Sheets (MSDS) are available on request.

Information in this publication and otherwise supplied to users is based on our general experience and is given in good faith, but because of factors which are outside our knowledge and control and affect the use of products, no warranty is given or is to be implied with respect to such information. Specifications are subject to change without notice. Statements of operating limits quoted in this publication are not an indication that these values can be applied simultaneously.

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