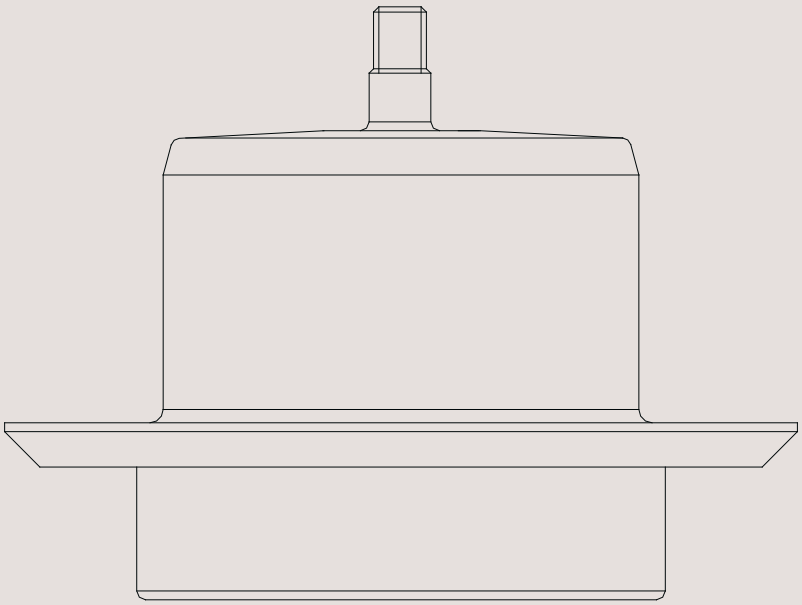
Instruction Manual

Weld Plate for Magnetic Mixer MM UltraPure



ESE01701-EN4 2015-05

Original manual

Table of contents

The information herein is correct at the time of issue but may be subject to change without prior notice

1. Installation 4
1.1. General information and safety 4
1.2. Weld plate positioning 4
1.3. Weld plate installation 5

2. Pressure Rating 9

1 Installation

Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.

1.1 General information and safety

Incorrect installation, mounting and use, removal of security elements, lack of inspections and maintenance and improper connections may cause severe personal injury or property damage. Therefore it is important that the mixer is being transported, handled, installed, started, controlled, serviced and repaired correctly exclusively by qualified personnel.

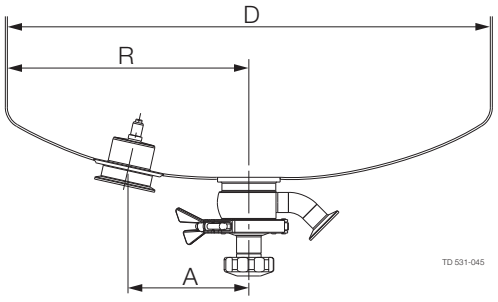
The weld plate must be regarded as an integrated part of the vessel which can also be a pressure-device. In such case the weld plate must be approved and comply with the valid pressure vessel code.

The most common faults occuring when welding in weld plates are deformations introduced during the welding process – therefore it is important to follow the guidelines and recommendations described below on how to weld the weld plate in the vessel.

A weld plate may be welded into the lower dished end, before or after the dished end is welded to the jacket. For purely practical reasons, it is usually easier to weld the weld plate to the dished end before the jacket and the dished end are welded together. All other welding on the lower dished end must however be completed before cutting the hole for the weld plate.

1.2 Weld plate positioning

Step 1
As a guideline for locating and positioning of the weld plate the distance A is introduced.
For small tanks about 10 liters A = R/2 and by increased tank sizes (Ø600 mm and up) the distance A moves closer to A = R/4



Step 2
When the optimal distance A is determined it must be ensured that minimum distances between two weldings and distances from outer edges are according to the relevant pressure regulation for the tank.

Step 3
Mark the hole on the vessel bottom.

Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.

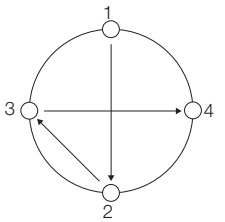
1.3 Weld plate installation

Step 1
Cut a hole with weld plate diameter +1 mm (maximum).

Step 2
Chamfer the outwards edges by 45 deg, leaving a 1 – 2 mm recess towards the inside of the vessel.

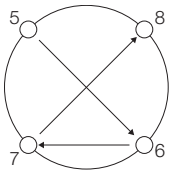
Step 3
It is recommended to tack weld no. 1 to no. 8, using a correct filler.
As shown in Step 4 and 5

Step 4
Position the weld plate and tack weld no. 1 and no. 2 – ensure the plate is in correct level before continuing to tack weld no. 3 and no. 4 as shown in Pic. 1.



Pic. 1 TD 531-052

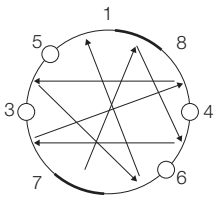
Step 5
Continue and tack weld no. 5 to no. 8 as shown in Pic. 2.



Pic. 2 TD 531-053

Step 6
Cool down the weld plate and vessel with compressed air.

Step 7
Weld between points 2-7 from outside – cool down with compressed air. Move diagonally to point 1-8 – weld and cool down with compressed air, continue welding / cooling process as shown in Pic. 3



Pic. 3 TD 531-054

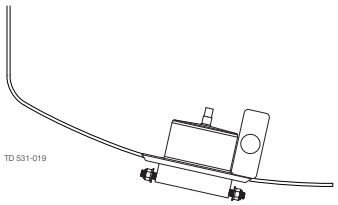
Step 8
Weld between points 2-7 from inside – cool down with compressed air. Move diagonally to point 1-8 – weld and cool down with compressed air, continue welding / cooling process as shown in Pic. 3

Step 9
Once the welding is complete, allow the weld plate to cool completely.

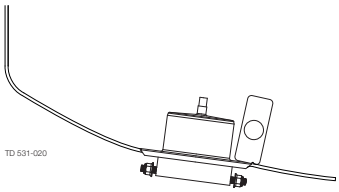
Step 10
If grinding and polishing is required, allow cooling time between grinding and polishing steps. NOTE: It is critical that the weld plate does not reach high temperatures - take your time.
Do not quench with water. Weld plate may warp, due to shrinking.

1 Installation

Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.



Good



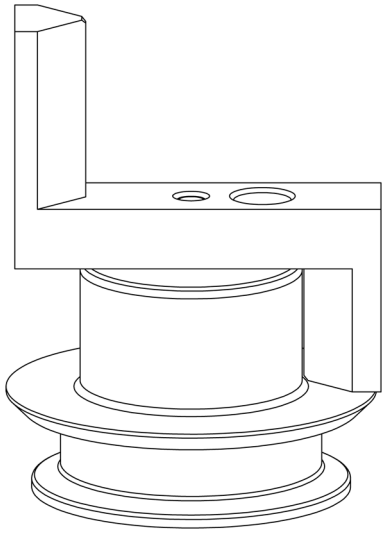
Warped
To much heat during welding

Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.

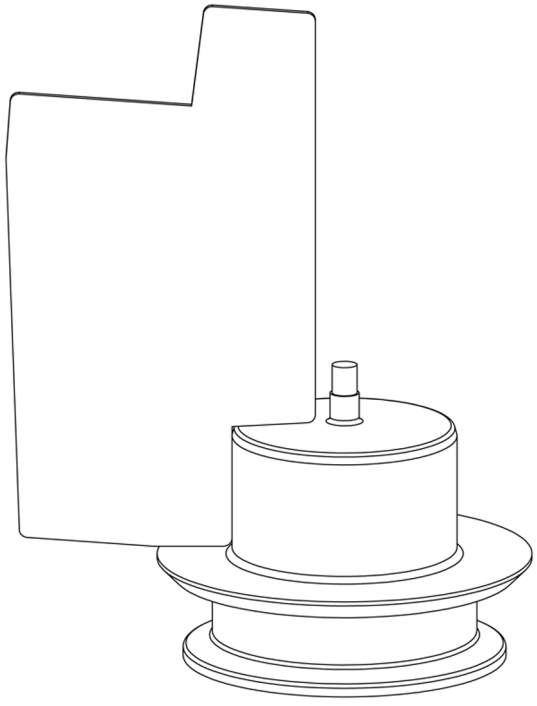
Test of correct fitted weld plates with use of test tool kit.

PM338-WP

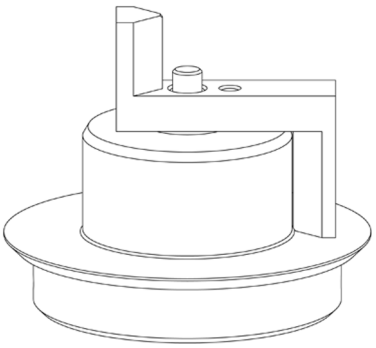
- Weld gauge is placed over the weld plate
- Full rotation of weld gauge
- Weld gauge shall not touch the cylindrical surface of weld plate

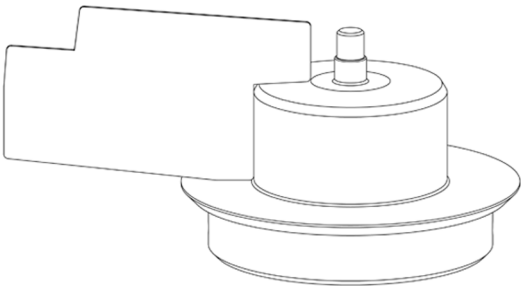


- Weld gauge plate is placed as described in picture
- Weld gauge plate is moved in all positions to create a full rotation
- Weld gauge plate shall not touch te bottom tank



PM434-WP-2





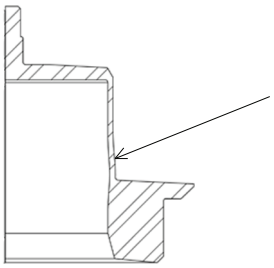
For ordering of test tool kit please contact customer support (Item number: 9614302901).

1 Installation

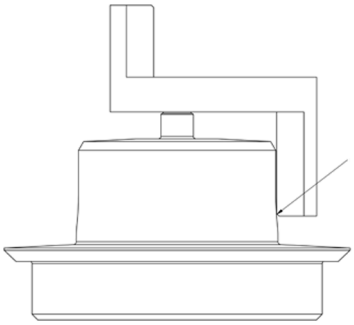
Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.

Incorrect fitted weld plates.

If the weld plate was exposed to excessive heat during the welding and or polishing it could be seen by the diameter of the weld plate swelling as in the illustrations below. When inspecting with tools the gauge would come in contact with this swelled diameter. If this is noticed the weld plate will have to be replaced as it will affect the mixer performance and possible damage to the mixer components.



Warped



Contact

Pay special attention to the instructions below so that severe personal injury and/or damage to the weld plate and mixer is avoided.
Always read this manual thoroughly.

Specification of pressure flanges acc. to PED 97/23/EC

Specification for flanges PM338-WP-2 & PM434-WP-2

Design Data

Corrosion allowance:	0 mm
Material:	1.4404 EN 10028-7 and EN 13445 or 1.4404 EN 10222-5
Design temperature:	150°C
Minimum design metal temperature:	0°C
Max. allowable working pressure :	FV+ 0.7 MPa (7 bar)

Design pressure:	internal	External
	0.7 Mpa (7 bar)	0.1 MPa (1bar)

The design is made acc. to EN 13445-3 and fulfils the requirements of PED 97/23/EC.

The flanges do not have a component certificate, but material certificate and pressure calculations can be supplied

Specification of pressure weld plates acc. to ASME VIII div. 1

Specification for weld plates PM338-WP-2 & PM434-WP-2

Design Data

Service:	Non toxic
Corrosion allowance:	0"
Material:	Type 316L
Design temperature:	150°C
Minimum design metal temperature:	0°C
Max. allowable working pressure :	FV+ 0,7 MPa (7 bar / 101,5 psi)

Design pressure:	internal	External
	0,7 Mpa (7 bar/101,5 psi)	0,1 MPa (1bar/14,5 psi)

Design is made acc. to ASME VIII div. 1 and fulfils the requirements of the ASME standards.

Weld plates do not come with a U2 certificate, but material certificate and pressure calculations can be supplied.

How to contact Alfa Laval
Contact details for all countries are
continually updated on our website.
Please visit www.alfalaval.com to access the information directly.

© Alfa Laval Corporate AB
This document and its contents is owned by Alfa Laval Corporate AB and protected by laws governing intellectual property and thereto related rights. It is the responsibility of the user of this document to comply with all applicable intellectual property laws. Without limiting any rights related to this document, no part of this document may be copied, reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the expressed permission of Alfa Laval Corporate AB. Alfa Laval Corporate AB will enforce its rights related to this document to the fullest extent of the law, including the seeking of criminal prosecution.