


Application Development Center EMS-GRIVORY Answer to Technical Inquiry No.: 2014-0369		
Author:	Philipp Schlattinger	Date: 09.01.2015
To:	Jeff Lu	
Company:	EUTOP Polymers Industries Ltd (China)	
Country:	China (CN)	
Material:	Grivory GV-5 FWA blk	
Application:	ultrasonic water meter	

Problem Description / Target of the Customer:

1. Enduser Anhui Baolong need GV water meter test data for reference. They request to provide test data of GV about water meter.
2. We already discuss with ECCH's Volker about test data of water meter of GV. And Mr. Volker Eichhorn agree to provide something.

Request test data after discussion :

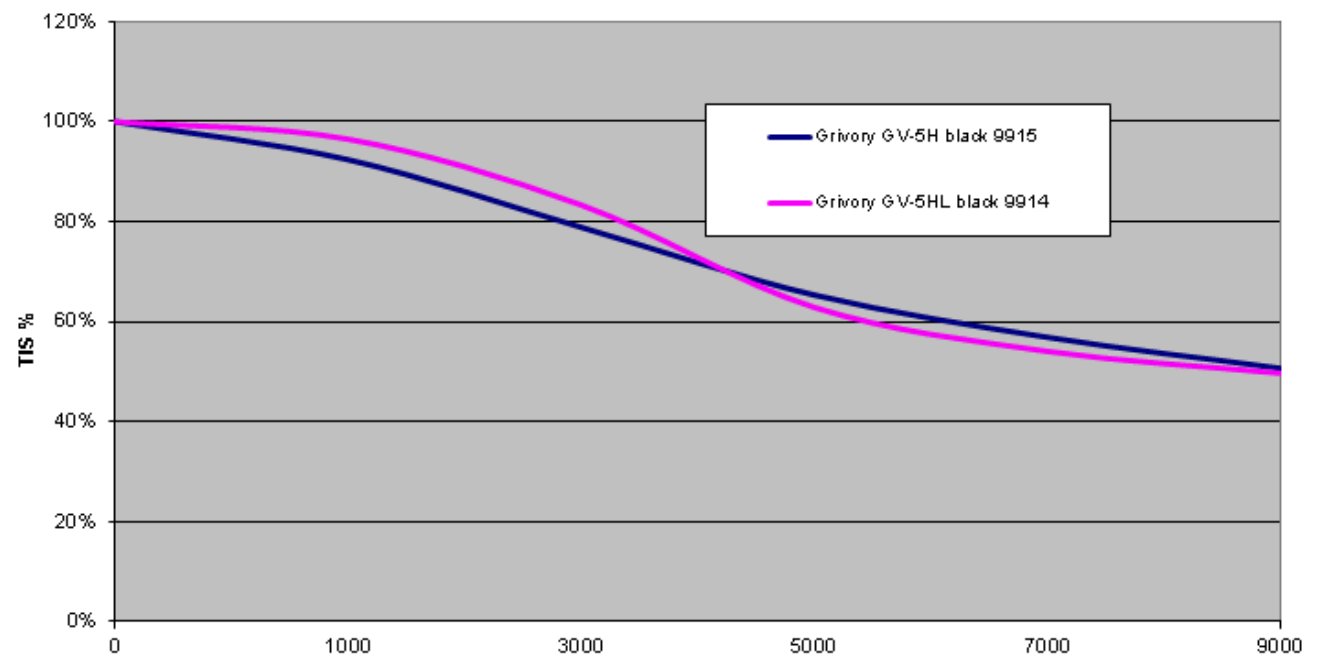
1. Dimension change data.
2. Data of Weathering test according by ISO standard .(mechanical property, surface gloss change)

Result / Solution / Proposal:
Weathering test acc. to ISO 4892-2:

Plastics - Methods to exposure to laboratory light sources
Xenon-arc lamps

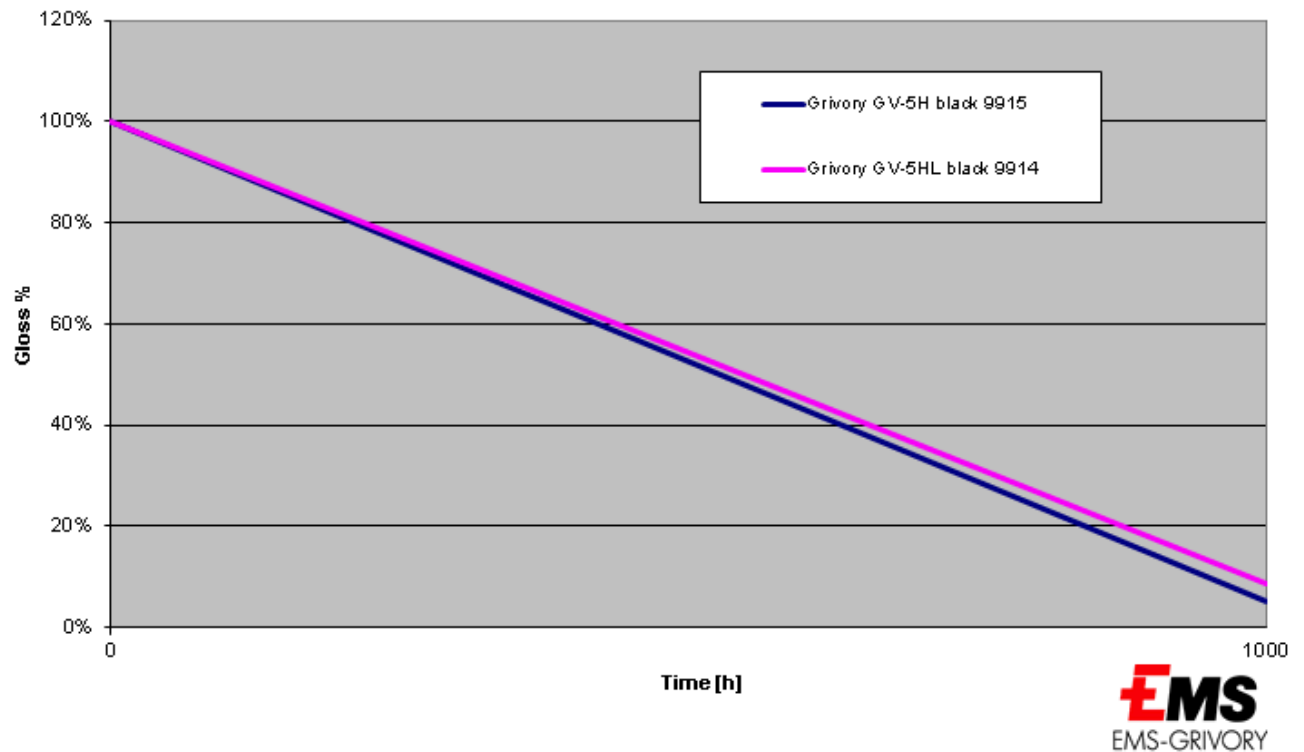
1.) Tensile Impact Strength:

GV-5H vs. GV-5HL Weathering acc. to ISO 4892-2
Tensile Impact Strength [%]



2.) Gloss:

GV-5H GV-5HL Weathering acc. to ISO 4892-2 Gloss [%]



(1'000 h in the test chamber correspond to roughly 2 years EMS Alpine Climate)

Information about

- Water Uptake / Dimensional Change
 - Behaviour when freezing
- you'll find in the additional PDF's.

Best regards

Philipp Schlatteringer

Application Development Center

EMS-Water Meter

Water Uptake & Dimensional Change

**EMS-Wasserzähler (ovalix, s = 4.5 mm):
Lagerung 6 Wochen in Wasser (80°C)**

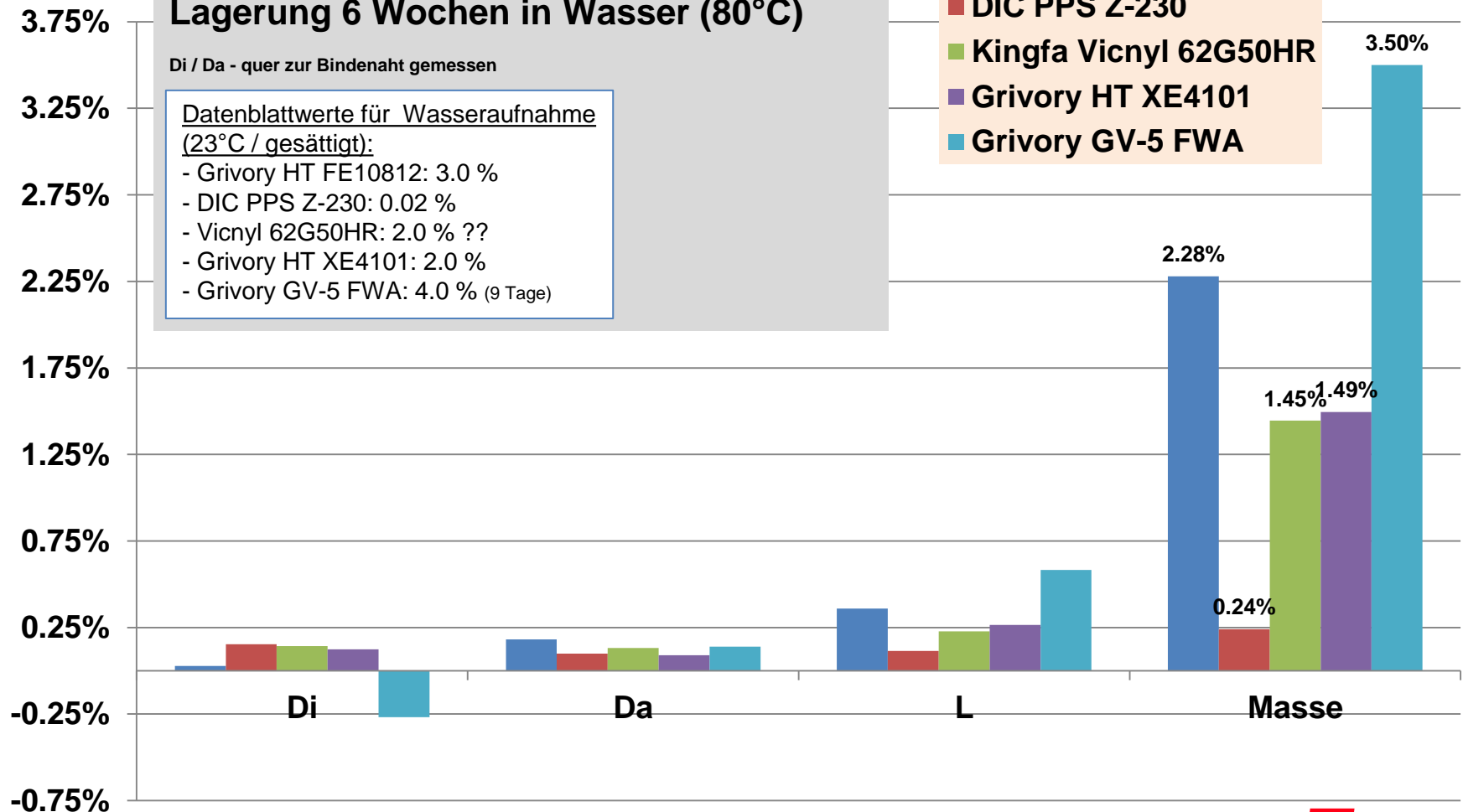
Di / Da - quer zur Bindeaht gemessen

Datenblattwerte für Wasseraufnahme
(23°C / gesättigt):

- Grivory HT FE10812: 3.0 %
- DIC PPS Z-230: 0.02 %
- Vicnyl 62G50HR: 2.0 % ??
- Grivory HT XE4101: 2.0 %
- Grivory GV-5 FWA: 4.0 % (9 Tage)

■ Grivory HT FE10812
■ DIC PPS Z-230
■ Kingfa Vicnyl 62G50HR
■ Grivory HT XE4101
■ Grivory GV-5 FWA

Prozentuelle Änderung



EMS-Water Meter (ovalix)

Ice Test

Materials	Elong. at break, %
■ Grivory GV-5 FWA	2.5
■ Grivory HT1V-4 FWA	2.0
■ Grivory HT1V-4 FWA (cascade)	2.0
■ Grilamid TR90	> 50
■ Grilamid LV-65H FWA	3
■ Grivory HT XE4101	3

Procedure:

Water Meter Housing assembled with cover by screws and a fitting, then filled fully with water. After closing of the 2nd fitting put in the deep freezer (- 40°C). Assess the housing after all water is completely frozen.

EMS-Water Meter (ovalix)

Volume Increase

ρ (water, 20°C) = 0.9982 g/cm³

ρ (ice) = 0.9167 g/cm³

⇒ Volume increase: 8.2 %

⇒ Length increase: **2.7 %**

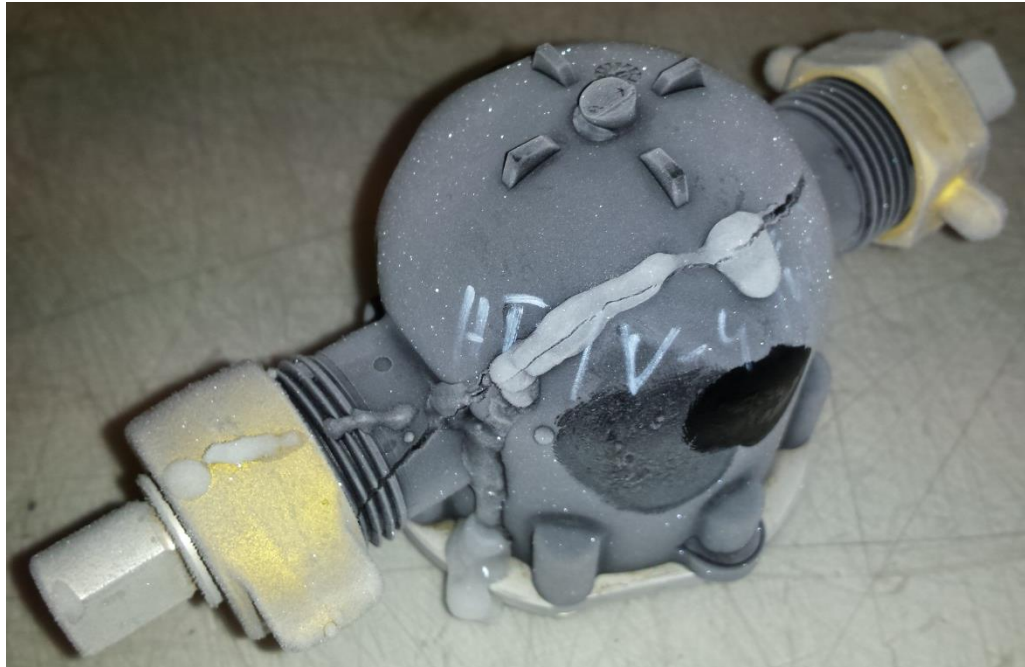


EMS-Water Meter (ovalix)

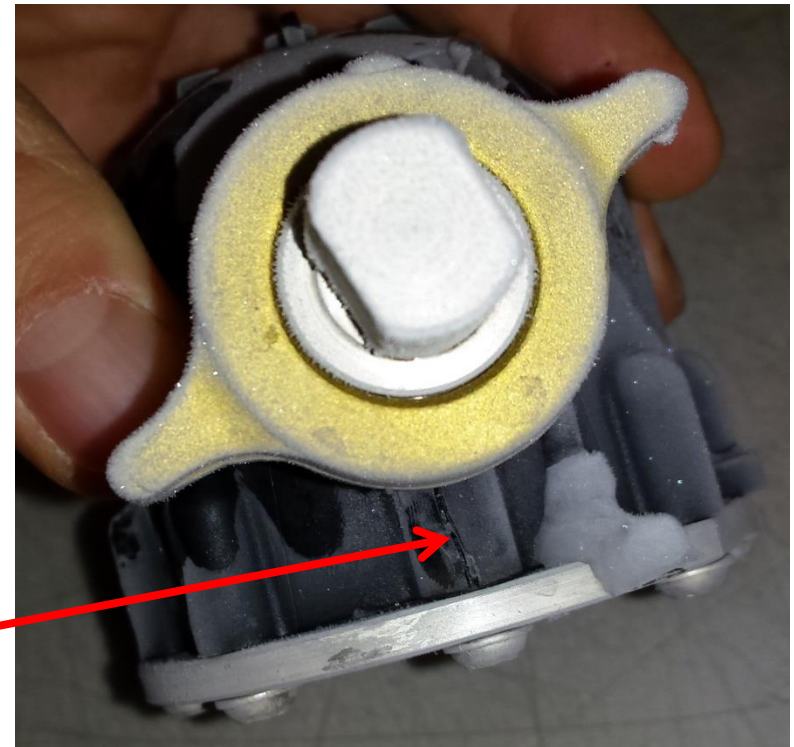
Grivory GV-5 FWA



EMS-Water Meter (ovalix) Grivory HT1V-4 FWA



**Crack in the
weldline**

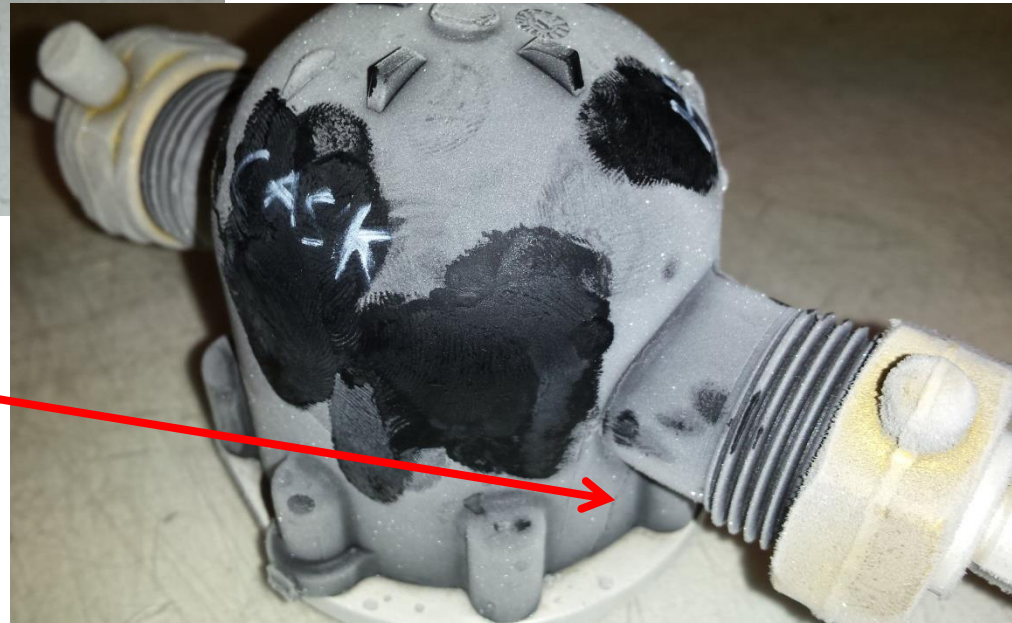


EMS-Water Meter (ovalix)

Grivory HT1V-4 FWA (cascade)



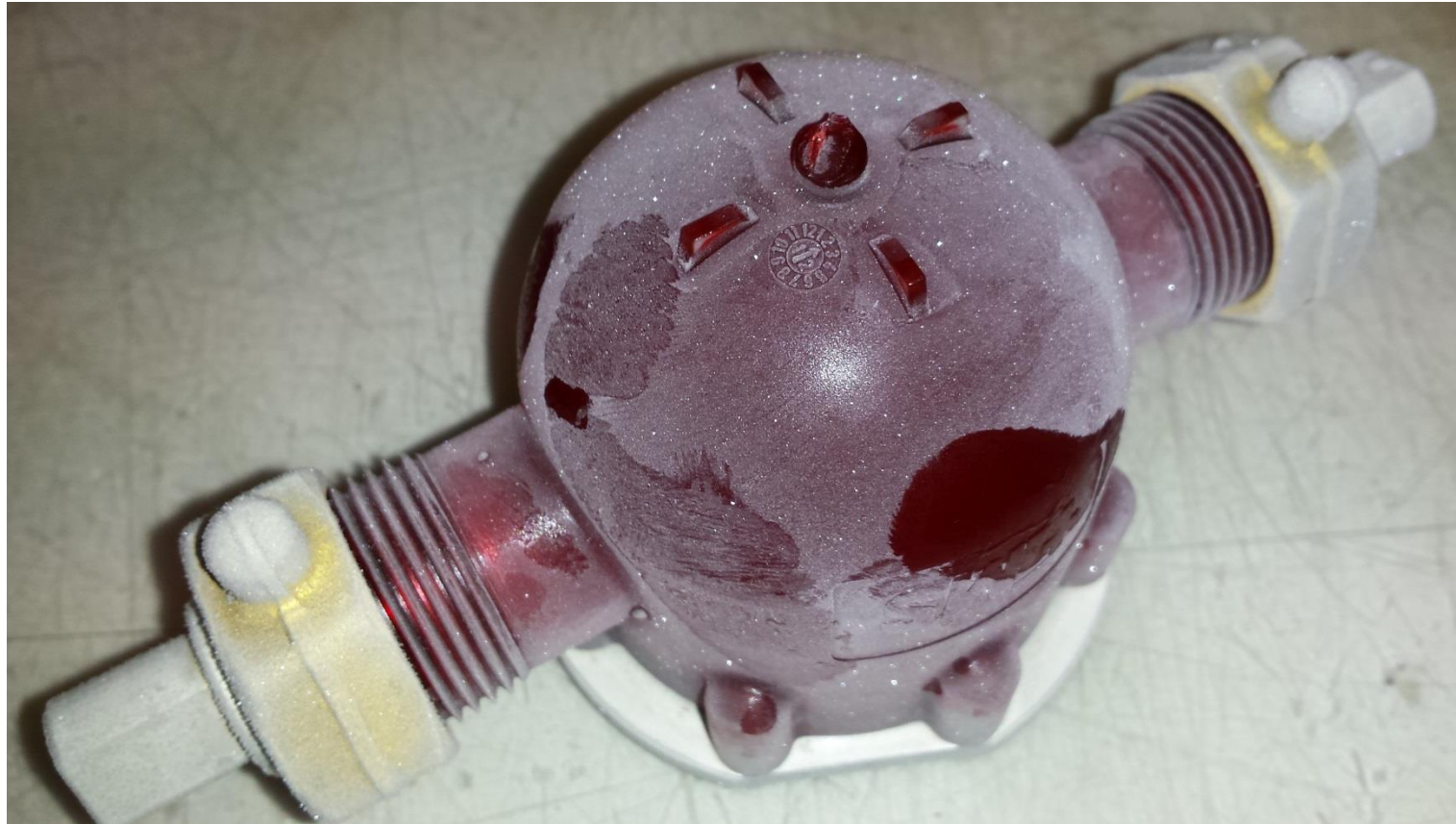
Crack is shifted



EMS-Water Meter (ovalix)

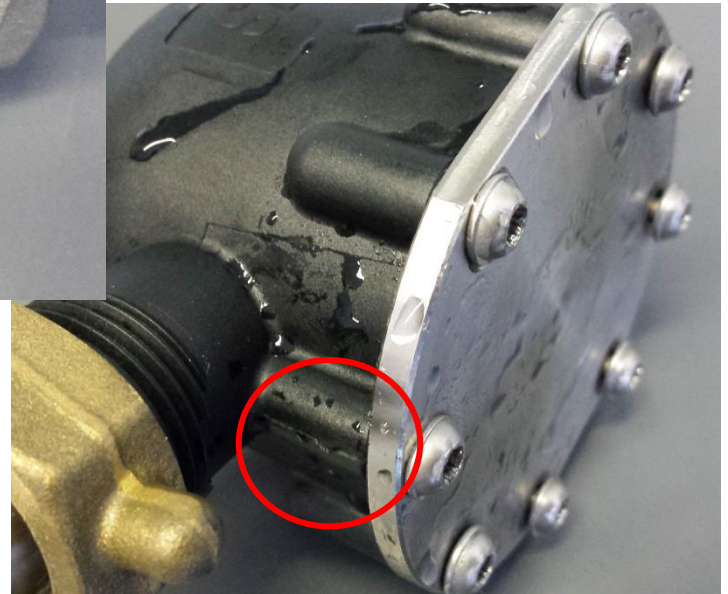
Grilamid TR90

No failure



EMS-Water Meter (ovalix)

Grilamid LV-65H FWA



Failure in the threads, leads
to crack in the weldline

EMS-Water Meter (ovalix)

Grivory XE4101 (HT3GF40 FWA)

