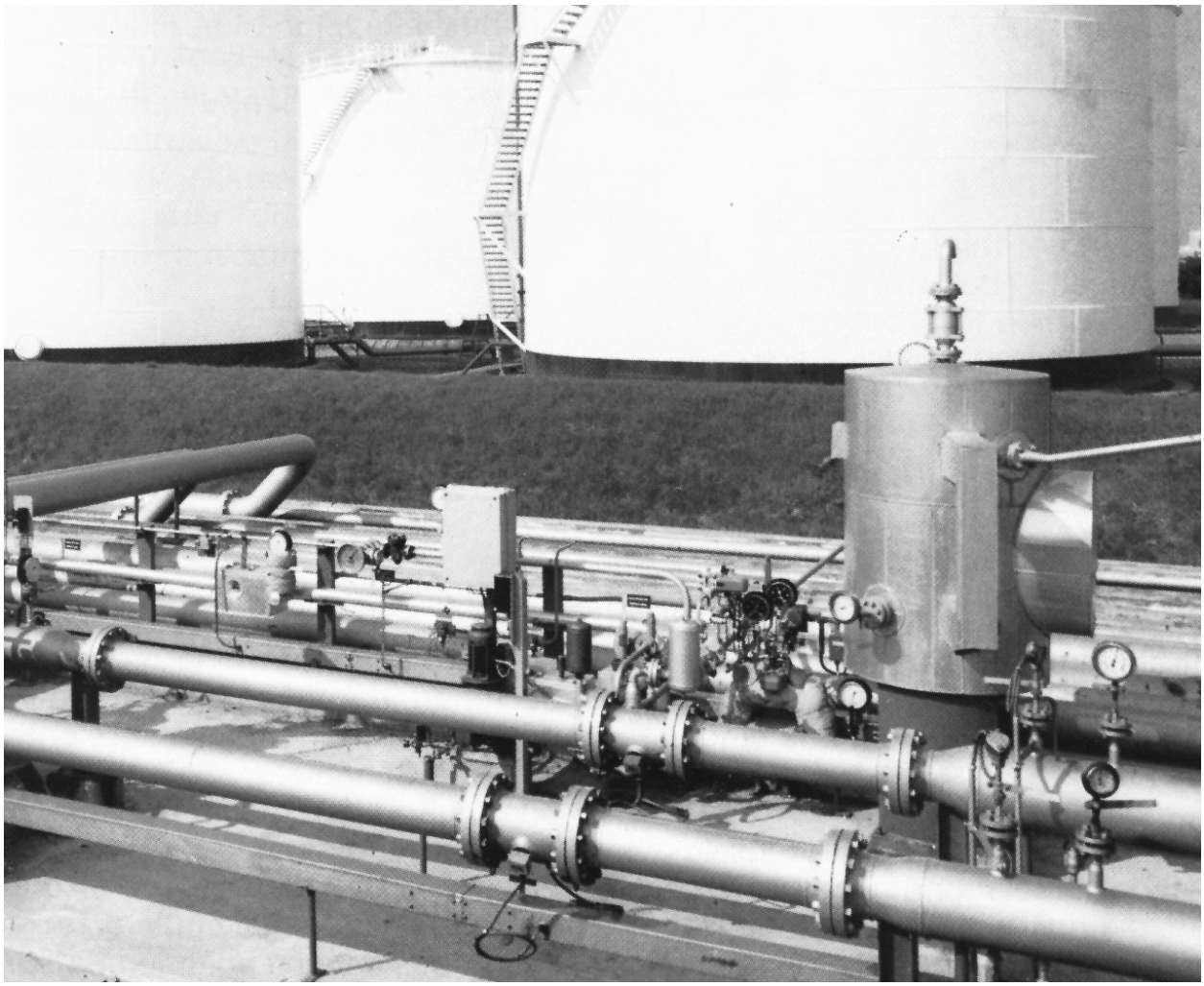
BOPP & REUTHER
MESSTECHNIK

Turbine meter with pulse pick-up

RQ AG81/82/83

Operating manual



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A-EN-02411-00Rev.G
03/2023

Contents

Introduction

I. Transport, Delivery, Storage

Storage and Transport:

Protect devices against moisture, dirt, shock and damage.

Inspection of the Delivery:
Check shipment for completeness immediately upon receipt. Compare the instrument data with the information on the packing slip and the order documents.
Report any transport damage immediately after receipt of the delivery. Damages, which are reported later, will not be recognized.

II. Warranty

Scope and duration of warranty are defined in the contractual terms of delivery. Any warranty claims require proper installation and start-up of the devices according to the applicable operating instructions. The required installation, putting into operation and servicing work may only be performed by qualified and authorized personnel.

The evaluation electronics use CMOS chips. Therefore, when the electronics casing is opened, static electricity discharges must be avoided. These can damage the evaluation electronics. Bopp & Reuther Messtechnik GmbH is not liable for damages, which are caused either indirectly or directly by improper handling.
For the transport of electronic assembly groups antistatic transport containers are to be used.

III. General Notes on Safety

Read and observe the operating instructions carefully and keep them in a safe place

Only qualified personnel may carry out installation.

ElexV regulations as well as generally accepted technical rules and the operating instructions installations must be observed.

Bopp & Reuther Messtechnik GmbH decline any liability for damages due to improper handling, use, installation and servicing of the devices.

Check suitability of material of counter when using it with corrosive media.

Put defective devices out of operation immediately.

1. Notes

1.1 Intended Use

The Turbine Meter is used to measure flow and volume of liquid media of low and medium viscosity such as:

- crude oils
- mineral oils
- acids
- alkaline solutions
- solvents
- water
- liquefied gases
- liquid food and drinks

Turbine meters of the RQ series are available with nominal widths of 10 to 300. According to nominal width it may be used for PN6 to PN 320, the maximum temperature of the measured media may be up to 250°C depending on the model.

Turbine meters are approved for fiscal metering by the competent authority in Germany („Physikalisch-Technische Bundesanstalt“ (PTB)) and similar authorities in other European countries.

> **Important:**
> Requirements of approval must be met when installing the meter in measuring systems for fiscal metering.

Always state ID-number of the meter (counter) if you have any questions or wish to order spare parts.

1.2 Attention

The turbine meter RQ is state of the art and has been designed for maximum operational safety. It has been carefully checked and is delivered in perfect condition as regards safety. Improper use respectively use in conditions the device has not been explicitly certified for may incur danger.

Mind the warnings in the operating instructions!

1.3 Personnel for Installation, Start-up and Operation

- Only qualified and authorized personnel may perform installation, mounting, electrical installation, putting into operation, servicing and operation. Any such person must have read and understood the operating instructions and follow the instructions therein.
- Check the material’s resistance of all parts coming into contact with the measured media when using the device with aggressive media (gaskets, turbine wheels, etc.).
- Make sure to observe your country’s specific regulations and provisions.

1.3.1 Start-Up

- Vent pipeline by means of a vent valve placed upstream of the Turbine Meter.

Caution:
Large amounts of air or gas cause excessive acceleration of the rotor and may damage the meter or the bearings.

- Fill pipeline by means of a by-pass line – slowly open shut-off valve.

1.3.2 Factory settings

The counters' factory pre-settings correspond to the conditions of operation stated in the order form. Pre-set values are specified in the configuration data sheet.

1.4 Repairs, Hazardous Media

Before sending the Turbine Meter to Bopp & Reuther Messtechnik make sure to observe the following:

- Attach a note describing the malfunction, state the field of application as well as the chemical/physical properties of the measured media.
- Remove all residues of the media and pay special attention to sealing grooves and slits. This is of extreme importance if the medium is hazardous to health, i.e. when it is caustic, toxic, carcinogenic or radioactive, etc.
- Please do not return the device if you are not perfectly sure that all media hazardous to health have been cleaned off.

Costs incurred due to inadequate cleaning of the device and possible costs for disposal and/or personal injuries (causticity etc.) will be billed to the operating company.

Please ask our customer service for help and advice if your turbine meter does not work properly:

Bopp & Reuther Messtechnik GmbH
Service
Am Neuen Rheinhafen 4
D-67346 Speyer
Phone: +49 6232 657-420
Fax : +49 6232 657-561

1.5 Technical Changes

All dimensions, weights and technical data given are subject to change without prior notice as Bopp and Reuther Messtechnik GmbH is continuously looking for further improvement and development and striving for quick and non-bureaucratic implementation.

1.5.1 Delivery

Depending on the series the turbine wheel meters are delivered as described below:

Series 1

DN 10 ... 65
One part, completely mounted

- Check the smooth running of the rotor

Blowing your breath through the meter is sufficient

- Counter ready to be mounted

Series 2

DN 80 ... 300
Several parts, mounting to be performed on-site

2. System

The turbine meter consists of a rotor and one or several pulse triggers. Turbine Meters of the RQ series are approved for fiscal metering by the competent authority in Germany “Physikalisch-Technische Bundesanstalt“ (PTB) and similar authorities in other European countries.

2.1 Measuring Principle

The turbine meter is an indirect volume meter. Its main component is an axial turbine wheel turning freely in the flowing liquid.
The turbine wheel is rotated by the liquid and spins at a rotational speed, which corresponds to the average flow velocity of the liquid in the free cross section of the turbine flow meter. The rotational movement is transmitted through the casing wall in a non-interacting manner to a pulse transmitter with preamplifier.

2.2 Measured Quantity

The number of revolutions of the turbine wheel meter is directly proportional to the volumetric rate of flow with the number of revolutions being proportional to the volume that has passed through the meter.

2.3 Measuring Range

Series 1

Nominal width DN	Nominal width ANSI	Flow rate Q_{max} [m³/h]	Meter factor Imp/dm³	Frequency f_{max} [Hz]	Pulses per revolution
10	-	1.5	1750	730	4
15	½	6	310	517	
20	¾	12	170	567	
25	1	18	105	525	
32	1¼	30	58	467	
40	1½	42	22	257	
50	2	72	12.4	248	
65	2½	120	6	200	

Series 2

Nominal width DN	Nominal width ANSI	Flow rate Q_{max} [m³/h]	Meter factor Imp/dm³	Frequency f_{max} [Hz]	Pulses per revolution
80	3	180	15	750	12
100	4	300	6	500	10
150	6	600	3.4	567	18
200	8	1200	1.84	613	24
250	10	1800	1.24	600	40
300	12	2400	0.78	520	44

3. Mounting and Installation

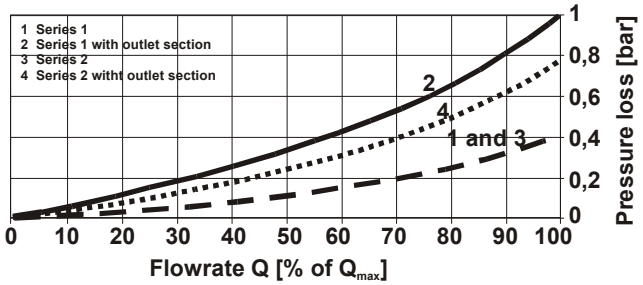
3.1 General Information

The stated measuring accuracy of the turbine wheel meter can only be guaranteed if the following is strictly observed:

- All media have to be introduced in pure phase, i.e. liquids without air or gas inclusions and solids.
- Use of a filter (mesh width 0.25 ... 0.80 mm)
- Uniform flow profile at the meter's entrance
- To be mounted behind a straight, undisturbed pipe of at least 15 x DN length or use of a flow straightening system (Turbine wheel meters for fiscal metering are delivered with inlet pipe and integrated flow straightening system).
- Inclusion of air or gas can lead to over-torque and thus to the destruction of the measuring device. The use of a gas and air separator is therefore strongly recommended.
- Undisturbed outlet pipe with the absence of any interaction
- Additional installation of a straight, undisturbed pipe of at least 5 x DN length behind the meter
- Installation of flow regulating valves and/or pressure valves only behind the turbine wheel meter
- Observe minimum overpressure during operation in the meter to prevent cavitation:

$$P_{min} \geq 2 \times \Delta P_{RQ} + 1.25\ pv$$

with: $^{\Delta}$ PRQ = pressure loss of the turbine flow meter
pv = vapor pressure of the media to be measured



Standard value is an operating pressure of approximately 2 bar above saturated vapor at the respective operating temperature.

- In- and outlet sections: The dimensions given in table (5.1.2) are to be maintained.
- For custody transfer (fiscal metering) these dimensions are prescribed and obligatory. When calibrating the meter at the manufacturing plant, the aforementioned inlet and outlet sections are to be included.

3.2 Installation

- Flush and purge the pipe for cleaning purposes. When doing so, replace the turbine wheel meter with a suitable piece of piping
- When mounting the turbine wheel meter including the inlet pipe please pay special attention to
  - direction of flow
  - installation position:
    - series 1 (DN15-DN65) horizontally or vertically
    - series 2 (DN80-DN300) horizontally
- Use appropriate flange gaskets and make sure that they are correctly mounted (should not jut out into the pipe).

3.3 Mounting of the Sensors

3.3.1 In- and Outlet Sections

To ensure best measurement results, the velocity profile in the inlet section needs to be a fully turbulent flow, free of any disturbances.

The in- and outlet sections must have a minimum length of:
Inlet section: minimum length of 10 x nominal width
Outlet section: minimum length of 5 x nominal width

3.3.2 Flow straightener

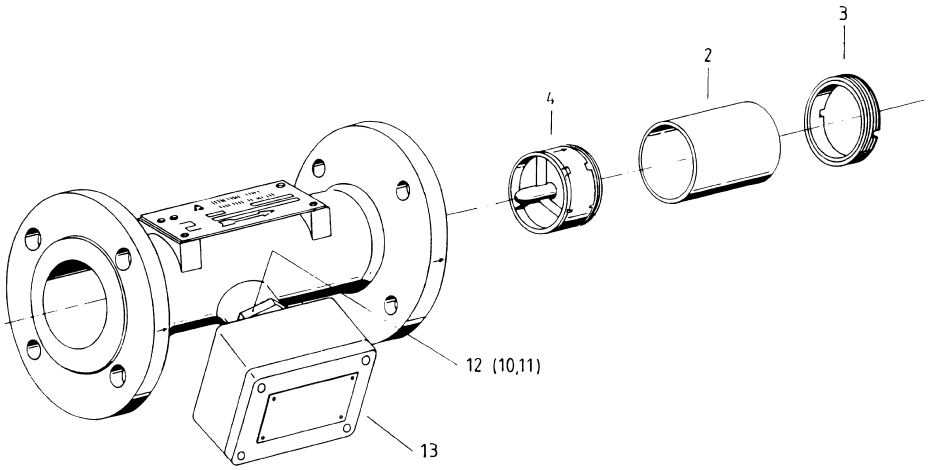
Installation of flow rectifiers reduces the impact of disturbances. Thus the length of the inlet section can be reduced, too. To achieve highly accurate measurement results the impact of flow rectifiers must be taken into account during the calibration process.

3.3.3 Pressure- and Temperature Compensation

If pressure- and temperature measuring points are required, these must be placed in the outlet section behind the meter housing (distance: 3 x nominal width for the pressure and 5 x nominal width for temperature measuring point).

3.4 Replacement of measuring system and/or bearings

3.4.1 Series 1



List of Parts

Pos.	Piece	Name
2	1	Spacer tube
3	1	Screw down nut
4	1	Measuring system (complete)
10	1	Spring clamp
11	1	Ring
12	1	Thrust screw
13	1	Sensor with pre-amplifier *

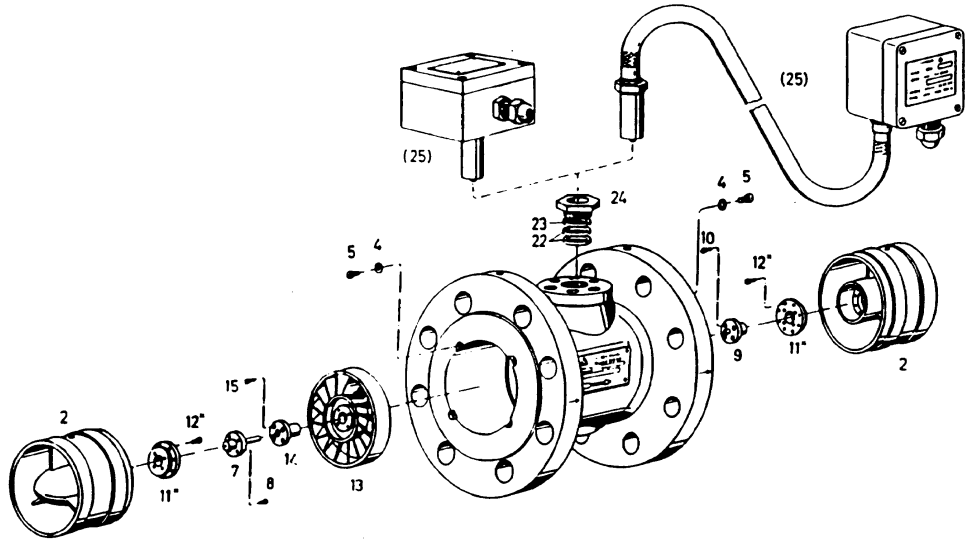
* for turbine wheel meters with two sensors, there are two spring clamps, two rings and two thrust screws (positions 10-12).

Disassembly
- Remove screw down nut (3)
- Remove spacer tube (2)
- Remove complete measuring system (4)

For mounting proceed in reverse order.

Attention:
When mounting the meter, please take care that the arrows on the measuring system and the arrows on the counter point in the same direction.

3.4.2 Series 2



List of Parts

Pos.	Piece	Name
2	2	Bearing joint
13	1	Impeller
7	1	Bearing Axle
8	4	Cylinder head screw
9	1	Counter bearing
10	4	Cylinder head screw
14	1	Bearing bush
15	4	Cylinder head screw
25	1	Sensor with pre-amplifier *
24	1	Thrust screw
22	1	Ring
23	1	Spring clamp

*for turbine wheel meters with two sensors, there are two spring clamps, two rings, two thrust screws and two sensors with pre-amplifiers (positions 22 - 22).

Disassembly
- position the meter in such a way that it rests on its inlet flange
- loosen and remove rear cylinder head screws (5) plus washers (4)
- remove rear bearing joint (2)
- remove impeller (13)
- loosen and remove front cylinder head screws (5) plus washers (4)
- remove rear bearing joint (2)
- loosen and remove cylinder head screws (10, 15)
- remove counter bearing (9) and bearing bush (14)
- loosen cylinder head screws (8)
- remove bearing axle (7)

For mounting the spare parts proceed in reverse order.

Attention:
Please take care that the positioning of the bearing joints (marks „0“ and „1“) corresponds to the marks on the housing.

4. Electrical Connection

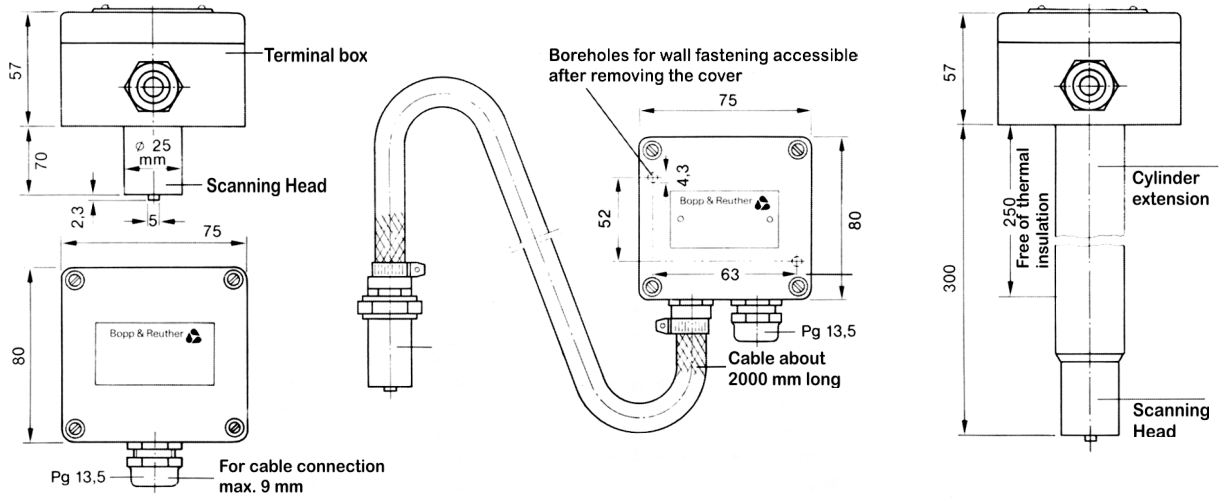
The pulse triggers consist of the pick-up housing with the pick-up installed and the terminal box with installed pre-amplifier and connection terminals. There are three types available, depending on the temperature of the media:

EC Type Approval Certificate: DMT 00 ATEX E 062 X

Type of protection: ⟨Ex⟩ II 2G EEx ib II C T6/5/4
Supply circuit intrinsic safe,
Uo = 20 V
Ii = 50 mA
P = 160 mW
Li = 1 mH
Ci = 25 nF

Type of casing protection: IP 65 according to DIN 40050

Wire specification: Type LiYCY 2 x 0.75, paired, shielded
max. 150 Ohm/wire, max. length 1000 m
colour: sky blue, RAL 5015



Pulse pick-ups AG 8x

Ag81 distance of terminal box 0 mm

type	T_U	T_{Media}
T4	85°C	85°C
T5	75°C	75°C
T6	60°C	60°C
minimum for all types	-40°C	-40°C

Ag82 terminal box above hose

type	T_U	T_{Media}
T3	85°C	180°C
T4	85°C	135°C
T5	75°C	100°C
T6	60°C	85°C
minimum for all types	-40°C	-65°C

Ag83 dist. of terminal box 250 mm

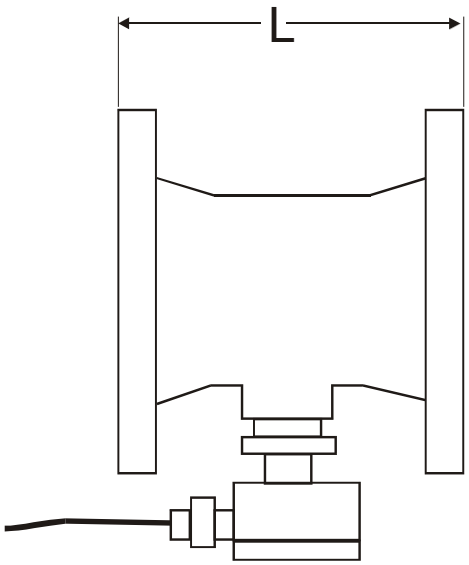
type	T_U	T_{Media}
T2	66°C	250°C
T3	72°C	200°C
T4	79°C	135°C
T5	72°C	100°C
T6	60°C	60°C
minimum for all types	-40°C	-200°C

For fiscal metering the turbine meters must have two pulse pick-ups. For calibration with a prover loop, two pulse pick-ups are recommended.
The resulting double pulse series provides the possibility to detect errors based on pulse comparison in the serially connected computer/converter device.

5. Dimensions and Weights

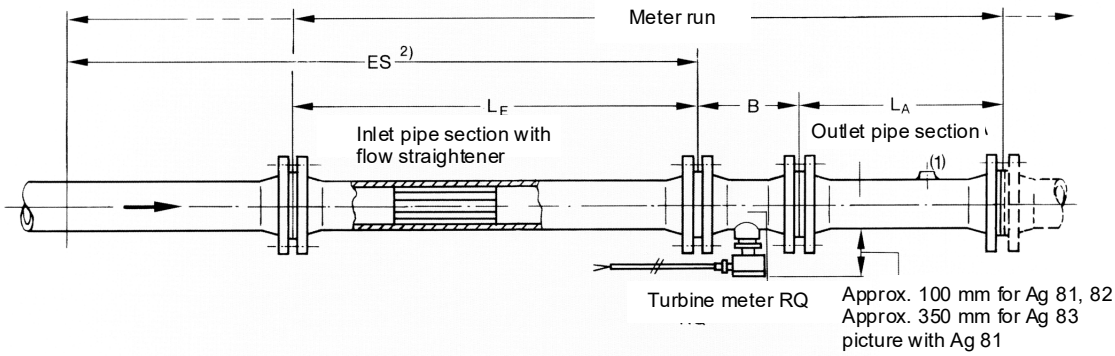
5.1 Dimensions of Various Meters of the Series

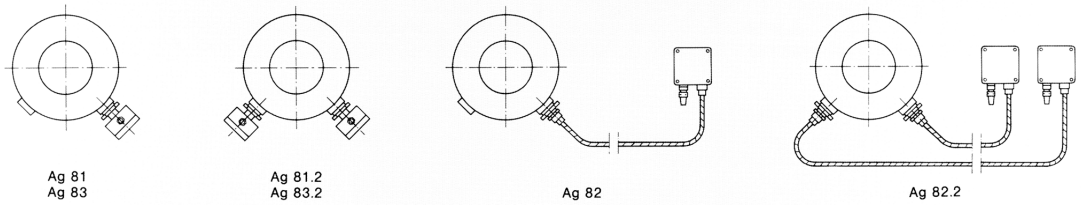
5.1.1 Design / Dimension Turbine Meter



DN	PN	L	Weight PN40
DIN	DIN	[mm]	kg
10	from PN 10 to PN 100	140	4
15		140	4
20		150	5
25		150	6
32		160	8
40		170	10
50		170	12
65		190	15
80		200	19
100		200	28
150		300	62
200		400	110
250		500	170
300		600	240

5.1.2 Design / Dimensions In-/Outlet Pipe Section





DN	Inlet Section	Outlet Section
10	- - -	- - -
15	180*	160
20	240*	160
25	250	200
32	320	160
40	400	200
50	500	250
65	650	325
80	800	400
100	1000	500
150	1500	750
200	2000	1000
250	2500	1250
300	3000	1500

*(12 x DN)
All data in mm

The indicated lengths are to be maintained. These are prescribed and binding for custody transfer (fiscal metering). When calibrating the meter at the manufacturing plant, the inlet and outlet sections are to be included in the calibration.

6. Technical Data

6.1 Material

6.1.1 Turbine Meter

Series 1 (DN15-65): stainless steel 1.4429, housing stainless steel 1.4425
Series 2 (DN80-DN300): Housing steel or stainless steel, cast or forged.
More materials upon request (Hastelloy etc.)

6.1.2 In-/Outlet section

Material group	Material			
	Flanges	Pipe	Pipe bundle ≥ DN 65	Pipe bundle ≥ DN 80
F	1.4571	1.4571	1.4571	
F 2	1.0425 1.0432	1.0305	1.4571	1.0305

6.2 Process Connection

Flange: DN 10 – 300 (1/2“ – 12“)
PN 6 – 320
Class 150 – 2500 in accordance with DIN 2501 or ANSI B16.5

6.3 Environmental Conditions

Avoid exposure of the electronics housing and the turbine wheel meter to sudden temperature changes.

6.3.1 Ambient Temperature

-10 °C bis +80 °C

6.3.2 Degree of Protection

IP 67

6.3.3 Electromagnetic Compatibility

In accordance with EMV-guideline 2004/108/EG, EN 61000-6-2, EN 61000-6-3 as well as NAMUR NE 21

6.4 Process Conditions

6.4.1 Viscosity Range

0.2 to 50 mPa·s

6.4.2 Media Temperature Range

Compact design	-40°C to +70°C
Wall design	-65°C to +180°C
Design for low or high temperature	-196°C to +250°C

6.5 Characteristic Values

6.5.1 Accuracy

High accuracy	≤0.15 % of reading over a reduced flow range
Standard accuracy	≤0.25 – 0.3 % of reading for normal flow range

The given values for the accuracy are for viscosities of 0.2 – 0.7 mPa·s.

The accuracy depends on the viscosity, flow range and the requested nominal size.
Please contact our sales engineers for specific information.

6.5.2 Repeatability

±0.02 % of measured value

A . Declaration on Decontamination

Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
67346 Speyer
Germany

Telephone: +49 (0) 6232 / 657 420
Fax: +49 (0) 6232 / 657 561
Mail: service@bopp-reuther.com
Web: www.bopp-reuther.com

ERA number:

DECLARATION ON DECONTAMINATION OF METERS AND COMPONENTS

Please complete this form and return in advance by email or by Fax to +49(0)6232 / 657 561 in order to receive an Equipment Return Authorisation (ERA) number (not necessarily required). No action to repair or examine the meter will be done, until a valid declaration of decontamination has been received.

Contact information

Company Name:
Company Address:
Contact Person:
Name:
Phone:
Email:

Meter information

Type:
Id. no.:
Serial no.:

Reason for return (e.g. calibration, repair). Please describe in detail.

Contamination information

The meter was contaminated with:

- ☐ poisonous 
- ☐ corrosive, irritant 
- ☐ flammable 
- ☐ hazardous 
- ☐ oxidizing 
- ☐ cancer-causing, harmful 
- ☐ explosive 
- ☐ environmental hazardous 
- ☐ other:

The meter was cleaned with:

Packaging and shipping Instructions

- Remove all cables, connectors, separate filters and mounting materials
- Please pack each item in two suitable sealed protective foil bags
- Transport in suitable shipping package (e.g. original Bopp & Reuther Messtechnik shipping package)
- Include a copy of this declaration form along with the shipping documents on the outside

By signing this form, you are accepting the full responsibility for its contents and confirming that appropriate decontamination has taken place in accordance with legal regulations.

Print name: **Date:**

Legally valid signature:

B. Certificates

B.1 Explosions protection certificates

B.1.1 PV10: Explosions protection certificates DMT 00 ATEX E 062 X

see Homepage: https://www.bopp-reuther.com/en/download/ EC Type Ex-Approvals Bopp & Reuther Messtechnik

B.2 Pressure Equipment Directive

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Industrie Service

TÜV CERT

ZERTIFIKAT

Certificate

EG-Baumusterprüfung (Modul B) nach Richtlinie 97/23/EG
EC Type-examination (Module B) according to Directive 97/23/EC

Zertifikat-Nr.: *Certificate No.:* **IS-DDB-MAN-05-01-13461050-002**

Name und Anschrift des Herstellers: *Name and postal address of manufacturer:*
Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
D-67346 Speyer

Hiermit wird bescheinigt, daß das unten genannte EG-Baumuster die Anforderungen der Richtlinie 97/23/EG erfüllt.
We herewith certify that the type mentioned below meets the requirements of the Directive 97/23/EC.

Prüfbericht Nr.: *Test report No.:* **BB-DDB-MAN-P-02-03-13461050-220**

Geltungsbereich: *Scope of examination:*
Turbinenradzähler / turbine meter: RQ 32, RQ 40, RQ 50, RQ 65, RQ 80, RQ 100, RQ 150, RQ 200, RQ 250, RQ 300

Fertigungsstätte: *Manufacturing plant:*
Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
D-67346 Speyer

TÜV Industrie Service GmbH
TÜV SÜD Gruppe
TÜV-CERT-Zertifizierungsstelle für Druckgeräte

Mannheim, 25. Juli 2005
(Ort, Datum)
(Place, date)

(Dr.-Ing. M. Arras)
Benannte Stelle, Kennnummer 0036
Notified Body, No. 0036

Bitte beachten Sie die Hinweise auf der zweiten Seite.
Please note the remarks on the second page.

TÜV Industrie Service GmbH
TÜV SÜD Gruppe
Abteilung Druckbehälter
Dudenstraße 28
D-68167 Mannheim

Tel.: (06 21) 395-257
Fax: (06 21) 395-594
www.tuev-sued.de

Mitglied der
CONFÉDÉRATION EUROPÉEN
CEOC
D'ORGANISMES DE CONTROLE

Zertifikat-2-ModulB-Turbinenradzähler.doc

DGR Zertifikat Modul B.dot

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD
Industrie Service

ZERTIFIKAT
Certificate

Konformität mit der Bauart (Modul C1)
nach Richtlinie 97/23/EG
Conformity to Type (Module C1) according to Directive 97/23/EC

Zertifikat-Nr.: Z-IS-DDB-MAN-15-05-100067376-007
Certificate No.:
Gültigkeit / *Validity:* 10 Jahre / *10 Years*

Name und Anschrift des Herstellers:
Name and postal address of manufacturer:
Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
D-67346 Speyer

Der Hersteller ist nach Prüfung der Voraussetzungen berechtigt, die von ihm im Rahmen des Geltungsbereichs hergestellten Druckgeräte mit unserer Kennnummer gemäß dem abgebildeten CE-Kennzeichen zu kennzeichnen:
The manufacturer is - after examination of the prerequisites - authorised to provide his pressure equipment manufactured within the scope of the examination our identification number to the CE-mark as illustrate:

CE 0036

Prüfbericht Nr.:
Test report No.:
P-IS-DDB-MAN-15-05-100067376-009

Geltungsbereich:
Scope of examination:
Durchfluss Messgeräte (Ovalradzähler OI, OUI, OaP, OuaP, OV, OK, OT, Turbinenradzähler RQ, Wirbeldurchflussmesser VTX2, Kompaktblende Oriflow und Oriflow PVDF, Filter (Na, NC, N, Nu)

Fertigungsstätte:
Manufacturing plant:
Bopp & Reuther Messtechnik GmbH
Am Neuen Rheinhafen 4
D-67346 Speyer

Mannheim, 08. Juni 2015
(Ort, Datum)
(Place, date)
Bitte beachten Sie die Hinweise auf der zweiten Seite.
Please note the remarks on the second page..

TÜV SÜD Industrie Service GmbH
Zertifizierungsstelle für Druckgeräte
TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle
(Dipl.-Ing. M. John)

Benannte Stelle, Kennnummer 0036
Notified Body, No. 0036
TÜV SÜD Industrie Service GmbH
Westendstr. 199
80686 München
GERMANY

B.3 EU – Declaration of conformity

BOPP & REUTHER MESSTECHNIK

EU - Konformitätserklärung
EU - Declaration of conformity
UE - Déclaration de conformité

Hiermit erklärt der Hersteller in alleiniger Verantwortung, dass die nachfolgend bezeichnete Baueinheit den Anforderungen der zutreffenden EU-Richtlinien entspricht. Bei nicht mit uns abgestimmten Änderungen verliert diese Erklärung ihre Gültigkeit.

The manufacturer herewith declares under sole responsibility that the unit mentioned below complies with the requirements of the relevant EU directives. This declaration is no longer valid if the unit is modified without our agreement.

Par la présente, le fabricant déclare sous sa seule responsabilité que les appareils décrits ci-dessous, correspondent aux exigences de la réglementation UE qui les concerne. Toute modification des appareils sans notre accord entraine la perte de validité de cette déclaration de conformité

Hersteller *Manufacturer* Fabricant	Bopp & Reuther Messtechnik GmbH Am Neuen Rheinhafen 4 D-67346 Speyer
Bezeichnung *Description* Description	Turbinenradzähler *Turbine Meter* Compteur à turbine
Typ, Modell *Type, model* Type, modèle	RQ mit *with* avec UST, AG

Richtlinie *Directive* Directive	2014/30/EU /UE L 96/79 Elektromagnetische Verträglichkeit *Electromagnetic interference* Compatibilité électromagnétique
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN IEC 61000-6-2:2019 EN IEC 61000-6-3:2021

Richtlinie *Directive* Directive	2014/34/EU /UE L 96/309 Explosionsschutz *Explosion protection* Protection contre les explosions	
Baumusterprüfbescheinigung *Type examination certificate* Certificat d'approbation de type	DMT 99 ATEX E 014 X	USTI
	DMT 00 ATEX E 025 X	USTD
	BVS 04 ATEX E 022 X	USTX
	DMT 00 ATEX E 062 X	AG81/82/83 (PV10)
Notifizierte Stelle *Notified Body* *Organisme Notifié*	BVS, DMT, DEKRA EXAM	0158
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN IEC 60079-0:2018	USTI, USTD, USTX, PV10
	EN 60079-1:2014	USTD, USTX
	EN 60079-11:2012	USTI, USTD, USTX, PV10
	EN 60079-26:2015	USTI

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Richtlinie *Directive* Directive	2014/68/EU /UE L 189/164 Druckgeräte *Pressure equipment* Équipements sous pression
Konformitätsbewertungsverfahren *Conformity assessment procedure* Procédures d'évaluation de la conformité	Modul B + Modul C2
Notifizierte Stelle *Notified Body* *Organisme Notifié*	0036 TÜV SÜD Industrie Service GmbH Dudenstraße 28, D-68167 Mannheim
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	AD 2000 Regelwerk *AD 2000 Code* Code AD 2000
Klassifizierung *Classification* Classification	Rohrleitungsteil *Pipe* Tuyauterie
Fluid Kategorie ; Diagramm *Fluid category ; Diagramm* Dangerosité du fluide ; Tableau	Gruppe 1 ; Anhang II / 6 *Group 1 ; Attachment II / 6* Groupe 1 ; Appendice II / 6
Einstufung Druckgerät *Classification équipement sous pression* Classification pressure equipment	Kategorie III *Category III* Catégorie III

Die Angaben zur Richtlinie 2014/68/EU ist nur gültig für Druckgeräte die unter Artikel 4 Absatz 1 und 2 fallen, alle anderen unterliegen der guten Ingenieurspraxis nach Artikel 4 Absatz 3.
The information on Directive 2014/68 / EU is only valid for pressure equipment that falls under Article 4 Paragraph 1 and 2, all others are subject to good engineering practice according to Article 4 Paragraph 3.
Les informations sur la directive 2014/68 / UE ne sont valables que pour les équipements sous pression relevant de l'article 4, paragraphes 1 et 2, tous les autres sont soumis aux bonnes pratiques d'ingénierie conformément à l'article 4, paragraphe 3.

Richtlinie *Directive* Directive	2011/65/EU /UE L 174/88 Beschränkung gefährlicher Stoffe *Restriction of hazardous substances* Limitation de substances dangereuses
Delegierte Richtlinie *Delegated Directive* Directive Déléguée	(EU /UE) 2015/863 L 137/10 Änderung Anhang II der Richtlinie 2011/65/EU *Amending Annex II to Directive 2011/65/EU* Modifiant l'annexe II de la directive 2011/65/UE
Normen und normative Dokumente *Standards and normative documents* Normes et documents normatifs	EN IEC 63000:2018

Ort, Datum / *Place, Date* / Lieu, Date: **Speyer, 2023-01-30**

Dr. J. Ph. Herzog
Geschäftsführer
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Deputy *QM Officer* / Adjoint chargé de la qualité

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