



# Český metrologický institut

Notifikovaná osoba č 1383, Okružní 31  
638 00 Brno

## EC-TYPE EXAMINATION CERTIFICATE

Number: TCM 142/10 – 4737

Issued by: **Český metrologický institut**  
**Okružní 31**  
**638 00 Brno**  
**Czech Republic**

**Notified Body No. 1383**

In accordance with: point 3 of annex 2 to Government Order No. 464/2005 Coll. (annex B of the Directive 2004/22/EC) from 19 October 2005 that lays down technical requirements on measuring instruments and implements in Czech Republic Directive 2004/22/EC of the European Parliament and of the Council.

Manufacturer: **Ningbo Water Meter Co. LTD.**  
(Applicant) **No. 99, Lane 268, Beihai Road**  
**Ningbo 315033**  
**China**

In respect of: **water meter - woltman**  
**type: WP-LFC**  
**Accuracy class: 2**  
**Temperature class: T30 or T50**

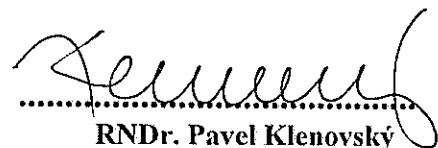
Valid until: **29 June 2020**

Document number: **0115-CS-A023-10**

Description: Essential characteristics, approved conditions and special conditions, if any, are described in this certificate. This certificate contains 9 pages.

Date of issue: 30 June 2010





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Notified Body No.1383

## 1. Measuring device description

The woltman water meters type WP-LFC are designed to measure, memorise and display the volume at metering conditions of water passing through the measurement transducer in the sense of the Directive of the European Parliament and of the Council no. 2004/22/EC of measuring instruments, as amended.

The water meters type WP-LFC is horizontal Woltman meter. The water meters type WP-LFC consist of a iron, brass or bronze casted body with connecting flanges or groove connection, a interchangeable wet measuring unit with adjusting device and a semi dry mechanical indicating device (Liquid Filled Calculator). There is water meter flange cover connecting by screws and sealed by silicon o-ring on the measuring unit.

The measuring unit consist of a inlet flow straightner with stainless steel shaft with tungsten carbide end, a plastic turbine with two composite axial bearings and two radial sapphire bearings, an outlet flow straightner with stainless steel shaft with tungsten carbide end, a transmission shaft protected by shaft tube, water meter flange cover, an adjusting screw sealed by silicon o-ring with adjusting slide, a semi dry indicating device (Liquid Filled Calculator), a upper glass disc and a brass closing ring with rubber sealing.

The water meters type WP-LFC are equipped with a semi dry (Liquid Filled Calculator) with protected registered drums indicating device formed by numbered rollers with six drums and three rotary pointers.

There is star wheel with six arms which can be used for rapid testing in mechanical indicating device.

The water meters type WP-LFC can be equipped by reed impulse transmitter which can be used for remote reading.

The water meters type WP-LFC shall be installed to operate in horizontal or vertical position with up and down flow direction and with the indicating device positioned at the top or on site.

The water meters type WP-LFC shall be designate by these trademarks:

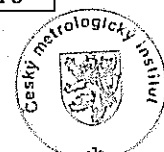


Water meters type WP-LFC are manufactured according to assembly drawings of manufacturer No. ZN1.631.090 from 3/2010 for water meters type WP-LFC DN 40 to 50, No. ZN1.631.091 from 3/2010 for water meters type WP-LFC DN 65 to 125, No. ZN1.631.102 from 3/2010 for water meters type WP-LFC DN 150 to 200, No. ZN1.631.103 from 3/2010 for water meters type WP-LFC DN 250 to 350, No. ZN1.631.104 from 3/2010 for water meters type WP-LFC DN 400 to 500.

## 2. Basic technical data

Basic technical data of water meters type WP-LFC from DN 40 to 125:

Nominal diameter (DN) [mm]:	40	50	65	80	100	125
Overload flowrate ( $Q_4$ ) [ $m^3/h$ ]:	$\leq 31.3$	$\leq 50.0$	$\leq 78.8$	$\leq 78.8$	$\leq 125$	$\leq 200$
Permanent flowrate ( $Q_3$ ) [ $m^3/h$ ]:	$\leq 25.0^1$	$\leq 40.0^1$	$\leq 63.0^1$	$\leq 63.0^1$	$\leq 100^1$	$\leq 160^1$
Transitional flowrate ( $Q_2$ ) [ $m^3/h$ ]:	$\geq 0.800$	$\geq 0.800$	$\geq 1.26$	$\geq 1.26$	$\geq 2.00$	$\geq 3.20$
Minimum flowrate ( $Q_1$ ) [ $m^3/h$ ]:	$\geq 0.500$	$\geq 0.500$	$\geq 0.788$	$\geq 0.788$	$\geq 1.25$	$\geq 2.00$
Ratio $Q_3 / Q_1$ :	$\leq 50^2$	$\leq 80^2$				
Ratio $Q_2 / Q_1$ :	1.6					
Ratio $Q_4 / Q_3$ :	1.25					
Accuracy class:	2					
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> ):	$\pm 5\%$					
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	$\pm 2\%$ for water having a temperature $\leq 30\text{ }^\circ\text{C}$ $\pm 3\%$ for water having a temperature $> 30\text{ }^\circ\text{C}$					
Temperature class:	T30 and T50					
Water pressure classes:	MAP 16					
Pressure-loss classes:	$\Delta P 10$	$\Delta P 16$	$\Delta P 10$	$\Delta P 10$	$\Delta P 10$	$\Delta P 16$



Indicating range [m <sup>3</sup> ]:	999 999					
Resolution of the indicating device [m <sup>3</sup> ]:	0.0005					
Resolution of the device for the rapid testing [pulse/L]:	0.6429	0.6429	0.342	0.342	0.225	0.18
Flow profile sensitivity classes:	U10 D5					
Orientation limitation:	V and H					
Minimum length L [mm]:	260	200	200	200	250	250
Maximum length L [mm]:	300	335	260	413	483	250
Connection type:	Flange or Groove Connection					
Reed switch power supply ( $U_{max}$ / $I_{max}$ ):	max. 24 V / 0.01 A					
Reed switch K-faktor [impulse / L]:	0.1, 0.01 and 0.001					

<sup>1</sup> The value of  $Q_3$  shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio  $Q_3 / Q_1$  shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 10.

Basic technical data of water meters type WP-LFC from DN 150 to 350:

Nominal diameter (DN) [mm]:	150	200	250	300	350
Overload flowrate ( $Q_4$ ) [m <sup>3</sup> /h]:	≤ 313	≤ 500	≤ 788	≤ 1250	≤ 1251
Permanent flowrate ( $Q_3$ ) [m <sup>3</sup> /h]:	≤ 250 <sup>1</sup>	≤ 400 <sup>1</sup>	≤ 630 <sup>1</sup>	≤ 1000 <sup>1</sup>	≤ 1000 <sup>1</sup>
Transitional flowrate ( $Q_2$ ) [m <sup>3</sup> /h]:	≥ 5.00	≥ 8.00	≥ 12.6	≥ 20.0	≥ 20.0
Minimum flowrate ( $Q_1$ ) [m <sup>3</sup> /h]:	≥ 3.13	≥ 5.00	≥ 7.88	≥ 12.5	≥ 12.5
Ratio $Q_3 / Q_1$ :	≤ 80 <sup>2</sup>				
Ratio $Q_2 / Q_1$ :	1.6				
Ratio $Q_4 / Q_3$ :	1.25				
Accuracy class:	2				
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> ):	± 5 %				
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	± 2 % for water having a temperature ≤ 30 °C ± 3 % for water having a temperature > 30 °C				
Temperature class:	T30 and T50				
Water pressure classes:	MAP 16				
Pressure-loss classes:	ΔP 10	ΔP 10	ΔP 10	ΔP 10	ΔP 10
Indicating range [m <sup>3</sup> ]:	9 999 999			99 999 999	
Resolution of the indicating device [m <sup>3</sup> ]:	0.005			0.05	
Resolution of the device for the rapid testing [pulse/L]:	0.03789	0.02396	0.0081	0.0066	0.0066
Flow profile sensitivity classes:	U10 D5				
Orientation limitation:	V and H				
Minimum length L [mm]:	300	350	450	500	500
Maximum length L [mm]:	560	508	450	500	500
Connection type:	Flange or Groove Connection				
Reed switch power supply ( $U_{max}$ / $I_{max}$ ):	max. 24 V / 0.01 A				
Reed switch K-faktor [impulse / L]:	0.01, 0.001 and 0.0001		0.001, 0.0001 and 0.00001		

<sup>1</sup> The value of  $Q_3$  shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio  $Q_3 / Q_1$  shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 10.

Basic technical data of water meters type WP-LFC from DN 400 to 500:

Nominal diameter (DN) [mm]:	400	500
Overload flowrate ( $Q_4$ ) [m <sup>3</sup> /h]:	≤ 2000	≤ 3125



Permanent flowrate ( $Q_3$ ) [ $m^3/h$ ]:	$\leq 1600$ <sup>1</sup>	$\leq 2500$ <sup>1</sup>
Transitional flowrate ( $Q_2$ ) [ $m^3/h$ ]:	$\geq 32.0$	$\geq 50.0$
Minimum flowrate ( $Q_1$ ) [ $m^3/h$ ]:	$\geq 20.0$	$\geq 31.3$
Ratio $Q_3 / Q_1$ :	$\leq 80$ <sup>2</sup>	
Ratio $Q_2 / Q_1$ :	1.6	
Ratio $Q_4 / Q_3$ :	1.25	
Accuracy class:	2	
Maximum permissible error for the lower flowrate zone (MPE <sub>l</sub> ):	$\pm 5\%$	
Maximum permissible error for the upper flowrate zone (MPE <sub>u</sub> ):	$\pm 2\%$ for water having a temperature $\leq 30\text{ }^\circ\text{C}$ $\pm 3\%$ for water having a temperature $> 30\text{ }^\circ\text{C}$	
Temperature class:	T30 and T50	
Water pressure classes:	MAP 16	
Pressure-loss classes:	$\Delta P 10$	$\Delta P 10$
Indicating range [ $m^3$ ]:	99 999 999	
Resolution of the indicating device [ $m^3$ ]:	0.05	
Resolution of the device for the rapid testing [pulse/L]:	0.003641	0.002178
Flow profile sensitivity classes:	U10 D5	
Orientation limitation:	V and H	
Minimum length L [mm]:	500	500
Maximum length L [mm]:	600	800
Connection type:	Flange or Groove Connection	
Reed switch power supply ( $U_{max} / I_{max}$ ):	max. 24 V / 0.01 A	
Reed switch K-faktor [impulse / L]:	0.001, 0.0001 and 0.00001	

<sup>1</sup> The value of  $Q_3$  shall be chosen from the R5 line of ISO 3:1973.

<sup>2</sup> The ratio  $Q_3 / Q_1$  shall be chosen from the R10 line from ISO 3:1973 and this value shall be higher than 10.

### 3. Test

Technical tests of the water meters type WP-LFC were performed in compliance with the International Recommendation OIML R 49 Edition 2006 (E) with conformity to EN 14154-1:2005+A1:2007, Test Report No. 6015-PT-A0040-10 from June 3. 2010.

### 4. The measuring device data

The water meters type WP-LFC shall be clearly and indelibly marked with the following information:

- The "CE" marking and supplementary metrology marking
- Number of EC-type examination certificate
- Name or trademark of manufacturer
- Year of manufacturer (last two digit) and serial number (as near as possible to the indicating device)
- Measuring device type
- Unit of measurement ( $m^3$ )
- Accuracy class 2
- Numerical value  $Q_3$  in  $m^3/h$  ( $Q_3 \times \times$ )
- The ratio  $Q_3 / Q_1$ , ( $R \times \times$ )
- The temperature class ( $T \times \times$ )
- The maximum admissible pressure (MAP  $\times \times$ )
- The pressure loss class ( $\Delta P \times \times$ )
- Classes on sensitivity to irregularities in velocity field ( $U \times D \times$ )
- Orientation limitation (H / V)
- Direction of flow arrow on both sides of the meter body



There are additional data required if the water meter is equipped with impulse transmitter:

- Output signals for ancillary devices (type / levels)
- External power supply requirements (voltage – frequency)

### **5. Sealing**

The connection of water meter body and water meter flange cover and water meter flange cover and brass closing ring of indicating device and adjusting screw cover if separate has to be sealed. The location of seal is described in Figure 3.

Figure 1: The water meter type WP-LFC – view:

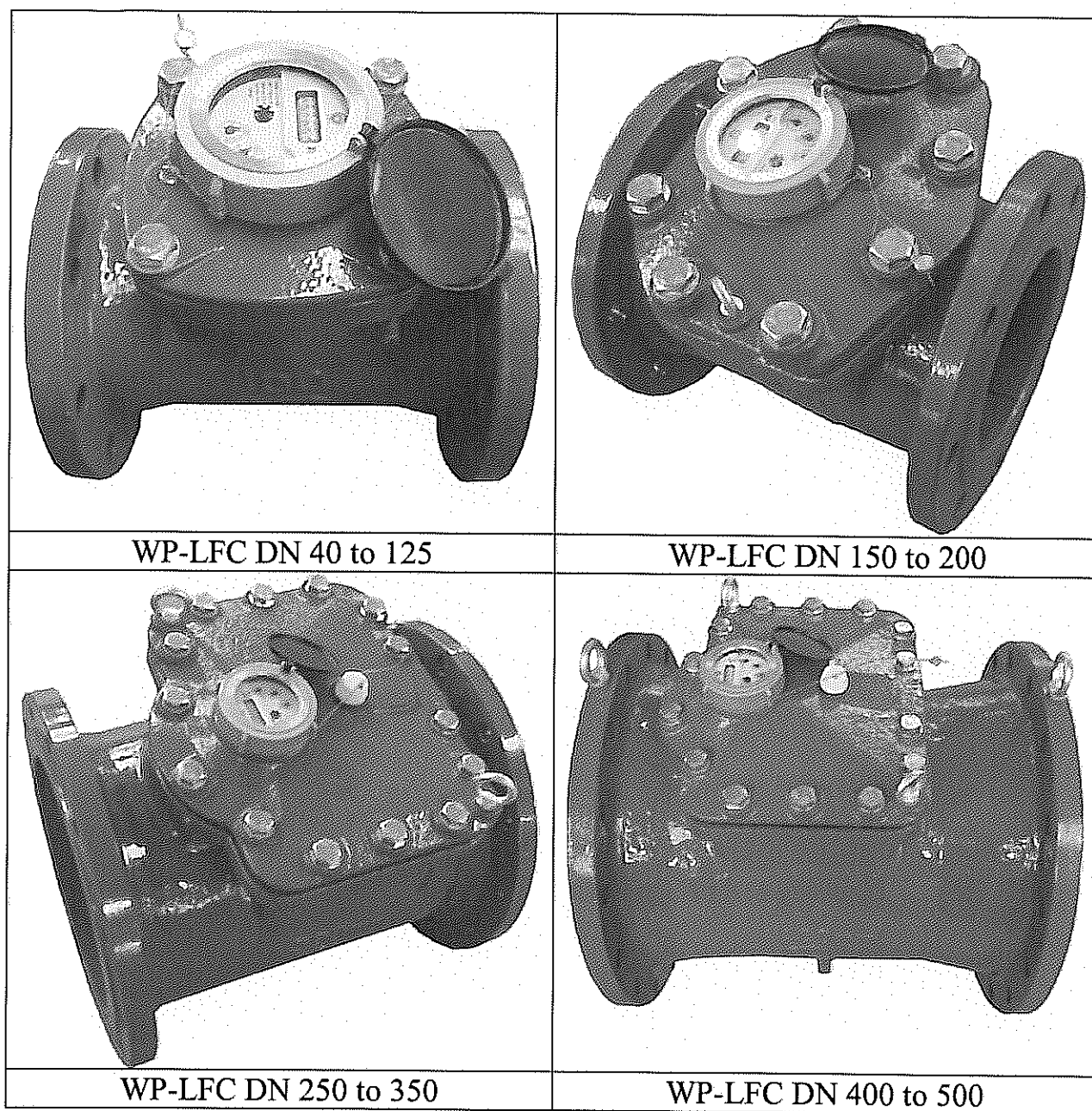


Figure 2: The water meter type WP-LFC DN 50 assembly drawings:

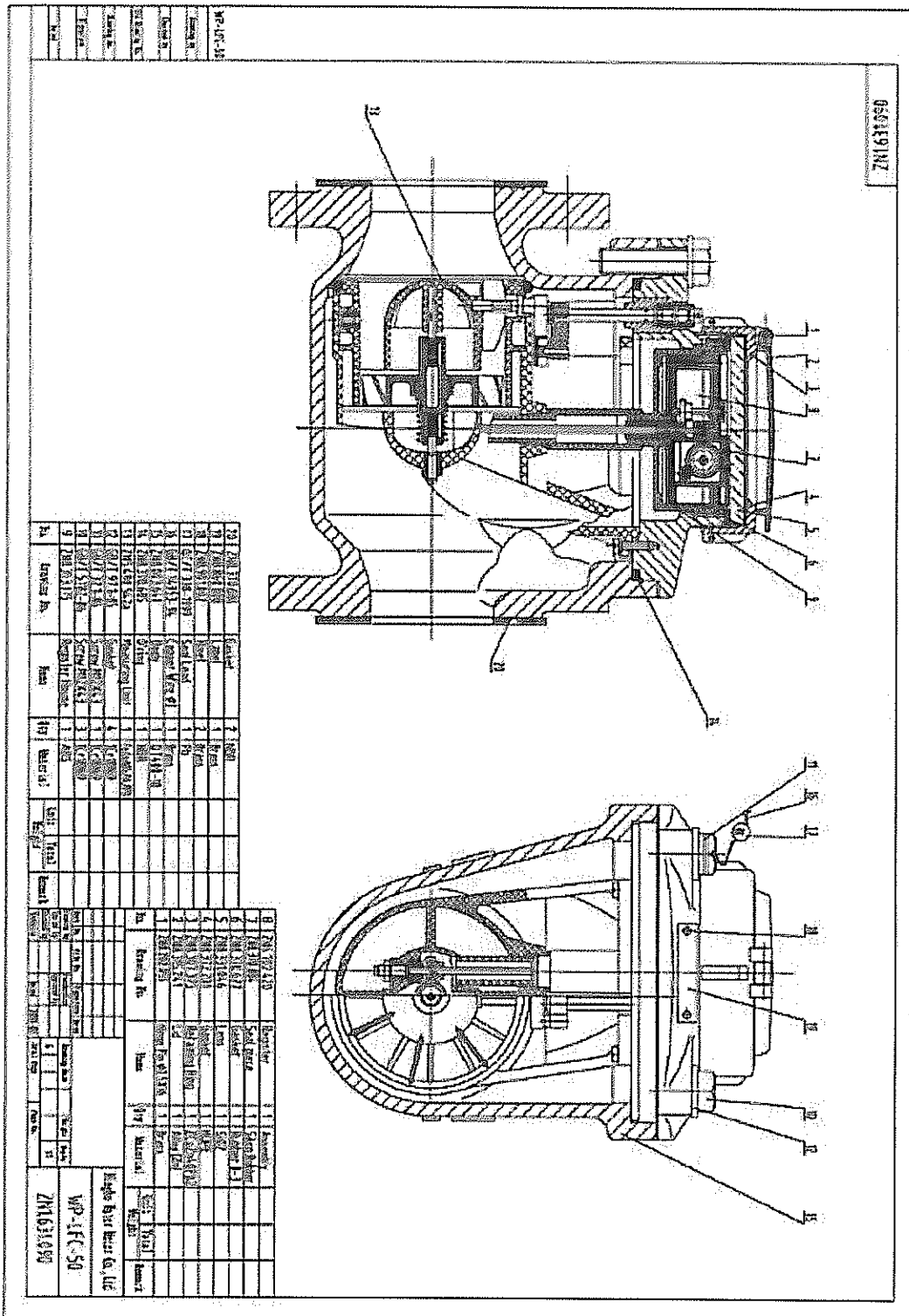
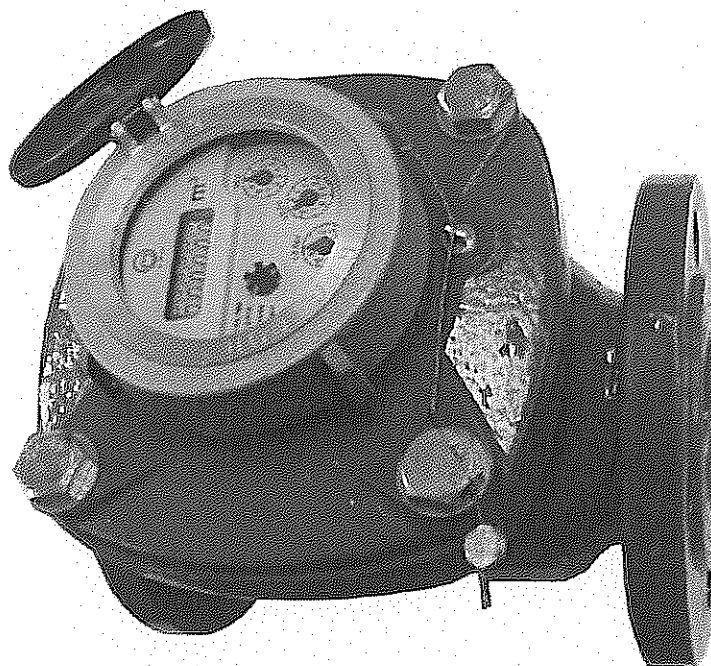
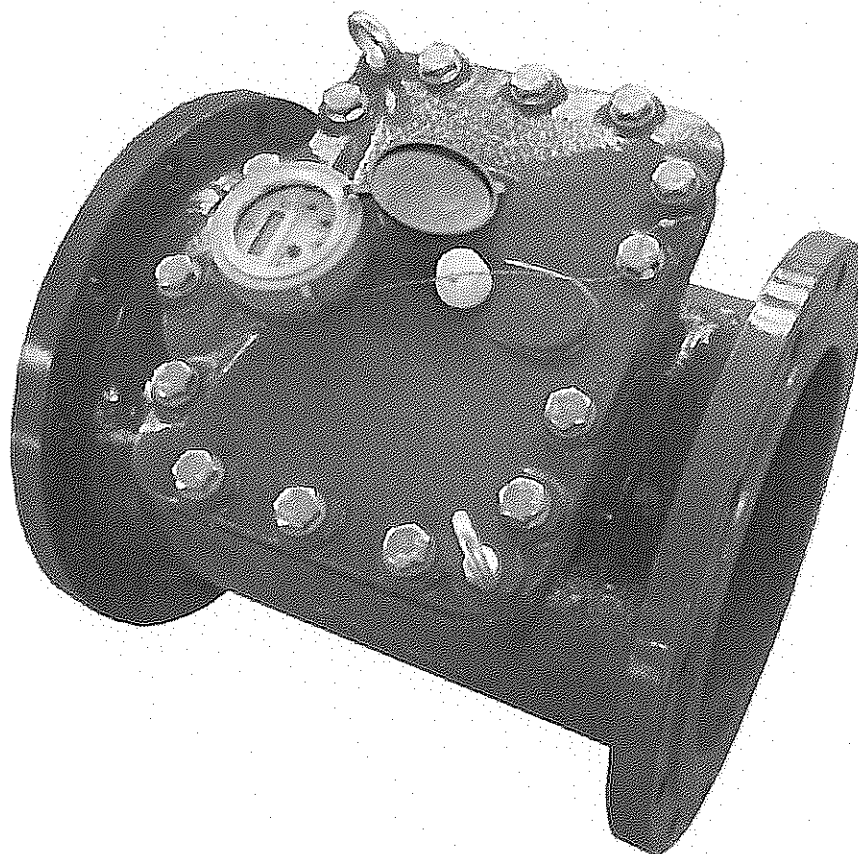


Figure 2: The sealing of the water meter type WP-LFC:



WP-LFC DN 50 to 200



WP-LFC DN 250 to 500



Figure 4: The dial of the water meter type WP-LFC DN 40:

