



MID



Ultrasonic water meter series

DN15~DN600

Content

1. Common ultrasonic water meter
2. Remote ultrasonic water meter (wired: RS485 / M-Bus;
wireless: Lorawan / NB-IoT / 4G)
3. Ultrasonic heat meter
4. Workshop show



1. Common ultrasonic water meter

Brief introduction

Ultrasonic water meter is a new type of water meter that detects the time difference caused by changes in velocity during the propagation of ultrasonic sound beams in water, analyzes and processes the flow rate of the effluent, and further calculates the flow rate of the effluent.

Characteristic:

1. Low initial flow rate, wide range ratio, high measurement accuracy, and stable operation.
2. There are no internal moving parts or flow blocking components, which are not affected by impurities in water and have a long service life.
3. The output communication function is complete, meeting various communication and wireless networking requirements.
4. It has excellent small flow detection ability, which can solve the problems of many traditional water meters, is more suitable for gradient charging of water fees, and is more suitable for the conservation and rational utilization of water resources. It has broad market and usage prospects.

Main specifications:

1. Size: DN15~DN600
2. Body: Brass, cast iron, nylon
3. Max work pressure: PN16
4. Protection class: IP68
5. Communication methods: RS485/ MBUS/ LORAWAN/ NB-IOT/ 4G
6. Battery life: 10 years (DN15-DN40) / 6-8 years (DN50-DN600)
7. R: R250, R400
8. Water temperature: T30/ T90
9. Standards: ISO4064

1. Common ultrasonic water meter

Pictures for reference:
DN15~DN25



DN32~DN40



Without valve

DN50~DN600



1.1 Common ultrasonic water meter parameters

● Ultrasonic water meter

Medium Accuracy class	Domestic water (other liquids need to be customized) and filled with pipes
Ratio	Class B
DN	R250 (default), R400
PN	DN15~DN300
Working environment	1.6MPa
Pressure loss	Level B
Temperature class	≤△P40
Sensitivity level	T30/T50/T90 (for option)
Electromagnetic compatibility level	U10/D5
Communication port	E1
Power supply	RS485 / MBus / NB-IOT / LORA / infrared
Protection class	Inner lithium battery (3.6V)
Press key	IP68
LCD	Magnet trigger
Data storage	Accumulated flow, instantaneous flow, unit, status prompt
Measuring period	Using EEPROM to store data and automatically record accumulated traffic for the first 24 months
Average Power	4 times/second <100UA
Working environment	-25°C~55°C, ≤93%RH

1.2 Functions:

1. Accurate measurement

Using picosecond level high-precision chips, with high measurement accuracy and low initial flow rate, it is possible to achieve dripping measurement.

2. Data storage

It can store 24 monthly records, 360 daily records, and 192 hourly records. The data content includes cumulative flow rate (0.01m³), maximum flow rate (0.01m³/h), water flow time (minutes), minimum temperature (degrees Celsius), sensors, signal strength, alarm status, record generation time, etc. The data can be stored for a long time after power outage.

3. Data communication

Parameter settings, flow calibration, centralized meter reading, and other functions can be achieved through infrared, RS-485, M-BUS, NB IoT, LoRa, etc. And maintaining extremely low current consumption during data communication can greatly extend the battery's lifespan.

4. Abnormal judgment

It has the function of abnormal judgment, recording and display in case of power supply undervoltage, ultrasonic transducer abnormality, pipeline non full (empty) status and other situations during work, which can monitor the battery, temperature, valve control and flow in real time, and record the date of failure and the valid data at that time.

5. Alarm function

It has low voltage alarm, empty pipe alarm, reverse current alarm, temperature alarm, leakage alarm, pipe explosion alarm, etc. After activating the prepaid function, when the remaining water volume is less than the alarm water volume, it can alarm and prompt users to purchase water as soon as possible.

6. Real time reading function

The measurement data and status data in the table can be reported in real-time based on remote instructions.

7. Low voltage detection function

Equipped with voltage detection function and reporting, when there is battery undervoltage, it will report to the platform and display an alarm on the system platform homepage.

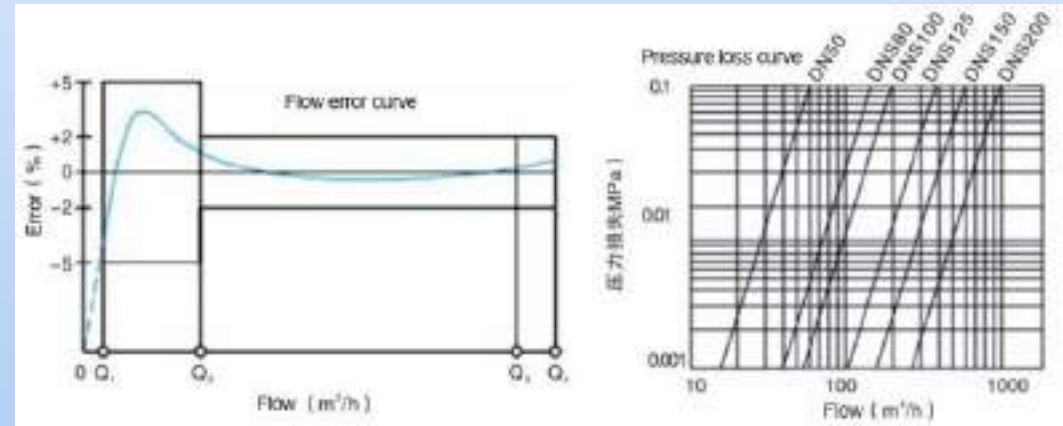
8. Remote control

Built in tiered water pricing, the valve automatically closes when in arrears, eliminating the phenomenon of malicious arrears in water fees. The valve can also be remotely opened and closed.

1.3 Flow range

DN	Ratio	Qs(m3/h)	Q1(m3/h)	Q2(m3/h)	Q3(m3/h)	Q4(m3/h)
15	R250	0.0024	0.01	0.02	2.5	3.125
20	R250	0.004	0.016	0.032	4.0	5
25	R250	0.0064	0.0252	0.05	6.3	7.875
32	R250	0.0102	0.04	0.08	10	12.5
40	R250	0.016	0.064	0.128	16	20
50	R250	0.05	0.16	0.32	40	48.75
65	R250	0.079	0.252	0.504	63	76.781
80	R250	0.125	0.4	0.8	100	121.875
100	R250	0.2	0.64	1.28	160	195
125	R250	0.3125	1	2	250	304.688
150	R250	0.5	1.6	3.2	400	487.5
200	R250	0.788	2.52	5.04	630	767.813
250	R250	1.25	4	8	1000	1218.75
300	R250	2	6.4	12.8	1600	1950

Flow error & Pressure loss curve



2. Remote ultrasonic water meter

Pictures for reference:
DN15~DN25



DN32~DN40

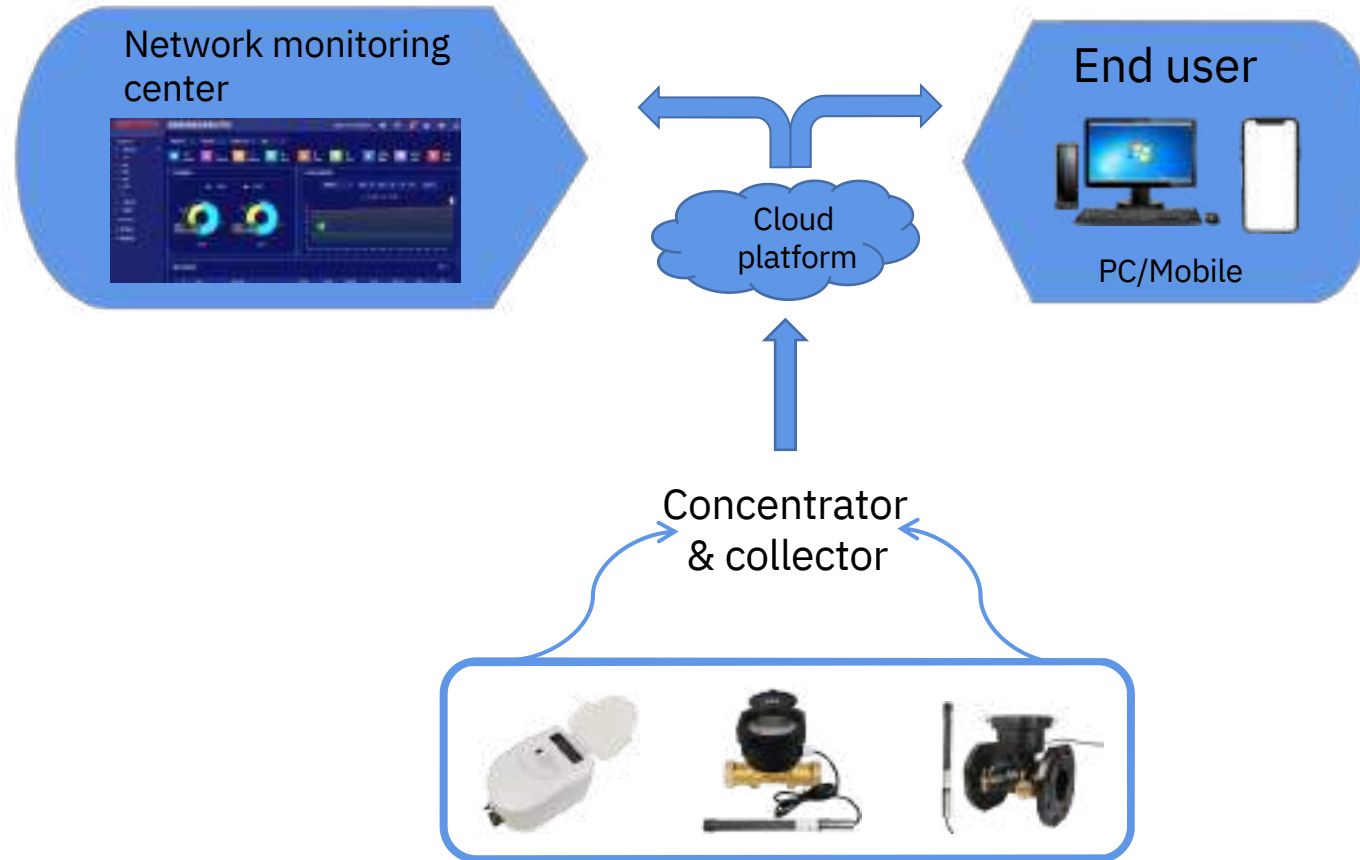


Without valve

DN50~DN600

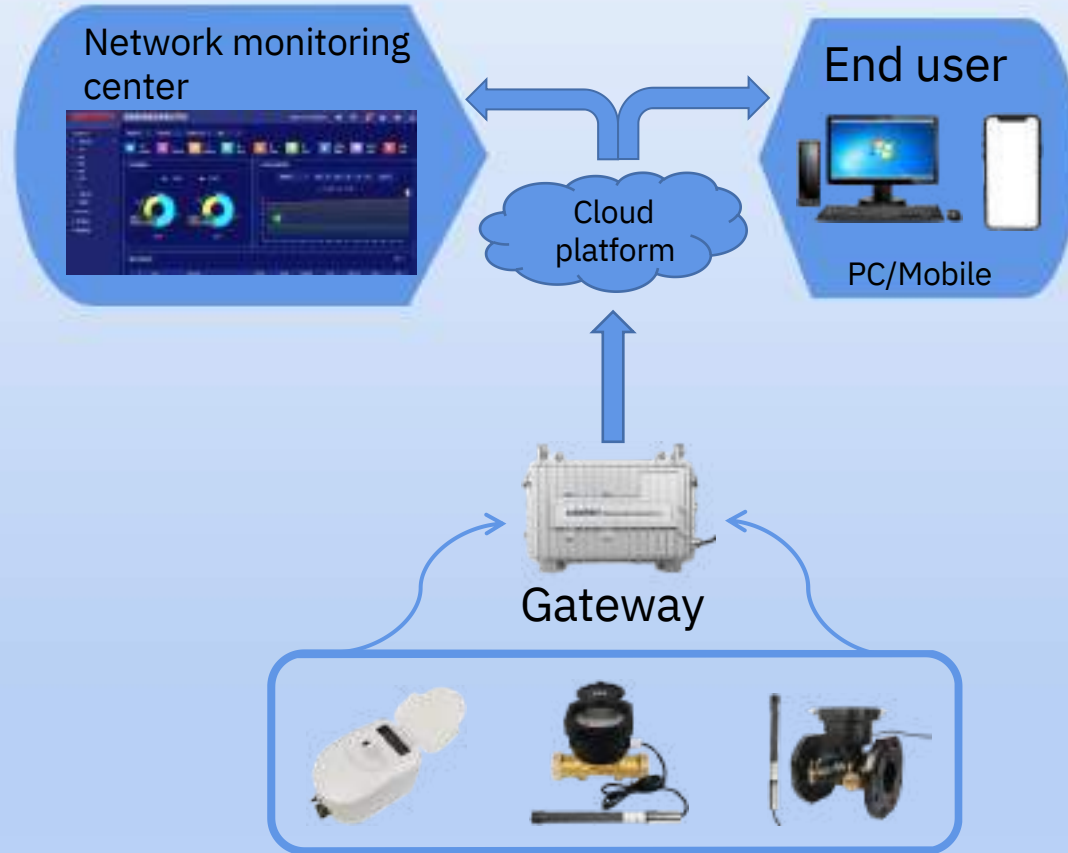


2.1 Working principle--Wired remote type

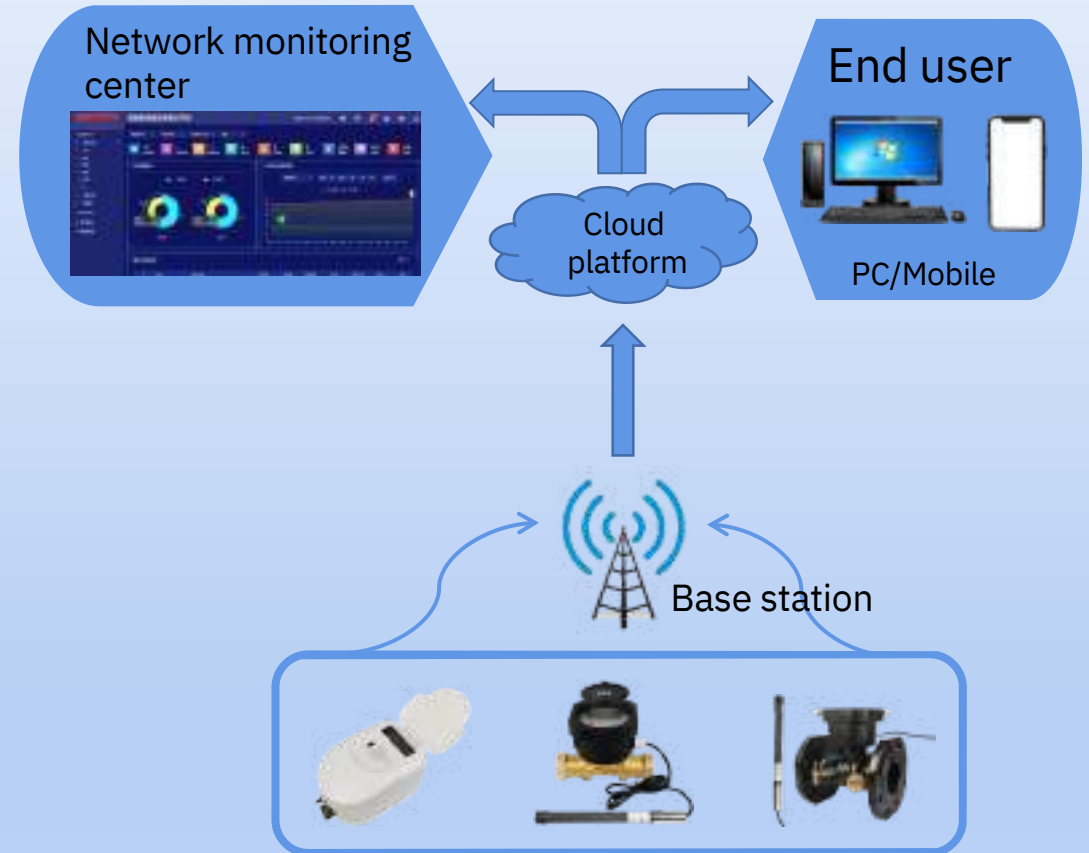


RS485 / M-BUS

2.2 Working principle--Wireless remote type



LORAWAN



NB/4G network

2.3 Common ultrasonic water meter parameters

● Ultrasonic water meter

Medium Accuracy class	Domestic water (other liquids need to be customized) and filled with pipes
Ratio	Class B
DN	R250 (default), R400
PN	DN15~DN300
Working environment	1.6MPa
Pressure loss	Level B
Temperature class	$\leq \Delta P40$
Sensitivity level	T30/T50/T90 (for option)
Electromagnetic compatibility level	U10/D5
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Power supply	RS485 / MBus / NB-IOT / LORA / infrared
Protection class	Inner lithium battery (3.6V)
Press key	IP68
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Data storage	Accumulated flow, instantaneous flow, unit, status prompt
Measuring period	Using EEPROM to store data and automatically record accumulated traffic for the first 24 months
Average Power	4 times/second <100UA
Working environment	-25°C~55°C, $\leq 93\%RH$

2.4 Functions:

1. Accurate measurement

Using picosecond level high-precision chips, with high measurement accuracy and low initial flow rate, it is possible to achieve dripping measurement.

2. Data storage

It can store 24 monthly records, 360 daily records, and 192 hourly records. The data content includes cumulative flow rate (0.01m³), maximum flow rate (0.01m³/h), water flow time (minutes), minimum temperature (degrees Celsius), sensors, signal strength, alarm status, record generation time, etc. The data can be stored for a long time after power outage.

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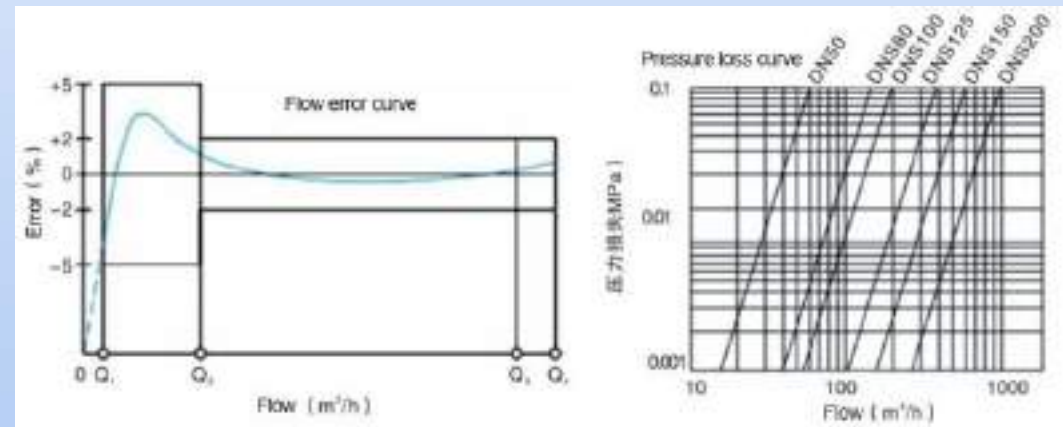
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2.5 Flow range

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40	R250	0.016	0.064	0.128	16	20
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Flow error & Pressure loss curve



3. Ultrasonic heat meter

Summary:

Ultrasonic cold and heat meter is an intelligent heat metering device, which realizes accurate measurement of cold and heat. The product is characterized by beautiful appearance, convenient installation, accurate measurement and stable operation. It fully conforms to CJ128-2007 standard and JJG225-2001 national standard verification regulation. It is used in heating facilities with heat metering and charging such as residential units, central heating, central air conditioning and combined cooling and heating.



3.1 Measuring principle and characteristics

● Principle composition:

The ultrasonic cold and heat meter is used to measure the heat released or absorbed by the heat exchange system, which can be used in heating systems or air conditioning refrigeration systems. This product mainly consists of paired temperature sensors (measuring the temperature of inlet and outlet water), flow sensors (measuring the volume of hot water passing through the pipeline), and calculation parts (calculating and displaying the used cold and heat).

● Product description:

- ① Comply with the latest national standard GBT32224-2020, industry standard CJ128-2007, and national metrological verification regulation JJG225-2001
- ② High range ratio (maximum 400:1)
- ③ Self diagnosis function: flow sensor fault alarm, temperature sensor fault alarm, measurement over range alarm, battery undervoltage alarm
- ④ Automatic data error correction technology effectively resists interference and ensures data stability
- ⑤ Built in lithium battery power supply ensures over (6+1) years of use
- ⑥ Equipped with photoelectric interface and supporting handheld infrared meter reading tool for on-site reading
- ⑦ Optional wired communication interface (M-BUS, 485) or wireless communication interface (LoRaWAN, NB IoT)
- ⑧ Optional power supply methods:
 - 1) Built in battery powered (default configuration)
 - 2) External power supply (used in 485 configuration, voltage range: DC (7.5-24) V) (to be specified when ordering)
- ⑨ Countable reverse flow
- ⑩ Horizontal and vertical installation, convenient for construction

3.2 Technical parameter

Performance		Parameters				
Nominal diameter		DN15	DN20	DN25	DN32	DN40
Range ratio		R100, R50 for option (R50 for example)				
Common flow rate (m ³ /h)		1.5	2.5	3.5	6	10
Maximum flow rate (m ³ /h)		3	5	7	12	20
Minimum flow rate (m ³ /h)		0.03	0.05	0.07	0.12	0.2
Measurement range	Temperature range (°C)	4-95				
	Temperature difference range (K)	3-75				
	Maximum working pressure (MPa)	1.6				
	Maximum pressure loss (MPa)	≤0.015				
Accuracy level		Class 2				
Temperature resolution (°C)		0.01				
Environmental temperature (°C)		-20~55				
Working life		10 years				
Protection level		IP65				
Data communication	Optical interface	Baud rate 2400bps, CJ188 protocol				
	M-Bus/RS485	M-Bus, CJ188 protocol (default), RS485, Modbus protocol				
	Wireless	LoRaWAN, NB-IOT, WMBus				
Pipe section material		Brass, stainless steel				
Data storage		Up to 36 months of cumulative data, alarm occurrence time, and alarm source or daily storage of up to 2 years of historical data				
Instrument installation position		Water inlet				

3.3 Installation of heat meter

Installation method of horizontal pipe section:

When the heat meter is installed horizontally, the direction of the integrator is facing upwards. If the direction of the integrator is facing sideways and the two transducers are not on the same horizontal plane, air may accumulate at the high transducer, causing the heat meter to measure incorrectly or not, as shown in the following figure:

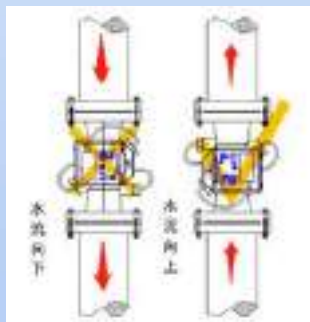


Horizontal installation surface facing the side

Horizontal installation surface facing upwards

Vertical pipe section installation method:

The vertical installation of a heat meter must be installed on a straight pipeline with water flowing upwards, as the water in the pipeline with water flowing downwards cannot fill the pipeline, which can also affect the inaccurate or even non measurement of the heat meter, as shown in the following figure:

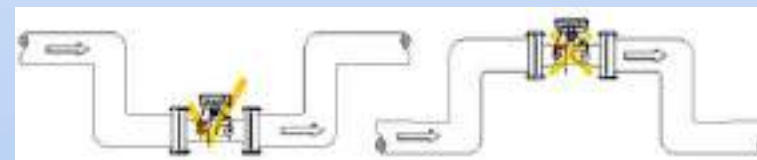


Flow downwards

Flow upwards

Installation method of U-shaped pipe section:

When installing the heat meter at the U-shaped pipeline, it is necessary to install the heat meter at the lowest position. There may be bubbles at the height of the pipeline, resulting in inaccurate or non metering of the heat meter, as shown in the following figure:



4. Workshop show--Glue & Assembly room



4. Workshop show--Calibration test bench



4. Workshop show--Finished products



THANK YOU FOR YOUR TIME

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Công ty TNHH Valvelink

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