

Saddle:

- Designed and manufactured according to ISO 13460
- Hydrostatic pressure resistance for 20 bar according to ISO 13460
- With galvanized nuts and bolts
- With unbreakable galvanized brass thread
- With a holder to keep the screw and a wrench for installation
- The thread is according to ISO 228-1
- Supply with 1/2" and 3/4" sizes



Corporation Valve:

- Manufactured by warm forging method
- With ball valve mechanism and warm nickel- chrome coated ball
- Use of brass alloy according to DIN17660
- Pressure resistance PN16 according to BS 5154
- Appropriate O-ring for optimum water tightness in accordance with EN 681
- With water tightness rubber according to BS EN 681



Poly Ethylene Male Threads Elbow:

- *manufactured according to ISO 14236*
- *Hydrostatic pressure resistance according to ISO 14236*
- *Resistant to pressure and impact*
- *Appropriate water tightness O-rings according to BS EN 681*
- *Instalable on PE and PEX pipes*
- *Thread is according to ISO 228-1*
- *Supply with 1/2" and 3/4" size*



Poly Ethylene Equal Elbow:

- *Made of polypropylene*
- *manufactured according to ISO 14236*
- *Hydrostatic pressure resistance according to ISO 14236*
- *Resistant to pressure and impact*
- *Appropriate water tightness O-rings according to BS EN 681*
- *Instalable on PE and PEX pipes*
- *Thread is according to ISO 228-1*
- *Supply with 1/2" and 3/4" size*



Underground Water Meter Box

- Pressure resistance and hardness according to BS5834-4 Class C
- With uniform body to provide required resistance in long term
- Offered with polymer and cast iron cover
- Enough room for one or two connections



Poly Ethylene Female Thread Fitting:

- manufactured according to ISO 14236
- Hydrostatic pressure resistance according to ISO 14236
- Resistant to pressure and impact
- Appropriate water tightness O-rings according to BS EN 681
- Thread is according to ISO 228-1
- Supply with 1/2" and 3/4" size



Male Thread Lockable Valves with all accessories

- Manufactured by warm forging method
- With ball valve mechanism and nickel-chrome coated balls.
- Made of brass according to DIN 17660
- Pressure resistance PN 16
- With special wrench
- Leakage reduction
- Lockable to prevent unauthorized access.
- With suitable water tightness O-ring according to BS EN 681
- Supply with 1/2" and 3/4" size



Brass Ball Valve-Cock Handle

- Manufactured by warm forging method
- With ball valve mechanism and nickel-chrome coated balls.
- Use of brass alloy according to DIN 17660
- Pressure resistance PN 16
- With suitable water tightness O-ring according to BS EN 681
- Supply with 1/2" and 3/4" size



Lockable Water Meter Setter:

- Combining the meter setter and meter lock to highlight the importance of installing the meter setter.
- A Prevention of unauthorized access
- Special design to avoid unlocking
- Installable on all kinds of water meters
- Installable for water meters from 1/2" to 3/4" sizes



Domestic Water Meters 1/2" and 3/4" – DN40 (PH16)

3.2.1 General

The specified domestic meters shall be suitable for the Measurement of the individual drinking water consumption in domestic properties, commercial, public buildings and Enterprises.

Generally all domestic meters shall be suitable for in-house And/ or outdoor installation in meter chambers.



3.2.2 Technical Specification

Suitable for the application of flow measurements of potable water The body of the meters will be constructed from corrosion proof cast brass and protected internally and externally to chemically aggressive water through complete powder coating (minimum thickness of 250 µ m).

All water meters shall comply with the ISO standard 4064, part 3, over the complete flow range. Respective test certificates for head-losses and typical error curves shall be a mandatory attachment to the bidding documents.

All meters shall be suitable for cold water up to +30 degrees with a short time security up to +50 degrees. The operating pressure shall be 16 bars, and it should be protected externally to chemically aggressive water through complete powder coating (minimum thickness of 60 µm). Plastic painting is not acceptable. All meters shall be of metrological class B.

The design of all meters shall be modular, consisting of the meter body and separate measuring chamber. The measuring chamber shall be removable and quickly exchangeable without removing the meter body.

All water meters shall be of "Dry Dial Multi-let Vane Wheel Type" and comply with the metrological class B.

All meters shall have clearly visible the following durable marks and information: manufacturer's name, production year, meter number, stamp of ISO certification, flow direction, nominal flow and water meter class.

All water meter shall have a verification mark which must be visible without removal of the meter. Provisions for preventive sealing of properly installed water meters and the sealing of the calibration device are mandatory requirements.

The vane wheel of the meter shall have a replaceable sapphire bearing and will be magnet ring inserted. The shafts of the gear wheels inside the measuring insert shall be manufactured of high grade stainless steel. Protection against magnetic manipulation for all delivered water meters shall be mandatory.

All parts of the measuring insert, including the roller counter parts shall be replaceable.

The roller counter shall measure water consumption by straight reading in m³ (5 digits). Sub metering shall be displayed by 4 pointers. A flow indicator shall be a mandatory additional requirement for the water meter.

For easy and accurate calibration and adjustment, dials shall register to permit accurate reading of 0.5% of nominal discharge.

Some domestic water meters shall be delivered with additional read contact devices, adjustable to 1/10/100/1000 l/h.

The *Foot-stop* shall be *pressed-in* and made of *high grade stainless steel*, *not adjustable*, *replaceable*

The *lens* of the counter shall be *manufactured from hardened glass*. A *protection cover* will protect the counter lens against *scratching* and will be *manufactured of high quality plastic material* according to *international standards*.

Internal mechanism of all water meters must be *suitable to be placed also in housing* from other water meter producers (*WVG-housing*)

A *summary of the technical specification* is given in the table below :

Technical Item	unit	1.5	2.5	3.5	4	15	25
Nominal diameter	mm	15	20	25	30	40	50
Nominal pressure	bar	10	10	10	10	10	10
Nominal temperature	°C	50/55	50/55	50/55	50/55	50/55	50/55
Body thread		G 1/2"	G 1"	G 1 1/4"	G 1 1/2"	G 2"	G 2 1/2"
Length	mm	100	120	150	180	200	230/250
Weight	kg	variable					
Stroke volume	mm	variable					
Material		stainless					
Display resolution		0.1, 0.01 or 1,000					
Labels		0.1, 0.01 or 1,000, 0.001, 0.01, 0.1, 1, 10					

Additionally all meter inlets shall incorporate a *strainer*. The *strainer screen* shall be *rigid*, *fit snugly*, *easy to replace* and will have an *efficient straining area* of at least *two times* of the *inlet diameter*.

A *return flow restrictor*, *manufactured according to international standards (DIN / ISO)* or *equivalent international standard* shall be *part of delivery* for each water meter in compliance with the following details:

- *Body and components manufactured from POM*
- *Spring from stainless steel*
- *Diaphragm manufactured from rubber*
- *In compliance with DVGW and KfWA*

Threaded connector sets (water meter couplings) shall be *manufactured from high quality brass*, *consists of one nut* with *sealing facility* against *manipulation*, *sockets and O-ring gaskets* and *delivered together* with each *ordered domestic water meter*.

All connector sets shall comply with the following

Meter size (in)	Length of the thread (mm)	Wrench size (mm)
1/2"	24	20
3/4"	27	22
1"	30	24
1 1/4"	33	27
1 1/2"	36	30
2"	42	36
2 1/2"	48	42

3.2.3 Spare Parts

Spare parts for the repair of domestic water meters shall be delivered according to the experience of the manufacturer up to the end of the life time cycle of offered meters. A summary of spare parts necessary, itemized, priced and duly signed shall be attached to the quotation.

3.2.4 Accessories

For water meter installation one set of sealing pliers, sufficient seals and sealing wires (for minimum 50% of water meters) shall be delivered for each provincial town. A summary of accessories necessary, itemized, priced and duly signed shall be attached to the quotation.

3.2.5 Testing of Water Meters for House Connections

Water meters for house connections shall be tested and calibrated at the factory in accordance with test certificates shall be issued and submitted to the Engineer for approval. The meters shall bear the seal of the calibration bank. The certificate shall include precise information on the test and calibration processes applied.

Tests shall be conducted with 10 meters out of 1000 but not less than 5 per each size. Test pressure shall be 10 bar during 15 minutes. Meters shall show no of leakages of body and seals. The hydraulic parameters shall be determined and compared to the requirements of the standard. If two or more meters do not pass the tests, the batch shall be rejected.

Male Thread Check Valve

- manufactured by warm forging method
- With ball valve mechanism and nickel-chrome coated balls.
- Use of Brass alloy according to DIN 17560
- Pressure resistance PN 16
- Leakage reduction
- Cost reductive
- Supply with 1/2" and 3/4" size



Poly Ethylene Male Thread Fitting:

- Made of polypropylene
- manufactured according to ISO 14236
- Hydrostatic pressure resistance according ISO 14236
- Resistant to pressure and impact
- Appropriate water tightness O-rings according to BG EN 681
- Thread is according to ISO 228-1
- Supply with 1/2" and 3/4" size



Water taps:

Minimum and maximum working temperatures: 0°C, 80°C.
Thread ISO 228 (equivalent to DIN EN ISO 228 and BS EN ISO 228).



METER SEALS

1. Application: the products shall be fit for water supply fitting
Specially for water meter
2. Material: Lock body: PC; Wire: stainless steel covered with nylon
3. Strength: more than 30kg
4. Printing: stamping or laser engraving; company logo or name, serial number, barcode are shall be available.
5. Wire diameter is 0.6 – 1mm, it is flexible
6. Wire standard length shall be 250mm



Protective Tapes

Marker tapes shall serve to mark location of pipes in the ground and to prevent unforeseen uncovering and damage to the Pipe. Tape shall satisfy the requirements of EN12613. Thickness shall be not less than 0,25 mm and width shall be 50 mm. Colour shall be blue. The tape shall be supplied in coils of 250 m.



Galvanised Steel Pipes with Fittings

Standard reference IS NF 49.700 or equivalent.

Pipes and fittings shall be hot dip galvanised.

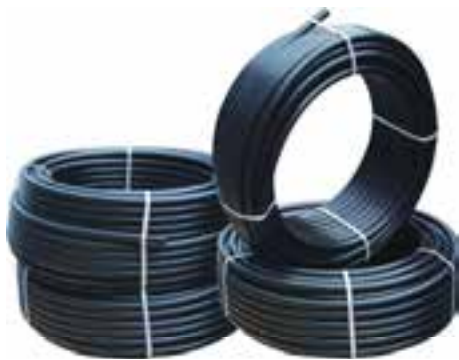
The zinc mass on the pipe shall be minimum 4 g/dm² per side.

The coating shall be homogenous



HDPE PIPE

PE 100 Dimension conforming to ISO 4427, DIN 8074 & PrEN 12201 Specification



PE 100 PIPE DIMENSION CONFORMING TO ISO 4427, DIN 8074 & PrEN 12201 SPECIFICATIONS

NO	D	PE 100 PIPE DIMENSION CONFORMING TO ISO 4427, DIN 8074 & PrEN 12201 SPECIFICATIONS															
		S 20		S 12.5		S 10		S 8		S 6.3		S 5		S 4		S 3.2	
		PN 4		PN 6.3		PN 8		PN 10		PN 12.5		PN 16		PN 20		PN 25	
		SDR 41		SDR 26		SDR 21		SDR 17		SDR 13.6		SDR 11		SDR 9		SDR 7.4	
		S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m	S	Mass in kg/m
1	16													1.80	0.08	2.20	0.10
2	20									1.80	0.11	1.90	0.11	2.30	0.13	2.80	0.15
3	25							1.80	0.32	1.90	0.14	2.30	0.17	2.80	0.20	3.50	0.24
4	32							1.90	0.19	2.40	0.23	2.90	0.27	3.60	0.33	4.40	0.39
5	40			1.80	0.23	1.90	0.24	2.40	0.30	3.00	0.36	3.70	0.43	4.50	0.51	5.50	0.60
6	50			2.00	0.31	2.40	0.37	3.00	0.45	3.70	0.55	4.60	0.67	5.60	0.79	6.90	0.94