Large meter installation requirements and sizing guide

Meters 32 mm or greater

Barwon Water
1 Commercial and Industrial Metering

1.1 Installation requirements for meter sizes 32 mm and above

Only Barwon Water supplied and approved meters will be accepted on meter installations and must comply with the National Measurement Act as administered by the National Measurement Institute’s specifications and codes, be compliant with NMI R49-1 and AS 3565.

Meters shall be installed in accordance with AS/NZS 35000; and AS 28452, and Barwon Water, Metering Policy.

No water meter or fire service leak detector check valve with bypass meter shall be placed in a location that creates an OH&S issue for either the public or Barwon Water personnel, limits access or is a “Confined Space”.

No water meter is to be located near or in an electrical cabinet or electrical control room.

1.2 Backflow

To protect the water supply system and the public from any potential backflow incidents Barwon Water requires all new connections and existing medium and high hazard rated properties to install a “Backflow Prevention Device (BPD)” at the water meter assembly. The BPD/s shall be appropriate to the development type as specified in AS/NZS 3500, and must be of a rating which is equal to or greater than that required to protect a zone and or individual hazard within the development. If the BPD is a testable device then it must be tested in accordance to AS/NZS 2845 at commissioning stage of the meter installation.

(a) If a testable Reduced Pressure Zone (RPZ) device is installed, the relief valve of the RPZ must be a minimum 300mm to and above the natural ground

1.3 Valves

Resilient seated flanged gate valves are required for all meter assemblies 80mm DN and over. If Dura butterfly valves are used, they must be either flanged or lugged type and they must also have a geared spindle.

NOTE: Quick shut off valves, sandwich or wafer butterfly valves are not acceptable.

1.4 Meter assembly set up – general requirements

(a) Barwon Water requires meters DN 32 or larger be set at a minimum height of 300mm and supported independently of piping supporting the meter in a horizontal position.

(b) All meters assemblies shall be installed in a horizontal position and correctly supported inline with AS/NZS 3500.

(c) The meter is installed with the dial face in a position where an unassisted person standing on the floor can easily read it.

(d) All installations DN 32mm and greater must be fitted with a test ferrule immediately down stream of the water meter and prior to the outlet valve.

(e) The RPZ relief valve must to be 300mm be above the natural ground

(f) No Branch pipe is closer than the lower outlet bend of the water meter assembly

(g) All meters installed in industrial or commercial buildings must at all times be provided with clear safe access around the water meter to enable reading, testing, inspection, maintenance and exchange at all times. This may include a secured fenced area with external access via gate.

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1 Reference: AS/NZS 3500 National Plumbing and Drainage part 1 Water Services
2 Reference: AS 2845 Water supply – Backflow Prevention devices
3 Reference: Plumbing Regulation 1998 No. 148 part 31D ref. 12.8
(h) The water meter including the pipes and fittings must not be embedded in concrete formwork or concrete walls.

(i) Meters shall be installed within 7 days (1 week) of issue.

1.5 **Meter selection and application guide – 32 mm to 150mm including (Magflow)**

Meter that fall in to four categories - Positive Displacement (PD), Single Jet (SJ) meters, Helix (Turbine) and Magflow meters

**Meters available to Barwon Water and Application**

<table>
<thead>
<tr>
<th>Size</th>
<th>Manufacture and model</th>
<th>Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>32mm</td>
<td>ELSTER – PSM</td>
<td>(PD)</td>
<td>75% LOW FLOW 25% MED FLOW</td>
</tr>
<tr>
<td>32mm</td>
<td>ACTARIS - TD8</td>
<td>(PD)</td>
<td>75% LOW FLOW 25% MED FLOW</td>
</tr>
<tr>
<td>40mm</td>
<td>ELSTER – PSM</td>
<td>(PD)</td>
<td>75% LOW FLOW 25% MED FLOW</td>
</tr>
<tr>
<td>40mm</td>
<td>ELSTER – PSM</td>
<td>(PD)</td>
<td>50% LOW FLOW 50% MED FLOW</td>
</tr>
<tr>
<td>40mm</td>
<td>ACTARIS – FLOWSTAR</td>
<td>(SJ)</td>
<td>RADIO READ</td>
</tr>
<tr>
<td>50mm</td>
<td>ELSTER – KG2000</td>
<td>(PD)</td>
<td>75% LOW FLOW 25% MED FLOW</td>
</tr>
<tr>
<td>50mm</td>
<td>ELSTER – HELIX 5000 Digital display comes with Logging Cable pre-installed</td>
<td>(Turbine)</td>
<td>25% LOW FLOW 50% MED FLOW 25% HIGH FLOW</td>
</tr>
<tr>
<td>50mm</td>
<td>ACTARIS – FLOWSTAR</td>
<td>(SJ)</td>
<td>RADIO READ</td>
</tr>
<tr>
<td>80mm</td>
<td>ELSTER – HELIX 5000 Digital display comes with Logging Cable pre-installed</td>
<td>(Turbine)</td>
<td>25% LOW FLOW 50% MED FLOW 25% HIGH FLOW</td>
</tr>
<tr>
<td>80mm</td>
<td>ACTARIS – FLOWSTAR</td>
<td>(SJ)</td>
<td>RADIO READ</td>
</tr>
<tr>
<td>100mm</td>
<td>ELSTER – HELIX 5000 Digital display comes with Logging Cable pre-installed</td>
<td>(Turbine)</td>
<td>25% LOW FLOW 50% MED FLOW 25% HIGH FLOW</td>
</tr>
<tr>
<td>100mm</td>
<td>ACTARIS – FLOWSTAR</td>
<td>(SJ)</td>
<td>RADIO READ</td>
</tr>
<tr>
<td>100mm</td>
<td>DETECTOR CHECK WITH 40MM BY-PASS METER</td>
<td></td>
<td>FIRE SERVICE Only</td>
</tr>
<tr>
<td>150mm</td>
<td>DETECTOR CHECK WITH 40MM BY-PASS METER</td>
<td></td>
<td>FIRE SERVICE Only</td>
</tr>
<tr>
<td>100mm</td>
<td>MAGFLOW</td>
<td>HIGH VOLUME USERS, TRADE WASTE &amp; FIRE SERVICE WHEN SPECIFIED</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** – Actaris meters can be supplied as radio read meters

Actaris flowstar models are suitable for small bore hose reel services
1.6 Meter assembly set up – 32 mm, 40 mm and 50 mm

1.6.1 Non-testable meter assembly (see Diagram 1)

Meter that fall into this category are Positive Displacement (PD) and Single Jet (SJ) meters:

(a) 32mm ELSTER – PSM (PD)
(b) 32mm ACTARIS - TD8 (PD)
(c) 40mm ELSTER – PSM (PD)
(d) 40mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(e) 50mm ELSTER – KG2000 (PD)
(f) 50mm ACTARIS – FLOWSTAR (SJ) RADIO READ

Diagram 1

[Diagram showing meter assembly setup]
1.6.2 Testable meter assembly (see Diagram 2)

Meter that fall in to this category are meter assemblies fitted with RPZ

A Barwon Water Backflow agreement is required for these types of installations

(a) 32mm ELSTER – PSM (PD)
(b) 32mm ACTARIS - TD8 (PD)
(c) 40mm ELSTER – PSM (PD)
(d) 40mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(e) 50mm ELSTER – KG2000 (PD)
(f) 50mm ACTARIS – FLOWSTAR (SJ) RADIO READ

Diagram 2
Meter assembly set up – 80 mm and 150 mm (Single Jet) radio read

1.6.3 Non-testable meter assembly (see Diagram 3)

Meter that fall into this category - Single Jet (SJ) meter assemblies

(a) 80mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(b) 100mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(c) 150mm ACTARIS – FLOWSTAR (SJ) RADIO READ

Diagram 3

NOTE:
Back flow devices must be installed to meet AS/NZS 3500
This is to meet the meter manufactures’ installation requirements
1.6.4 Testable meter assembly (see Diagram 4) radio read

Meter that fall in to this category - Single Jet (SJ) meter assemblies fitted with RPZ

A Barwon Water Backflow agreement is required for these types of installations

(a) 80mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(b) 100mm ACTARIS – FLOWSTAR (SJ) RADIO READ
(c) 150mm ACTARIS – FLOWSTAR (SJ) RADIO READ

Diagram 4

Back flow devices must be installed to meet AS/NZS RPZ to be minimum 300mm above the ground from the lowest point

NOTE:
Back flow devices must be installed to meet AS/NZS

BARWON WATER
SINGLE JET METER ASSEMBLY
WITH TESTABLE BACK FLOW DEVICE

DRN. Henry Freise NOVEMBER 1999
SCALE: N.T.S. © Copyright

Outlet Valve
Testable Device
Relief Valve
Dirtbox
Inlet Valve

Test ferrule size
20mm ———— 32 mm to 80mm
25mm ———— 100mm
40mm ———— 150mm

Meter size
Resilient Seated Lugged Geared Valves
Strainer
Down stream Flow straightener Dia x 3

Flow

Dia x 3

High
Medium
Hazard rating to be determined on application

Outlet Valve
Relief Valve
Dirtbox
Inlet Valve

Testable Device
1.7  **Meter assembly set up – 50 mm and 150 mm (Helix)**

1.7.1  **Non-testable meter assembly (see Diagram 5)**

Meter that fall in to this category Helix meters

(a) 50mm  ELSTER – HELIX 5000  
(b) 80mm  ELSTER – HELIX 5000  
(c) 100mm  ELSTER – HELIX 5000  
(d) 150mm  ELSTER – HELIX 5000  

Digital display comes with Logging Cable pre-installed  

**Diagram 5**

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**Diagram 5**

**NOTE:**  
Back flow devices must be installed to meet AS/NZS 3500
Up stream (US) Flow Straightener or (length of pipe = Dia x 5) to be fitted between last up stream disturbance (eg. Dirtbox and meter.)
Down stream (DS) Flow Straightener length or (length of pipe = Dia x 5) = (Test ferrule to be installed on DS flow straightener)
This is to meet the meter manufactures’ installation requirements
1.7.2 Testable meter assembly (see Diagram 6)

Meter that fall in to this category are Helix meter assemblies fitted with RPZ

A Barwon Water Backflow agreement is required for these types of installations

(a) 50mm ELSTER – HELIX 5000
(b) 80mm ELSTER – HELIX 5000
(c) 100mm ELSTER – HELIX 5000
(d) 150mm ELSTER – HELIX 5000

Digital display comes with Logging Cable pre-installed

Diagram 6
1.8 Meter assembly set up – 100 mm and 150 mm (MagFlow)

1.8.1 Non-testable meter assembly (see Diagram 7)
Meter that fall in to this category MagFlow meters with integral or remote display

(d) 100mm SIEMENS - MAGFLOW
(e) 150mm SIEMENS - MAGFLOW

Diagram 7

Back flow device
Low — Hazard rating to be determined on application

NOTE:
240 Volt Power supply required
NO DIRT BOX REQUIRED ON MAG FLOW METERS
Back flow devices must be installed to meet AS/NZS 3500
Up stream (US) Flow Straightener or (length of pipe = Dia x 5) to be fitted between last up stream disturbance (eg. Dirtbox and meter.)
Down stream (DS) Flow Straightener length or (length of pipe = Dia x 3)– (Test ferrule to be installed on DS flow straightener)
This is to meet the meter manufactures' installation requirements
1.8.2 Testable meter assembly (see Diagram 8)

Meter that fall in to this category are MagFlow meter assemblies fitted with RPZ

A Barwon Water Backflow agreement is required for these types of installations

(d) 100mm SIEMENS - MAGFLOW
(e) 150mm SIEMENS - MAGFLOW

Diagram 8

**NOTE:**

- 240 Volt Power Supply required
- NO DIIRT BOX REQUIRED ON MAG FLOW METERS
- Back flow devices must be installed to meet AS/NZS
- RPZ to be minimum 300mm above the ground from the lowest point
- Up stream (US) Flow Straightener or (length of pipe = Dia x 5) to be fitted between last up stream disturbance (eg. Dirtbox and meter.)
- Down stream (DS) Flow Straightener length or (length of pipe = Dia x 3)– (Test ferrule to be installed on DS flow straightener)

This is to meet the meter manufactures’ installation requirements
1.9   Meter assembly set up – 100 mm x 40 mm and 150 mm x 40 mm

1.9.1   Metering of fire services (see Diagram 9 and 10)

Meter that fall in to this category (Can be with or without fire booster system)

(a)  100mm DETECTOR CHECK WITH 40MM BY-PASS METER
(b)  150mm DETECTOR CHECK WITH 40MM BY-PASS METER
(c)  If a Magflow meter is installed 5 x DN flow straightener must be fitted upstream of the meter

Diagram 9

Diagram 10
1.10 Meter assembly set up – 100 mm x 40 mm and 150 mm x 50 mm

1.10.1 Metering of single pipe lifestyle villages - where private sub-meters are installed (see Diagram 10 A & B and 11 A & B)

Meter that fall in to this category (with or without fire booster system)

(d) 100mm DETECTOR CHECK WITH 40MM BY-PASS METER
(e) 150mm DETECTOR CHECK WITH 50MM BY-PASS METER

Diagram 10A – Combined Fire Domestic Metering Solution with Metered Bypass and pressure Limiting Valve (No Booster)
Life style village Combined Fire Domestic Solution without booster - With Testable Backflow Prevention Device (NOT RPZ) and Pressure Limiting Valve (PLV to be set 20-30kPA less than available pressure (If RPZ fitted an additional single check shall be required immediately after both the RPZ’s to prevent relief valve on RPZ form operating during boosting operations.

100mm MagFlow Meter & 40mm by-pass meter, (by-pass meter can be MagFlow meter)
150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)

Normal Valve Positions and Alternate Valve Position
Life style village Combined Fire Domestic Solution without booster - With Testable Backflow prevention
100-150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)
Normal Valve Positions - 150mm must be lock open with FS003 Key on all Valves

Life style village Combined Fire Domestic Solution without booster - With Testable Backflow prevention
100-150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)
Alternate Valve Positions 150mm must be lock open with FS003 Key on all Valves
Diagram 11B – Combined Fire Domestic Metering Solution with Metered Bypass No pressure Limiting Valve (with Booster)

Life style village Combined Fire Domestic Solution with booster - With Testable Backflow prevention
100-150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)
Valves Normal Position 150mm must be lock open with FS003 Key on all Valves

Life style village Combined Fire Domestic Solution without booster - With Testable Backflow prevention
100-150mm MagFlow Meter & 50mm by-pass meter, (by-pass meter can be MagFlow meter)
Normal Valve Positions - 150mm must be lock open with FS003 Key on all Valves
1.11 **Meter assembly set up – 100 mm and 150 mm**

1.11.1 **Metering of trade waste (see Diagram 12 and 13)**

1.11.2 **Trade waste meter above ground assembly (see Diagram 12)**

Meter that fall in to this category are MagFlow meter assemblies with integral display (can be supplied with remote meter display)

Upstream and down-stream test ferrules to installed for in situ flow tests

All sizes SIEMENS - MAGFLOW

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**Diagram 12**

MagFlow meter with Integral display (shown)
Also available as remote display available (with 10m remote cable)

Up stream (US) Flow Straightener or (length of pipe = Dia x 5) to be fitted between last up stream disturbance (eg. Valve and meter.)

This is to meet the meter manufactures' installation requirements

Secure 240v power supply must be provided

NOTE:

Up stream (US) Flow Straightener or (length of pipe = Dia x 5) to be fitted between last up stream disturbance (eg. Valve and meter.)

Down stream (DS) Flow Straightener length or (length of pipe = Dia x 3)– (Test ferrule to be installed on DS flow straightener)

This is to meet the meter manufactures' installation requirements

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BARWON WATER

MAGFLOW METER ASSEMBLY
FOR ABOVE GROUND TRADE WASTE INSTALLATIONS

<table>
<thead>
<tr>
<th>DRN. Henry Freise</th>
<th>JUNE 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCALE. N.T.S.</td>
<td></td>
</tr>
</tbody>
</table>

Copyright
1.11.3 Trade waste meter below ground assembly (see Diagram 13)

A meter that fall in to this category are MagFlow meter assemblies with remote meter display. Flanged connections may be substituted buy using gibault joint or stain less band connections. Upstream and down-stream test ferrules to installed for in situ flow tests. All sizes SIEMENS – MAGFLOW

Diagram 13
2 Plumbing solutions: water and general fire service typical arrangements – Barwon Water

Water general and fire service typical arrangements

Legend

Note 1 For 20-25 services, a right-angled ball valve is required at the meter inlet.

Note 2 For 32+ services, Gate Valve at the meter inlet, a test ferrule and a gate valve downstream of the test ferrule, a Dirt Box is required for all services.

Note 3 For “Low Hazard” rating, containment protection is required. Non-Testable Backflow Prevention Device must be fitted on the outlet side of the meter.

Note 4 For “Medium & High Hazard” ratings, Containment protection is mandatory.

Note 5 Arrangement of valves to suite as per General service size applicable “Hazard Rating”.

Note 6 The threaded outlet of any testing ferrule must be “Capped or Plugged”.

Note 7 Double Check Valves may need to be fitted as protection on Fire Service Hose reels. Refer A.S. 3500 Part Appendix E.

Note 8 The fitting of a Single Check Valve or Backflow Prevention Device on the metered by-pass of a Check Valve is required.

Note 9 Where testable Backflow Prevention Devices are required, the isolating valve shown immediately upstream of the line strainer and immediately downstream of the device, must have resilient seated valves.
GENERAL SERVICE - LOW HAZARD (Residential/Industrial) TYPICAL ARRANGEMENT

(a) 20mm – 25mm Service

(b) 32mm – 50mm Service

(c) 50mm + Service where Flow Straightener is specified

NOTES 1 & 3 Apply

NOTES 2, 3 & 6 Apply

GENERAL SERVICE – MEDIUM/HIGH HAZARD (Industrial) TYPICAL ARRANGEMENT

(a) 20mm – 25mm Service

(b) 32mm – 50mm Service

(c) 50mm + Service where Flow Straightener is specified

NOTES 1, 4, & 9 Apply

NOTES 2, 4, 6 & 9 Apply
(e) Residential & Domestic Fire Sprinkler Service

(f) Booster Connection around Meter

FIRE AND GENERAL SERVICE: TYPICAL ARRANGEMENT

INTERCONNECTED FIRE AND GENERAL SERVICE CONNECTION TYPICAL ARRANGEMENT

(a) Single Water Main Fed both Directions

(b) Different Water Main with trident connection

NOTES 1, 2, 3, 4, 5 & 6 Apply

S APPLICABLE TO SUIT SERVICE TYPE, SIZE & HAZARD RATING.
RULES ARE REQUIRED ON ALL INTERCONNECTIONS.
FIRE AND GENERAL SERVICE - TYPICAL ARRANGEMENT

32mm – 50mm
Fire Hose Reel & General
Service with up to six
individual meters mounted

32mm – 50mm
Valves locked open
with 003 fire
service lock

Flow Straightener 5 X dia. up stream & 3
X dia. down Stream must be fitted
to all mag flow meters

Leak Detector Check Valve with metered bypass or
MagFlow Meter

Test Ferrule

Resilient seated Valve

Strainer

RPZ Backflow Prevention Device

Resilient seated Valve

Check valve

General fire &
Hose Reel service

NOTES 2, 3, 4, 5, 6 & 7 Apply

FIRE AND GENERAL SERVICE - TYPICAL ARRANGEMENT

Typical 100mm – 250mm General Water Service
with Metered Fire, General Service & Fire
Sprinkler Service

A Booster System may also
be incorporated in Fire
service
COMBINED FIRE AND DOMESTIC SERVICE WITH METERED BY-PASS FOR LIFESTYLE VILLAGES- TYPICAL ARRANGEMENT

Typical 100mm – 150mm General Water Service with Metered Fire-
Domestic with Metered By-Pass for lifestyle villages
Service & General Service Including Private Fire Plugs

With NO Booster or Booster downstream of Meter Assembly

240V AC power must be provided for MagFlow meter

NOTE
Flow Straightener 5 X dia. upstream & 3 X dia. down Stream must be
fitted to all mag flow meters

Valve

Pressure limiting Valve

Valve locked open with 003 fire

MagFlow

Test Ferrule

Valves

By-Pass Meter

Test Ferrule

Resilient seated

Strainer

RPZ Backflow Prevention

Resilient seated Valve

General Water Service

Direction of Flow

Resilient seated Valve

Strainer

RPZ Backflow Prevention

Resilient seated Valve

General fire & Hose Reel service
Including Private Fire plugs

Direction of Flow
COMBINED FIRE AND DOMESTIC SERVICE WITH METERED BY_PASS FOR LIFESTYLE VILLAGES- TYPICAL ARRANGEMENT

Typical 100mm – 150mm General Water Service with Metered Fire- Domestic with Metered By-Pass for lifestyle villages. Service & General Service Including Private Fire Plugs

A Booster System may also be incorporated in Fire service additional single check valve required to prevent RPZ device dump valve operating during boosting.

240V AC power must be provided for MagFlow meter

NOTE
Flow Straightener 5 X dia. upstream & 3 X dia. down Stream must be fitted to all mag flow meters.