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LTHW & Ch W SERVICES

PLASTIC TO IRON CONNECTIONS TO COMMISSIONING STATIONS

Number of sheets in report 11

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More jobs are now being installed with plastic pipe instead of copper or steel.

Whilst this is highly beneficial in many instances, there are major setbacks for commissioning activities. The connections used to couple the plastic pipe to commissioning stations are generally totally unsuited to the task. They may make the pipe joint in a satisfactory manner, but they destroy the readability of the commissioning station.

The double regulating valve section of the commissioning station may still be used to adjust the water flow, but a flow measurement cannot be taken.

The commissioning station needs a smooth flow of water, hence straight pipe being required on both sides. The disruption on the inlet side caused by the connector does not just cause inaccurate readings, it often causes constantly varying readings. These readings can even indicate reverse flow.

When systems are thus installed, the only balance possible is by return temperature balancing, using the commissioning station as a simple double regulating valve.

Plastic pipe installations should therefore always have a copper or steel section to connect to the commissioning station.

It would be helpful if the plastic pipe manufacturers made a special connector with extended length just for commissioning stations. To date, I have not seen one.

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COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013

CONTRACT Bad connections at commissioning stations

15mm connector fitted direct to commissioning station

Plastic to iron connector used.

Inlet side from plastic pipe side showing 8 mm dia internal size through which the water passes.+

Discharge side to the CS. 8 mm dia hole discharging towards the CS measuring points which gives a high velocity jetting effect as it expands to the 15 mm dia.

15mm connector fitted direct to commissioning station

Typical commissioning station with plastic in and out.
Commissioning stations should have, as an absolute minimum, a length of 5 diameters of straight pipe with internal diameter equal to the valve size. On the discharge side, this should be a mimimum length of 2½ diameters.

The connections on both sides of the 15 mm CS have 8 mm internal diameter.

That gives jetting on the inlet and the equivalent of hitting a partial wall on the discharge. Any reading from the CS would be meaningless.

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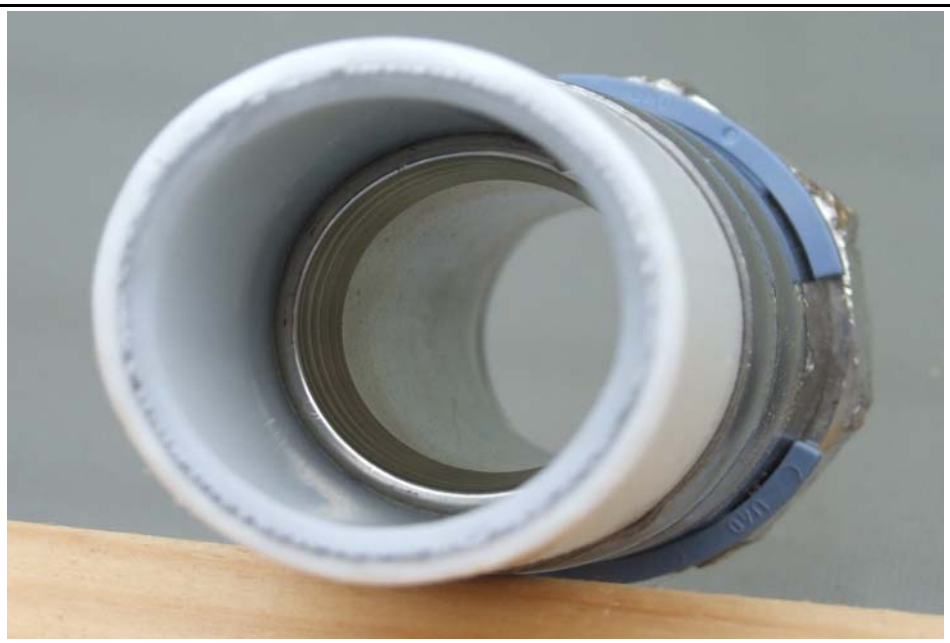
COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013

CONTRACT Bad connections at commissioning stations

32mm connector that was fitted direct to commissioning station

32mm connector fitted direct to commissioning station



Inlet side from plastic pipe
The strengthener inside acts like a reducing bush followed by a short taper.

Discharge side into commissioning station
Taper out to the commissioning station connection

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COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013 Sheet 6 of 11

CONTRACT Bad connections at commissioning stations

32mm connector was fitted direct to commissioning station

Connector sliced in half to show internals.
Initial readings from the commissioning station that this was connected to gave a variety of signals that indicated zero flow up to 42 % of the required flow rate. The pipe was altered to give a length of straight copper on either side instead, using standard copper to iron connectors

With the new configuration, the signal was stable and indicated a flow rate of 115% of the desired figure.

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COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013 Sheet 7 of 11

CONTRACT Bad connections at commissioning stations

15mm connector was fitted direct to commissioning station

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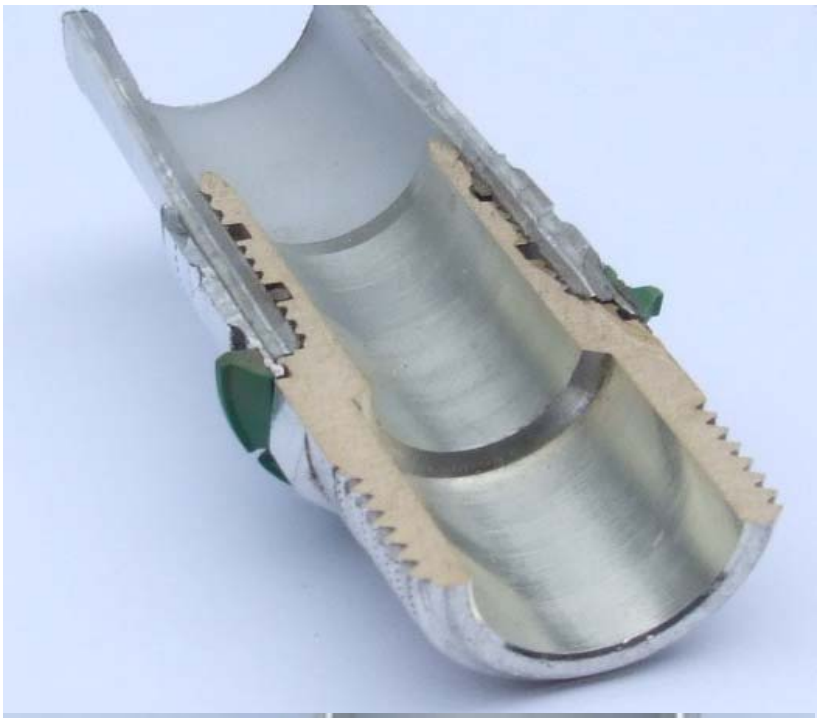
COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013 Sheet 8 of 11

CONTRACT Bad connections at commissioning stations

25mm connector was fitted direct to commissioning station



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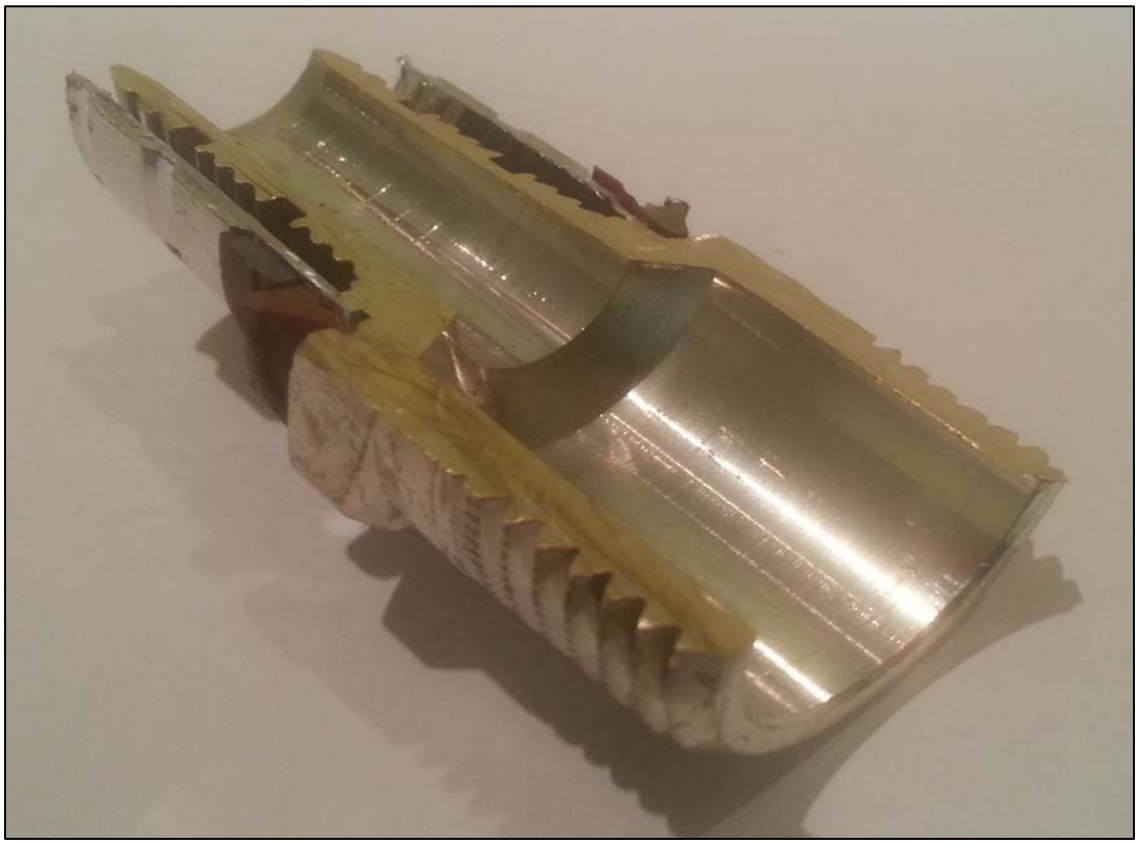
COMMISSIONING NOTES

ENGINEER J. Lawrence DATE 2013 Sheet 9 of 11

CONTRACT Bad connections at commissioning stations

Both are 25mm connector which were fitted direct to commissioning stations

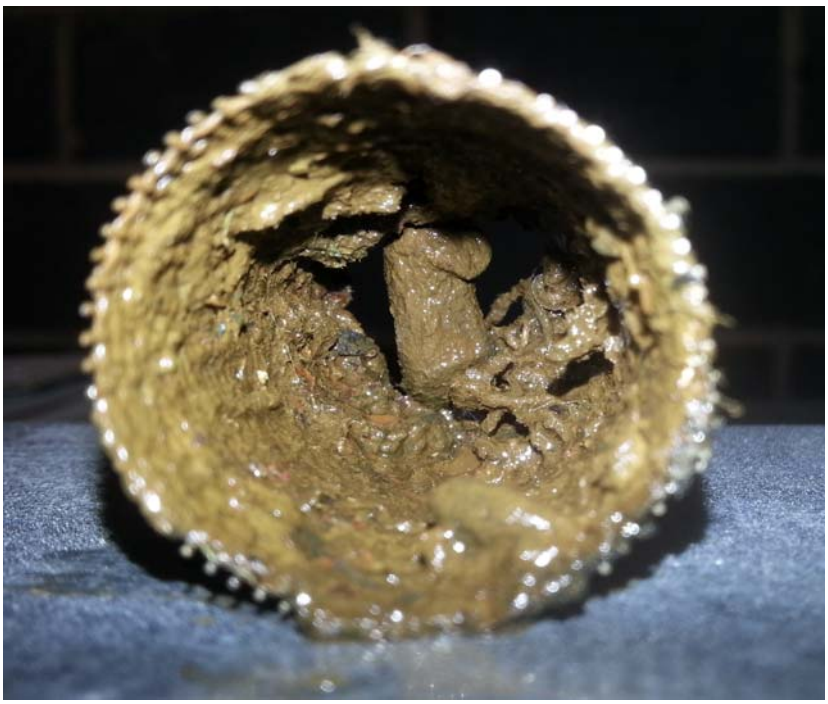


Reducer and strainer

A square reducer close to the CS inlet giving turbulence to the water flow as it approaches the test points. Thus a meaningless reading.

A strainer close to the CS inlet giving turbulence to the water flow as it approaches the test points. Thus a meaningless reading.

Just for interest



Building had a maintenance contract.