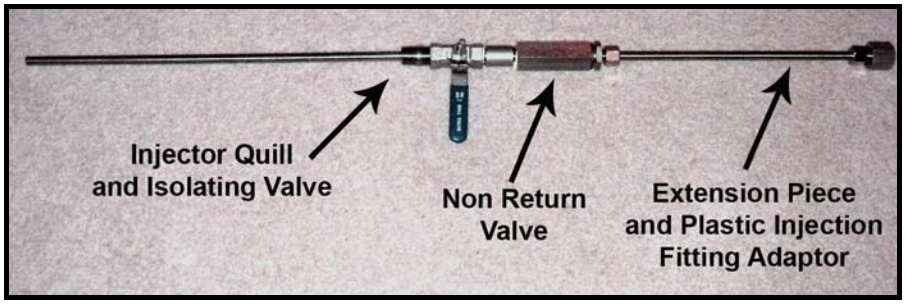
Stainless Steel Injection Fitting

The majority of modern electronic metering pumps are supplied with plastic delivery lines and injection fittings which are suitable for many applications.

However, if chemical delivery is required into steam boiler or hot water systems, care must be taken to ensure that the temperature at the injection point does not exceed the maximum rating of the materials in use.

Typically, the maximum temperature rating for plastic injection fittings is 60^{o}C and such materials should not be employed in higher temperatures to avoid component damage or failure and potential chemical leakage and hazard.

If dosage is required into such an application the Stainless Steel Injection Fitting can be used to provide a safe and simple installation.



The fitting is illustrated in the above photograph and consists of four main elements.

1. Injection quill
2. Isolating valve
3. Non return valve
4. Extension piece

In use the quill is cut to a length suitable to the point of injection and the plastic injection fitting supplied with the metering pump is screwed into the end of the extension piece.

The extension piece causes the heat to be dissipated such that the remainder of the installation can utilise the standard plastic lines supplied with the metering pump.

The isolation valve provides the additional benefit of being able to disconnect the plastic injection fitting for maintenance purposes without the need to drain or shut down the system being dosed.

The non return valve protects against the possibility of hot boiler water travelling back down the dosage line to the pump and dosage tank.

Full specifications and installation details are provided overleaf.

Pump Sizing

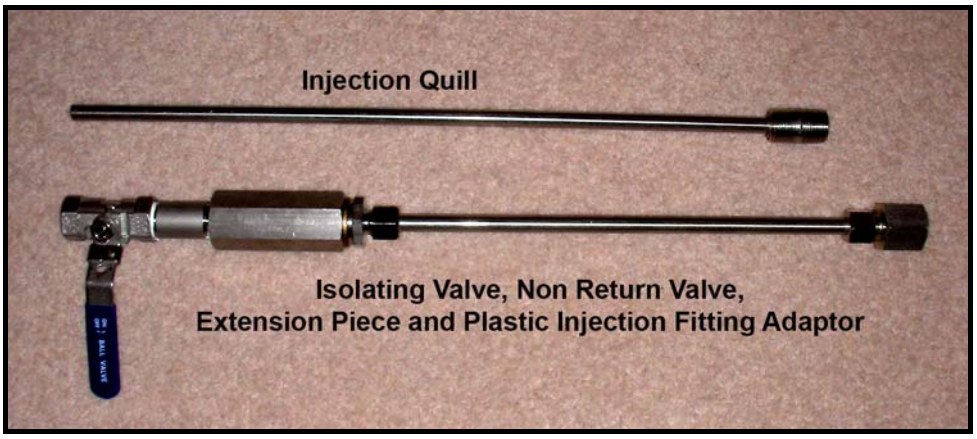
When sizing a suitable dosage pump, particular consideration must be given to pressure requirements.

When considering pressure, remember that both the plastic and stainless steel injection fittings each require 1 bar to overcome their resistance. These pressure losses must be subtracted from the maximum pressure capability of the dosage pump to determine the pumps' suitability to dose into the system being considered.

e.g. Boiler pressure = 10 bar

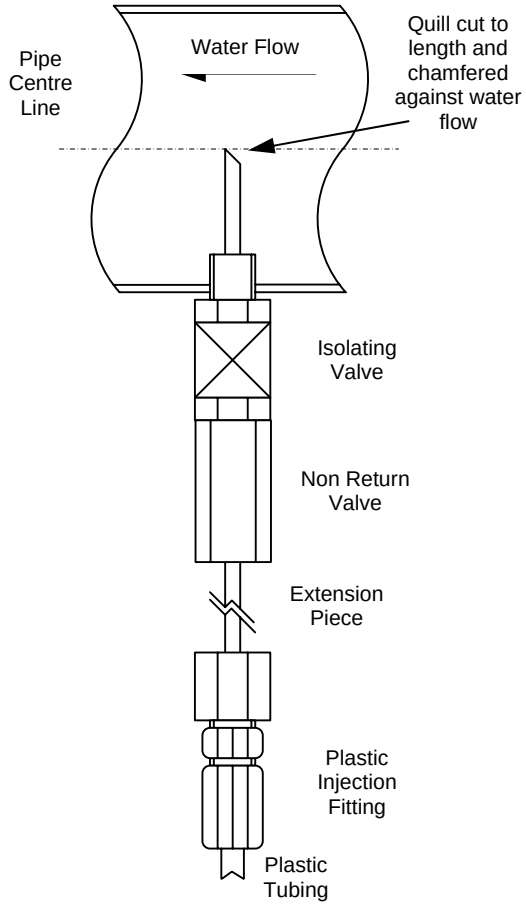
Pump will need to deliver 10 + 1 (plastic injection fitting) + 1 (SS NRV) + 1* = 13 bar to be suitable.

*NB, it is advisable to have at least 1 bar in reserve.



Installation

Localised corrosion can sometimes occur at the point of chemical injection if dilution at the injection point does not occur rapidly. To prevent this occurring, the injection fitting should be installed so that the end is in the centre of the flow stream of the line being treated. Trim the quill as required and chamfer the tip against the water flow as shown in the diagram.



Cut any quill off the plastic injection fitting.

Avoid injection points whereby the metal injection fitting cannot be removed unless the system being dosed is drained down.

Operation

Once the installation has been completed, prime the metering pump with clean water and then open the stainless steel injection fitting isolating valve to inject water through the line and injection assembly.

Once the installation is proven to be free of any leakage, add chemicals through the metering pump in the normal way.

Maintenance

To service the metering pump, delivery line or plastic injection fitting, close the isolating valve on the stainless steel injection fitting. A pressure relief or bleed valve should be installed between the metering pump and plastic injection fitting to enable the line pressure to be dissipated prior to removal of the plastic injection fitting.

Specification

- Materials of Construction; ..... Stainless Steel
- Maximum Pressure; ..... 350 bar
- Length of Quill; ..... 450 mm
- Outside Diameter of Quill; ..... 10 mm
- Quill Thread; ..... ½" BSPM
- Length of Extension Piece and Non Return Valve; 200mm
- Extension Piece Thread (To accept plastic injection fitting) ..... ½" BSPF (will also accept ½"NPT)

Publication WTP/ACC/SSIF/03/08