Innovative M&E Installation

ACT 5/2000 - Data sheet 5.11.2*

Push-Fit Drainage System - Stainless Steel

Traditional approach

Innovative approach

Why you should use this system

- **Simplified installation technique**
- **Installation cost reduction of 11% over traditional methods**
- **Installation labour reduction of 40% over traditional methods**
- **Health and safety risk reduced by:**
  ⇒ lower weight than lightweight cast iron systems
- **High corrosion resistance, requires minimal maintenance**

Key product details

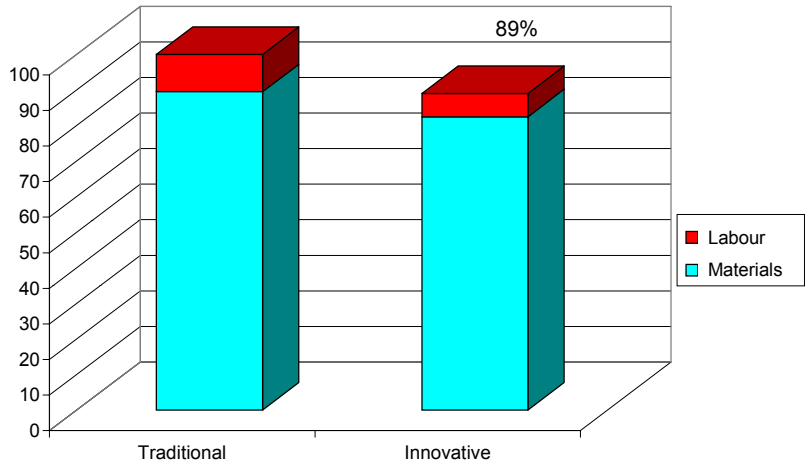
Overview	A lightweight, stainless steel, push-fit connected pipework system suitable for soil, waste, rainwater, vacuum and process waste water. The pipe is available in sizes of 50, 75, 110, 125, 160 and 200 mm, and lengths up to 6 m with an extensive range of accessories and fittings. The connections are push-fit with an EPDM rubber seal. The system carries *BBA approval Certificate No 86/1751*.
Key benefits	Standard pre-cut pipe is available in a range of lengths from 150 mm to 6 m, which can reduce the need for site cutting. Each pipe length incorporates one push-fit connection. The pipework is one third the weight of lightweight cast iron. Each joint has over 40 mm of metal-to-metal cover and consequently does not require separate earthing between joints. It can be used above and below ground.
Typical applications	The system is suitable for gravity and syphonic soil, waste and rainwater drainage systems and can handle temperatures up to 110°C.
Installation time savings	In the case study overleaf BSRIA observed that the use of a stainless-steel pipework system with push-fit connections can reduce installation times by up to 40% in comparison to lightweight cast-iron systems with conventional pipe couplings. This is based on the installation of a 12 m section of vertical soil drainage system.
Total installed costs	The case study demonstrates that the use of a stainless-steel pipework system with push-fit connections can result in a total installed cost savings of 11% in comparison to lightweight cast-iron pipework systems with conventional pipe couplings. This is based on the installation of a 12 m section of vertical soil drainage system.
Skills required	The system is simple to install and the manufacturer offers free training for operatives. The system requires the use of a specialist cutting and bevelling tool which can be hired at low cost (approximately £30/week). Training is recommended by BSRIA as with all systems, to ensure the installation is right first time.
Design implications	Additional brackets should be provided at junction positions and changes of direction, as on all mechanically-jointed systems.
Watch points	The connection must be sprayed with lubricant before the pipe is inserted. To allow for adequate expansion the pipe should be withdrawn approximately 2-3 mm from maximum insertion.

* This is an updated version with new case studies – 6/8/03

BSRIA

Old Bracknell Lane West, Bracknell, Berkshire RG12 7AH UK
T: +44 (0)1344 426511 F: +44 (0)1344 487575
E: bsria@bsria.co.uk W: www.bsria.co.uk

Total installed cost comparison case study



This example is based upon the labour and material cost to install a 12 m section of vertical soil drainage system using 110 mm stainless-steel push-fit pipework. The comparison is with a 12 m section of vertical soil drainage system using 100 mm traditional lightweight cast-iron pipework with conventional couplings. Each installation comprised five lengths of pipework, two branches and seven connections.

Installation costs	Traditional	Innovative
Labour	10.5%	6.5%
Materials	89.5%	82.5%
Total	**100%**	**89.0%**

The innovative installation shows a 11% cost saving over a traditional system.

Installation time comparison for a 12 m section of a vertical soil drainage system

Activity	Best practice task time (elapsed seconds)		Total time taken (man seconds)	
	Traditional 100 mm	Innovative 110 mm	Traditional	Innovative
Cut pipe lengths, measure, mark and cut x 5	80	128	800	1280
Install pipe length and make connection* (5)	209	29	2090	290
Install branch fitting and make connection* (2)	209	29	836	116
Tighten pipe supports* (6)	80	95	960	1140
	Total time taken (seconds)		4686	2826
			Time saving	**39·7%**

Assumptions and observations:

- This example is based upon the time required to install a 12 m section of vertical soil drainage system.
- The traditional approach is based upon the use of lightweight cast-iron pipework with traditional pipe couplings comprising three separate components bolted together.
- The innovative approach is based upon the use of stainless-steel pipework with push-fit connections.
- During the observations, both these installations used a two person team.
- Connections were made as the work progressed.
- Both processes made use of specialist cutting tools, the costs of which have not been included as they are similar.
- Both installations used the same number of split-ring form supports and had been previously installed.
- The success of any installation process is the management of that process. Timesavings from innovative systems can be quickly eroded by unnecessary delays due to poor site management.

Case study details

The installation of a stainless steel push-fit vertical soil drainage system was observed at a new eight storey office building in Manchester in July 2003.

The installation of a lightweight, cast iron vertical soil drainage system was observed at a new 15 storey office building in the City of London in July 2003.

Product supplier:

BlücherUK Ltd, Station Road Industrial Estate, Tadcaster, North Yorkshire LS24 9SG
Tel: 01937 838000, Fax: 01937 832454
web: www.blucher.co.uk
Contact: Peter Hardiman or Frank Netherwood

The project team for the innovative installation included:

- Client: A financial institution
- Trade contractor: Haden Young

The driving forces for the project team to adopt an innovative approach were:

- Faster installation time
- Cost savings