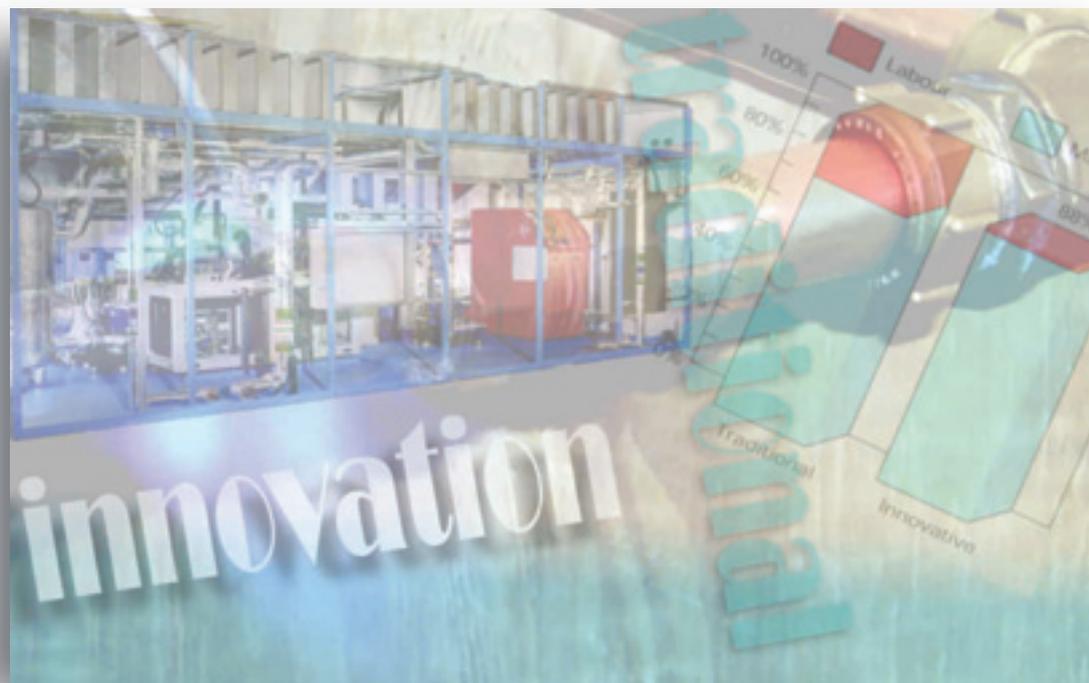


Innovative M&E Data Sheets



By Marcus Dicks



1.1 Multi-layer pipe system



1.2 Polybutylene plastic pipework



1.3 Rapid assembly pipe termination



1.4 Pressfitting pipework jointing system



2.1 Self-luminous signage



2.2 Pre-terminated data cabling



2.3 Variable-speed pumps



3.1 Pre-gasketed circular ductwork system



4.1 Pre-assembled plant



4.2 Combined services chilled beams



5.1 Polymer pipe-clips



5.2 Rapid installation channel supports



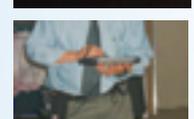
6.1 Wearable computer technology



7.1 Innovative ceiling system



7.2 Barcode asset-management system



MULTI-LAYER PIPE SYSTEM

M&E datasheets
ACT 5/2002 Data Sheet 1.1

Standard approach



Innovative approach



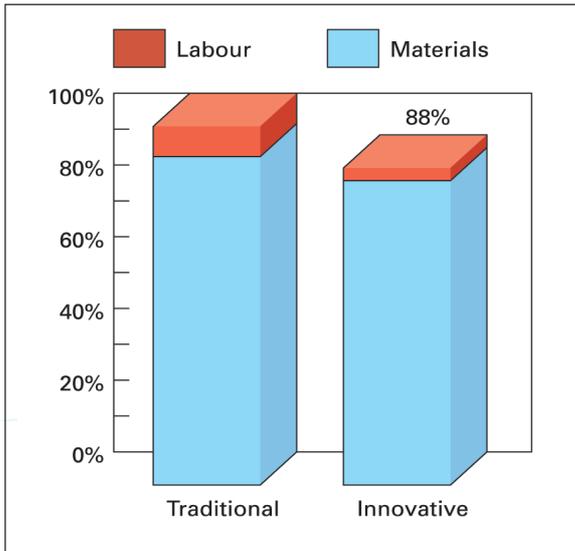
Reasons for using this technology

- Fast installation, typically 62% less time than traditional copper pipe and fittings
- Clean polyethylene inner layer requires minimal flushing and remains free from corrosion and lime scale
- Jointing by crimping which provides robust, leak-free joints
- Sizes range from 16 mm - 63 mm O/D; small sizes can be bent by hand

Key product details

<p>Overview and typical applications</p>	<p>Mepla multi-layer pipe is designed for hot and cold water, heating and chilled water distribution, in commercial and domestic premises. It comprises three layers; the inner and outer layers are made from hard-wearing, flexible polyethylene, which is bonded to a strong central aluminium layer providing rigidity. Jointing is achieved by crimping the pipe onto special fittings. The pipe's inherent flexibility can reduce the number of fittings required, making it ideal for a wide range of applications including areas where access is restricted.</p>
<p>Key benefits</p>	<p>Mepla multi-layer pipe is quick and easy to install. It can be bent by hand or tool (up to 50 mm), and the use of crimped fittings enable significant savings in installation time compared to soldered copper pipework. Other benefits include: avoidance of hot works, resistance to lime scale, no internal or external corrosion, resistance to vapour diffusion and a low heat-loss in hot water installations which may preclude the need for insulation..</p>
<p>Lifecycle and business cost benefits</p>	<p>Reduced total installed cost by 12% compared to conventional copper-based systems incorporating pre-soldered joints. Site time is also significantly reduced. The manufacturer guarantees a minimum service life of 50 years at 0-70°C and pressure of up to 10 bar.</p>
<p>Installation and construction benefits</p>	<p>Mepla multi-layer pipe is light and easy to handle. It can be assembled dry jointed for ease of positioning, before permanent connections are made. It is available in external diameters ranging from 16 mm to 63 mm. Diameters up to and including 26 mm are available in 3 m lengths or 50 m rolls. Larger diameters are available in 5 m lengths.</p>
<p>Skills and health & safety requirements</p>	<p>Pipe jointing and bending is a simple cold process, requiring minimal training. Free training is available on site or at the Geberit Training Centre in Aylesford. Mepla pipe and fittings are approved by the Water Regulations Advisory Scheme and the Scottish Health Authority.</p>
<p>Design, commissioning and operation</p>	<p>Accurate sizing. Frictional losses of the pipe can be less than copper or steel, and there is no likelihood of scale build-up, it is therefore possible that smaller diameter pipe can be used.</p>
<p>Watchpoints</p>	<p>Strength and tightness. To ensure the installation is free from tension, pipework should be fully supported before joints are crimped. Mepla pipe is flame retardant, but produces smoke if ignited.</p>

Total installed cost comparison



Assumptions

- This example is based on a comparison of the installation of a 3 m length of 42 mm copper pipe and a 3 m length of 50 mm Mepla pipe. (The equivalent size to 42 mm copper pipe)
- Both approaches include fitting two tee joints and one 45° elbow. The fittings used are soldered in the traditional approach and crimped in the innovative approach.
- The same type and number of pipe supports are used in each example.

Cost breakdown

Cost factor	Traditional	Innovative
Materials	92%	85%
Labour	8%	3%
Total	100%	88%

Installation time comparison for 42 mm copper and 50 mm Mepla pipe

Activity	Best practice time (minutes)	
	Traditional	Innovative
Measure, mark, cut and de-burr pipe (x8)	4:00	3:53
Fit pipe in support and tighten (x3)	0:75	0:75
Assemble and crimp two tee joints and one 45° elbow	-	1:93
Assemble and solder two tee joints and one 45° elbow	11:75	-
Total time	16:5	6:21
	Time saving	62%

Case study

The time taken for installing Geberit Mepla pipe and fittings was observed at St James Hospital Leeds, where it has been used for the hot and cold water distribution, and heating circuits. The key reasons for using Mepla pipe included reducing the time spent on site, achieving a cleaner installation and avoiding the need for hot works.

Product supplier

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Main contractor: Ballast Construction (Leeds)
Installing sub-contractors: Shepherd Engineering Services (York)

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