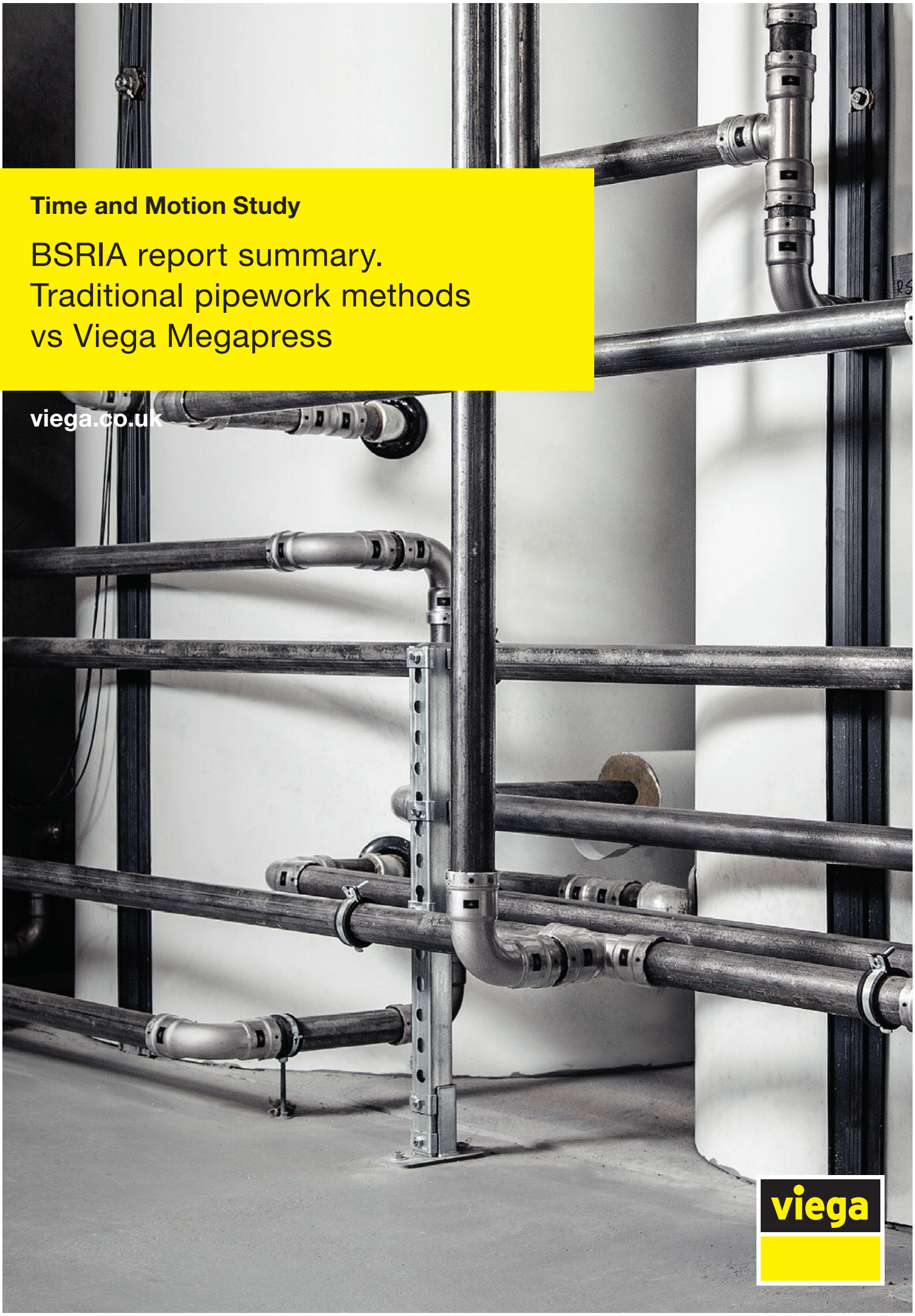

Time and Motion Study

BSRIA report summary. Traditional pipework methods vs Viega Megapress

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Time and Motion Study

BSRIA REPORT SUMMARY. TRADITIONAL PIPEWORK METHODS VS VIEGA MEGAPRESS

With advances and innovations in press connection technology it is increasingly the go-to method of connecting pipework systems in everything from high-end residential developments, hotels and healthcare facilities to world-famous heritage buildings.

Viega's launch of the industry-first Megapress system allowed thick-walled steel tube to be press connected for the first-time, making installation fast, safe and simple. Since then, Viega has constantly pushed the technology forward and press connections can now be used on tube up to four inches in diameter - providing an alternative to welded, threaded and grooved connections.

To demonstrate the time saving and installation speed of Megapress press connections, Viega has commissioned independent testing by BSRIA where, under laboratory conditions, press connections were compared to the three alternative pipe connection methods.

The testing process

The time and motion study, carried out under controlled conditions in the BSRIA laboratory, compared threading, grooving, welding and Megapress press connections as an installation method for thick-walled steel tube in ½" to 4" diameters.

Each of the four installation methods were used to create a pre-designed and identical joint assembly that included a range of different types of joint and tube sizes. The process was timed from start to finish and included the set-up of any equipment, cutting of the tube, connecting the tube and final assembly.

The four methods used in the test were:

- Threading – using a roll threading technique to create a thread on the tube that was then screwed into threaded fittings.
- Grooving – using a roll grooving technique to create a groove on each end of the tube to accommodate a coupling housing and gasket.
- Welding – using a Metal Inert Gas (MIG) welding process to connect the tube.
- Press connection – using Viega Megapress connections and Viega Pressgun 5 tool and adapters.

The results

Following completion of the assembly, each method, the times for each size of tube and the stage of the process were collated. Below are the overall totals for time to complete the assembly. For the welding method, the total assembly time figure combines welding and final assembly.

Method	Number of pipe cuts	Cutting time (minutes)	Threading / grooving time (minutes)	Machine set-up time (minutes)	Assembly time total (minutes)	Total (minutes)
Threading	116	78	166	15	738	997
Grooving	100*	73	20	13	504**	610
Welding	116	78	-	-	1721	1799
Megapress	116	78	-	8	312	398

Note:
* ½ inch groove fittings are not available so this was not included.
** This total time included a 44 minute and 9 seconds estimated time to assemble the missing fittings.

In terms of hours and minutes this equates to:

- Megapress – 6 hours 38 minutes
- Grooving – 10 hours 10 minutes
- Threading – 16 hours 37 minutes
- Welding – 29 hours 59 minutes

These results demonstrate that in practice Megapress provides a:

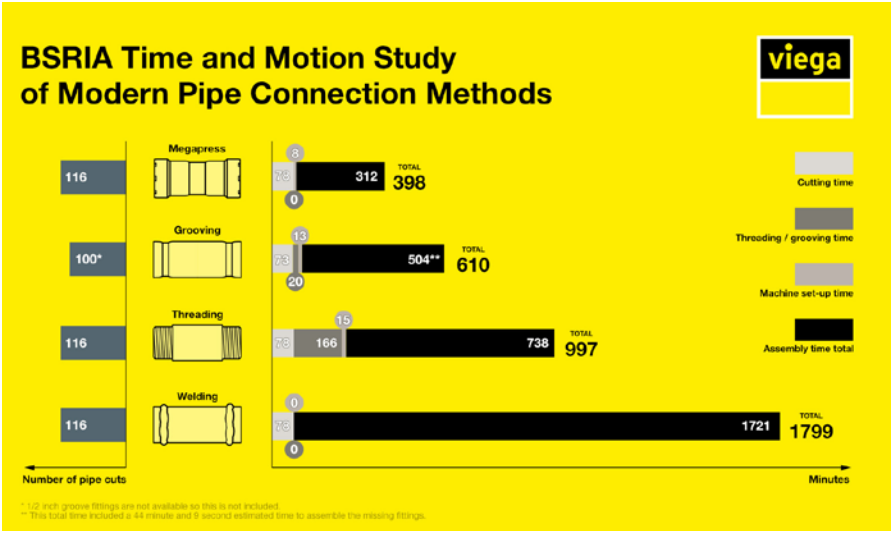
- 78% time saving compared with welding.
- 60% time saving compared with threading.
- 35% time saving compared with grooving.

A part of this saving is due to the simple and quick assembly process of Megapress. Installers simply need to cut the tube to size, deburr the cut surface, slide the press fitting onto the tube and press the connection. Megapress also removes the need for time consuming processes such as creating threads or grooves on each section of tube. For the threading method, this accounts for almost a fifth of the total time (18%) when combined with the time needed to set-up the roll threading machine. While welding also avoids this additional pipe modifying step, the process of welding itself is much more time consuming.

For example, even on this relatively small-scale installation, welding took an additional 23 hours compared to Megapress.

The benefits of press connections
In addition to the speed and simplicity, press connections also have a range of benefits for the installer. Megapress offers improved safety, especially compared to welding, as the process does not require a heat source or exposes the installer to fumes or chemicals. This eliminates the risk of both injury and accidental damage as well as reducing the on-site health and safety precautions. This is especially true now that welding fumes have been classified as a human carcinogen by the International Agency for Research on Cancer (IARC) and that the Health and Safety Executive (HSE) has updated its guidelines on safe working practices.

Furthermore, press connections offer a cleaner alternative as unlike threading, there is no need to use lubricating oil as part of the process. This means that the pipe and



surrounding area will not require cleaning during or after installation. This also reduces the level of flushing the system will require to remove contaminants before the building is handed over.

Another of the key benefits of press connection systems is that the quality of the joint does not vary as the fitting is either pressed, forming a strong and secure connection, or missed entirely. High quality press connections will have features to reliably reveal unpressed connections at the point of installation to avoid costly remedial work after the project is completed. For example, the SC-Contur technology included in Megapress fittings is proven to deliver a 100% positive leak during dry or wet leakage testing if the fitting is inadvertently unpressed.

To find out more about Viega's comprehensive range of press connections including Megapress, Megapress G and Megapress S, visit **www.viega.co.uk.**

To learn more about BSRIA and their globally recognised testing and research capability, please visit **www.bsria.com**

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