

## English Transcript

### ASTUTE 2020's collaboration with Cintec

Time	Audio	Video
00:00:00	<p>ASTUTE 2020 (Advanced Sustainable Manufacturing Technologies) is a multi-university partnership of five Welsh Higher Education Institutions, part-funded by the European Regional Development Fund through the Welsh Government.</p> <p>ASTUTE 2020 is designed to stimulate growth in the manufacturing sector across Wales, by applying advanced engineering technologies to manufacturing challenges, driving cutting-edge research, development and innovation.</p>	<p>Instrumental music in the background.</p> <p>ASTUTE 2020 (Advanced Sustainable Manufacturing Technologies) logo.</p> <p>Establishing shots of Cardiff University Main Building.</p> <p>ASTUTE 2020 Higher Education Institution Partner logos - Aberystwyth University, Cardiff University, Swansea University, University of South Wales and University of Wales Trinity Saint David.</p> <p>European Regional Development Fund logo.</p> <p>External shots of Cardiff University Main Building and School of Engineering.</p>

ASTUTE 2020, College of Engineering, A114 Engineering Central, Bay Campus, Swansea University,  
 Fabian Way, Swansea SA1 8EN

Tel: +44 (0)1792 606378    www.astutewales.com    info@astutewales.com

		<p>Cardiff University, School of Engineering building leading onto an ASTUTE 2020 Project Officer looking at a computer screen with computational modelling simulations on it.</p> <p>ASTUTE 2020 project officer looking down a microscope and a Kuka industrial robot moving about in sequence.</p>
00:00:32	<p>I'm Peter James, the owner of Cintec International based in Newport, South Wales.</p> <p>Cintec is a bespoke structural reinforcement system used to sympathetically reinforce distressed structures.</p> <p>Based in South Wales, we manufacture reinforcement and anchoring products based on the need for each individual product. This ranges from all types of stone and masonry, and even concrete structures.</p> <p>However, it's particularly used in historical structures,</p>	<p>Footage of Peter James, owner and Managing Director of Cintec, sitting at a desk in Cintec House, Newport.</p> <p>Two ASTUTE 2020 pop-ups are in the background of the shot on his left-hand side. On the desk in front of him sits 3 parts of Cintec's anchoring product, as well as a Cintec folder and brochure.</p> <p>External shots of Cintec House.</p> <p>Close up shot of the different elements of their</p>

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	<p>retainer walls, monuments, and very weak substrates. It has been used for ground anchoring and also in underwater applications such as harbor walls.</p> <p>We worked to strengthen and restore the structural integrity of Windsor Castle after the great fire in 1992, strengthened and restored the red pyramid and the step pyramid, together with 22 mosques, temples and structures in Egypt following a seismic event based in Cairo in 1992.</p>	<p>anchoring product.</p> <p>Shot of a Cintec report into the renovation and structural remediation of the Step Pyramid, with picture of the pyramid on its cover.</p>
00:01:29	<p>Cintec has also developed other specific anchoring products for strengthening masonry arch bridges which attracts the Queen's award for innovation, and is also now used in India.</p> <p>Reinforcement for bridges and blast strengthening for key buildings for anti-terrorist protection.</p> <p>I also own standalone companies in America, Canada</p>	<p>Shot of framed Queen's award for enterprise and innovation on the wall at Cintec House.</p> <p>Shots of framed photograph of various buildings Cintec have worked on.</p>

	and have agents throughout the world.	Shot of framed Wales STEM Award for Enterprise and Innovation alongside a picture of Paul with the award.
00:01:51	<p>Following discussions with a Welsh Government advisor, they suggested we get in contact with ASTUTE 2020 to see if they were able to support us with a manufacturing challenge.</p> <p>We wanted to extend the use of our anchoring system, particularly in giving additional strength to the structure we needed to allow for movement such as earthquakes, movement joints, and blast absorption.</p> <p>Our initial design proved too expensive for manufacturing. The installation wasn't commercially viable because the hole size needed to put the device in made it unviable. We wanted to understand if we could simplify the design to determine a suitable manufacturing process.</p>	Footage of ASTUTE 2020 Project Officer working on computational modelling for Cintec product at Cardiff University.

<p>00:02:30</p>	<p>The ASTUTE team visited our initial design and used their expertise to model, optimize and develop the device. It allowed us to work together to define the required performance of the device, select the most appropriate material for manufacture, and to optimize design through computerised modelling for better initial analysis.</p> <p>The extensive research conducted by ASTUTE and the knowledge and expertise provided by Cintec helped to ensure we met the required design and performance criteria.</p> <p>Through the collaboration, we've been able to transform the uniqueness of the anchoring system, enabled us to further develop the performance of the device and the manufacturing process.</p>	<p>Close shot of computational modelling on computer screen.</p> <p>Footage of Cardiff University's testing laboratory, including shots of a team member working on computers at the site, and of Cintec's anchoring mechanism being tested in a wall.</p>
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00:03:10	<p>As a result of the new design and manufacturing process we have registered a new patent and employed a new member of staff.</p> <p>The successful implementation of the anchor system will broaden our commercial advantages and provide us with more cost-effective solutions for earthquake protection.</p> <p>We're in the process of engaging with many civil engineering projects in seismically vulnerable countries worldwide to protect structures and save lives.</p>	<p>Further footage from inside the testing facility showing different physical and computational tests being carried out by a team member.</p> <p>Footage showing earthquake testing of the Cintec anchoring product in a wall at the Cardiff University testing laboratory.</p> <p>Close shot showing the wall moving and cracking under test conditions.</p>
00:03:34	<p>Opportunities like the support provided by ASTUTE 2020 demonstrates that EU funding has been paramount for the Welsh region, especially for the manufacturing sector. It encourages us to be forward thinking and to embrace the support that is available throughout Wales.</p>	<p>Shot of the anchoring product inside the wall.</p>

00:03:50	<p>The quality of the work undertaken has been hugely beneficial to the company. We're looking to develop the research further with ASTUTE to analyse it for further applications. Effectiveness is paramount, so we aim to simulate realistic environments with the new and previous designs to check their ability to perform as required and their relative performance will be analysed.</p> <p>With the support of EU funded operations like ASTUTE 2020 we have been able to drive forward our research and development capacities within the company.</p> <p>We look forward to follow on project with Cardiff University and projects worldwide.</p>	<p>Shot of tremor testing at the Cardiff laboratory where the team recreated earthquake conditions to test the effectiveness of the Cintec anchoring product.</p> <p>Close footage of the Cintec anchoring product on a table in its protective casing.</p>
00:04:31	Instrumental music	ASTUTE 2020 partner logos – Aberystwyth University, Cardiff University, Swansea University, University of South Wales, and University of Wales Trinity Saint David.

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		<p>ASTUTE 2020 and the European Regional Development Fund Logo.</p> <p>ASTUTE 2020 website link.</p>
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