

Wise | Create a more
productive result



Wise decisions create a more productive result

Welding equipment continues to evolve. The application and integration of the latest electronic components and digital processing techniques has and will increase welding productivity and quality well into the future. However the pace of change provided from hardware alone is only part of the story.

Today, electronics software is as much a part of our daily lives as bread and water. Home media, personal and business communication's, transportation, education and medical care are but a few areas revolutionised by systems and techniques driven and supported by software.

Kemppi Wise products are exciting and new welding software solutions that provide customers a range of useful benefits. Divided into two groups, Wise products either influence the efficiency of welding performance, OR provide a completely new welding process technique. Wise products enable new levels of welding performance that otherwise would be impossible to achieve with the standard Mig/Mag welding process.

WISE products family includes

- **WiseRoot™**
- **WiseThin™**
- **WisePenetration™**
- **WiseFusion™**

Attractively priced according to their performance influence and benefit, Wise products can be loaded to new Kemppi welding equipment prior to delivery, or added later by simple field program equipment, as and when your needs demand.

The introduction and commercialisation of Wise products is heavily connected to the Kemppi FastMig equipment family and Kemppi DataGun. The latest model in the FastMig range, the impressive and recently launched FastMig Pulse 350/450, allows the use of all Wise products, and Kemppi DataGun enables simple and effective field software upgrades.

WISE Automation

In addition Kemppi's automation customers can also enjoy Wise process products when used together with KempArc automation equipment range. So it's simple to make a Wise purchasing decision, and quickly enjoy a more productive welding result.

WISE tested by industry

The Wise solution product family has been developed over several years with significant industrial partners. Finding the best solution's to real welding cases greatly benefitted Kemppi welding engineers throughout each project, proving and refining each Wise product inside a customer production environment. Although Wise products are generally new to the wider global market, the technology has now been commercially used for several years, carrying the endorsement of significant business partners from different welding disciplines.



WiseRoot in process. Simple to use, reliable and fast



An effective tailored short arc process for root pass welding

WiseRoot is a highly efficient and unique tailored short arc process for manual (WiseRoot) and automated (WiseRoot-A) root pass welding.

Designed for the effective closure of root joint areas and also the accommodation of gaps created by poor joint fit-up, WiseRoot is three times faster in root closure than TIG welding, is easy to learn and use, and saves time on rework costs. Traditionally, welding engineers have been reluctant to employ the standard Mig/Mag process for quality root welding, due to known quality issues. However Kemppi WiseRoot is everything but traditional and is now a proven root welding solution.

WiseRoot advantages

- Three times faster than TIG welding
- Easy to learn and use
- Saves rework costs
- Allows wide root gap tolerance
- No need for backing ring or ceramics
- Produces high quality root welds
- Can decrease joint volume in thick materials reducing required filler materials volume

WiseRoot application case

Deutsche Bahn has approved WiseRoot process for rail vehicle manufacturing and maintenance, following thorough tests and welding procedure qualification.

WiseRoot application case

Hollming Works Oy's Pori unit manufactures Rolls-Royce propulsion engines whose steel bodies have very high quality requirements. Mr Ari Ahto, the welding engineer at Hollming Works, considers the deployment of the WiseRoot process as a significant step in the development of manufacturing technologies.

Mr Ahto says: 'For us the benefit is particularly evident in situations where it is difficult or impossible to do the root welding on the inside of the structure, and whenever ceramic root support has traditionally been used.' The savings in time and expenses with WiseRoot are definite and measurable.

Ahto adds: 'One surprising feature has been the flawlessness of the welding seams. The majority of the products welded with WiseRoot are carefully inspected via nondestructive testing, and no errors have been found in the root passes. Also, the majority of the welders require minimal training to use this method. This makes the deployment threshold much lower.' The operating experiences with Hollming Works have been so good that the company is continuously looking for new uses for the WiseRoot process.

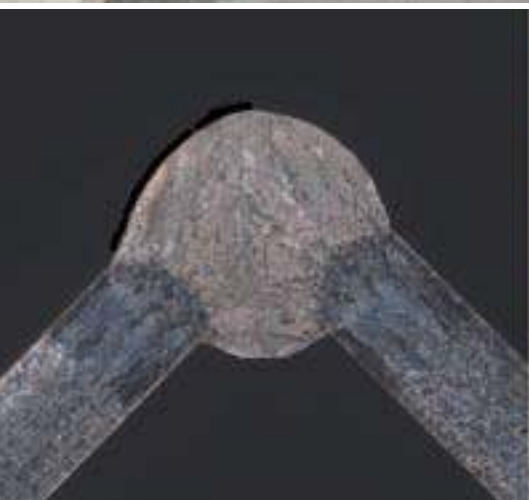
For more information, contact the nearest Kemppi representative or visit our Web site at www.kemppi.com.



Production manager Pekka Suomi (left) from Hollming Works and sales manager Kalevi Koivusalo from Kemppikoneet investigate a root pass welded with WiseRoot process.

Oil drilling platforms can have up to five satellite-controlled propulsion engines maintaining the platform's position. Weld quality is essential.

WiseThin™



Automotive manufacturers widely use coated thin materials that typically present difficulty for traditional weld process

Mr Timo Partti, Ensto work's Supervisor is pleased with WiseThin benefits

A tailored cold arc process for thin sheet welding and brazing

WiseThin is a tailored cold arc process for manual (WiseThin) and automated (WiseThin-A) thin sheet welding and brazing. Typical applications include quality light plate fabrication in ferrous and non ferrous materials including automotive manufacturing.

WiseThin advantages

- Reduces spatter with all materials including zinc-coated plates
- Provides 10-25% lower heat input than normal MIG/MAG welding, reducing post weld material distortion.
- Excellent weld pool control with varying joint geometry and fit-up
- Reduced post weld rework
- Increased welding speed in many applications

WiseThin application case

Ensto Enclosures and Components group, Ensto Control Oy, purchased the WiseThin process, achieving better quality and more productivity for welding corners of terminal strip enclosures and switch cabinets. Timo Partti, Ensto work's Supervisor explained 'We manufacture more 100,000 cabinets per year for markets including the USA and Japan. Quality and productivity are essential, and WiseThin has increased the welding speed and productivity. Additionally, the process maintenance cost is lower than with other methods,' he says.

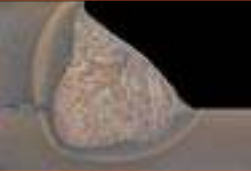





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Ensto Enclosures and Components group achieve better quality and more productivity with WiseThin process.

WisePenetration™



Stick out variation	25 mm	30 mm	35 mm
Standard 1-MIG -process			
1-MIG -process with WisePenetration-function			

WisePenetration accommodates stick out variation and improves weld quality

An optional function for delivering constant welding power regardless of changes in the stick out length

WisePenetration delivers consistent power to the weld pool regardless of changes in welding gun orientation or distance between the welding gun and work piece. Suitable for both manual and automated synergic MIG/MAG welding, WisePenetration solves some age old problems.

Normally in MIG/MAG welding the power to the weld pool is changing as the operator or weld piece dictates the distance between the joint and welding gun nozzle. These deviations can result in quality issues such as lack of fusion, incomplete or inconsistent penetration, changes in weld profile and of course welding spatter.

WisePenetration advantages

- Better weld quality - reduce the risk of lack of fusion and incomplete penetration
- Save labour time and rework cost through reductions in weld defects
- Reduce the need for welding parameter adjustment - easy to use and deploy into production
- Suitable for use with long or short cable sets

WisePenetration software solution solves these issues and reduces the need for post-grinding and repair work. It is available for manual MIG/MAG welding as an option to the FastMIG Synergic and FastMIG Pulse product families, and automated MIG/MAG welding as an option to the KempArc and KempArc Pulse product families. Option can be purchased also afterwards, so it's easy to deploy into production. Better weld quality, reduced labour time, easy to use - WisePenetration is certainly worth a closer look.

WisePenetration is designed to perform with long or short cable lengths between the power source and wire feed unit. So, whether you're welding at the work bench or at distance from the power source via long interconnection cables, you'll get consistent weld quality with WisePenetration.

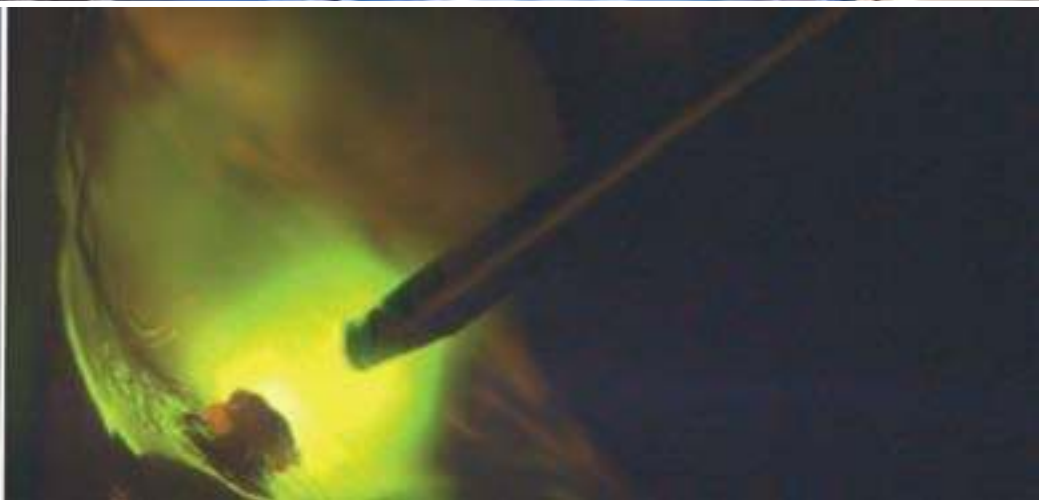
WisePenetration application case

Aker Solutions Verdal in Norway, specialize in the fabrication of large and heavy offshore structures with significant quality targets. Having already deployed Kemppi WiseRoot to 30 x FastMig machines, Aker production and welding departments agreed to test and comment during the development of the WisePenetration solution, recognizing the 'commercial and quality benefits' for their industry and projects. The images show a typical and recent Aker Verdal project that adequately describes the challenges faced by their welding team.

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Multibrid M5000 Windmill sub-structures. Weight: 700t, Steel grade: S355, Tube diameter main pipe: 4000-6000mm, Tube diameter branch: 2000-4500mm, Wall thickness main pipe: 90mm, Wall thickness branch: 30-40mm



Vertical up Aluminium weld seam. Optimal short circuit characteristics in pulse Mig/Mag welding.

A tailored function for ensuring consistent weld quality in all positions

WiseFusion creates and maintains an optimal short circuit characteristic in pulsed MIG/MAG and spray-arc welding applications. Keeping the arc length optimally short for manual (WiseFusion) and automated (WiseFusion-A) welding, WiseFusion ensures consistent weld quality in all positions, and once set, eliminates the need for regular parameters adjustments.

WiseFusion is an optional function for FastMig Pulse and KempArc Pulse welding machines.

WiseFusion advantages

- Automatic arc length regulation
- Excellent weld pool control for positional welding
- Narrow and energy dense arc
- Improved weld quality and appearance

WiseFusion application case

Buster manufacture a range of work boat and leisure craft. Manufacturing high quality, high speed boats requires skill and attention to detail, and is typical of welding business activity that benefits from using Kemppi WiseFusion.

Positional aluminium welding, plus difficult and restricted joint access demands much of welding personnel, ensuring the correct arc length parameters are set and reset to meet the required welding quality in differing and changing conditions. But as many customers are discovering, Kemppi WiseFusion relieves the frustration of constant and unwelcome arc length parameter changes, making for easy and automatic arc length regulation when changing from one welding position to another.

For more information, contact the nearest Kemppi representative or visit our Web site at www.kemppi.com.



Buster produce a range of aluminium boats



Buster aluminium boat production

Wise™ – Ordering information and equipment relationship

Wise™ products	Ordering Codes	KempArc™ Syn.	KempArc™ Pulse	FastMig™ Syn.	FastMig™ Pulse
WiseRoot™	6265011			x	x
WiseRoot-A™	9991011	x	x		
WiseThin™	9991013			x	x
WiseThin-A™	6265013	x	x		
WisePenetration™	9991000			x	x
WisePenetration-A™	9991010	x	x		
WiseFusion™	9991014				x
WiseFusion-A™	9991015		x		

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