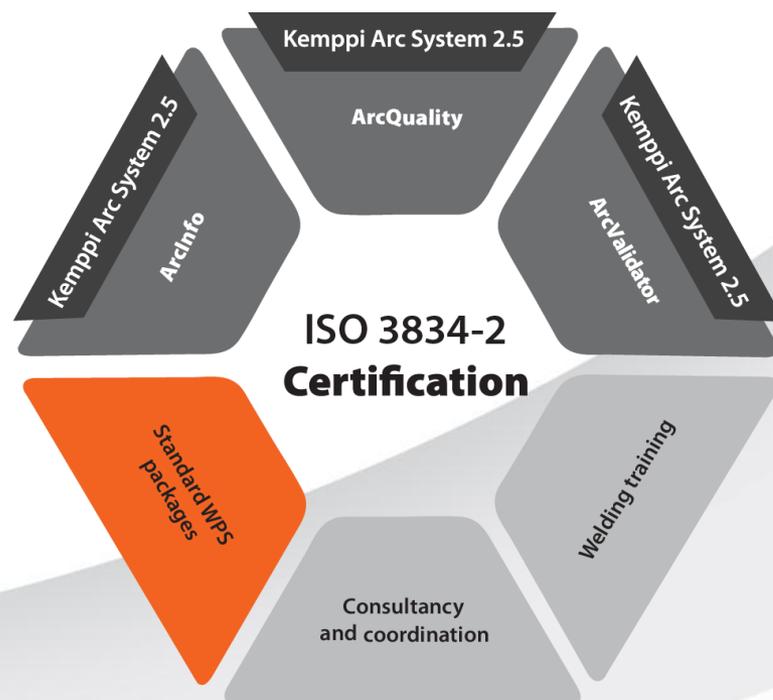


Kemppi International Training for Distributors



TWQM™

Total Welding Quality Management



Definition of TWQM

Total Welding Quality Management (TWQM) is a philosophy that enables us to create products and services that offer greater value to our customers.

TWQM is based on EN ISO 3834-2 certificate that ensures our solutions are customer-oriented, designed with practical quality criteria, and are quickly implemented and compatible.

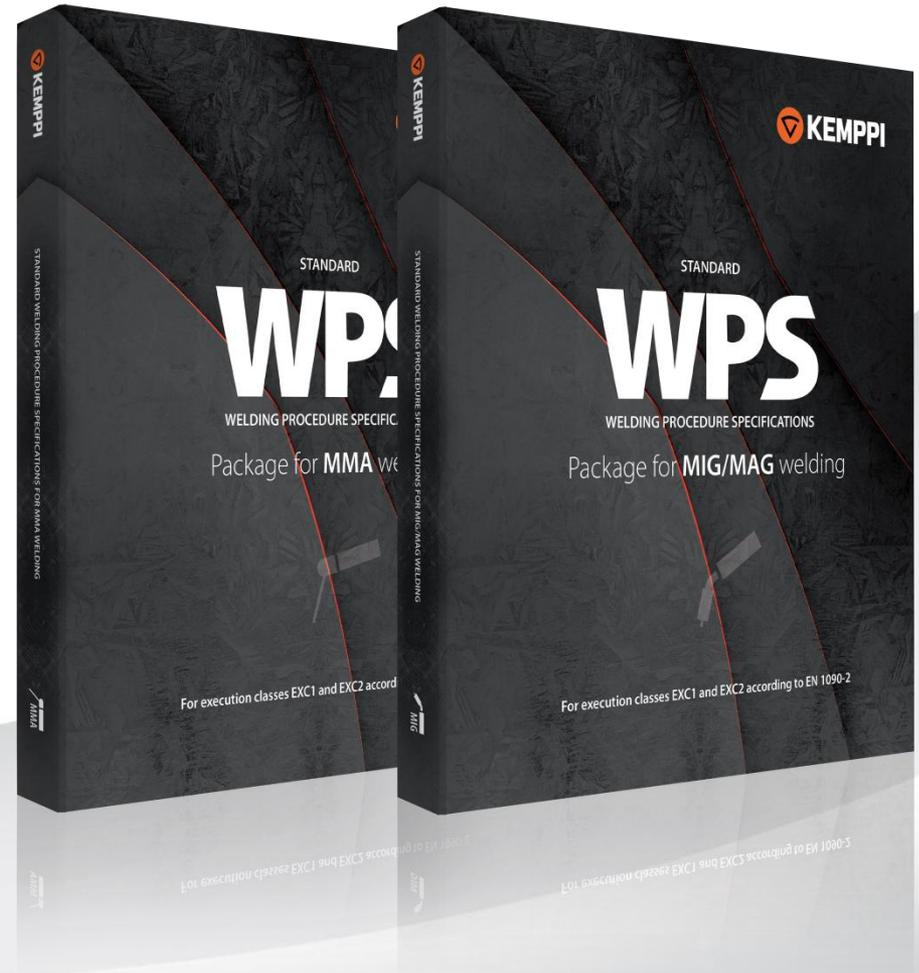
EN ISO 3834-2 certification

- Our welding operations have been granted ISO 3834-2 certification as the first welding equipment manufacturer in the world.
- Our welding staff are qualified and we have knowledge of the challenges and possibilities of welding production, enabling us to provide our clients with expert training, consultancy and coordination services.
- Our coordination services include e.g. qualification of welders and welding operators, developing of WPSs, designing and monitoring welding procedure tests, drawing up quality manuals etc.



Standard WPS packages

For MMA and MIG/MAG welding



What is EN 1090?

The EN 1090 is a series of European standards that regulate the fabrication and assembly of steel and aluminium structures. The EN 1090 comprises three parts:

- EN 1090-1: Requirements for conformity assessment for structural components (CE Marking, certified FPC, Factory Production Control))
- EN 1090-2: Technical requirements for the execution of steel structures
- EN 1090-3: Technical requirements for the execution of aluminium structures

When will it be mandatory for the fabricated structural steelwork to be CE marked?

This regulation will take effect on July 1 2014. However, many clients and main contractors may already require compliance with the EN 1090 standards in their specific projects.

1. General information

- The most comprehensive WPS solution on the market for workshops and on-site work, covering both MIG/MAG and MMA welding.
- First in the world, we introduce a clear and simple WPS solution for MMA welding in demanding environments of construction sites.
- Customer-specific, tailored WPS solutions are available upon request.



STANDARD
WELDING PROCEDURE
SPECIFICATION (WPS)
 EN ISO 15609-1: 2004
 EN ISO 15612: 2004

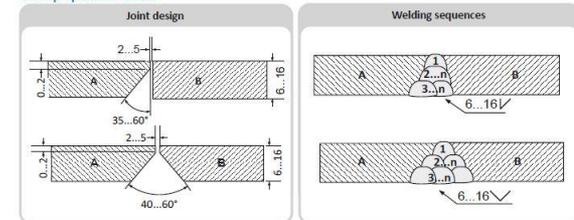
WPS no: WPS 111-BW-11
 Date: 2013-11-05
 Rev.2: Page 1 [2]
 Language: EN

WPQR no: 111-13, 111-14, 111-15, 111-25, 111-26, 111-27
 Manufacturer: **Kemppi Oy, Lahti, Finland**
 Joint type and weld type: **BW, P/T**
 Welding position: **PE**
 Weld details: **mI, ss/bs, nb/mb**
 Preheat Temperature (°C): **≥ 5**
 Method of preparation and cleaning: **Cutting and grinding**
 Throat thickness (mm): **-**
 Interpass Temperature (°C): **≤ 250**

Identification of parent material

Parent material	Group EN ISO 15608	Standard	Range of thickness (mm)	Range of outside diameter (mm)
A S235/S275/S355 ReH≤355N/mm2	1.1/1.2	EN 10025-2	6...16	> 500
B S235/S275/S355 ReH≤355N/mm2	1.1/1.2	EN 10025-2	6...16	> 500

Weld preparation details



Welding parameters

Run	Welding process	Size of filler material d (mm)	Current I (A)	Voltage U (V)	Type of current/polarity DC-/DC+/AC	Travel speed v (mm/min)	Heat input Q (kJ/mm)
1	111	2,5	65...85	20...23	DC+	70...80	0,8...1,3
2...n	111	3,2	90...110	21...24	DC+	90...100	0,9...1,4
3...n	111	3,2	90...110	21...24	DC+	90...100	0,9...1,4

Identification of filler materials

Standard	Designation	Filler handling
EN ISO 2560-A	E 42 4 B 42 H5 ^{a)}	See filler manufacturer's instructions

Other information

^{a)} When an impact-strength requirement is set, this WPS can be used with the following filler materials: Esab OK 48.00, Böhler FOX EV 50 and Elga P 48 S.



Dr. Petteri Jernström
 Kemppi Oy, Manufacturer



IWE Kari Juvonen
 Inspecta Tarkastus Oy, Notified body

2. Standard WPS package for MIG/MAG

- If you've bought a **FastMig Pulse** or **FastMig X 450** welding machine or plan to do so, you can purchase a standard Kemppi WPS package for it, containing 16 WPSs, which also cover pulsed welding.
- The standard welding procedure specifications comply in full with EN ISO 15612 and can be used in manual welding of structures in execution classes **EXC1** and **EXC2**.

KEMPPPI The Joy of Welding

WPS BSGA/FW/517
Welding Procedure Specification

Böhler Welding
A voestalpine company

pWPS-Number: K 1K Joint preparation: ... see drawing
 Projectname/-number: 2010169 Edge preparation: ... see drawing
 Drawing number: ... see drawing Base material: CR ISO 15608 steel 1.2
 WPAR-Nr.: 2010169/A 39 - 39.2 Plate thickness [mm]: 3
 Manufacturer: Böhler Schw / Kemppi Range of validity:
 Inspection authority: TÜV SÜD SZA Throat thickness: 2,3 - 5,7
 Welding process: 135 Base material thickness: 1,5 - 6
 Seam type: Fillet weld Welding position: PB

Configuration of the joint		Layer sequence	

Weld seam	Process	Ø of filler metal [mm]	Amperage [A]	Voltage [V]	Current/polarity	Wire feed speed [m/min]	Electrode run out length Welding speed [cm/min]	Heat input [kJ/cm]
1	135	1,0	175 - 215	20 - 24	*	8,5 - 10	40 - 50	

*Program - F03 1MIG Fe EN 1090-2 1,0 82% Ar/18% CO2 // Tolerance 10 or 20% choice of parameter.

Welding consumable: EN ISO 14341-A: G3Si1 Brand name: EN ISO 14341-A: G 42 4 M G3Si1
 Shielding gas: ... to EN ISO 14175 Gas flow rate: 14 - 16 L/min
 Root backing: Tungsten electrode:
 Shielding gas: M 21 (Ar + 18 % CO₂) Backing:
 Preheating temperature: Heat treatment:
 Interspace temperature: Time/temperature:
 Stick out [mm]: 15 - 25 Heating/cooling rate:
 Torch angle: Process: 135

Appendix and remarks:
 Tests according EN ISO 15614-1. The results are in compliance with the requirements.

voestalpine Böhler Welding Austria GmbH
 An der Spitzmühlgraben 1, 4010 Kapfenberg, Austria
 Manufacturer Kapfenberg Date Signature

BOHLER
 TQA
 WELDING SUPERVISOR
 Welding supervisor

TÜV SÜD SZA
 TÜV SÜD SZA
 Prüfer GmbH
 Inspection authority/Test and certification body

3. Standard WPS package for MMA

- Contains clear and simple welding procedure specifications, **compatible with all MMA welding machines.**
- Our WPSs for MMA welding can be used for thicknesses ≤ 12 mm with consumables of class EN ISO 2560-A E 42 4 B 42 H5. Even if the thickness is greater than 12 mm, they can be used with filler materials Esab OK 48.00, Böhler FOX EV 50, and Elga P48 S.



KEMPPPI
The Joy of Welding

STANDARD
WELDING PROCEDURE
SPECIFICATION (WPS)
EN ISO 15609-1:2004
EN ISO 15612:2004

WPS no: WPS 111-BW-11
Date: 2013-11-05
Rev.2: Page 1 [2]
Language: EN

WIPQR no: 111-13, 111-14, 111-15, 111-25, 111-26, 111-27
 Manufacturer: **Kemppi Oy, Lahti, Finland**
 Joint type and weld type: **BW, P/T**

Welding position: **PE**
 Weld details: **ml, ss/lbs, nb/mb**
 Preheat Temperature (°C): ≥ 5

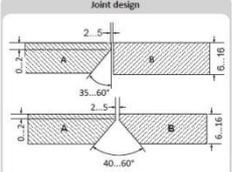
Method of preparation and cleaning: **Cutting and grinding**
 Throat thickness (mm): **-**
 Interpass Temperature (°C): ≤ 250

Identification of parent material

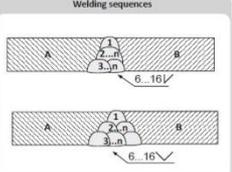
Parent material	Group EN ISO 15608	Standard	Range of thickness (mm)	Range of outside diameter (mm)
A S235/S275/S355 ReH355N/mm2	1.1/1.2	EN 10025-2	6...16	>500
B S235/S275/S355 ReH355N/mm2	1.1/1.2	EN 10025-2	6...16	>500

Weld preparation details

Joint design



Welding sequences



Welding parameters

Run	Welding process	Size of filler material d (mm)	Current I (A)	Voltage U (V)	Type of current/polarity	Travel speed v (mm/min)	Heat input Q (kJ/mm)
1	111	2.5	65...85	20...23	DC-/DC+AC	70...80	0.8...1.3
2..n	111	3.2	90...110	21...24	DC+	90...100	0.9...1.4
3..n	111	3.2	90...110	21...24	DC+	90...100	0.9...1.4

Identification of filler materials

Standard	Designation	Filler handling
EN ISO 2560-A	E 42 4 B 42 H5 ²⁾	See filler manufacturer's instructions

Other information
²⁾ When an impact-strength requirement is set, this WPS can be used with the following filler materials: Esab OK 48.00, Böhler FOX EV 50 and Elga P 48 S.



KEMPPPI
Dr. Petteri Jernström
Kemppi Oy, Manufacturer



inspecta
IWE Kari Juvonen
Inspecta Tarkastus Oy, Notified body

4. Benefits

- Savings in time and money! See next page for more information.
- No need to acquire special expertise. Development of WPSs requires deep knowledge and expertise of standards and their interpretation.
- Kemppi's WPSs cover both MIG/MAG and MMA welding.
- The WPSs for MIG/MAG also cover pulsed welding.
- The WPSs for MMA are suitable for all welding machine brands.
- The WPSs for MMA are valid also when impact-strength requirements apply.
- The WPSs for MMA offer practical information for welding of truss connections.
- Kemppi WPS online service helps you to manage your WPSs and WPQRs and provides new language versions and WPS revisions.

5. Benefits, saving time and money

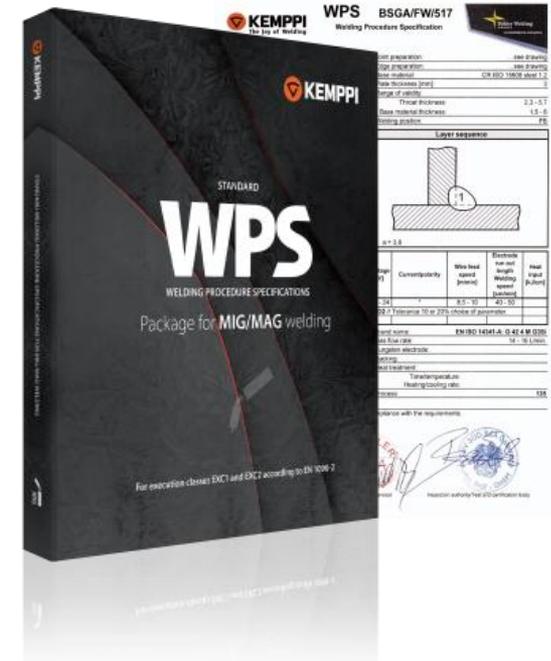
A cost calculation example, MMA WPS package

Task	Consists of	Number	Price per item	Total
Welding procedure tests	Materials, welding, NDT, supervision, WPQRs	24 tests	€2 000	€48 000
Project management and WPS development	Welding coordination work	120 man-hours	€32	€3 840
			Doing it yourself, total price	€51 840
			Using Kemppi MMA WPSs	€800
			Money you save	€51 040

6. Contents of the MIG/MAG package

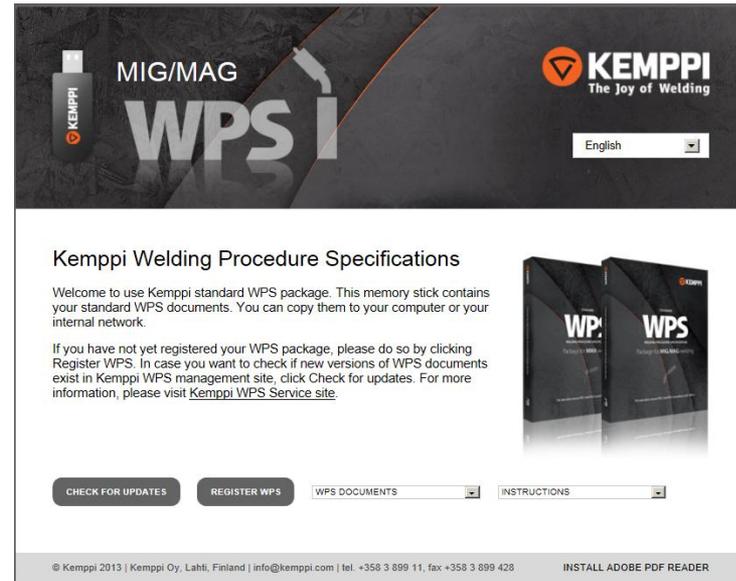
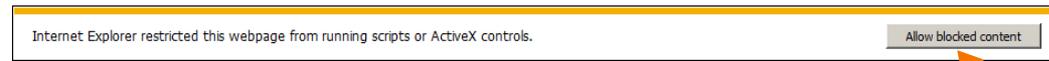
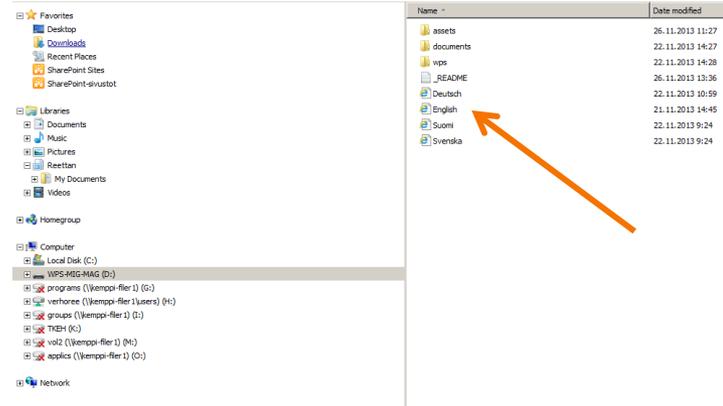
The Standard WPS package for MIG/MAG:

- Delivered in a cardboard box including a binder and a USB memory stick
- The binder contains the EULA (end user license agreement), instructions for use and registration, serial number of the package and the 16 laminated WPS documents.
- The USB memory stick contains the WPS documents in English, German, Swedish and Finnish, and an update check link
- Also includes a sticker to be placed on the welding machine for identifying the equipment.

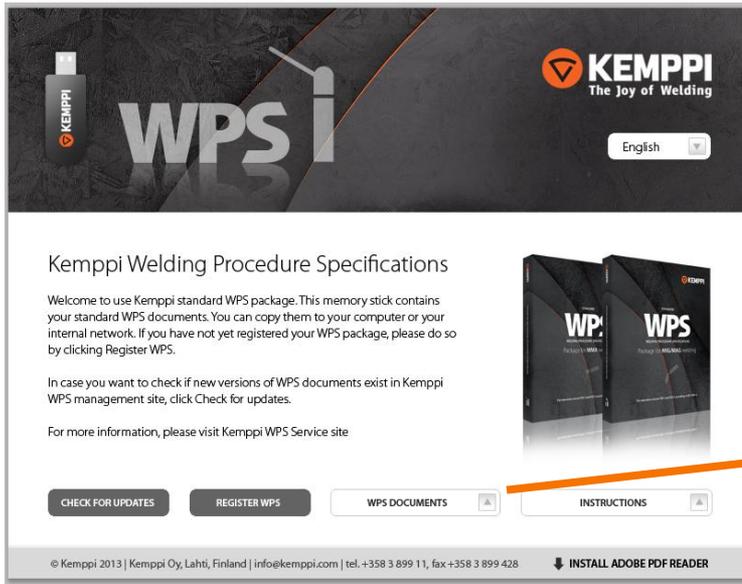


8. The USB memory stick

1. Double-click your language html file (e.g. English.html)
2. If your browser alerts about ActiveX components, click "Allow blocked content".
3. Welcome to use Kemppei standard WPS package. The memory stick contains your standard WPS documents. You can copy them to your computer or your internal network.



8. The USB memory stick



Contents

- General information about WPSs
- Information about Kemppei standard WPSs
- WPS documents in PDF format
- Link for registering the WPS package
- Link for checking updates on Kemppei WPS Web site
- Language selection:
English, Finnish, German Swedish



STANDARD
WELDING PROCEDURE
SPECIFICATION (WPS)
EN ISO 15609-1: 2004
EN ISO 15612: 2004

WPS no: WPS 111-BW-11
Date: 2013-11-05
Rev.2: Page 1 [2]
Language: EN

WPQR no: 111-13, 111-14, 111-15, 111-25, 111-26, 111-27
Manufacturer: **Kemppei Oy, Lahti, Finland**
Joint type and weld type: **BW, P/T**

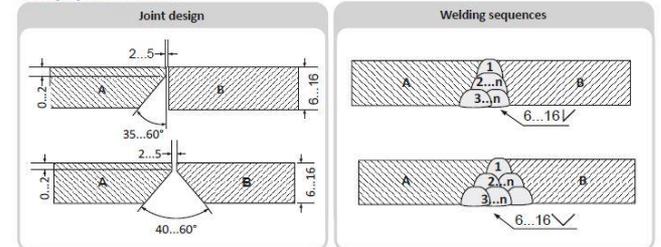
Welding position: **PE**
Weld details: **ml, ss/bs, nb/mb**
Preheat Temperature (°C): **≥ 5**

Method of preparation and cleaning: **Cutting and grinding**
Throat thickness (mm):
-
Interpass Temperature (°C): **≤ 250**

Identification of parent material

Parent material	Group EN ISO 15608	Standard	Range of thickness (mm)	Range of outside diameter (mm)
A S235/S275/S355 ReHs355N/mm2	1.1/1.2	EN 10025-2	6...16	> 500
B S235/S275/S355 ReHs355N/mm2	1.1/1.2	EN 10025-2	6...16	> 500

Weld preparation details



Welding parameters

Run	Welding process	Size of filler material d (mm)	Current I (A)	Voltage U (V)	Type of current/polarity DC-/DC+/AC	Travel speed v (mm/min)	Heat input Q (kJ/mm)
1	111	2,5	65...85	20...23	DC+	70...80	0,8...1,3
2...n	111	3,2	90...110	21...24	DC+	90...100	0,9...1,4
3...n	111	3,2	90...110	21...24	DC+	90...100	0,9...1,4

Identification of filler materials

Standard	Designation	Filler handling
EN ISO 2560-A	E 42.4 B 42 H5 ^{a)}	See filler manufacturer's instructions

Other information

^{a)} When an impact-strength requirement is set, this WPS can be used with the following filler materials: Esab OK 48.00, Böhler FOX EV 50 and Elga P 48 S.



Dr. Petteri Jernström
Kemppei Oy, Manufacturer



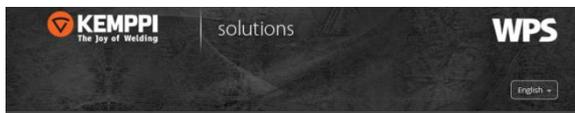
IWE Kari Juvonen
Inspecta Tarkastus Oy, Notified body

How to register your WPS package

There are three different ways to register your WPS package.

1. Go to www.kemppi.com/wps

2. Use the USB memory stick



Kemppi standard WPS packages for MIG/MAG and MMA welding

A comprehensive solution for workshops and field installation sites

To meet the requirements of the EN 1090-2 standard, we offer standard WPS packages for workshops and on-site projects.

Kemppi's standard WPSs apply to both MIG/MAG and MMA welding. Kemppi is the first welding machine manufacturer in the world to introduce WPSs for the demanding and constantly changing environments of construction sites, where there is a strong need for clear and simple instructions.

Kemppi's welding operations have been granted ISO 3834-2 certification as the first welding equipment manufacturer in the world. This is solid proof of Kemppi's ability to develop and offer standard WPSs independently, which makes our services fast and fluent.

Now available globally

Kemppi's standard Welding Procedure Specification packages for MMA and MIG/MAG welding are available globally from the start of the year 2014. Please contact Kemppi for more information.



Register your WPS package

For more information:



Your can find the registration key on the front page of the binder

REGISTRATION KEY

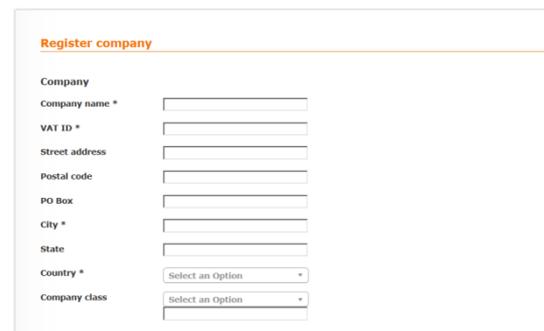
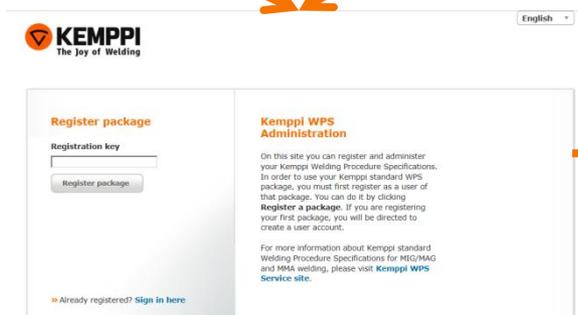


KEMPPi STANDARD WPS



XXXXXXXX-XXXX-XXXX-XXXX-XXXX

W005467



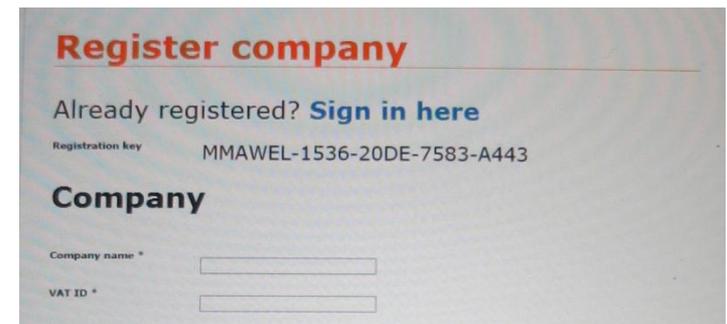
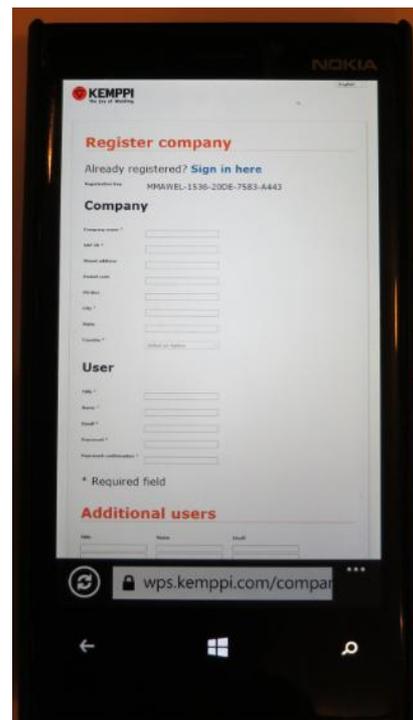
How to register your WPS package

3. Registration with QR code – use your smartphone or tablet to read QR code

Read the QR code with your smartphone or tablet



Register your company (you don't need to enter your registration key, it will entered automatically)



4. WPS service

- WPS documents in PDF format
- WPQR documents in PDF format
- Updated WPS documents
- Language selection: English, Finnish, German, Swedish

Search WPQR

Results

WPQR	WPS package
WPQR-111-1	MMA Welding
WPQR-111-2	MMA Welding
WPQR-111-3	MMA Welding

Testi Kemppi Reetta Verho
Inspecta

CEOC
FINAS

BERICHT ÜBER DIE QUALIFIZIERUNG DES SCHWEIßVERFAHRENS
Welding Procedure Qualification Record (WPQR)

WPS-No des Herstellers / Manufacturer's WPS no.:	111-4	Benannte Stelle / Issued body:	Inspecta Tarkkusta Oy
Hersteller / Manufacturer:	Kemppi Oy	WPS-Referenz / Reference No.:	180-919-13061001
Anschrift / Address:	P.O. Box 13 18011 Lahti		
Standard / Code/Testing standard:	SFS-EN ISO 15614-1:2004	Datum der Schweißung / Date of welding:	2013-05-17

Übergangsbereich / Range of qualification

Schweißprozess (Welding process):	111 (Manual/Manual)		
Stoßart/Netzt / Type of joint and weld:	FW		
Grundwerkstoff(en) und Unterlegplatte(n) / Parent material group(s) and underplate(s):	1. L4 Rail S 285 Nimis2 2. 1		
Dicke des Grundwerkstoffes / Parent material thickness (mm):	1. 10 - 12,0 2. 10 - 12,0		
Dicke des Schweißgutes / Weld metal thickness (mm):	Nicht zutreffend/N/A applicable		
Kathodische / Tensile thickness (mm):	10 - 8,0		
Rohr-/Schlauchmesser / Outside pipe diameter (mm):	> 800,0		
Schweißposition(en) / Welding position:	PB		
Bezeichnung des Zusatzwerkstoffes / Filler metal designation:	EN ISO 2560-A E 42 B 42 H8		
Hersteller des Zusatzwerkstoffes / Filler metal name:	AINW All		
Zustimmender des Zusatzwerkstoffes / Filler metal code (mm):	Keine Begrenzung/ No restriction		
Vorwärmtemperatur / Preheat temperature (°C):	≥ 15	Einlagig/ Single run	
Wärmeeinleitungszeit / Post-weld heat treatment:	Keine Begrenzung/ No restriction	Wärmeeinleitungszeit / Post-weld heat treatment:	Nein/No



English

Signed in: reetta verho
Log out | Account

Home > Company > Users

Signed in successfully.

Your homepage

Register new WPS package

Filter

WPS: Select WPS Show WPS

WPS package: Select package Download WPS package

Search WPQR

Name	Type	Compressed size	Password p.
WPS_111-BW-1_EN	Adobe Acrobat Document	168 KB	No
WPS_111-BW-2_EN	Adobe Acrobat Document	167 KB	No
WPS_111-BW-3_EN	Adobe Acrobat Document	166 KB	No
WPS_111-BW-4_EN	Adobe Acrobat Document	166 KB	No
WPS_111-BW-5_EN	Adobe Acrobat Document	170 KB	No
WPS_111-BW-6_EN	Adobe Acrobat Document	171 KB	No
WPS_111-BW-7_EN	Adobe Acrobat Document	171 KB	No
WPS_111-BW-8_EN	Adobe Acrobat Document	177 KB	No
WPS_111-BW-9_EN	Adobe Acrobat Document	172 KB	No
WPS_111-BW-10_EN	Adobe Acrobat Document	171 KB	No
WPS_111-BW-11_EN	Adobe Acrobat Document	172 KB	No
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WPS_111-FW-15_EN	Adobe Acrobat Document	173 KB	No
WPS_111-FW-16_EN	Adobe Acrobat Document	173 KB	No

Testi Kemppi Reetta Verho
KEMPPi
The Joy of Welding

GENERAL INFORMATION

WPS no.: 111-4, 111-5
Manufacturer: Kemppi Oy, Lahti, Finland
Joint type and weld type: FW, BT

Welding position: PA, PB
Weld details: S, S
Preheat Temperature (°C): ≥ 5
In-process Temperature (°C): -
Method of preparation and cleaning: Coating and grinding
Tensile thickness (mm): 10 - 12
Impact Temperature (°C): -50

Identification of parent material

Parent material	Group EN ISO 15610	Standard EN 15610-2	Range of thickness (mm)	Range of plate diameter (mm)
A S355J0+N020	1.11.2	EN 15610-2	3..7	> 100
B S355J0+N020	1.11.2	EN 15610-2	3..7	> 100 (max)

Weld preparation details

Welding parameters

Run	Welding process	Current	Voltage	Type of wire	Travel speed	Heat input
		I	U	Ø	v	Q
		mm	V	mm	mm/min	kJ/mm
1	111	5,2	110 - 130	21, 22	DC	88 - 110
1	111	4	70 - 200	20, 21	DC	100 - 140

Identification of filler materials

Designation: EN ISO 2560-A E 42 B 42 H8
See the manufacturer's instructions

Other information

Dr. Pekka Lehtinen
KEMPPi Oy, Merikatu 1
Copyright © Kemppi Oy. All rights reserved. Downloaded from Kemppi WPS Online Service on 2017-10-10 by reetta verho

Inspecta Tarkkusta Oy, Neittori 4

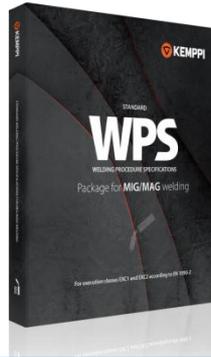


9. The order processes

Order process, WPS package for MIG/MAG



Kemppi standard WPS packages for MIG/MAG welding can be bought directly from the Kemppi Datastore via Kemppi Channel.



Log in

Email

Password

Remember me

[» Forgot your password?](#)
[» Register package](#)

Kemppi WPS Administration

On this site you can register and administer your Kemppi Welding Procedure Specifications. In order to use your Kemppi standard WPS package, you must first register as a user of that package. You can do it by clicking **Register a package**. If you are registering your first package, you will be directed to create a user account.

For more information about Kemppi standard Welding Procedure Specifications for MIG/MAG and MMA welding, please visit [Kemppi WPS Service site](#).

Standard WPS package for MIG/MAG
Fast

Ordering code: 6800001

Qty:

Price: N/A

Standard WPS package for MIG/MAG

Product family: FastMig X, FastMig Pulse
This program pack contains the following 4 welding programs.

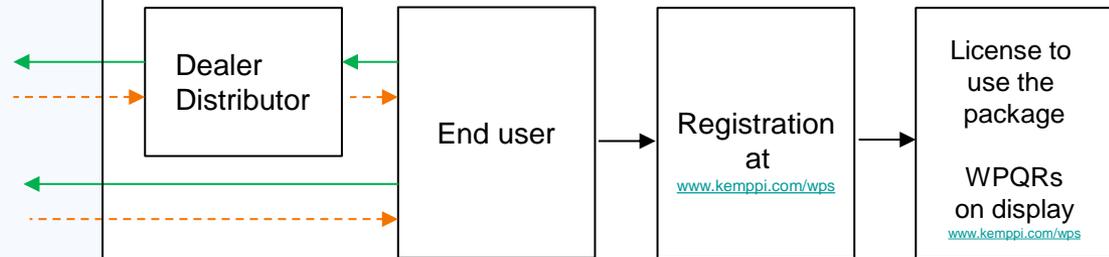
Includes a WPS package
WPS package for MIG/MAG welding is compatible with FastMig Pulse and FastMig X welding machines. It contains 16 WPSs.

Synergic MIG

Name	Wire	Gas
F03 1-MIG Fe	1.0 mm	
F04 1-MIG Fe	1.2 mm	

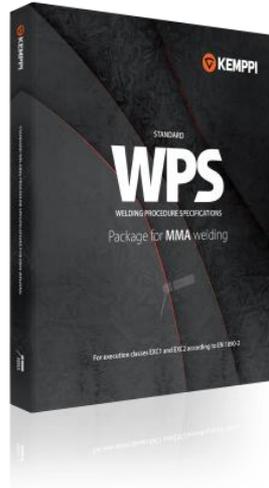
Pulse MIG

Name	Wire	Gas
F03 PMIG Fe	1.0 mm	
F04 PMIG Fe	1.2 mm	



9. The order processes

Order process, WPS package for MMA



Log in

Email

Password

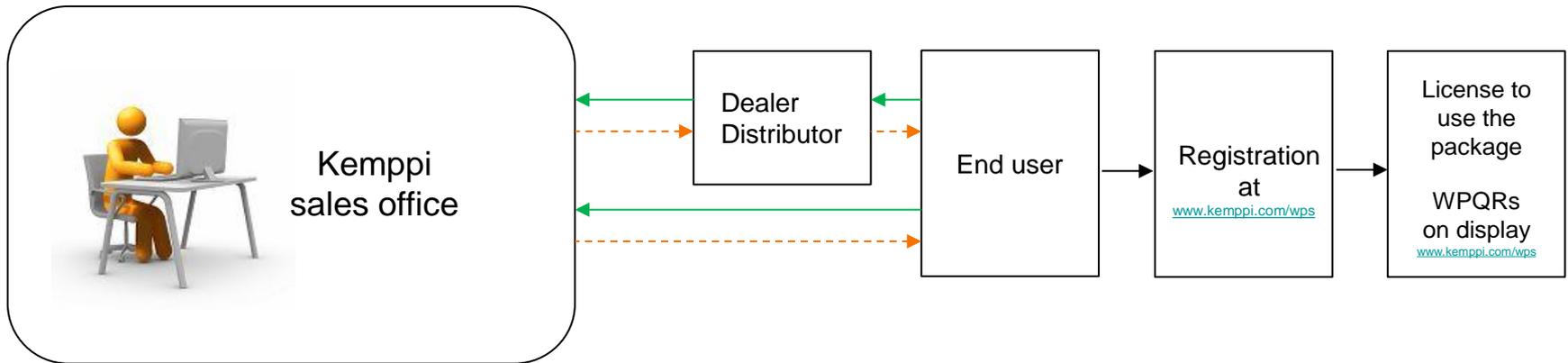
Remember me

[» Forgot your password?](#)
[» Register package](#)

Kemppi WPS Administration

On this site you can register and administer your Kemppi Welding Procedure Specifications. In order to use your Kemppi standard WPS package, you must first register as a user of that package. You can do it by clicking **Register a package**. If you are registering your first package, you will be directed to create a user account.

For more information about Kemppi standard Welding Procedure Specifications for MIG/MAG and MMA welding, please visit [Kemppi WPS Service site](#).

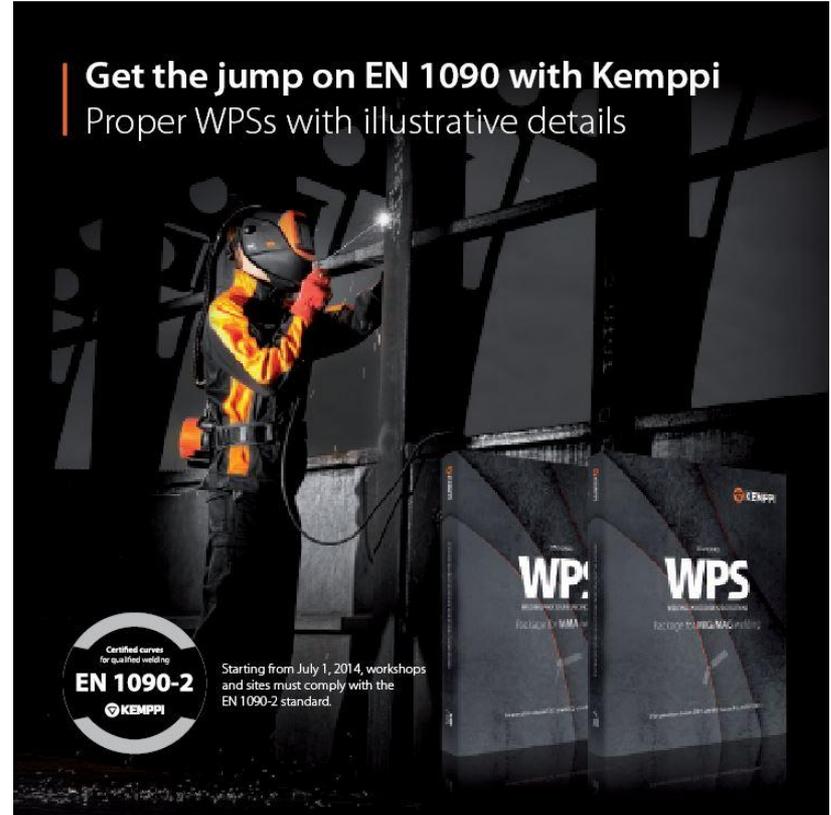


10. Purchase information

- **Standard WPS package for MIG/MAG**
 - 6800001 (standard WPS package for MIG/MAG)
- **Standard WPS package for MMA**
 - 6800002 (standard WPS package for MMA)

12. Get ready for selling

- Deliveries start:
 - beginning of December 2013 (Finland)
 - beginning of April 2014 (globally)
- Kemppi WPSs can be bought directly from Kemppi DataStore at www.kemppi.com or by contacting Kemppi.
- Register your WPS package at www.kemppi.com/wps



Get the jump on EN 1090 with Kemppi
Proper WPSs with illustrative details

Certified curves for qualified welding
EN 1090-2
KEMPPi

Starting from July 1, 2014, workshops and sites must comply with the EN 1090-2 standard.

WPS
WPS
KEMPPi

The advertisement features a welder in a dark environment, illuminated by a bright light source. Two large boxes of Kemppi WPS packages are prominently displayed in the foreground. The boxes are dark with white and orange text, including the 'WPS' logo and the Kemppi logo. The background shows a dark industrial structure, possibly a steel frame, with some light reflecting off the surfaces.