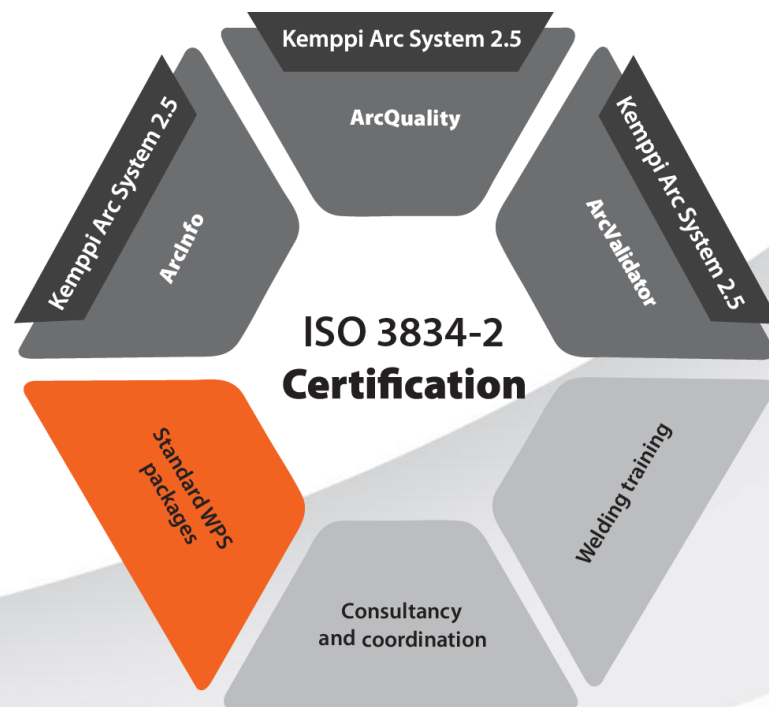


KempPi International Training for Distributors



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.

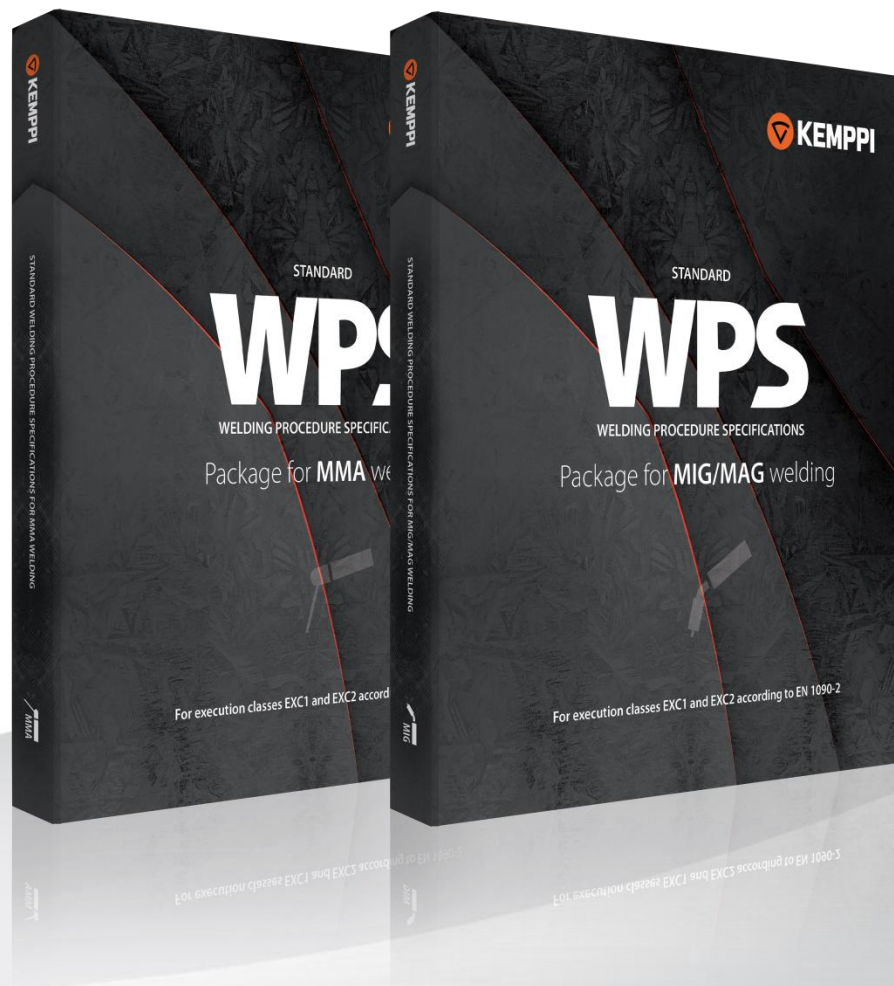
EN ISO 3834-2 certification

- 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

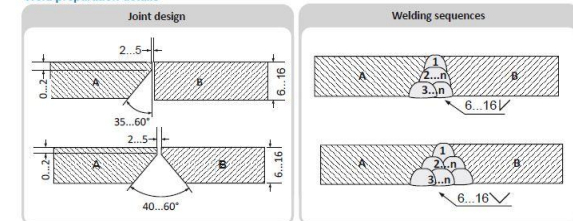
WPS no: WPS 111-BW-11
Date: 2013-11-05
Rev.2: Page 1 [2]
Language: EN

WPQR no: 111-13, 111-14, 111-15, 111-25, 111-26, 111-27
Welding position: **PE**
Manufacturer: **Kemppi Oy, Lahti, Finland**
Weld details: **ml, ss/bs, nb/mb**
Joint type and weld type: **BW, P/T**
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/mm ²	1.1/1.2	EN 10025-2	6...16	> 500
B S235/S275/S355 ReH≤355N/mm ²	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	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**.

KEMPPI 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	
<p>$t_1 = 3$ $t_2 = 3$</p>		<p>$a = 3,8$</p>	

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:
 Interpass 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.


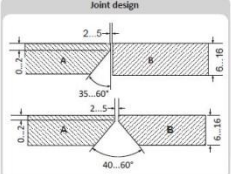
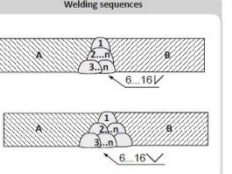


voestalpine Böhler Welding Austria GmbH
 An der Böhler-Werkstatt, 1. Stock
 Böhler-Werkstatt St. 1, 8005 Kapfenberg, Austria
 Manufacturer
 Kapfenberg, Date, Signature

BOHLER
 TQA
 WELDING SUPERVISOR
 Welding supervisor

TÜV SÜD SZA
 Prüfung - 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.

 KEMPPI 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 PE Manufacturer: Kemppi Oy, Lahti, Finland Joint type and weld type: BW, P/T		Welding position: PE Weld details: ml, ss/lb, 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							
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.							
 Dr. Petteri Jernström Kemppi Oy, Manufacturer			 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

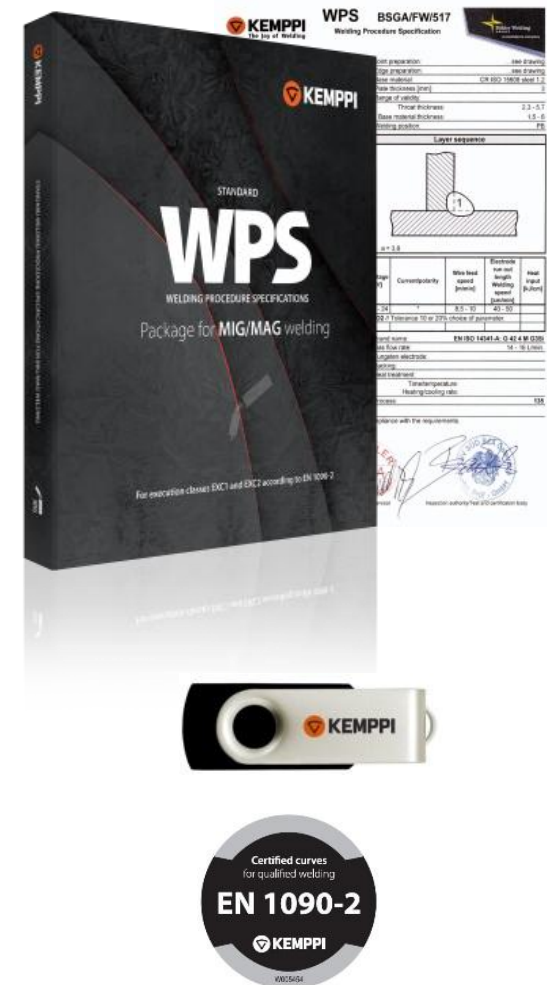
A cost calculation example, MMA WPS package

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:

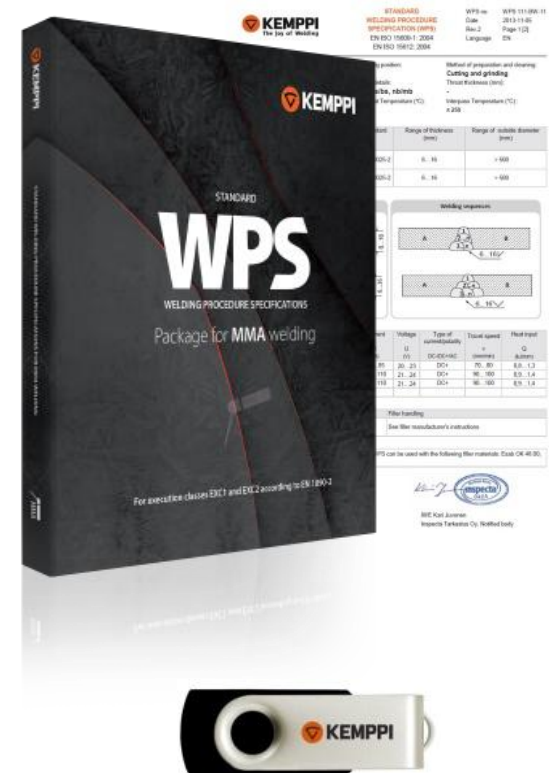
- Delivered in a cardboard box including a binder and a USB memory stick
- The binder contains the EULA (end user license agreement), instructions for use and registration, serial number of the package and the 16 laminated WPS documents.
- The USB memory stick contains the WPS documents in English, German,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



7. Contents of the MMA package

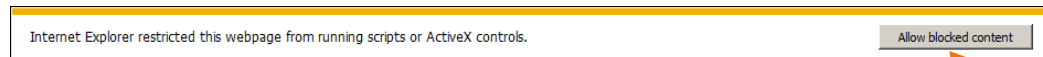
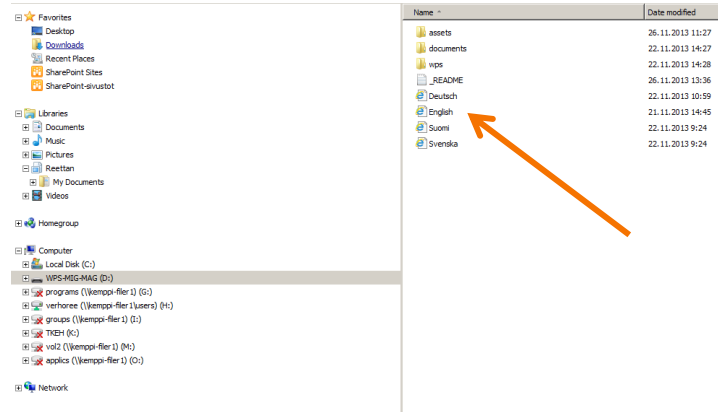
The Standard WPS package for MMA:

- 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 28 laminated WPS documents.
- The USB memory stick contains the WPS documents in English, German, Swedish and Finnish, and an update check link.

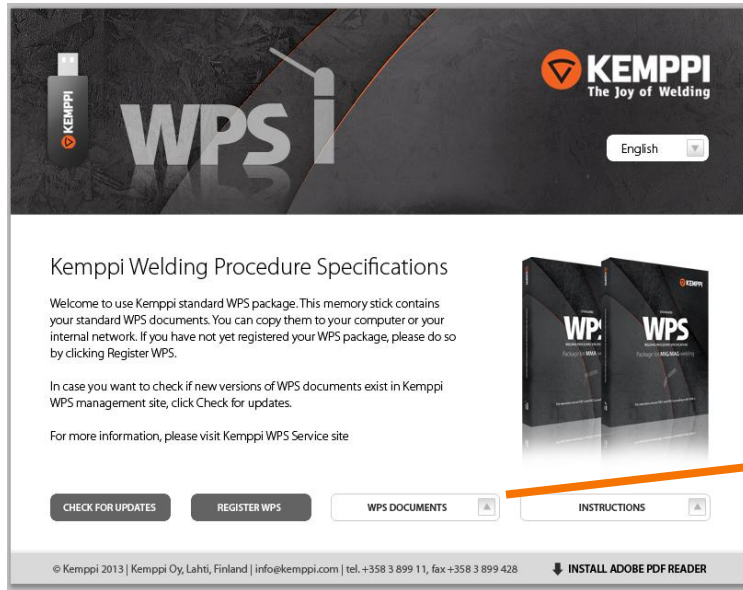


8. The USB memory stick

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 Kempppi 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 Kempppi standard WPSs
- WPS documents in PDF format
- Link for registering the WPS package
- Link for checking updates on Kempppi 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:
Kempppi Oy, Lahti, Finland
Joint type and weld type:
BW, P/T

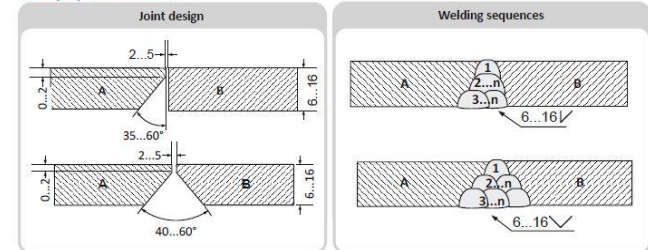
Welding position:
PE
Weld details:
ml, ss/bs, nb/mb
Preheat Temperature (°C):
≥ 5

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, Bohler FOX EV 50 and Elga P 48 S.



Dr. Petteri Jernström
Kempppi Oy, Manufacturer

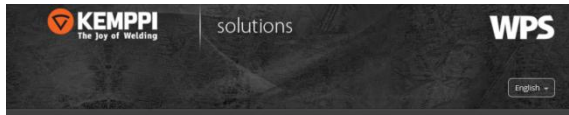


IWE Kari Juvonen
Inspecta Tarkastus Oy, Notified body

How to register your WPS package

There are three different ways to register your WPS package.

1. Go to www.kemppi.com/wps



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:

2. Use the USB memory stick



REGISTER WPS

REGISTER WPS

WPS DOCUMENTS

INSTRUCTIONS

© KempPi 2013 | KempPi Oy, Lahti, Finland | info@kemppi.com | tel. +358 3 899 11, fax +358 3 899 428

INSTALL ADOBE PDF READER

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

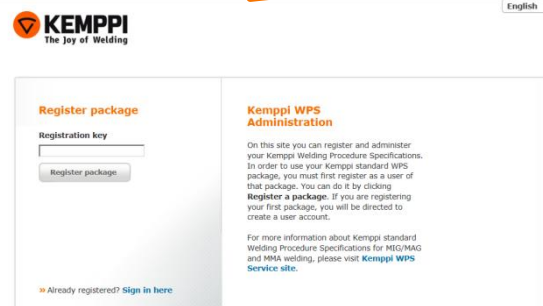
REGISTRATION KEY

KEMPPI STANDARD WPS



XXXXXX-XXXX-XXXX-XXXX-XXXX

W005467



Register package

Registration key

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.

Already registered? Sign in here

Register company

Company

Company name *

VAT ID *

Street address

Postal code

PO Box

City *

State

Country *

Company class

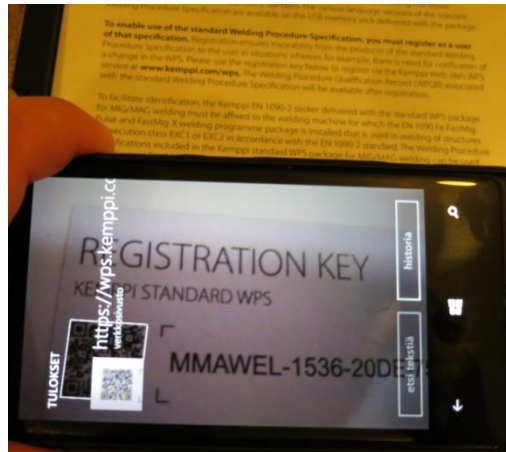
Select an Option

Select an Option

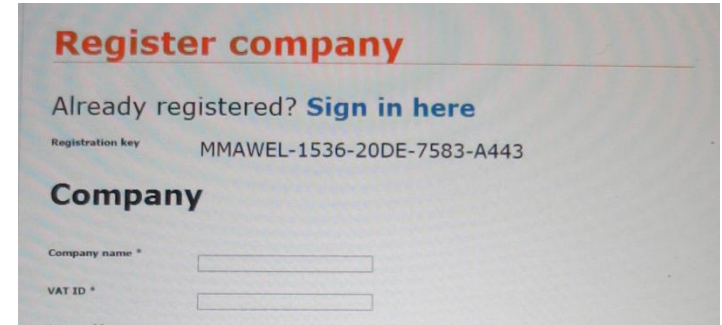
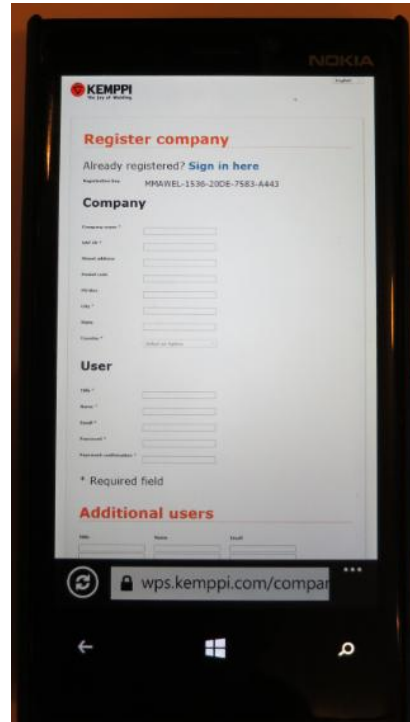
How to register your WPS package

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



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

WPQR-Nr. des Herstellers / Manufacturer's WPQR no.:	111-4	Signture / Date / Inspecta Tarkkusta Oy
Hersteller / Manufacturer:	Kemppi Oy	Reference No.: 100-919-13061001
Arbeitsort / Address:	P.O. Box 13 10801 Lahti	
Standard / Code/Testing standard:	SFS-EN ISO 15614-1:2004	Date of the qualification / Date of welding: 2013-05-17
Ordnungsbereich / Range of qualification		
Schweißprozess(e) / Welding process(es):	111 (Manual/Manual)	
Stoßart / Type of joint and weld:	PW	
Grundwerkstoff(ge) und (Unter)gruppe(n) / Parent material (group) and subgroup(s):	1. L4 Root S 355 Nmin2	
Stärke des Grundwerkstoffs / Parent material thickness (mm):	2. 1	
	1. 3.0 - 12.0	
	2. 3.0 - 12.0	
Dicke des Schweißgutes / Weld metal thickness (mm):	Nicht zutreffend/Nicht applicable	
Nehlfestigkeit / Tensile strength (mm):	3.0 - 6.0	
Rohr-/Stoßdurchmesser / Outside pipe diameter (mm):	> 500.0	
Schweißposition(en) / Welding position(s):	PB	
Bezeichnung des Zusatzwerkstoffs / Filler material designation:	EN ISO 2560-A E 42 4 B 42 H8	
Herstellernummer des Zusatzwerkstoffs / Filler material name:	ADM All	
Zusatzwerkstoff des Zusatzwerkstoffs / Filler material size (mm):	Keine Begrenzung/No restriction	
Vorwärmtemperatur / Preheat temperature (°C):	≥ 15	
Vorwärmtemperatur / Preheat temperature (°C):	Einlagig/Singly run	
Vorwärmtemperatur / Preheat temperature (°C):	Keine Begrenzung/No restriction	
Vorwärmtemperatur / Preheat temperature (°C):	Wärmestechbehandlung / Post-weld heat treatment	
Vorwärmtemperatur / Preheat temperature (°C):	Nicht/No	



English

Signed in: reetta verho
Log out | Account

Home Company Users

Signed in successfully.

Your homepage

Register new WPS package

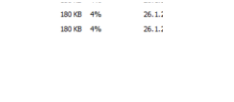
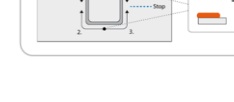
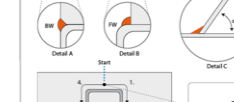
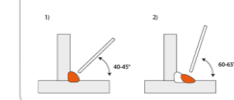
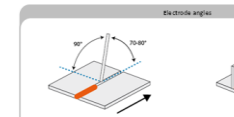
Filter

WPS Show WPS

WPS package Download WPS package



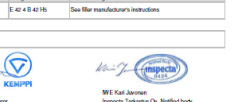
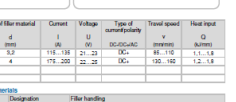
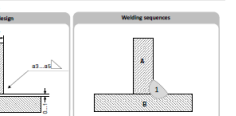
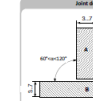
GENERAL INFORMATION



GENERAL INFORMATION

WPS no.:	111-4, 111-5, 111-6	WPS no.:	111-4, 111-5, 111-6
Manufacturer:	Kemppi Oy, Lahti, Finland	Date:	2013-05-17
Joint type and weld type:	PW, BT	Page 1 of 2	
Welding position:	PA, PB	Language:	EN
Weld details:	3. 5		
Preheat temperature (°C):	≥ 15		
Interpass temperature (°C):	≥ 100		
Method of preparation and cleaning:	Coating and grinding		
Thermal treatment (°C):	≥ 100		
Thermal treatment (°C):	≥ 100		

Weld preparation details



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



Ordering code: 6800001

Qty:

Price: N/A

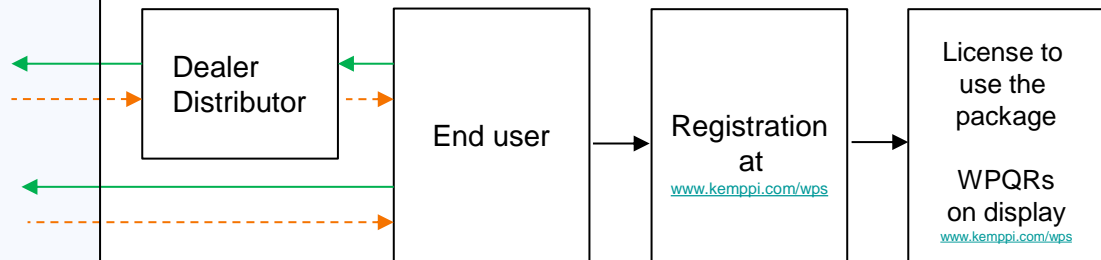
Standard WPS package for MIG/MAG

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	

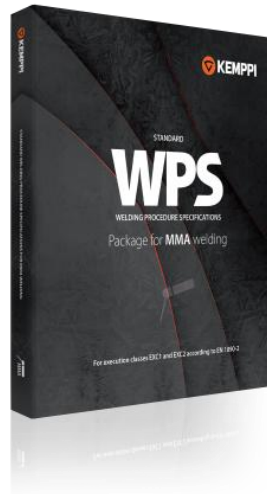
Pulse MIG		
Name	Wire	Gas
F03 PMIG Fe	1.0 mm	
F04 PMIG Fe	1.2 mm	



9. The order processes

Order process, WPS package for MMA

→ Order
→ Delivery



Log in
Email

Password

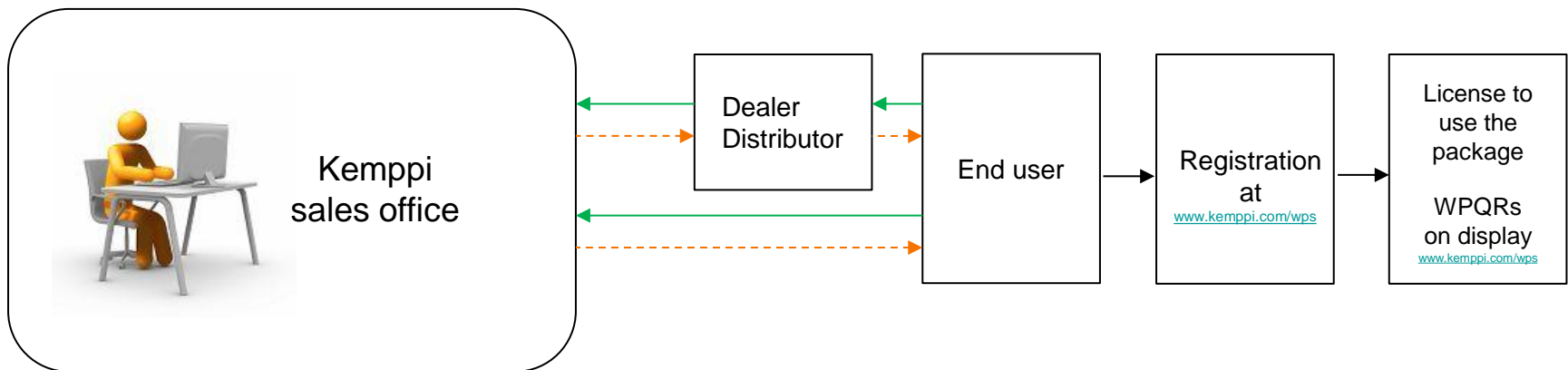
☐ Remember me

[» 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

