



WE ARE WELDING

# Welding 4.0 – Multi-process MIG/MAG welding machine

## Titan XQ puls



**3 Years** // **5 Years**  
transformer  
and rectifier  
**ewm-warranty\***  
3 shifts / 24 hours / 7 days

\*For details visit [www.ewm-group.com](http://www.ewm-group.com)

# Allow us to introduce: Titan XQ Welding 4.0 – the future of welding

## Conquer the new dimension - welcome to the world of welding 4.0 by EWM.

The future of professional welding is networked, digital and paperless. These are the challenges of "Industry 4.0" and every company must face these sooner or later. The EWM group delivers welding companies the ideal

solution with the new Titan XQ multiprocess MIG/MAG welding machine and the Welding 4.0 welding management system ewm Xnet first-class future-proofability, for even more efficient, qualitative-certifiable welding.

All innovative welding procedures and characteristics are included in the purchase price of the welding machine.

- Welding consistently at the highest levels of quality and efficiency, as all innovative welding processes from EWM are available as standard



Display WPS and welding data via mobile device  
view tells you everything

- Easy parameter control directly in the welder's workplace thanks to availability of all current welding data



Welding 4.0 – ewm Xnet welding management system

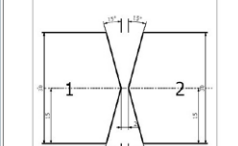
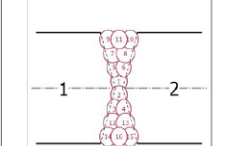


# Titan XQ



### Create paperless WPS – assign WPS to component parts and welders

- Efficiently create WPS and conveniently assign from the office according to quality assurance

ewm		Welding procedure specification (WPS)	WPS No.	Doc.	Page 1 - 1
Manufacturer: Siron AG		Joint:	Ball joint		
Stroke: Henschel	Team:	Weld seam details:	One-sided without backing bar		
Order No: 01-202 644-1-220098-01-12	Project:	Type of preparation and cleaning:	None		
Factor or test authority:	WPS No:	Working on the root pass:	None		
		Parent metal specification 1:	S355 JR		
		Parent metal specification 2:	S355 JR		
		Material thickness 1 [mm]:	30		
		Material thickness 2 [mm]:	30		
		Other diameter [mm]:	0		
		Welding position:	PA		
		Component geometry:	Plateplate		
<b>Weld preparation</b>		<b>Welding sequence</b>			
					

### Component management for efficient manufacturing – step-by-step to perfection

- Minimised risk of welding defects thanks to convenient and component-based allocation of WPS for each individual run/seam



### PM welding torch with graphic display – information directly on the workpiece

- Conveniently save time reading and acknowledging the current welding task according to the welding sequence plan via welding torch on the workpiece



## System overview

### Contents

Page

#### Multiprocess MIG/MAG welding machine, Titan XQ pulse

6-13

- Versions
  - Titan 350 XQ puls 350 A (100% DC)
  - Titan 400 XQ puls 400 A (80% DC)
  - Titan 500 XQ puls 500 A (80% DC)
  - Titan 600 XQ puls 600 A (40% DC)
- Gas or water cooled
- Decompact with separate wire feeder



#### Titan Drive XQ wire feeder

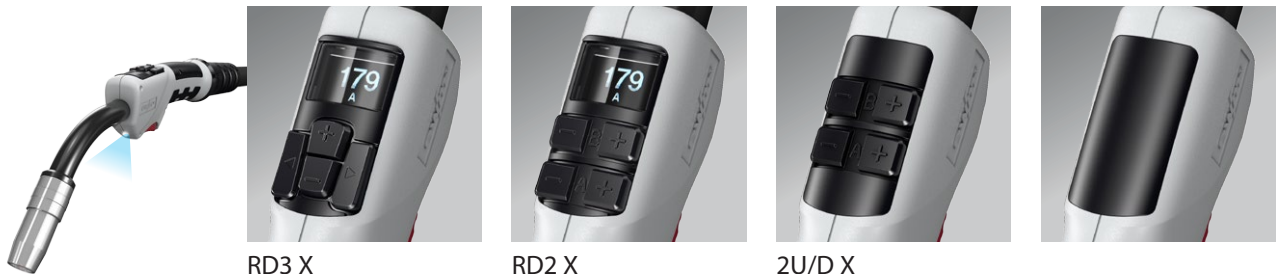
14-17



#### PM welding torches

18-21

Standard and function torch with and without graphic display and LED illumination of the join area



RD3 X

RD2 X

2U/D X



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### Practical, phased operation concept

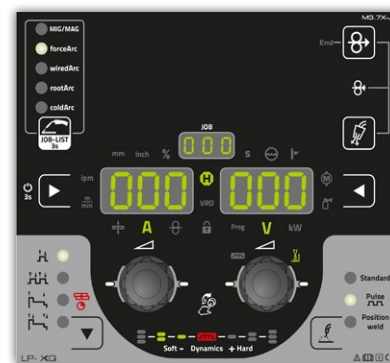
22-31



Expert XQ 2.0



HP-XQ



LP-XQ

### Innovative welding processes

32-53

The optimum arc for every application

MIG/MAG:

- **forceArc/forceArc puls** – high-performance arc with deep penetration
- **wiredArc/wiredArc puls** – high-performance arc with penetration stabilisation through dynamic wire feeding
- **rootArc/rootArc puls** – for perfect root welding
- **coldArc/coldArc puls** – minimises heat for thin metal sheet welding
- **Positionweld** – for positional welding
- **Pulsed and standard arc**

TIG and MMA welding, gouging

### Welding 4.0 – ewm Xnet welding management system

54-59



### Options, accessories

60-73



### Technical data

74-75

# Titan XQ – the machine with personality

## Can be configured down to the last detail for every

### Wishful thinking becomes reality

Welding is as diverse as life itself. Every user wants something different from his welding machine. With Titan XQ, now everyone gets their own machine configured to best suit themselves and their applications. Available are mod-

els for 350 A, 400 A, 500 A and 600 A, gas or water cooled. Only one thing remains the same: the highest standards of quality, long service life, excellent welding properties and intuitive operation of every model in the Titan XQ series.

all in

#### All the processes, one welding machine, one price!

MIG/MAG:

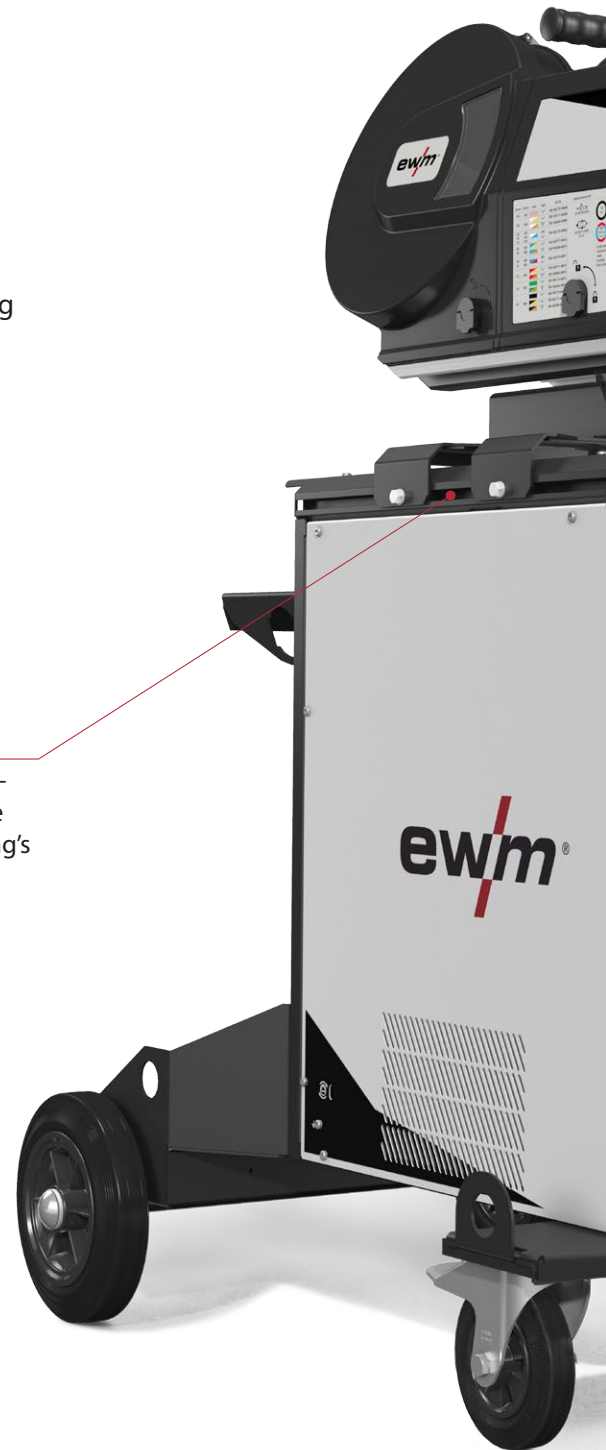
- **forceArc/forceArc puls** – high-performance arc with deep penetration
- **wiredArc/wiredArc puls** – high-performance arc with penetration stabilisation through dynamic wire feeding
- **rootArc/rootArc puls** – for perfect root welding
- **coldArc/coldArc puls** – minimises heat for thin metal sheet welding
- **Positionweld** – for positional welding
- **Pulsed and standard arc**
- **TIG and MMA welding, gouging**

#### flexFit casing system with lots of mounting options – organisation is half the welding

- Intermediate hose package, wire feeder cross arm – or whatever: many individually used accessories and options can be fixed to the continuous cast aluminium profile of the housing's upper cross members using the practical slot nuts
- Find more information from page 60

#### EWM intermediate hose package – the highest standards of quality for a long service life

- Industrial quality plug
- Highly flexible control and welding cables for high bending and torsional demands
- Fabric-sheathed hoses for high pressure and temperature loads
- Diffusion-proof gas hoses conforming to EN 559
- Heavy duty protective hose casings
- Strain relief on both ends
- Quick replacement – all connections are accessible from the outside



# requirement



## Drive XQ – brings all functions to the workplace

- Wire feeder, available in three practical, phased control variations
- Find more information from page 14

## Protective cap – gives dirt no chance

- Protects the entire control system against contamination and knocks
- Protective cap can be opened easily, even with gloves, thanks to ergonomically-shaped grip

## Option: Wire feeder rotatable

## Handle – very practical

- Ergonomic design
- For easy access with gloves and to safely move the machine
- Workpiece lead or torch hose package can be practically and neatly hung on the overhang on the top
- Mounting option for a torch holder on both handles, individually for right and left-handed users (optional)

## Grip bar

- Robust continuous cast aluminium with ergonomically rounded back and easy to grasp diameter for easy operation of the welding machine
- Flexible use thanks to flexFit system on the underside for carrying accessories and options by means of slot nuts

## Infoline for operating status

- Colour indicates the current operating status



## Connection panel – cable says thanks

- Connections tilted downwards slightly on the front and back reducing the risk of connected cables kinking
- Easy, toolless connection of all cable connections



## Can be individually configured – exactly to your needs

Customised design: with and without gas cylinder holder for one or two cylinders, mains cable length up to 15 m, versions for two wire feeders and more.

### Optional two wire feeders – change welding tasks without set-up time

- Effortless switch between two different wires and shielding gases, e.g. for welding solid wire and flux cored wires

### Safe crane transportation – floating made easy

- 4 sturdy holders (40 mm Ø) for easy hook-in or through connection of the crane harness



### Large wheels – overcome obstacles

- Generous 250 mm diameter means the machine can be easily moved and effortlessly overcomes obstacles such as cables or thresholds
- Large track widths ensure stability of the stand, even on inclinations of up to 15 °

### Castors – reach your target

- Above average 160 mm Ø make moving, steering and overcoming obstacles easy
- With parking brake to prevent rolling away, even on slopes





### Gas cylinder holder on top – for a secure grip

- For single or double cylinder (optional)
- Quick and simple securing of the gas cylinder using straps with turn-buckles
- Secure strain relief for intermediate hose packages by means of holders



Strain relief for intermediate hose package



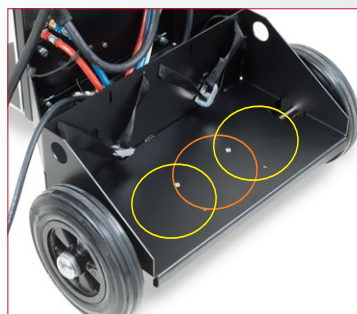
Gas cylinder holder for one shielding gas cylinder



Two shielding gas cylinders

### Gas cylinder holder below – a good point of view

- For single or double cylinder as standard
- Low, flat loading edge of the cylinder cart makes it easy to park the shielding gas cylinder



### Torch cooling – large volume for great performance

- Excellent torch cooling reduces costs through lower torch consumable consumption
- Optimum cooling capacity 1500 W, high performance centrifugal pump and 8 litre water tank
- Find more information from page 12

# An inverter power source that doesn't even dry up in the desert

## Tough performer. Generous giver.

Providing a sustainable and power-saving welding current is the art of the electronic inverter. The new Titan inverter technology excels even in the toughest continuous operation and extreme environmental conditions. The reasons for this: above-average high duty cycle, high efficiency and the EWM proverbial longevity and robust workmanship.

The generous dimensioning of all components is also responsible for these outstanding inner values. The cooling of the semiconductor, in particular, guarantees this innovative welding machine has an especially long service life.

### High availability in production – a true workhorse

# 80% DC\*

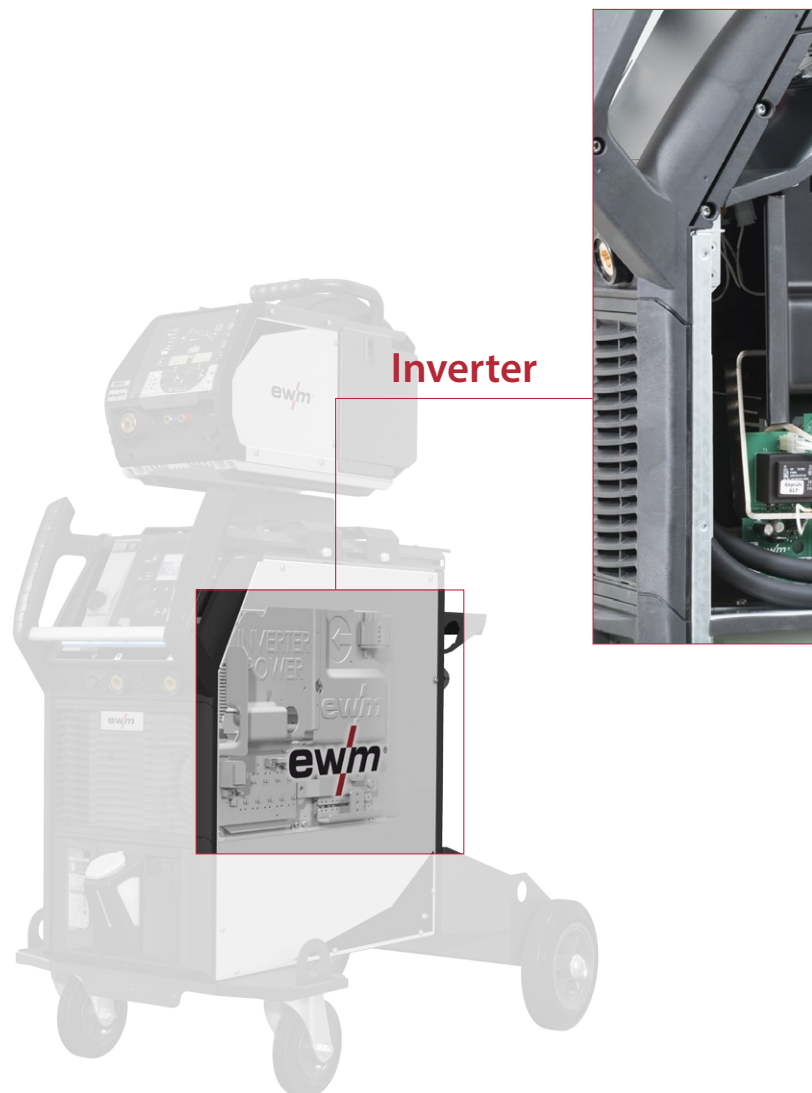
at 40 °C ambient temperature

### Ready to use anywhere – Titan XQ doesn't know the word "no"

- Can be used under all climatic conditions, including heat, frost, rain, snow and dusty conditions
- Operating range –25 °C to +40° C
- Splash-proof – safety class IP23
- Multi-voltage capability – optionally works with 400 V, 415 V, 460 V, 480 V and 500 V mains voltage

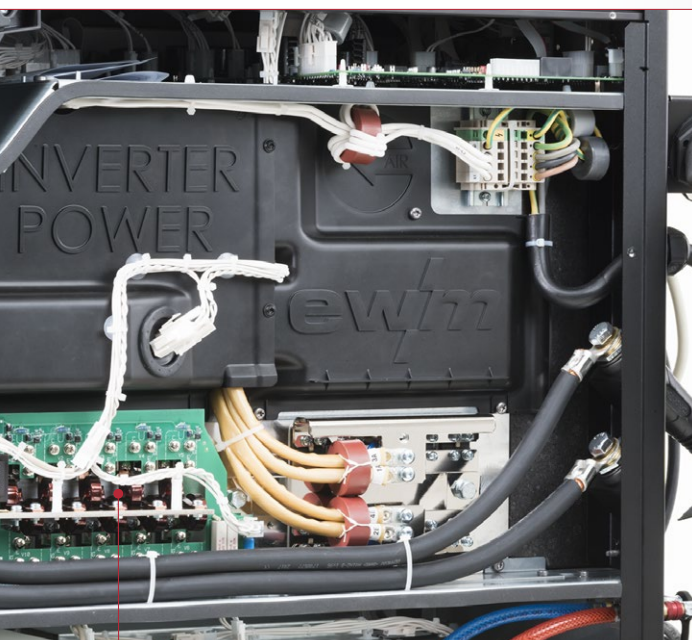
### With unrivalled EWM quality warranty

- 3-year warranty for welding machines and 5-year warranty for transformers and rectifiers
- No restriction to the number of operating hours – even when used in 3-shift operation 24 hours a day, 7 days a week



\* Titan XQ 400 / 500 puls





**RCC power module (rapid current control) – high process stability**

- Rapid, digital welding current control – even with long hose packages

**Fan control in the inverter – energy-saving**

- Temperature and performance-controlled fan
- Low pollution and quiet fan noise

**Easy servicing and maintenance**

- Easy accessible components in the power unit

**Earth fault monitoring (PE protection)**

- Switching off the welding current in the event of an error, in the presence of stray welding currents
- Protection of PE lines

**Generous design of all components – high power reserves, high duty cycle 80% DC**

- Long service life thanks to large heat sink for reduced heating of semiconductor components
- High machine availability thanks to large power reserves
- High-quality components arranged to protect against dust and dirt promise fail-safe operation

**Energy-cost-saving inverter technology**

- Lower power consumption thanks to high efficiency and automatic power-saving mode (standby function)
- Electricity costs fall, so production costs do too

The major sustainability initiative from EWM

**Blue Evolution**<sup>®</sup>

# Refreshingly innovative – especially when things hot up Thanks to torch cooling

## Always keep a cool welding torch

Particularly efficient welding torch water cooling for high-performance arcs guarantee cold torches and thus low follow-up costs for consumables and torch maintenance, even under difficult ambient conditions.

### High cooling capacity of 1500 watts – saves money

- Reduces wear of consumables of the welding torch and prolongs its service life
- 8 litre water tank, sufficient coolant water reserves even for long hose packages
- Allows comfortable operation thanks to reliable cooling, even in continuous operation

### Customise exactly as you like

- Titan XQ is available in gas and water cooled versions
- Standard version with 3.5 bar pump
- Heavy duty 4.5 bar pump for using with long hose packages or with great height differences, e.g. in shipping and vehicle construction

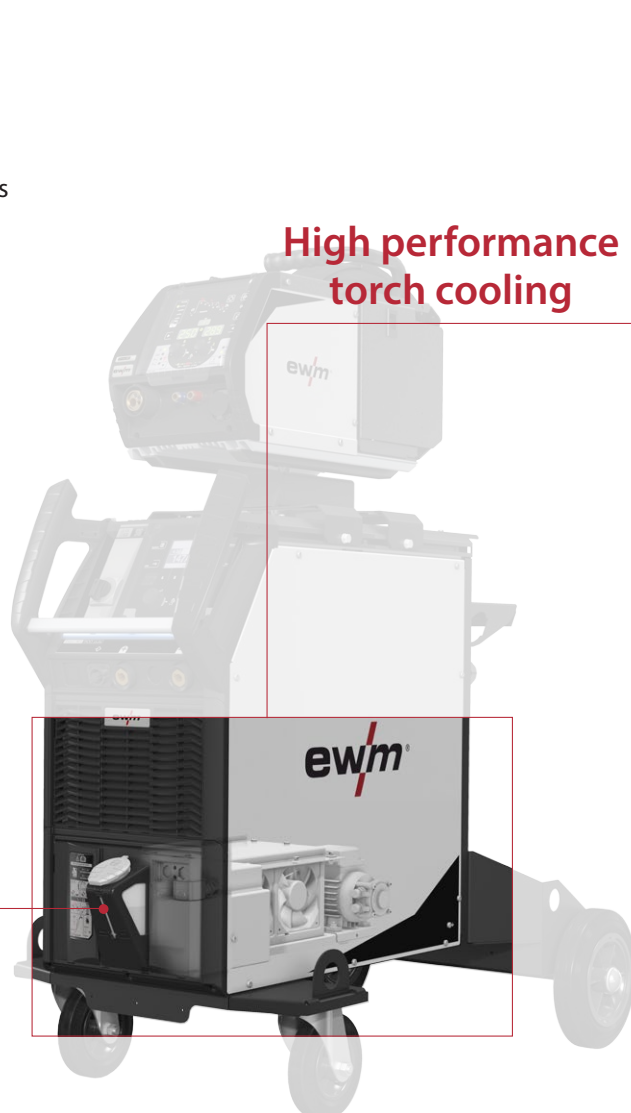
### Flow monitor as standard – insurance against failure

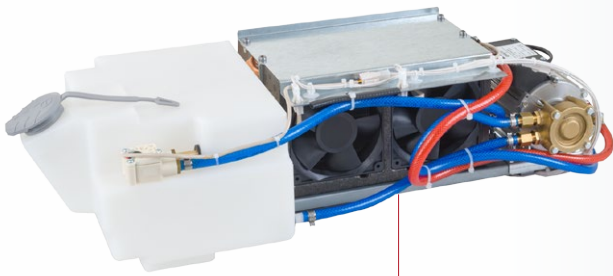
- Protects water-cooled welding torches from overheating and damage caused by low coolant flow

### High performance torch cooling

### Fill level indicator – always up-to-date

- Easy to read fill level indicator with MIN/MAX scale





**Can also be retrofitted – if there is currently no demand**

- The cooling unit has a modular design and can be retrofitted or replaced with only a few steps

**Temperature-monitored coolant – always in the green range**

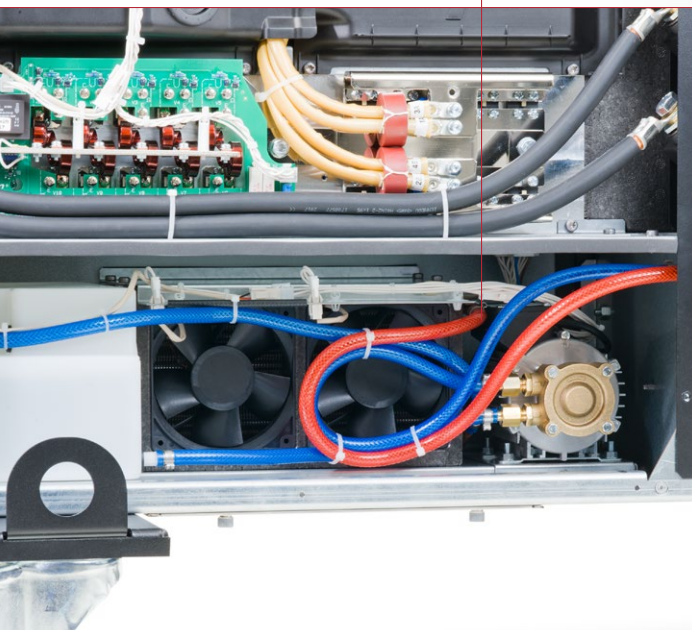
- Protects the welding torch from overheating through hot coolant water

**Easy servicing and maintenance**

- Easy accessible components in the cooling unit

**Temperature and speed-controlled cooling fan**

- Reduced contamination of the cooling unit and less noise emissions, as fan only runs when needed





# Always wired – with ease and precision

## Drive XQ wire feeder

### Hard work can be made so easy

Whether on impassable scaffolding, difficult to access work positions or large components – the Drive XQ wire feeder is an agreeable companion. Only 13 kg (without wire spool) to carry with the ergonomically balanced handle – even through a manhole, if necessary. The

high-precision wire feeding with four rolls guarantees constant welding results, saves aggravation and pays off. A long service life is assured, even when used in three-shift.

### Wire spool cap – protective dust cap with inspection window

- Dust-proof wire spool cap
- Inspection window indicates level of wire spool
- Simple and convenient spool change
- Fully insulated wire space

### Locking system – always reliable

- Cover cap stays closed even under the most demanding conditions

### Equipment – sophisticated design

- Tool-free changing of intermediate hose packages
- No need for intervention in the electric area thanks to externally accessible connections
- Strain-relieved hose package with strap and swivel
- Protected hose package connections



## Optional



### DGC – electronic gas flow control saves you money

- Prevents welding errors caused by too much or too little gas
- Efficiency through gas savings thanks to accurate settings
- Precise, digitally adjustable gas quantity
- Suitable gas quantity for the respective welding task (JOB) optimally set at the factory
- Exact gas quantity depending on the shielding gas automatically without conversion for argon mixed gas, CO<sub>2</sub>, helium
- No gas blast with turbulence when igniting the arc as electrical valve opens and closes gently
- Welding stop when dropping below the critical quantity of gas (shielding gas cylinder empty or gas supply interrupted)
- Simplified calculation by recording the exact gas consumption via the Xnet software (optional)

### Wire feeding – precise and practical

- Four driven wire feed rolls
- Automatic wire inching saves time
- Simple, tool-free roll change
- Permanently secured roll fastener



### Functions – useful in daily use

- Key switch – control shut-off to prevent against operator error
- Changeover switch program or up/down mode

### Interior lighting – for roll change

- Changing wires and operating the machine is easy even with poor lighting

### Wire inching push-button

- Automatic wire stop on contact

### Gas test push-button

### Connections – stable and protected

- Recessed Euro torch connector and water connections
- Impact protection through protruding plastic edge

### flexFit casing system – robust and variable

- Solidly-designed base made from continuously cast aluminium
- Mounting options for sliding rails, rubber feet, wheel kit, etc.



### WHS – wire spool heater, the new dry spell

- Prevents moisture accumulation on the welding wire through preheating
- Controlled temperature to 40 °C
- Reduced risk of hydrogen pores



### WRS – wire reserve sensor, no surprises during welding

- Warns at 10% residual quantity of the wire spool by means of a control lamp
- Minimises the risk of weld defects as a result of the wire running out during the welding process
- Forward-looking production planning reduces non-productive times and thus production costs as a new wire spool can be inserted in good time

# Moving ahead – with precision and durability

## Wire feed mechanism eFeed

### Moving ahead – with precision and durability.

Precise and slip-free movement thanks to ball bearings for the drive shafts and four individually driven rolls makes for an extremely stable welding process. Thanks to their robust design, the mechanics do their job even in

tough continuous operation and difficult ambient conditions. Precise, robust wire feed mechanism guarantees optimum welding results and saves aggravation for the welder.

### Wire feed mechanism eFeed with ball-bearings and four driven drive rolls – one more step forward



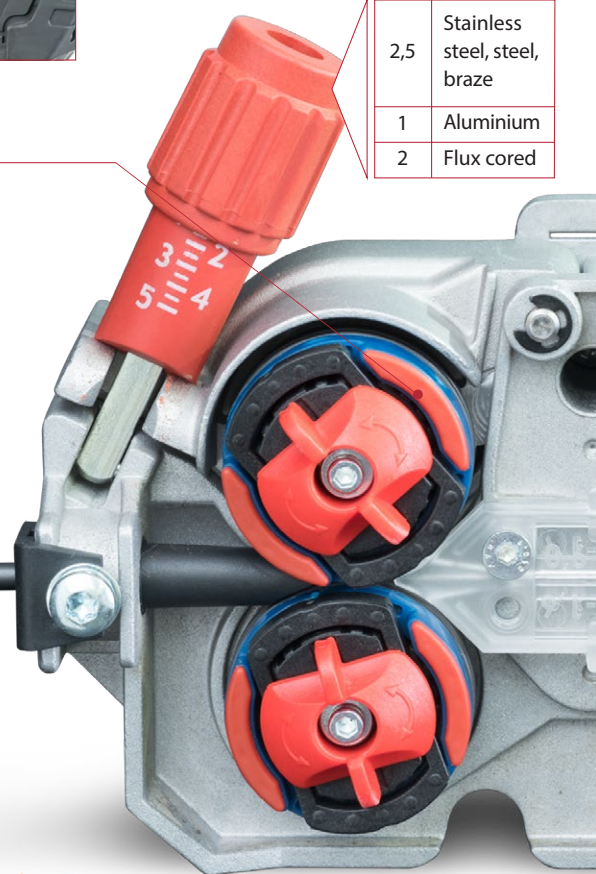
### UNI rolls for two wire diameters – saves exchanging rolls

- Can be used directly with no additional costs, factory-fitted with UNI rolls for 1.0 mm and 1.2 mm steel and stainless steel
- UNI rolls are also available for 0.8 + 1.0 mm and 1.2 + 1.6 mm

### Colour-coded rolls – prevents confusion

- Colour-coded rolls for various wire diameters
- Always the right equipment thanks to colour coding
- Can be read quickly and easily

2,5	Stainless steel, steel, braze
1	Aluminium
2	Flux cored



e.g. UNI rolls for Ø 1.0 mm to 1.2 mm with V-groove (blue/red) for stainless steel, steel



e.g. Ø 1 mm with U-groove (blue/yellow): for aluminium

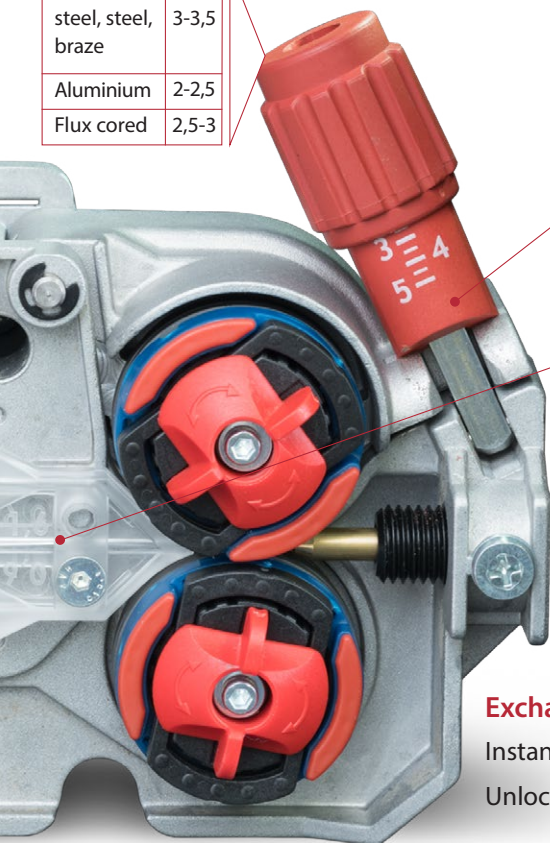


e.g. Ø 1 mm with V-groove, knurled (blue/orange): for flux cored wire

### eFeed wire feed mechanism – your benefits

- Robust, die cast aluminium housing for a long service life
- Dual ball bearings (instead of friction bearings) on all four drive axles reduce roll tolerances for a longer service life and less abrasion
- Time is saved due to error-free fully-automated inching without time-consuming opening of the drive
- Tool-free roll change with captive roll fasteners
- Covered gearing protects against injury
- Large roll diameter (37 mm) for optimal transfer of power
- Four driven wire feed rolls

Stainless steel, steel, braze	3-3,5
Aluminium	2-2,5
Flux cored	2,5-3



### Individually adjustable contact pressure – as much as necessary

- The contact pressure for the front and rear roll pair can be set differently
- For aluminium, steel, stainless steel, braze, flux cored wire

### Visible wire feeding – full control

- After wire spool change, allows visual monitoring during automatic inching

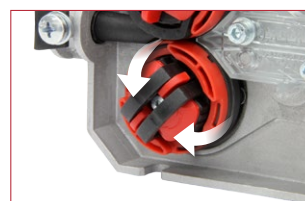
### Exchange rolls in just three steps

Instantly, without tools and with captive parts

Unlock the roll fastener

Swivel out secured roll fastener

Exchange the roll





## A joy to hold – ergonomics for welding Professional welding torch from the PM series

### They hold the promise of EWM.

We all love something that fits well in the hand. The grips on the new PM welding torches are ergonomically optimised with rubber inserts so that they can be held comfortably and flexibly guided during welding. A particular advantage in difficult positions, making work easier. The balanced design of the grips, the reduced weight of the welding torch and the innovative, compact

design of the hose package with anti-kink device also help reduce welder fatigue. It keeps the amount of force required to guide the welding torch to a minimum. The practical control keys and graphic display on the function torch also increase efficiency. They can be used to adjust many functions of the welding machine directly on the workpiece.

#### Compact ball joint – optimal range of movement in any position

- Comfortable working conditions thanks to strain relief, especially for positional welding



#### Torch trigger protection – prevents misfiring

- High level of safety – no switch on caused by unintentional operation
- Protects against damage to the workpiece

#### Rubber inserts in the handle – so that welding feels good

- High degree of welding comfort thanks to ergonomically shaped handle
- Secure grip for optimum welding torch guidance, even during positional welding

### Your benefits

#### Reduce manufacturing costs – quality pays off

- Verifiably lower consumption of consumables of contact tip and gas nozzle
- Minimised finishing work thanks to significantly less spatter due to precise gas flow
- Less consumption of shielding gas by avoiding gas loss

#### Long services life of the EWM contact tips – size matters

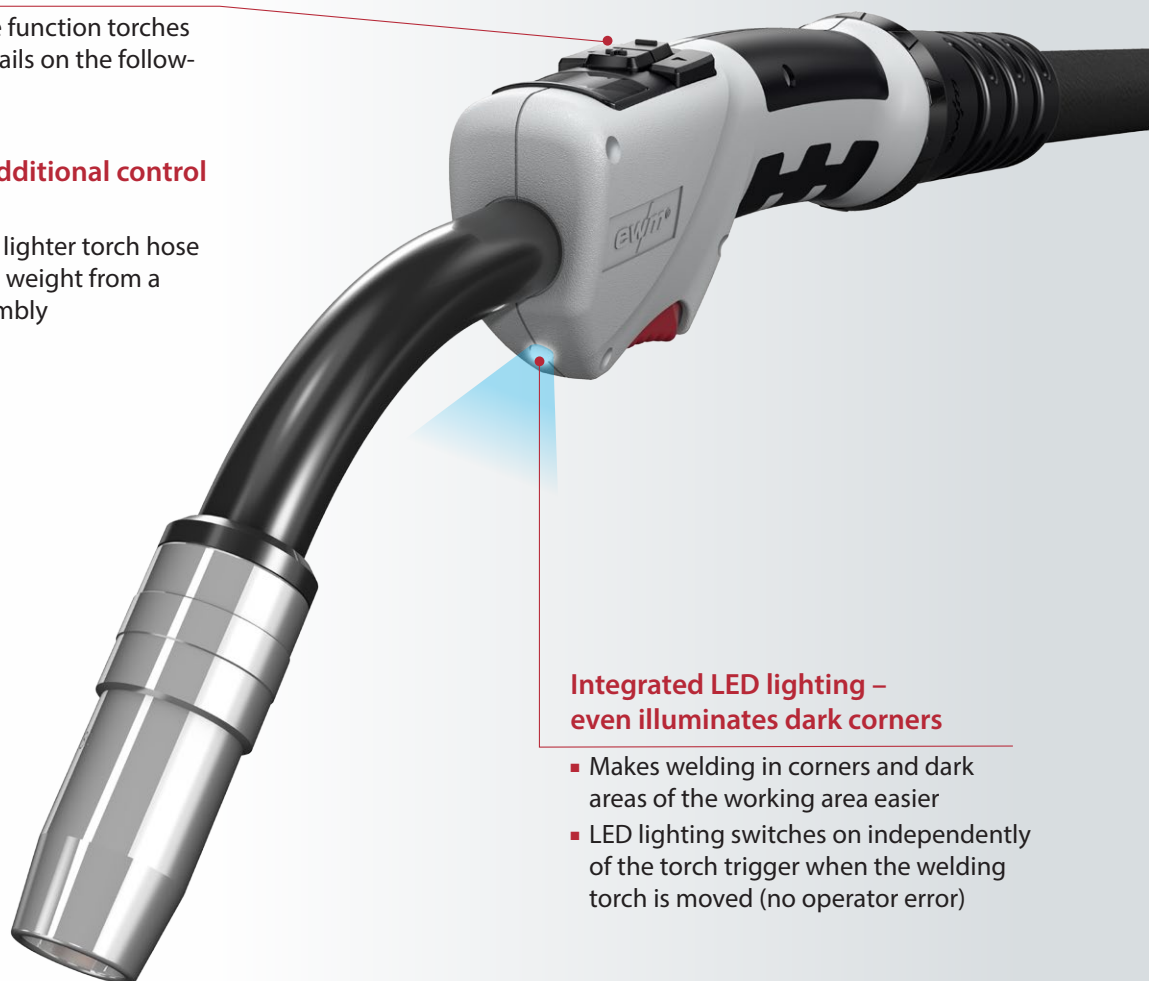
- No overheating – optimum heat transfer thanks to the 30% larger material cross-section and conical fit of the contact tip in the M7/M9 compared to conventional M6/M8 thread sizes

### Four operating variants – guarantees a good choice

One standard torch and three function torches are available for Titan XQ (details on the following pages)

### X technology – replaces additional control cable assembly

- Fatigue-free work thanks to lighter torch hose package as there is no extra weight from a separate control cable assembly



### Integrated LED lighting – even illuminates dark corners

- Makes welding in corners and dark areas of the working area easier
- LED lighting switches on independently of the torch trigger when the welding torch is moved (no operator error)

### Improved welding quality – better than good

- Errors are minimised thanks to interference-free wire guiding – 40% larger bend radius of the torch neck (from PM 301)
- Best heat dissipation in the torch body and therefore minimal warming of the consumables
- Outstanding shielding gas coverage of the arc range
- Secure contact through screw-retained contact tip and gas nozzle

### Versions

- PM series standard torches · PM221/301/401G, · PM301/451/551W
- PM S series Short neck · PM451/551WS
- PM L series Long neck · PM451/551WL

## A joy to hold – ergonomics for welding Professional welding torch from the PM series

### Four operating variants – guarantees a good choice.

One standard torch and three function torches are available for Titan XQ. They differ in their operating concept and their display options. But they all have one thing in common: ergonomic perfection and robust EWM quality. It's your choice.

#### PM xxx RD3X



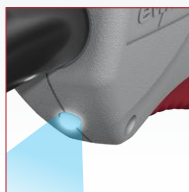
#### Function torch with graphic display and LED light

##### Setting options:

- Welding current and wire speed
- Welding voltage correction
- Welding procedure
- Welding program and tasks (JOBs)
- Operating mode non-latched/latched
- Component management:  
Selection of weld seams according to welding sequence plan

##### Display:

- All adjustable welding parameters and functions
- Status error and warning messages



#### PM xxx RD2X



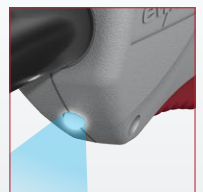
#### Function torch with graphic display and LED light

##### Setting options:

- Welding current and wire speed
- Welding voltage correction  
or
- Welding programs

##### Display:

- All adjustable welding parameters
- Status error and warning messages



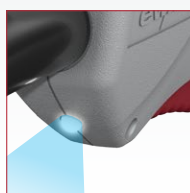
### PM xxx 2U/DX



#### Function torch with LED light

##### Setting options:

- Welding current and wire speed
- Welding voltage correction  
or
- Welding programs



### PM xxx standard torch



- Standard torch trigger for all MIG/MAG machines



- Option torch trigger top



## Practical, phased operation concept

### Titan XQ



#### Control variants and networking options:

- Expert XQ 2.0
- Expert XQ 2.0 LG with integrated LAN gateway
- Expert XQ 2.0 WLG with integrated LAN/WiFi gateway



WiFi



LAN



#### Gateways for networking

(machines without Expert XQ 2.0 control)

- XQ LG LAN gateway (factory-fit option)
- XQ WLG LAN/WiFi gateway (ex works option)

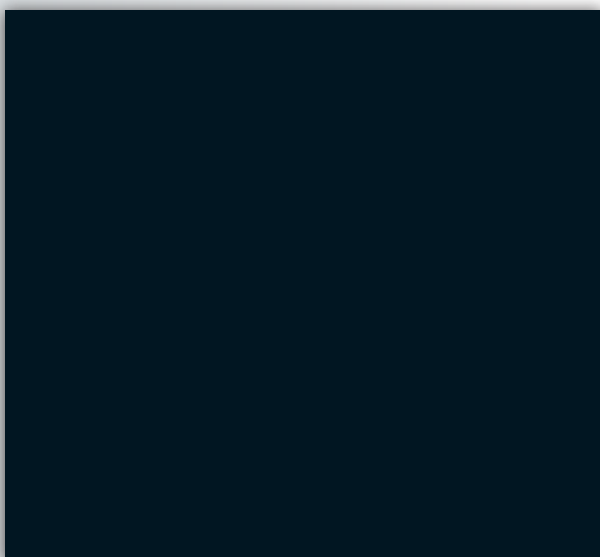


WiFi



LAN

#### No control in the power source



## Drive XQ

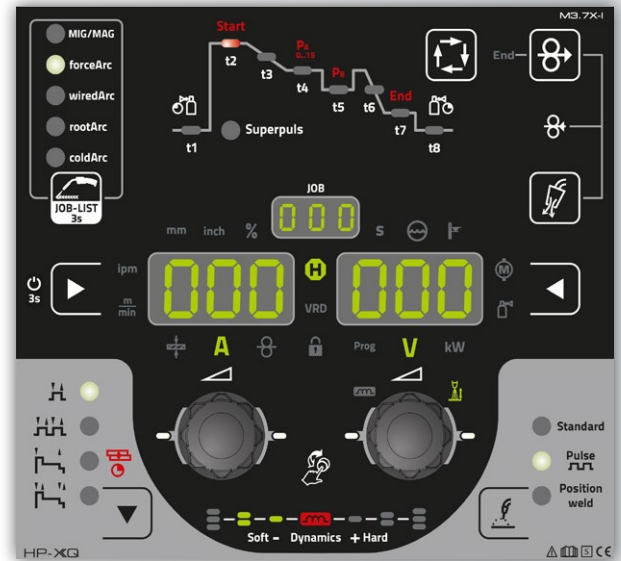


Expert XQ 2.0

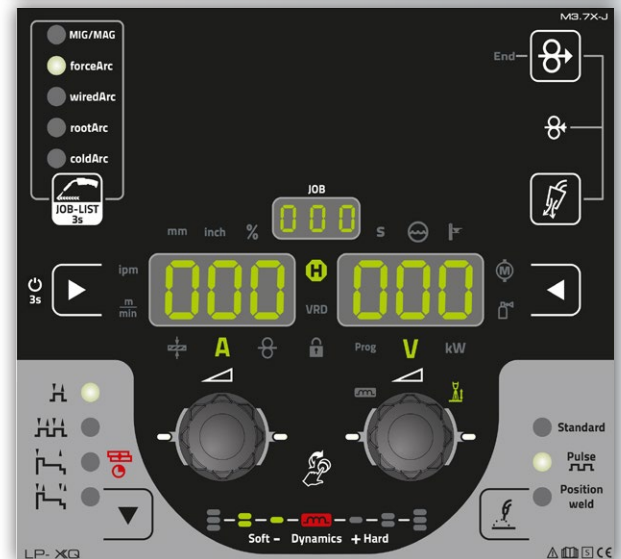
### Drive XQ control variants



HP-XQ



LP-XQ



# For those who want more – everything Expert control with intuitive operation

The Expert XQ 2.0 control shows what the machine offers. The user only needs to make a selection using the click wheel – welding procedure, material, gas, wire diameter. The appropriate characteristic for the welding task (JOB) is immediately shown on the robust and easy-to-read LCD display and it's ready to go. For more fun in more efficient work.

## LCD display – everything at a glance

- Plain text display for welding parameters and functions
- Easy to read through a welding helmet
- Good contrast even with reflected light thanks to anti-reflective surface

## Display screen – tough performer

- Scratch-proof protective screen for the display made of acrylic glass with hard coating
- Always clearly legible – no signs of wear, unlike touchscreens, for example
- 3 mm thick acrylic glass protective screen protects the LCD display against damage

## Control – logical because needs-oriented

- Membrane keyboard is clear, intuitive and resistant against dust, dirt and moisture
- Quicker changing between the levels thanks to needs-oriented operation



## USB connection for new tasks

- Offline documentation of welding data
- Update of characteristics
- Software update

## Process change

- Quick switching between welding procedures:
  - forceArc/forceArc puls
  - wiredArc/wiredArc puls
  - rootArc/rootArc puls
  - coldArc/coldArc puls
  - Positionweld
  - Pulsed and standard arcs

## Xbutton – the key for welding

- Individual access privileges and menu customisation

## Click wheel operation – turn, press, finished

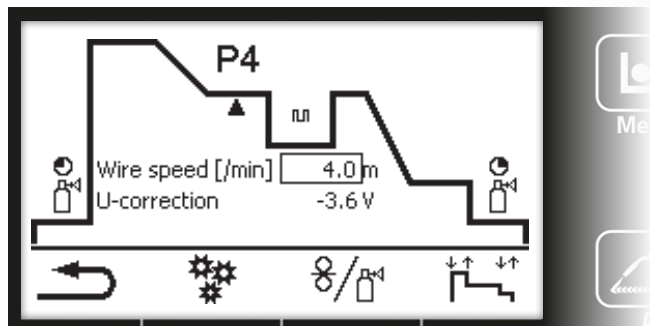
- Direct access to all important welding parameters through intuitive operating concept with click wheel functionality

## Language selection – more languages than some professors

- Pre-configured languages for the user menu: German, English, French, Italian, Dutch, Polish, Danish, Latvian, Russian, Spanish, Czech, Swedish, Portuguese, Turkish, Hungarian, Romanian

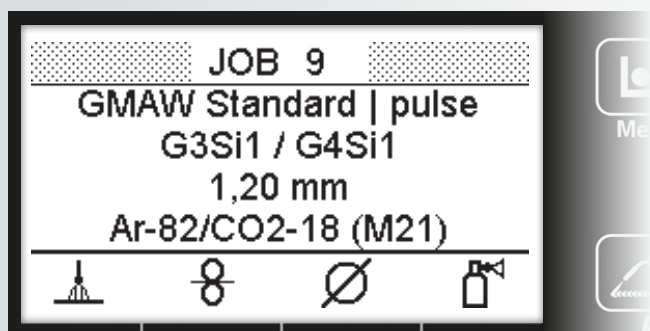


## Optional display of values in national or international units (mm/inch)



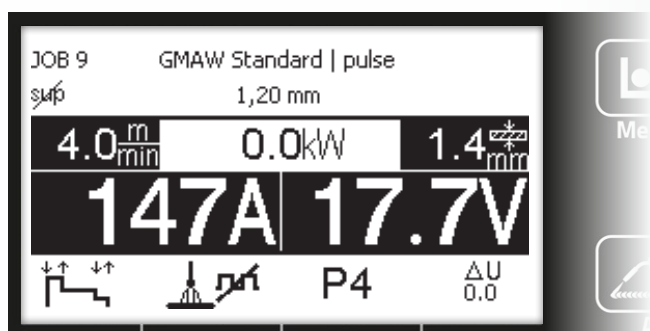
### Welding program sequence – lots of steps at a glance

- Simple adjustment of all welding parameters in the program sequence, such as starting current, end-crater current, for example



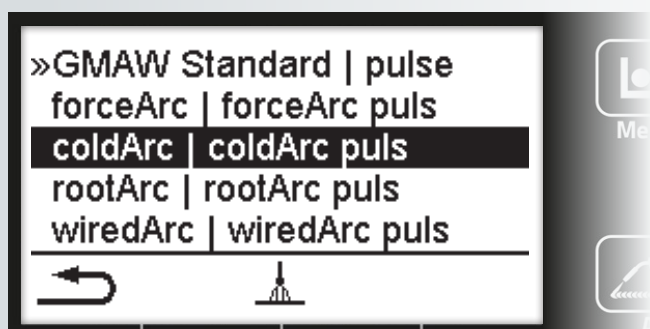
### JOB window – which welding task should it be?

- Simple JOB selection of the characteristics via click wheel
  - Welding procedure
  - Material type
  - Gas type
  - Wire diameter



### Welding parameter – everything has its value

- Displays the effective arc power for a simple calculation of energy per unit length
- Nominal, actual and hold values
- Operating modes
- Status messages



### Quick switching between MIG/MAG welding procedure – the optimum for each welding task

- forceArc/forceArc puls – high-performance arc with deep penetration
- wiredArc/wiredArc puls – high-performance arc with penetration stabilisation through dynamic wire feeding
- rootArc/rootArc puls – for perfect root welding
- coldArc/coldArc puls – minimises heat for thin metal sheet welding
- Positionweld – for positional welding
- Pulsed and standard arc



WPQR welding data assistant

392 A	28.0 V	6.0 m/min
11.0 kW		0:35 min
Weld length	35.0 cm	
Welding speed	60.0 cm/min	
Thermal efficiency	85 %	
t8/5		E: 1.10 kJ/mm Q: 0.93 kJ/mm

### WPQR welding data assistant – everything has its value

- The WPQR welding data assistant makes an exact calculation of the heat input and energy per unit length quick and easy

Heat input (Q)	0.96 kJ/mm	
Preheating temperature (T0)	150 °C	
Plate thickness (d)	20.0 mm	
Weld factor	2D	3D
	1.00 F2	1.00 F3
Transitional thickness	16.1 mm	
Cooling time t8/5	4.9 s	7.5 s

### Calculation T8/5-time

- From the previously calculated heat input Q, the T8/5 cooling time is directly calculated taking the specified material thickness and seam factors into account

389 A	✓
6.6 m/min	✓
29.4 V	✓
WPQR	

### Welding data monitoring – gives protection and information

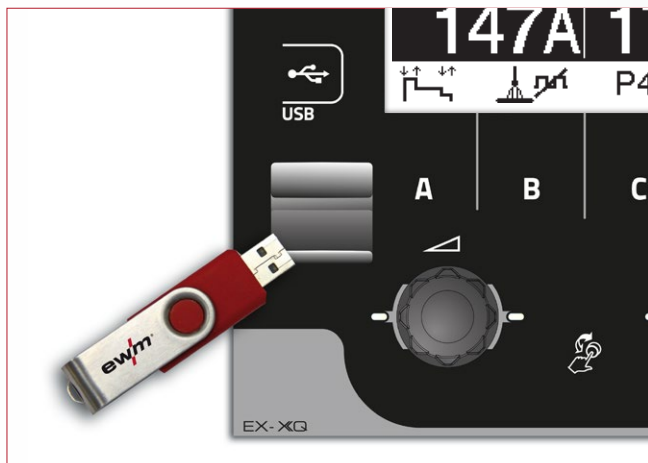
- Permitted working area
- Welding voltage
- Welding current
- Wire feed speed
- Predefined parameters via WPS

Unit 1

1	2	3	4	5
JOB: 10	JOB: 12	JOB: 13	JOB: 14	JOB: 15
6	7	8	9	10
JOB: 16	---	---	---	JOB: 20

### Welding data monitoring – gives protection and information

- Permitted working area
- Welding voltage
- Welding current
- Wire feed speed
- Predefined parameters via WPS



### Easy data exchange using USB flash memory – including dreams of the future.

- Always state-of-the-art welding technology: EWM's Titan XQ technology makes it possible to update the control as soon as new developments or welding tasks come out - simply by means of a USB stick
- EWM develops welding processes, material characteristics, power source characteristics, networking and individual operation on a continuous basis. Even existing EWM devices benefit from this through the simple data exchange
- Simple data transfer to LP-XQ and HP-XQ controls also possible with the Expert XQ 2.0 remote control



### Access rights via Xbutton – individual user rights

- Identification of the welder
- Xbutton allows mapping of the welder to the welding machine
- Administration of access rights for different control operating levels and welding parameters
- Precise final costing possible thanks to the ewm Xnet Welding 4.0 welding management system with individual data recording for each machine, application and welder
- Extremely robust and considerably more durable than RFID chip cards, for example



### Quick data transfer for Industry 4.0

- Networking of any number of power sources – via LAN/WiFi or via external LAN/WiFi gateway
- Simple offline data transfer via USB port



# For perfectionists – individual setting options for any weld HP-XQ control – maximum variability down to the finest

The HP-XQ control offers the highest level of requirement-specific setting options for the relevant welding task. The user can individually determine every detail of the welding sequence from the ignition current to the

end crater program. It is the ideal control for professional users who leave nothing to chance for perfect results.

## Welding sequence parameter – control down to the last detail

- Quick and easy setting of all parameters via coherent flow chart with LED user guidance, e.g. ignition and end crater current

## Wire reserve display – warns of 10% residual quantity (optional)

- Eliminates unpleasant surprises and weld defects as a result of the wire suddenly running out

## Process change

- Quick switching between welding procedures:
  - forceArc/forceArc puls
  - wiredArc/wiredArc puls
  - rootArc/rootArc puls
  - coldArc/coldArc puls

## Wire return

- Makes reverse inching of the wire easier

## kW display – effective arc power

- For energy per unit length calculation

## Selection

- Standard
- Pulse
- Positionweld

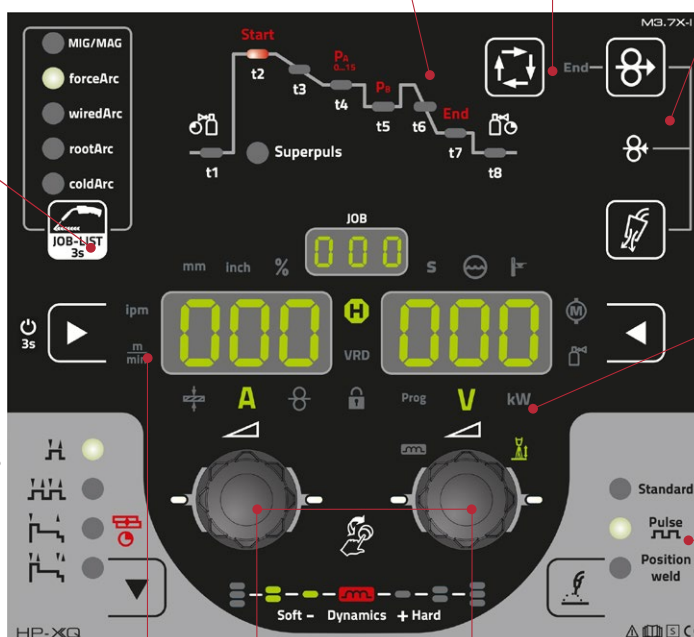
## Unit change – always the right measure

- Optional display of values in national or international units (mm/inch)
- Easy conversion via background menu

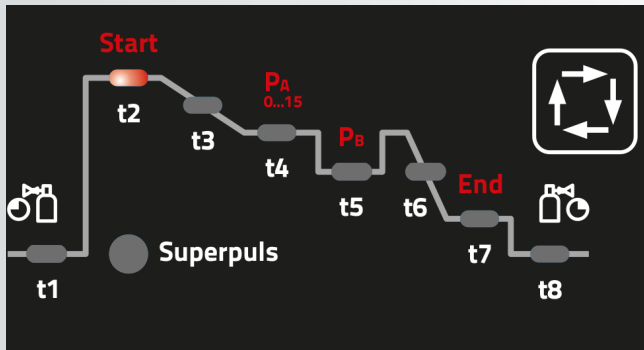
## Click wheel operation – turn, press, finished

- Left click wheel for setting Synergic operating point (power, wire feed, material thickness)

- Right click wheel for setting arc length correction and arc dynamics

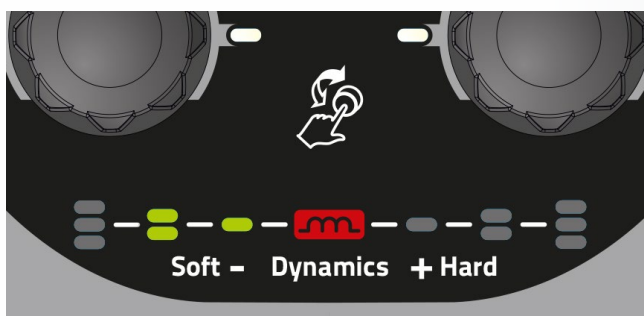


# Welding task detail



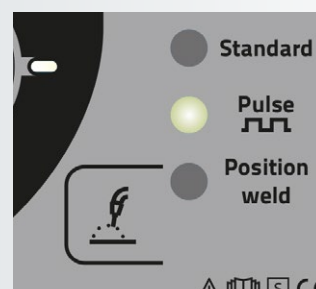
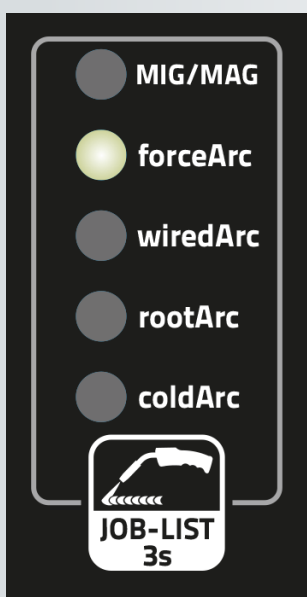
## Welding sequence parameter – control down to the last detail

- Quick and easy setting of all parameters via coherent flow chart with LED user guidance
- Always appropriate welding power with adjustable start program and welding program (16 programs per JOB)
- Impeccable welding results thanks to
  - Reduced welding program for heat control during the welding
  - End crater program with specific slope time to prevent end crater cracks
- Gas pre- and post-flow time can be set at the beginning and end to counter seam errors



## Arc dynamics – from soft to hard

- Allows excellent welding results by precise dosage of the arc from “soft” (wide seam, low penetration) to “hard” (hard arc, deeper penetration)
- Displays the selected dynamic level via LED bar



## Quick switching between the MIG/MAG welding procedures – the right one for any welding task

- **forceArc/forceArc puls** – high-performance arc with deep penetration
- **wiredArc/wiredArc puls** – high-performance arc with penetration stabilisation through dynamic wire feeding
- **rootArc/rootArc puls** – for perfect root welding
- **coldArc/coldArc puls** – minimises heat for thin metal sheet welding
- **Positionweld** – for positional welding
- Pulsed and standard arc



# Intelligent simplicity – switch on and start welding

## LP-XQ control – self-explanatory operation

The LP-XQ control has set the best parameter for the required welding process from the ignition current to the end crater program ex works. This saves training time. The welder can start his work straightaway – simply set

the operating point via the click-wheel and off he goes. The control is recommended when changing welding personnel, e.g. on assembly jobs and construction sites.

### Clear design – nothing to distract

- Optimum readability of the user interface
- Self-explanatory, intuitive operation – only the currently active functions are displayed
- Simply make the right choice – the welding parameters in the process from the ignition current to the end crater are optimally pre-set for all common welding tasks according to the material

### Process change

- Quick switching between welding procedures:
  - forceArc/ forceArc puls
  - wiredArc/ wiredArc puls
  - rootArc/ rootArc puls
  - coldArc/ coldArc puls

### Unit change – always the right measure

- Optional display of values in national or international units (mm/inch)
- Easy conversion via background menu

### Click wheel operation – turn, press, finished

- Left click wheel for setting Synergic operating point (power, wire feed, material thickness)

### Wire reserve display – warns of 10% residual quantity (optional)

- Eliminates unpleasant surprises and weld defects as a result of the wire suddenly running out

### Wire return

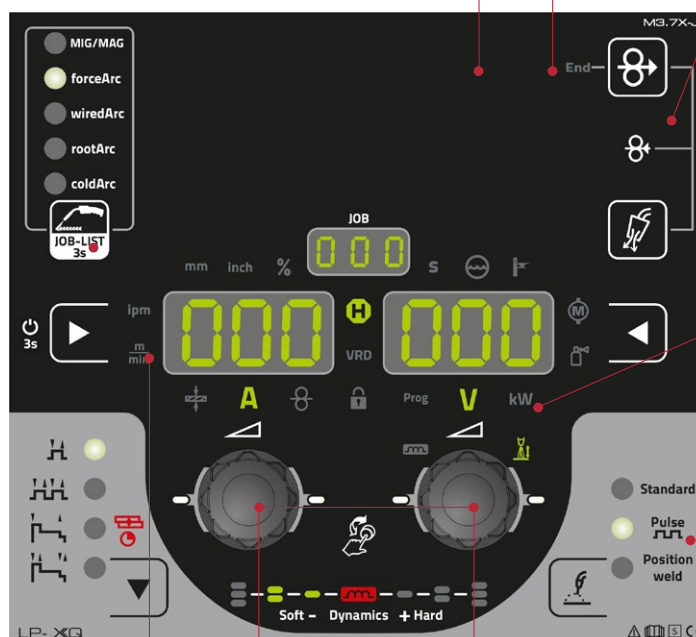
- Makes reverse inching of the wire easier

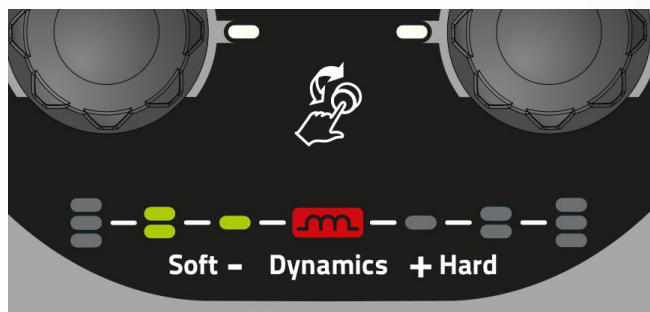
### kW display – effective arc power

- For energy per unit length calculation

### Selection

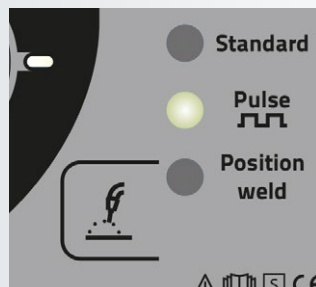
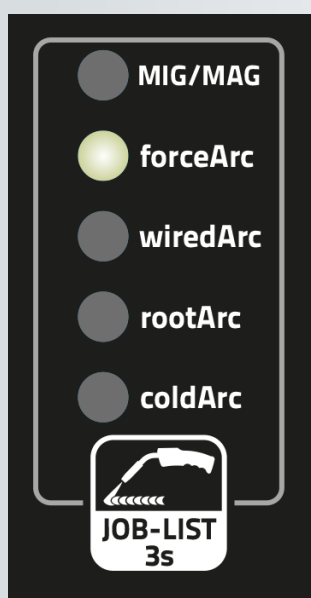
- Standard
- Pulse
- Positionweld





### Arc dynamics – from soft to hard

- Allows excellent welding results by precise dosage of the arc from “soft” (wide seam, low penetration) to “hard” (hard arc, deeper penetration)
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### Quick switching between the MIG/MAG welding procedures – the right one for any welding task

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- **rootArc/rootArc puls** – for perfect root welding
- **coldArc/coldArc puls** – minimises heat for thin metal sheet welding
- **Positionweld** – for positional welding
- **Pulsed and standard arc**



### Expert XQ 2.0 remote control – if more functions are needed

- Permits the use of all additional functions of the Expert XQ 2.0, if needed
- For all Expert XQ 2.0, LP-XQ and HP-XQ controls





# Welding procedures – overview

	Page
<b>Welding of non-alloy and low-alloy steel</b>	
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Welding filler passes and cover passes _____ ▪ forceArc puls <sup>®</sup> _____	36–37
Welding fillet welds with deep penetration _____ ▪ forceArc puls <sup>®</sup> _____	38–39
Welding using 100% CO <sub>2</sub> _____ ▪ coldArc <sup>®</sup> / rootArc <sup>®</sup> _____	41
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<b>Surfacing</b>	
Cladding, hardfacing _____	52–53



# Root welding of non-alloy and low-alloy steel

## Your requirements

## Our solution – rootArc®

Inconsistent, changing air gap

- Perfect gap bridging

X-ray proof results

- Good root formation and secure sidewall fusion

Welding in various positions

- High arc force for root welding in all positions

Increased productivity

- Good welding speed and melt rate compared to TIG or MMA welding
- Low-spatter process

Straightforward handling

- Rapid digital control of the process, easy to guide and to control
- Uses standard welding torches without additional wire movement
- Welding even with long hose packages without additional voltage measuring leads thanks to RCC power module (Rapid Current Control)
- For manual and mechanised applications

No grinding of intermediate passes

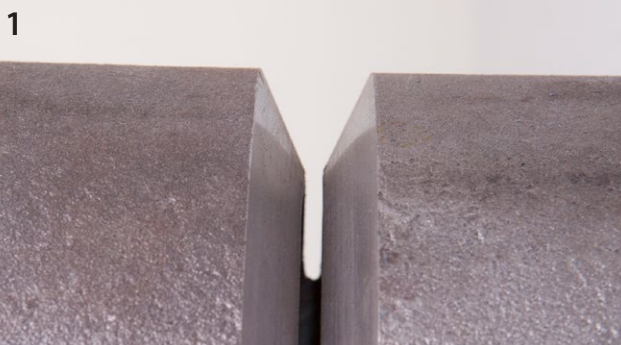
- Flat, smooth weld surface and virtually spatter-free process for reduced finishing work

Flexibility in production

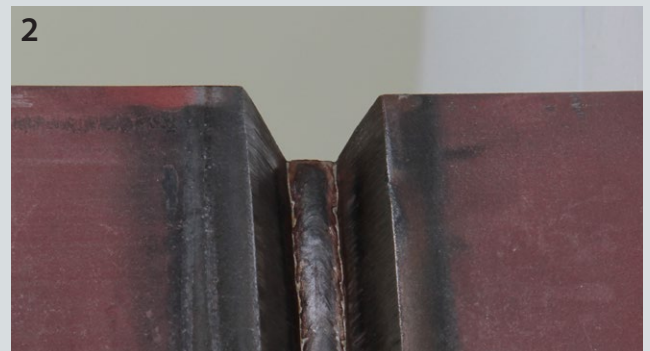
- EWM allin – one machine for welding all material thicknesses and using all processes



### All Root welding in PC position with an air gap and without weld pool backing

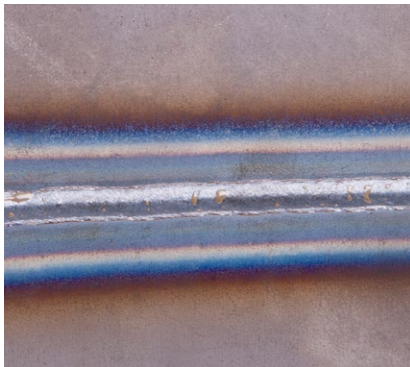


1  
Weld preparation of root welds on pipes, 60° included angle with 3 mm air gap

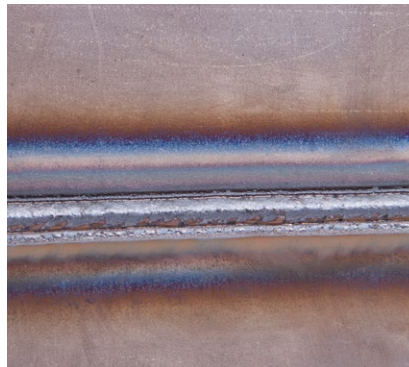


2  
Front view

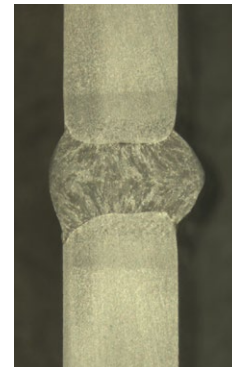
**PC** Root welding in PC position with an air gap and without weld pool backing



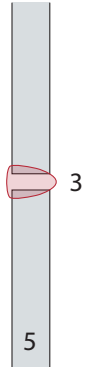
Front view



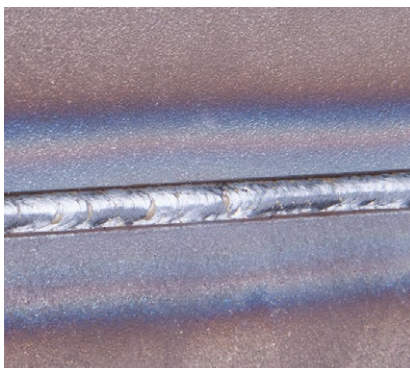
Root



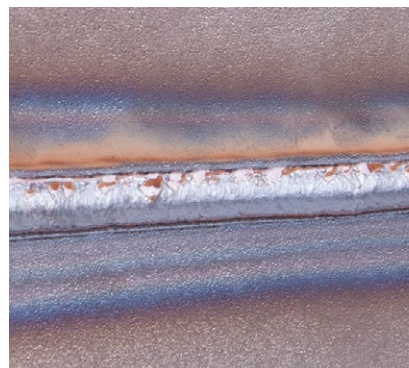
Material thickness 5 mm  
Air gap 3 mm



**PC** Root welding in PC position with an air gap and without weld pool backing



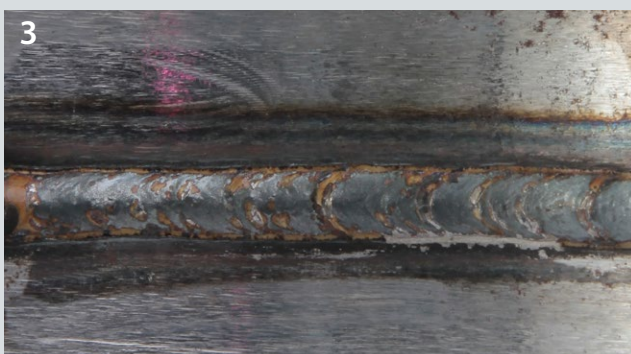
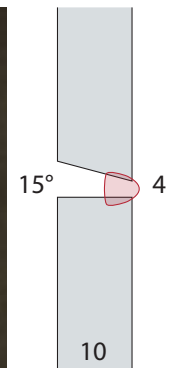
Front view



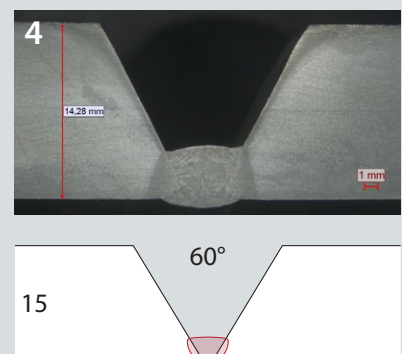
Root



Material thickness 10 mm, one-sided bevel 15 degrees, air gap 4 mm



Root



Pipe welding, wall thickness 15 mm, included angle 60°

# Welding of filler passes and cover passes in non-alloy and low-alloy steel

## Your requirements

## Our solution – forceArc puls®

Straightforward handling

- Easy to learn, even for inexperienced welders, thanks to rapid digital control of the process, virtually spatter free, reduced undercuts

Secure penetration

- Deep penetration for excellent root and sidewall fusion

Minimised distortion of the components

- Modified, heat-reduced, directionally stable pulsed arc

Improved economy

- Enables weld seam volumes to be reduced, potential for over 50% reduction of welding times in production, manual and automated

Reliable welding in poorly accessible areas

- Perfect welding even with very long stick-outs

Changeable, inconsistent air gap

- Excellent gap bridging even in high power ranges

Undercuts, seam appearance

- Excellent wetting of the material surface, smooth weld surface even on heavily oxidised or dirty sheet metal

Welding procedure qualification

- Qualified by welding procedure test (process no. 135) in accordance with DIN EN ISO 15614-1

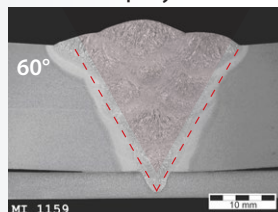
Straightforward handling

- EWM allin – one machine for welding all material thicknesses and using all processes



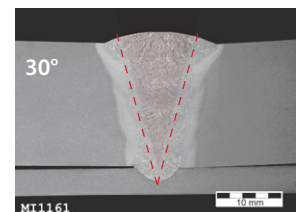
Welding with reduced seam volumes has been tested and confirmed multiple times by independent institutes. EWM's forceArc® and forceArc puls® welding processes allow welding times to be reduced by up to 50% compared to standard spray arc processes. The reduced included angle saves resources without changing the mechanical and technological properties.

Standard spray arc



11 runs

forceArc®



**5 runs**  
**50% shorter welding time**

Unchanged mechanical/technological properties

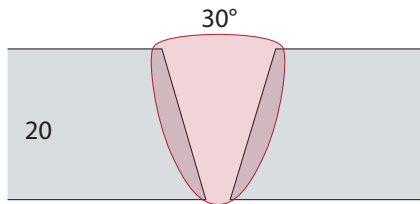
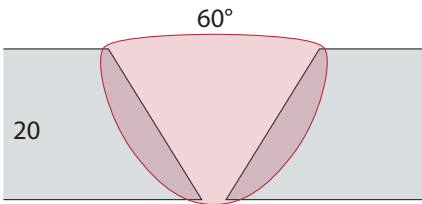
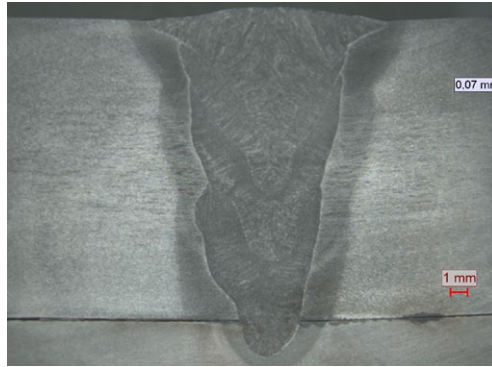
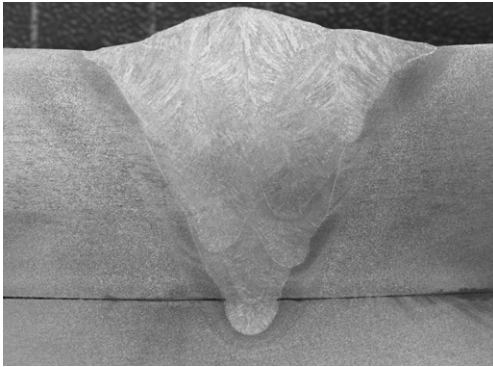
A complete technical report documenting all the advantages can be found online at the following link:

[www.ewm-group.com/sl/professionalreport](http://www.ewm-group.com/sl/professionalreport)



**forceArc puls<sup>®</sup>**

**PA Root welding with a reduced included angle**

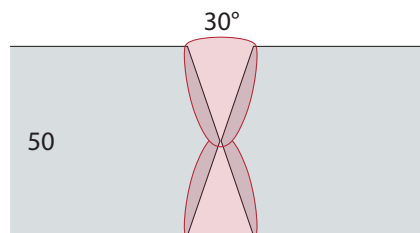
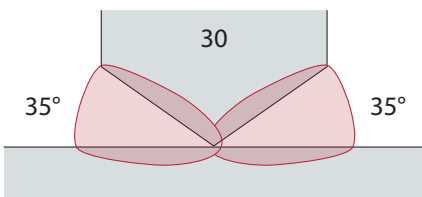
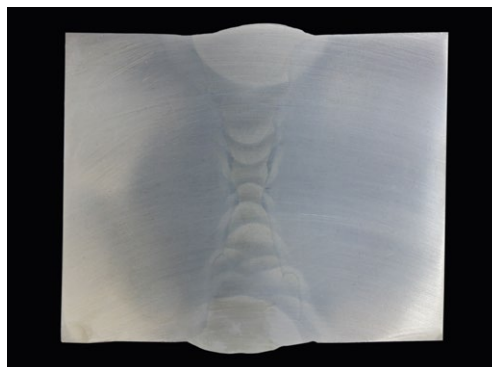
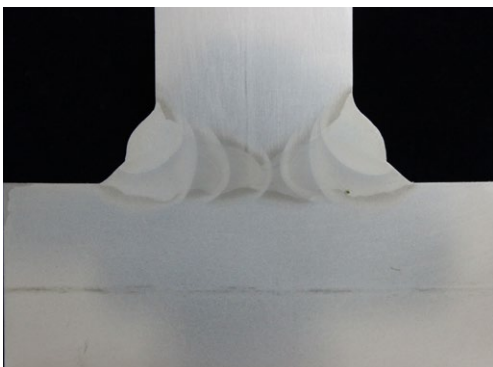


S355, 20 mm, included angle 60 °  
8 runs, standard spray arc

S355, 20 mm, included angle 30 °  
4 runs, forceArc puls<sup>®</sup>

**PB Full penetration, T-joint welded on both sides**

**PA Full penetration, butt joint welded on both sides**



S235, 30 mm, included angle 35 °  
8 runs

S355, 50 mm, included angle 30 °  
15 runs



# Welding fillet welds with deep penetration on non-alloy and low-alloy steel

## Your requirements

## Our solution – forceArc puls®

Improved economy

- Reduced number of welding passes for fillet welds

Secure penetration

- Deep penetration for excellent root and sidewall fusion

Minimised distortion of the components

- Modified, heat-reduced, directionally stable spray arc

Reliable welding in poorly accessible areas

- Perfect welding in narrow joints, even with very long stick-outs
- Rapid correction of alterations to stick-out lengths, reliable processing of stick-out lengths up to 40 mm

Reduced voltage in the fillet weld area

- Forces transferred to the interior of the component by deep penetration, seam volume reduced by large effective seam thickness in line with DIN EN ISO 17659:2005-09, reduced heat input into the component

Welding procedure qualification

- Qualified by welding procedure test (process no. 135), in line with DIN EN ISO 15614-1

Simple, safe handling

- Rapid digital control of the process, easy to learn and directly applicable regardless of torch angle

Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes



Energy savings



Reduced production time (welding, finishing work)



Reduced material costs



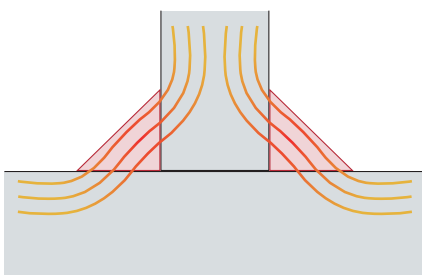
Reduced welding fume emissions

### Welding with deep penetration as per DIN EN 1090

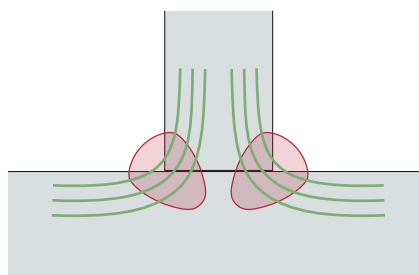
Use the full potential of your weld seam. By taking the effective seam thickness of fillet welds into account, the forceArc puls<sup>®</sup> process enables single-pass welds up to throat = 8 mm to be created as opposed to throat = 5 mm in processes without deep penetration.



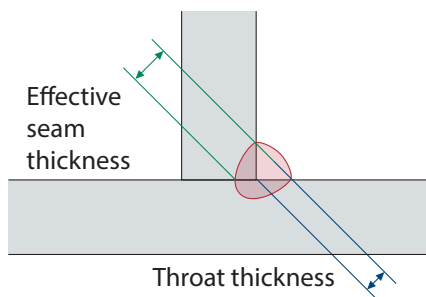
Additional information  
[www.ewm-group.com/sl/titanforcearc](http://www.ewm-group.com/sl/titanforcearc)



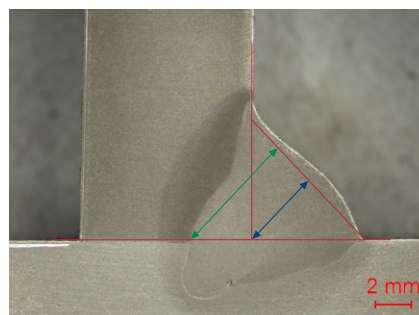
Flow of force in standard fillet welds



Improved flow of force thanks to deep penetration

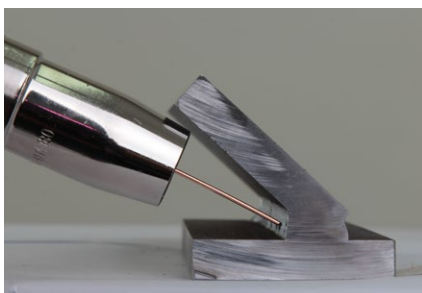


Definition of effective seam thickness as per DIN EN ISO 17659:2005-09

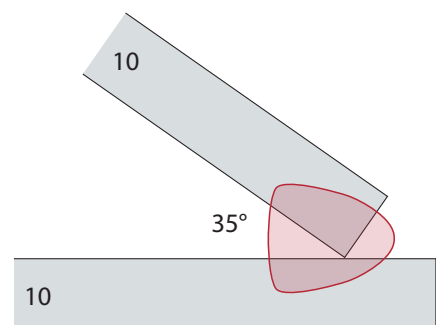


S355, 10 mm, effective seam thickness of 8 mm as per DIN EN ISO 17659:2005-09

### All Welding with deep penetration and long stick-out



Web plate material thickness 10 mm, included angle 35°



# Welding with consistent penetration and consistent power on non-alloy, low-alloy and high-alloy steel

## wiredArc / wiredArc puls

### Your requirements

### Our solution – wiredArc/wiredArc puls

Secure penetration, root and sidewall fusion

- Welding process with consistently high penetration depth regardless of alterations to the stick-out

Reduced or no weld spatter

- Virtually spatter-free welding results thanks to rapid digital control of the welding process

Controlled heat input

- Digital process control supplies a consistent welding current
- The energy per unit length and heat input remain virtually consistent despite changes to the stick-out

Increased productivity

- Ability to reduce the seam's included angle and therefore the weld seam volume

Visually pleasing weld surface

- Flat, even weld surface and virtually spatter-free process for reduced finishing work

Straightforward handling

- Easy to learn and to control

Flexibility in production

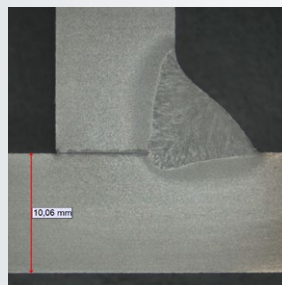
- EWM allin – one machine for welding all material thicknesses and using all processes



12 mm stick-out

30 mm stick-out

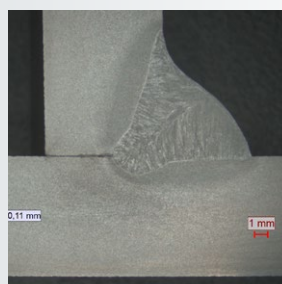
Standard



### Standard

Alteration of the stick-out causes the penetration depth to change in standard welding processes. In particular, welding with an increasing stick-out length can cause the weld root to be insufficiently fused (lack of fusion).

wiredArc



### wiredArc

With EWM wiredArc, the penetration remains consistent when the stick-out is altered. The innovative control keeps the welding current and the heat input virtually consistent.

# Welding using 100% CO<sub>2</sub> on non-alloy and low-alloy steel

100% CO<sub>2</sub>

## Your requirements

## Our solution – coldArc<sup>®</sup>/rootArc<sup>®</sup>/Standard

Minimised spatter similar to mixed gas

- Digital process control for low-spatter droplet transfer thanks to the RCC power module (Rapid Current Control)

Process stability

- Rapid process control thanks to the use of the latest microelectronics

Increased productivity

- Minimised weld spatter similar to mixed gas
- Welding even with long hose packages without additional voltage measuring leads thanks to RCC power module (Rapid Current Control)

Straightforward handling

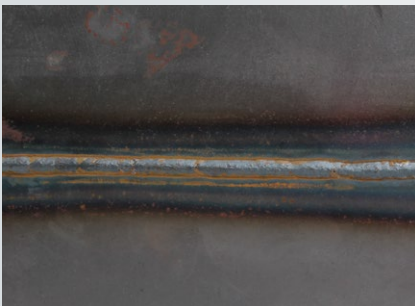
- Easy to guide and control

Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes

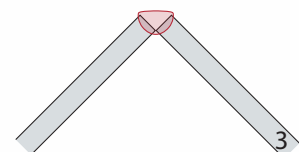
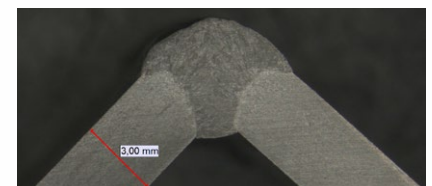


### PC Root welding in PC position with an air gap and without weld pool backing



S355, material thickness 3 mm, using G3Si1 1.2 mm diameter at 100% CO<sub>2</sub>

### PA Root welding in PC position with an air gap and without weld pool backing



S355, material thickness 3 mm, using G3Si1 1.2 mm diameter at 100% CO<sub>2</sub>



# Welding full penetration fillet welds on non-alloy, low-alloy and high-alloy steel

## Your requirements

## Our solution – forceArc puls®

Simple, safe handling

- Good gap bridging even in high power ranges, easy to learn and directly applicable
- Considerably reduced welding fume emissions compared to pulsed arc welding

Improved economy

- Secure full penetration even without an air gap, therefore good for fitting work
- Enables included angles to be reduced thereby reducing weld seam volumes, lowering the number of runs and significantly lowering costs

No gouging or grinding of the transverse root side

- Double-sided full penetration welds on butt joints or T-joints without grinding or gouging the transverse root side

Secure penetration

- Deep penetration for excellent root and sidewall fusion

Stable arc

- Good process stability when welding on the weld pool even at small included angles

Reliable welding in poorly accessible areas

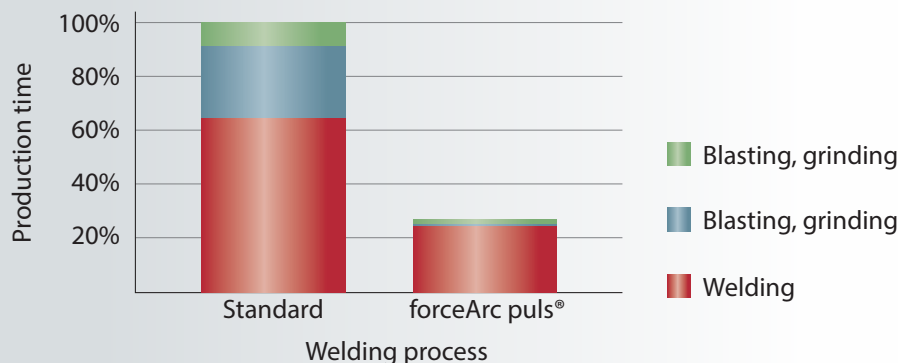
- Perfect welding, even with very long stick-outs
- Even in tight and narrow gaps with very long stick-outs
- Rapid correction of alterations to stick-out lengths, reliable processing of stick-out lengths up to 40 mm

Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes



Time saved by using forceArc puls® in production



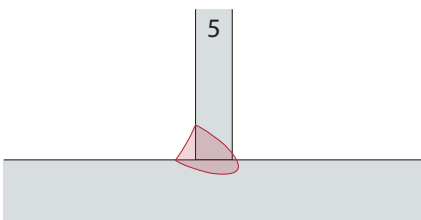
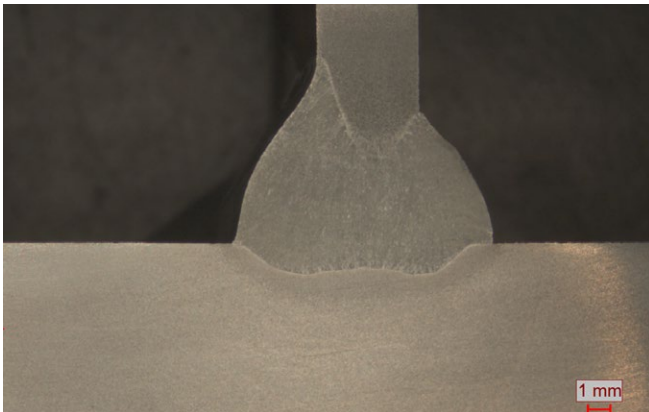
Additional information



[www.ewm-group.com/sl/savings](http://www.ewm-group.com/sl/savings)

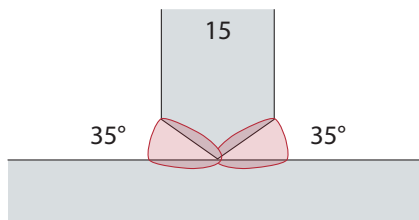
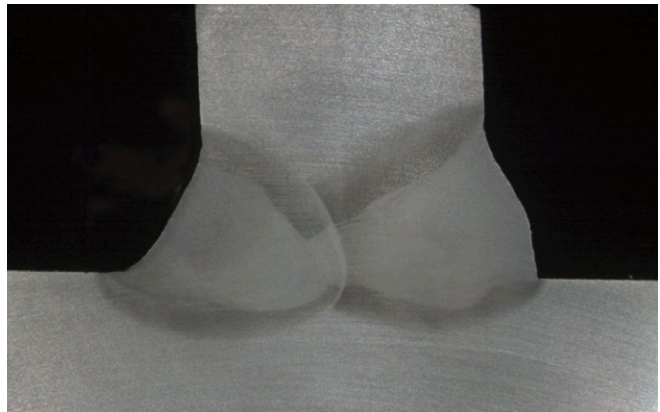
**forceArc puls<sup>®</sup>**

**PB** Fillet weld welded on one side



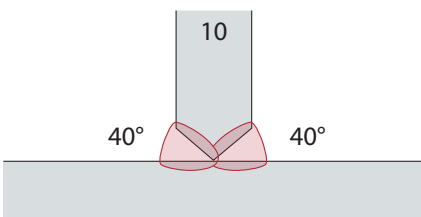
S355, 5 mm on 10 mm

**PB** Full penetration, welded on both sides



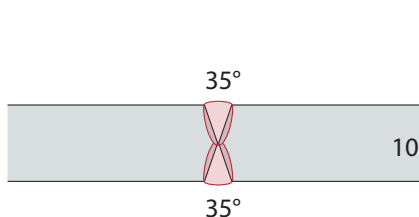
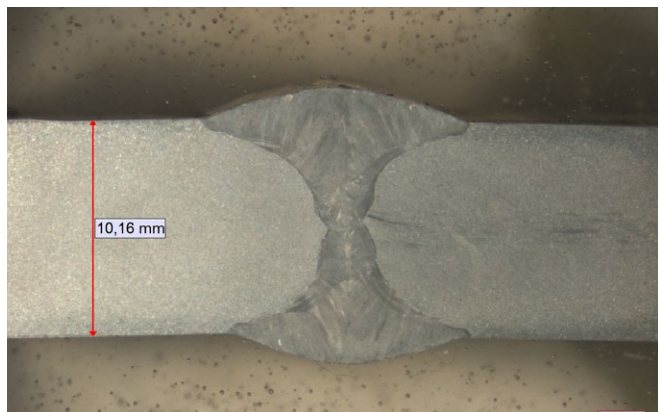
S355, 15 mm, included angle 35°

**PB** Full penetration, welded on both sides



1.4301, 10 mm, included angle 40°

**PA** Full penetration, welded on both sides



1.4301, 10 mm, double-sided full penetration on a butt joint with an included angle of 35°

# Positional welding without using the “Christmas tree” technique on non-alloy, low-alloy and high-alloy steel

## Your requirements

## Our solution – Positionweld

Increased productivity

- High welding speeds compared to the traditional "Christmas tree" technique

Secure penetration, root and sidewall fusion

- Concentrated, digitally modified pulsed arc

Reduced or no weld spatter

- Virtually spatter-free welding results thanks to rapid digital control of the welding process

Controlled heat input

- Optimum, factory-configured switching between low and high welding power
- Heat-reduced process with low arc power and energy per unit length

Visually pleasing weld surface

- Flat, evenly spaced bead ripples and virtually spatter-free process for reduced finishing work

Straightforward handling

- Easy to set and easy to guide

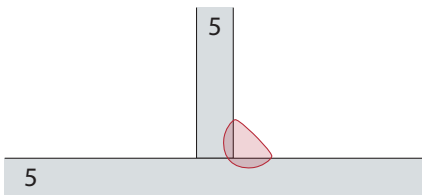
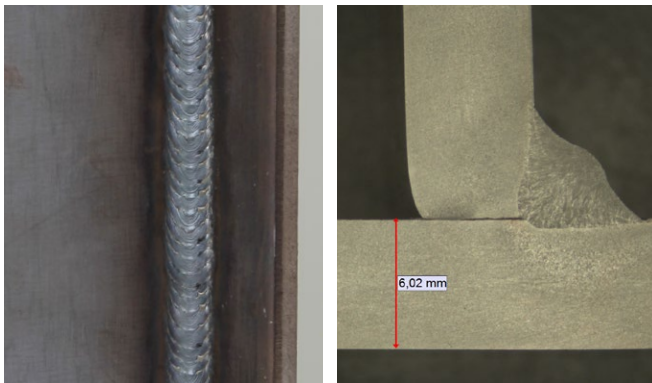
Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes



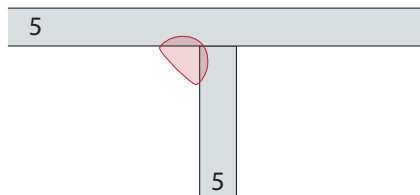
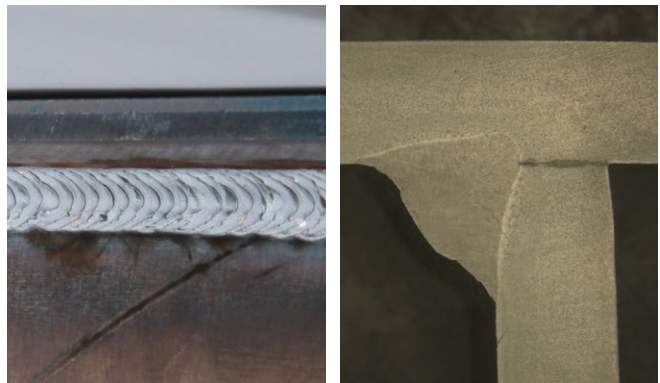
**Positionweld**

**PF** Vertical-up weld, straight torch guidance without using the "Christmas tree" technique



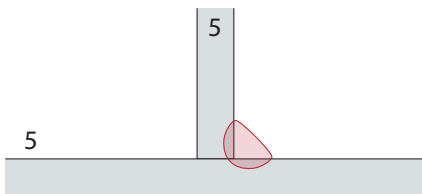
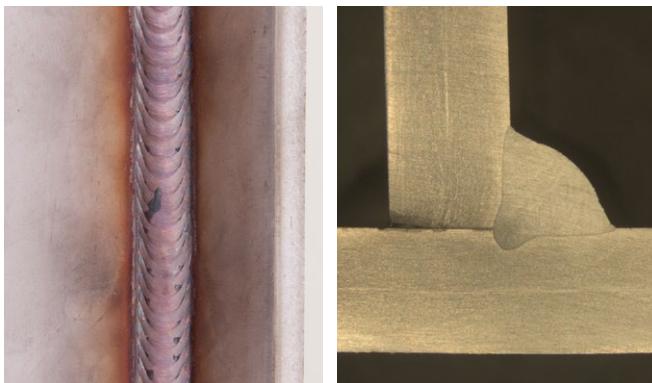
S355, material thickness 5 mm

**PD** Overhead welding, easy handling



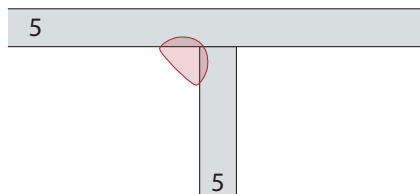
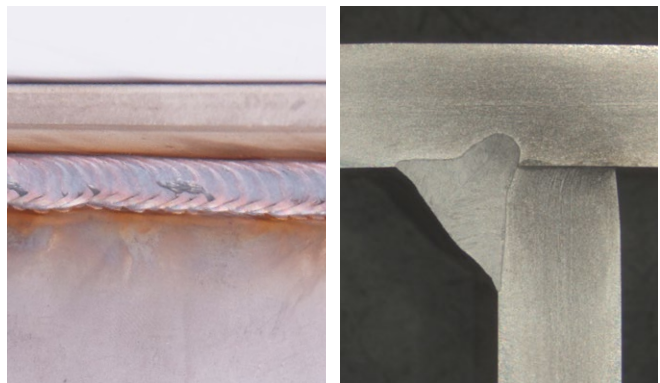
S355, material thickness 5 mm

**PF** Vertical-up weld, straight torch guidance without using the "Christmas tree" technique



1.4301 material thickness 5 mm

**PD** Overhead welding, easy handling



1.4301 material thickness 5 mm



# Welding and brazing of thin sheet metal made from non-alloy, low-alloy, high-alloy steel and galvanised sheet metal

## Your requirements

## Our solution – coldArc®/coldArc puls®

Less distortion, minimal discolouration

- Lower heat input due to digital control of droplet transfer in short-circuit welding thanks to RCC power module (Rapid Current Control)

Visually pleasing, smooth weld surface, less or no weld spatter

- Flat, smooth weld surface and virtually spatter-free process, less discolouration and distortion reduces finishing work, excellent wetting of surfaces when brazing

Changeable, inconsistent air gap

- No sagging of the molten metal, secure sidewall fusion even with misaligned edges

Secure penetration

- Optimum process performance configuration, steady and stable welding process

Straightforward handling

- Rapid digital control of the process, easy to guide and control
- Welding even with long hose packages without additional voltage measuring leads thanks to RCC power module

Welding and brazing of coated (galvanised) sheet metal

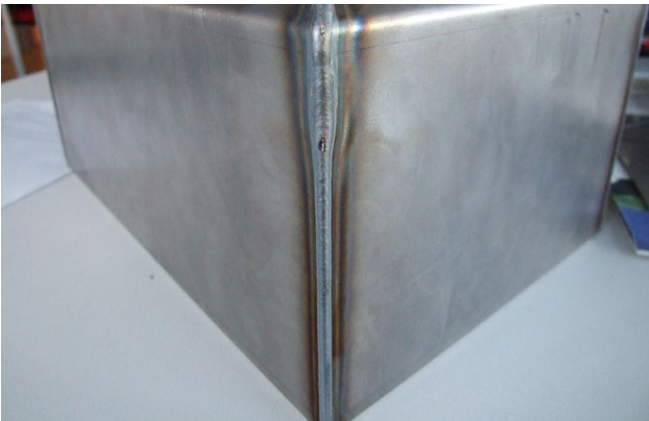
- Minimal spatter formation, minimal impact on corrosion resistance

Flexibility in production

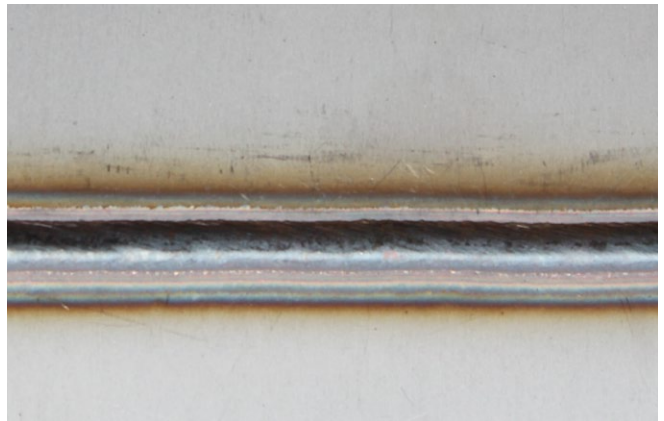
- EWM allin – one machine for welding all material thicknesses and using all processes



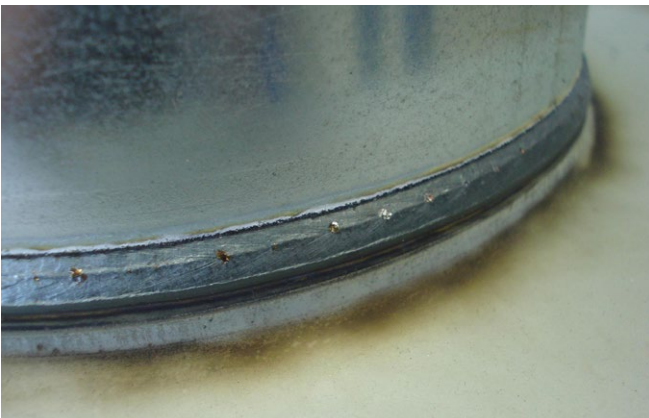
**coldArc<sup>®</sup> / coldArc puls<sup>®</sup>**



Welding unalloyed sheet metal



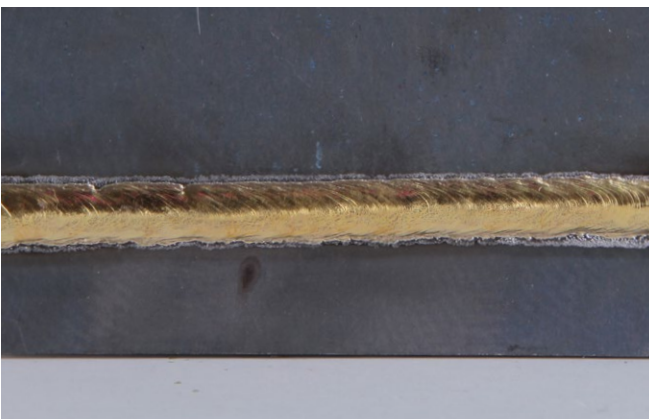
Welding high-alloy sheet metal



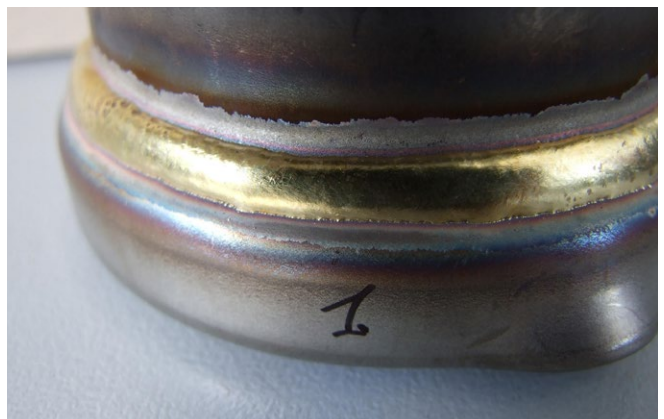
Welding galvanised sheet metal



Brazing galvanised sheet metal



Brazing high tensile sheet metal, e.g. Usibor<sup>®</sup>



Brazing high-alloy (CrNi) sheet metal

# Filler pass and cover pass welding of high-alloy steel

## Your requirements

## Our solution – forceArc puls®

### Secure deep penetration

- Concentrated, digitally modified pulsed arc

### Reduced or no weld spatter

- Virtually spatter-free welding results thanks to rapid digital control of the welding process
- Lower welding fume emissions compared to pulse arc welding

### Minimal distortion

- Heat-reduced process with low arc power and energy per unit length reduced by up to 20% compared to pulsed arc

### Increased productivity

- Ability to reduce the seam volume thanks to the smaller included angle in multipass welding
- Symmetrical fillet welds with maximum attainable seam thickness (throat thickness)
- Low interpass temperature/reduced non-productive time

### Visually pleasing, smooth weld surface

- Flat, smooth weld surface and virtually spatter-free process for reduced finishing work, minimal discolouration

### Straightforward handling

- Rapid digital control of the process, easy to guide and control
- Consistent weld surface from various torch positions

### Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes



## Your benefits

### Up to 30% total cost savings

- Reduced costs for wages, welding consumables, shielding gas and power
- Reduced production time

### Up to 15% lower heat input

- Less finishing work (straightening, sanding, cleaning) due to reduced distortion, discolouration and stress
- Minimised non-productive time due to shorter waiting times in multipass welding

### Up to 20% greater throat thickness\*\*

- Symmetrical seams due to deep, concentrated penetration with reliable root fusion

### Virtually spatter free

- Minimised finishing work, even on panels with scaling or very dirty surfaces



**forceArc puls<sup>®</sup>**



**Front view:** Lower heat input using forceArc puls<sup>®</sup>, less surface oxidation resulting in a better finish

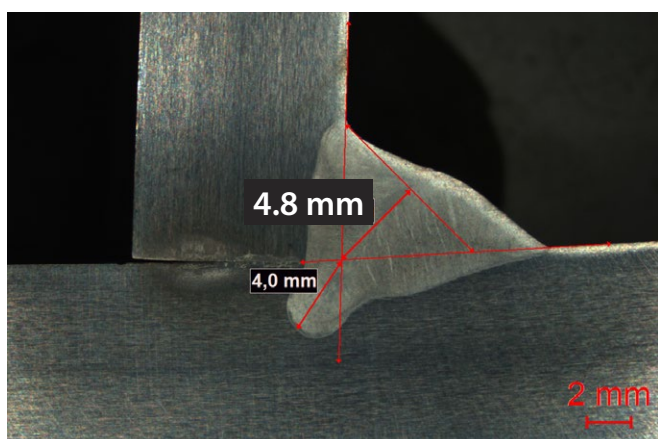
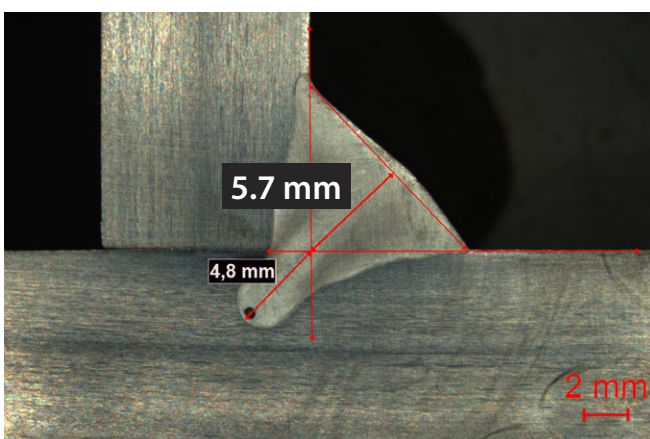


**Back view:** Low heat input using forceArc puls<sup>®</sup>, less surface oxidation

Compared to pulsed arc welding, forceArc puls<sup>®</sup> inputs up to 15% less heat in the upper power ranges. This results in less discolouration and less distortion in the component.

**Your benefits**

- Lower heat input
- Minimised energy per unit length
- Reduces distortion, discolouration and stress in the workpiece
- Less finishing work (straightening, sanding, cleaning)
- Less melting loss of alloy elements resulting in greater corrosion resistance



Process	forceArc puls <sup>®</sup>	Pulse
Wire feed in m/min	13	13
Energy per unit length in kJ/mm	1.21 (-15%)	1.44
Weld speed in m/min	0.45	0.45
Throat thickness	5.7 (+15%)	4.8



# For welding aluminium and aluminium alloys

## Pulsed arc

### Your requirements

### Our solution – pulsed arc

Secure penetration, root and sidewall fusion

- Rapid and stable process control thanks to the use of the latest microprocessor technology

Visually pleasing weld surface

- Steady, stable droplet transfer, less smoke residue on surface
- Individual weld appearance thanks to freely adjustable superPuls function

Minimised spatter

- Wire feed reverse for spatter-free ignition

For welding any material thickness

- Reliable process starting from 1 mm

Straightforward handling

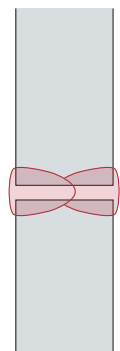
- Rapid digital control of the process, easy to guide and control

Flexibility in production

- EWM allin – one machine for welding all material thicknesses and using all processes



### PC Welding on both sides of aluminium in shipbuilding



# Welding of aluminium and aluminium alloys in positional welding without using the “Christmas tree” technique

## Positionweld

### Your requirements

Secure penetration, root and sidewall fusion

Controlled heat input

Increased productivity

Visually pleasing weld surface

Straightforward handling

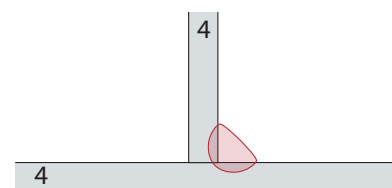
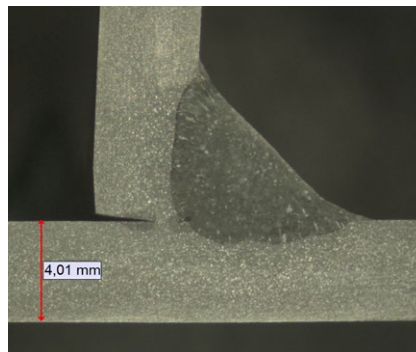
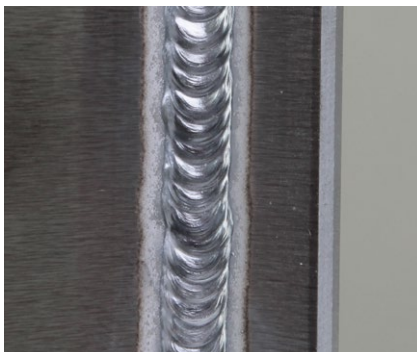
Flexibility in production

### Our solution – Positionweld

- Concentrated, digitally controlled pulsed arc
- Optimum, factory configured switching between low and high welding power
- High welding speeds compared to the traditional weaving techniques
- Flat, evenly spaced bead ripples and virtually spatter-free process for reduced finishing work
- Rapid digital control of the process, easy to guide and to control
- EWM allin – one machine for welding all material thicknesses and using all processes

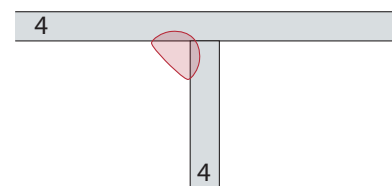
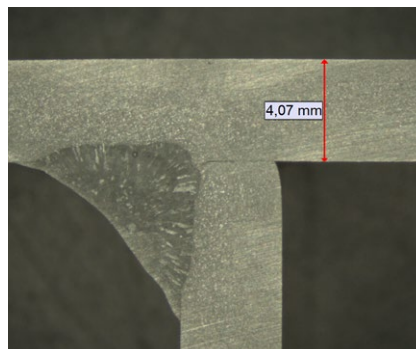
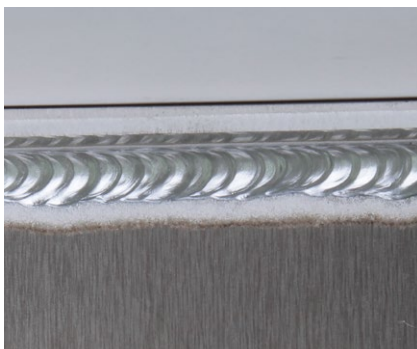
**all in**

#### PF Vertical-up welding, easy handling



AlMg5, material thickness 4 mm

#### PD Overhead welding, easy handling



AlMg5, material thickness 4 mm

## Surfacing, cladding/hardfacing

### Your requirements

Deposit with good corrosion resistance

Little material removal after welding

Stable arc

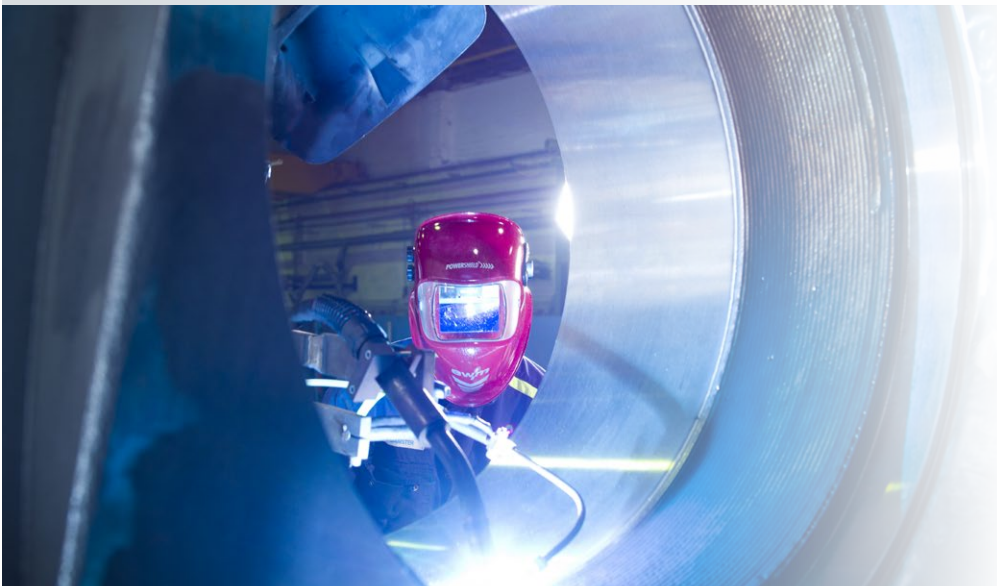
Straightforward handling

Flexibility in production

### Our solution – cladding/hardfacing

- Low dilution due to optimum process configuration for surfacing
- Even deposit structure, minimal machining work
- High process stability thanks to digitally controlled arc, minimised spatter formation
- Easy to operate and set
- EWM allin – one machine for welding all material thicknesses and using all processes
- Surfacing processes at no extra cost for Co-based and Ni-based alloys and high-alloy CrNi alloys

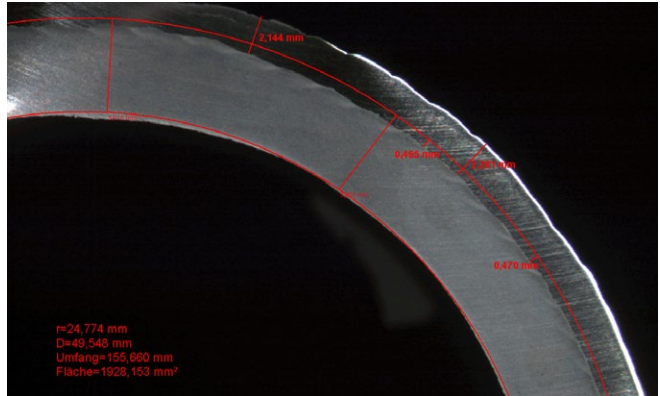
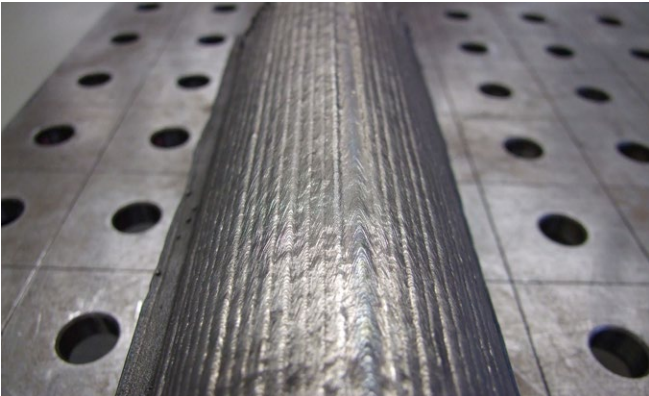
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**Cladding/hardfacing**

**PA Surfacing of finned tube walls**



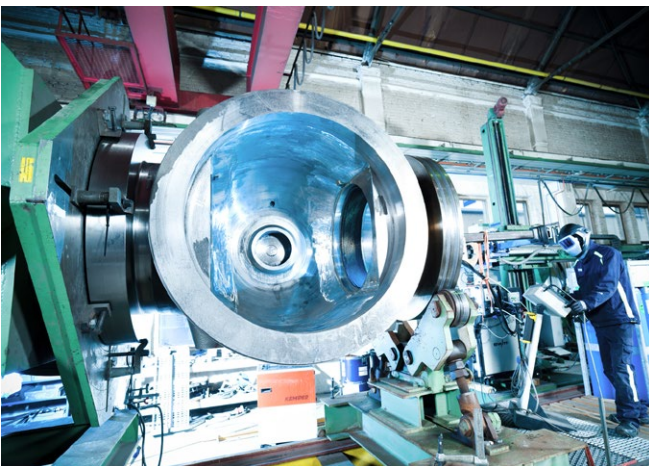
Corrosion-resistant surfacing of Alloy 625 Ni-based materials

**PA MAG + hot wire surfacing for increased deposition rate**



New process variant combines a MAG welding process supplemented with an additional hot wire.

- Up to 13.8 kg deposition rate for significantly increased productivity
- Minimal dilution
- Further improved properties of deposited layers
- Process easy to set up and configure
- Suitable for cladding and hardfacing



Additional information



[www.ewm-group.com/sl/cladding](http://www.ewm-group.com/sl/cladding)

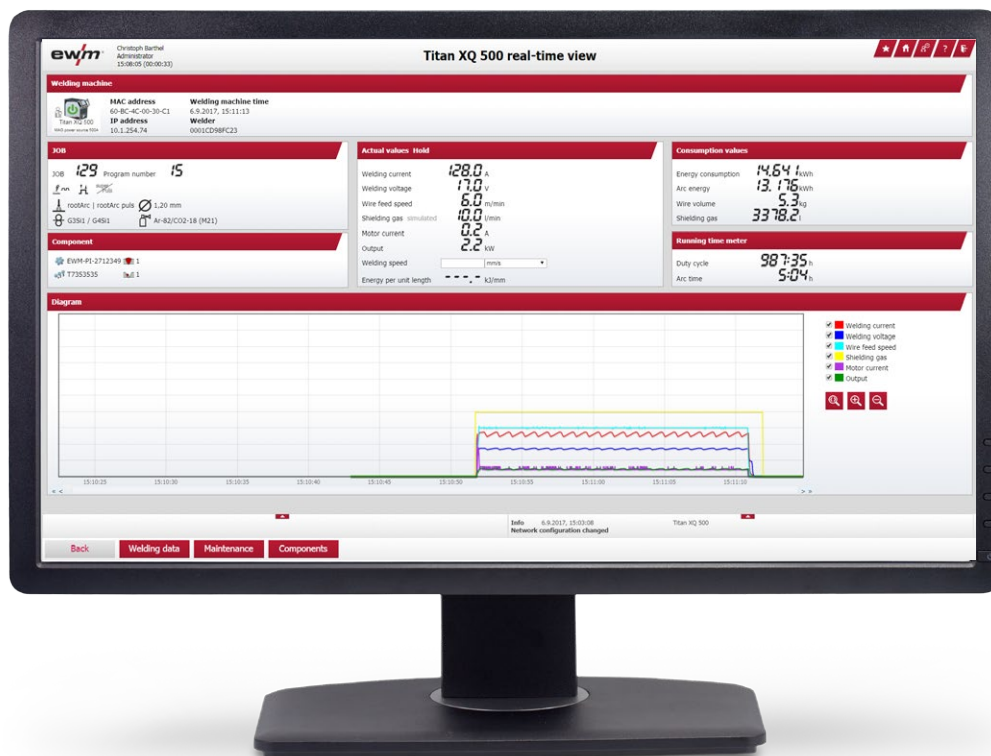


# Welding 4.0 – ewm Xnet welding management system

## The step towards more efficient and resource-saving

Intelligent and productivity-boosting networking of man and machine for an automatic flow of data in the production chain: Industry 4.0 is now becoming established in welding production thanks to the new and innovative ewm Xnet Welding 4.0 welding management system. Future concepts such as the smart factory and digital transformation become reality with minimal effort. The advantages are obvious: improved networking of prod-

ucts and people increases efficiency and quality, reduces costs and at the same time saves resources. Intelligent monitoring and transparent processes from planning and production through to the final costing of weld seams ensure that you are always kept informed. ewm Xnet provides welding companies of all sizes and types with the benefits of Industry 4.0. Bring the future into your company now – get in touch with us.



### Network solutions

#### The compact solution

- Occasional recording, reviewing and analysing of welding data as well as monitoring of networked machines
- Ideal for smaller single-shift operations and small to medium-sized companies with up to approx. 15 networked machines

#### The standard solution

- Continuous recording, reviewing and analysing of welding data as well as monitoring of networked machines
- The standard solution for medium-sized and large companies with up to approx. 60 networked machines

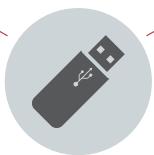
# welding technology

## Xnet Your benefits

- Recording of welding data
- Save, review and analyse at a central point
- Online monitoring – control and monitor the welding process for any number of welding machines from any number of PC workstations
- Online analysis, evaluation, reporting and documentation of logged welding parameters for each networked welding machine using different documentation and analysis tools
- Option of transferring to all welding machines in the network
- Convenient, easy-to-create graphic display layout showing equipment in the network, based on work facility floor plan; can be enlarged by zooming, navigation window and much more

## Xnet The modules and components

- Starter set – record, manage and transmit consumption values of welding data in real time
- WPQ-X Manager – create, manage and assign welding procedure specifications to welders
- Component management – manage components, create welding sequence plans, assign WPS
- Xbutton – access rights and WPS allocation for the welder via the robust hardware key



## OPC UA interface

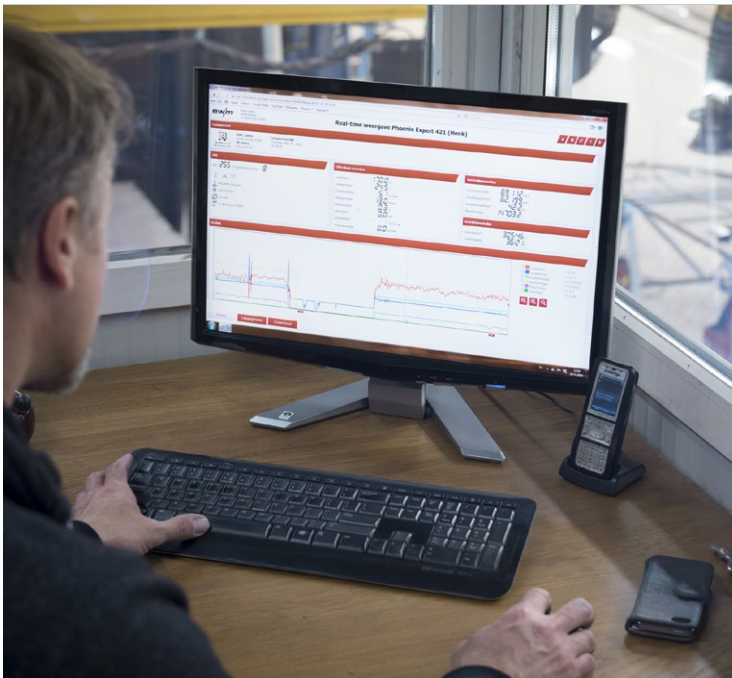
Standardised interfaces such as OPC UA enable users to export data from the EWM system to a standard format so that these data can be integrated into higher-level production management systems.

## ewm Xnet component management (module 3)

### Step 1 –

#### Work preparation in ewm Xnet

- Create the component to be produced in ewm Xnet during work preparation on PC in the office
- Create the component to be produced in the office on PC
- Create drawing file or import from CAD
- Determine seam sequence plan
- Assign WPS
- Print barcode, add the work order or attach directly to the component as a sticker
- Send component data to welding machine via LAN/WiFi
- The data is available offline in the machine e.g. for use on construction sites



### Step 2 –

#### Scan the barcode on the component

- Welder scans the barcode on the component using a barcode scanner
- Component data is called up on the control:
  - Order numbers
  - Component numbers
  - Component group
  - Series numbers
  - Batch numbers
  - Welding sequence plan (e.g. seam 1, run 1, seam 1, run 2 etc.)
  - WPS (welding data for every run/seam)
  - Required welding qualification



### Step 3 – Xbutton

- Welder identifies themselves for welding approval using the Xbutton on the welding machine



### Step 4 –

Call up the beads and seams corresponding to the welding sequence plan using the PM welding torch and graphic display

- Welder begins working in line with the displayed seam sequence
- All welding parameters are set automatically for every individual run/seam by the machine
- After each run/seam, the welder confirms its completion by pressing a button on the PM welding torch with graphic display
- Two-part exit e.g. for tack-welding tasks using a button on the PM welding torch with graphic display
- Display with seams/runs






## ewm Xnet component management (module 3)

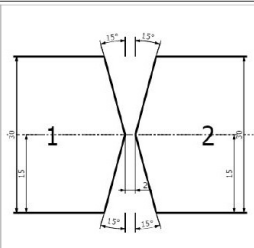
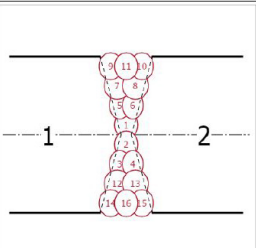
### The aim is: To increase added value on weld seams.

From work preparation in the office to welding in production – ewm Xnet component management makes a great job of networking. The software supports all parties involved during the entire work process up until the perfectly finished workpiece is produced. It ensures that errors cannot even arise or that they are promptly detected for rectification. In addition to high and reproducible weld seam quality, EWM component management can greatly

increase production efficiency. For instance, clear WPS assignment in the production plan eliminates non-productive time spent by welders searching for and setting the respective precisely suitable welding parameters.

ewm		Welding procedure specification (WPS)		WPS No	Rev.	Page 1 .. 1
				290		
Manufacturer	EWM AG	Joint	Butt joint			
Street	Herestr. 1	Weld seam details	One-sided without backing bar			
City	Town	Type of preparation and cleaning	Plasma			
WPQR No	01 202 644-V-220098-001-12	Working on the root pass	none			
Tester or test authority	<bsldto	Parent metal specification 1	S355 JR			
		Parent metal specification 2	S355 JR			
		Material thickness 1 [mm]	30			
		Material thickness 2 [mm]	30			
		Outer diameter [mm]	D			
		Welding position	PA			
		Component geometry	Plate/plate			

Weld preparation	Welding sequence
	



Barcode created from WPS



### Work preparation in ewm Xnet – Step 1

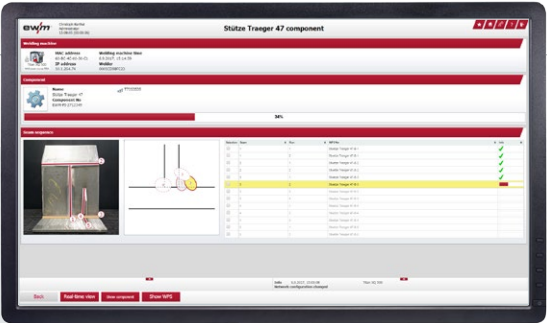
- Accelerated, paperless data transfer and communication results in increased productivity
- Comprehensive work preparation including automatic setting of welding parameters for every run/seam results in higher production rates
- Elimination of error sources improves quality – the welding sequence plan defines the WPS for every individual run/seam



### OPC UA interface

Standardised interfaces such as OPC UA enable users to export data from the EWM system to a standard format so that these data can be integrated into higher-level production management systems.

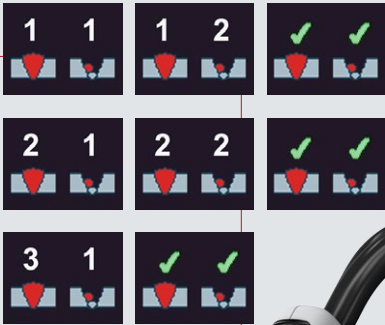
Optional screen directly at welding site shows welding sequence plan amongst other things



Barcode scanner  
Scanning the component IDs – Step 2



Welding sequence – Step 4



PM welding torch with graphic display



Xbutton  
component/welder  
assignment – Step 3



QR code

Login from any mobile end device, smartphone or tablet etc. using Expert XQ 2.0



## Overview of options



Wire feeder, rotatable



Turning mandrel extension nozzle



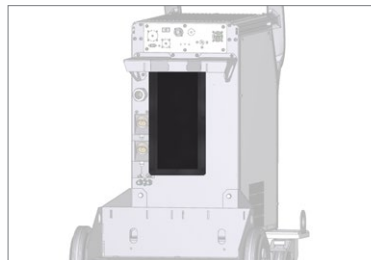
Holder for two wire feeders



Hose package holder



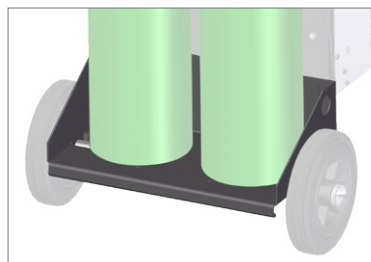
Ram protection



Dust filter for power source and cooling unit

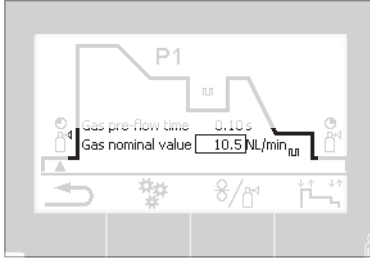


Torch holder



Double cylinder holder





**DGC – electronic gas flow control**



**WHS – wire spool heater**



**WRS – wire reserve sensor**



**Torch holder**



**Wheel kit**



**Rubber feet**



**Crane suspension**



**Heavy-duty kit (protective plate plus crane suspension)**



**Connection for drum feed**



## Meets the wishes of the welder

### Titan XQ options



#### Rotatable wire feeder – a rounded affair

- Space for a Drive XQ wire feeder
- Increased working radius thanks to rotatability
- Wire feeder can be mounted and removed without tools



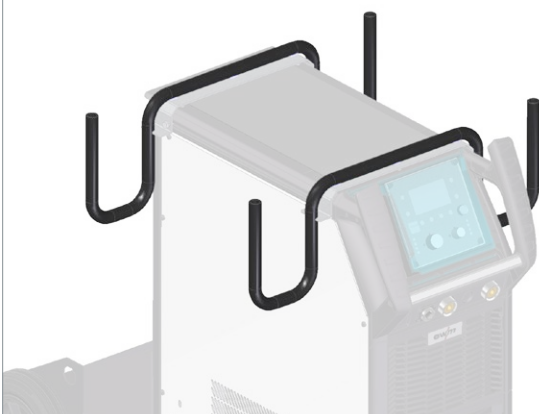
#### Turning mandrel extension nozzle – creates space for wheels

- Allows Drive XQ wire feeder with mounted wheel kit to be mounted onto the rotatable wire feeder option
- A few swift adjustments – the extension is simply inserted onto the mandrel of the rotatable wire feeder option and secured



#### Holder for two wire feeders – change welding tasks without set-up time

- Effortless switch between two different welding applications by means of two Drive XQ wire feeders on the machine
- Easier wire spool exchange – machines can be pulled apart



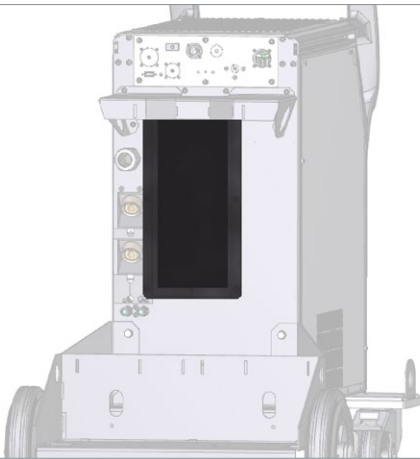
#### Hose package holder – also for long cables

- Holder for holding long hose packages (up to 40 m), accessories and welding torch
- To be used together with the retrofit option rotatable wire feeder



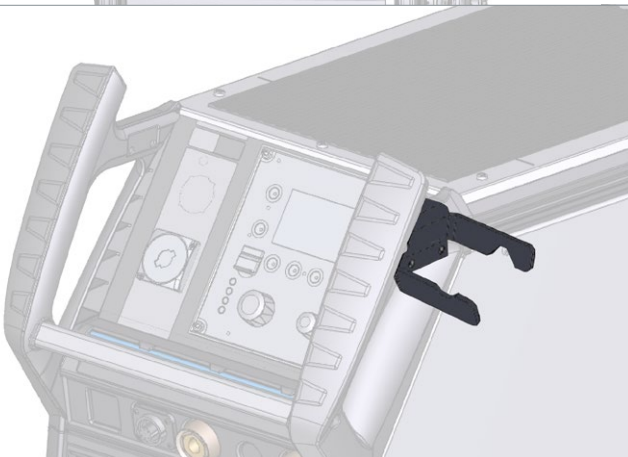
**Ram protection – for daily workshop transportation**

- Protection system and connected plug to prevent damage from the front



**Dust filter welding machine and cooling unit – dirt stays outside**

- Protects welding machine from external contamination
- Can be assembled and disassembled without tools for cleaning
- Captive fasteners
- Easy to clean



**Torch holder – organisation is half the welding**

- Secure place protects against damage
- For MIG/MAG and TIG welding torches
- Can be simply screwed to the handle of the system
- Individual versions for right- and left-handed users



**Double cylinder holder**

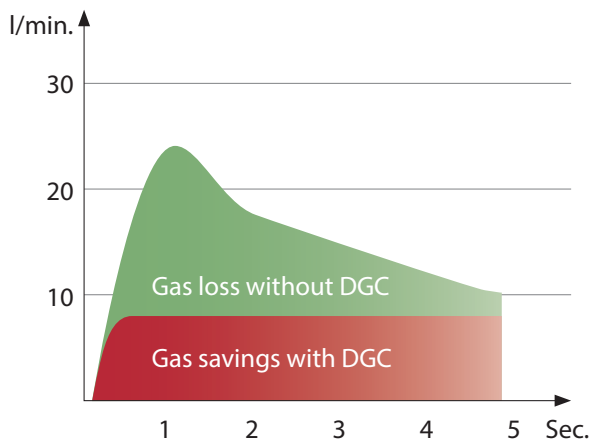
- For operating with two wire feeders
- Welding with different shielding gases without long set-up times

## Everything fits – because it's customisable Drive XQ wire feeder options





### DGC – Gas savings during ignition



### DGC – electronic gas flow control – save gas with ease and accuracy

- Prevents welding errors caused by too much or too little gas
- Efficiency through gas savings thanks to accurate settings
- Fully reproducible thanks to digital configuration and saving to the respective JOB (welding task)
- Constant gas flow rate thanks to electronic adjustment
- Digital nominal and actual value display of gas flow rate in l/min
- Extremely advantageous with long hose packages, e.g. for shipbuilding and steel construction
- No gas blast with turbulence when igniting the arc as electrical valve opens and closes gently



### WHS – wire spool heater – warm up to seam quality

- Prevents moisture penetration into the weld pool by drying the welding wire by means of preheating
- Controlled temperature to 40 °C (adjustable)
- Ensures perfect welding results, especially with aluminium
- Reduced risk of hydrogen pores



### WRS – wire reserve sensor – no surprises during welding

- Warns at 10% residual quantity of the wire spool
- Prevents seam error because wire is about to run out
- Reduces downtime thanks to early planning of the spool change





**Torch holder – lets nothing get burned**

- For greater safety when working
- Extends torch service life
- Keeps work area organised



**Wheel kit – for mobility**

- Maximum flexibility for Drive XQ
- Comfortable because mobile
- Large rolls (Ø125 mm) overcomes obstacles



**Rubber feet – so that nothing starts to slip**

- To replace standard sliding rails



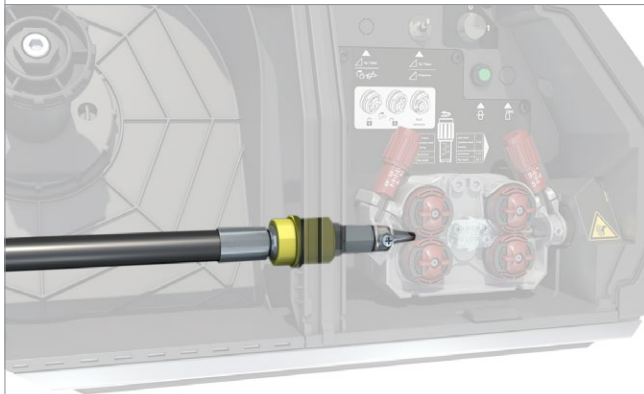
**Crane suspension – floating made easy**

- For safe, easy transportation
- Maximum mobility even during suspension operations



**Heavy-duty set (protective plate plus crane suspension) – when it comes to the crunch**

- For optimal protection under tough deployment conditions
- For standing, vertical and suspension operation
- Temperature- and impact-resistant sliding protective plate
- Crane suspension for maximum mobility and easy, safe transport



**Connection for drum feed – endless welding**

- Drum-based feed boosts effectiveness
- Less need to change wire spools saves time



**Connection socket on the wire feeder**

- Connection capability for gouging torch and electrode holder for MMA welding
- Improved flexibility on the job



**Flow meter for manual shielding gas flow setting**

- Precise adjustment and examination directly on site
- Extremely advantageous with long hose packages, e.g. for shipbuilding and steel construction

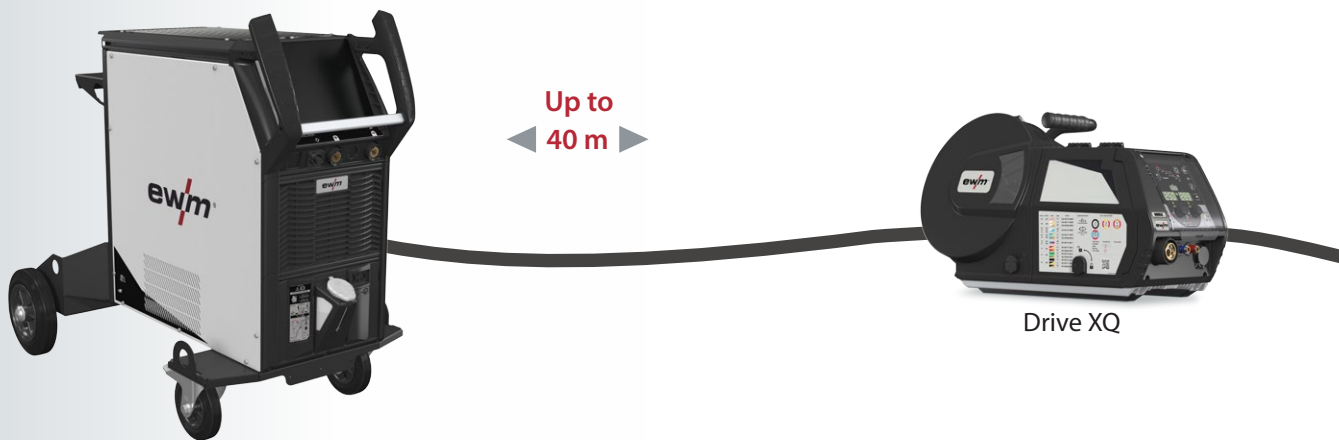
## Titan accessories – User-oriented and useful.

### R10 19-pin remote control

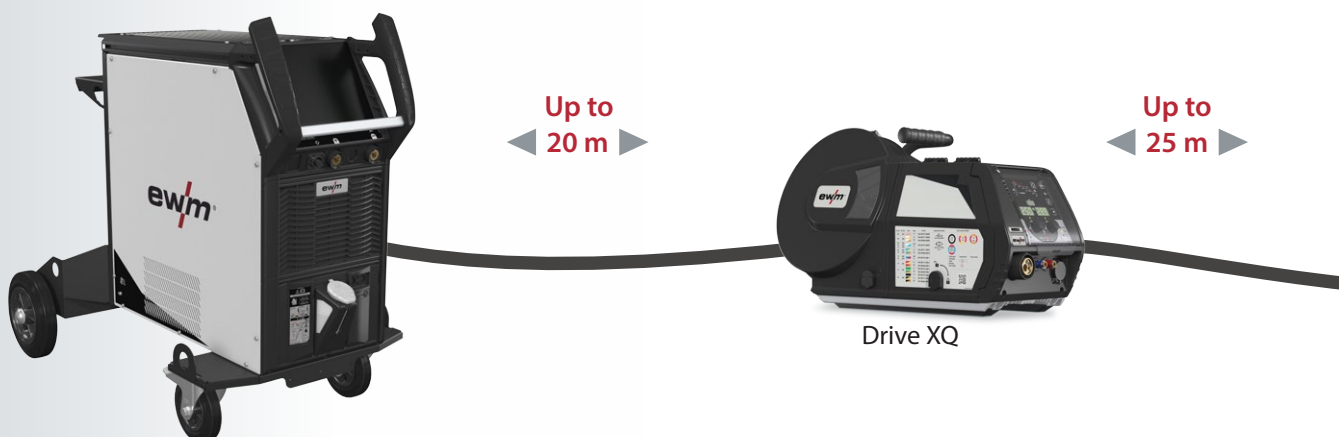
- Setting wire feed speed, voltage correction
- Robust metal casing with rubber feet, mounting bracket and mounting magnet, 19-pin connection socket
- Separate connection cable either 5 m, 10 m or 20 m



### Push/pull welding torches – System overview



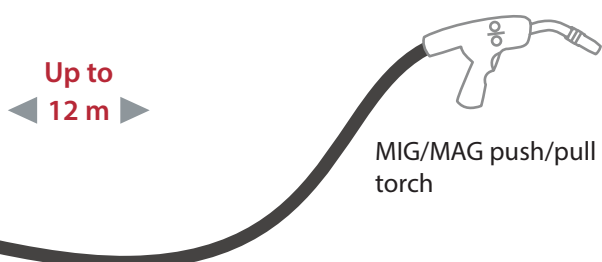
### Intermediate drive – System overview





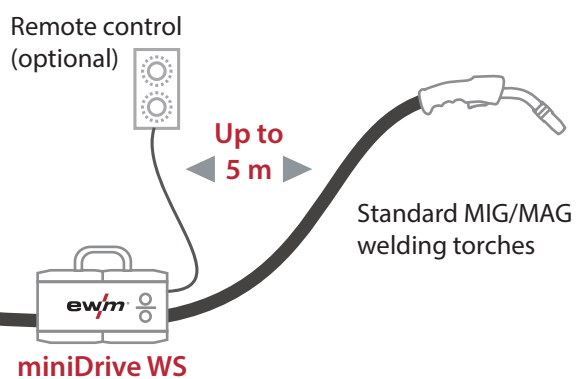
### RC Expert XQ 2.0 remote control

- Setting and displaying all Titan XQ welding parameters
- Robust metal casing with mounting bracket and 3 mounting magnets
- Plastic cover
- 7-pin connector plug
- Optional connection cable 2 m, 5 m, 10 m or 20 m



### Push/pull torch

- Reliable and consistent wire feeding for thin, soft wires such as aluminium, even with longer hose packages
- Set wire feed roll contact pressure precisely
- Ergonomic grip for fatigue-free work



### miniDrive intermediate drive – Go where you want to

- Is your welding site confined and far away from the power source and is weight an impediment? Then the miniDrive is the solution.
- Robust and lightweight: Only 7.5 kg
- Rounded edges and plastic protectors for optimum protection
- Reliable wire feeding even over long distances

For further accessories visit  
[www.ewm-sales.com](http://www.ewm-sales.com)



# Automated welding – perfect results, high quality and great economy

**Titan XQ Rob  
robotic power source**



**F Drive 4 Rob 5 XR  
robotic media separation box**



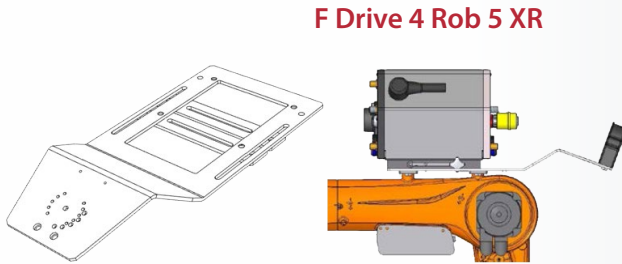
**Titan XQ Rob  
robotic power source**



**M drive 4 Rob 5 XR  
robotic wire feeder**



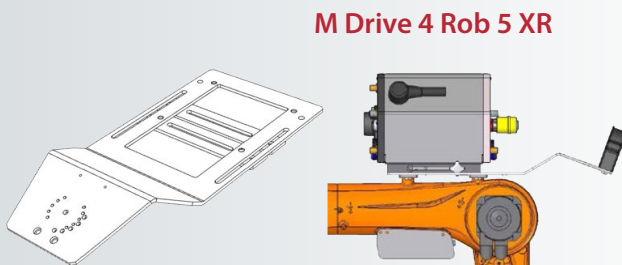
Mounting console for  
robotic media separation box  
on the 3rd robot axis



frontDrive robot welding torch  
with integrated pull drive



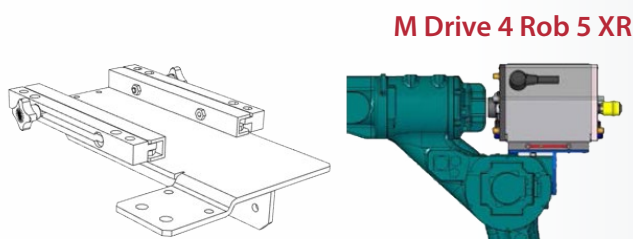
Mounting console for  
ROB 5 wire feeder  
on the 3rd robot axis



Robot welding torches



Mounting console for  
ROB 5 wire feeder  
behind the 3rd robot axis



Hollow shaft  
robot welding torches



# Automated welding - perfect results with high quality and efficiency

## Titan XQ Rob robotic power source



**XR robot interface**

**RC XQ panel**

with Expert XQ 2.0 control

**Networking gateways**

- LAN gateway XQ LG (optional)
- XQ WLG LAN/WiFi gateway (optional)

**Available versions**

- Gas cooled and water cooled

## M drive 4 Rob 5 XR robotic wire feeder

**Secure fixed connection**

for load cable with cover

**1/4" connection**

for gas hose



**Wire feed connection**

**23-pole connection socket**

for intermediate hose packages

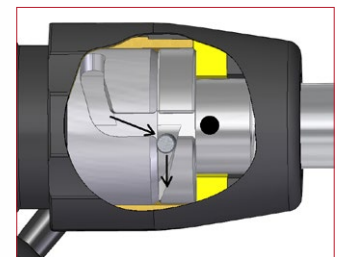
**frontDrive robotic welding torch**

**Hose package with ewm powerConnector connection**

**Transparent polycarbonate hood**

**Torch neck with quick connect coupling**

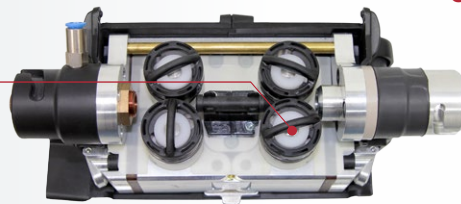
**Collision sensor**



**Simple torch neck replacement thanks to new quick connect coupling**

**4-roller eFeed drive**

- Reliable wire feeding with four driven rollers
- Colour-coded wire feeder rollers can be changed without tools



**Acrylic glass hood**

for checking the drive unit

**4-roller eFeed drive**

for the highest demands

**Optional connection sets**

for various wire guides

**Buttons**

- Wire inching
- Wire return
- Gas test

**Robust, insulated mounting rails**

**Optional blow-out function for cleaning the torch**

**19-pole connection socket**

for analogue control signals such as collision sensors, push/pull torch drives

**Euro torch connector**

(optional Dinse DZA and EWM ECS connectors)

**Quick connect coupling**

for coolant feed and coolant return, optional





# Titan XQ – Multi-process MIG/MAG welding machine, Drive XQ wire feeder, Technical data



Technical data	Titan XQ 350 puls	Titan XQ 400 puls	Titan XQ 500 puls	Titan XQ 600 puls
Setting range for welding current	5 A–350 A	5 A–400 A	5 A–500 A	5 A–600 A
Setting range for welding voltage	10.2 V–34 V	10.2 V–36 V	10.2 V–40 V	10.2 V–44 V
Duty cycle welding current at ambient temperature 40 °C				
100%	350 A	370 A	470 A	470 A
80%	–	400 A	500 A	500 A
60%	–	–	–	550 A
40%	–	–	–	600 A
Mains voltage 50 Hz/60 Hz	3 x 400 V (–25% to +20%) to 3 x 500 V (–25% to +10%)			
Mains fuse (slow-blow)	3 x 20 A	3 x 25 A	3 x 32 A	3 x 32 A
Efficiency	88%			
cos φ	0.99			
Open circuit voltage at 3 x 400 V mains voltage	82 V			
Max. connected load	15.4 KVA	18.6 KVA	25.8 KVA	34.1 KVA
Recommended generator rating	20 KVA	25 KVA	35 KVA	45 KVA
Protection classification	IP 23			
EMC class	A			
Ambient temperature	–25 °C to 40 °C			
Machine cooling	Fan			
Torch cooling	Gas or water			
Coolant water tank	8 L			
Safety identification	S / CE			
Standards	IEC 60974-1, -2, -10			
Dimensions L x H x W	1150 x 972 x 678 mm 45.3 x 38.3 x 26.7 inch			
Machine weight, gas-cooled	114 kg/251.32 lb			
Machine weight, water-cooled	128 kg/282.19 lb			

80% DC\*

\* Titan XQ 400/500 puls



### Technical data

### Drive XQ

Duty cycle welding current at ambient temperature 40 °C	
100% DC	470 A
40% DC	600 A
Wire feed speed	0.5 m/min. to 25 m/min.
Factory-installed roll equipment	Drive rolls Uni 1.0 to 1.2 mm (for steel wire)
Drive	4 rolls (37 mm)
Torch connector	Euro torch connector (ETC)
Readiness for use in manholes	Complete, 42 cm and larger (oval)
Wire spool diameter	Standardised wire spools of 200 to 300 mm
Protection classification	IP 23
EMC class	A
Ambient temperature	-25 °C to 40 °C
Safety signs	CE
Standards	IEC 60974-1, -5, -10
Dimensions L x H x W	660 x 380 x 280 mm 26 x 15 x 11 inch
Weight	13 kg 28.66 lb

