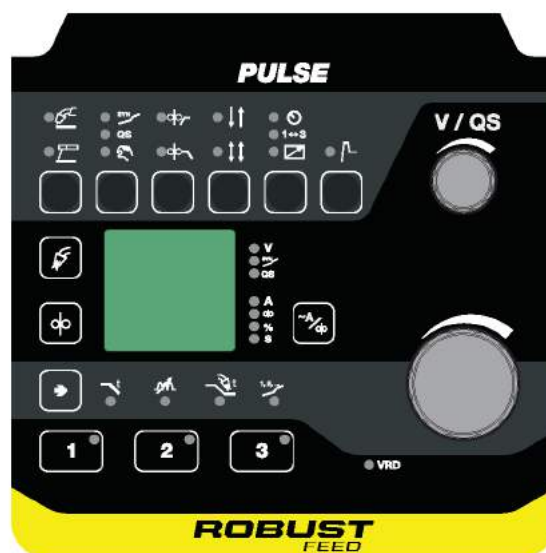


MA25 Pulse, Pulse



Instruction manual

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1 INTRODUCTION

The manual describes use of the "MA25 Pulse" and "Pulse" control panels.

For general information about operation, see the instruction manual for the power source or the wire feed unit respectively.



When mains power is supplied, the unit runs a self diagnosis of the LEDs and the display. The program version and panel version, "Steel", "Alu", "Steel NA" or "Alu NA", are presented. (In this example the program version is 0.17A and the panel version is "Steel".) (Long texts are automatically scrolled in the display.)



























Instruction manuals in other languages can be downloaded from the Internet:

manuals.esab.com



- | | |
|---|---|
| 7. Toggling between Synergy, QSet™ and Manual setting | 15. Setting of the parameter selected by button 2 |
| 8. Toggling between Creep start and Crater filling | 16. Indication of activated VRD (Voltage Reducing Device) |

2.2 Symbol reference

	MIG/MAG welding method		MMA welding method
	Synergy setting		QSet™ setting
	Manual setting		Creep start
	Crater filling		2-Stroke
	4-Stroke		Setting from panel
	Program change with welding torch trigger switch		Remote control unit
	Selection of hot start		Setting voltage / QSet™
	Gas purging		Wire feed speed or Wire inching (Meaning of symbol differs depending on context.)
	Amperage Estimate Setting		Crater filling time
	Inductance		Gas post flow time
	Synergy selection		Voltage
	Current		Percent
	Seconds		VRD (Voltage Reducing Device)

3 FUNCTIONS

3.1 General

- MIG/MAG and MMA electrode welding
- Available versions:
 - MA25 Pulse steel welding with 54 synergic lines
 - MA25 Pulse aluminium welding with 30 synergic lines
 - MA25 Pulse steel welding with 55 synergic lines (NA version)
 - MA25 Pulse aluminium welding with 29 synergic lines (NA version)
 - Pulse steel and aluminium welding (66 synergic lines for steel and 27 synergic lines for aluminium)
 - Pulse steel and aluminium welding (NA version, 61 synergic lines for steel and 17 synergic lines for aluminium)
- Possibility to switch between wire feed speed and amperage estimate setting during synergic welding
- QSet™ Parameter automation
- 2/4 stroke torch switch activation
- Gas test and wire inching
- Gas pre- and post-flow settings
- Creep start and crater filling
- Continuous inductance setting
- 3 memory slots, called up from the torch button or control panel
- MMA: ArcPlus™ II regulation, Hot Start and Arc Force can be set

3.2 Welding data memory



Three different welding data programs can be stored in the control panel memory.



Hold selection button 1, 2 or 3 pressed in for 5 seconds to store welding data in the memory. The welding data is stored when the green indicator lamp starts to flash.



To switch between the different welding data memories press button 1, 2 or 3.

The welding data memory has a back-up battery so that the settings remain even if the equipment has been switched off.

3.3 MIG/MAG Welding



MIG/MAG welding

MIG/MAG welding melts a continuously supplied filler wire, with the weld pool being protected by shielding gas.



Wire feed speed

This sets the required feed speed of the filler wire in percent or metre/minute.

SYN  **Synergy**

Each combination of wire type, wire diameter and gas mixture requires a unique relationship between wire feed speed and voltage (arc length) to obtain a stable, functioning arc. The voltage (arc length) automatically "conforms" to the selected pre-programmed synergic line, which makes it much easier to find the correct welding parameters quickly. The link between wire feed speed and other parameters is known as the synergic line.

In synergy mode it is possible to display either the set wire feed speed or estimate amperage, for more details, see "Displaying Amperage Estimate".

For detailed information about synergic lines included in the "MA25 Pulse" and "Pulse" control panels respectively, see the "WIRE AND GAS DIMENSIONS" chapter.

It is also possible to order other synergy lines, but these must be installed by an authorised ESAB service engineer.

1, 2, ... 

When activating synergy, also remember to select the correct synergic line using the setting knob.

The correct synergic line numbers are located on the sticker inside the wire feeder.



Displaying Amperage Estimate

When welding using the control panel in synergic mode, it is possible to use either wire feed speed or amperage estimate as setting. The option for the welder to display amperage estimate exists to help out as a reference if the welder doesn't know what wire feed speed to set.

Use the setting knob to adjust amperage estimate. The set wire feed speed will change accordingly when changing amperage estimate. It is possible to toggle back and forth between displaying the wire feed speed or amperage estimate on the display by pushing the button ~A/WFS.

When welding, the wire feed speed will be constant ensuring a predictable result and an evenly filled weld joint. The weld results will be exactly the same no matter if the welder uses wire feed speed or estimated amperage as way of setting.

A constant wire feed speed during welding also means that there will be some deviation between amperage estimate and the actual measured amperage, depending on joint type and the stick out the welder uses (contact tip to work piece distance). This is no different from when simply setting wire feed speed or when adjusting the amperage estimate. If the deviation is large, adjust stick out for optimal weld results, see sections below.

During welding the actual **measured** amperage is presented on the display. If



the button (item 14 in the illustration in the "PANEL OVERVIEW" chapter) is pressed during welding, the **amperage estimate** appears on the display and is visible for two seconds, after which the measured amperage appears again. The **measured** amperage remains on the display until the setting is changed.

If the **measured** amperage for some reason deviates more than $\pm 10\%$ from the **amperage estimate**, the Current LED and the measured amperage presented on the display starts flashing. A very long or a very short stick-out length of the welding electrode may result in a large deviation between the amperage estimate and the measured amperage. This means that the welder might get better weld results by adjusting to a more suitable stick out. If the measured amperage is significantly lower than the amperage estimate it may be better to use a shorter stick out. If the measured amperage is significantly higher than the amperage estimate it may be better to use a longer stick out. Note that different joint types will also affect the actual measured amperage. It is possible to adjust the "allowed" difference between the measured amperage and the amperage estimate. The default value is $\pm 10\%$. See the "Hidden MIG/MAG functions" section.

QS QSet™

QSet™, is used to facilitate setting welding parameters.

How to use QSet™:

1. Set Wire feed speed. QSet™ will dynamically adjust voltage to get the optimal welding results.
2. When changing material or thickness: make the first weld (6 seconds) with QSet™ on a test piece to obtain all the correct data, before welding the actual work piece.

QSet™ value fine tuning:

- Turning the knob clockwise increases (+) the arc length.
- Turning the knob anti-clockwise reduces (-) the arc length.

SHORT ARC

When first starting welding with a wire type / gas type QSet™ automatically sets all the necessary welding parameters. After that QSet™ stores all the data to produce a good weld. The voltage then automatically conforms to changes in the wire feed speed.

SPRAY ARC

When approaching the spray arc area the value for QSet™ must be increased. Disengage the QSet™ function when welding with pure spray arc. All settings are inherited from QSet™, with the exception of the voltage which must be set.



Manual

Manual operation. The operator must set appropriate values for the wire feed and voltage.



Creep start

Creep starting feeds out the wire at 1.5 m/min (59 in./min) until it makes electrical contact with the workpiece.



Crater filling

Crater filling helps to avoid pores, thermal cracking and crater formation in the weld when welding stops.



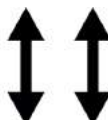
Crater filling time

When activating crater filling also select crater filling time using the setting knob. This function cannot be used with QSet™.



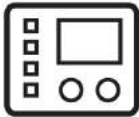
2-stroke

With 2-stroke, gas pre-flow starts when the welding torch trigger switch is pressed. The welding process then starts. Releasing the trigger switch stops welding entirely and starts gas post-flow.



4-stroke

With 4 stroke, the gas pre-flow starts when the welding torch trigger switch is pressed in and the wire feed starts when it is released. The welding process continues until the switch is pressed in again, the wire feed then stops and when the switch is released the gas post-flow starts.



Active panel

Settings are made from the control panel.

1 ↔ 3 Changing welding data

This function permits changing between different welding data memories by a press on the trigger of the welding torch.

To change without ongoing welding press quickly. If the trigger is pressed down for too long, the program interprets this as a welding start.



Changing welding data during welding with 2-stroke



During ongoing welding the welding torch's trigger is pressed down, to change welding data memory, release the trigger and press it quickly.



Changing welding data during welding with 4-stroke

During ongoing welding with 4-stroke the welding torch's trigger is released, to change welding data memory, press the trigger and release it quickly.

When activating welding data 1 - 3, select welding data memory 1, 2 or 3.



Remote control unit

Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the equipment before activation. When the remote control unit is activated the panel is inactive.

With the remote control unit function activated one can change between different welding data memories using a welding torch with program selector (RS3).



Voltage Reducing Device (VRD)

The VRD function ensures that the open-circuit voltage does not exceed 35 V when welding is not being carried out. This is indicated by a lit VRD LED.

The VRD function is blocked when the system senses that welding has started.

If the VRD function is activated and the open-circuit voltage exceeds the 35 V limit, this is indicated by an error message (16) appearing in the display and welding cannot be started whilst the error message is displayed.



Gas purging

Gas purging is used when measuring the gas flow or to flush any air or moisture from the gas hoses before welding starts. Gas purging occurs for as long as the button is pressed and occurs without voltage or wire feed starting.



Wire inching

Wire inching is used when one needs to feed wire without welding voltage being applied. The wire is fed as long as the button is pressed.



Inductance

Higher inductance results in a wider weld pool and less spatter. Lower inductance produces a harsher sound but a stable, concentrated arc.

**Gas post-flow**

This controls the time during which shielding gas flows after the arc is extinguished.

**Hot start**

Hot start increases the weld current for an adjustable time at the start of welding, thus reducing the risk of poor fusion at the beginning of the joint.

3.3.1 Hidden MIG/MAG functions

There are hidden functions in the control panel.

To access these hidden functions hold the selection button pressed for 5 seconds. The display will show a letter and a value. The knob for wire feed is used to change the value of the selected function.

Function letter	Function
A	Gas pre-flow time
C	Unit of measurement
I	Burnback time (only available when SCT=off)
t	Memory positions for trigger data
h	Hot start time
o	SCT on/off
S	Start parameter R (only visible in Short Arc and when Synergy is not selected)
d	Amperage estimate settings tolerance
P	Crater fill final wire feed speed
b	Crater fill final voltage
O	Weld time required to get Crater fill
H	Delta hot start wire feed speed
F	Auto stop wire feeding (4s - 30s)



To leave the function hold the selection button pressed for 5 seconds.

A Gas pre-flow

This controls the time during which shielding gas flows before the arc is struck.

**C Unit of measurement**

0 = inch/min, 1 = mm/min, default value = 1

I Burnback time

Burnback time is off by default, because of Short Circuit Termination (SCT).

The burnback time setting is only available when SCT is OFF. This will be the case if SCT setting = 1, or SCT setting = 0 and the chosen synergic line has SCT set to OFF.



Burnback time is a delay between the time when the wire starts to brake until the time when the power source switches off the welding voltage. Too short burnback time results in a long wire stickout after completion of welding, with a risk of the wire being caught in the solidifying weld pool. Too long burnback time results in a shorter stickout, with increased risk of the arc striking back to the contact tip.

t Memory positions for trigger data

This function gives the possibility to select whether to use trigger data between 2 or 3 programs.

h Hot start time



The hot start time can be set from 0.0 to 9.9 seconds, in steps of 0.1 seconds.

o SCT (Short Circuit Termination)

SCT is a function that gives small repeated short circuits at the end of the welding, until the wire feeding has totally stopped and the contact with the workpiece has been broken.

The following settings exist:

- 0 = The value (ON/OFF) is determined by the synergy line (default option)
- 1 = SCT is OFF
- 2 = SCT is ON

S Start parameter R

Start parameter R enables finetuning of the electric arc during the start moment when welding. The parameter can be set from 8.0 to 60.0, in steps of 0.25. This function is only visible och adjustable when synergy is **not** active (which means that the chosen method is Short Arc).

d Amperage estimate settings tolerance

This parameter constitutes the maximum allowed relative difference between the amperage estimate value and the measured amperage. The allowed difference can be set from 5 to 50 percent, in steps of 5 percent. If the allowed difference is exceeded during welding, the Current LED and the measured amperage presented in the display flashes.

P Crater fill final wire feed speed

This feature allows the user to control the wire feed speed at which the crater fill will work.

The crater fill final wire feed speed can be set from 0.0 to 9.9 m/min (390 in./min), in steps of 0.1 m/min (3.9 in./min). The default value is 3.0 m/min (120 in./min).

b Crater fill final voltage

This feature allows the user to control the voltage at which the crater fill will work.

Crater fill final voltage can be set from default 8.0 V to actual set voltage (not available with synergy).

O Weld time required to get Crater fill

This feature allows the user to set the minimum weld time required to activate crater fill.

The minimum weld time can be set from 1.0 to 3.0 seconds, in steps of 0.1 seconds. The default value is 3.0 seconds. This minimum weld time can be separately set for short/spray and pulse.

H Delta hot start wire feed speed

Delta hot start wire feed speed can be set from 0.0 to 9.9 m/min (390 in./min), in steps of 0.1 m/min (3.9 in./min). The default value is 2.0 m/min (79 in./min). The Delta hot start wire feed speed value can be separately set for short/spray and pulse. This "Delta hot start wire feed speed" will be added to the actual set wire feed speed to calculate the hot start voltage. This function is only available with synergy.

F Automatic stop wire feeding

The Automatic stop wire feeding is configured, to automatically cease wire feeding when the torch trigger is pressed without welding. To enable the Automatic stop wire feeding function, go into the Configuration menu under.

There are two options for tis functions:

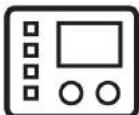
- Automatic stop wire feeding = 0 (OFF).
The wire will be continuous. Until the trigger is pressed, feeding will be continuous even when there is no weld/arc.
- Automatic stop wire feeding = "X seconds".
The wire feeding will be stopped after "X" seconds if there is no arc/weld.
X = time range. It can be set to 4 - 30 seconds.

**NOTE!**

1. Automatic wire feed function is available, when welding in 2-stroke and 4-stroke mode.
2. The soft button *Wire inch* is not affected with this feature.

3.4 MMA Welding**MMA welding**

MMA welding may also be referred to as welding with coated electrodes. Striking the arc melts the electrode, and its coating forms protective slag.

**Active panel**

Settings are made from the control panel.



Remote control unit

Settings are made from the remote control unit.

The remote control unit must be connected to the remote control unit socket on the equipment before activation. When the remote control unit is activated the panel is inactive.

With the remote control unit function activated one can change between different welding data memories using a welding torch with program selector (RS3).



Hot start

Hot start increases the weld current for an adjustable time at the start of welding, thus reducing the risk of poor fusion at the beginning of the joint.



Voltage Reducing Device (VRD)

The VRD function ensures that the open-circuit voltage does not exceed 35 V when welding is not being carried out. This is indicated by a lit VRD LED.

The VRD function is blocked when the system senses that welding has started.

If the VRD function is activated and the open-circuit voltage exceeds the 35 V limit, this is indicated by an error message (16) appearing in the display and welding cannot be started whilst the error message is displayed.

To activate/deactivate VRD contact a service representative.

3.4.1 Hidden MMA functions



There are hidden functions in the control panel.

To access these hidden functions hold the selection button pressed for 5 seconds. The display will show a letter and a value. The knob for wire feed is used to change the value of the selected function.

Function letter	Function
C	Arc force
d	Drop welding
F	Welding regulator type (Welding regulator ArcPlus™)
H	Hot start amplitude
I	Min current remote
h	Hot start time



To leave the function hold the selection button pressed for 5 seconds.

C Arc force



The arc force is important in determining how the current changes in response to a change in the arc length. A lower value gives a calmer arc with less spatter.

d Drop welding

Drop welding can be used when welding with stainless electrodes. The function involves alternately striking and extinguishing the arc in order to achieve better control of the supply of heat. The electrode needs only to be raised slightly to extinguish the arc.

F Welding regulator ArcPlus™

Welding regulator ArcPlus™ is a new type of control that produces a more intense, more concentrated and calmer arc. It recovers more quickly after a spot short-circuit, which reduces the risk of the electrode getting stuck to the work-piece.

- ArcPlus™ (0) is recommended with basic type of electrode
- ArcPlus™ II (1) is recommended with rutile and cellulosic type of electrode

H Hot start amplitude

When Hot start is activated, the Hot start amplitude parameter can be used to set the preferred level of the weld current during the hot start time, in percentage of the set weld current. If for instance the set weld current is 100 A and the Hot start amplitude is set to 10 %, the weld current during the hot start time will be 110 A.

I Min current remote

Used to set the minimum current for the remote control.

If the max current is 100 A and the min current is to be 50 A, set the hidden function min current to 50 %.

If the max current is 100 A and the min current is to be 90 A, set the min current to 90 %.

h Hot start time

The hot start time can be set from 0.0 to 9.9 seconds, in steps of 0.1 seconds.

4 SETTINGS

4.1 MIG/MAG

Functions	Setting range	Default value
Voltage	8–60 V	12 V
Wire feed speed	0.8–25 m/min (32–980 in./min)	5 m/min (200 in./min)
Synergy	OFF or ON	ON
"MA25 Pulse": Synergic lines aluminium	30 choices	-
"MA25 Pulse": Synergic lines steel	54 choices	-
"MA25 Pulse": Synergic lines aluminium NA version	29 choices	-
"MA25 Pulse": Synergic lines steel NA version	55 choices	-
"Pulse": Synergic lines steel and aluminium	93 choices	-
"Pulse": Synergic lines steel and aluminium NA version	78 choices	-
Amperage estimate setting / Wire feed speed	Amperage estimate setting or Wire feed speed	Wire feed speed
Crater fill final wire feed speed	0.0–9.9 m/min (0.0–390 in./min)	3.0 m/min (120 in./min)
Crater fill final voltage	8.0 V to actual set voltage	8.0 V
Weld time required to get Crater fill	1.0–3.0 s	3.0 s
Delta hot start wire feed speed	0.0–9.9 m/min (0.0–390 in./min)	2.0 m/min (79 in./min)
QSet™	OFF or ON	OFF
Manual setting	OFF or ON	ON
Creep start	0 = OFF or 1 = ON	ON
Crater filling	OFF or ON	ON
Crater filling time	0.0–5.0 s	1.0 s
2/4-stroke ²⁾	2 stroke or 4 stroke	2-stroke
Active panel	OFF or ON	ON
Changing trigger data	OFF or ON	OFF
Memory positions for trigger data ¹⁾	2 or 3 memory positions	3
Remote control unit	OFF or ON	OFF
Gas purging ²⁾	-	-
Wire inching	-	-
Inductance	0–100%	70%
Welding data memory	1, 2, 3	-
Gas pre-flow time ¹⁾	0.1 - 9.9 s	0.1 s
Unit of measurement ¹⁾	0 = inch, 1 = mm	1

Functions	Setting range	Default value
Burnback time ¹⁾	50 - 250 ms	80 ms
SCT ¹⁾	0, 1 or 2	0
Start parameter R ¹⁾	8.0–60.0	25.0
Gas post flow time	0.1–25.0 s	1s
Hot start	OFF or ON	OFF
Hot start time ¹⁾	0.0–9.9 s	1.5 s
Amperage setting estimate tolerance	5–50 %	10 %
VRD	-	-

¹⁾ These functions are hidden functions, see section "Hidden MIG/MAG functions".

²⁾ These functions cannot be changed while welding is in progress.

4.2 MMA

Functions	Setting range	Default value
Current	16- max A ²⁾	100 A
Active panel	OFF or ON	ON
Remote control unit	OFF or ON	OFF
Arc force ¹⁾	0–99 %	5 %
Drop welding ¹⁾	0=OFF or 1=ON	OFF
Hot start	OFF or ON	OFF
Hot start amplitude ¹⁾	0–99 %	20 %
Hot start time ¹⁾	0.0–9.9 s	1.0 s
Weld regulator ¹⁾	1=ArcPlus™ II or 0=ArcPlus™	1
Min current remote control ¹⁾	0–99 %	0%

¹⁾ These functions are hidden functions, see description in section "Hidden MMA functions".

²⁾ The setting range is dependent on the power source.

5 FAULT CODES



Fault codes are used to indicate that a fault has occurred in the equipment. They are given in the lower part of the display with an E followed by a fault code number.

A unit number is displayed to indicate which unit has generated the fault.



Fault code numbers and unit numbers are shown alternately.

The example presented in the two graphics to the left, indicates that the control panel (U 0) has lost contact with the power source (E 18).

If several faults have been detected only the code for the last occurring fault is displayed. Press any function button or turn any knob to remove the fault indication from the display.



NOTE!

If the remote control is activated, deactivate the remote control by the aid of the selection button under the remote control symbol to remove the fault indication.

5.1 List of fault codes

U 0 = welding data unit

U 2 = power source

U 5 = multivoltage

U 1 = cooling unit

U 4 = remote control unit

5.2 Fault code descriptions

The fault codes that the users can correct themselves are given below. If a different code appears, call a service technician.

Fault code	Description
E 6	<p>High temperature</p> <p>The thermal overload cut-out has tripped.</p> <p>The current welding process is stopped and cannot be restarted until the temperature has fallen.</p> <p>Action: Check that the cooling air inlets or outlets are not blocked or clogged with dirt.</p> <p>Check the duty cycle being used, to make sure that the equipment is not being overloaded.</p>
E 12	<p>Communication error (warning)</p> <p>The load on the system's CAN-bus is temporarily too high.</p> <p>The power unit / wire feed unit has lost contact with the control panel.</p> <p>Action: Check the equipment and ensure that only one wire feed unit or remote control unit is installed. If the fault persists, send for a service technician.</p>

Fault code	Description
E 16	<p>High open-circuit voltage</p> <p>Open circuit voltage has been too high.</p> <p>Action: Turn off the mains power supply to reset the unit. Send for a service technician if the fault persists.</p>
E 17	<p>Lost contact</p> <p>The control panel has lost contact with the wire feed unit.</p> <p>The current welding process stops.</p> <p>Action: Check the cables. If the fault persists, send for a service technician.</p>
E 18	<p>Lost contact</p> <p>The control panel has lost contact with the power source.</p> <p>The current welding process stops.</p> <p>Action: Check the cables. If the fault persists, send for a service technician.</p>
E 21	<p>Wrong software in panel</p> <p>There is a mismatch between the software installed and the control panel.</p> <p>Action: Send for a service technician.</p>
E 27	<p>Out of wire</p> <p>The wire feed unit is not feeding out any wire. The current welding process will be stopped and prevents welding start.</p> <p>Action: Load a new wire.</p>
E 29	<p>No cooling water flow</p> <p>The flow monitor switch has tripped.</p> <p>The current welding process is stopped and starting is prevented.</p> <p>Action: Check the cooling water circuit and the pump.</p>
E 32	<p>No gas flow</p> <p>The gas flow is less than 6 l/min. Start prevented.</p> <p>Action: Check the gas valve, hoses and connectors.</p>
E 40	<p>Incompatible units</p> <p>Incorrect wire feed unit is connected. Start is prevented.</p> <p>Action: Connect the correct wire feed unit.</p>
E 41	<p>Lost contact with the cooling unit</p> <p>The control panel has lost contact with the cooling unit. Switch off the power source!</p> <p>Action: Check the wiring. If the fault persists, send for a service technician.</p>

Fault code	Description
E 44	Control panel not configured for the connected power source The currently connected power source is of another type than the one last connected to the panel. Action: Connect the control panel to a power source of the same type as the one last connected or configure the control panel for the appropriate type of power source.
E 45	Corresponding dip/spray line missing The panel has detected that the dip/spray line corresponding to the chosen synergy line for pulse welding, is not available. Applicable only when using synergy group 99 with user defined synergy lines. Action: Download the missing synergy line using ESAT and restart.

6 ORDERING SPARE PARTS

Spare parts and wear parts can be ordered through your nearest ESAB dealer, see [esab.com](https://www.esab.com). When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

WIRE AND GAS DIMENSIONS

Feed 3004/4804 MA25 Pulse Aluminium – synergic lines

Material	Gas	Short arc / Spray arc				Pulse			
		Diameter (mm)				Diameter (mm)			
		0.9	1	1.2	1.6	0.9	1	1.2	1.6
AlMg (ER5356)	Ar (I1)	1	2	3	4	15	16	17	18
AlMg (ER5356)	Ar+30%He (I3)				5			19	20
AlSi (ER4043)	Ar (I1)	6	7	8	9	21	22	23	24
AlSi (ER4043)	Ar+30%He (I3)			10	11			25	26
AlMg (ER5183)	Ar (I1)	12	13	14		27	28	29	30

Feed 3004/4804 MA25 Pulse Aluminium, North American version – synergic lines

Material	Gas	Short arc / Spray arc					Pulse				
		Diameter (inches)					Diameter (inches)				
		.030	.035	.045	.052	1/16	.030	.035	.045	.052	1/16
AlMg (ER5356)	Ar (I1)		1	2		3		20	21		22
AlMg (ER5356)	Ar+30%He (I3)					4			23		24
AlSi (ER4043)	Ar (I1)		5	6		7		25	26		27
AlSi (ER4043)	Ar+30%He (I3)			8		9			28		29
Fe (ER70S)	Ar+10%CO ² (M20)							10	11	12	
Ss (ER316LSi)	Ar+2%CO ² (M12)						13	14	15		16
Ss (ER316LSi)	Ar+55%He+2%CO ² (M12)						17	18	19		

Feed 3004/4804 MA25 Pulse Steel – synergic lines

Material	Gas	Short arc / Spray arc						Pulse					
		Diameter (mm)						Diameter (mm)					
		0.8	0.9	1	1.2	1.4	1.6	0.8	0.9	1	1.2	1.4	1.6
Fe (ER70S)	CO ² (C1)	1	2	3	4								
Fe (ER70S)	Ar+18%CO ² (M21)	5	6	7	8			33	34	35	36		
Ss (ER316LSi)	Ar+2%CO ² (M12)	9	10	11	12			37	38	39	40		
Duplex (ER2209)	Ar+2%O ² (M13)			13						41	42		
Fe MCW (E70C)	Ar+18%CO ² (M21)			14	15	16				43	44	45	
Fe RFCW (E71T)	CO ² (C1)				17	18	19						
Fe RFCW (E71T)	Ar+18%CO ² (M21)				20	21	22						
Fe RFCW (E71T)	Ar+25%CO ² (M21)				23	24	25						

Material	Gas	Short arc / Spray arc						Pulse						
		Diameter (mm)						Diameter (mm)						
		0.8	0.9	1	1.2	1.4	1.6	0.8	0.9	1	1.2	1.4	1.6	
Fe BFCW (E71T)	Ar+18%CO ² (M21)				26	27	28							
CuSi ³ (ERCuSi-A)	Ar+1%O ² (M13)			29	30					46	47			
CuAl ⁸ (ERCuAlA1)	Ar+1%O ² (M13)			31	32					48	49			
Ss (ER308LSi)	Ar+2%CO ² (M12)								50	51	52			
Ss (ER309LSi)	Ar+2%CO ² (M12)									53	54			

Feed 3004/4804 MA25 Pulse Steel, North American version – synergic lines

Material	Gas	Short arc / Spray arc					Pulse						
		Diameter (inches)					Diameter (inches)						
		.030	.035	.045	.052	1/16	.030	.035	.045	.052	1/16		
Fe (ER70S)	CO ²	1	2	3									
Fe (ER70S)	Ar+8%CO ² (M20)							31	32	33			
Fe (ER70S)	Ar+10%CO ² (M20)	7	8	9	10	11	35	36	37	38	39		
Fe (ER70S)	Ar+25%CO ² (M21)	4	5	6				34					
Fe (ER70S)	Ar+8%CO ² +2%O ² (M24)	12	13	14	15	16	40	41	42	43	44		
Ss (ER316LSi)	Ar+2%CO ² (M12)	17	18	19		20	45	46	47			48	
Ss (ER316LSi)	Ar+55%He+2%CO ² (M12)	21	22	23		24	49	50	51			52	
Ss (ER316LSi)	He+7.5%Ar+2.5%CO ² (M12)	25	26	27									
Fe MCW (E70C)	Ar+10%CO ² (M20)			28	29	30				53	54	55	

Robust Feed Pulse – synergic lines

Material	Gas	Short arc / Spray arc						Pulse					
		Diameter (mm)						Diameter (mm)					
		0.8	0.9	1	1.2	1.4	1.6	0.8	0.9	1	1.2	1.4	1.6
Fe (ER70S)	CO ² (C1)		1	2	3								
Fe (ER70S)	Ar+8%CO ² (M20)								56	57			
Fe (ER70S)	Ar+18%CO ² (M21)	4	5	6	7			58	59	60	61		
Fe MCW (E70C)	Ar+8%CO ² (M20)				8						62		
Fe MCW (E70C)	Ar+18%CO ² (M21)			9	10	11				63	64	65	
Fe RFCW (E71T)	CO ² (C1)				12	13	14						
Fe RFCW (E71T)	Ar+18%CO ² (M21)				15	16	17						
Fe RFCW (E71T)	Ar+25%CO ² (M21)				18	19	20						
Fe RFCW (E71T)	Ar+18%CO ² (M21)				21	22	23						
CuSi ³ (ERCuSi-A)	Ar+1%O ² (M13)			25	26					66	67		

Material	Gas	Short arc / Spray arc					Pulse					
		Diameter (mm)					Diameter (mm)					
		0.8	0.9	1	1.2	1.4	1.6	0.8	0.9	1	1.2	1.4
CuAl ⁸ (ERCuAlA1)	Ar+1%O ² (M13)			28	29				68	69		
Ss (ER316LSi)	Ar+2%CO ² (M12)	30	31	32	33		70		71	72		
Ss (ER308LSi)	Ar+2%CO ² (M12)			35	36				73	74		
Ss (ER309LSi)	Ar+2%CO ² (M12)			37	38				75	76		
Ss (ER 347LSi)	ArCO ² 2.5 (M12)			39	40		77		78	79		
Ss RFCW	Ar+18%CO ² (M21)				41							
Ss Duplex (ER2209)	Ar+2%O ² (M13)			42	43				81	82		
AlMg (ER5356)	Ar (I1)			44	45	46			83	84		85
AlMg (ER5356)	Ar+30%He (I3)									86		87
AlSi (ER4043)	Ar (I1)			47	48	49			88	89		90
AlSi (ER4043)	Ar+30%He (I3)									91		
AlMg (ER5183)	Ar (I1)			50	51	52			93	94		95
AlMg (ER5087)	Ar (I1)			53	54	55			96	97		98

Robust Feed Pulse – North American version – synergic lines

Material	Gas	Short arc / Spray arc					Pulse				
		Diameter (inches)					Diameter (inches)				
		.030	.035	.045	.052	.062	.300	.035	.045	.052	.062
Fe (ER70S)	CO ² (C1)	1	2	3							
Fe (ER70S)	Ar+8%CO ² (M20)							54	55	56	
Fe (ER70S)	Ar+10%CO ² (M20)	7	8	9	10	11	57	58	59	60	61
Fe (ER70S)	Ar+25%CO ² (M21)	4	5	6				62			
Fe (ER70S)	Ar+8%CO ² +2%O ² (M24)	12	13	14	15	16	63	64	65	66	67
FeMCW (E70C)	Ar+10%CO ² (M20)			17	18	19			68	69	70
Fe RFCW (E71T)	CO ² (C1)			20	21	22					
Fe RFCW (E71T)	Ar+25%CO ² (M21)			23	24	25					
Ss (ER316LSi)	Ar+2%CO ² (M12)	26	27	28		29	71	72	73		74
Ss (ER316LSi)	Ar+55%He+2%CO ² (M12)	30	31	32		33	75	76	77		78
Ss (ER316LSi)	He+7.5%Ar+2.5%CO ² (M12)	34	35	36							
AlMg (ER5356)	Ar (I1)		41	42		43		83	84		85
AlMg (ER5356)	Ar+30%He (I3)					44			86		87
AlSi (ER4043)	Ar (I1)		45	46		47		88	89		90
AlSi (ER4043)	Ar+30%He (I3)			48					91		

ORDERING NUMBERS

For ordering numbers, refer to the spare parts list for the welding power source or the wire feed unit respectively.



A WORLD OF PRODUCTS AND SOLUTIONS.



For contact information visit esab.com

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