



LIBERATE  
YOUR WORKDAY

# SET-UP AND MAINTENANCE GUIDE

M6W/M6OSW  
LEGACY SERIES



ARC M HIGH PERFORMANCE SERIES

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A man with short brown hair and a beard, wearing a blue and black work jacket, is holding a black torch handle. The jacket has a logo on the chest that reads "arc TORCHOLOGY INTELLIGENT TORCH SOLUTIONS". The torch handle has "M6W" printed on it. The background is plain white.

# GETTING STARTED

## M6W

LEGACY SERIES

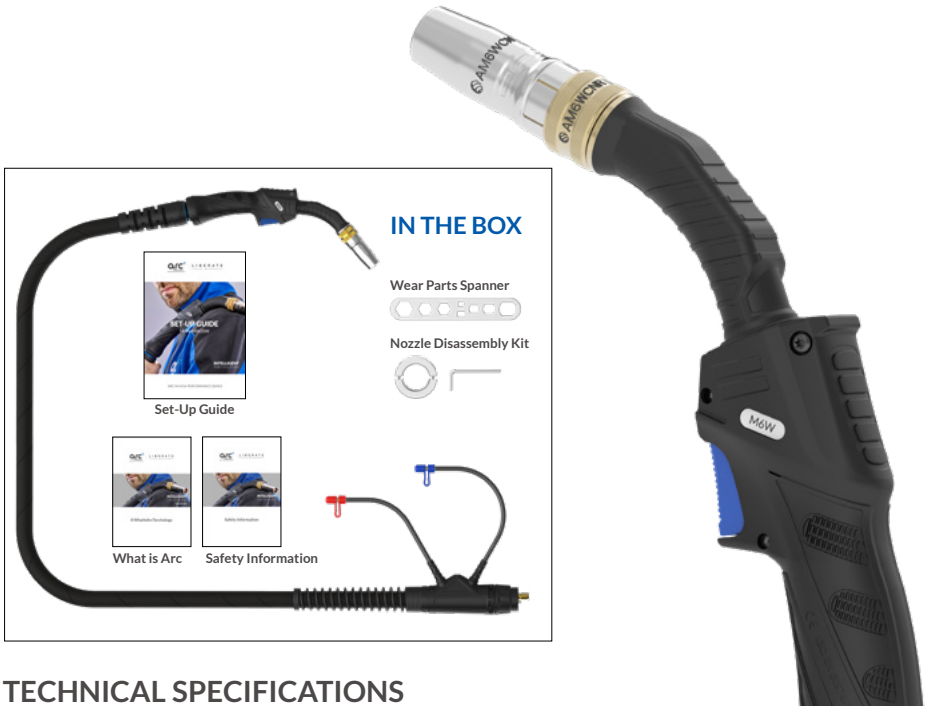
**arc**  
TORCHOLOGY  
INTELLIGENT TORCH SOLUTIONS

# M6W Liquid-Cooled Mig Welding Torch



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Ideal for heavy duty steel and high deposition applications



## TECHNICAL SPECIFICATIONS

### M6W

IEC/EN 60974-7

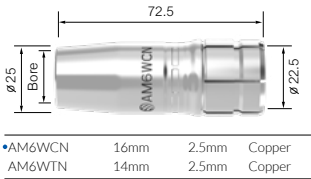
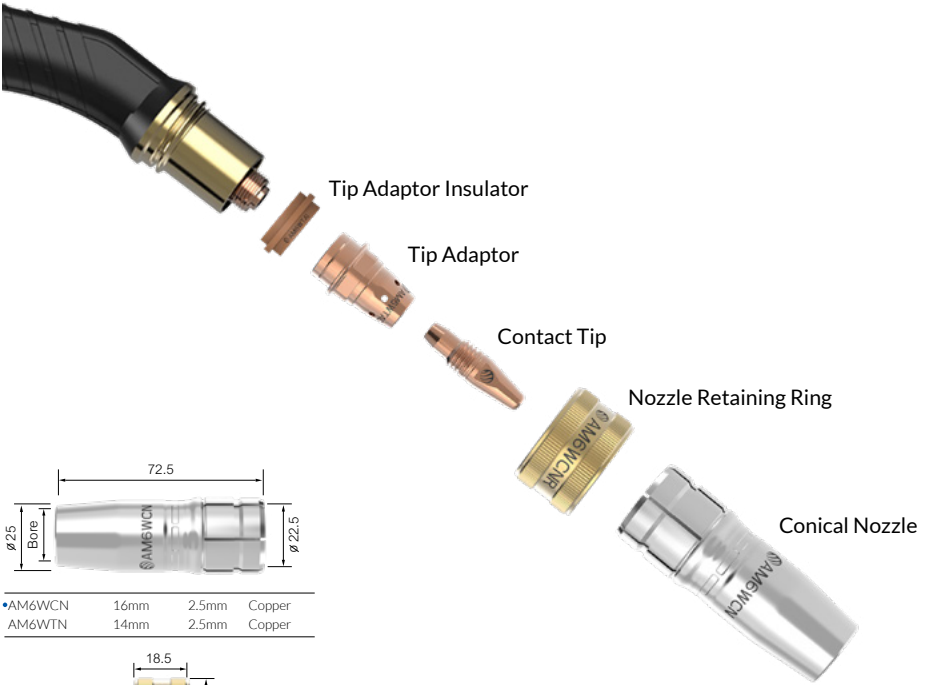
Cooling Method	Liquid-Cooled			
	Cooler Rating	Max. A	Pulse	Max. Load
Rating: CO <sub>2</sub>	1600W	580A	-	25KW
	1200W	550A	-	23KW
Rating: Mixed Gas M21	1600W	560A	400A	24KW
	1200W	520A	360A	20KW
Duty Cycle		100%	100%	
Wire Size	Filler Wires	Fe, Fe-MC / FC		0.9-2.0mm
	Filler Wires	Ss, Ss-MC / FC		0.9-1.6mm
	Filler Wires	Al		1.0-2.0mm
Minimum Liquid Flow Rate	1.5 l/min			<b>Important:</b> Please note minimum inlet pressure and flow rate.
Minimum Liquid Inlet Pressure	3.0 Bar			
Maximum Liquid Inlet Pressure	5.0 Bar			
Maximum Liquid Inlet Temperature	50°C			
Operating Temperature Range	-10...+40°C			

# M6W SET-UP GUIDE

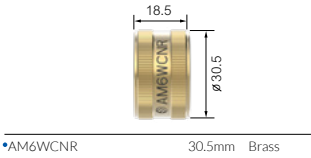


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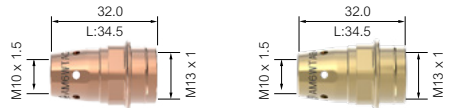
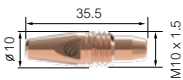
M6W Torches are supplied “ready to weld” with all wear parts installed in accordance with the items listed below •



•AM6WCN	16mm	2.5mm	Copper
AM6WTN	14mm	2.5mm	Copper



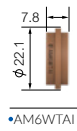
•AM6WCNR	30.5mm	Brass
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Standard Series					
AM6WCT08	M10*35.5	0.8-0.030	CuCrZr	Wire Type Fe, Fe-FC/MC SS, SS-FC/MC upto 1.6mm	
AM6WCT09	M10*35.5	0.9-0.035	CuCrZr		
AM6WCT10	M10*35.5	1.0-0.040	CuCrZr		
•AM6WCT12	M10*35.5	1.2-0.045	CuCrZr		
AM6WCT14	M10*35.5	1.4-0.055	CuCrZr		
AM6WCT16	M10*35.5	1.6-0.063	CuCrZr		
AM6WCT20	M10*35.5	2.0-0.080	CuCrZr		

A Series					
AM6WCT08A	M10*35.5	0.8-0.030	CuCrZr	Wire Type Aluminium SS, SS-FC/MC above 1.6mm	
AM6WCT10A	M10*35.5	1.0-0.040	CuCrZr		
AM6WCT12A	M10*35.5	1.2-0.045	CuCrZr		
AM6WCT16A	M10*35.5	1.6-0.063	CuCrZr		
AM6WCT20A	M10*35.5	2.0-0.080	CuCrZr		

	Length	Material	Recess	Transfer	Amps / Pulse
AM6WTAC-20	34.5mm	Copper	2.0mm	Short Circuit	<200A Low Current Pulse
•AM6WTAC-45	32.0mm	Copper	4.5mm	Spray	>200A High Current Pulse
AM6WTAB-20	34.5mm	Brass	2.0mm	Short Circuit	<200A Low Current Pulse
AM6WTAB-45	32.0mm	Brass	4.5mm	Spray	>200A High Current Pulse



•AM6WTAI

• Denotes torch package standard wear part set-up

# M6W LINER OPTIONS



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## Liners

### Filler Metal Fe, Fe-MC / FC

Part No.	Description	Contact Tip	Wire Size mm	M6W
AM6SL-1012-30	Steel Liner x 3mt	Standard Series	1.0-1.2	●
AM6SL-1012-40	Steel Liner x 4mt	Standard Series	1.0-1.2	●
AM6SL-1012-50	Steel Liner x 5mt	Standard Series	1.0-1.2	●
AM6SL-16-30	Steel Liner x 3mt	Standard Series	1.6	●
AM6SL-16-40	Steel Liner x 4mt	Standard Series	1.6	●
AM6SL-16-50	Steel Liner x 5mt	Standard Series	1.6	●
AM6SL-20-30	Steel Liner x 3mt	Standard Series	2.0	●
AM6SL-20-40	Steel Liner x 4mt	Standard Series	2.0	●
AM6SL-20-50	Steel Liner x 5mt	Standard Series	2.0	●

### Filler Metal SS, SS-MC / FC - Recommended

Part No.	Description	Contact Tip	Wire Size mm	M6W
AM6CL-1012-30	Combi-Liner x 3mt	Standard Series	1.0-1.2	●
AM6CL-1012-40	Combi-Liner x 4mt	Standard Series	1.0-1.2	●
AM6CL-1012-50	Combi-Liner x 5mt	Standard Series	1.0-1.2	●
AM6CL-1620-30	Combi-Liner x 3mt	A Series	1.6-2.0	●
AM6CL-1620-40	Combi-Liner x 4mt	A Series	1.6-2.0	●
AM6CL-1620-50	Combi-Liner x 5mt	A Series	1.6-2.0	●

### Filler Metal SS, SS-MC / FC - Alternate Option

Part No.	Description	Contact Tip	Wire Size mm	M6W
AM6SSTL-1012-30	Stainless Steel Liner x 3mt	Standard Series	1.0-1.2	●
AM6SSTL-1012-40	Stainless Steel Liner x 4mt	Standard Series	1.0-1.2	●
AM6SSTL-1012-50	Stainless Steel Liner x 5mt	Standard Series	1.0-1.2	●
AM6SSTL-16-30	Stainless Steel Liner x 3mt	A Series	1.6	●
AM6SSTL-16-40	Stainless Steel Liner x 4mt	A Series	1.6	●
AM6SSTL-16-50	Stainless Steel Liner x 5mt	A Series	1.6	●

### Filler Metal Al

Part No.	Description	Contact Tip	Wire Size mm	M6W
AM6CL-1012-30	Combi-Liner x 3mt	A Series	1.0-1.2	●
AM6CL-1012-40	Combi-Liner x 4mt	A Series	1.0-1.2	●
AM6CL-1012-50	Combi-Liner x 5mt	A Series	1.0-1.2	●
AM6CL-1620-30	Combi-Liner x 3mt	A Series	1.6-2.0	●
AM6CL-1620-40	Combi-Liner x 4mt	A Series	1.6-2.0	●
AM6CL-1620-50	Combi-Liner x 5mt	A Series	1.6-2.0	●

● Standard wear part range ● Torch package standard wear part set-up





# GETTING STARTED

## M60SW

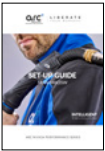
LEGACY SERIES

# M6OSW Liquid-Cooled Mig Welding Torch Optimized for Soft Wires



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Ideal for soft wires and high deposition Pulse Mig applications



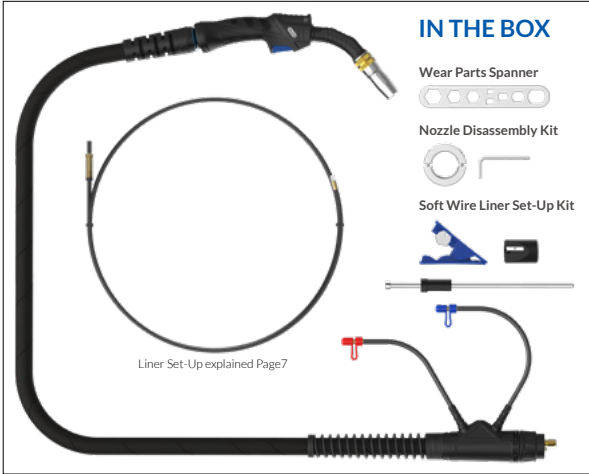
Set-Up Guide



What is Arc



Safety Information



## TECHNICAL SPECIFICATIONS

### M6OSW

IEC/EN 60974-7

Cooling Method	Liquid-Cooled			
Rating: CO <sub>2</sub>	Cooler Rating	Max. A	Pulse	Max. Load
	1600W	580A	-	25KW
Rating: Mixed Gas M21	1200W	550A	-	23KW
	1600W	560A	400A	24KW
Duty Cycle	1200W	520A	360A	20KW
			100%	100%
Wire Size	Filler Wires	Fe, Fe-MC / FC		0.9-2.0mm
	Filler Wires	Ss, Ss-MC / FC		0.9-1.6mm
	Filler Wires	Al		1.0-2.0mm
Minimum Liquid Flow Rate	1.5 l/min			Low pressure will affect torch performance
Minimum Liquid Inlet Pressure	3.0 Bar			
Maximum Liquid Inlet Pressure	5.0 Bar			
Maximum Liquid Inlet Temperature	50°C			
Operating Temperature Range	-10...+40°C			



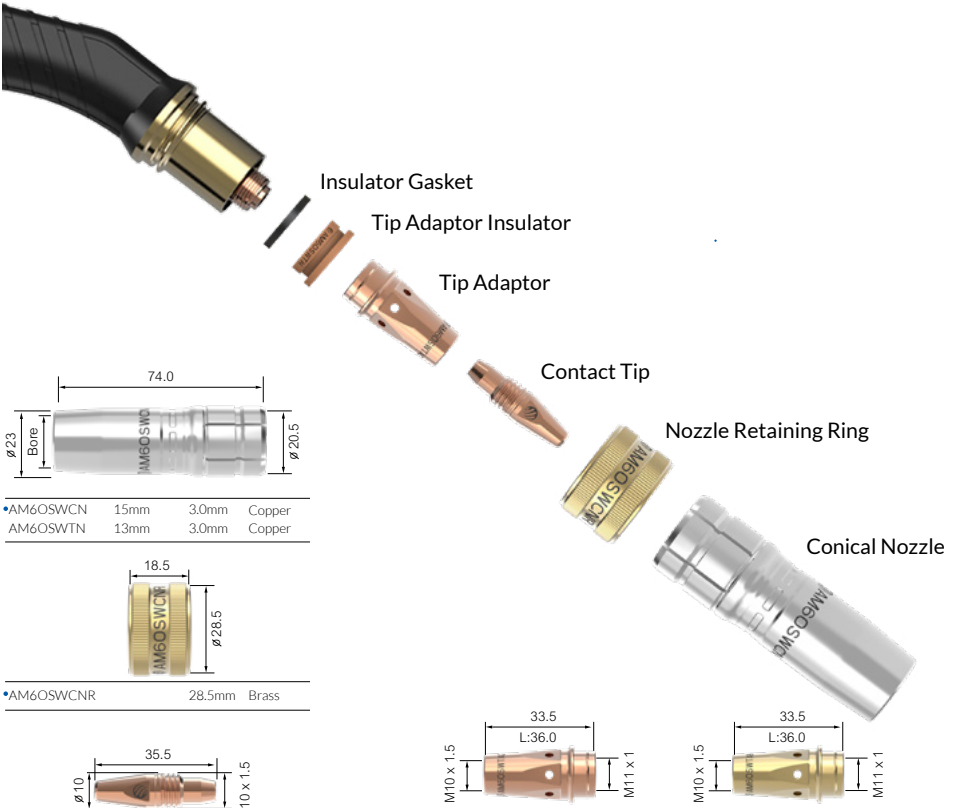
# M6OSW SET-UP GUIDE



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M6OSW Torches are supplied “ready to weld” with all wear parts installed in accordance with the items listed below •

The liner for OSW models is supplied separately and must be fitted in accordance with the (Aluminium / Combi Liner Set-Up) procedure outlined on Page 14.

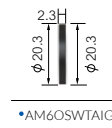
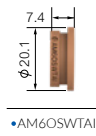


Standard Series					
AM6WCT08	M10*35.5	0.8-0.030	CuCrZr	Wire Type Fe, Fe-FC/MC SS, SS-FC/MC upto 1.6mm	
AM6WCT09	M10*35.5	0.9-0.035	CuCrZr		
AM6WCT10	M10*35.5	1.0-0.040	CuCrZr		
AM6WCT12	M10*35.5	1.2-0.045	CuCrZr		
AM6WCT14	M10*35.5	1.4-0.055	CuCrZr		
AM6WCT16	M10*35.5	1.6-0.063	CuCrZr		
AM6WCT20	M10*35.5	2.0-0.080	CuCrZr		

A Series					
AM6WCT08A	M10*35.5	0.8-0.030	CuCrZr	Wire Type Aluminium SS, SS-FC/MC above 1.6mm	
AM6WCT10A	M10*35.5	1.0-0.040	CuCrZr		
AM6WCT12A	M10*35.5	1.2-0.045	CuCrZr		
AM6WCT16A	M10*35.5	1.6-0.063	CuCrZr		
AM6WCT20A	M10*35.5	2.0-0.080	CuCrZr		

• Denotes torch package standard wear part set-up

	Length	Material	Recess	Transfer	Amps / Pulse
•AM6OSWTAC-20	36.0mm	Copper	2.0mm	Short Circuit	<200A Low Current Pulse
AM6OSWTAC-45	33.5mm	Copper	4.5mm	Spray	>200A High Current Pulse
AM6OSWTAB-20	36.0mm	Brass	2.0mm	Short Circuit	<200A Low Current Pulse
AM6OSWTAB-45	33.5mm	Brass	4.5mm	Spray	>200A High Current Pulse



# M6OSW LINER OPTIONS



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## Liners

### Filler Metal Al

Part No.	Description	Contact Tip	Wire Size mm	M6OSW
AM6OSWL-1012-30	Soft Wire Liner x 3mt	A Series	1.0-1.2	●
AM6OSWL-1012-40	Soft Wire Liner x 4mt	A Series	1.0-1.2	●
AM6OSWL-1620-30	Soft Wire Liner x 3mt	A Series	1.6-2.0	●
AM6OSWL-1620-40	Soft Wire Liner x 4mt	A Series	1.6-2.0	●

### Filler Metal Fe, Fe-MC / FC

Part No.	Description	Contact Tip	Wire Size mm	M6OSW
AM6SL-1012-30	Steel Liner x 3mt	Standard Series	1.0-1.2	●
AM6SL-1012-40	Steel Liner x 4mt	Standard Series	1.0-1.2	●
AM6SL-16-30	Steel Liner x 3mt	Standard Series	1.6	●
AM6SL-16-40	Steel Liner x 4mt	Standard Series	1.6	●
AM6SL-20-30	Steel Liner x 3mt	Standard Series	2.0	●
AM6SL-20-40	Steel Liner x 4mt	Standard Series	2.0	●

### Filler Metal SS, SS-MC / FC - Recommended

Part No.	Description	Contact Tip	Wire Size mm	M6OSW
AM6CL-1012-30	Combi-Liner x 3mt	Standard Series	1.0-1.2	●
AM6CL-1012-40	Combi-Liner x 4mt	Standard Series	1.0-1.2	●
AM6CL-1620-30	Combi-Liner x 3mt	A Series	1.6-2.0	●
AM6CL-1620-40	Combi-Liner x 4mt	A Series	1.6-2.0	●

### Filler Metal SS, SS-MC / FC - Alternate Option

Part No.	Description	Contact Tip	Wire Size mm	M6OSW
AM6SSTL-1012-30	Stainless Steel Liner x 3mt	Standard Series	1.0-1.2	●
AM6SSTL-1012-40	Stainless Steel Liner x 4mt	Standard Series	1.0-1.2	●
AM6SSTL-16-30	Stainless Steel Liner x 3mt	A Series	1.6	●
AM6SSTL-16-40	Stainless Steel Liner x 4mt	A Series	1.6	●

● Standard wear part range ● Torch package standard wear part set-up

A man with short brown hair and a beard, wearing a blue and black work jacket, is holding a welding torch. The jacket has a logo on the chest that reads "arc TORCHHOLOGY INTELLIGENT TORCH SOLUTIONS". The torch is black with a blue handle and a silver nozzle. The background is plain white.

# HARD WIRE LINER SET-UP

Fe, Fe-MC/FC

SS, SS-MC/FC

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INTELLIGENT TORCH SOLUTIONS

## Preparing the Torch and Fitting the Liner

### Prepare the Torch

### Step 1

Lay the torch out flat and straight

- Remove the nozzle.
- Remove the contact tip and tip adaptor.
- Remove the liner retaining nut, twist and pull out the old liner if necessary.

#### Important:

Liners should not be fitted if the torch is bent or coiled



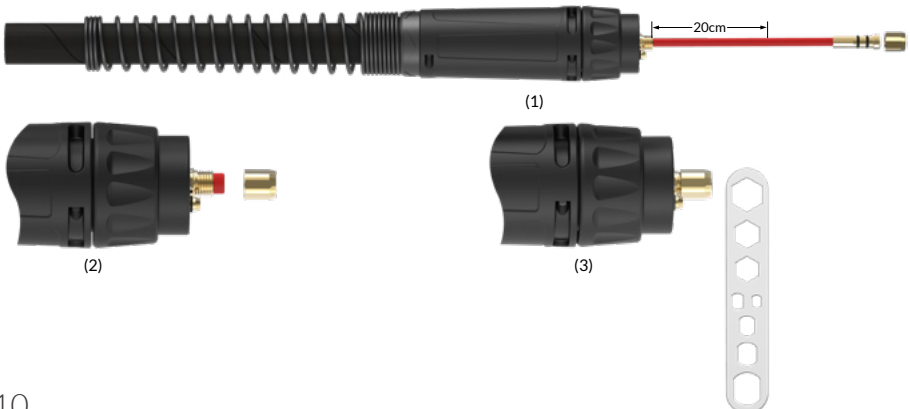
### Install the New Liner

### Step 2

- Feed in the new liner in short strokes of 20cm per time.
- Twist the handle if the liner sticks when feeding the liner through the swan neck.
- Continue to feed until the liner nipple is inside gun plug body.
- Fit liner nut. The torque is about 2.5Nm.

#### Important:

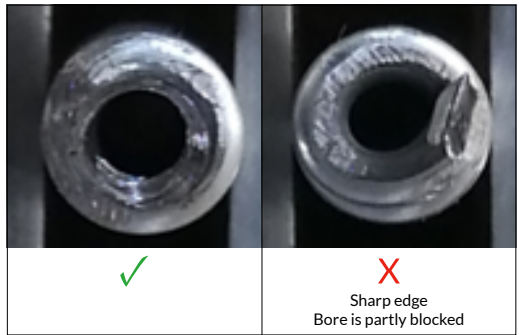
Do not use a kinked liner



## Install the New Liner, Cont.

## Step 3

- Gently push the liner towards swan neck.
- Cut the excess liner so the liner sticks out of swan neck front is about 5mm.
- Remove sharp burr from any internal and external surfaces from liner front-end with a file or a grinder.



### Important:

The inner bore of the liner must be totally cylindrical and burr free.

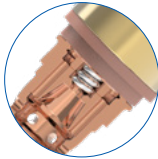
Remove any external overhanging material prior to fitting the tip adaptor.



## Install the New Liner, Cont.

## Step 4

- Refit the tip adaptor.
- The liner front-end sits inside the tip adaptor as shown in Figure A.



Section A



A

### **Important:**

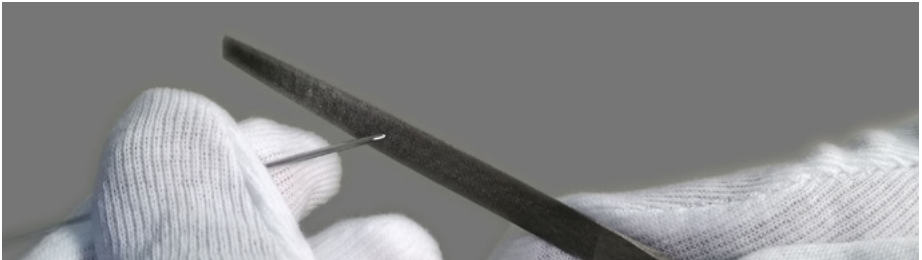
The liner should always remain under tension within the torch.

## Feeding Wire Through the Torch

### Preparing the Wire

### Step 1

- Inch the wire out through the machine by 15-20cm. Using a file remove all sharp burrs from the leading edge of the filler metal.
- Feed the wire directly into the torch liner, carefully pulling the torch towards the machine if necessary.
- Mount the torch to the machine or feed unit



### Feeding the Wire Through the Torch

### Step 2

- Slowly inch the wire through the torch until it appears at the end of the tip adaptor.
- Feed the wire through the tip being careful not to scratch the bore.
- Tighten the contact tip and refit the nozzle.

**You are ready to weld!**

A man with short brown hair and a beard, wearing a blue and black work jacket, is holding a welding torch. The jacket has a logo on the left chest that reads "arc TORCHLOGY INTELLIGENT TORCH SOLUTIONS". The torch is black with a blue handle and a silver nozzle. The background is plain white.

# SOFT WIRE / COMBI LINER SET-UP

# SOFT WIRE / COMBI LINER SET-UP



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The Arc M – OSW series Mig torches have been specifically developed for aluminium wires and aluminium pulse welding applications.

The OSW models have been “fine tuned” in every aspect to provide the most reliable performance and weld quality.

The correct fitting of your soft wire liner is essential.



The OSW Series torches can also be used for “hard-wire” application where accessibility is limited and spatter accumulation is less important.

## **Please Note:**

The Arc Combi Liner systems have been developed to pick up the filler metal directly at the drive rolls and deliver it directly to the contact tip.

The outside dimension of the liner is 5.0mm and is the same dimension as the inside of the brass wire guide tube fitted to the machine/feed unit.

It may be necessary to remove any old wire guides used to support smaller OD liners prior to fitting the Arc M OSW torch.

# SOFT WIRE / COMBI LINER SET-UP

## Preparing the Torch and Fitting the Liner

### Prepare the Torch

### Step 1

Lay the torch out flat and straight

- Remove the nozzle.
- Remove the contact tip.
- Remove the liner retaining nut, twist and pull out the old liner if necessary.

**Important:**

Liners should not be fitted if the torch is bent or coiled.

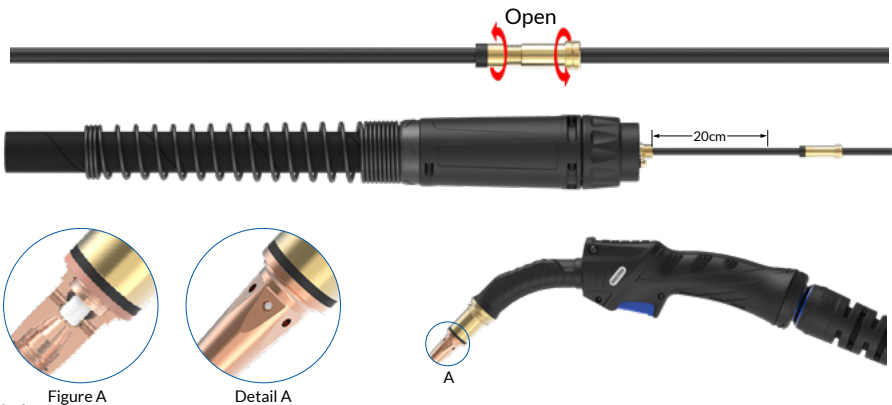
### Install the New Liner

### Step 2

- Open the liner collet by twisting the two halves.
- Feed in the new liner in short strokes of 20cm per time.
- Twist the handle if the liner sticks when feeding the liner through the swan neck.
- Continue to feed until the front nipple can be seen through the holes on the tip adaptor as shown in Figure A.

**Important:**

Do not use a kinked liner.





# SOFT WIRE / COMBI LINER SET-UP

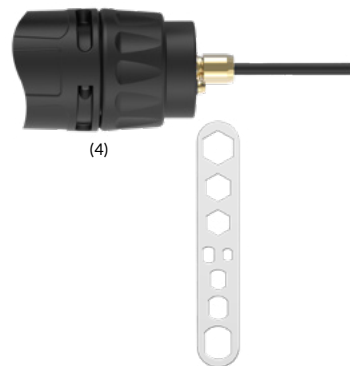
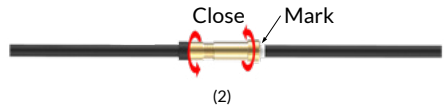
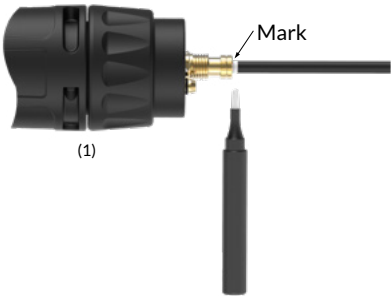


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## Install the New Liner, Cont.

## Step 3

- Ensure the liner is under slight compression within the torch conduit and the front nipple can be seen through the tip adaptor holes. Mark the position at the rear of the liner nipple (Figure 1).
- Retract the liner back slightly and position the collet by tightening it to the liner at the marked position (Figure 2).
- Reposition and tighten the liner retaining nut (Figure 3).



# SOFT WIRE / COMBI LINER SET-UP



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## Preparing the Machine to Fit the Torch

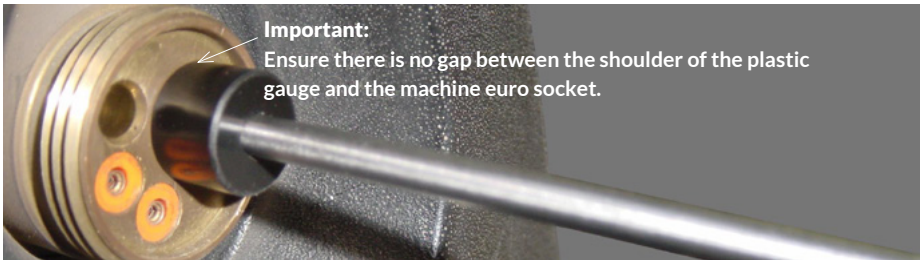
### Measuring the Distance to the Drive Rolls

### Step 1

- Remove the old wire guide from the machine / wire feed unit if necessary.
- Insert the liner measuring jig supplied into the machine Euro socket as shown.



- Ensure there is no gap between the shoulder of the plastic gauge and the machine Euro socket.



### Using the Liner Measuring Jig, Cont.

### Step 2

- Gently push the steel mandrel until the front-end touches the wire feed rollers.
- Remove the Jig from the machine ensuring there is no movement between the plastic gauge and the mandrel.



# SOFT WIRE / COMBI LINER SET-UP



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## Cutting and Trimming the Liner

### Step 3

- Offer the liner to the Jig and mark the point at the face of the plastic gauge.
- Cut the liner with the liner cutter provided.
- Use the liner sharpener provided to sharpen the leading edge of the liner.
- The sharpener is preset to the correct angle.



### Important

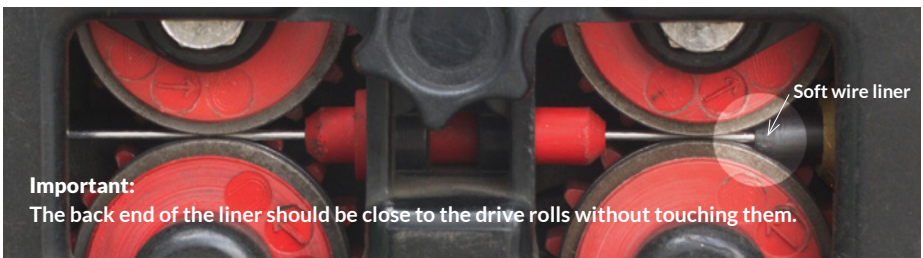
The inner bore of the liner must be totally cylindrical and burr free.

Remove any overhanging material from the bore prior to installation.

## The Correct Set-up

### Step 4

- Refit the torch to the machine and tighten the torch lock nut slowly, being mindful of the interface between the end of the liner and the drive rolls.
- The liner should now sit close to the drive rolls.



# SOFT WIRE / COMBI LINER SET-UP



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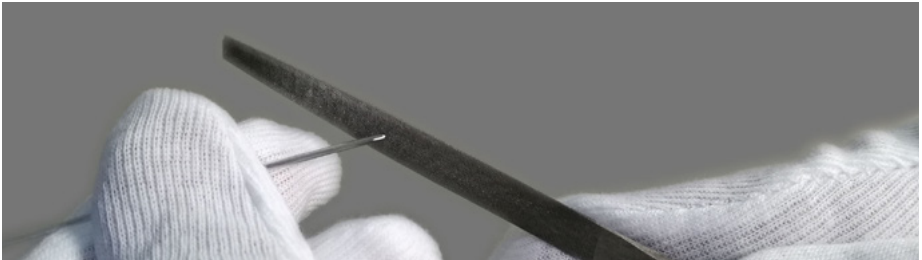
## Feeding Wire Through the Torch

**Important:**  
Remove the torch from the machine / feed unit

### Step 1

#### Preparing the Wire

- Inch the wire out through the machine by 15-20cm. Using a file remove all sharp burrs from the leading edge of the filler metal.
- Feed the wire directly into the torch liner, carefully pulling the torch towards the machine if necessary.
- Mount the torch to the machine or feed unit.



#### Feeding the Wire Through the Torch

### Step 2

- Slowly inch the wire through the torch until it appears at the end of the tip adaptor.
- Feed the wire through the tip being careful not to scratch the bore.
- Tighten the contact tip and refit the nozzle.

**You are ready to weld!**



# TIPS ON CARE AND MAINTENANCE



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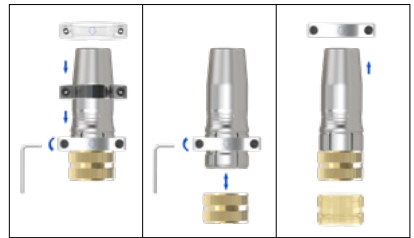
## Spatter Removal

Remove spatter from all external and internal surfaces.  
Regularly apply anti-spatter spray.



## Nozzle Wear

In the event that the nozzle needs replacing, use the nozzle tool provided to remove the retaining ring. Reassemble the ring on a new nozzle.



## Contact Tip Wear

Replace worn contact tips.



## Tip Adaptor and Insulator Wear M6OSW

The tip adaptor and its insulator “snap fit” together. Replace either worn item or the complete assembly.

OSW systems have an additional gas sealing gasket. Replace if necessary



M6W



M6OSW



# TIPS ON CARE AND MAINTENANCE



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## Every Wire Change

Remove the wear parts and clean the liner by blowing it out with clean dry compressed air.

Blow from the torch front to the torch back end. Make sure you wear eye protection



## Every Liner Change

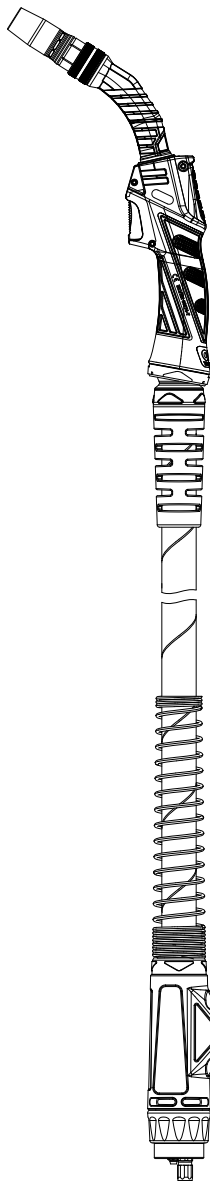
Check all liner and gun body 'O' Rings for signs of damage or wear. Replace if necessary.



# WATER FLOW, COOLING POWER AND TORCH PERFORMANCE



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Torch Performance depends on both water flow and cooler capacity.

### To measure water flow

- Connect torch as per illustration
- Measure the water flow after 60 seconds

### Arc M6/M6OSW Ratings

#### CO<sub>2</sub> @100 Duty Cycle

Coolant Capacity	Flow Rate	
	1.5 l/min	1.2 l/min
1600W Cooler	580A	550A
1200W Cooler	550A	520A
1000W Cooler	520A	490A

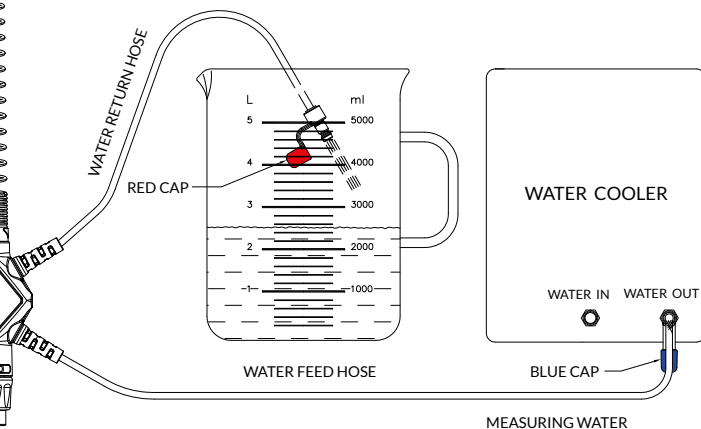
#### Mixed Gas M21 @100 Duty Cycle

Coolant Capacity	Flow Rate	
	1.5 l/min	1.2 l/min
1600W Cooler	560A	530A
1200W Cooler	520A	490A
1000W Cooler	490A	470A

Note: Indicative performance on 4m length torches

### Flow rates and pump pressures

It is important to follow guidelines on minimum inlet pressures and coolant flow rates in order to maximize torch performance.





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