mepBLITz™ DC-i5 Mobile Electropolisher

Commissioning & Operation Manual

This document outlines the procedure to commission the mepBLITz DC-i5 and also an illustrated step by step operation guide

Metal Science TECHNOLOGIES

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Technical Specifications & Benefits of the mepBLITz DC-i5

Electrical Specs

- Input -110-240v, 50-60Hz
- Output - 30-150amps
- NLV - <35VDC
- Duty Cycle - 100%
- Power Source – Inverter driven

Case and Lead Specs

- Material – Stainless Steel
- Dimensions - 400mm x 320mm x 280mm
- Weight - 10kgs dry
- Leads – 16mm² and 25mm² rubber, 15ft in length

Technical Benefits

- Works on TIG, MIG & Stick
- Highest Corrosion Resistance
- Match any finish (2B to Mirror)
- Works on thicknesses 0.55mm-50mm

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OH&S

PVC or nitrile gloves required to be worn

Protective clothing should be worn.

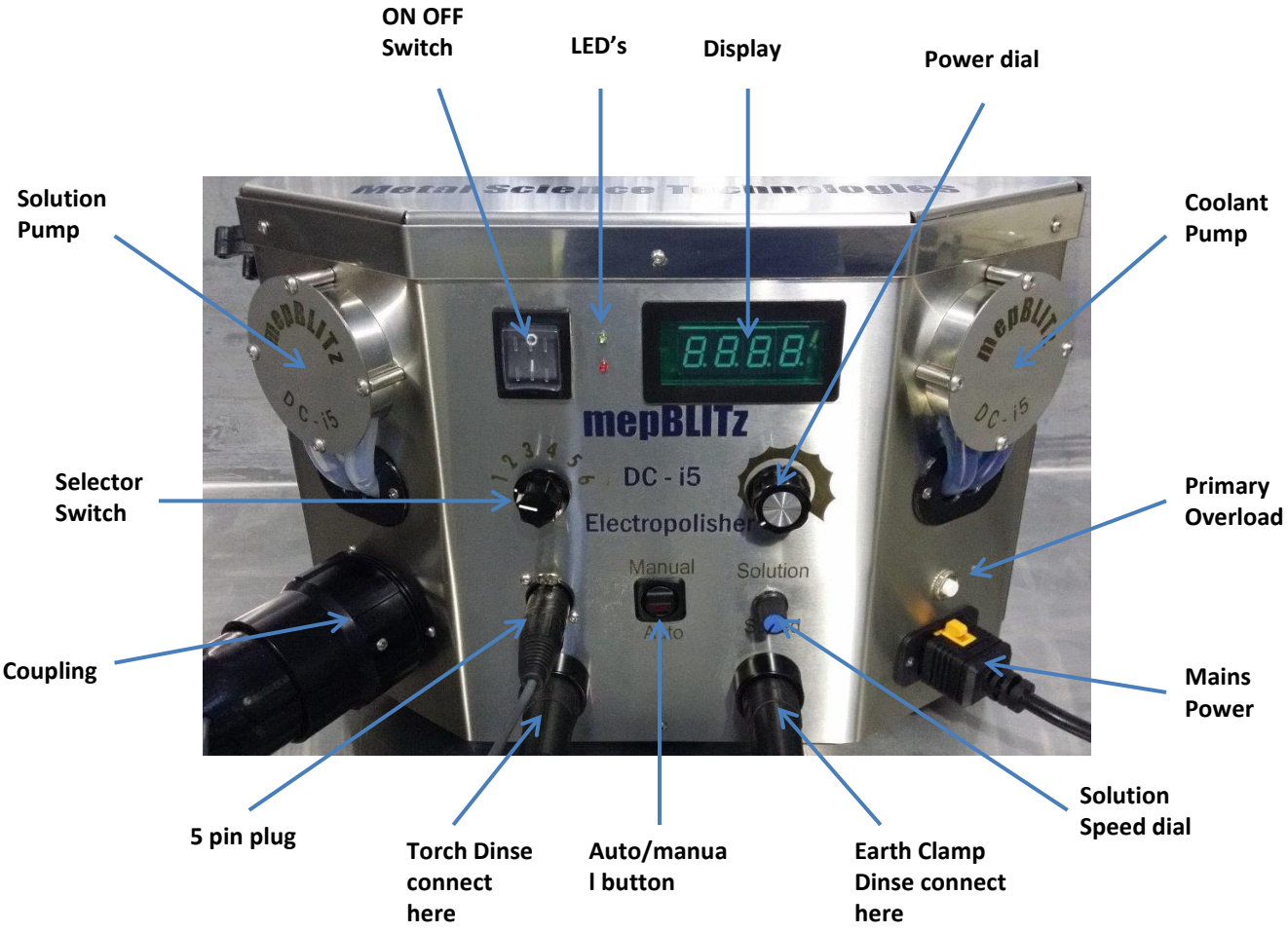
Eye Protection must be worn.

Face protection can be worn.

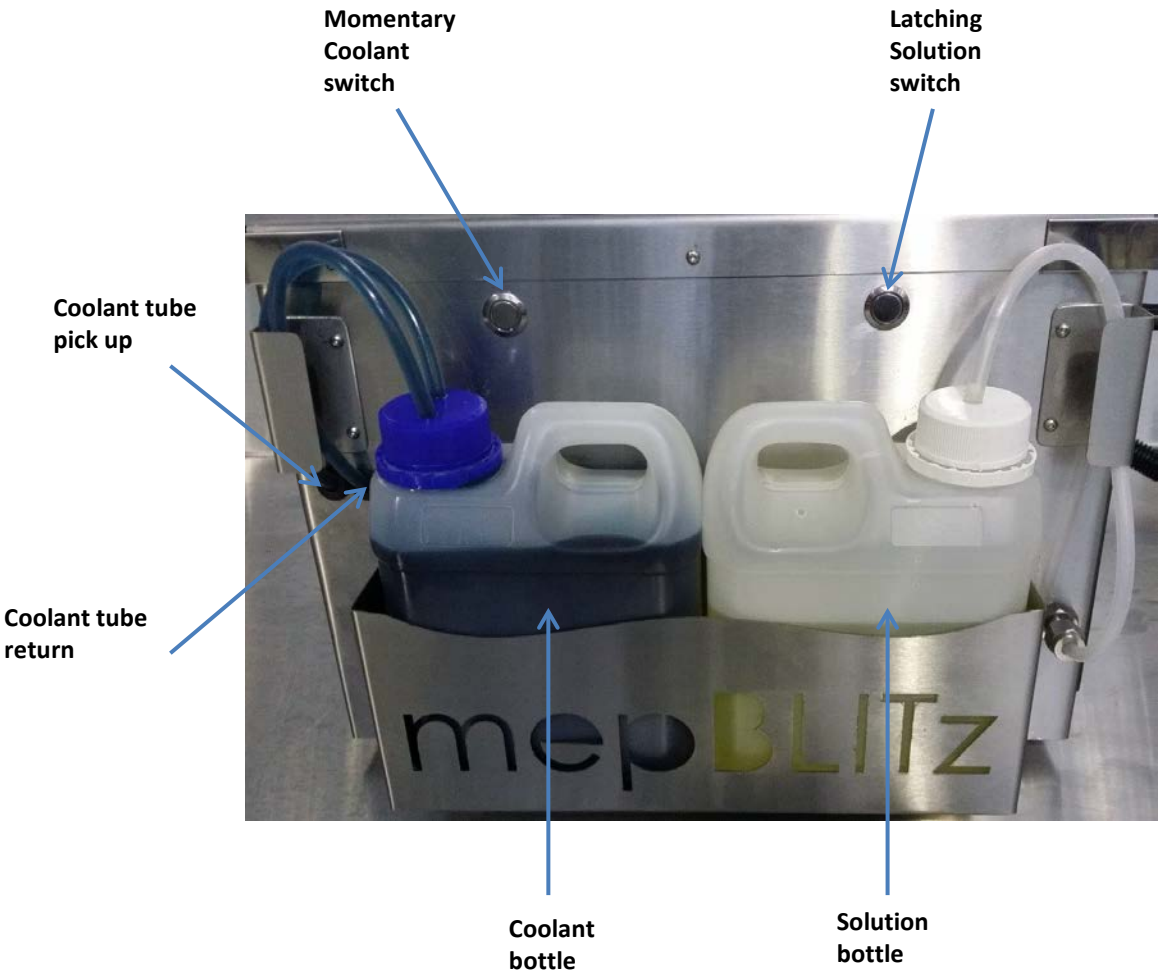
Use in well ventilated areas.

Enclosed footwear at all times.

Front Panel Information



Back Panel Information



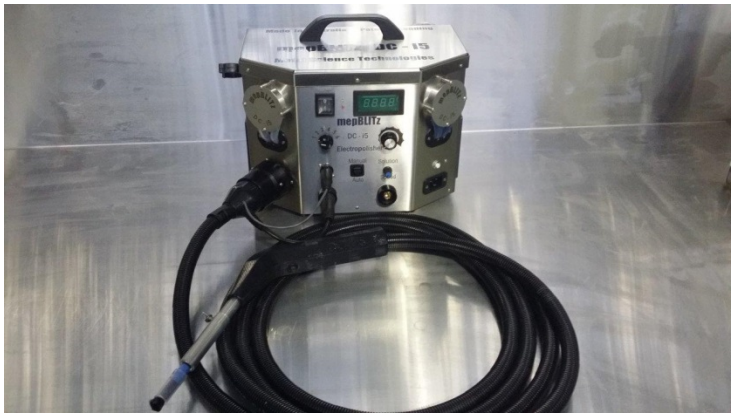
1 – How to commission the mepBLITz DC-i5

1.1

Remove unit from its packaging. The torch handle and lead is already attached to the case, so be sure to remove it at the same time without putting pressure on the large black screw attachment.
Position unit in its desired place in your factory or workshop.

DC-i5 in the box

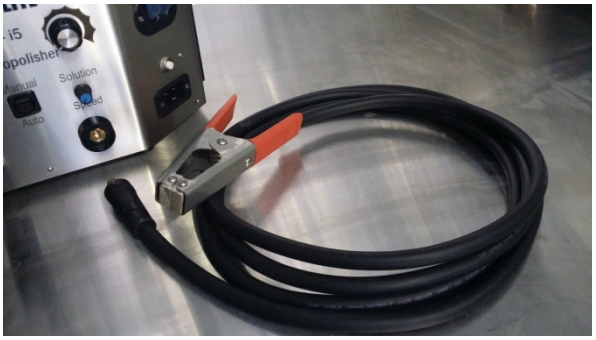
Machine box opened



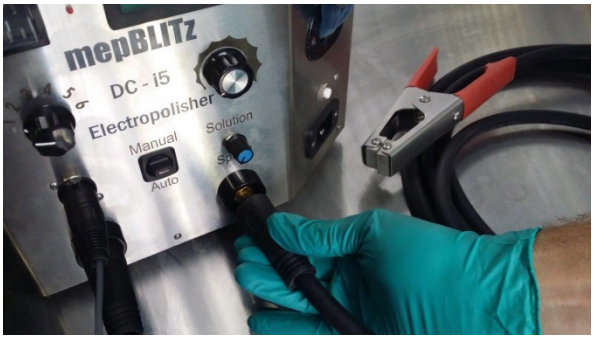
Machine out of box and on work bench

1.2

Attach the provided earth clamp and lead to the machine



Earth Clamp ready to be attached



Earth Clamp being attached

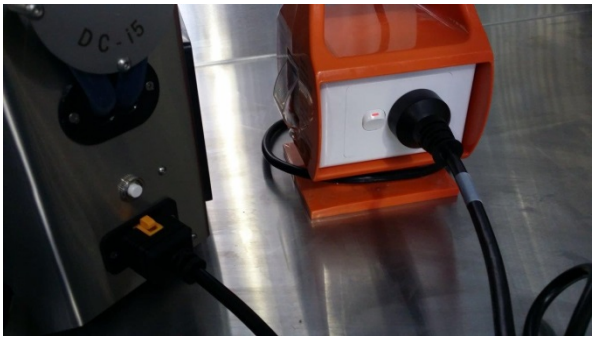
1.3

Attach the 15 amp lead to the front panel of the machine, then plug in the power cable into your power source. Recommendation 15 amp input power outlet.

Input power cable ready to be attached

Input power cable being attached

Input power cable being plugged into mains



Mains being turned on

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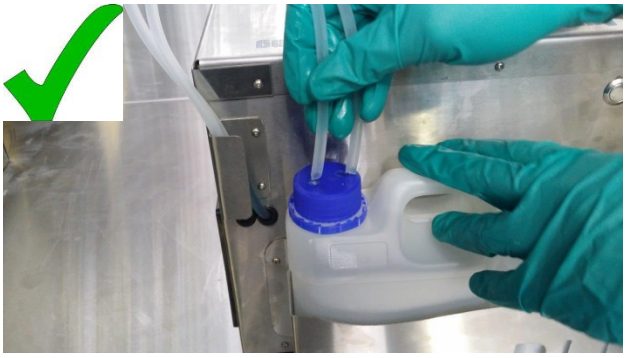
1.4

Using the provided 1lt bottle of coolant (blue in colour), pour this into the bottle in the back carriage with the blue cap and the two tubes going into it. You must pull the two tubes out of the bottle before removing it from the back carriage before filling it up.

Machine coolant

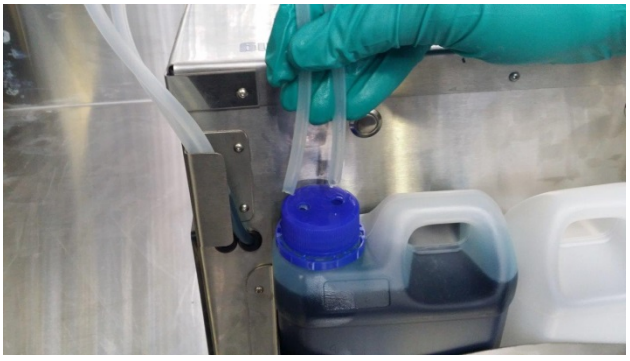
Empty coolant bottle in back carriage

Do not remove bottle with the tubes still inserted



Pull the tubes out before removing bottle

Coolant bottle being filled



Coolant bottle back in carriage and tubes re-inserted

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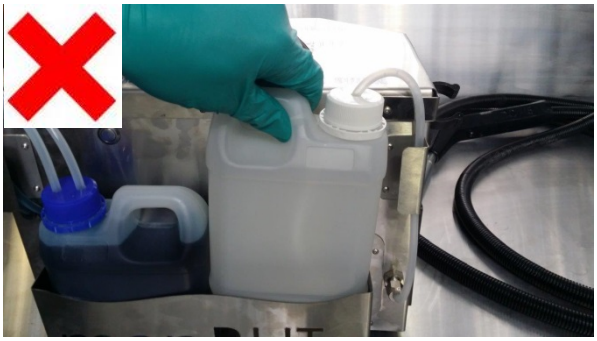
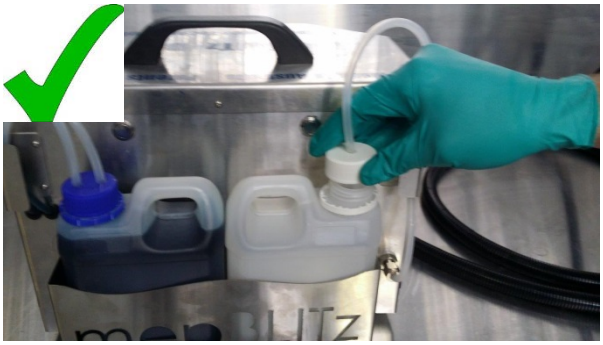
1.5

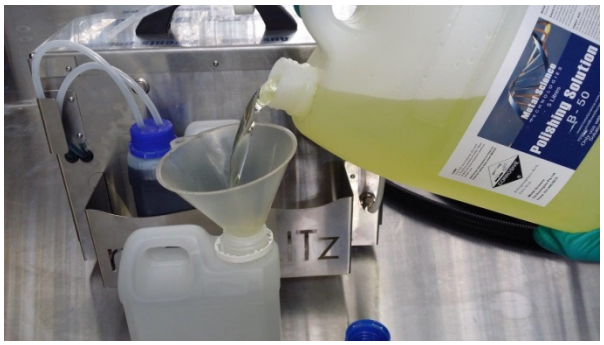
When commissioning the mepBLITz DC-i5 solution line you have a few options depending on what the user desires.
You can just fill the 1lt bottle in the back of the carriage with B-50 solution as per below.



Do not remove bottle with the tubes still inserted



Unscrew the lid from the bottle before removing bottle

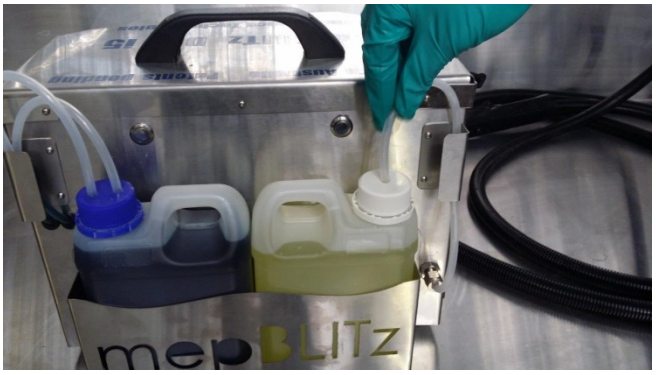


Solution bottle being filled

Solution bottle back in carriage and tube re-inserted

You also have the option to tap into a larger bottle (5lt or 20lt) using the tube and elbow joint provided. See the pictures below to see how this is achieved.

1m tube extension and elbow



Tube extension added to solution line

Tube extension tapped into 5lt bottle

1.6

The last step before turning the unit on is to choose your brush. The torch handle will already have the standard brush attached. If you would like to change to either the M60 or M120 brush you will need to detach the standard adaptor to attach either one of these brushes.

Standard brush
(MEP151)

M60 Brush
(MEPi5M60)

M120 Brush
(MEPi5M120)

This is how the torch handle will come, with the standard brush ready to go.

M-Style torch head with standard brush attached

If you are going to change over to one of the M-Style brushes, remove the standard brush and the standard adaptor by unscrewing the butterfly bolt and sliding the standard adaptor off the torch head.

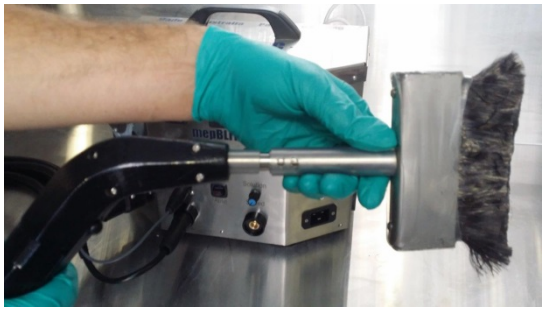
Unscrew butterfly screw

Slide Standard Adaptor off

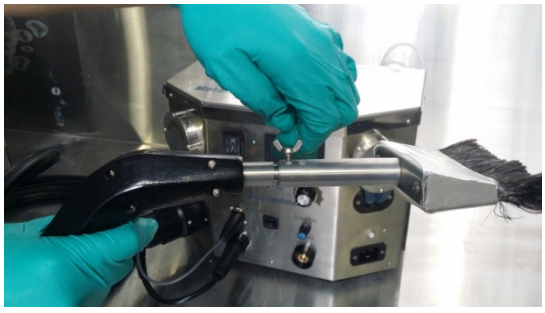
Standard Adaptor & Brush detached

Now simply slide the M60 or M120 brush up onto the torch head and screw up the butterfly bolt.

M120 brush ready for attaching



Slide M120 brush onto torch



Screw up butterfly screw

M120 brush ready for use

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1.7

Now we are ready to power up the unit itself.
Just before we power up the unit, we need to make sure that the dials and buttons are in the correct position. Refer to the picture below as to where the dials and knobs should be.

Once the above picture is what you have on your front panel, power up the unit by pushing the ON OFF switch from OFF to ON.

ON OFF switch in the OFF position

ON OFF switch turned ON

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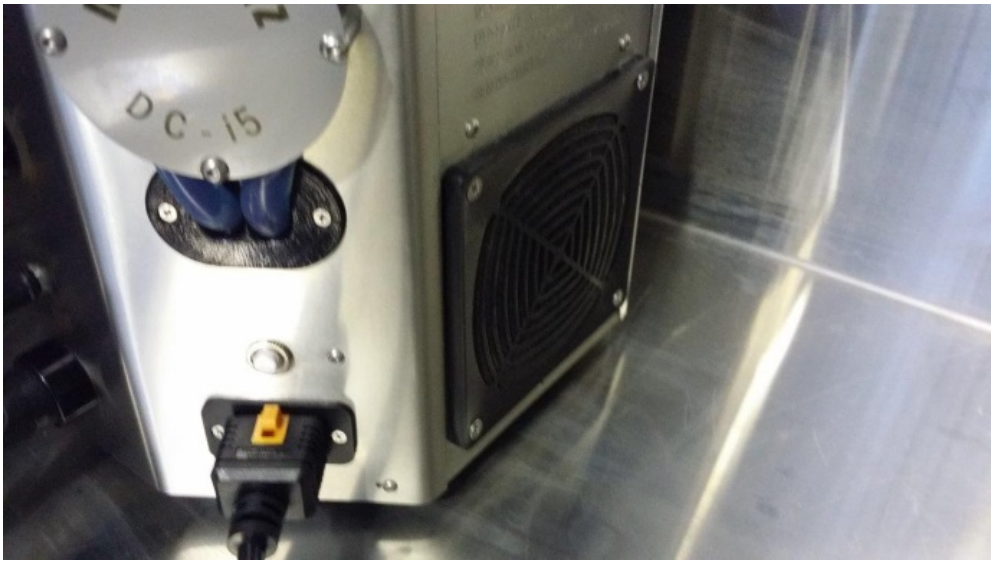
Now that the unit is powered up, four things will happen –

1. Blue Display will light up (it should sit at about -0.06)
2. Green LED will illuminate
3. Fan will start running
4. Coolant pump will begin to run

Green LED has illuminated and the blue digital display has lit up



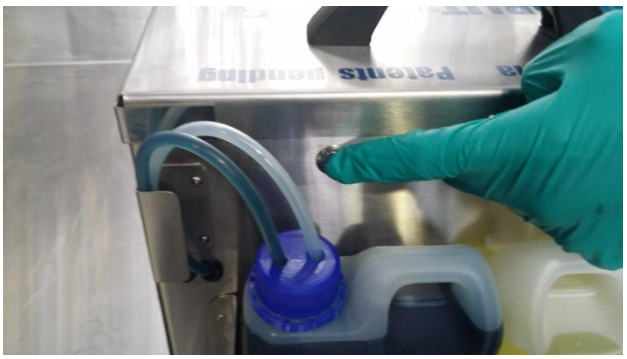
Coolant pump and fan are both now running

1.8

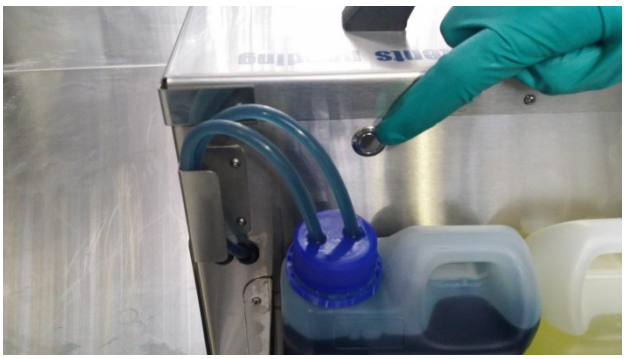
The coolant pump is now running but will need to be primed.
Using the momentary stainless steel switch on the back of the unit above the coolant bottle, hold this button in and you should see the blue coolant slowly make its way up one of the tubes.
Hold in the switch until the coolant makes its way to the pump at the front of the machine.
Once the coolant has reached the pump, you can release the stainless steel switch.
The coolant will now circulate around the machine continuously.

Coolant bottle and momentary switch

Momentary switch being engaged



Hold momentary switch until coolant reaches the pump on the front of machine

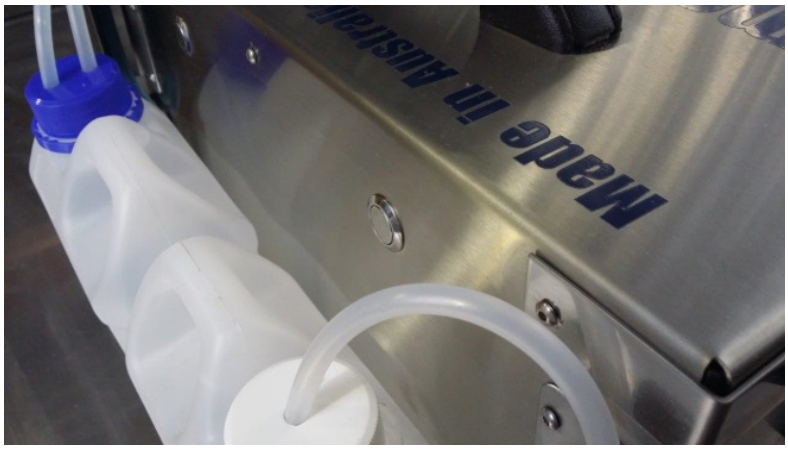


Release momentary switch once coolant has circulated

1.9

We now need to prime the solution line.
Which ever solution bottle you have chosen (1lt, 5lt or 20lt) is now full and ready to bring through to the torch head where your chosen brush is screwed on.
Firstly, make sure that the stainless steel switch above the 1lt solution bottle is flush with the case. This means that the solution pump will be running in the forward direction.

Stainless steel switch raised, solution pump will run in reverse



Stainless steel switch flush, solution pump will run forwards

Now press the Auto/Manual Switch on the front panel from Manual to Auto. This will engage the solution pump run automatically without the need to hold down the manual bulb switch on the torch handle (the pump may not actually start yet as the solution speed should be set to low).

Auto/Manual button in the manual position

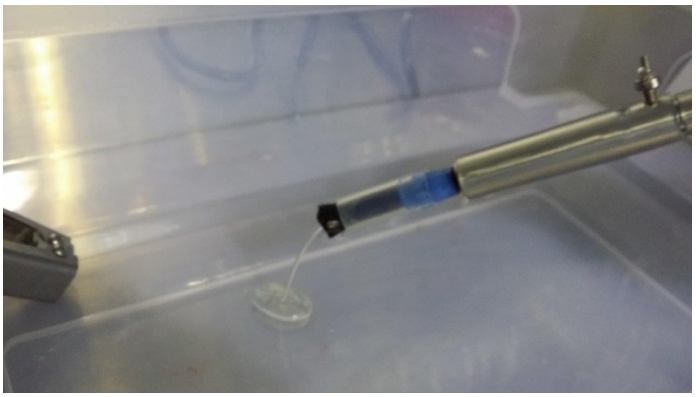
Auto/Manual button switch to the auto position

To get the solution to flow, turn up the solution speed dial. The solution will pump through at a certain rate depending on where the dial is set to.

Solution speed dial in low/off position

Solution speed dial turn up (solution pump with start to run)

It should take about 20 seconds for the solution to reach the torch head and start dripping through the brush. Once this happens you can toggle the Auto/Manual switch back to manual to stop the solution flow.



Solution flowing all the way to the torch head

Switch the auto/manual button back to manual

Auto/manual button back to the manual position

2 – Operating the mepBLITz DC-i5

2.1

Now that you have the unit commissioned and ready for use, it is time to begin operation.
Firstly, attach the clamp to the work piece you wish to clean. The clamp does not need to be right next to the area being cleaned, just as long as there is a good connection.

Clamp attached to the work piece ready to be cleaned

Do's & Don'ts

A few general do's and don'ts –

Do –

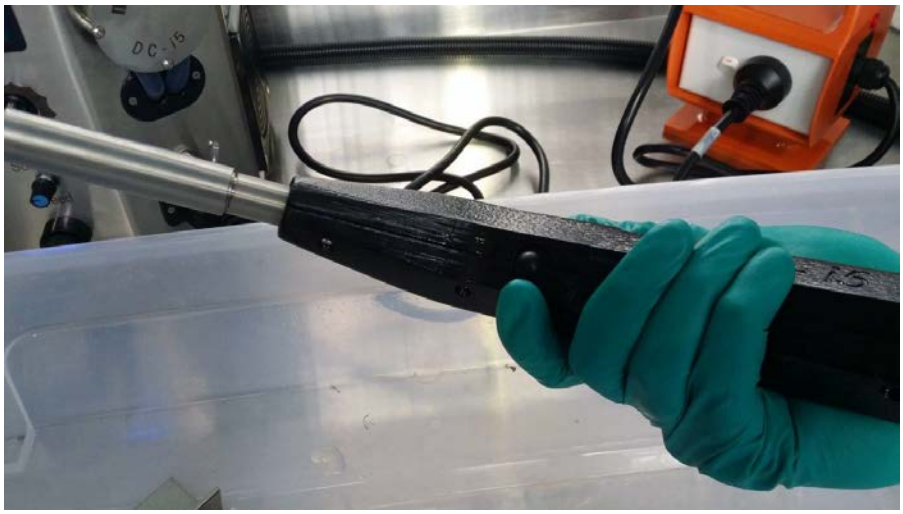
- Read and adhere to manual
- Use correct solution and brushes
- Make sure silicone sleeve is always covering the stainless steel conductor where the brush screws in
- Make sure the silicone aero shield is always attached
- Remove the brush after each use/end of day
- Wash brush with water to remove solution before storing
- Wash/wipe down clamp to remove any solution residue

Don't –

- Touch the brush when machine is connected to power supply.
- Touch the brush or unscrew brush immediately after use as it will be hot
- Touch the work piece near the weld/polished area just after it has been polished as it will still be hot
- Use handle parallel or overhead, as solution may run back down handle
- Wrap or tie brush bristles to stop splaying of the bristles
- Use any other brush or material other than supplied by Metal Science Technologies (Use of other brushes/material voids warranty)

2.2

Using the bulb switch on the torch head, bring through solution through until all the brush fibres are fully saturated. You can adjust the solution speed and power settings on the case to a desired speed and power.



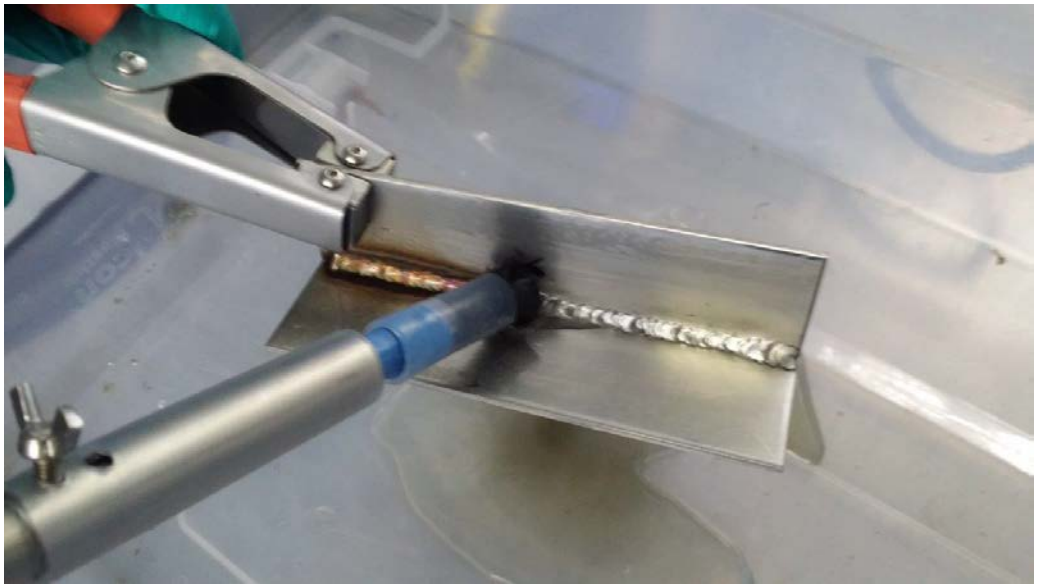
Torch head with bulb switch ready to be pressed

Below is a good guide for the power setting and solution speed setting, based on thickness of job. Use this as a guide only.

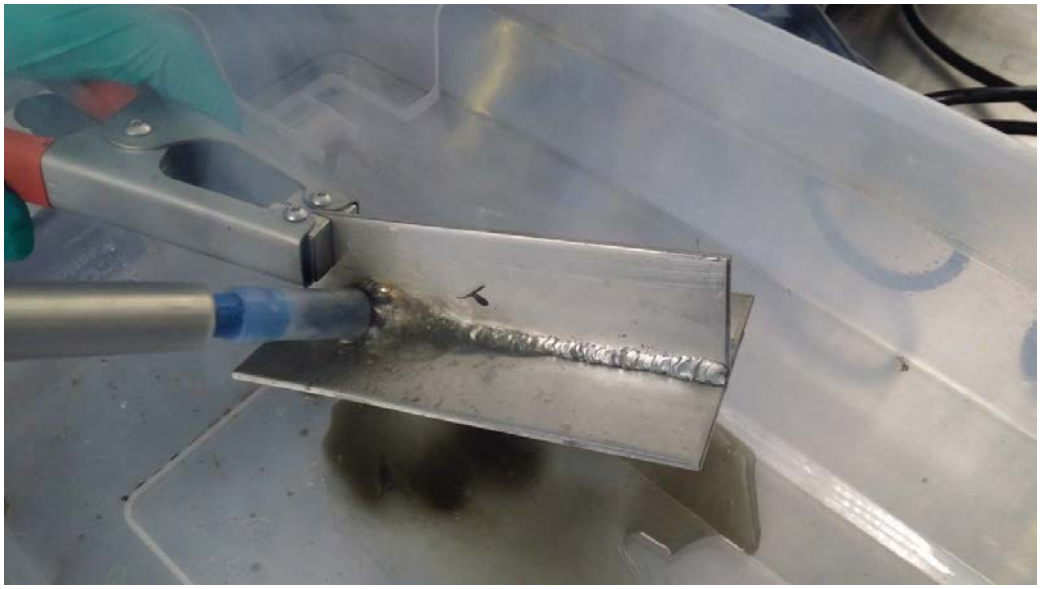
Material Thickness	Power setting	Solution Speed	Speed of Travel	Passes
< 2mm	low to mid	low to mid	5-8cm per second	1
2mm to 6mm	mid	mid	4-6cm per second	1
> 6mm	mid to high	mid to high	2-4cm per second	1 to 2

2.3

Apply the soaked brush to the weld to be cleaned/polished. Use a smooth motion with minimal pressure for best results. Bring through solution as needed.



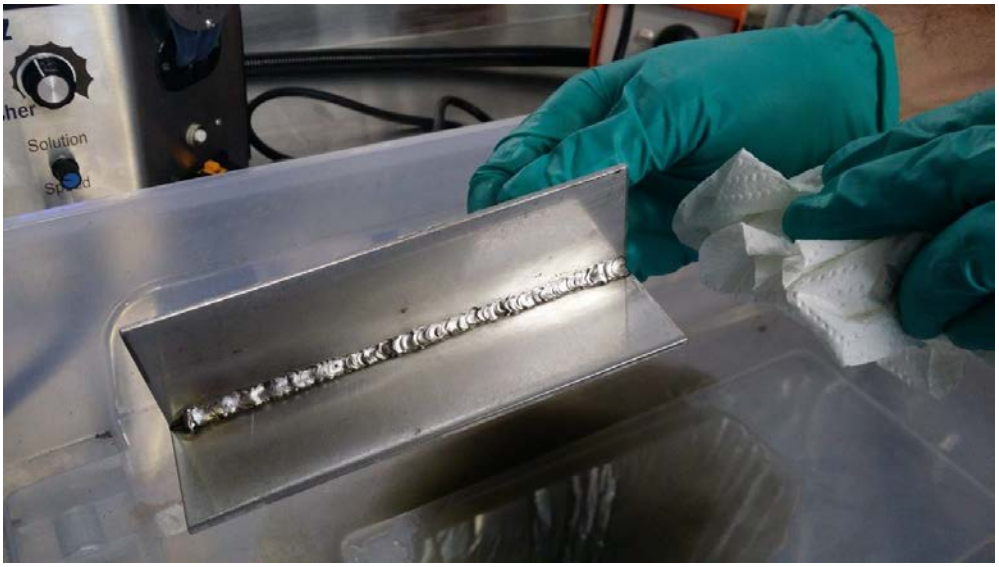
Move brush along weld and add solution as needed



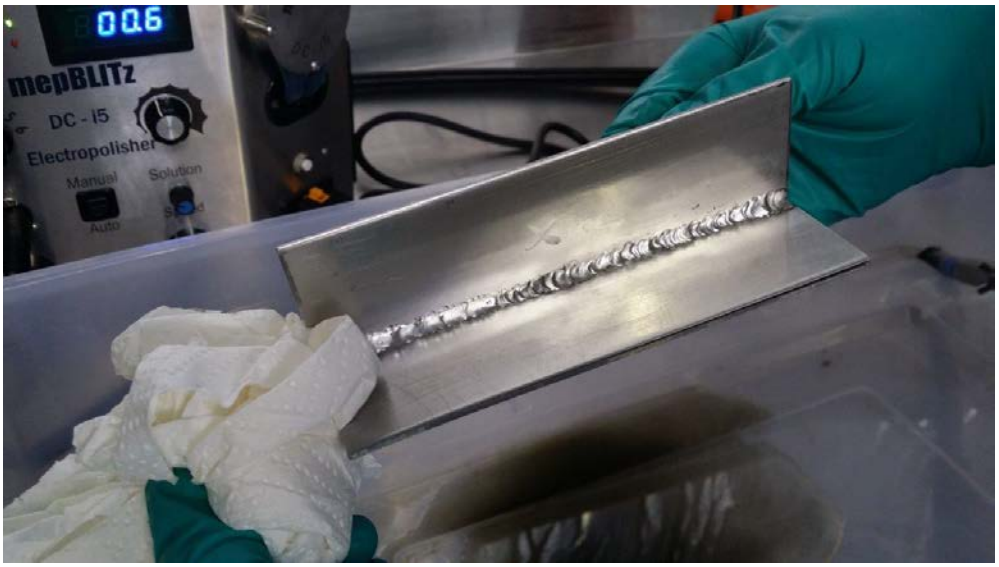
Discolouration will be removed

2.4

Once you have removed all weld discolouration, you can remove the used solution in a few ways.
Ideally, remove the bulk of the used solution firstly with disposable paper towels or similar.



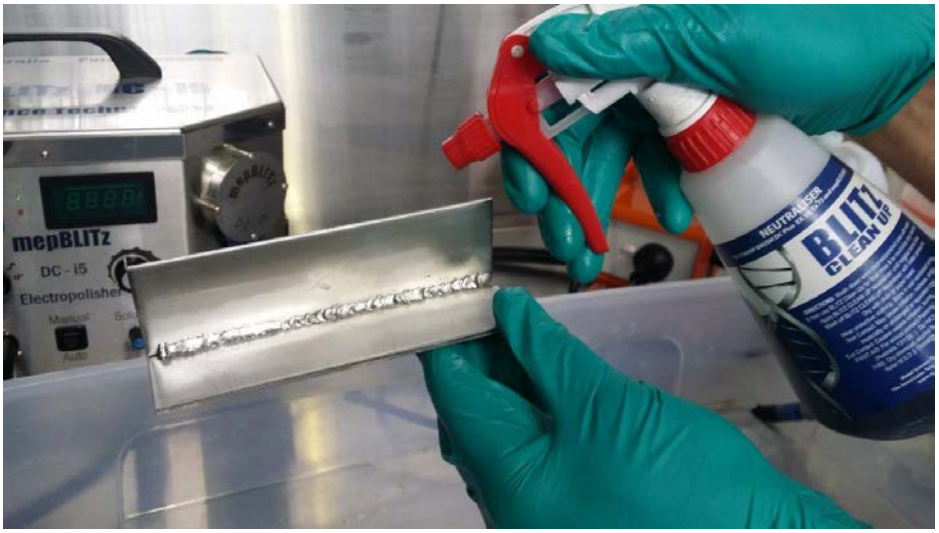
Cleaned weld piece about to be wiped down



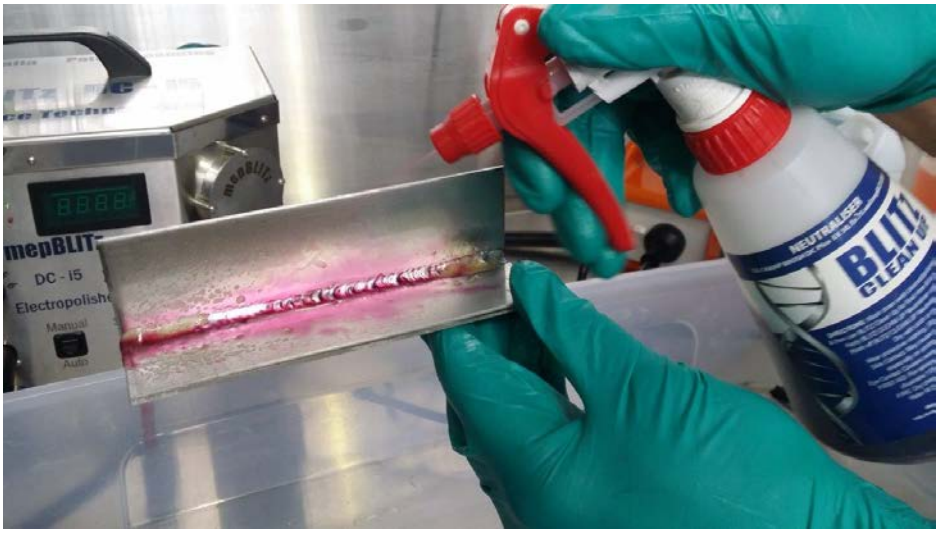
Cleaned weld piece being wiped down

2.5

Then use a neutraliser to neutralise the remaining solution on the work piece.



Neutraliser about to be sprayed onto cleaned weld

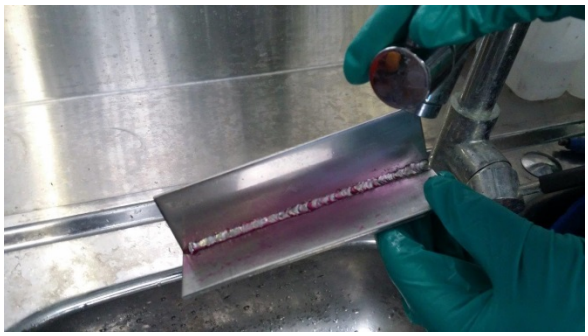


Neutraliser being sprayed onto cleaned weld

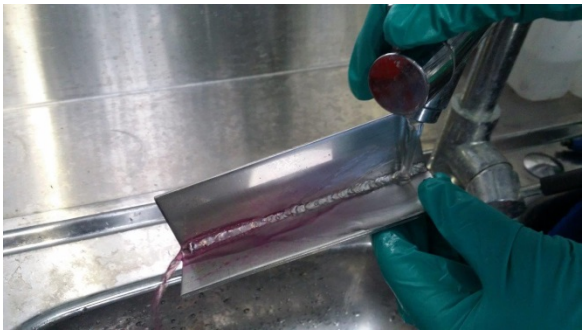
The neutraliser when sprayed onto the cleaned weld may bubble and fizz. This is the neutraliser working to neutralise any left over weld cleaning solution.
Neutraliser is particularly effective for tight corners.

2.6

Finally using some flowing water, either by a tap, hose or pressure cleaner to completely wash the work piece down to remove all residual neutraliser.



Remove residual neutraliser with running water



Running water removing neutraliser from work piece

Using some paper towel, wipe work piece dry.

Wipe work piece dry

Wipe work piece dry

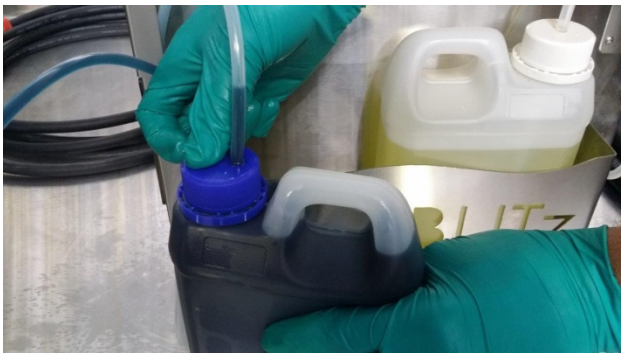
Work piece has now been cleaned and neutralised. It is now passive with great corrosion resistance, ready for service.

3 – Troubleshooting the mepBLITz DC-i5

3.1

If for some reason the coolant has difficulty priming, you can use this step to prime the coolant -
Whilst the unit is still running, pull the clear tube that is on the inside at the back, up and out of the bottle.
Then, put your thumb over the tube hole and squeeze the coolant bottle which will force through the coolant to the pump.
Once the coolant reaches the pump, quickly re-insert the clear tube that was removed back into the bottle.
Coolant will now circulate through the entire machine.

Remove inside coolant tube



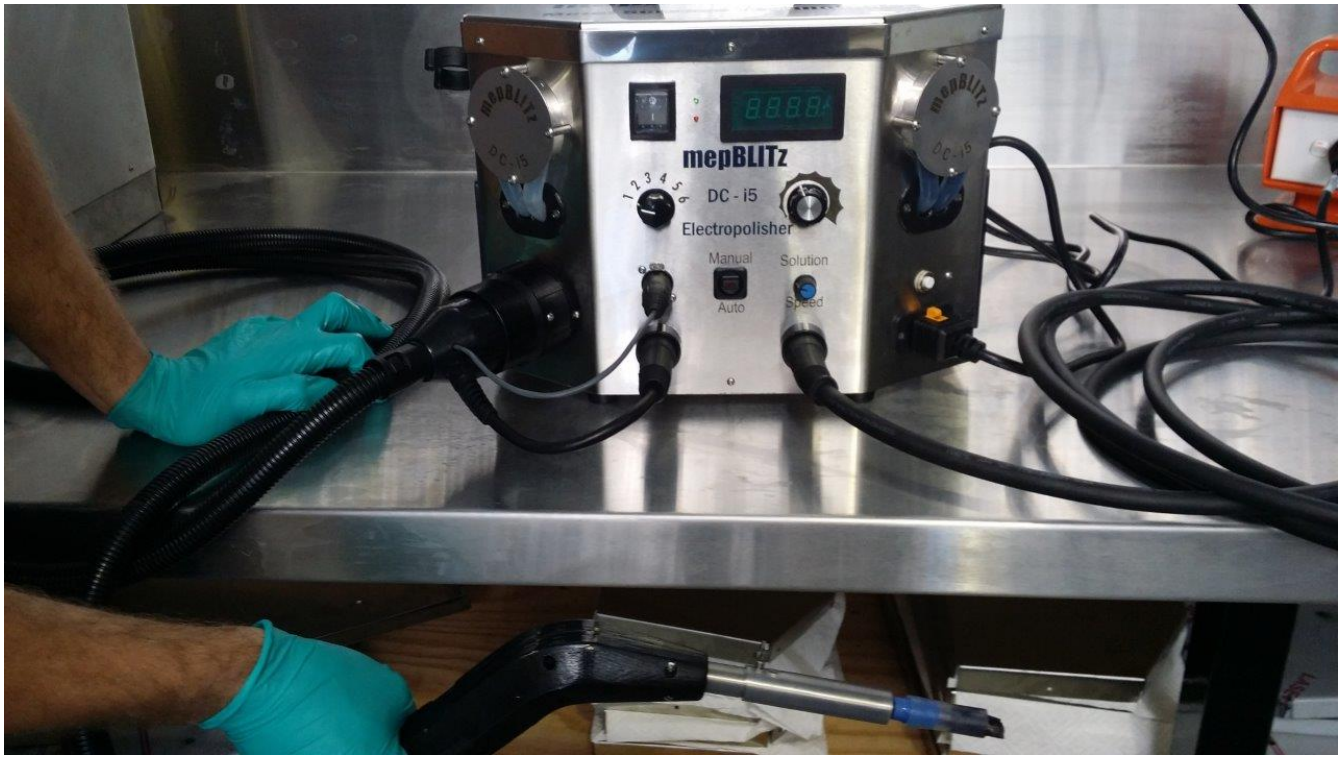
Hold thumb over open hole and squeeze bottle

Re-insert tube that was removed

Place coolant bottle back into carriage

3.2

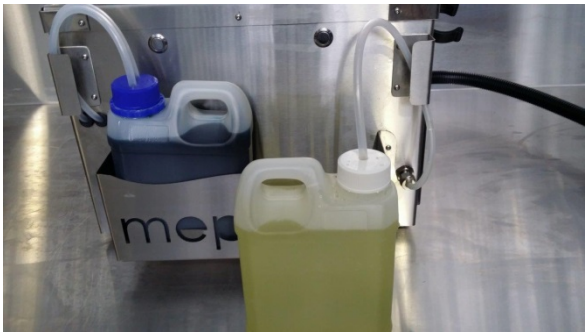
If the solution line doesn't prime –
The solution line may not prime for a number of reasons such as an air lock (or air bubble).
To overcome this you can do one of two things.
Firstly, you can bring the torch handle and leads to below the level of the machine. This is help to create a siphoning action which should bring the solution through (be sure to have the pump running in the forward direction whilst trying this).



Torch handle and leads below the height of the machine. This will aid solution flow.

If the siphoning option does not work, then you can physically push the solution through by squeezing on the solution bottle. Please refer to diagram below on how to do this step.
You will always be able to bring the solution through doing this step, but use it as a last resort, as the other steps should be enough.

Remove tube from solution bottle



Take solution bottle out of back carriage

Re-insert tube into solution bottle

Hold thumb over hole in the lid and squeeze bottle to push solution

Warranty mepBLITz DC - i5

Thanks for selecting the mepBLITz DC - i5 Mobile Electropolisher. We urge you to complete the registration section for these reasons

Provides warranty for 12 months

Verification of ownership in event of insurance loss

Provides immediate product safety recall

The mepBLITz DC - i5 Mobile Electropolisher has a limited 12 month Warranty.

The conditions conferred by this Warranty are in addition to all other conditions and warranties in respect to this product which the consumer may have under the Trade Practices Act 1974 of the Comonwealth of Australia and/or similar State,Territory or Country Laws

Metal Science Technologies (MST) during the period of this Warranty will at it's option and subject to terms and conditions stated below in the case of a machine malfunction during the warranty period provides a rapid turn around including return freight ,parts and labour. Labour is only covered if the machine is sent back to the manufacturer.

No charges will be incurred by the customer once the machine has been delivered to a licenced repairer.

Warranty Void if:

The Serial number has been removed or rendered illegible

The case or hand piece has been opened or tampered with

The machine has been used in a way other than is recommended by MST

Coolant or Polishing solutions used other than recommended by MST

The Safety and maintenance instructions have not been adhered to

The machine has been wet, submerged or exposed to an unusual amount of dry debris.

The solution fed brush handle is used without the solution feed (brush is dipped).

Not Covered by Warranty:

Solution Fed brushes

The Solution Fed Brush Handle (including stainless conductor and trigger switch)

Pumps, switches, casing, leads or damage due to mechanical force.

Metal Science Technologies acepts no liability pursuant to this warranty for any cost or consequential damage or economic loss whether direct or indirect to any person or property, arising from breakdown or failure of this machine or any part therof, and no responsibility is to be implied or accepted over and above the replacement value of the machine.

This warranty is given by Metal Science Technologies and no other person or organisationis authorised to vary its provision and conditions

KEEP PRODUCT SERIAL NUMBER AND DETAILS HANDY

Name of Retailer/Distributor

Model Number (Find on back of mepBLITz) _____

Date of Purchase

Date of Deliver

Registration Card; SEND THIS PORTION OF WARRANTY NOW

Metal Science Technologies
43 Shelley Road
Moruya NSW 2537

Name of Business

Address

Phone

Model Number

Name of Retailer/Distributor

Date of Purchase

Date of Deliver

MATERIAL SAFETY DATA SHEET — 16 Sections

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier B-50 Weld Cleaning Solution **(MEP153-5 & MEP153-20)**			
Product Use For use in conjunction with an Electro-chemical weld cleaning machine to remove weld discolouration			
Manufacturer's Name Metal Science Technologies Pty Ltd		**Supplier's Name** Metal Science Technologies Pty Ltd	
Street Address 43 Shelley Road		**Street Address** 43 Shelley Road	
City Moruya	**Province** NSW	**City** Moruya	**Province** NSW
Postal Code 2537	**Emergency Telephone** 0411 217 986	**Postal Code** 2537	**Emergency Telephone** 0411 217 986
Date MSDS Prepared 05.01.15	**MSDS Prepared By** Metal Science Technologies Pty Ltd	**Phone Number** +612 4474 3394	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients *(specific)*	**%**	**CAS Number**	**LD_{50} of Ingredient *(specify species and route)***	**LC_{50} of Ingredient *(specify species)***
Phosphoric Acid	< 55	7664-38-2	1530mg/kg Rat	850 mg/kg Rat
Citric Acid	< 5	77-92-9	3000mg/kg Rat	3000mg/kg Rat
Water	< 50	7732-18-5	N/A	N/A
Proprietary Ingredient	< 10	N/A	N/A	N/A

SECTION 3 — HAZARDS IDENTIFICATION

Classification
Hazardous according to Worksafe Australia

Emergency Overview
Yellow liquid. Odorless. Will not burn. Can form hazardous decomposition products. Contact with metals liberates flammable hydrogen gas. Corrosive. Causes skin burns and eye damage.

GHS Classification
Skin corrosion/Irritation – Cat 1B

SECTION 4 — FIRST AID MEASURES

Eye Contact
In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid immediately.

Skin Contact
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately. Wash clothing before reuse.

Ingestion
If swallowed, do NOT induce vomiting. Get medical aid immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Inhalation
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

SECTION 5 — FIRE FIGHTING MEASURES

Flammable
No

Means of Extinction
In case of fire in the surroundings, use appropriate extinguishing media.

Flashpoint (°C) and Method	Upper Flammable Limit (% by volume)	Lower Flammable Limit (% by volume)
Not applicable	Not Available	Not Available
Auto ignition Temperature (°C)	**Explosion Data — Sensitivity to Impact**	**Explosion Data — Sensitivity to Static Discharge**
Not Applicable	Not Applicable	Not Applicable

Hazardous Combustion Products
Non-combustible liquid. Will not burn, or support
combustion. Incompatible with oxidising agents, reactive metals zinc and bare steel, strong reducing agents, fluorine, bases, metals, metal oxides, metal alloys, strong bases, sulfur
trioxide, phosphorous pentoxide, and sources of ignition. Fumes produced when heated to
decomposition may include corrosive phosphorous oxides. This product transforms to
pyrophosphoric acid at 200'C.

NFPA
(estimated) Health: 3; Flammability: 0; Instability: 0

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Leak and Spill Procedures
General Information
Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks
Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. Spill may be carefully neutralized with lime (calcium oxide, CaO).

SECTION 7 — HANDLING AND STORAGE

Handling Procedures and Equipment
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes.

Storage Requirements
Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Do not store in metal containers. Store protected from moisture. Store away from alkalis.

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits - ACGIH TLV
ACGIH® TLV® - TWA: 1 mg/m^3 ACGIH® TLV® - STEL [C]: 3 mg/m^3

Specific Engineering Controls (such as ventilation, enclosed process)
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal Protective Equipment
Skin
PVC or nitrile gloves, coveralls.
Resiprator
If inhalation risk exists, use a type B respirator.
Eye
Wear chemical safety goggles.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

Physical State Yellow liquid	**Odour and Appearance** Odorless, APHA: 10 max - colorless viscous	**Viscosity** 3.86 mPa.s
Specific Gravity 1.685 g/cm3	**Vapour Density (air = 1)** 3.4 (air=1)	**Vapour Pressure (mmHg)** 0.03 mm Hg @ 20 deg C
Evaporation Not available	**Boiling Point (□C)** 158 deg C @ 760 mm Hg	**Freezing Point (□C)** 21 deg C
pH 1.0-2.5	**Coefficient of Water/Oil Distribution** Not Available	**Solubility in Water** Miscible

SECTION 10 — STABILITY AND REACTIVITY

Chemical Stability
Stable under normal temperatures and pressures.

Incompatibility with Other Substances
Metals, strong oxidizing agents, strong bases, amines, ammonia, sulfuric acid, nitromethane, sodium tetrahydroborate, A 5% solution of H3PO4 is DOT corrosive to both aluminum & carbon steel (results: 272.1 mils/yr & 319.6 mils/yr, respectively). A 4% H3PO4 solution corrodes aluminum at 209.1 mils/yr & carbon steel at 240.9 mils/yr.

Reactivity, and under what conditions?
Excess heat, exposure to moist air or water.

Hazardous Decomposition Products
Oxides of phosphorus.

SECTION 11 — TOXICOLOGICAL INFORMATION

Effects of Acute Exposure
Eye contact
Can cause burns. Irritating to eyes. Continual contact with eyes may cause permanent damage.

Skin
Can cause redness, dermatitis, irritation and burns. Continual contact may cause ulceration.

Inhalation
Irritation to the throat and nose. Continual inhalation may cause ulceration and lung tissue damage.

Effects of Chronic Exposure
See effects of acute exposure

Reproductive Toxicity No information available.	**Teratogenicity** No information available.
Embryo toxicity No information available.	**Mutagenicity** No information available.

Name of Synergistic Products/Effects
No information available.

SECTION 12 — ECOLOGICAL INFORMATION

Eco toxicity
Fish: Mosquito Fish: LC50 = 138 mg/L; 96 Hr; Unspecified No data available

Environmental
The acidity of phosphoric acid may be reduced readily by natural water hardness minerals, but the phosphate may persist indefinitely. During transport through the soil, phosphoric acid will dissolve some of the soil material, in particular, carbonate-based materials. The acid will be neutralized to some degree with adsorption of the proton and phosphate ions also possible. However, significant amounts of acid will remain for transport down toward the groundwater table.

Physical
No information available

SECTION 13 — DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

SECTION 14 — TRANSPORT INFORMATION

Shipping Name Phosphoric Acid
Hazard Class 8
UN Number 3264
Packing Group III

SECTION 15 — REGULATORY INFORMATION

[NOHSC] Classified as Hazardous according to criteria	**[Poisons Schedule]** S6
[Hazard Category] Corrosive	**[HSNO Approval Number]** HSR001545

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by CPR.

SECTION 16 — OTHER INFORMATION

MSDS Creation Date: 05.01.15

End of MSDS