

PANDROL



RapidCooling device

OPERATION AND MAINTENANCE
MANUAL

EN



S0000481

September 2023 rev7

Partners in excellence

Revision history

Version	Date	Author	Observations
4	17/02/2023	AK	Creation
5	15/03/2023	AK	Addition of environmental instruction
6	01/06/2023	AK	Addition of nozzle filter maintenance Addition incorrect weld cooling
7	14/09/2023	FR	Addition of RapidCooling positioning information for sloping track
8	27/11/2023	AK	Addition of aluminum case

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1. EXPLANATION OF SYMBOLS



Read the instruction manual carefully before operating or any maintenance.



Remove the RapidCooling device before any maintenance.



Risk of contact with parts with electrical current inside the RapidCooling.

2. GENERAL SAFETY INSTRUCTIONS



The RapidCooling is only intended to be used for the cooling of weld after welding with our Aluminothermic Welding Process.

- In the event of use other than that recommended, PANDROL declines all responsibility.
- Never use the RapidCooling without first reading and understanding its instructions for use.
- The user must always work with material in good order.
- Never use the machine if you are tired or if you are taking substances, such as drugs, alcohol, which could impair vision, dexterity or the ability to judge.
- The RapidCooling user must comply with the regulations, procedures and site safety instructions in force.
- The RapidCooling is a dangerous machine which must be operated by a single user; practical training should be given to any new user.
- Use and maintenance must be carried out by qualified personnel.
- The operator must wear the necessary PPE for preheating operations: goggles, gaiters, overalls, gloves, etc.
- Handling and positioning of the RapidCooling can be done by one person.
- The user should not make any changes to the design or configuration of the machine without consulting PANDROL.
- The operator must have a stable position before starting to work.
- Ensure correct positioning of the RapidCooling on its support when in use.
- RapidCooling filling tank must do with funnel provided with accessories.
- If nozzle have failure, do not disassemble it on site but return the cane to PANDROL.
- Replace the water tank filler cap after each filling of the tank.
- Do not leave stagnant water in the tank by completely emptying it using the system supplied as an accessory.

- It is forbidden to place any other liquids than water, the mention "WATER" being recalled on the edge of the cap.
- It is recommended to use demineralized water to avoid any problem related to limescale. If this is not the case, it is recommended to clean the system using a descaling product. Thoroughly flush the entire system by filling the tank and allowing it to empty with the pump (approximately 9 minutes). Descaling should be done with the nozzle mounted on the fitting.
- Before, during and even after cooling, do not touch the weld to check temperature status.
- During cooling, do not place his face in the vapor cloud.
- The RapidCooling device can be transported as is and all supplied accessories should be stored in the transport case.
- During transport, the cane supporting the spray system must be removed and stored in the transport case.
- It is recommended to store RapidCooling at a temperature above -5°C
- Always use the RapidCooling system under supervision, never let the RapidCooling system run alone.
- It is not recommended to run the RapidCooling with the tank empty as this could damage the pump.
- Use lighting or install temporary lighting when carrying out work at night or in dark places.
- During maintenance operations, the instructions and instructions given in this instruction manual must be observed.
- It is strictly forbidden to intervene on or in the RapidCooling during operation.
- It is forbidden to operate the device outside of its possibilities and capacities predetermined by the factory settings and stated in this document.

- Wearing Personal Protective Equipment is necessary for the use of this RapidCooling device. This list is a prerequisite; it is liable to be modified with regard to the constraints specific to each particular environment that each site constitutes, which remains the choice and decisions of the user.



Suitable flame retardant work clothing, preferably cotton or similar material, covering the legs and arms.



A pair of high-top safety shoes with good heat resistance.



A pair of handling gloves adapted to the risk of burns category 3.



A pair of safety goggles suitable against projections of hot particles, white glass with side shields or Welding goggles.

- In the event of a fire, shut off the gas supply at the cylinder and use an extinguisher to extinguish the fires. CO2 extinguishers are preferred.
- In the event of an accident, refer to the worksite safety instruction.

3. DESCRIPTION

The RapidCooling system is a cooling device to be implemented in the context of the realization of a welding of rails by the aluminothermic welding process.

This manual is written in conjunction with the instructions for installing the welds.

These documents should be referred to for the welding and installation procedure.

The unit is composed of:

- The cooling device, which integrate:
 - a battery-powered water pump,
 - an internal tank for storing water,
 - RapidCooling system operation components.

The RapidCooling is equipped with a water inlet on the top allowing the filling of the tank.

Protections are installed internally to protect the tank against shocks.

A carrying handle is installed on the top of the box.

The equipped box without water weighs 12 kg without battery and 13 kg with batteries.

The equipped box with water weighs 19 kg without battery and 20 kg with batteries.

Its overall dimensions are (L x W x H): 495 x 265 x 403 mm approximately.

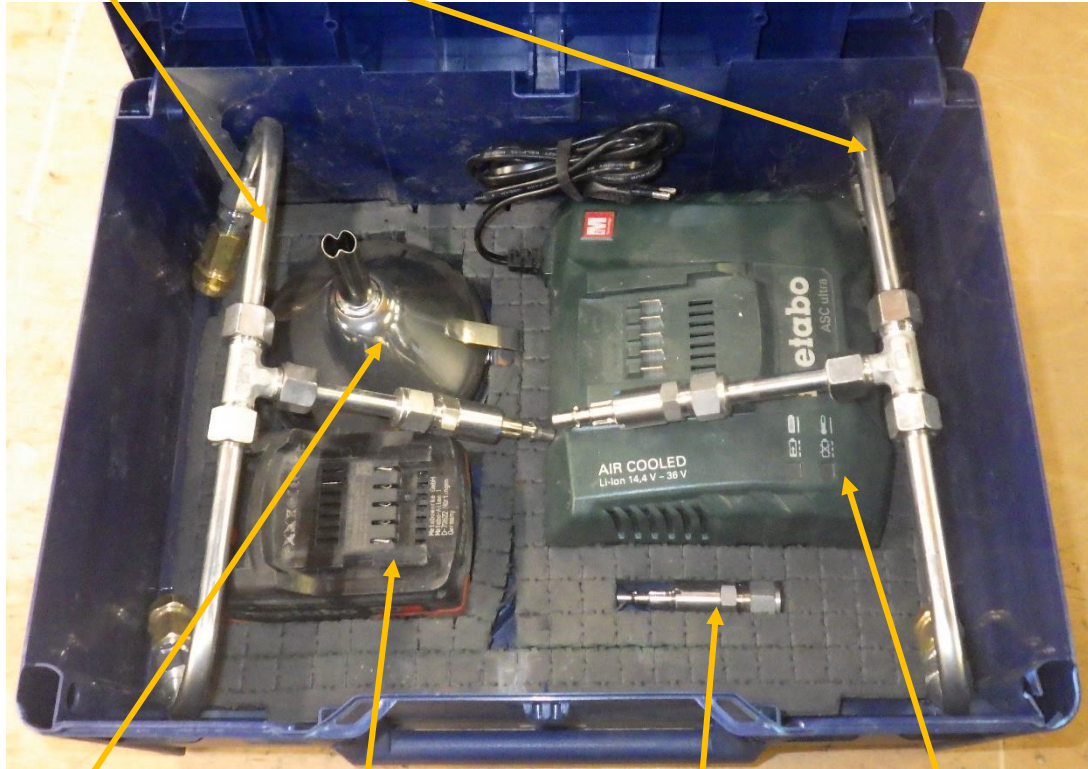


- 2 canes equipped with a water spray system with 2 nozzles.
- 1 battery 18V Metabo 8Ah.
- A support which will be sold separately to be screwed onto the rail allowing the RapidCooling device to be placed in the working position.
- An aluminium box for storing and transporting the RapidCooling system. These dimensions are (L x W x H): 522 x 375 x 420 mm approximately. The tare weight is approximately 8 kg.



- A specific storage case for accessories.
 - The case weighs approximately 5 kg.
 - It can store 2 canes, a drain connection, a funnel, a battery, and a charger which will be sold separately depending on the user country.
 - Its closed overall dimensions are (L x W x H): 396 x 296 x 187 mm approximately.

2 canes



Funnel

1 battery

Drain connection

Charger

4. INSTRUCTION FOR USE

4.1 Storage

- Do not expose the machine to frost, this could cause a malfunction.
- Put RapidCooling accessories in suitcase.



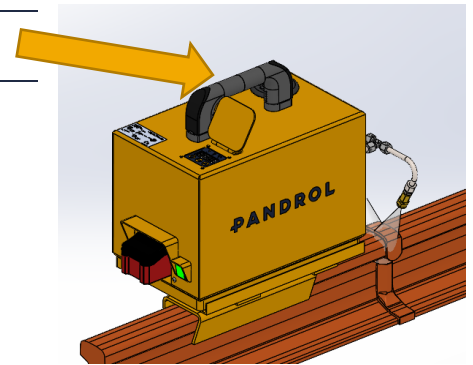
Be careful, do not store the RapidCooling system with water in the system but only after having completely drained it.

4.2 Handling the RapidCooling unit

The RapidCooling weights 12 kg and 20 kg without water and with water respectively.

An ergonomic handle has fixed on the top of the unit to facilitate the handling.

Ergonomic handle



4.3 Personal protective equipment

It is necessary to wear Personal Protective Equipment when using the RapidCooling device. You must have :

- Suitable flame retardant clothing covering the arms and legs.
- Welders boots with heat resistant soles or high-top safety shoes with heat resistant soles and gaiters.
- Pair of fireproof gloves.
- A pair of safety glasses suitable for the protection against hot particles and water steam, white glass with side shields.

This list is a prerequisite, it is likely to be modified with regard to the constraints specific to each particular environment that each site constitutes. This remains the choice and decisions of the user.

4.4 Safety checks before welding commences

Make sure the tank is filled with water before use. It is recommended by PANDROL to use low-calcareous water or even demineralised water. Use water whose temperature is between 0°C and 40°C.

The quantity of water to be used depends on the conditions of implementation define in the instructions relating to the different PANDROL processes.



Be careful, it will be necessary to make sure to refill the water during the realization of each weld in order not to have a shortage during the cooling of a weld.

The system must not be placed too close to the weld in order to prevent it from being damaged by any projections linked to the implementation of the weld (casting, grinding, etc.) carried out before cooling.

It is recommended, in order not to waste time, to clip the cane onto the connector provided for this purpose and to pre-set the time on the keyboard (see 4.4.6 Switching on the RapidCooling system) so as to lose the least amount of time during the cooling phase determined by PANDROL.

Examine the condition of each element of the RapidCooling for:

- the control screen must be in good condition without traces of blows, scratches or marks,
- the cane must be correctly clipped and not be loose during commissioning,
- the body of the RapidCooling must be clean, not show any signs of damage,
- no leak should appear on the system with the tank filled with water before it is put into operation,
- the outlet nozzle of the RapidCooling device must not be scaled or damaged by oxidation.

If any of these conditions are not met, the RapidCooling must be immediately removed from service.

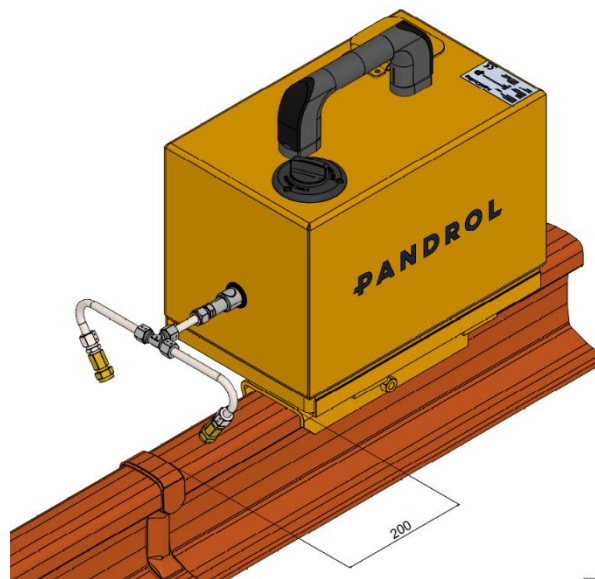
4.4.1 Positioning the device

Position the RapidCooling system support foot 200 mm from the weld and tighten the fixing screw before the time defined in the PANDROL process instructions or the process in question.

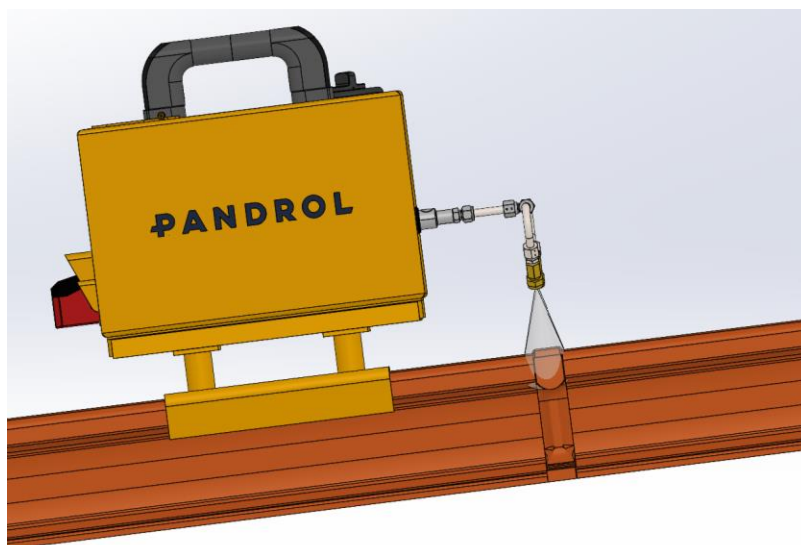
Place the RapidCooling system on its support leg in such a way that the spray nozzles are positioned on either side of the weld in relation to the central axis of the latter.

If necessary, move the RapidCooling system slightly in order to obtain a good centering of the nozzles with respect to the central axis of the weld.

Make sure the RapidCooling system is stable.



If the weld is carried out on an upward or downward path, the RapidCooling must be positioned on the low side of the weld in order to correctly empty the tank.



4.4.2 Battery

The RapidCooling works with one 18v battery. It is necessary to have 1 battery to make it work.

Before use, check the charge level of the batteries by pressing the test button. **If a battery shows only one light, remove it and use a different one.**

The RapidCooling system checks the battery voltage before the start of each cycle. If the voltage is too low to cycle fully, the RapidCooling will not start and will illuminate the low battery indicator. (see 4.4.5 Keypad in display).

Recharging a battery requires approximately 1 hour. The autonomy of the RapidCooling with 1 full battery is estimated at 30-40 cooling cycles of 2 minutes.



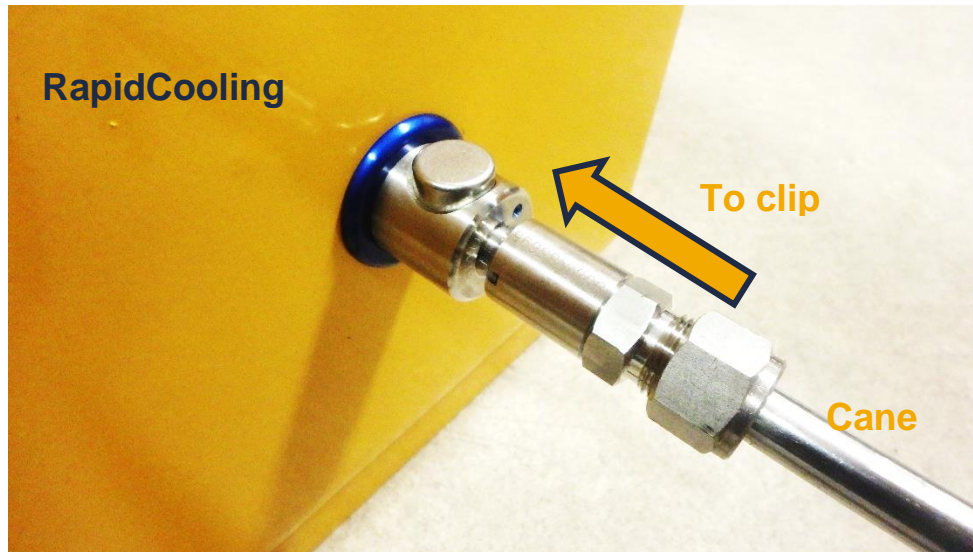
Checking the charge level

4.4.3 Installation of spray cane

To set up the spray cane on the RapidCooling system, simply clip the cane into the quick coupling provided for this purpose on the face of the RapidCooling device.

The cane is properly connected if an audible “click” is heard

The rod has a degree of freedom allowing its rotation to be adjusted so that it is centered as best as possible on the weld.



Be careful, the outlet nozzle of the RapidCooling device must not be scaled or damaged by oxidation.

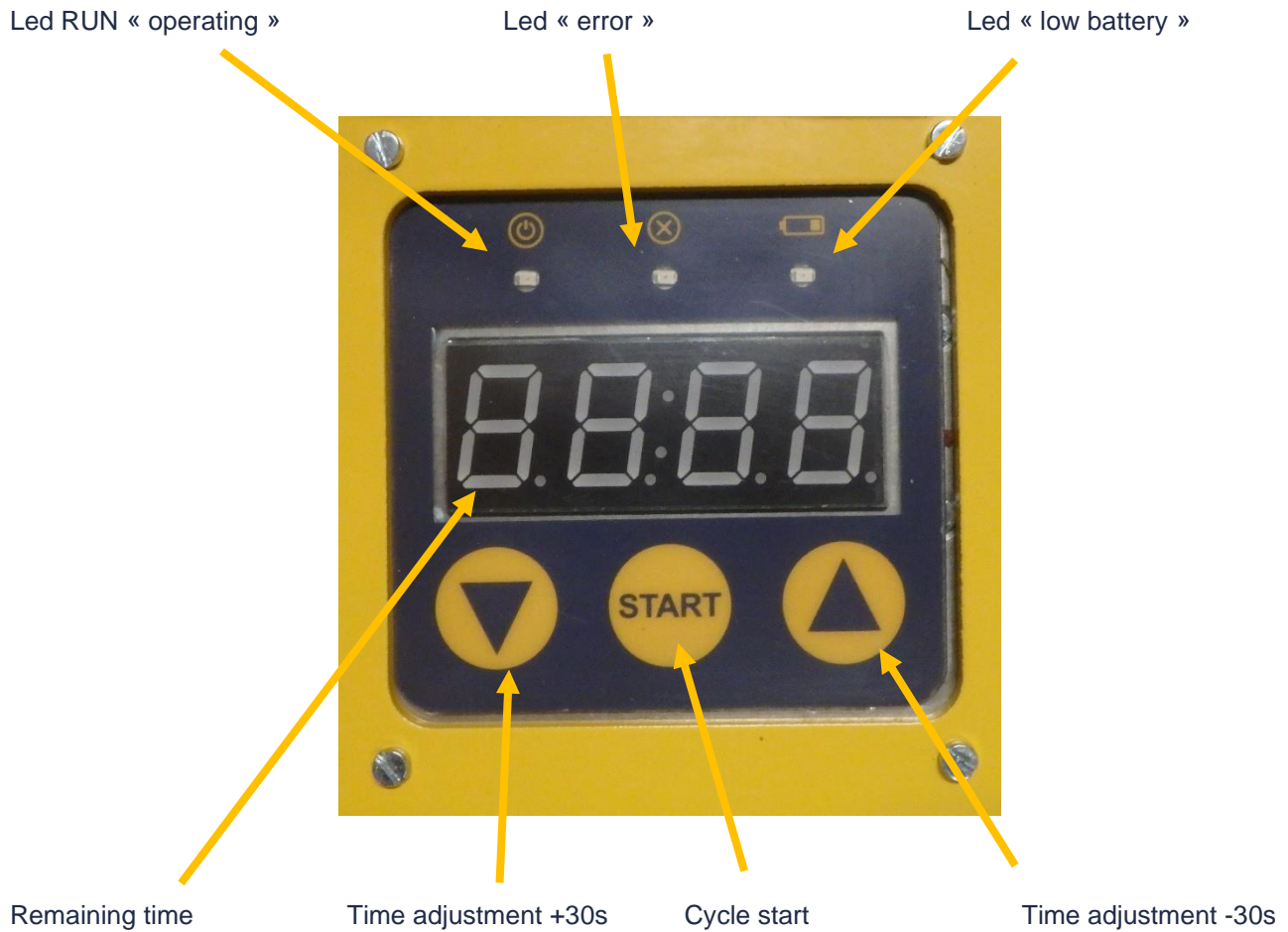
4.4.4 Control panel

The control panel is made up of a keyboard and a display which are protected by a mobile shutter (see 4.4.5 Keyboard and display).



4.4.5 Keyboard and display

Under the mobile shutter presented in the previous part (see 4.4.4 Control panel), is the keyboard and the display shown in an annotated way below.



4.4.6 Ignition of the RapidCooling device

Make sure that the cane of the RapidCooling is correctly centered with the weld.

Set the main switch to position I.



Adjust the preheating time on the timer of the RapidCooling device. The up and down buttons allow you to adjust the time in 30s increments. This time is recalled in the instructions specific to each PANDROL process.

Start the RapidCooling device by pressing the "START" button.

The green "RUN" indicator lights up for the duration of the weld cooling cycle.

In the event of a fault or malfunction, the "ERROR" indicator light comes on and the RapidCooling goes off.

4.4.7 RapidCooling device operation

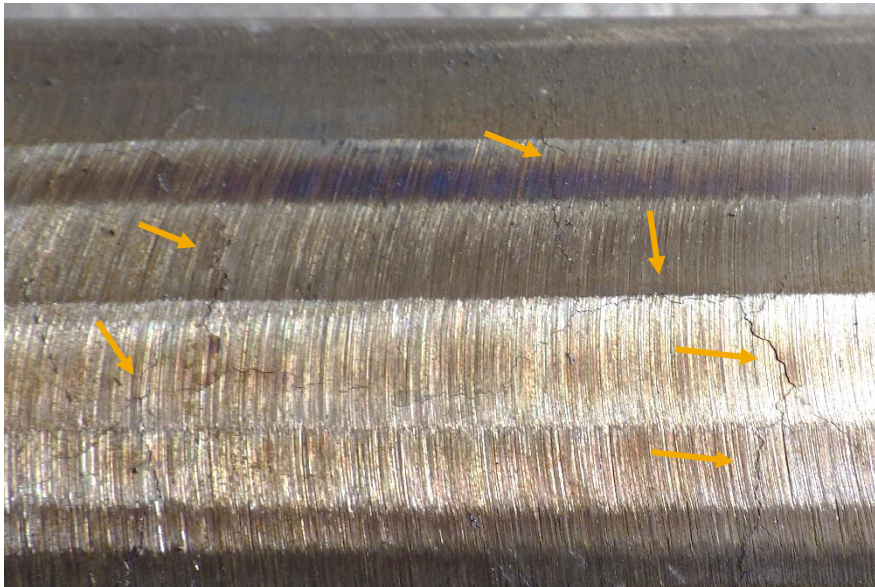
During the cooling cycle defined in the PANDROL instructions according to the process used, the water projected on the surface of the weld has the role of lowering its temperature in order to reach that defined by the customer.

Approximately 10-20 seconds before the time defined in the PANDROL process instructions for the process in question, place the RapidCooling system on the support placed on the rail (see 4.4.1 Positioning the device). Once the adequate time has been reached, press the "START" button.

Ensure the monitoring of the RapidCooling system during the minutes necessary for cooling, time which can be used for the preparation of the future welding to be carried out.



Be careful, the parameters defined by PANDROL relating to the cooling of each process must not be modified.



Cracking = rejection of the weld



Be careful, do not use the RapidCooling with the tank empty, this risks damaging the pump.



Be careful, the system must never be shut down during cooling.



Be careful, not expose your face into the vapor cloud during cooling.



Be careful, do not place the system too early at the risk of damaging the system due to the heat.

If the RapidCooling does not start or does not spray water, refer to the malfunction table.

4.4.8 Stopping and removing the RapidCooling

When the required operating time has elapsed, the RapidCooling system switches itself off.

Return the main switch to position O (see 4.4.6 Ignition of the RapidCooling device). **RapidCooling must be switched off and on again between each cycle. It will not be able to restart if the current has not been cut after the previous cycle.**



Be careful, never touch the weld before, during or after cooling, otherwise there is a significant risk of burns.

Remove the RapidCooling system from its support.

Loosen the clamping screw on the rail of the RapidCooling holder and remove it.

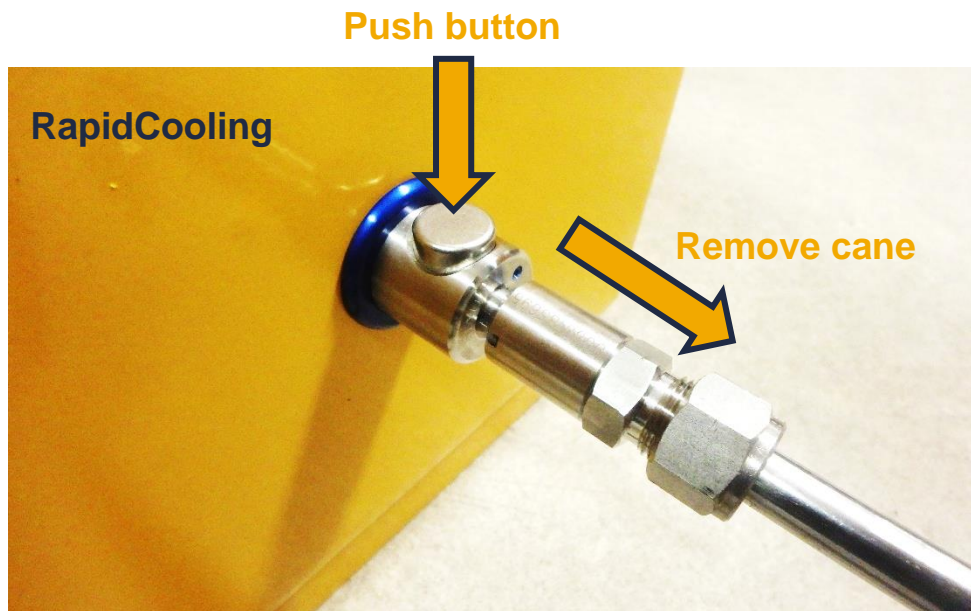
Carry out the welding completion phase directly after the end of cooling as recommended by network regulations.



Be careful, if the RapidCooling stops during the cycle, restart the entire cycle. If this no longer works, grinding should be done normally as specified by the network.

4.4.9 Spraying cane removing

To remove the spray cane on the RapidCooling system, simply press the button on the quick coupling and pull out the cane. This must be clipped onto the top of the device for future use.



It is important to drain the system with the connection provided in the accessories suitcase in order to be able to empty the system completely during the last use before storing and transporting the RapidCooling system.



Be careful, the RapidCooling system must imperatively be emptied after it is used and before it is stored.

4.4.10 Storing the RapidCooling

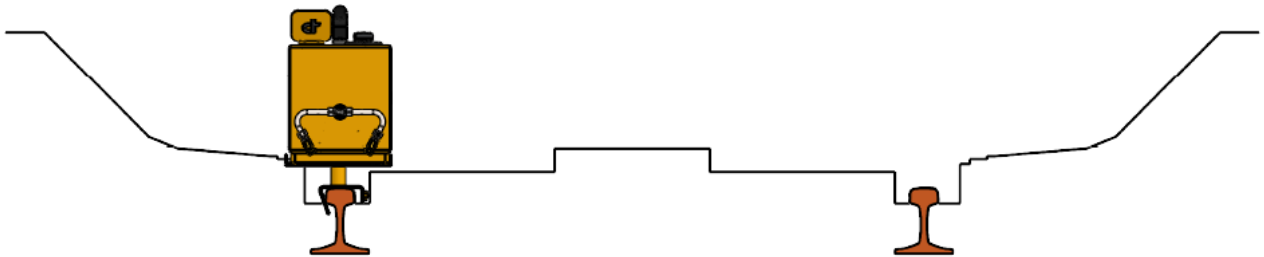
Once the weld has been made, the RapidCooling system must be stored **completely emptied** (see 4.4.9 Spraying cane removing) or used for the next weld, making sure **to make complement with water**.

The accessories can be stored in the case provided for this purpose.



Be careful, do not store RapidCooling in an enclosure with a temperature lower than -5°C.

5. LAYOUT ON THE TRACK ACCORDING TO NF EN 13977



6. MAINTENANCE

The responsibility for maintenance is the responsibility of the owner of the equipment.

Maintenance should be performed at least once a year by a competent and qualified person.

ITEM	OPERATION	PERIODICITY		
		Before use	After use	Presence of signs of wear or improper operation
RapidCooling device	Machine inspection			
RapidCooling device	Completely empty the tank			
	Clean the machine using a clean cloth or a compressed air gun to remove dirt			
RapidCooling device	Contact the after-sales service			



After 2 years or 350 welds, a check must be made by PANDROL.

(The number of welds made is automatically counted in each RapidCooling. The error indicator flashes at start-up when the RapidCooling has made more than 350 welds in order to be able to schedule the maintenance)

If the nozzles are impacted by corrosion and/or scale deposits, they can be cleaned by soaking them in a diluted solution of vinegar.

It is also recommended to clean the system (excluding welding) with a dilute descaling solution as can be done with a coffee maker.

The filter inside the nozzles can also be cleaned. To do this, all you have to do is:

- Unscrew the clamping nut at the end of the nozzle.
- Take out the filter and clean it with a clean cloth.
- Screw the clamping nut back to the end of the nozzle.



The discs present at the nozzle nut must be properly reassembled.



In the event of a fault signalled by the led “error”, the power supply must be cut for 30 seconds, then the RapidCooling switched on again. If the fault persists, the device should be sent to an authorized repair workshop.

7. TROUBLESHOOTING GUIDE

Fault	Possible causes	Solutions
The RapidCooling does not turn on	Batteries are empty	Check the batteries level. If the problem persists, contact the after-sales service
	Batteries not fully pushed into the sockets	Push the batteries to the end
	Internal problem	Contact after-sales service
The RapidCooling displays a red light on start-up or the RapidCooling does not start	Batteries are empty	Check the batteries level. If the problem persists, contact the after-sales service
	Damaged pump	Contact after-sales service
RapidCooling starts, but does not spray water	One or both nozzles are clogged	Clean the nozzle in a descaling solution Contact after-sales service
	The pipe is clogged	Contact after-sales service
	The pump is damaged	Abnormal system noise. Contact after-sales service
	Electrical connection problem	If there is no noise related to the operation of the pump, contact the after-sales service
RapidCooling starts, but the spray jet is heterogeneous	The nozzle is clogged	Disassemble the nozzle and clean it in a descaling solution Contact after-sales service
	The pump is damaged	Abnormal system noise. Contact after-sales service

A nozzle is damaged	A nozzle has overheated	Contact after-sales service to replace it
The time cannot be set or the display stops responding	Damaged display	Contact after-sales service

8. INSTRUCTIONS FOR BATTERY

8.1 Safety instructions



Before using the battery pack, read the entire Operating Instructions carefully and thoroughly. Keep safe all documents accompanying the battery pack.

- Protect battery from water and moisture.
- Do not use faulty or deformed battery.
- Do not open battery.
- Do not short-circuit the contacts of the battery.



- Do not expose battery to naked flame.
- Slightly acidic, flammable fluid may leak from defective li-ion battery.
- If battery fluid leaks out and comes into contact with your skin, rinse immediately with plenty of water. If battery fluid leaks out and comes into contact with your eyes, wash them with clean water and seek medical attention immediately.
- Transporting li-ion battery packs: The shipping of li-ion battery packs is subject to laws relating to the carriage of hazardous goods (UN 3480 and UN 3481). Inform yourself of the currently valid specifications when shipping li-ion battery packs. If necessary, consult your freight forwarder. Certified packaging is available from Metabo.

8.2 Specified use

The battery is designed for use in corresponding Metabo battery-operated power tools. They must only be charged using Metabo chargers. To select the appropriate device, please contact us. Read the relevant instructions for the devices used. For example, the charging process is displayed on the charger. For details, see the charger instructions.

The user bears sole responsibility for any damage caused by improper use. Generally accepted accident prevention regulations and the safety information must be observed.

8.3 Charging

Charge the battery before use (see 4.4.2 Battery) . Do not recharge a fully charged battery pack. If performance diminishes, recharge the battery pack.

The ideal storage temperature is between 10°C and 30°C. The permissible storage temperature is between 0°C and 50°C.



Li-Power li-ion battery has a capacity and a signal indicator (depending on the model):

- Press the button and the charge level is displayed by the LEDs.
- If one LED is flashing, the battery pack is almost flat and must be recharged.

9. IDENTIFICATION

The RapidCooling benefits from a traceability code shown on this name plate.

COMPANY PLATE

Serial number:		RapidCooling
Manufacture date:		
Reference n°:	S0000481	
Power:	36 W	
Weight:	12 kg (empty / without batteries)	
Nominal voltage:	12V DC	
Nominal current:	3 A	
Manufacturer:	PANDROL	
Adress:	ZI du Bas Pré - 59590 Raismes - FRANCE	
		Made in France

10. TECHNICAL FEATURES

Nature:	Accelerating cooling device for welding
Power:	36W
Water flow:	1,2 l/min

Dimensions (L x l x h):	495 x 265 x 403 mm environ.
Weight without battery:	12 kg
Weight with battery:	13 kg

Nominal voltage:	12V DC
Nominal current:	3A

Storage suitcase accessories (L x l x h):	396 x 296 x 187 mm approximately
Weight (kg):	5 kg

Stainless steel cane with special brass nozzles	
Operating temperature :	-5 to +40°C
Degree of protection:	IP55
Noise emissions during operation:	Nothing

Vibration:	Nothing
Acoustic power:	Nothing
Sound pressure:	Nothing

11. ENVIRONMENTAL PROTECTION

11.1 Dismantling and disposal

The disposal of this RapidCooling does not present any difficulties; its dismantling will be carried out in accordance with the previous sections.

The materials used can be disposed to a recycling center.

11.2 Battery

Worn-out battery packs contain large amounts of valuable raw materials and plastics, which can also be recycled.



Battery packs must not be disposed of with regular waste.

Return faulty or used battery packs to Metabo.

Before disposal, discharge the battery pack in the power tool. Prevent the contacts from short-circuiting (e. g. by protecting them with adhesive tape).

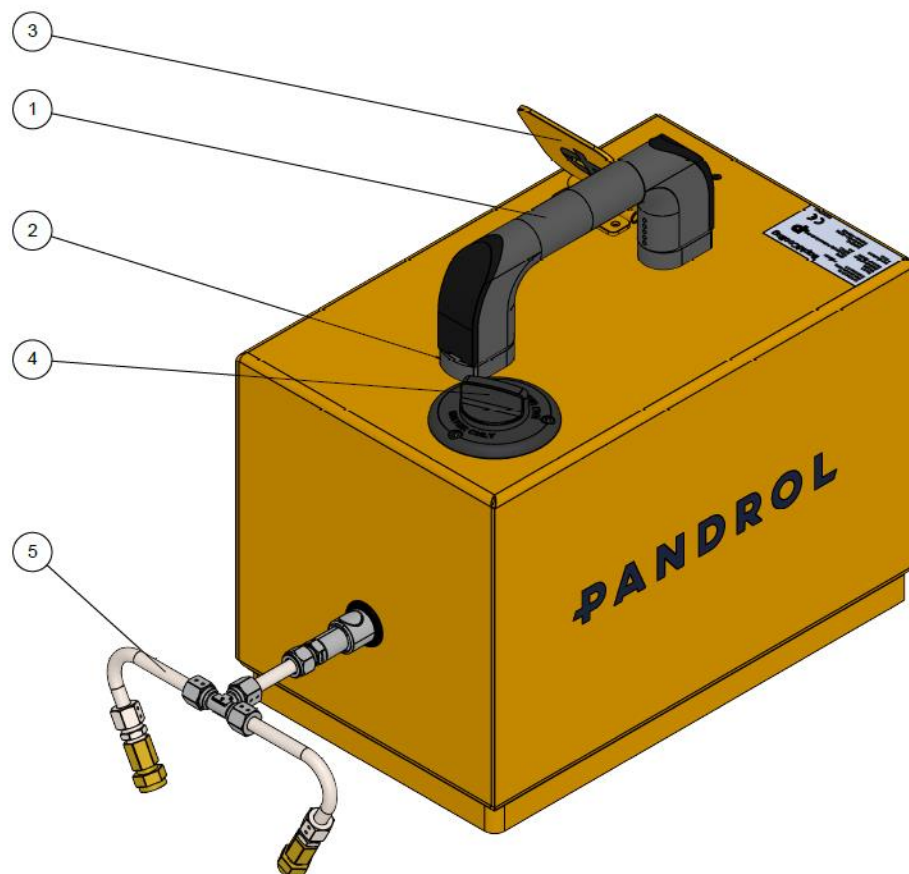
Do not allow battery packs to come into contact with water.

12. CONFIGURATION OF THE RAPIDCOOLING

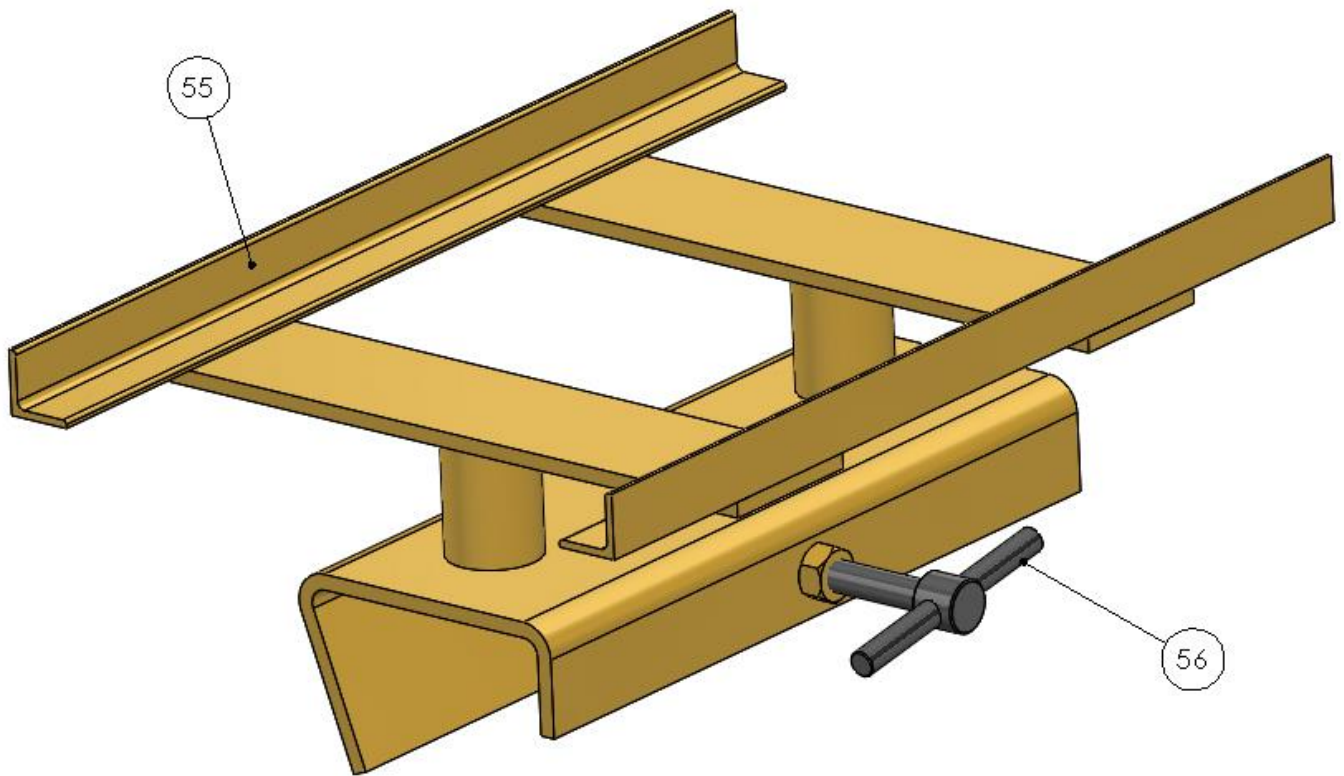
The item number for the RapidCooling system is:

S0000481	RapidCooling without support and case accessories (2 canes, 2 batteries, 1 drain connection and 1 funnel)
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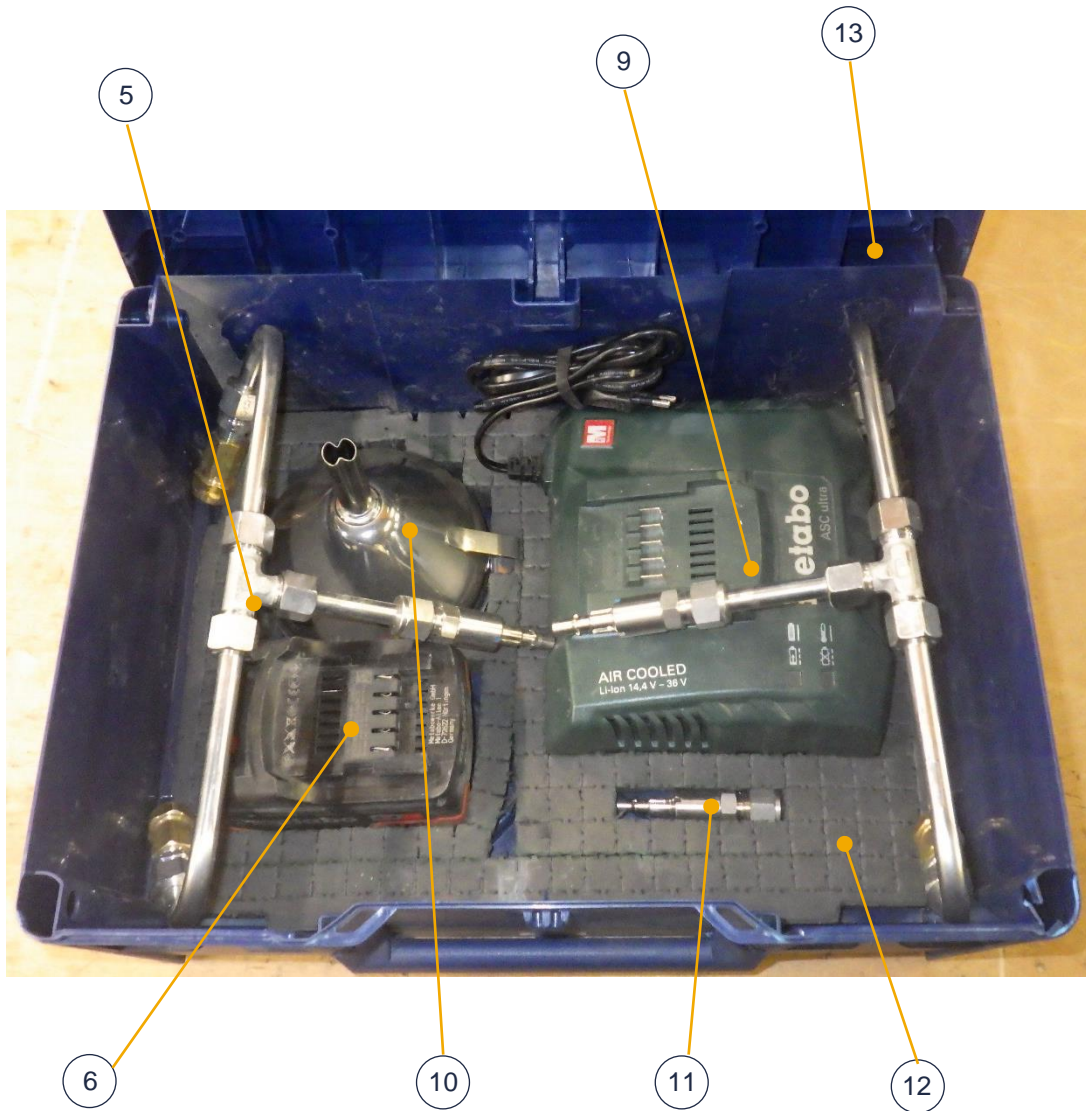
13. LIST OF SPARE PARTS AVAILABLE FOR MAINTENANCE



RapidCooling			
N°	N°	Description	Quantity
1	47401024	Ergonomic handle	1
2	47401025	Extension set for ergonomic handle	1
3	35930010	Control panel protector	1
4	31130012	Cork	1
5	S0000484	Cane	1
6	48402027	Battery METABO 18v 8Ah	1



21245008 Support H90mm for vignole rail - A (Yellow)			
N°	N°	Description	Quantity
55	35910533	Support foot	1
56	47403007	M16x60 screw with Ø25 pad	1



S0000485 Accessories suitcase			
N°	N°	Description	Quantity
5	S0000484	Cane	2
6	48402027	Battery LIHD 18V 8.0 Ah	1
9	48402033	Battery charger Metabo (sold separately)	1
10	48404001	Funnel	1
11	48301165	Drain connection	1
12	42005008	Internal foam for suitcase	1
13	42005007	Storage suitcase only	1

14. DECLARATION OF CONFORMITY

The undersigned manufacturer

PANDROL (DIVISION MATERIEL)
Z.I DU BAS PRE
59590 RAISMES



Certifies that the new equipment designated below

Cooling device RapidCooling
Ref. S0000481

Series 000 to 999

Is conform to:

- THE REGULATORY PROVISIONS DEFINED BY DIRECTIVE 2006/42 / EC
- ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30 / EU
- The requirements of article R4313-20 (self-certification procedure)
- The relevant provisions of the following standard have also been used:
 - Standard EN 60204-1: 2006 - Safety of machines - Electrical equipment of machines PART 1: General rules

Mr. Thibaut DESCAMPS is the holder of the technical file

Raismes, 02/2023

Thibaut DESCAMPS
Director product line ATW and EMEA ATW BU

PANDROL

Find out more at

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