



# Instruction manual



**Veefil<sup>RT</sup>**

TRI93-50-01  
50kW DC

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# Important safety instructions

This manual contains important instructions for the Veefil-RT® electric vehicle fast charger model: TRI93-50-01, 50kW DC

These instructions must be followed during installation, operation and maintenance of the unit.



## CAUTION

The Veefil-RT fast charger must be installed and serviced only by qualified electrical personnel.

To achieve EMC compliance, the chassis of the Veefil must be bonded to Earth locally at the charger.

## Grounding instructions

This unit is to be connected to a grounded, metal, permanent wiring system; and an equipment-grounding conductor is to be run with circuit conductors and connected to equipment-grounding terminal or lead on battery charger.

Connections to the battery charger shall comply with all local codes and ordinances.

Observe all pertinent national, regional and local safety laws and regulations when installing and commissioning the Veefil-RT fast charger.

## Identifying symbols



CAUTION



RISK OF ELECTRIC SHOCK



Equipment Grounding Conductor Symbol



Phase Symbol



Alternating Current Supply Symbol

## Wiring size

3Ø: 25mm<sup>2</sup>  
Use 90°C Copper Wire

Take care to observe local regulations regarding wiring different circuits in the same conduit, including the ethernet link if used. In general all conductors occupying the same conduit shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the conduit.

## Input:

3Ø WYE CONNECTED  
230/400V, 240/415V ±10%  
50Hz ~  
78A

# Important safety instructions

The Veefil-RT must be connected to a circuit provided with appropriate over-current protection in accordance with the national, regional and local regulations in the country of installation.

## **Tightening torque:**

### **Wiring terminals:**

Breaker 4.0 Nm

### **Service hatch:**

2.0 Nm

## **Operating temperature:**

-35° to 50°C

## **Maximum ambient temperature:**

55°C

## **Weather rating:**

IP65 Electronics Enclosure

# Packaging, handling & receipt

Read these instructions carefully to become familiar with Veefil-RT packaging and handling procedures prior to unpacking and installation.

In all cases, the Veefil-RT is to be transported to the installation site in its original packaging and only unpacked at the installation site.

Installation, commissioning and servicing of the Veefil-RT should only be carried out by qualified personnel.

## Materials:

The Veefil-RT is transported in a reinforced cardboard crate. Please respect the environment and recycle/reuse the materials.

## Storage:

Store in the original packaging in a horizontal position.  
Storage temperature: -20 to 45°C

## Handling:

Only lift the Veefil-RT packaging in its horizontal orientation using a forklift, pallet jack or with lifting straps and engine hoist, forklift or crane. Check the weight on the delivery documents and ensure the lifting apparatus used is compatible.

## Receipt:

Check that the crate packaging is in good condition and that the Veefil-RT is not damaged.

If there are any problems noted, make a formal complaint to the carrier and notify your supplier.

## Packed crate weight:

200kg

## Crate size:

850(W) x 2150(H) x 450(D)mm

## Veefil-RT size:

750(W) x 2000(H) x 330(D)mm  
(without plugs)

## Veefil-RT weight:

165kg

# Site configuration

## Site survey:

A qualified engineer must survey the installation site to determine the correct ground preparation for the size and weight of the Veefil-RT, in accordance with local regulations.

The Veefil-RT is best installed following the recommended site configuration requirements.

## Ground fixing:

The Veefil-RT is to be fixed to the ground through the baseplate fixing holes with 4 x M16 fasteners (not supplied).

The fasteners should fix the Veefil securely to the foundation through the baseplate and protrude 30-40mm maximum from the foundation surface, in accordance with the dimensions and fixing points shown in:

Figure1: Base plate dimensions.

See Figure 2: Base template walls, for installation against or near walls or other obstacles.

## Foundation requirements:

The foundation must be flat, even, and the appropriate density for the weight of the Veefil-RT.

Check the flatness and level of the foundation and level of the Veefil-RT baseplate prior to fixing.

Appropriate spacers may be used under the Veefil-RT baseplate to level the foundation.

If spacers are used, gaps are best filled, taking care not to damage the baseplate surface and edge.

## Conduit fittings:

Use 40mm flexible conduit, or Flexa system:

Flexa PN 0237.202.036 conduit

Flexa PN 5020.037.250 conduit fitting

Flexa PN 0333.000.040 sealing washer

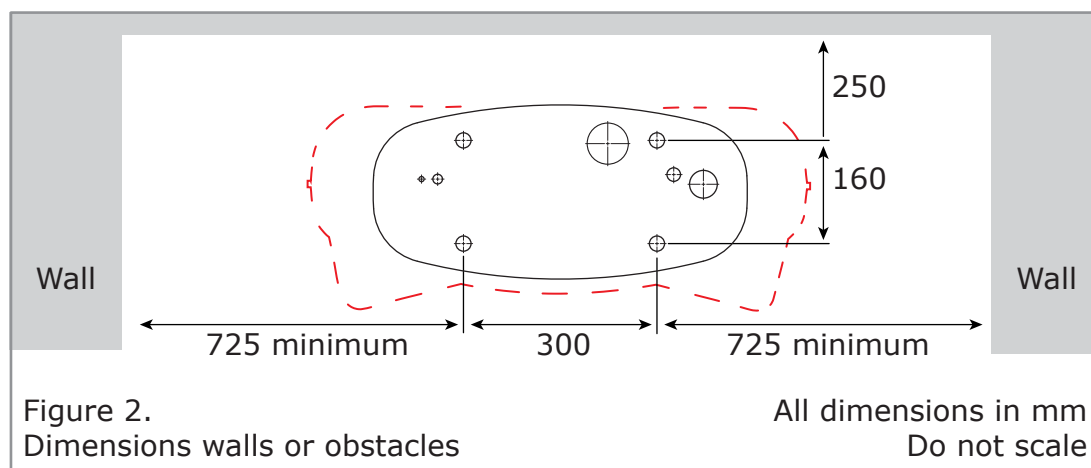
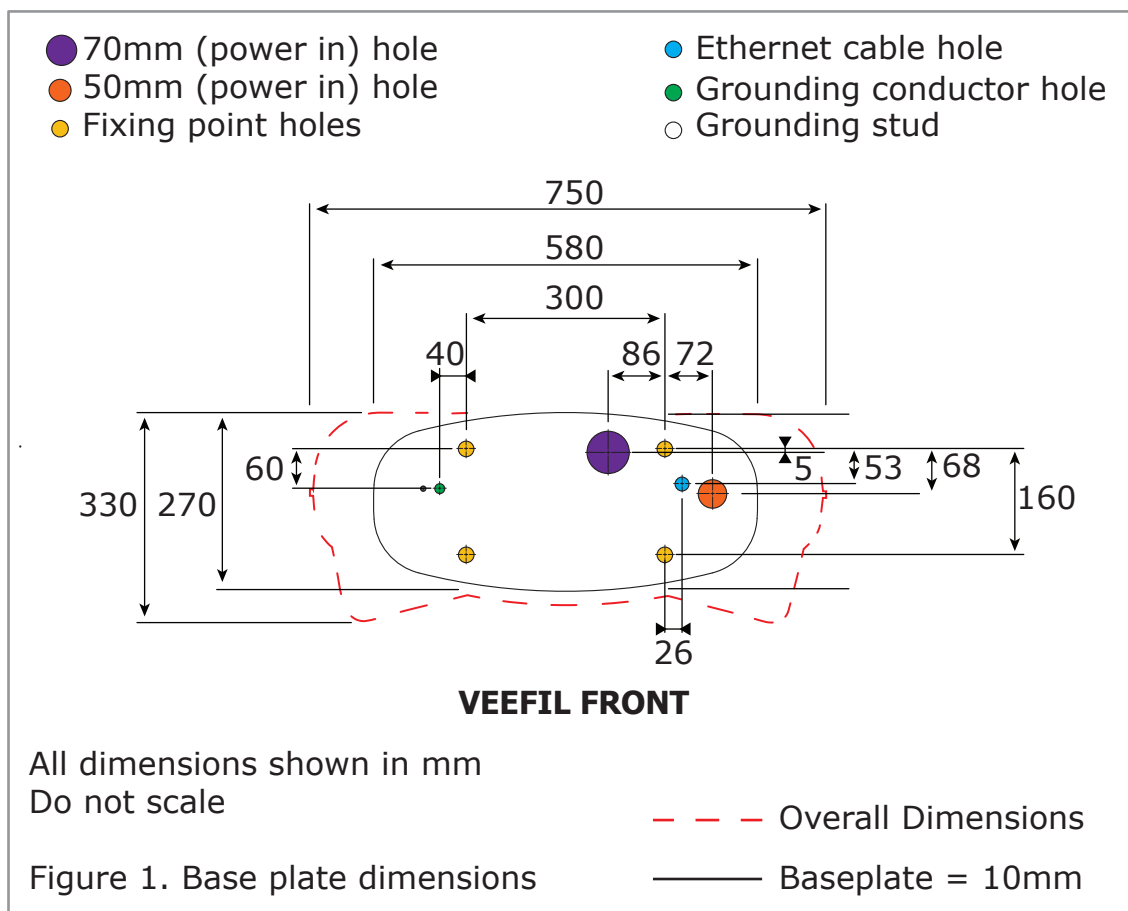
Flexa PN 0561.000.040 locking ring

## Communications:

3G network capability or Ethernet.

The Veefil-RT is fitted with a Harting external IP65 rated ethernet port. This port can be accessed temporarily during installation. If a more permanent, sealed connection is required, use Harting external ethernet connector, 9153000401. See page 20 for ethernet port access.

# Site configuration



Contact Tritium for installation advice if your minimum measurements are smaller than shown in Figure 2.



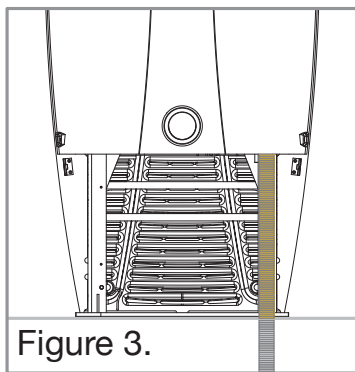
# Site configuration

## Power supply preparation:

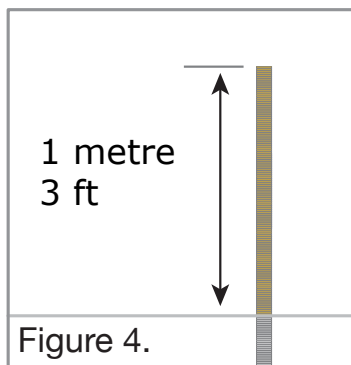
The Veefil-RT is designed to accommodate power cabling in two different scenarios; through an underground foundation, or above the ground.

### Underground power:

When power cabling is provided from an underground foundation it enters the Veefil-RT through one of the baseplate holes as shown in Figure 1.

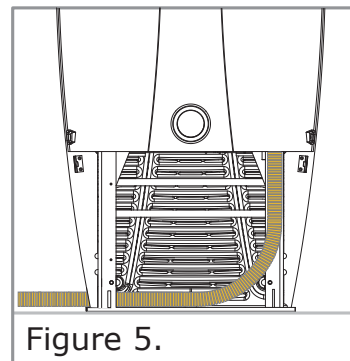


When preparing the foundation, allow approximately 1 metre of power cabling from the foundation surface as shown in Figure 4.

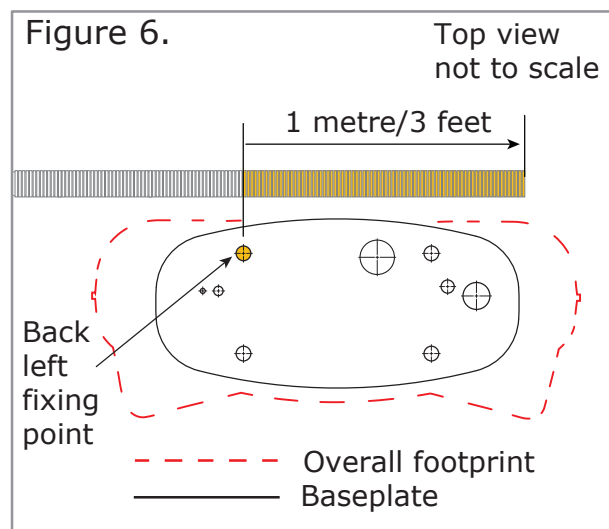


### Above ground power:

When power cabling is supplied above the ground it will enter the Veefil-RT via the back radiator panel on the left hand side as shown in Figure 5.



Leave at least 1 metre of power cabling from the back left fixing point, for installation as shown in Figure 6. Prior to installation the conduit and wiring will require trimming.



# Site configuration

## Veefil-RT charging cable range:

The standard Veefil-RT cable reach is approximately 2.0 metres as shown in these site layouts.

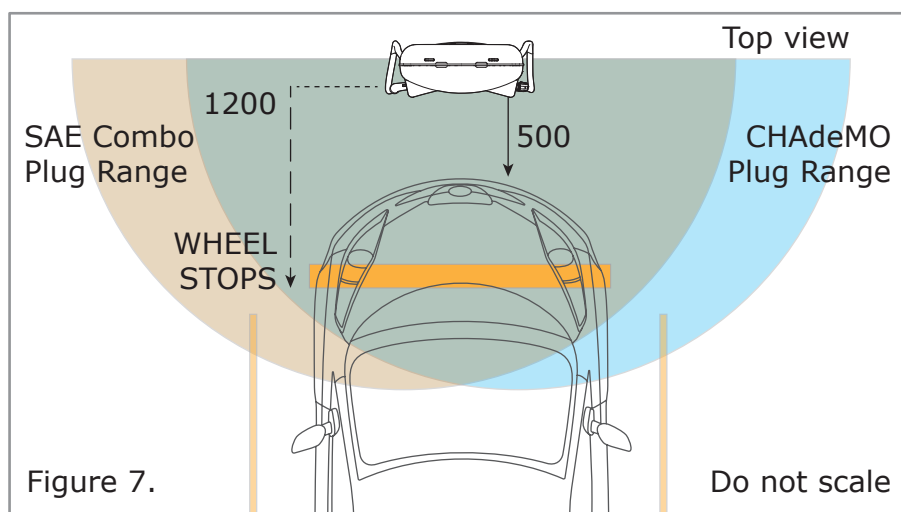
Customised lengths are also available. Contact your supplier should your requirements differ.

If longer length cables are used please ensure the cable is kept tidy and close to the Veefil-RT sides at all times.

## Single carparking bay:

To service one car bay, 500mm of space is recommended between the car and the Veefil-RT front and back for ease of use. Wheel stops installed at approximately 1200mm from the centre front of the Veefil-RT can achieve this.

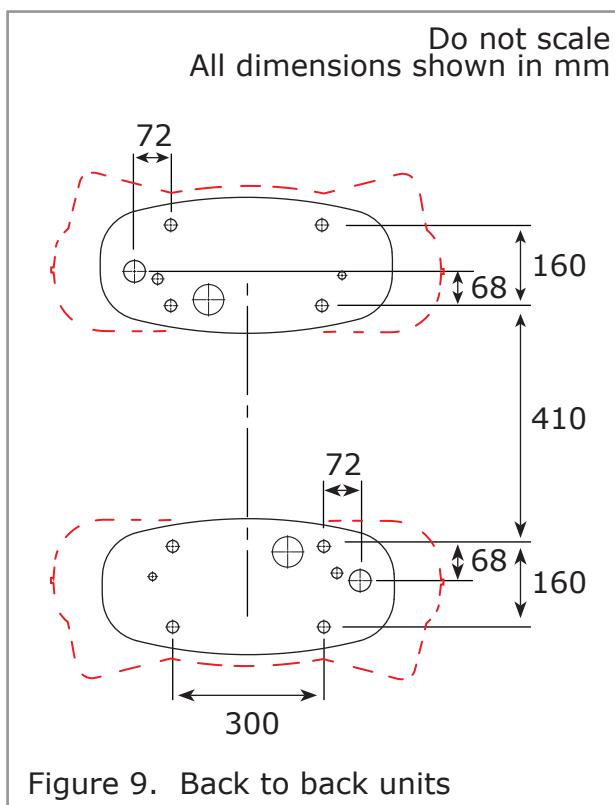
If the Veefil-RT is to be installed with it's back or sides against or near a wall or other obstacle, use the minimum distances shown in Figure 2.



# Site configuration

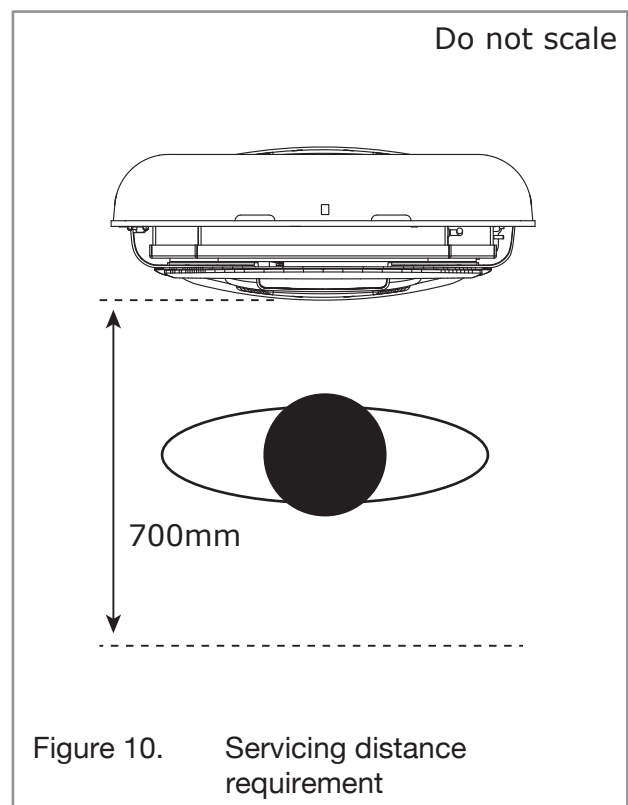
## Site configuration back to back units:

When being installed back to back, a minimum distance of 300mm between the Veefil-RT chargers is recommended. To ensure this minimum distance is observed use the dimensions for foundation positioning in Figure 9.



## Site configuration servicing:

A additional space of 700mm from the center front of the baseplate is required to open the front panel for servicing, as shown in Figure 10.



# Installation requirements & equipment



These instructions provide a systematic guide for installing and commissioning the Veefil-RT.

The Veefil-RT must be installed and serviced by qualified electrical personnel.

Observe all pertinent national, regional, and local safety regulations when you install and commission the Veefil-RT.

The Veefil-RT has an IP65 electronics enclosure rating, however, as it must be opened for installation, this is best done in dry weather or under cover to avoid moisture or debris ingress.

The Veefil-RT must be properly installed, assembled and commissioned according to these instructions before it is used. Prior to installation contact your supplier to organise commissioning information.

For height restricted areas alternative lifting methods are available. Contact your supplier for more information.

## **Supplied with Veefil-RT:**

5mm pin hex tool to remove the M8 security screws fixing the plastic panels.

Blanking plugs are fitted for transport and storage.

40mm conduit fitting and seal, and M40 cable gland.

Ferrite rings. See Wire and Commission section for instruction.

The Veefil-RT is shipped with a temporary single phase power cable which allows the unit to be powered prior to installation. This allows for software updates, charger configuration and/or 3G connectivity testing.

The cable has a male IEC socket and an IEC female lead is required to supply power.

If pre installation power up is required contact your supplier prior to the installation date to synchronize with Tritium.

# Installation requirements & equipment

## Required equipment:

Lifting apparatus. See pg 5 for weights.  
Ensure lifting apparatus is sufficiently rated.

### If using conduit:

40mm standard flexible conduit or Flexa system - see pg 6.

### Tools:

Socket set & ratchet or adjustable spanner.  
Allen keys or socket set hex bits.

Sockets required:

8mm for radiator removal and service hatch removal.

10mm socket for earthing strap removal.

16mm for removal of shipping baseplate bolts.

Metric hex 2.5mm bit to remove service cover.

Jointing cement, or an approved external sealant.

## DOCUMENT KEY:



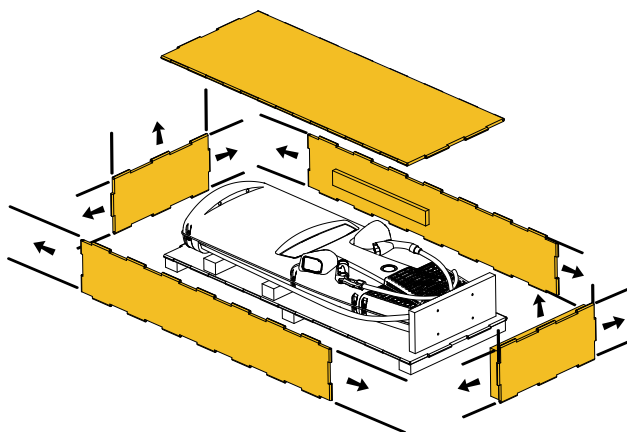
Items shown in orange are parts that require action for that step.

# Unpacking & installation preparation

## 1. Open crate

Move the crate as close to the prepared installation site as possible. Ensure there is enough room to manoeuvre the lifting apparatus.

Remove/slide out all crate tubes to disassemble the cardboard crate.



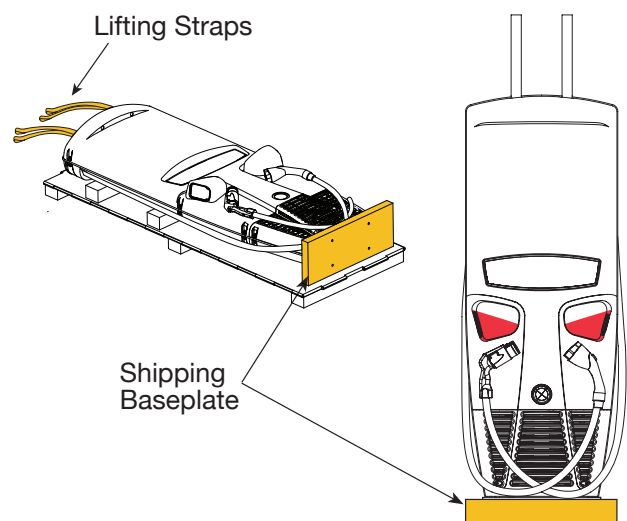
## 2. Lift Veefil-RT to vertical

Securely attach the lifting straps at the top of Veefil-RT to the lifting apparatus and gently raise to a standing position on the shipping baseplate.

NOTE: The Veefil-RT is 2050mm tall on the shipping baseplate.

■ Do not use the plug holders to assist lifting the charger at any stage.

Once upright remove all wrapping.

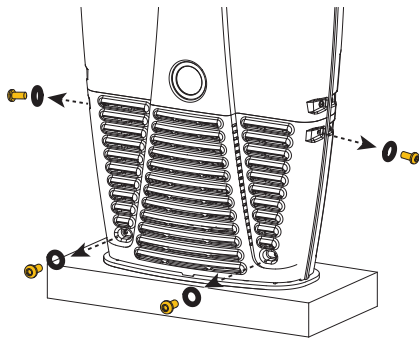


# Unpacking & installation preparation

## 3. Remove front and rear radiator panels

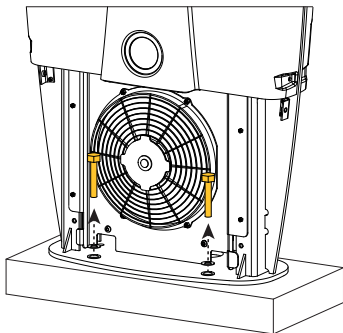
If access to the rear radiator panel is difficult, the internal radiator may be removed to access the rear base fixing points. If so, remove the front radiator panel only, and go to item 5.

Unscrew the 8x security screws and remove them and the washers from both radiator panels using the 5mm pin hex tool. Pull the radiator panels away from the metalwork frame to remove.



## 4. Remove shipping bolts

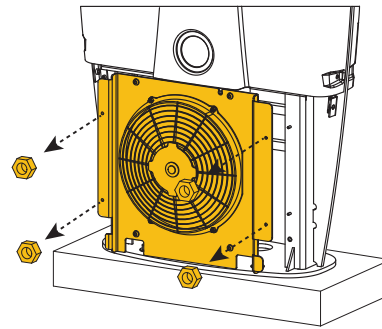
Unscrew the 4x bolts from the shipping base to disengage. 16mm socket required.



Removing the radiator from the base of the Veefil-RT gives more space for bringing power into the unit, however, removing the radiator is not always required. Assess the situation on site.

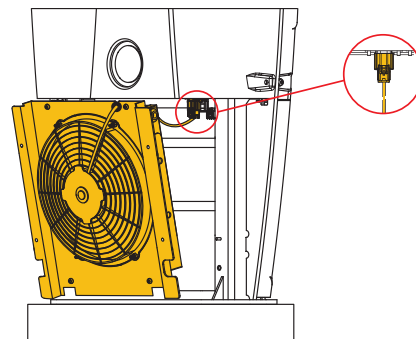
## 5. Remove radiator (optional)

Unscrew the 4x nuts using an 8mm socket to remove the radiator. Pull the radiator off the fasteners, and sit the radiator on the base plate.



Reach behind and unclip the four way connector.

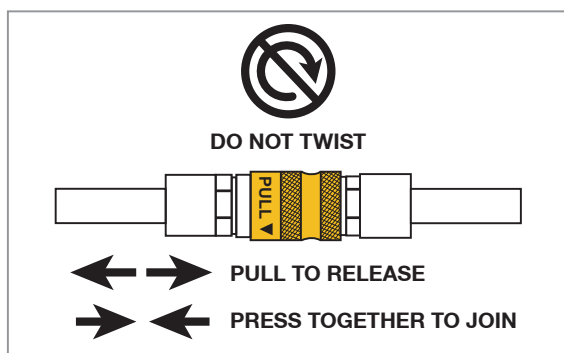
The four way connector is the left hand plug attached to the underside of the unit. Squeeze front clip and pull down to release.



# Unpacking & installation preparation

The radiator cooling system must be disengaged from the unit. Unclip the two quick release parts. One is on the base behind the radiator, the other is on the left side with the expansion bag.

**NOTE:** Do not twist or pull on the tubing engaged with the metal quick release parts. Pull on the metal parts to release, and press the metal parts together to join.



Store the radiator in a safe place ensuring no damage to cooling hoses for later re-assembly.

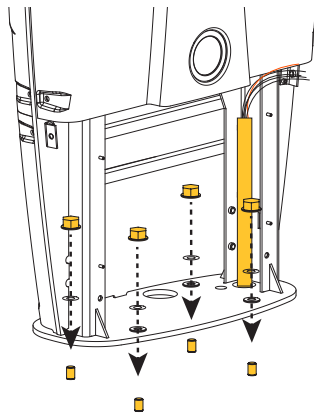
For the purpose of this manual, the following installation pictures are shown without the radiator.



# Installation

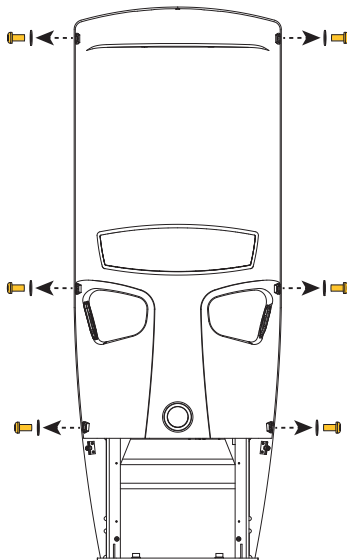
## 1. Secure to foundation

Lift the Veefil-RT by the supplied lifting straps and place onto the prepared foundation and secure. If power cabling is supplied from underground, feed through the baseplate conduit hole.



## 2. Remove fasteners from front panel

Remove the 6x security screws and washers from the front panel using the provided 5mm pin hex tool.



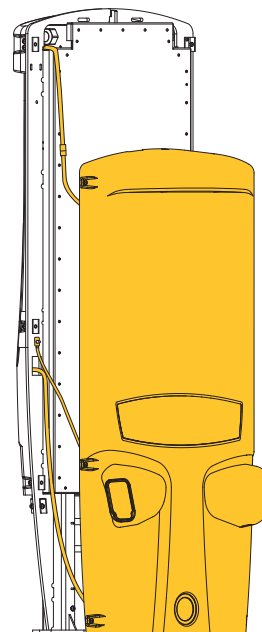
## 3. Place front panel on ground

The front panel is attached to the enclosure with wiring and an earthing strap on the front left hand side.

Lift the front panel up to release from the top hook and gently lower to the ground in front of the Veefil-RT.

In calm conditions it may be possible to keep the front panel connected during commissioning. If this is possible, go to page 18, item 5.

If in doubt, disconnect the front panel (see pg 18, item 4) and store in a safe place until the unit is ready to close for use.

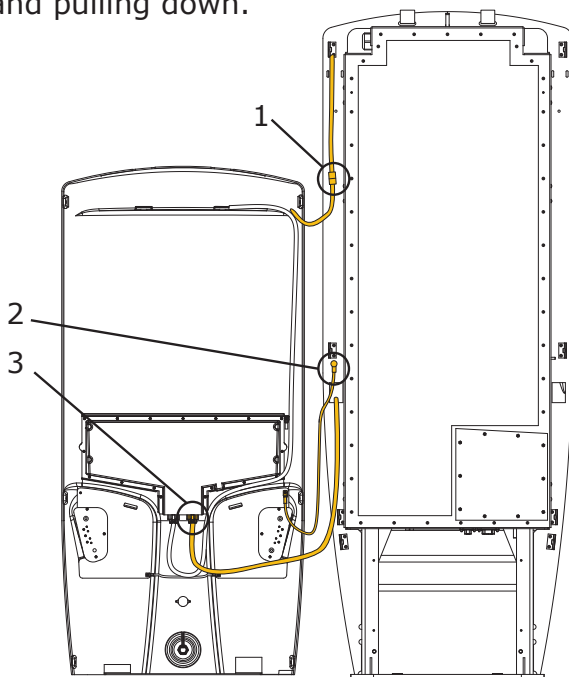


# Installation

## 4. Disconnect front panel

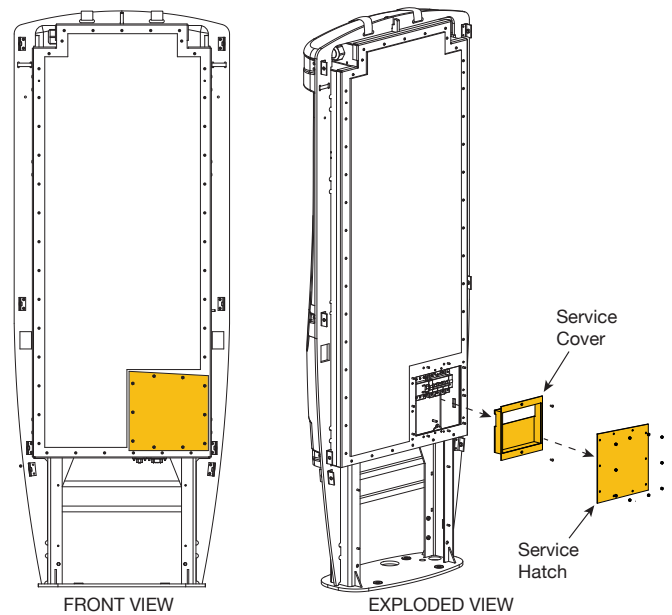
There are three points to disconnect:

1. Wiring to the top rear panel.  
Squeeze the connector to disconnect.
2. Earthing strap.  
Unscrew the nut on the metalwork with a 10mm socket. Remove the nut and earthing strap lug.
3. Connector 'B' on the HMI panel.  
Connector 'B' detaches by squeezing the connector front and rear with your fingers and pulling down.



## 5. Remove service covers

Remove the service hatch and cover to access the internal enclosure to prepare the Veefil-RT for wiring. Use an 8mm socket and 2.5mm hex bits.



The Service Hatch has an attached gasket. Ensure this is carefully stored to avoid damage or accumulation of debris.

## 6. Pre-installation power up

The Veefil-RT is shipped with a temporary single phase power cable which allows the unit to be powered prior to installation. This is attached to the M40 blanking plug. This allows for software updates, charger configuration and/or 3G connectivity testing.

The cable has a male IEC socket and an IEC female lead is required to supply power.

If pre installation power up is required contact your supplier to synchronize with Tritium.

## 7. Remove IEC cable wiring

Remove the M40 blanking plug and IEC cable wiring from the switch gear.

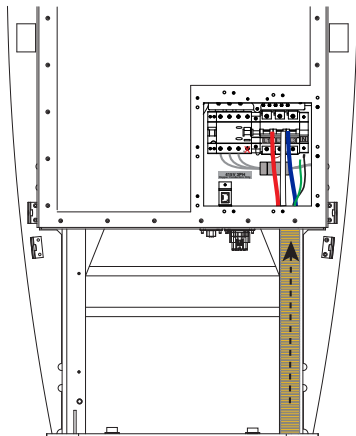
# Installation of underground power

Follow these instructions for power supplied from an underground source or foundation.

If using conduit and fittings, see 8a.  
If using power cabling with cable gland, see 8b.

## 8a. Underground power with conduit

Fit the supplied conduit fitting and seal. The seal is to be placed on the outside of the charger between the conduit fitting and the charger. Trim the conduit to fit into the conduit fitting and feed a minimum of 300mm of wiring through into the interior ready for commissioning.



To achieve the IP65 rating, the conduit must be fitted correctly into the conduit fitting to ensure no water or debris can enter. Jointing cement, or an appropriate outdoor rated sealant must be used between the conduit fitting and conduit.

## 8b. Underground power with cable gland

Fit the M40 cable gland. Trim the power cabling and feed a minimum of 300mm of wiring through into the interior ready for commissioning.



To continue to achieve the IP65 rating the power cabling must be fitted correctly into the cable gland.

Ensure the cable is sitting correctly in the gland and tighten to ensure no water or debris can enter. If in doubt, use an appropriate outdoor rated sealant.

When the cable gland has been tightened, pull on the cable to ensure it doesn't slip.

# Installation of above ground power

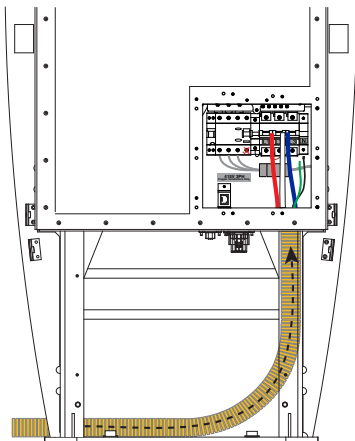
Follow these instructions for power supplied above the ground.

For conduit and fittings, see 9a.  
For power cabling with cable gland, see 9b.

## 9a. Above ground power with conduit

Fit the supplied conduit fitting and seal. The seal is to be placed on the outside of the charger between the conduit fitting and the charger.

Feed the conduit from the rear right of the unit and bend up into the conduit fitting. Use the slots in the rear left channel to cable tie the conduit in place if necessary.



Trim the conduit to fit into the conduit fitting and feed a minimum of 300mm of wiring through into the interior ready for commissioning.



To achieve the IP65 rating, the conduit must be fitted correctly into the

conduit fitting to ensure no water or debris can enter.

Jointing cement, or an appropriate outdoor rated sealant must be used between the conduit fitting and conduit

## 9b. Above ground power with cable gland

Fit the M40 cable gland and seal. Trim the power cabling and feed a minimum of 300mm of wiring through into the interior ready for commissioning.



To achieve the IP65 rating the power cabling must be fitted correctly into the cable gland.

Ensure the cable is sitting correctly in the gland and tighten to ensure no water or debris can enter. If in doubt, use an appropriate outdoor rated sealant.

When the cable gland has been tightened, pull on the cable to ensure it doesn't slip.

# Wire & commission



## CAUTION

Wiring and commissioning the charger is to be done by qualified electrical personnel only.

The wiring diagram is also available on the inside of the Service Hatch.

In all cases:

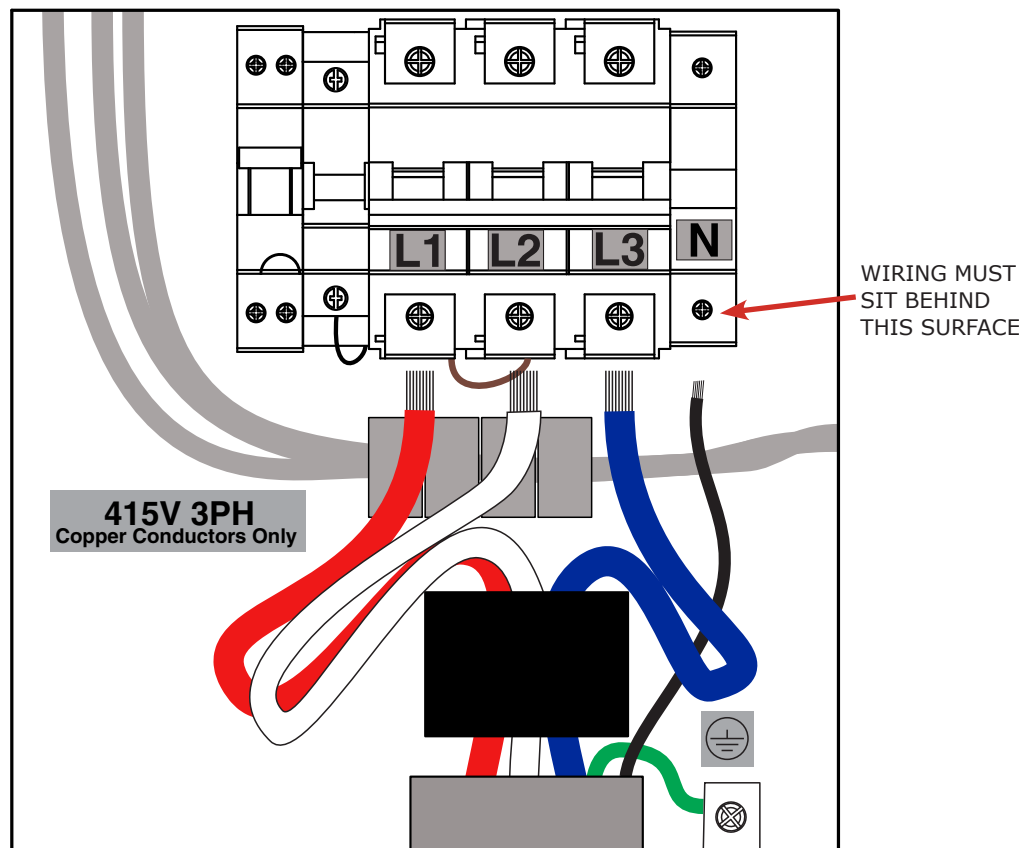
Use Copper Conductors only.

Check that the wiring is sitting behind the lower face of the switch gear so they will not interfere with the service cover.

When completed, switch on the breaker and check the interface panel on the front door is cycling through the icons. Each icon will be lit in turn on the interface panel.

Contact your supplier to run through the diagnostic testing to commission the unit.

# Wire & commission



## WIRING DIAGRAM

Through grey ferrite ring:  
All wiring

Through black ferrite ring only:

Red = L1  
White = L2  
Blue = L3

Thread the wiring as shown through the supplied grey and black ferrite rings.

All wires go through the first grey ferrite ring.

Red, white and blue wiring goes through the black ferrite ring only.

Bend the wires to the side of the ferrite rings and up into the connection points ensuring they sit behind the lower surface of the switch gear to avoid interference with the service cover.

NOTE: Wire Neutral into the far right Neutral Terminator.

## Tightening Torque:

Breaker	4.0 Nm
RCD	3.4Nm

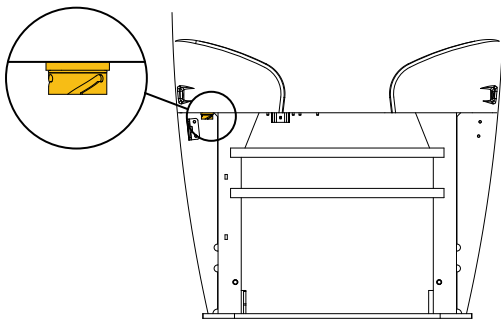
Check the breaker and RCD terminals are tightened to the above settings.

# Ethernet port access

The Ethernet port is situated under the enclosure box on the back left. The rear radiator panel must be removed to access this location.

Twist to disengage the cap and plug in the ethernet cable.

If hardwiring in the ethernet cable, please see page 4 for connector details.



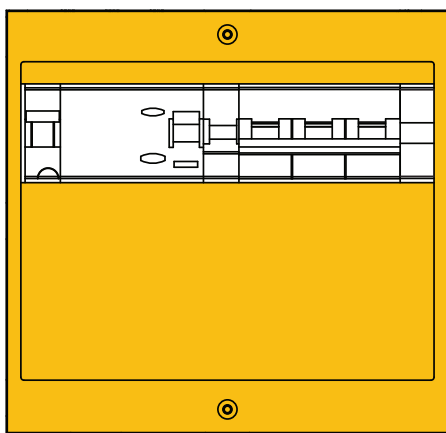
# Closing checklist

Once the charger has been commissioned the unit requires re-assembly and closing prior to operation. Follow these steps in order to ready the unit for operation:

## 1. Remove lifting straps

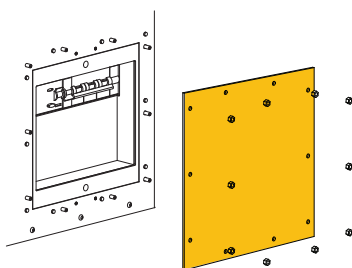
Carefully remove the lifting straps from the top slots in the metalwork.

## 2. Attach service cover



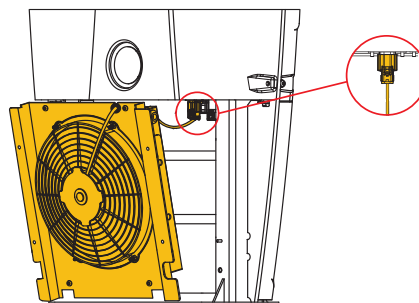
Place the Service Cover over the switch gear and ensure it sits flush with the metalwork panel prior to fastening with screws with a 2.5mm hex bit. If it doesn't sit flush remove and ensure the wiring is sitting behind the lower face of the switch gear.

## 3. Attach service hatch over service cover



Check the gasket has not been damaged or soiled. If using a power drill to fasten the nuts ensure the correct torque setting of no greater than 2.0 Nm. If using hand tool, fasten until resistance felt. Do not over tighten.

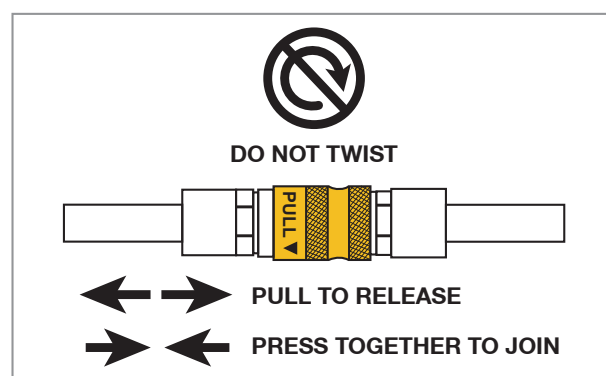
## 4. Re-attach radiator (if required)



- Angle the radiator and rest on the baseplate.
- Re-connect the four way connector.
- Re-connect cooling hoses by pressing the metal parts together, and ensure they are sitting out of the way to avoid pinching or obstructing the radiator.



Ensure there is no leakage at this point.



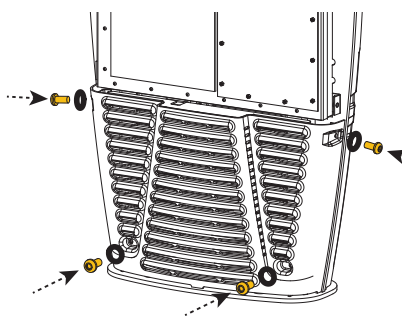
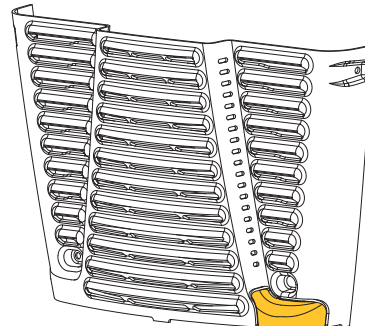


# Closing checklist

- Locate the radiator onto the fixing studs.
- Fasten the radiator onto the studs with the supplied nuts using an 8mm socket.

5. Replace cap on ethernet port

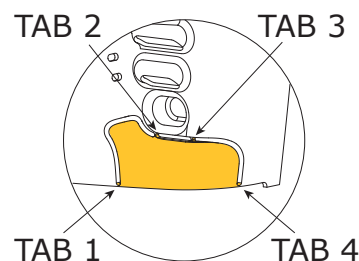
6. Attach front/rear radiator panels



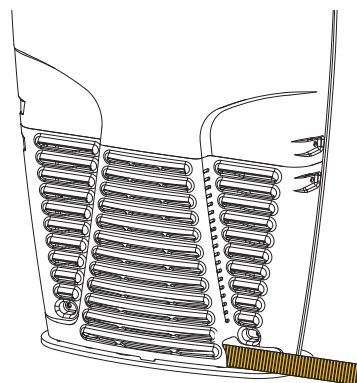
Sit the radiator panel on the base and against the metalwork, lining up the plastic holes with the bracket nutserts. Fasten with nylon washers and security screws using the 5mm Pin Hex tool. Do not over tighten.

If the power is above ground, the rear radiator panel provides the exit point for the conduit from the Veefil.

Cut the four tabs on the lower right hand of the radiator panel to remove the material to open the conduit exit point.



Replace the rear radiator panel ensuring the conduit is fitted securely within this exit area.



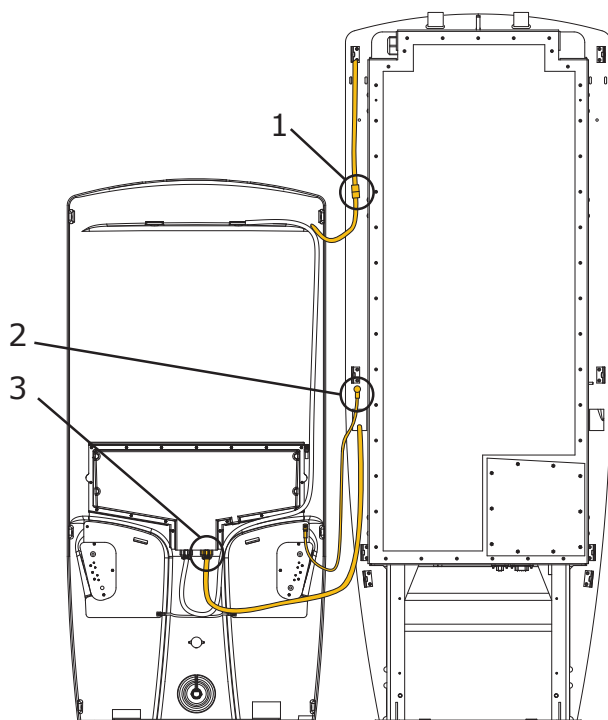
If there are more than two conduit hoses (possible Ethernet cable in conduit) place the largest at the base with the smaller feeding above.

# Closing checklist

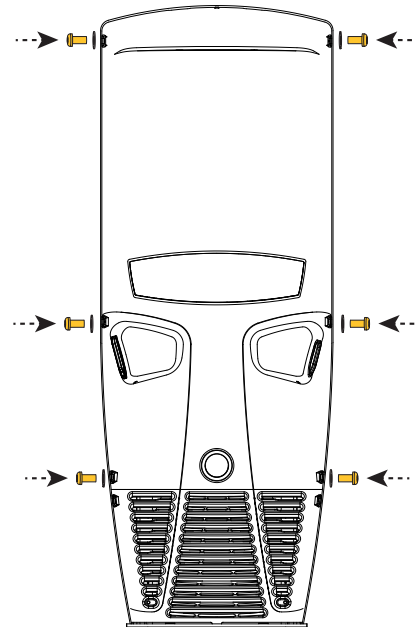
## 7. Re-attach front panel wiring

If required, there are three points to re-connect:

1. Wiring to the top rear panel.  
Plug in connector.
2. Earthing strap.  
Replace the earthing strap onto the stud on the left hand column, and fix in place with the nut using a 10mm socket.
3. Connector 'B' on the HMI panel.  
Plug in Connector 'B'.



## 8. Attach front panel



Gently place the front panel on the top hook ensuring the panel sits outside the fastening brackets. Sit on the radiator panel and check the top hook is engaged. It will hold in position. Secure with the nylon washers and security screws with the 5mm Pin Hex tool ensuring the plastic holes line up with the bracket nutserts. Do not over tighten.

The Veefil-RT fast charger is now ready for operation.

# Operating instructions

Charging your car with the Veefil-RT fast charger is safe, secure, and easy to do with industry standard plugs and a simple interface that guides you through the charging process.

The Veefil-RT fast charger offers two different charging plugs, the CHAdeMO and the Combined Charging Standard (CCS).



## Activation security

Veefil-RT has been designed to activate and secure your individual charging session through card recognition, APP or SMS. Once activation authorisation has been recognised you have a certain timeframe to begin your charging session.

## Using the interface panel

The top half of the panel has icons and buttons that control the charging session. The icons will either visually flash on and off to prompt an action or selection, or show as a solid light to indicate the current mode.

The lower half of the panel shows charging information.

At certain times you hear audio feedback to assure you that certain functions are successful.

Different models have different graphics.

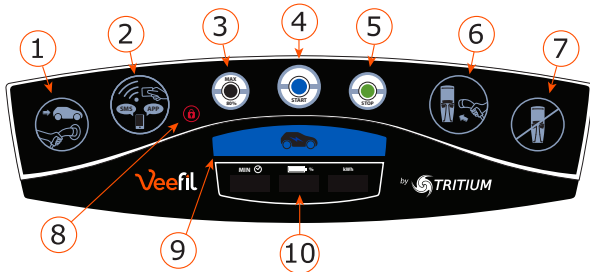
The minutes shown on the display show how long your car has been charging.

You will have ample time to make your selections, however if the charger has been idle for too long without making a selection it returns to being available for other users.

At any stage, return the plug to the Veefil-RT plug holder to end your charging session.

# Operating Instructions

## The interface panel



For the purpose of this manual the Veefil-RT interface panel ACTIVATION icon includes APP and SMS. If these icons are not shown on your model, they are not available for use.

### 1. Connect plug to car

Icon flashes when the unit is available for use.

### 2. Activation

Swipe your card over this area or use your APP or SMS to activate the user interface, and to also unlock a charging session.

### 3. MAX or %

Toggle button may allow selection between the % indicated and the maximum charge amount.

### 4. Start

Push to start the charging session.

### 5. Stop

Push to stop the charging session.

### 6. Return plug to charger

Flashes when the charging session is complete and the plug should be returned to the plug holder.

### 7. Not in service

Icon will be lit when the charger is not in service.

### 8. Locked symbol

Lit when a charging session is in progress and the interface panel is locked.

### 9. Charging indicator

Will glow when a charging session is in progress.

### 10. LED information displays

Displays minutes, battery percentage during charge, kilowatts delivered, fee charged.

## Emergency stop



In case of emergency, press the emergency stop button to shut down and secure the Veefil-RT.

# Maintenance instructions

The following maintenance can be performed by the owner/user. All other servicing is to be conducted by qualified service personnel.

## General exterior maintenance

Regular cleaning is recommended to avoid accumulation of debris/dust/dirt on or around the unit. Wipe surfaces with a soft cloth dampened with water, or use alcohol based cleaner for harder to remove marks.

Do not spray with high pressure cleaning hoses or use abrasive chemicals.

## Maintenance checklist

### 1. Surfaces

### 2. Metalwork

### 3. Interface panel

### 4. Plug holders

Ensure there is no debris inside the plug holders.

### 5. Plug plates

Check the stainless steel plug plates and use appropriate lubricant on the hinges if required.

### 6. Charging plugs

Check the plugs for accumulation of debris and inspect the contact pins for corrosion. If corrosion is present, contact your supplier.

### 7. Radiator

Regularly check the radiator. Gently hose through the slots in the radiator panel to remove any debris.

## Snowfall areas

Regularly remove snow build up if present in front of the radiator panels.

