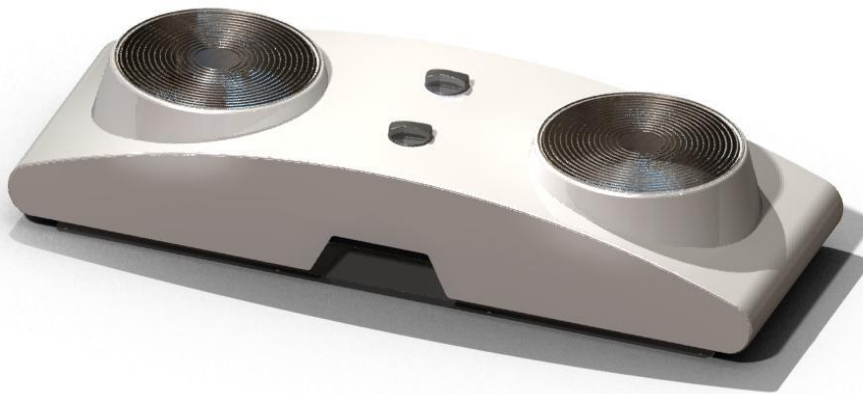




INSTALLATION MANUAL FOR MOBILE APPLICATIONS

# TOPCOOL



Art.nr. 40230625

WHISPER POWER BV  
Kelvinlaan 82  
9207 JB Drachten  
The Netherlands  
Tel.: +31-512-571550  
Fax.: +31-512-571599  
[www.whisperpower.eu](http://www.whisperpower.eu)

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# 1 INTRODUCTION

## 1.1 GENERAL

This installation manual applies to the installation of the TopCool generator rooftop cooling system launched in November 2009. This manual is valid for the following models:

Part number	Description
40230626	TopCool for W-SC6 / W-SQ6
40230627	TopCool for W-SC10
40230628	TopCool for W-SQ8
40230629	TopCool for W-SQ12
40230630	TopCool for W-SQ16
40230631	TopCool for W-SQ12-3P W-SQ16-3P W-SC15
40230632	TopCool for W-SC20 W-SQ20 W-SQ25

For other product see our website: [www.whisperpower.eu](http://www.whisperpower.eu)

**This document is an extension of the Installation manual which comes with each delivered generator set and should only be used in combination with that document.**



### WARNING

A warning symbol draws attention to special warnings, instructions or procedures which, if not strictly observed, may result in damage or destruction of equipment, severe personal injury or loss of life.



### DANGER

This danger symbol refers to electric danger and draws attention to special warnings, instructions or procedures which, if not strictly observed, may result in electrical shock which will result in severe personal injury or loss of life.



### WARNING!

Before working (installation) on the system read the section safety instructions in the user's manual

## 1.2 ROOFTOP COOLING

The TopCool generator cooling system consists of two radiators with electric 230V fans and two expansion tanks. For generator sets with a water cooled alternator, both the engine and alternator are individually cooled. If the alternator is of the air cooled type, the radiators are used in series with one expansion tank, to provide engine cooling only.

The wiring and installation parts are prepared in the factory.

In normal working conditions the fan speed is set at a reduced speed to prevent excessive noise. If the coolant temperature is above 82°C (engine) or 45° (alternator) the rotational speed of the fans is increased to provide additional airflow for optimal cooling.

## 1.3 DIRECTION OF MOUNTING

The TopCool can be mounted in two directions as shown in the pictures.

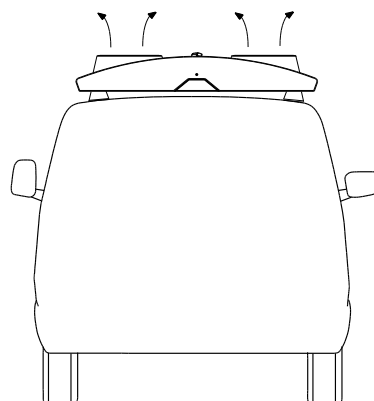


Figure 1: TopCool mounted perpendicular to driving direction.

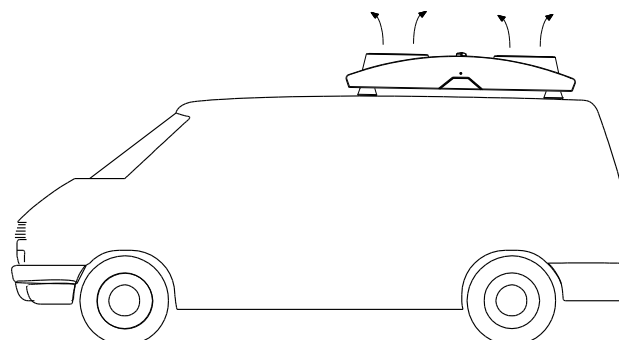


Figure 2: TopCool mounted in parallel with driving direction.

## 2 INSTALLATION

### 2.1 GENERAL

For the overall installation instructions of the generator, refer to the installation manual that comes with the generator. This document only describes the specific instructions for installing the TopCool radiator system.

The following steps are described in more detail in the following paragraphs:

1. Positioning on the roof;
2. Positioning of feed-through;
3. Fix and seal watertight;
4. Install fittings;
5. Install hoses;
6. Connect AC cable;
7. Mount cover.

### 2.2 LOCATION OF TOPCOOL

Locate the position of the TopCool and the feed-through plate. Pay careful attention to the routing of the hoses inside the vehicle and on the roof. In the middle of the cover the inset can be removed to allow more space for the hoses.

It is important that the mounting brackets are mounted on a flat and smooth surface. It is possible to vary the distance between the mounting brackets by using the appropriate mounting holes in the installation frame. If needed, additional holes can be drilled between the existing mounting holes.

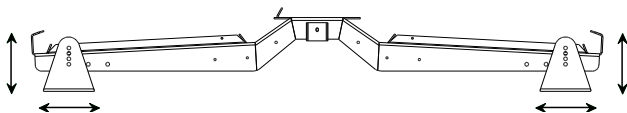


Figure 4: Bracket mounting adjustments.

It is possible to put the TopCool on a slightly bent surface, the brackets can be fixed using an angle.



It is important to assure sufficient airflow. The height 'h', at the position indicated in the figure below, should be at least 7cm.

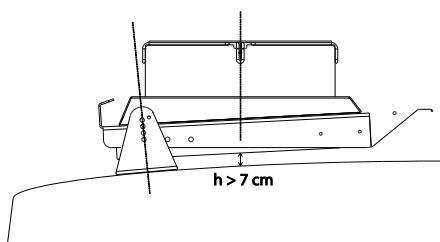


Figure 3: Bracket mounting.

For secure mounting of the installation frame, it is advised to use a second bolt per side of each bracket. The hole directly above the hole in the bracket can be used, a corresponding hole must then be drilled in the installation frame.

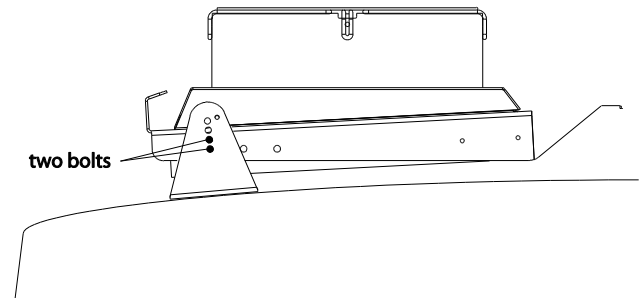


Figure 4: Bracket fixation.



Use protective spray such as 'corrosion guard' to protect any uncovered material due to drilling.

### 2.3 LOCATION OF FEED-THROUGH

Verify that the fittings will be accessible from the inside of the vehicle. Drilling in the reinforcement construction of the vehicle should be avoided as much as possible. Drill schematics for the feed-through plate can be found at the back of this document.

### 2.4 FIXATION ON ROOF

Mount the feed-through plate and TopCool mounting brackets using bolt and nut for initial fixation and an appropriate adhesive sealant such as a high quality SMP kit like Simson 007 (Bostik) for permanent fixation. Do not remove the bolts and nuts afterwards, they serve as break-away safety.

Glue the complete area of the mounting bracket and the feed-through plate with the adhesive sealant onto the roof. The feed-through plate is watertight around the fittings. Special attention should be paid to seal the fixation bolts appropriately.

### 2.5 FITTINGS AND HOSES

Install fittings on the radiators such that the hose connections point in the appropriate direction. It may be necessary to loosen or remove the expansion tanks temporary. When the fittings are installed, re-install the expansion tanks and connect the 1/2" hose with the present hose connection on the T-fitting.

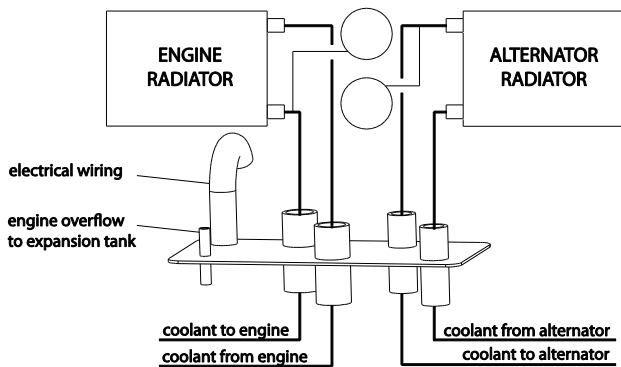
For all connections on the feed-through plate and the TopCool, appropriate brass fittings with conical threading are included in the set. They can be mounted pointing in the correct direction. Use of appropriate thread sealant such as Loctite 577 is advised.

Install the coolant hoses between TopCool and feed-through plate and between feed-through plate and generator.



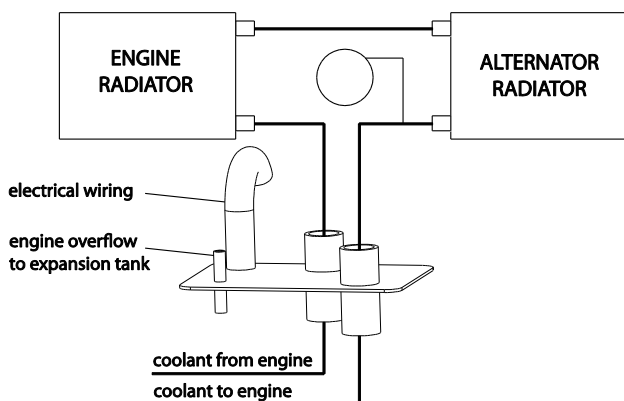
Avoid air-traps (see generator installation manual). Take care that the correct flow direction is adhered to.

Install the hose for overflow to the expansion tank through the appropriate pipe (see figure 5 and 6). Always connect the expansion tank to the outgoing hose to the engine or alternator.



**WATER COOLED ALTERNATOR**

Figure 5: Cooling circuit routing with water cooled alternator.



**AIR COOLED ALTERNATOR**

Figure 6: Cooling circuit routing with air cooled alternator.



**ATTENTION!**

The left radiator, closest to the control box, must be connected to the engine cooling circuit.

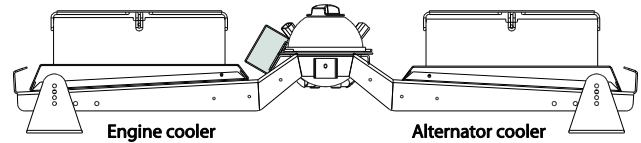


Figure 7: Position of the engine and alternator cooler.

**2.6 AC WIRING**

Connect the AC wiring to the TopCool powered from the generator (see wiring diagram 4.1 and generator installation manual). Secure the wire appropriately. The wire can be fed through the bent pipe in the feed-through plate. See figure 5 and 6.

**2.7 COVER**

If needed, the inset as shown as item 14 on figure 10 can be removed to provide more space for the hoses.

Mount cover securely using the 6 fixation points as shown in the next figure.

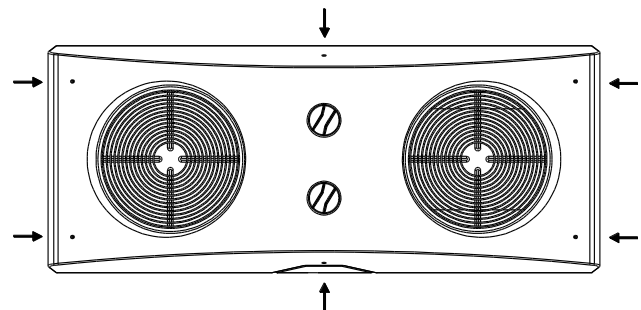


Figure 8: Cover bolt fixations.

### 3 INSTALLATION SPECIFICATIONS

#### 3.1 TECHNICAL SPECIFICATIONS

Dimensions (l x w x h)	1420mm x 584mm x 256mm
Dry Weight	42-52 kg*
Electrical consumption	340W max.
Voltage	200 – 277 VAC
Frequency	50/60Hz.
Frame material	Aluminium
Corrosion protection	Powder coating
Exterior color	RAL 9003

\* depending on type

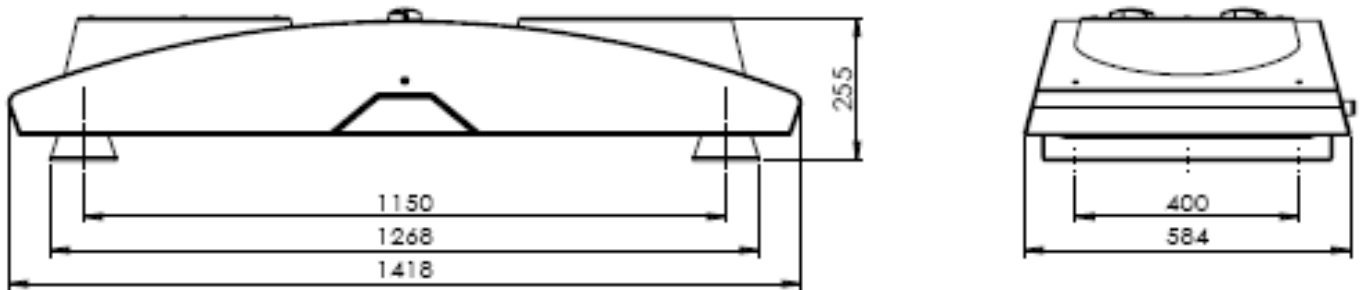


Figure 9: TopCool dimensions.

**INSTALLATION MATERIALS**

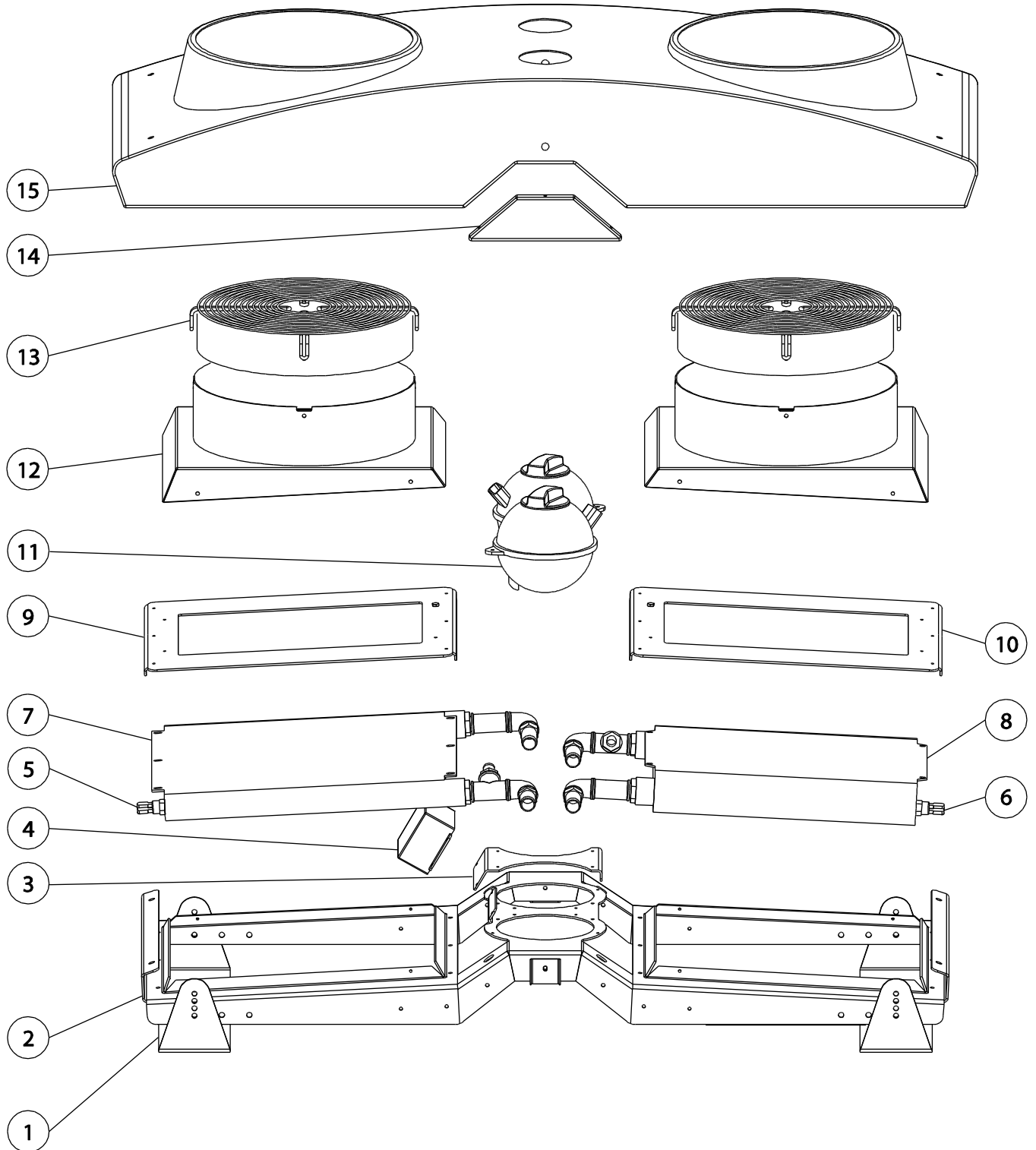


Figure 10: TopCool exploded view with spare parts.



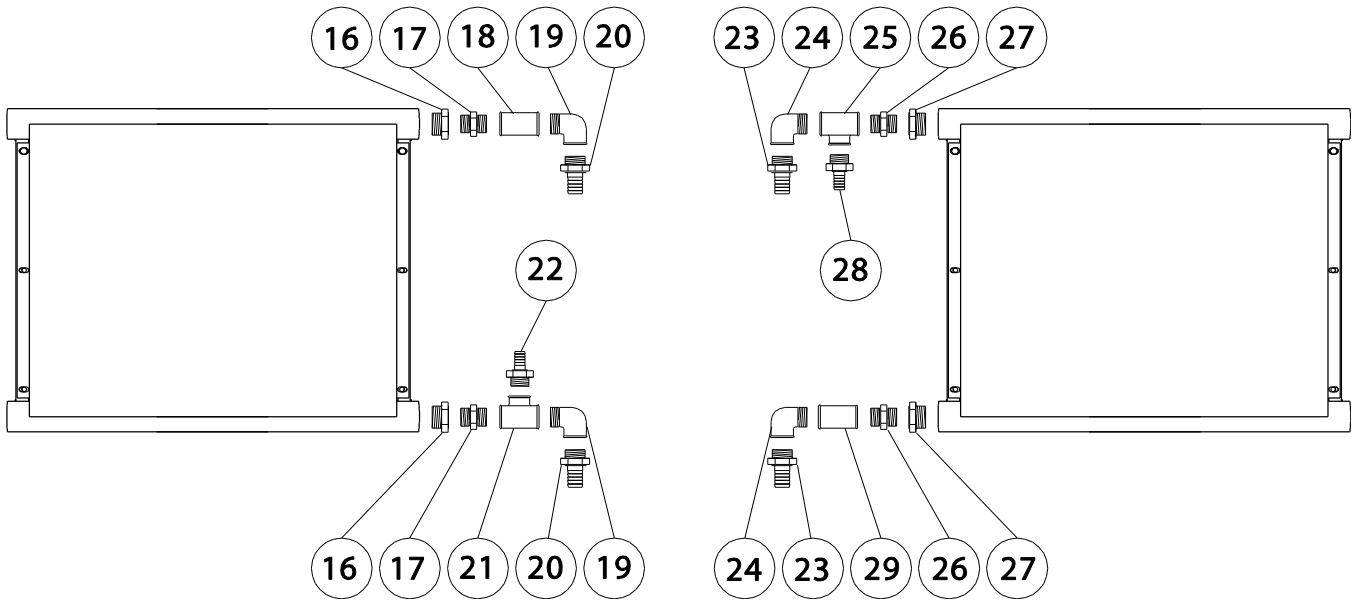


Figure 11: Radiator fittings, water cooled alternator.

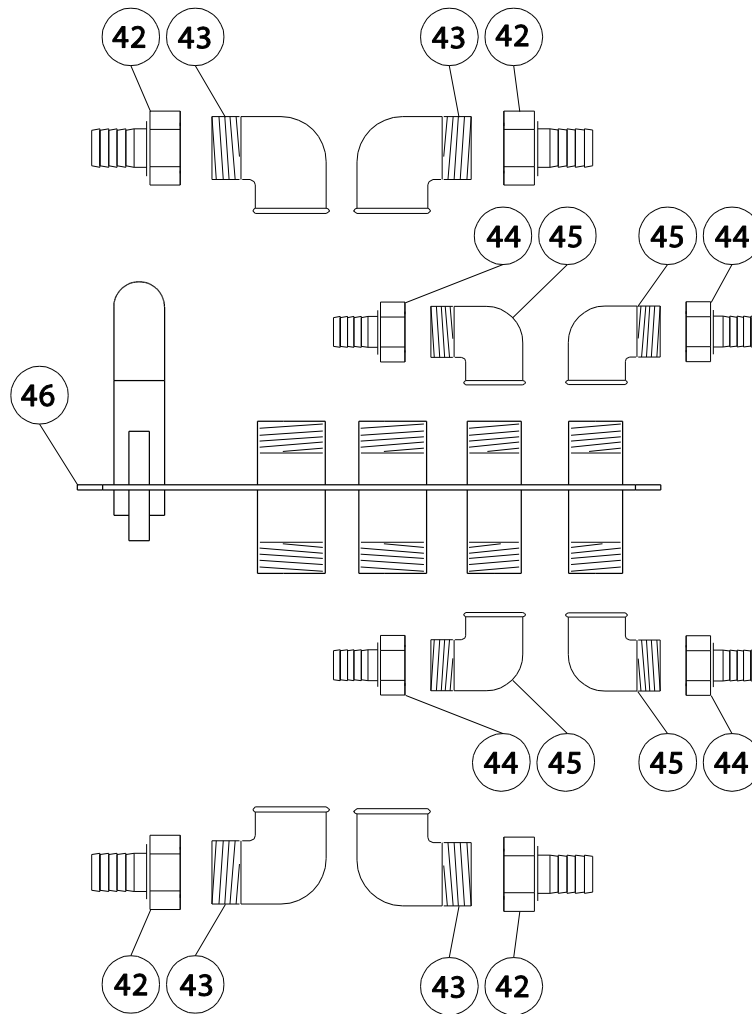


Figure 12: Feed-through fittings, water cooled alternator.

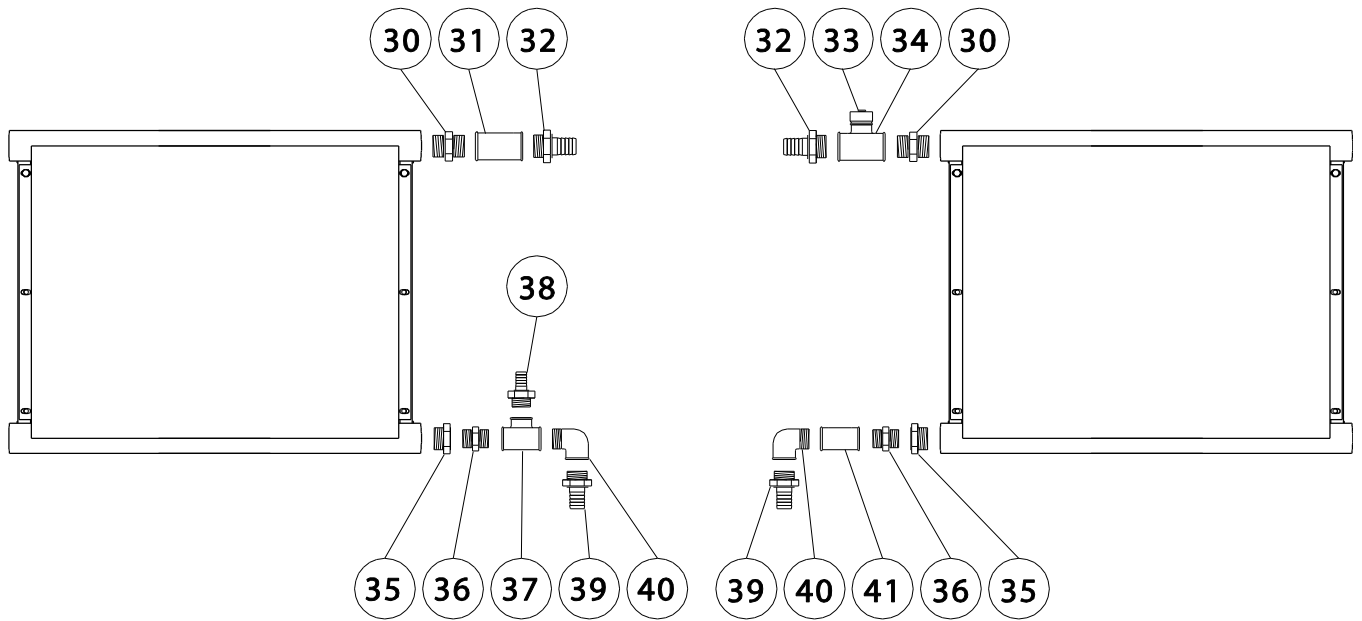


Figure 13: Radiator fittings, air cooled alternator.

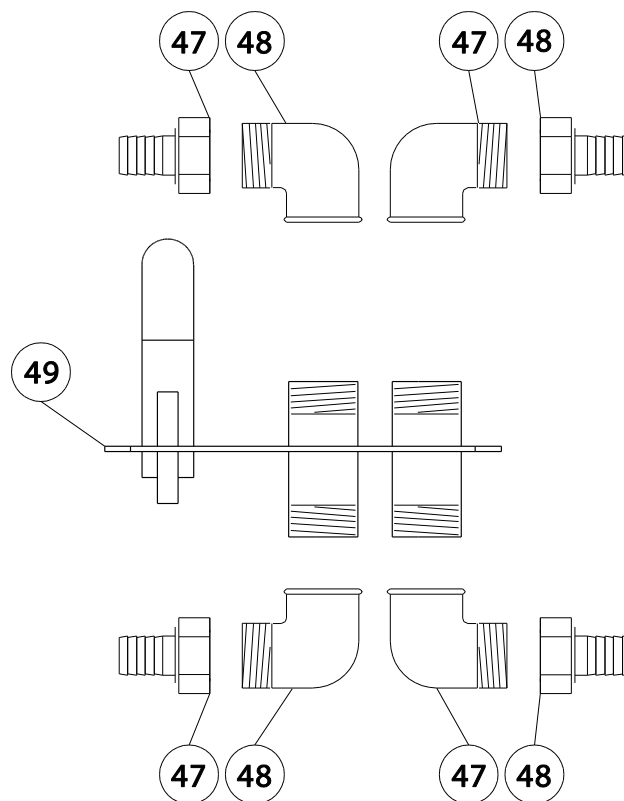


Figure 14: Feed-through fittings, air cooled alternator.

**TOP COOL RADIATOR KIT SC6, SQ6**

no	qty	article no.	description
1	2	40230640	Top Cool radiator mounting bracket
2	1	40230639	Top Cool radiator installation frame
3	1	40230638	Top Cool radiator bracket control box
4	1	40230641	Top Cool radiator controlbox
5	1	50212409	Temperature switch 87-82 GR.
6	1	50212405	Temperature switch 35-45 GR.
7	1	50230331	Cooling element AP3002E
8	1	50230331	Cooling element AP3002E
9	1	40230637	Top Cool radiator reducer frame
10	1	40230637	Top Cool radiator reducer frame
11	2	50230562	Expansion tank including cap CN
12	2	40230636	Top Cool radiator ventilator housing
13	2	50230316	Fan radiator RPM controlled
14	1	40230635	Top Cool radiator inset
15	1	40230634	Top Cool radiator cover
16	2	50221103	Straight reducer M/F 1- $\frac{3}{4}$ "
17	2	50221123	Nipple $\frac{3}{4}$ "
18	1	50221095	Straight coupling F/F $\frac{3}{4}$ "
19	2	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
20	2	50221008	Male hose connection $\frac{3}{4}$ "x25
21	1	50221043	Tee fitting $\frac{3}{4}$ "
22	1	50221004	Male hose connection $\frac{3}{4}$ "x20
23	2	50221004	Male hose connection $\frac{3}{4}$ "x20
24	2	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
25	1	50221043	Tee fitting $\frac{3}{4}$ "
26	2	50221123	Nipple $\frac{3}{4}$ "
27	2	50221103	Straight reducer M/F 1- $\frac{3}{4}$ "
28	1	50221004	Male hose connection $\frac{3}{4}$ "x20
29	1	50221095	Straight coupling F/F $\frac{3}{4}$ "
42	4	50221023	Female hose connection $\frac{3}{4}$ "x25
43	4	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
44	4	50221021	Female hose connection $\frac{1}{2}$ "x20
45	4	50221082	Elbow 90 deg M/F $\frac{1}{2}$ "
46	1	40230643	Feed-through 2x $\frac{3}{4}$ " + 2x $\frac{1}{2}$ "
<b>TOTAL</b>		<b>40230626</b>	<b>TOP COOL RADIATOR KIT SC6, SQ6</b>

**TOP COOL RADIATOR KIT SC10**

no	qty	article no.	description
1	2	40230640	Top Cool radiator mounting bracket
2	1	40230639	Top Cool radiator installation frame
3	1	40230638	Top Cool radiator bracket control box
4	1	40230641	Top Cool radiator controlbox
5	1	50212409	Temperature switch 87-82 GR.
6	1	50212405	Temperature switch 35-45 GR.
7	1	50230312	Cooling element 430
8	1	50230331	Cooling element AP3002E
9	-	-	-
10	1	40230637	Top Cool radiator reducer frame
11	2	50230562	Expansion tank including cap CN
12	2	40230636	Top Cool radiator ventilator housing
13	2	50230316	Fan radiator RPM controlled
14	1	40230635	Top Cool radiator inset
15	1	40230634	Top Cool radiator cover
16	2	50221103	Straight reducer M/F 1- $\frac{3}{4}$ "
17	2	50221123	Nipple $\frac{3}{4}$ "
18	1	50221095	Straight coupling F/F $\frac{3}{4}$ "
19	2	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
20	2	50221008	Male hose connection $\frac{3}{4}$ "x25
21	1	50221043	Tee fitting $\frac{3}{4}$ "
22	1	50221004	Male hose connection $\frac{3}{4}$ "x20
23	2	50221004	Male hose connection $\frac{3}{4}$ "x20
24	2	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
25	1	50221043	Tee fitting $\frac{3}{4}$ "
26	2	50221123	Nipple $\frac{3}{4}$ "
27	2	50221103	Straight reducer M/F 1- $\frac{3}{4}$ "
28	1	50221004	Male hose connection $\frac{3}{4}$ "x20
29	1	50221095	Straight coupling F/F $\frac{3}{4}$ "
42	4	50221023	Female hose connection $\frac{3}{4}$ "x25
43	4	50221083	Elbow 90 deg M/F $\frac{3}{4}$ "
44	4	50221021	Female hose connection $\frac{1}{2}$ "x20
45	4	50221082	Elbow 90 deg M/F $\frac{1}{2}$ "
46	1	40230643	Feed-through 2x $\frac{3}{4}$ " + 2x $\frac{1}{2}$ "
<b>TOTAL</b>		<b>40230627</b>	<b>TOP COOL RADIATOR KIT SC10</b>

**TOP COOL RADIATOR KIT SQ8**

no	qty	article no	description	
1	2	40230640	Top Cool radiator mounting bracket	
2	1	40230639	Top Cool radiator installation frame	
3	1	40230638	Top Cool radiator bracket control box	
4	1	40230641	Top Cool radiator controlbox	
5	1	50212409	Temperature switch 87-82 GR.	
6	1	50212405	Temperature switch 35-45 GR.	
7	1	50230312	Cooling element 430	
8	1	50230331	Cooling element AP3002E	
9	-	-	-	
10	1	40230637	Top Cool radiator reducer frame	
11	2	50230562	Expansion tank including cap CN	
12	2	40230636	Top Cool radiator ventilator housing	
13	2	50230316	Fan radiator RPM controlled	
14	1	40230635	Top Cool radiator inset	
15	1	40230634	Top Cool radiator cover	
16	-	-	-	
17	2	50221124	Nipple 1"	
18	1	50221096	Straight coupling F/F 1"	
19	2	50221084	Elbow 90 deg M/F 1"	
20	2	50221014	Male hose connection 1"x35	
21	1	50221044	Tee fitting 1"	
22	1	50221027	Male hose connection 1"x20	
23	2	50221027	Male hose connection 1"x20	
24	2	50221084	Elbow 90 deg M/F 1"	
25	1	50221044	Tee fitting 1"	
26	2	50221124	Nipple 1"	
27	-	-	-	
28	1	50221027	Male hose connection 1"x20	
29	1	50221096	Straight coupling F/F 1"	
42	4	50221014	Male hose connection 1"x35	
43*	4	50221074	Elbow 90 deg F/F 1"	50221096 Straight coupling 1"
44	4	50221004	Female hose connection 3/4"x20	
45	4	50221083	Elbow 90 deg M/F 3/4"	
46	1	40230645	Feed-through 2x 1" + 2x 3/4"	
<b>TOTAL</b>		<b>40230628</b>	<b>TOP COOL RADIATOR KIT SQ8</b>	

\* For the 1" feed-through connections, four straight couplings are included to use instead of elbows.

**TOP COOL RADIATOR KIT SQ12**

no	qty	article no	description	
1	2	40230640	Top Cool radiator mounting bracket	
2	1	40230639	Top Cool radiator installation frame	
3	1	40230638	Top Cool radiator bracket control box	
4	1	40230641	Top Cool radiator controlbox	
5	1	50212409	Temperature switch 87-82 GR.	
6	1	50212405	Temperature switch 35-45 GR.	
7	1	50230318	Cooling element 430/2	
8	1	50230312	Cooling element 430	
9	-	-	-	
10	-	-	-	
11	2	50230562	Expansion tank including cap CN	
12	2	40230636	Top Cool radiator ventilator housing	
13	2	50230316	Fan radiator RPM controlled	
14	1	40230635	Top Cool radiator inset	
15	1	40230634	Top Cool radiator cover	
16	-	-	-	
17	2	50221124	Nipple 1"	
18	1	50221096	Straight coupling F/F 1"	
19	2	50221084	Elbow 90 deg M/F 1"	
20	2	50221014	Male hose connection 1"x35	
21	1	50221044	Tee fitting 1"	
22	1	50221027	Male hose connection 1"x20	
23	2	50221027	Male hose connection 1"x20	
24	2	50221084	Elbow 90 deg M/F 1"	
25	1	50221044	Tee fitting 1"	
26	2	50221124	Nipple 1"	
27	-	-	-	
28	1	50221027	Male hose connection 1"x20	
29	1	50221096	Straight coupling F/F 1"	
42	4	50221014	Male hose connection 1"x35	
43*	4	50221074	50221096	Straight coupling 1"
44	4	50221004	Female hose connection 3/4"x20	
45	4	50221083	Elbow 90 deg M/F 3/4"	
46	1	40230645	Feed-through 2x 1" + 2x 3/4"	
<b>TOTAL</b>		<b>40230629</b>	<b>TOP COOL RADIATOR KIT SQ12</b>	

\* For the 1" feed-through connections, four straight couplings are included to use instead of elbows.

**TOP COOL RADIATOR KIT SQ16**

no	qty	article no	description	
1	2	40230640	Top Cool radiator mounting bracket	
2	1	40230639	Top Cool radiator installation frame	
3	1	40230638	Top Cool radiator bracket control box	
4	1	40230641	Top Cool radiator control box	
5	1	50212409	Temperature switch 87-82 GR.	
6	1	50212405	Temperature switch 35-45 GR.	
7	1	50230318	Cooling element 430/2	
8	1	50230312	Cooling element 430	
9	-	-	-	
10	-	-	-	
11	2	50230562	Expansion tank including cap CN	
12	2	40230636	Top Cool radiator ventilator housing	
13	2	50230316	Fan radiator RPM controlled	
14	1	40230635	Top Cool radiator inset	
15	1	40230634	Top Cool radiator cover	
16	-	-	-	
17	2	50221124	Nipple 1"	
18	1	50221096	Straight coupling F/F 1"	
19	2	50221084	Elbow 90 deg M/F 1"	
20	2	50221014	Male hose connection 1"x35	
21	1	50221044	Tee fitting 1"	
22	1	50221027	Male hose connection 1"x20	
23	2	50221010	Male hose connection 1"x25	
24	2	50221084	Elbow 90 deg M/F 1"	
25	1	50221044	Tee fitting 1"	
26	2	50221124	Nipple 1"	
27	-	-	-	
28	1	50221027	Male hose connection 1"x20	
29	1	50221096	Straight coupling F/F 1"	
42	4	50221014	Male hose connection 1"x35	
43*	4	50221074	50221096	Straight coupling 1"
44	4	50221023	Female hose connection 3/4"x25	
45	4	50221083	Elbow 90 deg M/F 3/4"	
46	1	40230645	Feed-through 2x 1" + 2x 3/4"	
<b>TOTAL</b>		<b>40230630</b>	<b>TOP COOL RADIATOR KIT SQ16</b>	

\* For the 1" feed-through connections, four straight couplings are included to use instead of elbows.

**RADIATOR COOLING KIT SC15, SQ12-16 3ph**

no	qty	article no	description	
1	2	40230640	Top Cool radiator mounting bracket	
2	1	40230639	Top Cool radiator installation frame	
3	1	40230638	Top Cool radiator bracket control box	
4	1	40230641	Top Cool radiator control box	
5	1	50212409	Temperature switch 87-82 GR.	
6	1	50212409	Temperature switch 87-82 GR.	
7	1	50230312	Cooling element 430	
8	1	50230312	Cooling element 430	
9	-	-	-	
10	-	-	-	
11	1	50230562	Expansion tank including cap CN	
12	2	40230636	Top Cool radiator ventilator housing	
13	2	50230316	Fan radiator RPM controlled	
14	1	40230635	Top Cool radiator inset	
15	1	40230634	Top Cool radiator cover	
30	2	50221124	Nipple 1"	
31	1	50221096	Straight coupling F/F 1"	
32	2	50221014	Female hose connection 1"x35	
33	1	50230321	Air release valve Hummel 2536 1/2BSP + straight reducer M/F 1-1/2" (50221106)	
34	1	50221044	Tee fitting 1"	
35	-	-	-	
36	2	50221124	Nipple 1"	
37	1	50221044	Tee fitting 1"	
38	1	50221027	Male hose connection 1"x20	
39	2	50221014	Male hose connection 1"x35	
40	2	50221084	Elbow 90 deg M/F 1"	
41	1	50221096	Straight coupling F/F 1"	
47	4	50221014	Male hose connection 1"x35	
48*	4	50221074	50221096	Straight coupling 1"
49	1	40230646	Feed-through 2x 1"	
<b>TOTAL</b>		<b>40230631</b>	<b>RADIATOR COOLING KIT SC15 SQ12-16 3ph</b>	

\* For the 1" feed-through connections, four straight couplings are included to use instead of elbows.



**TOP COOL RADIATOR KIT SC20, SQ20, SQ25**

no	qty	article no	description	
1	2	40230640	Top Cool radiator mounting bracket	
2	1	40230639	Top Cool radiator installation frame	
3	1	40230638	Top Cool radiator bracket controlbox	
4	1	40230641	Top Cool radiator control box	
5	1	50212409	Temperature switch 87-82 GR.	
6	1	50212409	Temperature switch 87-82 GR.	
7	1	50230318	Cooling element 430/2	
8	1	50230312	Cooling element 430	
9	-	-	-	
10	-	-	-	
11	1	50230562	Expansion tank including cap CN	
12	2	40230636	Top Cool radiator ventilator housing	
13	2	50230316	Fan radiator RPM controlled	
14	1	40230635	Top Cool radiator inset	
15	1	40230634	Top Cool radiator cover	
30	2	50221124	Nipple 1"	
31	1	50221096	Straight coupling F/F 1"	
32	2	50221014	Male hose connection 1"x35	
33	1	50230321	Air release valve Hummel 2536 1/2BSP + straight reducer M/F 1-1/2" (50221106)	
34	1	50221044	Tee fitting 1"	
35	-	-	-	
36	2	50221124	Nipple 1"	
37	1	50221044	Tee fitting 1"	
38	1	50221027	Male hose connection 1"x20	
39	2	50221014	Male hose connection 1"x35	
40	2	50221084	Elbow 90 deg M/F 1"	
41	1	50221096	Straight coupling F/F 1"	
47	4	50221014	Male hose connection 1"x35	
48*	4	50221074	50221096	Straight coupling 1"
49	1	40230646	Feed-through 2x 1"	
<b>TOTAL</b>		<b>40230632</b>	<b>TOP COOL RADIATOR KIT SC20, SQ20, SQ25</b>	

\* For the 1" feed-through connections, four straight couplings are included to use instead of elbows.

## 4 DIAGRAMS AND DRAWINGS

### 4.1 ELECTRICAL DIAGRAM TOPCOOL WITH 230VAC FAN

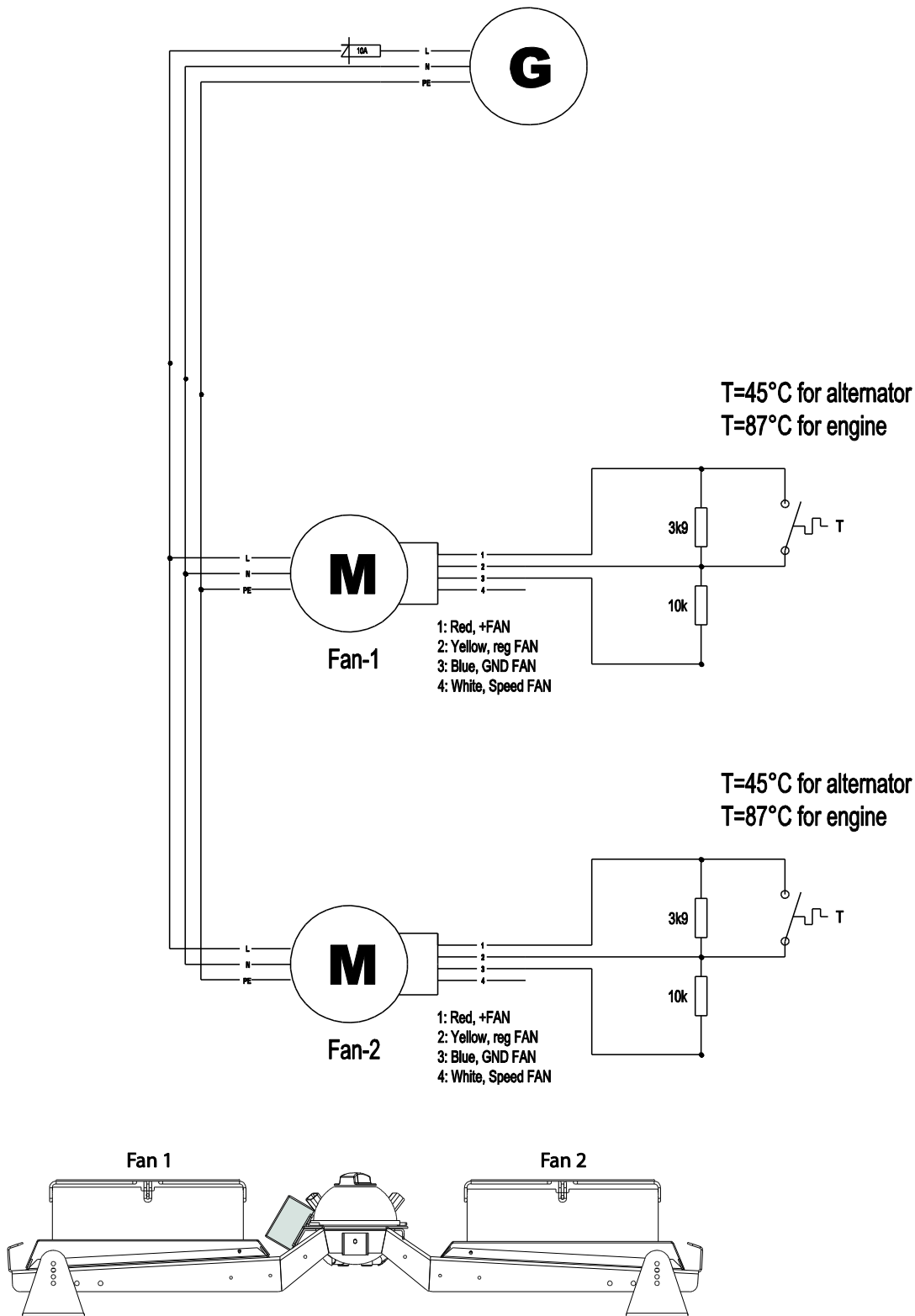


Figure 11: Electrical diagram TopCool with 230VAC fan.

## 4.2 CONTROL BOX CONNECTIONS

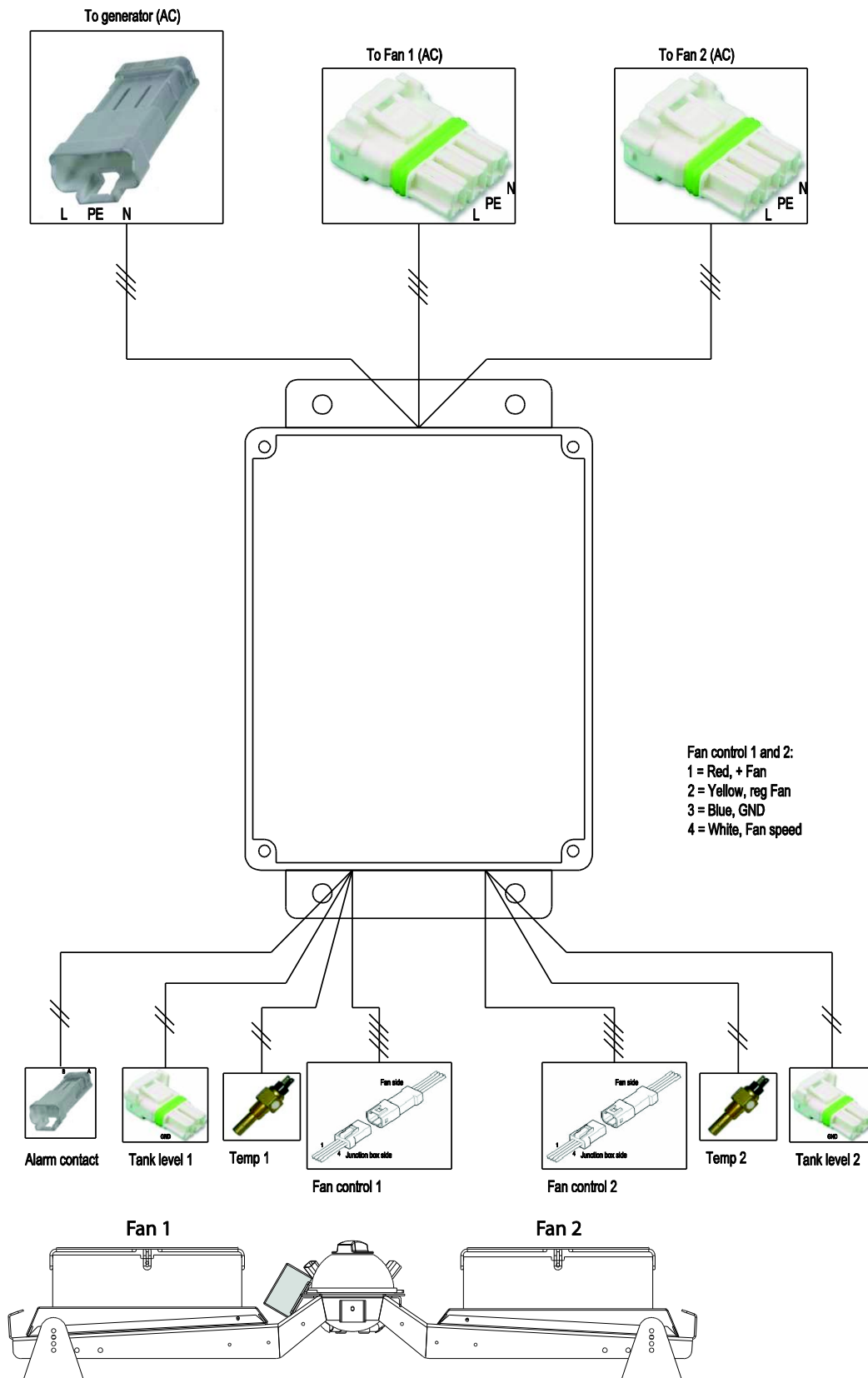


Figure 12: Control box connections. \* Tank level 1 and 2 and Alarm contacts are optional



## 4.3 DRILL SCHEMATICS

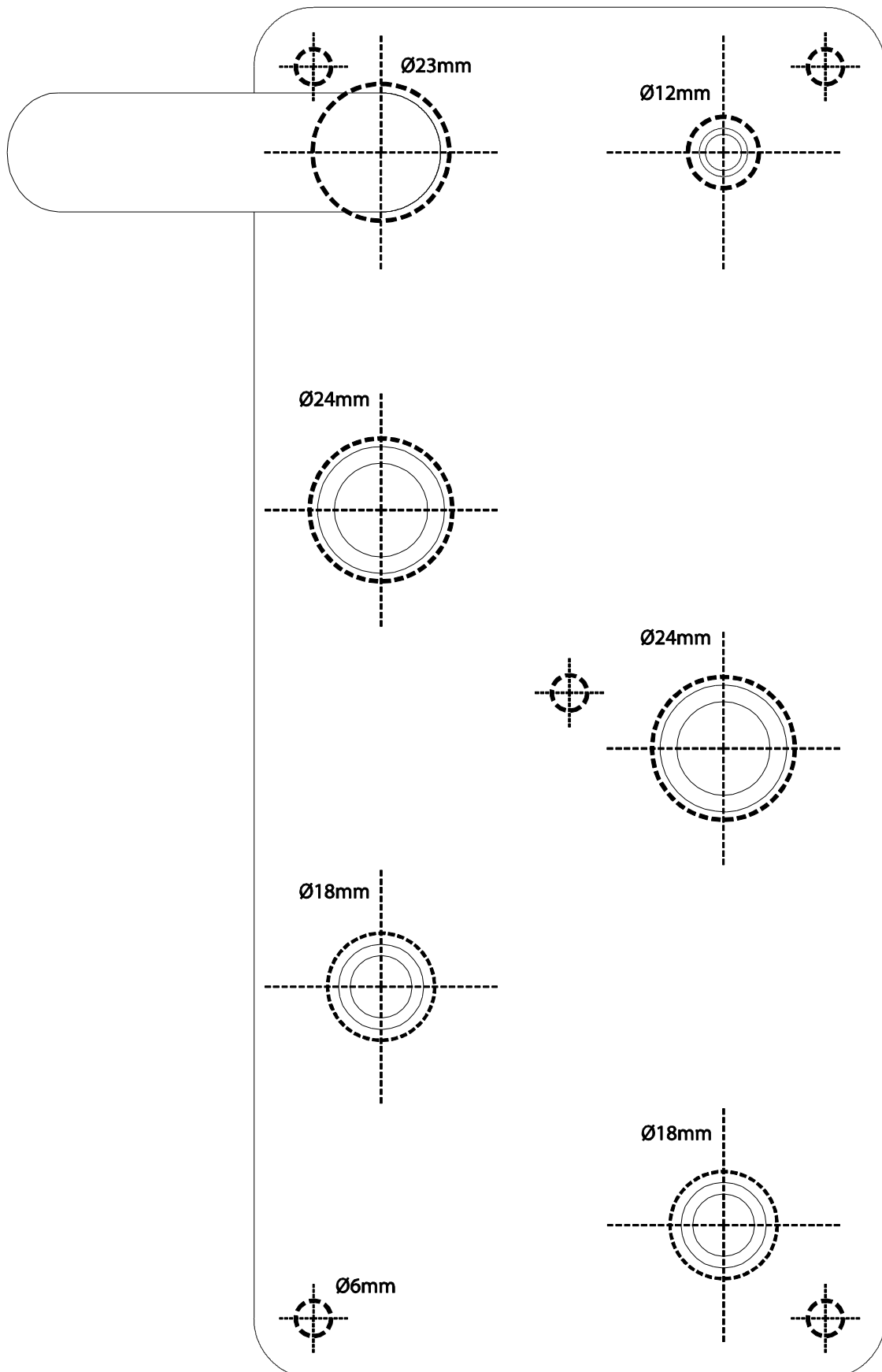


Figure 13: Drill schematic feed through plate for water cooled engine only with  $\frac{3}{4}$ " and  $\frac{1}{2}$ " connections.



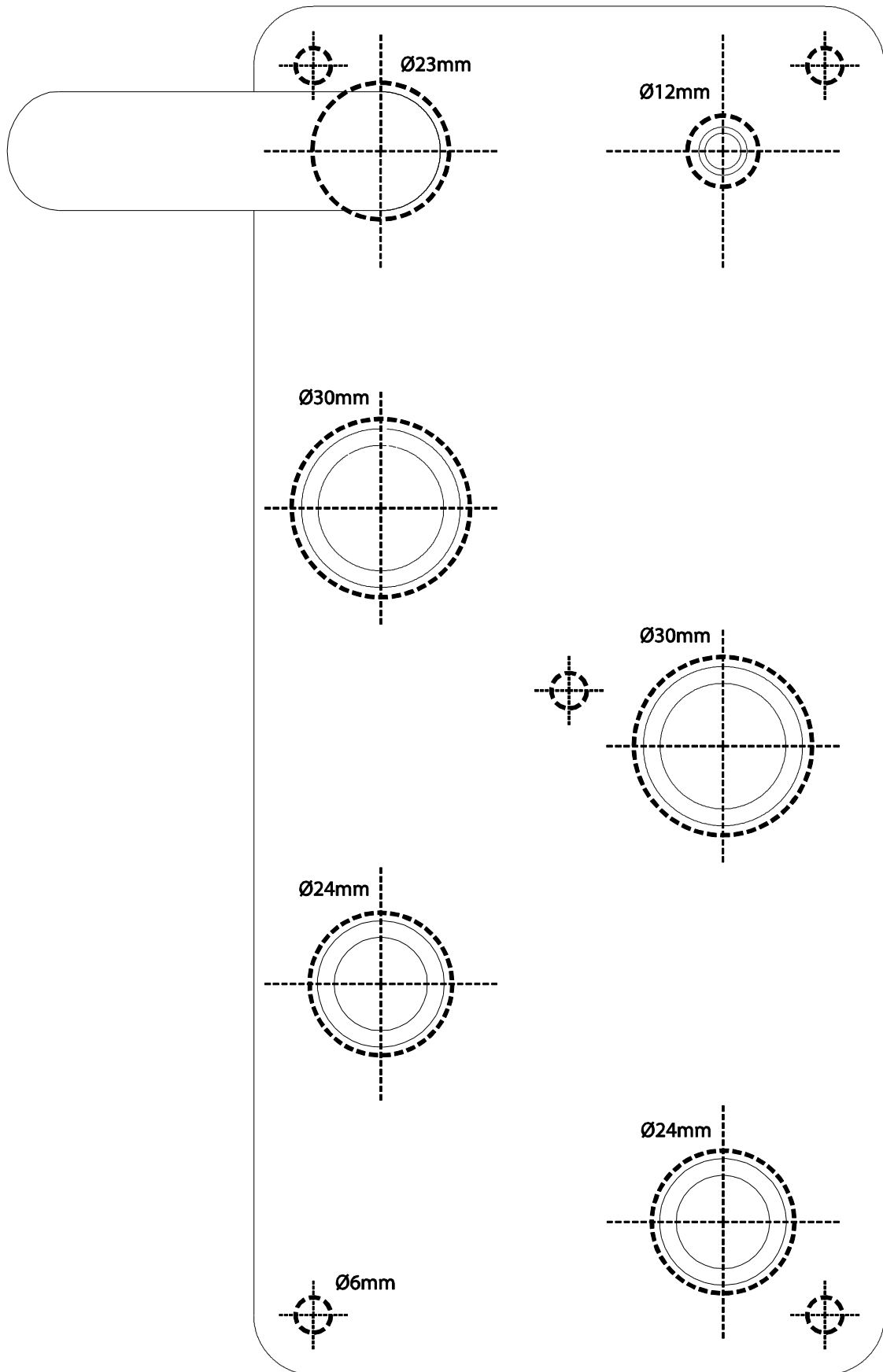


Figure 14: Drill schematic feed through plate for water cooled engine only with 1" and 3/4" connections.





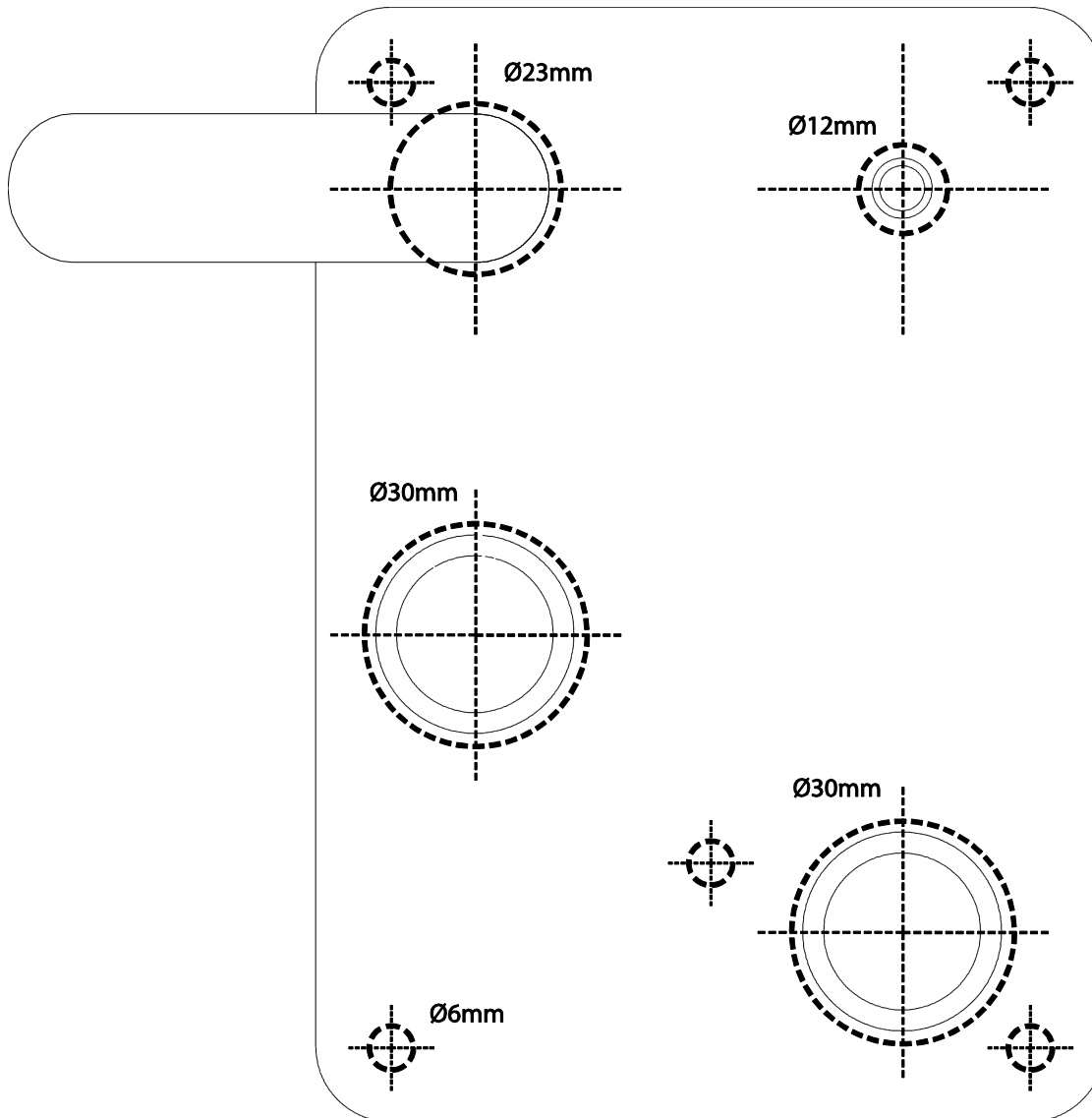


Figure 15: Drill schematic feed through plate for water cooled engine only (1" connection).







Kelvinlaan 82, 9207 JB Drachten, The Netherlands  
Tel : + 31-512-571550 / Fax : + 31-512-571599  
[www.whisperpower.eu](http://www.whisperpower.eu) / [info@whisperpower.nl](mailto:info@whisperpower.nl)