LIQUIDTOOL.

AHB

TOOLING & MACHINERY

COMPLETE METALWORKING SOLUTIONS

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LIQUIDTOOL AutoPilot

Site readiness specification

1. SmartFiller

1.1 Mechanical mounting

- Magnetic mounting surface (horizontal) of min. 250 x 150 mm. The maximum suction height of the concentrate is 1.5m/5ft.

1.2 Coolant concentrate

- In close proximity to the SmartFiller (hose length 1.5 meters/5ft)

1.3 Water supply

- Hose with G 3/4 female thread
- Line pressure 3 to 6 bar
- System separator type BA

1.4 Power supply

- 100-230V AC within a radius of 3 meters/10 feet

2. Sensor 01 & Extender

2.1 Mechanical mounting

- Magnetic mounting surface of min. 500 x 250 mm. The maximum suction height is 1.5m/5ft.
- Opening in the coolant tank of at least Ø 110 mm. After assembly, the tank can be partially closed again. However, the following hoses must lead into the tank: 1x Ø20mm, 3x Ø6mm

2.2 Power supply

- 100-230V AC within a radius of 3 meters/10 feet

3. Data connection

Requirements apply to both the SmartFiller and the Sensor 01.

- Data connection (with Internet access)
  - WLAN
    WPA, WPA2, WPA2 Enterprise encryption is possible
    Login data via web input is not possible
  - Ethernet connection (RJ45)
    (The required patch cable is not part in the scope of delivery)
- Both devices must be in the same network, incl. subnet
- IT infrastructure requirements, according to the following table.
  Please check these specifications with your local network administrator to ensure that the installation runs smoothly.

4. IT infrastructure requirements

Please check these specifications with your local network administrator to make sure the installation runs smoothly.

API	Protocol	Host name (current)	Postfix	Port
Data Telemetrie (AMQP)	AMQPS	mq.iiot.liquidtool.com	/	5671
Authentification Server (REST)	HTTPS	identity.liquidtool.com	/auth/realms/lts	443
Firmware Updates	TCP	deb.iiot.liquidtool.com		443
Time server	UDP	ntp.liquidtool.com/		123

5. Piping recommendation

When installing the Liquidtool AutoPilot, the outlet on the SmartFiller must be connected to the inlet on the Extender to top up the machine with an emulsion. The piping must be installed depending on the situation on site. Since the conditions are different for each installation, each user must choose the right type of installation for himself. This document shall only be used as a source of information.

5.1 Connections

SmartFiller

Water inlet	G3/4 male thread
Emulsion outlet	Hose barb Ø16mm

Extender

Emulsion inlet	G3/4 male thread

5.2 Connection cross-section

The expected volume that the SmartFiller mixes is around 800 liters per hour. Note that the applied water pressure, the pipe length as well as their cross-section and condition directly influence this volume. In general, we recommend using a 3/4-inch pipe cross-section, so as not to unnecessarily affect the flow. For short piping under 10 meters, however, we also recommend 5/8 inches.

5.3 Flexible / temporary installation

Installations on single machines and temporary installations can be done through flexible hoses. Since the length in this case is small, 5/8-inch hoses are suitable. Please note that the hoses must be resistant to the coolant in use.

5.4 Fixed installation

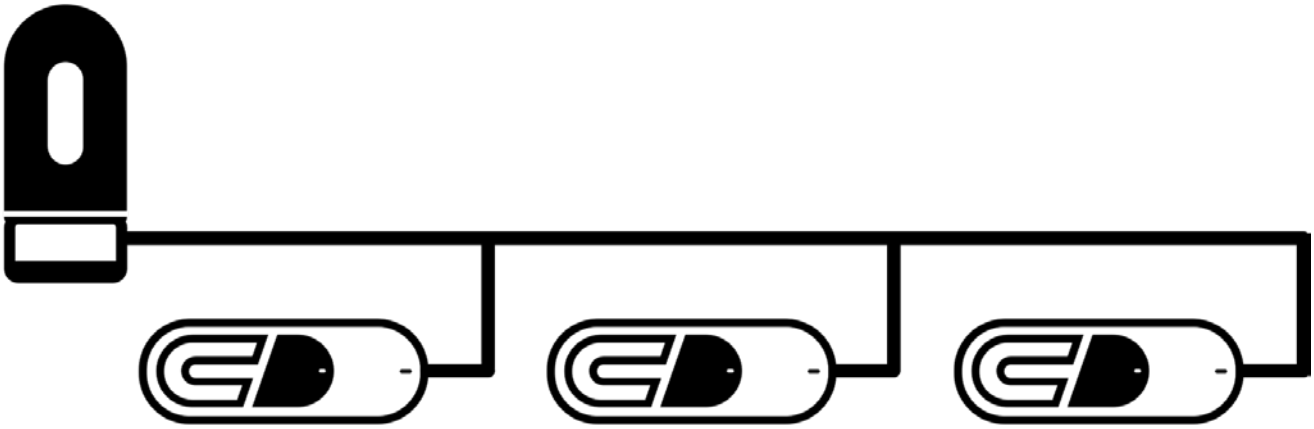
For fixed installations with a connection length of more than 10m, we always recommend fixed piping. However, since the Liquidtool devices are only attached magnetically and are therefore relatively flexible, we recommend to use a flexible hose as the last piece of connection to the devices.

5.5 Types of piping

Depending on the application, there are different possibilities of piping. Either one of the following variants or a combination of both can be used.

5.5.1 Branch system

One pipe passes all machines and has a branch to each machine. This type of installation is particularly recommended when several machines are **in line** and require a **similar target concentration**.



5.5.2 Manifold system

A manifold is installed as close as possible to the SmartFiller and then individual pipes are routed to the machines. If the connected machines have a **big difference** in target concentration and top up rate, this variant is recommended because the common pipe to the machines is only short.