

Acid Filler SF4-8D (movable filling heads)

SF4-8D fills VRLA batteries according to the vacuum principle with a preselected mass or volume per cell. The machine consists of a stand with a 2000 mm belt conveyor, a measuring unit and a filling unit.

A tank equipped with a pump, valves and level control is placed at the bottom of the stand.

All parts that come into direct contact with acid are made of PVC, PP or Hastelloy 267. Stand, cylinders, and cabinets are made of stainless acid-proof steel.

Principle of operation:

The measuring unit consists of twelve volume vessels, one for each cell, with valves. The volume vessels are connected to two highly accurate mass flow sensors of Coriolis type or electromagnetic volume sensors (6 volume vessels per each sensor).

The filling unit consists of two filling stations with a movable filling head. Each filling head has 6 adjustable filling nozzles. Each filling nozzle is equipped with one optical sensor to ensure that whole measured acid volume enters the cell

Six expansion vessels are connected to each filling head. Each filling station is also fitted with one vacuum pump.

In automatic mode two 12V batteries are fed into the filling stations. When the batteries are in place the filling heads lower until the filling nozzles form a tight seal on the vent plug holes. The vacuum pumps empty the air out of the batteries and the expansion vessels.

When the vacuum in the recipe has been achieved, the valves between the measuring unit and the filling unit are opened and the measured volume is sucked over into the expansion vessels. The venting valves open and the acid is forced down into the batteries. The cycle will continue alternating between opening to atmospheric pressure and creating new vacuum. The optical sensors in the filling nozzles control that the whole mass/volume has entered the batteries. If this has not happened, a new vacuum cycle is started.

During the filling cycle acid for the next two batteries are measured into the volume vessels.

When all the sensors have switched off, the filling heads are raised and the filled batteries are transported out and two new batteries enter the filling position.

Templates can be made for easy adjustment of the filling nozzles.

The machine can accommodate an optional weighing system and system for gel electrolyte.

KÄLLSTRÖM

ENGINEERING

FEATURES:	TECHNICAL DATA (STANDARD MACHINE)	
• Filling with a specific acid mass or volume	Capacity	Depends on battery design
• Vacuum pulse filling	Accuracy	± 5g mass (Coriolis)
• High filling accuracy		± 0.75% (Electromagnetic) for volumes > 250 ml
• Movable filling head with adjustable nozzles	Dimensions (LxWxH)	2800x1450x2900 mm (79x58x106")
• Great flexibility		Voltage
• Short change over time	Power consumption	<2.5kW (at normal use)
• Minimum dripping	Pressure	6 bar
• Robust design	Connections	R ¹ / ₂ "
	Air consumption	<100NI/min
OPTIONS:	Acid Tank	1 x 280 litres (1 x 74 gallons)
• Battery Weighing and Reject system	Acid connection	Ø32
• Acid Density measuring (Coriolis)	PLC system	Siemens Siematic S7 or Allen Bradley SLC 5/03 (other brands/models available on request)
• Acid Cooling		
• Tank for several acid densities		
• Gel mixing and Gel filling		
• Filling of batteries with voltage ≠ 12V		
• Filling of flooded batteries		
• Product Identification		
• Database		