



Business Unit Energy Storage

Preliminary Datasheet – Subject to Change Without Notice

SCHMALZ Redox-Flow-Battery Stack Generation 4.0

V 1.0 / Feb. 2026

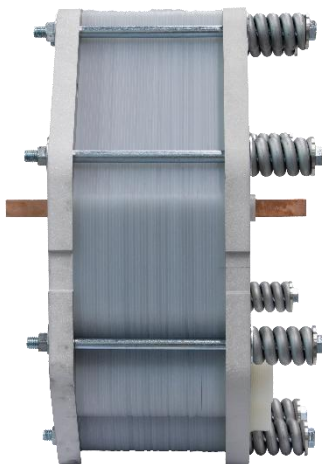
ARTICLE NO. / TYPE DESCRIPTION

19.01.01.02031/ RFB-ST V 8-10 40Z

Applications:



Front view

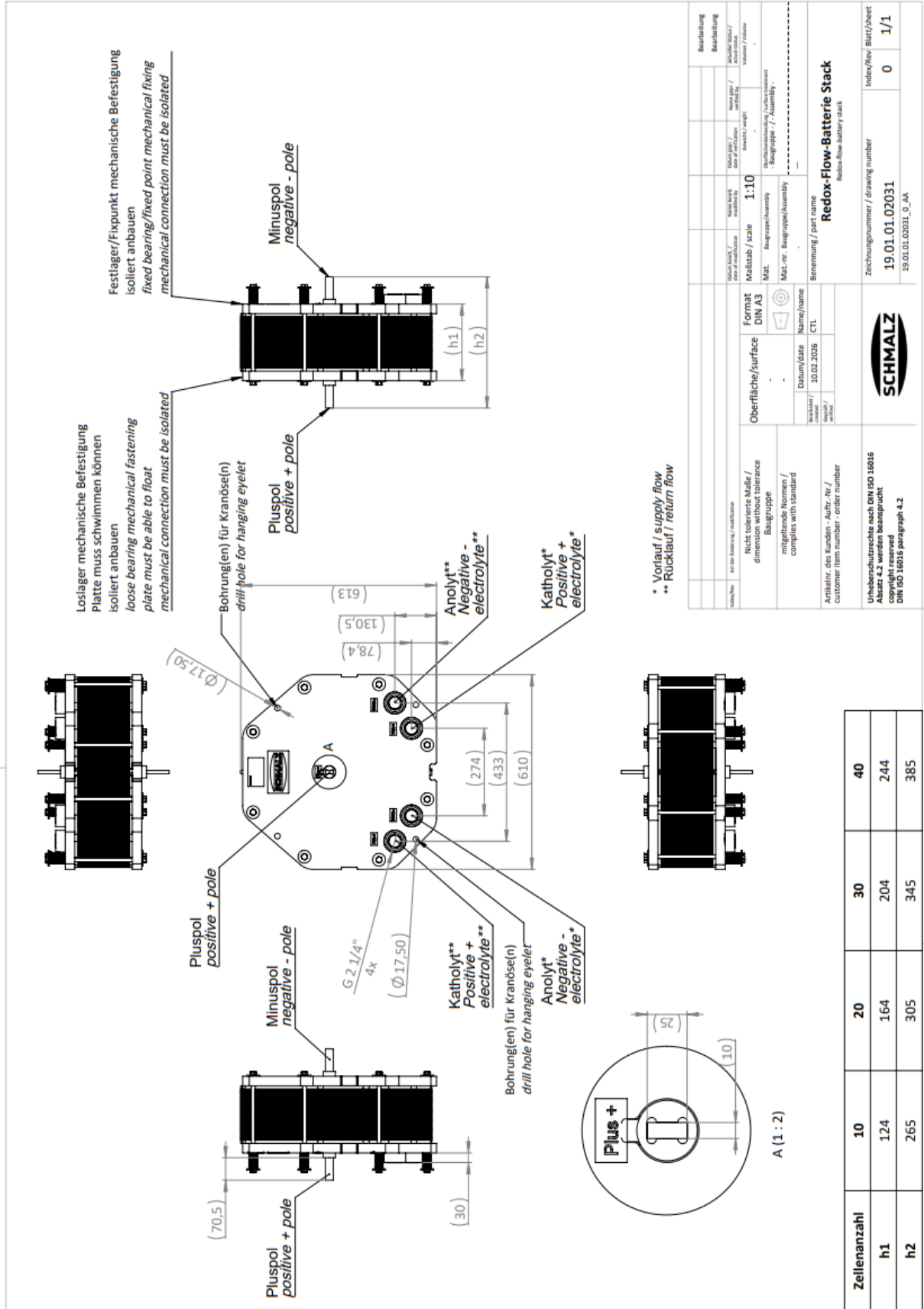


Side view

- Stack for use with vanadium electrolyte solution with sulfuric acid as base electrolyte.
- Suitable for multiple chemistries (Organic, Fe/Cr, H₂/Me and similar items)
- Easy access of the hydraulic connections (inlet & outlet) at the bottom
- Ultra Deep Mäander (Patented Technology) provides the best shunt current protection at given pressure loss
- Very thin cell design provides excellent mass transport at given flow rate.
- Can be adopted on different electrodes and membranes
- Multiple redundant sealing system
- Compact design and ready for cascading
- Stack voltage can be adjusted by the number of cells (typically 40 cells)
- Two centrally located electrical connection points
- Low internal electrolyte volume resulting in less self discharge.
- Flow-Through and suitable for Flow-By Technology

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Technical drawing on next page





* Vorlauf / supply flow
** Rücklauf / return flow

Bearbeitung Bearbeitung machining / machining Name / Name Date / Datum Verifiziert By / verified by Version / Version	Maßstab / scale 1:10 Maßstab / scale 1:10 Maßstab / scale 1:10	Format DIN A3 Oberfläche/surface Datum/Date 10.02.2026 Name/Name CTL	Zeichnungsnummer / drawing number 19.01.01.02031 Index/Rev. Blatt/Sheet 0 / 1/1
M3T-nr. Baugruppe/Assembly M3T-nr. Baugruppe/Assembly M3T-nr. Baugruppe/Assembly	Benennung / part name Redox-Flow-Batterie Stack Redox-flow-battery stack		Zeichnungsnummer / drawing number 19.01.01.02031 Index/Rev. Blatt/Sheet 0 / 1/1
Nicht tolerierte Maße / dimension without tolerance Baugruppe mitgelieferte Normen / complies with standard	Artikelnr. des Kunden - Auftr. Nr. / customer item number - order number	Urheberrechte nach DIN ISO 16016 Absatz 4.2 werden beansprucht Copyright reserved DIN ISO 16016 paragraph 4.2	

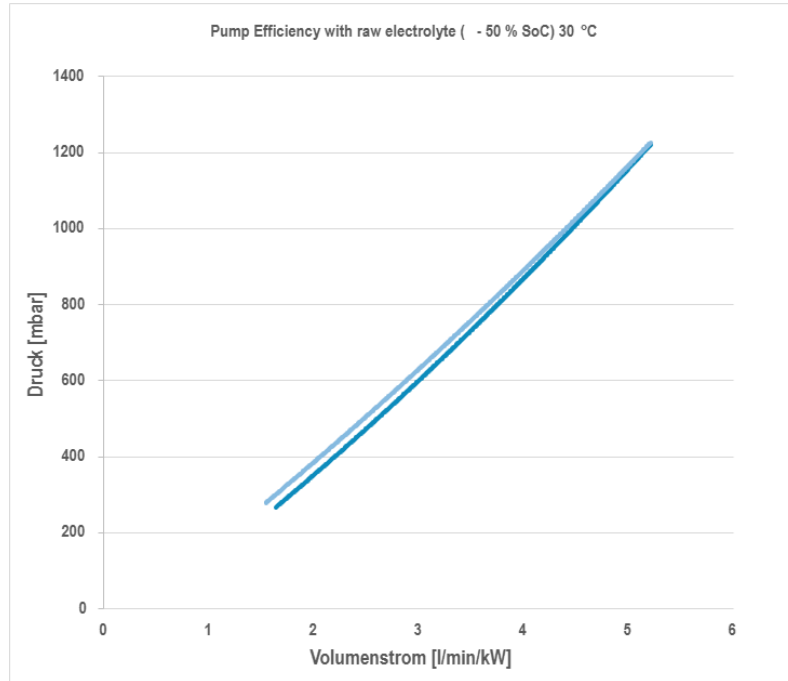
Zellenanzahl	10	20	30	40
h1	124	164	204	244
h2	265	305	345	385

📄 Technical Data

Power	8 – 10 kW nominal, 12 kW peak	
Voltage range	40 V to max. 63,2 V	
Nominal current	165 A	
Peak current	280 A	
Number of cells	40	
Volumetric flow rate	max. 60 l/min per anolyte- and catholyte side min. 20 l/min per anolyte- and catholyte side	
Permitted operating pressure	max. 100 kPa (1,0 bar)	
Maximum pressure difference	Maximum pressure difference of 10 kPa (0.1 bar) tolerated temporarily. Operate both half-cell sides with equal pressure	
Permitted operating temperature	min. 10°C to max. 40° C	
Permitted storage temperature	min. 0°C to max. 60° C	
Internal volume	approx. 26 L (40 cells)	
Dry weight	approx. 90 kg (without electrolyte)	
Fluid connection	4 x G 2 ¼" AG (groove designed for O-Ring 46,99 x 5,33 mm)	
Electrical connection	1 x Plus-Pol 1 x Minus-Pol	
Accessoires + spare parts	<p>accessories: 19.01.01.01493 – half threaded connection female contains:</p> <ul style="list-style-type: none"> - Union nut G 2 ¼" - PP-insert DN50 	
	<p>Spare parts: 10.07.08.00713 - O-Ring FKM 46,99x5,33</p>	

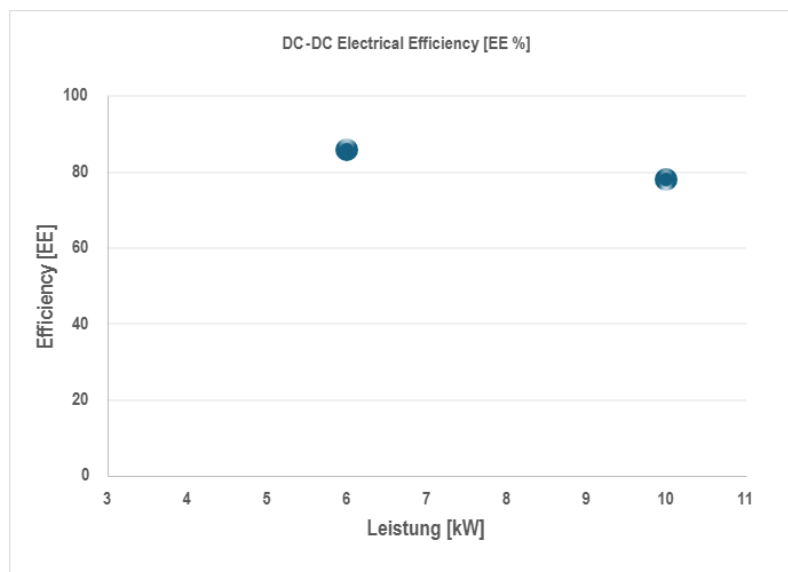


Pump Efficiency of a 10 kW Stack (40 cells)



The characteristic curve was recorded using a Vanadium 1.6 mol/L standard raw electrolyte. The viscosity of the electrolyte correlates with its composition, strongly with temperature and with the state of charge.

Electrical Efficiency of a 10 kW Stack (40 cells)



The electrochemical performance is dependent on the electrolyte formulation (cation and anion concentration) and its physical properties like conductivity and viscosity. The electrical efficiency is highly dependent on the flow rate and the electrolyte temperature.