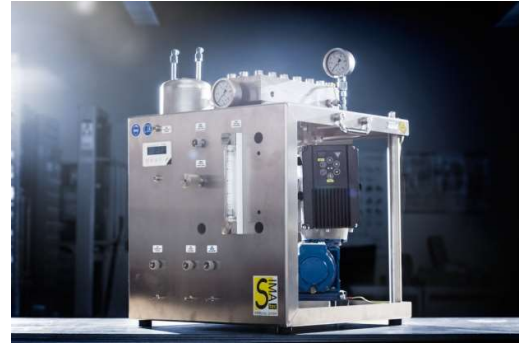
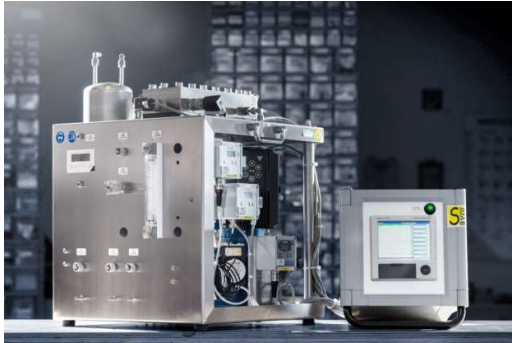


## CUBE 80-VA



### DIMENSIONS

Dimensions	50 x 50 x 50 cm (L x W x H)
Weight	approx. 55 kg
Material (wetted parts)	Stainless steel (group 316) / EPDM / FEP / PTFE / FPM (Viton®)*
IP protection class	IP 54

### ELEKTRICAL DATA

Connection for power supply	230V / 50 Hz / 16 A-CEE
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### DATA

Storage tank	approx. 2,5 l / stainless steel	
Test cell (standard)	stainless steel / 85 cm <sup>2</sup> flat sheet membrane	
Application range	NF / RO (MF / UF)	
Temperature range	5 - 60 °C	
Pressure range	1 - 80 bar**	
Flow rate	25 - 100 l/h (controllable via pump FC)	
Pulsation damping	dynamic over the entire pressure range	
Dead volume	approx. 100 ml	
Minimum system volume***	approx. 220 ml	(pressureless)
	approx. 270 ml	(80 bar)

(The specified technical data are maximum values and do not coincide all at the same time!)

SENSORS	MEASURING RANGE	QUANTITY
Pressure	0 - 100 bar	(2 pieces)
Flow rate (concentrate) (rotameter)	50 - 750 ml/min	(1 piece)
Temperature (storage tank)	0 - 100 °C	(1 piece)

## FIELD OF USE

Training and practical operation

Experiments with different membrane materials

Concentration of test solutions

Processing of small quantities of raw materials

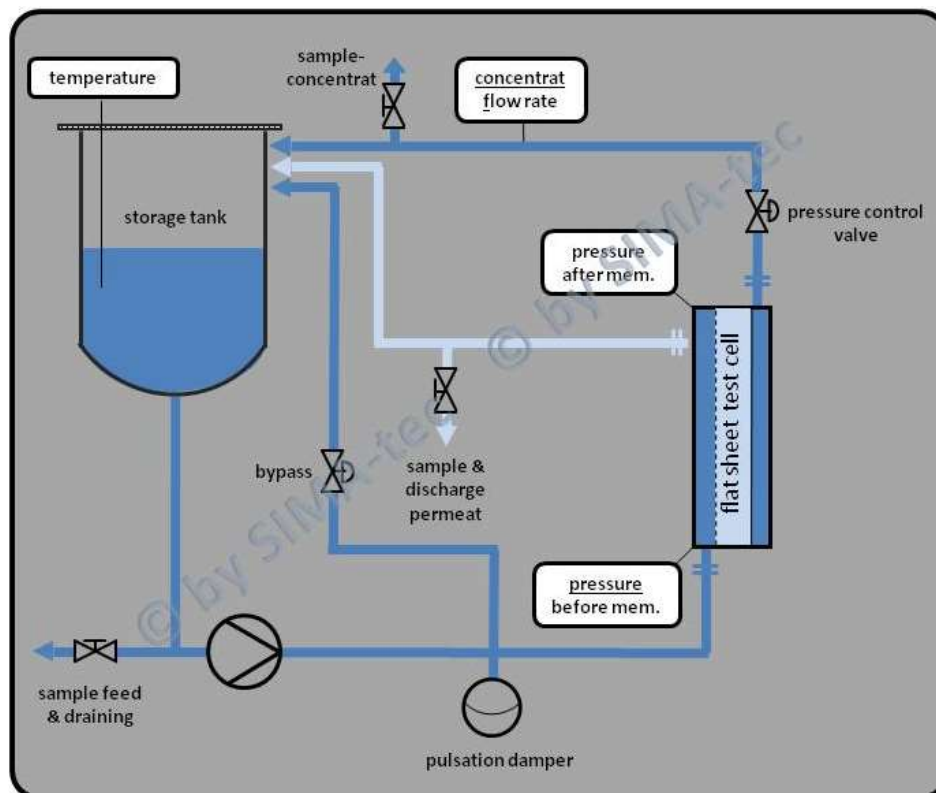
Experiments on the cleanability of membranes

\* optional available

\*\* at a flow rate of 30 l/h

\*\*\* minimal volume the system can operated with

## Schematic view of the Cube 80-VA, without options



## OPTIONS

Option 1: Volume flow measurement permeate	Rotameter 1 - 10 ml/min
Option 1a: Set for alternative measuring range (permeate)	Replacement glass tube with cone and inlets 4 - 60 ml/min or 30 - 280 ml/min
Option 2: Heat exchanger	Pressure resistant stainless steel cooler, mounted in the feed line (Dead volume approx. 15 ml)
Option 2a: Cooling coil	Stainless steel cooling coil mounted on the tank lid of the storage tank (8 mm tube diameter)
Option 3: Temperature control unit (via solenoid valve with tap water)	Solenoid valve with downstream regulating valve Switchable socket with temperature display and external temperature sensor
Option 4: Storage tank refill system (via peristaltic pump and level switch)	Height adjustable level switch in the storage tank Peristaltic pump for refilling (max. 20 l/h)
Option 5: Dry run protection (pump)	Optical dry run sensor
Option 6: Wetted seals in FPM (Viton®)*	Replacement of all media wetted EPDM sealing materials incl. pump diaphragm by FPM
Option 7: Measuring box (measurement data collector with progress display)	Inputs: 8 sensor inputs Display: measurement data in colour display as online value and line recorder Data memory: internal or SD card Interface: USB and Ethernet Electronic sensors supplied: <ul style="list-style-type: none"> <li>• 2* pressure, 0-100 bar</li> <li>• 1* temperature, 0-100 °C</li> <li>• 1* volume flow concentrate, 0 – 180 l/h, IDM magnetic inductive</li> <li>• 1* permeate mass flow, 0,1 - 20 kg, coriolis-mass meter</li> </ul>

<p>Option 7a: (Extension of the measuring box)</p>	<p>Extension of the sensor inputs from 8 to 12 (4 – 20 mA)</p>
<p>Option 7b: Conductivity sensor for connection to measuring box</p>	<p>Conductive conductivity sensor with temperature compensation and 4-pole measuring cell Measuring range: 0,0 – 500 mS/cm and graduated in 5 measuring ranges Flow cell made of PVDF for installation in the concentrate or permeate line Cable wit pre-configured plug for direct connection to the measuring box</p>
<p>Option 7c: pH-sensor for connection to measuring box</p>	<p>pH-transmitter with automatic or manual temperature compensation Standard pH electrode:</p> <ul style="list-style-type: none"> <li>• Wetted parts : glass, plastic shaft, ceramic</li> <li>• 12 mm Shaft</li> </ul> <p>Electrode suitable for horizontal installation Measuring range: 1 -12 pH Flow cell made of PVDF for installation in the concentrate or permeate line Cable wit pre-configured plug for direct connection to the measuring box</p>
<p>Option 7d: Differential pressure measurements between membrane inlet and outlet</p>	<p>VA-differential pressure sensor:</p> <ul style="list-style-type: none"> <li>• 0 – 400 mbar</li> <li>• Turn Down 1:50</li> <li>• Basic accuracy 0,075 %</li> </ul> <p>Cable wit pre-configured plug for direct connection to the measuring box</p>
<p>Option 7e: Pressure sensor permeate</p>	<p>Pressure sensor: 0 – 2,5 bar Cable wit pre-configured plug for direct connection to the measuring box</p>
<p>Option 8: Extension flat sheet membrane test cell</p>	<p>Extension of the test cell by another membrane.</p> <ul style="list-style-type: none"> <li>• additional centre plate with 85 cm<sup>2</sup> membrane surface</li> <li>• spacer und PTFE-shim plates to vary the feed channel</li> </ul> <p>Adjustment of the screw set and the piping (concentrate and permeate) Additional sampling of permeate</p>

	Switching option via 3-way valve for separate measurement of permeates
Option 8a: Extension hollow fibre membrane	<p>Unit for holding hollow fibre membranes Hollow fibre membranes potted into a PVC pipe (AD 25 mm)</p> <ul style="list-style-type: none"> <li>• Permeate collector for flange-mounting</li> <li>• 2* pressure sensors, 0 – 10 bar</li> <li>• 1* temperature sensor, 0 – 100 °C</li> </ul>
Option 8b: Extension 1812er spiral-wound module	<p>Winding module housing made of stainless steel Winding module type 1812 (approx. 0,3 m<sup>2</sup> membrane surface) Pressure stage PN60, up to 60 °C</p>
Option 8c: Extension ceramic module	<p>Mounted in the hollow fibre membrane mounting unit Mounting of monochannel membranes, 3 mm ID / 6mm AD by Atech</p>
Option 9: Conditioning unit flat sheet membranes	Simple and chemical- saving conditioning and hydrophilising of dry flat sheet membranes
Option 10: Pulsation damper filling kit	<p>Easy filling or refilling of the pulsation damper Consisting of:</p> <ul style="list-style-type: none"> <li>• Compressed air hand pump with drain valve</li> <li>• Pressure gauge</li> <li>• High pressure filling hose</li> </ul>



## Schematic view of the Cube 80-VA, with options

