

Reverse osmosis units

HighPower 48,000...240,000
(2...10 m³/h)



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Skid mounted R.O. System consisting of:

Rigid frame made of aluminium profile (option: stainless steel frame); **sediment filter** made of stainless steel with polypropylene filter cartridges (standard size); **dosing station** (option) consisting off: PE tank with sucking lance and level switches, dosing pump (type *Grundfos*, optional *Iwaki* or *Prominent*), static mixer (type *AquaCare*) for intermixing the chemicals with the feed water; **pre pressure switch** (feed pressure) for protecting the pumps against cavitations and running dry; **inlet solenoid valve**; multistage high pressure **circulation pump** (type *Grundfos*) made of stainless steel with air-cooled motor IP 44; soft start; optional: water cooled pumps (type *Grundfos*) for container mounting; **high pressure tubing** made of austenitic stainless steel 1.4571 (316 Ti); connections made with *Victaulic*; **low pressure tubing** made of PVC-U and PE (Polyethylene); **pressure vessels** (type *Youber*) made of fibre glass reinforced plastic FPR, surface with paint coat; bacteria resistant low energy thin film composite **TFC membranes** made of polyamide and polysulfone (type *CSM*, optional others); **flushing solenoid**, servo controlled made of brass; **flow meter** (float system) with contact for control (optional: electronic flow meter type *Krohne*); glycerine filled **pressure gauges** for pre pressure, filter pressure, pump pressure, concentrate pressure, permeate pressure; **sample valves** for each vessel, permeate, concentrate and feed; **central drain** for emptying the whole unit for maintenance; **connectors for chemical flushing** of the membranes (optional CIP clean in place); **conductivity cell** for measuring electrical conductivity (proportional to TDS); reject flow adjusted with a stainless steel **gate valve**; **check valve** for permeate outlet made of PVC; **electric box** with all necessary components and R.O. micro-processor control "RO-matic" with: two row text display (English or German; optional: other languages) and membrane keyboard; displays: electrical conductivity of permeate, flushing function, control of high pressure pump, unit shut off if inlet pressure is lost, control for the dosing system, hour meter for high pressure pump, connections for water level in the collecting tank, potential-free switches for permeate alarm and a general fault signal.
optional: PLC, CIP.

Minimum feed water quality:

Iron and manganese: max. 0.1 mg/l (pre-filtration possible); free of oxydating agents (e.g. chlorine), activated carbon filter is possible; we recommedoned a softener or dosing station at hard feed water ; strontium and barium: not detectable ((pre-filtration possible); electrical conductivity: max. 2.000 μ S/cm; (ca. 1000 ppm TDS; $SDI_{15} < 3$
The design is made with a special software dependend on feed water analysis.

Technical data of models HP 48,000...240,000

Model	HP 48,000	HP 72,000	HP 96,000	HP 120,000	HP 144,000	HP 168,000	HP 192,000	HP 216,000	HP 240,000
Order number	142-002	142-003	142-004	142-005	142-006	142-007	142-008	142-009	142-010
Flow* in m ³ per hour	2	3	4	5	6	7	8	9	10
Daily flow* in m ³ per day	48	72	96	120	144	168	192	216	240
Salt Rejection of the membranes **	99.2% at membrane standard conditions (at 10.34 bar = 150 psi, 1500 mg/l NaCl, 25°C, 15% recovery)								
Typical salt rejection at 75% recovery**	96.4%	96.8%	97.1%	97.3%	97.7%	97.8%	97.9%	98.0%	98.1%
Operating temperature	5...30°C								
Feed-pressure (after pre-filtration)	> 1 bar during operation but maximum 6 bar								
Typical working pressure / membrane pressure	7...9 bar								
Type of unit	unit with professional aluminium frame								
Type of pump / materials	multi stage circulation pump made of stainless steel								
Motor	3 phase, IP 55, 2,940 min ⁻¹ , self ventilated								
Concentrate-permeate-ratio	1:1 ... 1:3								
Recovery	50 ... 75%								
Type of modules / material of modules**	spiral wound modules made of polyamide-polysulfone (TFC), low pressure type								
Size of modules	8040								
Numbers of modules	2	3	4	5	5	6	7	8	9
Pre-filtration at 75% recovery	3 × 40" 5 µm					5 × 40" 5 µm			
Water touched materials	stainless steel 1.4541, 304, 316L, polyethylene, brass, PVC-U, NBR								
Electrical connection	400 volts, 50 Hz								
Installed power (at 75% recovery)	2.5 kW	2.6 kW	3.2 kW	4.0 kW	4.5 kW	4.5 kW	5.5 kW	5.5 kW	5.5 kW
Typical power of the pump at 15°C	2.34 kW	2.42 kW	3.07 kW	3.43 kW	4.35 kW	4.37 kW	5.1 kW	5.1 kW	5.7 kW
Grundfospumpe	CRN5-16	CRN5-16	CRN5-20	CRN5-22	CRN10-12	CRN10-12	CRN10-14	CRN10-14	CRN10-16
Specific work of the pump at 15°C in kWh/m ³	1.2	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Water connectors (PVC unions, flanges on request)	Zulauf, Permeat: d50; Konzentrat: d40; (bei 75% Ausbeute)					Zulauf, Permeat: d63; Konzentrat: d50; (bei 75% Ausbeute)			
Dimensions (L × W × H) in mm	2500 × 700 × 1200			3500 × 1000 × 1200					
Weight in kg	150	170	190	240	260	280	300	320	340

Modifications possible;

all units are designed for the feed water quality, so variations are possible.

* Flow at 500 ppm TDS, 15°C, 2 bar feed-pressure

** Models with higher rejection are possible

