KeenSen® 沁森高科

Concentration Make Creative Technology

Project Info:			
Project Name:	Установка 5м3	Design Date:	10/13/2026
Company Name:	АО АБВГ	Design By:	Иванов И.И.
Notes:	Установка разрабатывается в соотвествии с технически заданием №222		

System Details

Raw Water Flow to System:	7.14 m³/h	Feed Pressure:	11.51 bar	Osmotic Pressure of Feed:	0.25 bar
Feed Flow to Stage 1:	9.14 m³/h	Feed TDS:	584.47 mg/L	Osmotic Pressure of Concentrate:	0.79 bar
Pass 1 Recovery:	70.00 %	Permeate TDS:	3.88 mg/L	Average Osmotic Pressure:	0.52 bar
Pass 1 Permeate Flow:	5.00 m³/h	Feed Temperature:	10.0 °C	Average NDP:	9.86 bar
Average Pass 1 Flux:	24.46 LMH	Number of Elements:	5	Power:	3.65 kW
Flow Factor:	0.85	Total Active Area:	204.38 M²	Specific Energy:	0.73 kWh/m³
Chem. Dose:	None	Water Classification:	Well Water SDI < 3		

Stage	Element	#PV	#Ele	Feed Press (bar)	Conc Press (bar)	Perm TDS (mg/L)	Feed Flow (m³/h)	Perm Flow (m³/h)	Conc Flow (m³/h)	Avg Flux (LMH)	Perm Press (bar)	Boost Press (bar)	Recirc Flow (m³/h)
1	ULP-8040MR-2	1	3	11.17	10.37	3.28	9.14	3.13	6.01	25.51	0.00	0.00	2.00
2	ULP-8040MR-2	1	2	10.02	9.72	4.93	6.01	1.87	4.14	22.90	0.00	0.00	0.00

Pass Streams (mg/L as Ion)

Name	Feed	Adjusted Feed		Permeate			Concentrate	
		Initial	After Recycles	Stage 1	Stage 2	Total	Stage 1	Stage 2
NH4+ + NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Na	20.96	20.96	31.59	0.14	0.26	0.19	47.94	69.48
Mg	17.38	17.38	26.22	0.06	0.12	0.08	39.82	57.76
Ca	104.81	104.81	158.10	0.38	0.68	0.49	240.13	348.32
Sr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO3	0.18	0.18	0.43	0.00	0.00	0.00	1.07	2.43
HCO3	384.43	384.43	579.47	2.47	3.48	2.83	879.17	1273.36
NO3	1.33	1.33	1.98	0.06	0.11	0.08	2.97	4.27
Cl	7.38	7.38	11.13	0.02	0.04	0.03	16.91	24.53
F	1.09	1.09	1.64	0.01	0.02	0.01	2.49	3.61
SO4	46.91	46.91	70.78	0.13	0.23	0.17	107.53	156.01
SiO2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Boron	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2	80.19	80.19	80.23	79.65	80.14	79.83	80.52	81.12
TDS	584.47	584.47	881.34	3.28	4.93	3.88	1338.04	1939.77
pH	6.90	6.90	7.06	4.83	4.97	4.88	7.21	7.35

Permeate Flux reported by KeenSen RO System Design Software is calculated based on active membrane area. The actual membrane performance may vary from the different operating standrad,geographical conditions and working time. So the caculate data by KeenSen is for designer reference only, customer need to judge the caculation data by themself and bear the relatavent responsibility.

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Solubility Warnings
Langelier Saturation Index > 0
Stiff & Davis Stability Index > 0
CaF2 Saturation (%) > 100%
Antiscalants may be required. Consult your antiscalant manufacturer for dosing and maximum allowable system recovery.

Design Warnings
-None-

Stage Details

Stage 1

Element	Feed Press (bar)	Feed TDS (mg/L)	Perm TDS (mg/L)	Feed Flow (m³/h)	Perm Flow (m³/h)	Recovery
1	11.17	881.34	2.91	9.14	1.07	0.12
2	10.85	998.38	3.25	8.07	1.04	0.13
3	10.58	1145.90	3.72	7.03	1.01	0.14

Stage 2

Element	Feed Press (bar)	Feed TDS (mg/L)	Perm TDS (mg/L)	Feed Flow (m³/h)	Perm Flow (m³/h)	Recovery
1	10.02	1338.04	4.45	6.01	0.95	0.16
2	9.85	1588.59	5.43	5.06	0.92	0.18

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Scaling Calculations			
	Raw Water	Adjusted Feed	Concentrate
pH	6.90	6.90	7.35
Langelier Saturation Index	-0.42	-0.42	1.01
Stiff & Davis Stability Index	0.20	0.20	1.21
Ionic Strength (Molal)	0.01	0.01	0.04
TDS (mg/L)	584.47	584.47	1939.77
HCO3	384.43	384.43	1273.36
CO2	80.18	80.18	81.09
CO3	0.18	0.18	2.43
CaSO4 Saturation (%)	1.25	1.25	8.67
BaSO4 Saturation (%)	0.00	0.00	0.00
SrSO4 Saturation (%)	0.00	0.00	0.00
CaF2 Saturation (%)	16.55	16.55	603.44
SiO2 Saturation (%)	0.00	0.00	0.00
Mg(OH)2 Saturation (%)	0.00	0.00	0.00
To balance: 0.00 mg/L Na added to feed.			