



BWRO (brackish water reverse osmosis)

Low flow – by 4” membrane

Feed source: wells, river, lake and surface water

Feed quality: TDS<10,000ppm, Turbidity <10 NTU, 2.5<SDI<5

Permeate flow rate: 5 ~ 30 m³/day

Permeate quality: TDS<50ppm (or less), Turbidity<0.1NTU,
















System Recovery: 15~80% (by design)

Membrane type: FILMTEC (USA) BW30-4040

Reverse osmosis seawater is a desalination systems for independent and reliable fresh water supply. The reverse osmosis process is ideal for fresh water generation being easy to operate, economical and producing excellent water quality. Our BWRO product line covers a wide range of capacities and accessories to meet the needs of customers as well as the requirements of their applications.



Water treatment Brackish Water Reverse Osmosis (BWRO) – Low flow Technical Data sheet

plant	Water treatment			
Process	Brackish water reverse osmosis (BWRO) – low flow			
Fluid				
Feed: Brackish water	100<TDS<10,000 ppm	Turbidity : 1~20 NTU	Cl<1,000ppm	pH=7.5
Product: Potable	TDS:10~100 ppm	Turbidity < 0.1 NTU	Cl<200 ppm	pH:6.5~8.5
Unit	Equipment	Application / model	Manufacture	Country
Pretreatment	Feed pump	Pressure up to 5 bar / Centrifugal		Denmark
	Sand filter	Filtration > 50µm / FRP		England
	Activated carbon	Reduce Organic matter / C.S or FRP		Germany
	Chlorination Dosing	Reduce Organic matter/Dosing pump		Germany
	SMBS injection Dosing	Reduce free chlorine/Dosing pump		Germany
	Anti-scaling injection Dosing	Inhibitor / Dosing pump		Germany
	Micro filtration	Filtration > 5µm / PP filter		Iran
	Piping by UPVC	Piping / PN 10		Switzerland
RO	High pressure pump	Pressure: 15~25 bar / Vertical		Denmark
	Pressure vessel	Membrane housing / 300 psi		USA
	Membrane	Water treatment / BW-30-4040		USA
	Piping by AISI 316	Piping / SCH 20		Germany
	Concentrate valve	Set flow rate / Globe valve		Germany
Control and instrument	PLC and HMI or SCADA	Automatic control / S7		Germany
	Flow meter	Show flow rate / Rota meter, Glass		Italy
	Pressure switch	System safety / 25 bar		Denmark
	EC meter	Feed and permeate water sense		Switzerland

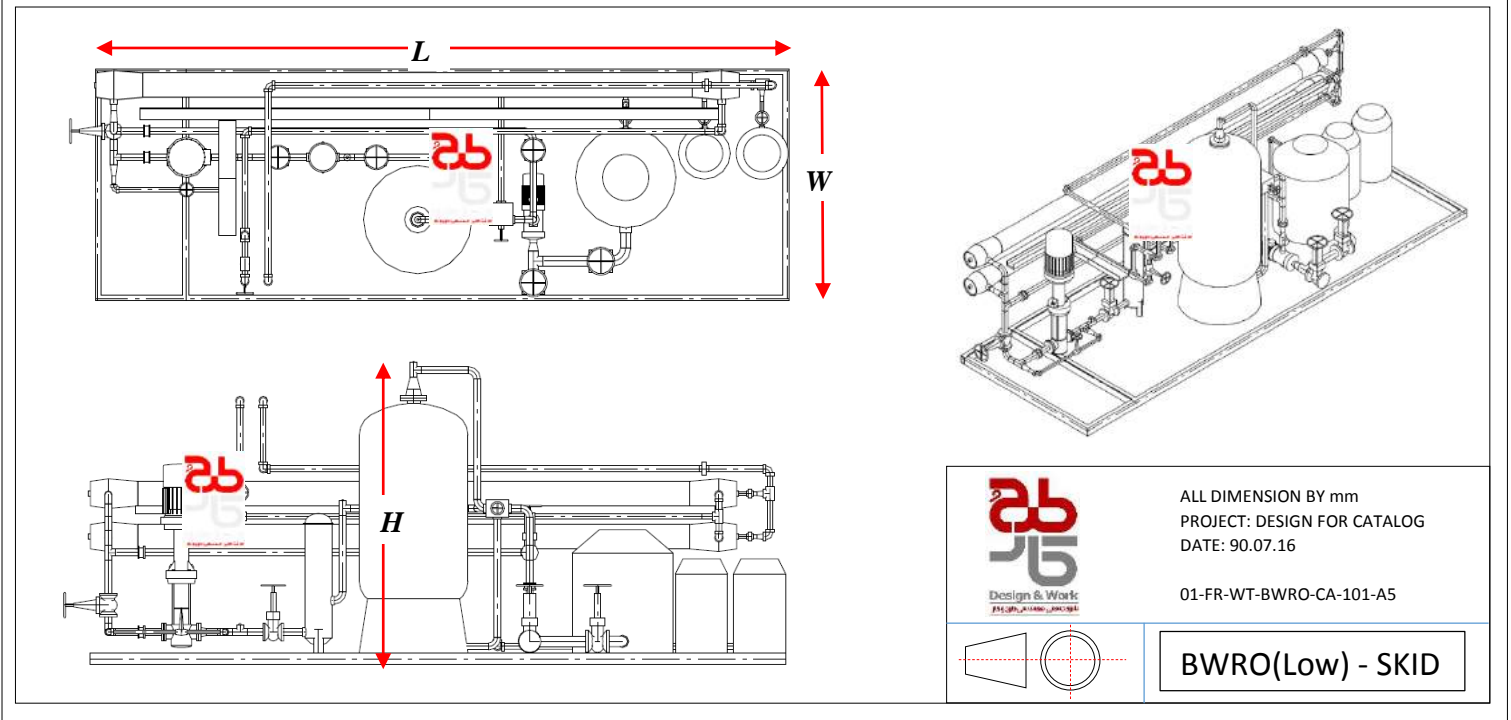

Application

- ✓ Potable water
- ✓ Demine water
- ✓ Make up water for cooling tower
- ✓ Make up water for Boiler
- ✓ Industrial water
- ✓ Agriculture water



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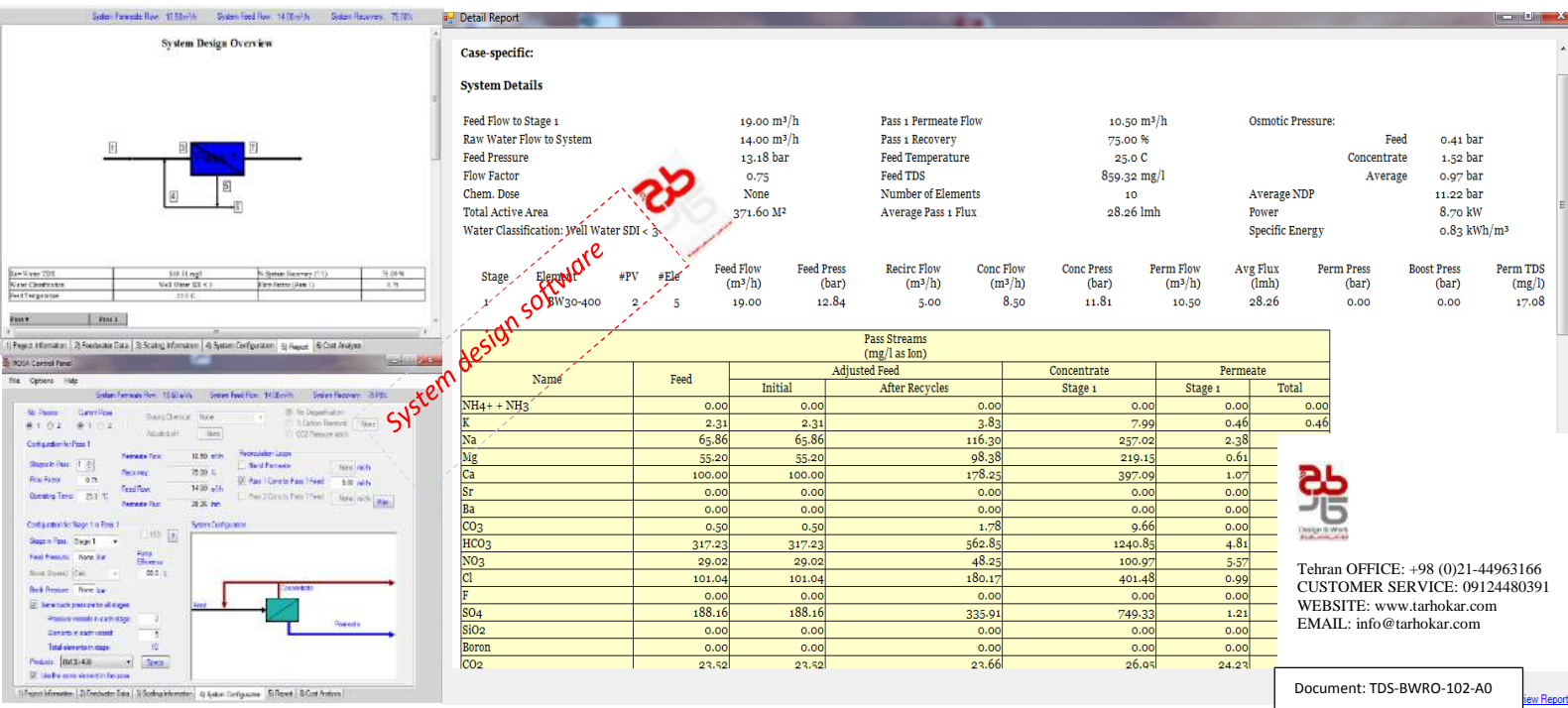
ALL DIMENSION BY mm
 PROJECT: DESIGN FOR CATALOG
 DATE: 90.07.16

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BWRO(Low) - SKID

Model	No. of stage	Flow (m ³ /day)			Recovery %	Pressure bar	Dimension by mm (approximate)		
		Feed flow	Product flow	Waste flow			L	W	H
BWRO-1S-5/19	1	27	5	22	19%	13	2	1	1.5
BWRO-1S-5/75	1	7	5	2	75%	18	2	1	1.3
BWRO-1S-10/32	1	31	10	21	32%	13	2.5	1	1.5
BWRO-1S-10/75	1	13	10	3	75%	17	2.5	1	1.4
BWRO-1S-15/42	1	36	15	21	42%	13	3	1	1.5
BWRO-1S-15/75	1	20	15	5	75%	17	3	1	1.4
BWRO-1S-20/32	1	62	20	42	32%	13	3	1.2	1.6
BWRO-1S-20/75	1	27	20	7	75%	18	3	1.2	1.5
BWRO-2S-15/75	2	20	15	5	75%	17	3	1.2	1.4
BWRO-2S-20/75	2	27	20	7	75%	17	3	1.2	1.5
BWRO-2S-25/57	2	44	25	19	57%	14	4	1.2	1.6
BWRO-2S-25/75	2	33	25	8	75%	16	4	1.2	1.5
BWRO-2S-30/65	2	48	30	18	62%	14	4	1.5	1.6
BWRO-2S-30/75	2	40	30	10	75%	16	4	1.5	1.6

For Other flow rate call to our technical center : +98 (021) 44963166



System Design Overview

Case-specific:

System Details

Feed Flow to Stage 1: 19.00 m³/h
 Raw Water Flow to System: 14.00 m³/h
 Feed Pressure: 13.18 bar
 Flow Factor: 0.75
 Chem. Dose: None
 Total Active Area: 371.60 M²
 Water Classification: Well Water SDI < 3

Pass 1 Permeate Flow: 10.50 m³/h
 Pass 1 Recovery: 75.00 %
 Feed Temperature: 25.0 C
 Feed TDS: 859.32 mg/l
 Number of Elements: 10
 Average Pass 1 Flux: 28.26 lmh

Osmotic Pressure:
 Feed: 0.41 bar
 Concentrate: 1.52 bar
 Average: 0.97 bar

Average NDP: 11.22 bar
 Power: 8.70 kW
 Specific Energy: 0.83 kWh/m³

Stage	Element	#PV	#Ele	Feed Flow (m ³ /h)	Feed Press (bar)	Recirc Flow (m ³ /h)	Conc Flow (m ³ /h)	Conc Press (bar)	Perm Flow (m ³ /h)	Avg Flux (lmh)	Perm Press (bar)	Boost Press (bar)	Perm TDS (mg/l)
1	BW30-400	2	5	19.00	12.84	5.00	8.50	11.81	10.50	28.26	0.00	0.00	17.08

Pass Streams (mg/l as Ion)

Name	Feed	Adjusted Feed		Concentrate		Permeate	
		Initial	After Recycles	Stage 1	Stage 1	Total	
NH4+ + NH3	0.00	0.00	0.00	0.00	0.00	0.00	0.00
K	2.31	2.31	3.83	7.99	0.46	0.46	0.46
Na	65.86	65.86	116.30	257.02	2.38	2.38	2.38
Mg	35.20	35.20	98.38	219.15	0.61	0.61	0.61
Ca	100.00	100.00	178.25	397.09	1.07	1.07	1.07
SP	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
CO3	0.50	0.50	1.78	9.66	0.00	0.00	0.00
HCO3	317.23	317.23	562.85	1240.85	4.81	4.81	4.81
NO3	29.02	29.02	48.25	100.97	5.57	5.57	5.57
Cl	101.04	101.04	180.17	401.48	0.99	0.99	0.99
F	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO4	188.16	188.16	335.91	749.33	1.21	1.21	1.21
SiO2	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
CO2	23.52	23.52	23.66	26.04	24.23	24.23	24.23

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