

# REVERSE OSMOSIS



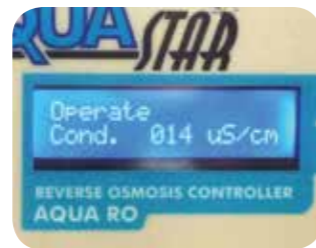
Desalination and reverse osmosis TWE



Flow meters reading of concentrated and permeate.



Stainless steel needle valve 316 and flushing solenoid valve.



Electric programmer with conductive meter for the control of the quality permeate.



High and low pressure switches and pressure gauge.



Group of pressurization with vane pumps.



Membrane Made in USA branded Applied Membranes drinking water certified.

DIMENSIONS

Model	Dimensions (mm)			
	Length	Width	Height	Weight (kg)
TWE 95	1200	500	500	26
TWE 200	1200	500	500	34
TWE 300	1200	500	500	42
TWE 390	1200	590	500	50

Dimensions and weight may vary without advance notice. In the case of binding dimensions contact the technical office.

The reverse osmosis systems TWE are particularly used for the desalination of the water with a moderate salinity (TDS max. 1500 ppm) for the industrial applications and civilian, and brought up from 2185 to 8930 l/day.

The series TWE thanks to the elevated standardization, gives an optimal quality/price ratio and reduced management cost thanks to the usage of the permeated membranes EXTRA LOW ENERGY that give a high production of permeate (demineralised water) at an operative low pressure, reducing the driving force applied and so the energy cost.

The management's plant is totally automatised through a programmer AQUASTAR RO-MINI that controls the function through the following utilities:

- inlet electric-valve and flushing electric-valve
- high and low pressure switches
- high pressure pump and metering pumps
- floating tank of the permeate and chemicals

It is present in the end a supplementary exit that is activated in the presence of alarms, in order to manage from the remote control the plant's function.

Also, the LCD display allows to visualise continuously:

- tank full permeate
- low pressure alarm
- high pressure alarm
- high conductivity alarm water produced (with adjustable set point)

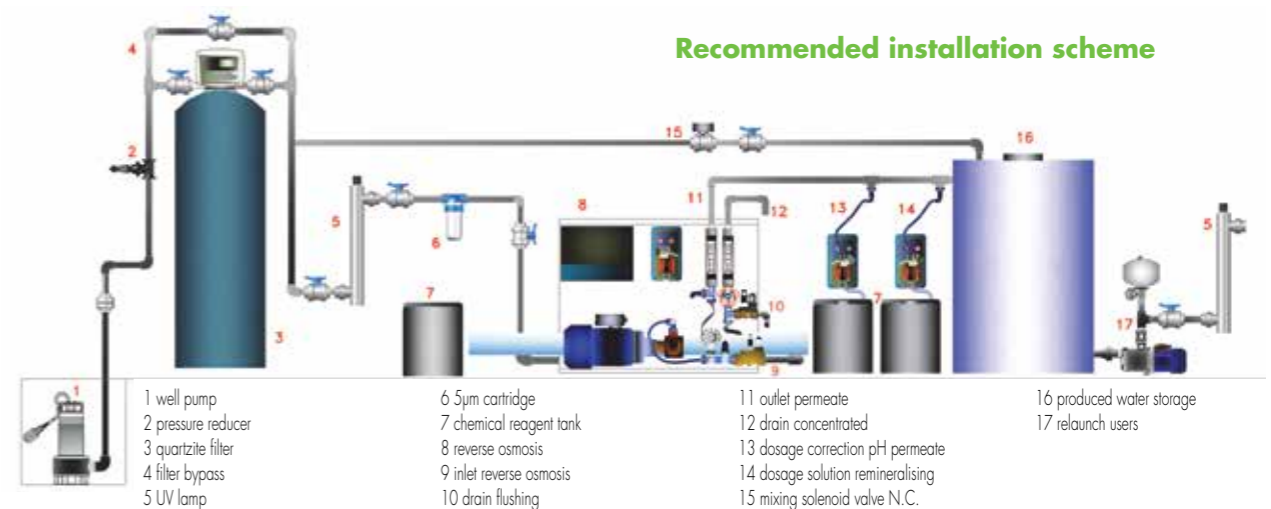
- heat pump alarm
- backwashing or regeneration of plants for the pretreatment upstream of osmosis
- lack of pretreatment chemicals (ex. Antiscalant)

The standard equipment of TWE plant is composed by:

- pre-filtration station with polypropylene cartridge melt brown 5 micron;
- anodized aluminium skid
- inlet solenoid valve
- low pressure switch (adjustable);
- brass rotary vane pump;
- glycerin filled pressure gauge;
- high pressure switch (adjustable);
- pressure vessels in PRFV (fiberglass);
- membranes EXTRA-LOW ENERGY Dow-Filmtec or Applied Membranes Made in U.S.A;
- needle valve stainless steel AISI 316;
- electronic programmer AQUASTAR RO-MINI full of conductivity control;
- automatic flushing valve;
- pair of flow meters for flow rates measurement of permeate and concentrate;
- float level switch for permeate storage tank;
- pipes and fittings such as John Guest or similar.

Optional dosing pumps for antiscalants and chlorine reducer. The TWE R.O. plants use components tested and certified for use with drinking water.

Recommended installation scheme



NOTE

TWE plants are designed for aqueduct or similar waters. In case of water with Chlorine >0,1 ppm, a Chlorine reduction with chemicals (NYTRA RO1400) is necessary. In cases where water has different characteristics, contact our commercial department providing them with a detailed chemical analysis in order for them to determine the right pre-treatment for the plant. Membranes are excluded from warranty and Idroservice's responsibility is limited to membrane producer warranty. In any case warranty excludes: o'ring, membranes, filter cartridges, transport cost, cost of labour. Idroservice is totally excluded and does not accept any responsibility if the plant is used or operated with water that is different from the one for which it was designed.

Code	Euro
TWE 95	
TWE 200	
TWE 300	
TWE 390	
RO-PD (Pompa dos. con sonda)	

TECHNICAL DATA

Model	Permeate Flow (l/h)	Permeate Flow (l/d)	Recovery (%)	n° membranes	salt rejection (%)	Feed Pressure (bar)	Power supply (kW)	I/O connections
TWE 95	95	2185	20-25	1 x 2540	97-99	9,2	0,25	1/2"
TWE 200	200	4600	30-35	2 x 2540	97-99	9,8	0,37	1/2"
TWE 300	300	6900	40-45	3 x 2540	97-99	10,2	0,37	1/2"
TWE 390	380	8930	40-45	4 x 2540	97-99	10,2	0,55	1/2"

\* All data refers to water temperature 20°C

Power supply 230V-50Hz

Minimum water pressure at entry 2 bar

## Reverse osmosis desalination for brackish water-membrane 2" 1/2

TWE-LP series reverse osmosis plants for brackish water, particularly suitable for the desalination of water with TDS up to 8000 ppm and flow rates starting from 2640 to 8640 l/d for industrial and civil applications.

The TWE-LP series, thanks to the high degree of standardisation, offers an excellent quality / price ratio and low running costs. These are reduced to a minimum through the use of LOW ENERGY membranes for brackish water, which offer high production of permeate (demineralised water) at low pressure operations, reducing costs of energy and power.

The management of the system is fully automated through the RO-MINI AQUASTAR electronic programmer that controls the operation of the following utilities:

- solenoid actuated inlet valve;
- high and low pressure switch
- high pressure pump and dosing pumps;
- temperature switch HP pump
- storage tank and chemicals tank float

Another supplementary output is present for alarms in order to remotely control the operation of the system.

In addition, the LCD display continuously shows:

- the totalizer of working hours;
- the value of the conductivity of the water produced;
- and indicates the causes of shut-down due to;
- a full permeate tank;
- low pressure alarm;
- high pressure alarm;
- high conductivity alarm (permeate);
- pump thermal overload alarm;
- backwash or regeneration of pre-treatment systems;
- lack of pre-treatment chemicals (e.g. antiscalants).

The standard installation TWE consists of :

- pre-filtration stage with activated carbon and polypropylene cartridge 5 micron;
- anodized aluminium frame;
- solenoid actuated inlet valve;
- low pressure switch (adjustable);
- S.S. AISI 316L rotary vane pump;

### TECHNICAL DATA

Model	Produzione (l/h) c/TDS 4000	Produzione (l/h) c/TDS 6000	Produzione (l/h) c/TDS 8000	Portata acqua di alimento (l/h)	n° membrane	Reiezione salina (%)	Pressione di esercizio (bar)	Potenza installata (kW)	Attacchi EU
TWE2X2540LP	180	150	110	600	2 x 2540	97 - 99	14	0,37	1/2"
TWE3X2540LP	270	210	160	800	3 x 2540	97 - 99	14	0,55	1/2"
TWE4X2540LP	360	280	210	1000	4 x 2540	97 - 99	14	0,55	1/2"

\* All data refers to water temperature 20°C

Electrical feed 230V-50Hz

Minimum water pressure at entry 2 bar

- glycerin filled pressure gauge;
- high pressure switch ;
- pressure vessels in PRFV (fiberglass);
- brackish water membranes LOW-ENERGY Dow-Filmtec or Applied Membranes, Made in U.S.A;
- needle valve stainless steel AISI 316;
- electronic programmer AQUASTAR RO-MINI full of conductivity control;
- automatic flushing valve;
- pair of flow meters for flow rate measurement of permeate and concentrate;
- float level switch for permeate storage tank.

Optional dosing pumps for antiscalants and chlorine reducer.



Flow meters reading of concentrated and permeate.



Stainless steel needle valve 316 and flushing solenoid valve.



Electric programmer with conductive meter for the control of the quality permeate.



Membrane Made in USA branded Applied Membranes drinking water certified.



Group of pressurization with vane pumps.



High and low pressure switches and pressure gauge.



**NOTE**  
TWE-LP plants for brackish waters are designed for chlorine-free well water with moderate salinity. However, suitable pre-treatment is recommended in order not to compromise the membranes prematurely. To determine the correct pre-treatment you should send suitable chemical-bacteriological analysis to the Idroservice technical office. The membranes are excluded from guarantee. The guarantee for the TWE installations in any case excludes o-rings, membranes, filter cartridges, transport costs, labour costs for the removal and re-installation of the system. The guarantee is totally excluded when the system is not used with the water for which it was designed.

Model	Dimensions (mm)			Weight (kg)
	Length	Width	Height	
TWE2X2540LP	1200	500	500	34
TWE3X2540LP	1200	500	500	42
TWE4X2540LP	1200	590	500	50

Dimension and weight may vary without advance notice. In the case of binding dimensions contact the technical office.

Code	Euro
TWE2X2540LP	
TWE3X2540LP	
TWE4X2540LP	
RO-PD	

## Reverse osmosis TW desalination for low salinity water - membrane 4"

TW series reverse osmosis systems are particularly suitable for the desalination of water with moderate salinity (up to 1500ppm TDS) for civil and industrial applications with capacities from 13,200 to more than 50,000 l/day.

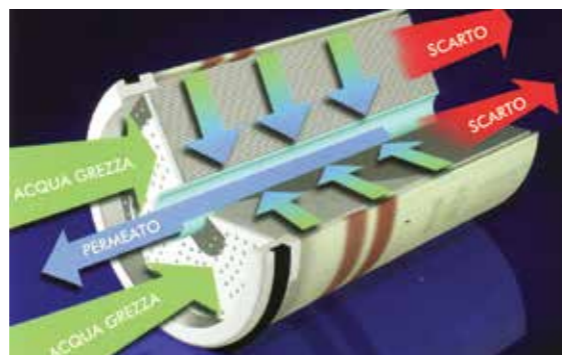
Designed for maximum quality and reliability, they are equipped with the best components on the market. The pressurization is provided by a S.S. multi-stage vertical centrifugal pump such as Grundfos or Lowara. EXTRA LOW ENERGY membranes (Dow FILMTEC or Applied Membranes USA) enable high production of demineralised water at low operating pressure, thus achieving good performance with reduced energy costs. An innovative electric three-phases panel RO-TOUCH02 allows the most manageable and intuitive control of the plant through the PLC Siemens and a Touch screen 7" Wide Colour Screen.

The equipment for a standard TW plant consists of:

- pre-filtration in with 5 micron polypropylene melt blown 20" cartridge;
- pressure-bent steel frame with anti-corrosion paint;
- solenoid actuated inlet valve;
- low pressure switch;
- glycerine filled minimum pressure gauge;
- high pressure pump type Grundfos or Lowara;
- glycerine filled maximum pressure gauge;
- high pressure switch;

- pressure vessels in PRFV (fibreglass) ROSHELL Made in EUROPE;
- membranes EXTRA-LOW ENERGY Dow-Filmtec or Applied Membranes Made in U. S. A.;
- needle valve stainless steel AISI 316;
- automatic flushing valve;
- pair of flow meters for flow rates measurement of permeate and concentrate;
- float level switch for permeate storage tank;
- pipes and fittings type John Guest or similar and PVC.
- electric three-phases panel 380V RO-TOUCH 02 or mono phase AQUASTAR RO MINI (max. 1,1 kw), both completed of conductivity meter of the permeate.

Reverse osmosis TW are tested and certificated for drinking water use.



Flow layout of the osmosis membrane.

### DIMENSIONS

Model	Dimensions (mm)			Weight (kg)
	L	W	H	
TW2X4040	915	615	1800	110
TW3X4040	915	615	1800	150
TW4X4040	915	615	2560	190
TW6X4040	915	615	2560	220
TW8X4040	915	615	2560	260

Code	Euro	Code	Euro
TW2X4040M		TW4X4040M	
TW2X4040		TW4X4040	
TW3X4040M		TW6X4040	
TW3X4040		TW8X4040	
		RO-PD	

### TECHNICAL DATA

Model	Permeate Flow (l/h)	Permeate Flow (l/d)	Recovery (%)	n° membranes	salt rejection (%)	Feed Pressure (bar)	Electric power (kW)	Electrical feed	I/O connections
TW2X4040M	550	12.650	30-35	2X4040	97-99	8-9	1,1	1X230V	1" - 1"
TW2X4040	550	12.650	30-35	2X4040	97-99	8-9	1,1	3X380V	1" - 1"
TW3X4040M	800	18.400	40	3X4040	97-99	8-9	1,1	1X230V	1" - 1"
TW3X4040	800	18.400	40	3X4040	97-99	8-9	1,1	3X380V	1" - 1"
TW4X4040M	1.000	23.000	50-55	4X4040	97-99	8-9	1,1	1X230V	1" - 1"
TW4X4040	1.000	23.000	50-55	4X4040	97-99	8-9	1,1	3X380V	1" - 1"
TW6X4040	1.450	33.350	50-55	6X4040	97-99	9-10	1,5	3X380V	1" - 1"
TW8X4040	2.100	48.300	50-55	8X4040	97-99	9-10	2,2	3X380V	1" - 1"

\* All data refers to water temperature 20°C

Feed water with 1500 < TDS < 2500 mg/l consider a flow rate reduction of 10%

Minimum water pressure at entry 2 bar



Concentrated and permeate flow meters



Stainless needle V. 316 + E.V. Flushing



Touch Colour Screen 7"



Stainless vertical axis pump



Applied Membrane's Membranes



Safety relay in accordance EN60204-1



TW6X4040



RO-TOUCH02

The management of the three-phase plant is totally automatized through an electric mechanical industrial panel with PLC Siemens and a wide Touch Colour Screen 7" panel, easy and intuitive for the management of all operations that are necessary for the correct functional of the reverse osmosis plant and also manageable to control all the functionality. The panel is equipped with a button and security relay in accordance with EN60204-1 (for a completed description of the electric panel RO-TOUCH02 go to page 236 of the catalogue).



AQUASTAR RO-MINI

The management of the mono phases plants (max. 1,1 kW) is automatized through the most economical and essential electric panel AQUASTAR RO-MINI that controls all the necessary applications for the correct function of the plant and controls continuously the conductivity of the produced water (for a completed description of the electric panel AQUASTAR RO-MINI go to page 242 of the catalogue).



TW2X4040M

Optional (for all the models):

- dosing pumps for chlorination, antiscalant, reducer chlorine, remineralising and correction of the pH permeate;
- chemical plant washing membrane 4";
- recirculation circuit with flow meter and needle valve;

Optional (only for the Three-phase panel RO-TOUCH02 models):

- flushing solenoid valve with treated water;
- flow transducers for the electronic reading of the permeate, concentrate or recirculation; all of them are displayed on the Touch Screen;
- remote pages of the Touch Screen on PC. Through this, it is possible to control from your own PC the operating parameters of the plant. It is necessary an ADSL connection and/or SD card subscription to internet. It is not supplied with the software license for the service;
- electric panel built on stainless steel;
- additional instrumentation with alarms activation to control the values Redox (inlet water and/or permeate) conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature, phase control, dosing pump function;
- additional instrumentation with visualization and settings set point on Touch Screen for the control of the values Redox (inlet water and/or permeate), conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature.

Recommended installation scheme



- |                     |                         |                               |                                   |
|---------------------|-------------------------|-------------------------------|-----------------------------------|
| 1 well pump         | 6 bypass filter         | 11 outlet permeate            | 16 dosage correction pH permeate  |
| 2 pulse flow meter  | 7 quartzite filter      | 12 drain concentrated         | 17 dosage solution remineralising |
| 3 chlorine dosage   | 8 5µm cartridge         | 13 drain flushing             | 18 produced water storage         |
| 4 raw water storage | 9 inlet reverse osmosis | 14 mixing solenoid valve N.C. |                                   |
| 5 relaunch pump     | 10 reverse osmosis unit | 15 chemicals storage tank     |                                   |

NOTE

TW plants are designed for aqueduct or similar waters. In case of water with Chlorine >0,1 ppm, a Chlorine reduction with chemicals (NYTRA RO1400) is necessary. In cases where water has different characteristics, contact our commercial department providing them with a detailed chemical analysis in order for them to determine the right pre-treatment for the plant. Membranes are excluded from warranty and Idroservice's responsibility is limited to membrane producer warranty. In any case warranty excludes: o'ring, membranes, filter cartridges, transport cost, cost of labour. Idroservice is totally excluded and does not accept any responsibility if the plant is used or operated with water that is different from the one for which it was designed.



flow transducers elect. (optional).



pressure transducers elect. (optional).



flushing E.V. with clean water (optional).



remote Touch Screen (optional).

## Reverse Osmosis plants for brackish water BWE – membrane 4"

BWE series reverse osmosis systems are particularly suitable for the desalination of water with salinity medium / high (from 2000 to 8000 ppm TDS) for civil and industrial applications and flow rates starting from 8400 to over 48000 l/d.

Designed to have the highest quality and reliability, these are equipped with the best components available on the market. The pressurization is provided by a S.S. multi-stage vertical centrifugal pump such as Grundfos or Lowara.

The LOW ENERGY membranes specific for brackish water (Dow Filmtec or Applied membranes U.S.A) enable high production of demineralised water with low operating pressure, thus achieving good performance with reduced energy costs.

An innovative electric three-phases panel RO-TOUCH02 allows the most manageable and intuitive management of the plant through the PLC Siemens and a Touch screen 7" Wide Colour Screen. The BWE osmosis utilise exclusively certified components for drinking water.

The equipment for a standard BWE plant consists of:

- pre-filtration with 5 micron polypropylene cartridge;
- pressure-bent steel frame with anti-corrosion paint;
- solenoid actuated inlet valve;
- low pressure switch;
- glycerine filled minimum pressure gauge;
- high pressure pump type Grundfos or Lowara;
- glycerine filled maximum pressure gauge;
- high pressure switch;
- pressure vessels in PRFV (fibreglass) ROSHELL Made in EUROPE;
- brackish water membranes LOW-ENERGY Dow-Filmtec or Applied Membranes, Made in U.S.A;
- needle valve stainless steel AISI 316;
- automatic flushing valve;
- pair of flow meters for flow rates measurement of permeate and concentrate;
- float level switch for permeate storage tank;
- pipes and fittings in PVC, acetate copolymer such as John

Guest or similar, or high pressure flexible hose;  
- Three-phase electric panel 380V RO-TOUCH02 completed of conductivity meter of the permeate;

DIMENSIONS				
Model	Dimensions (mm) LxWxH			Weight (kg)
BWE2X4040	915	615	1800	120
BWE3X4040	915	615	1800	150
BWE4X4040	915	615	2560	190
BWE6X4040	915	615	2560	220
BWE8X4040	915	615	2560	260

Dimension and weight may vary without advance notice. In the case of binding dimensions contact the technical office.



Concentrated and permeate flow meters.



Applied Membrane's Membranes.



Stainless steel needle V. 316 + E.V. Flushing.



Safety relay in accordance EN60204-1



Stainless steel vertical axis pump.



Touch Colour Screen 7".



BWE2x4040

### TECHNICAL DATA

Model	Water salinity (mg/l)	Permeate Flow (l/h)	Permeate Flow (l/d)	Recovery (%)	n° membranes	salt rejection (%)	Feed Pressure (bar)	Electric power (kW)	I/O connections	electrical feed
BWE2X4040-4000	4000	500	11.500	33	2X4040	97-99	13-14	1,5	1" - 1"	3X400V
BWE3X4040-4000	4000	750	17.250	43	3X4040	97-99	14	1,5	1" - 1"	3X400V
BWE4X4040-4000	4000	1.000	23.000	52	4X4040	97-99	14-15	2,2	1" - 1"	3X400V
BWE6X4040-4000	4000	1.400	32.200	58	6X4040	97-99	14-15	2,2	1" - 1"	3X400V
BWE8X4040-4000	4000	2.000	46.000	52	8X4040	97-99	14-15	4,0	1" - 1"	3X400V
BWE2X4040-6000	6000	450	10.350	30	2X4040	97-99	15	1,5	1" - 1"	3X400V
BWE3X4040-6000	6000	650	14.950	35	3X4040	97-99	15	2,2	1" - 1"	3X400V
BWE4X4040-6000	6000	850	19.550	45	4X4040	97-99	15-16	2,2	1" - 1"	3X400V
BWE6X4040-6000	6000	1.200	27.600	45	6X4040	97-99	15	2,2	1" - 1"	3X400V
BWE8X4040-6000	6000	1.700	39.100	45	8X4040	97-99	15-16	4,0	1" - 1"	3X400V
BWE2X4040-8000	8000	350	8.050	25	2X4040	97-99	19-20	2,2	1" - 1"	3X400V
BWE3X4040-8000	8000	500	11.500	30	3X4040	97-99	19	3,0	1" - 1"	3X400V
BWE4X4040-8000	8000	700	16.100	45	4X4040	97-99	21-22	3,0	1" - 1"	3X400V
BWE6X4040-8000	8000	950	21.850	45	6X4040	97-99	19-20	3,0	1" - 1"	3X400V
BWE8X4040-8000	8000	1.250	28.750	45	8X4040	97-99	19-20	4,0	1" - 1"	3X400V

All data refers to water feed-in temperature 20°C and 4000 < TDS < 8000 mg/l

Minimum inlet water pressure 2 bar



The BWE plant management is totally automatized through the electric mechanical industrial panel with PLC Siemens, and a wide Touch screen 7" Wide colour panel, easy and intuitive for the management of all operations that are necessary for the correct functional of the reverse osmosis plant and also manageable to control all the functionality. The panel is equipped with a button and security relay in accordance with EN60204-1 (for a completed description of the electric panel RO-TOUCH02 go to page 236 of the catalogue).

Optional (for all the models):

- dosing pumps for chlorination, antiscalant, chlorine reducer, remineralising and correction of the pH permeate; chemical plant washing membrane 4";
- flushing solenoid valve with treated water;
- recycle circuit with flow meter and needle valve;
- electronic flow meters transducers to visualize the parameters of permeate, concentrate and the recycle on the Touch Screen;
- electronic pressure transducers to visualize the minimum and maximum pressure on the Touch Screen;
- remote pages of the Touch Screen on PC. Through this, it is possible to control from your own PC the operating parameters of the plant. It is necessary an ADSL connection and/or SD card subscription to internet. The license for the internet service is not supplied with the software;
- electric panel built on stainless steel;
- additional instrumentation with alarms activation to control the values Redox (inlet water and/or permeate) conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature, phase control, dosing pump function;
- additional instrumentation with visualization and settings set point on Touch Screen for the control of the values Redox (inlet water and/or permeate), conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature.

	Code	Euro
TDS<4000	BWE2x4040-4000	
	BWE3x4040-4000	
	BWE4x4040-4000	
	BWE6x4040-4000	
	BWE8x4040-4000	
	RO-PD	
TDS<6000	BWE2x4040-6000	
	BWE3x4040-6000	
	BWE4x4040-6000	
	BWE6x4040-6000	
	BWE8x4040-6000	
	RO-PD	
TDS<8000	BWE2x4040-8000	
	BWE3x4040-8000	
	BWE4x4040-8000	
	BWE6x4040-8000	
	BWE8x4040-8000	
	RO-PD	

SUGGESTED LAYOUT



NOTE

TWE-IP plants for brackish waters are designed for chlorine-free well water with moderate salinity. However, suitable pre-treatment is recommended in order not to compromise the membranes prematurely. To determine the correct pre-treatment you should send suitable chemical-bacteriological analysis to the Idroservice technical office. The membranes are excluded from guarantee. The guarantee for the TWE installations in any case excludes o-rings, membranes, filter cartridges, transport costs, labour costs for the removal and re-installation of the system. The guarantee is totally excluded when the system is not used with the water for which it was designed.



Flow transducers elect. (optional).



Pressure transducers elect. (optional).



Flushing E.V. with clean water (optional).



Remote Touch Screen (optional).



BWE6x4040

## Reverse Osmosis plants water BW - membrane 8"

The BW reverse osmosis systems are particularly indicated for the water desalination with medium salinity for industrial applications and civil with flow of 72 and over 552 m<sup>3</sup>/day.

Designed for maximum quality and reliability, they are equipped with the best components available on the market.

The pressurization is provided by a S.S. multi-stage vertical centrifugal pump such as Grundfos or Lowara. EXTRA LOW ENERGY membranes (Dow-Filmtec U.S.A) enable high production of demineralized water at low operating pressures, achieving good performance with reduced energy costs.

An innovative electric three-phases panel RO-TOUCH02 allows the most manageable and intuitive management of the plant through the PLC Siemens and a Touch screen 7" Wide Colour Screen. The BW osmosis utilise exclusively certified components for drinking water.



Touch Colour Screen 7"



Dosing pumps



Stainless steel vertical axis pump



### TECHNICAL DATA

Model	Water salinity (mg/l)	Permeate Flow (l/h)	Permeate Flow (l/d)	Concentrate flow (l/h)	Recirculation flow (l/h)	Recovery (%)	n° membranes	Salt rejection (%)	Feed Pressure (bar)	Electric power (kW)	Electrical feed
BW2X8040R	1500	3.000	69.000	4.500	SI	40	2X8040	96 - 98	10-11	4,0	3X400V
BW3X8040	1500	4.200	96.600	5.345	-	44	3X8040	96 - 98	9-10	4,0	3X400V
BW3X8040R	1500	4.200	96.600	2.262	SI	65	3X8040	96 - 98	10-11	4,0	3X400V
BW4X8040	1500	5.500	126.500	5.077	-	52	4X8040	96 - 98	9-10	5,5	3X400V
BW4X8040R	1500	5.500	126.500	2.588	SI	68	4X8040	96 - 98	10-11	5,5	3X400V
BW6X8040	1500	8.000	184.000	5.333	-	60	6X8040	96 - 98	10-11	7,5	3X400V
BW6X8040R	1500	8.000	184.000	2.667	SI	75	6X8040	96 - 98	11-12	7,5	3X400V
BW8X8040	1500	9.300	213.900	3.100	-	75	8X8040	96 - 98	11-12	7,5	3X400V
BW9X8040	1500	12.000	276.000	7.992	-	59	9X8040	96 - 98	9-10	11,0	3X400V
BW9X8040R	1500	11.500	264.500	5.143	SI	70	9X8040	96 - 98	10-11	11,0	3X400V
BW10X8040	1500	13.500	310.500	9.776	-	58	10X8040	96 - 98	10-11	11,0	3X400V
BW10X8040R	1500	13.000	299.000	5.571	SI	70	10X8040	96 - 98	10-11	11,0	3X400V
BW12X8040	1500	15.400	354.200	8.292	-	65	12X8040	96 - 98	10-11	11,0	3X400V
BW12X8040R	1500	14.800	340.400	4.933	SI	75	12X8040	96 - 98	10-11	11,0	3X400V
BW15X8040	1500	17.200	395.600	10.690	-	72	15X8040	96 - 98	10-11	15,0	3X400V
BW18X8040	1500	23.000	529.000	13.508	-	63	18X8040	96 - 98	10-11	18,0	3X400V
BW18X8040R	1500	22.500	517.500	9.643	SI	70	18X8040	96 - 98	10-11	18,0	3X400V

All data refers to water feed-in temperature 20°C - TDS 1500 mg/l. Feed water with 1500 < TDS < 2500 mg/l calculate reduced flow of 10%. Minimum inlet water pressure 2 bar.

### DIMENSIONS

Model	Dimensions (mm)			
	Length	Width	Height	Weight (kg)
BW2X8040R	3500	950	1500	n.d.
BW3X8040	3900	950	1500	n.d.
BW4X8040	3500	950	1500	n.d.
BW6X8040	3900	950	1500	n.d.
BW8X8040	3500	950	1600	n.d.
BW9X8040	3900	950	1500	n.d.
BW10X8040	6500	950	1500	n.d.
BW12X8040	3900	950	1600	n.d.
BW15X8040	6500	1100	1800	n.d.
BW18X8040	7500	1100	1800	n.d.

Dimension and weight may vary without advance notice. In the case of binding dimensions contact the technical office.



The equipment for a standard BWV plant consists of:

- pre-filtration with S.S. multi-cartridge filter housing and 5micron cartridges;
- stainless steel frame;
- inlet solenoid valve;
- low pressure switch;
- glycerine filled minimum pressure gauge;
- S.S. high pressure pump type Grundfos or Lowara;
- glycerine filled maximum pressure gauge;
- high pressure switch;
- pressure vessels in PRFV (fibreglass) ROSHELL Made in EUROPE;

- r.o. membranes LOW-ENERGY Dow-Filmtec, Made in U.S.A.;
- needle valve stainless steel AISI 316;
- automatic flushing valve;
- flow meters for flow rate measurements of permeate, concentrate and recirculation flows (is any);
- float level switch for permeate storage tank;
- pipes and fittings in PVC.
- Three-phase electric panel 380V RO-TOUCH02 completed of conductivity meter of the permeate

Optional (for all the models, see also page 236) :

- dosing pumps for chlorination, antiscalant, reducer chlorine, remineralising and correction of the pH permeate;
- stainless steel high pressure circuit AISI 316;
- chemical plant washing membrane 8"
- electronic panel frame built of stainless steel;
- recycle circuit with flow meter and needle valve;
- electronic flow meters transducers to visualise the parameters of permeate, concentrate and the recycle on the Touch Screen;
- electronic pressure transducers to visualise the minimum and maximum pressure on the Touch Screen;
- remote pages of the Touch Screen on PC. Through this, it is possible to control from your own PC the operating parameters of the plant. It is necessary an ADSL connection and/or SD card subscription to internet. The license for the internet service is not supplied with the software;
- additional instrumentation with alarms activation to control the values Redox (inlet water and/or permeate) conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature, phase control, dosing pump function;
- additional instrumentation with visualization and settings set point on Touch Screen for the control of the values Redox (inlet water and/or permeate), conductivity raw water and/or mixed, pH (inlet water and/or permeate), water temperature.

The management of the BWV plant is totally automatised through an electric mechanical industrial panel with PLC Siemens and a wide Touch Colour Screen 7" panel, easy and intuitive for the management of all operations that are necessary for the correct functional of the reverse osmosis plant and also manageable to control all the functionality. The panel is equipped with a button and security relay in accordance with EN60204-1 (for a completed description of the electric panel RO-TOUCH02 go to page 236 of the catalogue).



Safety relay in accordance EN60204-1.



flow transducers elect. (optional).



pressure transducers elect. (optional).



flushing E.V. with clean water (optional).



remote Touch Screen (optional).



Prices on request

Reverse Osmosis plants water BW-HI FLOW - membrane 8" - high flow rates

The BW-HI FLOW reverse osmosis systems are particularly indicated for the water desalination with medium salinity for industrial applications and civil with flow of 624 and over 1400 m<sup>3</sup>/day.

Designed for maximum quality and reliability, they are equipped with the best components available on the market. The pressurization is provided by a S.S. multi-stage vertical centrifugal pump such as Grundfos or Lowara. EXTRA LOW ENERGY membranes (Dow-Filmtec U.S.A) enable high production of demineralized water at low operating pressures, achieving good performance with reduced energy costs.

An innovative electric three-phases panel RO-TOUCH02 allows the most manageable and intuitive management of the plant through the PLC Siemens and a Touch screen 7" Wide Colour Screen. The BW osmosis utilise exclusively certified components for drinking water.



Touch Colour Screen 7".



Stainless vertical axis pump.

DIMENSIONS

Model	Dimensions (mm)			Weight (kg)
	Length	Width	Height	
BW21X8040	8500	1100	1800	n.d.
BW21X8040R	8500	1100	1800	n.d.
BW24X8040	7500	1100	1800	n.d.
BW24X8040R	7500	1100	1800	n.d.
BW30X8040	7500	1100	2100	n.d.
BW30X8040R	7500	1100	2100	n.d.
BW36X8040	7500	1100	2100	n.d.
BW36X8040R	7500	1100	2100	n.d.
BW42X8040	7500	1100	2400	n.d.
BW42X8040R	7500	1100	2400	n.d.
BW48X8040	7500	1100	2100	n.d.
BW48X8040R	7500	1100	2100	n.d.

Dimension and weight may vary without advance notice. In the case of binding dimensions contact the technical office.

TECHNICAL DATA

Model	Water salinity (mg/l)	Permeate Flow (l/h)	Permeate Flow (l/d)	Concentrate flow (l/h)	Recirculation flow (l/h)	Recovery (%)	n° membranes	Salt rejection (%)	Feed Pressure (bar)	Electric power (kW)	Electrical feed
BW21X8040	1500	26.000	598.000	15.270	-	63	21X8040	96-98	10-11	18,5	3X400V
BW21X8040R	1500	25.000	575.000	8.333	SI	75	21X8040	96-98	10-11	18,5	3X400V
BW24X8040	1500	31.000	713.000	18.206	-	63	24X8040	96-98	10-11	22,0	3X400V
BW24X8040R	1500	30.500	701.500	13.071	SI	70	24X8040	96-98	10-11	22,0	3X400V
BW30X8040	1500	38.500	885.500	22.611	-	63	30X8040	96-98	10-11	30,0	3X400V
BW30X8040R	1500	38.000	874.000	16.286	SI	70	30X8040	96-98	10-11	30,0	3X400V
BW36X8040	1500	46.000	1.058.000	27.016	-	63	36X8040	96-98	10-11	30,0	3X400V
BW36X8040R	1500	45.000	1.035.000	19.286	SI	70	36X8040	96-98	10-11	30,0	3X400V
BW42X8040	1500	53.500	1.230.500	31.421	-	63	42X8040	96-98	10-11	37,0	3X400V
BW42X8040R	1500	53.000	1.219.000	22.714	SI	70	42X8040	96-98	10-11	37,0	3X400V
BW48X8040	1500	61.500	1.414.500	36.119	-	63	48X8040	96-98	10-11	37,0	3X400V
BW48X8040R	1500	60.500	1.391.500	25.929	SI	70	48X8040	96-98	10-11	37,0	3X400V

All data refers to water feed-in temperature 20°C - TDS 1500 mg/l. Feed water with 1500 < TDS < 2500 mg/l calculate reduced flow of 10%. Minimum inlet water pressure 2 bar.

- The equipment for a standard BWV plant consists of:
- pre-filtration with S.S. multi-cartridge filter housing and 5 micron cartridges;
  - stainless steel skid;
  - inlet solenoid valve;
  - low and high pressure switch;
  - electronic pressure transducers to visualise the minimum and maximum pressure on the Touch Screen;
  - glycerine filled minimum pressure gauge;
  - S.S. high pressure pump type Grundfos or Lowara;
  - glycerine filled maximum pressure gauge
  - pressure vessels in PRFV (fibreglass)
  - needle valve stainless steel AISI 316;
  - r.o. membranes LOW-ENERGY Dow-Filmtec, Made in U.S.A;
  - automatic flushing valve;
  - electronic flow meters (flow transducers) for flow rate measurements

- of permeate, concentrate and recirculation flows on Touch Screen
- float level switch for permeate storage tank
- pipes and fittings in PVC.
- Three-phase electric panel 380V RO-TOUCH02 completed of conductivity meter of the permeate and starter SOFT START DANFOSS or Toshiba or equipol, for the high pressure pump.

Optional (for all the models, see also page 236) :

- dosing pumps for chlorination, antiscalant, reducer chlorine, remineralising and correction of the pH permeate;
- stainless steel high pressure circuit AISI 316;
- chemical plant washing membrane 8"
- flushing electric-valve with osmosised water;
- recycle circuit with flow meter and needle valve;
- electronic flow meters transducers to visualise the parameters of permeate, concentrate and the recycle on the Touch Screen;
- electronic pressure transducers to visualise the minimum and maximum pressure on the Touch Screen;
- remote pages of the Touch Screen on PC. Through this, it is possible to control from your own PC the operating parameters of the plant. It is necessary an ADSL connection and/or SD card subscription to internet. It is not supplied with the software license for the service;
- electronic panel built on stainless steel;
- additional instrumentation with alarms activation to control the values Redox (inlet water and/or permeate) conductivity raw water and/or mixed , pH (inlet water and/or permeate), water temperature, phase control, dosing pump function;
- additional instrumentation with visualization and settings set point on Touch Screen for the control of the values Redox (inlet water and/or permeate), conductivity raw water and/or mixed , pH (inlet water and/or permeate), water temperature.

The management of the BWV plant is totally automatised through an electric mechanical industrial panel with PLC Siemens and a wide Touch Colour Screen 7" panel, easy and intuitive for the management of all operations that are necessary for the correct functional of the reverse osmosis plant and also manageable to control all the functionality. The panel is equipped with a button and security relay in accordance with EN60204-1 (for a completed description of the electric panel RO-TOUCH02 go to page 236 of the catalogue).



Soft Start



Safety relay in accordance EN60204-1



Flow transducers elect. (standard)



Pressure transducers elect. (standard)



Flushing E.V. with clean water (optional)



Remote Touch Screen (optional)



Prices on request

## Sea water reverse osmosis plants

SW series reverse osmosis systems are designed for desalination of sea water in industrial and civil applications with capacities from 10 to more than 1200 m<sup>3</sup>/day.

The pressurization is guaranteed by special pumps in stainless steel AISI 904 or Duplex Grundfos brand.

The Dow-Filmtec membranes enable high production of demineralized water, achieving good performance with reduced energy costs.

The management of the plant is fully automated by an electric panel manufactured with a stainless steel case, PLC Siemens with a large (5.7") Touch Screen and a conductivity meter that allows you to continuously monitor the quality of water produced. Through this it is easy to manage all the operations necessary for the proper working of the osmosis system and just as easy to control all functions.

- float level switch for permeate storage tank;
- high pressure piping in S.S. Duplex or AISI 904 welded TIG / Argon;
- three-phase electric panel 380V, with conductivity meter instrument, PLC, Touch screen 5,7" Siemens and SOFT START or INVERTER for high-pressure pump.

Options:

- energy recovery system;
- dosing pumps for antiscalants and chlorine reducer;
- redox or pH instruments for monitoring chlorine and pH;
- pressurization for pre-feed RO system;
- submersible pumps in marine bronze for water intake;
- pre-filtration plant constructed with materials suitable for sea water;
- complete system with tank for flushing membranes with osmotic water;
- automatic membrane flushing system with permeate;
- electronic flow sensors for reading permeate + concentrate + recirculation on the Touch Screen;
- electronic pressure sensors for reading the minimum + maximum pressure on the Touch Screen;

- remote connection from Touch Screen on a PC using a VPN router. In this way you can control the plant operating parameters by entering directly into the pages of the Touch Screen from your PC. This requires an ADSL connection and an open internet connection. The provision also includes the license to install the software on your PC;



The equipment for a standard SW plant consists of:

- pre-filtration with Duplex S.S. multi-cartridge filter housing and 5 micron cartridges;
- stainless steel frame;
- solenoid or butterfly inlet valve;
- low pressure switch (adjustable);
- glycerine filled minimum S.S. pressure gauge;
- S.S. AISI 904 high pressure pump type Grundfos;
- glycerine filled maximum S.S. pressure gauge;
- high pressure switch (adjustable);
- pressure vessels in PRFV (fiberglass) ROSHELL Made in EUROPE;
- r.o. membranes SEA WATER Dow-Filmtec, Made in U.S.A.;
- needle valve stainless steel AISI 316;
- flow meters for flow rate measurements of permeate and concentrate;



Code	Euro
	Prices on request

## Automatic deionizer with 2 columns

De-ionization systems manufactured with ion exchange resins (anion + cation) regenerated in double column.

These are made of 2 fiberglass pressure tanks containing anion and cation resins, 2 tanks for regenerants (acid/caustic), 2 Siata valves controlled by an electronic programmer which can start the regeneration of resins manually (pressing a button), or automatically as a function of m<sup>3</sup> of water produced or function of the conductivity of produced water (with adjustable set point).

The system is mounted on a stainless steel frame with all components installed and ready for use.

The safety spill containment are optional.



### TECHNICAL DATA

Model	Cation resins (l)	Anion resins (l)	Valve	Connections	Flow rate (m <sup>3</sup> /h)	ΔP (bar)	Cation capacity*(m <sup>3</sup> )	Anion capacity*(m <sup>3</sup> )	HCl 33% per regen. (kg)	NaOH 30% per rigen.(kg)	Regeneration tanks (l)
DEM 27	10	17	SI 132	1"	0,43	0,3	1,3	1,3	3,4	5,6	100
DEM 41	15	26	SI 132	1"	0,65	0,4	1,9	2,0	5,1	8,6	100
DEM 58	21	37	SI 132	1"	0,93	0,4	2,7	2,9	7,1	12,2	100
DEM 83	31	52	SI 132	1"	1,30	0,4	4,0	4,0	10,5	17,2	100
DEM 125	46	79	SI 132	1"	1,98	0,4	5,9	6,1	15,6	26,1	300
DEM 150	56	94	SI 132	1"	2,35	0,5	7,2	7,3	19,0	31,0	300
DEM 200	74	126	SI 132	1"	3,15	0,5	9,5	9,8	25,2	41,6	300
DEM 250	93	157	SI 132	1"	3,93	0,6	12,0	12,2	31,6	51,8	300
DEM 300	112	188	SI 132	1"	4,70	0,8	14,4	14,6	38,1	62,0	500
DEM 365	140	225	SI 230	1" 1/4	5,63	0,6	18,0	17,4	47,6	74,3	500
DEM 490	190	300	SI 230	1" 1/4	7,50	1,0	24,4	23,2	64,6	99,0	500
DEM 560	210	350	SI 250	1" 1/2	8,75	0,5	27,0	27,2	71,4	115,5	500
DEM 730	280	450	SI 250	1" 1/2	11,25	0,6	36,0	34,8	95,2	148,5	1000

\* All data refers to water salinity of 350ppm (CaCO<sub>3</sub>), drinking water, temperature 20°C. Working pressure 1,5-5 bar. Electrical feed 230 V-50Hz.

### DIMENSIONS

Model	Dimensions (mm)			Weight (kg)
	Length	Width	Height	
DEM 27	800	600	1200	100
DEM 41	800	600	1200	120
DEM 58	800	600	1200	140
DEM 83	800	600	1400	160
DEM 125	800	800	1700	190
DEM 150	1000	1000	1900	230
DEM 200	1000	1000	1900	280
DEM 250	1000	1000	1900	330
DEM 300	1200	1000	2000	380
DEM 365	1500	1000	2200	450
DEM 490	1500	1000	2200	530
DEM 560	1500	1000	2200	590
DEM 730	1500	1000	2200	700

Dimension and weight may vary without advance notice. In the case of binding dimensions contact the technical office.

### Code Euro

Code	Euro
DEM 27	
DEM 41	
DEM 58	
DEM 83	
DEM 125	
DEM 150	
DEM 200	
DEM 250	
DEM 300	
DEM 365	
DEM 490	
DEM 560	
DEM 730	

## Deionizer with mixed bed resins (not regenerable)

Mixed bed deionizers with non-regenerative resins and conductivity reader in led to verify the exhaustion of the resins.

A downstream demineralisation plant or reverse osmosis is recommended to bring the conductivity to zero microsiemens or small applications with low water consumption.

### Code Euro

Code	Euro
LM20	
LM30	
LM50	



### TECHNICAL DATA

Model	Resins (l)	Connections	Flow Rate (m <sup>3</sup> /h)	Δ (bar)	Capacity (m <sup>3</sup> )	Dimensions (mm)	
						ø	h
LM20	20	3/4"	0,6	0,5	3.6	200	930
LM30	30	3/4"	0,9	0,5	5.4	200	1180
LM50	50	3/4"	1,5	0,5	9.0	250	1180

1) Con salinità di 350 ppm CaCO<sub>3</sub>.

# SIZING FORM FOR REVERSE OSMOSIS PLANTS

## ORIGIN OF WATER TO BE TREATED:

- DRINKING WATER/MUNICIPALITY WATER
- WELL WATER
- SEA WATER
- OTHER (lake, river, recycled, etc.)

Specify \_\_\_\_\_

## PERFORMANCE CHARACTERISTICS OF WATER TO BE TREATED:

For proper sizing of the reverse osmosis equipment send the analytical report with the required parameters as per the table on page 68

## ALLOCATION OF WATER AFTER TREATMENT:

- DRINKING WATER
- TECHNOLOGICAL USE

Specify the application \_\_\_\_\_  
\_\_\_\_\_

## CONSUMPTION (referred to permeate water before mixing)

Average hourly demand  $m^3/h$  \_\_\_\_\_

Demand during peak hours  $m^3/h$  \_\_\_\_\_

Average daily demand  $m^3/h$  \_\_\_\_\_

Peak daily requirement  $m^3/h$  \_\_\_\_\_

## EXISTING SITUATION OF PLANT :

Specify if storage tanks are already installed  YES  NO

Indicate volume and size \_\_\_\_\_

Specify if equipment already installed  YES  NO

Indicate all the available information (type, model, size, date of production, etc.)  
\_\_\_\_\_  
\_\_\_\_\_

## NOTES - COMMENTS - OTHER REQUIREMENTS

Specify if there are limits on the size of equipment required or if any special treatment is required.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_