

**Filternox**<sup>®</sup>

AUTOMATIC SELF-CLEANING FILTERS



**Antel**

ARITMA TESİSLERİ İNŞAAT SANAYİ VE TİCARET A.Ş.

## **Filternox**<sup>®</sup> Applications

- Irrigation
- Well Water
- Power Generation Plants
- Fish Farm – Aquaculture
- Cooling Water
- Cooling Tower Side Stream
- Steel Industry and Nozzle Protection
- Sea Water Recycling
- White Water
- Ballast Water
- Recycled Waste Water
- Condensed Water
- River, Lake and Surface Water
- UF, RO Systems
- Grey Water
- Protection Against Baby Mussels



## Irrigation

The reduction of available fresh water sources has become a major problem in recent years. The consequent reduction in water volume has also increased the concentration of contaminants and pollution. Because of this problem, modern irrigation systems, utilizing either underground or surface water require more efficient filtration systems.

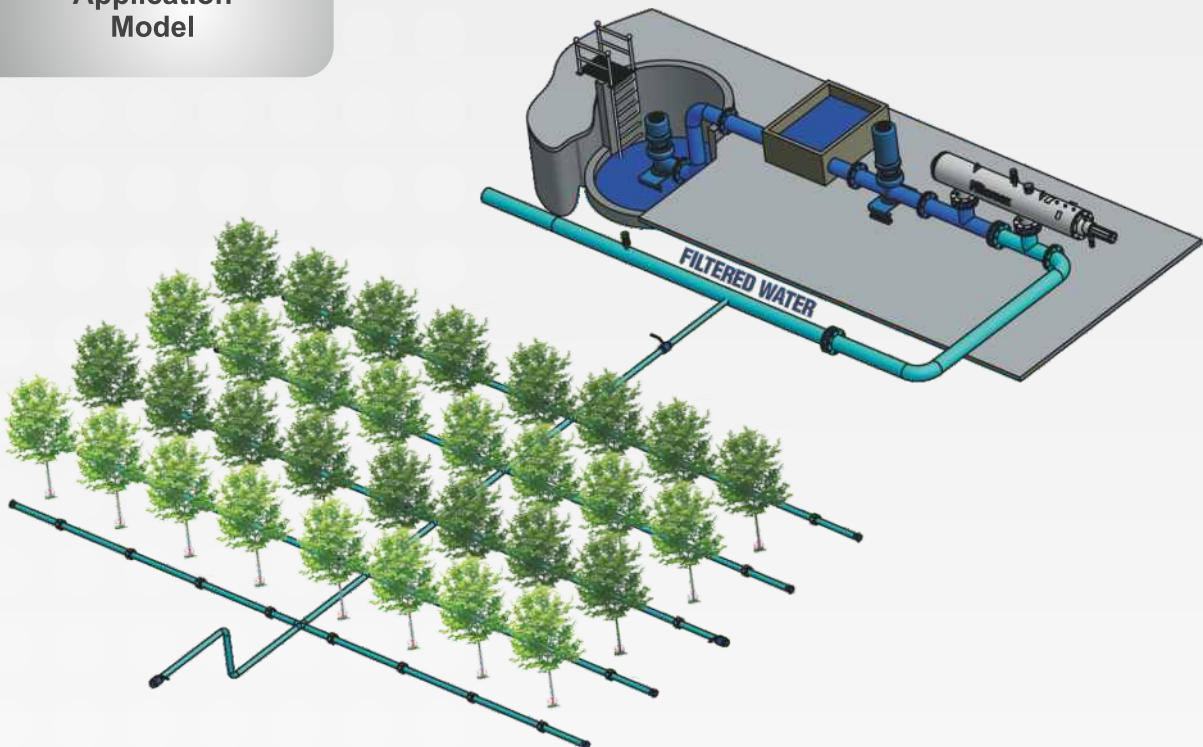
**Filternox**<sup>®</sup> Automatic Self-Cleaning Filters protect irrigation and fertilizing systems from all kind of particles and assure years of continued operation without the clogging of drippers, sprinklers, etc.

**Filternox**<sup>®</sup> is the perfect solution for golf courses, agriculture, gardening and various other applications wherever water economy is needed.

**Filternox**<sup>®</sup> Automatic Self-Cleaning Filters offers a special hydraulic control system which triggers the back flush without need of any extra energy other than the pressure of the water. With this hydraulic control system during the back flush there is not any interruption of the flow.

**Filternox**<sup>®</sup> offers double stage automatic self-cleaning models to be implemented directly to the surface water ahead of the irrigation system and reduce investment and operational costs.

### Application Model



Drip Irrigation  
Water Filtration  
(Turkey)



Drip Irrigation  
Water Filtration  
(Turkey)



Drip Irrigation  
Water Filtration  
(Turkey)



Drip Irrigation  
Water Filtration  
(Turkey)



Drip Irrigation  
Water Filtration  
(Spain)



Drip Irrigation  
Water Filtration  
(Spain)



Drip Irrigation  
Water Filtration  
(Turkey)



Drip Irrigation  
Water Filtration  
(Turkey)



Agricultural Irrigation  
Water Filtration  
(Turkey)



Agricultural Irrigation  
Water Filtration  
(Turkey)





Drip Irrigation Water  
Filtration  
(Turkey)



Drip Irrigation Water  
Filtration  
(Turkey)





Agricultural Irrigation  
Water Filtration  
(Turkey)



Agricultural Irrigation  
Water Filtration  
(Kazakhstan)

Drip Irrigation  
Water Filtration  
(Morocco)



Drip Irrigation  
Water Filtration  
(Morocco)



Drip Irrigation Water  
Filtration  
(Turkey)



Formula One Course  
Filter Station  
(United Arab Emirates)





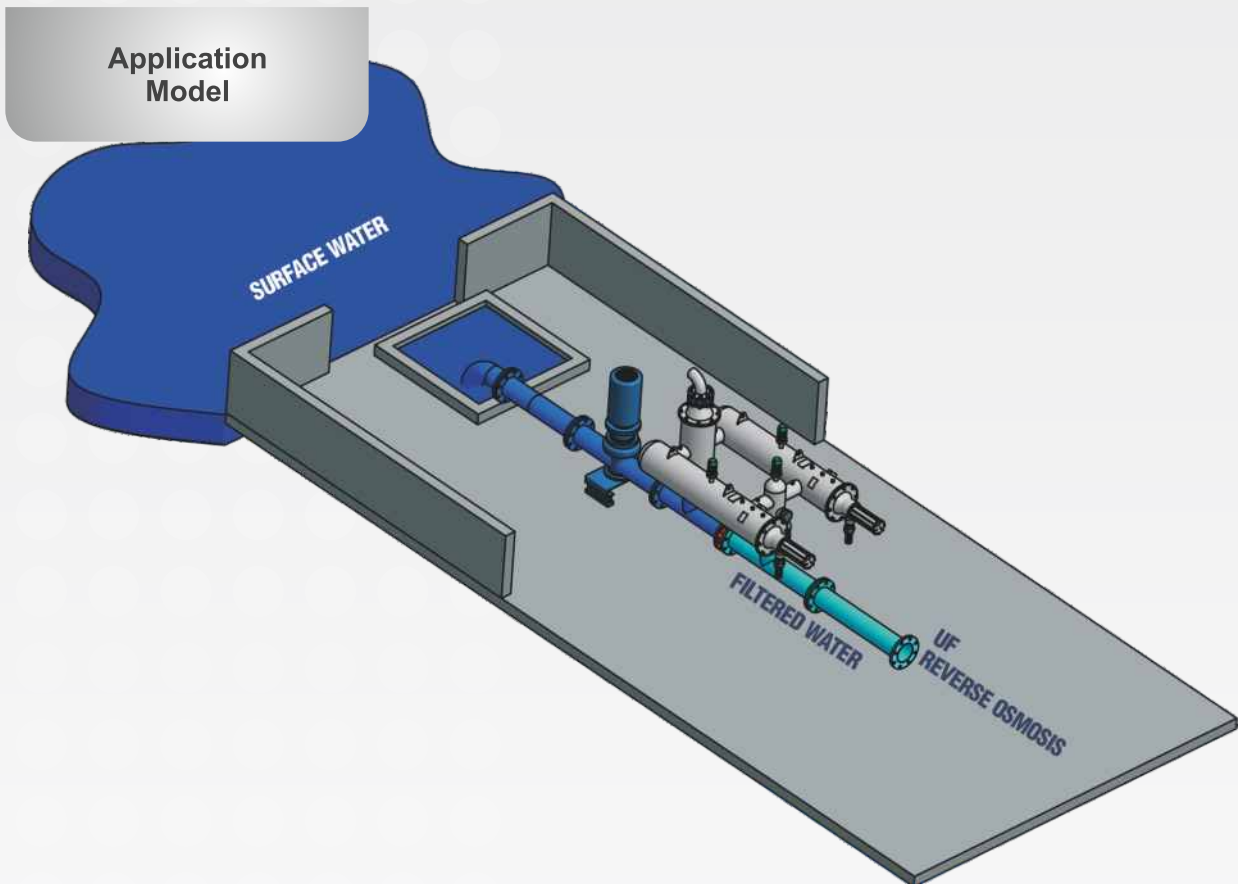
## Surface Water, UF, RO

As well as sea water, surface water also contains a wide variety and sizes of contaminant particles. To effectively overcome this problem, filtration units require both coarse and fine automatic filtration.

Sediment buildup and the consequent loss of efficiency is one of the main problems in heat exchangers, nozzles, ion exchange systems, seals, membranes and other sensitive equipment.

To prevent unscheduled and unforeseen system shut downs for cleaning, the installation of **Filternox**<sup>®</sup> Automatic Self Cleaning Filters will remove the suspended particles from the incoming water supply, thus providing uninterrupted working conditions.

The use of **Filternox**<sup>®</sup> Automatic Self Cleaning Filters helps to maintain optimum pumping conditions through the prevention of pressure drop caused by sediment build up.



Two Stage Filtration  
for River Water Application  
(Denmark)



Golf Course  
Filter Station  
(Turkey)



Two Stage Filtration for  
River Water Applications  
(Turkey)



Two Stage Filtration  
of River Water for  
Drip Irrigation  
(Turkey)



River Water Filtration  
Turbine and Seal  
Equipment Protection  
(Turkey)



River Water Filtration  
Turbine and Seal  
Equipment Protection  
(Turkey)







## Power Generation

A decrease in efficiency due to the accumulation of particles is one of the major problems for heat exchangers. Even a minor layer of scale causes a dramatic decrease in the transfer of heat which can result in the unforeseen shut down of the system for cleaning purpose.

**Filternox**<sup>®</sup> Automatic Self-Cleaning Filters, by removing all suspended solids and particles, provide uninterrupted working conditions for heat exchangers.

As well as protecting heat exchangers, **Filternox**<sup>®</sup> Automatic Self-Cleaning Filters will also provide protection for nozzles, ion exchangers, seals, membranes and other sensitive equipment installed in your system.

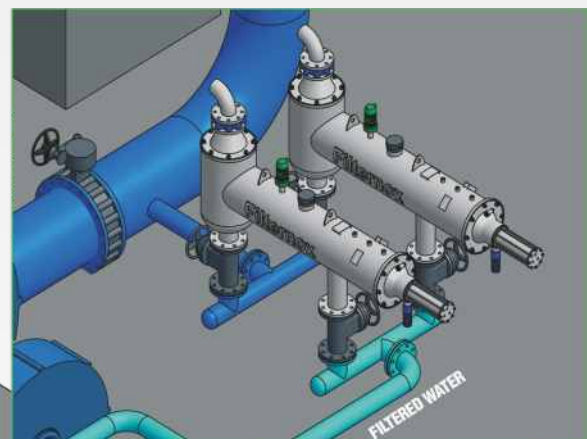
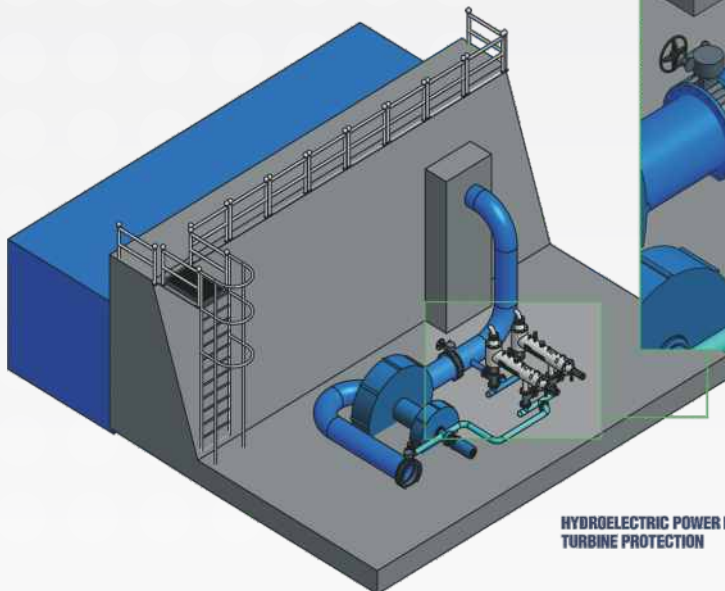
The use of **Filternox**<sup>®</sup> Automatic Self-Cleaning Filters helps to maintain optimum pumping conditions through the prevention of pressure drop caused by sediment build up.

The continuous operation of the turbines has vital importance for the hydroelectric power plants.

Dam water used for the cooling of the turbine bearing and the sealing equipment of the hydroelectric power plants, contains different sizes of particles which creates fouling in the pipes and heat exchanging surfaces, and damaging the turbine bearings and seals.

**Filternox**<sup>®</sup> provides a solution to this filtration problem with its two stage Automatic Self-Cleaning filtration models which offer a convenient and cost effective way to address filtration challenges in hydroelectric power plants, extending the life of bearings and seals equipment and reducing maintenance and operational costs.

### Application Model



HYDROELECTRIC POWER PLANT,  
TURBINE PROTECTION



Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)

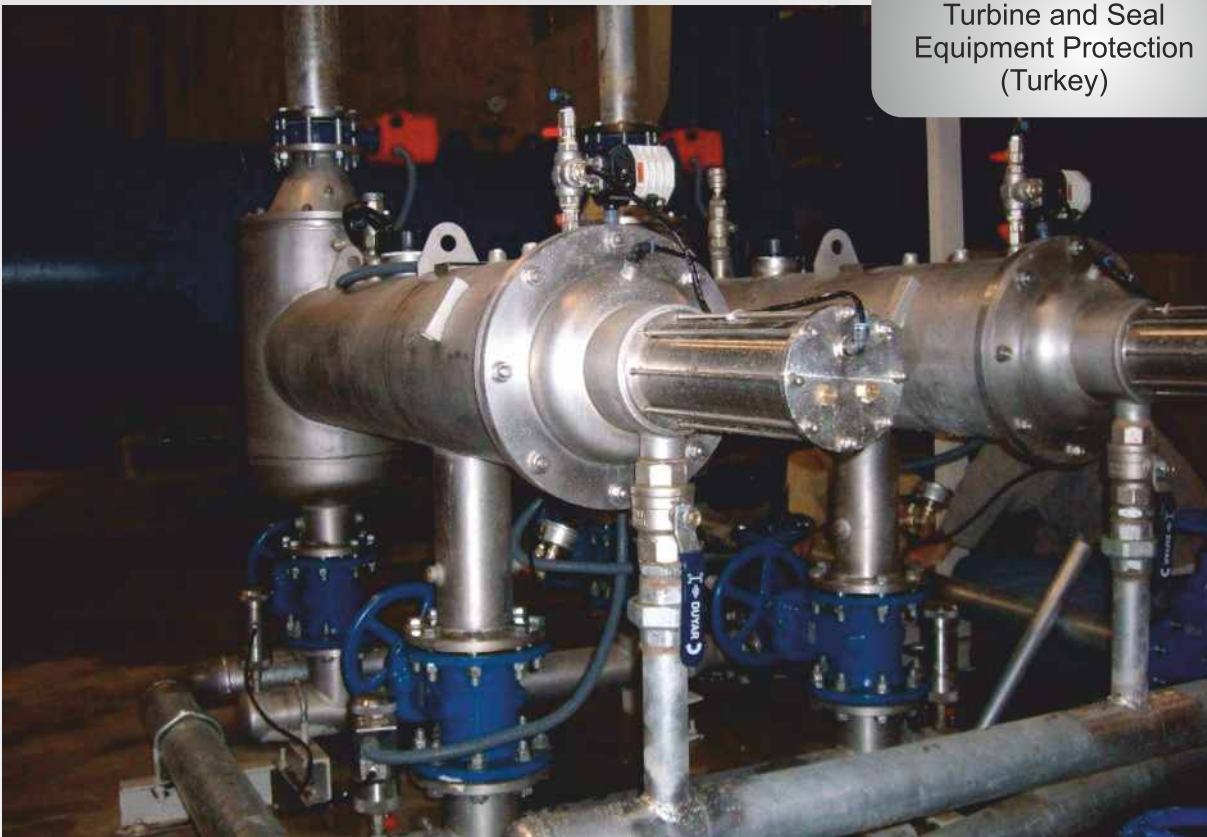
Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)



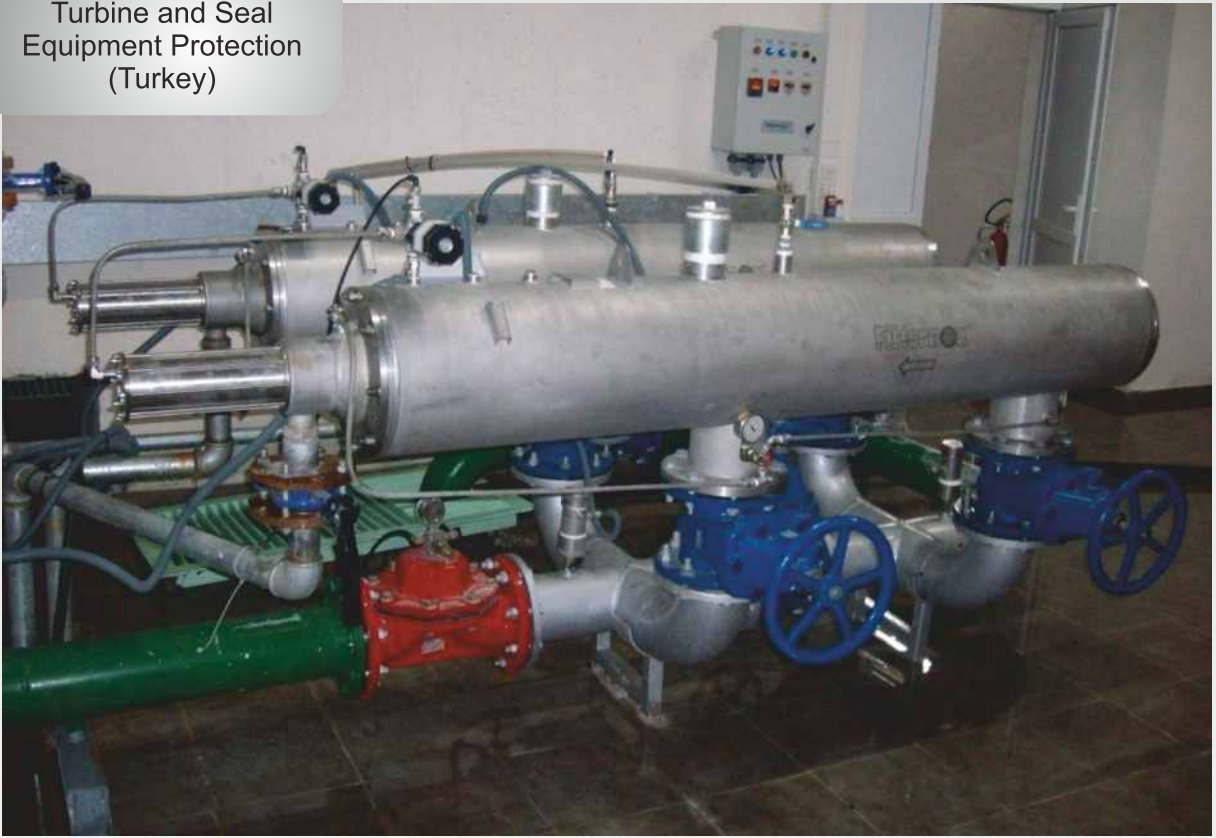
Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)





Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)

Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)





Turbine and Seal  
Equipment Protection  
(Turkey)



Turbine and Seal  
Equipment Protection  
(Turkey)





## Steel Industry and Nozzle Protection

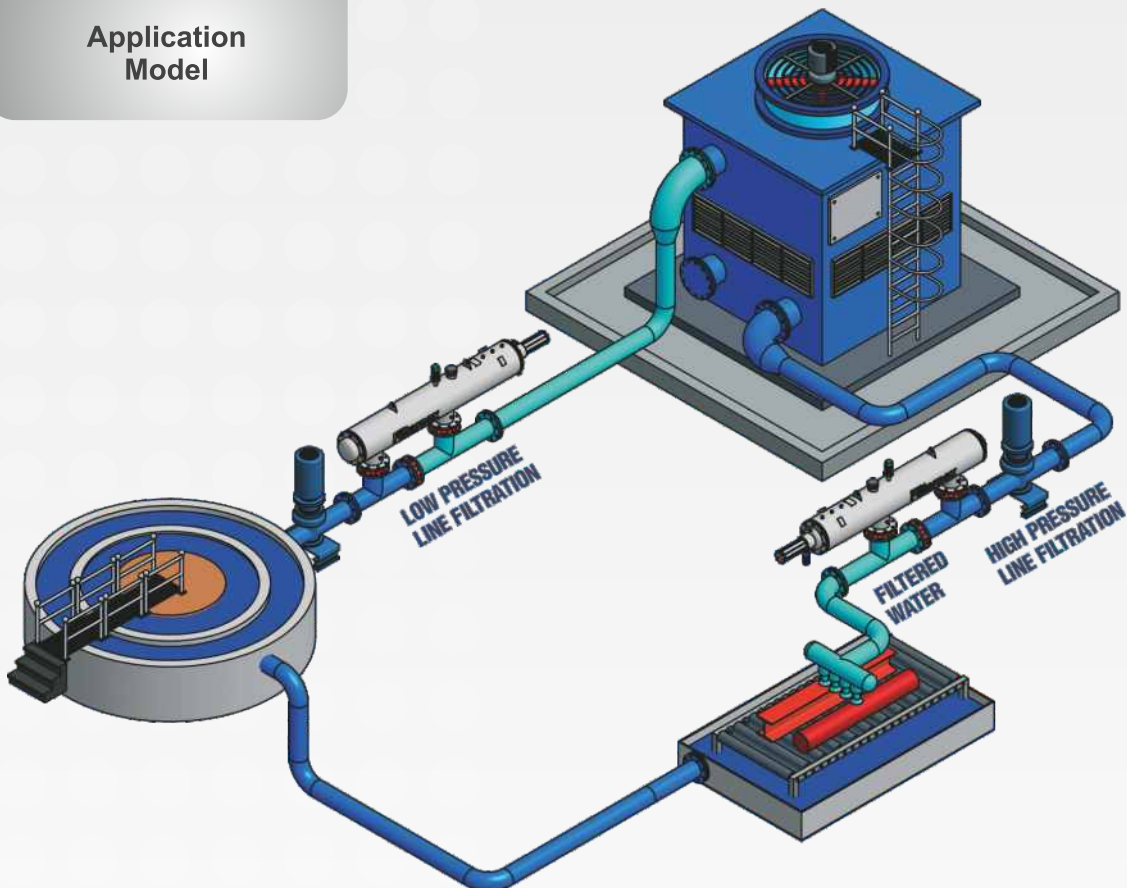
The quality of cooling water is crucial for the manufacturing of high quality steel. If cooling water contains particles which clog the spray nozzles, this will lower the quality of the end product.

This may also lead to serious losses in production due to the unscheduled shut down of production lines.

**Filternox**<sup>®</sup> Automatic Self-Cleaning Filters, by the removal of particles contained in the cooling water, provide a perfect solution to prevent clogging of the nozzles and to maintain continuous production.

In addition, **Filternox**<sup>®</sup> special “high energy back-flushing system” avoids screen blockages from oil and grease in the cooling water of the steel industry.

### Application Model





Nozzle Protection  
Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Turkey)

Nozzle Protection  
Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Turkey)



Rolling Mill  
Water Filtration  
(Iran)



Steel Industry  
Cooling Water Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Turkey)



Steel Industry  
Cooling Water Filtration  
(Iran)



Nozzle Protection  
Filtration  
(Turkey)



Steel Industry  
Cooling Water Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Turkey)





Low Pressure  
Filtration  
(Turkey)



Nozzle Protection  
Filtration  
(Iran)





## Sea Water

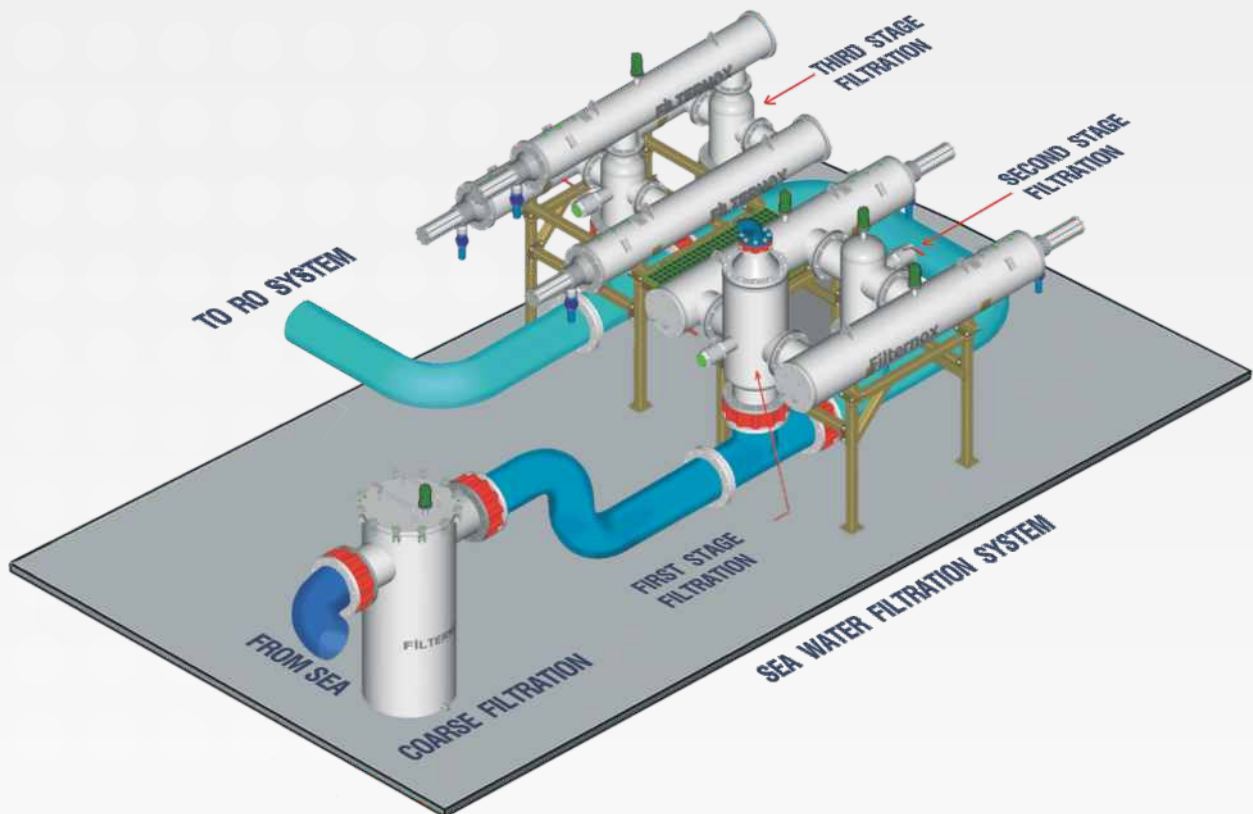
The size of particles contained in sea water varies widely. Therefore sea water filtration needs more care than other fluids. A very special filtration solution is required to remove particles from 10 mm at one end of the spectrum down to 50 microns particles at the other. This kind of water needs to be filtrated in order to remove coarse and fine particles at the same time.

**Filternox**<sup>®</sup> offers special models, KFH, KTW and KQR which have both coarse and fine filtration stages in one body and both featuring an independant automatic self-cleaning system.

**Filternox**<sup>®</sup> Automatic Self-Cleaning Filters are used for sea water filtration on oil platforms, the protection of heat exchangers, ultra filtration and Reverse Osmosis units as well as recreational usages.

Another important consideration in the filtration of sea water is the corrosive effect it has. **Filternox**<sup>®</sup> offers the best permanent solution with a rubber coating over its stainless steel body.

### Application Model





Two Stage Filtration of Sea Water Before Heat Exchangers (Turkey)



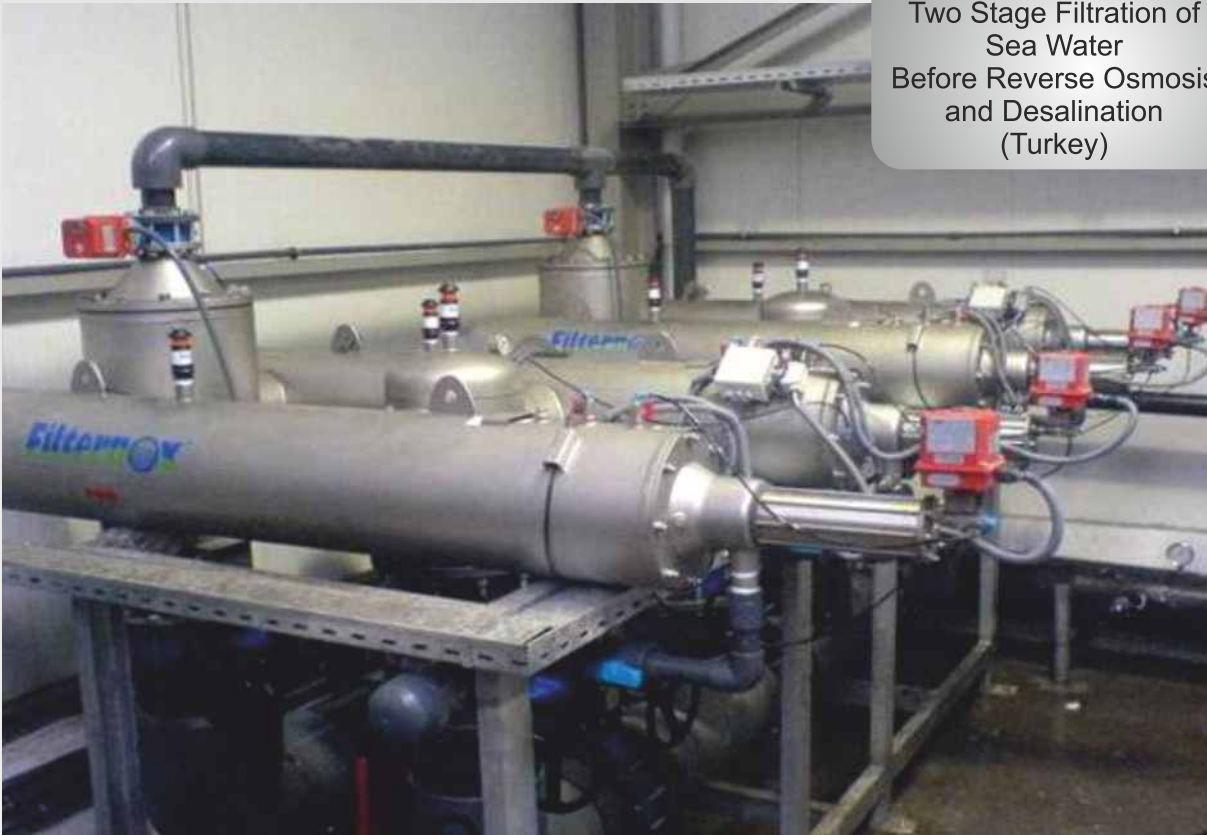
Two Stage Filtration of Sea Water Before Reverse Osmosis and Desalination (Turkey)

Sea Water Filtration  
System Before  
Reverse Osmosis  
(Kingdom of Saudi Arabia)

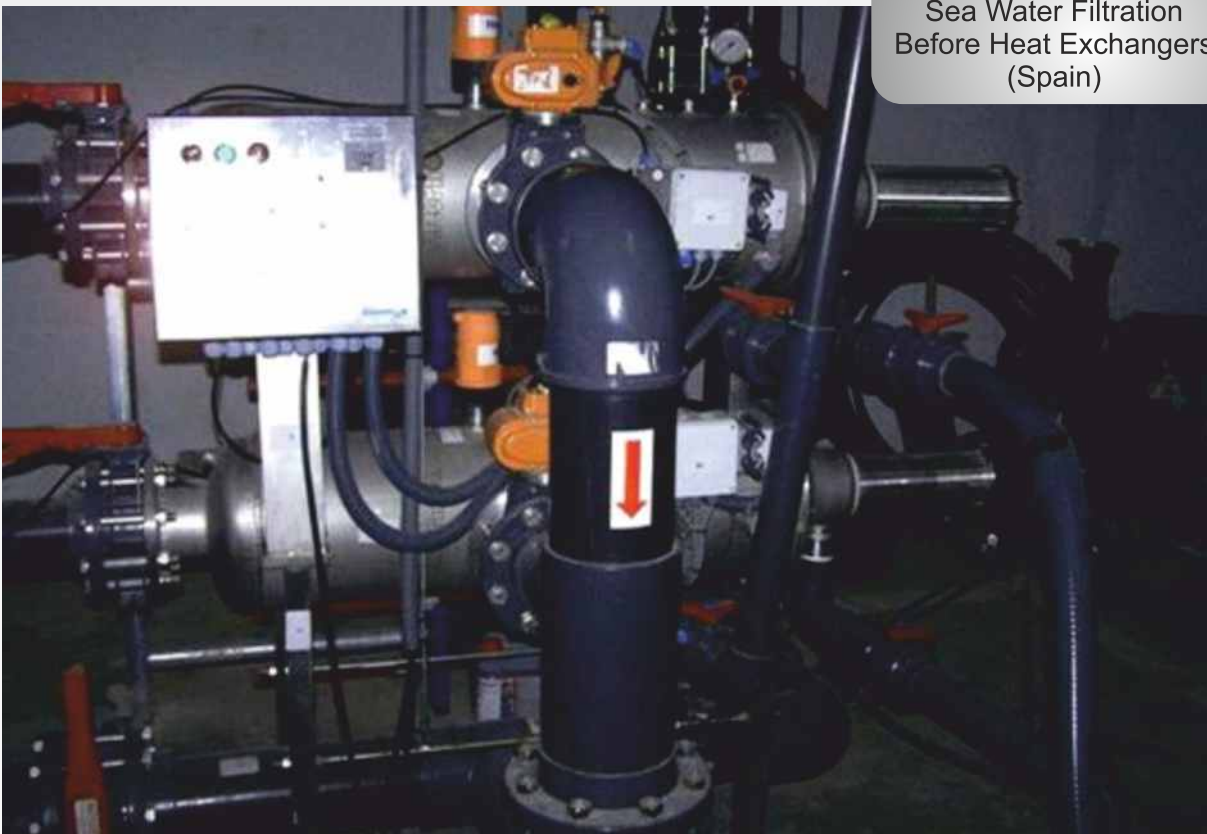


Sea Water  
Filtration  
(Turkey)





Two Stage Filtration of  
Sea Water  
Before Reverse Osmosis  
and Desalination  
(Turkey)



Sea Water Filtration  
Before Heat Exchangers  
(Spain)

Sea Water  
Filtration  
(Hong Kong)



Sea Water Filtration  
Before Heat  
Exchangers  
(Turkey)





Two Stage Filtration of  
Sea Water  
before Heat Exchangers  
(Turkey)



Two Stage Filtration of  
Sea Water  
before Heat Exchangers  
(Turkey)

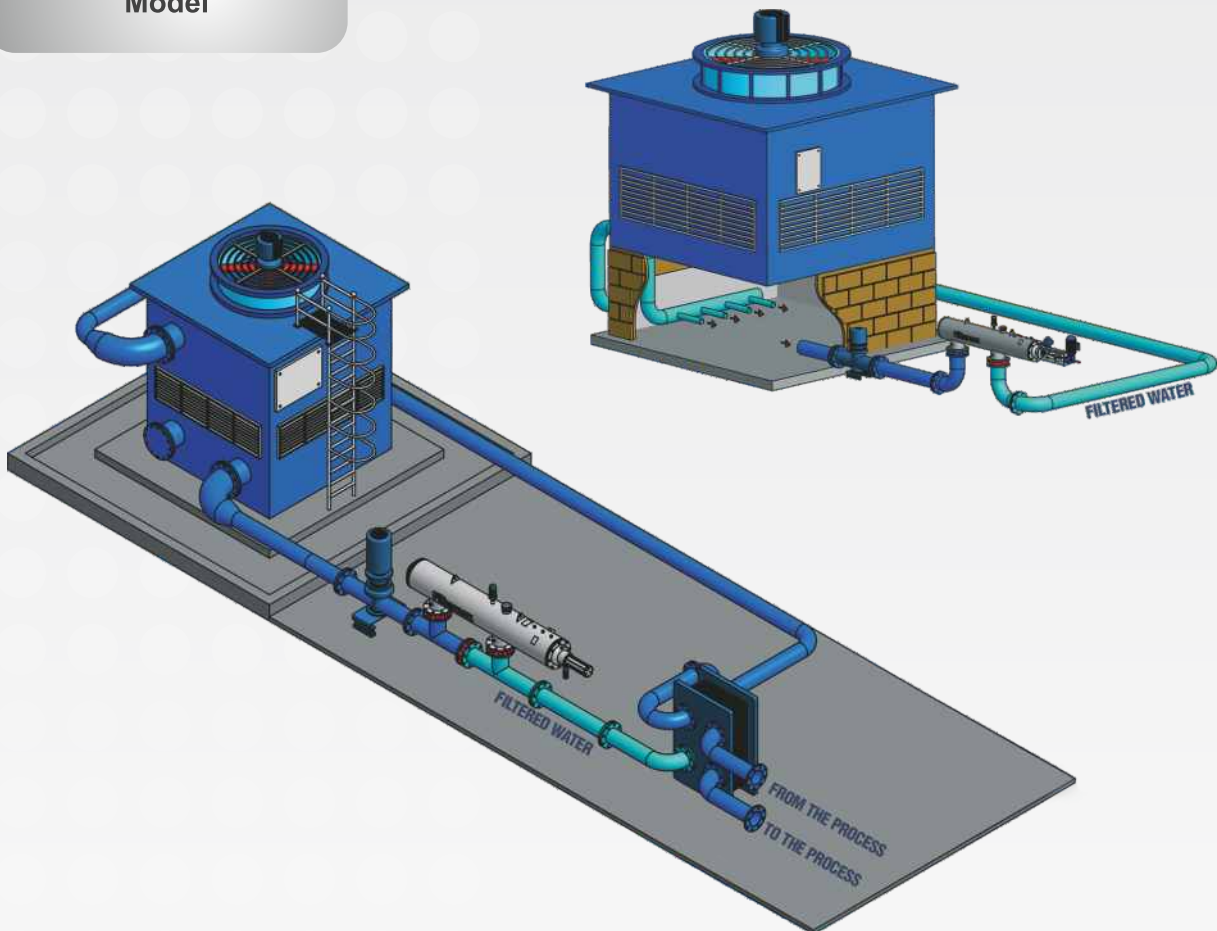


## Cooling Water and HVAC

Cooling towers act in a similar way to air scrubbers by collecting all particles from the surrounding environment into the cooling water. These particles, such as dust, sand, algae and pollen conglutinate easily to the hot surfaces during the circulation inside the cooling system, and cause clogging, fouling and reduction in efficiency of the process, which results in the shut down of the system for cleaning. Efficient filtration is very important for maintaining the continuous operation of the cooling system.

By using **Filternox**<sup>®</sup> Automatic Self-Cleaning Filters in the cooling system, either as sidestream or full flow applications, you will avoid all above mentioned problems and you will also decrease the chemical consumption for water conditioning.

### Application Model





Protection of Extrusion Machines and Extruders with Cooling Water Filtration (Turkey)



Protection of Extrusion Machines and Extruders with Cooling Water Filtration (Turkey)



Cooling Tower  
Side Stream Filtration  
(United Arab Emirates)



Cooling Tower  
Side Stream Filtration  
(Turkey)





Cooling Tower  
Side Stream Filtration  
(Turkey)



Cooling Tower  
Side Stream Filtration  
(Turkey)

Cooling Tower  
Side Stream  
Skid Mounted Filtration  
(India)



Welding Robots  
Cooling Water Protection  
(Turkey)





Protection of Extrusion  
Machines and Extruders  
with Cooling  
Water Filtration  
(Turkey)



Protection of Extrusion  
Machines and Extruders  
with Cooling  
Water Filtration  
(Turkey)

Cooling Water  
Filtration  
(Turkey)



Plastic Industry  
Cooling Water Filtration  
(Turkey)





Cooling Water  
Filtration  
(Turkey)



Glass Industry  
Cooling Water Filtration  
(Turkey)

Glass Industry  
Cooling Water Filtration  
(Turkey)



Protection of Extrusion  
Machines and Extruders  
with Cooling Water  
Filtration  
(Turkey)





Cooling Tower  
Side Stream Filtration  
(United Arab Emirates)



Cooling Water  
Filtration  
(Turkey)



Protection of Extrusion Machines and Extruders with Cooling Water Filtration (Turkey)



Protection of Extrusion Machines and Extruders with Cooling Water Filtration (Turkey)



Cooling Tower  
Side Stream Filtration  
(Iran)



Cooling Water  
Filtration  
(Iran)





## Well Water

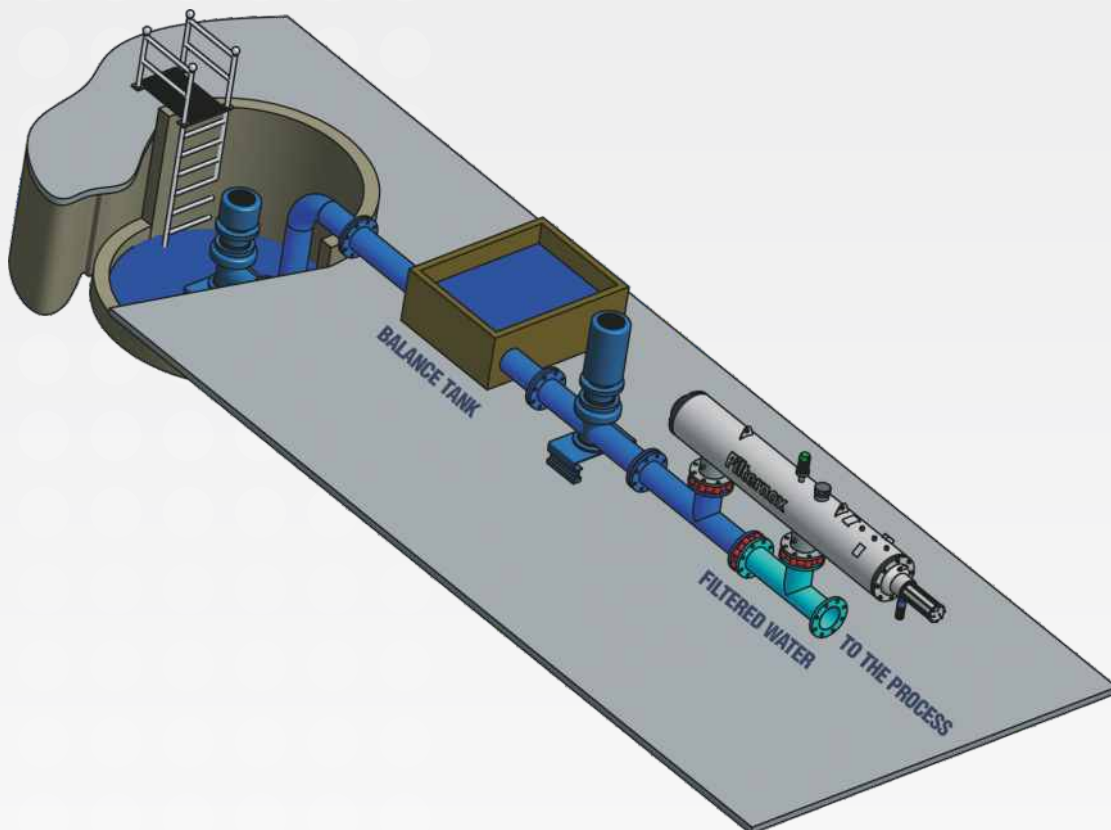
Filtration of well water is becoming one of the most important forms of filtration in the environmentally changing world.

High carbon emissions along with the increasing greenhouse effect have dramatically reduced underground water supplies. This in turn, increases the amount of both organic and inorganic pollutant particles in the well water that is pumped through pipelines and other systems, creating the need of filtration for well water.

Along with this, fluctuations in weather patterns have limited the availability of surface water in certain locations, increasing the demand for supplies of well water. As a result, the filtration of well water has become a very important challenge in today's environment.

**Filternox**<sup>®</sup> provides an effective filtration of well water to reduce the operational costs of many applications.

### Application Model





Well Water Filtration  
before Reverse Osmosis  
(Turkey)



Replacing Sand Filters  
with **Filternox**<sup>®</sup> Filters  
before Softeners  
(Turkey)

Well Water Filtration  
for Domestic Use  
(Turkey)



Well Water Filtration  
for Irrigation  
(Turkey)



Well Water Filtration  
for Domestic Use  
(Turkey)



Well Water Filtration  
for Irrigation  
(Turkey)





## Waste Water Recycle



Waste Water Treatment  
Plant Filtration  
(Japan)



Recycled Water  
Filtration  
(Thailand)



Treated Waste Water  
Filter Station  
(Turkey)



Nozzle Protection  
Filtration  
(Germany)





Treated Water  
Filtration  
(Brasil)



Filter Station for  
Treated Waste Water  
(United Arab Emirates)

Filter Station for  
Treated Waste Water  
(Portugal)



Treated Waste Water  
Filtration before RO  
(Pakistan)





Paper Industry  
Recycle Filtration  
(Turkey)



Paper Industry  
Recycle Filtration  
(Turkey)

**TSEK**

**TÜRK STANDARDLARI ENSTİTÜSÜ**  
**KRİTERE UYGUNLUK BELGESİ**  
**TURKISH STANDARDS INSTITUTION**  
**CERTIFICATE OF CONFORMANCE TO CRITERIA**

Markanın Tanımı Description of the Mark

**TSEK** veya / or **Т-С-В-К**

<b>BELGE NUMARASI</b> REFERENCE NUMBER OF LICENCE	34/TSEK-3124
<b>BELGENİN İLK VERİLİŞ TARİHİ</b> DATE OF FIRST ISSUE OF LICENCE	03.09.2004
<b>BELGENİN SON GEÇERLİLİK TARİHİ</b> LICENCE VALID UNTIL	03.09.2014
<b>BELGE SAHİBİ KURULUŞUN ADI</b> NAME OF THE LICENCE HOLDER	ANTEL ARITMA TESİSLERİ İNŞAAT SANAYİ VE TİCARET ANONİM ŞİRKETİ
<b>BELGE SAHİBİ KURULUŞUN ADRESİ</b> ADDRESS OF THE LICENCE HOLDER	NURETTİN DUMAN SOKAK KIZILTOPRAK PLAZA NO:34 34775 Y.DUDULLU ÜMRANIYE İSTANBUL
<b>ÜRETİM YERİ ADI</b> NAME OF THE MANUFACTURING PLACE	ANTEL ARITMA TESİSLERİ İNŞAAT SAN.VE TIC. A.Ş.
<b>ÜRETİM YERİ ADRESİ</b> ADDRESS OF THE MANUFACTURING PLACE	NURETTİN DUMAN SOKAK NO: 34 KIZILTOPRAK PLAZA 34775 Y.DUDULLU İSTANBUL
<b>TESCİLLİ TİCARİ MARKASI</b> REGISTERED TRADE MARK	FİLTERTNOX
<b>İLGİLİ BELGELENDİRME KRİTERİ</b> RELATED TURKISH STANDARD	ÜBM-00-BK-000 / Kriteri Seçilmemiş Sözleşmeler için / 24.08.2010
<b>BELGE KAPSAMI</b> SCOPE OF LICENCE	

- SIVI FİLTASYON CİHAZLARI – OTOMATİK GERİ YIKAMALI (15-3000 MİKRON PARTİKÜL TUTMA KAPASİTELİ)
- PİSTONLU TİP FİLTRELER (PFH) (100-4000m<sup>3</sup>/h SIVI KAPASİTELİ) (TWIN, KATAMARAN, OPTİMİST, FIRAT MODELLERİ)
- KISA TİP FİLTRELER (SFH) (25-80 m<sup>3</sup>/h SIVI KAPASİTELİ)



03.09.2013  
  
HAKAN DENİZ

TSE İSTANBUL BELGELENDİRME  
MÜDÜRÜ

\*Enstitümüzce verilmekte olan "İmalata Yeterlilik Belgesi" 15.04.2007 tarihinden itibaren uygulamadan kaldırılmıştır.

\*Bu belge, belgelendirilen ürünün, üretim yerinin Enstitümüzün belirlediği şartları karşıladığını da gösterir.

\*Bu belge ile hak kazanılan TSEK Markası, ürünün TSE tarafından belirlenen kriterlere uygunluğunu ve bu uygunluğun belgelendirildiğini ifade eder.

Bu belge hiç bir suretle tahrif edilemez, kısmen veya okunmasını zorlaştıracak şekilde çoğaltılamaz, kopyalı ve silinir yapılamaz.

Certificate of Registration



This is to certify that the Quality Management System of  
**Antel Arıtma Tesisleri İnşaat Sanayi ve Tic. A.Ş.**

Nurettin Duman Sok. Kızıltoprak Plaza NO:34 Yukarı Dudullu, Ümraniye, İstanbul, Turkey

applicable to

**Manufacture and after sale service of of water filters trading as "filternox"**

has been assessed and registered by NQA against the provisions of

**BS EN ISO 9001 : 2008**

This registration is subject to the company maintaining a Quality management system, to the above standard, which will be monitored by NQA

Head of Nqa

Certificate No:	24968
Date:	28 October 2008
Reissued:	6 December 2011
Valid Until:	6 December 2014
EAC code:	18/29



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The use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 015 held by National Quality Assurance Ltd.  
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A Member of the NICEIC Group of Companies.

N006/1 08/07

**DECLARATION OF CONFORMITY**  
**İMALATÇI UYGUNLUK BEYANI**

As the manufacturer, we declare that the product clearly defined below, has been manufactured in our factory in accordance with the requirements of 97/23/EC Pressure Equipment Directive.

Üretici olarak biz, aşağıda açık tanımlanmış olan ürünün, 97/23/EC Basınçlı Ekipmanlar Direktifi'nin gereksinimlerine uygun olarak ürettiğini beyan ederiz.

<b>Model &amp; Serial No</b>	:	
Model & Seri No	:	
<b>Description</b>	:	<b>Automatic Self-Cleaning Filter</b>
Açıklama	:	Otomatik Geri Yıkamalı Filtre
<b>Classification</b>	:	<b>Pipe</b>
Sınıflandırma	:	Boru
<b>Maximum Pressure</b>	:	
Maksimum Basınç	:	
<b>Maximum Temperature</b>	:	
Maksimum Sıcaklık	:	
<b>Body Diameter</b>	:	
Gövde Çapı	:	
<b>Test Pressure</b>	:	
Test Basıncı	:	
<b>Test Fluid</b>	:	
Test Akışkanı	:	
<b>Year of Manufacturing</b>	:	
Üretim Yılı	:	

**Applied Conformity Assessment Procedure** : **Category I – Module A**  
Uygulanan Uygunluk Değerlendirme Prosedürü : Kategori I – Modül A  
**Applied Standard and Technical Specification** : **AD 2000**  
Uygulanan Standartlar ve Teknik Özellikler

**2004 / 108 / EC – Electromagnetic Compatibility** / Elektromanyetik Uyumluluk

**Applied Standard and Technical Specification** : **EN 55011 & EN 61000-6-2 & EN 61000-6-4**  
Uygulanan Standartlar ve Teknik Özellikler

**2006 / 95 / EC – Low Voltage Directive** / Alçak Gerilim Direktifi

**Applied Standard and Technical Specification** : **EN 60204-1**  
Uygulanan Standartlar ve Teknik Özellikler

<b>Manufacturer</b>	:	<b>ANTEL ARITMA TESİSLERİ İNŞ. SAN. VE TİC. A.Ş.</b>
Üretici	:	
<b>Date</b>	:	
Tarih	:	
<b>Signature</b>	:	
İmza	:	

**ANTEL ARITMA TESİSLERİ İNŞAAT SANAYİ VE TİCARET A.Ş.**

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Antel

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İNŞAAT SANAYİ ve  
TİCARET A.Ş.

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