Water Filtration Solutions for the Oil & Gas Industry

Comprehensive and innovative
high-performance solutions

amiad® WATER SYSTEMS

ARKAL FILTOMAT AMIAD

About Amiad Oil & Gas

Amiad Water Systems is a leading provider of water treatment and filtration solutions for the Oil and Gas industry.

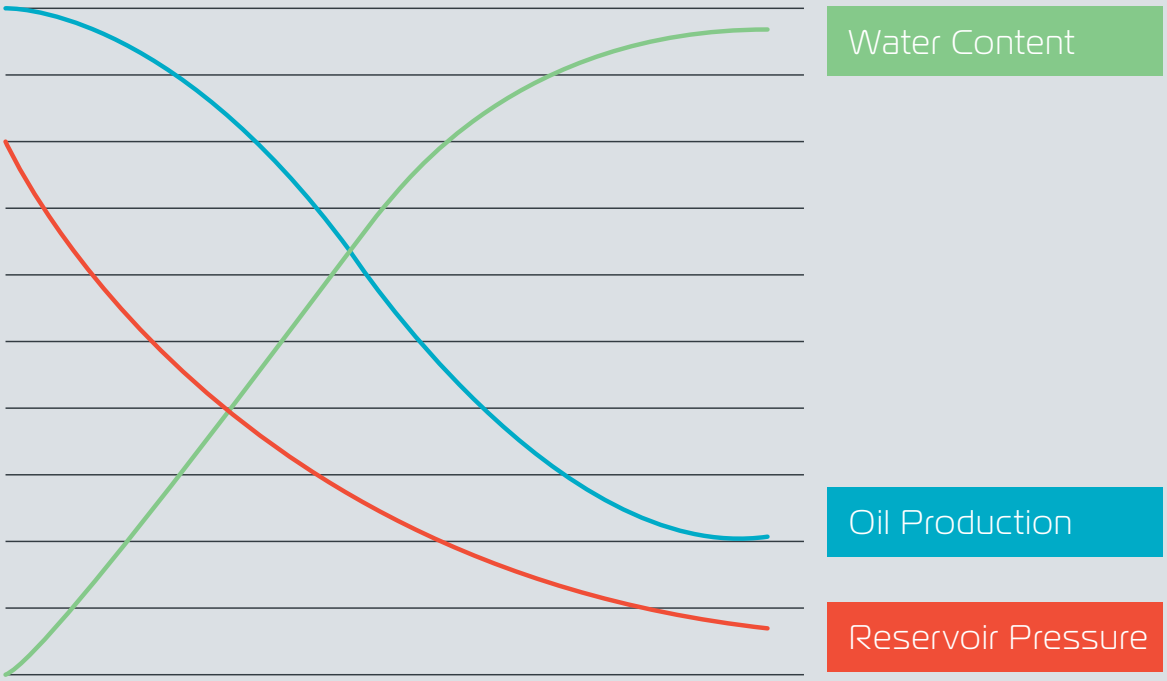
Based on decades of experience in the Oil & Gas industry, Amiad addresses diverse applications throughout the O&G industry production chain – from design to delivery – by facilitating oil companies to increase productivity, cut costs, and receive rapid ROI (Return on Investment).

Leveraging technological know-how, engineering expertise, and global experience, our solutions improve process water quality and increment water reuse, while lowering environmental impact.

The Need

Water is key in the Oil and Gas production chain and its quality significantly affects the production effectiveness, and the process continuity. To ensure the highest level of effectiveness, water filtration solutions must address a number of challenges such as maintaining reservoir permeability and porosity by using high quality injection water; treating produced water in order to enable it for reuse for injection water; and meeting local environmental regulations for water disposal.

In addition, Oil and Gas companies are increasingly looking to maximize the amount of oil extracted offshore and onshore. Today's average water-to-oil/gas ratios (WOR/WGR) are expected to sharply increase over the next decade. As such, the need for high quality water filtration solutions is greater than ever.



Through time, the reservoir pressure decreases, leading to lower oil production. In order to maintain the reservoir pressure, it is required to inject high-quality water, which as a result, leads to higher water-to-oil ratio and higher values of produced water which need to be treated.

Filtration Applications

High-performance and reliable filtration solutions are required for diverse usages:

Upstream

- Injection water
- Sulphur removal unit (SRU) membrane protection
- Produced water
- Heat exchangers and Cooling
- Process coal seam gas (CSG)/ coal bed methane (CBM)
- Pump gland protection

Midstream

- Pipe flushing
- Brine filtration for production of salt leached caverns
- Ballast water

Downstream

- Cooling tower
- Heat exchangers
- Membrane protection (UF/RO)
- Nozzle protection
- Intake water

Our Solutions

Amiad's wide range of automatic, self-cleaning filters are designed to cope with the diverse challenges encountered by companies across the O&G industry's value chain, and provide solutions which directly tackle the need for these requirements.

Amiad operates a production site located in Western Europe, dedicated to the manufacture, assembly, and test of all systems delivered to our customers in the Oil and Gas industry, with regard to offshore and onshore applications. Leveraging a personalized, customer-oriented approach, with experienced engineers in the field, we design and deliver customized solutions to meet our clients' requirements.

Amiad Technologies

Screen Technology

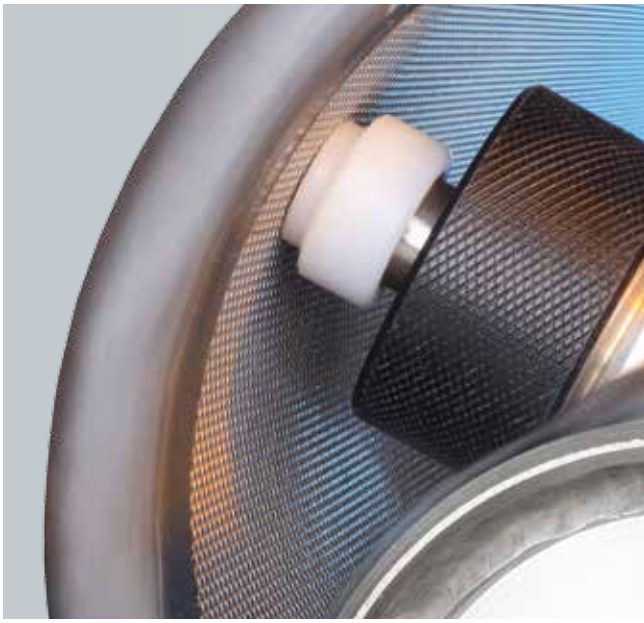
Amiad's screen filtration solutions are based on two cleaning mechanisms – suction-scanning and brush.

Suction-Scanning

Our suction-scanning solutions feature automatic, uninterrupted focused flushing that cleans out 100% of the screen area, while using less than 1% of the total processed water. Our suction-scanning solutions are built with a unique 4-layer weave-wire floating screen that delivers long-lasting performance, and offers a larger open area compared to other screen technologies.

Brush

Our brush solutions feature automatic, heavy-duty built-in brush filters that clean the screen during the strainer's operation, while leaving the filter online. Our brush solutions are available with wedge-wire or perforated screens.



Disc Technology

Arkal's disc filtration solutions carry out depth and surface filtration leading to high particle holding capacity, effective cleaning and consistent filtration results.

Arkal's unique disc filtration and backwash technology uses thin, color-coded discs of varied micron sizes. The discs are grooved on both sides, in opposite directions, creating a series of crossing points that trap the particles, thereby creating a depth filtration element. Each filter assembly in a multi-unit system is cleaned individually, allowing the other filters to continue operating during the backwash process.

Microfiber Technology

Amiad's automatic microfiber filtration solutions feature the industry's only automatic filters that remove particles as small as 2 microns, while enjoying a market-best 99.8% removal rate.

Our innovative Microfiber technology features a unique filtration medium constructed of fine thread fibers wound in layers around a grooved plastic spool cassette. Dirt particles are removed as water flows through the multi-layered microfibers to the collecting pipes and out of the filter via outlets. The accumulation of these particles causes differential pressure that activates the self-cleaning cycle.

Screen - Specifications

- **Robust and rigid:** withstands high pressure, high temperatures, and extreme conditions
- **Standard-compliant:** complies with international and national design codes
- **Versatile:** handles a wide range of particle sizes and flow rates
- **Filtration degree**: 10-3,500 microns
- **Flow rate:** 20-5000 m^3/h (per single vessel)
- **Durability:** reliability of systems for over 20 years
- **Materials:** carbon steel, 316L stainless steel, super-duplex,SMO 254,titanium
- **Energy efficient:** operating pressure as low as 1-2 bar combined with low head-loss design
- **Easy to install:** stand-alone or skidded, plug-and-play version

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Disc - Specifications

- **Corrosion-resistant:** built with polymeric materials
- **Versatile:** handles a wide range of particle sizes and flow rates
- **Filtration degree:** 20-400 microns
- **Flowrate:** unlimited flow, starting at 5 m^3/h. Full modular architecture
- **Modularity:** quick amplification for larger flows
- **Flexible:** easily configures into limited spaces

Microfiber - Specifications

- **Innovative:** features state-of-the-art technology
- **Comprehensive:** handles a wide range of particle sizes and flow rates
- **Filtration degree:** 2-3-7-10-20 microns
- **Flow rate:** 5-300 m^3/h per vessel
- **No disposables:** self-cleaning down to 2 micron without disposables

Selected Projects

With over five decades of experience and hundreds of installations worldwide, Amiad provides advanced stand-alone and turnkey solutions covering the full range of upstream, midstream and downstream filtration applications across the Oil and Gas industry, including installations both onshore as well as offshore.

"Pro-Safe" FPSO, Singapore

Application: Injection water
Filtration solution: 4x EBS filters followed by 2 Cartridge filters
Screen technology

Salt Dome Leaching for Gas Storage, USA

Application: Brine Filtration
Filtration solution: 70 x 8" EBS-10,000, 20 x AMF²-370K
Screen and Microfiber technology

Petrochemical Plant, France

Application: Pre-filtration to RO
Filtration solution: 4 X AMF² Filters
Microfiber technology

Spring Gully CSG, Australia

Application: Coal Seam Gas extraction water – Pre-filtration to UF/RO
Filtration solution: 20 X 4" Galaxy battery

Disc technology

FPSO, Equatorial Guinea

Application: Seawater Injection System on FPSO
Filtration solution: Coarse filtration: 5 x EBS-15,000 – Fine filtration: 4 x EBS-15,000

Screen technology

Injection Water, Thailand

Application: Seawater Injection
Filtration solution: 2 Skids of 3 x SAF 6000 PRO

Screen technology

Why Amiad?

Dedicated Production Capabilities

Amiad's dedicated production site for Oil and Gas projects provides manufacturing and engineering capabilities to design and deliver customized solutions to our customers; from stand-alone units to skid-mounted and turnkey projects. Amiad supplies a full range of durable water filtration solutions based on the industry's specifications, including international and national design codes, materials and filtration degrees, to comply with our customers' requirements.

Skid mounted system of EBS Filters

- Flowrate: 200 m^3/h per unit
- Filtration degree: 25 micron EBS, 10 micron Cartridges
- Standards: ASME
- ATEX certified system

Omega filter

- Flowrate: 3500 m^3/h per unit
- Filtration degree: 50 micron
- Standards: ASME and PED
- Super Duplex Vessel

Amiad Water Systems is certified with ISO 9001, ISO 14001, ISO 18001 standards.

Exclusive Solutions for Oil&Gas

- **High reliability:** with over 50 years of proven success, our solutions perform at the highest level at short and long term.
- **Robust construction:** built with durable, high quality materials and coatings, our solutions handle the most extreme conditions.
- **Compact footprint:** Modular and compact, our solutions require limited space.
- **Cost-effective performance:** Achieving industry-best removal rates with minimum labor and maximum water/energy efficiency, our systems deliver great value for money.
- **User-friendly operation:** Based on simple yet intelligent designs, and comprised of minimal moving parts, our solutions are easy to install, use and maintain.
- **Sustainable:** Reducing energy, water, and chemical consumption, our systems minimize environmental impact.
- **Comprehensive offering:** Available as turnkey or stand-alone systems, we address myriad applications throughout the industry.
- **Global compliance:** Compliant with local and global standards and codes, our solutions meet the industry's full range of manufacturing and safety requirements.

Our Commitment

- Best-in-class filtration performance and process know-how
- 50-year proven track record
- Global network
- Extensive Oil and Gas industry experience and expertise
- Multidisciplinary R&D and specialized engineering
- Close collaboration with global testing sites
- Customized solutions based on our clients' requests

About Amiad

Amiad Water Systems (AIM: AFS) is a leading global producer of automatic, self-cleaning water treatment and filtration products and systems. Through its engineering skills and ability to innovate, Amiad provides cost-effective sustainable solutions for the industrial, municipal, irrigation, oil & gas, and ballast water markets. In these segments, its patented products are being integrated into the core of systems for filtration and water treatment, injection water, produced water, membrane protection, wastewater and potable water treatment, cooling systems, and seawater filtration. Headquartered in Israel, Amiad provides solutions through 10 subsidiaries and a comprehensive network of over 170 distributors to customers in more than 80 countries.

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