Filtration Technology for Oil & Gas

EATON FILTRATION (JAPAN) Ltd.
Sales Manager.
Shuji Yamaguchi.
Brand Name of Filtration Products

LOEFFLER FILTRATION

Ronningen-Petter®

GAF Filter SYSTEMS

HAYWARD®
FILTRATION

INTER
NORMEN

BEGEROW

EAT·N
Powering Business Worldwide
Eaton’s growth through acquisitions

Hayward Filtration (Sep. 2005)

- Strong presence in the filtration process water and chemical markets
- Market leading position in bag filtration and straining products

- Experience of more than 40 years in filtration market
- Strength in vessels manufacturing
- GAF® is the synonym for bag filter systems all over the world
Eaton’s growth through acquisitions

Ronningen-Petter (Sep. 2006)

- Application focused engineering in a range of industrial markets
- Range of unique solid-liquid separation and self-cleaning products
Eaton’s growth through acquisitions

INTERNORMEN Technology GmbH
(May 2011)

• proven leader in advanced filtration technologies for almost 40 years
• more than 4000 different hydraulic & lubrication oil and process filters, as well as condition monitoring equipment
Eaton’s growth through acquisitions

E. Begerow GmbH & Co.  
(June 2011)

- leading system provider for advanced liquid filtration solutions
- develops and produces technologically innovative filter media and filtration systems for food and beverage, chemical, pharmaceutical and industrial applications
Wide range of products

Non-Automated Filters

Disposable Media Filters
- Bag Filtration Systems
- Cartridge Filtration Systems
- Depth Filtration Systems
- Custom Fabricated

Pipeline Strainers
- Y Strainers
- Simplex Strainers
- Duplex Strainers
- Custom Fabricated

Self Cleaning Filters

Mechanically Cleaned
- DCF
- MCF

Tubular Backwashing
- F Series
- AFR

Automatic Backwashing Strainers
- 2596

Reactogard Series

ClearAmine Automatic Filter
Markets & Industries Served

**Food & Bev**
- Edible Oils
- Wine, Sparkling Wine, Beer, Juice, Spirits
- Sugar, Milk, Gelatin

**Oil Refinery**
- Hydro-Processing Feed Stock
- Amine Loop Conditioning
- Cooling Water

**Marine**
- Bilge Water
- Ballast Water
- Fire Protection Water

**Water**
- Municipal Water Intake
- Waste Water Treatment
- Commercial Water Intake

**Paint**
- Fill Lines
- Additive Polishing
- Raw Latex

**Automotive Coating**
- E-coat
- Machine Tool Coolant
- Parts Washers
- Paint Booth

**Pharmaceutical**
- Intake Water
- Bulk Product Load-out

**Chemical**
- Solvent Recovery
- Resin Filtration
- Feed Stock Load-out
- Oil Removal
## Markets & Industries Served

### Marine
- Gearboxes
- Shipbuilding Industry
- Tankers

### Oil & Gas Industry
- Oil Platforms
- Oil Tankers
- Refineries

### Pulp & Paper Mills

### Refrigeration Machines
- Compressors for Industrial Refrigeration

### Moulding & Forging Presses
- Metal Working
- Machine Building

### Wind Power
- Wind Turbines
- Gearbox Manufacturers
Refinery Overview and Application Portfolio
Replaceable Media Housings & Media – Bags

Our bag and cartridge systems offer quick, easy changeout and high solids loading capacity for longer run times.
Refinery Flow Diagram

Strainer Applications
Replaceable Media – Strainers

Eaton pipeline strainers are used by industrial and commercial customers to protect their process piping equipment by removing debris from the liquid that flows through pipelines. Featuring duplex, simplex and Y strainers.
Applications – Sea Water

- 36” Carbon steel model 950B seawater intake duplex strainer
Gas/Liquid Separators

WRIGHT-AUSTIN™ brand gas/liquid separators have been the industry standard for over 100 years.

- Type T
- Type TS
- Series 30L
- 60-I Internal Type
- 70-I Internal Type
- Type CLC Coalescers/Separators
- Series 10-R Series
- Type 31L-ST
- DTL Dry Type
- Type 40EHC Exhaust Head
- Type 40EHMF Exhaust Head
- Model 90-AC Float Drain Trap
- Model 95-AC Float Drain Trap
- Model 230-AC Float Drain Trap
- Model 350-AC Float Drain Trap

- Protect your capital assets by removing up to 99% of damage-causing moisture and particulate matter from steam, air and gas pipelines.
- Even the emission of pure steam can be a concern to area communities.
Amine Filtration
Intake Screening

Application: Removal Sands, debris, suspended solids and small organics, seaweed, macro-algae, fibers. (Removal Rating: 75 ~ 1800 micron)
The filter is installed as a 1st stage in the water treatment plant to protect water pumps, membrane systems, and downstream equipment.

Eaton’s Solutions:
A. Model 2596 Automatic Strainers
B. Mechanical Cleaning Filters – MCF-Series, MCS-Series
C. Tabular Automatic Backwash Filter Family – F-Series, AFR-Series, and AFC-Series
Pretreatment in membrane water treatment plant
Water Injection – Successful case

- Filter Requirements

<table>
<thead>
<tr>
<th>Specification</th>
<th>DESC</th>
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<tr>
<td>Fluid</td>
<td>Sea Water</td>
<td>PH</td>
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<td>Inlet Pressure (Bar)</td>
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<td>Outlet Pressure (Bar)</td>
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<td>Flow rates (M³/h)</td>
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<td>Temperature (Cº)</td>
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<td>Viscosity (cps)</td>
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<td>Retention (µm)</td>
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<td>Filter Material</td>
<td>Element - Monel / Housing – C.S with Inconel cladding</td>
<td>Batch or Continuous</td>
<td>Continuous</td>
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- Our opportunity
  - 2596
  - Basket Strainers

- Selling Points
  - Eaton is a big company. Big company is more safe.
  - Backwashing time is less. More efficient.
  - Backwashing flow is less. Less waste water.
Auto Strainers
Our Capabilities

- Lab Research Facility
- System audits, testing
- Custom engineering
- Custom designs
- Experienced applications engineering
- Field service
- Pilot plant facility
- Trial equipment
Our Capabilities

- ASME Code Stamp
- Third Party Inspection (Lloyds, DNV)
- Special Coatings & Linings
- Non Destructive Examination (NDE)
  - Radiography (X-Ray)
  - Positive Material Identification (PMI)
  - Ultrasonic Examination (UT)
  - Liquid Penetrant Examination (LP)
  - Magnetic Particle Examination (MT)
- Multiple Nozzles
- Davits
- Back Flush
- Manual Dump Option on 90 and 950B
- Custom Physical Dimensions
- Material of Construction
Eaton – Your Filtration Business Partner

- Project management to your targets
- World-class products
- Automation expertise
- Seamless system integration
- Proven, rigorous quality
- Responsive service
- Flexible purchase/lease options
- More than 125 years of combined industry experience to help you choose the right solution for your process needs

“We’re dedicated to learning your manufacturing process and delivering solutions to your liquid filtration challenges.”