Leopold History

- In the filtration business since 1924
- Pioneer of the Dual/Parallel Lateral Underdrain
- Benefits from own product development center/R&D
- Detailed design capability
Key Products

• Underdrain Products
  • Universal Type SL, S and XA Underdrain
  • IMS®200 & IMS®1000 Cap
  • Air Header Pipe
  • Wash Water Troughs
• Outline process and layout design
• Design recommendation for key machinery
Key applications

• Drinking Water Treatment Plants:
  • New build and retro-fit
  • RGF, Mn, GAC

• Wastewater Tertiary Treatment:
  • New build and retro-fit
  • N, P, BOD, SS removal

• Desalination Pre-Treat
  • Dual Media Filters
  • New Build
Type S & XA Technology – Product Features

• Dual Parallel Lateral Design
  • Superior Distribution And Backwashing

• Closely Spaced Orifices
  • 248 per m2
  • Eliminates Dead Spots
  • Provides Uniform Distribution

• Non Clogging Orifices
  • 6 mm Diameter
  • Recessed To Prevent Gravel Plugging
• Typical Nozzle installation
- Drinking Water Treatment Plant
  - Replacement of existing nozzle flor with Leopold system
Technical Comparison of Filter Floors

**Nozzle**

- Nozzle Density: 36/sqm
- Nozzle coverage: 15% of area
- Depth of plenum: 1m
- Gravel barrier layer: 75-100mm
- Technical support from plastic moulder manufacturer

**Leopold**

- Orifice density: 248/sqm
- Block coverage: 90% of area
- Depth of Block: 220 – 330mm
- IMS Cap: 25mm
- Technical support from Leopold with 75 years of filter experience
Type S & XA Technology – Product Features

• High Density Polyethylene (HDPE) structural foam construction

• Light weight for easy handling
  • 8 kg/ 1.22m block - Type SL
  • 11 kg/ 1.22m block - Type S
  • 9.5 kg/ 1.22m block – Type XA

• Corrosion Resistant

• Smooth surfaces for reducing the potential for calcification.
Type S & XA Technology – Product Features
Type S & XA Technology – Dual Parallel Laterals

Improved Distribution

Secondary (Compensating) Lateral

Primary Lateral

Backwash Source
Type S & XA Technology – Air Control
Type S & XA Technology – Water Recovery
Type S & XA Technology – With Water Recovery
Nozzle Air Pattern (for Comparison!)
Type XA™ Underdrain Lateral
IMS200® & IMS1000® Caps – Features

- Precision Moulded Plastic
- Corrosion resistant
- Factory Installed on Leopold Underdrain
- Type SL, Type S or Type XA Underdrain

- IMS®200 for drinking water applications, 0.2mm slots, suitable for fine sand >0.45mm
- IMS®1000 for wastewater applications, 1.0mm slots, suitable for coarse sand >1.5mm
- IMS®1000 Replaces Gravel in Wastewater Filters
IMS®200

IMS®1000
Product Attributes & Benefits

Backwash Headloss

- Headloss during backwash is similar to the gravel it replaces
- Maximum allowable pressure is 15psi
Product guidelines

• **Typical Backwash Rates**

  - Air: 36-90 m/hr (Drinking Water 36-60m/h, Wastewater 70-90m/h)
  - Water: 15-60 m/hr (Drinking Water 30-60m/h, Wastewater 15-20m/h)

• **Concurrent Air / Water Wash Rates**

  - Air: 55-90 m/hr Air
  - Water: 12-15 m/hr Water

• **Lateral Length**

  - Type S – 14-15 m from feed point
  - Type XA – 9.75 m from feed point
  - Type SL – 5 m from feed point – combined wash cycle
  - Type SL – 14-15 m from feed point – separate air & water wash cycle
Typical Outline Design

• Layout design with sizes

• Process design

• Upstream process and incoming water quality

• Backwash water source and quality

• Backwash rates and sequence

• Flume design

• Entry pipe diameters and position

• Flume velocity

• Media selection
Installation – Example

Swinford WTW – RGF Installation
Top Support Assembly
Product Development & R&D
Questions?