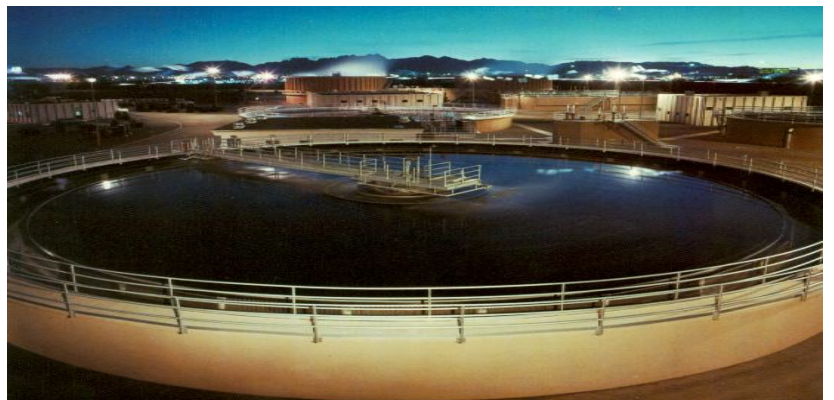


Kube Engineering Industry Guide

Municipal Wastewater Industry

30298 Trois Valley Street
Murrieta, CA 92563
951-926-0675 P
951-926-2562
Quinn@kubengineering.com
www.kubengineering.com

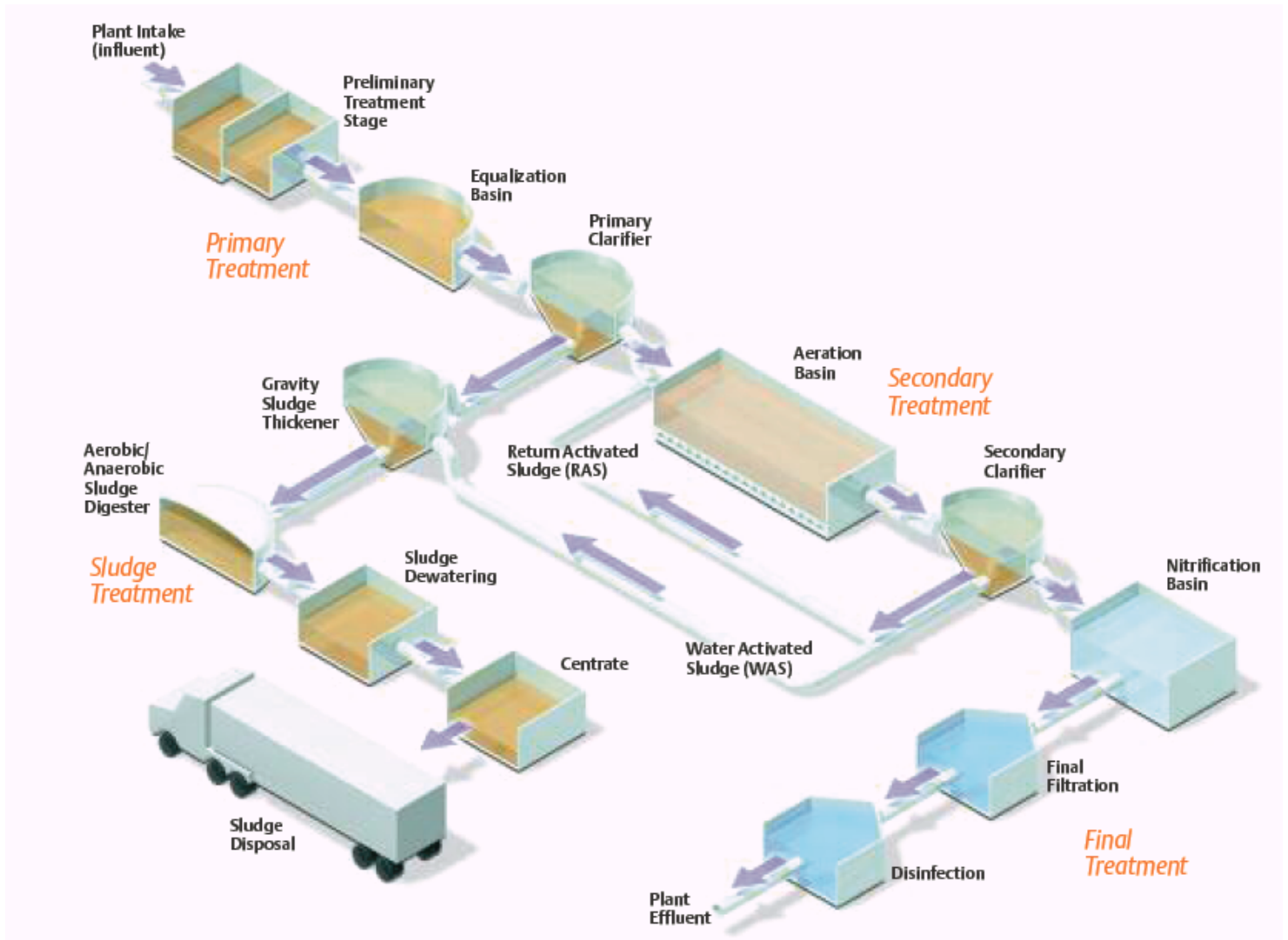


August 1, 2011

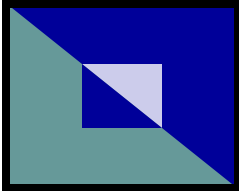
Application Guide

Kube Engineering

General Plant Flow Diagram



Rosemount Analytical Flow Diagram



Application Guide

Kube Engineering

Influent APPLICATION

Headworks

Monitors fecal delivery for plant protection, and traceability. Could have wastewater and sludge from households or industrial facilities.

Conductivity Measurement-

Product: **Van London/pHoenix** Toroidal Conductivity Probe with a Knick Stratos e-2000 series transmitter

Reason: Acid and caustic concentration measurement, water / wastewater where electrode corrosion or contamination may create measurement inaccuracy in contacting electrode sensors.

Benefits: Electrodeless Cell which repels dirt. Very accurate in highly loaded wastewater.



pH/ORP Measurement

Product: **Van London/pHoenix** sensor with a Knick Stratos e-2000 series transmitter

Reason:

Benefits: VL-PC electrodes are manufactured with our Solid Polymer Reference fill, longer life and performance enhancement



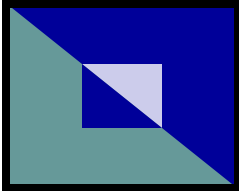
Inlet Flow

Product: **ITT-WTW Ammolyt 700 IQ** with System 2020XT digital controller

Reason:

Benefits:





Application Guide

Kube Engineering

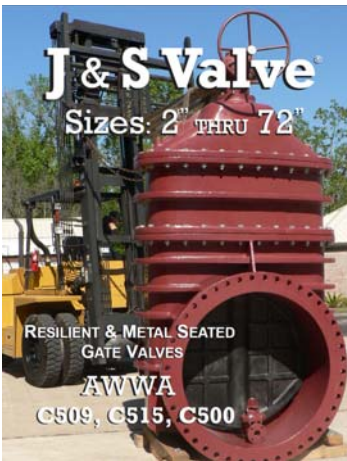
Influent APPLICATION

Headworks

Monitors fecal delivery for plant protection, and traceability. Could have wastewater and sludge from households or industrial facilities.

Large Gate Valve

Product: J & S Valve, out of Houston, TX
Reason: Well made and great quality



Inlet Flow

Product: **EMCO Unimag**

Reason: Measure Inlet flow between day tank and storage tanks

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



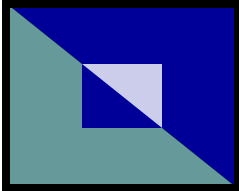
Wastewater Sampling

Product: **ITT-WTW PB 150-2** Permanent outdoor sampler

Reason: For laboratory grab samples to test wastewater

Benefits: This is a vacuum technology and provides a very clean sample grab without prior contamination of previous sample.





Application Guide

Kube Engineering

Influent Applications

Grease and Grit Removal

Grease and grit are separated by air separation where the grease floats to the top and grit floats to the bottom of the tank.

pH/ORP Measurement

Product: **Van London/pHoenix** sensor with a Knick Stratos e-2000 series transmitter

Reason:

Benefits: VL-PC electrodes are manufactured with our Solid Polymer Reference fill, longer life and performance enhancement



Inlet Flow

Product: EMCO Unimag

Reason: Monitors the fat and sand removal flow rates.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Wastewater Sampling

Product: **ITT-WTW PB 150-2** Permanent outdoor sampler

Reason: For laboratory grab samples to test wastewater

Benefits: This is a vacuum technology and provides a very clean sample grab without prior contamination of previous sample.



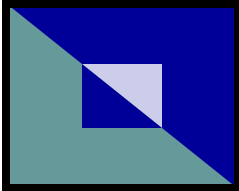
Monitoring of air flow

Product: EMCO Vortex PhD

Reason: Monitor of air flow rates for air injection for separation

Benefits: No moving parts with high accuracy.





Application Guide

Kube Engineering

Influent Applications

Industrial Wastewater Neutralization

This is the wastewater from industry which is put into the sewer system to be transferred to the WWTP

pH/ORP Measurement

Product: **Van London/pHoenix** sensor with a Knick Stratos e-2000 series transmitter

Reason:

Benefits: VL-PC electrodes are manufactured with our Solid Polymer Reference fill, longer life and performance enhancement



Conductivity Measurement-

Product: **Van London/pHoenix** Toroidal Conductivity Probe with a Knick Stratos e-2000 series transmitter

Reason: Acid and caustic concentration measurement, water / wastewater where electrode corrosion or contamination may create measurement inaccuracy in contacting electrode sensors.

Benefits: Electrodeless Cell which repels dirt. Very accurate in highly loaded wastewater.



Wastewater Sampling

Product: **ITT-WTW PB 150-2** Permanent outdoor sampler

Reason: For laboratory grab samples to test wastewater

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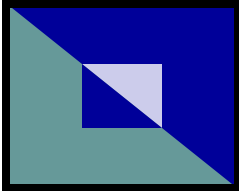


Influent to Primary Clarifiers

Total Organic Carbon

Product: ITT-Analytics OI Analytical TOC analyzer





Application Guide

Kube Engineering

Influent Applications

Bar Screen

The bar screens usually have a coarse and a fine removal systems.

Bar Screen Level Control

Product: GE-Druck PTX-1290 Wastewater Submersible Pressure Transducer

Reason: Monitors the debris collection by monitoring the level in the tank.

Benefits: The titanium body and polyurethane cable is excellent for chemical compatibility as well as a heavy sink weight. It has high accuracy by monitoring the differential level, it promotes less energy consumption by the rake saving energy.



Equalization Basin

It is important to monitor the DO to monitor the incoming waste is not excessively loading the treatment plant.

Dissolved Oxygen in Basin

Product: ITT-WTW FD02 700 IQ with System 2020XT controller

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.

Benefits: .



Product: Royce Technologies-ITT Model 9110/9120 Dissolved Oxygen Analyzer

Reason:

Benefits: This optical technology allows for a very stable sensing of DO. Modbus connections as well as dual sensor input



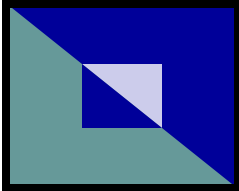
MODEL 95 DISSOLVED OXYGEN SENSOR



MODEL 96 ELECTRO-CHEMICAL SELF-CLEANING SENSOR



MODEL 99 CARTRIDGE DISSOLVED OXYGEN SENSOR



Application Guide

Kube Engineering

Primary Clarifier
Wastewater Treatment

Primary Settling Tank

Sedimentation settles by gravity in either a rectangular or circular basin. The controlled discharge of the sludge allows for easier water processing within the plant.

Return of Citrate and Filtrate and Primary Sludge

Product: EMCO Unimag

Reason: Monitors the flow rates of the filtrate return and the primary sludge discharge.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Measurement of Turbidity/Suspended Solids on Discharge

Product: Royce Technologies-ITT model 7110/7120 with a high range sensor for return to gravity thickener line

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.



Sludge Level

Product: Royce Technologies-ITT– Ultrasonic Sensors with the 2511A

Reason: Utilizes an ultrasonic ranging technique to measure the depth of interfaces within the tank.



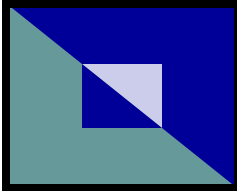
Precipitant Injection

Product: EMCO DemiMag

Reason: Precipitant is added to decrease the concentration of phosphorus by the reaction of iron or aluminum salts with the phosphates.

Benefits: By accurately monitoring the dosage, we can ensure not to overdose the Clarifier as well as control the costs of the Precipitant. The Demimag utilizes the Hybrid Pulse technology where the flow signal accurately follows any injection pump curves with a 40Hz frequency.





Application Guide

Kube Engineering

Biological Treatment
Wastewater Treatment

Trickling Filters

Usually filled with lava rocks or a filter material, bacteria grows on the material to assist with the water purification. Water

Return flow from Secondary Clarifiers (RAS)

Product: EMCO Unimag

Reason: In times of high flow conditions, a return flow from the secondary clarifiers is added.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Aeration Basin

This process changes the dissolved organic material in to inorganic material. Micro organism consume organic carbon as a nutrient. Specific bacteria change ammonia (NH₃) to Nitrate (NO₃). Dissolved Oxygen is used supplied by air blowers. Inlet to the basin is from the Primary clarifier and Return Activated Sludge from the secondary clarifier.

Measurement of Suspended Solids in Aeration Basin

Product: Royce Technologies-ITT model 7110/7120 with a Mid Range sensor

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.



Dissolved Oxygen in Basin

Product: Royce Technologies-ITT Model 9110/9120 Dissolved Oxygen Analyzer

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.



MODEL 95 DISSOLVED OXYGEN SENSOR



MODEL 96 ELECTRO-CHEMICAL SELF-CLEANING SENSOR



MODEL 99 CARTRIDGE DISSOLVED OXYGEN SENSOR



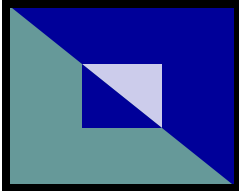
pH/ORP Measurement

Product: **Van London/pHoenix** sensor with a Knick Stratos e-2000 series transmitter

Reason:

Benefits: VL-PC electrodes are manufactured with our Solid Polymer Reference fill, longer life and performance enhancement





Application Guide

Kube Engineering

Biological Treatment

Wastewater Treatment

Aeration Basin

This process changes the dissolved organic material in to inorganic material. Micro organism consume organic carbon as a nutrient. Specific bacteria change ammonia (NH₃) to Nitrate (NO₃). Dissolved Oxygen is used supplied by air blowers. Inlet to the basin is from the Primary clarifier and Return Activated Sludge from the secondary clarifier.

Product: ITT-WTW VarIon 700IQ or NitraLyt 700IQ with System 2020XT

Reason:

Benefits:



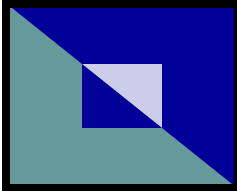
Monitoring of air flow

Product: EMCO Vortex PhD

Reason: Monitor of air flow rates for Dissolved Air injection

Benefits: No moving parts with high accuracy.





Application Guide

Kube Engineering

Biological Treatment
Wastewater Treatment

Secondary Clarifier

This separates the liquids and solids from the aeration basin. A large part of the sludge is returned to the aeration basin via return activated sludge (RAS). The other part of the sludge is discharged in to the thickener as Waste Activated Sludge (WAS). The ratio between RAS and WAS is maintained to control sludge quality.

Sludge Level

Product: Royce Technologies-ITT– Ultrasonic Sensors with the 2511A

Reason: Utilizes an ultrasonic ranging technique to measure the depth of interfaces within the tank.



Indication of Effluent from Secondary Clarifiers and WAS blending Thickener

Product: EMCO Unimag

Reason: In times of high flow conditions, a return flow from the secondary clarifiers is added.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Measurement of Turbidity/Suspended Solids on Discharge

Product: ITT-WTW VisoTurb or ViSolid sensors with System 202XT controller

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.



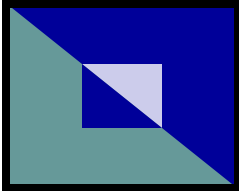
Measurement of Turbidity/Suspended Solids on Discharge

Product: Royce Technologies-ITT model 7110/7120 with a high range sensor for return to gravity thickner line

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.





Application Guide

Kube Engineering

Effluent Line
Wastewater Treatment

Effluent Line

The last stage of water purification goes through a filter and a Chlorination/Dechlorination, UV, Post Precipitation or sand bed filters.

Effluent Flow

Product: EMCO Unimag

Reason: Monitors the effluent flow of the plant.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Open Channel Flow Monitoring

Product: Mace

Reason: Many times the effluent from the plant is in a brick pipe or a pipe which is non-full.

Benefits: The Channel Mag utilizes a high current and high frequency allowing a total cross sectional magnetic flux allowing for a high signal to noise ratio. The ramp style allows for a total flow profile.

Wastewater Sampling

Product: ITT-WTW PB 150-2 Permanent outdoor sampler

Reason: For laboratory grab samples to test wastewater



Measurement of Turbidity/Suspended Solids on Discharge

Product: ITT-WTW VisoTurb or ViSolid sensors with System 202XT controller

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.



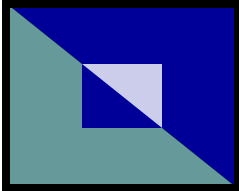
pH/ORP Measurement

Product: Van London/pHoenix sensor with a Knick Stratos e-2000 series transmitter

Reason:

Benefits: VL-PC electrodes are manufactured with our Solid Polymer Reference fill, longer life and performance enhancement





Application Guide

Kube Engineering

Effluent Line
Wastewater Treatment

Effluent Line Continued

The last stage of water purification goes through a filter and a Chlorination/Dechlorination, UV, Post Precipitation or sand bed filters.

Dissolved Oxygen in Line

Product: **ITT-WTW** FD02 700 IQ with System 2020XT controller

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.

Benefits: .



Dissolved Oxygen in Line

Product: Royce Technologies-ITT Model 9110/9120 Dissolved Oxygen Analyzer

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.

Benefits: This optical technology allows for a very stable sensing of DO. Modbus connections as well as dual sensor input.



MODEL 95 DISSOLVED OXYGEN SENSOR



MODEL 96 ELECTRO-CHEMICAL SELF-CLEANING SENSOR



MODEL 99 CARTRIDGE DISSOLVED OXYGEN SENSOR

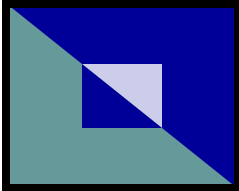
Conductivity Measurement-

Product: **Van London/pHoenix** Toroidal Conductivity Probe with a Knick Stratos e-2000 series transmitter

Reason: Acid and caustic concentration measurement, water / wastewater where electrode corrosion or contamination may create measurement inaccuracy in contacting electrode sensors.

Benefits: Electrodeless Cell which repels dirt. Very accurate in highly loaded wastewater.





Application Guide

Kube Engineering

Effluent Line
Wastewater Treatment

Effluent Line Continued

The last stage of water purification goes through a filter and a Chlorination/Dechlorination, UV, Post Precipitation or sand bed filters.

Ammonia/Nitrate/Nitrite/Phosphates

Product: ITT-Analytics-WTW



Total Organic Carbon

Product: ITT-Analytics OI Analytical TOC analyzer



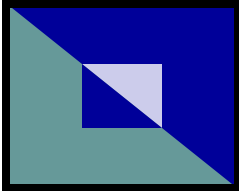
Measurement of Turbidity/Suspended Solids on Discharge

Product: ITT-WTW VisoTurb or ViSolid sensors with System 202XT controller

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.





Application Guide

Kube Engineering

Effluent Line
Wastewater Treatment

Chlorination/Dechlorination

Before discharging to a river or used for irrigation, all of the micro organisms need to be killed. After Chlorination, sulfites are used to ensure no chlorine is present.

Chlorine/De-chlorine Injection

Product: EMCO DemiMag

Reason: Monitor Chlorine injection rate

Benefits: By accurately monitoring the dosage, we can ensure not to overdose the Chlorination basin as well as control the costs of the Chlorine (Sodium Hypo). The Demimag utilizes the Hybrid Pulse technology where the flow signal accurately follows any injection pump curves with a 40Hz frequency.



UV-Disinfection

Some plants use a UV filter to kill the microorganisms.

Influent / Effluent Flow

Product: EMCO Unimag

Reason: Monitors the influent and effluent flow of the UV Disinfection cell.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



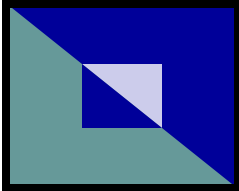
Measurement of Suspended Solids on Clarifier Effluent

Product: Royce Technologies-ITT model 7110/7120 with a Low range sensor for return to Disinfection line

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.





Application Guide

Kube Engineering

Flocculent Prep
Solids Treatment

Flocculent Preparation

Flocculent is an electrically charged polymer used to attract suspended particles to make them coagulate.

Water influent to dilution tank

Product: EMCO Unimag

Reason: Monitors the water influent to dilution tank.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Dilution Tank Level and Day Tank Level

Product: GE Sensing-Druck PTX- 1230.

Reason: Monitoring the level in the tank.

Benefits: Titanium housing. It has high accuracy by monitoring the differential level, it promotes less energy consumption by the rake saving energy.



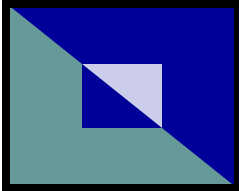
Flocculent/Polymer Injection

Product: EMCO DemiMag

Reason: Measures the dosing of the polymer in to the system

Benefits: By accurately monitoring the dosage, we can ensure not to overdose the Clarifier as well as control the costs of the Precipitant. The Demimag utilizes the Hybrid Pulse technology where the flow signal accurately follows any injection pump curves with a 40Hz frequency.





Application Guide

Kube Engineering

Static Pre-thickener
Solids Treatment

Gravity Thickner

Mixed with WAS the flocculent is added to the static pre-thickener. The supernatant liquid is pumped back in to primary sedimentation and the thickened sludge is pumped in to the digester.

Water Injection to Thickner

Product: GE-Druck PTX-1290 Wastewater Submersible Pressure Transducer

Reason: Monitors the debris collection by monitoring the level in the tank.

Benefits: The titanium body and polyurethane cable is excellent for chemical compatibility as well as a heavy sink weight. It has high accuracy by monitoring the differential level, it promotes less energy consumption by the rake saving energy.



Measurement of Suspended Solids on Clarifier Effluent

Product: Royce Technologies-ITT model 7110/7120 with a Low range sensor for return to Disinfection line

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital Communications.



Interface Level

Product: Royce Technologies-ITT– Ultrasonic Sensors with the 2511A

Reason: Utilizes an ultrasonic ranging technique to measure the depth of interfaces within the tank.



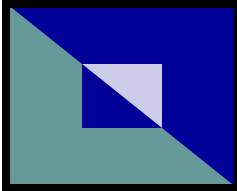
Flow of Static Thickener

Product: EMCO Unimag

Reason: Monitors the sludge going in to the storage tank.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.





Application Guide

Kube Engineering

Centrifuge/DAF
Solids Treatment

Centrifuge Separation Continued

WAS is injected in to a centrifuge. As the motor spins, it separates the solids from the liquids.

Measurement of Turbidity/Suspended Solids on Discharge

Product: Royce Technologies-ITT model 7110/7120 with a high range sensor for return to gravity thickner line

Reason: Measurement of Suspended Solids out of the Primary Sludge outlet control

Benefits: Phased array source for automatic color compensation, automatic ambient light compensation, self diagnostics. Digital



Dissolved Air Floatation

The DAF method separates liquid from solids in WAS. The WAS is mixed with compressed air and the solids raise to the top and a scraping rake clears off the top. And discharges in to a storage vessel.

Sludge Level

Product: Royce Technologies-ITT– Ultrasonic Sensors with the 2511A

Reason: Utilizes an ultrasonic ranging technique to measure the depth of interfaces within the tank.



Water Level of DAF tank and sludge storage tank.

Product: GE-Druck PTX-1290 Wastewater Submersible Pressure Transducer

Reason: Monitors the debris collection by monitoring the level in the tank.

Benefits: The titanium body and polyurethane cable is excellent for chemical compatibility as well as a heavy sink



Monitoring of air flow

Product: EMCO Vortex PhD

Reason: Monitor of air flow rates for air injection to water to mix with WAS for floatation.

Benefits: No moving parts with high accuracy.



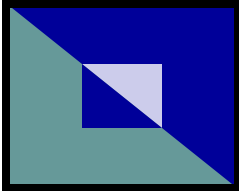
Flow of Static Thickener

Product: EMCO Unimag

Reason: Monitors the sludge going in to the storage tank.

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.





Application Guide

Kube Engineering

Anaerobic Digester
Solids Treatment

Anaerobic Digester

WAS is injected in to a centrifuge. As the motor spins, it separates the solids from the liquids.

Flow

Product: EMCO Unimag

Reason: Monitors the flow from sludge thickening to anaerobic digester, circular sludge, digester to sludge dewatering

Benefits: The Unimag Pulsed Hybrid Technology provides a high current and high frequency technology to accurately monitor the flow rates with high media to noise ratio. Detachable electrodes for tube reaming if necessary.



Level in Digester Tank

Product: GE-Druck PTX-1290 Wastewater Submersible Pressure Transducer

Reason: Monitors the debris collection by monitoring the level in the tank.

Benefits: The titanium body and polyurethane cable is excellent for chemical compatibility as well as a heavy sink



pH/ORP Measurement

Product: Van London/pHoenix sensor with a Knick Stratos e-2000 series transmitter

Reason:



Dissolved Oxygen in Line

Product: Royce Technologies-ITT Model 9110/9120 Dissolved Oxygen Analyzer

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.



MODEL 95 DISSOLVED OXYGEN SENSOR



MODEL 96 ELECTRO-CHEMICAL SELF-CLEANING SENSOR



MODEL 99 CARTRIDGE DISSOLVED OXYGEN SENSOR

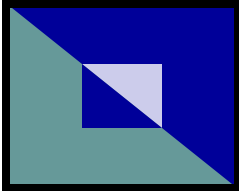
Dissolved Oxygen in Line

Product: ITT-WTW FD02 700 IQ with System 2020XT controller

Reason: To monitor the correct amount of Dissolved Oxygen within the basin to obtain a primary number for loading.

Benefits: .





Application Guide

Kube Engineering

Anaerobic Digester
Solids Treatment

Anaerobic Digester

WAS is injected in to a centrifuge. As the motor spins, it separates the solids from the liquids.

Flow

Digester Biogas Flow Meter– Service Anaerobic Digester Gas (Upstream of Condensate/Sediment Trap) 20-120SCFM

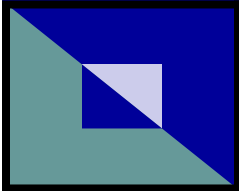
Boiler Biogas Flowmeter– Location Gas scrubber and boiler facility 5 scfm

Boiler Natural Gas Flow Meter– 0-35 scfm

Flare Biogas Flow Meter– Off of flare 30-120scfm

Biogas (CH₄ 65%, CO₂ 35%)





Application Guide

Kube Engineering

Misc Equipment

Miscellaneous Equipment

EMCO Pulsed AC Technology

UniMag Magnetic Flowmeter

Interchangeable Sensors: Coils and electrodes can be easily Replaced on site, without recalibration

High Energy Design: Problems with electrode fouling and low/variable media conductivity are eliminated

No Liner Necessary: Inaccuracy due to liner damage is eliminated

Mathematically Designed, High Energy Magnetic Field: Auto-zero correction plus high magnetizing current and energizing frequency ensure the highest possible signal-to-noise ratio. Two pairs of electrodes average irregular velocity profiles to provide true volumetric flow.

Integrated Monitoring System: Add pressure and multi-parameter sensors, and/or sampling ports

Totally Encapsulated Coils: Sensors are unaffected by shock and vibration

Integral Grounding Electrodes: Grounding rings are normally unnecessary

Media Noise & Micro-Porosity: The Two Largest Errors

Pulsed AC Without
Dependancy On Liners



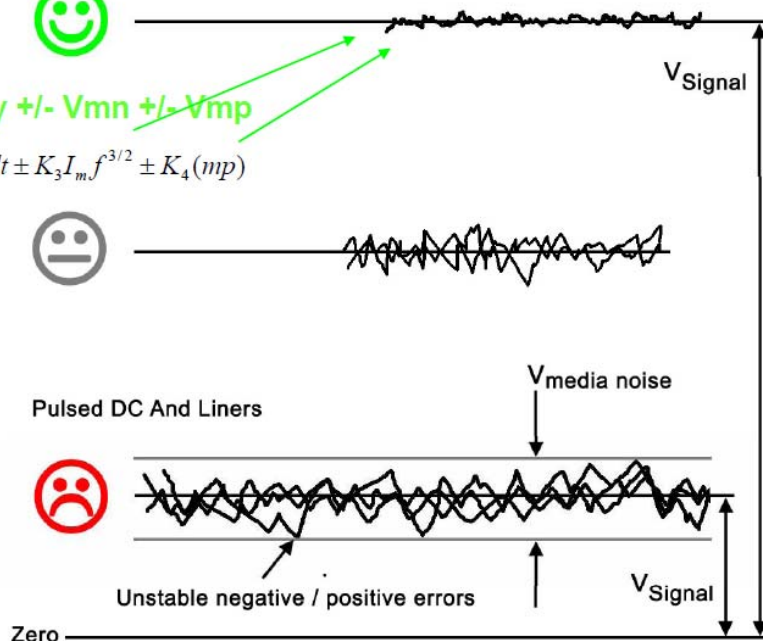
Reminder

$$V_{gen} = V_{fl} \pm V_{eddy} \pm V_{mn} \pm V_{mp}$$

$$V_{gen} = K_1 Bvd \pm K_2 \frac{dB}{dt} \cdot dt \pm K_3 I_m f^{3/2} \pm K_4 (mp)$$



Pulsed DC And Liners



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Wastewater Relief Valve

Model

70SWR

Purpose

To control pressure in wastewater lines, protecting lines against excessive pressure caused by too rapid or an erroneous valve closing, starting or stopping a pump, and even against a power failure.

Types

Throttling, Angle, globe or Y body pattern.

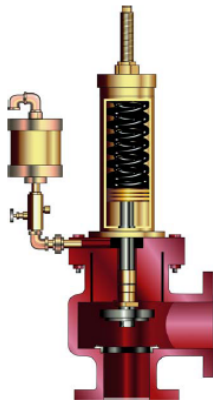
Description

The Ross wastewater relief valve is a cast iron body with bronze and stainless steel trim. Control devices include a quick opening valve with an oil dashpot and closing speed needle valve.

Customized features

Options include any of the following:

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.



70SWR Wastewater Relief Angle Body

Wastewater Back Pressure Sustaining Valve

Model

70SWR-BP

Purpose

To control pressure in wastewater lines, to maintain a minimum preset value on the inlet of the valve. This valve can be installed on the pump discharge to keep a pump on a curve, or on the end of a line (with free discharge) to maintain a certain pressure in the line.

Operation

The valve will be normally closed and only opens to the degree it needs to maintain the set pressure value on the valve inlet.

Types

Throttling, Angle, globe or Y body pattern.

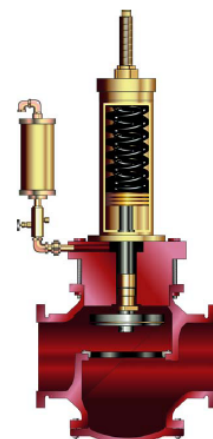
Description

The Ross wastewater back pressure sustaining valve is a cast iron body with bronze and stainless steel trim. Control devices include a quick opening valve with an oil dashpot and closing speed needle valve.

Customized features

Options include any of the following:

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.



70SWR Wastewater Relief Globe Body

Wastewater Surge Anticipator Control Valve

Model

70SWR-E

Purpose

The Ross wastewater surge anticipator control valve (70SWR-E) protects systems against excessive pressure surges like the 70SWR but offers the additional benefit of anticipating upcoming surges. This valve provides additional system protection by incorporating an advanced pilot system activated by anticipating high pressure surges from low pressure waves.

Type

Throttling, Angle, globe or Y body pattern.

Description

The Ross surge control valve is a cast iron body with bronze and stainless steel trim; control devices include the following:

- Pneumatic or hydraulic controls powered via a separate power source such as water or compressed nitrogen.
- Low and high pressure activated pilots.

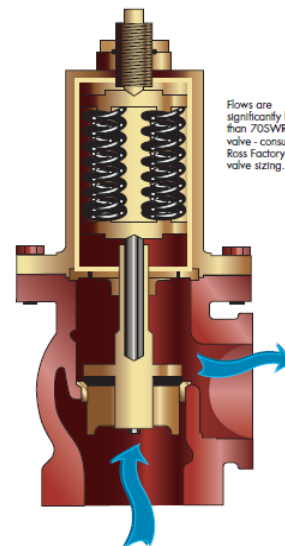
Customized features

Features can be added to the basic valve to suit your application. Options include any of the following:

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- Limit Switch – valve mounted to provide an electrical contact indicating valve opening.
- Pressure Setting Indicator – illustrates initial setting as well as a calibrated pressure scale.
- MC2000S-000-000 PLC based electronic control panel with message center display.
- Electronic solenoid control.

MADE IN USA

Ross Model 28AR Direct Acting Pressure Relief Valve



Model

28AR

Purpose

To control pressure in wastewater lines, protecting lines against excessive pressure caused by too rapid or an erroneous valve closing, starting or stopping a pump, and even against a power failure.

Types

Throttling, Angle body pattern.

Description

The Ross wastewater relief valve is a cast iron body with bronze and stainless steel trim. Control devices include a quick opening valve with an oil dashpot and closing speed needle valve.

Customized features

Options include any of the following:

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.

Ross ECV - Wastewater Pump Control Valve

Model

70SWR-S

Purpose

Minimizes pump start and stop surges by coordinating valve and pump operation – also prevents reverse flow.

Types

Throttling, Angle, globe or Y body pattern.

Description

The Ross surge control valve is a cast iron body with bronze and stainless steel trim; control devices include the following:

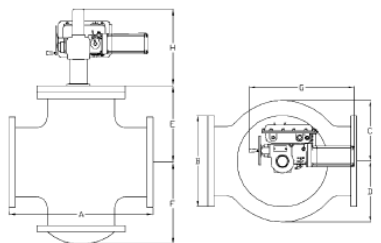
- Pneumatic or hydraulic or custom controls powered via a separate power source such as water, compressed gas, electric actuator, or other media.

Customized features

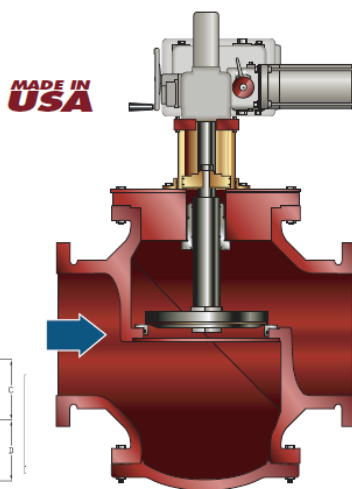
Features can be added to the basic valve to suit your application.

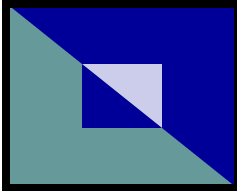
Options include any of the following:

- Cast steel, ductile iron, or stainless steel body.
- All stainless steel internals.
- Water or pneumatic operation.
- MC2001F-000-000 PLC based pump control panel with message center display.
- Conventional relay pump control panel.



Ross Model 70SWR-S ECV - Electronic Check Valve





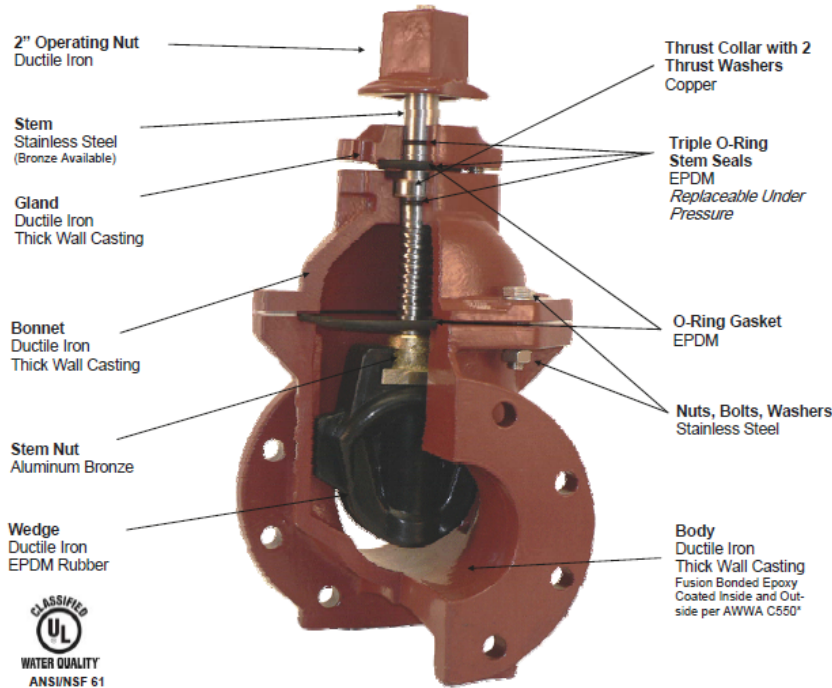
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AWWA C509 & C515 Resilient Seated Solid Wedge Gate Valve Materials of Construction



ANSI/NSF 61 - Certified by U/L



FL X FL, NRS
Resilient Seated
Sizes: 2" - 72"
Series 6800



MJ X MJ, NRS
Resilient Seated
Sizes: 2" - 48"
Series 6900



FL X MJ, NRS
Resilient Seated
Sizes: 2" - 48"
Series 6600



FL X FL, OS&Y
Resilient Seated
Sizes: 2" - 36"
Series 6700



PO X PO, NRS
Resilient Seated
Sizes: 4" - 12"
Series 6500



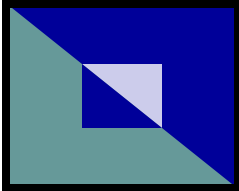
FL X PO, NRS
Resilient Seated
Sizes: 4" - 12"
Series 6400



FLXFL, NRS
Metal Seated
Sizes: 2" - 48"
Series 3800



FLXFL, OS&Y
Metal Seated
Sizes: 2" - 48"
Series 3700



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Your Single Source Solution

- Bulk Transfers
- Waste Removal and Transportation
- Sediment Removal
- On-Site Chemical Storage
- Decontamination Services
 - Clarifiers
 - Containment Areas
 - Storage Tanks

Collection, transportation and recycling of settled solids.

- Lagoon clean-out
- Lagoon closure
- Digester clean-out
- Material transfer between lagoons or facilities

EMERGENCY SERVICES

- Chemical spills
- Certified Confined Space Entry and Rescue
- 24/7 Emergency Response
- Hazardous Material Acceptable