

SYSTEM SOLUTIONS GUIDE

Installation Products

Water and wastewater treatment industry - USA



Cable protection, wire management and grounding solutions to address critical issues and reduce overall cost by increasing efficiency, reliability, safety, quality and flexibility.

ABB system solutions for water and wastewater

Addressing critical issues to reduce overall costs

Cable protection and wire cable management

Water and wastewater treatment facilities require system solutions that address corrosion, downtime, aging equipment and frequent maintenance, and considers critical application parameters such as design, materials specifications, temperature and ingress ratings, trade sizes and approvals.

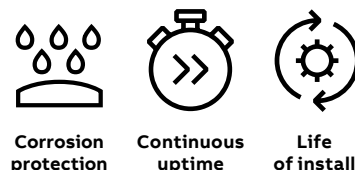


ABB Installation Products offers the right product for each application to help facilities reduce overall costs and improve operational efficiency.



Corrosion protection



Cause: Typically caused by factors, including **acidity, alkalinity**, and the presence of various **waste components** like **sugars, salts, organic acids** and **enzymes**. It can also be accelerated by factors including **temperature fluctuations, humidity** and **mechanical stress**. A common issue we see in wastewater facilities is the mating of dissimilar metals.

Impact: Can result in the release of metal ions or particles into the water, leading to **contamination** and negatively impacting quality and safety. Can also have severe consequences for electrical systems in the Water industry, **damaging equipment** and impacting safety, productivity, compliance and reputation. Potential to increase maintenance, repair and replacements costs, which can add to a facility's **operating costs** and **resource allocation**.

Solution: It is crucial to implement proper corrosion control measures. This can include regular **maintenance inspections**, using corrosion-resistant materials for equipment, implementing **effective cleaning** and **sanitation practices**, and monitoring the **pH and chemical composition** of processing environments. Some but not all issues can be visually identified.



ABB Installation Products solutions
protect your critical equipment



Continuous uptime

Cause: Clogged pumps, **liquid ingress** in electrical systems, or **corrosion** of connections in harsh environments.

Impact: Downtime **reduces** the volume of wastewater that can be processed on a daily basis. Since volume needs don't change, the unprocessed water either needs to be stored somewhere or it requires the plant to use **additional capacity**, which may stress other areas of the facility.

Solution: Install properly rated and **long-lasting** materials designed to perform in the application and **harsh environments**. **Inspect systems** regularly and perform **needed maintenance**, as well as use products like the **motor lead disconnects**. This helps to minimize the change out time of pumps and motors and get the plant up and running as quickly as possible.

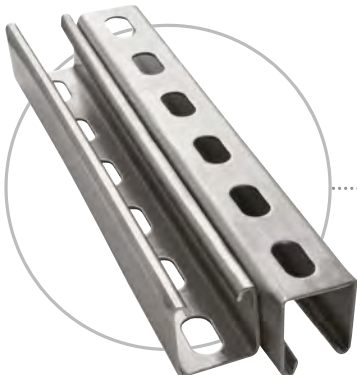


Life of install

Cause: water and wastewater treatment facilities are expected to run well past their **expected life**. Getting funding for **updates** or new facilities can be challenging, and operations teams are expected to keep plants up and running as long as they possibly can.

Impact: Increased **maintenance** and **OPEX costs** to keep aging machines and facilities running. Need for skilled workforce that can **maintain** and **operate** this equipment is decreasing. Failure to maintain aging equipment can cause **downtime** or **water quality issues**, in some cases.

Solution: Install materials that offer **superior corrosion resistance** and are designed to perform in the application, helping **maximize the performance** of the plant and lifespan of its equipment. Use **cable protection systems** that are UL and NEMA rated for **ingress protection** to maximize the life of the equipment.



Installation Products

Rigid corrosion-resistant cable protection systems

Ocal® rigid conduit systems



Ocal®



Type / Description

Ocal-Blue® conduit

The ultimate in corrosion protection

- UL verified for adhesion performance (DYJC) conduit: 240 hours oven conditioning at 212 oF, 600 hours salt fog chamber, peel testing
- Hot-dip galvanized steel or aluminum conduit
- Nominal 0.002" (2 mil) blue urethane coating on interior
- Hot-dipped galvanized threads (steel)
- Minimum 0.040" (40 mil) PVC coating on exterior
- Standard color is dark gray – custom colors available upon request
- Color-coded thread protectors
- Couplings shipped with conduit are packaged separately



Ocal®

Ocal® liquidtight to rigid conduit adapter

Installs quickly with low torque effort

- Used where flexible metal raceway is installed in outdoor or indoor locations
- Ideal for applications with exposure to continuous or intermittent moisture
- Used to transition from liquidtight conduit to rigid conduit



Ocal®



Ocal-Blue® conduit nipple

- Speed up field installations with pre-threaded conduit nipples
- Made from Ocal PVC-coated steel or aluminum conduit
- Blue urethane coating over threads
- Nominal 2 mil blue urethane on interior with minimum 40 mil PVC coating on exterior
- Color-coded thread protectors for easy size ID



Ocal®



Ocal-Blue® standard-radius elbows

- Factory bent to save time and material
- Fabricated from Ocal® PVC-coated conduit
- Standard radii in 30°, 45°, 60° and 90° available
- Color-coded thread protectors for easy identification of conduit size



Ocal®



Ocal-Blue® large-radius elbows

- Choose the size and angle to meet your exact requirements
- Fabricated from Ocal® PVC-coated conduit
- Large radius in 90° available for immediate shipment
- Special radii and angles not listed available upon request
- Color-coded thread protectors for easy identification of conduit size



Ocal®



Ocal-Blue® Form 8 UL 4X LU® universal conduit body

- Replaces LL, LR, LB and C conduit bodies - 4-to-1 SKU reduction
- Includes injection-molded PVC - coated cover with integral O-ring seal
- Double corrosion protection - bodies and covers coated inside and out with nominal 2 mil blue urethane, then exterior coated with nominal 40 mil PVC
- Radius is the same as bent conduit - pull wire through the body
- Rated for 40% wire fill - avoids conduit system de-rating

Ocal® rigid conduit fittings



Ocal®



Ocal®



Ocal®



Ocal®

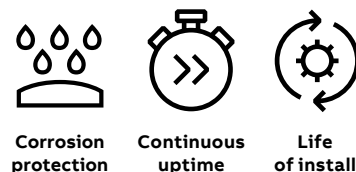


Ocal®



Carlon®



Corrosion
protectionContinuous
uptimeLife
of install**Type / Description****Ocal® liquidtight connector with grounding ring**

- Innovative design allows connections to be UL listed
- Accepts copper or aluminum conductors
- Grounding ring made of Naval-grade brass for extreme corrosion resistance
- cULus listed and grounding ring meets UL 467 standard for grounding and bonding

**Ocal-Blue® double-coat hub****Unique sealing ring and groove design for optimum performance**

- Captive sealing ring won't buckle or slip during installation
- Provides a complete 360° seal - even when conduit isn't perpendicular to the enclosure
- Hexagonal/splined body and locknut enable fast and easy installation
- Insulated throat molded from 221° F-rated thermoplastic, UL94V-0 flammability rated
- Sharper and deeper teeth provide a more penetrating bite for improved bonding

Ocal-Blue® conduit coupling

- Corrosion-protected connections for conduit sections
- Nominal 2 mil blue urethane coating on interior and threads
- Minimum 40 mil PVC coating bonded to exterior
- Straight threads (NPS)
- Molded ribs on outer coating for easy installation - up to and including 4" trade size
- Pressure-sealing sleeves protect your connection separately

Ocal PVC coated explosion-proof fittings

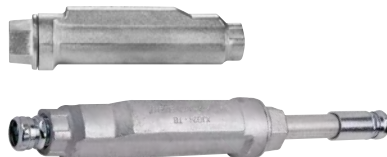
- GUA, UNY, EYS and EYD series are now UL 1203 listed
- UL 1203 listed to help install safely without triggering an explosion
- For use in hazardous classified, explosion-prone environments
- Ocal GUA series conduit boxes
- UNY conduit unions
- EYS series sealing fittings
- EYD series drain sealing fittings

NEW Ocal® PVC adapter

- Innovative single-piece design helps reduce labor costs
- Thick layer of flexible PVC provides impact resistance at the joint
- Available in trade sizes 3/4" to 4"

Carlton® non-metallic male terminal adapter
Used for transitioning from a non-metallic

- PVC conduit system to a PVC-coated metallic conduit system
- Male threads on one end connect to an Ocal-Blue conduit coupling
- Socket on the other end connects to schedule 40 or 80 PVC conduit

T&B® Fittings rigid conduit fittings**T&B® Fittings****T&B® Fittings****Type / Description****T&B® Fittings XD expansion/deflection coupling for rigid conduit**

- Watertight, flexible elastomer outer jacket
- Erickson®-type conduit union
- Stainless steel inner sleeve
- Ground mounting plates
- Tamperproof stainless steel jacket straps
- Internal flexible copper braid grounding bonding jumper
- Enclosed copper ground mounting plates

**T&B® Fittings XJG conduit expansion couplings for rigid conduit and EMT**

- Just a few turns and you're done
- No disassembly necessary to install
- Fast, simple and requires fewer steps
- True internal bonding jumper – no external grounding strap required
- Tamper-proof internal jumper protected from the environment
- Exceeds code requirements for long conduit runs to permit linear movement

BlueKote® form 7 and form 8 conduit outlet bodies

- Faster, easier wire pulling
- Extra corrosion resistance
- Provides a slick, easy-glide internal surface
- Significantly lowers the amount of force required to pull wires
- Reduces installation time and the risk of installer strain
- Eliminates rough internal surfaces that can cut into cable jacket, insulation and conductors during pulling
- BlueKote® form 7 pre-assembled conduit bodies, includes conduit body, cover and gasket

**T&B® Fittings****T&B® Fittings****T&B® Fittings Sand cast aluminum Form 7**
Ideal to use in corrosive environments

- Form 7 sand cast aluminum is made with a special aluminum alloy, providing superior corrosion resistance as cast
- No protective coatings needed

**Threaded Erickson® three-piece coupling**

- To couple and effectively bond threaded ends of rigid metal conduit/intermediate metal conduit where neither length of conduit can be rotated
- Malleable iron/steel/copper-free aluminum construction
- Free-fitting threads ensure easy assembly
- Permits conduit coupling without rotating either conduit
- Provides rigid in-line coupling with high-quality grounding; will not loosen under vibration
- Suitable for concrete-tight application

**T&B® Fittings**

Installation Products

Rigid stainless steel, liquidtight cable protection systems

T&B® Fittings rigid stainless steel conduit systems



T&B® Fittings



Type / Description

Stainless steel conduit

- Type 304 or marine-grade type 316 stainless steel
- Potable water-safe
- Standard NPT threads for easy installation
- Each 10-ft. length of conduit ships with one SST coupling included
- Couplings also sold separately
- Exceeds requirements for washdown applications
- Meets ASTM A-321/SA-312 Standards
- UL/cUL Listed



T&B® Fittings

Stainless steel elbows

- Type 304 and Type 316 stainless steel elbows
- Radius "R" Offset "C" Straight end "D"



T&B® Fittings



Rigid flexible coupling

- Corrosion resistant Type 316 stainless steel body and fitting - ideal for washdown areas
- Flexible construction with arc-resistant inner sleeve
- cULus listed - UL1203
- IP69 rated for wet locations

T&B® Fittings rigid stainless steel conduit fittings



T&B® Fittings

Type / Description

Type 316 stainless steel form 8 conduit bodies

- Each conduit outlet body ships complete with gasket, cover and screws
- UL Standard: 514A, 514B
- Fed. Spec: W-C-586D
- CSA Standard: C22.2 No. 18
- NEMA 4X



T&B® Fittings

Type 316 stainless steel cast device boxes

- All hubs have NPT threads with a minimum of five full threads and integral bushing
- Internal grounding screw standard on boxes
- Suitable for wet locations when used with gasketed covers
- All cover holes are #6-32
- UL 514A with gasketed cover
- CSA C22.2 No. 18



T&B® Fittings



Type 316 stainless steel threaded three-piece coupling

- 316 stainless steel construction
- Free-fitting threads ensure easy assembly
- Permits conduit coupling without rotating either conduit
- Provides rigid in-line coupling with high-quality grounding: will not loosen under vibration
- Suitable for concrete-tight application
- UL 514B, CSA C22.2 No. 18, cUL, NEMA FB1

T&B® Fittings rigid stainless steel accessories



T&B® Fittings



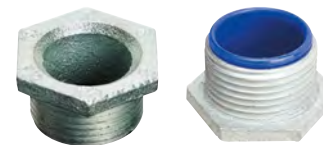
T&B® Fittings



T&B® Fittings



T&B® Fittings



T&B® Fittings



Corrosion
protection



Continuous
uptime



Life
of install

Type / Description

Type 316 stainless steel threaded reducers and locknuts

- Reduces threaded opening in conduit bodies or any female threaded fitting
- Smooth, built-in bushing completely covers rough ends of conduit
- Type 316 stainless steel system de-rating



Type 316 stainless steel beam clamps

- For mounting pipe or conduit at right angles to the beam
- Type 316 stainless steel



Type 304 stainless steel pipe straps

- Support and securely fasten conduit:
Type 304 SST - rigid, IMC, EMT conduit
- Higher degree of corrosion resistance than traditional zinc-plated or hot-dipped galvanized straps
- One- and two-hole straps:
EMT sizes 1/2" through 2"
Rigid and IMC sizes 1/2" through 4"

Type 316 stainless steel pipe straps

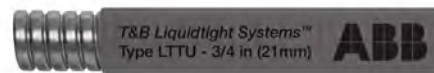
- Support and securely fasten conduit:
Type 316 SST - rigid, IMC conduit
- Higher degree of corrosion resistance than traditional zinc-plated or hot-dipped galvanized straps
- One- and two-hole straps:
Rigid and IMC sizes 1/2" through 4"

Chase® nipples

- Bush holes in metal boxes or enclosures
- 11/22"- 4" sizes in stainless steel 316
- cULus listed
- Nylon insulator offers extra protection



T&B Liquidtight Systems® flexible metallic conduit



Type / Description

Type LTTU wide temperature, liquidtight, flexible metallic conduit - UL Listed

- Wide temperature range from -67°F to +221°F
- Ideal in outdoor, cold environments
- Global certification UL
- IP66, IP67
- UL certified / UL Outdoor: 3, 3R, 4
- Compatible with Series 52/53 steel fittings

T&B Liquidtight Systems®



T&B Liquidtight Systems® metallic fittings



T&B Liquidtight Systems®

Type / Description

Series 5200/5300

Steel - Liquidtight fittings

- Steel and malleable iron, zinc chromate plated
- Insulated and non-insulated version
- IP66, IP67 rating
- UL Outdoor: 3, 3R, 4
- UL/CSA: -4°F to +221°F



Series 5300-HT

Steel - High temperature liquidtight fittings

- For in/outdoor extreme temperature installations
- Steel and malleable iron, zinc chromate plated
- Insulated and non-insulated version
- IP66, IP67 ratings
- UL Outdoor: 3, 3R, 4
- Dynamic: -13°F to +221°F, Static: -76°F to +302°C
- UL/CSA: -4°F to +221°F



T&B Liquidtight Systems®



T&B Liquidtight Systems®

Series 5300/9300SST6

Stainless steel 316 - Liquidtight fittings

- Insulated version
- NPT and ISO metric threads
- IP66, IP67 rating
- UL Outdoor: 3, 3R, 4, 4X
- UL/CSA: -4°F to +302°F



Series 5300/9300SST6H

Stainless steel 316 - High temperature liquidtight fittings

- For the most demanding corrosive environments where extreme temperatures are encountered
- Insulated version
- NPT and ISO metric threads
- IP66, IP67 rating
- UL Outdoor: 3, 3R, 4, 4X
- Dynamic: -13°F to +221°F, Static: -76°F to +302°F
- UL/CSA: -4°F to +221°F



T&B Liquidtight Systems®

Installation Products

Grounding and cable management for water and wastewater

T&B® Fittings for grounding



T&B Liquidtight Systems®

Type / Description

Revolver liquidtight grounding Externally grounded fitting

- Rotates in a full circle for convenient installing
- Save time and money on the job while delivering a quality connection
- Rotates in a full circle for convenient positioning that doesn't change when tightened
- Available in aluminum



T&B Fittings



Blackjack® grounding bushings

- Simply put in place: No need to thread the bushing on the conduit
- Grounding and bonding: Lug is integral to the body for peace of mind that your bond and ground are good
- SKU reduction: A single SKU can be used with threaded conduit, threadless conduit, 150 °C copper wire and aluminum wire
- Ease of installation: No need to thread the bushing on the conduit. Simply put in place
- Stainless steel hardware vs. galvanized screws for corrosion resistance
- Nice round edges produce an easy glide with minimal risk of skinning the wires

T&B Hub - Grounded hub

- Captive sealing ring won't buckle or slip during installation
- Provides a complete 360° seal
- Hexagonal / splined body and locknut enable fast and easy installation
- Sharper and deeper teeth provide a more penetrating bite for improved bonding to the enclosure
- Precision machined tapered threads help ensure a watertight union



T&B Fittings



Blackburn® EZGround™ system

Compression grounding connectors

- Designed for direct burial and offer a safe, efficient alternative to exothermic welding products
- These range-taking products will reduce the number of connectors and dies needed for your installation
- Meets all applicable standards: (IEEE 837, UL 467, CSA 22.2). Connectors are prefilled with oxide inhibitor and sealed

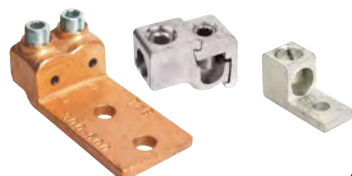


Blackburn®



Blackburn® mechanical connectors

- Providing a robust and reliable connection
- Blackburn® cast, forged or formed mechanical connections, produced in economical copper and dual-rated aluminum, provide a large variety of UL and CSA certified solutions for your electrical interface needs
- Rugged split bolts: by design, our Blackburn split bolts create a stronger and more resilient installation in both aluminum and copper options



Blackburn®



Blackburn® flexible braid

- For continuous current, grounding and bonding applications
- Tin-plated copper braids and ferrules for high conductivity and corrosion resistance
- Enables linear expansion, equipment vibration and offset connections



Blackburn®

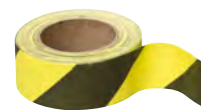
Wire and cable management



Kindorf®



Superstrut®



EZCODE®



Ty-Met™



redodot®



Corrosion
protection



Continuous
uptime



Life
of install

Type / Description

Kindorf® modular framing system

- Type 316 stainless steel, aluminum, or non-metallic for the most corrosive environments
- 1 1/2" Channel size provides modularity, helping reduce installation time
- Trapnut® strut fastener features a unique scissor action that closes at any point on the threaded rod, taking up to 43% less time to install than standard nuts and bolts



Superstrut® metal framing

- Complete 1-5/8" metal framing system
- Type 316 stainless steel, aluminum, or non-metallic for the most corrosive environments
- Extensive range of finishes, from GoldGalv® and SilverGalv® to hot dip and standard pre-galvanized
- Clean finishes with protected holes and ends deliver high corrosion resistance, easier handling and storage flexibility, and long-lasting performance



EZCODE® safety labels, tags, signs and barricade tapes

- Help to ensure personnel and workplace safety, as well as regulatory compliance
- Visible and long-lasting materials
- Custom labels, tags and signs available
- Barricade and burial marking tapes in a variety of materials and colors

Ty-Met™ stainless steel cable ties

- Extremely robust for harsh environments
- Available in both coated and uncoated
- High mechanical strength combined with temperature resistance
- 316 grade (marine grade) stainless steel
- Dedicated hand tools to cut and fasten



Red Dot® Code Keeper®

The industry's preferred choice for outdoor boxes for more than 50 years

- Durable die-cast aluminum to withstand the harshest elements
- Single- and double-gang rectangular and round configurations
- Wide variety of hub sizes
- Ensure trouble-free installation and performance



Color-Keyed® motor lead disconnects

MORE INFO



Color-Keyed®



Type / Description

Color-Keyed® motor lead disconnects

- Quick, reliable change-out of electric motors
- No bolting, taping or loose connections
- Complete line for 600 V and 5 kV applications
- Covering wire range from #16 AWG through 500 kcmil
- Fast, snap-together assembly offers maximum labor savings
- Simply slide on reusable boot. No need for nuts, bolts and washers or insulating tape
- Total assembly fits into tight motor housings
- Quick disconnect. No knife cutting of melted tape, eliminating the risk of accidental cutting of wire insulation, resulting motor downtime or installer exposure
- Meet or exceed electrical and mechanical performance of bolted connections
- Constructed of high-conductivity copper with tin plating
- Female disconnects equipped with beryllium copper interface band for dependable connections

Color-Keyed® compression lugs

- UL listed: Complies with industry safety standards
- Precision dies: Creates a circumferential hex- or diamond-shaped compression for assured high conductivity
- Low resistance: High pull-out values
- Accurate and easy inspection: Embossed die code on connectors



Color-Keyed®



Literature

Download your catalog

Ocal®
catalog



T&B Fittings®
(rigid) catalog



Blackburn Grounding
Systems® catalog



T&B Liquidtight Systems®
(flexible) catalog



Kindorf®
catalog



Superstrut®
catalog



Ty-Rap® / Ty-Met® /
EZCODE® catalog



Color-Keyed®
catalog



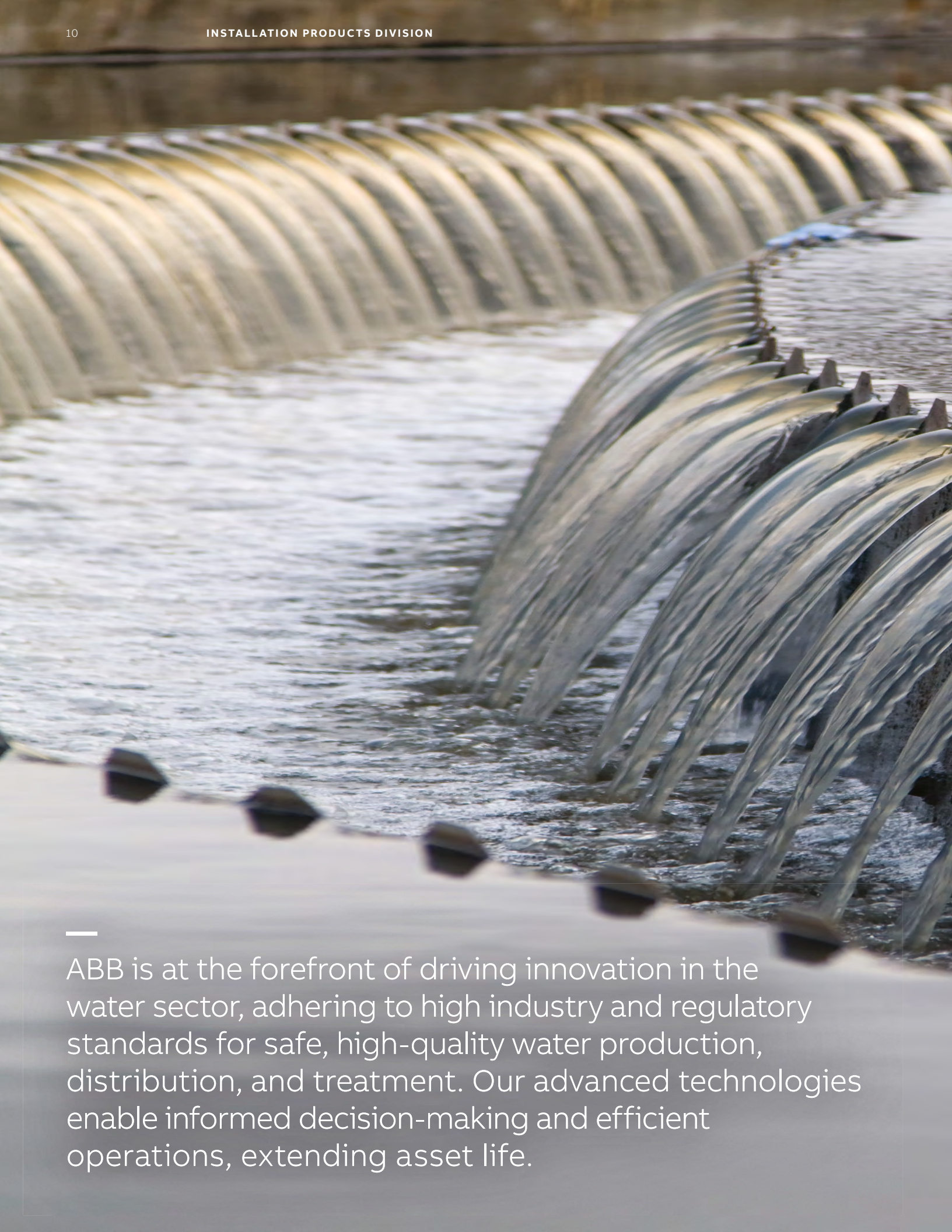


ABB is at the forefront of driving innovation in the water sector, adhering to high industry and regulatory standards for safe, high-quality water production, distribution, and treatment. Our advanced technologies enable informed decision-making and efficient operations, extending asset life.





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