



ENERQUIP

WE MAKE THE WATERWAY EFFICIENT

Beautiful Palmafoss in Voss herad - Sideways TRCM Machine from Enerquip



The company is a sister company of Eiken Mekaniske Verksted AS. Eiken Mekaniske Verksted AS also manufactures equipment for the Norwegian offshore sector – which has extremely high demands to quality. Both companies are a part of the Energos Group.

Enerquip has developed a range of products, including Frøya TRCM, Loke TRCM, Odin TRCM, Thor TRCM and Balder TRCM, which are designed to meet a variety of needs in the field of water intake and screen cleaning.

No machine is equal to another – all our machines are tailored to the requirements.

The company has delivered the TRCMs to clients all over the World, including Å Energi, Uniper, Hafslund, Eviny, THPC Laos, Vattenfall, Hydro Rein, Avista Corporation, SN Aboitiz, Eagle Creek Renewable Energy, Fortum, and Statkraft, among others.

Enerquip manufactures and designs everything in Norway with a strong focus on harsh and demanding climates.

Enerquip manufactures and designs everything in house, with a strong focus on delivering robust machines able to work under harsh and demanding climate.



ENERQUIP

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OUR STANDARDS AND CERTIFIED SUPPLIERS

Enerquip AS works closely with Eiken Mekaniske Verksted AS, our trusted manufacturing partner. We have certification in place according to ISO 9001:2015—a globally recognized standard for quality management.

HSEQ Commitment

At Enerquip AS, HSEQ (health, safety, environment, and quality) is a top priority. Our goal is to maintain a safe, healthy, and incident-free workplace, aligning with our **Zero Accident Policy (ZAP)**.

To achieve this, we are committed to:

- Encouraging open communication on safety concerns
- Integrating HSEQ into all activities
- Minimizing environmental impact
- Setting and achieving ambitious HSEQ targets
- Ensuring strong leadership for swift issue resolution
- Cooperating with customers and suppliers to enhance HSEQ culture
- Recognizing outstanding HSEQ achievements
- Continuously assessing and mitigating risks

Eiken Mekaniske Verksted AS manufacture equipment for the Norwegian Offshore sector according to NORSOK-standards, which are extremely demanding. Should equipment fail or break, it could result in fatalities. Hence, there is zero tolerance for deviation and error.

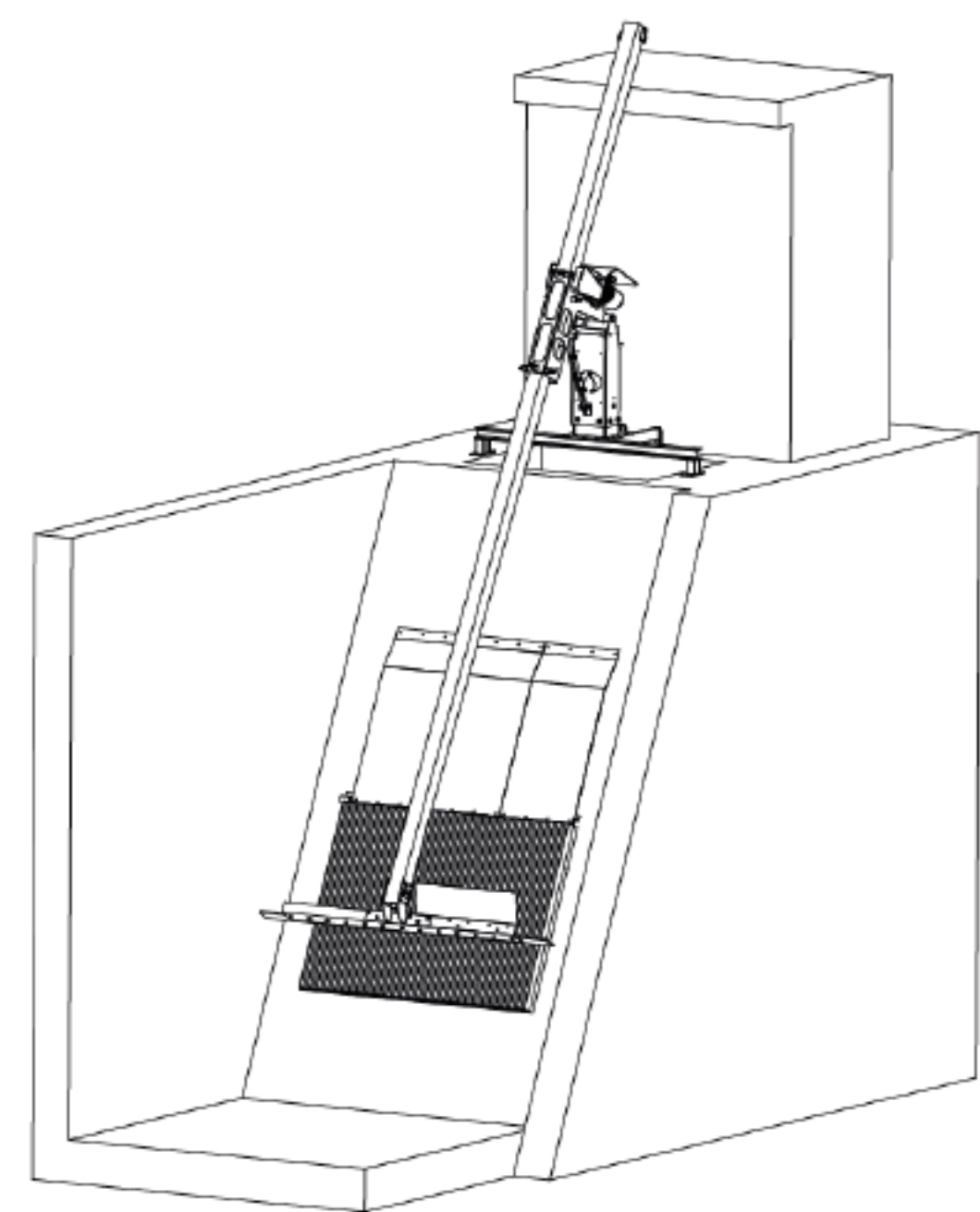


Enerquip FRØYA TRCM is developed for small water intakes and trash racks. A blade is mounted on the machine to remove grass, twigs and leaves that can block the trash racks on the water intake.

FEATURES

- **Easy installation:** Simple setup with minimal effort
- **Low maintenance:** Requires little upkeep, reducing operational demands
- **Cost-effective:** Budget-friendly solution for smaller facilities
- **Ideal for light debris:** Best for water intakes handling floating waste
- **User-friendly design:** Accessible control panel for easy operation
- **Flexible operation:** Remote or automated control with sensors
- **Electric-driven system:** Efficient motor eliminates hydraulic needs

Enerquip focuses on delivering safe and reliable products with superior performance in high quality with a compact design.



TRASH RACK CLEANING MACHINES

This machine comes equipped with the **MICRO Gate Cleaner**, specially designed for small intakes. It efficiently removes grass, twigs, and foliage using a scraper that can be operated manually or automatically.

With a robust, simple design, it's easy to install, low-maintenance, and highly user-friendly— making it an affordable, efficient solution for small power plants.

Power plant with Enerquip gate cleaner:
- Nordkraft, Narvik

Technical specification:

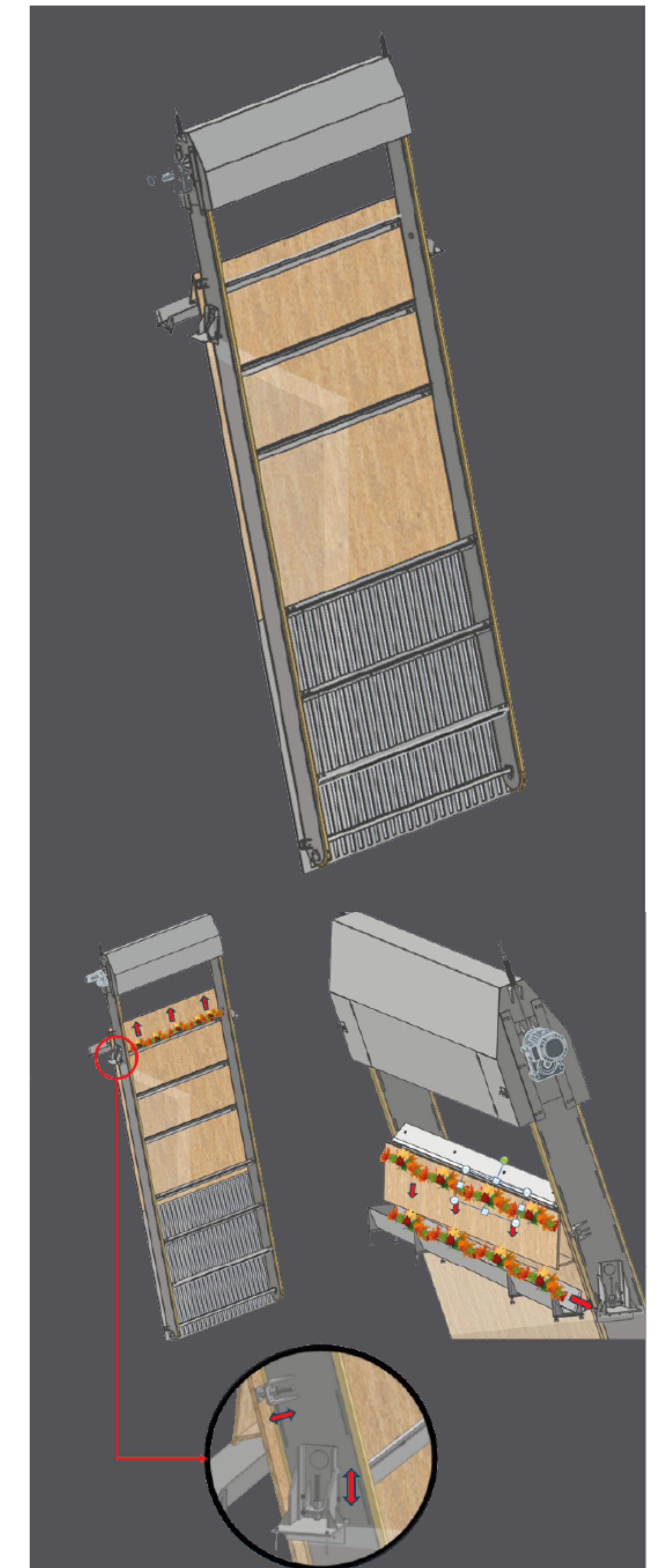
Blade maximum	3.5 m
Max cleaning depth	7 m
Electric driven	3 kW
Cleaning methode	bottom to top

In front of the intake cone, you must install a grate/commodity gate that prevents larger objects such as branches, twigs, and stones from entering the waterway, thus avoiding damage to the pipeline and the turbine. It also prevents fish and animals from entering.

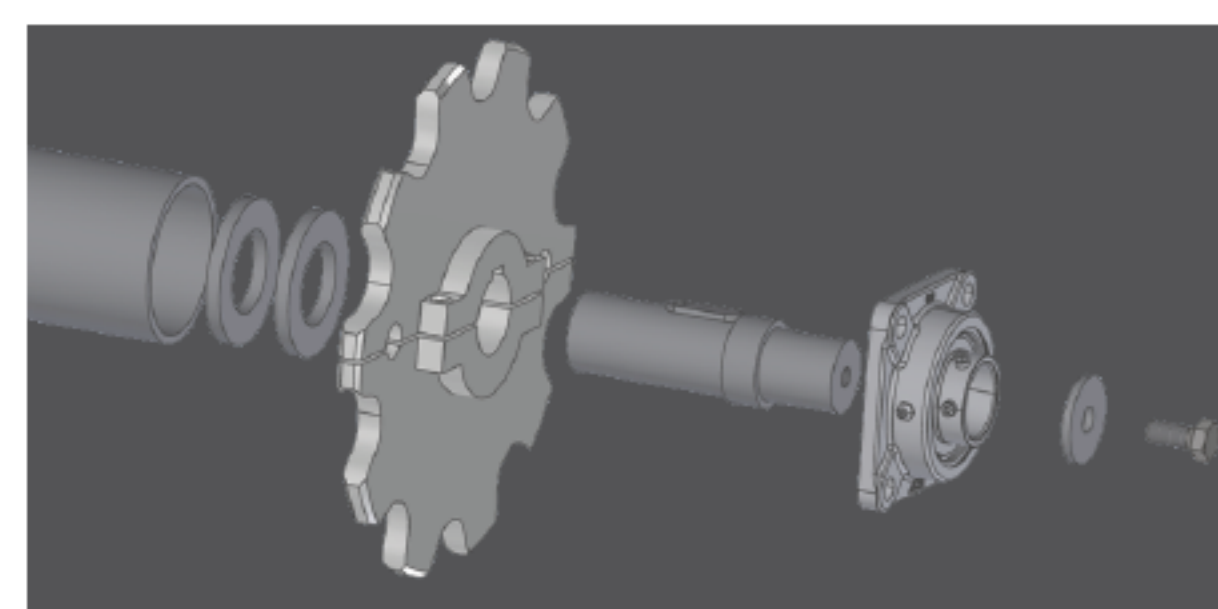
To avoid ice buildup, the grate should be placed deep enough below the water level. Its design minimizes fall loss and ensures efficient water flow, with bar spacing adapted to the plant's needs, uptime, and local conditions.

The screens are usually manufactured in stainless steel, but can also be supplied in untreated or hot-dip galvanized steel, PE and composite material.

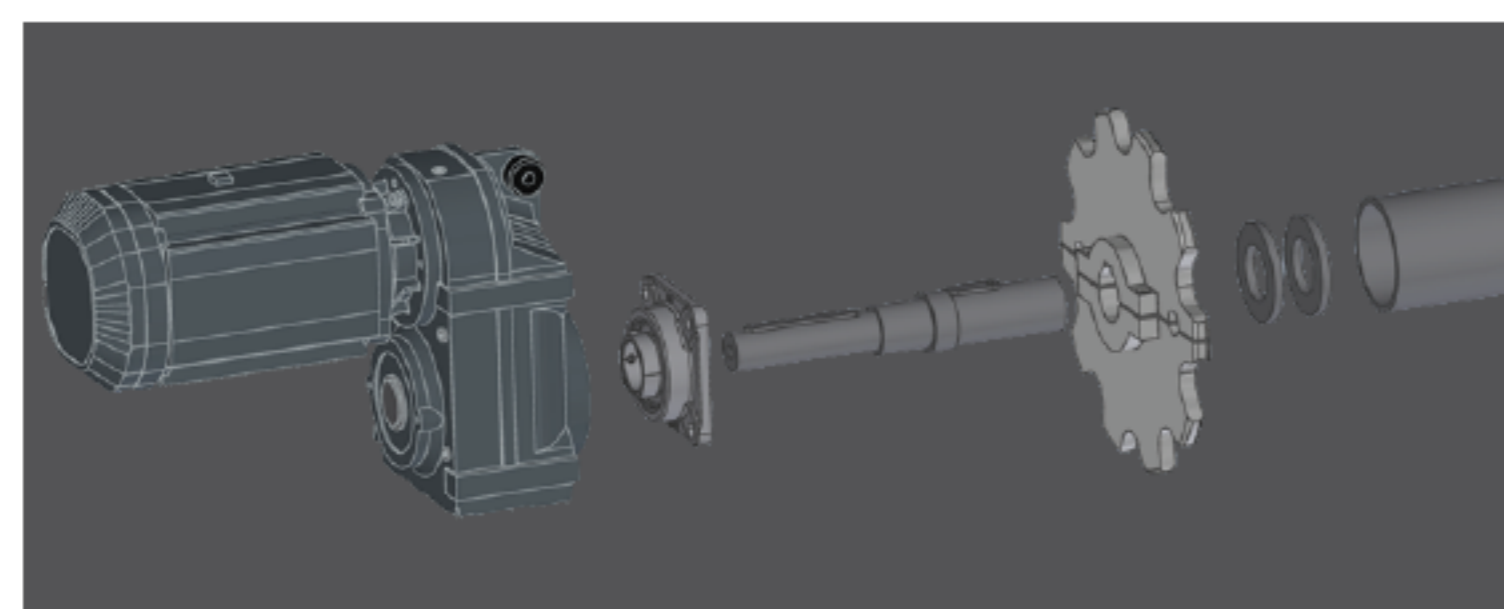
- Chain conveyor mounted on the outside of the intake grate
- Carriers with brush and plastic scraper
- Can be supplied with optional water gutter for automatic cleaning of collected waste
- Chain pre-tensioning with disc springs
- Attached to height-adjustable foot
- Adjustable support feet at top and bottom
- Protective cover with inspection hatch
- Available in standard dimensions of 3m width and 8m depth, or tailored to the individual hydropower plant



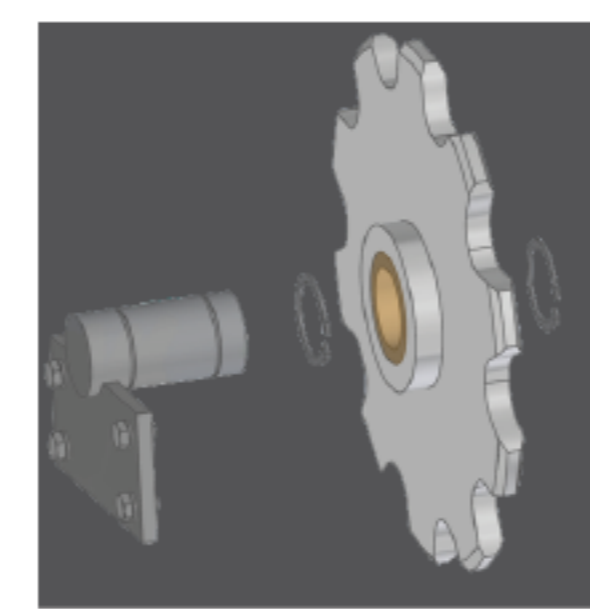
DRIVES



Driveline at the top
-Two-piece sprocket
-Tube shafting
-Ball bearings

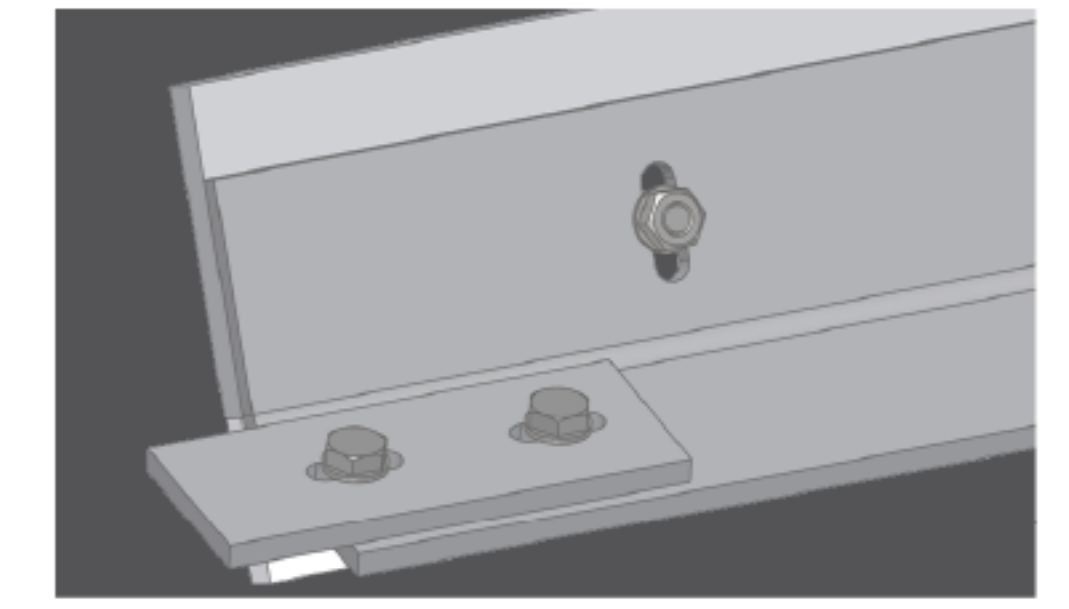
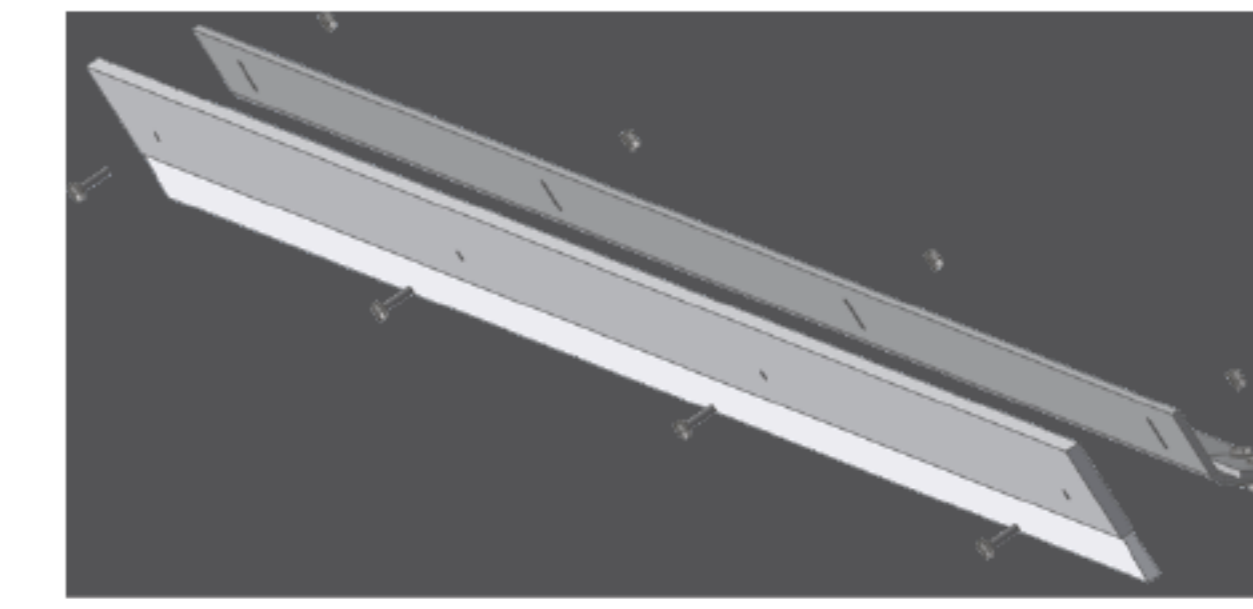
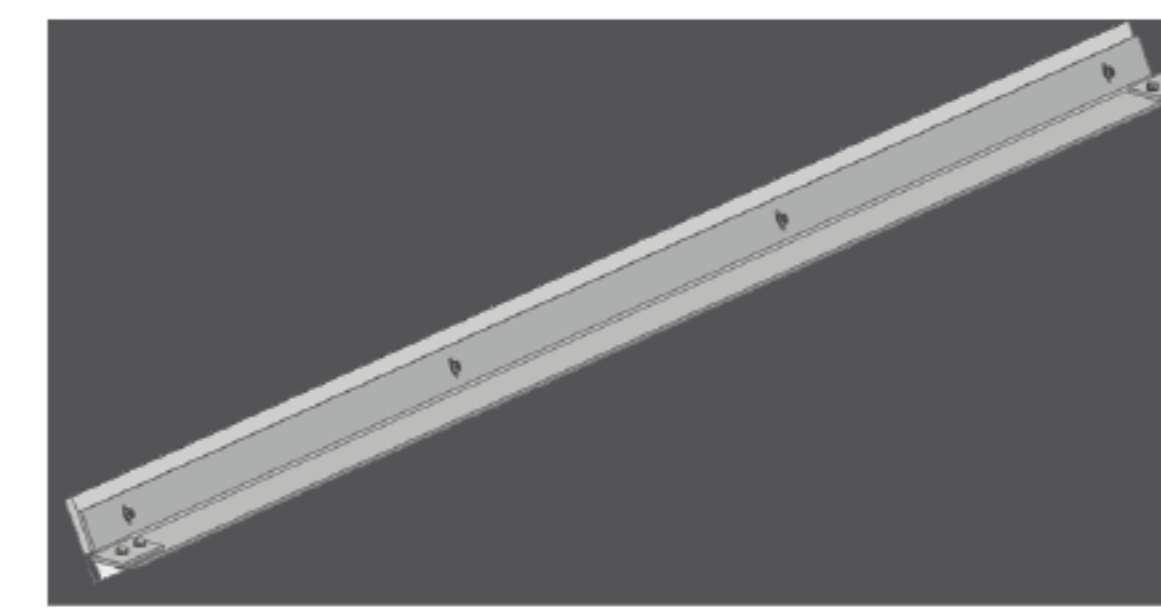


Gear motor
-Torque: 495 Nm
-Driving speed of 1 m/s



Gears with plain bearings in the bottom
-Sliding bearings in Nitronic 60 stainless steel

CONTRIBUTOR



-6 carriers per grind cleaner (4 with brush and two with plastic scraper)
-Adjustment options on brush travel height
-Carrier attachment with slotted groove
-Quick and easy service, cleaning and replacement

Loke TRCM cleaner is cheaper to purchase than the larger ones, but still has the same functionality as the larger models.

FEATURES

- **Flexible operation:** Auto or manual via remote control
- **Gentle and efficient cleaning:** The claw relies on its weight and water pressure, with a wear plate for protection
- **Efficient waste removal:** Lifts and transports debris effectively
- **Extended reach:** Moves outward for better coverage
- **Versatile power options:** Available in electric and hydraulic versions
- **Integrated camera:** Claw-mounted for underwater inspections
- **Winter adaptability:** Ice/winter mode and heated rails for cold conditions
- **Customizable cleaning width:** Adjustable to fit intake dimensions
- Can be installed on rails or elevated monorail
- Manual, semi-auto, and full auto modes possible

Enerquip focuses on delivering safe and reliable products with superior performance in high quality with a compact design.

HIGH-QUALITY COMPONENTS:

- **Electro-cylinder:** Linak
- **Electro components:** OEM, Elektroskandia, Solar
- **Hydraulic cylinder:** Lind Jensen Maskinfabrikk
- **Hydraulic components:** Sauer Danfoss
- **Radio control:** HBC Radiomatic Norway



Technical specification:

Width of cleaning claw	1 m
Telescopic boom max	12 m
Lifting capacity telescope fully retracted	500 kg

Enerquip Odin TRCM is a very robust yet operator friendly machine that is the best selling TRCM with a great all round strength for slightly more demanding intakes.

FEATURES

- **Flexible operation:** Auto or manual via remote control
- **Gentle and efficient cleaning:** The claw relies on its weight and water pressure, with a wear plate for protection
- **Efficient waste removal:** Lifts and transports debris effectively
- **Customizable design:** Fits various water intake and trash racks
- **Cold weather adaptability:** Heated rails ensure winter reliability
- **Integrated camera:** Claw-mounted for real-time underwater inspection
- **Off-Grid capability:** Diesel-powered options for remote use
- **Enhanced performance:** Lifts heavier waste with ease
- **Full automation:** Hands-free operation with minimal supervision
- **Weather protection:** Optional cover for durability and safety
- Can be installed on rails or elevated monorail
- Manual, semi-auto and full auto modes possible
- Cabin – option for rails

HIGH-QUALITY COMPONENTS:

- **Hydraulic components:** Sauer Danfoss
- **Cylinders:** Lind Jensen Maskinfabikk
- **Hose reel:** Specma Component
- **Electrical components:** OEM, Elektroskandia, Solar
- **Radio control:** HBC Radiomatic Norway



Technical specification:

Width hydraulic claw	1.5 m
Hydraulic telescope from	3-14 m
Capacity telescope all the way in	1000-1500 kgs

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Remote control with two multifunction joystick where up to six functions are operated simultaneously. Desired function speed can operated directly from the controller.

The Thor TRCM is for the larger water intakes and trash racks that goes deep and needs to handle large waste fractions with a great removal capacity up to heavy logs and waste etc.

FEATURES

- **Efficient waste removal:** Lifts and transports debris effectively
- **Gentle and efficient cleaning:** The claw relies on its weight and water pressure, with a wear plate for protection
- **Flexible operation:** Auto or manual via remote control
- **Robust and weatherproof:** Heated cabin with camera monitor, heated rails, and weather protection cover
- **Efficient waste removal:** Handles large and heavy debris
- **Enhanced maneuverability:** Equipped with a slewing ring for better control
- **Integrated inspection camera:** Claw-mounted camera for underwater
- **Versatile power supply:** Available with a diesel generator for off-grid intakes
- **Efficient waste handling:** Separate waste container for collection
- Cabin – option for rails

Enerquip focuses on delivering safe and reliable products with superior performance in high quality with a compact design.

HIGH-QUALITY COMPONENTS:

- **Hydraulic components:** Sauer Danfoss
- **Cylinders:** Lind Jensen Maskinfabrikk
- **Hose reel:** Specma Component
- **Electrical Components:** OEM, Elektroskandia, Solar
- **Radio control:** HBC Radio Matic Norway



Technical specification:

Width hydraulic gripper	2.2 m
Hydraulic telescopic from	5-35 m
Capacity telescope completely inserted	2000-2500 kg
Rise above ground	3.3 m

Thor TRCM comes with a remote control with two multifunction joystick where up to six functions are operated simultaneously.

Desired function speed can operated directly from the controller.

Enerquip BALDER TRCM Model 1 and 2 is designed for the power plant that want to have the flexibility and need of cleaning many small and medium water intakes and gratings that has with significant waste fractions from grass, twigs, leafs and up to heavy logs (max 2000 kg).

FEATURES

- **Transportability:** Easily transported to the site by truck
- **Robust construction:** Durable build, operated by skilled personnel
- **Gentle on gratings:** Uses weight and water pressure, avoiding excess force
- **Enhanced monitoring:** Internal gripper camera for continuous oversight
- **Wear protection:** Hard plastic strip prevents intake grating damage
- **Efficient operation:** Lowers, grips, and lifts waste effectively
- Only manual mode possible

Enerquip focuses on delivering safe and reliable products with superior performance in high quality with a compact design.



SPECIALLY DESIGNED GATE CLEANERS - TAILORED TO YOUR NEEDS.

Optimal performance, high quality and reliable operation - our specially designed gate cleaners are developed to meet the most demanding conditions. We offer customized solutions that ensure efficient cleaning of intake grates, reduce maintenance needs and improve operational reliability.

WHY CHOOSE OUR SPECIALLY DESIGNED GATE CLEANERS?

- **Customized to your facility** - We develop and manufacture gate cleaners to your specifications, making them a perfect fit for your intake system
- **Effective debris removal** - Prevents clogging and ensures continuous water flow
- **Robust and durable construction** - Designed for tough operating conditions with minimal wear and tear
- **Automated operation** - Possibility of remote control and monitoring for optimal efficiency
- **Energy-saving solutions** - Reduced energy consumption and lower operating

OUR SOLUTIONS

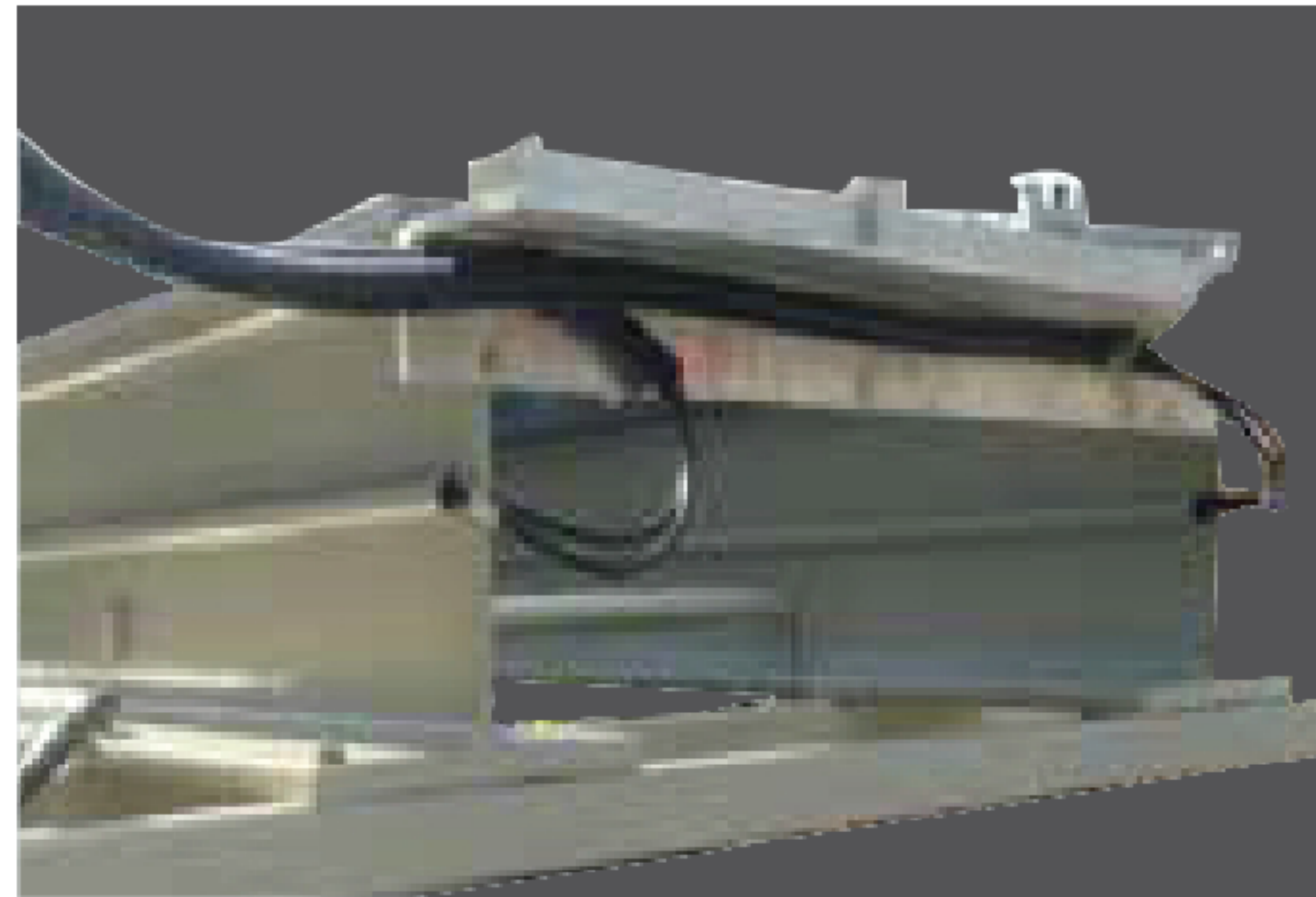
We supply a wide range of specially designed gate cleaners for various applications, including:

- Hydroelectric power plants - Efficient cleaning of intake grates for optimal operation.
- Industrial plants - Improves water intake and reduces operational disturbances.
- Wastewater plants - Ensure clean grates and prevent blockages.
- Municipal water supplies - Increases the lifetime of intake equipment.

TAILORED TECHNOLOGY FOR EASY AND RELIABLE OPERATION

Our engineering expertise and innovative solutions make us a leading supplier of gate cleaners. We work closely with customers to develop systems that optimize operation and maintenance.





Option A: Pipe for heating cable mounted on rail

- Welded to four pipes on the rail where you can run a heating cable if there is a need to keep the top of the beam free of ice/snow of the beam ice/snow free.
- Pipe for heating cable mounted on rail



Option D: Light on main boom

- 2 pcs Power beam 43 Watt led light on boom on rail
- Light operated from remote control
- Light mounted on main boom



Option B: Camera system

- Luxus Compact PUR Camera
- ROV/ Trencher/ Crawler/ Tow and drop camera/ Benthic sledge/ Underwater observatory/ Observatory - systems
- Winch and deck monitoring
- Monitoring monopoles



Option E: Soft starter

- Soft starter mounted in control cabinet
- Soft start will be beneficial for the motor and reduce the starting current from 7x with direct start to 4-5x with soft start. The soft starter has its own display where you can see, among other things, the current draw
- Soft starter for electric motors



Option C: PV500 recorder

- Recorder mounted in monitor cabinet
- This recorder can store the film from the camera in the claw on an 8Gb SD card so that it can be used as documentation after a possible inspection of the goods gate
- PV 500 Recorder



Option F: Screen/display

- Screen for camera in claw
- Readout of hydraulic pressure
- Reading of electrical values
- Temperature in oil tank
- Cleaning length/ width in meters



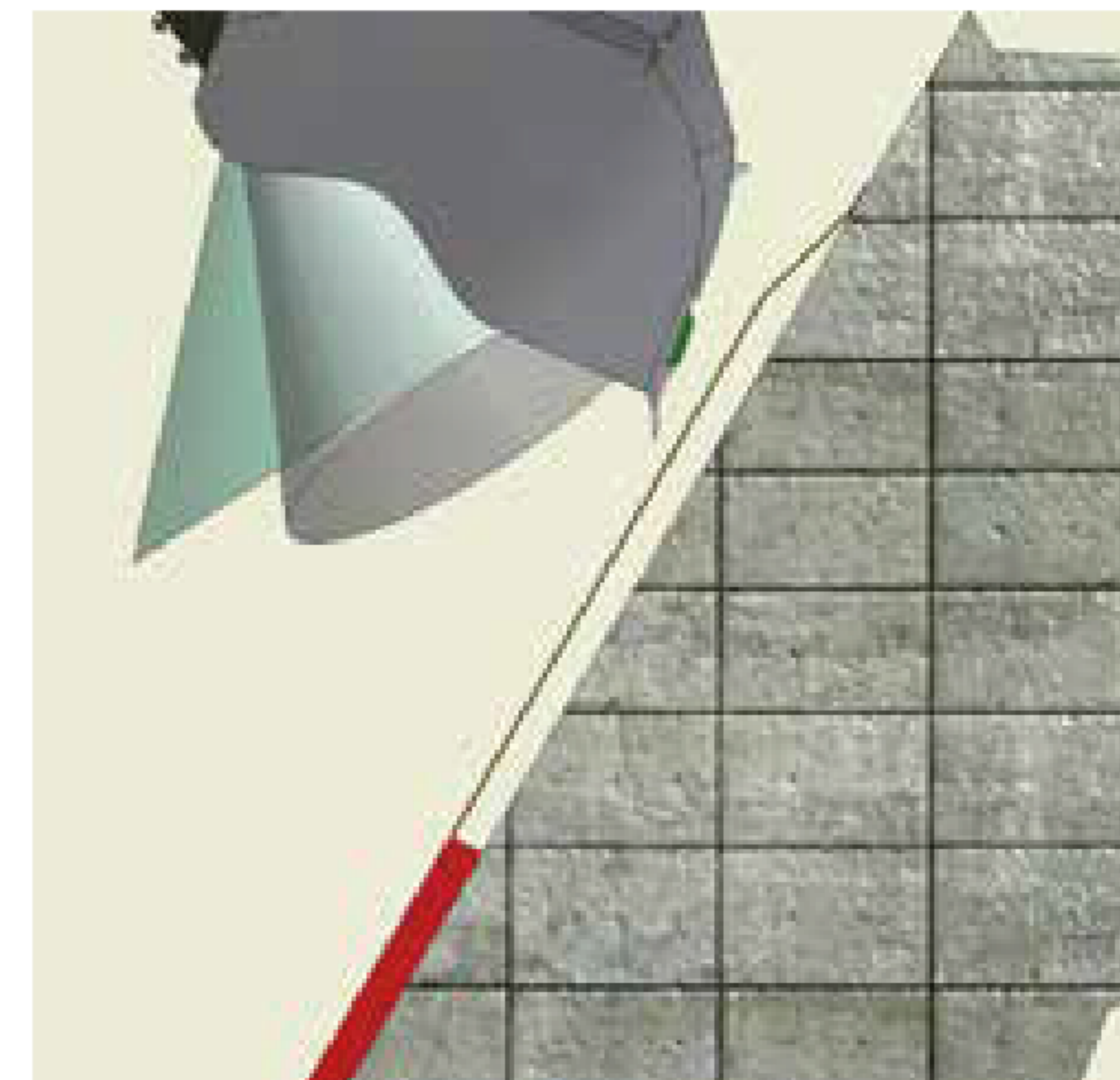
Option H: Cabin

- HMS
- Good overview of the intake
- Heated
- Screen for camera mounted inside the cabin
- Can be easily retrofitted



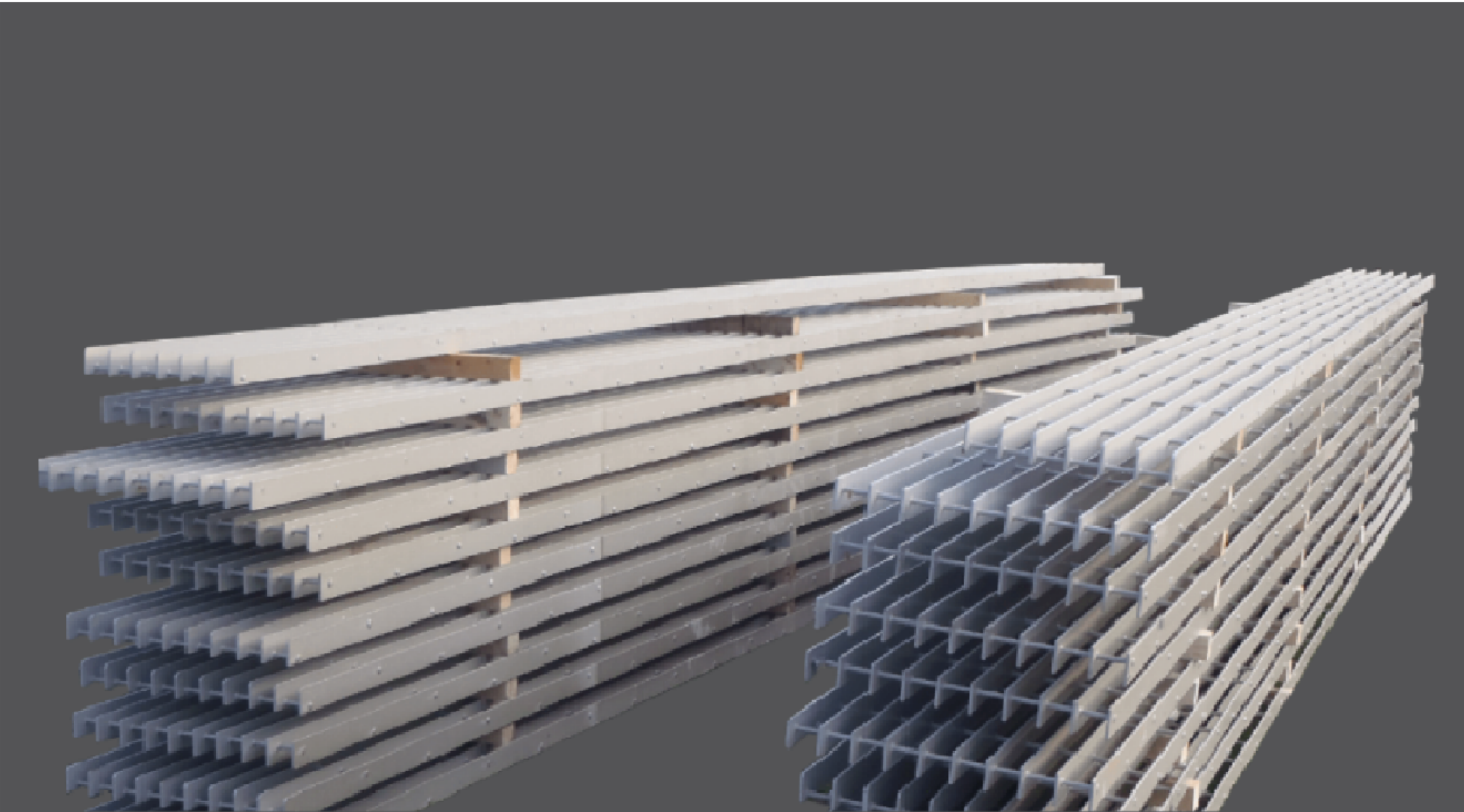
Option G: Pull

- Cover the machine in extreme weather conditions
- The cover prevents the machine from snowing down
- Protection of hydraulic equipment
- Protection of electrical components



Option I: Transition

- Transition between grating and concrete, where the grating is on the outside of the concrete. This is to get a nice transition on the machine.



COANDA TRASH RACKS

The intake of a power plant is complicated and must be carefully designed before it is built. There are many considerations that need to be taken into account, not least the conditions of the watercourse in which it is to be built.

If the intake or grate is incorrectly designed, it will lead to lost production and reduced revenue. Enerquip has extensive experience in the production of gates for all types of intakes. We also supply gratings with Coanda effect, often referred to as Fossekalen inlets.

These are inlets that can be installed where there is difficult access for operation and supervision. In order for the inlet to function optimally.



TRASH RACKS FINE GRATER

In front of the intake cone, you must install a grate/commodity gate that prevents larger objects such as branches, twigs and stones from entering the waterway, thus avoiding damage to the pipeline and the turbine. The gate also prevents any fish or animals from entering the waterway. To avoid ice problems, the grate must be placed at a sufficient depth from the water level in the intake basin. The grate is designed and placed so that it provides the least possible fall loss and favorable inlet conditions. The light opening between the bars in the grate must be adapted to the plant and the conditions in the individual watercourse and take into account both production, uptime and organisms in the intake basin.

The screens are usually manufactured in stainless steel, but can also be supplied in untreated or hot-dip galvanized steel, PE and composite material.

HDR JOIST PROFILES

HDR beam closure profiles are beams assembled in a system and act as closure elements in the waterway. The profiles are equipped with a self-sealing tongue-and-groove solution and are self-sealing between themselves.

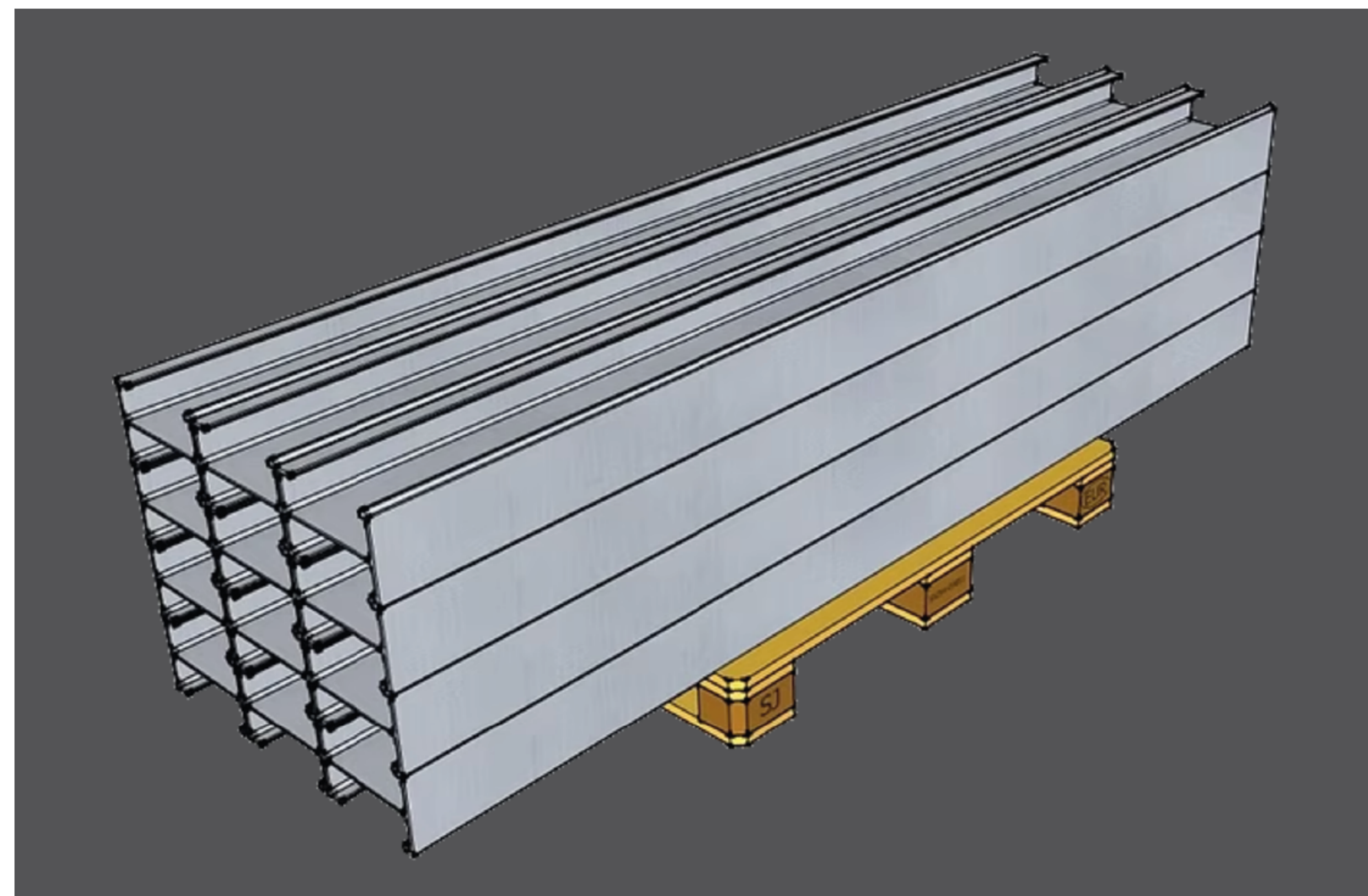
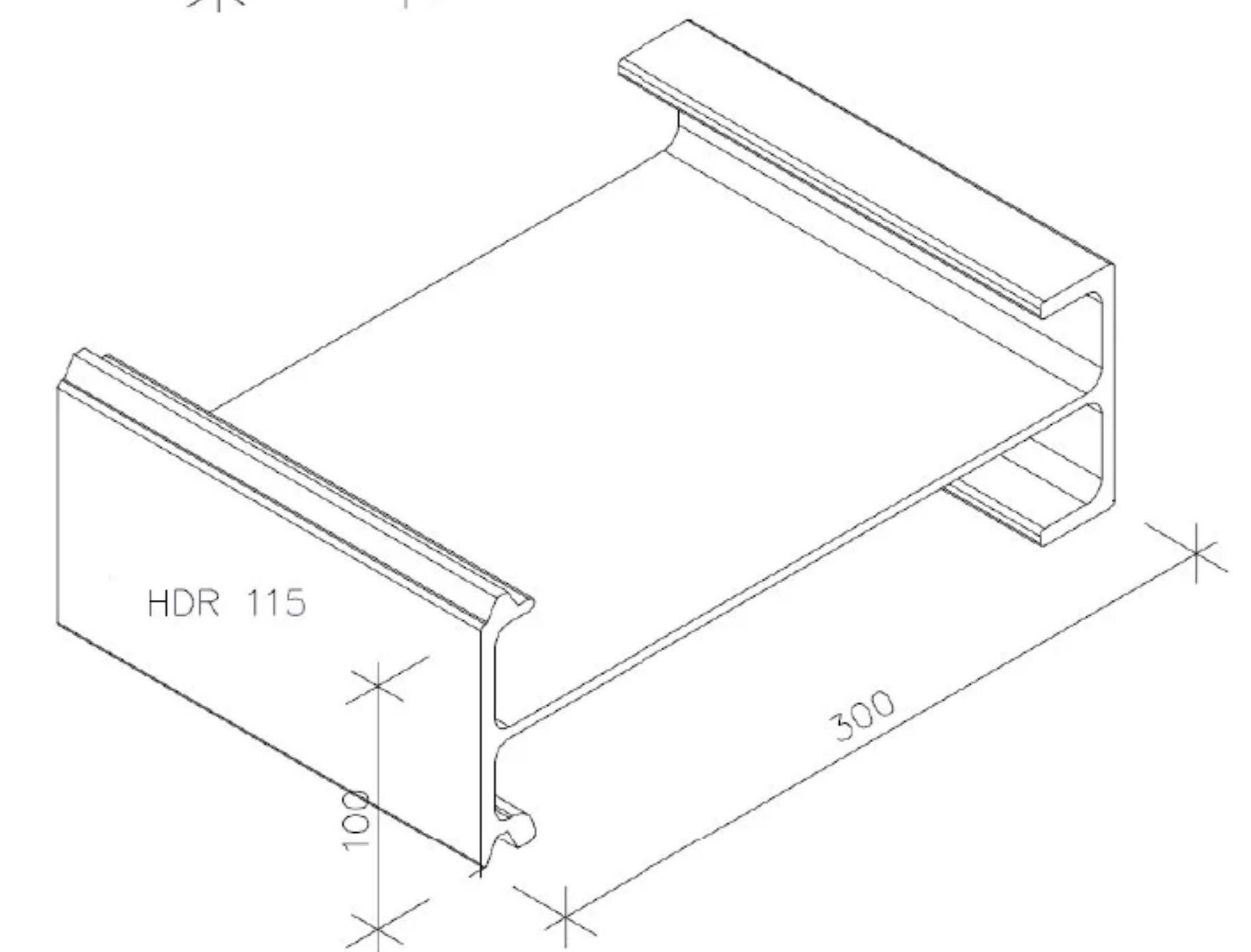
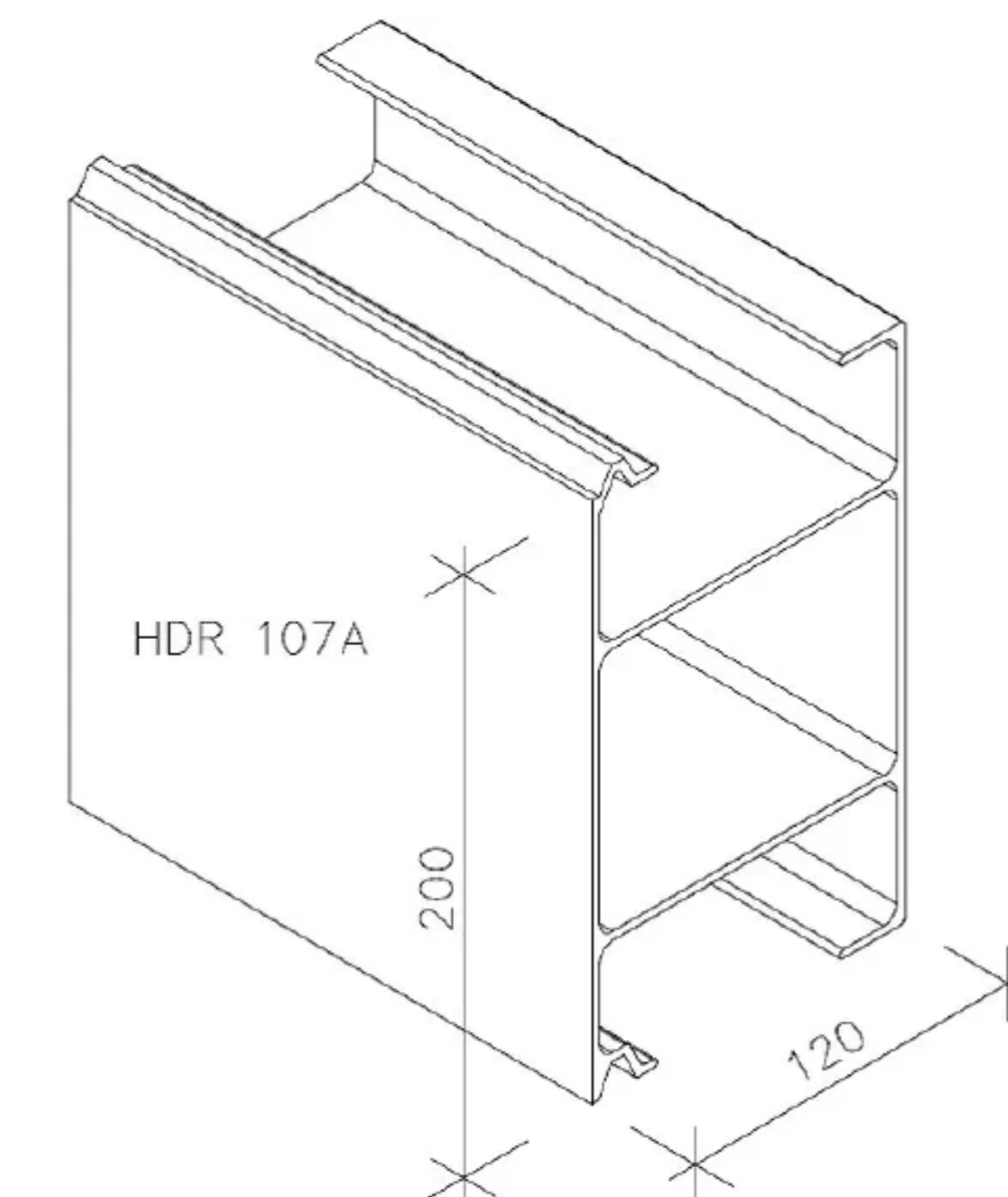
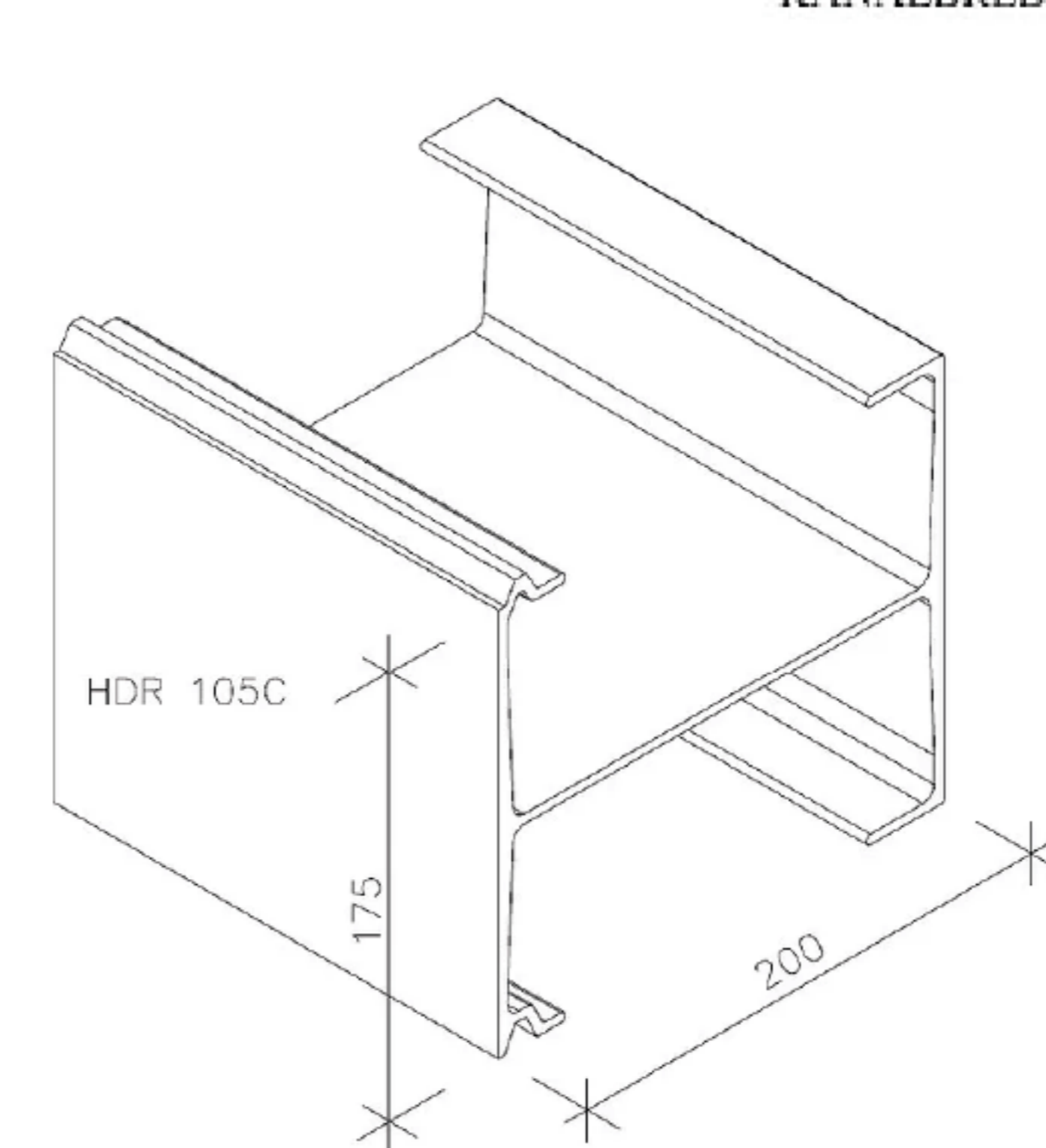
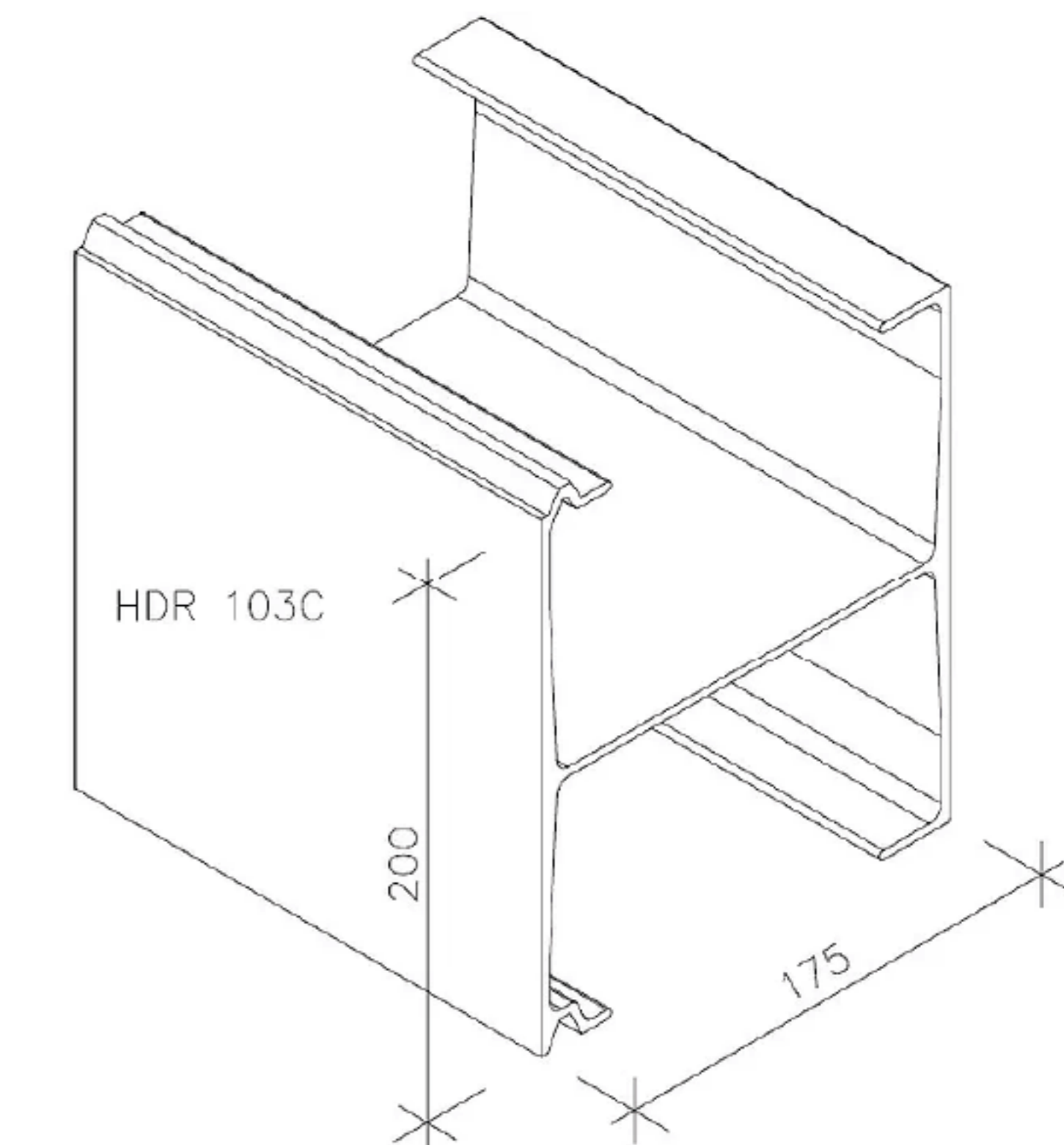
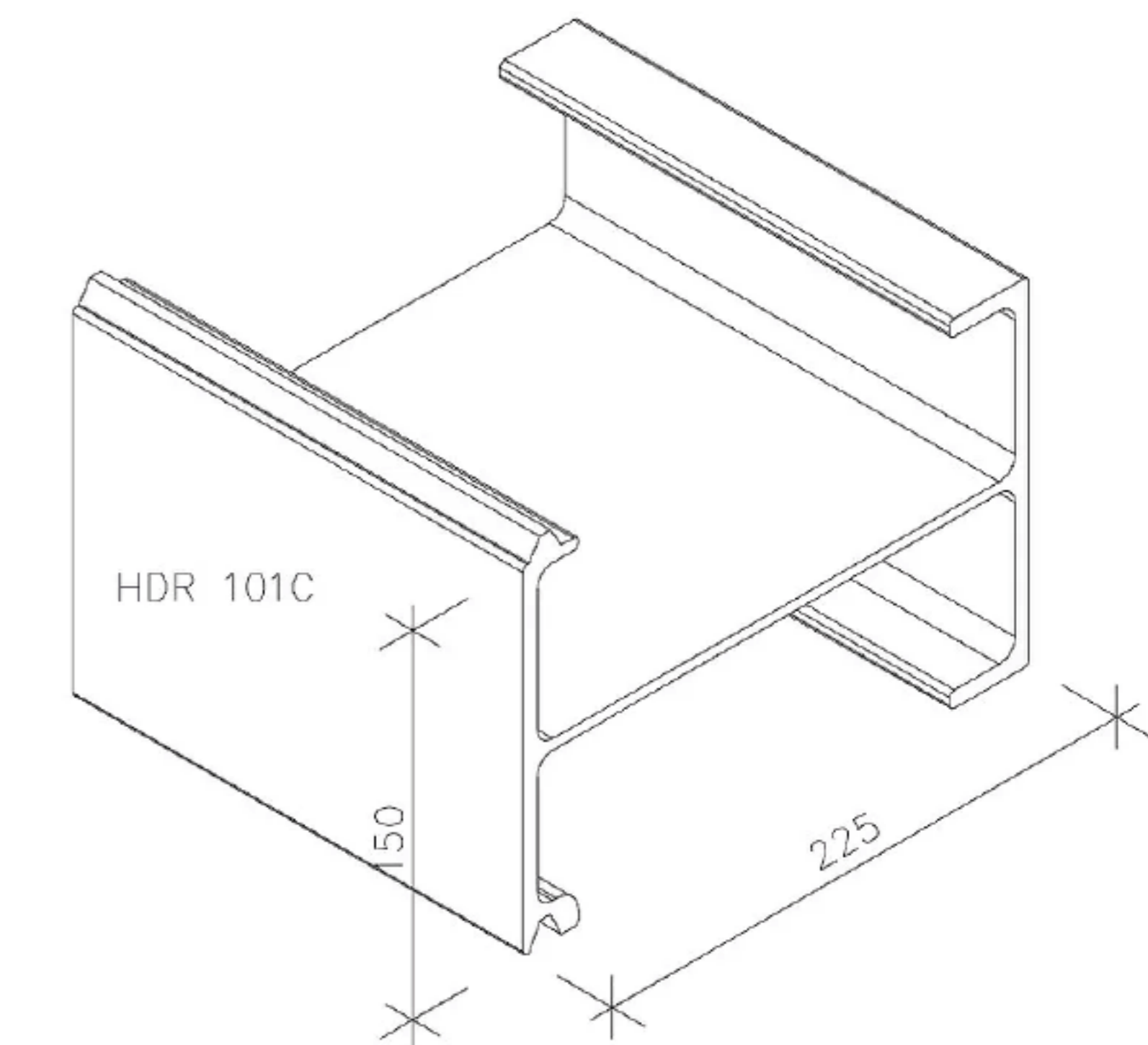
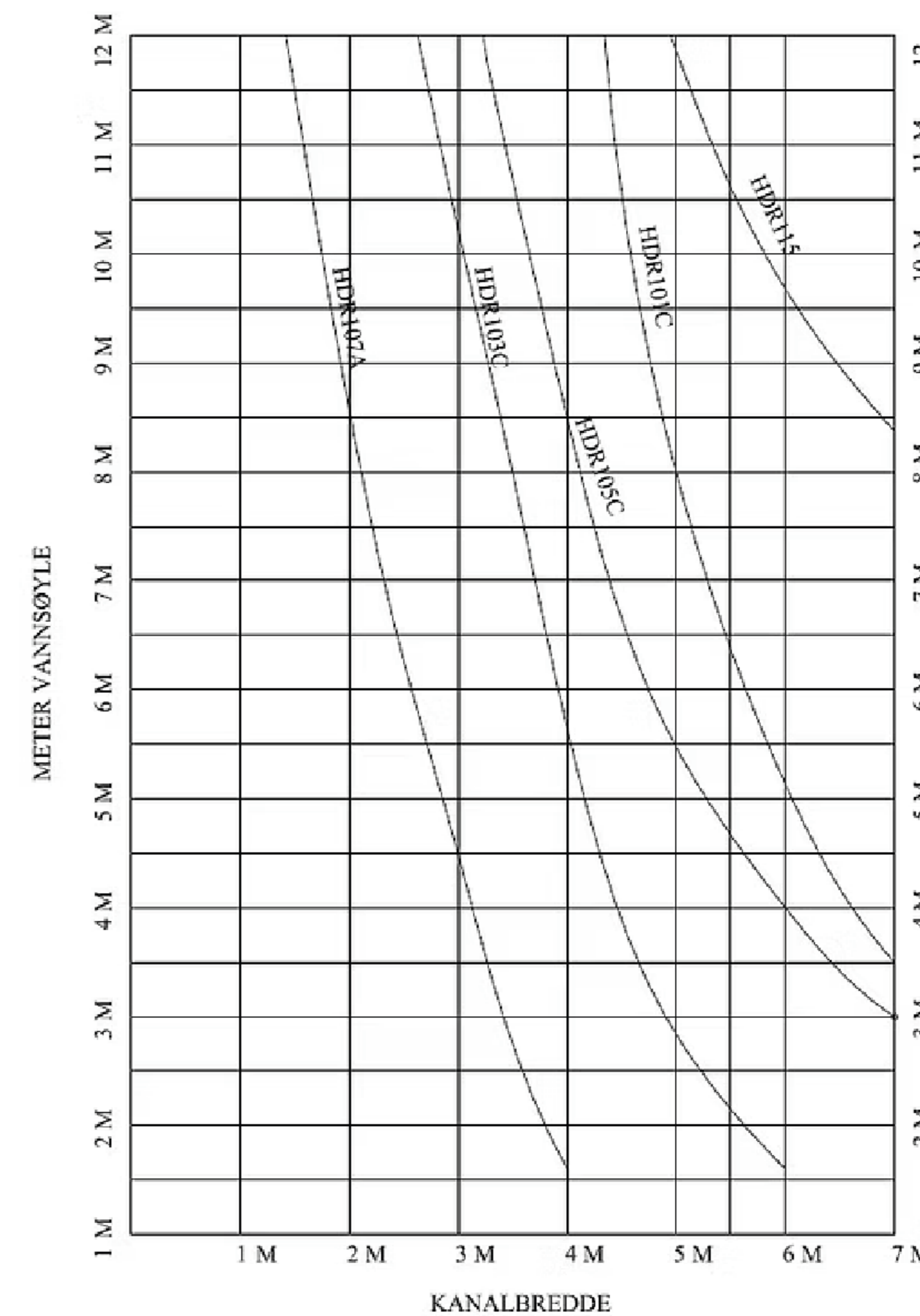
The beams are made of aluminum, a solid material that is easy to handle.

The beams can be cut to the desired length and quantity, or assembled into a hatch or hatch cover, which we have very good experience with. The beam profiles can also be converted into a fence with an overflow.

To date, we have delivered around 450 beam gates.

Profile overview - standard profiles

The table shows a selection of our standard profiles:



HATCHES TO DAM

Hydramar has been involved in supplying a number of hatches. We can offer most types of hatches. Our range extends from roller hatches, sliding hatches, drain & bottom drain hatches, intake hatches and flap hatches to name but a few.

The sluice gates are manufactured by Fasseland mek. verksted AS, which is a very experienced player in the hydropower industry.

We supply hatches in aluminum, steel and stainless steel grades.

We have experience in a wide range of products and designs with the possibility of customized solutions:

- Sliding hatches
- Intake hatches
- Pin & bottom pin hatches
- Roller shutters



STOP LOGS

Stoplogs are steel bulkheads used in channels to control water flow. They are lowered via a vertical guide system and designed to fit specific site requirements.

Made of reinforced steel, stoplogs withstand water pressure and feature rubber seals with stainless steel seats for effective sealing. An integrated bypass system ensures balanced lifting, reducing strain on the lifting mechanism.



Operation is performed using a lifting beam as part of a suitable lifting system, with the possibility of a customized operational setup. Optional accessories include a bypass system, lifting equipment, and spare parts.

All stoplogs are designed and tested in compliance with UNI EN ISO 9001 standards. They are available in a wide range of sizes without limitations in width or height.

Component	Offered material
Main structural parts: gates, gate frame, flange, upper frame cover, bars, anchoring, legs, legs basement	S355J2G3 EN 10025 (or equivalent)
Seal Seat	AISI 316 (or equivalent)
Sealings	Neoprene rubber (or equivalent)
Bolts for seal fastening	A2-70 (or equivalent)

Enerquip is the technology leader in Trash Rack Cleaning Machines. Founded in 2008, our machines are tailored to each site, taking into consideration factors that generic machines cannot address.

- Experience since 1975
- Flexibility to your needs
- We got all the tools you need
- Complete solutions

Our Trash Rack Cleaning Machines(TRCM) are available with several different solutions and have good references from users, including Agder Energi.

Especially on large power plants with large amounts of water are our TRCM very effective.

"200% satisfied. Seems very good. Completely different world. Runs without errors. Doing the job for 10 men. Future power plant personnel do not rake by hand. HSE focus increases in the future"

Hafslund

"Top pleased both with equipment and services. A very important safety measure. TRCM's from Enerquip is more thought through and robust than competitors."

Sira Kvina Kraftselskap

Enerquip gate cleaners can improve your bottom line by increasing efficiency and reducing operating costs in hydroelectric power plants and other industries that require intake grate cleaning. Here are some of the ways an Enerquip gate cleaner can help improve your bottom line:

1. Increased production and efficiency

- Gate cleaning removes debris and waste that can block water intake, ensuring optimal water flow to turbines or pumps
- This leads to higher energy production and better utilization of the available water volume

2. Reduced downtime and maintenance costs

- Automated gate cleaners require less manual effort, reducing the need for periodic maintenance
- Less wear and tear on turbines and pumps, as debris and branches do not enter the system

3. Lower personnel costs and increased safety

- Reduces the need for manual cleaning, which is often both time-consuming and risky for personnel
- Automation of gate cleaning can reduce the need to work in hazardous environments

4. Extended equipment lifetime

- Gate cleaners prevent large particles and debris from causing damage to turbines, pipes and other vital equipment
- This extends the lifespan of installations and reduces investment costs in the long term

5. Environmental benefits and increased sustainability

- Reduced risk of blockages means smoother operation and better environmental adaptation for fish and other life in the waterway
- Some gate cleaners have integrated solutions for fish passage, which improves the environmental profile of the facility





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