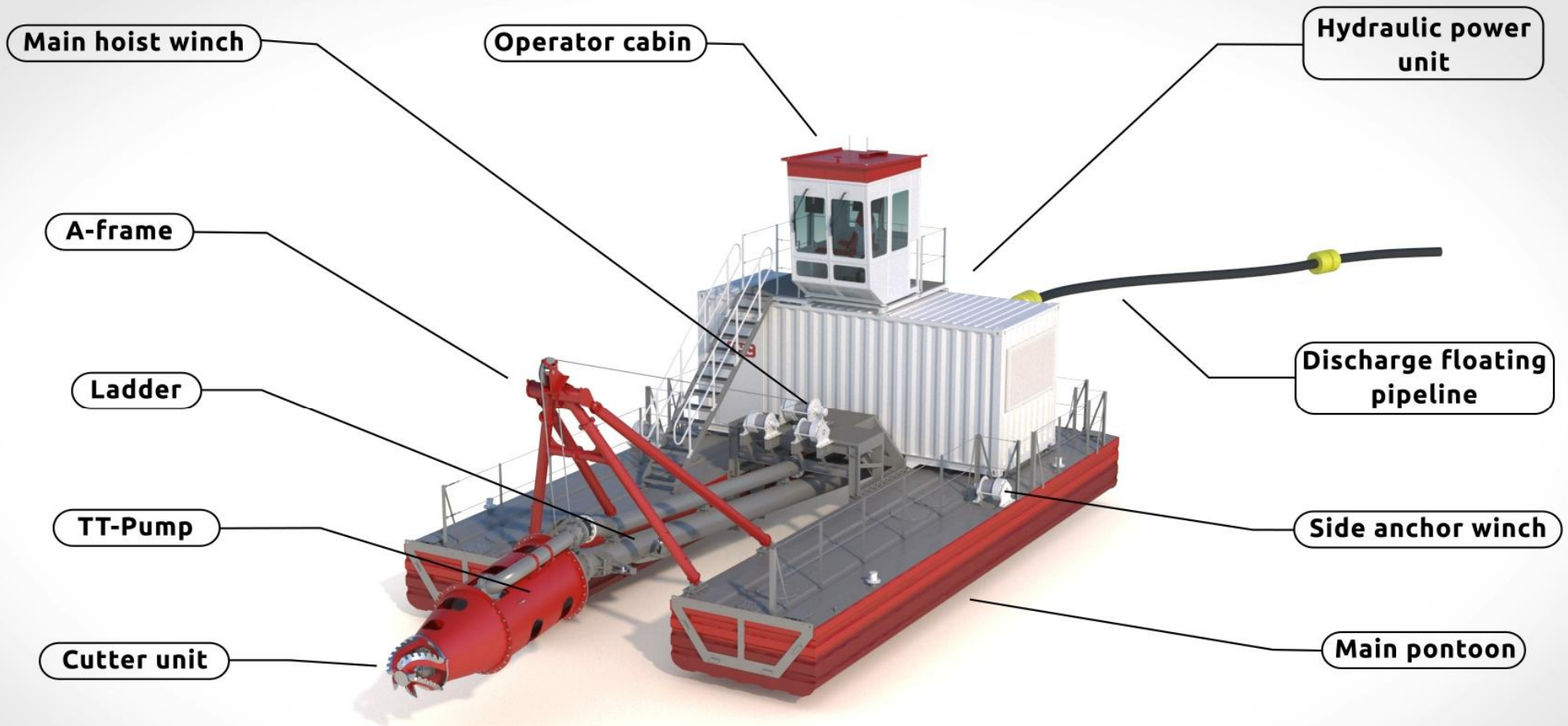




Mining

ZSv3
ZSv4



Horizontal deployment OTter

ZSv3 The horizontal deployment OTTer® Dredger utilizes a ladder construction that features a OTTer® pump fitted with a cutter unit to cut into consolidated material to help maximize production. The ladder is lowered down to a standard 10m depth and is then pulled sideways using the side swing winches. Material then enters the suction side of the dredge pump and is discharged at the aft side of the vessel through a floating pipeline. The dredger can be operated by one dredge master from the operator cabin, from where he has a 360 degree view on the operation. Typical applications are handling of tailings and desilting of ponds.

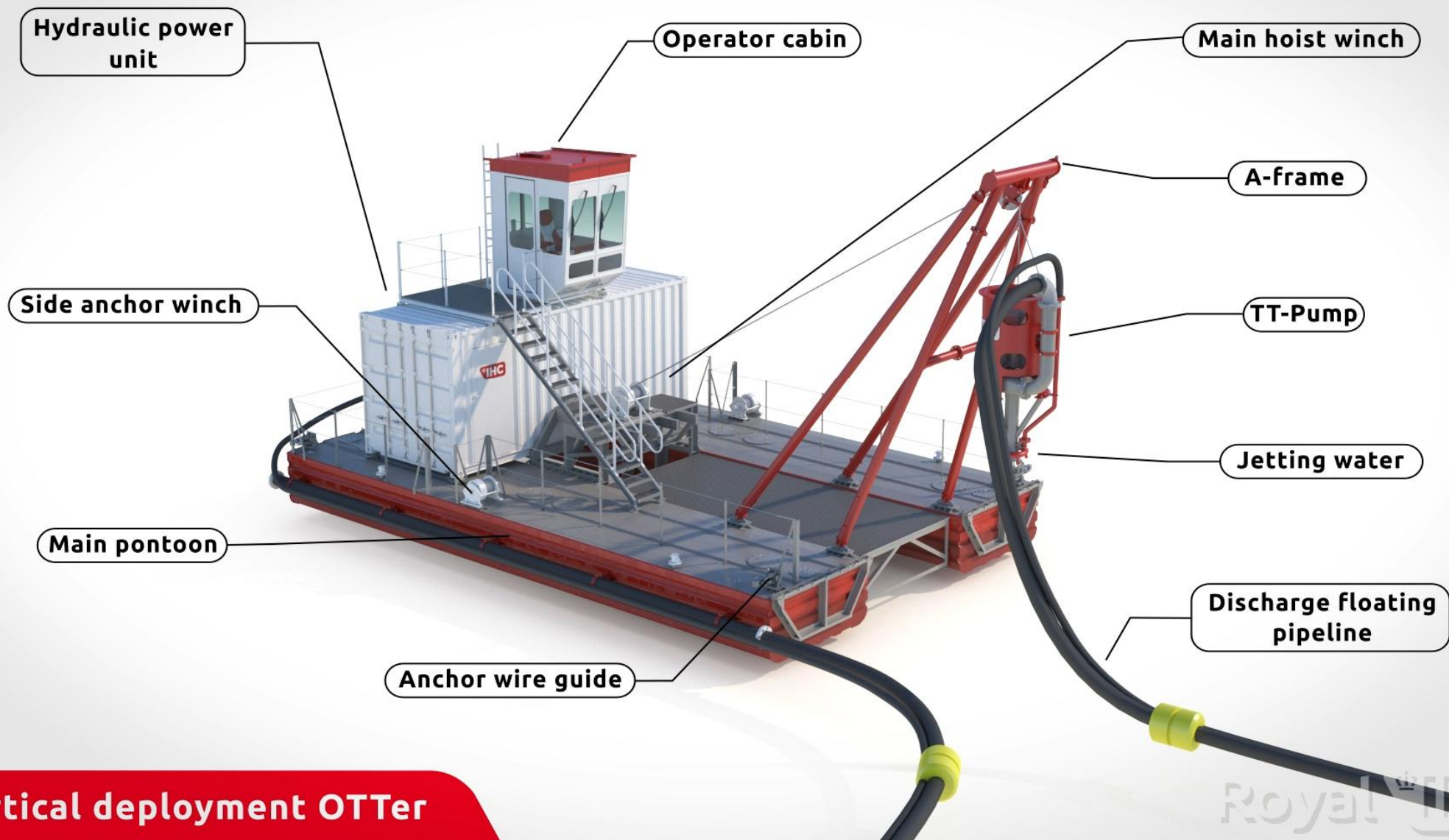
Zyl, Schalk van, 25/08/2022

ZSv4 The horizontal deployment OTTer® Dredger features the following:

- Ladder deployment
- Standard dredging depth is 10m
- 95kW OTTer® 200 pump or the 150kW OTTer® 250 pump (hydraulic or electric driven)
- OTTer® pump fitted with cutter unit
- Utilizes Christmas tree arrangement for its pivot point
- One man dredge operation
- Hydraulic power unit housed in ISO container (HPU can also be electrically powered - optional)
- Max swing angle of 35 degrees to each side

Zyl, Schalk van, 25/08/2022

ZSv5
ZSv6



Vertical deployment OTter

Royal IHC

ZSv5 The vertical deployment OTTer® dredger utilizes an A-frame over which the OTTer® pump is suspended and lowered under its own weight down to the required dredging depth, up to a standard 50m deep. Jetting water is supplied from the back of the dredger to the suction inlet of the OTTer pump to help fluidize material and maximize production. The suction inlet of the OTTer® pump is fitted with a grizzly head to prevent foreign material from entering the dredge pump. The vertical deployment OTTer® dredger is used mainly for dredging loosely compacted sand types in deeper water applications such as maintenance of hydro-electric dams. The standard version can deploy the OTTer® 200 and OTTer® 250 pumps.

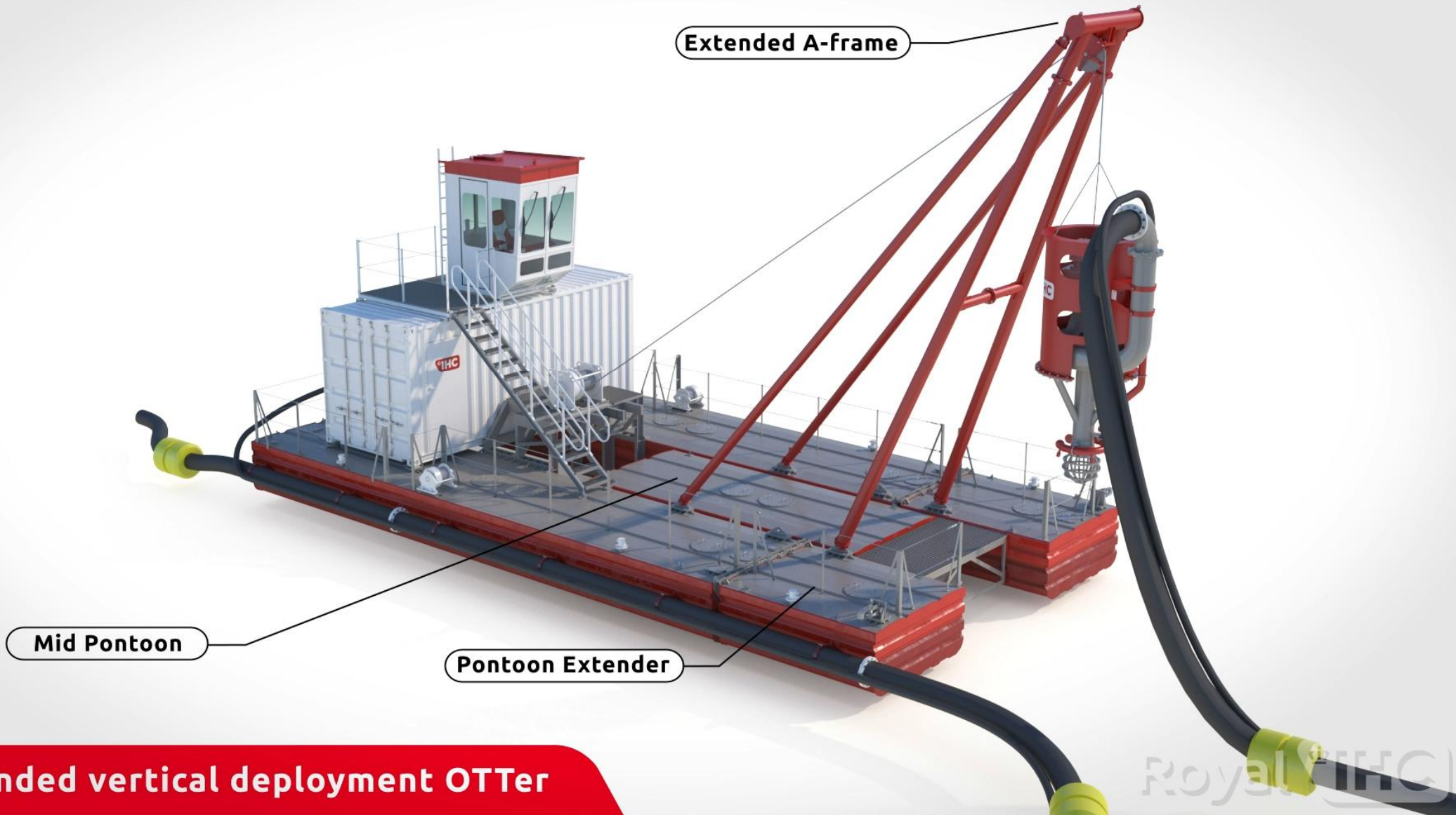
Zyl, Schalk van, 25/08/2022

ZSv6 The standard vertical deployment OTTer® dredger features the following:

- Vertical deployment - standard
- Max dredging depth is 50m
- 95kW OTTer® 200 pump or the 150kW OTTer 250 pump (hydraulic or electric driven)
- OTTer® pump fitted with a sand production head
- Jet water pack at the back supplies jetting water to pump inlet (hydraulic or electric driven)
- Utilizes three point mooring system for moving around
- One man dredge operation
- Hydraulic power unit housed in ISO container (HPU can also be electrically powered - optional)

Zyl, Schalk van, 25/08/2022

ZSv7
ZSv8



Extended vertical deployment OTter

Royal IHC

ZSv7 The extended vertical deployment OTTer® dredger features additional mid and side pontoons and an extended A-frame that is required to handle the bigger and heavier OTTer® 300 and OTTer® 305 pumps. These powerful OTTer® pumps are used in heavy duty applications where large amounts of material must be removed and pumped over large distances.

Zyl, Schalk van, 25/08/2022

ZSv8 The extended vertical deployment OTTer features the following:

- Vertical deployment - extended
- Extra mid pontoon & two side/front pontoons
- Extended A-frame
- Max dredging depth is 50m
- 250 kW OTTer 300 pump or 375 kW OTTer® 350 pump (hydraulic or electric driven)
- OTTer® pump fitted with a sand production head
- Jet water pack at the back supplies jetting water to pump inlet
- Utilizes three point mooring system for moving around
- One man dredge operation
- Hydraulic power unit housed in ISO container (Electric optional)

Zyl, Schalk van, 25/08/2022

ZSv9

ZSv10



Royal IHC

ZSv9 The aluminium pontoons are light weight and can be stacked onto each other to allow for easy transport by truck. Lifting points are provided for loading.

Zyl, Schalk van, 25/08/2022

ZSv10 Features:

- Pontoons can be stacked for transport
- Aluminium or steel pontoons

Zyl, Schalk van, 25/08/2022

ZSv11



ZSv11

The OTTer® dredgers can be easily transported by trucks and delivered to site. The maximum lifting capacity required for an individual item is 6.5 tons.

Zyl, Schalk van, 25/08/2022

ZSv12



ZSv12

Equipment arrives on site and is offloaded by a mobile crane next to a prepared area where the dredger can be assembled.

Zyl, Schalk van, 25/08/2022

ZSv13



Royal IHC

ZSv13

The complete OTTer® dredger can be assembled onshore with standard tools. Components are trial assembled at the factory and delivered pre-assembled to site, which allows for a fast and hassle-free "plug & play" type installation. The HPU container is secured to the pontoons using ISO quick couplers.

Zyl, Schalk van, 25/08/2022

ZSv14
ZSv15



Royal IHC

ZSv14 The fully assembled OTTer® dredger can be lifted into the water with a suitable mobile crane.
Zyl, Schalk van, 25/08/2022

ZSv15 Features:

- Horizontal deployment OTTer® 25H (weight to be lifted is 45 tons - steel pontoons)

Zyl, Schalk van, 25/08/2022

ZSv16
SZ1



Horizontal deployment OTter

Royal IHC

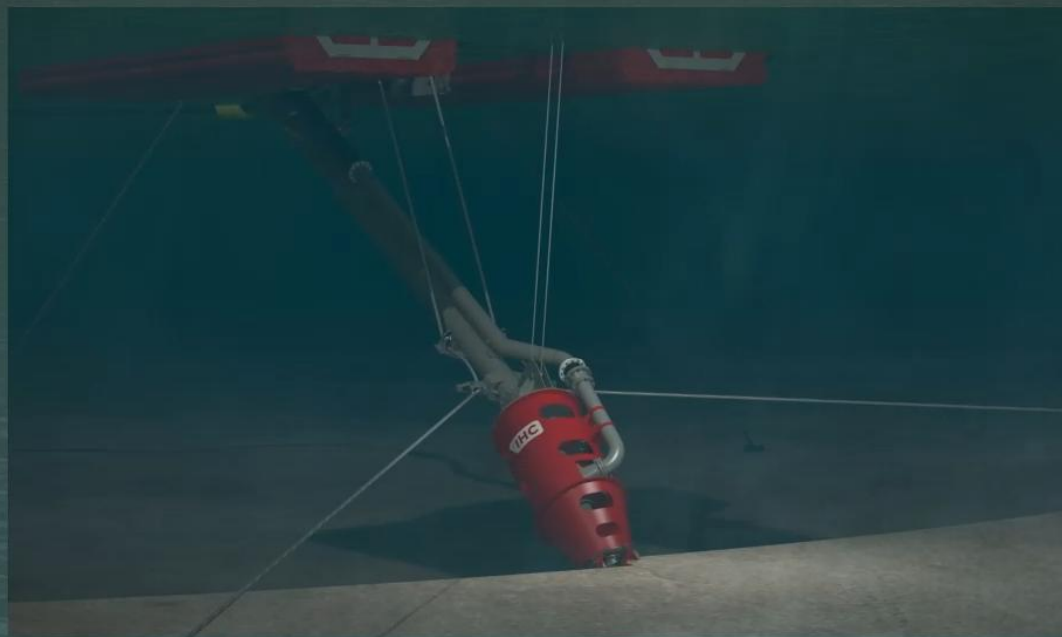
ZSv16 The horizontal deployment OTTer® dredger uses a Christmas tree anchoring arrangement to create a pivot point around which the swing arc can be dredged. The dredged material is transferred through a floating dredge discharge pipeline that consists of a combination of flexible rubber hose, HDPE pipe sections and floaters for buoyancy. In large open water areas a small workboat is required for anchor handling, crew changes and refuelling.

Zyl, Schalk van, 25/08/2022

SZ1 The OTTer® dredger can also be fitted with an auger head to dredge silt material. A four point mooring winch configuration allows for a straight dredge path instead of the swing action used with the cutter head. The straight line dredge approach ensure maximum continuous production. The auger head is fitted with a turbidity cover to minimize material dispersion (plumes) when dredging fine suspended material.

Zyl, Schalk van, 03/06/2026

ZSv17



Horizontal deployment OTter

Royal IHC

ZSv17 The cutter unit cuts through light to medium compacted material before it is picked up by the submersible dredge pump and transferred. The dredger follows a swing arc pattern by pulling on the swing winches and then moves forward by pulling on the swing winches while paying out the aft anchoring winches.

Zyl, Schalk van, 25/08/2022

ZSv18



Vertical deployment OTter

Royal IHC

ZSv18 The vertical deployment OTTer® dredger uses a four point mooring system and a small workboat is required for repositioning anchors, crew transfers and refuelling. Typical applications include removing material in deeper water environments such as dams and reservoirs.

Zyl, Schalk van, 25/08/2022

ZSv20



Vertical deployment OTTer

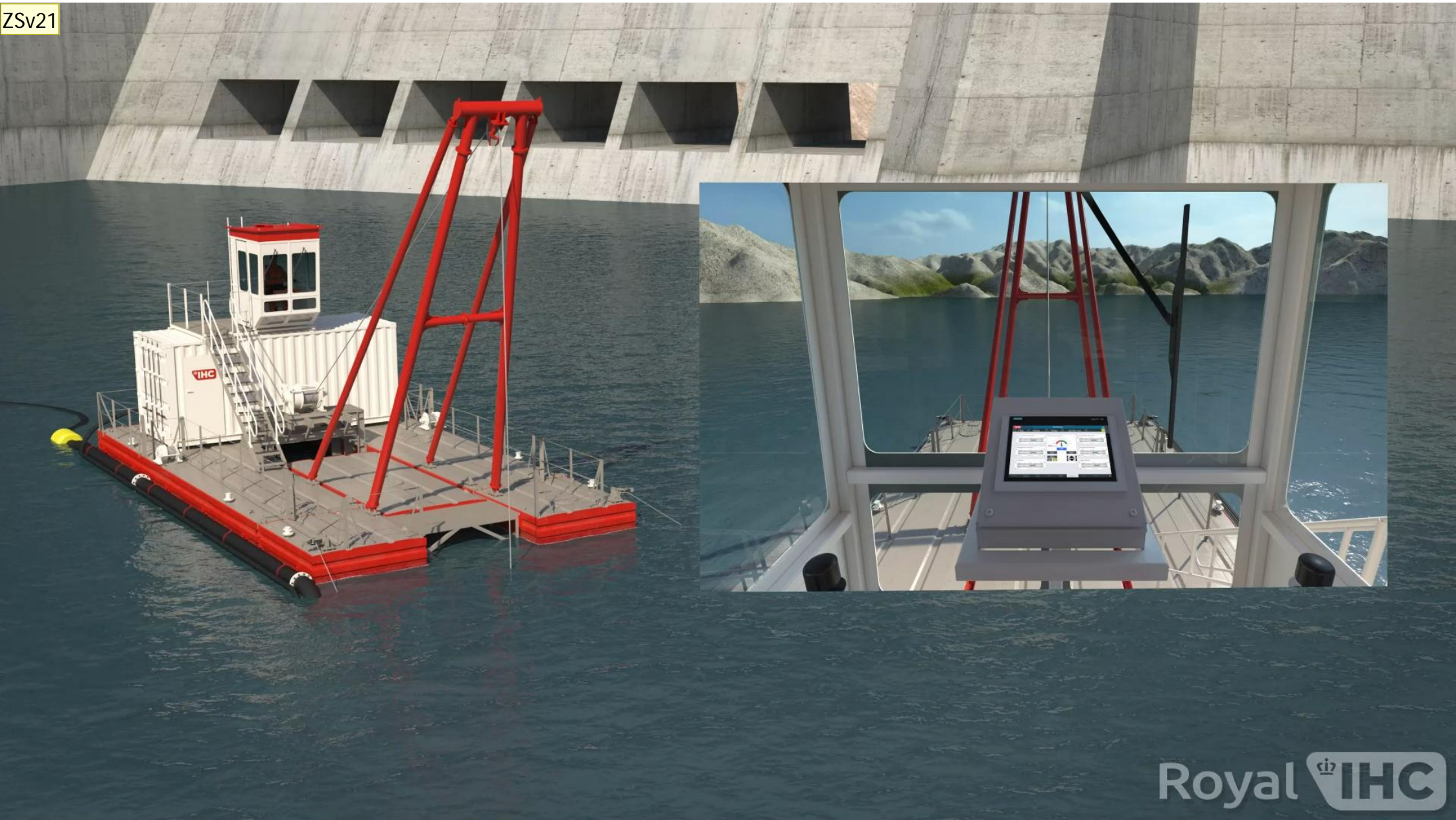
Royal IHC

ZSv20

The OTTer® pump is suspended from the A-frame and lowered under its own weight to the desired dredging depth, up to a standard 50m deep. Jetting water is sprayed through nozzles in a ring around the inlet of the pump inlet pipe. This helps with fluidizing the material and maximising production. A natural pit is created during the dredging process and loose material will continue to flow inwards towards the pump suction mouth. The pump can then be lifted out of the pit and lowered again adjacent to create a new pit and repeat the process.

Zyl, Schalk van, 25/08/2022

ZSv21



ZSv21

Various sensors fitted to equipment onboard of the OTTer® dredger and the submersible OTTer® pump allows the operator to continuously monitor and control the dredge operation. All equipment is controlled from the operator cabin bridge via a touch screen human machine interface. Embedded software allows the operator to see live production rates utilizing to material density and flow rate that results in an optimum production process.

Zyl, Schalk van, 25/08/2022

Royal 

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