



Innovation for mining exploration

[www.safedrill.com](http://www.safedrill.com)

# SAFEDRILL

## founded in 2017

The mining industry is constantly challenging exploration equipment manufacturers to meet ever increasing environment, safety and efficiency standards.

Safedrill's purpose is to design and produce the right machines to address these challenges.

After years of development, piloting on real drilling conditions, our team of mechanical, hydraulic, electric engineers and industrial designers achieved the RHS (Rod Handling System) and MRS (Mud Recycling System) machines, which today are qualified to the highest standards set by world class mining companies.

# RHS

## Rod Handling System



# RHS

## Rod Handling System

- Protects drillers by achieving true, hands-free operation, considerably reducing the probability of injuries from accidents
- Allows for efficient and faster feeding, retrieving and storing of rods and inner tube
- Reduces the total rig area by up to 40%
- Includes a video surveillance circuit with LED HD screens located at the command console, allowing the observation of all system movements from outside the risk zone.



# RHS

Rod Handling System

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Rod Handling System

# RHS

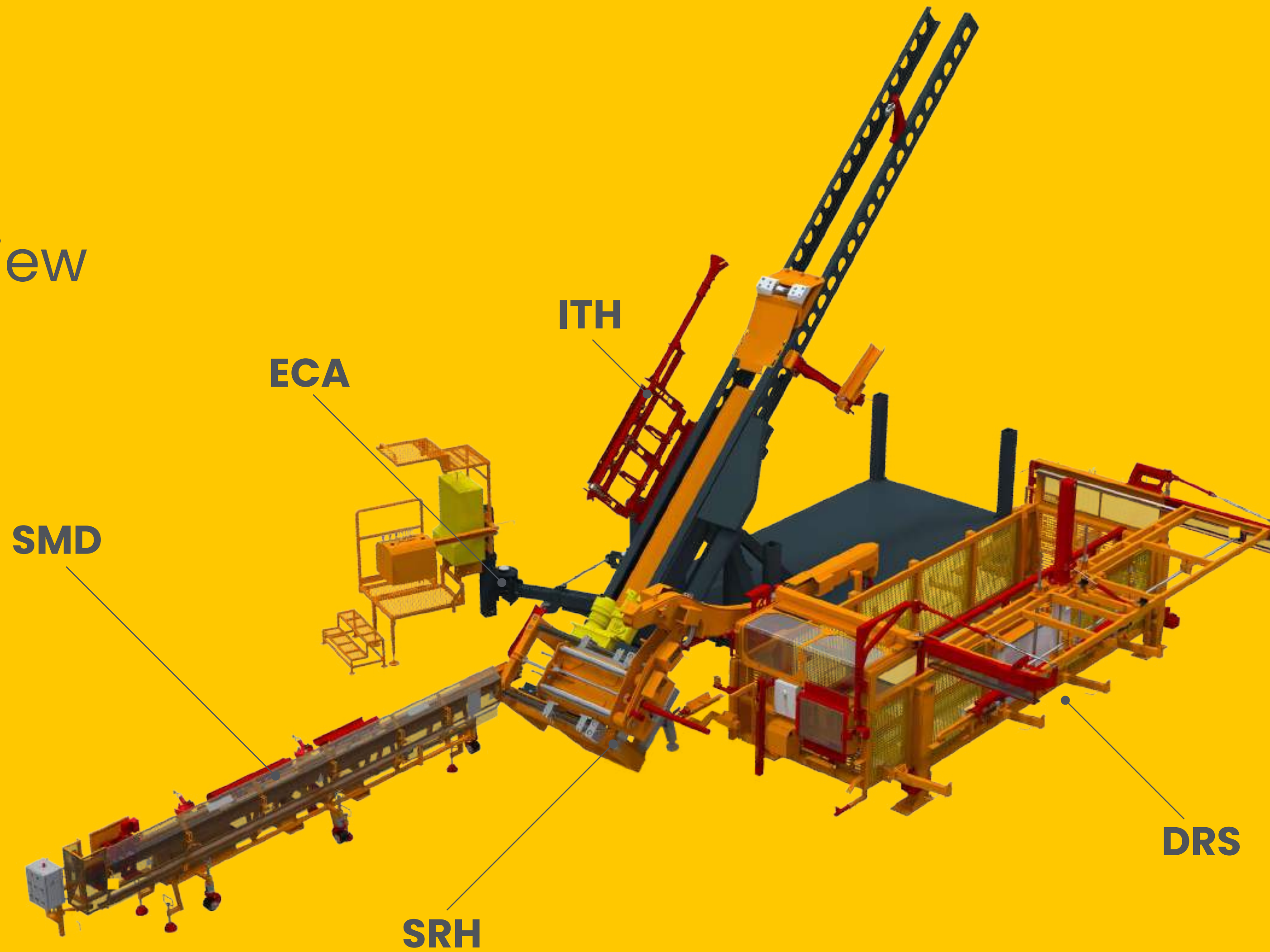
## Rod Handling System

 SAFEDRILL

Video surveillance circuit

# RHS

## System overview



**SRH** Side Rod Handler

**DRS** Dual Rod Sloop

**ITH** Inner Tube Handler

**SMD** Sample Manipulation Device

**ECA** Extended Console Arm



# SRH

## Side Rod Handler

A side-sliding rod handler, attached to the base of the drill rig's mast. It handles the feeding and retrieving of rods and casing between the DRS and drill rig, completely hands-free.

Handles rods, casing and core barrels, and also manipulates the kelly rod, by releasing it on a resting support while new rods are added to the string.

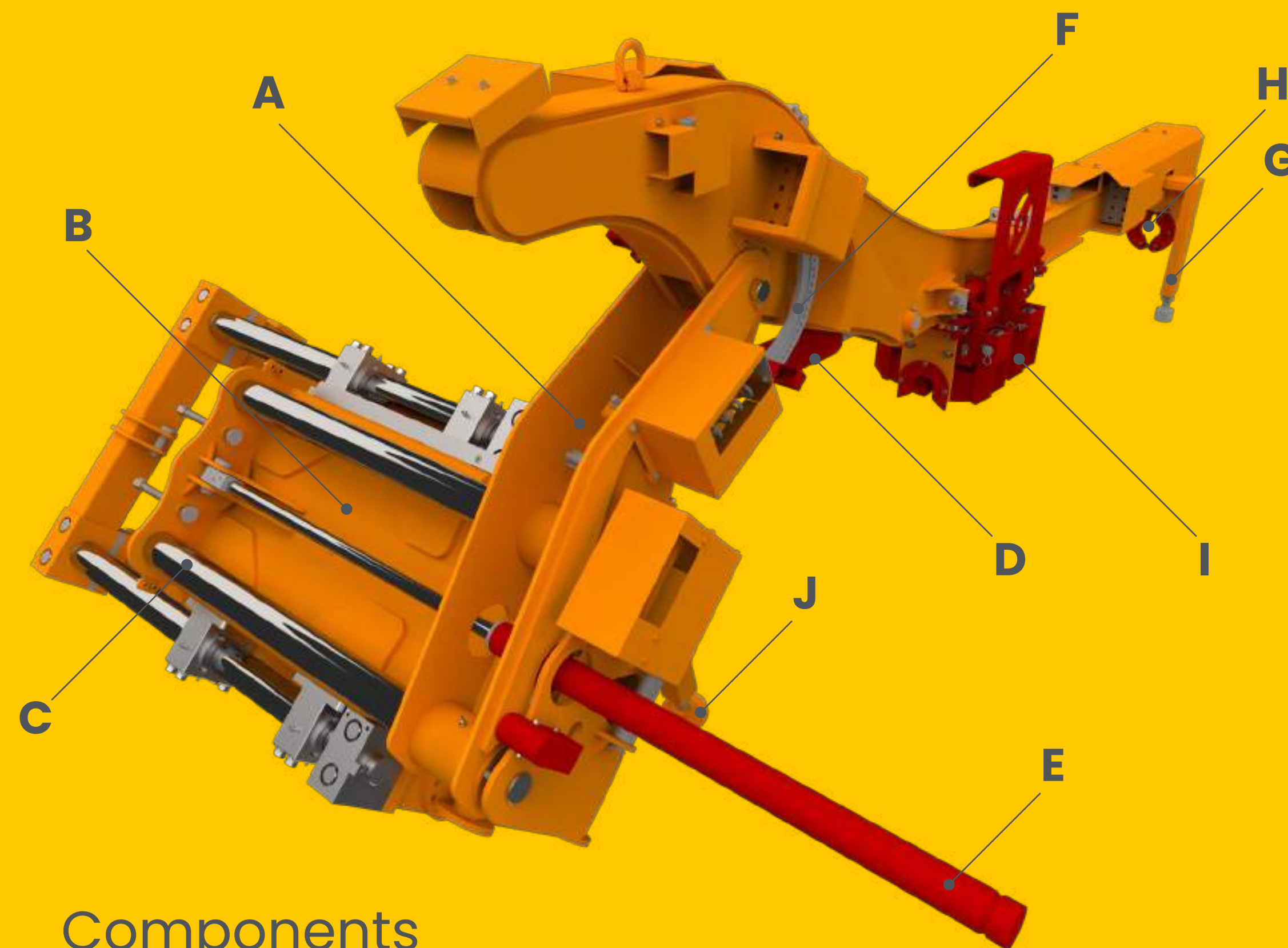
The side-sliding configuration allows positioning the DRS at the side of the drill rig, saving up to 40% of platform surface area, contributing to mining companies' goal of reducing their footprint.

A floating rod press which allows to screw in and out rods from the string without damaging the threads and ensuring the right torque to perform a perfect joint.

From the selection of a rod in the DRS to the screw-in of a new rod on the string, the complete work cycle lasts down to 60 seconds.

## Specifications

<b>Length</b>	5,450mm	<b>Hydraulic System</b>
<b>Width</b>	3,200mm	40LPM@3,000PSI(207BAR)
<b>Height</b>	5,789mm	<b>Electric System</b>
<b>Weight</b>	2,250Kg	12/24V



## Components

- |                                  |                               |
|----------------------------------|-------------------------------|
| <b>A</b> Primary slide support   | <b>F</b> Angle locking guides |
| <b>B</b> Secondary slide support | <b>G</b> Travel limiter       |
| <b>C</b> Slide guides            | <b>H</b> Gripper              |
| <b>D</b> Lifting cylinder        | <b>I</b> Floating rod press   |
| <b>E</b> Displacement cylinder   | <b>J</b> Stabilizer           |

# DRS

## Dual Rod Sloop

An automated rod sloop, equipped with 4 hydraulic elevator jacks, allowing self-load/unload from the truck, and its positioning on any kind of terrain.

Rods are handled from a sliding hydraulic loading bridge that can lift rods and position them at both sides of the unit, making it possible to perform the self-loading and rod feeding maneuvers completely hands-free.

It holds rods through a magnetic mechanism which is not electrically powered, so in case of a failure, it will always stay on, and rods won't fall harming operators or damaging the surrounding elements.

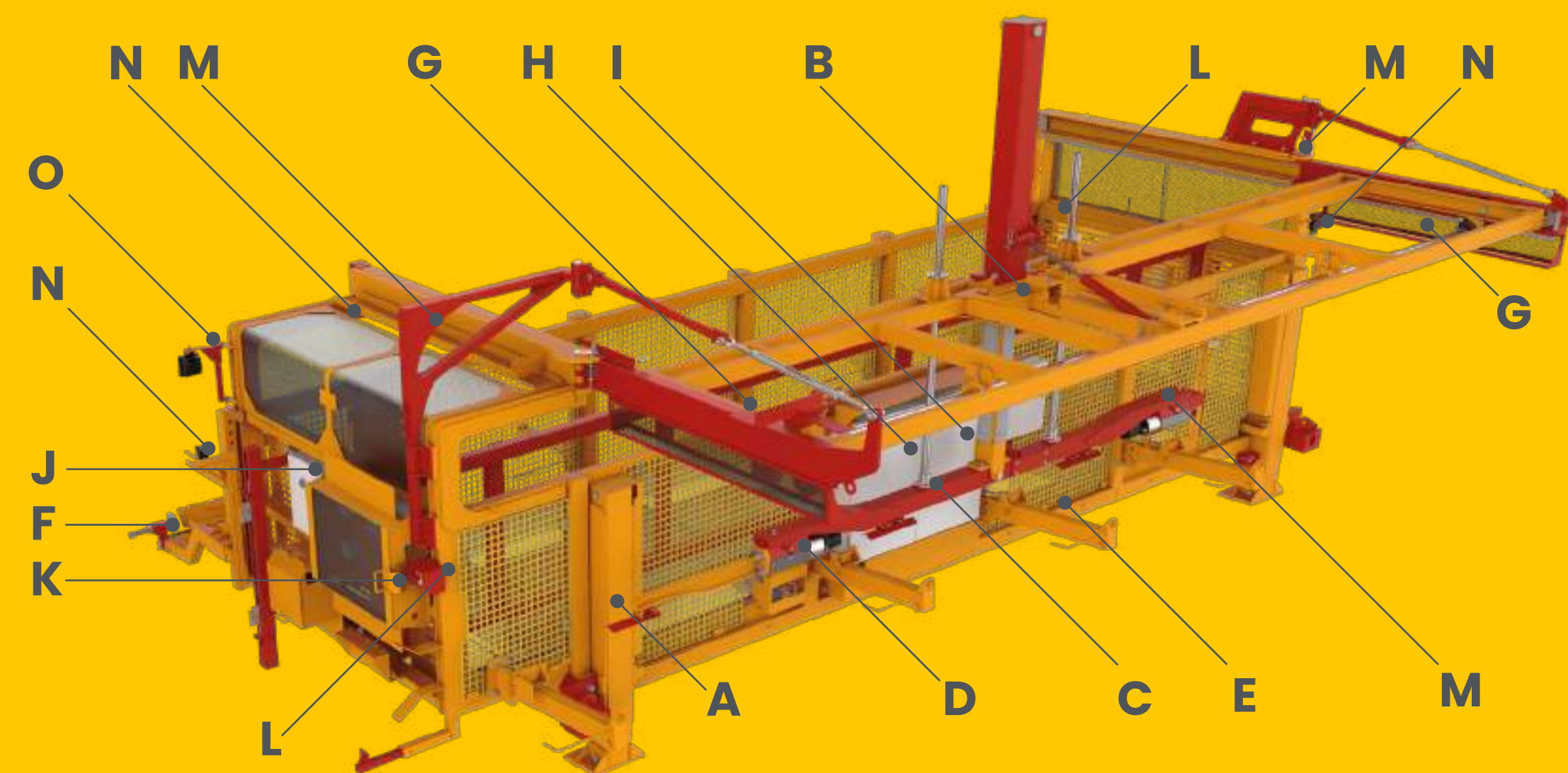
It has the size of a 20ft container, and is equipped with the same locking corners, which facilitates its transportation on a flatbed truck, with no special permits.

The operator can switch rod diameters as needed, resulting in faster diameter changes while drilling.

It is equipped with sensors and cameras to allow the operator to safely control every angle of the operation.

## Specifications

<b>Length</b>	6.050mm	<b>Hydraulic System</b>	<b>N rods</b>	<b>H rods</b>	<b>P rods</b>
<b>Width</b>	2.420mm		346un	210un	126un
<b>Height</b>	2.320mm	<b>Electric System</b>	2.076m	1.260m	756m
<b>Weight</b>	6.000Kg		15.846kg	14.364kg	13.104kg



## Components

<b>A</b> Hydraulic Jacks	<b>G</b> Bridge extensions	<b>M</b> Sensor
<b>B</b> Sliding bridge	<b>H</b> Hydraulic board	<b>N</b> Camera
<b>C</b> Lifting arm	<b>I</b> Electric board	<b>O</b> Led light
<b>D</b> Magnetic grip	<b>J</b> Lights/control board	
<b>E</b> Resting arms	<b>K</b> Killswitch board	
<b>F</b> Centering guides	<b>L</b> Emergency stop	

# ITH

## Inner Tube Handler

The ITH handles the core barrel from the mast, towards the SMD, releasing it exactly on the reception bucket, which then carries the core barrel to the horizontal position.



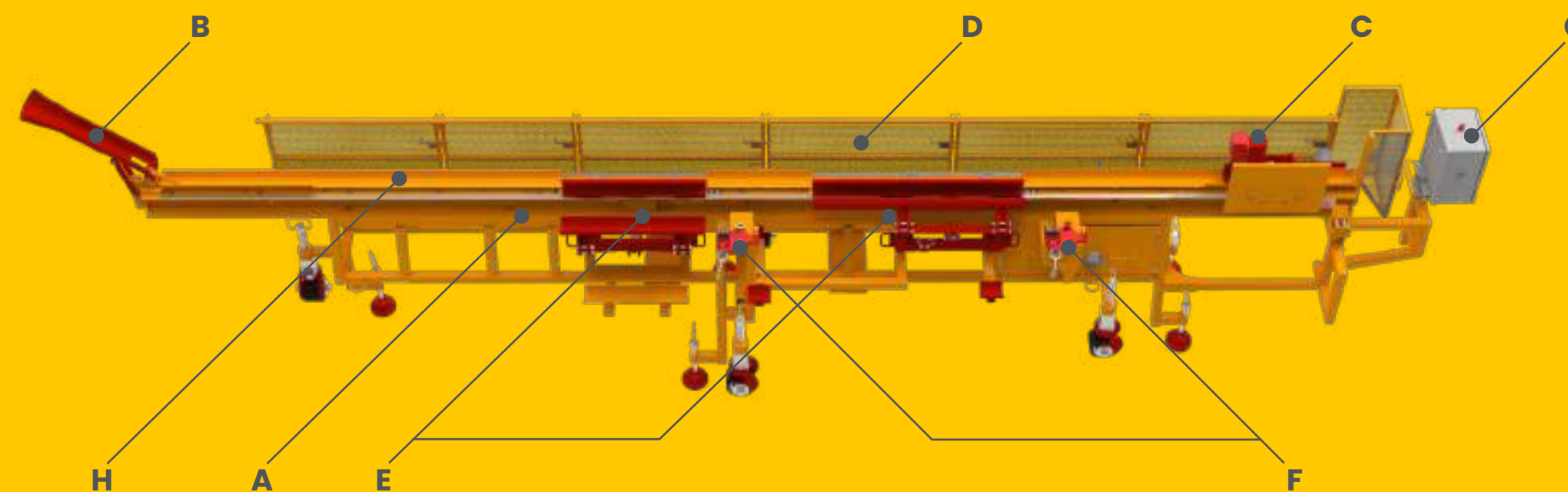
### Specifications

<b>Length</b>	3,428mm	<b>Hydraulic System</b>	
<b>Depth</b>	400mm		5LPM@2,500psi (172BAR)
<b>Width</b>	1,082mm	<b>Handling diameter</b>	
<b>Weight</b>	225Kg		70-100mm [3m/10ft length]

# SMD

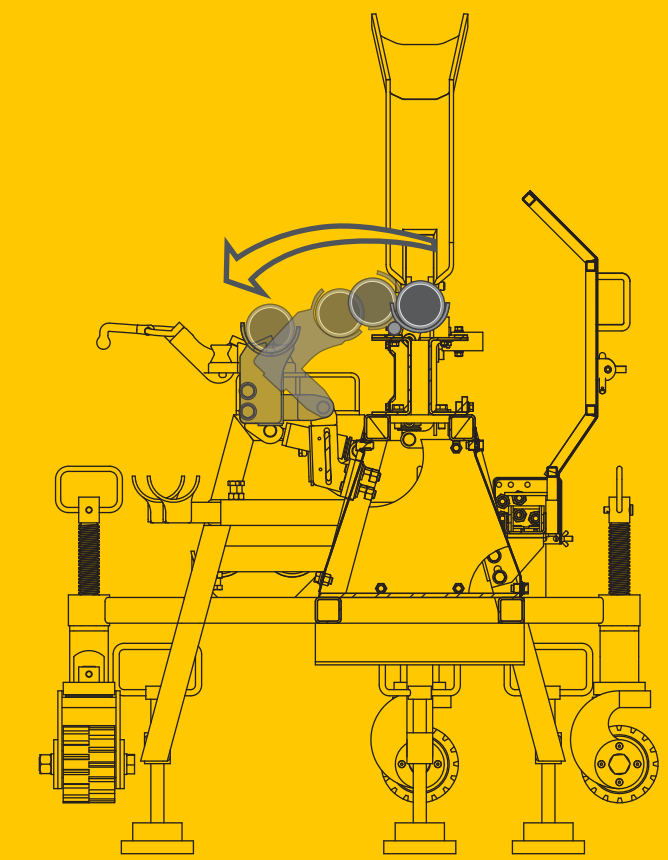
## Sample Manipulation Device

After receiving the core barrel from the ITH, the SMD slides it carefully to the horizontal position, the helper unlocks the overshoot and activates the tilting mechanism which switches the barrel from the main tray to the secondary one. Done that, the helper locks the barrel with a chain-lock, and when it's done, the SMD unscrew the barrel, releasing the inner tube, and allowing the manipulation of it.



### Specifications

<b>Length</b>	5,820mm	<b>Electric System</b>	12/24v
<b>Width</b>	1,085mm	<b>Hydraulic System</b>	5LPM@2,500psi (172BAR)
<b>Height</b>	1,390mm	<b>Handling diameter</b>	70-100mm
<b>Weight</b>	1,030Kg	<b>Safety</b>	Inductive sensors



Tilting mechanism

### Components

- A** Frame
- B** Reception guide
- C** Reception bucket
- D** Protections
- E** Feeding tray
- F** Secondary tray

# ECA

## Extended Console Arm

The ECA is an extended arm which allows to position the drill rig console away from the mast, placing the operator outside the risk zone.

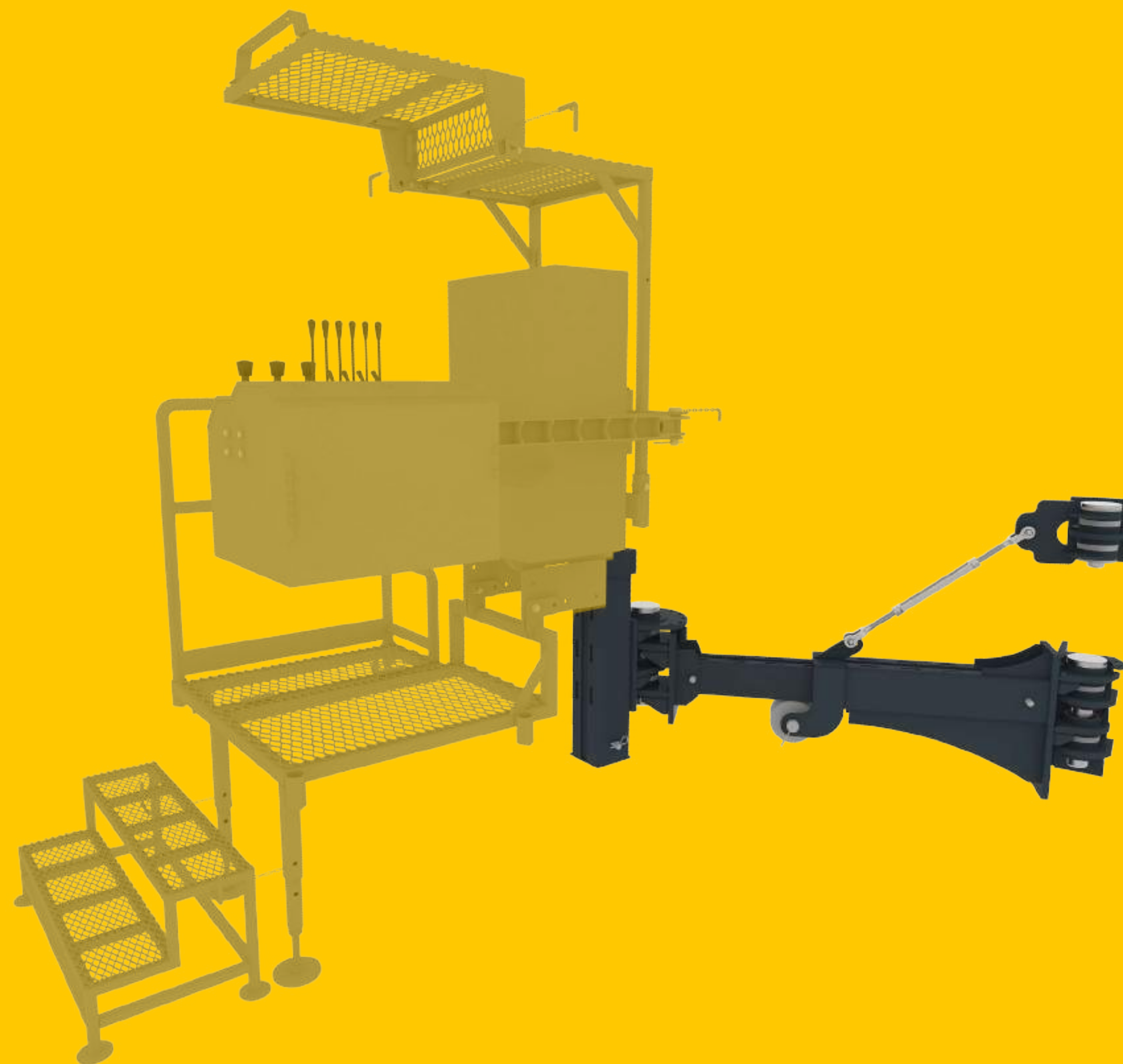
It holds both the drill rig and the RHS commands in the same place. Operator can hydraulically adjust the console height to ensure a proper position.

Is attached directly to the rig's rear left hydraulic jack, folds in to save space and is locked mechanically to secure it during transportation maneuvers.

The ECA is compatible with Atlas Copco-Epiroc CS3001, CS4002 and CT20 drill rigs.

### Specifications

<b>Length</b> (Deployed)	2,264mm
<b>Width</b>	400mm
<b>Height</b> (Deployed)	1,570mm
<b>Weight</b>	637Kg



# MRS

Mud Recycling System



# MRS

## Mud Recycling System

- Allows for management of water, mud and solids in a single, closed-loop system, avoiding spillage, the construction of ponds and other subpar environmental practices
- Saves water and mud, reducing cost per meter.
- Contributes to the overall reduction of the rig area.
- Optional configuration for different needs.

# MRS

## Mud Recycling System

Our MRS is a hydraulically actuated system made up of two cylindrical storage tanks with agitators and a preparation tank with a mixer, mounted on a steel platform equipped with four hydraulic jacks with local and remote actuation, which allow it to be positioned on different types of terrain.

It is equipped with a decanter centrifuge, all its tanks are made of stainless steel and it has a system of LED lights for night work or underground mining.

Requires an external source of hydraulic power.



# MRS

## Mud Recycling System

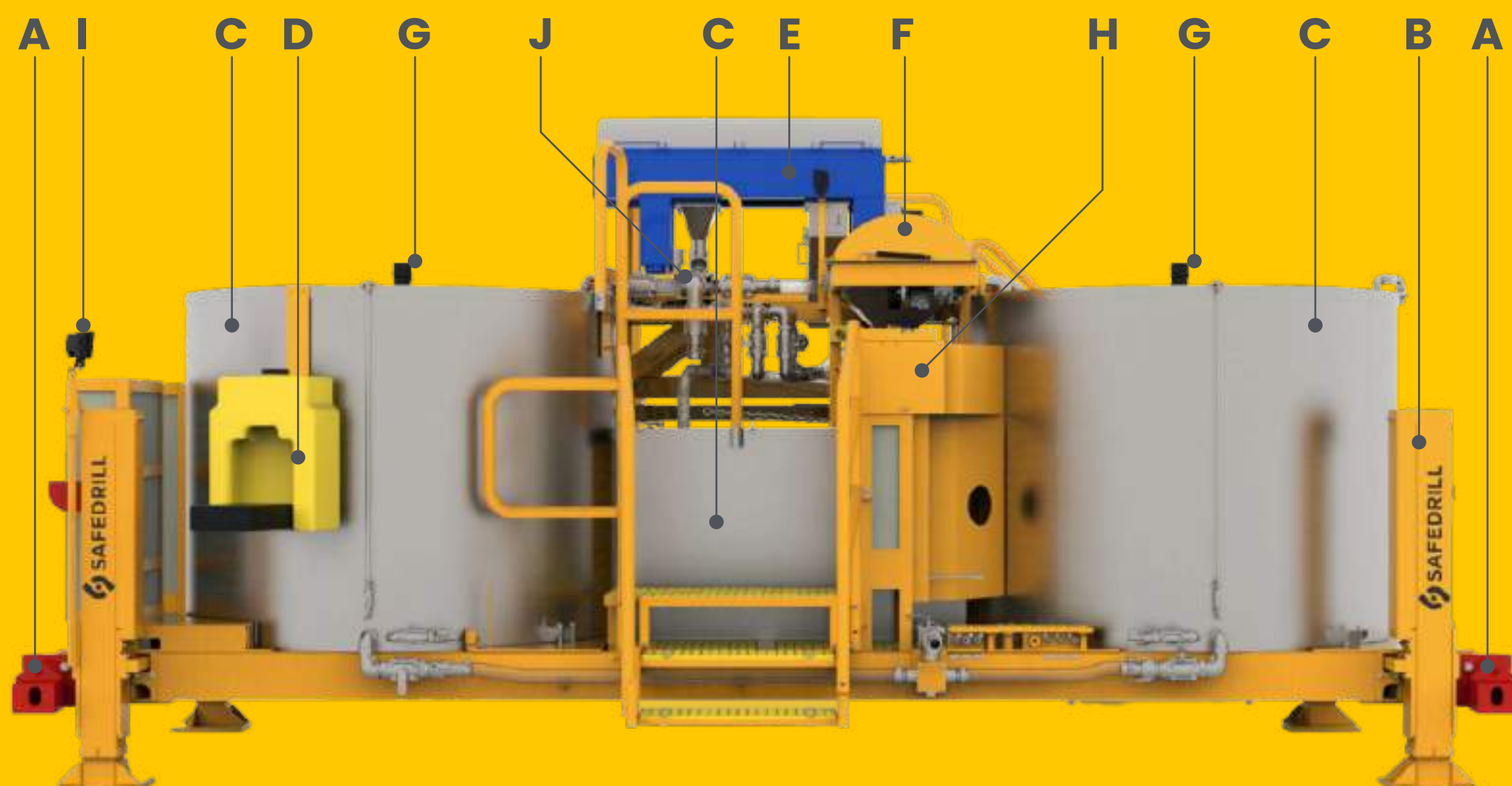
It allows to prepare, store, and recover the drilling mud in diamond drilling operations, saving drilling additives and recovering the water coming from the drilling well, replacing the settling pools that hinder the operation and contaminate the soil by percolation.

A comprehensive solution to the increase in restrictions on environmental matters and the scarcity of water resources.



# MRS

## Mud Recycling System



### Components

- A** Container corner locks
- B** R/C hydraulic jacks
- C** Stainless steel tanks
- D** Eyewasher
- E** Decanter centrifuge
- F** Aditive feeding booth
- G** Hydraulic agitators
- H** PVG command
- I** LED lights
- J** Stainless steel piping

### Specifications

<b>Length</b>	6.050mm
<b>Width</b>	2.438mm
<b>Height</b>	2.269mm
<b>Weight</b>	5.810kg
<b>Decanter weight</b>	650kg
<b>Decanter Capacity</b>	8" Stainless steel bowlñ 33-83 LPM
<b>Positioning Control</b>	R/C hydraulic jacks R/C or Manual from PVG.
<b>Mixer Motor</b>	Jet and agitating discs Hydraulic
<b>Tanks Storage capacity</b>	Stainless steel 4.000L (x2) + 1.600L - Total: 9.600L
<b>Electric system</b>	12/24V DC
<b>Hydraulic pressure Flow</b>	2.800 PSI 60-120LPM

This system is designed to prepare and recover mud for diamond drilling operations. Do not use this equipment to process drill mud from triconing, which can cause damage to the centrifugal unit and the rest of its components.

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