

SmartRacker Pipe Handling System

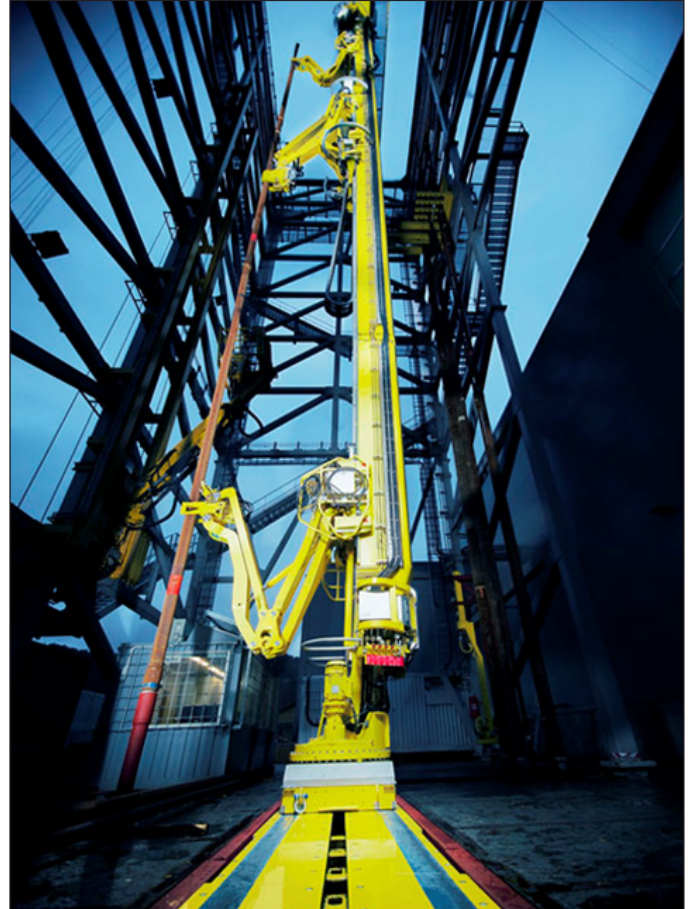
Cameron's SmartRacker™ triple and quad column rackers are advanced pipe handling systems for jackup rigs, semisubmersible rigs and drillships.

SmartRacker triple and quad column rackers perform all vertical pipe handling operations on the drillfloor, including racking stands, building stands in the mousehole, picking up singles from the catwalk, laying out singles to the catwalk and tripping in-and-out of the fingerboard. These systems are fully-automated with a robotic control system that controls and monitors all operations and protects the machine and rig from operator failure. The machine can be operated in auto-mode, semiautomatic mode, manual mode, override mode and emergency mode. With its unique gripper head design, the SmartRacker can handle all types of pipe, including production tubing, drillpipe, casing and spiral drill collar.

Using AC or hydraulic technology for all main functions, the SmartRacker is very accurate and reliable and easy and quick to operate. This efficient handling system is designed for the most demanding applications in an offshore environment. It is designed according to DNV and NORSOK regulations and is CE marked.

Main Features

- Versatile for handling of triple or quad stands, horizontal-to-vertical, as well as assistance in handling smaller bits, subs and objects
- Fully-automated functions with focus on extremely simple use
- All main functions driven by AC or hydraulic motors for improved performance and accuracy
- One gripper head handles all drillpipe, casing and drill collar from 3-1/2" to 14" (2-7/8" optional); no need to stop and wait to change heads
- Accurate soft stabbing function saves threads on drillpipes
- Works in concert with the SmartCat™ for horizontal-to-vertical operations; no need for overhead v-door machines
- Pickup elevator with fail-safe mechanical lock range from 2-7/8" to 14" pipe size
- Upper and lower guide arm adjustable vertically for different stand lengths
- Robust design with well-protected sensors
- User-friendly HMI with onscreen operator guidance



Safety Features

- Fail-safe design philosophy
- Fully-automated; all operations controlled from the drilling control room
- Monitoring and interlocks to avoid damage to machine or surroundings; smooth end stops
- Gripper arm lifted using dual lifting wire, dual winch motors and gears, as well as dual fail-safe winch brakes
- Dual design (upper trolley motor, gear and brake/lower trolley motor, gear and brake/column rotate motor, gear and brake)
- Low-maintenance design throughout using high-quality components and low-maintenance bearings
- Maintenance access at defined points
- Full integration with Zone Management System
- Fail-safe gripper head with accumulator to maintain pressure in case of hydraulic power loss

Technical Specifications	SR IV-P	SR IV-XY	SR III-P	SR III-XY
Racking arrangement	Parallel	X-Y	Parallel	X-Y
Stand	Quad	Quad	Triple	Triple
Tubular maximum length	135 ft	135 ft	96 ft	96 ft
Number of arms (guide/lift)	2/1	2/1	1/1	1/1
Guide arms vertical movement	Upper : 2.0 m Lower : 1.3 m	Upper : 2.0 m	Lower : 1.3 m	NA
Drive type (lift/turn/sideways)	AC	Hydraulic	AC	Hydraulic
Lifting capacity	15 tonnes	13.5 tonnes	10 tonnes	10 tonnes
Maximum reach	4.0 m	4.5 m	4.0 m	4.5 m
Rotation (degrees)	359	359	359	359
Gripper head tubular range	3-1/2" to 14"	3-1/2" to 9-1/2"	3-1/2" to 14"	3-1/2" to 9-1/2"
Pick up elevator tubular range	2-7/8" to 14"	2-7/8" to 9-1/2"	2-7/8" to 14"	2-7/8" to 9-1/2"

Scope of Supply	Options
AC- or hydraulic-driven triple or quad column racker composed of:	Rotatable soft stabbing arm
One flush-mounted rail in drillfloor	Pickup elevator hang-off in derrick
One AC- or hydraulic-driven lower drive trolley	Pickup elevator cradle on drillfloor
One lower guide arm	Auxiliary lifting tools for lifting objects other than pipes
One main column with AC- or hydraulic-driven winch	Low-temperature package for installation in conditions below -20° C
One main arm with gripper head and pickup elevator	High-temperature package for installation in conditions above 40° C
One upper AC- or hydraulic-driven trolley	Adapters for the handling of special objects
One upper supporting beam	2-7/8" tubing adapter for the gripper head
VFD cabinets for AC or hydraulic motors	Riser guide tool
SmartRacker control system	Extended reach up to 4.6 m
Emergency lowering and relocating system	Zone Management System