

# SmartRacker Pipe Handling System

## SR IV-P-AC

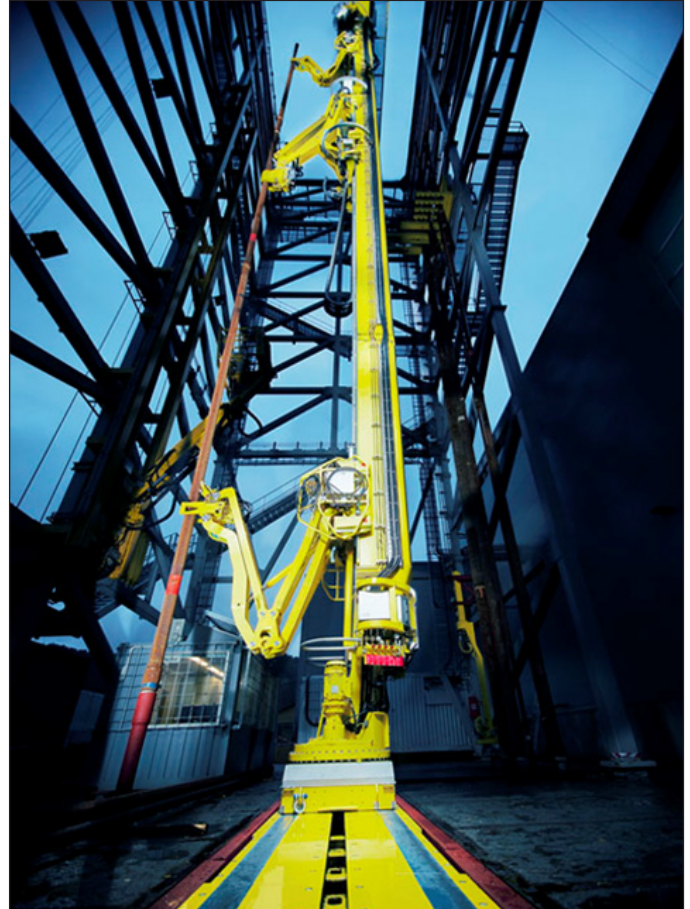
Cameron's SmartRacker™ IV-P quad column racker is an advanced pipe handling system for jackup rigs, semi-submersible rigs and drillships.

The SmartRacker IV-P quad column racker performs 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. The SmartRacker IV-P is 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, it can handle all types of pipe, including production tubing, drillpipe, casing and spiral drill collar.

Using AC technology for all main functions, the SmartRacker is 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 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 hydraulic motors for better performance and extreme accuracy
- One gripper head handles all drillpipe, casing and drill collar from 3-1/2" to 13-5/8" (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 13-5/8" pipe size
- Upper and lower guide arm adjustable vertically for different stand lengths
- Robust design with few well-protected sensors
- User-friendly HMI with onscreen operator guidance



### Safety Features

- Fail-safe design philosophy
- Fully-automated; all operations controlled from 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, 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	SI	Imperial (US)
Maximum lifting capacity	13.5 tonnes	15 tons
Vertical main arm travel	22.3 m	75.5 ft
Horizontal travel	14 m (to suit derrick size)	45' 11-1/4" (to suit derrick size)
Arm reach	4.0 m	13.1 ft
Gripper head pipe size range	88.9 mm to 346 mm	3-1/2" to 13-5/8"
Pickup elevator pipe size range	73 mm to 346 mm	2-7/8" to 13-5/8"
Column rotate angle	360 degrees	
Pipe length	0 to 10.4 m	0 to 34 ft
Stand length up to	41.15 m	135 ft
Temperature range	-20° C to 40° C	-4° F to 104° F
Total weight	62 tonnes	68 tons
Tripping speed	40 stands/hour	
Lifting speed	1 m/sec	3.28 ft/sec
Horizontal speed	0.5 m/sec	1.640 ft/sec
Column rotate speed	5 rpm	

Scope of Supply	Options
AC-driven quad column racker composed of:	Rotatable soft stabbing arm
One flush-mounted rail in drillfloor	Pickup elevator hang-off in derrick
One AC-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-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 guide arm	Adapters for the handling of special objects
One upper AC-driven trolley	2-7/8" tubing adapter for the gripper head
One upper supporting beam	Riser guide tool
VFD cabinets for AC motors	Extended reach up to 4.6 m
SmartRacker control system	Zone Management System
Emergency lowering and relocating system	

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