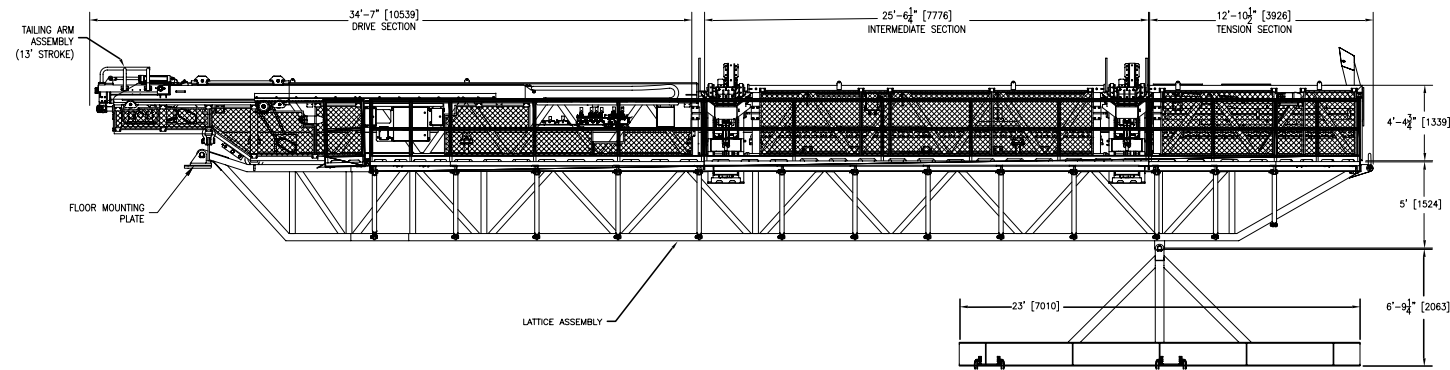


PTC-LD

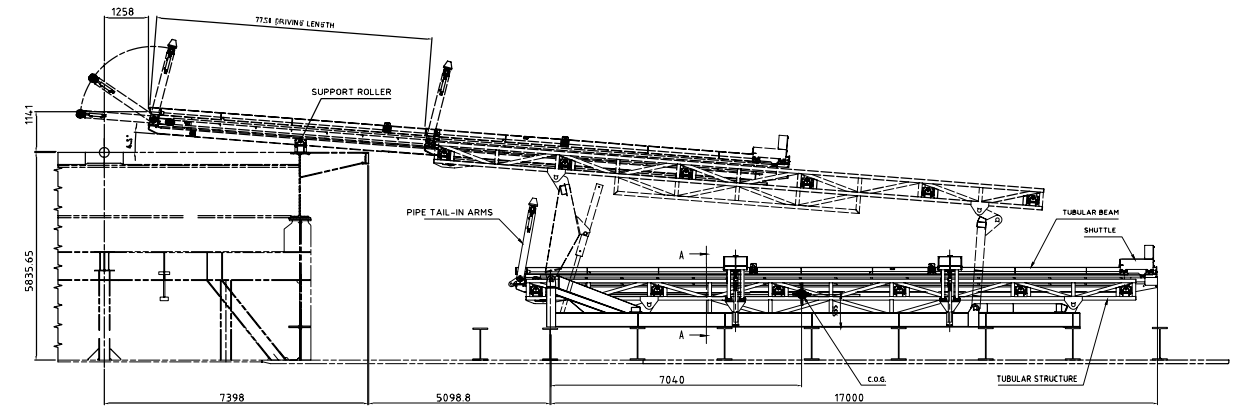


The Pipe Transfer Conveyor (PTC-LD) is a light duty conveyor with an attached Tailing Arm Assembly. The PTC transports drilling tubulars between their storage location on the main pipe deck and well-center without manual intervention from the rig crew. It can be remotely operated from the rigs main control cabin through integrated controls or operated locally from a local control station. The PTC has two main sections: Conveyor & Tailing Arm Assembly.

The control system processes all data from the operator controls to the PTC and all feedback from the tool. The processed data is used to control all tool functions and inform the operator of its operations and status. Local operator controls are provided on a PTC V-door control panel J-box. Hydraulic services to the PTC are directed by a hydraulic interface panel (HIP). Both components are installed on the derrick structure near the PTC.

Technical Specifications			
Service	Transport of tubulars and riser	Max weight allowed (lbs)	22,000
Tubular range	2 3/8" - 20"	Max weight on tailing arms (lbs)	50,000
Belt speed (ft/sec)	1.0 - 2.5	Hydraulic power required (psi)	2,500 - 3,000

TS-P

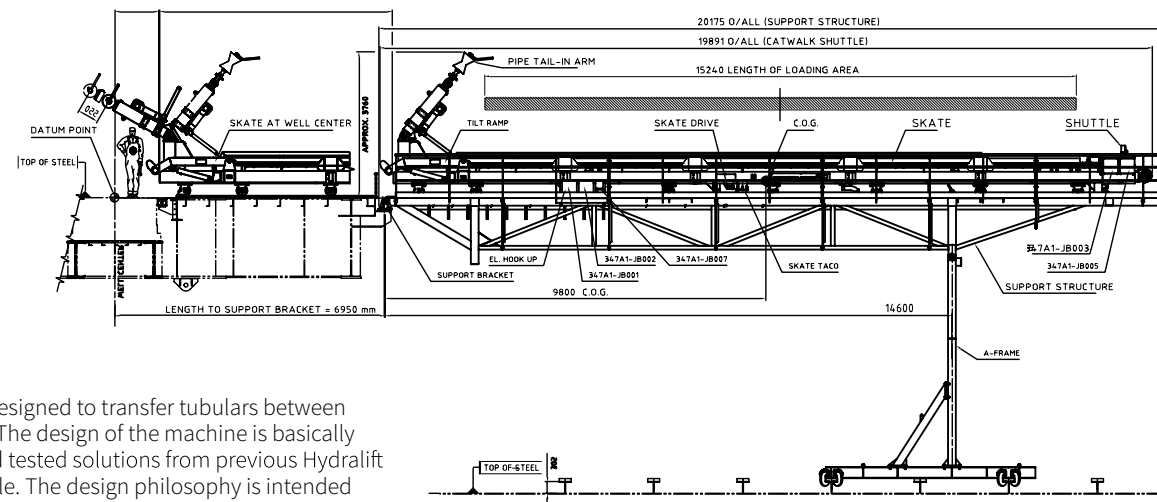


The Tubular Shuttle Machine (TS) is designed to transfer tubulars between the pipe-deck and the drill-floor. Tubulars can be removed from or landed onto the tubular beam using the elevator in combination with the front mounted Pipe Tail-in Arm. The design of the machine is basically very simple and utilizes tried and tested solutions. The design philosophy is intended to achieve minimum complexity, provide safe and reliable operation, and simplify maintenance requirements. It includes a modular

design for simple installation and replacement of component parts when needed. Installation is made easier due to generous tolerances and simple interfaces between modules.

Technical Specifications			
Service	Pipe and casing single	Maximum hydraulic flow rate (l/min)	220
Tubular range	2 7/8" - 20"	Minimum working pressure (barg.)	180
Design code / standard	F.E.M. / NS 3472	Maximum operating pressure (barg.)	210
Area classification	Safe area	Weight, dry (kg)	33,000
Design temperature	-20°C to +45°C	Skate traveling speed (m/s)	-
Operating temperature	-20°C to +45°C	Skate driving force (N)	-
SWL (kg)	20,500	Equipment shipment size (L x W x H) (mm)	32,800 x 3,760 x 2,800

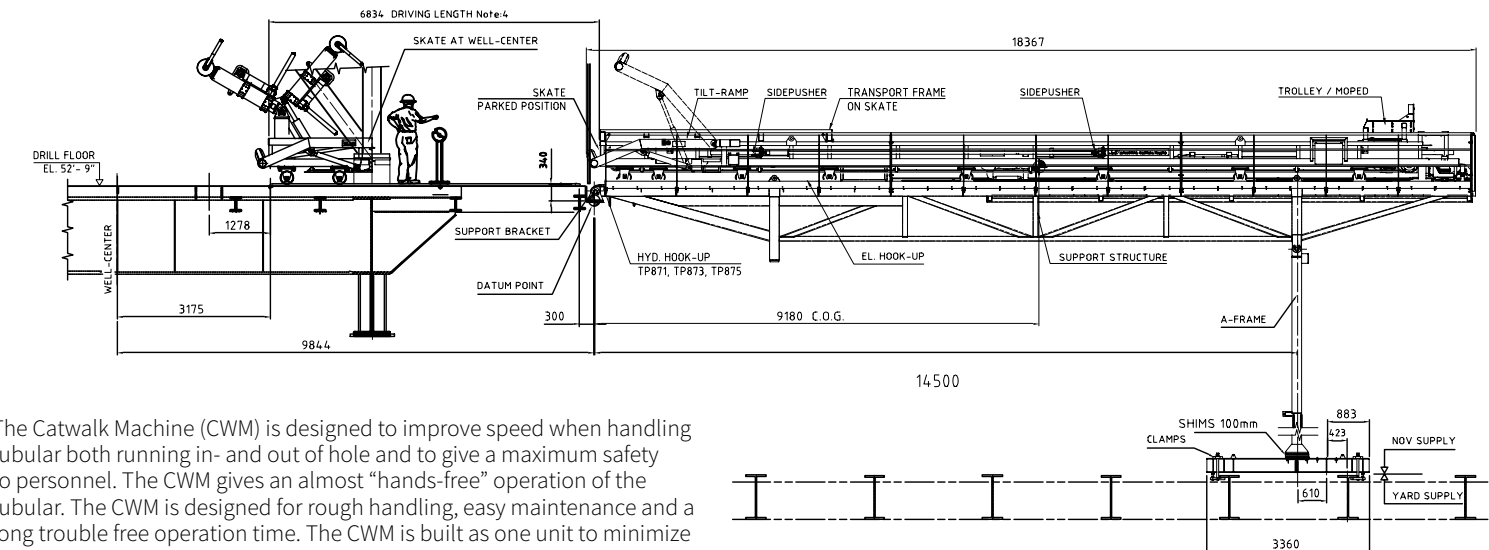
CWS



The tubular shuttle machine is designed to transfer tubulars between the pipe barn and the drill floor. The design of the machine is basically very simple and utilizes tried and tested solutions from previous Hydralift ASA equipment wherever possible. The design philosophy is intended to achieve minimum complexity, provide safe and reliable operation, and simplify maintenance requirements. It includes a modular design for simple installation and replacement of component parts when needed. Installation is made easier due to generous tolerances and simple interfaces between modules.

Technical Specifications			
Service	Transport of tubulars and riser	Maximum hydraulic flow rate (l/min)	240
Tubular range	2 7/8" - 30"	Minimum working pressure (barg.)	180
Design code / standard	F.E.M. "Rules for the design of Hoisting Appliances"	Maximum operating pressure (barg.)	207
Area classification	Zone 1	Weight, dry (kg)	40,500
Design temperature	-20°C to +45°C	Skate traveling speed (m/s)	0 - 0.4
Operating temperature	-10°C to +45°C	Skate driving force (N)	90,000
SWL (kg)	40,000	Equipment shipment size (L x W x H) (mm)	31,735 x 2,660 x 2,400

CWM



The Catwalk Machine (CWM) is designed to improve speed when handling tubular both running in- and out of hole and to give a maximum safety to personnel. The CWM gives an almost "hands-free" operation of the tubular. The CWM is designed for rough handling, easy maintenance and a long trouble free operation time. The CWM is built as one unit to minimize installation costs on the rig.

Technical Specifications			
Service	Pipe and casing single	Maximum hydraulic flow rate (l/min)	220
Tubular range	2 7/8" - 20"	Minimum working pressure (barg.)	180
Design code / standard	F.E.M. / NS 3472	Maximum operating pressure (barg.)	210
Area classification	Safe area	Weight, dry (kg)	33,000
Design temperature	-20°C to +45°C	Skate traveling speed (m/s)	-
Operating temperature	-20°C to +45°C	Skate driving force (N)	-
SWL (kg)	20,500	Equipment shipment size (L x W x H) (mm)	32,800 x 3,760 x 2,800