

# QUBO TL

## PORTAL CRANE WITH ADJUSTABLE HEIGHT BRIDGE



The portal is made by a main frame on which the diesel engine, the hydraulic power unit and the command console are placed.

### Hydraulic system

The hydraulic system of the machine is made by two separate circuits, fed by a single tank. One hydraulic system is dedicated to driving both the two crawlers and the four rail wheels, while the other is for the actuating cylinders and clamps. Both circuits are equipped with variable displacement pump. The machine is equipped with an emergency quick coupling system, to be used in case of engine failure.

### Drive control hydraulic system

The system driving the crawlers and the rail wheels is made of two separate circuits, each with variable displacement pump. Pumps are driven by the diesel engine, by means of a coupler, and are actuated by electro valve and emergency command. The QUBO driving operations can be commanded either by a operator on the ground (availing the remote control), or from the on board workstation.

### Hydraulic system for cylinders actuation

Hydraulic pumps feed the actuators via a control valve, by means of the actuating levers on the command panel (or by remote control). All cylinders are equipped with a safety valve, preventing eventual breakdowns of the system, or leaks from the hydraulic circuit hoses. When the hydraulic oil temperature reaches the predefined parameters (70° C), the pressure regulator automatically switches the electric valves of the heat exchanger on.

### Hydraulic sleeper beam

The QUBO TL can be equipped with a special hydraulic beam for handling 25 sleepers and laying them down to the ground, respecting the predefined spacing (e.g., 60 mm / 66 mm). Commands for the grab/hold and the for sleepers laying are handled by the same remote control used for managing QUBO TL.

Connections realised via safety couplings, as well as hydraulic and electric couplings, guarantee a fast and high safety application procedure.

### Different operations qubo can perform

- 1 - Pulling and laying down one set of long rails, from a wagon.
- 2 - Handling and laying down a bunch of 25 sleepers, by adding to QUBO the mechanical beam. One only unit of QUBO is required for this job, for which it can travel either by crawlers or by wheels.
- 3 - Handling and laying down long track panels or turnouts; replacing old track panels or turnouts. Due to the weight, two units are used (pair), synchronized.
- 4 - Laying down rails and sleepers, by adding the mechanical beam. In this case, two units are used, where one functions as a shuttle continuously feeding the rail wagons, the other just picking and laying. In this case, wheels are predominantly used on the shuttle one, while crawlers are used on the picking & laying unit.

### Technical data:

Overall width with retracted crawlers .....	3.208 mm
Overall width with extended crawlers .....	5.408 mm
Length .....	2.520 mm
Height .....	3.100 mm
Weight .....	16 t
Lifting Capacity .....	20 t
Pads width .....	360mm
Rail wheels, diameter .....	400 mm
Wheel base .....	2.400 mm
Speed on crawlers .....	5 Km/h
Speed on rail wheels .....	12 Km/h

**Diesel Engine:** N° of cylinders / Power ..... 4 Cyl. / 75 kw

**Emergency Diesel engine:** Power ..... 4,5 Kw

### Optional:

Synchronised commands of the portals, when operating in tandem, for both working and travelling phases.

## PORTAL CRANE

# T28/39T



The equipment can be supplied for any rail gauge type.

This portal has been developed for handling and laying railroad switches (turnouts), track panels, or sleepers.

The portal structure is made of sturdy electro welded steel.

The cabin, with its command panel, the engine and the hydraulic power unit are placed on the main body. The equipment is supplied with a button board for remote controlling all operating functions.

The vehicle can drive on crawlers or on rail wheels, and is totally independent during both the removal phase and the material laying phase, as well as when driving to the work site. When it has to be transported for long travels, the T28 portal can load/unload itself autonomously on wagon or semitrailer. Two vertical hydraulic columnss – instrumental to the portal lifting - allow the right and left crawlers positioning even on surfaces at differential levels, thus constantly maintaining an horizontal loading set up, and allowing a stable movement of the equipment.

The portal is also equipped with four vertical hydraulic cylinders, for standing on rail wheels, and with four hydraulic cylinders for lifting sleepers/ rails/track panels/switches.

The lifting system is adjustable on the horizontal plane on a range of +/- 5° and on the vertical plane on +/- 2° 30', in order to smoothly drive on rough and uneven terrain. The equipment avails an artificial horizon in order to automatically maintain the load in horizontal position, even when the portal is on a uphill or downhill path. Horizontal hydraulic cylinders for crawler open/close operations, and for managing the frame, which handles the load, are provided as well.

### Longitudinal rail road switch launch:

The T28 portal removes the old rail road switches and launches the new ones, moving along the rail track, according to the following steps:

- It lifts and loads of the new rail road switch on the Colmar/Ameca A25 / A35 trolleys, and tow it to the lay area.
- It sets the T28 on the old rail road switch, hooks it by means of the clamps, and removes it from its position. Afterwards, it lifts, moves and launches the new rail road switch.
- Finally, the T28 portal loads the old rail road switch on the Colmar/Ameca A25 and A35 trolleys to move it outside the work area.

### Lateral rail road switch launch:

The T28 portal removes the old rail road switch and sets the new one at the correct angle with respect to the axis of the track. By standing on the four rail wheels, the portal lifts itself up by means of the four vertical hydraulic columns. It then moves to the side, either LH or RH, one of the horizontal beams, for example the one on the RH side, with its crawler upraised, while the vertical column on the other side, LH, keeps its crawler to the ground. Subsequently, it lowers the RH side crawler to the ground, and moves the central body in the same direction, in order to lift and remove the old rail road switch. Finally, it will perform the same operations to launch the new rail road switch.

**Track panels laying down:** The T28 portal lifts and removes the old track panels and lays the new ones down.

**Sleepers laying down:** By means of an hydraulic or mechanical sleepers beam, the T28 moves and lays up to 60 concrete sleepers down.

### Technical data:

Overall width with retracted crawlers .....	3.130 mm
Overall width with extended crawlers .....	7.180 mm
Length .....	11.000 - 13.550 mm
Height .....	3.190 mm (min) - 4.915 mm (max)
Weight .....	32,5 t
Lifting Capacity .....	39 ton (78 ton when in tandem)
Horizontal plane range of the lifting beam .....	+/- 5°
Vertical plane oscillation of the lifting beam .....	+/- 2° 30'
Across centreline distance between clamps .....	1.500 mm
Longitudinal centreline distance between clamps ....	10.000 – 12.600 mm
Crawlers overall width .....	360mm
Rail wheels, diameter .....	400 mm
Wheel base .....	2.800 mm
Speed .....	On crawlers: 5 Km/h - On rail wheels: 11 Km/h
Diesel Engine .....	N° of cylinders: 4 - Power: 129 kw
Emergency Diesel engine .....	N° of cylinders: 2 - Power: 12,5 Kw

**Optional:** Synchronised commands of the portals, when operating in tandem, for both working and travelling phases.