



TANK HOUSE CRANE FOR BABAK COPPER CO. IRAN

PROJECT DATA

Year of manufacture	2014
Customer name	Babak Copper Co.
Plant location	Babak, (Kerman) Iran, 2100 asl
<i>Duty Cycle</i>	
Hours per Day	2x8 hr shifts (2x7 effective hr)
Days per week	5 (capable of 7)
Days per year	260 (capable of 365)
<i>Ambient Conditions</i>	
Environnement	corrosive H ₂ SO ₄ acid mist
<i>Operation Requirement</i>	
Refinery capacity	50,000 mtpy
Electrodes to be processed by THC	20 electrodes per pull
<i>Electrolytic Cells</i>	
Operation	24 hr/day-365 days/year
No. of cells	152
No. cathodes per cell	60
No. anodes per cell	61
Centre to centre anodes/cathodes	100 mm



THC Main Characteristics

Span	17.830 mm
FEM	A8 U9 Q4
Max deflection	Span/1600
<i>Bridge long travel</i>	
Power	2x7,5 kW
Speed	0-90 m/min
IP and type of brake	IP 65 EH integrated
<i>Trolley travel</i>	
Power	2x2,2 kW
Speed	0-40 m/min
<i>Main winch</i>	
Lifting capacity	12.000 kg
Power	30 kW
Lifting speed	0-12 m/min
IP and type of brake	IP 65 EH
<i>Service Winch</i>	
Capacity	3200 kg
Hydraulic powerpack	7,5 kW IP 65

Winch travel control	VFD
Control panels on board	Nema 4x
<i>Bale characteristics</i>	
Lifting capacity	20 electrodes
Selection system	1 every three
Type of hooks	fail safe type
Bales movements	hydraulic
centring system	pyramids on cells
Bale centering tolerance	± 2-3mm
Combs for electrodes	2
Drip tray	yes
<i>Control & automation</i>	
Remote control unit	2
Pendant	1
Missions programming	yes
Operating mode	manual
	semiautomatic



THC specifically designed for the application and for the environmental conditions. All metal parts with special coating, total thickness 300µm. Parts not coated or in contact with electrolytic solution in AISI 316L. Air conditioned with positive pressurized electrical cabinet (no contaminated air gets inside the cabinets). Electrical cabinets made in stainless steel. All electric motors are IP 65 and self-ventilated. Positioning control based on a double laser and encoder; positioning tolerance within $\pm 2 \div 3$ mm. The bale is stable due to 4 suspension points and guiding rods matched on female units located under the trolley. Bale complete of guiding portals and combs therefore when removing and inserting electrodes no short circuits due to electrodes swinging. Self-locking type hooks and drip tray hydraulically operated. Bale fully insulated from the THC. Two different control systems: manual and semiautomatic. Operator pulpit for THC control and for loading missions queues to be carried out in semiautomatic mode under the supervision of the operator. Possibility to enhance the system to a full automatic transmission and for having a complete communication with plant DCS. The Automatic system of the THC machine is based on the use of certified «Failsafe» components. The «Failsafe» logic permits to



insert and manage all the safety logics inside the PLC software code without the necessity to install any other HW or SW logics. The use of Wi-Fi «failsafe» communication permits to simplify the communication between the automation system on board of the THC and all the other components and equipment placed at the ground level. Using this system the THC comply with a safety level SIL3.