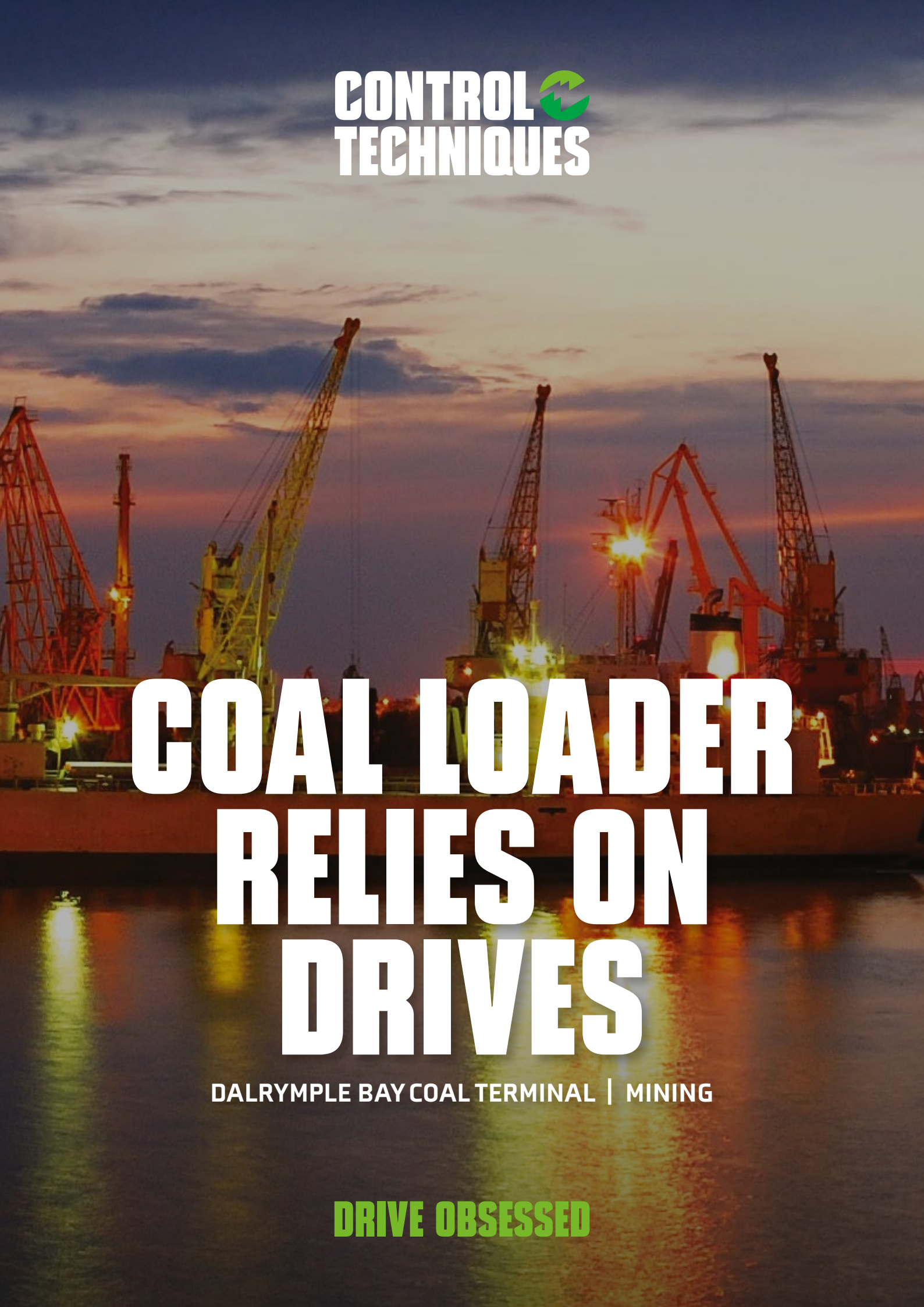

CONTROL TECHNIQUES

COAL LOADER RELIES ON DRIVES

DALRYMPLE BAY COAL TERMINAL | MINING

DRIVE OBSESSED

COAL IMPORTS = APPROX. 5.5K TONNES/HR

A new shiploader at Dalrymple Bay Coal Terminal at Hay Point port in Queensland has been fitted with Unidrive AC drives. Between 15 and 18 trains are unloaded at the coal terminal daily (approximately 5,500 tonnes per hour) for export, the terminal also serves 14 mines in Queensland.

The Challenge

The expansion added a new berth and shiploader to the existing 2 berths/2 shiploader combination.

The 7,200 tonne per hour shiploader travels alongside a berthed ship on rails on a 200-metre wharf. Reach across the holds is provided by a shuttling head on the boom to ensure even loading and a telescoping loading chute minimises dust generation. The chute directs coal 360° around the hold to make sure the hatch is fully and evenly loaded.

The Benefit

"Despite the size of the coal loader, space for drives cubicles was limited," Ananda Sebastian, Managing Director of Control Techniques Australia Pty in Sydney said.

"The client was pleased with our solution based on Unidrive AC drives, and drives and switchgear were mounted back-to-back in specially designed compact cubicles. We had to commission the drives for the boom before it left the dock in the Brisbane River so that the boom could be lowered to pass under the Gateway bridge. Once installed at Dalrymple Bay, we completed the final commissioning, which was completed very quickly to the client's full satisfaction."

The Solution

Control Techniques Australia was awarded the contract by Clough Downer JV and designed a scheme where all drives communicate with a PLC via DeviceNet, with encoder feedback giving closed loop motor control, and additional on-board processing.

The telescopic chute winch features two 55kW Unidrives, one for position control, one in regenerative mode, to feed power back to the supply during braking. The boom luffing winch is a 500kW regenerative system, with three Unidrives power sharing and a further three in regenerative mode.

Travel along the berth is powered by 28 motors controlled in synchronism by four 160kW Unidrives with four further units giving power regeneration. Using feedback from the drives' software via DeviceNet, the PLC controls the reeling of the cable and hose reels to maintain a constant feed angle on the cable and hose whether reeling in or paying out.

Compact drives

Encoder feedback

On-board processing

Local support