

# SP650 AC

## HIGH SPEED POWER FLYING HOIST



### DESCRIPTION

The Jands SP650 AC Hoist is an economical motorised grooved drum steel wire rope hoist designed for use in power flying systems where high speed and a moderate lifting capacity is required.

Sustained (S3 duty cycle) lifting speeds of 0.6m/s with a hoist payload of 500kg and 0.45m/s with a hoist payload of 650kg can easily be achieved with the powerful 3kW AC motor.

An integral open loop electronic inverter, Emergency Stop and brake control contactors, combine to give the SP650 AC hoist precise control of loads and the highest levels of safety.

A proprietary programmable electronic controller manages motor, rope fault, limit, braking and positioning functions, and connects to a range of remote control surfaces via standard Ethernet cabling.

A direct coupled 4 pole rotary limit switch provides "hard" end-of-travel limits and emergency over-travel limits, and an optional 6 pole rotary limit provides the dual redundant over-travel limits required in the application of higher category safety systems.

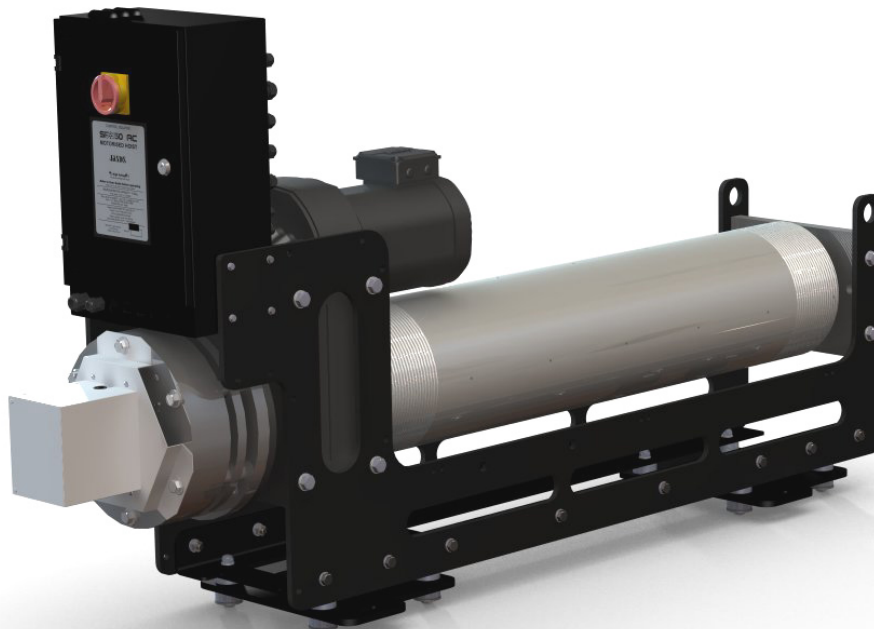
A self-monitoring fail-safe conductive bar detector is connected to the on board controller and terminals are provided for the connection of an external slack wire detector and load cell, providing comprehensive management of overloads, slack wire and crossed wire faults.

The Mayr "Silenzio" failsafe dual disc brakes, a 2:1 gearbox service factor and 10:1 wire rope safety factor all combine to give the SP650 AC hoist the very highest level of safety compliance.

Jands SP650 AC Hoists are designed to meet the safety factor and braking requirements of German safety regulation BGV-C1, and are designed, built and tested to comply with the requirements for a serial hoist to AS1418.

### OVERALL SPECIFICATIONS

Hoist classification	:	M3 to AS1418
Hoist type	:	Motorised grooved drum
Drum diameter	:	265mm (nominal)
Max. lift capacity	:	650kg
Max. lift speed (S3 duty cycle)	:	
600kg payload	:	0.5m/s
500kg payload	:	0.6m/s
Min. lift speed (S3 duty cycle)	:	
650kg payload	:	0.2m/s
400kg payload	:	0.2m/s
Number of ropes	:	6
SWR capacity	:	20m per rope
SWR type	:	6mm 6x19FC 17kN MBS
SWR safety factor	:	10:1
Encoder type	:	Incremental 500ppr
Motor	:	
Type	:	Asynchronous AC 4 pole
Power	:	3kW
Speed (nominal)	:	1400 rpm
Speed (maximum)	:	1800 rpm
Speed (minimum)	:	360 rpm
Braking system	:	Mayr Silenzio dual disc
Limit switch	:	
Standard	:	4 pole Stromag rotary cam
Optional	:	6 pole Stromag rotary cam
Gearbox	:	
Type	:	2 stage parallel helical
Ratio (i)	:	56.75:1
Service factor (fB <sub>2</sub> )	:	3
Max torque (Ma <sub>2</sub> )	:	2400Nm
<b>Electrical Requirements</b>	:	
Supply voltage	:	230/400V 3PNE
Supply current	:	15A



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Jands Pty Ltd 40 Kent Road Mascot NSW 2020 Australia  
Phone +61 2 9582 0909 Fax +61 2 9582 0999 www.jands.com.au

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### ARCHITECT & ENGINEER'S SPECIFICATION

#### Mechanical

The motorised hoist shall consist of a 265mm diameter grooved steel drum, designed to accommodate up to six (6) steel cored (7 x 19) or fibre cored (6 x 19) 6mm steel wire ropes of 20m length with dead turns to AS1418.

The grooved drum shall be fitted with machined and keyed drive shafts, welded to plates that are welded to shoulders bored into the ends of the grooved drum.

One shaft of the grooved drum shall be fitted to a solid steel machined bearing plate, with a sealed for life self aligning bearing. The other shaft of the grooved drum shall be fitted through the keyed hollow shaft output of a 2 stage parallel helical gear reducer.

The gear reducer and bearing plate shall be contained within a pair of profile cut steel plates of not less than 12mm thickness, cut to sufficiently close tolerance as to cause the drum, bearing and gearbox to self-align when fixing bolts are tightened, without the need for shims, packers or adjusting bolts.

Acoustic decoupling mounts shall be provided to minimise mechanical transmission of noise.

A gearbox service factor ( $fB_2$ ) of at least 2.0 shall be achieved and dual, redundant failsafe motor input brakes shall be fitted, with each brake having a dynamic braking capacity of 200% WLL.

Gearbox ratio shall be such that a speed of 0.6m/sec can be achieved at WLL, and a speed of 1.0m/sec can be achieved without exceeding 160% of motor nominal speed at 50Hz.

A conductive bar type crossed groove detector shall be fitted to the hoist.

The motorised hoist shall be designed to meet the transmission and rope factor of safety requirements of German safety regulation BGV-C1, and shall be designed, tested and built as a serial hoist in accordance to AS1418

The motorised hoist shall be the Jands SP650-AC

#### Electrical

The motorised hoist shall be powered by a 4.0kW, 4 pole AC asynchronous motor, driven from an integral electronic inverter drive with a capacity of 4.0kW.

The hoist shall be powered from a three phase, 400V 50Hz 15A supply and shall be fitted with a captive flexible supply cord fitted with a 5 pin plug to AS3123

A 4 pole rotary limit switch, directly coupled to the gearbox output shaft and complying with EN954-1, shall provide both service (end of travel) and ultimate (over-travel) limit functions to AS1418.1:2002.

The limit switch assembly shall be fitted with a quadrature type incremental encoder which provides tachometer and position signals to an on board programmable control module.

The programmable electronic control module shall manage safety inputs (cross-groove detector, slack wire detector, load cell, limit switches, isolator) and encoder signals, shall monitor braking and emergency stop contactors, and shall directly control the on board electronic inverter movement and speed functions.

Normal acceleration and deceleration time of loads via the inverter shall be selectable between 0.5sec and 2 sec. Emergency Stop deceleration shall be 0.3sec.

The motorised hoist shall be fitted with a lockable "Drive Off" type control isolator.

Control connection to the hoist shall be via an 8 wire connection available at an RJ45 socket on the hoist. This connection shall carry ELV power, Emergency Stop & Enable loops and serial data.

Basic control via direct control of the inverter shall be available at a D25 connector on the hoist.

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