Creating an EN17206 compliant system for fixed-speed hoists

kinesys
A TAIT Company

Introduction

Deploying a DigiHoist controller and Libra load cells to create an EN17206 compliant system for fixed speed hoists.

As requirements for EN17206 compliant systems increase around the world, many fixed-speed systems would not meet the requirements of this standard. However, a budget-sensitive and compliant rigging option can be achieved by deploying a combination of a Kinesys Digihoist controller, encoders, and Libra load cells where load and position data can be used to stop motion prior to overload.

For rigging applications using variable speed hoists, Apex offers a straightforward and EN17206-compliant system.

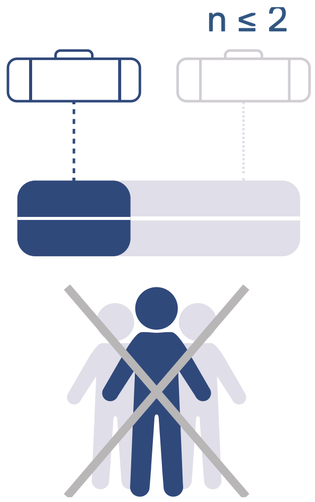
HARA (Hazard Analysis & Risk Assessment)

It has always been the case that a HARA will determine the suitability of equipment for an application. EN17206 provides additional guidance on the required safety functions for a given application.

Applicable EN17206 “Use Cases” for DigiHoist systems

UC 1

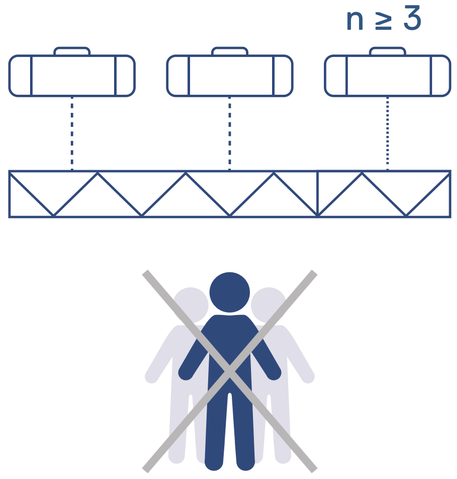
Statically Determinate
≤ 0.2m/s



No-one in the hazard zone during motion

UC 2

Statically Indeterminate



No-one in the hazard zone during motion

Note

Position encoders are recommended for applications with multiple hoists, where synchronized lifting is required (see page 6)

SD – Statically determinate load system

In statically determinate load systems all loads and reactions (applied loads of the individual axes and therefore of the suspension points) are known.

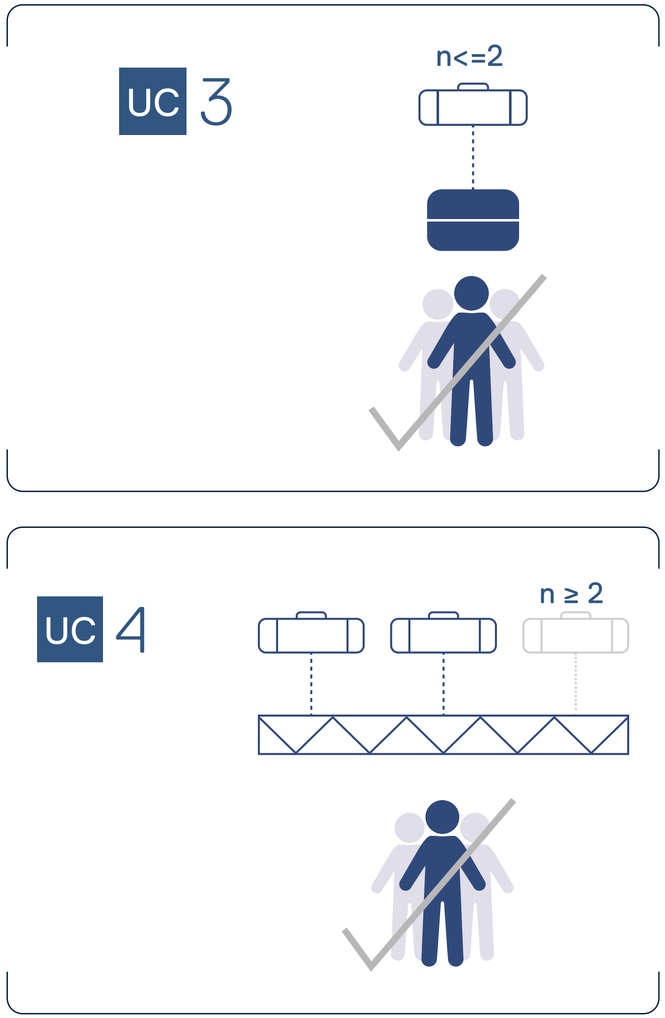
Examples of statically determinate load systems include:

a) loads on individual axes (point load);
b) distributed loads on two axes.

SI – Statically indeterminate load systems

In statically indeterminate load systems the reactions (applied loads of the individual axes and therefore of the suspension points) cannot be fully determined without measurement using dynamometers or loads cells.

Not applicable EN17206 “Use Cases” for DigiHoist systems



Why not?

No protection against position deviation
No protection against speed deviation
No protection against over speed
No protection against brake failure

The variability of speed* means precise synchronization is difficult to achieve, so fixed speed hoists are not suitable for show moves in many cases, but may be acceptable for some applications, e.g. flying a gauze.

* Fixed speed hoists will generally run at speeds within 2% of each other, but at worst case can run at 5% different speeds

EN17206 compliant fixed speed system: overview of components required

Kinesys Digihoist Controller

Note: for multiple hoists the HARA may determine that position encoders are required, in which case the upgrade module must be fitted (see next page).

Kinesys Libra

Up to 8 Libra load cells may be connected in a daisy-chain to the Digihoist, or a Libra Hub may be used to make cabling easier.

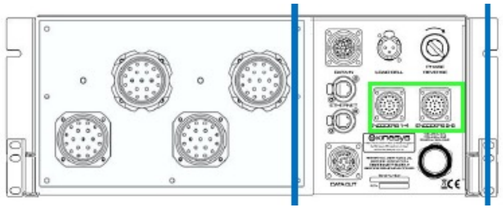
EN 17206 rated hoist (D8+)

Note: limit switches must be fully commissioned.

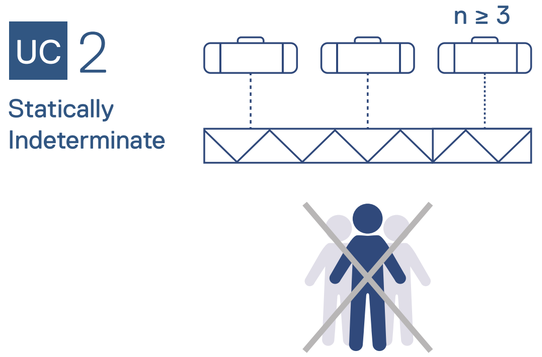
HARA process that encompasses the requirements on EN 17206

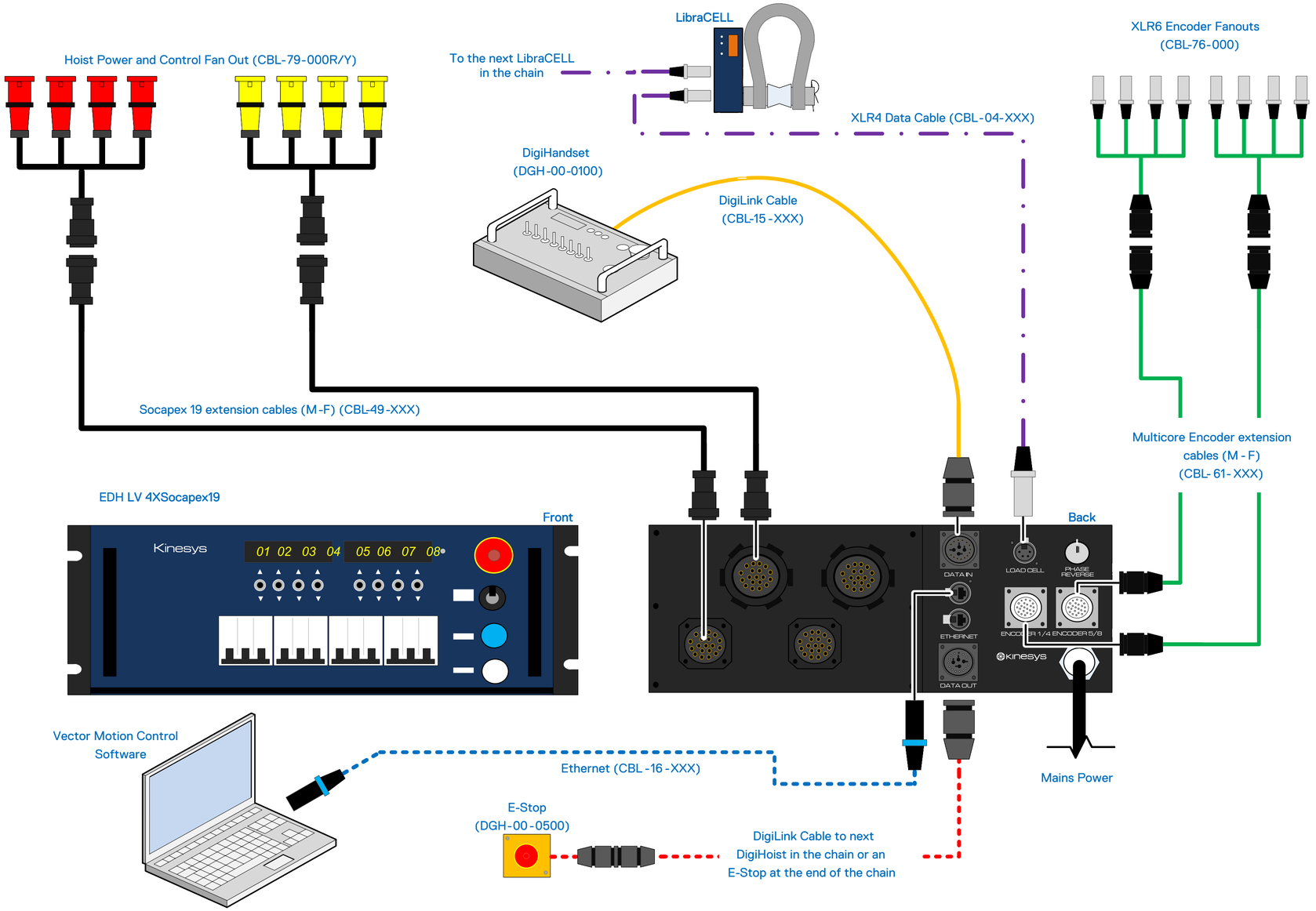
Special considerations for multiple hoists (UC2)

- Position encoders are recommended for applications with multiple hoists, where synchronized lifting is required.
- The Digihoist controller(s) will require the Ethernet and Positioning upgrade.
- When lifting complex loads with multiple hoists it may be necessary to break the lift down into smaller sections to avoid overloading individual hoists. e.g. instead of lifting from 0m to 10m, lift to 2m, then level off, lift to 4m and level off etc.



Digihoist rear panel showing encoder connectors
(Available with optional upgrade only).




LibraCELL
To the next LibraCELL in the chain
XLR6 Encoder Fanouts (CBL-76-000)
Hoist Power and Control Fan Out (CBL-79-000R/Y)
XLR4 Data Cable (CBL-04-XXX)
DigiHandset (DGH-00-0100)
DigiLink Cable (CBL-15-XXX)
Socapex 19 extension cables (M-F) (CBL-49-XXX)
Multicore Encoder extension cables (M-F) (CBL-61-XXX)
EDH LV 4XSocapex19
Front
Back
Kinesys
01 02 03 04 05 06 07 08
DATA IN
LOAD CELL
PHASE REVERSE
ETHERNET
ENCODER 1/4
ENCODER 5/8
DATA OUT
Vector Motion Control Software
Ethernet (CBL-16-XXX)
Mains Power
E-Stop (DGH-00-0500)
DigiLink Cable to next DigiHoist in the chain or an E-Stop at the end of the chain
XXX on a cable part number denotes the cable length = CBL -15-015 = 15m

Summary

Kinesys Digihoist and Libra provide a cost-effective option for fixed-speed chain hoist systems to enable EN17206 compliance.

Looking for more information on this topic, or guidance on what this means for you and your projects?

Please get in touch with our support or technical-sales team.

sales@kinesys.com

Contact Kinesys

Telephone
UK +44 (0) 20 8481 9850
USA +1 (844) KINESYS

Sales
sales@kinesys.com

Support
support@kinesys.com

Web
www.kinesys.com

Facebook: Kinesys
Twitter: @kinesysprojects
LinkedIn: Kinesys
Instagram: @kinesysprojects

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