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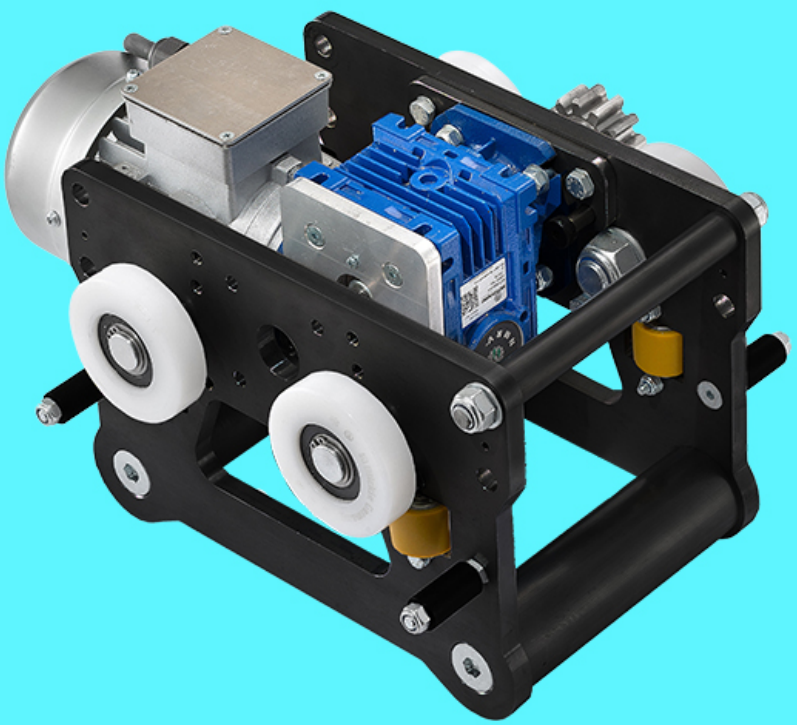
Kinesys Elevation Beam Trolley DST

Operating & Maintenance Manual
[ORIGINAL]

A beam trolley and rotator system controlled by Elevation



TAIT accepts no liability for any consequences resulting from inappropriate, negligent, or incorrect use of the equipment.

The contents of this manual are believed to be correct at the time of printing. In a commitment to a policy of continuous development and improvement, TAIT reserves the right to change the specification of the product or its performance, or the contents of this manual, without notice.

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1. Introduction

1.1 Product description

The Kinesys Elevation Beam Trolley DST system can be used in a variety of applications to move, lift and rotate loads.

The system consists of a stacking truss, available with either straight or curved double tracks, and a modular trolley system consisting of primary, secondary and rotation trolleys. The modular trolleys and stackable trusses provide a versatile system that can be easily assembled prior to rigging activities. The modules connect to the Kinesys Elevation system, via adapters and couplings, allowing variable speeds to be used.

An optional wheeled dolly is available, which can be used to transport the truss to and from the stage. This folds upwards without the need to be stored separately while the system is suspended in the rig.

1.2 Scope and purpose

This manual describes the key features, means of operation and maintenance operations of the Elevation Beam Trolley DST system.

The equipment described in this manual may only be operated by personnel qualified to do so. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with this and associated equipment.

1.3 Support requests

For support, please use the following contact details:

support@taittowers.com
Tel: +44(0) 20 8481 9850

To resolve your support request as quickly as possible, please provide the following information, if available, when contacting Kinesys:

- Site name, address, machine location details and your contact details.
- As much detail as possible on the behaviour observed, including any unusual changes in behaviour that are different from normal operation and any environmental conditions that may be a factor (e.g. fluctuations in temperature and water damage).
- Details on the behaviour that should have been expected.
- The exact steps required that produce the issue.
- Any solutions to fix the issue that you have already tried.
- Any workarounds that you've found.
- Equipment item numbers and serial numbers, such as those displayed on the identification plates/labels.
- Version numbers of any software being used.
- Any screen shots, photographs or videos of the issue.

2. Safety information

The following symbols are used to indicate specific items which require special attention by the user:

	**Warning: Instructions which relate to safety**
	**Warning: Instructions which relate to safety where there is a particular risk of electric shock**
	**Warning: Instructions which relate to safety where there is a particular overhead risk**
	**Danger: Prohibited actions which are forbidden under all circumstances**
	**Additional important information**

2.1 Safety regulations

The following regulations serve as the basis for assembly, installation, certification and maintenance of automation equipment within the area of the European community. For countries other than those mentioned, local legislation and directives may apply in addition to or in place of the European regulations as stated in this manual.

The manufacturer's guarantee depends on the consideration of these regulations and the operating instructions.

European regulations

2006/42/EC	EC - Machinery Directive
2014/30/EU	EC - Directive relating to electromagnetic compatibility
2014/35/EU	EC - Electrical equipment designed for use within certain voltage limits

Harmonized regulations

EN ISO 12100	Safety of machinery. General principles for design. Risk assessment and risk reduction.
EN 60204-1	Safety of machinery. Electrical equipment of machines. General requirements
EN 349	Safety of machinery. Minimum gaps to avoid crushing parts of the human body

Regulations and technical specifications

FEM 9.511:1986	Rules for the design of series lifting equipment; Classification of mechanisms
FEM 9.683:1995	Series lifting equipment; Selection of hoisting and travelling motors
FEM 9.755:1993	Serial hoist units; Measures for achieving safe working periods

2.2 Safety warnings

IF IN DOUBT ABOUT ANY ASPECT OF MOVING OBJECTS, ALWAYS SEEK PROFESSIONAL ADVICE BEFORE OPERATION.

Make sure this Operating & Maintenance Manual is always kept in a complete and fully readable condition and that it is always accessible to all operators of the equipment.

Prohibitions of operation

- **Do not install the Elevation Beam Trolley DST or do maintenance to the Elevation Beam Trolley DST in an area that is accessible to children or other unqualified persons.**
- **Do not use the Elevation Beam Trolley DST in an aggressive environment. An aggressive environment is defined as an environment which contains hazardous substances that may degrade the load bearing capacity of the lifting equipment.**
- **Do not use the Elevation Beam Trolley DSTsystem in outdoor environments.**
- **Do not use the Elevation Beam Trolley DST system if any components do not appear to be in 100% working order.**
- **Do not modify the Elevation Beam Trolley DST components in any way unless explicitly advised by the manufacturer.**
- **Do not use the Elevation Beam Trolley DST system for the transportation of people.**

Safety precautions before operation

- **Do a full risk assessment of the location where the Elevation Beam Trolley DST system and its connected devices are intended to be used.**
- **If used in rigging, the Elevation Beam Trolley DSTsystem and its connected lifting device must be attached from suitable scaffolds, approved working platforms, or similar safe working positions. Make sure a qualified rigging specialist has assessed that the structure where the Elevation Beam Trolley DST system and attached loads are installed can safely support the combined weight of the equipment.**
- **Do not start movement operations until a qualified person has inspected the Elevation Beam Trolley DST system and all other connected equipment, and confirmed that is in 100% working order.**
- **Software-independent means of stopping movement must be provided, including a hardware emergency stop system that is compliant with all local regulations.**
- **Make sure all machine stop buttons, emergency stop buttons and enabling switches in the system have been tested and are functioning correctly.**
- **Make sure all operators know the locations of the machine stop buttons, emergency stop buttons and enabling switches in the system.**
- **Make sure all attached loads are unobstructed and will not come into contact with**

other static or moving objects during movement.

- **Make sure all attached loads are always visible to the operator where possible. If this is not possible, make sure the operator has reliable communication with a person who can clearly see the attached loads.**
- **Make sure all persons in the hazard zone underneath the lifting equipment are aware of the potential for movement.**

Safety instructions during operation

- **If you notice any unexpected or dangerous movement during operation, press the machine stop button to bring all movement to an immediate stop. Note that not all stop buttons in the system necessarily stop the movement an individual lifting device. Alternatively, if an enabling switch is used in the system, then release the enabling switch.**
- **If an enabling switch is used in your system to initiate movement of the connected lifting device, be aware that releasing it may cause movement to stop unexpectedly.**
- **After a stop button has been pressed, the reason for its actuation must be found, and all possible failures in the system removed by trained personnel. The stop button must then be reset before continuing operation. Note that the stop button reset procedure may be different for different devices - refer to individual product manuals for more details.**

Safety instructions during maintenance

- **Maintenance and repairs to the Elevation Beam Trolley DST system must only be carried out be competent and trained personnel.**
- **Only use original Kinesys parts when replacing components, including all fixings such as nuts, washers and screws.**
- **Always disconnect the power and remove the load when carrying out maintenance procedures.**
- **Make sure the maintenance area is secure before carrying out maintenance work.**

2.3 Visible damages

If any damage or breakages are detected during operation or during tests, do not operate the Elevation Beam Trolley DST system until it has been repaired and a qualified person has checked and approved it.

2.4 Spare parts

Only original fixing components, spare parts, and accessories listed in manufacturer's spare parts catalogue are acceptable for use. The manufacturer's guarantee is given for those spare parts only. The manufacturer cannot be held responsible for any damages due to the use of non-original parts or accessories.

2.5 Handling and storage

Condensation

The Elevation Beam Trolley DST system is designed for indoor use only. If the product has been exposed to temperature fluctuations, for example during transport, there may be risk of condensation which may result in damage. Do not connect the Elevation Beam Trolley DST system to a power source immediately. Leave the unit disconnected until the it has reached a safe temperature.

Shocks

Do not shake, knock or drop the trusses, modules or other accessories and avoid excessive force when installing and operating the product.

Handling

Do not lift the modules by any of their cables or connectors as this may cause damage to the unit.

Packaging

Where possible, use the original packaging to transport the Elevation Beam Trolley DSTcomponents. Alternatively, a purpose- made flight case should be used (available separately).

3. Product overview

The system is available with various options of trusses, modules and accessories, based on individual customer requirements. In most cases, the manufacturer will pre-assemble the system ready to be attached to the rig and used straight away. However, customers may wish to add trusses and modules to their existing system once purchased.

3.1 Truss options

3.1.1 Straight trusses

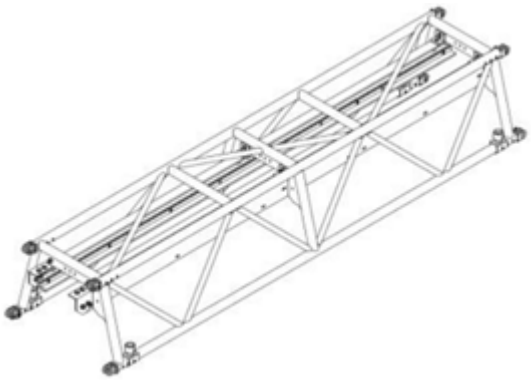


Figure 1. Straight truss

Product code	Length (cm)	Length (in)	Weight (kg)	Weight (lbs)
STK52R100	100	39.4	38.0	83.8
STK52R150	150	59.0	51.0	112.4
STK52R300	300	118.1	88.1	194.0

3.1.2 Straight trusses with dolly

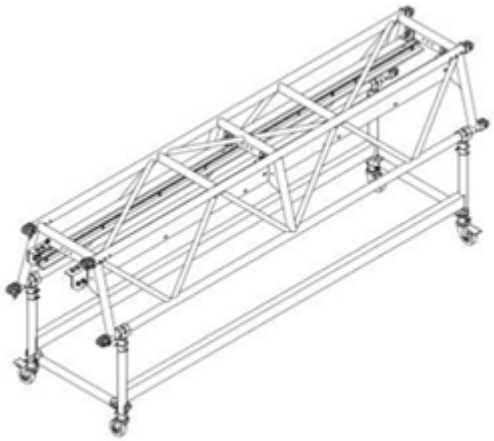


Figure 2. Straight truss with dolly

Product code	Length (cm)	Length (in)	Weight (kg)	Weight (lbs)
STK52RT100	100	39.4	54.4	119.9
STK52RT150	150	59.0	69.9	154.1
STK52RT300	300	118.1	116.6	257.1

3.1.3 Curved trusses

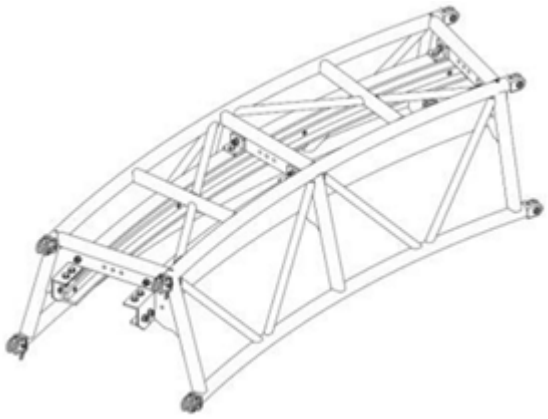


Figure 3. Curved truss

Product code	Length (cm)	Length (in)	Weight (kg)	Weight (lbs)
STK52RT100	300	118.1	90.0	198.4

The curved truss has a curve angle of 30 degrees and a radius of 400 cm (157.5 in).

3.1.4 Truss specifications (general)

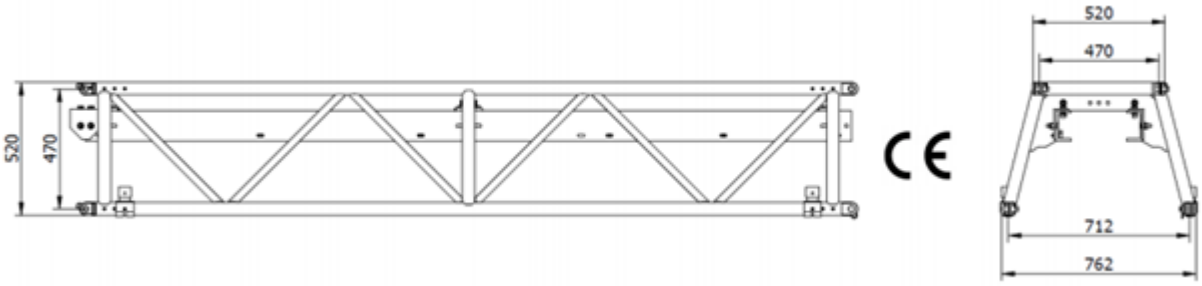


Figure 4. Truss dimensions

Feature	Specification
Outer dimensions	Top: 520 mm (20.5 in) Bottom: 762 mm (30.0 in)
Inner dimensions	Top: 470 mm (18.5 in) Bottom: 712 mm (28.0 in)
Lengthways tube material	Extruded aluminium EN AW-6082 T6 – Ø50 x 4mm
Crossways tube material	Extruded aluminium EN AW-6082 T6 – Ø30 x 3mm
Welding process	TIG (ISO 3834 / ISO 9606-02)
Section area	2312 mm^2
Self weight (approx)	30 kg/m
Moment of inertia – y axis	123308123 mm^4
Moment of inertia – x axis	210982426 mm^4

3.2 Toothed belt

All motorised trolley and secondary trolley modules run on a toothed belt attached to the inside of the truss rail by the manufacturer.

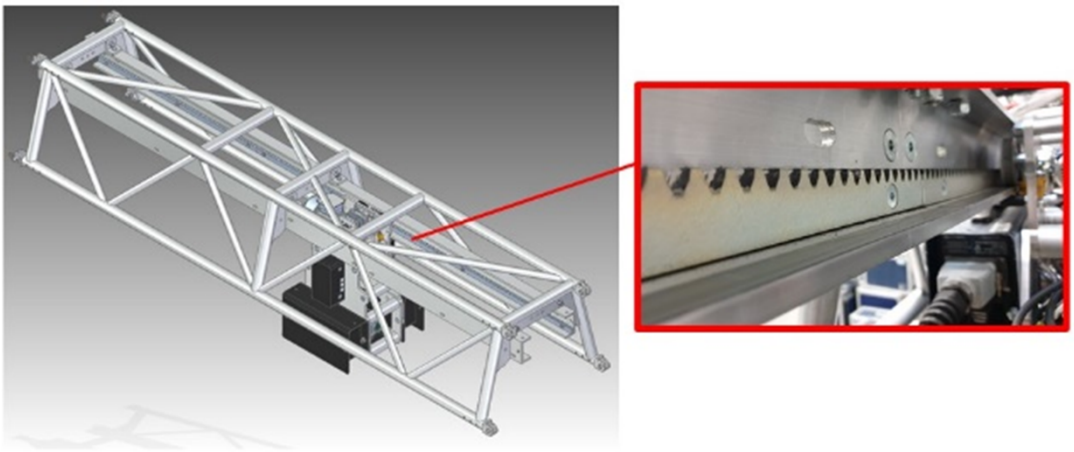


Figure 5. Toothed belt

3.3 Module options

3.3.1 Motorised trolley module

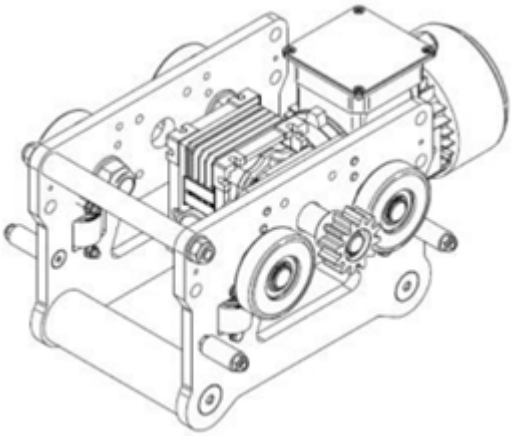


Figure 6. Motorised trolley module

Product Code	STK52MT	STK52MT3
Weight	15.5 kg (34.2 lbs)	15.5 kg (34.2 lbs)
Load Capacity	600 kg (1322.8 lbs)	600 kg (1322.8 lbs)
Towing Capacity	1800 kg (3968.3 lbs)	1200 kg (2645.5 lbs)
Speed	Variable	Variable
Power	0.25 kW	0.37 kW
Voltage	400 V	400 V
Current	0.91 A	1.05 A

3.3.2 Motorised trolley module dimensions

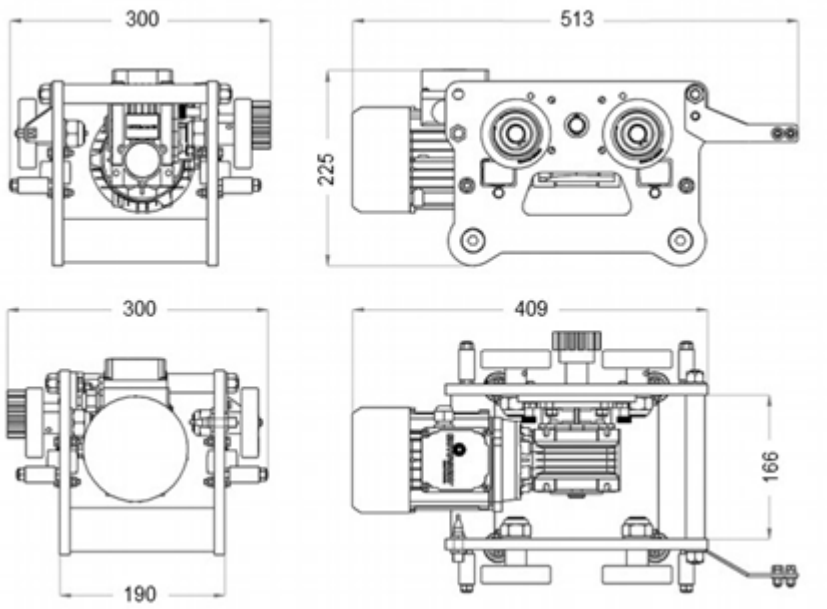


Figure 7. Motorised trolley module dimensions (mm)

3.3.3 Rotation module

The rotation module has the ability to rotate 360°.

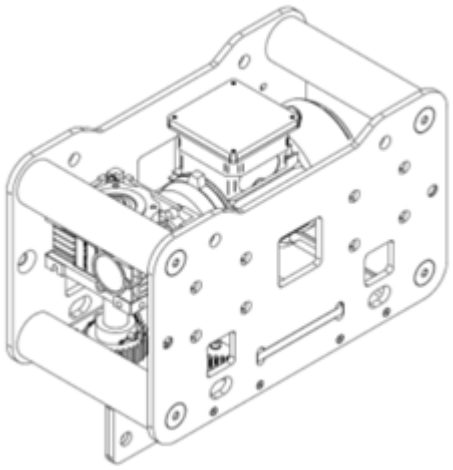


Figure 8. Rotation module

Product Code	STK52MR3
Weight	20 kg (44.1 lbs)
Load Capacity	600 kg (1322.8 lbs)
Speed	Variable
Power	0.25 kW
Voltage	400 V
Current	0.91 A

3.3.4 Rotation module dimensions

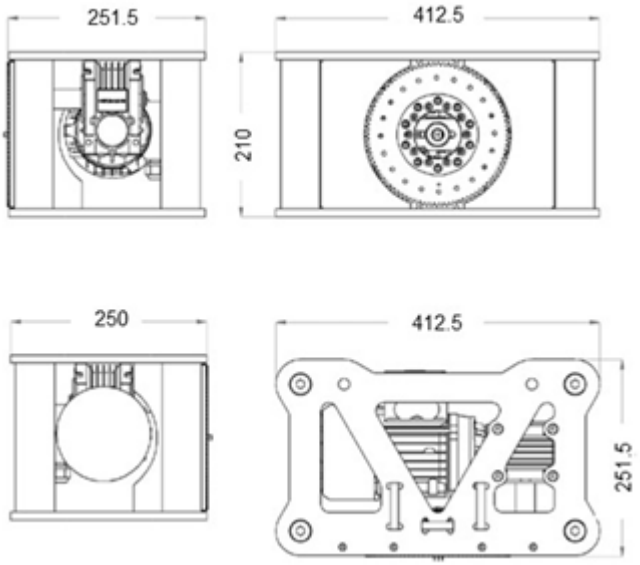


Figure 9. Rotation module dimensions (mm)

3.3.5 Secondary trolley module

The secondary trolley moduleis not electrically powered and receives mechanical power from the attached motorised trolley module.

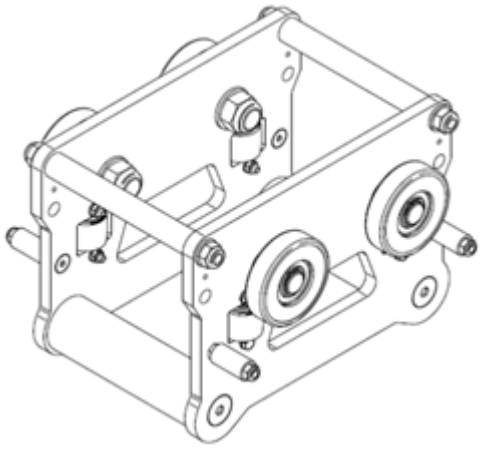


Figure 10. Secondary trolley module

Product Code	STK52MS
Weight	7 kg (15.4 lbs)
Load Capacity	600 kg (1322.8 lbs)

3.3.6 Secondary trolley module dimensions

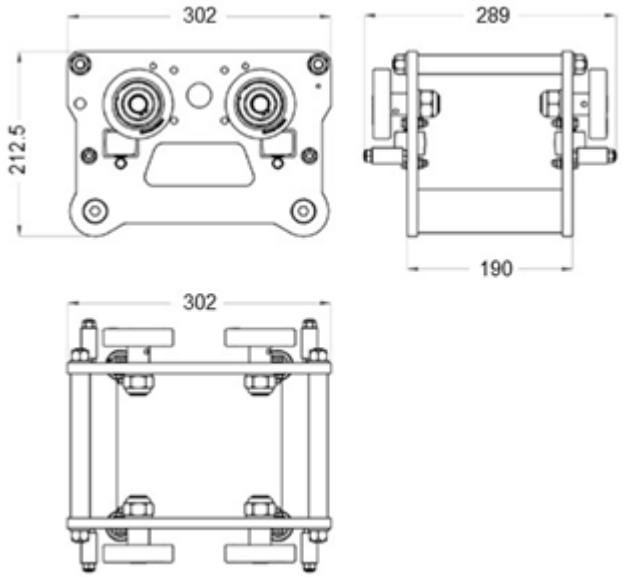


Figure 11. Secondary trolley module dimensions (mm)

3.3.7 Cable carriage

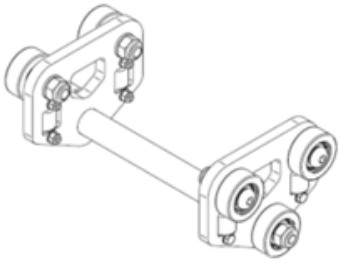


Figure 12. Cable carriage

Product Code	STK52MTC
Weight	1.3 kg (2.9 lbs)
Load Capacity	100 kg (220.5 lbs)

3.4 Accessories

3.4.1 Coupling for motorised trolley module & rotation module

- For coupling the **STK52MT** motorised trolley module and **STK52MR** rotation module.
- Product Code: STK52MURT
- Weight: 8.6 kg (19.0 lbs)

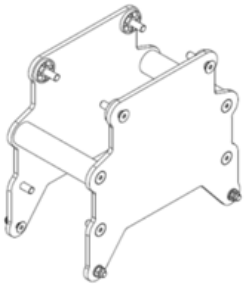


Figure 13. Coupling for motorised trolley & rotation module

3.4.2 Coupling for motorised trolley module & hoist

- For coupling the **STK52MT** motorised trolley module and a hoist. Must be used in conjunction with adapter **STK52MAR**.
- Product Code: STK52MTH140
- Weight: 24.3 kg (53.6 lbs)

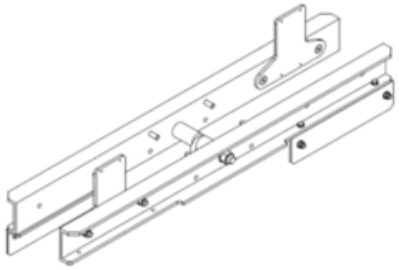


Figure 14. Coupling motorised trolley & hoist

3.4.3 Coupling for motorised trolley module & secondary trolley module

- For coupling the **STK52MT** motorised trolley module and **STK52MS** secondary trolley module.
- Product Code: STK52MST175
- Weight: 32.5 kg (71.6 lbs)

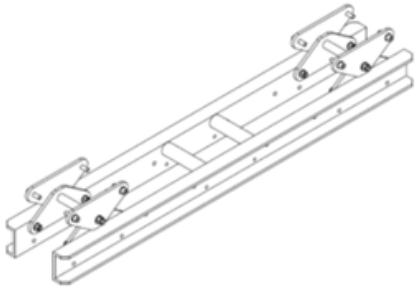


Figure 15. Coupling for motorised trolley & secondary trolley

3.4.4 Adapter for motorised trolley module & secondary trolley module

- Rotation adapter for the **STK52MT** motorised trolley and the **STK52MST175** coupling.
- Product Code: STK52MAR
- Weight: 3.7 kg (8.1 lbs)

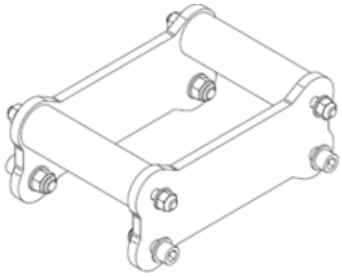


Figure 16. Adapter for motorised trolley & secondary trolley

3.4.5 Bracket for Kinesys Elevation Drive

- Product Code: STK52MUE
- Weight: 0.9 kg (2.0 lbs)

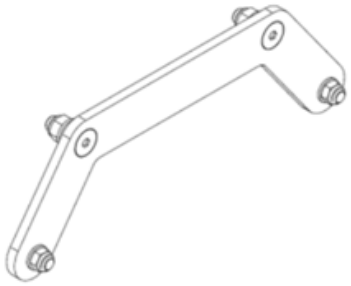


Figure 17. Bracket for Kinesys Elevation Drive

3.4.6 Kit for Kinesys trolley control

- Attachment plate for attaching a control box – either directly onto the **STK52MT** motorised trolley module or to the **STK52MURT** coupling.
- Product Code: STK52MUK
- Weight: 1.6 kg (3.5 lbs)

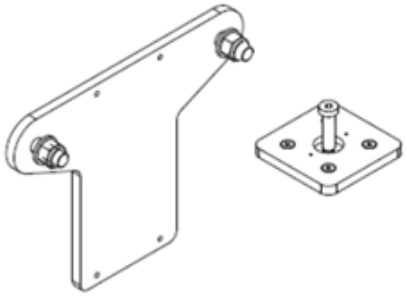


Figure 18. Kit for Kinesys trolley control

3.4.7 Kit for Kinesys trolley/encoder control

- Kit for electronic elements (rotation and translation)
- Product Code: STK52MKE
- Weight: 0.3 kg (0.66 lbs)

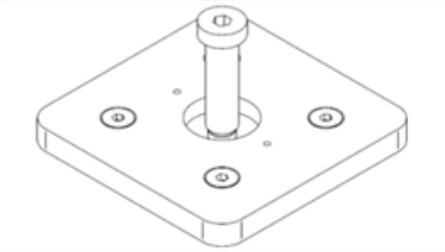


Figure 19. Kit for Kinesys trolley/encoder control

3.4.8 End stop module

- End stop module for straight trusses
- Weight: 3.2 kg (7.05 lbs)

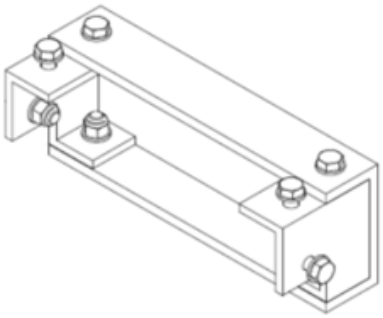


Figure 20. End stop module

3.5 Control box connections

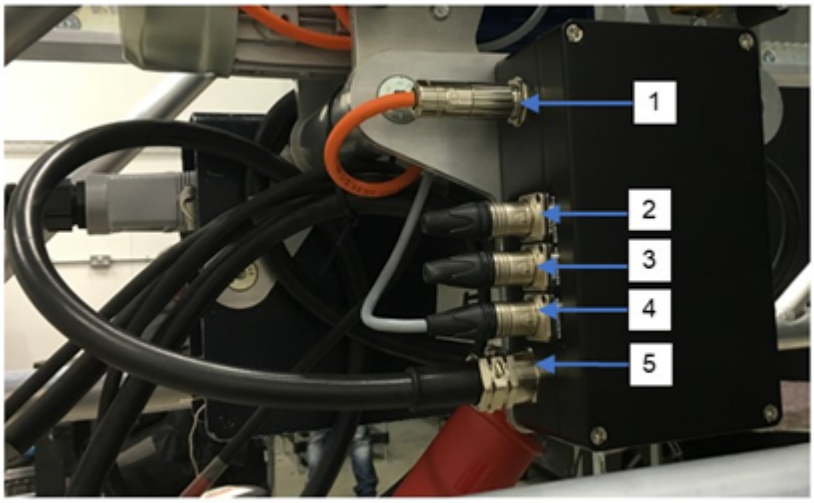


Figure 21. Control box connections

Item #	Description	Notes
1	Motor cable	
2	Up/Forward limits switch cable	Connects to an Up/Forward limits switch (if not used, a shorting plug must be installed)
3	Down/Backward limits switch cable	Connects to a Down/Backward limits switch (if not used, a shorting plug must be installed)
4	Encoder cable	
5	Elevation cable	Connects to the Elevation Drive for power and data

4. Installation

4.1 Assembly overview

The Kinesys Elevation Beam Trolley DST system is modular and can be custom-built to suit the needs of different customers. It is possible that your system contains a standalone motorised trolley, standalone rotation module, a combined trolley and rotation module system, or a motorised and secondary trolley system, or a combination of all three modules.

Each motorised module in the system requires its own control box and Elevation Drive and these are normally attached to the sides of modules using the Kinesys conversion kit. The different configurations mean that the control box and Elevation Drives can be attached in different locations depending on the number and type of modules used.

The setups in the following section are examples to show how the different components fit together but is not extensive to all possible configurations. If you require further assistance in your specific setup, contact support@taittowers.com.

4.1.1 Standalone motorised trolley module

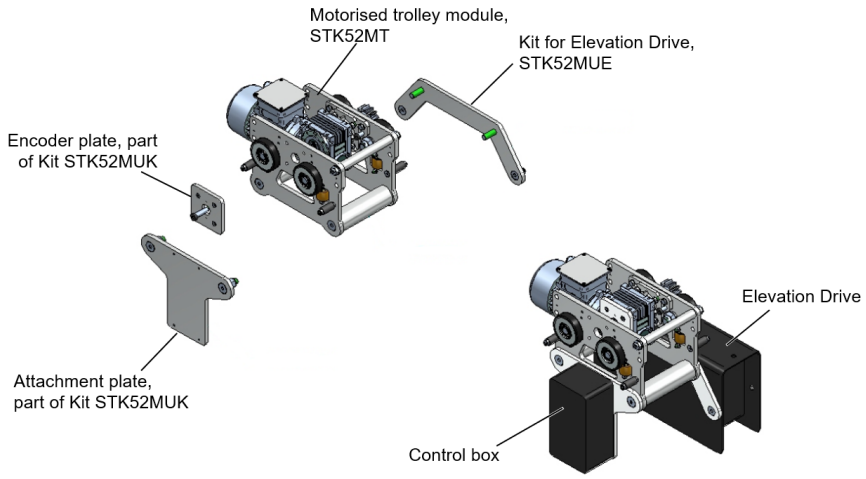


Figure 22. Standalone motorised trolley module

4.1.2 Standalone rotation module

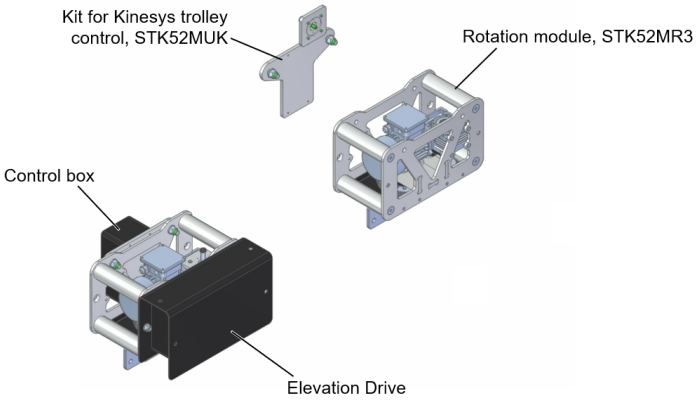


Figure 23. Standalone rotation module

4.1.3 Combined motorised trolley module & rotation module

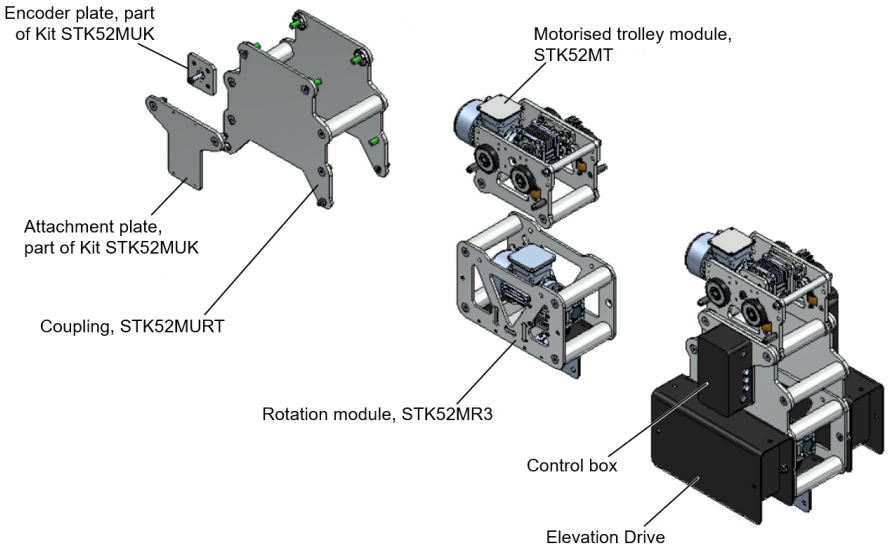


Figure 24. Combined motorised trolley module & rotation module

4.1.4 Combined motorised trolley module & secondary trolley module

The **STK52MST175** coupling is shown below and can be used to connect a motorised trolley module to a secondary trolley module. There is also the option attaching a rotation module on the underside of the coupling. Alternatively, a length of scaffolding tube can be used to attach the motorised trolley module to the secondary trolley module.

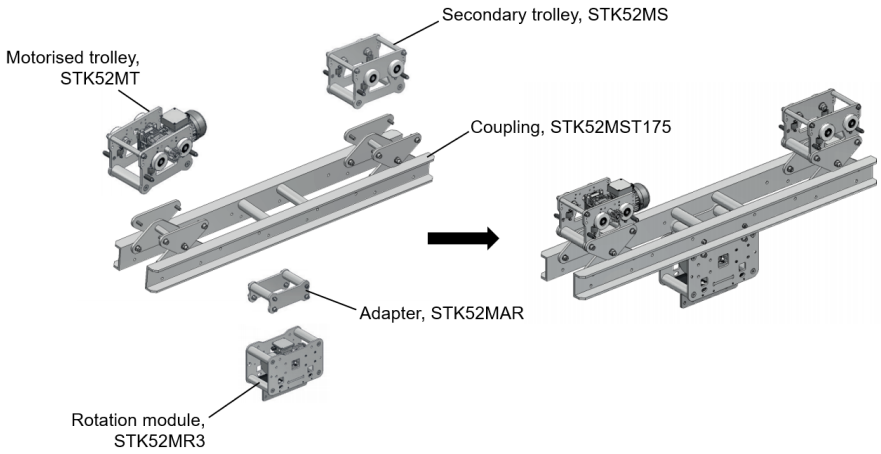


Figure 25. Combined motorised trolley module & secondary trolley module

4.2 Load attachment points

The cylindrical bars at the bottom of motorised and secondary trolley modules can be used as attachment points for hoists, scenery and any other objects, and the holes in the rotating plate can be used as the attachment point for the rotation module.

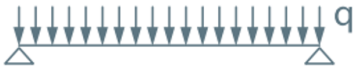
If using a motorised/secondary trolley module system, the coupling may be used as the attachment point. If not using a coupling, a length of scaffold tube between the modules may be used instead.

The method of attachment to the modules is at the discretion of the customer.

4.2.1 Load tables

These tables have been prepared in accordance with UNI ENV 1999-1-1 (Eurocode 9). When calculating the allowable loads it is assumed that the load is suspended from the bottom chord and the truss is supported from the top chord at each end.

The values shown in the tables are the allowable static loads that can be applied to the truss. This is the live load or the payload. The self-weight of the truss has been taken into account when calculating the values in the table. It should be noted that these are idealised loading conditions and the user must re-analyse the truss for the loading conditions for the application being considered.

	Uniform Distributed Load 		
Truss Span, L (m)	**Max Point Load, q_{am} (kg/m)**	**Max Full Load, q_{am} x L (kg)**	**Central Deflection (mm)**
3	1760	5290	2
6	725	4350	14
9	315	2830	31
12	171	2050	56
15	105	1570	87
18	68	1230	125
21	47	980	170
24	33	781	222

	Centre Point Load 		
Truss Span, L (m)	**Max Point Load, q_{am} (kg)**	**Max Full Load, q_{am} x L (kg)**	**Central Deflection (mm)**
3	4410	4410	3
6	2180	2180	11
9	1420	1420	25
12	1030	1030	45
15	784	784	71
18	616	616	104
21	490	490	144
24	391	391	191

	Third Point Load 		
Truss Span, L (m)	**Max Point Load, q_{am} (kg)**	**Max Full Load, q_{am} x L (kg)**	**Central Deflection (mm)**
3	2640	5290	3
6	1640	3270	14
9	1070	2140	32
12	777	1550	57
15	597	1190	90
18	472	945	130
21	380	759	177
24	306	613	233

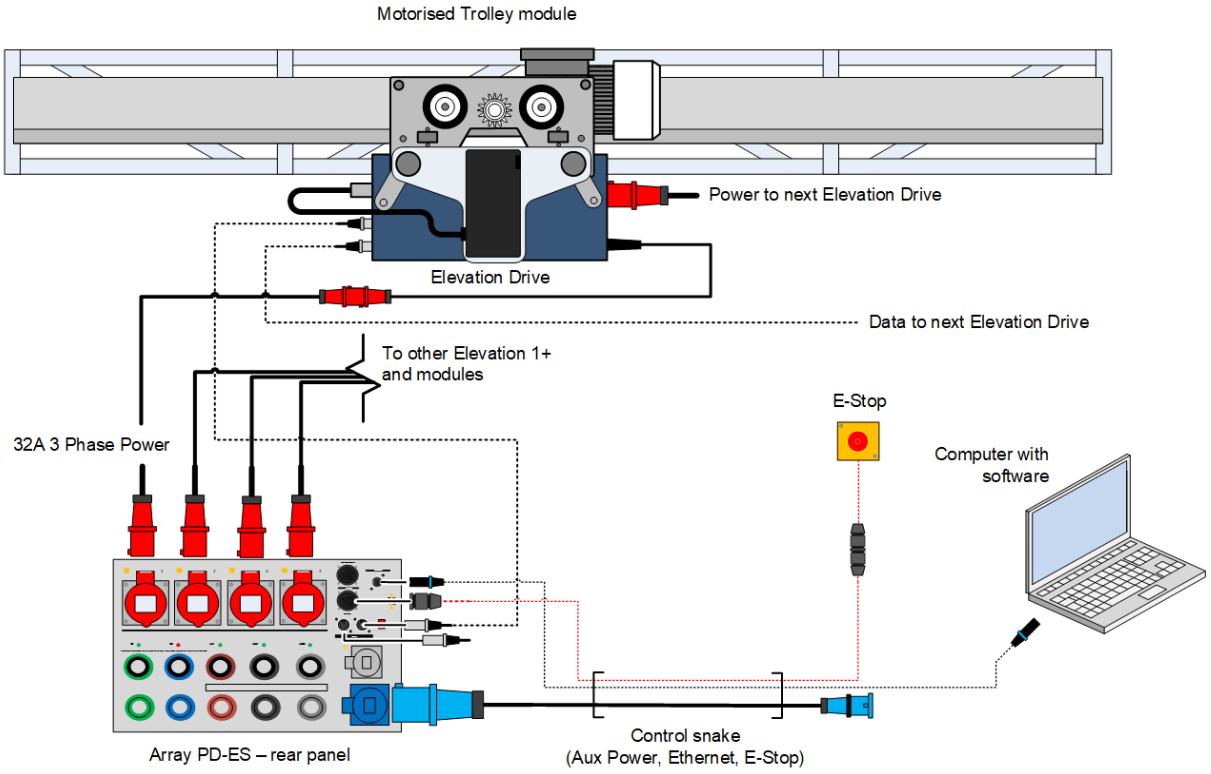
	Quarter Point Load 		
Truss Span, L (m)	**Max Point Load, q_{am} (kg)**	**Max Full Load, q_{am} x L (kg)**	**Central Deflection (mm)**
3	1760	5290	3
6	1090	3260	13
9	708	2120	30
12	513	1540	53
15	392	1180	83
18	308	924	120
21	245	735	163
24	195	586	214

	Fifth Point Load		
Truss Span, L (m)	**Max Point Load, q_{am} (kg)**	**Max Full Load, q_{am} x L (kg)**	**Central Deflection (mm)**
3	1320	5290	3
6	907	3630	14
9	591	2370	32
12	429	1720	56
15	329	1310	88
18	259	1040	127
21	207	827	173
24	165	662	226

4.3 Connection to the Kinesys Elevation system

To operate each motorised module (motorised trolley or rotation module), it must be connected to its own dedicated Elevation Drive to provide the necessary power and data communications. The Elevation Drive must then be connected to a power/emergency stop distribution system such as Array PD-ES or Mini Array PD-ES. Movement can be initiated on the controller itself, but in most cases would be done via a controller such as Rigger or software such as Vector or K2.

The system shown below is an example to show the connections and products that would be present in the majority of Elevation Beam Trolley DST systems. If you require guidance on setting up your specific application, contact support@taittowers.com. For information on other Kinesys products within the system, refer to the relevant product operating manuals.



5. Loading guidance for rotation modules

5.1 Maximum horizontal force at bottom of screen when attached to the rotation module

Force [Kg]		High of Led screen [m]																	
		0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9
Weight on Slew bearing [kg]	50	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	137	95
	100	300	300	300	300	300	300	300	300	190	131	104	88	77	68	62	57	52	49
	150	300	300	300	300	300	286	173	132	108	93	82	73	66	61	56	52	49	46
	200	300	300	300	300	262	175	137	113	97	86	77	69	63	58	54	51	47	45
	250	300	300	300	300	204	155	126	107	93	83	75	68	62	58	54	50	47	44
	300	300	300	300	263	186	146	121	104	91	81	74	67	62	57	53	50	47	44
	350	300	300	300	239	176	141	119	102	90	81	73	67	61	57	53	50	47	44
	400	300	300	300	227	171	139	117	101	89	80	73	66	61	57	53	49	46	44
	450	300	300	300	219	168	137	116	101	89	80	72	66	61	57	53	49	46	44
	500	300	300	300	214	166	136	115	100	89	80	72	66	61	56	53	49	46	44
	550	300	300	299	211	164	135	115	100	88	79	72	66	61	56	53	49	46	44
	600	300	300	292	208	163	134	114	99	88	79	72	66	61	56	53	49	46	44
	650	300	300	287	206	162	134	114	99	88	79	72	66	61	56	52	49	46	44
	700	300	300	283	205	161	133	114	99	88	79	72	66	61	56	52	49	46	44
	750	300	300	280	204	161	133	113	99	88	79	72	66	61	56	52	49	46	44
	800	300	300	277	203	160	133	113	99	88	79	72	66	61	56	52	49	46	44
	850	300	300	276	202	160	132	113	99	88	79	72	66	61	56	52	49	46	44
	900	300	300	274	201	160	132	113	99	88	79	72	66	61	56	52	49	46	44

5.2 Maximum screen angle from vertical when attached to the rotation module

Angle [°]		High of Led screen [m]																	
		0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9
Weight on Slew bearing [kg]	50	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	100	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	150	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
	200	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	14	13	12
	250	15	15	15	15	15	15	15	15	15	15	15	15	14	13	12	11	10	10
	300	15	15	15	15	15	15	15	15	15	15	14	12	11	10	10	9	9	8
	350	15	15	15	15	15	15	15	15	14	13	11	10	10	9	8	8	7	7
	400	15	15	15	15	15	15	15	14	12	11	10	9	8	8	7	7	6	6
	450	15	15	15	15	15	15	14	12	11	10	9	8	7	7	6	6	6	5
	500	15	15	15	15	15	15	13	11	10	9	8	7	7	6	6	5	5	5
	550	15	15	15	15	15	14	11	10	9	8	7	6	6	5	5	5	4	4
	600	15	15	15	15	15	12	10	9	8	7	6	6	5	5	5	4	4	4
	650	15	15	15	15	14	11	10	8	7	7	6	5	5	5	4	4	4	3
	700	15	15	15	15	13	10	9	8	7	6	5	5	5	4	4	4	3	3
	750	15	15	15	15	12	10	8	7	6	6	5	5	4	4	4	3	3	3
	800	15	15	15	14	11	9	8	7	6	5	5	4	4	4	3	3	3	3
	850	15	15	15	13	10	9	7	6	6	5	4	4	4	3	3	3	3	2
	900	15	15	15	12	10	8	7	6	5	5	4	4	3	3	3	3	2	2

5.3 Maximum screen speed when attached to the rotation module

Speed [m/min]		High of Led screen [m]																	
		0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9
Weight on Slew bearing [kg]	50	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	100	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	150	30	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	200	26	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	250	23	33	35	35	35	35	35	35	35	35	35	35	35	35	34	33	31	31
	300	21	30	35	35	35	35	35	35	35	35	34	31	30	29	29	27	27	26
	350	20	28	34	35	34	33	33	32	31	30	28	27	26	25	24	24	22	22
	400	18	26	32	32	31	31	30	29	27	26	25	24	22	22	21	21	19	19
	450	17	24	30	30	29	29	28	26	24	23	22	21	20	20	18	18	18	17
	500	16	23	28	28	27	27	25	23	22	21	20	19	19	17	17	16	16	16
	550	16	22	27	26	26	25	22	21	20	19	18	16	16	15	15	15	13	13
	600	15	21	26	25	25	22	20	19	18	17	16	16	14	14	14	13	13	13
	650	14	20	24	24	23	20	19	17	16	16	15	14	14	14	12	12	12	11
	700	14	20	23	23	21	19	18	17	16	15	13	13	13	12	12	12	10	10
	750	13	19	22	22	20	18	16	15	14	14	13	13	11	11	11	10	10	10
	800	13	18	22	21	18	17	16	15	14	12	12	11	11	11	10	10	10	10
	850	13	18	21	19	17	16	14	13	13	12	11	11	11	9	9	9	9	8
	900	12	17	20	18	17	15	14	13	12	12	10	10	9	9	9	9	7	7

Key:

	Trolley does not exist yet
	Can only be used with motorised trolley STK52MT3
	Can be used with either motorised trolly STK52MT3 or STK52MT3

6. Operation

6.1 Inspection before initial operation

Before initial operation, make sure of the following.

1. Inspect the modules, trusses and all other load bearing constructions for defects and damage. Make sure the equipment has not been damaged by incorrect storage or transportation. In particular, check that the roll pins of the trolley modules are correctly fitted.
2. Check that all modules, hoists and/or loads are correctly seated. The selection and calculation of the suspension point is the responsibility of the user. Refer to the load information in section 4.2 for details.
3. Check the beam structure for correct assembly and visually check for defects, deformations, cracks, wear, and signs of corrosion.
4. Check the clearance between the trolley wheel flange and the beam outer edge is equal on both sides and within the tolerances. Do not enlarge the clearances to enable the beam trolley to negotiate tighter curves.

6.2 Moving the modules

Movement of the modules can either be done via the front panel controls on the Elevation Drive, a remote controller such as the Elevation Rigger, or computer software such as Vector or K2.

The principle of operation is the same as moving hoists up and down, with the up command equivalent to forward motion and the down command equivalent to backward motion.

6.3 Regular inspections

To ensure that the Elevation Beam Trolley DST system remains in a safe working condition, it must be subjected to regular inspections by a competent person. Inspections must be undertaken once a year unless adverse working conditions dictate shorter intervals. The components of the system must be inspected for damage, wear, corrosion, or other irregularities and all safety devices must be checked for completeness and effectiveness. To check for worn parts it may be necessary to disassemble the system into smaller components.

Repairs may only be carried out by a specialist workshop using original parts. Contact support@taittowers.com if you require support in rectifying or repairing any part of the system.

7. Product specifications

Feature	Specification
Power supply	208 V or 400 V, 3-phase, 32 A, 50-60 Hz
Mains connection	Harting 8+24 to suit Elevation Drive
Control box connections	Motor cable XLR7 inputs - up/down limit switches and encoder cable Elevation tail
Accessories	Shorting plugs x2 (for limit switch connections) Other accessories dependent on individual customer order
Cooling	Convection
Ingress Protection (IP) rating	IP55 (Protected from dust and water jets)
Operating temperature	0°C and 40°C (32°F and 104°F)

8. Service & End of Life

In the event of a product being considered beyond economic repair it should be disposed of with care and in line with local legislation on disposal of Waste Electrical and Electronic Equipment (WEEE).

In Europe WEEE shall be disposed of in accordance with European Union Directive 2012/19/EU.

In most regions of the world, similar legislation exists to ensure that WEEE is handled separately to maximise reuse of materials and avoidance of landfill.

9. Declaration of Conformity

ORIGINAL

EC Declaration of Conformity

Manufacturer:	Kinesys Projects Limited
of the address:	Unit 2 Kempton Gate, Oldfield Road, Hampton, Middlesex, TW12 2AF, UK
in accordance with the following EC directives:	**Low Voltage Directive 2014/35/EU** **EMC Directive 2014/30/EU**
declares that the product:	**Kinesys Elevation Beam Trolley DST**
with part numbers:	**BMT-01-XXXX**

is in conformity with the applicable requirements of the following harmonised standards:

EN ISO 12100	**Safety of machinery. General principles of design. Risk assessment**
EN 60204-1	**Safety of machinery. Electrical equipment of machines. General requirements**
EN 349	**Safety of machinery. Minimum gaps to avoid crushing of parts of the human body.**

and the following applied standards and technical specifications:

FEM 9.511	**Rules for the design of series lifting equipment; Classification of mechanisms**
FEM 9.683	**Selection of lifting and travel motors**
FEM 9.755	**Measure for achieving safe working periods for motorized serial hoist units (S.W.P)**

The manufacturer hereby declares that the products named above have been designed to comply with the relevant sections of the above referenced standards. The units comply with all applicable essential requirements of the directives.

In the EU the party authorised to compile the technical file is:
TAIT Netherlands B.V.
Weesperplein 4a, 1018 XA Amsterdam, The Netherlands
In the UK the party authorised to compile the technical file is:
Kinesys Projects Ltd.
Unit 2 Kempton Gate, Oldfield Road, Hampton,
Middlesex, TW12 2AF, UK

Equipment referred to in this Declaration of Conformity was first manufactured in 2005.

D Weatherhead
Managing Director
Hampton, 20 February 2025

The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when these products are taken into service to maintain compliance with the above directives. Details of these special measures and limitations to use are available on request and are also contained in the product manuals.

Kinesys Projects Ltd.
TAIT Technologies UK Ltd.
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