KIRBY'S AFX LTD
FLYING EFFECTS SINCE 1898

METHOD STATEMENT & SPECIFICATIONS

MS 05 Double track system

INSTALLATION:

The track is made up with lengths of 100mm x 100mm x 6mm aluminium "T" section bolted together using threaded mild steel joining plates and M6 bolts backed up with Nylock nuts. It is suspended from the supporting structure with wire rope strops and 0.5t bow shackles at 1 meter intervals.

Head and tail blocks are fitted to the ends of the track. They form hard endstops to limit the travel of the carriers and accommodate the pulleys for traverse ropes, lift lines and return lines. There is one set of operating lines at each end of the track.

This type of system can be installed on a truss or flying bar, direct to the grid or other suitable load bearing structure. Bars or trusses rigged at floor level are flown out to dead height and securely tied off. In the case of counterweighted theatre flying bars the counterweight cradle is also fastened down.

LIFT SYSTEM:

The lift systems consist of 4mm, 6 x 19 fibre core wire ropes which are attached to the tailblocks with bearing swivels. They run the length of the track via the carriers and bridle assemblies, through the lead pulleys on the headblocks where they are connected to large diameter fibre pulling ropes. The systems incorporate a 2:1 mechanical advantage to the operator. If additional assistance is required to achieve a smooth or faster lift, counterweights can be attached to the pulling ropes.

Depending on the type of harness to be employed, either a single 3mm or pair of 2.5mm cables suspend the performer from the bridle assemblies.

TRAVERSE SYSTEM:

The traverse ropes are used to move the carriers along the track. They form continuous loops attached at both ends of the carriers and run the length of the track via floorblock pulleys anchored to stageweights or secure fixing point in the floor.

TERMINATIONS:

Terminations - eyes - are formed in stranded ropes using standard splicing techniques. Kernmantle ropes are finished with a figure eight knot. Terminations to wire rope are made by crimping a ferrule with a hydraulic bench press or on-site, using the Nicopress system.

TESTING:

All systems are proof loaded to a minimum of 1.5 times the anticipated maximum load, prior to first use by the performer.

COMPONENT	TYPE/SIZE	M.B.L.	S.W.L.	W.L.L.	SOURCE
Pulling rope	24mm / 3 strand Manila	4570 Kgs.			*Flints*
Traverse rope & return line	10mm low stretch kernmantle	2500 Kgs.			*Flints/Liros*
Wire rope	4mm 6 x 19 FC galvanised	890 Kgs.			*Ormiston*
Wire rope	3mm 6 x 19 FC galvanised	500 Kgs.			*Ormiston*
Wire rope	3mm 7 x 19 IWRC black	540 Kgs.			*Flints*
Wire rope	2.5mm 7 x 7 IWRC galvanised	405 Kgs.			*Ormiston*
Wire rope	2.5mm 7 x 7 IWRC black	484 Kgs.			*Flints*
Track - standard aluminium "T"	100mm x 100mm x 6mm		500 Kgs.		*KAFX*
Carrier	Standard, all lengths		250 Kgs.		*KAFX*
Head & Tail blocks	Standard, single		250 Kgs.		*KAFX*
Bridle assembly	Full (c/w swivelling lower bar)		250 Kgs.		*KAFX*
Pulleys	75mm sheave	3720 Kgs.			*S.A.S.*
Floor block	Petzl Tandem	2446 Kgs.			*Petzl*
Wire rope strops	4mm galvanised wire rope	890 Kgs.			*KAFX/Ormiston*
Shackles	Bow			0.5t (Tonne)	*Crosby*
Shackles	Bow			0.75t (Tonne)	*Crosby*
Shackles	Bow			1.0t (Tonne)	*Crosby*
Carabiner	Steel oval screwgate	22 kN.			*Lyon*
Carabiner	Alloy screwgate	23 kN.			*Wild Country*
Swivel	Petzl P58S	23 kN.			*Petzl*
Swivel	Katimex	22.2 kN.			*Katimex*
Rope link	Pear pattern Maillon Rapide			880 Kgs.	*Lyon*
Harness connector	Oval pattern Maillon Rapide			160 Kgs.	*Lyon*

Our own destructive testing reports show that in practice the actual strength of components often far exceeds the quoted figures. Figures quoted are direct from manufactuers and suppliers, therefore they appear in various formats: Calculations are best based on the minimum breaking load (M.B.L.) as different manufacturers can use various safety factors - ranging between 2.4:1 and 12:1 - to determine the safe working loads (S.W.L.) of their products.

Pounds (Lbs.)	1lb / 16 ounces ~ 0.454 Kg. / 454 grams
Kilograms (Kgs.)	1Kg ~ 2.204 lbs.
Kilonewton (kN)	1kN ~ 102 Kgs. force
U.S. (short) Ton	2000 lbs. ~ 907 Kgs.
U.K. Ton	2240 lbs ~ 1016 Kgs.
Metric Tonne	2204lbs. ~ 1000 Kgs.

M.B.L.	Minimum breaking load
W.L.L.	Working load limit
S.W.L.	Safe working load

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