



Photo: Royal Opera House, London, UK

READY FOR THE FUTURE

The rapid evolution of contemporary theater productions has placed new demands on existing fly-bar systems. Important recent developments include higher loading requirements, a growth in the scope of productions, and the introduction of mechanically operated fly-bar systems. The demands placed by new production techniques have made many fly-bar systems no longer suitable for the job.

Developed to fill this gap, ProTrac is a substantially upgraded fly-bar system with several extra options and a high loading capacity. Additionally, because ProTrac is a lightweight system (low inherent weight), it allows a higher net loading capacity for your winches or drives.

ACCIDENTS AVOIDED

Compared to commonly used conventional fly-bars or steel ladder beams, ProTrac dramatically reduces the horizontal bending that results from applying loads to the fly-bar. ProTrac has practically NO lateral flex: horizontal bending is less than 2 cm over 24 m of length when full load is applied. Nearby fly-bars will not be blocked and, more importantly, potential accidents due to the blocking of the flyway can be prevented. Further, ProTrac can be furnished with yellow end-caps to enhance visibility of the fly-bar, thus providing an extra safety margin for technicians and actors when working on stage.

EASY INSTALLATION

The ProTrac system is very flexible, allowing components of several different lengths to be easily combined and connected. ProTrac can replace conventional fly-bars in theatres or other venues without any alteration of the existing installation. There is no need to make adjustments to the suspension cables or the complete fly-bar system: the steel wires of the existing system can simply be connected to the adjustable suspension points of the ProTrac components. Calculation methods used for ProTrac comply with DIN 56921.

SYSTEM DESCRIPTION

ProTrac consists of a rectangular upper profile of extruded aluminium combined with a lower round aluminium tube or profile. Three types of lower profile can be connected to the upper profile:

- 1 Tube with slot profile 48,3 mm
- 2 Tube with slot profile 48,3 mm
with integrated rail fitting for Helm 100 runner
- 3 Tube with slot profile 60 mm
with integrated rail fitting for Helm 100 runner

The lower profile connects to the upper profile with stud bolts. Suspension points for the ProTrac components slide into the slot of the upper profile and are easily fixed, due to a lock and load system. ProTrac is a modular system. ProTrac is a modular system. Variable lengths can be connected via internal tubes, which are bolted into place. The connection of two lower profiles is placed under 45 degrees to guarantee flawless runner travel. ProTrac's profiles are black anodised and are furnished with rubber caps at the ends. The upper profile can be fitted with extra drilled holes of 50 mm (spaced 500 mm) to provide fittings for integrated electrical sockets.

ADVANTAGRD

- High loading capacity. Max. Point load of 350 kg on 4,5 m span possible.
- High Safety Factor: ProTrac has a Safety factor of 5 (on permanent deformation) and 10 (on failure).
- Reduced horizontal bending. The lateral flex is less than 2 cm over 24 m length if full load is applied, nearby fly-bars will not be blocked.
- Very low inherent weight: ProTrac is 20 to 25% lighter than steel ladder beams, which offers extra load capacity for your scenery.
- Modular and flexible: ProTrac can be used in all theatres or other venues, without any adjustments or changes to the structural components.
- Compact build height: ProTrac has a build height of only 306 mm.
- Black stays black: ProTrac is anodised black.
- Enhanced safety; End-caps available in several colours.



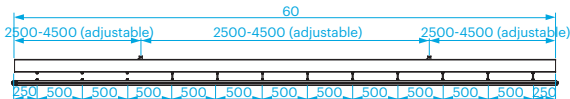
DO

- Only use pre-tensioned steel wires for the suspension of fly-bars
- Check the actual load on the fly-bar before the first movement
- Check the suspension of the load to the fly-bar before the first movement
- Make sure the fly path of loads or set pieces is not blocked
- Make sure you use the right type of sheave for your steel wires

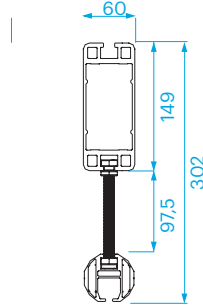
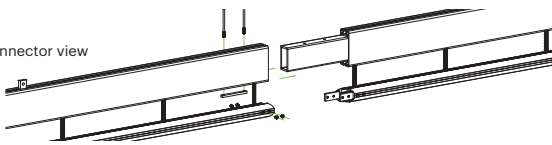
DO NOT

- Only use tested and certified hardware
- Keep a written logbook
- Exceed the maximum allowable load given cantilever the ProTrac more as stated in the structural report
- Use damaged parts or suspension equipment

Front view



Connector view



- The given allowable loading is for the complete ProTrac system, and is equal for 48,3 mm or 60 mm lower tube.
- The allowable loading is given for the ProTrac only. In a complete system winch capacity and total length also have to be taken in account.
- The total weight of 2 point loads in 2 adjacent fields should not exceed the maximum allowable capacity of the suspension cable points.

Example:
 Winch / Hoist capacity 750 kg.
 Length of ProTrac = 24 m.
 Self weight ProTrac = 216 kg.
 Free loading capacity = 750 kg - 216 kg = 534 kg.
 Point loads: 2 x point loads of 267 kg.
 Max. Uniformly distributed load = 534/24 = 22,3 kg/m1.



Fig 1. Slide in lock and load block in upper profile.



Fig 2. Connection of upper to lower profile by means of stud bolts which are fastened with a self locking nut.



Fig 3. The 60 mm lower profile with integrated rail profile fit for Helm 100 runners for 48H & 60H.

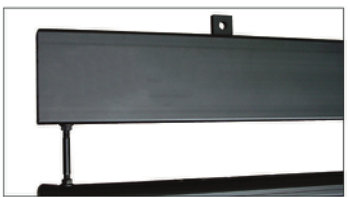


Fig 4. A completely assembled section of ProTrac.

TECHNICAL SPECIFICATIONS PROTRAC

TYPES	UPPER PROFILE	LOWER PROFILE 48,3 mm ①	LOWER PROFILE 48,3 mm + HELM 100 ②	LOWER PROFILE 60 mm + HELM 100 ③
Alloy	EN AW 6082 T6 F28	EN AW 6082 T6 F31	EN AW 6005 F26	EN AW 6005 F26
Profiles	60 diam.	48,3 mm.	48,3 mm.	60 mm.
Coupling system	bolts	bolts	bolts	bolts
Self weight	6,088 kg/m	1,944 kg/m	1,921 kg/m	2,534 kg/m

Ix in mm ⁴	6581770	133896	116630	222400
Wx in mm ³	90437	5760	4160	7963
Iy in mm ⁴	1074310	145635	160570	289000
Wy in mm ³	36575	6350	6648	9999

MAXIMUM DYNAMIC LOADS

SPAN		DISTRIBUTED Load		MAXIMUM ALLOWABLE POINT LOADS							
				1		2		3		4	
m	ft	kg/m	lbs/ft	kg	lbs	kg	lbs	kg	lbs	kg	lbs
2,5	8,2	462,3	311,1	577,9	1275,4	433,4	956,6	288,9	637,7	239,8	529,3
2,7	8,9	396,1	266,5	534,7	1180,0	401,0	885,0	267,3	590,0	221,9	489,7
2,9	9,5	343,0	230,8	497,4	1097,7	373,0	823,3	248,7	548,9	206,4	455,6
3,1	10,2	299,9	201,8	464,9	1026,0	348,7	769,5	232,4	513,0	192,9	425,8
3,3	10,8	264,4	177,9	436,3	962,9	327,2	722,2	218,1	481,4	181,1	399,6
3,5	11,5	234,8	158,0	410,9	907,0	308,2	680,2	205,5	453,5	170,5	376,4
3,7	12,1	209,9	141,2	388,3	857,0	291,2	642,8	194,2	428,5	161,2	355,7
3,9	12,8	188,7	127,0	368,0	812,1	276,0	609,1	184,0	406,1	152,7	337,0
4,1	13,4	170,5	114,8	349,6	771,6	262,2	578,7	174,8	385,8	145,1	320,2
4,3	14,1	154,9	104,2	332,9	734,8	249,7	551,1	166,5	367,4	138,2	304,9
4,5	14,8	141,2	95,0	317,7	701,2	238,3	525,9	158,9	350,6	131,9	291,0