耀纳舞台
SHINE STAGE

产品使用说明书

螺丝桁架系列

前言

感谢您使用“广州市耀纳舞台科技有限公司”研制的“舞台桁架”设备，舞台桁架是我国文化产业链中文化演出活动应用最广泛的一种快速搭设或演出灯光、扬声器吊挂等舞台设备，是演出舞台搭建设备中的重要组成部份，它的结构形式和布置是多以结构空间和舞台造型骨架等形式。

本说明书是为了确保用户能正确的使用该设备，并在舞台桁架搭建和使用过程发挥该设备的最大效能。本说明书中重点指出了“舞台桁架”设备的使用环境、性能、安装、保养维护等日常使用容易出现的问题和注意事项。

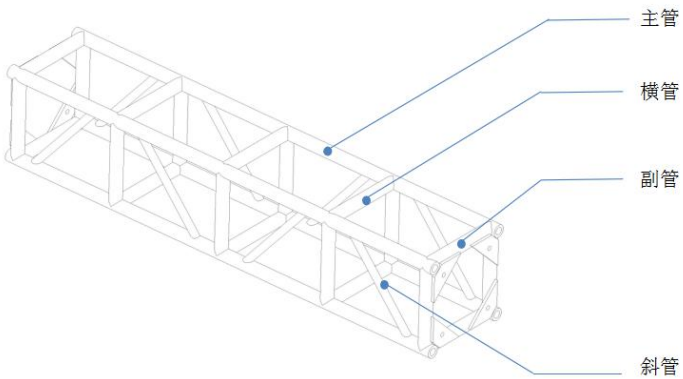
请您在安装之前，务必熟读此说明书。

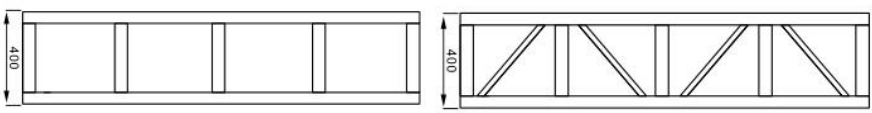
目录

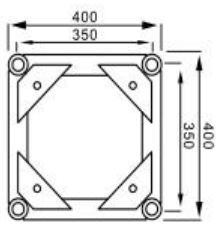
一、设备结构说明及技术参数

1.1.设备主要结构

桁架”主要由铝合金主管、副管、斜管、横管拼接，采用力学结构原理组合而成。







品牌名称：耀纳

主要材质：航空铝材 6061-T6/6082-T6

1.2.设备技术参数

TBSA4040(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ25X2.0

MAXIMUM ALLOWABLE POINT LOADS

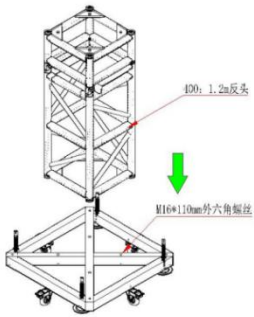
Material:
6061-T6 ☑
6082-T6 ☑

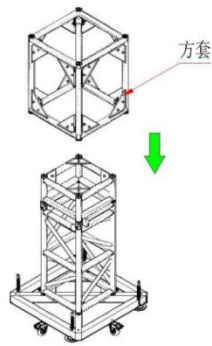
SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1278	2811.6	4	0.2	1402	3084.4	2.5	0.1	22
4	13.1	581	1278.2	9.3	0.4	1021	2246.2	8.2	0.3	44
6	19.7	303	666.6	16	0.6	883	1942.6	12	0.5	66
8	26.2	153	336.6	24	0.9	725.8	1596.8	23.4	0.9	88
10	32.8	102	224.4	33	1.3	621	1366.2	31	1.2	110
12	39.4	68	149.6	39	1.5	493.4	1085.5	43.5	1.7	132
14	45.9	46.4	102.1	58.8	2.3	387.1	851.5	59.2	2.3	154
16	52.5	32	70.4	72	2.8	302	664.4	78	3.1	176

1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

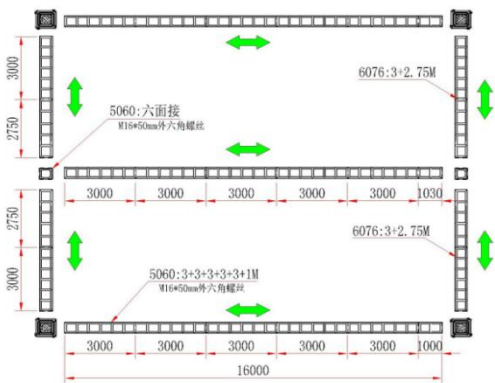
二、操作说明

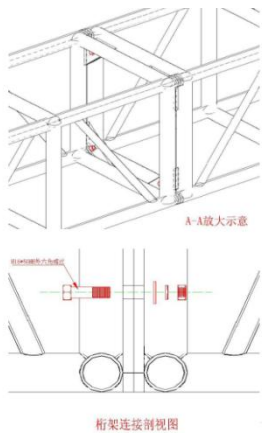
2.1.安装操作规程



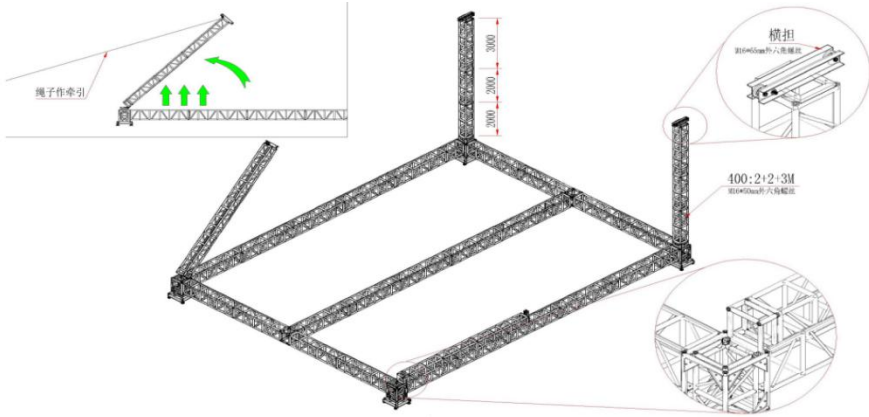


1、先把铁底座放到相应的位置，把脚杯调至水平，再把底座跟1.2m长的反头桁架连接起来。
2、再已经连接完的铁底座之后，再把方套套住桁架。

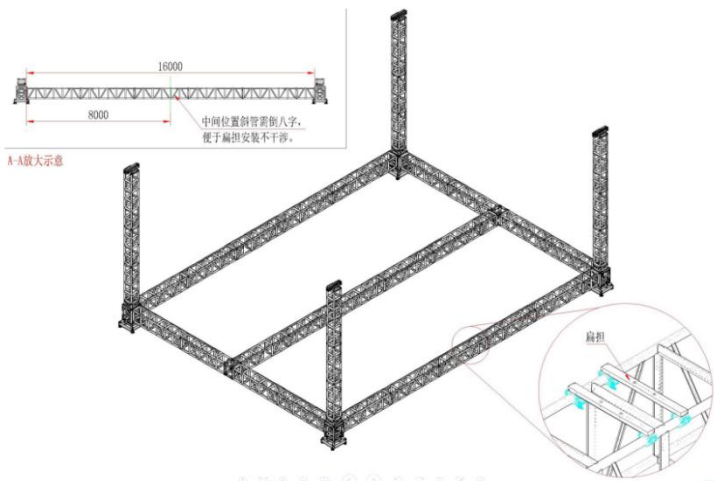




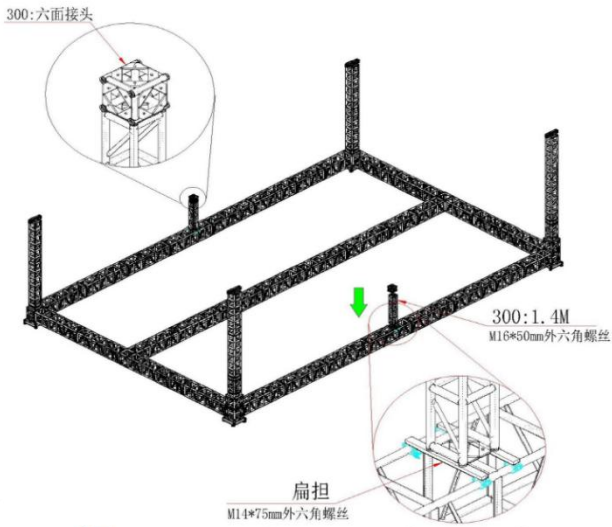
3、在把横梁桁架摆放好并连接起来（如图A-A所示）连接完后，把铁底座脚杯位置调至水平。(500*600mm /400*400mm铝板架均用M16x50mm外六角螺丝，300*300mm方通架使用M14*75mm外六角螺丝).



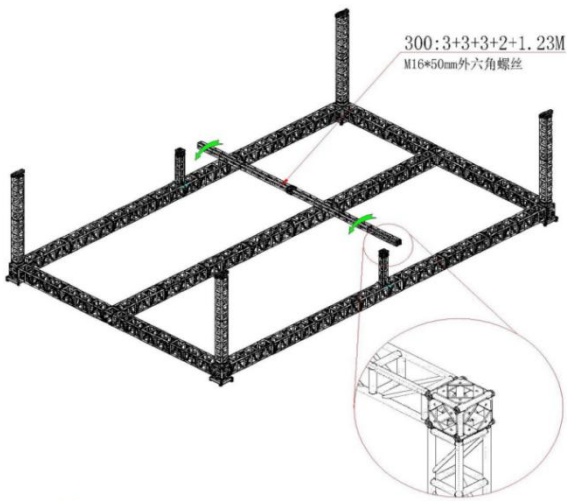
4、把整体框架连接起来，并栓紧螺丝，接着安装立柱部分。先把反头打开，把连接好的立柱架子装上并栓紧螺丝;然后把立柱竖立起来，需借助辅助工具如绳子，绑带等。先用绳子捆绑立柱顶端，然后向前牵引，立柱下也需要工作人员，在其底部向上推，把立柱通过反头翻转起来,立柱竖起来后，迅速把安装好螺丝并栓紧。



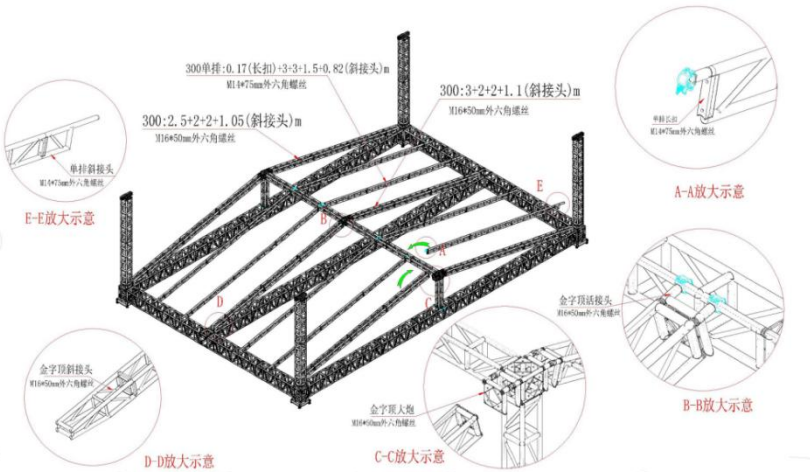
5、把立柱全部竖起来之后，接着按装金字顶部分，把扁担放到16m跨度桁架中间，用来连接金字顶立柱的(如A-A所示意)。



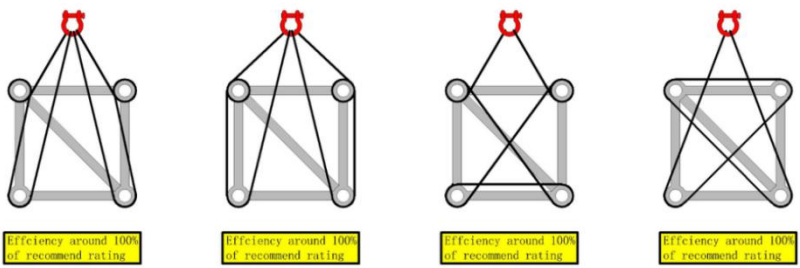
6、把金字顶立柱连接到扁担上方，用螺丝栓紧,再把六面接头装在立柱上。



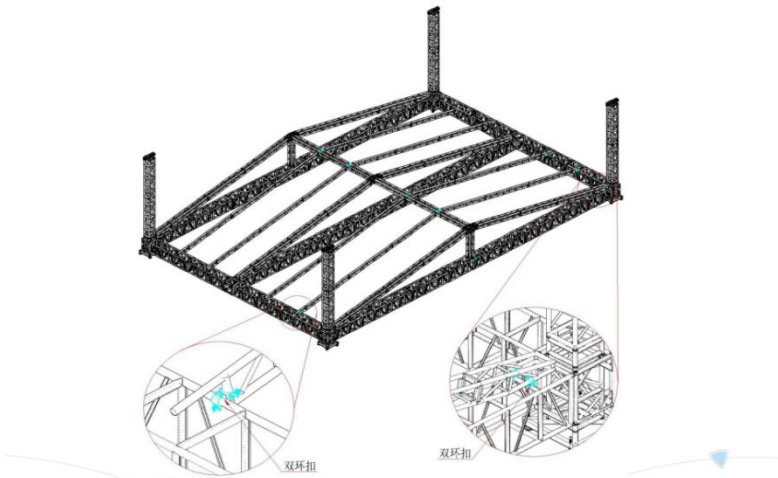
7、再把金字顶横梁连接到立柱上，如图所示。



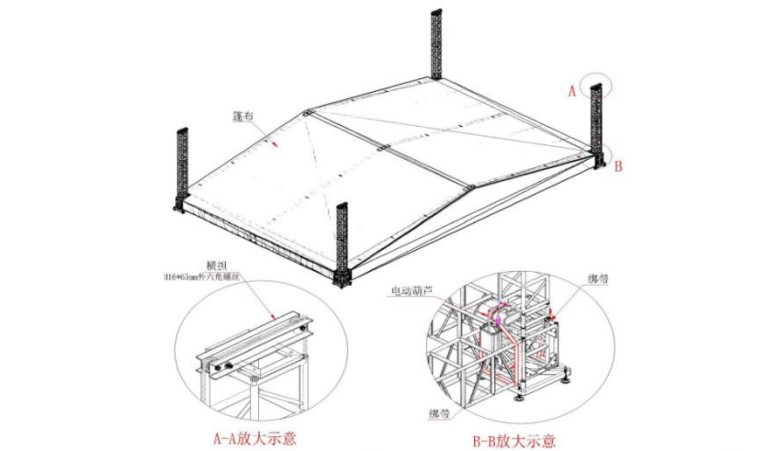
8、接着按照金字顶斜梁及单排架斜梁，如图放大所示，找相应的桁架，连接起来并安装到相应的位置。



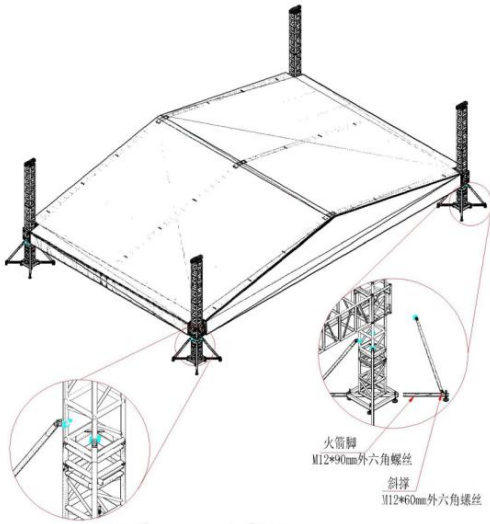
9、常用吊带捆绑方法如图



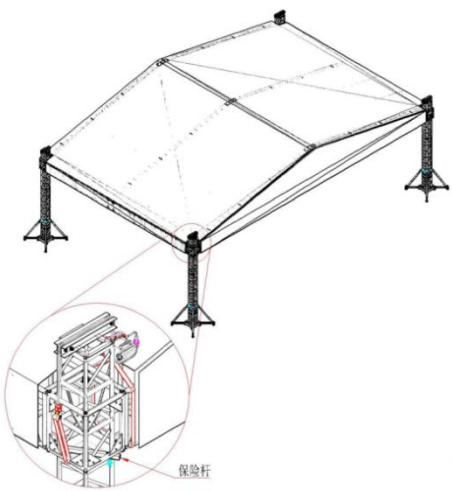
10、接着把金字顶斜梁及副斜梁的扣件（双环扣安装上去并栓紧）。



11、然后盖上篷布，篷布眼孔用黑胶绳捆绑牢固，在进行安装电动葫芦，施工人员需穿戴好防护用品，爬到立柱上把葫芦链条挂在横担，横梁处用绑带进行捆绑在把葫芦钩上即可。（捆绑方式可看附图）



12、接着确保整体桁架已经连接到位并用螺丝栓紧，然后把葫芦电源线接到控制器上，进行初步调平后，再把桁架整体升高到2-2.5m，然后安装火箭脚及斜撑。



13、火箭脚、斜撑安装完毕后，接着把桁架整体再升高所需的高度。然后需在方套底部安装保险杆;安装好保险杆后即可完成搭建。

三、维护保养注意事项

3.1.桁架应避免尖锐物体划伤；

3.2.在桁架搬运过程中应尽量避免与粗糙地面推拉摩擦；

3.3.本桁架的材质为航空铝合金，应避免与具有腐释性和酸性液体接触；

3.4.铝合金桁架应避免长时间浸泡，如果使用环境为水中环境则需要采用做阳极氧化处理工具的桁架方可；桁架表面如有污垢，因及时用清水软布擦拭清洁；

3.5.桁架的储存应尽量避免存放较潮湿的环境（储存环境温度：≤55℃、湿度：≤90%)，每次使用前需对桁架的焊接位是否因荷载过大造成裂缝或整体结构变形进行排查，确保受损桁架及时得到修复，保障舞台桁架结构安全；

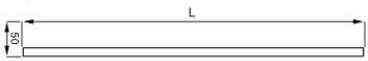
3.6.当桁架在使用过程受到一定承重荷载时，会有轻微弯曲，弯曲弧度应小于桁架承重荷载表的范围之内，当承重和荷载减弱或停止时便可自然恢复（详情请参考桁架承重荷载表）；

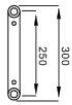
3.7.在舞台桁架搭建过程中应严格按操作规程中的要求进行搭建，并严格参照桁架承重荷载范围及跨度进行操作，搭建单位人员应符合国家或当地法律、法规的相关要求资质，方可上岗操作。

3.8 本说明书的最终解释权归耀纳舞台科技所有！

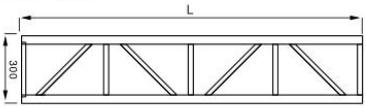
四、螺丝桁架承重荷载表

Top View





Side View



TBL300(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ30X2.0
Braces : Φ25X2.0

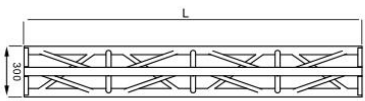
MAXIMUM ALLOWABLE POINT LOADS

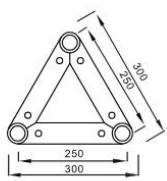
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	264	580.8	4	0.2	407	895.4	3	0.1	9
4	13.1	112	246.4	8	0.3	231	508.2	7	0.3	18
6	19.7	43	94.6	35	1.4	131	288.2	33	1.3	27
8	26.2	20	44	76	3.0	82	180.4	57	2.2	36

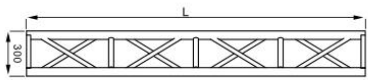
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBT300(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ30X2.0
Braces : Φ25X2.0

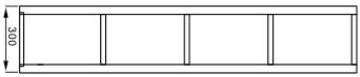
MAXIMUM ALLOWABLE POINT LOADS

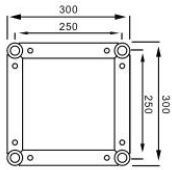
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	615	1353	5	0.2	968	2129.6	4	0.2	14
4	13.1	228	501.6	13	0.5	737	1621.4	12	0.5	28
6	19.7	117	257.4	25	1.0	450	990	23	0.9	42
8	26.2	67	147.4	46	1.8	366	805.2	39	1.5	56
10	32.8	43	94.6	62	2.4	254	558.8	57	2.2	70
12	39.4	31	68.2	89	3.5	205	451	79	3.1	84

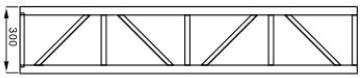
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSO3030(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ30X2.0
Braces : Φ25X2.0

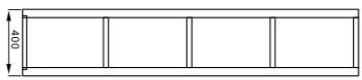
MAXIMUM ALLOWABLE POINT LOADS

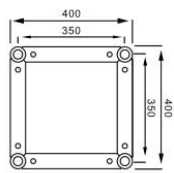
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	805	1771	14	0.6	1285	2827	16	0.6	13
4	13.1	316	695.2	28	1.1	784	1724.8	34	1.3	26
6	19.7	139	305.8	67	2.6	432	950.4	93	3.7	39
8	26.2	73	160.6	99	3.9	217	477.4	108	1.3	52
10	32.8	41	90.2	138	5.4	102	224.4	135	5.3	65

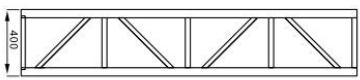
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSO4040(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ30X2.0
Braces : Φ25X2.0

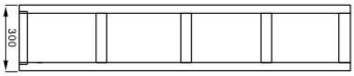
MAXIMUM ALLOWABLE POINT LOADS

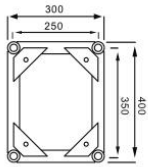
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1096	2411.2	19	0.7	1285	2827	17	0.7	21.5
4	13.1	326	717.2	48	1.9	911	2004.2	54	2.1	43
6	19.7	151	332.2	66	2.6	543	1194.6	87	3.4	64.5
8	26.2	92	202.4	102	4.0	421	926.2	91	3.6	86
10	32.8	60	132	139	5.5	214	470.8	113	4.4	107.5
12	39.4	35	77	147	5.8	105	231	138	5.4	129

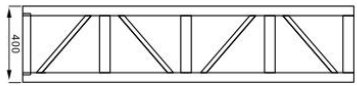
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSA3040(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ25X2.0

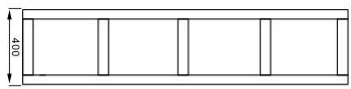
MAXIMUM ALLOWABLE POINT LOADS

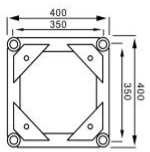
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1188.5	2614.8	3.7	0.1	1303.9	2868.5	2.3	0.1	21.7
4	13.1	531	1168.2	8.7	0.3	949.5	2089	7.6	0.3	43.4
6	19.7	281.8	619.9	14.9	0.6	821.2	1806.6	11.2	0.4	65.1
8	26.2	142.3	313	22.3	0.9	675	1485	21.8	0.9	86.8
10	32.8	94.9	208.7	30.7	1.2	577.5	1270.6	28.8	1.1	108.5
12	39.4	63.2	139.1	36.3	1.4	458.9	1009.5	40.5	1.6	130.2
14	45.9	43.2	94.9	54.7	2.2	360	791.9	55.1	2.2	151.9
16	52.5	29.8	65.5	67	2.6	280.9	617.9	72.5	2.9	173.6

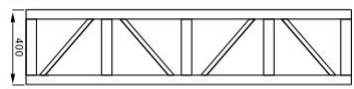
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSA4040(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ25X2.0

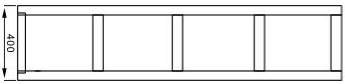
MAXIMUM ALLOWABLE POINT LOADS

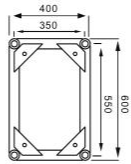
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1278	2811.6	4	0.2	1402	3084.4	2.5	0.1	22
4	13.1	581	1278.2	9.3	0.4	1021	2246.2	8.2	0.3	44
6	19.7	303	666.6	16	0.6	883	1942.6	12	0.5	66
8	26.2	153	336.6	24	0.9	725.8	1596.8	23.4	0.9	88
10	32.8	102	224.4	33	1.3	621	1366.2	31	1.2	110
12	39.4	68	149.6	39	1.5	493.4	1085.5	43.5	1.7	132
14	45.9	46.4	102.1	58.8	2.3	387.1	851.5	59.2	2.3	154
16	52.5	32	70.4	72	2.8	302	664.4	78	3.1	176

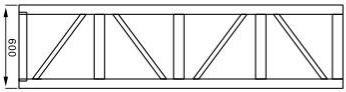
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSA4060(Loading table)

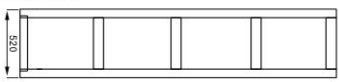
Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ25X2.0

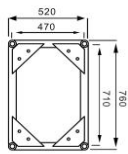
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		MAXIMUM ALLOWABLE POINT LOADS Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1410	3102	4	0.2	1527	3359.4	3.0	0.1	22.3
4	13.1	617.7	1359	8.8	0.3	1261.2	2774.6	7.8	0.3	44.6
6	19.7	397	873.4	12	0.5	1084	2384.8	11	0.4	66.9
8	26.2	262.5	577.5	19.5	0.8	903.2	1987	16.9	0.7	89.2
10	32.8	181.8	400	28.8	1.1	752.5	1655.6	24.2	1.0	111.5
12	39.4	128	281.6	40	1.6	632	1390.4	33	1.3	133.8
14	45.9	98.9	217.5	57.1	2.2	571.2	1256.6	45.5	1.8	156.1
16	52.5	77	169.4	78.4	3.1	520.5	1145.2	61.2	2.4	178.4
18	59.1	60	132	104	4.1	480	1056	80	3.1	200.7
20	65.6	49	107.8	118	4.6	407	895.4	100	3.9	223

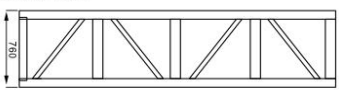
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSA5276(Loading table)

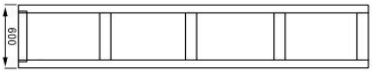
Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ25X2.0

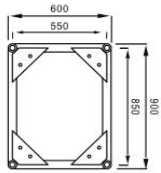
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		MAXIMUM ALLOWABLE POINT LOADS Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1694	3726.8	4	0.2	1786	3929.2	3.0	0.1	24.8
4	13.1	807	1775.4	8.5	0.3	1587	3491.4	7.6	0.3	49.6
6	19.7	470.3	1034.7	12.9	0.5	1288.2	2834	11.4	0.5	74.4
8	26.2	302	664.4	18.4	0.7	1039.2	2286.2	16.2	0.6	99.2
10	32.8	201	442.2	25	1.0	840	1848	22	0.9	124
12	39.4	154.6	340.1	35.1	1.4	753.2	1657	30.3	1.2	148.8
14	45.9	115.9	255.1	47.8	1.9	680.9	1497	40.6	1.6	173.6
16	52.5	85	187	63	2.5	623	1370.6	53	2.1	198.4
18	59.1	70.6	155.3	81.7	3.2	542.2	1192.8	63.4	2.5	223.2
20	65.6	58.6	128.9	105	4.1	474.9	1044.7	76.4	3.0	248
22	72.2	49	107.8	133	5.2	421	926.2	92	3.6	272.8

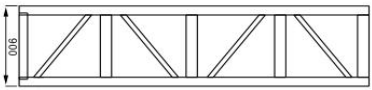
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSA6090(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ30X2.0

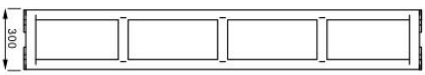
MAXIMUM ALLOWABLE POINT LOADS

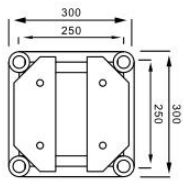
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	3194.1	4472.2	4.8	0.2	2715.3	4715	1.0	0.1	32.7
4	13.1	1388.3	2130.5	14.6	0.4	2293.6	4189.7	10.2	0.4	65.4
6	19.7	903.4	1241.7	21.3	0.6	2057.1	3400.8	14.6	0.5	98.1
8	26.2	642.9	797.3	32.3	0.9	1759	2743.5	20.2	0.8	130.8
10	32.8	425.8	552.8	46.1	1.2	1510.6	2310	27.3	1.1	163.5
12	39.4	257.6	425.2	63.8	1.7	1340.4	2071.3	36.5	1.5	196.2
14	45.9	217.3	318.8	79.3	2.4	1235.9	1872.4	48.6	2.0	228.9
16	52.5	183.8	243.1	98.7	3.2	1148.8	1781.8	63.8	2.7	261.6
18	59.1	157	201.9	122	4.2	1079.1	1550.7	82.1	3.2	294.3
20	65.6	128.3	174	150.4	5.6	924.9	1410.4	97.7	4.1	327
22	72.2	108.6	145.5	183.3	7.1	825.1	1250.4	115.5	4.9	359.7
24	78.7	92.8	114.4	222.7	8.7	745.3	1067	136.9	5.7	392.4
26	85.3	72.6	83.3	246.7	10.3	665.5	883.6	163.2	6.6	425.1
28	91.9	57.4	52.1	271.9	11.8	612.7	700.3	193	7.5	457.8
30	98.4	45.2	21	307.2	13.4	570.5	516.9	232.8	9.3	490.5

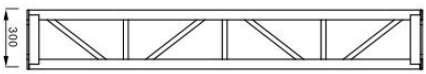
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSH3030(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ30X2.0/50X2.0
Braces : Φ25X2.0

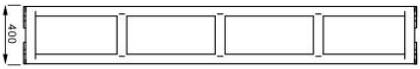
MAXIMUM ALLOWABLE POINT LOADS

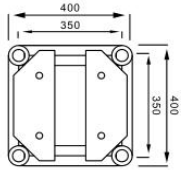
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
4	13.1	460.8	1067	8.2	0.3	705.6	1724.8	4.5	0.2	32.6
6	19.7	264.1	624.8	25.2	1.0	486.9	1231.1	17.5	0.7	48.9
8	26.2	138	330	37.1	1.4	348.5	902	26.5	1.0	65.2
10	32.8	78.3	191.4	65.7	2.4	264.1	717.2	51.6	1.9	81.5
12	39.4	40.1	99	85.8	3.1	216	594	69.3	2.5	97.8

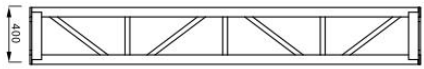
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSH4040(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ30X2.0

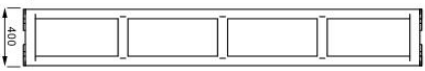
MAXIMUM ALLOWABLE POINT LOADS

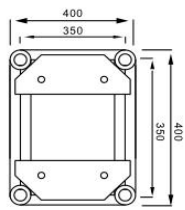
Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1533.6	2811.6	3.9	0.2	1682.4	3084.4	2.5	0.1	23.7
4	13.1	708.8	1278.2	9.1	0.4	1245.6	2246.2	8.0	0.3	47.4
6	19.7	366.6	666.6	15.4	0.6	1068.4	1942.6	11.5	0.5	71.1
8	26.2	188.2	336.6	23.8	0.9	892.7	1596.8	23.2	0.9	94.8
10	32.8	126.5	224.4	31.4	1.3	770	1366.2	29.5	1.2	118.5
12	39.4	83.6	149.6	35.1	1.5	606.9	1085.5	39.2	1.7	142.2
14	45.9	59.4	102.1	54.1	2.3	495.4	851.5	54.5	2.3	165.9
16	52.5	41.3	70.4	61.9	2.8	389.6	664.4	67.1	3.1	189.6

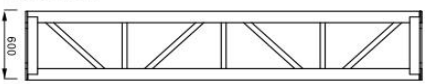
1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

Top View





Side View



TBSH4060(Loading table)

Main Tube : Φ50X3.0 Vice Tube : Φ50X2.0
Braces : Φ30X2.0

MAXIMUM ALLOWABLE POINT LOADS

Material:
6061-T6 ☑
6082-T6 ☑

SPAN		Uniformly Distributed Load UDL		DEFLECTION		Centre Point Load CPL		DEFLECTION		SPAN
m	ft	kg/m	lbs/ft	mm	inch	kgs	lbs	mm	inch	total weight(kg)
2	6.6	1692	3102	3.9	0.2	1832.4	3359.4	2.9	0.1	24.4
4	13.1	753.6	1359	8.5	0.3	1538.7	2774.6	7.6	0.3	48.8
6	19.7	480.4	873.4	11.5	0.5	1311.6	2384.8	10.6	0.4	73.2
8	26.2	322.9	577.5	19.3	0.8	1110.9	1987	16.7	0.7	97.6
10	32.8	225.4	400	27.4	1.1	933.1	1655.6	23	1.0	122
12	39.4	157.4	281.6	36	1.6	777.4	1390.4	29.7	1.3	146.4
14	45.9	126.5	217.5	52.5	2.2	731.1	1256.6	41.9	1.8	170.8
16	52.5	99.3	169.4	67.4	3.1	671.5	1145.2	52.6	2.4	195.2
18	59.1	76.2	132	97.8	4.1	609.6	1056	75.2	3.1	219.6
20	65.6	61.3	107.8	108.6	4.6	508.8	895.4	92	3.9	244

1 inch=25,4mm | 1m=3.28ft | 1 lbs=0,453kg

扫码查看安装视频

大型舞台安全结构解决者！