



# TELESCOPE

## Motorized Lighting Suspension



*Mod. 8400*

## FEATURES

The De Sisti TELESCOPE is a single point suspension specifically designed to provide rigidity and stabilization of all moving parts.

It can extend up to 35' (10.5 meters) and it incorporates two primary elements, being: the suspension element and the trolley for either rail or top grid mounting.

The suspension element remains basically the same irrespective of the final overall configuration of the telescope. It is made up from the tube pack and the winch unit.

The tube pack is a series of STAINLESS STEEL square section tubes which telescope together for changes of length with, at the bottom end, a standard 1 1/8" (28.57 mm) B.S or DIN socket for luminaries attachment, and lift cables which run internally through the pack and over pulleys fitted at the top to the winch.

The winch unit is design to be completely self-sustaining, with the lift cables winding onto a pile type twin cable drum. The winch unit and tube pack are held in relationship by side plates which, in addition to serving as a mounting base for electrical terminal, plug-in electronic boards or control boxes, are designed with a top quick action mounting either to different kind of trolleys or to mounting accessories for fixed location.

- 75 kg. NET LIFTING CAPACITY (S.W.L.) special versions are available on request for higher load capacity.
- MOTORIZED DYNAMICALLY SELF SUSTAINING GEAR BOX.
- 2 INDEPENDENT LIFTING ROPES WITH COMPENSATOR DEVICE.
- TOP AND BOTTOM LIMITS WITH DOUBLE EXTRA EMERGENCY SWITCHES.
- STAINLESS STEEL TUBE PACK WITH STABILIZING BOTTOM DEVICE.
- NET EXTENSION UP TO 10,5 m. FOR 13,5 m. MAX SUPPORTS HEIGHT.
- ELECTRICAL CONFIGURATION OF BOTTOM BOX ON REQUEST.
- CHOICE OF BOTTOM B.S. OR DIN SOCKETS

### Hanging Versions

- MANUAL OR MOTORIZED TROLLEY FOR SPECIAL PROFILE
- MANUAL OR MOTORIZED TROLLEY FOR D RAIL OR IPE 80
- MANUAL OR MOTORIZED TROLLEY FOR IPN 120 – 140 – 160
- SPECIAL COUPLING CLAMPS ARRAY FOR TRUSS MOUNTING
- C CLAMP FOR PIPE MOUNTING

### Top Grid Versions

- TOP GRID TROLLEY FOR GRID SLOTS FROM 70 TO 60 mm.
- CHOICE OF MANUAL OR MOTORIZED TROLLEY
- PEDAL ACTIVATED LIFT AND ROTATING MECHANISM (for transfer slots)

## SPECIFICATIONS

- **SAFETY:** The TELESCOPE complies with all safety standards set forth by the Internationally recognized testing authorities, is approved by TÜV to the German Standards DIN 15560 part 46, and by UL laboratories. These standards are directly associated with the safety of suspensions systems mounted above an assembly of people.
- **FLEXIBILITY:** The TELESCOPE comprises of a Stainless Steel tube pack, with a series of square section tubes that telescope together to stabilize the moving load. A standard 1 1/8" (28.57mm.) socket is fitted at bottom for luminaries attachment. The winch unit is completely self sustaining and it is held, in relationship with the tube pack, by side plates which, in addition to serving as a mounting base for electrical terminal, plug-in electronic boards or control boxes, are designed with a top quick action mounting either to different kind of trolleys or to mounting accessories for fixed location. The TELESCOPE is factory pre-configured for different extensions, up to 35' (10.5 meters).
- **MECHANICAL:** The TELESCOPE can be specified for up to 35' net extension and can carry loads up to 165 lbs (75kg) SWL (Safe Working Load). The top part includes a flange to fit either trolleys or clamps for grid mounting. The bottom part is a standard 1 1/8" (28.57mm. ) spigot receiver,

and a number of special accessories are available on request for special applications (holders for VIDEO PROJECTORS; CAMERAS or SPEAKERS).

- **ELECTRICAL:** The TELESCOPE is usually configured to carry either a 20 A or a 50 A circuit, 1 DMX and direct mains feed. In case of special application it can be equipped, on request, with data cables like Audio, Video or Ethernet. The motorized winch unit houses a 550 W motor 3 Phase 230/400 volts. It is available an option to fit an INVERTER at the input of the TELESCOPE and obtain a soft start and soft stop on the vertical movement (ideal when the suspension is used as a VIDEO CAMERA support).
- **OPTIONAL FEATURES:** The De Sisti TELESCOPE offers several unique optional features:
  - 1) **Memorized Positioning Control** memorizes and recalls the position of each TELESCOPE and records the information into a preset.
  - 2) **DMX Up/Down and Positioning Control** via a standard lighting control board or any DMX control system

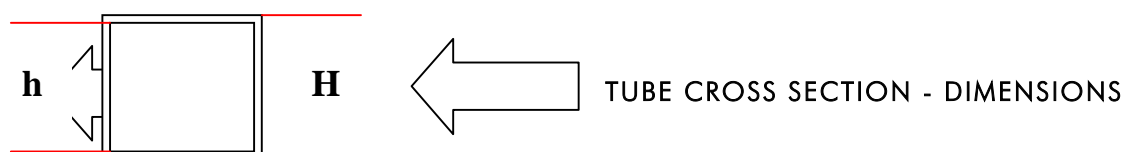
## CHARACTERISTICS & PERFORMANCE DATA

<b>Lifting capacity:</b>	Max. 75 kg / 165 lbs. Load sensors tunable at lower loads		
<b>Lift cables:</b>	2 independent lift cables, 3-mm. diameter, 7 x 19 construction, carbon steel wire ropes, specific resistance class 180 kg./ sq.mm. UNI 7293-74. Minimum breaking load 977 kg. / 2150 lbs.		
<b>Lifting speed (average):</b>	<b>With 3 phase motor</b>	<b>With 3 phase motor &amp; inverter</b>	
	7.25 m/min. - 23' 9"/min.	9.5 m/min. - 31' 2"/min.	
<b>Winch unit motor Electrical specs:</b>	Three Phase supply: 550 W		
	<b>Type of input voltage</b>	230/400V 50 Hz +/- 5 %	120/208V 60Hz +/- 5%
	Nominal Steady state current per phase	2.1A @ 220V - 1.25A @ 380V	4.1A @ 120V - 2.4A @ 208V
	Inrush current	5A @ 220V - 3A @ 380V	16A @ 120V - 9A @ 208V
	Cos F	0.7	0.7
<b>Inverter for motor supply in single phase:</b>	Power: 750 W Input: Single phase 220 V 50 Hz. Output: 3 phase 220 V Frequency 0-60 Hz. Soft start and stop 0.5 sec. Motor direction reversing		
<b>Load Sensing:</b>	Over/under load sensing mechanism independent on each lift cable.		
<b>Closed dimensions (depending on extension)</b>	<b>Minimum</b>	<b>Maximum</b>	
	1.050 mm. - 3' 5"	1.970 mm. - 6' 6"	
<b>Max extension available (special versions on request):</b>	35' - 10.5 m. To determine hanging point please add 1.05 m. closed dimension and 1.5 m. from the floor as bottom limit position.		
<b>Self weight of TELESCOPE</b>	<b>Minimum</b>	<b>Maximum</b>	
	53 kg. - 117 lbs.	77 kg. - 169 lbs.	
<b>Control systems available</b>	PBS-HMC	HDC-HRC	DMX ICARUS 2000/DMX
<b>Travel limit system</b>	TÜV approved mechanism, including 4 fine adjustable safety switches (resolution of 3 mm. in a 10.5 m. travel), including: EXTRA TOP LIMIT, TOP LIMIT, BOTTOM LIMIT, EXTRA BOTTOM LIMIT The mechanism can be easily retrofitted with positioning sensor.		

## SPECIAL FEATURES ON DE SISTI TELESCOPES

### A – ADVANTAGES IN USING STAINLESS STEEL TUBES INSTEAD OF ALLOY:

The De Sisti Telescopes are equipped with STAINLESS STEEL TUBE SETS, while other telescopes built from different manufacturers are equipped with ALUMINIUM TUBE SETS. The main function of the telescopic tube arrangement is to mechanically stabilize the load from swinging, when lowered down. The use of Stainless Steel is in general guaranteeing a much better stability in comparison with the Aluminum. It is indicated herewith a basic calculation to show the mechanical parameters and the more stable characteristics of the stainless steel:



$$\text{TORQUE} = M_t = 2/9 * (H^4 - h^4) : h * K_f$$

$$\text{Corresponding deformation angle in RADIANTS} = \alpha = 6 m * M_t : (H^4 - h^4) * L : G$$

$K_f$  = Unitary load per square mm.

$L$  = Sample length of 1 m.

$G$  = Tangential Young Modulus

$ss$  = Yield strength

<b><math>K_{f_a}</math> on aluminum with safety factor 5</b>	<b><math>K_{f_{ss}}</math> on Stainless Steel with safety factor 5</b>
$K_{f_a} = ss : \text{Safety factor} = 110 : 5 = 22 \text{ N/mm}^2$	$K_{f_{ss}} = ss : \text{Safety factor} = 205 : 5 = 41 \text{ N/mm}^2$
<b>APPLICABLE TORQUE:</b>	
<b>Applicable TORQUE on aluminum</b>	<b>Applicable TORQUE on Stainless Steel</b>
$M_{t_a} = 2/9 * (H^4 - h^4) : h * K_{f_a} = 18.309 \text{ Nmm}$	$M_{t_{ss}} = 2/9 * (H^4 - h^4) : h * K_{f_{ss}} = 34.127 \text{ Nmm}$

By substituting  $K_f$  (once for the aluminum and once for the Stainless steel) on the TORQUE formula, it is evident that the applicable torque on the stainless steel tube (assuming it is of the same dimension of the aluminum one) is almost two times bigger (very important in case a P.O. light is moved by hands to slide on its clutch).

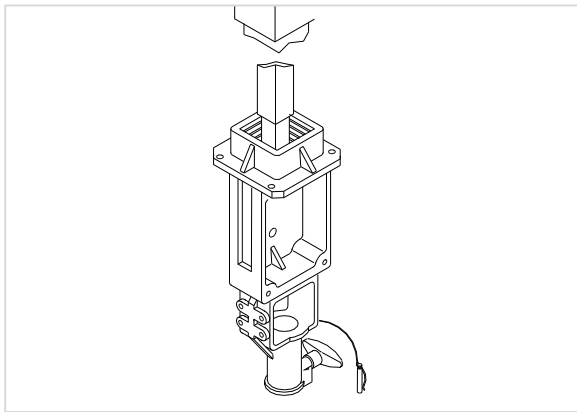
### Corresponding deformation angle in RADIANTS

Deformation angle on aluminum	Deformation angle on Stainless Steel
$\alpha = 6 m * M_{t_a} : (H^4 - h^4) * L : G = 0,06 \text{ Rad.}$	$\alpha = 6 m * M_{t_{ss}} : (H^4 - h^4) * L : G = 0,047 \text{ Rad.}$
$\alpha = 0,06 \text{ Rad.} = 3,4^\circ$	$\alpha = 0,047 \text{ Rad.} = 2,6^\circ$

**N.B.** The above angles are calculated with the above applicable torque, therefore the approximately 1,5 times smaller deformation angle on the stainless steel is obtained by applying a torque on it which is twice the one applied on the aluminum. This explains the big advantage of using stainless steel for this application.

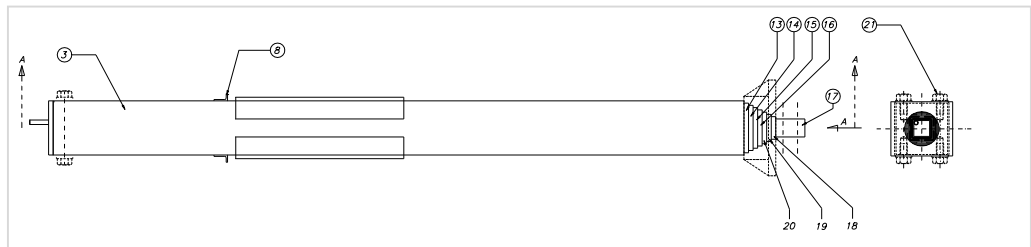
**B - SPECIAL FEATURE TO MINIMIZE THE HORIZONTAL PLAY OF THE MOVING SOCKET:**

The De Sisti telescopic tube set is equipped with a special casting that locks the horizontal play of those tube sections not extended. The result is that the horizontal play on the moving part of the socket is only the one of the semi-extended tube and is very minimum.

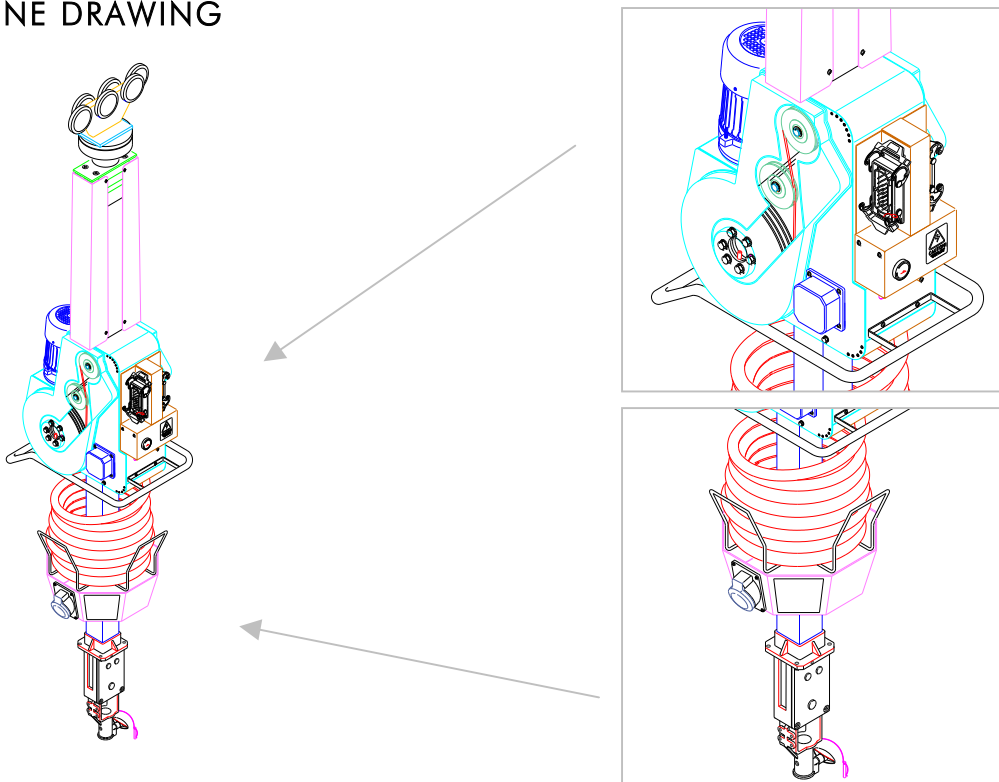


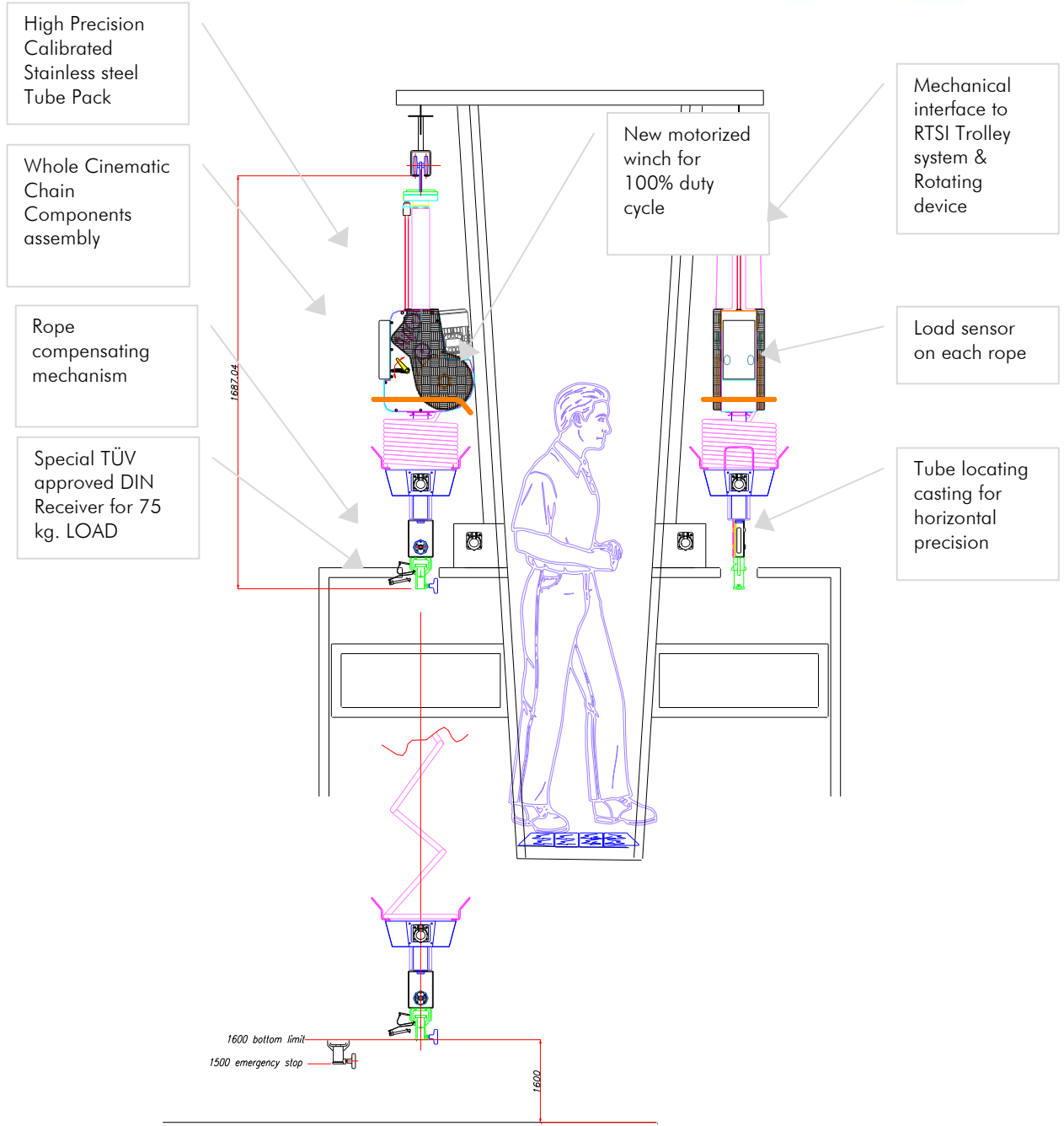
This is a very important feature, specially if using motorized luminaires or special effects devices such as scanners, moving heads or scrollers, since the support on the telescope moving part is very stable independently from the height presetted.

In other telescopes of different brands, the horizontal play of the tubes is varying with the extension of the moving part and is the result of the play addition between all the tubes interferences.



**OUTLINE DRAWING**





Spiral cable management system with compact collection basket

Circular handle, for easy grip of the telescope



## INSTALATIONS EXAMPLES

With approximately 4.000 Telescopes installed around the world in the last 15 years, successfully performing in their operation in the relevant prestigious Studios, De Sisti Lighting has a recognizable leading position worldwide, specially when TOP QUALITY and RELIABILITY are of prime importance.

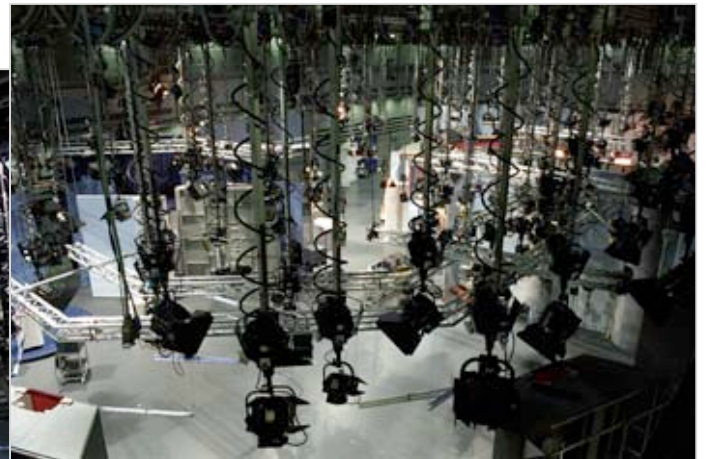
The following pictures are just a few examples of the multiple installations utilizing De Sisti Telescopes, weather Over Grid or Hanging types.

The Company is also supporting the different Customers with periodical inspections routines to comply with the maintenance of Safety Requirement impose by the Safety Standards.

All De Sisti rigging products are TÜV Certified.



*NDR - Germany*



*NDR - Germany*



*ZDF Capital Studios - Germany*



*HR - Germany*