

Super LED F10

165 W High Power – Enhanced CRI

LED Fresnel SPOTLIGHT CRI greater than 90

White light, either Tungsten or Daylight balanced Correlated Colour Temperature



Led Leonardo Standard Range



Super Led Fresnel Range



LED Lighting, Green Energy

OVERVIEW

The Super LED F10 is a high efficiency Fresnel lens spotlight using the innovative High Power 165W COB (Chip on Board) LED ARRAY, in combination with the DE SISTI Internationally Patented optical system for LED FRESNEL and with an enhanced CRI (Color Rendering Index) higher than 90 for appropriate chromacity performances.

The Lighting Fixture is DMX Controlled from 0 to 100% with a super smooth Dimming and a negligible variation of Colour Temperature while controlling the Light intensity.

The Super LED F10 is available with either Tungsten (3.200°K) or Daylight (5.600°K) Balanced CCT (Correlated Color Temperature), in both cases with a CRI higher than 90 and both in Manual or Pole operated versions.

The lighting Performances of the Tungsten Balanced CCT are outperforming from medium to full flood those of a 1500W tungsten Fresnels (in many cases it can replace a tungsten 2kW Fresnel), while the Daylight Balanced CCT outperforms a 575W HMI (it is equivalent to a 700W).

The fixture combines the classical SPOT/FLOOD beam control on an equivalent FOCUS RANGE to a conventional lamp fresnel, with an excellent barn door cutting.

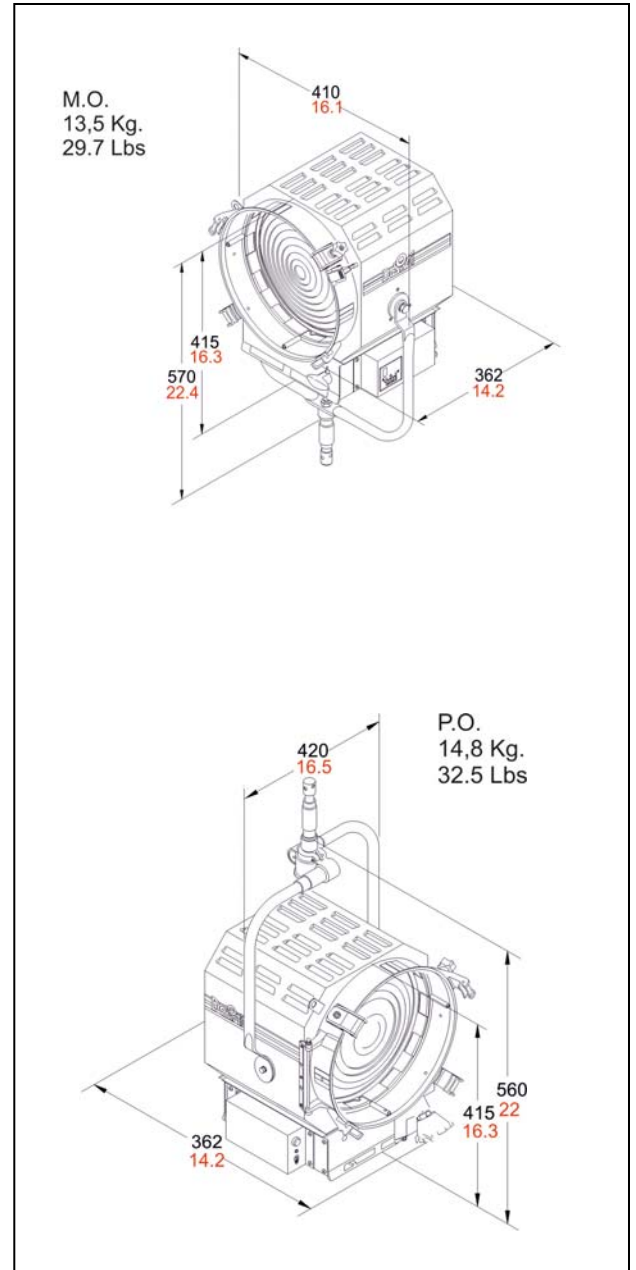
It utilizes Standard accessories from the DE SISTI range of equivalent Fresnel Lens size, such as Barndoor, Colour Frame, Cones, scrims.

FEATURES

- 250 mm. (10") diameter high quality, shock resistant Borosilicate glass Fresnel lens on spring supports.
- Rugged and Lightweight Carbon Steel housing with low glare black epoxy powder coating, with internal double walls and reinforces.
- High efficiency Self Stabilizing Active Cooling: Automatic, thermal stabilization of the LED operating temperature is managed by an internal thermal sensor and CPU, variable speed fan and heat sink to maintain the LED Array's constant temperature at a maximum of 65°C. The hydro dynamic bearing fan operates silently with a very low RPM.
- Special Patented Optics for LED Technology.
- Steel cable driven focus mechanism which guides Teflon bushings supported LED ENGINE along 2 rods. This ensures smooth operation during focusing, in any tilting position of the fixture. The Teflon bushings also provide a wiping action, which cleans the steel guide rails during focus. The focusing mechanism can be activated from both front and rear of the fixture and the whole spot to flood action is accomplished with 1 and half turn of the focusing knob.
- The unit is equipped with a hinged lens door with wire-guard, it includes accessory holding brackets. One of the 4 brackets has a locking knob and is spring loaded, it can be locked to either safely hold barndoor, color frame and scrims or to be rotated 90° and locked in an open position for fast accessories changes. A double safety accessory bracket with spring loaded catch is available on request to be assembled opposite to the locking knob.
- The accessories are secure regardless of the orientation of the fixture. Accessories have been designed for one hand installation.
- Available with either positive lock manual yokes for comfort and ease of handling, or pole operated yokes which can be used via the lighting pole for Panning and Tilting the lights as well as manually, since the mechanical activators are equipped with clutches. It is possible the conversion between the two types.

CHARACTERISTICS & PERFORMANCE DATA

DESCRIPTION	VALUE	
➤ Power to LED	165W DC Current to the LED (no flicker)	
➤ Power Consumption	Europe	America
	190W @ 230 V 50-60 Hz	205W @ 120 V 50-60 Hz
➤ DMX Data link USITT DMX512-A	This product uses a 5-pin XLR for DMX input and output. Use a shielded data cables. Do not overload the daisy chain. Up to a maximum of 32 devices can be used on a single DMX chain.	
➤ DMX Channels	1 at 8bit: Dimmer	
	2 at 16bit: Dimmer	
➤ LED ARRAY Lifetime	50.000 hours with 70% Lumen Maintenance. The LED ARRAYS are tested and certified up to LM80	
➤ Protection Type	IP 22	
➤ Max. Housing Surface Temperature	70° C	
➤ Weight of Fixture	M.O.	P.O.
	13,5 kg.	14,8 kg.
➤ Weight of Barndoor	4 leaf	8 leaf
	1,4 kg.	1,65 kg.
➤ Size of Barndoor ring	Seat Diameter	Ring Diameter
	314 mm.	313 mm. (≅12" ¹ / ₄)
➤ Weight of color frame	0,28 kg.	
➤ Size of scrims & color frame	Seat Diameter	Accessory Diameter
	306 mm.	305 mm (12")
➤ Lens diameter	250 mm.	



POWER AND DMX DAISY CHAIN



The Super LED FRESNELS permit both POWER and DMX DAISY CHAIN. In fact each Fixture is respectively equipped with:

- For DMX:
 - 1 XLR5 pin Panel Mount Male & Female (DMX IN & OUT)
- For Mains Supply
 - 1 20A Powercon NAC3MPA BLUE (POWER IN)
 - 1 20A Powercon NAC3MPB WHITE (POWER OUT)

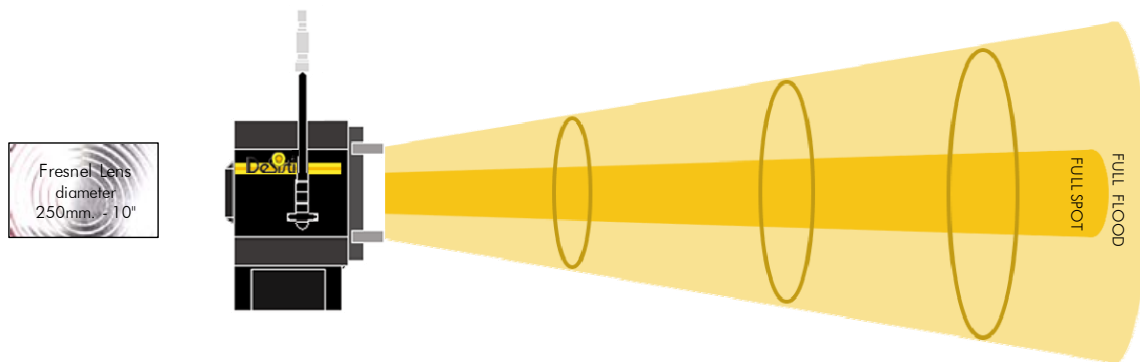
PHOTOMETRIC DATA

C.C.T. (Correlated Color Temperature) balanced to match 3.200°K TUNGSTEN LAMPS

PHOTOMETRIC DATA SUPER LED F10T - 165W (CRI 92)

C.C.T. (Correlated Color Temperature) balanced to match 3.200°K TUNGSTEN LAMPS

Illumination center values at Distances	1.491 lux	537 lux	134 lux	
Central Light intensity (Candle Power)	13.419 cd	139 FC	50 FC	
Light beam diameter with Beam Angle	3,12 mt	5,21 mt	10,41 mt	
(50% of center value): 55,0°	10.2 ft	17.1 ft	34.2 ft	
Light beam diameter with Field Angle	4,69 mt	7,81 mt	15,63 mt	
(10% of center value): 76,0°	15.4 ft	25.6 ft	51.3 ft	
FULL FLOOD	DISTANCES	3 mt	5 mt	10 mt
		9.8 ft	16.4 ft	32.8 ft



FULL SPOT	DISTANCES	3 mt	5 mt	10 mt
		9.8 ft	16.4 ft	32.8 ft
Illumination center values at Distances	11.770 lux	4.237 lux	1.059 lux	
Central Light intensity (Candle Power)	105.930 cd	1,093 FC	394 FC	
Light beam diameter with Beam Angle	0,63 mt	1,05 mt	2,10 mt	
(50% of center value): 12,0°	2.1 ft	3.4 ft	6.9 ft	
Light beam diameter with Field Angle	1,17 mt	1,94 mt	3,89 mt	
(10% of center value): 22,0°	3.8 ft	6.4 ft	12.8 ft	

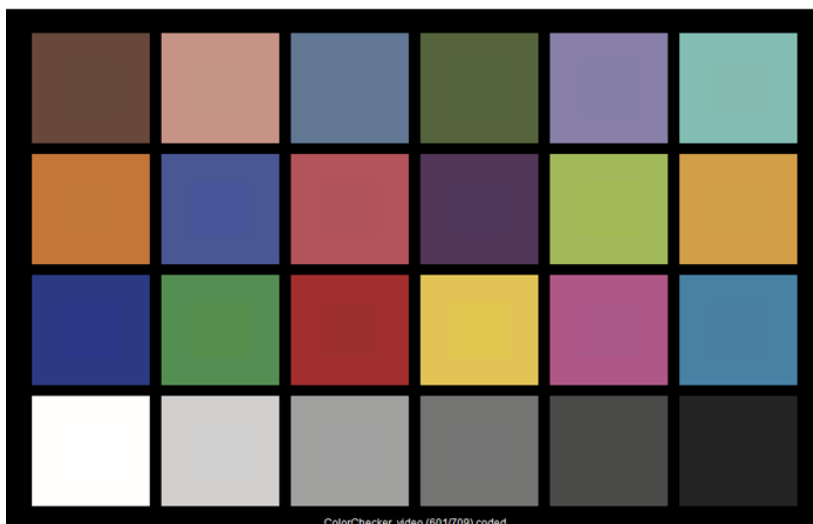
LUX AT ANY DISTANCE = Candle Power : [Distance(in m.)]²

F.C. AT ANY DISTANCE = Candle Power : [Distance(in ft)]²

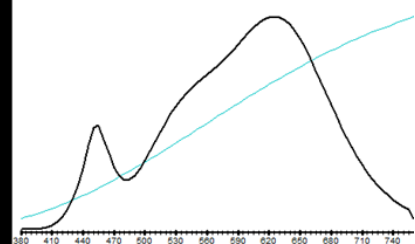
De Sisti Super LED F10T – 165W : CCT = P3065 (+0.4)

TLCI-2012 : 90 (P3065)

Television Lighting Consistency Index-2012



Sector	Lightness	Chroma	Hue
R	0	0	0
R/Y	0	0	--
Y	0	-	-
Y/G	0	-	0
G	0	0	+
G/C	0	0	+
C	0	0	+
C/B	+	0	-
B	0	-	--
B/M	0	0	++
M	+	0	++
M/R	+	0	++



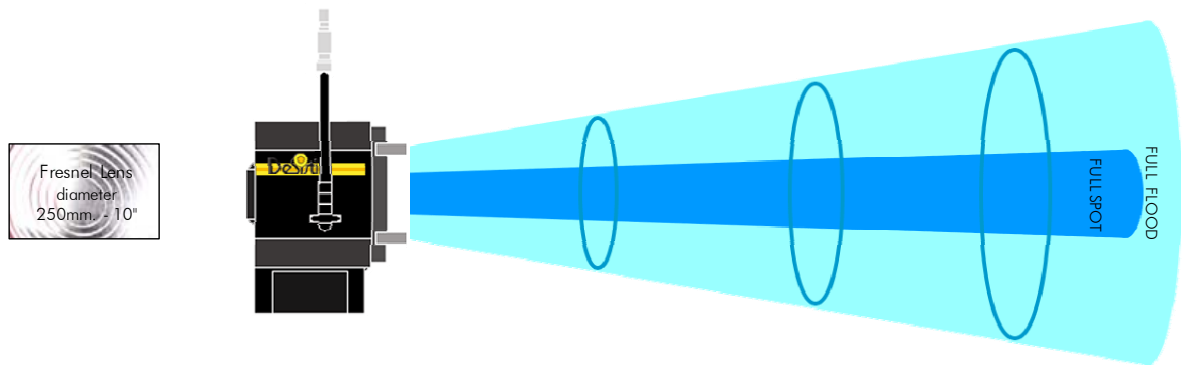
PHOTOMETRIC DATA

C.C.T. (Correlated Color Temperature) balanced to match 5.600°K DAYLIGHT LAMPS

PHOTOMETRIC DATA SUPER LED F10D - 165W (CRI 92)

C.C.T. (Correlated Color Temperature) balanced to match 5.600°K DAYLIGHT LAMPS

Illumination center values at Distances	1.896 lux	683 lux	171 lux	
Central Light intensity (Candle Power) 17.064 cd	176 FC	63 FC	16 FC	
Light beam diameter with Beam Angle	3,12 mt	5,21 mt	10,41 mt	
(50% of center value): 55,0°	10.2 ft	17.1 ft	34.2 ft	
Light beam diameter with Field Angle	4,69 mt	7,81 mt	15,63 mt	
(10% of center value): 76,0°	15.4 ft	25.6 ft	51.3 ft	
FULL FLOOD	DISTANCES	3 mt	5 mt	10 mt
		9.8 ft	16.4 ft	32.8 ft



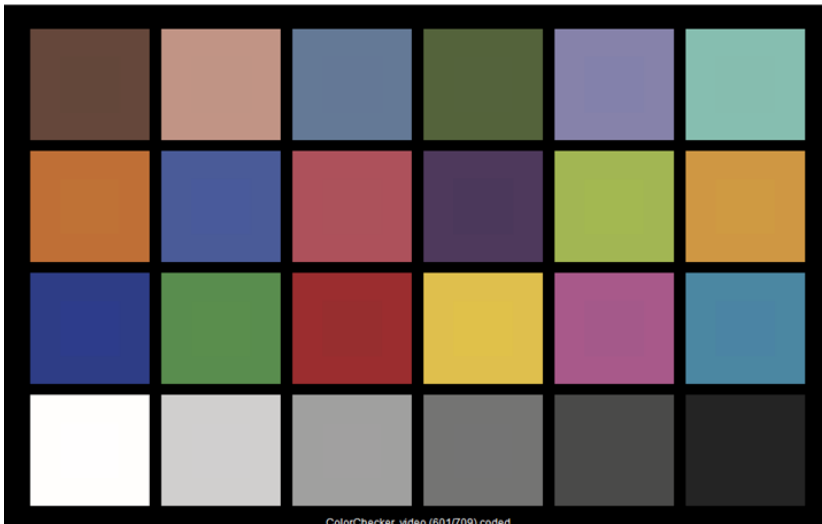
FULL SPOT	DISTANCES	3 mt	5 mt	10 mt
		9.8 ft	16.4 ft	32.8 ft
Illumination center values at Distances	13.865 lux	4.991 lux	1.248 lux	
Central Light intensity (Candle Power) 124.785 cd	1,288 FC	464 FC	116 FC	
Light beam diameter with Beam Angle	0,63 mt	1,05 mt	2,10 mt	
(50% of center value): 12,0°	2.07 ft	3.45 ft	6.90 ft	
Light beam diameter with Field Angle	1,17 mt	1,94 mt	3,89 mt	
(10% of center value): 22,0°	3.83 ft	6.38 ft	12.75 ft	

LUX AT ANY DISTANCE = Candle Power : [Distance(in m.)] ²

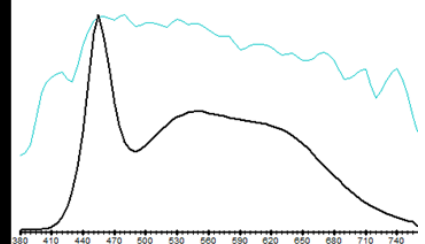
F.C. AT ANY DISTANCE = Candle Power : [Distance(in ft)] ²

De Sisti Super LED F10D – 165W : CCT = D5850 (+1.2)
TLCI-2012 : 90 (D5850)

Television Lighting Consistency Index-2012



Sector	Lightness	Chroma	Hue
R	0	0	0
R/Y	0	0	--
Y	0	-	-
Y/G	0	0	0
G	0	0	0
G/C	0	0	0
C	+	0	-
C/B	+	0	---
B	0	-	-
B/M	0	0	+
M	0	0	+
M/R	+	0	0

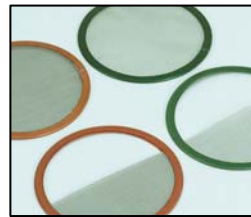
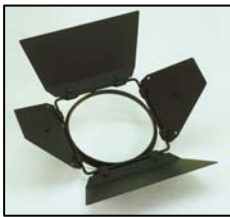


Super LED F10 *VERSIONS & MODEL NUMBERS*

<i>TUNGSTEN BALANCED CCT (CRI higher than 90)</i>	
<p>"F10T".MO.230</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>The Model Number for the DIN Spigot Version is "F10T".PO.230DIN</p> </div>	<p>Super LED "F 10 T" - high power CRI>90 Tungsten CCT, M.O. LED Fresnel Spotlight including:</p> <ul style="list-style-type: none"> - Mod. "F10T".MO.230H M.O. FIXTURE HEAD with - 250 mm. (10") diameter Fresnel lens - POWERCON IN & OUT PANEL MOUNTED CONNECTORS. - XLR 5 Pin DMX IN & OUT PANEL MOUNTED CONNECTORS. - 165W high power CRI>90 LED with Tungsten Balanced Correlated Color Temperature (CCT) - Built In Power Supply 230-240V 50/60Hz DMX controlled. - Mod. 5403.135 3 mt. detachable Blue POWERCON power cable with bare ends - Mod. LT320.110.40 M.O. yoke with 28,57 mm. spigot (B.S. 1 1/8"), with top end for "C" clamp - Mod. 326.110 four leaf rotating barndoor - Mod. 327.100 colour frame <p>DMX cable is not included, to be ordered separately</p>
<p>"F10T".PO.230</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>The Model Number for the DIN Spigot Version is "F10T".PO.230DIN</p> </div>	<p>Super LED "F 10 T" - high power CRI>90 Tungsten CCT, P.O. LED Fresnel Spotlight including:</p> <ul style="list-style-type: none"> - Mod."F10T".PO.230H P.O. FIXTURE HEAD with - 250 mm. (10") diameter Fresnel lens - POWERCON IN & OUT PANEL MOUNTED CONNECTORS. - XLR 5 Pin DMX IN & OUT PANEL MOUNTED CONNECTORS. - 165W high power CRI>90 LED with Tungsten Balanced Correlated Color Temperature (CCT) - Built In Power Supply 230-240V 50/60Hz DMX controlled. - Mod. 5403.135 3 mt. detachable Blue POWERCON power cable with bare ends - Mod. 321.110.40 P.O. yoke with 28,57 mm. spigot (B.S. 1 1/8"), with top end for "C" clamp - Mod. 326.110 four leaf rotating barndoor - Mod. 327.100 colour frame <p>DMX cable is not included, to be ordered separately</p>
<i>DAYLIGHT BALANCED CCT (CRI higher than 90)</i>	
<p>"F10D".MO.230</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>The Model Number for the DIN Spigot Version is "F10D".MO.230DIN</p> </div>	<p>Super LED "F 10 D" - high power CRI>90 Daylight CCT, M.O. LED Fresnel Spotlight including:</p> <ul style="list-style-type: none"> - Mod. "F10D".MO.230H M.O. FIXTURE HEAD with - 250 mm. (10") diameter Fresnel lens - POWERCON IN & OUT PANEL MOUNTED CONNECTORS. - XLR 5 Pin DMX IN & OUT PANEL MOUNTED CONNECTORS. - 165W high power CRI>90 LED with Daylight Balanced Correlated Color Temperature (CCT) - Built In Power Supply 230-240V 50/60Hz DMX controlled. - Mod. 5403.135 3 mt. detachable Blue POWERCON power cable with bare ends - Mod. LT320.110.40 M.O. yoke with 28,57 mm. spigot (B.S. 1 1/8"), with top end for "C" clamp - Mod. 326.110 four leaf rotating barndoor - Mod. 327.100 colour frame <p>DMX cable is not included, to be ordered separately</p>
<p>"F10D".PO.230</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>The Model Number for the DIN Spigot Version is "F10D".PO.230DIN</p> </div>	<p>Super LED "F 10 D" - high power CRI>90 Daylight CCT, P.O. LED Fresnel Spotlight including:</p> <ul style="list-style-type: none"> - Mod. "F10D".PO.230H P.O. FIXTURE HEAD with - 250 mm. (10") diameter Fresnel lens - POWERCON IN & OUT PANEL MOUNTED CONNECTORS. - XLR 5 Pin DMX IN & OUT PANEL MOUNTED CONNECTORS. - 165W high power CRI>90 LED with Daylight Balanced Correlated Color Temperature (CCT) - Built In Power Supply 230-240V 50/60Hz DMX controlled. - Mod. 5403.135 3 mt. detachable Blue POWERCON power cable with bare ends - Mod. 321.110.40 P.O. yoke with 28,57 mm. spigot (B.S. 1 1/8"), with top end for "C" clamp - Mod. 326.110 four leaf rotating barndoor - Mod. 327.100 colour frame <p>DMX cable is not included, to be ordered separately</p>
<p>5402.503</p>	<p>DMX DAISY CHAIN CABLE 3 mt. (10') LONG, including:</p> <ul style="list-style-type: none"> - 3 mt. (10') cable terminated with XLR 5 pin Connectors (male and female) at the ends, to allow daisy chain of DMX fixtures.
<p>NOTES: The models above are for the 200/230/240V Versions. For the 100/120V Versions the last 3 digits of the model number change to .120</p>	

Super LED F10 *OPTIONALS & ACCESSORIES*

LT320.110.40	Steel tube Manual Operated stirrup with 28,57 mm. spigot (B.S. 1 1/8") with top end for attachment to "C"
LT 320.300.40	Steel tube Manual Operated stirrup with 28,00 mm. spigot (D.I.N.)
LT 320.220.40	Steel tube Manual Operated stirrup with M 12 Threaded hole
LT 321.110.40	Pole operated stirrup with 28,57 mm. spigot (B.S. 1 1/8"), with top end for attachment to "C" clamp.
321.300.40	Pole operated stirrup with 28,00 mm. spigot (D.I.N.)
325.310	Stainless Steel wire guard
326.110	Four leaf rotating barndoor
326.210	Eight way rotating barndoor
327.100	Colour Frame
328.100	Cone with two discs (with front aperture diameter: 190 mm. 150 mm. 110 mm.)
329.100	Set of scrims - Stainless steel
329.101	Full single scrim - Stainless steel
329.102	Full double scrim - Stainless steel
329.103	1/2 single scrim - Stainless steel
329.104	1/2 double scrim - Stainless steel
91.210	Aluminum black painted "C" clamp to hang fixtures overhead and for mounting on pipe with diameters up to 52 mm. (2"), with safety pin (no adapters)
93.102	Extruded Black "C" Clamp with M 12 Threaded Stud
93.103	Extruded Black "C" Clamp with M 10 Threaded Stud
15.300	DIN Spigot 28 mm. to M12 thread stud washer and nut
95.100	28,57 mm. (1 1/8") spigot to M12 threaded stud with washer and nut for "C" clamp or stand mounting
20.100	Safety cable 800 mm. long 4 mm. diameter steel rope and safety catch
DGP-A1035 CS	Combo steel stand 35
DGP-A9000N	Wheel set with brakes



INCREASED OUTPUT Super LED F10 versus LED LEONARDO 10:

The SUPER LED F10 is featuring an important increase of Light output if compared to the standard LED LEONARDO 10.

The table shows the Main Lighting Parameters comparison between the two products:

	Standard Version	Super LED	Standard Version	Super LED
	LED Leonardo 10 Tungsten CCT 150W	Super LED F10T Tungsten CCT 165W	LED Leonardo 10 Daylight CCT 150W	Super LED F10T Daylight CCT 165W
Measuring distance	3 mt	3 mt	3 mt	3 mt
FULL FLOOD		Central Light Intensity Increase 40,00%		Central Light Intensity Increase 71,74%
Illumination center values at Distances	1.065 lux	1.491 lux	1.104 lux	1.896 lux
Central Light intensity (Candle Power)	9.585 cd	13.419 cd	9.936 cd	17.064 cd
FULL SPOT		Increase 14,84%		Increase 29,58%
Illumination center values at Distances	10.249 lux	11.770 lux	10.700 lux	13.865 lux
Central Light intensity (Candle Power)	92.241 cd	105.930 cd	96.300 cd	124.785 cd

ENERGY SAVINGS:

The Energy Savings introduced by this products are remarkable.

The following table shows a Comparison of the energy conversion for both Tungsten and Daylight Super LED F10 when compared respectively to 1.500W Tungsten Fresnel and to a 700W HMI, which are the equivalent lighting performance conventional fixtures, when analysing the output beam from middle to full flood:

DE SISTI - SUPER LED F10 Energy & Thermal Savings versus equivalent Conventional Fixtures

The DE SISTI LED FRESNELS Tungsten are:

- 100% Dimmable locally or via DMX with super smooth dimming dynamics
- No separate DIMMERS required (No Dimmer Room and Simpler Cabling system)
- All self contained in the Luminaire housing (no separate ballasts or power supply)
- Power and DMX Daisy chain able
- High energy savings when compared to Tungsten Fixtures with negligible POWER REQUIREMENTS and very low Thermal Emission for contained cooling systems in the studio.
- Extremely contained Maintenance (mostly cleaning): no lamps replacement

ENERGY CONVERSION	
Visible Light	8%
IR	73%
UV	0%
Total Radiant Energy	81%
Heat (Conduction + Convection)	19%
Total Power Consumption of Lighting Fixture	100%
Total % of Input Energy converted in Thermal Dissipation	92%

ENERGY SAVINGS on LIGHTING FIXTURE consumption with DE SISTI LED
THERMAL EMISSION SAVINGS with DE SISTI LED

BTU to refrigerate the Dissipation of the Lighting Fixture	4.710 BTU
HVAC Power Consumption to produce the above BTU	440 W

Tot. CONSUMPTION in kWhrs in 2600 hrs (typical yearly use)
TOTAL yearly cost for Electricity per Fixture with 1 kWh = 0,2 €

TOTAL ENERGY SAVINGS with DS LEDS
= on LIGHTING FIXTURE + HVAC consumption

SUPER LED F10T 165W Tungsten balanced CCT Energy & Thermal Savings versus equivalent Filament Fixture			
The lighting Performances of the 165W Tungsten Balanced CCT from medium to full flood, are comparable and slightly outperforming those of a 1500W tungsten Fresnels			
Tungsten Fresnel	1.500 W	LED Fresnel	165 W
Visible Light	8%	25%	41 W
IR	73%	0%	0 W
UV	0%	0%	0 W
Total Radiant Energy	81%	0%	0 W
Heat (Conduction + Convection)	19%	75%	124 W
Total Power Consumption of Lighting Fixture	100%	100%	165 W
Total % of Input Energy converted in Thermal Dissipation	92%	75%	124 W
89%		Using the DE SISTI LED instead of Tungsten Fixtures	
91%			
BTU to refrigerate the Dissipation of the Lighting Fixture		422 BTU	
HVAC Power Consumption to produce the above BTU		39 W	
Tot. CONSUMPTION in kWhrs in 2600 hrs (typical yearly use)		5.043 kWh	
TOTAL yearly cost for Electricity per Fixture with 1 kWh = 0,2 €		€ 1.008,59	
TOTAL ENERGY SAVINGS with DS LEDS		531 kWh	
= on LIGHTING FIXTURE + HVAC consumption		€ 106,30	
Per Fixture Savings	€ 902,3	Per Fixture Savings in %	89%

The DE SISTI LED FRESNELS Daylight are:

- much less expensive then equivalent HMIs fixtures
- They are 100% Dimmable locally or via DMX with super smooth dimming dynamics
- All self contained in the Luminaire housing (no separate ballasts or power supply)
- Power and DMX Daisy chain able
- Yet introduce significant energy savings when compared to HMIs
- Extremely contained Maintenance (mostly cleaning): no expensive lamps replacement

ENERGY CONVERSION	
Visible Light	27%
IR	17%
UV	19%
Total Radiant Energy	63%
Heat (Conduction + Convection)	37%
Total Power Consumption of Lighting Fixture	100%
Total % of Input Energy converted in Thermal Dissipation	73%

ENERGY SAVINGS on LIGHTING FIXTURE consumption with DE SISTI LED
THERMAL EMISSION SAVINGS with DE SISTI LED

BTU to refrigerate the Dissipation of the Lighting Fixture	1.744 BTU
HVAC Power Consumption to produce the above BTU	163 W

Tot. CONSUMPTION in kWhrs in 2600 hrs (typical yearly use)
TOTAL yearly cost for Electricity per Fixture with 1 kWh = 0,2 €

TOTAL ENERGY SAVINGS with DS LEDS
= on LIGHTING FIXTURE + HVAC consumption

SUPER LED F10D 165W Daylight balanced CCT Energy & Thermal Savings versus equivalent Daylight Discharge Lamp Fixture			
The lighting Performances of the 165W Daylight Balanced CCT from medium to full flood, are comparable and slightly outperforming those of a 700W HMI Fresnel.			
HMI Fresnel	700 W	LED Fresnel	165 W
Visible Light	27%	25%	41 W
IR	17%	0%	0 W
UV	19%	0%	0 W
Total Radiant Energy	63%	0%	0 W
Heat (Conduction + Convection)	37%	75%	124 W
Total Power Consumption of Lighting Fixture	100%	100%	165 W
Total % of Input Energy converted in Thermal Dissipation	73%	75%	124 W
76%		Using the DE SISTI LED instead of Discharge Fixtures	
76%			
BTU to refrigerate the Dissipation of the Lighting Fixture		422 BTU	
HVAC Power Consumption to produce the above BTU		39 W	
Tot. CONSUMPTION in kWhrs in 2600 hrs (typical yearly use)		2.243 kWh	
TOTAL yearly cost for Electricity per Fixture with 1 kWh = 0,2 €		€ 448,64	
TOTAL ENERGY SAVINGS with DS LEDS		531 kWh	
= on LIGHTING FIXTURE + HVAC consumption		€ 106,30	
Per Fixture Savings	€ 342,3	Per Fixture Savings in %	76%

DE SISTI LED FRESNELS – LIGHTING QUALITY FIRST:

When choosing a FRESNEL you are expecting:

- Appropriate and effective Focusing Range from Spot to Flood
- Single shadows and their consistency within the Flood Field
- Even and wide Flood with appropriate Barn-door capability

This is exactly what you get with the DE SISTI LED FRESNELS.

The Internationally Patented Optical system specifically developed by DE SISTI to optimize the use of a LED Engine Technology in combination with a Fresnel Lens (or a Plano Convex) is providing to the DE SISTI LED FRESNELS the exact same lighting projection you would expect from a Standard Fresnel.

The following EXAMPLE SHOWS a COMPARISON between:

LED FIXTURE by "OTHERS" NOT REAL FRESNEL performances



- The Beam in full flood is NARROW (only 45°) and shows an HOT SPOT (large area to go from Beam to Field Angle)



- The Barndoor in a NOT REAL FRESNEL optics does not work properly: the projection is OVAL and the more you barndoor the more you dim the central beam



LED FIXTURE by "DE SISTI" EXACT FRESNEL performances



- The Beam in full flood is LARGE (above 60°), even and flat (No Hot Spots and rapid passage from Beam to Field Angle)



- The Barndoor on the DE SISTI LED FRESNEL has exactly the same functionality obtained with a PROPER FRESNEL optics.