

PRODUCT INFO

HÄFELE

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www.hafeleindia.com

ARCHITECTURAL LIGHTING

THE PRINCETON SERIES

HAFELE ARCHITECTURAL LIGHTING

Häfele's Loox Range has been meeting the demands for lighting in furniture as well as the growing needs for networking and digitalization since the last 10 years. The solutions offered within this range maximize simplicity and flexibility as well as assure high reliability. The range presents itself as a unique combination of elegant design and state of the art technology making it the perfect choice for any home furniture application, be it Task Lighting for Kitchen cabinets and plinths, Decorative Lighting for Living Room Showcases, Mood Lighting for Bedroom Applications or pure Functional Lighting in Wardrobes.

With the ever increasing demands for quality and specialized lighting solutions not just for furniture but also for rooms, Häfele in 2019 expanded its range offering to include ceiling cove lighting which incorporates our high quality strip lights. It was during this period that we realized that among the numerous ceiling light types available in the market, interior architectural lighting had a huge demand, however there weren't many prominent brands that offered these solutions. On one side, there existed local market players that offered these solutions without effective quality assurances, while on the other there were international brands that only catered to projects with no stable price offering or service support. This left majority of the customers without a viable choice in the market.

Identifying this distinct gap early on as an opportunity, Häfele initiated the research and engineering for a range of lights that enhances the design of architectural spaces as well as provides opportunities of achieving different illumination techniques and functionalities. As a brand, Häfele understands design and is known for its bend towards innovation. It also understands the importance of home ergonomics, lifestyle conveniences and ease of mobility within your surroundings. Our efforts towards this exercise led to the development of a versatile range of architectural lights; Häfele Architectural Lights was brought into existence.

With Häfele's New Architectural Lighting Range, you will find all your lighting needs taken care of. Whether it is lighting up a small area, highlighting a wall texture, emphasizing on a work of art, illuminating the floor space at night or simply ensuring even distribution of light across the entire space - these lights have got you covered. The range, consisting of 8 series, covers various applications, installation techniques and design themes. Each series comes with a comprehensive offering of the different types of interior lights, be it downlights, spotlight or wall washers, which allows you to implement a consistent design theme (in terms of the lighting fixtures) across the space available, even with differentiated illumination techniques. The biggest advantage this range carries is the absolutely low Unified Glare Rating (UGR). The lower the UGR rating, the lower the glare from the light fittings which therefore results in comfortable illumination in your living spaces.

The convenient plug and play assembly, impressive product specifications, flexibility in ordering components, luminaire finishes, and availability of glare reduction accessories provide an overall customized option tailored to your specific requirements. Engineered on the same philosophy of 'easiness' and 'flexibility' as the Loox furniture lighting system, Häfele can now be your holistic lighting solutions provider, delivering premium ambient, task and accent lighting for your living spaces.



ABOUT: THE PRINCETON SERIES



Wall washing is a special and unique effect that illuminates a vertical surface with flawless and even brightness. It is the element that draws attention to your textured wall, wall display, entrance or fireplace and makes it noticeable. The light fittings that deliver such effects not only need to produce a high quality light output but also need to be technically efficient.

It can therefore safely be said that achieving such a light effect and accurately installing a wall-washer is indeed an art and having a trusted brand deliver it quite rare. The Princeton series by Hafele brings you the perfect solution. The wall washers from this series give you a consistent wall illumination which reduces the effects of irregularities on the wall, provide smooth light transitions from ceiling to the wall, and an effortless gradient from the top to the bottom, presenting your wall with the elegance it deserves.

The luminaires from the Princeton series are made of Aluminium and are available in two colours - white and black. These are suitable for use in indoor applications like hotel lobbies, high-end residential apartments, museums, offices etc.

THE PRINCETON SERIES: FEATURES

1. Uniform wall washing

The precise light control of Princeton wall washers provides uniform light distribution that reduces the visibility of shadows and patches that arise due to irregularities present on the wall. Such irregularities may arise due to, for example, improper finishing of the wall surface or improper installation of wallpaper.



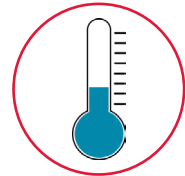
2. Hidden source of light that gives you harmonious visual experience

Multiple free form surface reflectors, also known as shells, together form a Princeton luminaire. Every shell has a reflective coating that directs the light output from the LED above. The LED in the luminaire is thus not directly visible to the naked eye, creating a hidden source of light and giving a harmonious visual experience.



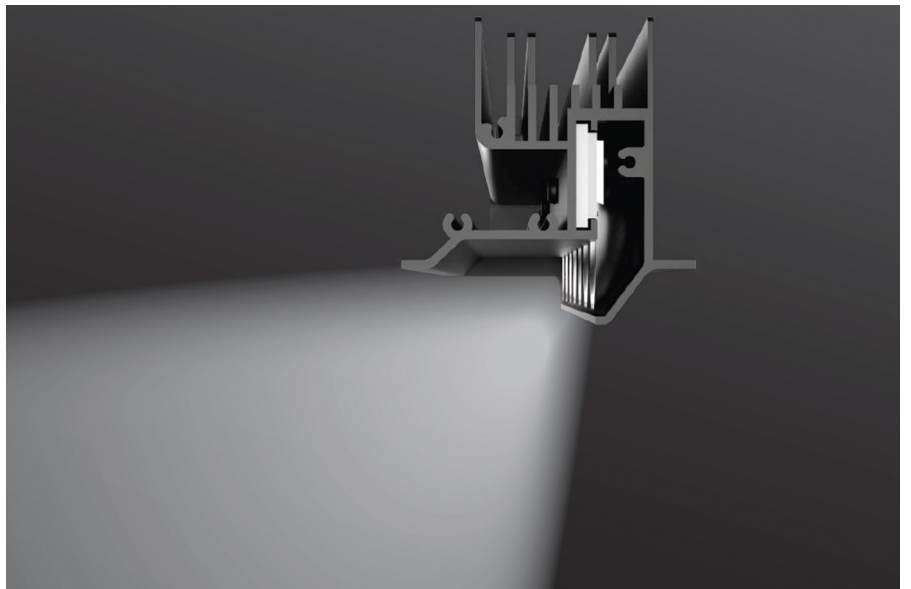
3. Optimized thermal properties that generate less heat

The innovative heat sink design optimizes the thermal properties of the Princeton luminaire, generating lesser heat even with prolonged usage. This increases the efficiency and life of the luminaire.



4. Sharp cut off angle with asymmetric light distribution

The shell design of the Princeton series luminaire provides an asymmetric light distribution that enables uniform light output starting from the top most edge of the wall. The sharp cut-off angle on both ends of the beam enables light output to evenly transition from the ceiling to the wall and transforms into a smooth gradient from the top most edge of the wall to the bottom edge offering a very comfortable visual experience.



THE PRINCETON SERIES: DECODING THE NOMENCLATURE

Princeton	8W	.2A	TR	L	WW	30K	WH
	1	2	3	4	5	6	7

Number	Category	Abbreviation	Possibilities
1	Output	W	8 Watts
			15 Watts
			22 Watts
2	Current	.2A	200mA
		.3A	300mA
		.45A	450mA
3	Mounting bracket type	TR	Trim
4	Wall washer type	L	Linear
5	Type of luminaire	WW	Wall Washer
6	Colour temperature	27K	2700 K
		30K	3000 K
		40K	4000 K
7	Finish	WH	White
		BLK	Black

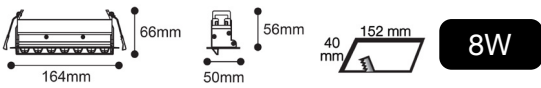
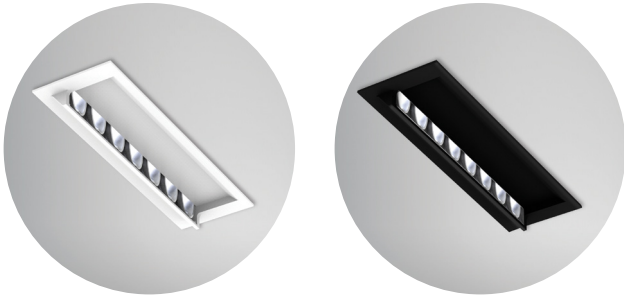
THE PRINCETON SERIES: RANGE SPECIFICATIONS

Colour temperature	2700K, 3000K, 4000K
CRI	>95
Maximum ambient temperature	45° C
Material	Aluminium
Finish	Black, White
Average rated life	> 60,000 hrs.
Mounting technique	Recess
Degree of protection	IP20
Certification	BIS (Bureau of Indian Standards)
Energy efficiency class	Class II
Applications	For indoor use in hotel lobbies, high-end residential apartments, museums and offices



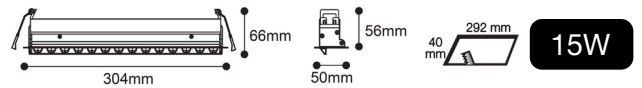
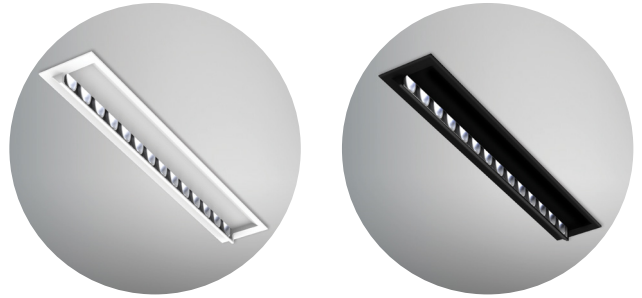
THE PRINCETON SERIES: RANGE SPECIFICATIONS

RECESSED LINEAR WALL WASHERS WITH TRIM MOUNTING BRACKETS



8W

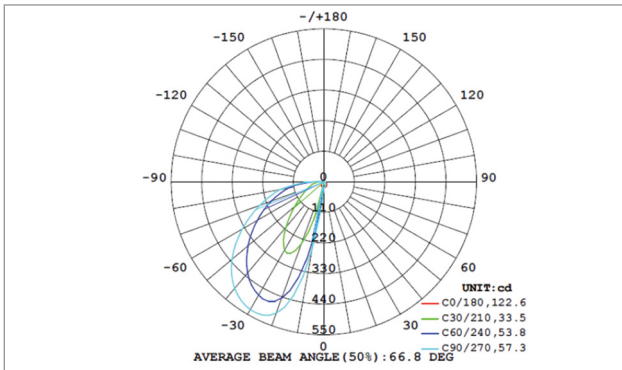
Housing type	Fixed
Description	Princeton 8W .2A TR L WW
Wattage	8W
Current	200mA
Total lumen output at source for 3000K luminaire (lm/W)	936



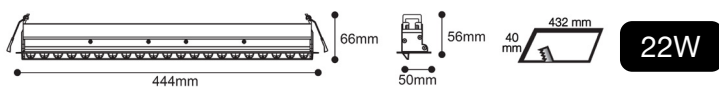
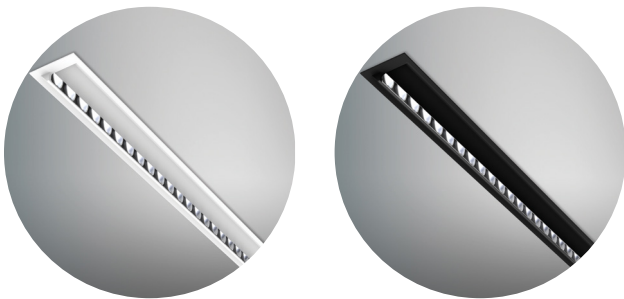
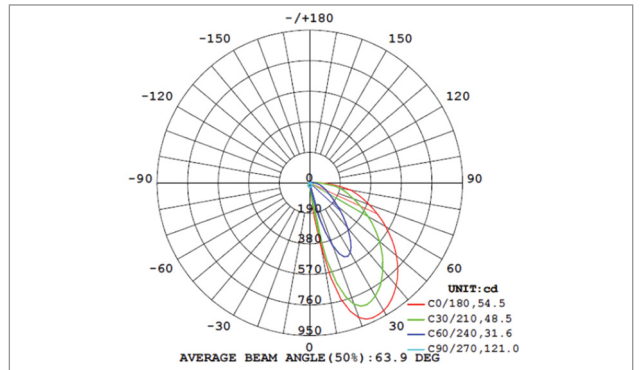
15W

Housing type	Fixed
Description	Princeton 15W .3A TR L WW
Wattage	15W
Current	300mA
Total lumen output at source for 3000K luminaire (lm/W)	1485

LIGHT DISTRIBUTION GRAPH



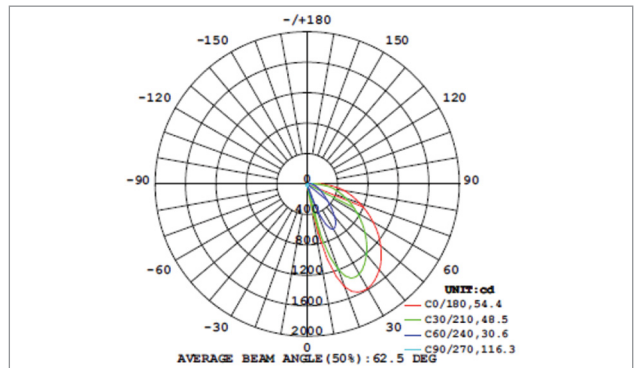
LIGHT DISTRIBUTION GRAPH



22W

Housing type	Fixed
Description	Princeton 22W .45A TR L WW
Wattage	22W
Current	500mA
Total lumen output at source for 3000K luminaire (lm/W)	2228

LIGHT DISTRIBUTION GRAPH



THE PRINCETON SERIES: RANGE SPECIFICATIONS

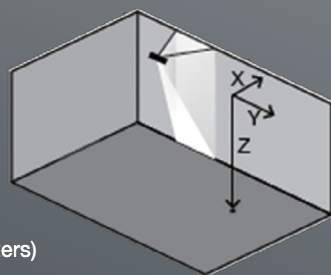
RECESSED LINEAR WALL WASHERS WITH TRIM MOUNTING BRACKETS



Finish	White			Black		
	8W	15W	22W	8W	15W	22W
2700K	833.12.892	833.12.900	833.12.908	833.12.896	833.12.904	833.12.912
3000K	833.12.893	833.12.901	833.12.909	833.12.897	833.12.905	833.12.913
4000K	833.12.894	833.12.902	833.12.910	833.12.898	833.12.906	833.12.914

THE PRINCETON SERIES: INSTALLATION DETAILS

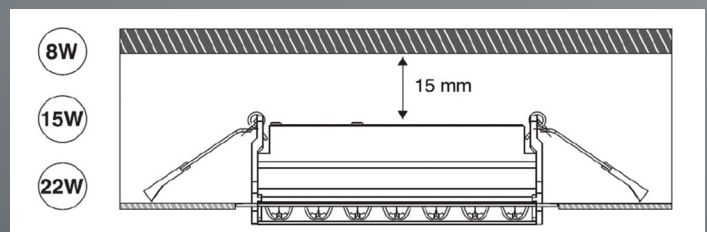
IDEAL INSTALLATION DISTANCE



X: Lamp to Wall
Y: Lamp to Lamp
Z: Lamp to Floor
X : Y : Z = 1 : 1 : 3 (Meters)

The distances from lamp to wall, lamp to lamp and lamp to floor should be in the ratio of 1:1:3 (meters). For example, if the lamp is installed at a height of 3 meters above the floor, then the distance of the lamp from the wall which the lamp is illuminating should be 1 meter and its distance from adjacent lamp should be 1 meter.

GAP BETWEEN TRUE CEILING AND LUMINAIRE



Minimum 15 mm of gap from the true ceiling to the top edge of the luminaire is required for installation of all luminaires under the Princeton series, irrespective of their wattage.

IMPORTANT INFORMATION

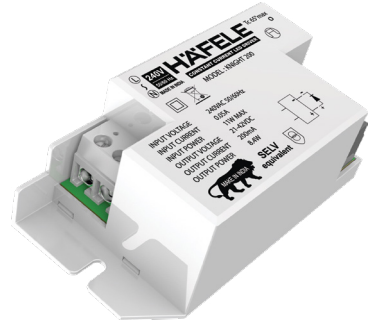
1. Do not use the luminaires from Princeton series to illuminate windows or mirrors because the light output from the luminaires could get reflected off such surfaces causing high degree of glare.
2. Dark surfaces reflect far less light as compared to lighter surfaces, hence more light should be directed at these surfaces if they are to be wall washed.
3. Fixtures mounted close to the wall create a grazing effect (light technique that accentuates wall textures or architectural elements by creating shadows) on textured surfaces. This can be an advantage if the texture is attractive, but should be avoided if the wall has surface irregularities. For a proper wall wash, always install Princeton luminaires in the ratio of 1:1:3 as shown above.
4. Note that wall washing is a special and unique effect. It is advised to consult an expert while selecting, planning and installing a wall washer.

THE PRINCETON SERIES: CONSTANT CURRENT DRIVERS

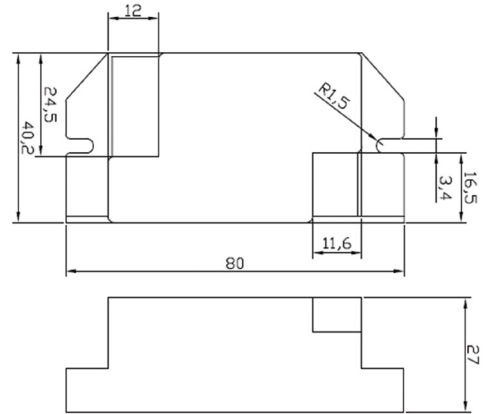
KNIGHT 200 - CONSTANT SINGLE CURRENT LED DRIVER, 200mA

IP20

- SELV equivalent
- Suitable for Class II fixtures
- Flicker-free output
- Suitable for dry locations
- Average rated life: 30,000 hours
- Sustains at 320VAC for 48 hrs. and 360VAC for 2 hrs.
- 1 channel output



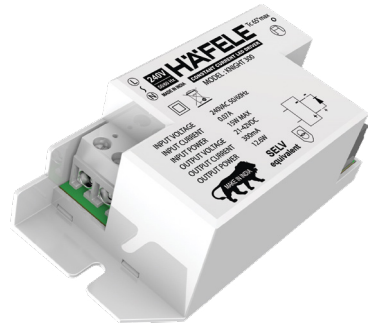
Technical Specifications	
Article No.	833.30.968
Input Voltage	240VAC ±10% 50/60 Hz
Input Current	0.05A Max.
Input Power	11W Max.
Output Current	200mA
Output Voltage	21 - 42VDC
Output Power	8.4W
Power Factor	>0.90
Ambient operating temperature range	-10°C to +50°C
Input Protection	Yes (Line-Neutral 3kV as per EN 61000-4-5)



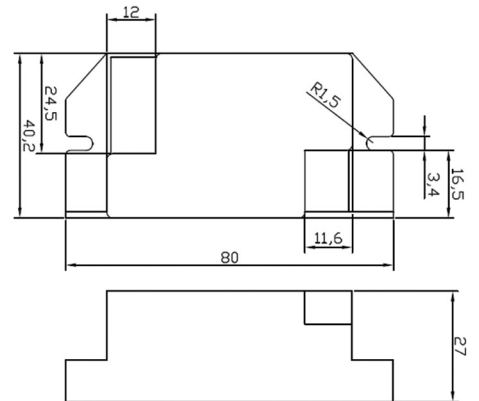
KNIGHT 300 - CONSTANT SINGLE CURRENT LED DRIVER, 300mA

IP20

- SELV equivalent
- Suitable for Class II fixtures
- Flicker-free output
- Suitable for dry locations
- Average rated life: 30,000 hours
- Sustains at 320VAC for 48 hrs. and 360VAC for 2 hrs.
- 1 channel output



Technical Specifications	
Article No.	833.30.972
Input Voltage	240VAC ± 10% 50/60 Hz
Input Current	0.07A Max.
Input Power	15W Max.
Output Current	300mA
Output Voltage	21 - 42VDC
Output Power	12.6W
Power Factor	>0.95
Ambient operating temperature range	-10°C to +50°C
Input Protection	Yes (Line-Neutral 3kV As per EN 61000-4-5)

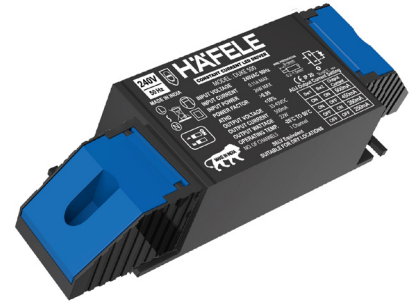


THE PRINCETON SERIES: CONSTANT CURRENT DRIVERS

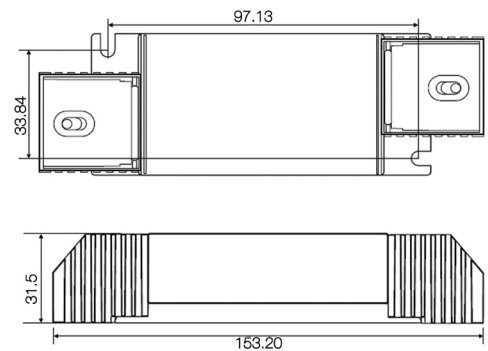
DUKE 500 - CONSTANT MULTI-CURRENT LED DRIVER, 250mA, 350mA, 450mA, 500mA



- SELV equivalent
- CE certified
- Suitable for Class II fixtures
- Flicker-free output
- Multiple current selection through DIP switch
- Overload and short circuit protection
- Input over-voltage and under-voltage protection
- Suitable for dry locations
- Average rated life: 50,000 hours
- Sustains at 320VAC for 48 hours & 440VAC for 8 hours
- 1 channel output

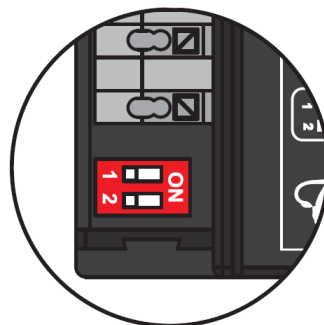


Technical Specifications	
Article No.	833.30.973
Input Voltage	240VAC ±20% 50Hz
Input Current	0.11A Max.
Input Power	27W Max.
Output Current	250mA, 350mA, 450mA, 500mA (±7%)
Output Voltage	33 - 43VDC
Output Power	22W
Power Factor	>0.95
Ambient operating temperature range	-20°C to +50°C
Input Protection	Yes (Line-Neutral 4kV)



DUKE 500 DIP SWITCH CURRENT SELECTION CHART

DIP Switch		Output Current (mA)
PIN 1	PIN 2	
ON	ON	500
ON	OFF	450
OFF	ON	350
OFF	OFF	250



NOTE:

1. You can order the Knight Series or the Duke Series drivers, as per your requirement, by checking the suitable current ratings.
2. The Princeton wall washers allow automation by connecting to Dali compatible drivers. If you have a requirement for automation, you can contact your Hafele sales representative for more details.

THE PRINCETON SERIES: ORDERING INFORMATION

1. LUMINAIRE

Article No.	Wattage	Current	Colour Temperature	Colour	Dimensions (mm)
833.12.892	8W	200mA	2700K	White	165 x 50 x 66
833.12.893	8W	200mA	3000K	White	165 x 50 x 66
833.12.894	8W	200mA	4000K	White	165 x 50 x 66
833.12.896	8W	200mA	2700K	Black	165 x 50 x 66
833.12.897	8W	200mA	3000K	Black	165 x 50 x 66
833.12.898	8W	200mA	4000K	Black	165 x 50 x 66
833.12.900	15W	300mA	2700K	White	305 x 50 x 66
833.12.901	15W	300mA	3000K	White	305 x 50 x 66
833.12.902	15W	300mA	4000K	White	305 x 50 x 66
833.12.904	15W	300mA	2700K	Black	305 x 50 x 66
833.12.905	15W	300mA	3000K	Black	305 x 50 x 66
833.12.906	15W	300mA	4000K	Black	305 x 50 x 66
833.12.908	22W	450mA	2700K	White	445 x 50 x 66
833.12.909	22W	450mA	3000K	White	445 x 50 x 66
833.12.910	22W	450mA	4000K	White	445 x 50 x 66
833.12.912	22W	450mA	2700K	Black	445 x 50 x 66
833.12.913	22W	450mA	3000K	Black	445 x 50 x 66
833.12.914	22W	450mA	4000K	Black	445 x 50 x 66

2. DRIVERS

Article No.	Description	Current
833.30.968	Knight 200 - Constant Single Current LED Driver, 200mA	200mA
833.30.972	Knight 300 - Constant Single Current LED Driver, 300mA	300mA
833.30.973	Duke 500 - Constant Multi-Current LED Driver, 250mA, 350mA, 450mA, 500mA	500mA Max.

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Estate, Near Famous Studio,
Mahalaxmi (West), Mumbai - 400 011
Tel.: 022 6264 7100.

Mumbai Design Centre:

#2 Filix Building, Opp. Asian Paints,
L.B.S. Marg, Bhandup (West),
Mumbai - 400 078
Tel.: 022 2596 9660 / 2596 9787 / 2594
7305

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D-89 , 1st Floor, Okhla Phase-I,
New Delhi - 110 020
Tel.: 011-66574999
Fax: 011-41605482

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No:13, Langford Place, Langford Road,
Shanti Nagar, Bangalore - 560 025
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Fax: 080 4132 6226

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Moratuwa, Sri Lanka.
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Shivaji Nagar, Pune -411016
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