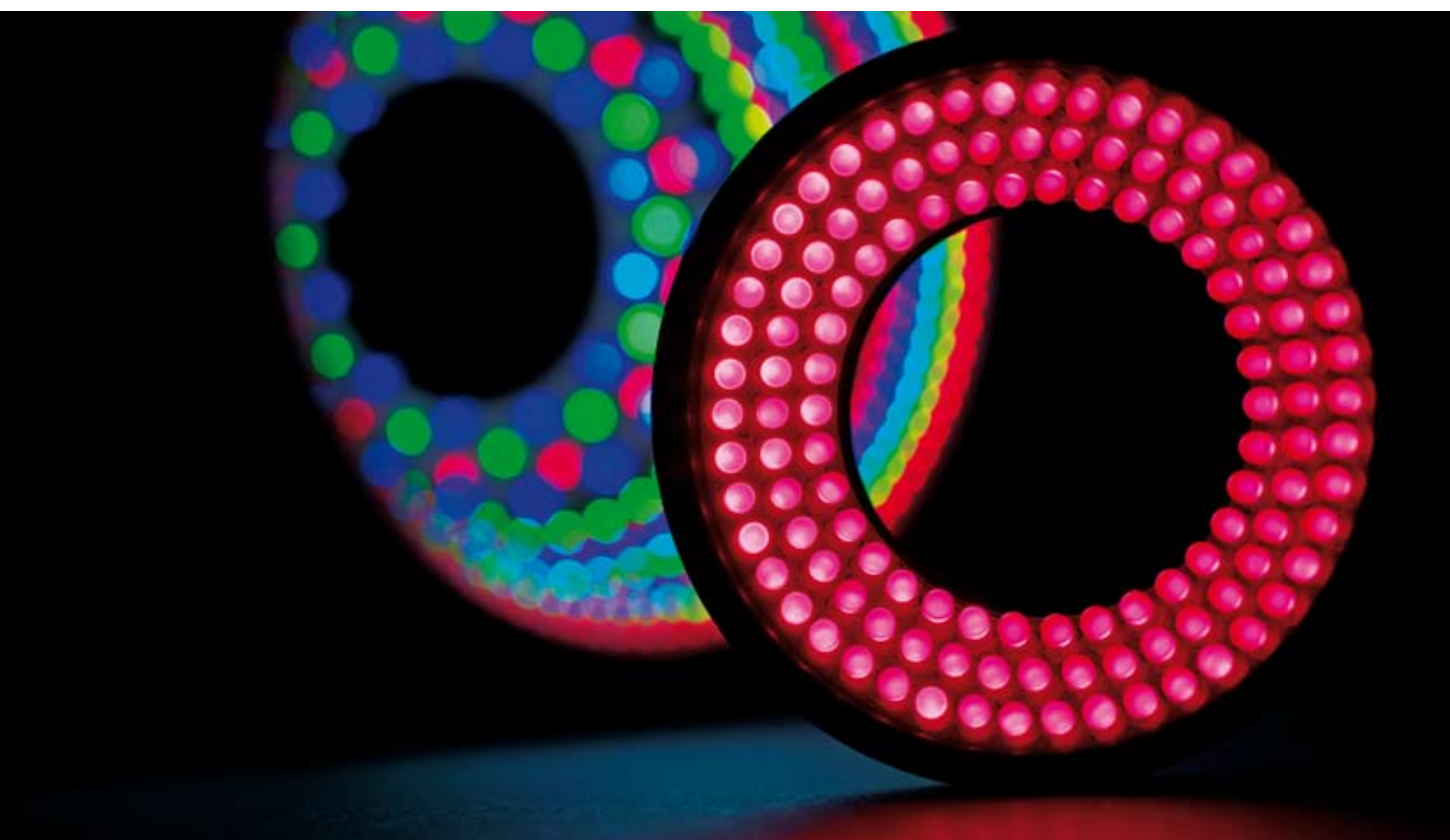


# **LED illumination**

**for Machine Vision**



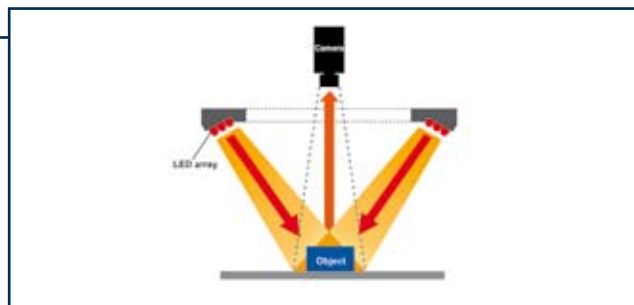
made by



# Introduction into LED Illumination Technology

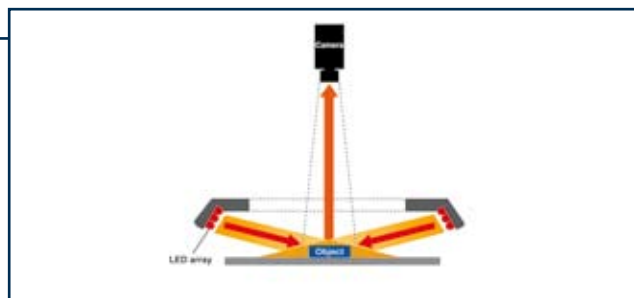
## Direct Illumination

An array of LEDs arranged in a ring or rectangular matrix provides a very bright and concentrated light. The object is illuminated directly with light closed to the optical axis. The direct illumination is suitable for non-reflective parts, and wherever strong illumination is needed. This type of illumination is also available as strobe version which provides increased intensity during flash.



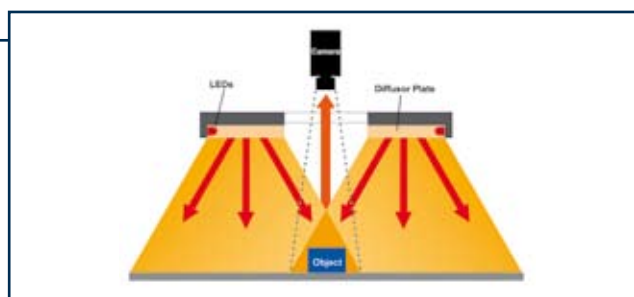
## Low Angle and Horizontal Illumination

A ring of LEDs illuminates the object at a very low angle up to completely horizontal light. The low angled light emphasizes even smallest deviations of the surface. This is very helpful to detect scratches, tool marks and edges on reflective parts. This type of illumination is also available as strobe version.



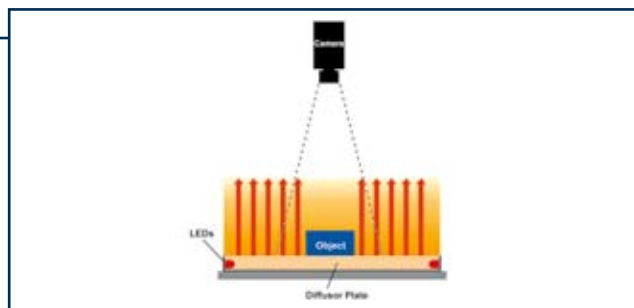
## Flat Ring Illumination

This illumination uses a special light diffusion plate to achieve a highly diffused and homogeneous light field. There are also flat ring illumination devices available that use direct LED illumination, which provides much more intensity but less diffusion. Flat ring illumination devices are an effective solution for highly reflective parts, where reflections and shadows are a problem. This type of illumination is also available as strobe version.



## Back Light Illumination

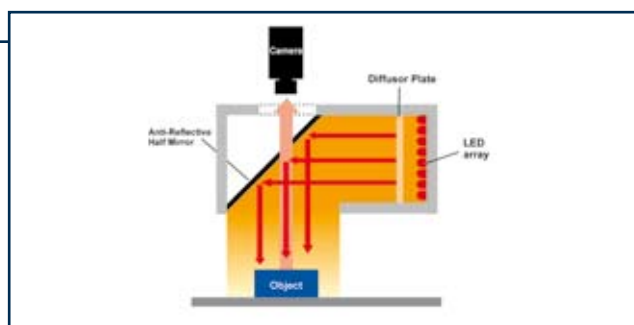
Back light illumination achieves a highly homogeneous light on a large surface. Back light illumination can be used either to measure very precisely the contour of an object or to inspect transparent or semi-transparent parts.



## Coaxial Illumination

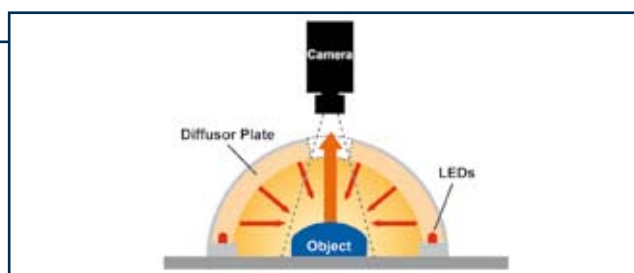
Coaxial illumination is the best solution for highly reflective parts and for parts that are covered with a transparent cover, for objects that are checked in their blister packing.

There are two types of coaxial illumination, box type and telecentric illumination. The box type coaxial illumination can be used with nearly every machine vision lens. The special coaxial telecentric illumination provides the best results, but it can only be used with telecentric lenses. Please refer to our separate lens brochure.



## Dome Illumination

For shiny spherical and convex objects dome illuminations provide a diffuse and homogeneous light without reflections.



# LED Ring Illumination



Direct Ring



Low Angle Direct Ring



Horizontal Ring



Flat Diffused Ring

## Direct Ring Illumination for non-reflective objects • High intensity light

Type	Available Colors (Red / other colors)	Number of LED (Red / other colors)	Outside Dia. (mm)	Inside Dia. (mm)	WD (mm)	Power (Watt) (Red / other colors)	Diffuser
L-IDR-38/15"x" *1	R / G / B / W / IR / UV *2	36 / 36	38	15	30~40	1.5W / 1.5W	option
L-IDR-40/25"x" *1	R / G / B / W / IR / UV *2	24 / 24	40	25	40~65	1.0W / 1.0W	option
L-IDR-50/28"x" *1	R / G / B / W / IR / UV *2	54 / 45	50	28	30~70	2.2W / 2.2W	option
L-IDR-66/36"x" *1	R / G / B / W / IR / UV *2	114 / 90	66	36	170~310	4.4W / 4.4W	option
L-IDR-70/39"x" *1	R / G / B / W / IR / UV *2	120 / 96	70	39	50~100	4.8W / 4.8W	option
L-IDR-90/50"x" *1	R / G / B / W / IR / UV *2	216 / 108	90	50	60~120	8.7W / 8.7W	option
L-IDR-110/60"x" *1	R / G / B / W / IR / UV *2	252 / 159	110	60	60~120	10.1W / 10.1W	option
L-IDR-140/95"x" *1	R / G / B / W / IR / UV *2	360 / 180	140	95	80~130	14.4W / 14.4W	option

## Low Angle Direct Ring Illumination for edge and surface detection on reflective objects

L-IDR-LA38/15"x"-2 *1	R / G / B / W / IR / UV *2	36 / 36	38	15	5~10	1.5W / 2.9W	option
L-IDR-LA50/24R"x"-2 *1	R / G / B / W / IR / UV *2	48 / 48	50	24	10~20	2.0W / 3.9W	option
L-IDR-LA74/48"x"-2 *1	R / G / B / W / IR / UV *2	90 / 90	74	48	15~30	3.6W / 7.2W	option
L-IDR-LA100/68"x"-3 *1	R / G / B / W / IR / UV *2	180 / 90	100	68	20~40	7.2W / 7.2W	option
L-IDR-LA120/70 "x"-3 *1	R / G / B / W / IR / UV *2	228 / 114	120	70	20~40	9.2W / 9.2W	option
L-IDR-LA140/108"x"-3 *1	R / G / B / W / IR / UV *2	264 / 132	140	108	15~40	10.6W / 10.6W	option
L-IDR-LA200/170"x"-3 *1	R / G / B / W / IR / UV *2	396 / 315	200	170	40~45	15.6W / 25.2W	option

## Flat Direct Ring Illumination for surface detection on reflective objects

L-IDR-F32/10"x" *1	R / G / B / W / IR / UV *2	18 / 18	32	10	-	0.8W / 1.5W	option
L-IDR-F43/15"x" *1	R / G / B / W / IR / UV *2	36 / 36	43	15	-	1.5W / 2.9W	option
L-IDR-F50/15"x" *1	R / G / B / W / IR / UV *2	54 / 54	50	15	-	2.2W / 4.4W	option
L-IDR-F60/32"x" *1	R / G / B / W / IR / UV *2	60 / 60	60	32	-	2.4W / 4.8W	option
L-IDR-F70/37"x" *1	R / G / B / W / IR / UV *2	108 / 93	70	37	-	4.4W / 7.5W	option
L-IDR-F90/50"x" *1	R / G / B / W / IR / UV *2	204 / 102	90	50	-	8.2W / 8.2W	option
L-IDR-F100/50"x" *1	R / G / B / W / IR / UV *2	216 / 108	100	50	-	8.7W / 8.7W	option
L-IDR-F110/60"x" *1	R / G / B / W / IR / UV *2	240 / 159	110	60	-	9.6W / 12.8W	option

## Horizontal Ring Illumination for surface detection on highly reflective objects

L-IDR-T75/46"x"-1 *1	R / G / B / White	48 / 48	75	46	-	2.0W / 4.0W	-
L-IDR-T84/54"x"-1 *1	R / G / B / White	48 / 48	84	54	-	2.0W / 4.0W	-
L-IDR-T96/60"x"-1 *1	R / G / B / White	60 / 60	96	60	-	2.4W / 4.8W	-
L-IDR-T122/92"x"-1 *1	R / G / B / White	77 / 77	122	92	-	3.2W / 6.3W	-
L-IDR-T152/114"x"-1 *1	R / G / B / White	96 / 96	152	114	-	3.9W / 7.7W	-
L-IDR-T176/140"x"-1 *1	R / G / B / White	120 / 120	176	140	-	4.8W / 9.6W	-
L-IDR-T206/170"x"-1 *1	R / G / B / White	144 / 144	206	170	-	5.8W / 11.6W	-

## Flat Ring Illumination homogeneous diffused top lighting for reflective parts

L-IFR-100"x" *1	R / G / B / W / IR	72 / 72	102	33	-	2.9W / 5.8W	+
L-IFR-130"x" *1	R / G / B / W / IR	90 / 90	125	44	-	3.6W / 7.2W	+
L-IFR-K100"x" *1	R / G / B / W / IR	72 / 72	102	33	-	2.9W / 5.8W	+
L-IFR-K150"x" *1	R / G / B / W / IR	102 / 102	142	50	-	4.1W / 8.2W	+
L-IAV-80"x" *1 *3	R / G / B / W / IR	CoAx 25, Ring 54	80	40	-	CoAx 1.2, ring 2.2	+

\*1 Please add for "x" wished colour (f.e. IDR-38/15G for green version)!

\*2 Number of LED's may vary at UV-Version!

\*3 Combination of coaxial illumination (like IFV-Series) and flat ring illumination!

# LED Bar Illumination



Direct Bar



Bar for Line Scan



Direct Bar

## LED Direct Bar Illumination

Type	Available Colors (Red / other colors)	Number of LED (Red / other colors)	Size (mm)	Working Distance	Power (Red / other colors)
L-IDB-11/14"x" *1	R / G / B / W / IR	6 / 6	11 x 14		0.3W / 0.6W
L-IDB-15/26"x"S *1	R / G / B / W / IR	18 / 18	15 x 26		0.8W / 1.5W
L-IDB-25/25 "x"S *1	R / G / B / W / IR	36 / 36	25 x 25		1.5W / 2.9W
L-IDB-50/15"x" *1	R / G / B / W / IR	36 / 36	50 x 15		1.5W / 2.9W
L-IDB-27/34"x" *1	R / G / B / W / IR	48 / 48	27 x 34		2.0W / 3.9W
L-IDB-100/11"x"-H20 *1	R / G / B / W / IR	48 / 48	100 x 11		2.0W / 3.9W
L-IDB-140/11"x" *1	R / G / B / W / IR	70 / 70	140 x 11		2.9W / 5.8W
L-IDB-132/15"x"-H20 *1	R / G / B / W / IR	96 / 96	132 x 15		3.9W / 7.7W
L-IDB-72/24"x" *1	R / G / B / W / IR	108 / 108	72 x 24		4.4W / 5.8W
L-IDB-50/50"x"S *1	R / G / B / W / IR	90 / 90	50 x 50		3.6W / 7.2W
L-IDB-15/200"x"S-C01 *1	R / G / B / W / IR	147 / 147	15 x 200		6.0W / 11.8W
L-IDB-70/75"x"S *1	R / G / B / W / IR	168 / 168	70 x 75		6.8W / 13.5W
L-IDB-185/30"x"-C01 *1	R / G / B / W / IR	216 / 216	185 x 30		8.7W / 17.3W
L-IDB-300/24"x"S-C02 *1	R / G / B / W / IR	426 / 426	288 x 27		17.1W / 34.1W

## Bar illumination for Line Scan

Type	Available Colors (Red / other colors)	Number of LED (Red / other colors)	Size (mm)	Working Distance	Power (Red / other colors)
L-IDB-L1200/16"x"S *1	R / G / B / W / IR	234 / 234	1200(V) x 16(H)	1200 x 16	9.4W / 18.8W
L-IDB-L300/24"x"S *1	R / G / B / W / IR	420 / 420	300(V) x 24(H)	300 x 24	16.8W / 33.6W
L-IDB-L300/20"x"S *1	R / G / B / W / IR	174 / 174	300(V) x 20(H)	300 x 20	7.0W / 14.0W
L-IDB-L600/20"x"S *1	R / G / B / W / IR	354 / 354	600(V) x 20(H)	600 x 20	14.2W / 28.4W
L-IDB-L900/20"x"S *1	R / G / B / W / IR	534 / 534	900(V) x 20(H)	900 x 20	21.4W / 42.8W
L-IDB-L1200/20"x"S *1	R / G / B / W / IR	714 / 714	1200(V) x 20(H)	1200 x 20	28.6W / 57.2W
L-IDB-L100/12H"x"S *1 *2	R / G / B / W / IR	84 / 84	101(V) x 12(H)		6.8W / 6.8W
L-IDB-L300/12H"x"S *1 *2	R / G / B / W / IR	252 / 252	301(V) x 12(H)		20.0W / 20.0W

## Bar illumination for Light-Condensing \*3

L-IDB-LS50/10"x" *1 *4	R / G / B / W / IR	12 / 12	66 x 25 x 34		0.5W / 1.0W
L-IDB-LS150/10"x" *1 *4	R / G / B / W / IR	39 / 39	170 x 25 x 34		1.7W / 3.1W
L-IDB-LS300/10"x" *1 *4	R / G / B / W / IR	75 / 75	312 x 26 x 37		1.7W / 3.1W

\*1 Please add for "x" wished colour (f.e. IDB-132/15R-H20 for red version)!

\*2 Version with higher output (high density)!

\*3 Ask us for versions up to 700mm length!

\*4 F.e. WD 50mm = 5mm area or WD 20mm = 2mm area!

## Power Supply for LED Illumination

### Power Supply for LED Illumination

L-IDPW-10D"x" *1	2 Channel, 10Watt, external ON/OFF control terminal
L-IDPW-30D"x" *1	2 Channel, 30Watt, external ON/OFF control terminal
L-IDPW-50D"x" *1	2 Channel, 50Watt, external ON/OFF control terminal
L-IDPW-100D"x" *1	2 Channel, 100Watt, external ON/OFF control terminal
L-IDPW-10M4"x" *1	4 Channel, 10Watt, external ON/OFF control terminal
L-IDPW-30M4"x" *1	4 Channel, 30Watt, external ON/OFF control terminal
L-IDPW-50M4"x" *1	4 Channel, 50Watt, external ON/OFF control terminal
L-IDPW-100M4"x" *1	4 Channel, 100Watt, external ON/OFF control terminal
L-IDPW-10M8"x" *1	8 Channel, 10Watt, external ON/OFF control terminal
L-IDPW-30M8"x" *1	8 Channel, 30Watt, external ON/OFF control terminal
L-IDPW-50M8"x" *1	8 Channel, 50Watt, external ON/OFF control terminal
L-IDPW-100M8"x" *1	8 Channel, 100Watt, external ON/OFF control terminal



\*1 Please add for "x" V for knob controlled and H for driver controlled (adjusting with screw-driver / f.e. L-IDPW-10DH)!

# Special LED Illumination



Edge Light Plate



Square Tilted



Square Surface



Chip LED Plate

## Edge Light Plate Illumination • Back light for silhouette inspection or transparent objects

Type	Available Colors (Red / other colors)	Number of LED (Red / other colors)	Size (mm)	Power (Red / other colors)
L-IFL-25/25"x" *1	R / G / B / W / IR	6 / 6	25 x 25	0.3W / 0.5W
L-IFL-30/41"x" *1	R / G / B / W / IR	10 / 10	30 x 41	0.5W / 1.0W
L-IFL-50/50"x" *1	R / G / B / W / IR	48 / 48	50 x 50	2.0W / 3.9W
L-IFL-80/100"x" *1	R / G / B / W / IR	84 / 84	80 x 100	3.4W / 6.8W
L-IFL-100/100"x" *1	R / G / B / W / IR	96 / 96	100x100	3.9W / 7.7W
L-IFL-135/180"x" *1	R / G / B / W / IR	144 / 144	135 x 180	5.8W / 11.6W
L-IFL-150/200"x" *1	R / G / B / W / IR	168 / 168	150 x 200	6.8W / 13.5W

## Square Tilted Illumination • Adjustable illumination from direct to low angled light

L-IDB-Q230"x" *1	R / G / B / W / IR	48 / 48 (LED 12pcs x 4)		2.0W / 3.9W
L-IDB-Q360"x" *1	R / G / B / W / IR	144 / 144 (LED 36pcs x 4)		5.8W / 11.6W
L-IDB-Q690"x" *1	R / G / B / W / IR	432 / 280 (LED 108pcs x 4 / 70pcs x 4)		17.3W / 23.2W

## Square Surface Illumination for surface detection on reflective objects

L-IPQ-32	R / G / B / W / IR	12 / 12	20 x 20	0.5W / 1.0W
L-IPQ-48	R / G / B / W / IR	24 / 24	36 x 36	1.0W / 2.0W
L-IPQ-75	R / G / B / W / IR	48 / 48	63 x 63	2.0W / 3.8W
L-IPQ-96	R / G / B / W / IR	84 / 84	84 x 84	3.4W / 6.7W
L-IPQ-120"x" *1	R / G / B / W / IR	84 / 84	108 x 108	6.8W / 6.8W

## Shadowless Ring Illumination for surface detection on reflective objects

L-IPR-100/73"x" *1	R / G / B / W / IR	132 / 132	100 x 73 (outside / inside dia.)	5.3W / 10.6W
L-IPR-136/109"x" *1	R / G / B / W / IR	180 / 180	136 x 109 (outside / inside dia.)	7.2W / 14.4W
L-IPR-180/153"x" *1	R / G / B / W / IR	258 / 258	180 x 153 (outside / inside dia.)	10.4W / 20.8W

## Chip LED Plate Illumination • High intensity back light for transparent objects or direct illumination for non reflective parts

L-IDM-32/32"x" *1 *2	R / G / B / W	36 / 36	30 x 30 with holding flange *2	1.5W / 2.9 W
L-IDM-32/62"x" *1 *2	R / G / B / W	72 / 72	30 x 60 with holding flange *2	2.9W / 5.8W
L-IDM-32/92"x" *1 *2	R / G / B / W	108 / 108	30 x 90 with holding flange *2	4.4W / 8.7W
L-IDM-32/122"x" *1 *2	R / G / B / W	144 / 144	30 x 120 with holding flange *2	5.8W / 11.6W
L-IDM-62/62"x" *1 *2	R / G / B / W	144 / 144	60 x 60 with holding flange *2	5.8W / 11.6W
L-IDM-62/92"x" *1 *2	R / G / B / W	216 / 216	60 x 90 with holding flange *2	8.7W / 17.9W
L-IDM-62/122"x" *1 *2	R / G / B / W	288 / 288	60 x 120 with holding flange *2	11.6W / 23.1W
L-IDM-92/92"x" *1 *2	R / G / B / W	324 / 324	90 x 90 with holding flange *2	13.0W / 26W
L-IDM-92/122"x" *1 *2	R / G / B / W	432 / 432	90 x 120 with holding flange *2	17.3W / 34.6W
L-IDM-122/122"x" *1 *2	R / G / B / W	576 / 576	120 x 120 with holding flange *2	23.1W / 46.1W

\*1 Please add for "x" wished colour (f.e. L-IDM-92WT for white version)!

\*2 Please cancel the "T" for version without holding flange (f.e. L-IDM-92/92 W)!

# LED Dome Illumination



Dome Illumination



3 Color RGB Dome Illumination



Horizontal Dome

## Direct Dome Illumination • Homogeneous illumination

Type	Available Colors (Red / other colors)	Number of LED (Red / other colors)	Inside Dia. (mm)	Remark	Power Consumption (Red / other colors)
L-IDD-60/13"x" *1	R / G / B / W / IR / UV	66 / 66	77		2.7W / 5.3W
L-IDD-120/30"x" *1	R / G / B / W / IR / UV	312 / 312	150		12.5W / 25.0W
L-IDD-60/13"x"S(30%) *1 *2	R / G / B / W / IR / UV	66 / 66	77		2.7W / 5.3W
L-IDD-120/30"x"S(30%) *1 *2	R / G / B / W / IR / UV	312 / 312	150		12.5W / 25.0W

## Dome Illumination • Homogeneous illumination, omni-directional light

L-IDD-K80"x" *1	R / G / B / White	96 / 72	84	20 × 20 (window size) mm	3.9W / 5.8W
L-IDD-K120"x" *1	R / G / B / White	156 / 120	122	40 × 40 (window size) mm	6.3W / 9.6W
L-IDD-K150"x" *1	R / G / B / White	288 / 234	152	50 × 50 (window size) mm	11.6W / 18.8W
L-IDD-70R/50RGB	R / G / B	228 / 192 / 159		RGB (independently controllable)	9.2W / 15.4W / 12.8W

## Combined Dome and Horizontal Illumination • Two independently controllable illumination devices in one housing

L-IDD-T80"x" *1	R / G / B / White	144 / 120		IDD-K80 + IDR-T84/54-1	5.9W / 9.8W
L-IDD-T120"x" *1	R / G / B / White	233 / 197		IDD-K120 + IDR-T122/92-1	9.5W / 15.9W
L-IDD-T150"x" *1	R / G / B / White	384 / 330		IDD-K150 + IDR-T152/114-1	15.5W / 26.5W

## Combined Dome, Horizontal and Coaxial-Illumination • Three independently controllable illumination devices in one housing

L-IDU-T80"x" *1	R / G / B / W / IR	169 / 145	84		7.0W / 12.0W
L-IDU-T120"x" *1	R / G / B / W / IR	297 / 246	122		12.1W / 20.0W
L-IDU-T150"x" *1	R / G / B / W / IR	466 / 393	152		19.5W / 31.5W

\*1 Please add for "x" wished colour (f.e. IDD-K80 B for blue version)!

\*2 Diffused version (transmittance 30%)!



Box Type Co-axial



# LED Co-axial Illumination

## Box Type Co-axial Illumination • Homogeneous illumination for high reflective parts

L-IFV-13"x"R-HM *1	R / G / B / W / IR	9 / 9		13 × 13 (window size)	0.8W
L-IFV-20"x" *1	R / G / B / W / IR	25 / 25		ø19 (window size)	1.2W / 2.2W
L-IFV-40"x" *1	R / G / B / W / IR	64 / 49		32 × 32 (window size)	2.6W / 4.1W
L-IFV-50"x" *1	R / G / B / W / IR	100 / 81		36 × 32 (window size)	4.1W / 6.5W
L-IFV-70"x" *1	R / G / B / W / IR	168 / 168		50 × 50 (window size)	6.7W / 13.5W
L-IFV-T50"x" *1	R / G / B / W / IR	148 / 129		integrated darkfield	6.8W / 10.4W

## Co-axial Illumination for Telecentric Lenses • Telecentric illumination for high reflective parts

L-IV-14"x" *1	R / G / B / W	1 / 1		O.D. Ø14, Tip Ø8	0.2W / 0.3W
L-IV-27"x" *1	R / G / B / W	7 / 7		O.D. Ø27, Tip Ø8	0.5W / 1.0W
L-IHV-18"x"mkII *1*2	R / G / B / W	1		O.D. Ø18, Tip Ø8, 1.4W output	-
L-IHV-27"x"mkII *1*3	R / G / B / W	1		O.D. Ø27, Tip Ø8, 2.5W output	-

## Long Distance Spot Illumination

L-IBF-LS30"x"-3W-Slim-RX *1	R / G / B / W	1		Ø 32 x 68, 5.6W output	-
L-IBF-LS30"x"-3W-kaku-RX *1	R / G / B / W	1		Ø 48 x 42, 5.6W output	-
L-IBF-LS40"x"-3W-RX *1	R / G / B / W	1		Ø 48 x 63, 5.6W output	-
L-IBF-LS60"x"-3W-RX *1	R / G / B / W	1		Ø 70 x 120, 5.6W output	-

\*1 Please add for "x" wished colour (f.e. L-IDD-K80 B for blue version)!

\*2 High uniformity (1.4Watt)!

\*3 High output (2.5Watt)!

Contact

**New Electronic Technology**  
Vertriebsgesellschaft mbH  
Lerchenberg 7 . D-86923 Finning

Fon +49 8806 92 34-0  
Fax +49 8806 92 34-77  
info@net-gmbh.com

[www.net-gmbh.com](http://www.net-gmbh.com)

**NET USA, Inc.**  
3037 - 45th Street  
Highland, IN 46322

Fon +1 219 934 9042  
Fax +1 219 934 9047  
info@net-usa-inc.com

[www.net-usa-inc.com](http://www.net-usa-inc.com)

**NET**  
NEW ELECTRONIC TECHNOLOGY