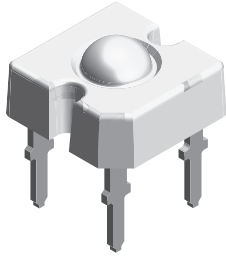


## TELUX LED



16012

### DESCRIPTION

The TELUX series is a clear, non diffused LED for high end applications where supreme luminous flux is required.

It is designed in an industry standard 7.62 mm square package utilizing highly developed InGaN technology.

The supreme heat dissipation of TELUX allows applications at high ambient temperatures.

All packing units are binned for luminous flux and color to achieve best homogenous light appearance in application.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: TELUX
- Product series: power
- Angle of half intensity:  $\pm 45^\circ$

### FEATURES

- Utilizing InGaN technology
- High luminous flux
- Supreme heat dissipation:  $R_{thJP}$  is 90 K/W
- High operating temperature:  $T_j + 100^\circ\text{C}$
- Packed in tubes for automatic insertion
- Luminous flux and color categorized for each tube
- Small mechanical tolerances allow precise usage of external reflectors or lightguides
- Compatible with wave solder processes according to CECC 00802 and J-STD-020
- ESD-withstand voltage: Up to 1 kV according to JESD 22-A114-B
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

AUTOMOTIVE GRADE


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**  
**GREEN**  
 (5-2008)

### APPLICATIONS

- Exterior lighting
- Dashboard illumination
- Tail-, stop-, and turn signals of motor vehicles
- Replaces small incandescent lamps

### PARTS TABLE

PART	COLOR	LUMINOUS FLUX (mIm)			at $I_F$ (mA)	COORDINATE (x, y)			at $I_F$ (mA)	FORWARD VOLTAGE (V)			at $I_F$ (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLWW9900	White	1500	2200	-	50	-	0.33, 0.33	-	50	-	4.3	5.2	50	InGaN/TAG on SiC

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage <sup>(1)</sup>	$I_R = 10 \mu\text{A}$	$V_R$	5	V
DC forward current	$T_{amb} \leq 50^\circ\text{C}$	$I_F$	50	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	$I_{FSM}$	0.1	A
Power dissipation		$P_V$	255	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 40 to + 100	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$ , 1.5 mm from body preheat temperature $100^\circ\text{C}/30 \text{ s}$	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient	With cathode heatsink of $70 \text{ mm}^2$	$R_{thJA}$	200	K/W
Thermal resistance junction/pin		$R_{thJP}$	90	K/W

### Note

- <sup>(1)</sup> Driving the LED in reverse direction is suitable for a short term application

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**VLWW9900, WHITE**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	$I_F = 50\text{ mA}$ , $R_{thJA} = 200\text{ K/W}$	$\phi_V$	1500	2200	-	mlm
Luminous intensity/total flux	$I_F = 50\text{ mA}$ , $R_{thJA} = 200\text{ K/W}$	$I_V/\phi_V$	-	0.7	-	mcd/mlm
Color temperature	$I_F = 50\text{ mA}$ , $R_{thJA} = 200\text{ K/W}$	TK	-	5500	-	K
Angle of half intensity	$I_F = 50\text{ mA}$ , $R_{thJA} = 200\text{ K/W}$	$\varphi$	-	$\pm 45$	-	deg
Total included angle	90 % of total flux captured	$\varphi$	-	100	-	deg
Forward voltage	$I_F = 50\text{ mA}$ , $R_{thJA} = 200\text{ K/W}$	$V_F$	-	4.3	5.2	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	5	10	-	V
Junction capacitance	$V_R = 0$ , $f = 1\text{ MHz}$	$C_j$	-	50	-	pF

**CHROMATICITY COORDINATE CLASSIFICATION**

GROUP	X		Y	
	MIN.	MAX.	MIN.	MAX.
3a	0.2900	0.3025	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
3b	0.3025	0.3150	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
3c	0.2900	0.3025	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$
3d	0.3025	0.3150	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$
4a	0.3150	0.3275	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
4b	0.3275	0.3400	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
4c	0.3150	0.3275	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$
4d	0.3275	0.3400	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$
5a	0.3400	0.3525	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
5b	0.3525	0.3650	$Y = 1.4x - 0.121$	$Y = 1.4x - 0.071$
5c	0.3400	0.3525	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$
5d	0.3525	0.3650	$Y = 1.4x - 0.171$	$Y = 1.4x - 0.121$

**Note**

- Tolerance  $\pm 0.01$

**LUMINOUS FLUX CLASSIFICATION**

GROUP	LUMINOUS FLUX (mlm)	
	MIN.	MAX.
C	1500	2400
D	2000	3000
E	2500	3600
F	3000	4200

**Note**

- Luminous flux is tested at a current pulse duration of 25 ms and an accuracy of  $\pm 11\%$ .  
The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each tube (there will be no mixing of two groups on each tube).  
In order to ensure availability, single brightness groups will not be orderable.  
In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one tube.  
In order to ensure availability, single wavelength groups will not be orderable.

**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

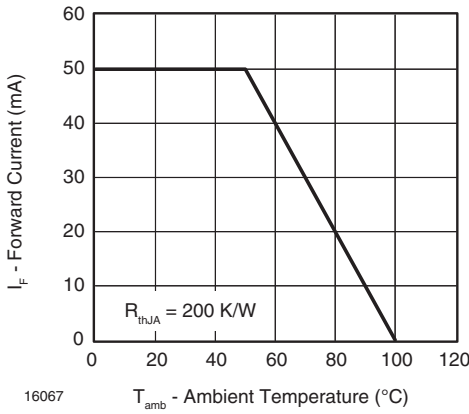


Fig. 1 - Forward Current vs. Ambient Temperature

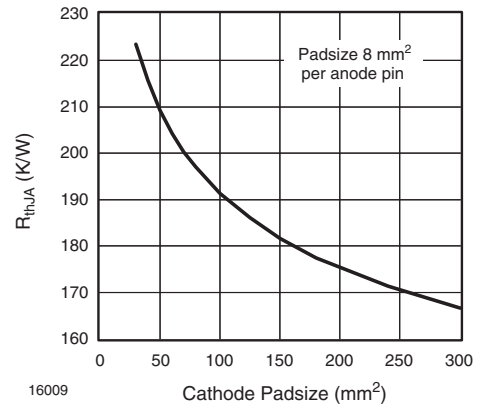


Fig. 4 - Thermal Resistance Junction Ambient vs. Cathode Padsize

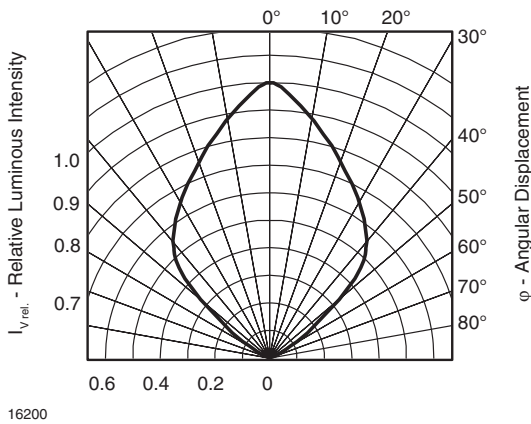


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement for 60° Emission Angle

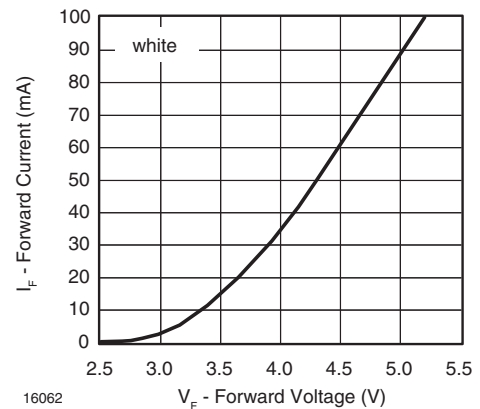


Fig. 5 - Forward Current vs. Forward Voltage

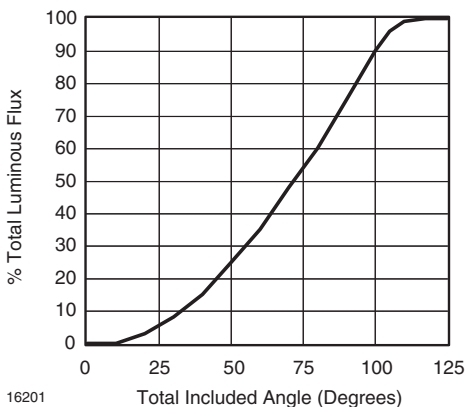


Fig. 3 - Percentage Total Luminous Flux vs. Total Included Angle for 60° Emission Angle

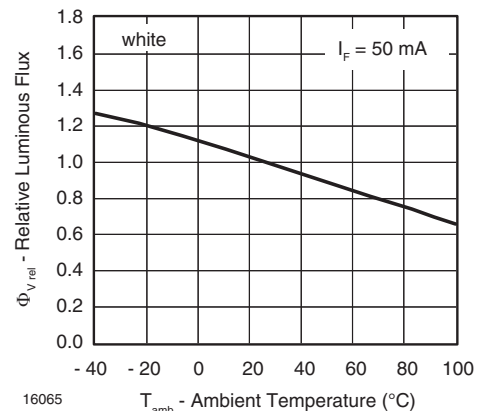


Fig. 6 - Relative Luminous Flux vs. Ambient Temperature

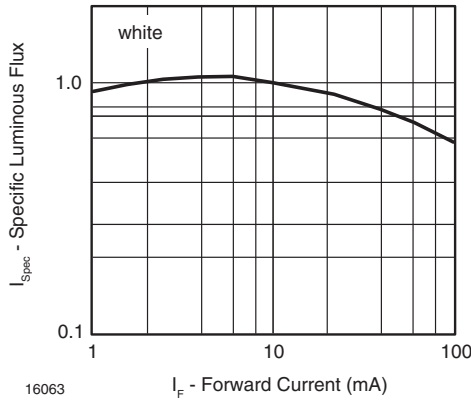


Fig. 7 - Specific Luminous Flux vs. Forward Current

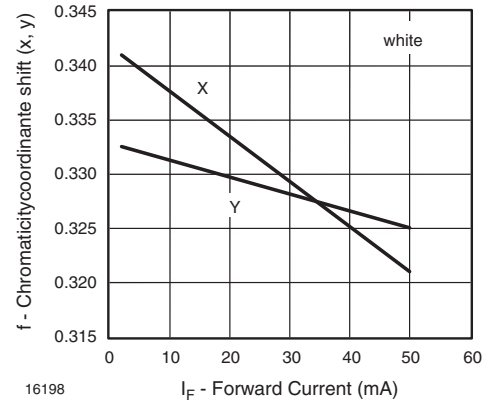


Fig. 10 - Chromaticity Coordinate Shift vs. Forward Current

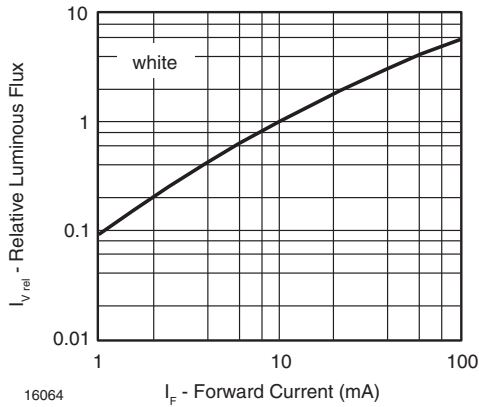


Fig. 8 - Relative Luminous Flux vs. Forward Current

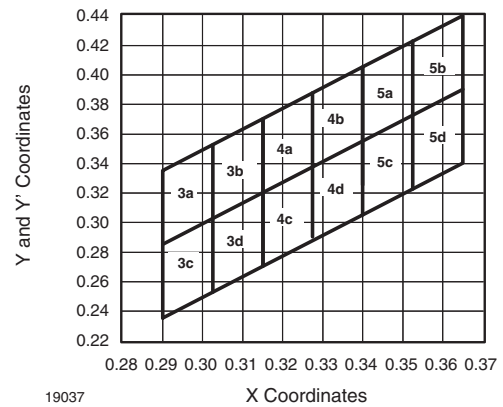


Fig. 11 - Coordinates of Colorgroups

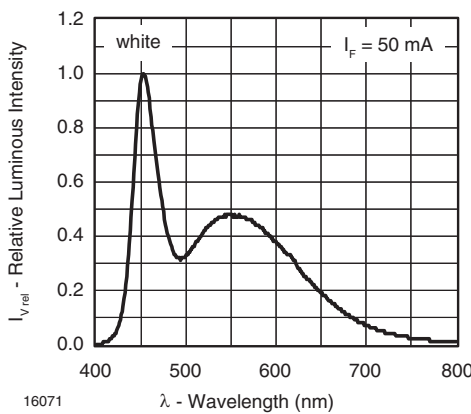
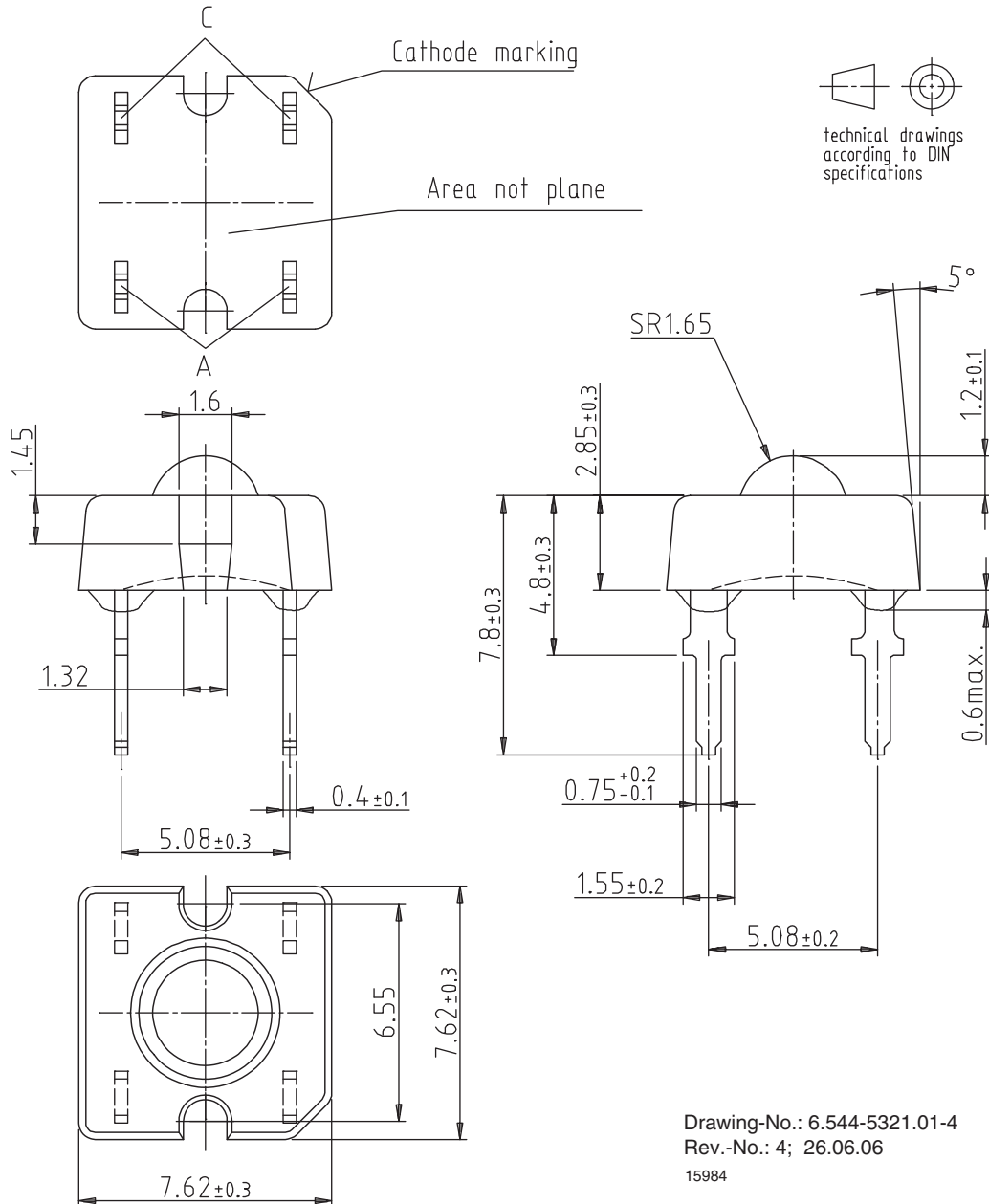
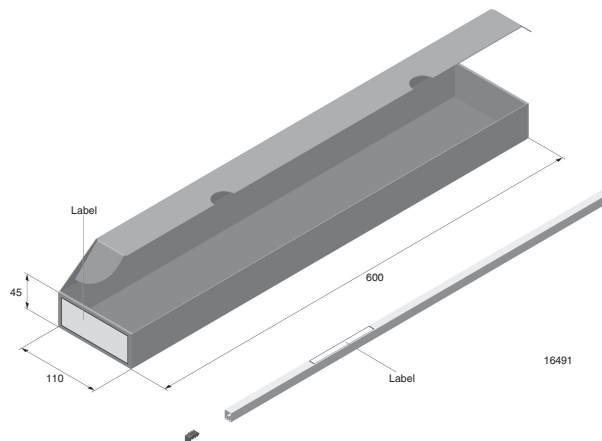


Fig. 9 - Relative Intensity vs. Wavelength

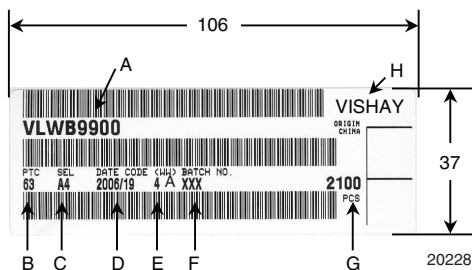
**PACKAGE DIMENSIONS** in millimeters



**FAN FOLD BOX DIMENSIONS** in millimeters

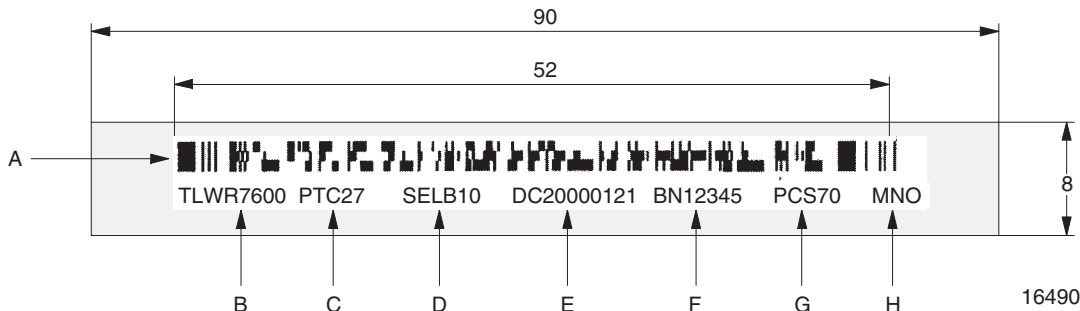


**LABEL OF FAN FOLD BOX** (example)



- A. Type of component
- B. Manufacturing plant
- C. SEL - selection code (bin):  
e.g.: A = code for luminous intensity group  
4 = code for color group
- D. Date code year/week
- E. Day code (e.g. 4: Thursday, A: early shift)
- F. Batch no.
- G. Total quantity
- H. Company code

**EXAMPLE FOR TELUX TUBE LABEL DIMENSIONS** in millimeters

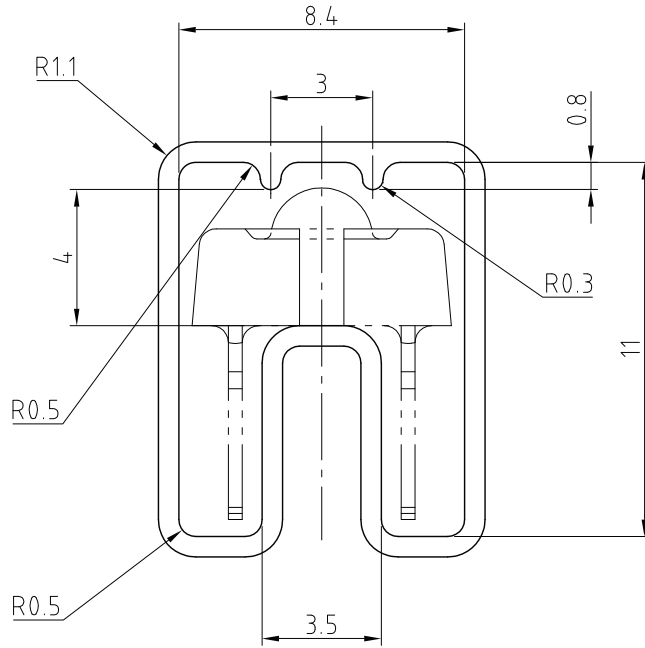


- A. Bar code
- B. Type of component
- C. Manufacturing plant
- D. SEL - selection code (bin):  
digit 1 - code for luminous flux group  
digit 2 - code for dominant wavelength group  
digit 3 - code for forward voltage group
- E. Date code
- F. Batch no.
- G. Total quantity
- H. Company code

**TUBE WITH BAR CODE LABEL DIMENSIONS** in millimeters

"X"

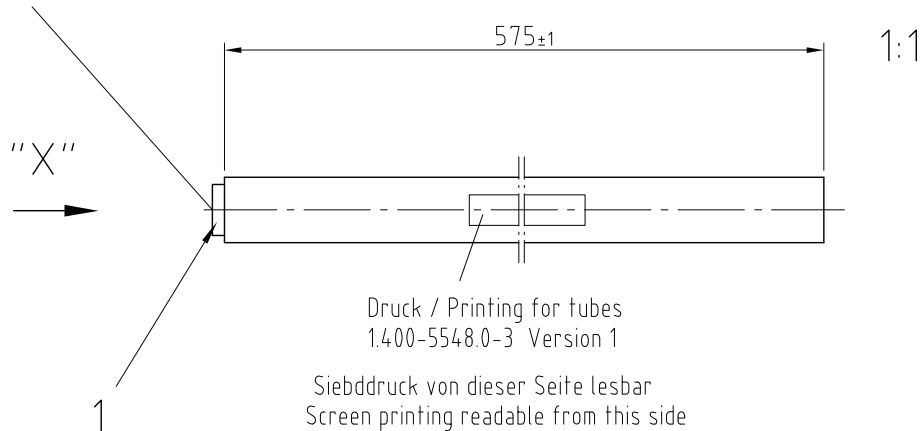
90° gedreht / 90° turned



Wanddicke/wall thickness: 0.6±0.1  
 Geradheit/Straightness 2  
 Schnittwinkel/cut 90° ±1°

Geprüft nach/approved to: LV 5145

Bestücken mit 1 Stopper / equip with 1 stopper



Druck / Printing for tubes  
 1.400-5548.0-3 Version 1

Siebdruck von dieser Seite lesbar  
 Screen printing readable from this side

Drawing-No.: 9.700-5223.0-4  
 Rev. 2; Date: 23.08.99  
 20438

Drawing Proportions not Scaled



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