

## Data Sheet

### Flash Lamps – XFP, KFP, KXFP & XA Series

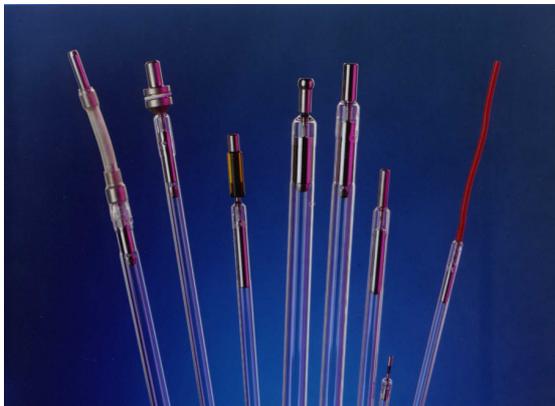
Heraeus has many years of experience in providing DC pulsed flash lamps to leading solid-state laser manufacturers and non-laser applications like IPL or sun simulation. Heraeus flash lamps normally operate at high average powers with pulse duration from the millisecond regime and repetition rate up to many kilohertz. Heraeus lamps offer high efficiency, stability and long lifetimes.

Typical laser applications include cutting, drilling and welding in many industrial applications such as precision cutting, spot welding and mould repair. Non-laser applications include hair removal, skin treatment, sun simulation and semiconductor processing. Heraeus work closely with our customers, extensive internal research facilities and external institutes to provide the industry with quality CW and flash lamps.

This data sheet is intended to provide some typical examples of common lamps manufactured and readily available.

Since lifetime and efficiency is system dependant we welcome enquiries on special designs.

Please feel free to contact us at the address below for more information.



#### Key features of Heraeus flash lamps:

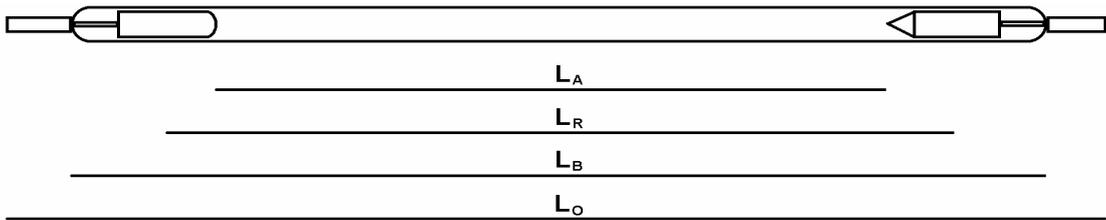
- Quality raw materials and inspection
- High standards of manufacturing and traceability
- Consistent build quality
- Variety of lamp connections available
- All lamps tested to specification
- Large manufacturing capacity
- Superb customer support
- Excellent technical knowledge
- Highly skilled workforce
- Patented cathode design, Hi-Charge™ series

#### Technical data for 1Hz, 1ms pulse

Lamp type	NL7075	NL7020	NL7105	NL7064	TBA	NL9751	NL9101	NL9301
<b>Bore (mm)</b>	4	4	5	6	6	7	8	10
<b>Maximum average power (watts)</b>	2500	2100	4000	3200	5700	3800	9200	8100
<b>Arc Length (mm)</b>	76	102	96	100	152	102	136	152
<b>Overall Length (mm)</b>	153	218	162	190	290	219	215/356	273
<b>Connector dims (mm)</b>	5.0 / 13.0	4.75/18.0	wires*	4.75/13.0	7.14/18.0	7.14/18.0	special	7.14/18.0
<b>Maximum Current (Amps)</b>	420	420	550	700	700	900	1000	1200
<b>K0 (approx.)</b>	24	32	27	21	31	19	21	19
<b>Nominal Simmer current (mA)</b>	200	200	300	400	400	500	500	1000
<b>Gas type</b>	Xe	Xe	Xe	Xe	Kr	Xe	Kr	Kr

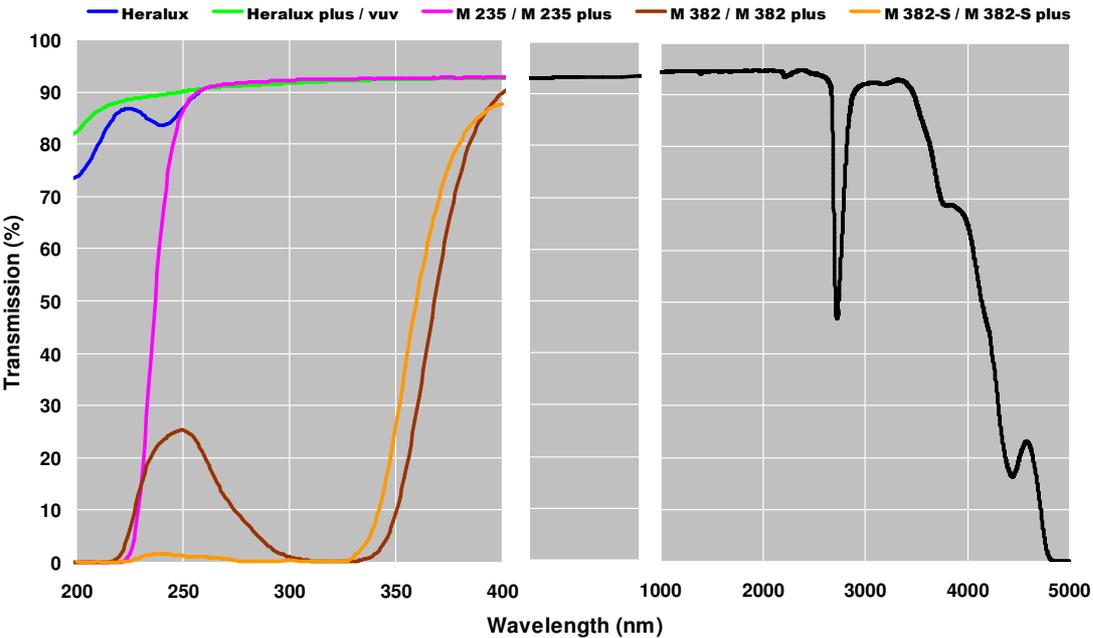
\* max. non-flex length

Typical lamp designs – schematic drawing



- $L_A$  = Arc Length
- $L_O$  = Overall Length
- Max OD = maximum lamp outer diameter
- K0 = impedance parameter
- $L_R$  = O-ring centres
- I.D. = Lamp bore
- Gas fill pressure (default Xenon= 450 torr, Krypton = 700 torr)
- $L_B$  = Body length
- O.D. = outer diameter
- Connector = diameter, length and material
- Flying Leads = length, wire gauge and insulation type

Optical Transmission of Envelope Materials



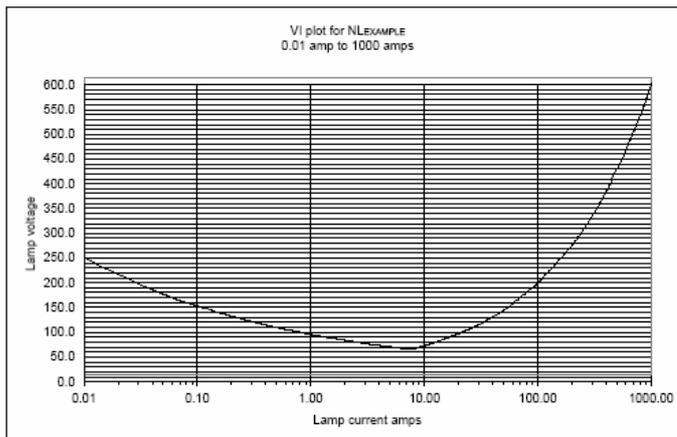
## Typical voltage – current plot for flash lamp type 7mm bore 102mm arc length

# Heraeus

## Lamp Part Number : NLEXAMPLE

Bore: 7mm		Arc Length: 102mm	
Description: Fluid cooled Xenon flash Lamp			
Envelope:(odq/cfq)	cfq : Impedance parameter. (K <sub>o</sub> )	18.7	Ohm Amp ^0.5
Wall: (.5-1-2 mm)	1 : Explosion const. (K <sub>e</sub> )	1.71E+05	Watt sec ^0.5
		4486	Watts
Bore: (cm)	0.7 : Max peak current. (A)	1539	See note 1
Arc: (cm)	10.2 : Lamp voltage min. (V)	708	See note 2
		2478	See note 3
Gas type: (xe/kr)	xe : Minimum trigger voltage.	18	Kv See note 4
Pressure: (torr)	450 : Minimum trigger width.	0.82	us See note 5

Note 1: Maximum lamp current for long life applications = 4000 amps cm<sup>2</sup>  
 Note 2: Minimum lamp voltage for reliable ignition using external trigger.  
 Note 3: Maximum lamp voltage for reliable operation with out self flash.  
 Note 4: Typical external trigger voltage, series trigger voltage similar.  
 Note 5: Minimum trigger pulse width (us) at minimum trigger voltage.  
 Note 6: Lamp and trigger voltages assume negative ground lamp supply.  
 Note 7: Minimum lamp voltage for reliable ignition will be lower with series trigger.  
 Note 8: For simmer operation minimum voltage is determined by lamp K<sub>o</sub> (see VI plot)



Assumes K<sub>o</sub> remains constant throughout positive slope of operation.  
 All data based on theory/calculation

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