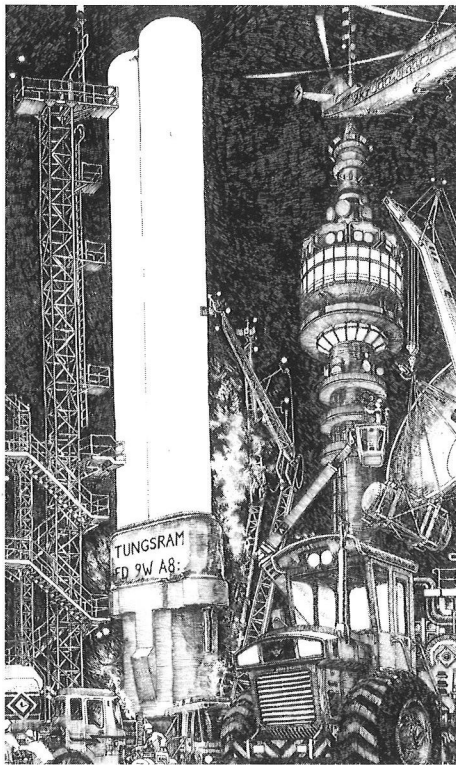
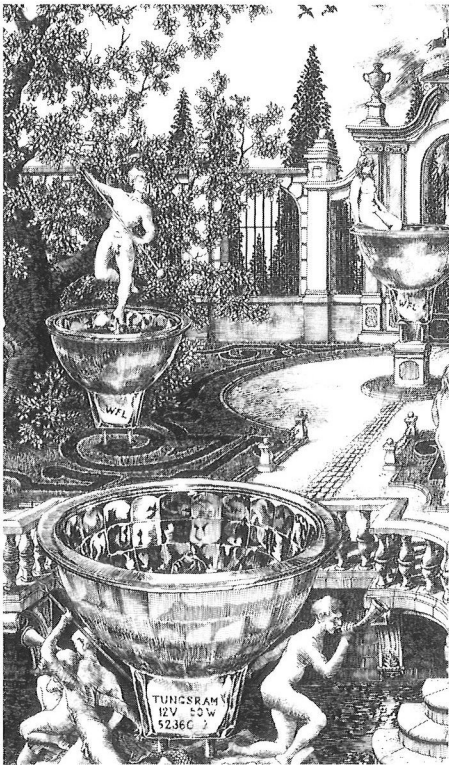


**HANOVER
FAIR 90**
INDUSTRY



TUNGSRAM

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TUNGSRASOFT LAMPS

Advantages as compared with traditional GLS lamps

- TUNGSRASOFT lamps provide the softest light possible
- Light is diffused evenly through TUNGSRAM's special inside coating
- The result is gentle soft light, with no harsh shadows or glare
- The lamp has a contemporary shape that spreads soft light evenly to enhance any decorative setting



Technical data

Bulb: inside coated

Watts	Volts*	Luminous flux (lm)	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity
-------	--------	--------------------	--------------------	-----	-------------	------------------

Ø 60 mm Lamps

25	230—240	210	60	E27/B22d	105.5/104	100
40		380				
60		650				
75		880				
100		1240				

Ø 45 mm Lamps**

25	230—240	170	45	E27/E14	76/80	100
40		350		B22/B15d	74/80	

Candle Lamps**

25	230—240	170	35	E14	100	100
40		350		B15d/B22	100/96	

* All lamp types are available also in ratings 110—115 V, 120—125 V, 220—230 V, 250 V.

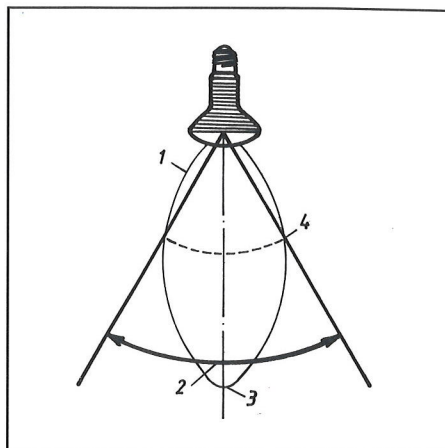
** From the 2nd quarter 1990.

TUNGSRAFLEX REFLECTOR LAMPS

TUNGSRAFLEX REFLECTOR LAMPS

TUNGSRAFLEX Reflector Lamps feature inside mirrored blown glass bulbs with directed beam in specific beam spreads.

STANDARD RANGE



- 1 — Light distribution
- 2 — Beam spread
- 3 — Light intensity, maximum
- 4 — Light intensity, half value



Technical data

Bulb: inside mirrored, blown

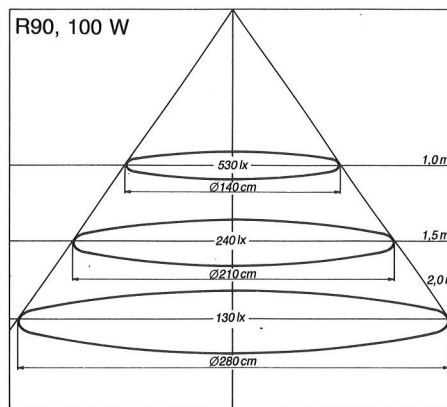
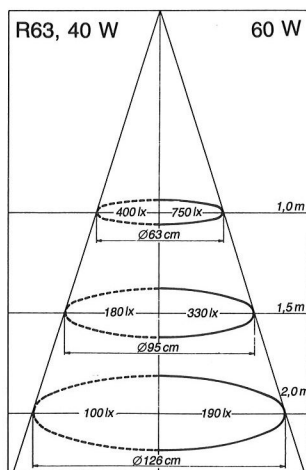
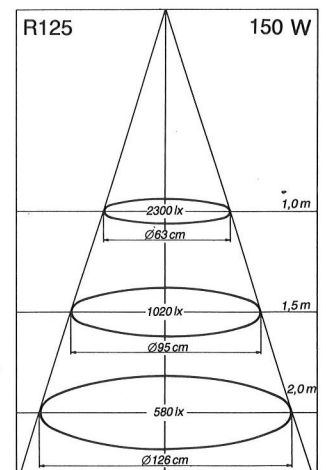
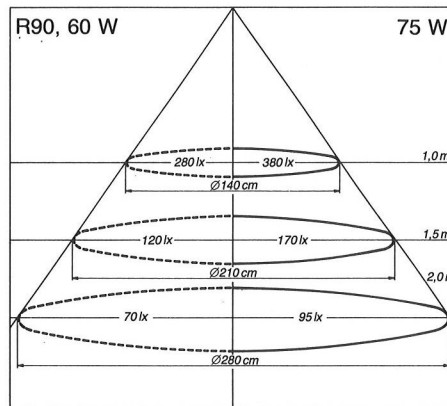
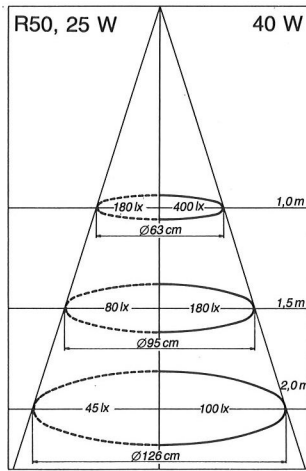
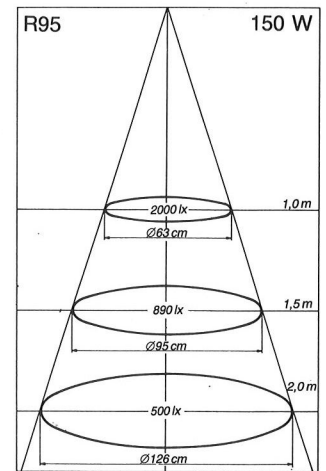
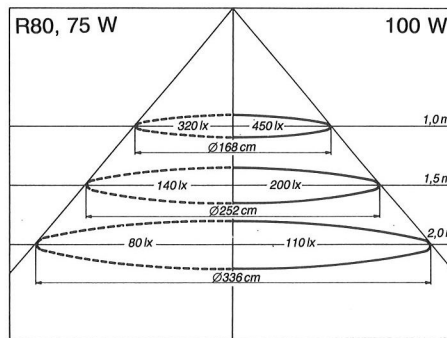
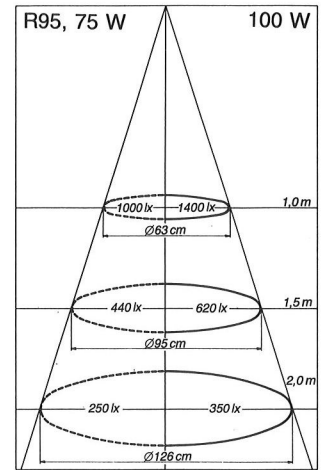
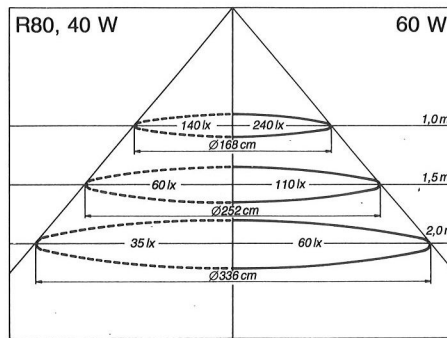
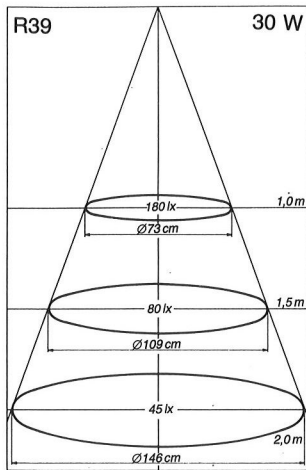
Type	Watts	Volts*	Beam spread (°)	Light intensity (cd)	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity
R39	30	230—240	40	180	39	E14, B15d	67	100
R50	25 40			180 400	50		86	
R63	40** 60**		35	400 750	63.5	E27, B22d	103	50
R80	40** 60** 75 100			140 240 320 450	80		114	25
R90	60 75 100		70	280 380 530	90	E27	118	16
R95	75 100 150			35	1000 1400 2000		95	131
R125	150		2300		125	168	9	

* All lamp types are available also in ratings 110—115 V, 120—125 V, 220—230 V, 240 V, 250 V.

** These types are available also with golden mirror.

TUNGSRAFLEX REFLECTOR LAMPS

Maximum illuminance in lux at different lamp distances from the target



TUNGSRADFLEX REFLECTOR LAMPS

DISCOLUX LAMPS

Especially for effect-lighting in night-clubs, discotheques, shop-windows, light-organs.



Technical data

Bulb: red, green, blue, yellow, orange, purple

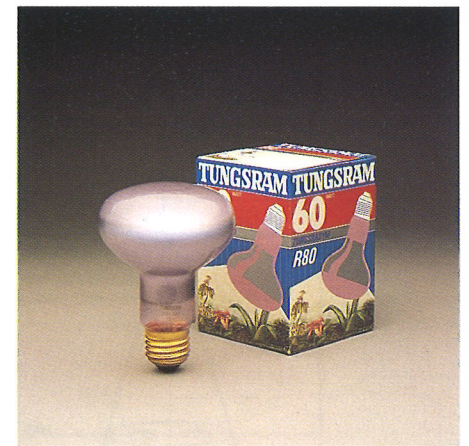
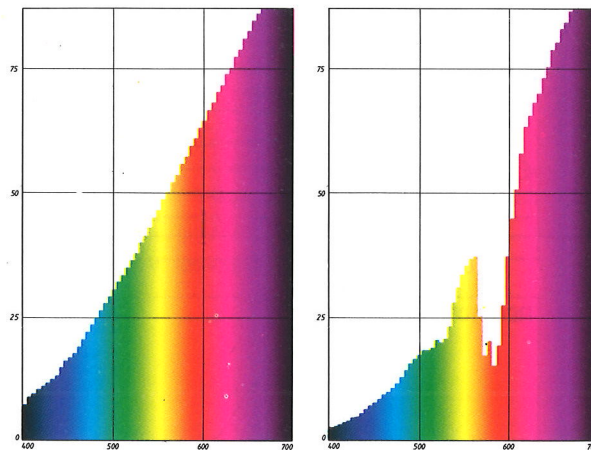
Lamps R80, 40W with purple bulb is not available.

Type	Watts	Volts*	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity
R50	25	230—240	50	E14, B15d	86	25
R63	40		63	E27, B22d	103	
R80	40 60		80		114	
R95	100		95	E27	135	16

TUNGSRADYD LAMPS

Owing to the addition of neodymium to the bulb material, the yellow spectral component of the light is reduced to minimum. The natural colours of illuminated objects remain unchanged. Best choice for the illumination of plants, green goods, art galleries and jewellery.

Spectral energy distribution



Technical data

Bulb: inside mirrored

Type	Watts	Volts*	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity
R50	25 40	230—240	50	E14, B15d E14, B22d	86	25
R63	40 60		63	E27, B22d	103	
R80	60 100		80		113	
R95	100 150		95	E27	135	16

* All lamp types are available also in ratings 110—115 V, 120—125 V, 220—230 V, 240 V, 250 V.

TUNGSRAGLOB & TUNGSRALIN LAMPS

TUNGSRAGLOB LAMPS

for Decorative Lighting



Technical data

Bulb: clear, opal

Type	Watts	Volts*	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity (pcs)
TUNGSRAGLOB 80	40	230—240	80	E27, B22d	116	20
	60					
	100					
TUNGSRAGLOB 100	40	230—240	100	E27, B22d	137	20
	60					
	100					
TUNGSRAGLOB 125	40	230—240	125	E27, B22d	168	20
	60					
	100					
	150**					

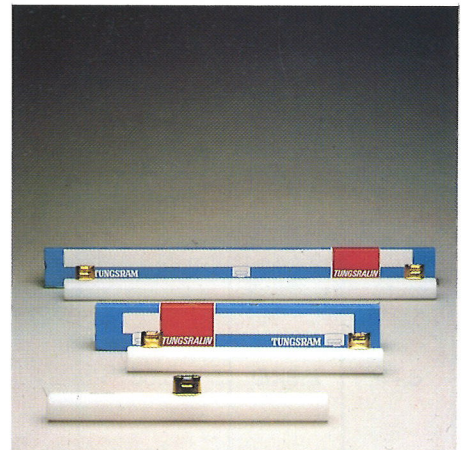
* All lamp types are available also in ratings 110—115 V, 120—125 V, 220—230 V, 240 V, 250 V.

** opal only.

TUNGSRALIN LAMPS

Features

- visual comfort with no glare
- the best choice for mirror lighting
- average life 2,500 hours



Technical data

Watts	Volts	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity (pcs)
-------	-------	--------------------	-----	-------------	------------------------

Bulb: opal

35	235	30	2×S14s	300	25
60				500	
120*				1000	

Bulb: opal

35	235	30	1×S14d	300	25
60				500	

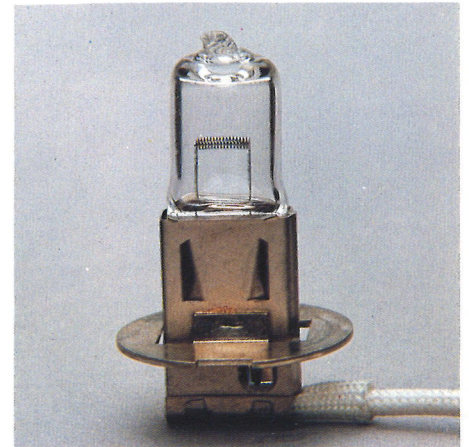
* Average life 1,500 hours.

TRAFFIC LIGHT LAMPS

TRAFFIC LIGHT LAMPS

Feature:

- constant luminous flux
- shock and heat resistance
- long life



Technical data

Bulb: clear

Type	Watts	Volts	Luminous flux (lm)	Bulb diameter (mm)	Cap	Length (mm)	Packing quantity (pcs)
Standard	40	230—245	220	60	E27, B22d	105/104	25
	60		380				
	70		465	65		108/106	
	100		740				
Krypton mushroom	40	230—245	250	55	E27	94	25
	55		390				
	70		540				
	75		590	60		103	
	100		840				
Krypton round bulb	25	230—245	150	45	E27	77	25
	40		270				
Halogen	50	10	940	11.5	PKX22s	42	25

HALOGEN LOW VOLTAGE LAMPS WITH DICHROIC MIRROR

HALOGEN LOW VOLTAGE LAMPS WITH DICHROIC MIRROR

Advantages

These lamps combine the advantages of long life miniature halogen lamps and dichroic mirrored reflector bulbs:

- enhanced luminous efficacy = energy saving!
- constant luminous flux
- long life
- comfortable hue
- small size
- light weight
- directed beam
- heat damage prevention for illuminated objects

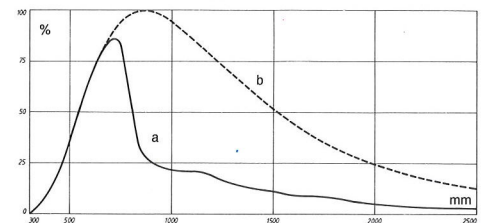


All types are available with or without Cover Lens.

Advantages of Cover Lens

- no dust accumulation on the surfaces of the reflector and the lamp = no decrease in luminous flux + easier to clean

Spectral energy distribution



Halogen Incandescent Lamp
a) with Dichroic Mirror
b) without Dichroic Mirror

Technical data

Type	ANSI-code	Watts	Volts	Luminous Intensity (cd)	Colour temperature (K)	Beam spread (°)	Life (hours)	Bulb diameter (mm)	Cap	Length (mm)
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Ø 50 mm LAMPS*

52260 NSP	EZX	20	12	8200	2950	7	2000	50.5	GX5.3	44.5
52380 SP	ESX			3300		12				
52270 NFL	—			1000		20				
52330 WFL	BAB			460		36				
52390 SP	FMT	35		6000	3050	12	3000			
52400 WFL	FMW			1000		36				
52280 SP	EXT	50		9150		13				
52290 NFL	EXZ			3000		24				
52350 FL	ENL			2200		30				
52360 WFL	EXN			1500		38				
52410 SP	FPA	65		10500		13				
52430 WFL	FPB			1700		38				

Ø 35 mm LAMPS**

51500 SP	FTB	20	12	1300	2950	11	2000	35.3	G4	34
51510 NFL	FTC			1300		18				
51520 SP	FTE	35		5000		12				
51530 NFL	FTF			1650		19				

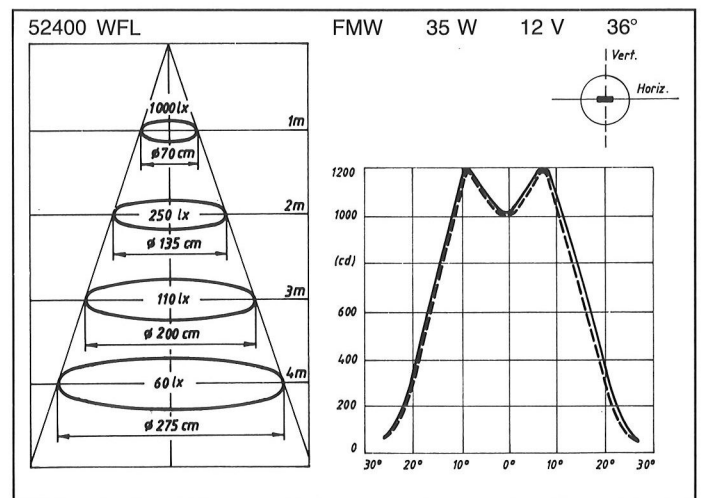
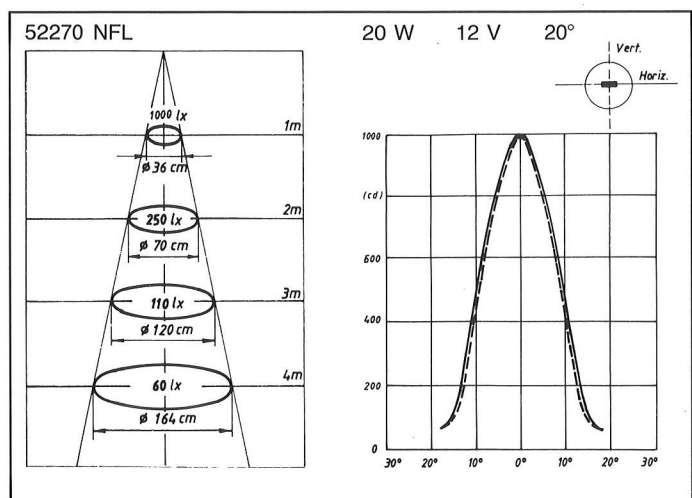
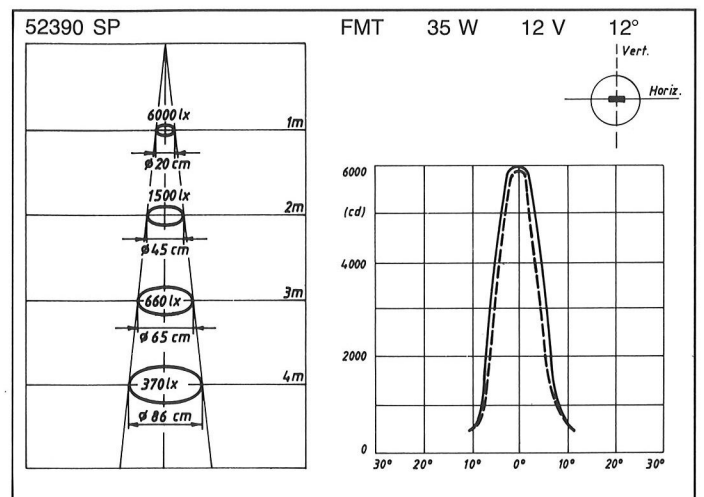
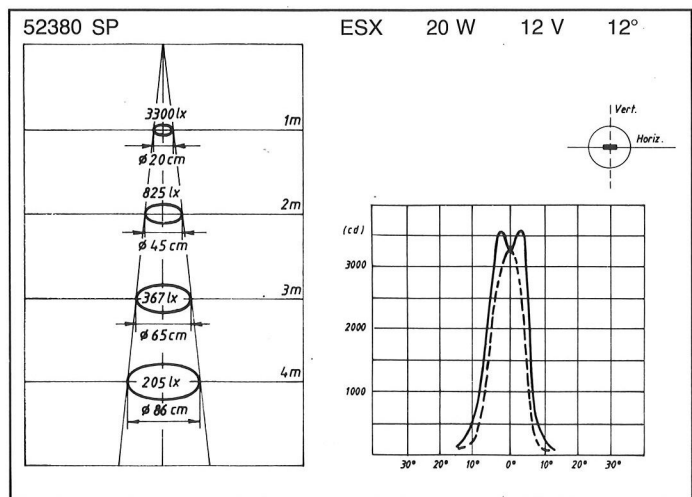
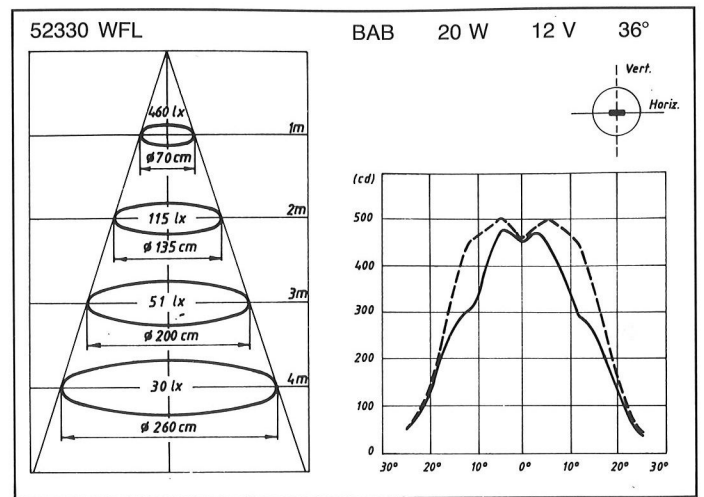
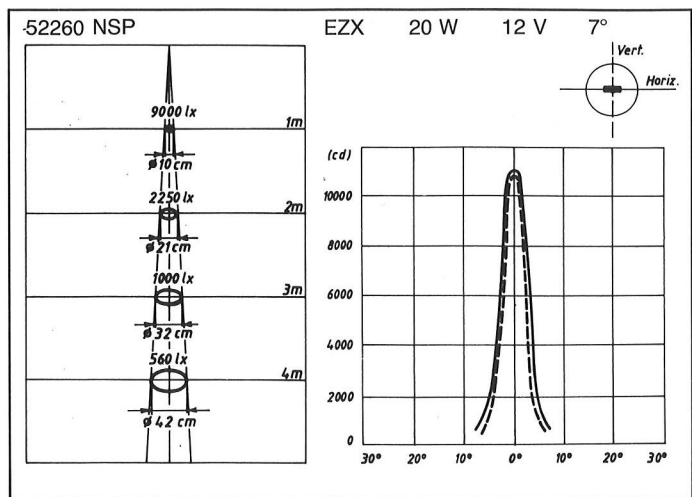
Packing quantity: 1/25 pcs

* From the 2nd semester 1990.

** From the 1st semester 1991.

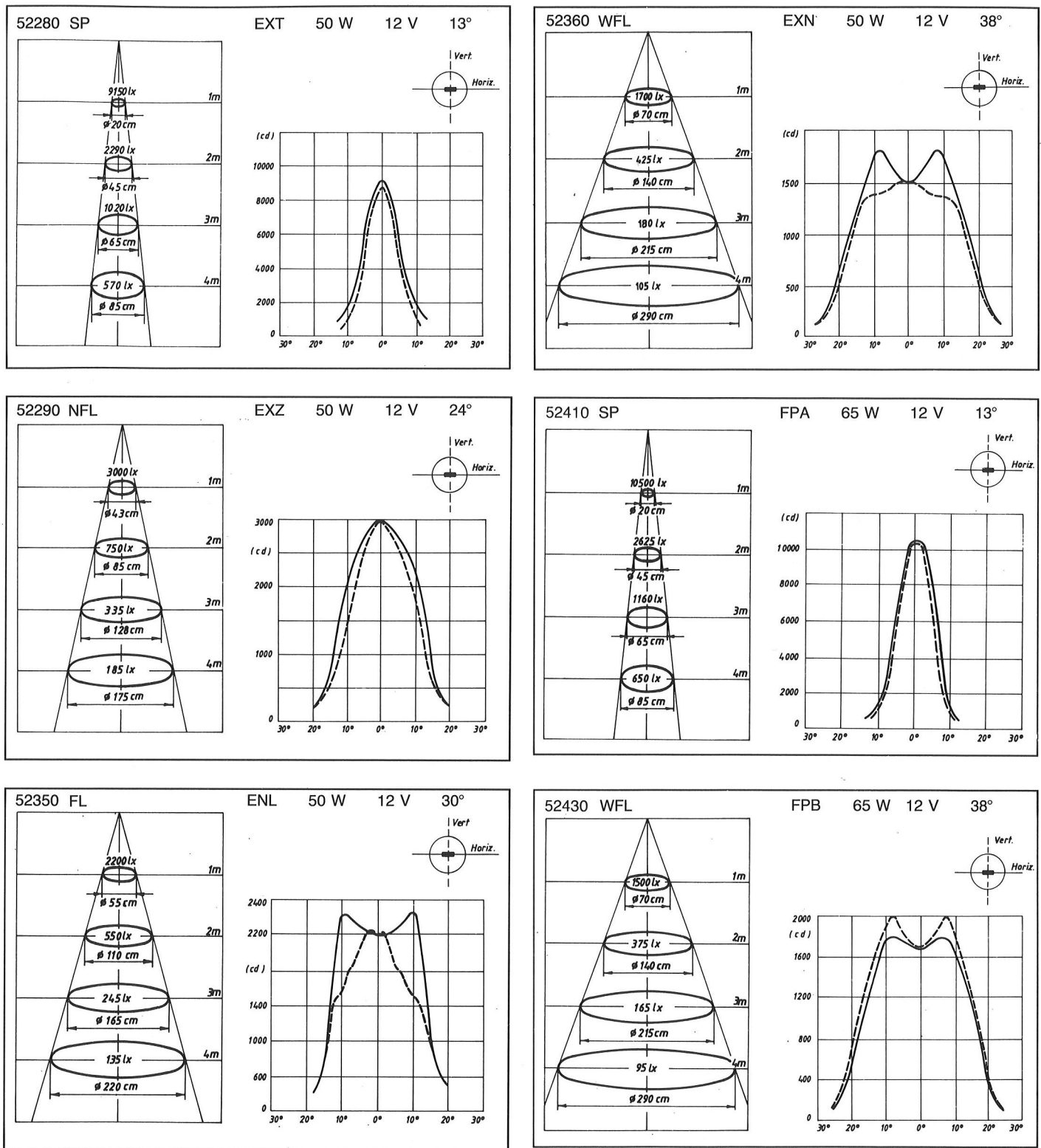
HALOGEN LOW VOLTAGE LAMPS WITH DICHROIC MIRROR

Maximum illuminance in lux at different lamp distances from the target
Luminous intensity distribution



HALOGEN LOW VOLTAGE LAMPS WITH DICHROIC MIRROR

Maximum illuminance in lux at different lamp distances from the target
Luminous intensity distribution



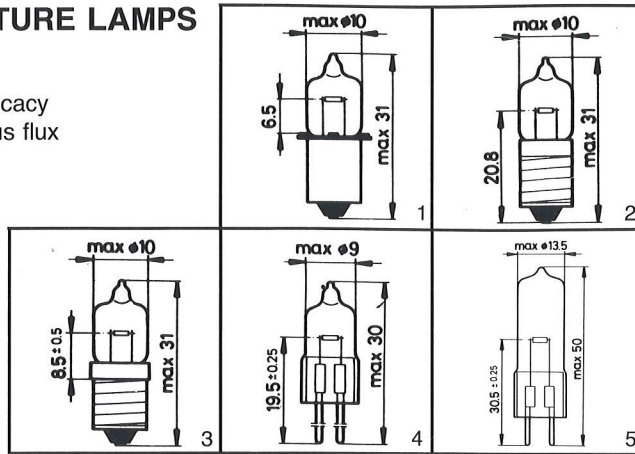
HALOGEN MINIATURE LAMPS

HALOGEN MINIATURE LAMPS

Advantages

- enhanced luminous efficacy
- no decrease in luminous flux
- long life

for Flashlight Lamps



Type	Fig.	Volts	Amperes	Luminous flux (lm)	Battery voltage (V)	Bulb diameter (mm)	Cap	Length (mm)	Life (hours)	Packing quantity
58720	1	2.8	0.85	35	3.0	10	P13.5s	31	10	500
58730		4.0	0.5	33	4.5				15	
58740		0.85	60	25						
58750		5.2	0.5	48	6.0				15	
58760			0.85	85	25					
58770		6.5	0.7	90	7.5				50	
58710		7.2	0.8	125	8.5				10	
58830	2	2.8	0.85	36	3.0		E10		10	
58840		4.0	0.5	34	4.5				15	
58850			0.85	62					25	
58860		5.2	0.5	50	6.0				15	
58870			0.85	90	25					

for Miner's Lamps

Type	Fig.	Watts	Volts	Luminous flux (lm)	Bulb diameter (mm)	Cap	Length (mm)	Life (hours)	Packing quantity
58800	1	3.0	4.0	43	10	P13.5s	31	150	500
58790		4.0		50				400	

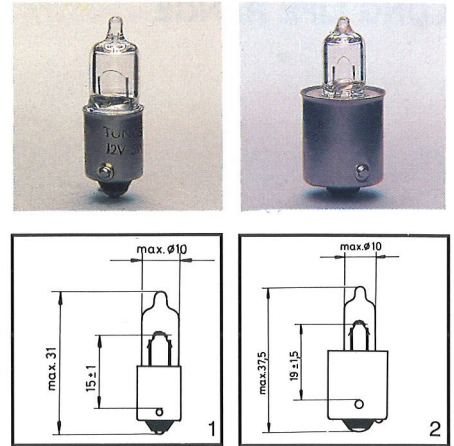
for Special Purposes

(for instruments, special lightings, etc.)

Type	Fig.	Watts	Volts	Luminous flux (lm)	Bulb diameter (mm)	Length (mm)	Cap	Life (hours)	Packing quantity	
56050	3	6	6	95	9	G4	30	100	500	
56140	4			86		BA9s				
56070	3	8		140		G4				
56160	4			120		BA9s				
56010	3	10		200		9				G4
56020				440						
56120	4	20		420		9				BA9s
56030	3			550						G4
56110	4		12	500	BA9s					
56600	5	150	24	4300	13.5	G6.35	50	300	10	

HALOGEN MINIATURE LAMPS

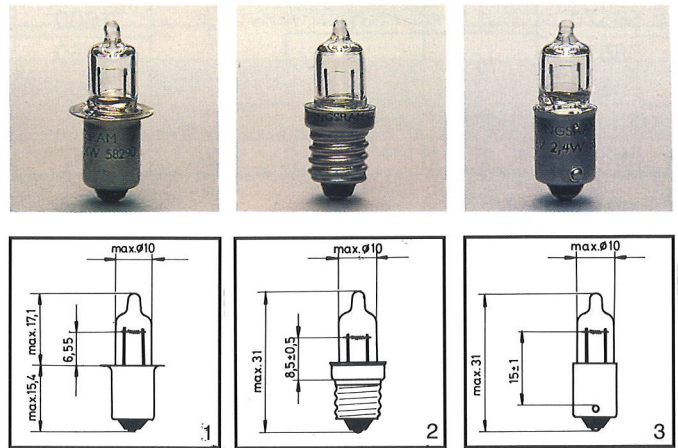
FOR VEHICLE INTERIOR LIGHTING



Type	Figure	Rated values		Design values		Life (hours)	Base
		Volts	Watts	Volts	Watts		
56120	1	6	20	6.3	21	100	BA9s
58540							
58570	2	12	5	13.5	5	240	BA15s
58560	1						BA9s
58580	2						
56110	1						20

Packing quantity: 1/10/500.

FOR BICYCLE AND SCOOTER HEADLIGHTS



Lamp types according to ECE R37

Type	Fig.	ECE R37 indication	Rated values		Design values		Life (hours)	Base
			Volts	Watts	Volts	Watts		
58290	1	HS3	6	2.4	6	2.5	100	PX13.5s

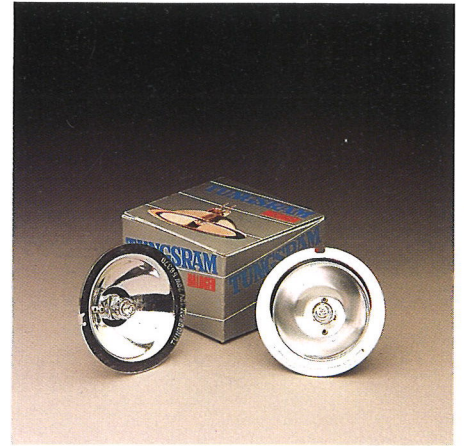
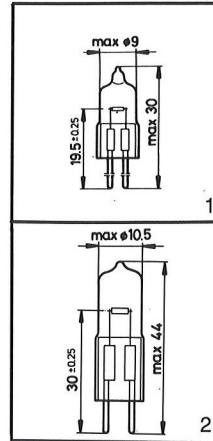
Special lamps

Type	Fig.	Rated values		Design values		Life (hours)	Base
		Volts	Watts	Volts	Watts		
58170	2	6	2.4	6	2.5	100	EP10/14×11
58230	3						BA9s
58180	2		3		3.1		EP10/14×11
58240	3						BA9s
58300	1		PX13.5s				

Packing quantity: 1/10/500.

HALOGEN MINIATURE LAMPS

LONG LIFE RANGE



Type	Fig.	Watts	Volts	Luminous flux (lm)	Bulb diameter (mm)	Cap	Length (mm)	Life (hours)	Packing quantity	
58590	1	5	12	60	9	G4	30	2000	500	
56240		10	6	1300				1500		
58600		10	12	140						
56040	2	20	12	350	10.5	GY6.35-15	44	2000		
56530		35		6						600
56520		35		12						900
56540		50		24						850
56550		50		24						850
56570	1	75	12	1600	9	G4	30	2000		
56510	2	100		2350	10.5	GY6.35-15	44			
56560			2000							
with Aluminium Reflector*										
56370	3	20	12	3000**	12	G4	44	2000	1/50	

* Beam spread=10°

** Luminous intensity in cd.

HALOGEN HEADLIGHT LAMPS

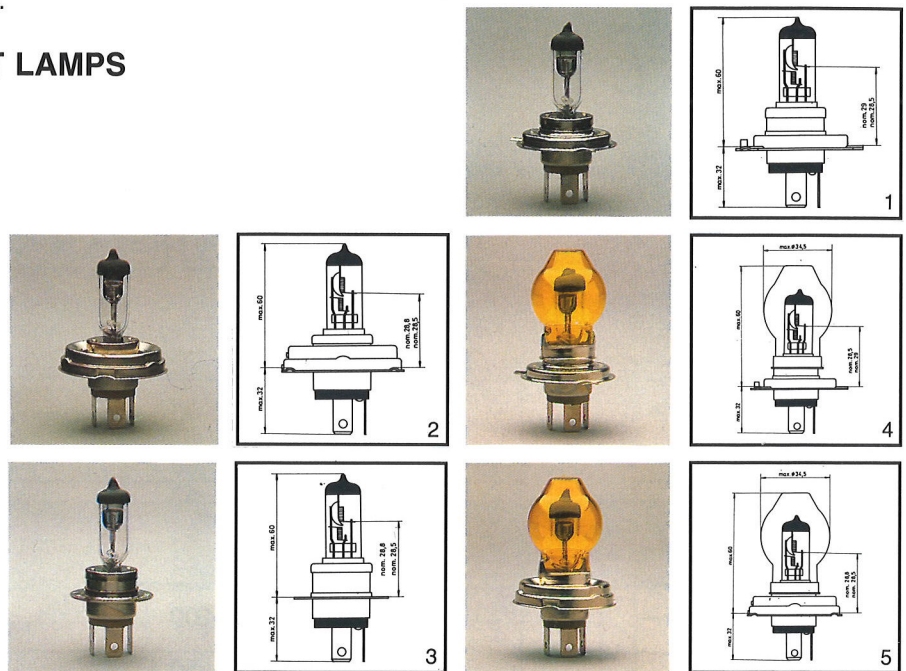
HALOGEN HEADLIGHT LAMPS FOR SPECIAL PURPOSES

Owing to their higher light output and special bulb shape and cap, applications of these lamps in road traffic should be avoided.

They intended to use in

- motor racing, rallye runs
- agricultural machinery
- bulldozers, trenching machines
- instruments demanding high illumination, etc.

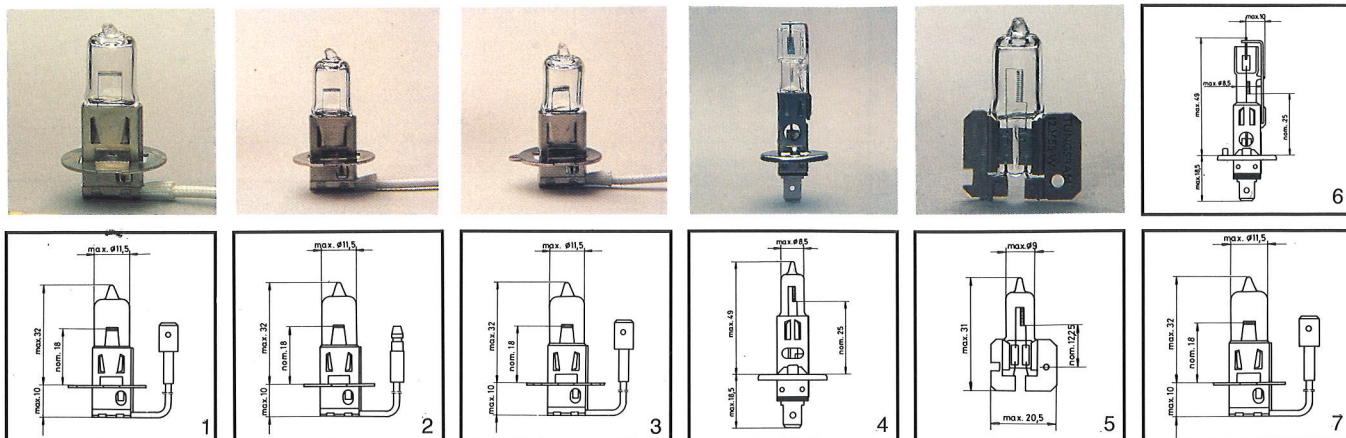
DOUBLE FILAMENT HEADLIGHT LAMPS ASYMMETRIC



Type	Rated Values		Values at Test Voltage		Life (hours)	Cap	Fig.	
	V	W	V	W				
52600	6	35/35	6.3	35/35	100/200	P45t-41	1	
52640						P43t-38	2	
52000	12	100/55	13.2	98/64		P36t	3	
52020						1		
72020 yellow						4		
52030						100/80	98/78	1
72030 yellow								4
52040						100/90CP	71/64	1
72040 yellow		100/90	4					
52050		100/90CP	98/73	2				
72050 yellow		100/90				5		
52060		100/80	71/64	3				
52070		60/55				1		
72070 yellow		100/55	98/64	2				
52090	5							
72090 yellow	P43t-38					2		
52100							5	
72100	P36t					3		
52110							60/55	71/64
52610	35/35	35/35	1					
52650	140/100	130/90	25/50	P43t-38	2			
52670								
52080	24	75/70	28	80/73	P45t-41	1		
72080 yellow						4		
52120		100/70	99/73	100/200	P36t	3		
52710					P43t-38	2		
52730					P45t-41	1		

HALOGEN HEADLIGHT LAMPS

SINGLE FILAMENT HEADLIGHT LAMPS



Type	Rated values		Values at Test Voltage		Life (hours)	Cap	Fig.	
	V	W	V	W				
50390	12	35	13.2	40	150	PK22s	1	
52190				62	225	PK22s/A*	2	
52180		55		100	92	100	PK22s/R**	3
50360		100			100		P14,5s/R**	6
50370					92		PK22s	1
52130					100		P14,5s	4
52140		24			45		28	50.1
52150	60		64.8	PK20s		7		
52510	100		100	104	100	100		PK22s/R**
52500		PK22s					1	
50380		PK20s					7	
50400				150				
52570								

* A = axial
** R = rounded

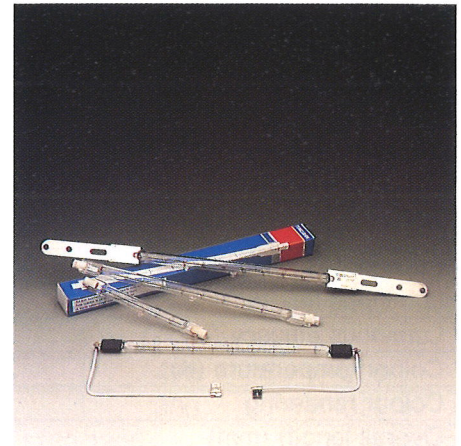
HALOGEN INFRARED LAMPS

Advantages

- halogen filling = no bulb blackening
long life
high energy radiation
- quartz bulb = high thermal shock resistance
- practically all of the consumed electrical power is converted into heat (the radiation energy falls largely in the infrared range of 0.7 . . . 2 μm = low heat loss in air as well as in water)
- only people or objects: within the irradiated zone are heated
- there are no by-products of combustion, no movement of air or dust = cleaner environment
- heat transfer not affected by draughts or air movement

Applications

- areas of intermittent or occasional use (sports halls, exhibition halls, etc.)
- draughty areas (e.g. at door openings)
- areas which, because of their height, are difficult or costly to heat (churches, hangars, garages, etc.)
- in industry (electric ovens, drying, warming, soldering, plastics welding, heat treatment, etc.)



Technical data

Type	Watts	Volts	Colour temperature (K)	Bulb diameter (mm)	Cap	Length (mm)	Life (hours)	Packing quantity (pcs)
51040/R	400	220	2300	12	R7s-15	330	5000	50
51150/K	450	110	2400		Cable	210		
51180/K		120						
51160/K		190						
51190/L	500	235	2300		Plate	360		
51050/R	800	120			R7s-15	330		
51070/L	1000	235			Plate	485		

Burning position: horizontal ±4°
Special types and variants are produced on request.

COMPACT FLUORESCENT LAMPS



COMPACT FLUORESCENT LAMPS

Advantages

- high luminous efficacy = energy saving!
- low heat
- good colour rendering
- long life
- compact form

Series FD5...FD11

Technical data

5 W		= 250 lm = 25 W	
7 W		= 400 lm = 40 W	
9 W		= 600 lm = 60 W	
11 W		= 900 lm = 75 W	



Type	FD5	FD7	FD9	FD11
Power consumption (W)	5	7	9	11
Luminous flux (lm)	250	400	600	900
Luminous efficacy (lm/W)	50	57	66	82
Colour temperature (K)	2700 (F82); 4000 (F84)*			
Colour rendering	grade 1b			
Overall length (mm)	108	135	167	235
Cap	G23			
Packing quantity (pcs)	1/50			



Series FD-C5...FD-C11 Coloured

Technical data

Type	FD-C5	FD-C7	FD-C9	FD-C11
Power consumption (W)	5	7	9	11
Colour	blue*, red, green			
Overall length (mm)	108	135	167	235
Cap	G23			
Packing quantity (pcs)	1/50			

Series FD-D10...FD-D26

Technical data

10 W		= 600 lm = 60 W	
13 W		= 900 lm = 75 W	
18 W		= 1200 lm = 100 W	
26 W		= 1800 lm = 2x75 W	



Type	FD-D10	FD-D13	FD-D18	FD-D26
Power consumption (W)	10	13	18	26
Luminous flux (lm)	600	900	1200	1800
Luminous efficacy (lm/W)	60	70		
Colour temperature (K)	2700 (F82); 4000 (F84)*			
Colour rendering	grade 1b			
Overall length (mm)	118	153	173	193
Cap	G24 d-1		G24 d-2	G24 d-3
Packing quantity (pcs)	1/25			

* From 1991.

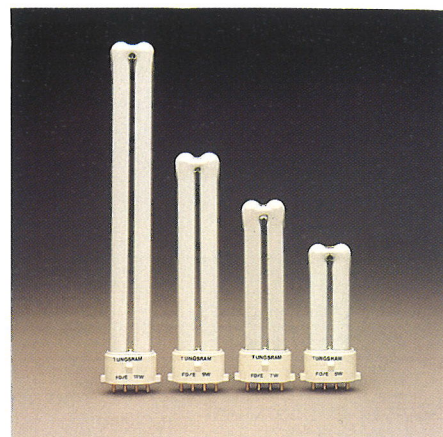
COMPACT FLUORESCENT LAMPS

Series FD5/E . . . FD11/E for HF and Dimming Operation

Advantages

with a suitable electronic device

- for the operation at low voltages = emergency lighting
- dimming possibilities



Technical data

Type	FD5/E	FD7/E	FD9/E	FD11/E
Power consumption (W)	5	7	9	11
Operating voltage at 50/60 Hz (V)	34	47	60	92
Operating voltage at HF (30 kHz) operation (V)	31	41	53	80
Preheating voltage (V)	8			
Open circuit peak voltage (V_{p-p})	420	440	470	500
Open circuit r.m.s. voltage, min. (V_{eff})	270	285	300	325
Impedance of ballast at 220/240 V (Ohm)	1180/1300			
Lamp current at 30 kHz (mA)	180	175	170	160
Luminous flux (lm)	250	400	600	900
Colour temperature (K)	2700 (F82); 4000 (F84)			
Colour rendering	grade 1b			
Overall length (mm)	85	115	145	215
Cap	2G7			
Packing quantity (pcs)	1/50			

Series FD-D10/E . . . FD-D26/E for HF and Dimming Operation

Advantages

with a suitable electronic device

- for the operation at low voltages = emergency lighting
- dimming possibilities



Technical data

Type	FD-D10/E	FD-D13/E	FD-D18/E	FD-D26/E
Power consumption (W)	10	13	18	26
Operating voltage at 50/60 Hz (V)	67	100	105	110
Operating voltage at HF (30 kHz) operation (V)	57	85	90	
Preheating voltage (V)	8			4.5
Open circuit peak voltage (V_{p-p})	500	550	570	590
Open circuit r.m.s. voltage, min. (V_{eff})	350		400	420
Impedance of ballast at 220/240 V (Ohm)	1070/1170		800/900	540/610
Lamp current at 30 kHz (mA)	190	165	220	315
Luminous flux (lm)	600	900	1200	1800
Colour temperature (K)	2700 (F82); 4000 (F84)			
Colour rendering	grade 1b			
Overall length (mm)	118	153	173	193
Cap	G24 q-1		G24 q-2	G24 q-3
Packing quantity (pcs)	1/25			

COMPACT FLUORESCENT LAMPS

Series FD-L18...FD-L36



36 W, Standard Fluorescent Lamp



36 W, FD-L36

Technical data

Type	FD-L18	FD-L24	FD-L36
Power consumption (W)	18	24	36
Luminous flux (lm)	1200	1800	2900
Luminous efficacy (lm/W)	69	75	80
Colour temperature (K)	2700 (F82) 3000 (F83) 4000 (F84)		
Colour rendering	grade 1b		
Overall length (mm)	225	320	415
Cap	2G11		
Packing quantity (pcs)	1/50		

GLOBOLUX lamps

Globolux lamps are energy saving compact fluorescent lamps in decorative globular shape. They can replace incandescent lamps with cap E27 easily and emit a comfortable light similar to that of incandescent lamps, though with very good colour rendition. Starter and ballast are integrated. Applications are indoor and outdoor lighting for private and professional uses.



GLOBOLUX 110 Super*

9 W = 480 lm = 60 W
13 W = 660 lm = 75 W
18 W = 850 lm = 100 W



Technical data

Type	GX/110/9 W
Bulb	opal/crystal
Luminous flux (lm)	480
Life (hours)	8000
Diameter (mm)	110
Overall length (mm)	151
Cap	E27, B22
Supply voltage (V)	220, 240
Packing quantity (pcs)	1/12

GLOBOLUX 125*

Technical data

Type	GX125/9 W	GX125/13 W	GX125/18 W	GX125D/18 W
Bulb	opal			
Luminous flux (lm)	480	660	850	790
Life (hours)	8000			
Diameter (mm)	125			
Overall length (mm)	172			
Cap	E27, B22			
Supply voltage (V)	220, 240			
Packing quantity (pcs)	1/6			

* With type designation GX-E/110/11 W, GX-E/125/15 W and GX-E/125/20 W GLOBOLUX lamps are available with integrated electronic ballast and enhanced electric and lighting data.

COMPACT FLUORESCENT LAMPS

TUNGSRADAPT Adaptor for Compact Fluorescent Lamps

Advantages

- long (50,000 hours) life
- direct E27 or B22 compatibility
- goes into traditional chandeliers



Technical data

Lamp Type	Lamp Watts	Watts with TUNGSRADAPT	TUNGSRADAPT LB059					TUNGSRADAPT LB061					
			V	Luminous flux (lm)	Cap	Mass (g)	Overall length with lamp (mm)	Dia-meter (mm)	V	Luminous flux (lm)	Cap	Mass (g)	Overall length with lamp (mm)
FD5	5	10	220	250	E27 or B22	380	185	60					
FD-C5				—			215						
FD7	400	247											
FD-C7	—												
FD9	9	13		600			311						
FD-C9	—												
FD11	11	15		900									
FD-C11				—									
FD-D10	10	15						220*	600	E27 or B22	390	193	60
FD-D13	13	17						900	227				

* Both types are available also in ratings 110, 230 or 240 V.

THREE BAND & TUNGSRASHOP FLUORESCENT LAMPS

THREE BAND FLUORESCENT LAMPS

Advantages

- up to 96 lm/W luminous efficacy = high light output
- high colour rendering
- Ø 26 mm technics = energy saving

Applications

F82 warm white extra, 2700 K

- residence lighting
- hotels
- restaurants, etc.

F83 warm white, 3000 K

- offices
- department stores
- schools, etc.

F84 white, 4000 K

- factories
- sports halls
- offices
- department stores, etc.



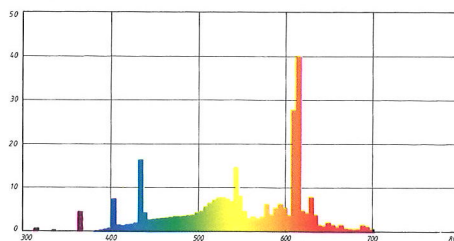
Technical data

Type	F82 warm white extra			F83 warm white			F84 white		
	18 W	36 W	58 W	18 W	36 W	58 W	18 W	36 W	58 W
Power consumption (W)	18	36	58	18	36	58	18	36	58
Luminous flux, initial value (lm)	1300	3250	5200	1450	3450	5400	1450	3450	5400
Luminous efficacy (lm/W)	80	96	93	80	96	93	80	96	93
Colour rendering	grade 1b								
Length without pins (mm)	590	1200	1500	590	1200	1500	590	1200	1500
Length with pins (mm)	604	1214	1514	604	1214	1514	604	1214	1514
Diameter (mm)	26								
Packing quantity (pcs)	25/50								

TUNGSRASHOP FLUORESCENT LAMPS

TUNGSRASHOP Fluorescent Lamps are ideal for lighting of meats and sliced cold ham of sausage, as well as of other foods without embellishing these products inadmissibly.

Spectral energy distribution



Technical data

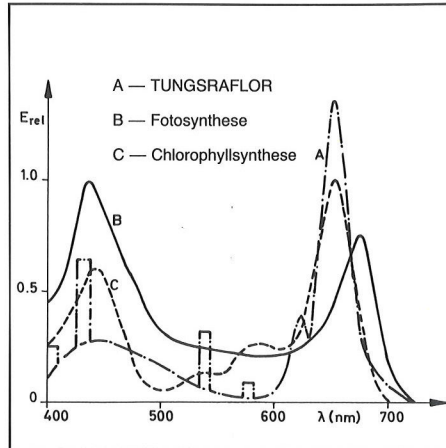
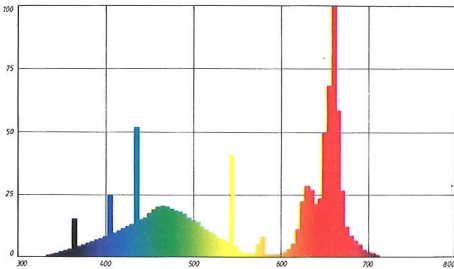
Type	F63-18	F63-36	F63-58
Power consumption (W)	18	36	58
Current (A)	0.37	0.43	0.67
Luminous flux, initial value (lm)	820	1860	2920
Luminous efficacy (lm/W)	38	47	46
Power consumption, control gear included (W)	25	45	69
Length without pins (mm)	590	1200	1500
Length with pins (mm)	604	1214	1514
Diameter (mm)	26		
Packing quantity (pcs)	25/50		

TUNGSRFLOR & BLACK LIGHT FLUORESCENT LAMPS

TUNGSRFLOR FLUORESCENT LAMPS

TUNGSRFLOR lamps have enhanced radiations in the blue and red spectral range and are well adapted to the photobiological processes. Plant growth is influenced considerably. Applications are terrariums, aquariums, greenhouses, attractive lighting of plants.

Spectral energy distribution



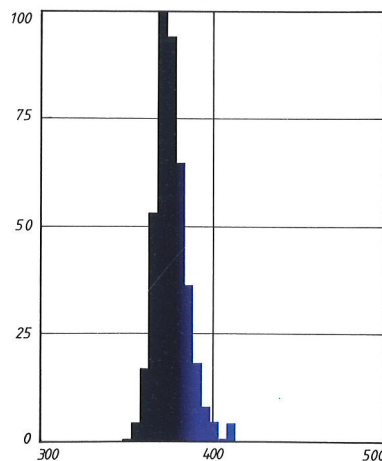
Technical data

Type	F-TF18	F-TF36	F-TF58
Power consumption (W)	18	36	58
Current (A)	0.37	0.43	0.67
Power consumption, control gear included (W)	25	40	69
Length without pins (mm)	590	1200	1500
Length with pins (mm)	604	1214	1514
Diameter (mm)	26		
Packing quantity (pcs)	25/50		

BLACK LIGHT FLUORESCENT LAMPS

Radiations in the innocuous UV range. By taking advantage of the particular physical properties of fluorescent and luminescent substances, a variety of trick illuminations can be achieved. These light sources can be used mainly in decorative applications and in testing materials and documents.

Spectral energy distribution



Technical data

Type	F-BL18	F-BL36
Power consumption (W)	18	36
Range of radiations (nm)	350—420	
Length without pins (mm)	590	1200
Length with pins (mm)	604	1214
Diameter (mm)	26	
Cap	G13	
Packing quantity (pcs)	25/50	

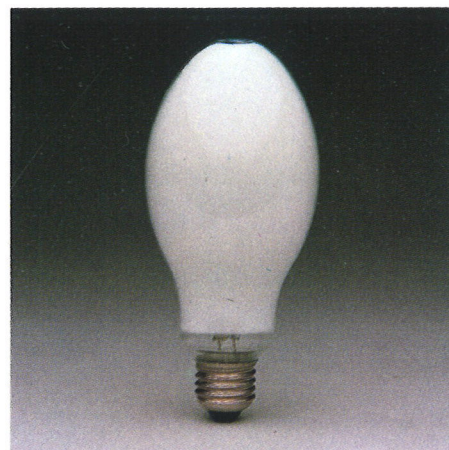
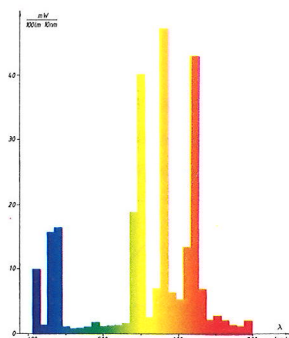
HIGH PRESSURE MERCURY VAPOUR LAMPS

HIGH PRESSURE MERCURY VAPOUR LAMPS WITH ENHANCED COLOUR RENDITION

Advantages

- enhanced colour rendition
- low colour temperature
- long life
- interchangeable with any high pressure mercury vapour lamp of the same nominal lamp watts

Spectral energy distribution



Technical data

Type	HGLI 50 W Komfort*	HGLI 80 W Komfort*	HGLI 125 W Komfort*	HGLI 250 W Komfort**	HGLI 400 W Komfort**
Ordering number	360	361	448	363	364
Nominal lamp watts (W)	50	80	125	250	400
Nominal lamp volts (V)	95	115	125	130	135
Nominal lamp current (A)	0.6	0.8	1.15	2.15	3.25
Luminous flux (klm)	2.0	4.0	6.5	14.0	24.0
Luminous efficacy (lm/W)	40	50	52	56	60
Colour temperature (K)	3500	3400	3350		3400
Colour rendering index (R _a)	57		55		50
Burning position	any				
Cap	E27/27***			E40/45	
Overall length, max. (mm)	130	156	170	227	292
Diameter (mm)	55	70	75	90	120
Packing quantity (pcs)	24	16	25	12	4
Impedance of ballast at 220 V (V/A)	297	206	134	71	45
Capacitance of power factor correction capacitor (µF)	7	8	10	18	25

* In soft glass bulb. With type designations HgLI/H 125 Komfort available also in hard glass bulb.

** In hard glass bulb.

*** On request, with cap B22d-3 is available.

NEUTRAL WHITE AND WARM WHITE DOUBLE ENDED METAL HALIDE LAMPS

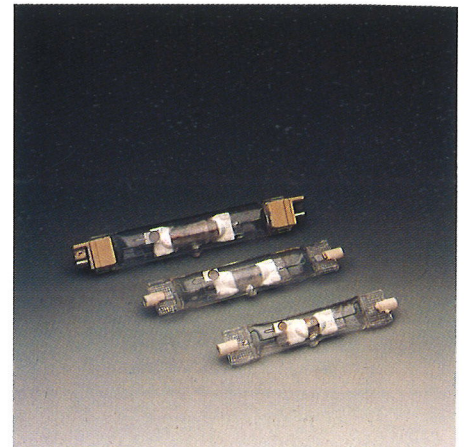
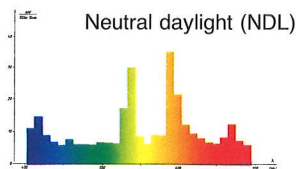
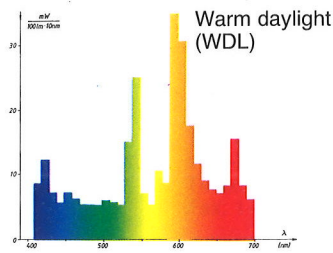
Advantages

- small size = good directivity of the light
- immediate restarting with suitable ignition device
- good colour rendition
- comfortable warm white hue

Attention

Only for operation in luminaires with silicate glass cover. For photosensitive materials, the use of an UV filter is recommended.

Spectral energy distribution



Technical data

Type	HGMIS 70 W WDL	HGMIS 70 W NDL	HGMIS 150 W WDL	HGMIS 150 W NDL	HGMIS 250 W WDL	HGMIS 250 W NDL
Ordering number	83170	83180	83180	83220	83250	83240
Nominal lamp watts (W)	75	75	150		250	
Nominal lamp volts (V)	90	90	95		100	
Nominal lamp current (A)	1.0	1.0	1.8		3.0	
Luminous flux (klm)	5	5.5	11		20	
Luminous efficacy (lm/W)	66.7	73	73.3		80	
Colour temperature (K)	3200	4000	3200	4000	3200	4000
Colour rendering index (R _a)	75	80	75	80	75	80
Burning position	horizontal +45°					
Overall length (mm)	114.2*		132*		163*	
Diameter, max. (mm)	21		24		25	
Cap	R7s				Fc2	
Light center length (mm)	57		66		81.5	
Packing quantity (pcs)	12					

* Contact distance.

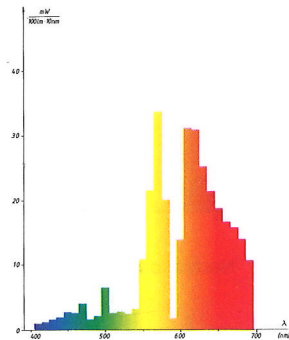
HIGH PRESSURE SODIUM LAMPS

HIGH PRESSURE SODIUM LAMPS WITH ENHANCED COLOUR RENDITION

Advantages

- enhanced colour rendition
- high luminous efficacy
- good lumen maintenance
- increased colour temperature

Spectral energy distribution



Technical Data

Type	TCF 250 W de luxe	TCL 250 W de luxe
Ordering number	85360	85370
Nominal lamp watts (W)	250	
Nominal lamp volts (V)	100	
Nominal lamp current (A)	3.0	
Luminous flux (klm)	21.0	20.0
Luminous efficacy (lm/W)	84	80
Colour temperature (K)	2200	
Colour rendering index (R _a)	70	
Burning position	any	
Overall length, max. (mm)	257	227
Diameter (mm)	59	90
Cap	E40/45	
Light center length (mm)	160	—
Packing quantity (pcs)	12	
Impedance of ballast at 220 V (V/A)	60	
Capacitance of power factor correction capacitor (μF)	40	
Electronic starter requirements		
Pulse peak voltage (V)		
minimum	3000	
maximum	4500	
Pulse width at 90% (μs)	2	
Repetition rate (Hz)	100	

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