

## MONITOR TUBE

The M38-120W is a 38 cm-diagonal rectangular television tube with metal backed screen and integral protection primarily intended for use as a monitor tube. On request this tube can also be supplied with a WA screen phosphor.

QUICK REFERENCE DATA		
Deflection angle	110 <sup>o</sup>	
Focusing	electrostatic	
Resolution	min. 650	lines
Overall length	max. 279,5	mm

**SCREEN**

Metal backed phosphor

Luminescence	white	
Light transmission of face glass	50	%
Useful diagonal	min. 350	mm
Useful width	min. 290	mm
Useful height	min. 226	mm

**HEATING**

Indirect by a.c. or d.c.; parallel or series supply

Heater voltage	V <sub>f</sub> 6,3	V
Heater current	I <sub>f</sub> 300	mA

**FOCUSING**

electrostatic

For focusing voltage providing optimum focus at screen centre at a beam current of 100  $\mu$ A see under "Typical operating conditions".

**DEFLECTION**

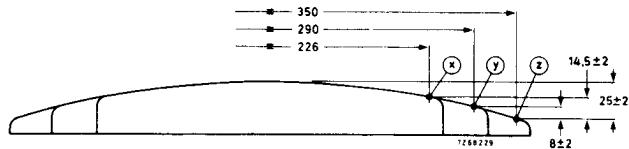
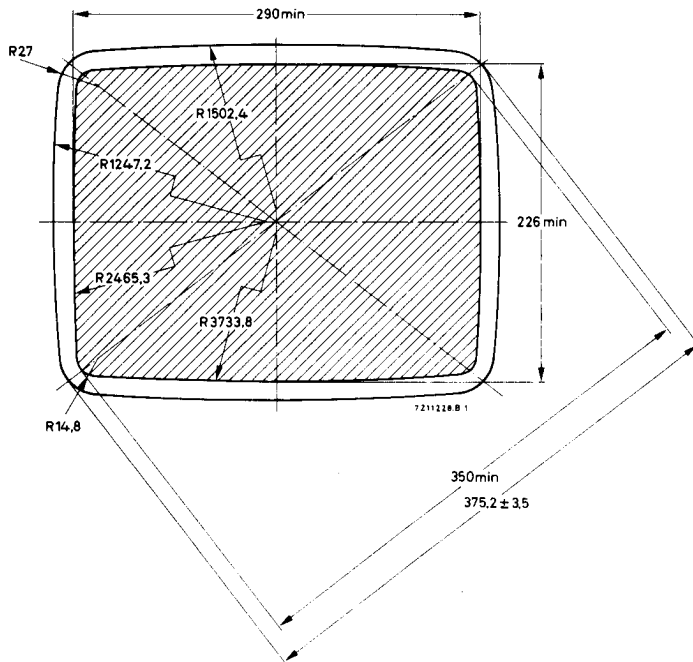
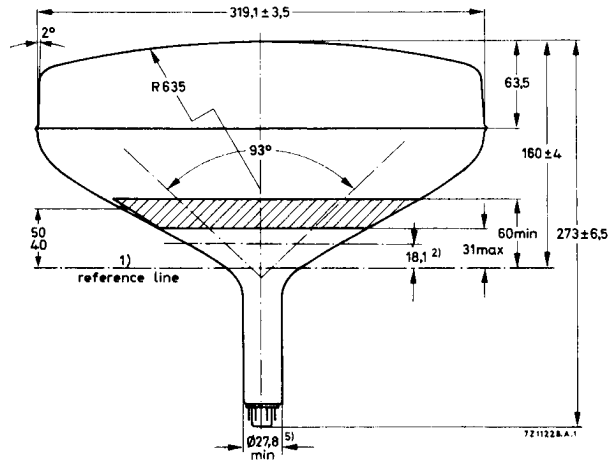
magnetic

Diagonal deflection angle	110 <sup>o</sup>
Horizontal deflection angle	93 <sup>o</sup>
Vertical deflection angle	76 <sup>o</sup>

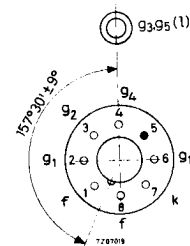
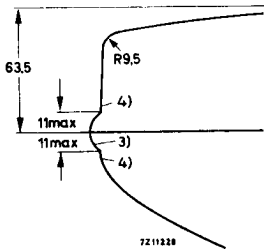
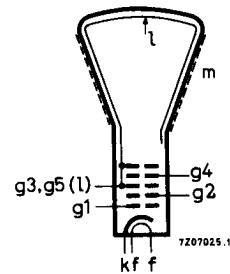
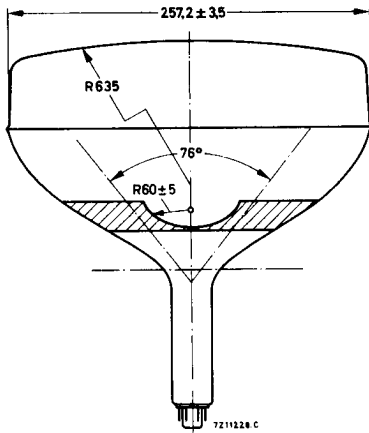
Deflection coil AT1038/40A or AT1039/.. is recommended.

## MECHANICAL DATA

Dimensions in mm



MECHANICAL DATA (continued)



Mounting position: any

Base

Neo eightar (B8H), IEC67-I-3 1a

Cavity contact

CT8, IEC67-III-2

Accessories

Final accelerator contact connector

type 55563A

Socket

2422 501 06001

**NOTES TO OUTLINE DRAWING**

- 1) The reference line is determined by the plane of the upper edge of the flange of reference line gauge, (JEDEC126) when the gauge is resting on the cone.
- 2) End of guaranteed contour. The maximum neck and cone contour is given by the Reference line gauge.
- 3) Bulge at splice-line seal may increase the indicated maximum value for envelope width, diagonal and height by not more than 6,4 mm, but at any point around the seal, the bulge will not protrude more than 3,2 mm beyond the envelope surface at the location specified for dimensioning the envelope width, diagonal and height.
- 4) The tube should be supported on both sides of the bulge. The mechanism used should provide clearance for the maximum dimensions of the bulge.
- 5) The maximum dimension is determined by the reference line gauge

**PICTURE CENTRING MAGNET**

Field intensity perpendicular to the tube axis adjustable from 0 to 800 A/m (0 to 10 oersted ). Adjustment of the centring magnet should not be such that a general reduction in brightness or shading of the raster occurs.

**CAPACITANCE**

Control grid to all other elements	$C_{g1}$	6.0	pF
Cathode to all other elements	$C_k$	5.0	pF
Final accelerator to external conductive coating	$C_{g3, g5(\ell)/m}$	600	pF

**TYPICAL OPERATING CONDITIONS**

Final accelerator voltage	$V_{g3, g5(\ell)}$	16	kV
Focusing electrode voltage	$V_{g4}$	0 to 400	V <sup>1)</sup>
First accelerator voltage	$V_{g2}$	400	V
Grid No. 1 voltage for visual extinction of a focused raster	$-V_{g1}$	40 to 85	V

**RESOLUTION**

Resolution at screen centre, measured with the shrinking raster method (non-interlaced raster), under typical operating conditions, a beam current of 100  $\mu$ A, and focusing voltage adjusted for optimum spot size

min.	650	lines
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**LIMITING VALUES** (Absolute max. rating system)

Voltages are specified with respect to cathode unless otherwise stated.

Final accelerator voltage	$V_{g3, g5(\ell)}$	max.	18	kV
		min.	13	kV
Focusing electrode voltage	$V_{g4}$	max.	1	kV
	$-V_{g4}$	max.	0, 5	kV
First accelerator voltage	$V_{g2}$	max.	550	V
		min.	350	V
Control grid voltage, negative	$-V_{g1}$	max.	150	V
positive	$V_{g1}$	max.	0	V
positive peak	$V_{g1p}$	max.	2	V
Cathode to heater voltage, positive	$V_{kf}$	max.	250	V
positive peak	$V_{kfp}$	max.	300	V
negative	$-V_{kf}$	max.	135	V
negative peak	$-V_{kfp}$	max.	180	V

<sup>1)</sup> With the small change in focus spot size with variation of focus voltage the limit of 0 to 400 V is such that an acceptable focus quality is obtained within this range. If it is required to pass through the point of focus, a voltage of at least -100 V to +500 V will be required.

**CIRCUIT DESIGN VALUES**

Focusing electrode current, positive	$I_{g4}$	max.	25	$\mu\text{A}$
negative	$-I_{g4}$	max.	25	$\mu\text{A}$
Grid no. 2 current, positive	$I_{g2}$	max.	5	$\mu\text{A}$
negative	$-I_{g2}$	max.	5	$\mu\text{A}$

**MAXIMUM CIRCUIT VALUES**

Resistance between cathode and heater	$R_{kf}$	max.	1	$\text{M}\Omega$
Impedance between cathode and heater ( $f = 50 \text{ Hz}$ )	$Z_{kf}$	max.	500	$\text{k}\Omega$
Resistance between grid no. 1 and earth	$R_{g1}$	max.	1, 5	$\text{M}\Omega$
Impedance between cathode and earth ( $f = 50 \text{ Hz}$ )	$Z_k$	max.	100	$\text{k}\Omega$

**WARNING**

X-ray shielding is advisable to give protection against possible danger of personal injury arising from prolonged exposure at close range to this tube when operated above 16 kV.

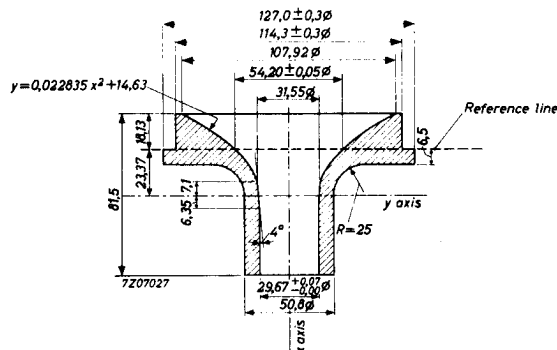
**EXTERNAL CONDUCTIVE COATING**

This tube has an external conductive coating (m), which must be earthed and capacitance of this to the final electrode is used to provide smoothing for the EHT supply. The tube marking and warning labels are on the side of the cone opposite the final electrode connector and this side should not be used for making contact to the external conductive coating.

**REFERENCE LINE GAUGE**

Dimensions in mm

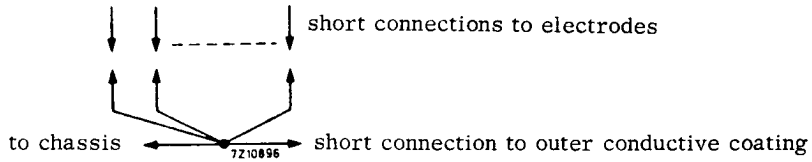
JEDEC126



**REMARK**

With the high voltage used with this tube internal flash-overs may occur. These may destroy the cathode of the tube. Therefore it is necessary to provide protective circuits, using spark gaps.

The spark gaps must be connected as follows:



No other connections between the outer conductive coating and the chassis are permissible.

On request the tube can be supplied with spark traps mounted in the base (ring trap base).