

**65 mm (2 1/2")
Screen CRT
Assembly
for Head-Up Displays**



Developed for new-generation cockpit head-up display systems, the TH 8450 combines very compact dimensions with high brightness and resolution characteristics.

- Short tube design : 101.5 mm overall
- Optically flat, 65 mm (2 1/2") diameter faceplate
- HV electrostatic focus
- Electromagnetic deflection ; 70° deflection angle
- Fine-grain P53 phosphor
- High brightness

Its advanced, high-voltage electrostatic focus, electromagnetic deflection gun achieves an output brightness of up to 100 000 cd/m² and a typical half-brightness linewidth of less than 0.120 mm.

The TH 8450 can be delivered as a complete ruggedized tube assembly, H290 fittings :

- bare tube
- deflection unit
- mounting frame and mumetal shield
- potted high voltage cable
- potted socket leads,

as shown page 5. This assembly will meet the hard environment found in cockpits.

This data sheet cannot be considered to be a contractual specification. The information given herein may be modified without notice due to product improvement or further development. Consult us before making use of this information for equipment design.

GENERAL CHARACTERISTICS

Mechanical

Overall length, max.	101.5	mm
Neck diameter, max.	22.8	mm
Useful screen diameter, max	53	mm
VHV cable potting	Thomson ref. : S51	
Weight, approx.	110	grams
Operating position	Any	

Electrical

Cathode Unipotential, indirectly heated, oxide coated

Heater :

- voltage	6.3	V
- current at 6.3 V, max.	0.33	V

Pre-heating time	30	s
------------------	----	---

Interelectrode capacitances (excluding wires) :

- cathode w.r.t. other electrodes, max.	8	pF
- g1 w.r.t. other electrodes, max.	10	pF
- g3 w.r.t. other electrodes, max.	15	pF

Focus HV electrostatic

Deflection Electromagnetic

- Deflection angle	70°
--------------------	-----

Recommended deflection coil VIDEOCOLOR 9588

Self inductance :

- vertical	130	μH
- horizontal	120	μH

Resistance :

- vertical	0.65	Ω
- horizontal	0.65	Ω

Dynamic focusing amplitude (ΔVg3)	250	V
-----------------------------------	-----	---

Optical

Faceplate :

- transmittance	90 %
- refractive index	1.507
- dispersion coefficient (1)	83.3
- thickness	3.25 ± 0.15 mm

Screen :

- phosphor	P53
- fluorescence and phosphorescence	Yellow-green
- persistence at 10 %, max.	7 ms

λ at 65 % luminance	540 - 560	nm
---------------------	-----------	----

λ at maximum luminance	542 - 547	nm
------------------------	-----------	----

Off-center spot position, max.	3	mm
--------------------------------	---	----

(1) The dispersion coefficient is defined by the formula :

$$n_d - 1$$

$$\frac{n_F - n_C}{n_d - 1}$$

where : n_d = refractive index for the yellow helium spectral band ($\lambda = 587.6$ nm) ;

n_F = refractive index for the blue-green hydrogen spectral band ($\lambda = 486.1$ nm) ;

n_C = refractive index for the red hydrogen band ($\lambda = 653.3$ nm).

OPERATING CONDITIONS

(Potentials referred to the cathode, except for modulation)

Maximum ratings	Min.	Max.	Units
Grid g4 (anode) voltage	9.0	18.0	kV
Grid g3 (focus) voltage	0	2.0	kV
Grid g2 (first acceleration) voltage	0	1000	V
Grid g1 (control) voltage	- 150	0	V
Heater-to-cathode voltage	- 150	0	V
Heater voltage	5.7	6.9	V

Typical operation

Grid g4 voltage	16	kV
Grid g3 voltage (2)	1300 ± 300	V
Grid g2 voltage	500	V
Grid g1 voltage (for cutoff)	- 60 ± 20	V
Heater voltage	6.3	V
Deflection current (26 mm deflection)	3.15	A

PERFORMANCE

(Typical values)

Trace brightness (stroke writing)	100 000	cd/m ²
Center linewidth :		
- at edge	Typical 0.2, max 0.25	mm
- at center	Typical 0.130, max 0.155	mm
Obtained with :		
- cathode current, I _k	200 μA (350 μA max.)	
- modulation DVg1 (I _k = 350 μA), max.	45	V
- single trace scan	V = 0.08 mm/s ; 70	Hz

ENVIRONMENTAL CONDITIONS

Temperature, operating	- 55° C to + 71° C
Temperature, storage	- 60° C to + 85° C
Vibrations	10 - 32 Hz, 5 mm peak to peak 32 - 2000 Hz, 10 g

Shocks :

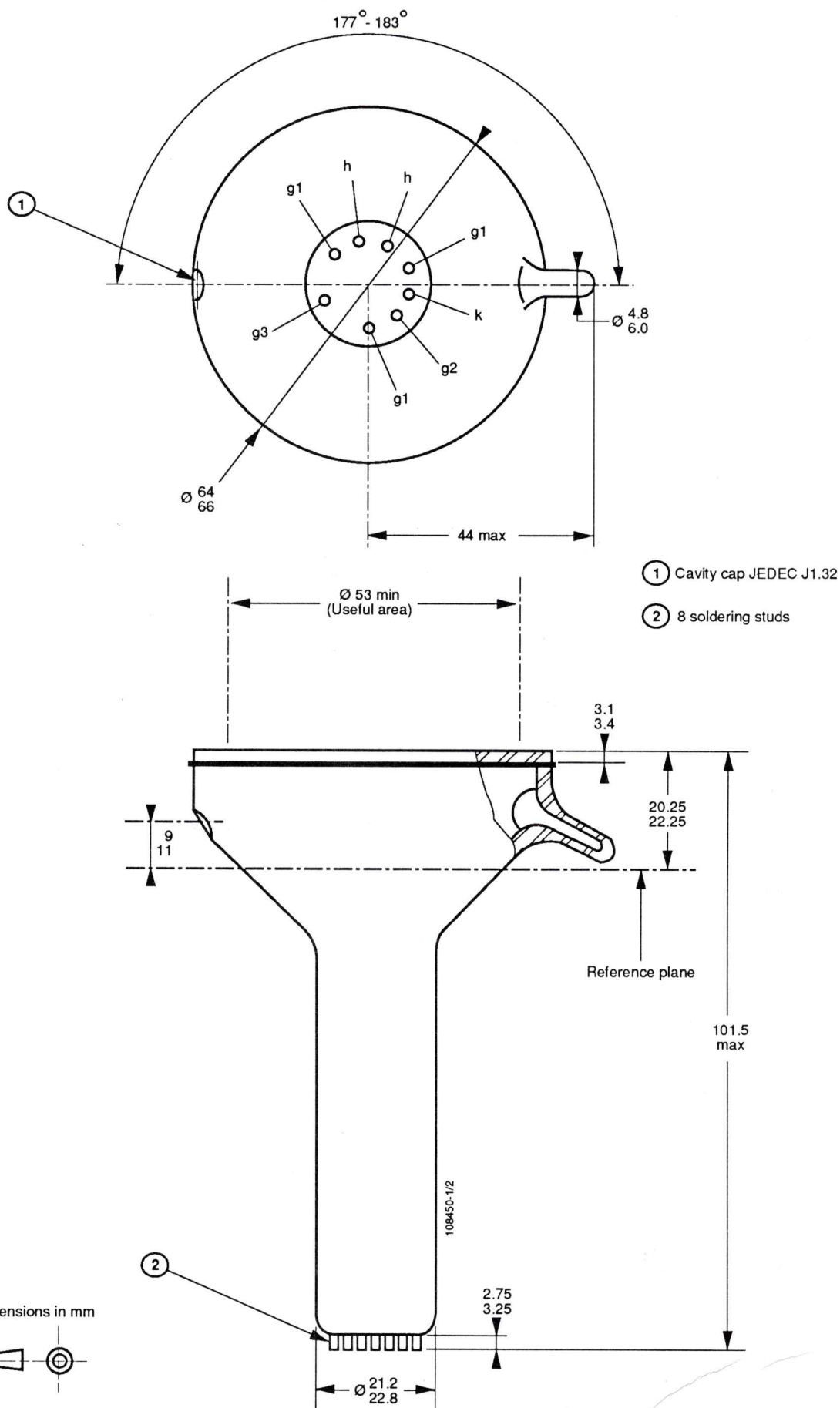
- 1- No voltage applied : 9 shocks/2 axis of 11 msec duration and 30 gs acceleration
- 2- In operation : 9 shocks/2axis of 11 msec duration and 15 gs acceleration

SAFETY WARNING for tubes see DOCUMENT TTE 807

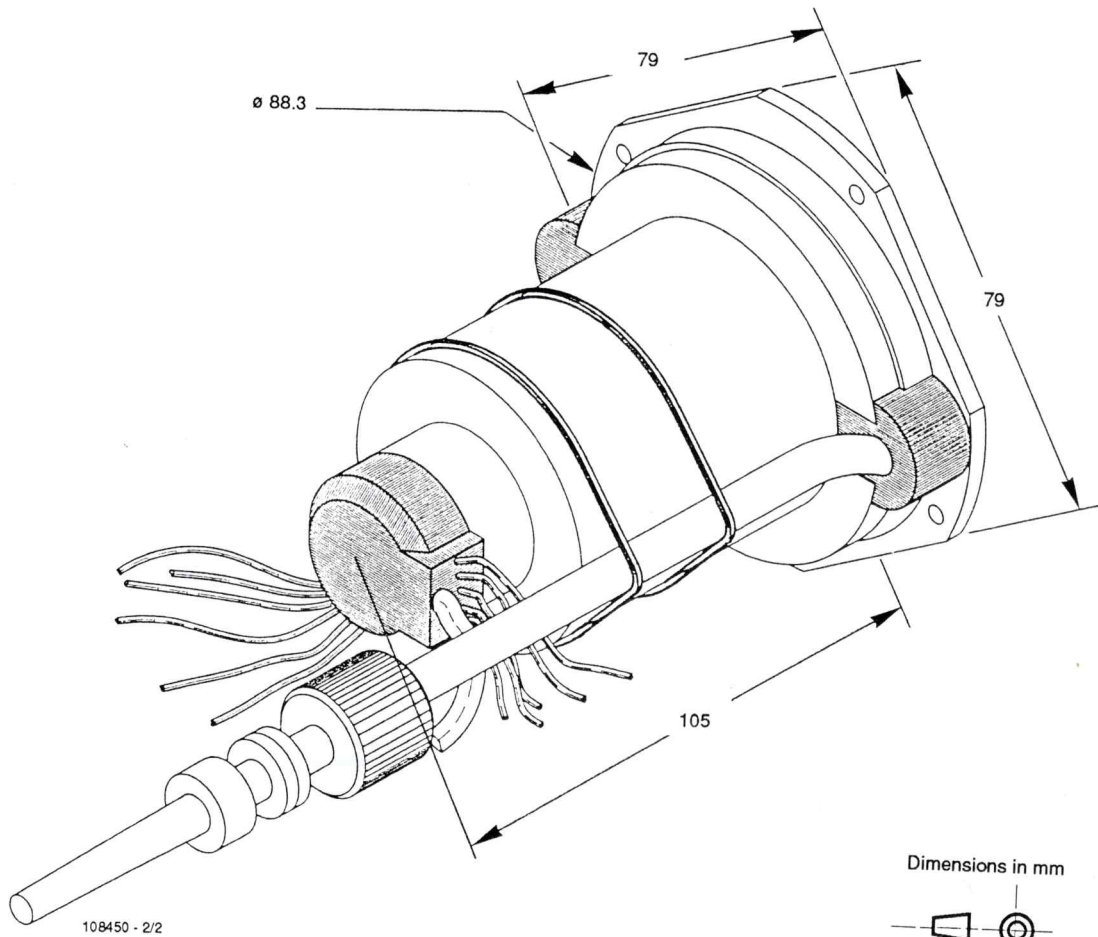
(2) : g3 value adjusted for specified trace brightness.

OUTLINE DRAWING

TH 8450 P53



OUTLINE DRAWING
TH 8450
H 290 FITTINGS



Dimensions in mm

