INSTRUMENT CATHODE-RAY TUBE

14 cm diagonal, rectangular flat-faced oscilloscope tube with mesh and metal backed screen. The tube has side connections to the x- and y-plates, internal graticule and a light-conducting glassplate set in front of the face.

QUICK REFERENCE DATA			
Final accelerator voltage	$V_{g8(\ell)}$	10	kV
Display area		100 x 80	mm^2
Deflection factor, horizontal	M_x	15.2	V/cm
vertical	M_y	4.1	V/cm

SCREEN : Metal backed phosphor

	Colour	Persistence
D14-160BE/09	blue	medium short
D14-160GH/09	green	medium short
D14-160GM/09	yellowish-green	long

Useful screen dimensions min. 100 x 80 mm^2

Useful scan at $V_{g8(\ell)}/V_{g2, g4} = 6.7$,

horizontal min. 100 mm

vertical min. 80 mm

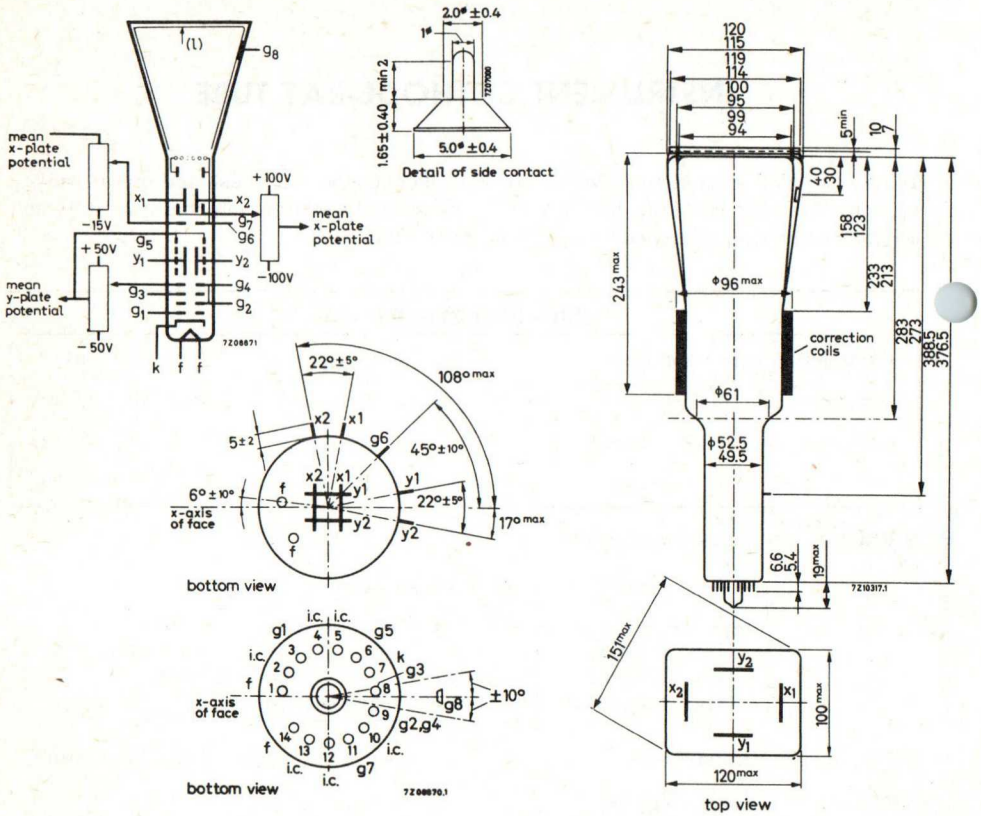
The scanned raster can be centred and aligned with the internal graticule by means of correction coils fitted around the tube by the manufacturer (see page 5).

HEATING : Indirect by A.C. or D.C.; parallel supply

Heater voltage	V_f	6.3	V
Heater current	I_f	300	mA

MECHANICAL DATA

Dimensions in mm



Mounting position: any

The tube should not be supported by the base alone and under no circumstances should the socket be allowed to support the tube.

Orthogonality and shift (coils L_3 and L_4)

The current required under typical operating conditions without the mu-metal shield being used is max. 45 mA for complete correction of orthogonality and shift.
It will be 30 % to 50 % lower with shield, depending on the shield diameter.
The resistance of each coil is approx. 225 Ω.

Image rotation (coils L_1 and L_2)

The image rotation coils are wound concentrically around the tube neck.
Under typical operating conditions 50 A turns are required for the maximum rotation of 5°. Both coils have 850 turns. This means that a current of max. 30 mA per coil is required which can be obtained by using a 24 V supply when the coils are connected in series or a 12 V supply when they are in parallel.

Connecting the coils

The coils have been connected to the 8 soldering tags according to Fig. 2.

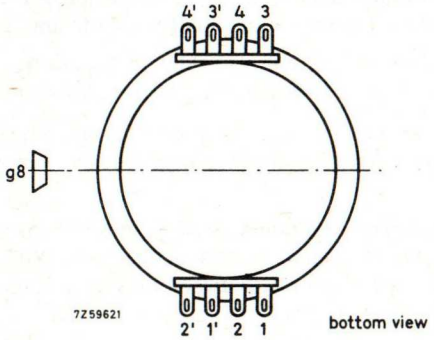


Fig. 2

With L_3 and L_4 connected in series according to Fig. 3 a current in the direction indicated will produce a clockwise rotation of the vertical trace and an anti-clockwise rotation of the horizontal trace.
With the connection according to Fig. 4 the current as indicated will produce an upward shift.

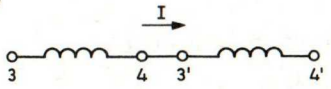


Fig. 3

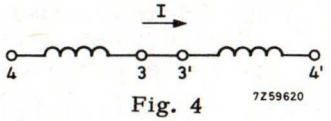


Fig. 4

MECHANICAL DATA (continued)

Dimensions in mm

Dimensions and connections

See also outline drawing

Overall length (socket included)	max. 417.5	mm
Face dimensions	max. 100 x 120	mm^2
Net weight	approx. 1300	g
Base	14 pin, all glass	

Accessories

Socket (supplied with tube)	type 55566
Final-accelerator contact connector	type 55563
Mu-metal shield	type 55585 1)

FOCUSING	Electrostatic
DEFLECTION	Double electrostatic
x-plates	symmetrical
y-plates	symmetrical

If use is made of the full deflection capabilities of the tube the deflection plates will intercept part of the electron beam; hence a low impedance deflection plate drive is desirable.

Angle between x and y traces 90°

Angle between x trace and the horizontal axis of the face 0°.
See page 5 "Correction coils".

LINE WIDTH

Measured with the shrinking raster method in the centre of the screen under typical operating conditions, adjusted for optimum spot size at a beam current I_ℓ = 10 μA.

Line width at the centre of the screen	l.w.	0.3	mm
over the whole screen area	l.w. av.	0.35	mm

CAPACITANCES

x_1 to all other elements except x_2	$C_{x_1(x_2)}$	5.5	pF
x_2 to all other elements except x_1	$C_{x_2(x_1)}$	5.5	pF
y_1 to all other elements except y_2	$C_{y_1(y_2)}$	3.5	pF
y_2 to all other elements except y_1	$C_{y_2(y_1)}$	3.5	pF
x_1 to x_2	$C_{x_1x_2}$	2	pF
y_1 to y_2	$C_{y_1y_2}$	1.6	pF
Control grid to all other elements	C_{g_1}	5.5	pF
Cathode to all other elements	C_k	4	pF

1) See page 5