

ELECTRONIC TUBE REFERENCE

TH9426

Specialized - X-Ray Tube electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

XRAY

Compact electronic-zoom X-ray image-intensifier tube for medical radiology, providing selectable 22, 16, and 11.5 cm input fields with high brightness gain.

GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | —             |
| NOMINAL HEATER      | — / —             | PARALLEL HEATER      | — / —         |
| HEATING             | Indirect          | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

SECTION RATINGS

|                                                                                               |
|-----------------------------------------------------------------------------------------------|
| SECTION1 XRay                                                                                 |
| No fixed ratings recorded.                                                                    |
| Published ratings/characteristics audited; detailed numeric data retained in parameter table. |

The TH9426 is a compact electronic-zoom X-ray image-intensifier tube with three selectable input fields and high brightness gain for medical radiology.

## SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

# 1972 Thomson CSF

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1972 THOMSON CSF

## Section 1 · XRay

| OTHER                                              |                 |                                                               |
|----------------------------------------------------|-----------------|---------------------------------------------------------------|
| PARAMETER                                          | PUBLISHED VALUE | CONDITION / NOTE                                              |
| BRIGHTNESS GAIN                                    | 6000            | BRIGHTNESS GAIN : 6000 X                                      |
| INPUT FIELDS [1]                                   | 22              | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| INPUT FIELDS [2]                                   | 9               | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| INPUT FIELDS [3]                                   | 16              | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| INPUT FIELDS [4]                                   | 6               | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| INPUT FIELDS [5]                                   | 11.6            | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| INPUT FIELDS [6]                                   | 4.5             | INPUT FIELDS : 22cm (9") - 16 cm (6} - 11.6 cm (4.5")         |
| resolution than that of older types TH             | 9421            | resolution than that of older types TH 9421 A and             |
| tion so to display to the user input fields of [1] | 22              | tion so to display to the user input fields of 22 cm - 16 cm  |
| tion so to display to the user input fields of [2] | 16              | tion so to display to the user input fields of 22 cm - 16 cm  |
| and                                                | 11.5            | and 11.5 cm. The image is delivered on the output screen      |
| Published value [1]                                | 1 V             | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to |
| Published value [2]                                | 6.5 V           | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to |
| Published value [3]                                | 1 V             | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to |
|                                                    |                 |                                                               |

| PARAMETER                                                                                              | PUBLISHED VALUE | CONDITION / NOTE                                                                                             |
|--------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------|
| Published value [4]                                                                                    | <b>8 V</b>      | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to                                                |
| Published value [5]                                                                                    | <b>1 V</b>      | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to                                                |
| Published value [6]                                                                                    | <b>11 V</b>     | 1/6.5 - 1/8 to 1/11 by a proper choice of voltages applied to                                                |
| Field of applications in industrial radiology are considerably extended by the use of the tube TH 9426 | <b>9426</b>     | Field of applications in industrial radiology are considerably extended by the use of the tube TH 9426 which |
| shield against X-radiations. A lead shield of                                                          | <b>2</b>        | shield against X-radiations. A lead shield of 2 mm thick is provided at the output plane of the shell.       |
| Operating and stocking temperature. . max. +                                                           | <b>50</b>       | Operating and stocking temperature. . max. +50 °C                                                            |
| Input screen diameter [1]                                                                              | <b>22</b>       | Input screen diameter. . . . . 22+0.5cm                                                                      |
| Input screen diameter [2]                                                                              | <b>0.5</b>      | Input screen diameter. . . . . 22+0.5cm                                                                      |
| Output image diameter (O. L) [1]                                                                       | <b>20</b>       | Output image diameter (O. L) .. ..... 20 0.5 mm                                                              |
| Output image diameter (O. L) [2]                                                                       | <b>0.5</b>      | Output image diameter (O. L) .. ..... 20 0.5 mm                                                              |
| Input spectral response . . . . . X-rays ( [1]                                                         | <b>30</b>       | Input spectral response . . . . . X-rays (30 to 250 kVp generator)                                           |
| Input spectral response . . . . . X-rays ( [2]                                                         | <b>250</b>      | Input spectral response . . . . . X-rays (30 to 250 kVp generator)                                           |
| Input field diameter . . . . . D [1]                                                                   | <b>22</b>       | Input field diameter . . . . . D 22 16 11.5 cm                                                               |
| Input field diameter . . . . . D [2]                                                                   | <b>16</b>       | Input field diameter . . . . . D 22 16 11.5 cm                                                               |
| Input field diameter . . . . . D [3]                                                                   | <b>11.5</b>     | Input field diameter . . . . . D 22 16 11.5 cm                                                               |
| Minimum resolution (note                                                                               | <b>2</b>        | Minimum resolution (note 2)                                                                                  |
| Minimum luminance gain (note [1]                                                                       | <b>5</b>        | Minimum luminance gain (note 5) ..... 6000 3000 1500                                                         |
| Minimum luminance gain (note [2]                                                                       | <b>6000</b>     | Minimum luminance gain (note 5) ..... 6000 3000 1500                                                         |
| Minimum luminance gain (note [3]                                                                       | <b>3000</b>     | Minimum luminance gain (note 5) ..... 6000 3000 1500                                                         |
| Minimum luminance gain (note [4]                                                                       | <b>1500</b>     | Minimum luminance gain (note 5) ..... 6000 3000 1500                                                         |

| PARAMETER                                                           | PUBLISHED VALUE | CONDITION / NOTE                                                        |
|---------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------|
| Maximum background luminance {note [1]}                             | 6               | Maximum background luminance {note 6) . . 0.06 0.06 - 0.06 Cd/m2        |
| Maximum background luminance {note [2]}                             | 0               | Maximum background luminance {note 6) . . 0.06 0.06 - 0.06 Cd/m2        |
| Maximum background luminance {note [3]}                             | 6               | Maximum background luminance {note 6) . . 0.06 0.06 - 0.06 Cd/m2        |
| Maximum background luminance {note [4]}                             | 0.06            | Maximum background luminance {note 6) . . 0.06 0.06 - 0.06 Cd/m2        |
| Maximum background luminance {note [5]}                             | 0.06            | Maximum background luminance {note 6) . . 0.06 0.06 - 0.06 Cd/m2        |
| PhotocathodeCwvoltage                                               | 0 V             | PhotocathodeCwvoltage . . . . . 0 \")                                   |
| Electrode gt voltage<br>..... e e e                                 | 0.5 V           | Electrode gt voltage ..... e e e 0.50 kV                                |
| Electrodeg2voltage . . . . .<br>...t iiniennnnn                     | 3 V             | Electrodeg2voltage . . . . .t iiniennnnn. 3.0 kV                        |
| Electrodeg3voltage<br>..... v,                                      | 1 V             | Electrodeg3voltage ..... v, 1.0 kV                                      |
| (anodegd ..... e                                                    | 3.6             | . (anodegd ..... e 3.6 kV                                               |
| (cathode E                                                          | 0               | (cathode E..... 0 \Y                                                    |
| Photocathode C<br>maximumeccurrent                                  | 500 mA          | Photocathode C maximumeccurrent .....<br>0.5 HA                         |
| Electrode g1 maximumeccurrent<br>. ....c [1]                        | 0 mA            | Electrode g1 maximumeccurrent . ....c... 0. 5<br>MA                     |
| Electrode g1 maximumeccurrent<br>. ....c [2]                        | 5 A             | Electrode g1 maximumeccurrent . ....c... 0. 5<br>MA                     |
| Electrode g3 maximumeccurrent<br>[1]                                | 0 mA            | Electrode g3 maximumeccurrent .. ... .0t 1 uA                           |
| Electrode g3 maximumeccurrent<br>[2]                                | 1 A             | Electrode g3 maximumeccurrent .. ... .0t 1 uA                           |
| Electrode g4 maximum current<br>{after post-gettering<br>operation) | 10 A            | Electrode g4 maximum current {after post-<br>gettering operation) 10 MA |
| Anode A maximumeccurrent ..<br>... .. e e                           | 2 A             | Anode A maximumeccurrent .. ... .. e e 2 HA                             |
| input diameter for                                                  | 20              | input diameter for 20 mmO.ll. ....                                      |
| PhotocathodeCvoltage [1]                                            | 0 V             | PhotocathodeCvoltage . . .... 0 0 0 \Y                                  |
| PhotocathodeCvoltage [2]                                            | 0 V             | PhotocathodeCvoltage . . .... 0 0 0 \Y                                  |
| PhotocathodeCvoltage [3]                                            | 0 V             | PhotocathodeCvoltage . . .... 0 0 0 \Y                                  |
|                                                                     |                 |                                                                         |

| PARAMETER                  | PUBLISHED VALUE | CONDITION / NOTE                                                 |
|----------------------------|-----------------|------------------------------------------------------------------|
| Electrode g1 voltage * [1] | <b>0 V</b>      | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g1 voltage * [2] | <b>250 V</b>    | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g1 voltage * [3] | <b>0 V</b>      | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g1 voltage * [4] | <b>250 V</b>    | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g1 voltage * [5] | <b>0 V</b>      | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g1 voltage * [6] | <b>250 V</b>    | Electrode g1 voltage * . .... 0 to 250 0 to 250 0 to 250 \       |
| Electrode g2 voltage * [1] | <b>450 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [2] | <b>1 V</b>      | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [3] | <b>850 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [4] | <b>300 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [5] | <b>700 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [6] | <b>300 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g2 voltage * [7] | <b>700 V</b>    | Electrode g2 voltage * . .... 450 1o 850 300 to 700 300 to 700 \ |
| Electrode g3 voltage * [1] | <b>3.2 V</b>    | Electrode g3 voltage * . .... 3.2 5.7 10 kV                      |
| Electrode g3 voltage * [2] | <b>5.7 V</b>    | Electrode g3 voltage * . .... 3.2 5.7 10 kV                      |
| Electrode g3 voltage * [3] | <b>10 V</b>     | Electrode g3 voltage * . .... 3.2 5.7 10 kV                      |
| Anode Avoltage [1]         | <b>28 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV               |
| Anode Avoltage [2]         | <b>30 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV               |
| Anode Avoltage [3]         | <b>28 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV               |
| Anode Avoltage [4]         | <b>30 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV               |
| Anode Avoltage [5]         | <b>28 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV               |
|                            |                 |                                                                  |

| PARAMETER                                                                                         | PUBLISHED VALUE | CONDITION / NOTE                                                                                           |
|---------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------------------|
| Anode Avoltage [6]                                                                                | <b>30 V</b>     | Anode Avoltage ..... 28 to 30 28 to 30 28 to 30 kV                                                         |
| (anodegd [1]                                                                                      | <b>2.5</b>      | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| (anodegd [2]                                                                                      | <b>3</b>        | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| (anodegd [3]                                                                                      | <b>2.5</b>      | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| (anodegd [4]                                                                                      | <b>3</b>        | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| (anodegd [5]                                                                                      | <b>2.5</b>      | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| (anodegd [6]                                                                                      | <b>3</b>        | (anodegd ..... 2.5t0 3 2.5t0 3 2.5t0o 3 kV                                                                 |
| Published value [1]                                                                               | <b>9</b>        | 9 9 (cathodeE .... 0 0 0 v                                                                                 |
| Published value [2]                                                                               | <b>9</b>        | 9 9 (cathodeE .... 0 0 0 v                                                                                 |
| Published value [3]                                                                               | <b>0</b>        | 9 9 (cathodeE .... 0 0 0 v                                                                                 |
| Published value [4]                                                                               | <b>0</b>        | 9 9 (cathodeE .... 0 0 0 v                                                                                 |
| Published value [5]                                                                               | <b>0</b>        | 9 9 (cathodeE .... 0 0 0 v                                                                                 |
| Ripple voltage must not exceed [1]                                                                | <b>0 V</b>      | Ripple voltage must not exceed 0. 5 7                                                                      |
| Ripple voltage must not exceed [2]                                                                | <b>5 V</b>      | Ripple voltage must not exceed 0. 5 7                                                                      |
| Ripple voltage must not exceed [3]                                                                | <b>7 V</b>      | Ripple voltage must not exceed 0. 5 7                                                                      |
| * g1 g2 g3 voltages are defined for an anode voltage of                                           | <b>30 V</b>     | * g1 g2 g3 voltages are defined for an anode voltage of 30 k V.                                            |
| A                                                                                                 | <b>10</b>       | A 10 Megohms resistance protecting the tube against discharge is provided inside the shell in the anode    |
| Voltages supplies can be applied to the electrodes in a short time but with a slope not exceeding | <b>5 V</b>      | Voltages supplies can be applied to the electrodes in a short time but with a slope not exceeding 5 kV/ms. |
| Let tube at rest with voltages applied for potential stabilization before adjusting it. (         | <b>10 V</b>     | Let tube at rest with voltages applied for potential stabilization before adjusting it. (10 s minimum).    |
| REMARK - Typical operation voltages correspond to selected operating mode of [1]                  | <b>22 V</b>     | REMARK - Typical operation voltages correspond to selected operating mode of 22 φcm - 16 em and 11.5 cm.   |
|                                                                                                   |                 |                                                                                                            |

| PARAMETER                                                                        | PUBLISHED VALUE | CONDITION / NOTE                                                                                         |
|----------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------|
| REMARK - Typical operation voltages correspond to selected operating mode of [2] | <b>16 V</b>     | REMARK - Typical operation voltages correspond to selected operating mode of 22 ¢cm - 16 em and 11.5 cm. |
| REMARK - Typical operation voltages correspond to selected operating mode of [3] | <b>11.5 V</b>   | REMARK - Typical operation voltages correspond to selected operating mode of 22 ¢cm - 16 em and 11.5 cm. |
| For particular use, any input field between [1]                                  | <b>22</b>       | For particular use, any input field between 22 cm and 11.5 cm can be selected : please contact           |