Pulserad™
FLASH X-RAY SYSTEMS

150 kV
MODEL 43731A

GENERAL CONDITIONS: 0.7 Gross Photo Density;
Kodak RPR/DuPont High Plus Screens; 6 min. dev. at 68 F(20 C)

PENETRATION IN ALUMINUM

150 KV 5290 TUBE

MAX. SHADOWSGRAPH DISTANCE

ALUMINUM PENETRATION in inches

ALUMINUM PENETRATION in mm

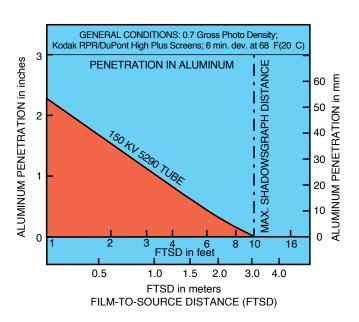FTSD in feet

FTSD in meters

FILM-TO-SOURCE DISTANCE (FTSD)

DESCRIPTION

The Model 43731A Flash X-ray System provides a 70 nanosecond "burst" of 150 kV X-rays. Radiographs through several millimeters of aluminum and shadow-graphs at film-to-source distances up to 2.75 meters (9 ft.) may be obtained in a single exposure. As a result, this system is well-suited to applications involving the study of high speed projectiles, fragments, shaped charge jets, etc.

The X-ray tube may be installed inside the high voltage pulse generator (basic system configuration) or in a smaller, remote tubehead (option 032 or 033) separated by up to 30 meters (100 ft.) of coaxial cable. The remote tubehead enables positioning of the X-ray tube in areas too confined or too hazardous for the HV pulser. By using the optional soft X-ray tubes, very low density objects may also be imaged.

All hardware required for system operation is standard. Control equipment is rack-mounted in a 1.8 meter (6 ft.) cabinet and connected to the pulser by a 6 meter (20 ft.) cable bundle input.

Up to three additional 150 kV X-ray generators, option 001, can share the same control cabinet and power supply to minimize cost and floor space. Option 008 permits operation at 220 Vac, 50-60 Hz line voltage.

The Model 43731A system comes standard with all hardware required for operation, including the X-ray tube and a Model 43210A X-ray Controller (XCON) which provides both a delayed trigger for the x-ray pulser and a pulsed event timer to monitor the actual firing time of the pulser. The XCON provides a firing time delay variable from zero to 1000 milliseconds in 100 nanosecond increments and monitors the actual pulser firing time with 10 nanosecond accuracy. Delay time setting and pulsed event time monitoring can be accomplished with the users PC via an Ethernet connection. Customer furnished items are limited to regulated dry air and ac power (117 Vac, 60 Hz).

SYSTEM CHARACTERISTICS
Output Voltage (nominal)................................150 kV

Pulser Current (nominal) ....2 kA

Dose at 20 cm tube in pulser.......................... 40 mR

Weight (pulser) .... 36 kg (80 lbs)

Dimensions (pulser)

    Diameter .... 255 mm (9 1/4")

    Length .... 480 mm (18 3/4")

SYSTEM SPECIFICATIONS
Effective Source Size .... 3 mm

Exposure Time (pulse width) .... $<70 \times 10^{-9}$ sec

Penetration curve verified at 610 mm (2 ft.) through 44.5 mm (1.75") of aluminum.

MAJOR OPTIONS AND ACCESSORIES

MAJOR OPTIONS

Option 001–Add-on Channels
Option 008–220 Vac, 50-60 Hz Operation
Option 020–Added Length Console-to-Pulser Cable
Option 032–Remote Tubehead (straight line)
Option 033–Remote Tubehead (right angle)
Option 034–Added Length Tubehead Cable
Options 036 & 037–Soft X-ray Operating Capability
130-314700-#700–Computer Remote Control of H.V. Power Supply

ACCESSORIES

Gas Regulators

BASIC FIRST (SINGLE) CHANNEL SYSTEM

A fully operational, stand-alone system

Includes:
- Control console cabinet
- AC power panel with surge protector
- High-voltage power supply
- Dielectric gas pressurization controls
- XCON (X-ray controller)
  - Delay trigger generator
  - Trigger amplifier
  - Pulsed event timer
- Trigger initiation pendant
- Pulse generator
- Pulser-mounted X-ray tube
- 6.1m (20 ft.) control-console-to-pulser cable
- Resistive load and interconnecting cabling

ADD-ON CHANNELS (No. 2, 3, and 4)

For operation only in conjunction with basic (first) channel system

Includes:
- XCON (X-ray controller)
  - Delay trigger generator
  - Trigger amplifier
  - Pulsed event timer
- Trigger transformer
- Pulse generator
- Pulser-mounted X-ray tube
- 6.1m (20 ft.) control-console-to-pulser cable
- Resistive load and all interconnecting cabling

Note: Remote X-ray tubehead with nominal 6.1 meter (20 ft.) pulser-to-tubehead interconnecting cable assembly available for basic and add-on channels as an optional accessory.

Contact the Pulserad FXR Product Manager if system of more than four channels is required.

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