

# Pulserad™

## FLASH X-RAY SYSTEMS

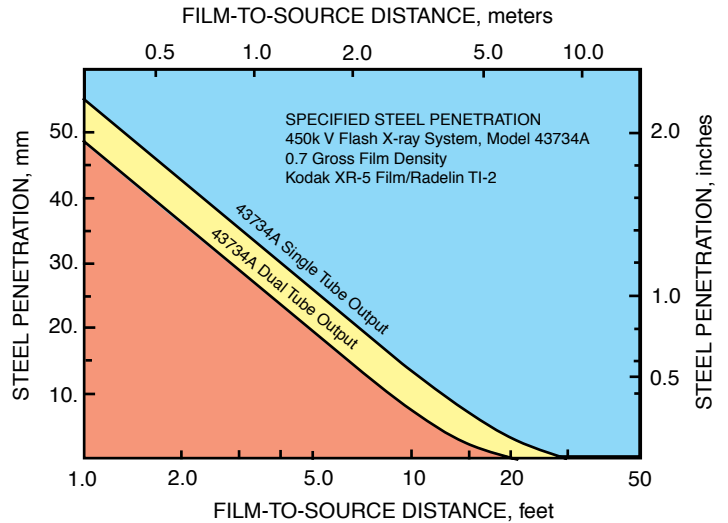
450 kV  
MODEL 43734A



### DESCRIPTION

The Model 43734A Flash X-ray System provides a 25 nanosecond "burst" of 450 kV X-rays. As shown in the penetration curve at right, it will give radiographs through 18 mm (0.7 in.) of steel at 2.5 meters (8 ft.) FTSD (film-to-source distance), or a shadowgraph at FTSDs up to 9 meters (30 ft.). With this substantial penetration and extremely short exposure time, the Model 43734A System is well-suited for stop-motion radiography of high-speed projectiles and fragments, internal components in operating machinery and many other applications involving the study of moving objects. The system may be operated with the flash X-ray tube in the pulser (basic system configuration), in a remote tubehead configuration (option 032) or with X-ray tubes in two remote tubeheads (option 035). In the dual configuration (option 035), both tubes are fired simultaneously by the same pulser and can be used to obtain orthogonal radiographs of rapidly moving objects. The resulting radiographs enable accurate position location of the object under study.

All hardware required for system operation is furnished. This includes the control equipment, housed in a 1.8 meter (6 ft.) cabinet, the X-ray generator and a 9 meter (30 ft.) interconnecting cable bundle input. The Model 43734A 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). Up to three additional 450 kV X-ray generators (option 001) share the same control cabinet and power supply to minimize cost and floor space. Option 008 permits operation at a 220 Vac, 50-60 Hz line voltage.

### SYSTEM CHARACTERISTICS (nominal)

Output Voltage.....	450 kV
Current.....	6000 A
Dose at 1 meter/tube in pulser .....	20 mR/Pulse
X-ray Generator:	
Diameter.....	550 mm (20")
Length.....	1.2 m (47")
Weight .....	230 kg (500 lbs.)

### SYSTEM SPECIFICATIONS

Effective Source Size/tube in pulser.....	5 mm
Exposure Time (pulse width) .....	25 x 10 <sup>-9</sup> sec.

## MAJOR OPTIONS AND ACCESSORIES

### MAJOR OPTIONS

Option 001–Add-on 450 kV Channel

Option 008–220 Vac, 50-60 Hz Operation

Option 020–Added Length Console-to-Pulser Cable

Option 031–Demountable X-ray Tube with variable source size for use in remote tubehead

Option 032–Single Remote Tubehead

Option 034–Added Length Tubehead Cable

Option 035–Dual Remote Tubehead

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 transformer
- Trigger initiation pendant
- Pulse generator
- Pulser-mounted X-ray tube
- 9m (30 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
- 9m (30 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.

