

FUJIFILM INDUSTRIAL RADIOGRAPHY FILM DATA SHEET

IX50XD / IX80XD / IX100XD

New industrial x-ray film developed by FUJIFILM's leading technology brings efficiency and stability to your every day inspection needs. XD film provides excellent image quality coupled with high product stability for NDT radiographic inspection in all industry segments.

Types and Features

		Relative Exposure Factors*				Film System Classification**		
Film	Features and Major Applications	100kV	200kV	lr192	Co60	ISO 11699-1	ASTM E1814	JIS K7627
IX50XD	Ultra fine grain film with very high contrast and medium speed •Weldings (low to medium atomic number metals) •Castings (low to medium atomic number metals) •For use with a lead screen	2.2	2.2	2.1	2.1	СЗ	I	T2
IX80XD	Very fine grain film with very high contrast and medium speed •Weldings (low to medium atomic number metals) •Castings (low to medium atomic number metals) •For use with a lead screen	1.6	1.6	1.6	1.6	C4	I	T2
IX100XD	Fine grain film with high contrast and high speed •Weldings (medium to higher atomic number metals) •Castings (medium to higher atomic number metals) •For use with, or without a lead screen	1.0	1.0	1.0	1.0	C5	II	Т3

Define relative exposure of IX100XD as 1.0.

* Classification based on development under Fujifilm's recommended processing conditions.

Manual processing: 20°C 5minutes Automatic processing: 26°C 100seconds / 23°C 120seconds

Film Selection Guide

Film selection depends on material, specimen thickness, X-ray equipment power and gamma-ray sources types which can be referred in standards such as ISO 17636-1, ASTM E94.

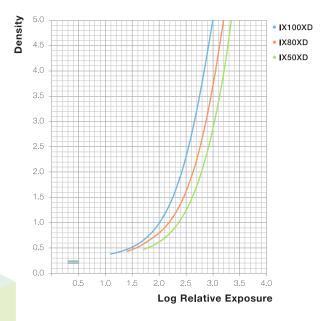
Material and Thickness [mm]		X-ray Tube Voltage [kV]					L. 100	0 - 00
		below 50	50-80	80-120	120-150	150-300	lr-192	Co-60
	0-6	50, 80	50	50				
	6-13	50, 80	50, 80	50, 80	50			
Aluminium	13-25	80, 100	50, 80	50, 80	50, 80	50		
and Titanium	25-50	100	80, 100	50, 80	50, 80	50	50	
	50-100		100	80, 100	80, 100	80, 100	80	
	over 100				100	80, 100	80	

Material and Thickness [mm]		X-ray Tube Voltage [kV]					L. 100	0
		below 50	50-80	80-120	120-150	150-300	lr-192	Co-60
	0-6			100	80, 100	50, 80	50	50
	6-13				80, 100	50, 80, 100	50, 80	50
Iron and	13-25					80, 100	80, 100	50, 80
Steel	25-50					100	100	50, 80, 100
	50-100						100	80, 100
	over 100							100

Characteristic Curve

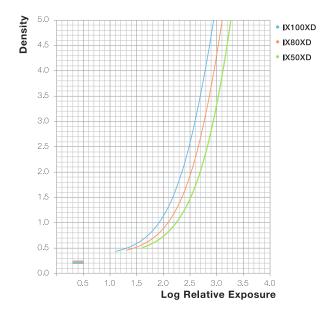
Manual processing

- •Exposure:X-ray 220kV
- Screen:Pb screen 0.03mm Front and back
- Processing:Manual 20°C 5minutes
- •Developer: Hi-RENDOL I



Automatic processing

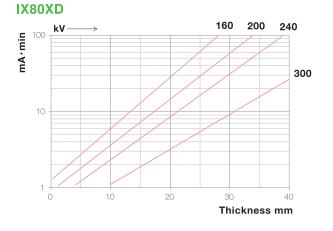
- Exposure:X-ray 220kV
- •Screen:Pb screen 0.03mm Front and back
- Processing: Automatic 23°C 120 seconds
- •Developer: SUPERDOL I

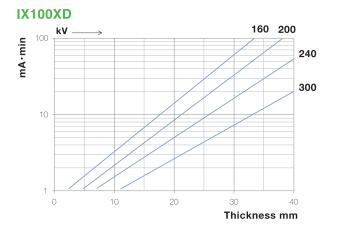


Exposure diagram

X-ray

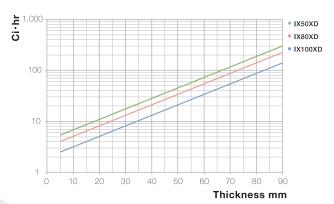
- Steel (Fe)
- Density: 2.0
- •Screen: Pb 0.03mm Front and back
- •SFD: 1000mm
- Processing:Automatic 23°C120seconds
- Developer:SUPERDOL I





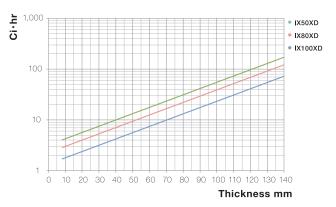
lr-192

- Steel (Fe)
- Density: 2.0
- •Screen: Pb 0.03mm Front and back
- •SFD: 1000mm
- Processing:Automatic 23°C120seconds
- Developer:SUPERDOL I



Co-60

- Steel (Fe)
- •Density: 2.0
- •Screen: Pb 0.03mm Front and back
- •SFD: 1000mm
- Processing:Automatic 23°C120seconds
- Developer:SUPERDOL I



Processing conditions

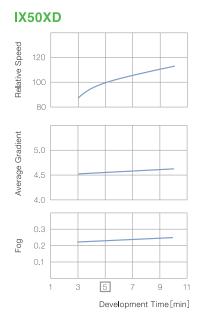
Automatic Processing

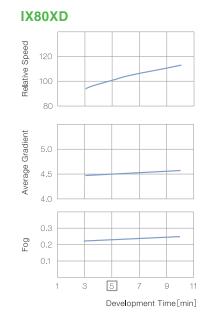
Developer	SUPERDOL I	Audel					
Development Temperature	23 °C (73 °F)	26 °C (79 °F)	28 °C (82 °F)				
Development Immersion Time	120 seconds	100 seconds	100 seconds				
Fixing Temperature	31 °C (88 °F)						
Replenishment Rate for 8,5 × 30,5 cm, 4 films	Developer	About 65 ml					
	Fixer	About 200 ml					
Wash Water Temperature	Less than 31 °C (88 °F)						
Drying Temperature	About 45 °C (113 °F)						

Manual Processing

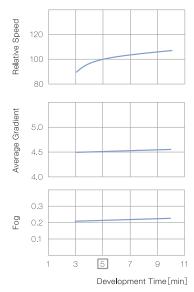
Process	Chemical	Temperature	Time	
Developing	Hi-RENDOL I	20°C (86°F)	5 minutes	
Stop bath	(Acetic Acid 3% solution)	18 to 22 °C (64 to 72 °F)	30 seconds	
Fixing	Hi-RENFIX I	18 to 22 °C (64 to 72 °F)	5 to 10 minutes	
Washing	(Running water 2 to 4 L/min)	18 to 22 °C (64 to 72 °F)	50 minutes	
Drying	DRIWEL (Wetting agent)	18 to 22 °C (64 to 72 °F)	30 seconds	
	-	About 50°C (about 122 °F)	-	

Processing Speed





IX100XD



Relative Speed:

Define the density of 2.0 above fog and base density as 100 (5 minutes development)

Average Gradient:

Gradient of line between the density points of 1.5 and 3.5 above fog and base density on the characteristic curve

Fog: Fog and base density

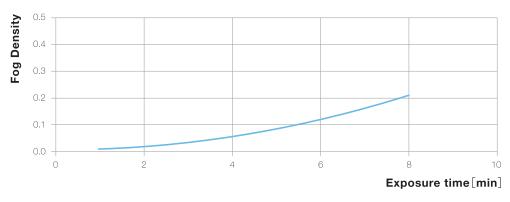
Film Base

Blue tinted polyester base with thickness of 0.175 mm, with excellent durability suitable for both manual and automatic processing.

Safelight

Films to be handled under lamp(15 or 20 watt bulb) with safelight filter, at a distance of at least 1 meter or further.

Safelight Tolerances of Film



•Safelight filter: Fujifilm Safelight Filter SLG 8U

Lamp: 100 volt, 20 watt

Distance: 1 meter

Fog density is the increasing amount of density caused by safelight exposure.



FUJIFILM Corporation 7-3 Akasaka 9-chome, Minato-ku, Tokyo 107-0052, Japan