

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

Film	Features and Major Applications	Relative Exposure Factors*				Film System Classification**		
		100kV	200kV	Ir192	Co60	ISO 11699-1	ASTM E1814	JIS K7627
IX50XD	Ultra fine grain film with very high contrast and medium speed <ul style="list-style-type: none"> •Aerospace components •Weldings (low to medium atomic number metals) •Castings (low to medium atomic number metals) •Electronic components 	2.3	2.4	2.2	2.2	C3	I	T2
IX80XD	Very fine grain film with very high contrast and medium speed <ul style="list-style-type: none"> •Weldings (low to medium atomic number metals) •Castings (low to medium atomic number metals) •Aerospace components 	1.6	1.5	1.5	1.5	C4	I	T2
IX100XD	Fine grain film with high contrast and high speed <ul style="list-style-type: none"> •Weldings (medium to higher atomic number metals) •Castings (medium to higher atomic number metals) •Aerospace components 	1.0	1.0	1.0	1.0	C5	II	T3

* 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.

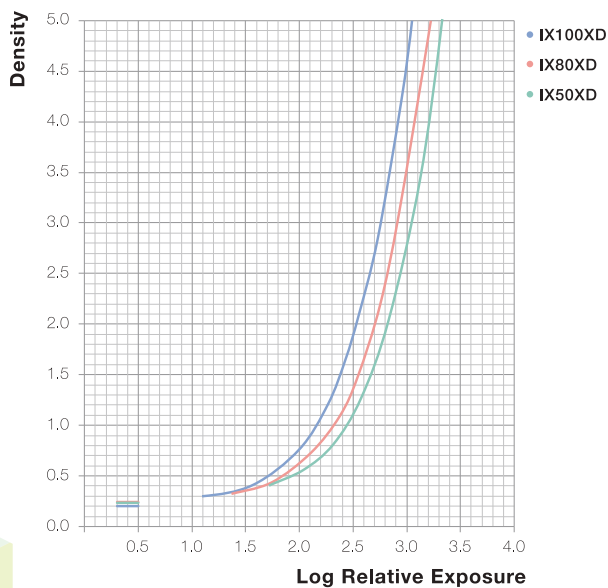
Material and Thickness [mm]		X-ray Tube Voltage [kV]					Ir-192	Co-60
		below 50	50-80	80-120	120-150	150-300		
Aluminium and Titanium	0-6	50, 80	50	50				
	6-13	50, 80	50, 80	50, 80	50			
	13-25	80, 100	50, 80	50, 80	50, 80	50		
	25-50	100	80, 100	50, 80	50, 80	50	50	
	50-100		100	80, 100	80, 100	80,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

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

Characteristic Curve

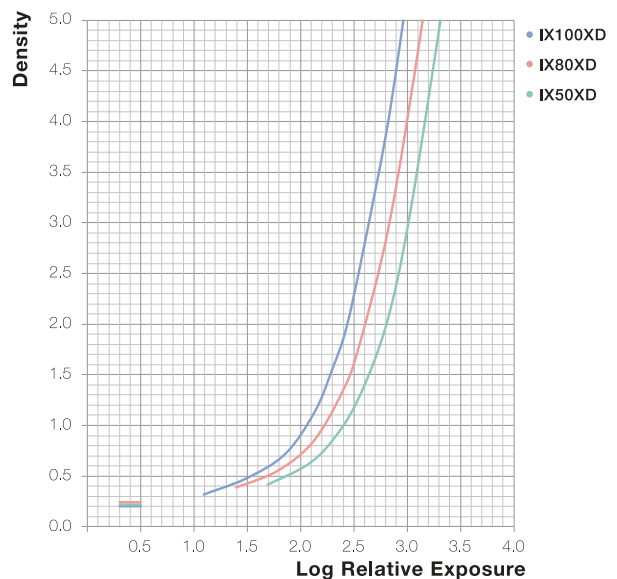
Manual processing

- 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 120seconds
- Developer: SUPERDOL I

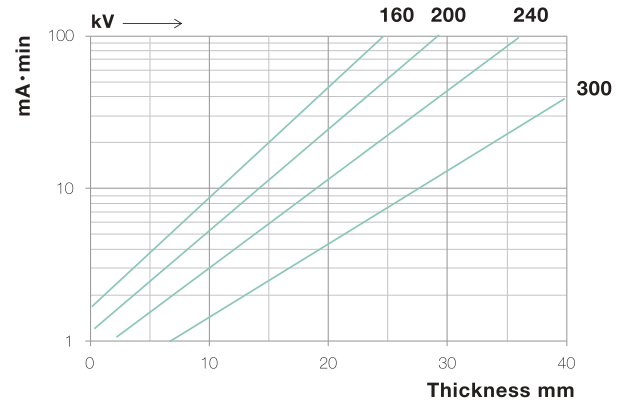


Exposure diagram

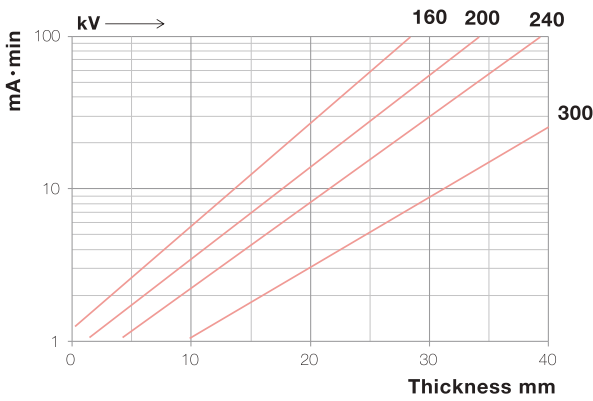
X-ray

- Steel (Fe)
- Density: 2.0
- Screen: Pb 0.03mm Front and back
- SFD: 1000mm
- Processing: Automatic 23°C 120seconds
- Developer: SUPERDOL I

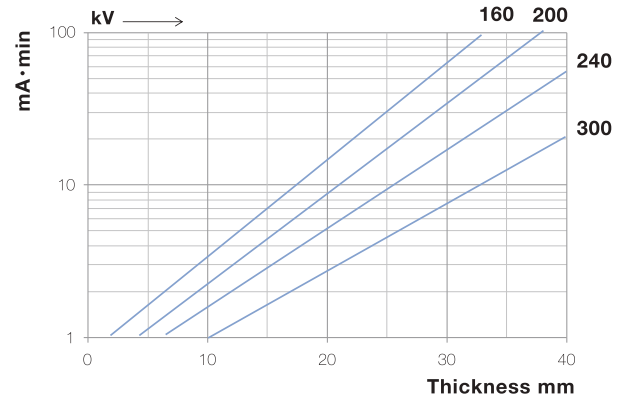
IX50XD



IX80XD

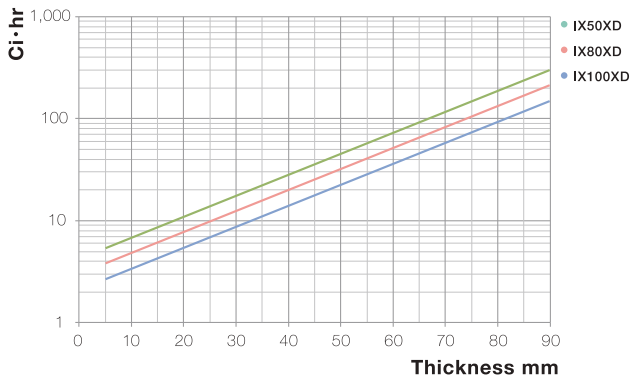


IX100XD



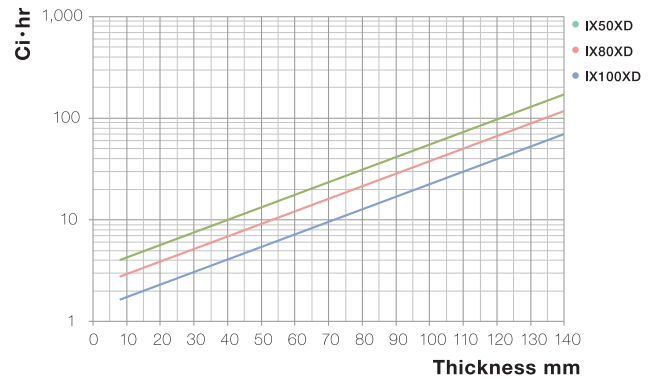
Ir-192

- Steel (Fe)
- Density: 2.0
- Screen: Pb 0.03mm Front and back
- SFD: 1000mm
- Processing: Automatic 23°C 120seconds
- Developer: SUPERDOL I



Co-60

- Steel (Fe)
- Density: 2.0
- Screen: Pb 0.03mm Front and back
- SFD: 1000mm
- Processing: Automatic 23°C 120seconds
- Developer: SUPERDOL I



Processing conditions

Automatic Processing

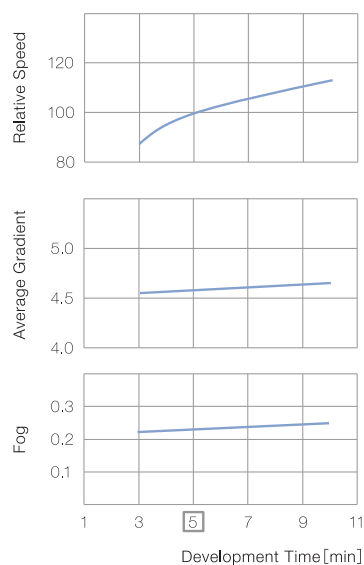
Developer	SUPERDOL I	Audel	
Development Temperature	23 °C (73 °F)	26 °C (79 °F)	28 °C (82 °F)
Development Immersion Time	120 seconds	100 seconds	100 seconds
Fixing Temperature	31 °C (88 °F)		
Replenishment Rate for 8.5 × 30.5 cm, 4 films	Developer	About 65 ml	
	Fixer	About 200 ml	
Wash Water Temperature	Less than 31 °C (88 °F)		
Drying Temperature	About 45 °C (113 °F)		

Manual Processing

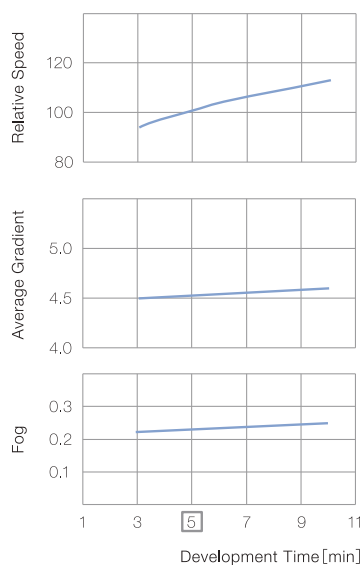
Process	Chemical	Temperature	Time
Developing	Hi-RENDOL I	20°C (86°F)	5 minutes
Stop bath	(Acetic Acid 3% solution)	18 to 22 °C (64 to 72 °F)	30 seconds
Fixing	Hi-RENFIX I	18 to 22 °C (64 to 72 °F)	5 to 10 minutes
Washing	(Running water 2 to 4 L/min)	18 to 22 °C (64 to 72 °F)	50 minutes
Drying	DRIWEL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

Processing Speed

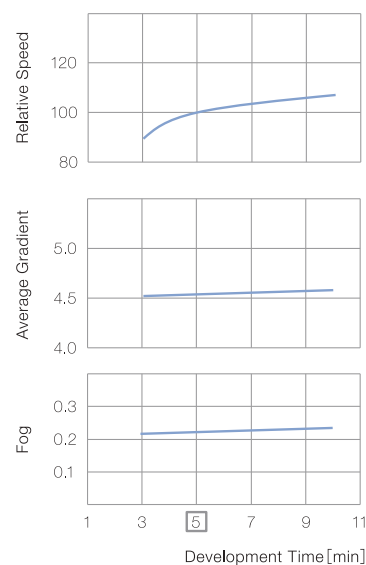
IX50XD



IX80XD



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

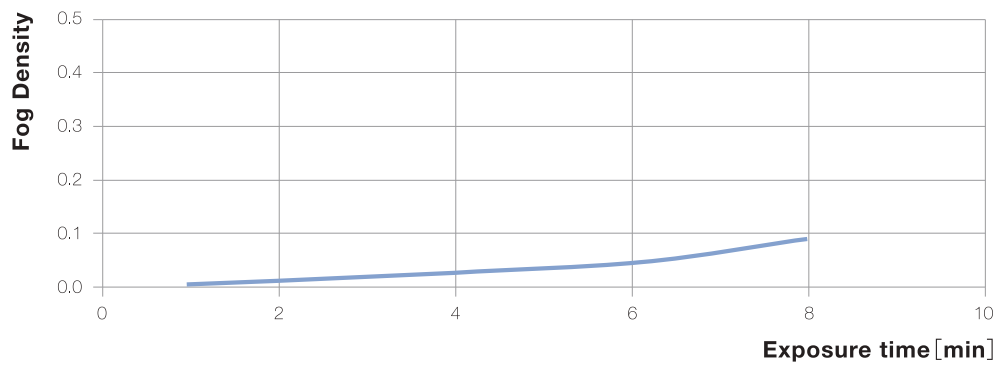
Film Base

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

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