

FUJIFILM INDUSTRIAL RADIOGRAPHIC FILM IX50HD, IX80HD, IX100HD

Fujifilm develops the new NDT films : Eco-Friendly HD Series.

TYPES AND FEATURES

These Films have the **High Definition** performance even though under exhausted developer. This performance is more remarkable under manual processing (**Handy Development**) .

Film	Features and Major Applications	Relative Speed *			Class of Film **		
		X-ray 100KV	X-ray 200KV	Ir-192	ASTM E1815	EN 584-1	ISO 11699-1
		(without Pb)	(with Pb)				
IX50HD	Low-speed, very-high contrast, very low graininess film <ul style="list-style-type: none"> ● Welds : High sensitivity level ● Castings : High sensitivity level ● High energy isotope exposure 	30	35	40	I	C3	C3
IX80HD	Low-speed, very-high contrast, very low graininess film <ul style="list-style-type: none"> ● Welds : Normal sensitivity level ● Castings : Normal sensitivity level ● Normally used for many kind of usage 	65	65	70	I	C4	C4
IX100HD	Medium-speed, high contrast, low graininess film <ul style="list-style-type: none"> ● Welds : Normal sensitivity level ● Castings : Normal sensitivity level ● Normally used for many kind of usage 	100	100	100	II	C5	C5

* Speed as compared to that of type IX100HD used as a standard 100 under each exposure conditions.

** Classification based on development under Fujifilm's recommended processing conditions.
 Examples of recommended conditions (temperature and immersion time) are as follows.
 Manual : 20 degree Celsius 5 minutes
 Automatic : 26 degree Celsius 100 seconds.

FILM SELECTION GUIDE

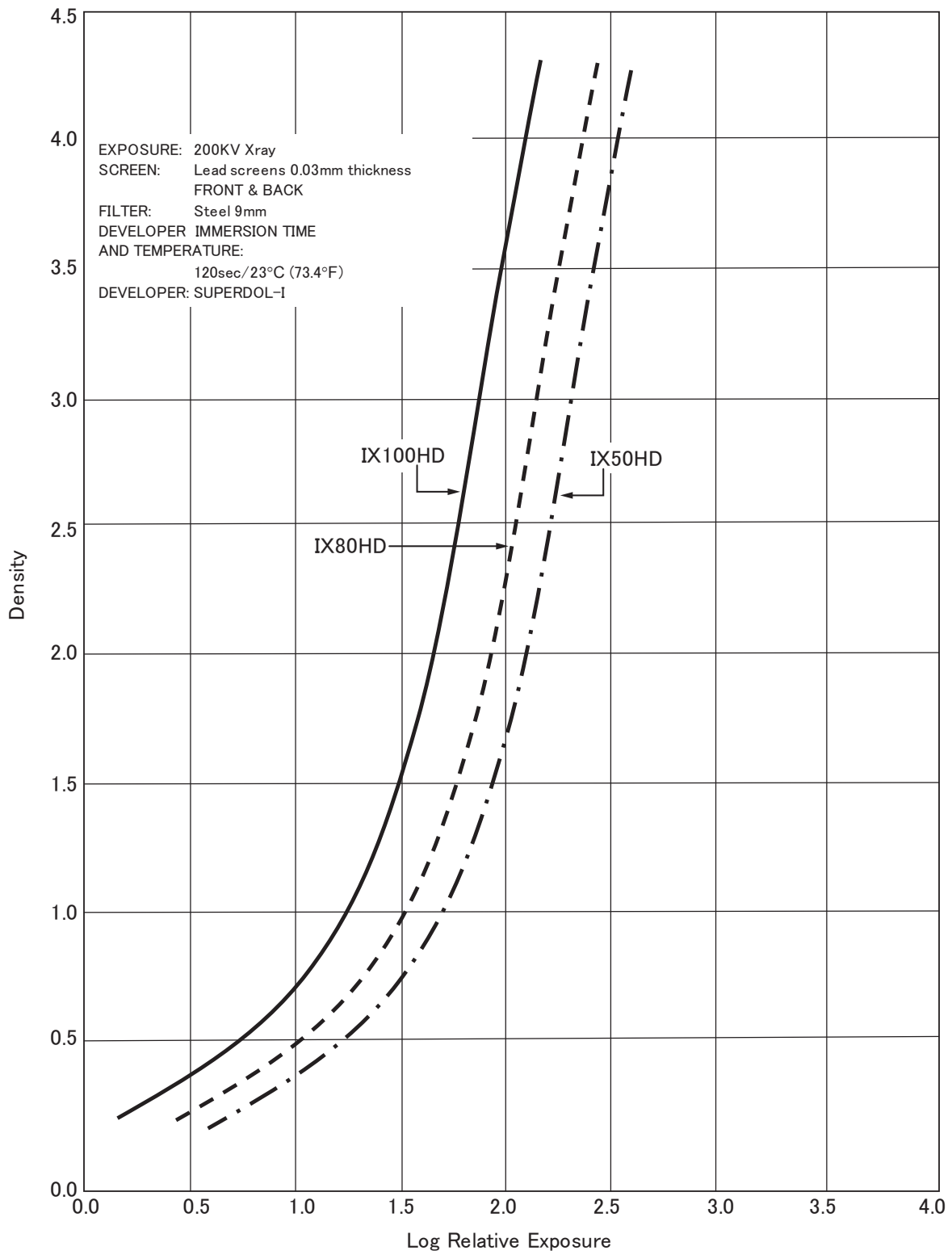
One of the film selection rule is mentioned in ISO-17636-1 and another selection guide also can be used as below.

Standards for film selection dependant on material, specimen thickness. X-ray tube voltage and type of gamma-ray sources are given below.

Material and Thicknesses (mm)	X-ray Tube Voltage (kV)						
	below 50	50 ~ 80	80 ~ 120	120 ~ 150	150 ~ 300	Ir	
Light Metals	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
Iron and Steel	0 ~ 6			80 • 100	80 • 100	50 • 80	50
	6 ~ 13				80 • 100	80 • 100	50 • 80
	13 ~ 25					100	80 • 100
	25 ~ 50						100
	50 ~ 100						100
	over 100						
Bronze	0 ~ 6			100	80 • 100	50 • 80	50
	6 ~ 13				100	80 • 100	50 • 80
	13 ~ 25						80 • 100
	25 ~ 50						100
	50 ~ 100						
	over 100						

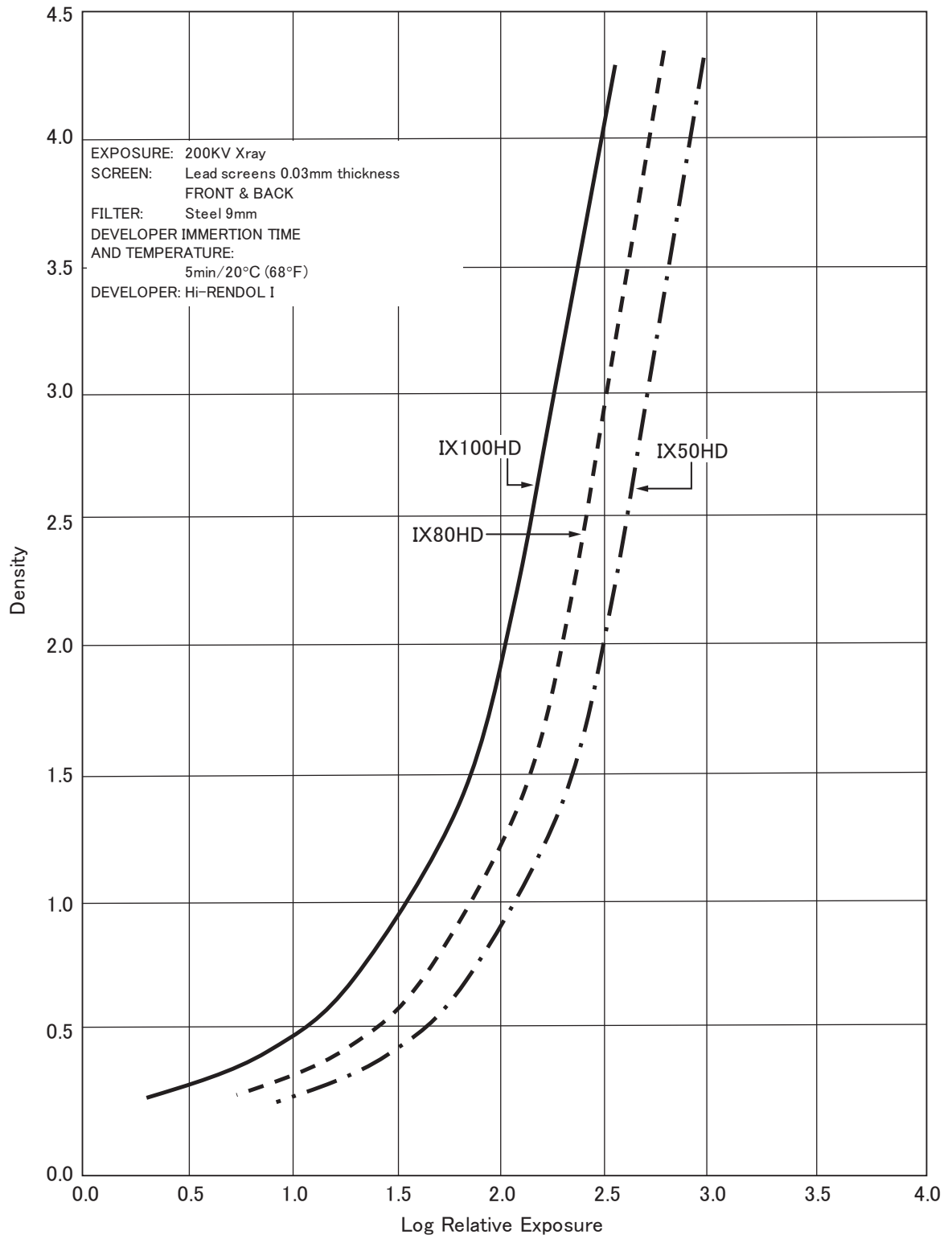
CHARACTERISTIC CURVE

Automatic Processing



CHARACTERISTIC CURVE

Manual Processing



BASE USED

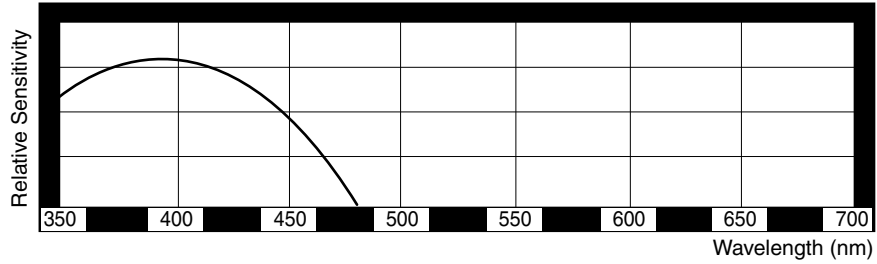
Polyester 0.175 mm thick, blue tinted base.

A polyester base is used having excellent strength and safety being suitable also for automatic processing

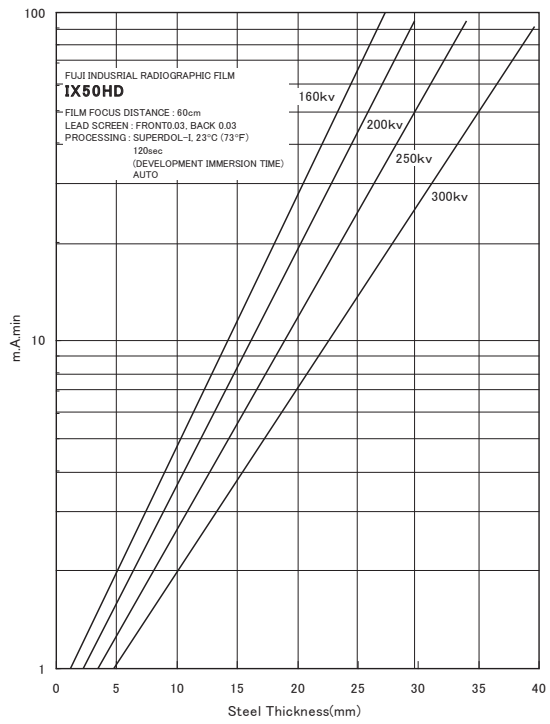
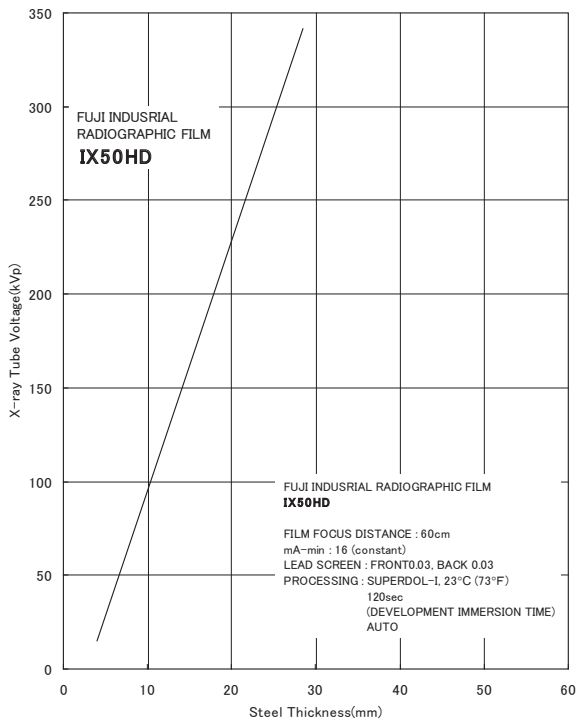
COLOR SENSITIVITY

Blue sensitive

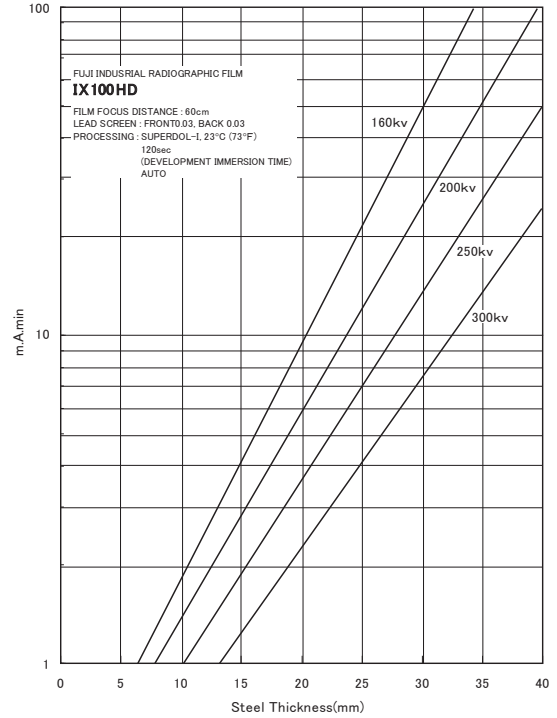
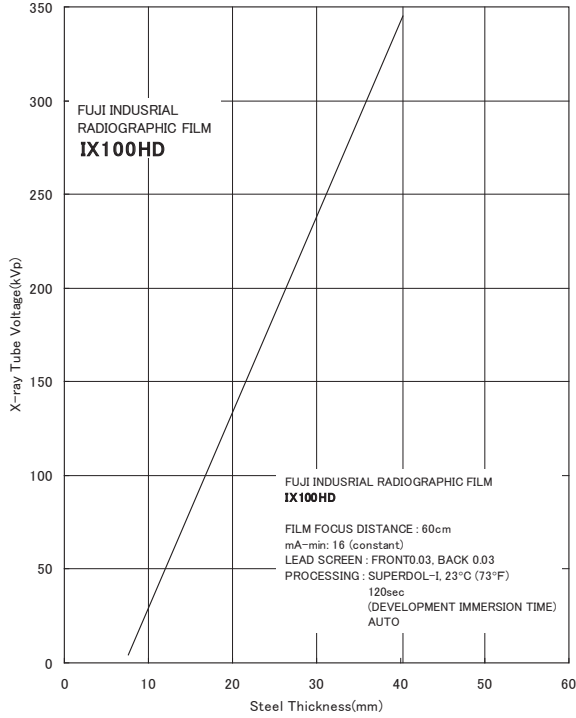
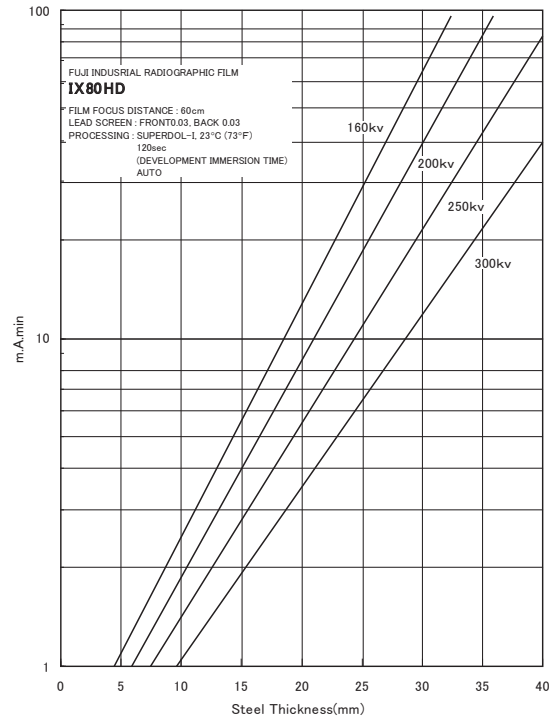
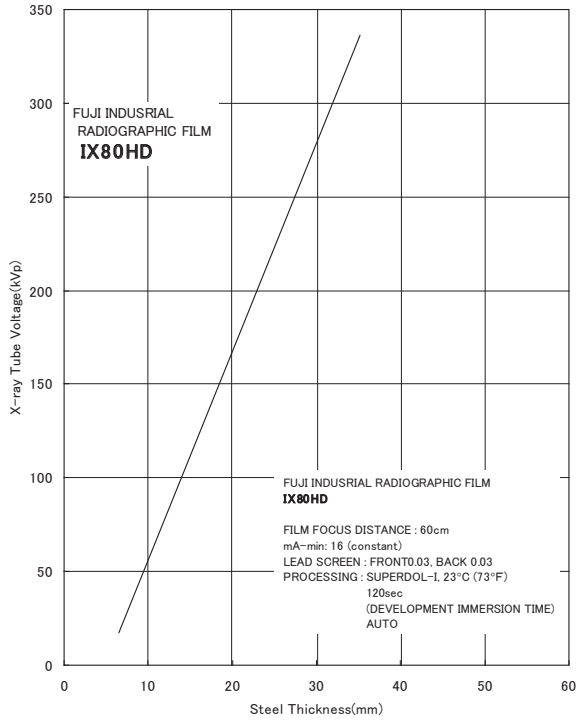
Spectral Sensitivity Curve



EXPOSURE CHART

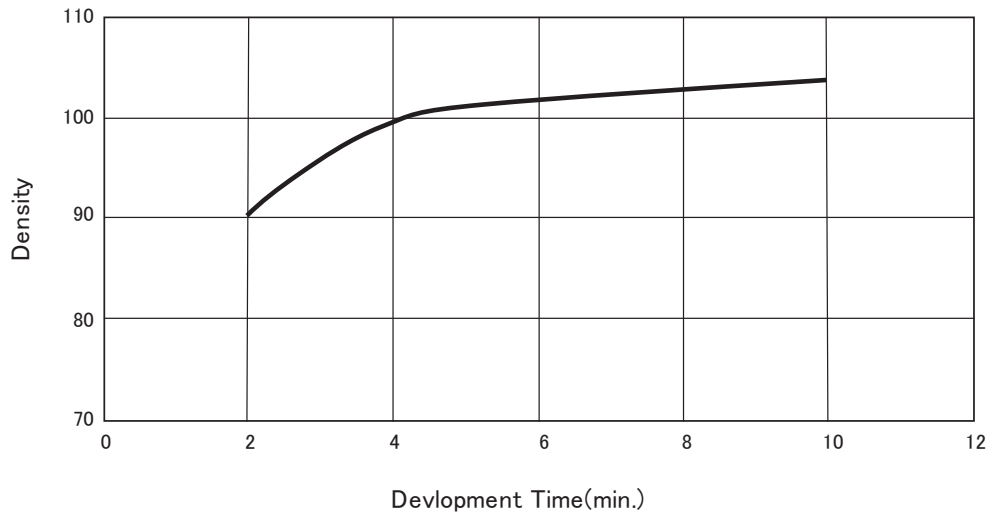


EXPOSURE CHART



DEVELOPMENT PROGRESS

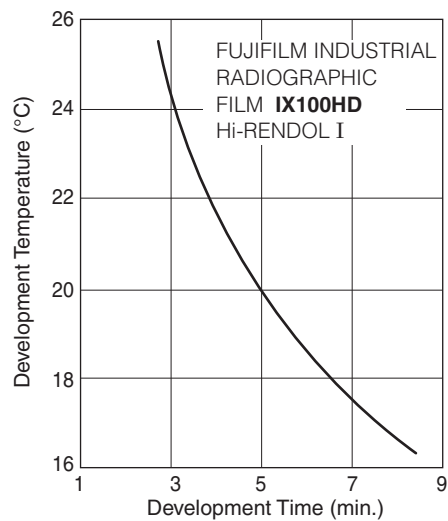
IX50HD, 80HD, 100HD



MANUAL PROCESSING (Example)

Process	Processing Solutions	Temperature	Time
Development	Hi-RENDOL I	20°C (68°F)	5 min.
Stop Bath	(Acetic Acid 3% Solution)	18°C to 22°C (64°F to 72°F)	30 sec.
Fixing	Hi-RENFIX I	18°C to 22°C (64°F to 72°F)	5 to 10 min.
Washing	(Running Water 2 to 4 liters/min.)	18°C to 22°C (64°F to 72°F)	50 min.
Drying	(Wetting Agent)	18°C to 22°C (64°F to 72°F)	30 sec.
	—	ca. 50°C (ca. 122°F)	—

Development Time-Temperature Curve*



*Conditions required for the derivation of densities equal to those of standard processing.

**AUTOMATIC
PROCESSING
(Example)**

Developer		Audel
Development Temperature		26°C (78°F) 28°C (82°F)
Development Immersion time		100 sec. 100 sec.
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)

FUJIFILM

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