

**Colenta**<sup>®</sup>

**MEDIPHOT**

**INTENSIFYING SCREENS  
X-RAY CASSETTES**

**DISTRIBUTER GUIDE**



**Colenta**<sup>®</sup>

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# INTENSIFYING SCREENS

## PRODUCT RANGE

### A. Types

MEDIPHOT Intensifying Screens are available in full range of Green & Blue emission. MEDIPHOT makes a substantially equivalent screen to every well known X-Ray film company's screen.

A wide range of speciality screens are available. These are explained in more details under 'Speciality Screens'.

In addition, every user specified screen can be supplied subject to minimum quantities.

### B. Sizes



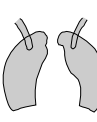



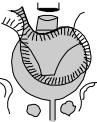
All types of screens are available for all film sizes.

CM	13 x 18	20x 60	30 x 35	40 x 40
	15 x 30	20 x 80	30 x 60	
	15 x 40	20 x 96	30 x 90	
	18 x 24	24 x 24	30 x 120	
	18 x 43	24 x 30	35 x 35	
	20 x 40	30 x 30	35 x 43	
	INCH	5 x 7	9.5 x 9.5	
	6 x 12	10 x 12	14 x 28	
	6 x 15	11 x 14	14 x 36	
	6.5 x 8.5	12 x 12	14 x 42	
	7 x 17	12 x 15	14 x 51	
	8 x 10	14 x 14		

Any other custom sizes are available on request.

# INTENSIFYING SCREENS

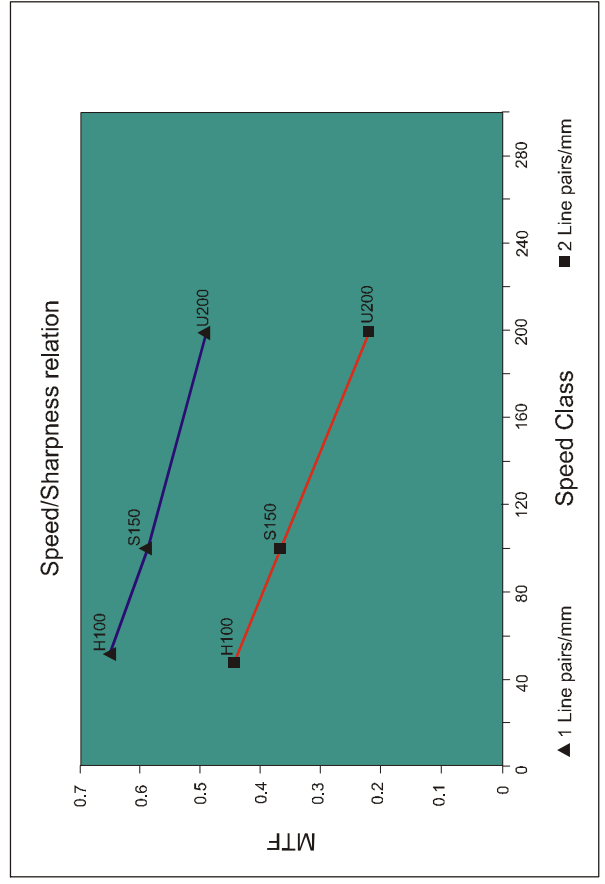
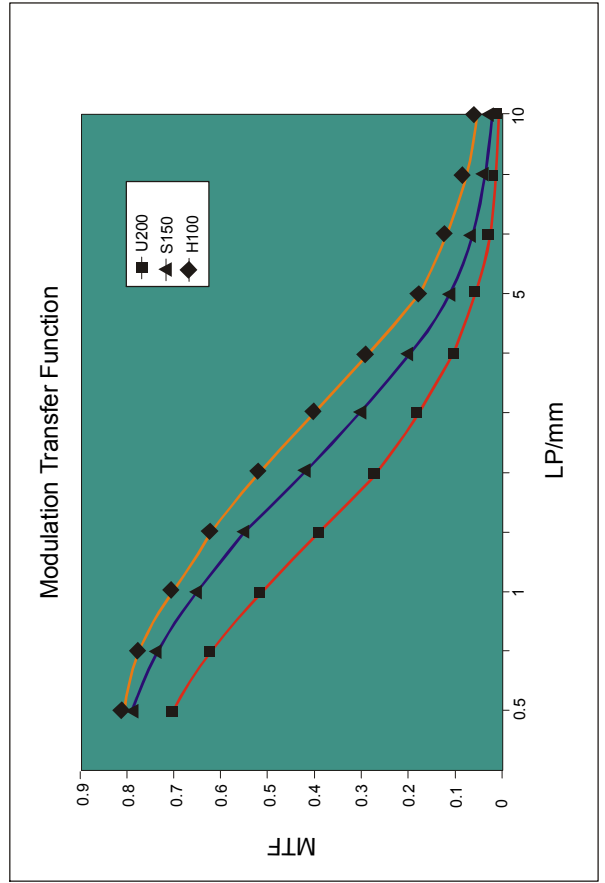
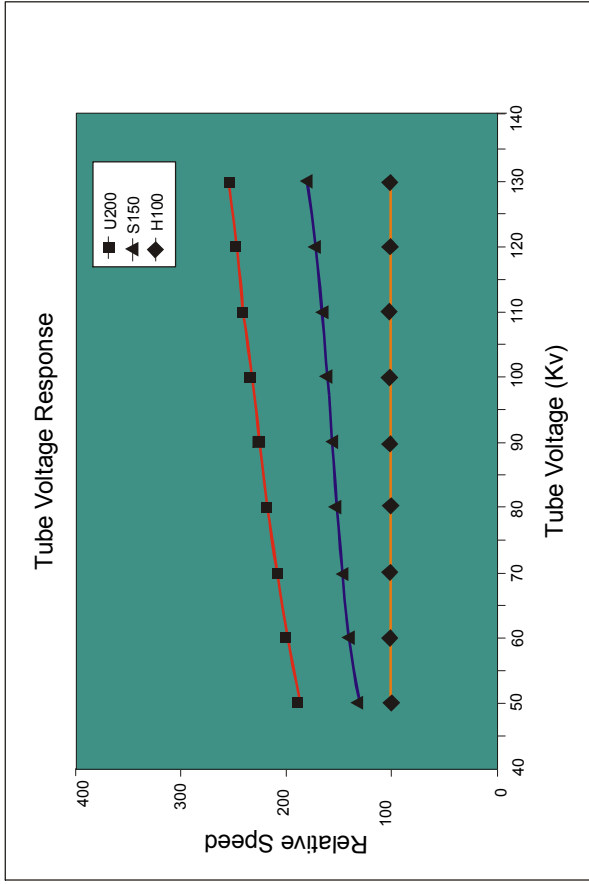
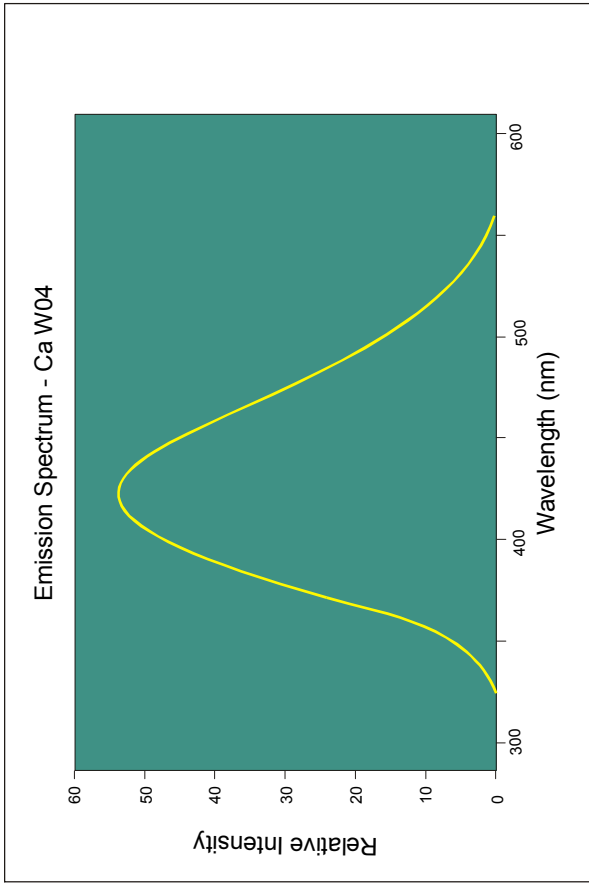
## Selection & Application Guide

	Speed Class	Extermitities	Joints	Chest	Skull	Stomach/ Intestines	Lumbar Vertebrae	Urogenital Organ
								
Rare Earth-Green								
KO 100	100	•						
KO 200	200		•	•	•			
KO 400 +	400		•	•	•	•		
KO 800	800					•	•	•
Calcium Tungstate								
D 50	50	•						
H 100	100		•	•				
S 150	150		•	•	•			
U 200 +	200		•	•	•	•		
X 300	300		•	•	•	•	•	
Rare Earth-Blue								
K 100	100	•						
K 200	200		•	•	•			
K 400 +	400		•	•	•	•	•	•
K 800	800							•

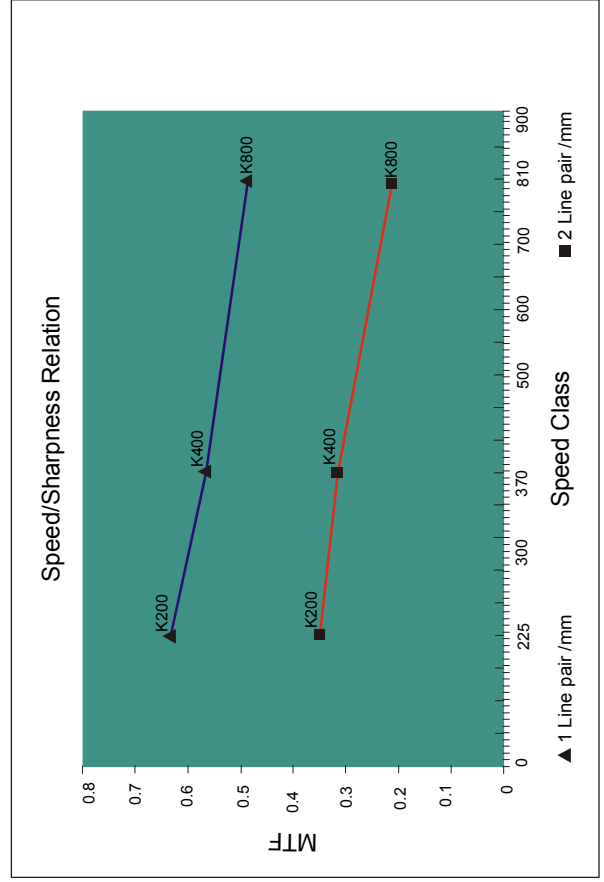
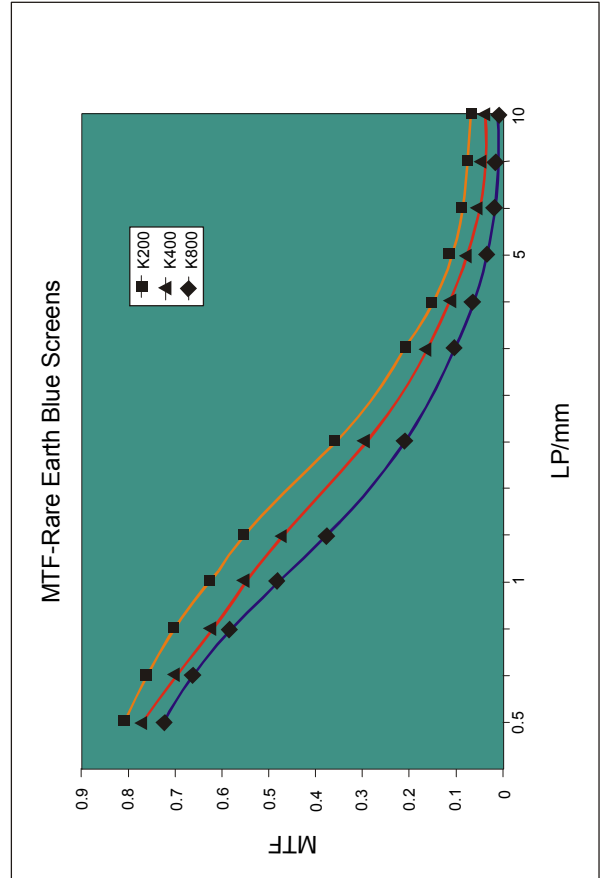
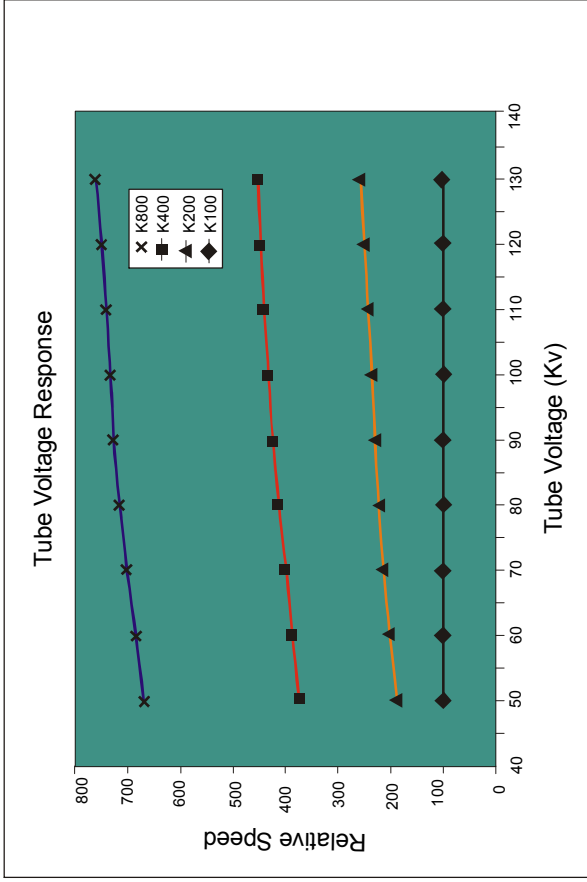
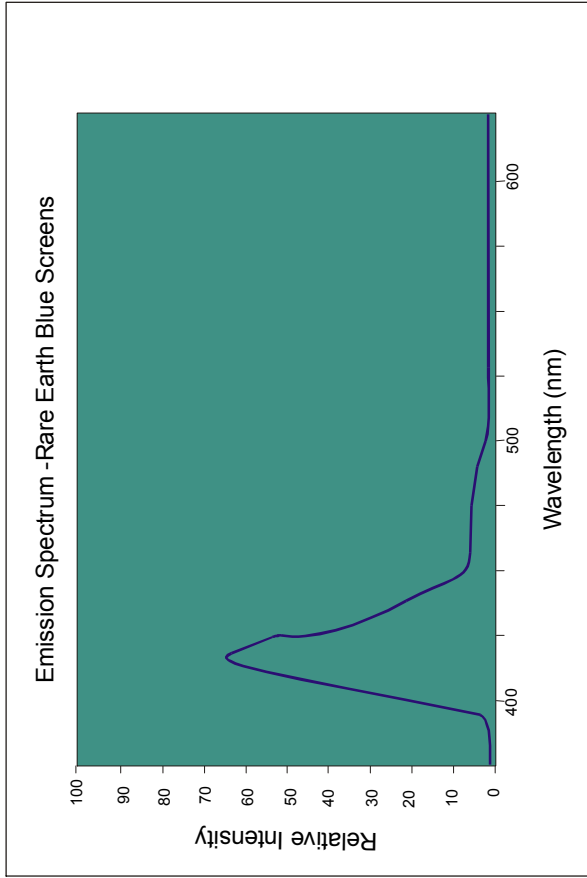
+ Best suited as general purpose screen.

SPEED CLASS	EMISSION	MEDIPHOT	KODAK	DUPONT	AGFA	CAWO	MCI OPTONIX	3M	KYOKKO (FUJI)
50	Blue	D 50	X-OMATIC FINE	QUANTA DETAIL	CURIX FINE	FINE	DETAIL	#	BF-III
100	Blue	H 100	X-OMATIC MEDIUM	#	CURIX UNIVERSAL	UNIVERSAL	MEDIUM	#	BM-III
150	Blue	S 150	#	#	#	RAPID	HI-SPEED	#	BH-III
200	Blue	U 200	X-OMATIC REGULAR	CRONEX HI-PLUS	CURIX SPECIAL	SPECIAL	HI-PLUS	#	BX-III
300	Blue	X-300	#	L-PLUS	#	#	L-PLUS	#	#
200	Blue	K 200	#	QUANTA DEATIL	MR 200	SE2	BLUE DETAIL	#	#
400	Blue	K 400	#	QUANTA FAST DETAIL	MR 400	SE4	BLUE FAST DETAIL	#	SPECIAL
800	Blue	K 800	#	QUANTA III QUANTA RAPID	MR 800	SE8	BLUE III	TRILITE 8	#
100	Green	KO100	LANEX FINE	#	ORTHO FINE	OG2	BG FINE	TRIMAX 2	GF-1 HR-FINE
200	Green	KO200	LANEX MEDIUM	#	ORTHO MEDIUM	OG4	BG MEDIUM	TRIMAX 4	GM-1 HR-MEDIUM
400	Green	KO400	LANEX REGULAR	QUANTA V	ORTHO REGULAR	OG8	BG REGULAR	TRIMAX 8	GH-1 HR-REGULAR
800	Green	KO800	LANEX FAST	#	ORTHO FAST	OG16	GREEN FAST	TRIMAX 12	GX-1 HR-FAST

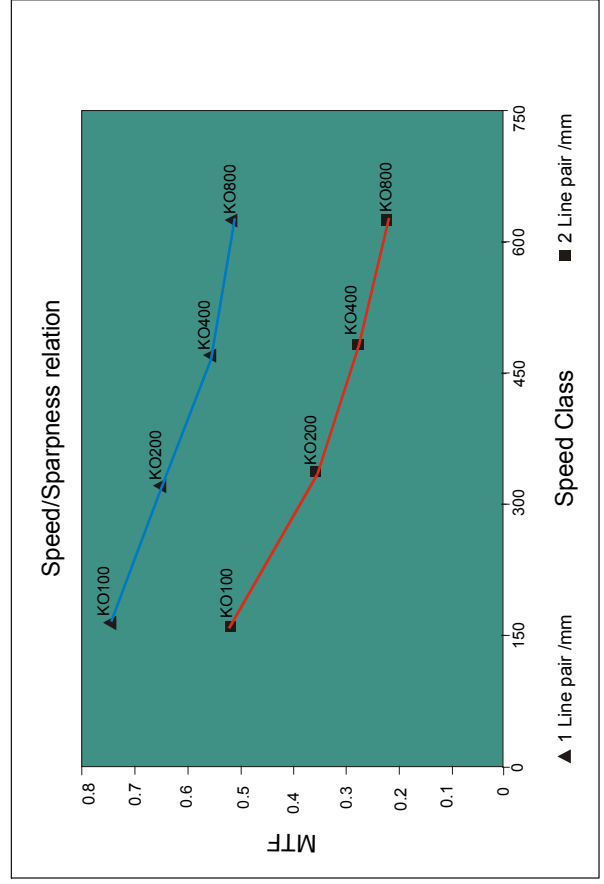
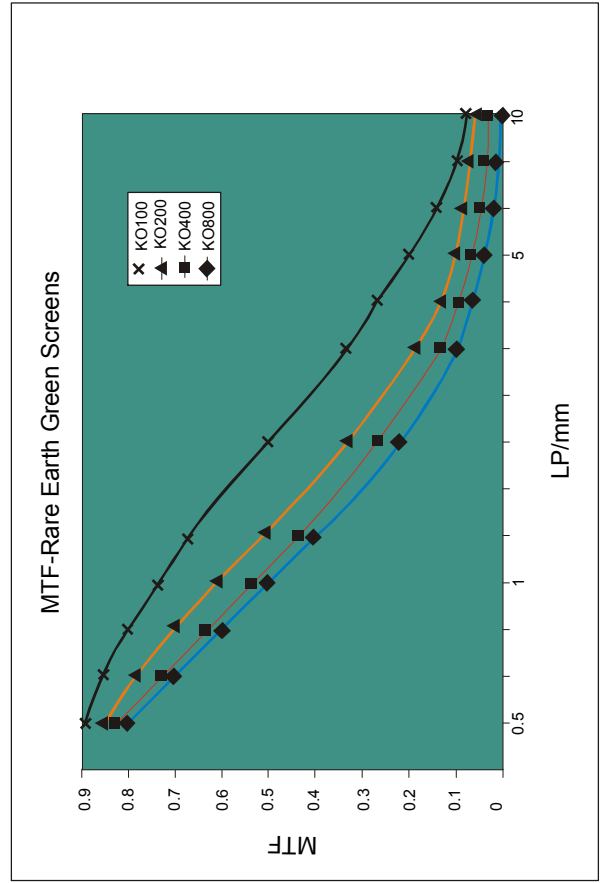
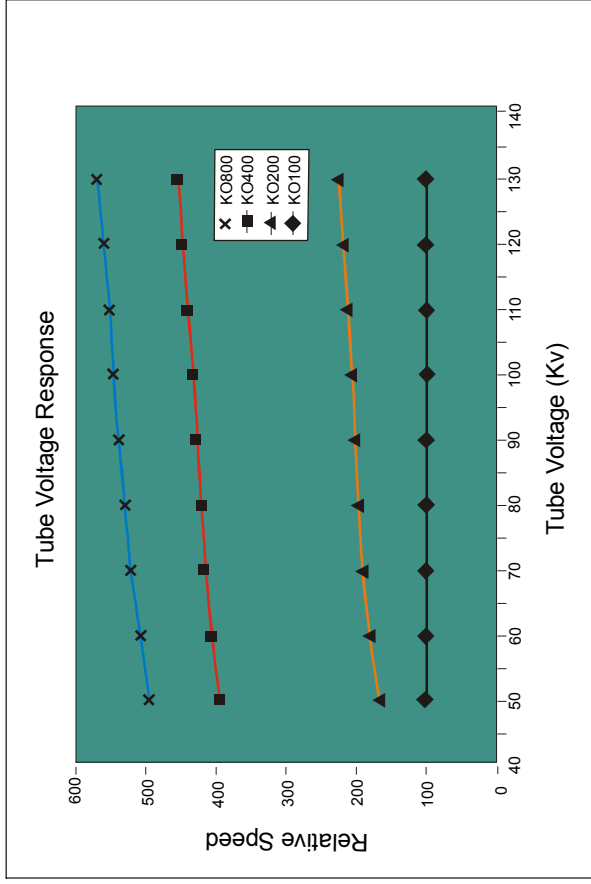
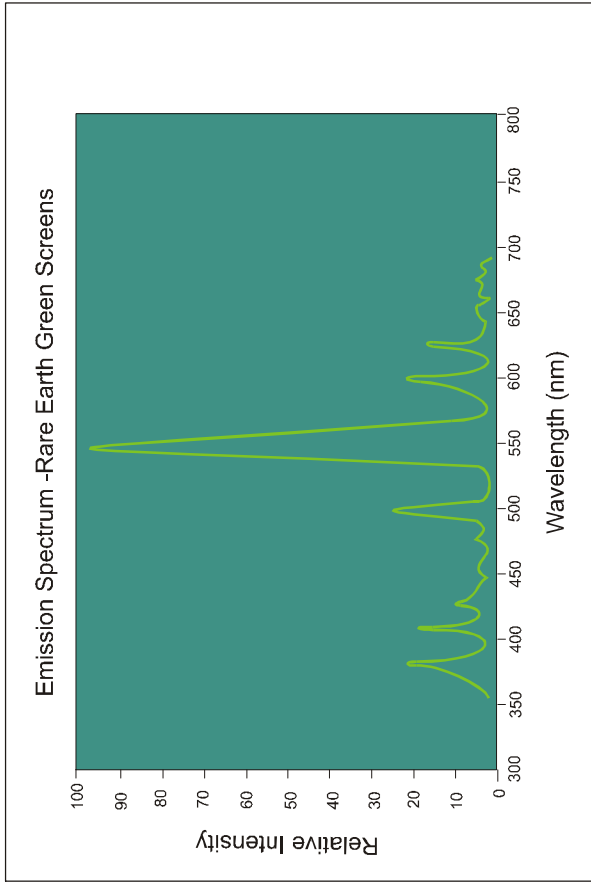
## Technical Charts : Calcium Tungstate Screens



## Technical Charts : Rare Earth Blue Screens



# Technical Charts : Rare Earth Green Screens





# INTENSIFYING SCREENS

## SPECIALITY SCREENS

MEDIPHOT offers a wide range of screens for special applications:

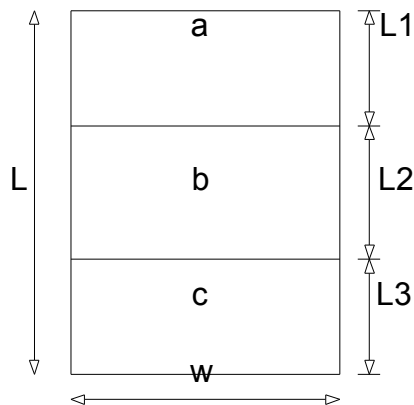
### A. Mammo Screens

MEDIPHOT Mammo screens are single screen system available in both rare earth green or blue versions. Their special non-reflective base support as well as special phosphor/dye blend provide outstanding detail. They are suitable for all mammographic applications in conjunction with Mammo Cassettes of any brand.

### B. Gradient Screen

MEDIPHOT Gradient screens are available in both rare-earth-green or blue versions. A variety of gradients can be made by combining 2 or more levels of speeds. Gradient screens are tailor made to suit user requirements.

For quotations, please specify



1. All dimensions in cm or inch for L1,L2,L3 etc as well as 'w' in case of both front & back screens separately.
2. Speed Class required for a,b,c etc.
3. Green or Blue rare earth.

### C. Fluoroscopic Screens

MEDIPHOT Fluoroscopic screens emit yellowish-green fluorescent light. They provide good brightness & intensification with minimum radiation dosage.

They can be also used in special industrial applications such as product inspection, baggage inspection for security etc.

They are available in any size upto a maximum of 17 x 17 inch or 43 x 43 cm.

#### D. Screens for Film Changers

MEDIPHOT film changer screens are available in both green and blue emitting rare earth versions for all conventional automatic film changers. They provide excellent film transparent, eliminate electrostatic chargers and are long lasting.

#### E. Dental Screens

MEDIPHOT Dental Screens are available in both green and blue emitting rare earth versions in any size. They provide maximum detail perception with minimum possible dosage.

# INTENSIFYING SCREENS

## PACKING, STORAGE & HANDLING

### A. Packing Description

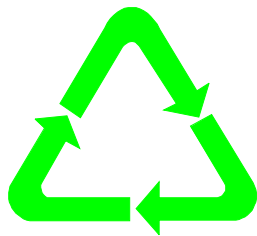
MEDIPHOT Intensifying Screens are sold in pairs - a FRONT & a BACK screen except MEDIPHOT MAMMO which is a single piece screen. BACK screen is identified with a label on the reverse of the screen.

Each screen pair is separated by a special moisture-proof interliner paper and packed in a low density weather resistant plastic envelope sealed at top.

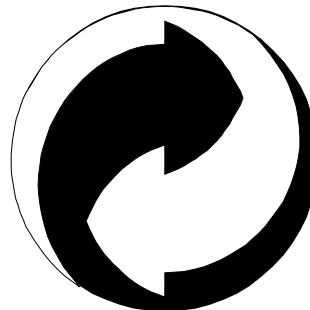
An instruction sheet and a cassette label is enclosed inside the overall outer cardboard envelope.

The cassette label is affixed on the X-Ray cassette by user after filling necessary information by a non-smudge marker or pen.

Screens are final packed in strong and transport-worthy corrugated boxes.



PE



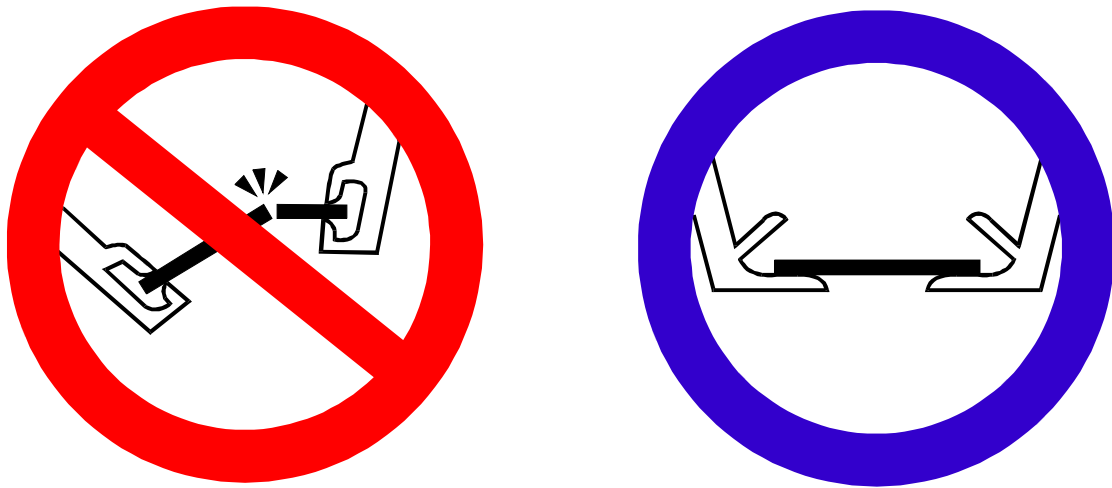
Recycled  
Recyclable

All packaging materials comply with European & U. S. regulations.

## B. Storage & Handling

MEDIPHOT Intensifying Screens can be stored indefinitely and have unlimited life as long as they are stored in a dry place. As an Intensifying Screen is a delicate product, it should be handled with extreme care. Special effort should be made to avoid handling the screen by corners which dents the corners & affect image quality.

The following illustration explains handling:



Above illustration is printed on the reverse of the instruction sheet enclosed within screen packing.

# INTENSIFYING SCREENS

## FREQUENTLY ASKED QUESTIONS

1. What is speed class of screens ?

Speed of screen is the amount of dosage required to increase the density of X-ray film by 1.0. Dosage is measured in 'Gy'. For example, dosage required for a 400 speed screen is 1/400 Gy or 0.0025 Gy. In general higher the speed class, lower the dosage required.

2. Shouldn't the ideal screen have highest possible Speed Class with highest resolution ?

Yes. But this is not possible because in practice, higher the speed, lower the resolution and vice-versa. The ideal screen is a compromise between speed & resolution. However, for some applications where low dosage is much more important than resolution, a very high speed is selected (e.g. pediatrics, pregnancy etc.) On the other hand, where detail is much more important, a low speed screen is chosen (e.g. hairline fracture).

Rare Earth screens have on an average 4 times the speed for same resolution as compared to Calcium Tungstate screens.

3. What is the life of screen ?

Life of screen largely depends on care in usage, proper & regular cleaning, frequency of usage as well as proper storage & handling. Due to these factors life can vary anywhere between 2 to 6 years.

4. Can blue emitting screens be used with green emitting X-ray film & vice-versa?

No. The speed & resolution will both sharply fall off and image will be unclear. The phosphor of blue emitting screen has different emission wavelengths than required by green x-ray film & vice-versa.

5. Why some screens have colour tints ?

Sometimes, a dye is added in phosphor to enhance its resolution & this results in colour tints.

6. Sometimes same screen shows different speeds. Why ?

Screen speed depends on KV used in exposure, type of X-ray tube, type of X-ray generator & filter, aluminium attenuation of cassette front, grid used, processing conditions and reference screen against which speed is being measured.

All of these variables have to be strictly controlled which is quite difficult as even a slight variation in any of them will greatly affect results. To make it a little easier, atleast the KV, X-ray tube, X-ray generator & filter & cassette should be kept the same for screens under comparison and grid should be avoided from speed tests.

The most important variable to control is processing conditions and testing comparative screens immediately one after the other using film from same box and in the same developer & fixer.

7. Why is a gradient or gradual screen used ?

A gradient screen is used for imaging in those cases where a minimum effect in image quality required which is caused by difference in bone thickness & density.

8. Do the screens emit any radiation ?

No. Screen merely emit luminescent light when x-rays fall on them.

9. How to eliminate image quality problems such as white spots or broken line marks or patterns ?

Screens should be cleaned regularly with an appropriate screen cleaner or soap water solution (details enclosed with every screen package) to remove dirt deposited on screen or old phosphor residue after screen replacement or to remove static marks as well as to avoid adhesion of screen to film.

10. Can I.D. windows be cut in screen by the user themselves ?

I. D. windows can be cut with scissors by first marking the window size & location on screen with pencil. However extreme precaution has to be taken not to disturb the screen edges which can become susceptible to moisture absorption. If possible, screen should be ordered with the window cut by the manufacturer at specified location.

# X-RAY CASSETTES

## SPECIFICATION & SIZES

### A. Specifications

Constructed in a high grade aluminium alloy frame with impact resistant corners made with a tough engineering polymer.

Sufficient quantity of 99% pure lead is incorporated in back. The back door is fitted with uniform non-sagging polyurathane foam for even contact. MEDIPHOT cassettes are finished with attractive anodised finish and no paint is used anywhere on the cassette to eliminate chipped paint particles to interfere with image in the long term.

### B. Sizes

MEDIPHOT cassettes are available in all popular inch & cm size:

CM	9 x 12	13 x 18	15 x 30
	15 x 40	18 x 24	18 x 43
	20 x 40	20 x 60	20 x 80
	20 x 96	24 x 24	24 x 30
	30 x 30	30 x 35	30 x 40
	30 x 60	30 x 80	30 x 90
	30 x 120	35 x 35	35 x 43
	40 x 40		
INCH	5 x 7	5 x 12	6 x 12
	6 x 15	6.5 x 8.5	8 x 10
	7 x 17	9.5 x 9.5	10 x 12
	12 x 12	11 x 14	12 x 15
	14 x 14	14 x 17	14 x 36
	14 x 42	14 x 51	

# **X-RAY CASSETTES**

## **I.D. WINDOWS**

MEDIPHOT cassettes are available with I. D. windows installed.

Windows are available in 2 versions. U. S. Window ( also known Kodak window) The compress U.S. I. D. window is the popular and widely used window while the Euro window is used in select European countries. Unless specified by the customer the U.S. I. D. window is installed as standard for all window window cassette orders.

The window is installed at standard top left corner of cassette on the door side (back side) for all cassettes except for small size cassettes.



# X-RAY CASSETTES

## FREQUENTLY ASKED QUESTIONS

1. What is the measure of performance for a cassette ?

A good cassette has to provide excellent film screen contact, be free of light leakage, should be easy to use, be light weight and be capable of rough usage for a long time. This is achieved by using extremely high quality components, a hard aluminium alloy, impact resistant corners, high quality PU foam and extreme accuracy of assembly.

2. What is the cause of blurred or unsharp images ?

The main cause is poor film-screen contact which is caused due to a faulty cassette. A localised poor film-screen contact occurs in cassette due to its distortion, faulty springs, they do not press against the film with sufficient force, surface irregularities in the cassette front or deterioration of the foam.

3. How is image quality affected by light leakage in cassette ?

Light leakage can take place in a poor quality cassette or in a good cassette where latch is not properly closed. Light leakage causes the fog level of film to rise which deteriorates image quality.

4. How is the durability of cassette evaluated prior to purchase ?

Durability can be tested by dropping the cassette diagonally from a height of 1 metre ( 39 inches ). A larger size of 14 x 17 inch/35 x 43 cm should be used for drop test. The corner connecting polymer of the weak cassette will crack with one or two drops while that of a durable one will be unaffected.

5. How is the long term image consistency of a cassette tested ?

A cassette's back door as well as the entire tube side should not warp or bend after a few months and should remain in original condition. This is only possible if a high quality and sufficiently hard aluminium alloy is used in its construction.

This can be easily tested by opening the back door of cassette and pressing hard with both thumbs. The strength and relative hardness of the aluminium alloy used can be easily felt.

6. Why is lead incorporated in the inside of back door of cassette ?

Lead in back door blocks the scattered radiation and helps in improving image quality.

7. What is the role of a good foam in cassette ?

A good foam is one which returns to original position after compression, does not sag with time, has a long life and allows air to pass through it's minute holes.

8. How is a good contact maintained between film & screen by a cassette ?

A good contact cassette allows air to pass out of cassette in a short time before the cassette is reloaded. This is primarily achieved with numerous uniform pores in foam through which air passes.

If this air does not escape through foam, it will result in dark patches on film causing poor image quality. The pores in foam are achieved by subjecting the foam to implosion with inert gases.

9. What is the importance of suitable cassette front (tube side) plate ?

The front plate should absorb minimum possible radiation. This can be achieved by reducing thickness to maximum 1.5 mm while increasing the hardness to maximum possible level. An incorrect grade & thickness of front plate leads to reduction in screen speed.

# NOTES

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