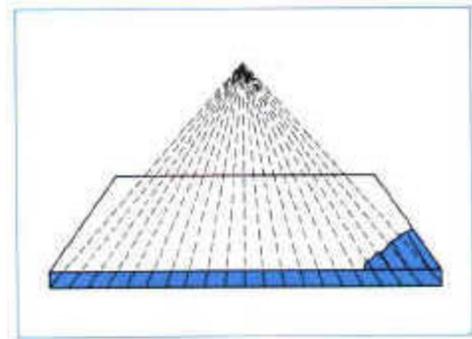


GRID LINES, RATIO, FOCAL DISTANCE

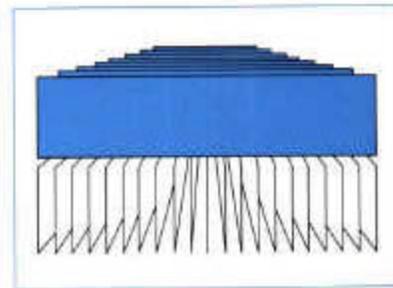
Three types of lead strip positioning:

FOCUSED: a focused grid is one in which the lead strips are tilted progressively as they move away from center. Lines through each of these strips would converge at a point known as the grid focus.



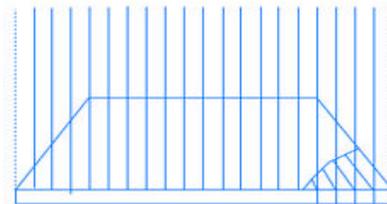
Linear Focused

CRISS-CROSS GRID: a criss-cross grid has two grids sandwiched together with the result that the strips are usually both parallel to and at right angles to the long dimension of the grid.



Criss-Cross

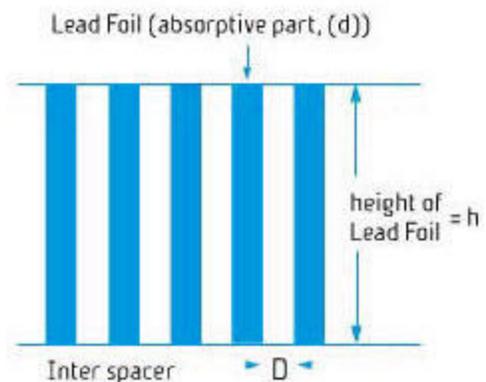
PARALLEL: in the use of a parallel grid, no matter where the tube is located, there is never a condition under which all of the strips will be aligned with the tube, since they are all vertical. Only the strips directly under the x-ray tube can be in true alignment with the primary rays. It is not recommended to use a parallel grid at any distance less than 56".



GRID RATIOS:

GRID RATIO: The ratio of a grid is defined as the relation of the height of the lead strips to the distance between them. The higher the ratio of a grid the more scattered radiation is absorbed. As grid ratio increases, the necessity of having the focused grid exactly centered and perfectly level under the x-ray tube becomes more and more important. Also becomes more necessary to use the grid at its focal distance from the tube, instead of being able to use it through a range of distances.

RATIOS AVAILABLE: 5:1, 6:1, 8:1, 10:1 & 12:1 (special order 14:1 also available)



GRID FOCAL RANGE:

FOCAL RANGE: MDM x-ray grids are available in a variable range of focal distance. With the lower ratio grids the focal range is considerable wider, with the higher ratio grid it is considerably narrower.

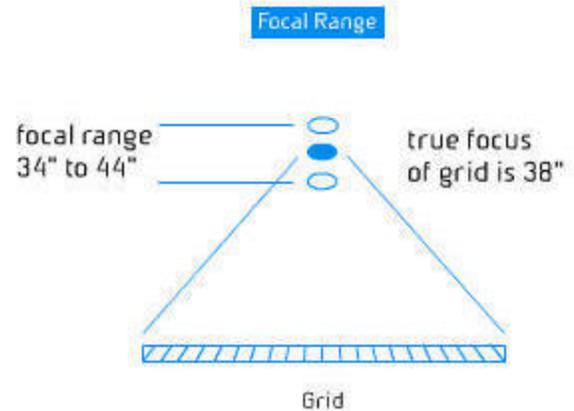
Focal distance available:

Small: 26-32"

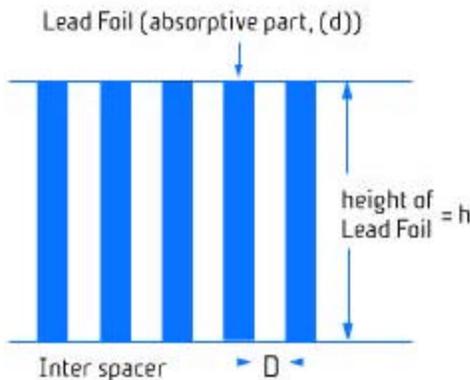
Medium: 36-40" and 34-44"

Long: 40-72", 48-72" and 60-72"

Also available in PARALLEL or "unfocussed grid" from 56" to infinity.



Ratios: Available from 5:1 to 15:1



$$\text{Density : } N = \frac{1}{D + d}$$

$$\text{Grid ratio : } r = \frac{h}{D}$$

Density: Available in 6 types

60 lines / inch (23 lines / cm)

72 lines / inch (28 lines / cm)

85 lines / inch (34 lines / cm)

103 lines / inch (40 lines / cm)

130 lines / inch (51 lines / cm)

150 lines / inch (60 lines / cm)

Grid Composition Part	Density		Inter spacer		X-Ray absorbing part	
Thickness of Lead Strip and Thickness of Aluminum Inter spacer	60LPI (23 L/cm)		0.35m/m Aluminum		0.060m/m Lead	
	70LPI (28 L/cm)		0.30m/m Aluminum		0.055m/m Lead	
	85LPI (34 L/cm)		0.25m/m Aluminum		0.050m/m Lead	
	103LPI (40 L/cm)		0.20m/m Aluminum		0.050m/m Lead	
	150LPI 960 L/cm)		0.12m/m Aluminum		0.050m/m Lead	
Thickness w/o Cover \ Ratio	5:1	6:1	8:1	10:1	12:1	15:1
60LPI (23 L/cm)	2.15mm (1.75)	2.50mm (2.10)	3.20mm (2.80)	3.90mm (3.50)		
70LPI (28 L/cm)	1.90mm (1.50)	2.20mm (1.80)	2.80mm (2.40)	3.40mm (3.00)	4.00mm (3.60)	
85LPI (34 L/cm)	1.65mm (1.25)	1.90mm (1.50)	2.40mm (2.00)	2.90mm (2.50)	3.40mm (3.00)	3.90mm (3.50)
103LPI (40 L/cm)		1.60mm (1.20)	2.00mm (1.60)	2.40mm (2.00)	2.80mm (2.40)	3.20mm (2.80)
150LPI (60 L/cm)			1.26mm (0.96)	1.50mm (1.20)	1.74mm (1.44)	2.10mm (1.80)

Type	Grid Density	Ratio	Focal Range (F1 to F2) of standard focal distance (for) by IEC standards for a grid 388mmx464mm in size			
Focused	60 lines/cm (152 lines/inch)	8:1	any distance available over 65cm	F1-F2 (cm)	F1-F2 (cm)	F1-F2 (cm)
		10:1		70-100	80-130	110-200
		12:1		70-90	80-120	120-200
		15:1		70-90	90-120	120-200
	40 lines/cm (103 lines/inch)	6:1	any distance available over 65cm	70-81	99-101	147-153
		8:1		65-100	75-150	100-200
		10:1		70-100	80-130	110-200
		12:1		70-90	90-120	120-200
		15:1		70-90	90-120	120-200
34 lines/cm (85 lines/inch)	5:1	any distance available over 65cm	70-81	99-101	147-153	
	6:1		60-120	70-170	100-200	
	8:1		65-100	75-150	100-200	
	10:1		70-100	80-130	110-200	
	12:1		70-90	90-120	120-190	
	15:1		70-90	90-120	120-200	
Parallel	40 lines/cm (103 lines/inch)	6:1	165 to infinity			
	34 lines/cm (85 lines/inch)	5:1 6:1	150 to infinity 165 to infinity			
Crossed (Focused or Parallel)	40 lines/cm (103 lines/inch)	6:1	refer to the above 5:1 or 6:1 ratio grid in focused or parallel section			
	34 lines/cm (85 lines/inch)	5:1 6:1				