Smit Röntgen

X-Ray Grids

Product Highlights

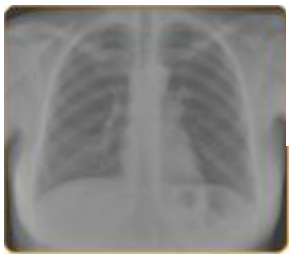
- Available in a wide range of sizes and shapes
- Perfectly balanced due to the use of low absorption interspacer material and optimized lead thickness
- Can improve the contrast of an image 3 to 4 times
- The fiber interspacer allows maximum grid performance in general purpose applications at a reduced X-ray dose
- Wide product line range that fit any system parameters
- High SNR (Signal-to-Noise Ratio) which determines the image quality in a digital environment
- Ability to detect small, low-contrast objects expressed by a high **D**etected **Q**uantum **E**fficiency
- Fiber interspaced grids enable a smaller dose compared to aluminum interspaced grids

Technical Features

- High K factor which shows the grid's effectiveness in absorbing scattered rays;

$$K = \frac{\text{image contrast with grid}}{\text{image contrast without grid}}$$

- The B factor or Bucky factor, equal to the increase in total X-ray intensity when a grid is applied, is the lowest in the industry; $B = \frac{1}{\text{transmission of primary and scattered radiation}}$
- Wide range of grids which includes standard grids and grids for special application
- The greatest signal-to-noise improvement is achieved by using a fiber interspaced grid in a digital environment



Scattered rays cause scatter quantum noise and thus reduce image contrast.

Digital post-processing restores the original contrast, but it also increases the noise and obscures low-contrast details.

Technical Data

X-ray performance data of fiber interspaced grids for general purpose applications					
Grid type	**Primary transmission**	**B (+-10%)**	**K (+-10%)**	**S (+-10%)**	**Q (+-10%)**
36 8	76%	4.5	3.4	5.9	2.6
36 10	76%	5.0	3.8	7.2	2.9
36 12	75%	5.5	4.1	8.6	3.1
40 8	78%	4.3	3.4	5.6	2.6
40 10	77%	4.7	3.6	6.4	2.8
40 12	75%	5.2	3.9	7.8	2.9
40 15	74%	5.8	4.3	9.7	3.2
44 8	78%	4.1	3.2	5.0	2.5
44 10	77%	4.7	3.6	6.4	2.8
44 12	75%	5.2	3.9	7.9	2.9
44 15	74%	5.7	4.2	9.4	3.1
60 10	72%	5.3	3.8	7.4	2.7
60 13	71%	5.7	4.1	8.5	2.9
60 15	70%	6.1	4.2	9.7	3.0
70 13	78%	5.1	4.0	8.2	2.6
70 17	77%	5.7	4.4	11.8	2.9
80 13	70%	5.0	3.5	6.4	2.5
80 15	69%	5.5	3.8	7.3	2.5

Application limitations of various grids and dimensions (figures in cm)					
Ratio 8:1					
f0	18	24	30	36	43
80 cm	55-144 cm	60-120 cm	63-109 cm	65-103 cm	67-99 cm
100 cm	64-225 cm	71-171 cm	75-150 cm	78-138 cm	81-131 cm
140 cm	78-630 cm	87-340 cm	95-265 cm	101-225 cm	105-210 cm
180 cm	90-~ cm	103-720 cm	113-450 cm	120-360 cm	126-315 cm
Ratio 10:1					
f0	18	24	30	36	43
80 cm	59-124 cm	63-109 cm	66-102 cm	28-97 cm	69-94 cm
100 cm	69-180 cm	75-150 cm	79-136 cm	82-129 cm	84-124 cm
140 cm	86-370 cm	95-260 cm	102-225 cm	106-200 cm	110-190 cm
180 cm	100-900 cm	113-450 cm	122-346 cm	129-300 cm	134-274 cm
Ratio 12:1					
f0	18	24	30	36	43
80 cm	62-114 cm	65-103 cm	68-97 cm	70-94 cm	71-92 cm
100 cm	73-159 cm	78-138 cm	82-129 cm	84-123 cm	86-119 cm
140 cm	92-285 cm	101-230 cm	106-205 cm	110-190 cm	115-180 cm
180 cm	108-540 cm	120-360 cm	129-300 cm	135-270 cm	140-252 cm
Ratio 13:1					
f0	18	24	30	36	43
80 cm	63-110 cm	66-101 cm	69-95 cm	71-93 cm	72-91 cm
100 cm	74-153 cm	79-135 cm	83-127 cm	85-121 cm	87-117 cm
140 cm	94-268 cm	103-220 cm	108-198 cm	112-185 cm	116-176 cm
180 cm	110-480 cm	123-337 cm	132-287 cm	138-261 cm	142-245 cm
Ratio 15:1					
f0	18	24	30	36	43
80 cm	65-105 cm	68-97 cm	70-92 cm	72-91 cm	73-89 cm
100 cm	78-141 cm	83-127 cm	85-122 cm	87-117 cm	89-114 cm
140 cm	102-235 cm	107-200 cm	114-184 cm	117-175 cm	119-169 cm
180 cm	118-360 cm	129-292 cm	137-260 cm	143-242 cm	148-230 cm

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