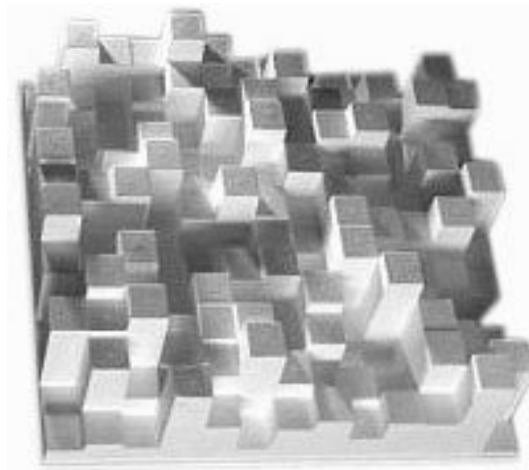


Calculate Skyline Diffuser



Quadratic residue diffusers (QRD) belong to the so-called pseudo stochastic diffusers. They are also called Schroeder diffusers, after their inventor. They consist of individual stripes of varying depth, which are separated from each other by a thin wall. The material, of which the structure is constructed, must be sound reflecting. It can, for example, be made of wood, metal or stone. There are one- and two-dimensional diffusers. The former scatter sound only perpendicular to the stripes, while the latter scatter sound that incidents from any direction.

In order for diffusers to function optimally, the number of the stripes and their depths must follow certain rules. It is generally true that the deeper the stripes are, the deeper is the lower limiting frequency, at which sound is still reflected diffusively. The construction depth must be about half the wavelength of the lower limiting frequency. A single diffuser always consists of a prime number of stripes, for example 7,11,13, The more stripes are used, the larger is the frequency range, in which the diffuser functions.

[Read the BBC paper about the QRD!](#)

width											
0	3	4	1	2	3	3	1	4	2	3	3
3	0	1	4	2	1	1	3	3	2	1	1
3	1	1	3	1	3	2	2	1	0	2	2
2	2	2	2	0	4	3	2	3	2	1	1
3	3	1	1	3	1	1	3	4	3	1	3
2	3	2	1	2	0	3	2	4	2	1	0
2	3	2	1	3	1	2	2	3	1	3	4
2	0	2	4	4	0	1	2	1	4	2	2
3	4	1	0	1	3	3	1	0	2	3	3
1	3	3	1	2	4	1	2	0	1	3	1
2	1	2	3	1	3	3	2	4	2	3	4
2	4	2	3	3	1	1	2	0	3	1	0

Freq. low Hz

Freq. high Hz

Width cm

max. Column length cm

Column width cm

0 cm

1 cm

2 cm

3 cm

4 cm

38 pieces [1]	<input type="text" value="6.25"/>	cm	38 pieces [2]	<input type="text" value="12.5"/>	cm
40 pieces [3]	<input type="text" value="18.75"/>	cm	15 pieces [4]	<input type="text" value="25"/>	cm

Total

18.38 meter!

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Disclaimer

Please keep in mind that I am not an expert or an authority on acoustics, and the information presented here is just my opinion. I do however have many years of practical experience and my opinion is based on that. Please take this information for what it's worth and hopefully you will find it useful.

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