NDT Supply.com, Inc.

Ultrasonic Beam Spread & Near Field Length Tables

For Carbon Steel and similar velocity materials (5.9 km/sec./0.232"/usec.)

Euro type Probes

Frequency MHz	Diameter mm	Beam Spread		Near Field mm
		6dB	20dB	
4	24	1.8	3.8	97.6
2	24	3.6	7.6	48.8
1	24	7.3	15.4	24.4
0.5	24	15.2	32.1	12.2
4	10	4.3	9.2	16.9
2	10	8.8	18.6	8.5
1	10	18.8	39.6	4.2
4	5	8.8	18.6	4.2
2	5	18.8	39.6	2.1

U.S. type Probes

Frequency MHz	Diameter Inch	Beam Spread		Near Field inch
		6dB	20dB	
5	1	1.4	2.9	5.4
3.5	1	1.9	4.1	3.8
2.25	1	3.0	6.4	2.4
1	1	6.9	14.5	1.1
0.5	1	14.2	30.1	0.5
5	.75	1.8	3.8	3.0
3.5	.75	2.6	5.5	2.1
2.25	.75	4.0	8.5	1.4
1	.75	9.2	19.5	0.6
0.5	.75	19.9	41.9	0.3
5	.50	2.7	5.8	1.3
3.5	.50	3.9	8.2	0.9
2.25	.50	6.1	12.9	0.6
1	.50	14.2	30.1	0.3
10	.38	1.8	3.8	1.5
5	.38	3.6	7.7	0.8
3.5	.38	5.2	11.0	0.5
2.25	.38	8.2	17.3	0.3
10	.25	2.7	5.8	0.7
5	.25	5.5	11.6	0.3
3.5	.25	7.9	16.6	0.2
2.25	.25	12.5	26.5	0.2

Beam Spread (divergence)

$\sin \gamma = k(C/fd)$
or
$k\ (\lambda/d)$

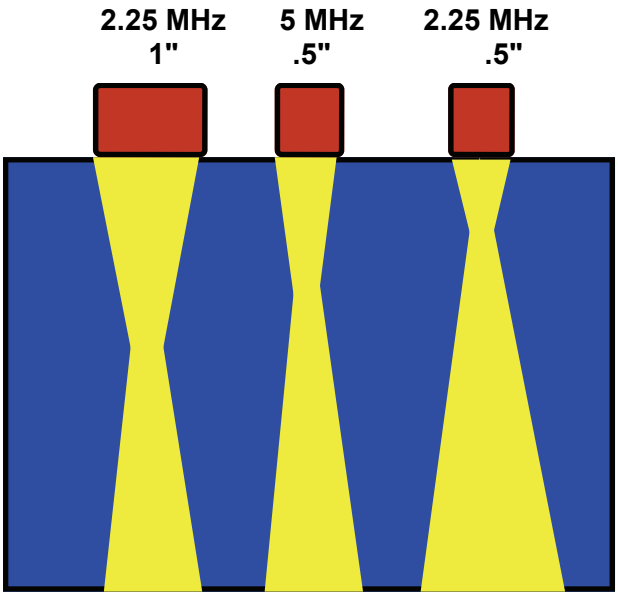
where:

γ = 1/2 angle
k_6 = .51 for 6 dB
k_{20} = 1.08 for 20 dB
λ =wavelength
f = frequency
d = diameter
r = radius

Near Field

$N = d^2 f / 4C$
or
$d^2 / 4\lambda = r^2 / \lambda$

P.O. Box 7350, Shawnee Mission, KS. 66207-0350
(913) 685-0675, Fax: (913) 685-1125
e-mail: neil@ndtsupply.com
web site: www.ndtsupply.com.com


2.25 MHz
1"
5 MHz
.5"
2.25 MHz
.5"