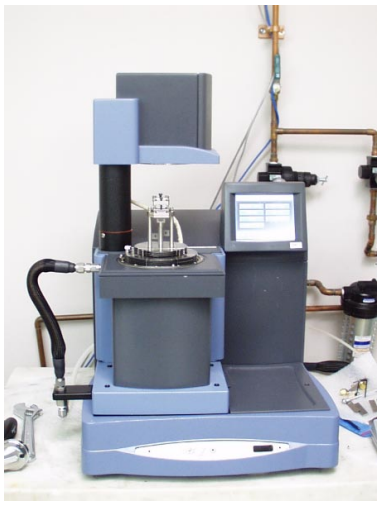
DMA

Dynamic Mechanical Analyzer



Q Series
Clamping Factors Guide

PN 9XXXXX.001 Rev. A
Issued July 2001

Clamping Factors

(Compression Clamps Only)

This section provides clamping correction factors for compression clamps that can be used to solve the equations found in the online help.

Table 1
Clamping Factors (Fe) for 1 mm Ring Sample

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	5	4	0.7669
1.5	5	4	0.8026
2	5	4	0.8207
2.5	5	4	0.8314
3	5	4	0.8383
3.5	5	4	0.8430
4	5	4	0.8464
4.5	5	4	0.8488
5	5	4	0.8507
1	10	9	0.7669
1.5	10	9	0.8026
2	10	9	0.8207
2.5	10	9	0.8314
3	10	9	0.8383
3.5	10	9	0.8430
4	10	9	0.8464
4.5	10	9	0.8488
5	10	9	0.8507
1	15	14	0.7669
1.5	15	14	0.8026
2	15	14	0.8207
2.5	15	14	0.8314
3	15	14	0.8383
3.5	15	14	0.8430

(table continued)

Table 1
Clamping Factors (Fe) for 1 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
4	15	14	0.8464
4.5	15	14	0.8488
5	15	14	0.8507
1	20	19	0.7669
1.5	20	19	0.8026
2	20	19	0.8207
2.5	20	19	0.8314
3	20	19	0.8383
3.5	20	19	0.8430
4	20	19	0.8464
4.5	20	19	0.8488
5	20	19	0.8507
1	25	24	0.7669
1.5	25	24	0.8026
2	25	24	0.8207
2.5	25	24	0.8314
3	25	24	0.8383
3.5	25	24	0.8430
4	25	24	0.8464
4.5	25	24	0.8488
5	25	24	0.8507
1	30	29	0.7669
1.5	30	29	0.8026
2	30	29	0.8207
2.5	30	29	0.8314
3	30	29	0.8383
3.5	30	29	0.8430
4	30	29	0.8464
4.5	30	29	0.8488
5	30	29	0.8507
1	35	34	0.7669
1.5	35	34	0.8026
2	35	34	0.8207
2.5	35	34	0.8314
3	35	34	0.8383

(table continued)

Table 1
Clamping Factors (Fe) for 1 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
3.5	35	34	0.8430
4	35	34	0.8464
4.5	35	34	0.8488
5	35	34	0.8507
1	40	39	0.7669
1.5	40	39	0.8026
2	40	39	0.8207
2.5	40	39	0.8314
3	40	39	0.8383
3.5	40	39	0.8430
4	40	39	0.8464
4.5	40	39	0.8488
5	40	39	0.8507

Table 2
Clamping Factors (Fe) for 2 mm Ring Sample

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	5	3	0.67337
1.5	5	3	0.73322
2	5	3	0.76688
2.5	5	3	0.78811
3	5	3	0.80256
3.5	5	3	0.81293
4	5	3	0.82069
4.5	5	3	0.82666
5	5	3	0.83137
1	10	8	0.67337
1.5	10	8	0.73322
2	10	8	0.76688
2.5	10	8	0.78811
3	10	8	0.80256
3.5	10	8	0.81293
4	10	8	0.82069
4.5	10	8	0.82666
5	10	8	0.83137
1	15	13	0.67337
1.5	15	13	0.73322
2	15	13	0.76688
2.5	15	13	0.78811
3	15	13	0.80256
3.5	15	13	0.81293
4	15	13	0.82069
4.5	15	13	0.82666
5	15	13	0.83137
1	20	18	0.67337
1.5	20	18	0.73322
2	20	18	0.76688
2.5	20	18	0.78811
3	20	18	0.80256
3.5	20	18	0.81293
4	20	18	0.82069

(table continued)

Table 2
Clamping Factors (Fe) for 2 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
4.5	20	18	0.82666
5	20	18	0.83137
1	25	23	0.67337
1.5	25	23	0.73322
2	25	23	0.76688
2.5	25	23	0.78811
3	25	23	0.80256
3.5	25	23	0.81293
4	25	23	0.82069
4.5	25	23	0.82666
5	25	23	0.83137
1	30	28	0.67337
1.5	30	28	0.73322
2	30	28	0.76688
2.5	30	28	0.78811
3	30	28	0.80256
3.5	30	28	0.81293
4	30	28	0.82069
4.5	30	28	0.82666
5	30	28	0.83137
1	35	33	0.67337
1.5	35	33	0.73322
2	35	33	0.76688
2.5	35	33	0.78811
3	35	33	0.80256
3.5	35	33	0.81293
4	35	33	0.82069
4.5	35	33	0.82666
5	35	33	0.83137
1	40	38	0.67337
1.5	40	38	0.73322
2	40	38	0.76688

(table continued)

Table 2
Clamping Factors (Fe) for 2 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
2.5	40	38	0.78811
3	40	38	0.80256
3.5	40	38	0.81293
4	40	38	0.82069
4.5	40	38	0.82666
5	40	38	0.83137

Table 3
Clamping Factors (Fe) for 3 mm Ring Sample

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	5	2	0.6013
1.5	5	2	0.6734
2	5	2	0.7173
2.5	5	2	0.7464
3	5	2	0.7669
3.5	5	2	0.7820
4	5	2	0.7935
4.5	5	2	0.8026
5	5	2	0.8098
1	10	7	0.6013
1.5	10	7	0.6734
2	10	7	0.7173
2.5	10	7	0.7464
3	10	7	0.7669
3.5	10	7	0.7820
4	10	7	0.7935
4.5	10	7	0.8026
5	10	7	0.8098
1	15	12	0.6013
1.5	15	12	0.6734
2	15	12	0.7173
2.5	15	12	0.7464
3	15	12	0.7669
3.5	15	12	0.7820
4	15	12	0.7935
4.5	15	12	0.8026
5	15	12	0.8098
1	20	17	0.6013
1.5	20	17	0.6734
2	20	17	0.7173
2.5	20	17	0.7464
3	20	17	0.7669
3.5	20	17	0.7820
4	20	17	0.7935
4.5	20	17	0.8026
5	20	17	0.8098

(table continued)

Table 3
Clamping Factors (Fe) for 3 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	25	22	0.6013
1.5	25	22	0.6734
2	25	22	0.7173
2.5	25	22	0.7464
3	25	22	0.7669
3.5	25	22	0.7820
4	25	22	0.7935
4.5	25	22	0.8026
5	25	22	0.8098
1	30	27	0.6013
1.5	30	27	0.6734
2	30	27	0.7173
2.5	30	27	0.7464
3	30	27	0.7669
3.5	30	27	0.7820
4	30	27	0.7935
4.5	30	27	0.8026
5	30	27	0.8098
1	35	32	0.6013
1.5	35	32	0.6734
2	35	32	0.7173
2.5	35	32	0.7464
3	35	32	0.7669
3.5	35	32	0.7820
4	35	32	0.7935
4.5	35	32	0.8026
5	35	32	0.8098
1	40	37	0.6013
1.5	40	37	0.6734
2	40	37	0.7173
2.5	40	37	0.7464
3	40	37	0.7669
3.5	40	37	0.7820
4	40	37	0.7935
4.5	40	37	0.8026
5	40	37	0.8098

Table 4
Clamping Factors (Fe) for 4 mm Ring Sample

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	5	1	0.7752
1.5	5	1	0.8539
2	5	1	0.8572
2.5	5	1	0.8390
3	5	1	0.8150
3.5	5	1	0.7903
4	5	1	0.7669
4.5	5	1	0.7452
5	5	1	0.7254
1	10	6	0.7752
1.5	10	6	0.8539
2	10	6	0.8572
2.5	10	6	0.8390
3	10	6	0.8150
3.5	10	6	0.7903
4	10	6	0.7669
4.5	10	6	0.7452
5	10	6	0.7254
1	15	11	0.7752
1.5	15	11	0.8539
2	15	11	0.8572
2.5	15	11	0.8390
3	15	11	0.8150
3.5	15	11	0.7903
4	15	11	0.7669
4.5	15	11	0.7452
5	15	11	0.7254
1	20	16	0.7752
1.5	20	16	0.8539
2	20	16	0.8572
2.5	20	16	0.8390
3	20	16	0.8150
3.5	20	16	0.7903
4	20	16	0.7669
4.5	20	16	0.7452
5	20	16	0.7254

(table continued)

Table 4
Clamping Factors (Fe) for 4 mm Ring Sample
(continued)

Thickness (mm)	OD (mm)	ID (mm)	Fe
1	25	21	0.7752
1.5	25	21	0.8539
2	25	21	0.8572
2.5	25	21	0.8390
3	25	21	0.8150
3.5	25	21	0.7903
4	25	21	0.7669
4.5	25	21	0.7452
5	25	21	0.7254
1	30	26	0.7752
1.5	30	26	0.8539
2	30	26	0.8572
2.5	30	26	0.8390
3	30	26	0.8150
3.5	30	26	0.7903
4	30	26	0.7669
4.5	30	26	0.7452
5	30	26	0.7254
1	35	31	0.7752
1.5	35	31	0.8539
2	35	31	0.8572
2.5	35	31	0.8390
3	35	31	0.8150
3.5	35	31	0.7903
4	35	31	0.7669
4.5	35	31	0.7452
5	35	31	0.7254
1	40	36	0.7752
1.5	40	36	0.8539
2	40	36	0.8572
2.5	40	36	0.8390
3	40	36	0.8150
3.5	40	36	0.7903
4	40	36	0.7669
4.5	40	36	0.7452
5	40	36	0.7254

Table 5
Clamping Factors (Fe) for Square Sample

Thickness (mm)	Length (mm)	Fe
1	5	0.4647
1.5	5	0.5550
2	5	0.6326
2.5	5	0.6937
3	5	0.7404
3.5	5	0.7759
4	5	0.8032
4.5	5	0.8246
5	5	0.8417
1	10	0.3784
1.5	10	0.4193
2	10	0.4647
2.5	10	0.5108
3	10	0.5550
3.5	10	0.5958
4	10	0.6326
4.5	10	0.6651
5	10	0.6937
1	15	0.3558
1.5	15	0.3784
2	15	0.4050
2.5	15	0.4342
3	15	0.4647
3.5	15	0.4956
4	15	0.5259
4.5	15	0.5550
5	15	0.5827
1	20	0.3465
1.5	20	0.3610
2	20	0.3784
2.5	20	0.3980
3	20	0.4193
3.5	20	0.4417
4	20	0.4647
4.5	20	0.4879

(table continued)

Table 5
Clamping Factors (Fe) for Square Sample
(continued)

Thickness (mm)	Length (mm)	Fe
5	20	0.5108
1	25	0.3415
1.5	25	0.3519
2	25	0.3643
2.5	25	0.3784
3	25	0.3940
3.5	25	0.4107
4	25	0.4282
4.5	25	0.4463
5	25	0.4647
1	30	0.3386
1.5	30	0.3465
2	30	0.3558
2.5	30	0.3665
3	30	0.3784
3.5	30	0.3913
4	30	0.4050
4.5	30	0.4193
5	30	0.4342
1	35	0.3366
1.5	35	0.3429
2	35	0.3503
2.5	35	0.3588
3	35	0.3682
3.5	35	0.3784
4	35	0.3894
4.5	35	0.4010
5	35	0.4131
1	40	0.3352
1.5	40	0.3404
2	40	0.3465
2.5	40	0.3534
3	40	0.3610
3.5	40	0.3694
4	40	0.3784
4.5	40	0.3880
5	40	0.3980

Table 6
Clamping Factors (Fe) for Solid Circular Sample

Thickness (mm)	Diameter (mm)	Fe
1	5	0.4871
1.5	5	0.5890
2	5	0.6708
2.5	5	0.7319
3	5	0.7771
3.5	5	0.8114
4	5	0.8385
4.5	5	0.8612
5	5	0.8814
1	10	0.3842
1.5	10	0.4334
2	10	0.4871
2.5	10	0.5400
3	10	0.5890
3.5	10	0.6327
4	10	0.6708
4.5	10	0.7037
5	10	0.7319
1	15	0.3570
1.5	15	0.3842
2	15	0.4162
2.5	15	0.4511
3	15	0.4871
3.5	15	0.5226
4	15	0.5568
4.5	15	0.5890
5	15	0.6187
1	20	0.3459
1.5	20	0.3632
2	20	0.3842
2.5	20	0.4079
3	20	0.4334
3.5	20	0.4601
4	20	0.4871
4.5	20	0.5139
5	20	0.5400

(table continued)

Table 6
Clamping Factors (Fe) for Solid Circular Sample
(continued)

Thickness (mm)	Diameter (mm)	Fe
1	25	0.3401
1.5	25	0.3523
2	25	0.3672
2.5	25	0.3842
3	25	0.4030
3.5	25	0.4230
4	25	0.4440
4.5	25	0.4655
5	25	0.4871
1	30	0.3367
1.5	30	0.3459
2	30	0.3570
2.5	30	0.3699
3	30	0.3842
3.5	30	0.3997
4	30	0.4162
4.5	30	0.4334
5	30	0.4511
1	35	0.3345
1.5	35	0.3417
2	35	0.3504
2.5	35	0.3605
3	35	0.3718
3.5	35	0.3842
4	35	0.3974
4.5	35	0.4114
5	35	0.4260
1	40	0.3329
1.5	40	0.3388
2	40	0.3459
2.5	40	0.3541
3	40	0.3632
3.5	40	0.3733
4	40	0.3842
4.5	40	0.3957
5	40	0.4079