CUSTOMISED SOLUTIONS WORLDWIDE

BENTELER Distribution

CHEMICAL COMPOSITION (LADLE ANALYSIS)

Specification	C	Si		Mn		P	S
	Max %	min%	max%	min%	max%	max%	max%
EN 10305-1 E235 +C	0.17		0.35		1.20	0.025	0.025
DIN 2393 ST37-2 BK (Precision welded)	0.17		0.30		0.70	0.050	0.050
BS 6323 PT4 CFS3 BK	0.20		0.35		0.90	0.050	0.050

MECHANICAL PROPERTIES AT ROOM TEMPERATURE

Specification	Tensile strength Rm MPa	Upper yield Strength Re MPa	Elongation Min
EN 10305-1 E235 +C	480 min	see note*	6%
DIN 2393 ST37-2 BK (Precision welded)	490 min	see note*	6%
BS 6323 PT4 CFS3 BK	450 min	360 min	6%

Notes:
* Depending on the degree of cold work in the finishing pass the yield strength may nearly be as high as the tensile strength. for calculation purposes the following relationships are recommended . for delivery condition `C` : ReH ≥ 0.8 Rm.

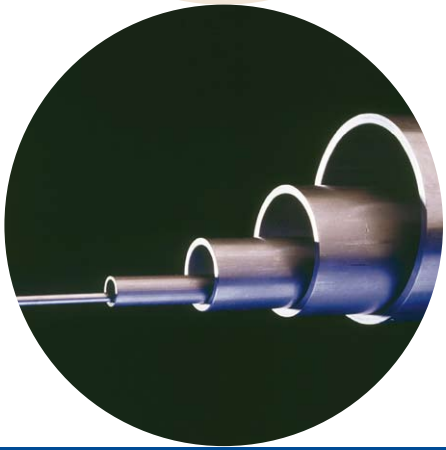
COLD FINISHED SEAMLESS

MECHANICAL

TOLERANCES ON OUTSIDE DIAMETER	DIN 2393 PRECISION WELDED (CEW) mm	EN10305-1 E235 +c mm
Up to 30mm	±0.08	±0.08
30-40mm	±0.15	±0.15
40-50mm	±0.20	±0.20
50-60mm	±0.20	±0.25
60-70mm	±0.25	±0.30
70-80mm	±0.30	±0.35
80-90mm	±0.35	±0.40
90-100mm	±0.40	±0.45
100-110mm	±0.45	±0.50
110-120mm	±0.45	±0.50
120-130mm	±0.50	±0.70
130-140mm	±0.70	±0.70
140-150mm	±0.80	±0.80
150-160mm		±0.80
160-170mm		±0.90
170-180mm		±0.90
180-190mm		±1.00
190-200mm		±1.00
200-220mm		±1.20
220-240mm		±1.20
240-260mm		±1.30

Wall Thickness	±7.5% (min 0.1mm)	±10% (min 0.1mm)

Tensile Strength min	St37-2 440N/mm²	450 N/mm²
Yeild min	St37-2 352N/mm²	360 N/mm²



BSI RS 00313 UKAS QUALITY MANAGEMENT 003

COLD FINISHED SEAMLESS
MECHANICAL

IMPERIAL

OD ins (mm)	WALL swg ins	WALL mm	WEIGHT kg/m
3/16	20	0.91	0.086
(4.76)			
1/4	22	0.71	0.099
(6.35)	20	0.91	0.122
	18	1.22	0.154
	16	1.63	0.189
5.16	22	0.71	0.120
(7.94)	20	0.91	0.158
	18	1.22	0.202
	16	1.63	0.252
3/8	20	0.91	0.193
(9.53)	18	1.22	0.250
	16	1.63	0.310
	14	2.03	0.375
	12	2.64	0.449
	10	3.25	0.503
13/32	12	2.64	0.500
(10.32)			
7/16	20	0.91	0.229
(11.11)	18	1.22	0.298
	16	1.63	0.381
	14	2.03	0.455
1/2	20	0.91	0.265
(12.70)	18	1.22	0.345
	16	1.63	0.443
	14	2.03	0.534
	13	2.34	0.600
	12	2.64	0.655
	10	3.25	0.757
	8	4.06	0.870
17.32	11	2.95	0.766
(13.49)	10	3.25	0.821
9.16	18	1.22	0.393
(14.29)	16	1.63	0.506
	12	2.64	0.758
	10	3.25	0.885
5/8	20	0.91	0.336
(15.88)	18	1.22	0.441
	17	1.42	0.506
	16	1.63	0.570
	14	2.03	0.693
	13	2.34	0.780
	12	2.64	0.862
	11	2.95	0.941
	10	3.25	1.012
	8	4.06	1.183
11/16	20	0.91	0.371
(17.46)	18	1.22	0.489
	16	1.63	0.633
	14	2.03	0.772
	13	2.34	0.873
	10	3.25	1.140
23/32	18	1.22	0.513
(18.26)			
3/4	20	0.91	0.407
(19.05)	18	1.22	0.536
	17	1.42	0.617
	16	1.63	0.696
	14	2.03	0.852
	13	2.34	0.964
	12	2.64	1.068
	11	2.95	1.170
	10	3.25	1.266
	8	4.06	1.501
	6	4.88	1.705
	1/4	6.35	1.986
13/16	16	1.63	0.760
(20.64)	14	2.03	0.932
	12	2.64	1.172
27/32	10	3.25	1.457
(21.43)			
7/8	20	0.91	0.478
(22.23)	18	1.22	0.632
	17	1.42	0.729
	16	1.63	0.823
	14	2.03	1.011
	12	2.64	1.275
	11	2.95	1.403
	10	3.25	1.521
	8	4.06	1.819
	6	4.88	2.088
	1/4	6.35	2.490
1	18	1.22	0.728
(25.40)	17	1.42	0.840
	16	1.63	0.950
	14	2.03	1.170

OD ins (mm)	WALL swg ins	WALL mm	WEIGHT kg/m
1	13	2.34	1.331
(25.40)	12	2.64	1.482
	11	2.95	1.633
	10	3.25	1.775
	8	4.06	2.137
	7	4.47	2.310
	6	4.88	2.470
	1/4	6.35	2.983
	5/16	7.94	3.419
1 1/16	18	1.22	1.22
(26.99)	11	2.95	2.95
	10	3.25	3.25
	8	4.06	4.06
	6	4.88	4.88
1 1/8	18	1.22	1.22
(28.58)	16	1.63	1.63
	14	2.03	2.03
	12	2.64	2.64
	10	3.25	3.25
	8	4.06	4.06
	6	4.88	4.88
	1/4	6.35	6.35
1 3/16	14	2.03	1.408
(30.16)			
1 1/4	18	1.22	0.919
(31.75)	17	1.42	1.062
	16	1.63	1.204
	14	2.03	1.488
	12	2.64	1.895
	11	2.95	2.100
	10	3.25	2.284
	8	4.06	2.772
	6	4.88	3.234
	1/4	6.35	3.978
	5/16	7.94	4.662
	3/8	9.53	5.220
1 5/16	10	3.25	2.404
(33.33)			
1 11/32	10	3.25	2.470
(34.13)	8	4.06	3.011
1 3/8	18	1.22	1.014
(34.93)	16	1.63	1.331
	14	2.03	1.647
	12	2.64	2.102
	10	3.25	2.539
	8	4.06	3.091
	7	4.47	3.360
	6	4.88	3.616
	1/4	6.35	4.476
	5/16	7.94	5.285
	3/8	9.53	5.970
1 7/16	16	1.63	1.394
(36.51)	10	3.25	2.666
1 1/2	18	1.22	1.110
(38.10)	16	1.63	1.457
	14	2.03	1.806
	12	2.64	2.309
	10	3.25	2.793
	8	4.06	3.408
	6	4.88	3.998
	4	5.89	4.690
	1/4	6.35	4.972
	5/16	7.94	5.906
	3/8	9.53	6.715
	1/2	12.70	7.960
1 9/16	10	3.25	2.921
(39.69)	6	4.88	4.189
1 5/8	16	1.63	1.584
(41.28)	14	2.03	1.960
	12	2.64	2.516
	10	3.25	3.048
	8	4.06	3.726
	6	4.88	4.374
	1/4	6.35	5.470
	5/16	7.94	6.528
	3/8	9.53	7.462
1 11/16	9	3.66	3.530
(42.86)	8	4.06	3.885
	6	4.88	4.571
1 3/4	18	1.22	1.301
(44.45)	16	1.63	1.711
	14	2.03	2.124
	12	2.64	2.722
	10	3.25	3.302
	8	4.06	4.044
	6	4.88	4.762
	4	5.89	5.610

OD ins (mm)	WALL swg ins	WALL mm	WEIGHT kg/m
1 3/4	1/4	6.35	5.966
(44.45)	5/16	7.94	7.149
	3/8	9.53	8.207
	1/2	12.70	9.940
1 7/8	16	1.63	1.838
(47.63)	14	2.03	2.280
	13	2.34	2.613
	12	2.64	2.930
	10	3.25	3.557
	8	4.06	4.360
	6	4.88	5.145
	1/4	6.35	6.464
	5/16	7.94	7.772
	3/8	9.53	8.954
2	18	1.22	1.492
(50.80)	16	1.63	1.965
	14	2.03	2.442
	12	2.64	3.136
	10	3.25	3.811
	8	4.06	4.680
	6	4.88	5.526
	4	5.89	6.530
	1/4	6.35	6.961
	5/16	7.94	9.393
	3/8	9.53	9.699
	1/2	12.70	11.933
2 1/8	16	1.63	2.092
(53.98)	10	3.25	4.066
	6	4.88	5.909
	1/4	6.35	7.445
	5/16	7.94	9.001
	3/8	9.53	10.447
2 1/4	16	1.63	2.219
(57.15)	14	2.03	2.759
	12	2.64	3.549
	10	3.25	4.323
	6	4.88	6.291
	1/4	6.35	7.955
	5/16	7.94	9.620
	3/8	9.53	11.192
	1/2	12.70	13.921
2 3/8	16	1.63	2.346
(60.33)	10	3.25	4.575
	8	4.06	5.634
	6	4.88	6.678
	1/4	6.35	8.453
	5/16	7.94	10.242
	3/8	9.53	11.939
2 1/2	16	1.63	2.472
(63.50)	14	2.03	3.077
	12	2.64	3.962
	10	3.25	4.829
	8	4.06	5.951
	6	4.88	7.055
	1/4	6.35	8.950
	5/16	7.94	10.879
	3/8	9.53	12.684
	1/2	12.10	15.911
2 5/8	16	1.63	2.599
(66.68)	10	3.25	5.084
	6	4.88	7.438
	1/4	6.35	9.448
	5/16	7.94	11.502
	3/8	9.53	13.432
	1/2	12.70	16.907
2 3/4	16	1.63	2.726
(69.85)	12	2.64	4.376
	10	3.25	5.338
	8	4.06	6.586
	6	4.88	7.819
	1/4	6.35	9.944
	5/16	7.94	12.105
	3/8	9.53	14.177
	1/2	12.70	17.899
2 7/8	16	1.63	2.853
(73.03)	10	3.25	5.593
	6	4.88	8.202
2 7/8	1/4	6.35	10.442
(73.03)	5/16	7.94	12.725
	7/16	11.11	16.960
3	16	1.63	2.980
(76.20)	14	2.03	3.713
	12	2.64	4.789
	10	3.25	5.847
	6	4.88	8.583
	1/4	6.35	10.939
	5/16	7.94	13.366

OD ins (mm)	WALL swg ins	WALL mm	WEIGHT kg/m
3	3/8	9.53	15.699
(76.20)	1/2	12.70	19.888
3 1/8	16	1.63	3.707
(79.38)	10	3.25	6.102
	6	4.88	8.965
	1/4	6.35	11.437
	5/16	7.94	13.990
3 1/4	16	1.63	3.233
(82.55)	12	2.64	5.202
	10	3.25	6.356
	6	4.88	9.347
	1/4	6.35	11.933
	5/16	7.94	14.609
	3/8	9.53	17.161
	1/2	12.70	21.900
3 3/8	6	4.88	9.730
(85.73)	1/4	6.35	12.431
3 1/2	16	1.63	3.487
(88.90)	10	3.25	6.865
	6	4.88	10.112
	1/4	6.35	12.927
	5/16	7.94	15.853
	3/8	9.53	18.654
	1/2	12.70	23.864
3 5/8	10	3.25	7.119
(92.08)	1/4	6.35	13.425
	5/16	7.94	16.470
3 3/4	10	3.25	7.374
(95.25)	6	4.88	10.876
	1/4	6.35	13.922
	3/8	9.53	20.145
	1/2	12.70	25.900
4	16	1.63	3.994
(101.60)	14	2.03	4.985
	10	3.25	7.883
	8	4.06	9.766
	6	4.88	11.640
	1/4	6.35	14.916
	5/16	7.94	18.339
	3/8	9.53	21.639
	1/2	12.70	27.844
4 1/4	10	3.25	8.392
(107.95)	1/4	6.35	15.911
	3/8	9.53	29.150
	1/2	12.70	29.832
	5/8	15.88	36.054
	3/4	19.05	41.763
4 1/2	10	3.25	8.901
(114.30)	1/4	6.35	16.905
	3/8	9.53	24.623
	1/2	12.70	31.820
4 3/4	1/4	6.35	17.899
(120.65)	3/8	9.53	26.116
5	10	3.25	9.919
(127.00)	8	4.06	12.309
	1/4	6.35	18.894
	3/8	9.53	27.607
	1/2	12.70	35.797
5 1/4	3/8	9.53	29.150
(133.35)			
5 1/2	10	3.25	10.936
(139.70)	1/4	6.35	20.883
	3/8	9.53	30.591
6	10	3.25	11.954
(152.40)	6	4.88	17.753
	1/4	6.35	22.872
	3/8	9.53	33.630
	1/2	12.70	43.752
6 1/2	1/4	6.35	24.860
(165.10)	3/8	9.53	36.560
7	1	25.40	95.458
(177.80)			

COLD FINISHED SEAMLESS
MECHANICAL

METRIC

Full range of metric tubes generally available within 2/3 weeks approximately

OD mm	WALL mm	WEIGHT kg/m
3.0	0.5	0.031
	0.5	0.042
	1.0	0.049
4.0	0.5	0.043
	0.8	0.063
	1.0	0.074
	1.2	0.085
	1.5	0.092
5.0	0.3	0.035
	0.5	0.055
	0.8	0.083
	1.0	0.099
	1.2	0.116
	1.5	0.129
	1.8	0.140
6.0	0.5	0.035
	0.8	0.103
	1.0	0.123
	1.2	0.142
	1.5	0.166
	1.8	0.183
	2.0	0.197
	2.25	0.208
	2.5	0.216
7.0	0.3	0.050
	0.5	0.080
	0.8	0.122
	1.0	0.148
	1.2	0.172
	1.5	0.203
	2.0	0.247
	2.5	0.277
8.0	0.5	0.092
	0.8	0.142
	1.0	0.173
	1.2	0.201
	1.5	0.240
	1.8	0.270
	2.0	0.296
	2.25	0.319
	2.5	0.339
	3.0	0.370
9.0	0.5	0.105
	0.8	0.162
	1.0	0.197
	1.2	0.231
	1.5	0.277
	1.8	0.313
	2.0	0.345
	2.5	0.401
	3.0	0.444
9.5	0.89	0.189
	1.0	0.210
10.0	0.5	0.117
	0.8	0.182
	1.0	0.222
	1.2	0.260
	1.5	0.314
	1.8	0.364
	2.0	0.395
	2.2	0.423
	2.5	0.462
	2.8	0.497
	3.0	0.518
	3.25	0.541
	3.5	0.561
	3.75	0.578
	4.0	0.592
11.0	0.5	0.129
	0.8	0.201
	1.0	0.247
	1.2	0.290
	1.5	0.351
	1.8	0.408
	2.0	0.444
	2.2	0.477
	2.5	0.524
	3.0	0.592
	3.5	0.674
	4.0	0.691

OD mm	WALL mm	WEIGHT kg/m
12.0	0.5	0.142
	0.8	0.221
	1.0	0.271
	1.2	0.320
	1.5	0.388
	1.8	0.453
	2.0	0.493
	2.2	0.532
	2.5	0.586
	2.8	0.635
	3.0	0.666
	3.25	0.701
	3.5	0.734
	3.75	0.763
	4.0	0.789
13.0	0.5	0.154
	0.8	0.241
	1.0	0.296
	1.2	0.349
	1.5	0.425
	1.8	0.497
	2.0	0.543
	2.2	0.586
	2.5	0.647
	2.8	0.704
	3.0	0.740
	3.5	0.820
	4.0	0.888
	4.5	0.943
14.0	0.5	0.166
	0.8	0.260
	1.0	0.321
	1.2	0.379
	1.5	0.462
	1.8	0.542
	2.0	0.592
	2.2	0.640
	2.5	0.709
	2.8	0.773
	3.0	0.814
	3.5	0.906
	4.0	0.986
	4.5	1.054
	5.0	1.110
15.0	0.5	0.179
	0.8	0.280
	1.0	0.345
	1.2	0.408
	1.5	0.499
	1.8	0.586
	2.0	0.641
	2.2	0.694
	2.5	0.771
	2.8	0.842
	3.0	0.888
	3.25	0.942
	3.5	0.993
	4.0	1.085
	4.5	1.165
	5.0	1.233
	5.5	1.289
	6.0	1.332
16.0	0.5	0.191
	0.8	0.300
	1.0	0.370
	1.2	0.438
	1.5	0.536
	1.8	0.630
	2.0	0.691
	2.2	0.749
	2.5	0.832
	2.8	0.911
	3.0	0.962
	3.5	1.079
	3.75	1.133
	4.0	1.184
	4.5	1.276
	5.0	1.356
	5.5	1.424
	6.0	1.480
17.0	0.5	0.203
	0.8	0.320
	1.0	0.395
	1.5	0.573

COLD FINISHED SEAMLESS

MECHANICAL

METRIC

OD mm	WALL mm	WEIGHT kg/m
17.0	1.8	0.675
	2.0	0.740
	2.2	0.803
	2.5	0.894
	2.8	0.981
	3.0	1.036
	3.25	1.102
	3.5	1.165
	4.0	1.282
	4.5	1.387
	5.0	1.480
18.0	0.5	0.216
	0.8	0.339
	1.0	0.419
	1.2	0.497
	1.5	0.610
	1.8	0.719
	2.0	0.789
	2.2	0.857
	2.5	0.956
	2.8	1.050
	3.0	1.110
	3.5	1.252
	3.75	1.318
	4.0	1.381
	4.5	1.498
	5.0	1.603
	5.5	1.695
	6.0	1.776
19.0	0.5	0.228
	0.8	0.359
	1.0	0.444
	1.2	0.527
	1.5	0.647
	1.8	0.764
	2.0	0.838
	2.5	1.017
	2.8	1.119
	3.0	1.184
	3.5	1.338
	4.0	1.480
	4.5	1.609
	5.0	1.726
	6.0	1.924
2.0	0.5	0.240
	0.8	0.320
	1.0	0.395
	1.5	0.573
	1.8	0.675
	2.0	0.740
	2.2	0.803
	2.5	1.079
	2.8	1.188
	3.0	1.258
	3.25	1.343
	3.5	1.424
	3.75	1.503
	4.0	1.578
	4.5	1.720
	5.0	1.850
	5.5	1.967
	6.0	2.072
	6.5	2.164
	7.0	2.244
	7.5	2.312
	8.0	2.368
21.0	0.8	0.399
	1.0	0.493
	1.5	0.721
	2.0	0.937
	2.5	1.141
	3.0	1.332
	3.5	1.511
	4.0	1.677
	4.5	1.831
	5.0	1.973
	6.5	2.324
22.0	0.5	0.265
	0.8	0.418
	1.0	0.518
	1.2	0.616
	1.5	0.758
	1.8	0.897
	2.0	0.986

OD mm	WALL mm	WEIGHT kg/m
22.0	2.2	1.074
	2.5	1.202
	2.8	1.326
	3.0	1.406
	3.25	1.503
	3.5	1.597
	4.0	1.776
	4.5	1.942
	5.0	2.096
	5.5	2.238
	6.0	2.368
	6.5	2.485
	7.0	2.589
	7.5	2.682
	8.0	2.762
23.0	0.5	0.277
	1.0	0.543
	1.5	0.795
	2.0	1.036
	2.5	1.264
	3.0	1.480
	3.5	1.683
	4.0	1.874
	5.0	2.220
	6.0	2.515
	7.0	2.762
24.0	0.5	0.290
	0.8	0.458
	1.0	0.567
	1.5	0.832
	1.8	0.985
	2.0	1.085
	2.2	1.183
	2.5	1.326
	2.8	1.464
	3.0	1.554
	3.5	1.769
	4.0	1.973
	4.5	2.164
	5.0	2.343
	5.5	2.509
	6.0	2.663
	7.0	2.935
	8.0	3.157
25.0	0.5	0.302
	0.8	0.477
	1.0	0.592
	1.2	0.704
	1.5	0.869
	1.8	1.030
	2.0	1.134
	2.2	1.237
	2.5	1.387
	2.8	1.533
	3.0	1.628
	3.25	1.743
	3.5	1.856
	4.0	2.072
	4..25	2.175
	4.5	2.275
	5.0	2.466
	5.5	2.645
	6.0	2.811
	6.5	2.966
	7.0	3.107
	7.5	3.237
	8.0	3.354
	8.5	3.459
26.0	0.5	0.314
	0.8	0.497
	1.0	0.617
	1.5	0.906
	1.8	1.074
	2.0	1.184
	2.5	1.449
	2.8	1.602
	3.0	1.702
	3.5	1.942
	4.0	2.170
	4.5	2.386
	5.0	2.589
	5.5	2.781
	6.0	2.959
	6.5	3.126
	7.0	3.280

OD mm	WALL mm	WEIGHT kg/m
26.0	8.0	3.551
	9.0	3.773
27.0	0.5	0.327
	1.0	0.641
	1.2	0.764
	1.5	0.943
	2.0	1.233
	2.5	1.511
	3.0	1.776
	3.5	2.028
	4.0	2.269
	4.5	2.497
	5.0	2.713
	5.5	2.916
	6.0	3.107
	7.0	3.453
	8.0	3.749
28.0	0.5	0.339
	0.8	0.537
	1.0	0.666
	1.2	0.793
	1.5	0.980
	1.8	1.163
	2.0	1.282
	2.2	1.400
	2.5	1.572
	2.8	1.740
	3.0	1.850
	3.5	2.115
	4.0	2.368
	4.5	2.608
	5.0	2.836
	5.5	3.052
	6.0	3.255
	6.5	3.446
	7.0	3.625
	7.5	3.792
	8.0	3.946
	9.0	4.217
29.0	0.5	0.351
	1.0	0.691
	1.5	1.017
	2.0	1.332
	2.5	1.634
	3.0	1.924
	3.5	2.201
	4.0	2.466
	5.0	2.959
	7.0	3.798
30.0	0.5	0.364
	0.8	0.576
	1.0	0.715
	1.2	0.852
	1.5	1.054
	1..8	1.252
	2.0	1.381
	2.2	1.508
	2.5	1.695
	2.8	1.878
	3.0	1.998
	3.5	2.287
	3.75	2.428
	4.0	2.565
	4.5	2.830
	4.75	2.958
	5.0	3.083
	5.5	3.323
	6.0	3.551
	6.5	3.767
	7.0	3.971
	8.0	4.340
	9.0	4.661
	10.0	4.932
31.0	0.5	0.376
	1.0	0.740
	1.5	1.091
	2.0	1.430
	2.5	1.757
	3.0	2.072
	3.5	2.374
	4.5	2.941
	7.0	4.143
32.0	0.8	0.616

OD mm	WALL mm	WEIGHT kg/m
32.0	1.0	0.765
	1.2	0.911
	1.5	1.128
	1.8	1.341
	2.0	1.480
	2.2	1.617
	2.5	1.819
	2.8	2.016
	3.0	2.146
	3.25	2.304
	3.5	2.460
	3.65	2.552
	3.75	2.613
	4.0	2.762
	4.5	3.052
	5.0	3.329
	5.5	3.594
	6.0	3.847
	6.5	4.088
	7.0	4.316
	7.5	4.532
	8.0	4.735
	9.0	5.105
	10.0	5.426
33.0	1.0	0.789
	1.5	1.165
	2.0	1.529
	2.5	1.880
	3.0	2.220
	3.5	2.546
	4.0	2.861
	4.5	3.163
	5.0	3.453
	6.0	3.995
	7.0	4.488
	7.5	4.717
34.0	0.5	0.413
	1.0	0.814
	1.5	1.202
	1.8	1.429
	2.0	1.578
	2.2	1.725
	2.5	1.942
	3.0	2.294
	3.5	2.633
	4.0	2.959
	4.5	3.274
	5.0	3.576
	5.5	3.866
	6.0	4.143
	6.5	4.408
	7.0	4.661
	8.0	5.130
	10.0	5.919
35.0	0.5	0.425
	0.8	0.675
	1.0	0.838
	1.2	1.000
	1.5	1.239
	2.0	1.628
	2.2	1.780
	2.5	2.004
	2.8	2.223
	3.0	2.368
	3.25	2.545
	3.5	2.719
	4.0	3.058
	4.5	3.385
	4.75	3.544
	5.0	3.699
	5.5	4.001
	6.0	4.291
	6.5	4.569
	7.0	4.834
	7.5	5.086
	8.0	5.327
	8.5	5.555
	9.0	5.771
	10.0	6.165
36.0	0.5	0.438
	1.0	0.863
	1.5	1.276
	2.0	1.677
	2.5	2.065
	2.8	2.293

OD mm	WALL mm	WEIGHT kg/m
36.0	3.0	2.441
	3.5	2.805
	4.0	3.157
	4.5	3.496
	5.0	3.823
	5.5	4.137
	6.0	4.439
	6.5	4.729
	7.0	5.006
	7.5	5.271
	8.0	5.524
	9.0	5.993
	10.0	6.412
	12.0	7.103
37.0	0.5	0.450
	1.0	0.888
	1.5	1.313
	2.0	1.726
	2.5	2.127
	3.0	2.515
	3.5	2.892
	4.0	3.255
	5.0	3.946
	6.0	4.587
38.0	0.5	0.462
	0.8	0.734
	1.0	0.912
	1.2	1.089
	1.5	1.350
	1.8	1.607
	2.0	1.776
	2.2	1.942
	2.5	2.189
	2.8	2.431
	3.0	2.589
	3.5	2.978
	3.75	3.167
	4.0	3.354
	4.25	3.537
	4.5	3.718
	5.0	4.069
	5.5	4.408
	6.0	4.735
	6.5	5.049
	7.0	5.352
	7.5	5.641
	8.0	5.919
	8.5	6.184
	9.0	6.437
	10.0	6.905
	12.0	7.694
39.0	1.5	1.387
	2.0	1.825
	2.5	2.250
	3.0	2.663
	4.5	3.829
	5.0	4.192
40.0	0.5	0.487
	0.8	0.773
	1.0	0.962
	1.5	1.424
	1.8	1.696
	2.0	1.874
	2.2	2.051
	2.5	2.312
	2.8	2.569
	3.0	2.737
	3.5	3.151
	4.0	3.551
	4.2	3.708
	4.5	3.940
	4.75	4.129
	5.0	4.316
	5.5	4.680
	6.0	5.031
	6.5	5.370
	7.0	5.697
	7.5	6.011
	8.0	6.313
	9.0	6.881
	10.0	7.398
	11.0	7.867
	12.5	8.477
41.0	2.0	1.924

OD mm	WALL mm	WEIGHT kg/m
41.0	2.5	2.374
	3.0	2.811
	4.0	3.650
42.0	0.8	0.813
	1.0	1.011
	1.2	1.207
	1.5	1.498
	2.0	1.973
	2.5	2.435
	2.8	2.707
	3.0	2.885
	3.5	3.323
	4.0	3.749
	4.5	4.162
	5.0	4.562
	5.5	4.951
	6.0	5.327
	6.5	5.691
	7.0	6.042
	7.5	6.381
	8.0	6.708
	8.5	7.022
	9.0	7.324
	10.0	7.892
	11.0	8.410
43.0	1.0	1.036
	1.5	1.535
	2.0	2.022
	2.5	2.497
	3.0	2.959
	4.0	3.847
44.0	1.0	1.060
	1.5	1.572
	2.0	2.072
	2.5	2.559
	3.0	3.033
	4.0	3.946
	5.0	4.809
	5.5	5.222
	6.0	5.623
	7.0	6.387
	8.0	7.103
45.0	0.5	0.549
	1.0	1.085
	1.2	1.286
	1.5	1.609
	2.0	2.121
	2.2	2.322
	2.5	2.620
	3.0	3.107
	3.5	3.582
	4.0	4.044
	4.5	4.495
	5.0	4.932
	5.5	5.358
	6.0	5.771
	6.5	6.172
	7.0	6.560
	7.5	6.936
	8.0	7.300
	8.5	7.651
	9.0	7.990
	9.5	8.317
	10.0	8.632
	12.5	10.019
	15.0	11.098
46.0	1.0	1.110
	1.5	1.646
	2.0	2.170
	2.5	2.682
	3.0	3.181
	3.5	3.668
	4.0	4.143
	4.5	4.606
	5.0	5.056
	5.5	5.493
	6.0	5.919
	7.0	6.733
	8.0	7.497
47.0	1.0	1.134
	1.5	1.535
	2.0	2.220
	2.5	2.744

OD mm	WALL mm	WEIGHT kg/m
47.0	3.0	3.255
	3.5	3.755
	7.5	7.306
48.0	1.0	1.159
	1.5	1.720
	2.0	2.269
	2.5	2.805
	3.0	3.329
	3.5	3.841
	4.0	4.340
	4.5	4.827
	5.0	5.302
	5.5	5.765
	6.0	6.215
	6.5	6.652
	7.0	7.078
	8.0	7.892
	9.0	8.686
	10.0	9.371
	12.0	10.654
49.0	1.0	1.184
	2.0	2.318
50.0	0.5	0.610
	1.0	1.208
	1.2	1.444
	1.5	1.794
	2.0	2.368
	2.2	2.593
	2.5	2.929
	3.0	3.477
	3.5	4.014
	4.0	4.538
	4.5	5.049
	5.0	5.549
	5.2	5.745
	5.5	6.036
	6.0	6.511
	6.5	6.973
	7.0	7.423
	7.5	7.861
	8.0	8.286
	9.0	9.100
	10.0	9.865
	12.5	11.560
	13.0	11.862
	15.0	12.947
51.0	1.5	1.831
	1.8	2.184
	2.0	2.417
	2.5	2.990
	3.0	3.551
	3.5	4.100
	4.0	4.636
	5.0	5.672
	5.5	6.172
	6.0	6.659
	8.0	8.484
52.0	1.0	1.258
	1.5	1.868
	2.0	2.466
	2.5	3.052
	3.0	3.625
	3.5	4.186
	3.75	4.462
	4.0	4.735
	4.5	5.271
	5.0	5.795
	5.5	6.307
	6.0	6.807
	7.0	7.768
	7.5	8.231
	8.0	8.681
	8.5	9.119
	9.0	9.544
	10.0	10.358
	12.0	11.838
53.0	1.0	1.282
	1.5	1.905
	2.0	2.515
	2.5	3.114
	3.0	3.699
	4.0	4.834
	4.5	5.382

COLD FINISHED SEAMLESS
MECHANICAL

METRIC

OD mm	WALL mm	WEIGHT kg/m
53.0	5.0	5.919
54.0	1.0	1.307
	1.5	1.942
	2.0	2.565
	2.5	3.175
	3.0	3.773
	3.5	4.359
	4.0	4.932
	4.5	5.493
	5.0	6.042
	6.0	7.103
	7.0	8.114
	8.0	9.075
	10.0	10.851
55.0	0.8	1.069
	1.0	1.332
	1.5	1.979
	2.0	2.614
	2.2	2.865
	2.5	3.237
	3.0	3.847
	3.5	4.445
	4.0	5.031
	4.5	5.604
	5.0	6.165
	5.5	6.714
	6.0	7.250
	6.5	7.775
	7.0	8.286
	7.5	8.786
	8.0	9.273
	8.5	9.747
	9.0	10.210
	10.0	11.098
	12.0	12.725
	15.0	14.797
56.0	1.0	1.356
	1.5	2.016
	2.0	2.663
	2.5	3.298
	3.0	3.921
	3.5	4.532
	4.0	5.130
	4.5	5.715
	5.0	6.289
	5.5	6.850
	6.0	7.398
	7.0	8.459
	8.0	9.470
57.0	1.0	1.381
	1.5	2.053
	2.0	2.713
	2.5	3.360
	2.8	3.743
	3.0	3.995
	3.5	4.618
	4.0	5.228
	4.5	5.826
	4.0	6.412
	6.0	7.546
58.0	1.0	1.406
	1.5	2.090
	2.0	2.762
	2.5	3.422
	3.0	4.069
	3.5	4.704
	4.0	5.327
	4.5	5.937
	5.0	6.535
	5.5	7.121
	6.0	7.694
	6.5	8.255
	7.0	8.804
	8.0	9.865
	9.0	10.876
	10.0	11.838
59.0	1.0	1.430
	2.0	2.811
60.0	1.0	1.455
	1.5	2.164
	2.0	2.861
	2.5	3.545
	3.0	4.217
	3.5	4.877
	4.0	5.524
	4.5	6.159
	5.0	6.782
	5.5	7.392
	6.0	7.990
	6.5	8.576
	7.0	9.149
	7.5	9.710
	8.0	10.259
	8.5	10.796
	9.0	11.320
	10.0	12.331
	11.0	13.293
	12.0	14.205
	13.0	15.068
	15.0	16.647
61.0	5.0	6.905
62.0	1.0	1.504
	1.5	2.238
	2.0	2.959
	2.5	3.668
	3.0	4.365
	3.5	5.049
	4.0	5.721
	4.5	6.381
	5.0	7.029
	5.5	7.664
	6.0	8.286
	7.0	9.495
	8.0	10.654
	9.0	11.764
	10.0	12.824
	12.0	14.797
63.0	1.0	1.529
	1.5	2.275
	2.0	3.009
	2.5	3.730
	3.0	4.439
	3.5	5.136
	4.0	5.820
	5.0	7.152
	6.0	9.434
	8.0	10.851
	9.0	11.985
	10.0	13.071
	11.5	14.600
64.0	1.5	2.312
	2.0	3.058
	2.5	3.792
	3.0	4.513
	4.0	5.919
	4.5	6.603
	6.0	8.582
65.0	1.0	1.578
	1.5	2.349
	2.0	3.107
	2.5	3.853
	3.0	4.587
	3.5	5.308
	4.0	6.017
	4.5	6.714
	5.0	7.398
	5.5	8.070
	6.0	8.730
	6.5	9.378
	7.0	10.013
	7.5	10.635
	8.0	11.246
	8.5	11.844
	9.0	12.429
	10.0	13.564
	11.0	14.649
	12.5	16.184
	13.0	16.671
	15.0	18.496
66.0	1.0	1.603
	1.5	2.386
	2.0	3.157
	3.0	4.661
	5.0	7.522
67.0	1.0	1.628
	1.5	2.423
	2.0	3.206
	2.5	3.977
	3.0	4.735
	3.5	5.481
68.0	1.0	1.652
	1.5	2.460
	2.0	3.255
	2.5	4.038
	3.0	4.809
	4.0	6.313
	5.0	7.768
	6.0	9.174
	7.0	10.530
	8.0	11.838
	9.0	13.095
	10.0	14.304
69.0	1.0	1.677
	3.0	4.883
70.0	1.0	1.702
	1.5	2.534
	2.0	3.354
	2.5	4.162
	3.0	4.957
	3.5	5.740
	4.0	6.511
	4.5	7.269
	5.0	8.105
	5.5	8.749
	6.0	9.470
	6.5	10.179
	7.0	10.875
	7.5	11.560
	8.0	12.323
	9.0	13.539
	10.0	14.797
	11.0	16.005
	12.5	17.725
	13.0	18.274
	15.0	20.346
	16.0	21.308
71.0	3.0	5.031
72.0	1.0	1.751
	1.5	2.608
	2.0	3.453
	2.5	4.285
	3.0	5.105
	3.5	5.913
	4.0	6.708
	4.5	7.491
	5.0	8.262
	6.0	9.766
	7.0	11.221
	8.0	13.627
	9.0	13.983
	10.0	15.290
73.0	1.5	2.645
	5.0	8.385
74.0	2.0	3.551
	3.0	5.253
	6.0	10.062
75.0	1.0	1.825
	1.5	2.719
	2.0	3.601
	2.5	4.470
	3.0	5.327
	3.5	6.172
	4.0	7.004
	4.5	7.824
	5.0	8.632
	5.5	9.427
	6.0	10.210
	7.0	11.739
	7.5	12.485
	8.0	13.219
	9.0	14.649
	10.0	16.030
	12.5	19.267
	15.0	22.195

OD mm	WALL mm	WEIGHT kg/m
76.0	1.0	1.850
	1.5	2.756
	2.0	3.650
	2.5	4.532
	3.0	5.401
	4.0	7.103
	5.0	8.755
	6.0	10.358
	7.0	11.912
	8.0	13.416
	9.0	14.871
	10.0	16.277
77.0	1.0	1.874
	2.0	3.699
	3.5	6.344
	5.0	8.878
78.0	1.0	1.874
	1.5	2.830
	2.0	3.749
	3.0	5.549
	4.0	7.300
	5.0	9.001
	6.0	10.654
	9.0	15.315
79.0	1.0	1.924
	1.5	2.867
80.0	1.0	1.948
	1.2	2.332
	1.5	2.904
	2.0	3.847
	2.5	4.778
	3.0	5.697
	3.5	6.603
	4.0	7.497
	4.5	8.379
	5.0	9.248
	5.5	10.105
	6.0	10.950
	7.0	12.602
	7.5	13.410
	8.0	14.205
	9.0	15.759
	10.0	17.263
	12.5	20.808
	15.0	24.045
81.0	3.0	5.771
82.0	1.0	1.998
	2.0	3.946
	3.0	5.845
	4.0	7.694
	5.0	9.495
	6.0	11.394
	7.0	12.947
83.0	1.5	3.015
	2.0	3.995
	2.5	4.963
	3.0	5.919
	3.5	6.682
	4.0	7.793
	6.0	11.394
	8.0	14.797
	10.0	18.003
84.0	2.0	4.044
	6.0	11.542
	7.0	13.293
85.0	1.0	2.072
	1.5	3.089
	2.0	4.094
	2.5	5.086
	3.0	6.087
	3.5	7.035
	4.0	7.990
	4.5	8.934
	5.0	9.865
	5.5	10.783
	6.0	11.690
	7.0	13.465
	7.5	14.334
	8.0	15.191
	9.0	16.868

OD mm	WALL mm	WEIGHT kg/m
85.0	10.0	18.496
	12.5	22.349
	13.0	23.083
	15.0	25.895
86.0	2.0	4.143
	3.0	6.141
	4.0	8.089
	5.0	9.988
	7.0	13.638
87.0	2.0	4.192
	3.0	6.215
88.0	2.0	4.242
	4.0	8.286
	4.5	9.267
	6.0	12.133
89.0	2.5	5.333
	3.0	6.363
	3.25	6.873
90.0	1.0	2.195
	1.5	3.274
	2.0	4.340
	2.5	5.395
	3.0	6.437
	3.5	7.466
	4.0	8.484
	4.5	9.489
	5.0	10.481
	5.25	10.973
	5.5	11.461
	6.0	12.429
	7.0	14.328
	7.5	15.259
	8.0	16.178
	9.0	17.978
	10.0	19.729
	12.0	23.083
	15.0	27.744
	17.5	31.289
92.0	1.5	3.348
	2.0	4.439
	3.0	6.585
	4.0	8.681
	5.0	10.728
	6.0	12.725
	10.0	20.222
	12.0	23.675
93.0	1.5	3.385
95.0	1.0	2.318
	1.5	3.459
	2.0	4.587
	2.5	5.703
	3.0	6.807
	3.5	7.898
	4.0	8.977
	4.5	10.043
	5.0	11.098
	6.0	13.169
	7.0	15.191
	7.5	16.184
	8.0	17.164
	9.0	19.088
	10.0	20.960
	12.5	25.432
	15.0	29.594
	17.5	33.447
96.0	2.0	4.636
97.0	7.5	16.554
98.0	2.5	5.888
	4.0	9.273
100.0	1.5	3.644
	2.0	4.834
	2.5	6.011
	3.0	7.176
	3.5	8.329
	4.0	9.470
	4.5	10.598
	5.0	11.714

OD mm	WALL mm	WEIGHT kg/m
100.0	5.5	12.818
	6.0	13.909
	7.0	16.055
	7.5	17.109
	8.0	18.151
	9.0	20.198
	10.0	22.195
	12.5	26.974
	15.0	31.443
	17.5	35.605
	20.0	39.458
102.0	2.0	4.932
	2.5	6.135
	3.0	7.324
	3.5	8.504
	4.0	9.667
	5.0	11.961
	6.0	14.205
	7.0	16.400
103.0	1.5	3.755
104.0	2.0	5.031
105.0	1.5	3.829
	2.0	5.080
	2.5	6.360
	3.0	7.546
	3.5	8.761
	4.0	9.963
	4.5	11.153
	5.0	12.331
	6.0	14.649
	7.0	16.918
	7.5	18.034
	8.0	19.137
	10.0	23.428
	12.5	28.515
	15.0	33.293
106.0	2.0	5.130
	3.0	7.620
108.0	2.0	5.228
	2.5	6.504
	3.0	7.768
	3.5	9.020
	4.0	10.259
	5.0	12.701
	6.0	15.093
	7.0	17.436
	8.0	19.729
	10.0	24.168
109.0	1.8	4.629
110.0	1.5	4.014
	2.0	5.327
	2.5	6.628
	3.0	7.916
	3.5	9.193
	4.0	10.456
	4.5	11.708
	5.0	12.947
	6.0	15.389
	7.0	17.781
	7.5	18.959
	8.0	20.124
	9.0	22.417
	10.0	24.662
	12.0	29.002
	15.0	35.143
112.0	4.0	10.654
	5.0	13.194
	6.0	15.685
114.0	2.0	5.524
	3.0	8.212
115.0	1.5	4.199
	2.0	5.573
	2.5	6.936
	3.0	8.286
	3.5	9.624
	4.0	10.950
	5.0	13.564
	6.0	16.129

OD mm	WALL mm	WEIGHT kg/m
115.0	7.0	18.644
	7.5	19.883
	8.0	21.110
	10.0	25.895
	12.5	31.598
	15.0	36.992
116.0	7.5	20.068
120.0	1.5	4.384
	2.0	5.820
	2.2	6.391
	2.5	7.244
	3.0	8.656
	3.5	10.056
	4.0	11.443
	4.5	12.818
	5.0	14.180
	6.0	16.868
	7.0	19.507
	7.5	20.808
	8.0	22.097
	9.0	24.637
	10.0	27.128
	12.0	31.961
	15.0	38.842
	20.0	49.323
124.0	3.0	8.952
125.0	1.5	4.569
	2.0	6.067
	2.5	7.553
	3.0	9.026
	4.0	11.936
	5.0	14.797
	6.0	17.608
	7.0	20.370
	7.5	21.733
	9.0	25.747
	10.0	28.361
	12.5	34.680
126.0	8.0	23.280
	8.5	24.630
	9.5	27.294
127.0	1.5	4.643
	2.0	6.164
	3.0	9.174
130.0	2.0	6.313
	2.5	7.861
	3.0	9.396
	4.0	12.429
	4.5	13.928
	5.0	15.413
	6.0	18.348
	7.5	22.658
	8.0	24.070
	10.0	29.594
	12.0	34.921
	12.5	36.222
	15.0	42.541
133.0	2.5	8.046
	4.0	12.725
135.0	2.5	8.169
	3.0	9.766
	4.0	12.923
	5.0	16.030
	6.0	19.088
	7.5	23.583
	10.0	30.827
	12.0	36.400
	15.0	44.391
136.0	3.0	9.840
140.0	2.0	6.807
	2.5	8.477
	3.0	10.136
	4.0	13.416
	5.0	16.647
	6.0	19.828
	7.0	22.960
	7.5	24.960
	10.0	32.060

COLD FINISHED SEAMLESS
MECHANICAL

METRIC

OD mm	WALL mm	WEIGHT kg/m
140.0	12.5	39.304
	15.0	46.240
142.0	2.5	8.601
143.0	9.5	31.277
145.0	2.0	7.053
	2.5	8.786
	3.0	10.506
	5.0	17.263
	7.5	25.432
	8.0	27.029
	10.0	33.293
150.0	2.0	7.300
	2.5	9.094
	3.0	10.876
	3.5	12.645
	4.0	14.402
	5.0	17.880
	6.0	21.308
	7.5	26.357
	8.0	28.015
	10.0	34.526
	12.5	42.387
	15.0	49.940
	20.0	64.120
152.0	2.5	9.217
	3.0	11.024
155.0	2.5	9.402
	3.0	11.246
	5.0	18.496
	7.5	27.282
	10.0	35.759
156.0	2.0	7.596
	3.0	11.320
159.0	4.5	17.146
160.0	2.5	9.710
	3.0	11.616
	3.5	13.508
	4.0	15.389
	5.0	19.113
	6.0	22.787
	7.5	28.207
	8.0	29.988
	10.0	36.992
	12.5	45.470
	15.0	53.639
165.0	2.6	10.019
	3.0	11.985
	3.5	13.940
	5.0	19.729
	7.5	29.131
	10.0	38.225
167.0	2.5	10.142
170.0	2.5	10.327
	3.0	12.355
	4.0	16.375
	5.0	20.346
	6.0	24.267
	7.0	28.139

OD mm	WALL mm	WEIGHT kg/m
170.0	7.5	30.056
	8.0	31.961
	10.0	39.458
	15.0	57.338
175.0	2.5	10.635
	3.0	12.725
	5.0	20.962
	7.5	30.981
180.0	2.5	10.944
	3.0	13.095
	4.0	17.362
	5.0	21.579
	6.0	25.747
	10.0	41.925
	15.0	61.037
185.0	2.5	11.252
	5.0	22.195
	12.0	51.197
	12.5	53.180
	15.0	62.887
190.0	2.5	11.560
	3.0	13.835
	4.0	18.348
	5.0	22.812
	10.0	44.391
	15.0	64.736
200.0	10.0	46.857
	12.5	57.800
	15.0	68.436
203.0	3.0	14.797
	8.0	38.472
205.0	3.0	14.945
	10.0	48.090
210.0	3.0	15.315
	5.0	25.278
	10.0	49.323
	15.0	72.135
215.0	7.5	38.379
	12.5	62.424
220.0	4.0	21.308
	5.0	36.551
	8.0	41.826
	10.0	51.789
	15.0	75.834
222.0	10.0	52.282
230.0	5.0	27.744
	10.0	54.255
	15.0	79.533
235.0	5.0	28.361
	10.0	55.488
240.0	5.0	28.977
	8.0	45.772
	10.0	56.721
	15.0	83.232
250.0	4.0	24.267

OD mm	WALL mm	WEIGHT kg/m
250.0	5.0	30.210
	6.0	36.104
	10.0	59.188
	15.0	86.932
260.0	5.0	31.443
	8.0	49.718
	10.0	61.654
	15.0	90.630

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