



# ETC STANDARD PASK CONSTANT HEAD WELL PERMEAMETER SINGLE PONDED HEIGHT METHOD

Toll Free 1-888-747-7645 (SOIL)

*Coarse and gravelly sands; may also include some highly structured soils with large cracks and /or macropores*

<b>d – well hole diameter (cm)</b>	8.3	<b>α* - sat/unsat flow ratio (cm-1)</b>	0.36
<b>H – height of water in well (cm)</b>	15.0	<b>C – shape factor</b>	1.36

R(cm/min)	Kfs (inch/hr)
0.01	0.010
0.02	0.020
0.03	0.029
0.04	0.039
0.05	0.049
0.06	0.059
0.07	0.069
0.08	0.078
0.09	0.09
0.10	0.10
0.15	0.15
0.20	0.20
0.25	0.25
0.30	0.29
0.35	0.34
0.40	0.39
0.45	0.44
0.50	0.49
0.55	0.54
0.60	0.59
0.65	0.64
0.70	0.69
0.75	0.74
0.80	0.78
0.85	0.83
0.90	0.88
0.95	0.93
1.0	1.0
1.1	1.1
1.2	1.2
1.3	1.3
1.4	1.4
1.5	1.5
1.6	1.6
1.7	1.7
1.8	1.8
1.9	1.9
2.0	2.0
2.1	2.1
2.2	2.2
2.3	2.3
2.4	2.4
2.5	2.5
2.6	2.5

R(cm/min)	Kfs (inch/hr)
2.7	2.6
2.8	2.7
2.9	2.8
3.0	2.9
3.1	3.0
3.2	3.1
3.3	3.2
3.4	3.3
3.5	3.4
3.6	3.5
3.7	3.6
3.8	3.7
3.9	3.8
4.0	3.9
4.1	4.0
4.2	4.1
4.3	4.2
4.4	4.3
4.5	4.4
4.6	4.5
4.7	4.6
4.8	4.7
4.9	4.8
5.0	4.9
5.5	5.4
6.0	5.9
6.5	6.4
7.0	6.9
7.5	7.4
8.0	7.8
8.5	8.3
9.0	8.8
9.5	9.3
10.0	10
11.0	11
12.0	12
13.0	13
14.0	14
15.0	15
16.0	16
17.0	17
18.0	18
19.0	19
20.0	20

R(cm/min)	Kfs (inch/hr)
21.0	21
22.0	22
23.0	23
24.0	24
25.0	25
26.0	25
27.0	26
28.0	27
29.0	28
30.0	29
31.0	30
32.0	31
33.0	32
34.0	33
35.0	34
36.0	35
37.0	36
38.0	37
39.0	38
40.0	39
41.0	40
42.0	41
43.0	42
44.0	43
45.0	44
46.0	45
47.0	46
48.0	47
49.0	48
50.0	49
55.0	54
60.0	59
65.0	64
70.0	69
75.0	74
80.0	78
85.0	83
90.0	88
95.0	93
100.0	98

**R – quasi steady-state rate of fall**

**Kfs – field saturated hydraulic conductivity**

**Caution:** These tables were generated based on the dimensions and characteristics of the Standard ETC Pask Permeameter Kit only. They should not be used with other constant head permeameters or when the well hole diameter is significantly different than indicated above. Calculate Kfs from first principles instead.



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<b>d – well hole diameter (cm)</b>	8.3	<b><math>\alpha^*</math> - sat/unsat flow ratio (cm-1)</b>	0.12
<b>H – height of water in well (cm)</b>	15.0	<b>C – shape factor</b>	1.36

R(cm/min)	Kfs (inch/hr)
0.01	0.008
0.02	0.015
0.03	0.023
0.04	0.030
0.05	0.038
0.06	0.045
0.07	0.053
0.08	0.060
0.09	0.07
0.10	0.08
0.15	0.11
0.20	0.15
0.25	0.19
0.30	0.23
0.35	0.26
0.40	0.30
0.45	0.34
0.50	0.38
0.55	0.41
0.60	0.45
0.65	0.49
0.70	0.53
0.75	0.57
0.80	0.60
0.85	0.64
0.90	0.68
0.95	0.72
1.0	0.8
1.1	0.8
1.2	0.9
1.3	1.0
1.4	1.1
1.5	1.1
1.6	1.2
1.7	1.3
1.8	1.4
1.9	1.4
2.0	1.5
2.1	1.6
2.2	1.7
2.3	1.7
2.4	1.8
2.5	1.9
2.6	2.0

R(cm/min)	Kfs (inch/hr)
2.7	2.0
2.8	2.1
2.9	2.2
3.0	2.3
3.1	2.3
3.2	2.4
3.3	2.5
3.4	2.6
3.5	2.6
3.6	2.7
3.7	2.8
3.8	2.9
3.9	2.9
4.0	3.0
4.1	3.1
4.2	3.2
4.3	3.2
4.4	3.3
4.5	3.4
4.6	3.5
4.7	3.5
4.8	3.6
4.9	3.7
5.0	3.8
5.5	4.1
6.0	4.5
6.5	4.9
7.0	5.3
7.5	5.7
8.0	6.0
8.5	6.4
9.0	6.8
9.5	7.2
10.0	8
11.0	8
12.0	9
13.0	10
14.0	11
15.0	11
16.0	12
17.0	13
18.0	14
19.0	14
20.0	15

R(cm/min)	Kfs (inch/hr)
21.0	16
22.0	17
23.0	17
24.0	18
25.0	19
26.0	20
27.0	20
28.0	21
29.0	22
30.0	23
31.0	23
32.0	24
33.0	25
34.0	26
35.0	26
36.0	27
37.0	28
38.0	29
39.0	29
40.0	30
41.0	31
42.0	32
43.0	32
44.0	33
45.0	34
46.0	35
47.0	35
48.0	36
49.0	37
50.0	38
52.0	39
54.0	41
56.0	42
58.0	44
60.0	45
62.0	47
64.0	48
66.0	50
68.0	51
70.0	53
72.0	54
74.0	56
76.0	57
78.0	59

**R – quasi steady-state rate of fall**

**Kfs – field saturated hydraulic conductivity**

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<b>d – well hole diameter (cm)</b>	8.3	<b><math>\alpha^*</math> - sat/unsat flow ratio (cm-1)</b>	0.04
<b>H – height of water in well (cm)</b>	15.0	<b>C – shape factor</b>	1.35

R(cm/min)	Kfs (inch/hr)
0.001	0.0004
0.002	0.0009
0.003	0.0013
0.004	0.0018
0.005	0.0022
0.006	0.0027
0.007	0.0031
0.008	0.0036
0.009	0.0040
0.010	0.0044
0.015	0.0067
0.020	0.009
0.025	0.011
0.030	0.013
0.035	0.016
0.040	0.018
0.045	0.020
0.050	0.022
0.055	0.024
0.060	0.027
0.065	0.029
0.070	0.031
0.075	0.033
0.080	0.036
0.085	0.038
0.090	0.040
0.095	0.042
0.10	0.04
0.15	0.07
0.20	0.09
0.25	0.11
0.30	0.13
0.35	0.16
0.40	0.18
0.45	0.20
0.50	0.22
0.55	0.24
0.60	0.27
0.65	0.29
0.70	0.31
0.75	0.33
0.80	0.36
0.85	0.38
0.90	0.40

R(cm/min)	Kfs (inch/hr)
0.95	0.42
1.00	0.44
1.10	0.49
1.20	0.53
1.30	0.58
1.40	0.62
1.50	0.67
1.60	0.71
1.70	0.76
1.80	0.80
1.90	0.84
2.00	0.89
2.10	0.9
2.20	1.0
2.30	1.0
2.40	1.1
2.50	1.1
2.60	1.2
2.70	1.2
2.80	1.2
2.90	1.3
3.00	1.3
3.10	1.4
3.20	1.4
3.30	1.5
3.40	1.5
3.50	1.6
3.60	1.6
3.70	1.6
3.80	1.7
3.90	1.7
4.00	1.8
4.10	1.8
4.20	1.9
4.30	1.9
4.40	2.0
4.50	2.0
4.60	2.0
4.70	2.1
4.80	2.1
4.90	2.2
5.00	2.2
5.10	2.3
5.20	2.3

R(cm/min)	Kfs (inch/hr)
5.30	2.4
5.40	2.4
5.50	2.4
5.60	2.5
5.70	2.5
5.80	2.6
5.90	2.6
6.00	2.7
6.10	2.7
6.20	2.8
6.30	2.8
6.40	2.8
6.50	2.9
6.60	2.9
6.70	3.0
6.80	3.0
6.90	3.1
7.00	3.1
7.50	3.3
8.00	3.6
8.50	3.8
9.00	4.0
9.50	4.2
10.0	4.4
11.0	4.9
12.0	5.3
13.0	5.8
14.0	6.2
15.0	6.7
16.0	7.1
17.0	7.6
18.0	8.0
19.0	8.4
20.0	8.9
25.0	11
30.0	13
35.0	16
40.0	18
45.0	20
50.0	22
55.0	24
60.0	27
65.0	29
70.0	31

**R – quasi steady-state rate of fall**

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<b>d – well hole diameter (cm)</b>	8.3	<b><math>\alpha^*</math> - sat/unsat flow ratio (cm-1)</b>	0.01
<b>H – height of water in well (cm)</b>	15.0	<b>C – shape factor</b>	1.27

R(cm/min)	Kfs (inch/hr)
0.001	0.0001
0.002	0.0003
0.003	0.0004
0.004	0.0006
0.005	0.0007
0.006	0.0009
0.007	0.0010
0.008	0.0012
0.009	0.0013
0.010	0.0015
0.015	0.0022
0.020	0.003
0.025	0.004
0.030	0.004
0.035	0.005
0.040	0.006
0.045	0.007
0.050	0.007
0.055	0.008
0.060	0.009
0.065	0.010
0.070	0.010
0.075	0.011
0.080	0.012
0.085	0.013
0.090	0.013
0.095	0.014
0.10	0.015
0.15	0.022
0.20	0.030
0.25	0.037
0.30	0.044
0.35	0.052
0.40	0.059
0.45	0.066
0.50	0.074
0.55	0.081
0.60	0.089
0.65	0.096
0.70	0.103
0.75	0.111
0.80	0.118
0.85	0.125
0.90	0.133

R(cm/min)	Kfs (inch/hr)
0.95	0.14
1.00	0.15
1.10	0.16
1.20	0.18
1.30	0.19
1.40	0.21
1.50	0.22
1.60	0.24
1.70	0.25
1.80	0.27
1.90	0.28
2.00	0.30
2.10	0.31
2.20	0.32
2.30	0.34
2.40	0.35
2.50	0.37
2.60	0.38
2.70	0.40
2.80	0.41
2.90	0.43
3.00	0.44
3.10	0.46
3.20	0.47
3.30	0.49
3.40	0.50
3.50	0.52
3.60	0.53
3.70	0.55
3.80	0.56
3.90	0.58
4.00	0.59
4.10	0.61
4.20	0.62
4.30	0.63
4.40	0.65
4.50	0.66
4.60	0.68
4.70	0.69
4.80	0.71
4.90	0.72
5.00	0.74
5.10	0.75
5.20	0.77

R(cm/min)	Kfs (inch/hr)
5.30	0.78
5.40	0.80
5.50	0.81
5.60	0.83
5.70	0.84
5.80	0.86
5.90	0.87
6.00	0.89
6.10	0.90
6.20	0.92
6.30	0.93
6.40	0.94
6.50	0.96
6.60	0.97
6.70	0.99
6.80	1.00
6.90	1.02
7.00	1.03
7.50	1.11
8.00	1.18
8.50	1.25
9.00	1.33
9.50	1.40
10.0	1.5
11.0	1.6
12.0	1.8
13.0	1.9
14.0	2.1
15.0	2.2
16.0	2.4
17.0	2.5
18.0	2.7
19.0	2.8
20.0	3.0
25.0	3.7
30.0	4.4
35.0	5.2
40.0	5.9
45.0	6.6
50.0	7.4
55.0	8.1
60.0	8.9
65.0	9.6
70.0	10.3

**R – quasi steady-state rate of fall**

**Kfs – field saturated hydraulic conductivity**

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