V-Cone Application Sizing

Serial #	04-0272	Fluid State	LIQUID
Tag		Fluid	WATER
Model	VT0BAC02N1	End User	ARGONNE LABS
Job Ref.			

Description	.75" V-CONE	Mktg. Code	03
Note			

C_f	0.8188	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.977	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.236e+05	
V	max. Velocity	11.92	fps
ΔP	max. Dp	329.45	inWC
ΔP	min. Dp	3.2945	inWC
D	Meter I.D.	0.82800	in
d	Cone O.D.	0.68000	in
β	Beta Ratio	0.5706	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	dn

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.236e+05	11.917		329.45	20.000
2	1.113e+05	10.725		266.86	18.000
3	9.890e+04	9.5334		210.84	16.000
4	8.654e+04	8.3417		161.43	14.000
5	7.417e+04	7.1501		118.60	12.000
6	6.181e+04	5.9584		82.362	10.000
7	4.945e+04	4.7667		52.711	8.0000
8	3.709e+04	3.5750		29.651	6.0000
9	2.472e+04	2.3834		13.178	4.0000
10	1.236e+04	1.1917		3.2945	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	01-22-2004
Print Date	02-24-2004

k1 = 8.4559e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2342	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8189	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.572	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM	McCrometer Cal.	
Re	max. Reynolds	8.202e+04		Third Party Cal.	
V	max. Velocity	10.49	fps	Dye. Pen. Exam.	
ΔP	max. Dp	223.91	inWC	Hydro. Test	
ΔP	min. Dp	2.2391	inWC	X-Ray Exam.	
D	Meter I.D.	0.62400	in	Mag. Part.	
d	Cone O.D.	0.50500	in	PMI	
β	Beta Ratio	0.5874		CMTR Copies	
	Turn Down	10		McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		223.91	10.000
2	7.382e+04	9.4420		181.36	9.0000
3	6.562e+04	8.3929		143.30	8.0000
4	5.741e+04	7.3438		109.71	7.0000
5	4.921e+04	6.2947		80.605	6.0000
6	4.101e+04	5.2455		55.976	5.0000
7	3.281e+04	4.1964		35.825	4.0000
8	2.461e+04	3.1473		20.151	3.0000
9	1.640e+04	2.0982		8.9562	2.0000
10	8202	1.0491		2.2391	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1285e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2343	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8420	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.334	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	212.46	inWC
ΔP	min. Dp	2.1246	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50400	in
β	Beta Ratio	0.5878	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		212.46	10.000
2	7.394e+04	9.4723		172.09	9.0000
3	6.572e+04	8.4198		135.97	8.0000
4	5.751e+04	7.3674		104.10	7.0000
5	4.929e+04	6.3149		76.484	6.0000
6	4.108e+04	5.2624		53.113	5.0000
7	3.286e+04	4.2099		33.993	4.0000
8	2.465e+04	3.1574		19.121	3.0000
9	1.643e+04	2.1050		8.4982	2.0000
10	8215	1.0525		2.1246	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.2649e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2344	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8091	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.683	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.202e+04	
V	max. Velocity	10.49	fps
ΔP	max. Dp	229.35	inWC
ΔP	min. Dp	2.2935	inWC
D	Meter I.D.	0.62400	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5874	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		229.35	10.000
2	7.382e+04	9.4420		185.78	9.0000
3	6.562e+04	8.3929		146.79	8.0000
4	5.741e+04	7.3438		112.39	7.0000
5	4.921e+04	6.2947		82.570	6.0000
6	4.101e+04	5.2455		57.341	5.0000
7	3.281e+04	4.1964		36.699	4.0000
8	2.461e+04	3.1473		20.642	3.0000
9	1.640e+04	2.0982		9.1744	2.0000
10	8202	1.0491		2.2935	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.0671e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2345	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8386	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.457	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.202e+04	
V	max. Velocity	10.49	fps
ΔP	max. Dp	217.19	inWC
ΔP	min. Dp	2.1719	inWC
D	Meter I.D.	0.62400	in
d	Cone O.D.	0.50600	in
β	Beta Ratio	0.5852	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		217.19	10.000
2	7.382e+04	9.4420		175.93	9.0000
3	6.562e+04	8.3929		139.01	8.0000
4	5.741e+04	7.3438		106.43	7.0000
5	4.921e+04	6.2947		78.190	6.0000
6	4.101e+04	5.2455		54.299	5.0000
7	3.281e+04	4.1964		34.751	4.0000
8	2.461e+04	3.1473		19.547	3.0000
9	1.640e+04	2.0982		8.6880	2.0000
10	8202	1.0491		2.1719	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.2071e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2346	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8146	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.530	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	223.16	inWC
ΔP	min. Dp	2.2316	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50300	in
β	Beta Ratio	0.5900	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		223.16	10.000
2	7.394e+04	9.4723		180.76	9.0000
3	6.572e+04	8.4198		142.82	8.0000
4	5.751e+04	7.3674		109.35	7.0000
5	4.929e+04	6.3149		80.338	6.0000
6	4.108e+04	5.2624		55.790	5.0000
7	3.286e+04	4.2099		35.706	4.0000
8	2.465e+04	3.1574		20.084	3.0000
9	1.643e+04	2.1050		8.9266	2.0000
10	8215	1.0525		2.2316	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1370e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2347	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8230	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.637	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	226.22	inWC
ΔP	min. Dp	2.2622	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5856	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		226.22	10.000
2	7.394e+04	9.4723		183.24	9.0000
3	6.572e+04	8.4198		144.78	8.0000
4	5.751e+04	7.3674		110.85	7.0000
5	4.929e+04	6.3149		81.440	6.0000
6	4.108e+04	5.2624		56.556	5.0000
7	3.286e+04	4.2099		36.196	4.0000
8	2.465e+04	3.1574		20.361	3.0000
9	1.643e+04	2.1050		9.0489	2.0000
10	8215	1.0525		2.2622	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1022e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2348	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8283	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.578	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	223.33	inWC
ΔP	min. Dp	2.2333	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5856	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		223.33	10.000
2	7.394e+04	9.4723		180.90	9.0000
3	6.572e+04	8.4198		142.93	8.0000
4	5.751e+04	7.3674		109.44	7.0000
5	4.929e+04	6.3149		80.401	6.0000
6	4.108e+04	5.2624		55.834	5.0000
7	3.286e+04	4.2099		35.735	4.0000
8	2.465e+04	3.1574		20.101	3.0000
9	1.643e+04	2.1050		8.9335	2.0000
10	8215	1.0525		2.2333	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1350e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2349	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8193	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06 d 9.6e-06	⇐
P_v	1.392	psiA
P_{loss}	4.577	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	224.39	inWC
ΔP	min. Dp	2.2439	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50400	in
β	Beta Ratio	0.5878	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		224.39	10.000
2	7.394e+04	9.4723		181.76	9.0000
3	6.572e+04	8.4198		143.61	8.0000
4	5.751e+04	7.3674		109.95	7.0000
5	4.929e+04	6.3149		80.782	6.0000
6	4.108e+04	5.2624		56.098	5.0000
7	3.286e+04	4.2099		35.902	4.0000
8	2.465e+04	3.1574		20.196	3.0000
9	1.643e+04	2.1050		8.9758	2.0000
10	8215	1.0525		2.2439	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1229e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2350	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8197	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.563	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.202e+04	
V	max. Velocity	10.49	fps
ΔP	max. Dp	223.47	inWC
ΔP	min. Dp	2.2347	inWC
D	Meter I.D.	0.62400	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5874	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		223.47	10.000
2	7.382e+04	9.4420		181.01	9.0000
3	6.562e+04	8.3929		143.02	8.0000
4	5.741e+04	7.3438		109.50	7.0000
5	4.921e+04	6.2947		80.447	6.0000
6	4.101e+04	5.2455		55.867	5.0000
7	3.281e+04	4.1964		35.754	4.0000
8	2.461e+04	3.1473		20.113	3.0000
9	1.640e+04	2.0982		8.9387	2.0000
10	8202	1.0491		2.2347	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1335e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2351	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8230	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.526	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.202e+04	
V	max. Velocity	10.49	fps
ΔP	max. Dp	221.68	inWC
ΔP	min. Dp	2.2168	inWC
D	Meter I.D.	0.62400	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5874	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		221.68	10.000
2	7.382e+04	9.4420		179.56	9.0000
3	6.562e+04	8.3929		141.87	8.0000
4	5.741e+04	7.3438		108.62	7.0000
5	4.921e+04	6.2947		79.805	6.0000
6	4.101e+04	5.2455		55.420	5.0000
7	3.281e+04	4.1964		35.469	4.0000
8	2.461e+04	3.1473		19.951	3.0000
9	1.640e+04	2.0982		8.8671	2.0000
10	8202	1.0491		2.2168	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1542e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2352	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8204	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.555	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.202e+04	
V	max. Velocity	10.49	fps
ΔP	max. Dp	223.08	inWC
ΔP	min. Dp	2.2308	inWC
D	Meter I.D.	0.62400	in
d	Cone O.D.	0.50500	in
β	Beta Ratio	0.5874	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.202e+04	10.491		223.08	10.000
2	7.382e+04	9.4420		180.70	9.0000
3	6.562e+04	8.3929		142.78	8.0000
4	5.741e+04	7.3438		109.31	7.0000
5	4.921e+04	6.2947		80.311	6.0000
6	4.101e+04	5.2455		55.772	5.0000
7	3.281e+04	4.1964		35.694	4.0000
8	2.461e+04	3.1473		20.078	3.0000
9	1.640e+04	2.0982		8.9235	2.0000
10	8202	1.0491		2.2308	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.1379e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2353	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-B1	Fluid	WATER
Model	VT0AAC02N1	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	1/2" V-CONE	Mktg. Code	3 4 0
Note			

C_f	0.8055	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	4.633	psiA

⇐ Entered value.

q	max. Flowrate	10	GPM
Re	max. Reynolds	8.215e+04	
V	max. Velocity	10.52	fps
ΔP	max. Dp	228.24	inWC
ΔP	min. Dp	2.2824	inWC
D	Meter I.D.	0.62300	in
d	Cone O.D.	0.50300	in
β	Beta Ratio	0.5900	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	8.215e+04	10.525		228.24	10.000
2	7.394e+04	9.4723		184.87	9.0000
3	6.572e+04	8.4198		146.07	8.0000
4	5.751e+04	7.3674		111.83	7.0000
5	4.929e+04	6.3149		82.164	6.0000
6	4.108e+04	5.2624		57.058	5.0000
7	3.286e+04	4.2099		36.518	4.0000
8	2.465e+04	3.1574		20.542	3.0000
9	1.643e+04	2.1050		9.1294	2.0000
10	8215	1.0525		2.2824	1.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-28-2003

k1 = 5.0797e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2354	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8352	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.116	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	333.16	inWC
ΔP	min. Dp	3.3316	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67900	in
β	Beta Ratio	0.5666	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		333.16	20.000
2	1.118e+05	10.829		269.86	18.000
3	9.938e+04	9.6262		213.23	16.000
4	8.696e+04	8.4229		163.25	14.000
5	7.453e+04	7.2197		119.94	12.000
6	6.211e+04	6.0164		83.291	10.000
7	4.969e+04	4.8131		53.306	8.0000
8	3.727e+04	3.6098		29.985	6.0000
9	2.484e+04	2.4066		13.327	4.0000
10	1.242e+04	1.2033		3.3316	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-29-2003

k1 = 8.4086e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2355
Tag	ARGONNEDORTWEGT-313INC
Model	VT0B-04
Job Ref.	SO67445

Fluid State	LIQUID
Fluid	WATER
End User	ARGONNE LABS

Description	3/4" V-CONE
Note	LARGER VERTICAL SUPPORT

Mktg. Code	3 4 0

C_f	0.8337	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.142	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	334.37	inWC
ΔP	min. Dp	3.3437	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67900	in
β	Beta Ratio	0.5666	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		334.37	20.000
2	1.118e+05	10.829		270.84	18.000
3	9.938e+04	9.6262		214.00	16.000
4	8.696e+04	8.4229		163.84	14.000
5	7.453e+04	7.2197		120.37	12.000
6	6.211e+04	6.0164		83.591	10.000
7	4.969e+04	4.8131		53.498	8.0000
8	3.727e+04	3.6098		30.093	6.0000
9	2.484e+04	2.4066		13.375	4.0000
10	1.242e+04	1.2033		3.3437	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-29-2003

k1 = 8.3935e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2356	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8335	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.145	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	334.53	inWC
ΔP	min. Dp	3.3453	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67900	in
β	Beta Ratio	0.5666	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		334.53	20.000
2	1.118e+05	10.829		270.97	18.000
3	9.938e+04	9.6262		214.10	16.000
4	8.696e+04	8.4229		163.92	14.000
5	7.453e+04	7.2197		120.43	12.000
6	6.211e+04	6.0164		83.632	10.000
7	4.969e+04	4.8131		53.525	8.0000
8	3.727e+04	3.6098		30.107	6.0000
9	2.484e+04	2.4066		13.381	4.0000
10	1.242e+04	1.2033		3.3453	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-29-2003

k1 = 8.3915e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2357	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8397	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.762	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.238e+05	
V	max. Velocity	11.95	fps
ΔP	max. Dp	318.33	inWC
ΔP	min. Dp	3.1833	inWC
D	Meter I.D.	0.82700	in
d	Cone O.D.	0.68000	in
β	Beta Ratio	0.5691	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.238e+05	11.946		318.33	20.000
2	1.114e+05	10.751		257.85	18.000
3	9.902e+04	9.5565		203.73	16.000
4	8.664e+04	8.3619		155.98	14.000
5	7.426e+04	7.1674		114.60	12.000
6	6.189e+04	5.9728		79.581	10.000
7	4.951e+04	4.7782		50.931	8.0000
8	3.713e+04	3.5837		28.650	6.0000
9	2.475e+04	2.3891		12.733	4.0000
10	1.238e+04	1.1946		3.1833	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-29-2003

k1 = 8.6024e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2358	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8497	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.756	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	317.46	inWC
ΔP	min. Dp	3.1746	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		317.46	20.000
2	1.118e+05	10.829		257.14	18.000
3	9.938e+04	9.6262		203.19	16.000
4	8.696e+04	8.4229		155.56	14.000
5	7.453e+04	7.2197		114.29	12.000
6	6.211e+04	6.0164		79.366	10.000
7	4.969e+04	4.8131		50.795	8.0000
8	3.727e+04	3.6098		28.571	6.0000
9	2.484e+04	2.4066		12.699	4.0000
10	1.242e+04	1.2033		3.1746	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.6140e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2359	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8305	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.072	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	332.31	inWC
ΔP	min. Dp	3.3231	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		332.31	20.000
2	1.118e+05	10.829		269.16	18.000
3	9.938e+04	9.6262		212.67	16.000
4	8.696e+04	8.4229		162.83	14.000
5	7.453e+04	7.2197		119.63	12.000
6	6.211e+04	6.0164		83.078	10.000
7	4.969e+04	4.8131		53.171	8.0000
8	3.727e+04	3.6098		29.908	6.0000
9	2.484e+04	2.4066		13.293	4.0000
10	1.242e+04	1.2033		3.3231	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.4194e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2360	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8190	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.146	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	337.05	inWC
ΔP	min. Dp	3.3705	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67700	in
β	Beta Ratio	0.5701	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		337.05	20.000
2	1.118e+05	10.829		272.99	18.000
3	9.938e+04	9.6262		215.71	16.000
4	8.696e+04	8.4229		165.15	14.000
5	7.453e+04	7.2197		121.33	12.000
6	6.211e+04	6.0164		84.261	10.000
7	4.969e+04	4.8131		53.927	8.0000
8	3.727e+04	3.6098		30.334	6.0000
9	2.484e+04	2.4066		13.482	4.0000
10	1.242e+04	1.2033		3.3705	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	08-29-2003

k1 = 8.3601e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2361	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8405	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.904	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	324.44	inWC
ΔP	min. Dp	3.2444	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		324.44	20.000
2	1.118e+05	10.829		262.82	18.000
3	9.938e+04	9.6262		207.65	16.000
4	8.696e+04	8.4229		158.98	14.000
5	7.453e+04	7.2197		116.80	12.000
6	6.211e+04	6.0164		81.113	10.000
7	4.969e+04	4.8131		51.913	8.0000
8	3.727e+04	3.6098		29.200	6.0000
9	2.484e+04	2.4066		12.978	4.0000
10	1.242e+04	1.2033		3.2444	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.5207e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2362	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8381	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.908	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.238e+05	
V	max. Velocity	11.95	fps
ΔP	max. Dp	323.96	inWC
ΔP	min. Dp	3.2396	inWC
D	Meter I.D.	0.82700	in
d	Cone O.D.	0.68100	in
β	Beta Ratio	0.5674	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.238e+05	11.946		323.96	20.000
2	1.114e+05	10.751		262.41	18.000
3	9.902e+04	9.5565		207.34	16.000
4	8.664e+04	8.3619		158.75	14.000
5	7.426e+04	7.1674		116.63	12.000
6	6.189e+04	5.9728		80.992	10.000
7	4.951e+04	4.7782		51.836	8.0000
8	3.713e+04	3.5837		29.158	6.0000
9	2.475e+04	2.3891		12.959	4.0000
10	1.238e+04	1.1946		3.2396	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.5271e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2363	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8314	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	7.182	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	336.22	inWC
ΔP	min. Dp	3.3622	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67900	in
β	Beta Ratio	0.5666	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		336.22	20.000
2	1.118e+05	10.829		272.34	18.000
3	9.938e+04	9.6262		215.17	16.000
4	8.696e+04	8.4229		164.75	14.000
5	7.453e+04	7.2197		121.04	12.000
6	6.211e+04	6.0164		84.055	10.000
7	4.969e+04	4.8131		53.794	8.0000
8	3.727e+04	3.6098		30.261	6.0000
9	2.484e+04	2.4066		13.449	4.0000
10	1.242e+04	1.2033		3.3622	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.3703e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2364	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8414	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.889	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	323.75	inWC
ΔP	min. Dp	3.2375	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		323.75	20.000
2	1.118e+05	10.829		262.24	18.000
3	9.938e+04	9.6262		207.21	16.000
4	8.696e+04	8.4229		158.64	14.000
5	7.453e+04	7.2197		116.55	12.000
6	6.211e+04	6.0164		80.940	10.000
7	4.969e+04	4.8131		51.801	8.0000
8	3.727e+04	3.6098		29.139	6.0000
9	2.484e+04	2.4066		12.950	4.0000
10	1.242e+04	1.2033		3.2375	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.5299e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2365	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8359	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.981	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	328.04	inWC
ΔP	min. Dp	3.2804	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		328.04	20.000
2	1.118e+05	10.829		265.70	18.000
3	9.938e+04	9.6262		209.94	16.000
4	8.696e+04	8.4229		160.74	14.000
5	7.453e+04	7.2197		118.09	12.000
6	6.211e+04	6.0164		82.008	10.000
7	4.969e+04	4.8131		52.486	8.0000
8	3.727e+04	3.6098		29.524	6.0000
9	2.484e+04	2.4066		13.121	4.0000
10	1.242e+04	1.2033		3.2804	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.4741e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2366	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8534	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.697	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	314.71	inWC
ΔP	min. Dp	3.1473	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		314.71	20.000
2	1.118e+05	10.829		254.93	18.000
3	9.938e+04	9.6262		201.42	16.000
4	8.696e+04	8.4229		154.21	14.000
5	7.453e+04	7.2197		113.30	12.000
6	6.211e+04	6.0164		78.679	10.000
7	4.969e+04	4.8131		50.354	8.0000
8	3.727e+04	3.6098		28.325	6.0000
9	2.484e+04	2.4066		12.589	4.0000
10	1.242e+04	1.2033		3.1473	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.6515e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2367	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8467	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.686	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	315.34	inWC
ΔP	min. Dp	3.1534	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67700	in
β	Beta Ratio	0.5701	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		315.34	20.000
2	1.118e+05	10.829		255.43	18.000
3	9.938e+04	9.6262		201.82	16.000
4	8.696e+04	8.4229		154.52	14.000
5	7.453e+04	7.2197		113.52	12.000
6	6.211e+04	6.0164		78.837	10.000
7	4.969e+04	4.8131		50.456	8.0000
8	3.727e+04	3.6098		28.381	6.0000
9	2.484e+04	2.4066		12.614	4.0000
10	1.242e+04	1.2033		3.1534	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.6429e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2368	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8403	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.907	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	324.60	inWC
ΔP	min. Dp	3.2460	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67800	in
β	Beta Ratio	0.5683	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		324.60	20.000
2	1.118e+05	10.829		262.93	18.000
3	9.938e+04	9.6262		207.75	16.000
4	8.696e+04	8.4229		159.06	14.000
5	7.453e+04	7.2197		116.86	12.000
6	6.211e+04	6.0164		81.152	10.000
7	4.969e+04	4.8131		51.938	8.0000
8	3.727e+04	3.6098		29.214	6.0000
9	2.484e+04	2.4066		12.984	4.0000
10	1.242e+04	1.2033		3.2460	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.5187e-03
k2 =
k3 =

McCROMETER

V-Cone Application Sizing

Serial #	03-2369	Fluid State	LIQUID
Tag	ARGONNEDORTWEGT-313INC	Fluid	WATER
Model	VT0B-04	End User	ARGONNE LABS
Job Ref.	SO67445		

Description	3/4" V-CONE	Mktg. Code	3 4 0
Note	LARGER VERTICAL SUPPORT		

C_f	0.8396	
P_f	10	psiG
T_f	113	°F
ρ	61.78	lb/ft3
μ	0.6115	cP
G		
Z		
Y		
k		
C_P		
Mw	18.015	
P_b		
T_b		
Z_b		
P_{baro}	14.696	psiA
P_c	3198.8	psiA
T_c	1164.8	°R
F_a	1.001	
aPE	D 9.6e-06	d 9.6e-06 ⇐
P_v	1.392	psiA
P_{loss}	6.799	psiA

⇐ Entered value.

q	max. Flowrate	20	GPM
Re	max. Reynolds	1.242e+05	
V	max. Velocity	12.03	fps
ΔP	max. Dp	320.71	inWC
ΔP	min. Dp	3.2071	inWC
D	Meter I.D.	0.82400	in
d	Cone O.D.	0.67700	in
β	Beta Ratio	0.5701	
	Turn Down	10	

McCrometer Cal.	
Third Party Cal.	
Dye. Pen. Exam.	
Hydro. Test	
X-Ray Exam.	
Mag. Part.	
PMI	
CMTR Copies	
McCrometer Eng.	JW

	Re	Velocity fps	Gas. Exp. Y	ΔP inWC	Flowrate GPM
1	1.242e+05	12.033		320.71	20.000
2	1.118e+05	10.829		259.77	18.000
3	9.938e+04	9.6262		205.25	16.000
4	8.696e+04	8.4229		157.14	14.000
5	7.453e+04	7.2197		115.45	12.000
6	6.211e+04	6.0164		80.176	10.000
7	4.969e+04	4.8131		51.312	8.0000
8	3.727e+04	3.6098		28.864	6.0000
9	2.484e+04	2.4066		12.828	4.0000
10	1.242e+04	1.2033		3.2071	2.0000

Table based on one flow condition (P, T ,Z , k ...) V40 Version 1.20

Record Start Date	07-25-2003
Print Date	09-02-2003

k1 = 8.5704e-03
k2 =
k3 =

McCROMETER