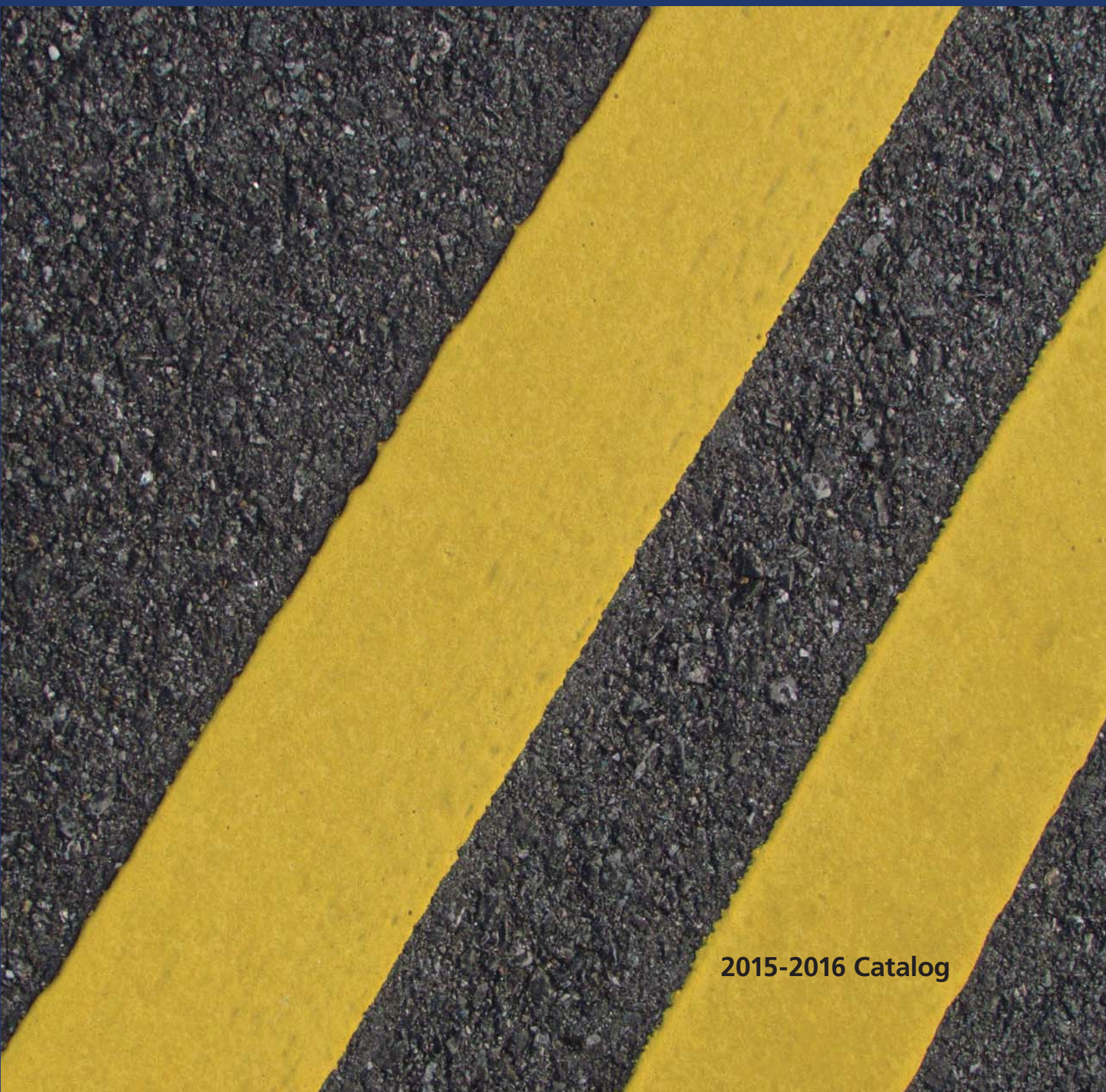


# Materials Testing Equipment



Colonial Scientific  
*Laboratory and Testing Supplies*



2015-2016 Catalog

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The Colonial Scientific Team

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From the pit to the project.



# Sampling

SIEVES

SHAKERS

SIFTERS

SCREENS

SPLITTERS

AGGREGATES

GRINDING



## 8IN DIAMETER ASTM TEST SIEVES

COARSE SERIES	ASTM		Brass Cloth Brass Frame		Stainless Cloth Brass Frame		Stainless Cloth Stainless Frame	
			Full Ht.	Half Ht.	Full Ht.	Half Ht.	Full Ht.	Half Ht.
COARSE SERIES	4in	100.0mm	—	—	CS-V8CF 4"	CS-V8CH 4"	CS-V8SF 4"	—
	3-1/2in	90.0mm	—	—	CS-V8CF 3-1/2"	CS-V8CH 3-1/2"	CS-V8SF 3-1/2"	—
	3in	75.0mm	—	—	CS-V8CF 3"	CS-V8CH 3"	CS-V8SF 3"	—
	2-1/2in	63.0mm	—	—	CS-V8CF 2-1/2"	CS-V8CH 2-1/2"	CS-V8SF 2-1/2"	—
	2.12in	53.0mm	—	—	CS-V8CF 2.12"	CS-V8CH 2.12"	CS-V8SF 2.12"	—
	2in	50.0mm	—	—	CS-V8CF 2"	CS-V8CH 2"	CS-V8SF 2"	—
	1-3/4in	45.0mm	—	—	CS-V8CF 1-3/4"	CS-V8CH 1-3/4"	CS-V8SF 1-3/4"	—
	1-1/2in	37.5mm	—	—	CS-V8CF 1-1/2"	CS-V8CH 1-1/2"	CS-V8SF 1-1/2"	—
	1-1/4in	31.5mm	—	—	CS-V8CF 1-1/4"	CS-V8CH 1-1/4"	CS-V8SF 1-1/4"	—
	1.06in	26.5mm	—	—	CS-V8CF 1.06"	CS-V8CH 1.06"	CS-V8SF 1.06"	—
	1in	25.0mm	—	—	CS-V8CF 1"	CS-V8CH 1"	CS-V8SF 1"	CS-V8SH 1"
	7/8in	22.4mm	—	—	CS-V8CF 7/8"	CS-V8CH 7/8"	CS-V8SF 7/8"	CS-V8SH 7/8"
	3/4in	19.0mm	—	—	CS-V8CF 3/4"	CS-V8CH 3/4"	CS-V8SF 3/4"	CS-V8SH 3/4"
	5/8in	16.0mm	—	—	CS-V8CF 5/8"	CS-V8CH 5/8"	CS-V8SF 5/8"	CS-V8SH 5/8"
	0.530in	13.2mm	—	—	CS-V8CF .530"	CS-V8CH .530"	CS-V8SF .530"	CS-V8SH .530"
	1/2in	12.5mm	—	—	CS-V8CF 1/2"	CS-V8CH 1/2"	CS-V8SF 1/2"	CS-V8SH 1/2"
	7/16in	11.2mm	—	—	CS-V8CF 7/16"	CS-V8CH 7/16"	CS-V8SF 7/16"	CS-V8SH 7/16"
	3/8in	9.5mm	—	—	CS-V8CF 3/8"	CS-V8CH 3/8"	CS-V8SF 3/8"	CS-V8SH 3/8"
	5/16in	8.0mm	—	—	CS-V8CF 5/16"	CS-V8CH 5/16"	CS-V8SF 5/16"	CS-V8SH 5/16"
	0.265in	6.7mm	—	—	CS-V8CF .265"	CS-V8CH .265"	CS-V8SF .265"	CS-V8SH .265"
1/4in	6.3mm	—	—	CS-V8CF 1/4"	CS-V8CH 1/4"	CS-V8SF 1/4"	CS-V8SH 1/4"	
No.3-1/2	5.6mm	CS-V8BF #3-1/2	CS-V8BH #3-1/2	CS-V8CF #3-1/2	CS-V8CH #3-1/2	CS-V8SF #3-1/2	CS-V8SH #3-1/2	
No.4	4.75mm	CS-V8BF #4	CS-V8BH #4	CS-V8CF #4	CS-V8CH #4	CS-V8SF #4	CS-V8SH #4	
FINE SERIES	No.5	4.0mm	CS-V8BF #5	CS-V8BH #5	CS-V8CF #5	CS-V8CH #5	CS-V8SF #5	CS-V8SH #5
	No.6	3.35mm	CS-V8BF #6	CS-V8BH #6	CS-V8CF #6	CS-V8CH #6	CS-V8SF #6	CS-V8SH #6
	1/8in <sup>1</sup>	3.18mm	—	—	CS-V8CF 1/8"	CS-V8CH 1/8"	CS-V8SF 1/8"	CS-V8SH 1/8"
	No.7	2.8mm	CS-V8BF #7	CS-V8BH #7	CS-V8CF #7	CS-V8CH #7	CS-V8SF #7	CS-V8SH #7
	No.8	2.36mm	CS-V8BF #8	CS-V8BH #8	CS-V8CF #8	CS-V8CH #8	CS-V8SF #8	CS-V8SH #8
	No.10	2.0mm	CS-V8BF #10	CS-V8BH #10	CS-V8CF #10	CS-V8CH #10	CS-V8SF #10	CS-V8SH #10
	No.12	1.7mm	CS-V8BF #12	CS-V8BH #12	CS-V8CF #12	CS-V8CH #12	CS-V8SF #12	CS-V8SH #12
	No.14	1.4mm	CS-V8BF #14	CS-V8BH #14	CS-V8CF #14	CS-V8CH #14	CS-V8SF #14	CS-V8SH #14
	No.16	1.18mm	CS-V8BF #16	CS-V8BH #16	CS-V8CF #16	CS-V8CH #16	CS-V8SF #16	CS-V8SH #16
	No.18	1.0mm	CS-V8BF #18	CS-V8BH #18	CS-V8CF #18	CS-V8CH #18	CS-V8SF #18	CS-V8SH #18
	No.20	850µm	CS-V8BF #20	CS-V8BH #20	CS-V8CF #20	CS-V8CH #20	CS-V8SF #20	CS-V8SH #20
	No.25	710µm	CS-V8BF #25	CS-V8BH #25	CS-V8CF #25	CS-V8CH #25	CS-V8SF #25	CS-V8SH #25
	No.30	600µm	CS-V8BF #30	CS-V8BH #30	CS-V8CF #30	CS-V8CH #30	CS-V8SF #30	CS-V8SH #30
	No.35	500µm	CS-V8BF #35	CS-V8BH #35	CS-V8CF #35	CS-V8CH #35	CS-V8SF #35	CS-V8SH #35
	No.40	425µm	CS-V8BF #40	CS-V8BH #40	CS-V8CF #40	CS-V8CH #40	CS-V8SF #40	CS-V8SH #40
	No.45	355µm	CS-V8BF #45	CS-V8BH #45	CS-V8CF #45	CS-V8CH #45	CS-V8SF #45	CS-V8SH #45
	No.50	300µm	CS-V8BF #50	CS-V8BH #50	CS-V8CF #50	CS-V8CH #50	CS-V8SF #50	CS-V8SH #50
	No.60	250µm	CS-V8BF #60	CS-V8BH #60	CS-V8CF #60	CS-V8CH #60	CS-V8SF #60	CS-V8SH #60
	No.70	212µm	CS-V8BF #70	CS-V8BH #70	CS-V8CF #70	CS-V8CH #70	CS-V8SF #70	CS-V8SH #70
	No.80	180µm	CS-V8BF #80	CS-V8BH #80	CS-V8CF #80	CS-V8CH #80	CS-V8SF #80	CS-V8SH #80
	No.100	150µm	CS-V8BF #100	CS-V8BH #100	CS-V8CF #100	CS-V8CH #100	CS-V8SF #100	CS-V8SH #100
	No.120	125µm	CS-V8BF #120	CS-V8BH #120	CS-V8CF #120	CS-V8CH #120	CS-V8SF #120	CS-V8SH #120
	No.140	106µm	CS-V8BF #140	CS-V8BH #140	CS-V8CF #140	CS-V8CH #140	CS-V8SF #140	CS-V8SH #140
	No.170	90µm	CS-V8BF #170	CS-V8BH #170	CS-V8CF #170	CS-V8CH #170	CS-V8SF #170	CS-V8SH #170
	No.200	75µm	CS-V8BF #200	CS-V8BH #200	CS-V8CF #200	CS-V8CH #200	CS-V8SF #200	CS-V8SH #200
	No.230	63µm	CS-V8BF #230	CS-V8BH #230	CS-V8CF #230	CS-V8CH #230	CS-V8SF #230	CS-V8SH #230
	No.270	53µm	CS-V8BF #270	CS-V8BH #270	CS-V8CF #270	CS-V8CH #270	CS-V8SF #270	CS-V8SH #270
	No.325	45µm	CS-V8BF #325	CS-V8BH #325	CS-V8CF #325	CS-V8CH #325	CS-V8SF #325	CS-V8SH #325
	No.400	38µm	—	—	CS-V8CF #400	CS-V8CH #400	CS-V8SF #400	CS-V8SH #400
	No.450	32µm	—	—	CS-V8CF #450	CS-V8CH #450	CS-V8SF #450	CS-V8SH #450
No.500	25µm	—	—	CS-V8CF #500	CS-V8CH #500	CS-V8SF #500	CS-V8SH #500	
No.635	20µm	—	—	CS-V8CF #635	CS-V8CH #635	CS-V8SF #635	CS-V8SH #635	
Regular Pan			CS-V8BFXPN	CS-V8BHXP	CS-V8BFXPN	CS-V8BHXP	CS-V8SFXPN	CS-V8SHXP
Extended Rim Pan			CS-V8BFXPE	CS-V8BHXP	CS-V8BFXPE	CS-V8BHXP	CS-V8SFXPE	CS-V8SHXP
Regular Cover			CS-V8BFXCV		CS-V8BFXCV		CS-V8SFXCV	
Cover with Ring			CS-V8BFXCR		CS-V8BFXCR		CS-V8SFXCR	

<sup>1</sup> Not a standard ASTM E 11 size.



## 12IN DIAMETER ASTM TEST SIEVES

	ASTM		Brass Cloth Brass Frame			Stainless Cloth Brass Frame			Stainless Cloth Stainless Frame		
			Full Ht.	Inter. Ht.	Half Ht.	Full Ht.	Inter. Ht.	Half Ht.	Full Ht.	Inter. Ht.	Half Ht.
C O A R S E  S E R I E S	4in	100.0mm	—	—	—	CS-V12CF 4"	CS-V12CI 4"	CS-V12CH 4"	CS-V12SF 4"	CS-V12SI 4"	CS-V12SH 4"
	3-1/2in	90.0mm	—	—	—	CS-V12CF 3-1/2"	CS-V12CI 3-1/2"	CS-V12CH 3-1/2"	CS-V12SF 3-1/2"	CS-V12SI 3-1/2"	CS-V12SH 3-1/2"
	3in	75.0mm	—	—	—	CS-V12CF 3"	CS-V12CI 3"	CS-V12CH 3"	CS-V12SF 3"	CS-V12SI 3"	CS-V12SH 3"
	2-1/2in	63.0mm	—	—	—	CS-V12CF 2-1/2"	CS-V12CI 2-1/2"	CS-V12CH 2-1/2"	CS-V12SF 2-1/2"	CS-V12SI 2-1/2"	CS-V12SH 2-1/2"
	2.12in	53.0mm	—	—	—	CS-V12CF 2.12"	CS-V12CI 2.12"	CS-V12CH 2.12"	CS-V12SF 2.12"	CS-V12SI 2.12"	CS-V12SH 2.12"
	2in	50.0mm	—	—	—	CS-V12CF 2"	CS-V12CI 2"	CS-V12CH 2"	CS-V12SF 2"	CS-V12SI 2"	CS-V12SH 2"
	1-3/4in	45.0mm	—	—	—	CS-V12CF 1-3/4"	CS-V12CI 1-3/4"	CS-V12CH 1-3/4"	CS-V12SF 1-3/4"	CS-V12SI 1-3/4"	CS-V12SH 1-3/4"
	1-1/2in	37.5mm	—	—	—	CS-V12CF 1-1/2"	CS-V12CI 1-1/2"	CS-V12CH 1-1/2"	CS-V12SF 1-1/2"	CS-V12SI 1-1/2"	CS-V12SH 1-1/2"
	1-1/4in	31.5mm	—	—	—	CS-V12CF 1-1/4"	CS-V12CI 1-1/4"	CS-V12CH 1-1/4"	CS-V12SF 1-1/4"	CS-V12SI 1-1/4"	CS-V12SH 1-1/4"
	1.06in	26.5mm	—	—	—	CS-V12CF 1.06"	CS-V12CI 1.06"	CS-V12CH 1.06"	CS-V12SF 1.06"	CS-V12SI 1.06"	CS-V12SH 1.06"
	1in	25.0mm	—	—	—	CS-V12CF 1"	CS-V12CI 1"	CS-V12CH 1"	CS-V12SF 1"	CS-V12SI 1"	CS-V12SH 1"
	7/8in	22.4mm	—	—	—	CS-V12CF 7/8"	CS-V12CI 7/8"	CS-V12CH 7/8"	CS-V12SF 7/8"	CS-V12SI 7/8"	CS-V12SH 7/8"
	3/4in	19.0mm	—	—	—	CS-V12CF 3/4"	CS-V12CI 3/4"	CS-V12CH 3/4"	CS-V12SF 3/4"	CS-V12SI 3/4"	CS-V12SH 3/4"
	5/8in	16.0mm	—	—	—	CS-V12CF 5/8"	CS-V12CI 5/8"	CS-V12CH 5/8"	CS-V12SF 5/8"	CS-V12SI 5/8"	CS-V12SH 5/8"
	0.530in	13.2mm	—	—	—	CS-V12CF .530"	CS-V12CI .530"	CS-V12CH .530"	CS-V12SF .530"	CS-V12SI .530"	CS-V12SH .530"
	1/2in	12.5mm	—	—	—	CS-V12CF 1/2"	CS-V12CI 1/2"	CS-V12CH 1/2"	CS-V12SF 1/2"	CS-V12SI 1/2"	CS-V12SH 1/2"
	7/16in	11.2mm	—	—	—	CS-V12CF 7/16"	CS-V12CI 7/16"	CS-V12CH 7/16"	CS-V12SF 7/16"	CS-V12SI 7/16"	CS-V12SH 7/16"
	3/8in	9.5mm	—	—	—	CS-V12CF 3/8"	CS-V12CI 3/8"	CS-V12CH 3/8"	CS-V12SF 3/8"	CS-V12SI 3/8"	CS-V12SH 3/8"
	5/16in	8.0mm	—	—	—	CS-V12CF 5/16"	CS-V12CI 5/16"	CS-V12CH 5/16"	CS-V12SF 5/16"	CS-V12SI 5/16"	CS-V12SH 5/16"
	0.265in	6.7mm	—	—	—	CS-V12CF .265"	CS-V12CI .265"	CS-V12CH .265"	CS-V12SF .265"	CS-V12SI .265"	CS-V12SH .265"
1/4in	6.3mm	—	—	—	CS-V12CF 1/4"	CS-V12CI 1/4"	CS-V12CH 1/4"	CS-V12SF 1/4"	CS-V12SI 1/4"	CS-V12SH 1/4"	
No.3-1/2	5.6mm	—	—	—	CS-V12CF #3-1/2	CS-V12CI #3-1/2	CS-V12CH #3-1/2	CS-V12SF #3-1/2	CS-V12SI #3-1/2	CS-V12SH #3-1/2	
No.4	4.75mm	—	—	—	CS-V12CF #4	CS-V12CI #4	CS-V12CH #4	CS-V12SF #4	CS-V12SI #4	CS-V12SH #4	
F I N E  S E R I E S	No.5	4.0mm	—	—	—	CS-V12CF #5	CS-V12CI #5	CS-V12CH #5	CS-V12SF #5	CS-V12SI #5	CS-V12SH #5
	No.6	3.35mm	—	—	—	CS-V12CF #6	CS-V12CI #6	CS-V12CH #6	CS-V12SF #6	CS-V12SI #6	CS-V12SH #6
	1/8in <sup>1</sup>	3.18mm	—	—	—	CS-V12CF 1/8"	CS-V12CI 1/8"	CS-V12CH 1/8"	CS-V12SF 1/8"	CS-V12SI 1/8"	CS-V12SH 1/8"
	No.7	2.8mm	—	—	—	CS-V12CF #7	CS-V12CI #7	CS-V12CH #7	CS-V12SF #7	CS-V12SI #7	CS-V12SH #7
	No.8	2.36mm	CS-V12BF #8	CS-V12BI #8	CS-V12BH #8	CS-V12CF #8	CS-V12CI #8	CS-V12CH #8	CS-V12SF #8	CS-V12SI #8	CS-V12SH #8
	No.10	2.0mm	CS-V12BF #10	CS-V12BI #10	CS-V12BH #10	CS-V12CF #10	CS-V12CI #10	CS-V12CH #10	CS-V12SF #10	CS-V12SI #10	CS-V12SH #10
	No.12	1.7mm	CS-V12BF #12	CS-V12BI #12	CS-V12BH #12	CS-V12CF #12	CS-V12CI #12	CS-V12CH #12	CS-V12SF #12	CS-V12SI #12	CS-V12SH #12
	No.14	1.4mm	CS-V12BF #14	CS-V12BI #14	CS-V12BH #14	CS-V12CF #14	CS-V12CI #14	CS-V12CH #14	CS-V12SF #14	CS-V12SI #14	CS-V12SH #14
	No.16	1.18mm	CS-V12BF #16	CS-V12BI #16	CS-V12BH #16	CS-V12CF #16	CS-V12CI #16	CS-V12CH #16	CS-V12SF #16	CS-V12SI #16	CS-V12SH #16
	No.18	1.0mm	CS-V12BF #18	CS-V12BI #18	CS-V12BH #18	CS-V12CF #18	CS-V12CI #18	CS-V12CH #18	CS-V12SF #18	CS-V12SI #18	CS-V12SH #18
	No.20	850µm	CS-V12BF #20	CS-V12BI #20	CS-V12BH #20	CS-V12CF #20	CS-V12CI #20	CS-V12CH #20	CS-V12SF #20	CS-V12SI #20	CS-V12SH #20
	No.25	710µm	CS-V12BF #25	CS-V12BI #25	CS-V12BH #25	CS-V12CF #25	CS-V12CI #25	CS-V12CH #25	CS-V12SF #25	CS-V12SI #25	CS-V12SH #25
	No.30	600µm	CS-V12BF #30	CS-V12BI #30	CS-V12BH #30	CS-V12CF #30	CS-V12CI #30	CS-V12CH #30	CS-V12SF #30	CS-V12SI #30	CS-V12SH #30
	No.35	500µm	CS-V12BF #35	CS-V12BI #35	CS-V12BH #35	CS-V12CF #35	CS-V12CI #35	CS-V12CH #35	CS-V12SF #35	CS-V12SI #35	CS-V12SH #35
	No.40	425µm	CS-V12BF #40	CS-V12BI #40	CS-V12BH #40	CS-V12CF #40	CS-V12CI #40	CS-V12CH #40	CS-V12SF #40	CS-V12SI #40	CS-V12SH #40
	No.45	355µm	CS-V12BF #45	CS-V12BI #45	CS-V12BH #45	CS-V12CF #45	CS-V12CI #45	CS-V12CH #45	CS-V12SF #45	CS-V12SI #45	CS-V12SH #45
	No.50	300µm	CS-V12BF #50	CS-V12BI #50	CS-V12BH #50	CS-V12CF #50	CS-V12CI #50	CS-V12CH #50	CS-V12SF #50	CS-V12SI #50	CS-V12SH #50
	No.60	250µm	CS-V12BF #60	CS-V12BI #60	CS-V12BH #60	CS-V12CF #60	CS-V12CI #60	CS-V12CH #60	CS-V12SF #60	CS-V12SI #60	CS-V12SH #60
	No.70	212µm	CS-V12BF #70	CS-V12BI #70	CS-V12BH #70	CS-V12CF #70	CS-V12CI #70	CS-V12CH #70	CS-V12SF #70	CS-V12SI #70	CS-V12SH #70
	No.80	180µm	CS-V12BF #80	CS-V12BI #80	CS-V12BH #80	CS-V12CF #80	CS-V12CI #80	CS-V12CH #80	CS-V12SF #80	CS-V12SI #80	CS-V12SH #80
No.100	150µm	CS-V12BF #100	CS-V12BI #100	CS-V12BH #100	CS-V12CF #100	CS-V12CI #100	CS-V12CH #100	CS-V12SF #100	CS-V12SI #100	CS-V12SH #100	
No.120	125µm	CS-V12BF #120	CS-V12BI #120	CS-V12BH #120	CS-V12CF #120	CS-V12CI #120	CS-V12CH #120	CS-V12SF #120	CS-V12SI #120	CS-V12SH #120	
No.140	106µm	CS-V12BF #140	CS-V12BI #140	CS-V12BH #140	CS-V12CF #140	CS-V12CI #140	CS-V12CH #140	CS-V12SF #140	CS-V12SI #140	CS-V12SH #140	
No.170	90µm	CS-V12BF #170	CS-V12BI #170	CS-V12BH #170	CS-V12CF #170	CS-V12CI #170	CS-V12CH #170	CS-V12SF #170	CS-V12SI #170	CS-V12SH #170	
No.200	75µm	CS-V12BF #200	CS-V12BI #200	CS-V12BH #200	CS-V12CF #200	CS-V12CI #200	CS-V12CH #200	CS-V12SF #200	CS-V12SI #200	CS-V12SH #200	
No.230	63µm	CS-V12BF #230	CS-V12BI #230	CS-V12BH #230	CS-V12CF #230	CS-V12CI #230	CS-V12CH #230	CS-V12SF #230	CS-V12SI #230	CS-V12SH #230	
No.270	53µm	CS-V12BF #270	CS-V12BI #270	CS-V12BH #270	CS-V12CF #270	CS-V12CI #270	CS-V12CH #270	CS-V12SF #270	CS-V12SI #270	CS-V12SH #270	
No.325	45µm	CS-V12BF #325	CS-V12BI #325	CS-V12BH #325	CS-V12CF #325	CS-V12CI #325	V12CH #325	CS-V12SF #325	CS-V12SI #325	CS-V12SH #325	
No.400	38µm	—	—	CS-V12BH #400	CS-V12CF #400	V12CI #400	V12CH #400	V12SF #400	V12SI #400	V12SH #400	
No.450	32µm	—	—	—	CS-V12CF #450	V12CI #450	V12CH #450	V12SF #450	V12SI #450	V12SH #450	
No.500	25µm	—	—	—	CS-V12CF #500	V12CI #500	V12CH #500	V12SF #500	V12SI #500	V12SH #500	
No.635	20µm	—	—	—	CS-V12CF #635	V12CI #635	V12CH #635	V12SF #635	V12SI #635	V12SH #635	
Regular Pan	V12BFXPN	CS-V12BIXPN	CS-V12BHXPN	CS-V12BFXPN	CS-V12BIXPN	CS-V12BHXPN	CS-V12SFXPN	—	CS-V12SIXPN	—	
Extended Rim Pan	—	CS-V12BFXPE	CS-V12BIXPE	CS-V12BHXPE	CS-V12BFXPE	CS-V12BIXPE	CS-V12BHXPPE	CS-V12SFXPE	CS-V12SIXPE	CS-V12SHXPPE	
Regular Cover	—	—	CS-V12BFXCV	—	—	CS-V12BFXCV	—	—	CS-V12SFXCV	—	
Cover with Ring	—	—	CS-V12BFXCR	—	—	CS-V12BFXCR	—	—	CS-V12SFXCR	—	

<sup>1</sup> Not a standard ASTM E 11 size.



## ULTRASONIC SIEVE CLEANERS



CS-UB-1 shown with Sieves

**CS-UB-1 Ultrasonic Sieve Cleaner** is sized for full immersion cleaning of 8in (203mm) and smaller sieves. The generating unit is separate from the stainless steel liquid tank to allow safe and convenient set-up. Internal dimensions for 16qt (15L) Tank: 12x10x9in (305x254x229mm), LxWxH. External Dimensions: 15x13x13in (381x330x330mm). Generator Dimensions: 14x12x7 (351x292x178mm). Ultrasonic frequency is 80kHz. The threaded inlet and outlet drain connections are provided. The generator has an On/Off push button. A Sieve Holder Rack is included. Extra UBA-1 Racks can be ordered separately to help improve productivity. CS-UBA-4 Special Detergent Concentrate can also be used to expedite cleaning. Estimated shipping weight: 60lb (27kg).



CS-UB-18 shown with Sieves

**CS-UB-18 Ultrasonic Sieve Cleaner** is used for full immersion cleaning of four full-height or six half-height 8in (203MM) sieves, or partial-immersion cleaning of two full or intermediate height 12in (305mm) sieves using manual repositioning. Generator features microprocessor circuitry, 0–30min timer and cooling fan. The vinyl clad stainless steel tank is equipped with drain valve. External Dimensions: 19x17x20in (381x330x406mm), LxWxD. Inside Dimensions: 14x16x10in (356x305x-305mm). 1,500 Watt output. 115V, 50/60Hz, 7amp. Inquire for other voltages. Sieve Holding Rack is included. Estimated shipping weight: 55lb (25kg).

### ULTRASONIC SIEVE CLEANERS

Model	Voltage	Tank Capacity qt (L)	External Tank Dimensions in (mm)
CS-UB-1	115V/50-60Hz	16 (15.1)	15x13x13 (381x330x330)
CS-UB-5	115V/50-60Hz	55 (52)	22x14x22.5 (559x356x521)
CS-UB-15	120V/50-60Hz	3.4 (3.2)	12.5x8.1x9 (318x206x229)
CS-UB-18	120V/50-60Hz	40 (37.9)	19x17x20 (381x330x406)

#### Accessories

Description	Model
Sieve Holder Rack for CS-UB-1	CS-UBA-1
Sieve Holder Rack for CS-UB-15	CS-UBA-100
Special Detergent Concentrate, Per Gal	CS-UBA-4







CS-SS-8R shown with Sieves



CS-SS-12R shown with Sieves



CS-SSA-805R shown with Sieves

### TAPPING SIEVE SHAKERS

- Two way tapping
- new EZ-Clamp system

**CS-SS-8R Tapping Sieve Shaker** can hold up to twenty 8in (203mm) half-height test sieves with pan or ten full-height sieves with pan. The recommended particle size range is 1in (25mm) to No.635 (20µm). The characteristics of individual materials may affect the usual particle size range. Overall Dimensions: 22.5x12.5x39.5in (572x312x1,003mm), WxDxH. Estimated shipping weight: 135lbs (61kg).

**CS-SS-12R Tapping Sieve Shaker** holds up to thirteen half-height, ten intermediate height or six full-height 12in (305mm) sieves with pan. The 12in sieves have over twice the effective sieving area compared to the 8in sieves. The recommended sieve size range is 2in (50mm) to No.635 (20µm). Characteristics of individual materials may affect the usual particle size range. An adapter is included allowing the use of 8in sieves in the CS-SS-12R. Overall Dimensions: 22.5x12.5x39.5in (575x312x1,003mm), WxDxH. Estimated shipping weight: 162lb (74kg).

**CS-SSA-805R Sound Enclosure** controls noise and dust associated with CS-SS-8R and CS-SS-12R Sieve Shakers and other lab equipment. The sturdy painted steel case with full-width hinged doors is lined with 1in (25.4mm) of sound-attenuating foam. Outside Dimensions: 31x19x46in (800x500x1,200mm), WxDxH. Estimated shipping weight: 75lb (34kg).

TAPPING SIEVE SHAKERS	
Description	Model
Tapping Sieve Shaker 8in, 115V/60Hz	CS-SS-8R
Tapping Sieve Shaker 12in, 115V/60Hz	CS-SS-12R
Accessories	
Description	Model
Sound Enclosure	CS-SSA-805R





CS-SS-15 shown with Sieves

## ECONOMY 8IN SIEVE SHAKER

The **CS-SS-15 Sieve Shaker** is a portable 8in (203mm) sieve shaker. The 1/4hp unit is widely accepted by state transportation departments for highway materials testing. The CS-SS-15 holds six full-height sieves and pan or thirteen half-height sieves and pan. A clamp bar with attached cover secures the sieves. The 15 minute timer has an adjustable knob-stop for improved repeatability, and a "hold" feature for continuous running. Freestanding operation is normal, but may be mounted via holes provided in bottom end flanges. Overall Dimensions: 17x11x30in (432x279x762mm), WxDxH. Estimated shipping weight: 65lb (29kg).

### ECONOMY BIN SIEVE SHAKER

Description	Model
8in Sieve Shaker, 115V/60Hz	CS-SS-15
8in Sieve Shaker, 230V/50Hz	CS-SS-15F

## ROTARY SIFTERS

- **Accurate results**
- **Simple and efficient**
- **Exclusive silent sifter model features quiet operation**

**CS-SS-20 Rotary Sifter** offers classic design and efficient operation in an economical package. Design advances, upgraded materials and efficient operation put the CS-SS-20 a step above other sifters, while maintaining compliance with specification requirements. For ease of mobility, CS-SSA-77 Locking Swivel Casters may be purchased separately for installation on the CS-SS-20 Floor Stand.

Hammer assemblies are 6061 aluminum alloy with Ultra High Molecular Weight (UHMW) Polyethylene heads. The rugged painted case is dense, impact-resistant MDF board and is mounted on a sturdy, powder-coated ASTM A 513 heavy steel tubing stand. The whole system is driven by a dependable 1/3hp continuous duty motor. Dimensions: 19x24x58in (483x610x1,473mm), WxDxH. Estimated shipping weight: 215lb (98kg).

**CS-SS-21 Silent Sifter** is engineered to match all the performance levels of the CS-SS-20 Rotary Sifter while significantly reducing operational noise levels. Design modifications have resulted in a unit exhibiting 7-10dB lower noise levels than any other rotary sifter. The Silent Sifter is the right choice for enhanced worker protection and reduction of nuisance noise levels.



CS-SS-20

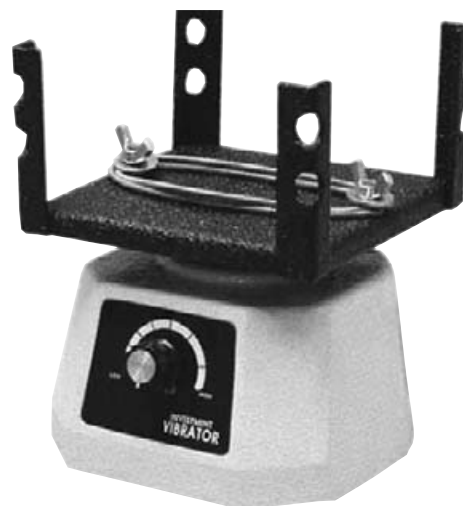
### GILSON TAPPING SIEVE SHAKERS

Description	Model
Rotary Sifter, 115V/60Hz	CS-SS-20
Rotary Sifter, 230V/50Hz	CS-SS-20F
Silent Sifter, 115V/60Hz	CS-SS-21
Silent Sifter, 230V/50Hz	CS-SS-21F
Accessories	
Description	Model
Tapping Sieve Shaker 8in, 115V/60Hz	CS-SS-8R
Tapping Sieve Shaker 12in, 115V/60Hz	CS-SS-12R
Tapping Sieve Shaker 8in, 115V/60Hz	CS-SS-8R
Tapping Sieve Shaker 12in, 115V/60Hz	CS-SS-12R





CS-SS-23 shown with CS-SSA-20 & Sieves



CS-SS-28

## WET/DRY SIEVE VIBRATOR

This is an inexpensive electric sieve vibrator helpful for the separation of fine mesh samples using one or two 8in diameter, full-height sieves.

The vibrating unit is mounted on a durable, powder-coated steel frame. Includes 3-wire cord and plug for 115V, 50/60Hz operation. Vibrator Estimated shipping weight: 5lb (3kg).

## VIBRA PAD

The Vibra Pad aids in particle sizing with non-standard sieves smaller than 6in (152mm) in diameter, and very fine mesh sizes. Users of standard 3in and 6in sieves with limited sieving work or lab space may prefer the lower-cost alternative of Vibra Pad for applications where limited vibration action is sufficient.

The plastic coated 5-1/4in (133mm) square platform has two wing nut fasteners and corner pillars with garter springs for holding sieves and other items in place. Estimated shipping weight: 10lb (5kg)

### WET/DRY SIEVE VIBRATOR

Description	Model
Wet/Dry Sieve Vibrator, 115V/50-60Hz	CS-SS-23
Accessories	
Description	Model
Notched Bucket	CS-SSA-20

### VIBRA PAD

Description	Model
Vibra Pad, 115V/50-60Hz	CS-SS-28
Vibra Pad, 230V/50-60Hz	CS-SS-28F



Specify sizes when ordering. Removable screen trays are shared by both the Testing Screen and Test-Master® models and are available in a wide range of opening sizes with ASTM E 11, ISO 565 specification cloth or punched steel plate. Each tray features a generous 14.75x22.75in (375x578mm), 2.33ft<sup>3</sup> (0.22mm<sup>3</sup>) clear screen area. Other accessories to facilitate sample handling, dust and noise control as well as separation performance are listed separately.

### TESTING SCREENS

Both testing screen models are similar in design and have exactly the same performance specifications. The only difference is in the clamping mechanism used to secure the screen trays during operation. The drive mechanism is completely enclosed for added safety. The powerful 1/2 hp capacitor-type motor is operated through a starting switch with built in overload protection. The testing screens are designed to be mounted to a solid, rigid floor system. Securing with anchor bolts to a concrete floor is recommended. Dimensions for anchor bolt placement are available upon request. Overall dimensions: 23x31x43in (584x787x1,092mm), WxDxH.

**CS-TS-1 Testing Screen** uses a quick acting hydraulic pump system to clamp the screen trays in place. Trays are quickly released using the same handle. This more efficient model is recommended for labs with a steady workload of particle size testing.

**CS-TS-2 Testing Screen** secures the screen trays with manually operated screw-type clamping handles. This model is more economical, but slightly more labor-intensive for continuous use. CSTSA-155 or CS-TSA-159 Hydraulic Clamping Conversion Kits are available to convert existing CSTS-2 models to hydraulic clamping CS-TS-1 units.

### TESTING SCREENS

Description	Voltage	Model	Ship Wt. lb (kg)
Hydraulic Clamping	115V/60Hz	CS-TS-1	485 (220)
Hydraulic Clamping	230V/50Hz	CS-TS-1F	485 (220)
Manual Clamping	115V/60Hz	CS-TS-2	485 (220)
Manual Clamping	230V/50Hz	CS-TS-2F	485 (220)
<b>Accessories</b>			
Digital Timer Controller		CS-TSA-169R	3 (2)
Door Enclosure		CS-TSA-157	12 (6)
Sound Enclosure		CS-TSA-180	280 (127)
Clean-N-Weigh		CS-TSA-167	63 (29)
Speed Variation Accessory		CS-TSA-154R	30 (14)
Low-Amplitude Drive Shaft (Must be factory-installed)		CS-TSA-200	1 (0.5)
Sand Attachment		CS-TSA-158T	14 (7)
Hydraulic Clamping Conversion; s/n 13824 and lower		CS-TSA-155	26 (12)
Hydraulic Clamping Conversion; s/n 13824 and higher		CS-TSA-159	26 (12)
Screen Tray Rack		CS-TSA-156	43 (20)



## TEST-MASTER® TESTING SCREENS

- Counterbalanced drive for smooth, quiet operation
- Integral hopper for easy sample handling
- Fully enclosed to minimize dust
- Built-in digital timer for maximum test repeatability

The CS-TM-5 with six-screen tray capacity, and the seven-tray CS-TM-6 units feature reliable counter-balanced drive assembly, fully enclosed operation and electronic digital controller.

The Test-Master® Testing Screens 1.6ft<sup>3</sup> (45.3L) hopper is hinged at the rear and allows the sample to be introduced incrementally as the machine is running. When the hopper is closed, a panel blocks dust from escaping. The doors also feature a safety interlock switch that disables the Test-Master® when open.



CS-TM-5 shown with doors open & Hopper elevated

### TEST-MASTER® TESTING SCREENS

Description	Voltage	Model	Ship Wt. lb (kg)
Test-Master®, 6-Tray Capacity	115V/60Hz	CS-TM-5	700 (318)
Test-Master®, 6-Tray Capacity	230V/50Hz	CS-TM-5F	700 (318)
Test-Master®, 7-Tray Capacity	115V/60Hz	CS-TM-6	700 (318)
Test-Master®, 7-Tray Capacity	230V/50Hz	CS-TM-6F	700 (318)
<b>Accessories</b>			
Sound Enclosure		CS-TSA-180	280 (127)
Clean-N-Weigh		CS-TSA-167	63 (29)
Speed Variation Accessory		CS-TSA-153	30 (14)
Low-Amplitude Drive Shaft (Must be factory-installed)		CS-TSA-201	1 (0.5)
Screen Tray Rack		CS-TSA-156	43 (20)





CS-PS-4

## PORTA-SCREEN®

- Counterbalanced for smooth, quiet operation
- Portable and easy to relocate for mobile applications
- Easy to handle smaller screens

**Porta-Screen®** models are designed for performance durability, yet are light enough to be portable. Designed for best separation in the 2in (50.8mm) to No.16 (1.18mm) range, it is often used to sieve materials to No.200 (75µm). PS-3 holds five screen trays and pan. PS-4 holds seven trays and pan to permit two added mesh sizes per test. The timer resets to repeat times which can be programmed up to 99 minutes, 59 seconds.

Five or Seven Course Series Screen Trays are included with each PS-3 or PS-4 respectively. Trays have 14x14in (356x356mm) screen area.

**CS-PSA-114 Porta Wheels** may be attached for added mobility. Ball-bearing wheel assemblies with rubber tires, are predrilled for quick attachment to frame of Porta-Screen®.

**CS-PSA-312 Porta Cover** bolts to the top flange to enclose the sample chamber. It has a latch, and is hinged to allow introduction of samples.

**CS-PSA-367 Porta Sample Pan** is helpful in emptying and cleaning trays and in weighing operations. This 17x30x4in (432x762x102mm), WxLxD chute-end pan is sized to fit inverted trays and hold entire samples for cumulative weighing. Handling is easy with the top swing-away handle and end handle grip.

### PORTA-SCREEN®

Description	Voltage	Model	Ship Wt. lb (kg)
Porta-Screen®, 6-Tray Capacity	115V/60Hz	CS-PS-3	225 (103)
Porta-Screen®, 6-Tray Capacity	230V/50Hz	CS-PS-3F	225 (103)
Porta-Screen®, 7-Tray Capacity	115V/60Hz	CS-PS-4	225 (103)
Porta-Screen®, 7-Tray Capacity	230V/50Hz	CS-PS-4F	225 (103)
Accessories			
Porta Cover		CS-PSA-312	6 (3)
Porta Sample Pan		CS-PSA-367	20 (9)
Porta Wheels		CS-PSA-114	6 (3)



CS-TSA-157



CS-TSA-167 shown with CS-TSA-171

## TESTING SCREEN & TEST-MASTER® ACCESSORIES

Description	Model
<p><b>Door Enclosure</b> for the CS-TS-1 and CS-TS-2 Testing Screens are designed to minimize dust and noise and is held in place with permanent magnets.</p>	CS-TSA-157
<p><b>Clean-N-Weigh Accessory</b> is a convenient method of cleaning and collecting contents of screen trays for weighing of separated fractions. Loaded screens are inverted and cleaned on top of the unit and the specimen is collected in the included CS-TSA-162 Chute-End Handling Pan below. The pan can also be positioned on an electronic balance for instant display or data collection.</p>	CS-TSA-167





### ASTM SCREEN TRAYS

ASTM D 4749, E 11, E 323;  
AASHTO M 92; ISO 565, 3310-1

ASTM Sreen Trays for Testing Screen, Test Master®, and Porta-Screen® meet relevant wire cloth specifications od ASTM-E 11, AASHTO M 92 or ISO 565, 3310-1.



Testing Screen & Test-Master® Trays



Porta-Screen® Trays

ASTM SCREEN TRAYS							
ASTM	Cloth Material	Cloth	Testing Screen & Test-Master®		Porta-Screen®		
			Full Tray	Cloth Only	Full Tray	Cloth Only	
125.0mm	5.00in.	S	CS-TSA-99 5"	CS-TSA-124 5"	n/a	n/a	
106.0mm	4.24in.	SS	CS-TSA-110 4.24"	CS-TSA-132 4.24"	n/a	n/a	
100.0mm	4.00in.	S	CS-TSA-100 4"	CS-TSA-125 4"	n/a	n/a	
90.0mm	3.50in.	S	CS-TSA-100 3-1/2"	CS-TSA-125 3-1/2"	n/a	n/a	
75.0mm	3.00in.	S	CS-TSA-100 3"	CS-TSA-125 3"	Inquire	Inquire	
63.0mm	2.50in.	S	CS-TSA-100 2-1/2"	CS-TSA-125 2-1/2"	Inquire	Inquire	
53.0mm	2.12in.	SS	CS-TSA-110 2.12"	CS-TSA-132 2.12"	Inquire	Inquire	
50.0mm	2.00in.	S	CS-TSA-100 2"	CS-TSA-125 2"	CS-PSA-300 2"	CS-PSA-325 2"	
45.0mm	1.75in.	S	CS-TSA-100 1-3/4"	CS-TSA-125 1-3/4"	CS-PSA-300 1-3/4"	CS-PSA-325 1-3/4"	
37.5mm	1.50in.	S	CS-TSA-100 1-1/2"	CS-TSA-125 1-1/2"	CS-PSA-300 1-1/2"	CS-PSA-325 1-1/4"	
31.5mm	1.25in.	S	CS-TSA-100 1-1/4"	CS-TSA-125 1-1/4"	CS-PSA-300 1-1/2"	CS-PSA-325 1-1/4"	
26.5mm	1.06in.	SS	CS-TSA-110 1.06"	CS-TSA-132 1.06"	CS-PSA-299 1.06"	CS-PSA-324 1.06"	
25.0mm	1.00in.	S	CS-TSA-100 1"	CS-TSA-125 1"	CS-PSA-300 1"	CS-PSA-325 1"	
22.4mm	.875in.	S	CS-TSA-100 7/8"	CS-TSA-125 7/8"	CS-PSA-300 7/8"	CS-PSA-325 7/8"	
19.0mm	.750in.	S	CS-TSA-100 3/4"	CS-TSA-125 3/4"	CS-PSA-300 3/4"	CS-PSA-325 3/4"	
16.0mm	.625in.	S	CS-TSA-100 5/8"	CS-TSA-125 5/8"	CS-PSA-300 5/8"	CS-PSA-325 5/8"	
13.2mm	.530in.	SS	CS-TSA-110 .530"	CS-TSA-132 .530"	CS-PSA-299 .530"	CS-PSA-324 .530"	
12.5mm	.500in.	S	CS-TSA-100 1/2"	CS-TSA-125 1/2"	CS-PSA-300 1/2"	CS-PSA-325 1/2"	
11.2mm	.438in.	S	CS-TSA-100 7/16"	CS-TSA-125 1/16"	CS-PSA-300 7/16"	CS-PSA-325 7/16"	
9.5mm	.375in.	S	CS-TSA-100 3/8"	CS-TSA-125 3/8"	CS-PSA-300 3/8"	CS-PSA-325 3/8"	
8.0mm	.312in.	S	CS-TSA-100 5/16"	CS-TSA-125 5/16"	CS-PSA-300 5/16"	CS-PSA-325 5/16"	
6.7mm	.265in.	SS	CS-TSA-110 .265"	CS-TSA-132 .265"	CS-PSA-299 .265"	CS-PSA-324 .265"	
6.3mm	.250in.	S	CS-TSA-100 1/4"	CS-TSA-125 1/4"	CS-PSA-300 1/4"	CS-PSA-325 1/4"	
5.6mm	No 3-1/2.	SS	CS-TSA-110 #3-1/2	CS-TSA-132 #3-1/2	CS-PSA-299 #3-1/2	CS-PSA-324 #3-1/2	
4.75mm	No 4.	S	CS-TSA-100 #4	CS-TSA-125 #4	CS-PSA-300 #4	CS-PSA-325 #4	
4.00mm	No 5.	SS	CS-TSA-101 #5	CS-TSA-126A #5	CS-PSA-301 #5	CS-PSA-326A #5	
3.35mm	No 6.	SS	CS-TSA-101 #6	CS-TSA-126A #6	CS-PSA-301 #6	CS-PSA-326A #6	
2.80mm	No 7.	SS	CS-TSA-101 #7	CS-TSA-126A #7	CS-PSA-301 #7	CS-PSA-326A #7	
2.36mm	No 8.	SS	CS-TSA-101 #8	CS-TSA-126A #8	CS-PSA-301 #8	CS-PSA-326A #8	
2.00mm	No 10.	SS	CS-TSA-101 #10	CS-TSA-126A #10	CS-PSA-301 #10	CS-PSA-326A #10	
1.70mm	No 12.	SS	CS-TSA-101 #12	CS-TSA-126A #12	CS-PSA-301 #12	CS-PSA-326A #12	
1.40mm	No 14.	SS	CS-TSA-101 #14	CS-TSA-126A #14	CS-PSA-301 #14	CS-PSA-326A #14	
1.18mm	No 16.	SS	CS-TSA-102 #16	CS-TSA-126B #16	CS-PSA-302 #16	CS-PSA-326B #16	
1.00mm	No 18.	SS	CS-TSA-102 #18	CS-TSA-126B #18	CS-PSA-302 #18	CS-PSA-326B #18	
850µm	No 20.	SS	CS-TSA-102 #20	CS-TSA-126B #20	CS-PSA-302 #20	CS-PSA-326B #20	
710µm	No 25.	SS	CS-TSA-102 #25	CS-TSA-126B #25	CS-PSA-302 #25	CS-PSA-326B #25	
600µm	No 30.	SS	CS-TSA-102 #30	CS-TSA-126B #30	CS-PSA-302 #30	CS-PSA-326B #30	
500µm	No 35.	SS	CS-TSA-102 #35	CS-TSA-126B #35	CS-PSA-302 #35	CS-PSA-326B #35	
425µm	No 40.	SS	CS-TSA-102 #40	CS-TSA-126B #40	CS-PSA-302 #40	CS-PSA-326B #40	
355µm	No 45.	SS	CS-TSA-102 #45	CS-TSA-126B #45	CS-PSA-302 #45	CS-PSA-326B #45	
300µm	No 50.	SS	CS-TSA-102 #50	CS-TSA-126B #50	CS-PSA-302 #50	CS-PSA-326B #50	
250µm	No 60.	SS	CS-TSA-102 #60	CS-TSA-126B #60	CS-PSA-302 #60	CS-PSA-326B #60	
212µm	No 70.	SS	CS-TSA-102 #70	CS-TSA-126B #70	CS-PSA-302 #70	CS-PSA-326B #70	
280µm	No 80.	SS	CS-TSA-102 #80	CS-TSA-126B #80	CS-PSA-302 #80	CS-PSA-326B #80	
150µm	No 100.	SS	CS-TSA-102 #100	CS-TSA-126B #100	CS-PSA-302 #100	CS-PSA-326B #100	
150µm	No 100.	SS	CS-TSA-102 #100	CS-TSA-126B #100	CS-PSA-302 #100	CS-PSA-326B #100	
150µm	No 100.	SS	CS-TSA-102 #100	CS-TSA-126B #100	CS-PSA-302 #100	CS-PSA-326B #100	
125µm	No 120.	SS	CS-TSA-103	CS-TSA-140	CS-PSA-303	CS-PSA-328	
106µm	No 140.	SS	CS-TSA-104	CS-TSA-141	CS-PSA-304	CS-PSA-329	
90µm	No 170.	SS	CS-TSA-105	CS-TSA-142	CS-PSA-305	CS-PSA-330	
75µm	No 200.	SS	CS-TSA-106	CS-TSA-127	CS-PSA-306	CS-PSA-327	
63µm	No 230.	SS	CS-TSA-107	CS-TSA-143	CS-PSA-307	CS-PSA-331	
53µm	No 270.	SS	CS-TSA-108	CS-TSA-144	CS-PSA-308	CS-PSA-332	
45µm	No 325.	SS	CS-TSA-109	CS-TSA-145	CS-PSA-309	CS-PSA-333	
38µm	No 400.	SS	CS-TSA-111	CS-TSA-146	CS-PSA-311	CS-PSA-334	
No.4 Backup Cloth		S	—	CS-TSA-135	—	CS-PSA-335	
Blank Tray, No.4 & Coarser		—	CS-TSA-138	—	CS-PSA-336	—	
Blank Tray, No. 5 & Finer		—	CS-TSA-137	—	CS-PSA-336	—	
Dust Pan		—	CS-TSA-112	—	CS-PSA-310	—	





CS-SP-1



CS-SP-2

## UNIVERSAL SAMPLE SPLITTERS

ASTM C 136, C 702, C 778, D 75, AASHTO T 27, T 248

### CS-SP-1 Sample Splitter

This original Universal design is suitable for laboratory or field use with materials with particle sizes from 4i (102mm) down to fine sand. The lever-release allows controlled, accurate splits from the 1ft<sup>3</sup> (28.3L) hopper.

Available accessories: CS-SPA-102 Chute attachment, Optional CS-PSA-114 Porta Wheels

The **CS-SPA-103 60° Adapter Kit** increases the chute slope of the splitter to handle difficult materials. The CS-SPA-114 Fixed Chute Accessory converts an CS-SP-1 into a CS-1C Fixed-Chute Splitter with ten 2-1/4in wide chutes. The CS-SPA-7 Enclosure Adapter Set converts the CS-SP-1 to a CS-SP-10 Totally Enclosed Splitter for improved dust control. CS-SP-1 Dimensions: 29x19x39in (737x483x990mm), WxDxH. Estimated shipping weight: 136lb (62kg).

### CS-SP-2 Sample Splitter

With a 0.55ft<sup>3</sup> (15.6L) lever-release hopper and adjustability to form up to 36 dividing chutes, this splitter provides accurate and representative samples for a wide range of materials. Two pans are included, but extra pans are available as CS-SPA-101. Optional CS-SPA-106 Adapter Kit modifies the 45° chute to a 60° angle for more efficient processing of difficult samples. CS-SP-2 dimensions: 22x14.5x20.5in (559x368x521mm) WxDxH. Estimated shipping weight: 40lb (18kg).



CS-SP-2.5



CS-SP-3

**CS-SP-2.5 Versa-Splitter®**

For 1/4in (6.4mm) to powder sizes. The 104in (1.7L) hopper has a 3/8in (9.5mm) bottom opening with a spring-loaded gate release. An optional Dust Enclosure Kit is available as CS-SP-302, and consists of two stainless steel panels held in place by springs. The panels slide up easily for access to the pans and quickly detach when not needed. CS-SP-3 dimensions: 9.5x8.5x13.5in (241x216x343mm), WxDxH. Estimated shipping weight: 15lb (7kg).

**CS-SP-3 Mini-Splitter®**

For 3/4in (19mm) and smaller sizes. The 0.28ft (7.9L) lever-release hopper has plenty of capacity for samples in this size range, and up to 48 chutes can be formed with the adjustable chute bars. Optional CS-SPA-109 Dust Enclosure Accessory installs easily on the Versa-Splitter and has hinged flaps that hold in open or closed positions for pan access. CS-SP-2.5 dimensions: 15.5x12.5x17.5in (394x318x445mm), WxDxH. Estimated shipping weight: 40lb (18kg).

## UNIVERSAL SAMPLE SPLITTERS

Model	Maximum Particle Size, in (mm)	Hopper Capacity ft <sup>3</sup> (L)	No. of Chute Bars	Chute Bar Size, in (mm)	Chute Slope	Extra Pans
CS-SP-1	4 (102)	1.0 (28.3)	48	1/2 (13)	45°	CS-SPA-100
CS-SP-2	2 (51)	0.55 (15.6)	36	1/2 (13)	45°	CS-SPA-101
CS-SP-2.5	3/4 (19)	0.28 (7.9)	48	1/4 (6)	60°	CS-SPA-108
CS-SP-3	1/4 (6)	0.06 (1.7)	48	1/8 (3)	60°	CS-SPA-301

## Accessories

Description	Model
Lift Cart Accessory for CS-SP-0 Pans	CS-SPA-450
Fixed Chute Accessory for CS-SP-1	CS-SPA-114
Chute Attachment for CS-SP-1	CS-SPA-102
Porta-Wheels for CS-SP-1	CS-PSA-114
60° Adapter Set for CS-SP-1	CS-SPA-103
Dust Enclosure Adapter for CS-SP-1	CS-SPA-7
60° Adapter Set for CS-SP-2	CS-SPA-106
Dust Enclosure Kit for CS-SP-2.5	CS-SPA-302
Dust Enclosure Kit for CS-SP-3	CS-SPA-109



## CALIFORNIA SPLITTER CALIFORNIA 201

Designed for CALTRANS, the CS-SP-12CA Splitter meets CalTrans 201 requirements. Large capacity, 1.9ft<sup>3</sup> (53.8L) gate release hopper. Ten 2-1/4in (57.2mm) fixed chutes process particle sizes up to 1-1/8in (28.6mm). Sturdy, heavy-gauge steel frame, baked paint finish. Swivel casters.

**CS-SP-12CA** includes two 1.2ft<sup>3</sup> (34L) capacity, welded steel sample pans. CS-SP-12CG has sample pans fabricated of lightweight aluminum. Extra Steel Sample Pans available: CS-SPA-120. CS-SPA-122 lightweight aluminum pans are also available as replacements. Overall dimensions: 29x28x46in (737x711x1,169mm), WxDxH.



CS-SP-12CA

### CALIFORNIA SPLITTER

Description	Model	Ship Wt. lb (kg)
California Splitter with Steel Pans	CS-SP-12CA	244 (111)
California Splitter with Aluminum Pans	CS-SP-12CG	234 (106)
Accessories		
Steel Sample Pan	CS-SPA-120	20 (9)
Aluminum Sample Pan	CS-SPA-122	9 (4)





CS-SP-55

## QUARTERMASTER™ ASPHALT SAMPLE DIVIDER

AASHTO R 47; ASTM PENDING

- Quickly divides bulk samples for testing
- Safe, easy method to obtain representative sample of hot-mix asphalt
- Rugged construction stands up to field use
- Proven history of accurate performance

The patented CS-SP-55 Quartermaster™ quickly and accurately divides any hot-mix asphalt sample for quality control analysis. Field samples of 120lb (55kg) or more can easily be reduced.

Four CS-MA-950 Sample Containers are included. Order CS-HMA-68 Material Handling Chute separately.

Assembled unit dimensions: 14x17x48in (356x432x1,219mm), WxDxH

Estimated shipping weight: 111lb (50kg)

Also available, the CS-SPA-21 Quick Funnel Insert (not shown) which inserts into the top of the CS-SP-55 to significantly reduce hopper volume.

Estimated shipping weight: 14lb (7kg).

### QUARTERMASTER™ ASPHALT SAMPLE DIVIDER

Description	Model
Quartermaster™ Asphalt Sample Divider	CS-SP-55
<b>Accessories</b>	
Material Handling Chute	CS-HMA-68
Quick Funnel Insert	CS-SPA-21
Galvanized Pail	CS-MA-950



## PRECISION SPLITTERS

For bulk samples of granular materials and fine powders. Two riffle-type splitters have similar design and construction and feature a gate-controlled hopper, precision fixed-width chutes, and 100% heavy-gauge type 304 stainless steel construction. Two stainless steel sample pans are included. Additional stainless steel sample pans are available as CS-SPA-130. Overall dimensions: 8.8x7.4x12in (223x188x305mm), WxDxH. Estimated shipping weight: 15lb (7kg)

**CS-SP-302** has a hopper capacity of 61in<sup>3</sup> (1L), and the sixteen 1/4in (6.3mm) fixed chutes have a discharge angle of 45°.

**CS-SP-304** has a hopper capacity of 61in<sup>3</sup> (1L), and the thirty 1/8in (3.2mm) fixed chutes have a discharge angle of 45°.



CS-SP-302

## PRECISION SPLITTERS

Description	Model
Precision Splitter, 1/4in Chutes	CS-SP-320
Precision Splitter, 1/8in Chutes	CS-SP-304
Accessories	
Sample Pan, Stainless Steel	CS-SPA-130





CS-TSA-162



CS-HMA-68

### MATERIAL HANDLING SAMPLE PAN

Material Handling Pan has a swinging handle mounted at the balance point and a flanged end for safe, easy lifting.

### MATERIAL HANDLING CHUTE

- Fills large Gyrotory compaction molds in a single lift
- Makes handling of HMA samples safe and efficient
- Works well for aggregate and soil samples
- Stable for use as a weighting scoop

#### MATERIAL HANDLING SAMPLE PANS

Description	Model	Size WxDxH in (mm)	Capacity qt (L)
Material Handling Pans	CS-TSA-162	15x30x4 (381x762x102)	39 (37)
Material Handling Pans	CS-TSA-163	12x20.5x4 (305x521x102)	17 (16)

**CS-HMA-68 Material Handling Chute** is an all-purpose chute that allows loading, filling, and handling of any bulk material, including Asphalt, Aggregates, and Soils. It quickly and uniformly fills Gyrotory, Marshall, Proctor, CBR, Relative Density molds, Quartermaster™ or Universal splitters. The Handling Chute conforms to mold loading procedures in ASTM D 4013 and AASHTO T 312.

Constructed of 24-gauge stainless steel with rolled edges. The open end is formed with a 2in (51mm) radius to fit most mold openings. The unit stands horizontally or vertically. Overall dimensions: 22x11.5x10.5 (559x292x267mm). Estimated shipping weight: 5lb (2kg).

#### MATERIAL HANDLING CHUTE

Description	Model
Material Handling Chute	CS-HMA-68



## SAMPLING PROBES ASTM C 183; AASHTO T 127

Sampling Probes are useful for sampling seed, grain, or other granular materials. Shorter length probes are for sampling from trucks, drums, bins, stockpiles; longer ones are for barges, rail cars, large trucks, or hoppers.



CS-GP-12



CS-GP-6

### SAMPLING PROBES

Description	Model	Length In (mm)	O.D. in.	Material	Openings/ Partitions	Shipping Wt. lb (kg)
Double-Tube Probes are seamless construction with durable points. Inner tube is rotated to open/close sampling holes. Probes with partitions between holes have closed-end handle and pockets are emptied individually. Partition type is USDA approved for grain sampling. CS-GP-16 meets ASTM C 183 and AASHTO T 127 for bulk sampling of hydraulic cement. CS-GP-25 Spiral Probe has offset inner tube openings that open in Sequence from bottom to top as the probe is rotated. Smaller diameters may be used for in-bag sampling. Use stainless steel probe for foods, pharmaceuticals and fertilizers.	CS-GP-12	40 (1,020)	1-3/8	Extruded	6/No	7 (3)
	CS-GP-14	50 (1,270)	1-3/8	Brass with Cast Bronze Point	8/No	8 (4)
	CS-GP-16	63 (1,600)	1-3/8		10/No	11 (5)
	CS-GP-22	63 (1,600)	1-3/8		10/Yes	11 (5)
	CS-GP-24	63 (1,600)	1-3/8		11/Yes	11 (5)
	CS-GP-25	62 (1,575)	1-3/8		10/No	11 (5)
	CS-GP-29	72 (1,829)	1-3/8		12/Yes	12 (5)
	CS-GP-29A	72 (1,829)	1-3/8		12/No	12 (5)
	CS-GP-68A	96 (2,438)	1-3/8		16/No	16 (7)
	CS-GP-70A	120 (3,048)	1-3/8	20/No	20 (9)	
	CS-GP-4	18 (457)	1/2	Nickel- Plated Brass	5/No	3 (1)
	CS-GP-5	30 (762)	1/2		9/No	5 (2)
	CS-GP-6	39 (991)	7/8		6/No	7 (3)
CS-GP-6S	39 (991)	7/8	Stainless	6/No	7 (3)	





### MICRO-DEVAL APPARATUS

ASTM D 6928, D 7428; AASHTO T 327;  
TEXAS 845-49-40

The **CS-MD-2000** meets current ASTM, AASHTO and Canadian standards, as well as more stringent Texas DOT requirements. This contemporary version of the Micro-Deval test should not be confused with older versions originating in Europe which use different equipment and test protocol.

**CS-MD-2000 Micro Deval Apparatus** is a second generation, state-of-the-art machine – a two tier unit with sturdy steel frame. Each tier carries one stainless steel 5L jar, 194mm ID, 170mm internal height with locking cover, the jars revolve behind closed LEXAN™ doors with safety interlocks. Power to the rubber-covered rollers is supplied by a 3/4hp electric motor through a gear transmission and chain drive. The unit is supplied with two jars and two 5,500g abrasive charges. A magnet is included to assist in removing the abrasive charge after the test is complete. Overall Dimensions: 20.5x13.5x38in (521x343x965mm), Electrical: operates on 115V/60Hz.



CS-MD-2000



CS-HMA-920 shown with CS-HMA-922

### MICRO-DEVAL APPARATUS

Description	Voltage	Model	Ship Wt. lb (kg)
Micro-Deval Apparatus	115V/60Hz	CS-MD-2000	165 (75)
Micro-Deval Apparatus	115V/60Hz	CS-MD-2000C	165 (75)
Micro-Deval Apparatus	230V/50Hz	CS-MD-2000F	165 (75)
<b>Accessories</b>			
Jar with Locking Cover, 5L		CS-HMA-920	12 (6)
Abrasive Charge		CS-HMA-922	13 (6)



## LOS ANGELES ABRASION MACHINE

ASTM C 131, C 535; AASHTO T96

A design that has integrated safety features, with total control from outside a sound enclosure. An electrical interlock allows the machine to operate only when the double-hinged lid is closed and a safety key is inserted. Drum is positioned for loading and unloading using a jog button while watching through a viewing window in the enclosure. Sound is absorbed by the heavy, painted steel enclosure with sound attenuating foam and membrane lining.

The 1/2in (12.7mm) thick welded steel drum has 28in (711mm) ID and 20in (508mm) inside length, and is mounted on a rigid welded steel support frame. The 6in (152mm) wide opening for introducing and discharging sample has a bolted cover which fits flush with inside contour of drum when tightened securely with a dust-tight gasket. A 3.5in (89mm) wide steel shelf of ASTM "preferred design" extends the full length of the drum interior and is removable for replacement or maintenance.

A 1hp electronically controlled gear-motor rotates the drum at 30-33rpm via enclosed chain drive. Drum assembly rotates in flanged ball bearing with dust seals and grease fittings. Controller console with overload protection has large JOG and On/Off push button controls, and automatic counter stops rotation after a preset number of revolutions. Abrasive charge of twelve hardened steel balls is included. Heavy-duty catch pan with handle measures 24x26x2.5in (610x660x63mm) and is 19lb (9kg) net weight. The HM-70A measures 38x40x46.5in (965x1,016x1,181mm), WxDxH.



CS-HM-70A

### LOS ANGELES ABRASION MACHINE

Description	Voltage	Model	Ship Wt. lb (kg)
Los Angeles Abrasion Machine	220V/60Hz, 1 phase	CS-HM-70A	1,200 (491)
Los Angeles Abrasion Machine	220V/50Hz, 1 phase	CS-HM-70AF	1,200 (491)
Accessories			
Abrasive Charge, set of 12 balls		CS-HMA-130	12 (6)
Catch-Pan		CS-HMA-131	18 (8)
Replacement Steel Shelf		CS-HMA-132	20 (9)
Wear-Resistant Steel Shelf		CS-HMA-132WR	22 (10)



## DURABILITY INDEX APPARATUS

ASTM D 3744; AASHTO T 210; CALIFORNIA 227, 229

Durability Index measures relative resistance of an aggregate to produce clay-like fines when subjected to mechanical agitation in a special washing vessel. Resulting fines material is evaluated using the Sand Equivalent Apparatus listed on page 26. The versatile CS-SS-18 Agitator runs at 285cpm, and it may also be used as a sieve shaker for up to six sieves and pan.

The **CS-SSA-22 Stainless Steel Wash Vessel** is approximately 8in (203mm) diameter x 9-1/2in (241mm) high and is complete with lid, gasket, and clamps. Agitator measures 16x14x30in (406x356x762mm), WxDxH. Est. Ship Wt.: 65lb (30kg).

### DURABILITY INDEX APPARATUS

Description	Voltage	Model
Durability Index Apparatus	115V/60Hz	CS-SS-18
Durability Index Apparatus	230V/50Hz	CS-SS-18F
Accessories		
Washing Vessel		CS-SSA-22



CS-SS-18 shown with SSA-22

## SAND EQUIVALENT SHAKERS

ASTM D 2419; AASHTO T 176, T 210;  
CALIFORNIA 217, 229

**CS-SE-2B Positive DC Drive** assures precise speed and stroke and eliminates errors. A selection switch gives options of precise fixed times of 45 seconds and 10 minutes. The 8in (203mm) throw at 175cpm is smooth, quiet and efficient. The 1/8hp DC sealed gear motor is housed in a sturdy metal case. The hinged safety cover with top viewing windows must be closed to operate the shaker. Test cylinder is held securely by base pin and spring-loaded holder on stoppered end. Over-all dimensions: 35x14x20in (889x356x508mm), WxDxH; allow 10in (254mm) additional height for opening safety cover. Est. Ship WT.: 200lb (91kg).

**CS-SE-6 Hand-Crank Sand Equivalent Shaker** has 3 cycles per revolution of crank. Operator cranks at one turn per second until digital counter reaches 131 cycles. Cylinder mounts to fixed-travel guide rod by base pin and threaded clamp holder on stoppered end. Base has holes for mounting. Dimensions: 30x14x10in (762x356x254mm), LxWxH. Est. Ship Wt.: 68lb (31kg).

**CS-SE-5 Hand-Operated Spring Sand Equivalent Shaker** conforms to ASTM, AASHTO and California 217 test methods. Unit has cylinder mounting bracket suspended by two steel straps. Operator manually oscillates cylinder to a preset mark on the case at proper rate. Digital counter records stroke counts. Components are mounted in a vinyl-covered, plywood case with reinforced corners, removable front, and a top handle. Dimensions: 24x6x25in (610x152x635mm), WxDxH. Est. Ship Wt.: 30lb (14kg).



CS-SE-2B shown with CS-SEA-101



CS-SE-6



CS-SE-5

### SAND EQUIVALENT SHAKERS

Description	Voltage	Model
Mechanical Sand Equivalent Shaker, Motor-Driven	115V/60Hz	CS-SE-2B
Mechanical Sand Equivalent Shaker, Motor-Driven	230V/50Hz	CS-SE-2BF
Hand-Operated Spring Sand Equivalent Shaker		CS-SE-5
Hand-Crank Sand Equivalent Shaker		CS-SE-6



CS-SEA-100

**SAND EQUIVALENT TEST SETS**  
**ASTM D 2419; AASHTO T 176, T 210;**  
**CALIFORNIA 217, 229**

**CS-SEA-100 Sand Equivalent Test Set** includes four clear plastic graduated cylinders, a Siphon Assembly, Irrigator Tube, Weighted Foot, Funnel, Measuring Tin, Solid Stopper, 8oz of stock solution and vinyl-covered latching wooden case with carrying handle. Est. Ship Wt.: 15lb (7kg).

**CS-SEA-99 Economy Sand Equivalent Test Set** includes all components of the standard set, but is supplied without the carrying case. Est. Ship Wt.: 9lb (4kg).



CS-SG-40 shown with CS-HMA-11A & CS-SC-74

**FINE AGGREGATE ANGULARITY APPARATUS**  
**ASTM C 1252; AASHTO T 304**

This Apparatus is used to determine the uncompacted void content of a fine aggregate sample. Colonial Scientific recommends CS-SC-74 Stainless Steel Pan as a sample retainer.

Included with the CS-SG-40 is a 100ml copper cylindrical measure, Funnel with specified hopper, Funnel Stand, and a Glass Plate for calibration. Est. Ship Wt.: 10lb (5kg).

SAND EQUIVALENT TEST SETS	
Description	Model
Sand Equivalent Test Set	CS-SEA-100
Economy Sand Equivalent Test Set	CS-SEA-99
Accessories	
Clear Plastic Graduated Cylinder	CS-SEA-101
Stock Solution, 8oz	CS-SEA-102
Stock Solution, 1gal	CS-SEA-103
Weighted Foot Assembly	CS-SEA-100A
Siphon Assembly	CS-SEA-100B
Funnel	CS-SEA-100C
Measuring Tin, 3oz	CS-SC-500-1
Carrying Case	CS-SEA-100E
Solid Stopper	CS-SEA-100F
Irrigator Tube	CS-SEA-100G

FINE AGGREGATE ANGULARITY APPARATUS	
Description	Model
Fine Aggregate Angularity Apparatus	CS-SG-40
Accessories	
Glass Plate	CS-SGA-91
100ml Measure	CS-SGA-92
Pan, Stainless Steel 12.5x2in, DxH	CS-SC-74
Spatula	CS-HMA-11A



## COARSE AGGREGATE ANGULARITY APPARATUS

### AASHTO T 326

The **CS-SG-42 Apparatus** for uncompacted void content of coarse aggregate utilizes a scaled-up apparatus and procedure similar to that used for evaluation of fine aggregate. Gradation and void content data provide an indication of angularity, sphericity and surface texture. As concluded by NCAT's work, test results relate to permanent deformation and fatigue cracking of asphalt. The test has therefore been recommended to evaluate aggregates for hot-mix asphalt pavement.

Aggregate is allowed to free fall from the hopper into a cylindrical measure. Excess heaped aggregate is struck off by the included bar, the mass is measured and void content is computed.

The hopper, stand and measure are stainless steel. The apparatus also includes glass plate for calibration of the measure. Dimensions: 10x10x27in (254x254x686mm), WxDxH.



CS-SG-42

### COARSE AGGREGATE ANGULARITY APPARATUS

Description	Model
Coarse Aggregate Angularity Apparatus	CS-SG-42
Accessories	
Overflow Pan	CS-SC-181
Chute-end Aggregate Handling Pan	CS-TSA-163
Glass Plate	CS-SGA-94
Brass Measure	CS-SGA-95



CS-HM-38R



CS-HM-38B

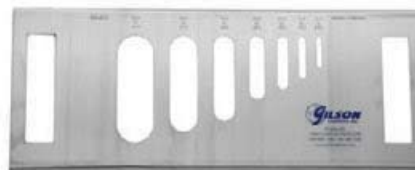
**PROPORTIONAL CALIPERS  
ASTM D 4791**

Shape characteristics of coarse aggregates are important to performance of materials or mixes. CS-HM-38R and CS-HM-38B Proportional Calipers are time-saving devices. Use either for rapid determination of percentages of flat and elongated particles in coarse aggregate fractions of 3/8in (9.5mm) or larger. Both units are constructed of durable aluminum and precision tooled for accuracy.

For shape determination of flat particle sizing, set the width of a particle in the larger end of the Caliper, then tighten the pivot screw. Without adjusting the Caliper, determine the thickness of the same particle in the smaller measuring end of the Caliper. If the particle fits within the smaller gap, it is considered flat. Elongated particle determination uses the same steps. If the particle is larger than the small measurement in both situations then the particle is considered neither flat nor elongated.

**CS-HM-38R Budget Caliper** consists of a 6x16in (152x406mm) base plate with two fixed posts and a 13in (330mm) pivoting arm mounted between the posts so that there is an opening at each end of the arm. The pivoting arm adjusts by securing a pivot screw at one of four threaded positions to provide end opening ratios of 1:2, 1:3, 1:4, 1:5. Est. Ship Wt.: 8lb (4kg).

**CS-HM-38B Four-Station Caliper** is similar, but provides openings for all four ratios simultaneously, without the need to reposition the pivot screw. Movable posts are also replaceable. Est Ship Wt.: 8lb (4kg).



CS-HM-925



CS-HM-926

**FLAKINESS & ELONGATION OF AGGREGATE**

The aggregate classification system uses a CS-HM-925 Thickness Gauge for determining flakiness index and a metal CS-HM-926 Length Gauge for determining elongation index. Aggregate is separated into seven sieve fractions from 63-6.3mm, and each fraction is evaluated separately.

**CS-HM-925 Thickness Gauge** has seven labeled slots for rapid hand trying of particles from each of the seven sieve cuts. The mass of all the flaky particles as a percentage of the sample is the flakiness index. Thickness Gauge is enameled sheet metal with clearly marked sieve fraction ranges for each slot. Est. Ship Wt.: 3lb (1kg).

**CS-HM-926 Length Gauge** has six labeled openings between pairs of metal pins for measuring length of particles from each of the six sieve cuts below 50mm. The mass of all elongated particles as percent of the sample is the elongation index. The Length Gauge has stainless pins set in a brushed aluminum base stamped with sieve fraction ranges between pins. Est. Ship Wt.: 3lb (1kg).

Test aggregates must be sieved using sieves with openings of 63, 50, 37.5, 28, 20, 14, 10, and 6.3mm. These are available separately as 200mm diameter brass frame sieves with stainless steel cloth as International Test Sieves.

**PROPORTIONAL CALIPERS**

Description	Model
Budget Caliper	CS-HM-38R
Four-Station Caliper	CS-HM-38B

**FLAKINESS & ELONGATION OF AGGREGATE**

Description	Model
Thickness Gauge (Flakiness Index)	CS-HM-925
Length Gauge (Elongation Index)	CS-HM-926



## AQUA-CHECK MOISTURE TESTER ASTM D 4944; AASHTO T 217; FLORIDA FM5-507

**CS-MA-26 Aqua-Check** is constructed of a rugged, die-cast aluminum body finished in a tough, wear-resistant coating and includes a pressure gauge, 0-20% range with a certificate of calibration. Also included: electronic digital balance, two 1.25in (32mm) diameter steel balls for pulverizing samples, reagent measuring scoop, a 1lb (0.5kg) can of reagent, brush and instructions in a heavy-duty, waterproof plastic case. Approximate pressure chamber dimensions: 14x5.5in (356x140mm), LxDia.

**CS-MAA-45 Aqua-Check** 0-20% Pressure Gauge, available as a replacement gauge includes a certificate of calibration, and is also compatible with Speedy-brand Moisture Testers, models CS-MA-21A and CS-MA-25. Remaining accessories listed are compatible with all Aqua-Check and Speedy-brand Moisture Testers. Due to shipping restrictions, additional reagent is sold in 10lb (4.5kg) cans.



CS-MA-26

### AQUA-CHECK MOISTURE TESTER

Description	Model
Aqua-Check Moisture Tester	CS-MA-26
Aqua-Check Moisture Tester, w/o Reagent	CS-MA-26X
Accessories	
Calcium Carbide Reagent, 10lb can	CS-MAA-44
Aqua-Check 0-20% Pressure Gauge	CS-MAA-45
Electronic Balance, 200 x 0.1g	CS-AD-25
1.25in (32mm) Steel Balls, pkg. 2	CS-MAA-47
Sample Cup	CS-MAA-52
Long-Handle Reagent Scoop	CS-MAA-48
Large, Coarse Clean-Out Brush	CS-MAA-51
Small, Fine-Bristle Brush	CS-MAA-50
Heavy-Duty Waterproof Plastic Case	CS-MAA-46



## AUTOMATIC AGGRA-WASHERS

ASTM C 117, D 1140; AASHTO T 11

Two Aggra-Wash models automatically wash soil and aggregate samples to remove fines passing the No. 200 sieve. Inconsistencies and high cost of manual methods are eliminated. Water is continuously fed into the revolving, inclined stainless steel drum via a permanent regulated connection and the sample is gently agitated until overflow is clear. Overflow is directed to sieves to prevent loss of oversize material in decanted water. Select appropriate sizes from our extensive line of Wet-Washing Sieves. Both models are equipped with totally enclosed gear motors for rotation and 6ft (1.8M) power cords with GFCI plugs.

**CS-HM-57R Full Sized Aggra-Washer** allows processing of large aggregate samples up to 15lb (7kg). Drum size is 11in diameter x 13in high (279x330mm). Extra drums can be ordered to improve sample processing efficiency. Overall dimensions: 22x22x31in (559x559x788mm), LxWxH. Est. Ship Wt.: 140lb (64kg).

**CS-HM-52 Table Top Aggra-Washer** model is useful for washing geotechnical or small aggregate samples of up to 6-8lb (2.7-3.6kg). The fixed-angle, removable drum can be used as a weighing container. Goose-neck water tube swivels aside to allow drum removal. Extra drums can be ordered to improve sample processing efficiency. Stainless steel drum is 9in diameter x 10.75in high (229x273mm). Overall dimensions: 18x12.5x16in (457x318x406mm), LxWxH. Est. Ship Wt.: 40lb (18kg).



CS-HM-57R



CS-HM-52

### AUTOMATIC AGGRA-WASHERS

Description	Model
Full-Size Aggra-Washer, 115V/60Hz	CS-HM-57R
Full-Size Aggra-Washer, 230V/50Hz	CS-HM-57RF
Table Top Aggra-Washer, 115V/60Hz	CS-HM-52
Table Top Aggra-Washer, 230V/50Hz	CS-HM-52F
Accessories	
Wash Drum for CS-HM-52	CS-HMA-260
Wash Drum for CS-HM-57R	CS-HMA-261
8in Pan with Drain	CS-WT-3
12in Pan with Drain	CS-WT-10
Vinyl Tubing, 1/4in ID, per foot	CS-WT-8
Hose Clamp	CS-MA-198

## SPECIFIC GRAVITY ACCESSORIES



CS-GW-74



CS-SG-6



CS-SG-450



CS-SG-24

### SPECIFIC GRAVITY ACCESSORIES

Description	Type	Model	ASTM/AASHTO
<b>Filter Flasks</b> are thick-walled and the 1, 2, and 4L sizes have side tubulation for 3/8in (9.5mm) ID vacuum tubing. The 2 and 4L sizes are often used as pycnometers, and 1L flasks are often used in line to form a vapor trap for vacuum pump protection.	1L Flask	CS-GW-74	D 2041/
	2L Flask	CS-GW-75	T 209, T 283
	4L Flask	CS-GW-76	
	#8 Stopper	CS-GWA-1	
	#9 Stopper	CS-GWA-2	
	#12 Stopper	CS-GWA-3	
	#4 Indicating Drierite, 5lb	CS-SGA-105	
	Vinyl Tubing, per foot	CS-WT-4B	
	Hose Clamp	CS-MA-198	
<b>Specific Gravity &amp; Absorption of Fine Aggregate</b> set includes pycnometer with conical mold and tamper. Pycnometer is 1qt (0.95L) threaded glass jar with a rubber-gasketed brass top tapered to 1/8in (10mm) hole at top. Mold is 40mm ID at top, 90mm at bottom, 75mm H. The 340g tamper has 25mm diameter face.	Complete Set	CS-SG-1	C 128/
	Jar & Top	CS-SG-2	T 84
	Mold & Tamper	CS-SG-3	
<b>Specific Gravity &amp; Absorption of Coarse Aggregate</b> set includes CS-SG-7A Wire Basket with handle and CS-SG-8 polyethylene 24qt Water Container for weighing coarse aggregate samples while suspended in water. Basket is No. 8 stainless steel mesh, 8x8in (203x203mm), Dia.xH. Inquire for baskets with No. 4, No. 6, No. 12, or No. 16 mesh sizes.	Set (CS-SG-7A & CS-SG-8)	CS-SG-6	C 127
	Stainless Steel Basket	CS-SG-7A	T 85
	Polyethylene Container	CS-SG-8	
	Galvanized Pail	CS-MA-950	
<b>Chapman Specific Gravity Flask</b> is used to determine approximate percentage of surface moisture and voids in fine aggregates. Upper and lower bulbs contain 175ml and 200ml, respectively. Stem is graduated above the bulbs from 375-450ml.	–	CS-SG-450	C 70
<b>LeChatelier Specific Gravity Flask</b> is used to obtain specific gravity of hydraulic cement, dust, sand, and other fine materials. Body holds about 250ml, small oval bulb in neck holds 17ml. Below this bulb are graduations from 0–1ml. Above the bulb, the neck is graduated from 18–24ml. Complete with stopper.	–	CS-SG-24	–
<b>Volumetric Flasks</b> are calibrated to contain indicated capacity at 20°C when filled to mark. Supplied with plastic snap cap.	100ml	CS-SG-100	D 854/
	250ml	CS-SG-250	T100
	500ml	CS-SG-500	
	1,000ml	CS-SG-1000	
<b>Hubbard &amp; Hubbard-Carmick Specific Gravity Bottles.</b> These bottles determine specific gravity of semi-solid bituminous materials, asphalt cements and soft tar pitches. Included stopper is concave on lower surface and has 1.6mm center hole for air evacuation. Hubbard-type bottle Model CS-SG-62 is 1.06x2.75in (27x70mm), Dia.xH with 24ml capacity. Conical Model CS-SG-63 Hubbard-Carmick style bottle is 1.54x1.7in (39x43mm), Dia. (at bottom) xH (without stopper) with 25ml capacity.	Hubbard	CS-SG-62	–
	Hubbard-Carmick	CS-SG-63	



## VIBRO-DEAIRATOR

ASTM D 2041; AASHTO T 209

- **Consistent, repeatable agitation for Asphalt Rice Test and other specific gravity determinations**
- **Variable vibration control allows for setting optimum agitation**
- **Automatic operation minimizes operator error and frees technician from hand agitation**

This full-feature Vibro-Deairator is designed for consistent shaking of Asphalt Rice Test vacuum pycnometers while freeing up the lab technician. A useful deaeration device for specific gravity tests of fine aggregates (ASTM C 128) and solid (ASTM D 854), for sample preconditioning per ASTM D 4867 and AASHTO T 283. Built-in 0–99 min., 59 sec. Digital timer has 0.25 second accuracy, vibration speed control, and a three-position switch for manual or timed operation. Speed control allows setting of agitation to avoid stripping of asphalt. The CS-SGA-5R comes with fitted top and bottom plates for exact fit with CS-SG-16A or CS-SG-17 pycnometers. Order CS-SGA-7 Adapter Set for use with CS-SG-15 Pycnometer. Use CS-SGA-8 Adapter Set with CS-GW-75 or CS-GW-76 Filter Flasks, CS-SG-500 Volumetric Flasks, CS-SG-24 LeChatelier Flask, or CS-SG-2 mason jar Pycnometer. Inquire for fitting other containers. Special CS-SGA-5RT has modified vibration characteristics to meet requirements of Texas DOT.

Special “speed knobs” quickly secure the pycnometer. After a few loosening turns, the knobs tilt and slide for fast removal. The steel case has rubber feet; no mounting required. Overall dimensions: 13x14x19in (330x356x483mm), WxDxH. Estimated shipping weight: 20lb (9kg).



CS-SGA-5R shown with CS-76 & CS-SGA-8

### VIBRO-DEAIRATOR

Description	Model
Vibro-Deairator, 115V/50-60Hz	CS-SGA-5R
Vibro-Deairator, Texas Model	CS-SGA-5RT
Accessories	
Adapter Sets for CS-SG-15	CS-SGA-7
Adapter Sets for CS-GW-75 or CS-GW-76	CS-SGA-8





CS-SG-16A



CS-MA-170

## VACUUM PYCNOMETERS

ASTM D 2041; ASHTO T 209, T 283

**CS-SG-16A 2,000g Pycnometer** meets both ASTM D 2041 and AASHTO T 209. Aluminum volumetric canister is 7.5in D X 6in D (191x152mm) and tests a maximum 2,000g (4.4lb) sample, sufficient for mixes with up to 3/4in (19.1mm) aggregates. A transparent vacuum lid and a second tapered aluminum lid with capillary bore are included to allow canister to be used as volumeter for determining specific gravity of compacted bituminous mixtures. Estimated shipping weight: 15lb (7kg).

**CS-SG-15 6,000g Pycnometer** meets ASTM D 2041 and AASHTO T 209. The large, 10L capacity pycnometer is suited for mixes with aggregates up to 2in (51mm). High-strength plastic vessel with 9.38in (238mm) I.D. has an O-Ring seal to prevent leakage. An adjustable valve controls water level, and a perforated plastic shelf is included. The shelf supports three 4in (102mm) dia. specimens. Overall dimensions: 10.75x13.3in (273x338mm), DxH. Estimated shipping weight: 15lb (7kg).

## RESIDUAL PRESSURE MANOMETERS

ASTM D 2041; AASHTO T 209

**CS-MA-170 Digital Manometer** is a safe, accurate, and environmentally friendly alternative for measuring vacuum levels. The gauge displays applied vacuum from 0-1,000mm Hg. Resolution is 0.1mm. A 0.25in hose barb connection with a needle valve is supplied for vacuum tubing. Powered by a 9V battery, or included 110V AC adapter. Automatic shut-off saves power in battery mode. Overall Dimensions: 3.1x5x1.18in (78.7x165.1x30mm), WxDxH.

**CS-MA-170C Digital Manometer** NIST Calibrated meets requirements of AASHTO T 209 and undergoes multi-point calibration at 25, 30 and 35mm Hg. on NIST traceable equipment. CS-MA-170C is supplied with a calibration certificate.

### VACUUM PYCNOMETERS

Description	Model
2,000g Pycnometer	CS-SG-16A
1,500g Pycnometer	CS-SG-17
6,000g Pycnometer	CS-SG-15
6,000g Pycnometer, Calibrated	CS-SG-15C
Accessories	
3/8in Reinforced Vinyl Tubing, per foot	CS-WT-4B
Hose Clamp	CS-MA-198

### VACUUM PYCNOMETERS

Description	Model
Digital Manometer	CS-MA-170
Digital Manometer, NIST Calibrated	CS-MA-170C



### SPECIFIC GRAVITY BENCH

ASTM C 20, C 127, C 642, C 830, D 1188, D 2041, D 2726;  
AASHTO T 85, T 166, T 209, T 275

**Model CS-SG-20 Specific Gravity Bench** is designed for weighing suspended samples in water when determining specific gravity of aggregates, hardened concrete, bituminous mixtures, refractory brick and similar materials. Bench top is a 31x25in (787x635mm) platform with three 2in (51mm) diameter holes for suspension of samples and thermometer. Lower tank shelf has two locations to fit tanks of 18in or 24in (457 or 610mm) internal depth. Bench is sturdy, painted-steel and requires assembly. A four-outlet, 15 amp, electrical strip (UL Listed, CSA Certified) is attached for single-switch On/Off of 115V/60Hz accessories. Outlet strip is not supplied for 230V/50Hz. Overall height is 46in (1,168mm).

Heavy-duty polyethylene water tanks sold separately. Both are 24x18in, LxW and suitable for most tests. CS-SGA-120 is 30gal (114L) capacity with 18in depth. CS-SGA-122 is 24in deep with 44gal (170L) capacity preferred for ASTM D 2041, AASHTO T 209 and similar tests, depending on size and shape of vacuum containers. Both molded 1/4in (6.4mm) thick tanks are seamless and translucent for water level visibility and equipped with drain faucet and overflow outlet. Maximum operating temperature is 140°F (60°C).

Other optional accessories include CS-HM-651 Heater and CS-HM-655 Circulator or alternate CS-HM-648 combination Heater/Circulator for temperature control. Use CS-SGA-130 Caster Set for portability. CS-SGA-119 Specific Gravity Cradle.



CS-SG-20 shown with CS-SGA-120, CS-OBX-12KA & CS-SG-7A

#### SPECIFIC GRAVITY BENCH

Description	Model	Ship Wt. lb (kg)
Specific Gravity Bench & Tank Shelf (without Tank), 115V/60Hz	CS-SG-20	75 (34)
<b>Accessories</b>		
Water Tank 30 gallon, 18in deep	CS-SGA-120	15 (7)
Water Tank 44 gallon, 24in deep	CS-SGA-122	20 (9)
Specific Gravity Cradle	CS-SGA-119	1 (0.5)
Tank Heater 1,000 Watts	CS-HM-651	6 (3)
Tank Circulator, 30 Watts	CS-HM-655	3 (1)
Heater/Circulator, 1,000 Watts	CS-HM-648	10 (5)
Locking Caster Set	CS-SGA-130	5 (2)
Wire Basket for ASTM C 127	CS-SG-7A	5 (2)



## VACUUM PUMPS

ASTM D 2041, D 2172; AASHTO T 164, T 209

These quality vacuum pumps are the accepted standards for materials testing and other high-vacuum laboratory applications.

**CS-MA-23 Vacuum Pump**, This heavy-duty unit combines large capacity with maintenance. The oil-less 1/3hp motor pulls 29.6in Hg (759.46mm), with free air displacement up to 99L/min (3.5cfm), and ultimate pressure of 9Torr. Dimensions: 11.1x9.2x11in (282x234x279mm), includes a NEMA guarded switch and grounded electric cord. Est. Ship Wt.: 23lb (11kg).



CS-MA-23

**CS-MA-24 Vacuum Pump**. The 1/3hp motor pulls a vacuum to 29.6in Hg (759.46mm), with free-air displacement up to 45L/min (1.6cfm) and ultimate pressure of 7.5Torr. Dimensions: 11.7x7.2x9.5in (296x183x240mm). Includes a NEMA guarded switch and grounded electric cord. Est. Ship Wt.: 22lb (10kg).



CS-MA-24

**CS-MA-27A Vacuum Pump** has a two-stage, direct drive, rotary vane pump. This lightweight 1/2hp pump features 0.001Torr ultimate vacuum pressure and 3.0cfm free air capacity. A 2.5in (64mm) diameter Bourdon-style 0-30in (0-762mm) vacuum gauge is mounted on the intake side. A gas ballast valve permits purging of water vapor. Dimensions: 14x5.25x11in (355x133x279mm), WxDxH. Est. Ship Wt.: 32lb (15kg).



CS-MA-27A

**CS-MA-28 Vacuum Pump** has a two-stage, belt drive, rotary vane pump. This pump has standard 3/8in intake fittings for quick connection. It features a drain cock and sight glass, belt guard and on/off switch. A one-year manufacturer parts and labor guarantee is standard. The exhaust dome and baffle condense oil spray for cleaner operation. Base Dimensions: 18.5x10x10.75in (470x254x273mm), WxDxH. Est. Ship Wt.: 40lb (18kg).



CS-MA-28

### VACUUM PUMPS

Model	Electrical	hp (kW)	Ultimate Vacuum Torr	Free Air Capacity cfm (L/min)	Intake Nipple OD in (mm)
CS-MA-23	115V/60Hz	1/3 (0.25)	9.0	3.5 (99)	3/8 (9.5)
CS-MA-23F	230V/50Hz	1/3 (0.25)	9.0	3.5 (99)	3/8 (9.5)
CS-MA-24	115V/60Hz	1/3 (0.25)	8.0	1.6 (45)	3/8 (9.5)
CS-MA-24F	230V/50Hz	1/3 (0.25)	8.0	1.6 (45)	3/8 (9.5)
CS-MA-27A	115V/60Hz	1/2 (0.37)	0.001	3.0 (85)	3/8 (9.5)
CS-MA-27AF	230V/50Hz	1/2 (0.37)	0.001	3.0 (85)	3/8 (9.5)
CS-MA-28	115V/60Hz	1/3 (0.25)	300	0.35 (10)	3/8 (9.5)
CS-MA-28F	230V/50Hz	1/3 (0.25)	300	0.35 (10)	3/8 (9.5)





CS-LC-34



CS-LC-37

## BICO JAW CRUSHERS

### CS-LC-33 and CS-LC-34 Chipmunk Jaw Crushers

semi-enclosed motor with mounting blocks drives four V-belt drives. A Sample Pan, Feed Hopper, Guards for belts and flywheel are included. Both the CS-LC-33 and CS-LC-34 Crushers have 3x6in (76x152mm) jaw size with 3x2.25in (76x57mm) opening. A hand-wheel on the side adjusts wedge blocks to set jaw discharge to 1/16–3/8in (1.6–9.5mm) particle size.

**CS-LC-37 Badger Jaw Crusher** has the highest crushing capacity needed for labs and pilot plants.

Electric motor starting switch is included, but must be installed on-site. Single phase motors can be configured for 110V or 220V operation. Three phase motors can be set to operate on 220V or 440V.

### BICO JAW CRUSHERS

Model	Description	Max. Feed Size, in.	Capacity* lb (kg)/hr.	hp/phase	Dimensions LxWxH, in (cm)	Ship Wt. lb (kg)
CS-LC-33	Chipmunk Jaw Crusher	2.2x3	400 (182)	2/1	25x19x30 (64x48x76)	430 (195)
CS-LC-34	Chipmunk Jaw Crusher	2.2x3	400 (182)	2/3	25x19x30 (64x48x76)	430 (195)
CS-LC-35	Chipmunk Jaw Crusher	2.2x4	800 (364)	3/1	28x19x32 (71x48x81)	660 (300)
CS-LC-36	Chipmunk Jaw Crusher	2.4x4	800 (364)	3/3	28x19x32 (71x48x81)	660 (300)
CS-LC-37	Badger Jaw Crusher	5x7	1,300 (590)	5/3	32x24x20 (81x61x51)	750 (340)

### Accessories

Description	Model	Ship Wt. lb (kg)
Dust Collector Base for CS-LC 37	CS-LCA-57	250 (113)
Dust Enclosure Bench, 115V/60Hz	CS-LCA-91	400 (182)
Replacement Filter for CS-LCA-91	CS-LCA-92	10 (5)

\*Capacity is for reduction of 7 Mohs hardness quartz to 1/4in for crusher, to No. 100 for pulverizers.



# Asphalt

MIX DESIGN  
BINDER





## PRO-LOADERS & MARSHALL STABILITY SYSTEMS

ASTM D 4867, D 5581, D 6927; AASHTO T 245, T 283

Outfit the Pro-Loader II and Marshall Stability Load Frames with selected components to design a custom system for your application. A complete selection of components is available to install on the motorized load frames for measuring, displaying and recording load and flow of asphalt specimens. Systems can be configured for Marshall or Lottman testing of 4in (102mm) or 6in (152mm) samples. Data collection options range from manual recording using load rings and mechanical dial gauges to automatic recording from load cells, displacement transducers and a digital readout box connected to a user-supplied computer for load and flow data acquisition.

The heavy load frame with 10,000lbf (44.5kN) capacity. A 6-3/4in (171.5mm) diameter platen is included. A vertical clearance of 37.3in (947mm) and horizontal clearance of 11.9in (302mm). Flow measurements are ordered separately.



CS-MS-398 shown with  
CS-MSA-860D

CS-MS-86

### CS-MS-398 Pro- Loader II Load Frame Variable Speed

Ranges from 0.22-2.0in (0.508—50.8mm) per minute allow running Marshall, Lottman, CBR, unconfined compression, soil-cement and basic triaxial tests all on a single unit. The 3/4hp DC motor and controller precisely control strain rates to  $\pm 1\%$  of set point. Push button control panel with digital display. Travel limit switch (76mm) range. Est. Ship Wt.: 240lb (109kg).

### PRO-LOADER & MARSHALL STABILITY SYSTEMS

Model	Electrical	Capacity lb (kN)	Strain Rate in/min (mm/min)	Overall Dimensions in (mm), WxDxH	Opening Dimensions in (mm), WxH
CS-MS-86	115V/60Hz	10,000 (44.5)	2.0 (50.8)	18x29x54.5 (457x737x1,384)	11.9x37.3 (302x947)
CS-MS-86F	230V/50Hz	10,000 (44.5)	2.0 (50.8)	18x29x54.5 (457x737x1,384)	11.9x37.3 (302x947)
CS-MS-398	115V/60Hz	10,000 (44.5)	0.2-2.0 (0.508-50.8)	18x29x54.5 (457x737x1,384)	11.9x37.3 (302x947)
CS-MS-398F	230V/50Hz	10,000 (44.5)	0.2-2.0 (0.508-50.8)	18x29x54.5 (457x737x1,384)	11.9x37.3 (302x947)

#### Accessories

Description	Model
Marshall Stability Standard Component Set	CS-MSA-860
Marshall Stability Digital Component Set	CS-MSA-860D
4in Marshall Breaking Head	CS-MS-26
6in Marshall Breaking Head	CS-MS-29
4in Marshall Breaking Head	CS-MS-35
6in Marshall Breaking Head	CS-MS-36
6in Tack Coat Shear Device	CS-MS-42



**CS-MSA-130**

## MARSHALL WATER BATHS

ASTM D 5581, D 6927; AASHTO T 245, T 283

Digital temperature displays operate in either °F or °C, and use Type K thermocouples for precise control of temperatures to within ±1% of set point. Built-in variable speed magnetic stirrer assures even heat distribution and uniformity. An external drain valve makes it easy to empty the baths.

Stainless steel construction, built-in drip shields, gas-assist struts for easy lifting lid, fully insulated and includes a perforated bottom support shelf, permitting 2in (51mm) water above and below specimens. Standard 120V, 50-60Hz “F” models operate on 7 amps.

**CS-MSA-130 Marshall Water Bath** accepts up to five 6in (152mm) or twelve 4in (102mm) diameter specimens. Tank is 20x12x8in (508x305x203mm), LxWxD with 8.3 gal (31.4L) capacity. Outside dimensions: 24.5x16.5x15in (622x419x381mm), WxDxH. Estimated shipping weight: 70lb (32kg).

**CS-MA-131 Large Marshall Water Bath** will hold nine 6in (152mm) or sixteen 4in (102mm) diameter specimens. Tank is 20x20x10in (508x508x254mm), LxWxD with 17.3gal (65.5L) capacity. Outside dimensions: 24.5x24.5x17in (622x622x432mm), WxDxH. Estimated shipping weight: 87lb (39kg).

### MARSHALL WATER BATHS

Description	Model
Marshall Water Bath, 120V/60Hz	CS-MSA-130
Marshall Water Bath, 220V/50-60Hz	CS-MSA-130F
Large Marshall Water Bath, 120V/60Hz	CS-MSA-131
Large Marshall Water Bath, 220V/50-60Hz	CS-MSA-131F



## CENTRIFUGE EXTRACTORS

ASTM D 2172; AASHTO T 164

- **Timer-controlled operation**
- **1,500g or 3,000g sample capacities**
- **Explosion-proof motors available**

Models conforming to explosion-proof requirements are available with 1,500g or 3,000g capacities. A standard version with 1,500g capacity is also offered.

Models with rotation speeds up to 3,600rpm are easily set using the speed control knob. The heavy-cast aluminum cover latches securely in place and features an integral solvent dispensing cup. Paper filter rings prevent loss of fines during process.

All models are powered by a reliable 1/8hp DC motor equipped with an electrical breaking system. Twenty-five 613 grade paper Filter Rings are included. 1,500g models use rings 9.75in diameter with 2.5in center holes. 3,000g model rings are 11.63in diameter with 2.5in diameter holes. Dimensions for 1,500g units: 12x20x22in (305x508x559mm), WxDxH. Estimated shipping weight: 115lb (50kg). Dimensions for 3,000g units: 14x20x22in (356x508x559mm), WxDxH. Estimated shipping weight: 98lb (45kg).



CS-HM-807

### CENTRIFUGE EXTRACTORS

Description	Model
1,500g Standard Centrifuge Extractor, 120V/60Hz	CS-HM-808
1,500g Standard Centrifuge Extractor, 230V/50Hz	CS-HM-808F
1,500g Explosion-Proof Centrifuge Extractor, 120V/60Hz	CS-HM-806
1,500g Explosion-Proof Centrifuge Extractor, 230V/50Hz	CS-HM-806F
3,000g Explosion-Proof Centrifuge Extractor, 120V/60Hz	CS-HM-807
3,000g Explosion-Proof Centrifuge Extractor, 230V/50Hz	CS-HM-807F
Accessories	
Description	Model
Bowl for 1,500g Models	CS-HMA-263
Bowl for 3,000g Models	CS-HMA-264
Filter Rings for 1,500g Models, pkg. 100, 9.75x2.5in	CS-HMA-265
Filter Rings for 3,000g Models, pkg. 100, 11.63x2.5in	CS-HMA-266

## BANNER LINE EXTRACTORS

ASTM D 2172; AASHTO T 164

- **Timer-controlled operation**
- **1,500g or 3,000g sample capacities**
- **Explosion-proof motors available**

Banner Line Centrifuge Extractors are available in automatic models of 1,500g and 3,000g capacity with open or explosion-proof motor options.

The Banner Line Timer Control Extractor runs unattended according to a preset time (1-10 minutes) and preset maximum speed is reached via an electronic acceleration control. The unit stops and brakes automatically when time expires and resets to repeat for the next test at a touch of the start button. The separate control box is designed for wall mounting or other remote position, attached by flexible conduit to the centrifuge. All 1,500g units measure approximately 17x17x18in (432x432x457) and 3,000g units are approximately 18x18x19in (457x457x483mm). All have four mounting holes in base.

Ten 627 grade filter rings are included; order extras in packs of 100. 1,500g extractors use 10in diameter rings with 5in center hole. 3,000g models use 12-1/4in diameter rings with 5in center holes. When using terpene-based biodegradable solvents, order special 904 grade filter rings. Estimated shipping weight: 393lb (178kg).



**CS-HM-804**

### BANNER LINE EXTRACTORS

Description	Model
1,500g Motorized Banner Centrifuge Extractor, 115V/60Hz	CS-HM-819
1,500g Motorized Banner Centrifuge Extractor, 230V/50Hz	CS-HM-819F
1,500g Explosion-Proof Banner Centrifuge Extractor, 115V/60Hz	CS-HM-803
1,500g Explosion-Proof Banner Centrifuge Extractor, 230V/50Hz	CS-HM-803F
3,000g Motorized Banner Centrifuge Extractor, 115V/60Hz	CS-HM-802
3,000g Motorized Banner Centrifuge Extractor, 230V/50Hz	CS-HM-802F
3,000g Explosion-Proof Centrifuge Extractor, 115V/60Hz	CS-HM-804
3,000g Explosion-Proof Centrifuge Extractor, 230V/50Hz	CS-HM-804F

Accessories	
Description	Model
Bowl for 1,500g Models	CS-HMA-831
Bowl for 3,000g Models	CS-HMA-841
Filter Rings for 1,500g Models, pkg. 100, 10x5in	CS-HMA-34
Filter Rings for 3,000g Models, pkg. 100, 12.25x5in	CS-HMA-44
Filter Rings for Terpene Solvents, pkg. 100, 12.25x5in	CS-HMA-44B





CS-HM-6

CS-HM-5

## REFLUX EXTRACTORS

### ASTM D 2172; AASHTO T 164

Extractors are offered in nominal capacities of 1,000g and 2,000g. Models CS-HM-5 and CS-HM-6 include Hot Plate, Extraction Jar, two interlocking wire mesh Cones with bail handles, copper Condenser with water inlet/outlet tubes, Filter Paper, and instructions. Model CS-HM-5 has 6in (152mm) diameter jar and 6in (152mm) hot plate; Model CS-HM-6 has 8-3/4in (222mm) diameter jar and 9in (228mm) hot plate. Both jars are 18in (457mm) high with ground tops for tight condenser fit. Included insulated pad is used for protection next to hot plate surface. CS-HMA-54 and CS-HMA-64 Grade 613 Filter Papers are supplied in packages of 100. Estimated shipping weight: 24lb (11kg).

CS-HM-6 estimated shipping weight: 40lb (18kg) See Hot Plates on page 93.

## REFLUX EXTRACTORS

Description	Model
1,000g Reflux Extractor, 115V/50-60Hz	CS-HM-5
1,000g Reflux Extractor, 230V/50-60Hz	CS-HM-5F
2,000g Reflux Extractor, 115V/50-60Hz	CS-HM-6
2,000g Reflux Extractor, 230V/50-60Hz	CS-HM-6F
Accessories	
Description	Model
Extraction Jar for CS-HM-5	CS-HMA-51
Extraction Jar for CS-HM-6	CS-HMA-61
Wire Mesh Cone Set for CS-HM-5	CS-HMA-52
Wire Mesh Cone Set for CS-HM-6	CS-HMA-62
Condenser for CS-HM-5	CS-HMA-53
Condenser for CS-HM-6	CS-HMA-63
1,000g Filter Paper for CS-HM-5	CS-HMA-54
1,000g Filter Paper for CS-HM-6	CS-HMA-64
Insulating Pad	CS-HMA-5-1



CS-HM-750R



CS-HM-56

## FILTERLESS CENTRIFUGE

ASTM D 1856; AASHTO T 164, T 170

The Continuous-Flow Filterless Centrifuge is for recovery of mineral filler fines from bitumen-laden nonflammable solvents from asphalt mix extraction tests. Analysis is simplified and accuracy is improved by eliminating the filter. Solvent suspension is fed through a top funnel into a special aluminum beaker (included) rotating at 11,000rpm. Trichlorethylene solvent cannot be used in the Filterless Centrifuge.

No. 18 (1mm) and No. 200 (75 $\mu$ ) sieves are included for fitting to the top of the inlet funnel if desired. A No. 230 (63 $\mu$ ) sieve may be substituted for the No. 200; please specify.

Two aluminum beakers are included with each unit. Overall dimensions: 20x15x33 (508x380x840mm), WxDxH. Estimated shipping weight: 150lb (68kg).

## DRAINDOWN BASKETS

ASTM D 6390; AASHTO T 305

ASTM E 11 quality stainless steel mesh is used for CS-HM-56 1/4in (6.3mm) and CS-HM-56A No. 8 baskets. Each measure 4.25x5.5in (108x140mm), Dia.xH and have a 1in (25mm) bottom skirt. A convenient bail-type handle is provided. Estimated shipping weight: 5lb (2kg).

FILTERLESS CENTRIFUGE	
Description	Model
Filterless Centrifuge, 115V/60Hz	CS-HM-750R
Filterless Centrifuge, 230V/50Hz	CS-HM-750F
Accessories	
Description	Model
Aluminum Beaker	CS-HMA-308R

DRAINDOWN BASKETS	
Description	Model
Draindown Basket, 1/4in Mesh	CS-HM-56
Draindown Basket, No. 8 Mesh	CS-HM-56A





CS-HM-8

## VACUUM EXTRACTOR

ASTM D 2172; AASHTO T 164

- Includes fitted vacuum gauge
- Extractor tank has two sight-glass gauges & drain valves
- Aluminum funnel ring
- Quick-action wing fasteners between funnel & base

The 3,000g capacity Vacuum Extractor has superior design features. Extractor base is a 16in (407mm) IDx8in (203mm) aluminum extract collection tank with carrying handles, a gauge-fitted vacuum source connection, an extract drain valve and two sight-glass gauges. A 12.25x4.5in (311x114mm) IDxH removable funnel ring clamps filter paper and a perforated aluminum support plate to base with a Viton O-Ring seal. Sample and solvent are placed on paper inside the ring.

Vacuum Extractor includes Vacuum Gauge, 25 Filter Papers, Filter Support, O-Ring Seal, 4ft (1.2m) Vacuum Hose Connection and instructions. For best results, use biodegradable terpene-based solvents and CS-HMA-54-2 filter papers. Both the CS-HMA-54 and CS-HMS-54-2 are sold in packages of 100. Estimated shipping weight: 68lb (31kg).

### VACUUM EXTRACTOR

Description	Model
Vacuum Extractor	CS-HM-8

Accessories	
Description	Model
Filter Paper, Grade 613	CS-HMA-54
Filter Paper Terpene Solvents, Grade 627	CS-HMA-54-2
Viton O-Ring Seal	CS-HMA-55V
Diatomaceous Silica Filter, 4lb carton	CS-HMA-56
Diatomaceous Silica Filter, 50lb bag	CS-HMA-56B



CS-HM-15



CS-HM-124E

## ECONOMY VACUUM EXTRACTOR

ASTM D 2172; AASHTO T 164

- Uses optional CS-GW-76 Filter Flask for solvent collection
- Aluminum funnel ring
- Vacuum Hoses & Stoppers available separately

**Economy Vacuum Extractor** has a 12.25x4.5in (311x114mm), IDxH aluminum funnel rig, perforated stainless steel filter support and an O-Ring seal, supported by three legs. Instead of a solvent collection tank, the assembly uses a vacuum filter flask such as CS-GW-76. The Hose and Stopper Assembly has a 6ft (1.8mm) rubber vacuum hose to fit to the 3/8in (9.5mm) OD drain connection and a No. 12 neoprene stopper with glass tubing to fit CS-GW-76. Order Filter Flask, Hose and Stopper Assembly, Diatomaceous Silica Filter Aid, Filter Paper, and Vacuum Pump separately. Side tubulation on CS-GW-76 flask is 3/8in (10mm), OD. Estimated shipping weight: 30lb (14kg).

### ECONOMY VACUUM EXTRACTOR

Description	Model
Economy Vacuum Extractor	CS-HM-750R
Accessories	
Description	Model
4L Filter Flask	CS-GW-76
Hose & Stopper Assembly	CS-HMA-58
Filter Paper, Grade 613	CS-HMA-54
Filter Paper Terpene Solvents, Grade 627	CS-HMA-54-2
Viton O-Ring Seal	CS-HMA-55V
Diatomaceous Silica Filter, 4lb carton	CS-HMA-56
Diatomaceous Silica Filter, 50lb bag	CS-HMA-56B

## ASPHALT EXTRACTOR SOLVENTS

Asphalt Extraction Solvents are available in 5gal (18.9L) pails with estimated shipping weight of 40lb (18kg), or 55gal (208L) drums with estimated shipping weight of 440lb (200kg).

**Excel Clean HD and Hisol Plus** both contain 100% natural orange and citrus terpenes. They are nontoxic, biodegradable, ozone-friendly and rinse freely with no clumping. Not for use with reflux or other heated methods, but ideal for use in vacuum extractors or centrifuges for gradations. Flash point is 125°F for Excel Clean HD and 145°F for Hisol Plus.

**Power-Solv** contains citrus terpenes and petroleum solvents, is non-rinsable, and can be used in vacuum extractors or centrifuges for gradations only. Flash point is 115°F.

**N-Propyl Bromide** is the latest alternative to trichlorethylene. It has no flash point and is ideal for ASTM D 2172, ASTM D 5404, Rotovapor Method and AASHTO T 319. For a free trial size sample of N-Propyl Bromide solvent, request CS-HM-122S.

### ASPHALT EXTRACTOR SOLVENTS

Description	Flash Point	Model
Excel Clean HD, 5gal Pail	125°F	CS-HM-124E
Excel Clean HD, 55gal Drum	125°F	CS-HM-125E
Hisol Plus, 5gal Pail	145°F	CS-HM-124H
Hisol Plus, 55gal Drum	145°F	CS-HM-125H
Power-Solv, 5gal Pail	115°F	CS-HM-124P
Power-Solv, 55gal Drum	115°F	CS-HM-125P
N-Propyl Bromide, 5gal Pail	–	CS-HM-122P
N-Propyl Bromide, 55gal Drum	–	CS-HM-122D







CS-MA-66



CS-MA-67

## PORTABLE MIXERS

All 115V/60Hz mixers are supplied with a 1/2Hp motor, on/off switch, fuse protection, and an 8ft cord with three-prong plug.

**CS-MA-66 Light –Duty Stationary Mixer** includes a removable 5gal Utility Bucket and Standard Mixing Paddle. A Deluxe Mixing Paddle with extra fins is available for heavy loads. CS-MA-66 is powered by a constant speed motor and belt pulley. Other heavy-duty models are for asphalt mixes.

**CS-MA-67 & CS-MA-68 Heavy-Duty Portable Mixers** use 5gal and 10gal Utility Buckets, respectively, and are equipped with 8in wheels for maximum portability. Mixing paddles are not included. Order recommended Asphalt and Concrete Paddles separately. Inquire for available paddles.

## PORTABLE MIXERS

Description	Model	Ship Wt. lb (kg)
Light-Duty Stationary Mixer, 5gal	CS-MA-66	45 (20)
Heavy-Duty Stationary Mixer, 5gal	CS-MA-67	81 (37)
Heavy-Duty Stationary Mixer, 10gal	CS-MA-68	97 (44)
Accessories		
Bucket & Cover	CS-MAA-141	7 (3)
Replacement Paddle	CS-MAA-142	6 (3)
Deluxe Paddle	CS-MAA-143	6 (3)
Utility Bucket for CS-MA-67, 5gal	CS-MAA-144	5 (2)
Utility Bucket, stainless steel, for CS-MA-67, 5gal	CS-MAA-144SS	10 (6)
Utility Bucket for CS-MA-68, 10gal	CS-MAA-145	11 (5)
Asphalt Paddle for CS-MA-67, 5gal	CS-MAA-146	7 (3)
Asphalt Paddle for CS-MA-68, 10gal	CS-MAA-147	8 (4)
Concrete Paddle for CS-MA-67, 5gal	CS-MAA-148	3 (1)
Concrete Paddle for CS-MA-68, 10gal	CS-MAA-149	4 (2)



## LABORATORY MIXERS

ASTM C 109, C 227, C 305; AASHTO T 106, T 162

All mixers are supplied with stainless steel bowl, wire whip, dough hook and aluminum flat beater. CS-MA-52, CS-MA-52X, and CS-MA-52V include an additional stainless steel flat beater and other modifications to meet ASTM and AASHTO specifications.

Heating Adapter kits maintain elevated temperatures when preparing hot-mix asphalt specimens. Heating mantles mount under mixing bowls with hook and loop fasteners. Electronic proportional controller with built-in circuit breaker attaches with a twist-lock connector on 4ft (1.2mm) cable. Select correct model from chart below.



CS-MA-52



CS-MA-52X

**CS-MA-52 Laboratory Mixer** has 5qt (4.7L) capacity and a 1/6Hp motor with selectable operating speeds of 139, 285, and 591rpm. A 6ft (1.8m) power cord is included. The CS-MAA-30A Clearance Adjustment Bracket is available to meet requirements of ASTM C 305, C 109, and others. CS-MAA-31 Acrylic Bowl Lid is also available for all 5qt (4.7L) bowls. CS-MA-52 dimensions: 10.5x15x17in (267x381x432mm). Estimated shipping weight: 57lb (26kg).

**CS-MA-54A Laboratory Mixer** is a 12qt (11.4L) capacity benchtop mixer for larger batch requirements. This unit is supplied with a 1/2hp motor for selectable mixing speeds of 107, 198 and 365rpm. A 6ft (1.8m) power cord is included. Dimensions: 19x23x29in (483x580x750mm), WxDxH. Est. Ship Wt.: 204lb (92kg).

### LABORATORY MIXERS

Description	Model
5qt Laboratory Mixer, 115V/60Hz	CS-MA-52 <sup>1</sup>
5qt Laboratory Mixer for ASTM C 305 and C 109, 115V/60Hz	CS-MA-52X <sup>1</sup>
5qt Laboratory Mixer for ASTM C 227, 115V/60Hz	CS-MA-52V <sup>1</sup>
12qt Laboratory Mixer, 115V/60Hz	CS-MA-54A <sup>1</sup>
Accessories	
Description	Model
Wire Whip for CS-MA-52	CS-MAA-260
Beater for CS-MA-52	CS-MAA-266
Bowl for CS-MA-52	CS-MAA-32
Bowl for CS-MA-54A	CS-MAA-34A
Clearance Adjustment Bracket for CS-MA-52	CS-MAA-30A
Heating Adapter for CS-MA-52, 250 Watts	CS-MAA-29
Heating Adapter for CS-MA-54A, 600 Watts	CS-MAA-41

<sup>1</sup> Add "F" to model number to order Mixers or Heating Adapters to operate on 230V50Hz electrical supplies.



## BINDER IGNITION SYSTEM

ASTM D 6307; AASHTO T 308

The **CS-HM-378 Binder Ignition System** meets applicable ASTM and AASHTO standards, offering true economy in a simple, manually operated unit. Process times are comparable to automatic-weighing units and extensive testing has proven that results equal or exceed the accuracy of automated systems. Standard 1,200 – 1,800g samples are processed in as little as 30-45 minutes. Larger samples up to 3,000g or more require longer times.

The Binder Ignition System includes two Sample Baskets, a Basket Cover, Sample Tray and Tray Handling Fork, two ceramic Health Plates, Exhaust Filter and Filter Holder, extra sets of sample trays. Basket and cover may be ordered. Heat Resistant Gloves, all-steel Furnace Support Stand and Exhaust Vent Kit are optional accessories. It operates on 240V/60Hz, single phase power with NEMA 6-50 Cord Set supplied. Sample Chamber Dimensions: 21x21x9in (533x533x229mm). Overall Dimensions; 43x30x43in (1,092x762x1,092mm), WxDxH. Est. Ship Wt.: 485lb (220kg).



CS-HM-378

### BINDER IGNITION SYSTEM

Description	Model
Binder Ignition System	CS-HM-378
Accessories	
Description	Model
Replacement Filters, box of 12	CS-HMA-812
Sample Tray, Screen & Lid Set	CS-HMA-69
Furnace Support Stand	CS-HMA-810
Sample Cooling Cage	CS-HMA-813
Exhaust Vent Kit	CS-HMA-814
Heat Resistant Gloves	CS-SE-31
Recommended Scale (12kgx0.1g)	CS-AD-12KA



CS-AP-20 shown with CS-APA-31

## THERMOLYNE® NCAT ASPHALT CONTENT FURNACE

ASTM D 6307; AASHTO T 308

The type of ignition method used in a furnace reduces testing time when compared to solvent extraction. A 1,200g-1,800g sample of asphalt can be tested in 30-45 minutes with the NCAT Furnace. The unit can accommodate samples up to 5,000g at extended testing times. The NCAT Asphalt Furnace has an electronic balance automatically monitoring the sample weight throughout the ignition process.

Included with the NCAT furnace are the electronic balance, Hearth Tray, six replacement Fuses and an operation manual. The Starter Kit (CS-APA-25) is required and includes the following: two Sample Basket Assemblies (CS-APA-31), Transport Handle (CS-APA-32), Aluminum Cool Down Plate (CS-APA-34), Cool Down Safety Cage (CS-APA-35), four rolls of Printer Paper (CS-APA-33), Basket Brush and Motor Lubricant. For increased safety, the kit includes Head Gear with Face Shield and Heat Resistant Gloves.

Chamber Dimensions for all units: 14x14x14in (35.5x35.5x35.5mm), WxDxH. Overall Dimensions: 21.75x26.63x40.5in (54.3x65.1x102.9mm), WxDxH. NCAT Furnaces are not supplied with power cords and must be hard wired. Est. Ship Wt.: 393lb (178kg).

### THERMOLYNE® NCAT ASPHALT CONTENT FURNACE

Description	Model
NCAT Asphalt Content Furnace, 240V/60Hz, 1 phase, 20/27 amp	CS-AP-20
NCAT Asphalt Content Furnace, 208V/60Hz, 1 phase, 28 amp	CS-AP-20L
NCAT Asphalt Content Furnace CE-Marked, 240V/50Hz, 1 phase, 20/27 amp	CS-AP-20F
Accessories	
Description	Model
NCAT Furnace Starter Kit (required)	CS-APA-25
Sample Basket Assemblies	CS-APA-31
Transport Handle	CS-APA-32
Cooldown Plate	CS-APA-33
Cooldown Safety Cage	CS-APA-34
Printer Paper	CS-APA-35
Stainless Steel Exhaust Tubing, 3inx10ft (75mm x3m)	CS-APA-36
Heat Resistant Gloves	CS-SE-31



## SUPERPAVE GYRATORY COMPACTOR

ASTM D 4013, D 6925; AASHTO T 312; SHRP M-002; EN 12697-10 & 31

The Superpave Gyratory Compactor by James Cox and Sons meets all specification requirements for use in Superpave mix design. Sample height is automatically measured, and density and void content continuously calculated during compaction. Compaction data is displayed on-screen in graphical and tabular format throughout the process, and is also saved in Microsoft® Excel® compatible format. Compaction endpoint can be selected by specifying either the number of gyrations or a target density. 100 and 150mm molds can be tested interchangeably without changing machine parts.

The CS-HM-451 with highly rigid enclosed steel frame and precision instrumentation is built for a lifetime of accurate and reliable service and is supplied with a five-year manufacturer's warranty. Three 150mm compaction molds with platens are included, as is a desktop PC pre-loaded with LabVIEW™ based software. The software controls and monitors operation through the high-speed USB port, and includes for calibration, transducer checks and diagnostic routines. An internal angle calibration kit, consisting of a digital gauge with fittings and reference chart to determine angle, is also included. Angle of gyration is factory set at 1.16°, and is adjustable from 0.6°–2.0°. The gyration rate is set at the factory at 30rpm. Consolidation pressure is normally 600kPa and maximum is 1,000kPa. Ergonomic design allows mold filling, compaction and specimen extraction without lifting the mold. Molds are automatically lowered into position for compaction and then lifted again for transfer to the integrated specimen extractor.

CS-HM-451 dimensions: 31x40x76in (780x1,000x1,920mm), WxDxH, and unit weight is approximately 1,200lb (544kg).



CS-HM-451

### SUPERPAVE GYRATORY COMPACTOR

Description	Model	Ship Wt. lb (kg)
Superpave Gyratory Compactor, 220V/60Hz/16A	CS-HM-451	1,200 (544)
<b>Accessories</b>		
150mm Mold with Platens	CS-HMA-640	40 (18)
150mm Mold with Platens, Temperature Measurement	CS-HMA-641	40 (18)
100mm Mold with Platens	CS-HMA-642	38 (17)
100mm Mold with Platens, Temperature Measurement	CS-HMA-643	38 (17)
150mm Paper Discs, pkg. 500	CS-MSA-121	5 (2)
100mm Paper Discs, pkg. 1,000	CS-MSA-120	6 (3)



CS-HM-454

## HAMBURG IMMERSION WHEEL TRACKER AASHTO T 324; EN 12697-22

The Immersion Wheel Tracker includes Loading Platforms, Specimen Holders and Water Bath. The built-in lifting hoist makes it easy to move and position the wheel arms. Two Stainless Steel Specimen Holders for 320x260mm specimens up to 100mm thick are included. Also included are two 100mm thick plastic Specimen Holders for mounting two 150mm diameter specimens together as noted in the AASHTO specification. Different thicknesses can be tested using spacers. Inquire for specimen holders for other sized specimens. Overall Dimensions: 57x55x50in (1,430x1,380x1,260mm), WxDxH. Machine weight is approximately 1,520lb (687kg). Electrical requirements; 380-415V/60Hz/16A. Est. Ship Wt.; 1,700lb (771kg).

### HAMBURG IMMERSION WHEEL TRACKER

Description	Model
Hamburg Immersion Wheel Tracker, 380-415V/60Hz/16A	CS-HM-454
Accessories	
Description	Model
Stainless Steel Specimen Holder, 320x260x50mm	CS-HMA-645
Stainless Steel Specimen Holder, 320x260x100mm	CS-HMA-646
Plastic Double Specimen Holder, 150mm dia.x100mm	CS-HMA-647
Plastic Double Specimen Holder, 150mm dia.x50mm	CS-HMA-648

## CALIFORNIA KNEADING COMPACTOR

ASTM D 1561, D 2844; AASHTO T 190, T 247;

California 101, 301, 304

The **CS-HM-820A California Kneading Compactor** is designed for controlled compaction of soils or bituminous specimens through a special tamping foot. All switching, timing and positioning parameters are stored in memory and system control is via PLC with touch screen.

Overall Compactor Dimensions: 43x39x78in (1,092x991x1,981mm), WxDxH. 15in (381mm) added width is required for automatic feeder swing-out space on the left side of the machine. Net weight is 1,650lb (750kg). On-site installation and training are available, quoted on request. Special compactor models for up to 15in (381mm) high mold are also available by special order. Est. Ship Wt.: 1,800lb (818kg).

**CS-HMA-118 R-Value Compaction Molds** must be ordered separately; three or more are suggested. The steel mold is 5±0.008in (127±0.2mm) high and 4±0.002in (101.6±0.05mm), ID. Est. Ship Wt.; 6lb (3kg).

**CS-HMA-770 Battery-Operated Moisture Exudation Indicator** is necessary for R-Value soils testing to indicate pressure at which water is exuded from compacted specimens using the method described in ASTM D 2844, AASHTO T 190 or CA 301. The indicator includes two phosphor bronze disks, also needed in the procedure. Est. Ship Wt.: 30lb (14kg).



CS-HM-820A

### CALIFORNIA KNEADING COMPACTOR

Description	Model
California Kneading Compactor, 3hp, 230V/60Hz, 1 phase	CS-HM-820A
California Kneading Compactor, 3hp, 230V/50Hz, 3 phase	CS-HM-820F
Accessories	
Description	Model
R-Value Mold	CS-HMA-118
Moisture Exudation Indicator	CS-HMA-770



CS-LP-2R

## BROOKFIELD ROTATIONAL VISCOMETER/ RHEOMETER

ASTM D 4402; AASHTO T 316

**CS-LP-2R RVDV-11+ Pro Viscometer** has 54 selectable speed options from 0.01-200rpm and a two-line LCD display. Up to four selectable test programs can be programmed to memory. A lab stand, guard leg, output cable, carrying case and a certificate of calibration are included. The included DV-Loader software allows creation of customized test programs. Est. Ship Wt.: 18lb (8kg).

**CS-LP3R RVDV-III Ultra-Programmable Rheometer** features 2,600 rotational speed options from 0.01–250rpm and four-line LCD display for incredible materials characterization. New yield stress measurement feature characterizes startup flow behavior. Up to ten separate test programs can be stored to memory. The CS-LP-3R includes RheoLoader software for custom programs. A lab stand, guard leg, output cable, carrying case and certificate of calibration are included. Est. Ship Wt.: 20lb (9kg).

**CS-LPA-52 Programmable Thermosel Set** is required with both CS-LP-2R and CS-LP-3R systems for compliance with AASHTO T 316 and ASTM D 4402 specifications. The Thermosel set allows measurement of accurate viscosities at elevated temperatures, and consists of a programmable temperature controller, reusable stainless steel sample chamber, five disposable aluminum sample chambers and extracting tools, one CS-SC4-27 stainless steel spindle and a manual. The CS-LPA-52 can be synchronized with the CS-LP-3R Rheometer to provide viscosity data as a function of temperature over any time interval with up to ten temperature set points and hold times. Est. Ship Wt.: 28lb (13kg).



**CS-LPA-60 Wingather Software** for the CS-LP-2R is used for data collection, creating test records and providing viscosity flow curves. Four sets of data are displayed simultaneously on the screen. New features include mathematical modeling and background printing of data and/or graphs. Wingather software requires user-supplied Windows® PC or CS-HMA-354 Computer System.

**CS-LPA-62 Rheocalc Software** automates data collection for both models and allows complete computer control. The user can collect and analyze data, run math models for yield stress calculations and plastic index, and perform time-saving routines. Rheocalc software requires user-supplied Windows® PC or CS-HMA-354 Computer System.

**Thermosel Spindles** are designated from CS-SC4-21 (lower viscosity) to CS-SC4-29 (higher viscosity). Order extra Spindles for wider viscosity range capability. One CS-SC4-27 Spindle is supplied with Thermosel systems. Extra CS-LPA-55 stainless steel Thermosel Chambers are recommended for labs running multiple samples. Cleaning time can be eliminated by using aluminum CS-LPA-56 Disposable Thermosel Sample Chambers and Disposable Thermosel Spindles, both sold in packages of 100. The Chuck Closure Assembly is required for use with disposable spindles, and must be ordered separately. High-temperature Silicone Viscosity Standard Fluids verify performance of brookfield Thermosel Systems. An optional Eecorder provides hard copy records of temperature and torque for each test.

#### BROOKFIELD ROTATIONAL VISCOMETER/RHEOMETER

Description	Model
CS-RVDV-II+ Viscometer, 115v/60Hz	CS-LP-2R
CS-RVDV-III Rheometer, 115v/60Hz	CS-LP-3R
Wingather Software	CS-LPA-60
Accessories	
Description	Model
Thermosel Chamber	CS-LPA-55
Disposable Thermosel Chambers	CS-LPA-56
CS-SC4-21 Thermosel Spindle	CS-LPA-121
CS- SC4-27 Thermosel Spindle <sup>1</sup>	CS-LPA-127
CS- SC4-28 Thermosel Spindle	CS-LPA-128
CS- SC4-29 Thermosel Spindle	CS-LPA-129
Disposable CS-SCA-27Thermosel Spindles	CS-LPA-127D
Chuck Closure Assembly <sup>2</sup>	CS-LPA-58
Standard Fluid, 4,500—30,000cP	CS-LPA-10
Standard Fluid, 9,000—60,000cP	CS-LPA-11
Standard Fluid, 15,000—100,000cP	CS-LPA-12
Wingather Software	CS-LPA-60
Rheocalc Software	CS-LPA-62
Computer System <sup>3</sup> , 115v/60Hz	CS-LPA-HMA-354

1 One included with Thermosel Set.

2 Required when using Disposable Spindles.

3 Inquire for Computer Specifications.





**CS-HM-59**

## **BENDING BEAM RHEOMETER ASTM D 6648; AASHTO T 313**

The Bending Beam Rheometer (BBR) measures flexural creep stiffness of asphalt binder at low temperatures (ambient to -40°C). The unit uses an air bearing system (50 PSIG minimum, clean, dry compressed air source required) to assure reliable loading with accurate and repeatable results.

The CS-HM-59 includes a computer with pre-loaded control, acquisition, and analysis software, five aluminum specimen Molds with mylar strips, a calibration kit with required weights and Confidence Beam. Calibrated test weight and a certified LVDT NIST-traceable standard are provided with each system. The easy-to-use software allows daily verification of periodic calibration of load cell, LVDT and RTD transducers. Dimensions: 49x49x41in (1,245x1,245x1,040mm), LxWxH. Est. Ship Wt.: 487lbs (221kg). Adequate compressed air source must be supplied by user.

### **BENDING BEAM RHEOMETER**

<b>Description</b>	<b>Model</b>
Bending Beam Rheometer, 115V/60Hz	CS-HM-59
Bending Beam Rheometer, 220V/50Hz	CS-HM-59F

<b>Accessories</b>	
<b>Description</b>	<b>Model</b>
Aluminum Beam Molds, set of 5	CS-HMA-348R





CS-HM-86

## DYNAMIC SHEAR RHEOMETER

### ASTM D 7175; AASHTO MP 1, R 29, T 315

The Dynamic Shear Rheometer (DSR) determines linear viscoelastic properties of performance-graded asphalt binders at temperatures from 5°-85°C (41°-185°F).

**CS-HM-86 Air-Bearing DSR System** includes a torque-measuring drive for determining strain and a circulatory system to immerse the sample in fluid (usually water) at a constant temperature. 8mm and 25mm upper and lower stainless steel specimen plates are provided as well as an RTD temperature device. A special "NO GAP" feature alleviates the need for the operator to re-zero the instrument gap when upper or lower plates are removed, replaced or at temperature changes. The two marked SHRP testing positions are easily selected and locked. The latest ASTM and AASHTO protocols are built into software and PG Grading determinations are automatic. The CS-HM-86 DSR requires an air supply of 1 SCFM at 60psi. Est. Ship Wt.: 240lb (109kg).

**CS-HMA-356 Silicone Rubber Mold Set** is required, but purchased separately. The set includes one each, 8mm and 19mm diameter flexible, tear-resistant silicon molds, and is normally stocked and ready for immediate shipment. A Windows® compatible PC such as CS-HM-354 system is also required, along with a printer. Inquire for up-to-date specifications. The CS-HMA-353 Reference Thermal Detector Probe, a thermistor mounted in a silicone water calibrated to 0.1°C, is recommended. This device allows direct, in-place calibration of the RTD temperature detector. The CS-HMA-355 2.7 million centipoises Viscosity Standard fluid is designed specifically for the DSR and is NIST traceable. It is available in 15ml bottles. System price includes one-year warranty, installation and training in continental U.S.A., one year of software updates, and a technical support hotline.

### DYNAMIC SHEAR RHEOMETER

Description	Model
Bohlin DSR-II, 115V/60Hz	CS-HM-86
Bohlin DSR-II, 220V/50Hz	CS-HM-86F
Accessories	
Description	Model
Viscosity Standard Fluid	CS-HMA-355
Reference Thermal Detector Probe	CS-HMA-353
Silicone Rubber Mold Set	CS-HMA-356
Upper Plate 8mm	CS-HMA-364
Upper Plate 25mm	CS-HMA-365
Lower Plate 8mm	CS-HMA-366
Lower Plate 25mm	CS-HMA-367
Computer System, 115V/60Hz	CS-HMA-354



**CS-PT-82**

## **SAYBOLT VISCOMETER** **ASTM D 88; AASHTO T 72**

The Saybolt Viscometer determines viscosity of petroleum liquids at temperatures from ambient to 464°F (240°C). The unit comes with four Thermometer supports, four chained corks, withdrawal tube, tube nut and orifice wrenches, two port closures and four port covers, and oil strainer.

Order Regular Bath Oil separately for use up to 275°F (135°C), or Hi-Temperature Silicone Fluid with 620°F (327°C) flash point. Overall Dimensions: 29x25x34in (734x635x864mm), WxDxH. Est. Ship Wt.: 58lb (27kg).

### **SAYBOLT VISCOMETER**

<b>Description</b>	<b>Model</b>
Saybolt Viscometer, 115V/60Hz	CS-PT-82
Saybolt Viscometer, 220V/50Hz	CS-PT-82F
<b>Accessories</b>	
<b>Description</b>	<b>Model</b>
Brass Saybolt Tube	CS-PTA-176
Stainless Steel Saybolt Tube	CS-PTA-177
Universal Orifice	CS-PTA-178
Furol Orifice	CS-PTA-179
Road Oil Orifice	CS-PTA-180
Wrench for Universal & Furol Orifices	CS-PTA-162
Wrench for Road Oil Orifices	CS-PTA-163
Socket Wrench	CS-PTA-166
Bath Oil, Regular, 1gal	CS-PTA-164
Bath Oil Hi-Temperature Silicone, 1gal	CS-PTA-165
Saybolt 60ml Receiving Flask	CS-PTA-168
Saybolt 60ml Withdrawal Pipette	CS-PTA-169



## CONSTANT TEMPERATURE VISCOSITY BATHS

### ASTM D 445, D 2170, D 2171; AASHTO T 201, T 202

Although designed for use with capillary viscometers, the Constant Temperature Viscosity Baths have solid state circuitry and are ideal for general laboratory work requiring precise temperature control. Baths use 12x12in (305x305mm) DxH, Pyrex Bath Jars for easy visibility.

**CS-PT-53 Viscosity Bath** offers accurate testing, conforms to ASTM D 445 temperature stability requirements and has selectable temperature presets and a variable control to set temperature at any point within their ranges. Temperature can be adjusted precisely within hundredths of a degree. A stainless steel encased thermistor in the baths senses temperature. Bath Covers have seven 2in (51mm) diameter holes for viscometers and two 3/8in (10mm) holes for ASTM thermometers. A white-coated stainless steel baffle plate aids viewing of viscometers. Lighting is for fluorescent lamps. The circuitry is in base platform drawer on ball-bearing glides for easy access. Temperature range is 20°-100°C. Control is proportional  $\pm 0.01^\circ\text{C}$ . Mixing features a motor-driven stirrer. Unit has several over-temperature protection standards, two heating elements and is 90 Watts. CS-PT-53 also boasts a baffle background for viewing. Est. Ship Wt.: 52lb (24kg).

The CS-PT-53 has three safety features: A second thermistor provides fault protection for over-temperature condition. If such occurs, bath is shut off until user resets limit circuit. Heater power is shut off if bath liquid falls below safe operating level. Optional CS-PTA-70 Drawer fits under unit for storing viscometers and accessories.

**CS-PT-56 Economy Viscosity Bath** includes glass bath jar, Cover fitted for up to seven viscometers and one thermometer and a stainless steel 1,000 Watt heater/circulator. The LED digital PID temperature control sets and reads  $^\circ\text{C}$  or  $^\circ\text{F}$ .

**CS-PTA-61 Bath Oil** is recommended for CS-PT-53 and CS-PT-56 when testing to 100°C (212°F). Use CS-PTA-59 Silicone Fluid with CS-PT-56 for higher temperature work to 150°C (300°F). Bath jars hold about 5gal (19L).

For all units, order viscometers and thermometers separately. See separate listing for Vacuum Manifold and Pressure Regulators.



CS-PT-53

### CONSTANT TEMPERATURE VISCOSITY BATHS

Description	Model
Viscosity Bath, 115V/50-60Hz	CS-PT-53
Viscosity Bath, 230V/50-60Hz	CS-PT-53F
Economy Viscosity Bath, 115V/50-60Hz	CS-PT-56
Economy Viscosity Bath, 230V/50-60Hz	CS-PT-56F

### Accessories

Description	Model
Drawer Unit	CS-PTA-70
Bath Oil, 5gal	CS-PTA-61
Silicone Fluid, 2gal	CS-PTA-59
Cooling Coil	CS-PTA-71
Safety Liner	CS-PTA-72
ASTM Thermometer for CS-PT53(F)	CS-MA-210C
ASTM Thermometer for CS-PT-56(F)	CS-MA-420C



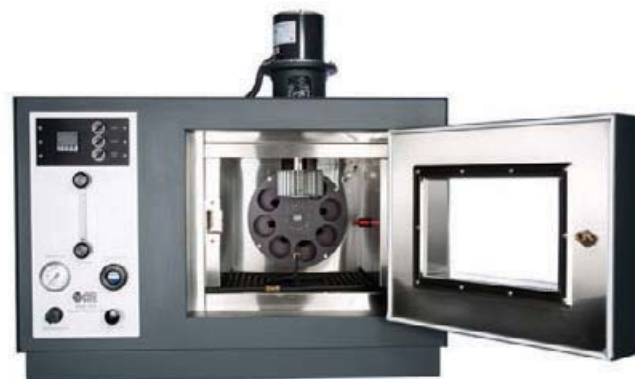
CS-PT-6A

## CLEVELAND FLASH TESTER

ASTM D 92; AASHTO T 48

The Cleveland open cup method measures flash and fire points for all petroleum products except fuel oils and material igniting below 175°F (79°C).

The **CS-PT-6A Tester** with rheostat controlled 600 Watt electric heat. The open flash cup rests on an asbestos-insulated platform. A pivot-mounted gas test flame burner and a thermometer holder are attached. Order ASTM 11C thermometer separately. Est. Ship Wt.: 20lb (9kg).



CS-MO-30

## ROLLING THIN FILM OVEN

ASTM D 2872; AASHTO T 240; California 346

The Ovens include a flow meter, moisture indicator, and air pressure gauge with regulator ready for connection to a dry air supply. The circular test rack holds up to eight RTFO Bottles (included) and rotates at 15rpm. A digital temperature controller, solid state heater and 200 Watt heating element control temperature to  $\pm 1^\circ\text{F}$  at 325°F ( $\pm 0.5^\circ\text{C}$  at 163°C). Double wall design has a baked enameled steel exterior. The door has a large window to observe operation. An over temperature protector is built-in. Order CS-MA-223C ASTM 13°C Thermometer separately. Air supply not exceeding 125psi is required. Overall Dimensions: 38.5x28x37in (978x711x940mm), WxDxH. Est. Ship Wt.: 420lbs (191kg).

CLEVELAND FLASH TESTER	
Description	Model
Cleveland Flash Tester, 115V/60Hz	CS-PT-6A
Cleveland Flash Tester, 230V/50Hz	CS-PT-6AF

ROLLING THIN FILM OVEN	
Description	Model
Cox Rolling Thin Film Oven, 230V/60Hz	CS-MO-30
Cox Rolling Thin Film Oven, 230V/50Hz	CS-MO-30F
Accessories	
Description	Model
Rolling Thin Film Oven Tongs	CS-MOA-3
Rolling Thin Film Oven Bottle Scraper	CS-MOA-5
Rolling Thin Film Oven Bottle	CS-MOA-6
Rolling Thin Film Oven Bottle Cooling Rack	CS-MOA-10
ASTM 13C Thermometer	CS-MA-223C





CS-HM-320

## UNIVERSAL PENETROMETER

**ASTM D 5, D 217, D 1168, D 1321, D 1403, D 1831, D 2884, D 5329; ASHTO T 49**

**CS-HM-320 Manual Penetrometer** for accurate, sensitive measurements. The aluminum base has a machined, grooved table with leveling screws and rubber inserts to protect tips of needles and cones. Two stainless steel rods act as support guides for a cast aluminum head with coarse/fine adjustments and a calibrated, friction-free plunger mechanism. Indicator dial has instant zero reset. Any needle<sup>1</sup> or cone with standard 1/8in (3mm) diameter stem may be mounted to the 47.5g plunger assembly. A standard 2.5g ASTM D 5 Needle (CS-HMA-180) and two additional loading Weights (50g and 100g) are included. Order needles and cones for other tests separately as needed. Overall Dimensions: 10.5x13x22in (267x330x559cm), WxDxH. Est. Ship Wt.: 30lb (14kg).



CS-MS-66

## STAINLESS STEEL MELTING POTS

The **CS-MS-66 Stainless Steel Melting Pot** has 6qt (5.7L) capacity and is 10.25 x 14in (260x356mm), DxH. Crucible Dimensions: 6.72x7.25in (171x184mm), DxH. Heating element is 600 Watts. Est. Ship Wt.: 35lb (16kg).

**CS-MS-67 Stainless Steel Melting Pot** has 12qt (11.4L) capacity and is 15x17in (381x482mm), DxH. Crucible Dimensions: 10x9.5in (254x241mm), DxH. Heating element is 1,200 Watts. Est. Ship Wt.: 47lb (21kg).

### STAINLESS STEEL MELTING POTS

Description	Model
6qt Melting Pot, 110V/60Hz	CS-MS-66
6qt Melting Pot, 220V/50Hz	CS-MS-66F
12qt Melting Pot, 110V/60Hz	CS-MS-67
12qt Melting Pot, 220V/50Hz	CS-MS-67F

### UNIVERSAL PENETROMETER

Description	Model
Universal Penetrometer, Manual	CS-HM-320
Universal Penetrometer, Automatic, 115V/60Hz	CS-HM-322
Universal Penetrometer, Automatic, 230V/50Hz	CS-HM-322F
Light Duty Penetrometer	CS-HM-325

### Accessories

Description	Model
Bituminous Materials Needle <sup>1</sup>	CS-HMA-180
Bituminous Materials Needle with Certification	CS-HMA-180C
Wax Penetration Needle	CS-HMA-181
Wax Penetration Needle with NIST Certifications	CS-HMA-181C
Standard Grease Penetration Cone, Solid Magnesium	CS-HMA-182
Optional Grease Penetration Cone, Hollow Brass	CS-HMA-183
Optional Grease Penetration Cone, Hollow Stainless	CS-HMA-183S
Transfer Dish	CS-HMA-188
Tinned Sample Boxes, 3oz, 55 x 35mm dia. X ht., carton of 12	CS-SC-500
Tinned Sample Boxes, 6oz, 70 x 45mm dia. X ht., carton of 12	CS-SC-504

<sup>1</sup> Inquire for other needles and cones.



# Concrete

NEW CONCRETE TESTING

MOLDING

STRENGTH TESTING

CURING

CORING

NON DESTRUCTIVE TESTING

CEMENT TESTING







CS-HM-40

## SLUMP TEST SETS

ASTM C 143/143M; AASHTO T 119

### CS-HM-401 Deluxe Slump Cone, Base and Rod Set

includes steel Slump Cone, cast aluminum Base Plate, and 5/8x24in (16x610mm) steel Tamping Rod, plus a 38oz (1,6715ml) capacity polished aluminum Round-Bowl Scoop, aluminum Filling Funnel, a 12ft (3.6m) Measuring Tape and a sturdy, acid-resistant Scrub Brush with 10in (254mm) handle. Est. Ship Wt.: 25lb (11kg).



CS-HM-65

### "K-SLUMP" TESTER

ASTM C 1362

Approximate concrete slump and workability readings can be determined prior to or after placement with the "K-Slump" Tester in just 60 seconds.

The calibrated 12in length x 3/4in diameter (305x11mm) hollow-tube probe has two groups of side openings through which wet concrete enters to raise a floating plunger to give an estimate of concrete slump. Instructions and correlation chart included.

### "K-SLUMP" TESTER

Description	Model
"K-Slump" Tester	CS-HM-65

### SLUMP TEST SETS

Description	Model
Cone Base and Rod Set	CS-HM-40
Deluxe Cone Base and Rod Set	CS-HM-401
Economy Slump Test Set	CS-HM-41
EZ-Clean Slump Set	CS-HM-410
Accessories	
Round Bowl Aluminum Scoop, 38oz (1,124ml) Capacity	CS-TSA-188
Round Bowl Aluminum Scoop, 58oz (1,715ml) Capacity	CS-TSA-189
Measuring Tape, 16ft/5m, inches & Millimeters	CS-TSA-275
Scrub Brush, 10in (254mm) Handle	CS-TSA-232
Scrub Brush, 21.5in (546mm) Handle	CS-TSA-233
Slump Cone Filling Funnel	CS-HM-53
Fiberglass Mixing Pan, 24x24x2in (610x610x51mm)	CS-HM-51
Galvanized Metal Mixing Pan, 24x24x3in (610x610x76mm)	CS-SC-4





CS-HM-30

**CONCRETE PRESSURE METER**  
ASTM C 231; AASHTO T 152

Dimensions and accuracy of the meter exceeds requirements of ASTM. Included are: Calibration Vessel, Calibration Tubes, 24in (610mm) Tamping Rod, Aluminum Straightedge, Syringe for water, Carrying Case and operating instructions. Cast aluminum chamber is 1/4ft cubed and can also be used for unit weight and yield determinations. Sturdy plastic carrying case holds meter with all accessories securely in die-cut foam padding. Traditional Watts Press-Ur-Meter is still available as CS-HM-30W. CS-HM-30 Est. Ship Wt.: 32lb (14kg).



CS-HM-32L

**LIGHTWEIGHT ROLL-A-METER**  
ASTM C 173; AASHTO T 196

**CS-HM-32L Lightweight Roll-A-Meter** may also be used as a pycnometer for determining specific gravity of sand, gravel and cement. Unit is supplied in foam-lined plastic carrying case with Straight Edge, Tamping Rod, Syringe, Baffle-Bottom Funnel and instructions. Base is 130in cubed (2,130ml). Overall height: 22in (556mm); Maximum diameter: 8in (203mm). Est. Ship Wt.: 25lb (11kg).

**CONCRETE PRESSURE METER**

Description	Model
Pressure Meter	CS-HM-30
Watts Press-Ur-Meter	CS-HM-30W

**LIGHTWEIGHT ROLL-A-METER**

Description	Model
Lightweight Roll-A-Meter	CS-HM-32L





CS-HM-24



CS-HM-25



CS-HM-27

### PRESSURE METER CALIBRATORS

Description	Model
Brass Calibrator	CS-HM-24
Plastic Economy Calibrator	CS-HM-25
Lightweight Aluminum Calibrator	CS-HM-27

### PRESSURE METER CALIBRATORS

**CS-HM-24 Brass Calibrator** is of precisely machined brass. 7.5x2.125in (191x54mm), HxD with 0.5in (13mm) thick base. Est. Ship Wt.: 3lb (1kg).

**CS-HM-25 Plastic Economy Calibrator** is rugged plastic with metal weighted ring. 3.75x4in (95x102mm), HxD. Est. Ship Wt.: 3lb (1kg).

**CS-HM-27 Lightweight Aluminum Calibrator** is accurately machined to exact dimensions. They are sturdier than plastic, less expensive than brass models. 5.63x3.25in (143x83mm), HxD.

CS-HM-33



### VOLUMETAIR AIR METER ASTM C 173; AASHTO T 196

Volumetair Volumetric Air Meter accurately and economically measures air content in any type of concrete, including lightweight mixes. The unit weighs only 5.5lb (2.5kg) and is made of dimensionally stable PVC and fiberglass-reinforced plastic. The Volumetair is 1/3-1/2 the weight of similar brass or aluminum units.

The meter comes complete with Funnel, Syringe, Tamper, Strike-Off Bar, Calibrated Cup and Mallet in a plastic Case. Overall height: 27in (686mm); Maximum diameter: 7.25in (184mm). Est. Ship Wt.: 15lb (7kg).

### VOLUMETAIR AIR METER

Description	Model
Volumetair Air Meter	CS-HM-33

CS-HM-34



### CHACE AIR INDICATOR KIT AASHTO T 199

The inexpensive Chace Air Indicator Kit is used for quick estimations of air content in fresh concrete. Kit includes Vial, Rubber Stopper, Cup measuring 6-1/4in length x 1-1/8in diameter (159x29mm), Cleaning Brush, Alcohol Squeeze Bottle, instructions and plastic Case. Est. Ship Wt.: 1lb (0.5kg).

### CHACE AIR INDICATOR KIT

Description	Model
Chace Air Indicator Kit	CS-HM-34
Accessories	
Description	Model
Vial and Rubber/Cup	CS-HMA-1A
Vial	CS-HMA-2



CS-HM-279



CS-HM-280



CS-HM-331



CS-HM-133

## CONCRETE BEAM MOLDS

ASTM C 31, C 78, C 192, C 403; AASHTO T 23, T 97, T 126, T 177

**CS-HM-279 and CS-HM-281 Steel Molds** Lightweight and hinge-free to collapse into individual parts for easy stripping and cleaning. They are compact when broken down and assemble quickly with plated bolts, wing nuts and stainless steel U-bolt carrying handles.

**CS-HM-280, CS-HM-282, CS-HM-284 and CS-HM-286 Heavy Duty 1-Piece Steel Molds** Fabricated with the side plates hinged to both the base and end plates. Wing nuts fasten sides and ends.

**CS-HM-331 Plastic Mold** Durable copolymer plastic is one-quarter the weight of steel, and easier to strip and clean. Ribbed interlocking parts hold dimensions and shape securely. Parts are held with thumb screws for easy stripping, cleaning and assembly. Inside surfaces are smooth and watertight to eliminate need to grease or seal joints.

## CONCRETE VIBRATOR

ASTM C 31, C 138, C 192; AASHTO T 23, T 121, T 126

The 1-1/4hp, 9 amp AC/DC power unit delivers high-amplitude 10,000+ vibration per minute via a 3ft (0.9m) flexible shaft connected to a 4/4in (19.1mm) diameter x 12in (305mm) long vibrating head. The lightweight aluminum power unit housing and waterproof switch are protected by a wrap-around chrome plated tubular frame. The unit has UL and CSA approval and comes with a heavy-duty grounded cord. Tubular Frame Dimensions: 12x6x6in (305x152x152mm), LxWxH. Est. Ship Wt.: 20lb (9kg).

### CONCRETE VIBRATOR

Description	Model
Concrete Vibrator, 115V/50-60Hz	CS-HM-133
Concrete Vibrator, 230V/50-60Hz	CS-HM-133F

### CONCRETE BEAM MOLDS

Description	Model	Size, in (mm)	Ship Wt. lb (kg)
Steel Hinge-Free	CS-HM-279	6x6x20 (152x152x508)	20 (9)
	CS-HM-281	6x6x21 (152x152x533)	21 (10)
Steel, 1-Piece Hinged	CS-HM-280	6x6x21 (152x152x533)	59 (27)
	CS-HM-282	6x6x24 (152x152x610)	67 (30)
	CS-HM-284	6x6x30 (152x152x762)	82 (37)
	CS-HM-286	6x6x36 (152x152x914)	100 (45)
Plastic, Interlocking	CS-HM-331	6x6x21 (152x152x533)	16 (7)



## CONCRETE MOLDS &amp; ACCESSORIES

Description	Model
<p><b>Plastic Concrete Cylinder Molds</b> For single use applications with a writable surface. Also available with lids. 6x12in (152x304mm) 4x8in (102x203mm) 3x6in (76x152mm)</p>	<p>CS-HM-151 CS-HM-152 CS-HM-153</p>
<p><b>Concrete Cube Molds, 6x6in (152x152mm)</b> ASTM C 403; AASHTO T 197 Sturdy unit construction with sides hinged to base and ends hinged to sides. Wing-nut fasteners for quick assembly and easy de-molding. Est. Ship Wt.: 27lb (12kg).</p>	CS-HM-290
<p><b>Concrete Cube Molds, 5.9x5.9in (150x150mm)</b> ASTM C 403; AASHTO T 197 Rugged one-piece molded plastic molds for consistent concrete cube specimens. Specimens are removed by injecting compressed air into the base. Est. Ship Wt.: 5lb (2kg).</p>	CS-HM-291
<p><b>Cylinder Wraps,</b> Canvas-nylon Cylinder Wraps for 4in and 6in diameter concrete. Wraps are secured by Velcro strips. Est. Ship Wt.: 2lb (1kg).</p>	
	<p>Cylinder Wrap, CS-HM-178 Cylinder Wrap, 6in CS-HM-179</p>
<p><b>Ring Concrete Cylinder Carrier</b> Handy for moving heavy 6x12in (152x305mm) concrete cylinders and loading/unloading curing tanks. Sliding ring lifts to a low easy placement of bottom pad under cylinder, then slides down until locked in position by a locating pin. Fits cylinders in plastic molds with lids or bare cylinders. Constructed of stainless steel with rubber hand grip. Est. Ship Wt.: 4lb (2kg).</p>	CS-HM-161
<p><b>Gripper Concrete Cylinder Carrier</b> Concrete cylinder is held securely by a hand-grip pincer action. For 6in (152mm) diameter cylinders. Dimensions: 16x8.5in (406x216mm), LxW. Est. Ship Wt.: 4lb (2kg).</p>	CS-HM-188



CS-HM-290



CS-HM-291

## CONCRETE COMPRESSION TESTING MACHINES

### ASTM C 39, E 4; AASHTO T 22; BS 1610, 1881

Build the machine that best fits your application. Select a load frame from our 250, 300, 400 and 500 Series with capacities from 250,000-500,000lbf (1,112-2,224kN), and equip it with a state-of-the-art electronic controller. The Pro and Pro-Plus Controllers cover application needs from basic to sophisticated. We will also help you design a custom machine with capacity up to 1,000,000lbf (4,448kN) for testing a wide range of sample types and sizes.



CS-MC-400PRP

### CONCRETE COMPRESSION TESTING MACHINES

Controller	Model	Total Capacity Mlbf (kN)	Maximum Recommended psi for 6x12in Cyl.	Overall Size with Stand WxDxH, in	Opening with Platens WxH, in	Lower Platen Dimensions in	Ship Wt. lb 9kg
Pro	CS-MC-250P	250 (1,112)	7,000	27 x 14 x 58	9.3 x 13.4	6.5D x 1.9	780 (353)
	CS-MC-300P	300 (1,335)	8,500	29 x 16 x 60	9.5 x 14.4	9 x 11 x 1.9	975 (442)
	CS-MC-400P	400 (1,780)	11,300	39 x 20 x 61	13.3 x 14.3	12 x 18 x 2	1,620 (735)
	CS-MC-500P	500 (2,224)	14,100	31 x 24 x 61	14 x 14.3	13 x 18 x 2	2,500 (1,134)
	CS-MC-400PRP	400 (1,780)	11,300	39 x 20 x 70	13.3 x 22.3	12 x 18 x 2	1,800 (816)
Pro-Plus	CS-MC-250PR	250 (1,112)	7,000	27 x 17 x 57	9.3 x 13.4	6.5D x 1.9	780 (353)
	CS-MC-300PR	300 (1,335)	8,500	32 x 17 x 59	9.5 x 14.4	9 x 11 x 1.9	975 (442)
	CS-MC-400PR	400 (1,780)	11,300	39 x 20 x 61	13.3 x 14.3	12 x 18 x 2	1,620 (735)
	CS-MC-400PRP	400 (1,780)	11,300	39 x 20 x 70	13.3 x 22.3	12 x 18 x 2	1,800 (816)
	CS-MC-500PR	500 (2,224)	14,100	31 x 24 x 61	14 x 14.3	13 x 18 x 2	2,500 (1,134)





CS-HM-180

## UNBONDED CAPPING SETS & PADS

### ASTM C 1231; AASHTO T 22

Reusable unbonded capping system saves time and labor expense associated with sulfur capping of concrete cylinders for compression testing. The handling of hot capping compound with ladles and melting pots is eliminated. Systems are available for 6x12in, 4x8in, 3x6in cylinders, and for 2in cylinders and 2-1/8in rock cores.

### UNBONDED CAPPING SETS & PADS

Diameter	Steel Retainers (Sets of 2)	Neoprene Pads (Sets of 2)		
		50 Durometer	60 Durometer	70 Durometer
6in	CS-HM-180	CS-HM-174	CS-HM-176	CS-HM-177
4in	CS-HM-181	CS-HM-170	CS-HM-172	CS-HM-173
3in	CS-HM-182	CS-HM-155	CS-HM-168	CS-HM-169
2in	CS-HM-183	CS-HM-217	–	CS-HM-218

#### Accessories

Description	Model
Quick Release Powder Kit	CS-HM-277
Quick Release Dispenser, 2 pack	CS-HM-326
Quick Release Refill, 2 pack	CS-HM-327



CS-HM-184

## CAPPING COMPOUND

ASTM C 287, C 307, C 617; AASHTO T 231

**Rediron 9000** melts quickly at 240°-260°F (116°-127°C), pours at about 275°F (135°C) and hardens in minutes with minimal shrinkage. Compressive strength exceeds 8,999psi at two hours for 2in cube test of ASTM C 617, and Rediron may be used beyond 15,000psi with added aging.

Rediron is supplied in 50lb bags.

**Vitrobond Ingot** compound may be higher priced but is often preferred for ease of storage and handling. The dark grey compound is mineral filled, sulfur based and melts and pours smoothly, for consistent results. Compressive strength exceeds 6,500psi at two hours and increases with time. Ingots come in 50lb containers, each with ten 5lb ingots. Pieces break easily for melting to pouring temperature of 289°-300°F (138°-140°C). Tensile strength and modulus of rupture are typically 600psi and 1,300psi respectively by ASTM C 287 methods. Price varies by order quantity.

### CAPPING COMPOUND

Description	Model
Rediron 9000, 1–39 bags	CS-HM-184
Rediron 9000, 40–399 bags	CS-HM-185
Vitrobond Ingot, 1–4 cartons	CS-HM-189
Vitrobond Ingot, 5–19 cartons	CS-HM-190





## CONCRETE CYLINDER END GRINDERS ASTM C 39

### CS-HM-716A Concrete Cylinder End Grinder

accommodates four 6in (152mm) diameter test cylinders, and includes adapters to accept four 4in (102mm) cylinders. The unit may only be operated with one size cylinder at a time and is recommended in labs where the two specimen sizes are to be tested. The optional CS-HMA-1054 Carousel can be fitted to this unit to allow grinding of six 4in diameter cylinders only.

**CS-HM-714A Concrete Cylinder End Grinder** is equipped to handle up to six 4in (102mm) cylinders in each cycle and is recommended when only 4in diameter specimens are to be tested.

**Replacement Diamond Grinding Heads** are available as CS-HMA-1050. Other accessories include CS-HMA-1051 Mobile Cart for Water Tank, CS-HMA-1052 Tool Set for measuring planeness of sample ends and CS-HMA-1053 Inspection Jig for checking perpendicularity and alignment. The Cylinder End Grinders require 30A power supply at 208-220V/60Hz single phase. Inquire for units wired for 50Hz power supply. Dimensions: 48x48x60in (1,219x1,219x1,524mm), WxDxH. Estimated shipping weight: 900lb (408kg).



CS-HM-133

### CONCRETE CYLINDER END GRINDERS

Description	Model	Ship Wt Lb (kg)
Concrete Cylinder End Grinder, for Six 4in Cylinders	CS-HM-714A	1,000 (454)
Concrete Cylinder End Grinder, for Four 4in or 6in Cylinders	CS-HM-716A	900 (400)
<b>Accessories</b>		
Replacement Grinding Head	CS-HMA-1050	8 (4)
Water Tank Cart with Wheels	CS-HMA-1051	7.5 (11)
Planeness Tool Set	CS-HMA-1052	6 (3)
Alignment Inspection Jig	CS-HMA-1053	5 (2)
Carousel for Six 4in Cylinders	CS-HMA-1054	100 (45)



CS-HM-648



CS-HM-655

### HEATER/CIRCULATOR

ASTM C 192, C 511; AASHTO M 201, T 23

This Heater/Circulator for tanks and baths has 1,000 Watt capacity. Long heating element, two-speed pumping, adjustable flow director, On/Off switch, heating indicator light, and grommet-mounted non-mercury thermometer (-20° to 150°C) are included. Two-year manufacturer's warranty. Supplied with a 6ft power cord with grounded plug. The 120V/60Hz version requires 9 amps; the 240V/50Hz model operates on 4.5 amps. Estimated shipping weight: 10lb (5kg).

### CURING TANK HEATERS & CIRCULATORS

ASTM C 192, C 511; AASHTO M 201, T 23

Heaters and Circulators maintain curing temperature at required 73.4°F ±3°F (23°C ±1.7°C) in CS-HM-620 through CS-HM-627 series and similar tanks. Number needed will depend on tank size, ambient air temperature and specimen loading. One CS-HM-651 heater will normally supply sufficient heat to control up to 350gal at 53°F (12°C) or higher ambient temperatures. Two or more CS-HM-655 Circulators are recommended for larger tanks.

**CS-HM-651 Curing Tank Heater** has dial-type thermostat, 1,000 watt, 10 amp, in stainless steel housing. Includes a three-prong grounded plug, fuse, run light and mounting bracket. An instruction decal describes easy operation. Dimensions: 4.5x7.5x23in (114x191x584mm), WxDxH.

**CS-HM-655 Curing Tank Circulator** is a 1/125hp (36 watt) silent submersion pump with 3 GPM (11.4L/min.) rating at 1ft (0.3m) height. Dimensions: 4x4x3in (102x102x76mm), WxDxH.

#### HEATER/CIRCULATOR

Description	Model
Heater/Circulator, 120V/60Hz	CS-HM-648
Heater/Circulator, 240V/50Hz	CS-HM-648F

#### CURING TANK HEATERS & CIRCULATORS

Description	Model
Curing Tank Heater, 115V/50-60Hz <sup>1</sup>	CS-HM-651
Curing Tank Circulator, 115/60Hz	CS-HM-655
Curing Tank Circulator, 230V/50-60Hz	CS-HM-655F

<sup>1</sup> For 230V operation of Heater, order CS-TR-1500 transformer.



## THERMOCURE PORTABLE CURING BOXES

### ASTM C 31, C 192, C 511; AASHTO M 210, T 23, T 126

For true field portability and on-the-job convenience, lightweight Thermocure models are for storing concrete test specimens within standard humidity/temperature conditions. Up to 22 test specimens of 6x12in (152x302mm) cylinders can be stored at 73° ±3°F (23° ±2°C) over an ambient range of -10° to 100°F (-23° to 37.8°C)

**CS-HM-49 Deluxe Curing Box** controls for this model include temperature set buttons, digital water temperature readout (°F or °C) and indicator lights to show when heating or cooling modes are on.

**CS-HM-50 Economy Curing Box** has a 1,500 watt heater (cooling is accomplished by fresh water circulation only), an adjustable temperature control and a 3in (76mm) dial thermometer.

Both models have the same tough, insulated plastic rustproof box with removable galvanized rack. The cover has a gasket, stainless steel hinges and plated buckles with padlock loops. Inside dimensions are approximately 18x54x17in (457x1,372x432mm), DxWxH. Est. shipping weight: 200lb (91kg) for the CS-HM-49; 120lb (55kg) for CS-HM-50.



CS-HM-49

## THERMOCURE PORTABLE CURING BOXES

Description	Model
Deluxe Curing Box, 115V/60Hz	CS-HM-49
Economy Curing Box, 115V/60Hz	CS-HM-50

## MASONRY SAWS

**CS-HM-60 Portable Masonry Saw** features a 2,585 blade rpm and a sturdy X-braced frame to maintain alignment. Cutting head weight is locked quickly with a lever, or add CS-HMA-225 Foot Pedal Kit accessory for control of height during operation. Strong, lightweight CS-HMA-224 Folding Stand permits setup at a convenient working height. Overall dimensions: 38x19.5x27in (965x495x686mm), LxWxH; height is 54in (1,372mm) with Folding Stand.

**CS-HM-62 Heavy-Duty Masonry Saw** features a heavier braced steel frame to resist flexing. Standard features include an integral steel support stand and foot-pedal control of cutting head height. The 2,350 blade rpm and powerful 5hp high-torque motor assure high-production performance. The 20in (508mm) blade capacity permits cutting of cylinders or 8in (203mm) blocks in a single pass. CS-HMA-227 Wheel Kit Accessory may be added for portability. Overall dimensions: 47.75x22x57.5in (1,213x559x1,461mm), LxWxH.



CS-HM-60 shown with CS-HMA-234 & CS-HMA-224

### MASONRY SAWS

Description	Model	Ship Wt Lb (kg)
Portable Masonry Saw, without blade, 2hp, 115V/60Hz	CS-HM-60	185 (84)
Portable Masonry Saw, without blade, 2hp, 230V/50Hz	CS-HM-60F	185 (84)
Heavy-Duty Masonry Saw, without blade, 5hp, 208-230V/60Hz	CS-HM-62	360 (164)
Heavy-Duty Masonry Saw, without blade, 5hp, 230V/50Hz	CS-HM-62F	360 (164)
<b>Accessories</b>		
Folding Stand for CS-HM-60 & CS-HM-60F	CS-HMA-224	40 (18)
Foot Pedal Kit for CS-HM-60 & CS-HM-60F	CS-HMA-225	40 (18)
Wheel Kit for CS-HM-62 & CS-HM-62F	CS-HMA-227	30 (14)
20in Premium Blade	CS-HMA-232	5 (2)
20in Premium Blade, price each for qty. 5 or more	CS-HMA-232D	5 (2)
14in Super Premium Blade	CS-HMA-234	3 (1)
14in Super Premium Blade, price each for qty. 5 or more	CS-HMA-234D	3 (1)
20in Super Premium Blade	CS-HMA-236	5 (2)
20in Super Premium Blade, price each for qty. 5 or more	CS-HMA-236D	5 (2)



CS-HM-71



CS-HM-75



## CONCRETE TEST HAMMERS

ASTM C 805; BS 1881-202

**CS-HM-71 Concrete Test Hammer** is an economical alternative to the original Schmidt and meets all published specifications for these devices. A durable nylon carrying case with loop handle, carborundum stone for surface preparation, instructions and charts are included with the CS-HM-71. Est. Ship Wt.: 6lb (3kg).

**CS-HM-75 Original Schmidt Concrete Test Hammer** is supplied with a plastic carrying case, charts, instructions and carborundum stone for surface preparation. Est. Ship Wt.: 6lb (3kg).

**CS-HM-101 Schmidt Recording Concrete Test Hammer** automatically records rebound numbers as a bar chart on a paper strip. Each strip chart will log up to 4,000 impacts. CS-HM-101 is supplied with a carrying case, paper charts and grinding stone. Dimensions with case: 11.6x12.8x4.1in (295x325x105mm), WxDxH. Est. Ship Wt.: 7lb (3kg).

### CONCRETE TEST HAMMERS

Description	Model
Concrete Test Hammer	CS-HM-71
Schmidt Original Concrete Test Hammer	CS-HM-75
Schmidt Recording Concrete Test Hammer	CS-HM-101
Accessories	
Concrete Test Hammer Calibration Anvil	CS-HM-76B



CS-WP-532A

## WINDSOR PROBE TEST SYSTEMS

ASTM C 803

**CS-WP-530 Windsor Probe Standard Test System** is a manually-operated gauge to measure probe length and a printed chart for estimating concrete strength. This system is an economical choice for users with limited needs. Select a system to measure probe length in either inches or millimeters. Est. Ship Wt.: 15lb (7kg).

**CS-WP-532A Windsor Probe Electronic Test System** features electronic acquisition and calculation of probe data. Readings are automatically stored in memory with date and time. Calculated strengths are displayed in pounds per square inch (psi) or megaPascal (mPa) units, depending on model. Data can be uploaded to a PC with included software cables. Standard systems can be upgraded with CS-WP-700 Electronic Measuring Upgrade. Select systems for either psi or mPa units. Est. Ship Wt.: 18lb (8kg).

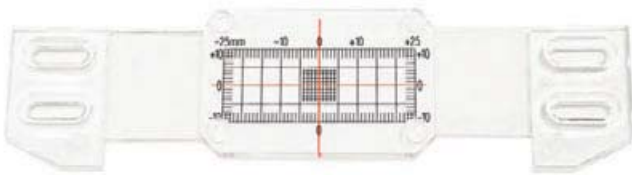
Probes are purchased separately in cases of 25 kits. Each kit contains three probes and three power loads, enough to run one test.

### WINDSOR PROBE TEST SYSTEMS

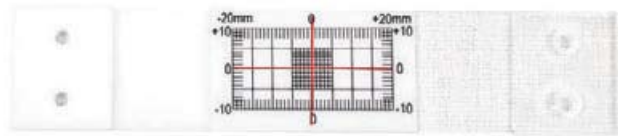
Description	Model
Windsor Probe Standard Test System, in	CS-WP-530
Windsor Probe Standard Test System, mm	CS-WP-530F
Windsor Probe Electronic Test System, ps	CS-WP-532A
Windsor Probe Electronic Test System, mPa	CS-WP-532F
Accessories	
Electronic Measuring Upgrade, psi	CS-WP-700
Electronic Measuring Upgrade, mPa	CS-WP-700F
Silver Probes, Case, 1-9 cases	CS-WPA-1B
Gold Probes, Case, 1-9 cases	CS-WPA-3B



## CONCRETE CRACK MONITORS



CS-HM-634



CS-HM-637



CS-HM-635

**CS-HM-634 Crack Monitor** is vandal-resistant clear polycarbonate with a range of 25mm horizontally and 10mm vertically. Adjustment slots for screws ensure secure placement. After affixing, temporary pegs are removed so plates move independently. A second Crack Monitor may be positioned for monitoring in three dimensions.

**CS-HM-637 Economy Crack Monitor** is a simpler design with a range of 20mm horizontally and 10mm vertically. There are no spigots for use with calipers and the mounting holes are not slotted. Readability is 1mm.

**CS-HM-635 Corner Adapter** enables Crack Monitors to be used in corners with greater or less than 90° angles.

### CONCRETE CRACK MONITORS

Description	Model
Crack Monitor	CS-HM-634
Economy Crack Monitor	CS-HM-637
Corner Adapter	CS-HM-635

## CUBE & PRISM MOLDS

We offer a wide selection of cube and prism molds for use with cement, mortar, grout and capping compound. Metal molds meet most ASTM and AASHTO specifications, but lighter plastic molds often suffice for internal QC programs. All molds are 3-gang except for single specimen, 6in (152mm) and 150mm single molds.

CUBE & PRISM MOLDS				
Description	Model	Size	ASTM/AASHTO	
<b>Bronze Cube Molds</b> are 2in (51mm) and 50mm. Forged cube molds are accurately machined for casting cubes in a diagonal arrangement. Wing-nut clamps secure mold halves to the detachable brass base plate. This is the mold of choice for testing of sulfur mortar capping compound cubes when fitted with CS-HM-299 brass cover plate. The CS-HM-309 1/2in thick plastic cover plate also fits this mold for casting expansive grout cubes. Est. shipping weight: 15lb (7kg).	CS-HM-294	2x2in	C 87, C 91, C 109, C 141, C 311, C 472, C 579, C 942/T 106	
	CS-HM-294M	50x50mm	C 109M/T 106	
<b>Stainless Steel Cube Molds</b> are accurately machined for casting 2in (51mm) and 50mm cubes in diagonal position. Wing nuts secure the mold halves to the detachable base plate. Est. shipping weight: 15lb (7kg).	CS-HM-296	2x2in	C 87, C 91, C 109, C 141, C 311, C 472, C 579, C 942/T 106	
	CS-HM-296M	50x50mm	C 109M/T 106	
<b>Econ-O-Cube Molds</b> are three-piece engineered plastic molds. These units meet size tolerances only for ASTM C 109. The molds are held together by self-aligning thumb screws. Est. shipping weight: 4lb (2kg).	CS-HM-297	2x2in	–	
<b>HDP Plastic Cube Molds</b> are machined of high-density polyethylene strips that assemble easily and are held together with heavy rubber straps. Corrosion-proof and easy to clean and store. The set includes a tamper and mold cover. Est. shipping weight: 5lb (2kg).	CS-HM-335	2x2in	–	
<b>Cube Maker System</b> utilizes disposable polypropylene mold liners that fit into a permanent three-gang stainless steel frame. Cured cubes are lifted out of the frame and the liners are stripped away. The reusable frame never needs cleanup. The system includes an unbonded capping set of four polyurethane pads with two stainless steel retainers, reusable for up to 300 compression tests, and 27 Poly-liners. This inexpensive, time-saving system is reliable for in-house quality control and other non-specification applications. Liners, pads, and extra mold frames are available separately. Est. shipping weight: 12lb (6kg).	CS-HM-340	2x2in	–	
<b>Steel Single Cube Mold</b> is all-steel and collapsible 6x6in (152x152mm) mold that produces concrete specimens for compression testing or serves as a container for mortar penetration tests. Sides are hinged to the base and ends are hinged to the sides. Wing nut fasteners secure the assembly in place. Est. shipping weight: 27lb (12kg).	CS-HM-290	6x6in	C 403/T 197	
<b>Plastic Single-Cube Mold</b> is a rugged one-piece plastic 150x150mm (5.9x5.9in) mold that produces concrete specimens for compression testing or serves as a container for mortar penetration tests. Cured specimens are easily de-molded using compressed air injected through the base. Est. shipping weight: 5lb (2kg).	CS-HM-291	150mm	C 403/T 197	
<b>Accessories</b>	Hard Rubber Tamper	CS-HM-298	6x1/2x1in	C 87, C 91, C 109, C 141, C 311, C 472, C 579, C 942/T 106
	Trowel	CS-HMA-306	4.5x3in	–
	ASTM Trowel	CS-HMA-307	4.5x3in	C 87, C 91, C 109, C 141, C 311, C 472, C 579, C 942/T 106
	Cover Plate for CS-HM-294; Sulphur Cubes	CS-HM-299	–	C 617/T 231
	Cover Plate for CS-HM-294; Grout Cubes	CS-HM-309	–	–
	Frame for CS-HM-340	CS-HMA-139	–	–
	Poly Liners for CS-HM-340; case of 196	CS-HMA-140	–	–
Polyurethane Pads for CS-HM-340; pkg. 4	CS-HMA-141	–	–	



CS-HM-294M



CS-HM-335



CS-HM-340



CS-HM-290



CS-HM-291





CS-HM-106



CS-HM-107



CS-HM-108



CS-HM-220

## STANDARD TEST SANDS

**CS-HM-106 Density Sand** for sand-cone density testing of soils is clean, uniform, uncemented and free flowing. Meets ASTM D 1556 and AASHTO T 191.

**CS-HM-107 20-30 Standard Sand** (Tensile Test Sand) is manufactured to pass a No. 20 (850µm) sieve and be retained on No. 30 (600µm). Meets ASTM C 778 and AASHTO T 132 requirements.

**CS-HM-108 Graded Standard Sand** (Cube Test Sand) is graded between No. 30 (600µm) and No. 100 (150µm) sieves. Meets requirements for ASTM C 109 and C 778, as well as AASHTO T 106.

## PORTABLE CONCRETE MIXERS

ASTM C 192; AASHTO R 39, T 126

**CS-HM-220 Portable Concrete Mixer** has handles for manual positioning and pneumatic tires with tapered roller bearings. Tire diameter is 10in (254mm). Estimated shipping weight: 275lb (130kg).

### STANDARD TEST SANDS

Description	Model
Density Sand	CS-HM-106
20-30 Standard Sand	CS-HM-107
Graded Standard Sand	CS-HM-108

### PORTABLE CONCRETE MIXERS

Description	Model
Portable Concrete Mixer	CS-HM-220

*Inquire about other models*





# Soils

PERMEABILITY  
DENSITY  
PLASTIC LIMITS  
FIELD ANALYSIS





CS-HM-380R

## DEAD-WEIGHT DIRECT/RESIDUAL SHEAR MACHINE

ASTM D 3080; AASHTO T 236

- Economical, self-contained unit uses dead-weight loading
- Simple operation and precise controls
- Basic system includes fixtures for 2.5in samples
- Options for data collection via PC

CS-HM-380R uses 10:1 beam loading device to control confining pressures. A load cell with digital readout displays shear force and analog dial indicators measures vertical and shear displacement. A stepper motor drive controls the strain rate within 1% and is easily adjustable using digital thumb wheel controls. The strain rate can be set from 0.0001-0.3in/min (0.0025-7.62mm/min). Maximum shear displacement is 0.8in (20.3mm). Travel is set with limit switches. Vertical load capacity is 1,411lb (640kg) and maximum horizontal shear force is 1,500lbf (6,672N).

### DEAD-WEIGHT DIRECT/RESIDUAL SHEAR MACHINE

Description	Model
Direct/Residual Shear Machine, 115V/60Hz	CS-HM-380R
Direct/Residual Shear Machine, 230V/50Hz	CS-HM-380RF
32kg Weight Set, Maximum Load 320kg	CS-HMA-730
64kg Weight Set, Maximum Load 640kg	CS-HMA-725
88kg Weight Set, Maximum Load 880kg	CS-HMA-731
8tsf Weight Set, Maximum Load 545lbs	CS-HMA-727
16tsf Weight Set, Maximum Load 1,091lbs	CS-HMA-732
32tsf Weight Set, Maximum Load 2,182lbs	CS-HMA-729
Horizontal Displacement Transducer, 0.6 x 0.0001in (15.2 x 0.0025mm)	CS-HM-738
Vertical Displacement Transducer, 1 x 0.0001in (25.4 x 0.0025mm)	CS-HM-739
Two-Channel Digital Readout	CS-HM-418
Four-Channel Digital Readout	CS-HM-419

#### Accessories

Specimen Sizes	Shear Boxes	Cutters	Extruders
2.42in dia. x 1in	CS-HMA-734	CS-HMA-744	CS-HMA-764
2.5in dia. x 1in	CS-HMA-735	CS-HMA-745	CS-HMA-765
4in dia. x 1in	CS-HMA-736	CS-HMA-746	CS-HMA-766
60mm dia. x 25mm	CS-HMA-734M	CS-HMA-744M	CS-HMA-764M
60 x 60 x 25mm	CS-HMA-734S	CS-HMA-744S	CS-HMA-764S
4 x 4 x 1in	CS-HMA-736S	CS-HMA-746S	CS-HMA-766S
100 x 100 x 25mm	CS-HMA-737S	CS-HMA-747S	CS-HMA-767S





CS-HM-530

## MECHANICAL SOIL COMPACTORS

ASTM D 558, D 559, D 698, D 1557, D 1558; AASHTO T 99, T 134, T 135, T 136, T 180, T 220

**CS-HM-530 Mechanical Soil Compactor** This unit is a safe and efficient method for processing moisture-density samples, assuring uniform compaction and accurate, repeatable test results.

The CS-HM-530 includes a 2in (51mm) round, 5.5lb (2.5kg) hammer, a pie-faced hammer for use with 6in molds and a surcharge weight to increase total hammer weight to 10lbs (4.5kg). 4in (102mm) and 6in (152mm) standard compaction molds, and a digital automatic counter with start/stop switching are also included. Overall Dimensions: 12.5x29.5x56in (318x749x1,422mm), WxDxH.

## MECHANICAL SOIL COMPACTORS

Description	Model	Ship Wt. lb (kg)
Mechanical Compactor, 115V/60Hz	CS-HM-530	350 (159)
Mechanical Compactor, 230V/50-60Hz	CS-HM-530F	350 (159)
Mechanical Compactor, for Calif. 216, 115V/60Hz	CS-HM-531	350 (159)
Mechanical Compactor, for Calif. 216, 230V/50-60Hz	CS-HM-531F	350 (159)
<b>Accessories</b>		
Compaction Mold, 4in (102mm) Std., 1/30	CS-HMA-110	18 (8)
Compaction Mold, 4in (102mm) Split, 1/30	CS-HMA-111	18 (8)
Compaction Mold, 6in (152mm) Std., 1/13	CS-HMA-116	18 (8)
Compaction Mold, 6in (152mm) Split, 1/13	CS-HMA-117	18 (8)
Special Calif. 216 Mold	CS-HMA-119	15 (7)
CBR Mold, 6x7in (155x178mm), IDxH	CS-BRA-60	22 (10)
LBR Mold, 6x6in (152x152mm), IDxH	CS-BRA-59	22 (10)
12in Steel Straightedge	CS-HMA-135	1 (0.5)
Calibration Kit	CS-HMA-120	5 (2)
Lead Calibration Cylinders, pkg. 100	CS-HMA-121	10 (5)



CS-HM-550

CS-HM-551

## MANUAL SOIL COMPACTORS

ASTM D 558, D 559, D 698, D1557, D 1558;  
AASHTO T 99, T 134, T 135, T 136, T 180

### CS-HM-550 ASTM Standard Compaction Hammer

has 5.5lb (2.5kg) mass enclosed in a guide sleeve with vent holes to ensure unrestricted free-fall. Drop is 12in (305mm). Est. Ship Wt.: 10lb (5kg).

### CS-HM-551 ASTM Modified Compaction Hammer

has 10lb (4.5kg) mass enclosed in a guide sleeve with vent holes to ensure unrestricted free-fall. Drop is 18in (457mm). Est. Ship Wt.: 16lb (7kg).

## MANUAL SOIL COMPACTORS

Description	Model
ASTM Standard Compaction Hammer	CS-HM-550
ASTM Modified Compaction Hammer	CS-HM-551



CS-HMA-110



CS-HMA-111



CS-HMA-117



CS-BRA-60

## SOIL COMPACTION MOLDS

ASTM D 558, D 559, D 560, D 698, D1557, D 1558;  
AASHTO T 99, T 134, T 135, T 136, T 180, T 220

## SOIL COMPACTION MOLDS

Description	Model
Compaction Mold, 4in Std., 1/30	CS-HMA-110
Compaction Mold, 4in Split, 1/30	CS-HMA-111
Compaction Mold, 6in Std., 1/13	CS-HMA-116
Compaction Mold, 6in Split, 1/13	CS-HMA-117
CBR Mold	CS-BRA-60
LBR Mold	CS-BRA-59

## Accessories

Description	Model
12in Steel Straightedge	CS-HMA-135





CS-HM-500



CS-HMA-15



CS-SA-18

## POCKET PENETROMETER

Lightweight, direct-reading penetrometer gives instant information for classification of cohesive soils on site or in the lab. Complete penetrometer weighs only 2oz (57g); D is 3/4in (19mm) and L is 6in (152mm). Adapter Foot Attachment of 1in dia. has 16 times the piston area for soft soils.

## PLASTIC LIMIT ROLLER

ASTM D 4318; AASHTO T 90; Texas 105-E

### POCKET PENETROMETER

Description	Model
Pocket Penetrometer	CS-HM-500
Accessories	
Description	Model
Adapter Foot Attachment	CS-HMA-15

### PLASTIC LIMIT ROLLER

Description	Model
Plastic Limit Roller	CS-SA-18
Accessories	
Description	Model
Adhesive Paper, pad of 50 sheets	CS-SSA-9
Adhesive Paper, case of 20 pads	CS-SSA-90



CS-SA-60



CS-SA-61



CS-SA-62



CS-SAA-8



CS-SAA-10P

## ATTERBERG LIMITS

ASTM D 4318; AASHTO T 89, T 90

Liquid Limit is the water content at which soil changes from liquid to plastic state. It is arbitrarily defined as that point where two halves of a soil sample flow together when jarred 25 times in a specified manner using a Liquid Limit machine.

### ATTERBERG LIMITS

Description	Model
Liquid Limit Machine Motorized, with Counter, 115V/60Hz	CS-SA-60
Liquid Limit Machine Motorized, with Counter, 230V/50Hz	CS-SA-60F
Liquid Limit Machine Hand Operated	CS-SA-61
Liquid Limit Machine Hand Operated, with Counter	CS-SA-62
Accessories	
Grooving Tool. AASHTO	CS-SSA-8
Grooving Tool Metal, Casagrande ASTM	CS-SSA-10
Grooving Tool Plastic, Casagrande ASTM1, pkg. 10	CS-SSA-10P
Brass Cup with Mounting Holes	CS-SSA-11
Brass Cup with Holder	CS-SAA-12
Liquids & Plastic Limits Set	CS-SA-65
Glass Plate	CS-SA-66





CS-HM-100

### SAND CONE DENSITY 6-1/2IN ASTM D 1556; AASHTO T 191

**CS-HM-100 Sand Cone Density Apparatus** is a 1gal (3.8L) threaded plastic jar with detachable brass double cone fitting. The brass cone is threaded on one end, flanged to 6-1/2in (165mm) on the other, with a brass cylindrical valve of a 1/2in (12.7mm) dia. orifice between ends. Valve has stops to prevent rotating past completely open or closed positions. Replacement plastic jar only is available as CS-HM-102.

#### SAND CONE DENSITY 6-1/2IN

Description	Model
Sand Cone Density Apparatus	CS-HM-100
Accessories	
Replacement Plastic Jar	CS-HM-102
Density Plate	CS-HM-104
Density Sand	CS-HM-106



CS-HM-98

### SAND CONE DENSITY 12IN

Large 12in (305mm) diameter sand cone apparatus is used for density in gravels and coarse soils where a larger hole is necessary for accurate results. The unit has two identical cones with valve in the center. Metal cylinder attached to top cone has clear plastic end for viewing sand flow and handles for carrying. A circular density plate is included. Est. Ship Wt.: 50lb (23kg).

#### SAND CONE DENSITY 12IN

Description	Model
Sand Cone Density	CS-HM-98

## SOIL SAMPLERS

Description	Carbon Steel	Stainless Steel
<p><b>Standard Augers</b> are the best for a wide range of soil types. Open Bit design allows larger particles to pass through for recovery. Est Ship Wt.: 3lb (1kg)</p> <p>3in (76mm) 4in (102mm)</p>	<p>CS-SP-254 CS-SP-256</p>	<p>CS-SP-258 CS-SP-259</p>
<p><b>Clay Augers</b> have an open bit design and windows machined in sides that make Sample viewing and recovery easier in cohesive soils. Length is 18in (457mm) Est Ship Wt.: 3lb (1kg)</p> <p>3in (76mm) 4in (102mm)</p>	<p>CS-SP-261 CS-SP-262</p>	<p>CS-SP-264 CS-SP-266</p>
<p><b>Sand Augers</b> have partially close bodies and closed bits that aid sample retention in loose granular soils. Length is 18in (457mm). Est Ship Wt.: 3lb (1kg)</p> <p>3in (76mm) 4in (102mm)</p>	<p>CS-SP-268 CS-SP-269</p>	<p>CS-SP-271 CS-SP-272</p>
<p><b>Mud (Dutch) Augers</b> have a unique, open design that is ideal for cutting in murky, Boggy, root-bound soils. Sample recovery and clean-up are easier. Available in 3in (76mm) diameter only. Length is 12in (305mm). Est. Ship Wt.: 3lb (1kg)</p> <p>3in (76mm)</p>	<p>CS-SP-274</p>	<p>CS-SP-278</p>
<p><b>Planer Augers</b> are designed to clean up cuttings and flatten the bottom of a pre-bored hole. Good preparation for a permeability test or where precise sizing is required. Length is 12in (305mm). Est. Ship Wt.: 3lb (1kg)</p> <p>3in (76mm) 4in (102mm)</p>	<p>CS-SP-276 CS-SP-279</p>	<p>CS-SP-282 CS-SP-283</p>
<p><b>Handles &amp; Extensions</b> 16in (406mm) T-Handles are fitted with comfort-grip padding for ease of use. Extensions are high-strength 1in tubing, permanently marked with 6in (152mm) increments. Est Ship Wt.: 4lb (2kg)</p> <p>2ft (610mm) 3ft (914mm) 4ft (1,219mm) 5ft (1,524mm) T-Handle</p>	<p>CS-SP-284 CS-SP-285 CS-SP-286 CS-SP-287 CS-SP-288</p>	<p>CS-SP-289 CS-SP-290 CS-SP-291 CS-SP-292 CS-SP-293</p>
<p><b>Adapters</b> allow for Quick-Connect Augers to be used on older extensions with 5/8in-11 NC threaded connections. A locking pin is included.</p>	<p>CS-SPA-255</p>	<p>–</p>
<p><b>Quick-Connect Pins</b> 1/4x1-1/4in pins have spring retention clips</p>	<p>CS-SPA-256</p>	<p>CS-SPA-257</p>
<p><b>One-Piece Soil Samplers</b> T-Handle samplers take 3/4in (19mm) cores in tubes with replaceable hardened tips. Welded high-quality plated steel construction. All except CS-SP-138 have a footstep to assist insertion in the soil. Popular CS-SP-142 takes 12in (305mm) long samples directly into 16in (406mm) acetate liners to eliminate cross contamination between samples. Ends are quickly capped for shipping and storage. Twelve liners and twenty four caps are included with CS-SP-142; order extra cases as Model CS-SPA-235. Replacement tube tips are available for all samplers. Est Ship Wt.: 6lb (3kg).</p> <p>One-Piece Soil Sampler, 19in (482mm) Long, 14in (360mm) Open Tube One-Piece Soil Sampler, 36in (914mm) Long, 11in (279mm) Open Tube One-Piece Soil Sampler, 36in (914mm) Long, 16in (406mm) Lined Tube Acetate Liners with End Caps for CS-SP-142, case of 12</p>	<p>– – – –</p>	<p>CS-SP-138 CS-SP-140 CS-SP-142 CS-SPA-235</p>







CS-HM-940



CS-HM-942



CS-HMA-670

## SOIL RESISTIVITY APPARATUS ASTM G 57

This Soil Resistivity equipment utilizes the four electrode method developed by the National Bureau of Standards known as the Wenner 4-pin Method. The test determines the average resistivity of the soil to a depth equal to the spacing between electrodes (soil pins). This kit is designed for the maximum pin spacing of 20ft (6.1m) recommended for a standard survey.

**CS-HM-940 Soil Resistivity Kit** consists of the Soil Resistivity Reel with four color-coded lead wires harnessed together, four Heavy Duty Soil Pins and a soil box with leads for laboratory testing, housed in a sturdy, foam-lined plastic case.

**CS-HM-942 Soil Resistance Meter** is purchased separately from the Resistivity Kit. When used together with the CS-HM-940 kit, soil resistance values can be read directly from the analog dial of the meter; no calculations are necessary.



CS-HMA-670

### SOIL RESISTIVITY APPARATUS

Description	Model
Soil Resistivity Kit	CS-HM-940
Soil Resistivity Meter	CS-HM-942
Accessories	
Soil Resistivity Reel with 4 Lead Wires	CS-HMA-670
Heavy-Duty Soil Pin	CS-HMA-671
Soil Box for Laboratory Testing	CS-HMA-672
Leads for Soil Box, set of 4	CS-HMA-673



## pHep® TESTER

The pHep®5 Tester is for users that require the greatest accuracy and features while staying economical. This model has BEPS as well as user selectable automatic shut-off, replaceable pH electrode cartridge, stability indicator and automatic calibration.

- Waterproof and designed to float
- Automatic Temperature Compensation
- Automatic calibration
- Tactile grip casings
- HOLD function
- Automatic shut-off
- Efficient two button operation
- Temperature in °C or °F
- BEPS (Battery Error Prevention System)
- Battery % displayed at start up

### pHep® TESTER

Description	Model
Phep 5 Tester	CS-HI-98128
#4 pH Buffer Solution, qt	CS-HI-70004P
#7 pH Buffer Solution, qt	CS-HI-70007P
#10 pH Buffer Solution, qt	CS-HI-70010P
Accessories	
Tool for Replacing Probe	CS-HI-73128
Spare Electrode for Testers	CS-HI-73127



# Ovens

BATCH OVENS

FURNACES

HOT PLATES

ELECTRIC RANGES





CS-31-350



CS-31-350ER



CS-21-250ER

## BENCH OVENS

Bench Ovens offer quality standard features and a wide range of low-cost options. All are forced-air convection with double-wall steel construction, corrosion resistant aluminized steel interiors, and a baked hammertone exterior finish. Full-width gasketed double doors feature high-impact “cool” handles, full-length piano hinges and 2in (51mm) of high-density mineral wool insulation. Ovens hold up to 11 shelves (17 for CS-BO-355 models), adjustable on 1.5in centers, with capacity of 80lb (36kg) per shelf. Inquire for heavier-duty shelves. Two standard shelves and a grounded 6ft (1.8m) cord with plug are included. Available in Digital or Analog controls.

BENCH OVENS							
Model	Uniformity	Max Temp °F (°C)	Chamber Capacity, ft <sup>3</sup> (L)	Chamber Dimensions WxDxH, in (cm)	Overall Dimensions WxDxH, in (cm)	Electrical Volts/Amps	Ship Wt. lb (kg)
CS-21-250	±2.5°C	300 (149)	7.0 (198)	26x24x20 (66x61x51)	33x36x24 (84x91x61)	120/9.7	185 (84)
CS-21-250ER	±2°C	300 (149)	7.0 (198)	26x24x20 (66x61x51)	33x36x24 (84x91x61)	120/9.7	185 (84)
CS-31-350	±2.5°C	450 (232)	7.0 (198)	26x24x20 (66x61x51)	33x36x24 (84x91x61)	120/18.3	185 (84)
CS-31-350R	±2°C	450 (232)	7.0 (198)	26x24x20 (66x61x51)	33x36x24 (84x91x61)	120/18.3	185 (84)





CS-BO-323



CS-BO-333



CS-BO-343

## BUDGET HI-CAPACITY OVENS

These forced convection electric bench ovens operate to 204°C (400°F) with  $\pm 0.5\%$  control accuracy and  $\pm 4^\circ\text{C}$  ( $\pm 8^\circ\text{F}$ ) uniformity for efficient drying of large sample loads. Ovens may be used on the bench or ordered with a 24in (610mm) high Stand Kit for most convenient working height. Two 50lb (23kg) capacity nickel-plated wire shelves adjust to fit any of ten support channels on 3in centers; order extra shelves as needed.

Hi-Capacity models have double doors and 2in (51mm) rockwool insulation between carbon steel with type 304 stainless steel interior and enameled exterior. The UL-listed side access control panel has an analog solid state thermocouple-actuated temperature controller, blower control push buttons, On/Off heat switch, adjustable over-temperature controller and pilot lights. Heaters shut off if blower fails and the 1/3hp blower can be run without heater for cooling. Adjustable air intake and exhaust dampers are provided. Construction includes explosion venting latches, silicone rubber door gaskets, and incolloy-sheathed tubular heating elements with built-in baffle to prevent radiant heat.

### BUDGET HI-CAPACITY OVENS

Model <sup>1</sup>	Chamber Capacity, ft <sup>3</sup> (L)	Chamber Dimensions WxDxH, in (cm)	Overall Dimensions <sup>2</sup> WxDxH, in (cm)	Ship Wt. lb (kg)
CS-BO-323	15.8 (447)	36x21x36 (91x53x91)	49x28x57 (124x71x145)	600 (273)
CS-BO-333	27 (764)	36x36x36 (91x91x91)	49x43x57(124x109x145)	750 (341)
CS-BO-343	36 (1,019)	36x48x36 (91x122x91)	49x55x57(124x140x145)	850 (386)

<sup>1</sup> Add letter suffix to model number to specify electrical characteristics desired: "A" suffix, 230V/60Hz/single phase; "B" suffix, 230V/60Hz three phase; "C" suffix, 460V/60Hz/three phase. Other electrical characteristics quoted on request.

<sup>2</sup> Dimensions include 10in (25cm) for blower motor on top of case, and 9in (23cm) control panel on right side.





CS-MF-4A



CS-MF-8A

## ECONOMY MUFFLE FURNACES

Economy Muffle Furnaces have chamber capacities from 219-5,865in cubed (3.6-96.1L). The 219in cubed models have 2,300°F (1,260°C) maximum temperature; other models are 2,000°F (1,093°C). All models have chambers with minimum 2-1/2in (64mm) of refractory firebrick enclosed in heavy-gauge painted steel cases. Heating elements are mounted in the firebrick, easily accessible for maintenance.

### ECONOMY MUFFLE FURNACES

Model	Max. Temp °F (°C)	Controller	Chamber Capacity in <sup>3</sup> (L)	Chamber Dimensions WxDxH, in	Overall Dimensions WxDxH, in	Electrical Volts/Amps/ Watts	ShipWt lb(kg)
CS-MF-2	2,300 (1,260)	Manual Input	242 (3.96)	5.8x6x6.3 (146x152x159)	11x15x18 (279x381x457)	115/12/1,440	37(17)
CS-MF-2F	2,300 (1,260)	Manual Input	242 (3.96)	5.8x6x6.3 (146x152x159)	11x15x18 (279x381x457)	230/6/1,440	37(17)
CS-MF-2A	2,300 (1,260)	Automatic Digital	242 (3.96)	5.8x6x6.3 (146x152x159)	11x15x18 (279x381x457)	115/12/1,440	70(32)
CS-MF-2AF	2,300 (1,260)	Automatic Digital	242 (3.96)	5.8x6x6.3 (146x152x159)	11x15x18 (279x381x457)	230/6/1,440	70(32)
CS-MF-4	2,000 (1,093)	Manual Input	673 (11)	8.5x9x8.8 (216x229x224)	14x18x20.5 (356x457x521)	115/14/1,680	80(36)
CS-MF-4F	2,000 (1,093)	Manual Input	673 (11)	8.5x9x8.8 (216x229x224)	14x18x20.5 (356x457x521)	230/7/1,680	80(36)
CS-MF-4A	2,000 (1,093)	Automatic Digital	673 (11)	8.5x9x8.8 (216x229x224)	14x18x20.5 (356x457x521)	115/14.1/1,692	100(45)
CS-MF-4AF	2,000 (1,093)	Automatic Digital	673 (11)	8.5x9x8.8 (216x229x224)	14x18x20.5 (356x457x521)	230/7/1,692	100(45)
CS-MF-6	2,000 (1,093)	Manual Input	1,544 (25.3)	13x13.5x8.8 (330x343x224)	18.25x22.5x20.5 (464x572x521)	230/13/3,120	115(52)
CS-MF-6A	2,000 (1,093)	Automatic Digital	1,544 (25.3)	13x13.5x8.8 (330x343x224)	18.25x22.5x20.5 (464x572x521)	230/13/3,120	131(60)
CS-MF-8A	2,000 (1,093)	Automatic Digital	5,865 (96.1)	21x21x13.3 (533x533x338)	37.5x30x23 (953x762x584)	230/30/7,200	310(140)



## ELECTRIC RANGES & HOT PLATES

One or two burner units are ideal for heating/drying applications where precise control of temperature is not required. Both units are supplied at 115V, 50/60Hz. Single-Burner Overall Dimensions: 11.5x11.5x3.5in (292x242x89mm), WxDxH. Est. Ship Wt.: 4lb (2kg); Double-Burner Overall Dimensions: 17.5x11.5x3.5in (445x292x89mm), WxDxH. Est. Ship Wt.: 6lb (3kg).

**CS-MA-1807 Hot Plate** heats from 5°C (9°F) above ambient to 540°C (1,004°F). Larger top plate gives more than three times the usable surface area. Heating Watts 1,060. Dimensions: 7.25x7.25in (184x184mm). Est. Ship Wt.: 11lb (5kg).

**CS-MA-1827 Stirring Hot Plate** heats from 5°C (9°F) above ambient to 540°C (1,004°F), and has magnetic stirring as well. Stirring speed is adjustable from 60-1,200rpm. Heating Watts 1,060. Dimensions: 7.25x7.25in (184x184mm). Est. Ship Wt.: 11lb (5kg).



CS-MA-837A



CS-MA-1807



CS-MA-1827

## ELECTRIC RANGES

Description	Model
Electric Range, Single-Burner	CS-MA-836
Electric Range, Double-Burner	CS-MA-837A
Hot Plate	CS-MA-1807
Stirring Hot Plate	CS-MA-1827

# Balances

INDUSTRIAL







CS-GF FAMILY



CS-GP



CS-FG-K



CS-EJ



CS-7000

## INDUSTRIAL BALANCES

These unique high-capacity balances are rugged enough for industrial use, yet have precision laboratory balance accuracy. As a bench scale or the swing-arm display for reading at eye level from bench-top level.

**CS-GF Family** Our revolutionary and patented (SHS) technology improves response speed to one second and minimizes maintenance costs. The new Super Hybrid Sensor (SHS) gives you the ultimate in response speed. Resolution Range among models: 1/60,000 to 1/1,100,000. A large, bright Vacuum Fluorescent Display allows you to see the display even in the dark. Also Bi-directional RS232C output standard with WinCT software.

**CS-CP** The perfect balance for asphalt/concrete aggregate and density testing weighing solutions. The CS-GP Series incorporates our enhanced weighing sensor, the Double Leveraged Super Hybrid Sensor (SHS). Building on the basic SHS features of speed and stabilization, our enhanced SHS technology brings the most accurate weighing results to industrial balances in the 12kg to 101kg capacities class. The GP series comes with Splash Proof Keyboard, Display and Base Units, GLP/GMP/ISO Compliance, ID Number, Optional Underhook and Internal Calibration.

The **CS-FG-K Series** features fast weighing response time and accuracy suitable for any weighing application. Easy to operate and clean. One second response time. Three weighing resolutions, AC or battery operation and full scale push button tare.

The **CS-EJ Newton Precision Compact Balances** offer a multitude of features for a diverse variety of weighing applications. Eleven models to choose from with Backlit LCD display, Counting and % functions along With AC power or alkaline battery operation (batteries not included). RS232C and USB output optional.

**Ranger CS-7000** boasts high resolution, large display, stainless steel platform, sealed indicator and advanced software with density weight calculations.

# Thermometers, Temperature, Time

THERMOMETERS

TIMERS



## DIAL &amp; POCKET THERMOMETERS

Description	Model	Range	Division	Length in (mm)
<b>Pocket Dial Thermometers</b> Accurate to 1% of range. Have calibration reset adjustment and plastic carrying case with clip. 1in diameter dial face.	CS-MA-100	-40°–160°F	2°	5 (127)
	CS-MA-101	0°–220°F	2°	5 (127)
	CS-MA-102	25°–125°F	1°	5 (127)
	CS-MA-103	50°–550°F	5°	5 (127)
	CS-MA-104	0°–150°F	2°	5 (127)
	CS-MA-105	10°–285°F	5°	5 (127)
<b>Dial Lab Testing</b> °F/°C dual scale. Dial case and 0.15in diameter stem are type 304 stainless steel. Accurate to 1% of range. Calibration reset screw sets known temperature. Indicating pointer and adjustable mounting clip. CS-MA-123 has 2in dial and glass crystal, others have 1.75in dial and polycarbonate crystal. (Not for oven use. See CS-MA-160 for thermometer suitable for placing inside oven chamber.)  °F scale only, similar to above, but without clamp; plastic crystals.	CS-MA-120	0°–220°F (-18–110°C)	2°	8 (203)
	CS-MA-121	25°–125°F	1°	8 (203) (0°–50°C)
	CS-MA-122	32°–300°F (0°–150°C)	2°	8 (203)
	CS-MA-123	50°–550°F (0°–285°C)	5°	8 (203)
	CS-MA-120F	0°–220°F	2°	8 (203)
	CS-MA-121F	25°–125°F	1°	8 (203)
<b>Surface Dial</b> Dials are 2in diameter and attach to non-horizontal ferrous surfaces via two integral magnets.	CS-MA-125	0°–150°F	2°	–
	CS-MA-126	0°–250°F	2°	–
	CS-MA-127	0°–500°F	10°	–
	CS-MA-130	-15°–65°F	1°	–
	CS-MA-131	-20°–120		–
<b>Dial Oven Thermometer</b> Thermometer has a stainless steel swivel case to hang or stand on oven racks. Tempered glass crystal. Highly visible °F/°C, dual scale dial provides easy temperature reading, with 5° divisions. Range is 175°–500°F (80°–270°C) with accuracy of ±5° at 350°F and ±10° at 250° and 450°F temperature.	CS-MA-160	100°–600°F	5°	2.5 x 2.75 (64 x 70)
<b>Thermistor/Infrared Pen</b> Unit handles both surface and penetration temperature measurements. The sturdy metal pen contains a non-contact Infrared thermometer. Infrared surface temperatures are displayed on a backlit LCD. Accuracy is ±2% of reading or 2°C, whichever is greater. The stainless steel thermistor probe on the other end rotates out and locks at 90° or 180° for penetration measurements, and features min-max and hold functions. Accuracy is ±1.5% of reading. Two button-cell batteries in each end provide power. The displays indicate low battery power. A foam-lined metal case and batteries are included. 7x3/4in (185x15mm). Probe: 6x1/16in (155x3mm). Est. Ship. Wt.: 2lb(1kg).	CS-MA-114	IR: -28°–428°F (-33°–220°C) Thermistor: -58°–302°F (-50°–150°C)	IR: 0.1°, 1° above 200°C  Thermistor: 0.1°	6 (155)



## NON-MERCURY THERMOMETERS

Description	Model	Range	Division	Length in (mm)	ASTM number
<p><b>ASTM Equivalent Non-Mercury Thermometers</b> have the same performance characteristics as ASTM thermometers, but use safe blue liquid instead of mercury. PerformaTherm™ Thermometers are total-immersion and comply with ASTM E 2251. The proprietary formula is biodegradable, nontoxic, non-caustic and non-hazardous. Dark blue color is easily read against the white-backed stem.</p> <p>Add a "T" suffix to the model number for units with five-point certification in an ISO/IEC accredited laboratory. Sets (CS-MA-530F–CS-MA-534F or CS-MA-530C–CS-MA-534C) of certified PerformaTherm™ Precision Use thermometers with vinyl cases are offered as CS-MA-751CT or CS-MA-751FT respectively. Individual certified thermometers are also available with protective cases. Est. Ship Wt.: 1lb (0.5kg).</p>	CS-MA-530F	-36°–35°F	0.2°	14.9 (379)	62F
	CS-MA-530C	-38°–2°C	0.1°	14.9 (379)	62C
	CS-MA-531F	18°–89°F	0.2°	14.9 (379)	63F
	CS-MA-531C	-8°–32°C	0.1°	14.9 (379)	63C
	CS-MA-532F	77°–131°F	0.2°	14.9 (379)	64F
	CS-MA-532C	25°–55°C	0.1°	14.9 (379)	64C
	CS-MA-533F	122°–176°F	0.2°	14.9 (379)	65F
	CS-MA-533C	50°–80°C	0.1°	14.9 (379)	65C
	CS-MA-534F	167°–221°F	0.2°	14.9 (379)	66F
	CS-MA-534C	75°–105°C	0.1°	14.9 (379)	66C
	CS-MA-535F	203°–311°C	0.5°	14.9 (379)	67F
	CS-MA-535C	95°–155°C	0.2°	14.9 (379)	67C
	CS-MA-529F	-5°–215°F	0.5°	16.5 (420)	12F
	CS-MA-529C	-20°–102°C	0.2°	16.5 (420)	12C
	CS-MA-536	38.5°–41.5°C	0.05°	12.0 (305)	120C
	CS-MA-537	95°–103°C	0.1°	10.9 (277)	22C
	CS-MA-538	19°–35°C	0.02°	23.5 (597)	56C
	CS-MA-539	66°–95°F	0.05°	23.5 (597)	56F
	CS-MA-540	-34°–49°C	0.5°	12.0 (305)	58C
	CS-MA-541	-30°–120°F	1.0°	12.0 (305)	58F
CS-MA-542	0°–180°F	1.0°	12.0 (305)	59F	
<p><b>Enviro-Safe® General Purpose Lab Thermometers</b> are spirit-filled with nonhazardous green liquid and are EnviroKleen™ certified safe for personal, commercial and industrial use. No exposure danger or disposal problems if broken. Single fixed scale is accurate to ±1 div. below 105°C (221°F), ±1.5 div. above 105°C (221°F), ±2 div. above 200°C (392°F). Calibrated for partial immersion, serial numbered and shipped with accuracy statement. Est. Ship Wt.: 1lb (0.5kg)</p>	CS-MA-145	0°–230°F	2.0°	12.0 (305)	–
	CS-MA-155	-20–110°C	1.0°	12.0 (305)	–
	CS-MA-146	0°–300°F	2.0°	12.0 (305)	–
	CS-MA-156	-20–150°C	1.0°	12.0 (305)	–
	CS-MA-147	20°–500°F	2.0°	16.0 (405)	–
	CS-MA-157	-10–260°C	1.0°	16.0 (405)	–
<p><b>Pocket Copper-Plated Thermometer</b> Red spirit-filled. Pointed copper bulb with aluminum storage case.</p>	CS-MA-110	0°–120°F	1.0°	6.0 (152)	–
<p><b>Max/Min Registering Thermometer</b> shows maximum and minimum temperatures in °F and °C since last reset, as well as current temperature.</p>	CS-MA-161	-40°–120°F (-40°–50°C)	2.0°F (1.0°C)	8.0 (203)	–
<p><b>Bottle Thermometers</b> are non-toxic, spirit-filled and give precise readings in ovens and freezers despite frequent usage of doors. Thermometer bulb is immersed in media in shatterproof container, avoiding sudden ambient temperature changes. Est. Shipping Wt.: 1lb (0.5kg)</p> <p style="text-align: center;">Vermiculite-Filled, for Ovens Ethylene Glycol Filled, for Freezers</p>	CS-MA-280	20°–130°C	1.0°C	8.0 (203)	–
	CS-MA-282	-30°–0°C	0.5°C	6.0 (152)	–



## MERCURY-IN-GLASS THERMOMETERS

Description	Model	Range	Division	Length
<b>General Purpose Lab Thermometers</b> have single scale to S.A.M.A. standards and engraved stem. Calibrated for total immersion, mercury filled. Ship Wt.: 1lb (0.5kg)	CS-MA-140	-30°–120°F	1°	12 (305)
	CS-MA-150	-35°–50°C	1°	12 (305)
	CS-MA-141	0°–230°F	2°	12 (305)
	CS-MA-151	-20°–110°C	1°	12 (305)
	CS-MA-142	0°–300°F	2°	12 (305)
	CS-MA-152	-20°–150°C	1°	12 (305)
	CS-MA-143	20°–500°F	2°	16 (405)
	CS-MA-153	-10°–250°C	1°	16 (405)
	CS-MA-144	20°–750°F	5°	16 (405)
	CS-MA-154	-10°–400°C	2°	16 (405)
<b>Armored Mercury-in-Glass Thermometers</b> have 11.5in (292mm) slotted penetration cases of plated steel. Case has top ring and threaded cap. For glass thermometer refill only, add "R" suffix to desired model. Est. Ship Wt.: 1lb (0.5mm).	CS-MA-240	50°–450°F	5°	9.5 (241)
	CS-MA-241	50°–600°F	5°	9.5 (241)
	CS-MA-242	0°–120°F	1°	9.5 (241)
<b>Concrete Reference Thermometer</b> checks calibration of other devices used for temperature determinations in cement and concrete. Meets ASTM C 1064 and E 77. Mercury-filled with black engraved numbers against yellow background. calibrated for 3in (76mm) immersion and includes a certificate with NIST traceability. Est. Ship Wt: 1lb (0.5kg)	CS-MA-158	30°–124°F	0.2°	18 (457)
<b>Thermometer Storage Rack</b> holds up to 25 thermometers in correct vertical position to prevent filler separation and reduce risk of breakage. Construction is 1/4in (6.35mm) thick polyethylene with sturdy base and large carrying handles. Retaining holes are 5/16in (7.9mm) and base plate has 1/8in (3.2mm) drain holes. Est. Ship Wt.: 4lb (2kg)	CS-MA-305	–	–	–
<b>Temperature Retention Device</b> provides temperature stability when checking and calibrating laboratory ovens. The heavy brass thermometer enclosure with 1/4in (6.4mm) D. Internal well maintains temperature of thermometer when oven doors are opened. The hexagonal cross-section prevents movement in the oven. 4x3/4in (105x109mm), LxD. Estimated ship wt.: 1lb (0.5kg)	CS-MAA-89	–	–	–



## ASTM THERMOMETERS

### ASTM E 1, E77

ASTM thermometers have strict manufacturing tolerances. Each thermometer is supplied with a statement of compliance to E 1 and E 77 requirements. ASTM Thermometers are yellow-backed glass with permanent graduations, mercury-filled and individually packed in cardboard tubes.

ASTM THERMOMETERS					
Type	ASTM #	Length in (mm)	Immersion in (mm)	Range	Division
General Use	1F	12.7 (322)	3 (76)	0°–302°F	2.0°F
	1C	12.7 (322)	3 (76)	-20°–150°C	1.0°C
	2F	15.4 (390)	3 (76)	20°–580°F	2.0°F
	2C	15.4 (390)	3 (76)	-5°–300°C	1.0°C
	3F	16.3 (415)	3 (76)	20°–760°F	2.0°F
	3C	16.3 (415)	3 (76)	-5°–400°C	1.0°C
Cloud & Pour	5F	9.0 (230)	4.3 (108)	-36°–120°F	2.0°F
	5C	9.0 (230)	4.3 (108)	-38°–50°C	1.0°C
	6F	9.0 (230)	3 (76)	-112°–70°F	2.0°F
	6C	9.0 (230)	3 (76)	-80°–20°C	1.0°C
Distillation	7F	15.1 (384)	Total	30°–580°F	2.0°F
	7C	15.1 (384)	Total	-2°–300°C	1.0°C
	8F	15.1 (384)	Total	30–360°F	2.0°F
	8C	15.1 (384)	Total	-2°–400°C	1.0°C
Precise Use	62F	14.9 (379)	Total	-36°–35°F	0.2°F
	62C	14.9 (379)	Total	-38°–2°C	0.1°C
	63F	14.9 (379)	Total	18°–89°F	0.2°F
	63C	14.9 (379)	Total	-8°–32°C	0.1°C
	64F	14.9 (379)	Total	77°–131°F	0.2°F
	64C	14.9 (379)	Total	25°–55°C	0.1°C
	65F	14.9 (379)	Total	122°–176°F	0.2°F
	65C	14.9 (379)	Total	50°–80°C	0.1°C
	66F	14.9 (379)	Total	167°–221°F	0.2°F
	66C	14.9 (379)	Total	75°–105°C	0.1°C
	67F	14.9 (379)	Total	203°–311°F	0.5°F
	67C	14.9 (379)	Total	95°–155°C	0.2°C
	68F	14.9 (379)	Total	293°–401°F	0.5°F
	68C	14.9 (379)	Total	145°–205°C	0.2°C
	69F	14.9 (379)	Total	383°–581°F	1.0°F
	69C	14.9 (379)	Total	195°–305°C	0.5°C
Precision Use Full Set	°F	14.9 (379)	Total	-36°–761°F	Varies
	°C	14.9 (379)	Total	-38°–405°C	Varies
Pensky-Martens & Tag Closed High	9F	11.8 (290)	2.3 (57)	20°–230°F	1.0°F
	9C	11.8 (290)	2.3 (57)	-5°–110°C	0.5°C



ASTM THERMOMETERS					
Type	ASTM #	Length in (mm)	Immersion in (mm)	Range	Division
Tag Closed Low	57F	11.8 (290)	2.3 (57)	-4°–122°F	1.0°F
	57C	11.8 (290)	2.3 (57)	-20°–50°C	0.5°C
Pensky-Martens High	10F	11.8 (290)	2.3 (57)	200°–700°F	5.0°F
	10C	11.8 (290)	2.3 (57)	90°–370°C	2.0°C
Open Flash	11F	12.1 (310)	2.3 (57)	20°–760°F	5.0°F
	11C	12.2 (310)	2.3 (57)	-4°–400°C	2.0°C
Gravity	12F	16.5 (420)	Total	-5°–215°F	0.5°F
	12C	16.5 (420)	Total	-20°–102°C	0.2°C
Loss on Heat	13C	7.0 (155)	Total	155°–170°C	0.5°C
Bituminous Softening Point	15F	15.6 (396)	Total	30°–180°F	0.5°F
	15C	15.6 (396)	Total	-2°–80°C	0.2°C
	16F	15.6 (396)	Total	85°–392°F	1.0°F
	16C	15.6 (396)	Total	30°–200°C	0.5°C
	113F	15.1 (384)	Total	30°–350°F	1.0°F
	113C	15.1 (384)	Total	-1°–175°C	0.5°C
Saybolt Viscosity	17F	10.8 (275)	Total	66°–80°F	0.2°F
	17C	10.8 (275)	Total	19°–27°C	0.1°C
	18F	10.8 (275)	Total	94°–108°F	0.2°F
	18C	10.8 (275)	Total	34°–42°C	0.1°C
	19F	10.8 (275)	Total	120°–134°F	0.2°F
	19C	10.8 (275)	Total	49°–57°C	0.1°C
	20F	10.8 (275)	Total	134°–148°F	0.2°F
	20C	10.8 (275)	Total	57°–65°C	0.1°C
	21F	10.8 (275)	Total	174°–188°F	0.2°F
	21C	10.8 (275)	Total	70°–87°C	0.1°C
	22F	10.8 (275)	Total	204°–218°F	0.2°F
	22C	10.8 (275)	Total	95°–103°C	0.1°C
	77F	10.8 (275)	Total	245°–265°F	0.5°F
	78F	10.8 (275)	Total	295°–315°F	0.5°F
	108F	10.8 (275)	Total	230°–290°F	0.5°F
	109F	10.8 (275)	Total	320°–340°F	0.5°F
79F	10.8 (275)	Total	345°–365°F	0.5°F	
80F	10.8 (275)	Total	395°–415°F	0.5°F	
81F	10.8 (275)	Total	445°–465°F	0.5°F	
Kinematic Viscosity	47F	12.0 (305)	Total	137.5°–142.5°F	0.1°F
	47C	12.0 (305)	Total	58.6°–61.4°C	0.05°C
	110F	12.0 (305)	Total	272.5°–277.5°F	0.1°F
	110C	12.0 (305)	Total	133.6°–136.4°C	0.05°C
Solvents Distillation	37C	15.6 (396)	3.9 (100)	-2°–52°C	0.2°C
	39C	15.6 (396)	3.9 (100)	48°–102°C	0.2°C
	41C	15.6 (396)	3.9 (100)	98°–152°C	0.2°C
	103C	15.6 (396)	3.9 (100)	148°–202°C	0.2°C
	105C	15.6 (396)	3.9 (100)	198°–252°C	0.2°C
	107C	15.6 (396)	3.9 (100)	248°–302°C	0.2°C





CS-4482

## INFRARED THERMOMETERS

Description	Model	Range	Resolution	Accuracy	D:S Ratio
<p><b>Traceable® Infrared Thermometer</b>, operation is simple: turn on, point at sample and take a reading in less than a second. Unit reads both Fahrenheit and Celsius of any surface solids, semi-solids and liquids. Non-invasive, no-touch, measurements are ideal for food preparation, life sciences, pharmaceuticals, petroleum products, clean rooms, electronics and field use. Temperature range is -76 to 932°F and -60 to 500°C. Resolution: 0.1°. Accuracy: <math>\pm 1^\circ\text{C} + 2\%</math>.</p> <p style="text-align: right;">Infrared/Thermocouple Extended Range Thermometer Soft Carry Case</p>	<p>CS-4482 CS-MAA-108</p>	<p>-76°–1,400°F -60°–760°C</p>	0.1°F or °C	$\pm 2\%$ or 2°C	20:1



CS-TSA-1167

## TIMERS & STOPWATCHES

Description	Model	Power Supply	Range
<p><b>Gralab Timer</b> is an electromechanical timer that plugs into wall outlet and control device plugs into timer. Single and double outlets available.</p>	CS-TSA-1167	120V/60Hz	–
<p><b>Extra Loud Traceable® Timer</b> has a large 3/4in (19mm) display and 100 decibel alarm that makes it perfect for noisy laboratory environments. Two separate channels each feature stopwatch, time-out and time of day functions.</p>	CS-MA-36	One Battery for Timer included	2 Channels







CS-4482

**Traceable® Calipers** Designed for the lab, Traceable® Calipers make length/diameter measurements three ways: outside, inside and depth. Digital display models measure to 8 inches (200mm). At the touch of a button units switch from inches to millimeters. Other Types and sizes are available. Please ask a representative.

TRACEABLE® CALIPERS SPECIFICATIONS				
<b>Cat. No.</b>	CS-3415	CS-3416	CS-3417	CS-3418
<b>Material</b>	Stainless Steel		Carbon Fiber	
<b>Measuring Range</b>	6"(150mm)	8"(200mm)	4"(100mm)	6"(150mm)
<b>Resolution</b>	0.0005 inch (0.01mm)		0.01 inch (0.1mm)	
<b>Accuracy</b>	±0.001 inch (±0.03mm)		±0.01 inch (±0.2mm)	
<b>Depth Bar</b>	Yes		No	
<b>Thumb roller/Lock screw</b>	Yes		No	
<b>Non-metallic/non-conductive</b>	No		Yes	
<b>Traceable® Certificate</b>	Yes		Yes	
<b>Dimensions</b>	9 x 3 inches	11 x 3 inches	7 x 2-1/2 inches	9-1/2 x 3 inches
<b>Weight</b>	5 ounces	6 ounces	1 ounce	2 ounces



# Miscellaneous Labware & Tools

PANS  
CANS  
CONTAINERS  
BRUSHES  
SCOOPS  
GLASSWARE  
SPATULAS  
BAGS  
GLOVES  
CHEMICALS



## METAL SAMPLE PANS &amp; CONTAINERS

METAL SAMPLE PANS & CONTAINERS					
Description	Type	Model	External Dimensions, in	Capacity	Ship Wt. lb (kg)
<b>Stainless Steel</b> Top quality seamless construction SS Rectangular Pans With rounded corners. Rectangular Pans have straight sides. CS-SC-45 through CS-SC-47 have drop handles others have oversize flange for handling. Round pans have tapered sides. CS-SC-77 is sized to contain 8in (200mm) sieves. CS-SC-80 through CS-SC-84 are round sided.	SS Rectangular Pans	CS-SC-45	17.2Lx14.5Wx2.5H	8.3	4 (2)
		CS-SC-46	15.3Lx13Wx2.5H	6.5	4 (2)
		CS-SC-47	13.5Lx11.2Wx2.5H	4.3	3 (1)
		CS-SC-50	20.7Lx12.7Wx2.5H	8.3	4 (2)
		CS-SC-51	20.7Lx12.7Wx4H	14.0	5 (2)
		CS-SC-55	10.4Lx12.7Wx2.5H	4.0	3 (1)
		CS-SC-56	10.4Lx12.7Wx4H	6.7	4 (2)
		CS-SC-57	10.4Lx12.7Wx6H	9.6	6 (3)
		CS-SC-60	6.9Lx12.7Wx2.5H	2.6	3 (1)
		CS-SC-61	6.9Lx12.7Wx6H	5.9	4 (2)
		CS-SC-65	6.4Lx10.4Wx2.5H	1.8	2 (1)
		CS-SC-70	6.9Lx6.3Wx2.5H	1.2	2 (1)
	SS Round Pans	CS-SC-73	10Dx1.9H	0.7	2 (1)
		CS-SC-74	14.2D x1.9H	1.3	2 (1)
		CS-SC-77	11D x3.5H	5.0	2 (1)
		CS-SC-78	13.5Dx2.1H	7.5	3 (1)
	SS Round Bowls	CS-SC-80	7.7Dx2.7H	1.5	1 (0.5)
		CS-SC-81	9Dx3.2H	3.0	2 (1)
		CS-SC-82	11.3Dx3.6H	5.0	2 (1)
		CS-SC-83	13.3Dx4.4H	8.0	3 (1)
CS-SC-84		17.5Dx5.2H	16.0	5 (2)	
SS Beakers	CS-MA-45	4.9Dx6.8H	2.0	2 (1)	
	CS-MA-48	7.3Dx8.6H	6.0	4 (2)	
	CS-MA-50	9Dx 10.9H	12.0	6 (3)	
<b>Blue Steel Economy Pans</b> The sample pan workhorse for years used in all types of lab sampling. <i>Inquire about quantity discounts.</i>	Blue Steel	CS-68-3000-012	12Lx17xWx2.5H		
		CS-68-3000-016	16Lx17Wx2.5H		
		CS-68-3000-010	10Lx14Wx2.5H		
		CS-68-3000-008	88Lx10Wx2.5H		



CS-68-3000-016



## SAMPLE PANS & CONTAINERS

SAMPLE PANS & CONTAINERS					
Description	Type	Model	External Dimensions, in	Capacity	Ship Wt. lb (kg)
<b>Round Sample Containers, Metal</b> Round containers with tight fitting slip cover lids are often used to prevent moisture loss in samples during storage or in transit. Ideal for sieve test samples. All have straight sides and flat bottom covers fit bottom of container during drying or in use.	Tinned, Round Pkg. Of 12	CS-SC-498	1.9Dx1.3H	2oz	1 (0.5)
		CS-SC-500	2.2Dx1.6H	3oz	1 (0.5)
		CS-SC-502	2.4Dx1.6H	4oz	1 (0.5)
		CS-SC-504	2.9Dx1.9H	6oz	3 (1)
		CS-SC-506	3Dx2.2H	8oz	4 (2)
		CS-SC-508	3.8Dx2.8H	16oz	6 (3)
<b>Sample Cans</b> Round, thin-metal 1qt or 1gal (0.95 or 3.79L) ideal for transporting soil, aggregates, or other samples. Available lined and unlined.	Tinned-Metal, Round 6/Case 12/Case	CS-SC-272	6.6Dx7.5H	4qt	8 (4)
		CS-SC-270	4.3Dx4.9H	1qt	6 (3)

## BRUSHES

BRUSHES	
Description	Model
<b>Small Fine Sieve Cleaning Brush</b> has soft, 100% China bristles in round 3/4in (19mm) ferrule that are tempered for use with fine mesh sieves.	CS-TSA-168
<b>Fine Sieve Cleaning Brush</b> is ideal for cleaning No. 16 and finer sieves. Soft bristle, nicked steel ferrule, lacquered wood handle.	CS-TSA-170
<b>Wire Loop Brush</b> is a 1-1/4in wide fan type brush with 1-5/8in long metal bristles and a wire loop handle.	CS-TSA-173
<b>Coarse Sieve Cleaning Brush</b> has an 8-1/2in curved plastic handle with 1-12in x1-3/4in of slanted brass wire bristles.	CS-TSA-172
<b>Coarse Sieve Tray Brush</b> is recommended for No. 30 and coarser wire cloth in screen trays. The 13in curved wooden handle has 5-1/2in x3/4in of fine (0.005) brass wire bristles.	CS-TSA-171
<b>Table Brush</b> has 9x3in of horsehair bristles. This 14in long brush comes with a wood handle.	CS-TSA-174
<b>Wire Scratch Brush</b> has flat wire bristles that are grouped in 5x10 rows. Sturdy wood block handle is 7-3/4in long x 2-5/8in wide.	CS-TSA-176 CS-TSA-176A



## SCOOPS

SCOOPS					
Type	Model	Capacity oz (ml)	Bottom Type	Bowl LxW, in	Overall Length, in
Plastic	CS-TSA-177	32 (946)	Flat	6.5x5.0	11.5
	CS-TSA-178	82 (2,425)	Flat	9.0x6.0	14.5
Aluminum	CS-TSA-182	38 (1,124)	Flat	8.8x5.3	14.0
	CS-TSA-183	3.5 (104)	Flat	4.8x2.8	8.5
	CS-TSA-193	2 (53)	Round	4.5x2.0	7.8
	CS-TSA-184	5 (148)	Round	4.8x2.5	7.3
	CS-TSA-185	12 (355)	Round	5.8x3.3	8.8
	CS-TSA-186	24 (710)	Round	7.0x3.8	10.5
	CS-TSA-187	85 (2,366)	Round	11.8x6.3	16.0
	CS-TSA-188	38 (1,124)	Round	8.8x4.6	12.3
	CS-TSA-189	58 (1,715)	Round	10.0x5.3	14.3
Stainless Steel	CS-TSA-198	4 (118)	Round	3.0x5.0	9.0
	CS-TSA-205	12 (355)	Flat	5.5x3.0	9.0
	CS-TSA-206	24 (710)	Flat	7.0x4.5	12.0
	CS-TSA-207	45 (1,331)	Flat	8.0x5.5	13.5
	CS-TSA-208	63 (1,863)	Flat	10x7.0	15.0

## LABORATORY FLASKS, BEAKERS, &amp; GRADUATED CYLINDERS

Top quality glassware made by Kimax, Pyrex or equivalent quality borosilicate glass is chemical, heat and wear resistant. Stainless Steel is smooth seamless and corrosive resistant. Plasticware is transparent, rigid poly-methylpentene, resists impacts and handles temperatures to 200°C. Order as single unit or package quantity.

LABORATORY FLASKS, BEAKERS, & GRADUATED CYLINDERS				
Description	Capacity, ml	Other Features	Model	
<b>Erlenmeyer Flasks</b> Narrow-mouth Erlenmeyers have heavy-duty rim and volume graduations for approximate measuring/mixing.		Graduations, ml	Unit	Package
	125	50–125	CS-GW-10	CS-GW-10P
	250	50–200	CS-GW-11	CS-GW-11P
	500	100-500	CS-GW-12	CS-GW-12P
	1,000	250-1,000	CS-GW-13	CS-GW-13P
	2,000	600-1,800	CS-GW-14	CS-GW-14P
	4,000	1,000-4,000	CS-GW-15	–
	6,000	1,500-6,000	CS-GW-16	–
<b>Filter Flasks</b> With side tabulation for 3/8in ID tubing. Heavy-duty 2,000/4,000ml sizes have thick wall for max. strength.	1,000	#8	CS-GW-74	–
	2,000	#9	CS-GW-75	–
	4,000	#12	CS-GW-76	–



## LABORATORY FLASKS, BEAKERS, & GRADUATED CYLINDERS

LABORATORY FLASKS, BEAKERS, & GRADUATED CYLINDERS				
Description	Capacity, ml	Other Features	Model	
<b>Graduated Cylinders</b> Meets Type A requirements, with durable scale numbered up and down.		Graduations, ml	Unit	Package
	10	0.2	CS-GW-20	CS-GW-20P
	25	0.5	CS-GW-21	CS-GW-21P
	50	1.0	CS-GW-22	CS-GW-22P
	100	1.0	CS-GW-23	CS-GW-23P
	250	2.0	CS-GW-24	CS-GW-24P
	500	5.0	CS-GW-25	–
	1,000	10.0	CS-GW-26	–
	2,000	20.0	CS-GW-27	–
<b>Beakers</b> Low form Griffin Beakers have reinforced rims, uniform wall thickness and spouts designed for excellent pouring.		Graduations, ml		
	50	10-40	CS-GW-30	CS-GW-30P
	100	20-80	CS-GW-31	CS-GW-31P
	250	25-200	CS-GW-32	CS-GW-32P
	00	50-350	CS-GW-33	CS-GW-33P
	600	100-500	CS-GW-34	CS-GW-34P
	800	100-750	CS-LPA-43	CS-LPA-43P
1,000	100-900	CS-GW-35	CS-GW-35P	
<b>Measuring Pipettes</b> Measuring Pipettes are color coded by size and calibrated. Each has permanent markings with zero at the top. Pipette filler accessory is soft rubber with fingertip ball valves; eliminates drawing liquids out by mouth, operates with one hand.		Color Code		
	1	Yellow	CS-GW-60	–
	5	Blue	CS-GW-62	–
	10	Orange	CS-GW-63	–
	25	White	CS-GW-64	–
	50	None	CS-GW-65	–
<b>Volumetric Flasks</b> Calibrate to contain indicated quantity at 20°C. Supplied with plastic snap cap.	100	—	CS-SG-100	–
	250	1	CS-SG-250	–
	500	—	CS-SG-500	–
	1,000	—	CS-SG-1000	–
<b>Stainless Steel Beakers</b> Heavy-duty, smooth, seamless and corrosion resistant beakers have rolled top rims.		Top Dia. x Ht in (mm)		
	500	3.5x4.5 (89x114)	CS-MA-40	–
	1,000	4.5x5 (114x127)	CS-MA-41	–
	2,000	5.5x6.5 (140x165)	CS-MA-42	–
<b>Plastic Beakers &amp; Graduated Cylinders</b> Plastic cylinders and beakers are quality Polymethylpentene (PMP). PMP is highly transparent, rigid, resists impact and high temperatures of 200°C (180°C continuous). Nor recommended for use with chlorinated solvents or strong oxidizing agents.	Beakers	Graduations, ml		
	50	5	CS-GW-50	CS-GW-50P
	100	5	CS-GW-51	CS-GW-51P
	250	25	CS-GW-52	CS-GW-52P
	400	50	CS-GW-53	CS-GW-53P
	600	50	CS-GW-54	CS-GW-54P
	1,000	100	CS-GW-55	–
	Cylinders	Graduations, ml		
	10	0.2	CS-GW-40	CS-GW-40P
	25	0.5	CS-GW-41	CS-GW-41P
	50	1.0	CS-GW-42	CS-GW-42P
	100	1.0	CS-GW-43	CS-GW-43P
	250	2.0	CS-GW-44	–
	500	5.0	CS-GW-45	–
	1,000	10.0	CS-GW-46	–
2,000	20.0	CS-GW-47	–	



## LABORATORY TOOLS

LABORATORY TOOLS		
Description		Model
Spatulas with mirror-finished stainless steel blades to hardwood handles		
LxW of Blade, in (mm)	Overall Size, in (mm)	
4x4/4 (102x19)	7.8 (197)	CS-HMA-10
6x1/2 (152x13)	11.5 (292)	CS-HMA-9
6x1 (152x25)	10.5 (267)	CS-HMA-11
5.5x1 (140x25)	10.0 (254)	CS-HMA-11A
10x1.5 (254x38)	4.3 (368)	CS-HMA-12
Sample Bags are heavy-duty and ordered with or without polyliners. Bags are quality high count drill textile with drawcords and are suitable for use with soil, sand, aggregates, ores and similar materials. Use lined bags for fine or wet materials.		
Sample Bags, 10x18in (254x457mm)		CS-SP-92
Sample Bags, 17x32in (432x813mm)		CS-SP-96
Lined Sample Bags, 10x18in (254x457mm)		CS-SP-93
Lined Sample Bags, 17x32in (432x813mm)		CS-SP-97
Sample Bag, with Tie, PP 17x27in (432x686mm) <sup>1</sup>		CS-68-1727-000
Sample Bag, with Tie, PP 14x26in (356x660mm) <sup>1</sup>		CS-68-1426-000

<sup>1</sup> Custom logo available



## HEAT RESISTANT GLOVES

Our heat resistant gloves come in many styles, materials, sizes and temperature ranges. Please inquire for more details.

## CHEMICALS

Colonial Scientific carries a complete and full line of chemicals from A to Z in a variety of forms and grades. Please inquire for more details.



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