PROMAT

Construction Materials Testing Equipment

Testing Equipment for Construction Materials

HUMBOLDT

14

Understanding PRODUCT LISTINGS in the Humboldt Catalog

ITEM NAME

Hydrometer Jar Bath

ASTM D422; AASHTO T88; UNE 103.102

DESCRIPTION

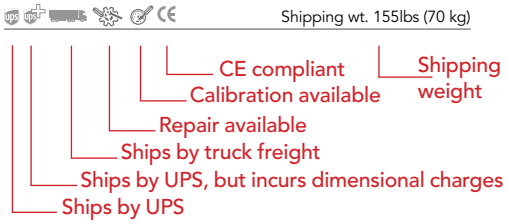
This section describes the product, which can include how it is used; what is included with it; dimensions; features and benefits, and any notes or warnings.

The Humboldt hydrometer jar bath is designed to provide a 68°F (20°C) ambient temperature throughout the unit by using a microprocessor-based temperature control with integral heater and chiller. The control processor in the H-4239A provides a consistent bath temperature of 68°F (20°C) accurate to within 0.1% of input span ±1°F, which makes it an ideal bath for storing hydrometer jars in accordance with the standards listed above. The Hydrometer bath also can be used for many other processes within a lab and can be set to maintain temperatures within its temperature range of 50°F (10°C) and 120°F (49°C).

INFORMATION BAR

This section indicates the standard shipping method and weight. It also includes other information like repair and calibration service availability, as well as CE compliance.

Hydrometer Jar Bath, 120V 60Hz	H-4239A
Hydrometer Jar Bath, 220V 50/60Hz	H-4239A.4F



SPECIFICATIONS

This section lists what specifications the item complies with; ASTM; AASHTO; BS; UNE; EN; ISO, etc.

MODEL NUMBERS

Lists the different model numbers for the item. This includes different voltages and other information, such as quantity, packaging, etc. Humboldt uses the following suffix codes to differentiate between different electrical requirements:

220V-230V 60Hz	.2F
220V 60Hz 3ph	.2F.3
120V-220V 50/60Hz	.3F
220V 50/60Hz	.4F
220V 50Hz	.5F
110v-220 60Hz	.6F
400V 50Hz	.7F
400V 50Hz 3ph	.7F.3
208V 60Hz 1ph	.8F
208V 60Hz 3ph	.8F.3
460V 60Hz 1ph	.9F
460V 60Hz 1ph	.9F.3
120-220 50Hz	.35F
120-220 60Hz	.36F

H-3637 and H-3635 Slump Cone Sets feature Easy-Carry Configuration

H-3635

H-3637

H-3643

H-3645

H-3655

H-3656

Deluxe Slump Cone Set

ASTM C143, C143M, AASHTO T119, BS1881

The Humboldt, deluxe slump cone set provides you with the basic slump test components in an easy-carry configuration, plus a scoop and funnel to aid in filling the slump cone. The set also includes a specially-designed "crete-brush" with a 20" handle, which stands up to the harsh acids used to clean slump test equipment. The deluxe set includes: H-3636 base plate, H-3638 funnel, H-3639.20 brush, H-3640 slump cone (standard steel), H-3651 tamping rod w/ 6" scale on handle, and a H-3731 scoop and H-4901 tape measure.

Standard Slump Cone Set H-3635
Ship wt. 25lbs. (11.4kg)

Standard Slump Cone Set

ASTM C143, C143M, AASHTO T119, BS1881

The Humboldt, standard slump cone set provides you with the basic slump test components in an easy-carry configuration. The unique base design allows you to combine the individual components together into a one-piece, portable unit (see photo). The standard set includes our H-3636 cast aluminum base plate, H-3640 slump cone (standard steel), H-3651 tamping rod w/ 6" scale on handle and H-4901 tape measure. The base includes bolt-on clamps, which hold the slump cone securely during filling and rodding. The integral handle, attached to the base, can be rotated above the specimen once the cone has been removed and used as a guide to measure the slump.

Standard Slump Cone Set H-3637
Ship wt. 20lbs. (9.5kg)

Slump Test Set w/ Pan

ASTM C143, C143M, AASHTO T119, BS1881

This slump cone test set is designed for those who prefer a traditional pan setup. This set includes our H-3640 slump cone (standard steel), the H-3800 wire-bristle, wooden-handled brush, a H-3650 tamping (puddling) rod, the H-3725 galvanized-steel, 24" x 24" x 3" slump pan, and a H-3760 Trowel.

Slump Test Set w/ Pan H-3645
Ship wt. 24lbs. (10.9kg)

K Slump Tester

ASTM C1362

The K-slump tester provides a fast approximate determination of slump and workability of wet concrete. Can be used to measure slump in buckets, wheelbarrows, ready-mix truck chutes, as well as in-place forms and test molds. The tester is capable of indicating a fairly accurate correlation to an actual slump test. The probe can also be used to determine the workability and the degree of compaction of fresh concrete. Includes correlation chart and instructions.

K Slump Tester H-3643
Ship wt. 1.1lbs. (0.5kg)

Ball Penetration Apparatus (Kelly Ball)

ASTM C360, AASHTO T183, CTM533

Used to test the consistency of concrete using the penetration of a half sphere into plastic concrete. A 1" (2.5-centimeter) penetration by the kelly ball corresponds to about 2" (5 cm) of slump. The apparatus consists of 30 lb. (14kg) cylinder with hemispherically shaped bottom and handle. Stirrup or frame guides handle act as reference for measuring the depth of penetration. The stirrup handle is graduated in 0.25" (6.4mm) increments on one side and half-centimeter increments on the other side for measuring the depth of penetration. Concrete may be tested as it is placed into forms prior to any manipulation or in a suitable container.

Ball Penetration Apparatus, 30 lb H-3655
Ball Penetration Apparatus, 20 lb. H-3655-20
Ship wt. 33.7lbs. (15kg)

Ball Drop Apparatus (Kelly Ball)

ASTM D6024

Used to test the suitability of load applications on controlled low-strength material (CLSM). Used as a field test to determine the readiness of the CLSM to accept loads prior to adding a wearing surface. Ball and handle weigh 30-33 lbs (14-15kg).

Ball Penetration Apparatus, D6024 H-3655.D6024
Ship wt. 34.5lbs. (18kg)

Carrier for Ball Penetration Apparatus

Heavy-duty, cast-aluminum design with quick release latches. Provides convenience for the operator and protection to Kelly ball when transporting to and from the job site.

Carrier for Ball Penetration Apparatus H-3656
Ship wt. 18lbs. (8kg)


H-3640, H-3640M


H-3640P


H-3636


H-3725


H-4901


H-3639.8


H-3800


H-3731


H-3638


H-3639.20


H-3760

SLUMP ACCESSORIES AND REPLACEMENT PARTS

Slump Cone, Steel
ASTM C143, C143M, AASHTO T119

Steel slump cone has plated finish to resist rust. Fitted with handles and foot lugs for use with H-3636 base plate. 8" (203mm) dia. at base, 4" (102mm) dia. at top and 12" (305mm) high.

Slump Cone, Steel — H-3640
Ship wt. 7lbs. (2.7kg)

Slump Cone, Metric Steel
ASTM C143, C143M, AASHTO T119

Steel slump cone has plated finish to resist rust. Fitted with handles and foot lugs for use with H-3636 base plate. Dimensions are: (200mm) dia. at base, (100mm) dia. at top and (300mm) high.

Slump Cone, Metric Steel — H-3640M
Ship wt. 7lbs. (2.7kg)

Slump Cone, Plastic
ASTM C143, C143M, AASHTO T119

Lightweight, plastic slump cone will not dent or rust and can be cleaned with an acid bath. Formed with handles and foot lugs for use with H-3636 base plate. 8" (203mm) dia. at base, 4" (102mm) dia. at top and 12" (305mm) high.

Slump Cone, Plastic — H-3640P
Ship wt. 2.3lbs. (1.4kg)

Graduated Tamping Rod
ASTM C143, C143M, AASHTO T119, BS 1881

Steel Tamping Rod with 6" scale in 0.25" increments engraved on handle for measuring amount of slump. When used with H-3636 base plate, raise handle over specimen and measure distance from handle to specimen.

Graduated Tamping Rod — H-3651
Ship wt. 4lbs. (1.8kg)

Tamping (Puddling) Rod— H-3650
ASTM C138, C138M, C143, C143M, ASTM C173, C173M, C31, C31M, AASHTO M 205, T 119, T152, BS 1881

Round, straight steel rod for use with concrete cylinder molds, slump cones and unit weight measures. Rod measures .625" (16mm) dia. x 24" (610mm) long. Both ends rounded to hemispherical tip. Plated for rust resistance. No scale.

Tamping (Puddling) Rod — H-3650
Ship wt. 3lbs. (0.9kg)

Base Plate, Aluminum
ASTM C143, C143M, AASHTO T119, BS 1881

Cast-aluminum base plate firmly holds all slump cone models, permitting one person to conveniently perform test. Base clamps turn down over cone foot lugs to secure entire assembly. Movable handle raises vertically over specimen (after removal of cone) and slump is easily measured with the 6" scale cut into handle end of H-3651 tamping rod.

Base Plate, Aluminum — H-3636
Ship wt. 8lbs. (3.6kg)

Slump Pan, Galvanized
ASTM C143, C143M, AASHTO T119, BS 1881

Durable, steel pan with tapered sides for easy cleaning and nesting. Dimensions: 24" x 24" x 3" (610 x 610 x 76mm).

Slump Pan, Galvanized — H-3725
Ship wt. 9.9lbs. (8.2kg)

Brush, Wooden Handle
Brass wire with wood handle brush. Dimensions: 2" x .875" x 5.25" (25 x 22 x 133mm), 10.25" (360mm) overall length.

Brush, Wooden Handle — H-3800
Ship wt. 0.5lbs. (0.9kg)

Crete Brush, 8" Handle
Acid-proof crete brush with 8" handle.

Crete Brush, 8" Handle — H-3639.8
Ship wt. 0.75lbs. (0.9kg)

Crete Brush, 20" Handle
Acid-proof crete brush with 20" handle.

Crete Brush, 20" Handle — H-3639.20
Ship wt. 1lbs. (0.9kg)

Scoop, One-piece Aluminum
Round nose #2 scoop. Bowl dimensions: 8.25" (210mm) length x 5.25" (133mm) width x 3" (76mm) depth.

Scoop, One-piece Aluminum — H-3731
Ship wt. 1.5lbs. (0.9kg)

Funnel, Aluminum
Aluminum funnel for use with all slump cones to assist in filling.

Funnel, Aluminum — H-3638
Ship wt. 0.8lbs. (0.9kg)

Trowel, Forged Steel
Forged steel trowel with flat, pointed blade, features rubber/plastic comfort handle, 2.75'' X 5'' (70 x 127mm).

Trowel, Forged Steel — H-3760
Ship wt. 0.4lbs. (0.9kg)

Tape Measure
16 ft (5m) tape measure with rubber grip cover and wrist strap.

Tape Measure — H-4901
Ship wt. 0.8lbs. (0.45kg)

Conversion Charts

Use the charts on these pages to convert between units. To convert, find the 1 value in the column of the unit you desire to convert. Moving left or right on the same row as the 1 value for the unit you want to convert reveals the conversion factor for the new unit.

Weight (Mass)							
Tonne (Mg)	**kg**	**g**	**UK Ton**	**US Ton**	**cwt**	**lb**	**oz**
1	1000	10^{6}	0.9842	1.1011	19.66	2.205×10^{3}	3.527×10^{4}
10^{3}	1	1000	9.842×10^{-4}	1.101×10^{-3}	10966×10^{-2}	2.2046	35.274
10^{-6}	10^{-3}	1	9.842×10^{-7}	1.101×10^{-6}	1.966×10^{-5}	2.204×10^{-3}	3.527×10^{-2}
1.016	1016	1.016×10^{6}	1	1.12	20	2240	35840
0.9081	908.1	9.081×10^{5}	08928	1	17.856	2000	32000
5.085×10^{-2}	50.85	5.085×10^{4}	0.05	0.0560	1	112	1792
4.536×10^{-4}	0.4536	453.6	4.46×10^{-4}	5×10^{-4}	8.92×10^{-3}	1	16
2.835×10^{-5}	2.835×10^{-2}	28.349	2.79×10^{-5}	3.125×10^{-5}	5.580×10^{-4}	6.25×10^{-2}	1

Length							
km	**m**	**mm**	**mile**	**yard**	**ft**	**in**	**10^{-3} in**
1	1000	10^{6}	0.6214	1094	3281	3.937×10^{4}	3.937×10^{7}
10-3	1	1000	6.214×10^{-4}	1.0936	3.281	39.370	3.937×10^{4}
10^{-6}	10^{-3}	1	6.214×10^{-7}	1.094×10^{-3}	3.281×10^{-3}	3.937×10^{-2}	39.37
1.6094	1609.4	1.609×10^{6}	1	1760	5280	63360	6.336 x 107
9.144 x 10-4	0.9144	914.41	5.682×10^{-4}	1	3	36	36000
3.048 x 10-4	0.3048	304.8	1.894×10^{-4}	0.3333	1	12	12000
2.54 x 10-5	0.0254	25.4	1.578×10^{-5}	2.778×10^{-2}	8.333×10^{-2}	1	1000
2.54 x 10-8	2.54×10^{-5}	0.0254	1.578×10^{-8}	2.778×10^{-5}	8.333×10^{-5}	10^{-3}	1

Area								
km²	**m²**	**cm²**	**mm²**	**sq. mile**	**acre**	**yd²**	**ft²**	**in²**
1	10^{-6}	10^{10}	10^{12}	0.38612	247.11	1.196×10^{6}	1.076×10^{7}	1.550×10^{9}
10^{-6}	1	10^{4}	10^{6}	3.86×10^{-7}	3.86×10^{-4}	1.11960	10.764	1550
10^{-10}	10^{-4}	1	100	3.86×10^{-11}	3.86×10^{-8}	1.196×10^{-4}	1.076×10^{-3}	0.1550
10^{-12}	10^{-6}	10^{-2}	1	3.86×10^{-13}	3.86×10^{-10}	1.196×10^{-6}	1.076×10^{-5}	1.550×10^{-3}
2.590	2.59×10^{6}	2.59×10^{10}	2.59×10^{12}	1	639.96	3.097×10^{6}	1.076×10^{7}	4.01×10^{8}
4.047×10^{-3}	4047	4.047×10^{7}	4.047×10^{9}	1.563×10^{-3}	1	4840	43560	6.273×10^{6}
8.36×10^{-7}	0.8361	8.36×10^{5}	8.36×10^{5}	3.228×10^{-7}	2.066×10^{-4}	1	9	1296
9.29×10^{-8}	9.29×10^{-3}	929	92900	$3.587x\ 10^{-8}$	2.296×10^{-5}	0.1111	1	144
6.45×10^{-10}	6.45×10^{-4}	6.4516	645.16	2.491×10^{-10}	1.594×10^{-7}	7.716×10^{-4}	6.944×10^{-3}	1

Volume							
m³	**dm³ liter**	**cm³ (ml)**	**yd³**	**ft³**	**in³**	**UK gallon**	**US gallon**
1	10^{-3}	10^{6}	1.3079	35.311	6102	219.97	264.17
10^{-3}	1	10^{3}	1.308×10^{-3}	3.531×10^{-2}	61.02	0.2200	0.2642
10^{-6}	10^{-3}	1	1.308×10^{-6}	3.531×10^{-5}	6.102×10^{-2}	2.199×10^{-4}	2.642×10^{-4}
0.7646	764.6	7.646×10^{5}	1	27	46650	168.19	201.99
2.832×10^{-2}	28.32	2.832×10^{-4}	3.704×10^{-2}	1	1728	6.229	7.481
1.639×10^{-5}	1.639×10^{-2}	16.387	2.144×10^{-5}	5.787×10^{-4}	1	3.605×10^{-3}	4.329×10^{-3}
4.546×10^{-3}	4.546	4.546×10^{3}	5.946×10^{-3}	0.1605	277.42	1	1.2008
3.785×10^{-3}	3.785	3.785×10^{3}	4.951×10^{-3}	0.1337	231	0.8327	1

Density					
Tonne/m³ Mg/m³ g/cm³	**kg/m³**	**lb/in³**	**UK Ton/yd³**	**US Ton/ yd³**	**lb/ft³**
1	1000	0.03613	0.75247	.08428	62.43
10^{-3}	1	3.613×10^{-5}	7.525×10^{-4}	8.428×10^{-4}	6.243×10^{-2}
27.680	27680	1	20.828	23.328	1.728×10^{3}
1.3289	1.328×10^{3}	4.801×10^{-2}	1	1.12	82.955
1.1865	1.1186×10^{3}	4.287×10^{-2}	0.8928	1	74.074
1.602×10^{-2}	16.019	5.787×10^{-4}	1.205×10^{-2}	1.35×10^{-2}	1

Permeability					
m/s	**cm/s**	**m/year**	**Darcy**	**ft/yr**	**ft/day**
1	100	3.156×10^{7}	1.04×10^{5}	1.035×10^{8}	2.835×10^{5}
0.01	1	3.156×10^{5}	1.04×10^{3}	1.035×10^{6}	2.834×10^{3}
3.169×10^{-8}	3.169×10^{-6}	1	3.28×10^{3}	3.281	8.982×10^{-3}
9.66×10^{-6}	9.66×10^{-4}	304	1	1000	2.74
9.658×10^{-9}	9.659×10^{-7}	0.3048	10^{-3}	1	2.738×10^{-3}
3.527×10^{-6}	3.527×10^{-4}	111.33	0.365	365.25	1

Force and Weight					
MN	**kN**	**N**	**kgf**	**tonf**	**lbf**
1	1000	10^{6}	1.0196×10^{5}	100.4	2.248×10^{5}
10^{-3}	1	10^{3}	101.96	0.1004	224.82
10^{-6}	10^{-3}	1	0.10196	1.004×10^{-4}	0.2248
9.807×10^{-6}	9.807×10^{-3}	9.807	1	9.842×10^{-4}	2.2048
9.964×10^{-3}	9.964	9964	1016	1	2240
4.448×10^{-6}	4.448×10^{-3}	4.448	0.45455	4.464×10^{-4}	1

Pressure, Stress and Modulus of Elasticity										
Mn/m² MPa	**kN/m² kPa**	**kp kgf/cm²**	**bar**	**atm**	**m H_2O**	**ft H_2O**	**mm Hg**	**Ton/ft²**	**psi lbf/in²**	**lbf/ft²**
1	1000	10.197	10	9.869	102.2	355.2	7500.6	9.320	145.04	20866
0.001	1	1.019×10^{-2}	0.0100	9.87×10^{-3}	0.1022	0.3352	7.5006	0.0093	0.14504	20.886
9.807×10^{-2}	98.07	1	0.9807	0.9678	10.017	32.866	735.56	0.9139	14.223	2048.1
0.100	100	1.0197	1	0.9869	10.215	33.515	750.06	0.9320	14.504	2088.6
0.1013	1.0133	1.0332	1.0132	1	10.351	33.959	760.02	0.9444	14.696	2116.2
9.788×10^{-3}	9.7885	9.983×10^{-2}	9.789×10^{-2}	9.661×10^{-2}	1	3.2808	73.424	9.124×10^{-2}	1.4198	204.45
2.983×10^{-3}	2.935	3.043×10^{-2}	2.984×10^{-2}	2.945×10^{-2}	0.3048	1	22.377	2.781×10^{-2}	0.43275	62.316
1.333×10^{-4}	0.1333	1.3595×10^{-2}	1.333×10^{-3}	1.315×10^{-3}	1.362×10^{-2}	4.469×10^{-2}	1	1.243×10^{-3}	1.934×10^{-2}	2.7846
0.1073	107.3	1.0942	1.0730	1.0589	10.960	35.960	804.78	1	15.562	2240
6.895×10^{-3}	6.895	7.031×10^{-2}	6.895×10^{-2}	6.805×10^{-2}	0.7043	2.3108	51.714	6.426×10^{-2}	[1]	144
4.788×10^{-5}	4.788×10^{-2}	4.883×10^{-4}	4.788×10^{-4}	4.725×10^{-4}	4.891×10^{-3}	1.605×10^{-2}	0.3591	4.464×10^{-4}	6.944×10^{-3}	[1]