Kett

Science of Sensing

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Greetings

We are pleased to present our latest list of products. Kett has proudly designed and manufactured test equipment for over 50 years. Our background and experience allow us to provide the most accurate testers available while making them simple to use. These efforts allow us to unequivocally state:

KETT
Science of Sensing
Tomorrow's Testing, Today!

Please call so we may introduce you to the achievement of unsurpassed accuracy and precision!

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KJT100
Handheld Moisture

The World's first and only handheld NIR moisture meter, this unit operates on Camcorder batteries (or 110VAC) to provide unlimited portability. Simply point the meter at the liquid or solid to be measured, let the value on the LCD display settle and push the save button to capture the measurement. When connected to a PC with Kett's Moisture Track™ Software, moisture content can be continuously monitored without contact, sample preparation, alteration, or degradation of the product.

SPECIFICATIONS

KJT100/KJT100H	
Measurement Range	0-100%
Calibrations	50
Printer/PC	Opt/Opt
Power	AC/5.8V
Dimensions	172x102x210mm
Weight (lb/kg)	2.4/1.1

KJT200
Desktop Moisture

A compact, easy-to-use unit for laboratory or near-line applications. Put the sample into the disposable dish and place the dish on the turntable. The system detects the sample, the turntable rotates for six seconds of measuring, and the moisture percentage is displayed on the screen.

RS232 connectivity allows for automated data collection. With the KJT200's speed and accuracy, hundreds of samples can be tested every hour.

KJT200/KJT200H	
Measurement Range	0-100%
Calibrations	50
Printer/PC	Opt/Opt
Power	AC
Dimensions	305x230x265mm
Weight (lb/kg)	20/9

KJT330
On-Line Moisture

Designed for use on the production floor, moisture content can be transmitted to process control loops for automated monitoring and production optimization.

Integrated air purge and humidity and temperature compensation provide measurement stability in the harshest of environments. The bright LED on the measurement head allows production staff to monitor levels without going to the control room.

100 product calibrations can be stored in each head, providing for years of product expansion and system utilization.

KJT330/KJT300H	
Measurement Range	0-100%
Calibrations	100
Printer/PC	Opt/Opt
Power	AC
Dimensions	432x150x289mm
Weight (lb/kg)	17/8

KJT400
On-Line Specialty

Similar to the KJT330, this measurement system is custom-configured to test one or more product components.

Moisture, fat, protein and coating thickness are just a few of the items that can be accurately measured on a continuous basis.

Measurements are made on open process lines and vessels, as well as through sight glasses or sampling ports.

Menu-driven operation allows all personnel to successfully operate this system.

KJT400	
Measurement Range	0-100%
Calibrations	100
Printer/PC	Opt/Opt
Power	AC
Dimensions	1432x150x289mm
Weight (lb/kg)	17/8

MOISTURE TRACK™
Software

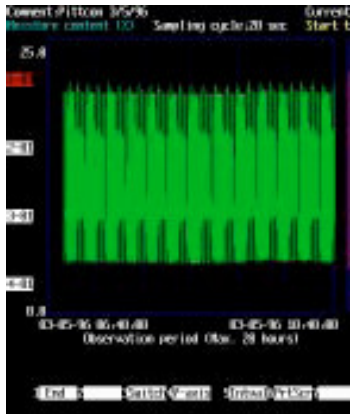
Versions are available for all models of the KJT series. DOS, Windows, and OS/2 workstations will operate the software.

Measurement values can be monitored or sampled on either a repetitive or individual basis. Calibrations can be read from the KJT system, written to the unit, calculated, displayed, and manipulated.

Graphical displays of measurement data, parameters, or calibration information can be printed. Data can also be exported for analysis flexibility via ASCII file format.

MKJT1-5

Operating Systems	Win/NT/DOS
Memory Req'd	4MB RAM
Manual	On-Line
Inputs	Four/ ISA Board
Database Storage	64Mill. Records
Output	Print/File/Serial



NEMA PURGE/ENCLOSURE
For High Volatility Locations

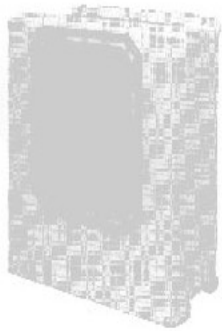
High impact, ABS resin provides years of process use with this enclosure system. When integrated with the purge/alarm system, the KJT system can meet Nema Class 1, Div.1 and 2 requirements.

A composite display window allows operators to monitor the unit values without opening the enclosure.

The system includes all mounting hardware and fixtures necessary to install the enclosure. Simply bolt it in place and you are ready to test.

KJTPUR/ENCL

NEMA Ratings	Class 1,2 Div 2
	Group A,B,C,D,F,G
Max. Temperature	320F
Purge Volume	.1-3.5 SCFH/Cu. Ft.
Dimensions	xxxx
Weight (lb/kg)	xxxx



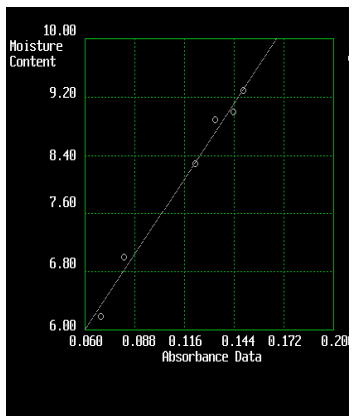
OPTICAL STANDARDS
NIST Traceable

Standards are available for FDA, USDA, or internal validation. Used in conjunction with Kett's zero standards, only two Optical Standards are necessary to demonstrate ongoing machine stability and linearity.

Testing takes less than ten seconds and standards can be easily recertified for years of use where measurement traceability is required

REFL2/99

Measurement Range	2-99%
Calibrations	Annually
Life	20 Years
Stability	+/- 0.05%
Dimensions	2.5"Dia
Weight (lb/kg)	1/.5



KJT ACCESSORIES
KJT100-KJT400

Various accessories and options are available. Please contact our office for a complete listing. Items for the 100 include AC adapters, tripod mounts, and extension purges. Liquid sample dishes and solid sampling holders are available for the 200. Positioning hardware, mounting brackets and rack mount housings are stocked for the 330/400.

Special reflector plates and backings are available for testing transparent, translucent, and porous materials.

Traversing systems are available for process lines or test stations requiring XY analyses.

KJT ACCESSORIES

KJT100 AC Adapter	ACV-25
KJT200 Sample Pans	JE200-GSC
Open Sample Pans	KJT200-PAN
Liquid Sample Dishes	KJT-LIQ
Nema Purge System	KJTPUR
Halogen Lamps	JExxx-LMP

Infrared Moisture Balances

FD100
Ceramic Heater

This system provides the shortest drying time by using a ceramic heating element. Temperatures can be set as high as 400°C. The "Fast Dry" mode boosts the initial drying temperature level to bring the sample to evaporative temperature, then feathers the temperature downward to minimize the possibility of scorching the sample while providing the fastest drying available.

FD100	
Measurement Range	0-100%
Capacity	5-70g
Printer/PC	Opt/Opt
Power	AC
Dimensions	170x195x315mm
Weight (lb/kg)	11/5

FD620/600
Entry-Level Lamp

This fully-electronic model uses an infrared heat lamp for gentle, yet effective drying. Samples of 5-70g can be quickly dried with continuous, timed, or automatic modes.

The RS232 output can be used with the optional thermal printer to provide documentation of test results.

Simple operation and reliable, accurate performance, combined with reasonable cost make the FD620 the choice for many laboratory and process applications.

The FD620 offers a 185 watt bulb, while the FD600 provides a 400 watt heat source.

FD620/600	
Measurement Range	0-100%
Capacity	5-70g
Printer/PC	Opt/Opt
Power	AC
Dimensions	335x210x320
Weight (lb/kg)	7/3

FD230
Analytical Balance

By using an analytical balance, this drying system will provide the utmost in accuracy and precision. The remote control keypad provides further assurance that results will not be affected by balance movement caused by human interaction.

Sample sizes can range from 1-300 grams and moisture percentages will be displayed to two decimal places.

Percentages are calculated using a wet-base, dry-base, or solid content method.

FD230	
Measurement Range	0-100%
Capacity	1-300g
Printer/PC	Opt/Opt
Power	AC
Dimensions	350x194x320
Weight (lb/kg)	17/8

FD240
The Flagship of our Line

The newest addition to the Kett Balance line, the FD240 provides the accuracy of an analytical balance with the price of a load-cell unit.

FD240	
Measurement Range	0-100%
Capacity	1-300g
Printer/PC	Opt/Opt
Power	AC
Dimensions	331x194x319
Weight (lb/kg)	13/5

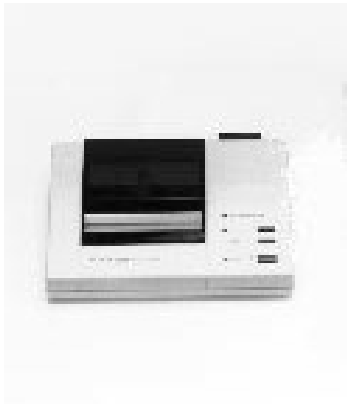
PRINTERS
Models VZ300, 310, 320

These thermal printers are attached to the appropriate moisture balance to provide printed documentation of test results.

They can also assist in method development, analyzing drying rates, and multicomponent identification.

All units include paper, cables, connectors, and directions for simple connection to the balance.

VZ300/310/320	
Type	Thermal
Paper	Standard
Inteface	RS232C - Serial
Power	AC/Batt
Dimensions	xxx
Weight (lb/kg)	xxx



SAMPLE LINERS
Disposable

Our aluminum trays will protect your sample holder from contamination and corrosion while minimizing balance cleaning.

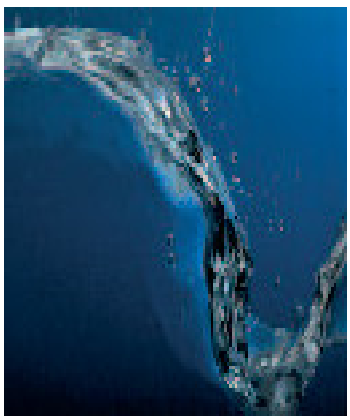
Specifically designed for Kett balances, they provide maximum volume and stable heat dispersion.

FD100P/200P/600P	
Quantity	100/Box
Construction	Aluminum
Optional	500/Case
Dimensions	5x70mm dia.
Weight (lb/kg)	1/.5/(B),5/3(C)

LIQUID PADS
Fiberglass

Liquid Pads are used for pastes, slurries, emulsions and other liquids. By absorbing the liquid through dispersion, they allow the user to perform accurate drying evaluations, minimizing the chance for scorching or crusting of the sample.

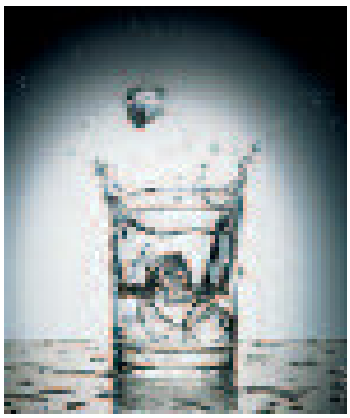
FDLIQ	
Quantity	100/Box
Construction	Fiberglass
Optional	500/Case
Dimensions	50x50mm
Weight (lb/kg)	1/.5/Box

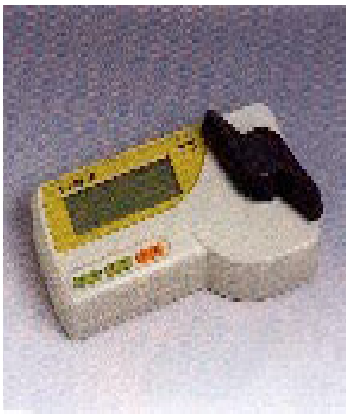


MIXING SAND
Liquid Testing

Liquid is mixed with the sand and a coating is created. When introduced to the drying mechanism, crusting is eliminated and drying speed can be accelerated through the dispersive properties of the mix.

FDSAND	
Quantity	5 Lbs/Bag
Composition	Silica Sand
Optional	50Lbs/Carton
Weight (lb/kg)	5/3/Bag





RICETER J
Handheld Kernel Moisture

The largest selling moisture meter in the world, the Riceter sets the standard for handheld grain testers.

To operate, place several grains of rice, wheat, barley or oats in the sample holder. Insert the holder and twist the integrated grinder. The sample is measured using the capacitance circuit and the moisture percentage is displayed on the bright red LED. Testing takes less than five seconds, allowing for rapid analysis of many samples.

Up to nine consecutive measurements can be displayed and averaged.

RICETER J

Measurement Range	10-30%
Calibrations	5
Printer/PC	No
Power	4xAA
Dimensions	61x164x94mm
Weight (lb/kg)	3/2

RICETER L
Handheld Kernel Moisture

The Riceter is the number one selling moisture analyzer in the world. Used by farmers to measure their grain crops, the Riceter offers laboratory accuracy in a handheld system.

To use this battery-operated device, a small grain sample is loaded into the test chamber, the handle turned to crush the grain, and the moisture content is instantly provided.

Rice, wheat, oats, barley and other grains and seeds can be easily tested with the integrated calibrations and optional conversion charts.

RICETER L

Measurement Range	10-30%
Calibrations	5
Printer/PC	No
Power	4xAA
Dimensions	61x164x94mm
Weight (lb/kg)	3/2

PM300 - GRAINER II
Handheld Field Moisture

Designed to provide immediate, accurate readings of many grains, this unit does not require adjusting or temperature correction. Fully electronic, with built-in microprocessors, the Grainer II is the world's simplest, handheld multi-grain tester.

Samples can range from 20-180 grams. Twenty-six calibrations are included with the system. Select the product calibration desired, pour the sample into the container and results are shown within five seconds.

PM300

Measurement Range	0-40%
Calibrations	26
Printer/PC	No
Power	4xAA
Dimensions	210x185x130mm
Weight (lb/kg)	3/2

PM600 - AQUASEARCH
With Bias Adjustment

Similar to the Grainer II, the Aquasearch provides additional flexibility and versatility. Ninety-nine calibrations are available with 84 factory pre-calibrations provided.

A bias adjustment is available to correlate the measurement values with local standards. An optional printer provides reports.

Battery operated and weighing less than three pounds, the PM600 is a tremendous tool for field work where many grain types require analysis.

PM600

Measurement Range	0-40%
Calibrations	Up to 99
Printer/PC	Opt
Power	4xAA
Dimensions	210x185x130mm
Weight (lb/kg)	3/2

C100
Rice Kernel Colorimeter

Meeting JIS standards, the C100 allows for accurate, repeatable color measurement in an easy-to-use package.

Simply fill the sample container with rice, close the top and insert into the system. The color standard is displayed within two seconds.

This sampling speed allows the processor to increase measurement frequency without adding numerous test stations and operators.

Stability is ensured by using the color standard provided with each C100.

C100	
Measurement Range	0-110
Calibrations	1
Printer/PC	Opt/Opt
Power	AC
Dimensions	300x530x105mm
Weight (lb/kg)	18/8

C300
Powder Colorimeter

Similar to the C100, the C300 provides additional versatility with the three color filters provided. These allow the processor to easily test powders for color stability and grading.

Using infrared reflectance, samples are not altered or affected in any way.

C-300	
Measurement Range	5-70
Calibrations	1
Printer/PC	Opt/Opt
Power	AC
Dimensions	300x530x150mm
Weight (lb/kg)	18/8

MT8AH
Haycube Moisture

Moisture control in hay cubes is important for dairy farming exporters and importers. This specially designed model makes moisture control quick and simple.

To operate, place the resistance probe on the hay cube and the moisture is automatically displayed on the large analog dial in seconds. Colored zones are used for easy product acceptance or rejection.

Battery operation and light weight allow the MT8AH to be used for field testing.

MT8AH	
Measurement Range	8-12%
Calibrations	3
Printer/PC	No
Power	8xAA
Dimensions	135x125x130mm
Weight (lb/kg)	6/3

M8BS
Hay Bale Moisture

Moisture content of hay directly affects weight and therefore profitability. Insufficient dryness may cause decomposition to occur, while excessive dryness may result in loss of weight and nutritional value.

The M8BS has been developed to enable proper weight determination of the bale through accurate moisture content measurement.

M8BS	
Measurement Range	8-25%
Calibrations	1
Printer/PC	No
Power	3xAA
Dimensions	90x140x230mm
Weight (lb/kg)	6/3

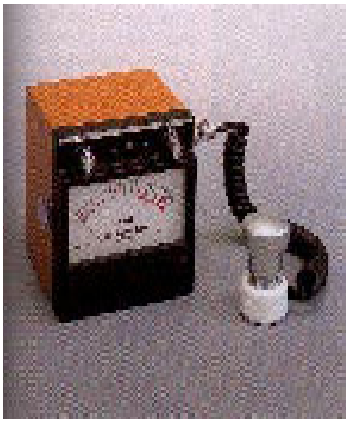
PC820
Coffee, Cacao Moisture

This model was developed in cooperation with the Institute of France for Coffee and Cacao. It is the official standard of the government of the Ivory Coast.

Quick, easy measurements are made by pushing the probe into the sack. Moisture content is displayed on the large analog panel.

Additional models are available for corn, paddy rice, or peanuts (hulled/unhulled).

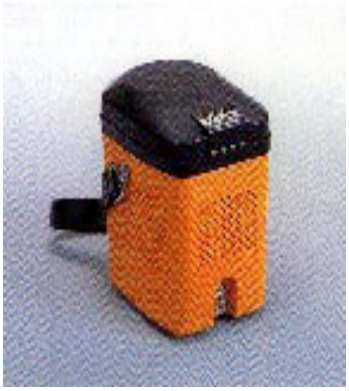
PC820	
Measurement Range	4-18%
Calibrations	2
Printer/PC	No
Power	8xAA
Dimensions	53x110x160mm
Weight (lb/kg)	3/2



MT8AS
Jute Moisture

This instrument makes moisture measurements by utilizing the electric resistance method. It is indispensable for jute processors, exporters and importers, as it provides instant, nondestructive testing.

MT8AS	
Measurement Range	9-70%
Calibrations	1
Printer/PC	No
Power	8xAA
Dimensions	135x125x130
Weight (lb/kg)	6/3



PEARLEST
Grain Polisher

Bran removal is required to reliably measure rice density. It is also necessary to check for damaged, rotten, and off-spec product as well as to determine if glutinous and non-glutinous rice have been intermixed.

The Pearlest was specifically designed to polish rice, wheat, and barley for these purposes.

A ten gram sample of brown rice can be processed in thirty seconds and barley in only one minute.

PEARLEST	
Polishing Time	30sec/Rice
	1min./barley
Printer/PC	No
Power	AC
Dimensions	160x95x130mm
Weight (lb/kg)	5/2

PQ500
Single Grain Moisture

This desktop unit allows polished, brown and paddy rice, barley, wheat and naked barley to be quickly tested on an individual kernel basis.

Samples are poured into the unit, test parameters selected and the units started. The bright LED will display moisture, number of kernels tested, and the current time.

An attached printer will document batch results by detailing average moisture, variance, standard deviation, test temperature, a histogram of moisture percentages, and individual moisture values.

PQ500	
Measurement Range	10-40%
Calibrations	6
Printer/PC	Yes/Opt
Power	AC
Dimensions	350x200x350mm
Weight (lb/kg)	22/10

TR100
Rice Husker

This compact unit provides simple rice husking in a durable, handheld form-factor.

Insert the rice (or seed) into the top, turn the crank and cleaned rice is released from the bottom of the unit.

Husking will improve the accuracy in rice moisture measurement.

TR100	
Sample Weight	10g
Roller Hardness	85
Printer/PC	No
Power	Hand
Dimensions	80x70x49mm
Weight (lb/kg)	.5/.2

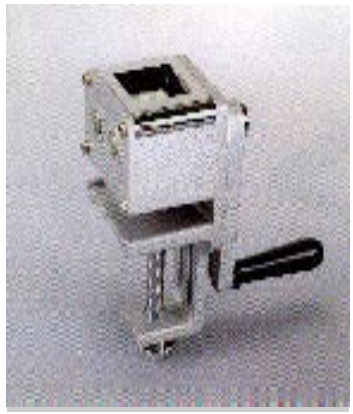
TQ100
Grain Crusher

Our portable crank model provides years of life and can be used to crush grain, seeds, or other hard particles.

It features a roller for crushing samples and a light alloy body which can easily be clamped to the edge of a table with the built-in clamping screw.

This crusher is approved by several government agencies, including Japan for official use in moisture measurement.

TQ100	
Sample Weight	5g
Grain Size	20-30mesh(Rice)
Printer/PC	No
Power	Hand
Dimensions	160x70x80mm
Weight (lb/kg)	7/3



RC50
Rice Crack Checker

Rice is placed in the indentations on the table . The RC50 is placed over a light source. Light is reflected through the rice from a mirrored panel and fifty kernels are viewed. Rice batches can be easily inspected for grading and process control.

RC50	
Measurement Range	Visual
Sample Size	50 grains
Printer/PC	No
Power	None
Dimensions	25x100x78mm
Weight (lb/kg)	.4/.2

PQ100
Single Kernel Corn Tester

This machine performs the same function as the PQ500. However, it includes calibration software allowing it to test single kernels of corn or barley.

Results are printed on the thermal printer that also operates as a control unit.

The grinding mechanism has been specially designed to minimize sample accumulation due to stickiness, eliminating most common maintenance problems.

PQ100	
Measurement Range	9-40%
Calibrations	1
Printer/PC	Yes/Opt
Power	AC
Dimensions	380x240x330
Weight (lb/kg)	42/19

RN500
Automated Rice Inspector

The rice inspector shines light on each individual grain of brown or polished rice to determine the color. Based on transparency/reflection, a line sensor determines shape characteristics to physically separate the sample into five classes.

Up to 2000 grains can be tested per batch at a rate of 12/second. A percentages for each class (even, cracked, immature, discolored, dead) is displayed and can be recorded when attached to an optional thermal printer.

Selection levels can be adjusted.

RN500

Measurement Gradations	5
Sample Quantity	1-2000 grains
Printer/PC	Opt/Opt
Power	AC
Dimensions	390x460x490mm
Weight (lb/kg)	33/15

CN700
On-line Rice Colorimeter

Using the principle of near-infrared reflectance, rice can be analyzed in the production process for integrated control and batch characterization.

Up to two measurement locations can be connected to the central control unit and simultaneously monitored.

When integrated with the process control system, grain polishing and processing can be readily controlled.

CN700

Measurement Range	12-70%
Calibrations	2
Printer/PC	Yes/Opt
Power	AC
Dimensions (mm)	250x365x485
Weight (lb/kg)	34/16

OT300
Temperature Day Counter

This device automatically counts the temperature days to ensure consistent harvest yields are maintained. Set the device in the field during planting. The battery-operated unit will provide a rolling count of temperature days. Harvest the field when the counter reaches the desired value range.

Multiple units should be used on large fields, or areas where hilly terrain causes substantial differences in temperature gradients over the growing cycle.

OT300

Measurement Range	10,000
Calibrations	1
Printer/PC	NA/NA
Power	9V
Dimensions (mm)	60x45x105
Weight (lb/kg)	.15/.3

Not available at this time

Not available at this time

Background of Kett

Kett was formed in 1946 to develop moisture testers for agricultural use. As a result of our success in this field, we began developing other agricultural testers (whiteness, sorters, grinders, etc.) as well as moisture analyzers for more general use.

In the 1970's we determined there was a requirement for accurate, easy to use handheld coating gauges. We have continued to expand this product line and now offer gauges capable of handling most measurement requirements for this industry.

From this base, customers approached us to develop the coating thickness gauges to measure the thickness of numerous thin film applications, such as multilayer films, coated papers, specialty industrial films, and composite materials. This requirement lead to the introduction of our Heidon Surface Property Analyzers.

All Kett test systems provide accurate, laboratory quality results. At the same time, we continually strive to work on the ergonomic aspects of design and operation, allowing users from many vocations to easily operate our devices. We recognize that for product quality to continually improve, analyzers need to be placed in the hands of all employees ultimately responsible for the end-product.

HM530 - MOCO II
Non-Destructive Wood

High frequency measurements allow the wood to be tested without the standard penetrations made by existing capacitance/conductance methods. Surfaces can be quickly tested in multiple locations without product degradation.

Precious woods, finished furniture, paper reels, and musical instruments can be easily tested. The integrated alarm easily highlights problem areas, even when you cannot see the display.

Automatic temperature compensation, density adjustment and penetration thickness selection are included.

HM530	
Measurement Range	2-150%
Calibrations	150+
Printer/PC	No/No
Power	1x9V
Dimensions (mm)	110x56x130
Weight (lb/kg)	2.5/1

MT100
Handheld Needle Gauge

If you can hold it, you can test it, leaving your other hand free for writing or other tasks. The MT100 has been designed to easily insert the sensor needles with a natural downward arm motion. A finger protector is provided for added safety.

Sculpted to fit the hand, and weighing less than eight ounces, hours of operation can be comfortably completed.

Our exclusive two-switch control minimize operator errors, without eliminating needed functions. Wood type, alarms, memory and auto temperature correction are included.

MT100	
Measurement Range	6-40%
Calibrations	2
Printer/PC	No/No
Power	2xAA
Dimensions (mm)	225x46x80
Weight (lb/kg)	1

MT8A
General Purpose

This portable tester can be carried to the job site. The 7-35% range makes it useful in a wide variety of applications, such as lumber mills, woodworking plants, and inspection facilities.

No complicated adjustments are required. Simply align the indicator to zero and the instrument is ready to use. A uniform scale and low power consumption are features of this instrument.

MT8A	
Measurement Range	7-35%
Calibrations	2
Printer/PC	No/No
Power	8xAA
Dimensions (mm)	135x125x130
Weight (lb/kg)	5/2

HG770
Wood Moisture - On Line

This system allows the user to continously measure hardboard, press fiber boards and some laminates (including ply wood). Output from the rotating probe is sent to the full digital display for easy viewing from the plant floor.

Moisture limits (upper and lower) can be set and integrated with local alarms.

MT8A	
Measurement Range	7-35%
Calibrations	2
Printer/PC	No/No
Power	110VAC
Dimensions (mm)	300x140x300
Weight (lb/kg)	20/8

MT8S
Low Moisture

This system will measure as low as 4% and has extremely high sensitivity, yet is easy to operate.

Results are displayed on a unique uniform scale. Many governments have approved the MT8S for official use.

Special probes are available - a four needle probe, a rubber probe, a two-needle probe, and a depth-measuring probe.

MT8S	
Measurement Range	4-30%
Calibrations	2
Printer/PC	No
Power	4xAA
Dimensions	135x125x130mm
Weight (lb/kg)	8/4

MT8B
Building Lumber

The measuring range of this unit was created to test the most commonly occurring values. Moderately priced, it is suited to the requirements of all woodworking conditions.

MT8B	
Measurement Range	11-40%
Calibrations	2
Printer/PC	No
Power	4xAA
Dimensions (mm)	90x140x230
Weight (lb/kg)	5/3

K100, K200
Desktop Paper Moisture

These systems are designed for near-line testing at paper manufacturing facilities, paper processing facilities, printing plants, or corrugated cardboard factories.

Two digital display formats are provided - direct moisture and relative moisture measurements.

Calibrations are provided for kraft and corrugated paper. The K200 is primarily used for lower moisture contents and utilizes a clamping mechanism. The K100 is used for moisture over 5% and uses a rubber probe.

K100/K200	
Measurement Range	5-24/1.5-15%
Calibrations	2
Printer/PC	No
Power	AC
Dimensions	750x220x170mm
Weight (lb/kg)	3/1-8/4

HI500 COCO
Concrete and Mortar

High frequency measurements allow concrete, mortar or other solids to be tested without penetration or sample preparation. Surfaces can be quickly tested in multiple locations without product degradation.

A raw measurement mode allows custom calibration standards to be developed by the customer for testing items that are not pre-calibrated. These can include composites, multilayered products, fiber boards, etc.

The small handheld system is carried in the included leather case.

HI500	
Measurement Range	0-100%
Calibrations	4
Printer/PC	No
Power	1x9V
Dimensions	56x110x130mm
Weight (lb/kg)	1/.5

200 SERIES
Integrated Printer

The world's first and only portable coating thickness tester with an integrated printer, the 200 provides the complete solution where statistics and hard-copy documentation are required.

The thermal printer can be stopped to conserve battery power and paper. These handheld systems include 1500 sample memory, up to 8 calibration memories, three levels of statistical discrimination, and all necessary accessories. Two leather carrying cases, water shield, calibration foils, batteries, AC adapter, and zero standards are included.

LE/LH/LZ200

Measurement Range	0-60Mils
Calibrations	4/8
Printer/PC	Yes/No
Power	AC/6xAA
Dimensions	55x120x250mm
Weight (lb/kg)	3/2

200W
Wireless Version

The best of the best, these test systems include the features of the 200 Series with the added benefit of radio frequency (RF) data transmission. Test probes can be carried in a shirt pocket for the ultimate in portability.

Data can be transmitted up to 1500 feet in an industrial setting, allowing the operator to test in any plant location and transmit the signal to the central storage/control unit.

LE/LZ200W

Measurement Range	0-60 Mils
Calibrations	4/8
Printer/PC	Yes/Opt
Power	AC/6xAA
Dimensions	55x120x250mm
Weight (lb/kg)	3/2

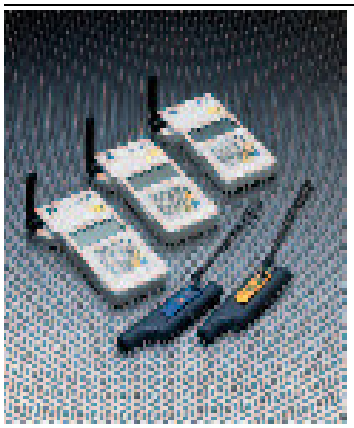
330 SERIES
Statistics, Memory

These handheld units provide great portability with cable probes. Up to eight online calibrations can be stored as well as 1500 data points with a full statistical package (average, standard deviation, hi/lo measurement) that is easy for any operator to use.

The full 80 character LCD displays all necessary commands to enable the operator to understand the configuration and test situation.

LE/LH/LZ330

Measurement Range	0-60 Mils
Calibrations	4/8
Printer/PC	Opt/Opt
Power	4xAA
Dimensions	30x75x140mm
Weight (lb/kg)	1/.5



330W
Wireless Versions

Similar in style and features to the standard 330 Series, these testing systems allow for remote testing with RF signal transmission. This feature allows for testing on automated process lines, awkward places, and where hazards may preclude using the CPU.

The RS-232 port permits data to be immediately transferred to a PC for control charting.

LE/LZ330W

Measurement Range	0-60Mils
Calibrations	4/8
Printer/PC	Opt/Opt
Power	4xAA
Dimensions	30x75x140mm
Weight (lb/kg)	1/.5

900 SERIES
Integrated

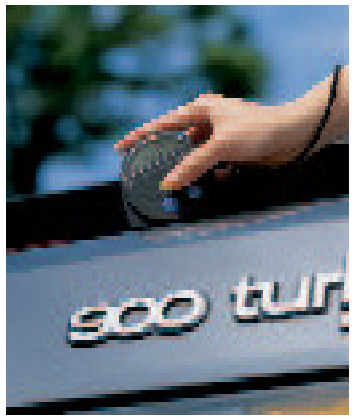
Small in stature, but large in performance. The 900 Series feature a one-piece integrated electronic gauge. Economically priced, accuracy is comparable with high-end competitive units.

Systems are battery operated, store one or two calibrations (depending on the version), display in mils or *u*m and include all necessary accessories, including calibration foils, carrying pouch, and batteries.

Sculpted to conform to the hand, the 900 provides hours of comfortable operation. An integrated tube-stock guide increases versatility.

LE/LH/LZ900

Measurement Range	0-60Mils
Calibrations	1/2
Printer/PC	No
Power	2xAAA
Dimensions	76x76x30
Weight (lb/kg)	.2/.1



CALIBRATION SHIMS
Polymer

Packages of replacement shims are available.

All shims include thickness (in *u*m/mil) and precision for ISO compliance.

LCAL1

Measurement Range	.02-30mils
Number of Shims	8
Labeled	Yes
Individually Packed	Yes
Dimensions	xxx
Weight (lb/kg)	.5/.2

NIST STANDARDS
Ferrous/Non-Ferrous

Direct from NIST, all documentation is provided for your metrology department and is packaged in protective leather cases for years of use.

CTT-STD

Thickness Range	.0-40
Number of Standards	4
Case	Leather
Versions	2
Dimensions	20x30mm
Weight (lb/kg)	3/2

VZ300 PRINTER
Thermal

This printer can be attached to the 330 and 330W models for paper documentation of test results.

VZ300

Principle	Thermal
Paper	Standard
Power	AC/4xAA
Dimensions	110x210x50mm
Weight (lb/kg)	2/1

H14DR
Multifunctional

The 14DR provides immediate, accurate readings of many types of property measurements. By being able to measure static and dynamic friction coefficients, adhesion, scratch hardness, stickiness, tensile strength, and peel resistance with one unit, lab space is minimized and a consistent interface for measurements and data collection are provided.

Various tests can be performed by changing test fixtures (jigs) and selecting the test parameters on the integrated computer software.

14DR

Travel Speed	30-6000mm/min
Mode	Single/Repeat
Printer/PC	Opt/Opt
Power	AC
Dimensions	600x640x320
Weight (lb/kg)	80/36

H94AI
Handheld Static Friction

The world's first and only handheld friction analyzer, the 94AI calculates the coefficient of static friction in less than ten seconds.

Place the tribometer on the surface to be tested (liquid or solid interface), press the button and the coefficient is displayed on the bright LED display. Test jigs can be interchanged, allowing nonstandard surfaces (curved, lubricated, etc.) to be tested.

Automated averaging is available to easily assess surface characteristics on large samples.

H94AI

Measurement Range	0-150
Calibrations	1
Printer/PC	No
Power	4xAA
Dimensions	59x165x62
Weight (lb/kg)	4/2

H16
Rotating Drum Friction

Used to inspect friction between a rotating surface and sheets, the H16 can be used for textile, film and paper measurement, as well as assessing friction and wear characteristics of coated or plated surfaces (on the drum).

The sheet of test material is placed over 1/8 to 1/2 of the drum's diameter. A load is applied to the sheet and the other end connected to a strain gauge. When the drum rotates, friction occurs and its resistance is detected and displayed.

H16

Travel Speed	3-3000rpm
Mode	Continuous
Printer/PC	Opt/Opt
Power	AC
Dimensions	570x440x510
Weight (lb/kg)	80/36

H17
Peel Resistance

This system is used to test horizontal peeling or stretching. Two test clamps travel in opposite directions at the same speed. Resistance is measured on one clamp.

By changing test fixtures, t-shape peeling, 180° peeling, tensile and tear tests can be conducted. A blocking test to evaluate surface adhesion is also possible.

H17

Travel Speed	100-1000mm/min
Mode	Single
Printer/PC	Opt/Opt
Power	AC
Dimensions	350x640x320
Weight (lb/kg)	80/36

H18L
Scratch Tester

Scratch resistance is calculated as the result of continuous loading. A scratch needle is loaded onto the test surface. The mobile base holding the test piece travels with the applied load. When the scratch or film peeling begins, the vertical load can be calculated as the distance to the failure point can be precisely measured.

Various needle diameters and materials can be used to properly test almost any surface. Scratch hardness can be measured by using a fixed load instead of the continuous load module.

H18L	
Travel Speed	600mm/min
Mode	Single/Repeat
Printer/PC	Opt/Opt
Power	AC
Dimensions	350x640x320mm
Weight (lb/kg)	80/36

H20
Rotational Friction

Disk-on-disk and ball-on-disk friction coefficients and abrasion can be measured with the H20.

A disk or ball indenter is loaded onto the test piece and connected to a highly-sensitive strain gauge. As the turntable rotates, the load is transmitted to the PC software to display measurements up to 999,999 revolutions. Rotational speed can be set between 10 and 600 rpm for varied analyses.

Even delicate changes in friction can be readily identified and quantified for coating assessment or lubricant evaluation.

H20	
Travel Speed	10-600rpm
Mode	Continuous
Printer/PC	Opt/Opt
Power	AC
Dimensions (mm)	400x640x320
Weight (lb/kg)	80/36

H22
Continuous Load Friction

Similar to the H18L, the H22 allows a ball indenter to be loaded in addition to scratch needle loading.

Thin to thick film adhesion, real-time measurement of friction (due to abrasion), surface scratch hardness and tackiness can be evaluated by this system. Repeat testing (up to 9,999 strokes) can provide durability measurements.

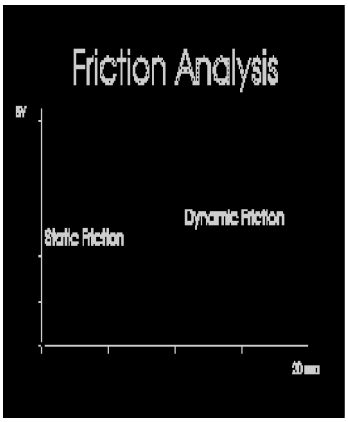
H22	
Travel Speed	60-600mm/min
Mode	Single/Repeat
Printer/PC	Opt/Opt
Power	AC
Dimensions (mm)	490x650x410
Weight (lb/kg)	80/36

H24
Displacement Tester

Originally developed for the paint industry, a load is applied to a test piece and then removed. The probe displacement is measured to a 10*u*m resolution by an optical displacement sensor. Repeated loadings (up to 999,999 cycles) allow the user to assess viscoelastic fatigue.

Textile or leather material textures, and the durability of sealing, packaging, packing or padding materials can be assessed. Characteristics of food, printed materials, photoengraved products, flooring materials, artificial skin and similar products can be measured.

H24	
Travel Distance	0-8mm
Mode	Single/Repeat
Printer/PC	Opt/Opt
Power	AC
Dimensions	220x260x460mm
Weight (lb/kg)	80/36



SURFACE TRACK™
PC Software

Allows for automated testing when integrated with a Kett Heidon System. Accepts the analog input, converts to digital (by using the included A/D board) and displays the test results graphically on the PC screen. Data is retained for additional analysis.

In addition, test parameters can be developed and a library of test methods retained to simplify repetitive tasks and increase laboratory throughput. All cables and connectors necessary to integrate with a Heidon System are included. The software runs under DOS and Windows.

SURFT	
Operating Systems	Win//NT/DOS
Memory Req'd	4MB RAM
Manual	On Line
Inputs	Four/ ISA Board
Database Storage	64Mill. Records
Output	Print/File/Serial

LR37221
Pen Recorder

Used instead of the Surface Track software, this recorder provides written documentation of test results. Up to 1500m of recording is possible, providing the capability to record extremely long tests.

A maximum pen speed of 1600mm/second accurately records minute frictional resistance variations.

LR37221	
Pen Speed	1600mm/sec
Programmable	Yes/Memory
Pens	1
Power	AC
Dimensions	500x420x240 mm
Weight (lb/kg)	30/14

14YS
Slide Stage

Used with the H14 when several scratch tests are to be performed on the same test piece. The position of the test piece can be modified within a range of 7mm without removing the piece.

14YS	
Travel	7mm
Mode	Single/Repeat
Accuracy	.1mm
Power	AC
Dimensions	220x130x30mm
Weight (lb/kg)	5/2

14HEAT
Bath Heater

Test pieces can be heated to 10-200°C (cannot go below ambient room temperature). The PID controlled heater provides very stable, accurate heating.

This is useful where friction and adhesion are altered by sample temperature and the user wishes to simulate operating conditions or assess potential failure modes.

This accessory can also be used to heat a liquid bath to evaluate the liquid/solid interface characteristics.

14HEAT	
Temperature Range	Amb-200C
Control	PID
Printer/PC	xxx
Power	AC
Dimensions	230x130x50mm
Weight (lb/kg)	7/3

SC-X

Scratch Needles

Needle point diameters and materials can be custom-designed for your specific use. Please call our office to discuss your requirements.

SC-X	
Radius	5-200 *u*
Material	Aluminum-Diamond
Hardness	to spec
Models	H22,14DR,H18
Dimensions	to spec
Weight (lb/kg)	.1/.05

JIG - X

Test Fixtures

If you have a test requiring a jig not presently available, we can assist with design and fabrication. Please call to discuss your specific requirements.

JIG-X	
Machine Types	All
Material	Customer Designated
Lead Time	4 Weeks
Dimensions	Open
Weight (lb/kg)	Open

H25

Stress Point Identifier

This unique device helps identify stress points on transparent and translucent plastics and polymers.

Utilizing the principle of polarization, two film plates are turned to provide the optimal viewing index. Stress points are easily viewed through the large (280mm) circular viewing window.

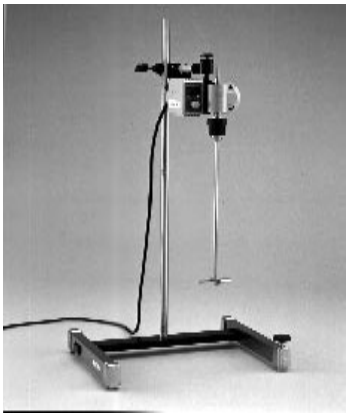
H25	
Principle	Polarized Film
Mode	Continuous
Printer/PC	NA/NA
Power	AC
Dimensions (mm)	360x475x215
Weight (lb/kg)	44/20

BL300
High Viscosity

Designed for High-Viscosity applications, this model features a digital RPM indicator, Saf-T-Chuck™, and the Free-Joint™ swivel holder. These unique features allow the BL series to be recognized as the most user-friendly devices on the market today.

Our BL series uses an anisotropic ferromagnetic direct current motor. It is compact and powerful, yet quiet. We offer over 40 different accessories to create the ideal mixer for your particular needs.

BL300	
Rotational Speed	0-300RPM
Torque	9kgf-cm
Printer/PC	Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3

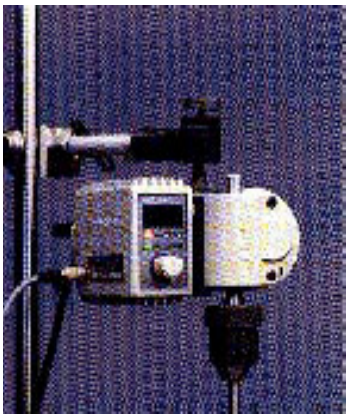


BL600
General Purpose

With an RPM range from 0-600, this mixer can be used for most general operations. The electronically controlled speed is automatically adjusted for viscosity changes, even if the changes are rapid, dramatic, or unexpected.

The housing for our BL series consists of a light weight, airtight, die-cast aluminum case. For added safety, the motor incorporates a dual-safety system of thermal motor protection to prevent motor fires and a current limiter to avoid overheating due to engine overload.

BL600	
Rotational Speed	0-600RPM
Torque	5kgf-cm
Printer/PC	Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3



BL1200
High Speed

This high-speed model provides a full 3kgf.cm of rated torque while allowing mix speeds up to 1000 RPM.

Used where high speed and low to moderate viscosity is required, extensive shielding protects sensitive lab equipment from stray electrical noise generally inherent to similar units.

BL1200	
Rotational Speed	0-1200RPM
Torque	3kgf-cm
Printer/PC	Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3

TYPE-FS
Mixing Blades

A variety of standard mixer blades are available for our special research applications.

The recently developed Butterfly type (patented) has a circulatory oscillation effect. The Soft-Cross type (patented) is suitable for stirring liquids when air bubbles must be prevented from forming.

Mixing blades are made of molybdenum with high grade stainless SUS-316 or titanium Type-FS.3T steel.

Custom blade designs and special materials can be designed and created upon demand.

HFS*/5/3T	
Number of Blades	8/5/3
Material	SUS-316/SUS/TI
Shaft	500mm
Mixing Systems	All
Dimensions	to spec
Weight (lb/kg)	to spec

TYPE CS
Collapsible Mixer Stand

The H-type stand is collapsible. It has four strong legs with a support that can be located in the most stable position between the four legs. An adjustment screw is used to adjust for uneven surfaces.

This stand is slim and the two pieces can be easily attached to form an H type or "crank" type stand. Standard support height is 800mm, but 200mm and 400mm extensions are available to extend the support height to a maximum of 1.2m.

HCS	
Configuration	H and Z
Extensions	Opt
Material	SUS
Balancing Adjustment	Yes
Dimensions	800x400x470mm
Weight (lb/kg)	30/14

TYPE 21 X 16
Clamp Holder

Large, dual cross-clamps are carefully engineered to attach to any size shaft between the 16mm diameter branch arm to the 21mm diameter main shaft.

One case holds 10 of these extremely useful clamps.

H21X16	
Quantity	10
Capacity	21 or 16mm Dia.
Material	Cast Aluminum
Adjustable	Yes
Dimensions	120x60x30mm
Weight (lb/kg)	2/1

TYPE 3000H
High-Speed Mixing

Drive speed can be varied from 10 to 3000 RPM by simply turning the dial. The 3000H can stir liquids in anything from a tiny beaker to a 20 liter container at high speeds. With mixing ability as the criterion, the 3000H boasts more than enough power to efficiently mix 10 liters of liquid silica soda with a viscosity of 2500 cP using the standard installation propeller blade.

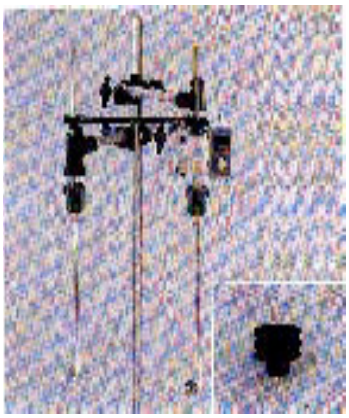
H3000H	
Rotational Speed	10-3000RPM
Torque	1kgf-cm
Printer/PC	Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3

TYPE 600GIIS
Dual-shaft system

A combination of the BL600 with a shaft that uses a timing belt (patented), this system becomes a dual shaft mixer. Shaft spacing can be freely adjusted from 60 to 300mm. Each shaft can simultaneously stir up to 10 liters, making this motor particularly useful when carrying out comparison tests.

Unlike conventional mixing methods that deliver poor efficiency on highly viscous liquids, many standard impellers can be used to create an enhanced mixing system.

H600GIIS	
Rotational Speed	0-600RPM
Torque	5kgf-cm
Printer/PC	Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3



TYPE AP
Auxiliary Pulley

When used in conjunction with one of our 11 motor types, these pulleys provide the capability to drive two shafts from a single system. Made of Viton, there is virtually no slippage once a belt is installed. During operation there is no need to worry about a belt breaking.

This is the most economical way to realize a true dual-shaft mixer.

Package includes clamp holder, Viton belt, and main body.

HAP	
Quantity	1
Shaft Spread	190mm
Belt Material	Viton
Fits Models	All
Dimensions	N/A
Weight (lb/kg)	1/.5

600R/1200R
Remote Control

This system features a control box that displays the rotational speed of the mixer and the motor current, which is proportional to the torque, on an analog ammeter.

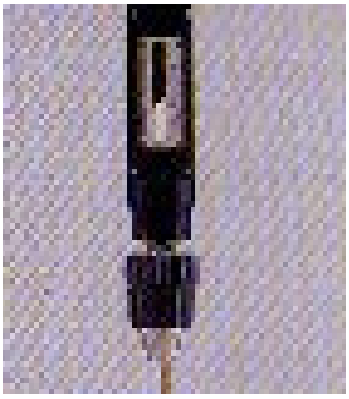
Utilizing a tachometer-generated feedback circuit to correct for changes during operation, a constant rotational speed is maintained. This is true, even with sudden, dramatic, viscosity changes.

H600R/H1200R	
Rotational Speed	0-600/1200RPM
Torque	5/3kgf-cm
Printer/PC	No/Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3

TYPE 600RT/1200RT
Remote w/Torque Meter

Conventional viscosity measurements are made by removing a sample during mixing and measuring its viscosity. However, viscosity changes while the sample is being measured. It is possible to measure viscosity changes during mixing by installing a torque meter on the mixing shaft. Displayed torque shows resistance to spinning during mixing. If the container, blade, and rotation rate are held constant, the resistance value will be proportional to viscosity. Viscosity measurements are thus simplified and stirring does not have to be stopped.

H600RT/H1200RT	
Rotational Speed	0-600/1200RPM
Torque	5/3kgf-cm
Printer/PC	No/Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3



TYPE TS/YT
With Torque Meter

Similar to the 600RT/1200RT without the remote control capabilities. TS models include the motor with the torque meter. The YT is the torque meter accessory to be for existing mixing systems.

600,1200,3000HTS/HYT	
Rotational Speed	0-3000RPM
Torque	10/5/2kgf-cm
Printer/PC	No/Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	6/3

TYPE LINETATOR 33B

Vertical Motion Mixer

Using a vertical motion, the patented linetator is often used where shearing occurs on traditional mixing. The linear motor provides safe, quiet reciprocating action that will not create bubbles.

Oscillations can be set between 50 to 450 cycles per minute. The mixing 'blade' is a special perforated plate. The hollow shaft and pass-through design allows for optimal placement of all mixing components.

H33B	
Rotational Speed	N/A
Torque	N/A
Printer/PC	No/Opt
Power	AC
Dimensions	137x125x180mm
Weight (lb/kg)	8/4

TYPE 100/200

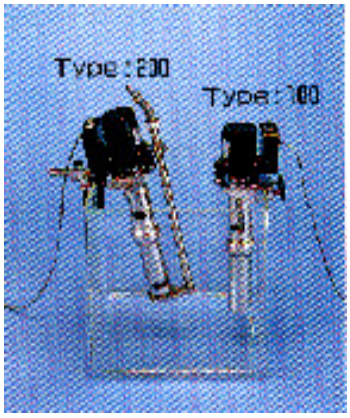
Circulating Mixers

Rugged mixers used to maintain a uniform temperature distribution during tests in a thermostatic bath, such as long-term environmental tests.

Liquid is drawn from the bottom part of the mantle and expelled with high efficiency from three jet openings in the top to create a continuous, quiet flow in the tank.

The Circ(u)stir models have large centrifugal pumps attached to the jet pump. It is used to remove small, uniform samples for processing in a separate container while the bulk of the liquid is being stirred in the main tank.

H201/H202	
Rotational Speed	N/A
Torque	N/A
Printer/PC	No
Power	AC
Dimensions	310x100x100mm
Weight (lb/kg)	8/4



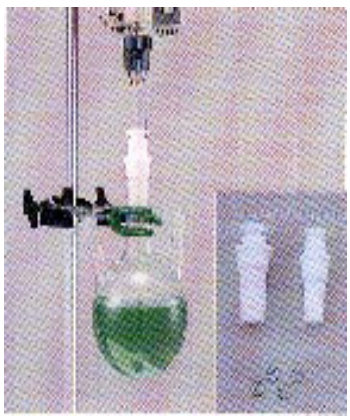
TYPE K24/K29

Vacuum Stirrer

Patented tapered-joint seal provides 12 thin fins for adherence isolation. The high degree of vacuum makes it possible to perform extremely low-pressure operations at less than 10^{-3} torr.

The shaft joint seal section uses a grand packing method with an O-ring cushioned Teflon capsule. The seal is designed to be easily replaced when worn, ensuring a long lifecycle.

HBLVAC-24/29	
Construction	Teflon
Max. Vacuum	10^{-3} torr.
Seals	4 incl.
Shaft (opt)	HBLSHT
Dimensions	K24 or K29
Weight (lb/kg)	.5/.2



H-SPEC

Special Components

We pride ourselves on the ability to satisfy your mixing requirements. Please call our office to discuss your specific requirements or send us one of your old blades or components and we will provide a quotation for replacement.

H-SPECX	
Mixer Types	All
Material	Customer Designated
Lead Time	4 Weeks
Dimensions	Open
Weight (lb/kg)	Open

All information and specifications subject to change without notice

For More Information

CALL KETT
1-800-GET-KETT
1-800-438-5388
1-714-630-5169
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