

Innovation - Quality - Service Since 1888



Instruments for Health, Science & Industry

Precision instrumentation for Temperature,
Density, Humidity, Pressure and Flow



ZEAL - SCIENTIFIC, MEDICAL AND INDUSTRIAL

Since 1888 G. H. Zeal have designed and manufactured quality instrumentation for the measurement of Temperature, Density, Humidity, Pressure and Flow. This catalogue illustrates the current product range and diversity of technical expertise.

Zeal's Thermometers, Hydrometers, Hygrometers, Gas Flow Meters, Dial Thermometers and Pressure Gauges are in regular use within many of the most highly regarded Health Care, Scientific, Research, Educational and Industrial organizations throughout the world.

UKAS and Works Calibration Certificates are available for the majority of instruments. We always have an extensive range of products in stock and take pride in complete reliability, commitment, and customer focus. Please contact our sales office or your local agent for details of price and availability. Zeal are quality assured to BS EN ISO 9001:2008



Contents



THERMOMETERS

General Purpose Laboratory, Sub-Divided, Pocket	4 - 5
BS 1704 and BS 593 (Partial Immersion)	6
BS 593 (Total Immersion), Precision Sub-Divided, High/Low Range	7 - 9
IP Thermometers	10 - 11
ASTM Thermometers	12 - 19
IP and ASTM Safety Blue Thermometers	20
Tank Dipping	21

HYDROMETERS

Draft Survey	22
Specific Gravity	23
Aviation Fuel, Baumé, Brine, Twaddell	24
Alcohol BS5470, Sikes, Canadian, Guy Lussac	25
Saccharometers, Brix, Latexometers	26
Potato, Lactometers, Soil, Urinometers	27
Metal: Draft Survey, Load Line, Saccharometers (Brix),	28
Metal: Salinometers, Brinometers	28
BS 718 M50 Series	29
BS 718 L50 Series	30
BS 718 M100 Series	31
BS 718 M50SP, L50SP Series	32
ASTM E100 Series, Short & Long	33
API Plain Form, Short & Long	34

THERMO-HYDROMETERS

API Safety Blue, General Purpose	35
----------------------------------	----

METEOROLOGICAL INSTRUMENTS

Normal, Maximum, Minimum, Soil, Grass, Symons & Stevenson Screens	36 - 37
---	---------

PHARMACY & VACCINE STORAGE INSTRUMENTS

Maximum & Minimum Thermometers	38
Temperature Data Loggers/Recorders	39

CERTIFICATION

Works, UKAS	40
-------------	----

HYGROMETERS/THERMOMETERS

Masons, Whirling, Max/Min, Dipping/Sampling	41
Wall, Tobacco Barn, Factory/Office Acts, Digital Wall	42

DIGITAL INSTRUMENTS

Ecotemp Test Thermometer, Multi-Function Hand Held	43
Max/Min/Alarm Thermometer, Max/Min/Alarm ThermoHygrometer,	44
Max/Min Pocket ThermoHygrometer	44
Max/Min Waterproof Test & Floating Pool/Pond Thermometer	45
Infrared Max/Min Test Thermometer	45

DIGITAL ANALYTICAL

Therma Type 'K Digital Thermometers with Interchangeable Probes	46 - 47
Precision Portable Density Meter, Recording/Printing Thermometer	48

CLINICAL / MEDICAL

Clinical Ezetemp Disposable Thermometers	49
Digital Professional Tympanic (Ear) Thermometers	50 - 51
Non-Contact Infrared Forehead & Oral Digital Thermometers	52
Oral Mercury Free, Zeal Mercury, Fertility (Basal) & Forehead	53

FLOWMETERS

Wet Test Gas Flow Meters	54 - 55
--------------------------	---------

DIAL THERMOMETERS & PRESSURE GAUGES

Precision Laboratory & Pocket Test Thermometers	56
Industrial Bimetal Dial Thermometers	57
Industrial Non-Toxic Dial Thermometers	58
Industrial Dial Pressure Gauges, Valves & Manifolds	59

HYDROMETER SCALES

TEMPERATURE CONVERSION CHART	60
------------------------------	----

TERMS

Carriage, Packing, Payment, Credits & Cancellation	62
--	----

COMPANY ADDRESS

	63
--	----

General Purpose Thermometers

Zeal Precision Laboratory Thermometers are made from the highest quality lead, normal or borosilicate glass that has been specially selected to have a uniform capillary bore and to be free from strain. Instruments are scientifically annealed and artificially aged before calibration to ensure stability and maintain accuracy. Top expansion chambers are provided where necessary to allow for overheating and to facilitate rejoining of the spirit or mercury column should it become separated in transit or use. Thermometers with Blue, Red or Green non-fading spirit are pressurised internally and triple distilled Mercury Thermometers have pressurised nitrogen gas above the column to ensure reliable readings at the lowest temperatures on the scale. Scales on most of the thermometers have Permanently Marked graduations, figures and naming. Each instrument is fitted with an anti-roll cap and packed in a protective plastic container.

RED SPIRIT - WHITE BACK GLASS

With Anti-roll caps. Supplied in packs of 10

Order Code	Range	Length	Divisions
L0130/10	-10/+50°C	305mm	0.5
L0131/10	-10/+110°C	305mm	1.0
L0129/10	-10/+110°C&°F	305mm	1.0
L0132/10	-10/+150°C	305mm	1.0
L0134/10	0/240°F	305mm	1.0
L0146/10	-10/+110°C	200mm	1.0
L0136/10	-50/+50°C	305mm	1.0
L0137/10	-10/+250°C	305mm	2.0



GREEN SPIRIT - WHITE BACK GLASS

With Anti-roll caps. Supplied in packs of 10

Order Code	Range	Length	Divisions
L0150/DS/10	-10/+110°C&°F	305mm	1.0
L0150/10	-10/+110°C	305mm	1.0
L0148/10	-10/+110°C	152mm	1.0
L0149/10	-10/+110°C	200mm	1.0



BLUE SPIRIT - WHITE BACK GLASS

With Anti-roll caps. Supplied in packs of 10

Order Code	Range	Length	Divisions
L0140/10	-10/+110°C	305mm	1.0
L0141/10	-10/+110°C	152mm	1.0

POCKET THERMOMETERS - RED SPIRIT WHITE BACK GLASS, 135mm LONG IN PLASTIC CASE. With Anti-roll caps. Supplied singles

Order Code Complete	Range	Length	Order Code Refills only
P0099	0/100°C&°F	135mm	P0099/R
P0101	-10/+110°C	135mm	P0101/R
P0115	-40/+60°C	135mm	P0115/R
P0116	0/60°C	135mm	P0116/R

- Please note for General Purpose Thermometers unless otherwise stated the Immersion is:
Length 305mm = 76mm immersion
Length 152mm and 200mm = Total immersion

General Purpose Thermometers

LABORATORY THERMOMETERS

MERCURY 305mm LONG - WHITE BACK GLASS 76mm Immersion. Anti-roll caps. Supplied in packs of 10

Order Code	Range	Divisions
L0100/10	-10/+50°C	0.5
L0101/10	-10/+110°C	0.5
L0102/10	-10/+110°C	1.0
L0103/10	-10/+150°C	1.0
L0104/10	-10/+250°C	1.0
L0105/10	-10/+360°C	2.0
L0105A/10	-10/+400°C	2.0

MERCURY 305mm LONG - YELLOW BACK GLASS 76mm Immersion. Anti-roll caps. Supplied in packs of 10

Order Code	Range	Divisions
L0107/10	-10/+50c	0.5
L0108/10	-10/+110c	0.5
L0109/10	-10/+110c	1.0
L0114/10	-10/+150c	1.0
L0110/10	-10/+250c	1.0
L0111/10	-10/+360c	2.0
L0111A/10	-10/+400F	2.0
L0020/10	0/120F	1.0
L0022/10	0/240F	1.0
L0135/10	0/150F	1.0

MERCURY 152mm LONG - YELLOW BACK GLASS Total Immersion. Anti-roll caps. Supplied in packs of 10

Order Code	Range	Divisions
L0120/10	-10/+50°C	0.5
L0121/10	-10/+110°C	0.5



SUB DIVIDED - GENERAL PURPOSE MERCURY WHITE BACK GLASS. MAX ERROR +/-0.3
Anti-roll caps. Supplied singles

Order Code	Range	Length	Divisions
L0160	-5/+50°C	305mm	0.2
L0161	-5/+50°C	375mm	0.1
L0162	-5/+105°C	375mm	0.2

SUB DIVIDED - GENERAL PURPOSE MERCURY YELLOW BACK GLASS. MAX ERROR +/-0.3
Anti-roll caps. Supplied singles

Order Code	Range	Length	Divisions
L0160/YELLOW	-5/+50°C	305mm	0.2
L0161/YELLOW	-5/+50°C	375mm	0.1
L0162/YELLOW	-5/+105°C	375mm	0.2



BRASS PROTECTIVE CASES FOR GENERAL PURPOSE THERMOMETERS
Supplied singles

Order Code	Description
A0101	To Suit 305mm Thermometers
A0100	To Suit 152mm Thermometers



BS 1704 General Purpose Thermometers

Zeal BS 1704 and BS 593 Laboratory Thermometers are quality precision instruments manufactured in compliance with the relevant standard. Made from the highest quality lead, normal, or borosilicate glass that has a uniform capillary bore and is free from strain. The thermometers are scientifically annealed and artificially aged before calibration to ensure stability and to maintain accuracy. Top expansion chambers are provided where necessary to allow for overheating and to facilitate rejoining of the mercury column should it become separated in transit or use. The triple distilled Mercury fillings have pressurised nitrogen gas above the column to provide reliable readings at the lowest temperatures on the scale. Thermometer scales are engraved into the glass. Each instrument is packed in a protective plastic container.



BS 1704: 1951 MERCURY - WHITE BACK GLASS

Supplied singles.

Range	Schedule Mark	Divisions	Max Length	TOTAL IMMERSION		PARTIAL IMMERSION	
				Max Error	Order Code	Max Error	Order Code
-120/+35°C	GP35C	1	360mm	2.0	L2508	-	-
-35/+50°C	GP50C	0.5	305mm	0.8	L2509	1.0	L2500
-5/+105°C	GP105C/1.0	1	305mm	1.0	L2510	1.0	L2501
-5/+105°C	GP105C/0.5	0.5	305mm	0.5	L2511	0.6	L2502
-5/+150°C	GP150C	1	305mm	0.5	L2512	0.8	L2503
-5/+250°C	GP250C	1	305mm	1.0	L2513	1.5	L2504
-5/+360°C	GP360C	1	360mm	2.0	L2514	3.0	L2505
-10/+400°C	GP400C	2	305mm	3.0	L2515	4.0	L2506
-10/+510°C	GP510C	2	400mm	3.0	-	5.0	L2507

BS 1704: 1985 (ISO 1981) MERCURY - WHITE BACK GLASS

Supplied singles.

Range	Schedule Mark	Divisions	Max Length	TOTAL IMMERSION		PARTIAL IMMERSION	
				Max Error	Order Code	Max Error	Order Code
-100/+30°C	A	1	305mm	2.0	L2557	-	-
-35/+30°C	B	0.5	305mm	1.0	L2558	1.5	L2550
0/+60°C	C	0.5	305mm	0.5	L2559	0.5	L2551
0/+100°C	D	1.0	305mm	1.0	L2560	1.5	L2552
0/+160°C	E	1	305mm	2.0	L2561	3.0	L2553
0/+250°C	F	1	305mm	2.0	L2562	3.0	L2554
0/+360°C	G	2	305mm	4.0	L2563	6.0	L2555
0/+500°C	H	5	350mm	10.0	L2564	15.0	L2556

- ✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer. Please see page 40.

BS 593 General Purpose Thermometers

Forward thinking



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



BS 593 (Partial Immersion) MERCURY - WHITE BACK GLASS Supplied singles.

Order Code	Range	Schedule Mark	Divisions	Max Length	Max Error
L3000	-30/+10°C	A10C/100	0.1	405mm	0.5
L3001	-20/+20°C	A20C/100	0.1	405mm	0.3
L3002	0/+40°C ◀	A40C/100	0.1	405mm	0.4
L3003	+40/+70°C ◀	A70C/100	0.1	405mm	0.4
L3004	+70/+100°C ◀	A100C/100	0.1	405mm	0.4
L3005	+100/+130°C ◀	A130C/100	0.1	405mm	0.4
L3006	+130/+160°C ◀	A160C/100	0.1	405mm	0.4
L3007	-20/+60°C	B60C/100	0.2	405mm	0.4
L3008	+50/+110°C ◀	B110C/100	0.2	405mm	0.6
L3009	+100/+160°C ◀	B160C/100	0.2	405mm	0.8
L3010	+150/+210°C ◀	B210C/100	0.2	405mm	1.2
L3011	+200/+260°C ◀	B260C/100	0.2	405mm	2.0
L3012	-5/+105°C	C105C/50	1.0	205mm	0.2
L3013	-5/+105°C	C105C/100	1.0	255mm	0.2
L3014	-2/+52°C	F50C/100	0.2	405mm	0.2
L3015	+24/+78°C	F75C/100	0.2	405mm	0.2
L3016	+48/+102°C	F100C/100	0.2	405mm	0.2
L3017	+72/+126°C	F125C/100	0.2	405mm	0.2
L3018	+98/+152°C	F150C/100	0.2	405mm	0.3
L3019	+123/+177°C	F175C/100	0.2	405mm	0.3
L3020	+148/+202°C	F200C/100	0.2	405mm	0.4
L3021	+95/+255°C	F255C/100	0.5	405mm	0.4
L3022	-20/+150°C	F150C/76	1.0	327mm	0.8
L3023	-7/+300°C	F300C/76	1.0	395mm	1.5
L3024	+173/+227°C	F225C/100	0.2	400mm	0.4
L3025	+198/+252°C	F250C/100	0.2	405mm	0.6
L3026	+223/+277°C	F275C/100	0.2	405mm	0.8
L3027	-7/+400°C	F400C/76	1.0	418mm	1.5 TO 300C 3.0 OVER 300C
L3028	+248/+302°C	F300C/100	0.2	405mm	1.0

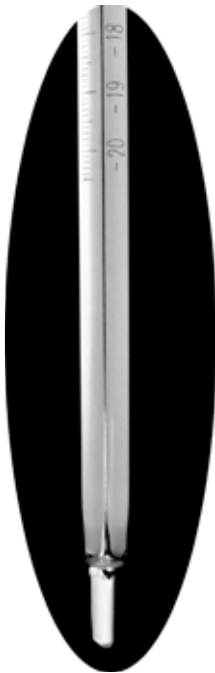
Thermometers with ◀ by range also have an ice point

LABORATORY THERMOMETERS



BS 593 General Purpose Thermometers

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



BS 593 (Total Immersion) MERCURY - WHITE BACK GLASS Supplied singles.

Order Code	Range	Schedule Mark	Divisions	Max Length	Max Error
L3049	-30/+10°C	A10C/TOTAL	0.1	405mm	0.4
L3050	-20/+20°C	A20C/TOTAL	0.1	405mm	0.2
L3051	0/+40°C	A40C/TOTAL	0.1	405mm	0.2
L3052	+40/+70°C ◀	A70C/TOTAL	0.1	405mm	0.2
L3053	+70/+100°C ◀	A100C/TOTAL	0.1	405mm	0.2
L3054	+100/+130°C ◀	A130C/TOTAL	0.1	405mm	0.2
L3055	+130/+160°C ◀	A160C/TOTAL	0.1	405mm	0.2
L3056	-20/+60°C	B60C/TOTAL	0.2	405mm	0.3
L3057	+50/+110°C ◀	B110C/TOTAL	0.2	405mm	0.3
L3058	+100/+160°C ◀	B160C/TOTAL	0.2	405mm	0.4
L3059	+150/+210°C ◀	B210C/TOTAL	0.2	405mm	0.6
L3060	+200/+260°C ◀	B260C/TOTAL	0.2	405mm	1.0

Thermometers with ◀ by range also have an ice point

Low Range Thermometers



LOW RANGE

Order Code	Range	Immersion
L2508	-120/+35°C	Total
L1001	-100/+50°C	Total
L5110	-80/+20°C	76mm
L5272	-80/+20°C	Total
L5281	-45/-35°C	Total
L5282	-35/-25°C	Total
L5283	-25/-15°C	Total
L5284	-15/-5°C	Total

Sub Divided Thermometers

**PRECISION SUB DIVIDED (Total Immersion)
MERCURY - WHITE OR YELLOW BACK GLASS
Supplied singles.**

Order Code	Range	Divisions	Max Length
L0500	-5/+50°C	0.2	375mm
L0501 ◀	-5/+105°C	0.2	375mm
L0501/YELLOW	-5/+105°C	0.2	375mm
L0502 ◀◀	-5/+50°C	0.1	375mm
L0502/YELLOW	-5/+50°C	0.1	375mm
L0503 ◀◀	-5/+105°C	0.1	470mm
L0504	-5/+150°C	0.2	470mm
L0506	+50/+150°C	0.1	470mm
L0520	-20/+30°C	0.2	375mm
L0523	+50/+105°C	0.1	375mm
L0524	-10/+110°C	0.1	650mm
L0525	+50/+105°C	0.2	375mm
L0527	+100/+150°C	0.2	375mm
L0528	+150/+200°C	0.2	375mm



LABORATORY THERMOMETERS

Code ◀◀ Thermometer is also available as new non toxic Safety-Blue type - suffix order code /SB

High Range Thermometers

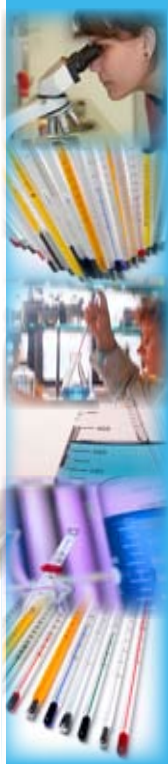
HIGH RANGE

Order Code	Range	Immersion
L2556	0/+500°C	76mm
L2507	-10/+510°C	100mm
L1500	0/+600°C	76mm



L1500

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



IP Thermometers

Zeal IP Thermometers are quality precision instruments manufactured in accordance with the specifications drawn up by the Institute of Petroleum (IP). They are for use with specific methods for the testing of petroleum and its derivatives. Many of the tests and instrument specifications are jointly agreed with ASTM International, formally known as the American Society for Testing and Materials (ASTM). These thermometers are included in British Standard BS2000. Despite being designed for specific tests, many of them will have other uses as high precision thermometers. Works or UKAS Test Certificates are available.



New range of non - toxic Safety - Blue® Fillings now available for some IP and ASTM thermometers - see page 20.

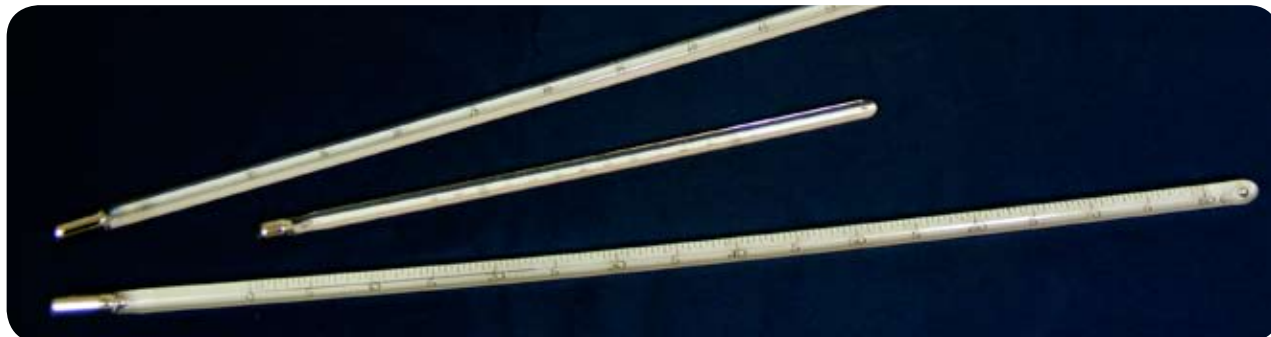
IP THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5000	IP3C	Demulsification	-1/+105°C	0.5	265mm	Total
L5001	IP3F	Demulsification	+30/+220°F	1.0	265mm	Total
L5002	IP4C	Crude Oil Distillation	-4/+360°C	2.0	320mm	Total
L5003	IP8F	Flushing-Case Low	+30/+110°F	0.5	340mm	65mm
L5004	IP8C	Flushing-Case Low	0/+45°C	0.2	350mm	65mm
L5005	IP9F	Flushing-Case Medium	+100/+180°F	0.5	340mm	65mm
L5006	IP9C	Flushing-Case Medium	+40/+85°C	0.2	350mm	65mm
L5007	IP10C		+76/+112°C	0.2	340mm	65mm
L5008	IP10F		+170/+250°F	0.5	340mm	65mm
L5009	IP22C	Oxidation	+195/+205°C	0.1	310mm	100mm
L5010	ABEL OIL	For Use with Abel Equipment	+10/+65°C	0.5	240mm	61mm
L5011	ABEL OIL	For Use with Abel Equipment	+50/+150°F	1.0	240mm	61mm
L5012	ABEL BATH	For Use with Abel Equipment	+32/+88°C	0.5	240mm	89mm
L5013	ABEL BATH	For Use with Abel Equipment	+90/+190°F	1.0	240mm	89mm
L5014	IP31F	Kinmatic Viscosity 100°F	+97.5/+102.5°F	0.1	290mm	Total
L5015	IP34F	Kinmatic Viscosity 130°F	+127/+133°F	0.1	290mm	Total
L5016	IP37C	Sludge	+144/+156°C	0.2	280mm	100mm
L5017	IP38C	Pen and Duct	+23/+27°C	0.1	270mm	Total
L5018	IP39C	Density	-1/+38°C	0.1	450mm	Total
L5019	IP39F	Specific Gravity	+30/+100°F	0.2	450mm	Total
L5020	IP40C	Drop Point Low	+20/+120°C	1.0	260mm	100mm
L5021	IP41C	Drop Point High	+100/+230°C	1.0	260mm	100mm
L5022	IP42C	Breaking Point	-38/+30°C	0.5	380mm	250mm
L5023	IP43C	F.P Cut-Back (Int)	+10/+110°C	0.5	315mm	61mm
L5024	IP43F	F.P Cut-Back (Int)	+50/+230°F	1.0	315mm	61mm



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

IP Thermometers continued



IP THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES

Supplied singles.

Order Code	IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5025	IP44C	F P Cut Back (Ext)	+15/+121°C	0.5	315mm	88.9mm
L5026	IP44F	F P Cut Back (Ext)	+60/+250°F	1.0	315mm	88.9mm
L5027	IP45C	Refractometer	+15/+30°C	0.2	170mm	22mm
L5028	IP46C	Westphal Gravity Balance	+14.5/+21°C	0.1	170mm	Total
L5029	IP46F	Westphal Gravity Balance	+58/+70°F	0.2	170mm	Total
L5030	IP48C	Tank Low	-38/+30°C	0.5	315mm	Total
L5031	IP49F	Tank Medium	0/+100°F	1.0	315mm	Total
L5032	IP49C	Tank Medium	-15/+40°C	0.5	315mm	Total
L5033	IP50F	Tank High	+50/+150°F	1.0	315mm	Total
L5034	IP50C	Tank High	+10/+65°C	0.5	315mm	Total
L5035	IP51F	Tank Heated Fuel	+95/+248°F	1.0	315mm	Total
L5036	IP51C	Tank Heated Fuel	+35/+120°C	0.5	315mm	Total
L5037	IP52F	Tank Bitumen	+194/+500°F	1.0	315mm	Total
L5038	IP52C	Tank Bitumen	+90/+260°C	1.0	315mm	Total
L5039	IP53F	Tank Cargo	+32/+176°F	1.0	315mm	Total
L5040	IP53C	Tank Cargo	0/+80°C	0.5	315mm	Total
L5042	IP74C	Abel Oil Cup Wide Range	-35/+70°C	0.5	320mm	61mm
L5043	IP74F	Abel Oil Cup Wide Range	-35/+160°F	1.0	320mm	61mm
L5044	IP75C	Abel Water Bath Wide Range	-30/+80°C	0.5	320mm	89mm
L5045	IP75F	Abel Water Bath Wide Range	-25/+180°F	1.0	320mm	89mm
L5046	IP76C	Engler Viscosity	+10/+55°C	0.5	250mm	93mm
L5047	IP101C	Medium Pensky Martens	+20/+150°C	1.0	290mm	57mm
L5048	IP100C	Kinematic Viscosity 80°C	+78.6/+81.4°C	0.05	290mm	Total
L5046/A	IP98C	Rapid Flash High	+100/+300°C	2.0	200mm	44mm




If you cannot find the IP Thermometers you are looking for here please refer to the following pages on ASTM Thermometers as many of the specifications have been jointly agreed.




ASTM Thermometers

Zeal ASTM Thermometers are quality precision instruments manufactured in accordance with specifications drawn up by ASTM International, formally known as the American Society for Testing and Materials (ASTM). They are for use with specific methods for the testing of petroleum and its derivatives. Many of the tests and instrument specifications are jointly agreed with the Institute of Petroleum (IP). These thermometers are included in British Standard BS2000. Despite being designed for specific tests, many of them will have other uses as high precision thermometers. Works or UKAS Test Certificates are available.

 Certain IP and ASTM thermometers are now available with a new non - toxic Safety - Blue® filling, please see page 20 for further information.

ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5100	ASTM1C	Partial Immersion	-20/+150°C	1.0	327mm	76mm
L5101	ASTM1F	Partial Immersion	0/+302°F	2.0	327mm	76mm
L5102	ASTM2C/IP62C	Partial Immersion	-5/+300°C	1.0	395mm	76mm
L5103	ASTM2F/IP62F	Partial Immersion	+20/+580°F	2.0	395mm	76mm
L5104	ASTM3C/IP73C	Partial Immersion	-5/+400°C	1.0	420mm	76mm
L5105	ASTM3F/IP73F	Partial Immersion	+20/+760°F	2.0	420mm	76mm
L5108	ASTM5C/IP1C	Cloud & Pour	-38/+50°C	1.0	235mm	108mm
L5109	ASTM5F/IP1F	Cloud & Pour	-36/+120°F	2.0	235mm	108mm
L5110	ASTM6C/IP2C	Low Cloud & Pour	-80/+20°C	1.0	235mm	76mm
L5111	ASTM6F/IP2F	Low Cloud & Pour	-112/+70°F	2.0	235mm	76mm
L5112	ASTM7C/IP5C	Low Distillation	-2/+300°C	1.0	390mm	Total
L5113	ASTM7F	Low Distillation	+30/+580°F	2.0	390mm	Total
L5114	ASTM8C/IP6C	High Distillation	-2/+400°C	1.0	390mm	Total
L5115	ASTM8F	High Distillation	+30/+760°F	2.0	390mm	Total
L5116	ASTM9C/IP15C	Pensky-Martens Low	-5/+110°C	0.5	295mm	57mm
L5117	ASTM9F/IP15F	Pensky-Martens Low	+20/+230°F	1.0	295mm	57mm
L5118	ASTM10C/IP16C	Pensky-Martens High	+90/+370°C	2.0	295mm	57mm
L5119	ASTM10F/IP16F	Pensky-Martens High	+200/+700°F	5.0	295mm	57mm
L5120	ASTM11C/IP28C	Cleveland Open Flash	-6/+400°C	2.0	315mm	25mm
L5121	ASTM11F/IP28F	Cleveland Open Flash	+20/+760°F	5.0	315mm	25mm
L5122	ASTM12C/IP64C	Density Wide Range	-20/+102°C	0.2	425mm	Total
L5123	ASTM12F/IP64F	Density Wide Range	-5/+215°F	0.5	425mm	Total
L5124	ASTM13C/IP47C	Loss on Heating	+155/+170°C	0.5	160mm	Total
L5125	ASTM14C/IP17C	Wax Melting Point	+38/+82°C	0.1	380mm	79mm
L5126	ASTM14F/IP17F	Wax Melting Point	+100/+180°F	0.2	380mm	79mm

 Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

ASTM Thermometers continued

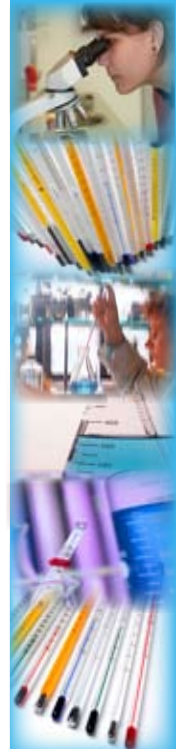


ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5127	ASTM15C/IP60C	Low Softening Point	-2/+80°C	0.2	400mm	Total
L5128	ASTM15F	Low Softening Point	+30/+180°F	0.5	400mm	Total
L5129	ASTM16C/IP61C	High Softening Point	+30/+200°C	0.5	400mm	Total
L5130	ASTM16F	High Softening Point	+85/+392°F	1.0	400mm	Total
L5131	ASTM17C	Saybolt Viscosity	+19/+27°C	0.1	280mm	Total
L5132	ASTM17F	Saybolt Viscosity	+66/+80°F	0.2	280mm	Total
L5133	ASTM18C/IP23C	Saybolt Viscosity	+34/+42°C	0.1	280mm	Total
L5134	ASTM18F/IP23F	Saybolt Viscosity	+94/+108°F	0.2	280mm	Total
L5135	ASTM19C	Saybolt Viscosity	+49/+57°C	0.1	280mm	Total
L5136	ASTM19F	Saybolt Viscosity	+120/+134°F	0.2	280mm	Total
L5137	ASTM20C	Saybolt Viscosity	+57/+65°C	0.1	280mm	Total
L5138	ASTM20F	Saybolt Viscosity	+134/+148°F	0.2	280mm	Total
L5139	ASTM21C	Saybolt Viscosity	+79/+87°C	0.1	280mm	Total
L5140	ASTM21F	Saybolt Viscosity	+174/+188°F	0.2	280mm	Total
L5141	ASTM22C/IP24C	Oxidation Stability	+95/+103°C	0.1	280mm	Total
L5142	ASTM22F/IP24F	Oxidation Stability	+204/+218°F	0.2	280mm	Total
L5143	ASTM23C	Engler Viscosity	+18/+28°C	0.2	217mm	90mm
L5144	ASTM24C	Engler Viscosity	+39/+54°C	0.2	242mm	90mm
L5145	ASTM25C	Engler Viscosity	+95/+105°C	0.2	217mm	90mm
L5146	ASTM26C	Stability Test of Soluble Nitrocellulose	+130/+140°C	0.1	468mm	Total
L5147	ASTM27C	Turpentine Distillation	+147/+182°C	0.5	306mm	76mm
L5148	ASTM28C/IP31C	Kinematic Viscosity	+36.6/+39.4°C	0.05	310mm	Total
L5149	ASTM28F	Kinematic Viscosity	+97.5/+102.5°F ◀	0.1	310mm	Total
L5150	ASTM29C/IP34C	Kinematic Viscosity	+52.6/+55.4°C ◀	0.05	305mm	Total
L5151	ASTM29F	Kinematic Viscosity	+127.5/+132.5°F ◀	0.1	310mm	Total

Thermometers with ◀ by range also have an ice point.

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



ASTM Thermometers continued



You may find the IP Thermometers you are looking for here, as many of the specifications have been jointly agreed.



Certain IP and ASTM thermometers are now available with a new non - toxic Safety - Blue® filling, please see page 20 for further information.

ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5152	ASTM30F/IP32F	Kinematic Viscosity	+207.5/+212.5F ◀	0.1	310mm	Total
L5153	ASTM33C/IP20C	Low Aniline Point	-38/+42°C	0.2	425mm	50mm
L5154	ASTM33F	Low Aniline Point	-36.5/+107.5°F	0.5	425mm	50mm
L5155	ASTM34C/IP21C	Medium Aniline Point	+25/+105°C	0.2	425mm	50mm
L5156	ASTM34F	Medium Aniline Point	+77/+221°F	0.5	425mm	50mm
L5157	ASTM35C/IP59C	High Aniline Point	+90/+170°C	0.2	425mm	50mm
L5158	ASTM35F	High Aniline Point	+194/+338°F	0.5	425mm	51mm
L5159	ASTM36C	Titer Test	-2/+68°C	0.2	410mm	45mm
L5160	ASTM37C/IP77C	Solvents Distillation	-2/+52°C	0.2	400mm	100mm
L5161	ASTM38C/IP78C	Solvents Distillation	+24/+78°C	0.2	400mm	100mm
L5162	ASTM39C/IP79C	Solvents Distillation	+48/+102°C	0.2	400mm	100mm
L5163	ASTM40C/IP80C	Solvents Distillation	+72/+126°C	0.2	400mm	100mm
L5164	ASTM41C/IP81C	Solvents Distillation	+98/+152°C	0.2	400mm	100mm
L5165	ASTM42C/IP82C	Solvents Distillation	+95/+255°C	0.5	400mm	100mm
L5166	ASTM43C/IP65C	Kinematic Viscosity Low	-51.6/-34°C	0.1	425mm	Total
L5167	ASTM43F/IP65F	Kinematic Viscosity Low	-61/-29°F ◀	0.2	425mm	Total
L5168	ASTM44C/IP29C	Kinematic Viscosity	+18.5/+21.5°C ◀	0.05	310mm	Total
L5169	ASTM44F/IP29F	Kinematic Viscosity	+66.5/+71.5°F ◀	0.1	310mm	Total
L5170	ASTM45C/IP30C	Kinematic Viscosity	+23.6/+26.4°C ◀	0.05	310mm	Total
L5171	ASTM45F/IP30F	Kinematic Viscosity	+74.5/+79.5°F ◀	0.1	310mm	Total
L5172	ASTM46C/IP66C	Kinematic Viscosity	+48.6/+51.4°C ◀	0.05	310mm	Total
L5173	ASTM46F/IP66F	Kinematic Viscosity	+119.5/+124.5°F ◀	0.1	310mm	Total
L5174	ASTM47C/IP35C	Kinematic Viscosity	+58.6/+61.4°C ◀	0.05	310mm	Total
L5175	ASTM47F/IP35F	Kinematic Viscosity	+137.5/+142.5°F ◀	0.1	310mm	Total
L5176	ASTM48C/IP90C	Kinematic Viscosity	+80.6/+83.4°C ◀	0.05	310mm	Total
L5177	ASTM48F/IP90F	Kinematic Viscosity	+177.5/+182.5°F ◀	0.1	310mm	Total

Thermometers with ◀ by range also have an ice point.



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

ASTM Thermometers continued



ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5178	ASTM49C	Stormer Viscosity	+20/+70°C	0.2	310mm	65mm
L5179	ASTM50F	Gas Calorimeter Inlet	+54/+101°F	0.1	473mm	Total
L5180	ASTM51F	Gas Calorimeter Outlet	+69/+116°F	0.1	473mm	Total
L5181	ASTM52C	Butadiene Boiling Point	-10/+5°C	0.1	167mm	Total
L5182	ASTM54C/IP18C	Congealing Point	+20.6/+100°C	0.2	315mm	Total
L5183	ASTM54F/IP18F	Congealing Point	+68/+213°F	0.5	315mm	Total
L5184	ASTM56C	Bomb Calorimeter	+19/+35°C	0.02	600mm	Total
L5185	ASTM56F	Bomb Calorimeter	+66/+95°F	0.05	600mm	Total
L5186	ASTM57C	Tag Closed Tester Low	-20/+50°C	0.5	292mm	57mm
L5187	ASTM57F	Tag Closed Tester Low	-4/+122°F	1.0	292mm	57mm
L5188	ASTM58C	Tank	-34/+49°C	0.5	305mm	Total
L5189	ASTM58F	Tank	-30/+120°F	1.0	305mm	Total
L5190	ASTM59C	Tank	-18/+82°C	0.5	305mm	Total
L5191	ASTM59F	Tank	0/+180°F	1.0	305mm	Total
L5192	ASTM60C	Tank	+77/+260°C	1.0	305mm	Total
L5193	ASTM60F	Tank	+170/+500°F	2.0	305mm	Total
L5194	ASTM61C/IP63C	Petrolatum Melting Point	+32/+127°C	0.2	385mm	79mm
L5195	ASTM61F/IP63F	Petrolatum Melting Point	+90/+260°F	0.5	385mm	79mm
L5196	ASTM62C	Precision	-38/+2°C	0.1	384mm	Total
L5197	ASTM62F	Precision	-36/+35°F	0.2	384mm	Total
L5198	ASTM63C	Precision	-8/+32°C	0.1	384mm	Total
L5199	ASTM63F	Precision	+18/+89°F	0.2	384mm	Total
L5200	ASTM64C	Precision	+25/+55°C ◀	0.1	384mm	Total
L5201	ASTM64F	Precision	+77/+131°F ◀	0.2	384mm	Total
L5202	ASTM65C	Precision	+50/+80°C ◀	0.1	384mm	Total

Thermometers with ◀ by range also have an ice point.

Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



ASTM Thermometers continued



You may find the IP Thermometers you are looking for here, as many of the specifications have been jointly agreed.

ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range		Divisions	Max Length	Immersion
L5203	ASTM65F	Precision	+122/+176°F	◀	0.2	384mm	Total
L5204	ASTM66C	Precision	+75/+105°C	◀	0.1	384mm	Total
L5205	ASTM66F	Precision	+167/+121°F	◀	0.2	384mm	Total
L5206	ASTM67C	Precision	+95/+155°C	◀	0.2	384mm	Total
L5207	ASTM67F	Precision	+203/+311°F	◀	0.5	384mm	Total
L5208	ASTM68C	Precision	+145/+205°C	◀	0.2	384mm	Total
L5209	ASTM68F	Precision	+293/+401°F	◀	0.5	384mm	Total
L5210	ASTM69C	Precision	+195/+305°C	◀	0.5	384mm	Total
L5211	ASTM69F	Precision	+383/+581°F	◀	1.0	384mm	Total
L5212	ASTM70C	Precision	+295/+405°C	◀	0.5	384mm	Total
L5213	ASTM70F	Precision	+563/+761°F	◀	1.0	384mm	Total
L5214	ASTM71C/IP72C	Oil in Wax	-37/+21°C	◀	0.5	360mm	76mm
L5215	ASTM71F/IP72F	Oil in Wax	-35/+70°F	◀	1.0	360mm	76mm
L5216	ASTM72C/IP67C	Kinematic Viscosity	-19.4/-16.6°C	◀	0.05	305mm	Total
L5217	ASTM72F/IP67F	Kinematic Viscosity	-2.5/+2.5°F	◀	0.1	305mm	Total
L5218	ASTM73C/IP68C	Kinematic Viscosity	-41.4/-38.6°C	◀	0.05	310mm	Total
L5219	ASTM73F/IP68F	Kinematic Viscosity	-42.5/-37.5°F	◀	0.1	310mm	Total
L5220	ASTM74C/IP69C	Kinematic Viscosity	-55.4/-52.6°C	◀	0.05	310mm	Total
L5221	ASTM74F/IP69F	Kinematic Viscosity	-67.5/-62.5°F	◀	0.1	310mm	Total
L5222	ASTM75F	Antifreeze freezing Point	-35/+35°F		0.5	413mm	100mm
L5223	ASTM76F	Antifreeze freezing Point	-65/+5°F		0.5	413mm	100mm
L5224	ASTM77F	Saybolt Viscosity	+245/+265°F		0.5	280mm	Total
L5225	ASTM78F	Saybolt Viscosity	+295/+315°F		0.5	280mm	Total
L5226	ASTM79F	Saybolt Viscosity	+345/+365°F		0.5	280mm	Total
L5227	ASTM80F	Saybolt Viscosity	+395/+415°F		0.5	280mm	Total
L5228	ASTM81F	Saybolt Viscosity	+445/+465°F		0.5	280mm	Total

Thermometers with ◀ by range also have an ice point.



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

ASTM Thermometers continued



Certain IP and ASTM thermometers are now available with a new non - toxic Safety - Blue® filling, please see page 20 for further information.

ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range	Divisions	Max Length	Immersion
L5229	ASTM82C	Fuel Rating, Engine	-15/+105°C	1.0	165mm	30mm
L5230	ASTM82F	Fuel Rating, Engine	0/+220°F	2.0	165mm	30mm
L5231	ASTM83C	Fuel Rating, Air	+15/+70°C	1.0	174mm	40mm
L5232	ASTM83F	Fuel Rating, Air	+60/+160°F	1.0	174mm	40mm
L5233	ASTM84C	Fuel Rating, Orifice Tank	+20/+80°C	1.0	387mm	249mm
L5234	ASTM84F	Fuel Rating, Orifice Tank	+75/+175°F	1.0	387mm	249mm
L5235	ASTM85C	Fuel Rating, Surge	+40/+150°C	1.0	314mm	181mm
L5236	ASTM85F	Fuel Rating, Surge	+100/+300°F	2.0	314mm	181mm
L5237	ASTM86C	Fuel Rating, Mix	+95/+175°C	1.0	170mm	35mm
L5238	ASTM86F	Fuel Rating, Mix	+200/+350°F	2.0	170mm	35mm
L5239	ASTM87C	Fuel Rating, Coolant	+150/+205°C	1.0	175mm	40mm
L5240	ASTM87F	Fuel Rating, Coolant	+300/+400°F	1.0	175mm	40mm
L5241	ASTM88C	Vegetable Oil Flash	+10/+200°C	1.0	292mm	57mm
L5242	ASTM88F	Vegetable Oil Flash	+50/+392°F	2.0	292mm	57mm
L5243	ASTM89C	Solidification Point	-20/+10°C	0.1	375mm	76mm
L5244	ASTM90C	Solidification Point	0/+30°C	0.1	375mm	76mm
L5245	ASTM91C	Solidification Point	+20/+50°C	0.1	375mm	76mm
L5246	ASTM92C	Solidification Point	+40/+70°C	0.1	375mm	76mm
L5247	ASTM93C	Solidification Point	+60/+90°C	0.1	375mm	76mm
L5248	ASTM94C	Solidification Point	+80/+110°C	0.1	375mm	76mm
L5249	ASTM95C	Solidification Point	+100/+130°C	0.1	375mm	76mm
L5250	ASTM96C	Solidification Point	+120/+150°C	0.1	375mm	76mm
L5251	ASTM97C	Tank	-18/+49°C	0.5	305mm	Total
L5252	ASTM97F	Tank	0/+120°F	1.0	305mm	Total
L5253	ASTM98C	Tank	+16/+82°C	0.5	305mm	Total
L5254	ASTM98F	Tank	+60/+180°F	1.0	305mm	Total



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



ASTM Thermometers continued



You may find the IP Thermometers you are looking for here, as many of the specifications have been jointly agreed.

ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range		Divisions	Max Length	Immersion
L5255C	ASTM99C	Weathering Test	-50/+5°C		0.2	305mm	35mm
L5255	ASTM99F	Weathering Test	-55/+40°F		0.5	305mm	35mm
L5256	ASTM100C	Solidification Point	+145/+205°C		0.2	375mm	76mm
L5257	ASTM101C	Solidification Point	+195/+305°C		0.5	375mm	76mm
L5258	ASTM102C/IP83C	Solvents Distillation	+123/+177°C		0.2	400mm	100mm
L5259	ASTM103C/IP84C	Solvents Distillation	+148/+202°C		0.2	400mm	100mm
L5260	ASTM104C/IP85C	Solvents Distillation	+173/+227°C		0.2	400mm	100mm
L5261	ASTM105C/IP86C	Solvents Distillation	+198/+252°C		0.2	400mm	100mm
L5262	ASTM106C/IP87C	Solvents Distillation	+223/+277°C		0.2	400mm	100mm
L5263	ASTM107C/IP88C	Solvents Distillation	+248/+302°C		0.2	400mm	100mm
L5264	ASTM108F	Saybolt Viscosity	+270/+290°F		0.5	280mm	Total
L5265	ASTM109F	Saybolt Viscosity	+320/+340°F		0.5	280mm	Total
L5266	ASTM110C/IP93C	Kinematic Viscosity	+133.6/+136.4°C	◀	0.05	310mm	Total
L5267	ASTM110F	Kinematic Viscosity	+272.5/+277.5°F	◀	0.1	310mm	Total
L5268	ASTM111C	Tar Acids Distillation	+170/+250°C	◀	0.2	400mm	100mm
L5269	ASTM112C	Solidification Point Benzene	+4/+6°C	◀	0.02	220mm	Total
L5270	ASTM113C/IP89C	Softening Point Bitumen, Wide Range	-1/+175°C		0.5	410mm	Total
L5271	ASTM113F/IP89F	Softening Point Bitumen, Wide Range	+30/+350°F		1.0	410mm	Total
L5272	ASTM114C/IP14C	Aviation Fuel Freezing Point	-80/+20°C		0.5	305mm	Total
L5273	ASTM116C	Bomb Calorimeter	+18.9/+25.1°C		0.01	614mm	Total
L5274	ASTM117C	Bomb Calorimeter	+23.9/+30.1°C		0.01	614mm	Total
L5275	ASTM118C	Kinematic Viscosity	+28.6/+31.4°C	◀	0.05	310mm	Total
L5276	ASTM118F	Kinematic Viscosity	+83.5/+88.5°F	◀	0.05	310mm	Total

Thermometers with ◀ by range also have an ice point.



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

ASTM Thermometers continued



Certain IP and ASTM thermometers are now available with a new non - toxic Safety - Blue® filling, please see page 20 for further information.



ASTM THERMOMETERS BS2000 MERCURY - GLASS ENGRAVED SCALES

Supplied singles.

Order Code	ASTM/IP Reference	Purpose	Range		Divisions	Max Length	Immersion
L5277	ASTM119C	Antifreeze Freezing Point	-38.3/-30°C	◀	0.1	425mm	100mm
L5278	ASTM119F	Antifreeze Freezing Point	-37/-22°F	◀	0.2	425mm	100mm
L5279	ASTM120C/IP92C	Kinematic Viscosity	+38.5/+41.5°C	◀	0.05	310mm	Total
L5280	ASTM121C/IP32C	Kinematic Viscosity	+98.5/+101.5°C	◀	0.05	310mm	Total
L5281	ASTM122C/IP94C	Brookfield Viscosity	-45/-35°C		0.1	300mm	Total
L5282	ASTM123C/IP95C	Brookfield Viscosity	-35/-25°C		0.1	300mm	Total
L5283	ASTM124C/IP96C	Brookfield Viscosity	-25/-15°C		0.1	300mm	Total
L5284	ASTM125C/IP97C	Brookfield Viscosity	-15/-5°C		0.1	300mm	Total
L5285	ASTM126C/IP71C	Kinematic Viscosity	-27.4/-24.6°C	◀	0.05	305mm	Total
L5286	ASTM126F/IP71F	Kinematic Viscosity	-17.5/-12.5°F	◀	0.1	305mm	Total
L5287	ASTM127C/IP99C	Kinematic Viscosity	-21.4/-18.6°C	◀	0.05	305mm	Total
L5288	ASTM128C/IP33C	Kinematic Viscosity	-1.4/+1.4°C		0.05	305mm	Total
L5289	ASTM128F/IP33F	Kinematic Viscosity	+29.5/+34.5°F		0.1	305mm	Total
L5290	ASTM129C/IP36C	Kinematic Viscosity	+91.6/+94.4°C	◀	0.05	305mm	Total
L5291	ASTM129F/IP36F	Kinematic Viscosity	+197.5/+202.5°F	◀	0.1	305mm	Total
L5293	ASTM130F	Tank	+20/+220°F		1.0	305mm	Total
L5049	ASTM132C/IP102C	Kinematic Viscosity	+148.6/+151.4°C	◀	0.05	305mm	Total

Thermometers with ◀ by range also have an ice point.



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.



Safety - Blue[®] IP & ASTM Thermometers

Zeal Safety - Blue[®] IP & ASTM Thermometers are quality precision instruments manufactured in accordance with the specifications of the Institute of Petroleum (IP) and jointly agreed with ASTM International, formally known as the American Society for Testing and Materials (ASTM). This scientific new development begins to address the increasing demand for specification thermometers to be supplied with a non mercury filling. The unique Safety Blue[®] filling is, as the name implies, non toxic and exhibits all the qualities of mercury without the attendant hazards and risks of contamination associated with mercury. Despite being designed for specific tests, many will have uses on other applications as quality high precision thermometers. Works or UKAS Test Certificates are available.



ASTM THERMOMETERS BS2000 BLUE SPIRIT - WHITE BACK GLASS ENGRAVED SCALES Supplied singles.

Order Code	IP/ASTM Reference	Purpose	Range	Divisions	Max Length	Immersion
L5004/SB	IP8C	Flushing-Case Low	0/+45°C	0.2	350mm	65mm
L5018/SB	IP39C	Density	-1/+38°C	0.1	450mm	Total
L5020/SB	IP40C	Drop Point Low	+20/+120°C	1.0	260mm	100mm
L5031/SB	IP49F	Tank Medium	0/+100°F	1.0	315mm	Total
L5032/SB	IP49C	Tank Medium	-15/+40°C	0.5	315mm	Total
L5033/SB	IP50F	Tank High	+50/+150°F	1.0	315mm	Total
L5034/SB	IP50C	Tank High	+10/+65°C	0.5	315mm	Total
L5040/SB	IP53C	Tank Cargo	0/+80°C	0.5	315mm	Total
L5108/SB	ASTM5C/IP1C	Cloud & Pour	-38/+50°C	1.0	295mm	108mm
L5116/SB	ASTM9C/IP15C	Pensky - Martens Low	-5/+110°C	0.5	295mm	57mm
L5122/SB	ASTM12C/IP64C	Density Wide Range	-20/+102°C	0.2	425mm	Total
L5123/SB	ASTM12F/IP64F	Density Wide Range	-5/+215°F	0.5	425mm	Total
L5125/SB	ASTM14C/IP17C	Wax Melting Point	+38/+82°C	0.1	380mm	79mm
L5127/SB	ASTM15C/IP60C	Low Softening Point	-2/+80°C	0.2	400mm	Total
L5129/SB	ASTM16C/IP61C	High Softening Point	+30/+200°C	0.5	400mm	Total
L5131/SB	ASTM17C	Saybolt Viscosity	+19/+27°C	0.1	280mm	Total
L5133/SB	ASTM18C/IP23C	Saybolt Viscosity	+34/+42°C	0.1	280mm	Total
L5134/SB	ASTM18F	Saybolt Viscosity	+94/+108°F	0.2	280mm	Total
L5153/SB	ASTM33C/IP20C	Low Aniline Point	-38/+42°C	0.2	425mm	50mm
L5186/SB	ASTM57C	Tag Closed Tester Low	-20/+50°C	0.5	292mm	57mm
L5190/SB	ASTM59C	Tank Refill Medium	-18/+82°C	0.5	305mm	Total
L5191/SB	ASTM59F	Tank Refill Medium	0/+180°F	1.0	305mm	Total
L5199/SB	ASTM63F	Precision	+18/+89°F	0.2	384mm	Total
L5255C/SB	ASTM99C	Weathering Test	-50/+5°C	0.2	305mm	35mm

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

Tank Dipping Thermometers



IP/ASTM TANK DIPPING THERMOMETERS MERCURY - GLASS ENGRAVED SCALES MOUNTED IN WOODEN CASE WITH NON-SPARKING HANDLE AND CUP. Supplied singles.

THERMOMETER AND CASE					REFILL
Order Code	IP/ASTM Reference	Purpose	Range	Divisions	Order Code Refill only
P1600	IP48C	Tank Low	-38/+30°C	0.5	L5030
P1601	IP49C	Tank Medium	-15/+40°C	0.5	L5032
P1602	IP50C	Tank High	+10/+65°C	0.5	L5034
P1603	IP51C	Tank Heated Fuel	+35/+120°C	0.5	L5036
P1604	IP52C	Tank Bitumen	+90/+260°C	1.0	L5038
P1605	IP53C	Tank Cargo	0/+80°C	0.5	L5040
P1606	ASTM58C	Tank	-34/+49°C	0.5	L5188
P1607	ASTM58F	Tank	-30/+120°F	1.0	L5189
P1608 ◀	ASTM59C	Tank	-18/+82°C	0.5	L5190 ◀◀
P1609 ◀◀	ASTM59F	Tank	0/+180°F	1.0	L5191 ◀◀
P1610	ASTM60C	Tank	+77/+260°C	1.0	L5192
P1611	ASTM60F	Tank	+170/+500°F	2.0	L5193
P1612	ASTM97C	Tank	-18/+49°C	0.5	L5251
P1612A	ASTM97F	Tank	0/+120°F	1.0	L5252
P1613	ASTM98C	Tank	+16/+82°C	0.5	L5253
P1614	ASTM98F	Tank	+60/+180°F	1.0	L5254
P1615 ◀	WHITE OIL 300mm		-10/+35°C	0.5	P1535 ◀
P1520	SPARE CASE ONLY				



LABORATORY THERMOMETERS



Notes:

Code ◀ Thermometer is Red Spirit filled.

Code ◀◀ Thermometer is also available as new non toxic Safety-Blue type - suffix order code /SB

Hydrometers

Zeal's Hydrometers are precision instruments manufactured from the highest quality glass tubing especially selected to be free from stain and other defects. Precisely poised with lead shot sealed in a special wax ensures correct alignment. Scales have clearly marked figures and graduations. Temperature adjustment is marked on the scale of each hydrometer. Where applicable the Fiducial Mark (datum line) enables calibration by UKAS Laboratories. Zeal manufacture a multiplicity of hydrometers from Commercial Grade suitable for general use in laboratories and universities to hydrometers in accordance with British, ASTM, API and other international recognized standards as well as hydrometers for specific applications, such as Draft Survey (shown below), Potatoe, Alcohol, Brix, Twaddle etc. Works and UKAS Certified Calibration Certificates are available for the majority of hydrometers.

DRAFT SURVEY HYDROMETER



Our Draft Survey (Load Line) Hydrometer is suitable for use in sea or fresh water. It was specially designed in collaboration with S.G.S. Van Bree N.V., Antwerp, member of the Société Générale de Surveillance S.A. Geneva, to ensure that when carrying out a Draft Survey on cargo carrying vessels the weight to volume relationship of the supporting water was precisely measured and accurately reported. Not all hydrometers on sale are manufactured to the very high standards of Zeal whose quality is universally relied upon.

DRAFT SURVEY HYDROMETER WITH CERTIFICATE OF CONFORMITY AND INSTRUCTIONS

Supplied singles

Order Code	Range
D4040	0.990/1.040 kg/L @ 15°C 330mm long x 0.0005 divisions

! Comparative Hydrometer Scales can be found on page 56.

General Purpose Hydrometers

Specific Gravity Hydrometers - Commercial Grade



D3501

200 DEGREE SERIES 230mm LONG 2° DIVISIONS Supplied singles

Order Code	Range
D3500	0.600/0.800
D3501	0.800/0.1000
D3502	1.000/1.200
D3503	1.200/1.400
D3504	1.400/1.600
D3505	1.600/1.800
D3506	1.800/2.000

300 DEGREE SERIES 230mm LONG 5° DIVISIONS Supplied singles

Order Code	Range
D3510	0.700/1.000
D3511	1.000/1.300
D3512	1.300/1.600
D3513	1.600/1.900

500 DEGREE SERIES 230mm LONG 10° DIVISIONS Supplied singles

Order Code	Range
D3520	1.000/1.500
D3521	1.500/2.000

1000 DEGREE SERIES 305mm LONG 10° DIVISIONS Supplied singles

Order Code	Range
D3530	1.000/2.000
	and 0/70 Baumé

UNIVERSAL SERIES 406mm LONG 10° DIVISIONS Supplied singles

Order Code	Range
D3540	0.700/2.000

50 DEGREE SERIES 230mm LONG 1° DIVISIONS Supplied singles

Order Code	Range	Order Code	Range
D3550	0.600/0.650	D3564	1.300/1.350
D3551	0.650/0.700	D3565	1.350/1.400
D3552	0.700/0.750	D3566	1.400/1.450
D3553	0.750/0.800	D3567	1.450/1.500
D3554	0.800/0.850	D3568	1.500/1.550
D3555	0.850/0.900	D3569	1.550/1.600
D3556	0.900/0.950	D3570	1.600/1.650
D3557	0.950/1.000	D3571	1.650/1.700
D3558	1.000/1.050	D3572	1.700/1.750
D3559	1.050/1.100	D3573	1.750/1.800
D3560	1.100/1.150	D3574	1.800/1.850
D3561	1.150/1.200	D3575	1.850/1.900
D3562	1.200/1.250	D3576	1.900/1.950
D3563	1.250/1.300	D3577	1.950/2.000

100 DEGREE SERIES 230mm LONG 1° DIVISIONS Supplied singles


Order Code	Range	Order Code	Range
D3578	0.600/0.700	D3585	1.300/1.400
D3579	0.700/0.800	D3586	1.400/1.500
D3580	0.800/0.900	D3587	1.500/1.600
D3581	0.900/1.000	D3588	1.600/1.700
D3582	1.000/1.100	D3589	1.700/1.800
D3583	1.100/1.200	D3590	1.800/1.900
D3584	1.200/1.300	D3591	1.900/2.000



D3554

HYDROMETERS



 All the Hydrometers on this page are Adjusted (Calibrated) @ 15.6°C. They are also available Adjusted @ 20°C and 28.9°C

Specific Purpose Hydrometers

AVIATION FUEL HYDROMETERS

Adjusted @ 15°C
Supplied singles

Order Code	Reference	Range	Divisions	Length
D4060		0.750/0.850 Sp.Gr.	0.002	185mm
D4061	BS718 M50SP	775/825 g/ml	0.001	270mm
D4062	BS718 M50SP	775/825 Kg/m ³	0.001	270mm
D4063	BS718 L50SP	775/825 g/ml	0.0005	335mm
D4064	BS718 L50SP	775/825 Kg/m ³	0.0005	335mm

BAUMÉ HYDROMETERS 230mm long

Rational Baumé Scale where Degrees Sp.Gr. = $\frac{144.3}{144.3 - \text{Degrees Baumé}}$

Adjusted @ 15.6°C.
Supplied singles

Order Code	Range in Degrees Bé	Order Code	Range in Degrees Bé
D0500	0/10	D0506	60/70
D0501	10/20	D0510	0/20
D0502	20/30	D0511	20/40
D0503	30/40	D0512	40/60
D0504	40/50	D0520	0/50
D0505	50/60	D0530	0/70



TWADDELL HYDROMETERS 150mm Long

1 Degree Twaddell = 0.005° Sp.Gr.
Adjusted @ 15.6°C. Range in ° Twaddell
Supplied singles

Order Code	Twaddell Number	Range ° Twaddell
D0100	No.1	0/24
D0101	No.2	24/48
D0102	No.3	48/74
D0103	No.4	74/102
D0104	No.5	102/138
D0105	No.6	138/170
D0106	No.7	170/200

TWADDELL HYDROMETERS 230mm Long

1 Degree Twaddell = 0.005° Sp.Gr.
Adjusted @ 15.6°C. Range in ° Twaddell
Supplied singles

Order Code	Twaddell Number	Range ° Twaddell
D0110	No.1	0/24
D0111	No.2	24/48
D0112	No.3	48/74
D0113	No.4	74/102
D0114	No.5	102/138
D0115	No.6	138/170
D0116	No.7	170/200

BRINEOMETER HYDROMETERS

Adjusted @ 15.6°C / 60°F
Supplied singles

Order Code	Range	Length
D4010	0/100% x Weight	230mm



Baumé and Twaddell Hydrometers are Adjusted (Calibrated) @ 15.6°C They are also available Adjusted @ 20°C and 28.9°C

Specific Purpose Hydrometers

HYDROMETERS



Please remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your hydrometer to validate the integrity of your test measurements. See page 40.



D4070



B241/CAN

ALCOHOL HYDROMETERS GENERAL - GAY LUSSAC Adjusted @ 15.6°C / 60°F Supplied singles

Order Code	Range	Length
D4070	0/100%	250mm

ALCOHOL HYDROMETERS - CANADIAN Adjusted @ 20°C Supplied singles

Order Code	Range	Length
B240/CAN	780/800kg/m ³	300mm
B241/CAN	800/820kg/m ³	300mm
B242/CAN	820/840kg/m ³	300mm
B243/CAN	840/860kg/m ³	300mm
B244/CAN	860/880kg/m ³	300mm
B245/CAN	880/900kg/m ³	300mm
B246/CAN	900/920kg/m ³	300mm
B247/CAN	920/940kg/m ³	300mm
B248/CAN	940/960kg/m ³	300mm
B249/CAN	960/980kg/m ³	300mm
B250/CAN	980/1000kg/m ³	300mm

ALCOHOL HYDROMETERS - BS5470 Adjusted @ 20°C Supplied singles

Order Code	Range	Length
B240	780/800kg/m ³	300mm
B241	800/820kg/m ³	300mm
B242	820/840kg/m ³	300mm
B243	840/860kg/m ³	300mm
B244	860/880kg/m ³	300mm
B245	880/900kg/m ³	300mm
B246	900/920kg/m ³	300mm
B247	920/940kg/m ³	300mm
B248	940/960kg/m ³	300mm
B249	960/980kg/m ³	300mm
B250	980/1000kg/m ³	300mm

ALCOHOL HYDROMETERS - SIKES Adjusted @ 51°F. Supplied singles

Order Code	Range	Length
B144/1A	0/20A x 0.2 Sikes	255mm
B144/1	0/20	255mm
B144/2	20/40	255mm
B144/3	40/60	255mm
B144/4	60/80	255mm
B144/5	80/100	255mm



Specific Purpose Hydrometers

Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your hydrometer to validate the integrity of your test measurements. Please see page 40.

SACCHAROMETERS (BRIX) HYDROMETERS, PLAIN FORM
 Graduated in degrees BRIX (Based on percentage of sugar by weight)
 n% Sugar = n degrees BRIX
 Adjusted @ 20°C. 305mm long.
 Supplied singles

6° BRIX HYDROMETERS
 Supplied singles

Order Code	Range
D4300	0/6
D4301	6/12
D4302	12/18
D4303	18/24
D4304	24/30
D4305	30/36
D4306	36/42
D4307	42/48
D4308	48/54
D4309	54/60

10° BRIX HYDROMETERS
 Supplied singles

Order Code	Range
D4330	0/10
D4331	10/20
D4332	20/30
D4333	30/40
D4334	40/50
D4335	50/60
D4336	60/70
D4337	70/80
D4338	80/90
D4339	90/100

20° BRIX HYDROMETERS
 Supplied singles

Order Code	Range
D4360	0/20
D4361	20/40
D4362	40/60
D4363	60/80
D4364	80/100

30° BRIX HYDROMETERS
 Supplied singles

Order Code	Range
D4365	0/30
D4366	30/60
D4367	60/90

LATEXOMETERS
 For Raw Rubber /lbs., Dry Rubber /gallons, or Dry Rubber /litre of Latex
 Supplied singles

Order Code	Range	Length	Adjusted
D4000	50/250 gms/litre	240mm	84°F
D4001	0.5/2.5 lbs/gallon	240mm	28.9°C
D4002	Metrolac 50/250gms/litre	240mm	28.9°C
D4009	50/450 gms/litre	203mm	28.9°C



D4000

Specific Purpose Hydrometers

Unique to Zeal, this long established instrument is in extensive use throughout the potato industry.

The ZEAL potato hydrometer was developed by experts in conjunction with the UK Potato Marketing Board for those in the industry who needed to accurately monitor the water content of potatoes.

An accurate and simple method of measuring the solid content or dry matter of potatoes to ensure the optimum result is achieved in the manufacturing process of foods such as crisps, frying chips, small deep frying potatoes, potato wedges, canned, frozen and powdered potato products.

POTATO HYDROMETERS

Supplied singles

Order Code	Range
D4500	17 / 25% dry matter
D4501	14 / 23% dry matter
D4502	18 / 27% dry matter



Spare Parts are available to maintain your Potato Hydrometer- please contact us for information.

LACTOMETERS - BRITISH STANDARD

Made in accordance with BS734 indicating density (mass per unit volume) in grammes per millilitre at 20°C in a liquid having a surface tension of 46 dynes per cm.

Supplied singles

Order Code	BS. Number	Range	Length/Divisions
D4021	No.1	1.025/1.035 g/ml	240mm x 0.002
D4022	No.2	1.015/1.025 g/ml	240mm x 0.002

LACTOMETERS - GENERAL

Supplied singles

Order Code	Range	Length	Adjusted
D4020	1.000/1.040 Sp.Gr + Jar	150mm	
D4020/FL/84F	1.000/1.040 Sp.Gr	150mm	84°F

SOIL HYDROMETERS

For the determination of particle size distribution in soil

Supplied singles

Order Code	Standard ASTM/BS	Range	Adjusted
D4050	ASTM152H	-5/60g per litre	68°F
D4051	BS 1377	0.995/1.030 g/ml	20°C
D4052	ASTM151H	0.995/1.038 g/ml	68°F



D4500

URINOMETERS

Supplied singles

Order Code	Range
D4030	127mm Urinometer + Jar 1.000/1.060 Sp.Gr. 60°F
D4030/F	127mm Urinometer Float 1.000/1.060 Sp.Gr. 60°F
D4033/J	Urinometer Jar with Lip 140 x 26mm



Comparative Hydrometer Scales can be found on page 56.

HYDROMETERS

Metal Hydrometers

For many applications Metal Hydrometers are preferable to Glass. All Zeal metal hydrometers are manufactured by highly skilled technicians to exacting standards of precision. The standard finish is Gilt plated brass. Listed below are a small selection of the many different types produced. Twaddle, Baumé, Specific Gravity and density scales are also available in a series of ranges between 0.600 to 2.000 adjusted for use at either 15.6°C, 20°C or 28.9°C. Just specify your requirement to our Technical Sales team who will be pleased to help.

DRAFT SURVEY HYDROMETER Supplied singles

Order Code	Range
D6720	0.990/1.040 kg/L@15°C

LOAD LINE HYDROMETER Supplied singles

Order Code	Range
D6700	1.000/1.040 Sp.Gr
D6701	1.000/1.040 Sp.Gr and arbitrary scale 0.25/0
D6702	0.950/1.030 Sp.Gr
D6703	1.000/1.026 Sp.Gr

SACCHAROMETERS (BRIX) HYDROMETERS, Graduated in degrees BRIX (Based on percentage of sugar by weight) n% Sugar = n degrees BRIX Adjusted @ 20°C. Supplied singles

Order Code	Range	Order Code	Range
D6770	0/10	D6767	0/25
D6771	10/20	D6789	0/40
D6772	20/30	D6768	0/85
D6773	30/40	D6775	20/50
D6774	40/50	D6791	30/70
D6775	50/60	D6792	40/70
D6776	60/70	D6790	40/75
D6777	0/20	D6787	40/85
D6778	20/40	D6784	50/75
D6779	40/60	D6786	60/85
D6780	60/80	D6788	65/75
D6781	0/30		
D6782	30/60		
D6783	60/90		



SALINOMETERS Supplied singles

Order Code	Range
D6710	0.4/32 Blow Scale
D6711	0.4/32 oz & 0/25 Gallon

BRINEOMETERS Supplied singles

Order Code	Range
D6715	0/100%
D6716	995/1030 kg/ms



BS 718 Hydrometers

British Standard 718 Glass Hydrometers are precision instruments ideal for laboratory use for the accurate determination of the Density or Specific Gravity of liquids. They can be supplied with Works or UKAS Certified Calibration Certificates traceable to National Standards.

Density Hydrometers are graduated in grammes per millilitre @ 20°C based on the principle that:
 "Density (g/ml.) of a liquid at temperature 't' is the mass in grammes per millilitre of the liquid at 't'."

Specific Gravity Hydrometers are graduated @ 60/60°F based on the principle that:

"The Specific Gravity t1/t2 of a liquid =

Mass of a given volume of liquid at temperature t1

Mass of an equal volume of pure water at temperature t2

Density Hydrometers g/ml @ 20°C are to BS 718, ISO 649, DIN 12791, NL B 35-511 and JS B 7525.
 Specific Gravity Hydrometers Sp/Gr @ 60/60°F are to ISO 650 (BS 718:1961).



D1517

M50 SERIES

Maximum Length 270mm. Divisions 0.001

Tolerance +/-0.001 Maximum Diameter 24mm. Sold singles

M50 g/ml Calibrated @ 20°C Supplied singles

Order Code	Range
D1500	0.600/0.650 g/ml
D1501	0.650/0.700 g/ml
D1502	0.700/0.750 g/ml
D1503	0.750/0.800 g/ml
D1504	0.800/0.850 g/ml
D1505	0.850/0.900 g/ml
D1506	0.900/0.950 g/ml
D1507	0.950/1.000 g/ml
D1509	1.000/1.050 g/ml
D1511	1.050/1.100 g/ml
D1513	1.100/1.150 g/ml
D1515	1.150/1.200 g/ml
D1517	1.200/1.250 g/ml
D1519	1.250/1.300 g/ml
D1521	1.300/1.350 g/ml
D1523	1.350/1.400 g/ml
D1525	1.400/1.450 g/ml
D1527	1.450/1.500 g/ml
D1529	1.500/1.550 g/ml
D1531	1.550/1.600 g/ml
D1533	1.600/1.650 g/ml
D1535	1.650/1.700 g/ml
D1537	1.700/1.750 g/ml
D1539	1.750/1.800 g/ml
D1541	1.800/1.850 g/ml
D1543	1.850/1.900 g/ml
D1545	1.900/1.950 g/ml
D1547	1.950/2.000 g/ml

M50 Sp/Gr Calibrated @ 60/60°F Supplied singles

Order Code	Range
D1548	0.600/0.650 Sp/Gr
D1549	0.650/0.700 Sp/Gr
D1550	0.700/0.750 Sp/Gr
D1551	0.750/0.800 Sp/Gr
D1552	0.800/0.850 Sp/Gr
D1553	0.850/0.900 Sp/Gr
D1554	0.900/0.950 Sp/Gr
D1555	0.950/1.000 Sp/Gr
D1557	1.000/1.050 Sp/Gr
D1559	1.050/1.100 Sp/Gr
D1561	1.100/1.150 Sp/Gr
D1563	1.150/1.200 Sp/Gr
D1565	1.200/1.250 Sp/Gr
D1567	1.250/1.300 Sp/Gr
D1569	1.300/1.350 Sp/Gr
D1571	1.350/1.400 Sp/Gr
D1573	1.400/1.450 Sp/Gr
D1575	1.450/1.500 Sp/Gr
D1577	1.500/1.550 Sp/Gr
D1579	1.550/1.600 Sp/Gr
D1581	1.600/1.650 Sp/Gr
D1583	1.650/1.700 Sp/Gr
D1585	1.700/1.750 Sp/Gr
D1587	1.750/1.800 Sp/Gr
D1589	1.800/1.850 Sp/Gr
D1591	1.850/1.900 Sp/Gr
D1593	1.900/1.950 Sp/Gr
D1595	1.950/2.000 Sp/Gr



BS 718 Hydrometers continued

HYDROMETERS

BRITISH STANDARD 718 DENSITY & SPECIFIC GRAVITY HYDROMETERS
L50 SERIES
 Maximum Length 335mm. Divisions 0.0005
 Tolerance +/-0.0005 Maximum Diameter 27mm. Sold singles

L50 g/ml Calibrated @ 20°C
 Supplied singles

Order Code	Range
D2500	0.600/0.650 g/ml
D2501	0.650/0.700 g/ml
D2502	0.700/0.750 g/ml
D2503	0.750/0.800 g/ml
D2504	0.800/0.850 g/ml
D2505	0.850/0.900 g/ml
D2506	0.900/0.950 g/ml
D2507	0.950/1.000 g/ml
D2509	1.000/1.050 g/ml
D2511	1.050/1.100 g/ml
D2513	1.100/1.150 g/ml
D2515	1.150/1.200 g/ml
D2517	1.200/1.250 g/ml
D2519	1.250/1.300 g/ml
D2521	1.300/1.350 g/ml
D2523	1.350/1.400 g/ml
D2525	1.400/1.450 g/ml
D2527	1.450/1.500 g/ml
D2529	1.500/1.550 g/ml
D2531	1.550/1.600 g/ml
D2533	1.600/1.650 g/ml
D2535	1.650/1.700 g/ml
D2537	1.700/1.750 g/ml
D2539	1.750/1.800 g/ml
D2541	1.800/1.850 g/ml
D2543	1.850/1.900 g/ml
D2545	1.900/1.950 g/ml
D2547	1.950/2.000 g/ml

L50 Sp/Gr Calibrated @ 60/60°F
 Supplied singles

Order Code	Range
D2548	0.600/0.650 Sp/Gr
D2549	0.650/0.700 Sp/Gr
D2550	0.700/0.750 Sp/Gr
D2551	0.750/0.800 Sp/Gr
D2552	0.800/0.850 Sp/Gr
D2553	0.850/0.900 Sp/Gr
D2554	0.900/0.950 Sp/Gr
D2555	0.950/1.000 Sp/Gr
D2557	1.000/1.050 Sp/Gr
D2559	1.050/1.100 Sp/Gr
D2561	1.100/1.150 Sp/Gr
D2563	1.150/1.200 Sp/Gr
D2565	1.200/1.250 Sp/Gr
D2567	1.250/1.300 Sp/Gr
D2569	1.300/1.350 Sp/Gr
D2571	1.350/1.400 Sp/Gr
D2573	1.400/1.450 Sp/Gr
D2575	1.450/1.500 Sp/Gr
D2577	1.500/1.550 Sp/Gr
D2579	1.550/1.600 Sp/Gr
D2581	1.600/1.650 Sp/Gr
D2583	1.650/1.700 Sp/Gr
D2585	1.700/1.750 Sp/Gr
D2587	1.750/1.800 Sp/Gr
D2589	1.800/1.850 Sp/Gr
D2591	1.850/1.900 Sp/Gr
D2593	1.900/1.950 Sp/Gr
D2595	1.950/2.000 Sp/Gr



! Comparative Hydrometer Scales can be found on page 56.

BS 718 Hydrometers continued

HYDROMETERS



BRITISH STANDARD 718 DENSITY & SPECIFIC GRAVITY HYDROMETERS

M100 SERIES

Maximum Length 250mm. 1 Divisions 0.002

Tolerance +/-0.002 Maximum Diameter 20mm. Sold singles

M100 g/ml Calibrated @ 20°C Supplied singles

Order Code	Range
D2000	0.600/0.700 g/ml
D2001	0.700/0.800 g/ml
D2002	0.800/0.900 g/ml
D2003	0.900/1.000 g/ml
D2005	1.000/1.100 g/ml
D2007	1.100/1.200 g/ml
D2009	1.200/1.300 g/ml
D2011	1.300/1.400 g/ml
D2013	1.400/1.500 g/ml
D2015	1.500/1.600 g/ml
D2017	1.600/1.700 g/ml
D2019	1.700/1.800 g/ml
D2021	1.800/1.900 g/ml
D2023	1.900/2.000 g/ml

M100 Sp.Gr Calibrated @ 60/60°F Supplied singles

Order Code	Range
D2024	0.600/0.700 Sp.Gr
D2025	0.700/0.800 Sp.Gr
D2026	0.800/0.900 Sp.Gr
D2027	0.900/1.000 Sp.Gr
D2029	1.000/1.100 Sp.Gr
D2031	1.100/1.200 Sp.Gr
D2033	1.200/1.300 Sp.Gr
D2035	1.300/1.400 Sp.Gr
D2037	1.400/1.500 Sp.Gr
D2039	1.500/1.600 Sp.Gr
D2041	1.600/1.700 Sp.Gr
D2043	1.700/1.800 Sp.Gr
D2045	1.800/1.900 Sp.Gr
D2047	1.900/2.000 Sp.Gr


! Comparative Hydrometer Scales can be found on page 56.

Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your hydrometer to validate the integrity of your test measurements. Please see page 40.



BS 718 Hydrometers for Petroleum

These BS 718 hydrometers are specifically designed for the testing of oil and petroleum related products as specified by the Institute of Petroleum (IP). They can be supplied with Works or UKAS Certified Calibration Certificates traceable to National Standards. Calibrated for reading at the horizontal surface of the liquid they have higher tolerances than standard BS718 hydrometers. Available with Density (g/ml.) scales at 15°C., or Specific Gravity SP.Gr. at 60/60F. Low surface tension only.

 Upon request these hydrometers can also be made with scales in Kg/m³ @ 20°C

M50SP SERIES BRITISH STANDARD 718 DENSITY & SPECIFIC GRAVITY HYDROMETERS FOR OIL & PETROLEUM

Maximum Length 270mm. Divisions 0.001
Tolerance +/-0.0006 Maximum Diameter 24mm. Sold singles

M50SP g/ml Calibrated @ 15°C Supplied singles		M50SP Sp/Gr Calibrated @ 60/60°F Supplied singles	
Order Code	Range	Order Code	Range
D1596	0.600/0.650 g/ml	D1606	0.600/0.650 Sp/Gr
D1597	0.650/0.700 g/ml	D1607	0.650/0.700 Sp/Gr
D1598	0.700/0.750 g/ml	D1608	0.700/0.750 Sp/Gr
D1599	0.750/0.800 g/ml	D1609	0.750/0.800 Sp/Gr
D1600	0.800/0.850 g/ml	D1610	0.800/0.850 Sp/Gr
D1601	0.850/0.900 g/ml	D1611	0.850/0.900 Sp/Gr
D1602	0.900/0.950 g/ml	D1612	0.900/0.950 Sp/Gr
D1603	0.950/1.000 g/ml	D1613	0.950/1.000 Sp/Gr
D1604	1.000/1.050 g/ml	D1614	1.000/1.050 Sp/Gr
D1605	1.050/1.100 g/ml	D1615	1.050/1.100 Sp/Gr

L50SP SERIES BRITISH STANDARD 718 DENSITY & SPECIFIC GRAVITY HYDROMETERS FOR OIL & PETROLEUM

Maximum Length 335mm. Divisions 0.0005
Tolerance +/-0.0003 Maximum Diameter 27mm. Sold singles

L50SP g/ml Calibrated @ 15°C Supplied singles		L50SP Sp/Gr Calibrated @ 60/60°F Supplied singles	
Order Code	Range	Order Code	Range
D2596	0.600/0.650 g/ml	D2606	0.600/0.650 Sp/Gr
D2597	0.650/0.700 g/ml	D2607	0.650/0.700 Sp/Gr
D2598	0.700/0.750 g/ml	D2608	0.700/0.750 Sp/Gr
D2599	0.750/0.800 g/ml	D2609	0.750/0.800 Sp/Gr
D2600	0.800/0.850 g/ml	D2610	0.800/0.850 Sp/Gr
D2601	0.850/0.900 g/ml	D2611	0.850/0.900 Sp/Gr
D2602	0.900/0.950 g/ml	D2612	0.900/0.950 Sp/Gr
D2603	0.950/1.000 g/ml	D2613	0.950/1.000 Sp/Gr
D2604	1.000/1.050 g/ml	D2614	1.000/1.050 Sp/Gr
D2605	1.050/1.100 g/ml	D2615	1.050/1.100 Sp/Gr



ASTM Hydrometers for Petroleum

In accordance with ISO (International Standards Organization) these hydrometers are specifically designed for the testing of oil and petroleum related products. This series has been adopted by ASTM as the standard for petroleum hydrometers. They fully comply with the exacting specifications of ASTM E100 and can be supplied with Works or UKAS Certified Calibration Certificates traceable to National Standards. Available in either long or short form calibrated @ 60°F with Specific Gravity Sp.Gr. scales for light and heavy liquids.

ASTM E100 SPECIFIC GRAVITY PLAIN FORM HYDROMETERS

ASTM E100 LONG FORM FOR LIGHT LIQUIDS
 Maximum Length 335mm.
 Divisions 0.0005 Sp.Gr. Tolerance 0.0005 Sp.Gr.
 Calibrated @ 60°F. Maximum Diameter 27mm.
 Sold singles

Order Code	ASTM No.	Range
D4640	82H	0.650/0.700 Sp/Gr
D4641	83H	0.700/0.750 Sp/Gr
D4642	84H	0.750/0.800 Sp/Gr
D4643	85H	0.800/0.850 Sp/Gr
D4644	86H	0.850/0.900 Sp/Gr
D4645	87H	0.900/0.950 Sp/Gr
D4646	88H	0.950/1.000 Sp/Gr
D4647	89H	1.000/1.050 Sp/Gr
D4648	90H	1.050/1.100 Sp/Gr

ASTM E100 LONG FORM FOR HEAVY LIQUIDS
 Maximum Length 335mm.
 Divisions 0.0005 Sp.Gr. Tolerance 0.0005 Sp.Gr.
 Calibrated @ 60°F. Maximum Diameter 27mm.
 Sold singles

Order Code	ASTM No.	Range
D4656	111H	1.000/1.050 Sp/Gr
D4657	112H	1.050/1.100 Sp/Gr
D4658	113H	1.100/1.150 Sp/Gr
D4659	114H	1.150/1.200 Sp/Gr
D4660	115H	1.200/1.250 Sp/Gr
D4661	116H	1.250/1.300 Sp/Gr
D4662	117H	1.300/1.350 Sp/Gr
D4663	118H	1.350/1.400 Sp/Gr
D4664	119H	1.400/1.450 Sp/Gr
D4665	120H	1.450/1.500 Sp/Gr

ASTM E100 SHORT FORM FOR LIGHT LIQUIDS
 Maximum Length 270mm.
 Divisions 0.001 Sp.Gr. Tolerance 0.001 Sp.Gr.
 Calibrated @ 60°F. Maximum Diameter 24mm.
 Sold singles

Order Code	ASTM No.	Range
D4649	102H	0.650/0.700 Sp/Gr
D4650	103H	0.700/0.750 Sp/Gr
D4651	104H	0.750/0.800 Sp/Gr
D4652	105H	0.800/0.850 Sp/Gr
D4653	106H	0.850/0.900 Sp/Gr
D4654	107H	0.900/0.950 Sp/Gr
D4655	108H	0.950/1.000 Sp/Gr

ASTM E100 SHORT FORM FOR HEAVY LIQUIDS
 Maximum Length 270mm.
 Divisions 0.001 Sp.Gr. Tolerance 0.001 Sp.Gr.
 Calibrated @ 60°F. Maximum Diameter 24mm.
 Sold singles

Order Code	ASTM No.	Range
D4666	125H	1.000/1.050 Sp/Gr
D4667	126H	1.050/1.100 Sp/Gr
D4668	127H	1.100/1.150 Sp/Gr
D4669	128H	1.150/1.200 Sp/Gr
D4670	129H	1.200/1.250 Sp/Gr
D4671	130H	1.250/1.300 Sp/Gr
D4672	131H	1.300/1.350 Sp/Gr
D4673	132H	1.350/1.400 Sp/Gr
D4674	133H	1.400/1.450 Sp/Gr
D4675	134H	1.450/1.500 Sp/Gr
D4676	135H	1.500/1.550 Sp/Gr
D4677	136H	1.550/1.600 Sp/Gr
D4678	137H	1.600/1.650 Sp/Gr
D4679	138H	1.650/1.700 Sp/Gr
D4680	139H	1.700/1.750 Sp/Gr
D4681	140H	1.750/1.800 Sp/Gr
D4682	141H	1.800/1.850 Sp/Gr

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your hydrometer to validate the integrity of your test measurements. Please see page 40.

HYDROMETERS



API Hydrometers for Petroleum

API hydrometers are manufactured specifically for the testing of oil and petroleum related products as recommended by the American Society for Testing Materials (ASTM), they are made in accordance with national and international standards and can be supplied with Works or UKAS Certified Calibration Certificates traceable to National Standards. Available in either long or short form calibrated @ 60°F scales are based on the formulae Degrees A.P.I. Baumé = $\frac{141.5}{\text{°Sp.Gr}} - 135$



API PLAIN FORM HYDROMETERS

LONG FORM

Maximum Length 335mm.
Divisions 0.1° API Bé. Tolerance 0.1° API Bé.
Calibrated @ 60°F. Maximum Diameter 27mm.
Sold singles

Order Code	ASTM No.	Range
D4600	1H	-1/+11 Degrees/API Bé
D4601	2H	9/21 Degrees/API Bé
D4602	3H	19/31 Degrees/API Bé
D4603	4H	29/41 Degrees/API Bé
D4604	5H	39/51 Degrees/API Bé
D4605	6H	49/61 Degrees/API Bé
D4606	7H	59/71 Degrees/API Bé
D4607	8H	69/81 Degrees/API Bé
D4608	9H	79/91 Degrees/API Bé
D4609	10H	89/101 Degrees/API Bé

SHORT FORM

Maximum Length 168mm.
Divisions 0.1° API Bé. Tolerance 0.1° API Bé.
Calibrated @ 60°F. Maximum Diameter 15mm.
Sold singles


Order Code	ASTM No.	Range
D4620	21H	0/6 Degrees/API Bé
D4621	22H	5/11 Degrees/API Bé
D4622	23H	10/16 Degrees/API Bé
D4623	24H	15/21 Degrees/API Bé
D4624	25H	20/26 Degrees/API Bé
D4625	26H	25/31 Degrees/API Bé
D4626	27H	30/36 Degrees/API Bé
D4627	28H	35/41 Degrees/API Bé
D4628	29H	40/46 Degrees/API Bé
D4629	30H	45/51 Degrees/API Bé
D4630	31H	50/56 Degrees/API Bé
D4631	32H	55/61 Degrees/API Bé
D4632	33H	60/66 Degrees/API Bé
D4633	34H	65/71 Degrees/API Bé
D4634	35H	70/76 Degrees/API Bé
D4635	36H	75/81 Degrees/API Bé
D4636	37H	80/86 Degrees/API Bé
D4637	38H	85/91 Degrees/API Bé
D4638	39H	90/96 Degrees/API Bé

! Comparative Hydrometer Scales can be found on page 56.

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your hydrometer to validate the integrity of your test measurements. Please see page 40.

Thermohydrometers

The majority of Zeal hydrometers are now available as Thermohydrometers (hydrometers with an integral thermometer). This avoids the necessity of purchasing a separate thermometer to determine the temperature of the medium under test to ensure the correct adjustment is made to the hydrometer reading should it differ from the hydrometer calibrated (adjusted) temperature. Thermohydrometers can be supplied with a unique non-toxic 'Safety Blue' filling. Blue Spirit and mercury filled versions are also available. Listed below is a selection of API and density Thermohydrometers for general laboratory use in industrial, scientific and educational establishments.

 Safety Blue® Thermohydrometers are completely mercury free, they have a unique non-toxic bio-degradable blue liquid filling.

• **PLEASE CONTACT SALES DEPARTMENT FOR ORDERING INFORMATION**

GENERAL PURPOSE SPECIFIC GRAVITY THERMOHYDROMETERS
 Length 380mm.
 Calibrated @ 60°F. (15.55°C)
 Thermometer Safety Blue Spirit
 Sold singles

Range	Divisions	Thermometer
0.600/0.710 Sp/Gr	0.001	0+150°F
0.700/0.810 Sp/Gr	0.001	0+150°F
0.800/0.910 Sp/Gr	0.001	0+150°F
0.900/1.000 Sp/Gr	0.001	0+150°F
1.000/1.220 Sp/Gr	0.002	20+150°F
1.200/1.420 Sp/Gr	0.002	20+150°F
1.400/1.620 Sp/Gr	0.002	20+150°F
1.600/1.820 Sp/Gr	0.002	20+150°F
1.800/2.000 Sp/Gr	0.002	20+150°F

BRIX THERMOHYDROMETERS FOR SUGAR
 Length 385mm.
 Calibrated @ 20°C. (68°F)
 Thermometer Safety Blue Spirit
 Sold singles

Range (Brix)	Divisions	Thermometer
0/12	0.1	0+50°C
9/21	0.1	0+50°C
19/31	0.1	0+50°C
29/41	0.1	0+50°C
39/51	0.1	0+50°C
49/61	0.1	0+50°C
59/71	0.1	0+50°C
69/81	0.1	0+50°C
79/91	0.1	0+50°C
89/101	0.1	0+50°C

API SAFETY BLUE® THERMOHYDROMETERS
 Maximum Length 380mm.
 Divisions 0.1°. Tolerance 0.1°
 Calibrated @ 60°F. (15.55°C)
 Thermometer 0 - 150°F:2°F
 Safety Blue Spirit
 Sold singles

Range
-1/+11 Degrees API
+9/+21 Degrees API
+19/+31 Degrees API
+29/+41 Degrees API
+39/+51 Degrees API
+49/+61 Degrees API
+59/+71 Degrees API
+69/+81 Degrees API
+79/+91 Degrees API
+89/+101 Degrees API



The following Thermohydrometers are also available with either Safety Blue or Mercury filling:

- DENSITY
- API /ASTM
- BAUMÉ
- SACCHAROMETERS/BRIX
- TWADDLE
- ALCOHOL

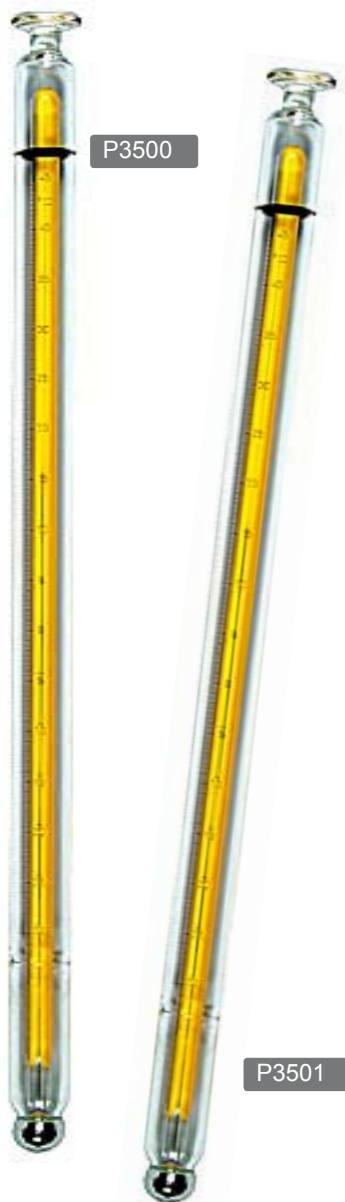


Meteorological Instruments

Zeal's range of meteorological instruments are used for measuring the climatic conditions of the atmosphere and are used by professional and amateur metrologists all over the world.

The products listed here are primarily in the form of maximum, minimum and normal reading Sheathed thermometers, Grass, Sea, and Soil. Thermometers are made to British Standard BS692.

A Stevenson's screen; a white louvred box designed to protect the instruments from direct sunlight and precipitation while still allowing air to circulate freely, is available for this purpose.



SHEATHED ORDINARY PATTERNS

Maximum Length 330mm. Maximum Diameter 14mm. Divisions 0.5°C. Mercury filled. Supplied singles

Order Code	BS No.	MET. Office No.	Range
P3500	ORD.1/C	21000	-20/+55°C
P3501	ORD.2/C	21001	-30/+45°C
P3502	ORD.3/C	21002	-40/+35°C

SHEATHED MAXIMUM PATTERNS

Maximum Length 345mm. Maximum Diameter 14mm. Divisions 0.5°C. Mercury filled. Supplied singles

Order Code	BS No.	MET. Office No.	Range
P3510	MAX.1/C	21100	-10/+65°C
P3511	MAX.2/C	21101	-20/+55°C
P3512	MAX.3/C	21102	-30/+45°C

SHEATHED MINIMUM PATTERNS

Maximum Length 345mm. Maximum Diameter 14mm. Divisions 0.5°C. Spirit filled. Supplied singles

Order Code	BS No.	MET. Office No.	Range
P3519	MIN.1/C	21200	-25/+50°C
P3520	MIN.2/C	21201	-35/+40°C
P3521	MIN.3/C	21202	-50/+25°C

✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Please see page 40.

Meteorological Instruments

SOIL RIGHT ANGLED

Solid, engraved on stem with the stem at right angle to the face. Divisions 0.5°C. Mercury filled.

Supplied singles

Order Code	MET. Office No.	Range	Immersion
P3568	21410	-7/+38°C	50mm
P3569	21411	-7/+38°C	100mm
P3570	21412	-7/+38°C	200mm

GRASS MINIMUM PATTERN

Maximum Length 345mm. Maximum Diameter 14mm. Divisions 0.5°C. Spirit filled. Fitted with cotton sleeves and anti-condensation shield. Supplied singles

Order Code	BS No.	MET. Office No.	Range
P3530	MIN.2/C	21270	-35/+40°C

SYMONS PATTERN SOIL THERMOMETER

Solid, engraved on stem enclosed in a sturdy glass sheath. The bulb is encased in wax to allow a slow change of temperature to be registered and when drawn to the surface, it retains the reading. Divisions 0.5°C. Mercury filled.

Supplied singles

Order Code	MET. Office No.	Range
P3550	21400	-7/+38°C

EARTH TUBE FOR SYMONS PATTERN

Black finish metal tube with pointed end and metal flange at top with brass sealing cap and chain. Length to suit the immersion depth. Supplied singles

Order Code	Immersion Depth
P3560	300mm
P3561	500mm
P3562	1000mm



STEVENSON'S SCREENS - MEDIUM & LARGE

The medium-size screen holds a maximum and minimum thermometer and a pair of thermometers, one wet bulb and one dry bulb, to create a hygrometer. The large screen is designed to hold two recording instruments, thermograph and hair hygrometer and sheathed-pattern thermometers.

Order Code	Type	Interior Dimensions
P4051	Medium	435mm x 250mm x 445mm
P4051/L	Large	420mm x 1015mm x 290mm

Pharmacy & Vaccine Storage

UNICEF and the WHO World Health Organisation recommend that storage temperatures of Vaccines, Medicines and Pharmaceuticals are routinely monitored and logged. Zeal's have a wide range of High-precision instruments to monitor refrigerators, freezers, blood banks, incubators and ovens as well as climate chambers. Model number PSW888 is used by leading manufacturers for this purpose.

The products listed here are primarily in the form of maximum/minimum digital reading reading thermometers and Data Loggers. They are available with, or without, a Works Certificate of Compliance, or a Works 3 point Calibration Certificate traceable to National Standards. UKAS 5 point Calibration Certificates are also available.



PSW888

MAX/MIN FRIDGE/FREEZER THERMOMETER
Displays the current, minimum, and the maximum temperature. Easily reset with only one button and is ideal for vaccine fridges. Remove the 3 metre cable sensor to measure ambient room temperatures. Waterproofed. Sold singles

Order Code	Description
PSW888	Thermometer -50/+70°C Accuracy: 0 +40°C = ±1°C



P1000

MAX/MIN ALARM THERMOMETER
Indoor/Outdoor Fridge/Freezer thermometer
Supplied with 2m cable, stainless steel probe and instructions. Sold singles

Order Code	Description
P1000	Max/Min Alarm Thermometer Range -50/+70°C & °F



P1027 & P1028

MAX/MIN ALARM THERMOMETER
Indoor/Outdoor Fridge/Freezer thermometer
Sensor mounted in an unbreakable plastic bottle, filled with Ethylene glycol mixture
Supplied with instructions and Certified temperature. Sold singles

Order Code	Description	Certified Temperature
P1027	Max/Min Alarm Thermometer Range -50/+70°C & °F	+4°C
P1028	Max/Min Alarm Thermometer Range -50/+70°C & °F	+0°C

CERTIFICATION - order with instrument

Order Code	Description
L9400GCC	Works Certificate of Compliance
WORKS_THERM	Works 3 point Calibration Certificate
UKAS-THERM	UKAS 5 point Calibration Certificate

✓ Remember to order your Works or UKAS Certified Calibration Certificate with your instrument, you may need it to verify the accuracy of your thermometer to validate the integrity of your test measurements. Also see page 40.

Pharmacy & Vaccine Storage

LogTag is a low cost, battery powered, robust data logging solution designed to meet growing demand for cost effective electronic temperature recording. Combining state of the art technology, innovative design and high volume manufacturing techniques, the LogTag system provides the most cost effective, high performance temperature data logging system available for today's market.

Optional FDA 21 CFR Part 11 compliant software is provided free of charge to our pharmaceutical and medical clients who use these devices in cold chain distribution, stability, fridge/freezer and incubator studies. The standard software is downloadable via our web site, this enables users to configure, download and analyse their collected data.

The LogTag® TRID30-7FW is for monitoring storage conditions in vaccine refrigerators in intermediate stores and health facilities. It is specifically configured to be compliant to the World Health Organisation (WHO) PQS specification E006/TR06.3. The recorder may also be used as a secondary back-up device in cold rooms. The product features a display together with a data logging function storing up to 7770 temperature readings.

MODEL TRID30-7FW WORLD HEALTH ORGANISATION COMPLIANT DATA LOGGER TEMPERATURE RECORDER
 Supplied with instructions. Free software downloadable. Sold singles

Order Code	Range
P1029	-30°C /+60°C (-22°F/+140°F)



P1029

LogTag TRIX-8 and TRIL-8 data loggers are equipped with a unique sensor arrangement providing fast reaction time to temperature change. The TRIX-8 connects to external sensors enabling you to record product or solution temperature remotely from the device. The LogTag alert indicator provides warning if the monitored temperature has moved out of set limits. Comprehensive options allow customisation of alert settings to suit a particular application thereby minimising chance of a false alert. This insures the status of the shipment is directly linked to the alert indication.

MODEL TRIX-8 DATA LOGGER TEMPERATURE RECORDER
 Supplied with instructions. Free software downloadable. Sold singles

Order Code	Range
P1030	-40 /+85°C (-40°F /+185°F)



P1030

The LogTag Dry Ice "Probe-less" Multiple Trip Temperature Recorder operates, measures and stores up to 8000 temperature readings in temperature environments ranging from -80°C to +40°C (-112°F to +104°F). Intended for use in transit monitoring of articles stored in packaging incorporating dry ice cooling agents.

MODEL TRIL-8 LOW TEMPERATURE DATA LOGGER TEMPERATURE RECORDER
 Supplied with instructions. Free software downloadable. Sold singles

Order Code	Range
P1031	-80/+40°C (-112°F/+104°F)



P1031



Certification UKAS - Works

Works and UKAS Calibration



For the continued confidence in the accuracy of measurement, and to assist in compliance with HACCP and other legislation, it is recommended that a certificate of calibration is obtained when the instrument is purchased and that the instrument is re-certified at 12 monthly intervals.

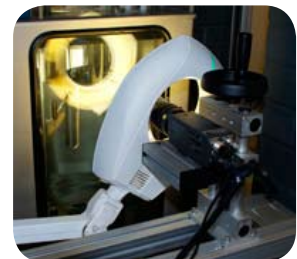
Zeal are able to offer either Works, or UKAS Certified Calibration Certificates issued by their independent calibration laboratory CIS who are a UKAS accredited organisation. In the United Kingdom UKAS is the body responsible for assessing and accrediting organizations in the fields of measurement, testing, inspection and certification of products, systems and personnel.

Certification is available for the majority of our temperature, density, humidity, and pressure products:

- Liquid-in-glass thermometers
- Hydrometers
- Dial type temperature indicators
- Temperature recorders, sensors, digital thermometers PT100's
- Pressure gauges

UKAS calibration certificates can be provided for:

- Temperature instrumentation between -80°C to $+255^{\circ}\text{C}$ with a 0.02°C uncertainty and from $+265^{\circ}\text{C}$ to $+410^{\circ}\text{C}$ with a 0.1°C uncertainty.
- Hydrometers to UKAS standard within a range of 500 kg/m^3 to 2000 kg/m^3 (or equivalent) with best measurement capability from 0.05 kg/m^3 .
- Pressure instrumentation within a range of $30''\text{HG}$ vacuum and 0 to 700 bar .
- Humidity from $5-50^{\circ}\text{C}$ and $10-95\% \text{ RH}$.



✓ Please remember to order your Works or UKAS Certified Calibration Certificate with your instrument, you may need it to validate the integrity of your test measurements

Hygrometers/Max-Min/Dipping

Thermometers & Hygrometers

Zeal manufacture and supply a multiplicity of different thermometers for general purpose, industrial, and scientific use, from standard wall thermometers to instruments for specific applications, with conventional or digital displays. The product range is constantly being updated and the ones illustrated in this catalogue are just a small selection of those available. If you cannot find what you are looking for please contact us - our 100 plus years of experience is your guarantee of satisfaction.



P2505



P3004



P1506



P2528

MASONS PATTERN HYGROMETER

Housed in a yellow plastic case with lid and bulb protection. Available in Mercury or Red Spirit. Supplied with Hygrometric tables, spare wick and instructions. Sold singles.

Order Code	Description
P2500	Mercury -5/+50°C
P2501	Mercury -5/+50°C & +20/+120°F
P2503	Spare Wick 3.5" long, 10 Pack.
P2505	Red Spirit -5/+50°C & +20/+120°F
P2506	Red Spirit -5/+100°C High Range

MAX/MIN THERMOMETER

Housed in a plastic case with lid and bulb protection. Push Button re-set of indices. Supplied with instructions. Sold singles.

Order Code	Description
P3003	Mercury -40/+50°C
P3004	Mercury -40/+50°C & -20/+120°F

WHIRLING PATTERN HYGROMETERS

Made in accordance with BS2842. Housed in a yellow plastic case with folding Handle. Available in Mercury or Red Spirit. Supplied with Hygrometric tables, spare wick and instructions. Sold singles.

Order Code	Description
P2520	Mercury -5/+50°C
P2522	Mercury 0/+120°F
P2528	Red Spirit -5/+50°C
P2521	Spare Thermometer Mercury -5/+50°C
P2523	Spare Thermometer Mercury 0/+120°F
P2529/ZEAL	Spare Thermometer Red Spirit -5/+50°C
P2524	Protective Carrying Case
P2525	Spare Wick 3.5" long 25 Pack.
P2525A	Spare Wick 3.5" long 10 Pack.

DIPPING, POOL & BATH THERMOMETER

Housed in a green plastic sampling case with non toxic, spirit filled tube on a stainless steel scale. Sold singles.

Order Code	Description
P1506	DIPPING -40/+50°C & -20/+120°F
P1510	POOL/ BATH WITH CORD -40/+50°C & -20/+120°F

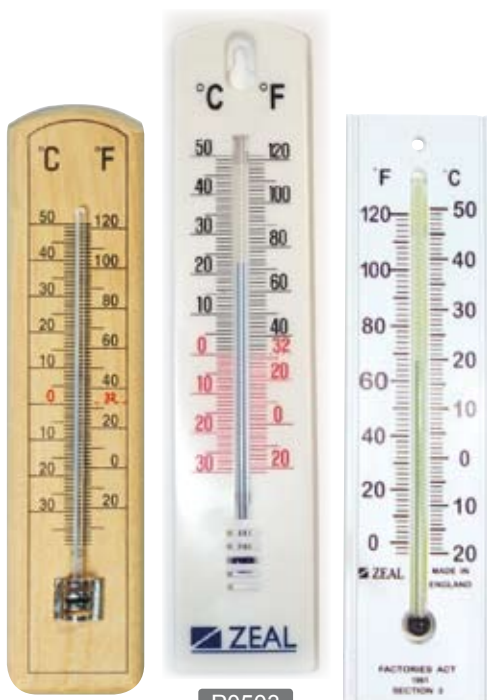
THERMOMETERS/HYGROMETERS



Thermometers continued

Room/Wall Thermometers

These spirit-filled room thermometers are ideal for use in the home, conservatory, or office. The thermometers display temperature over the range -30°C or -20°C to +50°C with an accuracy of +/- 1°C. As required by legislation a special 'Factories Act' model is available for factories, municipal and public buildings. A model is also available to ensure compliance with the 'Office, Shops & Railways Premises 1963 Act'.



P0502

P0503

P0507



P0603

P3005

ROOM/WALL THERMOMETERS

Supplied singles

Order Code	Description
P0500	White backed plastic, Blue non-toxic filling. Length 195mm. Range -30/+50°C
P0502	Wood backed, Blue non-toxic filling. Length 205mm. Range -30/+50°C & -25/+120°F
P0503	White backed plastic, Blue non-toxic filling. Length 195mm. Range -30/+50°C & 0/+120°F
P0507	Office, Shops & Railways Act 1963. White backed plastic, Green non-toxic filling. Length 195mm. Range -20/+50°C & 0/+120°F
P0509	Factory Act 1961. White backed plastic, Green non-toxic filling. Length 195mm. Range -20/+50°C & 0/+120°F

Digital Max/Min Room/Wall Thermometer

This economical digital max/min thermometer features a easy to read display that simultaneously shows the current and max/min temperatures. The instrument accurately measures temperature over the range -50 to +70°C or equivalent °F (switchable) with a 0.1°C/°F resolution. This thermometer is ideal for grow rooms, greenhouses, care homes, offices and other buildings for monitoring temperature to prevent plant damage or conserve energy.

DIGITAL MAX/MIN ROOM/WALL THERMOMETER

Sold singles

Order Code	Description
P3005	Digital Room/Wall Thermometer

Tobacco Barn Thermometer

Specially designed for tobacco producers this thermometer is ideal for the correct curing and fermenting of the leaf. It has a colour coded scale to ensure the right production levels are achieved.

TOBACCO BARN THERMOMETER 'COLOURCURE'

Supplied singles

Order Code	Description
P0603	White backed stainless steel, Red non-toxic filling. Length 280mm. Colour Cure Range +20/+95°C & +50/+205°F Coloured zones, Sliding Red Pointer.

Digital Instrumentation

Digital Thermometers & Hygrometers

Zeal digital instruments represent modern advanced technology at economical prices for general purpose or professional applications. Continuous research and development means our product range is constantly being expanded. Please contact the sales department for the latest models available.

EcoTemp

The Zeal EcoTemp digital thermometer features a large, easy to read display with 'hold' and max/min memory functions. The instrument accurately measures temperature over the range -49.9 to $+199.9^{\circ}\text{C}$ or equivalent $^{\circ}\text{F}$ with a $0.1^{\circ}\text{C}/^{\circ}\text{F}$ resolution. This thermometer is ideal for a wide variety of monitoring and test applications in laboratories, industrial and food processing facilities.

Each EcoTemp thermometer is supplied with a detachable stainless steel food quality stainless steel penetration probe $\text{Ø} 3.5 \times 125\text{mm}$ with $\text{Ø} 3.2 \times 700\text{mm}$ long connecting lead.

Alternative probe options are available, see below:

ECOTEMP MAX/MIN THERMOMETER

Supplied with stainless steel probe and instructions.
Sold singles

Order Code	Description
P1004	EcoTemp Thermometer & Probe
P1004/P	Optional 3 metre Wire Probe
P1004/OP	Optional Penetration Oven Probe
P1004/PC	Protective Silicon Cover
P1004/PW	Protective PVC Wallet



P1004

Low Cost Multi-function Test Thermometer

This low cost digital thermometer is compact and easy to use. It features an easy to read display with 'hold' and max/min memory functions together with an adjustable audible high/low temperature alarm. The instrument accurately measures temperature over the range -49.9 to $+149.9^{\circ}\text{C}$ or equivalent $^{\circ}\text{F}$ with a $0.1^{\circ}\text{C}/^{\circ}\text{F}$ resolution. This thermometer is ideal for a wide variety of monitoring and test applications.

Each thermometer is supplied with a stainless steel food quality stainless steel penetration probe $\text{Ø} 3.5 \times 125\text{mm}$ with a 1 metre long connecting lead. The case has a fold away stand, a pocket clip and probe/cable storage.

MULTI-FUNCTION MAX/MIN ALARM THERMOMETER

Supplied with stainless steel probe and instructions.
Sold singles

Order Code	Description
P0107	Multi-Function Test Thermometer



P0107



Digital Thermometers & Thermo-Hygrometers

Max/Min Digital Thermometers and Thermo-Hygrometers

These digital Max/Min thermometers and Thermo-Hygrometers feature large, easy to read dual displays with max/min memory functions and a programmable audible high/low alarm.

The Max/Min Thermometer model P1000 accurately measures temperature over the range -50 to + 70°C or equivalent °F with a 0.1°C/°F resolution. The waterproof remote sensor is attached to the unit with a 2 metre PVC lead for outside temperature measurement.

The Thermo-Hygrometer model PH1000 displays humidity over the range of 10 to 99%rh and temperature over -50 to + 70°C or equivalent °F with a 0.1°C/°F resolution. It also incorporates a 12/24 hour clock.

Both instruments are housed in a white ABS case which has a foldaway stand and keyhole slot for wall hanging.



P1000

MAX/MIN ALARM THERMOMETER
Supplied with 3m cable, stainless steel probe and instructions. Sold singles

Order Code	Description
P1000	Max/Min Thermometer



PH1000

THERMO-HYGROMETER
With Max/Min, Alarm and Clock. Full instructions, Sold singles

Order Code	Description
PH1000	Thermo-hygrometer



PH1001

Thermo-Hygrometer

Pen shaped thermo-hygrometer simultaneously displays humidity and temperature over the range of 20 to 95%rh and 0 to 50°C. Max/Min memory button displays the maximum and minimum humidity/temperature simultaneously.

Ideal for use in a wide range of applications the instrument is compact, pocket sized and easy to use.

MAX/MIN THERMO-HYGROMETER
Full instructions, Sold singles

Order Code	Description
PH1001	Pen Thermo-hygrometer

Digital Instrumentation continued

Digital Thermometers & Infrared

Max/Min Waterproofed Test Thermometer

These fast response waterproofed (IP65) thermometers measure temperatures over the range -40 to $+200^{\circ}\text{C}$ with a $0.1^{\circ}\text{C}/^{\circ}\text{F}$ resolution. They feature three easy to use buttons with Max/Min, display 'hold', $^{\circ}\text{C}/^{\circ}\text{F}$ and on/off. The thermometers incorporate a food quality stainless steel penetration probe $\text{Ø}3.5$ x 125mm long. Each unit is supplied with a protective probe cover that has a pocket clip and keyhole slot for wall mounting. These instruments are ideal for a wide variety of laboratory and food test applications.



P1002

MAX/MIN WATERPROOFED THERMOMETER Full instructions. Sold singles

Order Code	Description
P1002	Max/Min Thermometer

Economical Infrared Test Thermometer

This infrared thermometer is designed to measure temperatures over the range -50 to $+330^{\circ}\text{C}$ with a resolution of $0.1^{\circ}\text{C}/^{\circ}\text{F}$. It has an accuracy of $\pm 2^{\circ}\text{C}$ (0 to 330°C) and $\pm 4^{\circ}\text{C}$ (-50 to 0°C).

The Mini RayTemp has a clear, easy to read, LCD display with low battery, backlight indication, and an auto-power off facility that turns the instrument off after 10 seconds, maximising battery life.

The thermometer also incorporates laser assisted alignment as standard, to assist in pin-pointing the area of measurement. 12:1 optic ratio (target distance/diameter ratio) and a fixed emissivity of 0.95 making it suitable for a wide range of food and industrial applications.



P1005

INFRARED THERMOMETER Full instructions, Sold singles

Order Code	Description
P1005	Infrared Thermometer

Floating Pool/Pond Thermometer

This waterproof floating digital thermometer is ideal for monitoring the temperature of swimming pools, spa baths and ponds. The thermometer displays temperature over the range 0 to 50°C with a $0.1^{\circ}\text{C}/^{\circ}\text{F}$ resolution and is $^{\circ}\text{C}/^{\circ}\text{F}$ switchable. Each instrument is supplied with 80cm of attachment cord that can be tied to the retaining hook. $\text{Ø}84$ x 120mm the case incorporates a rubberised moulding that helps to protect it from damage.



P1511

FLOATING POOL THERMOMETER Full instructions, Sold singles

Order Code	Description
P1511	Pool Thermometer



Zeal Therma 1, 3 & Elite Digital Type 'K' Thermometers With Interchangeable Thermocouple Probes

The Zeal Therma 1, and 3 type 'K' thermocouple digital thermometers are rugged and easy to use over the range of -100 to +1372°C with a 0.1°C or 1°C resolution. They are housed in a robust ABS case that contains 'Biomaster' additive that helps to reduce bacterial growth.

Therma 1 & 3 thermometers feature a large, easy to read, LCD display with open circuit 'Err', display hold and low battery indication. Each thermometer is powered by three 1.5 volt AAA batteries that give upto 5 years life. The unit will power off automatically after 10 minutes to conserve battery life. This can be disabled by the user if required.

- The **Therma Elite** incorporates all the features of the Therma 1 thermometer, but with the addition of a backlit display, Max/Min memory function and a Mode button for the selection of C°/F with a resolution of 0.1 or 1.0. The thermometer also incorporates a calibration trim function +/- 2°C which allows the user to compensate for known probe errors.

- **Optional Accessory** a black silicone boot that fits all the Zeal Therma series is available. The thermometers are weatherproof to IP63 when used with the boot.



THERMA SERIES DIGITAL THERMOMETERS Full instructions, Sold singles

Order Code	Description
P1014	Therma 1 Thermometer
P1015	Therma 3 Thermometer
P1016	Therma Elite Thermometer
P1017	Protective Boot

- The **Therma Series** are exclusive of Probes, remember to order appropriate probes for your applications.


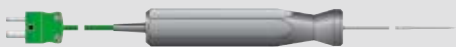

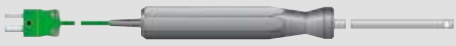



Specifications	Therma 1/Elite	Therma 3
Resolution 0.1°C	-99.9 to + 299.9°C	-99.9 to + 299.9°C
Resolution 1.0°C	+300 to + 1372°C	+100 to + 1372°C
Accuracy	+/-0.4°C +/-1%	1.0°C +/-1%
Display	12mm LCD	
Sensor Type	Type 'K' Thermocouple	
Battery	3 x 1.5 volt AAA (10,000 hours life)	
Dimensions	25 x 56 x 128mm / Weight 30 grams	

- **FREE Traceable Calibration Certificate Included.**

Digital Instrumentation continued

Hand Held Temperature Probes Type 'K' Thermocouple

THERMA SERIES TYPE 'K' HAND HELD TEMPERATURE PROBES WITH 1 METRE PVC STRAIGHT LEAD.
 Sold singles

Order Code	Description	
P1020	PENETRATION PROBE  Ø3.3 x 130mm	This stainless steel penetration probe is strong and versatile. Ideal for measuring a wide variety of applications including liquids and semi-solids. Response time 3 seconds. Maximum probe temperature 250°C
P1021	FAST RESPONSE PROBE  Ø3.3 x 100mm	This reduced tip, fast response, stainless steel penetration probe is ideal for liquids and semi-solids i.e. delicate foods, soft rubber and other similar materials. Response time 2 seconds. Maximum probe temperature 250°C
P1022	HIGH TEMPERATURE PROBE  Ø3.3 x 130mm	This flexible mineral insulated stainless steel probe can be bent to different shapes without affecting its performance. It is designed for measuring high temperatures and is ideal for fryers, furnaces etc. Response time 2 seconds. Maximum probe temperature 1100°C
P1023	AIR/GAS PROBE  Ø4.5 x 130mm	This stainless steel fast response air/gas probe is ideal for measuring air temperature in chill cabinets, fridges, freezers, offices, storage areas and similar applications including liquids and semi-solids. Response time 0.5 seconds. Maximum probe temperature 250°C
P1024	SURFACE PROBE  Ø8 x 130mm	This ribbon surface probe is ideal for a variety of surface temperature measurements up to 250°C. Response time 0.5 seconds. Maximum probe temperature 250°C Right Angle version available Order Code P1024/RA
P1025	HEAVY DUTY PTFE WIRE PROBE  Ø2.4 x 1000mm	This heavy duty PTFE insulated wire probe is ideal for measuring the air temperatures in a wide range of appliances, fridges, freezers, ovens etc. Response time 0.5 seconds. Maximum probe temperature 250°C Longer 2000mm version available Order Code P1025/L
P1026	HEAVY DUTY FIBREGLASS WIRE PROBE  Ø1.5 x 1000mm	This fibreglass exposed junction wire probe is ideal for measuring the air temperature of ovens, hot cupboards and other similar appliances. Response time 0.5 seconds. Maximum probe temperature 350°C Longer 2000mm version available Order Code P1026/L

- As an alternative to the standard straight PVC lead, 1 metre long coiled retractile PU lead is available, please suffix order code number with /C i.e. P1020/C.
- A wide variety of different probe designs are available, please contact Sales Department.



Analytical Digital Recording Hydrometers & Thermometers



DMA35

Digital Density Meter

DMA 35 ... is the new generation of high precision portable density meters available from Zeal with a wide measuring range of 0 - 3000 Sp.Gr, The DMA 35 measures the density and density related values of your sample and shows the measuring results within seconds on the large display, which is ready for storage, printout or export to a PC. The DMA35 can connect wirelessly with a printer or PC via the integrated IrDA interface. Product versions DMA 35 Ex and DMA 35 Ex Petrol, are additionally equipped with an RFID interface for quick sample identification and convenient change of the measurement method by reading RFID tags. You can choose between up to 20 different customized measuring methods and up to 100 sample ID's for easy identification of samples, users, or measuring locations. With a memory capacity for 1024 measurement results including time stamp and sample ID. *Please request further information.*



P1007

Recording/Printing Thermometer

The 'Delivery Temperature Recorder' printing thermometer was specifically designed for use in the food industry to assist with HACCP and health and safety legislation. It is also very useful in the food supply chain where regular checks are required for chill cabinet produce, fridges and freezers, providing a printed record of each temperature measurement. Print functions can be activated from the keypad or a button on the handle of the stainless steel food quality penetration probe to provide evidence of whether a delivery should be accepted, or rejected, against pre-programmed temperature limits. Programmable limits can be set for i.e. chilled, ambient or frozen foods by the user via the software supplied with the unit. The software additionally enables the user to personalise the printed copy with the company name, address and logo. The temperature recorder displays and accurately records temperatures over the range of -40 to +150°C with a 0.1° resolution and high system accuracy of +/- 0.5°C.

DIGITAL RECORDING/PRINTING THERMOMETER
 Supplied with software, battery charger, 2 rolls printing paper, wall mounting cradle and carrying case. Sold singles

Note: The stainless steel penetration probe P1007/P needs to be ordered with the thermometer P1007

Order Code	Description
P1007	Recording/Printing Thermometer
P1007/P	Stainless Steel Penetration Probe
P1007/R	Spare Roll Printing Paper

Zeal Clinical Thermometers

Clinical Thermometers

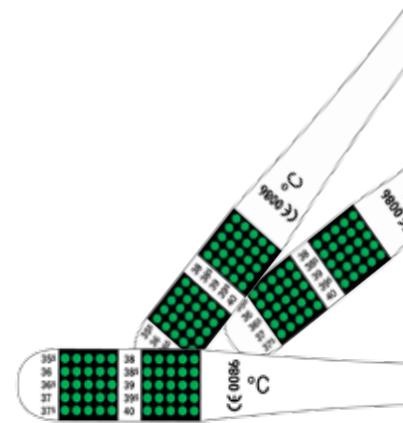
Zeal - the Clinicians Choice

Since 1888 the Zeal name has become synonymous with innovation and quality. For decades our mercury in glass clinical thermometers were accepted worldwide as the 'Gold Standard' for body temperature assessment. Today, our Clinical disposable and Digital thermometers are manufactured to the same high levels of quality and accuracy for use in Hospitals, Doctors Surgeries, Nursing Homes, Field Hospitals and Emergency Services.

Zeal medical thermometers are technically superior and are the professional clinicians choice throughout the National Health Service who depend on the very highest quality, at the most affordable prices.

Ezetemp Disposable Thermometer

EZEtemp™ disposable thermometers are the clinicians choice throughout the National Health Service. Safe, accurate and reliable, simply dispose of after use to help eliminate Healthcare Acquired Infections. Designed to give the right temperature reading every time, the superior dot matrix sensor system consists of temperature sensitive indicating dots. Each dot is precisely calibrated to change colour at a temperature of 0.1°C higher than the previous one. The matrix is easy to read and has an $\pm 0.1^\circ\text{C}$ accuracy between the critical range of 37.0°C. to 39.0°C. They fully comply with the accuracy and safety requirements of European Standard EN 12470-2:2000+A1:2009 and ASTM E 1299-96 (2010), CE0086.



CLINICAL THERMOMETERS



EZETEMP DISPOSABLE CLINICAL THERMOMETER
Supplied with instructions.

Order Code	NHS Code	Pack Details
M4810	FWH047	1000 (10 Cartons 100 Pieces)
M4900	FWH046	1500 (15 Cartons 100 Pieces)
M4950	FWH152	2500 (25 Cartons 100 Pieces)


Zeal Clinical Thermometers continued

Professional Digital Tympanic (Ear) Thermometers

Zeal - the Clinicians Choice

Tympanic Thermometers

Zeal Tympanic thermometers are designed for professional clinicians throughout the National Health Care Service in Hospitals, Doctors Surgeries, Nursing Homes, Field Hospitals and the Emergency Services.

Incorporating the most up to date technology with many advanced features they are accurate, reliable, and easy to use. Hands-free probe cover installation and disposal helps to eliminate Healthcare Acquired Infections. Replacement probe covers are available at low cost. They fully comply with the accuracy and safety requirements of European Standard EN 12470-5, ASTM E 1965-98 and are 0123, FDA and TUV  certified.



ACT8000

- Extended measuring range suitable for standard or hypothermic patients.
- Hygienic "Hands - Free" probe cover installation and disposal.
- Eject used probe cover with one button.
- Probe cover detection system.
- 1 second measurement.
- Clinically proven accuracy.
- Correct measurement confirmation 'ok' or 'Err'.
- Large display with Back - Light.
- 10 multi-recall Memories.
- Dual Scale °C/°F switchable.
- Auto Shut - off
- Low cost replacement probe covers.

ACT8000 PROFESSIONAL TYMPANIC EAR THERMOMETER
 Supplied with probe dispensing cradle, 20 probe covers,
 2 AAA batteries and full instructions. Sold singles.

Order Code	NHS Code	Description
ACT8000	FWH153	Tympanic Thermometer Cradle Pack



Zeal Clinical Thermometers continued

Professional Digital Tympanic (Ear) Thermometers

Zeal - the Clinicians Choice

ACT8000R Professional Re-chargeable Tympanic Thermometer Station with Tray and Wall Mount Bracket for Ward use.

- Portable Nurses tray with wall mounting bracket. Recharges the thermometer batteries and houses a probe cover dispenser, a portable probe cover dispenser, and a carton of 200 covers. The tray also has space for an Oral Digital Thermometer and protective sheaths, or for greater certainty, Zeal Ezetemp Disposable Thermometers.
- Extended measuring range suitable for standard or hypothermic patients.
- Hygienic "Hands - Free" probe cover installation and disposal.
- Eject used probe cover with one button.
- Probe cover detection system.
- 1 second measurement.
- Clinically proven accuracy.
- Correct measurement confirmation 'ok' or 'Err'.
- Large display with Back - Light.
- 10 multi-recall Memories.
- Dual Scale °C/°F switchable.
- Auto Shut - off.
- Re-chargeable battery pack with mains adapter - eliminates purchasing replacement AAA alkaline batteries.
- Low cost replacement probe covers.

ACT8000R PROFESSIONAL RE-CHARGEABLE TYMPANIC THERMOMETER STATION
 Supplied with Tray, Wall Bracket, Probe Dispenser, 200 Probe Covers, Re-chargeable Batteries, Mains Adaptor and full instructions.
 Sold singles.

Order Code	NHS Code	Description
ACT8000R	FWH140	Rechargeable Tympanic Thermometer Station



MEDACCU2010 HYGIENIC DISPOSABLE PROBE COVERS
 For use with Zeal ACT8000/ACT8000R Tympanic Thermometers.

Order Code	NHS Code	Description
MEDACC2010A		Carton 20 Probe covers
MEDACC2010B	FWH134	10 Cartons (200) Probe Covers
MEDACC2010C	FWH133	100 Cartons (2000) Probe Covers
MEDACC2010D		500 Cartons (10,000) Probe Covers



CLINICAL THERMOMETERS



Zeal Clinical Thermometers continued

Clinical Thermometers Zeal - the Clinicians Choice

M8003 Professional Non - Contact Forehead Thermometer with Fever Alert



Non - CONTACT FOREHEAD THERMOMETER
Supplied with Batteries, storage case and full instructions. Sold singles.

Order Code	Description
M8003	Non - Contact Forehead Thermometer

- **EFFECTIVE INFECTION CONTROL, NO BODILY CONTACT - AVOIDS CROSS CONTAMINATION**
- **SAFE AND HYGIENIC TEMPERATURE WITHIN SECONDS.**
- **CLEAR VISUAL AND AUDIBLE FEVER ALERT.**

- Range: Body temperature mode 34.0°C to 42.2°C (switchable 93.2°F to 108.0°F)
Object temperature mode 0.0°C to 100.0°C (switchable 32.0°F to 212.0°F)
- Accuracy: Body temperature mode +/- 0.2°C
Object temperature mode above 42.2°C +/- 2%
- Measuring Distance: up to 50mm
- Measurement time: approx. 3 seconds
- Fever Alert: Red display backlight and 10 audible Beeps
- Memory: Storage of up to 30 temperature readings
- Auto switch off: approx. 3 minutes after last measurement.
- Battery operated: 2 x 1.5v AAA lifetime 1000+ measurements
- Instructions: Supplied with user manual
- Warranty: Manufacturers 2 year warranty



- Ideal for standard assessments, premature babies and hypothermic patients.
- Extended range 28.0°C/42.9°C.
- High accuracy: +/- 0.1 °C.
- 100% waterproof.
- Memory of last measurement.
- Beeps when ready.
- Switches off automatically
- Storage case.
- Use with sheath to help avoid cross contamination.

ORAL CLINICAL DIGITAL THERMOMETER WITH EXTENDED RANGE.
Supplied with Batteries, storage case and full instructions. Sold singles.

Order Code	Description
M5003	Oral Clinical Digital Thermometer
M9011	Disposable Sheath, pack 100



- Ideal for standard assessments.
- Range 32.0°C/43.9°C.
- High accuracy: +/- 0.1 °C.
- 100% waterproof.
- Memory of last measurement.
- Beeps when ready.
- Switches off automatically
- Storage case.
- Resistant to damage from most cleaning solutions.
- Use with sheath to help avoid cross contamination.

ORAL CLINICAL DIGITAL THERMOMETER STANDARD RANGE.
Supplied with Batteries, storage case and full instructions. Sold singles.

Order Code	Description
M5005	Oral Clinical Digital Thermometer
M9011	Disposable Sheath, pack 100

Zeal Clinical Thermometers continued

Clinical Thermometers

Zeal - the Clinicians Choice

**ORAL MERCURY FREE GLASS CLINICAL THERMOMETER
ENCLOSED SCALE RANGE 35°C to 42°C**
Supplied with storage case and full instructions.
Sold singles.

Order Code	Description
M5600	Oral Mercury Free Clinical Thermometer



**ORAL MERCURY CLINICAL THERMOMETER LONG BULB
PRISMATIC GLASS TUBE,
RANGE 35°C to 42°C**
Supplied with storage case and full instructions.
Sold 100 lots.

Order Code	Description
M0701	Oral Mercury Clinical Thermometer



Due to legislation we are not permitted to sell Mercury Clinical Thermometers for use within the UK or the European Union.

**FERTILITY (BASAL) MERCURY FREE GLASS THERMOMETER
ENCLOSED SCALE RANGE 35°C to 42°C.**
Supplied with storage case, charts and full instructions.
Sold singles.

Order Code	Description
M4751	Fertility (Basal) Mercury Free Thermometer



**FEVERSTRIP CHILDREN'S FOREHEAD THERMOMETER
COLOUR CHANGE, REUSABLE.
DUAL RANGE 34°C to 40°C & °F.**
Supplied with storage case and full instructions.
Sold singles.

Order Code	Description
M8000	Feverstrip Forehead Thermometer



• Other types available

CLINICAL THERMOMETERS



Zeal Industrial

Since 1888 Zeal have been manufacturing and supplying a comprehensive range of quality assured industrial temperature and pressure measurement devices that conform to recognised international standards.

They are ideal for use in a wide variety of applications including, food, drinks, medical, pharmaceutical, cryogenic, chemical, petrochemical, oil and gas production, conventional and nuclear power generation, sub-sea, marine and defence applications.

The precision products are designed and manufactured to provide a combination of maximum performance and minimal maintenance - from the measurement of critical laboratory parameters to hygienic, or standard industrial applications. Rugged, reliable and accurate, the industrial product range comprises:

- Gas Flow meters
- Pressure gauges
- Non-toxic dial thermometers
- Bimetal dial thermometers
- Thermowells (pockets)
- Temperature controllers
- Pressure controllers
- Temperature transmitters/switches
- Pressure transducers/switches
- Thermocouples/RTDs
- Digital indicators and controllers
- Valves and fittings.

The products illustrated in this catalogue are a small selection of the many different types available, either from stock, or tailor made to your exact specifications by highly skilled technicians.

Wet Test Gas Flowmeters

Zeal - the Technicians Choice

Zeal Gas Flow Meters are designed for a wide variety of applications where ease of use and accuracy is essential. They are tolerant of a multiplicity of gases, require very little maintenance, and cover flow ranges from as low as 5 litres per hour to 9000 litres per hour.

Because of their high accuracy these meters are often used as secondary reference standards for audit purposes. Shaft encoders and Digital Decoders are available as optional extras.

Typical areas of use include: Gas fired appliance testing, Petrochemical – Refineries and Offshore, Pharmaceutical, Life Sciences, and Medical Research.

All Zeal Wet Test Gas Flow Meters are supplied as standard with Single, or Seven Point Calibration Certificates traceable to National Standards.



DM3C

The tables on the following page detail our full product range and accessories available.

Zeal Industrial continued

Wet Test Gas Flowmeters continued

Zeal - the Technicians Choice



DM3A



DM3B

WET TEST GAS FLOWMETERS

Supplied with thermometer, spirit level, levelling feet, gas connections, calibration certificate and operating manual. Sold singles.

Order Code	Flow Range Litres/Hour	Accuracy	Comments
DM3A	30 to 90 L/Hr.	+/-0.5%	Pressure Max >65mb
DM3A/PLUS	5 to 100 L/Hr.	as per calibration certificate	Pressure Max >65mb
DM3B	60 to 180 L/Hr.	+/-0.5%	Pressure Max >65mb
DM3C	120 to 360 L/Hr.	+/-0.5%	Pressure Max >100mb
DM3C/PLUS	50 to 500 L/Hr.	as per calibration certificate	Pressure Max >100mb
DM3C/2.5	300 to 450 L/Hr.	+/-0.5%	Pressure Max >100mb
DM3D	300 to 900 L/Hr.	+/-0.5%	Pressure Max >100mb
DM3D/PLUS	100 to 1000 L/Hr.	as per calibration certificate	Pressure Max >100mb
DM3E	600 to 1800 L/Hr.	+/-0.5%	Pressure Max >100mb
DM3E/PLUS	500 to 2500 L/Hr.	as per calibration certificate	Pressure Max >100mb
DM3F	1200 to 3600 L/Hr.	+/-0.5%	Pressure Max >100mb
DM3F/PLUS	400 to 3600 L/Hr.	as per calibration certificate	Pressure Max >100mb
DM3G	3000 to 9000 L/Hr.	+/-0.5%	Pressure Max >100mb

FLOWMETER ACCESSORIES

Order Code	Description
OSE	Optical Shaft Encoder - Electrical Pulsed Output
FDU	Digital Display Unit - For use with flowmeters fitted with optical shaft encoders
MANO/70	Perspex Liquid manometer for checking pressure to flowmeter
REGULATOR	Allows for fine regulation of gas flow to meter. Will stop gas flow if back pressure is detected, protecting meter from being over pressurised

Precision Laboratory & Pocket Test Dial Thermometers

These Precision Laboratory and Pocket Test dial thermometers are manufactured to the highest standards. Stainless steel construction with a silicone coated bimetal coil to maximise heat transfer the instruments have a +/-1% accuracy to ASTM E B40.3 Grade A. An external reset is provided for recalibration, or temperature off-set.

The 25mm dial Pocket Test model PT50R has a pointed 3.81mm x 127mm stem and is supplied complete with a pocket sheath and retaining clip.

45mm and 53mm Laboratory Test models GT100R and LT225 have 3.81mm x 203mm pointed stems and are supplied with a stainless steel adjustable clamp for holding the thermometer at the required depth in a vessel.



PT50R

25mm DIAL POCKET TEST THERMOMETER

Sold singles.

Order Code	Range	Divisions
PT50R/01	-40/+70°C	1°C
PT50R/02	-10/+110°C	1°C
PT50R/03	0/+150°C	1°C
PT50R/04A	0/+250°C	1°C



GT100R

45mm DIAL LABORATORY TEST THERMOMETER

Sold singles.

Order Code	Range	Divisions
GT100R/01	-40/+70°C	1°C
GT100R/02	-10/+110°C	1°C
GT100R/03	0/+150°C	1°C
GT100R/04	0/+250°C	2°C

53mm DIAL LABORATORY TEST THERMOMETER

Sold singles.

Order Code	Range	Divisions
LT225R/01	-40/+70°C	1°C
LT225R/02	-10/+110°C	1°C
LT225R/03	0/+150°C	1°C
LT225R/04	0/+250°C	2°C

! Dual scales °C & °F also available on all the above thermometers.

Zeal Industrial continued

Precision Industrial Bimetal Dial Thermometers

Zeal are pleased to provide a full range of Industrial Bimetal Dial Thermometers universally recognized as a quality product. Stainless steel construction with a silicone coated bimetal coil to maximise heat transfer the instruments have a +/-1% accuracy to ASTM E 119 Grade A. An external reset is provided for recalibration, or temperature off-set. Instruments are dust and leak proof per ASME B40.3 The thermometers are ideal for a multiplicity of industrial applications including Oil and Gas Installations.



- Mounting styles: Adjustable Angle, Vertical and Back connected.
- Sizes 76mm (3"), 100mm (4") and 125mm (5").
- Models:
 - Adjustable Angle AA375R 76mm \varnothing , AA475R 100mm \varnothing , AA575R 125mm \varnothing .
 - Vertical Bottom BC350R 76mm \varnothing , BC450R 100mm \varnothing , BC550R 125mm \varnothing .
 - Back Co-axial GT300R 76mm \varnothing , GT400R 100mm \varnothing , GT500R 125mm \varnothing .
- Ranges available in standard spans from Minus 75°C/-100°F to Plus 550°C/+1000°F.
- 304 Stainless steel external parts, welded construction. Corrosion resistant.
- True Anti-parallax dials.
- Standard stem diameter 6.35mm (1/4"). 6mm, 8mm and 9.52mm also available.
- Stem lengths 63mm (2.5"), 102mm (4"), 152mm (6"), 228mm (9"), 304mm (12"), 380mm (15"), 457mm (18"), 610mm (24") and 914mm (36"). Non standard lengths available up to 1828mm (72").
- Standard fixed connection 1/2" NPT male. 1/2" BSP male, adjustable union connections, and other sizes available.
- 316 Stainless steel wetted parts, Thermowells and other options upon request.

Please ask our Technical Sales for a quotation, or contact your local distributor for further information on these instruments.

- ✓ Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your thermometer. Please see page 40.



Inert, Non - Toxic Industrial Dial Thermometers

Zeal's range of non - toxic industrial dial thermometers are "Heavy Duty" instruments manufactured to customers specifications in compliance with EN13190 with ranges between -200°C to +800°C or equivalent °F. Dial sizes are 63mm, 80mm, 100mm, 160mm and 200mm. Housed in AISI 304, or 316 stainless steel cases with bayonet locking bezels, weatherproof to IP65 as standard. AISI 321 or 316 stainless steel stems/bulbs are available in diameters from 6mmØ to 16mmØ with immersion lengths from 50mm to 2000mm. Remote reading thermometers can be supplied with stainless steel armoured capillary tubing up to 30 metres long.

Extras include Glycerine, or Silicon Filling, Electrical Contact Switches, Micro-switches, Transmitters, Hygienic Fittings and Thermowells.



- Direct Mounting styles: Adjustable Angle, Vertical and Back connected.
- Remote Mounting styles: Surface rear flange, Flush Panel rear clamp and Flush Panel front flange.
- Sizes 63mm (2 1/2"), 80mm (3"), 100mm (4"), 160mm (6") and 200mm (8").
- Ranges available in standard spans from Minus 200°C to Plus 800°C or equivalent °F. Accuracy class 1.
- Stainless steel external parts, welded construction. Corrosion resistant.
- Clearly marked dials.
- Stem/bulb diameters from 6mmØ to 16mmØ.
- Standard Stem lengths 63mm (2.5"), 102mm (4"), 152mm (6"), 228mm (9"), 304mm (12"), 380mm (15"), 457mm (18"), 610mm (24"), 914mm (36"), 1219mm (48") and 1524mm (60").
Non standard lengths available up to 1828mm (72").
- Standard connection 1/2" NPT male or 1/2" BSP male adjustable union connections. Other sizes/types available.
- 316 Stainless steel wetted parts, Thermowells and other options upon request.

Due to the many different models available please ask our Technical Sales for a quotation, or contact your local distributor for further information on these instruments which will be manufactured to your specifications.



Dual scales °C & °F available on all the above thermometers.



Remember to order your Works or UKAS Certified Calibration Certificate, you may need it to verify the accuracy of your instrument. Please see page 40.

Zeal Industrial continued

Precision Industrial Dial Pressure Gauges

Zeal precision Industrial Dial Pressure Gauges are "Heavy Duty" instruments designed and manufactured in compliance with BS EN837-1 / BS EN837 - 3 to provide maximum performance and longevity with minimal maintenance. Available in dial sizes 63mm, 80mm, 100mm, 160mm, 200mm and 250mm with ranges between -400mbar to +7000 Bar (or equivalent). Housed in AISI 304, or 316 stainless steel cases with bayonet locking bezels, weatherproof to IP65 as standard. Zeal gauges are available with Diaphragm Seals, Chemical Seals, Hygienic Fittings and a multiplicity of fittings to suit all process applications.

Extras include Glycerine, or Silicon Filling, Electrical Contact Switches, Micro-switches, Transmitters, NACE compliance, ATEX certification, Calibration certificates and special dials.

Our gauges are ideal for a multiplicity of industrial applications including Oil and Gas Installations, special models are manufactured for hyperbaric Sub - Sea applications.



Due to the many different models available please ask our Technical Sales for a quotation, or contact your local distributor for further information on these instruments which will be manufactured to your specifications.



✓ A full range of gauge accessories, valves, and manifolds are available for our gauges.

Comparative Hydrometer Scales

Standardised at 60°F

HYDROMETER SCALES

SPECIFIC GRAVITY	U.S.A. BAUME MODULUS 140	A.P.I. BAUME MODULUS 141.5	PERCENT ALCOHOL BY VOL.	PROOF SPIRIT	SIKES	AMMONIUMMETER			SPECIFIC GRAVITY
.650		1900					FOR LIQUIDS LIGHTER THAN WATER		.650
.700	700	1700						.700	
.750	600	1500						.750	
.800	500	1300						.800	
.850	400	1100	1000	600	000	350		.850	
.900	300	900	800	400	200	300		.900	
.950	200	700	600	200	000	250		.950	
1.000	100	500	400	000	000	200		1.000	
				WATER					
1.050	000	300	000	000	000	000		1.050	
1.100	100	100	100	250	500	500	000	1.100	
1.150	200		200	500	1000	1000	500	1.150	
1.200	300		300	750	1500	1500	1000	1.200	
1.250	400		400	1000	2000	1000	1500	1.250	
1.300	500		500				2000	1.300	
1.350	600		600				2500	1.350	
1.400	700		700				3000	1.400	
1.450	800		800				3500	1.450	
1.500	900		900				4000	1.500	
1.550	1000						4500	1.550	
1.600	110	500					5000	1.600	
1.650	120							1.650	
1.700	130							1.700	
1.750	140	600						1.750	
1.800	150							1.800	
1.850	160							1.850	
1.900	170							1.900	
1.950		700						1.950	
				FOR LIQUIDS HEAVIER THAN WATER					
SPECIFIC GRAVITY	TWADDELL	RATIONAL BAUME MODULUS 144.3	BRIX	BRINEOMETER	BARKOMETER	ARGENTOMETER TROY GRAINS PER AgNO ₃	ACETOMETER PERCENT BY WT.	CAUSTIC SODA	SPECIFIC GRAVITY



Zeal Sales Information

Carriage/Packing/Payment Terms/Credits/Cancellations

CARRIAGE/PACKING CHARGES

UK - Excluding ROI, IOW and IOM which are subject to quote at time of enquiry.

- All forwarding and packaging is charged for as agreed with the Sales department.

EXPORT

- Packing, freight and documentation are all quoted for prior to acceptance of an order.

PAYMENT TERMS

UK - Including ROI, IOW and IOM.

- Minimum order value = £25.00 net of any discount & exclusive of packaging/carriage and VAT.
- In the case of credit accounts these are established on the basis of payment within 30 days of the date of invoice (Unless otherwise agreed with the Sales Department).
- Where Cash in Advance is required a Pro-forma Invoice will be sent to you and we can accept payment by either: Cheque, Visa, Master Card or cash (latter payable at our premises only).
- Work is commenced only when payment terms are mutually agreed.
- Where partial credits are issued and replacement invoices issued the payment date will be taken as the date of the original invoice.
- All terms of payment are subject to agreement by the Sales Department.

EXPORT

- All prices are ex works. FOB, CIF and C&F are extra.
- Minimum order value = £250.00 net of any discount & exclusive of packing/carriage.
- In the case of credit accounts these are established on the basis of payment within 30 days of the date of invoice (Unless otherwise agreed with the Sales Department).
- All prices are quoted in Pounds Sterling (GBP) unless otherwise agreed with the Sales Department.
- Payment can be made in GBP, US\$ or € Euro, negotiated prior to invoice being raised.
- Acceptable methods of payment are: Bankers Draft, Telegraphic Transfer, Visa, Mastercard, Sight Draft.
- Irrevocable Letters of Credit must be Drawn on a London Bank in our Favour.
Letters of Credit are subject to a service charge of £500.00 and a Minimum Order Value of £10,000.00.
- Certificates of Origin Legalised by the London Chamber of Commerce are charged at GBP £75.00 per invoice.
- Invoices Legalised by the London Chamber of Commerce are charged at GBP £60.00 per invoice.

CREDIT NOTES

- Credits are only issued with the agreement with the Sales Department.
- Application for credit notes must be supported in writing, either by letter, fax or e-mail stating clearly the reasons for the credit note request.
- Credits for goods damaged in transit will ONLY be issued if the goods are:
Signed for as damaged upon receipt and we receive notification within 7 days of the goods leaving our premises.

CANCELLATIONS

- Cancellation of order (either in part or whole) will only be accepted in writing.
- Subject to the nature of the products involved and work undertaken, a cancellation charge may be made.



If you require any further information please contact our Sales Department or your local Agent/Distributor whose details can be found at the back of this catalogue.

Zeal Sales Information

ZEAL - SCIENTIFIC, MEDICAL AND INDUSTRIAL

For all your Care & Nursing Home Supplies contact:



Express Medicare, are a division of G H Zeal Ltd.
E-mail: Web: www.expressmedicare.co.uk

For all your Laboratory Equipment contact:



Progen Scientific, are a division of G H Zeal Ltd.
E-mail: Web: www.progensci.co.uk



Distributors worldwide, see back page for your local Agent/Distributor.

You may contact us direct at our offices in London:

G H Zeal Ltd, 8 Deer Park Road, Merton, London SW19 3UU England

Phone: +44 (0) 20 8542 2283
Fax: +44 (0) 20 8543 7840
E-mail: scientific@zeal.co.uk
Web: www.zeal.co.uk



Innovation - Quality - Service Since 1888

Instruments for Health, Science & Industry

2015 edition 1

Precision instrumentation for Temperature,
Density, Humidity, Pressure and Flow

Agent/Distributor

