Elcometer Viscosity Cups (AFNOR, BS, DIN, FORD, ISO)

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At a glance

- *Anodized aluminium with a stainless steel orifice.*
- *For measuring the consistency of paints*
- *Expressed in second (s) flow time.*
- *Can be converted into centistokes.*
- *Available with adjustable stand.*

Elcometer Viscosity Cups (AFNOR, BS, DIN, FORD, ISO)
Very easy to use instruments in anodized aluminium with a stainless steel orifice, for measuring the consistency of paints, varnishes and similar products.

The measured kinematic viscosity is generally expressed in seconds (s) flow time. If the standards stipulate conversion methods the flow time can be converted in centistrokes (cSt) and, a calibration certificate is available upon request.

The cups can be supplied separately or with an adjustable stand which includes a precision level and an overflow glass plate. The stand can also be supplied with a flow jacket for temperature control (thermo jacket).

Several ranges are available, according to standards; from 5 to 5100 cSt.

Viscosity

The extent to which a liquid resists a tendency to flow is defined as viscosity. In the coatings industry, this behaviour is one of the key parameters.

Elcometer manufactures and supplies a wide range of viscosity gauges from flow cups and dip cups to rotational and cone and plate viscometers

Flow Cups: The process of flow through an orifice can often be used as a relative measurement and classification of viscosity. This measured kinematic viscosity is generally expressed in seconds of flow time which can be converted into Centistokes using a viscosity disc calculator.

Dip Cups: Using the same principle to the flow cups, dip cups – Frikmar, Zahn, Shell, etc – can be used to provide a quick viscosity measurement on the shop floor or on site

Rotational: Rotational viscometers are used to determine the viscosity of liquids which do not depend solely on temperature and pressure. The behaviour of non-Newtonian liquids can be determined using a range of rotational viscometers in particular the Cone & Plate viscometers.

How to Use A Viscosity Cup

Once the viscosity cup is truly horizontal (this is best achieved using a cup stand and bubble level), cover the exit orifice and fill the cup making sure that the meniscus of the liquid is above the rim of the cup.

Using the glass draw plate, remove the meniscus into the overflow ring and close the cup.

Open the exit orifice and remove the glass draw plate. Time between the removal of the glass draw plate and the first break in the liquid's flow is measured.

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Model	Cup Number	Viscosity Cup Type		Range Centistokes (cSt)[1]	Part Number
Elcometer 2350/1	2	DIN	DIN 53211	-	K0002350M001
Elcometer 2350/2	4	DIN		96-683	K0002350M002
Elcometer 2350/3	6	DIN		-	K0002350M003
Elcometer 2350/4	8	DIN		-	K0002350M004
Elcometer 2351/1	1	FORD ASTM	FORD ASTM D1200	10-35	K0002351M001
Elcometer 2351/2	2	FORD ASTM		25-120	K0002351M002
Elcometer 2351/3	3	FORD ASTM		49-220	K0002351M003
Elcometer 2351/4	4	FORD ASTM		70-370	K0002351M004
Elcometer 2351/5	5	FORD ASTM		200-1200	K0002351M005
Elcometer 2352/1	2.5	AFNOR NFT	AFNOR NFT 30-014	5-140	K0002352M001
Elcometer 2352/2	4	AFNOR NFT		50-1100	K0002352M002
Elcometer 2352/3	6	AFNOR NFT		510-5100	K0002352M003
Elcometer 2353/1	3	ISO DIN NF NBN ASTM	ISO 2431 DIN 53224 NF T 30 070 NF EN 535 ASTM D1525 NBN T22-108	7-42	K0002353M001
Elcometer 2353/2	4	ISO DIN NF NBN ASTM		34-135	K0002353M002
Elcometer 2353/3	5	ISO DIN NF NBN ASTM		91-326	K0002353M003
Elcometer 2353/4	6	ISO DIN NF NBN ASTM		188-684	K0002353M004
Elcometer 2353/5	8	ISO DIN NF NBN ASTM		-	K0002353M005
Elcometer 2354/1	2	BS	BS 3900 A6	-	K0002354M001
Elcometer 2354/2	3	BS		-	K0002354M002
Elcometer 2354/3	4	BS		-	K0002354M003
Elcometer 2354/4	5	BS		-	K0002354M004
Elcometer 2354/5	6	BS		-	K0002354M005
Accessories	Stand with Bubble Level for Cup and Glass Plate				KT002400N001
	Double-walled Stand with Thermojacket (but without thermobath)				KT002400N002
	2400 Viscosity conversion disk				KT002400N003
	Bubble Level for Viscosity Cup				KT002400P001
	Viscosity Glass Draw Plate				KT002400P999
	Stopwatches				K0007300M201
	Viscosity Standard Oils for Calibration				See Viscosity Oils
Packing List	Elcometer Viscosity Cup, Storage case & Operating instructions				
Elcometer provide a viscosity recalibration service using state of the art climate controlled facilities, for information please contact Elcometer					

[1] for information only

Flow & Dip Cups

Viscosity Cup Reference Table[1]							
Cup Type	Range (Cts)		Time (seconds)		Advised Standard Oil	Kinematic** Viscosity (Cts)	Drain Time (Seconds)
	Minimum	Maximum	Minimum	Maximum			
DIN 4	96	683	25	150	S200	460	101.5
ISO 3	7	42	30	100	S20	34	82.5
ISO 4	34	135	30	100	N35	66	47
ISO 5	91	326	30	100	N100	230	71
ISO 6	188	684	30	100	S200	460	68
ASTM 1	10	35	55.5	106.5	N10 or C10*	17	69.5
ASTM 2	25	120	35.5	87.5	S20 or C20*	34	41.5
ASTM 3	49	220	28	102	S60 or C60*	120	58.5
ASTM 4	70	370	23	101	S60 or C60*	120	35.5
ASTM 5	200	1200	18.5	101	S200 or C200*	460	40
ZAHN 1	5	56	33.5	80	N10 or C10*	17	44.5
ZAHN 2	21	231	20	80	S60 or C60*	120	48
ZAHN 3	146	848	20	80	S200 or C200*	460	47
ZAHN 4	222	1100	20	80	S200 or C200*	460	36
ZAHN 5	460	1840	20	80	N350 or C350*	850	36.5
AFNOR 2.5	5 Cps	140 Cps	30	250	S60	120	***
AFNOR 4	50 Cps	1100 Cps	20	300	S200	460	***
AFNOR 6	510 Cps	5100 Cps	30	300	S60	1600	***

* The 'S' and 'N' prefix you have dynamic viscosity, kinematic viscosity and density at different temperatures; with the 'C' prefix, kinematic viscosity and draintime is at 25şC (77şF) for Zahn, Ford and Shell Cups.

** Kinematic Viscosity and Drain Times mentioned above are approximate values at 25şC (77şF) Exact values will be displayed on the standard oil bottle

*** For comparison only

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Elcometer 2410 Viscosity Standard Oils for Calibration

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In order to check your viscosity cup's calibration or to certify for ISO purposes, it is imperative that you use viscosity standards.

Standard oils have a specific drain time, dependant on the viscosity cup type (Ford, Shell, Zahn, etc), and the orifice or cup number used.

To check the viscosity cup, simply use the standard viscosity oils in place of your liquid and measure the drain time.

(˝ Litre/1 Pint).

Model	Description	Part Number
Elcometer 2410/1	Canon Standard Viscosity Oil S20 - 31 CPS at 25°C	K0002410M001
Elcometer 2410/2	Canon Standard Viscosity Oil S60 - 100 CPS at 25°C	K0002410M002
Elcometer 2410/3	Canon Standard Viscosity Oil S200 - 400 CPS at 25°C	K0002410M003
Elcometer 2410/4	Canon Standard Viscosity Oil S600 - 1400 CPS at 25°C	K0002410M004
Elcometer 2410/11	Canon Standard Viscosity Oil N10 - 15 CPS at 25°C	K0002410M011
Elcometer 2410/12	Canon Standard Viscosity Oil N100 - 210 CPS at 25°C	K0002410M012
Elcometer 2410/13	Canon Standard Viscosity Oil N350 - 750 CPS at 25°C	K0002410M013
Elcometer 2410/21	Canon Standard Viscosity Oil C20 - 34 CPS at 25°C	K0002410M021
Elcometer 2410/22	Canon Standard Viscosity Oil C60 - 120 CPS at 25°C	K0002410M022
Elcometer 2410/23	Canon Standard Viscosity Oil C100 - 230 CPS at 25°C	K0002410M023
Elcometer 2410/24	Canon Standard Viscosity Oil C200 - 460 CPS at 25°C	K0002410M024
Elcometer 2410/25	Canon Standard Viscosity Oil C350 - 850 CPS at 25°C	K0002410M025
Elcometer 2410/26	Canon Standard Viscosity Oil C600 - 1600 CPS at 25°C	K0002410M026
Elcometer also provide a viscosity recalibration service using state of the art, climate controlled facilities, for information please contact Elcometer		

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Related products

Elcometer 2400

This viscosity calculator is a simple conversion table that allows the viscosity (usually recorded in cSt) and flow times (recorded in seconds) to be compared.

Elcometer 7300

A professional high precision stopwatch is required for measuring the flow time of a coating or other product under test with a viscosity cup.

Elcometer 2434

Thanks to their handles, the Elcometer Dip Cups are very easy to use and performs quick controls on the construction site, in the workshop, or during the manufacturing process.

Elcometer 2210

These easy to use Zahn Cups, fabricated out of stainless steel are ideal for quick viscosity measurement of products on site or during production.

Elcometer 2215

The Lory Cup is a viscosity cup designed for measurements of thicker products. The cup is first dipped into the product to be measured and the flow time is recorded until the point of the internal needle first appears.