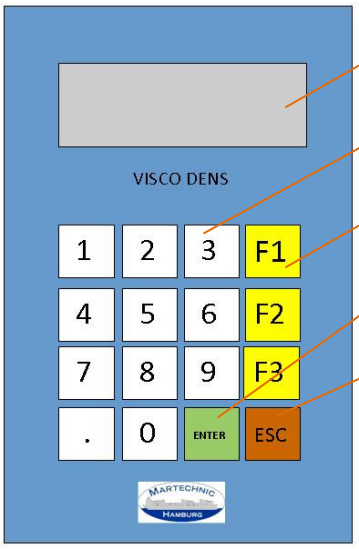
Visco Dens

Instruction Manual

Introduction

VISCO DENS is a device combining determination of the density and viscosity of Newtonian fluids, like fuel, lube and hydraulic oil. The measuring range is between 50 and 999 cSt. the measuring principle determines viscosity as dynamic viscosity (γ), calculates kinematical viscosity (ν) on base of density (σ): ($\nu = \gamma / \sigma$). This recommends to perform determination of density (σ) in the first step.

Description of parts:



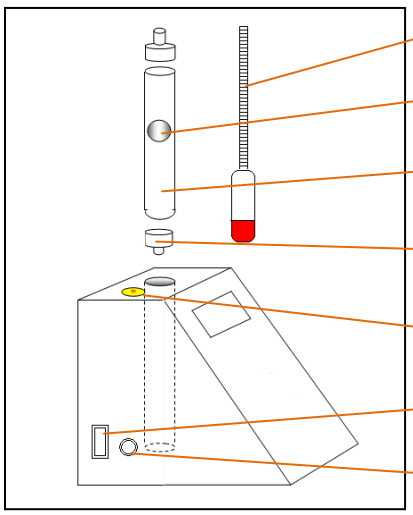
DISPLAY

DIGIT KEY

FUNCTION KEY

ENTER

ESCAPE



HYDROMETER

TEST BALL

TEST TUBE

CAP WITH VENT SCREW

LEVEL

ON / OFF

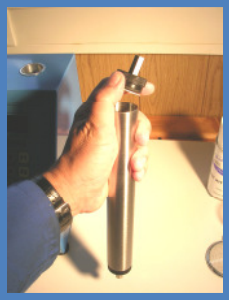
FUSE

Martechnic GmbH · Adlerhorst 4 · 22459 Hamburg · Germany
Phone: +49(40) 853 128-0 · Fax: +49(40) 853 128-16 · e-mai: info@martechnic.com · www.martechnic.com

Determination of Density:

1) Switch device on.

2) Take out the test tube.



3) Take off the sealing cap with the air vent screw.

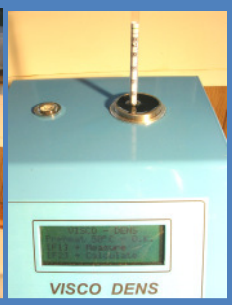
4) Pour 124 ml of the oil to be tested into the measuring beaker.

5) Fill in approx. 20 ml of the oil out of the beaker into the test tube.

6) Insert test ball into test tube carefully.
7) Fill the remaining oil out of the beaker into the test tube.

8) Insert test tube into the device and wait until measuring temperature has been reached (display stops flashing).

9) Select appropriate hydrometer and carefully insert into test tube.



10) Read the specific gravity (density) from the hydrometer and make a note.

11) Take out hydrometer and clean it.

12) Remark: Measuring temperature is 50 °C ; the value shown on the hydrometer states density @ 15 ° C.

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Measuring Viscosity:

1) Fill up oil to be tested until about 8 mm below the top.

2) Wait until measuring temperature has been reached (display stops flashing) Stir with thermometer the sample to homogenize and to check final temperature.

3) Mount sealing cap carefully - having loosened the air vent screw before.

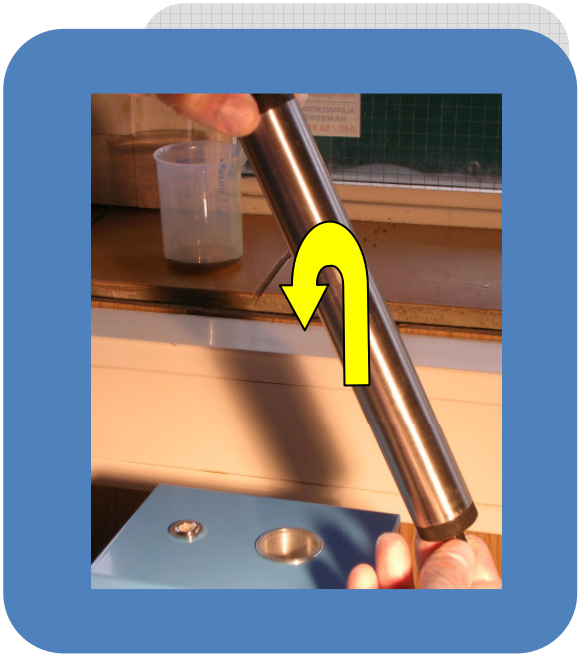
4) Remove superfluous oil and close air vent.

5) Select key (F1). (Measuring) Type in density of the test oil and press "enter".

6) Upon request, turn the test tube upside down. The test ball descends slowly in the pipe (see display).

7) The first measuring value for viscosity will be displayed after 3 minutes max. - according
to actual viscosity.

8) Turn test tube upside down again when prompted.



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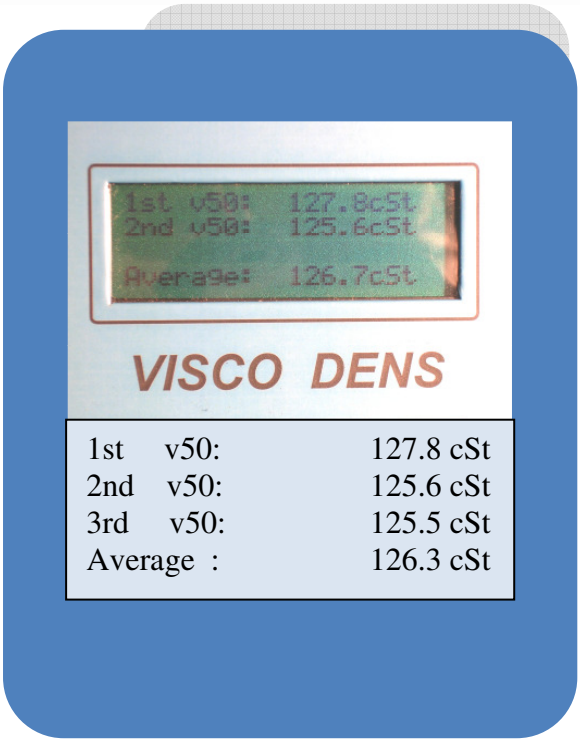
9) Upon displaying the second value, the average value out of both values will be calculated and displayed.

10) We recommend to repeat measuring at least 5 times. Only the last three values will be considered for the average value - the previous getting deleted.

11) If the average values remains nearly constant, the viscosity has been determined. Tolerated deviation is max. 3%.



1st	v50:	127.8 cSt
2nd	v50:	125.6 cSt
3rd	v50:	125.5 cSt
Average	:	126.3 cSt

Optional Functions:

The device offers means for calculation which are submitted under function (F2) and can be used by pressing the respective button. In detail these are:

- Determination of viscosities at different temperatures.
- Determination of pre-heating temperature for injection viscosity.
- Determination of CCAI.

The device is menu-guided and itself explains the optional functions. Beyond that language can get switched from English to German and vice versa by hitting the key sequence “F3”, “1”, and “2”.

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