



# SH414N

## GEL STRENGTH TESTER

### Operating Manual



Art. No SH1117 - (Model SH414N)  
version 1.2 0719

Based on the Rotothinner design, the instrument is especially suited to assess the yield strength and consistency of thick paints, and other materials such as gels, pastes and putties etc.

The sample is contained in a 250ml steel container, this is located centrally and secured on the table's integrated magnets.

#### *Features of the Gel Strength Tester*

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- Electronic constant speed control over the full range
- Paddle spindle simple to install with quick release chuck, easy to clean
- Safety height sensor preventing the rotor from rotating above the can
- Sturdy construction for use either in lab or production line
- Standard package: Viscometer, paddle spindle, 250 ml / Ø85 mm can.
- 220-240V - 50 Hz

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# 1 Safety Instructions

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1. Read this instruction manual carefully before switching on the instrument
2. Before operation, make sure the instrument is securely bolted to a firm and level surface
3. Keep this instruction manual for future reference and if you pass this instrument to someone else be sure to include these instructions
4. This instrument must only be used in areas electrically classified as NON HAZARDOUS
5. The power supply unit must be connected to an earthed socket
6. Do **NOT** place the instrument in a strong magnetic field (near large electric motors, transformers etc.)
7. The case of the instrument should only be removed by authorised/qualified personnel
8. Ensure the unit is placed on a solid and level surface
9. Safety critical components:
  - a. If you need to change the mains lead, you must replace it with a product of equivalent specification to the one supplied
  - b. If you need to change the power supply unit you must replace it with one of the same specification which can be provided by the manufacturer



Do not dispose of this product with household, commercial or industrial waste. Please refer to local disposal methods or contact us regarding the proper handling of end-of-life electrical and electronic equipment.

Protection is impaired if used in a manner not specified by the manufacturer.

## 2 Getting started

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### *Packing list*

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The instrument will include the following items:

- Gel Strength Tester
- Paddle
- Operating manual
- Mains power lead
- 12VDC 1.5A earthed power supply
- 250 ml paint can to BS1262:1989
- Optional: Calibration certificate (subject to cost)

## 3 Operation

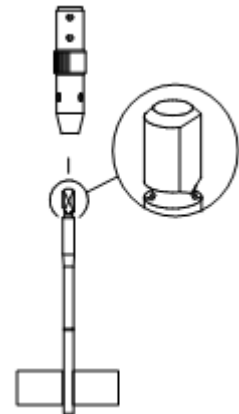
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### *Powering up the Gel Strength Tester*

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Before switching on the instrument, fit the paddle as shown in Figure 1:

- Push the end of the paddle stem into the chuck
- Rotate the paddle stem until it enters the chuck fully
- Push the paddle stem firmly to overcome spring resistance and rotate it until a click is felt
- Ensure the on/off switch is in the off position
- Insert the jack plug into the jack socket at the rear of the instrument
- Connect the mains lead to your local power supply and switch the instrument on



### *Operating the Gel Strength Tester*

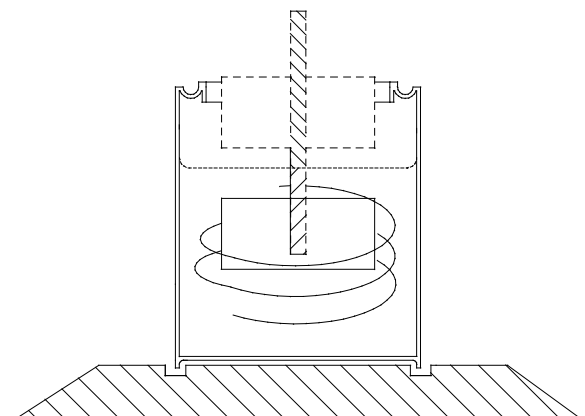
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- Switch the instrument on
- Fill the Ø80 mm tin can provided to two thirds full with the sample material
- Place the tin can on the instruments turntable
- Push down the handle to its lower location so the rotor paddle is immersed in the sample
- The rotor paddle will automatically rotate at 2 RPM
- Observe the turntable and when it is steady, note the reading indicated by the pointer
- Lift the handle to withdraw the rotor from the sample
- This will automatically stop the rotor paddle from rotating
- Clean the rotor paddle and any spillage
- Remove the sample

### *How to remove the rotor paddle*

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- Push the paddle into the chuck and rotate it until it is free
- Withdraw the paddle from the chuck



## 4 Instrument Specifications

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<b>Physical dimensions</b>	550 mm x 200 mm x 550 mm
<b>Weight</b>	8 kg
<b>Mains Supply voltage</b>	100-240VAC
<b>Supply frequency</b>	50/60 Hz
<b>Power Supply Voltage</b>	12V DC to instrument
<b>Internal fuse</b>	2A anti-surge (5 x 20 mm)
<b>External fuse (mains lead)</b>	3A 250VAC

This instrument has been designed for indoor use, in a temperature range of +5°C – +40°C. If the instrument is used outside these values its accuracy cannot be guaranteed.

### *Standard Supply*

- SH1117 Gel Strength Tester 414N
- Standard Paddle (4 x 2 cm)
- Sample container (250ml)
- Product Manual
- Optional: Calibration Certificate. (Subject to cost)

### *Accessories*

#### Other paddles formats

For lower viscosity products use larger area paddles, for higher viscosity products use paddles with lower surface area.

Product Reference (old sheen nr)	Description	Paddle area cm <sup>2</sup>
SH414N/220/D2	Paddle Gel Strength Tester 3 x 1 cm paddle (wide x high)	3
SH414N/220/D3	Paddle Gel Strength Tester 2 x 1 cm paddle	2
SH414N/220/D4	Paddle Gel Strength Tester 5.5 x 5 cm paddle (Fitted with 4 blades)	55
SH414N/220/D5	Paddle Gel Strength Tester 2 x 2 cm paddle	4
SH414N/220/D6	Paddle Gel Strength Tester 4 x 4 cm paddle	16
SH414N/220/D7	Paddle Gel Strength Tester 2 x 0.5 cm paddle	1
SH414N/220/D8	Paddle Gel Strength Tester 4 x 0.3 cm paddle	1.2
<b>Consumables</b>		
SH409/081/D	Tin 250ml	

## **5** Care and Routine Maintenance

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- Ensure that the tin locating groove is kept clean to allow effective use of magnetic holding
- After extensive use it may be necessary to replace the torque table ballraces. These are not standard items and it is advised that the complete instrument is returned to Sheen Instruments to service the machine.



## 6 Troubleshooting

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If there are issues with the instrument then the likely causes are as follows:

- Spiral spring is not concentric
- Spring coils are touching
- Suppressed or inaccurately set zero
- Spring sagging and making contact with the cover plate, anchorage post etc.
- Rubber torque table stop rubbing the underside of the turntable
- Sample container not located correctly in the groove
- Paddle in contact with the side of the sample container
- Paddle height in relation to the bottom of the sample container incorrectly set (When the rotor is fully down, a gap of 17.55 mm  $\pm$  should be found between the rotor and the top surface of the turntable)
- Rotor does not rotate:
  - Check the fuse in the mains inlet lead
  - If it is ok then check the internal fuse as follows
    - Remove the handle retaining nuts
    - Remove the four case fixing screws
    - Withdraw the cover from the top
    - Remove the case earthing strap
    - The fuse is located on the top circuit board
    - When re-assembling, ensure all the earth straps are replaced

## 7 Related Products

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The following products are designed to ensure the consistent preparation of test samples:

- TQC Sheen range of Glossmeters
- TQC Sheen Automatic Film Applicators (Compact, Standard and Heated models)
- A wide range of applicators and coaters
- A wide range of thickness gauges

For more information visit our website [www.tqcsheen.com](http://www.tqcsheen.com) or contact us.





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