

NZCJ HTHP Consistometer

NZCJ 2120

HTHP Consistometer
(Standard Version with Single Cell)



NZCJ 2220

HTHP Consistometer
(Standard Version with Dual Cell)



- The instrument adopts a large-size touch screen to display and record test data and curve graphs.
- Users can set parameters of temperature controller from EURO THERM through the touch screen; with a concise user interface, it is easier for users to input or alter test parameters.
- Stable and reliable PLC can meet users' special demands and upgrade the instrument's functions in the future by programming.
- The change of oil level in the oil reservoir can be tracked and the progress of oil fill and oil return can be monitored in real time through the touch screen or an oil level indicator
- Optimized potentiometer is much more accurate and durable and it is easier to be calibrated and cleaned.
- With connection to an external chiller, tests below ambient temperature can be conducted.
- Surface of the instrument is made of stainless steel, improving its durability.

» Features & Innovations

No.	NZCJ HTHP Consistometer	Conventional HTHP Consistometer
1	Users may input test parameters through the touch screen directly.	Temperature controller is adopted to set parameters; it is complex to operate and error-prone.
2	Test parameters and curve graphs are displayed on the touch screen directly and clearly.	It is inconvenient to observe test data of temperature, pressure and consistency as they are displayed on three separate dials.
3	The instrument can operate automatically with one-button operation after test parameters are set.	Alternate operation between hand valves and switches is complex and confusing.
4	With a built-in coil-pipe copper chiller, this instrument has higher efficiency of cooling and longer service life.	The chiller with stainless steel surface needs longer cool-down time.
5	Reasons for alarm are shown on the touch screen.	Users have to find out reasons for alarm by themselves because the instrument is only equipped with alarm indicators, resulting in low efficiency.
6	Smart calibration system saves users from frequent adjustment of the spring as long as the zero point is corrected.	Frequent adjustment of the spring will be a must once the measurement of consistency is inaccurate, which is inefficient and unreliable.
7	Newly-designed potentiometer makes it easy to calibrate consistency to 0Bc; it can make good contact with contact pins in the test cell. Besides, the spring, installed at the bottom of the potentiometer, won't be affected by the cement slurry.	As for conventional potentiometer, it is difficult to calibrate consistency to 0Bc; loose contact between potentiometer and contact pins in the test cell affects the accuracy of measurement. Besides, cement slurry tends to accumulate around the spring easily.

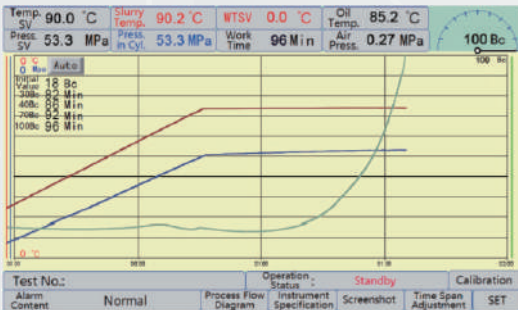
» Satisfying API Certification Requirements on Oil Well Cement

Results Comparison on Test Approaches for G-class Cement

Time (min)	Pressure (MPa)		Data from NITHONS (MPa)	Temperature (°C)		Data from NITHONS (°C)
	Theoretical Value	Allowable Deviation		Theoretical Value	Allowable Deviation	
0	6.9	±2 MPa	7	27	±3 °C	27.5
2	9.0		8.9	28		27.9
4	11.1		11.2	30		29.8
6	13.1		13.2	32		32.2
8	15.2		15	34		33.8
10	17.3		17.4	36		35.4
12	19.3		19.1	37		37.3
14	21.4		20.9	39		39.1
16	23.4		23.5	41		40.8
18	25.5		25.5	43		42.5
20	27.6		27.5	44		44.3
22	29.6		29.2	46		46
24	31.7		31.8	48		47.9
26	33.8		33.8	50		49.5
28	35.6	±0.7 MPa	35.5	52	±1 °C	51.3
30	35.6		35.2	52		52.8
32	35.6		35.5	52		52.6
34	35.6		35.8	52		51.9
36	35.6		35.7	52		51.9
38	35.6		35.6	52		52.1

Conclusion: Test data from NITHONS's instruments are in conformance with standards of API 10A and GB/T 10238, satisfying API certification requirements on oil well cement.

NITHONS » Observe Test Data



It's convenient to observe test data and curve graphs; users can take screenshots and output and save these screenshots.

NITHONS » Set Test Parameters

1 Temp. Stage & 1 Pressure Stage

Parameter	Target Value	Confirm
Test No.		SET
Initial Pressure	0.0 MPa	SET
Target Pressure	0.0 MPa	SET
Target Temperature	0.0 °C	SET
Heating Time	0.0 Min	SET

Notes: The value of target temperature will be invalid if it exceeds 204 °C.
The value of target pressure will be invalid if it exceeds 138 MPa.

Next

Users can set parameters through the touch screen instead of complicated buttons, making the operation simple and straightforward.

NITHONS » Calibrate Consistency and Temperature

Consistency Calibration

0Bc Cal. 50g 9Bc Cal. 400g 100Bc Cal. Cons. 0 Bc

Temperature Calibration

Deviation Value of Slurry Temp.	0.0 °C	Calibrate	Slurry Temp.	0.0 °C
Deviation Value of Oil Temp.	0.0 °C		Oil Temp.	0.0 °C

Return

It's convenient to calibrate the consistency and temperature through touch screen and potentiometer.

► Regulate Pressure Automatically

During the test, the instrument can regulate pressure automatically as required by API standards to simulate the high-temperature and high-pressure downhole well conditions accurately. Therefore, the accuracy of test can be ensured because errors caused by manual adjustment are reduced.

► Set Alarms for Multiple Parameters' Value Limits

When using the instrument, users can set alarms for multiple parameters' value limits as needed. Parameters include consistency, temperature and pressure, etc. It's simple and useful.

► Considerate Design of Valves

Both electrically operated valves and manually operated valves are available for cooling system, air exhaust system and air to cylinder system. Users can end the test by using manually operated valves only when emergencies occur (e.g., power failure).

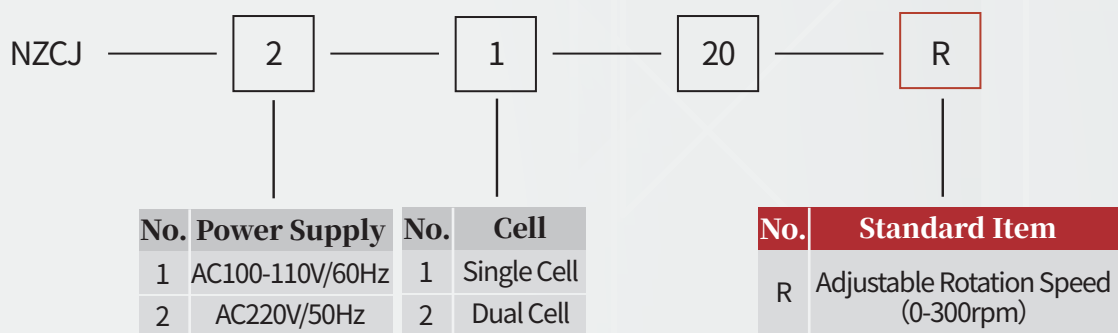
► Shorter Cool-down Time

The built-in coil-pipe copper chiller accelerates heat diffusion and enlarges contact surface, so it can effectively shorten the cool-down time.

» Specifications

NZCJ2120 HTHP Consistometer (Standard Version with Single Cell)			
Max. Temperature	204°C	Max. Working Pressure	138MPa
Input Voltage	AC 100-110V 60Hz/220V 50Hz	Rotation Speed	0-300rpm
Consistency Range	0-100Bc	Pressure of Cooling Water	0.2-0.5MPa
Air Supply Pressure	0.4-0.7MPa	Connector Size of Cooling Water Pipe	Inner Diameter: 10mm
Dimensions (W*D*H)	60*87*171cm	Weight	240kg
Heater Power	3000W	Input Power	3500W
NZCJ2220 HTHP Consistometer (Standard Version with Single Cell)			
Max. Temperature	204°C	Max. Working Pressure	138MPa
Input Voltage	AC 100-110V 60Hz/220V 50Hz	Rotation Speed	0-300rpm
Consistency Range	0-100Bc	Pressure of Cooling Water	0.2-0.5MPa
Air Supply Pressure	0.4-0.7MPa	Connector Size of Cooling Water Pipe	Inner Diameter: 10mm
Dimensions (W*D*H)	127*87*171cm	Weight	460kg
Heater Power	3000W*2	Input Power	7000W

» Available Models



- For instance, the model number NZCJ2120R refers to a single-cell HTHP consistometer which can run on 220V single phase power with adjustable rotation speed.