

Seta C-92 35300-0

Automated Cleveland Open Cup Flash and Fire Point

Unique selling points

- Interchangeable gas or electric ignition
- Superior safety features
- Automatic snuffer and fire extinguisher
- Rapid cooling system
- Integrated draft shield in compliance with ASTM D92
- Custom test methods and test profiles
- Flexible results management - large internal storage, LIMS, USB, QR code
- Easy to maintain with quick and easy cleaning of components
- Statistical Quality Control software meeting requirements of ISO 17025



	Seta C-92	Tanaka aco-8	PAC Optiflash Cleveland	Anton Paar CLA 5	Koehler K72000
Regulatory					
Test methods	ASTM D92; D8254; IP 36; ISO 2592; DIN 51 376; NF T60-118; JIS K 2265-4; AASHTO T48	ASTM D92; IP 36; ISO 2592; DIN 51 376; JIS K 2265-4	ASTM D92; IP 36; ISO 2592	ASTM D92; IP 36; ISO 2592; JIS K 2265-4; AASHTO T48	ASTM D92; IP 36; ISO 2592; DIN 51 376; NF T60-118; AASHTO T48
Operation					
Temperature range	Ambient to 400 °C	Ambient to 400 °C	up to 400 °C	up to 400 °C	Ambient to 450 °C
Test modes	Flash point, fire point and search mode	Flash point, fire point	Flash point, fire point	Flash point, fire point	Flash point, fire point
Ignition source	Hot wire or gas, interchangeable	Hot wire or gas, specific instrument models required	Hot wire or gas, specific instrument models required	Gas only	Hot wire or gas, interchangeable

The C-92 has interchangeable gas or electric ignition, giving flexibility within one instrument. Switching between the gas and electric ignition is quick and easy

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Flash detection	Ionisation ring	Ionisation ring	Ionisation ring	Ionisation ring	Ionisation ring
Fire point detection	Ionisation ring	Not mentioned	Fire sensor	Ionisation ring	Not mentioned
The C-92's ionisation ring is robust in design for longevity, it is quick to remove (loosen one thumb screw) for ease of cleaning and reduced down time between tests					
Cooling	Forced air (integral fan)	Forced air (integral fan)	Forced air (integral fan)	Forced air (integral fan)	Forced air (integral fan)
The C-92's built in cooling system helps maximise test efficiency, cooling the test cup rapidly at the end of the tes, allowing the next test to start as soon as possible					
Heating rate	5 to 17 °C/min and 5 to 6 °C/min	Not mentioned	5 to 17 °C/min and 5 to 6 °C/min	Not mentioned	Not mentioned
Draft shield	Included, drafts protected on 3 sides	Optional	n/a	Optional	n/a
The C-92's draft screen around the test area creates a draft-free zone around the test cup, for improved consistency, accuracy of results and test method compliance <i>ASTM D92: 9. NOTE 6-A draft shield is recommended to prevent drafts from disturbing the vapors above the test cup. This shield should cover at least three sides of the test cup vicinity</i>					
Skin removal system	Optional	Optional	Optional	Optional	Not mentioned
For testing samples that develop a skin when heated, such as asphalts and bitumen, the C-92 can be fitted with a skin removal system, which gently moves the skin to the side of the test cup so that flash point and fire point can be determined as described in ASTM D92					
Safety					
Fire extinguisher	Snuffer plate automatically deployed at end of test Optical sensor deploys inert gas if persistent fire is detected Built in fire extinguisher Independant emergency stop button	Snuffer plate automatically deployed at end of test	Snuffer plate automatically deployed at end of test Optical sensor deploys inert gas if persistent fire is detected Built in fire extinguisher	Built in fire extinguisher	Built in fire extinguisher
The C-92's independant emergency stop button can be positioned and deployed at a safe distance away from the instrument The C-92's snuffer plate is quick to remove (loosen one knurled thumb nut) for ease of cleaning and reduced down time between tests					
Over temperature cut out	Yes	Not mentioned	Yes	Yes	Not mentioned
The C-92 has been designed with superior safety in mind. Along with the above safety devices and features, it also has the following programmable safety features: software limits restricting test temperatures to 400 °C or less, optional pre-test safety sweep, maximum temperature limit for search mode to minimise the time the sample is at high temperatures, PRT temperature check during the start of a test to see if there is a significant change in the temperature of the probe. If the C-92 detects no change in temperature, the user is asked if they wish to continue the test					

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Barometric pressure	Automatic flash point correction with built in pressure sensor	Built in pressure sensor	Built in pressure sensor	Automatic flash point correction	Not mentioned
Data Management					
Information	Real time display on screen of test progress and results	Test result is shown on screen	Real time display on screen of test progress and results	Real time display on screen of test progress and results	Test result is shown on screen
The C-92 displays a graphical and numerical display of test progress, the large screen enables the test to be viewed from a distance					
Internal memory	Stores over 150,000 test results	Stores up to 200 test results	Stores up to 500 test results	Stores up to 1000 test results	Results can be stored on local hard drive
The C-92 features more storage than a customer would need. For example, a test takes 30 minutes, if the instrument ran continuously it would run 48 tests per day for 365 days per year = 8.5 years of results					
Statistical Quality Control (SQC)	Built in SQC module according to ASTM D6299	Not mentioned	Yes	Statistical analysis	Not mentioned
SQC allows the user to analyse the results of previous tests, calculating mean, standard deviation, standard error and repeatability, meeting the requirements of ISO 17025.					
<i>ISO 17025: 7.7.1 The laboratory shall have a procedure for monitoring the validity of results. The resulting data shall be recorded in such a way that trends are detectable, and, where practicable, statistical techniques shall be applied to review the results</i>					
Custom test methods	Yes	Not mentioned	Yes	Not mentioned	Not mentioned
Custom test profiles	Yes	Not mentioned	Not mentioned	Not mentioned	Not mentioned
Custom test profiles help improve efficiency when testing a large number of similar samples, it enables the test to be set up and repeated quickly without re-entering the same information					
Illuminated power button	Yes	Not mentioned	Not mentioned	Not mentioned	Not mentioned
The C-92 features an illuminated Seta badge on the front of the instrument which gives status information at a quick glance, allowing the operator to see from a distance at what stage of the test the instrument is at. For example, green circular = test in progress, green solid = end of test-pass, red fast pulsing = error whilst running test					
Interface Specifications					
Display	8" LCD colour touchscreen	Small LCD colour screen with keypad buttons	7" colour touchscreen	5.7" colour screen with keypad buttons	10.4" colour touchscreen

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Data input/output	Connection to LIMS 2x USB Connection to printer Test results can be exported to memory stick (PDF or CSV) Test results can be viewed on a smartphone or tablet via QR code	Connection to LIMS 1x USB	Connection to LIMS Test results can be exported to memory stick (CSV)	Connection to LIMS Test results can be exported to memory stick (CSV)	Not mentioned
The C-92's large number of options for data input/output is suitable for all laboratory set ups					
Virtual Network Computing (VNC) system	Yes	Not mentioned	Not mentioned	Not mentioned	Not mentioned
Connecting the C-92 to a VNC allows users to operate the instrument remotely from a computer, particularly useful if looking at test results, accessing instrument set up etc. Note: for safety reasons, the instrument must be supervised at all times when a test is running Seta's VNC software is open source, meaning there is no additional cost					
Keyboard, mouse, bar code scanner	Yes	Keyboard	Not mentioned	Not mentioned	Not mentioned
The C-92 offers additional data entry options for ease of use					
Physical					
Dimensions (HxWxD)	240 x 385 x 450 mm	400 x 230 x 470 mm	560 x 250 x 510 mm	460 x 230 x 390 mm	Not mentioned
Weight	15.5 kg	17 kg	25 kg	12 kg	Not mentioned
Certified Reference Material					
Cleveland Standard available	99882-0, 99883-0, 99884-0	No	No	No	No
Seta's Certified Reference Material is manufactured in accordance with ISO 17034. Certified values are the mean results obtained by a statistically significant number of participating laboratories following the relevant test method and meet the requirements of ISO 17025.					