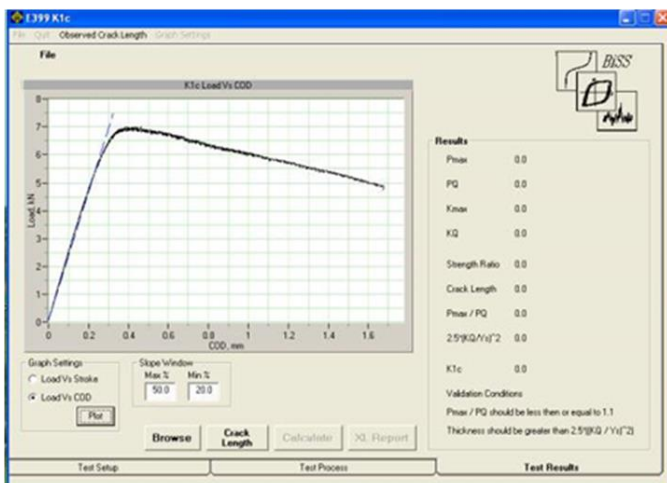


BISS Fracture Toughness test application software is designed to perform ductile and brittle fracture toughness tests under MTL32 environment with 2370 controller.

Fracture toughness test is done as per ASTM E1820 for J1c, CTOD and ASTM E 399 for K1c. It includes various specimen geometries like C(T) LLD, C(T) MOD, SE(B), DC(T) etc.

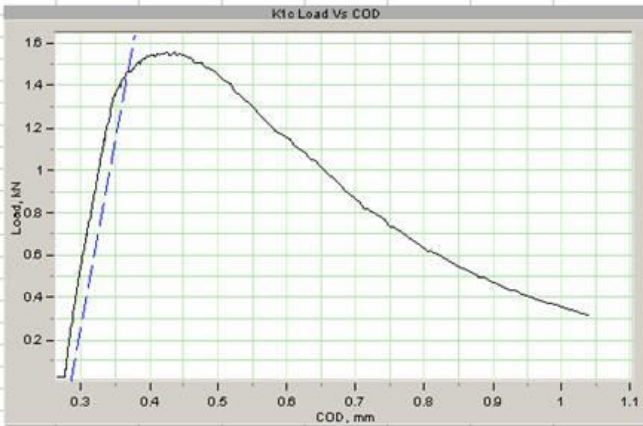
Technical features

- Tests can be done in Stroke, Load control or COD control
- Fracture toughness testing for K1c and single specimen J1c
- Single specimen multipoint test to analyze Jq
- Auto DAQ settings for data acquisition
- Option to convert any language
- Test assignment, raw data and test results can be exported to excel online
- Test termination includes limit on maximum displacement, crack length increment, maximum load or % drop in load
- Compliance and SIF constants required for estimating the crack length are incorporated in software according to specimen geometry
- Offline post processing program to analyze the results in MS Excel
- Numeric display of all parameters
- Limit interlock on load and displacement



K1c Test Results

Specimen ID	16	Date	02/07/2008
Geometry	SE(B)	Time	16:42:37
Test Control	Stroke	Modulus	71 GPa
Displacement	10 mm	Yield Stress	105 MPa
Rate	0.05 mm/sec	Tensile Strength	130 MPa
Thickness	12.7 mm	Poissons Ratio	0.3
NetThickness	12.7 mm	Initial a/W	0.527
Width	25.5 mm		



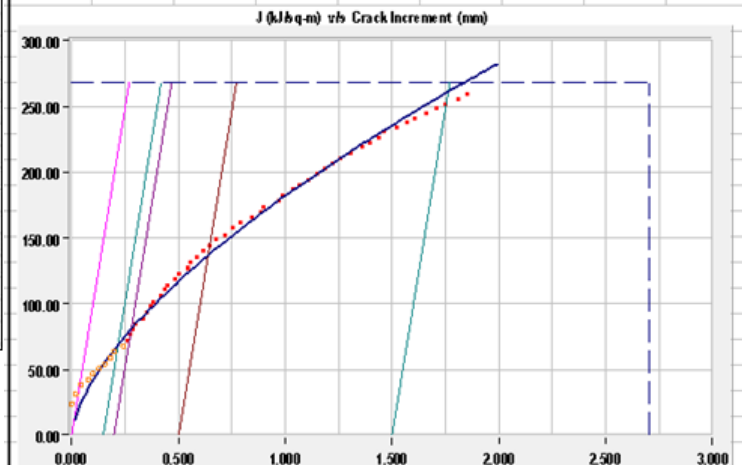
Pmax	1.561 kN
PQ	1.464 kN
Kmax	8.773 MPa m ^{0.5}
KQ	8.227 MPa m ^{0.5}
Specimen Strength Ratio	0.001
Crack Length	13.439 mm
Pmax / PQ	1.066
2.5*(KQ / YS) ²	12.13
K1c	8.773 MPa m ^{0.5}
Elastic Region Slope	17.720 kN/mm

Validation Conditions

Pmax / PQ Should be Less Than or Equal to 1.1
 Thickness Should be Greater Than 2.5*(KQ / YS)²

JR TEST REPORT

Width : 25 mm	Date : 28/03/2009
Thickness : 12.5 mm	Time : 16:56:02
Net Thickness : 12.5 mm	Modulus : 72 GPa
Disp. Inc. : 0.05 mm	Modulus Correction : 1
Loading Rate : 0.01 mm/sec	Yield Strength : 440 MPa
Unloading Rate : 0.005 mm/sec	Tensile Strength : 550 MPa
	Poissons Ratio : 0.33
	Pre-cracked a/W : 0.56752



JQ	= 80.921 kJ/sq-m
Jmax	= 267.597 kJ/sq-m
delta aQ	= 0.282 mm

JQ qualifies as J1c!

Validation Conditions

- 1) Thickness, B > 25*JQ/Yield Stress
- 2) Initial ligament, b0 > 25*JQ/Yield Stress
- 3) Slope of power law regression line, dJ/da, evaluated at delta aQ is less than Yield Stress

C:\Mtl32\JR Test on 25kN Machine -2.jrt

Note: Specification are subject to change without prior notice