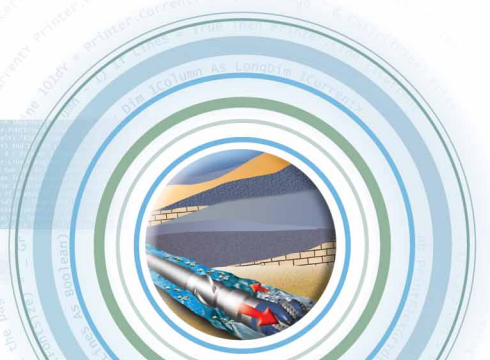


HYDPRO[®]

Drilling hydraulics

HYDPRO is a comprehensive drilling hydraulics program that covers all aspects of hydraulics, including mud rheology modeling, pressure drops and flow pattern, surge and swab, equivalent circulation densities (ECD), nozzle selection, cuttings concentration profile, and volumetric displacements. Computational results are shown graphically for quick and easy analysis.



Fixed or variable flow rate analysis

Bit optimization

Surge and swab

Coiled-tubing

Multiple wellbore and pipe sizes

Bingham plastic, power law or Herschel-Buckley fluids

Model selection based on viscometer readings

Pressure drop calculation through wellbore system

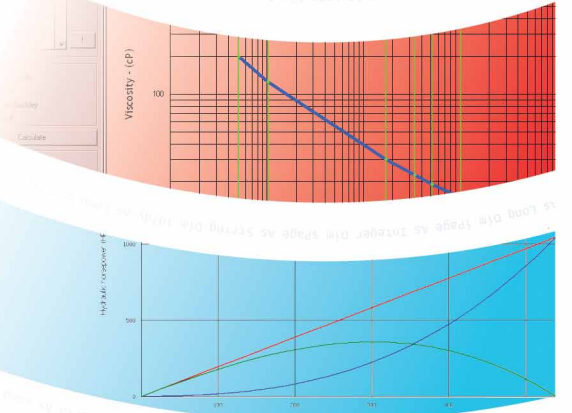
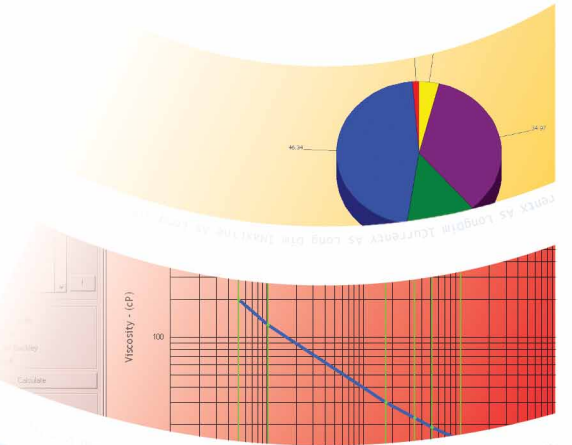
Flow pattern visualization

Cuttings concentration profile

Critical flow rate calculation

MS Word report

Supports oil field, SI and customized units



1	Pump pressure	75 (MPa)
2	Pressure loss	75 (MPa)
3	Pressure loss - surface / pipe	144 (228) (psi)
4	Pressure loss - annulus	22 (psi)
5	Pressure loss - total	757 (psi)
6	Bit hydraulic power	24 (HP)
7	Pressure loss - nozzle	30 (psi)
8	Jet impact force	171 (lbf)
9	Bit HRP per sq. in. of bit size	0.30 (hp/in ²)
10	Bit nozzle velocity	136 (ft/s)
11	Vol. - hole / pipe displacement	964 / 75 (bbl)
12	Vol. - annulus	1515 / 636 (bbl)

