

Electronic Dynamometer NYC



Dynamometer

Electronic Dynamometer NYC for deep well pump analyses. Diagrams can be recorded during the pumping cycle, without the need to stop the pump or to change the plunger setting-depth.

Description

The electronic Dynamometer DYCOMASTER DYC records the polished rod load (instantaneous load) throughout the working cycle of a deep well pump. It provides accurate information about pump efficiency and the production that may be expected from it. It allows for recognizing the onset of pump failures, such as plunger or barrel wear and worn or sticking valves, prior to a production drop becoming apparent.

On the other hand, if production drops, a Dycomaster log will provide evidence quickly to diagnose the fault. Regular, in some cases daily, Dycomaster tests will draw attention to the inception of faults and, thus, reduce expensive servicing time and costly loss of production.

What does the Dycomaster do

Regular dycomaster logging of pump performance brings the following principal advantages:

- It provides, as outlined above, a permanent record of pump efficiency.
- It will reveal paraffin accumulation, damage to tubing and friction between tubing and sucker rod string or stuffing box and polished rod. It will furnish data on which to base calculations of the depth of sucker rod failures. Leaking valves, tubing or pump barrel can be detected easily.
- A comparative study of dynamometer diagrams will indicate various changes of reservoir conditions such as gas or water encroachment. Regular dycomaster logging, without interruption of the pump, has the added advantage that changes in fluid level can be recognized.

Where does the Dycomaster work

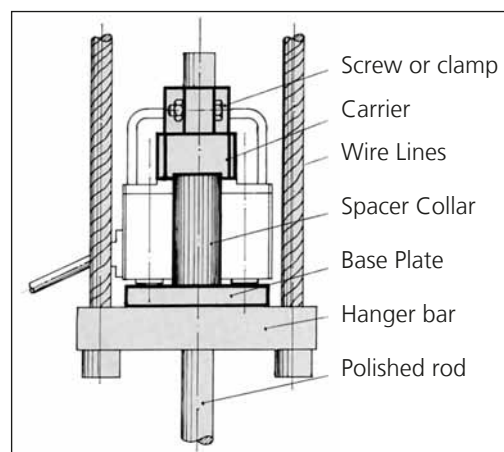
Each Pumping unit to be logged must be equipped with a set of spacers (attachment gear) fitted to the polished rod above the hanger bar between the two wire lines. Once fitted, the attachment gear remains as a permanent fixture to the pump and provides the unique advantage to instantly check the pump with the LEUTERT DYC.

Required minimum distance between the wire lines:

- 120 mm / 4-3/4" for DYC-0
- 140 mm / 5-1/2" for DYC-1
- 190 mm / 7-1/2" for DYC-2
- 250 mm / 9-5/8" for DYC-3

Type	Max. Load			for Polished Rod Diameter		
	kN	tons	lbs	1-1/8"	1-1/4"	1-1/2"
DYC-0	45	4.5	10,000	x	x	
DYC-1	75	7.5	16,500	x	x	
DYC-2	140	14.0	31,000		x	x
DYC-3	220	22.0	48,500		x	x

Specification of available types



Installation of the spacers

How does the Dycomaster work

The polished rod load acts on two jacks and generates a hydraulic pressure inside the Dycomaster body. The pressure is transferred to an electronic pressure transducer in the Dycomaster housing.

A displacement transducer, which measures the travel of the polished rod versus time, is attached to the Dycomaster. This transducer will travel up and down with the Dycomaster during the measurement. Both the signals from the load transducer, and the displacement transducer are sent to a data acquisition box by one cable.

A separate optional Current Clamp can also be attached to the Data Acquisition Unit to measure the current of the Pumping Unit Motor.



Installation of the Dynamometer DYC

Why choose a Leutert DYC

Dycomaster logging only achieves maximum significance, if the instrument can be fitted quickly and **without interruption of the pumping process or change of the plunger setting-depth**. Its installation is so simple that it can be fitted without special training by any field operator.

In contrast to other dycomasters in the market, the Leutert DYC fits these basic requirements ideally, because it can be fitted to the traveling polished rod and can register the actual cyclic fluctuations of pump loading within minutes without disturbance of sub surface conditions.

The main features of the Leutert DYC system are:

- The zero offset is known.
- The plunger setting depth remains unchanged to the normal operation.
- Subsurface conditions remain unchanged.
- Load transducer and the displacement transducer in one compact system.
- Only one cable required to connect the transducers to the Data Acquisition and Evaluation Unit DAE.
- Optional Amp Clamp available to measure motor current

Data Acquisition Unit

The DYC is a computer aided data acquisition and evaluation unit and the program is designed for testing and controlling of sucker rod pumps. It enables to measure at the pumping unit and to evaluate and to analyze the data, both in the field and in the laboratory or office.

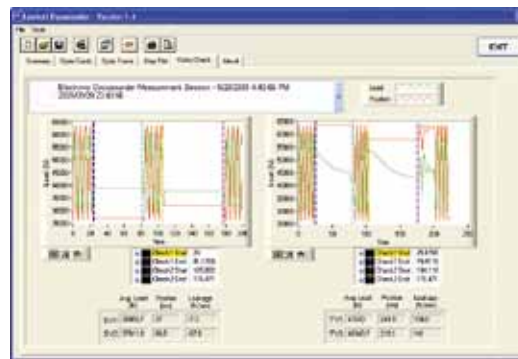
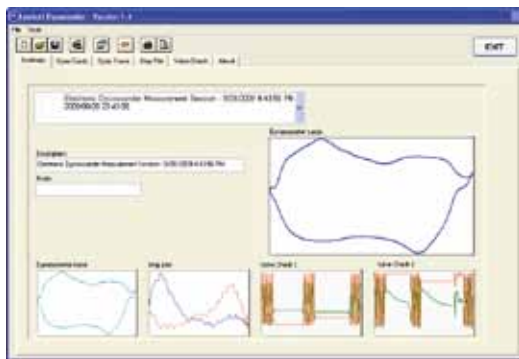
The computer analysis contains the surface and subsurface dynamograms, valve test, current and counter-balance effect measurements. Complete down hole calculation, stress and tubing analysis.

The main features of the Data Acquisition Unit are:

- Complete well analysis at surface and down-hole.
- Well data files can be stored on hard disk (data bank for more than 100 wells).
- English and metric units of measurement.
- Complete well analysis including dynamograms (surface and down hole), valve checks (TV and SV), counterbalance effect CBE, torque and down-hole calculation, stress and tubing analysis.
- Computer report of measured pumping unit.
- Reliable performance for many years with minimum maintenance, re-calibration and overhaul.



Data Acquisition Unit



DYC software: Dynamogram, computer report

Technical Specifications

Electronics	:	Embedded microcomputer
Power supply	:	12 VDC rechargeable battery incl. charger or external 12 VDC / 100 – 240 VAC
Working temperature range	:	-20 °C – 60 °C -68 °F – 140 °F (without computer) with computer: refer to the technical data of the PC
Total error	:	< 1.5%
Signal load / stroke / current	:	4 – 20 mA, two-wire system
Degree of protection	:	IP 54 for closed case; For open case the protection class depends on the built-in PC.
Stroke measuring range	:	0 – 635 cm 0 – 250 inch
Current measuring range	:	0 – 200 A
Dimensions		
- Data acquisition unit (W x H x D)	:	(380 x 180 x 270) mm (14.9 x 7.0 x 10.6) inch
- Dynamometer (W x H x D)	:	(350 x 240 x 270) mm (13.8 x 9.5 x 10.6) inch
Weight		
- Data acquisition unit	:	9.3 kg 20.5 lbs
- Dynamometer	:	11.2 kg 24.7 lbs