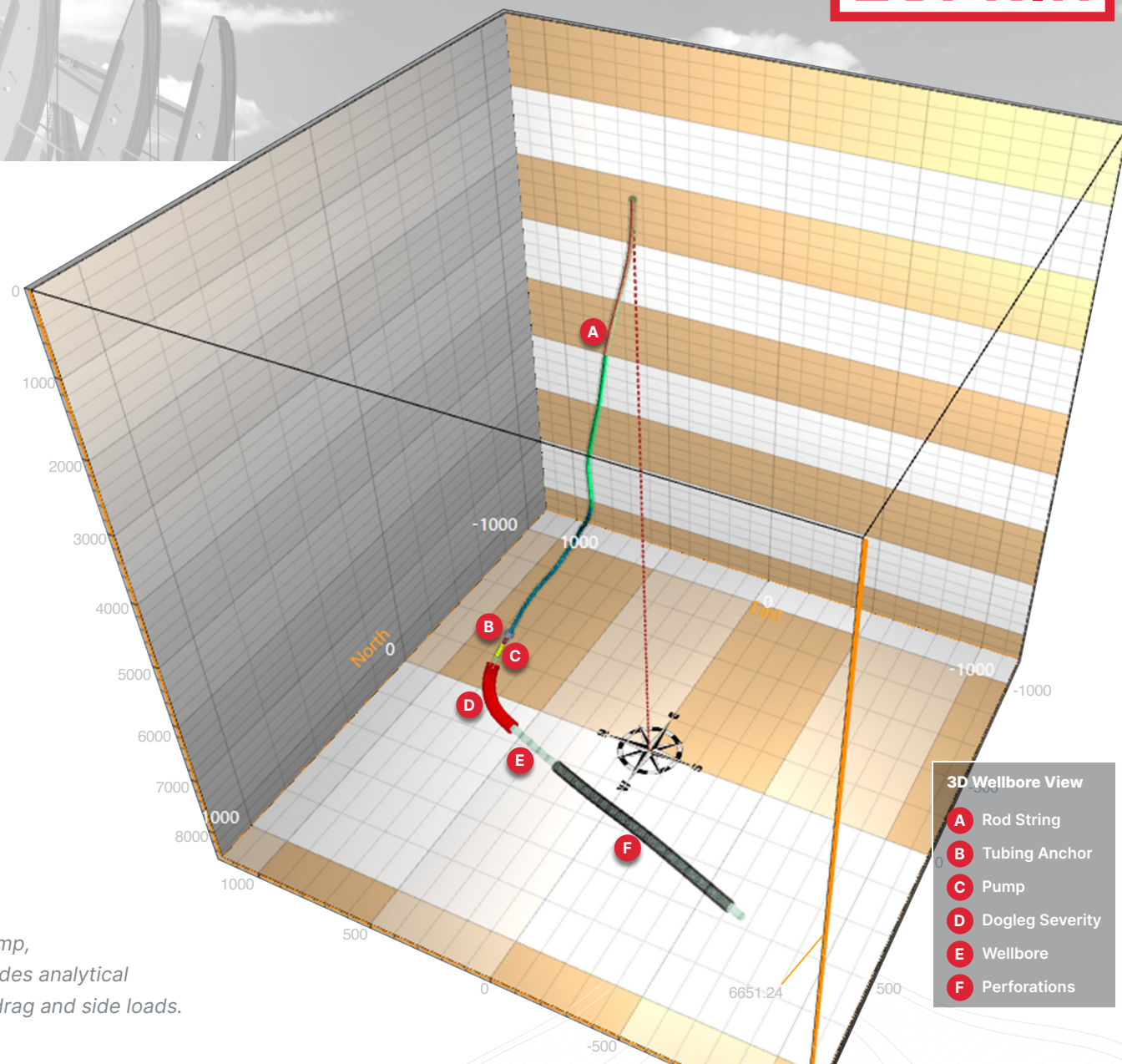# SROD™
INTELLIGENT ROD PUMP DESIGN SOFTWARE

ACCURATE PREDICTIVE DESIGN
OPTIMAL ROD-PUMP PERFORMANCE
FASTER ROI

3D Wellbore view displays individual rod tapers, pump, anchor and perforations along the well path. It includes analytical features to evaluate down hole conditions such as drag and side loads.

3D Wellbore View

A — Rod String
B — Tubing Anchor
C — Pump
D — Dogleg Severity
E — Wellbore
F — Perforations

EVERY BASIN, FIELD, AND WELL IS UNIQUE

Each has its own set of production characteristics and constraints. Accounting for those constraints can be a heavy lift when designing the right rod pump system for a well.

SROD™ intelligent rod pump design software takes on the challenge to tackle the complex array of surface and downhole parameters that are unique to each wellbore, enabling users to create the optimal rod-lift system for their well.

ACCURATE PREDICTIVE DESIGN

SROD software provides system design guidance, equipment selection options, and multi-case comparison producing a rod-pump system that aims to surpass performance standards.

UNSURPASSED DIAGNOSTIC CAPABILITY

With a few mouse clicks, SROD software enables operators to design new installations, or diagnose and optimize current systems. SROD software delivers accurate solutions for balancing pumping units, determining pump speed to achieve a given production rate and designing motor size optimized for VSD users. SROD deviated well analysis sets the standard for handling friction and understanding sucker rod performance in any well. The SROD system is easy to use, with intuitive tools that can direct novice users through the design process, and with sophisticated features that expert users will appreciate.
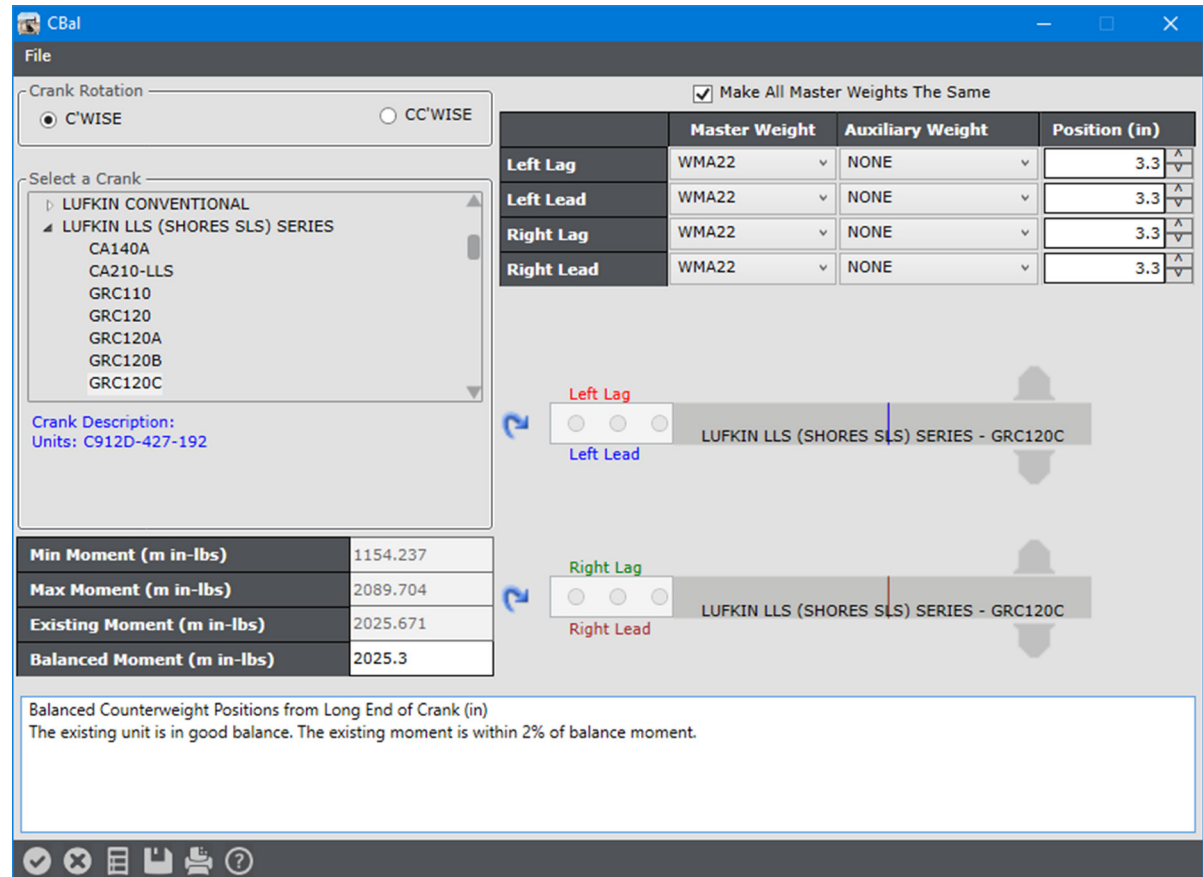
*Every pumping unit must be balanced to minimize torque and energy use. The **SROD C-Balance tool** calculates the amount of required counter weight and the correct location on the cranks for installation.*
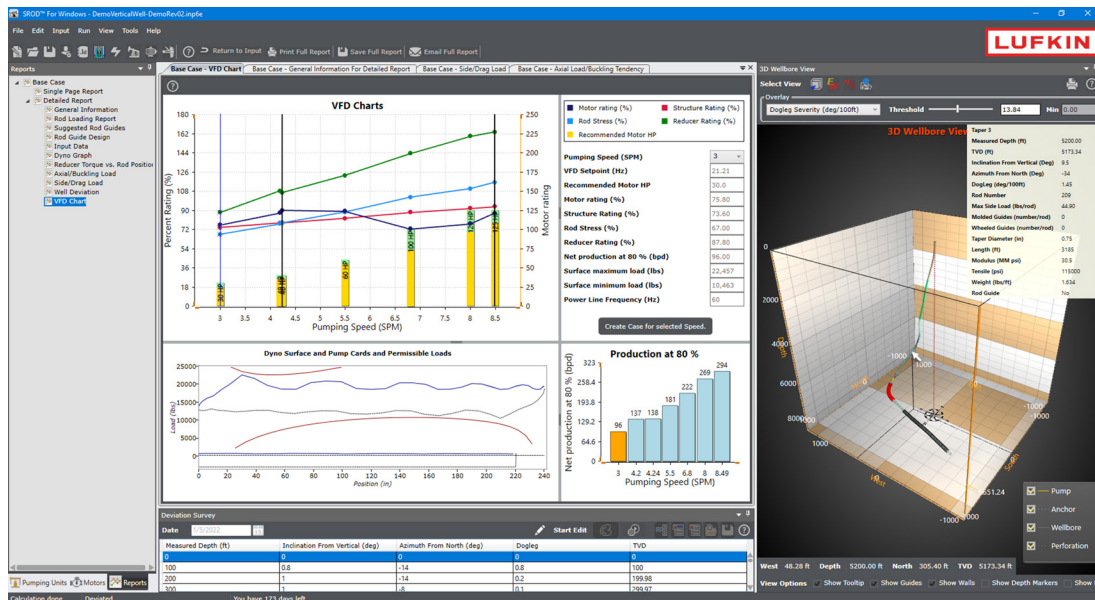
Multi-display capability uses an array of windows to help operators get the big picture.

MAXIMIZE ASSET VALUE, MINIMIZE OPERATING EXPENSE

When it comes to rod-lift systems, operators run the risk of incorporating surface or downhole pump equipment that may be oversized or undersized. If oversized, too much capital is spent—if undersized, the required production targets may not be met or the pumping system may be over stressed. Customers can capitalize on the wide variety of SROD predictive design and evaluation modules to develop a better system with the right-sized components rated for their unique well.

SROD is a design tool—and more. Advanced algorithms and an extensive equipment database with automated design suggestions, enhance its predictive design capability, so users can be assured that the best equipment is specified to fit the system and fit the job.

ADVANCED EVALUATION AND DESIGN FEATURES COME STANDARD

Rod lift design doesn't have to be complicated. With its predictive design and comprehensive analysis modules, the SROD system helps simplify the job.

SROD design software includes an extensive list of value-added features—all of which come standard, including:

→ State-of-the-art 3D Wellbore View, presenting comprehensive information along the well path

→ CBAL Counterbalance / Counterweight placement calculations

→ Multiple-case comparison

→ Advanced algorithms for calculating Drag, Side loads, buckling, equipment loading, reducer torque, rod stress, and much more

→ Pump capacity calculations using sheaves or variable frequency drives (VFD) parameters

→ Rod guide design

→ Electrical analysis

→ Inertia effects on reducer torque

→ Enhanced reporting interface for single-page or comprehensive, tailored reports that can be printed or emailed.

→ On-demand assistance via machine-accessible offline help files.

→ Extensive pump and crank database includes details on rods, motors, and pumping units, and is updated frequently to keep current with new products and standards for pump design and operation.

→ Single and Multi-User network licensing

lufkin.com/SROD

Data Comparison

Legends\Case Names	Base Case	SPM = 3	SPM = 4	SPM = 5
Motor	G.E. 100 HP KOF	G.E. 100 HP KOF	G.E.30 HP KOF	G.E. 50 HP KOF
Power Required(hp)	95.48	21.97	31.87	44.61
Motor Load (% of Rating)	95.5	22	106.2	89.2
Monthly Power Cost Non-Detent ($)	1653	1653	606	804
Input HP To Motor Non-Detent kW	30.37	30.37	11.13	14.77
Average Power Factor	0.531	0.531	0.506	0.503
Demand (kw)	22.7	22.7	8.3	11
Overall Efficiency %	62.5	20.2	74.9	71.9
Motor Electrical Loading (% Of Rating)	45.4	45.4	54.3	44.7
Pumping Unit	LUFKIN C912-305-240	LUFKIN C912-305-240	LUFKIN C912-305-240	LUFKIN C912-305-240
Surface maximum load (lbs)	27800	21312	22509	23706
Surface minimum load (lbs)	5760	9635	8933	8055
Average Pumping Speed (SPM)	8	3	4	5
Speed Variation (%)	0	0	0	0
Cyclic Load Factor For Torque	2.121	1.6	1.685	1.816
Structure Load (% of Rating)	91.1	69.9	73.8	77.7
Polished Rod Horse Power (hp)	40.52	12.26	17.02	22.11
Computed Surface Stroke (in)	240.1	240.1	240.1	240.1
Existing Max Torque (m in-lbs)	N/A	N/A	N/A	N/A
Existing Min Torque (m in-lbs)	N/A	N/A	N/A	N/A
Existing Gearbox Load (% Of Rating)	N/A	N/A	N/A	N/A
In-balance Max Torque (m in-lbs)	1429.8	792.1	908.3	1008
In-balance Min Torque (m in-lbs)	-895.6	-262.8	-356.5	-506.3
In-balance Gearbox Load (% Of Rating)	156.8	86.9	99.6	110.5
Pump Diameter (in)	1.25	1.25	1.25	1.25
Pump Fillage (%)	100	100	100	100
Net Pump Stroke (in)	230.1	218.1	220	220.5
Net bpd at 100% pump efficiency	336	119	160	201
Net bpd	268.8 (at 80% pump eff.)	95.2 (at 80% pump eff.)	128 (at 80% pump eff.)	160.8 (at 80% pump eff.)

** WARNINGS / NOTIFICATIONS **
Base Case
Slimhole couplings have been added to the Rod ' US ROD DS ' for Taper diameter of 1 in.

SPM = 3
Slimhole couplings have been added to the Rod ' US ROD DS ' for Taper diameter of 1 in.

The multi-case comparison function provides the user with a single table/page output to compare results for alternative design parameters.

A Base Case

B Comparison Cases

C Power Required

D Motor Load

E Overall Efficiency

F Average Pumping Speed

G Structure Load

H Net bpd

I Warnings

INFORMATION AT YOUR FINGERTIPS

The SROD program presents the information users need to create the most efficient rod pump design—no more jumping from one resource to another to get the data one needs.

A wellbore can be configured using the SROD 3D viewer. The user can analyze critical data from the single-page report, and drill down for more detail using the SROD custom-designed reporting capability. Users can run multi-case comparisons to fine-tune their selections and optimize their rod lift design. In addition, the SROD system hosts an extensive database of pumping system and crank specifications for ready reference.

ALWAYS READY TO HELP

Comprehensive help files provide on-demand guidance whenever assistance is required. For additional help, Lufkin SROD experts are available to troubleshoot operating and maintenance requirements. To locate the closest service engineer, visit **lufkin.com**.

SROD SYSTEM REQUIREMENTS

4 Core Intel ® Xeon ® E51603, 2.80 GHz equivalent or above

4 GB RAM or more

1 GB 3D video card or better

1280 X 768 resolution or higher (1600 X 1024 dpi small fonts recommended for better visual effects)

Microsoft .NET Framework 4.5.1 or later

Windows (7, 8, 10, 11, Server 2008, Server 2012, Server 2019)

SROD LICENSING

The SROD licensing structure supports single and multi-user network licensing. Contact the SROD licensing support team for a personalized demo and a trial license.

SRod.Licensing.Support@Lufkin.com

TECHNICAL SUPPORT

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