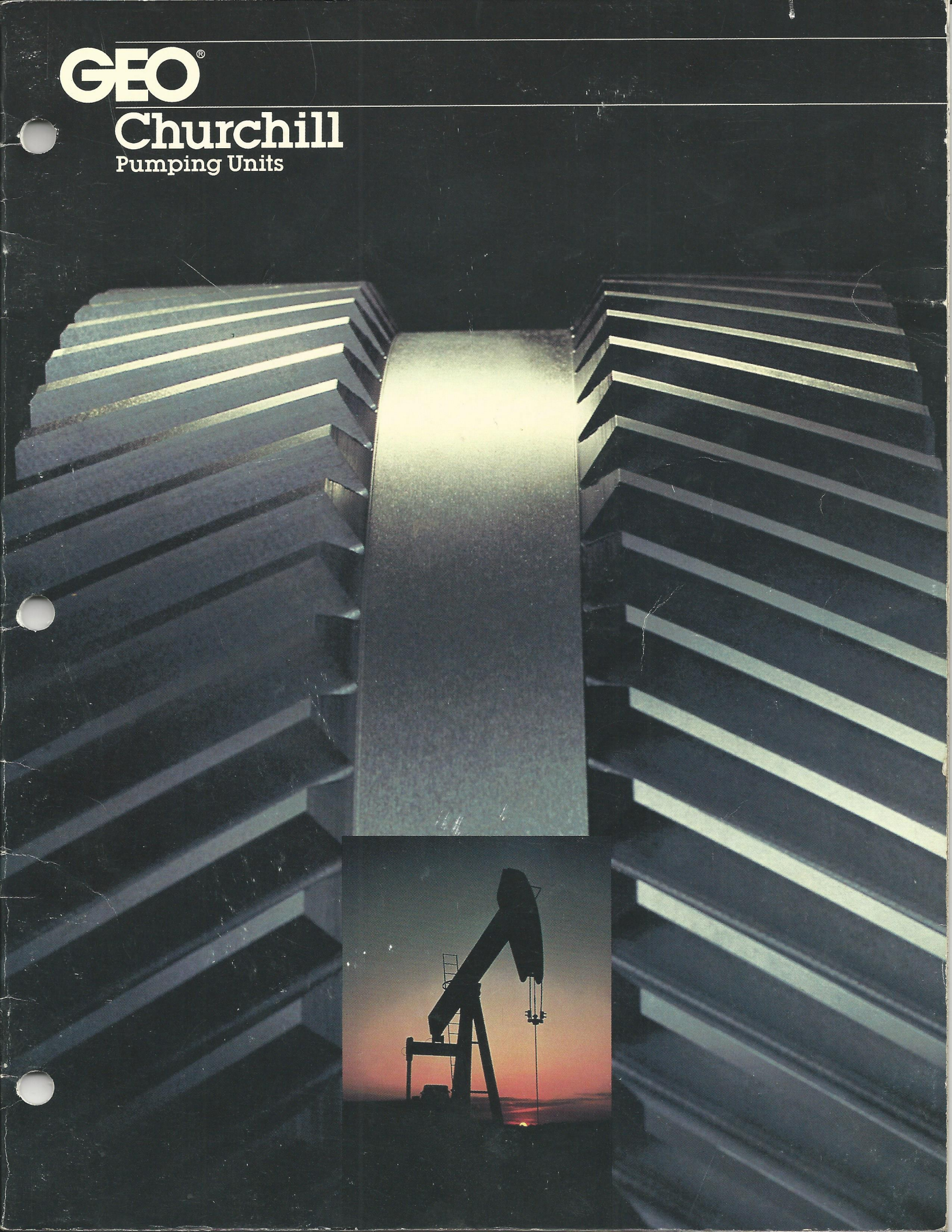
GEO®

Churchill

Pumping Units



GEO Churchill's manufacturing facility in Chanute, Kansas is one of the most modern and innovative in the industry. Encompassing over 30 acres, the facility is specifically designed and equipped for the manufacture of pumping units.

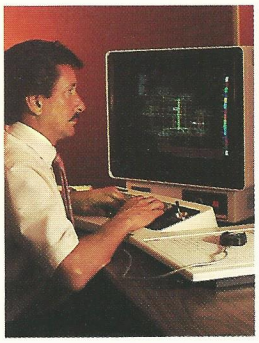
Contents

Reliability Since 1954.

Because your pumping unit may be in the field for fifteen, twenty, or twenty-five years, or even longer; you demand product reliability.

Churchill is a familiar name in oilfields throughout the world. We've been manufacturing pumping units since 1954. Nobody realizes more than we how important it is to minimize maintenance and maximize reliability. That comes only through experience.

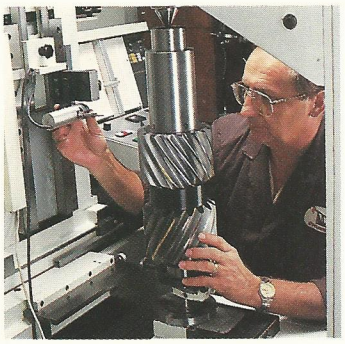
Churchill historically has been recognized as the industry leader in beam balanced pumping units. And with years of field-proven performance our crank balanced line has earned the acceptance of virtually every major producing company. As a matter of fact, by 1980 Churchill was delivering more pumping units than any other manufacturer... all with the reliability that adds up to value.

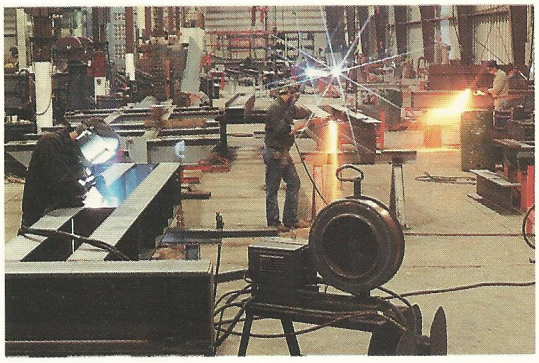


Over the years, many different pumping unit designs have been introduced. And various means of providing the reciprocating motion to activate a downhole rod pump have been employed. Overwhelmingly, the "conventional geometry" pumping unit has remained the industry preferred means of transforming rotary motion to reciprocating motion.

Today, with peak torque ratings of 6,400 to 912,000 inch-pounds, Churchill offers the widest range of conventional geometry pumping units in the industry.

Regardless of which size your well conditions dictate, Churchill reliability can be counted on year after year.

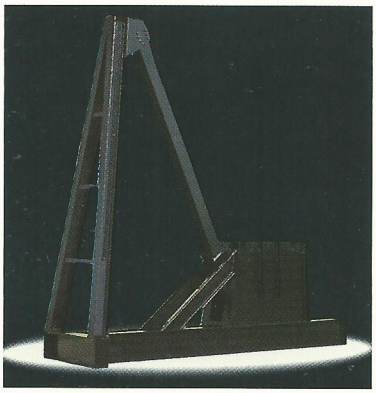




Above left: *Churchill engineers use computer-aided design and drafting (CADD) techniques to model products, analyze design integrity, transfer specifications to production, streamline production processes and more.*

Above right, top to bottom: *To assure rigid standards are maintained, Churchill has implemented a QA system that provides verifiable quality checks throughout the manufacturing process. Our machine shop incorporates the most advanced equipment available, including sophisticated CNC machining centers, four-axis lathes and precision gear hobs. Our immense fabrication plant has two steel warehouses which supply four assembly lines. The entire Churchill complex was designed for high-volume, automated production using state-of-the-art material handling and inventory control systems to assure prompt delivery of quality parts and products.*

Crank Balanced Pumping Units

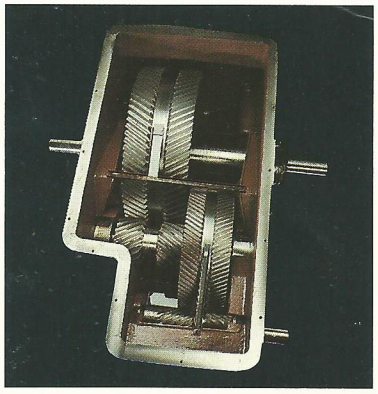


Structural Frames

Churchill is known for heavy structural frames. Extensive use of wide flange beams, heavy walled angles, and channels with full-length welds provide a rugged structure that is capable of withstanding extreme well loads. Easy access bolting, ground level lubrication, heavy steel risers and a ladder/safety ring assembly are standard on crank balanced structures.

All crank balanced units are available with a T-base or a wide portable base for use with an electric motor or gas engine. Double Helical (DH) units, which feature SlantBack™ bracing to reduce structural stress, have a two-point suspension base that decreases installation costs by permitting the use of portable, precast concrete pads.

Optional prime mover base extensions and elevated motor brackets adapt easily to engines and electric motors through the use of slide rails.

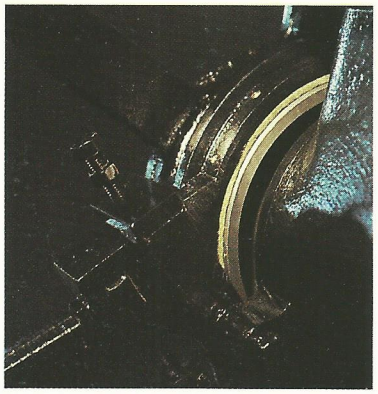


Gear Reducers

All Churchill gear reducers have been designed to exceed API and AGMA specifications. Gear cases are made of heavy-walled cast iron. The one-piece design provides maximum support for proper gear alignment and eliminates oil leaks which can occur at centerline splits. At the high-speed end of the gear reducer is Churchill's unique StepDown™ feature, which minimizes shaft deflection and improves gear meshing.

The gears in Churchill's DH Series have precision cut, double helical teeth and are machined from heat-treated, ductile iron castings. Pinions are cut from high quality, heat-treated alloy steel shafting. All other Churchill gear reducers use the same quality materials and feature economical, yet reliable, single helical gears.

Gear reducer bearings are rated for over 100,000 hours L-10 life. And bearing races are mounted in specially developed carriers. This feature minimizes field replacement time and prevents damage to the housing should a bearing fail. A splash/wiper lubrication system with integral troughs furnishes generous amounts of oil to the gear mesh and bearings in either direction of rotation.



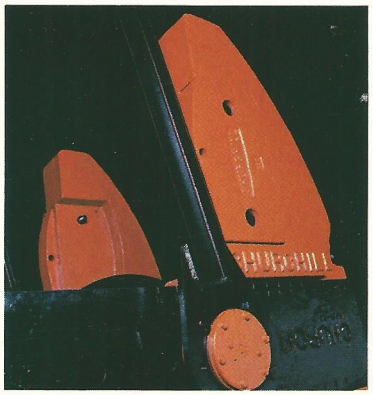
Brakes

Brakes on most competitive units are mounted on the high-speed pinion shaft opposite the sheave, requiring a "straight box" gear reducer design. Churchill features an efficient external shoe brake located inside the gear reducer sheave. This design allows Churchill to retain the unique StepDown™ gear reducer. Over 30 years of field performance have proven the StepDown™ feature minimizes bearing and gear failures.

Churchill brake shoes have a non-asbestos, woven friction lining. This tough material provides up to 75% more holding power than most asbestos linings and functions extremely well in wet environments. The brake drum is machined from heavy cast iron.

The Churchill brake can be locked prior to installation of the brake lever assembly. This feature provides added safety when the unit is being shipped or installed.

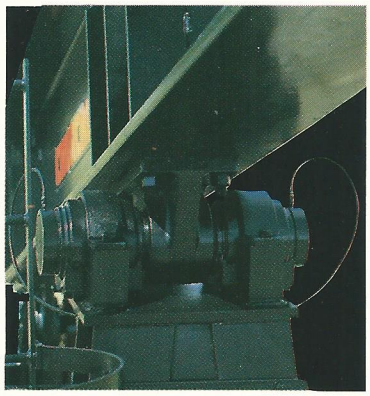
SAFETY NOTE: Brakes are for operational stops only. Before maintenance or inspection of a pumping unit, the prime mover must be locked in the off position. To prevent the risk of serious injury, cranks and counterweights must be secured with chains or by other acceptable means to prevent any movement.



Cranks & Counterweights

Churchill cranks are simply designed, yet rugged enough to withstand tough oilfield abuse. Wide adjustment slots on the cast-iron cranks enable a single operator to position the counterweights safely, rapidly and accurately with conventional tools.

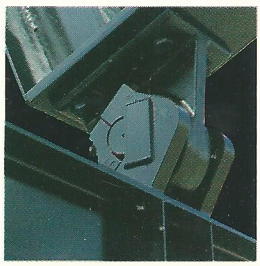
Master counterweights are available in five sizes. The four larger master weights are designed to easily accept auxiliary weights, which are available in three sizes. With the various combinations of master and auxiliary weights, effective and economical counterbalance can be achieved.

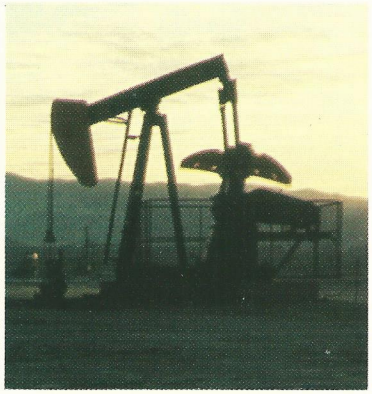


External Bearings

Saddle, equalizer and crank pin bearing assemblies on Churchill's DH Series feature heavy-duty, roller bearings. These high quality, anti-friction bearings have an L-10 life in excess of 100,000 hours under maximum rated load. Each assembly is designed for simplified field replacement. All bearings are factory lubricated and ground level grease fittings permit easy field lubrication.

The saddle and equalizer assemblies on 57's and 80's feature Churchill pioneered Friction-Ease™, non-metallic bearings. Decades of dependable service have proven them to be ideally suited for these smaller units.



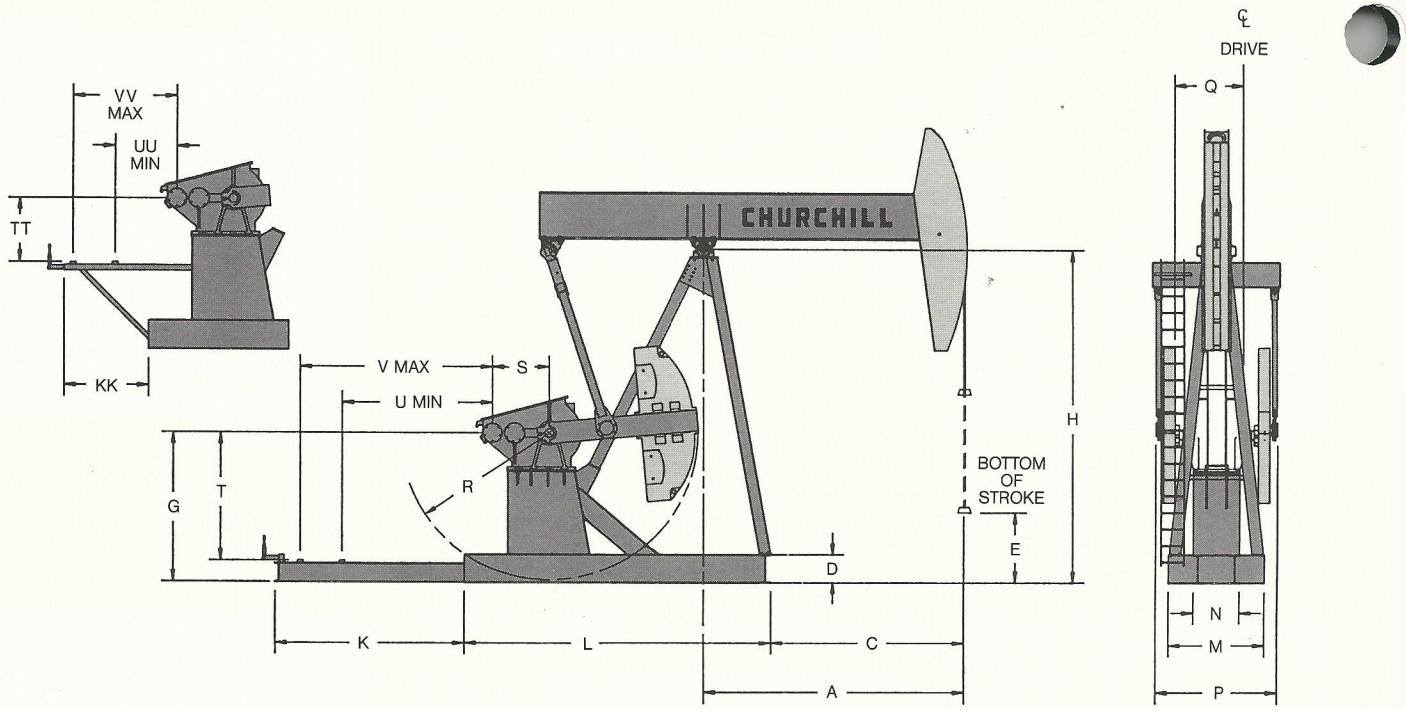


Optional Equipment

- HiMount™ elevated bracket for electric motor
- Base extension for gas engine
- Wide portable base for electric motor or gas engine
- Rail-type (livestock) crank guards
- Fence-type crank guards*
- Belt guard for use with electric motor*
- Belt guard for use with base extension or portable base*
- Horsehead HeadGuard™*

*__SAFETY NOTE:__ Churchill strongly recommends the use of belt guards, crank guards, safety ladders and horsehead guards. A ladder/safety ring assembly is standard on crank balanced structures, sizes 57 and larger.

Crank Balanced Pumping Units



Dimensional Data (inches)

Unit Size*	A	C	D	E	G	H	K	L	M	N	P	Q	R	S	T	U	V	KK	TT	UU	VV
57-76-42	60.0	36.25	10.0	48.0	57.0	123.0	89.0	122.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
57-89-42	60.0	36.25	10.0	48.0	57.0	123.0	89.0	122.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
57-109-48	60.0	36.25	10.0	48.0	57.0	123.0	89.0	112.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
57-76-54	67.5	43.75	10.0	48.0	57.0	123.0	89.0	122.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
80-109-48	60.0	36.46	12.0	48.0	59.0	136.0	89.0	112.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
80-133-48	60.0	36.46	12.0	48.0	59.0	136.0	89.0	112.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
80-133-54	67.5	43.96	12.0	48.0	59.0	136.0	89.0	122.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
80-119-64	80.0	56.46	12.0	48.0	59.0	136.0	89.0	122.0	54.5	21.5	60.2	30.4	55.0	23.16	45.0	27.0	70.0	48.5	17.5	10.0	44.5
DH114-133-54	67.5	44.0	12.3	48.0	61.0	138.0	85.0	120.9	49.5	21.5	67.8	35.3	50.0	23.96	51.0	42.9	121.5	48.6	18.0	15.8	45.8
DH114-143-64	84.0	54.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	21.5	67.8	35.3	76.0	23.96	66.0	42.9	121.5	44.0	22.6	15.8	45.8
DH114-143-74	97.0	67.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	21.5	67.8	35.3	76.0	23.96	66.0	42.9	121.5	44.0	22.6	15.8	45.8
DH114-119-86	113.0	83.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	21.5	67.8	35.3	76.0	23.96	66.0	42.9	121.5	44.0	22.6	15.8	45.8
DH160-173-64	84.0	54.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	25.8	68.0	37.4	76.0	29.04	66.0	57.3	121.9	64.5	22.6	13.8	43.8
DH160-143-74	97.0	67.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	25.8	68.0	37.4	76.0	29.04	66.0	57.3	121.9	64.5	22.6	13.8	43.8
DH160-200-74	97.0	67.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	25.8	68.0	37.4	76.0	29.04	66.0	57.3	121.9	64.5	22.6	13.8	43.8
DH160-173-86	113.0	83.0	14.0	66.0	78.0	180.0	98.5	164.5	53.5	25.8	68.0	37.4	76.0	29.04	66.0	57.3	121.9	64.5	22.6	13.8	43.8
DH228-200-74	97.0	67.0	21.0	72.0	78.0	180.0	127.3	164.9	60.5	28.8	77.2	45.0	76.0	31.80	64.0	56.4	83.9	64.3	32.0	15.0	68.0
DH228-213-86	113.0	83.0	21.0	72.0	78.0	180.0	127.3	164.9	60.5	28.8	77.2	45.0	76.0	31.80	64.0	56.4	83.9	64.3	32.0	15.0	68.0
DH228-246-86	113.0	65.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	28.8	77.2	45.0	106.0	31.80	94.0	53.0	93.0	54.6	46.0	15.0	68.0
DH228-173-100	130.0	82.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	28.8	77.2	45.0	106.0	31.80	94.0	53.0	93.0	54.6	46.0	15.0	68.0
DH228-213-120	156.0	108.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	28.8	77.2	45.0	106.0	31.80	94.0	53.0	93.0	54.6	46.0	15.0	68.0
DH320-213-86	113.0	83.0	21.0	72.0	78.0	180.0	127.3	164.9	60.5	32.5	86.8	49.4	76.0	40.38	64.0	47.9	75.4	64.3	32.0	33.1	65.1
DH320-256-100	130.0	82.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.0	60.2	46.0	33.1	65.1
DH320-256-120	156.0	108.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.0	60.2	46.0	33.1	65.1
DH320-256-144	187.0	139.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.0	60.2	46.0	33.1	65.1
DH456-365-120	156.0	108.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.0	60.2	46.0	33.1	65.1
DH456-305-144	187.0	139.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.8	60.2	46.0	33.1	65.1
DH456-365-144	187.0	139.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.8	60.2	46.0	33.1	65.1
DH456-305-168	218.0	170.0	21.0	72.0	108.0	240.0	135.7	218.3	68.5	32.5	86.8	49.4	106.0	40.38	94.0	50.0	116.8	60.2	46.0	33.1	65.1
DH640-365-144†																					
DH640-305-168†																					
DH912-427-144†																					
DH912-365-168†																					

Note: Do not use above dimensions for foundation. Request foundation plan.
†Available in 1989.

***Example:** DH456-365-120
Double Helical Series
456,000 inch-pounds of peak torque capacity
36,500 pounds of polished rod capacity
120 inches maximum stroke length

CHURCHILL®
Pumping Units CHANUTE, KANSAS

Structural Data

Unit Size	Polished Rod Capacity (lbs.)	Adjustable Stroke Lengths (inches)	Saddle Bearing (type)	Equalizer Bearing (type)	Crank Pin Bearing (type)	Wireline Hanger dia. x centers (inches)
57-76-42	7600	42, 34, 26	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
57-89-42	8900	42, 34, 26	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
57-109-48	10,900	48, 39, 29	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
57-76-54	7600	54, 45, 36	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
80-109-48	10,900	48, 39, 29	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
80-133-48	13,300	48, 39, 29	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
80-133-54	13,300	54, 45, 36	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
80-119-64	11,900	64, 54, 43	Friction-Ease	Friction-Ease	Spherical Roller	⅞ x 9
DH114-133-54	13,300	54, 45, 36	Straight Roller	Spherical Roller	Spherical Roller	⅞ x 9
DH114-143-64	14,300	64, 54, 42	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH114-143-74	14,300	74, 62, 50	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH114-119-86	11,900	86, 72, 57	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH160-173-64	17,300	64, 53, 43	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH160-143-74	14,300	74, 61, 49	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH160-200-74	20,000	74, 61, 49	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH160-173-86	17,300	86, 71, 57	Straight Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH228-200-74	20,000	74, 61, 49	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH228-213-86	21,300	86, 71, 57	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH228-246-86	24,600	86, 75, 64	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH228-173-100	17,300	100, 87, 74	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH228-213-120	21,300	120, 104, 89	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH320-213-86	21,300	86, 71, 57	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH320-256-100	25,600	100, 87, 74	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH320-256-120	25,600	120, 104, 89	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH320-256-144	25,600	144, 125, 107	Tapered Roller	Spherical Roller	Spherical Roller	1⅛ x 12
DH456-365-120	36,500	120, 105, 90	Tapered Roller	Spherical Roller	Spherical Roller	1¼ x 12
DH456-305-144	30,500	144, 125, 107	Tapered Roller	Spherical Roller	Spherical Roller	1¼ x 12
DH456-365-144	36,500	144, 125, 107	Tapered Roller	Spherical Roller	Spherical Roller	1¼ x 12
DH456-305-168	30,500	168, 146, 125	Tapered Roller	Spherical Roller	Spherical Roller	1¼ x 12
DH640-365-144†						
DH640-305-168†						
DH912-427-144†						
DH912-365-168†						

†Available in 1989.

Portable Base Dimensions (inches)

Unit Size	Base	Length	Width	Unit Size	Base	Length	Width	Unit Size	Base	Length	Width
57-76-42	EPB	136.0	84.0	DH114-119-86	EPB	178.0	84.0	DH320-256-100	EPB	232.0	97.1
57-76-42	GPB	226.8	84.0	DH114-119-86	GPB	270.0	84.0	DH320-256-100	GPB	360.0	97.1
57-89-42	EPB	136.0	84.0	DH160-173-64	EPB	176.5	92.0	DH320-256-120	EPB	232.0	97.1
57-89-42	GPB	226.8	84.0	DH160-173-64	GPB	281.0	92.0	DH320-256-120	GPB	360.0	97.1
57-109-48	EPB	126.0	84.0	DH160-143-74	EPB	176.5	92.0	DH320-256-144	EPB	232.0	97.1
57-109-48	GPB	226.8	84.0	DH160-143-74	GPB	281.0	92.0	DH320-256-144	GPB	360.0	97.1
57-76-54	EPB	136.0	84.0	DH160-200-74	EPB	176.5	92.0	DH456-365-120	EPB	232.0	97.1
57-76-54	GPB	226.8	84.0	DH160-200-74	GPB	281.0	92.0	DH456-365-120	GPB	360.0	97.1
80-109-48	EPB	126.0	84.0	DH160-173-86	EPB	176.5	92.0	DH456-305-144	EPB	232.0	97.1
80-109-48	GPB	226.8	84.0	DH160-173-86	GPB	281.0	92.0	DH456-305-144	GPB	360.0	97.1
80-133-48	EPB	126.0	84.0	DH228-200-74	EPB	179.0	97.1	DH456-365-144	EPB	232.0	97.1
80-133-48	GPB	226.8	84.0	DH228-200-74	GPB	300.0	97.1	DH456-365-144	GPB	360.0	97.1
80-133-54	EPB	136.0	84.0	DH228-213-86	EPB	179.0	97.1	DH456-305-168	EPB	232.0	97.1
80-133-54	GPB	226.8	84.0	DH228-213-86	GPB	300.0	97.1	DH456-305-168	GPB	360.0	97.1
80-119-64	EPB	136.0	84.0	DH228-246-86	EPB	232.0	97.1	DH640-365-144†	EPB		
80-119-64	GPB	226.0	84.0	DH228-246-86	GPB	360.0	97.1	DH640-365-144†	GPB		
DH114-133-54	EPB	136.0	84.0	DH228-173-100	EPB	232.0	97.1	DH640-305-168†	EPB		
DH114-133-54	GPB	223.0	84.0	DH228-173-100	GPB	360.0	97.1	DH640-305-168†	GPB		
DH114-143-64	EPB	178.0	84.0	DH228-213-120	EPB	232.0	97.1	DH912-427-144†	EPB		
DH114-143-64	GPB	270.0	84.0	DH228-213-120	GPB	360.0	97.1	DH912-427-144†	GPB		
DH114-143-74	EPB	178.0	84.0	DH320-213-86	EPB	179.0	97.1	DH912-365-168†	EPB		
DH114-143-74	GPB	270.0	84.0	DH320-213-86	GPB	300.0	97.1	DH912-365-168†	GPB		

EPB = Electric Portable Base GPB = Gas Portable Base †Available in 1989.

Crank Balanced Pumping Units

Counterbalance Data* (lbs.)

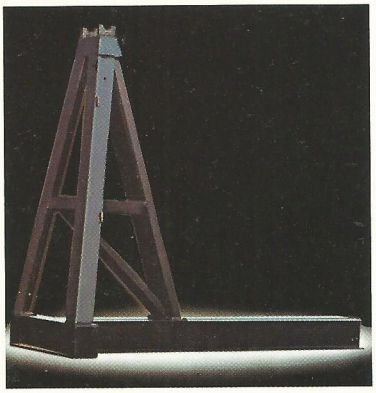
Unit Size	57-76-42 57-89-42	57-109-48	57-76-54	80-109-48 80-133-48	80-133-54	80-119-64	80-76-74	114-133-54	114-143-64	114-143-74	114-119-86	160-173-64	160-143-74 160-200-74	160-173-86
Structural Unbalance	183	110	113	155	185	-23	-177	226	132	-88	-350	585	323	0
Cranks only	2960	2540	2300	2590	2380	1830	1570	2600	5110	4220	3350	5660	4710	3770
2—240# wts.	4030	3480	3140	3530	3210	2530	2190	3440	6220	5180	4170	6770	5680	4590
4—240# wts.	5090	4420	3970	4470	4040	3230	2810	4270	7330	6140	5000	7870	6640	5420
2—750# wts.	5960	5180	4650	5220	4720	3800	3300	4940	8350	7030	5760	8900	7520	6180
2—750# wts. & 2—190# wts.	6600	5750	5150	5790	5220	4230	3670	5450	9100	7670	6310	9640	8170	6730
2—750# wts. & 4—190# wts.	7250	6310	5650	6360	5720	4650	4040	5950	9840	8320	6870	10390	8810	7290
2—1200# wts.									10040	8500	7020	10590	8990	7440
2—1200# wts. & 2—300# wts.									11100	9410	7800	11640	9900	8220
4—750# wts.	8960	7810	6990	7860	7060	5780	5030	7290	11590	9840	8170	12140	10330	8590
2—1200# wts. & 4—300# wts.									12150	10320	8580	12690	10810	9000
4—750# wts. & 2—190# wts.		8380		8420	7560	6200	5400	7790	12340	10480	8720	12880	10970	9140
4—750# wts. & 4—190# wts.		8950		8990	8070	6630	5770	8290		11130	9280	13630	11620	9700
4—750# wts. & 6—190# wts.		9510		9560	8570	7050	6140	8790		11770	9830	14370	12260	10250
2—2400# wts.												13960	11900	9940
4—750# wts. & 8—190# wts.				10120	9070	7480	6520	9300		12420	10380	15120	12910	10800
2—2400# wts. & 2—300# wts.													12590	10530
4—1200# wts.													13260	11110
2—2400# wts. & 4—300# wts.													13270	11120
4—1200# wts. & 2—300# wts.													14170	11890
4—1200# wts. & 4—300# wts.													15080	12670
4—1200# wts. & 6—300# wts.													15990	13450
4—1200# wts. & 8—300# wts.													16900	14230
4—2400# wts.														
4—2400# wts. & 2—300# wts.														
4—2400# wts. & 4—300# wts.														
4—2400# wts. & 6—300# wts.														
4—2400# wts. & 8—300# wts.														
2—4500# wts.														
2—4500# wts. & 2—600# wts.														
2—4500# wts. & 4—600# wts.														
4—4500# wts.														
4—4500# wts. & 2—600# wts.														
4—4500# wts. & 4—600# wts.														
4—4500# wts. & 6—600# wts.														
4—4500# wts. & 8—600# wts.														

*Counterbalance effect at polished rod, with maximum stroke length and weights fully extended, including structural unbalance.
†Available in 1989.

Double Helical (DH) Series

228-200-74	228-213-86	228-246-86	228-173-100	228-213-120	320-213-86	320-256-100	320-305-100	320-256-120	320-256-144	456-365-120	456-305-144 456-365-144	456-305-168	640-365-144†	912-427-144†	640-305-168† 912-365-168†
432	119	702	194	-226	143	516	562	-247	-910	-500	-1200	-1600			
4870	3930	8470	6940	5400	3810	7100	7140	5240	3670	4980	3380	2320			
5830	4750	9630	7950	6240	4640	8100	8150	6080	4370	5820	4080	2930			
6790	5580	10790	8960	7080	5460	9110	9160	6920	5070	6660	4780	3530			
7680	6340	11930	9940	7900	6220	10100	10150	7740	5750	7490	5460	4120			
8320	6890	12740	10660	8490	6770	10810	10860	8330	6250	8080	5960	4540			
8970	7450	13560	11370	9090	7330	11520	11570	8930	6740	8670	6450	4960			
9150	7600	13810	11590	9270	7480	11740	11790	9110	6890	8850	6600	5090			
10060	8380	15010	12630	10140	8260	12790	12830	9980	7620	9720	7330	5720			
10480	8750	15380	12950	10400	8630	13100	13150	10240	7840	9990	7550	5910			
10970	9160	16220	13670	11010	9040	13830	13880	10850	8350	10590	8060	6340			
11130	9300	16200	13660	10990	9180	13810	13860	10830	8330	10580	8040	6330			
11770	9860	17020	14370	11590	9740	14530	14570	11430	8830	11170	8540	6750			
12420	10410	17840	15080	12180	10290	15240	15280	12020	9320	11770	9030	7180			
12060	10100	18000		12300	9980	15380	15430	12140	9420	11890	9130	7260			
13060	10960	18650		12770	10840	15950	15990	12610	9820	12360	9530	7600			
12740	10690	19010		13030	10570	16260	16300	12870	10030	12620	9740	7790			
13420	11270	19160		13140	11150	16380	16430	12980	10120	12720	9830	7860			
13430	11280	20020		13760	11160	17140	17180	13600	10640	13350	10350	8310			
14330	12050	20360		14010	11930	17430	17470	13850	10850	13590	10560	8490			
15240	12830	21560		14880	12710	18470	18520	14720	11570	14460	11280	9110			
16150	13610			15750	13490	19520	19560	15590	12300	15330	12010	9730			
17060	14390			16620	14270	20560	20610	16460	13020	16200	12730	10350			
	16270			19200	16150	23660	23710	19040	15180	18790	14890	12200			
	16860				16740	24540	24590	19770	15790	19520	15500	12730			
	17450				17330	25420	25460	20500	16400	20250	16110	13250			
	18040				17920	26300	26340	21240	17010	20980	16720	13770			
					18510		27220	21970	17620	21720	17330	14300			
										16750	13190	10740			
										18110	14330	11720			
										19470	15460	12690			
										28510	23000	19160			
										29870	24140	20140			
										31240	25280	21110			
										32600	26410	22090			
										33960	27550	23060			

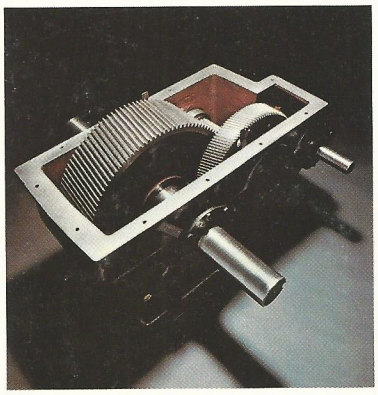
Beam Balanced Pumping Units



Structural Frames

Churchill's beam balanced frames have been field proven since 1954, with structural failures virtually non-existent. Extensive use of wide flange beams and full-length welds have resulted in a rugged structure that is capable of withstanding extreme well loads.

Standard on beam balanced units are slide rails that adapt to all prime movers, and easy access bolting.

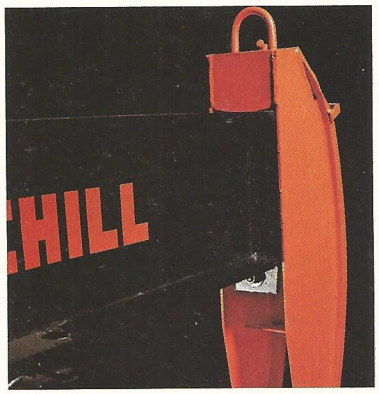


Gear Reducers

Churchill's precision cut helical gears are encased in a strong, heavy-walled, cast-iron gear reducer housing. Incorporated into the high-speed end of the gear reducer is Churchill's unique StepDown™ design, which minimizes shaft deflection and improves gear meshing.

Positive lubrication of the heat-treated, ductile iron gears and alloy steel pinions is ensured by a splash/wiper system. A built-in sight gauge allows immediate visual inspection of the oil level in the gear reducer housing.

All gear reducer bearings are rated for over 100,000 hours L-10 life. Tapered roller bearing races are mounted in bearing carriers. This unique configuration prevents damage to the housing, should a bearing fail.



Horseheads

Horseheads on Churchill beam balanced pumping units are easily detached for well servicing by removing a single bolt. A roll-back feature is available as an option.

A radius on the horsehead's support plate, which rests on the walking beam, permits lateral adjustment to ensure proper alignment of the wireline.

Churchill horseheads are ruggedly constructed with heavy gussets and full-length welds throughout.

Beam Weights

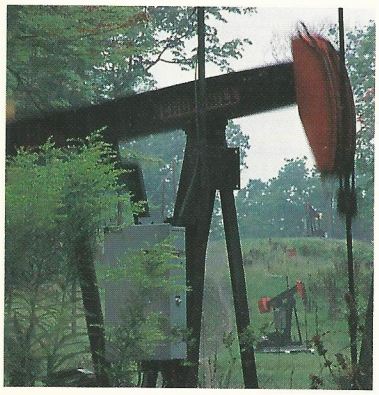
A 225 lb. beam weight assembly is designed to fit every model in the Churchill beam balanced line. This unique feature reduces the need for large weight inventories at field locations and lessens the possibility of error when adding counterbalance.

The two-piece 225 lb. weight assembly is easily converted to a 425 lb. weight assembly by adding two weight shrouds. Churchill also offers a 425 lb. two-piece beam weight assembly. Various combinations of 225 lb. and 425 lb. weight assemblies provide a wide range of counterbalance.

Friction-Ease™ Bearings

Churchill pioneered the use of Friction-Ease, non-metallic bearings in beam balanced pumping units. Years of exhaustive field tests and service have proven them to be among the most economical and durable bearings in the industry. Unlike conventional bearings, Friction-Ease bearings have sufficient resilience to absorb shocks and blows without taking a permanent set. Field replacement is easy and does not require specialized skills.

The inherent lubricity of Friction-Ease bearings furnishes an added measure of safety should scheduled field lubrication be delayed.

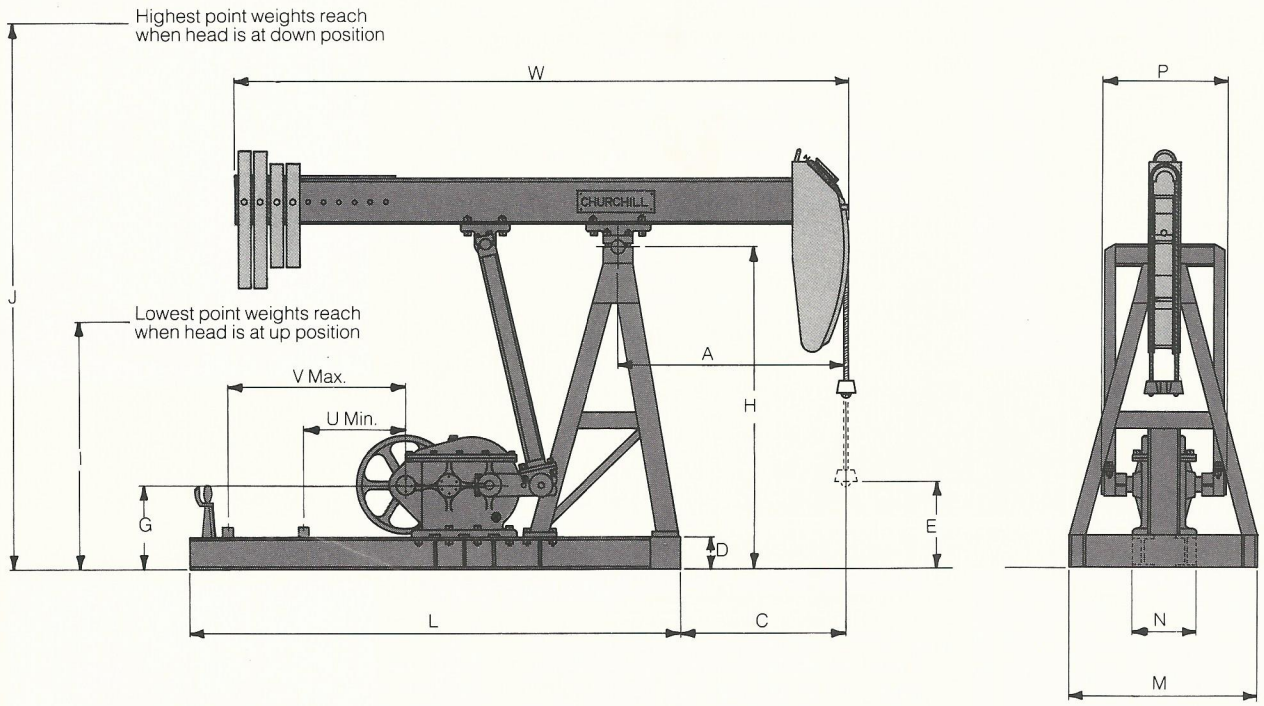


Optional Equipment

- Base extension
- Wide portable base for electric motor or gas engine
- Rail-type (livestock) crank guards
- Fence-type crank guards*
- Belt guard for use with electric motor*
- Belt guard for use with gas engine*
- Ladder/safety ring assembly*
- Roll-back horsehead
- Horsehead HeadGuard™*
- Spherical roller, crank pin bearings

***SAFETY NOTE:** Churchill strongly recommends the use of belt guards, crank guards, safety ladders and horsehead guards.

Beam Balanced Pumping Units



Dimensional Data (inches)

Unit Size*	A	C	D	E	G	H	I	J	L	M	N	P	U	V	W
6.4-28-12	18.25	16.00	4	17.8	11.1	44.5	21.5	71.5	63.5	24.00	5.91	20.80	16	25.62	65.5
6.4-32-16	25.50	23.25	5	18.8	12.1	50.2	20.0	73.0	63.5	30.00	6.25	20.80	16	23.75	79.2
10-32-18	25.50	23.25	5	18.2	14.3	50.5	17.5	77.0	69.5	30.00	6.50	21.60	16	24.38	79.0
13-32-24	35.80	33.30	5	28.8	14.8	62.0	18.8	98.2	75.5	33.50	8.75	29.50	16	25.72	115.4
16-40-24	38.00	35.50	6	28.8	15.8	66.0	28.1	99.6	88.0	33.50	8.88	28.90	16	36.25	117.0
16-53-30	38.12	35.62	6	35.2	15.8	76.0	30.0	114.5	88.0	36.00	8.88	28.90	16	36.25	117.3
25-53-30	38.12	35.62	8	42.3	17.8	83.0	39.8	123.2	110.0	36.00	13.18	34.60	16	44.50	117.1
25-67-30	38.25	34.75	8	44.4	17.8	83.0	41.3	125.1	110.0	36.00	13.18	34.60	16	44.50	117.2
25-56-36	38.00	34.50	8	25.2	17.8	83.0	33.3	126.8	110.0	36.00	13.18	34.60	16	44.50	118.0
25-67-36	38.00	34.50	8	27.3	17.8	83.0	35.5	128.8	110.0	36.00	13.18	34.60	16	44.50	117.8
40-89-36	47.50	32.00	10	48.6	24.1	102.1	48.9	146.8	124.1	42.75	14.81	37.20	16	37.25	149.5
40-76-42	47.50	32.00	8	40.2	22.1	99.9	40.0	151.0	123.3	42.75	14.81	37.20	16	36.50	149.5
40-89-42	47.50	32.00	10	39.6	24.1	102.1	42.5	152.0	124.1	42.75	14.81	37.20	16	37.25	149.5
40-76-48	56.75	41.25	8	42.9	22.1	99.9	36.5	156.5	123.3	42.75	14.81	37.20	16	36.50	172.2
50-84-42	47.50	32.00	10	39.6	24.1	102.1	42.5	152.0	124.1	42.75	14.81	37.20	16	37.25	148.8
50-84-48	59.12	43.62	10	41.0	24.1	102.1	41.5	159.0	124.1	42.75	14.81	37.20	16	37.25	176.9
50-84-54	59.50	44.00	10	30.8	24.1	102.1	40.0	162.3	124.1	42.75	14.81	37.20	16	37.25	177.0
57-109-42	47.50	31.50	10	39.6	26.2	102.2	42.5	152.0	148.0	42.75	21.50	49.12	16	47.50	148.8
57-109-48	60.00	44.00	10	41.0	26.2	102.2	41.5	159.0	148.0	42.75	21.50	49.12	16	47.50	176.9
57-76-54	60.00	44.00	10	30.8	26.2	102.2	40.0	162.0	148.0	42.75	21.50	49.12	16	47.50	177.0
80-109-42	47.50	31.50	10	41.6	26.2	98.7	39.0	148.5	148.0	42.75	21.50	49.12	16	47.50	148.8
80-109-48	60.00	44.00	10	43.0	26.2	98.7	38.0	155.5	148.0	42.75	21.50	49.12	16	47.50	176.9
80-76-54	60.00	44.00	10	32.0	26.2	98.7	36.5	158.5	148.0	42.75	21.50	49.12	16	47.50	177.0
80-76-64	71.00	44.00	10	32.0	26.2	116.0	53.8	175.8	148.0	42.75	21.50	49.12	16	47.50	188.0

Note: Do not use above dimensions for foundation. Request foundation plan.

***Example:** 40-89-36
40,000 inch-pounds of peak torque
8,900 pounds of polished capacity
36 inches maximum stroke length

Structural Data

Unit Size	Polished Rod Capacity (lbs.)	Adjustable Stroke Lengths (inches)	Pitman Bearing (type)	Saddle Bearing (type)	Crank Pin Bearings (type)	Wireline Hanger (inches)
6.4-28-12	2800	12, 9	Friction-Ease	Friction-Ease	Friction-Ease	½ x 4¼
6.4-32-16	3200	16, 13	Friction-Ease	Friction-Ease	Friction-Ease	½ x 4¼
10-32-18	3200	18, 15, 12, 10	Friction-Ease	Friction-Ease	Friction-Ease	½ x 4¼
13-32-24*	3200	24, 19½, 16, 13	Friction-Ease	Friction-Ease	Friction-Ease	½ x 4¼
16-40-24†	4000	24, 20½, 16, 13½	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
16-53-30†	5300	30, 24, 20, 16	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
25-53-30†	5300	30, 25, 19½, 16	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
25-67-30†	6700	30, 25, 19½, 16	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
25-56-36†	5600	36, 29, 23, 19	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
25-67-36†	6700	36, 29, 23, 19	Friction-Ease	Friction-Ease	Friction-Ease	⅝ x 6
40-89-36†	8900	36, 31, 27, 24	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
40-76-42†	7600	42, 35, 32, 27	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
40-89-42†	8900	42, 35, 32, 27	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
40-76-48†	7600	48, 40, 36, 31	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
50-84-42*†	8400	42, 35, 32, 27	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
50-84-48*†	8400	48, 41, 37, 32	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
50-84-54*†	8400	54, 45, 41, 35	Friction-Ease	Friction-Ease	Friction-Ease	¾ x 7
57-95-42	9500	42, 35, 32, 27	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
57-109-48	10,900	48, 41, 37, 32	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
57-76-54	7600	54, 45, 41, 35	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
80-109-42	10,900	42, 35, 32, 27	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
80-109-48	10,900	48, 41, 37, 32	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
80-76-54	7600	54, 45, 41, 35	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7
80-76-64	7600	64, 54, 49, 41	Friction-Ease	Friction-Ease	Spherical Roller	¾ x 7

* Non API size.
†Available with spherical roller bearings at the crank pin.

Portable Base Dimensions (inches)

Unit Size	Base	Length	Width	Unit Size	Base	Length	Width	Unit Size	Base	Length	Width
6.4-28-12	EPB	75.0	27.1	25-67-36	GPB	167.0	40.5	57-95-42	EPB	160.0	72.0
6.4-32-16	EPB	82.0	33.5	40-89-36	EPB	152.0	46.5	57-95-42	GPB	206.0	72.0
10-32-18	EPB	88.0	33.5	40-89-36	GPB	189.0	46.5	57-109-48	EPB	160.0	72.0
13-32-24	EPB	96.0	36.5	40-76-42	EPB	152.0	46.5	57-109-48	GPB	206.0	72.0
16-40-24	EPB	119.0	37.3	40-76-42	GPB	188.0	46.5	57-76-54	EPB	160.0	72.0
16-40-24	GPB	143.0	37.3	40-89-42	EPB	152.0	46.5	57-76-54	GPB	206.0	72.0
16-53-30	EPB	119.0	39.8	40-89-42	GPB	189.0	46.5	80-109-42	EPB	160.0	72.0
16-53-30	GPB	143.0	39.8	40-76-48	EPB	152.0	46.5	80-109-42	GPB	206.0	72.0
25-53-30	EPB	131.0	40.5	40-76-48	GPB	188.0	46.5	80-109-48	EPB	160.0	72.0
25-53-30	GPB	167.0	40.5	50-84-42	EPB	152.0	46.5	80-109-48	GPB	206.0	72.0
25-67-30	EPB	131.0	40.5	50-84-42	GPB	189.0	46.5	80-76-54	EPB	160.0	72.0
25-67-30	GPB	167.0	40.5	50-84-48	EPB	152.0	46.5	80-76-54	GPB	206.0	72.0
25-56-36	EPB	131.0	40.5	50-84-48	GPB	189.0	46.5	80-76-64	EPB	160.0	72.0
25-56-36	GPB	167.0	40.5	50-84-54	EPB	152.0	46.5	80-76-64	GPB	206.0	72.0
25-67-36	EPB	131.0	40.5	50-84-54	GPB	189.0	46.5				

EPB = Electric Portable base
GPB = Gas Portable Base

Beam Balanced Pumping Units

Counterbalance Data* (lbs.)

Unit Size	6.4-28-12	6.4-32-16	10-32-18	13-32-24	16-40-24	16-53-30	25-53-30	25-67-30	25-56-36	25-67-36
Structural Unbalance	83	63	96	145	103	109	135	125	101	128
1 set-std. wts.	644	523	556	634	559					
2 sets-std. wts.	1166	955	988	1103	996					
3 sets-std. wts.	1650	1360	1393	1552	1415					
4 sets-std. wts.	2095	1737	1770	1982	1815					
5 sets-std. wts.	2501	2087	2120	2392	2198					
6 sets-std. wts.		2409	2442	2782	2561					
7 sets-std. wts.					2906					
8 sets-std. wts.					3233					
1 set-std. wts.						563	589	579	555	582
2 sets-std. wts. or 1 set-HD wts.						999	1025	1015	991	1018
3 sets-std. wts. or 1 set-std. wts./1 set-HD wts.						1417	1443	1433	1409	1436
4 sets-std. wts. or 2 sets-HD wts.						1816	1842	1832	1808	1835
5 sets-std. wts. or 1 set-std. wts./2 sets-HD wts.						2196	2222	2212	2188	2215
6 sets-std. wts. or 3 sets-HD wts.						2558	2584	2574	2550	2577
7 sets-std. wts. or 1 set-std. wts./3 sets-HD wts.						2902	2928	2918	2894	2921
8 sets-std. wts. or 4 sets-HD wts.						3228	3254	3244	3220	3247
9 sets-std. wts. or 1 set-std. wts./4 sets-HD wts.						3535	3561	3551	3527	3554
10 sets-std. wts. or 5 sets-HD wts.						3823	3849	3839	3815	3842
1 set-std. wts./5 sets-HD wts.						4414	4440	4430	4406	4433
6 sets-HD. wts.						4736	4762	4752	4728	4755
1 set-std. wts./6 sets-HD wts.								5095		5098
7 sets-HD. wts.								5401		5404
1 set-std. wts./7 sets-HD wts.								5726		5729

*Counterbalance effect at polished rod with weights mounted as far to rear of the beam as possible, including structural balance.
NOTE: HD = heavy-duty.

Counterbalance Data* (lbs.)

Unit Size	40-89-36	40-76-42 40-89-42	40-76-48	50-84-42	50-84-48	50-84-54	57-109-42 80-109-42	57-109-48 80-109-48	57-76-54 80-76-54	80-76-64
Structural Unbalance	321	244	258	276	135	146	366	324	213	193
1 set-std. wts.	787	710	723	742	570	580	837	759	647	553
2 sets-std. wts. or 1 set-HD wts.	1238	1161	1175	1193	992	1001	1293	1181	1068	1116
3 sets-std. wts. or 1 set-std. wts./1 set-HD wts.	1674	1597	1614	1629	1403	1412	1734	1592	1479	1560
4 sets-std. wts. or 2 sets-HD wts.	2096	2019	2041	2051	1803	1810	2160	1992	1877	1992
5 sets-std. wts. or 1 set-std. wts./2 sets-HD wts.	2504	2427	2455	2459	2190	2197	2571	2379	2264	2412
6 sets-std. wts. or 3 sets-HD wts.	2896	2819	2857	2851	2566	2572	2968	2755	2639	2821
7 sets-std. wts. or 1 set-std. wts./3 sets-HD wts.	3274	3197	3246	3229	2930	2935	3350	3119	3002	3218
8 sets-std. wts. or 4 sets-HD wts.	3637	3560	3623	3592	3283	3286	3717	3472	3353	3603
9 sets-std. wts. or 1 set-std. wts./4 sets-HD wts.	3986	3909	3987	3941	3624	3626	4069	3813	3693	3977
10 sets-std. wts. or 5 sets-HD wts.	4320	4243	4338	4275	3953	3954	4407	4142	4021	4339
1 set-std. wts./5 sets-HD wts.	4836	4759	4810	4791	4393	4395	4929	4582	4462	4794
6 sets-HD wts.	5185	5108	5167	5140	4727	4728	5281	4916	4795	5157
1 set-std. wts./6 sets-HD wts.	5563	5486	5556	5518	5092	5091	5663	5281	5158	5554
7 sets-HD wts.	5899	5822	5902	5854	5415	5414	6003	5604	5481	5907
1 set-std. wts./7 sets-HD wts.	6262	6185	6279	6217	5768	5766	6370	5957	5833	6293
8 sets-HD wts.	6585	6508	6614	6540	6081	6078	6696	6270	6145	6635
1 set-std. wts./8 sets-HD wts.	6934	6857		6889	6422	6418	7048	6611	6485	
9 sets-HD wts.	7243	7166		7198	6725	6720	7361	6914		
1 set-std. wts./9 sets-HD wts.	7577	7500			7054	7048	7699	7243		
10 sets-HD wts.					7346	7340	7999	7535		
1 set-std. wts./10 sets-HD wts.							8321	7853		
11 sets-HD wts.							8608	8135		
1 set-std. wts./11 sets-HD wts.							8916	8440		
12 sets-HD wts.							9190	8712		

*Counterbalance effect at polished rod weights mounted as far to rear of the beam as possible, including structural unbalance.
NOTE: HD = heavy duty.

Gear Reducer Data & Lubrication Instructions

Gear Reducer Data

Gear Reducer Size	Peak Torque Rating (in. lbs.)	Gear Ratio	Sheave Pitch Dia. (inches)	Sheave Belt Section	Gear Reducer Oil Capacity (gallons)	Gear Design	Crankshaft Bearings	Intermediate & High Speed Bearings
6.4	6400	33.64:1	18.4	1-B	1	Helical	Tapered Roller	Tapered Roller
10	10,000	33.24:1	18.4	1-B	1.25	Helical	Tapered Roller	Tapered Roller
13	13,000	31.36:1	18.4	1-B	1.5	Helical	Tapered Roller	Tapered Roller
16	16,000	31.36:1	18.4	2-B	1.5	Helical	Tapered Roller	Tapered Roller
25	25,000	31.14:1	18.4	2-B	2	Helical	Tapered Roller	Tapered Roller
40	40,000	31.11:1	18.4	3-B	4	Helical	Tapered Roller	Tapered Roller
50	50,000	31.11:1	18.4	3-B	4	Helical	Tapered Roller	Tapered Roller
57	57,000	31.57:1	24	4-B, 3-C	13	Helical	Tapered Roller	Tapered Roller
80	80,000	30.06:1	24	4-B, 3-C	13	Helical	Tapered Roller	Tapered Roller
114	114,000	30.48:1	20,24,30	3-C	9	Double Helical	Tapered Roller	Cylindrical Roller
160	160,000	30.33:1	20,24,30	3-C	15	Double Helical	Tapered Roller	Cylindrical Roller
228	228,000	29.98:1	27,30,36	5-C	28	Double Helical	Tapered Roller	Cylindrical Roller
320	320,000	30.71:1	27,30,36,44	5-C	55	Double Helical	Tapered Roller	Cylindrical Roller
456	456,000	30.71:1	30,36,44	5-C	55	Double Helical	Tapered Roller	Cylindrical Roller
640	640,000	31.08:1	30,40,50	6-D	110	Double Helical	Tapered Roller	Cylindrical Roller
912	912,000	31.08:1	30,40,50	6-D	110	Double Helical	Tapered Roller	Cylindrical Roller

Churchill is one of the few pumping unit manufacturers in the world which produces its own oilfield gear reducers...including the hobbing of high-quality, precision gears. The hobbing process has long been recognized in the gear industry as a much more accurate method of controlling gear tooth spacing than is shaping. All Churchill gear reducers have been designed to exceed API and AGMA specifications. Churchill has been authorized for over 30 years to display the API monogram and is licensed under specification 11E. The Company is an active member of both the American Petroleum Institute and the American Gear Manufacturers Association.

MEMBER OF AGMA

Licensed under API spec. 11E

Lubrication Instructions

The proper care and lubrication of your Churchill pumping unit will assure many, trouble-free years of operation.

Gear Reducer. For temperatures from 0°F to 140°F, use an AGMA 5EP (ISO VG 220) premium mild extreme pressure lubricant with rust and oxidation inhibitors and an anti-foam agent. Pour point of the oil should be 5°F or lower. For temperatures from −30°F to 110°F, use AGMA 4EP (ISO VG 150) premium mild extreme pressure lubricant with rust and oxidation inhibitors and an anti-foam agent. Pour point of the oil should be −15°F or less. For more detailed lubrication information, refer to the latest edition of API RP-11G, *Recommended Practice for the Installation and Lubrication of Pumping Units.*

To obtain long life from a pumping unit reducer, it is necessary that the oil be of suitable viscosity and free from foreign material, sludge and water. Check for water in the reducer every six months, or when the reducer has been exposed to flooding.

Structural Bearings. All structural bearings are lubricated at the factory prior to shipment. However, periodic relubrication is recommended.

The saddle, equalizer and crank pin bearings should be lubricated with a lithium base general purpose grease. Each bearing assembly has a ground level grease fitting for easy lubrication with a grease gun. The bearing assemblies should be lubricated at quarterly intervals. In some environments, more frequent lubrication may be required.

Safety Precautions

An oilfield pumping unit is a complicated machine with a number of heavy rotating and moving parts. Even when not in operation, a pumping unit (like any other type of heavy machinery) can pose various safety hazards. This is especially true for anyone unfamiliar with pumping units.

Churchill encourages owner/operators to take whatever precautions are deemed necessary to inform, educate and protect any person who may come in contact with a Churchill pumping unit. Before working on or around a pumping unit, it is recommended that you review the latest edition of API RP-11ER, *Recommended Practice for Guarding of Pumping Units*; and API RP-11G, *Recommended Practice for the Installation and Lubrication of Pumping Units*. These publications are available from the American Petroleum Institute, 1220 L Street, NW, Washington, D.C. 20005.

It also may be useful to review safety related material published by the American Society of Mechanical Engineers, 345 East 47th Street, New York, N.Y. 10017; the American National Standards Institute, 1430 Broadway, New York, N.Y. 10018; and others.

Safety Guarding

The owner/operator of a pumping unit is responsible for selecting the appropriate compliment of pumping unit safety guards. The selection usually is based on several factors including but not limited to: personal safety, livestock safety, well location, state and local regulations, etc.

As a service to our customers, Churchill offers several types of safety guards and enclosures which are sold as optional equipment. These include belt/sheave guards, fence-type and rail-type (livestock) crank/counterweight guards, and horsehead guards. Ladders and safety rings are also available, and Churchill will custom build safety guards to the customer's specifications if requested.

Regardless of the supplier, appropriate safety guards must be in place and properly maintained to prevent the risk of serious injury or even death. Churchill also recommends that owner/operators prominently display warning signs to augment the protection afforded by safety guards and enclosures.

Ordering Instructions & Warranty

Ordering Instructions

Churchill pumping units and accessories are sold through authorized distributors only. For the name of your nearest Churchill distributor, please call our toll-free number: 800/835-3102 (Kansas residents, call 316/431-0500).

To ensure proper delivery of a Churchill pumping unit, provide your local distributor with the following information:

- Well depth
- Tubing size
- Preferred rod size
- Preferred pump size
- Desired pump capacity
- Fluid level

When ordering replacement parts, be sure to include the following information:

- Unit model number
- Unit serial number
- Replacement part number
- Complete part description

Warranty

Churchill warrants its pumping units against defects in materials and workmanship for a period of one year from the date the unit is properly installed and placed in service, as recommended by Churchill, or for a period of fifteen months from the date the unit is shipped from Churchill's authorized distributor, whichever comes first (the "Warranty Period"). Churchill's sole liability and its customers' exclusive remedy, under this warranty is expressly limited to the replacement of parts during the Warranty Period upon proof, satisfactory to Churchill, of the defect and upon the Purchaser's returning, at its own expense, the defective parts to Churchill. The Purchaser, and not Churchill, shall bear the cost of labor and transportation in connection with the replacement or repair of defective parts under this warranty. Churchill will ship replacement parts prepaid to any point in North America.

In the event that any Churchill pumping unit is modified at any place other than the point of original manufacture, this warranty will become null and void.

The foregoing warranties will not apply to repair of damage, determined solely by Churchill, to be caused by: accident, transportation, neglect or the use of equipment or accessories, supplied by other manufacturers, not meeting Churchill specifications.

Note:

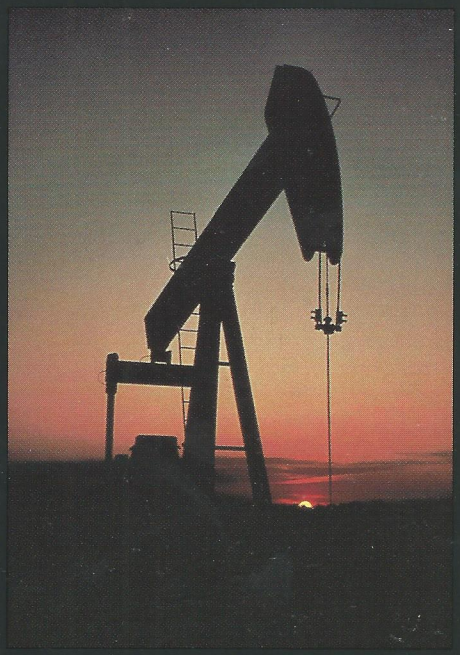
The foregoing warranties are in lieu of all other warranties, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Limitation of Liability:

Without limitation to the foregoing in no event shall Churchill be liable for the loss of use of the product, or for the loss of use of, or damage to, any other product, process, plant, equipment or facilities of the purchaser or the end user whether partially or wholly due to defects in material and/or workmanship and/or design of Churchill's product and in no event shall Churchill be liable for expenses necessary to remove or reinstall any product supplied by Churchill or for any damage to other property or equipment resulting from any such action. Damage resulting from improper storage, improper handling, or improper installation will not be considered by Churchill as its liability.

Design Changes:

Churchill reserves the right to change or modify the design and construction of any product in due course of its manufacturing procedure.



Worldwide Distribution

Churchill pumping units and accessories are sold worldwide through authorized distributors and agents only. For the name of your nearest GEO Churchill distributor, please call our toll-free number:

800 835-3102

Kansas residents, call 316 431-0500.

Telex 417060 GEOChurchill

Telefax 316 431-0490

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Pumping Units

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