



**Oil and Gas Professionals**

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**Buyers Guide**








[www.jcpump.net](http://www.jcpump.net)

Founded in 1985, JCPump is owned and operated by its two principal partners. We are not associated in any way with any other manufacturer. See our website for more details. [www.jcpump.net](http://www.jcpump.net)



## Questions to ask when purchasing a pumping unit

The gear box is the most critical part of a pumping unit and the most expensive to build. Cutting corners here is only cutting quality, and will be paid for by the customer in the long run.

-  A very important question is who built the gear box?  
Is it imported?
-  There are some Chinese gear boxes being used on frames built in the USA, and then sold as American made pumping units.
-  Is the pump jack manufacturer an assembly shop or are they machining the gear box and all the components?
-  If the pump jack manufacturer is not machining the critical components such as shafts and gears, it is because they cannot maintain the quality and precision required to build a quality gearbox.
-  How long has the manufacturer been in business?

## JCPump Gear Box

All castings are made  
in the USA



All components are 100%  
Machined by JCPump

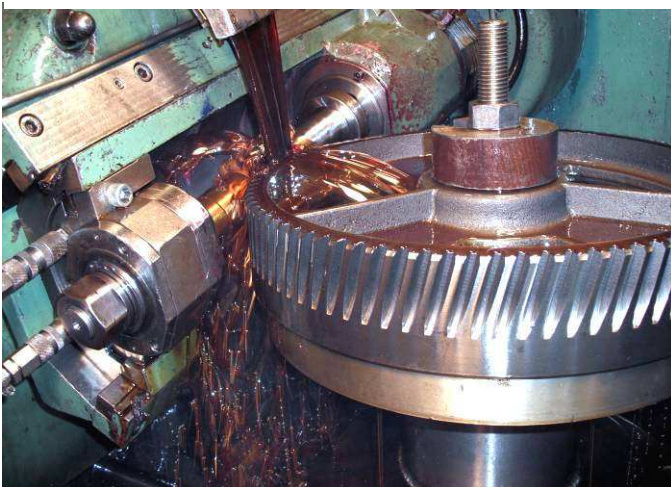
Unique gear case design allows for easy installation and removal of the intermediate gear cluster. This feature makes it possible to replace the bearings in the field reducing the amount of time a well is out of production for repairs.



The gear case is designed with an internal baffle creating an area to trap contaminants. This also adds strength to the wall of the case increasing bearing and gear life. Extra heavy vertical and horizontal ribs are built into the sidewall of the casting providing extreme rigidity. Our unique lid gasket design adds extra protection from harsh weather conditions. The oil level can be checked and added to without any tools. The gear case uses all double-lip seals and tapered roller bearings. The main gear and intermediate gear are made of heat treated 80-55-06 ductile iron. The high speed and intermediate pinion gears are made of 4150 heat treated steels.

## Gear Machining

It takes good machinery and tooling to maintain the close tolerances required for press fit gears and bearing journals. This is another operation that is best performed in house to consistently maintain the highest quality standards.



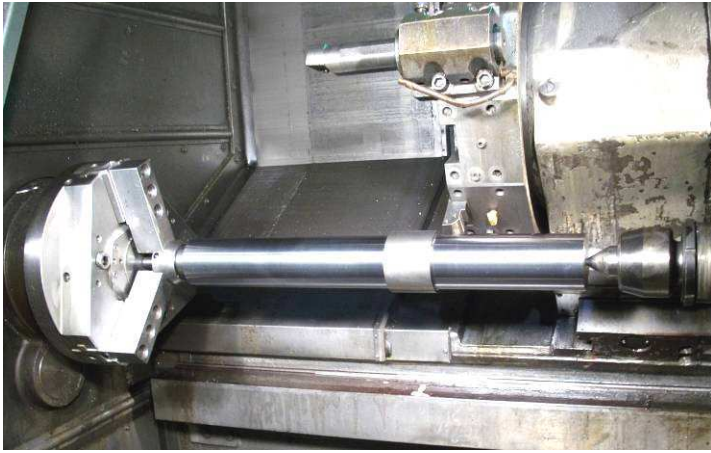
Cutting teeth on a No. 16 main gear

Size 25 main gear  
casting being  
machined on a 40  
HP CNC lathe.



At JCPump we cut all of our own gears. As part of the process, we periodically install the gears in a gearbox to check for proper tooth profile and contact. Each gear is individually inspected for size after it is cut. Cutting gears is a critical process required to make a quality gearbox.

## Shaft Machining



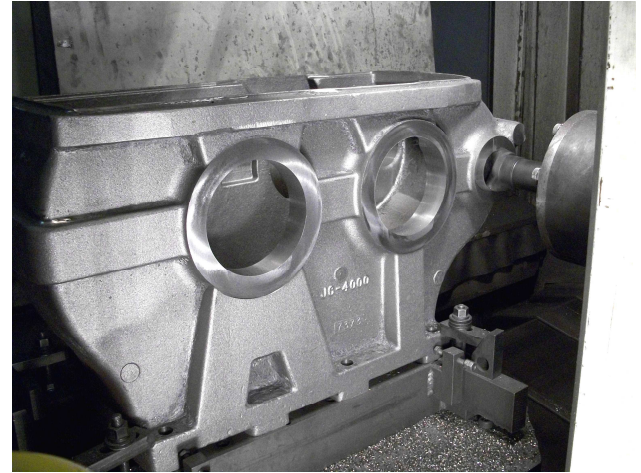
Shafts are completely machined between centers to provide absolute concentricity between all surfaces. This is required to have smooth, quiet running gears and extended bearing life.

Size 40 main shaft being machined on a CNC lathe.

Using a computer controlled machining center to bore the high speed bearing journal on a size 40 gearbox.

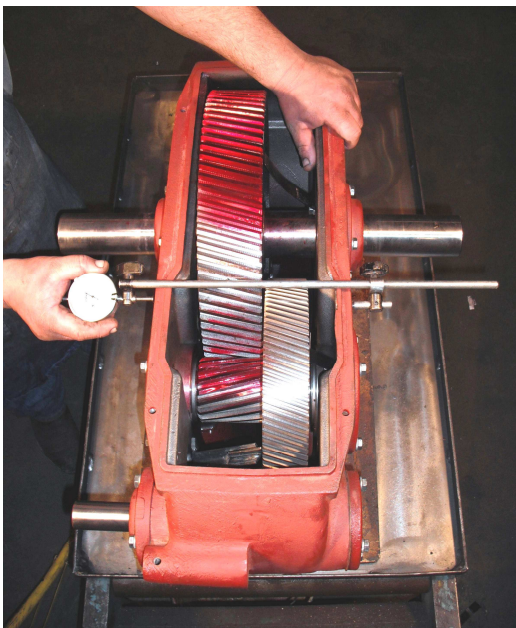
## Gear Box Machining

Like the foundation of a building, a quality gearbox starts with the machining of the gear case. Machining the bearing journals is a critical step. The bore size, spacing, concentricity and parallelism must be maintained as well as alignment perpendicular to the face of the box. If you're not performing this operation in house, then you're not controlling the quality of the finished gear box.

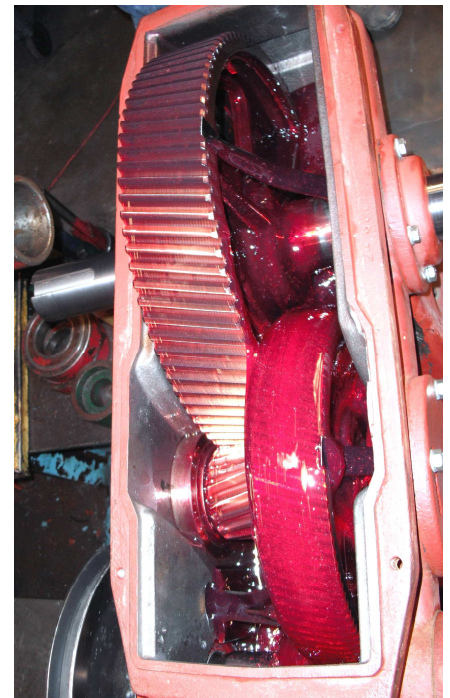


## Gear box assembly is where it all comes together

Picture of technician using a gage to set the bearing preload during assembly of a size 16 gear box.



Testing the gearbox for proper bearing lubrication



After the box is assembled, the gear backlash and face contact is checked. Oil wipers are installed and adjusted.

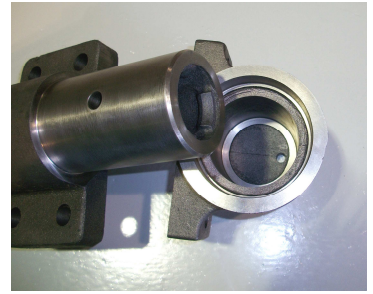
After assembly, each gearbox is connected to a power source and rotated both directions for final inspection and tested for proper oiling of bearings.

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## Saddle Bearings

The Saddle bearings use two double-lip seals per side to provide extra protection from the environment and to prevent leakage of lubricant thus increasing bearing life. The ends of the saddle and the inside face of the bearing caps are machined bearing surfaces, providing for minimal end play, which can cause premature seal failure. The bottom mounting surface of the saddle bearings are also machined to provide for accurate mounting without adding unnecessary load to the saddle due to misalignment. A pressure relief fitting is used in the saddle bearing cap to prevent contamination of the lubrication system.



## Wrist Pin and Tail Bearing Assemblies



The pitman arm and equalizer beam bearing assemblies are made using two standard tapered roller bearings per connection. The bearings are mounted in a self-aligning machined housing preventing any pre-loading of the bearings during assembly. The result is superior bearing life.

## Motor Rails

Unique motor mount design allows for easy access to mounting bolts. Threaded rod adjusting screws provide positive adjustment of the belt tension while maintaining motor alignment. Gas engine mounts are available for all sizes.



## Pulley and Brake

The pulleys are machined by JCPump to specifically fit our units. The split hub is casted into the pulley eliminating the need for bushings that can work loose during operation. This design also prevents pulley wobble that is inherent with the bushing designs. A brake drum is machined into the rim of the pulley on sizes 16 thru 40.



## Belt Guard



Improved belt guard design  
Allows easy removal and replacement without removing any fasteners. Simply loosen two mounting bolts and lift the guard from unit for removal.



## Photo Gallery



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## JCPUMP - API No. 10DB-23-18

### Gear Reducer

Peak Torque Rating	13,000 in. lbs.
Nominal Horsepower Rating (at 20 S.P.M.)	2.0
Reduction Ratio (Double Reduction)	40:1
Type of Bearings	Tapered Roller
Pulley	1-Bx18"
Oil Capacity (GL-5 80W-90)	2.5 Gallons

### Frame Structure

Unit Structure Rating	2,300 lbs.
Range of Stroke	14 1/2"-18"
Well Working Center	25"
Walking Beam Section and Weight	W6x12 lbs.
Height of Saddle Bearing above Foundation	49"
Overall Length of Base	83"
Width of Base at Sampson Post	25"
Section and Weight of Main Base Members	C4x5.4 lbs.
Beam Counter Weights	70 lbs. Each
Wrist Pin Bearings	Tapered Roller
Weight of T-Base Unit (Approx.)	740 lbs.
Weight of Wide Base Unit (Approx.)	980 lbs.
Custom paint colors available	

Stroke Inches	Pump Size	Counter Bal. Required per 100 ft.		20 S.P.M. Maximum Depth in Feet		10 S.P.M. Maximum Depth in Feet		20 SPM. Barrels Per 24 Hours
		Rod Size		Rod Size		Rod Size		
		5/8	3/4	5/8	3/4	5/8	3/4	
14	1 1/16	68	92	1276	942	1276	942	33
	1 1/4	71	95	1210	905	1210	905	45
	1 1/2	77	101	1118	853	1118	853	65
	1 3/4	84	108	1001	798	1026	798	88
	2	92	116	879	734	904	744	115
	2 1/4	101	125	773	658	792	678	145
	2 1/2	111	135	680	590	695	606	180
18	2 3/4	122	146	601	529	613	542	217
	1 1/16	68	92	1276	942	1276	942	40
	1 1/4	71	95	1210	905	1210	905	56
	1 1/2	77	101	1118	853	1118	853	80
	1 3/4	84	108	993	798	1026	798	109
	2	92	116	873	727	900	744	143
	2 1/4	101	125	767	652	789	674	181
2 1/2	111	135	676	585	693	603	223	
	2 3/4	122	146	598	526	611	540	270

Note: Well Production is Based on Pump Efficiency of 80% @ 20 SPM.

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## JCPUMP - API No. 13DB-32-20

### Gear Reducer

Peak Torque Rating	13,000 in. lbs.
Nominal Horsepower Rating (at 20 S.P.M.)	2.0
Reduction Ratio (Double Reduction)	40:1
Type of Bearings	Tapered Roller
Pulley	1-Bx18"
Oil Capacity (GL-5 80W-90)	2.5 Gallons

### Frame Structure

Unit Structure Rating	3,200 lbs.
Range of Stroke	15"-19 1/2"
Well Working Center	36"
Walking Beam Section and Weight	W8x15 lbs.
Height of Saddle Bearing above Foundation	57"
Overall Length of Base	93"
Width of Base at Sampson Post	31"
Section and Weight of Main Base Members	C5x6.7 lbs.
Beam Counter Weights	70 lbs. Each
Wrist Pin Bearings	Tapered Roller
Weight of T-Base Unit (Approx.)	780 lbs.
Weight of Wide Base Unit (Approx.)	1,040 lbs.
Custom paint colors available	

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Stroke Inches	Pump Size	Counter Bal. Required per 100 ft.		20 S.P.M. Maximum Depth in Feet		10 S.P.M. Maximum Depth in Feet		20 SPM Barrels Per 24 Hours
		Rod Size		Rod Size		Rod Size		
		5/8	3/4	5/8	3/4	5/8	3/4	
14	1 1/16	68	92	1775	1310	1775	1310	31
	1 1/4	71	95	1683	1259	1683	1259	43
	1 1/2	77	101	1556	1187	1556	1187	62
	1 3/4	84	108	1395	1111	1428	1111	85
	2	92	116	1225	1022	1258	1034	111
	2 1/4	101	125	1076	916	1102	943	140
16	2 1/2	111	135	947	821	967	843	174
	2 3/4	122	146	837	737	852	754	210
	1 1/16	68	92	1775	1310	1775	1310	36
	1 1/4	71	95	1683	1259	1683	1259	50
	1 1/2	77	101	1556	1187	1556	1187	71
	1 3/4	84	108	1388	1111	1428	1111	97
20	2	92	116	1219	1017	1258	1034	127
	2 1/4	101	125	1072	912	1102	943	160
	2 1/2	111	135	944	818	967	843	198
	2 3/4	122	146	834	734	852	754	240
	1 1/16	68	92	1775	1310	1775	1310	45
	1 1/4	71	95	1683	1259	1683	1259	62
20	1 1/2	77	101	1556	1187	1556	1187	89
	1 3/4	84	108	1374	1111	1428	1111	121
	2	92	116	1209	1006	1253	1034	158
	2 1/4	101	125	1064	904	1097	938	201
	2 1/2	111	135	913	811	964	839	248
	2 3/4	122	146	766	729	850	751	300

Note: Well Production is Based on Pump Efficiency of 80% @ 20 SPM.

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## JCPUMP - API No. 16DB-43-30

### Gear Reducer

Peak Torque Rating	16,000 in. lbs.
Nominal Horsepower Rating (at 20 S.P.M.)	3.5
Reduction Ratio (Double Reduction)	32:1
Type of Bearings	Tapered Roller
Pulley	3-Bx18"
Oil Capacity (GL-5 80W-90)	3.8 Gallons

### Frame Structure

Unit Structure Rating	4,300 lbs.
Range of Stroke	23"-30"
Well Working Center	40"
Walking Beam Section and Weight	W10x19 lbs.
Height of Saddle Bearing above Foundation	73"
Overall Length of Base	108"
Width of Base at Sampson Post	31"
Section and Weight of Main Base Members	C6x8.2 lbs.
Beam Counter Weights	140 lbs. Each
Wrist Pin Bearings	Tapered Roller
Weight of T-Base Unit (Approx.)	1,185 lbs.
Weight of Wide Base Unit (Approx.)	1,470 lbs.
Custom paint colors available	

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Stroke Inches	Pump Size	Counter Bal. Required per 100 ft.		20 S.P.M. Maximum Depth in Feet		10 S.P.M. Maximum Depth in Feet		20 SPM. Barrels Per 24 Hours
		Rod Size		Rod Size		Rod Size		
		5/8	3/4	5/8	3/4	5/8	3/4	
23	1 1/16	68	92	2386	1760	2386	1760	49
	1 1/4	71	95	2262	1692	2262	1692	67
	1 1/2	77	101	2071	1595	2091	1595	97
	1 3/4	84	108	1724	1486	1919	1493	132
	2	92	116	1381	1300	1683	1390	172
	2 1/4	101	125	1126	1072	1469	1261	217
	2 1/2	111	135	934	896	1198	1127	268
26	2 3/4	122	146	786	759	996	985	324
	1 1/16	68	92	2386	1760	2386	1760	55
	1 1/4	71	95	2262	1692	2262	1692	76
	1 1/2	77	101	1834	1595	2091	1595	109
	1 3/4	84	108	1447	1334	1913	1493	149
	2	92	116	1163	1089	1576	1390	194
	2 1/4	101	125	952	902	1261	1237	245
30	2 1/2	111	135	791	756	1031	1015	303
	2 3/4	122	146	667	642	858	846	367
	1 1/16	68	92	2348	1760	2386	1760	64
	1 1/4	71	95	1928	1680	2262	1692	88
	1 1/2	77	101	1503	1348	2091	1595	126
N	1 3/4	84	108	1192	1092	1752	1493	172
	2	92	116	962	896	1366	1333	224
	2 1/4	101	125	790	745	1093	1072	283
	2 1/2	111	135	658	627	893	879	350
	2 3/4	122	146	556	533	743	734	423

Note: Well Production is Based on Pump Efficiency of 80% @ 20 SPM.

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## JCPUMP - API No. 40DB-89-48

### Gear Reducer

Peak Torque Rating	40,000 in. lbs.
Nominal Horsepower Rating (at 20 S.P.M.)	10
Reduction Ratio (Double Reduction)	32:1
Type of Bearings	Tapered Roller
Pulley	3-Bx18"
Oil Capacity (GL-5 80W-90)	7.0 Gallons

### Frame Structure

Unit Structure Rating	8,900 lbs.
Range of Stroke	33"-48"
Well Working Center	60"
Walking Beam Section and Weight	W14x34 lbs.
Height of Saddle Bearing above Foundation	92"
Overall Length of Base	119"
Width of Base at Sampson Post	40"
Section and Weight of Main Base Members	C8x11.5 lbs.
Beam Counter Weights	140 lbs. Each
Wrist Pin Bearings	Tapered Roller
Weight of T-Base Unit (Approx.)	2,380lbs.
Weight of Wide Base Unit (Approx.)	2,800 lbs.
Custom paint colors available	

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Stroke Inches	Pump Size	Counter Bal. Required per 100 ft.		20 S.P.M. Maximum Depth in Feet		10 S.P.M. Maximum Depth in Feet		20 SPM. Barrels Per 24 Hours
		Rod Size		Rod Size		Rod Size		
		5/8	3/4	5/8	3/4	5/8	3/4	
33	1 1/16	68	92	4688	3644	4937	3644	70
	1 1/4	71	95	4181	3339	4682	3503	96
	1 1/2	77	101	3326	2937	4327	3300	139
	1 3/4	84	108	2647	2417	3741	3089	189
	2	92	116	2142	1989	3086	3063	246
36	1 1/16	68	92	4439	3644	4937	3644	81
	1 1/4	71	95	3680	3175	4682	3503	111
	1 1/2	77	101	2895	2574	4327	3300	160
	1 3/4	84	108	2313	2103	3523	3089	218
	2	92	116	1877	1736	2757	2677	285
41	1 1/16	68	92	3387	2811	4937	3644	87
	1 1/4	71	95	2836	2421	4682	3503	120
	1 1/2	77	101	2255	1985	3825	3300	172
	1 3/4	84	108	1816	1636	2918	2795	235
	2	92	116	1483	1361	2292	2215	306
48	1 1/16	68	92	2670	2197	4937	3644	108
	1 1/4	71	95	2255	1908	4340	3503	149
	1 1/2	77	101	1809	1578	3222	3026	214
	1 3/4	84	108	1466	1311	2470	2353	291
	2	92	116	1203	1096	1946	1873	380
	2 1/2	111	135	841	787	1290	1257	595

Note: Well Production is Based on Pump Efficiency of 80% @ 20 SPM.

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