

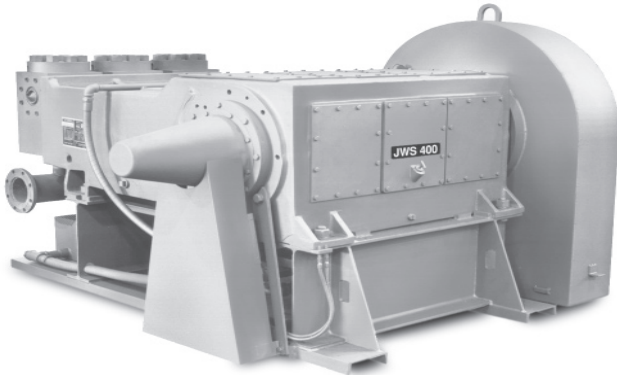
ROTATING RIGHT

# NATIONAL OILWELL JWS-400 TECHNICAL DATA SHEET



## Triplex Intermittent Duty JWS-400

"J" series intermittent duty pump  
Rated input horsepower



NATIONAL-OILWELL Well Service Pumps are appropriate for high-pressure, high horsepower, intermittent duty operations. This includes applications such as reverse circulation, well killing, acidizing, cementing, and sand fracturing.

### Field Connections in.

Pump Model	Discharge Connection Size	Suction Connection Size
JWS-400	3-1/16" API-6 BX 10,000 PSI	6" ASA 150# R.F.

### Dimensions

Pump Type	Length	Width	Height
JWS-400	96-7/16"	95-1/2"	49-1/2"

## Pump Specifications

Pump Size (Max. Liner Diameter x Stroke) in. (mm).....5-1/2 x 7 (139.7 x 177.8)  
 Pump Size (Max. Plunger Diameter x Stroke) in. (mm) ...4-1/2 x 7 (114.3 x 177.8)  
 Rated BHP At 450 RPM (Kw) .....400 (298)  
 Maximum Working Pressure: PSI (kPa) .....10,000 (68,947.6)  
 Stroke Length, in. (mm).....7 (177.8)  
 Maximum Speed, rpm.....286  
 Maximum Plunger size, in. (mm).....4-1/2 (114.3)  
 Maximum Piston size, in. (mm).....5-1/2 (139.7)

### Crankshaft Extension: in. (mm)

Diameter .....6 (152.4)  
 Length .....10-1/4 (260.4)  
 Keyway (Width x Depth).....1-1/2 x 3/4 (38.1 x 19.05)

### Pinion Shaft Extension, if chain drive supplied (mm)

Diameter.....3-3/4 (95.25)  
 Length.....6 (152.4)  
 Keyway (Width x Depth).....7/8 x 7/16 (22.2 x 11.1)

### Oil Capacity: Gallons (L)

Crankcase .....22 (83.3)  
 Gear Unit .....30 (113.5)

**Weight:** Pump Only On Wood Shipping Skids - Lbs. (Kg) .....15,000 (6,804)

## Standard Equipment

Forged Steel Fluid End  
 Forged Steel Valve Covers  
 Pistons & Liners  
 Or Plungers & Packing  
 Stainless Steel Extension Rods  
 Slush-Type Valves  
 Double Extended Crankshaft  
 Oil Level Dipstick  
 Crankcase Breather

## Accessories

Chain Reducer (4.667:1)  
 Plunger Lubricator  
 Suction Stabilizer  
 Discharge Dampener  
 Liner Flush System  
 Relief Valves  
 Valve Service Kit  
 Complete Unitization Services

## Quick Maintenance Features

- Horizontal Design
- Large Power End Covers
- Easy Bearing Access
- Separate Crosshead/Plunger Construction
- Open Frame Construction
- Removable Stuffing Boxes

## JWS-400 Performance Data (Volumes Indicated are Displacement of Incompressible Fluid)

### English Units

Plunger/ Piston* Dia.In.	Area Inches Squared	Gallon Per RPM	25 RPM		55 RPM		75 RPM		100 RPM		140 RPM		175 RPM		200 RPM		250 RPM		286 RPM		
			PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	
<b>JWS-400</b>																					
4	12.5664	1.1424	10,000	28.56	10,000	62.83	7,250	85.68	5,445	114.24	3,819	159.94	3,100	199.92	2,725	228.48	2,175	285.60	1,900	326.73	
4 1/2	15.9044	1.4459	8,000	36.15	8,000	79.52	5,747	108.44	4,280	144.59	3,072	202.42	2,435	253.02	2,140	289.17	1,715	361.46	1,500	413.51	
5	19.6350	1.7850	6,400	44.63	6,334	98.18	4,636	133.88	3,482	178.50	2,483	249.90	1,979	312.38	1,741	357.00	1,390	446.25	1,217	510.51	
5 1/4	21.6476	1.9680	5,804	49.20	5,747	108.24	4,205	147.60	3,159	196.80	2,249	275.51	1,795	344.39	1,579	393.59	1,261	491.99	1,102	562.84	
5 1/2	23.7584	2.1599	5,289	54.00	5,216	118.79	3,831	161.99	2,878	215.99	2,055	302.38	1,635	377.97	1,439	431.97	1,149	539.96	1,004	617.72	
Brake Horsepower Required			187		400		400		400		400		400		400		400		400		

\* 5", 5-1/2", and 5-1/2" Available with Piston Only.

### Metric Units

Plunger/ Piston* Dia. mm.	Area Centi- meters Squared	Liter Per RPM	25 RPM		55 RPM		75 RPM		100 RPM		140 RPM		175 RPM		200 RPM		250 RPM		286 RPM		
			kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	kPa	L/Min.	
<b>JWS-400</b>																					
102	121.20	4.324	68,950	108.10	68,950	237.82	49,989	324.30	37,543	432.40	26,332	605.36	21,375	756.70	18,789	864.80	14,997	1,081.00	13,101	1,236.66	
114	153.40	5.473	55,160	136.81	55,160	300.99	39,626	410.44	29,511	547.25	21,181	766.16	16,789	957.69	14,755	1,094.51	11,825	1,368.14	10,343	1,565.15	
127	189.38	6.756	44,128	168.91	43,673	371.59	31,965	506.72	24,008	675.62	17,120	945.87	13,645	1,182.34	12,004	1,351.25	9,584	1,689.06	8,391	1,932.28	
133	208.79	7.449	40,019	186.22	39,626	409.68	28,993	558.66	21,781	744.87	15,507	1,042.82	12,377	1,303.53	10,887	1,489.75	8,695	1,862.18	7,598	2,130.34	
140	229.15	8.175	36,468	204.38	35,964	449.63	26,415	613.13	19,844	817.50	14,169	1,144.50	11,273	1,430.63	9,922	1,635.01	7,922	2,043.76	6,923	2,338.06	
Kilowatts Required			140		298		298		298		298		298		298		298		298		

\* 127 mm, 133 mm, and 140 mm Available with Piston Only.

\*\* Horsepower and Kilowatts required are based on 90% mechanical efficiency and 100% volumetric efficiency.

**Intermittent Duty Ratings:** These ratings are for intermittent service. Pressures as shown may be utilized for a period not to exceed 30 minutes followed by an equal period at no load, but not to exceed 4 hours in a 24 hour period.

**Pressure Limitations, Caution:** When pump is equipped with pistons and liners, pressures in excess of 5,000 psi (34,475 kPa) should not be exceeded except for emergencies or intermittent duty of short duration.

**Speed Limitations:** Speed in excess of 175 RPM is not recommended on JWS-400 pumps for maximum liner and piston life.

**Charge Pump:** A suction system charge pump is recommended for best operation. The charge pump should be capable of delivering 1-1/2 times the maximum discharge flow rate of the reciprocating pump.



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