

OILWELL



USS OILWELL
Division of United States Steel

OIL WELL SUPPLY COMPANY, OIL CITY, PA.
 PUMPING UNIT APPLICATION TABLES

1. "Oilwell's" pumping units are designated in the following manner:

12 C 12

The first number designates the approximate horsepower of the reduction gear

The letter indicates type of crank and counterbalance

The last number indicates the approximate walking beam capacity in 1000's pounds

The letters used are as follow:

- A. Plain crank with one piece pitman and reduction gear on sub-base so cranks clear floor.
 - B. Cranks with one piece counterweight, unit has equalizer, cranks will not clear floor.
 - C. Cranks with one piece counterweight, unit has equalizer, reduction gear on sub-base so cranks clear floor.
 - D. Type "B" cranks, cranks will not clear floor.
 - E. Type "B" cranks, reduction gear on sub-base so cranks clear floor.
2. Type and Capacity of Pumping Units:

UNIT DESIGNATION	API WALKING BEAM CAPACITY - POUNDS	STROKE LENGTHS INCHES
3A3 5A3	3,200	22-1/2, 25-3/4, 30
3A4 5A4	4,025	18, 20-5/8, 24
3A6 5A6	5,800	18-1/4, 21-1/4, 24, 28
3A7 5A7 7A7	7,100	21-1/2, 24-3/8, 28-3/8, 34
5A9 7A9 9A9	9,000	24-1/8, 27-1/2, 32, 38
12A12 17A12	11,700 10,900*	31, 33-1/4 37-1/2, 42, 48

UNIT DESIGNATIONS	API WALKING BEAM CAPACITY - POUNDS	STROKE LENGTHS INCHES
12B12 17B12	11,300	21-3/4, 31-3/4, 42
12C12 17C12		
12D12 17D12		
12E12 17E12	10,600*	48
12D14 24D14		24-1/4, 32-1/4,
12E14 24E14	14,000	40, 48
17D14 29D14		
17E14 29E14	13,100*	54
24D17 34D17	17,400	22-1/2, 32-3/4,
24E17 34E17		43-1/4, 54
29D17		
29E17	16,000*	64-1/2
24D21 34E21	21,100	32-3/4, 43-1/4,
24E21 34E21		53-1/2, 64
29D21 46D21		
29E21 46E21	19,700*	74

*The maximum stroke is obtained by (1) reversing the position of the off-set saddle trunnion assembly on the walking beam (2) moving the samson post back several inches on the base and inserting the clamp bolts in the second set of holes provided for that purpose. Note at maximum stroke position walking beam capacity is slightly reduced.

3. Type and Capacity of Reduction Gears:

DESIGNATION	API REDUCTION GEAR NUMBER	A.G.M.A. PEAK TORQUE CAPACITY in. lbs.	OVERALL RATIO	TYPE REDUC-TION	NOMINAL HP 20 SPM
D-3	16	16,000	29.8:1	Double	3.2
D5B		24,100	32:1	Double	4.9
D-7		32,200	32:1	Double	6.5
D-9	40	45,400	42.2:1	Double	9.2
D-12A	57	60,500	31.9:1	Double	12.2
D-17A	80	85,600	32.2:1	Double	17.3
D-24	114	120,600	32.3:1	Double	24.4
D-34	160	166,700	31.5:1	Double	33.7
D-46	228	230,700	28.9:1	Double	46.1
S-29		145,700	10.1:1	Single	29.5

For method of calculation and formulas used see "Oilwell" Booklet M7-1149 "Calculation of Well Production and Pumping Loads"

4. Figures in body of table represent maximum recommended pumping depth while maintaining at least 12 inches effective stroke of the plunger. On short strokes where no figure is given in the body of the table the maximum depth is limited by the rod stretch and the maximum depth is found in the column headed "Maximum Depth Ft. with 12"Effective Plunger Strokes".

Oil Well Supply Company, Oil City, Pa. PUMPING UNIT APPLICATION TABLES

The following information was used to develop these application tables.

1. "Oilwell" Pumping Unit Data:

Unit Designation	Polished Rod Load Pounds	Stroke in Inches
✓ SC-12A ✓ SC-17A	10,000	22, 32, 42
SC-23 SC-28 SC-33	17,400	23, 33, 43, 54
✓ SC-53	20,000	24, 34, 44, 54, 64, 74
✓ TC-5C	5,100	16, 18, 20-1/2, 24
✓ TC-6	6,900	20-3/4, 23, 26, 30
✓ TC-5HB ✓ TC-83	9,500	22-1/2, 25, 28-3/4, 30, 34
✓ TC-12C ✓ TC-17L	10,000	21-3/4, 31-3/4, 42
✓ TC-12H ✓ TC-17C	12,800	24, 32, 40, 48
TC-23 TC-28 TC-33	17,400* 16,000*	23, 33, 43, 54 27, 39, 52, 64-1/2
✓ TC-23HB ✓ TC-28HB ✓ TC-33HB	21,000* 19,500*	33, 43-1/4, 53-1/2, 64 38, 50, 62, 74
✓ TC-65	27,400* 25,700*	49, 61-1/2, 74 55, 70, 84

The maximum stroke is obtained by (1) reversing the position of the offset saddle trinion assembly on the walking beam (2) moving the samson post back several inches on the base and inserting the clamp bolts in the second set of holes provided for that purpose.

2. "Oilwell" Reduction Gear Data

"Oilwell" Gear Designation	API Reduction Gear Number	A. G. M. A. Peak Torque Capacity In. Lbs.	Overall Ratio	Type Reduction	Nominal HP 20 SPM	Recommended Max. Overhung Load at Center of Crank Pin 0.6 x Dia. from End of L.S. Shaft LBS. (ea. crank)
✓ D-5A	-	24,100	32.0:1	Double	4.9	4,135
✓ D-6*	-	32,200	32.0:1	Double	6.5	5,000
✓ D-8	40	45,400	42.15:1	Double	9.2	5,400
✓ D-12	57	60,500	31.9:1	Double	12.2	8,370
✓ D-17	80	85,600	32.15:1	Double	17.3	11,150
✓ D-23	114	120,600	32.26:1	Double	24.4	12,230
✓ D-33A	160	166,700	31.5:1	Double	33.7	15,900
✓ D-65	320	320,000	30.0:1	Double	64.7	19,850
✓ S-28	-	145,700	10.1:1	Single	29.5	10,900

*Welded Integral with Pumping Unit

I. Foundation Bolt Schedule

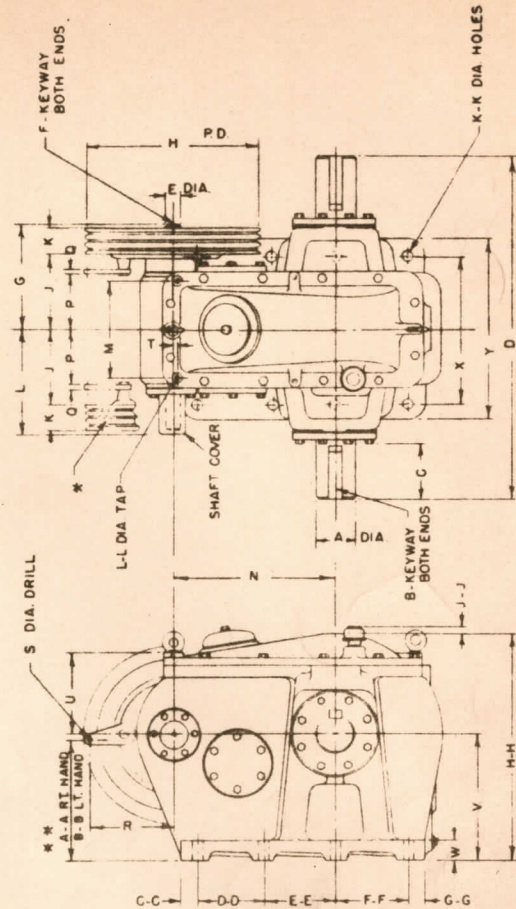
	FOUNDATION BOLTS			GROUT PIPES			
	Size	Quan.	Part Number	Size	Quan.	Part Number	
3A3 and 3A4 Units	3/4" x 27"	7	Y9-102-10P	2" x 9"	7	Y15-102P	
5A6 Unit	3/4" x 27"	9	Y9-102-10P	2" x 9"	9	Y15-102P	
7A7 Unit	3/4" x 27"	9	Y9-102-10P	2" x 9"	9	Y15-102P	
9A9 Unit	7/8" x 27"	9	Y9-102-21P	2" x 9"	9	Y15-102P	
12A12, 12B12, 12C12, 12G12, 12E12, 17A12, 17B12, 17C12, 17G12, 17E12.	Short Base	7/8" x 27"	14	Y9-102-21P	2" x 9"	14	Y15-102P
	Electric Motor Drive Base Extension	7/8" x 27"	16	Y9-102-21P	2" x 9"	16	Y15-102P
	Single Cylinder Engine Base Extension and Multi Cylinder Engine Base Extension	7/8" x 27"	18	Y9-102-21P	2" x 9"	18	Y15-102P
12G14, 12E14, 17G14, 17E14.	Short Base	1" x 27"	14	Y9-102-9P	2" x 9"	14	Y15-102P
	Electric Motor Drive Base Extension	1" x 27"	16	Y9-102-9P	2" x 9"	16	Y15-102P
24G14, 24E14, 29G14, 29E14.	Single Cylinder Engine Base Extension and Multi Cylinder Engine Base Extension	1" x 27"	18	Y9-102-9P	2" x 9"	18	Y15-102P
24G17, 24E17, 29G17, 29E17.	Short Base	1" x 27"	14	Y9-102-9P	2" x 9"	14	Y15-102P
	Single Cylinder Engine Base Extension	1" x 27"	16	Y9-102-9P	2" x 9"	16	Y15-102P
34G17, 34E17	Multi Cylinder Engine Base Extension and Electric Motor Drive Base Extension	1" x 27"	18	Y9-102-9P	2" x 9"	18	Y15-102P
24G21, 24E21, 29G21, 29E21.	Short Base	1 1/4" x 31"	14	Y9-102-2P	2" x 9"	14	Y15-102P
	Electric Motor Drive Base Extension	1 1/4" x 31"	16	Y9-102-2P	2" x 9"	16	Y15-102P
34G21, 34E21, 46G21, 46E21, 34G25, 46G25	Multi Cylinder Engine Base Extension	1 1/4" x 31"	18	Y9-102-2P	2" x 9"	18	Y15-102P

J. Brief Specifications — Pumping Units

UNIT	H. P. & A. P. I. Reducer Size	Polished Rod Capacity (A. P. I. Rating) Pounds Strokes		Polished Rod Strokes Inches		Reduction Gear Ratio	Peak Torque Capacity at 20 S. P. M. (A. G. M. A.) Inch Pounds
		Regular Stroke	Long Stroke	Regular Stroke	Long Stroke		
3A3	HP 3.2	3200		22 1/2, 25 3/4, 30		29.8:1	16,000
5A3	HP 4.9	3200		22 1/2, 25 3/4, 30		32:1	24,100
3A4	HP 3.2	4000		24, 30 5/8, 18		29.8:1	16,000
5A4	HP 4.9	4000		24, 20 5/8, 18		32:1	24,100
3A6	HP 3.2	5800		28, 24, 21 3/8, 18 3/8		29.8:1	16,000
5A6	HP 4.9	5800		28, 24, 21 3/8, 18 3/8		32:1	24,100
3A7	HP 3.2	7100		34, 28 3/8, 24 3/8, 21 1/2		29.8:1	16,000
5A7	HP 4.9	7100		34, 28 3/8, 24 3/8, 21 1/2		32:1	24,100
7A7	HP 6.5	7100		34, 28 3/8, 24 3/8, 21 1/2		32:1	32,200
5A9	HP 4.9	9000		38, 32, 27 1/2, 24 1/8		32:1	24,100
7A9	HP 6.5	9000		38, 32, 27 1/2, 28 1/2		32:1	32,200
9A9	HP 9.2	9000		38, 32, 27 1/2, 24 1/8		42.15:1	45,400
		Regular Stroke	Long Stroke	Regular Stroke	Long Stroke		
12A12	Size 57	11,300	10,600	31, 33 1/4, 37 1/4, 42	34, 33 1/4, 42 1/2, 48 1/2	31.9:1	60,500
17A12	Size 80	11,300	10,600	31, 33 1/4, 37 1/4, 42	34, 37 3/4, 42 1/2, 48 1/2	32.2:1	85,600
12B12, 12C12, 12G12, 12E12	Size 57	11,300	10,600	21 3/4, 31 3/4, 42	25, 36 1/2, 48	31.9:1	60,500
17B12, 17C12, 17G12, 17E12	Size 80	11,300	10,600	21 3/4, 31 3/4, 42	25, 36 1/2, 48	32.15:1	85,600
12G14, 12E14	Size 57	14,000	13,300	24, 32, 40, 48	27, 36, 45, 54	31.9:1	60,500
17G14, 17E14	Size 80	14,000	13,300	24, 32, 40, 48	27, 36, 45, 54	32.15:1	85,600
24G14, 24E14	Size 114	14,400	13,300	24, 32, 40, 48	27, 36, 45, 54	32.26:1	120,600
29G14, 29E14	Size 114	14,000	13,300	24, 32, 40, 48	27, 36, 45, 54	10.1:1	145,700
24G17, 24E17	Size 114	17,400	16,000	23, 33, 43, 54	27, 39, 52, 64 1/2	32.26:1	120,000
29G17, 29E17	Size 114	17,400	16,000	22, 33, 43, 54	27, 39, 52, 64 1/2	10.1:1	145,700
34G17, 34E17	Size 160	17,400	16,000	22, 33, 43, 54	27, 39, 52, 64 1/2	31.5:1	166,700
24G21, 24E21	Size 114	21,000	19,700	33, 43 1/4, 53 1/2, 64	38, 50, 62, 74	32.26:1	120,600
29G21, 29E21	Size 114	21,000	19,700	33, 43 1/4, 53 1/2, 64	38, 50, 62, 74	10.1:1	145,700
34G21, 34E21	Size 160	21,000	19,700	33, 43 1/4, 53 1/2, 64	38, 50, 62, 74	31.5:1	166,700
46G21, 46E21	Size 228	21,000	19,700	33, 43 1/4, 53 1/2, 64	38, 50, 62, 74	29.0:1	230,700
34G25	Size 110	24,100	25,700	54, 64, 74	60, 72, 84	31.5:1	166,700
46G25	Size 228	24,100	25,700	54, 64, 74	60, 72, 84	29.0:1	230,700

We reserve the right to change specifications at any time without incurring any obligation for equipment previously or subsequently sold.

O. Dimensions — Reduction Gears



* LEFT HAND DRIVE ACCOMPLISHED BY REVERSING BRAKE CARRIER AND SHAFT COVER.
 ** BRAKE SHOWN IN RELEASED POSITION.

UNIT TYPE	A	B	C	D	E
D-40	4 437	1 X 3/8	8-1/4	3-4-1/2	1 749
D-57	4 437	1 X 3/8	8-1/4	3-4-1/2	1 749
D-80	5 437	1/4 X 7/16	8-1/4	3-11-7/8	2 249
D-114	5 437	1/4 X 7/16	8-1/4	3-11-7/8	2 249
D-34	5 995	1 1/2 X 1/2	8-11/16	4-3-1/4	2 500
D-46	5 995	1 1/2 X 1/2	7-13/16	4-3-1/4	2 750
D-320	7 312	1-3/4 X 5/8	11-1/2	5-5-3/8	3 374

UNIT TYPE	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	A-A	B-B	C-C	D-D	E-E	F-F	G-G	H-H	J-J	K-K	L-L
D-40	5/8 X 3/16	11-3/8	20	8-5/16	2-1/2	11-7/8	10-1/8	17-5/8	7-9/16	1/4	7-1/16	29/64	3/8	9-1/8	14	2-1/4	16-3/4	19-1/4	14-13/16	13-3/16	1-3/4	5	8-1/4	8-1/4	11-3/4	25-3/8	7/16	1-1/8	1/2-13
D-57	5/8 X 3/16	12-1/8	20	9-1/16	3-3/8	12-5/8	11-5/8	20-1/4	8-5/16	1/4	7-1/16	29/64	3/4	9-1/8	14	2-1/4	16-3/4	19-1/4	14-13/16	13-3/16	1-3/4	5	8-1/4	8-1/4	11-3/4	26-1/4	—	1-1/8	1/2-13
D-80	1/2 X 1/4	14-3/8	23	10-21/32	3-3/8	14-3/16	13-1/2	22-1/4	7-5/8	5/8	11-3/16	41/64	1/4	11-1/4	17-1/2	2-3/4	20-3/4	25-1/4	13-3/4	15-1/4	2-1/4	9	10	10	2-1/4	31-1/2	15/16	1-3/8	1/2-13
D-114	1/2 X 1/4	15-5/8	23	11-1/4	4-3/8	16-3/16	16	24-11/16	8-15/16	5/8	11-3/16	41/64	13/16	11-1/4	17-1/2	2-3/4	20-3/4	25-1/4	13-3/4	15-1/4	2-1/4	9	10	10	2-1/4	32-1/2	3/16	1-3/8	1/2-13
D-34	5/8 X 5/16	17-1/16	23	11-1/4	5-3/8	17-1/4	19-1/4	27-7/8	9-3/4	5/8	11-3/16	41/64	—	14-3/4	20	2-1/2	24	28-1/2	23	17	2-1/2	11	14	14	2-1/2	3-3/8	3/16	1-3/8	5/8-41
D-46	5/8 X 5/16	16-25/32	28	11-1/4	6-3/8	17-1/4	18-7/8	34	9-3/4	5/8	11-3/16	41/64	1-3/8	16-1/4	20	2-1/2	24	29	23	17	2-1/2	11	14	14	2-1/2	3-5/8	—	1-3/8	—
D-320	7/8 X 7/16	21-11/16	30	14-1/2	8-3/8	21-1/2	22	34-3/4	12-1/2	5/8	12	41/64	3/8	17-1/4	24	3-1/4	30	30-1/2	23-1/4	24-3/4	3-1/4	15	15	15	3-1/4	5-10/16	—	1-7/8	1/2-13

P. Specifications

ITEM	40G9	57G12	80G14	114G17	160G17	228G21	320G25	320G30
	57G9	80G12	114G14	160G17	228G17	228G21	320G25	320G30
A.P.I. Beam Capacity at Polished Rod	8,950	11,410	13,560	17,130	21,250	24,600	29,800	
Stroke Lengths—Polished Rod	42, 34, 26	48, 39, 30	54, 44, 34, 24	64, 53, 42, 31	74, 62, 50, 38	86, 73, 60, 46	100, 85, 71, 56	
Well Servicing Clearance	14 11/16	19 1/8	20 11/16	25 3/8	28 1/2	34 1/2	40 1/2	
Minimum Clearance—Foundation to Polished Rod								
Yoke—Maximum Stroke	49 5/8	47 11/16	55 1/4	67 3/4	74 3/4	81 3/4	89 3/4	
Walking Beam	14"x6 1/4" @ 34#	16"x7" @ 45#	18"x7 1/2" @ 55#	21"x8 1/4" @ 73#	24"x9" @ 94#	24"x12" @ 120#	27"x14" @ 145#	
Samson Post Legs	4x4 1/2	5x5 3/4	5x5 3/4	6x6 3/4	6x6 3/4	6x6 3/4	8 x 8 x 1/2	
Base Members	8"x5 1/4" @ 20#	10"x5 1/4" @ 21#	10"x5 1/4" @ 21#	12"x6 1/4" @ 27#	14"x6 3/4" @ 34#	16"x7" @ 40#	16"x7" @ 50#	

MODEL	D-40	D-57	D-80	D-114	D-34	D-46	D-320
A.P.I. Size	40	57	80	114	160	228	320
A.P.I. Peak Torque Rating (In. Lbs. @ 20 spm)	40,000	57,000	80,000	114,000	160,000	228,000	320,000
Ratio	32:17:1	32:08:1	32:17:1	31:84:1	31:5:1	28:94:1	31:10:1
Standard Pulley Size	20" PD-3B	20" PD-3C	23" PD-3C	23" PD-4C	23" PD-5C	28" PD-6C	30" PD-8C
*Maximum Pulley Size	20" PD-3B	24" PD-3C	24" PD-3C	24" PD-4C	30" PD-6C	33" PD-6C	36" PD-8C
Oil Capacity	6 1/2	6 1/2	11	11	9 1/2	14	23

*Maximum Pulley Size not always usable depending on Drive Arrangement. Check with Engineering Department. We reserve the right to change specifications.

Pumping Units



SELECTION TABLE
"OILWELL" API "GR" SERIES PUMPING UNITS

MODEL NUMBER	API POLISHED ROD STROKE - INCHES	API POLISHED ROD LOAD CAPACITY - POUNDS
GR 40- 76-42 GR 57- 76-42	42, 34, 26	7,600
GR 40- 89-36 GR 57- 89-36	36, 26	8,900
GR 40- 89-42 GR 57- 89-42	42, 34, 26	8,900
GR 57- 95-48 GR 80- 95-48	48, 39, 30	9,500
GR 57-109-42 GR 80-109-42	42, 30	10,900
GR 57-109-48 GR 80-109-48	48, 39, 30	10,900
GR 80-119-54 GR 114-119-54	54, 44, 34	11,900
GR 80-133-48 GR 114-133-48	48, 36, 24	13,300
GR 80-133-54 GR 114-133-54	54, 44, 34	13,300
GR 114-143-64 GR 160-143-64	64, 53, 42	14,300
GR 114-169-54 GR 160-169-54	54, 42½, 31	16,900
GR 114-169-64 GR 160-169-64	64, 53, 42	16,900
GR 160-173-74 GR 228-173-74	74, 62, 50	17,300
GR 160-200-64 GR 228-200-64	64, 51, 38	20,000
GR 160-200-74 GR 228-200-74	74, 62, 50	20,000
GR 228-216-86 GR 320-212-86	86, 73, 60	21,200
GR 228-246-74 GR 320-246-74	74, 60, 46	24,600
GR 228-246-86 GR 320-246-86	86, 73, 60	24,600
GR 320-213-120	120, 102, 84	21,300
GR 320-256-100	100, 85, 70	25,600
GR 320-298-86	86, 71, 56	29,800
GR 320-298-100	100, 85, 70	29,800
GR 320-256-120	120, 102, 84	25,600