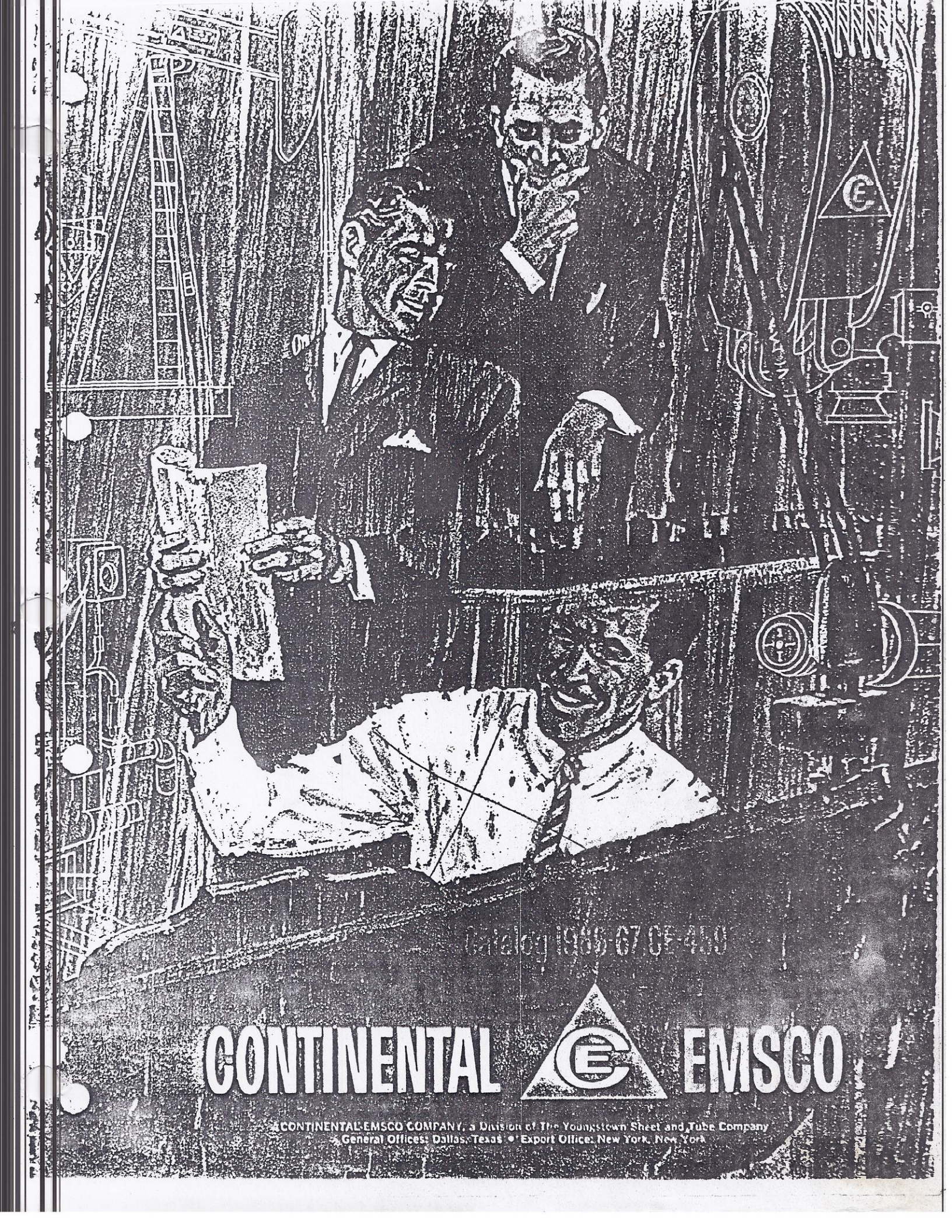
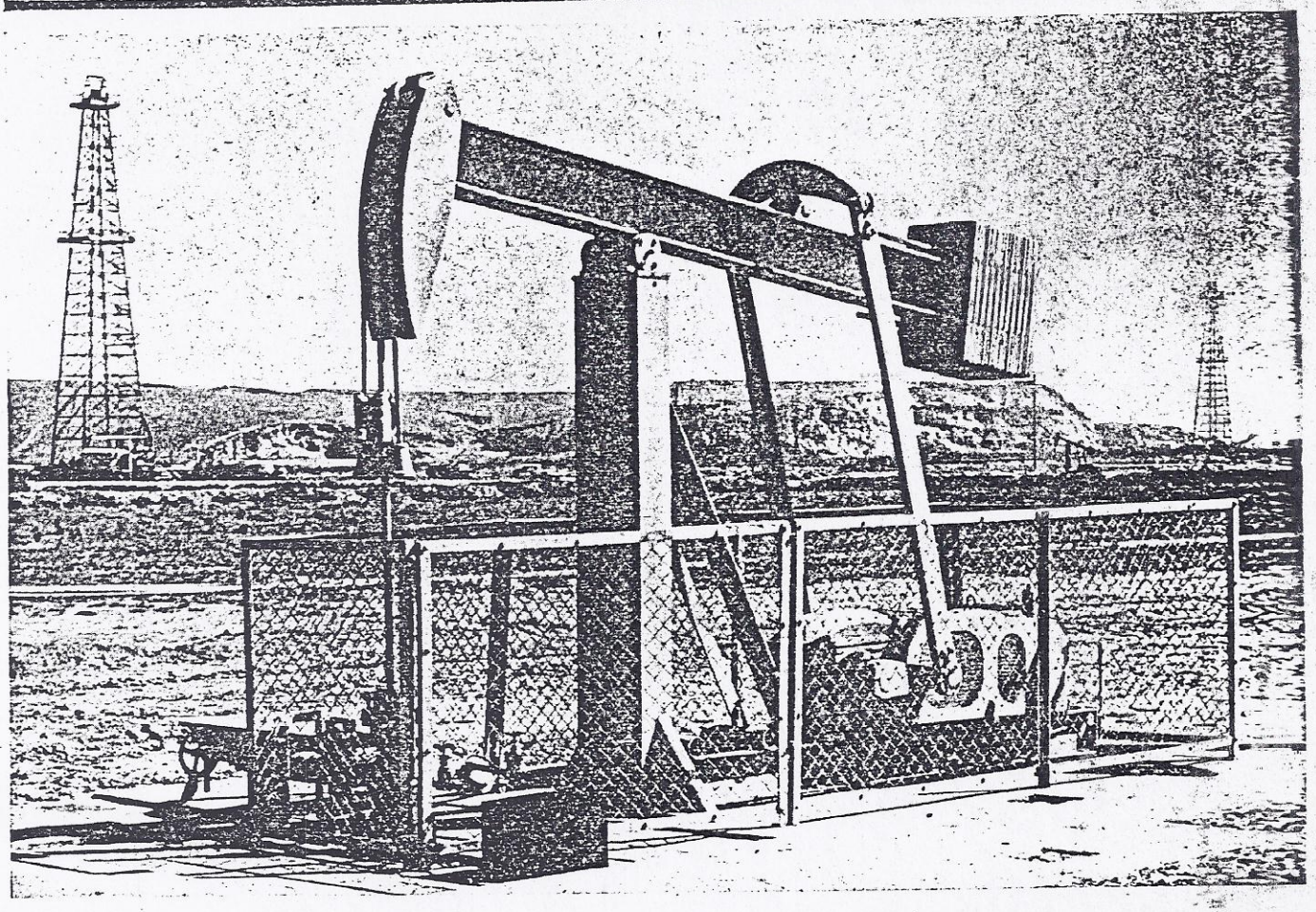


CONTINENTAL-EMSCO COMPANY, a Division of The Youngstown Sheet and Tube Company
General Offices: Dallas, Texas • Export Office: New York, New York

EMSCO DERRICK & EQUIPMENT COMPANY

Houston LOS ANGELES Dallas



Emsco Type DD-40 Unit Pumper.

are mounted in the center iron and are protected by two grease seals. The center iron is accurately machined to insure even distribution of the load over the entire base and saddle, and to insure proper alignment of the walking beam. The center iron has slotted holes and adjustment screws to provide adjustment of the walking beam toward and from the well. This enables the carrier bar to be properly centered over the well head.

Equalizer Bearing: The equalizer bearing is of needle roller construction, and is provided with a lubrication line for positive lubrication from a point at the top of the safety ladder. The equalizer bearing pin is made of hardened and ground alloy steel. Grease seals are furnished to protect the needle bearings. The equalizer bearing assembly allows free rotation in two planes, thus giving absolute self-alignment to the bar.

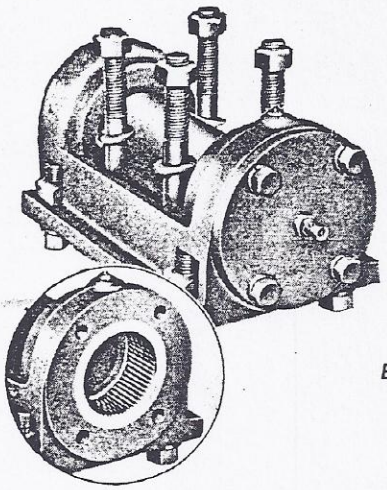
Wrist Pin Bearings: The wrist pin bearings are of self-aligning spherical roller construction and are provided with positive lubrication and grease seals. The wrist pin bearing is mounted in a housing which in turn is bolted to the pitman arm. The wrist pin is attached to the crank through a long tapered hole and secured with two special lock nuts.

Pitmans: The pitmans are made of pipe with steel castings welded at each end. Long "V" welds are employed at

EMSCO UNIT PUMPERS COMPARATIVE SPECIFICATIONS

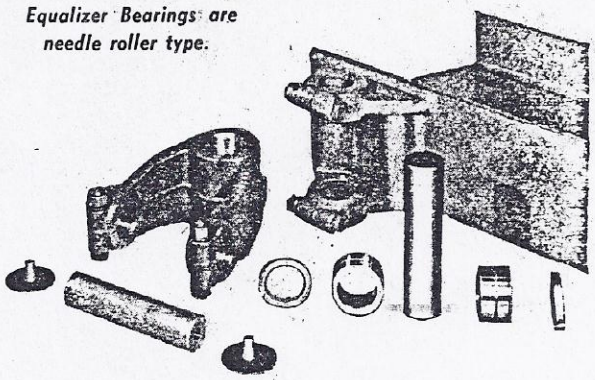
	DD-40	DD-57-B	DD-57-R	DD-80	DB-114	SC-160	SC-228
A.P.I. Pumper Reducer Peak Torque Rating @ 20 SPM	40,600"#	62,900"#	62,900"#	84,500"#	119,000"#	179,000"#	247,000"#
A.P.I. Polished Rod Load Capacity of Walking Beam	8,300#	10,400#	10,400#	12,800#	14,300#	21,200#	24,200#
Section and Weight of Walking Beam	10"WF@37#	14"WF@48#	14"WF@48#	14"WF@61#	16"WF@78#	24"WF@100#	24"WF@130#
Strokes Obtainable on Standard Crank	23,28,33	24,34,44	24,34,44	28,38,48	34,44,54	34,44,54	34,44,54,64
Distance - Center Iron to Center of Well	4'-0"	5'-6"	5'-6"	6'-0"	6'-9"	8'-10¼"	10'-6"
Distance - Center Iron to Equalizer Brg.	38",46",58"	5'-6"	5'-6"	6'-0"	6'-9"	9'-0"	10'-8"
Distance - Center Iron to Bottom of Skid	7'-2"	9'-8"	9'-8"	10'-6"	11'-9"	11'-9"	13'-10"
Distance - Bottom of Skid to Top of Beam	8'-2½"	11'-0"	11'-0"	11'-10"	13'-5"	14'-1½"	16'-2¼"
Section & Weight of Main Base Members	8"CH@11.5#	10"WF@21#	10"WF@21#	10"WF@21#	12"WF@25#	12"WF@25#	14"WF@38#
Overall Length of Main Base	9'-9½"	11'-0⅞"	11'-0⅞"	11'-11⅜"	13'-3⅛"	15'-8½"	15'-11½"
Section and Weight of Pitman	4"CH@6.25#	2½"Std.Pipe	2½"Std. Pipe	2½"Std. Pipe	3"X Str.Pipe	3"X Str. Pipe	3"X Str. Pipe
Wrist Pin Bearing	Self-Align. Brg	Self-Align. Brg	Self-Align. Brg	Self-Align. Brg	Self-Align. Brg	Self-Align. Brg	Self-Align. Brg
Center Iron Bearings	Needle Brg.	Needle Brg.	Needle Brg.	Needle Brg.	Needle Brg.	Needle Brg.	Needle Brg.
Total Wt. of Basic Unit with Counterwts.	2,112#	4,420#	8,245#	9,763#	14,541#	18,189#	26,038#
Max. Counterbalance Effect at Max. Polished Rod Stroke	4,640	6,710	5,500	6,700	8,200	11,500	15,000
Gear Ratio Overall	25.18 Dbl.	24.5 Dbl.	24.5 Dbl.	25.0 Dbl.	25.6 Dbl.	10.06 Single	10.05 Single
Standard Sheave Size	14⅞" 4B	16"3C or 5B	16"3C or 5B	18"6B or 24"3C	22" 4C	30" 6C	34" 5D

EMSCO UNIT PUMPERS



Emsco Type DD-40 Center Iron Assembly.

Equalizer Bearings are needle roller type.



both ends of the pitman. The two pitman castings are accurately machined to receive the wrist pin ball assembly, and to attach to the equalizer.

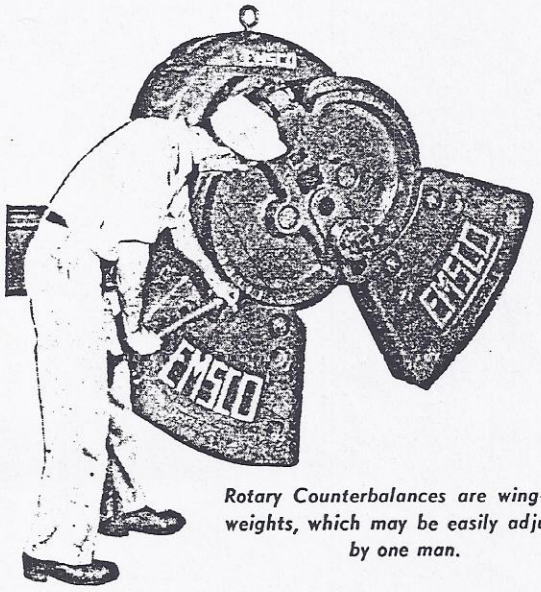
Equalizer: The equalizer is a heavy steel casting. It is attached to the lower flange of the walking beam by the universal equalizer bearing.

Service Brake: A powerful, internal-expanding service brake is mounted under the sheave. The brake drum is machined to receive various sizes of "V" belt sheaves. The sheaves are flange bolted to the brake drum. The brake handle is mounted at the extreme end of the outrigger and is provided with a positive ratchet lock.

Pumper Reducer: The speed reducers are equipped with continuous tooth herringbone gears and pinions. The gears and the pinions are made of heat treated alloy steels. The gear cases are of box type construction. The low speed shafts are mounted on roller bearings. The pinions are integral with the pinion shafts and are mounted on straight roller bearings. The high speed pinion shafts extend on one side to receive the drive sheave. A substantial cover, provided with adequate gaskets, covers the entire top of the case and provides easy, quick inspection and servicing.

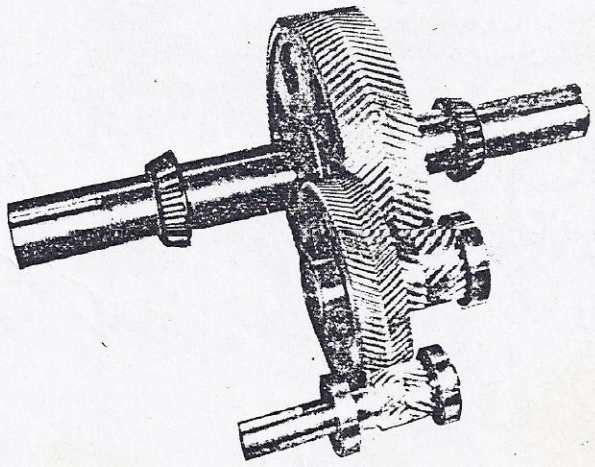
Lubrication: The design of the low speed gear provides buckets to lift the oil from the bottom of the gear case, and to dump it on the low speed shaft. Oil catchers are mounted on the low speed shaft bearing caps. Oil is picked up by the buckets, dumped on the shaft, drained into the oil pans, and fed into the bearings. The pinion shaft extensions are provided with oil seals. Labyrinth type seals are provided on the low speed shaft extensions, and oil flingers which are mounted on the shaft, prevent the oil from escaping. The equalizer, wrist pin, center iron, and beam hanger bearings are provided with positive Alemite lubrication. The center iron, the equalizer, and the beam hanger bearings can be lubricated from a central point at the top of the Samson Post safety ladder. All bearing housings are equipped with safety relief valves to protect the grease seals.

Belt Guard: The "V" belt guard is fabricated of heavy gage sheet steel arc welded together to accommodate maximum diameter sheaves. Ample clearance is provided for "V" belt take-up and engine drive sheaves. The guards are bolted to the gear case and to the outrigger.

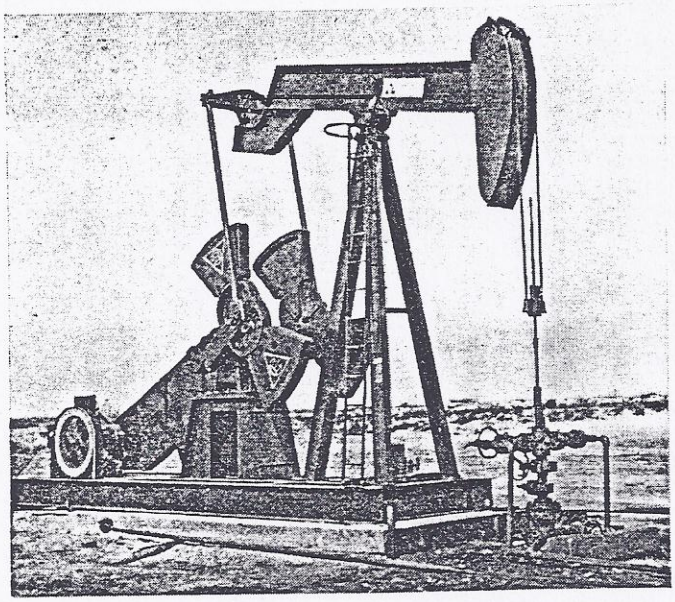


Rotary Counterbalances are wing-type weights, which may be easily adjusted by one man.

Pumper Reducer Assembly, showing continuous tooth herringbone gears and pinions.



COMPARE THESE ADVANCED FEATURES OF THE DH-SERIES UNIT PUMPER



DH Series Unit Pumpers are rugged and efficient. Heavier skids, heavy duty structural bearing design, use of Meehanite Nodular gears for reducer give these pumpers the longer-life features necessary to pump your toughest wells with the lowest possible maintenance cost.

All structurals and reducers conform fully to API standards. Continental - Emsco's Load Multiplication Factor has been lowered still more for additional economy. The DH Series is your best buy for efficiency, long life, low maintenance and overall economy, proven by three years of field testing. But don't take our word . . . make your own comparisons.

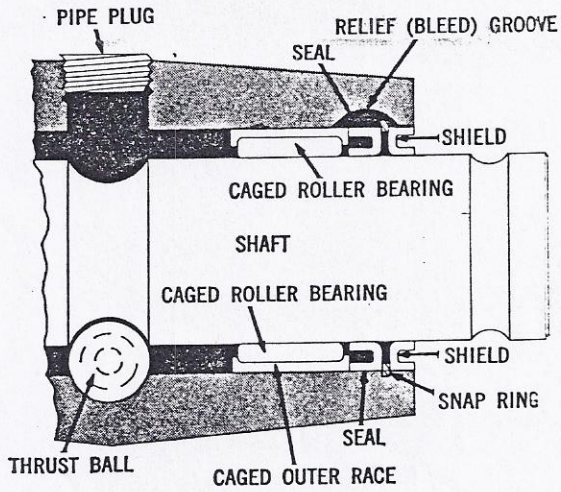
INCREASED STABILITY

Compare new, three-legged samson post. Three-legged design of heavy H-beam construction adds to unit's overall rigidity for longer bearing life. Rear leg is fixture mounted on skid so that thrust loading is transmitted directly to foundation or matting . . . not to the flanges of the skid beams. This design, in conjunction with heavy main skids (compare!), minimizes bending and breathing. Rear leg may be folded between front legs for convenience in shipping, erecting and ultimate moving to another well . . . and another . . . then another!

*Patented

IMPROVED CENTER-IRON AND EQUALIZER ASSEMBLIES

TYPICAL CENTER IRON OR EQUALIZER
CROSS SECTION • DH UNITS



Compare DH center-iron and equalizer bearings for longest life with minimum maintenance. Continental's Thrust-Ball Design utilizes thrust balls in a grooved channel in the center of the housing and pin to minimize side movement (see drawing ! This greatly extends the life of seals and helps prevent lubrication loss and eliminates end plate wear . . . an important feature if unit is slightly mis-set on installation. Continental's alignment system is superior to any other method available . . . reduces maintenance and adds years of unit life.

Compare DH pins, races and bearings. Finest bearing steel is used for pins, race areas are induction hardened, and then each pin is magnaflux inspected. Heavy duty caged roller bearings are B-10 rated for 100,000 hours . . . more than 11 years of continuous pumping.

Compare true seals and shields.* Positive snap-ring retainer seals are lubricated. A true shield is employed with positive lubrication to help prevent lips from drying out.

Compare lubrication advantages of DH bottom-loaded center iron. By attaching bearing housing to samson post and pin to walking beam, lubrication is always present at the point of loading, even if grease runs low.

CONTINENTAL-EMSCO
API UNIT PUMPERS AVAILABLE

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DH - 320 - 298 - 86

- 86 — MAXIMUM POLISHED ROD STROKE, INCHES
- 298 — CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- 320 — API GEAR REDUCER SIZE IN THOUSANDS OF IN-LBS. TORQUE
- DH — MODEL
- DH — DOUBLE REDUCTION GEAR REDUCER

DH-456-365-120	DH-228-246-74	DH-114-169-64	DH- 80-109-48
DH-456-365-100	DH-228-200-74	DH-114-143-64S	DH- 80-109-42
DH-320-256-120	DH-228-173-74S	DH-114-169-54	DH- 57-109-48
DH-320-298-100	DH-228-200-64	DH-114-133-54	DH- 57-109-42
DH-320-298-86	DH-160-200-74	DH-114-119-54S	DH- 40- 89-42
DH-320-246-86	DH-160-173-74S	DH-114-133-48	DH- 40- 89-36
DH-320-212-86S	DH-160-200-64	DH- 80-133-54	DH- 25- 67-36
DH-320-246-74	DH-160-169-64	DH- 80-119-54S	DH- 25- 67-30
DH-228-246-86	DH-160-143-64S	DH- 80-133-48	DH- 16- 53-30B
DH-228-212-86S	DH-160-169-54		

FOR COMPLETE DIMENSIONAL DATA AND/OR STRUCTURAL MEMBER WEIGHT CONTACT YOUR NEAREST C-E REPRESENTATIVE.

GREEN TRIANGLE ELECTRIC PUMPING MOTORS AND CONTROLS

First Electric Motors Designed for Oilfield Pumping

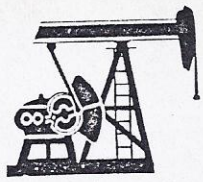
Green Triangle three-phase motors are available in 3, 5, 7½, 10, 15, 20 and 25 horsepower, operate at 1200 rpm (synchronous), in 220/440 or 440/762 volts. They are available "out-of-stock" at Continental-Emsco stores.

APPLICATION WARRANTY—Size and application to load of motors are warranted when the nameplate horsepower rating does not exceed the load rating determined by Continental-Emsco's electric motor application formula. 6% to 8% SLIP reduces peak ampere demands, cushions and reduces shock loading.

WEATHER GUARDED ENCLOSURE—All NEMA splash-proof and weather-protected (Type I) specifications are met. Standard bolt holes on all models fit standard unit pumper slide-rail bolts.

Matched controls are available.

CONTINENTAL-EMSCO COMPANY



SERIES A UNIT PUMPERS—SPECIFICATIONS

	DC-25-67-30	DB-40-89-36	DG-57-109-42	DF-80-133-48	DD-114-169-54	DB-160-200-64	DC-228-246-74	DB-320-298-86
Unit Pumper Gear Reducer Size	D-25	D-40	D-57	D-80	D-114	D-160	D-228	D-320
API Pumper Reducer Peak Torque Rating @ 20 spm-In. Lbs.	25,000	40,000	57,000	80,000	114,000	160,000	228,000	320,000
API Polished Rod Capacity of Walking Beam	6,700 lbs.	8,900 lbs.	10,900 lbs.	13,300 lbs.	16,900 lbs.	20,000 lbs.	24,600 lbs.	29,800 lbs.
Section and Weight of Walking Beam	10″ WF @ 29 lbs.	12″ WF @ 36 lbs.	14″ WF @ 48 lbs.	16″ WF @ 64 lbs.	21″ WF @ 73 lbs.	24″ WF @ 94 lbs.	24″ WF @ 120 lbs.	27″ WF @ 145 lbs.
Strokes Obtainable on Standard Crank*	18″, 24″, 30″	24″, 30″, 36″	26″, 34″, 42″	32″, 40″, 48″	34″, 44″, 54″	44″, 54″, 64″	50″, 62″, 74″	58″, 72″, 86″
Section and Weight of Main Skid Member	6″ WF @ 12 lbs.	8″ WF @ 13 lbs.	10″ WF @ 21 lbs.	10″ WF @ 21 lbs.	12″ WF @ 27 lbs.	12″ WF @ 27 lbs.	14″ WF @ 38 lbs.	14″ WF @ 48 lbs.
Section and Weight of Pitman	4″ Chnl @ 7.25 lbs.	4″ chnl @ 7.25 lbs.	2½″ Std. Pipe	2½″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe
Type-Wrist Pin Bearing	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Type Counterbalance	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary
Gear Ratio	29.6:1	30.2:1	30.0:1	30.2:1	30.2:1	30.2:1	28.1:1	27.9:1
Max. Counterbalance Effect at Max. Stroke with Insert and Aux. Wts.	5,560 lbs.	7,470 lbs.	10,000 lbs.	11,835 lbs.	16,000 lbs.	18,460 lbs.	23,110 lbs.	27,805 lbs.
Less Insert and Aux. Wts.	4,440 lbs.	6,670 lbs.	7,790 lbs.	5,860 lbs.	8,130 lbs.	9,415 lbs.	11,900 lbs.	14,705 lbs.
Available Sheave Sizes W/QD Hubs	18.4 PD-3B Max.	18.4 PD-3B Max.	16 PD-3C 25 PD-4B Max. 24 PD-3C Max.	16 PD-3C 30 PD-5B Max. 30 PD-3C Max.	18 PD-4C 30 PD-4C Max.	24 PD-5C 30 PD-5C Max.	22 PD-4D 24 PD-6C 36 PD-6C 33 PD-4D 40″ Possible	22 PD-5D 24 PD-8C 36 PD-8C 33 PD-5D 48″ Possible

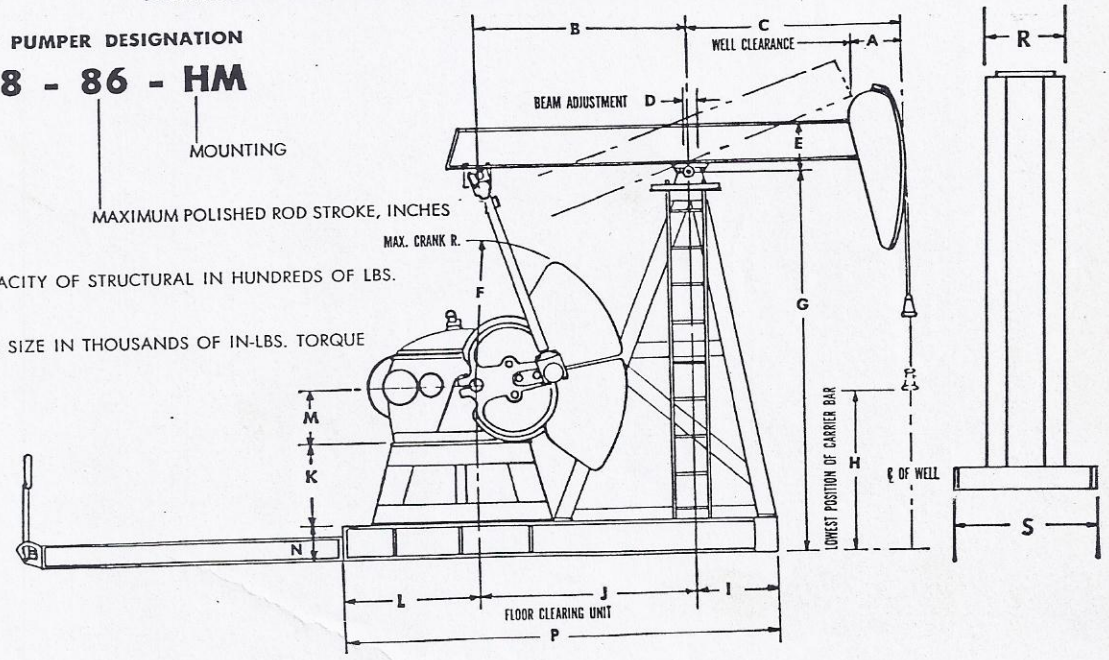
We reserve the right to change specifications without incurring any obligation for equipment previously or subsequently sold.

DIMENSIONS—SERIES A UNIT PUMPERS

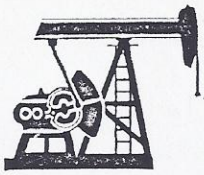
CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DB - 320 - 298 - 86 - HM

- DB — DOUBLE REDUCTION GEAR REDUCER
- 320 — MODEL
- 298 — API GEAR REDUCER SIZE IN THOUSANDS OF IN-LBS. TORQUE
- 86 — CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- HM — MAXIMUM POLISHED ROD STROKE, INCHES; MOUNTING



UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
DC-25-67-30	12″	3′-6″	3′-6″	2″	1′-1¼″	40 3/16″	8′-5″	43″	1′-2¼″	3′-6″	2′-3½″	2′-3½″	9½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB-40-89-36	12″	4′-3″	4′-3″	2″	1′-3⅜″	47⅜″	10′-0″	49″	1′-4½″	4′-3″	2′-6½″	2′-7¾″	1′-0″	8″	8′-3¼″	1′-6½″	3′-0½″
DG-57-109-42	14″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	53″	1′-6 3/16″	5′-3″	2′-4⅝″	3′-0⅝″	1′-4″	9⅞″	9′-10 3/16″	1′-9″	3′-9″
DF-80-133-48	20″	6′-0″	6′-0″	3½″	1′-8″	55 11/16″	12′-0⅞″	61″	1′-8 1/16″	6′-0″	2′-7″	3′-5⅛″	1′-6″	9⅞″	11′-1 3/16″	1′-10¼″	4′-0″
DD-114-169-54	23″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	65″	1′-11″	6′-9″	2′-9¾″	4′-0″	1′-8″	1′-0″	12′-8″	2′-2″	4′-4½″
DB-160-200-64	25″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	77″	2′-2⅛″	8′-0″	3′-3¾″	4′-8″	1′-10″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC-228-246-74	26″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	86″	2′-4 11/16″	9′-3″	3′-3⅝″	5′-1″	2′-1″	1′-2⅛″	16′-8 11/16″	2′-6¼″	5′-9″
DB-320-298-86	32″	10′-8″	10′-8″	4¼″	2′-7⅞″	84¾″	20′-7¾″	103″	2′-8¾″	10′-8″	3′-11″	5′-9½″	2′-2″	1′-1¾″	19′-2¼″	2′-10″	6′-6″



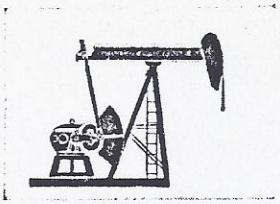
CONTINENTAL-EMSCO COMPANY

SERIES B UNIT PUMPERS—SPECIFICATIONS

	DB-16-53-30-B	DC-25-67-36	DB-40-89-42	DC-57-109-48	DF-80-109-48	DF-80-133-54	DD-114-133-54
Unit Pumper Gear Reducer Size	D-16	D-25	D-40	D-57	D-80	D-80	D-114
API Pumper Reducer Peak Torque Rating @ 20 SPM	16,000″ lbs.	25,000″ lbs.	40,000″ lbs.	57,000″ lbs.	80,000″ lbs.	80,000″ lbs.	114,000″ lbs.
API Polished Rod Capacity of Walking Beam	5,300 lbs.	6,700 lbs.	8,900 lbs.	10,900 lbs.	10,900 lbs.	13,300 lbs.	13,300 lbs.
Section and Weight of Walking Beam	10″ WF @ 21 lbs.	10″ WF @ 29 lbs.	12″ WF @ 36 lbs.	14″ WF @ 48 lbs.	14″ WF @ 48 lbs.	16″ WF @ 64 lbs.	16″ WF @ 64 lbs.
Strokes Obtainable on Standard Crank	18½″, 21″, 24½″, 30″	24″, 30″, 36″	30″, 36″, 42″	32″, 40″, 48″	32″, 40″, 48″	38″, 46″, 54″	38″, 46″, 54″
Section and Weight of Main Skid Member	6″ chnl @ 8.2 lbs.	6″ WF @ 12 lbs.	8″ WF @ 13 lbs.	10″ WF @ 21 lbs.	10″ WF @ 21 lbs.	10″ WF @ 21 lbs.	10″ WF @ 21 lbs.
Section and Weight of Pitman	4″ chnl @ 5.4 lbs.	4″ chnl @ 7.25 lbs.	4″ chnl @ 7.25 lbs.	2½″ Std. Pipe	2½″ Std. Pipe	2½″ Std. Pipe	2½″ Std. Pipe
Type Wrist Pin Bearing	Roller	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Type Counterbalance	Beam	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary
Gear Ratio	30.4:1	29.6:1	30.2:1	30.0:1	30.2:1	30.2:1	30.2:1
Max. Counterbalance Effect at Max. Stroke with Insert and Aux. Wts.	3,690 lbs.	4,695 lbs.	6,450 lbs.	8,860 lbs.	8,860 lbs.	10,615 lbs.	10,615 lbs.
Less Insert and Aux. Wts.	.....	3,745 lbs.	5,760 lbs.	6,880 lbs.	6,880 lbs.	5,255 lbs.	5,255 lbs.
Available Sheave Sizes W/QD Hubs, In.	15.5 PD-2B	18.4 PD-3B Max.	18.4 PD-3B Max.	16 PD-3C 24 PD-3C Max. 25 PD-4B Max.	16 PD-3C 30 PD-5B* 30 PD-3C* *Max.	16 PD-3C 30 PD-5B* 30 PD-3C* *Max.	18 PD-4C 30 PD-4C* *Max.

	DD-114-169-64	DB-160-169-64	DB-160-200-74	DC-228-200-74	DC-228-246-86	DB-320-246-86	DB-320-298-100
Unit Pumper Gear Reducer Size	D-114	D-160	D-160	D-228	D-228	D-320	D-320
API Pumper Reducer Peak Torque Rating @ 20 SPM	114,000″ lbs.	160,000″ lbs.	160,000″ lbs.	228,000″ lbs.	228,000″ lbs.	320,000″ lbs.	320,000″ lbs.
API Polished Rod Capacity of Walking Beam	16,900 lbs.	16,900 lbs.	20,000 lbs.	20,000 lbs.	24,600 lbs.	24,600 lbs.	29,800 lbs.
Section and Weight of Walking Beam	21″ WF @ 73 lbs.	21″ WF @ 73 lbs.	24″ WF @ 94 lbs.	24″ WF @ 94 lbs.	24″ WF @ 120 lbs.	24″ WF @ 120 lbs.	27″ WF @ 145 lbs.
Strokes Obtainable in Standard Crank	44″, 54″, 64″	44″, 54″, 64″	54″, 64″, 74″	54″, 64″, 74″	62″, 74″, 86″	62″, 74″, 86″	72″, 86″, 100″
Section and Weight of Main Skid Member	12″ WF @ 27 lbs.	12″ WF @ 27 lbs.	12″ WF @ 27 lbs.	12″ WF @ 27 lbs.	14″ WF @ 38 lbs.	14″ WF @ 38 lbs.	14″ WF @ 48 lbs.
Section and Weight of Pitman	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe	3″ Std. Pipe
Type Wrist Pin Bearing	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Type Counterbalance	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary
Gear Ratio	30.2:1	30.2:1	30.2:1	28.1:1	28.1:1	27.9:1	27.9:1
Max. Counterbalance Effect at Max. Stroke with Insert and Aux. Wts.	13,690 lbs.	13,690 lbs.	16,080 lbs.	16,080 lbs.	20,110 lbs.	20,110 lbs.	24,195 lbs.
Less Insert and Aux. Wts.	6,950 lbs.	6,950 lbs.	8,200 lbs.	8,200 lbs.	10,350 lbs.	10,350 lbs.	12,795 lbs.
Available Sheave Sizes W/QD Hubs, In.	18 PD-4C 30 PD-4C* *Max.	24 PD-5C 30 PD-5C* *Max.	24 PD-5C 30 PD-5C* *Max.	22 PD-4D 24 PD-6C 36 PD-6C 33 PD-4D 40″ Possible	22 PD-4D 24 PD-6C 36 PD-6C 33 PD-4D 40″ Possible	22 PD-5D 24 PD-8C 36 PD-8C 33 PD-5D 48″ Possible	22 PD-5D 24 PD-8C 36 PD-8C 33 PD-5D 48″ Possible

Non-floor clearing units can be furnished if required.
We reserve the right to change specifications without incurring any obligation for equipment previously or subsequently sold.

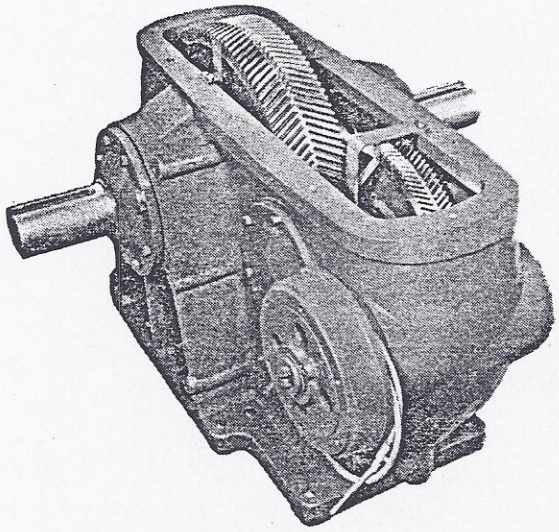


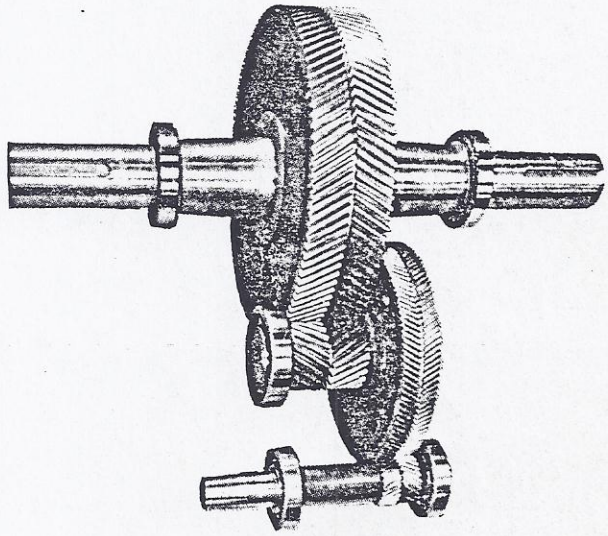
EMSCO A.P.I. PUMPING UNIT GEAR REDUCERS

Emsco manufactures a complete line of A.P.I. pumping unit gear reducers, primarily of the double reduction design. Models 160 and 228 are available both in double and single reduction.

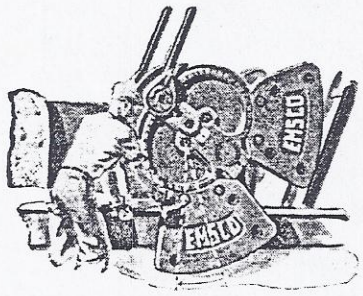
All models are equipped with precision machined herringbone gears. All gears and pinions are made of highest quality heat treated steel. The slow speed gear shaft is mounted on tapered roller bearings. All other shafts are mounted on straight roller bearings. The pinions are integral with their shafts. All shafts are precision ground to size. The entire gear train assembly is mounted in a sturdy, rigid, one-piece housing. Shaft openings in the gear case are precision machined to assure perfect alignment of the gear train. The gear case is sealed with an oil and moisture-tight cover. A breather cap and inspection door are provided.

An outstanding feature of the Emsco gear reducers is the automatic, positive flood lubrication system employed in the lubrication of bearings and gears. Lubricating oil level in the gear case permits the slow speed and intermediate gears to dip into oil. Combined wiper and trough system collects oil from the sides of the gears and directs the flow to each roller bearing. This system provides positive lubrication at high or low speeds in either direction.

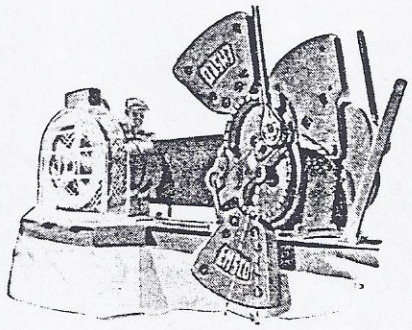




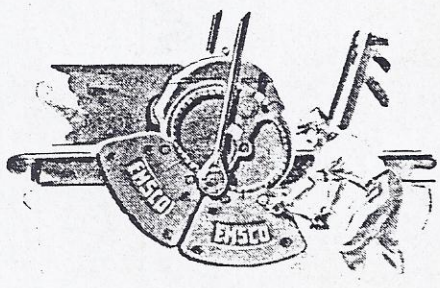
QUICK, SIMPLE, SAFE ADJUSTMENT BY ONE MAN AT GROUND LEVEL



Weights at zero effect. To adjust: stop unit with lower weights about 15° off vertical. Loosen clamping bolts and weight will swing to vertical position. Tighten clamping bolts.

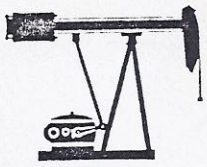


Disengage service brake. The upper counterbalance weight will cause unit to swing clockwise. Stop unit when weight has swung about 15° past vertical. Loosen clamping bolts and weight will swing to vertical position. Tighten bolts.



Repeat operation until weights are swung into the desired position. When weights are pivoted as far as possible maximum counterbalance effect is obtained. Adjustment markers are provided to facilitate operation.

CONTINENTAL-EMSCO COMPANY

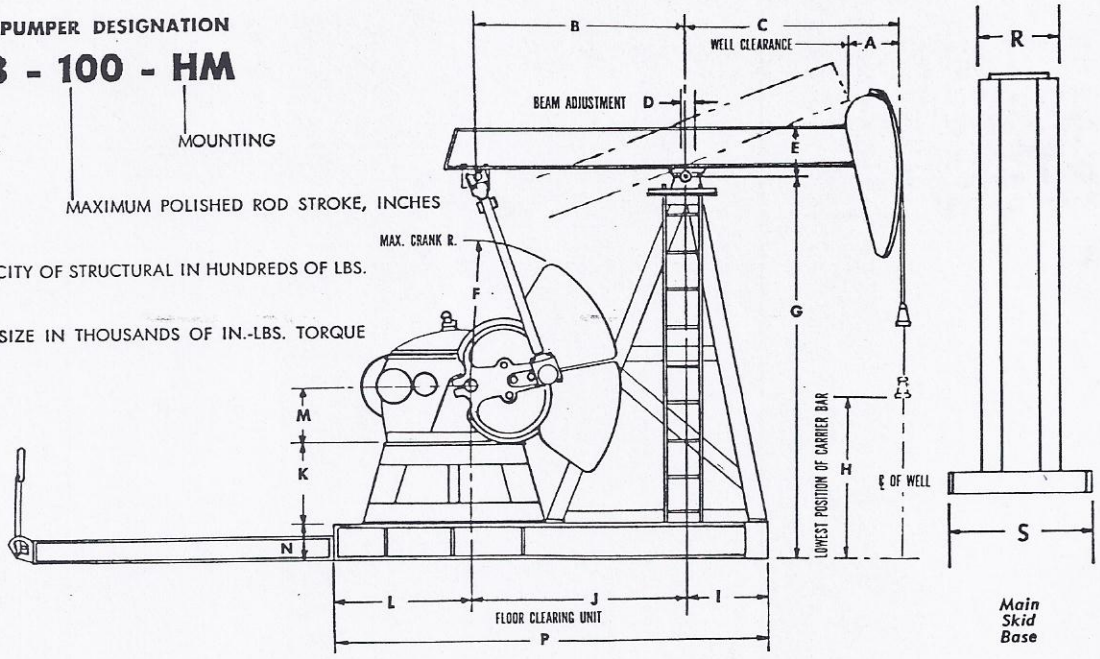


DIMENSIONS—SERIES B ROTARY BALANCED UNIT PUMPERS

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DB - 320 - 298 - 100 - HM

- DB: DOUBLE REDUCTION GEAR REDUCER
- 320: MODEL
- 298: API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 100: CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- HM: MAXIMUM POLISHED ROD STROKE, INCHES; MOUNTING



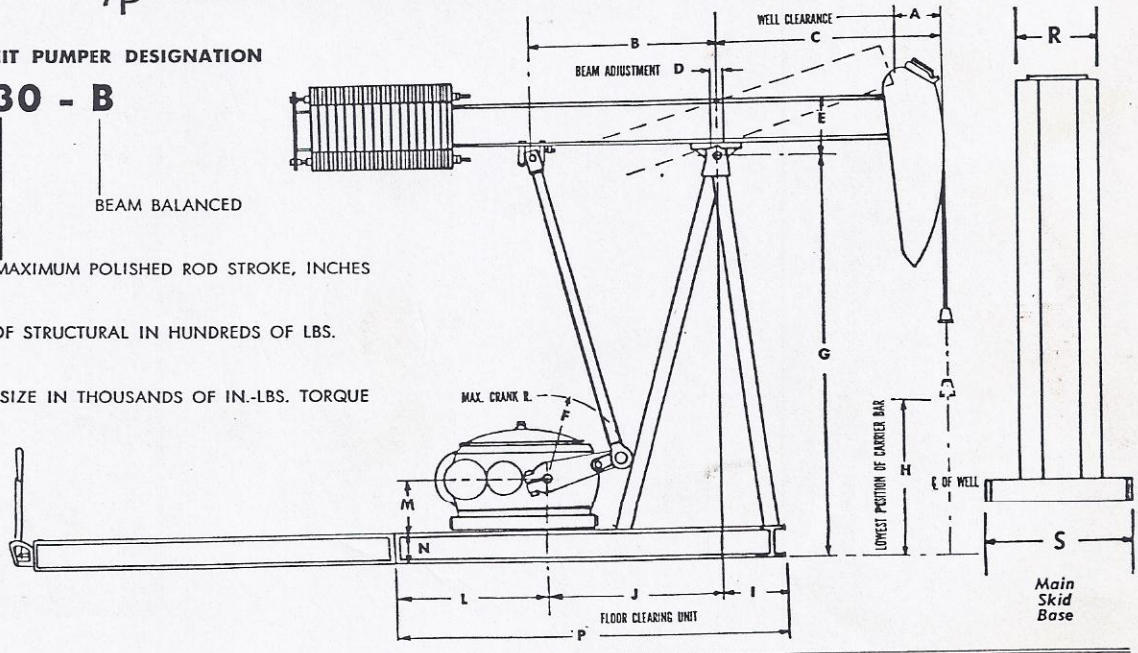
UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
DC-25-67-36.....	13″	3′-6″	3′-6″	2″	1′-1¼″	40³/₁₆″	8′-5″	40″	1′-2¼″	3′-6″	2′-3½″	2′-3½″	9½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB-40-89-42.....	13″	4′-3″	4′-3″	2″	1′-3⅞″	47⅜″	10′-0″	46″	1′-4½″	4′-3″	2′-6½″	2′-7¾″	1′-0″	8″	8′-3¼″	1′-6½″	3′-0½″
DG-57-109-48.....	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-6⁹/₁₆″	5′-3″	2′-4⅝″	3′-0⅝″	1′-4″	9⅞″	9′-10³/₁₆″	1′-9″	3′-9″
DF-80-109-48.....	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-6⁹/₁₆″	5′-3″	2′-2⅜″	3′-0⅝″	1′-6″	9⅞″	9′-10³/₁₆″	1′-9″	3′-9″
DF-80-133-54.....	21″	6′-0″	6′-0″	3½″	1′-8″	55¹¹/₁₆″	12′-0⅞″	58″	1′-8¹/₁₆″	6′-0″	2′-7″	3′-5⅛″	1′-6″	9⅞″	11′-1³/₁₆″	1′-10¼″	4′-0″
DD-114-133-54....	21″	6′-0″	6′-0″	3½″	1′-8″	55¹¹/₁₆″	12′-0⅞″	58″	1′-8¹/₁₆″	6′-0″	2′-5″	3′-5⅛″	1′-8″	9⅞″	11′-1³/₁₆″	1′-10¼″	4′-0″
DD-114-169-64....	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-9¾″	4′-0″	1′-8″	1′-0″	12′-8″	2′-2″	4′-4½″
DB-160-169-64....	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-7¾″	4′-0″	1′-10″	1′-0″	12′-8″	2′-2″	4′-4½″
DB-160-200-74....	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′-3¾″	4′-8″	1′-10″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC-228-200-74....	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′-0¾″	4′-8″	2′-1″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC-228-246-86....	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4¹¹/₁₆″	9′-3″	3′-3⅝″	5′-1″	2′-1″	1′-2⅛″	16′-8¹¹/₁₆″	2′-6¼″	5′-9″
DB-320-246-86....	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4¹¹/₁₆″	9′-3″	3′-2⅝″	5′-1″	2′-2″	1′-2⅛″	16′-8¹¹/₁₆″	2′-6¼″	5′-9″
DB-320-298-100..	34″	10′-8″	10′-8″	4¼″	2′-7⅞″	84¾″	20′-7¾″	96″	2′-8¾″	10′-8″	3′-11″	5′-9½″	2′-2″	1′-1¾″	19′-2¼″	2′-10″	6′-6″

DIMENSION BEAM BALANCED UNIT PUMPER

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DB 16 - 53 - 30 - B

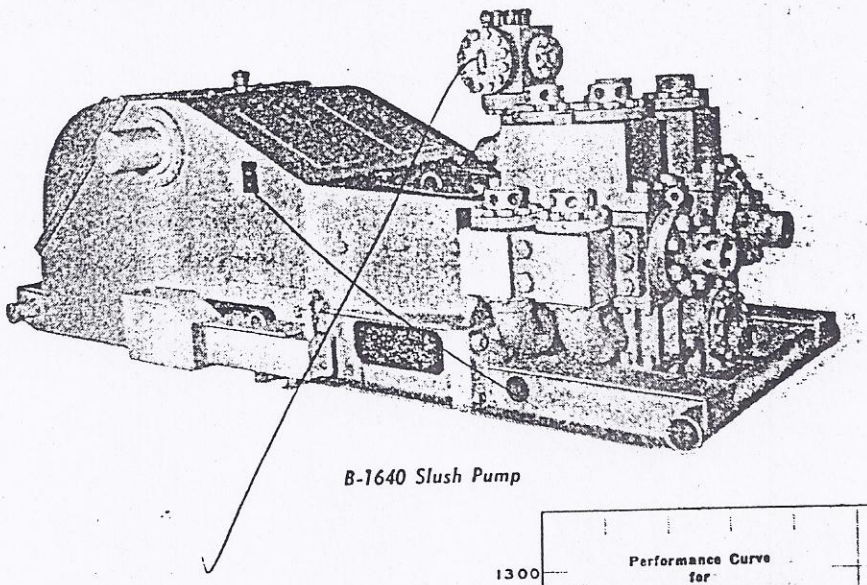
- DB: DOUBLE REDUCTION GEAR REDUCER
- 16: MODEL
- 53: API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 30: CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- B: MAXIMUM POLISHED ROD STROKE, INCHES; BEAM BALANCED



UNIT	A	B	C	D	E	F	G	H	I	J	L	M	N	P	R	S
DB-16-53-30B.....	9″	Varies w/Stroke	3′-0″	2″	1′-0⅜″	12⁹/₁₆″	6′-5″¼	32¼″	1′-0¼″	2′-10″	1′-9″	8¼″	6″	5′-7¼″	1′-1″	2′-2″

B-LINE POWER SLUSH PUMPS—B-1640

The B-1640 pump eliminates the need for parallel or series operation of slush pumps in deep-jet drilling to achieve desired rates of penetration. A low weight to horse-power ratio has been attained by using steel plate and steel castings to fabricate a low-weight, high-strength gear frame. Deflection of moving parts is eliminated by use of a box-section structure. Gears and shafts are manufactured from steel forgings. Roller bearings, selected for extra long life under fully loaded conditions, support all rotating loads. Fluid end is manufactured from forged steel. Fluid end studding is in accordance with API-ASME Code requirements for unfired pressure vessels. Use of screw-type valve covers and cylinder heads affords instant inspection and replacement of valve, seats and pistons. In addition to the normal gravity lubrication system in the gear end, a pressure system is furnished. A gear-driven pump supplies filtered oil at all speeds to bearings, crossheads, slides and other parts.



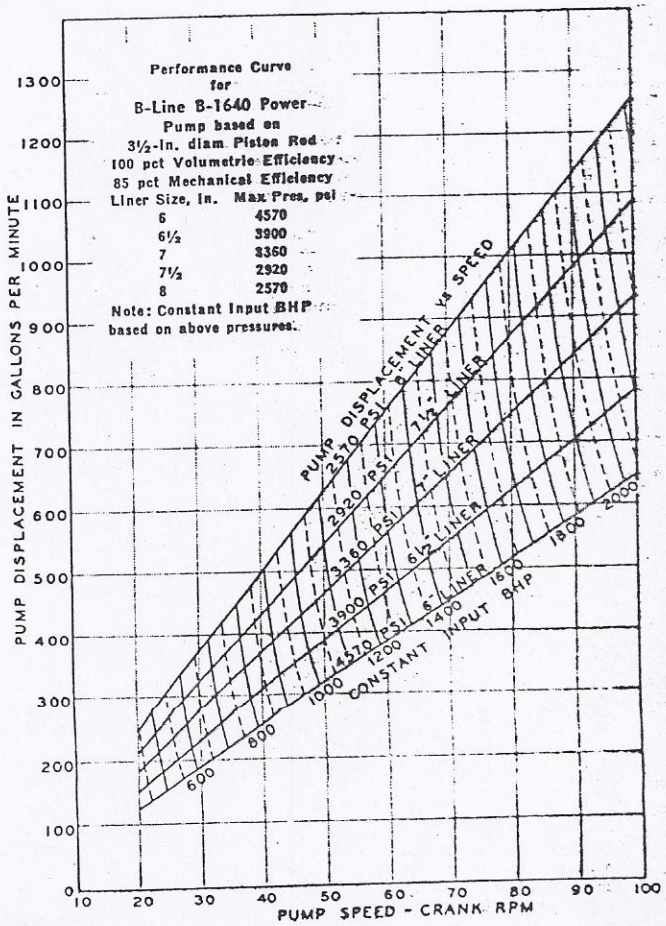
B-1640 Slush Pump

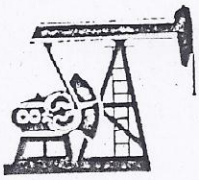
PERFORMANCE DATA

MAX VOLUME (GPM)—MAX PRESSURE (PSI)—MAX INPUT HORSEPOWER (IHP)

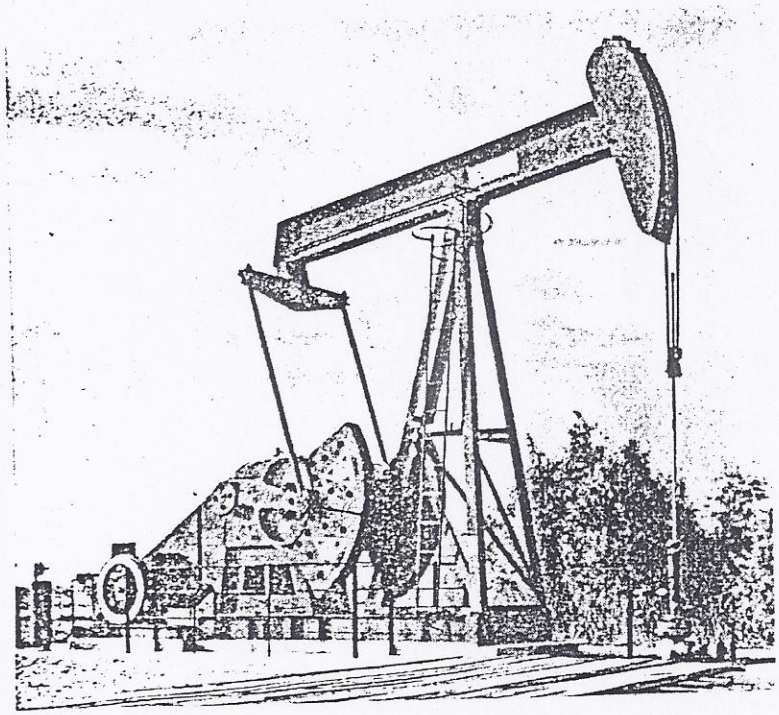
(Based on 100 pct Volumetric and 85 pct Mechanical Efficiencies)

B-1640 Liner Sizes, In.		8	7½	7	6½	6
Vol. per Crank Rev., gal		12.59	10.91	9.33	7.86	6.50
Crank RPM						
50	GPM	630	546	467	393	325
	PSI	2,570	2,920	3,360	3,900	4,570
	IHP	1,111	1,093	1,076	1,052	1,020
60	GPM	755	655	560	472	390
	PSI	2,570	2,920	3,360	3,900	4,570
	IHP	1,333	1,312	1,291	1,262	1,223
70	GPM	881	764	653	550	455
	PSI	2,570	2,920	3,360	3,900	4,570
	IHP	1,555	1,530	1,506	1,473	1,427
80	GPM	1,007	873	764	629	520
	PSI	2,570	2,920	3,360	3,900	4,570
	IHP	1,777	1,749	1,722	1,683	1,631
90	GPM	1,133	982	840	707	585
	PSI	2,570	2,920	3,360	3,900	4,570
	IHP	1,999	1,967	1,937	1,894	1,835





UNIT PUMPERS



GENERAL DESCRIPTION

Continental-Emsco unit pumpers give greater efficiency of application due to 18 different sizes which make it easy to match well conditions with the right torque capacity, structural load and stroke length. They have increased operating efficiency by decreasing torque at wrist pins for longer bearing life, permitting more exact well balancing, easier starting and less peak power demands, less fuel or electricity costs and less wear on reduction gears. These advantages are achieved by an improved geometric design. Taller samson posts reduce the pulling angle between the gear reducer and walking beam. It makes well loads more nearly equal at wrist pin and polished rod. These units conform with API suggested standards.

DESIGN FEATURES

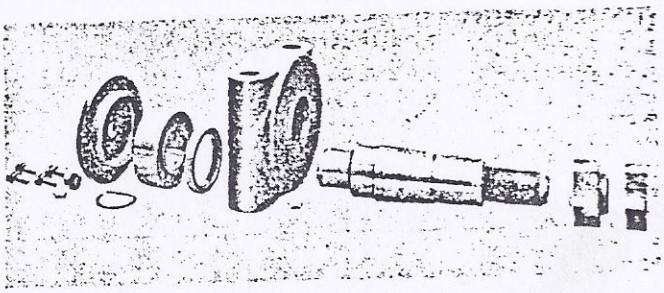
1.06 LOAD MULTIPLICATION FACTOR has been achieved for each unit due to improved geometric design for less wear on gear teeth and bearings, lower power costs due to easier starting, less peak loads and more effective application of counterbalance weights, often eliminating the cost of additional weights. API torque factor sheets are available on request.

NEW WRIST PIN AND PITMAN CONNECTION permits faster field assembly and speeds up changing stroke length. Pitman attaches to wrist pin bearing housing with through bolts. Tightening the bolts brings the parts together accurately and simply. Wrist pins are hydraulically removable.

NEW BEARING ASSEMBLIES. All bearings carry manufacturer's B-10 rating for a designed longer life. They are available: (1) "prelubricated and sealed," optional, (2) ground level lubrication, optional or (3) with standard maintenance fittings.

HORSEHEADS are provided in two types (1) removable or (2) hinged. Each gives straight-line lift which cuts maintenance of polished rod and stuffing box.

EQUALIZER is especially designed for this job to assure equal sharing of well loads by pitmans. It is fabricated for rigidity and long life.



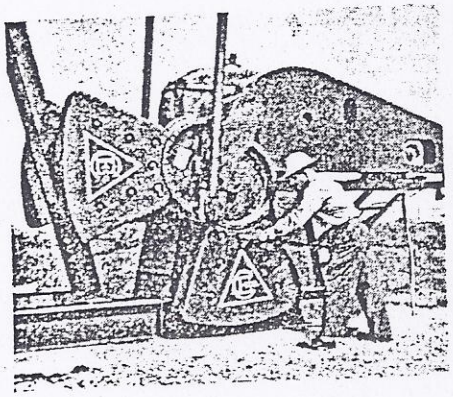
NEW WRIST PIN DESIGN

STANDARD QD SHEAVES are used to cut cost and time. They are available at sheave dealers everywhere and cost less than special sheaves.

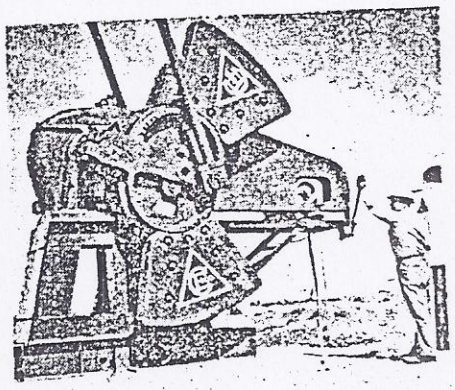
BASE AND SKID EXTENSIONS. Extra heavy base beams hold complete unit, so all component parts operate under their rated load with maximum efficiency without flexing or twisting. Skid extensions for gas engines or electric motors are available. An under-Samson-post drive is available for larger units, which permits an electric motor to be mounted under the Samson post.

CONTINENTAL-EMSCO COUNTERBALANCES

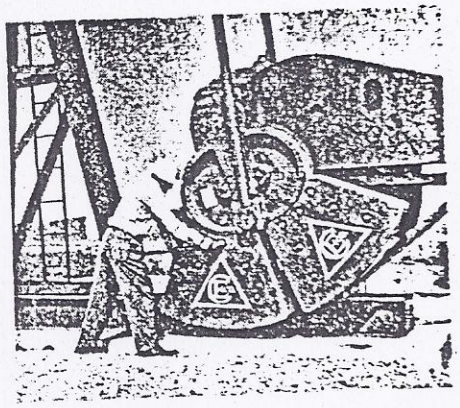
May be Adjusted to Lead or Lag the Load as Required, Quickly, Safely, Simply by One Man at Ground Level



Weights at zero effect. To adjust: stop unit with lower weights about 15° off vertical. Loosen clamping bolts and weight will swing to vertical position. Tighten clamping bolts.



Disengage service brake. The upper counterbalance weight will cause unit to swing clockwise. Stop unit when weight has swung about 15° past vertical. Loosen clamping bolts and weight will swing to vertical position. Tighten bolts.



Repeat operation until weights are swung into the desired position. When weights are pivoted as far as possible maximum counterbalance effect is obtained. Adjustment markers are provided to facilitate operation.

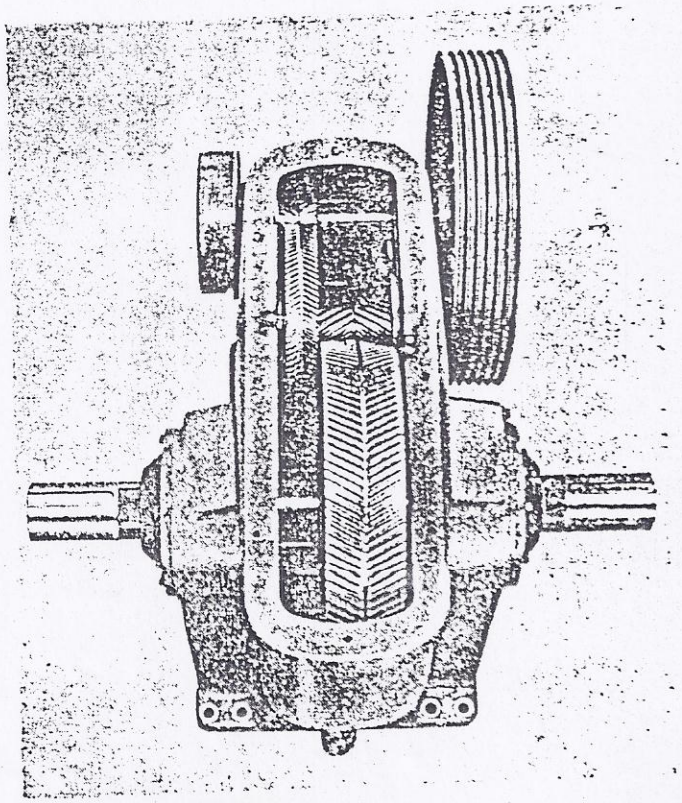
CONTINENTAL-EMSCO API UNIT PUMPER GEAR REDUCERS

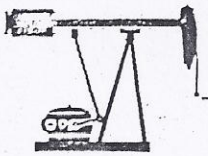
Continental-Emsco manufactures a complete line of API unit pumper gear reducers of the double reduction design.

All models are equipped with precision machined herringbone gears. All gears and pinions are made of highest quality heat-treated steel. The slow-speed gear shaft is mounted on tapered roller bearings. All other shafts are mounted on straight roller bearings. The pinions are integral with their shafts. All shafts are precision ground to size. The entire gear-train assembly is mounted in a sturdy, rigid, one-piece housing. Shaft openings in the gear case are precision machined to assure perfect alignment of the gear train. The gear reducer is completely equipped with labyrinth type oil seals which have no wearing parts. The gear case is sealed with an oil and moisture-tight cover. A breather cap and inspection door are provided.

An outstanding feature of the Continental-Emsco gear reducers is the automatic, positive flood lubrication system employed in the lubrication of bearings and gears. Lubricating oil level in the gear case permits the slow-speed and intermediate gears to dip into oil.

Newly designed oil troughs cast into the sides of the reducer box eliminate fabricated oil troughs. This provides superior lubrication to all bearings and makes inspections easier. Positive lubrication is provided at high or low speeds in either direction.





CONTINENTAL-EMSCO COMPANY

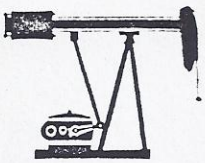
UNIT PUMPERS—SPECIFICATIONS

	DB-16-53-30-B	DC-25-67-36	DC-25-67-36-B	DB-40-89-42	DB-40-89-42-BW	DC-57-109-48	DF-80-109-48	DF-80-133-54
Unit Pumper Gear Reducer Size	D-16	D-25	D-25	D-40	D-40	D-57	D-80	D-80
API Pumper Reducer Peak Torque Rating @ 20 SPM	16,000" lbs.	25,000" lbs.	25,000" lbs.	40,000" lbs.	40,000" lbs.	57,000" lbs.	80,000" lbs.	80,000" lbs.
API Polished Rod Capacity of Walking Beam	5,300 lbs.	6,700 lbs.	6,700 lbs.	8,900 lbs.	8,900 lbs.	10,900 lbs.	10,900 lbs.	13,300 lbs.
Section and Weight of Walking Beam	10" WF @ 21 lbs.	10" WF @ 29 lbs.	10" WF @ 29 lbs.	12" WF @ 36 lbs.	12" WF @ 36 lbs.	14" WF @ 48 lbs.	14" WF @ 48 lbs.	16" WF @ 64 lbs.
Strokes Obtainable on Standard Crank	18½", 21", 24½", 30"	24", 30", 36"	24", 30", 36"	30", 36", 42"	30", 36", 42"	32", 40", 48"	32", 40", 48"	38", 46", 54"
Section and Weight of Main Skid Member	6" chnl @ 8.2 lbs.	6" WF @ 12 lbs.	6" WF @ 12 lbs.	8" WF @ 13 lbs.	8" WF @ 13 lbs.	10" WF @ 21 lbs.	10" WF @ 21 lbs.	10" WF @ 21 lbs.
Section and Weight of Pitman	4" chnl @ 5.4 lbs.	4" chnl @ 7.25 lbs.	4" chnl @ 7.25 lbs.	4" chnl @ 7.25 lbs.	4" chnl @ 7.25 lbs.	2½" Std. Pipe	2½" Std. Pipe	2½" Std. Pipe
Type Wrist Pin Bearing	Roller	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Type Counterbalance	Beam	Rotary	Beam	Rotary	Beam	Rotary	Rotary	Rotary
Gear Ratio	30.4:1	29.6:1	29.6:1	30.2:1	30.2:1	30.0:1	30.2:1	30.2:1
Max. Counterbalance Effect at Max. Stroke with Insert and Aux. Wts.	3,690 lbs.	4,695 lbs.	5,314 lbs.	6,450 lbs.	6,140 lbs.	8,860 lbs.	8,860 lbs.	10,615 lbs.
Less Insert and Aux. Wts.	.....	3,745 lbs.	.....	5,760 lbs.	.....	6,880 lbs.	6,880 lbs.	5,255 lbs.
Available Sheave Sizes W/QD Hubs, In.	15.5 PD-2B	18.4 PD-3B Max.	18.4 PD-3B Max.	18.4 PD-3B Max.	18.4 PD-3B Max.	16 PD-3C 25 PD-4B Max. 24 PD-3C Max.	16 PD-3C 30 PD-5B* 30 PD-3C* *Max.	16 PD-3C 30 PD-5B* 30 PD-3C* *Max.

	DD-114-133-54	DD-114-169-64	DB-160-169-64	DB-160-200-74	DC-228-200-74	DC-228-246-86	DB-320-246-86	DB-320-298-100
Unit Pumper Gear Reducer Size	D-114	D-114	D-160	D-160	D-228	D-228	D-320	D-320
API Pumper Reducer Peak Torque Rating @ 20 SPM	114,000" lbs.	114,000" lbs.	160,000" lbs.	160,000" lbs.	228,000" lbs.	228,000" lbs.	320,000" lbs.	320,000" lbs.
API Polished Rod Capacity of Walking Beam	13,300 lbs.	16,900 lbs.	16,900 lbs.	20,000 lbs.	20,000 lbs.	24,600 lbs.	24,600 lbs.	29,800 lbs.
Section and Weight of Walking Beam	16" WF @ 64 lbs.	21" WF @ 73 lbs.	21" WF @ 73 lbs.	24" WF @ 94 lbs.	24" WF @ 94 lbs.	24" WF @ 120 lbs.	24" WF @ 120 lbs.	27" WF @ 145 lbs.
Strokes Obtainable on Standard Crank	38", 46", 54"	44", 54", 64"	44", 54", 64"	54", 64" 74",	54", 64", 74"	62", 74", 86"	62", 74", 86"	72", 86", 100"
Section and Weight of Main Skid Member	10" WF @ 21 lbs.	12" WF @ 27 lbs.	12" WF @ 27 lbs.	12" WF @ 27 lbs.	12" WF @ 27 lbs.	14" WF @ 38 lbs.	14" WF @ 38 lbs.	14" WF @ 48 lbs.
Section and Weight of Pitman	2½" Std. Pipe	3" Std. Pipe	3" Std. Pipe	3" Std. Pipe	3" Std. Pipe	3" Std. Pipe	3" Std. Pipe	3" Std. Pipe
Type Wrist Pin Bearing	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Type Counterbalance	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary	Rotary
Gear Ratio	30.2:1	30.2:1	30.2:1	30.2:1	28.1:1	28.1:1	27.9:1	27.9:1
Max. Counterbalance Effect at Max. Stroke with Insert and Aux. Wts.	10,615 lbs.	13,690 lbs.	13,690 lbs.	16,080 lbs.	16,080 lbs.	20,110 lbs.	20,110 lbs.	24,195 lbs.
Less Insert and Aux. Wts.	5,255 lbs.	6,950 lbs.	6,950 lbs.	8,200 lbs.	8,200 lbs.	10,350 lbs.	10,350 lbs.	12,795 lbs.
Available Sheave Sizes W/QD Hubs, In.	18 PD-4C 30 PD-4C* *Max.	18 PD-4C 30 PD-4C* *Max.	24 PD-5C 30 PD-5C* *Max.	24 PD-5C 30 PD-5C* *Max.	22 PD-4D 24 PD-6C 36 PD-6C 33 PD-4D 40" Possible	22 PD-4D 24 PD-6C 36 PD-6C 33 PD-4D 40" Possible	22 PD-5D 24 PD-8C 36 PD-8C 33 PD-5D 48" Possible	22 PD-5D 24 PD-8C 36 PD-8C 33 PD-5D 48" Possible

Non-floor clearing units can be furnished if required.
We reserve the right to change specifications without incurring any obligation for equipment previously or subsequently sold.

CONTINENTAL-EMSCO COMPANY

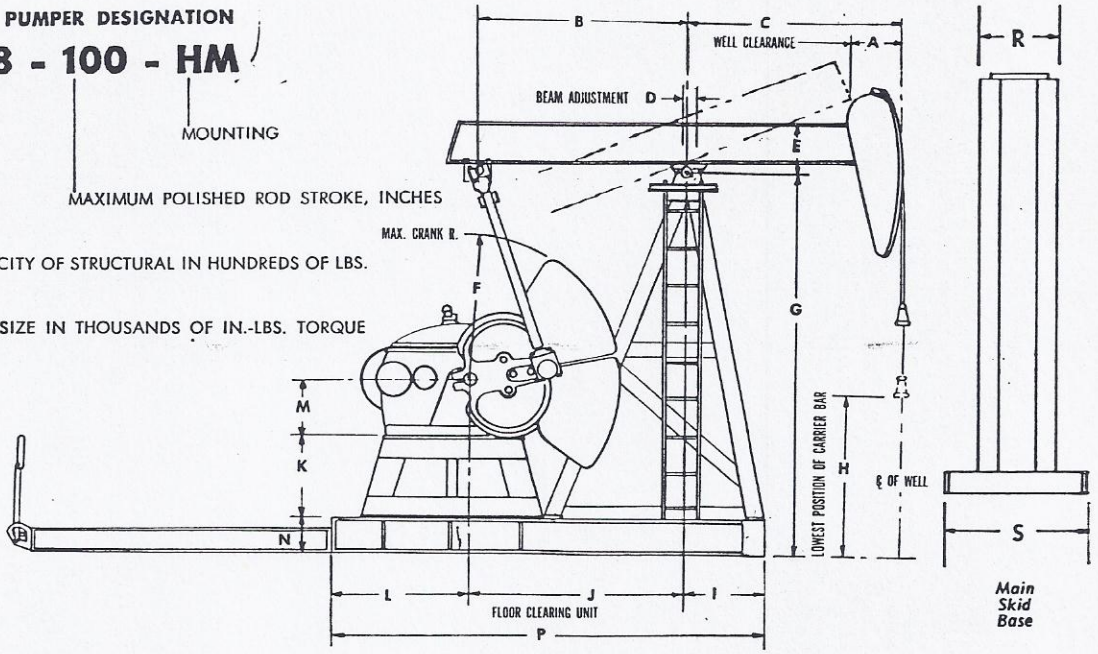


DIMENSIONS—ROTARY BALANCED UNIT PUMPERS

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DB - 320 - 298 - 100 - HM

- DB: DOUBLE REDUCTION GEAR REDUCER
- DB: MODEL
- 320: API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 298: CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- 100: MAXIMUM POLISHED ROD STROKE, INCHES
- HM: MOUNTING



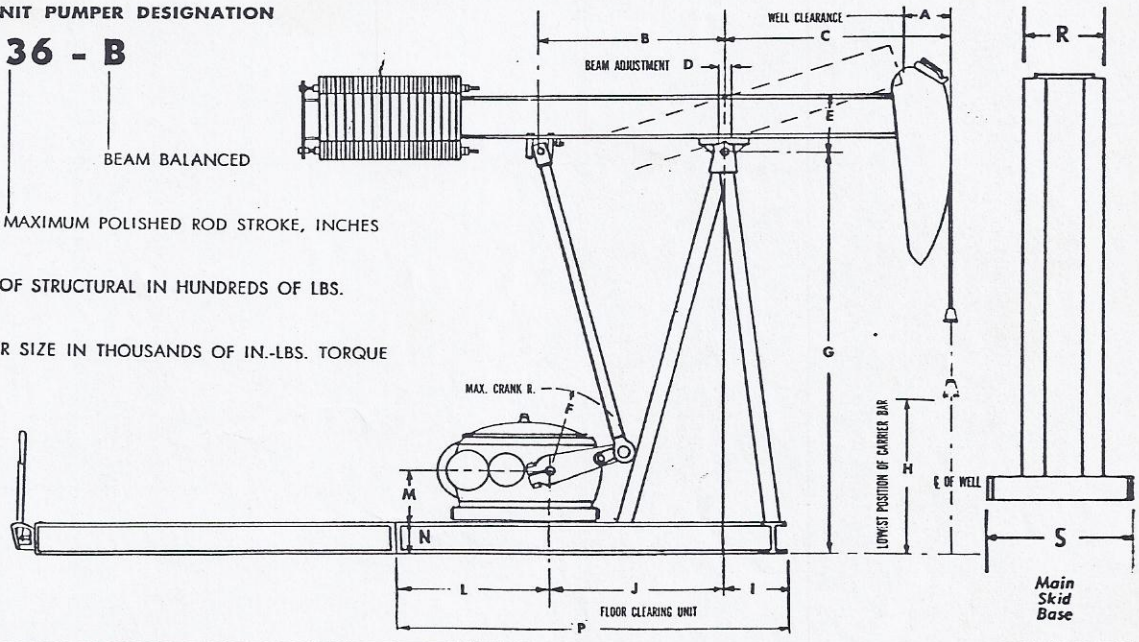
UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
DC-25-67-36.....	13″	3′-6″	3′-6″	2″	1′-1¼″	40 3/16″	8′-5″	40″	1′-2¼″	3′-6″	2′-3½″	2′-3½″	9½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB-40-89-42.....	13″	4′-3″	4′-3″	2″	1′-3⅞″	47⅜″	10′-0″	46″	1′-4½″	4′-3″	2′-6½″	2′-7¾″	1′-0″	8″	8′-3¼″	1′-6½″	3′-0½″
DG-57-109-48....	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-6 9/16″	5′-3″	2′-4⅝″	3′-0⅝″	1′-4″	9⅞″	9′-10 1/16″	1′-9″	3′-9″
DF-80-109-48....	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-6 9/16″	5′-3″	2′-2⅝″	3′-0⅝″	1′-6″	9⅞″	9′-10 3/16″	1′-9″	3′-9″
DF-80-133-54....	21″	6′-0″	6′-0″	3½″	1′-8″	55 11/16″	12′-0⅞″	58″	1′-8 1/16″	6′-0″	2′-7″	3′-5⅛″	1′-6″	9⅞″	11′-1 3/16″	1′-10¼″	4′-0″
DD-114-133-54...	21″	6′-0″	6′-0″	3½″	1′-8″	55 11/16″	12′-0⅞″	58″	1′-8 1/16″	6′-0″	2′-5″	3′-5⅛″	1′-8″	9⅞″	11′-1 3/16″	1′-10¼″	4′-0″
DD-114-169-64...	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-9¾″	4′-0″	1′-8″	1′-0″	12′-8″	2′-2″	4′-4½″
DB-160-169-64...	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-7¾″	4′-0″	1′-10″	1′-0″	12′-8″	2′-2″	4′-4½″
DB-160-200-74...	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′-3¾″	4′-8″	1′-10″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC-228-200-74...	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′-0¾″	4′-8″	2′-1″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC-228-246-86...	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4 11/16″	9′-3″	3′-3⅝″	5′-1″	2′-1″	1′-2⅛″	16′-8 11/16″	2′-6¼″	5′-9″
DB-320-246-86...	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4 11/16″	9′-3″	3′-2⅝″	5′-1″	2′-2″	1′-2⅛″	16′-8 11/16″	2′-6¼″	5′-9″
DB-320-298-100..	34″	10′-8″	10′-8″	4¼″	2′-7⅞″	84¾″	20′-7¾″	96″	2′-8¾″	10′-8″	3′-11″	5′-9½″	2′-2″	1′-1¾″	19′-2¼″	2′-10″	6′-6″

DIMENSION BEAM BALANCED UNIT PUMPERS

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

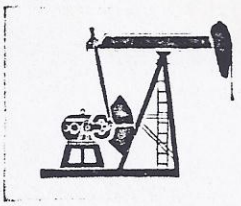
DC25 - 67 - 36 - B

- DC: DOUBLE REDUCTION GEAR REDUCER
- DC: MODEL
- 25: API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 67: CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- 36: MAXIMUM POLISHED ROD STROKE, INCHES
- B: BEAM BALANCED



UNIT	A	B	C	D	E	F	G	H	I	J	L	M	N	P	R	S
DB-16-53-30B.....	9″	Varies w/Stroke	3′-0″	2″	1′-0⅜″	12 9/16″	5′-6″	25″	1′-0¼″	2′-10″	1′-9″	8¼″	6″	5′-7¼″	1′-1″	2′-2″
DC-25-67-36B.....	13″	3′-6″	3′-6″	2″	1′-1¼″	20⅜″	8′-5″	40″	1′-2¼″	3′-6″	2′-3½″	1′-3½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB-40-89-42B.....	13″	4′-3″	4′-3″	2″	1′-3⅞″	23 13/16″	10′-0″	46″	1′-4½″	4′-3″	2′-7¾″	1′-6″	8″	8′-3¼″	1′-6½″	3′-0½″

D+B DIVISION - EMSCO MANUFACTURING COMPANY

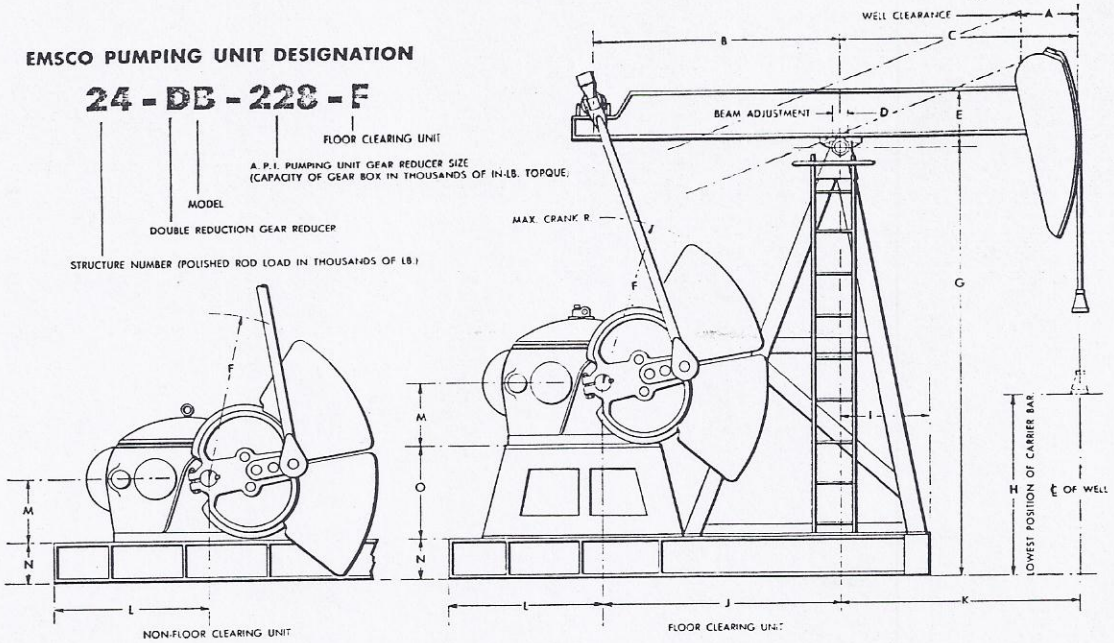


EMSCO PUMPING UNITS

EMSCO PUMPING UNIT DESIGNATION

24 - DB - 228 - F

- 24 — STRUCTURE NUMBER (POLISHED ROD LOAD IN THOUSANDS OF LB.)
- DB — DOUBLE REDUCTION GEAR REDUCER
- 228 — MODEL
- A.P.I. PUMPING UNIT GEAR REDUCER SIZE (CAPACITY OF GEAR BOX IN THOUSANDS OF IN-LB. TORQUE)
- F — FLOOR CLEARING UNIT



DIMENSIONS

PUMPING UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
6-DA-25-F	10 11/16"	3'-0"	3'-0"	None	1'-0 3/8"	35"	6'-6"	40"	1'-0 1/2"	3'-4"	3'-0"	6'-4 1/2"	9 1/2"	6"	21"
9-DA-40-F	1'-2 5/16"	4'-3"	4'-3"	None	1'-2 3/4"	45 1/2"	8'-5"	46"	1'-3 11/16"	4'-8"	4'-3"	7'-6"	12"	8"	25"
10-DD-57, 10-DD-57-F	1'-4 3/4"	5'-6"	5'-6"	1 5/8"	1'-4 1/4"	46"	9'-8"	51"	1'-7 7/8"	5'-6"	5'-6"	3'-10"	13 1/2"	9 7/8"	28 7/8"
13-DD-80, 13-DD-80-F	1'-4 3/4"	6'-0"	6'-0"	1 5/8"	1'-4 3/8"	49"	10'-6"	59"	1'-11"	6'-0"	6'-0"	4'-0 3/8"	16"	9 7/8"	28 7/8"
15-DB-114, 15-DB-114-F	1'-8 1/4"	6'-9"	6'-9"	3 1/4"	1'-8 3/8"	54"	11'-9"	60"	2'-0 1/2"	6'-9"	6'-9"	4'- 6"	19"	12"	28 7/8"
21-DA-160, 21-DA-160-F	2'-1"	8'-0"	8'-0"	3 1/2"	2'-4 3/4"	65"	13'-10"	72"	1'-10 1/2"	8'-9"	8'-0"	5'-5"	22"	12"	33"
21-SD-160, 21-SD-160-F	2'-1"	8'-0"	8'-0"	3 1/2"	2'-4 3/4"	65"	13'-10"	72"	1'-10 1/2"	8'-9"	8'-0"	5'-5"	25"	12"	30"
24-DB-228, 24-DB-228-F	2'-3"	9'-3"	9'-3"	4 1/4"	2'-4 5/8"	70"	15'-11"	80"	2'-1 1/2"	10'-0"	9'-3"	5'-10"	25"	14 1/2"	33"
24-SD-228, 24-SD-228-F	2'-3"	9'-3"	9'-3"	4 1/4"	2'-4 5/8"	70"	15'-11"	80"	2'-1 1/2"	10'-0"	9'-3"	5'-10"	29 1/2"	14 1/2"	28 1/2"
30-DA-320, 30-DA-320-F	2'-6"	10'-9"	10'-9"	4 1/4"	2'-7 3/8"	78"	18'-5"	96"	2'-5 1/4"	11'-9"	10'-9"	6'-5 3/4"	26"	14"	40"

SPECIFICATIONS

	6-DA-25-F	9-DA-40-F	10-DD-57 & 10-DD-57-F	13-DD-80 & 13-DD-80-F	15-DB-114 & 15-DB-114-F	21-DA-160 & 21-DA-160-F	21-SD-160 & 21-SD-160-F	24-DB-228 & 24-DB-228-F	24-SD-228 & 24-SD-228-F	30-DA-320 & 30-DA-320-F
A.P.I. Pumping Unit Gear Reducer Size.	25	40	57	80	114	160	160	228	228	320
A.P.I. Pumper Reducer Peak Torque Rating at 20 SPM.	25,000"lb	40,000"lb	57,000"lb	80,000"lb	114,000"lb	160,000"lb	160,000"lb	228,000"lb	228,000"lb	320,000"lb
A.P.I. Polished Rod Load Capacity of Walking Beam.	6,000 lb	8,900 lb	10,400 lb	12,800 lb	14,800 lb	20,700 lb	20,700 lb	24,000 lb	24,000 lb	32,600 lb
Section and Weight of Walking Beam.	10" WF at 21 lb	12" WF at 36 lb	14" WF at 48 lb	14" WF at 61 lb	16" WF at 78 lb	24" WF at 94 lb	24" WF at 94 lb	24" WF at 110 lb	24" WF at 110 lb	27" WF at 145 lb
Strokes Obtainable on Standard Crank.	12", 18", 24"	22", 28", 34"	24", 34", 44"	28", 38", 48"	34", 44", 54"	44", 54", 64"	44", 54", 64"	44", 54", 64", 74"	44", 54", 64", 74"	56", 66", 76", 86"
Section and Weight of Main Base Members.	6" Chnl. at 10.5 lb	8" Chnl. at 11.5 lb	10" WF at 21 lb	10" WF at 21 lb	12" WF at 27 lb	12" WF at 27 lb	12" WF at 27 lb	14" WF at 38 lb	14" WF at 38 lb	14" WF at 53 lb
Overall Length of Main Base.	10'-10 1/4"	13'-5 1/16"	11'-0 7/8"	11'-11 3/8"	13'-3 1/8"	16'-0 1/2"	16'-0 1/2"	17'-11 1/2"	17'-11 1/2"	20'-5"
Section and Weight of Pitman.	4" Chnl. at 7.25 lb	4" Chnl. at 7.25 lb	2 1/2" Std. Pipe	2 1/2" Std. Pipe	3" X Str. Pipe	3" Std. Pipe	3" Std. Pipe	3" X Str. Pipe	3" X Str. Pipe	3" X Str. Pipe
Type Wrist Pin Bearing.	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning	Self-Aligning
Type Center Iron and Equalizer Bearings.	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle	Needle
Approximate Weight with Counterbalance Weights.	4,379 lb	6,689 lb	8,685 lb *9,115 lb	10,176 lb 10,748 lb	14,592 lb 15,339 lb	20,600 lb 21,320 lb	21,400 lb 22,100 lb	29,400 lb 30,120 lb	30,765 lb 31,380 lb	35,500 lb 36,240 lb
Max. Counterbalance Effect at Max. Polished Rod Stroke with and without Aux. Weights.	4,200 lb	6,305 lb	5,770 lb	6,850 lb 5,430 lb	8,610 lb 6,660 lb	14,100 lb 8,040 lb	14,100 lb 8,040 lb	16,700 lb 9,700 lb	16,700 lb 9,700 lb	21,300 lb 13,000 lb
Gear Ratio.	29.6:1 Double	30.2:1 Double	24.5:1 Double	25.0:1 Double	25.6:1 Double	30.2:1 Double	10.1:1 Single	28.1:1 Double	10.05:1 Single	27.9:1 Double
Standard Sheave Size.	18" 3B	18" 3B	16" 3C or 5B 25" 4B or 3C	18" 6C 24" 3C 29" 5B	19" 4C 22" 4C 26" 4C 30" 4C	24" 5C 30" 5C	29" 4D 30" 6C	24" 6C 36" 6C	34" 5D 34" SC	24" SC 30" SC 36" SC 42" SC

* Top Weights Apply to Standard, Basic Units. Lower Weights Apply to Floor Clearing, Basic Units.

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

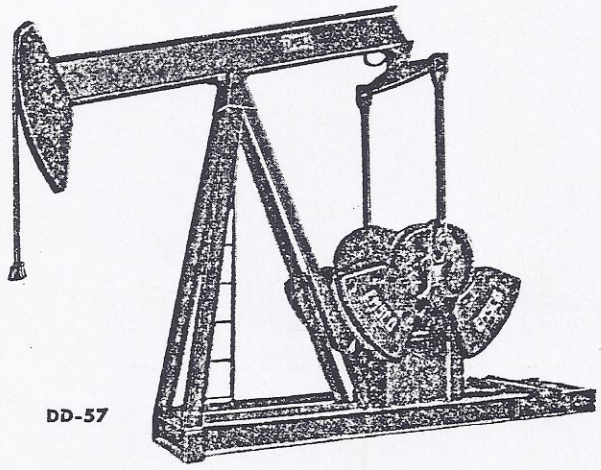
EMSCO ENGINEERING CO., LTD.

ST. ALBANS, ENGLAND • CABLES: EMSCO, ST. ALBANS

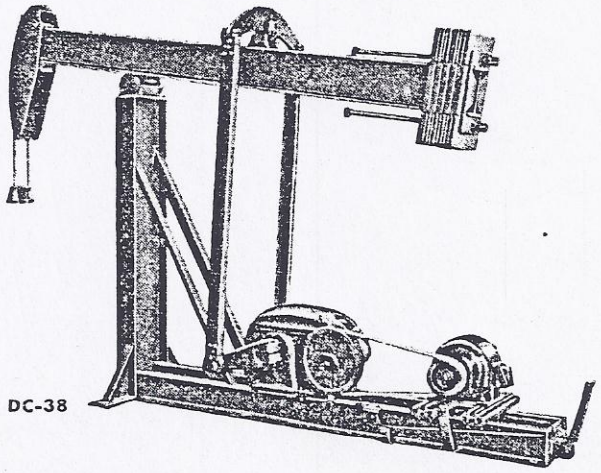
EMSCO PUMPING UNITS

Brief Comparative Specifications

TYPE	DC-38	10-DD-57 & 10-DD-57-F	13-DD-80 & 13-DD-80-F	13-DB-114 & 13-DB-114-F	15-DB-114 & 15-DB-114-F	15-SC-160 & 15-SC-160-F	22-SC-160 & 22-SC-160-F	22-SC-228 & 22-SC-228-F	22-DA-228 & 22-DA-228-F	25-SC-228 & 25-SC-228-F	25-DA-228 & 25-DA-228-F
A.P.I. Pumping Unit Gear Reducer Size	40	57	80	114	114	160	160	228	228	228	228
A.P.I. Pumper Reducer Peak Torque Rating @ 20 SPM	40,000" lbs.	57,000" lbs.	80,000" lbs.	114,000" lbs.	114,000" lbs.	160,000" lbs.	160,000" lbs.	228,000" lbs.	228,000" lbs.	228,000" lbs.	228,000" lbs.
A.P.I. Polished Rod Load Capacity of Walking Beam	8,800 lbs.	10,400 lbs.	12,800 lbs.	12,800 lbs.	14,300 lbs.	14,300 lbs.	22,000 lbs.	22,000 lbs.	22,000 lbs.	24,600 lbs.	24,600 lbs.
Approx. Weight with Counterbalance Weights	2,112 lbs. Less Weights	8,685 lbs. 9,115 lbs.	10,176 lbs. 10,748 lbs.	11,330 lbs. 12,080 lbs.	14,592 lbs. 15,339 lbs.	15,880 lbs. 16,650 lbs.	18,789 lbs. 19,556 lbs.	22,470 lbs. 23,120 lbs.	21,370 lbs. 22,020 lbs.	27,030 lbs. 27,680 lbs.	26,230 lbs. 26,880 lbs.
Max. Counterbalance Effect at Max. Polished Rod Stroke	5,037 lbs.	5,770 lbs.	6,850 lbs.	6,850 lbs.	8,610 lbs.	8,610 lbs.	11,390 lbs.	11,390 lbs.	11,390 lbs.	14,690 lbs.	14,690 lbs.
Strokes Obtainable On Standard Crank	23", 28", 33"	24", 34", 44"	28", 38", 48"	28", 38", 48"	34", 44", 54"	34", 44", 54"	44", 54", 64"	44", 54", 64"	44", 54", 64	44", 54", 64", 74"	44", 54", 64", 74"



DD-57



DC-38

Manufacturers of Following Equipment

DRILLING

BIT—Drilling. Spudding. Californian. Mother Hubbard. Three Wing. Star. Eccentric. Water Flush.
REAMERS—Round. Solid. Hollow.
SAND PUMP—Dart. Clack Valve. Suction.
SLIPS—Casing. Tubing.
BLOCKS—Crown (drilling and production).
BLOCKS—Traveling. Snatch.
BOOT JACK—(Latch Jack).
BOX, LIFTING—Solid Eye. Swivel Clevis.
BAILERS—Dart. Clack Valve.
BUMPERS—Jar.
CASING—Shoes. Cutters. Perforators. Splitters. Spears. Slips.
CLAMPS—Drive. Lifting.
DIE COLLARS—(Fishing Nipples).
ELEVATORS—Casing. Tubing.
GRABS—2 & 3 Prong. 2 Prong with Latch.
HEADS—Drive. Casing. Tubing.
JARS, WELDLESS—Drilling, Fishing.
KNIVES, ROPE—Manila, Wire.
OIL JACKS
PIN HOOK, LIFTING—Solid, Swivelling.
SOCKETS—Combination. Regular. Horn. Friction. Corrugated. Friction. Rope. Solid & Swivelling. Slip. Regular & Full Circle.
SPEARS, CASING—Bull-dog. Trip.
SPEARS, ROPE—Centre. Side.
SPIDERS—Casing. Tubing.
SPUDS—(Long Spear).
STEMS, DRILL—(Sinkers).
SUBS—Percussion. Rotary.
SWAB—Tubing.
SWAGE—Casing.
TAPS—Fishing.
TOOL JOINTS—Percussion Rotary.
UNDER-REAMERS—Australian. Austrian. Macks. Russian, etc.
WALL HOOK—(Bit Hook).
WELDING ON JOINTS—Percussion.
WRENCHES—Tool.

WELL-HEAD EQUIPMENT

HEADS—Casing. Cement. Tubing.
FLANGES—Casing. Tubing.
POLISH RODS
SLIPS—Tubing Head.
SPOOLS—Casing. Tubing.
STUFFING BOXES—(Polish Rod) D+B.
WRENCHES—Sucker Rod.

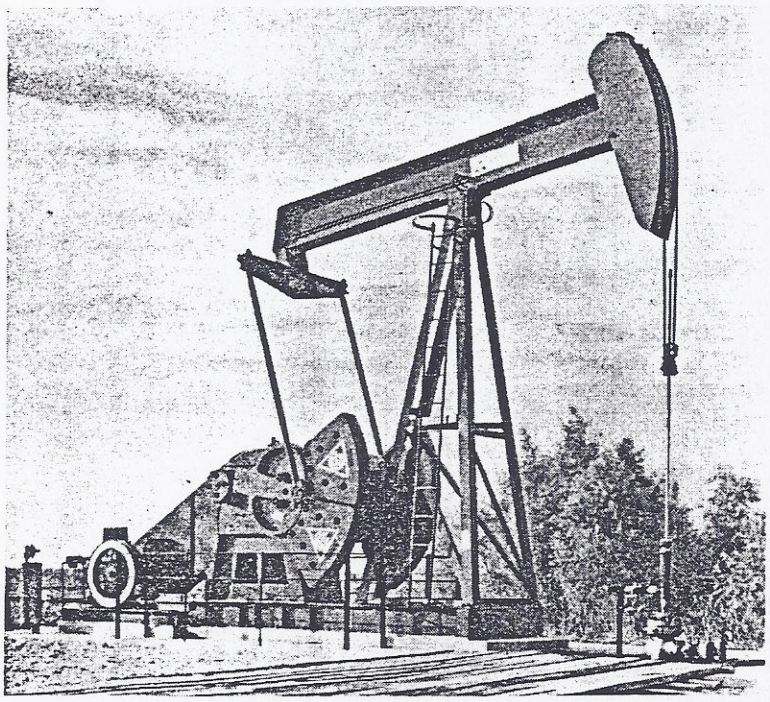
STRUCTURES

ENGINE BASE—Frames.
PUMP BASE—Frames.
ROTARY UNIT—Frames.
SLUSH PUMP UNIT—Frames.

Forging Capacity up to 2 Tons

British Subsidiary of Emsco Manufacturing Company with plants at Los Angeles, California, Houston and Garland, Texas.

CONTINENTAL-EMSCO UNIT PUMPERS



GENERAL DESCRIPTION

Continental-Emsco unit pumpers give greater efficiency of application due to 18 different sizes which make it easy to match well conditions with the right torque capacity, structural load and stroke length. They have increased operating efficiency by decreasing torque at wrist pins for longer bearing life, permitting more exact well balancing, easier starting and less peak power demands, less fuel or electricity costs and less wear on reduction gears. These advantages are achieved by an improved geometric design. Taller samson posts reduce the pulling angle between the gear reducer and walking beam. It makes well loads more nearly equal at wrist pin and polished rod. These units conform with API suggested standards.

SPECIFICATIONS

Unit Designation	Unit Pumper Gear Reducer Size	API Peak Torque at 20 S.P.M.	API Polished Rod Capacity of Beam	Gear Ratio	Strokes Obtainable w/Std. Crank	Max. Cwt. Effect at Max. Stroke	Height of Center Iron at Sampson Post	Working Centers	
								Well	Pitman
DB-16-53-30-B	D-16	16,000″ lbs.	5,300 lbs.	30.4:1	18½″, 21″, 24½″, 30″	3,690 lbs.	5′–6″	36″	42″
DC-25-67-36	D-25	25,000″ lbs.	6,700 lbs.	29.6:1	24″, 30″, 36″	4,695 lbs.	8′–5″	42″	42″
DC-25-67-36-B	D-25	25,000″ lbs.	6,700 lbs.	29.6:1	24″, 30″, 36″	5,314 lbs.	8′–5″	42″	42″
DB-40-89-42	D-40	40,000″ lbs.	8,900 lbs.	30.2:1	30″, 36″, 42″	6,450 lbs.	10′–0″	51″	51″
DB-40-89-42B	D-40	40,000″ lbs.	8,900 lbs.	30.2:1	30″, 36″, 42″	6,140 lbs.	10′–0″	51″	51″
DG-57-109-48	D-57	57,000″ lbs.	10,900 lbs.	30.0:1	32″, 40″, 48″	8,860 lbs.	11′–0″	63″	63″
DF-80-109-48	D-80	80,000″ lbs.	10,900 lbs.	30.2:1	32″, 40″, 48″	8,860 lbs.	11′–0″	63″	63″
DF-80-133-54	D-80	80,000″ lbs.	13,300 lbs.	30.2:1	38″, 46″, 54″	10,615 lbs.	12′– 7⅛″	72″	72″
DD-114-133-54	D-114	114,000″ lbs.	13,300 lbs.	30.2:1	38″, 46″, 54″	10,615 lbs.	12′– 7⅛″	72″	72″
DD-114-169-64	D-114	114,000″ lbs.	16,900 lbs.	30.2:1	44″, 54″, 64″	13,690 lbs.	14′–2¾″	81″	81″
DB-160-169-64	D-160	160,000″ lbs.	16,900 lbs.	30.2:1	44″, 54″, 64″	13,690 lbs.	14′–2¾″	81″	81″
DB-160-200-74	D-160	160,000″ lbs.	20,000 lbs.	30.2:1	54″, 64″, 74″	16,080 lbs.	16′–3¾″	96″	96″
DC-228-200-74	D-228	228,000″ lbs.	20,000 lbs.	28.1:1	54″, 64″, 74″	16,080 lbs.	16′–3¾″	96″	96″
DC-228-246-86	D-228	228,000″ lbs.	24,600 lbs.	28.1:1	62″, 74″, 86″	20,100 lbs.	18′–1¾″	111″	111″
DB-320-246-86	D-320	320,000″ lbs.	24,600 lbs.	27.9:1	62″, 74″, 86″	20,100 lbs.	18′–1¾″	111″	111″
DB-320-298-100	D-320	320,000″ lbs.	29,800 lbs.	27.9:1	72″, 86″, 100″	24,195 lbs.	20′–7¾″	128″	128″

MID-CONTINENT SUPPLY CO.

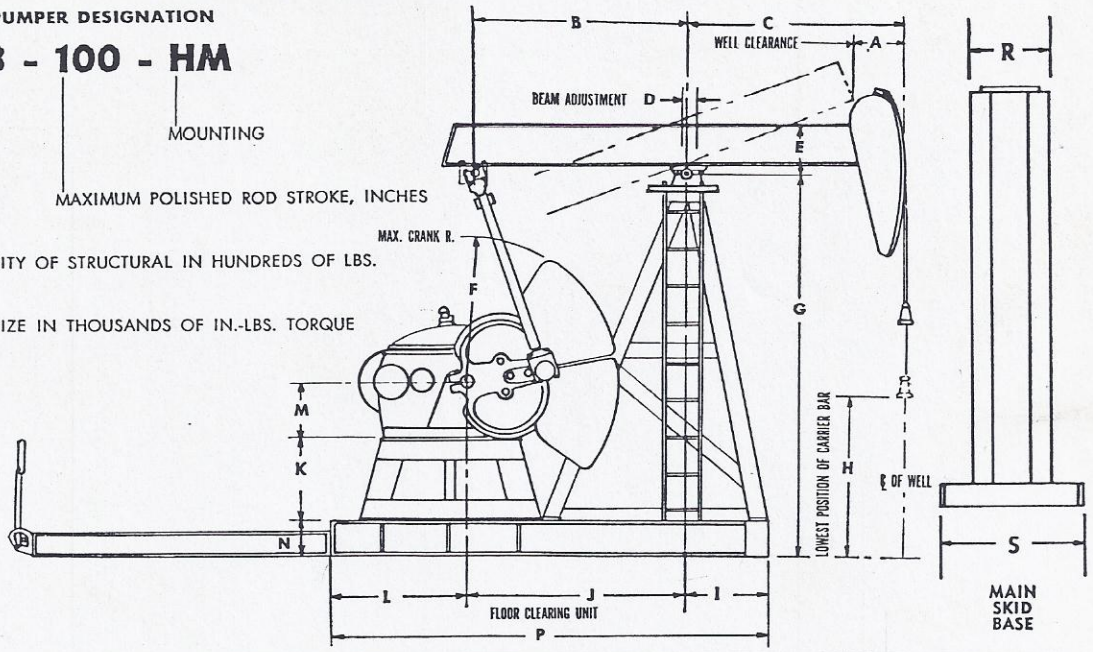
UNIT PUMPERS

ROTARY BALANCED UNIT PUMPERS

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DB - 320 - 298 - 100 - HM

- DB — DOUBLE REDUCTION GEAR REDUCER
- MODEL
- 320 — API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 298 — CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- 100 — MAXIMUM POLISHED ROD STROKE, INCHES
- HM — MOUNTING



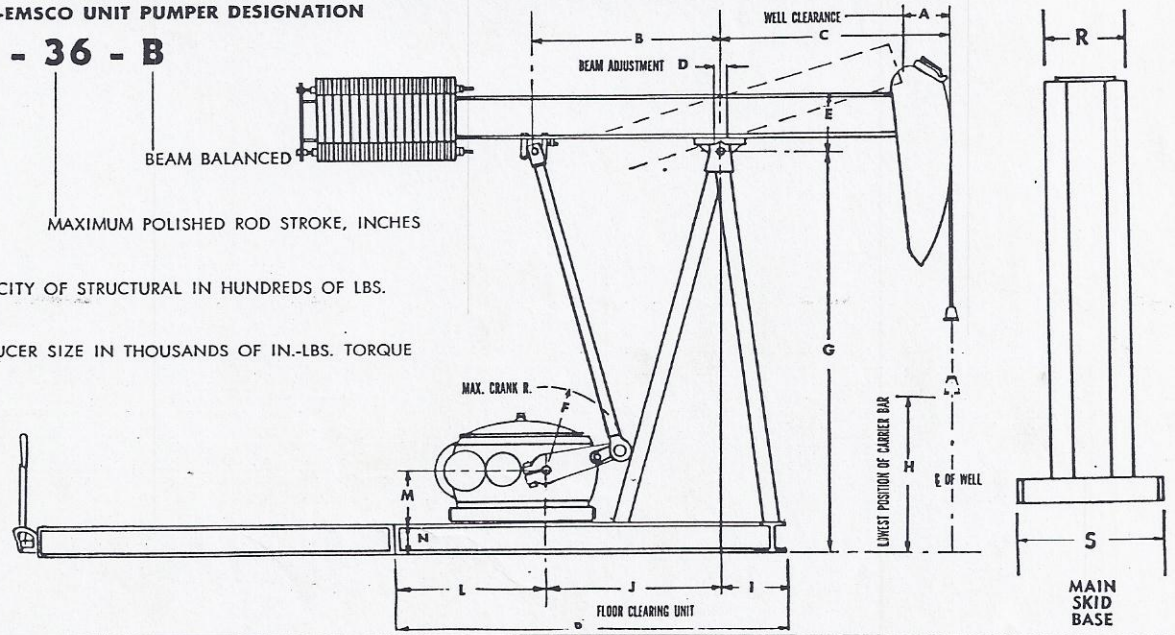
UNIT	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P	R	S
DC25-67-36	13″	3′-6″	3′-6″	2″	1′-1¼″	40 3/16″	8′-5″	40″	1′-2¼″	3′-6″	2′-3½″	2′-3½″	9½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB40-89-42	13″	4′-3″	4′-3″	2″	1′-3⅞″	47⅜″	10′-0″	46″	1′-4½″	4′-3″	2′-6½″	2′-7¾″	1′-0″	8″	8′-3¼″	1′-6½″	3′-0″
DG57-109-48	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-6 9/16″	5′-3″	2′-4⅝″	3′- ⅝″	1′-4″	9⅞″	9′-10 3/16″	1′-9″	3′-9″
DF80-109-48	15″	5′-3″	5′-3″	3⅜″	1′-4¾″	51⅝″	11′-0″	50″	1′-8 9/16″	5′-3″	2′-2⅝″	3′- ⅝″	1′-6″	9⅞″	.....	1′-9″	3′-9″
DF80-133-54	21″	6′-0″	6′-0″	3½″	1′-8″	55 1/16″	12′-7⅛″	58″	1′-8 1/16″	6′-0″	2′-7″	3′-5⅛″	1′-6″	9⅞″	11′-1 3/16″	1′-10¼″	4′-0″
DD114-133-54	21″	6′-0″	6′-0″	3½″	1′-8″	55 1/16″	12′-7⅛″	58″	1′-8 1/16″	6′-0″	2′-5″	3′-5⅛″	1′-8″	9⅞″	.....	1′-10¼″	4′-0″
DD114-169-64	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-9¾″	4′-0″	1′-8″	1′-0″	12′-8″	2′-2″	4′-4½″
DB160-169-64	25″	6′-9″	6′-9″	3½″	2′-1¾″	62⅝″	14′-2¾″	60″	1′-11″	6′-9″	2′-7¾″	4′-0″	1′-10″	1′-0″	.....	2′-2″	4′-4½″
DB160-200-74	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′-3¾″	4′-8″	1′-10″	1′-0″	14′-10⅛″	2′-4″	4′-10½″
DC228-200-74	27″	8′-0″	8′-0″	3½″	2′-5¼″	71¼″	16′-3¾″	72″	2′-2⅛″	8′-0″	3′- ¾″	4′-8″	2′-1″	1′-0″	.....	2′-4″	4′-10½″
DC228-246-86	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4 1/16″	9′-3″	3′-3⅝″	5′-1″	2′-1″	1′-2⅛″	16′-8 1/16″	2′-6¼″	5′-9″
DB320-246-86	28″	9′-3″	9′-3″	4¼″	2′-5¼″	75⅞″	18′-1¾″	80″	2′-4 1/16″	9′-3″	3′-2⅝″	5′-1″	2′-2″	1′-2⅛″	.....	2′-6¼″	5′-9″
DB320-298-100	34″	10′-8″	10′-8″	4¼″	2′-7⅞″	84¾″	20′-7¾″	96″	2′-8¾″	10′-8″	3′-11″	5′-9½″	2′-2″	1′-1¾″	19′-2¼″	2′-10″	6′-6″

DIMENSION CONTINENTAL-EMSCO BEAM BALANCED UNIT PUMPERS

CONTINENTAL-EMSCO UNIT PUMPER DESIGNATION

DC25 - 67 - 36 - B

- DC — DOUBLE REDUCTION GEAR REDUCER
- 25 — MODEL
- 67 — API GEAR REDUCER SIZE IN THOUSANDS OF IN.-LBS. TORQUE
- 36 — CAPACITY OF STRUCTURAL IN HUNDREDS OF LBS.
- B — MAXIMUM POLISHED ROD STROKE, INCHES
- BEAM BALANCED



UNIT	A	B	C	D	E	F	G	H	I	J	L	M	N	P	R	S
DB16-53-30B	9″	Varies w/Stroke	3′-0″	2″	1′- ⅜″	12 9/16″	5′-6″	25″	1′- ¼″	2′-10″	1′-9″	8¼″	6″	5′-7¼″	1′-1″	2′2″
DC25-67-36B	13″	3′-6″	3′-6″	2″	1′-1¼″	20⅜″	8′-5″	40″	1′-2¼″	3′-6″	2′-3½″	1′-3½″	6″	6′-11¾″	1′-6⅛″	2′-9¼″
DB40-89-42B	13″	4′-3″	4′-3″	2″	1′-3⅞″	23 13/16″	10′-0″	46″	1′-4½″	4′-3″	2′-7¾″	1′-6″	8″	8′-3¼″	1′-6½″	3′-0″