

Oil Field Roller Chain

MADE IN THE USA

Product Guide 0805

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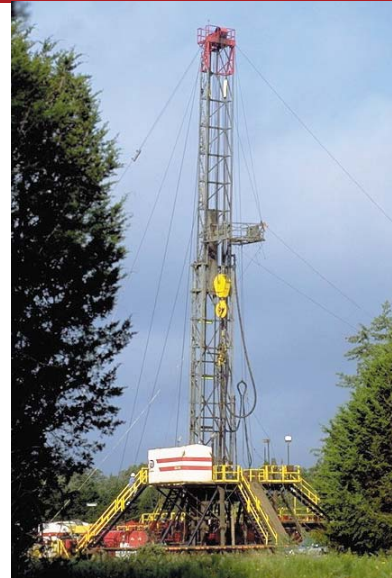


DELIVERING VALUE

DIAMOND CHAIN COMPANY – DELIVERING VALUE

For more than 100 years, Diamond Chain Company has proudly produced the finest roller chain in the world. This designation takes on even more meaning as we are one of the few manufacturers to produce roller chain solely in the USA. We proudly use American steel and American workers in a plant powered with American energy. Diamond chains give you the highest quality, longest lasting chain on the market – and that is value that no one else in the industry can delivery. Guaranteed.

Oil & Gas Exploration puts our roller chain to the test – a test we consistently pass with flying colors. Diamond builds its roller chain to meet the challenges of the oil and gas drilling industries. We build Diamond quality into every part, from link plates to cotter pins, made at our plant in Indianapolis, Indiana. Every part is heat treated to ensure it has the strength to last long after the competition has worn out. When the safety of your workers, the productivity of your rig and the cost of your operations are on the line, the American-made quality and value of Diamond Chain are second to none.



DIAMOND ACE®

Finding the right rust-resistant chains that offer both high strength and horsepower transmitting capacity, along with superior wear life, just got easier with the introduction of Diamond’s ACE (Anti-Corrosion Exterior) chain. Diamond ACE® is uniquely designed and incorporates an electro-chemically bonded, protective exterior coating that is applied to the component parts prior to assembly. The protective coating, a specially formulated Zinc-Nickel Alloy with a Chromate Conversion Coating, serves as a barrier that is superior to others’ water-resistant chains in preserving the physical and structural integrity of the carbon steel base chain.

Independent salt spray and sprocket drive tests have shown that Diamond ACE® is superior in balancing corrosion protection and drive performance over other brands of rust-resistant chains.

The determination and selection of chain for a given application is a combination of wear life, working load, moisture, corrosion and cost. If additional assistance or information is required, please contact Diamond’s Application Engineers for help in selecting the right chain for your operating conditions.



COILED TUBING INJECTOR CHAIN

As the chains articulate around the sprockets on the injector, the assembled gripper blocks grasp the tubing and retract or advance the coil down the well. Chain pins manufactured from medium carbon steel are through-hardened for increased tensile strength and improved impact and pin fatigue resistance. Additionally, semi-press-fit coverplates are designed with tight tolerances to minimize pin turning and assure equal distribution of chain working load. These features offer coiled tubing injector units a strong, reliable chain that can stand up to the strenuous, adverse conditions of the oil and gas industry; typically resulting in longer chain life, which equals more working footage before requiring chain replacement. Diamond’s Coil Tubing Injector Chain is also available with Nickel or Anti-Corrosive Exterior (ACE) plating for resistance to stress corrosion cracking caused by wet environments.

CHAIN COMPONENTS

Roller Link

Standard for all sizes of roller chains. They are furnished as complete roller link assemblies. The two bushings are press-fit in each of the link plates. The same roller links are used for single and multiple strand chains.



Single-Pitch Offset Link Slip-Fit Type

This link is furnished with slip-fit pin unassembled in the offset link plates. The flat "D" shape milled on one end of the pin prevents it from turning in the link plate.



Four-Pitch Offset Link Assembly Press-Fit Type For Multiple Strand Chain Only

Pins are press-fit in offset linkpitch holes. Four-pitch length permits the use of BCL connecting links on either end, giving maximum capacity of chain assembly.



Connecting Link Cotter Pin Type

The two pins and one link plate are furnished assembled. The cover plate may be either press-fit or slip-fit on the pins. Press-fit connecting links are recommended for heavy-duty applications. Press-fit cover plates are standard on multiple strand oil field chains.



Two-Pitch Offset Link Assembly Press-Fit Type For Single Strand Chain Only

This type of assembly is available for all sizes of standard single strand chains, and consists of an offset link and a roller link assembled together. The pin is press-fit in the offset link plates and is riveted.



The press-fit construction of this assembly greatly increases its structural rigidity, reliability, and durability. For these reasons, the two-pitch offset assembly is recommended in preference to the single-pitch offset link.

BCL Connecting Link Bushed Center plate Link

Standard for all press-fit type multiple strand chains of 5/8" pitch and larger. Bushings are a heavy press-fit in the center plate pitch holes, but are a close slip-fit on the pins. BCL connecting links are easily installed and removed as ordinary connecting links, but have the increased fatigue strength of press-fit center plate chain. The cover plate is press-fit on the pins.



MULTIPLE STRAND CHAIN



CHAIN DESCRIPTIONS AND DIMENSIONS

Diamond Multiple Strand Roller Chain

When the loads or speeds are too great for a single strand chain to carry, multiple strand roller chain, which is the equivalent of two or more single strand chains assembled with common pins, can often provide the necessary capacity. These chains are manufactured in several widths, depending upon the specific model, up to twelve strands wide. Diamond's multiple strand chains are available with two types of construction – with center plates slip-fit on the pins or with center plates press-fit on the pins.

Slip-fit center plate: Slip-fit center plate multiple strand chains have been used for decades and are most suitable for drives of moderate severity. These chains are designed for ease of disassembly throughout the entire length of chain. The chains can be shortened or sections can be added quickly with minimal effort. However, with the slip-fit design, the user may experience accelerated fatigue failures in exchange for the ease of alteration in the field.



Press-fit center plate: Press-fit multiple strand chains were originally developed by Diamond for service in applications that require the utmost in multiple strand chain capacity. Multiple strand chains with press-fit center plates have significantly greater fatigue strength than their slip-fit center plate counterparts, because press-fit construction assures rigid, permanent support for the pins at each tension point with no relative movement, which can cause wear or fatigue.

The superiority of press-fit center plate chain over the slip-fit center plate chain has been proven many, many times in actual service where the drive conditions are severe. The extreme durability and ruggedness of Diamond multiple strand roller chains are exemplified by their wide acceptance for use on such heavy-duty equipment as power shovels, diesel engines, and oil drilling and pumping units.

While the press-fit construction does provide the increased fatigue resistance that is essential in many applications, the user does give up some convenience because the chain's length is not readily shortened in the field. For this reason press-fit center plate chains should always be ordered in the exact pitch length required, including a Bushed Center plate Link (BCL) connecting link.



Bushed Center plate Links (BCL):

The BCL connecting link is constructed using center plate assemblies, consisting of two center plates securely held together with two press-fit bushings. These bushings, hardened to resist wear, have inside diameters precision ground after assembly into the center plates. The grinding tolerances are extremely close with respect to both the pitch dimension and hole size to assure a close sliding-fit on the chain pins.

These features reduce to a minimum the possibility of any relative motion between pins and bushings and assures equal distribution of chain-load across pins throughout the service-life of the chain.

Diamond BCL connecting links are available for 5/8" through 2-1/2" pitch Standard Series, press-fit center plate multiple-strand chain.



BUSHED CENTER PLATE ASSEMBLY

Four-Pitch Press-Fit Offset Link Assembly: Pins are press-fit in offset link pitch holes. Four-pitch length permits the use of BCL connecting links on either end, giving maximum capacity of chain assembly.



4-PITCH PRESS-FIT OFFSET LINK ASSEMBLY

MULTIPLE STRAND CHAIN



5-PITCH SECTION OF CHAIN

BCL CONNECTING LINK



When the ability to shorten press-fit center plate multiple strand chain is a requirement, it is recommended that the original chain be ordered to the exact length needed in pitches including two connecting links of the BCL type, with a **five-pitch section of the chain** between the two.

When the chain has elongated through normal wear the equivalent of one pitch, **the five-pitch section of chain should be replaced by a four-pitch offset link assembly**, which has press-fit link plates throughout, providing maximum structural rigidity.



4-PITCH OFFSET LINK ASSEMBLY

When subsequent wear-elongation is sufficient to allow the removal of another pitch of chain, **the four-pitch offset link-assembly should be replaced by a three-pitch section of press-fit center plate chain.**

Similarly, should a drive on fixed centers require an odd number of pitches in the original chain length, the chain should be specified to include a **four-pitch offset link assembly** between two BCL connecting links. To shorten the chain by the equivalent of one pitch, the **four-pitch offset link assembly should be replaced with a three-pitch section** of press-fit center plate chain.



3-PITCH SECTION OF CHAIN

In general, the use of offset links in any chain design should be avoided whenever possible due to the decreased load carrying ability of the offset. However, if an offset must be employed, the use of a two- or four-pitch offset link assembly in multiple strand chains, especially press-fit center plate chain, is preferred over one-pitch offset links. Single-pitch offsets do not provide the desirable structural rigidity found in the two- and four-pitch assemblies.

CHAIN DESCRIPTIONS AND DIMENSIONS

Roller chains used in the oil industry are subjected to some of the greatest loads and harshest environments. These conditions are far more severe than usually found in industrial applications. These oil field chains can be either single strand or multiple strands, utilizing both riveted and cottered type construction.

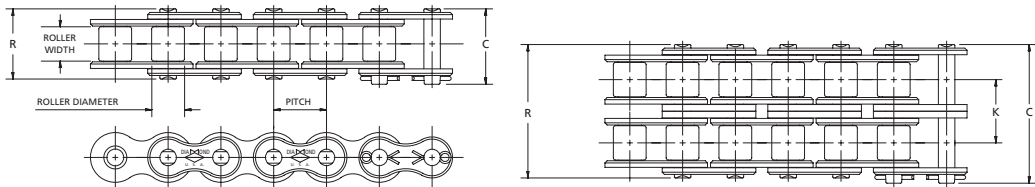
We produce our drive chains with the same attention to detail that goes into all our products, but additionally these models are subjected to performance testing in accordance with API (American Petroleum Institute) Specification 7F. Users of our chains can be certain they are receiving the highest quality, best-performing roller chains by examining the label on the box which proudly displays the API logo. Only those companies which have established quality systems, approved and routinely audited, are authorized to display this symbol.



American Petroleum Institute

7F-0003

The following list of chain sizes and configurations are those which meet or exceed the performance criteria defined in API Specification 7F. It is highly recommended that multiple strand chains used in oil field applications be constructed with press-fit center plates.



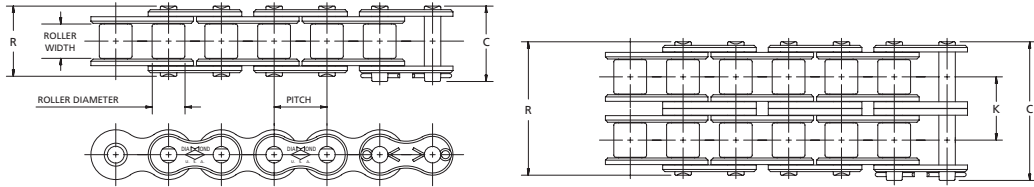
Dimensions in Inches and Pounds

ANSI NUMBER	PITCH INCHES	ROLLER WIDTH	ROLLER DIAMETER	PIN DIAMETER	LINK PLATE THICKNESS	C	R	K	WEIGHT PER FOOT	AVERAGE TENSILE STRENGTH
60	3/4	1/2	.469	.234	.094	1.11	1.04	—	.99	8500
60H	3/4	1/2	.469	.234	.125	1.24	1.17	—	1.18	8500
60-2	3/4	1/2	.469	.234	.094	2.01	1.94	.897	1.95	17000
60H-2	3/4	1/2	.469	.234	.125	2.27	2.20	1.028	2.33	17000
60-3	3/4	1/2	.469	.234	.094	2.91	2.84	.897	2.88	25500
60H-3	3/4	1/2	.469	.234	.125	3.31	3.24	1.028	3.47	25500
60-4	3/4	1/2	.469	.234	.094	3.81	3.74	.897	3.90	34000
60H-4	3/4	1/2	.469	.234	.125	4.34	4.26	1.028	4.61	34000
60-5	3/4	1/2	.469	.234	.094	4.71	4.64	.897	4.97	42500
60-6	3/4	1/2	.469	.234	.094	5.60	5.53	.897	5.96	51000
60-8	3/4	1/2	.469	.234	.094	7.40	7.33	.897	7.94	68000
60-10	3/4	1/2	.469	.234	.094	9.19	.912	.897	9.92	85000
80	1	5/8	.625	.312	.125	1.44	1.32	—	1.73	14500
80H	1	5/8	.625	.312	.156	1.57	1.45	—	2.02	14500
80-2	1	5/8	.625	.312	.125	2.59	2.47	1.153	3.37	29000
80H-2	1	5/8	.625	.312	.156	2.84	2.72	1.283	3.93	29000
80-3	1	5/8	.625	.312	.125	3.74	3.62	1.153	5.02	43500
80H-3	1	5/8	.625	.312	.156	4.14	4.02	1.283	5.92	43500
80-4	1	5/8	.625	.312	.125	4.90	4.79	1.153	6.73	58000
80H-4	1	5/8	.625	.312	.156	5.42	5.30	1.283	7.87	58000
80-5	1	5/8	.625	.312	.125	6.06	5.94	1.153	8.40	72500
80-6	1	5/8	.625	.312	.125	7.22	7.10	1.153	10.07	87000
80-8	1	5/8	.625	.312	.125	9.53	9.40	1.153	13.41	116000

ANSI 60 and larger chains are available as cottered or riveted type design. Multiple strand chains are available with slip-fit (standard) or press-fit center plates.

Chart continues on next page.

OIL FIELD CHAIN



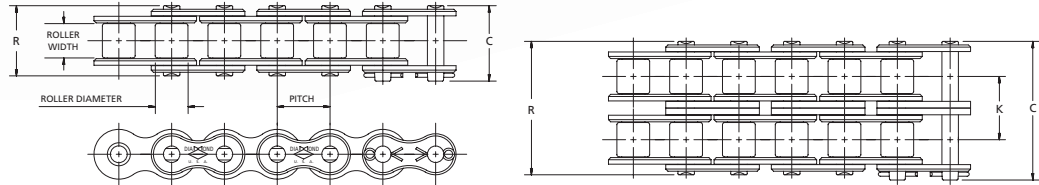
Dimensions in Inches and Pounds

ANSI NUMBER	PITCH INCHES	ROLLER WIDTH	ROLLER DIAMETER	PIN DIAMETER	LINK PLATE THICKNESS	C	R	K	WEIGHT PER FOOT	AVERAGE TENSILE STRENGTH
100	1 1/4	3/4	.750	.375	.156	1.73	1.61	—	2.51	24000
100H	1 1/4	3/4	.750	.375	.187	1.86	1.74	—	2.82	24000
100-2	1 1/4	3/4	.750	.375	.156	3.14	3.02	1.408	4.91	48000
100H-2	1 1/4	3/4	.750	.375	.187	3.41	3.28	1.539	5.58	48000
100-3	1 1/4	3/4	.750	.375	.156	4.56	4.43	1.408	7.40	72000
100H-3	1 1/4	3/4	.750	.375	.187	4.96	4.82	1.539	8.32	72000
100-4	1 1/4	3/4	.750	.375	.156	5.97	5.84	1.408	9.80	96000
100H-4	1 1/4	3/4	.750	.375	.187	6.49	6.37	1.539	11.04	96000
100-5	1 1/4	3/4	.750	.375	.156	7.38	7.25	1.408	12.20	120000
100-6	1 1/4	3/4	.750	.375	.156	8.78	8.66	1.408	14.60	144000
100-8	1 1/4	3/4	.750	.375	.156	11.6	11.48	1.408	19.40	192000
120	1 1/2	1	.875	.437	.187	2.14	2.00	—	3.69	34000
120H	1 1/2	1	.875	.437	.219	2.27	2.13	—	4.08	34000
120-2	1 1/2	1	.875	.437	.187	3.93	3.79	1.789	7.35	68000
120H-2	1 1/2	1	.875	.437	.219	4.20	4.06	1.924	8.04	68000
120-3	1 1/2	1	.875	.437	.187	5.72	5.58	1.789	11.10	102000
120H-3	1 1/2	1	.875	.437	.219	6.13	5.99	1.924	11.99	102000
120-4	1 1/2	1	.875	.437	.187	7.52	7.38	1.789	14.70	136000
120H-4	1 1/2	1	.875	.437	.219	8.06	7.92	1.924	15.94	136000
120-5	1 1/2	1	.875	.437	.187	9.31	9.17	1.789	18.43	170000
120-6	1 1/2	1	.875	.437	.187	11.10	10.96	1.789	22.11	204000
120H-6	1 1/2	1	.875	.437	.219	11.91	11.77	1.924	23.84	204000
120-8	1 1/2	1	.875	.437	.187	14.68	14.54	1.789	29.47	272000
120-10	1 1/2	1	.875	.437	.187	18.26	18.12	1.789	36.83	340000
140	1 3/4	1	1.000	.500	.219	2.31	2.14	—	5.00	46000
140H	1 3/4	1	1.000	.500	.250	2.44	2.28	—	5.40	46000
140-2	1 3/4	1	1.000	.500	.219	4.24	4.07	1.924	9.65	92000
140H-2	1 3/4	1	1.000	.500	.250	4.50	4.34	2.055	10.65	92000
140-3	1 3/4	1	1.000	.500	.219	6.16	6.00	1.924	14.30	138000
140H-3	1 3/4	1	1.000	.500	.250	6.56	6.39	2.055	15.90	138000
140-4	1 3/4	1	1.000	.500	.219	8.09	7.93	1.924	18.95	184000
140H-4	1 3/4	1	1.000	.500	.250	8.62	8.45	2.055	21.10	184000
140-6	1 3/4	1	1.000	.500	.219	11.94	11.78	1.924	28.25	276000
160	2	1 1/4	1.125	.562	.250	2.73	2.54	—	6.35	58000
160H	2	1 1/4	1.125	.562	.281	2.86	2.68	—	7.03	58000
160-2	2	1 1/4	1.125	.562	.250	5.04	4.85	2.305	12.83	116000
160H-2	2	1 1/4	1.125	.562	.281	5.30	5.12	2.436	13.88	116000
160-3	2	1 1/4	1.125	.562	.250	7.35	7.16	2.305	19.03	174000
160H-3	2	1 1/4	1.125	.562	.281	7.75	7.56	2.436	20.68	174000
160-4	2	1 1/4	1.125	.562	.250	9.66	9.47	2.305	25.60	232000
160H-4	2	1 1/4	1.125	.562	.281	10.17	10.00	2.436	27.62	232000
160-6	2	1 1/4	1.125	.562	.250	14.27	14.09	2.305	37.78	348000

ANSI 60 and larger chains are available as cottered or riveted type design. Multiple strand chains are available with slip-fit (standard) or press-fit center plates.

Chart continues on next page.

CHAIN DESCRIPTIONS AND DIMENSIONS

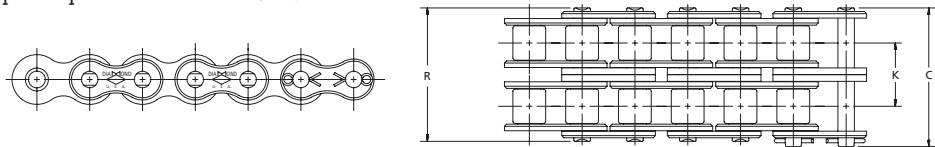


Dimensions in Inches and Pounds

ANSI NUMBER	PITCH INCHES	ROLLER WIDTH	ROLLER DIAMETER	PIN DIAMETER	LINK PLATE THICKNESS	C	R	K	WEIGHT PER FOOT	AVERAGE TENSILE STRENGTH
180	2 1/4	1 13/32	1.406	.687	.281	3.15	2.88	—	9.06	76000
180H	2 1/4	1 13/32	1.406	.687	.312	3.28	3.01	—	9.59	76000
180-2	2 1/4	1 13/32	1.406	.687	.281	5.75	5.48	2.592	17.67	152000
180H-2	2 1/4	1 13/32	1.406	.687	.312	6.00	5.73	2.723	18.86	152000
180-3	2 1/4	1 13/32	1.406	.687	.281	8.34	8.07	2.592	26.20	228000
180H-3	2 1/4	1 13/32	1.406	.687	.312	8.73	8.46	2.723	28.14	228000
200	2 1/2	1 1/2	1.562	.781	.312	3.44	3.12	—	10.65	95000
200H	2 1/2	1 1/2	1.562	.781	.375	3.71	3.39	—	13.38	110000
200-2	2 1/2	1 1/2	1.562	.781	.312	6.26	5.94	2.817	21.50	190000
200H-2	2 1/2	1 1/2	1.562	.781	.375	6.79	6.48	3.083	26.38	220000
200-3	2 1/2	1 1/2	1.562	.781	.312	9.08	8.76	2.817	32.30	285000
200H-3	2 1/2	1 1/2	1.562	.781	.375	9.88	9.56	3.083	40.85	330000
200-4	2 1/2	1 1/2	1.562	.781	.312	11.90	11.58	2.817	42.90	380000
200-6	2 1/2	1 1/2	1.562	.781	.312	17.52	17.21	2.817	64.50	570000
240	3	1 7/8	1.875	.937	.375	4.32	3.83	—	17.03	157600
240H	3	1 7/8	1.875	.937	.500	4.85	4.35	—	21.08	157600
240-2	3	1 7/8	1.875	.937	.375	7.77	7.27	3.458	33.44	315200
240-3	3	1 7/8	1.875	.937	.375	11.23	10.73	3.458	49.77	472800

ANSI 60 and larger chains are available as cottered or riveted type design.
Multiple strand chains are available with slip-fit (standard) or press-fit center plates.

Additionally, Diamond produces two specialty roller chains for unique oil field applications. These chains do not fall under the ANSI standards and therefore are not covered by API. Diamond still produces these unique chains to the highest quality standards, ensuring their superior performance in service.

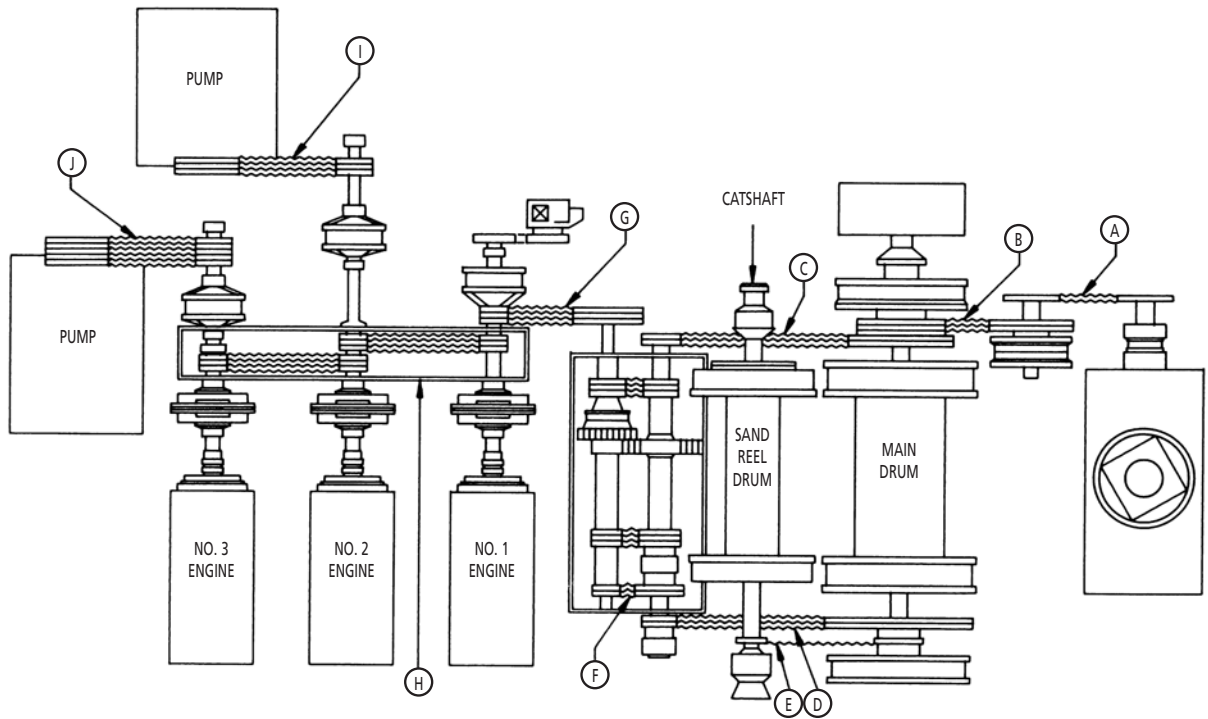


Dimensions in Inches and Pounds

NUMBER	PITCH INCHES	ROLLER WIDTH	ROLLER DIAMETER	PIN DIAMETER	LINK PLATE THICKNESS	C	R	K	WEIGHT PER FOOT	AVERAGE TENSILE STRENGTH
472-2	1 1/2	3/4	.875	.437	.187	3.45	3.30	1.546	6.76	68000
472-3	1 1/2	3/4	.875	.437	.187	5.00	4.85	1.546	10.08	102000
472-4	1 1/2	3/4	.875	.437	.187	6.55	6.41	1.546	13.40	136000
264	2 1/2	1 1/2	1.562	.875	.375	3.71	3.39	—	13.68	148500
264-3	2 1/2	1 1/2	1.562	.875	.375	9.88	9.56	3.083	40.92	445500



OIL FIELD CHAIN



CHAIN DRIVE	RIG HORSEPOWER						
	4000	3000	2000	1500	1000	750	500
A. ROTARY TABLE	160-2	160-2 200H-1	160-2	160-2 140-2	140-2 160-1	140-2 160-1	140-1 120-1
B. ROTARY COUNTERSHAFT	160-2	160-2 200H-1	160-2	160-2 140-2	140-2 160-1	140-2 160-1	140-1 120-1
C. HIGH DRUM	240-3	200H-3	160-4	160-3	140-3 160-2	160-2 140-2	120-3 140-2
D. LOW DRUM	240-3	200H-3	160-4	160-3	140-3 160-2	160-2 140-3	120-3 140-2
E. CATSHAFT	160-2	160-2 200H-1	160-2	160-1 140-2	160-1 140-2	160-1 140-2	140-1 120-1
F. TRANSMISSION	140-8	160-4 200H-3	160-4 160-3	160-3	160-2 140-3	140-2	120-2 100-3
G. DRAWWORKS INPUT	140-8	120-8	120-6	120-4	120-3 120-4	100-4	100-3 100-4
H. COMPOUND	140-8	120-8	120-6	120-4	120-3 120-4	100-4	100-3
I. & J. MUD PUMP DRIVES	140-8	120-8	120-8 120-6	120-6 120-4	120-4 120-3	100-6 100-4	100-4 100-3



NOTHING OUTLASTS A DIAMOND

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