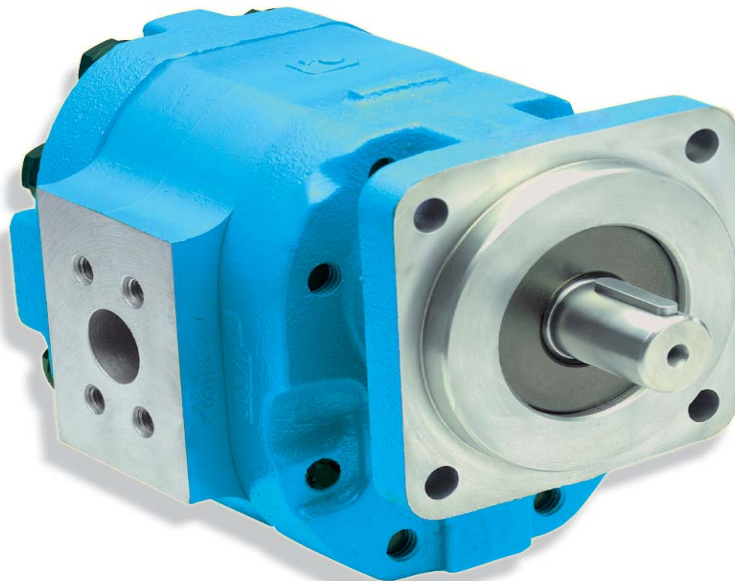




# WINCH MOTORS

## ROLLER BEARING SERIES WINCH MOTORS 3100/5100/7600



**W7600 SERIES SINGLE UNIT**

### WINCH MOTOR FEATURES

- Heavy duty roller bearing design
- Special high tooth gear set to maximize starting torque
- Start-up torque values up to 4000 in-lbs for single units and 8000 in-lbs for tandem units
- Special designed ring seals and pressure balanced wear plates maintain high motor efficiency throughout all operating ranges
- Cubic inch displacements from 2.00 through 12.1
- Working pressure up to 2500 PSI
- Speeds from 100 to 2400 RPM
- Available in both single and tandem units
- A wide range of porting, mounting and shaft options available
- Doweled and high strength cast iron construction
- 100% factory tested



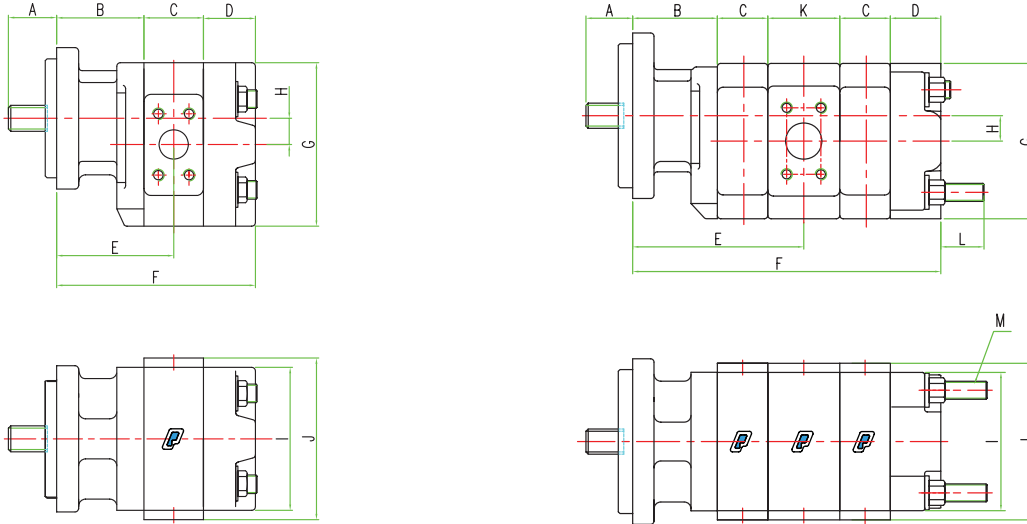
**W5100 SERIES TANDEM UNIT**



## The Sensible Choice



# Dimensional Data (mm)



## Single Unit

Model	A	B	C	D	E	F	G	H	I	J
<b>W3000/3100</b>	See Drive Shaft	74.67	19.1 + GW	44.45	84.0 + 1/2 GW	138.2 + GW	140.00	22.40	122.17	See Gear Housing Codes in Engineers Handbook
<b>W5000/5100</b>	Codes in Engineers Handbook	85.85	19.1 + GW	44.45	95.3 + 1/2 GW	149.4 + GW	159.00	25.40	128.52	
<b>W7500/7600</b>	Handbook	95.25	25.4 + GW	50.80	108 + 1/2 GW	171.5 + GW	203.00	31.80	155.70	

GW = GEAR WIDTH

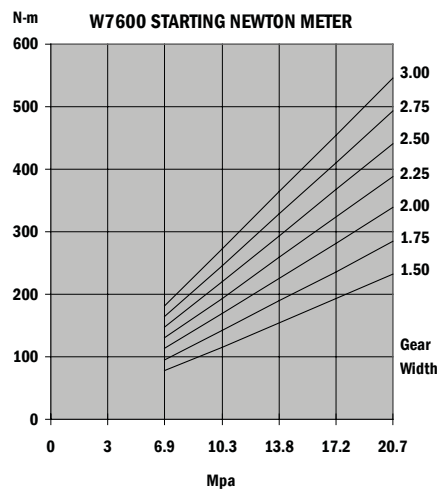
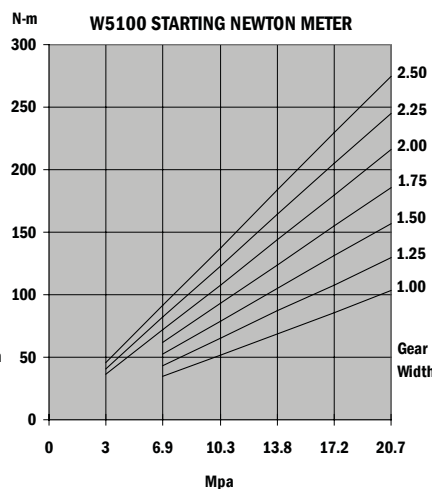
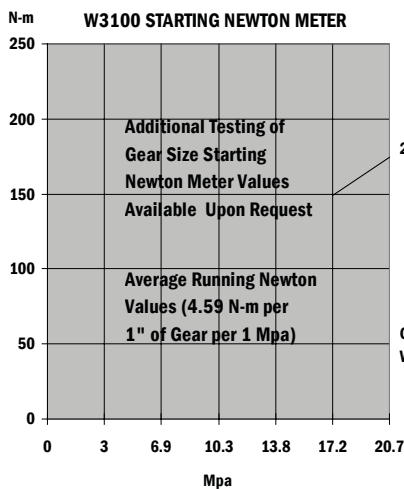
## Tandem Unit

Model	A	B	C	D	E	F	G	H	I	J	K	L	M
<b>W3000/3100</b>	See Drive Shaft	74.67	19.1 + GW	44.45	125.5 + GW(F)	220.7 + TGW	140.00	22.40	122.17	See Gear Housing Codes in Engineers Handbook	63.50	38.10	5/8-11UNC-2A
<b>W5000/5100</b>	Codes in Engineers Handbook	85.85	19.1 + GW	44.45	141.5 + GW(F)	241.3 + TGW	159.00	25.40	128.52	See Gear Housing Codes in Engineers Handbook	73.15	38.10	5/8-11UNC-2A
<b>W7500/7600</b>	Handbook	95.25	25.4 + GW	50.80	158.8 + GW(F)	273.0 + TGW	203.00	31.80	155.70	See Gear Housing Codes in Engineers Handbook	76.20	38.10	5/8-11UNC-2A

GW = GEAR WIDTH

GW(F) = GEAR WIDTH (FRONT SECTION)

TGW = TOTAL GEAR WIDTH (FRONT AND REAR GEAR SECTIONS)



In accordance with our policy of continued product development, we reserve the right to change specifications without notice. The data is average test data and should not be misconstrued to represent performance of each unit.

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## **ROLLER BEARING SERIES WINCH MOTORS 3100/5100/7600**

**Permco** produces three series of roller bearing gear winch motors. These have been specifically designed for powering winches and other similar applications that require high starting torque and smooth power distribution.

Our conventional motor design uses a ten-tooth gear, which provides good performance above 400 RPM. However in certain applications, start up torque and slow speeds (below 400 RPM) are very important. This is where the winch motor thirteen-tooth count gear comes into effect.

### **It provides:**

- 1- Improved Starting Torque**
- 2- Smoother Low Speed Operation**
- 3- Extremely low torque ripple**

Above 400 RPM, torque, speed and efficiency approach our standard motor models with the 10-tooth gear design.

The **“W”** series gears are a computer-assisted design that optimizes displacement, tooth strength and smooth power application. Displacement of the W7600 is 4.1 cubic inches/rev, per inch of gear width, the W5100 is 2.57 cubic inches/rev, per inch of gear width and the W3100 is 2.0 cubic inches/rev, per inch of gear width.

The typical **“W”** series motor (1.50 inch width or larger) has a minimum starting torque of about 80% of the theoretical and can be smoothly operated at speeds as low as 100 RPM.

The W3100, W5100 and the W7600 winch motor are available in the same configurations, gear widths and mounting options as Permco’s standard M3100, M5100 and M7600 motors.

Permco’s Engineer’s Handbook may be used in selecting the options and coding. To order, please start the part number with a **“W”**; this represents a winch motor application. If you are building the units from spare parts, please use the special winch motor thrust plates, winch motor ring seals and winch motor gears.

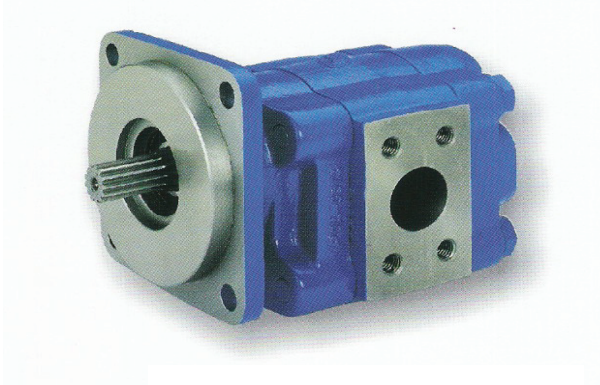
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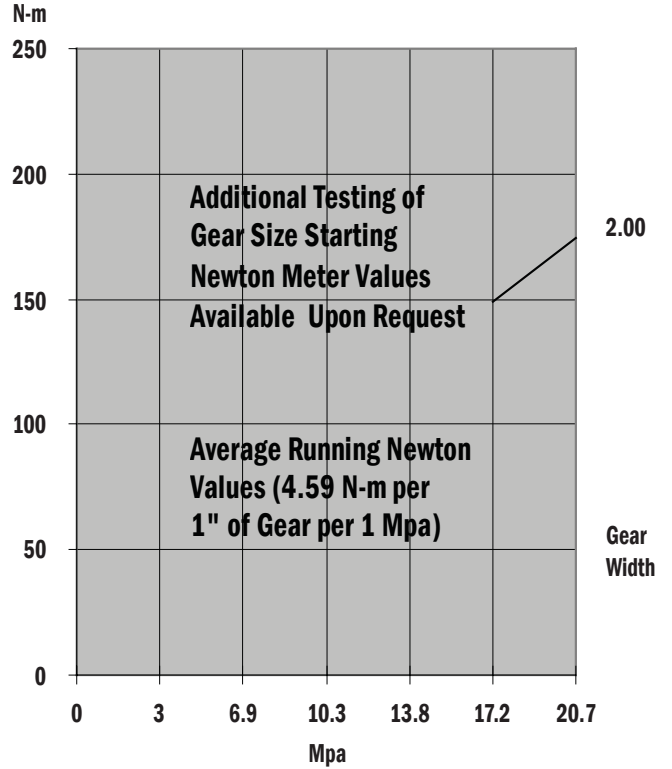
# *The Sensible Choice*

# WINCH MOTORS

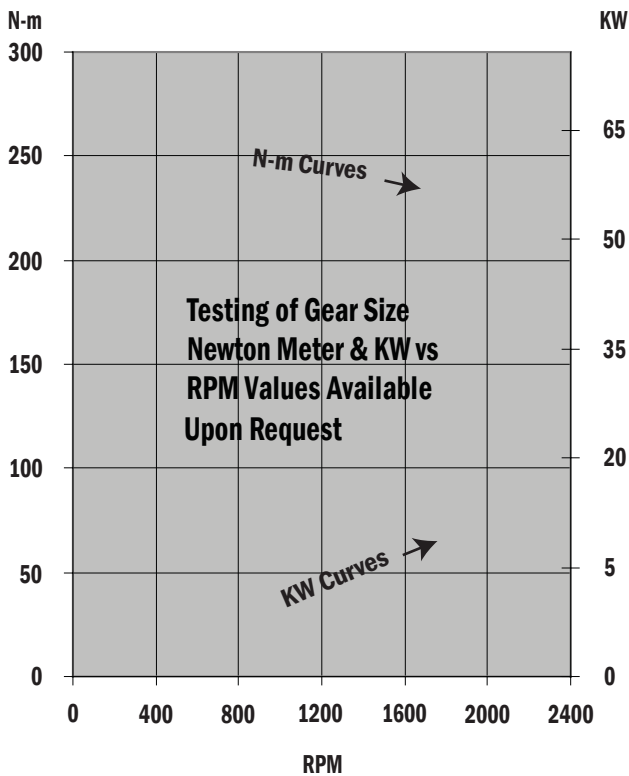
## W3100 WINCH MOTOR SPECIFICATIONS



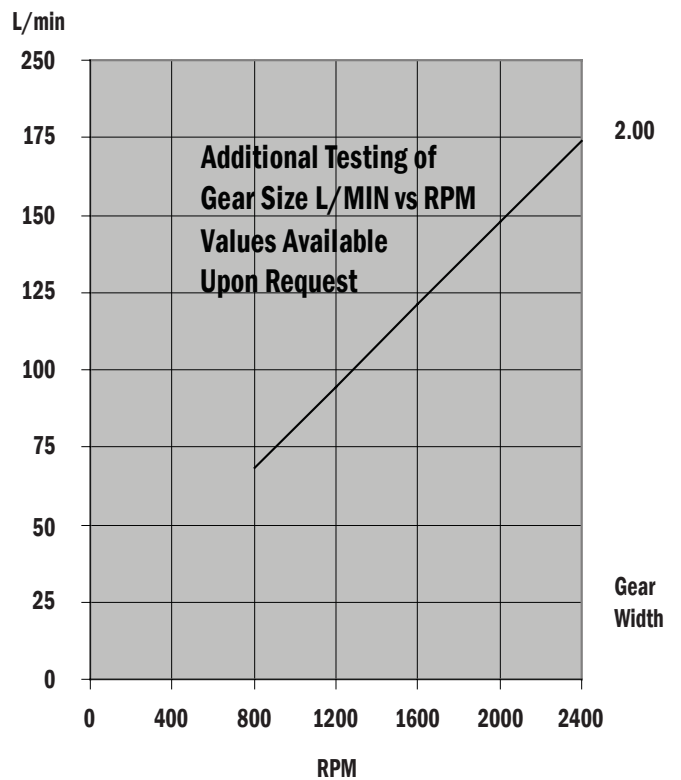
STARTING NEWTON METER



NEWTON METER & KW vs RPM @ 18 Mpa



L/MIN vs RPM @ 18 Mpa



© In accordance with our policy of continued product development, we reserve the right to change specifications without notice. The data is average test data and should not be misconstrued to represent performance of each unit.

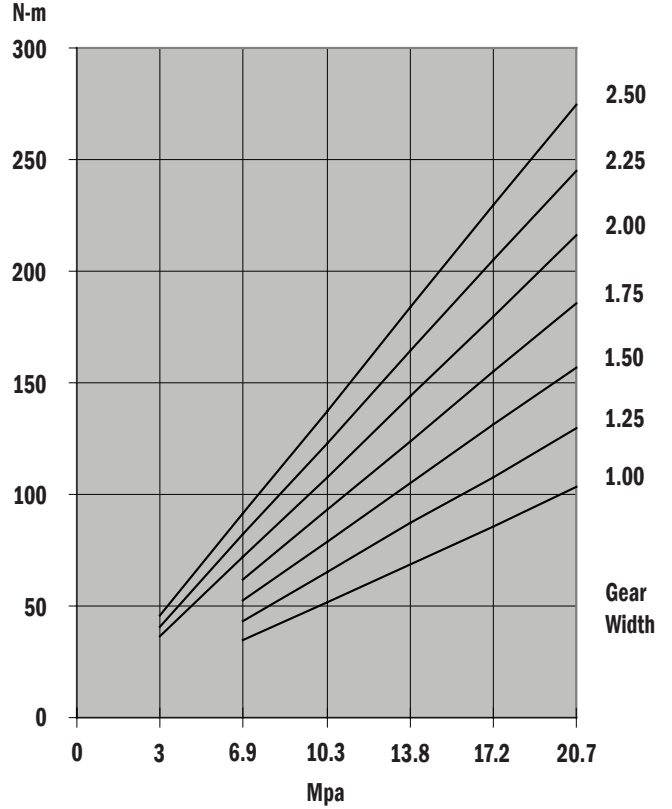


# WINCH MOTORS

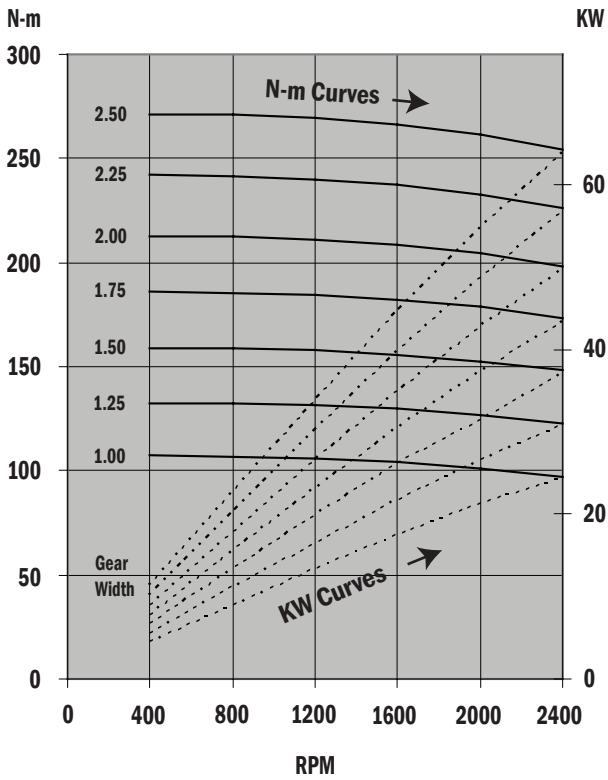
## W5100 WINCH MOTOR SPECIFICATIONS



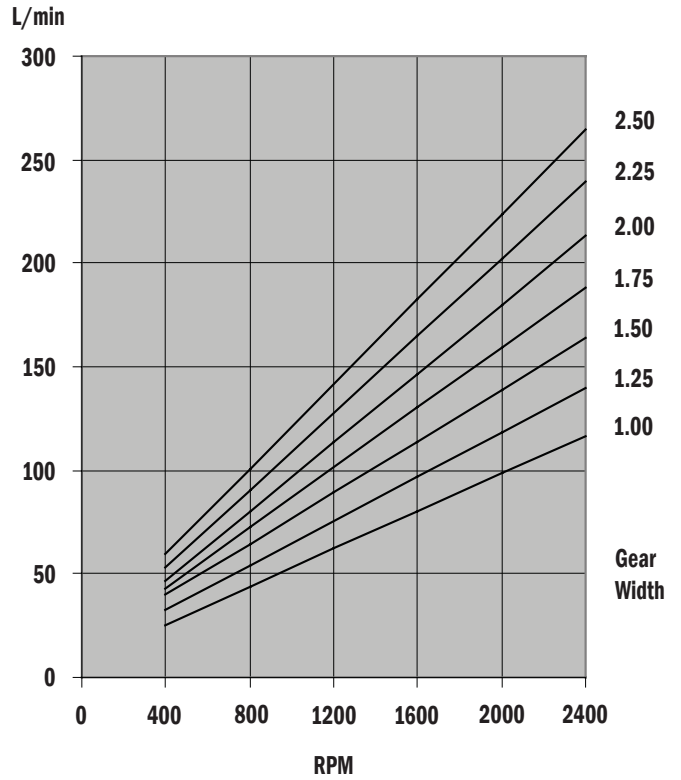
STARTING NEWTON METER



NEWTON METER & KW vs RPM @ 18 Mpa



L/ MIN vs RPM @ 18 Mpa



© In accordance with our policy of continued product development, we reserve the right to change specifications without notice. The data is average test data and should not be misconstrued to represent performance of each unit.

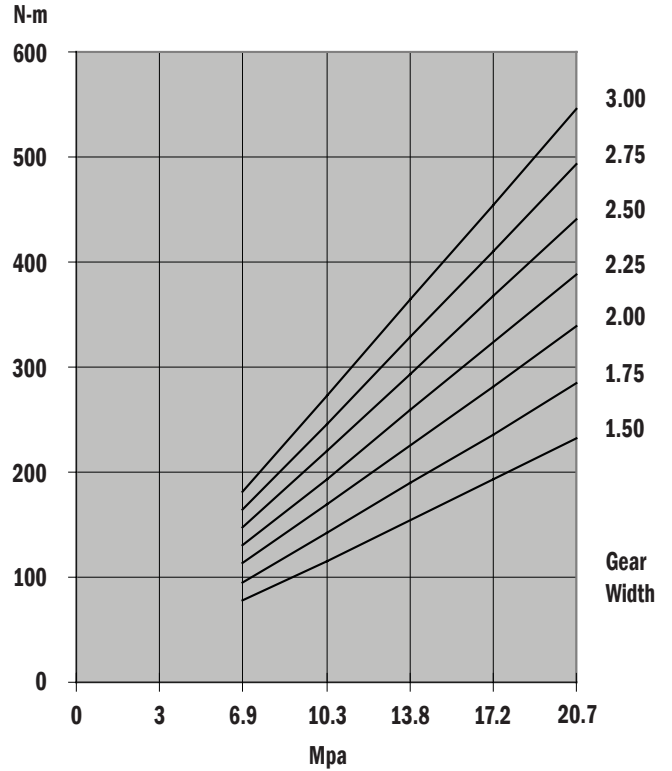


# WINCH MOTORS

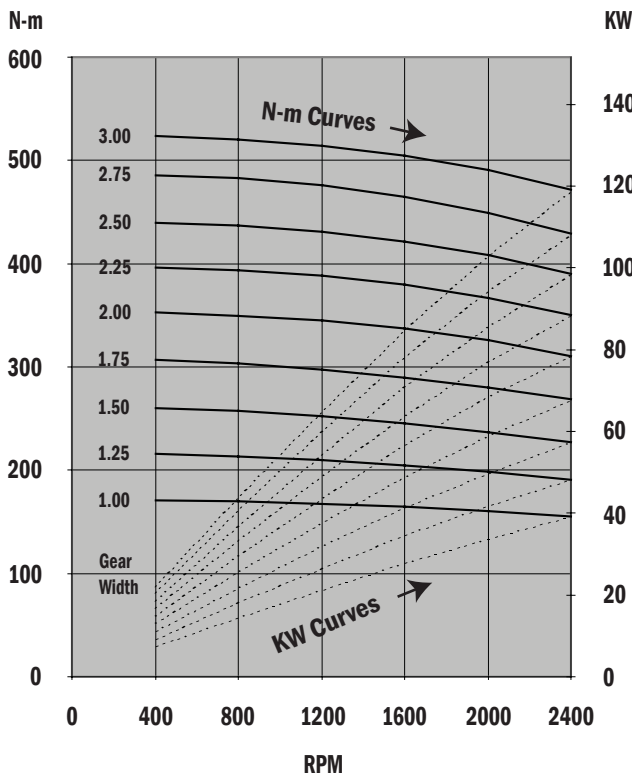
## W7600 WINCH MOTOR SPECIFICATIONS



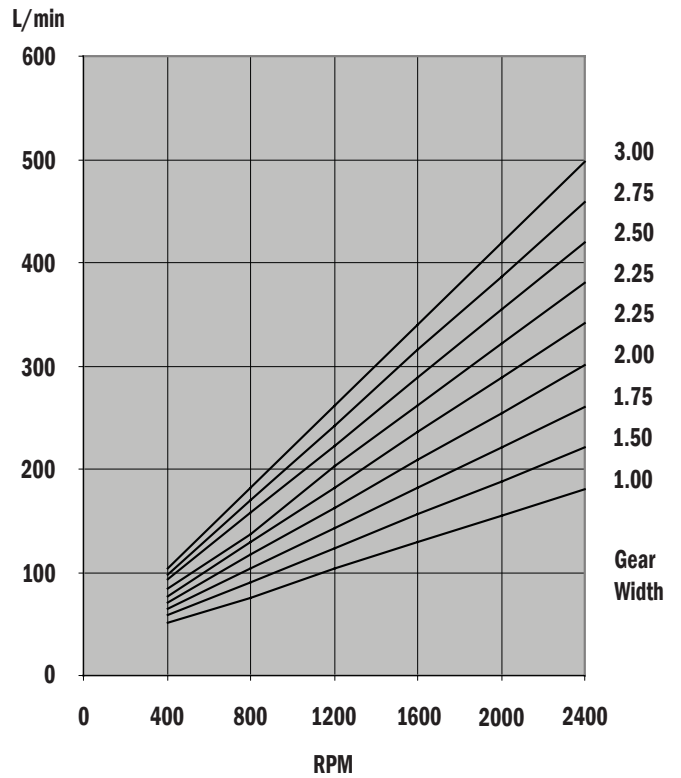
STARTING NEWTON METER



NEWTON METER & KW vs RPM @ 18 Mpa

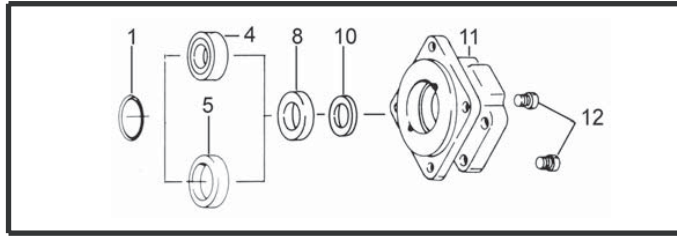


L/MIN vs RPM @ 18 Mpa

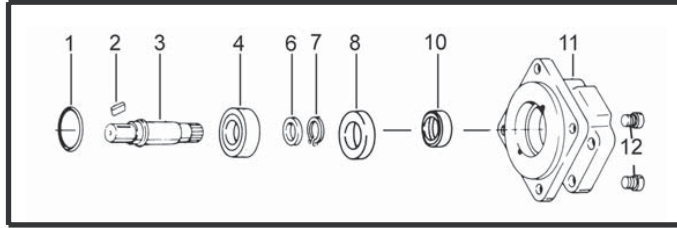


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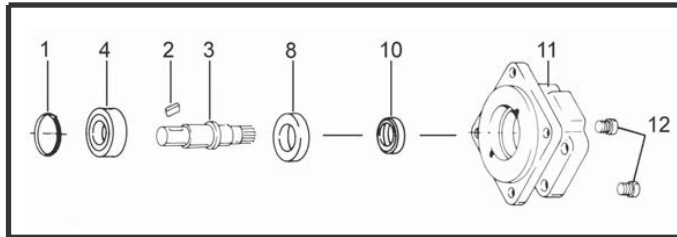
# Winch Motor Parts Breakdown



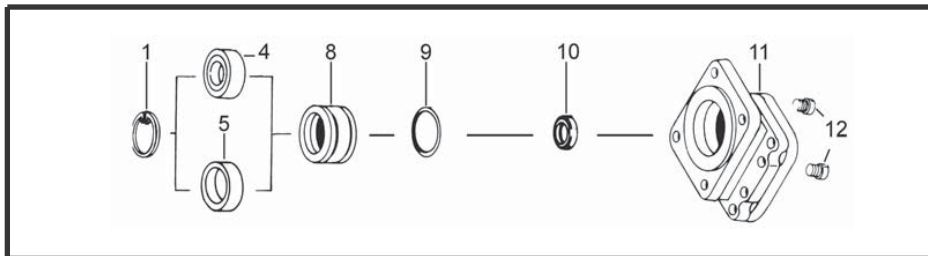
W3000/3100/5000/5100 TYPE I (ONE PIECE SHAFT)



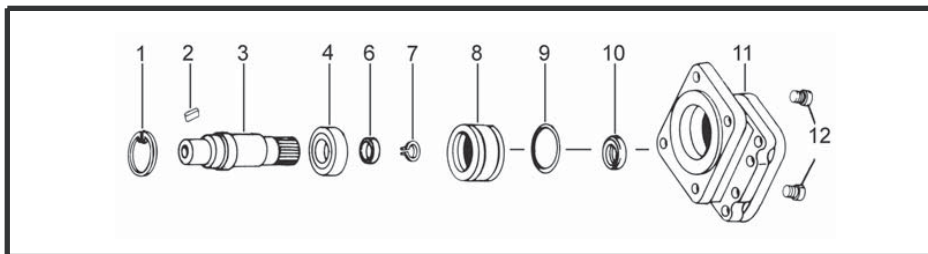
W3000/3100 TYPE I (TWO PIECE SHAFT)



W5000/5100 TYPE I (TWO PIECE SHAFT)



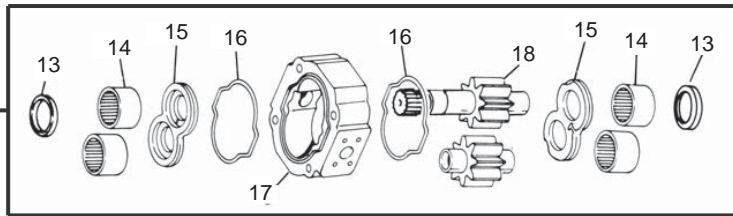
W7500/7600 TYPE I (ONE PIECE SHAFT)



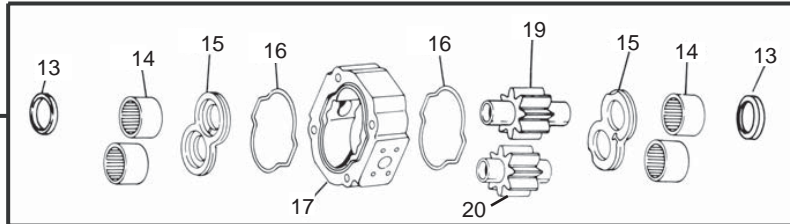
W7500/7600 TYPE I (TWO PIECE SHAFT)



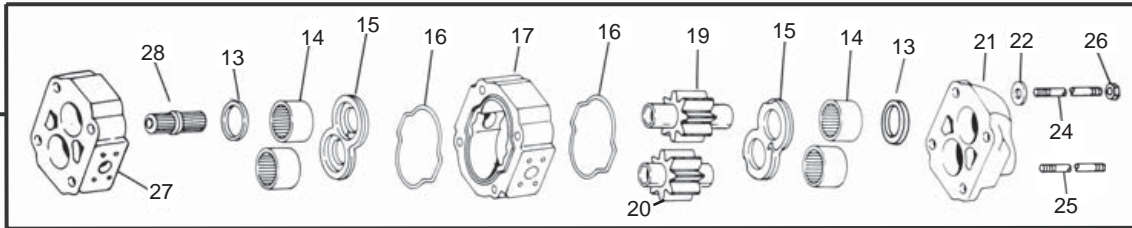
# Winch Motor Parts Breakdown (con't)



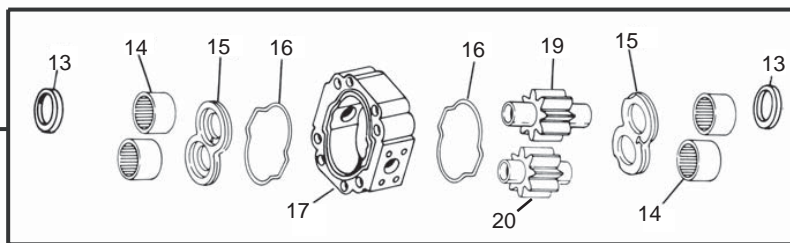
W3000/3100/5000/5100 TYPE I (ONE PIECE SHAFT)  
SINGLE AND/OR TANDEM UNIT



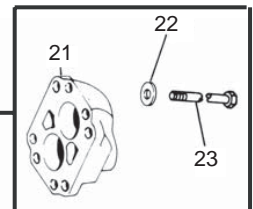
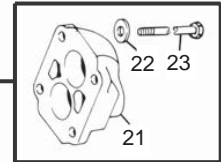
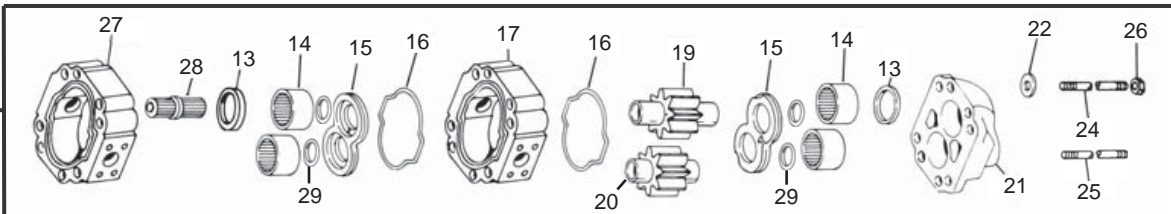
W3000/3100/5000/5100 TYPE I (TWO PIECE SHAFT)  
SINGLE AND/OR TANDEM UNIT



W7500/7600 TYPE I (ONE PIECE SHAFT)  
SINGLE AND/OR TANDEM UNIT



W7500/7600 TYPE I (TWO PIECE SHAFT)  
SINGLE AND/OR TANDEM UNIT





# WINCH MOTOR PARTS LIST

Item No. On Drawing	Description	Part Number	Item No. On Drawing	Description	Part Number
<b>W3000/3100 SERIES MOTORS</b>			15	Thrust Plate (TP)	X-0947-DV
1	Snap Ring	W023-206	16	Gasket Seal	TA-2995-244
2	Shaft Key	W09- ***	17	Housing	LZ-0577- ** - **
3	Continental Shaft	** - ****	18	Drive Shaft &/or Gear Set	*** - ***** - ****
4	Outboard Bearing	W58-39	19	Drive Gear	*** - ***** - ****
5	Bearing Spacer	400-00682	20	Idler Gear	*** - ***** - ****
6	Shaft Spacer	SA-0558	21	Port End Cover (PEC)	YZ-0592- *
7	Shaft Snap Ring	W86-100	22	5/8" Grade 8 Washers	W033-2
8	Seal Retainer	ZD-0558	23	Grade 8 Hex Head Cap Screw	W1- **
10	Shaft Seal (MOTOR)	W62-49-11	24	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***
11	Shaft End Cover (SEC)	* -0574- **	25	5/8-11 Grade 8 Extended Rod	ZD-0391 -***
12	Check Valve Assembly	L-0280-K	26	5/8-11 Grade 8 Hex Nut	W3-65
13	Ring Seal	KA-0558-1XS	27	Bearing Carrier	** -0576- ** - ***
14	Crowned Roller Bearing	X-0921	28	Connecting Shaft	XZ-0022
15	Thrust Plate (TP)	ZZ-0947-DV	<b>W7500/7600 SERIES MOTORS</b>		
16	Gasket Seal	TA-2995-242	1	Snap Ring	W85-315
17	Housing	QZ-0577- ** - **	2	Shaft Key	W09- **
18	Drive Shaft &/or Gear Set	*** - ***** - ****	3	Continental Shaft	** - 0024- ***
19	Drive Gear	*** - ***** - ****	4	Outboard Bearing	W58-48
20	Idler Gear	*** - ***** - ****	5	Bearing Spacer	UA-0558
21	Port End Cover (PEC)	WZ-0592- **	6	Shaft Spacer	ZE-0558
22	5/8" Grade 8 Washers	W033-2	7	Shaft Snap Ring	W-86-137
23	Grade 8 Hex Head Cap Screw	W1- **	8	Seal Retainer	QZ-0961
24	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***	9	Seal Retainer O-Ring	K-2995-164
25	5/8-11 Grade 8 Extended Rod	ZD-0391- ***	10	Shaft Seal (MOTOR)	W62-49-1
26	5/8-11 Grade 8 Hex Nut	W3-65	11	Shaft End Cover (SEC)	** - 0574- **
27	Bearing Carrier	** -0576- ** - ***	12	Check Valve Assembly	L-0280-K
28	Connecting Shaft	YZ-0022	13	Ring Seal	VA-0558-1XS
<b>W5000/5100 SERIES MOTORS</b>			14	Crowned Roller Bearing	Q-0921
1	Snap Ring	W023-283	15	Thrust Plate (TP)	AZ-0947-W
2	Shaft Key	W09- **	16	Gasket Seal	TA-2995-252
3	Continental Shaft	** -0024	17	Housing	RZ-0577- ** - **
4	Outboard Bearing	W58-47	18	Drive Shaft &/or Gear Set	*** - ***** - ****
5	Bearing Spacer	558-00474-BS	19	Drive Gear	*** - ***** - ****
8	Seal Retainer	ZB-0558	20	Idler Gear	*** - ***** - ****
10	Shaft Seal (MOTOR)	W62-49-8	21	Port End Cover (PEC)	XZ-0592- *
11	Shaft End Cover (SEC)	** -0574- **	22	5/8" Grade 8 Washers	W033-2
12	Check Valve Assembly	L-0280-K	23	Grade 8 Hex Head Cap Screw	W1 - **
13	Ring Seal	MA-0558-1XS	24	5/8-11 Grade 8 Threaded Rod	ZD-0391- ***
14	Crowned Roller Bearing	R-0921	25	5/8-11 Grade 8 Extended Rod	ZD-0391- ***
			26	5/8-11 Grade 8 Hex Nut	W3-65
			27	Bearing Carrier	** -0576- ** - ***
			28	Connecting Shaft	ZA-0022
			29	Thrust Plate Seals	280-1774-939

Subject to change without notice



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### Reference Sheet for Available Winch Motor Gears

<b>W3000/3100</b>			10	12	13	15	17	20	22	25	27	30
996-00981-XX	Continental	Gear Set				X		X				
024-00980-XX	SAE-B-Spline Code 14	Single Gear Set	X				X	X				
<b>W5000/5100</b>												
996-00873-XX	Continental	Gear Set		X		X		X		X		
024-00872-XX	SAE-B-Spline Code 14	Single Gear Set							X	X		
024-00883-XX	SAE-C-Spline Code 6	Single Gear Set					X	X	X	X		
024-00974-XX	SAE-C-Spline Code 6	Tandem Gear Set		X			X		X			
<b>W7500/7600</b>												
996-00897-XX	Continental	Gear Set										X
024-00896-XX	SAE-C-Spline Code 6	Single Gear Set						X	X	X		X

X = Parts in stock and available for sale: call for additional gear sizes and lead times

<b>W3000/3100</b>			<b>W5000/5100</b>		
ZZ-0947-DV	Thrust Plate	2/per gear set	X-0947-DV	Thrust Plate	2/per gear set
KA-0558-1XS	Ring Seal	2/per gear set	MA-0558-1XS	Ring Seal	2/per gear set
<b>W7500/7600</b>					
AZ-0947-W	Thrust Plate	2/per gear set			
280-1774-939	T Plate Seal	4/per gear set			
VA-0558-1XS	Ring Seal	2/per gear set			

