

# JAW COUPLING SELECTION

Example: A 10 HP hydraulic motor running a centrifugal pump 16 hours a day. Motor shaft is 1-3/8” and pump shaft is 1-1/2”

<p>Step #1: Determine the prime mover class. (See the Prime Mover Classifications chart)</p>	<p>Hydraulic Motors fall under class A</p>
<p>Step #2: Determine the load characteristics and the service factor. (See the Load Characteristics and Service Factors chart)</p>	<p>Centrifugal Pumps are uniformly loaded. The prime mover class of the motor is A and the motor is running over 8 hours per day. The service factor would be 1.5.</p>
<p>Step #3: Calculate Design Horsepower or Design Torque.</p> <ul style="list-style-type: none"> <li>• If Prime Mover is a 1200, 1800, or 3600 RPM motor: Design HP = Prime Mover HP x Service Factor. (See the Torque-Horsepower Ratings charts &amp; reference the corresponding motor RPM column)</li> <li>• If Prime Mover is not one of the speeds above: Design HP @ 100 RPM = (Prime Mover HP x Service Factor x 100) / Coupling RPM. (See chart on pages 2-3 and reference HP @ 100 RPM column)</li> <li>• If using Prime Mover Torque: Design HP = Prime Mover Torque x Service Factor. (See chart on page 2 and reference Torque column)</li> </ul>	<p>Prime Mover is an 1800 RPM motor. Design HP = 10 x 1.5 = 15. Looking at the Torque-Horsepower Ratings charts the options are: L110 with Buna insert, L095 with Hytrel insert or L110 with urethane insert.</p>
<p>Step #4: Check the Torque-Horsepower Ratings charts for max. bore of coupling.</p>	<p>1-1/2” shaft on the pump is too large for L095 or L100 couplings. Use L110 with Buna insert. For complete coupling order: 1 - L110-1.3/8 1 - L110-1.1/2 &amp; 1- L110N</p>

## Prime Mover Classifications

Prime Mover	Class
Electric Motors (Standard duty, Hydraulic Motors, Turbines)	A
Gasoline or Steam Engines (4 or more cylinders)	B
Diesel or Gas Engines, High Torque Electric Motors	C

## Load Characteristics and Service Factors

Typical Applications	Load	Characteristics	Prime Mover Class		
			A	B	C
Agitators (pure liquids), Blowers (centrifugal, Can and Bottle Filling Machines, Conveyors - uniformly loaded or fed (belt, chain, screw), Fans (centrifugal), Generators (uniform load), Pumps (centrifugal), Screens (air washing, water) Stokers (uniform load), Woodworking Machines (planers, routers, saws)	Uniform	Even loads - no shock - non reversing - infrequent starts (up to 10 per day) - low starting torques - Up to 8 hours per day - Over 8 hours per day	1.0 1.5	1.5 2.0	2.0 2.5
Beaters, Blowers (lobe, vane), Compressors (centrifugal, rotary), Conveyors - non uniformly loaded or fed (belt, bucket, chain, screw), Dredge Pumps, Fans (forced draft, propeller), Kilns, Paper Mills (calendars, converting machines, conveyors, dryers, mixers, winders), Printing Presses, Pumps (gear, rotary), Shredders, Textile Machinery (dryers, dyers)	Moderate shock	Uneven loads - moderate shock. Infrequent reversing-moderate torques - Up to 8 hours per day - Over 8 hours per day	1.5 2.0	2.0 2.5	2.5 3.0
Cranes (bridge, hoist, trolley), Fans (cooling tower), Generators (welding), Hammer Mills, Mills (ball, pebble, rolling, tube, tumbling), Pumps (oil well), Wire Drawing Machines	Heavy shock	Uneven loads - heavy shock - frequent starts and stops - high starting torques - high inertia peak loads - Up to 8 hours per day - Over 8 hours per day	2.0 2.5	2.5 3.0	3.0 3.5

## Torque - Horsepower Ratings

### Couplings using Buna-N (N) Inserts

Part No.	Max Bore	Max RPM	Torque In. Lbs.	HP per 100 RPM	HP/Speeds (RPM)		
					1200	1800	3600
L035	3/8	31000	3.5	0.006	0.07	0.10	0.20
L050	5/8	18000	26.3	0.042	0.50	0.75	1.50
L070	3/4	14000	43.2	0.069	0.82	1.23	2.47
L075	7/8	11000	90.0	0.143	1.71	2.57	5.14
L090	1	9000	144.0	0.228	2.74	4.11	8.23
L095	1-1/8	9000	194.0	0.308	3.69	5.54	11.08
L099	1-3/16	7000	318.0	0.505	6.05	9.08	18.16
L100	1-7/16	7000	417.0	0.662	7.94	11.91	23.82
L110	1-7/8	5000	792.0	1.257	15.08	22.62	45.24
L150	1-7/8	5000	1240.0	1.967	23.61	35.41	70.83
L190	2-1/8	5000	1726.0	2.739	32.86	49.29	98.59
L225	2-5/8	4600	2340.0	3.713	44.55	66.83	133.66

### Couplings using Hytrel (H) Inserts

Part No.	Max Bore	Max RPM	Torque In. Lbs.	HP per 100 RPM	HP/Speeds (RPM)		
					1200	1800	3600
L035	3/8	31000	-	-	-	-	-
L050	5/8	18000	50.0	0.079	0.95	1.43	2.86
L070	3/4	14000	114	0.181	2.17	3.26	6.51
L075	7/8	11000	227	0.360	4.32	6.48	12.97
L090	1	9000	401	0.636	7.64	11.45	22.91
L095	1-1/8	9000	561	0.890	10.68	16.02	32.04
L099	1-3/16	7000	792	1.257	15.08	22.62	45.24
L100	1-7/16	7000	1134	1.799	21.59	32.39	64.77
L110	1-7/8	5000	2268	3.599	43.18	64.77	129.55
L150	1-7/8	5000	3708	5.883	70.60	105.90	211.80
L190	2-1/8	5000	4680	7.426	89.11	133.66	267.32
L225	2-5/8	4600	6228	9.882	118.58	177.87	355.74

### Couplings using Urethane (U) Inserts

Part No.	Max Bore	Max RPM	Torque In. Lbs.	HP per 100 RPM	HP/Speeds (RPM)		
					1200	1800	3600
L035	3/8	31000	-	-	-	-	-
L050	5/8	18000	39.4	0.063	0.75	1.12	2.25
L070	3/4	14000	64.8	0.103	1.23	1.84	3.70
L075	7/8	11000	135	0.214	2.56	3.85	7.71
L090	1	9000	216	0.342	4.11	6.16	12.34
L095	1-1/8	9000	294	0.462	5.53	8.31	16.62
L099	1-3/16	7000	477	0.757	9.07	13.62	27.24
L100	1-7/16	7000	626	0.993	11.91	17.86	35.73
L110	1-7/8	5000	1188	1.885	22.62	33.93	67.86
L150	1-7/8	5000	1860	2.950	35.41	53.11	106.24
L190	2-1/8	5000	2589	4.108	49.29	73.93	147.88
L225	2-5/8	4600	3510	5.569	66.82	100.24	200.49

## Torque - Horsepower Ratings

### Couplings using Bronze (B) Inserts

Part No.	Max Bore	Max RPM	Torque In. Lbs.	HP per 100 RPM	HP/Speeds (RPM)		
					1200	1800	3600
L035	3/8	250	-	-	-	-	-
L050	5/8	250	50.0	0.079	0.95	1.43	2.86
L070	3/4	250	114	0.181	2.17	3.26	6.51
L075	7/8	250	227	0.360	4.32	6.48	12.97
L090	1	250	401	0.636	7.64	11.45	22.91
L095	1-1/8	250	561	0.890	10.68	16.02	32.04
L099	1-3/16	250	792	1.257	15.08	22.62	45.24
L100	1-7/16	250	1134	1.799	21.59	32.39	64.77
L110	1-7/8	250	2268	3.599	43.18	64.77	129.55
L150	1-7/8	250	3708	5.883	70.60	105.90	211.80
L190	2-1/8	250	4680	7.426	89.11	133.66	267.32
L225	2-5/8	250	6228	9.882	118.58	177.87	355.74

## Insert Characteristics

Properties	Buna-N (N)	Urethane (U)	Hytrel (H)	Bronze (B)
Oil Resistance	Good	Good	Excellent	Excellent
Chemical Resistance	Poor	Good	Excellent	Excellent
Flexibility	Excellent	Good	Fair	Poor
Temperature Range	F -40 to +212 C -40 to +100	-30 to +160 -34 to +71	-60 to +250 -51 to +121	-40 to +450 -40 to +232
Torsional Stiffness	Full Soft	Medium Soft	Hard	Hard
Average Hardness (Shore Number)	80A	90A	55D	—
Max. Misalignment				
• Angular	1°	1°	1/2°	1/2°
• Parallel	0.15"	0.15"	0.15"	0.10"