H & J SERIES TECHNICAL SPECIFICATIONS (Table 4)

Model Type and Size		H1/4	H1/2	J3/4 -20	J3/4-40	J1	J2	J5	J10	J20	J25	J40
CAPACITY IN POUNDS (P)		500	1,000	1,500	1,500	2,000	4,000	10,000	20,000	40,000	50,000	80,000
DIAMETER OF LOAD SCREW		0.500	0.625	0.625	0.625	0.750	1.000	1.500	1.750	2.500	2.750	4.250
LEAD OF SCREW		0.250	0.250	0.250	0.125	0.250	0.250	0.333	0.333	0.500	0.500	0.667
GEAR CENTERS		0.946	0.946	0.941	0.941	1.504	1.835	2.260	3.014	3.675	4.009	5.164
GEAR RATIO	LOW	5:1	5:1	5:1	5:1	5:1	6:1	5 1/3:1	6:1	8:1	9:1	9:1
	MEDIUM						8:1	12:1				
	HIGH	10:1	10:1			10:1	12:1	24:1	12:1	16:1	18:1	
(TPI) TURNS OF INPUT SHAFT FOR 1" OF RISE	LOW	20	20	20	40	20	24	16	18	16	18	18
	MEDIUM						32	32				
	HIGH	40	40			40	48	72	36	32	36	
(Tp) TORQUE REQUIRED TO LIFT ONE POUND (lb-in)	LOW	0.024	0.026	0.026	0.021	0.028	0.028	0.042	0.046	0.050	0.039	0.032
	MEDIUM						0.024	0.027				
	HIGH	0.013	0.015			0.017	0.018	0.019	0.029	0.032	0.024	
NO LOAD TORQUE (lb-in) (To)		1.5	2.0	1.0	2.0	3.0	4.0	5.0	7.0	9.0	10.0	12.0
MAXIMUM INPUT RPM		1725	1725	2587	2587	2587	2587	1725	1725	1725	1450	1450
APPROXIMATE WEIGHT IN POUNDS	0" TRAVEL	2.3	2.3	2	2	9	13	23	47	90	103	103
	PER INCH	0.1	0.1	0.1	0.1	0.2	0.4	0.7	0.9	1.8	2.1	2.1
RADIUS OF GYRATION (r)		0.094	0.125	0.125	0.125	0.156	0.218	0.334	0.396	0.566	0.628	0.985

1. Complete the Uni-Lift Selection Guide located in the inside front cover.

2. Determine the maximum load on one actuator: P_1

$$P_1 = \frac{P_2}{N}$$

P_2 = Total system load (lbs.)
N = Number of actuators in the system
On multi-unit systems where load is not equally distributed, change P_1 to the greatest load supported by one unit.

3. Check Load Screw Column Capacity:
- If the load screw is in tension, select a Uni-Lift with a rated capacity equal to or greater than the maximum load (P_1) on one actuator. Go to step 4.
- If the load screw is in compression, use the calculation steps on page 35 to determine the maximum permissible Extended Screw Length, (ESL). Select a Uni-Lift that has a load screw column length capacity equal to or greater than the length required for the load.

4. Determine the desired load screw velocity (in./min.): (V_d)

$$V_d = \frac{\text{Rise}}{t_2}$$

Rise = One way travel under load (in.)
t_2 = Required one way travel time (min.)

5. Determine Desired Input Speed: (RPM_d)

$$RPM_d = TPI \times V_d$$

TPI = Turns of the input shaft for 1 inch of rise. (See technical specification table 4.)

6. Determine Load Screw Velocity: (V)
From the catalog data, select the drive equipment with an output speed close to the desired input speed (RPM_d). Use the output speed to recalculate the actual load screw velocity (V).

$$V = \frac{RPM}{TPI}$$

7. Check the Duty Limit of the actuator:

$$D_1 = \frac{(2 \times \text{Rise} \times C_h)}{V}$$

D_1= Duty time per hour
C_h = Cycles per hour
Determine if D_1 is equal to or greater than D_2. If D_2 is less than D_1 reduce the input speed to the actuator, or reduce the load per actuator by adding more actuators to the system.
D_2 = Duty Limit (see page 34 for calculations)

Motor Sizing:

The following is a QUICK ESTIMATE FOR MOTOR SIZING FOR A ONE ACTUATOR SYSTEM. For detailed motor sizing and torque requirements on single or multi-unit systems, skip steps 8 and 9, and go to step 10.

8. Estimate the Input Torque T_e (lbs/in):

$$T_e = T_p \times P_3$$

T_p = Torque required to lift one pound (see table 4 for T_p values.)
P_3 = Maximum system running load.

9. Estimate Uni-Lift Horsepower: HP_e

$$HP_e = \frac{(T_e \times RPM)}{63025}$$