

Service Factor & Selection Procedures

◆ Selection Of Service Factor

- When your applications involve conditions more severe than the rating basis of the **DARALI® DISCO Variators**, select the frame size having horse power rating **equal to or larger than** the value obtained by **multiplying the actual load by "Service Factor"**.

EXAMPLE:

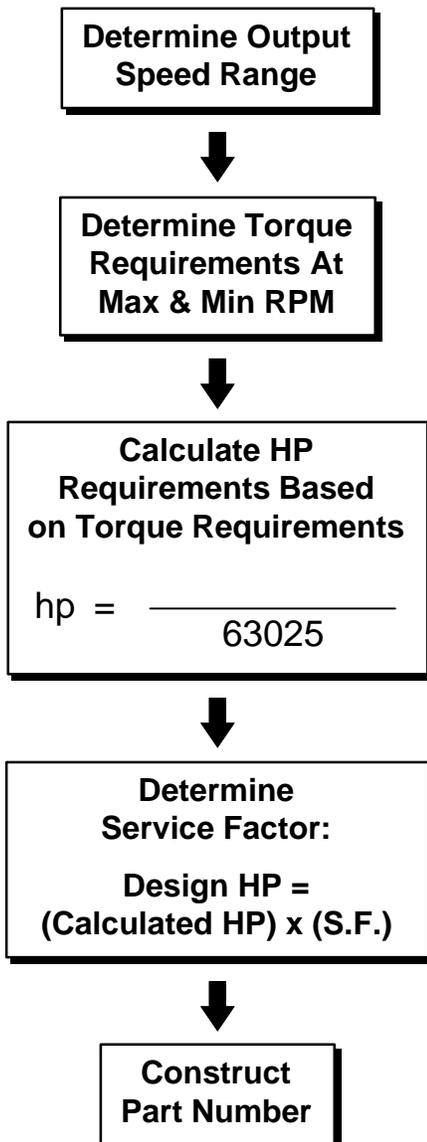
An application requires 2 hp to drive. However, the application involves medium shock load, frequent start/stop, and frequent reversal. Based on the **Recommended Service Factor (S.F.)** chart on the right, the appropriate service factor to apply is 1.5. Therefore the appropriate design hp is :

$$2 \text{ hp} \times 1.5 = 3.0 \text{ hp}$$

Recommended Service Factor (S.F.)

Load Characteristics	Average Operating Hours per Day		
	Up to 8	8 ~ 16	16 ~ 24
- Uniform load and continuous operation - No Reversal - Light Inertia Load	1.0	1.1	1.2
- Medium shock, intermittent operation - Frequent start and frequent reversal - Medium inertia load	1.3	1.4	1.5
- Heavy shock, intermittent operation - Frequent start and frequent reversal - Heavy inertia load	1.7	1.9	2.0

◆ Simple Selection Procedures



EXAMPLE 1:

- 1). Drive Machine: Conveyor.
- 2). Operating Time: 8 hours per day, frequent reversal.
- 3). Output Shaft Speed: 12 rpm maximum, 3 rpm minimum.
- 4). Running Load: 10,000 in-lbs.
- 5). Heavy Shock Load.
- 6). Input Method: NEMA C-face, Output Connection: Sprocket.

☞ From the speed range above and the rating table, we know we need to select a variator with 87:1 ratio cycloidal reducer output. This will give us a 2.30 ~ 13.8 output rpm range. Calculate hp requirements using formula shown on the left:

$$hp_{\max} = \frac{10,000 \text{ in-lbs} \times 3 \text{ rpm}}{63025} = 0.48$$

$$hp_{\min} = \frac{10,000 \text{ in-lbs} \times 12 \text{ rpm}}{63025} = 1.90$$

From the Service Factor Chart above, we determine that 1.7 S.F. is required for applications running up to 8 hours per day, and with Heavy Shock Load.

$$hp_{\text{design-max}} = 0.48 \times 1.7 = 0.816$$

$$hp_{\text{design-min}} = 1.90 \times 1.7 = 3.23$$

Based on the above calculation, you would select a 5 hp unit (5 > 3.23) from page 12 with 87:1 cycloidal output. The complete part number would be:

B17 - 87:1 - DHH - 5ACQ

EXAMPLE 2:

- 1). Drive Machine: Mixer.
- 2). Operating Time: 10 hours per day, frequent start/stop.
- 3). Output Shaft Speed: 600 rpm maximum, 250 rpm minimum.
- 4). Running Load: 200 in-lbs at max rpm, and 350 in-lbs at min rpm.
- 5). Medium Inertial Load.
- 6). Input Method: Free input shaft, Output Mounting: NEMA C-Face.

☞ From the speed range above and the rating table, we know we need to select just the variator with the output speed range between 200~1200 rpm. Calculating hp requirements using formula shown on the left:

$$hp_{\max} = \frac{200 \text{ in-lbs} \times 600 \text{ rpm}}{63025} = 1.90$$

$$hp_{\min} = \frac{350 \text{ in-lbs} \times 250 \text{ rpm}}{63025} = 1.39$$

From the Service Factor Chart above, we determine that 1.4 S.F. is required for applications running 10 hours per day, and with Medium Inertial Load.

$$hp_{\text{design-max}} = 1.90 \times 1.4 = 2.66$$

$$hp_{\text{design-min}} = 1.39 \times 1.4 = 1.95$$

A 5 hp variator unit is desired for this application. The 3 hp unit is too small due to insufficient rating at Min. rpm (1.5 < 1.95). The part number is:

3AVM