SELECTION PROCEDURE

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1. Determine the service factor for the application from Table 1 below. A service factor is necessary to adapt the unit to the various operating conditions as shown in the list of common applications.

2. Calculate the ratio required by dividing the input speed by the output speed. Single reduction for ratios 5:1 to 70:1. Double reduction for ratios 50:1 to 3600:1.

3. Calculate the Equivalent Input HP by multiplying the specified or prime mover nameplate power by the service factor determined in step 1. In the event the unit selection is to be based on output torque, apply the service factor to the required torque. If an expected peak load is more than 2 times the equivalent HP/torque, then calculate a second equivalent HP/torque by dividing the peak power by 2 and use this value for size selection.

4. Refer to the rating tables and select a unit size that has an input HP or nominal torque rating equal to or greater than the equivalent rating calculated in step 2. Refer to the following tables for selections.

- Tables on pages 5 to 8 for mechanical ratings and size selection of single reduction units for ratio range from 5:1 to 70:1. Double reduction tables on pages 19 to 20.

Table 1: Service factors

PRIME MOVER	DURATION OF SERVICE PER DAY	DRIVEN MACHINE LOAD CLASS		
		UNIFORM	MEDIUM SHOCK	HEAVY SHOCK
Electric motor	Occasional 1/2 hr.	0.80	0.90	1.00
	Intermittent 2 hrs.	0.90	1.00	1.25
	10 hrs.	1.00	1.25	1.50
	24 hrs.	1.25	1.75	1.75
Electric motor with frequent starts & stops ≥ 10hrs.	Occasional 1/2 hr.	0.90	1.00	1.00
	Intermittent 2 hrs.	1.00	1.25	1.25
	10 hrs.	1.25	1.50	1.50
	24 hrs.	1.50	1.75	1.75
Multi-cylinder internal combustion engine	Occasional 1/2 hr.	0.90	1.00	1.00
	Intermittent 2 hrs.	1.00	1.25	1.25
	10 hrs.	1.25	1.50	1.50
	24 hrs.	1.50	1.75	1.75
Single cylinder internal combustion engine	Occasional 1/2 hr.	1.00	1.25	1.25
	Intermittent 2 hrs.	1.25	1.50	1.50
	10 hrs.	1.50	1.75	1.75
	24 hrs.	1.75	2.00	2.00

EXAMPLE

Driver: 1 HP @ 1750 RPM electric motor.
Driven machine: heavy duty not uniformly fed belt conveyor, operating 10 hours/day at pulley speed of 120 rpm.

1. Service factor = 1.50 from table 1.

2. Ratio = 1750 RPM ÷ 120 RPM = 14.58: 1
(Use 15:1 in rating tables)

3. **HP method:**
Equivalent input HP =
1 HP (motor) x 1.50 = 1.50 Design HP @ 1750 rpm
Output torque method:
Equivalent output torque =

$$\frac{\text{HP x S.F. x 63025}}{\text{Output speed}} =$$

$$\frac{\text{1 HP x 1.50 x 63025}}{\text{120 RPM}} = 787 \text{ in lbs.}$$

4. **HP method:**
Refer to tables on pages 5 to 8 for single reduction units. Unit size 60 with a ratio of 15:1 has a rating of 2.02 HP @ 1800 RPM which exceeds required 1.50 HP.

Output torque method:
Tables on pages 5 to 8 shows output torque rating for size 60 of 935 in-lbs. which exceeds required 787 in-lbs.

UNIFORM LOAD
Agitators and mixers - pure liquid constant density
Blowers and compressors - centrifugal vane type
Pumps - centrifugal, rotary, gear type
Elevators and conveyors - uniformly loaded or fed

MEDIUM AND OCCASIONAL SHOCK LOAD
Agitators and mixers - Variable density liquids
Compressors - reciprocating mult-cylinder
Elevators and conveyors - heavy duty not uniformly fed
Pumps - reciprocating

HEAVY CONSTANTLY RECURRING SHOCK LOAD
Compressors - reciprocating single cylinder
Conveyors, heavy-duty - heavy duty not uniformly fed
Crushers - ore, stone
Hammer mills - mills, rotary tube type, barrels

"WG" SERIES PART NOMENCLATURE BREAKDOWN

H 3 W X X Y Y

H = WG Series 3 = Metric W = Type [0=WT, 1=WTC, 2=WB, 3=U, 4=UC, 5=WTCHS, 6=UCHS]
Note: Contact factory for double reduction part number

X X = Center Distance [05=34 mm, 10=45 mm, 15=50 mm, 20=60 mm, 25=70 mm, 30=80 mm, 35=100 mm, 40=120 mm, 45=135 mm, 50=155 mm, 60=200 mm, 65=225 mm, 70=250 mm, 75=300 mm, 80=350 mm]

Y Y = Ratio & Assembly [Ratio – 05, 10, 15, 20, 25, 30, 40, 50, 60, 70*, 80*:1, *Contact factory for availability]
[Assembly – Right Hand = Ratio, Double = Ratio + 2, Left Hand = Ratio + 3]▲

Note: Oil- Synthetic, Mineral & Foodgrade (H1) are available; contact factory for pricing.
▲ Hand of assembly determined by looking at the reducer input shaft.