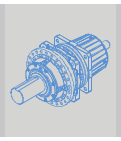

P series type selection example:

Steps	Specification	Symbol	Calculate parameter
1	Driven machine factor	f1	See P307 f1 table
2	Factor for prime mover	f2	Factor for prime mover: f2 Electric motors, hydraulic motors, turbines: 1.0 Piston engines 4 - 6 cylinders cyclic variation 1 : 100 to 1 : 200: 1.25 1–3缸活塞发动机，周期变化1：100 Piston engines 1 - 3 cylinders cyclic variation up to 1 : 100: 1.5
3	Permissible input speed	n_1	≤1500
4	Determine ratio	i	$i=n_1/n_2$
5	Efficiency	η	Type / η / Type / η P2N 94% P3N 92% P2L 93% P3S 91% P2S 93% P3K 89% P2K 91%
6	Determine input power	P1	$P1=T2 \cdot n1/(9550 \cdot i \cdot \eta)$ or $P1=P2/\eta$
7	By calculation, defermine type in reference to transmission table	T_{2N} P_{1N}	$T2N \geqslant T2 \cdot f1 \cdot f2$ or $P1N \geqslant P1 \cdot f1 \cdot f2$ If not meet: $3.33 \cdot P1 \geqslant P1N$ please consult us.
8	Check for maximum torque	T_A	$PIN \geqslant T_A \cdot n1 \cdot f3/9550$ f3 / Load peaks per hour: 1 5 / 6 30 / 31 100 / >100 Steady direction of load: 0.5 / 0.65 / 0.7 / 0.85 Alternating direction of load: 0.7 / 0.95 / 1.10 / 1.25
9	Verify axial and radial forces	Fr、Fa	See page 306, P series Fr table
10	Determine power utilization factor	f14	Utilization = P1/P1N · 100% Determine f14. Utilization: 30% 40% 50% 60% 70% 80% 90% 100% f14: 0.66 0.77 0.83 0.90 0.90 0.95 1.0 1.0
11	Verify thermal capacity	PG	If P1 > PG, auxilliary cooling system shoulld be installed. Ambient temperature factor f4 Ambient Temperature / Operating cycle per hour (ED) in % (100 80 60 40 20) 10 °C: 1.14 1.20 1.32 1.54 2.04 20 °C: 1.00 1.06 1.16 1.35 1.79 30 °C: 0.87 0.93 1.00 1.18 1.56 40 °C: 0.71 0.75 0.82 0.96 1.27 50 °C: 0.55 0.58 0.64 0.74 0.98
12	Verify lubrication method		V1、V3、V11、V31: Dip lubrication; B51:Pump lubrication; others: splash lubrication.
13	Determine type according to the above.		

Peak torque: Maximum torque is maximum starting torque, maximum braking torque.

Selection example

Conveyer, input speed 1000r/min,

Max starting torque 2000N · m, output speed 12.5r/min,

Output torque 68000N · m, service time 12h/day.

Dnration of load 60% of workin circle, ambient

temperature 0～20℃, wind velocity 5m/s, large

workshops, altitude below 1000m,

horizontal flange-mounted with solid output shaft.

f_1=1.5

f_2=1

n1=1000

i=1000/12.5=80

Choose P2S according to the above data.

η =0.93

P1=T2 · n1/(9550 · i · η)

=68000 × 1000/(9550 × 80 × 0.93)=95.7kW

T2N ⩾ T2 × f1 × f2=68000N · m × 1.5 × 1=102kN · m

P1N ⩾ P1 × f1 × f2=95.7 × 1.5 × 1=143.55kW

Refer to transmission capacity table,

choose P2SB14-80-B5-99,

P1N=153kW PG1=94kW iex=78.827

Check: 3.33 × P1 ⩾ P1N

3.33 × 95.7 = 318.681kW > P_{1N}

Check verify peak torque:

P1N=153kW ⩾ T_A · n1 · f3/9550

=2000 × 1000 × 0.5/9550=104.71kW

Check thermal capacities:

Utilization =P1/1PN=95.7/153=0.625=62.5%

So f14=1 Get f4=1.16, according to working conditions.

PG1 × f4 × f14=94 × 1.16 × 0.9=100.32kW > P1

No attached cooling devices can meet requirement.

Mounting position B5

Lubrication method: splash

TYPE: **P2SB14-80-B5-99**