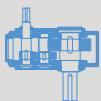




HB series type selection example:

Steps	Specification	Symbol	Calculate parameter						
1	Driven machine factor	f1	See P05 f1 table						
2	Factor for prime mover	f2	Factor for prime mover			f ₂			
			Electric motors, hydraulic motors, turbines			1.0			
			Piston engines 4 - 6 cylinders cyclic variation 1 : 100 to 1 : 200			1.25			
			Piston engines 1 - 3 cylinders cyclic variation up to 1 : 100			1.5			
3	Permissible input speed	n1	≤ 1500						
4	Position of input and output	H、 B	H:Parallel shaft, B: Right-angled shaft.						
5	Determine ration	i	i=n1/n2						
6	Efficiency	η	single stage:98%, 2-stage:96%, 3-stage:94%, 四级4-stage:92%						
7	Determine input power	P1	P1=T2 • n1/(9550 • i • η) or P1=P2/ η						
8	By calculation, determine type in reference to transmission table	T2N、 P1N	T2N≥T2 • f1 • f2 (or) P1N≥P1 • f1 • f2 If not meet: 3.33 • P1 ≥ P1N please consult us.						
9	Determine output mode		Output mode & mounting position						
10	Check for maximum torque	TA	P _{IN} ≥T _A • n1 • f3/9550	f3	Load peaks per hour				
					1-5	6-30	31-100		
				Steady direction of load	0.5	0.65	0.7		
11	Verify intensity of shaft	Fr、 Fa	See P05	Alternating direction of load	0.7	0.95	1.10		
				Vertical	0.85	1.25			
12	Determine lubrication method and lubrication oil(see attachment)		Horizontal	A: immersion B: Pump-forced lubrication					
				Immersion, splash, forced lubrication.					
13	Cooling method		1 Adequate for gear units without auxiliary cooling, if: P1≤PG1 × f4 × f6 × f8 × f9						
			2 Adequate for gear units with fan cooling, if: P1≤PG2 × f4 × f6 × f8 × f10						
			3 Adequate for gear units with fitted cooling coil, if: P1≤PG3 × f5 × f7 × f8 × f11						
			4 Adequate for gear units with cooling coil and fan, if: P1≤PG4 × f5 × f7 × f8 × f12						
			5 For higher thermal capacities, cooling by external oil cooler on request.: (f4、f5、f6、f7、f8、f9、f10、f11、f12 refer to P213,214)						

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



Selection example

Given condition:

Driving machine:

P_m=75KW

n₁=1500rpm

T_A=720N · m

Driven machine(belt conveyor):

P₂=66KW

n₂=26rpm

service duration: 12h/day

Start-up: 10times/hour

Working circle ED=100% per hour

Ambient temperature: 30°C

installed in open field

Altitude: 500m

Right-angled shaft

Mounting mode: Horizontal

Shaft arrangement: C

Selecting steps:

1.Calculate ratio:

$$i = n_1/n_2 = 1500/26 = 57.7 \quad i_N = 56$$

2.Determine nominal power:

$$P_{1N} \geq P_1 \cdot f_1 \cdot f_2 = P_2 \cdot f_1 \cdot f_2 / \eta$$

$$= 66 \times 1.3 \times 1/0.94 = 91.3 \text{ kW}$$

Choose B3, size: 9, P_{1N}: 96kW

Verify: $3.33 \times P_1 \geq P_{1N}$

$$3.33 \times P_1 = 3.33 \times P_2 / \eta = 3.33 \times 66 / 0.94$$

$$= 233.8 \text{ kW} > P_{1N}$$

3.Verify peak torque:

$$P_{IN} \geq T_A \cdot n_1 \cdot f_3 / 9550$$

$$= 720 \times 1500 \times 0.65 / 9550 = 73.5 \text{ kW}$$

P_{1N}=96kW>73.5kW Meet requirement.

HB

4.Verify thermal capacity:

$$PG_1 \times f_4 \times f_6 \times f_8 \times f_9$$

$$= 70.7 \text{ kW} \times 0.88 \times 1 \times 1 \times (1.23 - 2.80 \times 0.085 \times 0.15)$$

$$= 74.3 \text{ kW}$$

$$P_1 = P_2 / \eta = 66 \text{ kW} / 0.94 = 70.2 < 74.3 \text{ kW}$$

So auxiliary cooling device is unnecessary.

TYPE: B3SH9-56-C