

TBVF Series Explosion-proof Three-phase Permanent Magnet Synchronous Variable Frequency Motor for Mining



Product Overview

Permanent magnet synchronous frequency conversion intelligent direct drive system is composed of permanent magnet synchronous motor and synchronous frequency converter. Permanent magnet synchronous motor replaces the asynchronous motor, reducer and hydraulic coupling of traditional drive system, directly drives the load, and realizes stepless speed regulation through synchronous frequency converter. The system has the characteristics of high efficiency, energy saving, low noise, low speed and high torque, maintenance free, large starting torque and stable operation. Permanent magnet synchronous frequency conversion intelligent direct drive system is applicable to belt conveyor, crusher, ball mill, automated warehouse and other mechanical equipment. It can be used as a power input mechanism in coal mine, mine, wharf, building materials, machinery industry, power plant, warehouse, food and other industries.

Performance Characteristics

a. Improve the transmission efficiency and reduce the waste of electric energy

The transmission efficiency of the traditional drive system is less than 70%, and the energy consumption of Y-series asynchronous motor is only international IE1 level (equivalent to national level 3 energy consumption). The transmission efficiency of the permanent magnet system is about 93%, the energy consumption of the permanent magnet synchronous motor reaches international IE4 level (higher than the national first-class energy consumption standard), and the comprehensive energy-saving rate is more than 20% higher than that of the traditional drive system.

b. Realize soft start and maintenance free

The system uses the frequency converter to control the start, which can realize the slow and uniform start of the system transmission, avoid the impact on the power grid due to the instantaneous large current when motor starts and the mechanical impact e on the transmission system due to the instantaneous sharp increase of torque, so as to reduce the power grid fault and mechanical fault of the system. Compared with the traditional driving mode, the dynamic safety factor of the system is higher under the same conditions. It can effectively improve the overall operation safety of belt conveyor.

Maintenance free: the permanent magnet synchronous motor adopts the mounting mode of directly connecting to the transmission roller removing the mechanical transmission equipment in the middle, which greatly reduces the probability of failure, thus greatly reduces the maintenance cost and basically maintenance free.

c. Achieve power balance

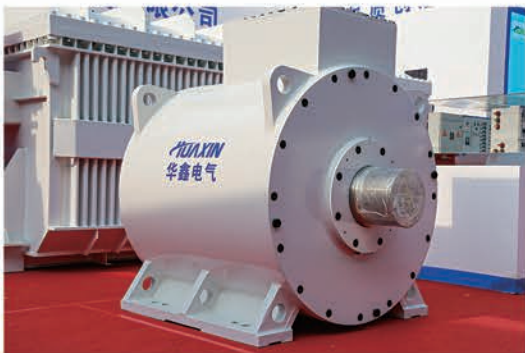
When the system is driven by multi-motor control, the power balance can be realized, and the motor damage caused

by multi-motor output imbalance can be avoided, so as to improve the service life of the motor.

d. Good heavy load starting effect and large starting torque

The permanent magnet synchronous motor of the system can constantly output the starting torque of more than 2.2 times of the rated load torque, while the starting torque of the asynchronous motor used in the traditional drive system under the same power condition is 55% of the rated load, which can not meet the normal starting of the system. On the other hand, if the system need to be started with a traditional motor, the capacity of induction motor needs to be increased to meet the starting torque. After the system operates normally, the motor is like a big horse to drag a small cart. The permanent magnet synchronous motor can avoid above situation.

e. Low noise and high power density



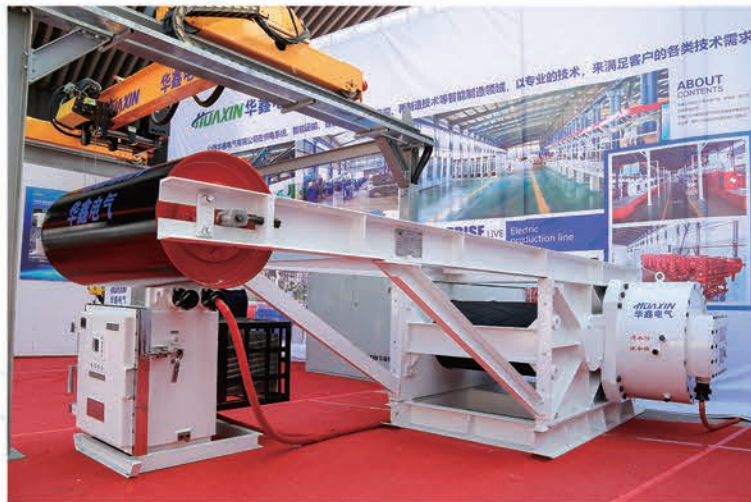
Technical Parameters

Specification and model	Rated power kW	Rated voltage V	Rated current A	Rated torque N.m	Rated speed r/min	Efficiency %	Power factor
TBVF-55/24YC(660/1140)	55	660/1140	56/33	5836	90	94	0.95
TBVF-75/24YC(660/1140)	75	660/1140	77/45	7958	90	94	0.95
TBVF-90/32YC(660/1140)	90	660/1140	95/54	9550	90	94	0.95
TBVF-110/32YC(660/1140)	110	660/1140	116/66	11672	90	95	0.95
TBVF-132/32YC(660/1140)	132	660/1140	140/79	14006	90	95	0.95
TBVF-160/32YC(660/1140)	160	660/1140	169/96	16978	90	96	0.96
TBVF-200/32YC(660/1140)	200	660/1140	211/120	21222	90	96	0.96
TBVF-220/32YC(660/1140)	220	660/1140	232/131	23344	90	96	0.96
TBVF-250/32YC(660/1140)	250	660/1140	264/149	26528	90	96	0.96
TBVF-315/32YC(660/1140)	315	660/1140	332/188	33425	90	96	0.96
TBVF-355/40YC(660/1140)	355	660/1140	349/212	45203	75	95	0.96
TBVF-400/40YC(660/1140)	400	660/1140	394/239	50933	75	95	0.96
TBVF-450/40YC(660/1140)	450	660/1140	443/269	57300	75	95	0.96
TBVF-500/60YC(660/1140)	500	660/1140	492/298	63667	75	95	0.96
TBVF-560/60YC(660/1140)	560	660/1140	591/334	71307	75	95	0.96
TBVF-630/60YC(660/1140)	630	660/1140	620/376	80220	75	95	0.96
TBVF-710/60YC(1140)	710	1140	480	84800	80	95	0.96
TBVF-800/60YC(1140)	800	1140	540	95500	80	95	0.96
TBVF-900/60YC(1140)	900	1140	610	107500	80	95	0.96
TBVF-1000/60YC(1140)	1000	1140	670	120000	80	95	0.96
TBVF-710/80YC(1140)	710	1140	480	84800	80	95	0.96
TBVF-800/80YC(1140)	800	1140	540	95500	80	95	0.96
TBVF-900/80YC(1140)	900	1140	610	107500	80	95	0.96
TBVF-1000/80YC(1140)	1000	1140	670	120000	80	95	0.96

Specification and model	Speed regulation range r/min	Number of poles	IP code	Explosion proof sign	Insulation class	Cooling mode	Duty type	Total weight kg
TBVF-55/24YC(660/1140)	0~90	24	IP55	EXDIMb	H	IC46W	S1	1320
TBVF-75/24YC(660/1140)	0~90	24	IP55	EXDIMb	H	IC46W	S1	1950
TBVF-90/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	2100
TBVF-110/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	2400
TBVF-132/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	2700
TBVF-160/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	3400
TBVF-200/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	3600
TBVF-220/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	3800
TBVF-250/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	4100
TBVF-315/32YC(660/1140)	0~90	32	IP55	EXDIMb	H	IC46W	S1	6140
TBVF-355/40YC(660/1140)	0~75	40	IP55	EXDIMb	H	IC46W	S1	6300
TBVF-400/40YC(660/1140)	0~75	40	IP55	EXDIMb	H	IC46W	S1	6900
TBVF-450/40YC(660/1140)	0~75	40	IP55	EXDIMb	H	IC46W	S1	7400
TBVF-500/60YC(660/1140)	0~75	60	IP55	EXDIMb	H	IC46W	S1	8000
TBVF-560/60YC(660/1140)	0~75	60	IP55	EXDIMb	H	IC46W	S1	8900
TBVF-630/60YC(660/1140)	0~75	60	IP55	EXDIMb	H	IC46W	S1	9900
TBVF-710/60YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	11000
TBVF-800/60YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	12000
TBVF-900/60YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	13000
TBVF-1000/60YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	14000
TBVF-710/80YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	11000
TBVF-800/80YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	12000
TBVF-900/80YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	13000
TBVF-1000/80YC(1140)	0~80	60	IP55	EXDIMb	H	IC46W	S1	14000

Application Field

The permanent magnet synchronous motor is equipped with frequency converter to form a frequency conversion intelligent direct drive system, which is suitable for belt conveyor, crusher, ball mill, automated warehouse, etc. It can be used as a power input mechanism in coal mine, mine, wharf, warehouse, food and other industries.



TBVF Series Explosion-proof Permanent Magnet Synchronous Variable Frequency Motor for Mining



Product Overview

The explosion-proof permanent magnet synchronous variable frequency motor for mining is a new type of overhead passenger device drive system product independently developed and produced by Huaxin, which takes the permanent magnet variable frequency technology as the core technology. Compared with the traditional drive system device, the permanent magnet direct drive system has many advantages, such as low speed, energy saving, low noise, large torque, high transmission efficiency, stable operation, compact structure, small occupied space and so on. It is also suitable for working under various harsh working conditions. It is an ideal driving device for overhead passenger equipment at present.

Performance Characteristics

a. Improve the transmission efficiency and reduce the waste of electric energy

The transmission efficiency of the traditional drive system is less than 70%, and the energy consumption of Y-series asynchronous motor is only international IE1 level (equivalent to national level 3 energy consumption). The transmission efficiency of the permanent magnet system is about 93%, the energy consumption of the permanent magnet synchronous motor reaches international IE4 level (higher than the national first-class energy consumption standard), and the comprehensive energy-saving rate is more than 20% higher than that of the traditional drive system.

b. Realize soft start and maintenance free

The system uses the frequency converter to control the start, which can realize the slow and uniform start of the system transmission, avoid the impact on the power grid due to the instantaneous large current when motor starts and the mechanical impact on the transmission system due to the instantaneous sharp increase of torque, so as to reduce the power grid fault and mechanical fault of the system. Compared with the traditional driving mode, the dynamic safety factor of the system is higher under the same conditions. It effectively improves the overall operational safety of overhead passenger devices in coal mines.

Maintenance free: the permanent magnet synchronous motor adopts the mounting mode of directly connecting to the transmission roller removing the mechanical transmission equipment in the middle, which greatly reduces the probability of failure, thus greatly reduces the maintenance cost and basically maintenance free.

c. Large starting torque

The permanent magnet synchronous motor of the system can constantly output the starting torque of more than 2.2 times of the rated load torque, while the starting torque of the asynchronous motor used in the traditional drive system under the same power condition is 55% of the rated load, which can not meet the normal starting of the system. On the other hand, if the system need to be started with a traditional motor, the capacity of induction motor needs to be increased to meet the starting torque. After the system operates normally, the motor is like a big horse to a small cart. The permanent magnet synchronous motor can avoid above situation.

d. Low noise and high power density