V SERIES INVERTER TYPE

Inverter Type

V Series for BFD for BFB

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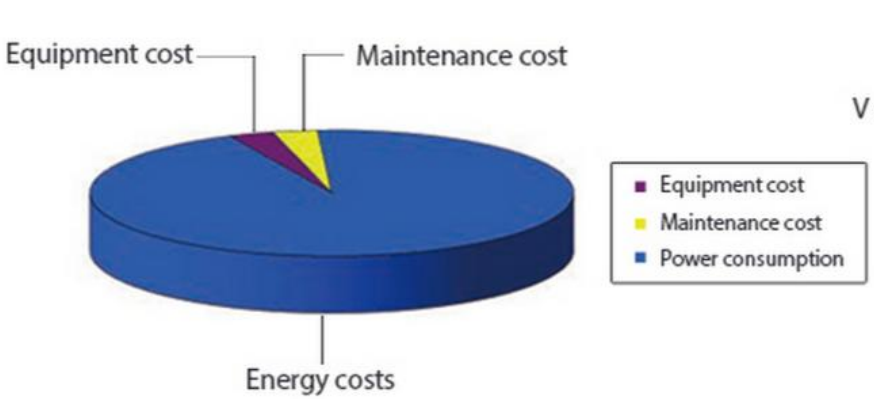
Automatically Adjusted Variable Speed Control

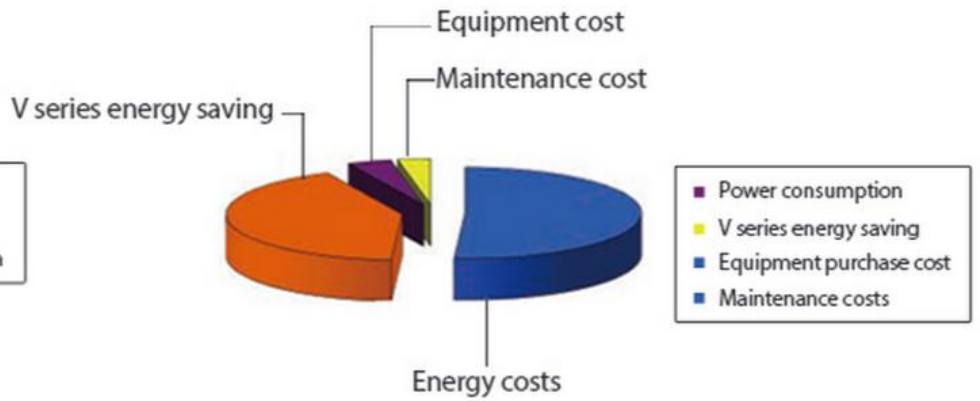
The advantage of inverter type screw air compressor is energy saving, and it is more efficient when producing big volume of compressed air. Among whole compressed air cost, 60 % is power consumption cost. And the electricity cost of compressed air production is more than 40% of whole electricity cost of a factory. The demand of compressed air is varied every time, and the fluctuation rate is 40 to 80 %. With application of inverter control system, the compressed air can be produced at accurate volume according to the demand. When air consumption is less, then the delivery of air is also reduced, and this leads less energy consumption. The point is to change the frequency of electric source for reducing energy consumption when unloading, thus it minimizes the energy consumption.

Principle of Inverter Control Air Compressor

The client system pressure of air compressor is used for control. The inverter, pressure sensor, and the variable speed motor are formed the closed loop system for the inverter control. The pressure for system conversion can be set up directly on the operation panel, and the system pressure can be detected and transferred to controller as micro current of 4 to 20 μA. This micro current is calculated for PID control, and compared with the set pressure for system conversion, thus the inverter output frequency is determined. The main motor revolution speed is variable and the air production volume can be matched to the demand. Hence it realizes both the constant compressed air volume and energy saving.

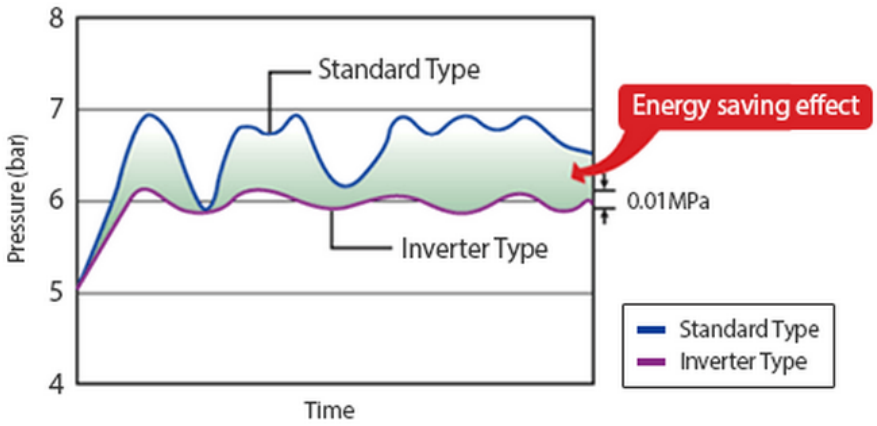
Five-year lifespan Total Cost Comparison





Through constant pressure control, it can be approached rapidly for the demand of air volume and the pressure.

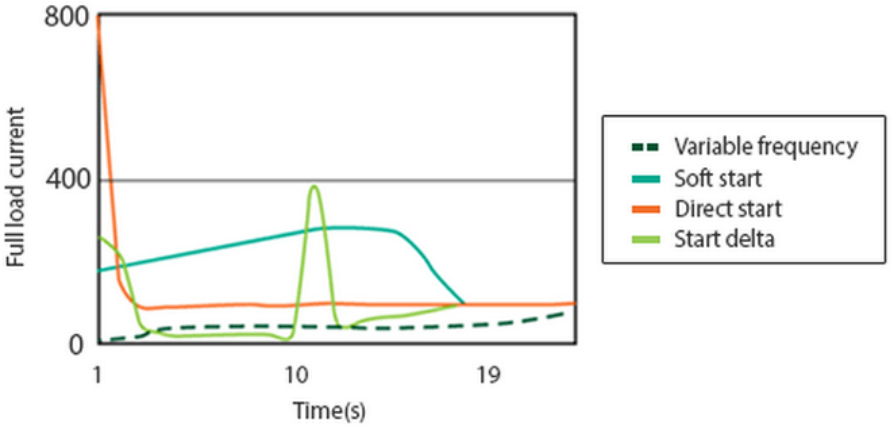
- **energy saving comparison between standard type and inverter type**



Since it can control the pressure of the variable range under 0.01 MPa, it can obtain the highest efficiency among various energy saving methods.

Variable frequency soft start, No current peak phenomenon

- **No peak current**



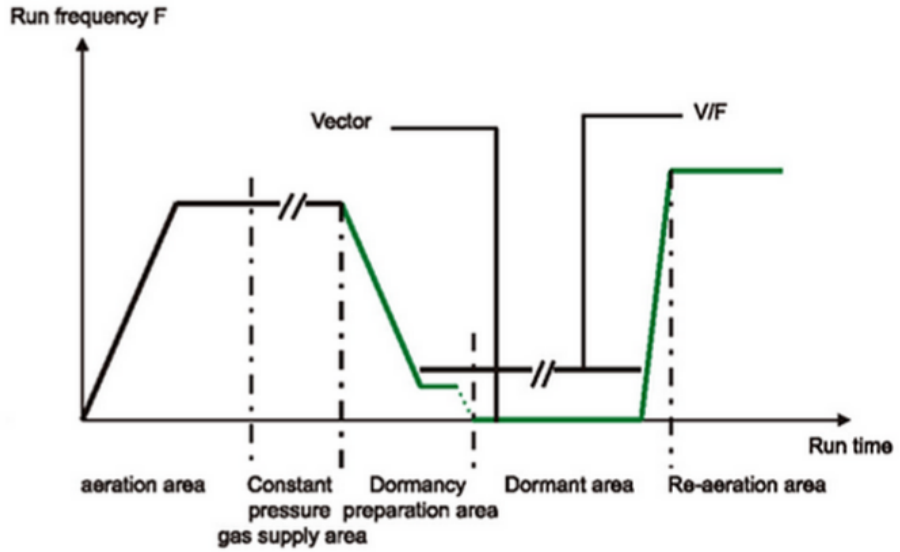
The variable frequency soft start method eliminates the peak current of starting, which is able to prevent the shock impact on the power grid. Through the gradual speed adjustment, it can prevent the current shock and improve the flexibility of power supply.

Optional Function : Switching from Variable Frequency to Power Frequency

There is a spare starter for power frequency. When the inverter system is failed, then the starter is automatically switched to the power frequency mode so that it does not affect the production rate of compressed air.

High Performance Of Vector Control

The characteristics of real current vector control inverter are low starting torque and little running current. Compared to variable frequency (V/F) control, relatively big torque can be obtained even the current is low. Inverter has pause function, when the air consumption is little, the compressor can be stopped and restarted automatically to achieve maximum saving of power source. This is possible to make pause instead of long term operation with lower limit frequency. We have applied the vector control technology to operate the BUMATEC compressor with extremely wide range of speed adjusting, so that the motor temperature rising can be controlled as minimum and the operation can be done very calmly with proper torque. The technology of vector control is to control magnetic flux component and torque component respectively from stator current, and then it combines the vectors and converts to control signal parameter for effective control of electromagnetic torque. Motor temperature can be controlled even low speed revolution caused current control. For the model of power 18.5 kW or bigger one, the built-in DC current reactor restrains RF and harmonic interference, and provides better protection functions for users, i.e., voltage, current, temperature, ground and shot circuit.



V Series Inverter Type Specification

Model	Motor Power		Flow Meter	Pressure	Lub Oil	Outlet Diameter	Dimension	Weight
	(kW)	(HP)	(m³/ min)	(bar)	(ℓ)		L x W x H (mm)	(Kg)
BGV 11	11	15	0.4-2.0	7	8	G3/4"	800×695×830	210
			0.32-1.6	8				
			0.28-1.42	10				
BGV 15	15	20	0.5-2.5	7	10		1150×800×1100	360

Model	Motor Power		Flow Meter	Pressure	Lub Oil	Outlet Diameter	Dimension	Weight
	(kW)	(HP)	(m³/ min)	(bar)	(ℓ)		L x W x H (mm)	(Kg)
			0.46-2.3	8				
			0.4-2.0	10				
BGV 18.5	18.5	25	0.62-3.1	7				400
			0.58-2.9	8				
			0.52-2.6	10				
BGV 22	22	30	0.76-3.8	7	12	G1"	1270×860×1250	550
			0.72-3.6	8				
			0.6-3.0	10				
BGV 30	30	40	1.04-5.2	7	20	G1-1/2"	1550×950×1380	680
			1.0-5.0	8				
			0.9-4.5	10				
BGV 37	37	50	1.3-6.5	7				800
			1.24-6.2	8				
			1.14-5.7	10				
BGV 45	45	60	1.6-8.0	7				960
			1.5-7.5	8				
			1.38-6.9	10				
BGV 55	55	75	2.06-10.3	7	40	G2"	1700×1100×1520	1600
			1.92-9.6	8				
			1.74-8.7	10				
BGV 75	75	100	2.7-13.5	7	50		2100×1200×1620	1900
			2.5-12.5	8				

Model	Motor Power		Flow Meter	Pressure	Lub Oil	Outlet Diameter	Dimension	Weight
	(kW)	(HP)	(m^3/ min)	(bar)	(ℓ)		L x W x H (mm)	(Kg)
			2.24-11.2	10				
BGV 90	90	125	3.26-16.3	7	60	DN50	2200×1250×1650	
			3.16-15.9	8				
			2.8-14.0	10				
BGV 110	110	150	4.2-21.0	7	75	DN65	2500×1500×1950	2800
			4.0-20.0	8				
			3.4-17.0	10				
BGV 132	132	180	4.7-23.5	7				
			4.5-22.5	8				
			4.2-21.0	10				
BGV 160	160	220	5.6-28.0	7	85	DN80	2800×1560×1920	3500
			5.4-27.0	8				
			5.0-25.0	10				
BGV 185	185	250	6.4-32.0	7				4000
			6.0-30.0	8				
			5.56-27.8	10				
BGV 250	250	340	8.7-43.5	7	100	DN100	3360×2000×2000	5000
			8.36-41.8	8				
			7.6-38.0	10				

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