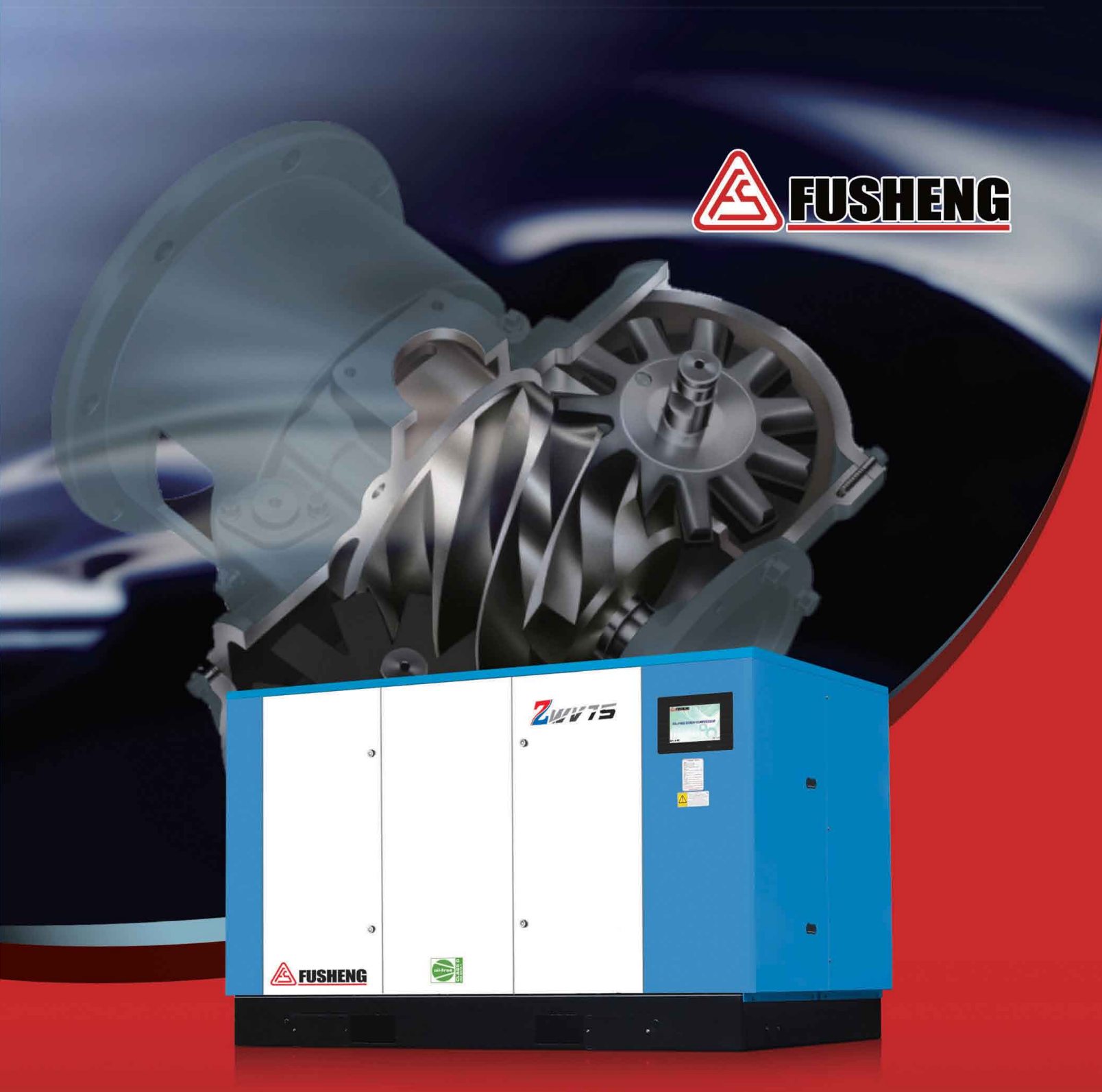
FUSHENG



ZW/ZWV Series
Oil-Free Screw Compressor

NEW PERSPECTIVES OF THE ACTUATION OF ENVIRONMENTAL PROTECTION

ZW-series air compressors provide clean, quality oil-less compressed air by applying water lubrication method for compression process.

100% OIL-FREE COMPRESSED AIR

Certified in compliance with ISO 8573-1
2010 TÜV NO.3080686

Features of FuSheng "intelligent" compressor controller

1. 7" LCD full color,touch panel,user interface for simple and convenient operation.
2. Mulitiple link control available,no link panel required,meeting various demand from customers.
3. Power saving / Local / Remote / Auto / Manual multiple operating modes.
4. Real time alarm and warning display for full control of various conditions.
5. Actively power saving and protect design for high efficiency power saving and loading control.
6. Control system functions

- Status display
- Alarm function
- System time parameters
- System maintenance
- Shutdown protection
- Failure time record
- Control fuction
- System parameters inquiry

High Efficiency:

ZW-series lubricant water has three functions:

- It serves as sealant, coolant and lubricant.
- Sealing function reduces/seals "blow hole" between rotors and housing to absolute minimum, ensuring efficient compression with delivered air volume per horse power increased by 15% as compared to general dry-type screw units.
- Lubricant water also very effectively absorbs and dissipates heat generated during compression process.

High Reliability:

- ZW-series applies rotary single screw air-end. By being in market ever since 1982, it has undergone practical operating for over 30 years. All of its air quality, power saving and high reliability features have turned out to be state of the art in design and performance. Air and water are becoming a major trend in compressor market due to their high compatibility, availability, reliability and environment friendliness.

Long Interval Maintenance Periods:

- Nearly ideal isothermal compression, direct drive method, smart configuration and precision component design and machining, long bearing service life; all of the above essentially extends intervals between regular periodical maintenance.

Instrument Air

Highly Efficient Air Supply

"All-in-one": simple installation, high quality and low total cost investment

Medical Air Supply

100% Oil-free clean air

Small number of component parts and consumable material

Low maintenance cost

Fu Sheng products

Quick and good service

Water Lubricated Oil-free Air Compressor application industries:

- Drying
- Agitation
- Air blowing
- Painting dressing
- Chemical analysis
- Instrument control
- Bacteria cultivation
- Petrochemical industry
- Steel and Hi-tech industries
- Food and Chemical industries
- Powdered substance conveyance
- Papermaking and Textile industries
- Electronics and Appliance industries
- Pharmaceutical and Medical industries

Dry air:

Lubricant water has low viscosity, which enables water and air to separate easily. Water content can be separated preliminarily within the water-air tank. Compressed air has a relative humidity of 100% and, if equipped with a dryer, can be dried up without installing a water discharge device in the pipeline.

Low noise design:

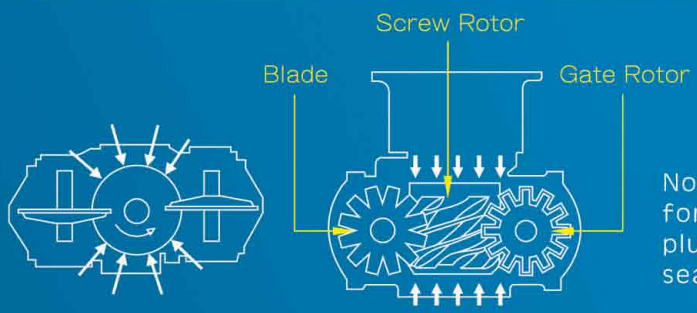
The air-sealing effect of water lubrication can reduce the compressor rotation speed, and have the structure of compressing chamber realize the design of force balance. The installation of an additional set of new-type soundproof enclosures reduces noise obviously.

Environmental protection:

1. Proper materials and treatment are applied to the air compressor and other fittings to prevent corrosion. Advanced materials such as ceramics and carbon fiber are used for the compression chamber gaskets. Admixture filtering and auto-change of lubricating water by a high performance precision water filter ensures clean,quality lubricant water.

2. Built-in sacrifical anode
   - Reduce and inhibit line scale and corrosion.
   - Prevent bacteria algae and slime.

NEW PERSPECTIVES OF THE ACTUATION OF ENVIRONMENTAL PROTECTION



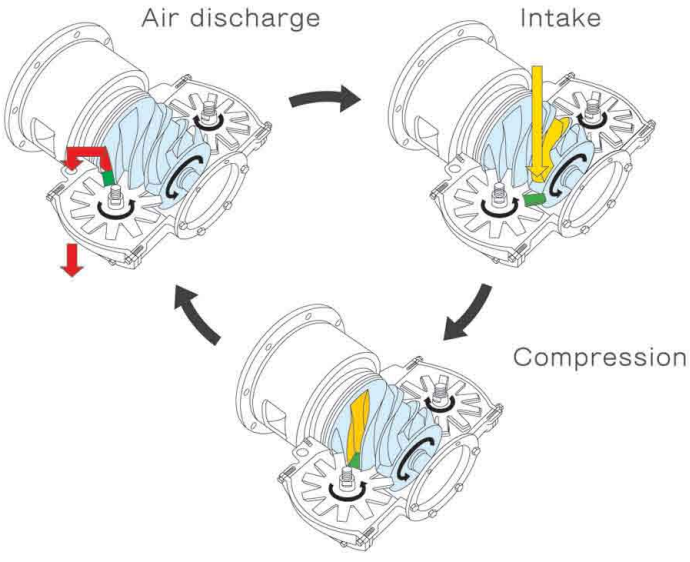
No axial force on the rotors, while nearby acting forces work in a state of equilibrium. These features plus the design of floating gate rotor lead to air sealing and enhance its reliability.

Near isothermal compression:

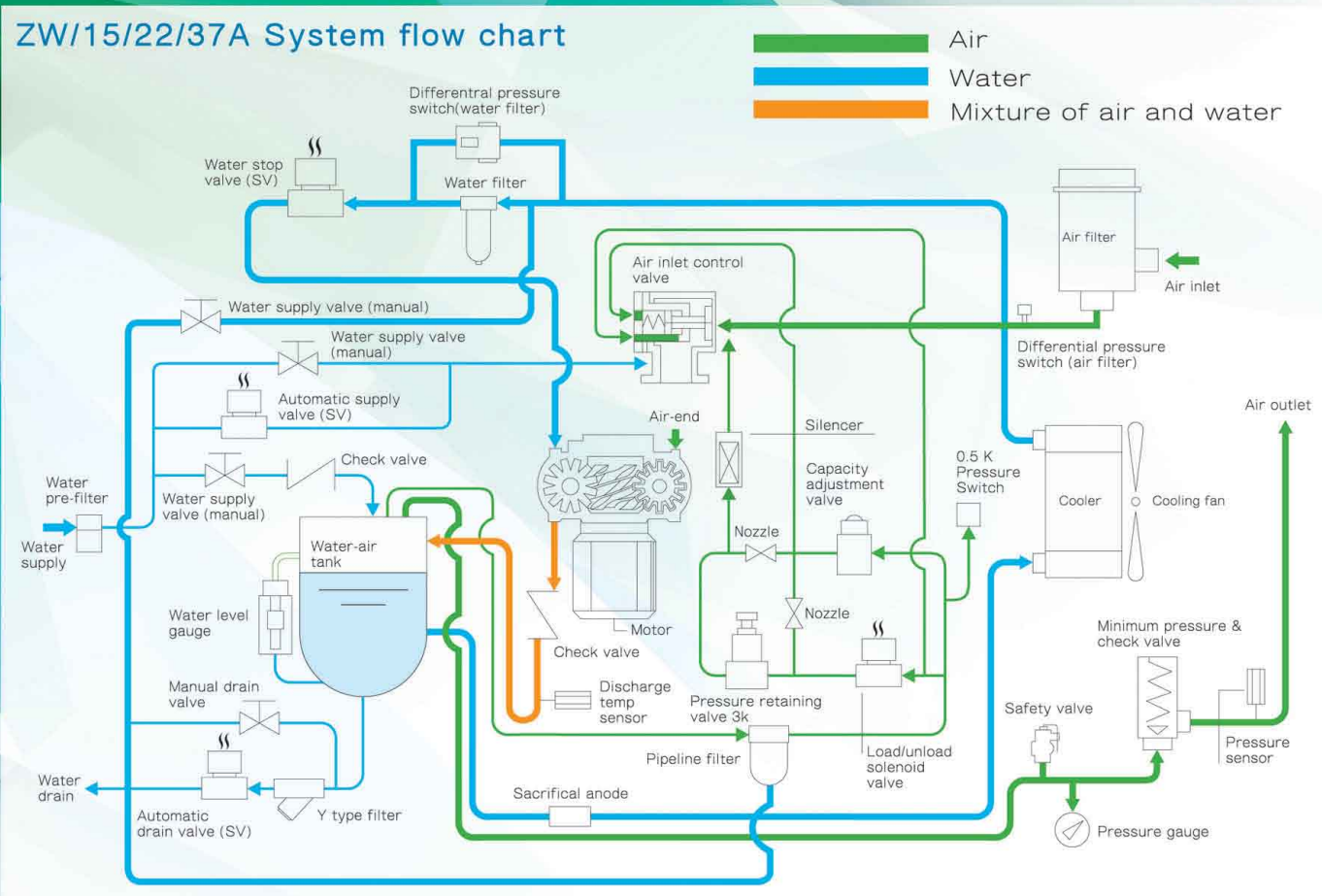
Thermal energy and water film, arising from the compressed air cooled by the lubricant water that has been injected into the compression chamber, seals up rotor gaps to prevent air back flow. The ideal isothermal compression thus achieves optimum efficiency. Theoretically, when air at 20℃ is compressed to 7kg/cm2G in a thermal insulation process, the discharge air temperature will be over 250℃. Injection of lubricating water that has a cooling effect, into the compression chamber will bring the temperature down to about 40℃, achieving high efficiency ideal isothermal compression.

Oil-Free System Structure:

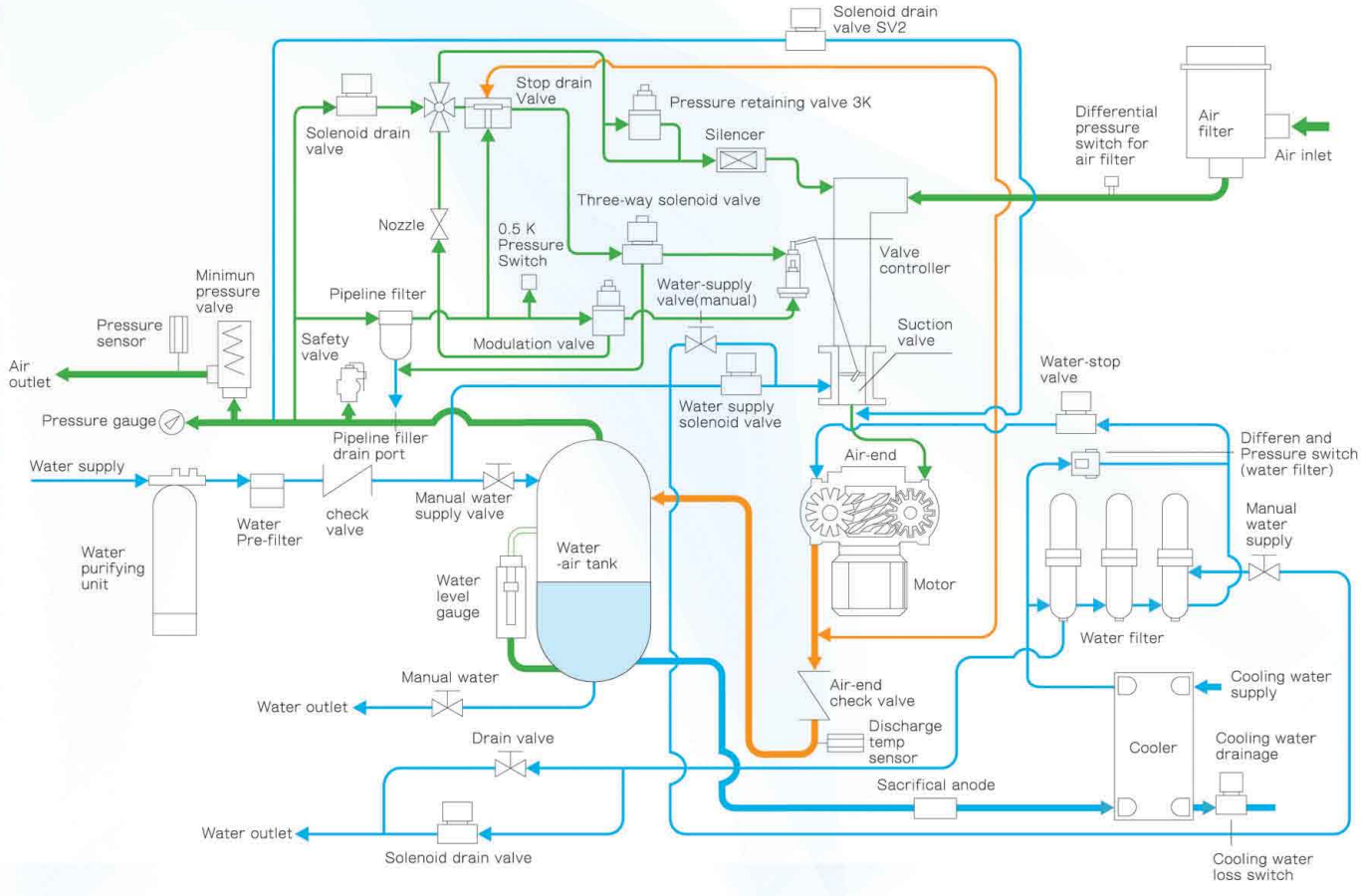
In conjunction with the wear-resistant flat bearing, high performance ceramic bearings constitute a big air chamber between the mechanical bearing seal and the bearing to keep the compression chamber clean, and avoid the influence of compression chamber water & air and vacuum pressure on the bearing. This increases reliability.



ZW/15/22/37A System flow chart



ZW/90/100/120W System flow chart



ZW(V)-series features

Fusheng inverter control unit

- Microprocessor intelligent control.
- Working pressure is constantly sustained within ± 0.1kg/cm^2.
- Digital LC Display, easy and convenient operating.
- Complete protection functions capability.

Next to electrical power saving VSD compressor unit also ensures:

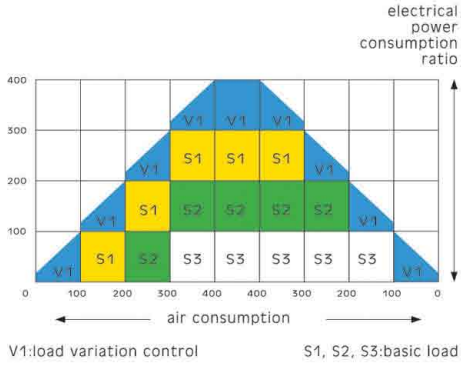
- Stable, constantly compressed air.
- Electrical motor power factor improved.
- Reduced starting current.
- Elimination of high cut-in star delta current.
- Extended compressor unit service life.

Highly functional inverter unit and high efficiency inverter motor

- Utilizing high functional vectored inverter unit in combination with high efficiency inverter motor, increases motor power factor and saves up to 7% energy.
- Intelligent microprocessor control unit assure more efficiency and energy saving, as compared to open market accessible inverter compressors and induction motors.
- Frequency wide (50, 60Hz) operational range.

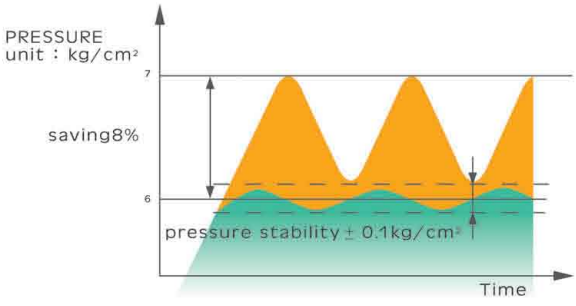
Compressed air system load control

- Regardless of how many traditional compressor unit operates in the compressed air system ; if one single VSD compressor unit is installed into system,it will improve efficiency of the system as much as 35%,contributing significantly to competitiveness of the production process.



Stable pressure compressed air system

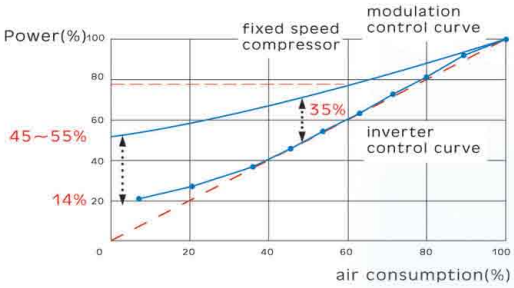
- Real time response to air demand fluctuations keeps working pressure constant within ± 0.1kg/cm^2.
- Saving up to 8% energy that is additionally required in traditional load/unload control compressor units due to pressure difference setting of 1kg/cm^2.



Oil-Free Screw Compressor

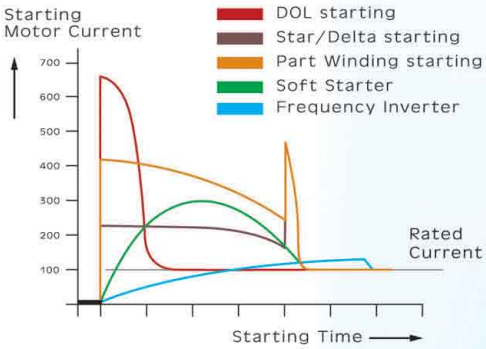
Linear operating and output

- Electrical power saving up to 35% as compared to traditional modulation control compressors.
- Linear inverter control output can be achieved, depending on the extent of load. (20~100%)



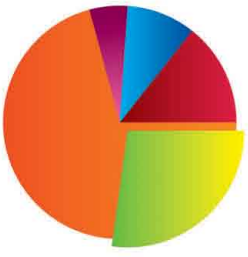
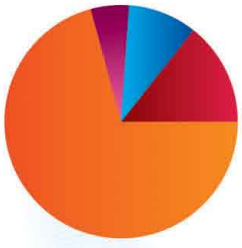
Inverter starting method/operating

- Decreases starting current.
- Eliminates star delta cut-in high voltage.
- Extends compressor unit service life.



VSD compressor unit saving benefits

- VSD compressor unit
- Standard compressor unit

Maintenance 5%
Installation 10%
Purchasing cost 15%
Energy consumption 70%

Saving 35% (end user benefit)

VSD compressor unit operating service life period can ensure operational cost savings as high as 35% .

ZW series

ZW155/156A/W (Ⅱ)

❶ ❷ ❸ ❹ ❺

❶ ZW-series ❷ KW ❸ Hz ❹ A=Air-cooled、W=Water-cooled ❺ Generation

Model		ZW155/156A (Ⅱ)		ZW225/226A (Ⅱ)		ZW375/376A (Ⅱ)		ZW375/376W (Ⅱ)	
Operating pressure	kg/cm²G	7.0							
Frequency	Hz	50	60	50	60	50	60	50	60
Voltage	Volt	380/415	220/380/440	380/415	220/380/440	380/415	220/380/440	380/415	220/380/440
Motor speed	rpm	3000	3600	3000	3600	3000	3600	3000	3600
F.A.D.	m³/min	2.3		3.5		6.0			
Air intake pressure & temperature		2-40℃ at atmospheric air pressure							
Discharge temperature	℃	≦Ambient temperature +24℃						≦Cooling water temperature +14℃	
Horsepower	HP	20		30		50			
Motor type		3Φ2P TEFC							
Start method		Y-△start							
Lubricating water volume	L	26		27		40		30	
Cooling water flow (32 C)	L/min	Fan cooling						125	
Drive method		Direct Coupling							
Air outlet piping	inch	1				1 1/4			
External dimensions	mm	1460x810x1500				7/9 kg/cm²G:1575x965x1630 8kg/cm²G:1700x1100x1730		1575x870x1100	
Net weight	kg	720		790		1000		790	

Model		ZW555/556W (Ⅱ)		ZW755/756W (Ⅱ)		ZW905/906W (Ⅱ)		ZW1005/1006W (Ⅱ)		ZW1205/1206W (Ⅱ)	
Operating pressure	kg/cm²G	7.0									
Frequency	Hz	50	60	50	60	50	60	50	60	50	60
Voltage	Volt	380/415	220/380/440	380/415	220/380/440	380/415	380/440	380/415	380/440	380/415	380/440
Motor speed	rpm	3000	3600	3000	3600	3000	3600	3000	3600	3000	3600
F.A.D.	m³/min	9.5		13.0		16.0	15.0	18.2	17.4	21.3	20.8
Air intake pressure & temperature		2-40℃ at atmospheric air pressure									
Discharge temperature	℃	≦Cooling water temperature +14℃									
Horsepower	HP	75		100		120		135		160	
Motor type		3Φ2P TEFC									
Start method		Y-△start									
Lubricating water volume	L	100				100					
Cooling water flow (32 C)	L/min	190		250		250		270		320	
Drive method		Direct Coupling									
Air outlet piping	inch	2				3 Flange					
External dimensions	mm	2290x1230x1450				2840x1630x1740					
Net weight	kg	1700		1850		2695		2745		2800	

ZWV series

ZWV37A/W

❶ ❷ ❸

❶ ZWV-VSD series ❷ KW ❸ A=Air-cooled、W=Water-cooled

Model		ZWV22A		ZWV37A		ZWV37W		ZWV75W		ZWV120W		ZWV160W	
Operating pressure	kg/cm²G	7.0											
Pressure control method		Inverter											
Frequency	Hz	50	60	50	60	50	60	50	60	50	60	50	60
Voltage	Volt	380/415	220/380/440	380/415	220/380/440	380/415	220/380/440	380/415	220/380/440	380/415	380/440	380/415	380/440
Motor speed	rpm	1440~3600											
F.A.D.	m³/min	3.5		6.0				13.0		20.8		25	
Air intake pressure & temperature		2-40℃ at atmospheric air pressure											
Discharge temperature	℃	≦Ambient temperature +24℃				≦Cooling water temperature +14℃							
Horsepower	KW/HP	22/30		37/50				75/100		120/160		150/200	
Motor type		3Φ2P TEFC											
Start method		Inverter											
Lubricating water volume	L	27		40		30		100					
Cooling water flow (32 C)	L/min	Fan cooling				125		250		320		365	
Drive method		Direct Coupling											
Air outlet piping	inch	1		1 1/4				2		3 Flange			
External dimensions	mm	1700x1100x1730				1700x1100x1400		2810x1230x1450		3430x1630x1740			
Net weight	kg	850		1100		1000		2100		3000		3600	

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