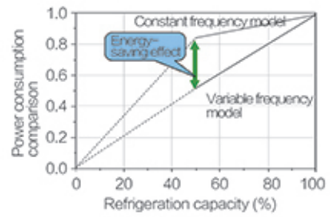
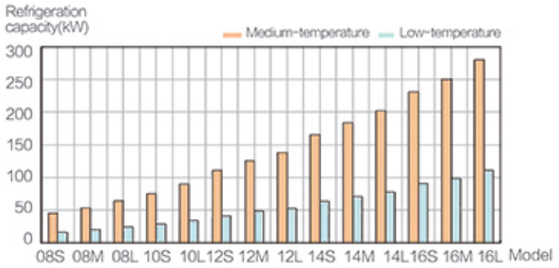
Energy saving analysis

Frequency conversion control



With vector frequency control, it can properly distribute motor rotational torque to improve energy efficiency and save up to 38 % energy under part load.

Refrigeration Capacity of the Unit



Notes: 1. Refrigeration volume measured under the conditions of the speed of 2,960rpm, economizer, R717 refrigerant and suction superheat of 5℃.
2. Nominal working conditions of the unit: -15° C/+35° C (medium-temperature) and -35℃/+35℃ (low-temperature).

Table of Technical Parameters

Item		Unit	08Series			10Series	
Compressor	Model		SRS-08S	SRS-08M	SRS-08L	SRS-10S	SRS-10L
	Theoretical flowing capacity	m^3/h	84	100	120	140	168
	Setting range		Stepless regulation/Step regulation			Stepless regulation/Step regulation	
	Motor Power	HP	20	25	30	40	50
	Power supply		3P、380V、50Hz			3P、380V、50Hz	
	R.P.M.	rpm	2960			2960	
Refrigerant			R717	R22	R507A	R717	R22	R507A	R717	R22	R507A	R717	R22	R507A	R717	R22	R507A
Capacity	Middle temperature condition	kW	45.0	48.3	52.7	53.7	57.4	63.0	64.0	68.4	74.3	75.2	80.5	92.5	89.8	95.9	107.8
	Low temperature condition	kW	16.6	21.0	23.5	20.6	25.5	28.2	24.6	30.5	33.5	28.8	35.7	41.3	34.5	42.8	48.7

Item		Unit	12Series			14Series	
Compressor	Model		SRS-12S	SRS-12M	SRS-12L	SRS-14S	SRS-14M
	Theoretical flowing capacity	m^3/h	210	230	250	310	340
	Setting range		Stepless regulation/Step regulation			Stepless regulation/Step regulation	
	Motor Power	HP	60	70	75	90	100
	Power supply		3P、380V、50Hz			3P、380V、50Hz	
	R.P.M.	rpm	2960			2960	
Refrigerant			R717	R22	R507A	R717	R22	R507A	R717	R22	R507A	R717	R22	R507A	R717	R22	R507A
Capacity	Middle temperature condition	kW	110.8	118.9	134.3	125.5	134.1	154.1	137.8	147.2	169.2	165.6	177.1	199.2	183.6	196.2	230.1
	Low temperature condition	kW	41.2	51.8	59.4	48.3	59.7	68.9	53.1	65.6	75.7	63.8	78.9	88.0	70.7	87.4	102.9

Item		Unit	14Series			16Series								
Compressor	Model		SRS-14L			SRS-16S			SRS-16M			SRS-16L		
	Theoretical flowing capacity	m^3/h	370			420			450			500		
	Setting range		Stepless regulation/Step regulation			Stepless regulation/Step regulation								
	Motor Power	HP	110			125			140			150		
	Power supply		3P、380V、50Hz			3P、380V、50Hz								
	R.P.M.	rpm	2960			2960								
Refrigerant			R717	R22	R507A	R717	R22	R507A	R717	R22	R507A	R717	R22	R507A
Capacity	Middle temperature condition	kW	201.8	215.7	252.9	230.6	246.1	275.1	249.6	266.3	266.3	280.1	298.8	319.2
	Low temperature condition	kW	77.7	96.1	113.1	90.9	111.0	125.5	98.4	120.1	120.1	110.5	134.8	142.8

Note: If customers need the compressors with exhaust volume of 554~850m^3/h (@2,960rpm), contact our company directly.

SRMTEC

Semi-hermetic single-stage
Variable-frequency Screw compressor unit

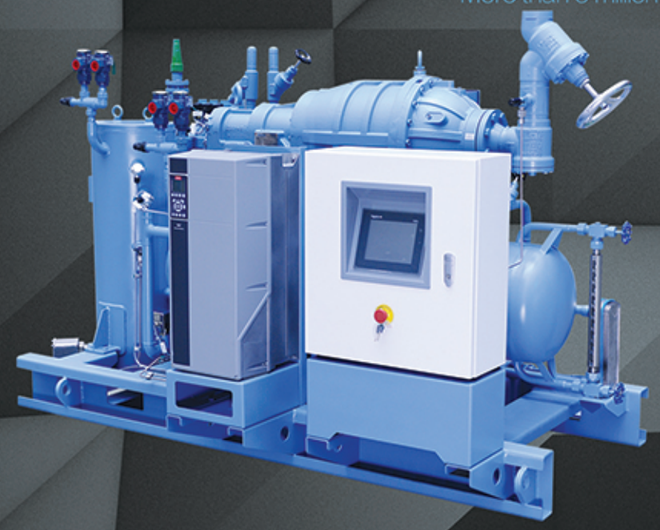
SRM Sweden
Wholly-owned subsidiary of Snowman

The inventor and leader of screw compressor
100-year legacy of technical quality & energy efficiency

100 YEARS OF ENERGY EFFICIENCY

Focus on screw technology for one hundred years

More than 3 million screw compressors all over the world are technologically licensed by SRM



SRMTEC

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Leading compressor in the world

- Semi-hermetic compressor, motor and compressor integration, compact structure, high efficiency, low filling capacity and no shaft seal leakage risks;
- SRM "i" type with patented molded line and 5+7 best tooth mesh combo achieving high efficiency and steady operation;
- Stepless or leveled energy regulation can be chosen according to the best economical results;
- Fixed Vi, extensive manual control or automatic regulation is chosen according to the best economical results;
- High-efficiency permanent magnet synchronous motor, with customized material, compatible with various refrigerants such as R717, R404A, R507A and R410A, can use fluorine and ammonia together(the fluorine motor may be an asynchronous motor);
- Rotor manufactured with quality forged steel is of high strength and wear resistance;
- Combined roller bearing of high precision and wear resistance has the design lifetime of 40,000h;
- High-strength shell design withstand the working pressure up to 2.8MPa; and special castings with low temperature resistance ensure steady operation under low-temperature conditions;
- Optimized design of suction gas ways achieves low suction resistance and sufficient cooling of motor; straight-through middle gas flue reduces the loss along the way; little exhaust throttling loss and low energy loss;
- Surrounding cooling with refrigerant oil and refrigerant spray is integrated into highly efficient double cooling, ensuring the long-time, stable and efficient motor operation.

Advanced control center

- User-friendly interface allows startup with one button, easy operation and intelligent control;
- Real-time monitoring of the unit. Touch screen capable of displaying system pressure, energy regulation load position, run time, operation mode, running statns, etc. in real time and capable of logging data;
- The center is equipped with a preventive safety system which ensures unattended operation to be safe and reliable;
- Automatic energy regulation allows the unit to operate effectively under different conditions;
- Automatic management of oil temperature limits the oil temperature to a certain range, ensuring the efficient and stable operation of the unit;
- Automatic pressure control ensuring the discharge pressure, suction pressure, etc. within the preset range;
- Remote operation, local operation and other operation modes are available to turn on and off the equipments.

Vector frequency converter

With SVPWM vector frequency conversion control, the unit is capable of adjusting the rotational speed according to the conditions, properly distributing motor rotation torque, and allowing energy-saving operation at a low cost.

Economizer

The unit is equipped with the economizer to realize the relatively large sub-cooling degree of high-pressure liquid from the condenser and improve the COP of the system.

Reliable precise elements

All the elements in the system are produced by well-known manufacturers of high reliability and quality.

Skid type design

Optimized structure design, highly integrated unit, small foot print, easyfor transportation & installation and short installation cycle.

Efficient oil supply system

- The oil separator utilizes the four-level oil separating system(impact, gravity, packing and efficient molecular sieve) rising oil separating efficiency up to 3 ~ 5 ppm, effectively reducing the lubricant that enters the refrigeration system and improving the operation efficiency.
- Equipped with efficient oil cooler. The cooling method can either be water cooling or refrigerant cooling;
- The lubrication system supplies oil by differential pressure and operates stably, simply and reliably.

Precise detachable filter

To keep the system clean, the unit is equipped with precise oil filter and precise intake filter for filtering the foreign matters introduced during the installation and operation of the refrigeration system, which ensures the efficient and stable operation of the unit. The filter is easy to use and maintain, and detachable for cleaning.

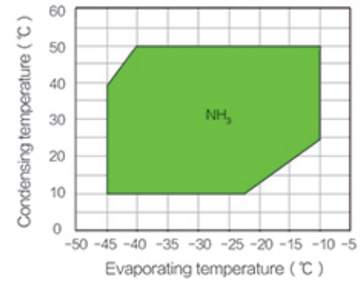
Application of unit

SRMTEC semi-hermetic single-stage screw compressor units offer 20 models in total, with the discharge volume of 84-850m³/h. The unit with the semi-hermetic single-stage compressor can be widely applied and is applicable with various natural refrigerants such as R717, R22, R507A, etc. The unit is composed of compressor, SVPWM vector frequency converter, control center, oil separator, oil cooler, economizer, precision filter, automatic control elements, etc.

Applicable conditions

Item	Range
Evaporating temperature (℃)	-45~-10
Discharge temperature (℃)	≤110
Oil supply temperature (℃)	40-65

Applicable temperature range



Normal condition

Medium temperature range: -15℃/35℃
Low temperature range: -35℃/35℃

Application

- Food industry

Dumplings, tangyuan, cooked wheaten food, fish balls, cooked food, margarine and other systems

- Aquatic product industry

Fish, shrimp, shellfish and other systems

- Dairy industry

Preservation and low-temperature drying of canned dairy products.

- Beverage industry

Coffee and ice cream refrigeration.

- Butchery and processing industry

Quick-freezing and cold storage of chicken, duck, pig, cattle, sheep, etc.

- Refrigerated logistics industry

Large, medium and small freezing storehouses, preservation storehouses and constant-temperature chemical storehouses.

- Chemical and pharmaceutical industries

Temperature control in chemical processes, freezing and dehydration of medicine and temperature control in pharmaceutical processes

- Construction industry

Block ice, flake ice, tube ice and ice engraving arts, artificial snow, skating rink, etc.

- Agriculture

Temperature control of biological environment, grain cooling, constant-temperature and constant-humidity storehouse, air-conditioned preservation storehouse and fruit accelerated maturation storehouse.