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RefComp

Screw Compressor

SW5L Series Semi-hermetic Screw Compressor

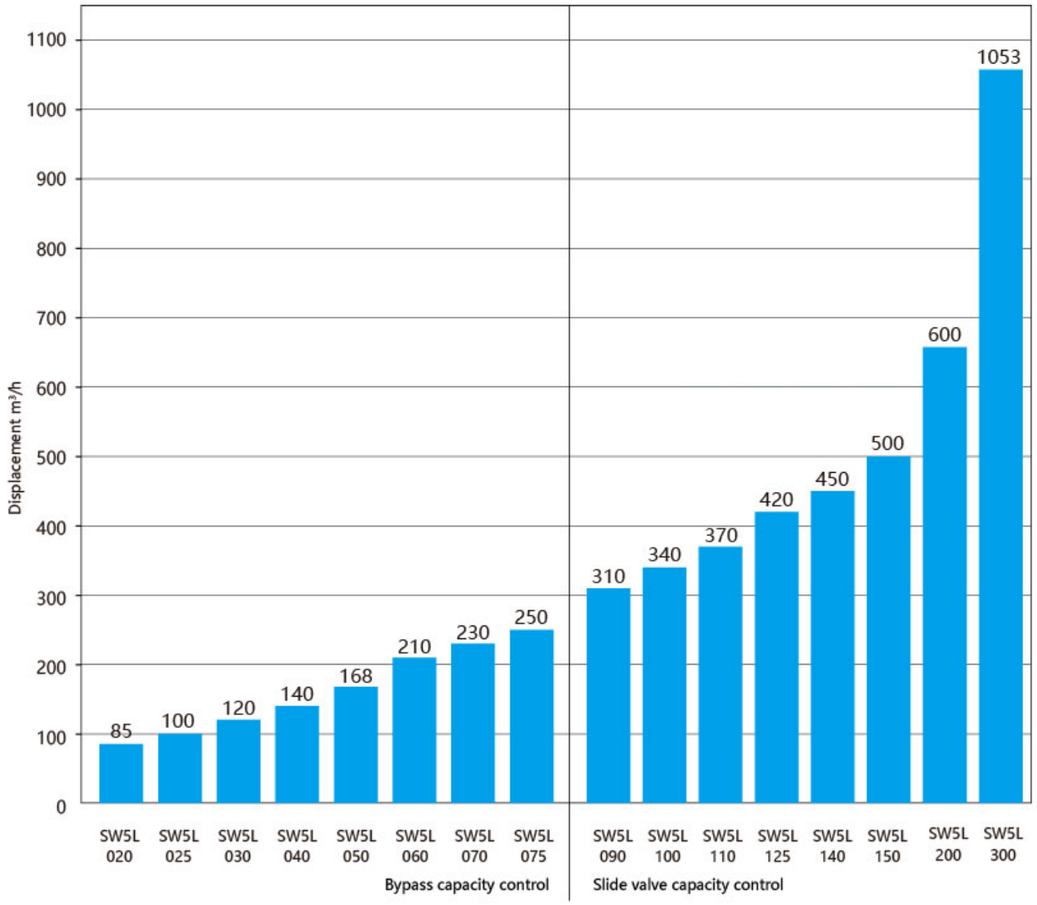
Global Service Hotline
400-109-6660

CONTENT

Product Profile

The SW5L series is the latest generation of semi-hermetic low temperature screw compressors, with a discharge range of 85-500m³/h (@2960rpm) power ranging from 20 to 150HP. Compatible with various green refrigerants including R507A, R404A, R448A and R449A, the series is widely used in ice storage projects, food processing and industrial freezing sectors. Ensuring the stable system and economical factors, the SW5L series is the ideal choice for applications that prioritize energy saving and emission reduction, as well as for commercial and industrial uses with high refrigeration quality requirements.

Discharge Volume Distribution Chart



Note: The discharge volume is the theoretical number based on a speed of 2960 rpm.

Product Features

Efficient Rotor Design

The SRM's latest rotor design offers superior efficiency and operational stability compared to existing designs, significantly enhancing the compressor's cooling efficiency.

High-Speed Variable Frequency Design

High-strength mechanical structure and high-precision bearings ensure the compressor operates efficiently and reliably at high speeds over the long term.

Adjustable Internal Volume Ratio

All necessary components for the oil circuit (from oil separator to compressor) are provided as standard supplies. Additionally, all matching oil separators and oil coolers are also available.

Low Vibration and Noise

Minimal vibration and no exhaust pulsation, hence no need for vibration dampers and flexible pipes.

High Efficiency and Easy Maintenance

By using an economizer (ECO) cycle that increases the refrigerant liquid's superheat, the cycle efficiency (COP) can be further improved;
Oil pressure-driven slide valve control allows the compressor to have high compression efficiency at partial loads.

Comprehensive Software and Documentation Support

For other refrigeration system component requirements, Refcomp offers optional configurations, including oil separators, oil coolers, and economizers.

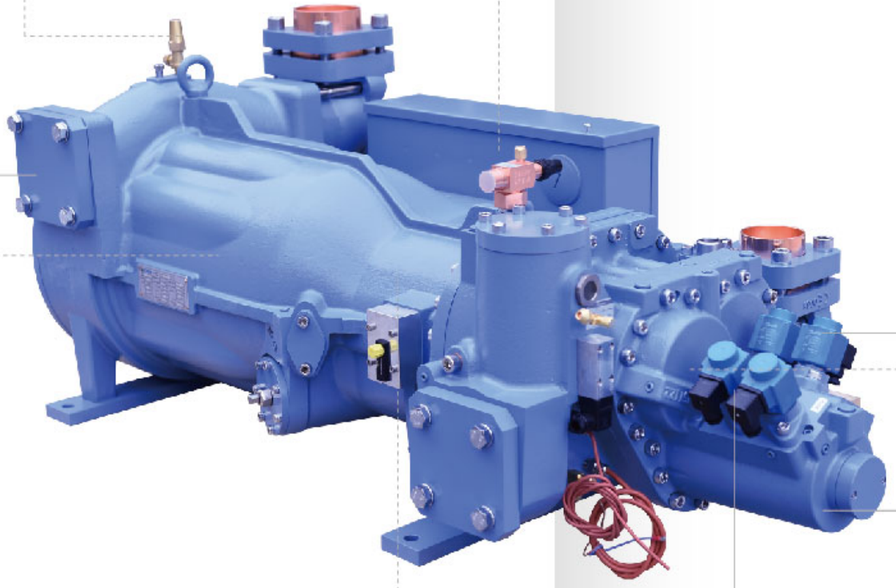
Structural Diagram

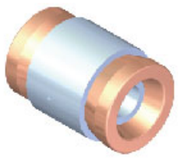
Compressor Body

- High-strength metal engine body, designed to withstand pressures up to 28 bar.
- Low-pressure drop intake air channel design minimizes intake resistance while ensuring adequate cooling of the motor.
- The central straight-through air channel design reduces friction losses and exhaust losses.
- Highly integrated with temperature, pressure sensors, oil flow switches, oil pressure differential switches, oil circuit shutoff valves, and other components, effectively enhancing the equipment's level of intelligence.
- The built-in oil circuit design, equipped with an external oil cooler interface, offers simple and convenient installation, and allows for a wider range of controllable oil thermal loads.

Suction filter

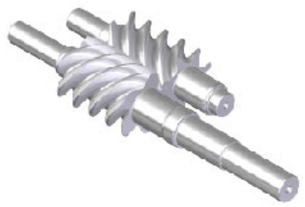
- Internal precision intake filter effectively filters out impurities from the refrigerant gas and protects the motor.
- Compact structure, easy to replace.





Motor

- Uses a partial winding or Y-Δ start, low starting current, and low operating energy consumption.
- Capable of being equipped with a variable frequency motor to achieve vector control.
- Special custom materials are compatible with a variety of refrigerants including R404A, R507A, R290, and R410A.



Rotor

- Equipped with cutting-edge SRM rotor profiles, excellent tooth ratio, effectively improving refrigeration efficiency.
- High rigidity screw rotors are coaxially designed with the motor rotor, ensuring stable operation of the compressor and a compact structure.
- The processing achieves micrometer precision, tight meshing, uniform force distribution, and a long service life.

Motor protection

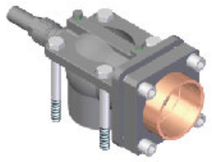
- Equipped with the INT69 SNY motor protection module and six series-connected PTC thermistors.
- Dynamic monitoring and tracking of system operation information to achieve predictable alerts and safety protection.

Cooling capacity control

- The refrigeration capacity can be adjusted according to the operating load, enabling stepped or variable capacity regulation (for SW5L090-150 series).
- SW5L020/025/030/040/050/060/070/075 models use bypass type refrigeration capacity control, while SW5L090/100/110/125/140/150 models use slide valve type refrigeration capacity control.

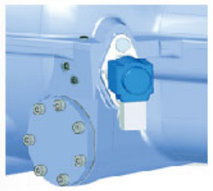
Bearings

- High wear-resistant multi-bearing combination that can withstand high loads and ensure a long service life.
- High wear-resistant rolling elements and special profile rolling paths, designed for a lifespan of 80,000 hours.



Shut-off valve

- Built-in discharge check valve, low resistance, effectively prevents refrigerant backflow when the machine is shut down.
- The stop valve is rotatable, easy to install, and flexible.
- Shut-off valves can be installed on both sides, offering more flexibility (for SW5L090-150 series).



VI (Volume ratios)

- The VI adjustable technology allows for manual or automatic adjustment, effectively improving efficiency under various operating conditions.

Models Description

Compressor	S	W	5	L	110

Type of compressor	
S	S- semi-hermetic compressor

Series	
W	W series compressor

Version	
5	5-The "5" version without internal oil separator.

Specification	
L	Motor of low temperature compressor

Rated power	
110	110HP, When the power is less than 100HP, add a zero before the code.

(1) The model number ending with the letter "E" indicates a compressor that uses POE oil.

Product Overview

SW5L020/025/030

SW5L040/050

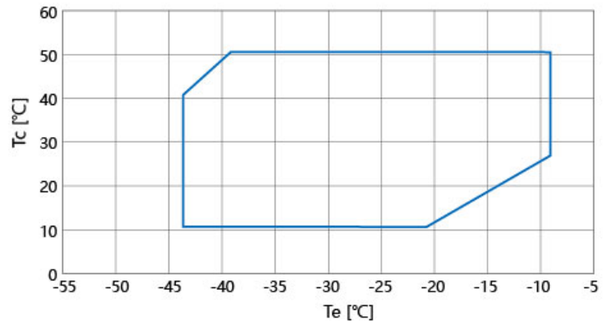
SW5L060/070/075

SW5L090/100/110

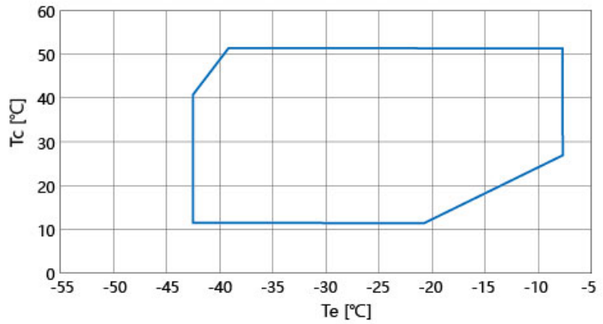
SW5L125/140/150

Application Range

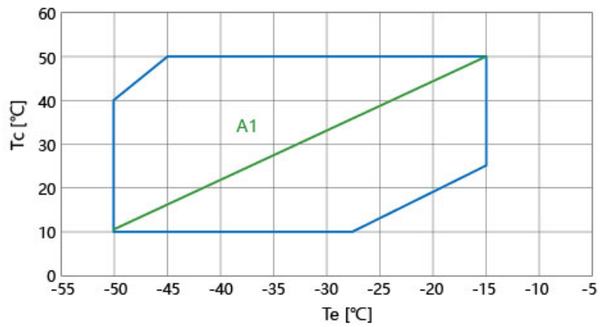
R448A



R449A



R404A/R507A



Operation at full load under 50Hz

10K suction superheat

A1 area = Oil cooler should be installed

Technical Parameters

SW5L Series Compressors		020	025	030	040	050	060	070	075
Motor Nominal Power	HP/kW	25/18.5	30/22	35 /26	40/30	50/37	60/45	70/52	75/55
Displacement 50/60[Hz]	m^3/h	85/102	100/120	120/144	140/168	168/202	210/252	230/276	250/300
Weight	kg	190	200	210	245	250	365	370	375
Inner diameter of discharge pipe Ø	mm / inch	42/ 1 5/8"	42/ 1 5/8"	42/ 1 5/8"	42/ 1 5/8"	42/ 1 5/8"	54/ 2 1/8"	54/ 2 1/8"	54/ 2 1/8"
Inner diameter of suction pipe Ø	mm / inch	54/ 2 1/8"	54/ 2 1/8"	54/ 2 1/8"	54/ 2 1/8"	54/ 2 1/8"	80/ 3 1/8"	80/ 3 1/8"	80/ 3 1/8"
Oil Line Connector	mm / inch	3/8"SAE					Ø22/M26×1.5		
Capacity Regulation		Step: Full Load - 75% - 50%							
Protection Module		INT69SNY							
Standard Motor(1)		400V/3/50Hz or 460V/3/60Hz							
PW Partial Winding Start Current	A	140/215	175/271	200/308	277/398	303/406	262/422	280/459	351/580
Star/Delta Start Current Star/Delta(2)	A	71/215	90/271	103/308	133/398	135/406	139/422	159/459	193/580
Maximum Operating Current(2)	A	42	49	59	70	80	105	120	135

SW5L Series Compressors		090	100	110	125	140	150	200	300
Motor Nominal Power	HP/kW	90/66	100/75	110/82	125/90	140/105	150/112	200/150	300/225
Displacement 50/60[Hz]	m^3/h	310/372	340/408	370/444	420/504	450/540	500/600	660/792	1053/1264
Weight	kg	505	510	515	680	690	700	1606.7	1100
Inner diameter of discharge pipe Ø	mm / inch	67/ 2 5/8"	67/ 2 5/8"	67/ 2 5/8"	80/ 3 1/8"	80/ 3 1/8"	80/ 3 1/8"	80/ 3 1/8"	104.8/ 3 1/8"
Inner diameter of suction pipe Ø	mm / inch	92/ 3 5/8"	92/ 3 5/8"	92/ 3 5/8"	104.8/ 4 1/8"	104.8/ 4 1/8"	104.8/ 4 1/8"	104.8/ 4 1/8"	134.8/Ø133
Oil Line Connector	mm	Ø22/M26×1.5						Ø33.7/1 3/16"	
Capacity Regulation		Graded: full load -75%-50%-25% Stepless: full load -25%						step: 100%-75%-50%-min% None :100%-min%	
Protection Module		INT69SNY						INT69SNY	
Standard Motor(1)		400V/3/50Hz or 460V/3/60Hz						400V/3/50Hz	
PW Partial Winding Start Current	A	539/795	600/885	635/953	584/876	770/1155	770/1155	483	833
Star/Delta Start Current Star/Delta(2)	A	265/795	295/885	318/953	276/876	354/1155	354/1155	1450	2500
Maximum Operating Current(2)	A	142	154	170	185	200	220	335	580

Note:
(1) Voltage allowable deviation range ±10%
(2) Based on Refcom selection software

Performance Parameters

SW5L	R404A/R507A					
	Te=-15℃; Tc=30℃			Te=-20℃; Tc=20℃		
	Q_0 [kW]	Pa [kW]	COP	Q_0 [kW]	Pa [kW]	COP
SW5L020	54.5	19.8	2.75	50.8	16.4	3.1
SW5L025	63.3	22.6	2.8	58.9	18.6	3.17
SW5L030	76.3	27	2.83	71.1	22.3	3.2
SW5L040	88.4	29.4	3	82.3	24.3	3.39
SW5L050	103 3	34.1	3.03	96.2	28.1	3.42
SW5L060	123.4	41.5	2.97	115	34.2	3.36
SW5L070	136.8	45.1	3.03	127.4	37.2	3.43
SW5L075	151.5	49.5	3.06	141.2	40.8	3.46
SW5L090	192.6	62.9	3.06	179.4	51.9	3.46
SW5L100	210.4	68.7	3.06	196	56.7	3.46
SW5L110	227.3	73.4	3.09	211.7	60.6	3.49
SW5L125	263.2	82	3.21	245.2	67.6	3.63
SW5L140	283.3	87.4	3.24	263.9	72.1	3.66
SW5L150	320.7	97.2	3.3	298.7	80.2	3.73

Product Supply

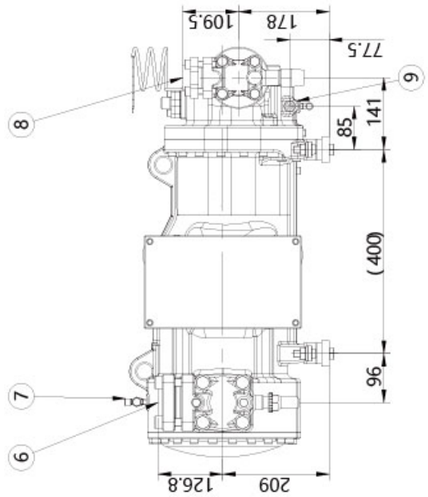
Standard configuration					
No.	Accessories	SW5L 020-050	SW5L 060-075	SW5L 090-110	SW5L 125-150
1	Compressor body	√	√	√	√
2	Stepped capacity control assembly	√	√	√	√
3	400V±10%-3-50Hz / 460V±10%-3060Hz Motor	√	√	√	√
4	IP54 terminal box	√	√	√	√
5	Electrical accessories, 230V-1-50/60Hz Standard voltage	√	√	√	√
6	Motor with 6 internal PTC temperature sensors	√	√	√	√
7	PTC Discharge temperature sensor	√	√	√	√
8	Electrical protection module INT69SNY (Monitors motor and discharge temperature, motor rotation direction, phase failure)	√	√	√	√
9	Internal safety valve	√	√	√	√
10	Check valve	√	√	√	√
11	Suction shut-off valve	√	√	√	√
12	Discharge shut-off valve	√	√	√	√
13	Suction filter	√	√	√	√
14	Rubber vibration damper	√	√	√	√
15	Replaceable oil filter		√	√	√
16	Oil inlet connector	√	√	√	√
17	Oil sight glass		√	√	√
18	Manual Vi adjustment device			√	√
19	Oil flow switch		√	√	√
20	Oil shut-off valve		√	√	√
21	Oil shut-off sensor		√	√	√
22	Nitrogen purging	√	√	√	√

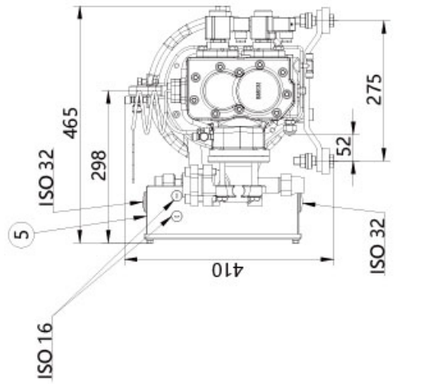
Optional configurations					
No.	Optional configurations	SW5L 020-050	SW5L 060-075	SW5L 090-110	SW5L 125-150
1	Special voltage motor	√	√	√	√
2	Automatic Vi regulation device			√	√
3	Capacity Displacement Sensor			√	√
4	Pressure differential switch		√	√	√
5	Liquid interjection connector			√	√
6	Economical connector with check valve	√	√	√	√
7	Electrical accessories Different from Standard Voltage	√	√	√	√
8	Lubricating oil	√	√	√	√
9	External oil circuit (including oil flow switch, oil filter, etc.)	√			

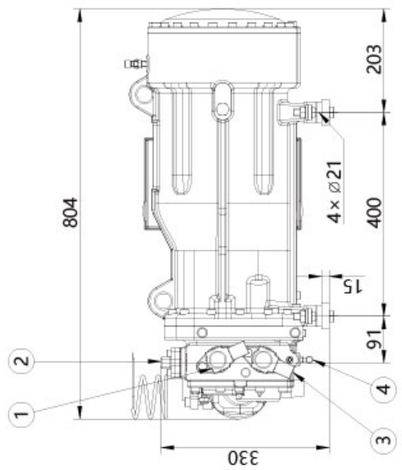
Note: 1. "√" indicates available; 2. If optional parts are required, please specify when ordering.

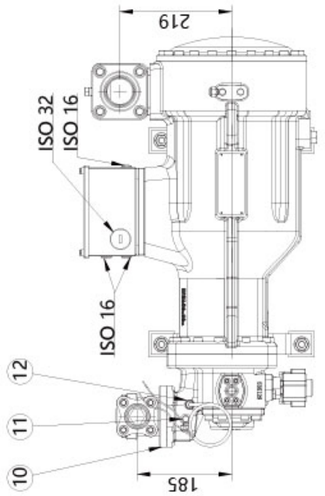
Dimension Diagram

SW5L020_025_030



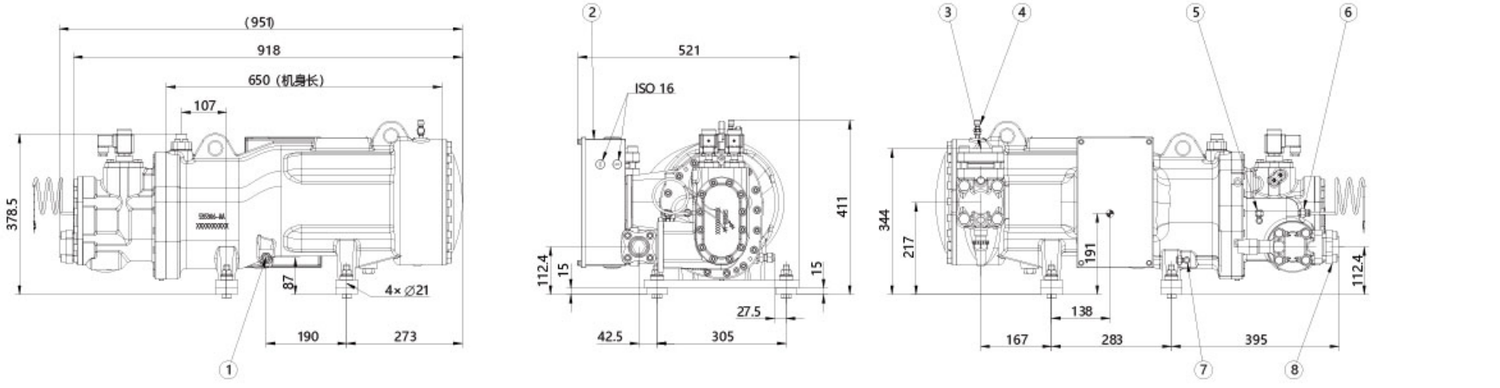






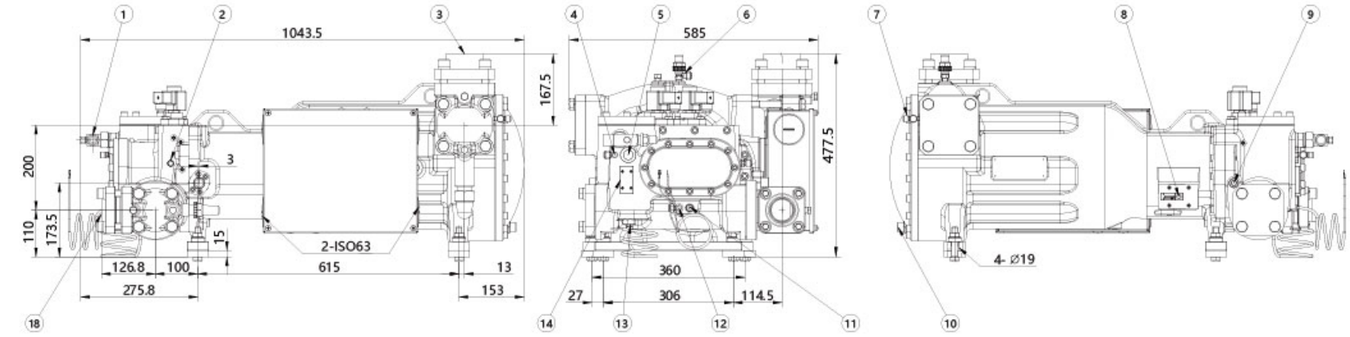
Key:
01. 75% cooling capacity control solenoid valve
02. economizer connection Ø16
03. 50% cooling capacity control solenoid valve
04. oil pressure connection 1/4" SAE-Flare
05. terminal box
06. suction shut-off valve Φ54 (2-1/8")
07. low pressure connection 1/4"SAE-Flare
08. discharge shut-off valve Ø42 (1-5/8")
09. oil circuit connection 3/8" SAE
10. check valve
11. high pressure connection /4" SAE-Flare
12. discharge temperature sensor1/8"NPT PTC 140℃

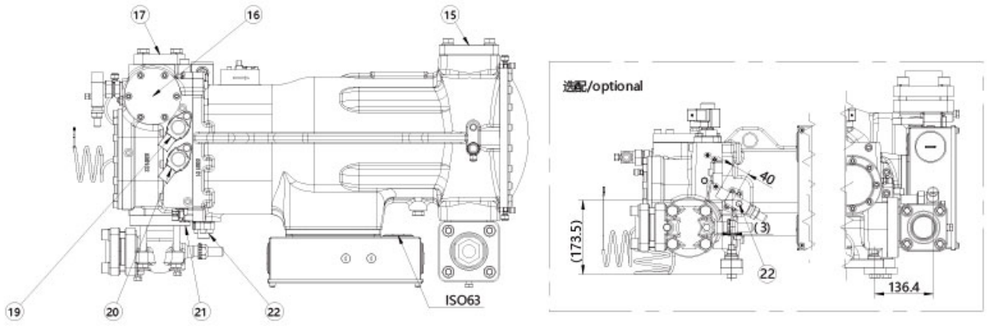
SW5L040_050



Key:
01. oil circuit connection 3/8" SAE
02. terminal box
03. suction shut-off valve Ø54 (2-1/8")
04. low pressure connection 1/4" SAE-Flare
05. high pressure connection 1/4" SAE-Flare
06. discharge temperature sensor 1/8" NPT PTC140°C
07. oil pressure connection 1/4" SAE-Flare
08. discharge shut-off valve Ø42 (1-5/8")
09. check valve
10. 50% cooling capacity control solenoid valve
11. 75% cooling capacity control solenoid valve
12. economizer connection Ø21.6/
economizer shut-off valve connection Φ22 (optional)

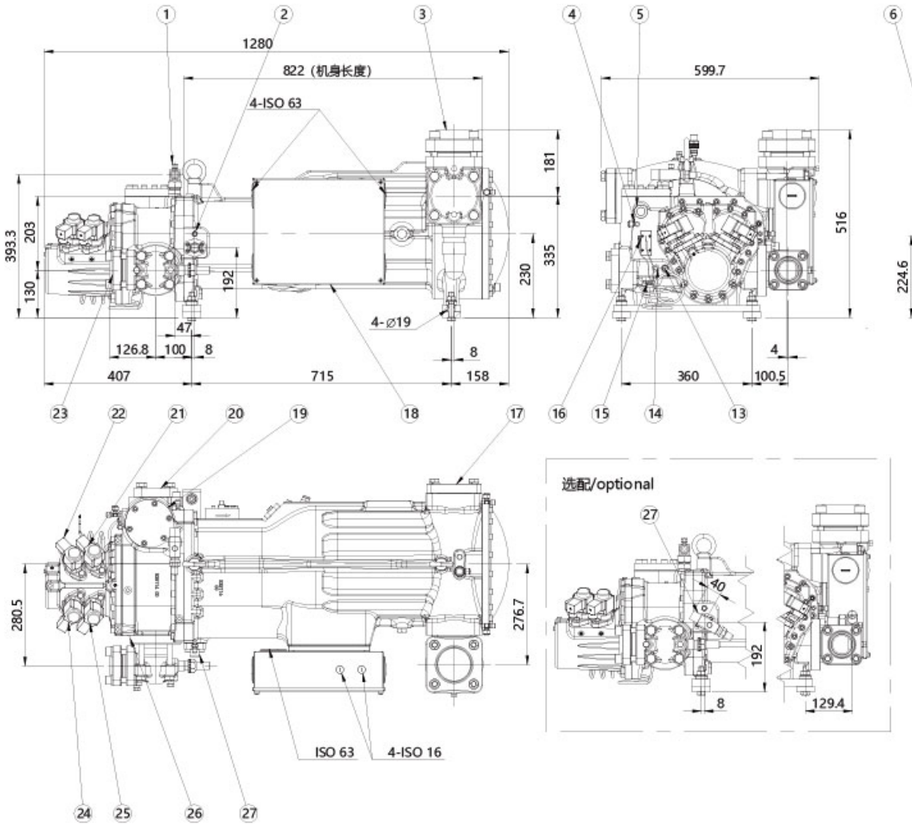
SW5L060_070_075





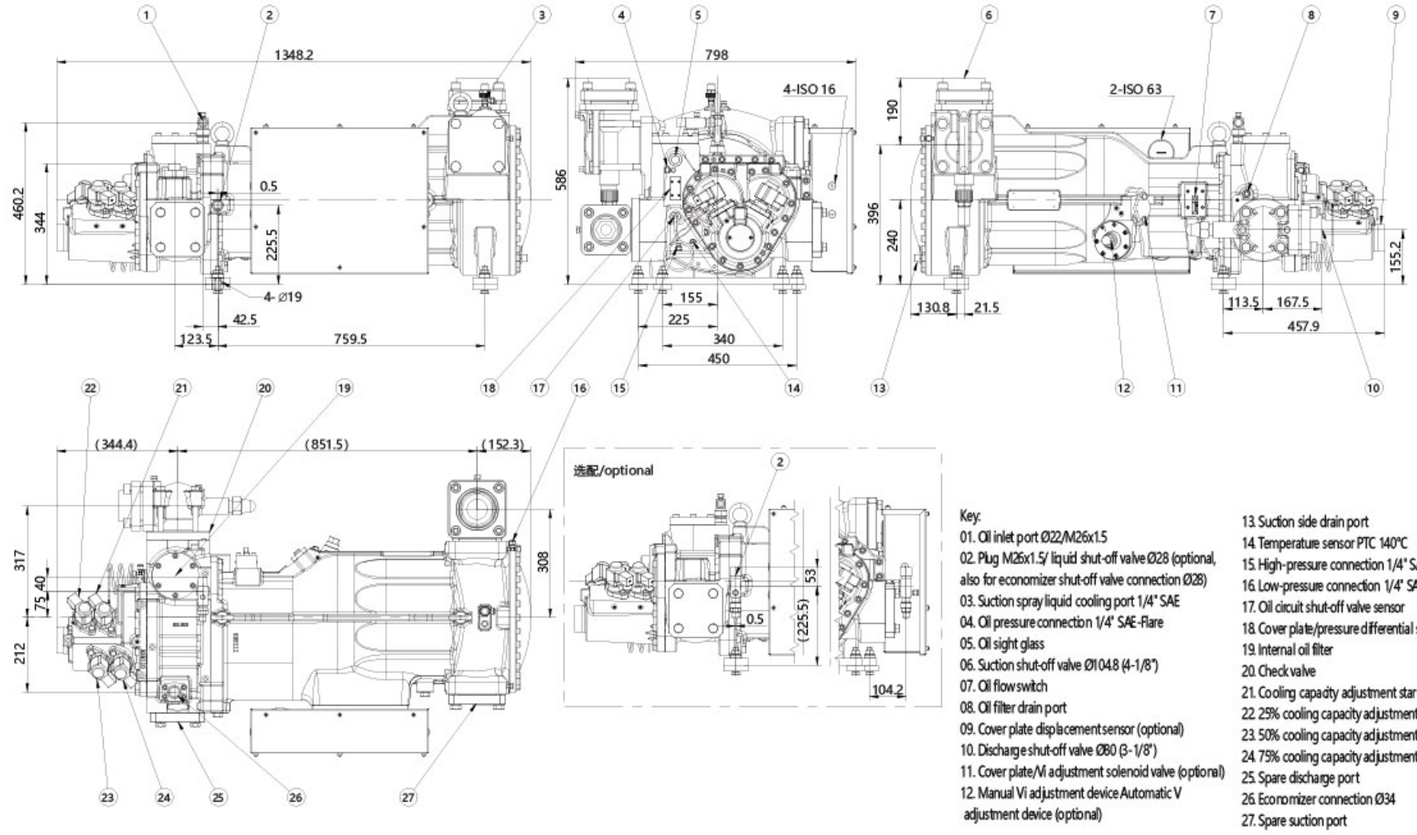
Key:
01. oil inlet port Φ22/M26 x 1.5
02. liquid injection connection 1/4"SAE
03. suction shut-off valve Ø80 (3-1/8")
04. oil pressure connection 1/4" SAE-Flare
05. oil sight glass
06. suction spray cooling port 1/4" SAE-Flare
07. low pressure connection 1/4"SAE-Flare
08. oil flow switch
09. oil filter drain port
10. suction side drain port
11. discharge temperature sensor PTC 140 °C
12. high pressure connection 1/4" SAE-Flare
13. oil circuit shut-off valve sensor
14. cover/ pressure differential switch (optional)
15. spare suction port
16. internal oil filter
17. spare discharge port
18. discharge shut-off valve Ø54 (2-1/8")
19. 75% cooling capacity control solenoid valve
20. 50% cooling capacity control solenoid valve
21. check valve
22. economizer connection Ø21.6/
economizer shut-off valve Ø22 (optional)

SW5L090_100_110



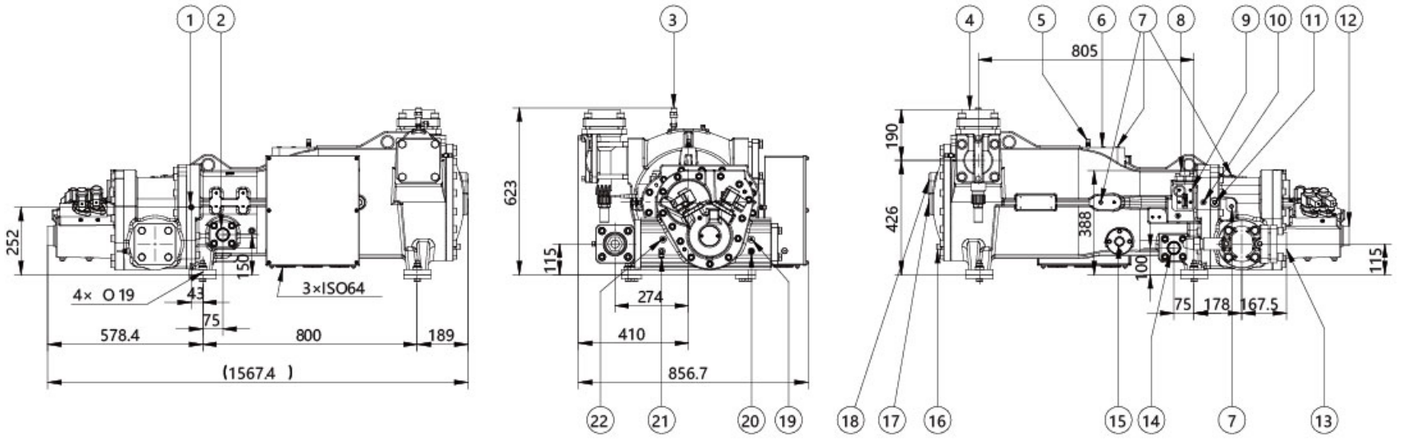
Key:
01. oil inlet port Ø22/M26x1.5
02. liquid injection connection 1/4" SAE
03. suction shut-off valve Ø92.5 (3-5/8")
04. oil pressure connection 1/4" SAE-Flare
05. oil sight glass
06. low pressure connection 1/4" SAE-Flare
07. suction spray cooling port 1/4"SAE
08. cover/vi control solenoid valve (optional)
09. oil filter drain port
10. oil flow switch
11. manual VI adjustment device
automatic vi adjustment device (optional)
12. suction side drain port
13. discharge temperature sensor PTC140 ℃
14. high pressure connection 1/4" SAE-Flare
15. oil circuit shut-off valve sensor
16. cover/pressure differential switch (optional)
17. spare suction port
18. terminal box
19. built-in oil filter
20. spare discharge port
21. cooling capacity control load solenoid valve
22. 25% cooling capacity control solenoid valve
23. discharge shut-off valve Ø67 (2-5/8")
24. 50% cooling capacity control solenoid valve
25. 75% cooling capacity control solenoid valve
26. check valve
27. economizer connection Ø21.6/
28. economizer stop valve Ø22 (optional)

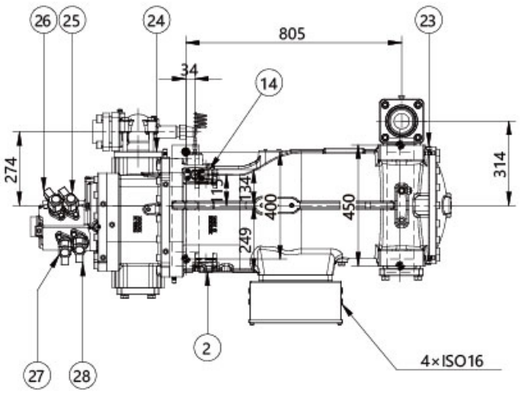
SW5L125_140_150



Key:
01. Oil inlet port Ø22/M26x1.5
02. Plug M26x1.5/ liquid shut-off valve Ø28 (optional, also for economizer shut-off valve connection Ø28)
03. Suction spray liquid cooling port 1/4" SAE
04. Oil pressure connection 1/4" SAE-Flare
05. Oil sight glass
06. Suction shut-off valve Ø104.8 (4-1/8")
07. Oil flow switch
08. Oil filter drain port
09. Cover plate displacement sensor (optional)
10. Discharge shut-off valve Ø80 (3-1/8")
11. Cover plate/Vi adjustment solenoid valve (optional)
12. Manual Vi adjustment device Automatic V adjustment device (optional)
13. Suction side drain port
14. Temperature sensor PTC 140°C
15. High-pressure connection 1/4" SAE-Flare
16. Low-pressure connection 1/4" SAE-Flare
17. Oil circuit shut-off valve sensor
18. Cover plate/pressure differential switch (optional)
19. Internal oil filter
20. Check valve
21. Cooling capacity adjustment start-up solenoid valve
22. 25% cooling capacity adjustment solenoid valve
23. 50% cooling capacity adjustment solenoid valve
24. 75% cooling capacity adjustment solenoid valve
25. Spare discharge port
26. Economizer connection Ø34
27. Spare suction port

SW5L160_200





Key:

1. Spray connector 1/4"SAE
2. economy 1 interface Ø42.2 (1-5/8")
3. Oil return interface 3/8"SAE
4. suction stop valve Ø104.8 (4-1/8")
5. low pressure connector (after filter) 1/4"SAE-Flare / Low pressure sensor (optional)
6. temperature absorption sensor PT100 (optional)
7. Vibration sensor (optional)
8. Oil inlet Ø33.7
9. Oil flow switch
10. oil temperature sensor PT100 (optional)
11. oil pressure connector 1/4"SAE-Flare / Oil Pressure sensor (optional)
12. Cover plate/Displacement sensor (optional)
13. exhaust gas stop valve Ø80 (3-1/8")
14. economy 2 interface Ø42.2 (1-5/8")
15. manual Vi adjustment device / Automatic Vi regulator (optional)
16. Suction side discharge port
17. motor spray cooling 3/8"NPT (optional)
18. motor spray cooling 3/8"NPT (optional)
19. exhaust temperature sensor PT100 (optional)
20. exhaust temperature sensor PTC120 vC
21. high voltage connector 1/4"SAE-Flare
22. high pressure pressure sensor (optional)
23. low pressure connector (before filter) 1/4"SAE-Flare
24. check valve
25. Cooling capacity adjustment and loading solenoid valve
26. 25% cooling capacity adjustment solenoid valve
27. 50% cooling capacity adjustment solenoid valve
28. 75% cooling capacity adjustment solenoid valve

SW5L280_300