Hitachi Highly

Rollkolbenverdichter

Rotary Compressors

Spezifikation

Installation Manual

WHP15600VSDPC9EQ

R 410A- R 452B- R 454C - R 454B

42 cm3/rev

900 - 7200 min-1

DC / BLDC

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1. SCOPE

This specification is applied to SHANGHAI HIGHLY Heat pump water heater compressor.

2. SPECIFICATION OF THE MODEL

Item	Spec
2.1 Model Type	WHP15600VSDPC9EQ
2.2 Power source input to inverter	Rated voltage / Rated frequency/Phase 380V/50Hz/3Φ OR 220V/50HZ/1Φ
2.3 Output	3850W/3690W/2430W/3650W (R410A/R452B/R454C/R454B @3600min^{-1})
2.4 Application	Heat pump water heater

2.5 Performance

Refrigerant	R410A	R452B	R454C	R454B
Item	Rated Condition	Rated Condition	Rated Condition	Rated Condition
Rotational speed	3600 min^{-1}	3600 min^{-1}	3600 min^{-1}	3600 min^{-1}
Nominal Heating Capacity	17400W	16880W	11940W	16750W
Motor input	4160W	3990W	2640W	3950W
Current	16.2A	15.8A	11.0A	15.6A
COP(see*)	4.18	4.23	4.52	4.24
Test Conditions				
Evaporating temp.	7.2℃	7.2℃	7.2℃	7.2℃
Condensing temp.	54.4℃	54.4℃	54.4℃	54.4℃
Liquid temp. entering expansion valve.	46.1℃	46.1℃	46.1℃	46.1℃
Return gas temp.	35℃	35℃	35℃	35℃
Ambient temp.	35℃	35℃	35℃	35℃
Wind speed	2m/s	2m/s	2m/s	2m/s

*.COP= Heating capacity / Motor input (W)

*.Rated Capacity and input are measured with HIGHLY inverter circuit by secondary Refrigerant calorimeter Methods of JIS B8606 by Shanghai HIGHLY Electrical Appliances Co., Ltd. Allowable capacity should be more than 95% of the rated capacity and allowable input should be less than 107% of rated motor input.

2.6 Refrigerant	R410A/R452B/R454C / R454B
2.7 Displacement	42.0ml /rev (Double-cylinder)
2.8 Allowable frequency range	900～7200 min^{-1}
2.9 Oil	α 68HES-H or equivalent 1650±20ml
2.10 Allowable amount of refrigerant charge	Below 4500g
2.11 Compressor cooling	Forced air 强制空冷
2.12 Hermetic Terminal	Conventional type
2.13 Space volume of inner case	2628cm^3
2.14 Compressor weight	19.5kg incl. Oil
2.15 Motor Type Insulation class	Direct current brushless motor E class
2.16 Compressor natural frequency	19.9Hz/21.7Hz/24.5Hz (Should try to avoid or quickly pass)

3. THE PARAMETER OF MOTOR

Item 数	参 Spec	explanation
3.1 Rotor Pole (Pole)	4	——
3.2 Rated Frequency Range (Hz)	30-240	Electrical Frequency, Relating to VDCmax of Inverter
3.3 Demagnetizing Current (A)	54.01A	Peak Current, at 120℃, -5% Demagnetizing Rate

3.4 Inductance Ld（mH）	Sheet 2	——
3.5 Inductance Lq（mH）	Sheet 2	——
3.6 Stator coil resistance（20℃）（Ω）	0.502（20℃）	line-to-line
3.7 Voltage Constant（Vrms/krpm）	43.10V/krpm	line-to-line
3.7 Torque Constant（N • m/Arms）	0.69	Torque/Current
3.9 Inertia （Kg • m2）	0.000666	
3.10 Flux Φa（Wb）	0.1702	Φ(Per Phase, Peak)= $\frac{\sqrt{2}\times E0}{2\pi f\sqrt{3}}$ Φ(一相 peak 值)= $\frac{\sqrt{2}\times E0}{2\pi f\sqrt{3}}$
3.11 Magnet Material	NdFeB	

2 Electric current

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
q	5.44	5.39	5.34	5.29	5.24	5.18	5.12	5.06	5.00	4.95	4.89	4.83	4.78	4.72	4.66
d	3.71	3.65	3.65	3.64	3.63	3.61	3.59	3.56	3.54	3.51	3.48	3.45	3.42	3.39	3.36

4. CHARACTERISTICS

4.1. Appearance

The surface of the compressor is painted to black, without obvious flaw ,impact scar, paint peel off, rust and so on.

4.2. Indication

Compressor model type, manufacturing data are clearly indicated on the surface of compressor。

4.3. Residual moisture 300mg MAX

4.4. Residual impurities 150mg MAX

4.5. Dielectric withstand

A 1500V alternating voltage for 1minute should be applied between live parts and dead metal parts.

5 PARTS AND DRAWING LIST

PARTS NAME		QTY/SET	DRAWING NO.	REMARKS
Compressor		1	4CYCH****	Dimensioned sketch
Mounting Parts	Rubber grommet	3	4CYC00643	
	Bolt	--	4CYC00700	*
	Nut	--	M8	*
Electrical Parts	Thermostat	1	4CYC01036	
	Terminal cover	1	4CYC00988	
	Gasket	1	4CYC01047	
	Nut	1	3CYC00004	
	Rubber washer	1	4CYC00174	
	Sleeve	1	4CYC01042	
			4CYC01272	Lead routing
			1	Pressure guarantee Chart
			2	Notes for rotational
			3	speed change Performance curve
				Appendix

*. Out of supply, for reference.

COMPRESSOR CRITERIA

1 Strictly observe the specification

The compressor should be used in specifications written in this “compressor specification” and not be used in specifications outside it.. The main circuit must link up with fuse or breaker.

2 Source voltage

Specified inverter is linked up with compressor terminals . Applied voltage of this inverter should be voltage specified in this “compressor specification”. Alternating voltage should never be applied on terminals (for example: commercial alternating voltage of 1ϕ100V,200V,3ϕ200V).This is because that if applied alternating current the direct current motor will demagnetize.

3 Operating voltage range

The compressor should be operated in the range of rated voltage ±10% , under standard condition and overload condition of rated frequency (applied voltage to inverter).It must be satisfied with item 5 ,6,7.

4 Operating temperatures and pressures

The operating temperatures and pressures of a compressor should be within the range shown in the table 2 and graph 1.

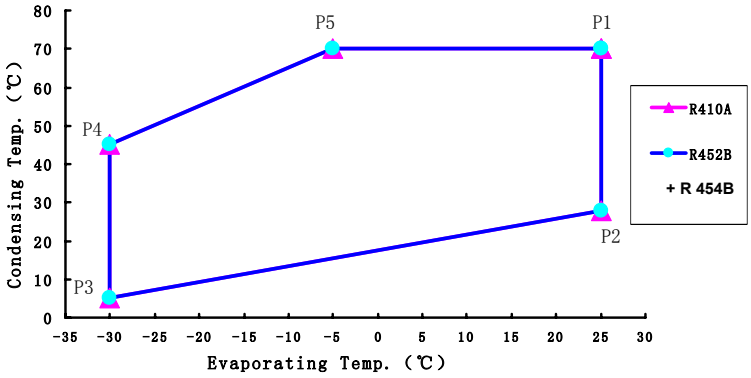
5 Oil Back and oil level

The oil should be returned continuously to the compressor and the structure of the refrigerating system should not make oil stay in the system. The oil level in compressor should be satisfied with chart 2.If not keep the oil level, the shortage will occur, and influence the reliability of the compressor.(please check the oil level in the compressor with the sight glass which supplied form SHEC.

The oil should be continuously returning to the compressor to oil, and there should be no oil storage part in the refrigeration system construction. And, the oil level in the compressor should meet the figure 2 conditions of. However, when foaming occurs and the liquid becomes foamy, this part is not an oil level. If you cannot meet the high oil level degree, will cause the sliding part of the oil supply, seriously affecting the reliability. (Can be confirmed with a sight glass-equipped compressor for oil level observation).

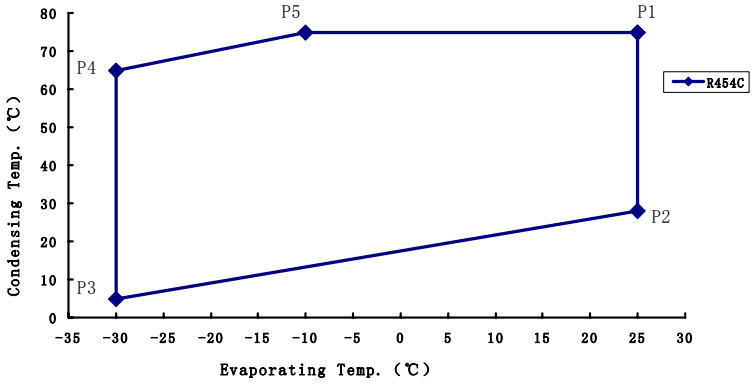
Table 2

Item	Operating Envelope (see graph 1)		
Refrigerant	R410A	R452B	R454C
Discharge pressure MPa	4.762 max Condensing temperature :70℃)	4.492 max (condensing temperature :70℃)	3.465 max (condensingtemperature :75℃)
Suction Pressure MPa	0.272~1.652	0.254~1.562	0.172~1.084
	(Evaporation Temperature : -30℃~25℃) It can also be 0.101～0.172 MPa when in transition but should not be used when it is less than 0.101MPa		
Compressor case bottom temp	99℃or below and 6 degrees higher than condensing temperature		
Motor winding temp	Rated voltage: : 105℃ MAX	R.Voltage±10%: 120℃ MAX	
Accumulator temp	Higher than outlet pipe of evaporator		
Ambient temp	Meet for the condition of above mentioned motor winding temp.		



Graph 1(a)

	P1	P2	P3	P4	P5
Condensing temperature	70℃	28℃	5℃	45℃	70℃
Evaporation Temperature	25℃	25℃	-30℃	-30℃	-5℃



Graph 1(b)

	P1	P2	P3	P4	P5
Condensing temperature	75℃	28℃	5℃	65℃	75℃
Evaporation Temperature	25℃	25℃	-30℃	-30℃	-10℃

6 Current limitation

Current peak among motor terminals (include instantaneous current peak) should be below demagnetizing current in order to prevent magnet in motor from demagnetization.

7 Pressure difference between suction and discharge

In all allowable rotational speed range, the difference of pressure should be more than 0.39MPa{4kgf/cm^2}. But if there is no problem of noise when assembled in air conditioner, it can also below this value.

8 Discharge pipe temperature

Discharge pipe temperature is measured at a distance 300mm from the surface of compressor and should be less than 110℃. The tip of the thermocouple is fixed by soldering when measuring discharge pipe temperature .Furthermore, soldering point is covered with urethane foam to prevent the effect of wind.

9 Dust of compressor hermetic terminals

Compressor hermetic terminals should be mounted with specified cover in right way to prevent dust entering, and should be used in direction which dust is hard to enter in.

10 Lead wire of compressor hermetic terminals

Measuring the temperature of hermetic terminals , lead wire should be resist to the temperature and be clamped so as not in touch with the surface of compressor and pipe.

11 Start-stop frequency

The frequency should be less than 6 times per hour. Operating time from start to stop should be more than 3 minutes. Stopping time should be more than 3minutes.

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12 Rate of rotational speed change

The rate of compressor rotational speed (acceleration) should be less than $133min^{-1}/s$, But if The variable range is below $120min^{-1}$, rate can also be less than $600min^{-1}$ when rotational speed is reduced to avoid temporary over- current.

13 Air and moisture in refrigerating system

The degree of vacuum in refrigerating system should be less than 20Pa (150×10^{-3}mmHg) at room temperature just before charging refrigerant. The quantity of water should be less than 0.15ml.

14 Impurities in refrigerating system

(1) The weight of residue on the inside surface of the heat exchanger and tube should be less than 0.01g/m^2. But metallic dust should not be permitted in the system. This value means the weight of foreign residue collected by filer paper after washing inside surface of the heat exchanger tubes with R-11.

(2) Prevent the impurities from entering into the enclosed unit system used R410A. When the impurities entered into the enclosed system, it will damage the moving mechanism parts and result in the capillary depositing.

(3) Eliminate all system contaminants such as trichlorethylene, alkalies, soaps, oil, acids & washing fluid used at machining heat exchanger and tubes.

15 Compressor vacuum operation

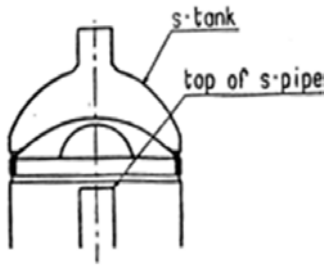
Compressor should never be operated while under vacuum.

Otherwise, internal arcing can cause damaging parts.

16 The compressor should be operated for more than 20 seconds within 15 minutes after charging refrigerant into the system so proper lubrication results.

17 Liquid refrigerant return limitations

(1) Liquid refrigerant level in s-tank should be lower than the top of s-pipe in s-tank.(see chart at right)



(2) There should not exist noise of the liquid refrigerant compression, current and vibrancy increase. System can append the assistant stank or reduce the amount of refrigerant to prevent from liquid refrigerant compression. Refrigerant system forbid liquid refrigerant from flowing back compressor in any case. In normal condition the overheat gas refrigerant should flow back compressor.

Non-liquid compression sound, current increase, vibration increase, etc. occur. In order to prevent liquid compression, auxiliary reservoirs can be added or the amount of refrigerant enclosed can be reduced. No matter what the conditions, the refrigeration system should not have liquid back to the compressor. Under normal operating conditions, superheated gas should be returned to the compressor.

18 Purge parts with dry nitrogen or dry air to remove remains in parts (dust, detergent,etc.)before assembly of system. Time fur purging: over one second for pipe; over three seconds for heat exchanger. Purging pressure: 0.9±0.1MpaG. Dew point of dry air: Below -20℃. The motor winding temperature should be less than 149℃and hermetic terminal body temperature should be less than 177℃in process of manufacturing.

19 Apply for vehicle

The compressor should not be used on moving equipment such asm automobiles,trains, ships, etc.

20 Installation

The rotational axis of compressor should be kept vertical during operation. But in actual application the axis incline must be within 5°at all directions during operation.

21 Pipe vibration

The displacement of the pipes, which connect from the compressor to other parts of the refrigerate-or systems, should be less than 0.8mm(1/32")when the compressor is operating at allowable rotational speed range and voltage range of rated ±10%. Displacement in excess of 0.8mm(1/32") will require changing tube length and/or routing.

22 Connecting tube design

In designing and routing tubing that connect from the comprssor to the other parts of the air conditioner, following should be considered.

Moving tubes to the moving parts; minimum clearance 12.7mm(1/2")

Moving tubes to non-moving parts; minimum clearance 9.5mm((3/8")

Moving tubes never touch to lead wire.

23 Avoid refrigerant migration

The refrigerant migration to compressor shell should be avoided during the heat pump water heatersystem shut down periods, It's suggested that the electric heating belt should be used around the shell bottom when necessary.

24 Miscellany

(1) The compressor should be carried carefully to avoid drop, drag ,impact and should not apply partial force on projection parts such as pipe, hermetic terminals, foot during carrying and processing.

(2) The compressor should not be operated to form a vacuum and to absorb air. The compressor only can run in one direction which according to lead routing wiring diagram. Never reversion otherwise the compressor will be in trouble.

(3) The compressor should not be left opened in the atmosphere for more than 5 minutes.
When the air entered into the unit system with refrigerant R410A, it will expedite the deterioration of the oil and result in the capillary depositing and the reducing of insulation resistance.

(4) Electric pulse should not be applied to compressor when it is in vacuum.

(5) The compressor should be kept in the place with low-dust, low-moisture.

(6) The compressor can't be used in the place with corrosive atmosphere such as hot spring and chemical warehouse. It should not be the structure often splash water on the surface of the compressor forcibly.

(7) The trouble of cross valve, electromagnetic valve, defroster, refrigerant controller, fan motor used in refrigerating system may cause compressor accident .So their reliability should be ensured completely. Moreover, the way of design, manufacture, application of refrigeration cycle with less-leak should be adopted.

(8) The main electric circuit should be equipped with fuse or breaker.

(9) Refrigerant should be charged from the end of condenser of refrigerating systems. Never charge refrigerant to the compressor directly.
The refrigerant should always be charged in liquid state. When the refrigerant is charged in gas state. The percent component will possibly be changed.

(10) Temperatures within systems during stable compressor operation should not be less than -35℃ to prevent wax precipitation from the oil.

(11) The units of refrigerating system should be connected to earth.

12) Compressor mounting
Rubber grommets are designed soft to provide the noise isolation and to lessen vibration

(13) Energy transmission.
Stud bolt should be designed to provide sufficient clearance for noise andvibration isolation and to prevent compressor from coming off its mount.
There should be adequate clearance between the under—surface of Push-Nut and the upper surface of rubber grommets.

(14) SHEC will not take any responsibility against accident that is caused by the accessories equipped by yourselves.

(15) The hermetic terminals of compressor should not be inserted slantingly and not be applied twisting force after inserting so as to avoid reducing of terminal fixed force.

(16) The pipe and hermetic pens attached to the compressor should not be bent.

(17) The dropped compressor can't be used anymore.

(18) Compressor can be used when ambient temperature is higher than -10℃. Confirm the start-up of compressor if the temperature of compressor surface is below -10℃. Heat up compressor to reach the temperature higher than -10℃ with heater if the ambient temperature is below -10℃.

(19) Set a thermistor on the case cover of compressor to prevent from accident of leakage of refrigerant. The thermistor can stop the operation of compressor when compressor in abnormal temperature. The lead wires of thermostat is enveloped with tube, as same as that of the terminals, to avoid directcontact with the compressor and pipe.

(20) The compressor should not be splashed with water intentionally.
Prevent moisture from entering into the enclosed unit system. When the moisture entered into the unit of the refrigerant R410A, the refrigerant oil and the organic compound material presented in the hermetic motor will possibly decompose on the affecting of water. It will result in the capillary depositing and the reducing of insulation resistance.

It is necessary to install a dryer to dehumidify the residual moisture mixed in the refrigerant in the cycling system. The specially defined molecular-sieve dryer is advised.

(21) Use the refrigerant of specified brand. When the refrigerant not specified used, it will possibly cause trouble of the performance and reliability of the compressor by the impurities in the refrigerant.

(22) The lead wires should be connected to hermetic terminals without being touched on the surface of the compressor.

(23) Be careful of avoiding oxide scale while soldering during assembly of refrigerating system.(for example: flow or fulfill dry nitrogen)

(24) The quantity and kind of contamination (the process materials) in the cycle should be grasped and managed. Carry on reliability test that input contamination a lot than anticipated contamination quantity.

(25) To avoid water and impurity into he refrigeration system and make sure no leakage of refrigerant during the operating course. It’ s required to direct the erector and maintenance man .

(26) The start-up current and torsion of compressor
Adjust the start-up current of the compressor to get enough torsion by inverter. Confirm and measure the start-up current if change the parts and design.

(27) The fuse or/and breaker should be equipped in the main circuit.

(28) The thickness of the refrigerating system using tube
the tube thickness as followed

External diameter(mm)	6.35	9.52	12.7	15.88	19.05	22.2	25.4	31.75	38.1	44.45
Thickness (mm)	0.8	0.8	0.8	1	1	1	1	1.1	1.4	1.5

1. Basis for Checking upon Delivery

The Performance test will be carried out in accordance with this “compressor Specification”. The Safety Performance in accordance with GB4706.1 Safety of household and similar electrical appliances General requirements and GB 4706.17 Safety of household and similar electrical appliances Particular requirements for motor-compressor.

2. Rule for Checking upon Delivery

If come across any quality problem, please notify the company in written form within 30 days after the arrival of the cargo, the company shall exchange exactly the number of the products, otherwise they shall be regarded as being up to standard.

4CYCH****

版本标识 A

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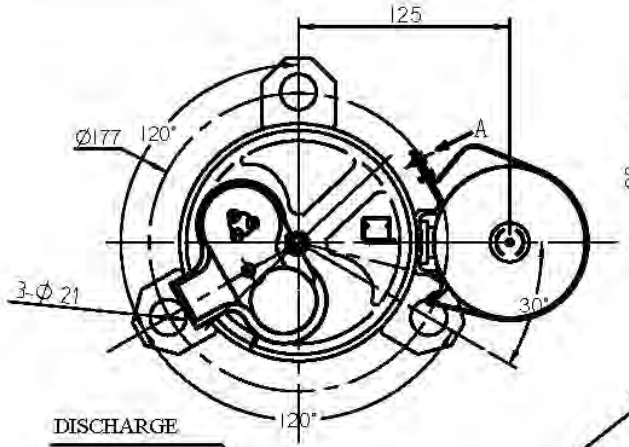
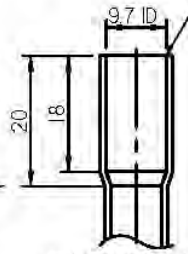
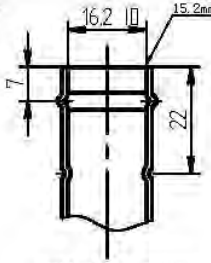


THE COLUMN WHICH LESS THAN DIAMETER 9.8mm CAN PASS THE PIPE, BUT THE COLUMN WHICH MORE THAN DIAMETER 9.2mm CAN'T PASS THE PROTRUSIVE POSITION.

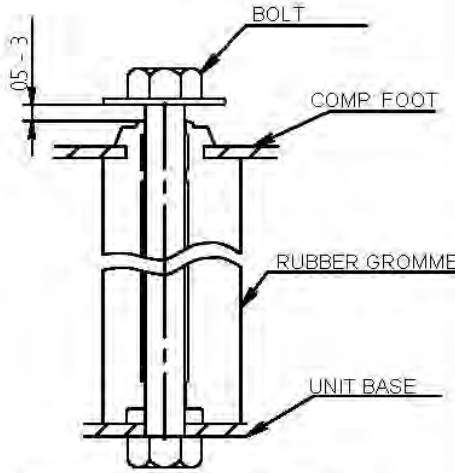


DISCHARGE PIPE

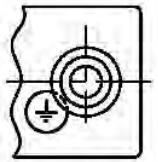
THE COLUMN WHICH LESS THAN DIAMETER 16.15mm CAN PASS THE PIPE, BUT THE COLUMN WHICH MORE THAN DIAMETER 15.2mm CAN'T PASS THE PROTRUSIVE POSITION.



SUCTION PIPE
(NTS)



RUBBER GROMMET STRUCTURE



VIEW FROM A (NTS)
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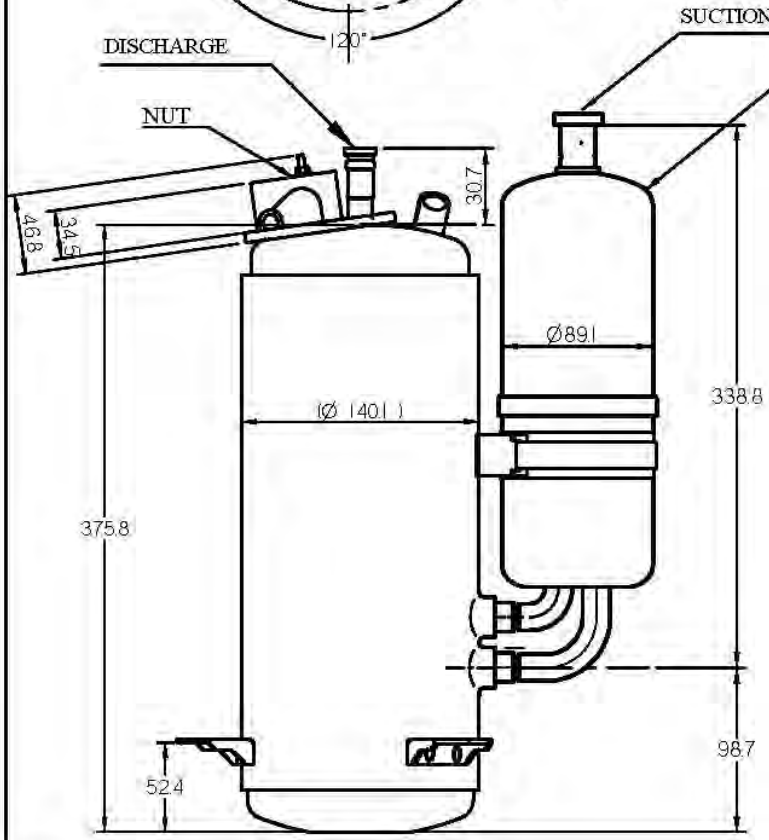

NOTE:

1 THE TORQUE ENFORCED ON THE NUT IS 1.5±0.3N.m

2 PUTTING OUT RUBBER PLUG WHEN FIXING EARTH PARTS

THE CONCRETE APPERANCE IS SUBJECT TO MATERIAL OBJECT

DIMENSION mm

WHP15600VSDPC9EQ	

	RE MARKS			PROJECTION	SCALE NTS
RECD	DWN.		TITLE DIMENSIONED SKETCH	Shanghai Hitachi,Ltd.	DWN. NO. 4CYCH****
	CHKD.				
	CHKD.				
	APPD.				

4CYC00643 版本标识 A

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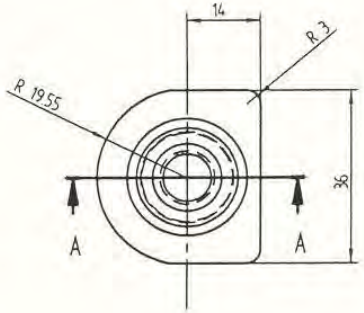

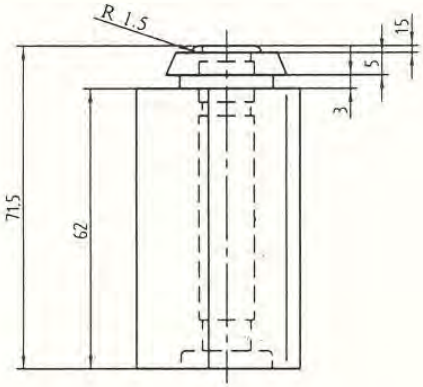

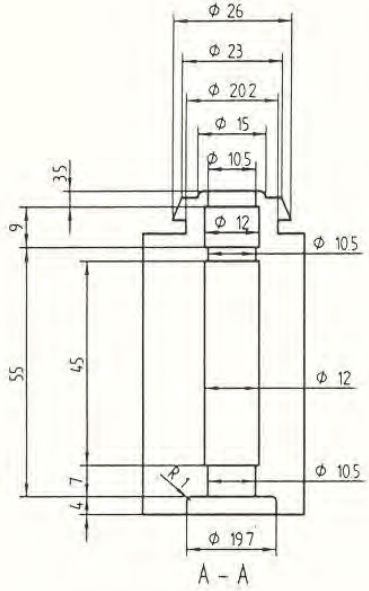

A - A

MATERIAL: NATURAL RUBBER

Hs47±5°

DIMENSION: mm

	RE. MARKS				PROJECTION	SCALE	
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	CHKD.						
	APPD.	稻垣	01.07.02				

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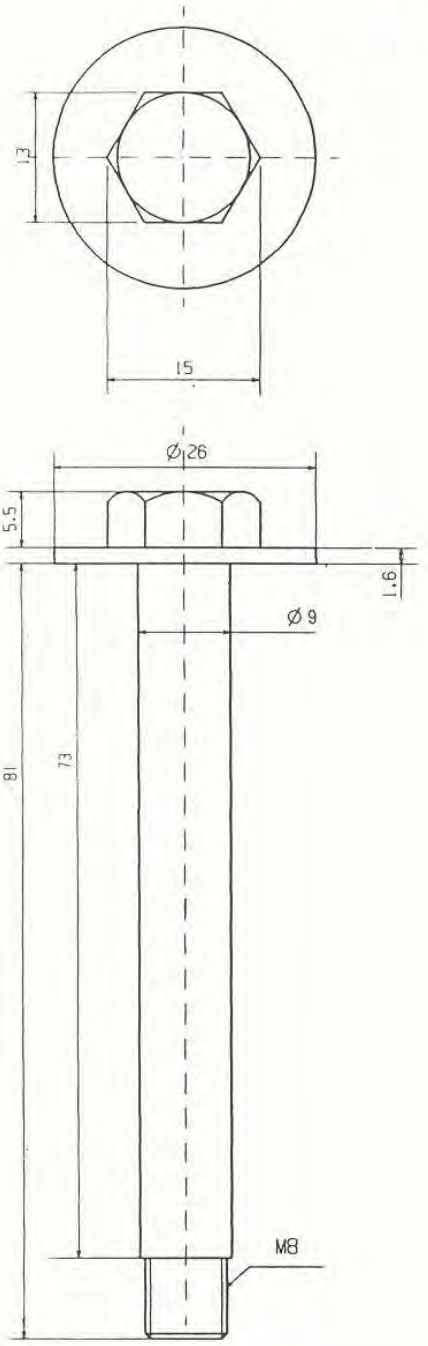

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	CHKD.					
	APPD.	芦洋	00.10.8			

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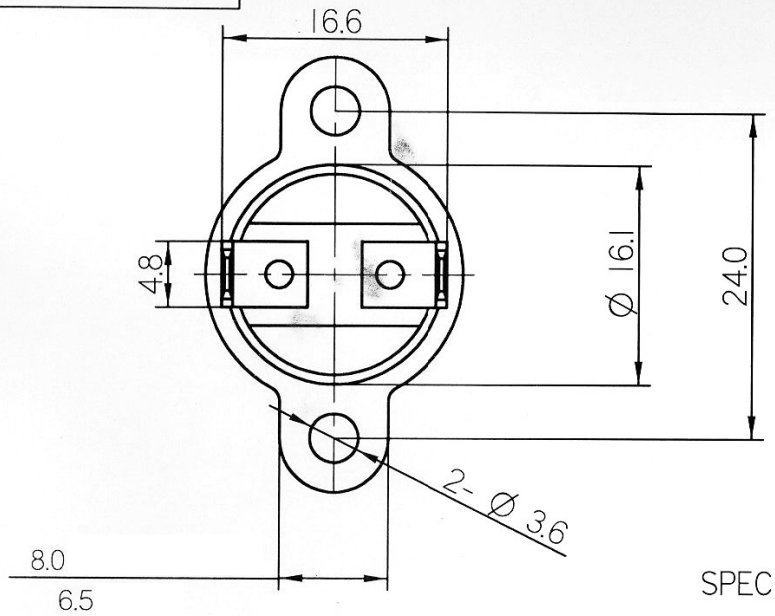
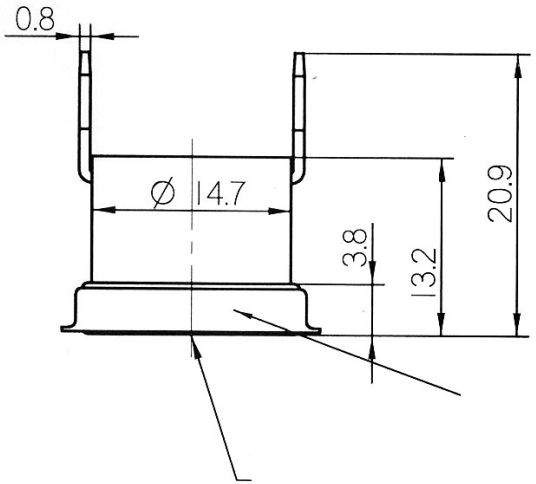
③					⑥				

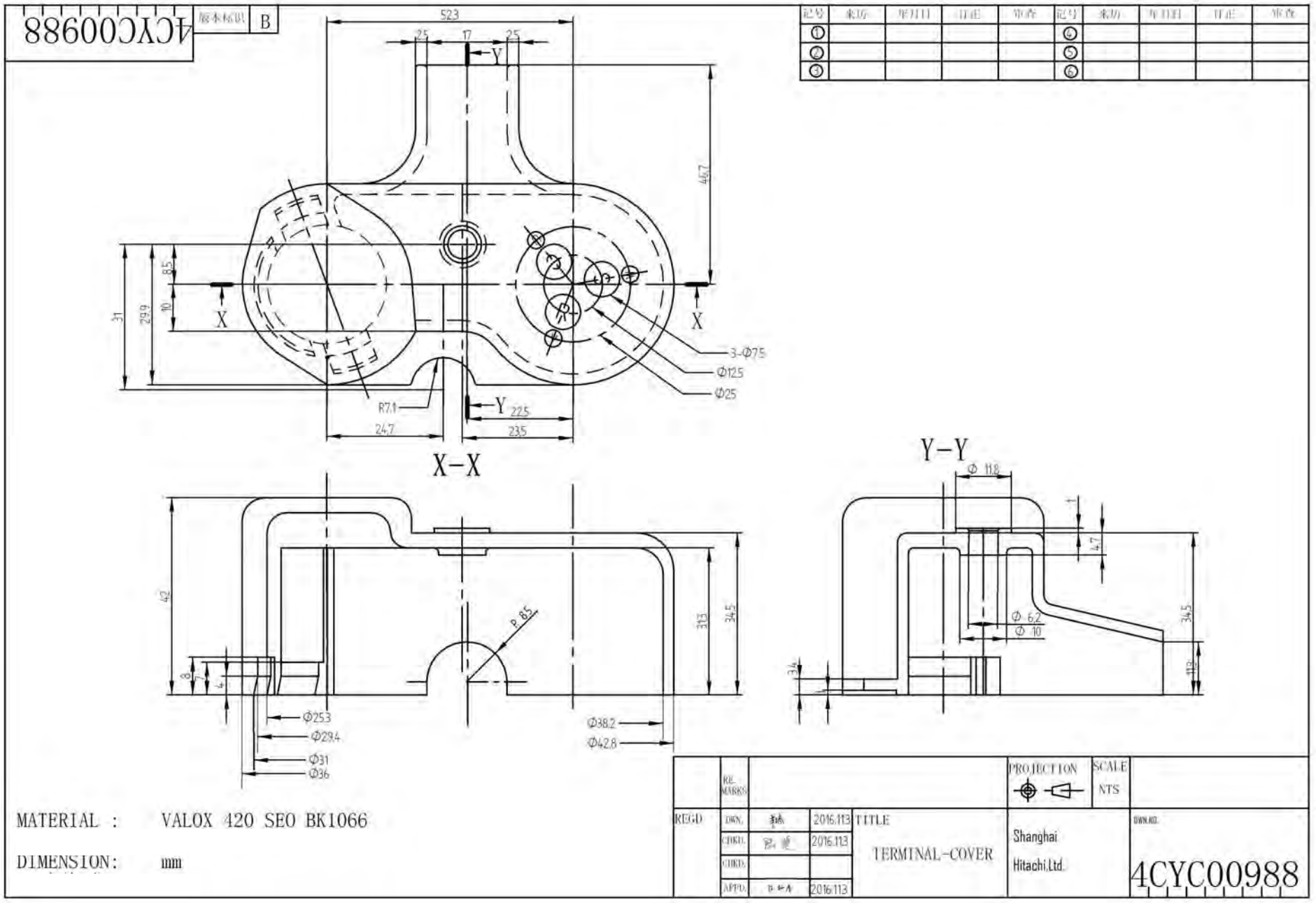




SPECIFIED LIMITS

	(OFF)	(ON)		
KSD301-11.5/10BC22520-S2	115±3℃	95±5℃	AC250V	10A
INT01L-6785	115±3℃	95±5℃	AC125V	15A
HPC-115/95-U1	115±3℃	95±5℃	AC250V	10A

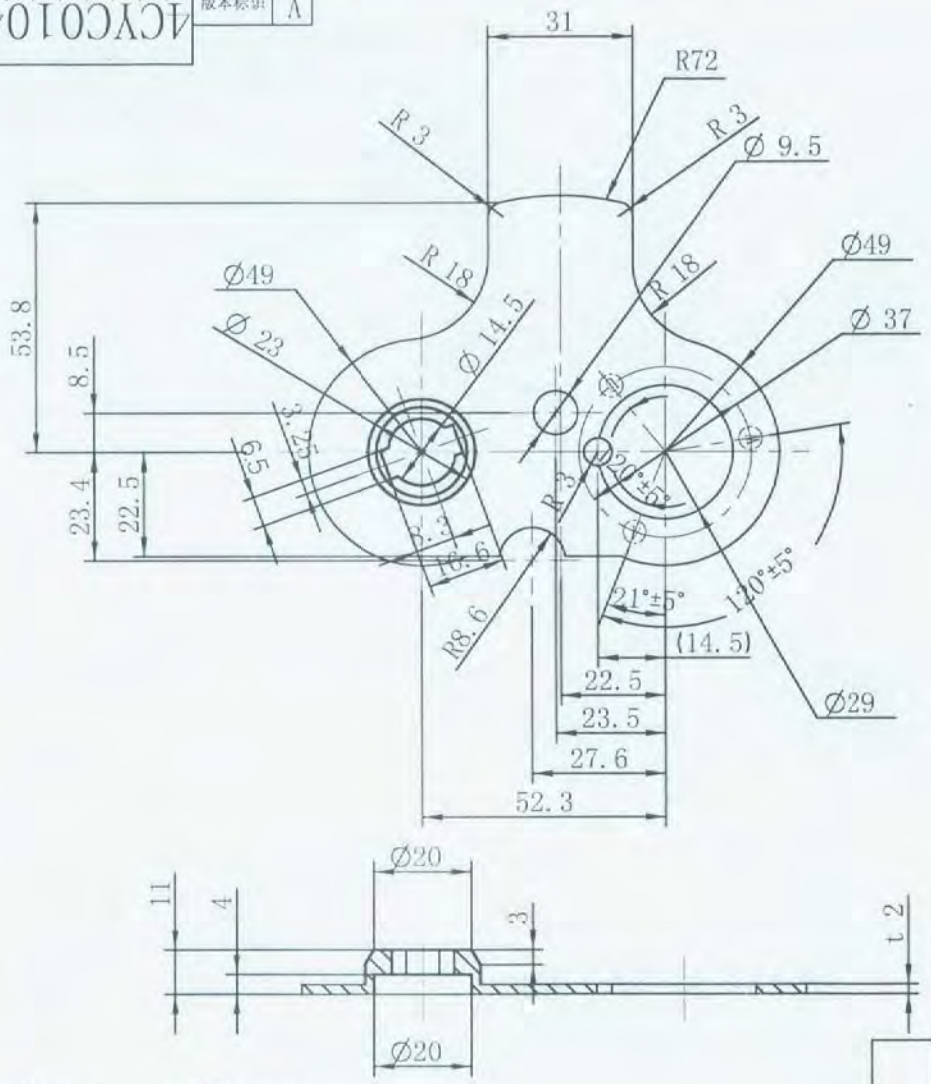
	RE. MARKS		PROJECTION	SCALE NTS	
REGD	DWN.	王燕 2012.6.8	TITLE		DWN.NO.
	CHKD.		THERMOSTAT	shanghai Hitachi,Ltd.	4CYC01036
	CHKD.	2012.6.8			
	APPD.	2012.6.8			


4CYC00988
版本标识 B
523
25
17
25
Y
467
85
10
299
31
X
X
3-Φ7.5
Φ12.5
Φ25
R7.1
Y
22.5
24.7
23.5
X-X
42
8
7
4
Φ25.3
Φ29.4
Φ31
Φ36
P.85
31.3
34.5
Φ38.2
Φ42.8
Y-Y
Φ 11.8
1
4.7
Φ 6.2
Φ 10
34.5
3.4
11.2
MATERIAL : VALOX 420 SEO BK1066
DIMENSION: mm
REMARKS
PROJECTION
SCALE NTS
REGD
DWN. 2016.11.3
CHKD. 2016.11.3
CHKD.
APPD. 2016.11.3
TITLE
TERMINAL-COVER
Shanghai Hitachi,Ltd.
DWG.NO.
4CYC00988

4CYC01047

版本标识 A

记号	来历	年月日	订正	审查	记号	来历	年月日	订正	审查
①					④				
②					⑤				
③					⑥				



MATERIAL : EPDMFOP-B

DIMENSION: mm

	RE. MARKS		PROJECTION	SCALE
				NTS

REGD	DWN.	12.2.9	TITLE	DWG NO.
	CHKD. 谢飞	12.29	GASKET	4CYC01047
	CHKD.		shanghai Hitachi Ltd.	
	APPD.	12.2.10		

版本标识	D

3CYC00004

记号	来历	年月日	订正	审查	记号	来历	年月日	订正	审查
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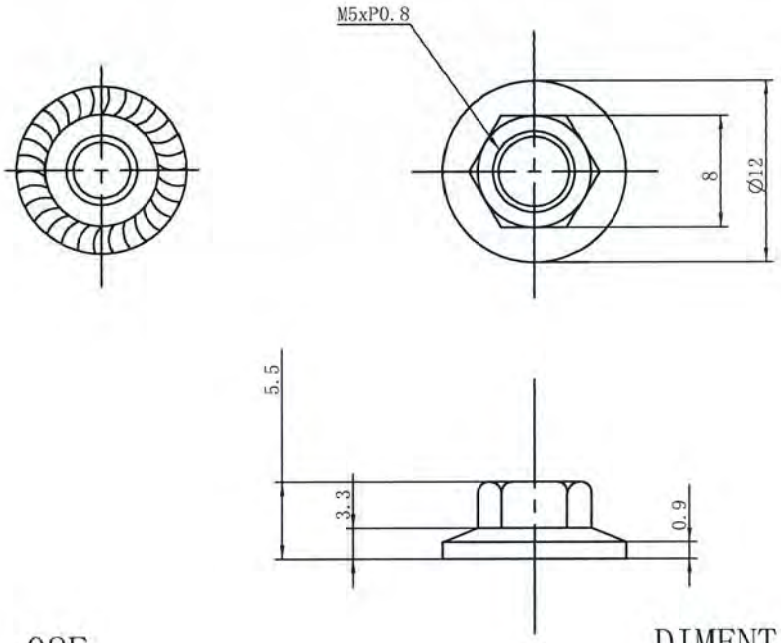
②					⑤				
③					⑥				



MATERIAL: 08F

DIMENTION: mm
尺寸单位: mm

	RE. MARKS			PROJECTION	SCALE
REGD	DWN.	17.3.2	TITLE	Shanghai Hitachi,ltd.	DWN.NO.
	CHKD.	17.3.3	NUT		3CYC00004
	CHKD.	17.3.3			
	APPD.	17.3.3			

4CYC00174

版本标识	A

记号	来历	年月日	订正	审查	记号	来历	年月日	订正	审查
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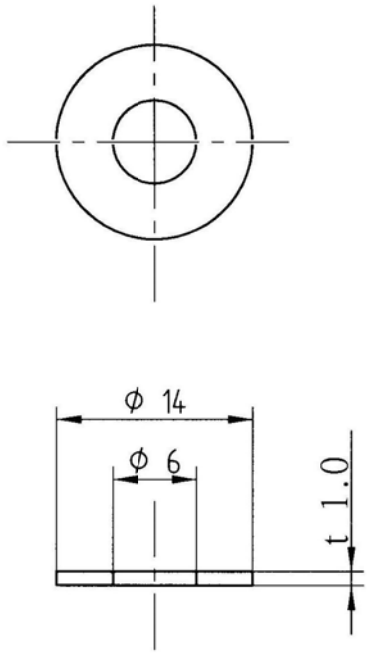
②					⑤				
③					⑥				



MATERIAL: EPDM

DIMENSION: mm

	RE. MARKS		PROJECTION	SCALE
				NTS

REGD	DWN.	[illegible]	2001.7.30	TITLE	Shanghai Hitachi,Ltd.	DWG. NO.
	CHKD.	吴建勇	01.7.30	RUBBER WASHER		4CYC00174
	CHKD.					
	APPD.	[illegible]	01.7.31			

版本标识	A

4CYC01042

记号	来历	年月日	订正	审查	记号	来历	年月日	订正	审查
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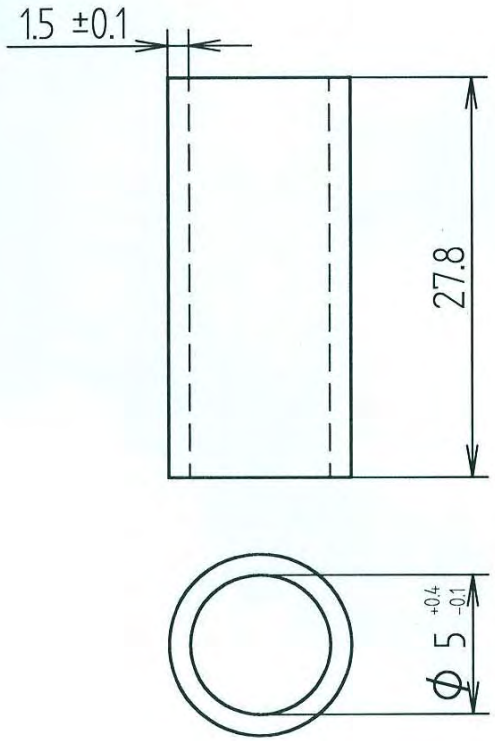
②					⑤				
③					⑥				



NOTE:
1. COLOR:WHITE
2. MATERIAL:SILICONE RUBBER

DIMENSION: mm

	RE. MARKS				PROJECTION	SCALE
REGD	DWN.	李世宏	12.2.1	TITLE		NTS
	CHKD.	王德	12.2.1	SLEEVE	Shanghai Hitachi,Ltd.	DWN.NO. 4CYC01042
	CHKD.					
	APPD.	元明祥	12.2.1			

4CYC01272 版本标识 A

记号	来历	年月日	订正	审查	记号	来历	年月日	订正	审查
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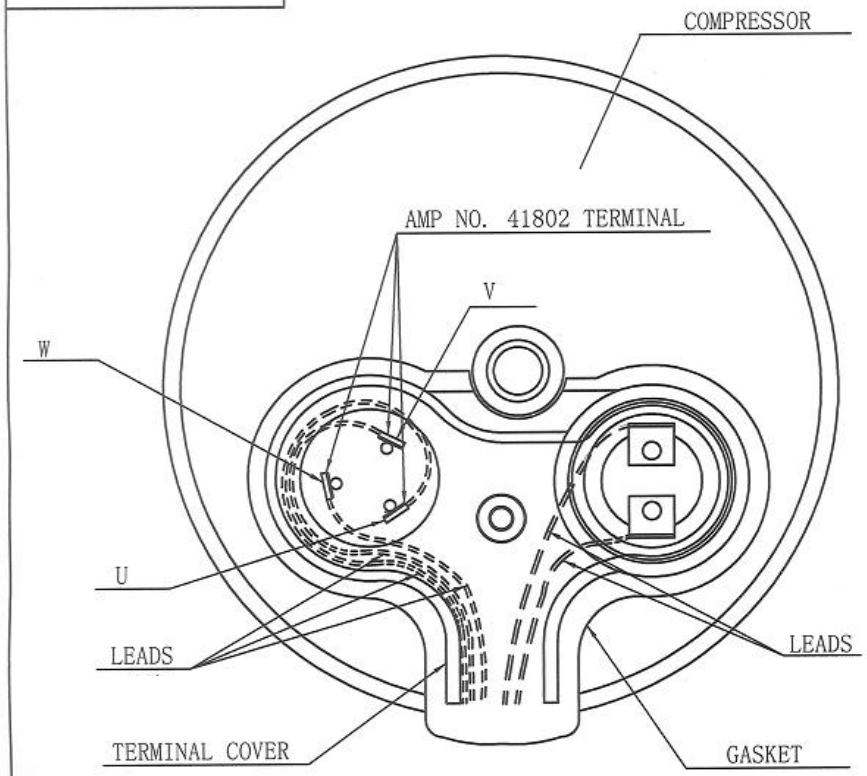
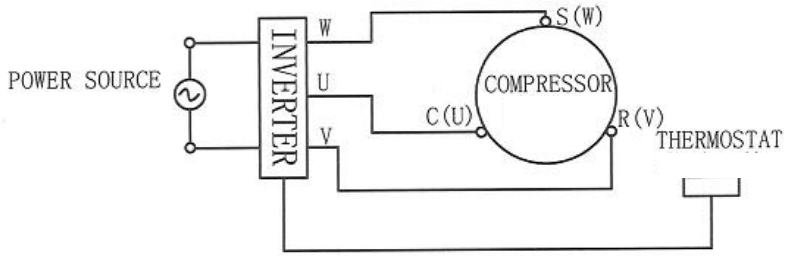
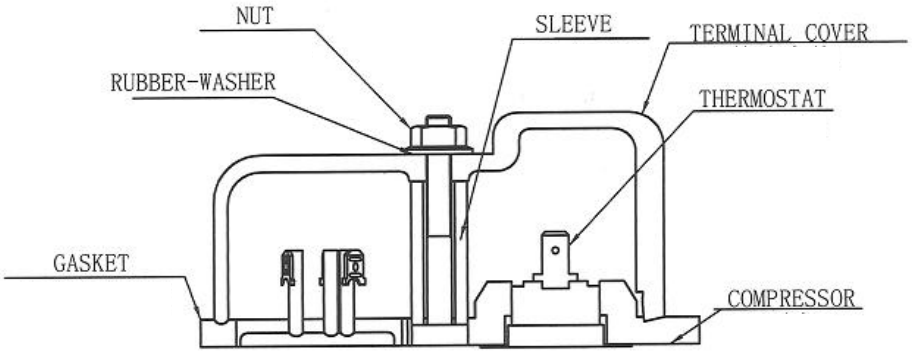
②					⑤				
③					⑥				



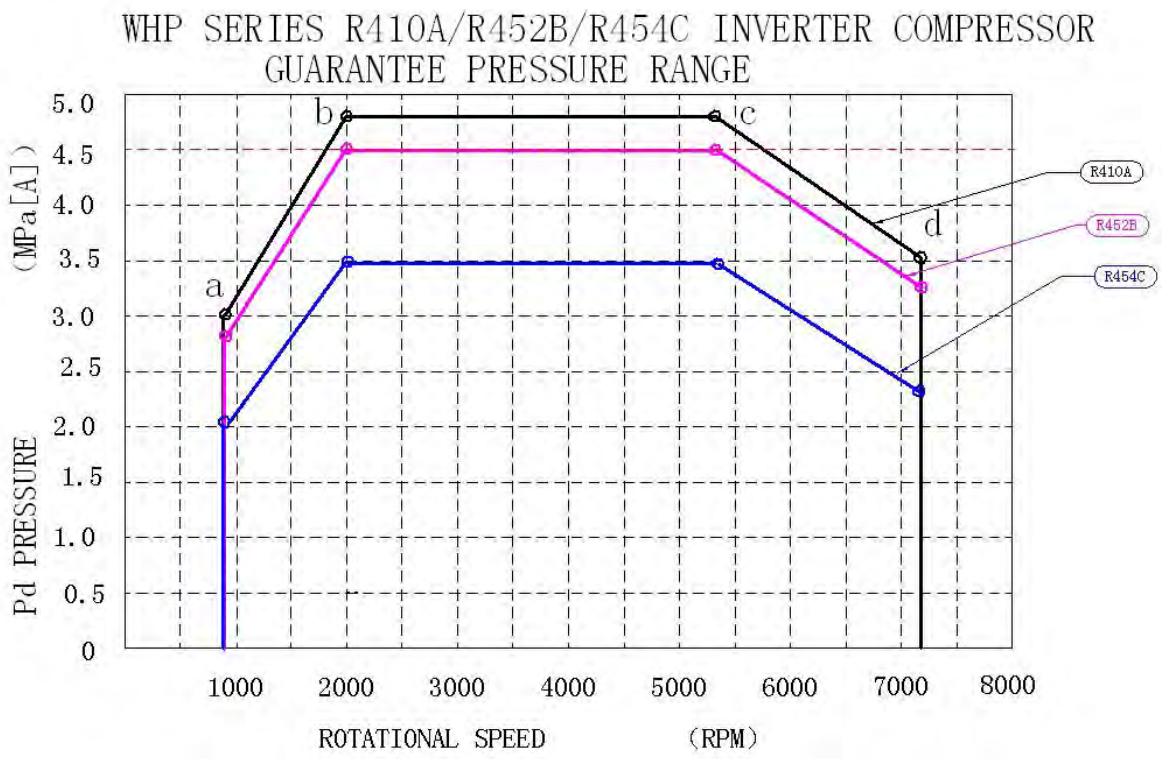




NOTES:
1. PLEASE PREPARE LEADS BY YOURSELF.
2. THE LETTER U, V OR W STANDS FOR EACH TERMINAL.
3. TABS FOR HERMETIC TERMINAL ARE AMP #250.
4. THERMOSTAT TO BE SET ON THE TOP OF COMPRESSOR AS SHOWN.

	RE. MARKS		PROJECTION	SCALE
				NTS

REGD	DWN. 杨淑通 2017.6.1	TITLE		DWN.NO.
	CHKD.	LEAD ROUTING WIRING DIAGRAM	shanghai Hitachi Ltd.	4CYC01272
	CHKD. 2017.6.1			
	APPD. 2017.6.1			



Graph 1

	Rotational speed (rpm)	Pd limit (MPa)		
		R410A	R452B	R454C
a	900	3.07	2.90	2.02
b	2000	4.76	4.49	3.47
c	5400	4.76	4.49	3.47
d	7200	3.51	3.32	2.31

CHART2 WHP DC INVERTER COMPRESSOR OIL LEVEL DATUM

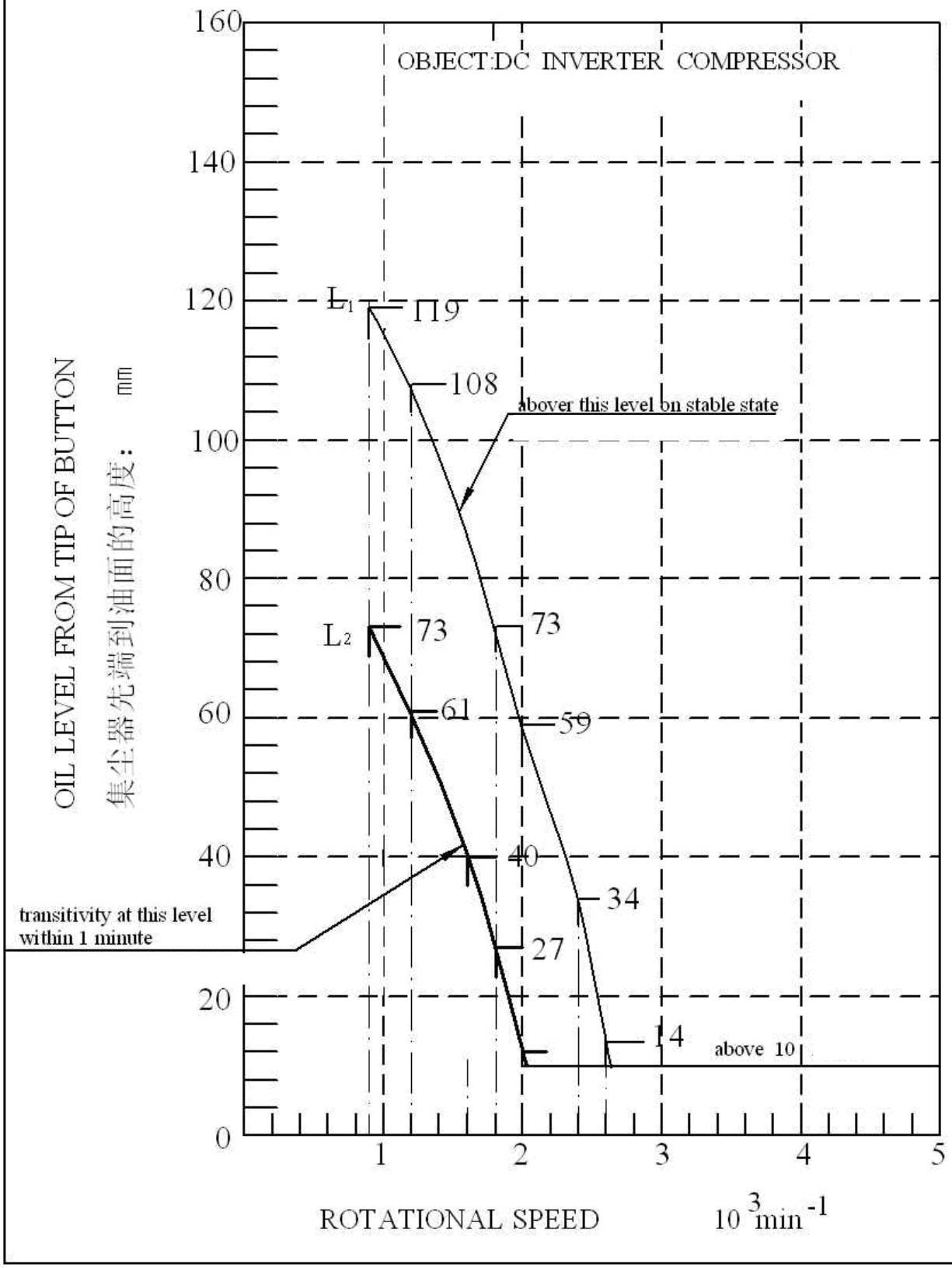
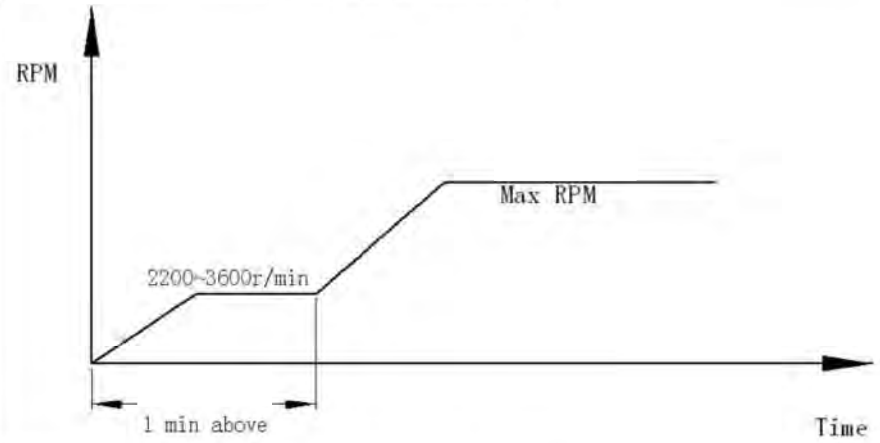


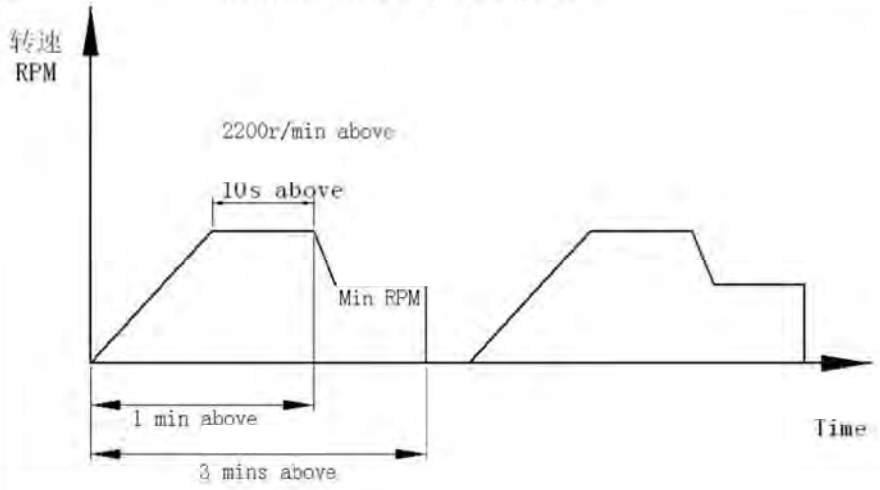
CHART 3 Instructions for Inverter rotary compressor revolutions change

Details: Models of inverter rotary compressor revolutions change as shown in figure (1)~(3), revolutions changing frequency is below 133min-1/s, minimum RPM and maximum RPM as shown in this Technical Agreement.

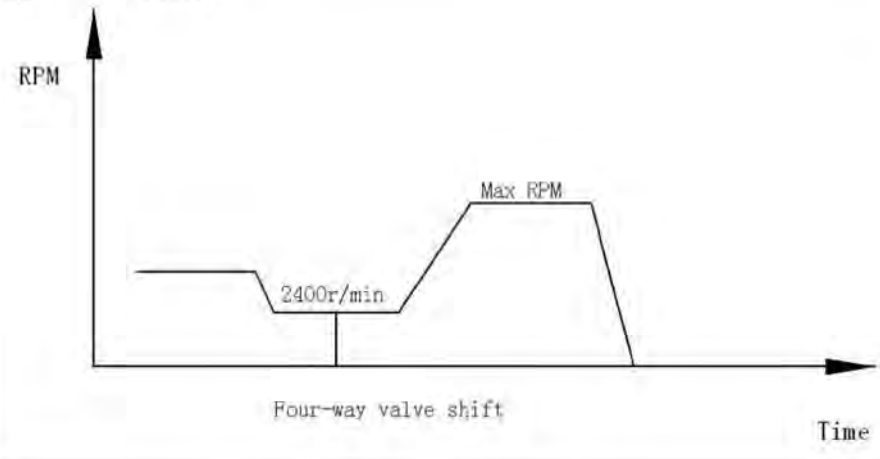
(1) (Form 0 rpm to maximum rpm)



(2) (Discontinuous running at low speed)

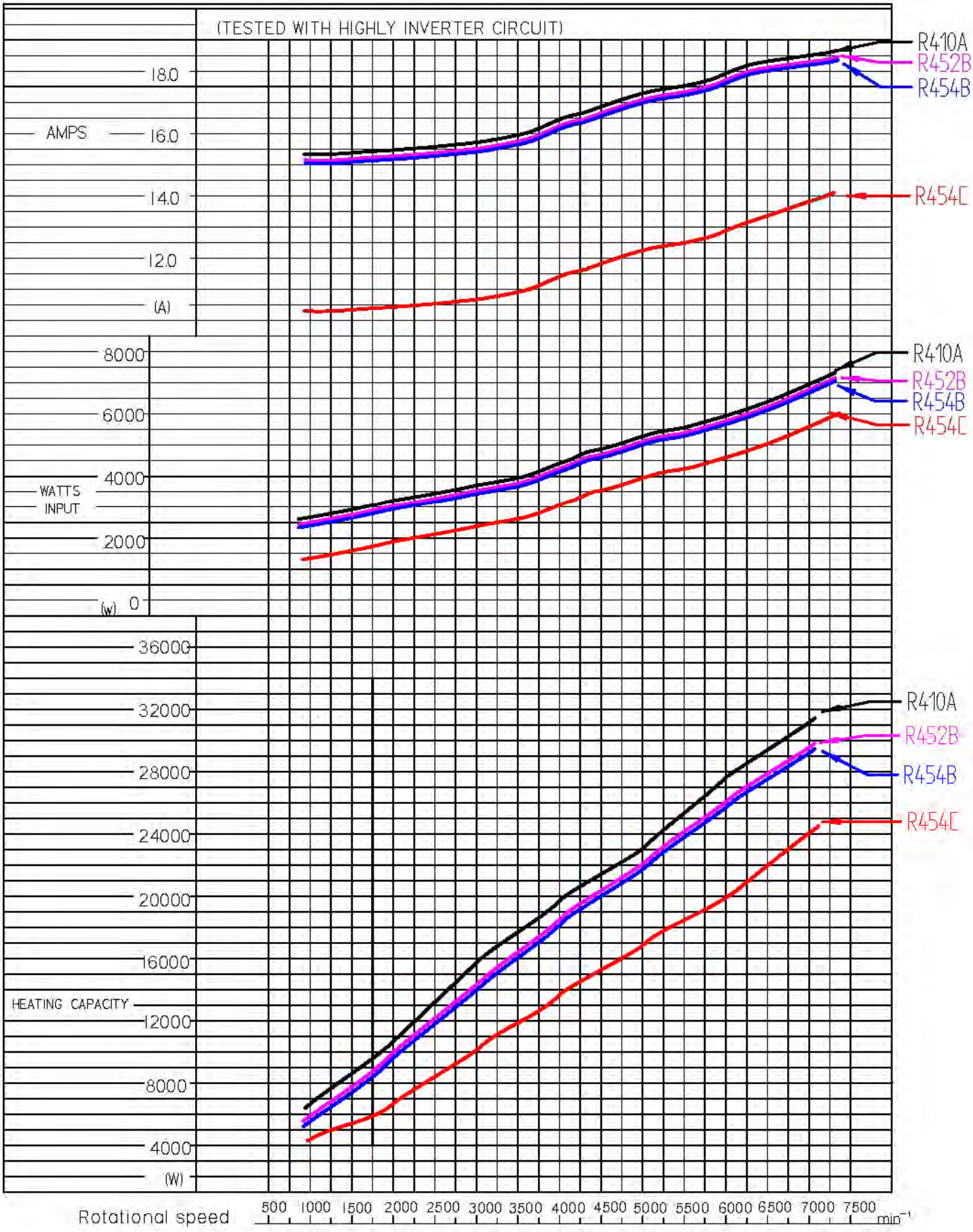


(3) (Defrost)



SHEC WHP COMPRESSOR
WHP15600VSDPC9EQ

to = 7.2℃ tsaug = 35℃
tc = 54.4℃ tumg = 35℃
tu = 8.3 K 2m/s Luftgeschwindigkeit



规格书修改经历 Specification Revision Record				
序号 No.	日期 Date	页码 Page in Spec	修订理由 Revision Reason	客户承认日期 Conclusion Date
A				
B				
C				
D				
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