*** 50Hz YH610C1G-100 Specification**

Specification		Notes
Standard mode	YH610C1G-100	Basic model
Extended model		
Extended model		
Extended model		
Extended model		
Extended model		

Revision record			
Revision record	Reviser	Description	Date
A	JXW		2019/8/28
C	JXW	Label	2019/6/29
D	JXW	Outline Dimensions	2020/8/4

Checked _____ Date _____

Approved _____ Date _____

1 Specifications

1.1 Basic Performance

Model	YH610C1G-100(including extended model)
Model	LP Cavity Hermetic Scroll Compressor
Application	AIR
Refrigerant	R410A
Displacement (cc/rev)	235.6
Cooling Capacity (W) [a]	61900
Input Power (W) [a]	18620
Running Current (A) [a]	33.6
Cooling COP [a]	3.32
Power (V/PH/Hz)	380-420V/3~/50Hz or 460V/3~/60Hz
Lowest Running Voltage (V)	342
Highest Running Voltage (V)	462
LRA (A)	266
MOC(A) [b]	45
Rated Speed (r/min)[a]	2900
Compressor Weight With Oil (kg)	104
Oil type	POE
Lubricating Oil Viscosity (cSt,40℃)	32
Oi Density (kg/L,20℃)	0.977
First Charge (L)	5.5
Recharge(L)	5.3
Oil Circulation (%)[a]	<1
Rated Sound (Sound Power) (dBA)[c]	77
Max Running Sound (Sound Power) (dBA)	84
Max Vibration Displacement Peak-Peak (mm) [d]	<0.12
Maximum Moisture (mg)	< 1500
Maximum Impurity (mg)	< 180
LVS (V) [e]	323
MOV (V) [f]	342
Start Capacitor (μF/V)	/
Start Relay	/
Run Capacitor (μF/V)	/
IP Rating	IP54
Compressor color	Black

1.2 Motor Parameters

Motor Type	Induction motor
Pole	2
Motor Insulation Temperature (℃)	130（B grade）
Terminals Resistance UV(CS)(Ω，25℃)	0.46（ ±10%）
Terminals Resistance UW(CR)(Ω, 25℃)	0.46（ ±10%）
Terminals Resistance VW(SR)(Ω, 25℃)	0.46（ ±10%）
Electrical strength	2000VAC / 1s / 50Hz, Leakage Current≤5mA
Insulation Resistance (MΩ)	>20
Ground Resistance (Ω)	<0.1

1.3 Safety operation restriction

Air tightness Test (MPa)	3.8-4.0
Highest Running Pressure	
High Side (Mpa) Low Side (Mpa)	H4.3/L2.0
Spare volume (without oil)	
High Side (L) Low Side (L)	H1.75/L14.7
Maximum Refrigerant Charge (kg）	See The Notes
Max Discharge Temperature℃	≤125℃
Compressor Start-Stop Revolution	Above 3min

1.4 Running Condition Notes：

Condition	Notes
a	First Rated Running Point
b	Maxload condition@90%rated voltage
c	First Rated Point, A class average sound power
d	First Rated Point, Maximal Shell Running Displacement Under Normal Direction
e	Discharge & Suction Pressure= Refrigerant 40℃ Saturation Absolute Pressure
f	Maxload condition

2 Rated Condition， Allowed capacity and cop ≥95% Rated， power≤105 Rated (Performance And Sound Test Needed 48hrs Break In Running)

SN	Rated condition	Max load condition
ET℃/CT℃/SHK/SCK/AT℃	7.2/54.4/11.1/8.3/35	11.9/65.5/11.9/8.3/46.1
Capcitiy deviation	≥95.0%	/
Power deviation	≤105.0%	/
COP deviation	≥95.0%	/

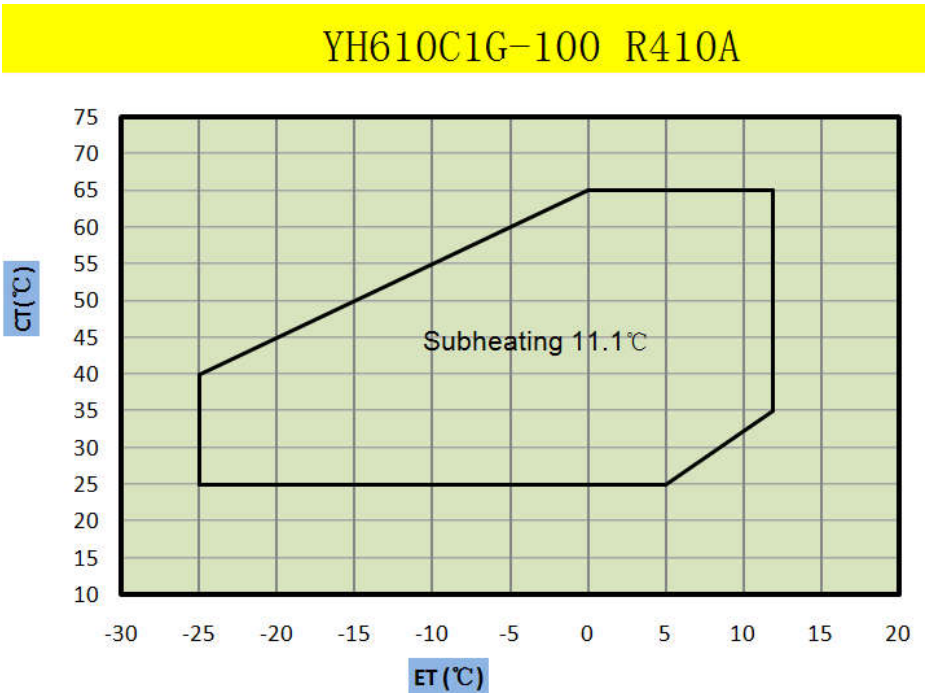
3 Internal Protection Parts

<table>
<tr><td>Protect Method</td><td>Configuration</td><td colspan="2">Date</td></tr>
<tr><td rowspan="3">Internal protector Protection</td><td rowspan="3">With</td><td>SN</td><td>INT69-E1</td></tr>
<tr><td>open tempreture (℃)</td><td>130±5</td></tr>
<tr><td>Reset mode</td><td>Protector power-off restart</td></tr>
<tr><td>Internal Pressure Release Valve Protection</td><td>With</td><td colspan="2">3.97-4.31Mpa</td></tr>
</table>

4 Standard Configuration

Description	P/N	Specifications	PCS
T-Block	070-3009-00	/	1
Cable gland	070-3013-00	M40×1.5	1
Grommet	070-3016-00	/	4
Sleeve	010-0014-00	/	4
Screws for Mounting Kits Nut	GB/T5783-2000 GB/T6170-2000	M8×70 8.8grade surface treatment M8 surface treatment	4 4
Nord-lock group for Mounting Kits	GB/T96.1 10	/	8
Nord-lock group	GB/T862.2	5MM	1
T-Block Screws	050-3027-00	Screw #10-32UNF	4

5 Compressor Running Envelop



6 Compressor Performance Sheet

- Superheat based on envelop, subheating is11.1k ,subcooling is 8.3k；
- The performance parameters calculated by polynomial coefficients are only applicable to the operating range；
- Tthe heating capacity, cooling capacity and power of compressor can be calculated by polynomial

6.1 Compressor Performance Sheet

Invotech Scroll YH610C1G-100 Compressor Performance Sheet								
		-20	-15	-10	-5	0	5	10
Cap (W)	65					36812	44768	53990
	55			31226	38382	46676	57346	67016
	50		27683	34296	41982	50826	60913	72326
	45	24077	30051	37033	45108	54361	64877	76741
	40	25972	32154	39364	47688	57211	68017	80191
	35	27672	33922	41221	49653	59305	70261	
	25	30207	36172	43228	51458	60948		
Power (W)	65					23262	23440	23551
	55			18281	18453	18569	18816	19069
	50		16294	16443	16541	16623	16722	16875
	45	14597	14709	14775	14830	14907	15043	15271
	40	13217	13237	13250	13292	13397	13599	13933
	35	11892	11850	11843	11902	12065	12365	
	25	9302	9231	9273	9462	9832		

6.2 Ten coefficients of polynomial

Expression	z = p0 + p1*x + p2*y + p3*x^2 + p4*x*y + p5*y^2 + p6*x^3 + p7*x^2*y + p8*x*y^2 + p9*y^3		
Description	z:Capcity W or Power W; Notes: Hcap W= Ccap W+ Power W x:ET℃ y:CT℃ p0~p9:coefficients of polynomial		
Ccap factor	Value	Power factor	Value
p0	46830.6	p0	6035.92
p1	1465.156	p1	338.8876
p2	1158.463	p2	153.3936
p3	28.86662	p3	8.41102
p4	36.40257	p4	-12.8856
p5	-26.2801	p5	-0.21352
p6	0.11292	p6	0.0443
p7	-0.08127	p7	-0.16231
p8	-0.55955	p8	0.12932
p9	0.09337	p9	0.03322

Notes：Coefficients of polynomial is based on the fitting results of some sample data, which can be used as a reference of compressor selection, but can not completely replace customer 's test.

7 Notes

7.1 The compressor shall not be used as a tool for vacuumizing the system, and can only be started after the refrigerant filling of the system is completed; If the field conditions can not complete the refrigerant charging at one time, at least 50% of the required refrigerant should be charged, and the compressor and system should be carefully confirmed to be safe, and the remaining refrigerant should be charged；

7.2 Refrigerant cannot be directly filled from the suction and exhaust pipe interfaces of the compressor and their vicinity, but should be filled as far as possible from the gas points, liquid storage tanks and other locations far away from the compressor interfaces to prevent liquid refrigerant from migrating into the suction cavity of the compressor and causing startup with liquid;

7.3 Description of maximum refrigerant charge: the weight ratio of lubricating oil to refrigerant should be ≥ 0.4；

7.4 Do not run in vacuum, idle or reverse for a long time；

7.5 Do not use any gas or substance other than the refrigerant indicated by the compressor；

7.6 Do not run beyond the indicated operating range of the compressor, and try to avoid starting with suction liquid. During normal operation, ensure that the suction side is superheated gas；

7.7 After the rubber plugs of the suction and exhaust interfaces of the compressor are opened, the welding and assembly work should be completed within 15 minutes；

7.8 The compressor shall not be started and stopped frequently, so as to prevent the lubricating oil in the compressor from being discharged in large quantities along with the refrigerant.；

7.9 before the compressor starts, the exhaust pressure-suction pressure ≤ 0.3 MPa;

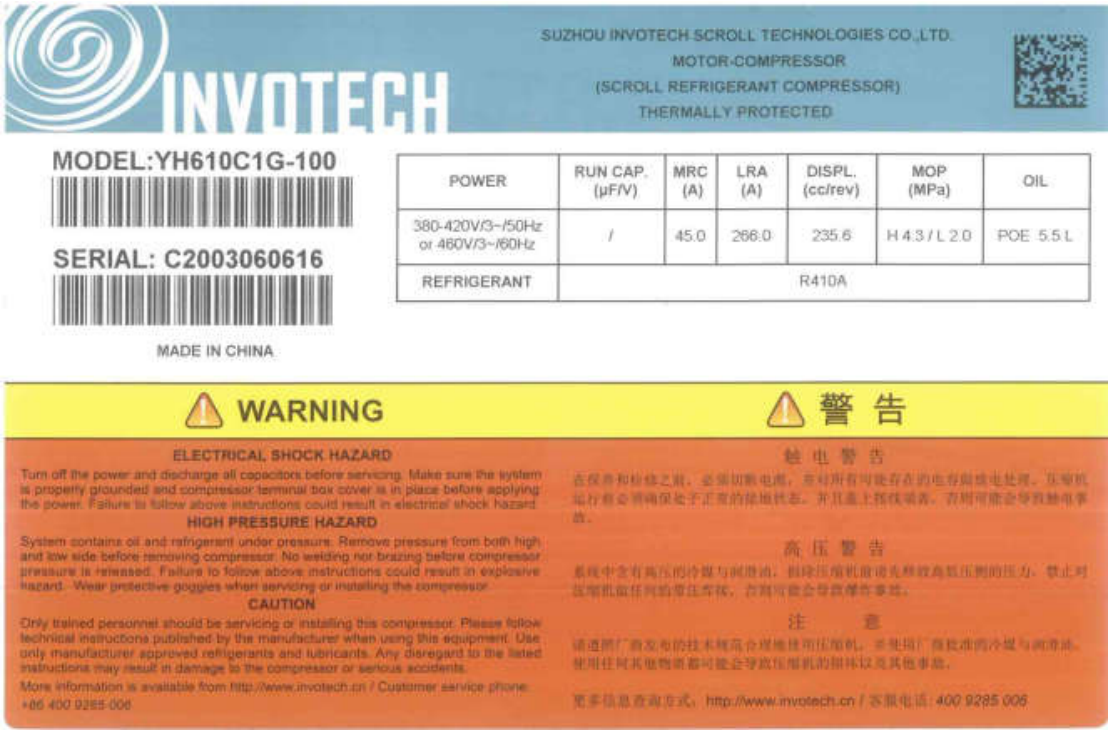
7.10 Operating voltage range shall be within 10% of rated voltage;

7.11 In the application of low temperature conditions, a large amount of refrigerant may migrate into the compressor cavity and deposit at the bottom of the compressor. When starting, the lubricating oil enters the scroll with the refrigerant, causing liquid hammer and a large amount of lubricating oil to be discharged, causing the compressor to be worn due to lack of oil. It is recommended to install a crankshaft heating device, and the power of the crankshaft heating device is recommended to be 120 W;

7.12 The system should be equipped with necessary pressure, temperature, overcurrent, lack of equal protection and oil return devices;

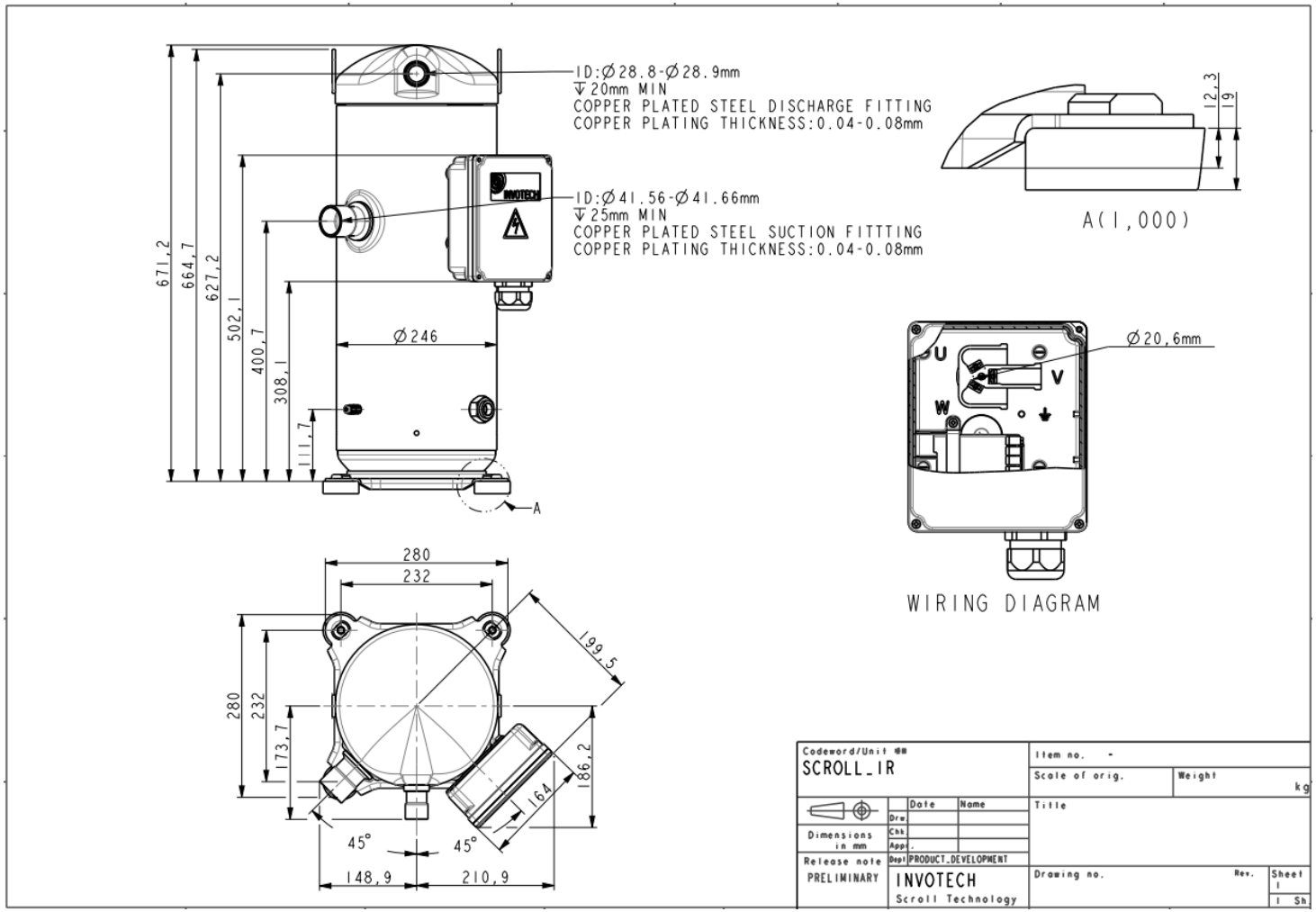
7.13 The compressor shall not be laid flat or inverted during handling and installation, and the maximum inclination angle during transportation and operation is 15;

8 Label

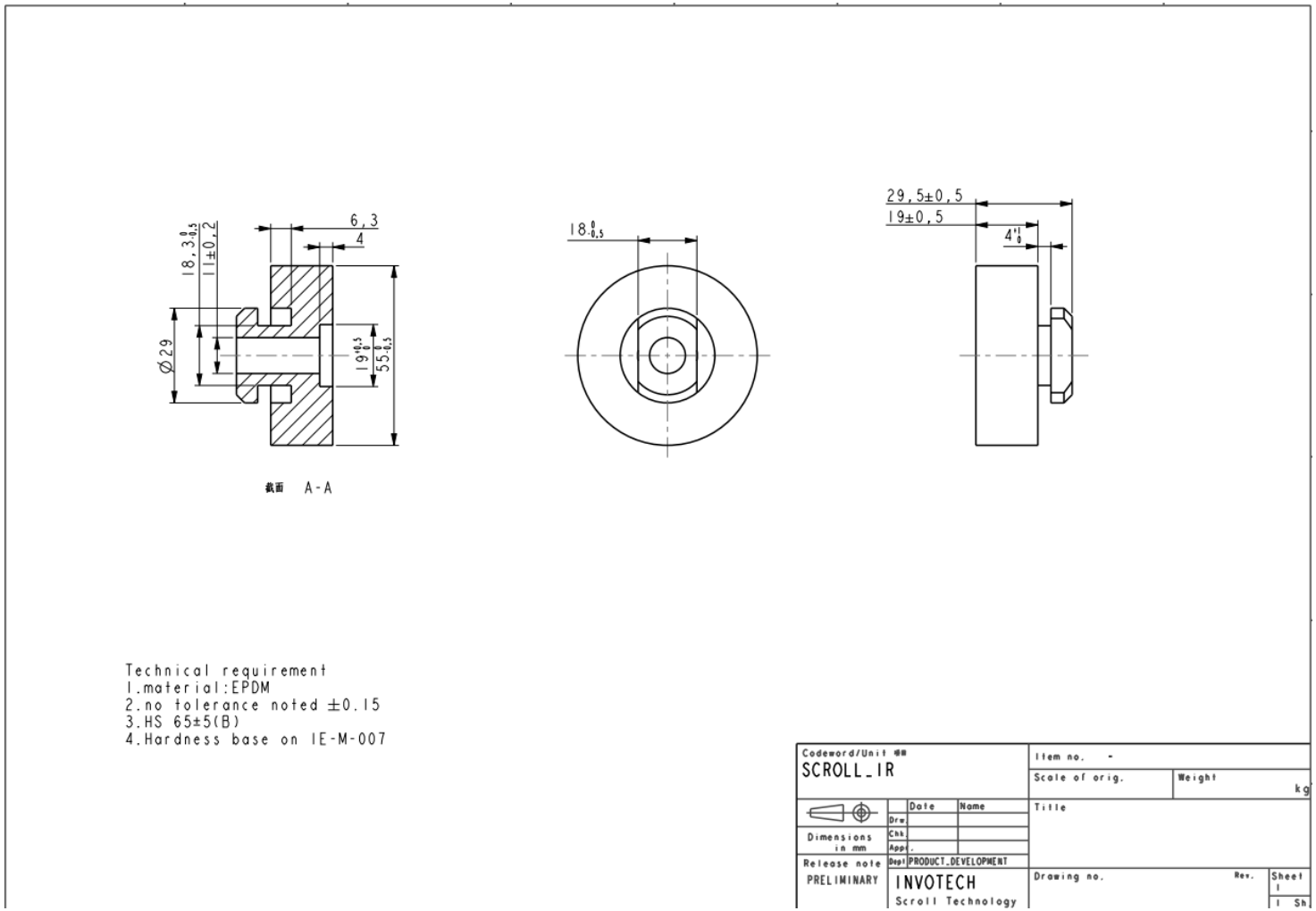


9 Compressor Dimensions

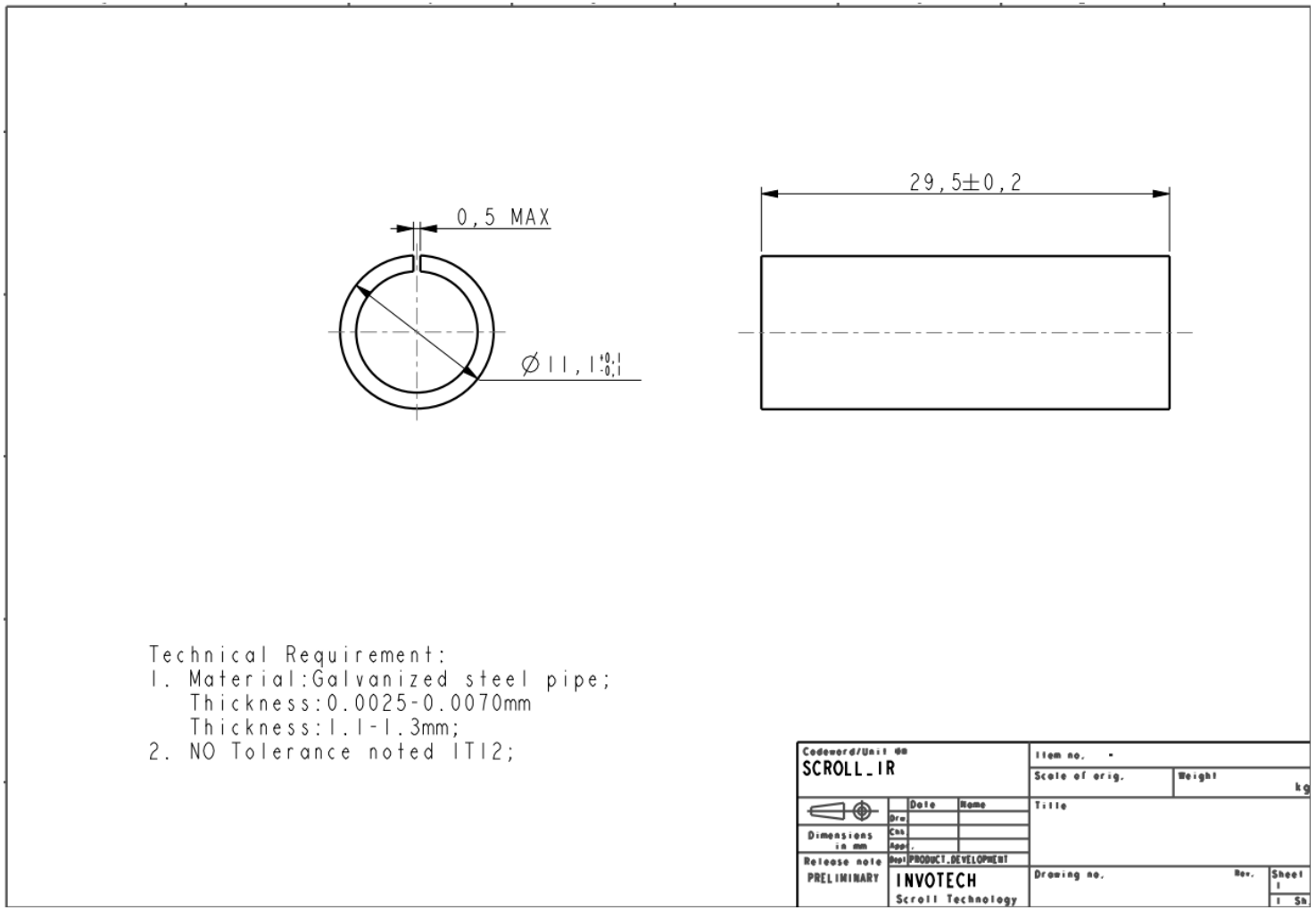
9.1 Outline Dimensions



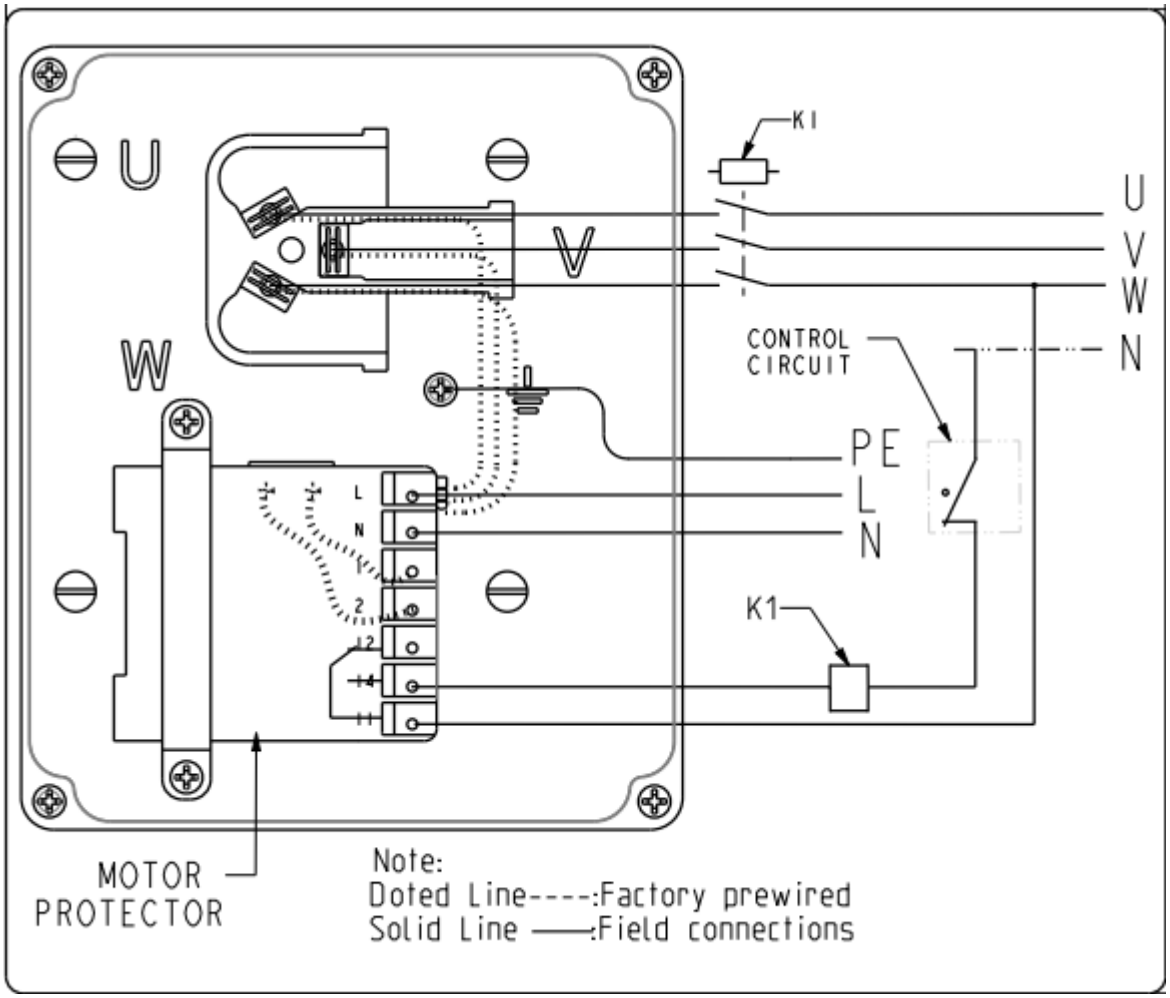
9.2 Grommet


6,3
4
Ø29
29,5±0,5
19±0,5
4
截面 A-A
Technical requirement
1.material:EPDM
2.no tolerance noted ±0.15
3.HS 65±5(B)
4.Hardness base on IE-M-007
Codeword/Unit
SCROLL_IR
Item no. -
Scale of orig.
Weight
kg
Date
Name
Drw
Chk
App.
Dept PRODUCT_DEVELOPMENT
Title
Dimensions in mm
Release note
PRELIMINARY
INVOTECH
Scroll Technology
Drawing no.
Rev.
Sheet 1
1 Sh

9.3 Sleeve


0,5 MAX
Ø11,1 +0,1 -0,1
29,5±0,2
Technical Requirement:
1. Material:Galvanized steel pipe;
Thickness:0.0025-0.0070mm
Thickness:1.1-1.3mm;
2. NO Tolerance noted IT12;
SCROLL_IR
INVOTECH
Scroll Technology
PRELIMINARY
PRODUCT DEVELOPMENT

10 Compressor wiring diagram



11 Application Guide

See《INVOTECH YH Compressor Application Guide》