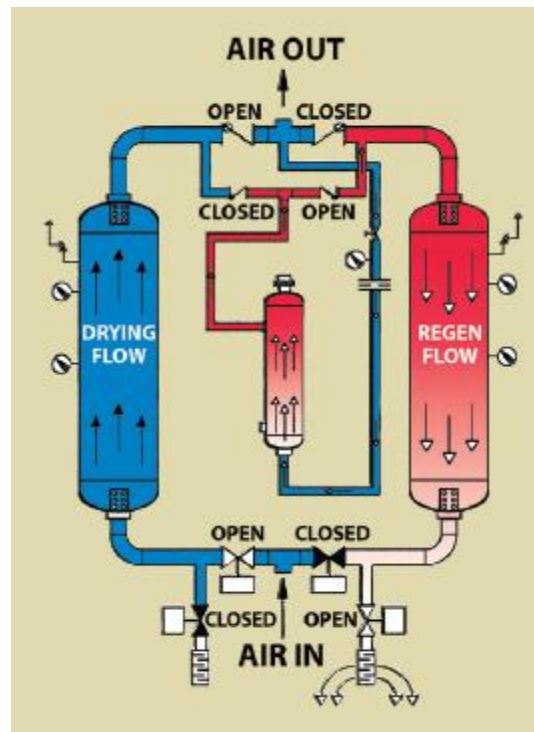




Heat Regenerative Air Dryer Specifications	
Power requirements	380VAC, 50Hz, 18kW
Air Handling Capacity	3000CFM/ 85Nm ³ /min (continuous flow)
Maximum Working Pressure	30Bar/ 3.0 MPa
Maximum Dew Point Range	-70°C
Outlet Dew point Meter	Mitchell EA-TX-100 (Calibrated range – 70DP)
Inlet / Outlet Flange Size	3", 300#, RF Flange
Air Handling Hoses	2", 600psi, MNPT threaded
Oil Mist Separator	0.1 & 0.01 um Sieves
Features	PLC controlled c/w EX-proof LCD panel; Low pressure shutdown; Low purge rate 5%; ASME rated EX-proof towers; Thermostatically-controlled, low watt heating element;
Skid Framing,	2510 mm x 2710 mm x 2896 mm x 5MT
No of Units	2

OCS owned Air Dryer is used in pipeline pre commissioning operation spread for the drying operation. The drying of pipeline only applies for gas pipelines, to avoid formation of hydrate or corrosion. There are various methodologies for drying pipelines such as methanol, air drying vacuum and nitrogen. The most commonly used is dry air.



The heat regen dryer allows for continuous air to flow through a desiccant tower at any one time, during which the other tower undergoes a heat regen process to remove moisture in the desiccant. The tower switches via a system of solenoid controlled pneumatic valves to direct the air flow. Each cycle's duration is 4 hours. 5% of the air volume is used for heat regen purposes and flows through the heating element to regen tower. Air pressure will be retained.

Every regen cycle consists of 240 minutes, of which 170 minutes is to produce 160 degree Celsius hot air to flow through the regen desiccant and 70 minutes of cooling down the same desiccant. Meantime, air flows continuously through the drying tower.

The regen air dryer works on air pressure, minimum 4 Bar and maximum of 30 Bar. For efficiency, it is best to work on minimum 24 Bar. 25 Bar high pressure compressors, commonly available in the market, are required for the proper functioning of the dryer system. For desiccant drying, the regen heating air should be set at 4 Bar. The heater should be at a temperature of 180 degree Celsius, this may be controlled via the heat regen valve position.

The status of each cycle may be read off the LCD displayed. Every cycle is ended with the purging of water residue from the regen tower. The water is dispelled from the silencer. Although at low temperatures of 24C, the air/ water is high pressure and operators should avoid standing near the silencer.

Dry air comes off the dryer outlet at the top flange and the Dew point (DP) temperature may be read off the LCD display. This measurement is as good as the DP temperature for the inlet at the pipeline.

For project specific purposes, the dryer must always be working at pressured state, that is to mean the compressor has to work against a pressure, say water column during dewatering, or a flanged up pipeline with NRV at the other end.

AIR DRYING SPREAD

OCS has Equipment passports for individual equipments which must be reviewed before each project to assess the status. The equipment passport gives the working history, maintenance and certification history of equipment.

It is important to regularly review the list of critical spare parts of the equipment before each project. Where failures occur during operations Equipment bulletins will be issued to document the problem and the remediation solutions applied. The equipment bulletin will be circulated to all field engineers to be informed about the possible failure that can occur during the operation and thereby avoid future failure

This equipment file remains a live document and will be constantly updated by the equipment



STATEMENT OF CONFORMITY

产品合格证

Air Treatment

空气净化器型号: PES-3100

Serial Number

系列号: CNO350946

We certify that the performance of the air treatment detailed above fully conforms with our specifications according to JB/T10532-2005. 本空气净化器, 经出厂试验检测其性能完全符合 JB/T10532-2005 标准规定的要求, 特发此证。

checker

检查员:

Date

日期: 2013-7-22

Wuxi Pneumatech Air/Gas Purity Equipment Co.,Ltd 无锡纽曼泰克气源净化设备有限公司
电话(Phone)+86(0)510 85211442 85214901 传真(Fax)+86(0)510 85217869
Add: 15-1 Changjiang South Road, Wuxi City, Jiangsu P.R. China 地址: 无锡市新区长江南路15号-1
邮编(PC): 214028

纽曼泰克公司再生式干燥机出厂测试检验报告

PNEUMATECH INC. REGENERATIVE AIR DRYER SHOP TEST REPORT

生产工段 BUILD GROUP	VII	生产日期 BUILD DATE	2013-6-23	完工日期 FINISH DATE	2013-7-11	出厂日期 SHIP DATE	2013-7
外观 OUT LOOKING	OK	油漆 PAINTING	OK	标签 LABELS	OK	包装 PACKING	OK
型号 MODEL	PES-3100	产品编号 SERIAL NUMBER	CNO350946	电源 POWER SUPPLY	380V-3PH-50HZ	压力容器编号 VESSEL N.B.#	13R-031-1 13R-031-3
测试条件 TEST CONDITIONS	干燥机泄漏测试压力(MPa)	再生排气阀 PURGE VALVES	4.38	净化节流孔径(mm) PURGE ORIFICE	干燥剂填充量 DESICCANT CHARGE (公斤/塔 kg/tower)	活性氧化铝 ALUMINA	分子筛 MOLECULAR SIEVE
	控制管路泄漏测试压力(MPa)	再生排气阀 PURGE VALVES	0.8	11.1		3~5mm 80kg/塔 6~8mm 40kg/塔	280KG/T
阀门测试 VALVES TEST	塔 TOWER	进气阀 INLET VALVES	再生排气阀 PURGE VALVES	出气阀 OUTLET VALVES	再生进气阀 PURGE VALVES	降压阀 DEPRESS. VALVES	升压阀 REPRESSURIZING VALVE
	左塔 L.T.	OK	OK	OK	OK	OK	排水阀 DRAIN
电气测试 ELECTRICAL TEST	右塔 R.T.	OK	OK	OK	OK	OK	/
	耐压测试 De Hipot Test 1000V 3S, 10mA	绝缘电阻($\geq 2M\Omega$) Insulation Resistance Test	接地电阻检测 Ground Bond Test 10A < 0.1Ω	0.09Ω	OK	加热 HEATING	程序测试 SEQUENCING
控制元件设定 CONTROL SETTINGS	运行灯 POWER ON	OK	露点控制灯 DEMAND CYCLE	左塔干燥灯 L.T.SWICH	右塔干燥灯 R.L.SWICH	右塔降压 R.T. PURGE	高露点控制 H.H.LIGHT
	净化压力 (MPa)	低压警示灯 LOW PRESSURE	加热器 HEATER ON	/	/	/	/
测试人 PERFORMED BY	斯冬涛	测试日期 TEST DATE	2013-7-11	结论 REMARK	时间继电器 (min) TIME DELAY RELAYS	电加热温控 (°C) HEATER THERMOSTAT	露点温度 (°C) DEW POINT DEMAND
	0.31	0.4	1.0	0.7	3.7	过温温控 (°C) OVER TEMP. THERMOSTAT	/
备注 MISC.	露点仪探头: FF78-028						

CERTIFICATE OF CALIBRATION

The under-mentioned item has been calibrated at the following points in the Michell Instruments Humidity Calibration Laboratory against Test Equipment traceable to the NATIONAL PHYSICAL LABORATORY, Middlesex, United Kingdom and to the NATIONAL INSTITUTE OF STANDARDS & TECHNOLOGY, Gaithersburg, Maryland, USA.

Dew point Traceability to National Physical Laboratory: -90 to +90 deg C

Dew Point Traceability to National Institute of Standards & Technology : -75 to +20 deg C.

Certificate Number	397569	Reference Number	A31309
Test Date	08 April 2013	Test Equipment	Q0368
Sensor Serial No	FF78-028	Instrument Serial No	
Model	EA2-TX-100		

Sensor Characterisation Table

Data Obtained by comparison against a Michell Instruments S4000 Precision Dewpointmeter

Generated Dew point °C	Measured Dew point °C
-100.0	-100.0
-80.6	-80.6
-60.6	-60.7
-40.4	-40.5
-20.2	-20.2
0.6	0.7
18.3	18.3

Comments:

Calibration PASS. The Results are within specification of the sensor at the measured points detailed

Calibration Work Instruction used: 274

Sensor Accuracy: +/- 1°C from -60°C to +20°C DP
 +/- 2°C from -60°C to -100°C DP

The Measurement Uncertainty for the Measured dewpoint increases linearly from 0.20 to 0.40 °C over the range +20 to -60 deg C.
± 0.40 to ± 0.73°C over the range -60 to -80°C, ±0.73 to ±1.13°C over the range -80 to -90°C
and ±1.13 to 1.72°C over the range -90 to -100°C(NOT Traceable).

The Uncertainties are based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%.

Checked By

Grant Cook

10 April 2013



防爆合格证

CONFORMITY CERTIFICATE OF EXPLOSION-PROOF

证号
Certificate No. CE12.1224

产品名称
Name of Product

防爆控制箱

型号及规格
Type of Product

BET56-C

防爆标志
Marking

Ex d II C T6 Gb/DIP A20 Ta,T6

技术文件
Technical Documents

Q/320681 KPD122-2011

图号
Drawing No.

BET56-C-00

备注
Note (s)

1. 额定电压: AC220V、AC230V、AC240V、AC380V、AC400V、AC414V。
2. 额定电流: $\leq 400A$ 。
3. 外壳防护等级: IP66。

经对上述产品图样及技术文件的审查和样品的检验, 其符合以下中国现行标准:

By verifying the drawings and technical documents and checking samples, the product complies with the following standards currently valid in P. R. China:

GB3836.1-2010

GB3836.2-2010

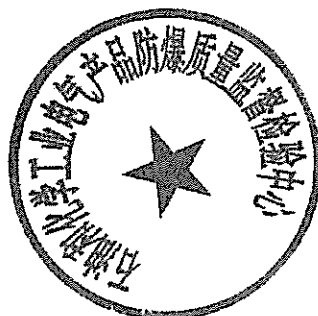
GB12476.1-2000

发给: 江苏欧瑞防爆电气有限公司

本证失效日期:
Date of Expire: 2017-05-31

发证日期:
Date of Issue: 2012-05-31

中心印章
Center seal



中心主任
Director

刘红光

石油和化学工业电气产品防爆质量监督检验中心
Supervision & Test Center of Ex-products of China Petroleum & Chemical Industry

注: 本证仅对与送检样品一致的产品有效。

Note: This certificate is only valid for the products that are in accord with sample(s) tested and verified.

中心地址: 中国天津市丁字沽三号路85号

Center Add: No.85 No.3 Road DingZiGu Tianjin China Post code: 300131

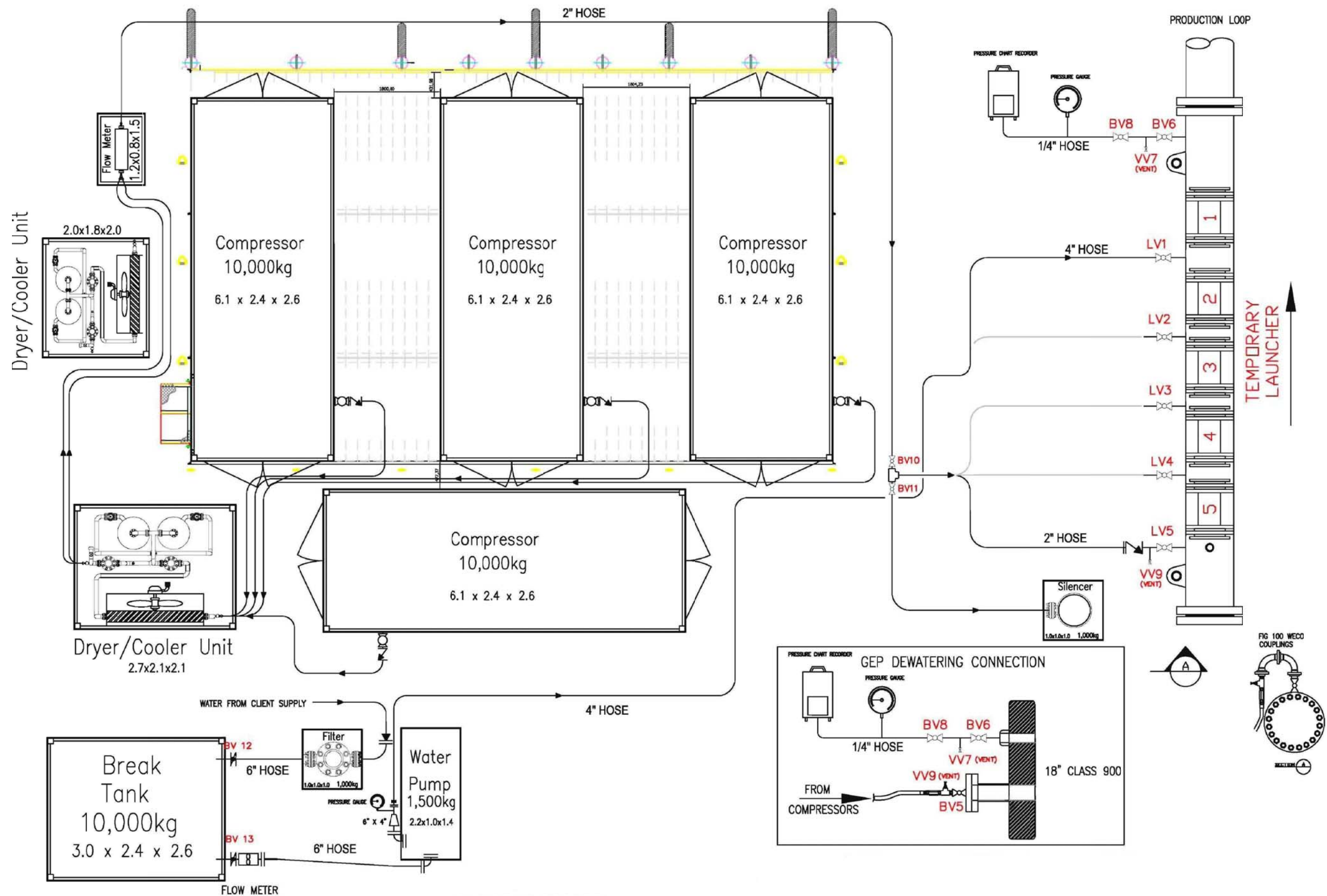
E-mail: cec@pcec.com.cn

邮政编码: 300131

电话/传真: 022-26651066 / 26689116

Tel/ Fax: 022-26651066 / 26689116

<http://www.pcec.com.cn>



NOTE: EQUIPMENT CONFIGURATION IS SUBJECT TO
CHANGE DEPENDENT ON SITE CONDITION AT TIME OF INSTALLATION.

[illegible]