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使用说明书 Operation Instruction



PRESSURE GAUGE

压力表



- 标准型
- 隔膜型
- 膜盒型
- 抗震型
- 电接点型

- Standard Type
- Diaphragm Type
- Diaphragm capsule Type
- Shock-resistant Type
- Electric Contact Type



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关于本公司

About The Company

安徽天康（集团）股份有限公司是一家国内知名的仪器仪表设计与制造公司，产品用于流程工业、过程控制，实现温度测量，压力测量、流量测量、物位测量及控制系统集成。

作为工业现场参数测量仪表的主要生产商之一，我们为国内外的客户提供应用方面的专业知识、服务及支持。

公司产品的质量、精度及性能来自于四十年的经验，以及对于最新技术的创新设计与持久开发。

Anhui Tiankang (Group) Co., Ltd is a company famous for the manufacturing and design of instruments and meters at home, its products are applied to process industry, process control, achievement of temperature measurement, stress measurement, flow measurement, level measurement and control system integration.

As one of the main producers of industrial field parameter measuring instruments, we provide professional knowledge, service and support in the application for domestic and overseas clients.

The quality, accuracy and performance of the Company's products come from forty years of experience, as well as innovative design and sustainable development of the latest technology.

健康与安全

Health And Safety

为了确保我们的产品安全，不影响健康，务必注意以下各点：

- 1、使用前必须仔细阅读说明书的有关章节。
- 2、必须遵守容器或包装上的警示标签。
- 3、必须由经过培训的人员按照所列信息进行安装、操作、维护及保养。一切由于违反本说明书而造成的后果均由用户承担。

- 4、务必遵守一般的注意事项，以避免在高压或高温下运行时发生事故。

In order to ensure our product safety and do not affect the health, make sure to pay attention to the following points:

1. Make sure to read relevant chapters of the Instructions carefully before use.
2. Make sure to follow caution Label on the container or packaging.
3. Make sure that installation, operation, maintenance and preservation are performed by trained staff according to information listed. All consequences caused by violation of the Instructions shall be assumed by users.

4. Make sure to follow general notes to avoid accident in operation under high pressure and temperature.

有关手册所述设备使用的的安全事项或任何相关的危害数据表（适用时）可以从公司取得，地址如封底所示，同时提供保养及备件信息。

Safety precautions relevant to equipment use described in the Manual and any relevant hazard data table (where applicable) can be obtained from the Company. Address is shown as the back cover and information on maintenance and spare parts is provided at the same time.

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引言

Instruction

天仪®系列压力表是由安徽天康(集团)股份有限公司推出,采用现场安装方式的机械指针式压力表。天康集团40年的产品研发、改进和应用经验,凭借着原有的基础,不断的引进先进技术和设备使压力产品性能更可靠、性价比更高。

Tianyi® series pressure gauge, launched by Anhui Tiankang (Group) Co., Ltd., is the pressure gauge with mechanical pointer. With near 40 years of experience in product R&D, improvement and application, based on original foundation and continuous introduction of advanced technology and equipment, the equipment product performance is more reliable and cost effective.

天仪®系列压力表现已开发的有: 标准型压力表(普通压力表、 不锈钢压力表), 隔膜压力表、膜盒压力表、电接点压力表、抗震压力表、膜片压力表、差压压力表。其产品的特点如下:

- 1、机械指针式结构设计,易于调试与维护
- 2、精密机械加工,易于安装密封
- 3、不同材质产品,满足使用环境要求
- 4、多样的化学密封,针对特殊介质测量
- 5、全焊接式设计,保证密封性和强度
- 6、高性能抽真空设备,精密隔膜体制造
- 7、选型简单、参数明确
- 8、针对目标市场,专业产品设计

Available Tianyi® series pressure gauges are: standard type (normal pressure gauge, stainless steel), diaphragm type, diaphragm capsule type, electric contact type, shock-resistant type, membrane type, differential pressure type. The product characteristics are as follows:

1. Mechanical pointer structure design, easy for commissioning and maintenance
2. Precision machining, easy for installation and sealing
3. Product of different materials, meeting the operation requirements
4. Diverse chemical sealing for special medium measurement
5. All-welded type design to guarantee the sealing and strength
6. Vacuum extraction equipment with high performance, precise septum manufacturing
7. Simple selection and clear parameters
8. Target market oriented, special product design

工业过程压力测量领域,天康集团用心为您的工厂服务,在天仪系列仪器仪表的帮助下,您可以非常自信地为您的需求做出最佳选择。

Industrial process pressure measurement field. Tiankang Group is devoted to service your plant. With the help of Tianyi series instrument and gauges, you can make optimum choice confidently for you needs.

运输

Transportation

包装成箱的压力表,在避免雨(雪)淋的条件下需遵守JB/9329-1999运输标准。

The packaged and boxed pressure gauge shall follow the the transportation standards of JB/9329-1999 while avoiding the rain (snow).

搬运

Handling

搬动仪表时虽无需任何特殊保护措施,但需遵守轻搬轻放等注意事项。

When handling instrument, no any special protective measure is needed, but follow notes of light moving and light placing.

储藏

Storage

压力表应贮存于干燥通风的室内,室内空气应洁净并对仪表无腐蚀性作用。压力仪表如不立即安装,请不要打开包装,而且仪表应在储存期间受到保护,不要受外界原因引起损害。卸下的压力仪表应与湿气和灰尘隔离,推荐使用原有的包装材料。压力元件中残留的压力介质可能容易形成霜残留在元件上。在储存卸下的仪表时,这些都应考虑到。

The pressure gauge shall be stored in the dry and ventilated room where the air shall be clean and has no corrosion effect on the instrument. If the pressure gauge is not installed instantly, please do not open the packaging. The instrument shall be protected during storage period and not damaged by external factors. The removed pressure gauge shall be isolated from wet air and dust. Original packing material is recommended. The residual pressure medium in the pressure element may easily form frost left on the element. All these shall be considered when the removed gauge is stored.

工作原理

Working Principle

标准型压力表

Standard type

弹簧管敏感元件是:弯成圆形,截面积显椭圆形的管道。测量介质的压力作用在弹簧管内侧,这样弹簧管椭圆截面会趋于圆形截面。其变形的大小取决于测量介质的压力大小。弹簧管变形通过机芯间接地由指针显示测量介质的压力。“C”型弹簧管可用于测量大约100bar的压力,对于更高的压力,弹簧管采用多重线圈或同一水平面的螺旋状线圈。

Bourdon tube sensing element: conduit bent to round shape and the section is elliptical. The pressure of the measurement medium act on the inside of the Bourdon tube so that the elliptical section of the tube tends to be the round section. The size of deformation depends on the pressure of the measurement medium. The pressure of measurement medium is indicated by the pointer due to the deformation of Bourdon tube. C-type Bourdon tube is able to measure the pressure of about 100bar. Bourdon tube of multiple coils or the spiral coils on the same level plane is used for higher pressure.

压力表使用说明书 Pressure Gauge User Manual



广泛应用于输送气体、液体的管道及容器中测量无爆炸危险、无结晶体、不凝固的气体、液体等介质的压力大小。特殊材料的压力表可直接测量不结晶但有腐蚀性的气体、液体的压力, 同时还可在有机机械振动和介质脉动的环境中使用。

抗震压力表

该仪表表壳内带有灌充液和表壳内有灌充液并带有阻尼器的机械指针式压力表。仪表能承受GB/T17214.3-2000规定的V.H.4级或V.H.5级条件下的振动, 现场压力测量的要求。

隔膜压力表

隔膜式压力表是由膜片隔离装置和标准型压力表两大部分组成。膜片敏感元件是带波浪的圆形膜片, 膜片本身位于两个法兰盘之间。膜片的一侧受到测量介质的压力而变形, 压力通过传导液传送到与其连接的标准型压力表的测量元件中, 使其标准型压力表间接的测量了介质的压力。

与标准型压力表比, 膜片元件有相当高的活动能力, 并且由于元件为圆形的夹紧装置, 不受振荡的影响。

当发生过载时, 膜片可贴在法兰体, 因此膜片装置可承受更高的过载压力。

主要测量具有强腐蚀性、高粘度、易结晶的液体介质及含有固体颗粒物的气体、液体介质压力, 也可在有机机械振动和介质脉动的环境中使用。

膜盒压力表

膜盒元件由两块连接在一起的显圆形波浪的膜片组成。测量介质的压力作用在膜盒内侧, 由此所产生的变形可用来间接测量介质的压力。压力的大小由指针显示。主要用于医药、供暖、气体管道、食品及实验室等行业, 只能用于测量微小压力。



压力表使用说明书 Pressure Gauge User Manual



It is widely applied to measure the pressure size of the medium like gas and liquid which is not explosive, no crystal and freezing in the pipeline or container transporting air or liquid. The pressure gauge of special material is able to measure directly the pressure of the air and liquid without crystallization but corrosive and it is able to be used in environment with mechanical vibration and medium pulsating.

Shock-resistant type

This gauge is the mechanical pointer gauge with liquid filled in the shell and damper. It is able to withstand the vibration under class V.H.4 or V.H.5 as specified by GB/T17214.3-2000 so as to meet the pressure measurement requirements on site.

Diaphragm type

Diaphragm pressure consists of diaphragm isolation device and standard pressure gauge. The diaphragm sensing element is round diaphragm with wave. The diaphragm itself is located between two ring flanges. One side of the diaphragm is deformed due to the pressure of the measurement medium and the pressure is transmitted to the measurement element of the connected standard type pressure gauge through conducting liquid so that the standard pressure gauge directly measures the medium pressure.

Compared with standard pressure gauge, the diaphragm element has high mobility and the element is not affected by the vibration since it is round clamping device.

During overload, the diaphragm can be adhered to the flange body, so the diaphragm device is able to withstand higher overload pressure.

It is mainly used to measure the pressure of liquid medium which is highly corrosive, highly viscous and easy to crystallize and the pressure of air and liquid with solid particles. It can also be used in environment with mechanical vibration and medium pulsation.

Diaphragm capsule type

The diaphragm capsule element consists of two round wave diaphragms connected together. The pressure of measurement medium acts on the inner side of the diaphragm capsule and the deformation thus formed is used to measure indirectly the medium pressure. The pressure size is indicated by the pointer. It is mainly used to industries like medicine, heating, gas pipeline, food and laboratories and can only measure the small pressure.



电接点压力表

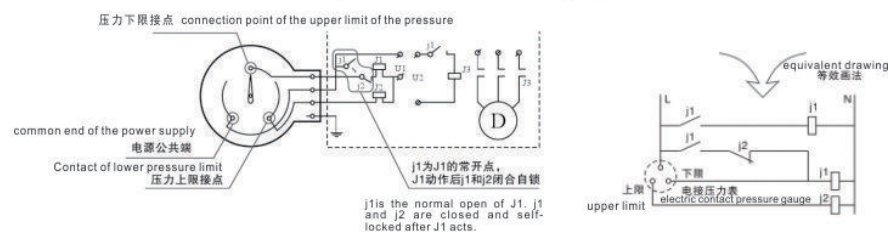
Electric contact type

电接点压力表由测量系统、指示装置、磁助电接点装置、外壳、调节装置及接线盒组成。当被测压力作用于弹簧管时,其末端产生相应的弹性变形一位移,经传动机械放大后,由指示装置在度盘上指示出来,同时指针带动电接点装置的活动触点,与设定指针上的触头(上限/下限)相接触的瞬时,致使控制系统接通或断开电路,以达到自动控制和发信报警的目的。

The electric contact pressure gauge consists of measurement system, indication device, magnetic electric contact device, shell, adjustment device and terminal box. When the measurement pressure acts on the Bourdon tube, the elastic deformation and displacement produced on the end is indicated on the scale by the indicator after it is amplified by the drive mechanics. Meanwhile, the pointer drives the movable contact of the electric point so that the control system connects or disconnects the circuit the moment the contactor on the set pointer (upper limit/lower limit) is touched so as to realize automatic control and alarm by signaling.



电接点压力表接线 Wiring of electric contact gauge



接线盒内标记: 1黄(公用线) 2绿(下限) 3红(上限) 4黑(地线)
Sign inside the terminal box: 1 yellow (common wire); 2 green (lower limit); 3 red (upper limit); 4 black (ground wire)

电气参数

Electric parameters

接点形式 Contact type	额定功率VA Rated Power VA	最高工作电压V Max. Operation Voltage V	最大允许电流A Max. Allowable Current A
直接作用式 Direct action	10	DC380AC220	0.7
磁助直接作用式 Magnetic direct action	30	DC380AC220	1(0.6)

压力表性能概述

类型	Y (B)	YBMF (L)	YE (B)	YBN	YX (C)
图例					
测量范围	-0.1 ~60MPa	-0.1 ~40MPa	-40~60KPa	-0.1 ~60MPa	-0.1 ~60MPa
过程连接	连接类型	螺纹连接	法兰连接 螺纹连接	螺纹连接	螺纹连接
	材质	铜、304SS、316SS			
精确度等级	1.0、1.6、2.5	1.6、2.5	1.6、2.5	1.0、1.6、2.5	1.0、1.6、2.5
表壳	公称直径(mm)	40、60、100、150、200	100、150	100、150	40、60、100、150、200
	材质	碳钢 CS、304SS			
附加功能选项	安装方式、特殊介质测量、附加装置、玻璃、位号牌	隔离膜片材质、抗震、电接点、附加装置、玻璃、位号牌	附加装置	附加装置	附加装置
执行标准	GB/T1226-2010	JB/T8624-1997	JB/T9274-1999	JB/T6804-2006	JB/T9273-1999

注: GB/T1 226-2010的标准, 适用于其它引用此标准的压力表类型。



特殊设计和应用:

如您所需要的产品型号未包含在本产品数据表中, 请向安徽天康(集团)股份有限公司产品工程师进行咨询。

General of pressure gauge performance

Type	Y(B)	YBMF(L)	YE(B)	YBN	YX(C)
Sign					
Measurement range	-0.1-60MPa	-0.1-40MPa	-40-60KPa	-0.1-60MPa	-0.1-60MPa
Process connection	Connection type	Screw connection	Flange connection Screw connection	Screw connection	Screw connection
	Material	Copper, 304SS, 316SS			
Accuracy class	1.0, 1.6, 2.5	1.6, 2.5	1.6, 2.5	1.0, 1.6, 2.5	1.0, 1.6, 2.5
Shell	(mm)	40, 60, 100, 150, 200	100, 150	40, 60, 100, 150, 200	100, 150
	Material	Carbon steel CS, 304SS			
Additional functions	Installation type, special medium measurement, additional device, glass, item grade	Diaphragm material, Shock-resistant, electric contact, additional device, glass, item glass	Additional device	Additional device	Additional device
Execution standards	GB/T1226-2010	JB/T8624-1997	JB/T9274-1999	JB/T6804-2006	JB/T9273-1999

Note: standard GB/T1 226-2010, applicable to pressure gauges referring to this standard.

Special design and application:

i When the product model you need is not covered in the data sheet of this product, please consult the product engineer of Anhui Tiankang (Group) Co., Ltd.

校验

用户刚收到压力表时, 可通过一些简单的方法来检查压力表:

- 1、观察仪表外观是否损坏。
 - 2、观察仪表指针是否在零点上。
 - 3、充油仪表是否漏油及油的液面是否在标牌最大字体之上。
 - 4、轻摇压力表, 再观察指针位置是否在零点上。
 - 5、摇动压力表时, 听见压力表内部有东西发生碰撞。
- 若出现上述任何一种情况, 压力表均不能直接使用。

感压元件的过压保护

测量介质常存在压力波动的情况, 或突然高压的冲击, 这些情况都应被重视。所以这种压力不应该直接作用在感应元件上。此压力急冲不应视作测量值, 也可能会损坏仪表, 因此可以用一个集成的障碍螺丝钉来减少导管中横截面积或用一个可调节的缓冲设备。需要选择一个系统最大压力大于表壳承受压力的表壳, 来保护仪表不受损。一些仪表内部加了过压保护装置。如果仪表不能承受如此过压, 必须另外安装一个分离出来的过压保护阀。这种过压保护阀当压力突然增大, 可以立刻关闭来分离仪表的压仓, 也可以随着压力的逐渐增大而慢慢关闭, 隔离压仓。

压力表的选择

用户必须依据现场的工作环境、刻度范围和性能来选择合适的压力表。

根据各种表的应用范围来选择压力表的类型。量程应选择理想操作压力在阴影范围内。仪表的压力部分一般使用至压力测量范围的3/4。

压力仪表的安装应注意如下情况:

1. 远离热源、震动及安装便于观察。
2. 压力接口连接需密封。
3. 如果必要也可使用毛细管连接安装。

Inspection

When the user receives the pressure gauge, he shall check the pressure gauge with some simple methods:

1. Observe whether the appearance is damaged.
 2. Observe whether the pointer is at the zero point.
 3. Whether the oil filling gauge leaks and whether the oil level is above the maximum character of the nameplate.
 4. Jiggle the pressure gauge and observe whether the pointer is at the zero point.
 5. Listen whether there is object collision when the pressure gauge is shaken.
- The pressure gauge shall not be used directly when any case above occurs.

Overpressure protection of pressure sensing element

The measurement medium often experiences pressure fluctuation or impulse of sudden high pressure, which shall be considered highly. This kind of pressure shall not act directly on the sensing element. This sudden pressure impulse shall not be taken as the measurement value and it may damage the gauge. Therefore, one integrated obstacle screw to reduce the section area inside the duct or one adjustable cushion device can be used. One shell whose bearing pressure is smaller than the maximum system pressure shall be used so as to prevent the instrument from damage. Overpressure protection device is added inside some gauges. When the gauge is unable to withstand such overpressure, it must be installed with one separate overpressure protection valve which can close instantly to separate the pressure store of the gauge when the pressure is suddenly increased. It can also be closed slowly with the gradual increase of pressure to isolate the pressure store.

Selection of pressure gauge

The user must select proper pressure gauge according to the working environment on site, scale range and performance.

The pressure gauge type shall be selected according to the application scope of the gauge. The measurement range selection shall be such that the operation pressure is within the shadow area. The pressure part of the gauge is usually used to 3/4 of the pressure measurement range.

Following cases shall be noticed during installation of pressure gauge:

1. Keep away from heat source and vibration when installation for the sake of easy observation.
2. The pressure interface shall be sealed.
3. Capillary tube can be connected for installation when necessary.

压力表的安装

如果压力系统或管尾不能完全地承受仪表的重量,尤其当振动很大时,仪表应选择表面安装或管安装,如果必要也可使用毛细管连接安装。

1、测压点的选择,所选择的测压点能反映被测压力的真实情况。

- (1) 要选在被测介质直线流动的管段部分,不要选在管路拐弯、分叉、死角或其它易形成漩涡的地方。
- (2) 测量流动介质的压力时,应使取压力点与流动方向垂直,清除钻孔毛刺。
- (3) 测量液体压力时,取压点应在管道下部,使导压管内不积存气体,测量气体时,取压点应在管道上方,使导压管内不积存液体。

2、压力表的安装

- (1) 压力表应安装在易观察和检修的地方。
- (2) 安装地点应力求避免振动和高温影响。
- (3) 压力表安装管路前端需有阀门。
- (4) 测量蒸汽压力时应加装凝液管,以防止高温蒸汽直接和测压元件接触;对于有腐蚀介质时,应加装充有中性介质的隔离罐等。总之,针对具体情况,采取相应的防护措施。

压力表的连接处应加装密封垫片,一般低于80℃及2MPa压力用四氟垫片,温度及压力更高时(50MPa)用退火紫铜或铅垫。另外还要考虑介质的影响,例如测氧气的压力表不能用带油或有机化合物的垫片,否则会引起爆炸。测量乙炔压力时禁止用铜垫。

3、压力表的安装位置

压力仪表的安装位置根据现场环境不同,安装位置也不同:

尾部中介质	液体介质		气体介质		
	液体	液体与蒸气	气体	湿气	液体气体冷凝物
类 型	冷凝物	沸腾液体	干燥气体	湿气粘性气	蒸汽
压力仪表 安装高于 安装点					
压力仪表 安装低于 安装点					

Installation of pressure gauge

If the pressure system or the tube end is unable to fully withstand the weight of the gauge, particularly when the vibration is very large, surface installation or tube installation shall be selected for the instrument. Capillary tube can also be used for installation when necessary.

1、The selection of pressure measuring point. The selected pressure measuring point shall be able to reflect the actual situation of the pressure to be measured.

(1) It shall be selected on the the pipe section with straight flowing medium rather than the turning, forking, dead corner of the pipeline or place easy to form eddy.

(2) When the pressure of flowing medium is measured, the pressure measuring point shall be perpendicular to the flowing direction. The hole shall be deburred.

(3) when the liquid pressure is measured, the pressure measuring point shall be below the pipeline so that there is no gas inside the pressure tube. When the air is measured, the pressure measuring point shall be above the pipeline so that there is no liquid inside the pressure pipe.

2、Installation of pressure gauge

(1) The pressure gauge shall be installed where it is easy to observe and maintain.

(2) Try to avoid vibration and high temperature influence at the installation place.

(3) There shall be valve at the front end of the installation pipeline of the pressure gauge.

(4) Condensate pipe shall be installed when the steam pressure is measured so as to prevent the high temperature steam from directly contacting the pressure measuring element; when there is corrosive medium, isolation tank filled with neural medium shall be installed. To sum up, proper protection measures shall be taken to deal with specific situation.

Sealing washer shall be installed at the connection of pressure gauge. Usually PTFE washer is used when lower than 80°C and 2MPa pressure. Annealed copper or lead washer shall be used for higher temperature and pressure (50MPa). Besides, medium influence also has to be considered. For example, the washer with oil or organic compound shall not be applied to pressure gauge measuring the oxygen; otherwise there will be explosion. Copper washer is forbidden when the pressure of ethyne is measured.

3、Installation place of pressure gauge

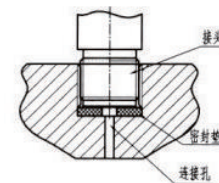
The installation place of the pressure gauge is different according to different environment on site:

Medium in the Tail	Liquid Medium		Gas Medium		
	Liquid	Liquid and Steam	Gas	Wet gas	Condensate or liquefied gas
Type	Condensate	Boiling liquid	Dry gas	Wet gas and viscous gas	Steam
The pressure gauge is installed higher than the installation point					
The pressure gauge is installed lower than the installation point					

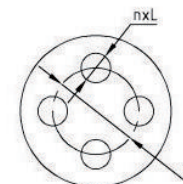
1、压力表的安装位置

压力接口的连接

天康集团为满足客户的需求, 提供的各种压力接口连接。请根据下图进行压力接口的连接。



隔膜法兰连接



法兰类型	K	nxL
DN15	65	4x14
DN20	75	4x14
DN25	85	4x14
DN32	100	4x18
DN40	110	4x18
DN50	125	4x18

若你选择的类型不在上表中, 请向天康集团当地销售工程师咨询。

使用及注意事项

管螺纹压力仪表的正确连接密封应该使用适合的密封圈, 密封垫圈。

缀形螺纹的密封是以一种带有密封材料的螺纹。

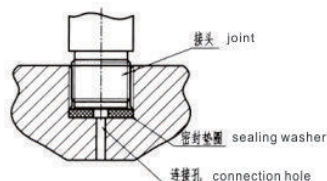
连接位置的锁紧或松动扭矩, 应使用平板手并在平杆上留出一段平面给予扳手使用。而不是用夹紧表面的形式, 防止损坏表面。

尾管的连接应在仪表安装前对尾管进行清洁处理。

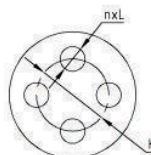
1. Installation place of the pressure gauge

Connection of pressure interface

In order to meet the customer needs, Tiankang Group provides various kinds of pressure interface. Please make connection of the pressure interface according to the following diagram.



Connection of diaphragm flange



Flange type	K	nxL
DN 15	65	4x14
DN 20	75	4x14
DN 25	85	4x14
DN 32	100	4x18
DN 40	110	4x18
DN 50	125	4x18

When the type you select is not listed in the above table, please consult the local sales engineer of Tiankang Group.

Use and notice

Correct sealing of connection of pipe thread pressure gauge. Proper gasket and sealing ring shall be used.

The sealing of taper thread is thread with sealing material.

The locking or loosening torque of the connection position. Flat wrench shall be used and certain plane shall be reserved on the flat rod for use of wrench. The form of clamping face shall not be used so as to prevent damaging the surface.

Connection of tail tube. The tail tube shall be cleaned before installation of instrument.

对于内部压力补偿问题, 压力仪表密封塞具有压力锁止排气口, 其标识在CLOSE和OPEN. 这种压力排泄口会在加压时关闭(处于CLOSE位置)。在检测安装前后, 开始操作前, 仪表应处于排气状态(处于OPEN位置)。无标识密封塞剪去密封塞突起。

工作中的压力不应高于仪表标牌上所示的压力范围, 最大值必须相对应的是仪表应用在静压测试系统的情况下, 否则操作时仪表必须被分隔开或卸下来。

不要尝试卸去正在压力中工作的仪表, 除非压力系统完全关闭或压力仪表被分隔开, 否则不要卸下仪表。

压力原件中的介质有可能是危险的或有毒的。应在处理和储存使用的仪表时注意这些。

仪表应垂直安装, 搬运安装时应避免碰撞与振动。

仪表宜在周围环境温度为 -40°C ~ $+70^{\circ}\text{C}$ (充油仪表除外) 相对湿度不大于80%, 且振动或被测介质的急剧脉动对可靠接触和准确发信读数等无影响的场所下使用, 充油仪表工作环境温度为 -0.5°C ~ $+55^{\circ}\text{C}$ 或 25°C ~ $+55^{\circ}\text{C}$ 。

要慢且轻的开启隔离设备。不要突然打开。避免可能产生突发的压力冲量而损坏仪表。

压力仪表的工作范围, 按照GB/T1226-2010标准执行。波动的压力总会减少仪表的最大工作压力值。

零点调节和设定应在关闭隔离部分, 或把仪表部分从压仓中分离出来。指针必须与零点的厚刻度重叠, 除非仪表温度非常高于或低于 20°C 。如果指针不回零可能表示仪表已有严重损害。

仪表示值的检查要用标准压力测试装置。

电接点最大通过的电流不允许超过3A (安培), 否则后果自负。

仪表的电气线路(可参照示意图)经设置和接受后认真加以检查, 并进行试动作。

仪表在测量静负荷时, 可用至测量上限的3/4, 在测量交变负荷时可用至测量上限的2/3, 对于瞬间内测量可用至测量上限值。

需用测量腐蚀性介质的仪表, 在订货时应注明要求条件。

压力表的维护

- 1、修理必须由制造商或经过培训的人员进行。
- 2、仪表应经常进行检定(应每六个月一次), 如发现故障应及时修理。
- 3、仪表应用有清洗液的湿布清洁, 仪表内部在正常使用情况下无须清洁。
- 4、仪表在调节给定值时, 须借助一字槽螺钉旋其进行。
- 5、仪表在使用过程中应经常保持其干燥和清洁。

压力表使用说明 Pressure Gauge User Manual



As for internal pressure compensation: the sealing plug of the pressure gauge has pressure lock exhaust which is identified with CLOSE and OPEN. This pressure outlet can be closed during pressurizing (at the position of CLOSE). Before and after the installation is checked and before the operation, the instrument shall be at the exhaust status (at the position of OPEN). Cut off the raised part of the seal plug which has no identification.

The pressure under operation shall not be higher than the pressure range indicated on the nameplate. The maximum value must correspond to the situation when the gauge is used under the static pressure test system. Otherwise the gauge must be isolated or removed during operation.

Do not attempt to remove the gauge working in the pressure unless the pressure system is fully closed or the pressure gauge is isolated. Otherwise do not remove the instrument.

The medium in the pressure element could be dangerous or toxic which shall be noticed during handling and storage.

The gauge shall be installed vertically. Avoid collision and vibration during handling and installation.

The gauge shall be used on sites where the ambient temperature is -40°C to 70°C (except the oil filled gauge), the relative humidity is no more than 80% and the vibration or the abrupt pulse of the measured medium shall not affect the reliable contact and accurate signaling and reading. The operation environment temperature for oil-filled gauge is -0.5°C to $+55^{\circ}\text{C}$ or -25°C to $+55^{\circ}\text{C}$.

The isolation device shall be opened slowly and lightly rather than suddenly. Avoid possible sudden pressure impulse which may damage the gauge. The operation scope of pressure gauge shall follow GB/T1 226-2010. The fluctuating pressure will reduce the maximum operation pressure of the gauge.

The zero point adjustment and setting shall be at the closed isolation part, or the gauge part shall be removed from the pressure store. The pointer must overlap with the thick scale of zero point unless the temperature of the gauge is higher or lower than 20°C . When the pointer does not return to zero, it possibly means that the instrument has already been seriously damaged.

The indicating value of the gauge shall be checked with standard pressure test device.

The maximum current passing the electric contact shall not exceed 3A; otherwise the user shall be responsible for the consequence.

The electric circuit of the gauge (refer to the schematic) shall be checked carefully after setting and acceptance. And the trial action shall be conducted.

When static load is measured, the gauge can be used to 3/4 of the upper limit; when the alternating load is measured, it can be used to 2/3 of the upper limit; and it can be used to the upper limit for instant measurement.

When the gauge has to measure corrosive medium, please indicate clearly the required conditions in the order.

Maintenance of pressure gauge

1. The repair must be conducted by the manufacturer or trained people.
2. The gauge shall be calibrated regularly (once each six months) and make repair immediately when fault is detected.
3. The gauge shall be cleaned with wet cloth with cleaning solution. No cleaning is necessary inside the gauge during normal use.
4. When the given value is adjusted, slotted head screw shall be used to turn the gauge.
5. Keep the gauge dry and clean during use of gauge.

压力表使用说明 Pressure Gauge User Manual



产品选型

product selection

压力表 pressure gauge	壳体材质 shell material	类别 category	附加类别 additional category	连接符号 connection symbol	公称外径 nominal outer diameter	安装方式 installation method
压力选型代码 pressure gauge selection code	Y					
壳体+元件材质 shell+element material	碳铜+铜无代码 carbon copper+copper no code	无代码 no code				
	不锈钢+不锈钢 stainless steel+stainless steel	B				
连接符号 connection symbol	—					
类别 category	一般压力表 normal pressure gauge	无代码 no code				
	真空压力表 vacuum pressure gauge	Z				
	膜盒压力表 diaphragm capsule pressure gauge	E				
	抗震压力表 shock-resistant pressure gauge	N				
	电接点压力表 electric contact pressure gauge	X				
	磁助式电接点压力表 magnetic electric contact pressure gauge	XC				
	隔膜法兰压力表 diaphragm flange pressure gauge	MF				
	隔膜螺纹压力表 diaphragm thread pressure gauge	ML				
	膜片压力表 diaphragm pressure gauge	P				
	差压压力表 differential pressure gauge	C				
附加类别 additional category	抗震 shock resistant	N				
	电接点 electric contact	X				
	氨用 for ammonia	A				
	氧用 for oxygen	O				
	氢气 hydrogen	H				
连接符号 connection symbol	—					
公称外径 nominal outer diameter	Φ40	40				
	Φ50	50				
	Φ60	60				
	Φ100	100				
	Φ150	150				
	Φ200	200				
安装方式 Installation method	径向直接安装 Direction installation in the radial direction	无代码 No code				
	径向凸装 Salient installation in the radial direction	T(Q)				
	轴向偏心直接式 Axial eccentric direct type	Z				
	轴向偏心带接式 Axial eccentric scarfing type	ZTQ				
	轴向同心直接式 Axial concentric direct type	Z				
	轴向同心带接式 Axial concentric scarfing type	ZTQ				
	轴向同心凸装式 Axial concentric salient type	ZTQ				

压力表使用说明书 Pressure Gauge User Manual



过程连接 process connection	接液材质 liquid material	膜片材质 diaphragm material	玻璃 glas	精度等级 precision class	附件 accessories						
					附加元件 选项 additional element option	阻尼器 damper	阻尼器 damper				
					散热器 radiator	散热器 radiator					
					过压保护器 overpressure protection device	过压保护器 overpressure protection device					
					冷凝管 condensation tube	冷凝管 condensation tube					
					精度 accuracy	1	1				
					1.6	1.6					
					2.5	2.5					
					玻璃 glass	普通玻璃 normal glass	普通玻璃 normal glass				
					钢化玻璃 toughened glass	钢化玻璃 toughened glass					
					安全玻璃 safety glass	安全玻璃 safety glass					
					有机玻璃 organic glass	有机玻璃 organic glass					
					膜片材质 diaphragm material	316LSS	316LSS				
					H.C合金 H.C alloy	H.C合金 H.C alloy					
					Ta	Ta					
					Ti	Ti					
					接液材质 liquid material	铜 copper	Cu				
					304SS	304					
					316SS	316L					
									过程连接 process connection	M14*1.5	M14*1.5
										M20*1.5	M20*1.5
										G1/2	G1/2
										1/2"NPT	1/2"NPT
										Others	Others
										隔膜螺纹 diaphragm thread	M20*1.5
隔膜螺纹 diaphragm thread	1/2NPT										
G1/2	G1/2										
隔膜法兰 diaphragm flange	文字具体描述 specific word description										

注：Ø60及下表
若您对压力表产品有任何特殊要求，可与天
康集团的当地销售工程师联系！

Note: table for ø60 and below
If you have any special requirement, please
contact our local sales engineer of Tian Kang Group!

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