

**OPERATING INSTRUCTION FOR  
MODELS OF H1-K4 RANGE  
H1-H4 系列型号操作说明**

Operative instructions / 操作说明

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<b>Safety</b>	<b>安全</b>
<p>The compressor specified and described in this installation/maintenance manual is certified in compliance with the Machines Directive (98/37/EC as subsequently amended, supplemented and included in DPR 459/96), the Low Voltage Directive (73/23/EEC as subsequently amended CEE93/68 included in L.971777 and Legislative Decree 626/96).</p> <p>Any and all national and local regulations concerning any aspects which do not fall within the directive 97/23/CE are still effective. The observance of such regulations shall be guaranteed from time to time. The compressor can be commissioned only if installed in compliance with these operating instructions and provided that any other machinery functioning within the system is in compliance with the corresponding rules.</p> <p>QUALIFIED STAFF:</p> <p>Any installation and/or maintenance operations of these compressors shall be carried out by qualified staff only and according to the several applicable national regulations.</p> <p>This manual shall be carefully read before carrying out any operation on the machinery; the observance of the provisions is essential to the operator as well as the involved machinery safety.</p> <p>All of the necessary Devices of Personal Protection shall be worn such as gloves, safety shoes..., so as to protect the operator from any possible damages.</p> <p>The compressor was built in</p>	<p>本安装维护说明书指定和描述的压缩机被认证符合98/37/EC机器指令及其随后的修订和补充标准DPR459/96以及73/23/EEC低压指令及其包括在L.971777中的CEE93/68修订标准以及626/96法令。任何和所有有关97/23/CE指令之外的当地和全国法规仍然有效。应经常保证这些法规得到遵守。压缩机只有在安装符合操作说明情况下以及本系统内的其他设备运行符合相应的规定时才能进行调试。</p> <p>合格的人员：</p> <p>压缩机的安装或维护操作只能由具有合格资历的人员并根据适用的国内法规进行。在对设备进行操作之前，应仔细阅读本手册。遵守本手册的规定对操作人员和设备安全来说是很重要的。须穿戴人员防护的必要装置如手套、安全防护鞋等，以保护操作人员免受任何可能伤害。</p>

compliance with the current state of the art and according to the regulations in force.

Particular attention was paid to the operators' safety. These operating instructions shall be kept during all the useful life of the compressor.

**OTHER DANGERS:**

Some dangers can unavoidably spring out of the compressor. All of the staff operating, though marginally, close to the compressor shall carefully read these instructions.

The following are deemed to be valid:

1. Current Safety Rules and Regulations on the matter (i.e EN 378, EN 60204, EN60355);
2. Safety provisions generally acknowledged;
3. EC Directives;
4. National Regulations.

**SAFETY INDICATIONS:**

Directions can be found on the compressor aiming at avoiding dangers. The observance of indications relevant to safety is strictly necessary:



ELECTRICAL CURRENT

The symbol identifies the electrical connections from the compressor to the electrical feeding.

Before removing the cover of the box we recommended to disconnect the electrical feeding.

Beware!

Danger of death.

Possibility of serious injuries.

压缩机的制造符合当前的技术水平和实行的法规。对操作者安全得到了特别的注意。这些操作说明在压缩机的有效寿命内须得到保存。

**其他危险:**

一些危险会不可避免地从压缩机中冒出来。所有靠近压缩机的操作人员须仔细阅读这些说明。

以下被认为是有效的:

1. 通行的相关安全规则 and 规定 (如EN378、EN60204、EN60355) ;
2. 一般认可的安全规定;
3. EC指令;
4. 国内规定

**安全指示:**

可在压缩机上发现旨在避免危险的指示。严格遵守着这些有关安全的指示是必要的。



电流

该符号识别从压缩机到电源供电的电气连接。在拆下电气盒盖之前, 我们建议断开电源。

当心!

死亡危险。

严重受伤可能



### HOT/COLD SURFACE

Any surface where such symbol appears can be exposed to temperatures lower than 0°C or higher than 60°C.

Beware!

High danger of serious injuries.

High danger of serious burns.



### LIFTING POINT:

It is the only point where the compressor can be hooked so as to be lifted. Should the compressor be lifted by using a different fulcrum the compressor could suddenly fall.

Danger of death.

Danger of very serious injuries.

### ! WARNING:

The compressor is delivered loaded with protection gas (overpressure of about 0.5...1 bar).

Any incorrect use can cause injuries to skin and eyes. During works next to and on the compressor, goggles are highly recommended.

The fittings shall NOT be opened before the compressor's complete unloading.

### ! PRECAUTIONS:

During its functioning operating conditions can occur that some surfaces of the compressor to temperatures lower than 0°C or higher than 60°C.

There is the danger of serious burns. Any access to the machine that may cause damages shall be forbidden and the points through which accessing to the compressor is possible shall be obviously indicated. Before carrying out any operation on the compressor, disconnect the machine and make it cool.



### 热/冷表面

任何出现此符号的表面可以暴露在低于0°C 或高于 60°C的温度。

当心!

严重受伤的高度危险。

严重烧伤的高度危险。



### 起吊点

这是压缩机可以挂吊以便起吊的唯一位置。如果用不同的支点来起吊压缩机，压缩机可能会突然翻落。

死亡危险。

非常严重的受伤危险。

### ! 警告:

压缩机交货时装有保护气体（剩余压力约0.5到1巴）。

任何不正确的使用会造成对皮肤和眼睛的伤害。在靠近压缩机和在压缩机上进行作业时，建议戴防护眼镜。在压缩机完全排放掉保护气体之前，不得打开接头。

### ! 预先警告:

在压缩机运行期间，会出现一些表面温度低于0°C 或高于60°C的工作状况。这有严重烫伤的危险。要禁止任何可能会造成伤害的压缩机接近，可能接近压缩机的通过地点要明显标明。在对机器进行作业前，要断开压缩机并使其冷却下来。.

<p>For all those necessary works while the compressor is running:</p> <p><b>! WARNING:</b></p> <p>The compressor is under pressure, in the event of inadequate operations , the danger of very serious injuries can occur.</p> <p>Depressurize the compressor!</p> <p>Wear goggles and clothes!</p>	<p>在压缩机运行时，对所有必要的作业：</p> <p><b>! 警告：</b></p> <p>压缩机受到压力，如出现不当操作，会发生非常严重受伤的危险。</p> <p>将压缩机卸压！</p> <p>戴防护眼镜和穿防护衣！</p>
<p><b>Application fields</b></p>	<p><b>应用领域</b></p>
<p>The compressor can only be used with coolants HCFC (R22) / HFC R404A-R134a-R407CR507A) and CFC (only where allowed). For the use of any other coolants the manufacturer shall be necessarily contacted. For the application field of each compressor with the various coolants refer to the relevant catalogues or to the selection program (<a href="http://www.dorin.com">www.dorin.com</a>).</p> <p><b>! WARNING:</b></p> <p>NEVER USE THESE COMPRESSORS WITH INFLAMMABLE AND/OR TOXIC COOLANTS AND ANYWAY OTHER THAN THOSE INDICATED IN THE PREVIOUS PARAGRAPH.</p> <p>The type of oil to be used changes according to the coolant employed. The plate of each compressor reports type and quantity of oil loaded in the factory. For any possible topping up and/or replacement of the lube, use the type indicated on the plate only.</p>	<p>压缩机只能使用的制冷剂为：HCFC (R22) / HFC R404A-R134a-R407CR507A) 及 CFC (仅允许使用的地方)。对于任何其他制冷剂，须联络制造商。</p> <p>对于用各种制冷剂每一种压缩机的应用领域，请参照有关样本或选型程序(<a href="http://www.dorin.com">www.dorin.com</a>)。</p> <p><b>! 警告：</b></p> <p><b>绝对不用带易燃或有毒的制冷剂的压缩机以及始终使用前面段落指示的制冷剂的压缩机。</b></p> <p>所用油的类别根据所用制冷剂进行变化。每台压缩机的铭牌说明了工厂内所装油的类别和数量。对于任何润滑油的可能加注或更换，仅使用铭牌指示的类别。</p>

<p><b>! WARNING:</b></p> <p>COMPRESSOR SHALL BE USED LIMITING SYSTEM PRESSURES IN ACCORDANCE TO WHAT STATED ON ITS NAMEPLATE IN TERMS OF PS (MAXIMUM ALLOWABLE PRESSURE) AND PSS (MAXIMUM STANDSTILL PRESSURE) AS DEFINED IN PREN12693.</p>	<p><b>! 警告:</b></p> <p>压缩机的使用须按其铭牌规定的PS(最大允许压力)和PREN 12693 规定的Pss(最大静止压力)来限制系统压力。</p>
<p><b>Installation</b></p>	<p><b>安装</b></p>
<p><b>Compressor transport</b></p> <p>Carry the compressor in a horizontal position and arrange for its lifting exclusively through suitable means and by only using the eyelet provided for that purpose (easily visible and pointed out on the compressor, §1.6, see figure 1).</p> <p><b>! ATTENTION:</b></p> <p>Should packaging be damaged and/or doubts on the integrity of the compressor received arise do not proceed to the compressor installation.</p> <p><b>Compressor assembly</b></p> <p>Install the compressor in a horizontal position only.</p> <p>For the functioning of the machine under extreme conditions (i.e. aggressive atmosphere, external low temperatures...) it is essential to take all necessary precautions for a correct maintenance of the machine external surfaces. The manufacturer should be possibly contacted.</p> <p><b>Vibration dampers</b></p> <p>Assembly of the compressor shall be carried out through vibration dampers (see figure fig.2).</p>	<p><b>压缩机运输</b></p> <p>以水平位置来运载压缩机并通过适当的专门装置及其专用的铁环（如§1.6中图1所示）来安排其起吊。</p> <p><b>! 注意:</b></p> <p>如果包装损坏或对所接受的压缩机完好性有怀疑，不要进行压缩机安装。</p> <p><b>压缩机装配</b></p> <p>仅以水平位置安装压缩机。</p> <p>对于在极端条件下(如腐蚀性气氛，外部低温)机器的运行，对机器外部表面的正确维护采取所有必要的预防措施是很重要的。可能应联络制造商。</p> <p><b>减震器</b></p> <p>压缩机的装配应通过减震器（见图2）进行。</p>

<p>This is definitely indicated in the event of assembly on tubular exchangers.</p> <p><b>! WARNING:</b> Do not mount the compressor on the heat exchanger in a rigid way. Damages to the exchanger (i.e. break for vibrations) could occur.</p> <p>Pipes connection</p> <p><b>! WARNING:</b> The compressor is under pressure for the presence of protection gas. There is the danger of injuries to skin and eyes. Wear goggles! Do not open the fittings before discharging overpressure.</p> <p><b>! ATTENTION:</b> Definitely avoid air entry! Keep the service valves closed as long as the unloading procedure is successfully completed. Make sure all pipes and junctions are perfectly clean and tight. Before connecting said valves to pipes make sure all plastic caps have been removed. In the event of valves type Rotolock and/or with spigot and flange, remove the fitting (or the spigot so as to carry out welding to pipes. The valve body (closed) shall stay on the compressor. The dimensions of the valves connections are calculated for standard applications; according to working conditions, length and lay-out of pipes, the installer shall verify if such diameter may guarantee the correct system functioning.</p> <p>The indications regarding standard connections</p>	<p>这对管式热交换器的装配是很明确的。</p> <p><b>! 警告:</b> 不要在热交换器上刚性安装压缩机。可能会损坏热交换器（如震碎）。</p> <p>管道连接</p> <p><b>! 警告:</b> 压缩机因存在保护气体而受压。存在对皮肤和眼睛伤害的危险。 戴防护眼镜! 在排放剩余压力之前不要打开接头。</p> <p><b>! 注意:</b> 一定要避免空气进入! 将维修阀关闭到排气成功完成。 确保所有的管道和接头完全清洁和紧固。</p> <p>在上述阀门与管道连接之前，确保所有塑料盖被拆除。</p> <p>如果有Rotolock阀门或带阀门和法兰，拆下这些接头件（或阀门以便与管道焊接）。阀体（关闭）应固定在压缩机上。为标准应用计算阀门连接的尺寸；安装者应根据工作条件、管道的长度和布置来检查直径是否能保证正确的系统运行。</p>
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<p>are shown in the following figure (figure 3).</p>	<p>有关标准连接的说明见下图（图3）</p>
<p><b>Electrical connections</b></p>	<p>电气连接</p>
<p>Compressors and electrical accessories have been designed according to the Low Voltage Directive 73/23/CEE. Any electrical connections shall be carried out by following all indications on the compressor plate and on the wiring diagrams enclosed to each product and in compliance with the EN 60204, EN 60335 Standards and the National Regulations in force. (For electrical connection see also the web page <a href="http://www.dorin.com/live/4/download/BT008-06.pdf">http://www.dorin.com/live/4/download/BT008-06.pdf</a>).</p> <p><b>! Attention:</b>  <b>Danger of short circuit due to the presence of condensate in the electrical connections box. Exclusively use standard fairleads and be careful while carrying out the correct airtight sealing during the assembly.</b></p> <p><b>! Attention:</b>  <b>The compressors ranging from K750CC to K1500CC can be equipped, on the customer's demand, with P.W.S. supply (part winding system). In the event of PWS motors pay particular attention to the observance of the sequence of the phases on the two windings, otherwise upon the second winding feed, there will be a condition of "rotor blocked" with danger of serious electrical damages.</b>  <b>The delay time between the two windings feed shall</b></p>	<p>压缩机和电气附件是根据73/23/CEE低压指令来设计的。电气连接应按压缩机铭牌上的所有指示、每个产品所附接线图、EN 60204、EN 60335标准及实行的国内法规来进行。（电气连接也可参见网页 <a href="http://www.dorin.com/live/4/download/BT008-06.pdf">http://www.dorin.com/live/4/download/BT008-06.pdf</a>）。</p> <p><b>! 注意:</b>  因电气接线盒内冷凝现象导致的短路危险。仅使用标准导线并在装配过程中进行正确气密性密封的同时要小心。</p> <p><b>! 注意:</b>  根据客户的需求，从K750CC 到 K1500CC系列可以安装带PWS（分线圈启动）的压缩机。对于PWS 电机，尤其要注意遵守2个线圈的相位顺序，否则在第2个线圈供电上会出现一种“转子卡死”状况，造成严重的电气损伤危险。</p> <p>2个线圈馈电之间的延时要在0.2和 0.5秒之间。</p>

<p><b>be included between 0.2 and 0.5 seconds. A longer range would only give rise to more risks for the motor.</b></p> <p>The plate positioned on each compressor shows the motor's voltage and frequency values: make sure they comply with the line's voltage and frequency.</p> <p><b>! Attention:</b>  <b>For the dimensions of the contactors, cables and fuses refer to the values of maximum working and start-up current shown on the plate as well as in the catalogues and in the selection software (<a href="http://www.dorin.com">www.dorin.com</a>).</b></p> <p><b>! Attention:</b>  <b>The rated HP is NOT a significant parameter for the dimensions of the electrical components.</b></p> <p><b>Protection system</b>  The motors are equipped with PTC internal protection or through THERMIK; as for PTC sensors, the relevant connections (indicated as T1-T2 in the wiring diagram) shall not be connected to the power supply voltage but fed only through the electronic board type INT69, available on demand for protections such as thermistor; vice versa for protections such as thermik the use of INT69 is not necessary and the contacts shall be connected in series with the other system protections.</p>	<p>更长的延时范围只会对电机带来更多的风险。</p> <p>每台压缩机的铭牌标明了电机的电压和频率值：确保它们符合线路的电压和频率。</p> <p><b>! 注意：</b>  对于接触器、电线和保险丝的尺寸请参照铭牌上标明的以及样本和选型软件 (<a href="http://www.dorin.com">www.dorin.com</a>) 中的最大工作和启动电流。</p> <p><b>! 注意：</b>  额定的HP对电气元件尺寸来说不是一个重要的参数。</p> <p><b>保护系统</b>  电机配置PTC内部保护装置或通过THERMIK保护装置；对于PTC传感器，相关的连接（如接线图中T1-T2所示）不得与电源电压连接，但只能通过INT69电气接线板馈电。INT69可以按要求为诸如热敏电阻保护装置配置，反过来对于诸如THERMIK 保护装置，使用INT69 是不必要的，触点须与其他系统保护装置串联。</p>
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<p>Commissioning</p>	<p>调试</p>
<p><b>! Attention:</b>  <b>In the compressor's production plant the machine has been properly dried and loaded with protection gas (dry air) and its seal has been checked.</b>  Check the pressure resistance and the seal of the whole system, preferably with nitrogen – N<sub>2</sub>, - <b>by following all of the necessary safety procedures, such as the use of a pressure reducing valve.</b></p> <p><b>! Attention:</b>  <b>Carry out the tightness test of the system with closed compressor service valves, in compliance with EN 378-2.</b>  <b>After the tightness test, carry out a system scavenging by means of a vacuum pump till a minimum of 1.5 mbar.</b></p> <p><b>! Attention:</b>  <b>Do not use the compressor to produce a vacuum.</b>  <b>Do not feed the compressor in vacuum conditions!</b></p> <p><b>! Attention:</b>  <b>Do not use the compressor to load the coolant in the system, but put it in the liquid receiver (or in the condenser) in the liquid phase.</b></p> <p><b>! Danger:</b>  <b>The compressor shall not be pressurized with oxygen or other technical gases.</b></p>	<p><b>! 注意:</b>  在压缩机生产厂，机器已经适当干燥和装填保护气体（干燥空气），其密封也被检验过。检查压力阻力和整个系统的密封，最好用氮气来遵照所有的必要安全程序（如减压阀的使用）进行检查。</p> <p><b>! 注意:</b>  关闭压缩机维修阀，按照EN378-2进行系统的气密性测试。  气密性测试后，用真空泵抽空系统直至得到至少1.5毫巴的压力。</p> <p><b>! 注意:</b>  不要使用压缩机来产生真空。不要在真空条件下将压缩机通电！</p> <p><b>! 注意:</b>  不要用压缩机来装载系统中的制冷剂，但可将其以液态放在储液器（或冷凝器）内。</p> <p><b>! 危险:</b>  不要用氧气或其他工艺气体将压缩机加压。</p>

**! Warning:**

**Never add any coolant or gas (ex.: leak indicator) during the tightness test. In case of overpressure a critical displacement of the coolant inflammability limit can occur. Environment pollution danger in case of leaks and/ or discharge.**

Check the oil level and energize the crankcase heater, which is always to be provided when liquid migrations from the system to the compressor cannot be avoided.

**! Warning:**

**During the machine functioning regularly make sure that the oil level is between the levels clearly indicated near the warning light, as shown in the following figure:**



OIL LEVEL INDICATION

**Compressors' replacement**

A particular attention shall be paid in case a compressor is replaced with another one; as a matter of fact in the plant a certain oil quantity could have been left such as to cause "oil blows" at the start. It could be necessary to remove a certain lube quantity from the new compressor. After the compressor starting check that the oil level is stabilised between the levels indicated in paragraph 5.6.1.

**! 警告:**

在进行气密性测试期间, 绝对不要加制冷剂(泄漏指示剂除外)。如果出现过压, 可能出现制冷剂易燃极限的临界排量。出现泄漏或排放有污染环境的危险。

检查油位并给曲轴箱加热器通电, 当从系统到压缩机的液体移动不能避免时, 加热器是始终提供的。

**! 警告:**

在机器正常运行期间, 确保油位处在下图所示接近警告灯清楚标明的油位之间:



油位指示

**压缩机更换**

在更换压缩机时要特别注意; 实际上, 在工厂里可能还留有一定量的油以造成启动时的“油喷”。可能有必要从新的压缩机中去除一定量的油。压缩机启动后, 检查油位稳定在5.6.1章节中指示的油位之间。

**! Warning:**

**Do not install the compressor in a corrosive and/ or explosive environment.**

**! Warning:**

**Before the compressor start the oil temperature shall be about 20K above the room temperature.**

**! Warning:**

**Before starting the compressor make sure the suction service valve and the discharge gas valve are open.**

**Check that the characteristics of the power supply mains are suitable to the compressor power supply.**

**Check that the power supply line is equipped with efficient earthing. Do not start the compressor**

**when high vacuum conditions occur inside it. Non-observance of this warning can have very serious consequences such as the sudden increase of the internal pressure with possibility of**

**explosion and consequent risks for the staff operating, passing by or staying close to the machine because of the presence of both metal objects in motion and at high speed, and fluids (coolant and oil) under pressure and at high speed. Before starting the compressor, make sure the cover of the electrical connections box is**

**sealed. Non-observance of what above-mentioned can cause the contact with live electric parts with consequent serious risks for the staff operating, passing by or staying close to the machine due to the presence of electrical discharge. During the first hours of the compressor functioning, check the oil level several times.**

**! 警告：不要将压缩机安装在腐蚀性或爆炸性的环境中。**

**! 警告：**

**启动压缩机之前，油温要高于室温20K.**

**! 警告：**

**启动压缩机之前，确保吸气维修阀和排气阀打开。**

**检查供电电源的特性符合压缩机电源。**

**检查电源线路配置有效的接地。当压缩机内出现高真空状态时，不要启动压缩机。不遵守该警告会有非常严重的后果，如内部压力突然增加，有可能爆炸以及对经过的或机器附近的操作人员风险（因为有高速运动的金属物体和受压高速液体）。启动压缩机前，确保电气接线盒的盖子密封。不遵守上述警告会造成触电，对于经过或接近机器的操作人员因放电而带来严重的风险。在压缩机运行的头几个小时，检查几次油位。**

### **Unloaded start**

**Compressors ranging from K750CC to K1500CC can be equipped with unloaded start device in order to reduce the current absorbed at start-up.**

**There are two main configuration types by means of which it is possible to carry out what above explained.**

**Figure 4 shows the scheme regarding the first one of the two configurations allowing the use of the unloaded start.**

The figure shows the unloaded start functioning scheme. Only one of these heads is enough to carry out the compressor unloaded start. It internally carries out by-pass making the discharge communicate with the suction by means of a mechanism driven by a solenoid valve. The solenoid valve with coil is a normally closed type (N.C.) and, when energized, it opens the internal mechanism so as to balance the internal pressures.

**Use of a non-return valve is recommended in order to carry out an actual separation between the high pressure and low pressure areas.**

**Figure 5 shows instead the second possible way to carry out the unloaded start.**

**Use of a non-return valve is again recommended in order to carry out an actual separation between the high pressure and low pressure areas.**

### **卸载启动**

从κ750cc到κ1500cc的压缩机可以配备卸载启动装置，以减少启动时的吸收电流。

主要有两种类型的配置方式，借此可进行上述操作。

图4说明了关于允许使用卸载启动两个配置第一个的图示。

图4显示了卸载启动运行图。只有这些机头的一个足够进行压缩机卸载启动。在内部完成旁路启动，通过电磁阀机构的驱动，使排气与吸气相通。电磁阀的线圈是一个常闭型（NC），当通电时，它会打开内部机构，以平衡内部的压力。

**建议使用止回阀，以便在高压和低压区之间进行实际隔开。**

而图5显示的是第二个可能的方式进行卸载启动。

**建议再次使用止回阀，以便在高压和低压区之间进行实际的隔开。**

### Engine room aeration

In order to avoid any dangerous concentrations of coolant in case of accidental leak, it is necessary to have proper ventilation in the thermal room, where the unit is placed. The refrigerator system shall be located in a room equipped with:

- A. Natural aeration
- B. Mechanical ventilation

According to UNI8011 safety conditions shall comply with the following:

where S is the free outlet section [expressed in m<sup>2</sup>.], with reference to the case A, where Q is the air capacity [expressed in m<sup>3</sup>/h] with reference to the case B, where G is the mass [expressed in kg] of the coolant load, the result will be:

case A)  $S > 0.14 G^{1/2}$

case B)  $Q > 50 G^{2/3}$

Such ventilation is also necessary in the air units for a correct heat elimination; as for this application see what is written in the catalogue. In order to prevent load leaks the condenser shall be as far from the wall as at least the thickness itself of the condenser rows. The condenser shall be always fed by external air and a correct discharge of the out coming air shall be guaranteed, obstructions limiting the correct air flow shall be avoided. Regularly clean the condenser fins.

In case of a **water condenser**, make sure that the pressure in the feeding line allows providing the necessary water flow rate to the condenser.

As possible coolant leaks would fill the lower area of the surrounding environment, placing the suction of the air changing system in a lower position is recommended.

### 机房通风

为了避免在冷却液意外泄漏情况下的任何危险聚集，在机房必须有适当的通风。制冷系统应设在配备下列通风装置的房间：

- A: 自然通风
- B: 机械通风

根据UNI8011，安全条件应符合下列各项：其中S是自由出口部分[以平方米表示。]，以A为例，其中Q是空气能力[以立方米/小时表示]以B为例，其中G为制冷剂装载质量[以kg表示]，结果将是：

A例)  $S > 0.14 G^{1/2}$

B例)  $Q > 50 G^{2/3}$

这种通风在空气装置中对于正确的散热也是必要的；至于此应用，请参阅样本内容。为了防止装载泄漏，冷凝器应尽量远离墙壁，距离至少为冷凝器本身厚度。冷凝器应始终靠外部提供空气，应保证空气的正确向外排放，应避免障碍物限制空气流通。定期清洁冷凝器翅片。对于一个水冷凝器，确保管路压力可以为冷凝器提供必要的水流速。

因为制冷剂泄漏会填充周围环境的低洼区域，建议将换气系统的吸气端放在较低的位置。

Accessories	附件
<p>Compressors can be equipped with some accessories such as:</p> <p><b>Crankcase heater</b>  In case the compressor is not used for a long period, the crankcase heater avoids the coolant migration to the compressor body and accordingly an excessive dilution of the coolant. It is usually fed when the compressor is not functioning. 230 V is the standard power supply voltage. On demand the crankcase heater can be provided for different voltages, see the web page <a href="http://www.dorin.com/live/4/download/BT001-99.pdf">http://www.dorin.com/live/4/download/BT001-99.pdf</a>.</p> <p><b>! Warning:</b>  <b>Before energizing the crankcase heater make sure the voltage is correct.</b></p> <p><b>Auxiliary head fan</b>  In case the compressor is used in conditions of high/ low evaporation temperature it could be necessary to provide for an auxiliary cooling (see T.B.80 and the catalogues on compressors).</p> <p><b>! Warning:</b>  <b>Make sure the fan is in the right direction of rotation.</b></p>	<p>压缩机可以配置下列附件如：</p> <p><b>曲轴箱加热器</b>  如压缩机长期不用，曲轴箱加热器避免了制冷剂向压缩机机体的流动，并因此过分稀释了制冷剂。当压缩机不运行时，加热器通常是通电的。230伏为标准电源电压。根据需要，曲轴箱加热器可以提供不同的电压，参见网页 <a href="http://www.dorin.com/live/4/download/BT001-99.pdf">http://www.dorin.com/live/4/download/BT001-99.pdf</a>。</p> <p><b>! 警告：</b>  <b>在曲轴箱加热器通电前，确保电压是正确的。</b></p> <p><b>辅助机头风机</b>  如果压缩机用在高/低蒸发温度工况，有必要提供辅助冷却（参见T.B.80和压缩机样本）。</p> <p><b>! 警告：</b>  <b>请确认风机旋转方向是正确的。</b></p>



### **D.T.C. Liquid Injection**

#### **! Attention:**

**DTC system available only starting from H290CS model.**

Working with R22 in conditions of low evaporation temperature a liquid injection system could be necessary in order to keep the temperature of end of compression within the acceptable limits, so as to avoid oil carbonization problems.

The D.T.C. system (Discharge Temperature Control) allows keeping the temperature of end of compression always below 130°C see the web page <http://www.dorin.com/live/4/download/BT004-99.pdf>.

### **INT69 electronic module**

In order to use the motor thermistor protection it is necessary to provide for the INT69 KRIWAN module (supplied along with the compressor on demand).

### **Power regulation**

#### **! Attention**

**Power regulation system available only starting from K750CC model:**

In order to adjust the compressor yield according to the changeable needs of the system, it could be necessary to install part load heads see the web page <http://www.dorin.com/live/4/download/BT002-99.pdf>.

These heads can be directly assembled in the factory or separately supplied and later installed.

### **D.T.C. 注液**

#### **! 注意:**

**DTC 系统仅为 H290CS 开始型号配备。**

对用 R22 的低蒸发温度工况，可能有必要使用注液系统，以便将压缩结束时的温度保持在可接受的限度范围内，并避免石炭化问题。

该 D.T.C. 系统（排气温度控制）可以将压缩结束温度始终保持低于 130 °C（参见网页 <http://www.dorin.com/live/4/download/BT004-99.pdf> 。

### **INT69 电子模块**

为了使用电动机热敏电阻保护，有必要提供 INT69 KRIWAN 模块（根据需要随压缩机提供）。

### **功率调节**

#### **! 注意**

**功率调节系统仅为 K750CC 开始型号配备:**

为了根据系统的变化需求调节压缩机制冷量，可能有必要安装部分负载机头，参见网页 <http://www.dorin.com/live/4/download/BT002-99.pdf> 。

这些机头可直接在工厂装配或单独提供后来安装。

Maintenance	维护
<p>Before carrying out any kind of intervention on the machine it is necessary to interrupt the main power supply of the system. In case it is necessary to work with the live open electric board, such operation shall be carried out by qualified and expert staff. In no case keep on reactivating the electric protection after a short circuit. Before re-operating the system, the failure shall be eliminated and all damaged components shall be replaced.</p> <p><b>Number of starts</b> Do not start the compressor more than 8 times an hour. Operate the machine for at least 4 minutes when starting.</p> <p><b>In any case make sure the repeated starts do not compromise the correct oil level in the crankcase.</b></p> <p><b>The system, whether running or temporarily stopped, can reach high pressures. Check that pressures are not above those allowed by the compressor, as specified on the plate.</b></p> <p><b>Control at regular intervals</b></p> <ul style="list-style-type: none"> <li>● Evaporation temperature;</li> <li>● Sucked gas temperature;</li> <li>● Condensation temperature;</li> <li>● Discharge gas temperature;</li> <li>● Oil temperature;</li> <li>● Oil level;</li> <li>● No. starts' time;</li> <li>● Functioning current;</li> <li>● Power supply voltage;</li> </ul>	<p>在对机器进行任何形式的干预措施之前，有必要断开系统的主电源。如果有必要的带电工作，该类操作只能由合格的专业人员进行。在任何情况下，短路后，要重新启动电气保护装置。在重新运行系统前，消除故障并更换所有损坏的部件。</p> <p><b>启动次数</b> 启动压缩机不超过每小时 8 次。启动时，至少运行机器 4 分钟时。</p> <p>在任何情况下，确保重复启动不影响曲轴箱内的正确油位。</p> <p>无论是运行还是暂时停止，系统可以达到很高的压力。检查压力不高于压缩机所允许的标牌规定的数值。</p> <p><b>定期检查</b></p> <ul style="list-style-type: none"> <li>☒ 蒸发温度；</li> <li>● 吸气温度； _</li> <li>● 冷凝温度； _</li> <li>● 排气温度；</li> <li>● 油温；</li> <li>● 油位；</li> <li>● 启动小时数；</li> <li>● 运行电流；</li> <li>● 电源电压；</li> </ul>

<p>☒ Protection systems' status (non-return valves, temperature limiting devices, pressure switches...);</p> <ul style="list-style-type: none"> <li>● Cable fastening;</li> <li>● In case of systems installed on work sites replace the oil after the first 100 hours of functioning;</li> </ul> <p>☒ In case of systems installed in workshops replace the oil after every 10000 hours of functioning;</p> <p>☒ Every time the oil is replaced also the oil filter shall be replaced.</p> <p>Recording any kind of reading or control carried out on the compressor is highly recommended.</p>	<p>☒保护系统状态（止回阀、温度限制装置、压力开关...）；</p> <p>☒ 电缆固定；</p> <p>☒ 对安装在工作场所的系统，在运行头 100 小时后换油；</p> <p>☒ 对安装在车间的系统，每运行 10000 小时后换油。</p> <p>☒ 每次换油时，也要更换油过滤器；</p> <p>强烈建议对压缩机的检查或得到的任何读数均进行记录。</p>
<p><b>Emergency</b></p>	<p><b>紧急</b></p>
<p>In case of malfunctioning or black-out call the nearest service centre. In case of refrigerant gas leak, aerate the room where the leak occurred before any operations. Do not stay in the engine room if it has not been properly aerated; even if the gas inhaled is not harmful, the gas replaces oxygen and can therefore cause choking symptoms.</p>	<p>如遇到故障或关闭，请致电最近的服务中心。如果制冷剂气体泄漏，进行作业前，对发生泄漏的房间进行通风。没有还没有适当的通风，不要停留在机房内；即使吸入的气体不是有害的，该气体会取代氧气，因此可以导致窒息症状。</p>

<p>In case of fire turn off the machine by the general switch upstream. Do not use water to extinguish the flames but only use dry extinguishers. All the materials of the unit are not combustible, fire-retardant or self-extinguishing.</p>	<p>在发生火警时，用总开关关闭机器。切勿用水扑灭火焰，但只能用干粉灭火器。所有装置的材料为不可燃、阻燃或自熄的。</p>
<p><b>Dismantling</b></p>	<p><b>拆卸</b></p>
<p>When the system is no longer used, it shall be made inoperative by properly eliminating materials. In compliance with the standards in force in the different countries regarding the waste disposal and the respect of the environment, the parts of the system shall be divided according to the waste types so as to dispose of and recycle materials in a proper way.</p> <p><b>Pause</b> Let the crankcase heater inserted till the system is disassembled, it prevents the oil dilution in the coolant.</p> <p><b>Compressor disassembly</b> In case of operations which make the compressor disassembly or the system dismantling necessary:</p> <ul style="list-style-type: none"> <li>- Close the service valves on the compressor;</li> <li>- Suck the coolant;</li> <li>- Do not waste the coolant but reclaim it in order to protect the environment;</li> <li>- Wear goggles.</li> </ul>	<p>系统报废后，建议要通过适当的材料处置使其失效。根据有关废旧物处理和环境方面在不同国家实行的标准，系统的零件要根据废旧物的类型划分，以便以一个适当的方式对材料进行处理和回收利用。</p> <p><b>暂停</b> 让曲轴箱加热器插入到系统直至系统被拆卸，这样可以防止油稀释在制冷剂中。</p> <p><b>压缩机拆卸</b> 对于压缩机的拆卸作业或系统的拆卸，有必要：</p> <ul style="list-style-type: none"> <li>-关闭压缩机的维修阀；</li> <li>-吸取制冷剂；</li> <li>-不要浪费制冷剂，要收回，以保护环境；</li> <li>-戴护目镜。</li> </ul>

<p><b>! Attention:</b>  <b>The compressor can be under pressure!</b>  <b>Danger of serious burns.</b>  <b>Wear protective gloves and glasses.</b></p> <p>Open the screw connections or the flanges on the compressor valves.  Remove the compressor.</p> <p><b>! Attention:</b>  <b>Do not waste the lube in the environment: it is special waste and as such it shall be disposed of according to the standards in force.</b></p>	<p><b>! 注意:</b>  <b>压缩机可以受压!</b>  <b>严重烫/烧伤的危险。</b>  <b>戴防护手套和眼镜。</b></p> <p>打开压缩机阀的螺丝连接或法兰。  拆下压缩机。</p> <p><b>! 注意:</b>  <b>不要在环境中废弃润滑油: 它是特别的废弃物, 因按有效的标准予以处置。</b></p>
<p><b>Warning</b></p>	<p><b>警告</b></p>
<p><b>We inform customers that DORIN compressors are build according to:</b>  - <b>MACHINE DIRECTIVE 98 / 37 /EC exhibit II B</b>  - <b>LOW VOLTAGE DIRECTIVE 73 /23 / EE</b></p> <p><b>In order to be in compliance with those and to all the directives harmonized to those, DORIN uses the state of the art machinery in order to guarantee the quality product, both in case it is a new one or an overhauled one.</b></p> <p><b>Any disassembly action or modification made on any DORIN product can affect product compliance to the aforesaid directives.</b></p> <p><b>DORIN will not recognize/guarantee product conformity to the aforesaid directives whenever the products are NOT overhauled from DORIN itself.</b></p>	<p><b>我们告知客户, DORIN 压缩机是根据以下标准制造的:</b></p> <ul style="list-style-type: none"> <li>— <b>98 / 37 /EC exhibit II B 机器指令</b></li> <li>— <b>73 /23 / EE 抵押指令</b></li> </ul> <p><b>为了能够符合这些标准和法令, DORIN 公司使用了先进的设备, 以保证产品的质量, 无论是新的还是修理过的产品。</b></p> <p><b>任何对 DORIN 产品的拆卸动作或改动可能会影响产品对上述指示指令的符合。</b></p> <p><b>如果 DORIN 产品不是由 DORIN 公司自己修理, DORIN 公司不承认或保证产品符合上述标准或指令。</b></p>

**Therefore any DORIN product shall be repaired from DORIN only since DORIN is the only able to guarantee overhauled product conformity to existing directives thanks to specific check controls. Therefore DORIN declines any type of responsibility in case damages of any nature occurs to things or persons due to product malfunctioning in case the product have not been overhauled from DORIN itself.**

所以，任何DORIN 产品应交DORIN 公司修理，因为DORIN 公司的特定检验和控制，只有它能保证维修后的产品符合现有指令或标准。

所以，如果产品未经DORIN公司自己的修理而造成任何性质的财产或人员伤害，DORIN 公司不承担任何责任。

Figures

图

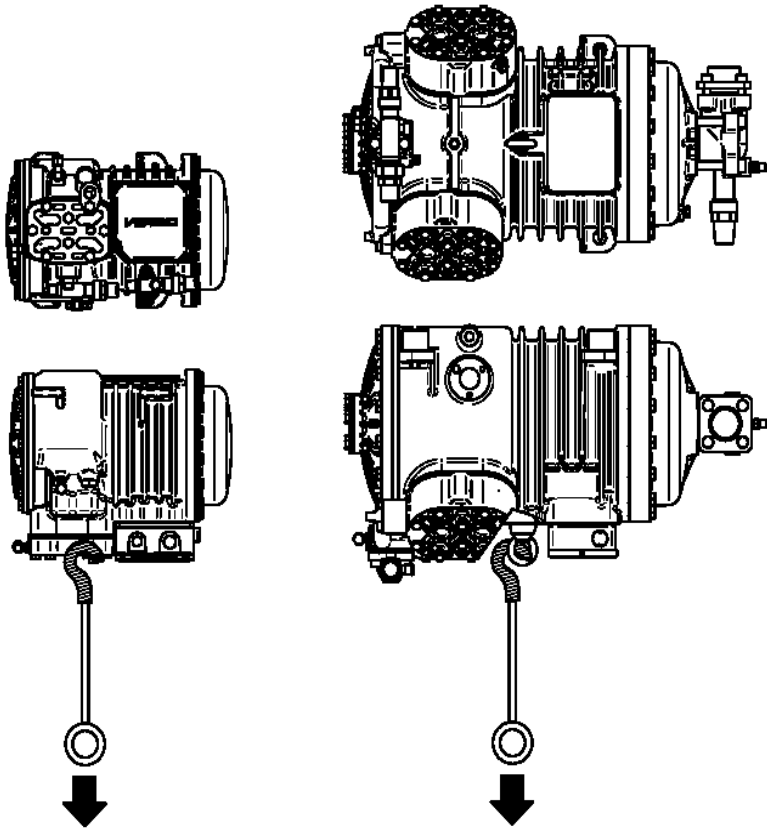


Fig. 1: Lifting point use 图1: 起吊点使用

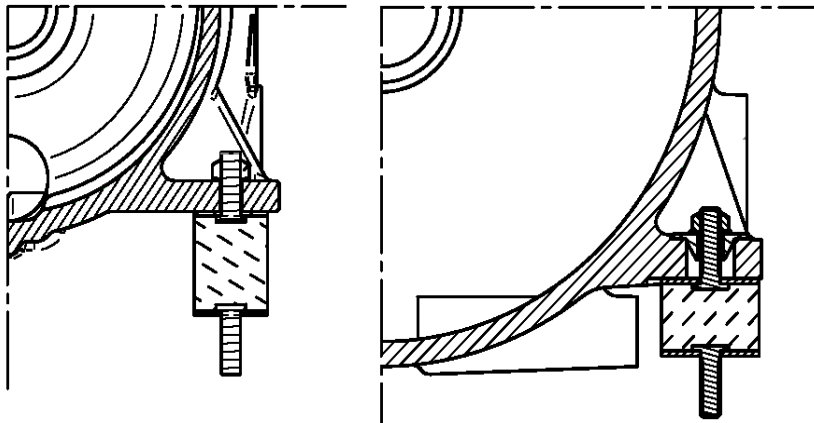
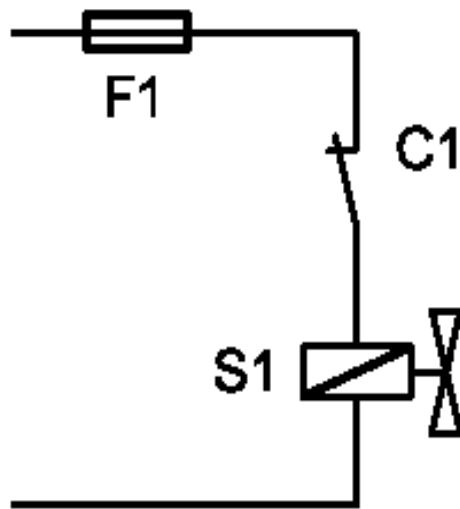


Fig. 2: Vibrational dampers use 图2: 减震装置使用

MODEL 型号	SUCTION吸气	DISCHARGE排气
	[mm]	[mm]
H40CC-H750CC	12s	12s
H75CS-H200CC	16s	12s
H200CS	18s	12s
H220CC-H280CC	18s	16s
H290CS-H300CC	22s	16s
H300CS-H503CC	28s	16s
H503CS-H743CC	38s	16s
H450CS-H550CC	28s	18s
H550CS-H750CC	35s	18s
H750CS-H850CB	35s	22s
K40CC-K75CC s	12	12s
K75CS-K200CC	16s	12s
K230CS	18s	12s
K235CC-K240SB	18s	16s
K250CS-K300CS	22s	16s
K290SB-K500CC	28s	16s
K500SB-K500CS	35s	16s
K740CC	35s	18s
K750CC-K750CS	35s	22s
K1000CC	35s	28s
K1000CS-K1500CC	42s	28s

**Fig. 3: Standard connections 图3: 标准连接**





RIF	ENGLISH	中文
F1	FUSE	保险丝
C1	<b>N.C. CONTACT</b>	常闭触点
S1	<b>SOLENOID VALVE</b>	电磁阀

**Fig. 4: Unloaded start K4 / KP 图4: K4/KP卸载起动**

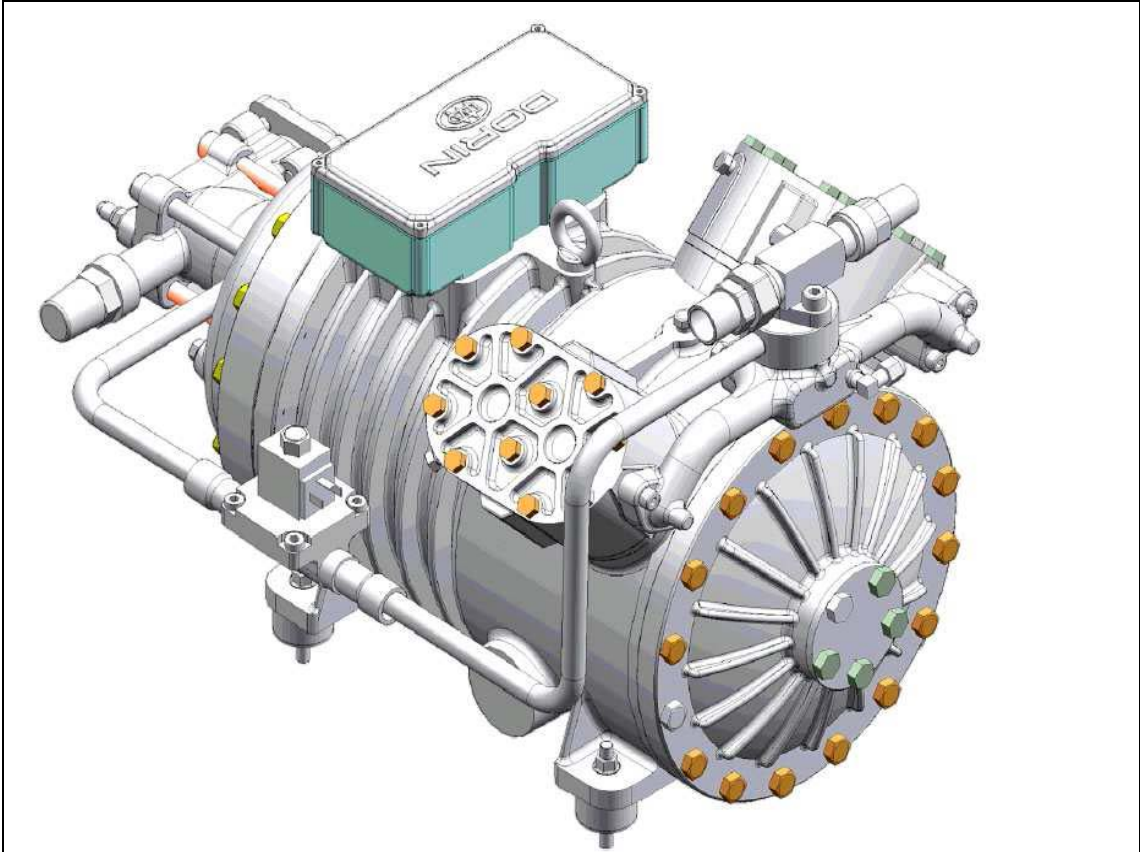


Fig. 5: Unloaded start 图5: 卸载起动