

压缩机是冷冻机核心部件,可以说是冷机的“心脏”,所以保证压缩机的正常运行是设计冷机要考虑的核心问题之一. 压缩机在运行的时候需要有足够的油量来保证压缩机内部部件的润滑效果,而压缩机在排出气体的同时会带出冷冻油. 且在超低温设备中,润滑油会滞留在蒸发器形成油膜,影响换热和制冷效果. 通常制冷系统中会有多种方案来保证压缩机里有充足的油量,以满足压缩机的正常的运行.

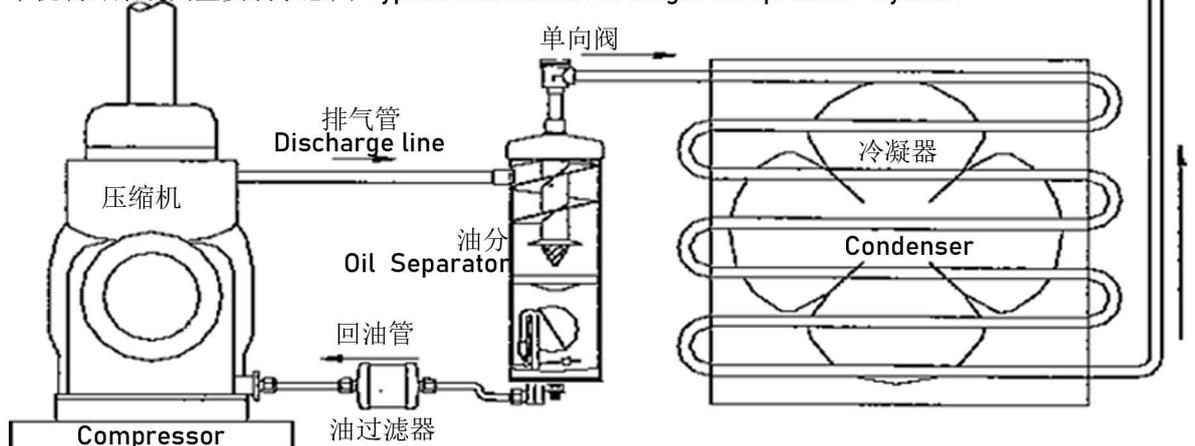
离心式流动路径以低压降取得大约为99%以上高效的油分离效率,同时帮助降低由压缩机产生的震动和噪音. 在并联机组或有能量卸载压缩机制冷系统中,独特螺旋导向板设计大大提高接触面积,仍然保持高效油分效率.

During the compressor running, the discharge line always has lots of refrigeration oil. In order to ensure the compressor does not lose too much oil and not decrease heat transfer of condenser and evaporator. So it must install oil separator between compressor and condenser. It can separate refrigerant and oil. Then push the oil go back to compressor automatically and achieve the best cooling result.

The helical oil separator features a centrifugal flow path achieving approximately 99% efficiency of oil separation with low pressure drop. It can help to reduce the vibration and noise that caused by compressor. While the parallel compressor units in unloading or changing, it still can keep high oil separation efficiency.



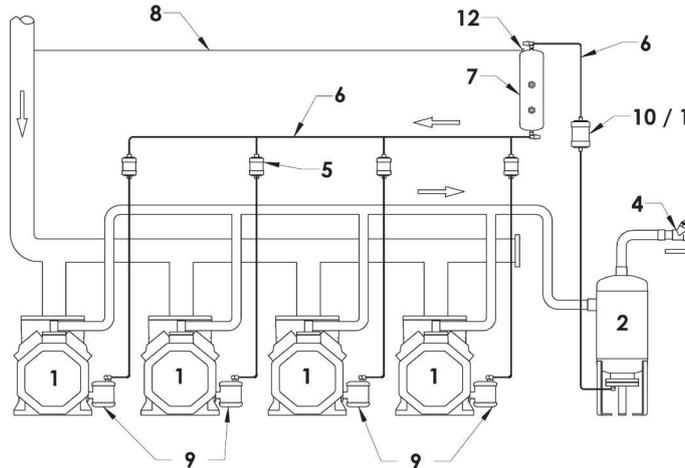
单机制冷系统典型安装示意图 Typical Installation in Single Compressor System



Helical oil separators can be used in a wide variety of applications. These can include multi-compressor racks and remote condensing units. Helical oil separators are intended for Low Pressure Oil Management Systems. These products are designed for use with scroll and reciprocating type compressors. They are not recommended for screw or rotary vane compressors.

在低压回油系统中安装示意图

Typical installation in low pressure oil management



安装与提醒

在安装油分前，应该进行初始充油并维持储油槽之上(预充很重要)。若未预充，可能导致回油浮球装置损坏。预充的冷冻油需与曲轴箱内的润滑油一致。油分应合理安装靠近压缩机和冷凝器之间。在复叠机中应适当预冷，油分效果更加理想。

防止压缩机反转，及当系统停车时冷凝器中制冷剂冷凝并倒灌，建议在油分出口加装单向阀

油分必须牢固垂直安装

Installation & Caution

Before installation, oil pre-charge is required. The cahrging oil should be kept on above of the Oil tank. To pre-charge the oil is very important, this can avoid damaging floatball.switch device. It should be installed between compressor and condenser.

The oil should be same as the oil in the crankcase The oil separator must be installed vertically Check valve is suggested to be installed at outlet of oil separator for preventing liquid refrigerant migrating from condenser

TYPE	Conn Size (Inch)	Dimensions(mm)							Drawing reference	Pre-charge qty(I)
		φ A	B	C	D	E	F	φ G		
BOS -0404	1/2 ODS	102	333	69	64	N/A	58.5	N/A	fig.1	0.4
BOS -0405	5/8 ODS	102	384	69	66	N/A	58.5	N/A	fig.1	0.4
BOS -0407	7/8 ODS	102	434	74	76	N/A	58.5	N/A	fig.1	0.4
BOS -0409	1-1/8 ODS	102	483	75	78	N/A	58.5	N/A	fig.1	0.4
BOS -0611	1-3/8 ODS	159	384	108	91	N/A	60.5	N/A	fig.1	1.1
BOS -0613	1-5/8 ODS	159	428	108	98	N/A	60.5	N/A	fig.1	1.1
BOS -0617	2-1/8 ODS	159	436	114	105	N/A	60.5	N/A	fig.1	1.1
BOS -0611F	1-3/8 ODS	159	508	108	91	99	N/A	113	fig.2	0.7
BOS -0613F	1-5/8 ODS	159	559	108	98	99	N/A	113	fig.2	0.7
BOS -0617F	2-1/8 ODS	159	559	114	105	99	N/A	113	fig.2	0.7
BOS -0813F	1-5/8 ODS	219	641	148	164	100	N/A	166	fig.3	0.7
BOS -0817F	2-1/8 ODS	219	641	148	164	100	N/A	166	fig.3	0.7
BOS -1021F	2-5/8 ODS	273	750	183	201	100	N/A	223	fig.3	0.7
BOS -1225F	3-1/8 ODS	325	821	215	229	100	N/A	273	fig.3	0.7

1.Inlet 2.Outlet 3.Oil return, 3/8 SAE Flare 4.M10 Bolt & Nut

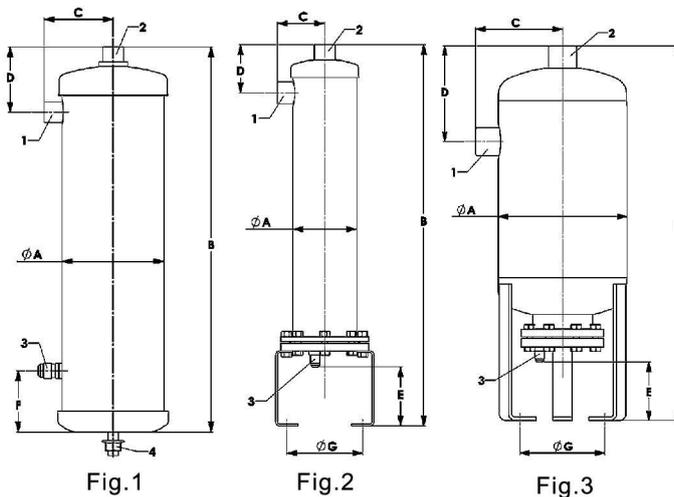


Fig.1

Fig.2

Fig.3

$$D = \sqrt{\frac{4 * \lambda * V}{3600 * T * W}} = 0.0188 * \sqrt{\frac{\lambda * V}{W}}$$

λ = Compressor gas transmission coefficient

压缩机的输气系数

V = Compressor theoretical gas transmission

压缩机的理论输气量

W = Velocity in accumulator

油分中，气流通过横断面的速度

(W filter should be between 0.3-0.5m/s, others should be less than 0.5m/s)

填料式取0.3-0.5m/s, 其他不应大于0.5m/s



Usually Oil Separator diameter is 3-15 times than discharge pipeline. 油分离器的管径比高压排气管的管径大3~15倍

油分选型

www.bowasolution.com

Suction pipeline design
吸气管设计

