



THE HEART OF FRESHNESS

R410A 全封闭涡旋压缩机

R410A // HERMETIC SCROLL COMPRESSORS

R410A // HERMETISCHE SCROLLVERDICHTER

ORBIT SERIES: TANDEM // TRIO

ORBIT 系列: 双机 // 三机并联



50 Hz // ESP-131-4-CN

ORBIT compound compressor assemblies (GSD series)

ORBIT Tandem and Trio scroll compressor assemblies consist of two or three compressors, respectively, connected in a parallel configuration and offer advantages over single compressors with equivalent capacity. They are characterized by innovative technical features and very high energy efficiency especially adapted to the annual load characteristics of air conditioning systems and heat pumps. The compressor design has been further optimized for low sound emissions, smooth running and reliability.

- ❑ Simple, robust and efficient capacity control with high IPLV and ESEER by means of cycling of individual compressors.
- ❑ Innovative oil equalization system.
- ❑ Compressors mount directly to solid frame rails for low vibration levels (no spacers required).
- ❑ One Tandem or Trio piping kit fits for all sizes of the series (for GSD60235 and GSD80182 & GSD80235, the discharge height is +7mm).

Compound compressor systems (typical challenges)

While many of the standardization, capacity control and IPLV benefits of Tandem and Trio compound systems with scroll compressors are well known, so are some of the application challenges faced by OEM's and system builders.

- ❑ Highly variable piping configurations from model to model caused by differences in compressor interface points.
- ❑ Difficulty maintaining oil balance in all phases of unit operation (particularly in heat-pump applications).
- ❑ Control restrictions (starting/sequencing) imposed by the compressor manufacturer.
- ❑ Operational challenges in the factory caused by the small and difficult to control restrictor washers needed in conventional piping packages.

ORBIT 并联压缩机组 (GSD系列)

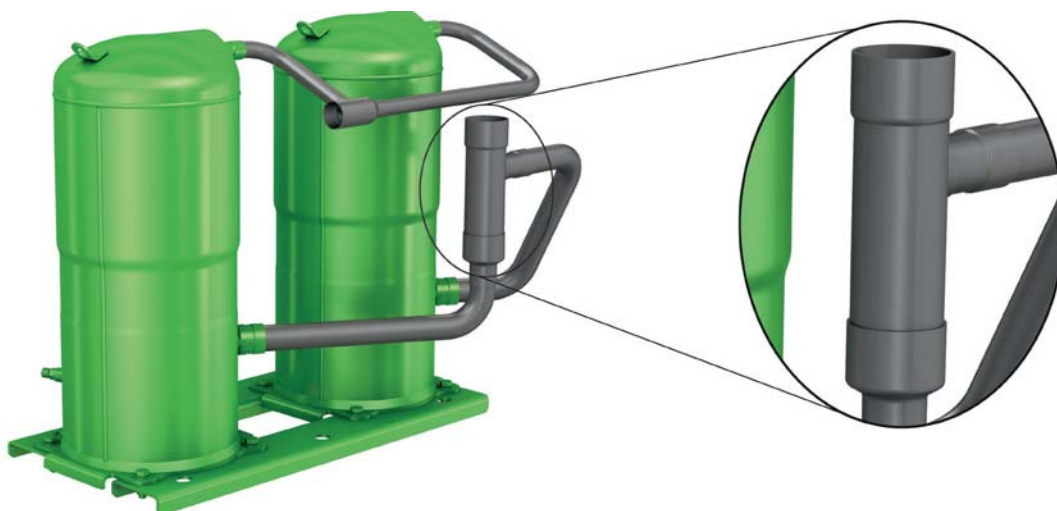
ORBIT并联压缩机组由2台或者3台压缩机组成，并联运行给客户带来更多的灵活性和可靠性。并联机组产品采用创新技术，具有很高的满负荷和部分负荷效率，能够提高冷水机组或热泵机组全年综合运行能效。另外，压缩机的出色设计使其具有更低的运行噪音，更平稳的运行特性和更高的可靠性。

- ❑ 通过调节单台压缩机的运行来简单、高效、可靠的进行冷量调节
- ❑ 革命性的油平衡设计
- ❑ 压缩机安装在坚固的底座上，降低了运行时的震动和噪音
- ❑ 一套并联头管适用于左右尺寸的压缩机并联 (GSD60235 与 GSD80182 和 GSD80235 排气管高度相差 7mm)

并联压缩机组 (典型挑战)

双机或三机并联涡旋压缩机组在冷量调节，IPLV指标上的优势越来越被市场所接受，各地区标准对能效要求越来越高。OEM和系统搭建商所面临的挑战也越来越严峻。

- ❑ 压缩机型号繁多导致接口位置和尺寸不同，并导致并联头管设计多种多样
- ❑ 在压缩机运行数目和工况变化时很难保证油位平衡 (特别是热泵应用)
- ❑ 压缩机制造商对于压缩机启停时间和间隔的限制
- ❑ 传统并联头管由于使用节流垫片造成的机组运行限制



BITZER Advanced Header Technology

Our engineers have addressed these challenges and have developed the BITZER Advanced Header Technology. This patent pending technology takes advantage of the unique design characteristics of the ORBIT series compressors. Isolated oil sump design and good miscible PVE oil provide the foundation for BITZER's solution by operating with low oil

carry-over rates. Advanced header technology then operates by ensuring that small differences in pressure drop in header tubing do not impact oil balance in low mass-flow situation. Like those found in many air-to-water heat-pumps. BITZER Advanced Header Technology offers concrete advantages and benefits to the OEM customer.

- ❑ Common Piping
 - A single Advanced Header can cover many different sized Tandem combinations
 - Supports the OEM's lean-production initiatives with less inventory and working capital tied up in piping
- ❑ No Restrictor Washers
 - Less chance of mistakes in factory assembly
- ❑ No restriction in start-up, capacity control, or lead-lag control sequences
 - Does not require costly changes to unit firmware
- ❑ Enables a wide range of creative application solutions for full-load, part-load, or hybrid capacity and efficiency optimization
 - Uneven Tandems
 - Mixed Tandems (normal optimization or low condensing)
 - Mixed or uneven Trios
 - Fixed + variable speed Tandems
- ❑ Operating characteristics of the Advanced Header Technology
 - Enables tubing to be produced to normal tolerances
 - Enables in-house, or outsourced tubing production without concern for small pressure drop differences

BITZER先进头管技术

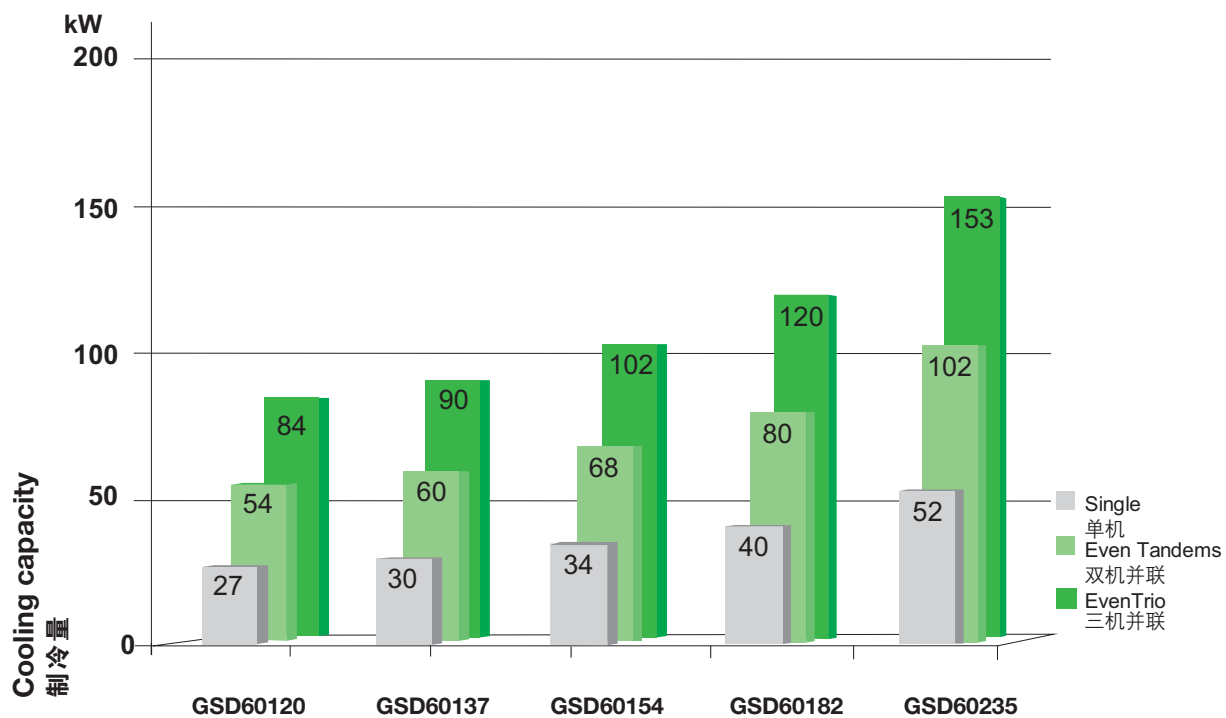
我们的设计人员充分理解这些挑战并研发出了BITZER 先进头管技术。这项专利技术充分利用了ORBIT涡旋压缩机的设计特点。将润滑油集中在压缩机油腔内，并使用聚乙烯醚润滑油，极低的排气带油率等。这种头管技术确保了在很小的质量流量的工况下，头管内的微小的压力降的差别不会影响到油位的平衡。BITZER 先进头管技术给OEM客户带来了实在的好处和便利。

- ❑ 通用头管设计
 - BITZER先进头管技术可以应用在不同匹数的双机并联机组上
 - 有效的帮助客户实现精益生产，降低库存和成本
- ❑ 不用节流垫片
 - 可以降低组装时出错的可能性
- ❑ 对压缩机启动顺序，冷量水平没有限制
 - 客户无需更改昂贵的控制固件
- ❑ 给客户提供了宽广的应用的可能性
 - 不等匹并联
 - 混合并联（风冷专用型和水冷专用型混合并联）
 - 混合或者不等匹三并联
 - 定转速和变频并联
- ❑ BITZER先进头管技术的运行特性
 - 客户可以按照普通公差要求加工头管
 - 客户可以自制，外购头管而无需考虑加工偏差造成的微小的压力降区别



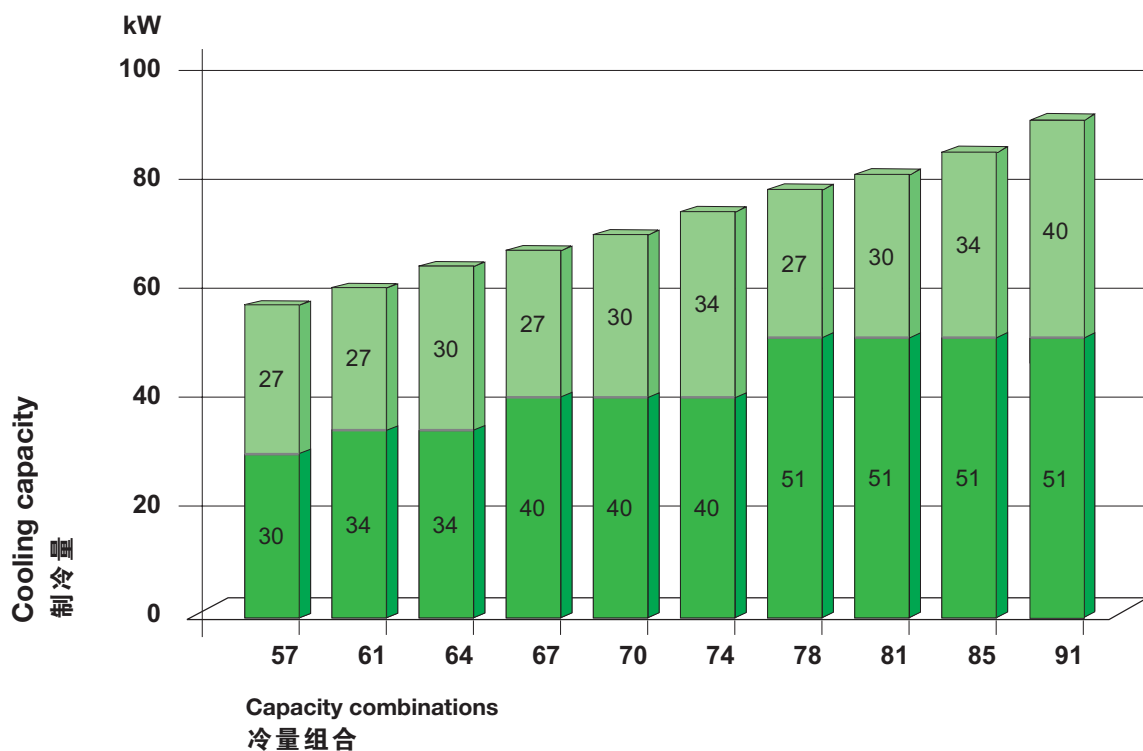
ORBIT 6 even compound assemblies

ORBIT 6 等匹并联



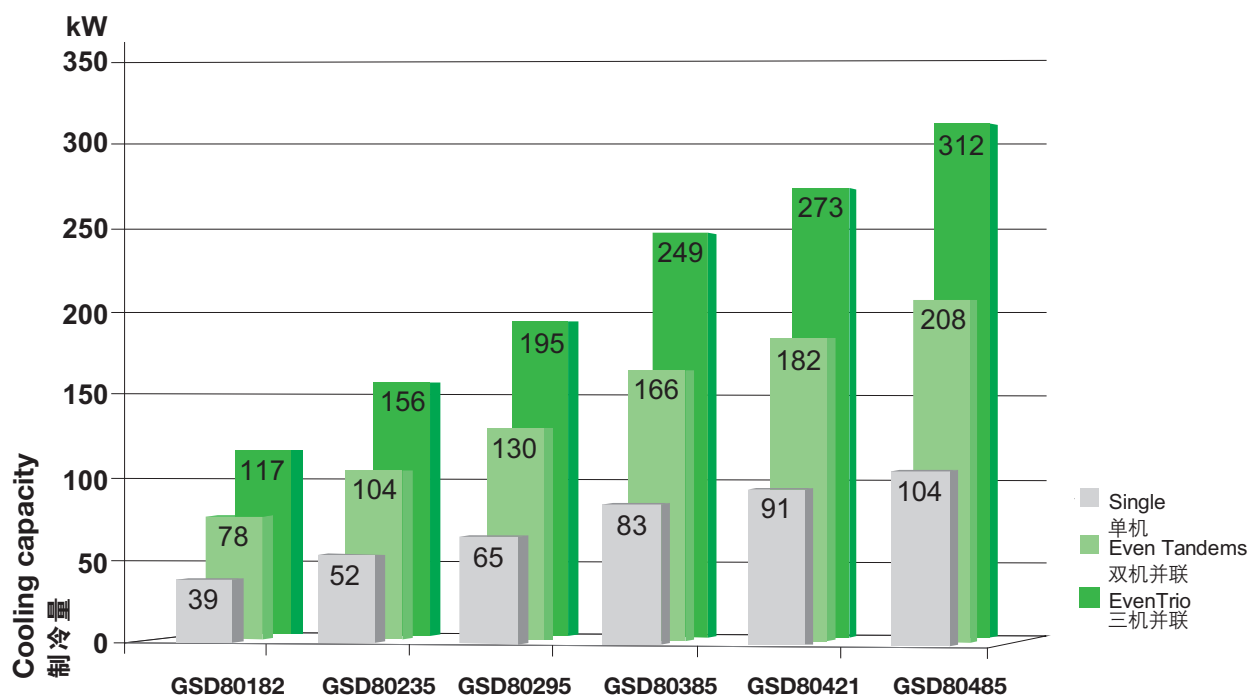
ORBIT 6 uneven Tandem assemblies

ORBIT 6 不等匹并联



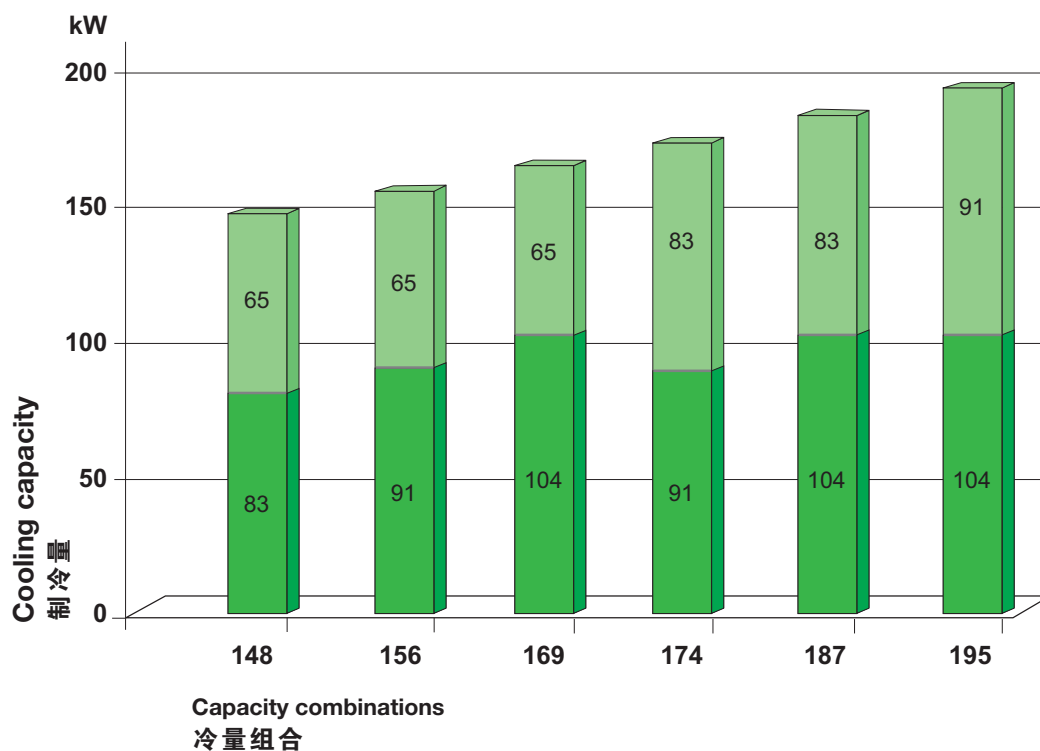
ORBIT 8 even compound assemblies

ORBIT 8 等匹并联



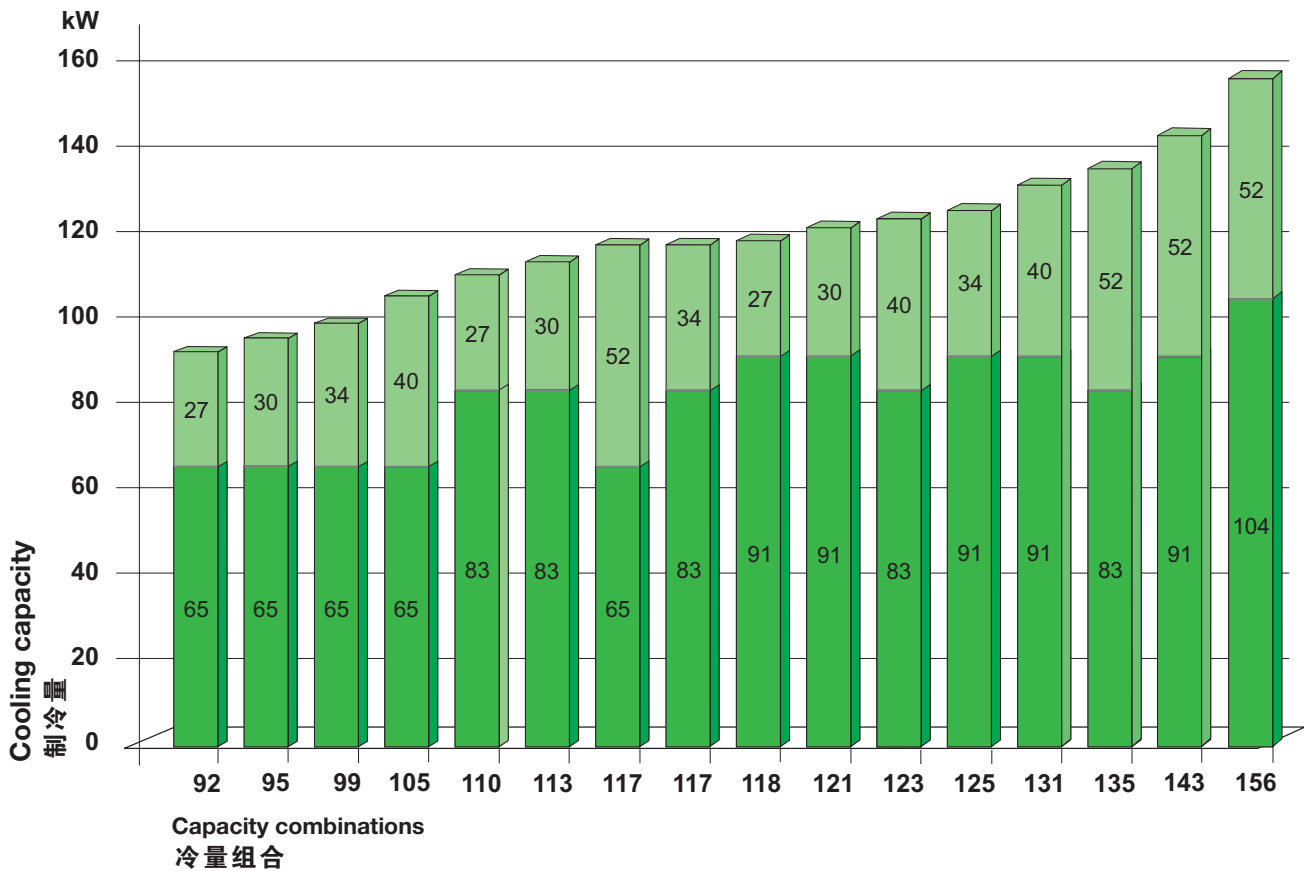
ORBIT 8 uneven Tandem assemblies

ORBIT 8 不等匹并联



ORBIT 6 + ORBIT 8 Tandem assemblies

ORBIT6 + ORBIT8 双机并联



Performance of compound compressor assemblies

The performance data of the compounded compressors corresponds to the sum of the performance data of each of the single compressors.

For further information on technical design and performance data of single compressors see BITZER Software and brochures ESP-120 and ESP-130.

Assemblies of higher capacity with ORBIT 8 compressors see ESP-131.

并联机组的性能参数

并联机组的性能参数可以通过计算单机性能参数的综合来获得

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-120, ESP-130和ESP-131

ORBIT 6 Tandem assemblies – Technical data

ORBIT 6 双机并联产品技术参数

Compressor types 压缩机型号	Displacement with 50 Hz 50 Hz 时 排气量 m³/h	Capacity step 冷量调节比例 %	Weight ① 重量 kg	Pipe connections ODS 焊接连接尺寸				Assembly kit no. 并联套件零件号
				DL Discharge line 排气管		SL Suction line 吸气管		
				mm	inch	mm	inch	
Even compressor assemblies				等匹并联产品				
2 x GSD60120VAB	39,6	100:50	186	35	1 3/8	54	2 1/8	Contact BITZER 请咨询比泽尔
2 x GSD60137VAB	44,4	100:50	186	35	1 3/8	54	2 1/8	
2 x GSD60154VAB	49,6	100:50	186	35	1 3/8	54	2 1/8	
2 x GSD60182VAB	58,4	100:50	186	35	1 3/8	54	2 1/8	
2 x GSD60235VAB	75,2	100:50	188	35	1 3/8	54	2 1/8	
Uneven compressor assemblies				不等匹并联产品				
GSD60120VAB + GSD60137VAB	42,0	100:52:47	186	35	1 3/8	54	2 1/8	Contact BITZER 请咨询比泽尔
GSD60120VAB + GSD60154VAB	44,6	100:56:44	186	35	1 3/8	54	2 1/8	
GSD60120VAB + GSD60182VAB	49,0	100:60:40	186	35	1 3/8	54	2 1/8	
GSD60120VAB + GSD60235VAB	57,4	100:65:35	187	35	1 3/8	54	2 1/8	
GSD60137VAB + GSD60154VAB	47,0	100:53:47	186	35	1 3/8	54	2 1/8	
GSD60137VAB + GSD60182VAB	51,4	100:57:43	186	35	1 3/8	54	2 1/8	
GSD60137VAB + GSD60235VAB	59,8	100:63:37	187	35	1 3/8	54	2 1/8	
GSD60154VAB + GSD60182VAB	54,0	100:54:49	186	35	1 3/8	54	2 1/8	
GSD60154VAB + GSD60235VAB	62,4	100:60:40	187	35	1 3/8	54	2 1/8	
GSD60182VAB + GSD60235VAB	66,8	100:56:44	187	35	1 3/8	54	2 1/8	

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER Software and brochure ESP-120.

① Weight including assembly kit

Charged with polyvinyl ether oil BVC32

2 x Oil heater (option)

90 W, 115 V/230 V/460 V/575 V

本中没有体现的并联组合请咨询比泽尔公司

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-120

① 重量包括并联附件

压缩机充注BVC32聚乙烯醚润滑油

2 个油加热器（选装）

115V/230V/460V/575V，90W。



ORBIT 8 Tandem assemblies – Technical data

ORBIT 8 双机并联产品技术参数

Compressor types ①	Displacement with 50 Hz	Capacity step	Weight ②	Pipe connections ODS 焊接连接尺寸				Assembly kit no. 并联套件零件号	
压缩机型号	50 Hz 时 排气量 m³/h	冷量调节比例 %	重量 kg	DL Discharge line 排气管		SL Suction line 吸气管		Version “B” 焊接连接 ③	Version “R” 螺纹连接 ③
				mm	inch	mm	inch		
Even compressor assemblies				等匹并联产品					
2 x GSD80295V	96,6	100:50	326	42	1 5/8	76	3 1/8	Contact BITZER 请咨询比泽尔	
2 x GSD80385V	123,6	100:50	330	42	1 5/8	76	3 1/8		
2 x GSD80421V	135,2	100:50	329	42	1 5/8	76	3 1/8		
2 x GSD80485VA	154,4	100:50	361	42	1 5/8	76	3 1/8		
Uneven compressor assemblies				不等匹并联产品					
GSD80295V + GSD80385V	110,1	100:56:44	328	42	1 5/8	76	3 1/8	Contact BITZER 请咨询比泽尔	
GSD80295V + GSD80421V	115,9	100:58:42	327	42	1 5/8	76	3 1/8		
GSD80295V + GSD80485V	125,5	100:62:38	344	42	1 5/8	76	3 1/8		
GSD80385V + GSD80421V	129,4	100:52:48	324	42	1 5/8	76	3 1/8		
GSD80385V + GSD80485V	139,0	100:56:44	345	42	1 5/8	76	3 1/8		
GSD80421V + GSD80485V	144,8	100:53:47	341	42	1 5/8	76	3 1/8		

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER Software and brochure ESP-130.

- ① Each compressor combination is available in two versions:
GSD8...**VA** = ORBIT 8 optimized for air-cooled systems and reversible chillers
GSD8...**VW** = ORBIT 8 Boreal optimized for systems with low condensing temperature
(Combinations with GSD80182V are only available as version "A")

② Weight including assembly kit

③ B = Direct brazing connections
R = Rotolock connections

Charged with polyvinyl ether oil BVC32.

2 x Oil heater (option)

140 W, 115 V/230 V/460 V/575 V

样本中没有体现的并联组合请咨询比泽尔公司

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-130

- ① 每种并联组合可以选择两种压缩机版本
GSD8...VA为风冷机组和热泵专用型
GSD8...VW为水冷专用型
GSD80182只有风冷版本

② 重量包括并联附件

③ B = 焊接连接
R = 螺纹连接

压缩机充注BVC32聚乙醚润滑油

2个油加热器(选装)

115V/230V/460V/575V, 140W。

ORBIT 6 + ORBIT 8 Tandem assemblies – Technical data

ORBIT 6 和 ORBIT 8 双机并联产品技术参数

Compressor types 压缩机型号	Displacement with 50 Hz 50 Hz 时排气量 m³/h	Capacity step 冷量调节比例 %	Weight ① 重量 kg	Pipe connections ODS 焊接连接尺寸				Assembly kit no. 并联套件零件号
				DL Discharge line 排气管		SL Suction line 吸气管		
				mm	inch	mm	inch	
GSD60120VAB + GSD80295VAB	68,1	100:71:29	258	42	1 5/8	76	3 1/8	Contact BITZER 请咨询比泽尔
GSD60120VAB + GSD80385VAB	81,6	100:76:24	260	42	1 5/8	76	3 1/8	
GSD60120VAB + GSD80421VAB	87,4	100:77:23	259	42	1 5/8	76	3 1/8	
GSD60137VAB + GSD80295VAB	70,5	100:54:32	258	42	1 5/8	76	3 1/8	
GSD60137VAB + GSD80385VAB	84,0	100:74:26	260	42	1 5/8	76	3 1/8	
GSD60137VAB + GSD80421VAB	89,8	100:76:25	259	42	1 5/8	76	3 1/8	
GSD60154VAB + GSD80295VAB	73,1	100:66:34	258	42	1 5/8	76	3 1/8	
GSD60154VAB + GSD80385VAB	86,6	100:78:29	260	42	1 5/8	76	3 1/8	
GSD60154VAB + GSD80421VAB	92,4	100:73:27	259	42	1 5/8	76	3 1/8	
GSD60182VAB + GSD80295VAB	77,5	100:62:38	258	42	1 5/8	76	3 1/8	
GSD60182VAB + GSD80385VAB	91,0	100:68:32	260	42	1 5/8	76	3 1/8	
GSD60182VAB + GSD80421VAB	96,8	100:70:30	259	42	1 5/8	76	3 1/8	
GSD60235VAB + GSD80295VAB	85,9	100:56:44	259	42	1 5/8	76	3 1/8	
GSD60235VAB + GSD80385VAB	99,4	100:62:38	261	42	1 5/8	76	3 1/8	
GSD60235VAB + GSD80421VAB	105,2	100:64:36	261	42	1 5/8	76	3 1/8	
GSD60235VAB + GSD80485VAB	114,8	100:67:33	277	42	1 5/8	76	3 1/8	

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER Software and brochures ESP-120 and ESP-130.

① Weight including assembly kit

Charged with polyvinyl ether oil BVC32

Oil heater (option)

ORBIT 6: 90 W, 115 V/230 V/460 V/575 V

ORBIT 8: 140 W, 115 V/230 V/460 V/575 V

样本中没有体现的并联组合请咨询比泽尔公司

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-120和ESP-130

① 重量包括并联附件

压缩机充注BVC32聚乙烯醚润滑油

油加热器（选装）

ORBIT6: 115V/230V/460V/575V, 90W

ORBIT8: 115V/230V/460V/575V, 140W



ORBIT 6 Trio assemblies – Technical data

ORBIT 6 三机并联产品技术参数

Compressor types	Displacement with 50 Hz	Capacity step	Weight	Pipe connections ODS 焊接连接尺寸				Assembly kit no.
压缩机型号	50 Hz 时 排气量	冷量调节比例	重量①	DL Discharge line 排气管	SL Suction line 吸气管			并联套件零件号
	m³/h	%	kg	mm	inch	mm	inch	
3 x GSD60120VAB	59,4	100:66:33	284	42	1 5/8	64	2 5/8	Contact BITZER 请咨询比泽尔
3 x GSD60137VAB	66,6	100:66:33	284	42	1 5/8	64	2 5/8	
3 x GSD60154VAB	74,4	100:66:33	284	42	1 5/8	64	2 5/8	
3 x GSD60182VAB	87,6	100:66:33	284	42	1 5/8	64	2 5/8	

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER Software and brochure ESP-120.

① Weight including assembly kit

Charged with polyvinyl ether oil BVC32

3 x Oil heater (option)

90 W, 115 V/230 V/460 V/575 V

样本中没有体现的并联组合请咨询比泽尔公司

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-120

① 重量包括并联附件

压缩机充注BVC32聚乙醚润滑油

3 个油加热器（选装）

115V/230V/460V/575V, 90W

Extent of delivery Tandem/Trio assembly kits

Piping kit: Suction, discharge and oil equalizing tubes and fittings.

Rail kit: Compressor mounting hardware, rails and supporting isolation grommets.

双机和三机并联产品标准交货范围

管路套件包括：吸气，排气和油平衡管及相应的安装附件

导轨套件包括：地脚导轨，安装附件

ORBIT 8 Trio assemblies – Technical data

ORBIT 8 三机并联产品技术参数

Compressor types ① 压缩机型号	Displacement with 50 Hz 50 Hz 时 排气量 CFM	Capacity step 冷量调节比例 %	Weight ② 重量 lbs	Pipe connections ODS 焊接连接尺寸				Assembly kit no. 并联套件零件号	
				DL Discharge line 排气管		SL Suction line 吸气管		Version "B" 焊接连接 ③	Version "R" 螺纹连接 ③
				mm	inch	mm	inch		
3 x GSD80182VA	87,0	100:66:33	476	54	2 1/8	76	3 1/8	Contact BITZER 请咨询比泽尔	
3 x GSD80235V	115,8	100:66:33	485	54	2 1/8	76	3 1/8		
3 x GSD80295V	144,9	100:66:33	494	54	2 1/8	76	3 1/8		
3 x GSD80385V	185,4	100:66:33	500	54	2 1/8	76	3 1/8		
3 x GSD80421V	202,8	100:66:33	497	54	2 1/8	76	3 1/8		
3 x GSD80485V	231,6	100:66:33	548	54	2 1/8	76	3 1/8		

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER Software and brochure ESP-130.

- ① Each compressor combination is available in two versions:
 GSD8...VA = ORBIT 8 optimized for air-cooled systems and reversible chillers
 GSD8...VW = ORBIT 8 Boreal optimized for systems with low condensing temperature
 (Combinations with GSD80182V are only available as version "A")

② Weight including assembly kit

③ B = Direct brazing connections
 R = Rotolock connections

Charged with polyvinyl ether oil BVC32

2 x Oil heater (option)
 140 W, 115 V/230 V/460 V/575 V

样本中没有体现的并联组合请咨询比泽尔公司

需要单压缩机的进一步性能参数请参考比泽尔选型软件或者样本ESP-130

- ① 每一种压缩机的组合都包含两个版本的产品
 GSD8...VA = ORBIT8 风冷专用型
 GSD8...VW=ORBIT8 水冷专用型 (GSD80182V并联产品仅存在于风冷型压缩机专用系列)

② 重量包括并联附件

③ B = 焊接连接
 R = 螺纹连接

压缩机充注BVC32 润滑油

3个油加热器 (选装)
 115V/230V/460V/575V, 140W。

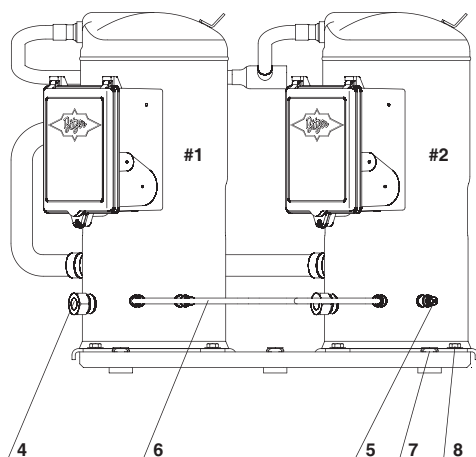
Extent of delivery Tandem/Trio assembly kits

Piping kit: Suction, discharge and oil equalizing tubes and fittings.
 Rail kit: Compressor mounting hardware, rails and supporting isolation grommets.

双机和三机并联产品标准交货范围

管路套件包括: 吸气, 排气和油平衡管及相应的安装附件
 导轨套件包括: 地脚导轨, 安装附件

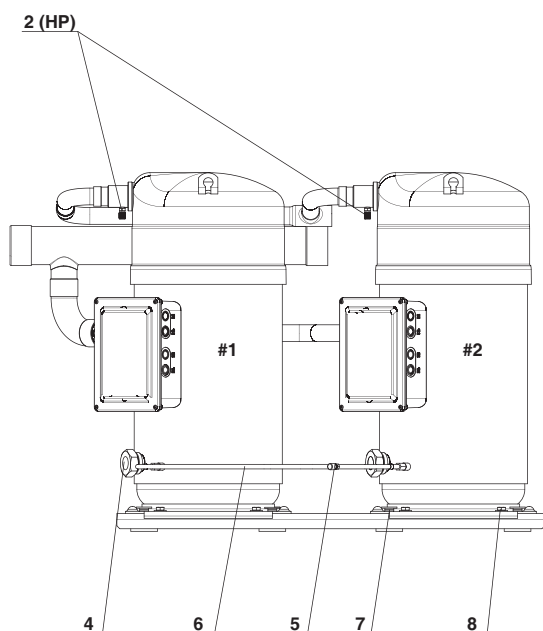
Typical even and uneven Tandem assemblies of ORBIT 6 (subject to change)



Note: Shown above is a typical even or uneven Tandem assembly of ORBIT 6 compressors with BITZER Advanced Header Technology.

Contact BITZER for dimensional information, other versions, and application information.

Typical even and uneven Tandem assemblies of ORBIT 8 (subject to change)

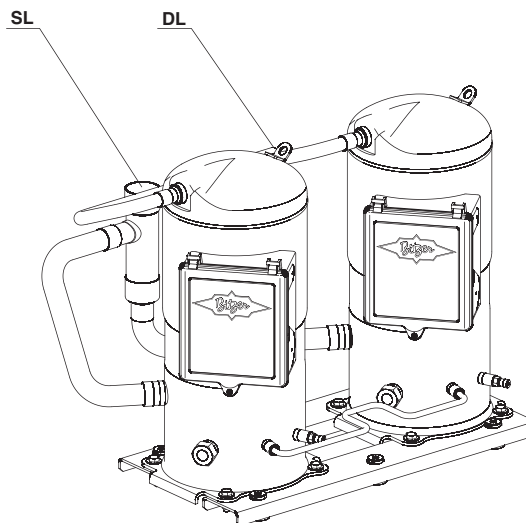


Note: Shown above is a typical even or uneven Tandem assembly of ORBIT 8 compressors with BITZER Advanced Header Technology.

Contact BITZER for dimensional information, other versions, and application information.

Connection positions see p. 15

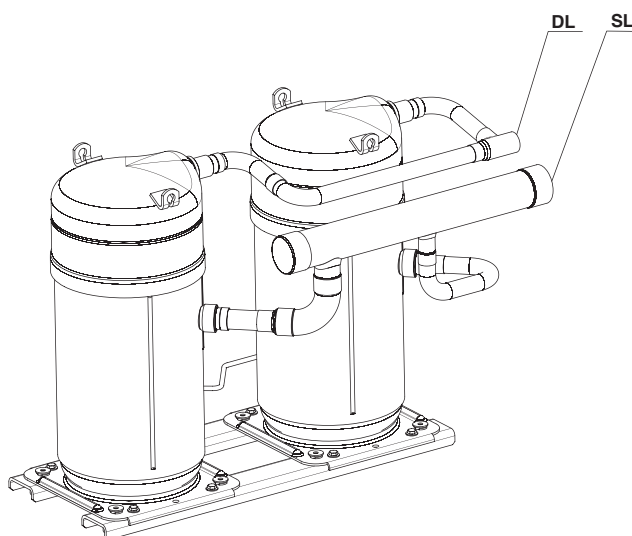
典型 ORBIT 6 等匹和不等匹双机并联产品



注意： 上图所示为典型的2台等匹和不等匹 ORBIT 6 压缩机，使用 BITZER 先进头管技术的焊接连接并联产品。

如需了解产品外形尺寸，新产品和产品应用信息，请咨询比泽尔

典型 ORBIT 8 等匹和不等匹双机并联产品



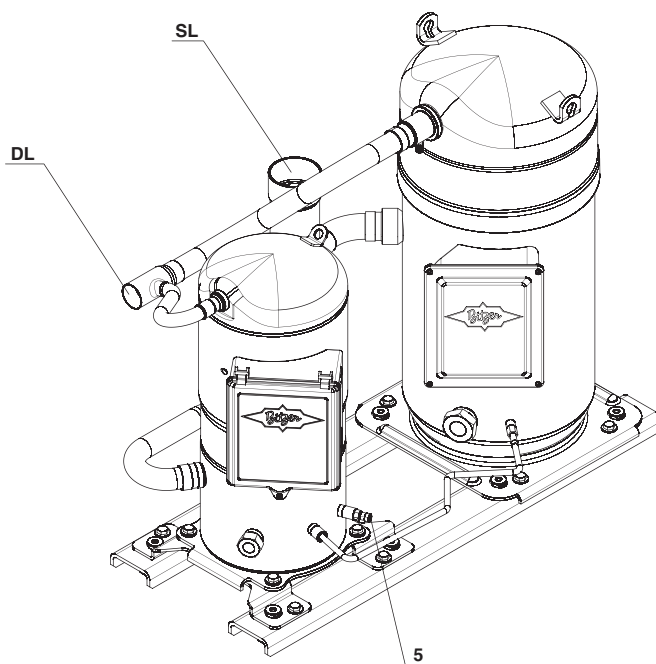
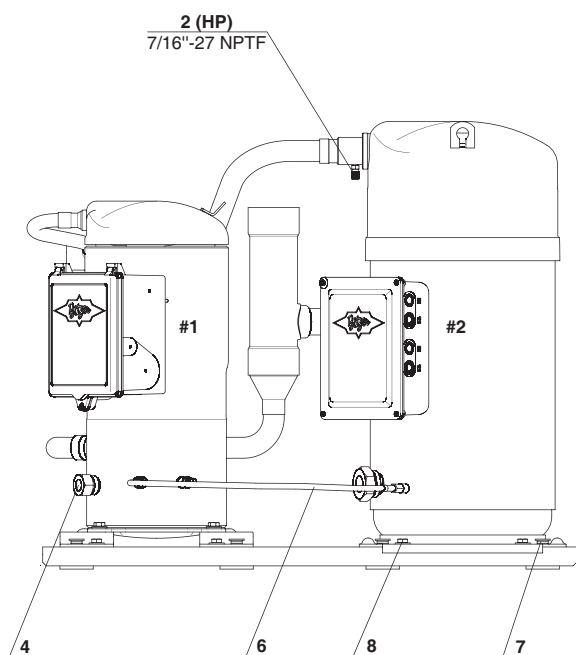
注意： 上图所示为典型的2台等匹和不等匹ORBIT8压缩机，使用BITZER先进头管技术的焊接连接并联产品。

如需了解产品外形尺寸，新产品和产品应用信息，请咨询比泽尔

连接位置请见第15页

Typical uneven Tandem assemblies of ORBIT 6 and ORBIT 8 (subject to change)

典型 ORBIT 6 和 ORBIT 8 双机并联产品



Note: Shown above is a typical uneven Tandem assembly of ORBIT 6 and ORBIT 8 compressors with BITZER Advanced Header Technology.

Contact BITZER for dimensional information, other versions, and application information.

Connection positions see p. 15

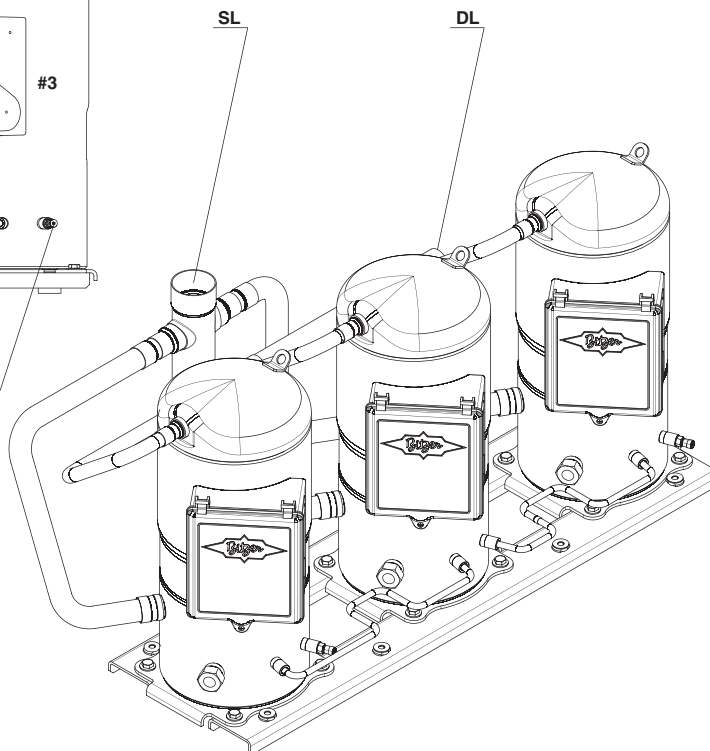
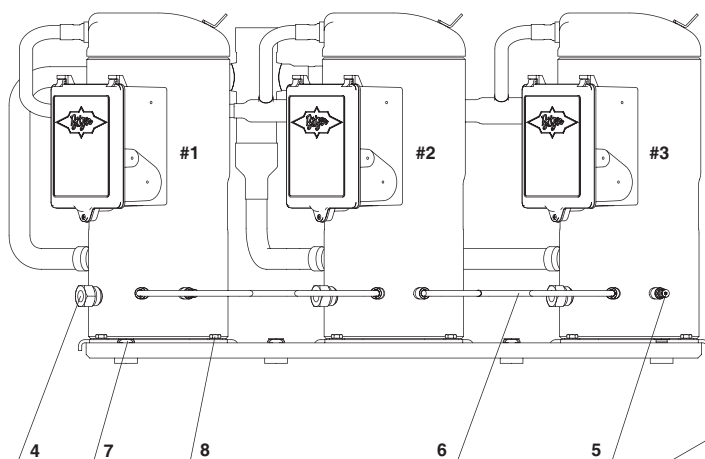
注意： 上图所示为典型的ORBIT6和ORBIT8压缩机并联产品，使用BITZER先进头管技术的焊接连接并联产品。

如需了解产品外形尺寸，新产品和产品应用信息，请咨询比泽尔销售

连接位置请见第15页

Typical even Trio assemblies of ORBIT 6
(subject to change)

典型 ORBIT 6 等匹三机并联产品



Note: Shown above is a typical even Trio assembly of ORBIT 6 compressors with BITZER Advanced Header Technology.

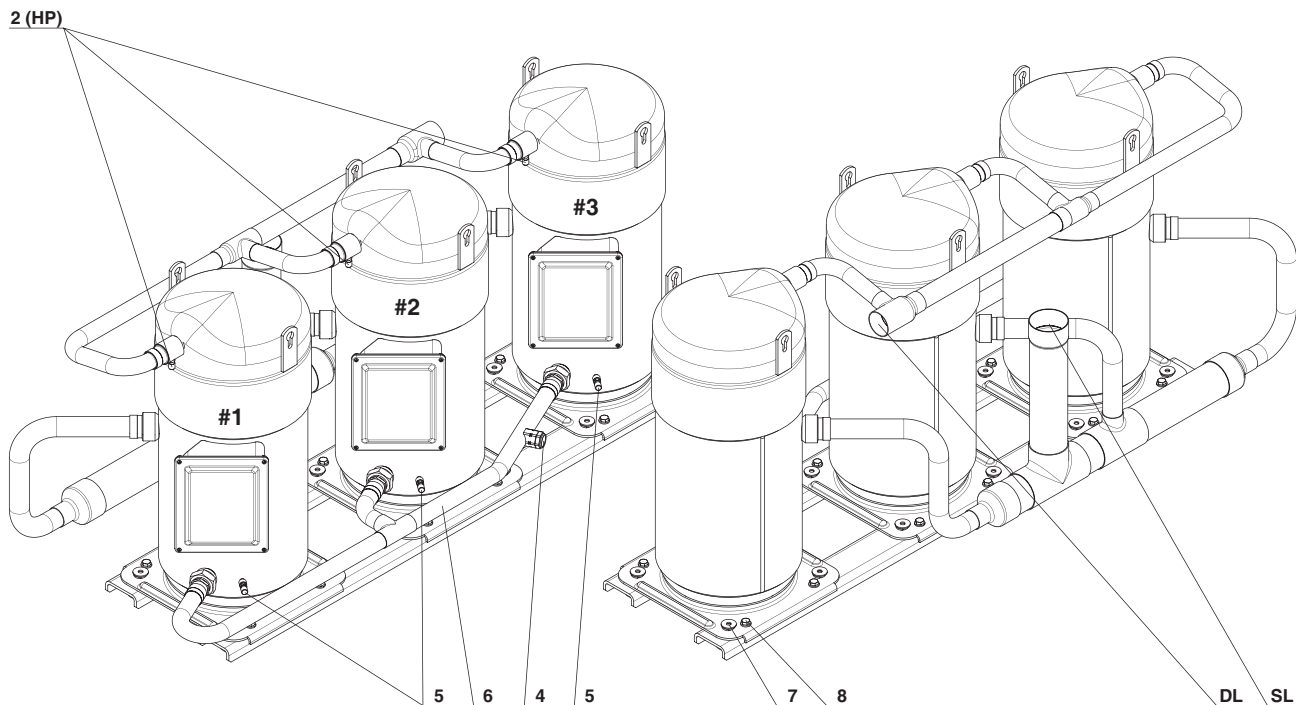
Contact BITZER for dimensional information, other versions, and application information.

注意： 上图所示为典型的3台等匹并联 ORBIT 6 压缩机，使用 BITZER 先进头管技术的焊接连接并联产品。

如需了解产品外形尺寸，新产品和产品应用信息，请咨询比泽尔

Typical even Trio assemblies of ORBIT 8 (subject to change)

典型 ORBIT 8 等匹三机并联产品



Note: Shown above is a typical even Trio assembly of ORBIT 8 compressors with conventional trio piping.

Contact BITZER for dimensional information, other versions, and application information.

注意：上图所示为典型的3台等匹并联 ORBIT 8 压缩机，使用 BITZER 传统头管技术的焊接连接并联产品。

如需了解产品外形尺寸，新产品和产品应用信息，请咨询比泽尔

Connection positions

- 2 High pressure (HP) or discharge gas temperature sensor (Schrader)
- 4 Sight glass
- 5 Oil service connection
- 6 Oil equalizing line
- 7 Mounting position for vibration dampers
- 8 Mounting position for Tandem and Trio fixing rails

SL Suction line
DL Discharge line

连接位置

- 2 高压取压口或排气温度传感器安装口 (针阀)
- 4 油视镜
- 5 充/放油口
- 6 油平衡管
- 7 减震垫安装位置
- 8 并联导轨安装位置

SL 吸气管路
DL 排气管路



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