



THE HEART OF FRESHNESS

R410A // HERMETIC

# SCROLL COMPRESSORS

TANDEM // TRIO

More Flexibility

ORBIT



50 Hz // ESP-131-6

## ORBIT compound compressor assemblies (GSD series)

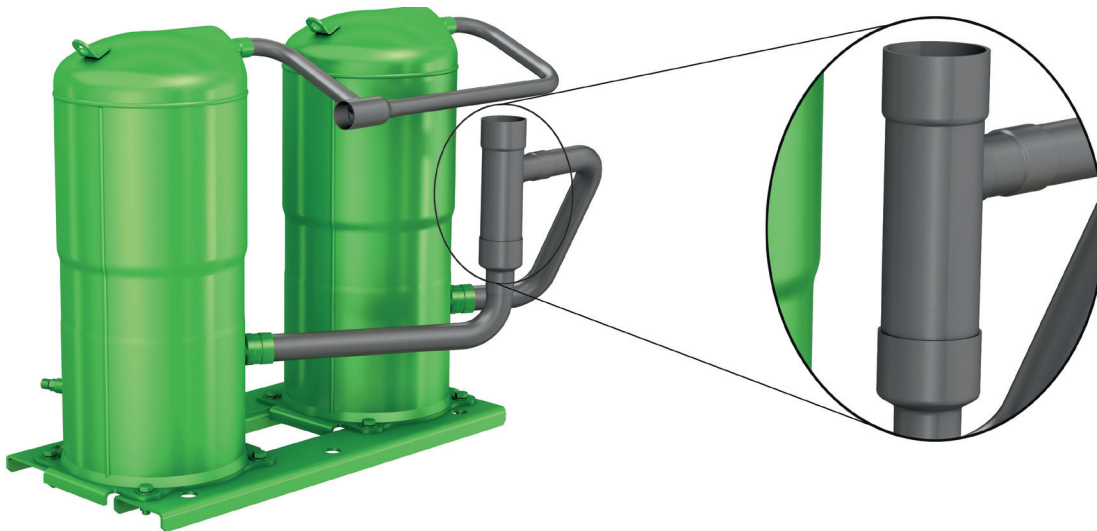
ORBIT Tandem and Trio scroll compressor assemblies consist of two or three compressors, respectively, connected in a parallel configuration and offer advantages over single compressors with equivalent capacity. They are characterized by innovative technical features and very high energy efficiency especially 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.



## BITZER Advanced Header Technology

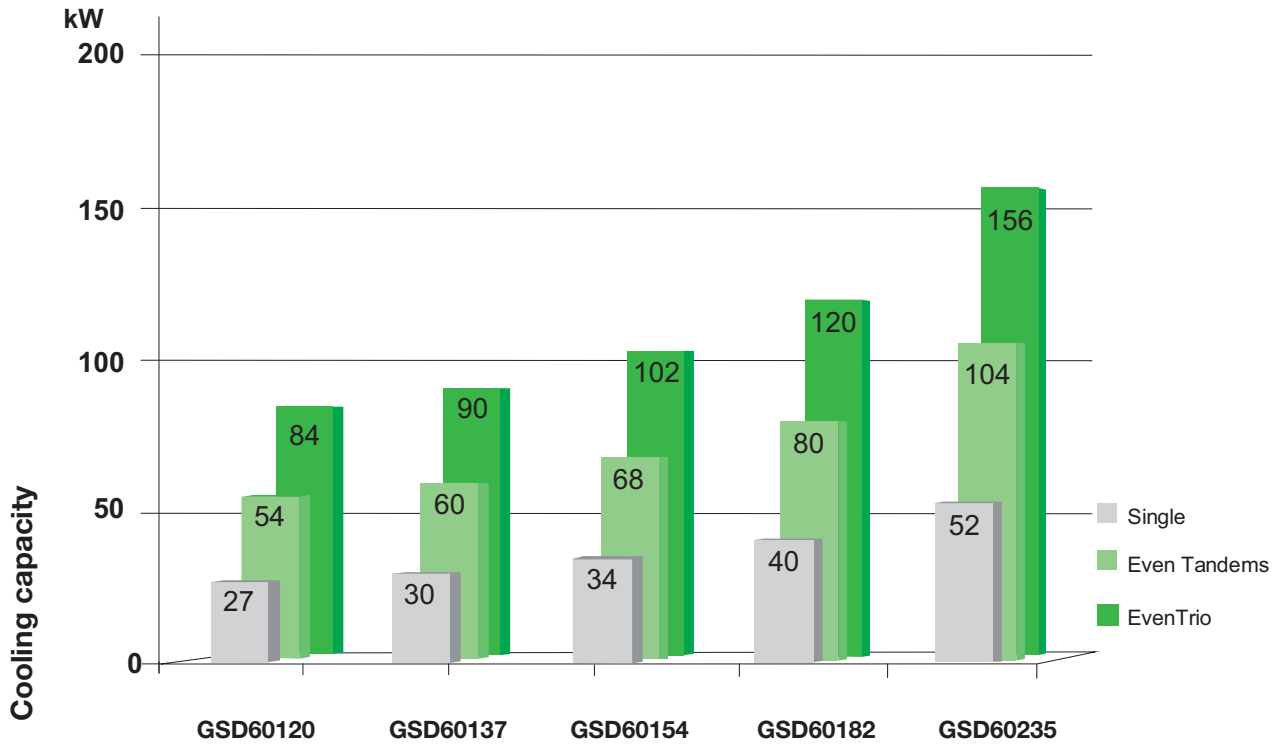
Our engineers have addressed these challenges and have developed the BITZER Advanced Header Technology. This patent pending technology takes advantage of the unique design characteristics of the ORBIT series compressors. Isolated oil sump design and good miscible PVE oil provide the foundation for BITZER's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

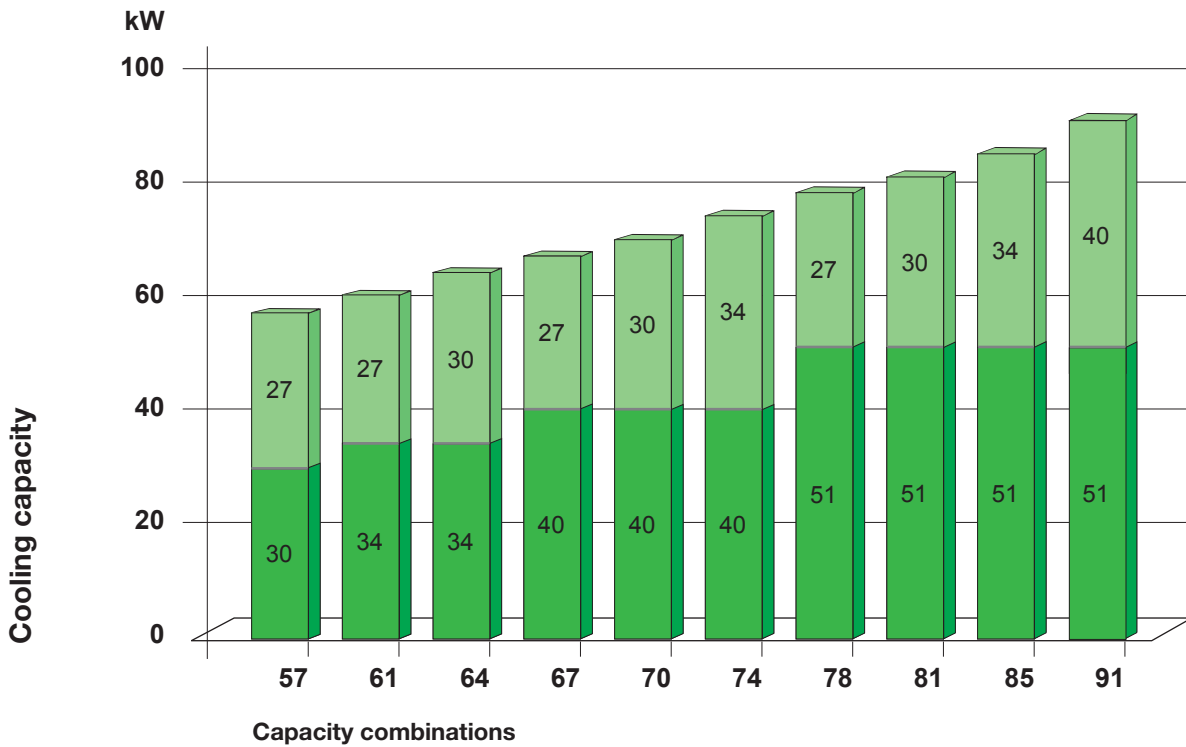
- ❑ Common Piping
  - A single Advanced Header can cover many different sized Tandem combinations
  - Supports the OEM's lean-production initiatives with less inventory and working capital tied up in piping
- ❑ No Restrictor Washers
  - Less chance of mistakes in factory assembly
- ❑ No restriction in 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



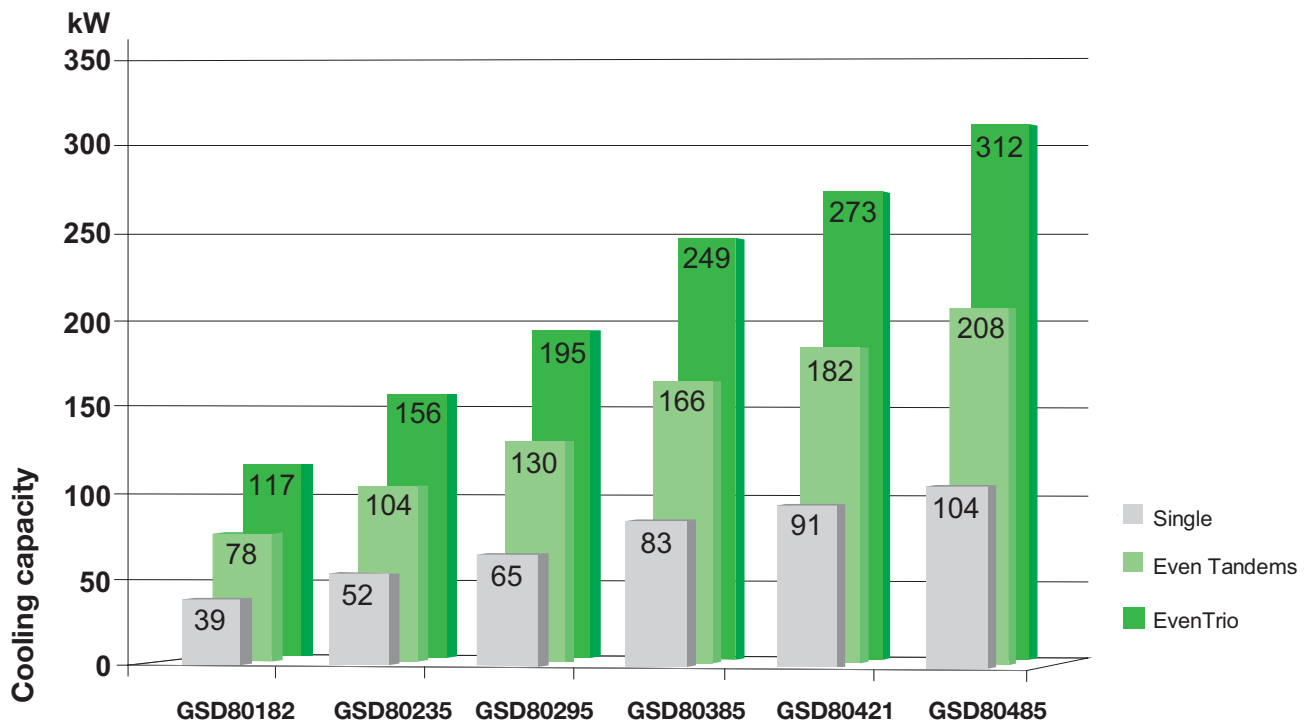
### ORBIT 6 even compound assemblies



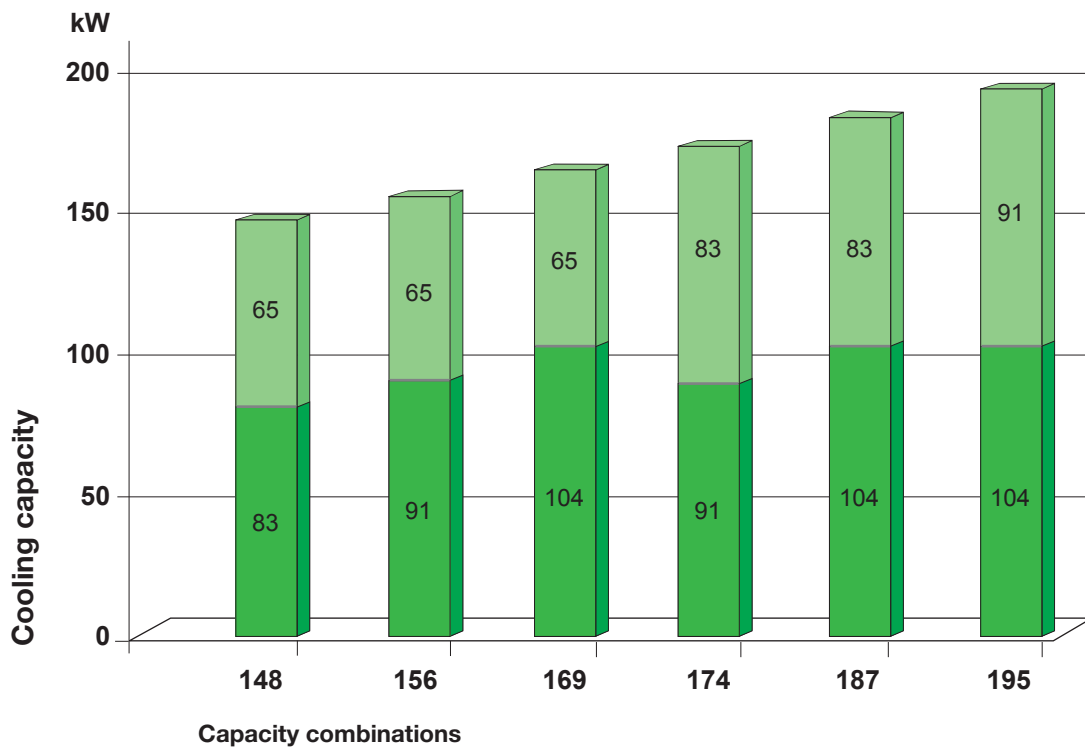
### ORBIT 6 uneven Tandem assemblies



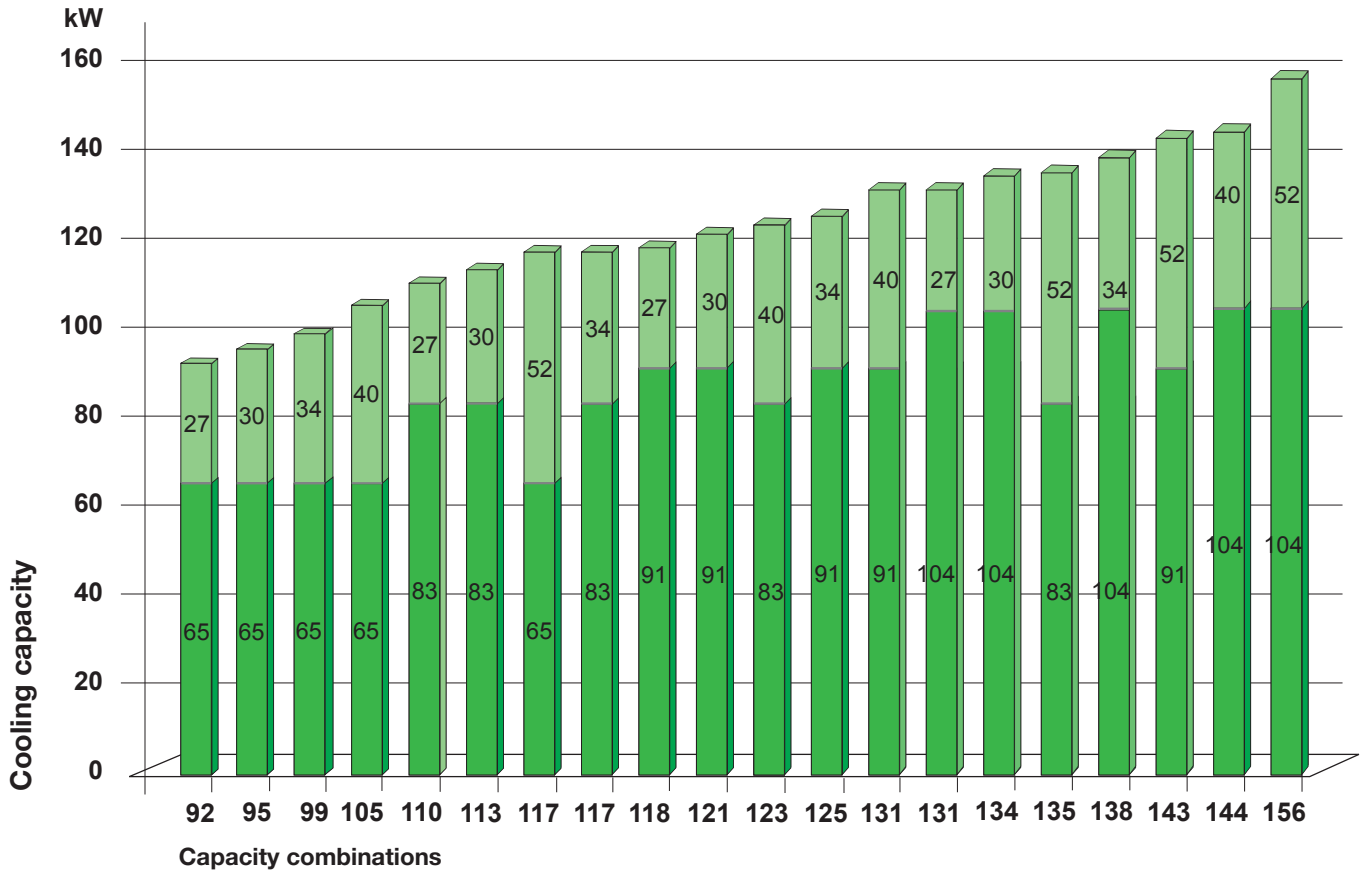
### ORBIT 8 even compound assemblies



### ORBIT 8 uneven Tandem assemblies



### ORBIT 6 + ORBIT 8 Tandem assemblies



### 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. See BITZER SOFTWARE.

For further information on technical design and performance data of single compressors see BITZER SOFTWARE and brochure ESP-130.

## ORBIT 6 Tandem assemblies – Technical data

Compressor types	Displacement with 50 Hz  m <sup>3</sup> /h	Capacity step  %	Weight ①  kg	Pipe connections ODS				Assembly kit no.
				DL Discharge line		SL Suction line		
				mm	inch	mm	inch	
<b>Even compressor assemblies</b>								
<b>2 x GSD60120VAB</b>	39,6	100:50	173	35	1 3/8	54	2 1/8	Contact BITZER
<b>2 x GSD60137VAB</b>	44,4	100:50	173	35	1 3/8	54	2 1/8	
<b>2 x GSD60154VAB</b>	49,6	100:50	173	35	1 3/8	54	2 1/8	
<b>2 x GSD60182VAB</b>	58,4	100:50	173	35	1 3/8	54	2 1/8	
<b>2 x GSD60235VAB</b>	75,2	100:50	175	35	1 3/8	54	2 1/8	
<b>Uneven compressor assemblies</b>								
<b>GSD60120VAB + GSD60137VAB</b>	42,0	100:52:48	173	35	1 3/8	54	2 1/8	Contact BITZER
<b>GSD60120VAB + GSD60154VAB</b>	44,6	100:56:44	173	35	1 3/8	54	2 1/8	
<b>GSD60120VAB + GSD60182VAB</b>	49,0	100:60:40	173	35	1 3/8	54	2 1/8	
<b>GSD60120VAB + GSD60235VAB</b>	57,4	100:65:35	174	35	1 3/8	54	2 1/8	
<b>GSD60137VAB + GSD60154VAB</b>	47,0	100:53:47	173	35	1 3/8	54	2 1/8	
<b>GSD60137VAB + GSD60182VAB</b>	51,4	100:57:43	173	35	1 3/8	54	2 1/8	
<b>GSD60137VAB + GSD60235VAB</b>	59,8	100:63:37	174	35	1 3/8	54	2 1/8	
<b>GSD60154VAB + GSD60182VAB</b>	54,0	100:54:46	173	35	1 3/8	54	2 1/8	
<b>GSD60154VAB + GSD60235VAB</b>	62,4	100:60:40	174	35	1 3/8	54	2 1/8	
<b>GSD60182VAB + GSD60235VAB</b>	66,8	100:56:44	174	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-130.

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



## ORBIT 8 Tandem assemblies – Technical data

Compressor types ①	Displacement with 50 Hz m <sup>3</sup> /h	Capacity step %	Weight ② kg	Pipe connections ODS				Assembly kit no.	
				DL Discharge line		SL Suction line			
				mm	inch	mm	inch	Version "B" ③	Version "R" ③
<b>Even compressor assemblies</b>									
<b>2 x GSD80295V</b>	96,6	100:50	311	41,28	1 5/8	79,38	3 1/8	Contact BITZER	
<b>2 x GSD80385V</b>	123,6	100:50	315	41,28	1 5/8	79,38	3 1/8		
<b>2 x GSD80421V</b>	135,2	100:50	314	41,28	1 5/8	79,38	3 1/8		
<b>2 x GSD80485VA</b>	154,4	100:50	346	41,28	1 5/8	79,38	3 1/8		
<b>Uneven compressor assemblies</b>									
<b>GSD80295V + GSD80385V</b>	110,1	100:56:44	313	41,28	1 5/8	79,38	3 1/8	Contact BITZER	
<b>GSD80295V + GSD80421V</b>	115,9	100:58:42	312	41,28	1 5/8	79,38	3 1/8		
<b>GSD80295V + GSD80485V</b>	125,5	100:62:38	329	41,28	1 5/8	79,38	3 1/8		
<b>GSD80385V + GSD80421V</b>	129,4	100:52:48	314	41,28	1 5/8	79,38	3 1/8		
<b>GSD80385V + GSD80485V</b>	139,0	100:56:44	331	41,28	1 5/8	79,38	3 1/8		
<b>GSD80421V + GSD80485V</b>	144,8	100:53:47	330	41,28	1 5/8	79,38	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 = Rotalock connections

Charged with polyvinyl ether oil BVC32.

2 x Oil heater (option)

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

## ORBIT 6 + ORBIT 8 Tandem assemblies – Technical data

Compressor types	Displacement with 50 Hz  m <sup>3</sup> /h	Capacity step  %	Weight ①  kg	Pipe connections ODS				Assembly kit no.
				DL Discharge line		SL Suction line		
				mm	inch	mm	inch	
<b>GSD60120VAB + GSD80295VAB</b>	68,1	100:71:29	243	41,28	1 5/8	79,38	3 1/8	Contact BITZER
<b>GSD60120VAB + GSD80385VAB</b>	81,6	100:76:24	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60120VAB + GSD80421VAB</b>	87,4	100:77:23	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60120VAB + GSD80485VAB</b>	97,0	100:80:20	260	41,28	1 5/8	79,38	3 1/8	
<b>GSD60137VAB + GSD80295VAB</b>	70,5	100:68:32	243	41,28	1 5/8	79,38	3 1/8	
<b>GSD60137VAB + GSD80385VAB</b>	84,0	100:74:26	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60137VAB + GSD80421VAB</b>	89,8	100:76:24	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60137VAB + GSD80485VAB</b>	99,4	100:78:22	260	41,28	1 5/8	79,38	3 1/8	
<b>GSD60154VAB + GSD80295VAB</b>	73,1	100:66:34	243	41,28	1 5/8	79,38	3 1/8	
<b>GSD60154VAB + GSD80385VAB</b>	86,6	100:71:29	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60154VAB + GSD80421VAB</b>	92,4	100:73:27	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60154VAB + GSD80485VAB</b>	102,0	100:76:24	260	41,28	1 5/8	79,38	3 1/8	
<b>GSD60182VAB + GSD80295VAB</b>	77,5	100:62:38	243	41,28	1 5/8	79,38	3 1/8	
<b>GSD60182VAB + GSD80385VAB</b>	91,0	100:68:32	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60182VAB + GSD80421VAB</b>	96,8	100:70:30	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60182VAB + GSD80485VAB</b>	106,4	100:73:27	260	41,28	1 5/8	79,38	3 1/8	
<b>GSD60235VAB + GSD80295VAB</b>	85,9	100:56:44	244	41,28	1 5/8	79,38	3 1/8	
<b>GSD60235VAB + GSD80385VAB</b>	99,4	100:62:38	245	41,28	1 5/8	79,38	3 1/8	
<b>GSD60235VAB + GSD80421VAB</b>	105,2	100:64:36	245	41,28	1 5/8	79,38	3 1/8	
<b>GSD60235VAB + GSD80485VAB</b>	114,8	100:67:33	261	41,28	1 5/8	79,38	3 1/8	

Contact BITZER for combinations not shown.

Technical data of single compressors see BITZER SOFTWARE and brochure 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



## ORBIT 6 Trio assemblies – Technical data

Compressor types	Displacement with 50 Hz  m <sup>3</sup> /h	Capacity step  %	Weight ①  kg	Pipe connections ODS				Assembly kit no.
				DL Discharge line		SL Suction line		
				mm	inch	mm	inch	
<b>3 x GSD60120VAB</b>	59,4	100:66:33	260	41,28	1 5/8	64	2 5/8	Contact BITZER
<b>3 x GSD60137VAB</b>	66,6	100:66:33	260	41,28	1 5/8	64	2 5/8	
<b>3 x GSD60154VAB</b>	74,4	100:66:33	260	41,28	1 5/8	64	2 5/8	
<b>3 x GSD60182VAB</b>	87,6	100:66:33	260	41,28	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

### 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.

## ORBIT 8 Trio assemblies – Technical data

Compressor types ①	Displacement with 50 Hz  m <sup>3</sup> /h	Capacity step  %	Weight ②  kg	Pipe connections ODS				Assembly kit no.	
				DL Discharge line		SL Suction line			
				mm	inch	mm	inch	Version "B" ③	Version "R" ③
<b>3 x GSD80182VA</b>	87,0	100:66:33	476	54	2 1/8	79,38	3 1/8	Contact BITZER	
<b>3 x GSD80235V</b>	115,8	100:66:33	485	54	2 1/8	79,38	3 1/8		
<b>3 x GSD80295V</b>	144,9	100:66:33	467	54	2 1/8	79,38	3 1/8		
<b>3 x GSD80385V</b>	185,4	100:66:33	472	54	2 1/8	79,38	3 1/8		
<b>3 x GSD80421V</b>	202,8	100:66:33	471	54	2 1/8	79,38	3 1/8		
<b>3 x GSD80485V</b>	231,6	100:66:33	474	54	2 1/8	79,38	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 = Rotalock connections

Charged with polyvinyl ether oil BVC32

2 x Oil heater (option)

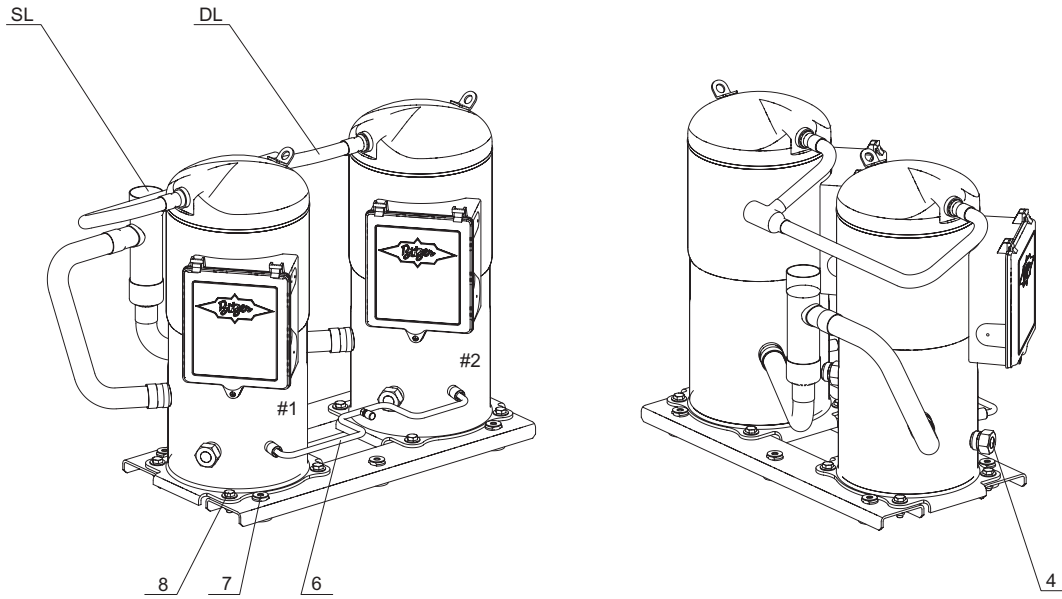
140 W, 115 V/230 V/460 V/575 V

### 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.

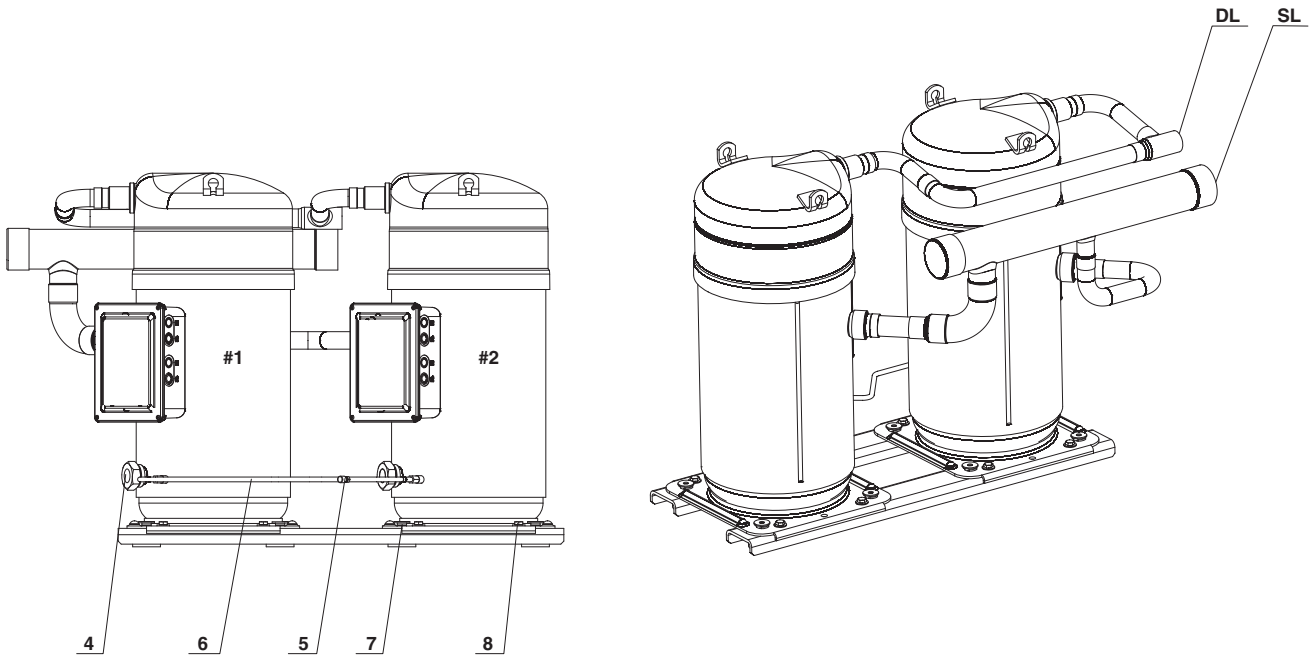
**Typical even and uneven Tandem assemblies of ORBIT 6 (subject to change)**



**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)**

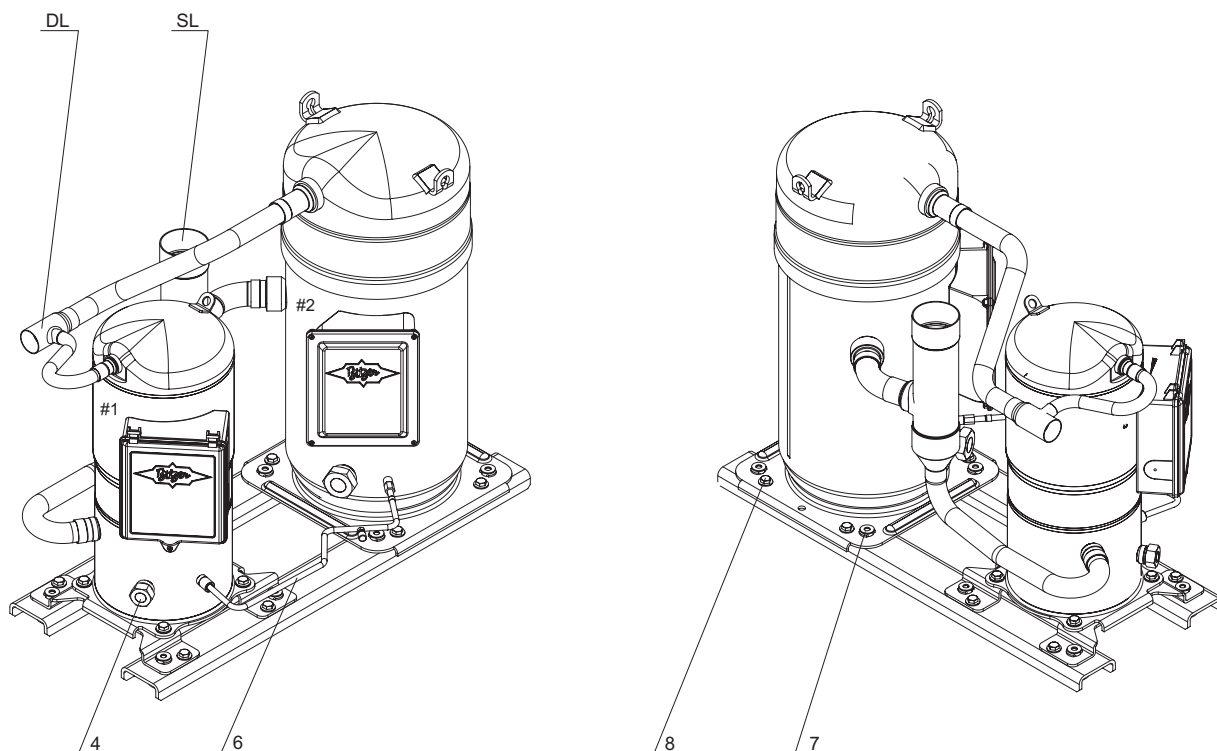


**Note:** Shown above is a typical even or uneven Tandem assembly of ORBIT 8 compressors with BITZER Advanced Header Technology.

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

Connection positions see p. 15

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

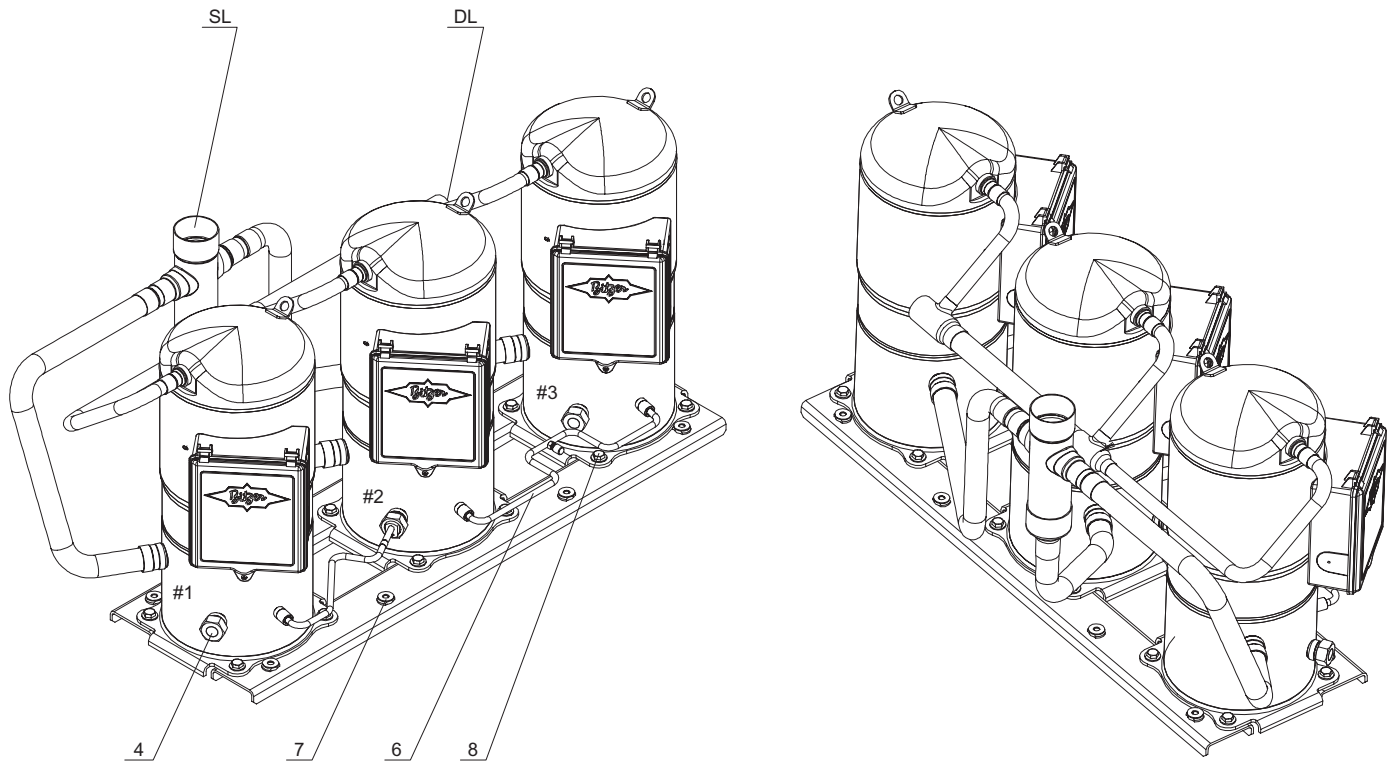


**Note:** Shown above is a typical uneven Tandem assembly of ORBIT 6 and ORBIT 8 compressors with BITZER Advanced Header Technology.

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

Connection positions see p. 15

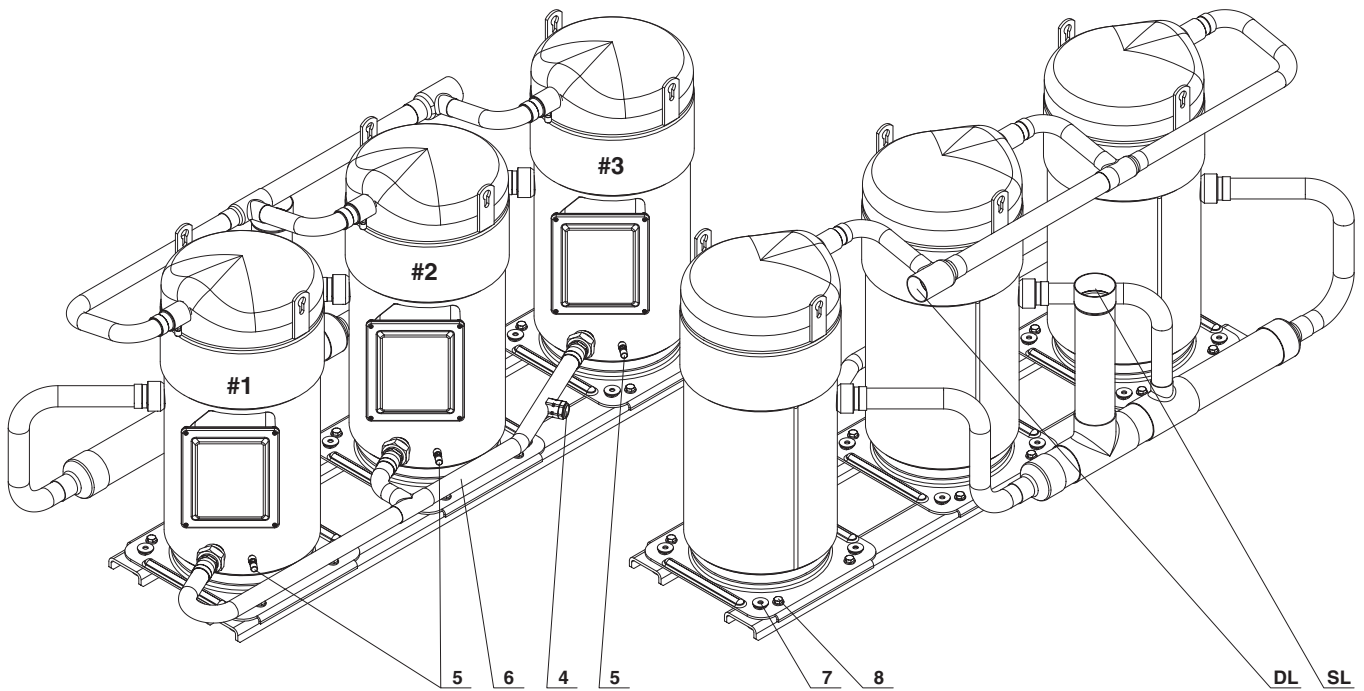
Typical even Trio assemblies of ORBIT 6 (subject to change)



**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.

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



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

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

**Connection positions**

- 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



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