GEA Screw Packages

Plug & play compressor units for industrial refrigeration and air conditioning

engineering for a better world

gea.com

Top quality based on proven development

Whether it's in the food industry, chemical industry, in offices or in shipping, they all need refrigeration. GEA has the optimal cooling and air conditioning solutions for your requirements. We place particular value on energy efficiency, reliability, cost efficiency and sustainability.

As an international technology leader, GEA focuses on process technology and components for sophisticated production processes. GEA is also extensively and intensively familiar with compressor technology. The top quality of our screw compressors is the product of years of experience in compressor technology. Everything is focused on value and functionality from development in our research labs to the production processes and quality assurance.

With a global sales and service network we can be on site almost anywhere in the world where you need us. Our software tools also support you in selecting the optimal compressor package as well as in the search for the right spare parts.

Outstanding characteristics of GEA screw packages

- Broad product and application range: Choose the type of package for your individual need from a wide capacity and application range – single-stage, two-stage and duo-stage packages are available for industrial cooling, freezing, and air conditioning.
- Maximum energy and efficiency: State-of-the-art components implemented for industry-leading efficiency and maximum energy.
- High reliability and long product lifetime: Enhanced safety measures, top bearing quality and reduced leakage risks make the packages highly reliable and extremely long-lasting.
- Easy servicing and low operating costs: Reduce your operating expenses and total cost of ownership with the advanced efficiency and minimal, easy servicing of GEA packages.

SCOPE OF SUPPLY

GEA screw packages come as plug & play units – pre-mounted and wired on a common base frame, including all the following components:

- Screw compressor with drive motor
- Oil separator with level indication, oil heater and finest separation stage
- Oil cooler or refrigerant injection connection
- Complete oil circuit with oil filtering and automatic oil pressure control
- GEA Omni™ control panel
- Safety devices against excess pressure
- Stop, check and service valves

OPTIONS

- **Economizer port:** Improve your efficiency of applications with high temperature lifts through inter-cooling by implementing an economizer.
- **Capacity control via frequency inverter:** Control your capacity through variable speed and achieve best part-load efficiency.
- **Dual oil filter:** Keep your plant running, no downtime when changing oil filters.
- **Oil cooler (refrigerant cooled, water cooled) or cooling by liquid refrigerant injection:** Choose the option best suited for your conditions on site.
- **Power supply panel:** Complement your control with a complete power supply panel.
- **Explosion-proof design:** Select explosion-proof components and implement GEA packages in chemical applications.
- **Certification:** Choose your certificates according to the demands of the local installation, CE, CF, TR, WR and others upon request.

PRODUCT OVERVIEW

Series		Cooling capacity (kW)
		0 100 200 300 400 500 600 700 800 900 1,000 2,000 4,000 6,000 8,000
GEA Grasso M [1] single-stage	at 2,950 rpm 137–561 kW	
	at 4,500 rpm 201–856 kW	
GEA Grasso SP1 [1] single-stage	at 2,950 rpm 524–7,721 kW	
GEA Grasso SP2 [2] two-stage	at 2,950 rpm 95–1,770 kW	
GEA Grasso SPduo [1] dual-stage	at 2,950 rpm 274–3,176 kW	

[1] *R717, -10/+35 °C* [2] *R717, -40/+35 °C*

GEA Grasso M series packages – Total Cost of Ownership redefined

In the small to medium capacity range the new state-of-the-art series GEA Grasso M is your top choice: remarkably compact and economical, the GEA screw compressor package is engineered according to our principle of maximum energy efficiency and reliability. A new component design and high-end package configuration has enabled us to reduce the footprint to a minimum while significantly improving reliability and product life.

The series comprehends 8 diff erent models and ranges from 137 to 856 kW (R717 | –10 / +35 °C | 2,950 rpm). New high-speed motors and the optional frequency converter with a speed range of 1,000–4,500 rpm not only improve the part-load efficiency significantly but also increase the capacity up to 856 kW.

All this adds up to lower investment, energy and maintenance costs – along with a TCO that is 20 % lower than conventional screw packages in the same capacity range!

At a glance

- Reduced Total Cost of Ownership (TCO) of up to 20 %
- Maximized efficiency
- Minimized footprint

UNIQUE FEATURES AND ADVANTAGES:

1. GEA Omni™ control panel

- High-definition 15.6" display
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

2. New screw compressor design

- Highly efficient, compact design
- Significantly improved rotor profile for industry-leading EER (Energy Efficiency Ratio)
- Extended and variable Vi (internal volume ratio) for better part load efficiency
- Variable speed from 1,000 to 4,500 rpm
- Integrated suction filter with gas-operated non-return valve for excellent part load efficiency with every flow rate

3. Capacity and Vi control

- Infinite capacity and Vi control for efficient operation in full and part load
- Capacity control via frequency inverter and/or capacity slide
- Optimized economizer operation for larger pressure differences

4. High-performance motors

- Optional high-speed motor for increased capacity and part load efficiency
- Flanged motor for more reliability with minimum vibration and noise emission

5. 3-stage oil separator

- Maximum 5 ppm oil carry-over
- Reduced operating costs
- Low oil charge

6. Oil Management Center (OMC)

- Reduced leakage risk
- Closable filter for easy service

Easy servicing

- Easy access to service parts
- Service-friendly working height

GEA Grasso SP1 – Efficienct, reliable, versatile

The GEA Grasso SP1 series of single-stage screw compressor packages has been designed to cover highly individual needs from medium to the largest capacity range. The series consists of 16 models from 524 kW to 7,721 kW refrigeration capacity (R717 | –10/+35 °C | 2,950 rpm).

Screw compressor, driving motor and the vertical oil separator are fitted on a separate, stable base to ensure operation at the lowest noise and vibration level, and to allow easiest and most comfortable access and servicing. The GEA Grasso SP1 series is particularly attractive for its versatility, whether in the food industry or in a high-pressure version for CO_2, in a heat pump installation or in an explosion-proof set-up for chemical application. Our customers can select from a multitude of options and customize the packages to all individual needs.

At a glance

- Widest range of screw compressor packages
- Individual and customized set-up for various applications and industries
- Refrigeration capacity up to 7.7 MW

UNIQUE FEATURES AND ADVANTAGES:

1. Effcient screw compressor

- Highly efficient, compact design
- GEA-specified rotor profile for industry-leading COP
- Sleeve bearings: infinite lifetime and inherently quiet
- Axial bearings: easy to replace, easy access from non-drive end

2. Suction Filter Combination (SFC)

- Gas-operated check valve for better COP
- No chatter at low flow rate
- Low pressure loss, reduced leakage risk

3. GEA Omni™ control panel

- High definition 15.6" display
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

4. Capacity and Vi control

- Capacity control via frequency inverter and/or capacity slide
- Infinite capacity and Vi (internal volume ratio) control for efficient operation in full and part load

5. 3-stage oil separator

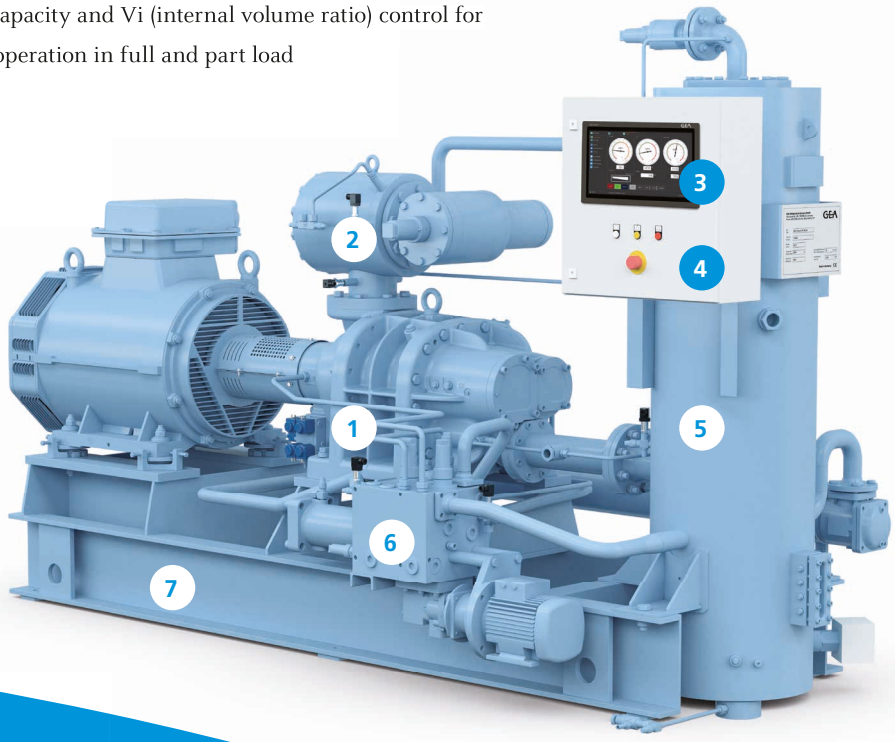
- Low oil charge
- Maximum 5 ppm oil carry-over
- Reduced operating costs

6. Oil Management Center (OMC)

- Centralized working area
- Reduced leakage risk
- Closable sections for easy service

7. Sturdy base frame

- Low noise and vibration level for extended component lifetime
- Service-friendly working height
- Low center of gravity



GEA Grasso SP2 – The high performer

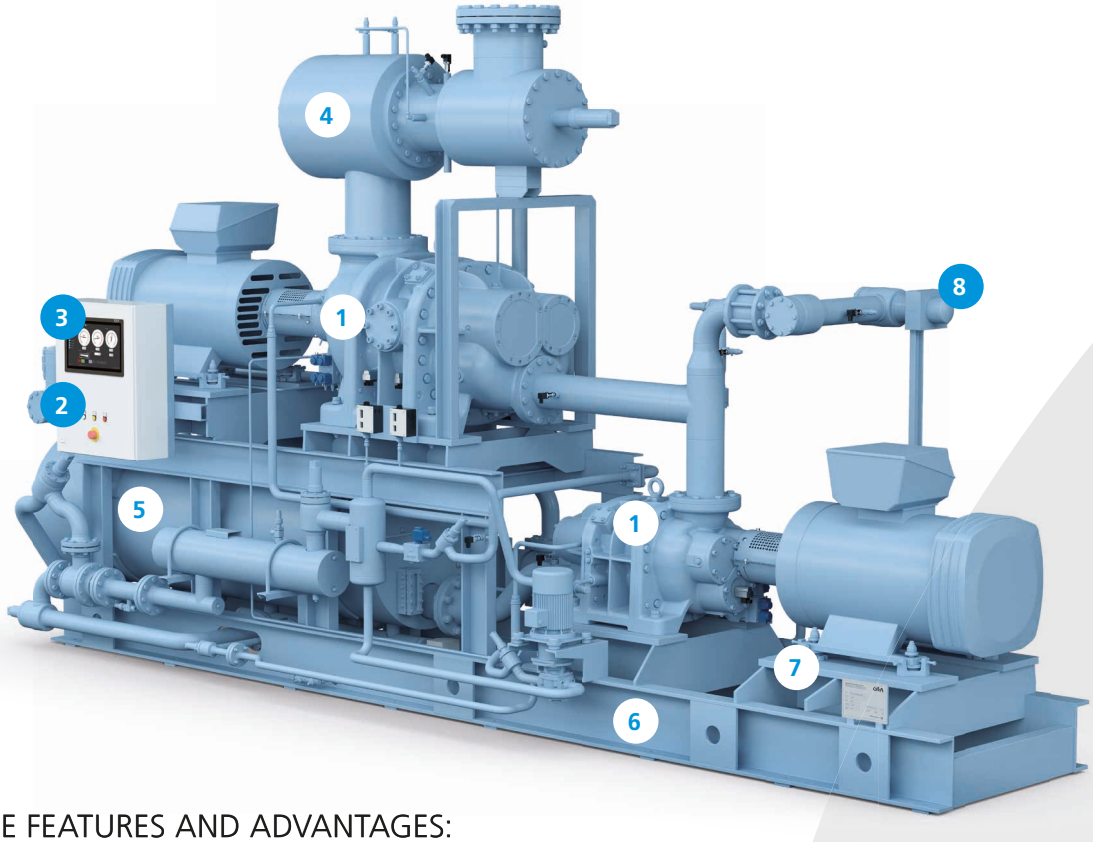
Designed for low evaporation temperatures and high temperature lifts/high differential pressures, the two-stage screw compressor packages in the GEA Grasso SP2 series each include two serially mounted compressors for a low- and a high-pressure stage. Combined with intermediate load connection the package ensures most flexible and individual operation.

The series contains 18 package sizes (18 different low-stage screw compressors in combination with various high-stage compressors) and ranges from 95 to 1,770 kW refrigeration capacity (R717 | –40/+35 °C | 2950 rpm).

A GEA Grasso SP2 package is the most efficient and flexible solution for high differential pressure operation. At the same time the package, based on a common base frame, oil circuit and common control, is easier to operate and requires less space than two separate single-stage packages.

At a glance

- Optimized for low temperatures and high differential pressure operations
- Flexible and individual operation of low-stage and high-stage compressors as well as intermediate load connection
- Common base frame, oil circuit and control for easy operation and minimized footprint



UNIQUE FEATURES AND ADVANTAGES:

1. Effcient screw compressors

- Highly efficient, compact design
- Proprietary rotor profile for industry-leading COP
- Sleeve bearings: infinite lifetime, inherently quiet
- Axial bearings: easy to replace, easy access from non-drive end

2. Capacity and Vi control

- Infinite capacity and Vi (internal volume ratio) control for efficient operation in full and part load

3. GEA Omni™ control panel

- High-definition 15.6" display
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

4. Suction Filter Combination (SFC)

- Gas-operated check valve for better COP
- No chatter at low flow rate
- Low pressure loss
- Reduced leakage risk

5. 3-stage oil separator

- Low oil charge
- Maximum 5 ppm oil carry-over
- Reduced operating costs

6. Common base frame

- Low noise and vibration level
- Service-friendly working height
- Low center of gravity
- Reduced package footprint and operating costs in comparison with single-stage packages

7. Shimless motor mounts

- Easy and accurate motor alignment

8. Intercooler connection

- Increased efficiency
- Additional intermediate load possible

GEA Grasso SPduo – Best efficiency with all loads

The packages in the GEA Grasso SPduo series feature two parallel-mounted screw compressors each. This solution is especially suited for part-load efficiency, flexible (part-load) operation and all applications where demands for machine availability and redundancy are most important.

Both screw compressors in the unit can be operated independently or at the same time in parallel to achieve top-level loads. You can equip one screw compressor with a variable speed drive motor and frequency converter to achieve part-loads down to 12 % without significant efficiency losses!

Compared to two separate single-stage packages, the GEA Grasso SPduo package requires less space, thanks to the common base frame, oil circuit and control, and it is also easier to operate. The SPduo series consist of 15 models with a capacity range from 274 to 3,176 kW (R717 | –10/+35 °C | 2950 rpm).

At a glance

- Optimized for highest efficiency in all load conditions
- Maximum machine availability, flexibility and redundancy – parallel or independent single compressor operation possible
- Common base frame, oil circuit and control for easy operation and minimized footprint

UNIQUE FEATURES AND ADVANTAGES:

1. Effcient screw compressors

- Highly efficient, compact design
- Proprietary rotor profile for industry-leading COP
- Sleeve bearings: infinite lifetime, inherently quiet
- Axial bearings: easy to replace, easy access from non-drive end

2. GEA Omni™ control panel

- High-definition 15.6" display
- Remote access via GEA OmniLink™
- Full data history via GEA OmniHistorian™
- Configurable Modbus TCP Ethernet communication

3. Capacity and Vi control

- Infinite capacity and Vi (internal volume ratio) control for efficient operation in full and part load
- Capacity control via frequency inverter and/or capacity slide

4. 3-stage oil separator

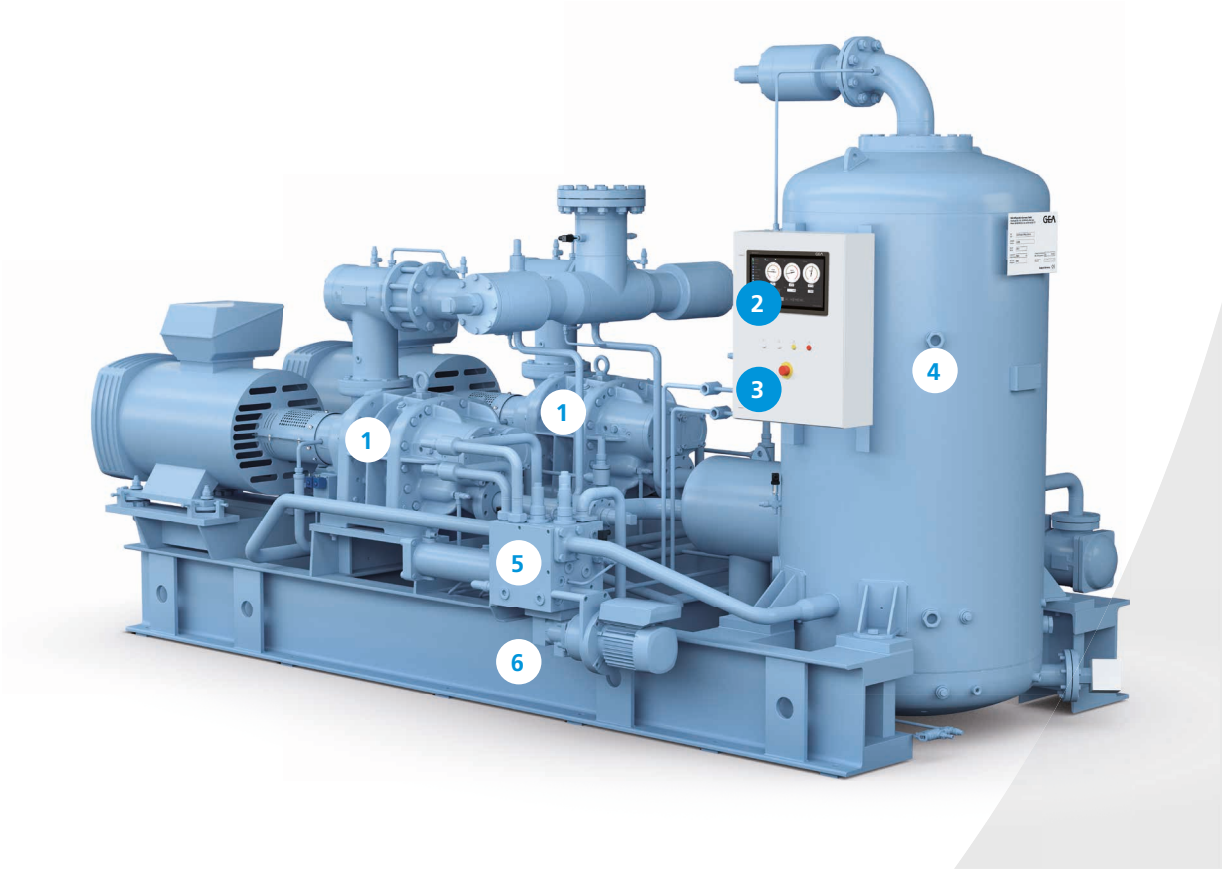
- Low oil charge
- Maximum 5 ppm oil carry-over
- Reduced operating costs

5. Oil Management Center (OMC)

- Centralized working area
- Reduced leakage risk
- Closable filter for easy service

6. Common base frame

- Reduced package footprint
- Low noise and vibration level
- Service-friendly working height
- Low center of gravity



Technical data

GEA Grasso M model	Motor speed (rpm)	Cooling capacity (kW)			Dimensions* (mm)			Weight* (kg)
		R717 –10 / +35 °C	R717 –40 / –10 °C	R134a –10 / +35 °C	L	W	H	
GEA Grasso M-C	2,950 4,500	137 201	41 62	78 117	2,200	1,120	1,725	875
GEA Grasso M-D	2,950 4,500	160 238	48 74	91 139	2,200	1,120	1,725	975
GEA Grasso M-E	2,950 4,500	192 288	59 90	109 168	2,200	1,120	1,795	1,075
GEA Grasso M-G	2,950 4,500	227 341	69 106	130 199	2,200	1,120	1,795	1,175
GEA Grasso M-H	2,950 4,500	300 459	93 142	174 266	2,200	1,150	1,850	1,275
GEA Grasso M-L	2,950 4,500	347 678	108 165	201 308	2,200	1,150	1,850	1,325
GEA Grasso M-M	2,950 4,500	456 696	141 216	265 404	2,900	1,250	1,950	1,475
GEA Grasso M-N	2,950 4,500	561 856	174 266	326 497	2,900	1,250	1,950	1,555

** Dimensions and weights are based on standard exemplary applications. Values can differ depending on the specific operating conditions!*

GEA Grasso SP1 model	Motor speed (rpm)	Cooling capacity (kW)			Dimensions* (mm)			Weight* (kg)
		R717 –10 / +35 °C	R717 –40 / –10 °C	R134a –10 / +35 °C	L	W	H	without motor
GEA Grasso SP1-P	2,950	524	161	285	3,300	1,500	2,080	2,800
GEA Grasso SP1-R	2,950	678	208	367	3,800	1,620	2,180	2,750
GEA Grasso SP1-S	2,950	839	258	457	3,850	1,620	2,180	3,050
GEA Grasso SP1-T	2,950	962	292	519	3,950	1,620	2,180	3,050
GEA Grasso SP1-V	2,950	1,156	357	625	4,500	1,800	2,780	3,500
GEA Grasso SP1-W	2,950	1,289	408	695	4,600	1,800	2,780	3,800
GEA Grasso SP1-Y	2,950	1,588	490	858	4,700	1,800	2,780	4,200
GEA Grasso SP1-Z	2,950	1,827	563	984	5,300	1,800	2,890	4,400
GEA Grasso SP1-XA	2,950	2,160	666	1,153	5,400	1,800	2,890	5,200
GEA Grasso SP1-XB	2,950	2,757	884	1,488	6,100	1,820	3,000	8,100
GEA Grasso SP1-XC	2,950	3,256	1,004	1,757	6,200	1,820	3,000	8,500
GEA Grasso SP1-XD	2,950	3,854	1,189	2,030	6,300	1,820	3,000	8,900
GEA Grasso SP1-XE	2,950	4,781	1,440	2,585	6,600	1,820	3,190	10,400
GEA Grasso SP1-XF	2,950	5,708	1,719	3,086	6,700	1,820	3,190	11,400
GEA Grasso SP1-XG	2,950	6,603	2,035	3,597	8,500	2,480	3,350	18,600
GEA Grasso SP1-XH	2,950	7,721	2,380	4,206	10,500	3,200	3,650	24,500

** Dimensions and weights are based on standard exemplary applications. Values can differ depending on the specific operating conditions!*

GEA Grasso SP2 model	Motor speed (rpm)	Cooling capacity with intercooler (kW)		Dimensions* (mm)			Weight* (kg)
		R717 –10 / +35 °C	R134a –10 / +35 °C	L	W	H	without motor
GEA Grasso SP2-H	2,950	95	125	3,550	1,200	2,250	2,300
GEA Grasso SP2-L	2,950	110	146	3,550	1,200	2,250	2,400
GEA Grasso SP2-M	2,950	144	196	3,850	1,200	2,250	3,400
GEA Grasso SP2-N	2,950	177	230	3,850	1,200	2,250	3,400
GEA Grasso SP2-P	2,950	163	221	3,850	1,200	2,250	3,100
GEA Grasso SP2-R	2,950	211	281	3,850	1,200	2,330	3,400
GEA Grasso SP2-S	2,950	264	358	4,850	1,600	2,480	3,400
GEA Grasso SP2-T	2,950	293	401	4,850	1,600	2,480	3,400
GEA Grasso SP2-V	2,950	357	463	4,850	1,750	2,630	3,500
GEA Grasso SP2-W	2,950	410	543	4,850	1,750	2,650	4,000
GEA Grasso SP2-Y	2,950	487	664	4,850	1,750	2,670	4,200
GEA Grasso SP2-Z	2,950	572	766	4,850	1,800	2,670	4,400
GEA Grasso SP2-XA	2,950	681	909	5,650	1,800	2,670	5,950
GEA Grasso SP2-XB	2,950	889	1,146	6,250	1,960	3,350	9,150
GEA Grasso SP2-XC	2,950	1,020	1,337	6,350	2,080	3,350	11,250
GEA Grasso SP2-XD	2,950	1,187	1,524	6,350	2,080	3,350	13,200
GEA Grasso SP2-XE	2,950	1,486	1,856	7,150	2,080	3,650	14,200
GEA Grasso SP2-XF	2,950	1,770	2,212	7,150	2,080	3,650	14,600

Dimensions and weights are based on standard exemplary applications. Values can differ depending on the specific operating conditions!

GEA Grasso SPduo model	Motor speed (rpm)	Cooling capacity (kW)			Dimensions* (mm)			Weight* (kg)
		R717 –10 / +35 °C	R717 –40 / –10 °C	R134a –10 / +35 °C	L	W	H	without motor
GEA Grasso SPduo-C	2,950	274	82	156	3,600	1,790	2,070	2,660
GEA Grasso SPduo-D	2,950	320	96	182	3,600	1,790	2,070	2,730
GEA Grasso SPduo-E	2,950	384	118	218	3,600	1,790	2,250	2,880
GEA Grasso SPduo-G	2,950	454	140	260	3,600	1,790	2,250	3,130
GEA Grasso SPduo-H	2,950	600	188	348	3,800	2,000	2,250	3,400
GEA Grasso SPduo-L	2,950	694	218	402	3,800	2,000	2,250	3,600
GEA Grasso SPduo-M	2,950	912	286	530	3,800	2,350	2,350	5,500
GEA Grasso SPduo-M	2,950	1,122	352	652	3,800	2,350	2,350	5,800
GEA Grasso SPduo-P	2,950	1,056	320	570	4,500	2,600	2,620	7,200
GEA Grasso SPduo-R	2,950	1,364	414	734	4,800	2,600	2,680	7,700
GEA Grasso SPduo-S	2,950	1,692	526	914	4,850	2,600	2,680	8,300
GEA Grasso SPduo-T	2,950	1,924	586	1,038	4,900	2,600	2,680	9,100
GEA Grasso SPduo-V	2,950	2,312	710	1,250	5,450	2,900	2,890	9,350
GEA Grasso SPduo-W	2,950	2,578	810	1,390	5,550	2,900	2,890	10,900
GEA Grasso SPduo-Y	2,950	3,176	984	1,760	5,650	2,900	2,890	12,000

Dimensions and weights are based on standard exemplary applications. Values can differ depending on the specific operating conditions!

engineering for
a better world

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.

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