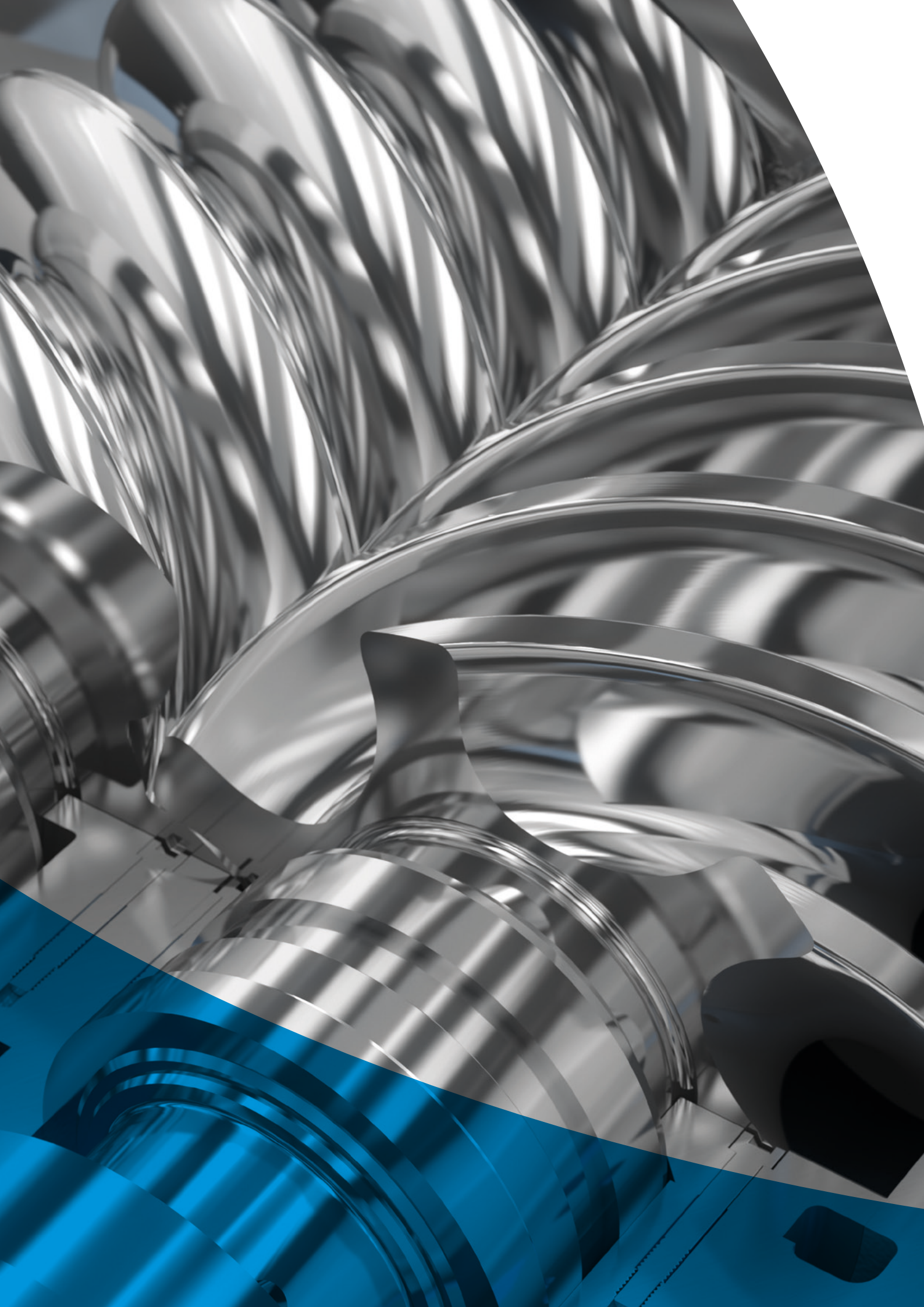




GEA gas compressors

Screw compressors
for gas compression



GEA gas compressors: energizing key processes

System solution planners and packagers benefit from an advanced portfolio of GEA screw compressors optimized for compressing natural and industrial gases.

Top quality based on proven development

Wherever plant operators need to extract, transport, collect, store or process gas, GEA provides the right compressor. With tens of thousands of compressor installations worldwide, leading companies around the globe rely on GEA's expertise.

GEA gas compressors are key system components in oil & gas extraction and processing operations, in power generation plants with gas turbines, in chemical processing and in numerous other industries.

Why screw compressors for gas compression?

Screw compressors operate by drawing gas into the spaces between the lobes of two rotors. As the rotors turn, the gas is forced by the rotor profile into continuously decreasing space until it reaches the discharge port of the compressor. Positive-displacement screw compressors do not generate out-of-balance forces; therefore, they require significantly less foundation strength than other compressor types.

A wide range of suitable gases

Designed as positive-displacement machines, GEA gas compressors can cope with a wide range of molecular weights. They are suitable for wellhead natural gas, flare gas, biogas and gaseous industrial by-products as well as natural and synthetic gases and mixed gases (hydrocarbons, nitrogen, hydrogen, carbon dioxide, hydrogen sulfide).

Proven screw compressor technology

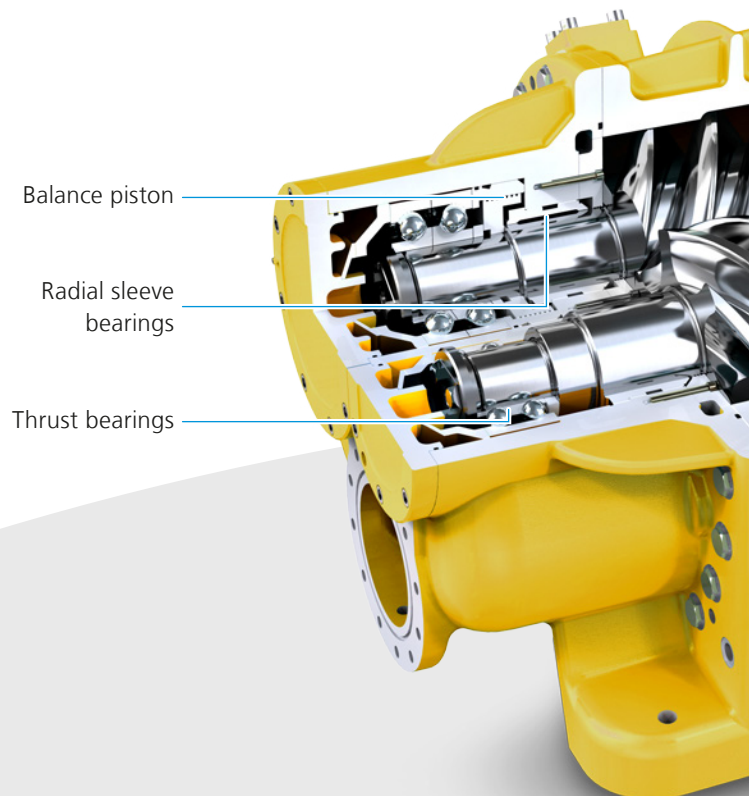
Conceived for a suction volume flow from 231 to 13,846 m³/h, GEA gas compressors have been designed with a special focus on energy efficiency, reliability, safety and easy maintenance.

Reliability

- **Housing**
For standard-pressure applications, housings are made of laminar cast iron. Housings for operating pressures up to 52 bar and higher are made of spheroidal cast iron. Compressors for special requirements in accordance with API 619 are available with a cast steel housing.
- **Shaft seal**
The shaft seal with a rotating and a fixed ring is responsible for sealing off the driven male rotor shaft to the atmosphere. The shaft seal is pressure-relieved, and the thin oil film between the rings ensures a long service life. For special applications the compressors can be equipped with double-shaft seal solutions (different plans acc. API 619).
- **Bearings and balance piston**
To relieve the rotor shafts of radial forces effecting from the rotation, GEA gas compressors are equipped with high-performance cylindrical roller bearings (GEA Grasso M) and contact-free sleeve bearings (GEA Grasso LT). Thrust bearings absorb the axial forces, and a hydraulically loaded balance piston reduces the forces further, increasing the lifespan of thrust bearings.

Energy efficiency

- **Capacity control**
Through an infinitely variable control slide with a hydraulic mechanism, the suction volume flow can be adjusted from 100% down to 10%.
- **Rotors**
The rotors are made from hot-rolled or forged steel. They are designed in an asymmetric high-performance GEA design to ensure low energy consumption and high efficiency.



Safety

- Slide position indicator
For position indication of the hydraulic systems in hazardous areas, a hermetic position sensor is used.
- Safety options acc. API 619, see page 6 for details

Design customization

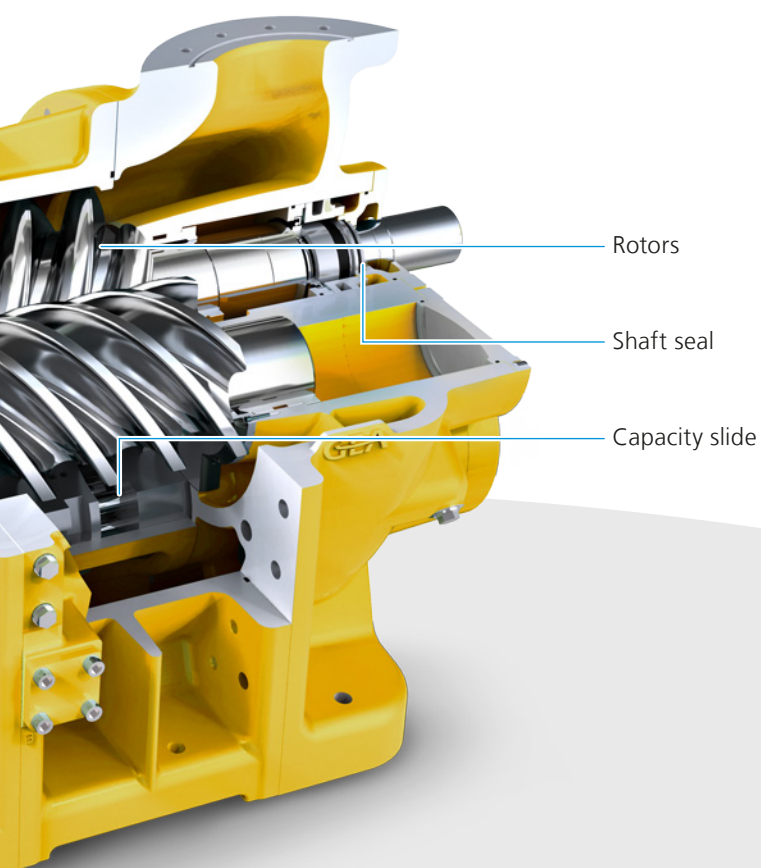
- Explosion-proof design
- Pressure ratings
28 bar and 52 bar, other design pressure upon request
- High-pressure compressor design
Housing material (e.g. nodular cast iron), customized rotor geometry, reinforced thrust bearing (TRIAX design), high-performance shaft seal, stronger driving shaft end, etc.
- Driver options
Electric motors, gas engines, diesel engines

Easy maintenance

- User-friendly access
GEA gas compressors are equipped for easy replacement of thrust bearings and shaft seal, with no dismantling of compressor or motor required.

Approvals and certificates

- API 619
- ATEX
- ISO10440
- UL
- GOST R
- Lloyd's Register
- Germanischer Lloyd
- Bureau Veritas
- Norske Veritas
- Japanese KHK
- DSRK
- KGS



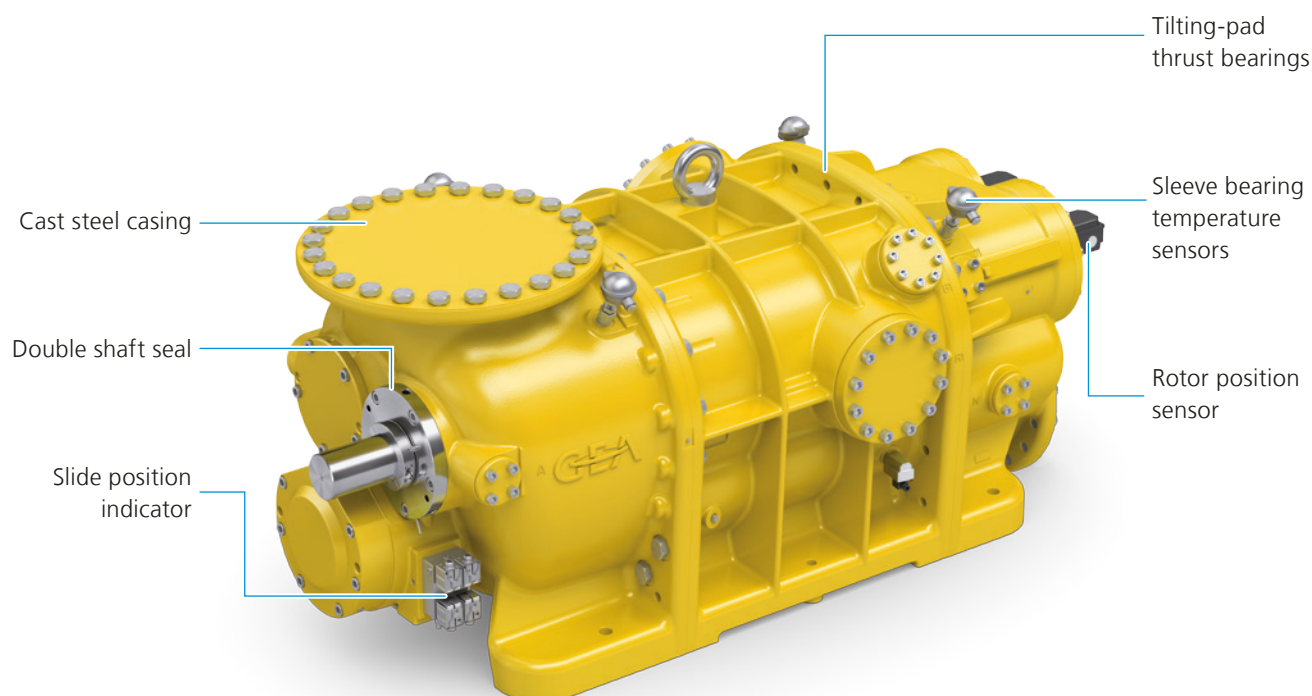
API 619 compressors

All GEA screw compressors are designed to fulfill API 619 requirements and can be equipped with various safety options.

API 619 features

GEA screw compressors according to API 619 standard are specially designed for the highest safety requirements with prepared connections for vibration sensor mounting and steel casing to ensure an enhanced operational reliability.

GEA API 619 compressor models come with the required material certificates. Each machine is subjected to a standardized performance test and a four-hour run test. Further test options are available.



AVAILABLE OPTIONS ACC. API 619

Series	Compressor type	Cast Steel casing	Tilting pad thrust bearings (TPTB)	Double shaft seal (Different executions available)	Sleeve bearing temperature monitoring	Rotor position monitoring
GEA Grasso M (GAS)	C, D	●		●		●
	E	●		●		●
	G, H, L	●		●	Executed with roller bearings	●
	M	●		●		●
	N	●		●		●
	P	●		●	●	●
R	●		●	●	●	
GEA Grasso LT (GAS)	S, T	●		●	●	●
	V	●	●	●	●	●
	W, Y	●	●	●	●	●
	Z, XA, XB, XC, XD, XE, XF, XG, XH	●	●	●	●	●

● = Available ● = Available with shortened rotors

Technical Data

GEA GRASSO M (GAS)

Series	Compressor type	Swept volume (m ³ /h)			Max. design. pressure (bar)	Dimensions ¹⁾ (mm)			DN1 ²⁾ (mm)	DN2 ³⁾ (mm)	Weight ¹⁾ (kg)
		2940 rpm	3550 rpm	4500 rpm		L	W	H			
GEA Grasso M (GAS)	C	231	279	354	28	852	660	660	80	65/80	392
	D	265	320	406	28	882	660	660	80	65/80	401
	E	321	388	491	28	898	660	667	80	80	444
	G	372	449	569	28	927	660	667	80	80	451
	H	471	569	721	28 / 52	964	800	820	125	80	581
	L	544	657	833	28 / 52	1000	800	820	125	80	605
	M	708	855	1084	28 / 52	1094	800	856	150	100	772
	N	870	1051	1332	28 / 52	1145	800	820	150	100	800

¹⁾ with coupling housing ²⁾ suction connection ³⁾ discharge connection

GEA GRASSO LT (GAS)

Series	Compressor type	Swept volume (m ³ /h)		Max. design. pressure (bar)	Dimensions (mm)			DN1 ¹⁾ (mm)	DN2 ²⁾ (mm)	Weight (kg)
		2940 rpm	3550 rpm		L	W	H			
GEA Grasso LT (GAS)	P	805	972	28 / 52	817	600	525	150	100	595
	R	1040	1256	28 / 52	965	660	570	175	100	895
	S	1290	1558	28 / 52	1032	660	570	175	100	960
	T	1460	1763	28 / 52	1125	660	570	175	100	1060
	V	1740	2101	28 / 52	1040	750	670	250	150	1186
	W	1990	2403	28 / 52	1145	750	670	250	150	1200
	Y	2390	2886	28 / 52	1161	750	670	250	150	1308
	Z	2748	3318	28 / 52	1315	760	700	250	150	1670
	XA	3250	3924	28 / 52	1425	760	700	250	150	1740
	XB	4150	5011	28 / 52	1410	900	850	300	200	2100
	XC	4900	5917	28 / 52	1480	900	850	300	200	2400
	XD	5800	7003	28 / 52	1560	900	850	300	200	2600
	XE	7110	8585	28 / 52	1625	980	980	400	250	3500
	XF	8560	10,336	28	1725	980	980	400	250	3850
	XG	9807	11,842	28	2180	1100	1140	457	305	4500
XH	11,467	13,846	28	2300	1100	1140	457	305	4700	

¹⁾ suction connection ²⁾ discharge connection

Compressor type ¹⁾	Swept volume ²⁾ (m ³ /h)	Compressor type ³⁾																								
		C	D	E	G	H	L	M	N	P	R	S	T	V	W	Y	Z	XA	XB	XC	XD	XE	XF	XG	XH	
C	231	●●		●																						
D	265	●●	●●	●																						
E	321			●●		●																				
G	371				●●	●																				
H	471					●●		●																		
L	544						●●	●																		
M	708							●●		●																
N	870								●●		●															
P	805									●●	●															
R	1040										●●		●													
S	1290											●●		●												
T	1460												●●	●												
V	1740													●●			●									
W	1990														●●		●									
Y	2390															●●	●									
Z	2748																●●	●								
XA	3250																	●●	●							
XB	4150																		●●				●			
XC	4900																			●●			●			
XD	5800																					●●	●			
XE	7110																						●			
XF	8560																							●		
XG	9807																								●	
XH	11,467																									●

¹⁾ regarding swept volume ²⁾ at 2940 min⁻¹, 50 Hz ³⁾ regarding frame size: ● = 28 bar compressor, ● = 52 bar compressor, ● = 52 bar compressor with shortened rotors

A world of applications

GEA gas compressors are a globally established system component for treating natural gas, biogas and industrial gases in oil & gas, power, chemical and other operations.



Natural gas extraction

- Boosting wellhead gas pressure:
Natural gas can be extracted from wells of low or declining pressure by boosting pressure with a GEA gas compressor.
- Separation into fractions:
To separate natural gas into fractions, e.g. butane, light gasoline, gas compressors provide the required pressure.



Natural gas storage

- Gas liquefaction in LNG plants and FSOL vessels:
For convenient storage and distribution LNG (Liquid Natural Gas) plants liquefy gas for extended periods, e.g. to balance varying consumption. FSOL vessels transport liquid gas from offshore wells not equipped with pipelines.
- Boil-off re-condensation in LNG and fertilizer tanks:
Gas compressors are used re-condensate the liquid gas that evaporates in tanks because of external heat (boil-off effect).



Flare gas recovery

- In crude oil extraction and in chemical processing gas compressors are used to recover flare gas instead of burning it, for further use downstream and to reduce the facility's CO₂ footprint for optimum sustainability.



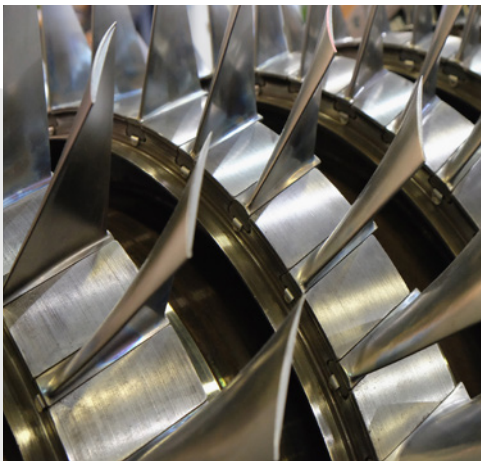
Process gas applications

- GEA gas compressor units are highly effective for the efficient use of process gas produced as a by-product during manufacturing processes in various industries. Process gases such as propane, hydrogen, and carbon dioxide can be collected and compressed according to specific requirements.



Biogas conditioning

- Like natural gas from fossil reservoirs, biogas from fermentation plants or landfill sites can be compressed for further use in heating, power generation or as additional feed into the gas supply grid.



Power plants

- Power stations employ GEA gas compressors as boosting stations in gas turbines to increase inlet pressure.



We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA is a global technology company with multi-billion euro sales operations in more than 50 countries. Founded in 1881 the company is one of the largest providers of innovative equipment and process technology. GEA is listed in the STOXX® Europe 600 Index. In addition, the company is included in selected MSCI Global Sustainability Indexes.

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