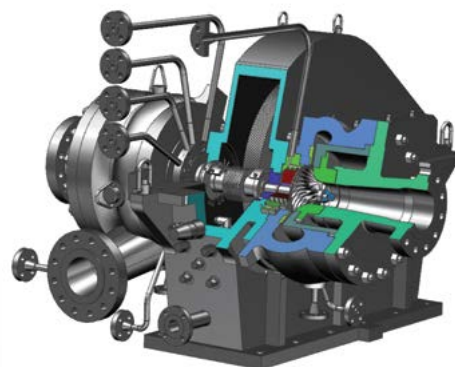


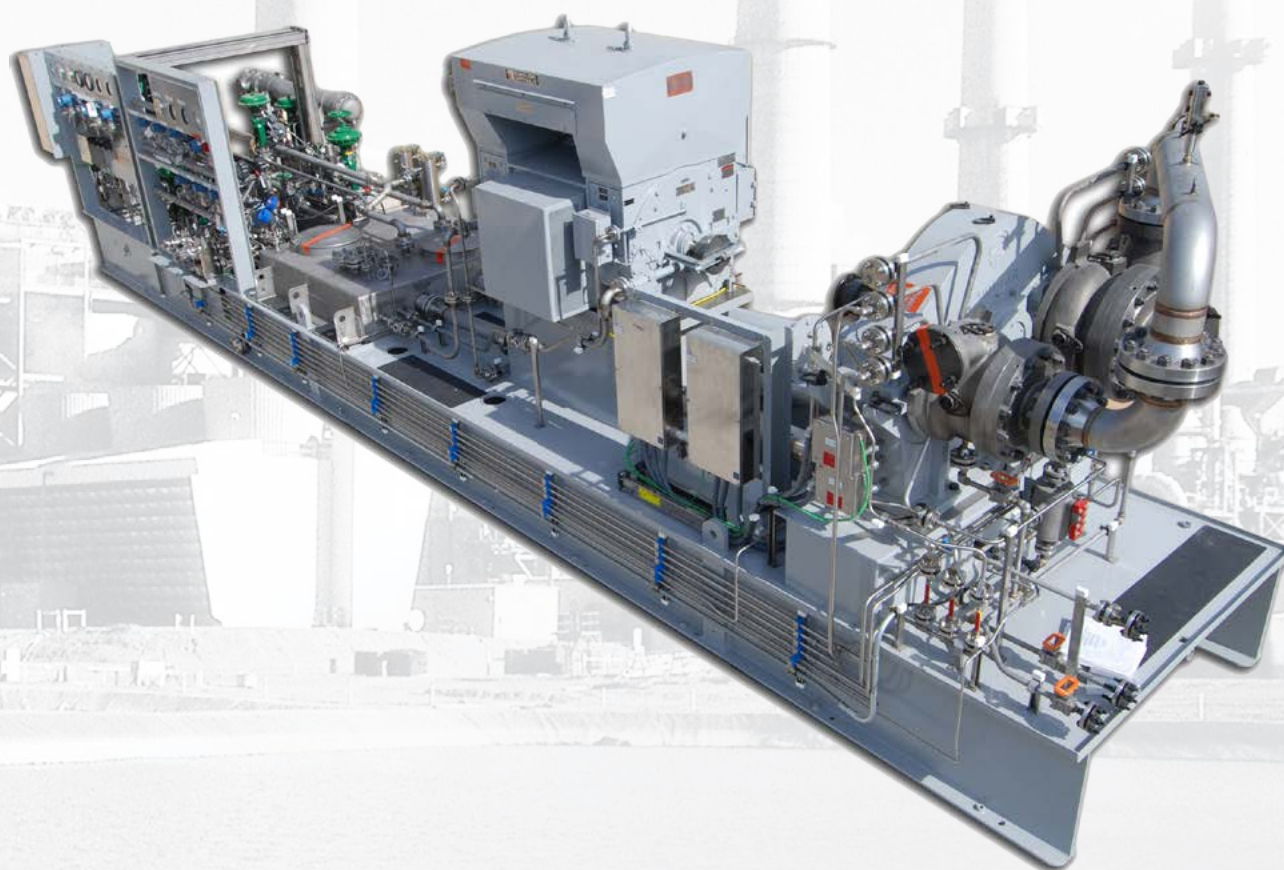


## **LF 2000 Series**

### **Integrally Geared Multi-Stage Process Gas Compressors**

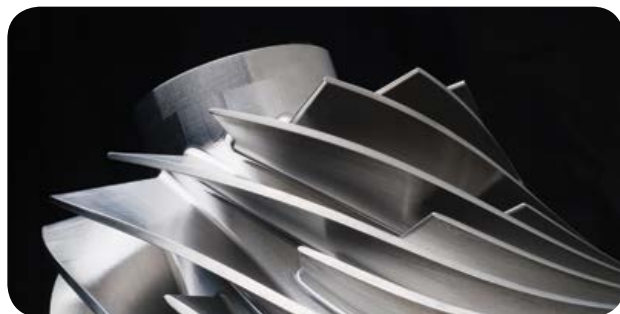


Sundyne multi-stage centrifugal compressors deliver the same performance range as traditional piston design, but they offer superior reliability and performance.





# In heavy duty service around the world



## LF 2000 Integrally Geared Compressor

Based on over 50 years of technological development and investment, the latest generation of Sundyne integrally geared compressors includes the flagship Pinnacle LF 2000 model. This API 617 and 614 standard compressor is designed to run continuously for five plus years, delivering oil-free process gas with no emissions. With a unique modular baseplate and compact footprint, the LF 2000 is easy to package onto a skid and install into any process environment. Additionally, its innovative design allows for maximum flexibility, including the operation of up to four compressors on a single gearbox. Custom built to meet the unique Best Efficiency Point (BEP) of each application, the LF 2000 compressor is precisely engineered for pulsation- and vibration-free operation. Backed by our global network of Authorized Service Centers, the Sundyne LF 2000 is the best in class high-head, low-flow option for handling the most demanding applications in the refining, petrochemical, LNG, power and mining industries.

## Authorized Service Centers

Sundyne is much more than just a manufacturer of high quality compressors and pumps. We back our products with a full range of aftermarket support services, extending the value of our highly engineered fluid handling products.



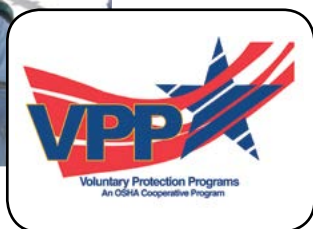
**Our service strategy is centered around delivering a trouble-free customer experience.**

Put simply: our service team is here to help you protect your equipment investment.

### Sundyne Customer Support Includes:

- Expedite Program
- Repair Kits
- Spare Parts
- Conversion Program
- Gearbox Exchanges
- Service Schools
- On-Site Service
- Overhaul and Repair

We are capable of executing virtually any support service you require, in house or in the field and around the world.



At Sundyne, Environmental Health and Safety (EH&S) is very important to the culture. One of the core values is to provide a 100% safe work environment at home and during installation.

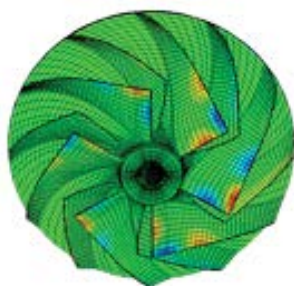


## Excellence in Design, Manufacturing & Quality

- AGMA Quality 13 gears
- Integral pinion design that meet API 617 vibration levels
- CFD designed, 5 axis machined impellers for maximum efficiency
- Computer-selected gear ratios enable speed to be optimized to process requirements

### Integral Pressurized Lube System

- API 614 lube oil systems as standard
- Purged, non-contacting carbon rings and labyrinth seals insure that oil stays in the gearbox
- Shaft driven lube oil pump eliminates the need for a rundown tank
- Base plate mounted 316SS lube oil reservoir allows for a single-skid package design



At Sundyne, research and development is a component of our constant improvement program. The ability to design, simulate and optimize our product development techniques through various technical and structural analysis delivers significant benefits to our customers.

### Standard Items

- API 617, Chapter 3 compliance
- Cartridge mechanical gas seals
- API seal gas systems
- Vibration probes and monitoring systems designed per API 670
- Bearing RTDs
- Split bearings for ease of maintenance
- Hirth impeller attachments
- Thrust bearings on all shafts
- Deflection pad radial bearing are standard

### Optional Items

- Control Panels
- Surge Systems
- Performance Control Systems

### Integral Gear Design

- Pressure ratios to 3:1 per stage
- High and low temperature capabilities
- 20:1 pressure ratios with 4-stage designs
- Compact size
- Ease of maintenance
- Fewer parts minimizes costly special metallurgy
- No external gears of high-speed couplings

### Computer Optimization

- Sized for optimum performance by combining operating speed, impeller diameter, and diffuser diameter/gap
- Maximize efficiency

### Mechanical Seal Flexibility

- Cartridge designs standard
- One seal housing accepts single, double or tandem seal arrangements simplifying field conversion
- Oil-free delivery with gas seals
- Engineered seals for unique applications
- API 614 seal gas systems standard



### Compressor Impellers

- Impeller design allows for generous .040" (1mm) nominal clearances
- No performance degradation over time
- 5-axis milled impellers standard

### Replaceable Diffusers

- Allows rerating of compressor within existing casing
- Easily converted in the field

### Heavy Duty Casing

- 600# ANSI flanges standard
- Working pressures to 4000 psig (275 barg)

### Installation Economy

- Single skid design allows for easy field installations

# Innovators in Compressor Technology

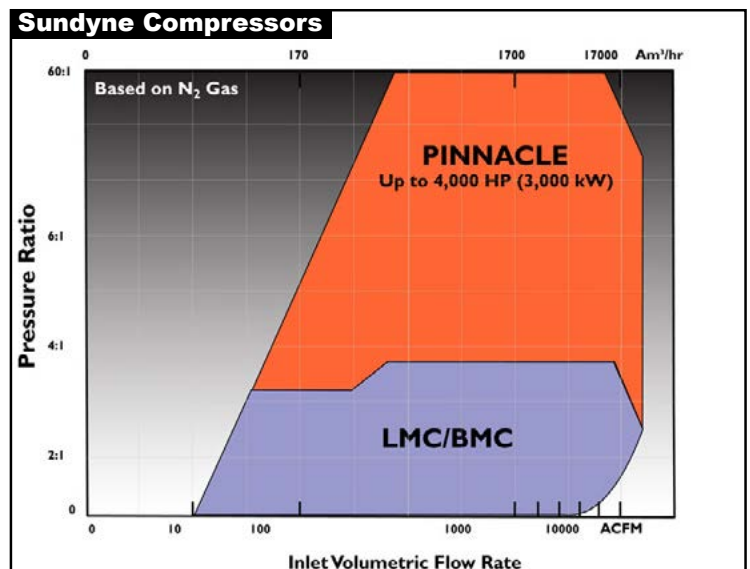
## Specifications

Maximum Flow	8,000 acfm	13,500 am <sup>3</sup> /hr
Maximum Speed	42,000 rpm - 60Hz	42,000 rpm - 50Hz
Maximum Working Pressure	4,000 psia	350 bara
Temperature Range	-150 to 500°F	-100 to 260°C
Maximum Motor Size	4,000 hp	2,983 kW
Hydro Test Pressure	1.5 x Max Working Pressure	
Minimum Casing Thickness	1 in	25.4 mm
Corrosion Allowance	0.125 in	3.18 mm
Impeller Clearance	0.03 to 0.05 in	0.76 to 1.27
Shaft Diameter at Bearings	1.5 in, 2.0 in	38.1 mm, 50.8 mm
Mechanical Seal Sizes - Outboard	2.3 in	58.4 mm
Mechanical Seal Sizes - Inboard	2.3 in	58.4 mm
Mounting	Horizontal	
Flanges	150, 300, 600# ANSI RF standard; other ratings available	
Suction Flange	3 - 14 in	
Discharge Flange	2 - 12 in	
Gearbox Lubricant	ISO VG - 32 General Purpose Oil	
Gearbox Sump Capacity	Per API 614	
Gearbox Lube System	Pressurized	
Gears	Hardened and precision ground, helical	
Input and Idler Bearings	Journal	
Output Radial Bearings	Deflection Pad - Tapered Land or Tilt-pad	
Coupling	Spacer Type per API 671	
Materials of Construction	Castings (Carbon steel, stainless steel); Impeller (17-4PHSS, Titanium, Inconel)	

The Sundyne family of compressors features single-stage and multi-stage centrifugal designs for reliable service in API 617 and general industrial applications. These compressors are computer optimized to fit your exact design requirements.

The Sundyne aerodynamic designs allow for continuous duty at the design flow and at low flows. Open impeller design eliminates efficiency degradation and frequent adjustments. Installation and maintenance are simple and straight-forward.

*Let us show you more!*



Hirth Impeller to Shaft  
Attachment for positive  
Concentric Alignment and  
Balance Repeatability

Input Shaft

Shaft Drive  
Lube Pump

High Performance  
5-Axis Milled  
Impellers

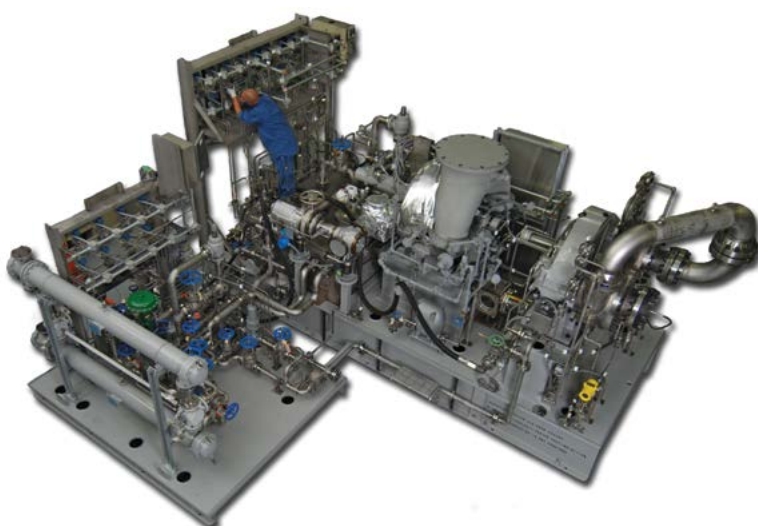
High Speed Pinion  
with Integral Gear &  
Shaft, AGMA Quality  
Class 13

Bullgear AGMA  
Quality Class 13

High Speed Bearings:  
Deflection Pad Radial,  
Split Bearings for Easy  
Removal, Tapered Land  
or Deflection Pad  
Thrust Bearing

Removable Suction Inlet for  
Easy Access to Impeller and Seals

Cartridge Dry Gas  
Mechanical Seals-Single,  
Double, Tandem Arrangements  
Available



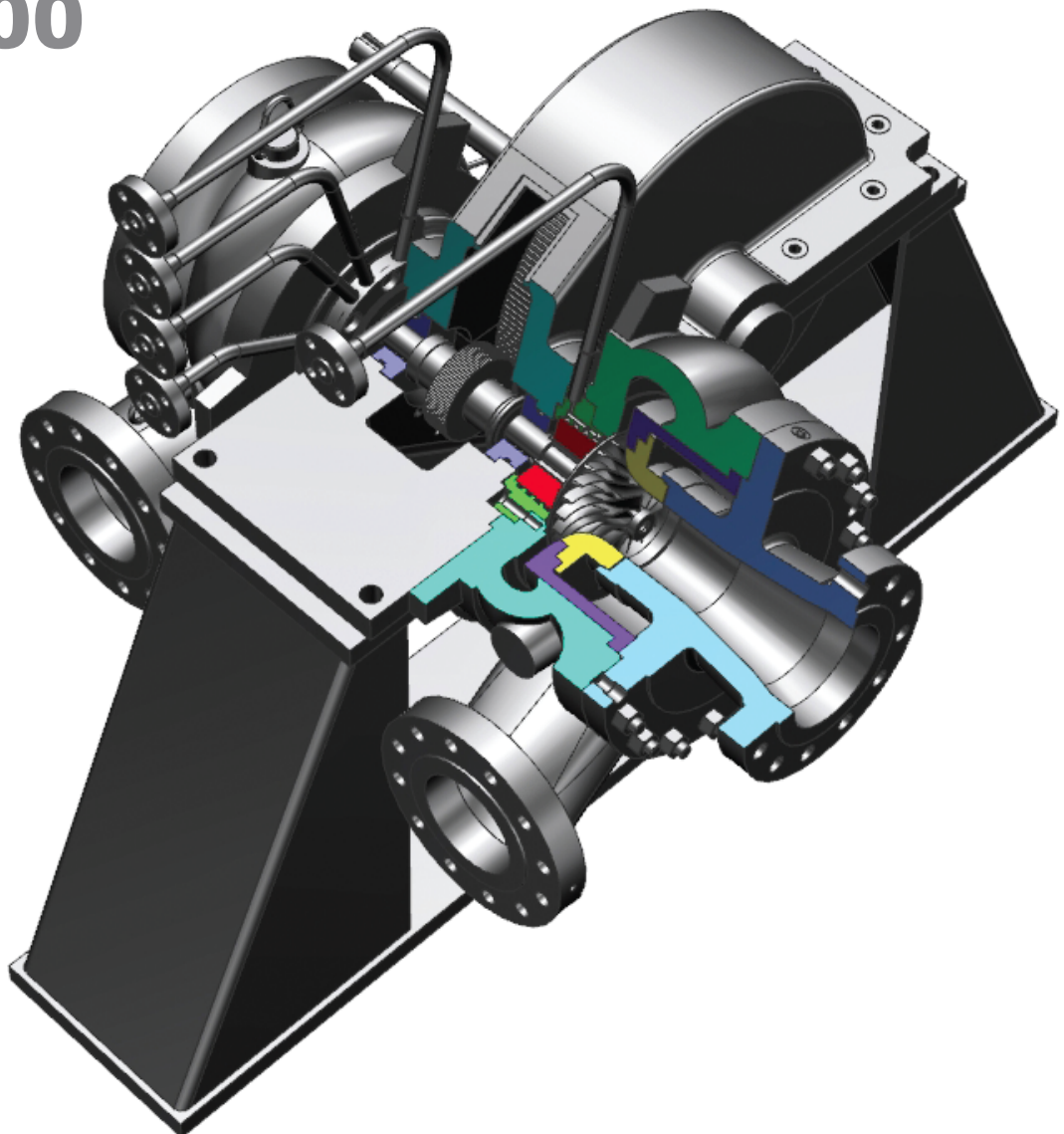
## The LF 2000 Multi-Stage Advantage

- Centrifugal reliability
- Lower maintenance
- Fewer components than traditional designs
- Smooth pulsation free-flow
- Smaller foundation requirements
- Oil-free compression, 1-4 stages
- Standard designs to API 617
- Optimal output speed and flexibility

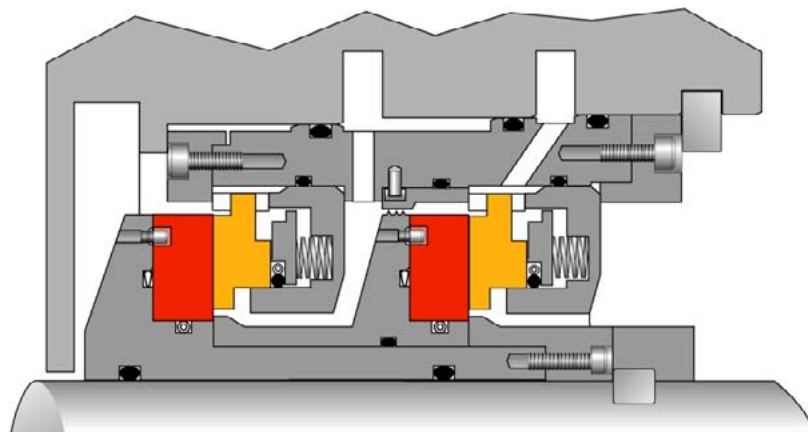
## LF 2000 Custom Built Packaging

Sundyne compressors offer packaging for most common auxiliary systems including seal gas, lube oil, surge control, process control, and PLC based control panels. We offer engineered packages which meet your specific needs.

# LF 2000



Typical Cartridge Mechanical Gas Seal With Internal Labyrinth





## Markets & Applications

### Oil & Gas Production & Processing

- Flash Gas
- Gas Gathering

### Natural Gas Processing

- Mole Sieve Regeneration
- Off Gas Compressor
- Natural Gas Boost
- Nitrogen Circulation
- Demethanizer

### Petrochemical

- Recycle Gas (PP, PE, H2)
- Reactor Feed
- Recirculation Gas
- Ethylene Feed and Recycle
- Regeneration

### Chemical Processing

- Chlorine
- Ammonia
- Hydrogen Recycle
- Waste Gas
- Refrigeration
- Purge Gas
- Flue Gas
- CO<sup>2</sup> / CO
- Nitrogen
- Vinyl Flouride

### Power Generation and IGCC

- Fuel Gas Boost
- Carbon Capture Recycle Compression
- Syngas Recycle
- Flash Gas

### Hydrocarbon Processing

- Hydrogen Recycle
- Lift Gas
- H<sub>2</sub>S Wet Gas
- Stripper Overhead
- Gas Boost
- HC Boost / Overhead
- Butane
- Clean Fuels
- Desulfurization
- Nitrogen Startup





## COMPRESSORS

## PUMPS

## GENUINE PARTS

## SERVICE

Sundyne Headquarters:

**Sundyne, LLC**

14845 West 64th Avenue  
Arvada, Colorado 80007  
USA

1-866-Sundyne

Phone: 1.303.425.0800

Fax: 1.303.425.0896

[www.sundyne.com](http://www.sundyne.com)

Sundyne China:

Building 1, No. 879 Shen Fu Road  
XinZhuang Industrial Zone  
Min Hang District

Shanghai, China 201108

Phone: +8621 5055 5005

Fax: +8621 5442 5265

Sundyne France:

**Sundyne International S.A.**

13-15, Boulevard Eiffel - B.P. 30  
21604 Longvic Cedex  
France

Phone: +33 380 38 33 00

Fax: +33 380 38 33 66

Sundyne Spain:

**Sundyne Marelli Bombas, S.R.L.**

Ctra. Madrid-Toledo, Km.30.8  
45200 Illescas  
Toledo, Spain

Phone: +34 925 53 45 00

Fax: +34 925 51 16 00

Sundyne United Kingdom:

**Sundyne HMDKontro Sealless Pumps, Ltd.**

Marshall Road  
Hampden Park Industrial Estate  
Eastbourne East Sussex, BN22 9AN  
United Kingdom

Phone: +44 1323 452000

Fax: +44 1323 503369

Email: [info@hmdkontro.com](mailto:info@hmdkontro.com)

**Worldwide Sales Headquarters**

Unit 2 Harvington Business Park  
Hampden Park Industrial Estate  
Brampton Road  
Eastbourne East Sussex, BN22 9BN  
United Kingdom

Phone: +44(0) 1323 452125

All information provided is  
subject to change without notice.

© 2013 Sundyne, LLC

All Rights Reserved. Other logos  
and trade names are property of  
their respective owners.

To locate the global representative, distributor  
or authorized service center nearest you,  
or for additional information please visit

[www.sundyne.com](http://www.sundyne.com)

**GLOBAL STRENGTH,** *powered by people*

LF 2000 Series - Integrally Geared Multi-  
Stage Process Gas Compressors  
110713: A4 (v.2) POD