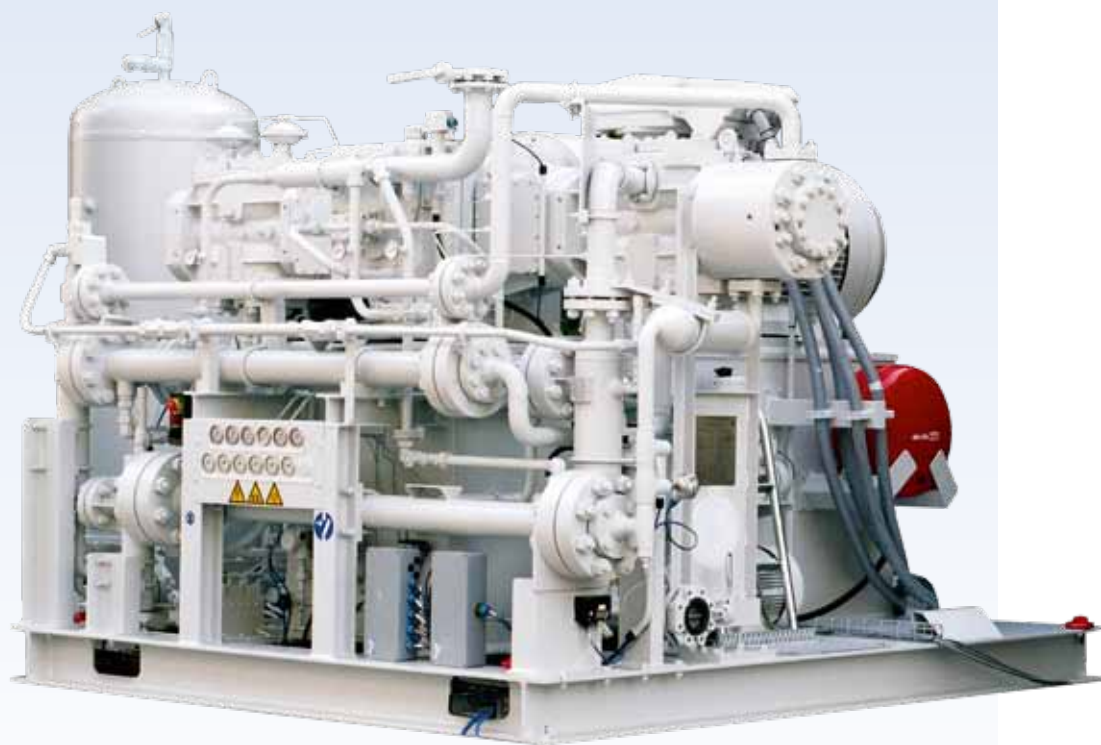


CNG/CBG

compressors for turn-key
refuelling stations



www.lmf.at



CNG/CBG

your high pressure solution



company profile

LMF is the leading Austrian manufacturer of high-pressure piston compressor systems for air, natural gas and technical and industrial (process) gases with power rates from 20 to 6,200 kW (30 to 8,300 hp) and for pressures of up to 700 bar (10,150 psi), are designed and manufactured in accordance with internationally applicable standards.

LMF has a long experience of over 60 years in the production of compressors and offers its customers the benefits of the latest developments in design engineering, proven manufacturing methods, testing under full load, installation and after sales service, all from a single source.

Furthermore **LMF** is a leading compressor manufacturer for:

- API 11P/API 618 compressors for the Petro & Chemical Industry
- Mobile Systems for Seismic Research, Pipeline Evacuation, Nitrogen Generation and Pipeline Testing
- Industrial Applications
- CNG/CBG-systems



LMF Headquarter in Leobersdorf, Austria



content

CNG / NGV

Turn-key Solutions	04
Customer Benefits	06
Compact+ / Mini LBT Line	08
V17GN / LBW3 / LBW6 Line	09
BS 302 / BS 604 Line	10
Applications	12

NG – Individual compressor systems	14
---	----

CBG – Bio-Methane	15
--------------------------	----



AMERICAN AND ASIAN OPERATIONS

LMF Argentina SRL

At the beginning of 2005 and with the aim of boosting the CNG business, the **LMF** headquarter in Austria decided to set up a manufacturing plant for CNG compressors and refuelling packages in Argentina. They established **LMF** Argentina by purchasing SM Gas SRL in order to synergize their knowledge with the

CNG technology and innovation in Europe.

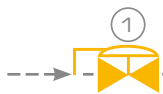
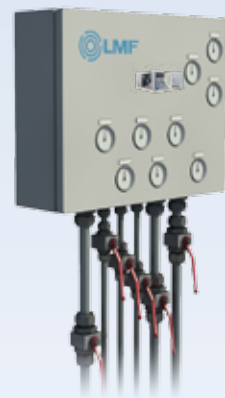
LMF Argentina SRL manufactures and offers a range of CNG compressors and refuelling packages from 50 up to 2,000 Nm³/h, including electronic dispensers, gas storage, management systems, controls, weatherproof acoustic enclosure and service, predominantly for the American and Asian CNG markets.

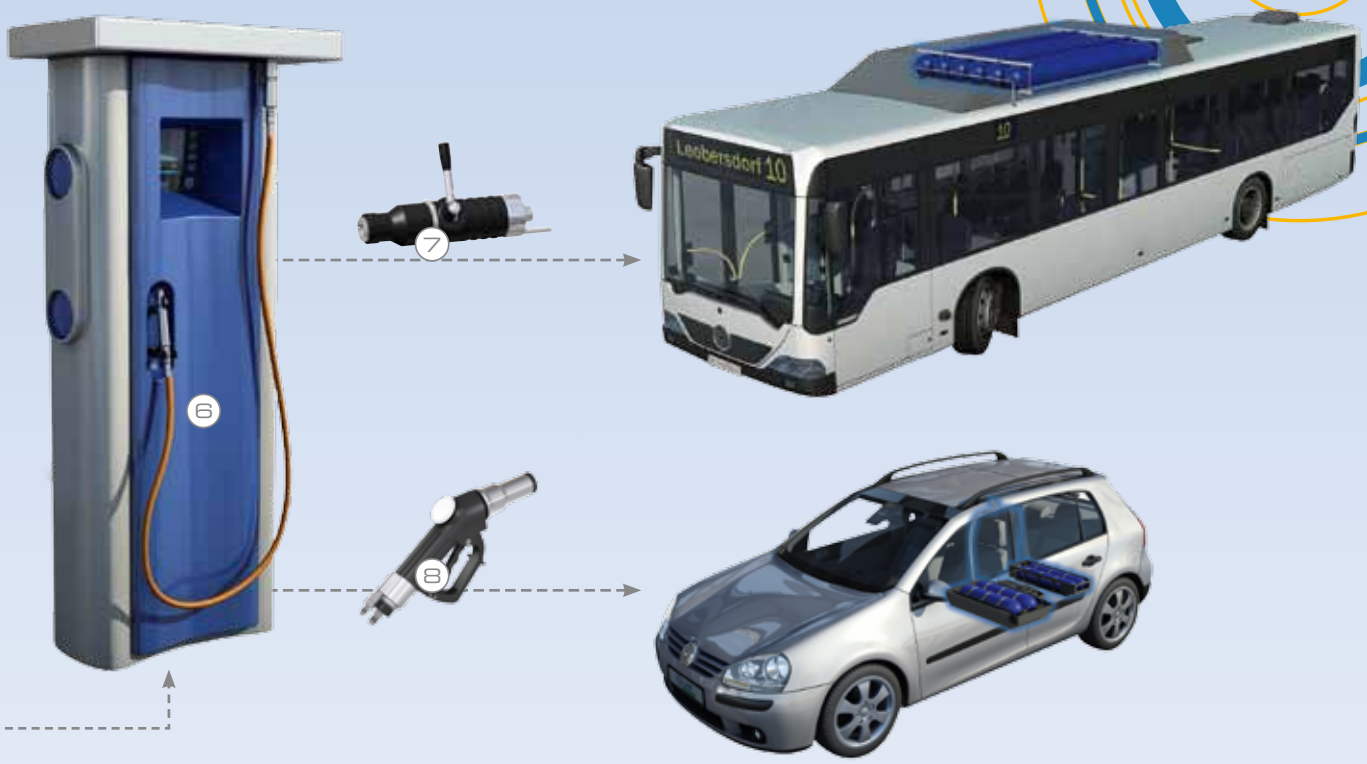
www.lmf.at



CNG/CBG

process turn-key solutions





- ① Gas inlet
- ② Compressor
- ③ Adsorption Dryer at gas inlet or discharge line (optional)
- ④ Priority Panel
- ⑤ HP Bottle storage – 3 bank system
- ⑥ Dispenser
DN 12 – Nozzle for busses
DN 6 – Nozzle for cars
- ⑦ High flow fill coupling 100 kg/min
- ⑧ Medium flow fill coupling 40 kg/min
- ⑨ Control panel

Today **LMF** is one of the leading companies worldwide for compressors, dispensers, storage tanks and other required accessories, including complete turn-key CNG/CBG Refuelling Station solutions. Based on our long-standing tradition, we are able to offer not only the hardware, but also well-founded advice on the design, project development and construction of CNG/CBG Refuelling Stations. The well-engineered modular CNG/CBG compressors and component systems are developed and manufactured according to state of the art technology and in compliance with the European and/or international standards and regulations. To date, **LMF** has supplied over 500 compressor stations for CNG/CBG Refuelling Stations worldwide.

www.lmf.at





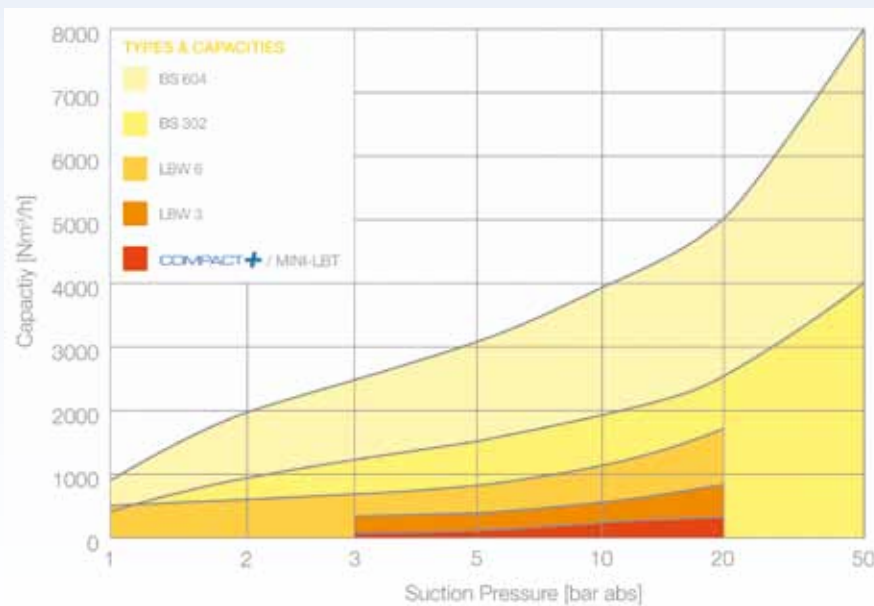
customer benefits

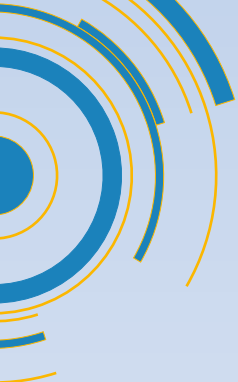
The new dimension of high pressure compressors for CNG & CBG refuelling stations.

HIGH PRESSURE COMPRESSORS FOR CNG REFUELLING SYSTEMS

LMF offers a complete range of High Pressure Compressors for CNG/NGV and CBG Refuelling Stations from small capacities for forklift fleets up to fleets for refuelling buses and trucks, especially concerning large capacities. The product portfolio ranges from bare blocks only, complete compressor units skid-mounted with drive and control system through to complete CNG Refuelling Stations.

LMF furthermore offers stand alone and additional systems, forming turn-key units for Tailor made/Individual onshore and offshore applications. The reciprocating compressors are designed for suction pressures from 1 to 50 bar abs with a capacity range between 80 and 8,000 Nm³/h usually at a final pressure of 251 bar abs (on request up to 351 bar abs). The rated powers are from 40kW up to 600kW.





benefits by using LMF CNG/CBG compressors

- No gas losses to atmosphere
- Easy access for service
- Simple to install, operate and maintain
- Small foot print
- All units are designed for heavy duty operation
- Package on compact base frame completely tested at **LMF**
- Besides V-belt driven for the smaller units, direct electric or gas driven compressors with speed/capacity control and bypass function to achieve maximum flexibility and economical operation



www.lmf.at



LMF

CNG/CBG

7

pressure solution

compact + mini LBT line

compact + / mini LBT line THE PLUG & PLAY PACKAGE FOR CNG APPLICATIONS

This compact turn-key CNG refuelling station is the ideal solution for:

- Small fleet operators
- Small public multi-fuel refuelling stations
- Forklift fleets etc.
- Daughter stations

TECHNICAL FEATURES

- Compressor (Mini LBT), coolers, separators, blow down tank, storage bottles, dispenser, ventilation and control cabinet is skid-mounted within one weatherproof acoustic enclosure
- Suction pressure range
3.5–9 / 7–12 / 11–20 bar abs
(lower suction pressures on request)
- Flow rate from min. 83 to
max. 314 Nm³/h
- Delivery pressure 251 bar abs
- Bare Compressor available under
Type Mini LBT



V 17 GN/LBW 3 LBW 6 line

your reliable solutions

V17GN / LBW3 / LBW6 LINE

The compressor types LBW 3 & LBW 6 are V-belt driven except for type V 17 GN direct driven, mounted on a structural steel frame including air coolers, safety valves, separators after each stage and blow down tank. Furthermore included are pressure and temperature gauges, pressure switches, terminal box, control panel and electric motor.

The compressor units can be supplied from skid-mounted packages up to a flexible designed / fully packaged turn-key CNG Refuelling Station. Type LBW3 and 6 for the European market including: Declaration of Conformity acc. EC Machinery Directive & Guidelines.



TYPE LBW 3

is a three-stage, three cylinder air-cooled, min-lubricated reciprocating compressor of crosshead design.

- Capacities from 273 up to 760 Nm³/h
- Inlet pressures from 3 up to 20 bar abs
- Delivery pressure 251* bar abs
*(Higher pressures on request)



TYPE V 17 GN

is a four- or five-stage, air-cooled, lubricated reciprocating compressor of trunk piston design.

- Capacities from 150 up to 250 Nm³/h
- Inlet pressures from 1 up to 2 bar abs
- Delivery pressure 251* bar abs
*(Higher pressures on request)



TYPE LBW 6

is a four-stage, six cylinder air-cooled, min-lubricated reciprocating compressor of crosshead design.

- Capacities from 245 up to 1,460 Nm³/h
- Inlet pressures from 1.1 up to 20 bar abs
- Delivery pressure 251* bar abs
*(Higher pressures on request)

www.lmf.at





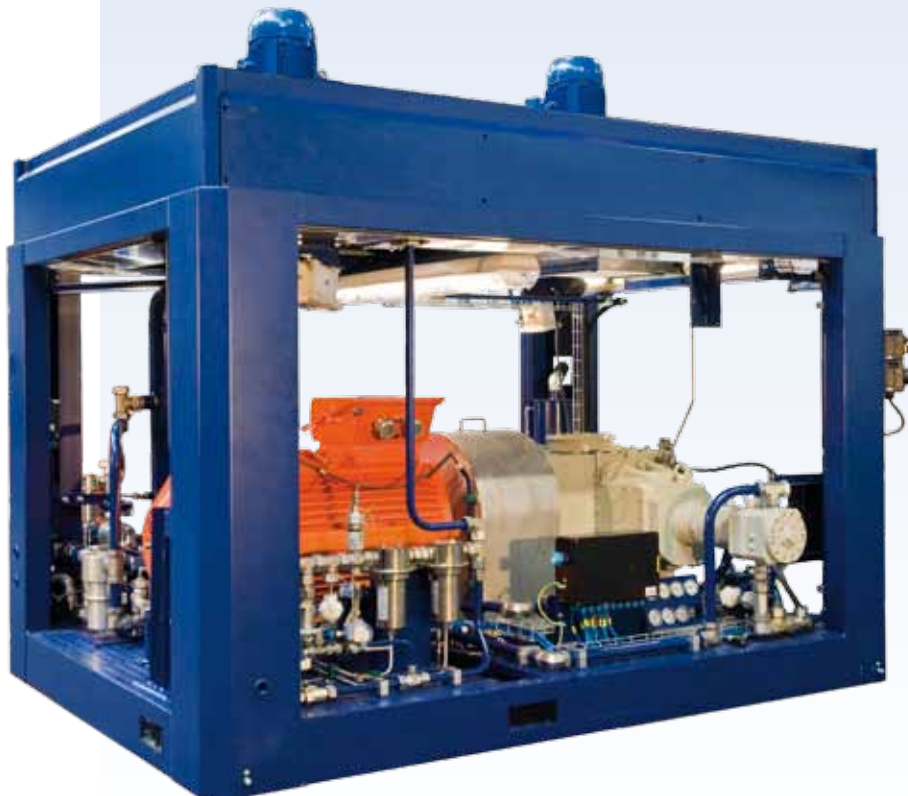
BS 302 line BS 604 line

BS 302 / BS 604 LINE

The compressor units can be supplied from skid-mounted packages up to a flexible designed / fully packaged turn-key CNG Refuelling Station. The compressors are direct driven, mounted on a structural steel frame including air coolers, safety valves,

separators and automatic condensate drain after each stage, automatic suction valve unloading system and blow down tank.

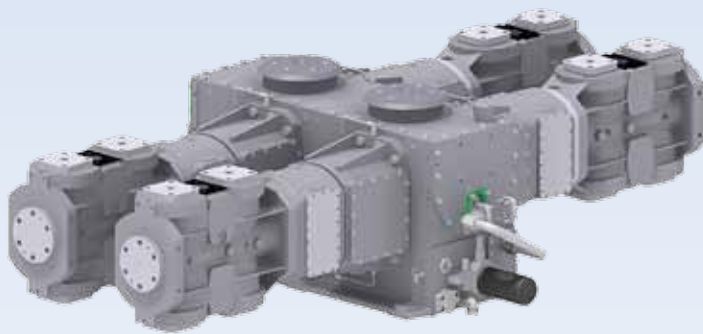
Furthermore included are pressure and temperature gauges, pressure switches, terminal box, control panel and electric motor.





CNG/CBG - NVG

your flexible application



TYPE BS604

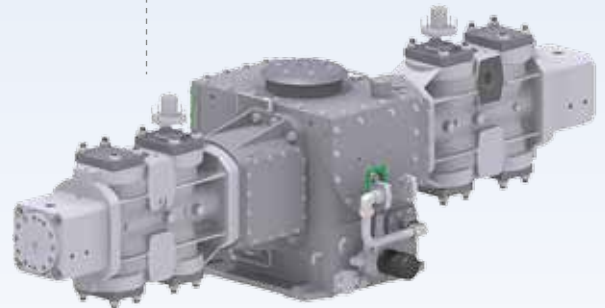
a balanced-opposed, four-crank horizontal reciprocating compressor, with two, three or four stages, air-cooled, min-lubricated of crosshead design

- Capacities from 900 up to 8,000 Nm³/h
- Inlet pressures from 1.5 up to 50 bar abs
- Delivery pressure 251* bar abs
*(Higher pressures on request)

TYPE BS302

a balanced-opposed, two-crank horizontal reciprocating compressor, with two, three or four stages, air-cooled, min-lubricated of crosshead design

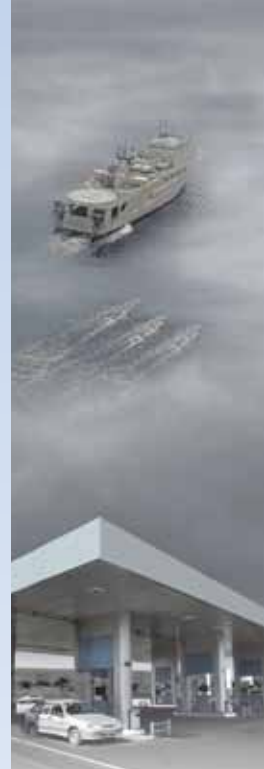
- Capacities from 480 up to 4,000 Nm³/h
- Inlet pressures from 1.5 up to 50 bar abs
- Delivery pressure 251* bar abs
*(Higher pressures on request)



www.lmf.at



CNG/CBG



applications

The LMF range of products for CNG compressor stations of modular design covers all performance levels usually on the market.



CNG-STATION

Site: Nizhni Tagil, Ekaterinburg, Russia. **LMF**
CNG compressor package BS302-319 S25.



MOBILE CNG FILLING STATION

LMF CNG compressor package
V17 GN/5518 L25, containerized.

BUS-STATION DEN HAAG

Site: Den Haag, The Netherlands. Two LMF
CNG compressor units BS302-211 S25.



BUS-STATION NIJMEGEN

Site: Nimwegen, The Netherlands. Three LMF
CNG compressor units BS302-430 S25.



www.lmf.at



CNG/CBG

NG - individual compressor systems

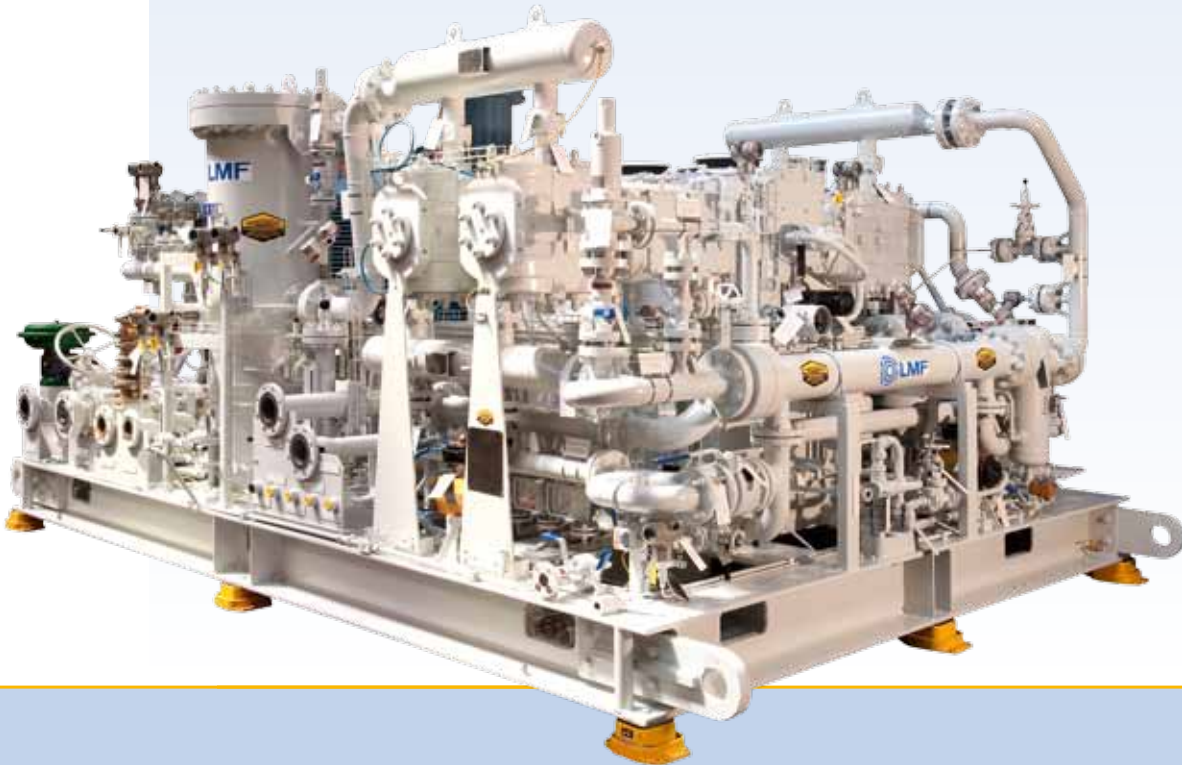
NG - INDIVIDUAL COMPRESSOR IN TAILOR-MADE SYSTEMS

The Individual compressor systems are fully designed to the requirements of the customers in combination with LMF's long-term experience in tailor-made systems. Individual Compressor Systems are engineered for special requirements such as high capacity, wide range of suction & discharge pressures, variable capacity control, light-weight packages and highly economical solutions.

The product portfolio covers balanced-opposed compressors with up to 4 cylinders

and a power range up to 600 kW handling any suction pressure be required up to a final pressure of 350 bar abs. The units (electric or gas driven) are equipped with speed/capacity control and bypass function to achieve maximum flexibility and economical operation.

LMF also supplies auxiliary systems, for example housings, containers, sound & weather protection enclosures, fully equipped with gas & fire detecting instruments, HVAC, lighting etc.



CBG - bio-methane

CBG - BIO-METHANE

LMF provides solutions for modern CBG – Bio-methane processes. The LMF expertise is based on long-term natural gas experience, designed of compression systems for Bio-methane (grid feeding) and raw Bio-gas (wet gas/sour gas) and integration of our system into customer's process. For these applications we provide various min-lubricated compression systems

with a capacity of up to 6,000 Nm³/h in a suction pressure range from 2 to 51 bar abs and a power range from w40 to 600 kW.

LMF designs, manufactures and assembles CBG/Bio-methane versions according to international standards (e.g. DVGW, EC-Directives) and specific customer requirements.



www.lmf.at



15

ssure solution

**Austria
Headquarter**

**Leobersdorfer Maschinenfabrik
GmbH & Co.KG**

Suedbahnstr. 28
A - 2544 Leobersdorf
phone: +43 - 2256 - 9001
fax: +43 - 2256 - 9002
api - sales@LMF.at
cng - sales@LMF.at
ia - sales@LMF.at
ms - sales@LMF.at
service@LMF.at

France

LMF Office France
france@LMF.at

Germany

**LMF Office Germany South/
Switzerland**
Bellinger Str. 39e
D - 86316 Friedberg - Stätzing
phone: +49 - 821 - 15 33 38
fax: +49 - 821 - 15 33 53
germany - south@LMF.at

**LMF Office Germany North/
Northern Europe**
Apfelgarten 2
D - 24235 Laboe
phone: +49 - 43 - 49 64 83
fax: +49 - 4343 - 49 64 87
germany - north@LMF.at

Russia

LMF Office Russia
1 - st Golutvinsky Pereulok
Bld. 6, Floor 6
119180 Moscow
phone: +7 - 495 - 737 08 73
fax: +7 - 495 - 737 08 71
russia@LMF.at

**Argentina
Subsidiary**

LMF Argentina
Manuel Estévez 1356 - B1871CXJ
Dock Sud - Buenos Aires
phone: +54 - 11 - 42 22 46 62
fax: +54 - 11 - 42 22 19 85
argentina@LMF.at

China

LMF Office China
china@LMF.at

India

LMF Office India
india@LMF.at

Iran

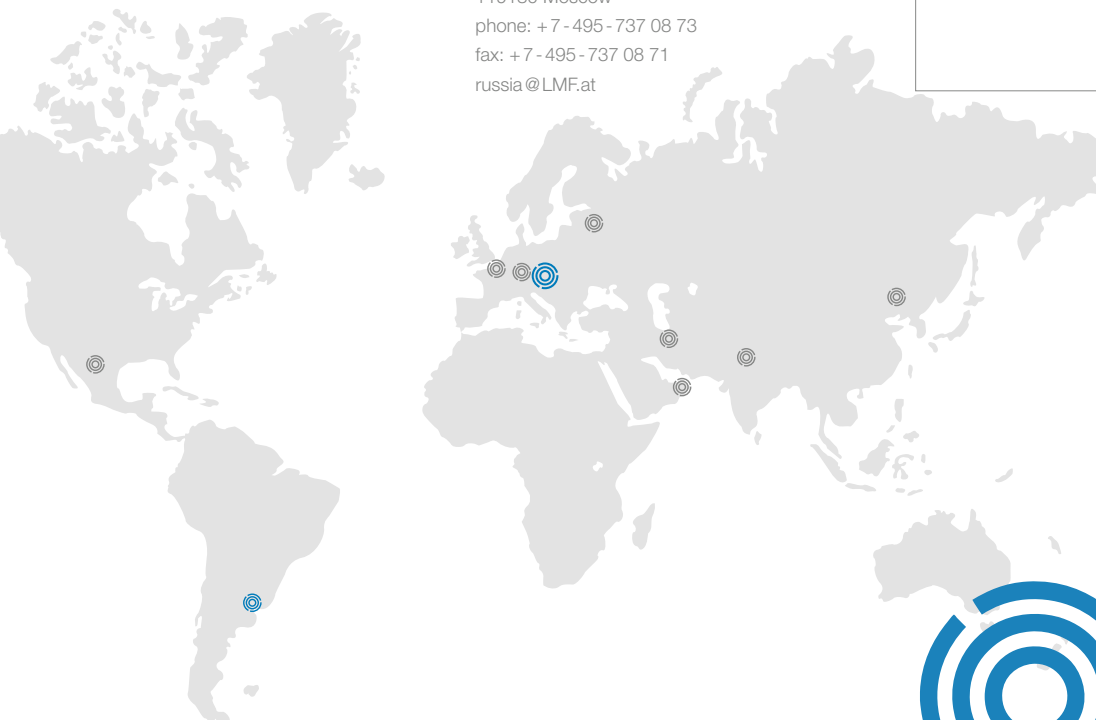
LMF Office Iran
iran@LMF.at

Mexico

LMF Office Mexico
Bosques de Pome N 12 C - 7 Col.
Paseos del Bosque
Naucalpan Edo. de México
CP 53297 México
phone: +52 - 55 - 5364 - 6974
mexico@LMF.at

**United Arab
Emirates**

**LMF Office United Arab Emirates/
Middle East**
uae@LMF.at



www.lmf.at



your high pressure solution