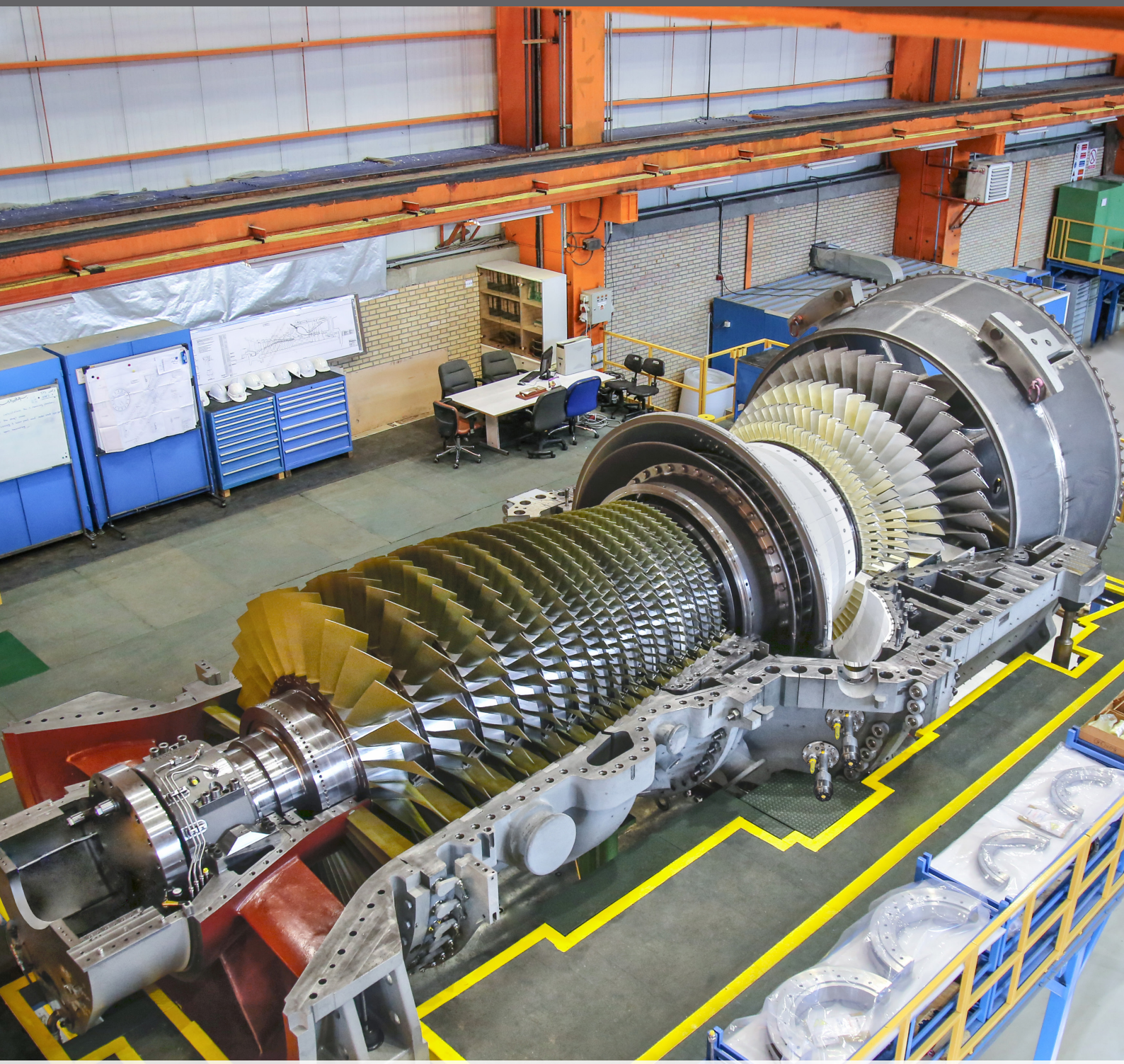


TUGA
MAPNA GROUP

MGT-80 GAS TURBINE

MAPNA TURBINE ENGINEERING & MANUFACTURING Co. (TUGA)

An abundant source of power

Advanced MGT-80 heavy-duty gas turbine with Siemens technology licensing of SGT5-4000F gas turbine, offers significantly high nominal power output of 308 MW and gross efficiency of up to 40.1% and 60% in simple and combined cycle applications respectively. MGT-80 is an environmentally friendly product with minimized NOx and CO emissions. The smooth, reliable and robust performance of the MGT-80 as well as longer maintenance intervals and extended lifetime allow clients to reap the benefits of its unique features while reducing fuel consumption and maintenance costs. In addition to electrical power generation, the MGT-80 can be used in Combined Heat and Power (CHP) plants and large scale desalination plants as well.

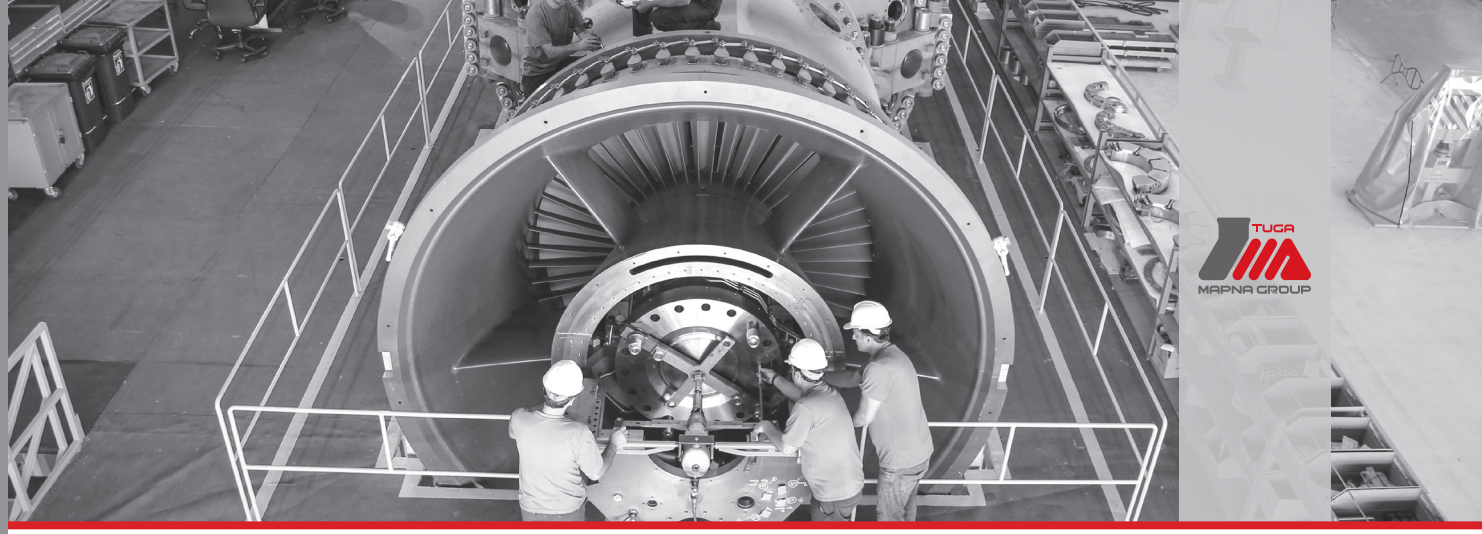
Product Specifications

No.	Parameters	Unit	Value
1	Gross Power Output*	MW	308
2	Gross Efficiency*	%	40.1
3	Shaft Speed	rpm	3000
4	Exhaust Gas Temperature	°C	581
5	Exhaust Mass Flow Rate	kg/s	724
6	No. of Compressor Stages	EA	15
7	No. of Turbine Stages	EA	4
8	Pressure Ratio	-	19
9	Type of Combustors	-	Annular, 24 Burners
10	NOx Emissions	ppmvd@15%O_2	25
11	CO Emissions	ppmvd@15%O_2	80
12	Frequency	Hz	50
13	Weight (Core Engine)	tonnes	312
14	Dimensions (Length×Width×Height)	m	10.8 x 5.2 x 4.8

* Nominal Power at ISO Conditions.

Key Features

- Exceptionally high power output and efficiency
- Highly durable, easy-to-retrofit, compatible design
- Annular combustion chamber with 24 flashback-free hybrid burners
- Fuel flexibility and fast online fuel change over
- Fast start up and shut down (less than 30 min)
- Quick response to grid requirements



- Flexibility in covering peak, base and partial loads
- World-class cold and hot restart capability
- Minimized pollution emission and compliance with emission limits even in partial-load operation
- High reliability and availability (in excess of 99% and 95%, respectively)
- Prolonged maintenance intervals and low operating costs
- Two rotor bearings
- Cold end generator drive
- Disk-type rotor assembly with Hirth serrations and central tie rod enabling easy rotor destacking on site

Advanced Technologies

Some of the main advanced technologies used in the design and manufacturing of MGT-80 heavy duty gas turbine are as follows:

3D Turbine Blading and Flow Path Design

- Ensuring the best aerodynamic performance

Single-crystal Blades

- Used in manufacturing the first stage turbine blades

Directionally Solidified Blades

- Used in manufacturing the second stage turbine blades

Thermal Barrier Coated (TBC) and Film Cooled Hot Gas Path and Gas Turbine Blades

- Allowing much higher efficiency and longer lifetime of the machine

Hydraulic Clearance Optimization (HCO)

- Automatic rotor clearance tuning with an active control scheme to reduce clearance losses at start up and shutdown

Advanced Annular Walk-in Combustion Chamber

- Allowing easy maintenance with individually replaceable ceramic heat shields

Dry-Low-NOx Hybrid burners

- Minimized pollution emission levels with gaseous and liquid fuels

Factory:
Mapna blvd., Fardis, Karaj,
I.R.Iran
Tel: +98 26 36630010
Fax: +98 26 36612734

Head Office
231 Mirdamad Ave., Tehran, I.R. Iran
P.O.Box15875-5643
Tel: +98 21 22908581-3
Fax: +98 21 22908654

www.mapnaturbine.com
info@mapnaturbine.co.ir
Enquiry & Orders:
Enquiry@mapnaturbine.co.ir