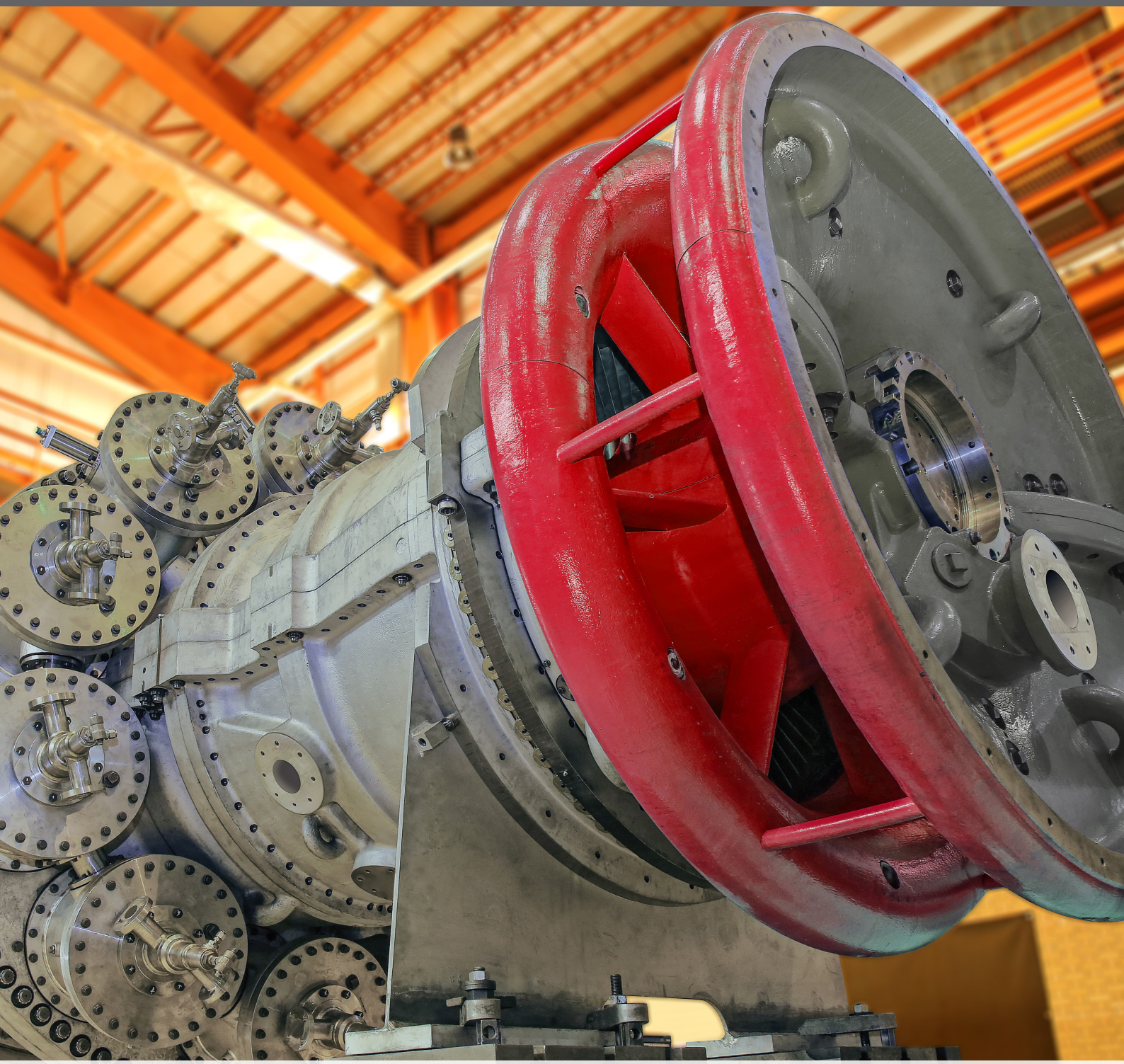

TUGA
MAPNA GROUP

MGT-40 GAS TURBINE

MAPNA TURBINE ENGINEERING & MANUFACTURING Co. (TUGA)

MGT-40 Gas Turbine

Reliability and availability are two major parameters in the oil, gas and petrochemical industry for power generation. Quality of manufacturing, long-life service and specific design are among the characteristics offered by MGT-40. Water injection in fuel nozzle mechanism in this product, results in lower NOx and helps alleviate environmental concerns as well.

Product Specifications

No.	Parameters	Unit	Value
1	Gross Power Output*	MW	42.2
2	Gross Efficiency*	%	32.2
3	Shaft Speed	rpm	5160
4	Exhaust Gas Temperature	°C	548
5	Exhaust Mass Flow Rate	kg/s	147
6	No. of Compressor Stages	EA	17
7	No. of Turbine Stages	EA	3
8	Pressure Ratio	-	12.3
9	Type of Combustors	-	Reverse Can-annular
10	NOx Emissions	ppmvd@15%O_2	42 (Water Injection)
11	CO Emissions	ppmvd@15%O_2	25
12	Frequency	Hz	50
13	Weight (Core Engine)	tonnes	43
14	Dimensions (Length×Width×Height)	m	6.4 x 3.3 x 3.3

* Nominal Power at ISO Conditions.

Advantages

- Utilized in simple or combined cycle plants
- Generator at the hot end
- Dual fuel nozzle
- Replaceable turbine side blades
- Quick installation
- Low maintenance cost
- High reliability and availability
- Rugged turbine

Other Features

Rotor

The wheels and shafts of rotor are assembled to each other with mating features (male and female) for concentrated control and are held together with special bolts. Turbine blades are internally cooled by extractions from the last shaft of compressor to avoid deformation caused by thermal stresses.

Compressor Design

The MGT-40 Gas Turbine utilizes an axial 17-stage compressor with one IGV and two EGVs. At the design point, the compressor rotates at approximately 5160 rpm, and delivers mass flow with total pressure ratio of about 12.3.

Turbine Section

The MGT-40 Gas Turbine utilizes an axial 3-stage turbine. Turbine blades can be replaced without disassembly of the wheel. The first two stages are internally air cooled and the first stage is of DS type.

Combustors

The combustion system which is of the reverse flow type, includes 10 combustion chambers each comprising liners, transition pieces, fuel nozzles, as well as ignition detection systems. The fuel nozzles are of dual fuel type and are equipped with water injection system.

Main Auxiliaries

Fuel System

The main parts of the fuel gas system are strainers and stop and control valves, A hydraulic oil system provides high-pressure hydraulic oil to operate the control valves of the fuel systems.

Air Intake

Air filtration provides a pollutant-free air with a suitable temperature at the engine inlet and basically consists of two stages of filtration, as well as silencers.

Exhaust

The exhaust duct vacates the flue gas to the environment. The main parts are the stack and silencer.

Lube Oil System

The system performs heat dissipation and lubrication of the turbine, gearbox and generator bearings. It consists of an oil tank, pumps, pipes, flanges, duplex filters, valves and cooler.

Instrumentation and Control

Important features of the turbine instrumentation and control are:

- Provision of Automatic start up, closed loop acceleration control , load , temperature control and fired shut down
- Output power response to frequency variations in both droop and Isochronous mode
- Capability to operation in Island mode with isochronous mode
- Provision of all required protective systems for the gas turbine and its auxiliaries
- Provision of supervisory gas turbine instrumentation
- Provision of variable inlet guide vane for single and combined cycle operation mode
- Provision of automatic and manual rate of loading
- Provision of exhaust temperature monitoring according to allowable tempera ture spread

After-sales services on offer

Hot gas path and major inspections are normally performed at 24000 and 48000 EOH. The GT is indeed an easily maintained, tough and rugged machine during operation. With a proper maintenance regime, it can demonstrate a high level of reliability and availability. MAPNA Turbine Company offers the following services to clients:

Provision of spare parts for the turbine and auxiliaries

Being our own manufacturer and having a reliable network of spare parts suppliers enable us to satisfy individual client demands, including capital spares, as per order.

Long-term supply and support agreements

We offer long-term contracts for various types of support and services.

End-user staff training

We offer several training courses for new staff on site; such as general power plant knowledge, operation, and maintenance.

Performing inspections and overhauls

Our experienced maintenance personnel can perform thorough turbine inspections and overhauls.

Special parts fabrication and repair

Thanks to our state-of-the-art machineries and skilled manufacturing personnel, we can provide fabrication and repair of special parts for our MGT-40 machines.

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