



AJ-STACK
SOLUTIONS

COMMON ACRONYMS AND TURBINE TERMINOLOGY

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ACRONYM	EXPLANATION
GP	Gas Producer. The gas producer is the heart of the gas turbine and consists of the compressor section, combustor and two stage of GP turbine to produce a gas flow to drive the power turbine.
NGP	This is the term used to describe the speed of the gas producer and is expressed as a percentage.
PT	Power Turbine. Consists of two turbine stages and an output drive shaft directly connected to the driven equipment.
NPT	This is the term used to describe the speed of the power turbine and is expressed as a percentage.
PCD	Pressure, Compressor Delivery. Also referred to as P2 , (see below). This is the air pressure at compressor exit, measured in the diffuser section. An important parameter in assessing engine performance.
HED	Hot End Drive. This refers to the configuration of a two-shaft turbine where the drive is taken from the exhaust (hot) end via the power turbine.
CED	Cold End Drive. This refers to a single-shaft, generator drive configuration, where the drive is taken from the front of the compressor shaft (i.e. the cold end) directly into a reduction gearbox and thence into the generator.
IGV	Inlet Guide Vanes. These are a set of vanes ahead of the first compressor stage, designed to direct the airflow into the compressor for optimal flow.
VGW or VSV	Variable Guide Vane(s) or Variable Stator Vane(s). The Mars has one IGV and four variable stator. The VGVs work in conjunction with the IGVs to control airflow through the compressor to avoid compressor surge during start acceleration and shutdown.
EGV	Exit Guide Vanes. A set of stator vanes at the exit of the compressor section.
BV	Bleed Valve. The Bleed Valve is fitted to the combustor housing on the Mars 90 and is used to bleed off excess air from the combustion chamber during the start cycle. It operates in conjunction with the variable guide vanes to control compressor surge.

ACRONYM	EXPLANATION
SIV	Swirler Inlet Valve. This is a valve mounted on the upstream side of each LowNox fuel injector. The SIVs are modulated in conjunction with the bleed valve in response to T5 control during LowNox operation, to maintain emissions within limits.
LE	This is the term used to describe the Leading Edge or forward portion of any airfoil section. It is used when discussing compressor blades, stator vanes, turbine blades or nozzles.
TE	As above, but refers to the Trailing Edge or rear section of the airfoils.
HCF	High Cycle Fatigue. Is a failure mode associated with high frequency excitation of components and usually associated with a stress raiser (such as a surface defect or sudden change of section). Average stresses can be relatively low but at the point of the stress concentration can be high enough to initiate a crack that propagates with each cycle. Often seen in blades and gears & splines where interactions occur at high frequency.
LCF	Low Cycle Fatigue. Is a failure mode associated with high local stress that exceeds the material elastic limit but is often relieved by the crack formation. Often associated with thermal expansion of restrained components such as combustors and nozzles.
TBC	Thermal Barrier Coating. This term refers to the precious metal/ceramic coatings applied to hot section components (nozzles and blades) to improve durability.
ABC	Augmented Backside Cooling. Improved cooling technology applied to LowNox combustors.
IL	Inner Liner, refers to the inner surface of the annular combustor liner.
SSV	Sub Synchronous Vibration. Refers to shaft motion that occurs at frequencies below the running speed of a rotor. Often produces very destructive forces due to resonance with shaft critical speeds.
GM	Gear Mesh frequency is the rate of interaction between gear teeth of two meshing gears.
BOP	Balance of Plant

ACRONYM	EXPLANATION
LHV	Lower Heating Value of fuel
HMI	Human Machine Interface
VFD	Variable Frequency Drive
PIL	Product Information Letter
SB	Service Bulletin
ES	Engineering Specification
IPL	Illustrated Parts List
OMI	Operation and Maintenance Instructions
USEFUL GAS TURBINE TERMS	
P1	This is the barometric pressure of the air at air inlet
T1	This is the air temperature at entry to the compressor.
T2	This is the air temperature at the compressor exit. Usually measured in the diffuser section.
P2	Pressure at the compressor exit. Measured in the diffuser section and also referred to as PCD . (see above).
TRIT or T3	Turbine Rotor Inlet Temperature . Identified as a computed temperature at the entry of the first stage turbine nozzle.
T5	This is the gas temperature measured at the third stage turbine nozzle on a Mars 90 (ie. At the entry to the Power Turbine section). It is a critical control parameter and is important in assessing turbine performance.

ACRONYM	EXPLANATION
T7	Temperature station measured in the exhaust diffuser.
SoLoNox	This is the trademark used to describe Solar Turbines proprietary low emissions combustion technology.
LowNox	Any proprietary turbine combustion technology aimed at reducing exhaust emissions.
SFC	Specific Fuel Consumption.
ΔP_{ex}	Exhaust Differential Pressure
ΔP_{in}	Inlet Differential Pressure
W_{ex}	Exhaust Mass Flow