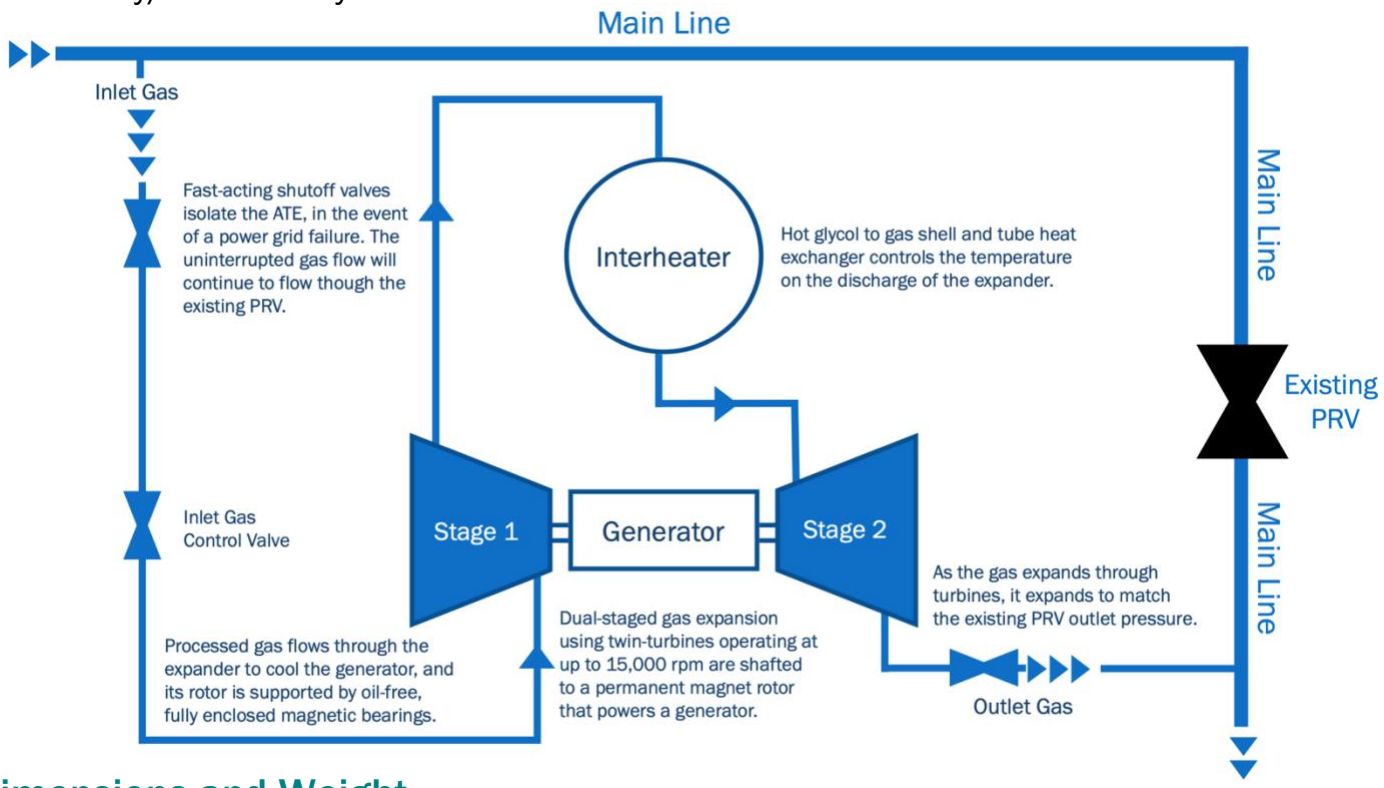
Anax Turboexpander
500 kW ATE Technical Data

ANAX POWER

The ATE is a packaged turbine designed to generate electrical power for direct grid or behind the meter connection from the combination of pressure let-down and heat input required in a gas pressure regulating station. The unit is pre-assembled, requiring minimal pipework or electrical wiring on site, instrument air, low grade waste heat and the mains electrical connection. Optional remote monitoring and remote emergency stop facilities can also be added.

- Operating speed of 15,000 rpm enables the Anax Turboexpander to handle fluctuating pressures and flows
- Performance and safety tested by the Gas Technology Institute
- 25-30 year lifespan, with minimal maintenance required
- Compact design, mounted on a single skid
- Installed in-parallel with the existing pressure regulating valve for 100% reliability/redundancy



Dimensions and Weight

Length:	30’	9140 mm
Width:	14’ 10”	4480 mm
Height:	8’ 3”	2,200 mm
Weight:	TBD	TBD
Maintenance clearance (year round):	3’ 3”	1,000 mm + panel door opening
Gas inlet connection	10” ANSI Class 600 Flange (carbon steel)	
Gas outlet connection	10” ANSI Class 600 Flange (carbon steel)	
Instrument air connection	1.5” ANSI Class 150 Flange (Carbon Steel)	

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Performance and Operating Limits

Generates 500 kW of clean electricity in a range of environments

Inlet Pressure (psig):			
	Minimum	600 psig	4.14 Mpa
	Maximum	1200 psig	8.27 Mpa
Inlet-to-outlet pressure ratio:			
	Minimum	1.4	
	Maximum	3.4	

Power Outlet Connection

Voltage:	240-600 V AC	
Power Factor:	0.99 (Close to unity)	
Phases:	3	
Frequency:	50 – 60 Hz	
Harmonics after LCL filter:	IEEE519 Compliant, (FIND EURO EQUILIVANT)	
Grid connection:	UL1741	
Power Meter:		
	Manufacturer:	Electro Industries
	Model:	Nexus 1500
	Country of origin:	USA
	Accuracy: kWh	0.1% (100 ms), 0.06% (1 s)

Safety Features

Pressure:			
	MAOP at skid inlet:	1400 psig	9.65 Mpa
	MAOP at expander inlet	1200 psig	8.27 Mpa
Anti islanding:	IEEE1547/IEEE1547.1 Relay		
Overspeed and safety protection:			
	2 series connected fast acting, fail-closed pneumatic actuator inlet shut off valves; 1 Monitor Valve and 1 Working Control Globe Valve		
	Integral inverter speed monitoring		
	Backup independent frequency monitoring		
	Fire safe to API607		

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Detailed Component Information

User interface:			
	Manufacturer:	Allen Bradley - Wonderware Intouch SCADA	
	Model:	Industrial Computer, 15" Touchscreen, HMI NEMA Class I Division 2 UL listed RS-232	
	Connectivity:	Ethernet	
Electrical panel:			
	Manufacturer:	Longo Electrical Mechanical Inc.	
	Country of origin:	USA	
	Design code:	ULA1741, NFPA 496,	
	Cooling:	Water cooled (internal closed loop)	
	Inverter drive:	Vacon-water cooled	
Interstage heater:			
	Manufacturer:	Vahterus Plate and Shell (30% Glycol)	
	Country of origin:	Finland	
	Design code:	ASME VIII	
	Fluid inlet temperature:	130 - 180° F	54 - 82° C
	Fluid inlet pressure	75 psig	0.52 Mpa
	Fluid outlet temperature:	85° F	29° C
	Fluid outlet pressure	70 psig	0.48 Mpa
	Fluid flow rate:	94,868 lbs/hr	43,041 kg/hr
Turbine:			
	Designer:	SoftInWay	
	Country of origin:	USA	
	Design code:	TBD	
	Magnetic Bearings:		
		Manufacturer:	MECOS
		Country of Origin:	Germany
Generator:			
	Manufacturer:	Turbo Power Systems	
	Country of origin:	UK	
	Design code:	TBD	

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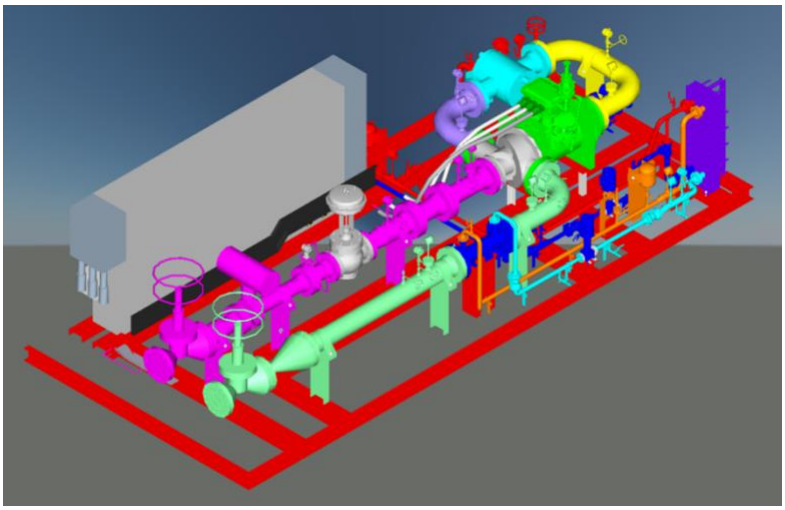
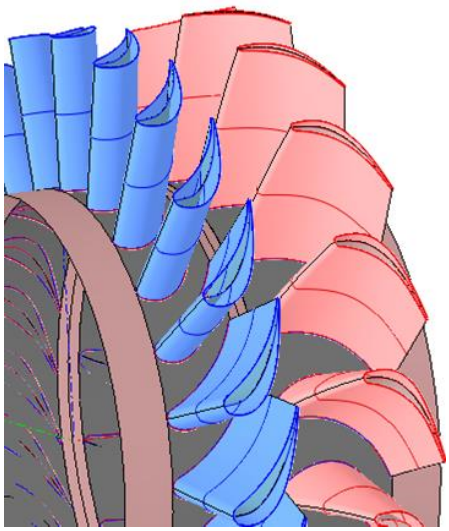
Site Requirements

Instrumentation air:			
	Pressure:	100 PSIG	0.69 Mpa
	Dew point:	-40° F	-40° C
Hot water/glycol from waste heat source:			
	Temperature:	130 - 150° F	54 - 82° C
	Flow rate:	94,868 lbs/hr	43,041 kg/hr

Nominal Gas Composition (%w/w)

Methane	93.90%
Ethane	4.200%
Propane	0.300%
Isobutane	0.030%
Butane	0.030%
Isopentane	0.010%
Pentane	0.010%
Hexane	0.010%
Nitrogen	1.000%
CO2	0.500%
Oxygen	0.01%





Contact

Joseph Longo, CEO
jlongo@anaxpower.com
(201) 410-1675

Mike Longo
mlongo@anaxpower.com
(201) 401-8603

www.anaxpower.com
@AnaxPower