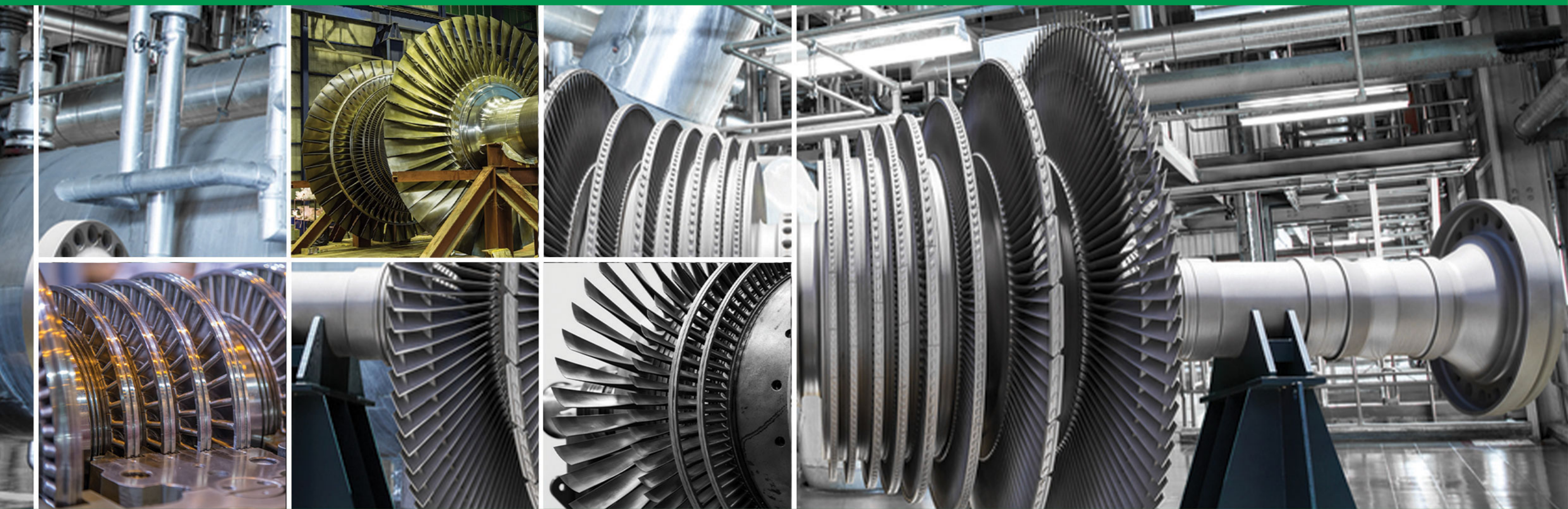




ASA Company

Steam Turbine

ASA Co Turbines



■ ASA Co. STEAM TURBINES



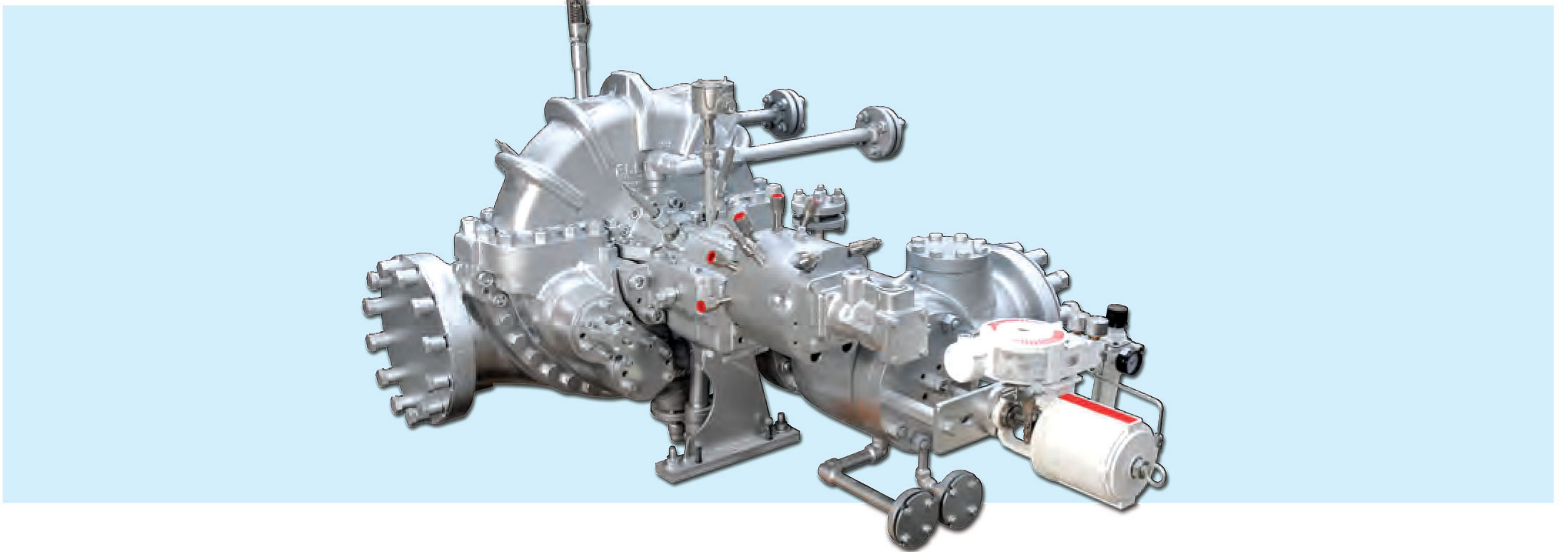
ASA Co. steam turbines are rugged and reliable pieces of precision turbomachinery. These masterpieces of ASA Co. engineering and craftsmanship serve thousands of customers continuously, day and night, under conditions ranging from humid tropical heat and rainfall to freezing icy tundra and snowfall. Many YRs have been performing for decades – day after day, year after year.

ASA Co. turbines are found driving pumps, compressors, fans, blowers, generators, sugar mill tandems, cane shredders, paper machine lineshafts, and in many other applications. ASA Co. steam turbine models are standardized and components are stocked, resulting in shorter leadtimes and faster turnarounds.



■ ASA Co. TURBINE

Single-valve, single-stage ASA Co. turbines have a worldwide reputation for the highest quality, reliability and adaptability to serve a wide range of requirements. Available in multiple frame sizes and ratings up to 5,400 hp (4,027 kW), ASA Co. turbines are cost-effective in their design and perform under varying conditions.



■ STANDARD FEATURES

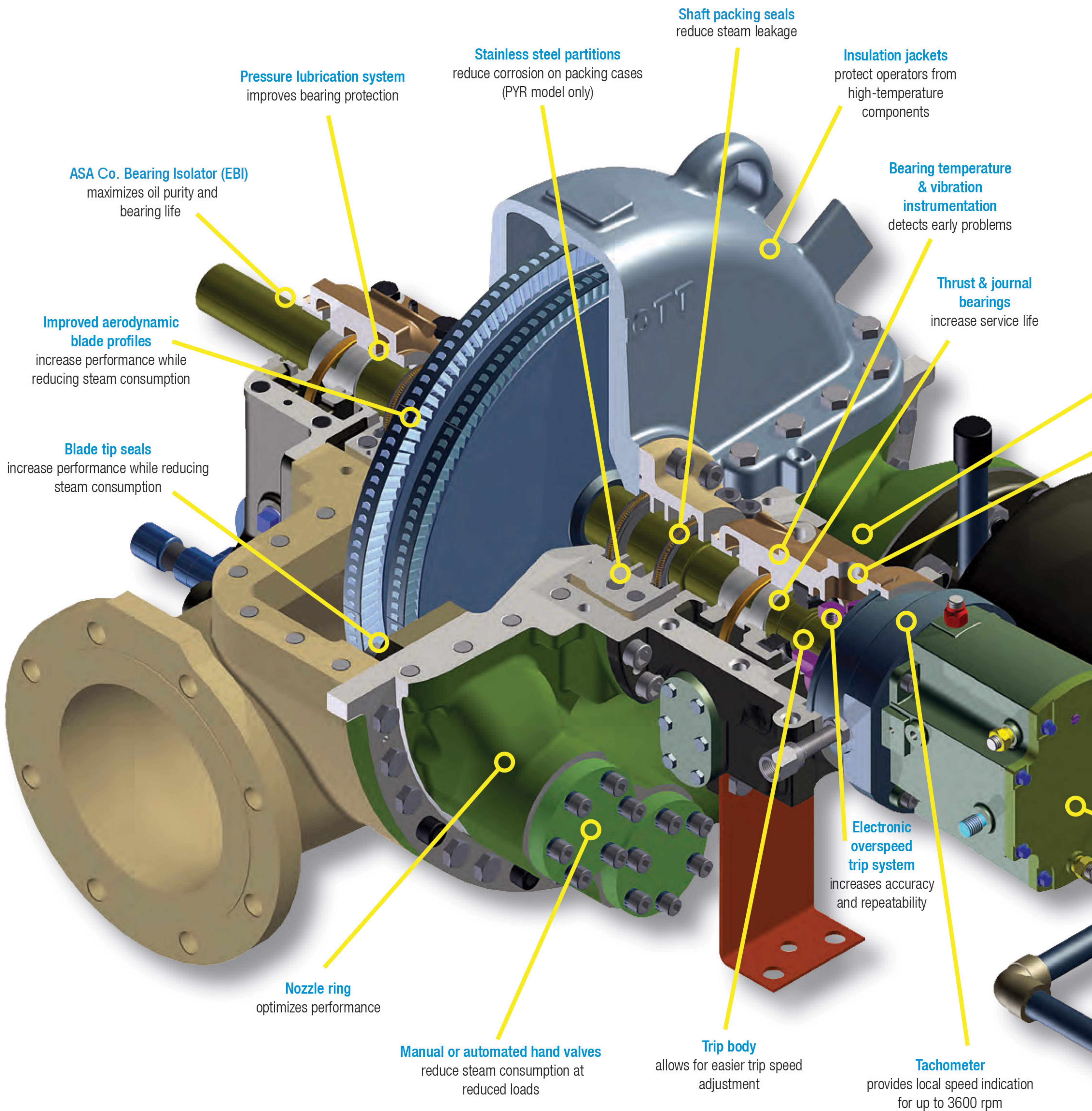
- ◆ Designed to API 611 standard
- ◆ Quick-start capability
- ◆ Horizontally split casing
- ◆ Built-up rotor construction
- ◆ Center line support
- ◆ Multiple shaft end configurations
- ◆ Carbon ring steam end
- ◆ Spark-proof, overspeed trip with independent trip valve
- ◆ Separate steam seal covers for ease of maintenance (except for AYR model)
- ◆ Ring-oiled, circulation or pressure lubrication
- ◆ Steam hand valves for optimal efficiency
- ◆ Sentinel warning device
- ◆ Dynamically balanced multi-plane rotor
- ◆ No-load mechanical run test using steam

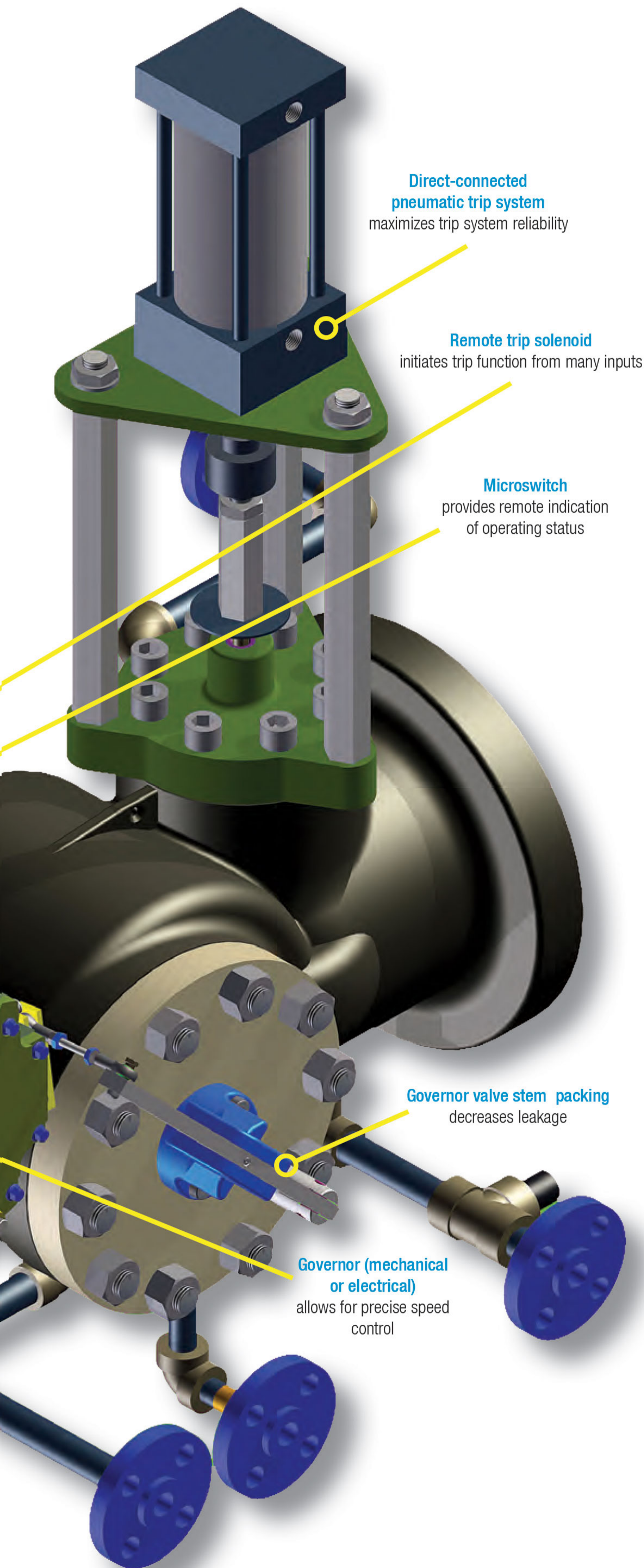
■ PACKAGING SOLUTIONS FOR TURBOMACHINERY

Effective, efficient turbine packages begin with a thorough understanding of the site specifications, from the pad to the placement of panels and other components. ASA Co. is a global leader in the design, manufacture and packaging of rotating equipment, lubrication systems, and sealing and fueling systems for turbomachinery. Our packages are engineered to reduce installation and maintenance costs by consolidating the equipment footprint, minimizing on-site alignment, and tightly integrating all connections.

ASA Co. COMMON FEATURES & UPGRADES

Engineering expertise, rugged design, and precision manufacturing come together for years of service in ASA Co. steam turbines. These powerful workhorses provide exceptional value and performance in a broad range of mechanical and power generation applications, around the clock and around the globe.





Feature	Standard	Upgrade
Speed Control		
TG Series	X	
UG/PG Series		X
Electronic		X
Speed Protection		
Mechanical*	X	
Electronic		X
Governor Actuator		
Mechanical*	X	
Electric/Pneumatic		X
Trip Valve		
Integral	X	
Direct-Connected*		X
T&T Valve		X
Journal Bearings		
Liner*	X	
Tilting-Pad		X
Thrust Bearings		
Ball*	X	
Tilting-Pad		X
Rotor Shaft		
Built-Up*	X	
Solid		X
Rotor Blades		
Punched*	X	
Milled		X
Tip Seals	X	
Lubrication		
Ring-Oiled or Pressure	X	
Ring-Oiled Circulation	X	
Shaft Seals		
Carbon Rings*	X	
Labyrinth/Brush		X
Mechanical		X
Bearing Housing Seals		
Labyrinth*	X	
ASA Co. Bearing Isolator		X
Safety		
Sentinel Valve	X	
Insulation Jacket	X	

(* Shown)

■ GENERAL SPECIFICATIONS

Frame	PYR	AYR	BYR	BYRH & BYRHH	DYR & DYRH DYRM & DYRN
Initial pressure (psig/bar)	650/45	700/48	700/48	900/62	900/62
Initial temperature (F/C)	750°/400°	825°/440°	900°/482°	900°/482°	900°/482°
Exhaust pressure (psig/bar)	100/6.9	vac-100/6.9	vac-100/6.9	375/25.9	vac-350/24.1
Speed (rpm)	5000	7064	6675	7090	5770
Wheel pitch diameter (inch/mm)	12/305	14/360	18/460	18/460	28/710
Number of stages (impulse type)	1	1	1	1	1
Inlet sizes (ANSI, inch)	3"	3"	3", 4"	3", 4", 6"	3", 4", 6", 8", 10"
Exhaust size (ANSI, inch)	6"	6"	8"	8"	10", 12", 14", 16"
Range of capacities (hp/kW)	200/150	750/560	to 1400/1044	to 3500/2610	to 5400/4027
Shipping weight (lb/kg)	550/250	870/400	1275/580	2300/1050	2600/1180

■ PACKAGING SOLUTIONS FOR TURBOMACHINERY

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A standard steam turbine package can include:

- ◆ ASA Co. steam turbine
- ◆ Gearbox
- ◆ Baseplate
- ◆ Coupling
- ◆ Electrical system
- ◆ Lubrication & control-oil consoles
- ◆ Gland vacuum, sealing and leak-off systems



■ INTEGRATED MACHINERY CONTROLS

Tri-Sen control systems are standard offerings with all ASA Co. compressors and steam turbines. The ASA Co. Tri-Sen Turbomachinery Controls Alliance provides a single point of contact for the full scope of rotating equipment expertise and advanced turbomachinery controls. Users can turn to one source to address turbomachinery component questions, software issues, and retrofit application concerns.

Through its alliance with Tri-Sen, ASA Co. provides machinery protection systems such as the TetraSentry hydraulic trip systems as standard offerings with new ASA Co. turbines and retrofit applications.

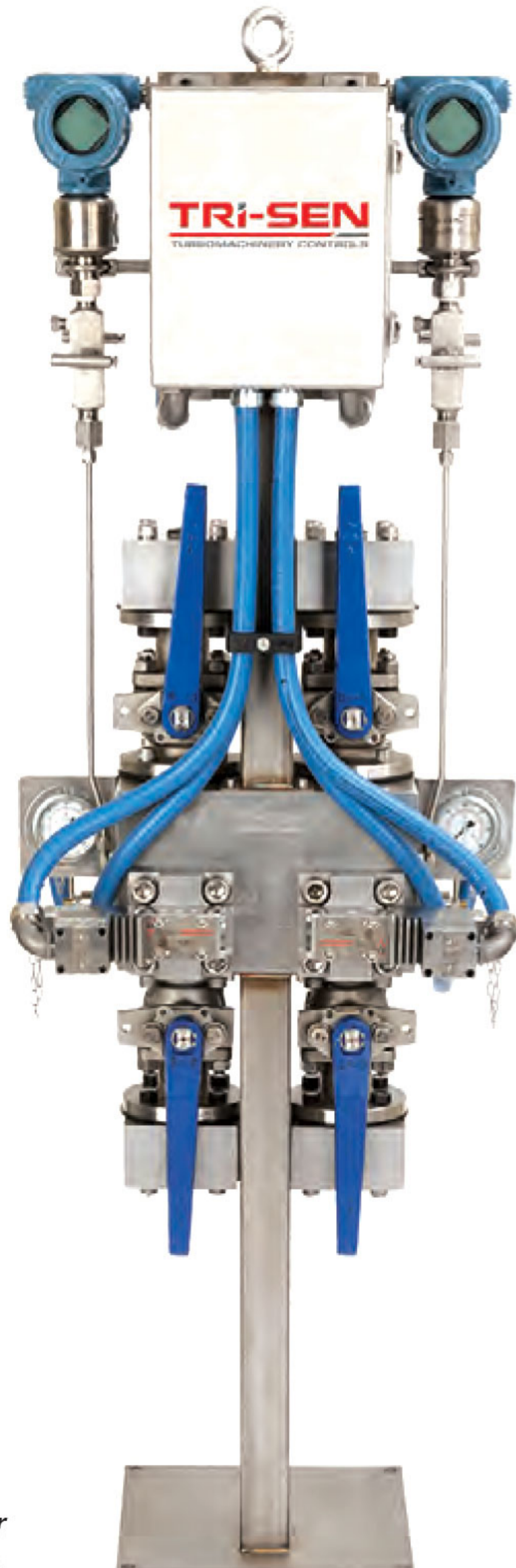


The Tri-Sen 310SV regulates speed and provides cascade control for process variables such as suction/discharge pressure or suction flow. The self-contained unit has manual push-button turbine controls, user-friendly software applications, and a 24-volt DC or optional 120/140-volt AC power supply.



The Tri-Sen TS300 is a self-powered digital controller providing automatic startup and speed control for single-valve general-purpose steam turbines driving a mechanical load.

The Tri-Sen TetraSentry is a dual parallel-redundant hydraulic trip block that's on-line testable and on-line repairable. The TetraSentry is connected to the hydraulic trip header in parallel with the turbine trip valve. During a trip action, the high capacity solenoid valves dump the trip header fluid to the reservoir faster than the supply orifice can refill it.



■ GLOBAL SERVICE AND SUPPORT

ASA Co. offers comprehensive service, support and training for all types of turbomachinery regardless of the original manufacturer. Our global service network provides installation, maintenance, repair, overhauls, parts, rerates, modifications, and training. Our service teams have the experience and expertise to keep equipment performance high and maintenance costs low.

ASA Co Group is a global leader in the design, manufacture and service of technically advanced centrifugal compressors, steam turbines, used in the petrochemical, refining, oil & gas and industries, as well as in power applications.



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