Pneumatic trip systems provide a vital safety function for steam turbines. Proper maintenance and testing are necessary to ensure safe and reliable equipment operation. However, many mechanical trip systems are not tested as frequently as recommended, if at all. The testing process can be inconvenient and requires the turbine to be tripped, taking it offline.

Elliott’s patent-pending, pneumatic trip system with partial stroke actuation is changing the way turbine trip systems are tested. Available for new equipment or retrofit, this new partial stroke trip system provides a safe and effective way to exercise the trip valve regularly, without interfering with the turbine’s operation or its ability to trip. Within seconds, the system completes a partial stroke of the trip valve, enabling operators to determine if the system is working properly or requires attention. This small movement can mean the difference between the turbine tripping when necessary and catastrophic failure.

Before the introduction of the partial stroke pneumatic trip system, convenient online testing required an oil-operated trip and throttle (T&T) valve – a more expensive and complicated system.
Regular testing of a trip system is essential to verify that the trip valve is in proper working order. Infrequent testing can result in the accumulation of scale or rust that can hinder the valve’s ability to close when needed. A trip valve malfunction may prevent the safe shutdown of the steam turbine in the event of a trip condition.

The pneumatic trip system with partial stroke actuation allows turbine operators to quickly and easily test the trip system while the turbine is in operation. This simple testing process improves the reliability of the turbine and ensures that the trip valve is functioning properly.

Turbine operators can initiate the partial stroke locally or remotely via a DCS. The system is supplied with standard hardware that is suitable for either application, providing flexibility to adapt the partial stroke system to any equipment configuration.

Partial Stroke Pneumatic Trip System Benefits
- Increased safety
- Improved reliability by eliminating spurious trips
- No need to trip the turbine to test the trip system
- Minimal impact on turbine maintenance
- Cost-effective alternative to a trip and throttle valve

Partial Stroke Pneumatic Trip System Features
- Partial stroke capability to verify trip system functionality
- Independent of the overspeed trip system
- Pneumatic cylinder with fail-safe spring closure and fast closing rate
- Proven functionality withstands excessive vibration
- Complies with environmental and regulatory requirements

The partial stroke pneumatic trip system is an example of Elliott Group’s unwavering commitment to quality and safety. Elliott continues to expand its product offering to include innovative solutions that are designed to improve equipment performance, increase safety, and lower maintenance costs.