

Extractor Mechanism for In-line Probes

Allows Removal and Servicing of Insertion Probes without Shutting Down Process

GUIDED WAVE pioneered in-line fiber optic sample probes two decades ago, with the introduction of the SST (Single Sided Transmission) Probe. This permitted precise spectroscopic analysis of products directly in the process line without the need for sample systems and their associated investment and installation costs, lag times, failures, and constant maintenance requirements. When sample systems fail; reliable measurements stop, resulting in system downtime that is not the fault of the analyzer. Sample systems have their place and should be used when samples are particulate-laden, wet (2-phase), or overly temperature sensitive. Otherwise in-line probes are the most cost effective and trouble free solution to real-time process spectral analysis.

In-line probes do need to be serviced on a routine basis. Windows need to be cleaned and the probe needs to re-referenced or "zeroed". For such routine service, it is inconvenient and costly to shut down the process and drain the pipes just to remove the probe and clean the windows. To solve this problem, Guided Wave created the SST Probe Extractor Mechanism. This device allowed the probe to be mechanically and safely extracted from the process to a point where a gate valve can be closed, sealing off the process from the probe. The extraction process design was previously accomplished by two coarse lead screws connected by a bicycle chain drive that was actuated by a ratchet wrench. The process was safe but slow.

The new improved Extractor Mechanism has a gear drive that will permit easier and faster extraction of the probe with no reduction in safety. The drive can be actuated by a simple speed wrench (similar to a carpenter's brace) with a $\frac{3}{4}$ in [19mm] socket, a pneumatic drill or torque wrench. The new stainless steel gear mechanism is also corrosion resistant and does not require the periodic service of a chain drive. The gear drive Extractor Mechanism fits both the SST and O-SST family of probes and uses the same 2in Class 300 flange as the previous device, enabling direct replacement of existing extractors that are in the field.

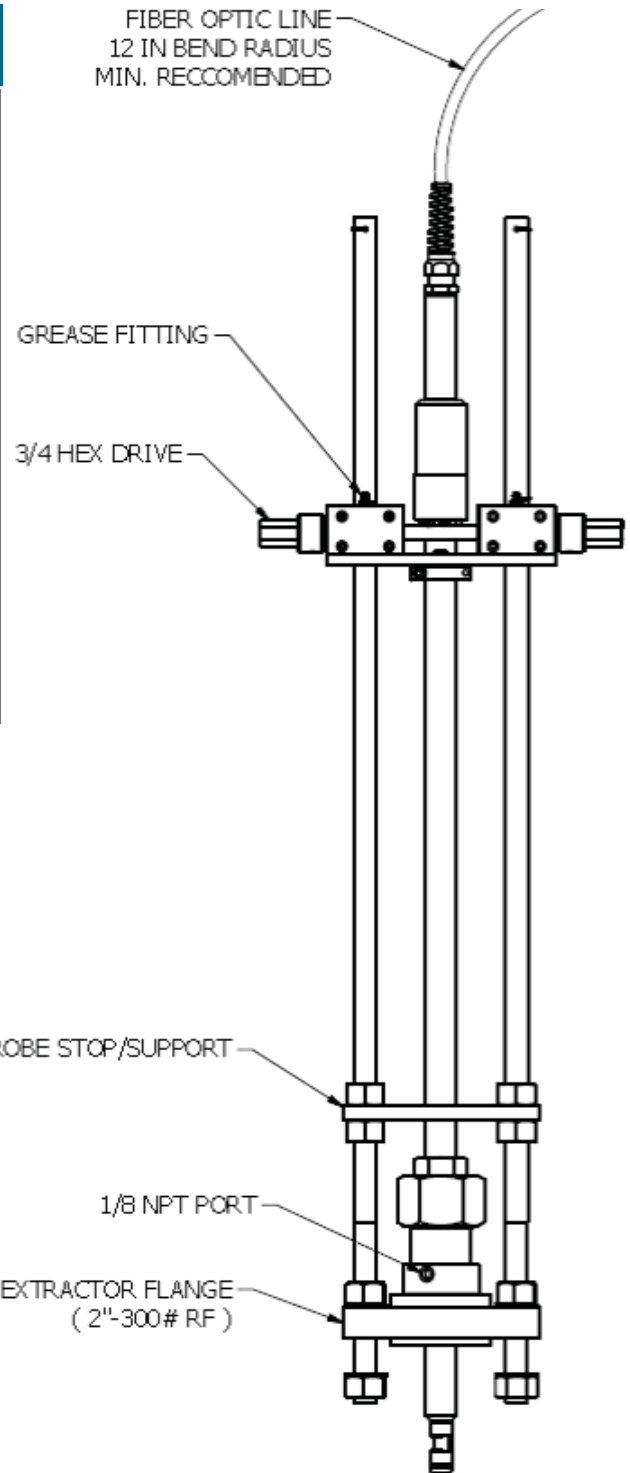


Features of Extractor Mechanism

- Rapid, safe extraction of in-line probe from pressurized process streams.
- 2 inch Class 300 Raised Face Flange
- Teflon "V"-ring packing glands standard
- Dual $\frac{3}{4}$ inch acme threaded rods for torque free, controlled probe extraction
- Fits both SST and O-SST probes
- Lengths available for 24 inch [61cm] to 36 inch [92cm] probes
- Stainless Steel construction for corrosion free operation
- Other flange alloys on request
- Simple 90° speed wrench or pneumatic wrench drive using $\frac{3}{4}$ inch [19mm] 6 point socket
- Grease fittings to lubricate gears and threaded rods
- Hairpin cotter pins as safety stops for controlled extraction to a safe valve closure location
- 1/8 inch NPT port for installing a pressure gauge and a drain valve to drain dead volume after the process valve is closed
- Speed wrench and socket included

Extractor Mechanism for In-line Probes

Specifications	
Maximum Pressure	4.8mPa (700psi)
Maximum Temperature	204°C (400 °F)
Minimum Clearance From Top of Gate Valve	50in [127cm], 56in [143cm], 62in [158cm] For probes 24in [61cm], 30in [77cm], and 36in [92cm]
Compatible Probes	1in O.D. SST, or O-SST probes in lengths of 24in [61cm], 30in [77cm], and 36in [92cm]
Materials	316L Stainless Steel, other materials available upon request



SST Probe and Extractor Assembly

Conceptual drawing only. Specific dimensions will vary depending upon length of probe and other components.