

APTUS

APTUS is a Lower End Main Valve Assembly that works seamlessly with RIME's telemetry and shock isolation systems. It is a hydro-mechanical valve that is designed from the ground up to provide reliable and effective pulsing in the harshest drilling conditions.

APTUS avoids many of the shortcomings and pitfalls associated with legacy lower ends while remaining fully compatible with these legacy systems. APTUS is also compatible with off the shelf poppet and orifice components as well as all standard UBHO subs.

APTUS maximizes the hydraulic efficiency of the lower end by optimizing pressure drops to increase the force available for reliable and robust activation of the valve. It also provides significantly better LCM tolerance through the use of multi stage filtering and ample flow area to avoid failures caused by debris compaction. The improved hydraulics of the APTUS lower end coupled with a durable piston seal assembly helps operators create the cleanest, sharpest and strongest pulses in even the worst drilling and mud conditions. These improvements also significantly reduce the risk of hydraulic instability that is sometimes experienced with legacy lower ends.

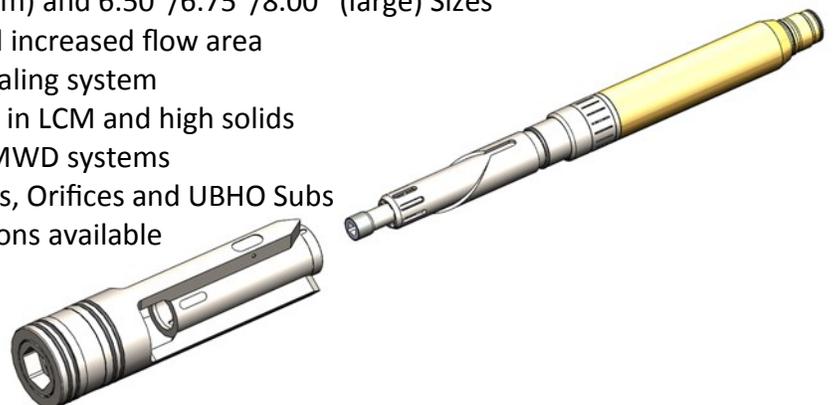
The combination of optimized hydraulics, improved sealing and expanded LCM capability allows operators to rest assured that their operations will not be compromised in drilling conditions where LCM, mud weight, flow rate or high temperatures would have caused failures and service interruptions in legacy equipment.

APTUS provides even greater performance when run with RIME's Rotary Shear Valve Servo Pulsers (DIRECT, SLICK or SLICK-HD) and RIME's proprietary Shock Mitigation Tool (SLICKRIDE).

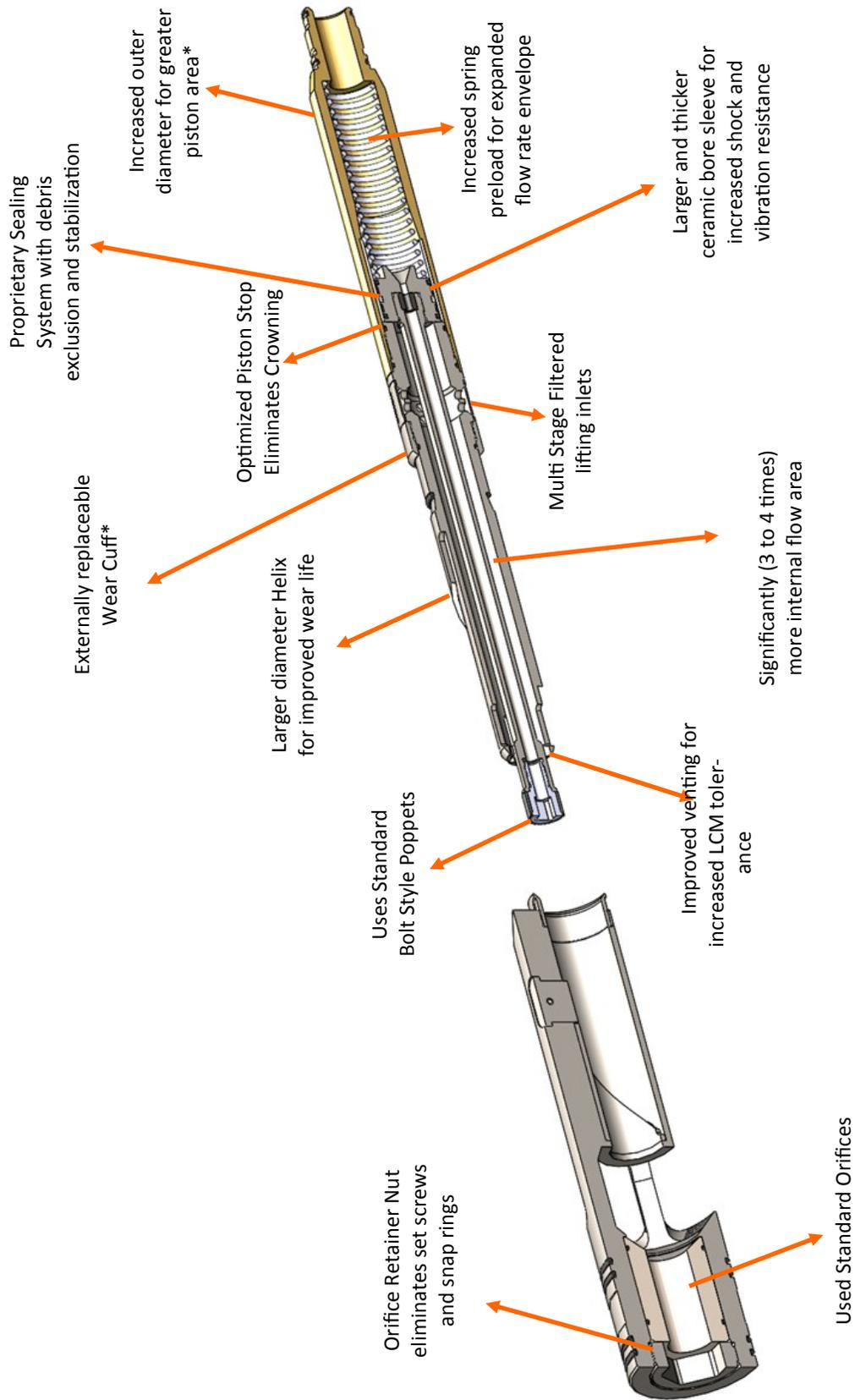
With a price point that is comparable with legacy lower end systems, APTUS provides instant value and gives operators peace of mind knowing that they are running the most reliable lower end available.

FEATURES AND BENEFITS

- Available in 4.75" (medium) and 6.50"/6.75"/8.00" (large) Sizes
- Optimized hydraulics and increased flow area
- Significantly improved sealing system
- Exceptional performance in LCM and high solids
- Compatible with legacy MWD systems
- Uses off the shelf Poppets, Orifices and UBHO Subs
- Customized latching options available



APTUS—Lower End Main Valve Assembly



* =).D. is 2.20" . Same as legacy wear cuff