

Comparison of Pipe-Handling Methods

Category	The Claw Pipe Handler	Slings / Straps	Vacuum Lifts	Traditional Pipe Hooks
Load Engagement Method	Dual polyethylene teeth mechanically contain the pipe; no centering is required	Friction + tension; requires precise strap placement	Vacuum suction pads rely on surface seal	Hook engages pipe curvature; no containment
Stability of Load	High Pipe cannot roll, sway, or spin	Low–Medium Pipe can rotate or shift if off-center	Medium Stable only with clean, uniform surfaces	Low Pipe can rotate freely
Off-Center Lifting Capability	Yes Designed for off-center and uneven assemblies	No Must be centered or re-rigged	Limited Vacuum pads require balanced surfaces	No Load rotates around hook
Ground Worker Required	None Operator controls everything from cab	Yes Worker needed to place, adjust, and re-adjust straps	Yes Worker needed to position vacuum pads	Yes Worker needed to guide and stabilize load
Camera / Visibility System	Integrated 2–3 cameras with in-cab monitor	None	None	None
Risk of Hand Injuries / Pinch Points	Near zero No hands are near the pipe	High Workers handle straps near rolling pipe	Medium Pad placement requires contact	High Hands are near swinging pipe

Cycle Time per Lift	15–20 seconds	2–4 minutes Due to strap adjustments	1–3 minutes Depending on pad setup	1–2 minutes
Surface Requirements	Works on all surfaces	Works on all surfaces	Requires clean, smooth, dry surfaces	Works on all surfaces
Handling Pipe Assemblies	Excellent Secure even with fittings, branches, eccentric loads	Poor Straps slip on irregular shapes	Poor Vacuum pads lose seal on irregularities	Poor Assemblies rotate unpredictably
Safety Profile	Highest Removes worker from danger zone (document: “gets the spotter away from that hookup point”)	Lowest Worker stands at the most dangerous point	Medium Safer than straps but still requires ground contact	Low Uncontrolled rotation risk
Labor Requirements	1 operator	2–3 workers	2 workers	2 workers
Failure Modes	Mechanical grip + hydraulic control; highly predictable	Strap slip, mis-centering, sudden rotation	Loss of vacuum seal	Load rotation, hook slip