

Whipstock Systems

Window Exit & Sidetrack Solutions for Casing Sizes 4-1/2" to 13-5/8"

Heverda Drilling Tools

Powering Oilfields, Above & Below the Ground

Shenzhen Hexinhe Technology Co., Ltd.

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1. Why a Whipstock System

Sidetracking is one of the most demanding operations in a well's life — and one of the most unforgiving. A poorly made window means:

- **Stuck mills and junk left in hole** — days of fishing, sometimes abandonment of the sidetrack
- **Wrong window geometry** — poor re-entry, mill strings walking off the face, extra trips
- **Lost rig time** — each trip on a workover rig costs tens of thousands of dollars

A reliable whipstock system converts a planned sidetrack from a gamble into a routine operation: one clean window, correct geometry, and a casing exit that the mill string finds on the first pass.

Heverda whipstock systems are engineered for **window exit, re-entry, and multi-stage sidetracking** in casing sizes from **4-1/2" to 13-5/8"** — built to API standards, backed by documented deliveries in North Africa.

2. System Components

Every Heverda whipstock system is a matched set, supplied and quality-controlled as a complete package:

Component	Function
Whipstock Body (CCV)	Precision-machined deflection ramp that guides the mill string out of the casing wall. Face profile engineered for a clean, stable window over the full exit interval.
Anchor / Connector	Locates and locks the whipstock at the planned depth; transmits deflection loads to the casing. Options for mechanical setting configurations.
Flex Mill	First-stage window opener — flexible body follows the whipstock face to begin the exit through casing and cement.
Mechanical Lead Mill	Follows the flex mill to cut the full window length to designed geometry; available with lead-mill inserts for cutting performance and gauge maintenance.
Die Collar	Sets and verifies the anchor at depth, confirming tool position before milling begins.

Component	Function
Accessories	Jum nuts, hinge pins, lead-mill inserts and installation hardware — supplied with each system for a complete, ready-to-run package.

Each system is **configured to the customer's casing program and trajectory** — whipstock face angle, window length, and mill selection are defined per well, not copied from a catalog.

3. Technical Specifications (Reference: 4-1/2" System)

Parameter	Specification
Applicable casing sizes	4-1/2" to 13-5/8" (custom sizes on request)
Connection threads	Per API Spec 7-2 / ISO 10424-2 (e.g. 2-7/8 PAC); other connections on request
Surface treatment	Phosphated (standard); other finishes on request
Body material	42CrMo (GB/T 3077) or AISI 4140 (ASTM A29/A108), per agreed BOM
Tensile strength (heat treated)	≥ 110 ksi (≥ 758 MPa), verified by mechanical testing report
Design basis	API 7-2 / ISO 10424-2; API 7-1 / API 7G workover practices where applicable
Traceability	Full batch traceability — heat number, heat treatment lot, inspection records per component

Full dimensional drawings and BOM are issued per order. Final specifications confirmed at technical review before production.

4. Materials & Quality

Materials. Primary load-bearing components are manufactured from **42CrMo or AISI 4140**, heat treated to achieve **tensile strength ≥ 110 ksi (≥ 758 MPa)**. Material and heat treatment are confirmed with the customer before production begins.

Quality files — delivered with every order:

- Mill Test Certificate (MTC) / material certificates
- Heat treatment report
- Mechanical properties report (tensile, yield, elongation, impact)
- Chemical composition analysis
- Dimensional inspection report
- NDT reports (UT / MT / PT, as applicable)
- Factory Acceptance Test (FAT) report

- Packing list, product certificates, and certificate of origin (for export)

Inspection process. First Article Inspection (FAI) on critical components before batch production; key dimensions verified against the approved drawing; final inspection and photo/video documentation before release.

The same machining standard and inspection discipline apply to every system size — the standard our customer accepted on the 13-5/8" program is the standard we hold on every 4-1/2" set.

5. Engineering & Service

Service	What we deliver
Technical review	Joint review of casing program, planned trajectory and window design before production; written confirmation of configuration and thread specifications
Customization	Whipstock face angle, window length, mill program and connection threads matched to your well plan
Documentation package	Complete English technical file for QA/QC and customs (see Section 4)
Logistics	Export packing, marking per contract, and support for shipment from China to your port of choice
After-sales	Installation guidance, running procedure support, and re-dress / spare-part supply for multi-stage sidetracks

6. Field Experience

- **13-5/8" whipstock system** — delivered and accepted for a North Africa workover program; machining and finish quality approved by the operator for repeat orders.
- **4-1/2" whipstock system (current)** — in production for a North Africa operator, configured with 2-7/8 PAC connections per API 7-2, allocated against two immediate well operations.

References and photographs available on request for qualified customers.

7. Get in Touch

Planning a sidetrack or re-entry? Send us your casing size, planned window depth, and trajectory — we will respond with a recommended system configuration and quotation.

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