Stevpris Mk 6
The Industry Standard

vryhof anchors
The range of water depths in which the offshore industry operates is expanding fast. The requirements for the mooring of floating units ask for a focus on less weight, higher strength and ultra holding power, while mobile units also demand high versatility and HSE-friendliness.

In these times of focus it seems a new anchor is being developed for each specific application. The majority of offshore projects however meet variables in water depth, soils and operational conditions, in all asking exactly the opposite: a generic anchor that suits all purposes.

The most used anchor

The Stevpris anchor is just that. Well over 8,000 units were employed over some 3 decades. Its 6th generation was introduced some 5 years ago and sold some 1,000 units since. Stevpris is the most used anchor in the offshore industry.

Stevpris’ design combines the best of 3 worlds: the feed back from numerous anchor installations, a fluke design derived from the Stevmanta deepwater anchor and the inherent robustness of the Stevpris shape. Stevpris Mk6 is superior to all its predecessors on all of its characteristics.

Stevpris Mk6 design stems from the fluke design developed for the Vertical Load Anchor anchor Stevmanta, pictured here above.
A balanced design

The anchor’s geometry provides an extreme high weight/strength ratio. The fluke shape minimizes soil disturbance and its large surface provides the huge holding power that is well in excess of 30% more than that of any other drag anchor today. The design is type-approved by major Classification Authorities.

Uplift capability

Stevpris Mk6 has superior uplift capability. On a case to case basis uplift is allowed of 5 degrees in intact condition and 10 degrees in damaged condition. API rules suggest an uplift of 20 degrees, proven in tests to be possible without losing holding power. The uplift capability significantly increases the range of water depths in which rigs can operate on the same anchor spread.

1 Anchor head improves handling
2 Shackle is positioned inside the anchor head, no more interference with the chaser
3 Wide spread shanks and redesigned geometry improve penetration, stability and strength
4 Design improves stability on stern roller, during deck handling and is HSE friendly
5 Fluke angle is easily adjustable to soil conditions
6 Redesigned fluke for better stability and penetration
7 Larger fluke surface assures superior holding capacity and shorter drag
8 Hollow fluke for ballasting if needed
9 ABS & DnV Type Approval
10 Stevtrack inside (Optional)
Easy handling & installation

Easy handling

Some of Stevpris' key improvements derive directly from a drilling operator’s wish list but its generic character suits evenly well for permanent moorings, dredging plant and marine construction applications.

The widely placed shank plates serve correct arrival at the AHV stern roller while the wide fluke provides stability on the seabed as well as during penetration. Placement of the shackle between the shank plates prevents interference with the chaser. The fluke angle can easily be adjusted to 3 different positions to match different soil conditions.

Easy retrieval

The shank head improves ‘locking’ the chaser before breaking the anchor loose. Likewise it holds the anchor steady during hauling and with the chain or line ‘held’ in the fluke V-shape the anchor orientation is locked for easy racking or decking. Overall, the compact sleek design allows easy handling on deck and proves HSE-friendly.

The Stevpris Mk6 fits most anchor racks. For replacement orders or new builds, Vryhof can assist with dedicated rack arrangement designs.

The most used anchor today.

- Extreme holding power due to wider fluke and deeper penetration
- Ultimate structural integrity withstands the toughest conditions
- Design facilitates easy handling, fits most anchor racks
- Accommodates the widest range of soils possible
- Excellent stability due to slim design and easy penetration.
**Versatile application**

Due to their versatility Stevpris anchors serve a wide range of mooring applications. Although the large majority serves the mooring of offshore units such as drilling rigs, FPSOs and SPM buoys they are also widely used for various dredging, crane and pipelay vessels. Currently a set of Stevpris anchors is employed for the mooring of a floating windmill.

**Purchase, lease or rental**

In order to meet Opex or Capex criteria, Vryhof’s anchors can be supplied on a purchase, lease-purchase or rental basis. Within a strategic alliance with major mooring component manufacturers, Vryhof can design and supply complete mooring systems. Leasing a complete (pre-laid) mooring system could well be a consideration for your next project.

**Pre-laid moorings**

Maximum operability is achieved by pre-installing a mooring spread, allowing the rig to hook-up at arrival. Rig operators this way significantly save on time normally lost on paying out the full spread. By relocating mooring spreads ahead of a rig move the operator can significantly increase the number of operational days in a drilling programme.

*Vryhof holds a stock of anchors for rental in strategic locations around the world.*
The system, named Stevtrack Anchor Data Acquisition System, consists of a transponder on each of the anchors, a set of signal transmission equipment and a surface read-out computer.

**Live image, factual data**

The moment the anchor touches the seabed, the transponder in the anchor transmits to the read-out unit on deck. It provides accurately the orientation of the anchor: its pitch and its roll.

Stevtrack confirms the anchor has arrived in the correct position or allows repositioning by the AHV with a single haul, loosing no time. This alone can save a full day, a very substantial part of the mooring spread installation that now can be completed according to schedule.

Stevtrack inside

Stevtrack is fully operational and available as an option on newly supplied Stevpris Mk6 anchors.

Stevtrack’s read-out unit runs on proprietary Windows compatible software with a graphical interface.

The system provides in real-time a reliable representation of the installation process at hand in the seabed and accurately reports load on the anchor, depth and drag length until final penetration. The pulling force measured at the anchor is far more accurate than that read on the AHV winch. Stevtrack may therefore also serve to justify the proof loading otherwise required by the Qualification Authorities.
**Performance Statistics**

**Ultimate holding capacity**

The prediction lines on the UHC chart represent the equation $\text{UHC} = A \times (W)^{0.92}$ with UHC as the ultimate holding capacity in tonnes and $A$ a parameter depending on soil, anchor and anchor line with values between 24 and 110.

The design line ‘very soft clay’ represents soils such as very soft clays (mud), and loose and weak silts. In very soft soils the optimum fluke/shank angle is typically 50°. The Stevpris Mk6 very soft clay design line is applicable in soil that can be described by an undrained shear strength of 4 kPa at the surface increasing by 1.5 kPa per meter depth or in the equation $\text{Su} = 4 + 1.5 \times z$, with Su in kPa and $z$ being the depth in meters below seabed. The design line ‘sand’ represents competent soils, such as medium dense sands and stiff to hard clays. In sand and hard clay the optimal fluke/shank angle is 32°. The Stevpris Mk6 design line is based on a silica sand with a medium density. The medium clay design line represents soils such as silt and firm to stiff clays. The fluke/shank angle should be set at 32° for optimal performance.

**Post installation data**

Stevtrack also allows monitoring post-installation behaviour of the mooring system, measured at intervals depending on battery capacities. It stores all data in a file, allowing to retrieve historical data for a certain location or specific soil type. Stevtrack is a unique tool for those who recognise the superiority of drag anchors and wish to satisfy the requirement of their project engineers with actually measured installation data.

*Always contact Vryhof for appropriate calculations.*

*In deep water the communication signal is boosted with a deepwater transducer.*
Vryhof Anchors has dedicated more than a generation to the development, manufacturing and supply of high holding power anchors. Their anchors are recognized worldwide as weight for weight the most powerful. Vryhof anchors are now used in every stretch of the world’s waters and oil field development areas.

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