

THE DNA OF OUR ANCHORS DERIVES FROM A RICH HISTORY OF INNOVATIONS

2017



STEVSHARK® M6X

The innovative new drag embedment anchor, which has been tested, approved and is already in use, delivers increased holding power of between 22 and 47% (depending on location) compared to alternative anchors. The anchor's design means that it can penetrate harder seabeds more effectively than any other commercially available anchor. The evolution of anchoring has come a long way since the early stone and wooden anchors.

2014



STEVDART® & STEVDART® VLA

2014 saw the development of the STEVDART® VLA, followed by the commercialization of the STEVDART® in 2016. The STEVDART® is a highly accurate, dynamically embedded anchor point for soft clay soils.

STEVPRIS® Mk6

2004 saw the introduction of the STEVPRIS® Mk6 anchor, the highest holding capacity drag embedment anchor available on the market and based on Vryhof's decades of experience in anchor installations. The anchor's widely-spaced twin shank plates, its unique fluke shape and captive front shackle provide greater structural strength. The fluke shape also minimizes soil disturbance and its large surface provides a more than 30% increase in holding power over that of the STEVPRIS® Mk5 anchor, its predecessor.

2004



STEV MANTA®

Vryhof always listens to its customers and key industry drivers with the STEV MANTA® anchor that has changed the industry and made taut-leg mooring systems a reality. The anchor was in response to industry demand for an anchor that could withstand vertical loads. With the STEV MANTA®, the drag embedment anchor is designed to change fluke angle after initial burial, thereby providing very high pullout capacity in soft soils. The fact that the anchor is deeply embedded and always loaded in a direction normal to the fluke makes it ideal for taut-leg mooring systems.

1996



STEVSHARK® & STEVPRIS® Mk5

While the STEVSHARK® anchor was introduced in 1980 as a specially reinforced STEVPRIS® anchor - equipped with a serrated shank and cutter teeth for better penetration in hard soils - 1990 saw improved versions of both the STEVPRIS® Mk5 and STEVSHARK®. For the STEVSHARK®, this included a better use of material, a higher strength to weight ratio, and three fluke settings allowing for very high capacity in all seabeds and the ability to withstand extreme high loads and bending forces. The STEVSHARK® has been widely used for permanent and semi-permanent moorings in addition to being a reaction anchor in the dredging and marine construction industries.

1990



MAG ANCHOR

Yet, it was not just Vryhof developing anchors! The MAG anchor, named after the three engineers who developed the design: van der Meer, Alhayari and Gramet - was designed and patented by SBM Offshore.

1990



1980



STEVPRIS® 1,2 & 3

The introduction of the STEVPRIS® anchor represented a stepchange in modern day anchoring, surpassing the performance of all previous designs. The STEVPRIS® was a revolutionary development in anchor design, fabricated from flat steel plates with adjustable fluke-shank geometry, divergent twin shank plates and a large fluke area. The result was high capacity and maximum performance.

1977



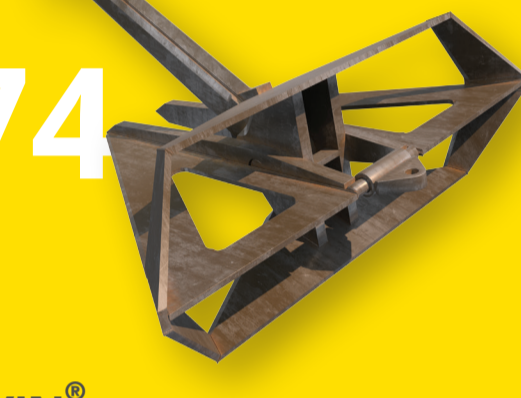
STEVIN® Mk3

1977 saw the improved version of the successful STEVIN® anchor, the STEVIN® Mk3. The anchor is equipped with an enlarged crown, fluke area and tripping palms, and comes with a streamlined shank - all for more efficient penetration and higher performance. The STEVIN® Mk3 has approvals from all classification societies and remains in use in the offshore and dredging industries today.

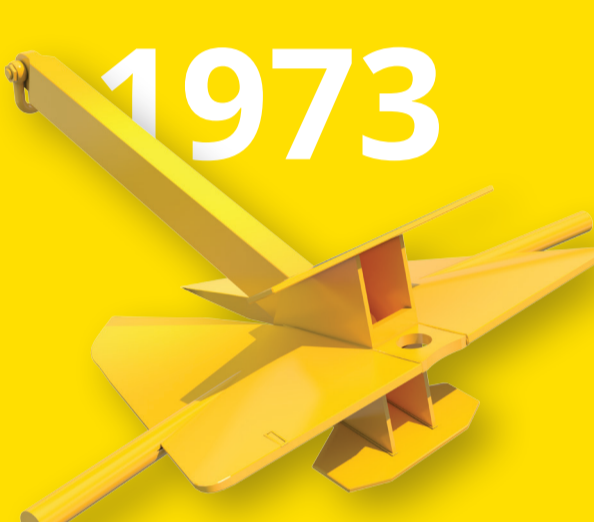
FLIPPER DELTA

Coming to market in 1974, the Flipper Delta high holding power anchor is well known worldwide. It is an articulating anchor with simplified fluke fabrication, a choice of two fluke settings, and no stabilizing stocks. Today, the Flipper Delta is used in the offshore and dredging industries.

1974



1973



STEVIN®

It was with the founding of Vryhof in the early 1970's, however, and the company's focus on anchoring advances that a golden era of innovation emerged in anchoring. Leading the way was the STEVIN®, Vryhof's original anchor with an articulating fluke and solid, square shank. The STEVIN® was designed for the dredging and fledgling offshore oil & gas industry and has served numerous applications over its lifetime. It is no longer manufactured.

BRUCE CAST STEEL ANCHOR

The Bruce cast steel anchor is considered one of the most effective modern anchors for mooring. The anchor consists of a radical single piece design, resembling a single-fluke mooring anchor, but with self-righting geometry and a cranked single shank. The anchor provides high performance in sands and firmer clays where the three points of the fluke ensure a firm grip.

1972



1964



ADMIRALTY CAST (AC) 14

Through an understanding that fluke area not weight is the most important factor in addressing seabed conditions, the AC14 high holding anchor was borne during Second World War trials run by the Admiralty. It was not until 1964, however, that Lloyds approved the AC14. Today, known as a Class E anchor, the AC 14 is one of the most versatile high holding anchors used in both the shipping and aquaculture industries.

1944



LIGHTWEIGHT (LWT) STOCKED ANCHOR

Known for its superior holding power, the Lightweight (LWT) Stocked anchor followed on from the Danforth and was fitted in US naval ships from 1944 onwards. Known for its large pivoting fluke areas, the anchor took on a new life in the 1970's in mooring semi-submersible oil platforms.

1939



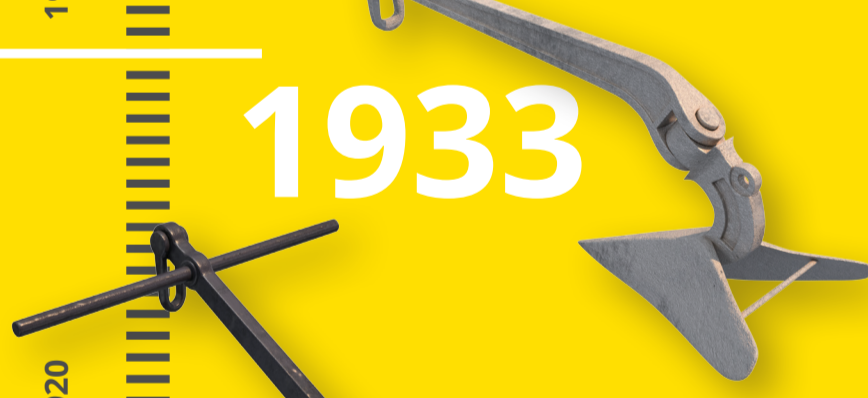
DANFORTH ANCHOR

1939 saw the invention of the lightweight Danforth Anchor by American, Richard Danforth. The anchor, widely used in the Second World War for anchoring aircrafts, bridges and boats, uses a stock at the crown to which two large flat triangular flukes are attached. If buried well, the anchor can develop high resistance and is also easy to retrieve.

CQR PLOW ANCHOR

Named due to its resemblance to a farming implement, the CQR plow anchor was designed and developed by Professor Sir Geoffrey Ingram Taylor and came to market in 1933. It was patented and designed as an anchor for flying boats, with the Admiralty ordering 60,000 CQRs during the Second World War. The anchor, designed as a single fluke anchor with additional weight in the tip of the fluke to help the anchor dig in and set faster, remains a favorite for large pleasure vessels.

1933



AM7 ANCHOR

The 'Tombstone' was followed in 1920 by the AM7. The AM7 had a one-piece fluke and shank with the shank curved at a more acute angle.

1920



1900



ADMIRALTY MOORING (AM) MARK 1 'TOMBSTONE'

With the move towards permanent mooring, a series of large single-fluke anchors emerged in the early 1900's, including the Admiralty Mooring (AM) Mark 1, known as the 'Tombstone'. The 'Tombstone' was especially designed for permanent mooring and - as it is not dropped or embedded through dragging - can operate well with only a single fluke.

1898



BALDT STOCKLESS ANCHOR

Other stockless anchors include the Baldt Stockless anchor from Chester, Pennsylvania, that offered significant competition and played a major role in the American war effort as well as in later years in the oil & gas sector.

STOCKLESS ANCHOR

Yet, the Hall's Stockless Anchor was only the start of such anchors. This included WL Byers' patented stockless anchor in 1887 where the inner surface of the fluke was made concave to improve holding power. Up until 1980, HMS Ark Royal, the Royal Navy's last conventional aircraft carrier, carried Byers Stockless Anchors.

1887



HALL'S STOCKLESS ANCHOR

The late 1800's saw the emergence of a number of stockless anchors with tilting flukes, specifically customized for ships, and where the shank is drawn up into a pocket in the ship's side. The Hall's Stockless Anchor was introduced in 1886 with the head of the anchor held by a pin through it. Further patents and innovations to the anchor took place (as well as approval by Lloyds in 1923), with the anchor becoming one of the most popular anchors of the period.

1886



1700-1830



THE ADMIRALTY LONGSHANK ANCHORS

Designed by the Royal Navy, the Old Admiralty Longshank Anchor was used throughout the 1700's but often required repairs and suffered breakages, often due to the fact that they were so straight. In 1813, therefore, Richard Perring, one of Britain's leading designers at the time, introduced and patented the long shank stocked anchor with the shanks and flukes shorter and smaller than the Old Admiralty Longshank Anchor. The new version was approved and adopted by the Royal Navy and further improvement and more curved arms took place in 1830. Another key designer of the 1800's was Lieutenant William Rodger best known for the Small-Palmed Anchor.

1600



ENGLISH STRAIGHT-ARMED STOCKED ANCHOR

Fast-forward 2,000 years and the English Straight-Armed Stocked Anchor emerges. Stocked anchors have been in use since at least 500 BC where through being set at right angles to the anchor's fluke, the stock forces the flukes to dig into the seabed. The change from curved to straight-armed stocked anchors appears to have taken place in English vessels between 1540 and 1600. As ships required larger and larger anchors, the straight arm also proved easier to manufacture in large dimensions.

600BC



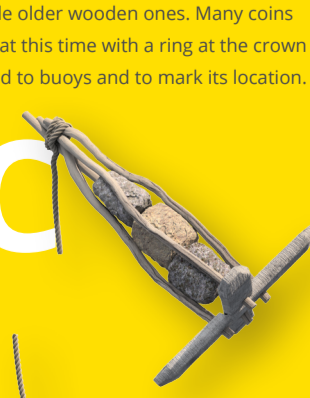
WOODEN AND METAL ANCHORS

It was in around 900 BC that anchors appeared to get their name - 'Ancora'. In 600 BC, Greek writers also noted the emergence of iron and metal anchors - often used alongside older wooden ones. Many coins were stamped with anchor designs at this time with a ring at the crown of the anchor enabling it to be attached to buoys and to mark its location.

KILLICK ANCHOR

Although not a term used regularly until the 1600's and to this day a symbol of the British Royal Navy, the early form of anchors - known as Killicks - were used by fishermen and early seamen. Killicks, where wooden crooks, cages or iron hooks were added to stone anchors, can be traced back thousands of years.

600BC



STONE AND WOOD ANCHORS

As anchoring developed, wood became an important element of anchors as well with tree root often lashed to the rock or sand anchors in order to sink them. It has been suggested that Emperor Wu of China (205-2197 BC) designed such anchors. The ancient Greeks also sometimes used wooden logs filled with lead for anchoring.

C2000BC



STONE ANCHORS

The history of the anchor dates back thousands of years to the Bronze Age (3300-1200 BC). The most ancient anchors consisted of rock anchors (a single rock with a hole pierced for a rope) and sand anchors (flat stones with more holes). Such anchors held vessels solely by their weight (or their size and weight meaning that they were unlikely to ever be moved).

C2500BC

