



HOSES FOR THE DREDGING INDUSTRY

Industrial Hose Assemblies



THE RUIMING PROCESS

At RUIMING we provide our customers with "Total Engineering Solutions". We remain Customer Focused at all stages of our process.



CONSULTATION

Stage one is consultation with the customer. This is to ensure that we select the most appropriate lining material, pressure/vacuum rating, safety factor, bending radius, end connections and other design parameters for the application. Testing requirements, packing and transportation options are also addressed at this stage. All of the requirements of the application will be fully understood and the customer satisfied before we move to the next stage.



DESIGN

Our design department uses the most up-to-date technology coupled with many years of experience to ensure that the construction of the hose matches the requirements of the application. All customer requirements are taken into account.

All raw materials selected are sourced from approved, quality assured European suppliers.



PRODUCTION

Our production department can produce hoses in lengths up to 60m for bore size 203mm and smaller. For bore sizes from 203mm to 1000mm we produce in lengths up to 20m.

Every stage of the production is tightly controlled from our design centre. We operate using an ISO9001 accredited quality assurance system.



TESTING

A full range of pressure or vacuum testing options are available and tests are carried out on all hoses in accordance with the requirements of the customer.

Test data is recorded live and is supplied in graphical form on our pressure test certificates. Each assembly has a serial number for full traceability to test data and production processes.



PACKING AND LOGISTICS

RUIMING will advise on the most suitable packing option to ensure that the hose assembly is delivered to site safely and in the same condition it left our factory. A full range of bespoke crates or pallets is available with options on heat treatment and type of timber used.

Our experienced staff can offer a range of competitive logistics options for fast efficient transport to any global location.

PRODUCT RANGE

COMPENSATOR HOSE

These hoses are designed to compensate for misalignment or movement at flanged joints and to isolate the dredging vessel from vibration or noise which is created by the pump system.

Compensator hoses are available with fixed or swivel flanges and can be supplied with bore sizes up to 1000mm diameter. The wall of the hose can be constructed to suit a variety of conditions from 20bar internal pressure to full vacuum.



SEPARATE RING HOSES

These hoses are designed for use in gimbal joints and in the ladders of cutter suction dredgers. They are constructed using separate heavy steel rings and can easily withstand the forces created by full vacuum coupled with high angular deflection. A substantial carcass of highly resilient rubber, reinforced with high strength plies of textile cord give maximum resistance to mechanical fatigue.

These hoses are available in bore sizes from 200mm to 915mm and in lengths up to 12m. The hose wall can be designed for working pressures ranging from 20Bar to full vacuum and with end connections to suit the customer's needs. Mechanical wear resistance can be optimised by selecting from a range of abrasion resistant rubber materials for use in the lining of the hose. Using the rubber which is most appropriate for the material being dredged can greatly reduce mechanical wear.



DISCHARGE SLEEVES

These hoses are designed to act as flexible connectors to fit between lengths of rigid pipes in a discharge pipeline system. The hoses are constructed with a heavy carcass of highly resilient rubber reinforced with plies of high strength cord. The strength of the carcass makes the hose resistant to collapse or kinking but allows for flexibility in the pipeline. There is no steel spiral used in the hose which gives it a "softwall" construction. This allows the hose to recover its normal shape if kinked or crushed by forcing it past normal bending curvature. These hoses are available with integral fixed or beaded swivel flanged ends which allow bending to occur along the full length of the hose assembly and minimise stress points. Bore sizes up to 915mm are available in lengths to suit the requirements of the pipeline.



PRODUCT RANGE

DISCHARGE HOSES – END LOADED

These hoses are constructed to withstand very high end loads which may occur at the discharge of the dredger. The carcass of the hose is constructed with a heavy wall of highly resilient rubber, reinforced with high strength textile cords and a high tensile steel spiral. The end connectors have long banded steel tails which are built into the body of the hose and are capable of withstanding extremely high pulling forces. Further tensile load capacity can be achieved by the addition of reinforcing strips or plies of cord into the wall of the hose. Bore sizes up to 610mm and lengths up to 12m are available



DISCHARGE PIPELINE HOSES

These hoses are used to make up flexible wear resistant pipelines for vessel to shore discharge of dredged material. The hoses can be used to create pipeline strings onshore or they can be supplied for fitting with floats to create a floating pipeline. The hoses are available in bore sizes up to 610mm and in 12m lengths. They can be supplied with fixed or swivel flanged ends and a number of options are available for the lining material.

Flexible rubber floating pipelines offer far superior wear characteristics to steel or plastic.

They allow for a smooth curve along the entire length of the pipeline which results in greatly reduced pressure drops when compared to conventional systems using swivel joints. Reduced pressure drops mean reduced energy costs. As the hoses are flexible there is no need for flexible discharge sleeves between the pipeline sections as is the case with rigid floating lines. The flexibility of the pipeline allows it to cope more easily with excessive wave motion which might cause damage to rigid systems.



END CONNECTIONS

RUIMING offer a range of options for hose end connections.



INTEGRAL RUBBER FACED FLANGE

This option is offered as standard on compensator hoses, separate ring hoses, discharge hoses and discharge pipeline hoses. The body of the hose, including all reinforcement plies, is vulcanised to the face of the flange, resulting in a self sealing, secure joint with no metal exposed to the abrasive material flowing inside. This arrangement has a minimal effect on the flexibility of the hose because bending can begin immediately at the back of the flange.



BEADED END SWIVEL FLANGE

This option is available where it is necessary to rotate the flange without rotating the body of the hose. A steel ring is built into the body of the hose and held firmly in place by the reinforcing plies which are wrapped around it. The lining of the hose is vulcanised to the face of the ring to create a self sealing, secure joint with no metal exposed to the abrasive material flowing inside. The flange is then free to rotate around the body of the hose.

A beaded end joint is capable of higher tensile loads than a standard integral flange type.



BUILT IN EMBEDDED HOSE TAIL

This option is available where very high tensile loads are applied to the hose. The flange is welded onto a steel hose tail which is built into the body of the hose with extra reinforcements at the tail. The rubber hose lining is vulcanised to the inside of the hose tail and to the flange face to create a self sealing, secure joint with no metal exposed to the abrasive material flowing inside. A swivel flange option is also available.

A built in embedded joint is capable of very high tensile loads and should be considered for use where pipelines are connected to the dredger or to fixed land based pipe systems.

SPECIAL END CONNECTIONS

CavMac are happy to offer special fittings manufactured to customer specifications.

PRODUCTION FACILITIES

The RUIMING manufacturing plants in Ireland and the UK guarantee fast and efficient production of our product range. We have a full range of mandrels and can offer bore sizes up to 1000mm.

The manufacturing process begins with preparation of the rubber compounds and reinforcing materials. Dedicated equipment is used to mix and prepare carefully selected materials for use in the production of the hose.

HOSE LINING MATERIAL

For the lining of the hose we use a range of highly abrasion and cut resistant Synthetic & natural rubbers in varying thicknesses from 10mm to 30mm. The appropriate compound and compound hardness is chosen to suit the application.

REINFORCEMENT MATERIAL

For carcass reinforcement we use plies of high strength polyester textile cords which are infused with rubber to achieve maximum bonding strength. Where extra high pressure or tensile loading of the hose is required we can use steel cord or aramid fibre. Robust separate steel rings or high tensile wire coils are prepared for use as reinforcement to increase kink resistance or prevent vacuum collapse.

COVER MATERIAL

For the cover of the hose we use tough chloroprene (Neoprene) rubber for excellent resistance against abrasion, weathering, oil, grease and seawater. Additional features to assist with long service life are available to suit individual customer applications.

FITTING PREPARATION

A range of materials including steel, stainless steel, and duplex stainless is available for use in the production of the flanges or fittings. The fittings are shot blasted and chemically treated to prepare for vulcanising to the rubber compound.

HOSE CONSTRUCTION

The rubber compounds, reinforcing plies and wire are applied to the mandrel by skilled hose builders using semi automatic machines in our building hall. The hose is vulcanised in one of our steam autoclaves before removing it from the mandrel. The finished product is then subjected to the appropriate tests and prepared for shipping. The entire process is tightly controlled by our quality assurance system.



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