

POWERFEED SYSTEMS

MECHANICAL HANDLING

SAFETY SYSTEMS

OFFSHORE DIVISION



Metreel

OTHER METREEL PRODUCTS & SYSTEMS...



FESTOON SYSTEMS



CABLE/HOSE REELING DRUMS



MONORAILS & CONVEYORS



FALL ARREST LADDERS



ELECTRICAL CONTROL



DRAG CHAINS



JIB CRANES



FALL ARREST / ABSEIL



CONDUCTOR SYSTEMS



OVERHEAD CRANES



PORTABLE GANTRIES



FALL ARREST WIRE SYSTEMS

THE COMPANY...

Metreel Ltd, founded some forty years ago, is now one of the leading manufacturers of cable and hose handling systems for the offshore oil and gas industry. With installations spanning the globe our experience and knowledge of the design and supply of drag chains, festoons, reeling drums and outreach booms has been proven time and time again.

We offer as part of our turnkey package full project management including, consultancy, site survey, manufacturing, assembly, testing and installation for both new build and repair/refurbishment projects.

We assure high quality and reliable service to all our customers, in an industry where quality and delivery are paramount. We strive for excellence and are proud to be accredited as an ISO9001 certified company.

Metreel have always strived to push the boundaries in all areas of our operations and as a measure of our success have been awarded a number of achievements, some of which are listed below:-

- Company of the Year
- Excellence in Marketing
- Export Growth
- Offshore Industry Award
- Safety Product Innovation Award

This brochure presents an overview of the products on offer and should you require any further information please do not hesitate to contact our sales team or email at sales@metreel.co.uk.

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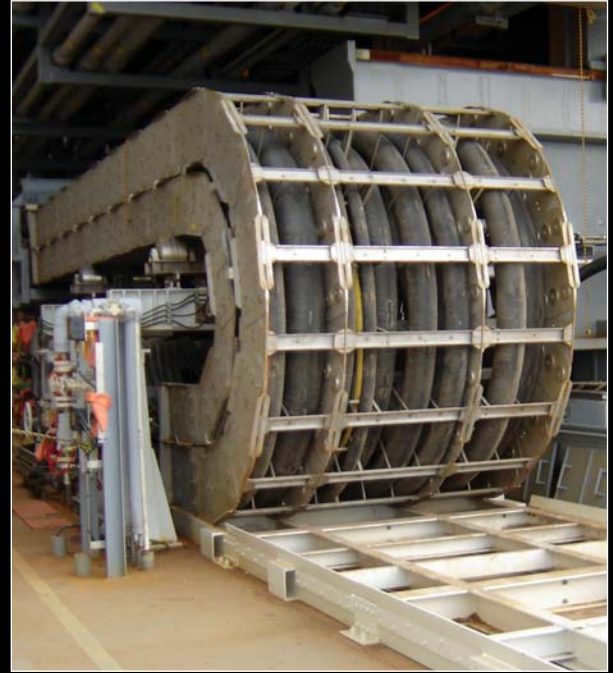
DRAG CHAINS

INTRODUCTION...

We specialise in Cable & Hose Drag Chains, known as **Met-Trak™**, for cable and hose management in the oil and gas industries.

From concept through to delivery we ensure that the customer's expectations are not only met, but exceeded. We individually tailor proven designs into bespoke solutions to individual needs.

Our products are customer designed, manufactured, tested and installed using state of the art software, manufacturing processes and methods, and are backed up by a World class reputation for unstinting quality and customer service back-up.



We deliver fully assembled systems, incorporating hoses (and cables) pre-installed and ready to use.

We also specialise in the after market, on site reactivation of old systems, upgrades and re-engineering of systems to better cater for modern needs.

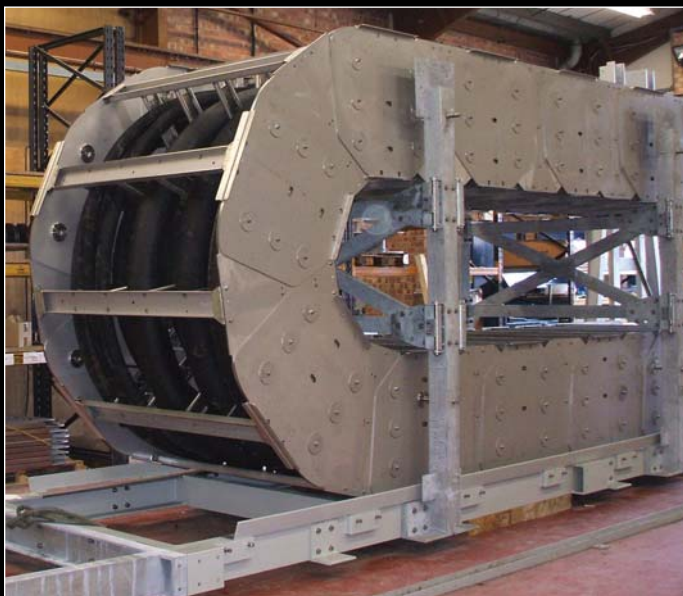
SPECIAL APPLICATIONS...

For the most part the **Met-Trak™** Drag Chain range covers general market requirements, however there are times when a conventional system will not meet the complete demands of the application, at Metreel we are very well equipped to deal with bespoke solutions, like the application illustrated below. In addition to the standard

forward and back travel arrangements, our client had the need for the chain system to cope with twist and rotation caused by the fact that one of the supporting decks was in fact a moored vessel and was subject to tidal conditions. The inclusion of a pivotable ball joint mechanism was a special design developed by our dedicated design team.

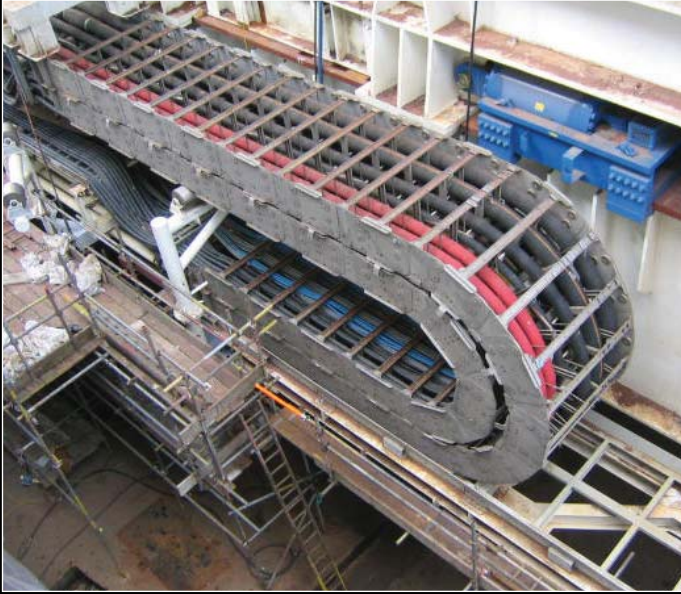


PHOTO REFERENCES...



DRAG CHAINS

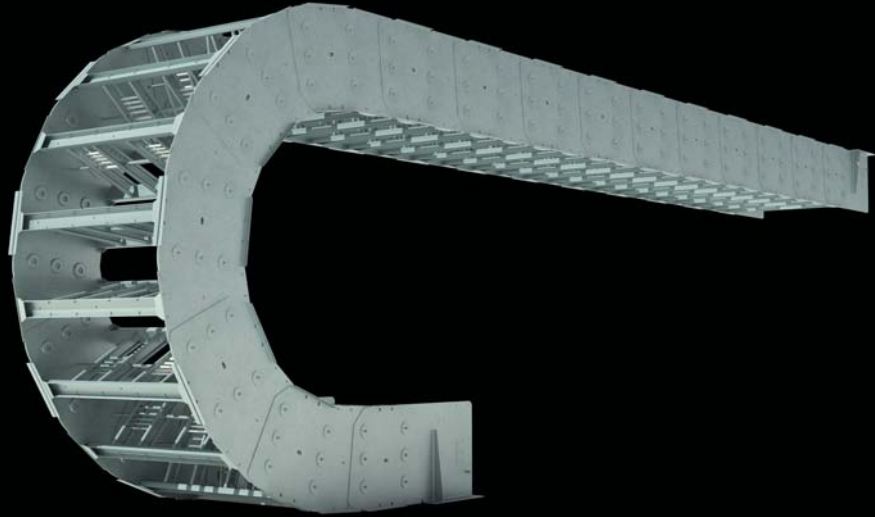
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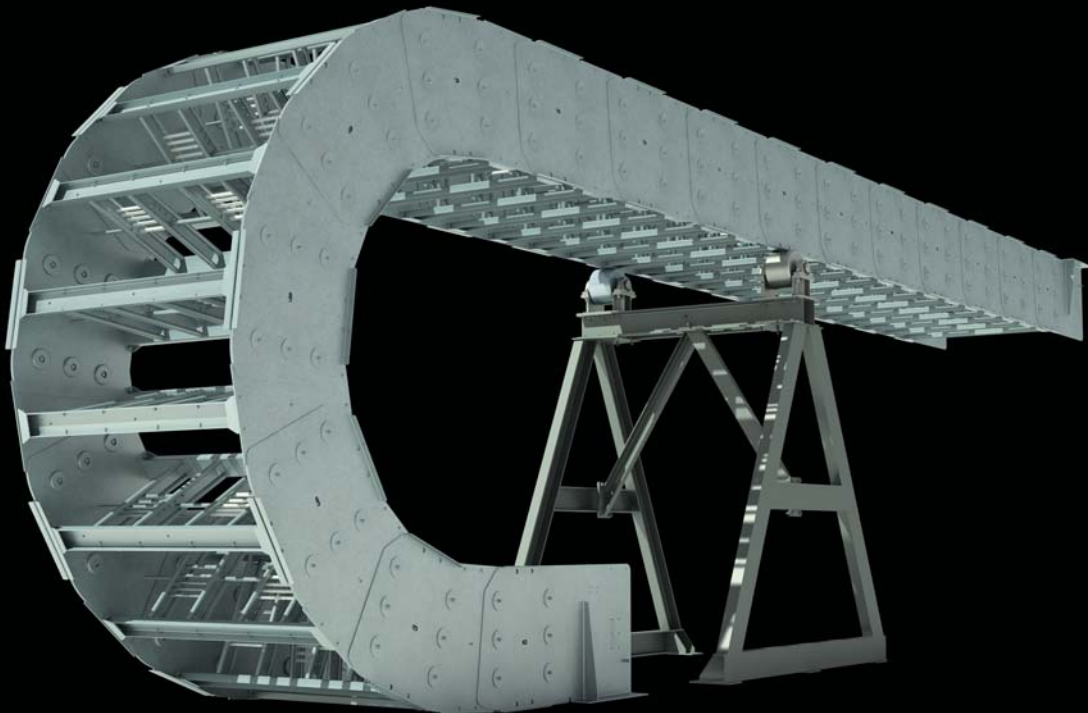
LARGE TYPE DRAG CHAINS...

These really do represent the 'state of the art', utilising premium materials, quality design, up to date manufacturing and quality processes, combined with years of experience in the field. We individually tailor proven designs into bespoke solutions to individual project needs. Our **Met-Trak™** offshore range of drag chain systems offer class leading performance and longevity, assured through the benefit of years of experience at providing solutions for customers specialist requirements. We engineer each application to provide the client with the best.



KEY FEATURES

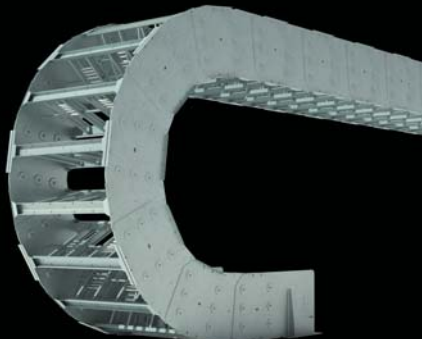
- Multi-compartment construction, for combination pay loads of cables and hoses.
- Fully assembled and delivered to site ("plug and play") or delivered to site in separate sections to allow on site assembly.
- Proven cable & hose compartment design and construction.
- Use of high grade materials throughout.
- Special drag chain compliant hoses can be included in the package when required.
- Third party FEA design authentication prior to production ensuring integrity of design.
- Multiple options available to accommodate the most challenging of requirements.
- Individually custom designed to suit each application, each time, every time, right down to special environmental considerations such as snow/ice loads or other extremes of temperature, seismic conditions or wind loads.



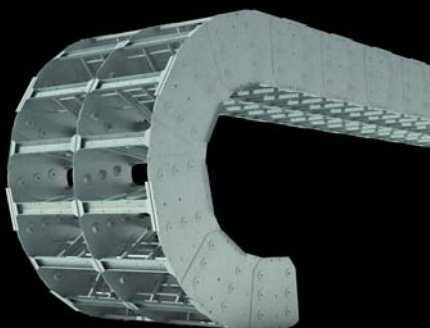
CONFIGURATIONS...

From concept through to delivery we ensure that the customer's expectations are not only met, but exceeded. We individually tailor proven designs into bespoke solutions to individual needs.

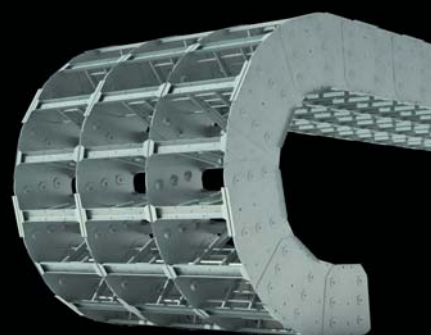
DOUBLE, TRIPLE & QUAD BAND...



DOUBLE BAND: The most common of all designs of **Met-Trak™** drag chain is the dual band system. It comprises two bands of drag chain links, which are interspaced by the cross compartment bars.



TRIPLE BAND: Similar to the Dual Band design above, this adds a third band of drag chain links. This is selected to increase the carrying capability (either load or span) of a drag chain, or in some cases can be used to provide a physical solid separation band between services (for electrical segregation purposes, for example).



QUAD BAND: Similar again to the double/triple band systems above, this adds a fourth band to the chain, and again this aids load carrying capability, whilst also often selected in order to minimise the length of cross compartment bars to manageable levels.

DOUBLE NESTED...

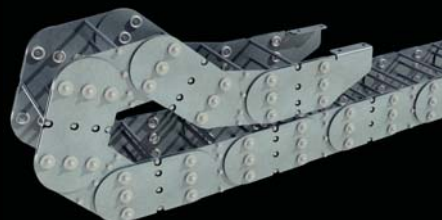


Often, mainly due to operational size limitations, it is necessary to handle more cables/hoses than the available width will allow, and to cover such eventualities Metreel utilise this type of system. The term means to use two drag chains for the one application, with one mounted or 'nested' inside the other one, with the cables/hoses split between the two drag chains.

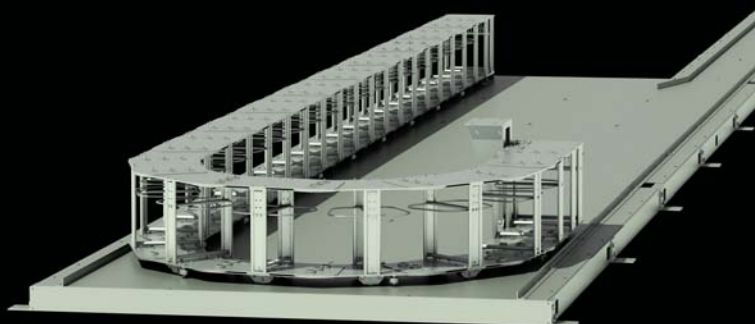
This allows more pay load to fit into a given space. This type of system can also be used when the separation of different services, or segregation, is required. For example, power and control Voltages can be placed in different drag chains to separate them from each other and thus avoid or minimise any interference.

LAYDOWN...

This Drag Chain can 'lay-down' on itself during extended travel lengths, or in applications of high pay loads. The steel **Met-Trak™** is machined to allow the drag chain, which would normally resist sagging, to sag down and 'lay-down' on to itself or a custom designed tray/trough. This allows a steel **Met-Trak™** drag chain to encompass much longer travel strokes than would be possible in a conventional design drag chain.



SIDE RUNNER...

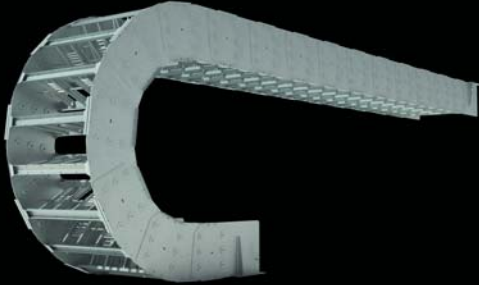


DRAG CHAINS

APPLICATIONS...

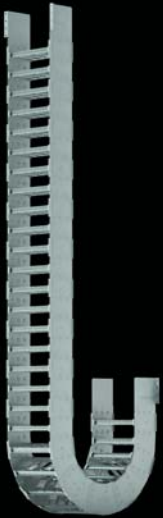
This range is specially designed to accommodate the unique requirements of cable only applications. Often oil and gas equipment does not require hoses in order to function, cables providing its only source of power.

STANDARD HORIZONTAL TRAVEL...



This is by far the most common application and is defined by the common features, with the drag chain standing upright, the travel stroke being of a horizontal displacement, with the chain bands themselves being vertical. Usually the total travel distance is divided in two equal lengths, with the drag chain being statically mounted at the mid-point of the total travel; these are called 'Centre Feed' applications. On occasion the static point of the drag chain can be positioned at one end of the total travel; these systems are called 'End Feed' applications.

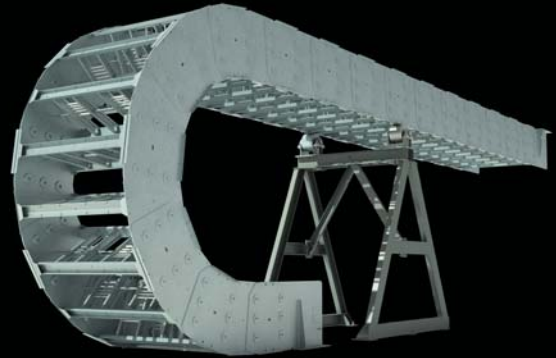
STANDARD VERTICAL TRAVEL...



This arrangement is very similar to the horizontal travel layout above, but this time the travel is in the vertical plain.

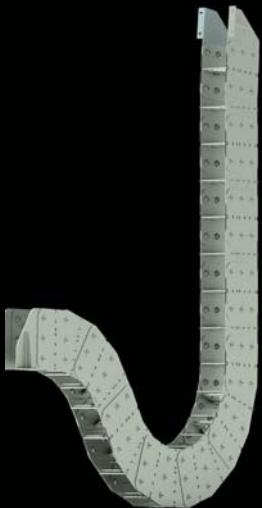
The two main types of vertical travel systems are "loop at top" and "loop at bottom" which titles both refer to the position of the drag chain 180° loop.

STANDARD EXTENDED TRAVEL...



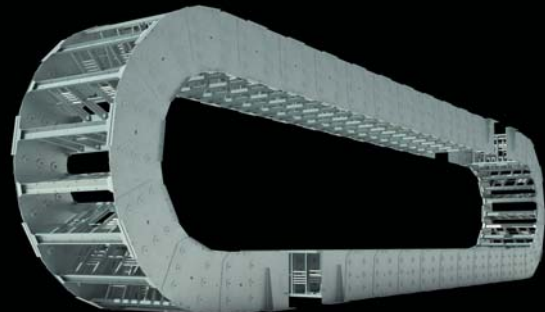
These systems employ either one or a number of stationary support rollers (or in some instances, other types of support) which allow the normal carrying capability and/or span of a drag chain to be increased without increasing the size of the drag chain.

COMBINED TRAVEL...



This is a combination of vertical and horizontal travel. This combination can often allow the use of one drag chain when normally two would be required i.e one for the vertical travel and one for the horizontal.

OPPOSED TRAVEL...

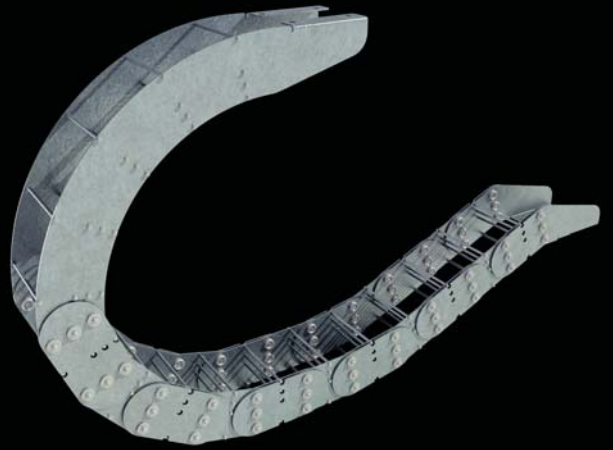


This application uses two drag chains and does so that they are both facing each other. Similar in use to the 'Double Nested' application, this arrangement allows a greater payload to be carried in any given space. Again, this can be used to split services that need to be separated, or can simply be used to obtain more services in a limited space envelope.

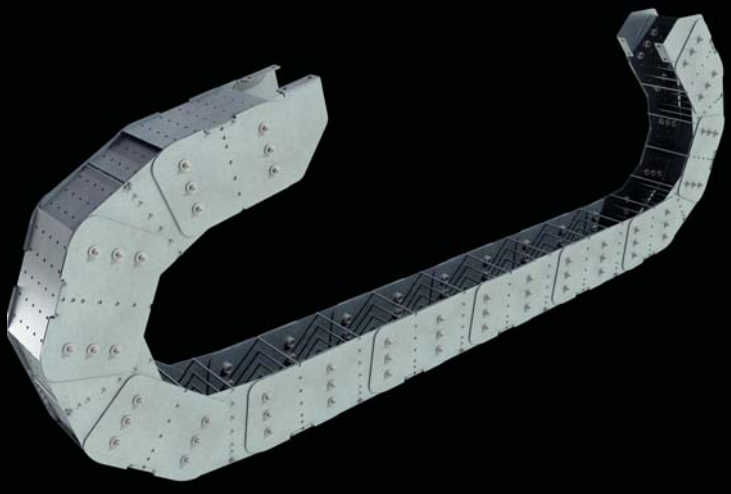
ALTERNATIVE COMBINED TRAVEL...



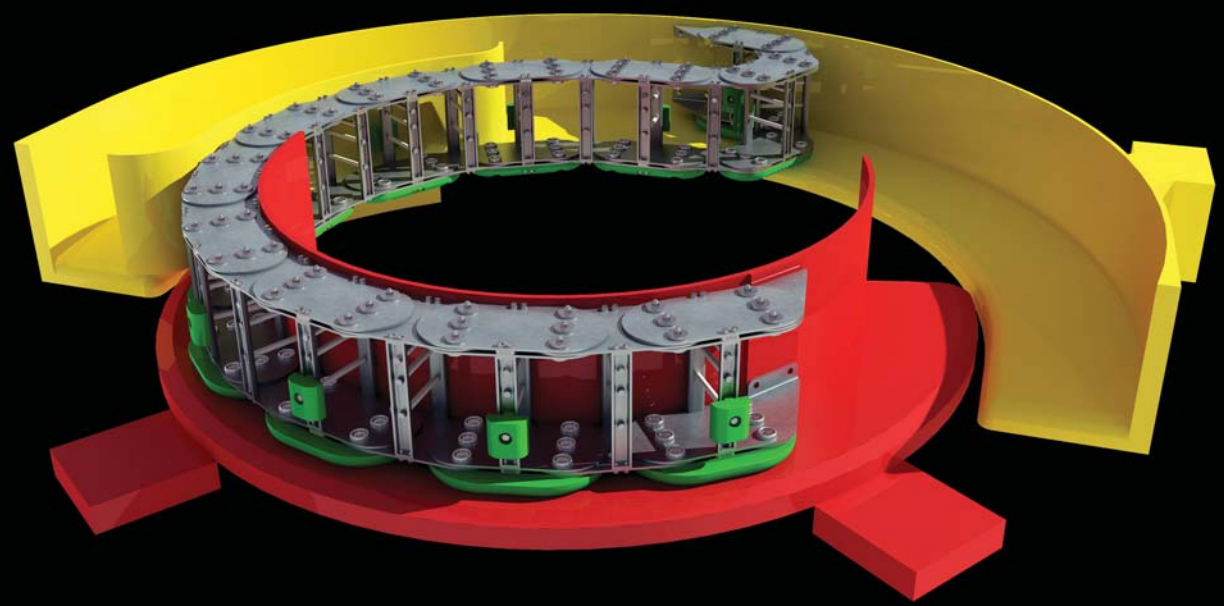
COMBINED FLEXIBLE / STATIC ARRANGEMENT...



DEBRIS COVER...



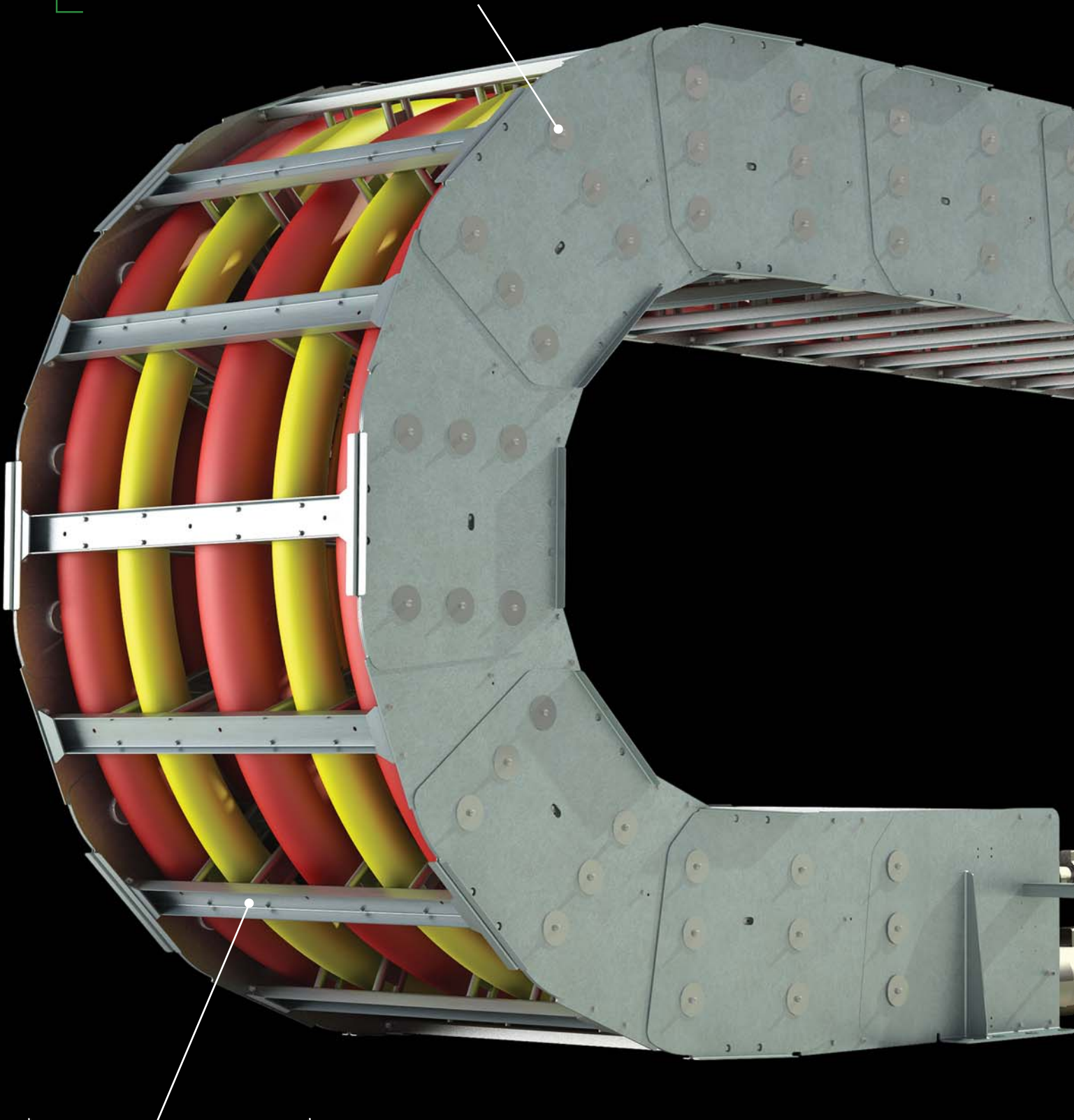
CIRCULAR TRAVEL...



DRAG CHAINS

LINK PINS...

A three pin arrangement is designed to ensure accurate bend/radius control a vital feature in such demanding applications. The pin design is such that it provides a protection against scuffing of cables and hoses during travel operations, which often means additional side rollers are not required.



HORIZONTAL CHANNELS...

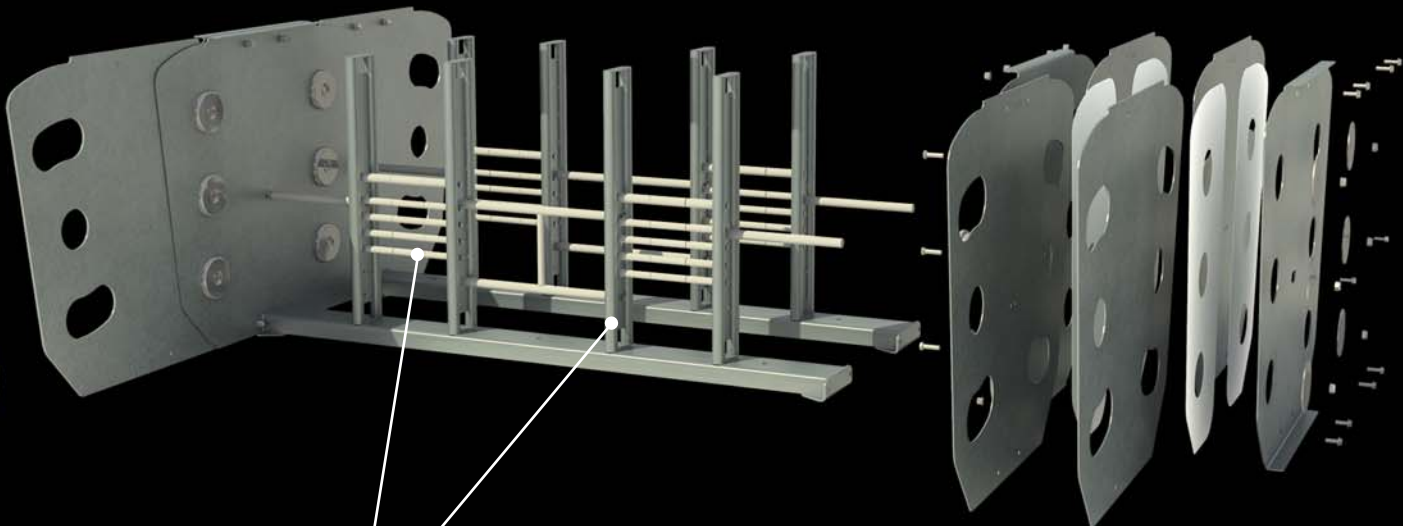
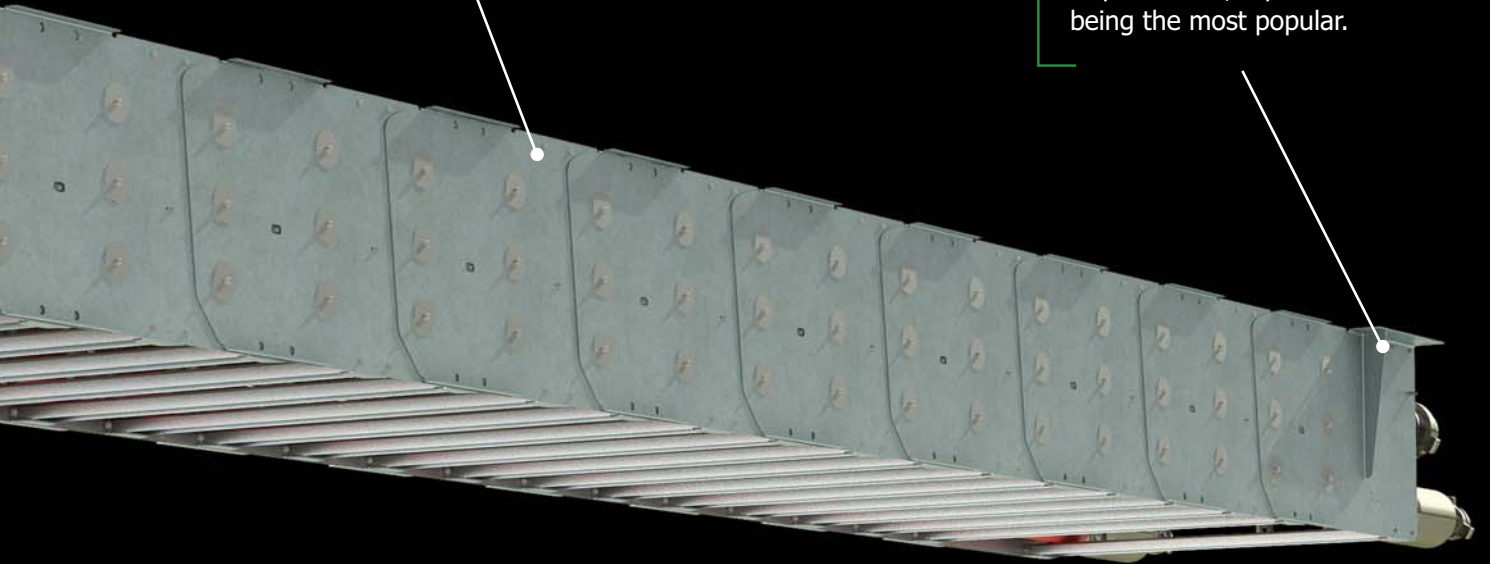
Designed as the main structural connection between the side bands, these act as the upper and lower compartment restraints. Each channel is designed to ensure that the flexible's will not be damaged. A number of different styles are available dependant upon, types of flexible's, style of separators and environment conditions.

SIDE BAND...

The **Met-Trak™** side band design incorporates dual plates on both the inner and outer links, sandwiching antifriction washers, which ensure smooth operation of the chain movement. All material is generally 316L which suits the typical installation. Specialist materials are also available for extreme conditions if required.

END BRACKETS...

These serve as the main structural anchor points to be fixed direct to client fabrication/deck, various styles are available dependant upon the client's installation requirements, top and bottom fix being the most popular.



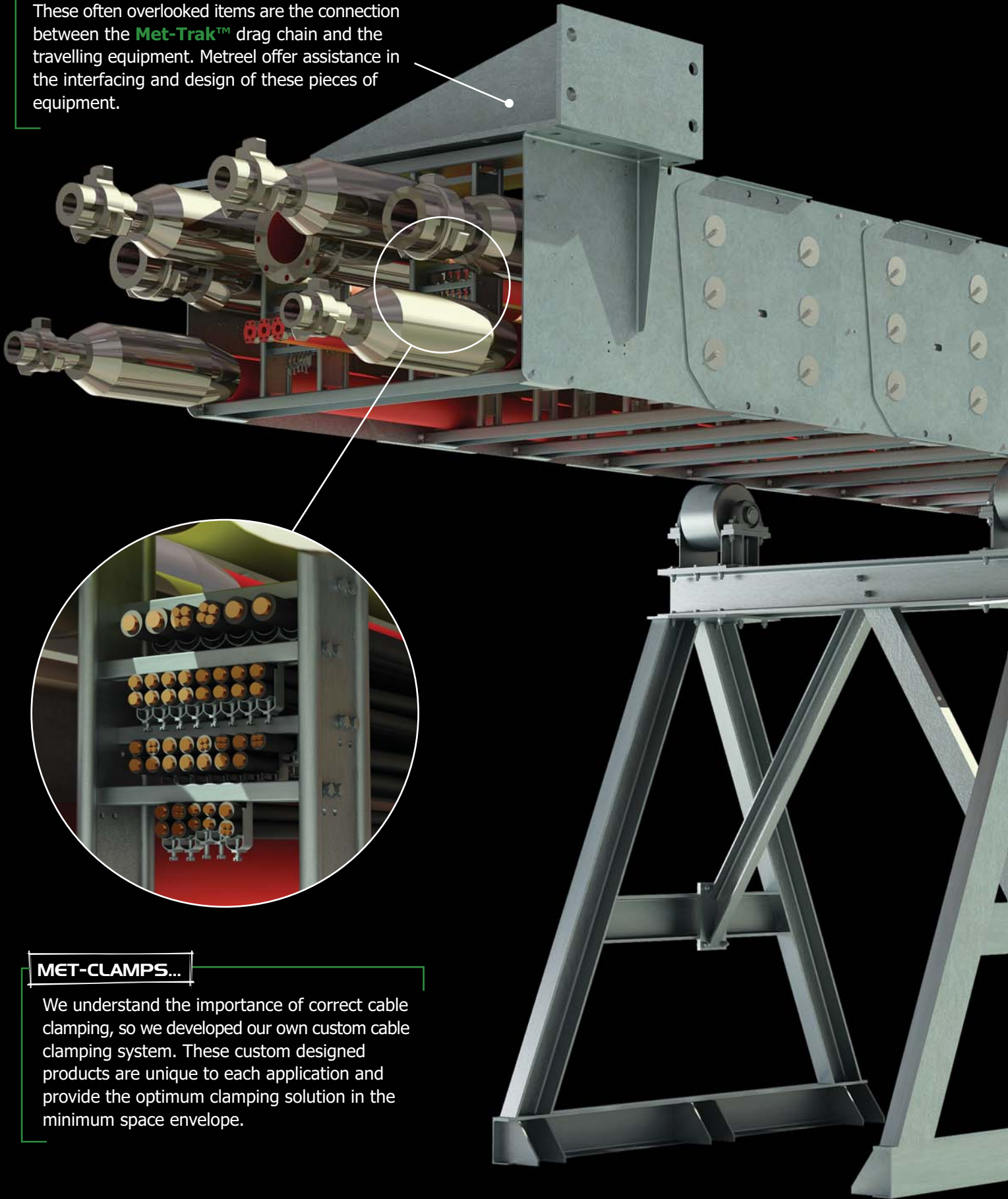
VERTICAL & HORIZONTAL SEPERATORS...

All the **Met-Trak™** Drag chains are designed specially for the client cable/hose compartment requirements. Vertical and horizontal separators are designed to create compartments that will accommodate single or multiple cables or hoses. It is extremely important when considering hoses that the compartments are sized to accommodate the expansion/contraction properties inherent with hoses.

DRAG CHAINS

TOW ARMS...

These often overlooked items are the connection between the **Met-Trak™** drag chain and the travelling equipment. Metreel offer assistance in the interfacing and design of these pieces of equipment.



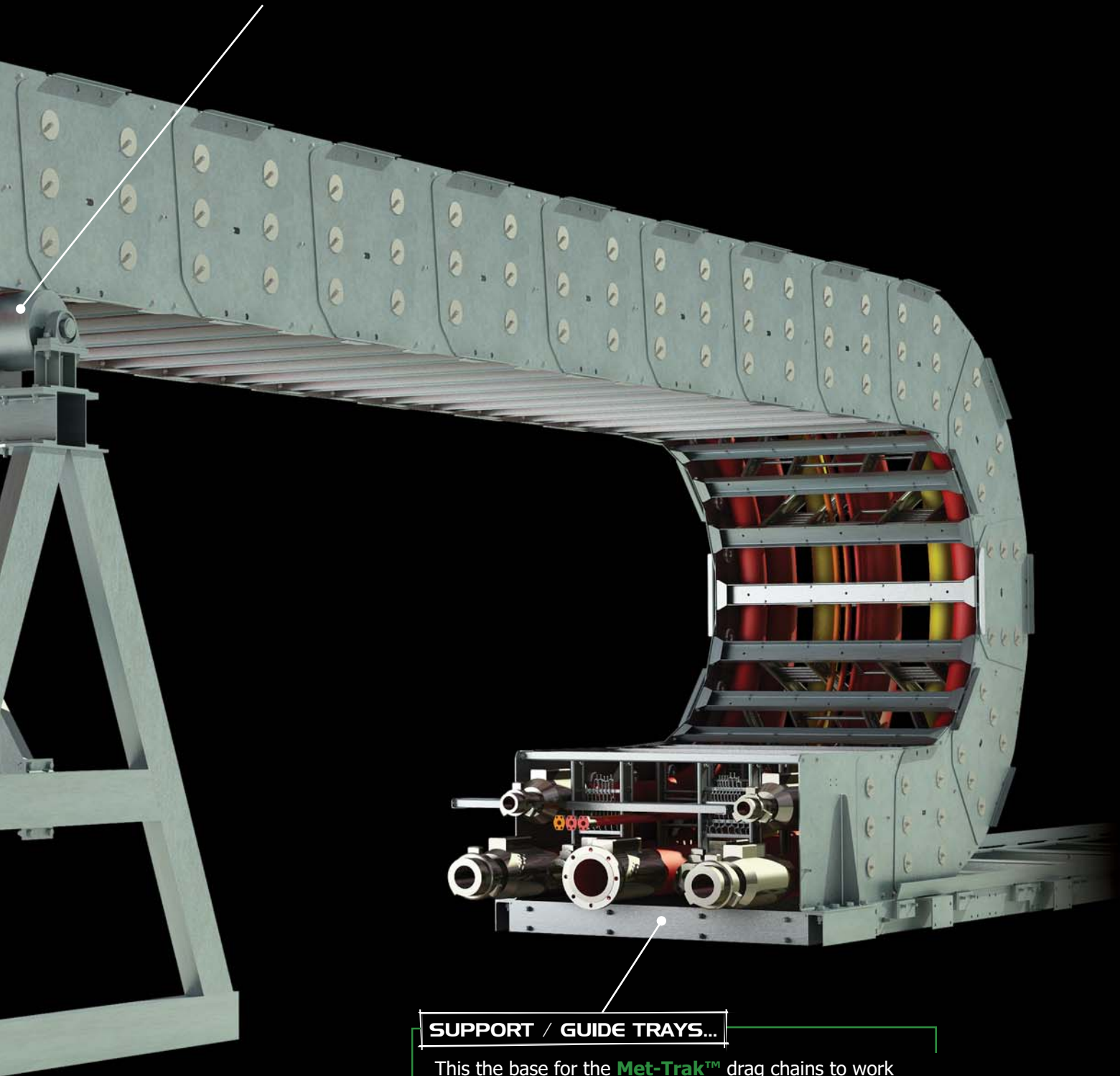
MET-CLAMPS...

We understand the importance of correct cable clamping, so we developed our own custom cable clamping system. These custom designed products are unique to each application and provide the optimum clamping solution in the minimum space envelope.

SUPPORT ROLLERS...

Drag chain link sizes can be minimised in certain applications by the use of stationary support roller(s). These serve to reduce the span requirements, or increase the load carrying capacity, or a combination of both. Metreel have utilised many types of roller supports and have many designs available in order to optimise any application.

We also custom design swing-out, removable, stationary style roller supports. These can be deployed, when required, during movements and then swung away or removed when not required, thus saving valuable deck space for other operations.



SUPPORT / GUIDE TRAYS...

This the base for the **Met-Trak™** drag chains to work from. We can either provide them with the drag chain or assist in their design where the client would prefer to produce their own system.

PLUG & PLAY...

The traditional method of shipping skid base application Drag Chain Systems was based around the drag chains being packed in split down section lengths, which were then assembled on site to make up the completed unit.

Cables and hoses would then be installed afterwards, or during this system build up process on site.

This was appropriate for cable only drag chain systems, but when considering the everyday applications nowadays where special HP & LP Hoses are also included with the cables within offshore drag chain systems, the importance of the correct installation and positioning of the hoses, to protect the expansion and contraction clearances in service, brought a new requirement.

Metreel resolved this by the creation of special "Lifting & Transportation Frames" such that a complete drag chain with the hoses ready installed and accurately placed within to protect expansions and contractions, plus ensuring accurate tail length settings to suit static pipe work, was achieved.



An additional benefit was the elimination of any risks of hose damage during a site insertion exercise, where the site locations are often with rough ground and abrasive elements etc.

The whole process, developed by Metreel, carried out within enclosed works premises and under ideal conditions, results in efficient time inputs with a significant reduction in the overall installed systems costs.

Such ready built systems are also covered by the overall equipment supply warranties.

Metreel have now delivered such ready built systems, which simply require loading into position and end connections hence the term "Plug & Play", to offshore locations and countries such as China, Korea, Singapore, Azerbaijan, France, Norway, Canada, Mexico and the USA.

TESTING & INSPECTING...

With the vast majority of our drag chain systems being bespoke to particular requirements, we have a number of proven calculation, testing and certification criteria, which we employ to both prove designs and provide clients with the necessary level of assurance that their product is designed to last.



FAT TESTING...

We carry out a FAT (Factory Acceptance Test) on the majority of our drag chain systems. Many are witnessed by our clients, or their representatives, and we also invite when specification demands, third party witnessing and certification from various approval bodies.

THIRD PARTY VERIFICATION...

Metreel invite third party involvement in many projects, through notable bodies such as DNV, Lloyds, API. Their involvement can vary between simple data checking to design verification, witness testing and manufacturing process examination and verification, checking of data books and records.

ISO CERTIFICATION...

Metreel are proud to be an accredited ISO 9001 certified Company.

WARRANTY...

We at Metreel are proud of our 100% operational record with our **Met-Trak™** drag chain systems, and offer the added assurance of class leading warranties.

FEA TESTING...

On demanding applications, or ones with special application parameters, we have an independent FEA (Finite Element Analysis) carried out, which enables us to confirm materials and design suitability, as well as offering the client added peace of mind. We have tested all aspects of each particular project, which can be as simple as pure carrying capability, right up to seismic, snow/ice loads, wind loads or any combination demanded by the application.

DOCUMENTS & RECORD BOOKS...

Metreel have in place various data collection records, and provide the client with all their documentation requirements as stipulated in each individual contract. As an example, our document record books may include any third party contribution requirements, copies of FEA reports, FAT data, material certificates and test records. Operation and maintenance literature, along with user manuals, can be included also to customer requirements.

DRAG CHAIN REFITS...

Metreel also specialise in the after market, on site reactivation of old systems, as well as upgrades and re-engineering of systems to better cater for modern needs. For example, with the trend being for ever increasing travel length requirements, it can be necessary to re-engineer existing systems to accommodate the additional travel requirements, rather than provide completely new systems.

Or the upgrading of machinery could demand extra services, by means of more numerous electrical cables, or pipes/hoses, in order to feed the new machines. We can re-engineer existing systems to provide additional compartment space for these services and install them on to the existing equipment and in some circumstances, can even do so without disconnecting any services so that the machinery can be left operational and down time is thus minimised.

An example of this is shown in the photo as a 'before & after' representation of a system that was clearly carrying more services than it was originally designed for; we made alterations to the cables arrangement, made additional compartment space utilising bespoke components and fitted them 'live' so that no drill/operational time was lost.



OUTREACH BOOM SYSTEMS...

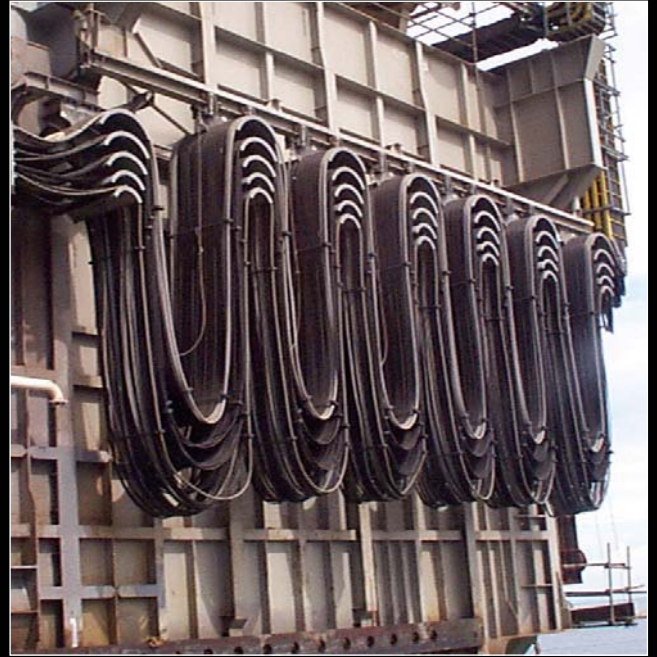
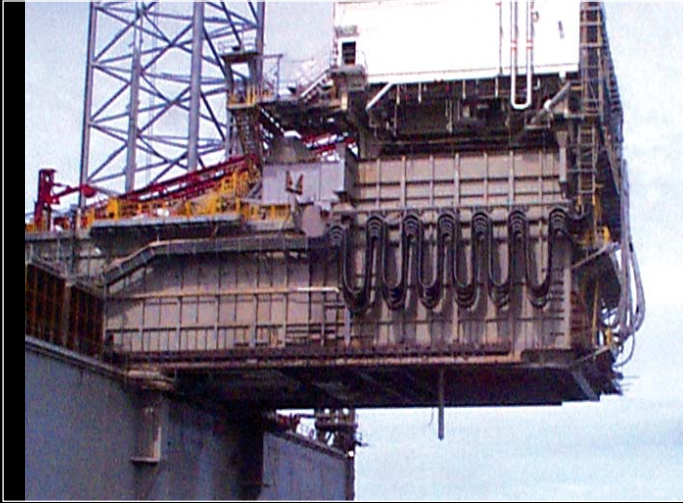


The **Met-Boom** Outreach Boom System was introduced as an option to conventional Drag Chains and Festoon Systems for carrying cables and hoses offshore, especially where either ground level space or equipment location space is at a premium.



FESTOON SYSTEMS...

The **Beam-Rider** range of extra heavy duty cable/hose trolley systems have been designed to suit the offshore applications such as carrying cables and hose to feed skid bases, jack up installations, vessels / drill ships and cranes.



CABLE REELING DRUMS...

Our range of Offshore Reeling Drums have been developed from Metreel's proven standard range of Reeling Drum products, in order to provide a facility to design and manufacture products suitable for offshore and Ex installations. Our range of Reeling Drums are suitable for reeling cables and hoses and are in a variety of finishes to suit the working environment which also includes the option of manufacturing from stainless steel materials.



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