

Marine



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Newslink

November 2019



FEATURE ARTICLE

Medical Machines

PHOTO(S) OF THE MONTH

Medical Machines

BACK TO BASICS

QOTM



MEDICAL MACHINES

Healthcare is one of the prime development factor of any country & today India is considered a health care destination. In fact, the term Medical Tourism was coined for India. When it comes to facilities & comfort, today the super speciality hospitals compete with 5 star hotels. The medical machines & equipments that they use for diagnosis & treatment are beyond space age. Robotic surgeries are a common affair today and provide a more hygienic atmosphere than physical doctor's presence. Intricate surgeries or treatments are being handled by machines while doctors control them from control consoles. These machines can not only perform complex emergencies but also provide real time data on health of patients.

Medical device (brief):

An article, instrument, apparatus or machine that is used in the prevention, diagnosis or treatment of illness or disease or for detecting, measuring, restoring, correcting or modifying the structure or function of the body for some health purpose. Typically, the purpose of a medical device is not achieved by pharmacological, immunological or metabolic means.

Medical machine/equipment:

Any Medical item requiring calibration, maintenance, repair, user training and decommissioning - activities usually managed by clinical engineers. Medical equipment is used for the specific purposes of diagnosis and treatment of disease or rehabilitation following a disease or injury; it can be used alone or in combination with any accessory, consumable or other piece of medical equipment. Medical equipment excludes implantable, disposable or single-use medical devices.

Such machines/equipment are not only sensitive, fragile, specialised and intricate in nature but are also very expensive. Their transportation from manufacturer to laboratories, hospitals or whichever destination requires customised packaging, transport preparations, actual transportation and delivery. In some cases, there may also be return or onward shipments.

A single medical machine/equipment could be made up of various numbers of separate sections or parts. Every section or part is made as per requirement of the respective machine and is serial tagged to the main machine. Damage or misrouting of even one section or part can lead to serious issues about the integrity of that machine.



Major challenges exist when shipping equipment such as X-ray machines, Computed-Tomography-Scanners, Magnetic-Resonance-Imaging (MRI) devices, analytical devices and medical dispensing machines.

When shipping sensitive and expensive technologies, manufacturers' top priority should be to ensure complete transit protection to the machine. Hi-Tech medical machines/equipment is categorized as high value, fragile, climate sensitive and expensive and therefore it cannot be shipped like other cargoes but will require specialised and customised transportation requirements. In addition, medical machines/equipment can often be of non-standard configuration and size and therefore classified as Over-Dimensional &/or Out-Of-Gauge Cargo as well as Critical Cargo.

Medical machines are typically transported by Full-Truck-Load (FTL) and in a vehicle with an air suspension. Less-Than-Full Load (LTL) shipping can be considered for those medical machines, that are not as fragile or susceptible to normal transportation rigors or exigencies.

LTL shipments will also be handled at multiple locations before reaching their

destinations. Medical machine/equipment sent through LTL can also share trucks with dozens of other cargo items that can cause damages during transit. To keep such or in fact any shipment safe, it must be properly packed and secured.

PACKAGING

Regardless of the method of transportation, there is the risk of shock, vibration, rolling, pitching and yawing of the transportation medium, along with handlings rigors. Proper packaging (interior and exterior) and crating techniques should be used. To mitigate shifting of cargo, within the packaging, abundant use of floating foam bases and internal foam bumpers is recommended.

Large equipment destined for international locations is usually sent by Air or Sea. Hence, such machines/equipment will require added protection against hazards of corrosion, oxidization, dirt, dust and other contaminants that can affect instrumentation. Proper use of desiccants, vapor barrier bags and vapor corrosion inhibitors is recommended in such shipments. Damage is time consuming and costly. Properly engineered packaging and crating designs are crucial here.

Packaging of medical machines/equipment requires professional or manufacturer's understanding of the machine/equipment. Some broad packaging points can be considered as below:

- Packaging of every section is designed to withstand rigors of normal transits.
- Wherever vacuum or weatherproof packaging is required, it should be done by packaging specialists. Vacuum packaging requires certain set of materials to be used to ensure that any external dust or moisture will not enter the packaging at any time during the transportation.
- Main sections along with all the respective sections should be marked for easy identifications & traceability - use of RFID tagging or QR Codes/Barcodes should be employed to ensure that there is no mix-up.
- Smaller & control sections, first packed individually in their primary packaging, should then be consolidated into one or multiple large boxes/cases and duly tagged.
- Sections requiring upright handling and/or sensitive to jerks & jolts should be provided with clear & easily distinguishable labels & marks as well as Impact & Tilt Indicators.
- ODC or OOG sections cannot be placed in a crate & hence must be secured on adequate strength pallet with Centre-Of-Gravity clearly marked to avoid tumbling. Lifting points should also be clearly distinguishable.
- Sections that cannot be manually handled should be provided with strong pallet base. Wooden pallets are preferred as they offer cushioning to some effect. Lifting points should also be clearly distinguishable on such sections.
- Most manufacturers prefer to use reefer trucks as these vehicles can provide much better protection than closed body or

otherwise an open-body truck.

- Machines, if being sent by Air or Sea, will be required to be palletised or containerised - each such mode will also require its own pre-checks. Airlines usually consolidate packages on wheeled cargo pallets & cover them with strong nets to ensure that they do shift during take-off & landing.
- Packaging must also factor for destination locations that may or does not have necessary dock facilities or equipment to facilitate the delivery or uncarted shipment.
- Packaging method should also adhere to local laws of destination place or country. Certain types of woods or Polystyrene/Styrofoam materials are banned in specific countries & regions.

Various medical equipment requires specialized packaging and handling including medical lasers, MRI machines, dialysis machines, and blood analysers, to name a few.

Well-Engineered Container/Case:

The need for packaging materials can be reduced by the efficiencies of case or container designs. Containers/cases are designed so that as much product can be shipped within the container/case as possible without compromising the structure and jeopardizing the protection of the goods. If such consolidated packing is done correctly, it eliminates the need for more material and excessive cushioning materials. Depending on the nature of the goods being placed in a container/case, packing experts can consider a blocking and bracing technique to secure the goods inside the shipping container. Employing this method requires that any sensitive components are cushioned and braced in the crate with cushioned wood blocks and braces.



Protectively packaged

Products are protectively packaged in expanded polystyrene for each specific product and component.



Secured for shipping

For added security, products are properly labelled for freight and shipped in tethered corrugated fiberboard boxes.



Professionally stored

Ready to ship products are then secured stored in temprature controlled warehouses awaiting transport & shipment.

Some medical equipment may be shipped to the end customer on trial basis, for testing and assessment purposes and if rejected, it must be returned (thus creating a need for a second transit). In such cases, packaging solutions must be so designed that OEM packaging can be retained at the time of opening & commissioning the machine at such testing location & can be used, in OEM condition for return shipment. Reusable crates designed with link locks and ramps are a little more expensive but alleviate the need for constructing a second crate. This becomes more important for machines that are regularly sent out for exhibition purposes.

When being shipped through Sea, medical machines/equipment can only be sent in containerised form. Such containers require preloading preparations like cleaning,

disinfestation, usage of moisture-resistant materials such as desiccant and barrier bags. Lashing should be done by nylon belts of approved strengths and material used must be certified for International Standards for Phytosanitary Measures No. 15 (ISPM-15), which requires that all solid wood-packing material for international shipments be heat treated and stamped with an official mark. Straps, seals and shrink-wrapping help minimize pilferage. It is recommended that either insulated containers or reefer containers are used for sea shipments as they provide better protection against weather conditions than ordinary containers and have reduced threat of condensation, which may cause wet damages to cargo. The challenge with using reefer containers is that they do not provide enough securing points for usage of lashing.



HANDLING & TRANSPORTATION



Road transportation of medical machines/equipment cannot be avoided. Even for Air, Rail or Sea shipments, there is always a road movement involved. Primarily for first and/or last mile. Biggest advantage of road transportation is that it does not need to adhere to any timetable like Air, Sea or Rail transportations, therefore it can proceed at almost any time of the day. Moving medical machines/equipment by trucks should be carefully pre-planned with special emphasis on type of vehicle, suspension system of

vehicle, speed governor on vehicle, route feasibility for far flung areas, predefined stoppages for transit longer than 24 hours.

If it is a LTL shipment, than it is recommended that cargo sections are so packed & carted that they can either be only handled by machinery or when handled manually, cannot be mishandled. Intermediate storage warehouses should also meet minimum pharma standards.



Transportation by sea is cost effective and considered safest for long-distance deliveries. Containerisation of such machines/equipment ensures additional safety for the cargo. Full-Container-Load (FCL) has its own merits & advantages & ensures that cargo is safe & not polluted or damaged by any other cargo. A.I. enabled containers now can provide real-time location, impacts & various data on-the-go. ODC sections of such cargoes may be prone to certain exposures & risks during sea transportation & should be factored by the shipper & consignee.

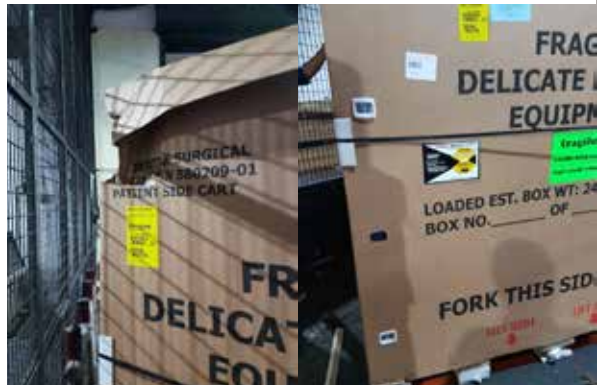
Transportation of medicine and medical components by railroad is unheard of in India, but if used, it will be one of the most advantageous mode for inland movements.

Rail transportations eliminate common rigors of road transportation. Shipping containers stuffed with medical machine/equipment can also be carried by rails to inland destinations.

Transportation by air is a fast but costly alternative. Most such high value or expensive machines/equipment are usually shipped by Air only. A major risk involved in air shipments is that there is no visibility of cargo once handed over at airport, till it is custom cleared & possession taken by CHA at destination airport. Mishandling or misrouting is another risk involved due to high volume of cargoes moved by airlines. Transshipment of sensitives cargoes from one airlines to another at any intermediate airports also has its own perils.



DAMAGED CARGO

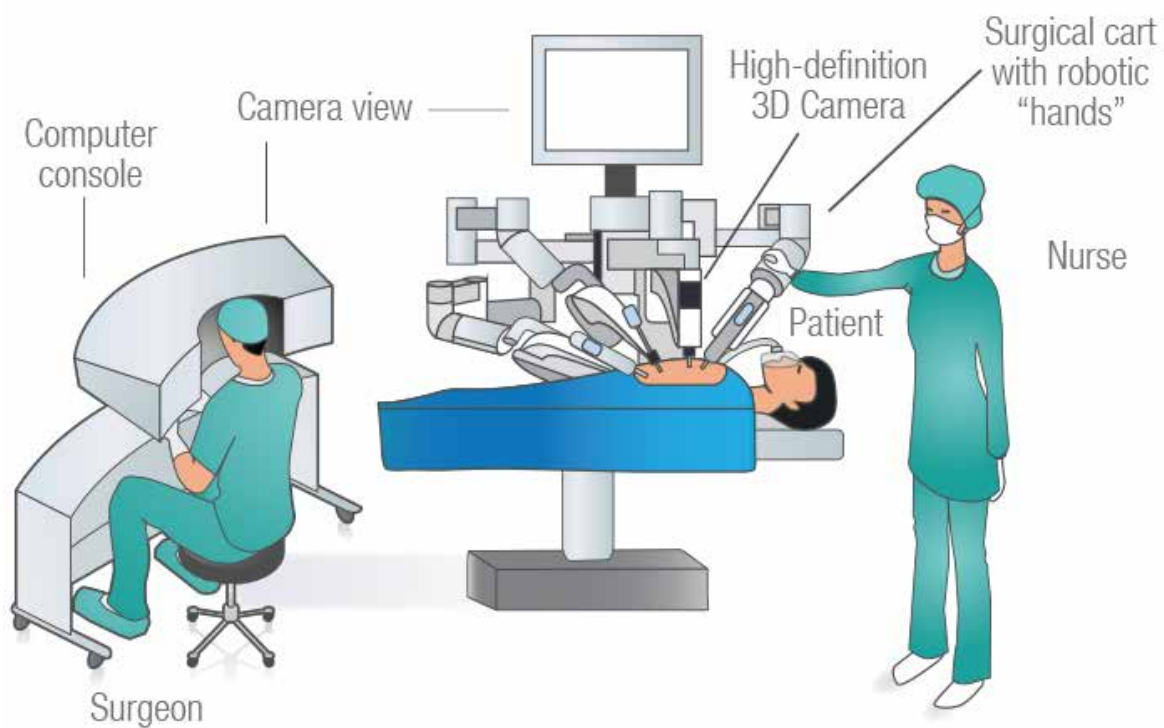


PHOTOS OF THE MONTH

MEDICAL MACHINES



Robotic surgery



BACK TO BASICS

QUESTION OF THE MONTH: (Please submit your replies by 25th of each month)

A consignment was shipped by Assured to their Egypt consignee. The consignment was shipped in one x 40' reefer container from Nhava Shev port to Alexandria Port. The consignment arrived at Alexandria port in safe condition & was moved to Free Zone Area. While the consignment was awaiting clearance, there was gun firing exchange between ruling government troops and the insurgents. Two ordinary containers caught fire due to gun fire and the consequent fire spread to other containers in the vicinity, including the container of Assured. Assured's container, which at the time of incident was loaded on a truck, was completely burnt. The cover under the Assured's policy was subject to Institute Cargo Clauses-A 2009, Institute Strikes Clauses 2009, Institute War Clauses 2009. The cover was up to Discharge Port.

Is the claim payable? Support your answer with applicable section of clauses?

LAST MONTH'S QUESTION:

Jupiter 100 tons & Super brand 80 tons. Though it was clear that vessel had discharged excess of 300 MT at Kandla but due to multiple deliveries, actual reconciliation was becoming an issue. Pelican Oils & Red Seeds Corporation filed for shortage claim.

Will the claim be payable?

Will the claim be payable?

LAST MONTH'S ANSWER:

Yes, the Claim is payable. Pelican Oils & Red Seeds Corporation should file Monetary Claim Notice on to Carrier and take the claim from Insurers. Insurers may recover it from Carrier.

CORRECT ANSWERS SENT BY: (In order of replies received)

Hema Raghav - Optima Insurance Brokers Pvt Ltd., New Delhi

Bharat Bhushan - Optima Insurance Brokers Pvt Ltd., New Delhi

**PLEASE SEND YOUR REPLIES/ANSWERS TO ADDRESSES
GIVEN ON LAST PAGE OF THE MARINE NEWSLINK.**

IF YOU HAVE ANY COMMENTS / FEEDBACK PLEASE SEND IT TO

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