

1. Material Packing

1.1. General Packing requirements

- The supplier/vendor is responsible for the initial preservation of the equipment up to being received and accepted by BGC at site.
- The equipment and material will be shipped by supplier/vendor to protect it against mechanical and environmental damage using packaging material of suitable Industry Standard unless otherwise as specified & agreed in Purchase Order.
- If any legislative or OEM specific special packing instructions are available, such specific requirements shall take precedence over the requirements specified in this document
- When certain part of the requirements stipulated in this document are not attainable, the best commercial export packing methods to achieve a comparable level of protection are to be used. The Supplier/Vendor shall bring this matter to the attention to respective Buyers or Contract Engineer in each case prior to applying such alternative method.
- The supplier/vendor recommendations and suggestions regarding protection, packing and handling of the products will be considered by BGC. If the supplier/vendor's standard methods of protection and/or export packing provide equal or better protection at the same or less cost, this information should particularly be brought to the attention of BGC Buyers or Contract Engineer.
- The supplier/vendor is required to stipulate and communicate any special or additional storage and preservation requirements to be followed.
- Packaging shall be such that it withstands the hazards of inland and long-distance ocean transportation, below deck and on deck storage, multiple handling and twenty-four (24) months storage at the destination in open yards under all possible climatic conditions and exposure. Special considerations are to be given to the packing to ensure that:
 - o breakage, damage and theft are prevented,
 - o rust and corrosion are inhibited,
 - o water intrusion is prevented,
 - o ingress of fine sand is prevented,
 - o minor shocks and shakes can be absorbed without damage occurring, and
 - o handling is facilitated
- A copy of the Packing List, mill certificates, Engineering and/or Technical documentation shall be placed in a sealed waterproof envelope and firmly fastened outside of the packing case in a protected, visible area (such as under a metal plate, marked with the words "Packing List"), precaution should be taken so that it will not be torn away during lifting/handling/offloading
- If any of the Engineering and Technical Documentation and/or any of the Goods become damaged or lost due to the supplier/vendor's improper packing and/or inadequate protective measures, the Vendor shall be held entirely responsible for the costs of the repairs, replacement or compensation to BGC.

- If any shipment contains flammable, hazardous or dangerous items, the supplier/vendor shall provide appropriate Material Safety Data Sheets (MSDS) to BGC in an English description, giving product names (DG) Class, characteristics, special handling and protective measures, and procedures in case of accidents.

1.2. Packaging and Packing guidelines

- The container and interior packaging must be designed either to absorb the shocks or to relieve any destructive forces by means of cushioning material, or to distribute, localize and transform those forces in such a manner that the material and container will be able to withstand them without damage.
- Small material must be packaged in cartons, cases, bags or boxes prior to packing in the shipping containers; they must not be packed loose. Each carton, case, bag or box shall contain only one size, one grade and one kind of fitting, flange or valve (only one stock number per case)
- Packing of items having different PO numbers in the same case should be avoided.
- Selection of outer packing will depend on the nature of the product. Items which do not completely fill the selected package must be cushioned, braced, fastened or blocked to minimize movement within the package and prevent damage from shock, vibration, rough handling and transportation.
- Where wood is used for packaging and packing (whether "dimensional" timber/lumber or plywood) it must be new, clean, dry, sound (free from knots), well-seasoned and HT treated in accordance with the requirements of the importation authorities in the Republic of Iraq. In the event that, after a sampling inspection made by the relevant Iraqi inspection and quarantine organization, the exporter's statement or the Phytosanitary Certificate is determined to be invalid, the Vendor shall at its own costs bear all expenses and consequences incurred as a result thereof.
- Nails used for wooden boxes, crates shall be cement coated or deformed shank or clinched wire box nails. Corrugated fasteners may be preferable to nails when packing items that are highly susceptible to pilferage and theft.
- For boxes/crates weighing less than 45 kg, metal strapping shall be used comprising un-annealed steel of minimum 20mm width, applied with a stretching tool and secured with crimped steel seals. For crates weighing over 45 kg, 30mm wide straps must be utilized. Not less than two straps per box are required, and strap spacing shall not exceed 1 meter from centre to centre.
- The tensions of the metal banding shall exert sufficient pressure to prevent longitudinal movement between the metal and wooden surfaces. The straps must be cut evenly at the seal, leaving no sharp edges, and corner protectors shall be provided to keep the strapping from cutting into the edges of the package

1.3. Marking methods

- All markings shall be legible, permanent and un-obscured by banding or in any other way. Large packages shall be marked on at least two sides in readily discernible lettering on 50 mm minimum height.
- In addition to the shipping marks, packages should also show any special handling instructions, including centre of gravity, and marked with international symbols such as "fragile", "keep dry", "this side up", "sling here", and "periodic inspection required" where applicable.
- Where stowage and/or walking on the package top face are prohibited by the nature of the contents or packing, this fact shall be clearly marked on the package.
- Stainless steel material is identified by chloride free marker / paint.

1.4. Labelling

- Following different types of methods can be adopted
 - o Adhesive labels - Self-adhesive labels placed on material give good identification. These labels are most suited to spare parts and general materials.
 - o Tie-on labels - For use on larger pieces of material where adhesive labels cannot be used. The labels should be reinforced and for outdoor use be made from metal and be tied on with wire.
 - o Painting - or stencilling directly onto items. Various types of large numbering stamps and rollers can be used with quick drying paints.
 - o Embossing machines - "Dymo" type embossing machines using metal or plastic tapes.
- All material including packages shall be labelled by the supplier/Vendor, and the labelling shall comply with legislative any statutory requirements. Label shall indicating the Purchase Order No., Purchase Order line item number, MESC code, SAP code number, name of the item etc.
- Spare parts and tools shall be packaged separately, and marked with the words " Spare Parts" or "Tools" in addition to the above particulars.
- For Pipes, Flanges, Fittings, and Valves materials the supplier shall provide material test reports/certificates of conformity.
- In case of box packaging having multiple items, every package shall contain a packing list, package number and quantity in the package.
- Each delivery of the Goods shall be accompanied by a DELIVERY NOTE (refer format below) and each box/packing/bundle/reel must be properly tagged/ marked with:
 - o Package Dimensions (L X W X H) in CMS
 - o Purchase Order number
 - o BGC Material SAP part Number
 - o Description of Material
 - o Quantity and Unit of measure.
 - o MESC Number
 - o Manufacturer / Supplier Name
 - o special storage instructions (if any)
- In particular, if the packages contain any material which is hazardous or dangerous this shall be clearly indicated as per accepted International Standards of marking and labeling each package of Dangerous Goods. Supplier should enclose Material Safety Data Sheet (MSDS) along with delivery documents where required by nature of product. The MSDS sets forth information concerning such product and describes precautions, if required, to be taken in the transportation, delivery, unloading, discharge, storage, handling and use of such product.

1.5. Packing Principles

- All Materials must be Palletized by Default- and if this is not possible, the same must be communicated back to Client prior to delivery for discussion/acceptance
- Material shall be nested or packed firmly to reduce volume as much as possible, but items must not be packed too tight. The sizes of the containers must be dimensioned such as to avoid dead space after material has been packed therein.
- Material subject to water damage shall be packed in waterproof lined boxes or sheathed crates, and an inverted waterproof bag slipped over the material inside the box.
- Break Bulk items must be equipped with lifting lugs to ensure ease of handling.

- The capacity that each box, bag, crate and such like used for packing is designed to accommodate must not be exceeded under any circumstances.
- Concentration of high weight loading in any one spot is also not permissible, and inner blocking and bracing must be employed to distribute the weight of the contents over the interior surfaces of the packing in order to avoid that situation arising.
- If the load must be kept upright, the packing must be equipped with lift handles, skids, top peaks or gable, or some similar device to ensure stowage and handling in an upright position.
- Bundles and Pallets:
 - o Assemble and palletize material in the largest practical unit consistent with handling, weight and dimension. Material must fit the pallet without large voids and must be capable of withstanding stacking without sustaining damage.
 - o Material packed in bundles must be segregated according to length and size, and must be securely strapped (refer section 3.2 for strapping details) unless specially approved by BGC.
 - o Sturdy commodities such as rough castings, structural steel, fabricated steelwork, heavy wall pipe, and tanks not subject to water or handling damage, may be bundled, skidded or secured to pallets for shipment.
- Individual pallets, wooden boxes or crates over 25 kg shall be provided with 4-way skids that will permit handling by forklifts and/or slings. The minimum skid depth shall be 70mm.
- Skidded and Framed Boxes:
 - o Skidded and framed boxes shall be constructed upon skid members joined by headers, and shall be floored with 70mm timber/lumber.
 - o Rub strips must be used to allow entry by forklift on all four sides.
 - o Provision shall be made for slings to be inserted easily under the ends of the box.
- Crates:
 - o Open crates may be used where the contents are virtually indestructible and the packing is required only to facilitate handling and stowage. Three-way corner construction, reinforced with diagonals, shall be used for all crates that are not plywood sheathed.
 - o Large crates usually must bear great superimposed loads, thus top strength must be ensured by the use of top joists spaced not more than 1 metre apart. When sheathed, the joists must be placed under the sheathing. Joist supports shall be provided directly under the joist ends.
 - o The floor must be reinforced at load bearing points when between skids or sill members.
 - o To permit entry of forklifts, the end sheathing must be terminated at the flooring; side sheathing must be terminated 15mm short of the skid bottom. To transfer the load to the tines of the forklift, additional cross members should be added at 500mm and 1 metre from each end.
- Where excessive heat and humidity can be expected, additional ventilation must be provided, which can be done by drilling holes through the ends near the top, but not through any frame members. Such holes should not be greater than 40mm diameter nor more than three holes per 600mm of crate length or width.

Sr	Commodities	Recommended Standard Method of Packing
1	Pipes	<p>All pipes below 6" Dia shall be bundled and strapped.</p> <p>Pipes 6" Dia and above shall be supplied in loose pack.</p> <p>Due care shall be taken to avoid the stainless-steel pipes contact with carbon steels pipes and the railings of the truck. Also, the stainless-steel pipes shall be wrapped using suitable packing material</p>
2	Fittings/Flanges/Valves (Forged/BW)	<ul style="list-style-type: none"> - All material up to 6" in sizes shall be supplied in wooden boxes or cartons and as appropriate and adequately strapped. - Fittings over 6" shall be supplied on wooden pallets with metal straps. Also, the pallets shall be shrink wrapped - Due care shall be taken to protect the bevel ends for welding & flange facings by placing plastic, soft card boards or corrugated sheets covers if the method of crating does not provide sufficient protection. BGC reserves the right to back charge the Vendor for the rectification of fittings and flanges received with damaged weld bevels. - The surfaces of all flanges must be coated with an anti-corrosive varnish. 100mm (4") and smaller valve flanges must be packed in waterproofed lined wooden cases, in such a manner that the flange faces will be separated from one another by wood or fibreboard, to prevent metal contact. - Goods that are shipped bolted together, face-to-face, are also to have wood or fibreboard separators between the faces. - Valves shall be shipped with their gates/wedges lightly seated to prevent ingress of dirt into the bonnets and to reduce the exposed length of the stem. - All ring grooves must be thoroughly cleaned and coated with rust preventative type "B" or "C" before attaching the flange cover. - Fittings with operators, bypass piping, limit switches and similar fittings shall be carefully packed and braced to eliminate damage during shipment. - Flanged openings 150mm (6") and larger must be protected with metal gaskets and metal or wood closures. The cover and gasket size shall match the flange outside diameter. Gaskets shall be 2mm thick minimum, of red rubber or neoprene. The cover thickness, bolting size and number of bolts used shall be such that the cover effectively seals the flanged opening
3	Instrumentation	<ul style="list-style-type: none"> - All glass must be protected with waterproof, cloth-backed tape. - All openings such as conduit connections shall be capped, plugged or sealed with waterproof, cloth-backed tape. - All instrumentation shall then be packed in crates or wooden boxes.
4	Gaskets	<p>Sheet -/Ring/Spiral wound gaskets, shall be safely packed ensuring windings in position on soft card board sheet with polythene sheet (packing by mill). If required the gaskets shall be palletized & for larger sizes in boxes adequately strapped to ensure safety</p>
5	Stud, Bolts, & Nuts	<p>Stud shall be supplied with "Nuts" mounted and securely packed to avert any thread damages. Nuts & bolts shall be supplied in polythene bags / cartons /</p>

		wooden boxes as appropriate. Boxes, cartons, pallets shall be securely strapped to avoid damage or pilferage
6	Chemical Drums	Products packaged in steel or plastic 55 gallon, 15 gallon or 5 gallon drums/pails are to be palletized on 1.2m x 1m pallets. To stabilize those loads an exterior plywood cap, size 1.2m x 1m x 15mm thick, shall be placed on the top of the load and strapped to the pallet using steel strapping.
7	Dangerous Goods	<ul style="list-style-type: none"> - Hazardous/Dangerous goods shall be packaged, packed, marked and transported in accordance with all Applicable Laws. - If any cargo contains flammable, hazardous or dangerous items, the Vendor shall provide appropriate Material Safety Data Sheets (MSDS) to BGC and mail an English description of the items, giving their names (DG) Class, characteristics, special handling and protective measures, and procedures in case of accidents. - Hazardous Materials must be packed separately, and all Hazardous Materials must be identified by the appropriate Hazard Class, technical designation or proper shipping name. - All packing lists for Hazardous Materials shall contain the following statement "This is to certify that the above named materials are properly classified, described, packaged, marked and labelled, and are in proper condition for transportation according to the appropriate Government or International transportation regulations." - The Vendor shall produce/obtain all necessary Hazardous Materials cargo certificates in accordance with the appropriate Government and International transportation regulations for all shipments.
8	Electronic Control Panels, Alarm Panels, Analysers etc	<ul style="list-style-type: none"> - Porous bags of desiccant shall be installed inside the equipment wherever cover, door or lid access is available. - Covers, doors and lids must be sealed with petroleum jelly applied to the door seals before closing in order to make a more efficient seal. - All openings such as conduit connections shall be capped, plugged or sealed with waterproof, cloth-backed tape. - All electronic equipment shall then be packed in crates or boxes as appropriate.
9	Electrical Equipment	<ul style="list-style-type: none"> - Electrical accessories subject to moisture damage shall be removed from the engine and hermetically packaged separately with desiccant. - Motor ventilation openings on waterproof and drip-proof motor enclosures shall be sealed with a plastic film cover and waterproof tape. - Motors shall be enclosed in a sealed plastic bag containing a desiccant charge with at least a six-month life time. The enclosed motors shall then be individually cased.
10	Mechanical Equipment	<ul style="list-style-type: none"> - Mechanical equipment such as centrifugal pumps, reciprocating pumps, gears, auxiliary boilers, rotary compressors, blowers and similar equipment shall be protected with suitable coating on internal parts and surfaces, including the case, bearing, packing and mechanical seal housings.

		<ul style="list-style-type: none"> - The equipment must be rotated to ensure uniform coating of all parts, after which the excess fluid must be drained. Shaft mounted couplings must be covered with plastic film sealed to the shaft with oil/waterproof tape. - For equipment requiring regular periodic checking or that needs to be rotated during storage, crating must have suitable doors or panels to provide access for that purpose
11	Air Cooled Heat Exchangers	<ul style="list-style-type: none"> - Tube bundles, plain and finned, shall be crated with special care taken to provide protection to fins from physical damage. - Fan blades shall be crated with suitable blocking and bracing. Fan drive belts shall be sealed in a closed container. Hardware (nuts, bolts, lock-washers) shall be protected with rust preventative coating and shall be shipped in waterproof containers. Louvers are to be crated separately. - Motor bearings, shafts, sheaves, hubs, gears, electrical and flanged or threaded openings are covered elsewhere in this document and must be especially adhered to in order to ensure that moisture does not creep into the motor via the drive shaft.
12	Soft and Perishable goods	<ul style="list-style-type: none"> - Insulation, Refractory, Resins, Catalyst, Absorbent, Ceramic Packing, etc., shall be packed in such a manner that it facilitates ease of multiple handling while offering total protection from sand and moisture intrusion. - Manufacturers/Vendor are required to advise BGC of any specific requirements to prevent degradation during shipment and storage
13	<p>Break Bulk Cargo</p> <p>Refers to heavy and large pieces of equipment that are dimensionally too large for crating, such as, but not limited to: columns, towers, reactors, condensers, exchangers, compressors, turbines, etc.</p>	<ul style="list-style-type: none"> - All equipment shall be thoroughly cleaned of foreign matter and drained of water before shipment. - Equipment shall have all exposed machined surfaces cleaned and covered with a layer of anti-corrosive material that can withstand exposure to moisture and warm temperatures (125°F/52°C) for a period of 1.1/2 years. - All threaded connections such as vent, drain, conduit and piping connections shall be capped or plugged with soft metal or plastic materials after application of appropriate rust preventative. - All flanged openings of mechanical equipment and vessels 150mm (6") and larger shall be closed off using appropriate gaskets and metal or wood closures. The cover and gasket size shall match the flange outside diameter. Gaskets shall be 2mm minimum, of thick red rubber or neoprene. The cover thickness, bolt sizes and number of bolts used shall be such that the cover effectively seals the flanged opening. The use of plastic snap-on covers with additional sealing tape is acceptable on 100mm (4") and smaller openings except for equipment that will be air or nitrogen pressurized during shipment and storage. When equipment is pressurized, a pressure gauge shall be fitted to check for a pressurized atmosphere. - An interfacing of wood and neoprene shall be placed between a piece of equipment and a metal shipping cradle or frame to protect the surface from scratching or gouging (20mm wood and 10mm neoprene thickness). - 10mm thickness of neoprene must be placed between the equipment surface and encircling hold-down metal bands.

		<ul style="list-style-type: none"> - Lifting lugs or slinging points must be provided and well identified for handling in transit. - Interior surface protection for pressure vessels and heat exchangers is not required unless otherwise noted in the material requirement. - Bracing, blocking, and separators made of wood, soft metal or plastic shall be provided to protect Goods and commodities and fittings, external pipe threads, flange facings, ends prepared for welding and other external machine finished surfaces
14	Cargo requiring Special Handling	For any cargo that requires special handling due to storage temperature considerations, the Vendor shall mail an English description stating special precautions to be taken during transportation. It is the responsibility of the Vendor to advise BGC so as to allow BGC sufficient time to make all necessary required arrangements.