



NATIONAL PETROCHEMICAL COMPANY
STANDARDS

MATERIAL STANDARD
FOR
SCREW CONVEYOR

NPCS-MS-ME-03

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1 SCOPE

1. This standard is intended to cover the minimum requirements for design, material shop fabrication, inspection and supply of screw conveyors as specified here-in-after.
- 1.2 Vendor shall supply the screw conveyors, complete with electric driver, drive, chain, guard and drive support as described on this standard.
- 1.3 All mechanical parts, flange bolts nuts, gaskets and other items necessary for complete assembly shall be supplied by the vendor.
- 1.4 Instrumentation as required and will be described on the requisition.

2 DESIGN REQUIREMENTS

2.1 GENERAL

- 2.1. Design, manufacture and supply of screw conveyors shall be furnished by the manufacturer to meet the performance requirements as what will be specified in the requisition.
- 2.1.2 Where design and operating conditions are listed in detail and whenever the data or instructions on individual job specification sheets, and drawings conflicts with the provisions of this standard, the former shall govern.
- 2.1.3 Conveyors shall be suitable for continuous duty at full load.
- 2.1.4 The entire assembly will be exposed to the weather.
- 2.1.5 The speed of the screw conveyor shall depend on the capacity, characteristics of load to be moved and diameter of screw. For heavy and abrasive loads the speed shall be low. The speed shall range between 6 rev/min to 60 rev/min.



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- 2.1.6 The conveyors shall be complete in all respects and any item or feature not covered in this standard, but essential for proper design and; operation, shall be included by the vendor. If the vendor feels that any feature or parameter specified here-in-after is unsuitable, he shall indicate them specifically and submit the proposal on the base what he considers suitable and capable of meeting the required duty conditions. The performance of the complete installation shall be guaranteed in every detail by the successful vendor.
- 2.1.7 Electrical and instrument data and equipment shall be strictly as specified per this standard and the requisition.
- 2.1.8 Bearings, gearboxes and other mechanical parts to be sized and lubricated to suit the specified or implied duties.
- 2.1.9 All equipment shall be rated for 24 hours per day continuous duty.
- 2.1.10 The conveyor speed of the fixed or variable amount shall be as what will be specified in data sheet.
- 2.1.11 Shop to assemble and match mark the conveyor parts.
- 2.2 CONVEYOR SCREW
- 2.2.1 Conveyor screw shall be designed for convenient removal of material from the conveyor trough.
- 2.2.2 The screws shall be one of the following types, depending on the duty and the type of material handled.
- a) standard helical
 - b) Double spiral
 - c) Ribon spiral
 - d) cut flight spiral
 - e) Cut and folded flight
 - f) Paddle spiral
 - g) Variable pitch spiral
 - h) Tapering flight
- The required type will be specified on requisition and data sheets, otherwise as per vendor suggestion.



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- 2.2.3 Conveyor screws shall be made out of steel plate normally 4mm to 8mm (stamped individual pieces, in case of sectional flight) formed into a helix, welded to the pipe or shaft. The pipe, of a size carefully selected for adequate torsional strength and resistance to excessive deflection , shall have intercollars at each end. These collars shall be permanently inserted and shall have appropriate inside diameters to accept couplings, driving shaft or end shafts.
- 2.2.4 The screw shall be made in 2mm to 4m sections, fastened to each other (by couplings) so that the removal and replacement is possible without disturbing the other sections.
- 2.2.5 Screws shall have smooth flight surface in order to reduce friction and power consumption.
- 2.2.6 The diameter of screw which depends upon the characteristics of the material, capacity and speed shall normally range between 100 mm to 600 mm.
- 2.2.7 For special applications, requiring resistance to corrosion and/or involving moderate to extreme heat, stainless steel conveyor screws made of individual flights stainless steel plates formed into a helix then butt welded together and welded to stainless steel pipe on both sides, shall be used.
- 2.3 TROUGH
- 2.3.1 Screw conveyor trough or U trough shall be fabricated from 3 mm to 8 mm thick sheet steel, angle flanged or flanged integral plates or stainless steel plate or cast depending on the application.
- 2.3.2 The troughs shall be jacketed type; if required and specified on data sheets, heatings (with steam) the conveyed material. These troughs shall be constructed, tested in accordance with ASME code as required.
- 2.3.3 The trough length shall be single or in parts connected together by leak-proof flanged connections, to obtain the required length. Trough end covers shall be bolted type.
- 2.3.4 A waste packing seal shall be mounted outside the end plate on ends both for convenient packing or inspection.
- 2.3.5 The trough shall be supported on saddles. In case the trough is made of different sections, the supports shall be provided for each section which allow removal of the trough sections or screw without disturbing through alignment.