Forklift Forks Guide

Selection, Inspection, and Use

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Styles of Forks

Hook Style Forks

Hook style forks are separated into different classes, depending on the size of the carriage. The carriage size is measured from the top to the bottom of the carriage:

Class II	16" Carriage	(2,000 - 5,500 lbs)
Class III	20" Carriage	(6,000 - 10,000 lbs)
Class IV	25" Carriage	(10,000 - 17,500 lbs)
Class V	28.67" Carriage	(18,000 - 24,000 lbs)

Shaft Style Forks

All shaft forks are special sourced items and must be ordered to customer specifications.

Fork Types

Class II and III Carpet Poles Designed to handle carpet rolls.

Coil Handling Forks Blade is contoured to handle coils – capacity is reduced according to the size of the contour.

Class II and III Block Forks Designed to handle bricks and blocks.

Folding Forks Enables forklifts to maneuver in areas where movement is restricted.

Fork Extensions Extends the length of the fork blade. Fork extensions should never exceed 1.5 times the length of the fork.

Lumber and Plywood Forks Available in forged heel, square heel, single taper, and double taper.

Spark Retardant Forks For use in hazardous environments. Most popular are covered in brass.

Tire and Drum Handling Forks Designed to handle tires and drums.

Fork Tips

Fork tips and tip bevels are required for ease of entry into load, depending on the application.

Standard: For most applications.

Tapered: For narrow pockets.

Square: Lumber forks and wide forks.

Round: Interchangeable with standard tip.

Fork Tapers

Fork tapers are required to enhance the ease of travel of the fork when engaged into a load.

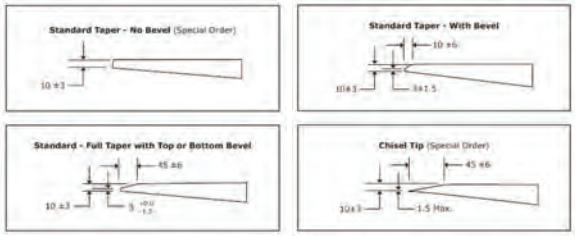
Standard Fork Taper
Common for pallet skids.

Full Taper Polish (FTP)
Easy to slide under objects on the floor and used in lumber applications shorter than 72".

Full Taper No Polish (FTNP)
For smaller, shorter pallet skids

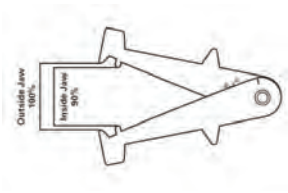
Fork Bevels

Bevels can be requested. There are four basic designs:

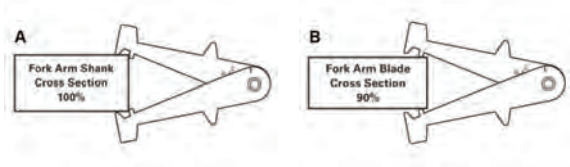


Fork Wear Calipers

Fork wear calipers are used to check for wear and distortion. ANSI/ITSDF states "the fork blade and shank shall be thoroughly checked for wear, special attention being paid to the vicinity of the heel. If the thickness is reduced to 90% of the original thickness, the fork shall not be returned to service." (B56.1d-2009 6.2.8.1)



The calipers measure the thickness of the fork arm shank **(A)** then automatically indicate what a 10% wear factor would be when the calipers are applied to the blade cross section **(B)**. Note: Wear calipers are not recommended for full taper or lumber forks.



Key Inspection Points

Fork wear calipers can also:

Check fork heel angle

Check the ITA hook for defects

Measure bore on shaft/pin type forks

Make sure to inspect:

Blade thickness

Excessive fork angle

Misaligned tips and hooks

Permanent distortions

Positioning lock

Surface cracks

Fork Failures

How Damage and Wear Occur:

Application environment

Improper chain adjustments

Normal wear from extended use

Operator error or abuse

Tire wear

Used beyond rated load capacity

Fork Use Guidelines

To avoid potential damage and injury DO NOT:

Carry full or partial loads on one fork.

Change forks from one forklift to another, without knowing the capacity of each.

Overload forks beyond the rated capacity.

Use a fork in an application for which it is not designed.

Use fork extensions that exceed 1.5 times the fork blade length.

Repair or modify forks in the field, especially by welding. Welding destroys heat treat properties, making the fork brittle.

Apply sideways pressure on forks, commonly called "side loading," as they are designed for vertical loading only.

To ensure efficient operation:

Inspect forks regularly, using an inspection log for recording data.

Make sure the capacity meets or exceeds the forklift rating and load weight.

Obtain written approval from the fork manufacturer prior to making fork modifications.

Determine your fork wear cycle and replacement schedule for a specific operation. Using larger forks in demanding applications may extend fork life.

Forks must be properly seated on the carriage and the lock pins fully located in the carriage slot.

Fork Terminology

Blade The horizontal portion of the fork upon which the load is supported.

Heel The radiused portion of the fork connecting the blade to the shank.

Shank The upright (vertical) portion of the fork to which the supporting forks are fixed.

Hooks Lugs attached to the shank to support and retain the fork on the carriage.

Tube The tube used for mounting forks onto shaft-type carriages.

Tip The free end of the blade.

Positioning Lock Device for locating the fork on the fork carriage.

Flanks The side faces of the blade and shank.

Fork Inspection & Repair

ANSI/ITSDF B56.1-2009 6.2.8.1 Repair and Testing

Note: 90% of forks that are worn at least 10% in the blade usually have cracks in the heel or the welds and are rejected.

6.2.8 Inspection and Repair of Forks in Service on Forklift Trucks

(a) Forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any defect or permanent deformation is detected. Severe applications will require more frequent inspection.

(b) Individual Load Rating of Forks. When forks are used in pairs (the normal arrangement), the rating capacity of each fork shall be at least half the manufacturer's rated capacity of the truck, and at the rated load center distance shown on the lift truck nameplate.

6.2.8.1 Inspection

Fork inspection shall be carried out carefully by trained personnel with the aim of detecting damage, failure, deformation, etc., which might impair safe use. Any fork that shows such a defect shall be withdrawn from service, and shall not be returned to service unless it has been satisfactorily repaired in accordance with para. 6.2.8.2.

(a) Surface Cracks
(b) Straightness of Blade and Shank
(c) Fork Angle (upper face of blade to load face of the shank)
(d) Difference in Height of Fork Tips
(e) Positioning Lock (when originally provided)
(f) Wear
– Fork Blade and Shank
– Fork Hooks (when originally provided)
(g) Legibility of Marking (when originally provided)

6.2.8.2 Repair and Testing

(a) Repair – Only the manufacturer of the fork or an expert of equal competence shall decide if a fork may be repaired for continued use, and the repairs shall only be carried out by such parties. It is not recommended that surface cracks or wear be repaired by welding. When repairs necessitating resetting are required, the fork shall subsequently be subjected to an appropriate heat treatment, as necessary.
(b) Test Loading. A fork that has undergone repairs other than repair or replacement of the positioning lock and/or the marking, shall only be returned to service after being submitted to, and passing, the tests described in para. 7.27.3*, except that the test load shall correspond to 2.5 times the rated capacity marked on the fork. *Para. 7.27.3 reflects manufacturing standards.

FAQ's

Question: If the blade thickness is at 90% or less, can I place the fork on a lesser capacity unit?
Answer: Yes. If the fork is load tested and re-stamped with the new capacity. "A fork that has undergone repairs other than repair or replacement of the positioning lock and/or the marking, shall only be returned to service after being submitted to and passing, the tests described in paragraph 7.23.7, except that the test load shall correspond to 2.5 times the rated capacity marked on the fork."

Question: Can I drill a hole in one of my forks?
Answer: No! Any modification to a fork must be approved and performed only ***by the manufacturer.*** Fork modifications put you at risk for an accident, injury or death and potential fines from OSHA.

Question: One of my forks is damaged. Can I replace just one of them?
Answer: No. Forks must be replaced as a pair. Wear and damage are not always visible and uneven forks could result in reduced capacity and potential accidents, injury or death.