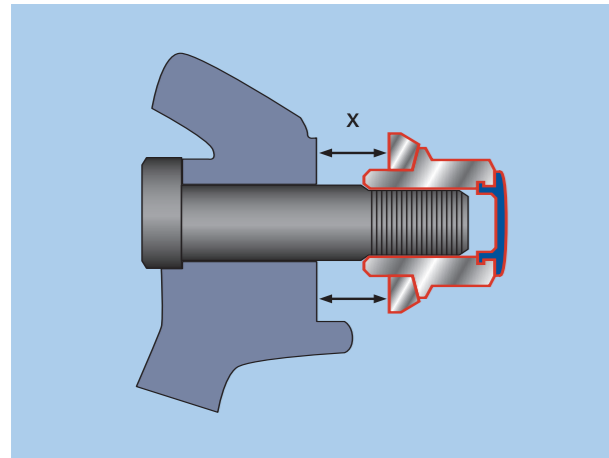


This space (x) must be 2 mm less than the disc thickness of the Alcoa wheel to be accommodated. Determine this space when the nut is bottomed out at stud without a wheel mounted.



CAUTION! Applies to section A & B

Spigot length

Before purchasing Alcoa wheels always consult your truck or trailer OEM:

- The spigot length must be 3 mm or more for single mounting and 1x disc thickness + 3mm for dual mounting. Do not include bevelled edges on spigots. Always apply some ALgrease or non-water based lubricant on the spigots to reduce corrosion and make it easier to remove wheels for service.

Thread engagement

The minimum recommended number of thread engagement between stud & nut is:

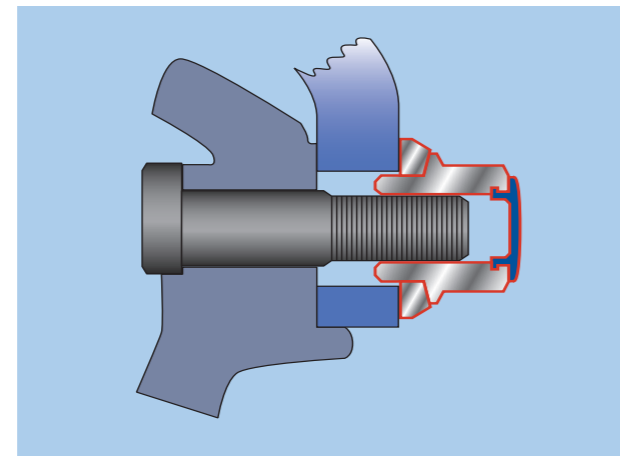
- 13 full turns for M22 x 1.5 (Metric)
- 12 full turns for M20 x 1.5 (Metric)
- 11 full turns for M18 x 1.5 (Metric)
- 11 full turns for 7/8"-14 UNF (Volvo)
- 10 full turns for 7/8"-11 BSF (Scania)

Hidden valve design / disc brake axle application

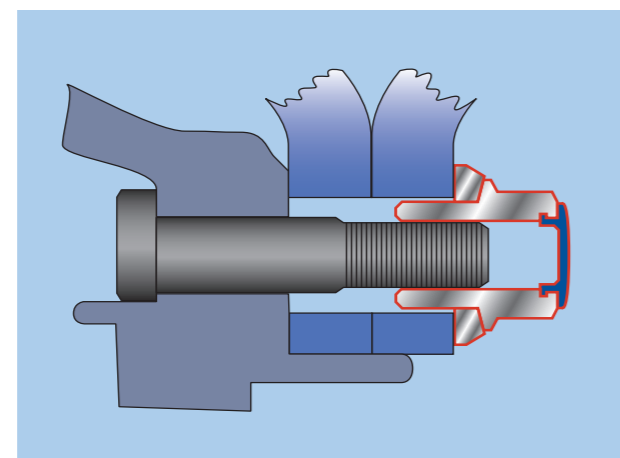
- All current produced 22.5" wheels have a hidden valve design that can be mounted on axles with disc brakes.

- Currently produced 19.5" x 7.50, 8.25 & 14.00 wheels have a hidden valve design, 19.5" x 6.75 wheels can be used on disc brake axles if the clearance between the calliper and the valve is 5 mm or more.
- All current 17.5" wheels do not have a hidden valve design and can be used on disc brake axles if the clearance between the calliper and the valve is 5 mm or more.

The shanks do not centre the wheel, the system still requires a hub-piloted axle. Short and long sleeved cap nuts are available from Alcoa in thread sizes for all European vehicles. The torque to obtain the correct clamping force is recommended by your truck/ axle manufacturer.



Single wheels require sleeved nuts with a short shank.



For dual mounting wheels must be mounted with long shank nuts.

Care and Maintenance

Regular cleaning

Clean the wheels regularly with steam or high-pressure water. The use of a mild detergent is recommended. Do not use harsh alkaline / acid cleaners.

Use ALclean and ALpolish

Alcoa wheels are uncoated. The highly corrosion resistant alloy that is used for Alcoa wheels reduces oxidation to a minimum. Maintaining the original shine of the wheels is easy with ALclean and ALpolish. It will keep your wheels bright and shiny for years. Alcoa Dura-Bright® wheels only need soap and water washing to stay bright. These wheels should not be polished with standard polishes such as ALpolish.

Corrosion

Due to aluminium's natural resistance to corrosion, Alcoa forged aluminium wheels do not need to be painted. Certain environments, such as livestock hauling, can lead to corrosion. Other potentially corrosive materials include salt, highly alkaline substances and chloride compounds. Using ALprotect reduces corrosion and improves the protection of your wheels.

Avoid abuse

Lack of care in changing a tyre, heavy impacts on the wheel rim, overloading or hitting kerbs can damage wheels.

Do not straighten wheels

Do not heat wheels in an attempt to soften them for straightening or to repair other damage. The special alloy used in these wheels is heat-treated, and uncontrolled heating will weaken the wheel.

Do not weld the wheels for any reason

Five-year warranty

Alcoa warrants to the original purchaser that a new Alcoa aluminium disc wheel is free from defects in material and workmanship. Alcoa agrees to replace without charge a wheel that fails in normal use and service because of defects in material or workmanship within sixty (60) months of the date of manufacture as shown on the wheel.

Alcoa does not warrant and will not replace any wheel which has been subjected to misuse or abuse including, without limitation, the following;

- Using a tyre which is oversized according to standards recommended by the European Tyre and Rim Technical Organisation.
- Loading the wheel beyond the applicable maximum wheel load as specified by Alcoa.
- Inflating beyond the applicable maximum as specified by Alcoa.
- Changing the original condition of the wheel by alteration or by subjecting it to any processing, such as welding or straightening.

There is no warranty that the wheel shall be merchantable or satisfactory for any particular purpose, nor is there any other warranty expressed or implied, except such as is expressly set forth herein. Alcoa shall not be liable for any incidental or consequential damages for any breach of warranty, its liability and the purchaser's exclusive remedy being expressly limited to replacement of the wheel as herein provided. Replacement will be handled by any authorised Alcoa wheel distributor or by any Alcoa sales office. This warranty gives you specific legal rights. You may also have other rights under other applicable laws.



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General characteristics

Material:	6061-T6 forged aluminium
Approved by:	LBF, TÜV, JWL-T, and all European vehicle manufacturers
ISO certificates:	ISO 9001: 2000 ISO 14001 EMS (Environmental Management System) ISO/TS 16949: 2002
Tyre sizes:	All ETRTO approved sizes
Cap nuts:	Two-piece cap nut DIN 74361 T3 or sleeved cap nut
Mounting:	Hub centred DIN 74361 T1 & T3
Valve torque:	9.0-14.6 Nm
Wheel nut/ cap nut torque:	Recommended by truck/ axle manufacturer
Availability:	Through all vehicle manufacturers or your local Alcoa distributor For information call Alcoa

Tyre mounting

Follow all existing procedures and safety rules shown in Alcoa’s Safety & Service Manual available at www.alcoa.com/alcoawheels/north_america/en/service_manual.asp

The Manual gives detailed information on the following topics and others as well:

- Use only the proper tools.
- Use only the appropriate tyre size.
- Do not use a damaged tyre or wheel. Inspect them carefully before mounting.
- Do not use a wheel that has been exposed to excessive heat from tyre fires, brake fires, severe brake system drags or seizures or other causes.
- Do not use a wheel that has been subjected to high pressure tyre & rim separation, run flat, excessive heat, or other physical damage. A wheel subjected to any of these conditions may no longer have sufficient dimension and contour to retain the tyre bead while under pressure.

- A cracked or damaged wheel may cause the wheel to fail or come off the vehicle while the vehicle is moving.
- Do not straighten the wheels. Do not heat the wheels in an attempt to soften them for straightening or to repair other damage. The special alloy used in these wheels is heattreated, and uncontrolled heating will weaken the wheel.
- Do not weld the wheels for any reason.
- Check if the valve is mounted in the right way.
- Apply ALgrease as rim protector and tyre-mounting lubricant.
- Ensure that the tyre bead is properly seated.
- Do not over-inflate.
- Use a protective cage during inflation.

Balancing

Since Alcoa wheels are fully machined they do not require balancing. The tyre-wheel combination, however, may need corrective weighting. Liquid or powder balancing is not recommended. Preferably use Hofmann balancing weights (see our technical data sheet). For further information a separate balancing leaflet is available.

Valves

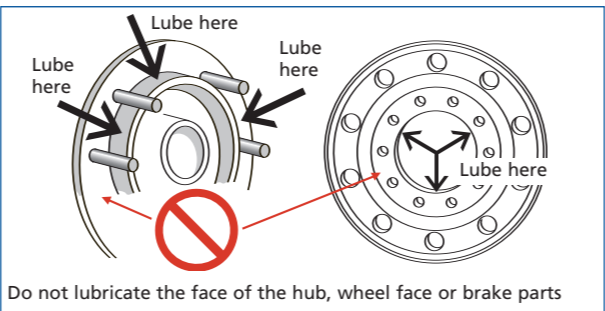
Alcoa wheels are supplied with nickel or chrome-plated valves installed. Never install brass valves. Brass is not compatible with aluminium and corrosion will result. The Alcoa standard valve should never be bent to another shape. Different valve extensions may be used. If the valve is changed for any reason, apply ALgrease or an equivalent lubricant to the valve hole area and valve seat. The complete valve, including the nut, needs to be replaced if the valve was taken out or loosened. For further information a valve application chart is available.

Mounting on the truck

ALgrease

Before mounting, lubricate the spigots or the wheel hub bore with ALgrease. This minimizes corrosion

between the wheel and hub. Do not lubricate the face of the wheel or hub. ALgrease or equivalent lubricants are heat resistant and are safe for aluminium and tyres. They can also be used for mounting tyres and valves. Other lubricants that are water-based or contain heavy metals can cause corrosion and should not be used. ALgrease can be ordered from your Alcoa distributor. For further information a separate ALgrease leaflet is available.



Torque

Always use the correct torque:

Cap nuts: recommended by truck/ axle manufacturer.

Valves: 9.0-14.6 Nm. Check the torque of valves and cap nuts frequently.

Disc thickness & thread engagement

The mounting flange of Alcoa wheels is thicker (21 to 28 mm) than the mounting flange of steel wheels (11 to 13 mm) and requires different mounting hardware. Therefore either use:

- Longer studs with standard nuts, or sleeved cap nuts on standard length studs**
- The recommended length of engagement between the threads of the stud and the nut is equivalent to 90% or more of the diameter of the stud.**

If less, the stress on the threads may cause cracking or breaking of the stud. This could cause loss of the wheel with serious injuries and damage as a result.

Hub centring & cap nuts

All European Alcoa wheels are hub centred type wheels. European Alcoa wheels have cylindrical boltholes and are not suitable for bolt centring with conical or spherical nuts. These types of mounting systems must never be used on European Alcoa wheels. If used, the warranty is voided and severe consequences, such as cracking or wheel failure could result. Even worse, this could lead to wheel loss leading to serious injury or death.

- Only two piece cap nuts with an integral, freely turning washer designed for hub centring mounting systems must be used for fastening European Alcoa wheels.
- For single and dual mounting, the spigots should be in contact with the wheels for at least 3 mm. Longer spigots make mounting easier.
- Following sleeved cap nut types are available:
 - M22 x 1.5 (Metric)
 - 7/8" - 14 UNF (Volvo)
 - 7/8" - 11 BSF (Scania)
 - M20 x 1.5 (Metric)
 - M18 x 1.5 (Metric)

Tyres

European Alcoa wheels have a 15° bead seat angle and only accommodate tubeless tyres with a 15° bead. Never use tube type tyres or tyres with different angled beads on European Alcoa wheels.

Technical data sheet

For reference see our latest Technical Data sheet with details about: disc thickness, number of mounting holes, bolt hole diameters, hub or centre hole diameter and bolt circle diameter.

Studs & nuts

Read the appropriate section & general section before mounting Alcoa wheels:

- Section A: when replacing studs and using standard nuts
- Section B: when using standard studs and special sleeved cap nuts

Section A

Longer studs & standard wheel nut

- 22.5” wheels for Heavy Duty trucks & trailers with 26 mm bolthole diameter
- 19.5” wheels for Medium Duty trucks & trailers with 24 mm bolthole diameter
- 17.5” wheels for Light Duty trucks with 21 mm bolthole diameter (6 holes on 245 mm bolthole circle diameter only)
- 17.5” wheels for trailers with 26 mm bolthole diameter

This wheel version requires longer studs than for steel wheels. The stud standout must be checked very carefully. The standout is measured from the surface that actually contacts to the wheel (steer or inner dual) to the outer end of the stud:

- Single mounting**
Minimum stud standout = disc thickness Alcoa wheel + height of standard nut
- Dual mounting**
Minimum stud standout = 2x disc thickness Alcoa wheel + height of standard nut

Section B

Standard studs & Alcoa sleeved cap nuts

- 22.5” wheels for Heavy Duty trucks & trailers with 32 mm bolthole diameter
- 19.5” wheels for Medium Duty trucks with 30 mm bolthole diameter
- 19.5” wheels for trailers with 32 mm bolthole diameter
- 17.5” wheels for Light Duty trucks with 26.5 mm bolthole diameter (6 holes on 245 mm bolthole circle diameter only)

The standard wheel stud length can accommodate Alcoa wheels with more disc thickness when a special sleeved cap nut is used. The shank or sleeve of these nuts extends into the 32, 30 or 26.5 mm mounting

holes and compensates the standard stud length or thread engagement.

Only use wheels with appropriate stud hole diameter to allow the sleeve of the nut to easily pass through it.

Sleeved cap nuts are available for:

32 mm mounting system:	M22 x 1.5 (Metric), 7/8” - 14 UNF (Volvo) 7/8” - 11 BSF (Scania)
30 mm mounting system:	M20 x 1.5 (Metric)
26.5 mm mounting system:	M18 x 1.5 (Metric)

General

CAUTION! Applies to section A

Stud availability

Before purchasing Alcoa wheels always consult your truck or trailer OEM if longer studs are available in case of 26, 24 or 21 mm mounting system, i.e. longer studs & standard nuts.

XL studs

Some trailer axle manufacturers offer axles with “combined” or extra long stud lengths, suitable for both thinner steel wheels and thicker aluminium wheels. In some cases Alcoa wheels can be mounted without modification of the studs or purchase of sleeved cap nuts. To determine correct & safe fitting follow the procedure as described above in section A.

CAUTION! Applies to section B

Centring with sleeved nuts

The shanks or sleeves of the special cap nut do NOT centre the wheel(s); this mounting system still requires a hub piloting or hub centring axle.

Studs with unthreaded part / bottom

Studs that have an unthreaded part can cause incorrect or no clamping of the wheel(s) at all. Sleeved nuts may “bottom out” on the stud’s unthreaded part even before the wheels are clamped correctly.

Before mounting Alcoa wheels on hubs with such studs the space between the washer and the hubs mounting face must be determined.