



## Press-In Wheel Studs Installation Instructions

Moroso offers a selection of Press-In Wheel Studs based on thread size, length, and most importantly, the knurl diameter. The knurl on a press fit wheel stud is designed to help retain the wheel stud and resist rotational force when tightening the lug nuts and ensuring that the stud does not push out of the hub during wheel installation.

To achieve this goal, a few things must be taken into consideration when installing a Press-In Wheel Stud:

- Step 1 Remove the existing studs using a hydraulic press. Properly support the back of flange. Failure to do so will result in distortion or damage to the component (See Fig 1 & 2). Use all proper safety precautions including safety glasses and machine guards.



Fig. 1



Fig. 2

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(203)-458-0542, 8:30am-5:00pm Eastern Time  
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Step 2 Determine the hole size that exists in the wheel hub. You must have a set of good calipers and a micrometer for precise measuring of the components (See Fig. 3).



Fig. 3

Step 3 All Moroso Press-In Wheel are designed to fit a range of precise holes. A steel hub needs to measure .006" to .016" smaller in diameter than the knurl of the stud. In an aluminum hub, the hole needs to be .006" to .010" smaller in diameter than the knurl. While the Press-In Stud you are starting with comes with an advertised "Knurl Diameter", it is important to measure the knurl size to determine what the correct hole size is for your stud (See Fig. 4).



Fig. 4

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Step 4 The Moroso recommended way to open the hole sizes are with a drill press or a mill to create a perpendicular and proper size hole in the hub for the Press-In Wheel Stud to properly fit (see Fig. 5).



Fig. 5

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**As an example, we will use a P/N 46180 Press-In wheel Stud kit for our installation.**

- Measure the hole in the hub once the existing stud has been removed (Fig. 3)
- Refer to the application chart provided to see what size stud will fit closest to the existing hole.
- Once you have the stud (#46180 in our example), measure the outside diameter of the knurl. This part should be around .615" in diameter.
- The reamed hole size should be:

Steel Hub – .006" (low value) - .615" = **.609" diameter**  
.016" (high value) - .615" = **.599" diameter**

Aluminum Hub - .006" (low value) - .615" = **.609" diameter**  
.010" (high value) - .610" = **.605" diameter**

**In both cases a .605" to a .609" reamer would work to properly install the Press-In Wheel Stud correctly.**

**Step 5** It is highly recommended the holes are finished with a reamer to ensure the press fit is correct. Drill bits are not recommended as they do not produce tight tolerance and round holes. A drill bit will be used to bring the hole into an approximate size for final reaming (See Fig. 6). In our example you have a .004" to .010" window in sizing. This can only be accomplished by reaming the hole.



Fig. 6

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Step 6 If you are replacing studs in an existing hub that you removed studs from, ensure that the new hole is properly located, and the back side is chamfered .025" to .040" to allow clearance on the under-head radius and aid during the lead in of the knurl when installing (See Fig. 7).



Fig. 7

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New aftermarket hubs are often machined with holes that will accommodate these sizes for Moroso Press-In Studs. Check with the manufacturer for what size the holes are.

Step 7 A Moroso Press-In Stud final installation can be done by either pressing in the stud from the rear or drawing in the stud from the face by using a variety of available wheel stud installation tools (See Fig. 8).



Fig. 8

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When assembling with a stud installation tool, use Moroso P/N 35600 or 35601 Extreme Pressure Lubricant on both the treads and the face surfaces of the tools. Do not use lubricants on the knurl (see Fig. 9)



Fig. 9

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Step 8 To verify the Press-In Stud is fully installed, ensure that the head of the stud is flush to back side of the flange face, and there is no visible gap (Fig. 10). Presence of a gap after installation could be caused by an insufficient chamfer depth (Fig. 7).

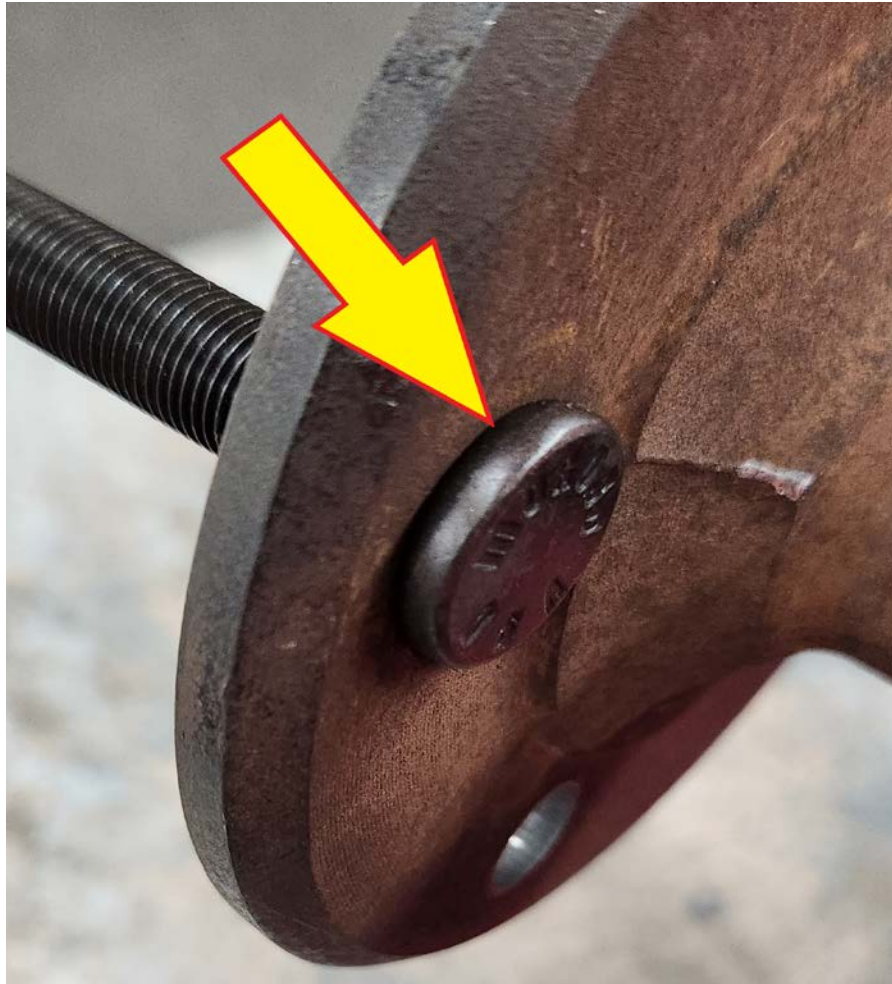


Fig. 10

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**If you choose to install the Press-In Wheel Studs by using hand or power tools with the axle removed, a few steps need to be followed for proper installation.**

- Step 1** Opening the holes up in the hub will require a drill & reamer size (shown in STEP 4) that will ensure a press fit of some type. When drilling & reaming the final hole size, the drill bit & ream must be sized right to have the correct press fit size as used in our example above. Outside these final sizes will cause damage to the stud and hub when installed.
- Step 2** Drilling the hole perpendicular is critical as a crooked hole will cause the wheel stud to seat incorrectly and break, as well as not allow the wheel to slide over all the studs during installation. Drilling out with incremental drill sizes will help create a proper hole size and location.
- Step 3** If you are replacing studs in an existing hub that you removed studs from, ensure that the new hole is properly located, and the back side is chamfered .025" to .040" to allow clearance on the under-head radius and aid during the lead in of the knurl when installing (See Fig. 7).
- Step 4** When installing the Press-In Wheel Studs into the hub, using a stack of hardened washer and a high-grade nut to draw the stud into the hub can work. **It is highly recommended that using Moroso P/N 35600 or 35601 Extreme Pressure Lubricant on all the washer surfaces and between the nut and washer.** Visually determine when the stud is fully seated, the gap between the hub and the shoulder becomes non-existent (See Fig.9 & 10).

**If you choose to install the Wheel Studs with hand or power tools with the axle still in the vehicle, a few steps need to be followed for proper installation.**

- Step 1** In most cases, the stud you are removing will be too long to push out the rear as the backing plate or chassis components will prevent this. Rotate the axle to find a spot where the backing plate can be drilled out or cut to allow the stud to go out the back during removal. Verify there is enough room to install the longer Press-In Wheel Stud before cutting any back plates or chassis components. It also may be required to remove steering or suspension parts to allow room for removal and installation.

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Step 2 Opening the holes up in the hub will require a drill & reamer size (shown in STEP 4) that will ensure a press fit of some type. When drilling & reaming the final hole size, the drill bit & ream must be sized right to have the correct press fit size as used in our example above. Outside these final sizes will cause damage to the stud and hub when installed.

Step 3 Great effort must be made to make the hub perpendicular to the surface you will be drilling. Drilling the hole perpendicular is critical as a crooked hole will cause the wheel stud to seat incorrectly and possibly not allow the wheel to slide over all the studs during installation. Drilling the hole out in increased drill sizes will help provide a cleaner, centered hole.

Step 4 The backside of the hub must be chamfered to a depth of .025" to .040" to allow clearance on the under-head radius and aid during the lead in of the knurl when installing (See Fig. 7).

Step 5 When installing the Press-In Wheel Studs into the hub, using a stack of hardened washer and a high-grade nut to draw the stud into the hub can work. **It is highly recommended that using Moroso P/N 35600 or 35601 Extreme Pressure Lubricant on all the washer surfaces and between the nut and washer.** Visually determine when the stud is fully seated, the gap between the hub and the shoulder becomes non-existent (See Fig.9 & 10).

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