



INDUSTRY NINE
COMPONENTRY

Lacing Industry Nine Torch Mountain Wheels

Important: *These instructions assume a fundamental knowledge of bicycle wheel construction. If you do not understand the terms or possess familiarity with lacing and tensioning spoked bicycle wheels, please take them to a local bicycle shop and have them professionally built.*

FAILURE TO PROPERLY ASSEMBLE COULD RESULT IN SERIOUS INJURY OR DEATH

Spoke Preparation

Industry Nine wheel kits are delivered with spokes in two lengths. Included will be 32 drive side rear / disc side front spokes and 32 NON-drive side rear / NON-disc side front spokes. OR 32 drive side rear / Disc side front and 16 NON-drive side rear / NON-disc front when lacing a 24 spoked wheels.

On 32H wheels the drive side rear / disc side front will be shorter than the NON-drive side rear / NON-disc side front. On 24H wheels the high count drive side rear / disc side front will be longer than the low count NON-drive side rear / NON-disc side front. Our spokes are measured from the bottom of the rounded part of the head where it meets the rim to the very tip on the thread on the opposite end. If measuring spokes end to end, subtract three millimeters.

The threads of the spokes need to be treated with an application of *Boiled Linseed Oil*. This treatment acts as lubrication for the assembly and will soon set up to make for a stronger bond when combined with the spoke tension. **DO NOT** use conventional spoke preps, or any other lubrication or thread locking compounds. Boiled Linseed Oil is affordable and available at most hardware or paint stores.

Wheel Lacing

32 spoked wheels:

Orient a 32 hole rim so that the valve hole is at the 12 o'clock position with the plane of the rim perpendicular to your line of sight.

Drop two of the shorter length spokes into the spoke holes immediately to the left, and second to the right, of the valve hole.

Hold the Industry Nine Torch hub roughly in the center of the wheel, with the freehub body towards you. You should be able see the "9" logo through the valve hole on the rim. Thread the spokes into the threaded holes on the left and right sides, respectively, of the drive side flange that line up with the two installed spokes. Once installed, these two spokes should be roughly parallel. Thread only 4-5 turns in on each spoke.

Using these spokes as a guide, install the remaining drive side spokes in alternating holes (every second hole) on the rim. Thread the spokes into the hub in a three cross pattern but do not interlace the spokes. Note that the spokes will each only line up with one threaded hole on the hub. Thread only 4-5 turns in on each spoke.

Once the drive side is complete, spokes should be installed in every other hole in the rim, with an empty hole between each pair of adjacent spokes. Flip the assembly over so that the disc side is towards you, and orient wheel so that the valve hole is again at 12 o'clock

Using the longer spoke length, install the non-drive spokes in the same manner as the drive side. Begin with the holes immediately to the left and second to the right of the valve hole.

Ensure that the spokes adjacent to the valve hole are parallel, so that access to the valve will be unimpaired.

Install the remaining non-drive spokes. Thread only 4-5 turns in on each spoke.

Note that these spokes are also in a three cross pattern, and will each only line up with a single threaded hole on the hub.

Continue by tensioning and truing the wheel, referring to the Build-Up instructions.

24 2/1 spoked wheels:

Orient a 24 hole rim so that the valve hole is at the 12 o'clock position with the plane of the rim perpendicular to your line of sight.

Drop two of the butted longer spokes, drive side spokes immediately to the holes right and left of the valve.

Hold the Industry Nine 24 hole Torch hub roughly in the center of the wheel, with the freehub body towards you. You should be able to see the "9" logo through the valve hole on the rim.

Thread the spokes into the threaded holes on the left and right sides, respectively, of the drive-side flange that line up with the two installed spokes. Once installed, these two spokes ought to be roughly parallel/ Thread only 4-5 turns in on each spoke.

Using these spokes as a guide, install the remaining drive side spokes in paired holes (two side by side with every 3rd hole empty) on the rim. Thread the spokes into the hub in a three cross pattern but do not interlace the spokes. Note that the spokes will each only line up with one threaded hole on the hub. Thread only 4-5 turns in on each spoke.

Once the drive side is complete, spokes should be installed in side-by-side pairs with every 3rd hole empty. Flip the assembly over so that the disc side is towards you, and orient the wheel so that the valve hole is again at 12 o'clock.

Using the 8 straight gauge shorter non-drive side spokes install in a one-cross pattern into the threaded holes the spokes line up with.

Continue by tensioning and truing the wheel, referring to the build up instructions below.

Build-Up Instructions for Industry Nine Torch Mountain Wheels

Begin with all spokes installed loosely. Refer to the lacing instructions if need be.

Hand tighten Drive-side (rear)/Disc Side (front) spokes until the spokes are almost exposed on the back side of the Hub's Hammer - the part that accepts the spoke on the hub.

Follow by hand-tightening Non-drive/non-disc spokes in the same manner.

Place the wheel in the truing stand.

The initial tensioning should start with giving BOTH Drive and Non-Drive spokes one and a half full turns.

After initial tensioning has been done proceed using ½ to ¼ turns to make the wheel both round, true and roughly in dish with still-low spoke tension.

-NOTE - At this stage adjustments to trueness also greatly affect out-of-roundness much like a radially laced wheel.

Once perfectly round and true, add ½ turn tension to all drive side(r)/Disc side(f) spokes, then re-true and check roundness. Repeat, adding ¼ turn the second time around.

-NOTE- This step may cause the wheel to come radically out of dish, which is desired in this case.

-NOTE- On Singlespeed and 12x150mm DH rear wheels, add tension to ALL spokes in this step, roughly maintaining dish. DH rear wheels with .110"/.118" gauge spokes may not require the second addition of spoke tension.

Stress wheel by hand-stretching parallel pairs of spokes around the wheel (evenly distributed tension inequalities). These parallel spokes will share sides.

Re-true laterally and radially following this step.

Dish wheel by adding tension to all Non-Drive(r)/Non-Disc(f) spokes ¼ turn at a time.

Re-true and check roundness using small (1/8-1/6 turn) increments to affected spokes.

-NOTE- Watch the threaded end of the spoke in the hub to check for the spoke winding up

Check Drive side(r)/Disc side(f) tension using DT Swiss Tensio™ or Park Tool Tensiometer™* Industry Nine as approved the Park Tool and DT Swiss tensiometers only. Other tensiometers should not be used. Reading should be within the following ranges:

Wheel type/spokes	DT Tensio Reading	Park Tensiometer Reading
24h System Chassis DS-R/NDS-F	3.1-3.3	30-32
24h System Chassis NDS-R/DS-F	3.85-4.05	33-35
32h System Chassis DS-R/NDS-F	3.3-3.5	31-33
32h System Chassis NDS-R/DS-F	2.9-3.0	28-30
.118"- .110" 32h System Chassis DS-R/NDS-F	3.6-3.8	32-34
.118"- .110" 32h System Chassis NDS-R/DS-F	3.4-3.5	34-35

-NOTE- The above deflections translate to 95-105 Kgf on Industry Nine Spokes.

-NOTE- Not all tensions will be in this range, but a sample of all drive/disc side spokes should return >80% in suggested tension range

-NOTE- Front spoke tension may fall in the low end of the range, while drive side rear spokes will fall in the high end of the range due to greater dish

For further technical questions, please feel free to contact our Technical Support department via phone or email: service@industry9.net