

PROFILE

NTC Wind Energy

Family-owned NTC Wind Energy supplies quality bolt caps and much more while offering value to its customers in a fair, honest way.

By Kenneth Carter
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As wind turbines turn and spin hundreds of meters above the ground, it's sometimes easy to overlook the parts and components that keep those massive towers standing tall.

But without specially designed parts, those towers can fall victim to the very wind they are trying to capture.

As part of its many products and services for the wind industry, NTC Wind Energy has been producing specialty bolt caps for decades. Those caps help shield turbines from the sometimes-brutal forces of nature.

“ORIGINAL BOLT CAP”

“We came out with the original bolt cap,” said Joe Bruce, vice president and general manager for NTC Wind Energy. “When the monopole design came out, the foundation anchor bolts at that time were exposed. It looked like they needed protection. And so we came up with a bolt cap, and patented that bolt cap for that purpose.”

Before the advent of bolt caps, the industry painted the foundation anchor bolts, because they were exposed to the elements.

“The painting was extremely laborious, and it had to be redone every couple of years,” Bruce said. “It also interfered with the threads on the rods for re-tensioning, so that wasn't really the answer.”



The Ironclad standard duty bolt cap is NTC's main stay. (Photos courtesy: NTC Wind Energy)

NTC Wind Energy

Founded:
1996

Headquarters:
Boerne, Texas

Website:
www.ntcwind.com

Paint wasn't going to solve the problem, but, according to Bruce, grease would.

“The answer was to grease the foundation anchor bolt and protect that grease with what we call the bolt cap,” he said. “Because essen-

tially, it protects the grease. And that was the origin of our business.”

The Ironclad standard duty bolt cap is NTC's main stay. In fact, it was the company's original product.

That original design has gone through many generations of improvements since it was first introduced, and NTC has added even more products since then.

EXTREME DUTY CAP

The Ironclad extreme duty bolt cap is intended for harsher conditions, according to Bruce.

The extreme duty bolt cap can be used when extreme cold could produce damaging ice. It's also ideal for salt-water environments where

salt-laden air near coasts can cause corrosion.

The extreme duty bolt cap is made of a heavier duty material than the standard cap, and it has four different seals including an O-ring seal, giving it quadruple protection, according to Bruce. It also has a grease-injection port.

And Bruce said NTC is in the process of improving the extreme duty bolt cap by venting the cap. The vent will keep the cap from producing a vacuum during temperature changes.

“We’ve discovered that bolt caps tend to expand and contract depending on the environmental conditions,” Bruce said. “And that expansion and contraction draws water into the cap. So we are venting our caps now to prevent that from happening.”

GROUT SLEEVE

Another cost-effective measure NTC offers its clients is the grout sleeve.

The grout sleeve takes the place of foam in a grout trough. It goes into the bottom of the grout trough, and it protects the foundation anchor bolt from exposure to the grout. It also keeps the grout from going down into the bolt sleeve, according to Bruce.

“Without that, the grout would go all the way down into the bolt sleeve, and we don’t want that to happen because that would interfere with the movement of that bolt within the bolt sleeve,” he said.

When the wind blows, there’s compression on one side of the foundation and expansion on the other.

“We want those foundation anchor bolts to act like rubber bands, so they’ll expand and contract, and that bolt sleeve is there to allow that to happen,” Bruce said. “And if you get grout down in there, that becomes a problem. So the grout sleeve prevents that.”

In the past, with foam rings around the bolts, the foam rings would float in



The original design of the Ironclad bolt cap has gone through many generations of improvements since it was first introduced.

the wet grout and, often times, break or split when the base is set on the foundation. Those foam rings can be expensive. NTC’s grout sleeve performs the same job but offers some additional benefits.

“The price for foam is very much the same for our grout sleeves,” Bruce said. “And our grout sleeves are very easy to install. The installer merely pushes the sleeve down to the base of the bolt and they are ready to go. And so they save labor.”

By displacing little grout, turbine owners and operators can increase the strength of the foundations.

“If you can protect that bolt without displacing any grout, then you end up with a higher compressive strength in your foundation,” Bruce said.

HUMBLE BEGINNINGS

NTC Wind Energy is based in Boerne, Texas, but it started out in Tehachapi, California, in 1996. It was there that Norm Tooman Construction experimented with the first utility-scale wind turbines. Norm Tooman Construction eventually became NTC Wind Energy.

In addition to its bolt caps and grout sleeves, NTC offers other products and services that include rock anchor bolt caps, grease applicators, wiggle bars for P&H anchor bolt packages, miniature



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load cells for precision tensioning of foundation anchor bolts, specialty corrosion inhibiting grease for foundation anchor bolts, and bolt restoration services.

“We’re a small family-owned business,” Bruce said. But he added that he wants NTC to continue to grow with the wind industry.

“We want to stay responsive to the industry,” he said. “The wind industry is innovative and fast moving, and so we want to stay at the ground floor of that. And we want to continue to be of value to customers.”

And a large part of that value comes with NTC’s innovative bolt caps.

“There are some knock-off bolt caps out there,” Bruce said. “But nothing that matches the quality of the Ironclad bolt cap.”