

Tactical nuclear weapons

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tactical nuclear weapons, small nuclear warheads and delivery systems intended for use on the battlefield or for a limited strike. Less powerful than strategic [nuclear weapons](#), [tactical](#) nuclear weapons are intended to devastate enemy targets in a specific area without causing widespread destruction and radioactive [fallout](#).

The [United States](#) began developing lightweight nuclear warheads in the 1950s. One of the first such devices was the W-54 warhead, whose explosive force, or yield, varied from 0.1 to 1 kiloton (1 kiloton is a force equal to 1,000 tons of [TNT](#)). By comparison, the atomic bombs dropped on [Japan](#) in [World War II](#) had yields of 15 and 21 kilotons. The W-54 was the main warhead used on the Davy Crockett nuclear [recoilless rifle](#), a portable warhead launcher that was crewed by a single soldier. The [Davy Crockett](#) could deliver a warhead to a target up to 2.5 miles away.

During the 1960s the [U.S. Navy](#) and [Marines](#) collaborated on development of a tactical nuclear device called the Special Atomic Demolition Munition (SADM). The project called for a two-man crew to [parachute](#) from an aircraft carrying a portable warhead similar to the W-54. The crew would place the [weapon](#) in a harbour or another target reachable by sea. They would then swim to a small craft waiting offshore to pick them up. The nuclear device was set to explode after the crew was safely out of the blast area.

During the [Cold War](#), both the United States and the [Soviet Union](#) manufactured and [deployed](#) tens of thousands of tactical nuclear

weapons. Those included nuclear artillery shells, nuclear anti-aircraft missiles, and nuclear anti-tank rounds. However, none were ever used in combat. For destroying small targets, modern conventional munitions were found to be just as effective as nuclear weapons. The only advantage of nuclear weapons in a tactical situation is that one warhead can be used in place of many conventional explosives. In addition, neither of the superpowers was willing to risk unleashing all-out nuclear war by employing tactical nuclear weapons.

How destructive are Russia's nuclear weapons and could it use them in the Ukraine war?

Russia's smaller nuclear weapons are no small threat in the Ukraine war - Copyright Composite image - Canva

By **Natalie Huet** • Updated: 23/09/2022 - 17:58

Over the past six months, Russia has repeatedly waved the threat of using nuclear force to have the upper hand in its war in Ukraine.

This week, President Vladimir Putin announced a **partial mobilisation** of reservists and issued another thinly-veiled threat of Moscow's readiness to use nuclear weapons in the conflict.

His televised address came days after the Ukrainian army pulled off a surprise counteroffensive to recapture territory around its second-largest city, Kharkiv, in the east.

"I want to remind you that our country also has various means of destruction... and when the territorial integrity of our country is threatened, to protect Russia and our people, we will certainly use all the means at our disposal," Putin said.

"It's not a bluff," he added.

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The comments sparked **alarm and outrage** in the West, with US president Joe Biden accusing Russia of making "reckless" and "irresponsible" threats.

"A nuclear war cannot be won and must never be fought," Biden told the United Nations General Assembly, repeating a Cold War pledge from both countries to abide by the 1968 Treaty on the Non-Proliferation of Nuclear Weapons.

So, what nuclear weapons does Russia have at its disposal, and how destructive could they be?

Strategic nuclear weapons

Nuclear weapons have never been used in a war since 1945, when the two atomic bombs dropped by the United States on Hiroshima and Nagasaki devastated the Japanese cities and instantly killed tens of thousands of people.

"That's a 76-year tradition of non-use of nuclear weapons. And that is the single most important feature of the nuclear age, and we really want to keep it that way," Nina Tannenwald, senior lecturer in international relations at Brown University in the US, told Euronews Next.

The horror of the bombings shocked the world into the age of nuclear deterrence, where global powers raced to develop such weapons, all the while knowing that their use would be

catastrophic for humanity - and thus refraining from wielding them against one another.



File - This undated photo provided by the Russian Defense Ministry shows an Iskander-K missile launched during a military exercise at a training ground near St. Petersburg
Russian Defense Ministry
Press Service via AP

Nowadays, Russia has the world's largest nuclear arsenal with around 6,257 nuclear warheads, while the United States admits to having 5,550, according to a **January fact sheet by the Arms Control Association**.

Of these, the so-called "strategic" weapons - those with the largest yield - are deployed on submarines, bombers and intercontinental ballistic missiles.

"Strategic nuclear weapons are the big city busters," said Tannenwald, who authored a book on nuclear deterrence.

"These are unbelievably destructive weapons. If we got into a nuclear war with strategic weapons, that would be essentially the end of civilisation in both countries".

- **What are hypersonic weapons and is Russia's use of them in Ukraine the start of a new arms race?**

Smaller tactical nuclear weapons

But some 2,000 of Russia's nuclear warheads are short-range, so-called "tactical" nuclear weapons kept in storage facilities throughout the country.

These are much smaller nuclear weapons, designed to be used on the battlefield against troop formations, tanks, or military installations and bunkers.

These can be launched on the same short-range missiles Russia is currently using to bombard Ukraine, such as its Iskander-M ballistic missile, which has a range of about 500 km.

- **HIMARS: What are these high-tech rocket systems being sent to Ukraine and how crucial are they?**

Tactical weapons were developed during the Cold War with the aim to "enhance" nuclear deterrence, said Tannenwald.

"Because the concern was, well if all you have is these really big city-busting weapons, people are going to be too afraid to use those, they're just too destructive. And therefore, the deterrent threat at some point is less credible," she said.

"The argument was: If you have these smaller, less destructive nuclear weapons, the threat to use them would be more credible because they're less damaging and therefore deterrence would be stronger".

The risk today, however, is that "they do appear to be more usable and therefore it makes it more likely that leaders could reach for them in a crisis".



This photo taken from video provided by the Russian Defense Ministry on Feb. 19, 2022 shows a Russian Iskander-K missile launched during a military exercise Russian Defense Ministry Press Service via AP

How destructive would these be?

Pavel Podvig, an expert on Russian nuclear forces and senior researcher at the United Nations Institute for Disarmament Research (UNIDIR), says there are very few scenarios in the battlefield where the immense power yielded by nuclear weapons might actually have a tactical purpose - for example, to destroy hardened underground structures or bunkers.

He argues that the main goal of tactical nuclear weapons remains a strategic one: to terrorise the enemy and gain the upper hand in a conflict.

"This whole notion of mini-nukes or limited strikes is just a way of finding a mission for those weapons and somehow justify their existence," Podvig told Euronews Next.

"Their main mission is not attacking military targets. The main mission of these weapons is to demonstrate your willingness and readiness to attack and kill a lot, a lot of civilians".

Variable-yield nuclear bombs

Most nuclear weapons nowadays are variable-yield, or "dial-a-yield," meaning their amount of explosive energy can be dialled up or down depending on the military situation and objectives.

For example, the latest version of the B61 nuclear bomb developed by the US **can release 0.3, 1.5, 10, or 50 kilotons of explosive energy**. In comparison, the Hiroshima bomb packed a force of about 15 kilotons.

"We're talking about still incredibly destructive weapons," Tannenwald said.

"And they are nuclear weapons, so they would produce a mushroom cloud, a fireball. They would set fire to everything in sight. They would release massive amounts of radiation. So nobody should think that these are somehow actually more usable weapons".

Putin's tactical nuclear weapons could pack the same punch as atomic bombs dropped on Japan

By Brad Lendon, CNN

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CNN —

With his forces retreating in Ukraine, Russian President Vladimir Putin has once again threatened to turn to nuclear weapons, most likely what are often called tactical nuclear weapons.

In a speech last week, he warned that, "In the event of a threat to the territorial integrity of our country and to defend Russia and our people, we will certainly make use of all weapon systems available to us. This is not a bluff."

Russian weapon systems include 4,477 deployed and reserve nuclear warheads, with about 1,900 of these being "non-strategic" warheads, otherwise known as tactical nuclear weapons, according to the Federation of American Scientists.

But what is a tactical nuclear weapon and how does it differ from a regular nuclear weapon?

Here's what you need to know.

Tactical vs strategic

Tactical warheads refer to ones designed for use in a limited battlefield, say to destroy a column of tanks or an aircraft carrier battle group if used at sea. These warheads, with explosive yields of 10 to 100 kilotons of dynamite, are also called "low yield."

In contrast, Russia's most powerful "strategic" nuclear warheads have explosive yields of 500 to 800 kilotons and are designed to destroy entire cities – and then some.

The reference to "low yield" for tactical weapons is somewhat misleading as explosive yields of 10 to 100 kilotons of TNT are still enough to cause major destruction – as the world discovered in 1945 when the US dropped atomic bombs on Hiroshima and Nagasaki in Japan.

Those bombs were the equivalent about 15 and 21 kilotons of dynamite, respectively – within the ballpark of Russia's tactical nuclear weapons.

See Biden's warning to Putin over nuclear weapons

The initial blasts at Hiroshima and Nagasaki killed about 70,000 and 35,000 people instantly, and tens of thousands more later died from the radiation released, according to US government archives.

Alex Wellerstein, director of science and technology studies at the Stevens Institute of Technology in New Jersey, says the real difference in nuclear weapons is not really in what their explosive yield is but what their targets are.

"The atomic bombings in Japan had been 'strategic' attacks aimed mainly at destroying morale and terrorizing the Japanese high command into surrender. What made 15 kilotons a 'strategic' yield depended on where it was aimed," Wellerstein wrote on the Outrider security blog earlier this year.

Others, including former US Defense Secretary James Mattis, say there's no difference at all.

"I don't think there is any such thing as a 'tactical nuclear weapon.' Any nuclear weapon used any time is a strategic game-changer," told a congressional hearing in 2018.

What would happen if Russia deployed one?

Russia (and before it, the Soviet Union) has built and maintained a large stockpile of tactical nuclear weapons.

The initial thinking was that using a nuke on a battlefield gave leaders an option to make a decisive strike that could stave off defeat without resorting to the use of their biggest nuclear weapons, which after a counterattack would bring a “civilization-ending nuclear exchange,” according to the Union of Concerned Scientists.

On its website, the organization calls that thinking “flawed and dangerous.”

“Tactical nuclear weapons ... introduce greater ambiguity, raising the possibility that a country might think it could get away with a limited attack,” the organization said.

Some analysis supports that theory.

A commentary published during the summer by Sidharth Kaushal and Sam Cranny-Evans at Britain’s Royal United Services Institute (RUSI) says that the use of tactical nuclear weapons against command centers or air bases in Europe could limit civilian casualties in surrounding areas

Hertling predicts 'disastrous' consequences to Putin's latest move

For instance, the RUSI report says use of a tactical nuke in the Sulwaki Gap, the land border between NATO allies Poland and Lithuania that separates Russian Kaliningrad from its neighbor Belarus, could only cause civilian casualties in the hundreds.

The reality is likely to be far from that.

“US war games predict that a conflict involving use of tactical nuclear weapons will quickly spiral out of control,” the Union of Concerned Scientists blog said.

“A Princeton University simulation of a US-Russian conflict that begins with the use of a tactical nuclear weapon predicts rapid escalation that would leave more than 90 million people dead and injured,” it said.

Responding to Putin’s threat last week, the International Campaign to Abolish Nuclear Weapons (ICAN) says the Europe of 2022 is a much more dangerous place to use nuclear arms than the Japan of 1945, which had a smaller population and was relatively isolated.

In Europe today, “a single nuclear detonation would likely kill hundreds of thousands of civilians and injure many more; radioactive fallout could contaminate large areas across multiple countries,” ICAN said on its website.

“Emergency services would not be able to respond effectively and widespread panic would trigger mass movements of people and severe economic disruption. Multiple detonations would of course be much worse,” it added.

