

UK nuclear weapons capability

[Overview]

Of the nuclear weapon states under the NPT, the UK is known to have the smallest nuclear arsenal. On May 26, 2010, the British government announced to its Parliament that its stockpile of Trident missile warheads, the only nuclear weapons in its possession, would not exceed 225 warheads in number, and that the number of nuclear warheads it would keep operational would be 160 or less (**Hague, William 2010**). On October 19, 2010, the British "Strategic Defence and Security Review" (SDSR) reconfirmed the upper limit of 225 warheads and further stated that the number of warheads would be reduced to 180 or fewer by the mid-2020s (**Office of the Prime Minister 2010**). On January 20, 2015, during a parliamentary session, it was revealed that operationally deployed warheads had been reduced to 120. This figure was also confirmed in a government report submitted to the 2015 NPT Review Conference (**Government of the U.K. 2015**). The total number of 215 warheads is derived from Kristensen's tabulation (**Kristensen, Hans M. & Norris, Robert S. 2018**). The UK is in the process of providing its only nuclear weapon with a next-generation upgrade. The first of the UK's next-generation Dreadnought class of strategic nuclear submarine entered design phase in 2011 and is set for commissioning in the early 2030s. Decisions on the production of its nuclear ordnance are expected in 2019. The running cost of the Trident programme is currently GBP 2 billion (JPY 290 billion) per annum. The construction cost of a new submarine is GBP 31 billion (JPY 4.5 trillion). In addition, it will likely cost the UK further GBP 1.2-1.4 billion to maintain its current nuclear submarines into the 2030s (**Fenton, Janet 2018**).

Updated : June 1, 2018

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Type / designation	Yield (kt)	No. of warheads	Remarks
Deployed		120	
Submarine-launched ballistic missile (SLBM) ¹⁾		120	
Trident II D5 ²⁾	100	120	³⁾
Reserve / nondeployed		95	
SLBM		95	
Total inventory		215	

[Notes]

- Carried by four Vanguard-class* strategic nuclear submarines. Whereas each is capable of carrying 16 Trident II (D-5) missiles, the per-vessel capacity is now being reduced both to eight missiles and 40 warheads (from 48) (**Government of the U.K. 2015**). One vessel is continuously on sea patrol for deterrent readiness (CASD: Continuous At-Sea Deterrent) (**Kristensen, Hans & Norris, Robert S. 2011**). A single missile is armed with an average of three warheads. * Vanguard-class submarine: These are the latest strategic nuclear submarines made in the U.K., and there are four of them. The first of this class, the Vanguard, was deployed operationally in December 1994, the second, the Victorious, in December 1995, the third, the Vigilant, in June 1998, and the fourth and last, the Vengeance, in February 2001.
- The D-5 is made in the U.S. and has a range of 7,400 km. The U.K. maintains 50 of them. This is an adequate number for three vessels with 48 missiles in total. Whereas one D-5 can carry a maximum of 12 warheads, five warheads are carried on average, as cited above. These W76s are equivalent to the U.S. W76 and, while the other key components are sourced from the U.S., their high explosive is UK-manufactured. So this is a joint Anglo-American product (**Ainslie, John 2015**).
In June 2016, a D-5 was test-fired from a submarine, for the first time in four years, off the coast of Florida but the outcome was a failure. The fact remained undisclosed until January 2017, when it was leaked to the press, creating political fallout (**Sunday Times 2017; BBC 2017**).
- The nuclear submarine on patrol carries 40 warheads, and the count of operational warheads for three vessels are 120 warheads. This means that the 2010 reduction plan was completed as projected (**Office of the Prime Minister 2010; Government of the U.K. 2015**).

[Source]

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