VIIC class submarine main data / Dane taktyczno-techniczne

VII C class submarine	
Displacement (surfaced)	769 ts*
Displacement (submerged)	871 ts (full load 1070 ts)
Length overall	66,5 m (pressure hull 50,5 m)
Beam	6,2 m (pressure hull 4,7 m)
Keel to bridge overall	9,6 m
Draught (surfaced)	4,74 m
Operational depta	100 m
Maximum test depta	200 m
Crush depth	about 250 m
Emergency diving capability	27 seconds
Diesel engines	2 x MAN/Germaniawerft M6V 40/46 (3200 SHP)
Electric motors (standard)	2 x AEG GU 460/8-276 (750 SHP)
Surface speed (max)	17-17,7 knots
Submerged speed (max)	7,6 knots
Endurance (surfaced)	8500 nm / 10 knots
Endurance (submerged)	80 nm / 4 knots (130 nm / 2 knots)
Deck gun (standard)	1 x 8,8 cm L/ 45 SK C/35 (1 x 1)
Anti-aircraft guns (standard)	1 x 2 cm L/65 FLAK C/38 (1 x 1)
Torpedo tubes	5 x 53,3 cm
Torpedoes	14 x T-I (G7a), T-II (G7e), T-III (G7e) or T-V (G7es)
Crew (standard)	4 officers, 9 petty officers, 31 sailors
*	1 ts = 1016,048 kg

VII C /41 class submarine in 1945	
Displacement (surfaced)	769 ts
Displacement (submerged)	871 ts (full load 1070 ts)
Length overall	67,2 m (pressure hull 50,5 m)
Beam	6,18 m (pressure hull 4,7 m)
Keel to bridże overall	9,6 m
Draught (surfaced)	4,74 m
Operational depta	120 m
Maximum test depta	250 m
Crush depth	about 300 m
Emergency diving capability	25 seconds
Diesel engines	2 x MAN/Germaniawerft M6V 40/46 (3200 SHP)
Electric motors (standard)	2 x AEG GU 460/8-276 (750 SHP)
Surface speed (max)	17 knots
Submerged speed (max)	7,6 knots
Endurance (surfaced)	8500 nm / 10 knots
Endurance (submerged)	80 nm / 4 knots (130 nm / 2 knots)
Schnorchel	Type VII
Anti-aircraft guns (standard)	4 x 2 cm L/65 FLAK C/38 (2 x 2) 1 x 3,7 cm L/69 FLAK M42

Torpedo tubes	5 x 53,3 cm
Torpedoes	14 x T-I (G7a), T-II (G7e), T-III (G7e) or T-V (G7es)
Crew (standard)	5 officers, 16 petty officers, 27-39 sailors

German 8,8 cm L/45 SK C/35 deck gun	
Date of design	1935
Date In sernice	1938
Gun length (overall)	3,98 m
Gun weight	776 kg
Bore length	3,73 m
Number of grooves	32
Working pressure	2750 kG/cm^2
Muzzle velocity	700 mps (HE hell)
AP projectile weigth	10,2 kg
HE projectile weigth	9,0 kg
HC/HE projectile weigth	9,5 kg
ILUM projectile weigth	9,4 kg
Propellant Charge	2,1 kg RPC/40N
Complete Round Weight	15 kg
Range (max)	11 950 m
Projectile length	38,55 cm
Maximum rate of fire	15-18 rpm
Approximate Barrel Life	about 12 000 rounds
Ammunition stowage per gun	220 rounds
Mount weigth	2425 kg
Elevation	-10 / +30 degrees
Elevation rate	manually operated, only
Train	360 degrees
Train rate	manually operated, only*

German 2 cm L/65 FLAK SK C/30 and C/38 anti-aircraft gun	
Date of design	1930 (1938 C/38)
Date In sernice	1934 (1940 C/38)
Gun length (overall)	2,25 m
Gun weight	64 kg (57,5 kg C/38)
Bore length	1,16 m
Number of grooves	8
Working pressure	2800 kG/cm^2
Muzzle velocity	835 mps (API projectile 800 mps)
HEI projectile weigth	0,134 kg
API projectile weigth	0,148 kg
Range (max)	4900 m
AA ceiling optimal range	3700 m
Projectile length	7,85 cm
Maximum rate of fire	280 rpm (480 rpm C/38)
Optimal rate of fire	120 rpm (220 rpm C/38)

Approximate Barrel Life	about 20 000 - 22 000 rounds
Ammunition stowage per gun	about 1000 rounds
Mount weigth	420 kg (416 kg C/38)
Elevation (standard model)	-11 / +85 degrees
Elevation rate	manually operated, only*
Train	360 degrees
Train rate	manually operated, only*
* LM44U model	30 or 60 dps (automatic)

German 3,7 cm L/83 FLAK SK C/30U anti-aircraft gun	
Date of design	1930
Date In sernice	1934
Barell length	3,07 m
Bore length	2,96 m
Gun weight	243 kg
Bore length	2,96 m
Number of grooves	16
Working pressure	2950 kG/cm^2
Muzzle velocity	1000 mps
HE-T projectile weigth	0,742 kg
Range (max)	8500 m
AA ceiling optimal range	4800 m
Projectile length	16,2 cm
Maximum rate of fire	30 rpm
Approximate Barrel Life	about 7500 rounds
Ammunition stowage per gun	2000 rounds
Mount weigth	1450 kg
Elevation (standard model)	-10 / +90 degrees
Elevation rate	Manualny operated, only
Train	360 degrees
Train rate	Manualny operated, only

German 3,7 cm L/69 FLAK M42 anti-aircraft gun	
Date of design	1942
Date In sernice	1944
Barell length	2,56 m
Rifling length	2,290 m
Gun weight	109 kg
Number of grooves	20
Working pressure	2950 kG/cm^2
Muzzle velocity	865 mps (AP shell 815 mps)
HE projectile weigth	0,635 kg
AP projectile weigth	0,700 kg
Range (max)	6400 m
AA ceiling optimal range	4800 m
Projectile length	35,5 cm

Maximum rate of fire	250 rpm
Approximate Barrel Life	about 7000 rounds
Ammunition stowage per gun	2000 rounds
Mount weigth (twin)	1350 kg
Elevation (standard model)	-10 / +90 degrees
Elevation rate	manually operated, only
Train	360 degrees
Train rate	manually operated, only

German 53,3 cm torpedoes T-I (G7a)	
Date Of Design	1930
Date In Sernice	1938
Overall Length	7,19 m
Weight	1530 kg
Explosive charge	280 kg Hexanite
Detonator	Pi1 or Pi2 (contact)
Power	One decahydronaphthalene (Decalin) wet-heater diesel engine (257/187 kW)
Propeller rotational speed	1470/1280 rpm
Speed	30-44 knots
Range	14 000 m

German 53,3 cm torpedoes T-II, T-III and T-IIIa (G7e)	
Date Of Design	1935
Date In Sernice	1939
Overall Length	7,16 m
Weight	1600 kg
Explosive Charge	280 kg (or 300 kg) Hexanite
Detonator	Pi2 (passive-magnetic)
Power	One electric engine and two lead-acid batteries (74 kW)
Propeller rotational speed	1700 rpm
Speed	30 knots
Range	5000 m (T-IIIa 7500 m)

German 53,3 cm torpedoes T-IV (G7es) „Falke“	
Date Of Design	1940
Date In sernice	1943
Overall Length	7,186 m
Weight	1400 kg
Explosive Charge	274 kg Hexanite
Detonator	Pi4a (combined magnetic-impact)
Power	One electric engine and two lead-acid batteries (24 kW)
Propeller rotational speed	1125 rpm

Speed	20 knots
Range	7500 m

German 53,3 cm torpedoes T-V (G7es) „Zaunkönig I“	
Date Of Design	1940
Date In Sernice	1943
Overall Length	7,186 m
Weight	1495 kg
Explosive charge	274 kg Hexanite
Detonator	Pi4c (combined magnetic-impact)
Power	One electric engine and two lead-acid batteries (40 kW)
Propeller rotational speed	1350 rpm
Speed	24-25 knots
Range	5700 m

VII C class submarines construction history Kalendarium budowy okrętów podwodnych typu VIIC			
Boats Okręty	Shipyard Stocznia	Tactical number Numer burtowy	Construction time Czas budowy
U-69 - U-70	Germaniawerft, Kiel	603 - 604	1938 – 1940
U-71 - U-72	Germaniawerft, Kiel	618 - 619	1939 – 1941
U-77 - U-82	Bremer Vulkan, Bremen-Vegesack	5 - 10	1939 – 1941
U-88 - U-92	Flender-Werke, Lübeck	292 - 296	1939 – 1942
U-93 - U-98	Germaniawerft, Kiel	598 - 603	1938 – 1940
U-132 - U-136	Bremer Vulkan, Bremen-Vegesack	11 - 15	1939 – 1941
U-201 - U-212	Germaniawerft, Kiel	630 - 641	1939 – 1942
U-221 - U-232	Germaniawerft, Kiel	651 - 662	1940 – 1942
U-235 - U-240	Germaniawerft, Kiel	665 - 670	1941 – 1943
U-241 - U-250	Germaniawerft, Kiel	675 - 684	1941
U-251 - U-291	Bremer Vulkan, Bremen-Vegesack	16 - 56	1939 – 1943
U-301 - U-316	Flender-Werke, Lübeck	301 - 316	1940 – 1943
U-331 - U-350	Nordseewerke, Emden	203 - 222	1939 – 1943
U-351 - U-366	Flensburger Schiffsbau, Flensburg	470 - 485	1939 – 1943
U-367 - U-370	Flensburger Schiffsbau, Flensburg	490 - 493	1941
U-371 - U-390	Howaldtswerke, Kiel	2 - 21	1939 – 1943
U-391 - U-394	Howaldtswerke, Kiel	23 - 26	1941 – 1943
U-396 - U-400	Howaldtswerke, Kiel	28 - 32	1941
U-401 - U-430	Danziger Werft, Gdansk	102 - 131	1939 – 1943
U-431 - U-434	F. Schichau, Gdansk	1472 - 1475	1939 – 1941
U-435 - U-438	F. Schichau, Gdansk	1477 - 1480	1939 – 1940
U-439 - U-442	F. Schichau, Gdansk	1490 - 1493	1940 – 1942

U-443 - U-444	F. Schichau, Gdansk	1498 - 1499	1940 – 1942
U-445 - U-448	F. Schichau, Gdansk	1505 - 1508	1940 – 1942
U-449 - U-450	F. Schichau, Gdansk	1520 - 1521	1940 – 1942
U-451 - U-458	Deutsche Werke, Kiel	282 - 289	1939 – 1941
U-465 - U-473	Deutsche Werke, Kiel	296 - 304	1940 – 1943
U-475 - U-480	Deutsche Werke, Kiel	306 - 311	1941 – 1943
U-481 - U-486	Deutsche Werke, Kiel	316 - 321	1941 – 1944
U-551 - U-650	Blohm & Voss, Hamburg	527 - 626	1939 – 1942
U-651 - U-683	Howaldtswerke, Hamburg	800 - 832	1939 – 1944
U-701 - U-705	HC Stülcken, Hamburg	760 - 764	1939 – 1941
U-706	HC Stülcken, Hamburg	766	1939 – 1941
U-707 - U-710	HC Stülcken, Hamburg	771 - 774	1940 – 1942
U-711 - U-722	HC Stülcken, Hamburg	777 - 788	1940 – 1943
U-731 - U-734	F. Schichau, Gdansk	1522 - 1525	1940 – 1942
U-735 - U-740	F. Schichau, Gdansk	1532 - 1537	1941 – 1943
U-741 - U-746	F. Schichau, Gdansk	1544 - 1549	1941 – 1943
U-747 - U-750	F. Schichau, Gdansk	1557 - 1560	1941
U-751 - U-768	Kriegsmarinewerft, Wilhelmshaven	134 - 151	1939 – 1943
U-771 - U-779	Kriegsmarinewerft, Wilhelmshaven	154 - 162	1940 – 1944
U-821 - U-822	Oderwerke, Szczecin	821 - 822	1941 – 1944
U-825 - U-826	F. Schichau, Gdansk	1588 - 1589	1942 – 1944
U-901	Vulcan, Szczecin	14	1941 – 1944
U-903 - U-904	Flender-Werke, Lübeck	329 - 330	1942 – 1943
U-905	HC Stülcken, Hamburg	802	1942 – 1943
U-907	HC Stülcken, Hamburg	804	1942 – 1943
U-921 - U-928	Neptun Werft AG, Rostock	508 - 515	1941 – 1944
U-951 - U-994	Blohm & Voss, Hamburg	151 - 194	1941 – 1943
U-1051 - U-1058	Germaniawerft, Kiel	685 - 692	1941 – 1944
U-1101 - U-1102	Nordseewerke, Emden	223 - 224	1941 – 1944
U-1131 - U-1132	Howaldtswerke, Kiel	33 – 34	1941 – 1944
U-1161 - U-1162	Danziger Werft, Szczecin	133 - 134	1941 – 1943
U-1191 - U-1210	F. Schichau, Gdansk	1561 - 1580	1942 – 1944

VII C/41 class submarines construction history **Kalendarium budowy okrętów podwodnych typu VIIC/41**			
Boats Okręty	Shipyard Stocznia	Tactical number Numer burtowy	Construction time Czas budowy
U-292 - U-300	Bremer Vulkan, Bremen-Vegesack	57 – 65	1941 - 1943
U-317 - U-328	Flender-Werke, Lübeck	317 - 328	1941 - 1944
U-827 - U-828	F. Schichau, Gdansk	1590 - 1591	1942 - 1944
U-929 - U-930	Neptun Werft AG, Rostock	516 - 517	1942 - 1944

U-995	Blohm & Voss, Hamburg	195	1941 - 1944
U-997 - U-1010	Blohm & Voss, Hamburg	197 - 210	1941 - 1944
U-1013 - U-1025	Blohm & Voss, Hamburg	213 - 225	1942 - 1945
U-1063 - U-1065	Germaniawerft, Kiel	700 - 702	1941 - 1944
U-1103 - U-1110	Nordseewerke, Emden	225 - 232	1941 - 1944
U-1163 - U-1172	Danziger Werft, Gdansk	135 - 144	1941 - 1944
U-1271 - U-1279	Bremer Vulkan, Bremen-Vegesack	66 - 74	1942 - 1944
U-1301 - U-1308	Flensburger Schiffsbau, Flensburg	494 - 501	1942 - 1945

Main sources:

1. Blair C. - „*Hitlera Wojna U-Bootów", Magnum, Warszawa 1999*
2. Campbell J. - „Naval Weapons of World War Two", USN IP., Annapolis 2002 r.
3. Dönitz K. - „*10 lat i 20 dni", Finna, Gdańsk 2004*
4. Komorowski A. - *Broń Torpedowa, Warszawa 1995*
5. Mehl H. „Naval Guns", USN Instiurte Press, Annapolis 2003 r.
6. Słownik terminów morskich, IVAX, Gdynia 1994 r.
7. Westwood D. - „The Type VII U-boat (Anatomy of the ship)", Convay UK 1986.

Other sources:

1. Naval Weapons via www.navweaps.com
2. Uboat.net via http://uboat.net/
3. Ubi Soft - "Silent Hunter III"
4. Warships via www.warships1.com

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