

**UNITED STATES NAVAL GUNS
MARKS AND MODIFICATIONS
SERVICE GUNS**



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ORDNANCE PAMPHLET 127 (VOLUME 1) (FOURTH REVISION)
UNITED STATES NAVAL GUNS, MARKS AND MODIFICATIONS;
SERVICE GUNS

1. Ordnance Pamphlet 127 (Volume 1) (Fourth Revision) is a reference book that provides frequently required data on all naval guns in service in the fleet or in aircraft.
2. This publication with Ordnance Pamphlet 127 (Volume 2) (Fourth Revision), Obsolete Guns, supersedes Ordnance Pamphlet 127 (Third Revision) dated April 1942. Ordnance Pamphlet 127A, United States Naval Guns, Marks and Modifications; Experimental Guns, is a companion publication for subject Volumes 1 and 2.

F. S. WITHINGTON

A handwritten signature in dark ink, appearing to read "Paul D. Stroop", is written over a large, stylized circular flourish.

PAUL D. STROOP

Rear Admiral, U. S. Navy

Deputy Chief, Bureau of Ordnance

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Mod 1	14.8.1
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INTRODUCTION

United States Naval Guns, Volume 1, (Service), OP 127 (Fourth Revision), is a listing of all naval guns in service in the fleet or in aircraft. The list is to be used to facilitate the identifications of the guns and give their main physical and ballistic characteristics. Further or complete information about the guns may be obtained by using the design and publication reference data compiled for each gun.

The list is compiled by sections, each section being devoted to guns of a specific bore size. The sections are in order of increasing bore size, Section 1 being .50-caliber guns, the smallest in service size listed, graduating up to Section 14, 16-inch Guns, the largest in service size listed. Within the sections, the guns are arranged numerically by mark and modification. A complete list by section, and the marks and modifications covered in each section, is given in the Table of Contents.

All information pertaining to a specific gun can be found on a single sheet in the publication. The information is divided into two main categories: a short, concise description of the gun, and tabulated data. The description covers the function, use, and physical construction of the gun, and, if known, the mark and modification of the breech mechanism used with this gun. The description also details the specific differences between the marks within a section and between the modifications of the same mark.

The tabular data are divided into seven divisions. The first division, INSTALLATION, gives the mount or turret which mounts the gun and the type of ship on which the gun is used. The second division, DIMENSIONS, gives the overall measurements of the gun. The third division, WEIGHT, gives the weight of the gun tube alone and with its breech mechanism. The fourth division, RIFLING, gives the type and

length of rifling and plating, if any. The fifth division, AMMUNITION, gives the type and class of ammunition used and the reference from which the data were extracted. The sixth division, BALLISTICS, gives the important ballistic characteristics of the gun, which include the volume of the chamber, the muzzle velocity, the maximum powder pressure, and the maximum range with the conditions of measurement. The seventh division, DESIGN AND PUBLICATION REFERENCES, gives the sources to find complete information on the gun and identifies the principal drawings, handbooks, and range tables pertinent to the gun. Complete information is not available for every gun. Where information is lacking, the specific point of information is given as "not available."

The list has a three-step system of pagination. The first number to the left denotes the section in which that particular gun will be found. The second number is the number of that particular mark of gun. The third number of the three-step pagination is the number of the modification within the mark. In instances of guns which have no mark or mod designation, such as the 6-inch Wire Wound Gun, a dash is used in the pagination, with only the number of the section given, and a fourth position used for the page number (1.-.-.1). As guns become obsolete, their descriptions can be added in the proper section in volume 2 without disturbing the paging of the volume, and as experimental guns are placed in service, their descriptions can be added to the proper section of this volume.

If the desired mark and modification cannot be found listed in the Table of Contents, check the companion volume, OP127, List of United States Naval Guns, Volume 2 (Obsolete), or OP127A, United States Naval Experimental Guns. The particular gun you are looking for may have been used only as an experimental gun or may be an obsolete gun.

SECTION 1

.50 CALIBER BROWNING ANM2 BASIC

DESCRIPTION

The Browning ANM2 .50-caliber gun is designed for all aircraft machine gun installations. The gun is an automatic, recoil-operated, rapid-fire gun with a cyclic rate of fire of 750 to 850 rounds

per minute, and is fitted with a barrel jacket in sections for air-cooling purposes. The gun is belt-fed with either right- or left-hand feed and is operated by hand with a double spade grip.

TABULAR DATA

Installation

Location.....Wing, fuselage or turret
Type of airplaneAll

Ammunition

Type Minor caliber, fixed-case
Classification.....AP, AP-I, AP-IT, I, Ball,
Blank, T
Reference TM 9-1900
ORD 11 SNL T-1

Dimensions

Length56.125 in.
Height 6.50 in.
Width 4.20 in.

Ballistics

Volume of powder chamber 1.5 cu. in.
Muzzle velocity 2,840 fps
Peak pressure 50,000 psi
Rate of fire 750 to 850 rounds per min
*Maximum range at 35° elevation 7,275 yd
*(Measured with a cartridge, ball, Cal 50, M2)

Weight

Gun barrel 9.80 lb
Assembled gun 61 lb

Rifling

Twist Right hand, uniform, 1 turn in 15.0 in.
Length 31.92 in.
Plating chromium plated
Thickness varies
Length..... varies

Design and Publication References

General arrangement..... 51-82-1 ARMY
51-82-2 ARMY
List of drawings..... dr. not available
Strength, pressure, and velocity dr. not available
Barrel assembly dr. D 7265156
Rifling dr. not available
Gun instruction handbook TM 9-225
Ammunition assemblies TM 9-1900
TM 9-1990
Range tables OP 1406

50 CALIBER BROWNING M2 HEAVY BARREL MACHINE GUN

DESCRIPTION

The Browning .50 Caliber AN-M2 Heavy Barrel gun is an air-cooled gun, belt fed and recoil operated, and designed for ground use. It may be used in a fixed or a flexible mount. The barrel is much heavier than in the M2 aircraft basic gun, and it uses a short, perforated barrel support instead of the barrel jacket assembly on the aircraft gun. The barrel can be unscrewed from the gun for replacement without disassembling the remaining mechanism.

The gun may be fired automatically or semi-automatically, but requires manual operation for the first round. It is normally fired in short

bursts or rapid single shots. The back plate spade grip assembly has additional parts not on the aircraft gun, but the oil buffer has fewer parts and no oil. This simplification of the buffer is possible because the recoiling portion of the gun is heavier and slower moving than in the aircraft gun, and therefore requires less buffing action.

The M2 heavy barrel gun is identical with the M2 basic aircraft gun with the exception of the differences mentioned above, and some changes in the accessories supplied, such as front and rear sights.

TABULAR DATA

Installation

Location Ground
Mount Antiaircraft, M63, tripod M3,
truck mount M36, M31C, M24A2

Dimensions

Length, barrel 45 in.
Length, overall 65.125 in.
Height 6.50 in.
Width 4.20 in.

Weight

Gun barrel 27.4 lb.
Assembled gun 81 lb.

Rifling

Twist Right-hand, uniform, 1 turn in 30 calibers
Length 40.91 in.
Plating None
Thickness None
Length None

Ammunition

Type Minor caliber, fixed case
Classification Ball, AP, T, I
Reference Not available

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,930 fps
Normal pressure 52,000 p.s.i.
Rate of fire 450-500 rounds per min.
*Maximum range 7,400 yd.
*(Measured with M2 ball cartridge.)

Design and Publication References

General arrangement dr. 51-70
dr. 51-71
List of drawings dr. not available
Strength, pressure, and velocity dr. not available
Barrel assembly dr. D6528269
Rifling dr. not available
Gun instruction handbook FM 23-65
TM 9-2200
Mount instruction handbook OFSC-42
Ammunition assemblies TM 9-1900
TM 9-1990
Range tables OP 1406

SECTION 2

20-MM GUN BARREL MARK 4 MOD 0
70 CALIBER

DESCRIPTION

The 70-caliber, magazine loaded, antiaircraft gun, designed for use throughout the fleet on single, twin, and quadruple mounts, consists of a machine gun mechanism, a 20-mm Gun Barrel Mk 4 Mod 0, a shoulder rest, and hand grips. It is an automatic, recoil-operated gun with a cyclic rate of fire of 450 rounds per minute. The free swinging, manually positioned guns are used in auxiliary batteries for close range antiaircraft defense.

The 20-mm Gun Barrel Mk 4 Mod 0 is a single

forging with the first two inches of the bore flared at the muzzle bell to act as a flash hider. Sights and magazine are auxiliary equipment that complete the gun assembly.

The 20-mm Gun Barrel Mk 4 Mod 0 is similar to the 20-mm Gun Barrel Mk 3 Mod 0, differing only in the manufacturing tolerances, which were changed when the measurements were converted from metric to English units.

TABULAR DATA

Installation

Mount..... 20-mm Mount Mk 2 all Mods
20-mm Mount Mk 4 all Mods
20-mm Mount Mk 5 all Mods
20-mm Mount Mk 6 all Mods
20-mm Mount Mk 10 all Mods
20-mm Mount Mk 15 Mod 0
20-mm Mount Mk 24 Mods 5 and 16
Class of ships...AD, AF, AG, AGB, AGC, AKA, AKS,
AM, AMS, APA, APD, AR, ARL, ARS,
AS, ATF, AV, AVP, BB, CA, CL, CV,
CVB, CVL, DD, DDE, DDR, DE, DER, LSD,
LSM, LSMR, LST, PT, WAGL, WAMP, WPG

Dimensions

Length 57.16 in.
Diameter over chamber 2.3618 in.

Weight

Gun barrel..... 37 lb
Gun and mechanism..... 150 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 36 calibers
Length 49.061 in.
Plating..... none
Thickness none
Length..... none

Ammunition

Type..... Fixed case
Classification..... HEI Service, HE Target,
HE-T Target, HE-T Service, AP-T Service
Reference..... NAVORD OD 5297, sheet 20A1

Ballistics

Volume of powder chamber..... 2.127 cu in.
*Muzzle velocity..... 2,740 fps
Maximum powder pressure..... 44,000 psi
*Maximum altitude at 87° elevation..... 10,000 ft
*Maximum range at 35° elevation..... 4,800 yd
Rate of fire..... 450 rounds per min
*(Measured with a 442 grain charge and 0.269 lb projectile)

Design and Publication References

General arrangement.....dr. 299650 and
dr. 299901
List of drawings..... LD 100326
Strength, pressure, and velocity,.....dr. not available
Chamber.....dr. 299662
Rifling.....dr. 299663
Gun instruction handbook.....OP 911
Mount instruction handbook.....OP 909
Ammunition assemblies.....NAVORD OD 5297
Range tablesOP 945

DESCRIPTION

forging with the first two inches of the bore flared at the muzzle bell to act as a flash hider. The barrel has cooling ribs and is parkerized all over except for the bore and cartridge chamber. Sights and magazine are auxiliary equipment that complete the gun assembly.

The 20-mm Gun Barrel Mk 4 Mod 1 is similar to 20-mm Gun Barrel Mk 4 Mod 0, differing by being provided with an adapter for a round head, lower, double-loading stop plunger.

TABULAR DATA

Ammunition

Type Fixed case
Classification HEI Service, HE Target,
HE-T Target, HE-T Service, AP-T Service
Reference NAVORD OD 5297, sheet 20A1

Ballistics

Volume of chamber	2.127 cu in.
*Muzzle velocity	2,740 fps
Maximum powder pressure	44,000 psi
*Maximum altitude at 87° elevation.....	10,000 ft
*Maximum range at 35° elevation	4,800 yd
Rate of fire	450 rounds per min
*(Measured with a 442 grain charge and 0.269 lb projectile)	

Design and Publication References

General arrangement gun barrel	dr. 299901
List of drawings	LD 100343
Strength, pressure, and velocity	dr. not available
Chamber	dr. not available
Rifling	dr. not available
Gun instruction handbook	OP 911
Mount instruction handbook	OP 909
Ammunition assemblies	NAVORD OD 5297
Range tables	OP 945

Rifling

Twist..... Right hand, uniform, 1 turn in 36 calibers
Length 48.728 in.
Plating none
Thickness none
Length none

20-MM GUN BARREL MARK 4 MOD 2 70 CALIBER

DESCRIPTION

The 70-caliber, magazine loaded, antiaircraft gun, designed for use throughout the fleet on single, twin, and quadruple mounts, consists of a machine gun mechanism, a 20-mm Gun Barrel Mk 4 Mod 2, a shoulder rest, and hand grips. It is an automatic recoil-operated gun with a cyclic rate of fire of 450 rounds per minute. The free swinging, manually positioned guns are used in auxiliary batteries for close range antiaircraft defense.

The 20-mm Gun Barrel Mk 4 Mod 2 is a single

forging with the first two inches of the bore flared at the muzzle bell to act as a flash hider. The barrel does not have cooling ribs but is parkerized all over except for the bore and cartridge chamber. Sights and magazine are auxiliary equipment that complete the gun assembly.

The 20-mm Gun Barrel Mk 4 Mod 2 is similar to 20-mm Gun Barrel Mk 4 Mod 1, differing by not having cooling ribs and provision for a lower, double-loading stop plunger.

TABULAR DATA

Installation

Mount..... 20-mm Mount Mk 2 all Mods
 20-mm Mount Mk 4 all Mods
 20-mm Mount Mk 5 all Mods
 20-mm Mount Mk 6 all Mods
 20-mm Mount Mk 10 all Mods
 20-mm Mount Mk 15 Mod 0
 20-mm Mount Mk 24 Mods 5 and 16
 Class of ships....AD, AF, AG, AGB, AGC, AKA, AKS,
 AM, AMS, APA, APD, AR, ARL, ARS,
 AS, ATF, AV, AVP, BB, CA, CL, CV,
 CVB, CVL, DD, DDE, DDR, DE, DER,
 LSD, LSM, LSMR, LST, PT, WAGL, WPG

Dimensions

Length..... 57.16 in.
 Diameter over chamber 2.3618 in.

Weight

Gun barrel..... 37 lb
 Gun and mechanism..... 150 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 36 calibers
 Length..... 48.728 in.
 Plating..... none
 Thickness none
 Length..... none

Ammunition

Type..... Fixed case
 Classification..... HEI Service, HE Target,
 HE-T Target, HE-T Service, AP-T Service
 Reference NAVORD OD 5297, sheet 20A1

Ballistics

Volume of powder chamber..... 2.127 cu in.
 *Muzzle velocity..... 2,740 fps
 Maximum powder pressure..... 44,000 psi
 *Maximum altitude at 87° elevation..... 10,000 ft
 *Maximum range at 35° elevation..... 4,800 yd
 Rate of fire..... 450 rounds per min.
 *(Measured with a 442 grain charge and 0.269 lb projectile)

Design and Publication References

General arrangement gun barrel..... dr. 367787
 List of drawings..... LD 170012
 Strength, pressure, and velocity..... dr. not available
 Chamber dr. not available
 Rifling dr. not available
 Gun instruction handbook OP 911
 Mount instruction handbook..... OP 909
 Ammunition assemblies..... NAVORD OD 5297
 Range tables OP 945

20-MM GUN BARREL MARK 4 MOD 4 70 CALIBER

DESCRIPTION

The 70-caliber, magazine loaded, antiaircraft gun, designed for use throughout the fleet on single, twin, and quadruple mounts, consists of a machine gun mechanism, a 20-mm Gun Barrel Mk 4 Mod 4, a shoulder rest, and hand grips. It is an automatic recoil-operated gun with a cyclic rate of fire of 450 rounds per minute. The free swinging, manually positioned guns are used in auxiliary batteries for close range antiaircraft defense.

The 20-mm Gun Barrel Mk 4 Mod 4 is a single

forging with the first two inches of the bore flared at the muzzle bell to act as a flash hider. Sights and magazine are auxiliary equipment that complete the gun assembly.

The 20-mm Gun Barrel Mk 4 Mod 4 is similar to the 20-mm Gun Barrel Mk 4 Mod 2, differing by having a fluted chamber to permit the satisfactory use of ungreased, brass, fixed-case ammunition. Steel fixed-case ammunition must be greased.

TABULAR DATA

Installation

Mount.....	20-mm Mount Mk 2 all Mods
	20-mm Mount Mk 4 all Mods
	20-mm Mount Mk 5 all Mods
	20-mm Mount Mk 6 all Mods
	20-mm Mount Mk 10 all Mods
	20-mm Mount Mk 15 Mod 0
	20-mm Mount Mk 24 Mods 5 and 16

Class of ships... AD, AF, AG, AGB, AGC, AKA, AKS, AM, AMS, APA, APD, AR, ARL, ARS, AS, ATF, AV, AVP, BB, CA, CL, CV, CVB, CVL, DD, DDE, DDR, DE, DER, LS, LSM, LSMR, LST, PT, WAGL, WAVP, WPG

Dimensions

Length.....	57.16 in.
Diameter over chamber	2.3618 in.

Weight

Gun barrel.....	37 lb
Gun and mechanism.....	150 lb

Rifling

Twist.....	Right hand, uniform, 1 turn in 36 calibers
Length.....	48.728 in.
Plating.....	none
Thickness	none
Length.....	none

Ammunition

Type.....	Fixed case
Classification.....	HEI Service, HE Target, HE-T Target, HE-T Service, AP-T Service
Reference.....	NAVORD OD 5297, sheet 20A1

Ballistics

Volume of powder chamber.....	2.127 cu in.
*Muzzle velocity.....	2,740 fps
Maximum powder pressure.....	44,000 psi
*Maximum altitude at 87° elevation.....	10,000 ft
*Maximum range at 35° elevation.....	4,800 yd
Rate of fire.....	450 rounds per min
*(Measured with a 442 grain charge and 0.269 lb projectile)	

Design and Publication References

General arrangement	dr. not available
List of drawings.....	LD not available
Strength, pressure, and velocity.....	dr. not available
Chamber	dr. not available
Rifling.....	dr. not available
Gun instruction handbook	OP 911
Mount instruction handbook.....	OP 909
Ammunition assemblies.....	NAVORD OD 5297
Range tables	OP 945

20-MM GUN BARREL MARK 11 MOD 2

DESCRIPTION

The 20-mm Gun Barrel Mk 11 Mod.2 is made from the same barrel stock (dr. 1446365) as Mods 0 and 1, but has some modifications. The muzzle end has threads for the attachment of a flash hider. The length of the exterior steps are different and the interior of the chamber has changes.

The 20-mm Gun Barrel Mk 11 Mod 2 is used with the 20-mm Gun Mechanism Mk 12 Mod 0 to make up the 20-mm Aircraft Gun Mk 12 Mod 0, which is a redesign of the 20-mm Aircraft Gun M3 to obtain a higher rate of fire and higher muzzle velocity.

TABULAR DATA

Installation

Mount LD 411208
Class of ships Aircraft

Dimensions

Length 52.50 in.
Diameter over chamber 2.50 in.

Weight

Gun barrel	31.00 lb.
Gun and mechanism	88 lb.

Rifling

Twist ... Right hand, uniform, 1 turn in 25.587 calibers
Length 48.042 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification 20-mm T130 series, high velocity,
HEI, API, TP
Reference NAVORD OD 5297

Ballistics

Volume of powder chamber	not available
Muzzle velocity	not available
Maximum powder pressure	not available
Maximum altitude at elevation	not available
Maximum range at elevation	not available
Rate of fire	not available

Design and Publication References

General arrangement dr. 517135
List of drawings LD 261655
Strength, pressure, and velocity not available
Barrel (dr. 517135)
..... (dr. 517136)
Chamber not available
Rifling not available
Gun instruction handbook OP's 1866, 1922
Mount instruction handbook not available
Ammunition assemblies OD 5297
Range tables not available

20-MM GUN BARREL MARK 11 MOD 4

DESCRIPTION

The 20-mm Gun Barrel (Machine) Mk 11, Mod 4 is different from previous mods by having the chamber and bore chromium plated to improve the life and firing performance of the barrel. The barrel has threads at the breech end for screwing the barrel into the gun mechanism, at about the center of the barrel for attaching the gas cylinder bracket and bracket screw, and at the

muzzle end for attachment of a flash hider if desired.

The 20-mm Gun Barrel Mk 11 Mod 4 is used with the 20-mm Gun Mechanism Mk 12 Mod 3 to form the 20-mm Aircraft gun Mk 12 Mod 3, which is adapted for use with the 20-mm Feed Mechanism Mk 9 and mods.

TABULAR DATA

Installation

Mount LD 411208
LD 266040
Class of aircraft Fighter

Ammunition

Type T130, electric primed
Classification TP, HEI, API
References NAVORD OD 5297

Dimensions

Length 52.50 in.
Diameter over chamber 2.50 in.

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum altitude at elevation not available
Maximum range at elevation not available
Rate of fire not available

Weight

Gun barrel 31.5 lb.
Gun assembly 88.0 lb.

Design and Publication References

General arrangement dr. 1446433
(Gun mechanism) dr. 1467979
List of drawings LD 413808
(Gun mechanism) LD 266027
Strength, pressure, and velocity dr. not available
Chamber dr. 1446434
dr. 1446441
Gun instruction handbook OP 1922
OP 1866
Mount instruction handbook not available
Ammunition assemblies OD 5297
Range tables not available

Rifling

Twist... Right-hand, uniform, 1 turn in 25.587 calibers
Length 48.042 in.
Plating Chromium
Thickness Chamber .002 in.
Bore .006 in.
Length Entire chamber and bore

20-MM GUN BARREL MARK 16 MOD 2

DESCRIPTION

The 20-mm Gun Barrel Mk 16 Mod 2 was used with 20-mm Gun Mechanism Mk 12 Mod 0 to form a 20-mm Machine Gun Assembly, LD 261660, an automatic aircraft gun designed for mounting in aircraft, either on a fixed mounting or in a turret.

The 20-mm Gun Barrel Mk 16 Mod 2 is a short barrel made of alloy steel. It was a step in the development of the short barrel for 20-mm aircraft guns.

TABULAR DATA

Installation

Mount LD 411208
Class of ships Aircraft

Ammunition

Type Electric primed, fixed case
Classification 20-mm T130 series, high velocity,
HEI, API, TP
Reference OD 5297

Dimensions

Length 29.50 in.
Diameter over chamber 2.50 in.

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum altitude at elevation not available
Maximum range at elevation not available
Rate of fire not available

Weight

Gun barrel 20 lbs.
Gun and mechanism 76.5 lbs.

Design and Publication References

General arrangement..... dr. 517142
List of drawings LD 261659
Barrel dr. 517141
Strength, pressure, and velocity not available
Chamber not available
Rifling not available
Gun instruction handbook not available
Mount instructions handbook not available
Ammunition assemblies OD 5297
Range tables not available

Rifling

Twist .. Right hand, uniform, 1 turn in 25.587 calibers
Length not available
Plating none
Thickness none
Length none

20-MM GUN BARREL MARK 16 MOD 3

DESCRIPTION

The 20-mm Gun Barrel Mk 16 Mod 3 is used with 20-mm Gun Mechanism Mk 12 Mod 2 to form 20-mm Machine Gun Assembly Mk 12 Mod 2, designated 20-mm Aircraft Gun Mk 12 Mod 2. The gun is an automatic weapon which can be installed in aircraft either in a turret or a fixed mounting.

The 20-mm Gun Barrel Mk 16 Mod 3 is a short barrel of alloy steel, similar to the Mk 11 Mod 3 except in the length of the barrel. It has a tapered chamber and a barrel clamp. The gun is a redesign of the 20-mm Aircraft Gun Mk 12 Mod 1 to improve the life of parts.

TABULAR DATA

Installation

Mount LD 411208
Class of ships Aircraft

Dimensions

Length 29.50 in.
Diameter over chamber 2.50 in.

Weight

Gun barrel 20 lb.
Gun and mechanism 76.5 lb.

Rifling

Twist ..., Right hand, uniform, 1 turn in 25.587 calibers
Length not available
Plating none
Thickness none
Length none

Ammunition

Type Electric primed, fixed case
Classification 20-mm T130 series, high velocity,
HEI, API, TP
Reference OD 5297

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum altitude at elevation not available
Maximum range at elevation not available
Rate of fire not available

Design and Publication References

General arrangement dr. 1446367
List of drawings LD 266053
Strength, pressure, and velocity not available
Chamber and barrel (dr. 1446366
(dr. 1446369
Gun instruction handbook OP's 1866, 1922
Mount instruction handbook not available
Ammunition assemblies OD 5297
Range tables not available

20-MM GUN BARREL MARK 18 MOD 0

DESCRIPTION

The 20-mm Gun Barrel Mk 18 Mod 0 is the same as the barrel used with the 20-mm Automatic guns M24 and M3 but has the bore and chamber chrome plated. It is completely interchangeable with the M24 and M3 gun barrels and also is used on the 20-mm Aircraft Guns Mk 16 Mods 0 and 1. It is similar to the 20-mm Gun Barrel Mk 11 Mod 4, except that the chamber is slightly smaller, and uses a smaller round, the

M99 series.

The barrel has external threads at the breech end for screwing the barrel into the gun receiver, at the center for attaching the gas cylinder bracket of the gun, and at the muzzle end for attaching a flash hider if desired.

The barrel stock used for manufacturing this gun is the same as for the 20-mm Gun Barrel Mk 11 Mods 0, 1, 2, 3, 4.

TABULAR DATA

Installation

Mount Wing, fuselage, turret
Class of ships Aircraft

Dimensions

Length of barrel 52.50 in.
Diameter over chamber 2.5 in.

Weight

Gun barrel	26.2 lb.
Assembled gun and cradle	varies with gun used

Rifling

Twist .. Right-hand, uniform, 1 turn in 25.587 calibers
Length 48.06 in.
Plating Chrome
Thickness006 in.
Length Chamber and bore

Ammunition

Type M99 round, fixed case, percussion or
electric fired
Classification TP, HEI, APT, I, API
Reference ORD 3SNL R-1, TM9-1990

Ballistics

Volume of powder chambernot available
Muzzle velocitynot available
Maximum powder pressurenot available
Maximum range at ... elevation not available
Maximum altitude at ... elevationnot available
Rate of fire 650 to 800 rounds per minute

Design and Publication References

General arrangement	dr. 1615591
List of drawings	LD 413835
Strength, pressure, and velocity	dr. not available
Chamber	dr. 1615590
Rifling	dr. not available
Mount instruction handbook	TM9-229
Gun instruction handbook	(* OP 1934
	(* OP 1730
Ammunition assemblies	TM9-1990
Range tables	OP 1406
*Change in preparation	

SECTION 3

20-MM GUN M3

DESCRIPTION

The 20-mm Gun M3 is an automatic, aircraft machine gun designed for mounting as a fixed gun in the wing or fuselage and also as a flexible gun in a turret. It is an air-cooled, combination blow-back and gas-operated, rapid-fire machine gun with a cyclic rate of fire of 650 to 800 rounds per minute.

The gun mechanism contains an integral barrel and ejector. The feed mechanism is recoil operated but does not recoil with the gun. The charger may be of the pneumatic, manual, or hydraulic type. The ejector is a spring-loaded prong type. The muzzle end of the barrel is threaded for attaching a flash hider.

TABULAR DATA

Installation

Location.....Wing, fuselage or turret
Type of airplane.....All

Ammunition

Type.....Minor caliber, fixed case, percussion
ClassificationAP, HE-I, I, IP
Referencenot available

Dimensions

Length.....77.8 in.
Height.....10.7 in.
Width.....6.62 in.

Ballistics

Volume of powder chamber.....2.123 cu in.
Muzzle velocity.....2,730 fps
Peak pressure.....48,000 psi
Rate of fire.....650 to 800 rounds per min
Effective range.....1,500 yd

Weight

Gun barrel.....26.2 lb
Assembled gun.....116 lb

Rifling

Twist.....Right hand, uniform, 7° pitch
Length.....48.06 in.
Plating.....none
Thickness.....none
Length.....none

Design and Publication References

General arrangement.....dr. not available
List of drawings.....LD not available
Strength, pressure, and velocity.....dr. not available
Chamber.....dr. not available
Rifling.....dr. not available
Gun instruction handbook.....TM 9-229
OP 1934
Ammunition assemblies.....OCL AV 28-45
Range tables.....OP 1406

20-MM GUN M24

DESCRIPTION

The 20-mm Gun M24 is an automatic, aircraft machine gun designed for mounting as a fixed gun in either wing, fuselage, or turrets. The gun is an air-cooled, combination blow-back and gas-operated rapid-fire machine gun with a cyclic rate of fire of 750 to 800 rounds per minute. The gun mechanism contains a barrel and feed mechanism. The feed mechanism is recoil operated but is stationary. The charger may be of the pneumatic,

manual, or hydraulic type. The muzzle end is threaded for attaching a flash hider. The gun is not synchronized to fire through the plane of the propeller.

The 20-mm Gun M24 is similar to the 20-mm Gun ANM3, differing by being electrically primed, whereas the 20-mm Gun AN M3 uses percussion priming.

TABULAR DATA

Installation

Location..... Wing, fuselage or turret
Type of airplane All

Dimensions

Length 77.81 in.
Height 10.7 in.
Width 6.62 in.

Weight

Gun barrel 26.2 lb
Assembled gun 116 lb

Rifling

Twist Right hand, uniform, 7° pitch,
1 turn in 25.587 calibers
Length 48.06 in.
Plating none
Thickness none
Length none

Ammunition

Type Minor caliber, fixed-case,
electric primer
Classification AP-T, HE-I, TP
Reference TM 9-1907

Ballistics

Volume of powder chamber 2.123 cu in.
Muzzle velocity 2,730 fps
Peak pressure 48,000 psi
Rate of fire 750 to 800 rounds per min
Effective range 1,500 yd

Design and Publication References

General arrangement..... dr. not available
List of drawings LD not available
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Rifling dr. not available
Gun instruction handbook TM 9-232
Ammunition assemblies TM 9-1907
Range tables not available

20-MM GUN MECHANISM MARK 12 MOD 0

DESCRIPTION

The 20-mm Gun Mechanism Mk12 Mod0 is used with a 20-mm Gun Barrel Mk 11 Mods 2 and 3 to form an automatic, aircraft machine gun, designed for mounting as a fixed gun in either the wing or fuselage, or on a flexible mount in a turret. The Army designation for this gun is T118. It is an air cooled, combination blow-back and gas-operated, rapid-fire machine gun with a cyclic rate of

fire of 1,050 rounds per minute.

The 20-mm Gun Mechanism Mk 12 Mod 0 contains an integral charger which is pneumatic. The feed mechanism, which is separate, is either electric or pneumatic.

The gun uses electric primer ammunition and has a synchronizing switch to synchronize the fire of multiple guns in one aircraft.

TABULAR DATA

Installation

Location Wing, fuselage or turret
Type of airplane Jet aircraft

Dimensions

Length 75.135 in.
Height 6.281 in.
Width 7.910 in.

Weight

Gun barrel 31.5 lbs.
Assembled gun 112 lb

Rifling

Twist Right hand, uniform, 7° pitch,
1 turn in 25.587 calibers
Length 48.042 in.
Plating none
Thickness none
Length none

Ammunition

Type Minor caliber, fixed-case, electric primer
Classification Projectile model T-114
HEI, API, TP (1,700 grains) Case type FAT2
Reference not available

Ballistics

Volume of powder chamber not available
Muzzle velocity 3,320 fps
Peak pressure 58,000 psi
Rate of fire 1,050 rounds per min
Effective range 1,500 yd

Design and Publication References

General arrangement gun mechanism dr. 937792
(Gun barrel Mk 11 Mod 2) dr. 517137
Gun barrel, Mk 11 Mod 3 dr. 1446370
List of drawings gun mechanism LD 172524
(Gun barrel Mk 11 Mod 2) LD 261655
Gun barrel Mk 11 Mod 3 LD 266031
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Rifling dr. not available
Gun instruction handbook OP 1866
Ammunition assemblies not available
Range tables not available

20-MM GUN MECHANISM MARK 12 MOD 2

DESCRIPTION

The 20-mm Gun Mechanism Mk 12 Mod 2 was used with the 20-mm Gun Barrel Mk 16 Mod 1 to form the 20-mm Machine Gun Assembly, LD 266025. This was the first production of a 20-mm machine gun with a short barrel. In current use the 20-mm Gun Mechanism Mk 12 Mod 2 is used with the 20-mm Gun Barrel Mk 16 Mod 3, to form the 20-mm Aircraft Gun Mk 12 Mod 2, LD 266054.

The 20-mm Gun Mechanism Mk 12 Mod 2 consists of recoil, receiver, breechblock, charger, buffer, and gas mechanism assemblies.

The 20-mm Feed Mechanism Mk 7 Mod 0 or 2 is mounted on the receiver and feeds the ammunition to the gun.

The gun can be installed in either a fixed mount or in a turret.

TABULAR DATA

Installation

Location Wing or fuselage
Type of airplane Fighter

Dimensions

Length (overall) 52.138 in.
Height 4.60 in.
Width 5.05 in.

Weight

Gun barrel 20 lbs.
Assembled gun 76.5 lbs.

Rifling

Twist ... Right hand, uniform, 1 turn in 25.587 calibers
Length not available
Plating none
Thickness none
Length none

Ammunition

Type 60/20-mm T130 series, high velocity
electric primed
Classification HEI, API, TP
Reference NAVORD OD 5297

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Peak pressure not available
Rate of fire not available
Effective range not available

Design and Publication References

General arrangement dr. 1345089
List of drawings LD 266026
Strength, pressure, and velocity none
Chamber none
Rifling none
Gun instruction handbook OP's 1866, 1922
Mount instruction handbook not available
Ammunition assemblies OD 5297
Range tables not available

20-MM GUN MECHANISM MARK 12 MOD 3

DESCRIPTION

The 20-mm Gun Mechanism Mk 12 Mod 3 is used with the 20-mm Gun Barrel Mk 11 Mod 4 to form the 20-mm Aircraft Gun Mk 12 Mod 3. The 20-mm Gun Barrel Mk 11 Mod 3 was formerly used with this gun.

The 20-mm Aircraft Gun Mk 12 Mod 3 is a modification of the 20-mm Aircraft Gun Mk 12

Mod 0, adapting it to use the 20-mm Feed Mechanism Mk 9 and mods.

The gun is a gas-unlocking, blowback mechanism with a forward seared, reciprocating bolt. It is operated with a pneumatic charger and a rear buffer. Electric-primed ammunition is used.

The gun is installed in a fixed mount in aircraft.

TABULAR DATA

Installation

Mount LD 411208
LD 266040
Class of aircraft Fighter

Ammunition

Type T130, electric primed
Classification TP, HEI, API
References NAVORD OD 5297

Dimensions

Length, overall 75.135 in.
Diameter over chamber 2.50 in.
Height 4.60 in.
Width 5.05 in.

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum altitude at elevation not available
Maximum range at elevation not available
Rate of fire not available

Weight

Gun barrel 31.5 lb.
Gun assembly 88.0 lb.

Design and Publication References

General arrangement dr. 1467979
(Gun barrel) dr. 1446433
List of drawings LD 266027
(Gun barrel) LD 413808
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Gun instruction handbook OP 1866
OP 1922
Mount instruction handbook not available
Ammunition assemblies OD 5297
Range tables not available

Rifling

Twist... Uniform, right-hand, 1 turn in 25.587 calibers
Length 48.042 in.
Plating Chrome
Thickness Chamber .002 in.
Bore .006 in.
Length All of chamber and bore

20-MM GUN MECHANISM MARK 16 MOD 0

DESCRIPTION

The 20-mm Gun Mechanism Mk 16 Mod 0 with Barrel, Army Drawing F7238818, is the 20-mm Gun, Automatic, Mk 16 Mod 0, designated 20-mm Aircraft Gun Mk 16 Mod 0. It is a gas-interlocking, blowback gun, mounted in a cradle assembly in aircraft. It has a tapered pin and a monoblock gas bracket.

The 20-mm Gun Mechanism Mk 16 Mod 0 is the 20-mm Aircraft Gun M3, with the receiver body modified to use the Mk 8 feed mechanism, which is pneumatic powered. It does not use the magazine slide and its components.

TABULAR DATA

Installation

Location Wing or fuselage
Type of airplane Fighter

Dimensions

Length (barrel) 52.50 in.
Height not available
Width not available

Weight

Gun barrel not available
Assembled gun not available

Rifling

Twist Right hand, uniform, 1 turn in 25.587 calibers
Length not available
Plating Chrome
Thickness003 in.
Length Bore

Ammunition

Type Percussion primed, fixed case
Classification 20-mm T130 series, high velocity,
HEI, AP-T, TP
Reference NAVORD OD 5297

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Peak pressure not available
Rate of fire not available
Effective range not available

Design and Publication References

General arrangement dr. 978970
List of drawings LD 261636
Strength, pressure, and velocity not available
Barrel F72307256
Chamber C7307184
Rifling dr. 15-OKD-2A
Gun instruction handbook *OP 1730 ch. 1
*OP 1934 ch. 1
Mount instructions handbook not available
Ammunition assemblies OD 5297
Range tables OP 1406
*In preparation.

20-MM GUN MECHANISM MARK 16 MOD 1

DESCRIPTION

The 20-mm Gun Mechanism Mk 16 Mod 1, is the 20-mm Aircraft Automatic Gun M3 with a "soft" recoil mechanism, which was designed to reduce gun reaction forces transmitted to the aircraft structure. It is an aircraft gun designed for mounting as a flexible gun in a turret. A cradle supports it for attachment in the aircraft. It is air-cooled, a combination gas-operated and blow-back weapon. It fires 650 to 800 rounds of ammunition per minute.

The gun mechanism has an integral barrel and ejector. The ejector is a spring-loaded prong type. The muzzle end of the barrel is threaded for the attachment of a flash hider or a cap.

Associated equipment include the recoil-operated (but nonrecoiling) 20-mm Feed Mechanism AN-M2; a charger, which may be pneumatic, hydraulic, or manually operated; a link belting machine for belting ammunition; and a gun heater.

TABULAR DATA

Installation

Mount Turret
Class of ships Aircraft

Dimensions

Length of barrel 52.50 in.
Length, overall 77.7 in.
Diameter over chamber 2.50 in.

Weight

Gun barrel 26.2 lb.
Assembled gun and cradle 99.5 lb.

Rifling

Twist.. Right-hand, uniform, 1 turn in 25.587 calibers
Length 48.06 in.
Plating Chrome
Thickness003 in.
Length Chamber and bore

Ammunition

Type M90 series, fixed case, percussion fired
Classification AP, HE-I, I, IP
Reference SNL-R-1 (ORD 3), TM9-1990

Ballistics

Volume of powder chamber 2.123 cu. in.
*Muzzle velocity 2,750 f.p.s.
Maximum powder pressure 48,000 p.s.i.
Maximum range at ... elevation not available
Maximum altitude at ... elevation not available
Rate of fire 680 to 775 rounds per min.
*(Measured with a 1,700-grain charge and 650-grain projectile)

Design and Publication References

General arrangement dr. 1615589
List of drawings LD 413833
Strength, pressure, and velocity not available
Chamber C7307184
Rifling 15-OKD-2A
Mount instruction handbook TM9-229
Gun instruction handbook *OP 1730, *OP 1934
Ammunition assemblies OCL-AV28-45, TM9-1990
Range tables OP 1406

*Change in preparation

SECTION 4

40-MM GUN MARK 1 MOD 0

56.3 CALIBER

DESCRIPTION

The 40-mm Gun Mk 1 Mod 0 is a 56.3-caliber, magazine-loaded, antiaircraft gun designed for use in auxiliary batteries throughout the fleet in twin and quadruple mounts. The design is the Swedish Bofors 40-mm antiaircraft gun translated to, and manufactured by American standards. The gun is a rapid-fire, recoil-operated, automatic mechanism, with a cyclic rate of fire of 160 rounds per minute. It is a three-part gun consisting of the machine gun mechanism, the gun barrel, and the sights.

The 40-mm Machine Gun Mk 1 Mod 0 fits Navy twin and quadruple mounts only. The guns are fitted to the mounts as matched pairs. An identical barrel assembly, which includes a 40-mm Gun Barrel Mk 1 Mod 0, a water jacket, and a re-

coil spring, is used on each gun of the matched pair. The designation for the machine gun mechanism on the left-hand gun of the pair is 40-mm Machine Gun Mechanism Mk 1 Mod 0 or 1, and the designation on the right-hand gun of the pair is 40-mm Machine Gun Mechanism Mk 2 Mod 0 or 1. The two machine gun mechanisms are not interchangeable from left-to right-hand gun. The difference between the modifications of 40-mm Machine Gun Mechanism Mk 1 is that certain parts are not interchangeable. The same difference exists between modifications of 40-mm Machine Gun Mechanism Mk 2. The 40-mm Sight Mk 3 Mod 0 is used on the 40-mm twin mount, and the 40-mm Sight Mk 4 Mod 0 is used on the 40-mm quadruple mount.

TABULAR DATA

Installation

Mount.... 40-mm Turn Mount Mk 1 Mods 1,2,4,6, and 15
 40-mm Turn Mount Mk 2 Mods 1, and 14
 40-mm Quadruple Mount Mk 2 Mods 2,6,7,8,9,
 10,12,13,14,16,17,18,19,20,22,25,27,31,33,
 34,35,36,37, and 39
 40-mm Quadruple Mount Mk 4 Mods 0,3, and 6
 Class of shipsAD,AE,AF,AG,AGC,AGS,AKA,AKS,
 AM,AMS,AO,APA,APO,AR,ARL,ARS,
 AS,ATF,AV,AVP,BB,CA,CL,CLAA,CV,
 CVE,CVL,DD,DDE,DDR,DE,DEC,DER,
 DM,DMS,LSD,LSM,LSMR,LST,PCEC,PF,
 TAP,WAGB,WAVP,WDE,WPG

Dimensions

Length with flash hider 98.373 in.
 Diameter over chamber 5.59 in.

Weight

Gun barrel 202 lb
 Gun and mechanism not available

Rifling

Twist Right hand, increasing, 1 turn in 45 calibers
 to 1 turn in 30 calibers
 Length 75.85 in.
 Plating none
 Thickness none
 Length none

Ammunition

Type Fixed case
 Classification AA Service, AA Target
 Reference NAVORD OD 5297, sheet 40A1

Ballistics

Volume of chamber 28.3 cu in.
 *Muzzle velocity 2,890 fps
 Maximum powder pressure... 19.5 long tons per sq in.
 *Maximum altitude at 90° elevation..... 22,800 ft
 *Maximum range at 42° elevation..... 11,000 yd
 Rate of fire..... 160 rd per min
 *(Measured with 300 gram charge and 1.985 lb projectile)

Design and Publication References

General arrangement dr. 298652
 List of drawings LD 100228
 Strength, pressure, and velocity dr. 330907
 Chamber dr. 298657
 Rifling dr. 298655
 Gun instruction handbook..... OP 820
 Mount instruction handbook..... OPs 821, 822, 1329
 Ammunition assemblies..... NAVORD OD 5297
 Range tables..... OPs 867, 867A, 867B

SECTION 5

3-POUNDER (1.85-INCH) GUN MARK 4 MOD 0

50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 4 Mod 0 is a 50-caliber, fixed-case ammunition, semiautomatic gun originally designed for use on battleships and cruisers as a rapid-fire, general-purpose gun. The gun is now used for saluting and line throwing. It was originally the Hotchkiss semiautomatic Gun Mk 4. It is a built-up gun consisting of a tube, jacket, and locking ring. The gun has a muzzle

bell. The jacket forging is threaded to fit the sleeve of a mount, and has a housing for a vertically sliding breechblock. The 3-pounder Breech Mechanism Mk 4 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 4 Mod 0 differs from all previous designs of 3-pounder guns by being a semiautomatic 50-caliber gun.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 5 all Mods
Class of ships..... BB, CB, CL

Dimensions

Length 99.05 in.
Diameter over chamber..... 6.60 in.

Weight

Gun..... not available
Gun with breech mechanism..... 562 lb

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 3PDR
A1 and C1

Ballistics

Volume of powder chamber.....not available
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 8 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement dr. 17600
List of drawings..... LD 3533
Strength, pressure, and velocity..... dr. 22994
Chamber..... dr. 17600
Rifling..... dr. 17600
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

Rifling

Twist Right hand, increasing, 1 turn in
50 calibers to 1 turn in 25 calibers
Length..... 76.863 in.
Plating..... none
Thickness..... none
Length..... none

3-POUNDER (1.85-INCH) GUN MARK 4 MOD 1 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 4 Mod 1 is a 50-caliber, fixed-case ammunition, semiautomatic gun originally designed for use on battleships and cruisers as a rapid-fire, all-purpose gun. The gun is now used for saluting and line throwing. It is a built-up gun consisting of a tube, jacket and locking ring. The gun has a muzzle bell. The jacket forging is threaded to fit the sleeve of a mount

and has a housing for a vertically sliding breechblock. The 3-pounder Breech Mechanism Mk 4 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 4 Mod 1 is 3-pounder Gun Mk 4 Mod 0 modified to take 3-pounder Gunsight Mk 10 Mod 0.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 5 all Mods
Class of ships..... BB, CB, CL

Dimensions

Length 99.05 in.
Diameter over chamber..... 6.60 in.

Weight

Gun not available
Gun with breech mechanism..... 508 lb

Rifling

Twist Right hand, increasing, 1 turn
in 50 calibers to 1 turn in 25 calibers
Length..... 76.863 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 3PDR
A1 and C1

Ballistics

Volume of powder chamber not available
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 8 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 17600
List of drawings..... LD 7455
Strength, pressure, and velocity..... dr. 22994
Chamber..... dr. 17600
Rifling..... dr. 17600
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

3-POUNDER (1.85-INCH) GUN MARK 4 MOD 2 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 4 Mod 2 is a 50-caliber, fixed-case ammunition, semiautomatic gun originally designed for use on battleships and cruisers as a rapid-fire, all-purpose gun. The guns are now used for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a gun-steel jacket and locking ring. The gun has a muzzle bell. The jacket forging is threaded to fit the sleeve of a mount and has a

housing for a vertically sliding breechblock. The 3-pounder Breech Mechanism Mk 4 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 4 Mod 2 is 3-pounder Gun Mk 4 Mod 0 retubed with an alloy-steel tube. It differs from 3-pounder Gun Mk 4 Mod 1 by not being modified to take 3-pounder Gunsight Mk 10 Mod 0.

TABULAR DATA

Installation

Mount..... 3-pounder Mount Mk 5 all Mods
Class of ships..... BB, CB, CL

Dimensions

Length..... 99.05 in.
Diameter over chamber..... 6.60 in.

Weight

Gun..... not available
Gun with breech mechanism..... 508 lb

Rifling

Twist..... Right hand, increasing, 1 turn in
50 calibers to 1 turn in 25 calibers
Length..... 76.863 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type..... Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 3PDR
A1 and C1

Ballistics

Volume of powder chamber..... 47 cu in.
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 10 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 17600
List of drawings..... LD 12037
Strength, pressure, and velocity.....dr. 59166
Chamber..... dr. not available
Rifling..... dr. not available
Mount instruction handbook.....not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

3-POUNDER (1.85-INCH) GUN MARK 5 MOD 0 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 5 Mod 0 is a 50-caliber, fixed-case ammunition, Maxim-Nordenfelt semiautomatic Gun Mk 1. The 3-pounder Breech Mechanism Mk 5 Mod 0, used with this gun, has a rotating and sliding breechblock. Three guns of

this design were purchased but later withdrawn from service. They were later reclassified as service guns by BUORD. Its present use is chiefly for saluting and line throwing. Drawings of this gun are not available.

TABULAR DATA

Installation

Mount not available
Class of ships not available

Ammunition

Type Fixed case
Classification COM Service, T Target
Reference OP 4

Dimensions

Length not available
Diameter over chamber not available

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum range not available

Weight

Gun not available
Gun with breech mechanism not available

Designs and Publication References

General arrangement dr. not available
List of drawings LD not available
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Rifling dr. not available
Mount instruction handbook not available
Ammunition assemblies OP 4
Range tables OP 1188

Rifling

Twist not available
Length not available
Plating none
Thickness none
Length none

3-POUNDER (1.85-INCH) GUN MARK 9 MOD 0 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 9 Mod 0 is a 50-caliber, semiautomatic, fixed-case ammunition, rapid-fire gun designed for general-purpose use throughout the fleet. It was originally designed as the Nordenfelt Gun Mk 1. The gun does not have trunnions. The 3-pounder Breech Mechanism Mk 9 Mod 0, used with this gun, has a rotating

and sliding breechblock. These guns were withdrawn from service, but later reclassified as service guns by BUORD. Drawings of this gun are not available.

The 3-pounder Gun Mk 9 Mod 0 is similar to 3-pounder Gun Mk 5 Mod 0.

TABULAR DATA

Installation

Mount not available
Class of ships not available

Dimensions

Length not available
Diameter over chamber not available

Weight

Gun not available
Gun with breech mechanism not available

Rifling

Twist not available
Length not available
Plating none
 Thickness none
 Length none

Ammunition

Type Fixed case
Classification COM Service, T Target
Reference OP 4

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum range not available

Design and Publication References

General arrangement dr. not available
List of drawings LD not available
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Rifling dr. not available
Mount instruction handbook not available
Ammunition assemblies OP 4
Range tables OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 0 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 0 is a 50-caliber, fixed-case ammunition, Hotchkiss semiautomatic gun designed for general-purpose use in single mounts on cruisers and patrol boats. The gun is now used as a single-shot gun for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking ring. The jacket forging has a housing for a vertically sliding breechblock. The gun is attached to the mount by means of a yoke and slide. The thread

for the yoke starts 13.425 inches from the breech and is 4.25 inches long. The slide surface is 6.60 inches in diameter and 13.25 inches long. The 3-pounder Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 0 is similar to 3-pounder Gun Mk 4 Mod 0, differing by having a slide surface, and by the method of attachment to the mount.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 9 all Mods
Class of ships CA, CV, PT

Dimensions

Length 99.075 in.
Diameter over chamber 6.60 and 6.91 in.

Weight

Gun not available
Gun with breech mechanism 571 lb

Rifling

Twist Right-hand, increasing, 1 turn in 50 calibers
to 1 turn in 25 calibers
Length 76.863 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 3PDR A1
and C1

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,200 fps
Maximum powder pressure 13.8 long tons per sq in.
*Maximum range at 20° elevation 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement dr. 22288
List of drawings LD 3534
Strength, pressure, and velocity dr. not available
Chamber dr. 22288
Rifling dr. 20479
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 1 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 1 is a 50-caliber, fixed-case ammunition, semiautomatic gun designed for general purpose use on cruisers and patrol boats. The gun is now used as a single-shot gun for saluting and line throwing. It is a built-up alloy-steel and forged-steel gun consisting of a tube, jacket, and locking ring. The gun has a muzzle bell. The jacket forging has a housing for a vertically sliding breechblock and is

threaded to fit the yoke of a mount. The slide surface is 6.60 inches in diameter and is 17.25 inches long. The 3-pounder Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 1 differs from 3-pounder Gun Mk 10 Mod 0 by having the slide surface lengthened to 17.25 inches.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 9 all Mods
Class of ships CA, PT

Dimensions

Length 99.075 in.
Diameter over chamber 6.60 and 6.91 in.

Weight

Gun not available
Gun with breech mechanism 582.58 lb

Rifling

Twist Right hand, increasing, 1 turn in 50 calibers
to 1 turn in 25 calibers
Length 76.863 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 3PDR A1
and C1

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,200 fps
Maximum powder pressure....13.8 long tons per sq in.
*Maximum range at 20° elevation 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement dr. 24642
List of drawings LD 3598
Strength, pressure, and velocity dr. not available
Chamber dr. 24642
Rifling dr. 20479
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 2 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 2 is a 50-caliber, fixed-case ammunition gun designed for general-purpose use on cruisers and patrol boats. The gun is now used as a single-shot gun for saluting and line throwing. It is a built-up forged steel gun consisting of a tube, jacket, and locking ring. The gun has a muzzle bell. The jacket is forged in one piece with the yoke, and has a housing for a vertically sliding breechblock. A

lug on the yoke projects below the gun and serves as an anchor for the recoil piston rod. The slide surface is 6.60 inches in diameter and is 17.25 inches long. The 3-pounder Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 2 differs from all previous designs of 3-pounder Gun Mk 10 by having the jacket and yoke forged in one piece.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 9 all Mods
Class of ships CL, PT

Ammunition

Type..... Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297,
sheets 3PDRA1 and C1

Dimensions

Length 99.075 in.
Diameter over chamber.....6.60 and 6.91 in.

Weight

Gun..... not available
Gun with breech mechanism..... 604.08 lb

Rifling

Twist..... Right hand, increasing, 1 turn in 50 calibers
to 1 turn in 25 calibers
Length..... 76.863 in.
Plating.....none
Thickness.....none
Length..... none

Ballistics

Volume of powder chamber.....47 cu in.
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 10 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 24495
List of drawings..... LD 3599
Strength, pressure, and velocity..... dr. 275077
Chamber..... dr. 24495
Rifling..... dr. 20479
Mount instruction handbook not available
Ammunition assemblies.....NAVORD OD 5297
Range tables..... OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 3
50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 3 is a 50-caliber, fixed-case ammunition, semiautomatic gun designed for general-purpose use on cruisers and patrol boats. The gun is now used as a single-shot gun for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking ring of forged steel. The jacket forging has a housing for a vertically sliding breechblock, and is threaded to fit the yoke of a mount. The slide surface is 6.60 inches in diameter and is 13.25 inches long. The 3-pounder Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 3 is 3-pounder Gun Mk 10 Mod 0 retubed with an alloy-steel tube. It differs from all previous designs of 3-pounder Gun Mk 10 by having this alloy-steel tube.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 9 all Mods
Class of ships CL, PT

Dimensions

Length..... 99.075 in.
Diameter over chamber 6.60 and 6.91 in.

Weight

Gun.....not available
Gun with breech mechanism 571 lb

Rifling

Twist..... Right hand, increasing, 1 turn in 50 calibers
to 1 turn in 25 calibers
Length..... 76.863 in.
Platingnone
Thickness.....none
Length..... none

Ammunition

Type.....Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297,
sheets 3PDRA1 and C1

Ballistics

Volume of powder chamber.....not available
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 10 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 22288
List of drawings LD 62153
Strength, pressure, and velocity..... dr. not available
Chamber.....dr. 22288
Rifling dr. 20479
Mount instruction handbook.....not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 4 50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 4 is a 50-caliber, fixed-case ammunition, semiautomatic gun designed for general-purpose use on cruisers and patrol boats. The gun is now used as a single-shot gun for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking ring of forged steel. The jacket forging has a housing for a vertically sliding breechblock, and is threaded to fit the sleeve of a mount. The slide surface is 6.60 inches in

diameter and is 17.25 inches long. The 3-pounder Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 4 is 3-pounder Gun Mk 10 Mod 1 retubed with an alloy-steel tube. It differs from all previous designs of 3-pounder Guns Mk 10, except Mod 3, by having this alloy-steel tube. It differs from 3-pounder Gun Mk 10 Mod 3 by having a longer slide surface.

TABULAR DATA

Installation

Mount 3-pounder Mount Mk 9 all Mods
Class of ships..... CA, CL, PT

Dimensions

Length..... 99.075 in.
Diameter over chamber 6.60 and 6.91 in.

Weight

Gun..... not available
Gun with breech mechanism..... 582.58 lb.

Rifling

Twist..... Right hand, increasing, 1 turn in 50 calibers
Le to 1 turn in 25 calibers
Length..... 76.863 in.
Plating none
Thickness..... none
Length none

Ammunition

Type..... Fixed case
Classification... COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297,
sheets 3PDR A1 and C1

Ballistics

Volume of powder chamber..... not available
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 10 long tons per sq in.
*Maximum range at 20° elevation..... 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 24642
List of drawings..... LD 62154
Strength, pressure, and velocity..... dr. not available
Chamber..... dr. 24642
Rifling..... dr. 20479
Mount instruction handbook not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

3-POUNDER (1.85-INCH) GUN MARK 10 MOD 5
50 CALIBER

DESCRIPTION

The 3-pounder (1.85-inch) Gun Mk 10 Mod 5 is a 50-caliber, fixed-case ammunition, semiautomatic gun designed for use as a general-purpose gun on cruisers and patrol boats. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking ring of forged steel. The jacket is forged in one piece with the yoke, and has a housing for a vertically sliding breechblock. A lug on the yoke below the gun serves as an anchor for the recoil piston rod. The slide surface is 6.60 inches in diameter and 17.25 inches long. The 3-pounder

Breech Mechanism Mk 10 Mod 0, used with this gun, has a Hotchkiss vertically sliding breechblock.

The 3-pounder Gun Mk 10 Mod 5 is 3-pounder Gun Mk 10 Mod 2 retubed with an alloy-steel tube. It differs from previous designs of 3-pounder Gun Mk 10, except Mods 3 and 4, by having an alloy-steel tube. It differs from 3-pounder Gun Mk 10 Mods 3 and 4 by having the yoke incorporated in the jacket forging.

TABULAR DATA

Installation

Mount..... 3-pounder Mount Mk 9 all Mods
Class of shipsCA, CL, PT

Dimensions

Length..... 99.075 in.
Diameter over chamber 6.60 and 6.91 in.

Weight

Gun not available
Gun with breech mechanism 604.08 lb

Rifling

Twist... Right hand, increasing, 1 turn in 50 calibers
to 1 turn in 25 calibers
Length 76.863 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 3PDR A1
and C1

Ballistics

Volume of powder chamber 47 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 10 long tons per sq in.
*Maximum range at 20° elevation 6,800 yd
*(Measured with a 340 gram charge and 3.30 lb projectile)

Design and Publication References

General arrangement..... dr. 24495
List of drawings LD 62155
Strength, pressure, and velocity dr. 275079
Chamber dr. 24495
Rifling dr. 20479
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

SECTION 6

6-POUNDER (2.244-INCH) GUN MARK 1 MOD 2
40 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 1 Mod 2 is a 40-caliber, fixed-case ammunition, Hotchkiss gun of French manufacture, designed as a general-purpose gun for use on battleships, cruisers, and miscellaneous auxiliaries. It is a built-up gun consisting of a tube, jacket, and locking ring, all of gun steel. The jacket and trunnions are forged in a single piece. The gun is attached to a mount by means of trunnions. The jacket also has a

housing for a vertically sliding breechblock. The 6-pounder Breech Mechanism Mk 1 Mod 1, used with this gun, has a drop breechblock. Drawings of this gun are not available.

The 6-pounder Gun Mk 1 Mod 2 differs from previous designs of 6-pounder Gun Mk 1 by being adapted for 6-pounder Breech Mechanism Mk 1 Mod 1.

TABULAR DATA

Installation

Mount not available
Class of ships not available

Dimensions

Length 97.63 in.
Diameter over chamber 8.27 in.

Weight

Gun 810 lb
Gun with breech mechanism 869 lb

Rifling

Twist Right hand, uniform, 1 turn in 29.8 calibers
Length 72.87 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR A1
and C1

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,240 fps
Maximum powder pressure 14 long tons per sq in.
**Maximum range at 21°59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6 lb projectile)
**(Measured with a 6-lb. projectile at 2,240 fps muzzle velocity.)

Design and Publication References

General arrangement dr. not available
List of drawings LD not available
Strength, pressure, and velocity dr. not available
Chamber..... dr. not available
Rifling..... dr. not available
Mount instruction handbook not available
Ammunition assemblies..... NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 1 MOD 3 40 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 1 Mod 3 is a 40-caliber, fixed-case ammunition, Hotchkiss-Armstrong rapid-fire, general-purpose gun. It is a built-up gun consisting of a tube, jacket, and locking ring, all of gun steel. The jacket and trunnions are forged in a single piece. The gun is attached to the mount by means of trunnions. The jacket also has a housing for a vertically sliding

breechblock. The 6-pounder Breech Mechanism Mk 3 Mod 0, used with this gun, has a drop breechblock. Drawings of this gun are not available.

The 6-pounder Gun Mk 1 Mod 3 differs from all previous designs of 6-pounder Gun Mk 1 by being adapted for 6-pounder Breech Mechanism Mk 3 Mod 0.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 8 Mod 0
Class of ships not available

Dimensions

Length 97.63 in.
Diameter over chamber 8.27 in.

Weight

Gun 810 lb
Gun with breech mechanism 869 lb

Rifling

Twist Right hand, uniform, 1 turn in 29.8 calibers
Length 72.87 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification...COM Service, COM Target, T Target,
Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR A1
and C1

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,240 fps
Maximum powder pressure 14 long tons per sq in.
*Maximum range at 21°59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6 lb projectile)

Design and Publication References

General arrangement dr. not available
List of drawings LD not available
Strength, pressure, and velocity dr. not available
Chamber dr. not available
Rifling dr. not available
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 2 MOD 0 40 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 2 Mod 0 is a 40-caliber, fixed-case ammunition, trunnionless, rapid-fire Hotchkiss Gun Mk 1, designed for general-purpose use in recoil mounts on battleships and miscellaneous auxiliaries. It is a built-up gun consisting of a tube, jacket, and locking ring, all of gun steel. The jacket forging has a housing for a vertically sliding breechblock and is threaded for attachment to the sleeve of a mount. A key-

way extends through a portion of the threading on the underside of the jacket. The 6-pounder Breech Mechanisms Mk 1 Mod 0 or Mk 2 Mod 0, used with this gun, have a drop breechblock.

The 6-pounder Gun Mk 2 Mod 0 differs from all previous 6-pounder gun designs by being trunnionless, and having the jacket threaded to fit the sleeve of a mount. It further differs by having a different taper on the front end of the jacket.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 all Mods
Class of ships AD, AR, BB

Dimensions

Length 97.63 in.
Diameter over chamber 8.27 in.

Weight

Gun not available
Gun with breech mechanism 700 lb

Rifling

Twist Right hand, uniform, 1 turn in 29.8 calibers
Length not available
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification COM Service, T Target, Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber 50.23 cu in.
*Muzzle velocity 2,240 fps
Maximum powder pressure 14 long tons per sq in.
**Maximum range at 21°59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle velocity)

Design and Publication References

General arrangement dr. 47783
List of drawings LD 3528
Strength, pressure, and velocity dr. 38040
Chamber dr. 47783
Rifling dr. not available
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 6 MOD 0 45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 6 Mod 0 is a 45-caliber, fixed-case ammunition, Driggs-Schroeder rapid-fire Gun Mk 1. It was originally designed for use on cruisers and battleships as an all-purpose gun but its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking hoop. The locking hoop is aligned with the jacket, and shrunk on the tube. The jacket and the locking hoop are both threaded to fit the sleeve of a

mount. A keyway extends through a portion of the threading on the underside of the hoop. The jacket has a housing for a revolving drop breechblock. The 6-pounder Breech Mechanism Mk 6 Mod 0 is used with this gun.

The 6-pounder Gun Mk 6 Mod 0 differs from all previous designs of 6-pounder guns in having a shrunk-on locking hoop which is threaded for attachment to the mount and by being adapted for 6-pounder Breech Mechanism Mk 6 Mod 0.

TABULAR DATA

Installation

Mount..... 6-pounder Mount Mk 3 Mods 11 and 13
Class of ships..... BB, CA, CL

Dimensions

Length..... 107.33 in.
Diameter over chamber..... 8.30 in.

Weight

Gun..... not available
Gun with breech mechanism..... 696 lb

Rifling

Twist..... Right hand, uniform, 1 turn
in 25.58 calibers
Length..... 88.107 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type Fixed case
Classification..... COM Service, T Target, Saluting
charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 6 PDR
A1 and C1

Ballistics

Volume of powder chamber..... 50.48 cu in.
Muzzle velocity..... 2,240 fps
Maximum powder pressure.... 12 long tons per sq in.
**Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement dr. 9659
List of drawings..... LD 3529
Strength, pressure, and velocity..... dr. 41018
Chamber..... dr. 9659
Rifling..... not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 6 MOD 1
45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 6 Mod 1 is a 45-caliber, fixed-case ammunition, all-purpose gun designed for use on cruisers and battleships. Its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking hoop of gun steel. The locking hoop is aligned with the jacket, and shrunk on the tube. Both the jacket and

locking hoop are threaded to fit the sleeve of a mount. A keyway extends through a portion of the threading on the underside of the locking hoop. The jacket forging has a housing for a revolving drop breechblock. The 6-pounder Breech Mechanism Mk 6 Mod 0 is used with this gun.

The 6-pounder Gun Mk 6 Mod 1 is 6-pounder Gun Mk 6 Mod 0 retubed with an alloy-steel tube.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 Mods 11 and 13
Class of ships..... BB, CA, CL

Dimensions

Length 107.33 in.
Diameter over chamber..... 8.30 in.

Weight

Gun not available
Gun with breech mechanism..... 696 lb

Rifling

Twist Right hand, uniform, 1 turn
in 25.58 calibers
Length..... 88.107 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type Fixed case
Classification..... COM Service, T Target, Saluting
charge, Line throwing, charge
Reference..... NAVORD OD 5297, sheets 6PDR
A1 and C1

Ballistics

Volume of powder chamber 50.10 cu in.
*Muzzle velocity..... 2,240 fps
Maximum powder pressure.... 12 long tons per sq in.
**Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement dr. 54794
List of drawings..... LD 7158
Strength, pressure, and velocity..... dr. 53885
Chamber..... dr. 54795
Rifling..... dr. 54795
Mount instruction handbook.....not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 7 MOD 0 45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 7 Mod 0 is a 45-caliber, fixed-case ammunition, Hotchkiss rapid-fire Gun Mk 2, long, originally designed for general-purpose use on battleships and cruisers. Its later use was chiefly for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking ring, all of gun steel. The jacket forging has a housing for a vertically sliding breechblock, and is threaded to fit the sleeve of a mount. A keyway extends through a portion of

the threading on the underside of the jacket. The 6-pounder Hotchkiss Breech Mechanism Mk 2 Mod 0, used with this gun, has a drop breechblock.

The 6-pounder Gun Mk 7 Mod 0 is almost identical to 6-pounder Gun Mk 3 Mod 0, differing from that gun and all previous designs of 6-pounder guns by being the only 45-caliber 6-pounder gun adapted for a 6-pounder Breech Mechanism Mk 2 Mod 0.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 Mods 0, 12, and 14
Class of ships AG, BB, CL, DD

Dimensions

Length 108.86 in.
Diameter over chamber 8.27 in.

Weight

Gun 710 lb
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn
in 25.58 calibers
Length 88.107 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification COM Service, T Target, Saluting
charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR
A1 and C1

Ballistics

Volume of powder chamber 50.64 cu in.
*Muzzle velocity 2,240 fps
Maximum powder pressure 12 long tons per sq in.
**Maximum range at 21° 59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement dr. 13820
List of drawings LD 3530
Strength, pressure, and velocity dr. 40075
Chamber dr. 13820
Rifling dr. 13820
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 7 MOD 1
45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 7 Mod 1 is a 45-caliber, fixed-case ammunition, Hotchkiss, rapid-fire gun, long, designed for use throughout the fleet as an all-purpose gun. Its later use was chiefly for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking ring, all of gun steel. The jacket forging has a housing for a vertically sliding breechblock and is threaded to fit the sleeve of a mount. A keyway

extends through a portion of the threading on the underside of the jacket. The gun is designed to take 6-pounder Gunsight Mk 15 Mod 0. The 6-pounder Breech Mechanism Mk 2 Mod 0, used with this gun, has a Hotchkiss drop breechblock. The 6-pounder Gun Mk 7 Mod 1 is almost identical to 6-pounder Gun Mk 7 Mod 0, differing by having its jacket threading 2.46 inches further away from the muzzle to balance a gunsight.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 Mod 11
Class of ships..... AG, BB, CL, DD

Dimensions

Length..... 108.86 in.
Diameter over chamber..... 8.27 in.

Weight

Gun 710 lb
Gun with breech mechanism.....not available

Rifling

Twist Right hand, uniform, 1 turn
in 25.58 calibers
Length..... 88.107 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type Fixed case
Classification..... COM Service, T Target, Saluting
charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 6PDR
A1 and C1

Ballistics

Volume of powder chamber 50.64 cu in.
*Muzzle velocity..... 2,240 fps
Maximum powder pressure.... 12 long tons per sq in.
**Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement..... dr. 49894
List of drawings..... LD 6641
Strength, pressure, and velocity..... dr. 40075
Chamber..... dr. 26247
Rifling..... dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 7 MOD 2 45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 7 Mod 2 is a 45-caliber, fixed-case ammunition, Hotchkiss, rapid-fire gun designed for use throughout the fleet as an all-purpose gun. Its later use was for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking ring of gun steel. The jacket forging has a housing for a vertically sliding breechblock, and is threaded to fit the sleeve of a mount. A keyway extends through a portion of the threading

on the underside of the jacket. The 6-pounder Breech Mechanism Mk 2 Mod 0, used with this gun, has a Hotchkiss drop breechblock.

The 6-pounder Gun Mk 7 Mod 2 is identical to 6-pounder Gun Mk 7 Mod 0 in all dimensions. It has an alloy-steel tube, and the gun steel for the jacket and locking ring has a higher elastic limit than the gun steel prescribed for 6-pounder Gun Mk 7 Mod 0. It differs from all previous designs of 6-pounder Gun Mk 7 by these modifications.

TABULAR DATA

Installation

Mount..... 6-pounder Mount Mk 3 Mods 0, 12, and 14
Class of ships..... AG, BB, CL, DD

Dimensions

Length..... 108.86 in.
Diameter over chamber..... 8.27 in.

Weight

Gun..... 710 lb
Gun with breech mechanism..... not available

Rifling

Twist..... Right hand, uniform, 1 turn
in 25.58 calibers
Length..... 88.107 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type..... Fixed case
Classification..... COM Service, T Target, Saluting
charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 6PDR
A1 and C1

Ballistics

Volume of powder chamber..... 50.10 cu in.
*Muzzle velocity..... 2,240 fps
Maximum powder pressure... 12 long tons per sq in.
**Maximum range at 21° 59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement..... dr. 53916
List of drawings..... LD 7096
Strength, pressure, and velocity..... dr. 53803
Chamber..... dr. 53943
Rifling..... dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 7 MOD 4 45 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 7 Mod 4 is a 45-caliber, fixed-case ammunition gun designed for use throughout the fleet as an all-purpose gun. Its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and jacket and locking ring of gun steel. The jacket forging has a housing for a vertically sliding breechblock, and is threaded to fit the sleeve of a mount. A keyway extends through a portion of the threading on the underside of the jacket. The 6-pounder Breech Mechan-

ism Mk 2 Mod 0, used with this gun, has a Hotchkiss drop breechblock.

The 6-pounder Gun Mk 7 Mod 4 is 6-pounder Gun Mk 7 Mod 0 retubed with an alloy-steel tube. It differs from all previous designs of 6-pounder Gun Mk 7, except Mod 2, by this alloy-steel tube. It differs from 6-pounder Gun Mk 7 Mod 2 by having a gun-steel jacket and locking ring of lower elastic limit, and by having the threads for the mount located 20.44 inches from the rear of the breech housing.

TABULAR DATA

Installation

Mount..... not available
Class of ships..... not available

Dimensions

Length..... 108.86 in.
Diameter over chamber..... 8.27 in.

Weight

Gun..... 710 lb
Gun with breech mechanism..... 785 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 25.58 calibers.
Length..... 88.107 in.
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type..... Fixed case
Classification..... COM Service, T Target, Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber..... 50.64 cu in.
*Muzzle velocity..... 2,240 fps
Maximum powder pressure..... 12 long tons per sq in.
**Maximum range at 21° 59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle velocity)

Design and Publication References

General arrangement..... dr. 217002
List of drawings..... LD 56649
Strength, pressure, and velocity..... dr. 40075
Chamber..... dr. 217001
Rifling..... dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 8 MOD 0 50 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 8 Mod 0 is a 50-caliber, fixed-case ammunition, Driggs-Schroeder rapid-fire Gun Mk 2. It was originally used on battleships and cruisers as an all-purpose gun. Its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking hoop, all of gun steel. The gun has a muzzle bell. The locking hoop is aligned with the jacket and shrunk on the tube. The jacket and locking hoop are both threaded to

fit the sleeve of a mount. A keyway extends through a portion of the threading on the underside of the locking hoop. The jacket forging has a housing for a revolving drop breechblock. The 6-pounder Breech Mechanism Mk 6 Mod 1 is used with this gun.

The 6-pounder Gun Mk 8 Mod 0 is similar to 6-pounder Gun Mk 6 Mod 0. It differs from that gun and all previous designs of 6-pounder guns by being a 50-caliber gun.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 Mods 1 and 13
Class of ships BB

Dimensions

Length 118.55 in.
Diameter 8.30 in.

Weight

Gun 700 lb
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn in 25.58 calibers
Length 99.3272 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification COM Service, T Target, Saluting charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber 50.48 cu in.
*Muzzle velocity 2,303 fps
Maximum powder pressure 12 long tons per sq in.
**Maximum range at 21° 59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle velocity)

Design and Publication References

General arrangement dr. 13705
List of drawings LD 6464
Strength, pressure, and velocity dr. 41015
Chamber dr. 13705
Rifling dr. not available
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 8 MOD 1
50 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 8 Mod 1 is a 50-caliber, fixed-case ammunition gun, designed for use on battleships and cruisers as an all-purpose gun. Its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of an alloy-steel tube, and a jacket and locking hoop of gun steel. The gun has a muzzle bell. The locking hoop is aligned with the jacket, and shrunk on the tube. The jacket and locking hoop are both

threaded to fit the sleeve of a mount. A keyway extends through a portion of the threading on the underside of the locking hoop. The jacket forging has a housing for a revolving drop breechblock. The 6-pounder Breech Mechanism Mk 6 Mod 1, used with this gun, has a sliding and rotating breechblock.

The 6-pounder Gun Mk 8 Mod 1 is 6-pounder Gun Mk 8 Mod 0 retubed with an alloy-steel tube.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 3 Mods 1 and 13
Class of ships.....BB

Ammunition

Type..... Fixed case
Classification..... COM Service, T Target, Saluting,
charge, Line throwing charge
Reference..... NAVORD OD 5297,
sheets 6PDR A1 and C1

Dimensions

Length..... 118.55 in.
Diameter over chamber..... 8.30 in.

Ballistics

Volume of powder chamber 50.10 cu in.
*Muzzle velocity.....2,303 fps
Maximum powder pressure.... 12 long tons per sq in.
**Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle velocity)

Weight

Gun..... 700 lb
Gun with breech mechanism..... not available

Design and Publication References

General arrangement..... dr. 57879
List of drawings..... LD 7472
Strength, pressure, and velocity.....dr. 58950
Chamber.....dr. 57880
Rifling.....dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

Rifling

Twist..... Right hand, uniform, 1 turn in 25.58 calibers
Length..... 99.3272 in.
Platingnone
Thickness.....none
Length..... none

6-POUNDER (2.244-INCH) GUN MARK 9 MOD 0 42 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 9 Mod 0 is a 42-caliber, fixed-case ammunition, Maxim semi-automatic Gun Mk 2, designed for general-purpose use on light cruisers. Its present use is chiefly for saluting and line throwing. It is a monoblock gun forged of gun steel with a breech housing slotted for a vertically sliding breechblock. A lug projects downward beneath the breech housing, immediately in front of the breechblock slot. The

rear side of this lug serves as a bearing for the operating shaft, and the front side serves as an anchor for the recoil piston rod. The 6-pounder Breech Mechanisms Mk 7 Mods 0 and 1, used with this gun, have a drop breechblock.

The 6-pounder Gun Mk 9 Mod 0 differs from all previous designs of 6-pounder guns by being a 42-caliber gun, and by being adapted for 6-pounder Breech Mechanisms Mk 7 Mods 0 and 1.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 9 Mods 0 and 1
Class of ships CL

Dimensions

Length 103.25 in.
Diameter over chamber 7.995 in.

Weight

Gun not available
Gun with breech mechanism 860 lb

Rifling

Twist Right hand, increasing, 1 turn in 180 calibers
to 1 turn in 29.89 calibers
Length not available
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification COM Service, T Target, Saluting
charge and Line throwing charge
Reference NAVORD OD 5297,
sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber 50.64 cu in.
*Muzzle velocity 2,240 fps
Maximum powder pressure 14 long tons per sq in.
**Maximum range at 21° 59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement dr. 17145
List of drawings LD 5513
Strength, pressure, and velocity dr. 39833
Chamber dr. 15974
Rifling dr. 14953
Mount instruction handbook OP 95
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

DESCRIPTION

The 6-pounder Gun Mk 9 Mod 1 is almost identical to 6-pounder Gun Mk 9 Mod 0, differing by being forged of nickel steel and by having a muzzle bell.

General arrangement.....	dr. 18084
List of drawings.....	LD 3531
Strength, pressure, and velocity.....	dr. 38868
Chamber.....	dr. 15974
Rifling.....	dr. 14953
Mount instruction handbook.....	not available
Ammunition assemblies.....	NAVORD OD 5297
Range tables.....	OP 1188

6-POUNDER (2.244 INCH) GUN MARK 9 MOD 2 42 CALIBER

DESCRIPTION

The 6-pounder (2.244 inch) Gun Mk 9 Mod 2 is a 42-caliber, fixed-case ammunition, Maxim, semi-automatic Gun Mk 1, of foreign manufacture. Drawings of this gun are not available. It is a monoblock gun of gun steel with a breech housing for a vertically sliding breechblock. Its present use is chiefly for saluting and line throwing. A lug projects downward beneath the breech housing immediately in front of the breechblock slot. The rear side of the lug serves as a bearing for the

operating shaft and the front side serves as an anchor for the recoil piston rod. The 6-pounder Breech Mechanism Mk 7 Mod 2, used with this gun, has a drop breechblock.

The 6-pounder Gun Mk 9 Mod 2 is similar to the previous modifications of 6-pounder Gun Mk 9. It differs from these designs in being of foreign manufacture and being adapted to 6-pounder Breech Mechanism Mk 7 Mod 2.

TABULAR DATA

Installation

Mount..... not available
Class of ships..... not available

Dimensions

Length..... not available
Diameter over chamber..... not available

Weight

Gun..... not available
Gun with breech mechanism..... not available

Rifling

Twist..... not available
Length..... not available
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type..... Fixed case
Classification..... COM Service, T Target, Saluting charge, Line throwing charge
Reference..... NAVORD OD 5297, sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber..... 50.64 cu in.
*Muzzle velocity..... 2,240 fps
Maximum powder pressure.... 14 long tons per sq in.
**Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle velocity)

Design and Publication References

General arrangement..... dr. not available
List of drawings..... LD not available
Strength, pressure, and velocity..... dr. not available
Chamber..... dr. not available
Rifling..... dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORDOD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 10 MOD 0
42 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 10 Mod 0 is a 42-caliber, fixed-case ammunition, Nordenfelt rapid-fire Gun Mk 2. Its present use is chiefly for saluting and line throwing. It is a monoblock gun having integral trunnions. The gun has a housing for a vertically sliding breechblock. A band for supporting a gunsight is shrunk onto the gun seven

inches in front of the trunnions. The 6-pounder Breech Mechanism Mk 8 Mod 0, used with this gun, has a drop breechblock.

The 6-pounder Gun Mk 10 Mod 0 differs from all previous designs of 6-pounder guns by being a 42-caliber gun with integral trunnions.

TABULAR DATA

Installation

Mount.....not available
Class of ships.....not available

Ammunition

TypeFixed case
Classification.....COM Service, T Target, Saluting
charge, Line throwing charge
Reference.....NAVORD OD 5297,
sheets 6PDR A1 and C1

Dimensions

Length 104.42 in.
Diameter over chamber..... 7.0 in.

Ballistics

Volume of powder chamber..... not available
Muzzle velocity..... 2,240 fps
Maximum powder pressure.... 14 long tons per sq in.
*Maximum range at 21°59.4' elevation..... 8,000 yd
*(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Weight

Gun..... not available
Gun with breech mechanism..... 712.13 lb.

Design and Publication References

General arrangement.....dr. 17854
List of drawings.....LD 5843
Strength, pressure, and velocity.....dr. not available
Chamber.....dr. 17854
Rifling.....dr. not available
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables.....OP 1188

Rifling

Twist.....not available
Length.....not available
Plating.....none
Thickness.....none
Length..... none

6-POUNDER (2.244-INCH) GUN MARK 11 MOD 0 50 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 11 Mod 0 is a 50-caliber, fixed-case ammunition, Driggs-Seabury semiautomatic Gun Mk 1. It was originally used on cruisers as an all-purpose gun but its present use is chiefly for saluting and line throwing. It is a built-up gun consisting of a tube, jacket, and locking hoop, all of gun steel. The locking hoop, which is 25 inches long, is aligned with the jacket and shrunk onto the tube. Both the locking hoop and jacket are threaded to fit the sleeve of

a mount. The jacket forging has a housing for a vertically sliding breechblock. A lug projects downward from the jacket beneath the breech housing and serves as a bearing for the operating lever. The 6-pounder Breech Mechanism Mk 9 Mod 0, used with this gun, has a drop breechblock.

The 6-pounder Gun Mk 11 Mod 0 differs from all previous designs of 6-pounder guns by the length of the locking hoop and being adapted for a 6-pounder Breech Mechanism Mk 9 Mod 0.

TABULAR DATA

Installation

Mount 6-pounder Mount Mk 6 Mod 2
Class of ships CL

Dimensions

Length 120.0 in.
Diameter over chamber 8.50 in.

Weight

Gun 891.0 lb
Gun with breech mechanism 950 lb

Rifling

Twist Right hand, increasing, 0 turns to 1 turn in
25.8 calibers
Length not available
Length not available
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification COM Service, T Target, Saluting
charge, Line throwing charge
Reference NAVORD OD 5297, sheets 6PDR A1
and C1

Ballistics

Volume of powder chamber 50.48 cu in.
*Muzzle velocity 2,303 fps
Maximum powder pressure, 12 long tons per sq in.
**Maximum range at 21°59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement dr. 25648
List of drawings LD 3561
Strength, pressure, and velocity dr. 40062
Chamber dr. 25648
Rifling dr. 26860
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP 1188

6-POUNDER (2.244-INCH) GUN MARK 11 MOD 1
50 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 11 Mod 1 is a 50-caliber, fixed-case ammunition gun designed for use on cruisers as an all-purpose gun; its present use is chiefly for saluting or line throwing. It is a built-up gun consisting of a tube, jacket, and locking hoop, all of gun steel. The locking hoop is aligned with the jacket and shrunk onto the tube. The jacket and locking hoop are both threaded to fit the sleeve of a mount. The jacket

forging has a housing for a vertically sliding breechblock. A lug projects downward from the jacket beneath the breech housing and serves as a bearing for the operating lever. The 6-pounder Breech Mechanism Mk 9 Mod 0, used with this gun, has a drop breechblock.
The 6-pounder Gun Mk 11 Mod 1 is 6-pounder Gun Mk 11 Mod 0 rebuilt with a new tube and locking hoop.

TABULAR DATA

Installation

Mount..... 6-pounder Mount Mk 6 Mod 2
Class of ships CL

Dimensions

Length..... 120 in.
Diameter over chamber 8.50 in.

Weight

Gun 891.0 lb
Gun with breech mechanism..... not available

Rifling

Twist..... Right hand, increasing, 0 turn to 1 turn
in 25.8 calibers
Length..... not available
Plating..... none
Thickness..... none
Length..... none

Ammunition

Type..... Fixed case
Classification..... COM Service, T Target, Saluting
charge, Line throwing charge
Reference..... NAVORD OD 5297,
sheets 6PDR A1 and C1

Ballistics

Volume of powder chamber..... 50.10 cu in.
*Muzzle velocity..... 2,303 fps
Maximum powder pressure.... 12 long tons per sq in.
**Maximum range at 21°59.4' elevation 8,000 yd
*(Measured with a 560 gram charge and 6.03 lb projectile)
**(Measured with a 6 lb projectile at 2,240 fps muzzle
velocity)

Design and Publication References

General arrangement..... dr. 25648
List of drawings..... LD 6478
Strength, pressure, and velocity..... dr. 48303
Chamber..... dr. 25648
Rifling..... dr. 26860
Mount instruction handbook..... not available
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OP 1188

6-POUNDER (2.244-INCH) GUN MARK 12 MOD 0 32 CALIBER

DESCRIPTION

The 6-pounder (2.244-inch) Gun Mk 12 Mod 0 is a 32-caliber, fixed-case ammunition, non-recoil gun, originally called the 6-pounder Davis Non-Recoil Gun. The gun has two individual monoblock barrels which are aligned with breech ends adjacent to and interlocking with one another when in firing position. Both barrels have a breech and muzzle end. The front barrel, which has a breech band cut with interrupted threads, is rifled and

fires the projectile. The breech end of the rear barrel is threaded to engage the interrupted threads of the front barrel, thereby locking both barrels together. The rear barrel has a smooth bore and fires a countercharge.

The 6-pounder Gun Mk 12 Mod 0 differs from all previous designs of 6-pounder guns by being a non-recoil gun and by having two barrels.

TABULAR DATA

Installation

Mount not available
Class of ships not available

Dimensions

Length.....Front Barrel 70.47 in.
Rear Barrel 49.44 in.
Diameter over chamber
Front barrel 3.472 in.
Rear barrel 3.247 in.

Weight

Gun not available
Gun with breech mechanism not available

Rifling

Twist Right hand, increasing, 1 turn in
73.84 calibers to 1 turn in 30 calibers at
23.619 inches from muzzle; the remainder
is uniform, 1 turn in 30 calibers
Length 54.308 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification Special
Reference..... not available

Ballistics

Volume of powder chamber not available
Muzzle velocity not available
Maximum powder pressure not available
Maximum range not available

Design and Publication References

General arrangement dr. 63488
List of drawings LD 13277
Strength, pressure, and velocity dr. not available
Chamber dr. 63488
Rifling dr. 63488
Mount instruction handbook not available
Ammunition assemblies..... not available
Range tables OP 1188

SECTION 7

3-INCH GUN MARK 21 MOD 0
50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 21 Mod 0 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is radially expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place by a key. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0 inches from the muzzle. The outside of the gun is copper plated for a distance of 7.25 inches from the breech end. The breech housing, which is slotted for a vertically

sliding breechblock, has a lug that projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housing Mk 2 Mod 0 is used with this gun.

The 3-inch Gun Mk 21 Mod 0 is similar to the 3-inch Gun Mk 19 Mod 0, differing chiefly in the length of the slide cylinders and the design of the housing.

TABULAR DATA

Installation

Mount 3-inch Mount Mk 22 Mods 0, 1, 2, 3, 4, 5,
6, 11, 12, 16, and 17
Class of ships AP, BB, CL, DD, DE

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun barrel 1,240 lb
Gun with housing 1,760 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 126.13 in.
Plating Chromium
Thickness 0.0005 in.
Length 128.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification COM Target, T Target,
SS Service, AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber 217 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 17 long tons per sq in.
*Maximum range at 43° 02' elevation 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement dr. 275279
List of drawings, guns LD 90564
(Housing) LD 90567
Strength, pressure, and velocity dr. 275283
Chamber dr. 275281
Rifling dr. 170139
Mount instruction handbook OP 811
Gun instruction handbook OD 2772
Ammunition assemblies NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A,
1766, 1795

The 3-inch Gun Mk 21 Mod 1 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for use on submarines. It is a radially expanded monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place by a key. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The entire bore and chamber and exterior slide surfaces are chromium plated. The muzzle is provided with lugs for attaching a muzzle cover. The breech housing, which is slotted for a vertically sliding

breechblock, has a lug that projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. All exterior surfaces of the housing from the breech end of the gun to the forward edge of the slide surface are chromium plated. The 3-inch Breech Housing Mk 2 Mod 1 is used with this gun in wet mounts.

The 3-inch Gun Mk 21 Mod 1 differs from the 3-inch Gun Mk 21 Mod 0 in having chromium plated chamber and working surfaces, and being provided with lugs for a muzzle cover in order to adapt it to a wet mount.

Installation

Mount 3-inch Mount Mk 21 Mods 0 and 1
 3-inch Mount Mk 26 Mod 0
Class of ships SS

Length (barrel and housing) 159.80 in.
Diameter over chamber 8.625 in.

Gun	1,240 lb
Gun with breech housing.....	1,760 lb

Twist Right hand, uniform, 1 turn in 32 calibers
Length 126.13 in.
Plating Chromium
Thickness 0.0005 in.
Length Entire bore and chamber

Type Fixed case
Classsification COM Target, T Target,
SS Service, AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Volume of powder chamber 217 cu in.
 *Muzzle velocity 2,700 fps
 Maximum powder pressure...16.5 long tons per sq in.
 *Maximum range at 43°02' elevation 14,590 yd
 *(Measured with a 3.70 lb charge and 13 lb projectile)

General arrangement	dr. 275279
List of drawings,gun	LD 90566
(Housing)	LD 90568
Strength, pressure, and velocity	dr. 275283
Chamber	dr. 275290
Rifling	dr. 170139
Mount instruction handbook	OP 811
Gun instruction handbook	OD 2772
Ammunition assemblies	NAVORD OD 5297
Range tables	OPs 861, 1188, 1692, 1692A, 1766, 1795

3-INCH GUN MARK 21 MOD 2 50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 21 Mod 2 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place by a key. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0 inches from the muzzle. The breech housing, which is slotted for a vertically sliding breech-

block, has a lug that projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housing Mk 2 Mod 0 is used with this gun.

The 3-inch Gun Mk 21 Mod 2 is the same as 3-inch Gun Mk 21 Mod 0 except for the gun barrel, which is made of a non-expanded forging of higher physical properties. It differs from 3-inch Gun Mk 21 Mod 1 by not being adapted for a wet mount.

TABULAR DATA

Installation

Mount 3-inch Mount Mk 22 Mods 0, 1, 2, 3, 4, 5,
6, 11, 12, 16, and 17
Class of ships AP, BB, CL, DD, DE

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun 1,240 lb
Gun with housing 1,760 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 126.13 in.
Plating Chromium
Thickness 0.0005 in.
Length 128.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification COM Target, T Target, SS Service,
AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber 217 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 17 long tons per sq in.
*Maximum range at 43°02' elevation 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement dr. 329195
List of drawings (gun) LD 91143
(Revision) LD 90567
Strength, pressure, and velocity dr. 329192
Chamber dr. 275281
Rifling dr. 170139
Mount instruction handbook OP 811
Gun instruction handbook OD 2772
Ammunition assemblies NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A,
1766, 1795

3-INCH GUN MARK 22 MOD 0 50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 0 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a radially expanded, monoblock gun consisting of a one-piece, alloy-steel forging, and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide which is 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0

inches from the muzzle. The breech housing, which is slotted for a vertically sliding breechblock, has a lug which projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housings Mk 2 Mods 0 and 4 are used with this gun.

The 3-inch Gun Mk 22 Mod 0 is almost identical to 3-inch Gun Mk 21 Mod 0 except for the addition of a collar, 78.875 inches from the muzzle.

TABULAR DATA

Installation

Mount..... 3-inch Mount Mk 22 Mods 0, 2, 3, 4, 6,
7, 8, 9, 14, and 15
Class of ships AD, AE, AF, AGS, AKA, AKS, AM,
AMS, AO, APA, AR, ARG, AS, ATA, ATF,
AV, DE, PC, PCEC, PCER, WAGL, WPC

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun..... 1,242 lb
Gun with breech housing..... 1,562 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 32 calibers
Length..... 126.13 in.
Plating..... Chromium
Thickness 0.0005 in.
Length..... 128.0 in. (measured from muzzle)

Ammunition

Type..... Fixed case
Classification..... COM Target, T Target,
SS Service, AA Service, AP Service
Reference..... NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber..... 217 cu in.
*Muzzle velocity..... 2,700 fps
Maximum powder pressure..... 17 long tons per sq in.
*Maximum range at 43°02' elevation..... 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement..... dr. 217090
List of drawings..... LD 62199
Strength, pressure, and velocity..... dr. 217092
Chamber dr. 217091
Rifling dr. 170139
Mount instruction handbook..... OP 811
Gun instruction handbook OD 2772
Ammunition assemblies..... NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A,
1766, 1795

3-INCH GUN MARK 22 MOD 1 50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 1 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide which is 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0 inches from the muzzle. The breech housing, which

is slotted for a vertically sliding breechblock, has a lug which projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housings Mk 2 Mods 0 and 2 are used with this gun.

The 3-inch Gun Mk 22 Mod 1 is almost identical to the 3-inch Gun Mk 22 Mod 0 except that it is manufactured from an unexpanded forging of higher physical strength.

TABULAR DATA

Installation

Mount..... 3-inch Mount Mk 22 Mods 0, 3, 6, 7,
8, 9, 14, and 15
3-inch Mount Mk 26 Mod 0
Class of ships AD, AE, AF, AKA, AKS, AM, AMS,
AO, APA, AR, ARG, AS, ATA, ATF,
AV, DE, PC, PCEC, PCER, PSC, WAGL, WPC

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun 1,242 lb
Gun with breech housing 1,562 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 126.13 in.
Plating Chromium
Thickness 0.0005 in.
Length 128.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification COM Target, T Target,
SS Service, AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber 217 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 17 long tons per sq in.
*Maximum range at 43°02' elevation 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement dr. 217094
List of drawings LD 107710
Strength, pressure, and velocity dr. 217096
Chamber dr. 217095
Rifling dr. 170139
Mount instruction handbook OP 811
Gun instruction handbook OD 2772
Ammunition assemblies NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A,
1766, 1795

The 3-inch Gun Mk 22 Mod 2 is almost identical to the 3-inch Gun Mk 22 Mod 0 except that the collar on the chase has been modified. It differs from 3-inch Gun Mk 22 Mod 1 by having a radially expanded barrel.

General arrangement.....	dr. 250805
List of drawings.....	LD 107715
Strength, pressure, and velocity	dr. 250807
Chamber	dr. 250806
Rifling	dr. 170139
Mount instruction handbook.....	OPs 811, 984
Gun instruction handbook.....	OD 2772
Ammunition assemblies.....	NAVORD OD 5297
Range tables	OPs 861, 1188, 1692, 1692A, 1766, 1795

3-INCH GUN MARK 22 MOD 3 50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 3 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide, located 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0 inches from the muzzle. The breech housing, which is slotted for a vertically sliding breech-

block, has a lug which projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housings Mk 2 Mods 0 and 4, and 3-inch Breech Housing Mk 5 Mod 0 are used with this gun.

The 3-inch Gun Mk 22 Mod 3 is almost identical to the 3-inch Gun Mk 22 Mod 1 except that it has a modified collar 78.875 inches from the muzzle. It differs from other previous 3-inch Guns Mk 22 by having a non-expanded barrel forging of higher physical strength.

TABULAR DATA

Installation

Mount 3-inch Mount Mk 22 Mod 0; 3-inch Mount Mk 24 Mods 0, 1, and 2; 3-inch Mount Mk 26 Mod 0; 3-inch Mount Mk 27 Mod 0; 3-inch Mount Mk 30 Mod 0
Class of shipsAD, AE, AF, AM, AMS, AKA, AKS, AO, APA, AR, ARG, AS, ATA, ATF, AV, DE, PC, PCEC, PCER, PCS, WAGL, WPC, WPG

Dimensions

Length (barrel and housing)..... 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun 1,242 lb
Gun with breech housing 1,562 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 126.13 in.
Plating Chromium
Thickness..... 0.0005 in.
Length..... 128.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification COM Target, T Target, SS Service, AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber 217 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 17 long tons per sq in.
*Maximum range at 43°02' elevation 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement dr. 250808
List of drawings LD 107716
Strength, pressure, and velocity dr. 250810
Chamber dr. 250809
Rifling dr. 170139
Mount instruction handbook OPs 811, 984
Gun instruction handbook OD 2772
Ammunition assemblies NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A, 1766, 1795

3-INCH GUN MARK 22 MOD 5 50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 5 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide, located 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore is chromium plated for a distance of 128.0 inches from the muzzle. The breech housing, which is slotted for a vertically sliding breechblock, has a lug which projects downward

in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housing Mk 5 Mod 1 and 3-inch Breech Housing Mk 8 Mod 2 are used with this gun.

The 3-inch Gun Mk 22 Mod 5 is almost identical to the 3-inch Gun Mk 22 Mod 3 except that the rear frustum has been beveled instead of rounded. It differs from all previous 3-inch Guns Mk 22, except Mod 4, by these changes. It differs from 3-inch Gun Mk 22 Mod 4 by having a non-expanded barrel forging of higher physical strength.

TABULAR DATA

Installation

Mount..... 3-inch Mount Mk 27 Mod 3
 3-inch Mount Mk 33 Mod 0
 3-inch Mount Mk 34 Mods 0 and 1
Class of ships.... AG, AP, CA, CL, CLAA, CV, CVB,
 CVE, DD, DDE, DDR, DL, DM

Dimensions

Length(barrel and housing),..... 159.65 in.
Diameter over chamber..... 8.625 in.

Weight

Gun..... 1,242 lb
Gun with breech mechanism..... 1,562 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 32 calibers
Length..... 126.13 in.
Plating..... Chromium
Thickness..... 0.0005 in.
Length..... 128.0 in. (measured from muzzle)

Ammunition

Type..... Fixed case
Classification..... COM Target, T Target,
 SS Service, AA Service, AP Service
Reference..... NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber..... 217 cu in.
*Muzzle velocity..... 2,700 fps
Maximum powder pressure..... 17 long tons per sq in.
*Maximum range at 43°02' elevation..... 14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement..... dr. 507083
List of drawings..... LD 167535
Strength, pressure, and velocity..... dr. 507087
Chamber..... dr. 507085
Rifling..... dr. 170139
Mount instruction handbook..... OPs 1698, 1753
Gun instruction handbook..... OD 2772
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 861, 1188, 1692, 1692A,
 1766, 1795

3-INCH GUN MARK 22 MOD 6
50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 6 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a radially expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide, located 78.875 inches from the muzzle, The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The entire length of the bore and chamber are chromium plated. The breech housing, which is

slotted for a vertically sliding breechblock, has a lug which projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housing Mk 8 Mod 2 is used with this gun.

The 3-inch Gun Mk 22 Mod 6 is almost identical to 3-inch Gun Mk 22 Mod 4, differing by having the entire length of the bore and chamber chromium plated with a heavier plating. It differs from all previous 3-inch Guns Mk 22 by these changes.

TABULAR DATA

Installation

Mount..... 3-inch Mount Mk 33 Mod 0
3-inch Mount Mk 34 Mod 0
Class of ships.... AG, AP, CA, CL, CLAA, CV, CVB,
DD, DDE, DDR, DL, DM

Dimensions

Length (barrel and housing)159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun.....	1,242 lb
Gun with breech mechanism.....	1,562 lb

Rifling

Twist.....	Right hand, uniform, 1 turn in 32 calibers
Length	125.78 in.
Plating.....	Chromium
Thickness	0.005 in.
Length.....	Entire length of bore and chamber

Ammunition

Type..... Fixed case
Classification..... COM Target, T Target,
SS Service, AA Service, AP Service
Reference..... NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber.....217 cu in.
 *Muzzle velocity.....2,700 fps
 Maximum powder pressure..... 17 long tons per sq in.
 *Maximum range at 43°02' elevation..... 14,590 yd
 *(Measured with a 3.70 lb charge and 13 lb projectile)

Design and Publication References

General arrangement.....dr. 660830
List of drawings.....LD 167583
Strength, pressure, and velocity.....dr. 507086
Chamber dr. 660832
Riflingdr. 170139
Mount instruction handbook..... OPs 1698, 1753
Gun instruction handbook OD 2772
Ammunition assemblies..... NAVORD OD 5297
Range tables OPs 861, 1188, 1692, 1692A,
1766, 1795

3-INCH GUN MARK 22 MOD 7
50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 7 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide, located 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The entire length of the bore and chamber are chromium plated. The breech housing, which is slotted for a vertically sliding breechblock, has a lug which projects downward in front of the

breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The slide key is located on the left side of the housing. The 3-inch Breech Housing Mk 8 Mod 2 is used with this gun.

The 3-inch Gun Mk 22 Mod 7 is almost identical to 3-inch Gun Mk 22 Mod 5, differing by having the entire bore and chamber chromium plated with a heavier plating. It differs from all previous 3-inch Gun Mk 22 designs, except Mod 6, by these changes. It differs from 3-inch Gun Mk 22 Mod 6 by having a non-expanded barrel forging of higher physical strength.

TABULAR DATA

Installation

Mount 3-inch Mount Mk 33 Mod 0
 3-inch Mount Mk 34 Mod 0
 Class of shipsAG,AP,CA,CL,CLAA,CV,CVB,DD,
 DDE,DDR,DL,DM

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Weight

Gun	1,242 lb
Gun with breech mechanism	1,562 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 125.78 in.
Plating Chromium
Thickness 0.005 in.
Length Entire length of bore and chamber

Ammunition

Type Fixed case
Classification..... COM Target, T Target, SS Service,
AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Ballistics

Volume of powder chamber	217 cu in.
*Muzzle velocity	2,700 fps
Maximum powder pressure	17 long tons per sq in.
*Maximum range at 43°02' elevation	14,590 yd
*(Measured with a 3.70 lb charge and 13 lb projectile)	

Design and Publication References

General arrangement.....	dr. 660831
List of drawings	LD 167584
Strength, pressure, and velocity	dr. 507087
Chamber	dr. 660833
Rifling	dr. 170139
Mount instruction handbook	OPs 1698, 1753
Gun instruction handbook	OD 2772
Ammunition assemblies.....	NAVORD OD 5297
Range tables	OPs 861, 1188, 1692, 1692A, 1766, 1795

3-INCH GUN MARK 22 MOD 8
50 CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 8 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation throughout the fleet. It is a non-expanded, monoblock gun consisting of a one-piece, alloy-steel forging and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place with a key. The barrel has a collar 1.50 inches wide, located 78.875 inches from the muzzle. The slide surface is 60 inches long and has two diameters, 8.625 inches and 7.25 inches. The bore and chamber are chromium plated for the

entire distance. The breech housing, which is slotted for a vertically sliding breech-block, has a lug which projects downward in front of the breechblock slot. The rear of this lug serves as a bearing for the operating lever, and the front serves as an anchor for the recoil piston rod. The 3-inch Breech Housing Mk 8 Mod 2 is used with this gun.

The 3-inch Gun Mk 22 Mod 8 is identical in all dimensions with 3-inch Gun Mk 22 Mod 7, differing only by being forged of a higher strength steel.

TABULAR DATA

Installation

Mount 3-inch Mount Mk 33 Mod 0
 3-inch Mount Mk 34 Mod 0
 Class of ships..... AG,AP,CA,CL,CLAA,CV,CVB,DD,
 DDE,DDR,DL,DM

Ammunition

Type Fixed case
Classification..... COM Target, T Target, SS Service,
AA Service, AP Service
Reference NAVORD OD 5297, sheets 350A1-2

Dimensions

Length (barrel and housing) 159.65 in.
Diameter over chamber 8.625 in.

Ballistics

Volume of powder chamber	217 cu in.
*Muzzle velocity	2,700 fps
Maximum powder pressure...	16.5 long tons per sq in.
*Maximum range at 43°02' elevation	14,590 yd
*(Measured with a 3.70 charge and 13 lb projectile)	

Weight

Gun	1,242 lb
Gun with breech mechanism	1,562 lb

Design and Publication References

General arrangement	dr. 516709
List of drawings	LD 262340
Strength, pressure, and velocity.....	dr. 516714
Chamber	dr. 516711
Rifling	dr. 516713
Mount instruction handbook	OPs 1698, 1753
Gun instruction handbook.....	OD 2772
Ammunition assemblies	NAVORD OD 5297
Range tables	OPs 861, 1188, 1692, 1692A, 1766, 1795

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 125.78 in.
Plating Chromium
Thickness 0.005 in.
Length Entire bore and chamber

3-INCH GUN MARK 22 MOD 9

50-CALIBER

DESCRIPTION

The 3-inch Gun Mk 22 Mod 9 is a 50-caliber, fixed-case ammunition, antiaircraft gun designed for general installation on ships. It is a non-expanded, monobloc gun consisting of a one-piece, alloy-steel forging and a separate breech housing.

The bore and chamber are chrome plated. The chrome plating in the chamber may taper smooth-

ly from full thickness (0.005 inch) at the origin of rifling to not less than 0.001 inch thickness at the breech end. The outside of the gun is copper plated for a distance of 7.00 inches from the breech end.

The 3-inch Gun Mk 22 Mod 9 is identical with 3-inch Gun Mk 22 Mod 8, except that breech-end pads are removed.

TABULAR DATA

Installation

Mount., 3-inch Mount Mk 33 Mod 0, Mk 34 Mods 0 and 1
Class of ships AG, AP, CA, CL, CLAA, CV,
CVB, DD, DDE, DDR, DL, DM

Dimensions

Length (barrel) 150.0 in.
Diameter over chamber 8.625 in.

Weight

Gun 1,242 lb.
Gun barrel with housing 1,766 lb.

Rifling

Twist Right-hand, uniform, 1 turn in 32 calibers
Length 125.78 in.
Plating Chromium
Thickness005 in.
Length Chamber and bore

Ammunition

Type Fixed
Classification AA, HC, FCL(VT) FCL(VT
non-frag.) AP, Illum., BL and T, BL and P(7).
Reference OD 5297 Sheet 350 A1, Change 7.

Ballistics

Volume of powder chamber 217.0 cu. in.
* Muzzle velocity 2,700 fps
Maximum powder pressure 16.5 long tons per sq. in.
Maximum range at elevation not available
*(Measured with a 3.70-lb. charge and a 13.0-lb. projectile.)

Design and Publication References

General Arrangement dr. 516719
List of drawings LD 262382
Strength, pressure, and velocity dr. 516723
Chamber dr. 516720
Rifling dr. 516722
Mount instruction handbook OP's 1566, 1698, 1753;
OD 6438
Gun instruction handbook OD 2772
Ammunition assemblies OD 5297
Range tables OP's 1188, 1692, 1692A, 1766, 1795

3-INCH GUN MARK 22 MOD 10

50-CALIBER

DESCRIPTION

The 3-inch Gun Mark 22 Mod 10 is a 50-caliber, fixed case ammunition, antiaircraft gun designed for installation of auxiliaries, light cruisers, aircraft carriers, antiaircraft cruisers and destroyers. It is a radially expanded, monoblock gun consisting of a one-piece, alloy-steel forging, and a separate breech housing which is secured to the barrel by interrupted threads (bayonet joint) and locked in place by a key. The slide surface is 60 inches long.

The chamber and bore are chromium plated with a thickness of 0.005 inch. The plating in the chamber may taper from 0.005 inch at the

beginning of rifling to 0.001 inch at the breech end. The outside of the gun is copper plated 7.00 inches from the breech end. The rifling details are the same as for the Mod 9 gun.

The 3-inch Gun Barrel Mk 22 Mod 10 is similar to the 3-inch Gun Barrel Mk 22 Mod 9, and is made by modifying the 3-inch Gun Barrel Mk 21 Mod 0 chamber and exterior dimensions to provide bearing seats for counterrecoil spring assembly. This gun barrel differs from the Mk 22 Mod 9 in that it has a lower-yield strength forging.

TABULAR DATA

Installation

Mount .. 3-inch Mount Mk 33 Mod 0, Mk 34 Mods 0 and 1
Class of Ships ... AG, AP, CA, CL, CLAA, CV, CVB
DD, DDE, DDR, DL, DM

Dimensions

Length of barrel 150.0 in.
Diameter over chamber 8.625 in.

Weight

Gun (barrel) 1,242 lb.
Gun and housing 1,766 lb.

Rifling

Twist Right-hand, uniform, 1 turn in 32 calibers
Length 125.78 in.
Plating Chromium
Thickness005 in.
Length Chamber and bore

Ammunition

Type Fixed
Classification AA, HC, FCL(VT), FCL(VT)
nonfrag., AP, Illum., BL and T, BL and P(7)
References OD 5297 Sheet 350 A1, Change 7

Ballistics

Volume of powder chamber 217.0 cu. in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 16.5 long tons per sq. in.
Maximum range at elevation not available
*(Measured with a 3.70-lb. charge and 13.0-lb. projectile)

Design and Publication References

General arrangement dr. 516737
List of drawings LD 262420
Strength, pressure, and velocity dr. 516741
Chamber dr. 516739
Rifling dr. 516722
Mount instruction handbook OP's 1566, 1698,
1753; OD 6438
Gun instruction handbook OD 2772
Ammunition assemblies OD 5297
Range tables OP's 1108, 1692, 1692A, 1766, 1795

SECTION 8

81-MM MORTAR BARREL MARK 1 MOD 0

DESCRIPTION

The 81-mm Mortar Barrel Mk 1 Mod 0 is part of 81-mm Mortar Mk 2 Mod 0, a light artillery piece used by the U.S. Marine Corps in trench warfare. By replacing the military type base plate with a fixed position tripod, the U.S. Navy uses the mortar for bombardment from ships. The barrel is a smooth bore, monoblock, alloy-steel tube with a 13-inch guide key set in the upper slide surface.

The barrel is muzzle loaded. The barrel is threaded and keyed to a breech housing in the mount at the breech end. The breech housing has a lug on top which serves as an anchor for the piston rod of the recoil and counterrecoil cylinders.

The 81-mm Mortar Breech Mechanism Mk 1 Mod 0, which is a fixed pin device, is used with this mortar.

TABULAR DATA

Installation

Mount 81-mm Mortar Mk 2 Mod 0
Class of ships Any ships

Ammunition

Type Mortar
Classification Army M43A1 and M44 Mortar Shell
Reference TM 9-1901

Dimensions

Length 45.50 in.
Diameter over chamber 4.375 in.

Ballistics

Volume of powder chamber not available
*Muzzle velocity 760 fps
Maximum powder pressure... 3.08 long tons per sq in.
Maximum range not available
*(Measured with a 1.506 lb charge and 7.04 lb projectile)

Weight

Gun barrel..... 88 lb
Gun with breech mechanism..... 186 lb

Rifling

Twist none (smooth bore)
Length none
Plating none
Thickness none
Length none

Design and Publication References

General arrangement..... dr. 507077
(81-mm Mortar Mk 2 Mod 0) dr. 92572
List of drawings..... LD 167538
Strength, pressure, and velocity dr. 507076
Chamber dr. not available
Rifling dr. not available
Mount instruction handbook OP 1743
Ammunition assemblies TM 9-1901
Range tables not available

SECTION 9

5-INCH GUN MARK 10 MOD 1

25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 1 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mech-

anisms Mk 11 Mods 0 and 2, used with this gun, are the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 1 was developed from the 5-inch Gun Mk 10 Mod 0 and the bore and chamber are identical to the Mod 0. This modification differs from the 5-inch Gun Mk 10 Mod 0 by being threaded and keyed to the breech housing instead of shrunk on.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mods 0 and 13
Class of ships CV, BB

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech housing 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42° 11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 116000
List of drawings LD 39143
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 10 MOD 2 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 2 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single-open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanism

Mk 11 Mod 1, used with this gun, is the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 2 is identical to the 5-inch Gun Mk 10 Mod 1 except that the breech housing is modified by having part of the left cheek cut away to facilitate loading. This modification differs from the 5-inch Gun Mk 10 Mod 0 by being threaded and keyed to the breech housing and not shrunk on.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mods 1, 2, and 7
Class of ships CA, BB, CV

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech housing 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42° 11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 133762
List of drawings LD 54436
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 10 MOD 3
25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 3 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanisms Mk 11 Mods 0 and 1, used with this

gun, are the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 3 is made from existing 5-inch Gun Mk 10 Mod 1 and is almost identical to the 5-inch Gun Mk 10 Mod 1, differing only in that the breech housing is modified to make it agree as nearly as possible to the 5-inch Gun Mk 10 Mod 2 breech housing. The 5-inch Gun Mk 10 Mod 3 differs from all previous modifications of the 5-inch Gun Mk 10 by the design of the breech housing.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships CA, BB

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42° 11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,102 lb
Gun with breech housing 4,270 lb

Design and Publication References

General arrangement dr. 133762
List of drawings LD 54906
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness none
Length none

5-INCH GUN MARK 10 MOD 4 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 4 is a 25-caliber fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech

Mechanism Mk 11 Mod 1, used with this gun, is the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 4 is made from the 5-inch Gun Mk 10 Mod 2 and is almost identical to the Mk 10 Mod 2, differing by the insertion of a liner in the differential cylinder housing in accordance with sketch 73121. This modification differs from all previous designs of 5-inch Gun Mk 10 by the insertion of the differential cylinder liner in the housing.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships CA, BB

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech housing 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42°11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 133762
List of drawings LD 54436
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 10 MOD 5 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 5 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanism Mk 11 Mod 1, used with this gun, is the

semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 5 is the 5-inch Gun Mk 10 Mod 2 with a liner installed in the differential cylinder housing in accordance with drawings 165569 and 165572. The 5-inch Gun Mk 10 Mod 5 differs from all previous designs of 5-inch Gun Mk 10, except the Mod 4, by having this differential cylinder liner in the breech housing. It differs from the 5-inch Gun Mk 10 Mod 4 in that the differential cylinder liner is different in design.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships BB, CA

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech housing 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness none
Length none

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42°11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 133762
List of drawings LD 54436
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 10 MOD 6 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 10 Mod 6 is a 25-caliber, fixed-case ammunition gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded, nickel-steel monoblock barrel which is threaded and keyed to a carbon-steel breech housing designed for a vertically sliding breechblock. It is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanism Mk 11 Mod 2, used with this gun, is

the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 10 Mod 6 is made from the 5-inch Gun Mk 10 Mod 1 and is almost identical to the Mod 1, differing by the insertion of a liner in the differential cylinder of the breech housing identical to the liner of the 5-inch Gun Mk 10 Mod 5. This modification differs from all previous designs of 5-inch Gun Mk 10, except Mods 4 and 5, by having a differential cylinder lining. It differs from 5-inch Guns Mk 10 Mods 4 and 5 by having a breech housing of different design.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships BB, CA

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference.....NAVORD OD 5297, sheets 525A1-2

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity..... 2,200 fps
Maximum powder pressure.....16.7 long tons per sq in.
**Maximum range at 42°11' elevation.....14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,102 lb
Gun with breech housing..... 4,270 lb

Design and Publication References

General arrangement dr. 116000
List of drawings LD 39143
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assembliesNAVORD OD 5297
Range tables..... OPs 1188, 1205, 1205A, 1205B
OD 3706

Rifling

Twist..... Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating none
Thickness..... none
Length none

5-INCH GUN MARK 11 MOD 0 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 11 Mod 0 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single mounts on battleships, aircraft carriers, and cruisers. The gun consists of a nickel-steel barrel threaded and keyed to a carbon-steel breech housing, and an instruction plate. The rifled bore and band seat are plated for a distance of 102.0 inches

from the muzzle. This gun is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanisms Mk 11 Mods 1 and 3, used with this gun, are the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 11 Mod 0 was developed from, and is identical to 5-inch Gun Mk 10 Mod 2, except that the rifled bore is chromium plated.

TABULAR DATA

Installation

Mount..... Mount Mk 19 Mods 1, 2, 3, 4, 6, 7, and 9
Class of ships BB, CA, CV, CL, DD

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheet 525A1-2

Dimensions

Length.....125.0 in.
Diameter over chamber 11.0 in.

Ballistics

Volume of powder chamber.....431 cu in.
*Muzzle velocity.....2,200 fps
Maximum powder pressure..... 16.7 long tons per sq in.
**Maximum range at 42°11' elevation14,126 yd
*(Measured with 9.5 charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,102 lb
Gun with breech mechanism..... 4,270 lb

Design and Publication References

General arrangement dr. 142690
List of drawings LD 54726
Strength, pressure, and velocity dr. 116008
Chamber.....dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 1188, 1205, 1205A, 1205B
OD 3706

Rifling

Twist..... Right hand, uniform, 1 turn in 25 calibers
Length..... 98.679 in.
Plating Chromium
Thickness 0.0005 in.
Length 102.0 in. (measured from muzzle)

5-INCH GUN MARK 11 MOD 1 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 11 Mod 1 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single mounts on battleships, aircraft carriers, and cruisers. The gun consists of a monoblock nickel-steel barrel threaded and keyed to a carbon-steel breech housing, and an instruction plate. The rifled bore and band seat are chromium plated for a distance of 102.0 inches from the muzzle. This gun is classified as a service gun, but none are

presently installed in the active fleet. The 5-inch Breech Mechanism Mk 11 Mod 1, used with this gun, is the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 11 Mod 1 was developed from and is identical to 5-inch Gun Mk 10 Mod 3, except that the bore is chromium plated. The 5-inch Gun Mk 11 Mod 1 differs from the 5-inch Gun Mk 11 Mod 0 in that the breech housing is slightly different in design.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships CA

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42°11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,102 lb
Gun with breech mechanism 4,270 lb

Design and Publication References

General arrangement dr. 142690
List of drawings LD 56608
Strength, pressure, and velocity dr. 116008
Chamber dr. 116001
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.679 in.
Plating Chromium
Thickness 0.0005 in.
Length 102.0 in. (measured from muzzle)

5-INCH GUN MARK 11 MOD 2
25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 11 Mod 2 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single mounts on battleships, aircraft carriers, and cruisers. The gun consists of a monoblock alloy-steel barrel, threaded and keyed to a carbon-steel gun breech, and an instruction plate. The rifled bore and band seat are chromium plated for a distance of 102.0 inches from the muzzle. This gun is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech

Mechanism Mk 11 Mod 1, used with this gun, is the semi-automatic vertical sliding wedge type. The 5-inch Gun Mk 11 Mod 2 was developed from the 5-inch Gun Mk 11 Mod 0 and differs from it in that the shell centering cylinder of the chamber is enlarged from 5.14 inches to 5.16 inches, and the band slope is increased from 0.60 inches to 0.68 inches in length. This modification differs from all previous designs of the 5-inch Gun Mk 11 by having a modified chamber.

TABULAR DATA

Installation

Mount Mount Mk 19 Mods 2, 7, 8, 9, and 13
Class of ships..... BB, CA, CV

Ammunition

Type..... Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference..... NAVORD OD 5297, sheets 525A1-2

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity..... 2,200 fps
Maximum powder pressure..... 16.7 long tons per sq in.
**Maximum range at 42° 11' elevation..... 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,102 lb
Gun with breech mechanism 4,270 lb

Design and Publication References

General arrangement dr. 161052
List of drawings..... LD 56627
Strength, pressure, and velocity dr. 161054
Chamber..... dr. 161053
Rifling..... dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 1188, 1205, 1205A, 1205B
OD 3706

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.675 in.
Plating..... Chromium
Thickness 0.0005 in.
Length..... 102.0 in. (measured from muzzle)

5-INCH GUN MARK 11 MOD 3 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 11 Mod 3 is a 25-caliber fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single mounts on battleships, aircraft carriers, and cruisers. The gun consists of a monoblock alloy-steel gun barrel, threaded and keyed to a carbon-steel breech housing, and an instruction plate. The rifled bore and band seat are chromium plated for a distance of 102.0 inches from the muzzle. This gun is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanism Mk 11 Mod 1, used

with this gun, is the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 11 Mod 3 is the 5-inch Gun Mk 11 Mod 1 with the shell centering cylinder of the chamber enlarged from 5.14 to 5.16 inches and the band slope increased from 0.60 to 0.68 inches in length. This modification differs from all previous designs of 5-inch Gun Mk 11, except the Mod 2, by having a modified chamber. It differs from the 5-inch Gun Mk 11 Mod 2 by having a breech housing of different design.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mod 1
Class of ships CA

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech mechanism 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.675 in.
Plating Chromium
Thickness 0.0005 in.
Length 102.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
*Maximum range at 42°11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 161052
List of drawings LD 56628
Strength, pressure, and velocity dr. 161054
Chamber dr. 161053
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 11 MOD 7 25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 11 Mod 7 is a 25-caliber fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single mounts on battleships, aircraft carriers, and cruisers. The gun consists of a monoblock alloy-steel barrel, threaded and keyed to a carbon-steel breech housing, and an instruction plate. The rifled bore and band seat are chromium plated for a distance of 102.0 inches from the muzzle. This gun is classified as a service gun, but none are presently installed in the active fleet. The 5-inch Breech Mechanism Mk 11 Mod 1, used

with this gun, is the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 11 Mod 7 is 5-inch Gun Mk 11 Mod 3 with a copper-nickel (monel metal) liner in the differential cylinder of the breech housing. This modification differs from all previous designs of 5-inch Gun Mk 11, except Mod 6, by having a differential cylinder liner and a modified chamber. It differs from 5-inch Gun Mk 11 Mod 6 by having a breech housing of different design.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 19 Mods 2 and 10
Class of ships BB, CA, CV

Dimensions

Length 125.0 in.
Diameter over chamber 11.0 in.

Weight

Gun 2,102 lb
Gun with breech mechanism 4,270 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.675 in.
Plating Chromium
Thickness 0.0005 in.
Length 102.0 in. (measured from muzzle)

Ammunition

Type Fixed case
Classification SS Service, AA COM Target,
AA COM Service
Reference NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
*Muzzle velocity 2,200 fps
Maximum powder pressure 16.7 long tons per sq in.
**Maximum range at 42°11' elevation 14,126 yd
*(Measured with 9.5 lb charge and 50 lb projectile)
**(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement dr. 161052
List of drawings LD 56628
Strength, pressure, and velocity dr. 161054
Chamber dr. 161053
Rifling dr. 67049
Mount instruction handbook OP 100
Ammunition assemblies NAVORD OD 5297
Range tables OPs 1188, 1205, 1205A, 1205B
OD 3706

5-INCH GUN MARK 12 MOD 1
38 CALIBER

DESCRIPTION

The 5-inch Gun Mk 12 Mod 1 is a 38-caliber semi-fixed case ammunition gun designed for semi-automatic firing and dual-purpose use in single open and enclosed, and twin enclosed mounts throughout the fleet on vessels the size of destroyer escorts and larger. The gun consists of a monoblock, radially expanded, alloy-steel barrel secured to a housing by interrupted threads (bayonet joint) and locked in place by a key on the top of the barrel. The band seat and rifled bore are chromium plated for a distance.

of 162.25 inches from the muzzle. The 5-inch Housings Mk 1 Mods 0 and 1 are used in single mounts and 5-inch Housings Mk 2 Mods 0 and 1 are used in twin mounts with this gun. The housings are fitted with a breech mechanism of the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 12 Mod 1 is similar to the 5-inch Gun Mk 12 Mod 0. The 5-inch Gun Mk 12 Mod 1 differs in design by having a longer keyway on the top of the barrel, an enlarged chamber, and a shorter distance of chromium plated bore.

TABULAR DATA

Installation

Mounts 5-inch Mounts: Mk 21 Mods 3, 4, 5, 11,
12, 13, 15, and 18
Mk 22 Mods 0, 1, 5, 6, 8, 9, and 10
Mk 24 Mods 0, 1, 6, and 11
Mk 25 Mods 0, 1, and 2
Mk 28 Mods 0, 1, 2, and 3
Mk 29 Mod 0
Mk 30 Mods 0, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11,
12, 13, 16, 17, 18, 19, 21 through 54, 56, 57,
60 through 85
Mk 32 Mods 0, 1, 2, 3, 4, 5, 6, 10, 12
Mk 37 Mods 0, 1, 2, 4, 5, 6, 8, 9, 10, 11,
12, 13, 14
Mk 38 Mods 0, and 1

Class of ships.... AD, AE, AF, AG, AGB, AGC, AKA,
AKS, AO, AP, APA, APD, AR, ARG, AS, AV,
AVP, BB, CA, CB, CL, CLAA, CM, CV, CVB,
CVE, DD, DDE, DDR, DMS, LSD, LSMR, LST,
SS, SSK, SSR, WAGB, WAVP, WPG

Dimensions

Length 190.0 in.
Diameter over chamber 12.945 in.

Weight

Gun..... 3,995 lb
Gun with breech mechanism..... not available

Rifling

TwistRight hand, uniform, 1 turn in 30 calibers
Length..... 157.225 in.
Plating..... Chromium
Thickness..... 0.0005 in.
Length..... 162.25 in. (measured from muzzle)

Ammunition

Type Semi-fixed case
Classification COM Service, AA COM Service,
SS Service, SS(WP) Service, SS (W) Service
Reference NAVORD OD 5297, sheets 538A1-2-3-4

Ballistics

Volume of powder chamber..... 650 cu in.
 *Muzzle velocity..... 2,600 fps
 Maximum powder pressure.... 18 long tons per sq in.
 **Maximum range at 45° elevation..... 17,306 yd
 *(Measured with a 14.75 lb charge and 54 lb projectile)
 **(Measured with a 55.18 lb projectile at 2,500 fps muzzle velocity)

Design and Publication References

General arrangement dr. 170039
List of drawings LD 56632
Strength, pressure, and velocity dr. 170042
Chamber dr. 170040
Rifling dr. 67078
Mount instruction handbook OPs 553 (obsolete),
578 (obsolete), 700, 735, 745
748 (obsolete), 805
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 551, 551A, 1188, 1285, 1487

5-INCH GUN MARK 12 MOD 2

38-CALIBER

DESCRIPTION

The 5-inch Gun Barrel Mk 12 Mod 2 is a 38-caliber semi-fixed case ammunition gun designed for semi-automatic firing and used in single open and enclosed, or twin enclosed mounts throughout the fleet on vessels the size of destroyer escorts and larger.

The gun consists of a monobloc, nonexpanded alloy-steel barrel secured to a housing by interrupted threads (bayonet joint) and locked in place by a key on top of the barrel. The bore is chromium plated for a distance of 164.50 inches from the muzzle, and the exterior of the barrel is painted ocean gray. The 5-inch Housing Mk 1 and Mods 1, 3, 4, 6 is used in single mounts

with this gun and the 5-inch Housing, Mk 2 and Mods is used in twin mounts. The housings are fitted with a breech mechanism, Mk 12 Mod 0, which is of the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 12 Mod 2 is similar to the 5-inch Gun Mk 12 Mod 0, but is a nonexpanded barrel with higher strength steel. It is adapted for use with 5-inch Housing Mk 1 and Mods. The 5-inch Gun Mk 12 Mod 2 differs from the 5-inch Gun Mk 12 Mod 1 by having a greater length of chromium plating, and the above differences in the barrel.

TABULAR DATA

Installation

Mounts.. 5-inch Mounts: Mk 24 and Mods 1,3,6,9,10,11;
Mk 30 and Mods; Mk 28 and Mods 1,2; Mk 32 and
Mods 1,2; Mk 37; Mk 30, Mods 20,38,39,45,46,
48,49,50
Class of ships..... AD, ADD, AE, AF, AG, AGB,
AGC, AGS, AK, AKA, AO, AP, APA, APD,
AR, ARG, AS, ASR, ASSP, AV, AVB, BB, CA,
CL, CLAA, CLC, CM, CV, CVB, CVE, DD, DDE,
DER, DL, DMS, LSD, LSMR, LST, SS, SSK, SSR,
WAG, WAGP, WAVP, WPG.
Length (barrel) 190 in.
Diameter over chamber 12.945 in.

Weight

Gun barrel 3,985 lb.
Gun barrel and housing 7,156 lb.

Rifling

Twist Right hand, uniform, 1 turn in 30 calibers
Length 157.225 in.
Plating Chromium
Thickness 0005 in.
Length (measured from muzzle) 164.50 in.

Ammunition

Type Semi-fixed
Classification AAC, HC, FCL, (VT fuze)
FCL (VT, non-frag.)
Reference NAVORD OD 5297
sheet 538 A1 and A2 Change 8

Ballistics

Volume of powder chamber 650 cu. in.
*Muzzle velocity 2,600 fps
Maximum powder pressure.. 17.75 long tons per. sq. in.
Maximum range at 45° 35' elevation not available
*(Measured with a 14.75-lb. charge and 54-lb. projectile.)

Design and Publication References

General arrangement..... dr. 516737
dr. 516725
List of drawings LD 262386
Strength, pressure and velocity dr. 516735
Chamber dr. 516732
Rifling dr. 516734
Mount instruction handbook OP's 700, 735, 805,
868, 895, 1013
Gun instruction handbook not available
Ammunition assemblies OD 5297
Range tables..... OP's 551, 551A, 1188, 1285, 1487

5-INCH GUN MARK 13 MOD 0
25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 13 Mod 0 is a 25-caliber, fixed-case ammunition, antiaircraft gun designed for semi-automatic firing in single open pedestal mounts on battleships, aircraft carriers, and cruisers. It has a radially expanded nickel-steel monoblock barrel secured to a housing by interrupted threads (bayonet joint) and locked by a key on the top of the barrel. The rifled bore and band seat are chromium plated for a distance of 102.0 inches from the muzzle. The 5-inch Housing

Mk. 3 Mod 0, used with this gun, has a breech mechanism of the semi-automatic, vertical sliding wedge type.

The 5-inch Gun Mk 13 Mod 0 is similar to the 5-inch Gun Mk 11 Mod 0, except that the barrel and housing are joined by interrupted threads, making the barrel easily replaceable. The chamber of the 5-inch Gun Mk 13 Mod 0, which has a band slope of 2.18 inches, is different from all designs of the 5-inch Gun Mk 11, except Mods 9 and 10.

TABULAR DATA

Installation

Mount :..... 5-inch Mount Mk 19 Mods 24, 25 and 26
5-inch Mount Mk 23 Mod 1
Class of ships BB, CA, CL, CV

Dimensions

Length (barrel and chamber) 125.0 in.
Diameter over chamber 11.497 in.

Weight

Gun..... 2,105 lb
Gun with breech mechanism..... not available

Ammunition

Type Fixed case
Classification..... SS Service, AA COM Target,
AA COM Service
Reference.....NAVORD OD 5297, sheets 525A1-2

Ballistics

Volume of powder chamber 431 cu in.
 *Muzzle velocity 2,200 fps
 Maximum powder pressure 16.7 long tons per sq in.
 **Maximum range at 42° 11' elevation 14,126 yd
 *(Measured with 9.5 lb charge and 50 lb projectile)
 **(Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Design and Publication References

General arrangement	dr. 170075
List of drawings.....	LD 39990
Strength, pressure, and velocity	dr. 170080
Chamber	dr. 170076
Rifling	dr. 67049
Mount instruction handbook	OPs 100, 589
Ammunition assemblies.....	NAVORD OD 5297
Range tables	OPs 1188, 1205, 1205A, 1205B

Rifling

Twist..... Right hand, uniform, 1 turn in 25 calibers
Length..... 98.113 in.
Plating..... Chromium
Thickness..... 0.0005 in.
Length..... 102.0 in. (measured from muzzle)

5-INCH GUN MARK 17 MOD 0

25 CALIBER

DESCRIPTION

The 5-inch Gun Mk 17 Mod 0 is a 25-caliber fixed-case ammunition gun designed for use in single mounts on submarines. The gun consists of a forged alloy-steel tube and a shrunk in, forged copper-nickel alloy liner. It is fastened to a housing with interrupted threads (bayonet joint) and a key on top of the gun. The gun is

chromium plated for a distance of 102.0 inches from the muzzle. The 5-inch Housing Mk 3 Mod 0, used with this gun, is fitted with a breech mechanism of the semi-automatic, vertical sliding wedge type adapted for submarine use.

The 5-inch Gun Mk 17 Mod 0 is the 5-inch Gun Mk 13 Mod 0 lined with a copper-nickel alloy liner.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 40 Mod 0

Class of ships SS

Ammunition

Type Fixed case

Classification SS Service, AA COM Target, AA COM Service

Reference NAVORD OD 5297, sheets 525A1-2

Dimensions

Length 125 in.

Diameter over chamber 11.497 in.

Ballistics

Volume of powder chamber 431 cu in.

*Muzzle velocity 2,100 fps

Maximum powder pressure 16.7 long tons per sq in.

**Maximum range at 42° 11' elevation 14,126 yd

*(Measured with 9.75 lb charge and 53.85 lb projectile

** (Measured with 53.85 lb projectile at 2,035 fps muzzle velocity)

Weight

Gun 2,163 lb

Gun with breech mechanism not available

Design and Publication References

General arrangement dr. 375143

List of drawings LD 108639

Strength, pressure, and velocity dr. 375147

Chamber dr. 375145

Rifling dr. 67049

Mount instruction handbook OP 1029

Ammunition assemblies NAVORD OD 5297

Range tables OPs 1188, 1205, 1205A, 1205B

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers

Length 98.113 in.

Plating Chromium

Thickness 0.0005 in.

Length 102.0 in. (measured from muzzle)

5-INCH GUN MARK 17 MOD 1 25-CALIBER

DESCRIPTION

The 5-inch Gun Mk 17 Mod 1 is a 25-caliber semi-fixed case ammunition gun designed for use in 5-inch single, open, wet, manually operated mounts on submarines. The gun consists of a forged alloy-steel tube and a copper-nickel alloy shrunk-in forged liner. The gun barrel is copper plated on the outside for a distance of 12.75 inches from the breech (except when the surface is chromium plated). It is fastened to housing Mk 9 Mod 0 with interrupted threads (bayonet joint) and a key on top of the gun.

The alloy steel used in the tube of 5-inch Gun Mk 17 Mod 1 has lower tensile strength and elastic limit than the alloy steel used in the tube of 5-inch Guns Mk 17 Mod 0. It has a vertical sliding wedge type of breech that supports it in the slide.

The 5-inch Gun Mk 17 Mod 1 is the same as the 5-inch Gun Mk 17 Mod 0, except that the tube is made by boring out the 5-inch Gun Mk 13 Mod 0, and lining it with a conical copper-nickel alloy liner.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 40 Mod 0
Class of ships SS, SSK, ASSP, SSR

Ammunition

Type semi-fixed
Classification AA Com Service, SS.
Reference OD 5297, Sheets 525 A1, 525A-2,
Change 1 Rev. B

Dimensions

Length 125.0 in.
Diameter over chamber 11.497 in.

Ballistics

Volume of powder chamber 431 cu. in.
*Muzzle velocity 2,110 fps.
Maximum powder pressure 15.2 long tons per sq. in.
Maximum range at 40° elevation not available
Rate of fire 20 rounds per minute
*(Measured with 9.75-lb. charge and 53.85-lb. projectile.)

Weight

Gun barrel 2,163 lb.
Gun with breech mechanism not available

Design and Publication References

General arrangement dr. 375143
List of drawings LD 108648
Strength, pressure, and velocity dr. 375147
Chamber dr. 375145
Rifling dr. 67049
Mount instruction handbook OD 4707
OP 1029
Gun instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP's 1188, 1205, 1205A, 1205B

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 98.113 in.
Plating Chromium
Thickness0005 in.
Length (measured from muzzle) 102.0 in.

5-INCH GUN MARK 18 MOD 0 54 CALIBER

DESCRIPTION

The 5-inch Gun Mk 18 Mod 0 is a 54-caliber semi-fixed case ammunition gun designed for semi-automatic firing and dual purpose use in single enclosed mounts on destroyers. The gun is a monoblock, radially expanded, alloy-steel barrel secured to a housing with interrupted threads (bayonet joint) and a key on top of the barrel. The chambers and bore are chromium

plated for the entire length. The breech mechanism used with this gun is of the semi-automatic vertical sliding wedge type.

The 5-inch Gun Mk 18 Mod 0 is the same as 5-inch Gun Mk 16 Mod 0 except that the slide cylinder is lengthened by 21.0 inches and the band seat of the chamber is modified.

TABULAR DATA

Installation

Mount..... 5-inch Mount Mk 42 Mods 1, 2, 3, and 4
Class of ships DL, CLC, DD

Ammunition

Type..... Semi-fixed case
Classification HC Service, COM Service,
SS Service
Reference..... not available

Dimensions

Length 270.0 in.
Diameter over chamber..... 13.495 in.

Ballistics

Volume of powder chamber 794.60 cu in.
*Muzzle velocity..... 2,650 fps
Maximum powder pressure.... 17.5 long tons per sq in.
*Maximum range at 47°24' elevation..... 25,909 yd
*(Measured with 18.25 lb charge and 70 lb projectile)

Weight

Gun 5,615 lb
Gun with breech mechanism 7,500 lb

Design and Publication References

General arrangement..... dr. 660812
List of drawings..... LD 167540
Strength, pressure, and velocity..... dr. 660815
Chamber..... dr. 660813
Rifling..... dr. 273232
Mount instruction handbook OP 1764
Ammunition assemblies..... not available
Range tables..... OPs 1182, 1183, 1184, 1188

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length..... 229.092 in.
Plating Chromium
Thickness..... Tapered, .001 to .006 in.
Length..... Entire Length of Chamber and Bore

5-INCH GUN MARK 18 MOD 1

54-CALIBER

DESCRIPTION

The 5-inch Gun Mk 18 Mod 1 is a 54 caliber semi-fixed case ammunition gun designed for semi-automatic firing and dual purpose use in single enclosed mounts on destroyers.

The gun is a monobloc, high-strength alloy steel barrel secured in a housing with interrupted threads (bayonet joint) and a key on top of the barrel.

The outside of the gun is copper plated for a distance of 17.00 inches from the breech end; the outside of the chamber is zinc spray coated 0.010 to 0.015 inch thick, and the exterior of the

barrel is painted ocean gray. The chamber and bore are chromium plated, the thickness of the plating in the chamber tapering from full thickness (.006 inch) at the origin of rifling to not less than .001 inch thickness at the breech end. The gun has a counterrecoil mechanism and gas ejector attached to the housing. A power driven automatically controlled system is provided, with a separate rammer mounted on the slide.

The 5-inch Gun Mk 18 Mod 1 is the same as the 5-inch Gun Mk 18 Mod 0 except for the differences in plating.

TABULAR DATA

Installation

Mount 5-inch Mount Mk 42 Mods 1, 2, 3, 4
Class of ships DL, CLC, DD

Dimensions

Length (barrel) 270.0 in.
Diameter over chamber 13.495 in.

Weight

Gun barrel 5,615 lb.
Gun with housing 9,615 lb.

Rifling

Twist Right-hand, uniform, 1 turn in 25 calibers
Length 229.07 in.
Plating Chromium
Thickness Chamber, Tapered .001 in. to .006 in.
Length Chamber and bore

Ammunition

Type Semi-fixed
Classification.. AAC, HC, FCL(VT), FCL(VT non-frag.)
COM. Illum. BL&T or BL&P(7)
Reference OD 5297 Sheet 554A1

Ballistics

Volume of powder chamber 794.60 cu. in.
*Muzzle velocity 2,650 fps
Maximum powder pressure 17.5 long tons per sq. in.
Maximum range at elevation not available
Rate of fire 40 rounds per minute
*(Measured with 18.25-lb. charge and 70-lb. projectile.)

Design and Publication References

General arrangement dr. 516726
List of drawings LD 262387
Strength, pressure, and velocity dr. 516731
Chamber dr. 516728
Rifling dr. 516730
Mount instruction handbook OP 1764 and OP 1027
Gun instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OP's 1182, 1183, 1184, 1188

SECTION 10

6-INCH GUN MARK 16 MOD 0 47 CALIBER

DESCRIPTION

The 6-inch Gun Mk 16 Mod 0 is a 47-caliber semi-fixed case ammunition gun designed for semi-automatic firing in 2-gun and triple-gun turrets on light cruisers. It consists of a monoblock, radially expanded, alloy-steel barrel secured to a housing by interrupted threads (bayonet joint). The housing accommodates a vertically sliding breechblock. The gun has a 0.50-inch ring attached to the muzzle. The bore is chromium plated for a distance of 246.0 inches from the

muzzle. A section of the barrel 25.50 inches long, starting 20.25 inches from the breech, is zinc-spray coated. The 6-inch Housings Mk 1 Mods 0 and 1 and the 6-inch Breech Mechanisms Mk 12 Mods 0 and 1, which are of the semi-automatic vertical sliding wedge type, are used with this gun.

The 6-inch Gun Mk 16 Mod 0 is the 47-caliber service gun developed from the experimental 6-inch 47-caliber Guns Mks A, B, C and D.

TABULAR DATA

Installation

Turrets 6-inch 47-caliber Triple Gun Turret,
CL40 Class
6-inch 47-caliber Triple Gun Turret,
CL55 and CL106 Classes
6-inch 47-caliber D.P. 2-gun Turret,
CL144 Class
Class of ships.....CL

Dimensions

Length 282.25 in.
Diameter over chamber..... 17.40 in.

Weight

Gun 9,632 lb
Gun with housing..... 14,542 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length..... 238.29 in.
Plating.....Chromium
Thickness..... 0.0005 in.
Length..... 246.0 in. (measured from muzzle)

Ammunition

Type Semi-fixed case
Classification..... AP Service, HC Service,
T Target, SS Service
Reference..... NAVORD OD 5297, sheets 647A1-2

Ballistics

Volume of powder chamber..... 1,470 cu in.
*Muzzle velocity 2,800 fps
Maximum powder pressure ... 18.5 long tons per sq in.
**Maximum range at 46°35' elevation..... 24,010 yd
*(Measured with 34.5 lb charge and 105 lb projectile)
**(Measured with a 105 lb projectile at 2,565 fps
muzzle velocity)

Design and Publication References

General arrangement.....dr. 170067
List of drawings.....LD 39991
Strength, pressure, and velocitydr. 161069
Chamber.....dr. 161065
Rifling.....dr. 199075
Turret instruction handbook..... (CL 40 Class) OP 592
(CL55, CL64 and CL106 Class) OP 833
(CL144 Class) OP 760
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 830, 832, 933, 990, 1008, 1188,
1366, 1367, 1612, 1613, 1614, 1827
ODs 3725, 3727

6-INCH GUN MARK 16 MOD 1 47 CALIBER

DESCRIPTION

The 6-inch Gun Mk 16 Mod 1 is a 47-caliber semi-fixed case ammunition gun designed for semi-automatic firing in triple gun turrets on light cruisers. It consists of a monoblock, radially expanded, alloy-steel barrel, and a conical nickel-steel liner. The barrel is secured to a housing by interrupted threads (bayonet joint). The housing accommodates a vertically sliding breechblock. The gun has a 0.50-inch ring attached to the muzzle; the bore is chromium plated for a distance of 246.0 inches from the

muzzle; and a section of the barrel 25.50 inches long (starting 20.50 inches from the breech) is zinc-spray coated. The 6-inch Housings Mk 1 Mods 0 and 1 and 6-inch Breech Mechanisms Mk 12 Mods 0 and 1, used with this gun, are of the semi-automatic vertical sliding wedge type.

The 6-inch Gun Mk 16 Mod 1 is the 6-inch Gun Mk 16 Mod 0 with a conical nickel-steel liner inserted. The chamber and ballistics are identical to those of the 6-inch Gun Mk 16 Mod 0.

TABULAR DATA

Installation

Turret 6-inch 47-caliber Triple Gun Turret,
CL55, CL64, and CL106 Classes.
Class of ships..... CL

Dimensions

Length..... 282.25 in.
Diameter over chamber..... 17.40 in.

Weight

Gun..... 9,647 lb
Gun with Housing..... 14,557 lb

Rifling

Twist..... Right hand, uniform, 1 turn in
25 calibers
Length..... 238.29 in.
Plating..... Chromium
Thickness 0.0005 in.
Length..... 246.0 in. (measured from muzzle)

Ammunition

Type..... Semi-fixed case
Classification..... AP Service, HC Service, T Target,
SS Service
Reference..... NAVORD OD 5297, sheets 647A1-2

Ballistics

Volume of powder chamber 1,470 cu in.
*Muzzle velocity..... 2,800 fps
Maximum powder pressure..... 18.5 long tons per sq in.
**Maximum range at 46°35' elevation..... 24,010 yd
*(Measured with 34.5 lb charge and 105 projectile)
**(Measured with a 105 lb projectile at 2,565 fps
muzzle velocity)

Design and Publication References

General arrangement..... dr. 394749
List of drawings LD 108970
Strength, pressure, and velocity dr. 394750
Chamber dr. 161065
Rifling dr. 199075
Turret instruction handbook..... OP 833
Ammunition assemblies..... NAVORD OD 5297
Range tables OPs 830, 832, 933, 990, 1008, 1188,
1366, 1367, 1612, 1613, 1614, 1827
ODs 3725, 3727

SECTION 11

8-INCH GUN MARK 12 MOD 0 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 12 Mod 0 is a 55-caliber bag ammunition gun designed for use in triple gun turrets on heavy cruisers of the Tuscaloosa and San Francisco class. It is a two-piece gun consisting of a radially expanded tube and a shrunk-on jacket, both of alloy steel. The gun is fitted with a screw-box liner and is mounted in the turret by means of a yoke and slide. The yoke stop is located 27 inches from the breech face and is formed by a yoke ring in halves set in an annular groove. The slide surface starts 30.0 inches from the breech, has a diameter of 26.0 inches, and is 160.0 inches long. A yoke key is located on the under side of the gun immediately to the rear of

the yoke ring and there is a single guide key on the upper slide surface. The bore is partially chromium plated. The plating extends for a distance of 84.0 inches starting at the muzzle, and a distance of 84.0 inches starting from the barrel seat and extending toward the muzzle. The gun can be removed through the gun port without dismantling the turret. The 8-inch Breech Mechanism Mk 9 Mod 4 is used with this gun. It is of the side-swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 12 Mod 0 is similar in construction to the 8-inch Gun Mk 11 Mod 0.

TABULAR DATA

Installation

Turret 8-inch, 55-caliber, triple gun turret
Class of ships CA

Dimensions

Length 449.0 in.
Diameter over chamber 26.0 in.

Weight

Gun 37,147 lb
Gun with breech mechanism 38,317 lb

Rifling

Twist Right hand, uniform, 1 turn in 35 calibers
Length 373.65 in.
Plating Chromium
Thickness 0.0005 in.
Length 84 in. measured from muzzle and 84 in. measured forward from chamber band seat

Ammunition

Type Bag
Classification COM Service, HC Service, AP Service, T Target
Reference NAVORD OD 5297, sheets 855A1-A2-B1

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 3,000 fps
Maximum powder pressure 17 long tons per sq in.
**Maximum range at 45° elevation 31,982 yd
*(Measured with 105 lb charge and 260 lb projectile)
**(Measured with a 260 lb projectile at 2,800 fps muzzle velocity)

Design and Publication References

General arrangement dr. 144050
List of drawings LD 54730
Strength, pressure, and velocity dr. 150904
Chamber dr. 150905
Rifling dr. 96185
Ammunition assemblies NAVORD OD 5297
Turret instruction handbook OP 569
Range tables OPs 807, 858, 992, 993, 1041, 1096, 1186, 1188, 1190, 1192, 1229, 1333, 1334
ODs 3676, 3729

8-INCH GUN MARK 12 MOD 1 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 12 Mod 1 is a 55-caliber bag ammunition gun used in 3-gun turrets on heavy cruisers of the Wichita class. It is an alloy-steel two-piece gun consisting of a radially expanded tube and a shrunk-on jacket. The gun is fitted with a screw-box liner and is mounted in the turret by means of a yoke and slide. The yoke stop is located 27 inches from the breech face and is formed by a yoke ring in halves set in an annular groove. The yoke key is located on the under side of the gun immediately to the rear of the yoke ring and there is a single guide key on the upper slide surface. The slide surface starts 30.0 inches from the breech, has a diameter of 26.0

inches, and is 160.0 inches long. The bore is chromium plated for a distance of 381.0 inches from the muzzle. The 8-inch Breech Mechanism Mk 9 Mod 4 is used with this gun. It is of the side-swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 12 Mod 1 is the same in all respects as the 8-inch Gun Mk 12 Mod 0 with the following exceptions: the rifling has been changed from right-hand, uniform twist, 1 turn in 35 calibers to right-hand, uniform twist, 1 turn in 25 calibers, and the entire length of the rifled bore is chromium plated.

TABULAR DATA

Installation

Turret..... 8-inch, 55-caliber, 3-gun turret
Class of ships..... CA

Dimensions

Length 449.0 in.
Diameter over chamber 26.0 in.

Weight

Gun 37,147 lb
Gun with breech mechanism 38,317 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 373.65 in.
Plating..... Chromium
Thickness 0.0005 in.
Length..... 381.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification COM Service, HC Service,
AP Service, T Target
Reference.... NAVORD OD 5297, sheets 855A1-A2-B1

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 3,000 fps
Maximum powder pressure 17 long tons per sq in.
**Maximum range at 45° elevation..... 31,982 yd
* (Measured with 105 lb charge and 260 lb projectile)
** (Measured with a 260 lb projectile at 2,800 fps muzzle velocity)

Design and Publication References

General arrangement dr. 144050
List of drawings LD 58050
Strength, pressure, and velocity dr. 150904
Chamber dr. 150905
Rifling dr. 199079
Turret instruction handbook OPs 704, 834
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334
ODs 3676, 3729

8-INCH GUN MARK 12 MOD 2 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 12 Mod 2 is a 55-caliber bag ammunition gun designed for use in twin and triple gun mounts on cruisers. It is an alloy-steel two-piece gun consisting of a radially expanded tube and a shrunk-on jacket. The jacket is fitted with adapter sleeves to make the diameter of the slide surface 33.50 inches so that it will fit mounts designed to receive 8-inch Guns Mk 9. The gun is attached to the mount by means of a yoke and slide. The gun is fitted with a screw-box liner. The shoulder for the yoke stop is located 27 inches from the breech face and is formed by a yoke ring in halves set in an annular groove. The slide surface starts 30.0 inches from the breech, has a diameter of 33.50 inches, and is 160.0

inches long with a single guide key located on the upper slide surface. The gun also has a yoke key located on the underside of the gun immediately to the rear of the yoke ring. The bore is chromium plated for a distance of 381.0 inches from the muzzle. The 8-inch Breech Mechanism Mk 9 Mod 0 is used with this gun. It is of the side-swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 12 Mod 2 is the 8-inch Gun Mk 12 Mod 1 assembled with adapter sleeves to fit mounts originally designed for 8-inch Guns Mk 9. This was a wartime measure to rearm ships without a major overhaul.

TABULAR DATA

Installation

Mount 8-inch, 55-caliber, twin and triple
gun mounts
Class of ships CA

Ammunition

Type Bag
Classification COM Service, HC Service,
AP Service, T Target
Reference NAVORD OD 5297, sheets 855A1-A2-B1

Dimensions

Length 449.0 in.
Diameter over chamber 33.50 in.

Weight

Gun 66,161 lb
Gun with breech mechanism 66,825 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 373.65 in.
Plating Chromium
Thickness 0.0005 in.
Length 381.0 in. (measured from muzzle)

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 3,000 fps
Maximum powder pressure 17 long tons per sq in.
**Maximum range at 45° elevation 31,982 yd
*(Measured with 105 lb charge and 260 lb projectile)
**(Measured with a 260 lb projectile at 2,800 fps muzzle velocity)

Design and Publication References

General arrangement dr. 217097
List of drawings LD 107711
Strength, pressure, and velocity dr. not available
Chamber dr. 150905
Rifling dr. 199079
Mount instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334, 1335
ODs 3676, 3729

8-INCH GUN MARK 15 MOD 0 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 15 Mod 0 is a 55-caliber bag ammunition gun used in 3-gun turrets on heavy cruisers of the Baltimore class. It is an alloy-steel two-piece gun consisting of a radially expanded tube and a shrunk-on jacket. The gun is fitted with a screw-box liner. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 27 inches from the face of the breech and is formed by a yoke ring in halves set in an annular groove. The slide surface starts 30.0 inches from the breech, has a diameter of 26.0 inches, and is 160.0 inches long. A yoke key is located on the underside of the gun immediately

to the rear of the yoke ring, and a single guide key is located on the upper slide surface. The bore is chromium plated for a distance of 381.0 inches from the muzzle. The 8-inch Breech Mechanism Mk 9 Mod 4 is used with this gun. It is of the side-swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 15 Mod 0 is almost identical to the 8-inch Gun Mk 12 Mod 1, differing only in the design of the chamber, which is the same as the 8-inch Gun Mk 14 Mod 0.

TABULAR DATA

Installation

Turret 8-inch, 55-caliber, 3-gun turret
Class of ships CA

Ammunition

Type Bag
Classification COM Service, HC Service,
AP Service, T Target

Reference NAVORD OD 5297, sheets 855A1-A2-B1

Dimensions

Length 449.0 in.
Diameter over chamber 26.0 in.

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 2,800 fps
Maximum powder pressure 17 long tons per sq in.
*Maximum range at 45° elevation 31,982 yd
*(Measured with 91.5 lb charge and 260 lb projectile)

Weight

Gun 37,280 lb
Gun with breech mechanism not available

Design and Publication References

General arrangement dr. 275184
List of drawings LD 90500
Strength, pressure, and velocity dr. 275187
Chamber dr. 204006
Rifling dr. 199079
Turret instruction handbook OP 834
Ammunition assemblies NAVORD OD 5297
Range tables OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334, 1335
ODs 3676, 3729

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 373.65 in.
Plating Chromium
Thickness 0.0005 in.
Length 381.0 in. (measured from muzzle)

8-INCH GUN MARK 15 MOD 1 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 15 Mod 1 is a 55-caliber bag ammunition gun used in triple gun turrets on heavy cruisers of the New Orleans or Minneapolis class. It is an alloy-steel two-piece gun consisting of a radially expanded tube and a shrunk-on jacket fitted with adapter sleeves which enlarge the diameter of the slide surface to 33.50 inches. The gun is fitted with a screw-box liner. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 27 inches from the face of the breech and is formed by a yoke ring in halves set in an annular groove. The slide surface starts 30.0 inches from the breech, has a diameter of 33.50 inches and is 160.0 inches

long. A yoke key is located on the underside of the gun immediately to the rear of the yoke ring, and a single guide key is located on the upper slide surface. The bore is chromium plated for a distance of 381.0 inches from the muzzle. The 8-inch Breech Mechanism Mk 9 Mod 4 is used with this gun. It is of the side swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 15 Mod 1 is 8-inch Gun Mk 15 Mod 0 assembled with adapter sleeves to fit the 8-inch, 55-caliber, triple gun turret of ships of the CA 32 36 class.

TABULAR DATA

Installation

Turret 8-inch, 55-caliber, triple gun turret
Class of ships CA

Ammunition

Type Bag
Classification COM Service, HC Service,
AP Service, T Target
Reference.... NAVORD OD 5297, sheets 855A1-A2-B1

Dimensions

Length 449.0 in.
Diameter over chamber 33.50 in.

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 2,800 fps
Maximum powder pressure..... 17 long tons per sq in.
*Maximum range at 45° elevation 31,982 yd
*(Measured with 91.5 lb charge and 260 lb projectile)

Weight

Gun 66,161 lb
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 373.65 in.
Plating Chromium
Thickness 0.0005 in.
Length 381.0 in. (measured from muzzle)

Design and Publication References

General arrangement dr. 217099
List of drawings LD 107712
Strength, pressure, and velocity not available
Chamber dr. 204006
Rifling dr. 199079
Turret instruction handbook OP 569
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334, 1335
ODs 3676, 3729

8-INCH GUN MARK 15 MOD 2 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 15 Mod 2 is a 55-caliber bag ammunition gun designed for use in 3-gun and triple gun turrets on cruisers. It is an alloy-steel three-piece gun consisting of a liner, a radially expanded tube, and a shrunk-on jacket fitted with a screw-box liner. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 27 inches from the breech face and is formed by a yoke ring in halves set in an annular groove. The slide surface starts 30.0 inches from breech, has a diameter of 26.0 inches, and is 160.0 inches long. A yoke key is located on the underside of the gun immediately to the rear of the yoke ring, and a single guide key is located on the upper slide surface. The bore is chro-

mium plated for a distance of 381.0 inches from the muzzle. The 8-inch Breech Mechanism Mk 9 Mod 4 is used with this gun. It is of the side-swing carrier type with a Welin breech plug, De Bange gas check system, and an operating mechanism of Bureau of Ordnance design.

The 8-inch Gun Mk 15 Mod 2 has all previous modifications of both 8-inch Gun Mk 12 and 8-inch Gun Mk 15, bored out and relined with a liner having the same chamber, rifling, and chromium plating as the 8-inch Gun Mk 15 Mod 0. The adapter sleeves are removed from both the 8-inch Guns Mk 12 Mod 2 and Mk 15 Mod 1 to bring their exteriors back to their original dimensions.

TABULAR DATA

Installation

Turret 8-inch, 55-caliber, 3-gun turret
Class of ships..... CA

Ammunition

Type Bag
Classification..... COM Service, HC Service,
AP Service, T Target
Reference.....NAVORD OD 5297, sheets 855A1-A2-B1

Dimensions

Length 449.0 in.
Diameter over chamber..... 26.0 in.

Ballistics

Volume of powder chamber 4,860 cu in.
*Muzzle velocity 2,500 fps
Maximum powder pressure.....17 long tons per sq in.
**Maximum range at 45° elevation..... 31,982 yd
*(Measured with 86 lb charge and 335 lb projectile)
**(Measured with a 260 lb projectile at 2,800 fps muzzle velocity)

Weight

Gun 37,280 lb
Gun with breech mechanism..... not available

Rifling

Twist..... Right hand, uniform, 1 turn in 25 calibers
Length..... 373.65 in.
PlatingChromium
Thickness..... 0.0005 in.
Length..... 381.0 in. (measured from muzzle)

Design and Publication References

General arrangement dr. 423644
List of drawings..... LD 109323
Strength, pressure, and velocity..... dr. 423649
Chamber dr. 204006
Rifling dr. 199079
Turret instruction handbook OP 834
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334, 1335
ODs 3676, 3729

8-INCH GUN MARK 16 MOD 0 55 CALIBER

DESCRIPTION

The 8-inch Gun Mk 16 Mod 0 is a 55-caliber semi-automatic gun used in 3-gun turrets on heavy cruisers of the CA 139 class. It is a two-piece gun consisting of a monoblock, radially-expanded tube and a loose liner, chambered to receive fixed ammunition. The liner is held in place by a liner locking ring. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 15.25 inches from the face of the breech. The slide surface starts 18.25 inches from breech, has a diameter of 26.0 inches and is 131.75 inches long. The bore of the tube, except for the threaded areas, is chromium plated for a depth of 0.0002 inches. Prior to assembly, the outside of the

liner is covered with flake graphite. The bore of the liner is chromium plated for a distance of 392.0 inches from the muzzle. The gun is not fitted with a screw-box liner, but fits into a housing in the turret. The housing uses a sliding wedge type breechblock.

The 8-inch Gun Mk 16 Mod 0 is a new design and derives its features from the 8-inch Gun Mk E Mod 0. The two features which are radical departures in design are the loose liner, which can be rapidly and economically changed, and the use of semi-fixed case ammunition which permits semi-automatic firing.

TABULAR DATA

Installation

Turret 8-inch, 55-caliber, 3-gun turret
Class of ships CA

Dimensions

Length 440.10 in.
Diameter over chamber 26.60 in.

Weight

Gun 37,370 lb
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 383.495 in.
Plating Chromium
Thickness 0.0005 in.
Length 392.0 in. (measured from muzzle)

Ammunition

Type Semi-fixed case
Classification not available
Reference not available

Ballistics

Volume of powder chamber 3,367 cu in.
*Muzzle velocity 2,500 fps
Maximum powder pressure ... 18.2 long tons per sq in.
*Maximum range at 45° 17' elevation 30,500 yd
*(Measured with 78 lb charge and 335 lb projectile)

Design and Publication References

General arrangement dr. 393860
List of drawings LD 109374
Strength, pressure, and velocity dr. 393867
Chamber dr. 393865
Rifling dr. 199079
Turret instruction handbook OP 1180
Ammunition assemblies not available
Range tables OPs 807, 858, 992, 993, 1041, 1096,
1186, 1188, 1190, 1192, 1229, 1333, 1334, 1335
ODs 3676, 3729

SECTION 12

12-INCH GUN MARK 8 MOD 0

50 CALIBER

DESCRIPTION

The 12-inch Gun Mk 8 Mod 0 is a 50-caliber bag ammunition gun designed for use in three-gun turrets on large cruisers. It is a built-up alloy-steel gun consisting of a liner, tube, jacket, three hoops, and two locking rings. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 34.50 inches from the face of the breech. The slide surface starts 39.0 inches from the breech face, has a diameter of

38.0 inches, and is 216.0 inches long, with a single guide key set in on top of the gun. The bore is chromium plated for a distance of 518.0 inches from the muzzle. The 12-inch Breech Mechanism Mk 11 Mod 0, used with this gun, has a down-swing breech plug.

The 12-inch Gun Mk 8 Mod 0 is a new design and does not derive its features from any previous 12-inch service gun.

TABULAR DATA

Installation

Turret 12-inch, 50-caliber, 3-gun turret
Class of ships..... CB

Ammunition

Type Bag
Classification..... AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1250B1

Dimensions

Length 612.0 in.
Diameter over chamber..... 38.0 in.

Ballistics

Volume of powder chamber 11,863 cu in.
*Muzzle velocity 2,500 fps
Maximum powder pressure..... 19 long tons per sq in.
**Maximum range at 45° elevation..... 38,021 yd
*(Measured with a 268 lb charge and 1,140 lb projectile)
**(Measured with a 940 lb projectile at 2,650 fps muzzle velocity)

Weight

Gun 108,800 lb
Gun with breech mechanism..... not available

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length..... 511.96 in.
Plating..... Chromium
Thickness 0.0005 in.
Length..... 518 in. (measured from muzzle)

Design and Publication References

General arrangement dr. 273140
List of drawings LD 90446
Strength, pressure, and velocity dr. 273153
Chamber dr. 273151
Rifling dr. 273152
Turret instruction handbook..... OP 835
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 789, 1188, 1231, 1241, 1242,
1243, 1460, 1461, 1564

SECTION 13

14-INCH GUN MARK 7 MOD 0

50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 7 Mod 0 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, liner, jacket, three hoops, two locking rings, and a screw-box liner with a separate flange four inches thick and 48 inches in diameter screwed onto it. The gun, except for the gun-steel liner, is constructed of alloy steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.5 inches from the face of the breech. The slide cylinder starts 120 inches from the breech, has

a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The 14-inch Breech Mechanisms Mk 4 Mods 3 and 6, used with this gun, are of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 7 Mod 0 is the 14-inch Gun Mk 4 Mods 0, 3, or 8 relined, having a small chamber with a single slope band seat and uniform twist rifling. In addition, the liner for 14-inch Gun Mk 7 Mod 0 is further modified by having the step on the liner nearest the muzzle eliminated.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships BB

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Weight

Gun 173,136 lb
Gun with breech mechanism 175,310 lb

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length 609.0 in.
Plating none
Thickness none
Length none

Ammunition

Type Bag
Classification AP Service, HC Service, T Target
Reference NAVORD OD 5297
Sheets 1450 A1-2

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement dr. 142666
List of drawings LD 54724
Strength, pressure, and velocity dr. not available
Chamber dr. 142667
Rifling dr. 96173
Turret instruction handbook OP 966
Ammunition assemblies NAVORD OD 5297
Range tables OPs 924, 964, 1079, 1080, 1162,
1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 7 MOD 1 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 7 Mod 1 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, liner, jacket, three hoops, two locking rings, and a screw-box liner. The gun, except for the gun-steel liner, is constructed of alloy steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.5 inches from the face of the breech. The slide cylinder starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The 14-inch Breech Mechanisms Mk 4 Mods 3, 4, 5, 6, and 8, used with this gun, are of the down-swing

carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 7 Mod 1 is the 14-inch Gun Mk 4 Mods 1, 4, or 9 relined, having a small chamber with a single slope band seat and uniform twist rifling. The liner of the 14-inch Gun Mk 7 Mod 1 is further modified by having the step on the liner nearest the muzzle eliminated. The 14-inch Gun Mk 7 Mod 1 differs from the 14-inch Gun Mk 7 Mod 0 only by being converted from 14-inch Guns Mk 4 Mods 1, 4, and 9 instead of 14-inch Guns Mk 4 Mods 0, 3, and 8.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships..... BB

Ammunition

Type Bag
Classification..... AP Service, HC Service, T Target
Reference NAVORD OD 5297, sheets 1450A1-2

Dimensions

Length 714.0 in.
Diameter over chamber..... 48.0 in.

Ballistics

Volume of powder chamber not available
*Muzzle velocity..... 2,700 fps
Maximum powder pressure.... 18 long tons per sq in.
**Maximum range at 45° elevation..... 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile
as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps
muzzle velocity)

Weight

Gun..... 178,269 lb
Gun with breech mechanism..... 180,449 lb

Design and Publication References

General arrangement..... dr. 142668
List of drawings..... LD 54725
Strength, pressure, and velocity..... dr. not available
Chamber dr. 142669
Rifling..... dr. 96173
Turret instruction handbook..... OP 966
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 924, 964, 1079, 1080, 1162,
1163, 1467, 1468, 1544
OCL A100-43

Rifling

Twist Right hand, uniform, 1 turn in 32 calibers
Length..... 609.0 in.
Plating none
Thickness..... none
Length none

14-INCH GUN MARK 7 MOD 2 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 7 Mod 2 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, liner, jacket, three hoops, two locking rings, and a screw-box liner with a separate flange four inches thick and 48 inches in diameter screwed onto it. The gun, except for the gun-steel liner, is constructed of alloy steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.5 inches from the face of the breech. The slide cylinder starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key

set in on top of the gun. The 14-inch Breech Mechanism Mk 4 Mod 3, used with this gun, is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 7 Mod 2 is the 14-inch Gun Mk 7 Mod 0, number 110-L2, relined with a chamber having a shell centering cylinder of 14.80 inches in diameter and 15.45 inches long. It differs from all previous designs of 14-inch Gun Mk 7 by this chamber modification. This gun was converted to 14-inch Gun Mk C Mod 0.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships..... BB

Dimensions

Length 714.0 in.
Diameter over chamber..... 48.0 in.

Weight

Gun 176,125 lb
Gun with breech mechanism..... 177,825 lb

Rifling

Twist..... Right hand, uniform, 1 turn in 25 calibers
Length 609.0 in.
Plating..... Chromium
Thickness0005
Length.....(measured from muzzle) 613 in.

Ammunition

Type Bag
Classification..... AP Service, HC Service, T Target
Reference..... NAVORD OD 5297, sheets 1450 A1-2

Ballistics

Volume of powder chamber not available
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation..... 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement dr. 204039
List of drawings LD 58077
Strength, pressure, and velocity dr. not available
Chamber dr. 204037
Rifling..... dr. 96173
Turret instruction handbook..... not available
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 924, 964, 1079, 1080, 1162,
1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 11 MOD 0 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 0 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, and a screw-box liner which has a flange four inches thick and 48 inches in diameter. The gun is constructed of nickel steel and gun steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.50 inches from the face of the breech. The slide surface starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The

bore is chromium plated for a distance of 613.0 inches from the muzzle. The 14-inch Breech Mechanism Mk 4 Mod 5, used with this gun, is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 0 is the 14-inch Gun Mk 4 Mod 8, Mk C Mod 0, or Mk 7 Mod 0 relined, having an alloy-steel liner with a small chamber, shell centering cone, single slope band seat, uniform twist rifling, a chromium plated bore, and a tube locking ring.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships BB

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Weight

Gun 176,089 lb
Gun with breech mechanism 178,263 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 607.358 in.
Plating Chromium
Thickness 0.0005 in.
Length 613.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, HC Service, T Target
Reference NAVORD OD 5297, sheets 1450A1-2

Ballistics

Volume of powder chamber 16,982 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement dr. 227462
List of drawings LD 58185
Strength, pressure, and velocity dr. not available
Chamber dr. 227465
Rifling dr. 227466
Turret instruction handbook OP 966
Ammunition assemblies NAVORD OD 5297
Range tables OPs 924, 964, 1079, 1080, 1162, 1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 11 MOD 1

50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 1 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, liner, jacket, three hoops, two locking rings, and a screw-box liner. The gun is constructed of nickel steel and gun steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.50 inches from the face of the breech. The slide surface starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The 14-inch Breech Mechanisms Mk 4 Mods 5 and 7, used with this gun, are of the down-swing carrier type with a Welin breech plug, De Bange gas check

system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 1 is the 14-inch Gun Mk 4 Mods 1, 4, 9, or 11, or the 14-inch Gun Mk 7 Mod 1, relined, having an alloy-steel liner with a small chamber shell centering cone, single slope band seat, tube locking ring, uniform twist rifling, and a chromium plated bore. The 14-inch Gun Mk 4 Mod 1 is further modified by removing the front step on the liner. The 14-inch Gun Mk 11 Mod 1 gun is almost identical to the 14-inch Gun Mk 11 Mod 0, differing only in being converted from 14-inch Gun Mk 4 Mods 1, 4, 9, or 11 or Mk 7 Mod 1, instead of being converted from 14-inch Gun Mk 4 Mod 8, Mk C Mod 0 or Mk 7 Mod 0.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships..... BB

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Weight

Gun without screw-box liner 177,440 lb
Gun with breech mechanism..... 179,614 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length..... 607.358 in.
Plating Chromium
Thickness..... 0.0005 in.
Length..... 613.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, HC Service, T Target
Reference..... NAVORD OD 5297, sheets 1450A1-2

Ballistics

Volume of powder chamber 16,982 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation..... 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile
as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps
muzzle velocity)

Design and Publication References

General arrangement dr. 227463
List of drawings LD 58186
Strength, pressure, and velocity dr. not available
Chamber dr. 227465
Rifling.....dr. 227466
Turret instruction handbook..... OP 966
Ammunition assemblies..... NAVORD OD 5297
Range tables..... OPs 924, 964, 1079, 1080, 1162,
1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 11 MOD 2 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 2 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, and a screw-box liner which has a flange four inches thick and 48 inches in diameter. The gun is constructed of alloy steel and nickel steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.50 inches from the face of the breech. The slide surface starts 120 inches from the breech, has a diameter of 44 inches and is 132 inches long, with

one key set in on top of the gun. The 14-inch Breech Mechanism Mk 4 Mod 5, used with this gun, is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 2 is the 14-inch Gun Mk 11 Mod 0 with the shoulder (located 340.0 inches from the muzzle) removed, and the forward section of the liner and tube machined to a diametral taper of 0.004 inch per inch. It differs from all previous designs of 14-inch Guns Mk 11 by these changes.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber,
3-gun turret
Class of ships BB

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Weight

Gun without screw box liner 176,089 lb
Gun with breech mechanism 178,263 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 607.358 in.
Plating Chromium
Thickness 0.0005 in.
Length 613.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, HC Service, T Target
Reference NAVORD OD 5297, sheets 1450A1-2

Ballistics

Volume of powder chamber 16,982 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement dr. 250836
List of drawings LD 107724
Strength, pressure, and velocity dr. not available
Chamber dr. 227465
Rifling dr. 227466
Turret instruction handbook OP 966
Ammunition assemblies NAVORD OD 5297
Range tables ... OPs 924, 964, 1079, 1080, 1162, 1163,
1188, 1467, 1468, 1544

OCL A100-43

14-INCH GUN MARK 11 MOD 3 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 3 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, and a screw-box liner. The gun is constructed of nickel steel and alloy steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.50 inches from the face of the breech. The slide surface starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The 14-inch Breech Mechanisms Mk 4 Mods 5 and 7, used with this gun, are of the down-swing carrier type

with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 3 is the 14-inch Gun Mk 11 Mod 1 with the shoulder (located 340.0 inches from the muzzle) removed, and the forward section of the liner and tube machined to a diametral taper of 0.004 inch per inch. It differs from all previous designs of 14-inch Gun Mk 11 except Mod 2, by these changes; it differs from the Mod 2 by being originally converted from 14-inch Guns Mk 4 Mods 1, 4, 9, 11, or Mk 7 Mod 1, instead of 14-inch Guns Mk 4 Mod 8, Mk C Mod 0, or Mk 7 Mod 0.

TABULAR DATA

Installation

Turret14-inch, 50-caliber, 3-gun turret
Class of ships..... BB

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Weight

Gun without screw-box liner 177,440 lb
Gun with breech mechanism..... 179,614 lb

Rifling

TwistRight hand, uniform, 1 turn in 25 calibers
Length 607.358 in.
Plating..... Chromium
Thickness 0.0005 in.
Length.....613.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification..... AP Service, HC Service, T Target
ReferenceNAVORD OD 5297, sheets 1450A1-2

Ballistics

Volume of powder chamber16,982 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure.... 18 long tons per sq in.
**Maximum range at 45° elevation..... 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement..... dr. 250837
List of drawings LD 107725
Strength, pressure, and velocitydr. not available
Chamber..... dr. 227465
Rifling dr. 227466
Turret instruction handbook..... OP 966
Ammunition assemblies NAVORD OD 5297
Range tables..... OPs 924, 964, 1079, 1080, 1162,
1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 11 MOD 4 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 4 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, and a screw-box liner. The gun is not hooped all the way to the muzzle. The gun is constructed of nickel steel and alloy steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 38.50 inches from the face of the breech. The slide surface starts 116 inches from the breech, has a diameter of 44 inches, and is 152.50 inches long, with one key set

in on top of the gun. The bore is chromium plated for a distance of 613.0 inches from the muzzle. The 14-inch Breech Mechanism Mk 4 (Mod unknown), used with this gun, is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 4 differs from all other designs of 14-inch Gun Mk 11 by not being hooped to the muzzle, by the length and location of the slide, and by the location of the yoke stop. The chamber is the same in all 14-inch Guns Mk 11.

TABULAR DATA

Installation

Turret.....14-inch, 50-caliber, 3-gun turret
Class of ships.....BB

Dimensions

Length.....710.0 in.
Diameter over chamber.....48.0 in.

Weight

Gun without screw-box liner.....178,494 lb
Gun with breech mechanism.....180,668 lb

Rifling

Twist.....Right hand, uniform, 1 turn in
25 calibers
Length.....607.358 in.
Plating.....Chromium
Thickness.....0.0005
Length.....613.0 in. (measured from muzzle)

Ammunition

Type.....Bag
Classification.....AP Service, HC Service, T Target
Reference.....not available

Ballistics

Volume of powder chamber.....16,982 cu in.
*Muzzle velocity.....2,700 fps
Maximum powder pressure.....18 long tons per sq in.
**Maximum range at 45° elevation.....42,585 yd
*(Measured with 425 lb charge and 1,500 lb projectile)
**(Measured with 1,275 lb projectile at 2,825 fps muzzle velocity)

Design and Publication References

General arrangement.....dr. 422051
List of drawings.....LD 109000
Strength, pressure, and velocity.....dr. 422060
Chamber.....dr. 227465
Rifling.....dr. 227466
Turret instruction handbook.....not available
Ammunition assemblies.....not available
Range tables.....OPs 924, 964, 1079, 1080, 1162,
1163, 1188, 1467, 1468, 1544
OCL A100-43

14-INCH GUN MARK 11 MOD 5 50 CALIBER

DESCRIPTION

The 14-inch Gun Mk 11 Mod 5 is a 50-caliber bag ammunition gun designed for use in 14-inch 3-gun turrets on battleships. It is a built-up gun consisting of a tube, jacket, liner, three hoops, a tube and liner locking ring, two hoop locking rings, and a screw-box liner. The gun is constructed of alloy steel and nickel steel. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 42.50 inches from the face of the breech. The slide surface starts 120 inches from the breech, has a diameter of 44 inches, and is 132 inches long, with one key set in on top of the gun. The bore is chromium plated for a distance of 613.0 inches

from the muzzle. The 14-inch Breech Mechanism Mk 4 Mod 3, used with this gun, is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and Smith-Asbury operating mechanism.

The 14-inch Gun Mk 11 Mod 5 is the 14-inch Gun Mk 7 Mod 1, number 157-L, with the shoulder (located 340.0 inches from the muzzle) removed, and the bore of the tube machined oversize for a length of 590.0 inches from the muzzle. The 590.0-inch length has a diametral taper of 0.004 inch per inch. The chamber is identical to the 14-inch Gun Mk 11 Mod 1. It differs from all previous 14-inch Guns Mk 11 by the design of the liner.

TABULAR DATA

Installation

Turret 14-inch, 50-caliber, 3-gun turret
Class of ships BB

Ammunition

Type Bag
Classification AP Service, HC Service, T Target
Reference NAVORD OD 5297, sheets 1450A1-2

Dimensions

Length 714.0 in.
Diameter over chamber 48.0 in.

Ballistics

Volume of powder chamber 16,982 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 42,585 yd
*(Measured with 420 lb charge and 1,500 lb projectile as noted in NAVORD OD 5297)
**(Measured with a 1,275 lb projectile at 2,825 fps muzzle velocity)

Weight

Gun without screw-box liner 177,440 lb
Gun with breech mechanism 179,614 lb

Design and Publication References

General arrangement dr. 250876
List of drawings LD 107731
Strength, pressure and velocity dr. not available
Chamber dr. 227465
Rifling dr. 227466
Turret instruction handbook OP 966
Ammunition assemblies NAVORD OD 5297
Range tables OPs 924, 964, 1079, 1080, 1162, 1163, 1188, 1467, 1468, 1544
OCL 100-43

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 607.358 in.
Plating Chromium
Thickness 0.0005 in.
Length 613.0 in. (measured from muzzle)

SECTION 14

16-INCH GUN MARK 6 MOD 0

45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 6 Mod 0 is a 45-caliber bag ammunition gun designed for use in 16-inch 3-gun turrets on battleships. It is the main armament of the North Carolina and South Dakota class battleships. It is a light-weight built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, a liner locking ring, and a yoke ring. The gun is constructed of alloy steel and gun steel, and is hooped to the muzzle. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 44 inches from the face of the breech. The slide surface is 46 inches in diameter, with a single guide key set in the upper slide surface. The gun is chromium plated for a distance of 625.0 inches from

the muzzle. The 16-inch Breech Mechanism Mk 3 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism. The gun is removable from the gun port without dismantling the turret.

The 16-inch Gun Mk 6 Mod 0 is a new design and does not derive its features from any previous 16-inch gun. This modification has two kinds of rifling: right-hand, uniform twist, one turn in 25 calibers; and right-hand, increasing twist, one turn in 50 calibers to one turn in 32 calibers. The rifling for each individual gun was specified by the Bureau of Ordnance.

TABULAR DATA

Installation

Turret 16-inch, 45-caliber, 3-gun turret,
BB 55 Class
Class of ships BB

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference not available

Dimensions

Length 736.0 in.
Diameter over chamber 46.0 in.

Ballistics

Volume of powder chamber 23,195 cu in.
*Muzzle velocity 2,300 fps
Maximum powder pressure ... 18 long tons per sq in.
**Maximum range at 45° elevation 40,600 yd
*(Measured with 505 lb charge and 2,700 lb projectile)
**(Measured with a 2,240 lb projectile at 2,520 fps
muzzle velocity)

Weight

Gun 192,310 lb
Gun with breech mechanism not available

Rifling

Twist... Right hand, increasing, 1 turn in 50 calibers
to 1 turn in 32 calibers, or right hand, uniform,
1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Design and Publication References

General arrangement dr. 204093
List of drawings LD 58101
Strength, pressure, and velocity dr. 204105
Chamber dr. 204104
Rifling dr. 53205 or 214107
Turret instruction handbook OP 755
Ammunition assemblies not available
Range tables OPs 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

16-INCH GUN MARK 6 MOD 1 45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 6 Mod 1 is a 45-caliber bag ammunition gun designed for use in 16-inch 3-gun turrets on battleships. It is the main armament of the North Carolina, South Dakota, and Indiana class battleships. It is a lightweight, built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, a liner locking ring, and a yoke ring. The gun is constructed of alloy steel and gun steel, and is hooped to the muzzle. It is mounted in the turret by means of a yoke and slide. The yoke stop is located 44 inches from the face of the breech. The slide surface is 46 inches in diameter, with a single

guide key set in the upper slide surface. The gun is chromium plated for a distance of 625.0 inches from the muzzle. The gun is removable from the gun port without dismantling the turret. The 16-inch Breech Mechanism Mk 3 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism.

The 16-inch Gun Mk 6 Mod 1 is the 16-inch Gun Mk 6 Mod 0 with tapped holes at the breech end for securing the hinge lug to the gun.

TABULAR DATA

Installation

Turret..... 16-inch, 45-caliber, 3-gun turret,
BB 55 Class
Class of ships..... BB

Dimensions

Length 736.0 in.
Diameter over chamber 46.0 in.

Weight

Gun 192,310 lb
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1645B-1

Ballistics

Volume of powder chamber..... 23,195 cu in.
*Muzzle velocity..... 2,300 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 40,600 yd
*(Measured with 505 lb charge and 2,700 lb projectile)
**(Measured with a 2,240 lb projectile at 2,520 fps muzzle velocity)

Design and Publication References

General arrangement dr. 204093
List of drawings LD 90447
Strength, pressure, and velocity dr. 204105
Chamber dr. 204104
Rifling dr. 204107
Turret instruction handbook OP 755
Ammunition assemblies NAVORD OD 5297
Range tables OPs 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

16-INCH GUN MARK 6 MOD 2 45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 6 Mod 2 is a 45-caliber bag ammunition gun designed for use in 16-inch 2-gun and 3-gun turrets on battleships. It is the main armament of the Maryland and West Virginia class battleships. It is a light-weight, built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, a liner locking ring, a yoke ring, and a set of adapter sleeves. The gun is constructed of alloy steel and gun steel, and is hooped to the muzzle. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 44.50 inches from the face of the breech. The slide surface is 53.50 inches

in diameter, with a single guide key set in the upper slide surface. The gun is chromium plated for a distance of 625.0 inches from the muzzle. The 16-inch Breech Mechanism Mk 3 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism.

The 16-inch Gun Mk 6 Mod 2 is the 16-inch Gun Mk 6 Mod 1 fitted with adapter sleeves to fit the turrets of North Carolina and Maryland class battleships. This was a wartime measure to re-gun the ships.

TABULAR DATA

Installation

Turret 16-inch, 45-caliber, 2-gun turret,
BB 45, 46, 48 class
Class of ships BB

Dimensions

Length 736.0 in.
Diameter over chamber 53.50 in.

Weight

Gun not available
Gun with breech mechanism not available

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1645A-1

Ballistics

Volume of powder chamber 23,195 cu in.
*Muzzle velocity 2,300 fps
Maximum powder pressure 18 long tons per sq in.
**Maximum range at 45° elevation 40,600 yd
*(Measured with 505 lb charge and 2,700 lb projectile)
**(Measured with 2,240 lb projectile at 2,520 fps muzzle velocity)

Design and Publication References

General arrangement dr. 250811
List of drawings LD 107719
Strength, pressure, and velocity dr. 204105
Chamber dr. 204104
Rifling dr. 204107
Turret instruction handbook not available
Ammunition assemblies NAVORD OD 5297
Range tables OPs 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

16-INCH GUN MARK 7 MOD 0 50 CALIBER

DESCRIPTION

The 16-inch Gun Mk 7 Mod 0 is a 50-caliber bag ammunition gun designed for use in 16-inch 3-gun turrets on battleships. It is the main armament of the Iowa class battleships. It is a light-weight built-up gun consisting of a tube, jacket, liner, three hoops, two locking rings, a tube and liner locking ring, and a yoke ring. The gun is constructed of alloy steel and gun steel, and is hooped to the muzzle. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 53.50 inches from the face of the breech. The slide surface has a diameter of 49 inches, with a single key set in the upper slide surface. The bore is chromi-

um plated for a distance of 690.0 inches from the muzzle. The gun is removable from the gun port without dismantling the turret. A screw-box liner, which houses the 16-inch Breech Mechanism Mk 4 Mod 0, is threaded into the breech end of the gun. The breech mechanism is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism.

The 16-inch Gun Mk 7 Mod 0 is a new design for 16-inch 50-caliber guns and does not derive its features from any previous service gun. It was developed from 16-inch Gun Mk D Mod 0.

TABULAR DATA

Installation

Turret 16-inch, 50-caliber, 3-gun turret,
BB 61 class
Class of ships BB

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1650A-1

Dimensions

Length 816.0 in.
Diameter over chamber 49.0 in.

Ballistics

Volume of powder chamber 27,000 cu in.
*Muzzle velocity 2,700 fps
Maximum powder pressure... 17.5 long tons per sq in.
**Maximum range at 45° elevation 42,345 yd
*(Measured with 640 lb charge and 2,240 lb projectile)
**(Measured with a 2,700 lb projectile at 2,500 fps muzzle velocity)

Weight

Gun with screw-box liner 239,156 lb
Gun with breech mechanism not available

Design and Publication References

General arrangement dr. 227539
List of drawings LD 58263
Strength, pressure, and velocity dr. 227552
Chamber dr. 227550
Rifling dr. 227551
Turret instruction handbook OP 769
Ammunition assemblies NAVORD OD 5297
Range tables OPs 758, 770, 1051, 1090, 1091,
1100, 1456, 1457, 1543

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 682.46 in.
Plating Chromium
Thickness 0.0005 in.
Length 690.0 in. (measured from muzzle)

16-INCH GUN MARK 8 MOD 0

45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 8 Mod 0 is a 45-caliber ammunition gun designed for use in 16-inch 2-gun turrets on battleships. It is the main armament of the Maryland and West Virginia class battleships. It is a built-up gun consisting of a tube, jacket, liner, seven hoops, four hoop locking rings, a tube and liner locking ring, and a screw-box liner. The gun is constructed of nickel steel and gun steel, and is hooped to the muzzle. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 44.50 inches from the face of the breech. The slide surface starts 131 inches from the face of the breech, has a diameter of 49 inches, and is 150 inches long, with a single guide key set in the upper slide surface. The

bore is chromium plated for a distance of 625.0 inches from the muzzle. The 16-inch Breech Mechanism Mk 1 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever operating mechanism.

The 16-inch Gun Mk 8 Mod 0 is the 16-inch Gun Mk 1 Mods 0, 7, 8, 9, and 10, or Mk 5 Mods 0 and 1, relined with a one-step alloy-steel liner, having heavy liner shrinkages, and a tube and liner locking ring. The 16-inch 45-caliber Gun Mk 8 Mod 0 differs from previous designs of the same caliber by having a chamber identical to 16-inch Gun Mk 6 Mod 0 in a tube which has the exterior dimensions of 16-inch Guns Mk 1 or Mk 5.

TABULAR DATA

Installation

Turret 16-inch, 45-caliber, 2-gun turret,
BB 45, 46, 48 Class
Class of ships BB

Dimensions

Length 736.0 in.
Diameter over chamber 53.50 in.

Weight

Gun 230,948 lb
Gun with breech mechanism 235,796 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1645A-1

Ballistics

Volume of powder chamber 23,195 cu in.
*Muzzle velocity 2,520 fps
Maximum powder pressure 17 long tons per sq in.
**Maximum range at 45° elevation 40,600 yd
*(Measured with 556 lb charge and 2,240 lb projectile)
**(Measured with a 2,240 lb projectile at 2,520 fps muzzle velocity)

Design and Publication References

General arrangement dr. 227564
List of drawings LD 58264
Strength, pressure, and velocity dr. 227569
Chamber dr. 204104
Rifling dr. 204107
Turret instruction handbook OP 311
Ammunition assemblies NAVORD OD 5297
Range tables OPs 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

16-INCH GUN MARK 8 MOD 1 45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 8 Mod 1 is a 45-caliber bag ammunition gun designed for use in 16-inch 2-gun turrets on battleships. It is the main armament of the Maryland and West Virginia class battleships. It is a built-up gun consisting of a tube, jacket, liner, seven hoops, four hoop locking rings, a tube and liner locking ring, and a screw-box liner. The gun is constructed of nickel steel and gun steel, and is hooped to the muzzle. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 44.50 inches from the face of the breech. The slide surface starts 131 inches from the face of the breech, has a diameter of 49 inches, and is 150 inches long, with a single guide key set

in the upper slide surface. The bore is chromium plated for a distance of 625.0 inches from the muzzle. The 16-inch Breech Mechanism Mk 1 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism.

The 16-inch Gun Mk 8 Mod 1 is the 16-inch Gun Mk 1 Mod 10 relined with a one-step alloy steel liner, with a taper forward of the shoulder, heavy liner shrinkages, a chamber identical to 16-inch Gun Mk 6 Mod 0, and a tube and liner locking ring. It is almost identical to 16-inch Gun Mk 8, Mod 0, differing only in the design of the liner.

TABULAR DATA

Installation

Turret 16-inch, 45-caliber, 2-gun turret,
BB 45, 46, 48 Class
Class of ships BB

Ammunition

Type Bag
Classification AP Service, T Target, HC Service
Reference NAVORD OD 5297, sheet 1645A-1

Dimensions

Length 736.0 in.
Diameter over chamber 53.50 in.

Ballistics

Volume of powder chamber 23,195 cu in.
*Muzzle velocity 2,520 fps
Maximum powder pressure 18 long tons per sq in.
*Maximum range at 45° elevation 40,600 yd
*(Measured with 556 lb charge and 2,240 lb projectile)

Weight

Gun 230,948 lb
Gun with breech mechanism 235,796 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Design and Publication References

General arrangement dr. 217075
List of drawings LD 62198
Strength, pressure, and velocity dr. 217088
Chamber dr. 204104
Rifling dr. 204107
Turret instruction handbook OP 311
Ammunition assemblies NAVORD OD 5297
Range tables OPS 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

16-INCH GUN MARK 8 MOD 2 45 CALIBER

DESCRIPTION

The 16-inch Gun Mk 8 Mod 2 is a 45-caliber bag ammunition gun designed for use in 16-inch 2-gun turrets on battleships. It is the main armament of the Maryland and West Virginia class battleships. It is a built-up gun consisting of a tube, jacket, liner, seven hoops, four hoop locking rings, a tube and liner locking ring, and a screw-box liner. The gun is constructed of nickel steel and gun steel, and is hooped to the muzzle. The gun is mounted in the turret by means of a yoke and slide. The yoke stop is located 44.50 inches from the face of the breech. The slide surface starts 131 inches from the face of the breech, has a diameter of 49 inches, and is 150 inches long, with a single guide key set in the

upper slide surface. The bore is chromium plated for a distance of 625.0 inches from the muzzle. The 16-inch Breech Mechanism Mk 1 Mod 0 is used with this gun. It is of the down-swing carrier type with a Welin breech plug, De Bange gas check system, and a vertical lever-operating mechanism.

The 16-inch Gun Mk 8 Mod 2 is the 16-inch Gun Mk 5 Mod 3, number 5L2, relined with a one-step alloy-steel liner, having heavy liner shrinkages, and a chamber identical to 16-inch Gun Mk 6 Mod 0. It differs from previous designs of 16-inch Mk 8 only by being converted from 16-inch Gun Mk 5 Mod 3, instead of 16-inch Gun Mk 1 Mods 0, 7, 8, 9, 10, or 16-inch Gun Mk 5 Mods 0 and 1.

TABULAR DATA

Installation

Turret 16-inch, 45-caliber, 2-gun turret,
BB 45, 46, 48 Class
Class of ships BB

Dimensions

Length 736.0 in.
Diameter over chamber 53.50 in.

Weight

Gun 230,948 lb
Gun with breech mechanism 235,796 lb

Rifling

Twist Right hand, uniform, 1 turn in 25 calibers
Length 616.86 in.
Plating Chromium
Thickness 0.0005 in.
Length 625.0 in. (measured from muzzle)

Ammunition

Type Bag
Classification AP Service, T Target,
HC Service
Reference NAVORD OD 5297, sheet 1645A1

Ballistics

Volume of powder chamber 23,195 cu in.
*Muzzle velocity 2,520 fps
Maximum powder pressure 18 long tons per sq in.
*Maximum range at 45° elevation 40,600 yd
*(Measured with 556 lb charge and 2,420 lb projectile)

Design and Publication References

General arrangement dr. 250854
List of drawings LD 107730
Strength, pressure, and velocity dr. not available
Chamber dr. 204104
Rifling dr. 204107
Turret instruction handbook OP 311
Ammunition assemblies NAVORD OD 5297
Range tables OPs 750, 751, 757, 758, 916, 921,
922, 1051, 1109, 1110, 1144, 1145, 1188,
1455, 1456, 1472, 1473, 1543

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