

**Sperry Marine**

***NORTHROP GRUMMAN***

# Hydraulic Steering Gear



**Proven design for maximum  
performance and reliability**

# Hydraulic Steering Gear

A dependable and versatile range of hydraulic steering systems. Providing hydraulic steering gear for many different requirements.

With a long history of expertise in navigational systems, Northrop Grumman Sperry Marine has an unrivalled reputation for providing equipment and systems to suit the specific needs of mariners.

We provide a wide range of steering gears to suit many different requirements, from working tugs to super-yachts with multiple rudders.

Our steering systems offer many benefits, including:

- Cost-effectiveness and convenience
- Wide range of products
- Tailored to your needs
- Fully type-approved
- Total support

## **Cost-effective and Convenient**

It couldn't be easier to acquire your new Northrop Grumman Sperry Marine steering system. We provide a single point of contact to ensure delivery, installation and commissioning of your complete package, according to your specification.

Our innovative use of standard components enables us to achieve low cost configurations.

## **Wide Range of Products**

We can provide steering systems for all types of vessels and yachts, from 15 meters up to 100 meters, 5000 GT, and

for all hydraulic steering configurations — single rudder, multiple independent synchronised rudders or mechanical linked rudders.

The range includes simple hand hydraulic steering systems as well as complex electric-hydraulic power steering systems, and includes motor starter systems, alarm systems, steering control systems, autopilot interfacing and rudder indicators.

### ***System features include:***

- cylinders with spherical bearings
- split or non-split helms
- rudder angles to 60 degrees
- low-noise vane pumps

### ***A variety of optional features include:***

- proportional valves
- dual- or multi-flow fast steering response
- adjustable pumps
- servo hand pumps
- all control systems
- control panels

## **Tailored to Your Needs**

Sperry Marine steering gears use standard sets of cylinders that can be employed in most applications. This modular design allows us to easily design and configure systems to meet

specific requirements and regulations, while obtaining the best cost-performance ratio, with the minimum maintenance. We can provide almost any required configuration:

- Mechanical rudder interface
- Manual hydraulic steering
- Single electric-hydraulic steering system
- Dual electric-hydraulic steering system.

Modes of operation include full follow-up and non follow-up, in either single or dual configurations.

Besides being cost-effective, this modular approach also means that we can install your steering system quickly and efficiently.

If your requirements cannot be met through our modular process, we can always design solutions to meet your specific requirements.

## **Fully type-approved**

All Sperry Marine steering system components are designed and manufactured to meet all major classification standards, including: LROS, ABS, BV, GL, USCG, DNV,RINA, SOLAS, IMO and SI.

We always ensure that our steering systems are installed by experienced engineers, who will undertake all commissioning and sea trials.

## Steering Gear Calculation Sheet

### General Information

Customer  
Shipyard  
Contact Person  
Tel. No

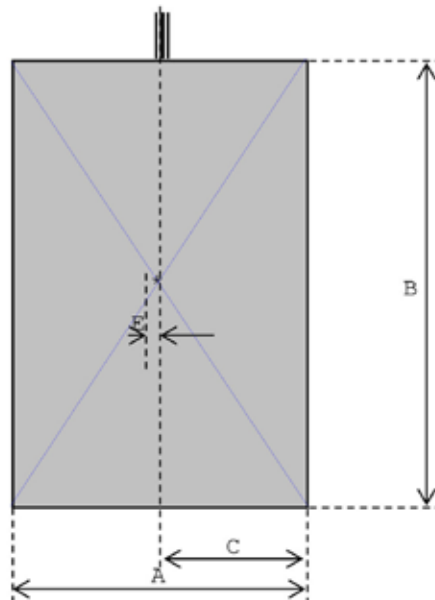
Type of vessel  
Hull No.  
Class Society  
Class Notation  
Flag State

### Technical Information

Ships power supply  
Frequency (Hz)  
No. of rudders  
Connecting rod  
Rudder distance (mm)  
Tiller type  
Stock diameter (mm)  
Lever direction  
Key direction

Speed  
Max. angle  
H.O.Time  
Diesel Engine Type  
PTO on Diesel  
RPM Idle  
RPM on PTO  
Remarks  
Text Labels

Knots  
Degrees  
Sec.+/-1 Sec.  
1.15  
ENG.



All sizes in mm

A = mm

B = mm

C = mm

E = mm

Nozzle

Maximum rudder torque at max angle  
Maximum rudder torque with nozzle  
Max required rudder torque  
Steering gear type  
Steering gear size  
Cylinder size  
Cylinder travel volume  
Total pumps per rudder  
Minimum hydraulic flow required  
Size of pump required  
Theoretical relief valve pressure  
Theoretical working pressure  
Hydraulic unit type  
Req. E-motor power at max. torque (S6)  
Req. E-motor power for cont. use (S1)  
Req. Diesel motor power

kNm

kNm

kNm

CC

Ltr / min.

CC

Bar

Bar

kW

kW

kW

pump

Mandatory to be filled in by the yard

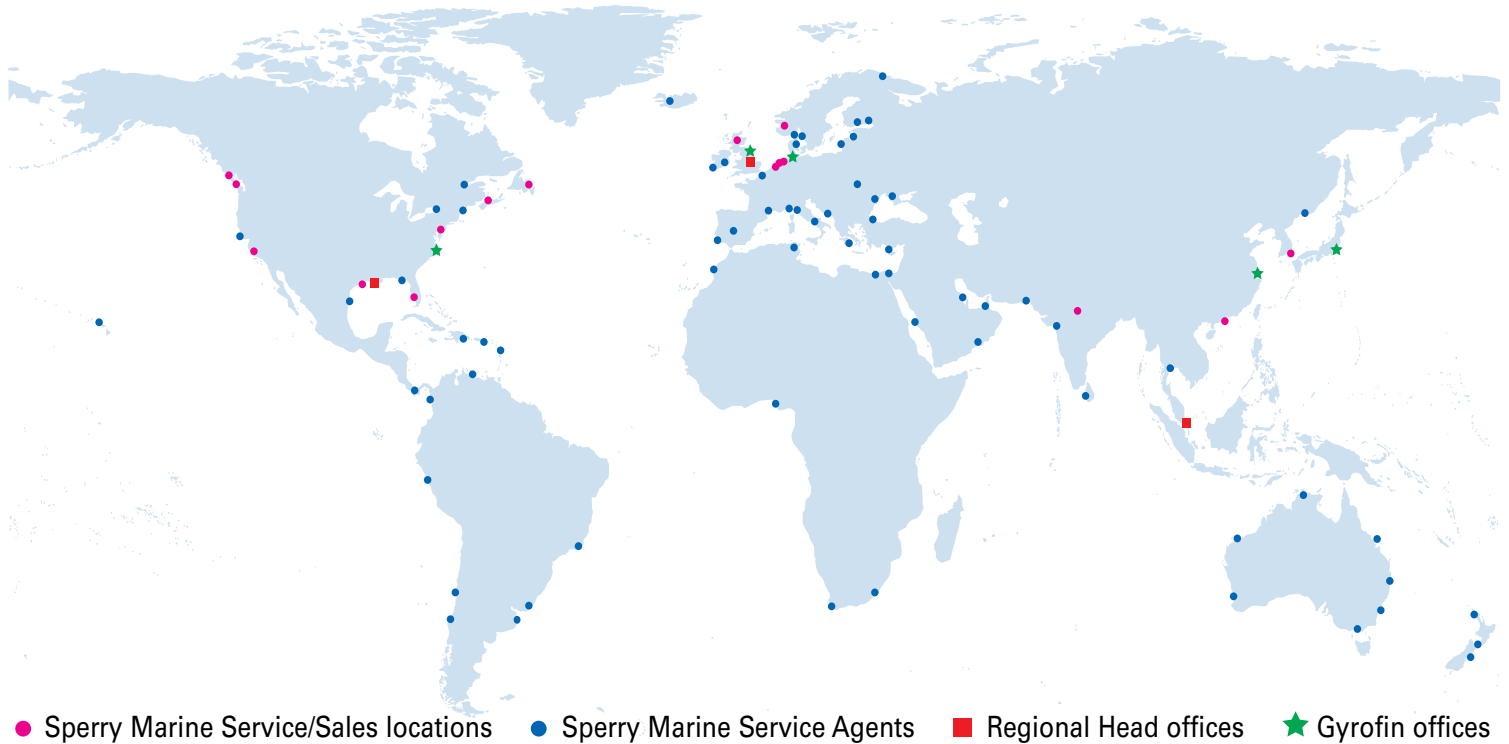
To be filled in by Sperry Marine

To be filled in by Sperry Marine or the yard

## Total Support: 24/7/365

As with all Northrop Grumman Sperry Marine systems and products, our steering systems are supported by one of the world's most extensive worldwide service networks, with help available around the clock, 24 hours a day, 365 days a year. Our global service network provides prompt shipboard maintenance and repair services in every major seaport in the world.

We also offer comprehensive maintenance contracts, as well as support for all products for at least ten years after any is discontinued, so providing continuing peace of mind to all our customers.



For more information, please contact:

### AMERICAS

**New Orleans, LA USA**  
Tel: +1 504-328-9171

### ASIA

**China, Shanghai**  
Tel: +86-21-5179-0199

**Hong Kong, Sheung Wan**  
Tel: +852-2581-9122

**Japan, Tokyo**  
Tel: +81 (03)-3863-7401

**Singapore**  
Tel: +65-6274-3332

**South Korea, Busan**  
Tel: +82-51-247-7455

### CANADA

**Nova Scotia, Halifax**  
Tel: +1 902-468-9479

**British Columbia, Vancouver**  
Tel: +1 604-821-2090

### EUROPE

**Belgium, Antwerp**  
Tel: +32-3-233-14-33

**Denmark, Copenhagen**  
Tel: +45-77-33-66-33

**Germany, Hamburg**  
Tel: +49-40-299-00-0

**The Netherlands, Vlaardingen**  
Tel: +31 (0)-10-4451600

**Norway, Bergen**  
Tel: +47-55-94-94-94

**United Kingdom, London**  
Tel: +44 (0)-20 8329-2000

[www.sperrymarine.com](http://www.sperrymarine.com)

A division of the Northrop Grumman Corporation, Sperry Marine provides a range of sophisticated navigation solutions for mariners around the world: autopilot and steering control systems, compass systems, integrated bridge and platform management systems, navigation radar and ECDIS, speed/velocity logs. Working with mariners around the globe for over 100 years.

Specifications and features subject to change without notice.  
©2015 Northrop Grumman Systems Corporation  
All rights reserved.

BR-250-AHH/EXP-MS-1015  
N&MSD Comms

