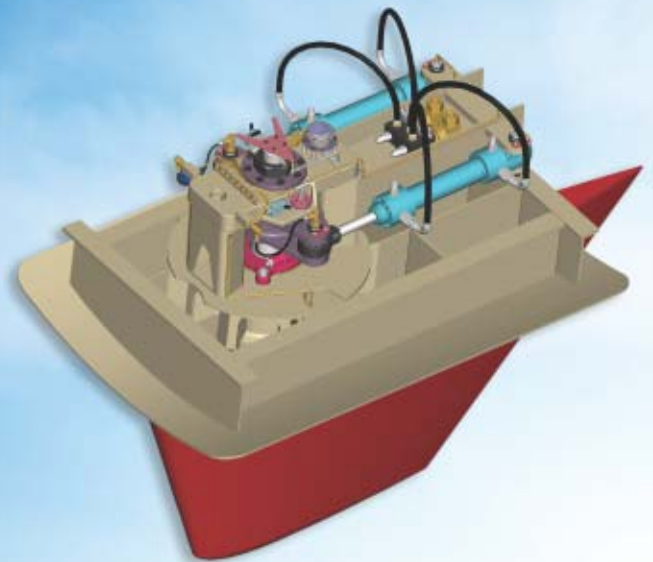




Since 1965
Pioneer Hydraulics & Pneumatics Company
in India

Our Equipment Steers & Stabilises Marine Ships



We Help You See Your Ideas Work

Fluid Power leaders for four decades

Veljan, today is an acknowledged leader in fluid power technology, manufacturing and marketing a wide range of pneumatic and hydraulic cylinders, control valves, fluid conditioning system, pneumatic and hydraulic packages, hydraulic pumps and motors etc.

Custom designing is Veljan's forte whereby, it closely interacts with users in diverse areas to develop appropriate designs for specific applications. Coupled with this, our enduring commitment to excellence, innovation and quality has catapulted the company into one of the premier fluid power specialists in the country.

Veljan's innovative strength and long-standing experience with fluid power mechanics for just about any application is a critical factor that makes a qualitative difference to any given situation

A comprehensive range of sophisticated machinery at Veljan's command, gives that distinctive qualitative edge to Veljan products few others can match.

An elaborate system of checks and counter checks beginning from selection of raw material through every stage of the manufacturing process and assembly in a controlled environment culminating in the finished product ensures a built-in quality and excellence that is the hallmark of every single Veljan product.



Sophisticated machinery at Veljan



Veljan's manufacturing units



Marine Systems Division

A continuous programme of Research & Development keeps abreast of the latest developments in fluid power technology and effectively incorporates them into new products and system configurations in conformity with specific applications and requirements.

Veljan's R & D unit is approved by the Department of Science & Technology, Government of India, and has served as a backbone for the development of new products and systems. Veljan sets the industry standards by its own stringent adherence to product quality.

The experience gained from dealing with diverse problems and applications in a cross-section of markets has honed the skills and understanding at Veljan to further its knowledge for development of better and newer products and technologies. Significantly contributing, in the process, to a higher level of product innovation



State-of-the-art R & D Division

Steering Gear Systems

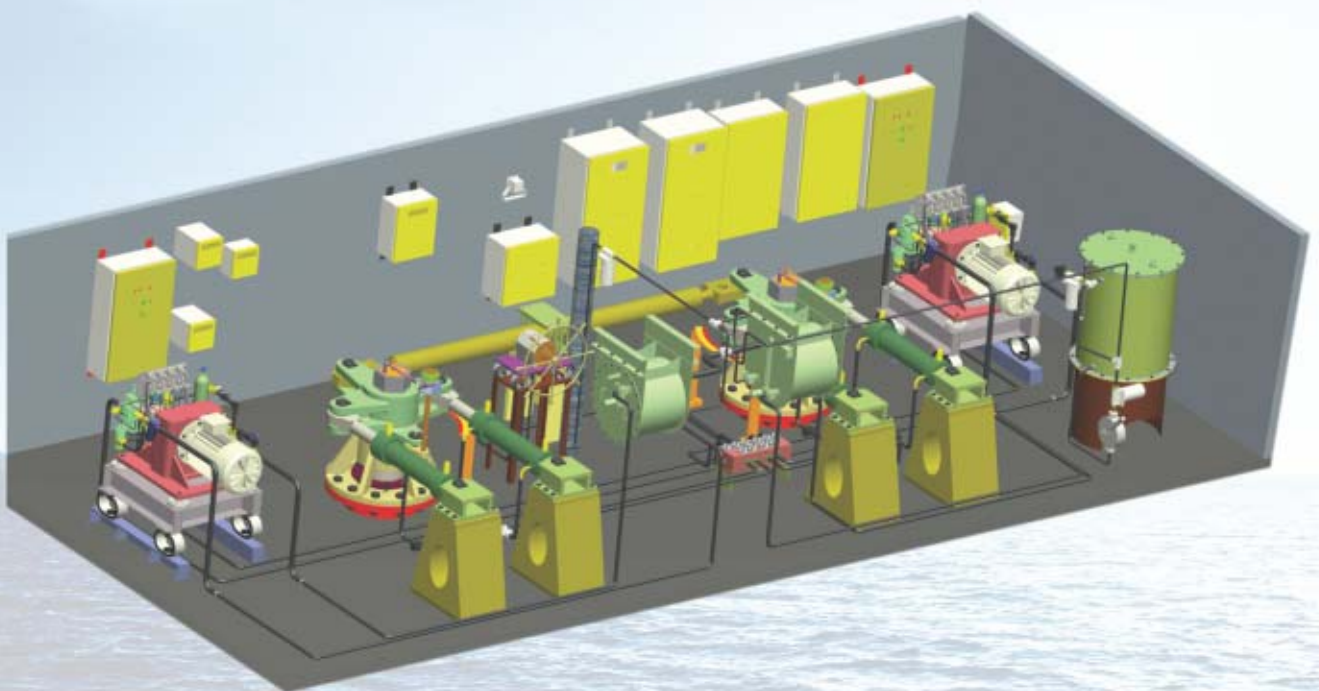
Veljan Steering Gear system features hydraulic cylinders & rams powered by axial piston pumps. The system is of modular design which offers a great amount of flexibility to be installed in various ship configurations.

The double-acting hydraulic cylinders in the Veljan systems are offered in single and double sets based on the combination. These cylinders are specially designed for the rigorous demands in marine applications.

Veljan offers complex electric-hydraulic power steering gear systems comprising motors starters, alarm panels, control systems, autopilot interfacing and rudder angle indicators.

Salient features of Veljan's Steering System systems are:

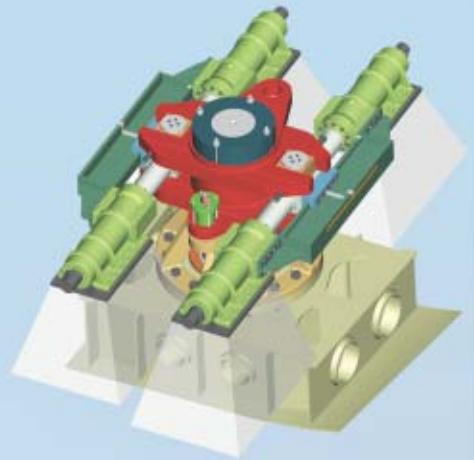
- Designed for simple operation
- Modular construction for easy installation
- High quality components and axial piston pumps for long life and reliability
- Simplified maintenance



Steering Gear Compartment Layout of a Ship

Modular Design

Veljan steering gears use standard sets of cylinders that can be utilized in most applications. The only variable in design is the tiller and upper bearing carrier assembly, which are specified in concurrence with the vessel's characteristics and the required rudder deflections. By applying this method of modular design, each system can easily be designed and configured in accordance with specific requirements. This process also ensures short delivery times once an order is placed.



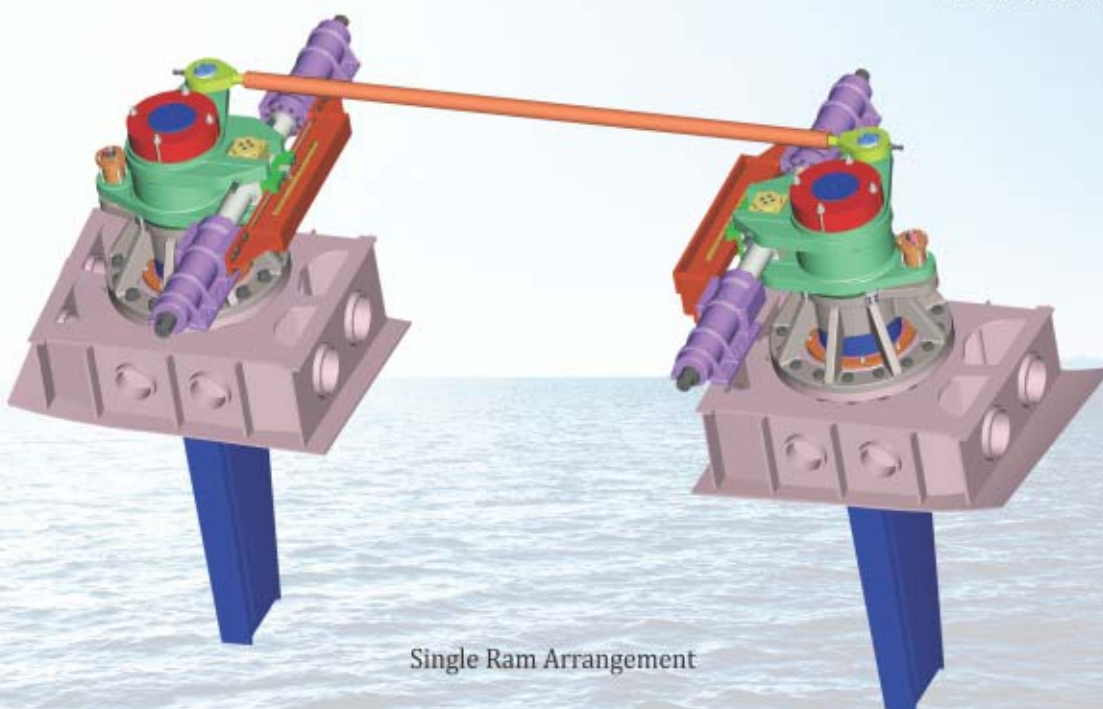
Double Ram Arrangement

General Features

- Applicable to all types of vessels and yachts, ranging from 50 to 200 meters & 25000 Tons
- Applicable to single & multiple rudder steering configurations
- Interfaces with complete range of autopilots
- Meets all major classification standards
- Simple to install & minimum maintenance



Actuator Arrangement



Single Ram Arrangement

Ram & Cylinder Assemblies

Max working pressure upto 300 bar



Tillers

- Max torque of 2.5 Tm to 90 Tm
- Single fork and double fork
- Mechanical locking pin arrangement
- Single and double keyway
- Straight and tapered bore

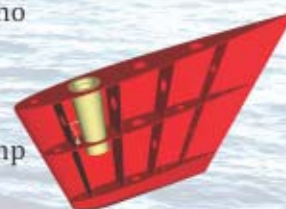


Stabilisers

Veljan introduces the next generation of ship roll stabilisers that feature a new digital VME-64 control system. Our ship roll stabilizer is a proven design for maximum performance and reliability. The latest advances in technology have been applied to this design to provide a ship roll stabilizer system that truly delivers ship comfort and safety even in the roughest seas.

Salient features

- Improved safety and vessel performance
- Increased passenger / crew comfort
- Proven design to maximum performance and reliability
- New Digital Control System with serial connectivity and simple to use touch-screen controls
- Upgraded machinery elements to enhance performance and supportability
- Dedicated Project Management Team that provides an array of support services from technical consulting to commissioning
- Electronics allow operating up to 4 fin stabilisers simultaneously
- Improved system reliability by the use of a new Roll Motion Sensor with no moving parts
- Redundant operator interfaces
- System diagnostic capabilities with intelligent alarm messaging
- Emergency centering of the fins is possible by hand operated pump arrangement



Hydraulic Power Units, Pumps & Motors

Hydraulic power packs consist of an axial piston pump, powered by electric motor mounted on either side of a pump-motor bracket. A nitrogen accumulator, oil cooler, instrumentation and sensors are installed on the power pack assembly. By using this design the hydraulic power packs become very compact, allowing them to be built into relatively small vessels with minimum space requirements.

P11P Power Unit

Application : Steering Gear & Fin Stabilisers

Discharge : Bi-directional, Variable discharge
by swash control

Max flow : 188 cc/rev

Max pr. : 345 bar



P6P Power Unit

Application : Steering Gear

Discharge : Bi-directional & Variable discharge
by swash control

Max flow : 90 cc/rev

Max pr. : 345 bar



Vane Pump



Axial Piston Pump



Hydraulic Motors

Miscellaneous Accessories



Stainless steel Supply Oil Tank



Portable Flushing & Filtration Units



Stainless steel Reserve Oil Tank



Emergency Hand Helm Pump

Control Systems

- Microprocessor/Micro-controller/VME 64 Bus based with Real Time Operating System, with high level programming languages C/C++, VC++ and RT Linux Pro providing simple integration for tomorrow's Mission Critical applications, with wide range of portability to various architectures.
- Increased Operational Capability & Built In Test Equipment
- Open Architecture Features.
- Distributed Digital Control System with Adaptive control capabilities.
- HMI functions with custom based functional features.
- Networking capabilities, Utility software for simple communication between peripherals.
- Data acquisition and control software to test the system before starting the application software and report failures to the operator.
- Hardware and software is robust, modular, contemporary system, up-gradable, maintainable & expandable.
- A single failure in the system (including accumulated latent malfunctions, operator malfunctions, power supply and communication malfunctions) will not interrupt the Control and Monitoring functions

Electrical Panels for Hydraulic Power Units



Auto Change Over Switch



Roll Sensor



Starter Panel



MCR Control Panel





Rudder Angle Transmitter For Multi-point Display Units



Regulated 220/24v Power Supply Units



Steering Gear Bridge
Control Consoles



VME 64 Based State-of-art Control Panels
With Touch Screen LCD Display Unit

Test Facilities

Test facilities available for carrying out functional trials of all Assemblies/Sub-assemblies and also carryout Full fledged Integration Trials of Steering Gear and Stabiliser systems.

Test Bed Facility for :

- Axial Piston Pumps
- Hand Pumps
- Actuators
- Distributors & Manifolds Blocks

Integration Trials of Steering and Stabiliser Systems :

- Hooking up the system with all the equipment
- Endurance run
- Protocols Checking with other systems
- Functional Checks
- Tuning of parameters till acceptable accuracy is achieved
- Recording of the data
- Performance analysis
- Third party inspection and validation



Steering Control System Test Stand



Hydraulic Actuators Test Stand



Hydraulic Pumps Test Stand



Stabiliser Fin Test Stand



Member



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