



Service Agreements

MAN PrimeServ



MAN PrimeServ Service Agreements

**Through-life
solutions**

MAN PrimeServ service agreements for installations in the marine, electric power, industrial and offshore business sectors are designed to ensure efficient, reliable, long-term performance at attractive and predictable costs. Whether the need is as simple as the prompt supply of genuine parts or as comprehensive as the management of a complete installation, MAN PrimeServ has an array of customizable solutions to meet every type of customer or application requirement.

As power generation and marine propulsion systems continue to get smarter, our experts are digitally-enabled to access and analyze the increasing data to tailor-make solutions for specific operating profiles. With us as your partner, your success in a competitive environment is driven by superior efficiency and reliability and the knowledge about how different parameters affect the performance of your equipment.

MAN PrimeServ is unrivaled in its capacity to service MAN products, related systems and storage applications. With access to the original equipment designer's digital knowledge center, housed at MAN's worldwide service headquarters, and with the global reach of more than 100 MAN PrimeServ Service Centers, we are able to successfully deliver proven industry practices to any locality and thus maximize investment returns from your equipment.

No matter which equipment you own or operate, the service solutions in our portfolio are flexible and tailored to fit your individual needs. Partnering with MAN PrimeServ allows you to focus on your core business, knowing that our team of professionals delivers outstanding performance.



Flexible solutions to meet unique project needs

Long Term Service Agreements (LTSA) Spare Parts and Specialist Personnel

	LTSA Standard Scope		LTSA Extended Service Options	
	Spare Parts Agreement (SPA)	Std. Maintenance Agreement (SMA)	Condition Assessment (CA)	Uptime Optimization (UO)
Preferred Pricing	✓	✓	✓	✓
Extended Warranty	✓	✓	✓	✓
Parts Logistics	✓	✓	✓	✓
Maintenance Planning		✓	✓	✓
Guaranteed Downtimes		✓	✓	✓
Operating Media Diagnostics			✓	✓
Remote Monitoring & Troubleshooting			✓	✓
Expedited Emergency Response/Dispatch				✓

✓ included
✓ optional

Operation & Maintenance Agreements (O&MA) Performance Management and Optimization

	O&M Advisory Services Agreement (OASA)	O&M Management Support Agreement (OMSA)	Full Maintenance & Operational Support Agreement (FMOSA)	Full Operation & Maintenance Agreement (FOMA)
Maintenance Agreement Benefits	✓	✓	✓	✓
Aligned Performance Targets	✓	✓	✓	✓
MAN Permanent Onsite Presence	✓	✓	✓	✓
Professional Organization Setup and Management	✓	✓	✓	✓
Unplanned Maintenance Coverage		✓	✓	✓
Guaranteed Performance		✓	✓	✓
Fuel/Lube Oil – Other Supply / Management			✓	✓
Total Plant Operational Responsibility			✓	✓
Total Price / Performance Predictability			✓	✓

✓ included
✓ optional



Long Term Service Agreement **LTSA**

A Long Term Service Agreement (LTSA) covers parts, field service and logistics for planned maintenance, but can also be supplemented with an extended scope and/or enhanced services to meet your specific needs. Under this agreement, we focus on minimizing administratively-heavy transactional processes to deliver an efficient, contractually-managed partnership.

LTSA's are sufficiently flexible to meet the specific needs of any project. The portfolio consists of a standard scope, comprising spare parts and field service packages which can be enhanced with extended service options offering additional condition assessment and uptime optimization.

Standard scope

LTSA

Spare Parts Agreement (SPA)

SPAs represent the first level in our LTSA range. An SPA is a long-term arrangement covering the supply of spare parts for specified maintenance intervals within a predefined period. When customers enter into a Spare Parts Agreement, they are assigned a designated contract manager, responsible for the scheduling, logistics and on-time delivery of parts for planned maintenance activities. Parts packages for each planned maintenance event are predefined in the SPA, eliminating the costly and time-consuming, administrative back and forth associated with traditional transactional relationships. Alternative payment structures are available, such as fixed monthly fees, variable monthly fees or a combination of both. Typical contract terms start at five years.

Benefits of the SPA package

- Preferred pricing based on commitment and volume
- Key account relationship
- Reduction in administrative time and effort
- Collaborative maintenance planning
- MAN responsibility for on-time delivery of spares

Standard Maintenance Agreement (SMA)

The Standard Maintenance Agreement (SMA) offers our standard level of parts and field service supply. It is a long-term arrangement covering the supply of spare parts and field services for planned maintenance intervals within a predefined period. With an SMA the customer is assigned a designated contract manager, responsible for the scheduling and logistics of each maintenance interval, in accordance with operational conditions and requirements. Key performance indicators with respect to the on-time start and duration of planned maintenance events are established to incentivize the achievement of minimum downtime hours. Alternative payment structures are available such as fixed monthly fees, variable monthly fees or a combination of each. Typical contract terms start at five years.

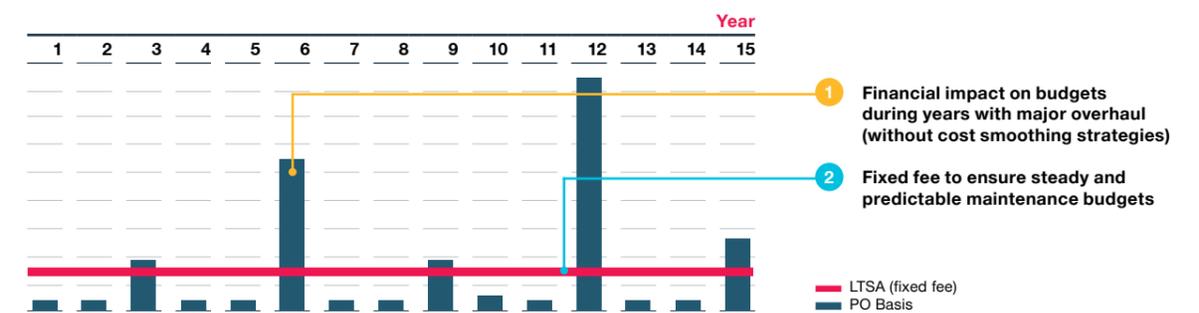
Benefits of the SMA package

- Preferred pricing based on commitment and volume
- Key account relationship
- Collaborative Maintenance Planning
- MAN responsibility for on-time delivery & logistics of spares and service
- KPIs with targets to incentivize guaranteed downtimes
- Regular meetings at management level

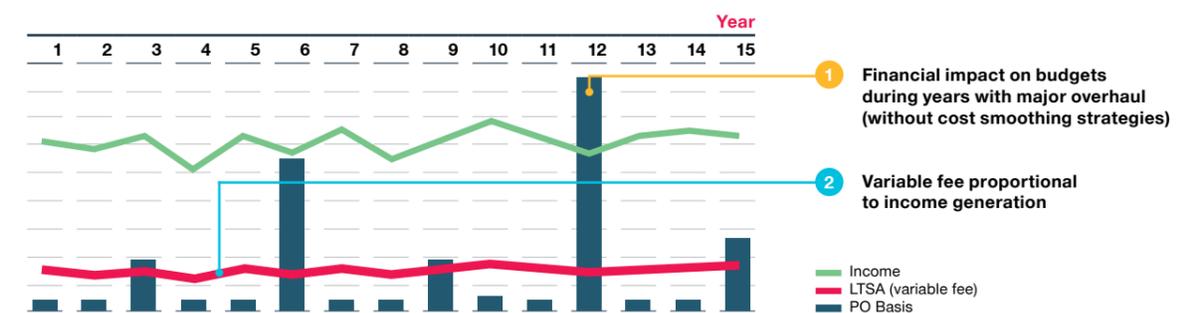


Payment options to either spread out annual costs or mirror costs to production changes

LTSA with fixed fee



LTSA with variable fee



Extended service options



Extended service options can be added to the LTSA standard scope. The extended service options can be grouped into categories, which promote condition assessment capabilities, further reduce response time for planned and unplanned maintenance events or reduce annual budget uncertainties with respect to overall maintenance.

Condition Assessment (CA) options

Extended services may include optional diagnostic tools and services to supplement the scope of standard LTSAs described above. With this extended service package key parameters of the engine system are remotely monitored on a daily basis and analyzed by MAN technical specialists. Remote monitoring can be further enhanced with on-site inspections. In addition, operating media [fuel, lubricating oil and cooling water] is periodically analyzed at the PrimeServ Lab. The combined scope provides comprehensive insight into the operating conditions of the engines and early detection of significant trends, which are essential to good predictive maintenance decision-making. In the event that problems do occur, MAN specialists can provide efficient and effective remote trouble-shooting support in order to minimize downtime for unplanned events.

Benefits of CA options

- Diagnostics tools/services to assess performance and condition
- Information to support predictive maintenance and minimize unplanned corrective maintenance
- Faster troubleshooting and fault elimination
- Regular data reporting and analysis sharing

Uptime Optimization (UO) options

The extended service options in this package target customers requiring maximum equipment uptime. Uptime is optimized by reducing downtime for planned maintenance and response time to unplanned events. These include pit-stop-style maintenance made more affordable with the use of strategic spare parts/swing sets and/or the use of complete maintenance crews supplied by MAN for major services. Guaranteed mobilization response times supplementing remote trouble-shooting reduce downtime associated with unplanned events.

Benefits of UO options

- Reduced downtime for planned maintenance
- Preferential pricing on strategic spares packages/swing sets
- Option for full maintenance crew from MAN
- Remote troubleshooting support
- Committed response time in emergencies

The scope of the LTSAs can be extended to include capped annual allowances for unplanned corrective maintenance. With this extended scope MAN covers a portion of the financial risk exposure associated with unplanned events, thereby increasing certainty for customer's annual maintenance costs.

Operation & Maintenance Agreements

O&MA

The O&MA program is a series of long-term contractual relationships in which MAN PrimeServ plays larger roles in the management and operation of complete power plant facilities, including microgrid / hybrid facilities, in addition to maintenance services. All O&MA products include a Maintenance Agreement covering the long-term provision of spare parts and field services. The product portfolio ranges from advisory management support to full management, operation and maintenance of the power plant.

O&M Advisory Services Agreement (OASA)

The OASA is an advisory agreement in which MAN PrimeServ O&M offers one or more operation and maintenance specialists to provide guidance to the customer during the mobilization and operations of the power plant. The scope can be tailored to include support modules for management, operation, maintenance and administration of the power plant, its staff, feedstock agreements and other contractual obligations.

Benefits of OASA

- Management and supply of spare parts and service
- On-site support from experienced professional(s)
- On-the-job mentoring
- Proven methods and procedures

O&M Management Support Agreement (OMSA)

The OMSA embeds MAN PrimeServ staff into key management positions in the customer's operation and maintenance organization. The scope may include the provision of a mobilization manager who will hire the staff, manage the outfitting of the organization and plant, establish the computerized maintenance management system, and develop standard procedures on behalf of the customer. During the operations period MAN PrimeServ O&M staff will assume the key positions and authority to manage the customer's organization in the execution of all administration, operation and maintenance activities. MAN PrimeServ O&M is committed to the performance of the power plant for the duration of the contract term. Contract terms typically range from three to ten years.

Benefits of OMSA

- Management responsibility of the entire facility on a 24/7 basis
- On-site mentoring
- Management and supply of all plant spare parts and related services
- Downtime commitments for scheduled maintenance

Full Maintenance & Operations Support Agreement (FMSA)

The FMSA is based on the most comprehensive maintenance offering from the PrimeServ O&M portfolio. MAN PrimeServ will be permanently on site to undertake the complete maintenance of facility equipment on behalf of the customer. In addition, operational support can be contracted to optimize management decision-making related to overall plant performance. The scope typically covers maintenance mobilization prior to the start of commercial operations including hiring of the staff, staff and plant outfitting, establishment of a computerized maintenance management system, and development of standard maintenance procedures. After takeover, PrimeServ O&M is responsible for the maintenance of the full power plant facility including daily checks, routine maintenance, major overhauls and unscheduled maintenance. Contract terms typically range from five to ten years.

Benefits of FMSA

- Responsibility for equipment maintenance, 24/7
- Guaranteed uptime (Availability)
- Proven maintenance practices
- Single point of responsibility for all maintenance
- Local solution, global support

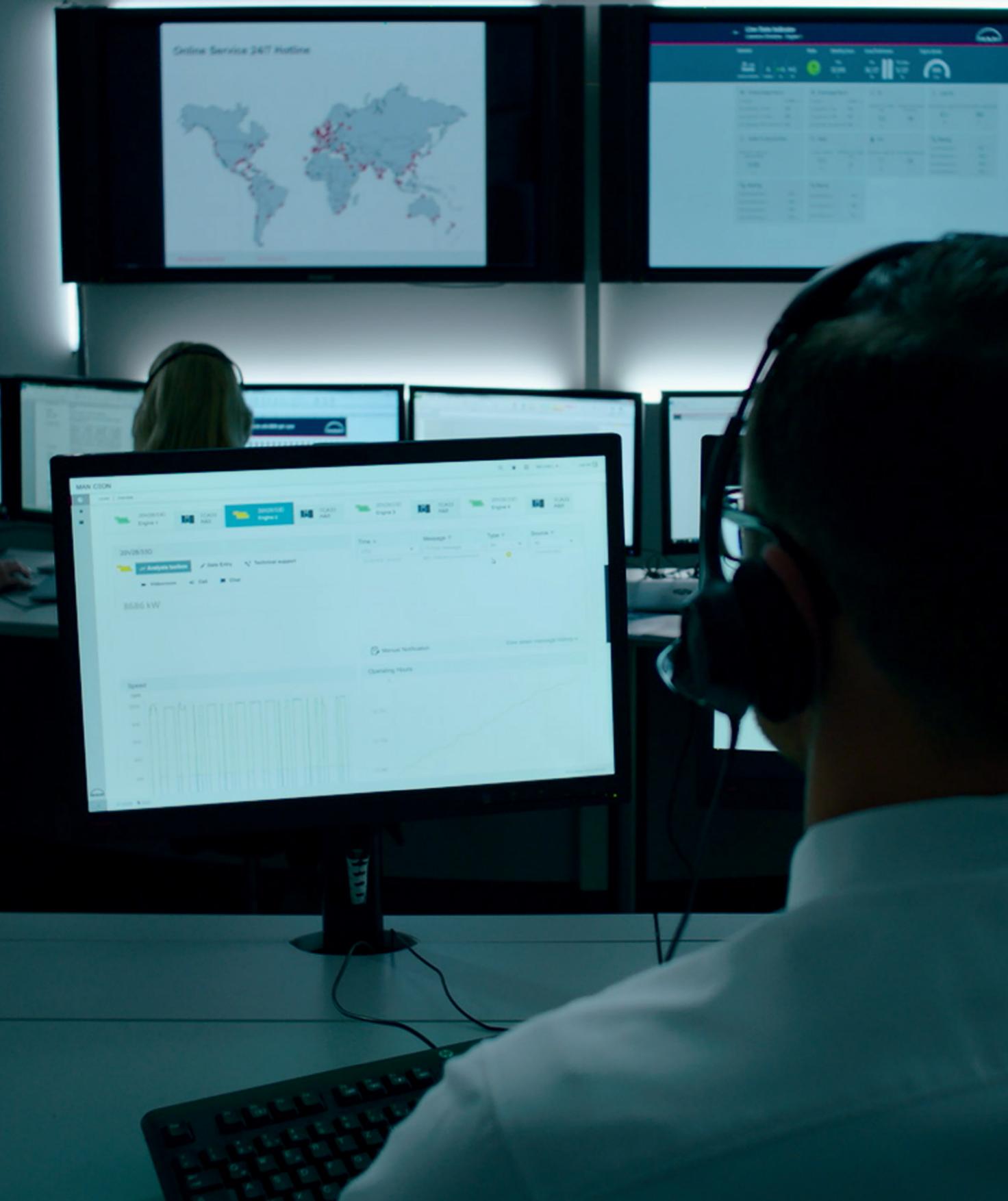
Full Operations & Maintenance Agreement (FOMA)

The FOMA is the most comprehensive solution in the MAN PrimeServ after-sales program. It is a holistic solution in which MAN PrimeServ O&M manages, operates and maintains the complete facility on behalf of the customer. The scope typically includes mobilization services prior to the start of commercial operations, such as hiring permanent staff, staff and plant outfitting, establishment of a computerized maintenance management system, and development of standard procedures. From the start of the commercial operations period MAN PrimeServ O&M is responsible for the management, operation and maintenance of the entire power plant facility, including daily operations, routine maintenance, major overhauls, feedstock and inventory management. Contract terms typically range from five to ten years.

Benefits of FOMA

- Responsibility for the entire facility, 24/7
- Performance commitments
- Proven operation & maintenance practices
- Single point of responsibility
- Local solution, global support

PrimeServ Assist
Remote Operation Center



Additional MAN PrimeServ solutions

MAN PrimeServ's portfolio features several additional solutions. They can be included in any of the Service Agreements or ordered separately.

MAN PrimeServ Assist powered by CEON

MAN PrimeServ Assist is a service solution empowering our customers to optimize efficiency and availability of their MAN equipment. It is part of the new MAN CEON platform, which provides authentication and authorization, asset management, and, among other functions, visualization of the current asset status, based on securely transferred key equipment data.

Our experts analyze this data and provide the customer with evaluation and advice. The experts can also provide operators with technical support by accessing real-time equipment data.

Benefits

- Advice on Maintenance
- Advice on Operation & Performance
- Faster troubleshooting and fault elimination
- Early trend detection of deteriorating parameters



PrimeServ Lab

MAN Energy Solutions performs the analysis of engine fluids and non-metallic materials such as fuel, lubricating oil and cooling water. Testing is conducted in accordance with recognized standards for operating fluids, such as ISO 8217 for fuels. Typical packages cover a specified number of tests at defined intervals over a given contract term.

Benefits

- Enhanced management and control of fluid quality
- Verification of fuel and lube oil separator efficiency
- OEM recommendations for improved performance

Performance Assessment Audit (Audit)

MAN PrimeServ's Performance Assessments Modules include evaluations of technical equipment, the organizational structure, staff skills and competency, operations and maintenance practices. Assessments start with performance benchmarking and end with the design of an optimization plan to return the facility to a target level of sustainable performance.

Benefits

- Professional unbiased evaluation
- Written report and implementation plan
- Knowledge transfer of proven O&M methods

PrimeServ Clean

We offer two cleaning agents, MAN C 0186 and MAN C 0249, designed for use in dip tanks and turbocharger compressors, combined with ultrasonic cleaning. They efficiently remove contamination without damaging sensitive components.

Benefits

- Clean 0186: designed for dip tanks (with or without ultrasonic cleaning):
- Phosphate-free neutral cleaner
 - Non-aggressive to sealing materials
 - Non-corrosive

- Clean 0249: removes grease and oil sediments, gummy deposits, soot and other contaminants from sensitive materials, such as aluminum alloys:
- Removes contamination efficiently without damaging sensitive components
 - Contains only biodegradable, low-foaming, and neutral detergents
 - Non-aggressive to materials and the skin

PrimeServ Gran

The condition and cleanliness of an exhaust gas turbocharger turbine can have a decisive influence on the efficiency and performance of the combustion process. This has a direct impact on the engine's service data. The exhaust gas turbocharger turbine can be cleaned at operating load using PrimeServ Gran, delivering optimal operating parameters. What's more, PrimeServ Gran is made from 100% natural products, making it an eco-friendly cleaning solution.

Benefits

- A clean exhaust gas turbocharger turbine that is in good condition offers:
- Reduced fuel consumption
 - Consistent engine efficiency
 - Less susceptibility to damage

The turbine can be cleaned very quickly (in approximately 20 minutes) at full load – so the engine's operational readiness is completely unaffected.

PrimeServ Protect

PrimeServ Protect is a highly effective, eco-friendly and silicone-free solution. It protects metal against corrosion, extending the life of your engine and cutting downtime. The product is delivered in a ready-to-use form, and can be applied easily with a pressurized spray gun or using immersion baths. It offers reliable short and mid-term protection – for individual parts or entire engines. Even a very thin coating forms a robust shield against corrosion. What's more, parts treated with PrimeServ Protect can be used immediately, without being cleaned first.

Benefits

- VOC-free, it is not subject to Directive 1999/13/EG
- Flash point > +100°C
- Silicone-free
- Free from acids and resins

Computerized Maintenance Management System (CMMS)

A CMMS is a software program, which helps optimize maintenance planning. Selected modules are set up to organize all data and processes related to maintenance activities including the planning of spare part requirements and workflows, as well as the simplification of warehouse management and purchasing control.

Benefits

- Improved warehouse management and spare parts inventory control
- Simplified purchasing, budgeting and financial planning
- Documentation for maintenance schedules and all relevant task descriptions within the system

Worldwide service

100

Service centers
worldwide

Represented in all key markets and major ports, with a network of more than 100 service centers, and with skilled field service managers at the ready to provide first-class technical support, MAN PrimeServ is fully primed to provide 24/7 service, wherever you are.

In power plants, marine engines & systems and turbomachinery, offering reliable technical support when you need it most, our service solutions include OEM spare parts, engine and machinery maintenance and repairs, customized service agreements and individual consulting.

For existing equipment our holistic retrofit and modernization solutions keep your engines or turbochargers up-to-date and at optimal levels of reliability, availability and economic

efficiency. Through cutting edge digital technology we are able to hike performance and minimize downtimes, while our remote connections enable live data analysis, ensuring quick, effective solutions. MAN PrimeServ Academies provide expert training courses around the world, developing the operational and maintenance skills required.

For more information please visit
www.man-es.com/primeserv

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