

ENGINEERING  
TOMORROW

*Danfoss*

**Improve** your **time to market**  
with greater **design flexibility**

MP1 Closed Circuit Axial Piston Pumps

Modular design for

**quick**

and easy product  
conversions.



# Reliable power from a trusted partner

## Maximize performance, efficiency and profit with the Danfoss MP1

The Danfoss MP1 is the next evolution in closed circuit axial piston pumps. No matter what industry you serve, MP1 pumps offer the performance needed for today's small- to medium-sized equipment — another example of Danfoss Power Solutions' commitment to the mobile hydraulic industry. You can count on us to do business at your speed, delivering what you need, when you need it — to propel you forward. Maximize your return on investment through faster equipment development cycles.

OEMs and distributors alike can benefit from the MP1 pump and achieve increased market share. Above and beyond the proven, precision machine control OEM customers will experience, they will also have the opportunity to capture real-time vehicle performance data through Danfoss Telematics Solutions. Distributors can reduce overhead using modular products from a regional source — enabling them to quickly adapt to changing market needs without having to stock a great number of product variations.

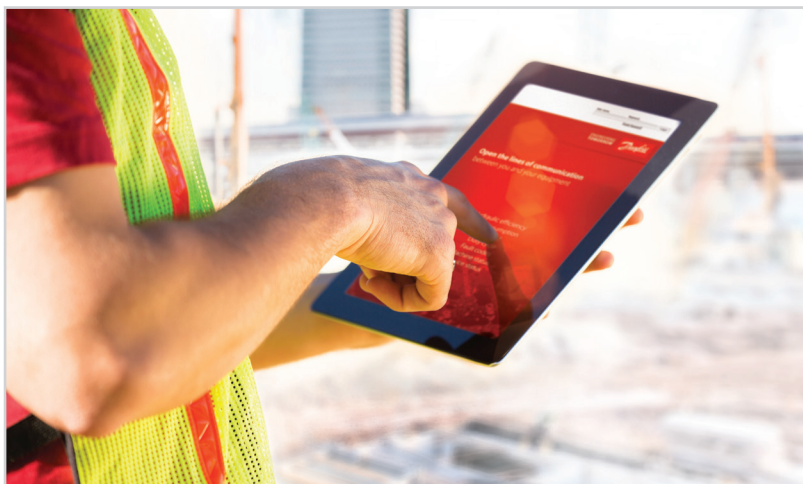
**Partner with Danfoss for complete hydraulic system solutions.**



# MP1

## Powered by information

Equipment owners want precision machine control. Through Danfoss Telematics solutions, MP1 pumps help deliver that. Telematics enabled, the MP1 opens up endless possibilities in connectivity and vital data collection, which can assist with predictive maintenance, remote service, efficiency management, and operator safety. These are information-driven capabilities unavailable in many competing pumps.



Danfoss Telematics offer easy-to-develop custom applications. Our PLUS+1® GUIDE (Graphical User Integrated Development Environment) system uses drag-and-drop editing, making application development easy. No matter the size of your project, you have the ability to compete and win with superior product benefits that enhance your brand through built-in telematics capabilities.



▶ P O W E R I N G B U S I N E S S

# FORWARD

**A clear vision of the road ahead**

In our commitment to the off-highway equipment industry, we will continue to add more options, including pump sizes and complimentary products. MP1 will change the way you do business with Danfoss.

## **The pump that's engineered for the future**

You manufacture the equipment that helps drive business forward in a rapidly changing world. To keep your competitive advantage, you need a business partner who not only provides a superior solution, but is also easy to do business with and flexible enough to keep up with your ever-changing needs.

# WARD

DANFOSS MP1: THE NEW GENERATION IN AXIAL PISTON PUMPS

Danfoss is proud to offer the innovative MP1 Closed Circuit Axial Piston Pump — engineered to give manufacturers a modular pump solution flexible enough to fit hundreds of applications in an easily integrated package.

### **Leverage existing PLUS+1 technology**

The MP1 family of pumps are fully compatible with our Danfoss PLUS+1 software. Together, PLUS+1 and the MP1 family of products can be easily integrated and customized to address even the most unique OEM challenges.



## MP1 family of solutions

The MP1 pump is the culmination of years of experience and products you know well. It captures the best in reliability, modularity and controllability of Danfoss proven pumps. Additionally, the MP1 pump has added features while maintaining a competitive package size. The result is a pump that is the right fit for the future.

# TECHNICAL SPECS

### PHYSICAL PROPERTIES

Features	Unit	Size			
		28	32	38	45
Displacement	cm <sup>3</sup>	28.0	31.8	38.0	45.1

### OPERATING PARAMETERS

Input Speed	Minimum	min-1	500	500
	Rated		3,400	3,300
	Maximum		4,000	3,900
System Pressure	Maximum Working Pressure*	bar	350	
	Maximum Pressure		380	
	Minimum Low Loop		10	
Case Pressure	Rated	bar	3	
	Maximum		5	

\*Applied pressures above maximum working pressure requires Danfoss application approval.

# 28/32

# 38/45



## FEATURES

### Control options

- Electro-hydraulic control options include: Electrical Displacement Control (EDC), Forward-Neutral-Reverse (FNR)
- Manual displacement control (MDC)
- Common control across entire closed circuit hydrostatic family

### Machine integration benefits

- Industry-leading pump length
- Clean side (no customer interface) for easier machine integration
- Metric and inch O-ring boss and split flange (38/45cm<sup>3</sup>) system port interfaces
- Standard connection interfaces

### Greater total efficiency

- Increased pump efficiency
- Lower control pressure for less power consumption

### Modularity

- Common shaft, control, charge pump and auxiliary pad options
- Easy and quick conversion to the right configuration

### Reliability

- Uniform design concept across frame sizes
- Single-piece housing minimizing leakages
- Technologically advanced rotating kit and servo system
- Predictable, low-friction bearing and swashplate interface for precise and safe machine control

### Expanded functionality

- PLUS+1 compliant control and options
- Easy integration with Telematics
- Integrated flushing valve available (28/32cm<sup>3</sup>)

MP1 **28/32cm<sup>3</sup>**

MP1 **38/45cm<sup>3</sup>**

# RIGHT-SIZED

## FIT FOR THE FUTURE

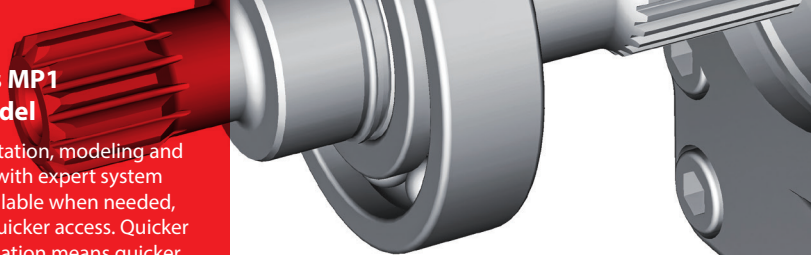
## FIT FOR YOUR APPLICATION

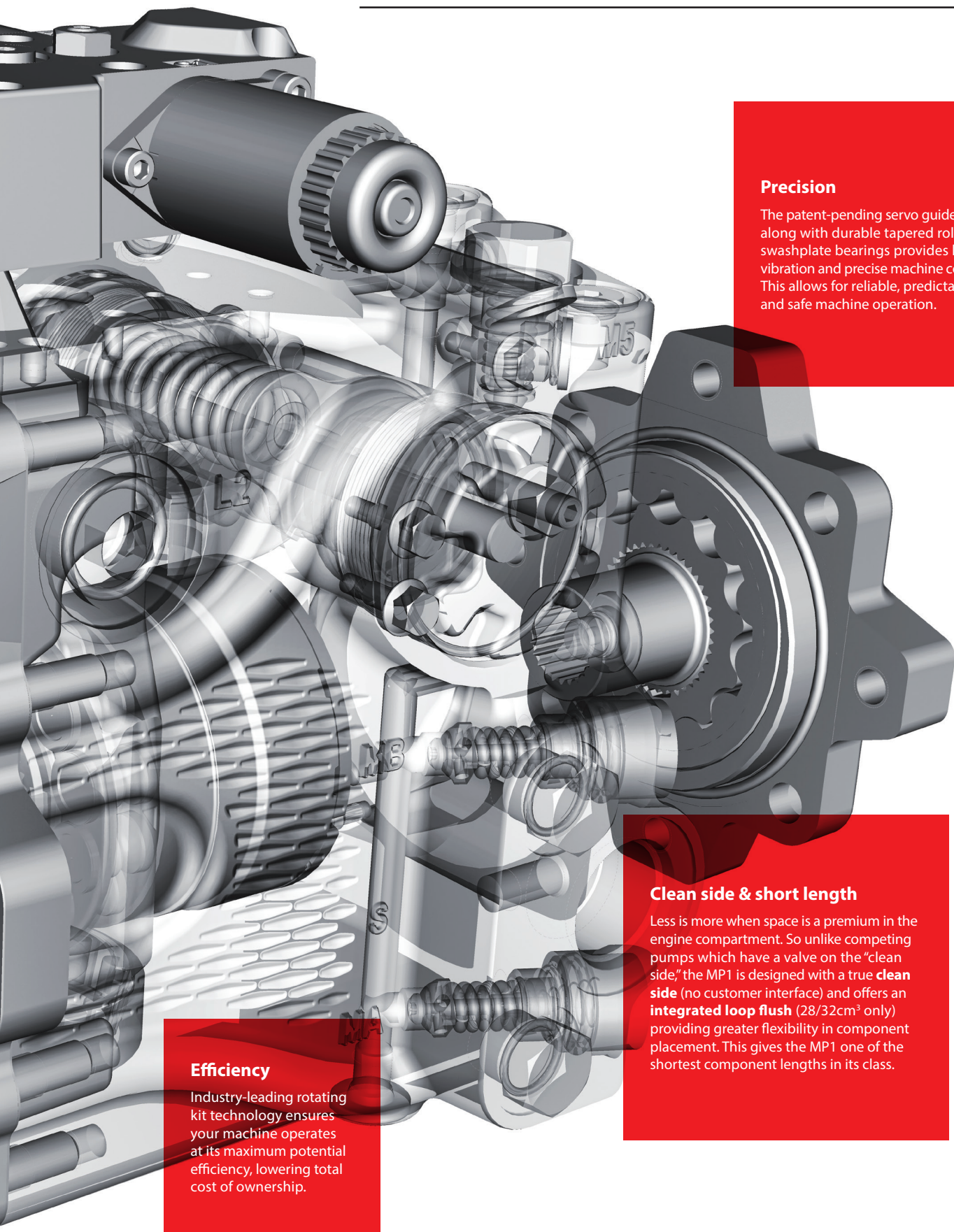
### The modular advantage

MP1's best-in-class modularity offers built-in flexibility through common platforms and components. Easy and quick convertibility means less overhead and the ability to win profitable market share. Market-relevant shaft, control and charge pump options, to name a few, ensure that the right solution is in place when needed.

### The Danfoss MP1 solution model

Tools, documentation, modeling and software along with expert system knowledge, available when needed, mean you get quicker access. Quicker access to information means quicker return on development investment and market share growth.





### Precision

The patent-pending servo guide rod along with durable tapered roller washplate bearings provides low vibration and precise machine control. This allows for reliable, predictable and safe machine operation.

### Clean side & short length

Less is more when space is a premium in the engine compartment. So unlike competing pumps which have a valve on the "clean side," the MP1 is designed with a true **clean side** (no customer interface) and offers an **integrated loop flush** (28/32cm<sup>3</sup> only) providing greater flexibility in component placement. This gives the MP1 one of the shortest component lengths in its class.

### Efficiency

Industry-leading rotating kit technology ensures your machine operates at its maximum potential efficiency, lowering total cost of ownership.

## Danfoss Application Development Centers

Time to market and machine optimization is critical in the industry today. We want to help you minimize the risk associated with product development and partner with you to achieve your customer value proposition. Our Application Development Centers (ADCs) enable us to develop, test, prove and demonstrate real MP1 solutions that you can experience first-hand.

**Nordborg – Denmark / Ames, Iowa – USA / Haiyan County, Zhejiang – China**

# 3

locations worldwide.  
One mission.



# EQUIPMENT APPLICATION SOLUTIONS

## ROAD CONSTRUCTION

Durable, robust design meets the demands of harsh work conditions.

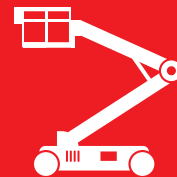
/ pavers / rollers / trenchers /



## MATERIAL HANDLING

PLUS+1 delivers precision control. Pump dimensions fit any design.

/ aerial lifts / dumpers / piggybacks /



## TURF CARE

Right-sized configuration for specific applications, and the ability to scale to needed control capability — including MDC and EDC.

/ mowers /



## SPECIALTY

Conversion capability fits a myriad of machine types.

/ sweepers / specialty harvesters / directional drills /  
/ surface preparation equipment /



We understand how to use integrated solutions across a myriad of equipment applications. With MP1, whatever your machine design needs, from road construction and turf, to material handling and specialty machines, we will deliver application-specific designs that fit your machine and lower your business risk exposure through reliable, available, proven products and system solutions. Let us prove it to you at our global Application Development Centers. Come and see how the MP1 can help solve your application needs.

## About Danfoss Power Solutions

**Danfoss Power Solutions** is a global manufacturer and supplier of high-quality hydraulic and electronic components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market. Building on our extensive applications expertise, we work closely with you to ensure exceptional performance for a broad range of off-highway vehicles. We help OEMs around the world speed up system development, reduce costs, and bring vehicles to market faster.

Danfoss Power Solutions — your strongest partner in mobile hydraulics.

### Products we offer:

- Bent Axis Motors
- Closed Circuit Axial Piston Pumps and Motors
- Displays
- Electrohydraulic Power Steering
- Electrohydraulics
- Hydraulic Power Steering
- Integrated Systems
- Joysticks and Control Handles
- Microcontrollers and Software
- Open Circuit Axial Piston Pumps
- Orbital Motors
- PLUS+1® GUIDE
- Proportional Valves
- Sensors
- Steering
- Transit Mixer Drives

Wherever off-highway vehicles are at work, so is Danfoss Power Solutions. We offer you expert worldwide support for ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide you with comprehensive global service for all of our components.

Go to [powersolutions.danfoss.com](http://powersolutions.danfoss.com) for further product information.

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