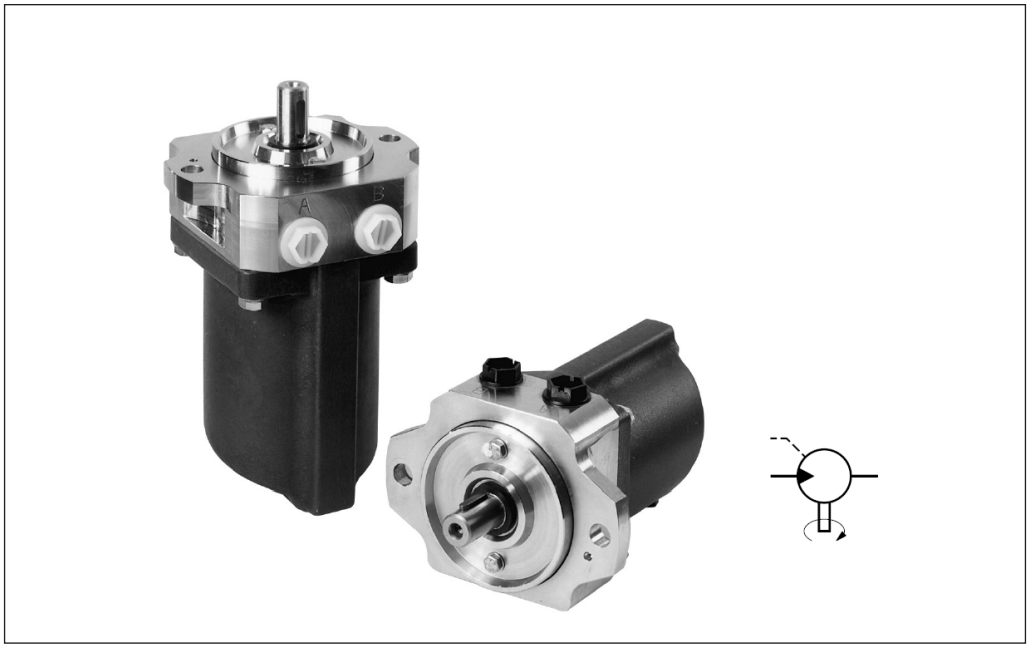
ENGINEERING
TOMORROW

Data Sheet

Hydraulic motor - high speed
MAH 6.3 - MAH 12.5





Application

MAH 6.3 and 12.5 are high-speed motors operated by water hydraulics. The hydraulic medium is ordinary tap water. The motors base on the axial piston principle that enables a light and compact design. The water lubricates all movable parts in the motor, and there is thus no need for special oil lubrication.

The motors vary in size from 6.3 cm^3 to 12.5 cm^3 per revolution (rated displacement).

The maximum operating torques vary from 12.5 Nm to 25 Nm and maximum outputs from 5 kW to 8 kW.

Characteristic features

- Smooth running within a large operating parameters.
- Constant torque over a wide speed range.
- High starting torque
- Long life under severe operating conditions.
- Compact design.
- For use in both open and closed systems.
- Quiet in operation.
- Few wear parts and low maintenance costs.
- No oil lubrication.
- Non-corroding materials.
- Easy-to-clean design.

Application examples

- Food industry
- Mining equipment
- Humid and wet environments
- Pharmaceutical industry
- Chemical industry
- Water treatment
- Nuclear industry

Warranty

If the recommendations in the manual are not followed, Danfoss reserves the right to void the warranty.

© Danfoss | 2023.03

Technical data

Type			MAH 6.3	MAH 12.5
Code number - CW version				180F0003
Code number - CCW version			180F0105	180F0004
Geometric displacement	(cm^3)		6.3	12.5
Max. speed	($min^{-1)}$	kont.	4000*	3000
Min. speed	($min^{-1)}$		300	300
Max. torque	(Nm)	kont	12.5	25
Starting torque at max. pressure drop	(Nm)	kont	3.5	12.5
Starting pressure at unloaded shaft	(bar)		80	50
Max. power at max. speed.	(kW)	kont	5.2	7.8
Max. pressure drop and inlet pressure	(bar)	kont	140*	140
Max. waterflow	(l/min)	kont	26.8	40
Return line pressure at pin = 140 bar, no shaft load		(bar)	80	50
Return line pressure at pin = 140 bar, max. shaft load		(bar)	10	10
Max. system press.at serial operation, no shaft load		(bar) kont	115	105
Drain flow at 140 bar/1500 min^{-1}	(l/min)		< 1	< 1.5
Weight	kg		4.1	6.3

* MAH 6.3: Δp (pressure drop) up to 3100 min-1 = 140 bar, there is then a linear reduction in Δp to 100 bar at 4000 min-1

Function principle

Water-hydraulic motors convert hydraulic energy (pressure, water flow) to mechanical energy (torque, speed).

Danfoss water-hydraulic motors are high-speed units with fixed displacement. A given water flow and a given pressure, determine the displacement (motor size), speed and torque. For a given displacement (motor size) speed is determined by the water flow and torque is determined by the pressure.

The motors are axial piston units which operate on the swashplate principle.

Two sizes of housing cover the entire range: One for 6.3 cm^3 motors, and one 12.5 cm^3 motors.

The axial piston principle gives a light and compact design in relation to actual power output.

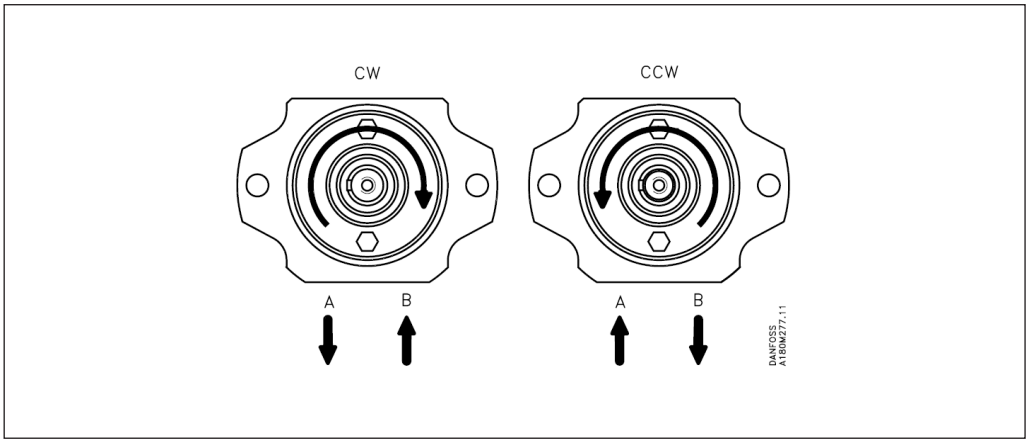
The motors are designed to ensure that all moving parts are lubricated by water.

Furthermore, the motor design is such that ordinary drinking water is used, i.e. water with no additives whatsoever.

Direction of rotation

Connections and direction of rotation appear from the product label on the motors (see also the below drawing).
The motors can be reversed for shorter periods, but will run with slightly less efficiency and starting torque.

If reversible operation for longer periods is required, please contact your loacl Danfoss Sales representative.

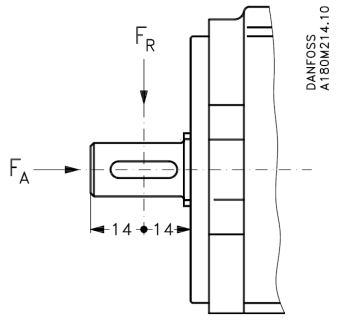


Sealing element

USIT ring, fittings with O-ring connection or similar.

Shaft load

Minimum speed at the loads stated below is 400 min^{-1}



	F_A daN	F_R daN
MAH 6.3	30	65
MAH 12.5	50	100

Drain line

Max. pressure = 6 bar absolute.
Drain pressure must never exceed return pressure by more than 1 bar.

Installing the drain line
The drain line/motor must be positioned so that the motor cannot empty itself during standstill.

Temperature

Fluid temperature:
Min. +3°C to max. +50°C. at max. pressure
Min. +3°C to max. +60°C. at max. 100 bar

Ambient temperature:
Min. 0°C to max. 50°C.

In case of lower operating temperatures, please contact the Danfoss Sales Organization for Water Hydraulics.

Storage temperature:
Min. -40°C to max. +70°C.

Motor variants

MAH motors are optimized for operation in one direction and are therefore available in CW and CCw versions.

Filtration

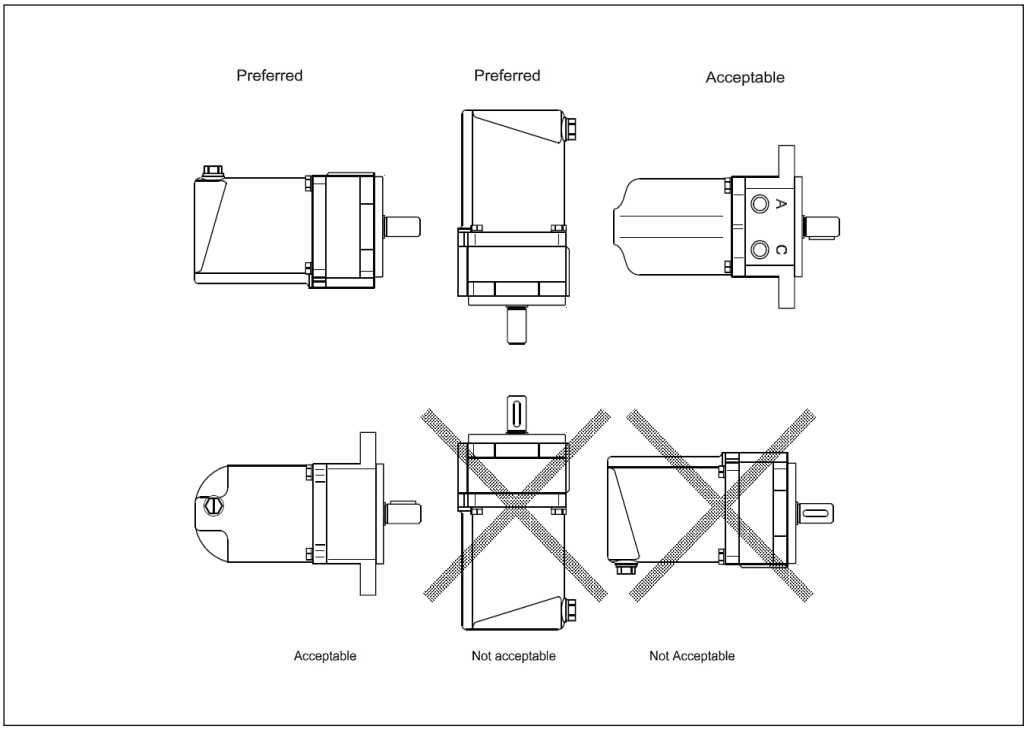
The water supplied to the valve must be filtered: 10 µm absolute, $ß_{10}$-value > 5000 filter is recommended.

For further information on filters, please contact the Danfoss sales department for water hydraulics.

© Danfoss | 2023.03

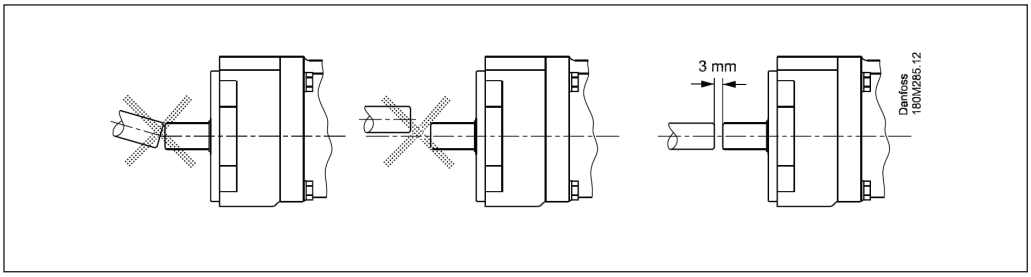
Orientation

The drawing shows preferred acceptable, and not acceptable orientations of the motor.

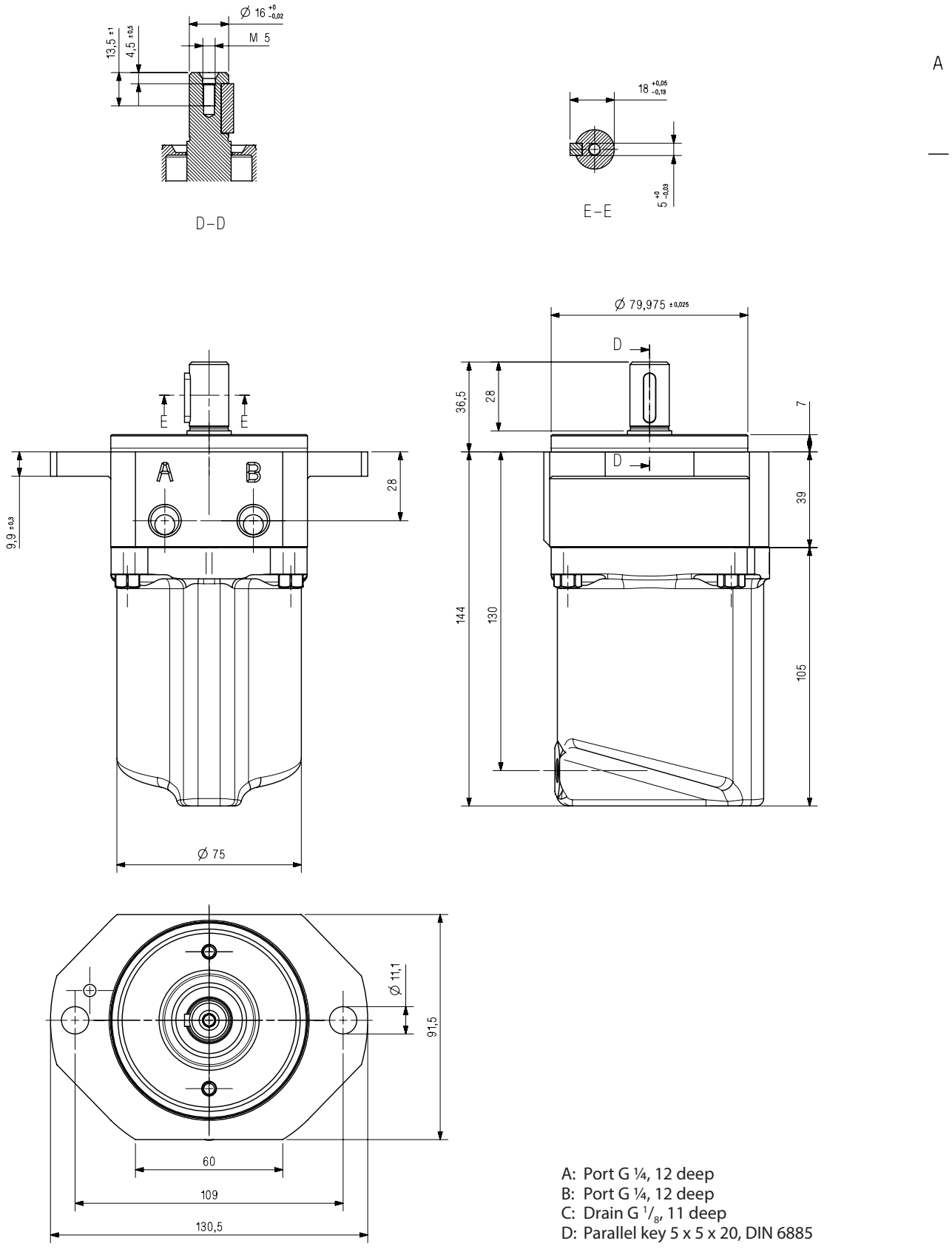


Installation

It is recommended to use a flexible coupling and ensure that the gap between the two metal parts of the coupling is min. 3 mm, even though the motor can handle a limited shaft load.



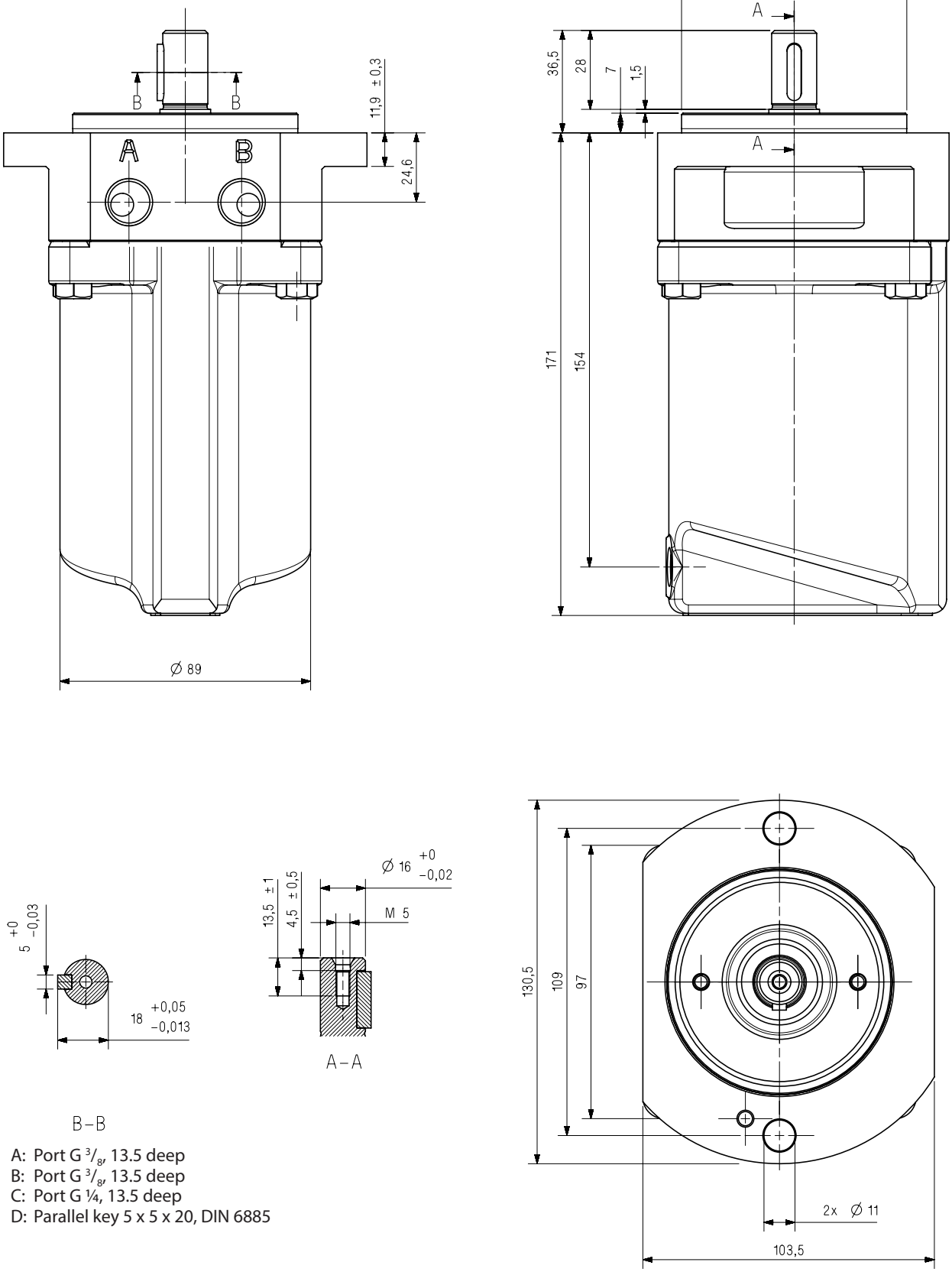
Dimensions MAH 6.3



A: Port G ¼, 12 deep
B: Port G ¼, 12 deep
C: Drain G $^{1}/_{8}$, 11 deep
D: Parallel key 5 x 5 x 20, DIN 6885

© Danfoss | 2023.03

MAH 12.5



A: Port G $^{3}/_{8}$, 13.5 deep
B: Port G $^{3}/_{8}$, 13.5 deep
C: Port G ¼, 13.5 deep
D: Parallel key 5 x 5 x 20, DIN 6885

Danfoss A/S
High Pressure Pumps • danfoss.com • +45 7488 2222 • highpressurepumps@danfoss.com

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues descriptions, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material.
Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the product.
All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.