

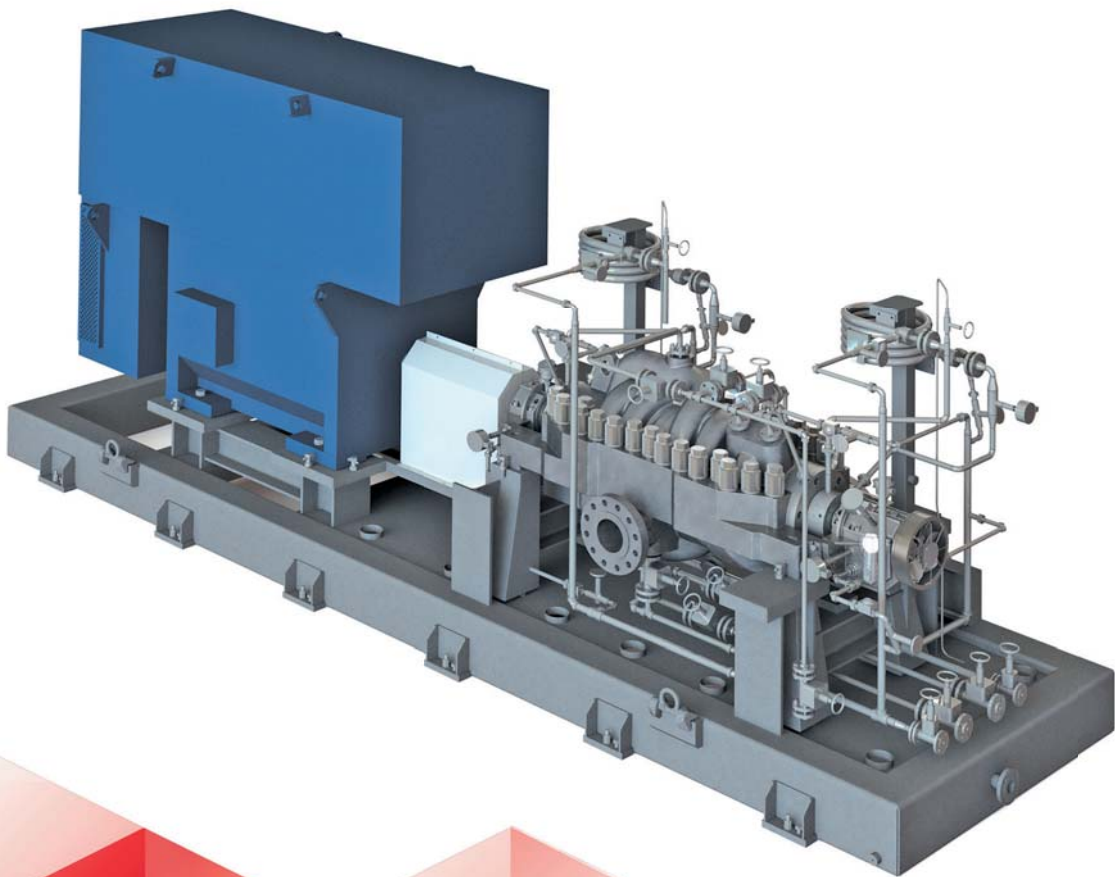


Engineering Flow Solutions

# AMG/NPS

**AXIALLY SPLIT MULTISTAGE  
BETWEEN-BEARINGS PROCESS PUMPS  
50/60 Hz**

BB3 TYPE, API 610



# AMG/NPS AXIALLY SPLIT MULTISTAGE PROCESS PUMPS



## APPLICATION

AMG/NPS pumps have been designed in compliance with API 610 11<sup>th</sup> edition for various applications, including but not limited to:

- Onshore / offshore production of oil, gas and condensate
- Transportation of crude oil and oil products
- Oil refineries and gas processing plants
- Petrochemical industry
- Desalination plants

## MANUFACTURING

The AMG/NPS series pumps are produced at manufacturing facilities of the HMS Group factories: APOLLO Goessnitz, Germany – AMG series pumps, and Nasosenergomash, Ukraine – NPS series pumps. The both factories are equipped with up-to-date machinery for a full production cycle of sophisticated pumping equipment.

## MATERIAL OPTIONS

	S-5	S-6	S-8	C-6	A-8	D-1	D-2
<b>Pressure casing</b>	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)	12% chromium steel	316L AUS	Duplex steel	Super duplex steel
<b>Inner casing</b>	Carbon steel (WCB)	12% chromium steel	316L AUS	12% chromium steel	316L AUS	Duplex steel	Super duplex steel
<b>Shaft</b>	AISI 4140	AISI 4140	316L AUS	12% chromium steel	316 AUS	Duplex steel	Super duplex steel
<b>Bearing housing</b>	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)	Carbon steel (WCB)
<b>Impeller</b>	Carbon steel (WCB)	12% chromium steel	316L AUS	12% chromium steel	316L AUS	Duplex steel	Super duplex steel

## DESIGN FEATURES

- New high-capacity series of horizontally mounted, axially split, multistage, between-bearings pumps with double volute casing
- Excellent suction capability due to double-suction first stage NPSH impeller
- Back-to-back impellers providing rotor axial balance and low wear of rotating elements
- Symmetrical casing parts and centreline-located feet ensure uniform temperature expansion of the casing with high-temperature liquids
- Specially designed pump stages, wear rings and bushings provide uniform pressure drop per mm throughout the pump width for uniform distribution of normal wear of the elements for increased reliability
- High-strength compact size casing with single-row easy accessible bolting simplifies the pump maintenance operations
- Extra heavy-duty rigid shaft with minimum deflection in operation to extend lifetime of bearings and mechanical seals

## FEATURES & ADVANTAGES

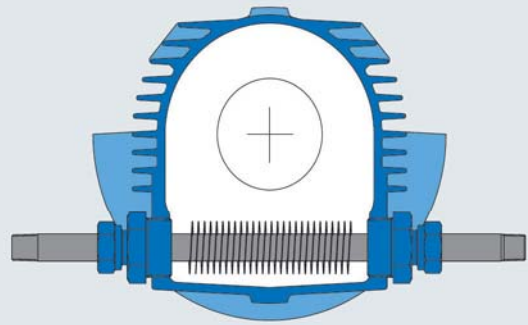


Fig. 1

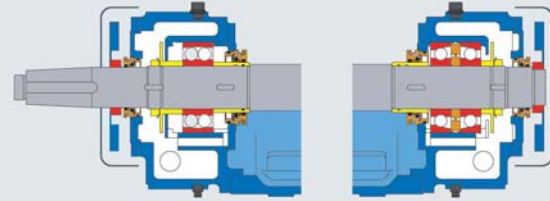


Fig. 2

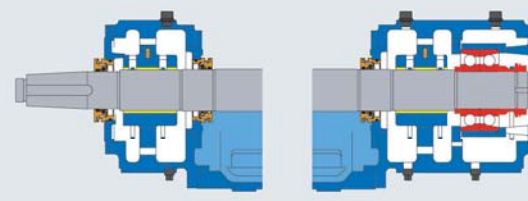


Fig. 3

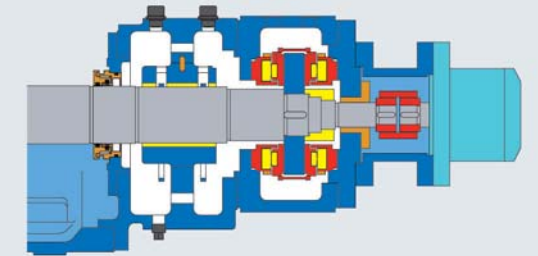


Fig. 4

### 1. Shaft taper compliance with API 610 requirements

- Reliable coupling hub fixation for large torque values and easy installation/dismantling of coupling without shaft damage

### 2. Shaft

- Extra heavy duty size minimizes deflection and extends bearing and mechanical seal operational lifetime

### 3. Seal Chamber

- Compliance with API 610/ISO 13709 dimensions
- Compliance with API 682/ISO 21049 cartridge seals
- Provided space for tandem and double mechanical seals
- Easy access for maintenance

### 4. First Stage Impeller

- High suction capability (low NPSH)

### 5. Impellers

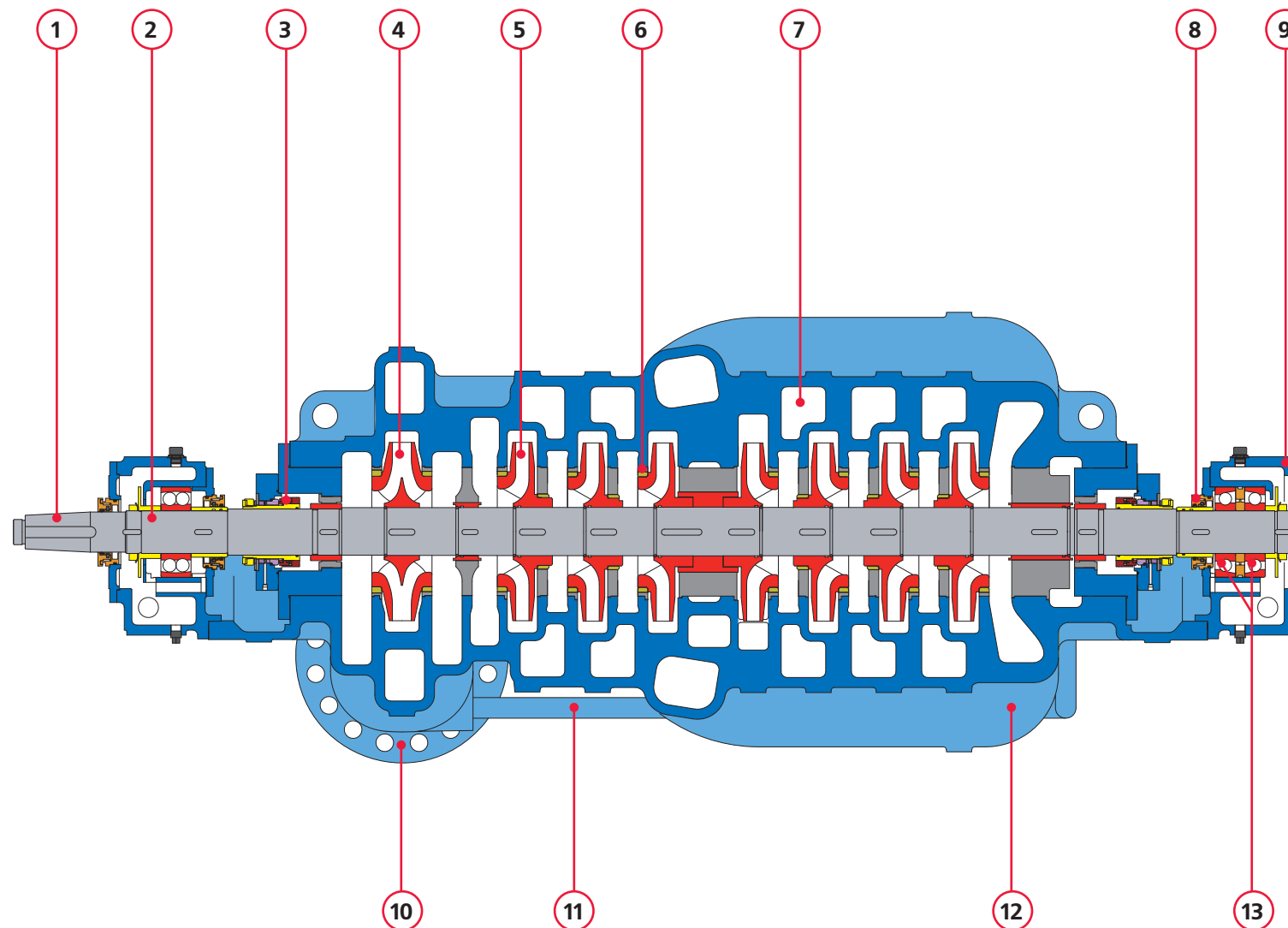
- Shrink fit
- Precision casting
- Dynamically balanced
- Individually secured on shaft

### 6. Casing Wearing Rings

- Tongued fixation
- Pinned for anti-rotation at split line

### 7. Double Volute Casing

- Precision cast hydraulic passageways
- Minimum radial thrust for less shaft deflection and less bearing loading



### 8. Bearing Housing Isolators

- Minimizes lube oil contamination

### 9. Bearing Assembly

- Oil ring lubrication
- Finned bearing housing for improved heat dissipation (Fig. 1)
- Optional high-capacity cooling fan (Fig. 2)
- Optional oil mist lubrication system

### 10. Flanges

- Compliance with ASME/DIN/ISO/JIS

### 11. Internal Balance Line

- Provides seal chambers operation at close to suction pressure
- No auxiliary pipeline is required

### 12. Axially Split Casing

- Full range of design pressure versions for any customer application
- Both nozzles located in the casing bottom half staying connected to the piping during the pump maintenance operations

### 13. Thrust Bearings

- Standard radial and thrust ball bearings with oil lubrication
- Optional sleeve/ball bearing for pump versions for special applications (Fig. 3)
- Optional sleeve/tilting pad thrust bearing with pressured lubrication for high-speed and high-power pump version (Fig. 4)

# TECHNICAL DATA

## PARAMETERS

- **Capacity:** up to 3,000\* m<sup>3</sup>/h
- **Head:** up to 1,900\*\* m (6,200 feet)
- **Pressure design:** up to 275 bar (4,000 psi)
- **Speed:** up to 4,500 rpm
- **Operating temperature:** up to 250 °C (480 °F)
- **Specific gravity:** over 0.70

\* 3,700 m<sup>3</sup>/h for high-speed arrangement

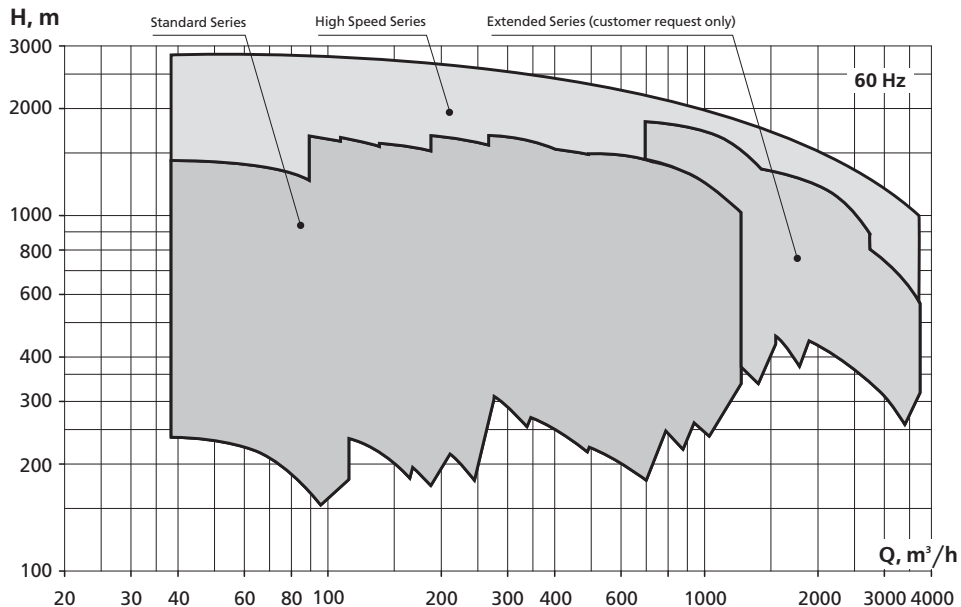
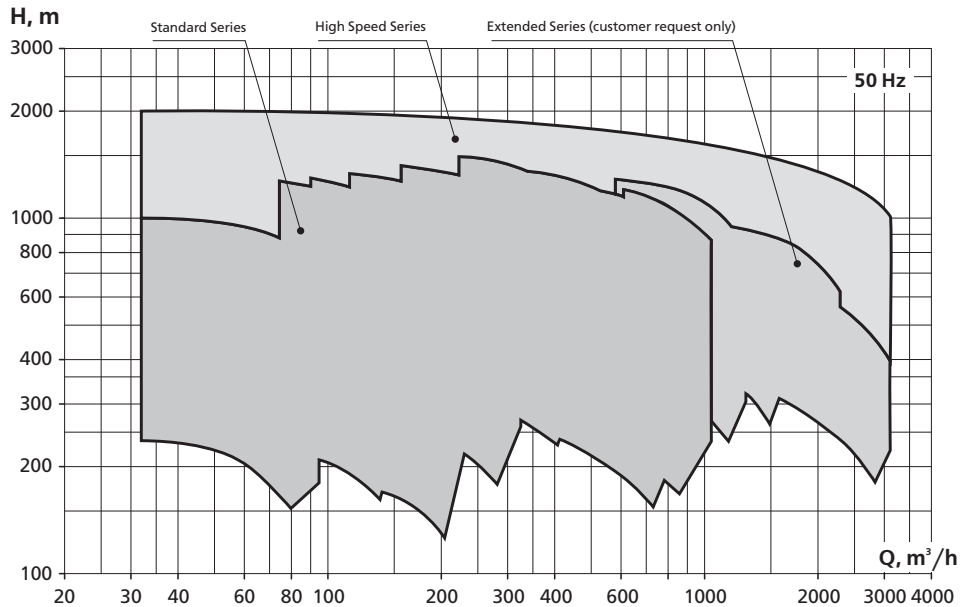
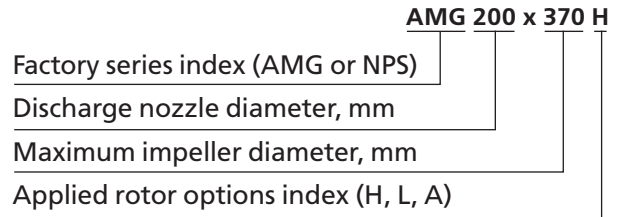
\*\* 2,800 m for high-speed arrangement

## SHAFT SEAL

Single and double mechanical seal of a standard cartridge type design

## PUMP TYPE DESIGNATION KEY

Designation example: AMG 200x370H, where:



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