



*Specialist for Pumping Technology*

INNOVATION  
EFFICIENCY  
QUALITY



**ADC**

Multi-Stage Centrifugal Pumps Barrel-type  
design for heavy duty applications

## For more than 60 years the name Ruhrpumpen™ has been synonymous worldwide with innovation and reliability for pumping technology

Ruhrpumpen is an innovative and efficient centrifugal pump technology company and offers operators of Pump Systems, a wide range of quality products. Ruhrpumpen is committed to global excellence with a complete range of Pumps, Fire Pump packages and related products, such as Decoking Systems and Tools to support the core markets, namely Oil & Gas, Petrochemical, Power, Heavy Industry applications, Mining and Water services. The broad product line complies with the most demanding quality specifications and go beyond stringent industry standards such as API, ANSI, Hydraulic Institute, Underwriter's Laboratories, Factory Mutual and ISO 9001.

Ruhrpumpen is a vertically integrated company with its own foundry, machine shop, pump manufacturing plants and service centers. With strategically located manufacturing plants, operating offices and service centers in many parts of the world, Ruhrpumpen truly is a global pump company which also has the strength to focus on the local necessities of each client.

The Ruhrpumpen Type ADC is a heavy duty, horizontal, multi-stage, single suction barrel-type centrifugal pump according to API 610, latest edition with axial thrust balancing by means of balance drum, shaft sealings by means of mechanical seal and bearing brackets on both sides.

### Ruhrpumpen helps its customers to save money on existing pumps with Synergetic Retrofit®

The operating costs of pumps, in relation to the service life, are considerably higher than the initial investment. Realizing savings on existing pumps means looking at operational efficiency and differential head.

Besides the more common mechanical retrofits, Ruhrpumpen also offers power retrofits to improve operations and save money on energy. This might be necessary when pump operating conditions have been changed, if we have excessive wearing clearances or there might even be new (better) techniques in the market. Ruhrpumpen developed the Synergetic Retrofit® method to adapt existing pump installations to new operating conditions, improve efficiency and save power by replacing old impellers and wear rings.

This particular form of retrofitting and overhauling can be rewarding not only for pumps with high power but also for lower power pumps where many pumps of the same size are in an installation.



## Ruhrpumpen Process Pumps ADC

Ruhrpumpen supplies its ADC barrel pump for many different applications from pipeline, water injection to charge and as a Jet Pump for hydraulic Decoking in refineries. The ADC pump line can pump fluids up to 400 m<sup>3</sup>/hr (1,760 gpm) and a head of 4,000 m (13,120 ft).

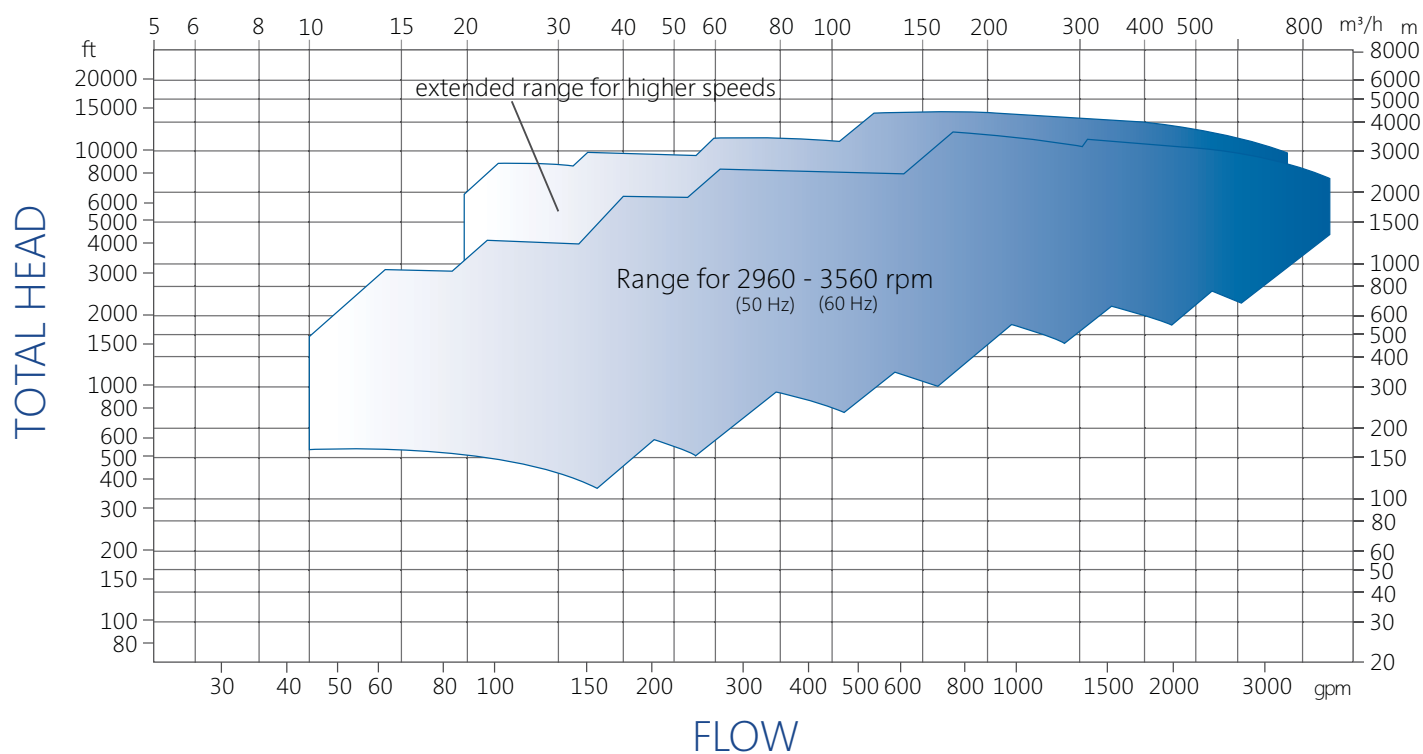
The pumps are of significantly robust and stiff construction. Special operating conditions can be reached with specific pump modifications, this way Ruhrpumpen always offers the best option for it's customer.

The pump is mostly direct driven by a motor; higher speeds are achievable through a gear box, variable frequency drive or a steam turbine. Lube oil system according to API 610 and/or 614 is included in the system as a standard component.



## Performance Range

Selection Chart ADC





## Characteristics

### 3 REPLACEABLE CASING WEAR RINGS.

Shrink fitted and secured by locking screws.

### 4 HYDRODYNAMIC OPTIMIZED.

Flow ways by closed one-piece inter-stage plate with guide vanes and integrated diffuser.

### 1 RIGID, 360° BEARING BRACKET.

For heavy duty service and low vibration levels.

### 2 INVESTMENT CAST.

Closed impeller, individual secured by a shoulder with separate shrink fit and keyway outside shrink fit area.

### 13 AXIAL SPLIT BEARING HOUSING.

Equipped with INPRO bearing isolators and prepared for full instrumentation.

### 12 RIGID ROTOR DESIGN WITH STEPPED LARGE SHAFT.

Shaft end tapered with keyway as well keyless hydraulically fitted version available.

### 10 REPLACEABLE IMPELLER WEAR RINGS.

Coated with DLC (diamond like carbon), shrink fitted and secured by tack welding for optimized run-out.

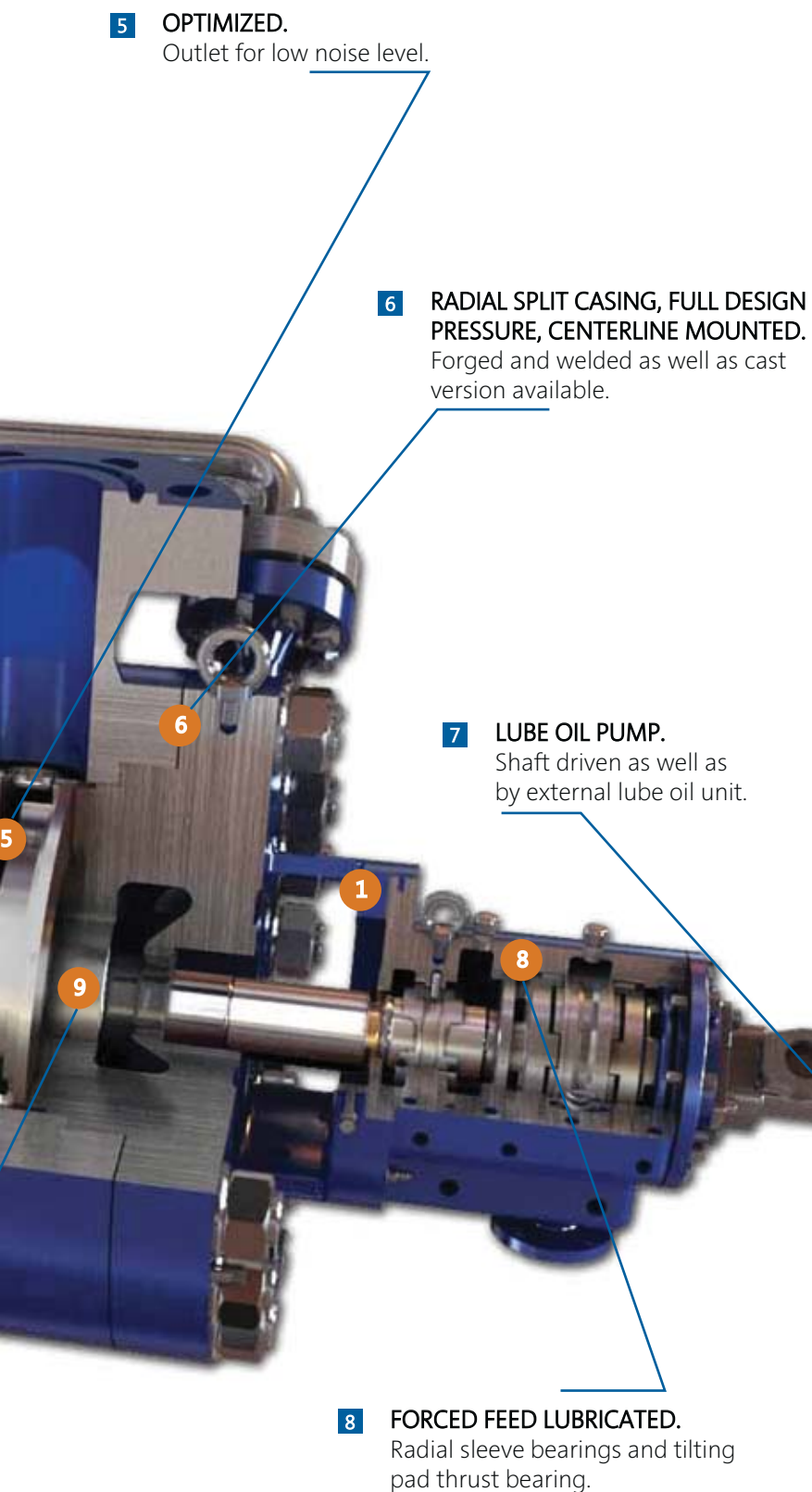
### 11 MECHANICAL SEAL CHAMBER.

Sized according to API 610 and 682.

### 9 BALANCE DRUM DESIGN.

To compensate axial thrust and to provide maximum rotor stiffness and damping.

## Description



**5 OPTIMIZED.**  
Outlet for low noise level.

**6 RADIAL SPLIT CASING, FULL DESIGN PRESSURE, CENTERLINE MOUNTED.**  
Forged and welded as well as cast version available.

**7 LUBE OIL PUMP.**  
Shaft driven as well as by external lube oil unit.

**8 FORCED FEED LUBRICATED.**  
Radial sleeve bearings and tilting pad thrust bearing.

### PRODUCT DESCRIPTION

- Multi-stage horizontal centrifugal pump.
- Radially split casing.
- Centerline mounted.
- API 610 latest edition (API pump type BB5).
- True cartridge pull out design available.

### BROAD APPLICATION RANGE

The Ruhrpumpen ADC is designed for heavy duty applications, such as:

- Water Injection
- Hydraulic Decoking
- High Pressure Applications
- Boiler Feed
- Cogeneration
- Pipeline
- Reverse Osmosis
- Spray / Shower Service
- Snow Making
- Amine / Ethylene Feed
- Hydrocarbon Charge
- CO2 Injection
- Pressure Boosting

### PERFORMANCE DATA

Capacity	to 9,00 m <sup>3</sup> /h	4,000 gpm
Head	to 4,000 m	13,120 ft*
*This head can be achieved with a higher speed than 3600 RPM.		
Flange size	2" to 8"	Discharge
Pressure	to 420 bar	6,000 psi
Temperature	to 450 °C	850 °F

Note: \*\*The performance is not limited. For pump operations outside this range, please contact a Ruhrpumpen Representative.

## Construction Design

- **Extra Heavy Barrel Casing and Discharge Head**

Walled barrel casing centerline supported with a corrosion allowance. The solidly built casings with its sturdy feed can take high piping loads and thereby increase the life of bearings, wear rings and seals. The forged version has got welded on nozzles and feed. Each part of the casing with accompanying piping is fully hydrotested with 1.5 times the maximum allowable working pressure.

- Self venting design.
- Suction and discharge nozzles are top-top.
- Nozzle rating for discharge and suction nozzle has the same rating.
- Full-Pull-Out design on special request. It allows to pull out the complete rotor without dismantling the NDE (Non-Drive End) bearing housing.

- **Seal Chambers**

The seal chambers are designed to accommodate all state-of-the-art API single and dual, pusher or metal bellows type cartridge mechanical seals.

- **Mechanical Shaft Seals**

The ADC stuffing box rooms are dimensioned to accommodate all state-of-the-art cartridge, dual or single mechanical seals according to API 682. To reduce the pressure in the seal chamber on the high pressure side the pump is equipped with a pressure balance line.

- **Robust Bearing Design**

As standard, the ADC pump is equipped with hydrodynamic bearings. The split sleeve radial bearings (one on DE side and one on NDE side) and the tilting pad thrust bearing is in full compliance with international standards and ensure a bearing lifetime in excess of 5 years under the most severe operating conditions. The hydrodynamic bearings can be lubricated by a common lube oil system according to API 610 or API 614. Provisions for bearing monitoring probes are standard, however the probes are available as an option.

For more construction details, please contact a Ruhrpumpen Representative.



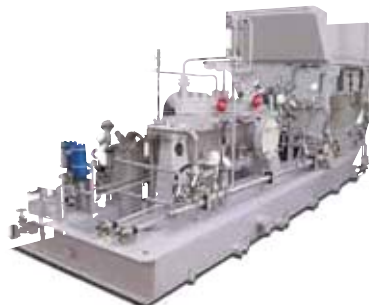


## Other Ruhrpumpen Products



### Horizontal Process Pump

Axially split, horizontal multi-stage centrifugal pump. Near centerline mounted. Heavy duty process design according to API 610 latest edition (type BB3). Refinery, Oil Fields, Petrochemical, and Chemical Applications.



### Multi Stage Axially Split Casing Pump

Near-centerline mounted, Double volute casing, single or double suction, radial, closed impeller. Heavy duty process design according to API 610 latest edition (type BB3). Fluid Injection, Oil Fields & Terminals, Water, Crude Oil & Oil Product Pipelines and Power Plants.



### Volute Casing Centrifugal Pump

Axially split, horizontal single or double stage, double volute casing, double suction, radial, closed impeller. Heavy duty process design according to API 610 latest edition (type BB12). Pipeline Service-Mainline and Booster, Oil Extraction, Refinery, Chemical, Petrochemical, Metallurgical and Power Stations.



### Vertical Barrel Pump








Low NPSH "Shockless Entry" first stage impeller (single or double suction), Single or multi-stage. Standard construction materials according to API latest edition (type VS6). Condensate, Power Plants, Municipal, Hydrocarbons, Pipeline and Refineries.



With every project you can count on **QUALITY, SERVICE, EXPERTISE, INNOVATION** and **COMPETITIVENESS**.  
Because we have a commitment to each customer, the community, and the world.  
**We are Ruhrpumpen, the specialist for pumping technology!**



## RUHRPUMPEN PLANTS

-  GERMANY, Witten
-  USA, Tulsa & Orland
-  MEXICO, Monterrey
-  EGYPT, Cairo
-  INDIA, Chennai
-  BRAZIL, Rio de Janeiro
-  ARGENTINA, Buenos Aires

More Information:

