

GRUNDFOS **HS PUMPS**

GRUNDFOS HORIZONTAL SPLITCASE PUMPS

THE RELIABLE & EFFICIENT WORKHORSE



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GRUNDFOS 

■ INTRODUCTION

The Grundfos HS horizontal splitcase pump is an unstoppable workhorse. The HS delivers high efficiency performance and low life-cycle costs. The highly reliable hydraulic design combined with the service-friendly layout of the splitcase housing assures maximum benefits for the user.

All HS pumps are tested to ensure the performance requirements are achieved prior to delivery. The HS is a well-built, reliable splitcase pump proudly offered by Grundfos – the splitcase pump market leaders!

Technical Data

Flow, Q:	10 to 2500m ³ /hr
Head, H:	5 to 148m
Motor, range:	1.5 – 600kW
Motor, cycles:	50 Hz
Operating Pressure:	16 bar, max.
Liquid temperature:	Up to 100°C
Discharge Sizes:	50 – 350mm
Impeller Sizes:	242 – 630mm



Applications

The Grundfos HS pumps are used in these main fields of application:

Commercial systems

- Air-conditioning and chilled water system
- Water condensing systems and cooling towers
- District heating plants and heating systems

Industrial systems

- Process cooling and chilled water systems
- Industrial heating systems
- Washdown and cleaning systems

Water distribution

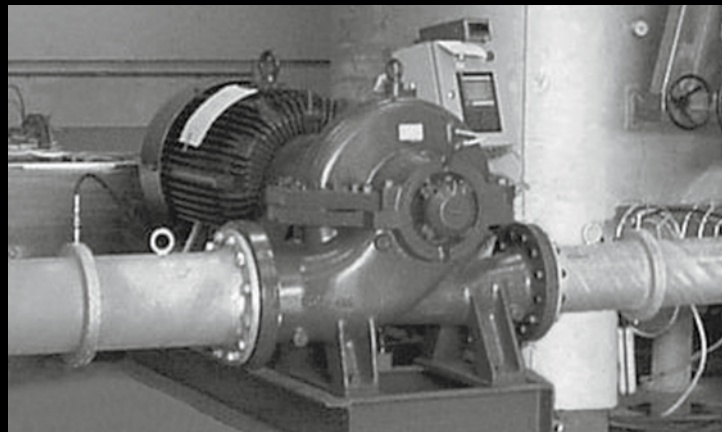
- Public waterworks
- Non-potable water systems

Irrigation and agriculture

- Field irrigation (flooding)
- Sprinkler irrigation

■ PUMP DESCRIPTION

- The pumps are non-self-priming, centrifugal volute pumps with radial suction and radial discharge ports and horizontal shaft.
- Suction and discharge flanges are PN 16 according to EN 1092-2 (DIN2501).
- The pump is long-coupled with a totally enclosed fan-cooled standard motor with main dimensions to IEC and DIN standards and mounting designation B3 (IM 1001).
- The mechanical shaft seal has dimensions according to EN 12756.
- The rotating assembly is dynamically balanced according to ISO 1940 class G6.3.
- Impellers are double suction providing long operating, corrosion free life. Impellers are constructed in ASTM B584 bronze and are hydraulically balanced.
- Grundfos HS pumps are available in three different variants:
 1. Pump with motor and base frame.
 2. Bare shaft pump with base frame.
 3. Bare shaft pump; ie pump without motor and without base frame.
- The split-case construction enables removal and dismantling of the internal pump parts, e.g. bearings, wear rings, impeller and shaft seal, without disturbing the motor and pipework.
- Replaceable case wear rings protect the pump casing while reducing maintenance costs and maintaining high operating efficiencies.
- Pump and motor are mounted on a common base frame in the form of a welded, steel C-channel profile.
- Bronze shaft sleeves protect the shaft and help with fixation of the impeller.



SELLING FEATURES

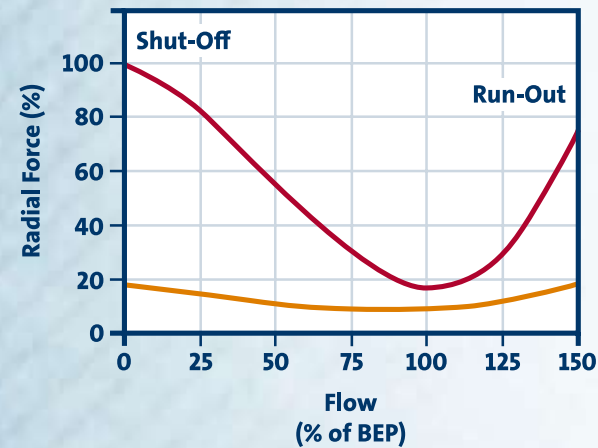
Pump casing

- Compensated double volute design virtually eliminates radial forces caused by a hydraulic imbalance inherent in pump volutes
- Double volute design extends seal and bearing life, minimizing noise and vibration, and improving operating efficiency – meaning less wear and lower maintenance costs

COMPARISON CHART

Typical radial force vs. design capacity with single and double volute

SINGLE VOLUTE DOUBLE VOLUTE



Bearing Housing

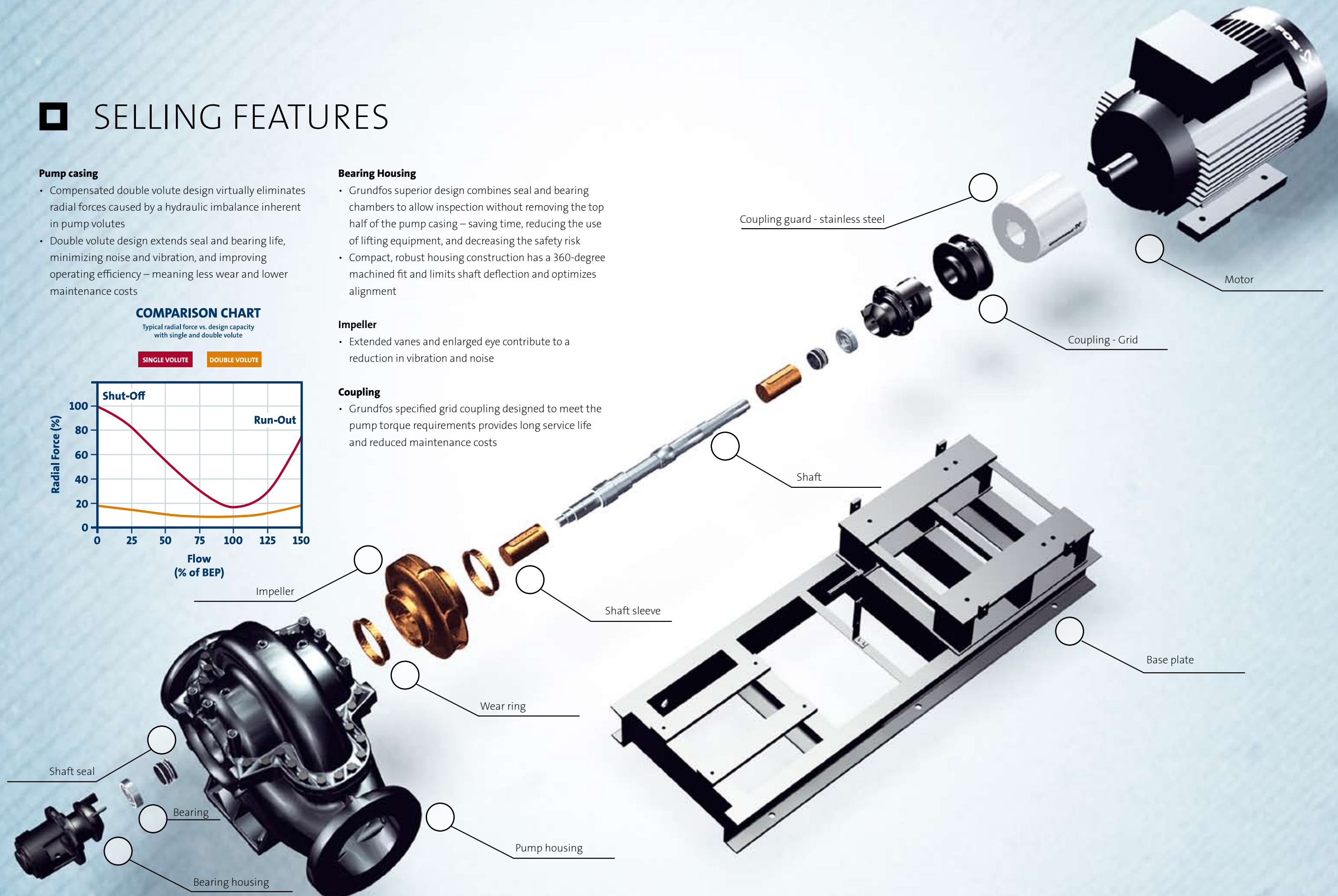
- Grundfos superior design combines seal and bearing chambers to allow inspection without removing the top half of the pump casing – saving time, reducing the use of lifting equipment, and decreasing the safety risk
- Compact, robust housing construction has a 360-degree machined fit and limits shaft deflection and optimizes alignment

Impeller

- Extended vanes and enlarged eye contribute to a reduction in vibration and noise

Coupling

- Grundfos specified grid coupling designed to meet the pump torque requirements provides long service life and reduced maintenance costs



- ## 10. Neglect check-ups

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Being responsible is our foundation
Thinking ahead makes it possible
Innovation is the essence

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GRUNDFOS HS HORIZONTAL SPLIT CASE

The Grundfos HS Horizontal Split Case is the giant in the Grundfos product range. It combines double suction ports with high flow and in-line pipe connection.

The HS Horizontal Split Case virtually eliminates radial loads by hydraulically balancing the liquid within its casing and it offers benefits like improved efficiency, minimised vibration, extended seal and bearing life and low noise levels.

Grundfos application areas:

- Industrial plants
- Public water supply
- District cooling / heating plants
- Air-con / heating systems
- Fire protection
- Cooling systems
- Irrigation

GRUNDFOS HS HORIZONTAL SPLIT CASE THE GRUNDFOS GIANT

MAXIMUM FLOW FOR MULTIPLE APPLICATION AREAS

HS HORIZONTAL SPLIT CASE

INTRODUCTION

THE HS HORIZONTAL SPLIT CASE IS THE GIANT IN THE GRUNDFOS PRODUCT RANGE. IT COMBINES DOUBLE VOLUTE DESIGN WITH HIGH FLOW AND IN-LINE PIPE CONNECTION. THE PUMP COVERS A WIDE RANGE OF APPLICATION AREAS AND CONTINUOUSLY PROVIDES EFFICIENT AND RELIABLE PERFORMANCE DUE TO ITS ROBUST DESIGN

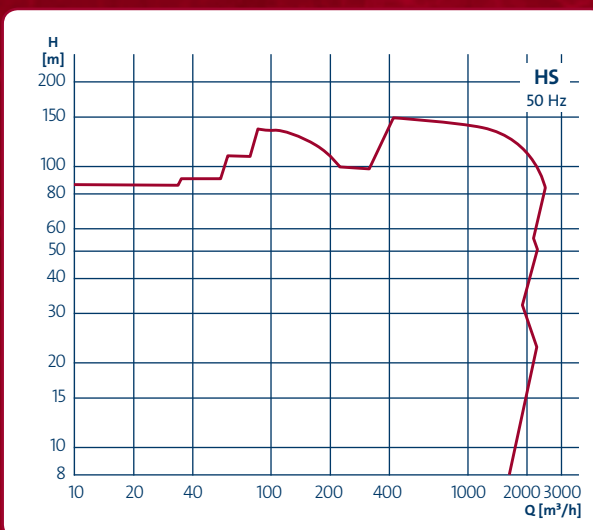
Areas of application

- Industrial plants
- Public water supply
- District cooling / heating plants
- Air-con / heating systems
- Fire protection
- Cooling systems
- Irrigation

Technical data:

- Flow up to 2500 m³/h
- Head up to 150 m
- Liquid temperatures from 0°C to +100°C
- Operating pressure up to 16 bar
- * Up to 100°C with BBVP seal
- * Up to 135°C with FPV seal

Performance area for the HS Horizontal Split Case



The curve shows the performance of Grundfos HS Horizontal Split Case pumps

PERFECT BALANCE

The split case is characterised by its ability to virtually eliminate radial loads by hydraulically balancing the liquid within the casing. This balancing ability is made possible by the unique double volute construction, which provides two individual volute passageways to guide the flow out of the impeller and into the discharge. Moreover, the split case provides the double suction impeller, which extends the life of the pump by neutralising the axial forces. The double volute and double suction construction has a number of great benefits:

- Improved efficiency
- Minimised vibration
- Extended seal and bearing life
- Quiet operation

One man maintenance

The split case pump features an exceptional bearing house/seal chamber construction, which makes it unnecessary to remove the top casing half in order to maintain the pump. That means that one person can easily access the bearing house and inspect seals, sleeves and bearings without the strain of heavy lifting. Consequently, the HS Horizontal Split Case guarantees a minimum of downtime because of the simplicity of its maintenance.

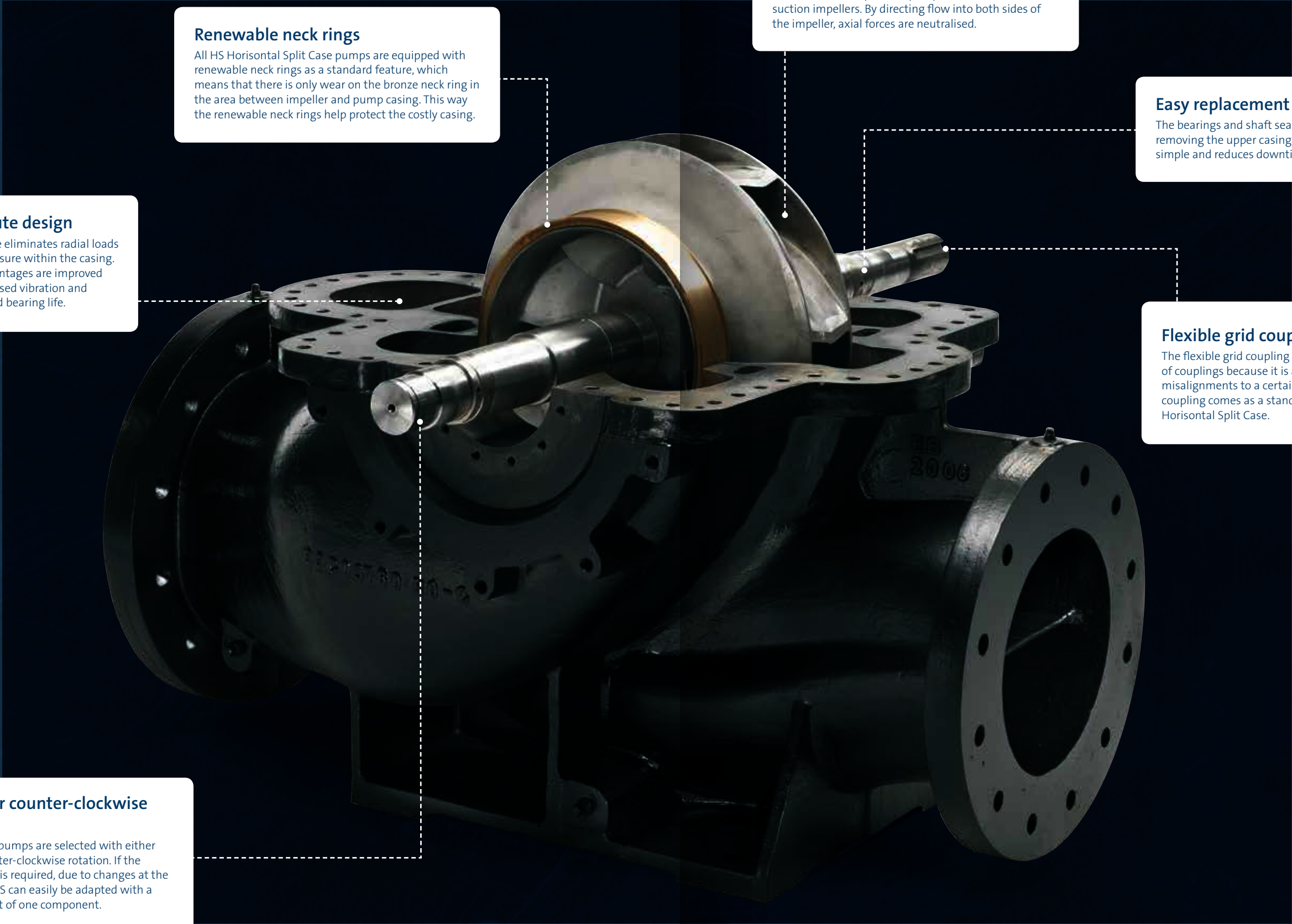
Broad band high efficiency

The impeller design of the split case has been specifically matched to the casing of the pump in order to provide broad band high efficiency. As a result, the operating costs of the horizontal split case are reduced dramatically giving it a valuable low life cycle cost.



HS HORIZONTAL SPLIT CASE

THE DETAILS



Renewable neck rings

All HS Horizontal Split Case pumps are equipped with renewable neck rings as a standard feature, which means that there is only wear on the bronze neck ring in the area between impeller and pump casing. This way the renewable neck rings help protect the costly casing.

Double suction impeller

The definition of split case pumps includes double suction impellers. By directing flow into both sides of the impeller, axial forces are neutralised.

Easy replacement

The bearings and shaft seals can be replaced without removing the upper casing, which makes maintenance simple and reduces downtime.

Double volute design

The double volute eliminates radial loads by balancing pressure within the casing. Three major advantages are improved efficiency, minimised vibration and extended seal and bearing life.

Flexible grid coupling

The flexible grid coupling is called the Rolls-Royce of couplings because it is able to compensate for misalignments to a certain degree. The flexible grid coupling comes as a standard feature in the HS Horizontal Split Case.

Clockwise or counter-clockwise operation

All HS Horizontal pumps are selected with either clockwise or counter-clockwise rotation. If the opposite rotation is required, due to changes at the installation, the HS can easily be adapted with a simple change out of one component.

SAVE MONEY WHILE SAVING THE PLANET

Energy costs account for up to 90% of the overall cost of a pump during its lifetime. In other words, thinking about energy efficiency can save you a lot of money.

Life Cycle Cost (LCC) analysis is an objective standard that allows you to benchmark different pump solutions and suppliers, based on initial investment and the costs of installation, maintenance and energy.

By considering LCC when choosing your pumps, you can help reduce CO₂ dramatically and thereby make an important contribution to the well-being of our planet.

How to calculate Life Cycle Cost (LCC)

$$\text{LCC} = C_{ic} + C_{in} + C_e + C_o + C_m + C_s + C_{env} + C_d$$

C_{ic} = initial costs, purchase price
C_{in} = installation and commissioning
C_e = energy costs
C_o = operation cost (labour cost)
C_m = maintenance and repair costs
C_s = downtime costs (loss of production)
C_{env} = environmental costs
C_d = decommissioning / disposal costs

An LCC process will show the most cost effective solution within the limits of available data.

THINKING BUILDINGS

At Grundfos CBS, we are always thinking buildings, and our products contribute to making buildings that can almost think for themselves. We do not just consider our products as stand-alone devices – we consider them an integral part of a living building whose purpose is to function in the best way possible for its inhabitants.

Grundfos CBS offers products across the full range of applications, including heating, air conditioning, waste water, booster systems, fire protection systems and district energy.

Our expertise is founded in decades of global experience and we are proud to share our knowledge with our clients. We are also determined to take the lead on new technologies and innovation opportunities.

To learn more about Grundfos CBS and to find out how we can be of assistance, contact Grundfos or visit us at www.grundfos.com/business-areas/commercial-buildings.html

EXPLORE OUR ONLINE UNIVERSE

Make the most of Grundfos CBS – visit the Thinking Buildings Universe at www.grundfos.com/business-areas/commercial-buildings.html

Our website contains a range of services that function as your online Grundfos CBS expert:

- Quick Pump Selection with an extensive product database and dimensioning tool that helps you choose the right pump for your needs
- E-learning programme that lets you improve your specialist knowledge
- Access to Thinking Buildings E-News, which keeps you up to date on the latest technology, product information and background material
- Lexicon where you can look up definitions of relevant professional terms

Welcome to the Grundfos CBS
Thinking Buildings Universe!

