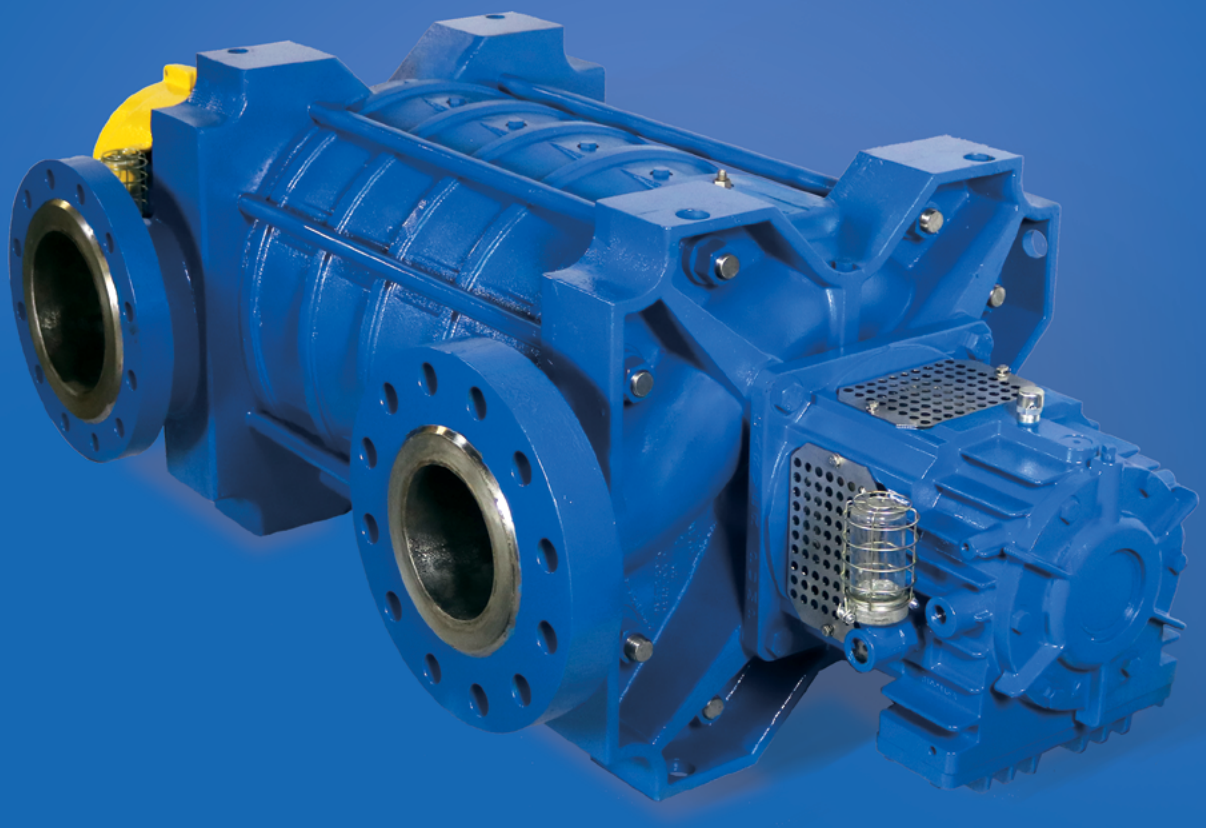
CARVER PUMP™

Built for purpose



RS

Multistage Ring Section Pump
for pressure to 1,500 PSI

RS

The RS is our process duty, horizontal ring section multistage pump. Designed for moderate to high-pressure pumping, the RS is available in seven basic sizes with overall performance to 2,600 HP.

The RS is offered with Class 300 ANSI R.F. inlet flanges and Class 600 or 900 ANSI R.F. discharge flanges, depending on the pressures and number of stages involved. Hydraulic performance extends to 1,800 GPM and 3,400 ft. TDH, making it ideally suited for the most demanding industrial and process applications.

The RS design incorporates a product-lubricated, advanced composite material, sleeve-type radial bearing at the outboard (discharge) end. The thrust bearings are two matched angular contact ball bearings located at the inboard (suction) end of the pump. An optional outboard mechanical seal with an inboard radial ball bearing is also available. The RS has oil-lubricated ball bearings, which can be water cooled. Larger units can also be fan cooled.

The available materials of construction, from ductile iron to duplex stainless steel, offer combinations suitable for all applications from general water services to light abrasives and corrosive applications. Our proprietary advanced composite material, available for wear rings and interstage bushings, offers high-temperature performance, and exceptional resistance to wear and corrosion.

Many other options and arrangements, such as turbine and magnetic drive units, are also available. These options, together with all the value-added features shown on the following pages, offer the benefits of:

MAXIMUM SAFETY

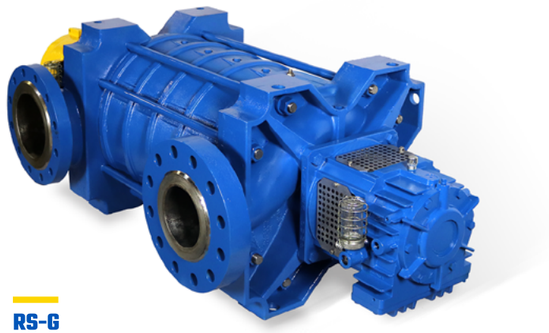
MAXIMUM INSTALLATION FLEXIBILITY

MAXIMUM FLUID COMPATIBILITY

HIGHER EFFICIENCIES

LONGER COMPONENT LIFE

MINIMAL DOWNTIME



RS-G

APPLICATIONS

Oil & Gas

The transfer of crude oil from producer to end user required a pump that could provide sustained high pressure and hold up to the harsh, changing climate of Canada's Oil Sands region. Carver Pump's RS (Ring Section) pump line was an easy choice for the LACT system booster pumps needed in this application. Our RS pumps produce up to 3400 ft TDH (Total Dynamic Head) and can easily pump oil long distances over changing elevations.

The above units are the outdoor units and these are the indoor units for the same company. These stations are built to determine the actual crude oil that is pumped out of the well head and then "transferred" to the next client. It requires that the crude oil be accurately measured so that the producing company get paid properly for the oil that is being transferred to the refiner or the next customer. Sometimes it just requires a lower head pump to transfer the product to the next client – however accurate measurement is always crucial.

Produced Water

This system was designed for flexibility and performance, with each of the 12 D-sized pumps delivering up to 700 gallons per minute. In addition, the pumps were built with a blind stage, so that discharge pressure can be upgraded in the future without any change to system piping. The modular nature of the design allowed us to precisely meet the conditions of service.

Boiler Feed

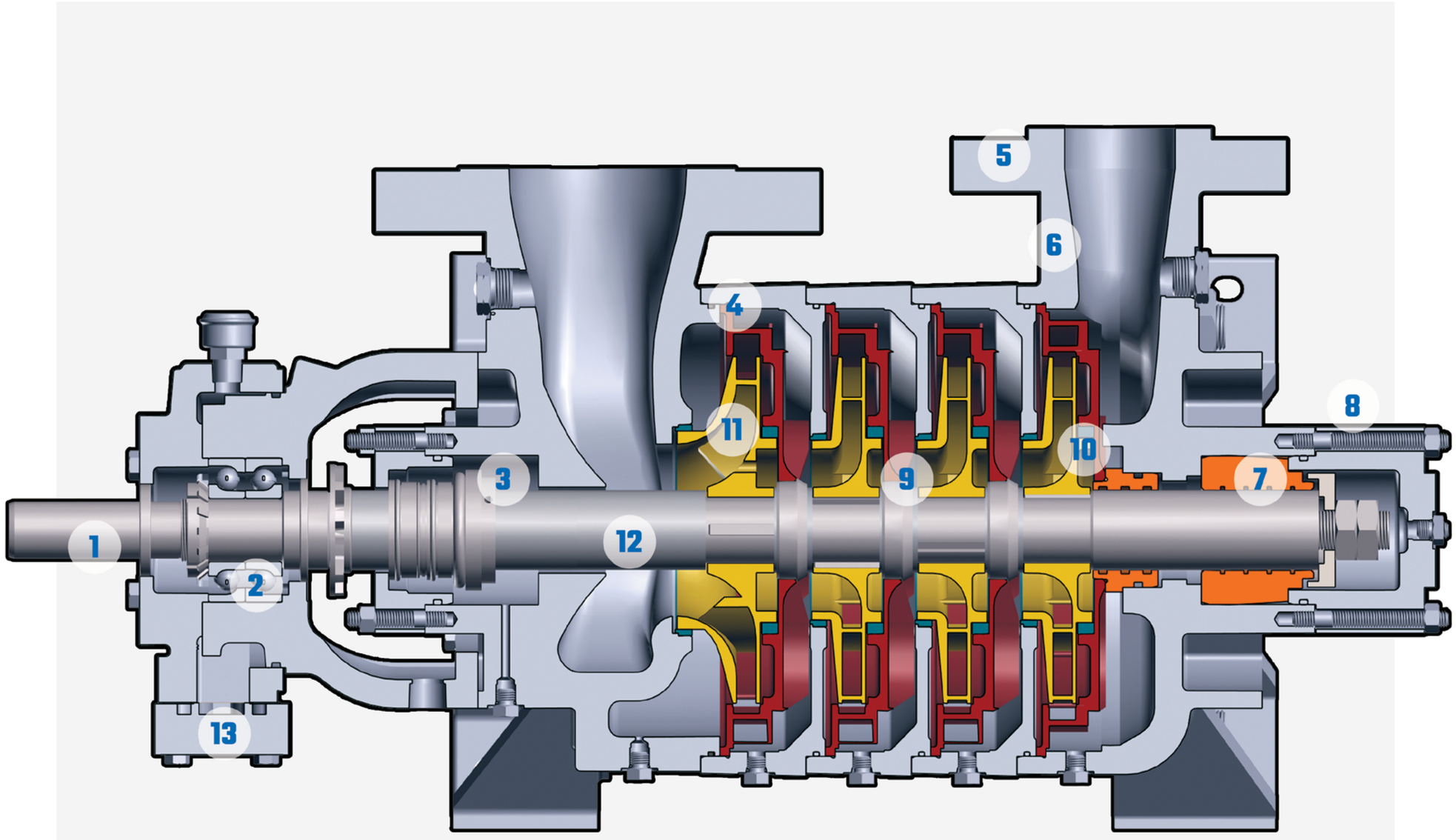
Two RS-D size 6x3x8 4-stage pumps in all CD4MCu duplex SS construction feed an auxiliary boiler in a combined-cycle power plant. The pumps shown were sold as complete units with fabricated steel base plates, spacer couplings, and 300 HP electric motors. This model uses oil-lubricated, water-cooled, angular-contact ball bearings on both shaft ends and John Crane Type 5611 cartridge seals per the spec. These seals are cooled through the use of a Plan 23 flush.

Amine Recirculation

Our high-pressure RS Series pumps drive an amine recirculation system at this natural gasplant. The 'sour' gas captured and scrubbed with lean amine removing hydrogen sulfide (H2S)and carbon dioxide (CO2), making it suitable for injection into the pipelines.

Other Applications

- Agriculture irrigation
- Chemical and light hydrocarbon transfer
- Coating and surface treatment Desalination and reverse osmosis
- High rise building sprinklers
- Paper mill shower water
- Pressure boosting systems
- Sanitary wash down services
- Ski resort snowmaking systems Equipment lube and seal oil supply
- High-pressure injection applications



1 SHAFTS
17-4 PH stainless steel as standard

2 BALL BEARINGS
Oil-lubricated angular contact ball bearings to handle axial thrust in either direction

3 STUFFING BOX
Accepts either component or cartridge-type mechanical seals

4 0-RINGS
0-ring sealed casing and interstages assure leak-free operation

5 FLANGES
Class 300 ANSI R.F. inlet flange and Class 600 or 900 ANSI R.F. discharge flanges

6 CASING
Ductile iron or CD4MCuN duplex stainless steel as standard

7 SLEEVE BEARINGS
Radial sleeve-type bearing made of standard Carver composite material

8 OPTIONAL BEARING DESIGN
Optional matched angular contact ball bearings on outboard end with grooved radial ball bearing on inboard

9 INTERSTAGE BUSHING
Replaceable interstage bushing made of composite or hardened metal

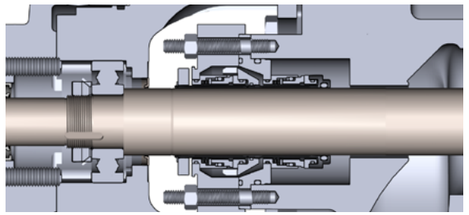
10 WEAR RINGS
Replaceable front and rear wear rings at each pump stage as standard

11 FIRST STAGE IMPELLER
Special low-NPSH first-stage impeller

12 SHAFT SLEEVES
Stainless steel shaft sleeves as standard

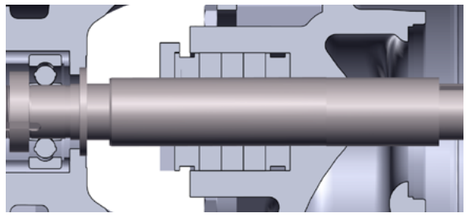
13 OPTIONAL COOLER
Included when temperatures exceed 220° F

SEAL OPTIONS

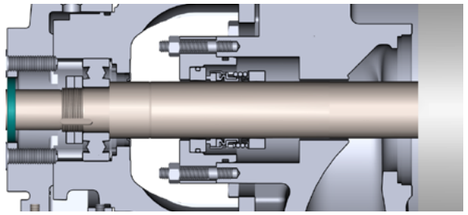


CARTRIDGE - SINGLE OR DUAL

RS-C Multi-Stage with API Plan 52/Tandem Seals



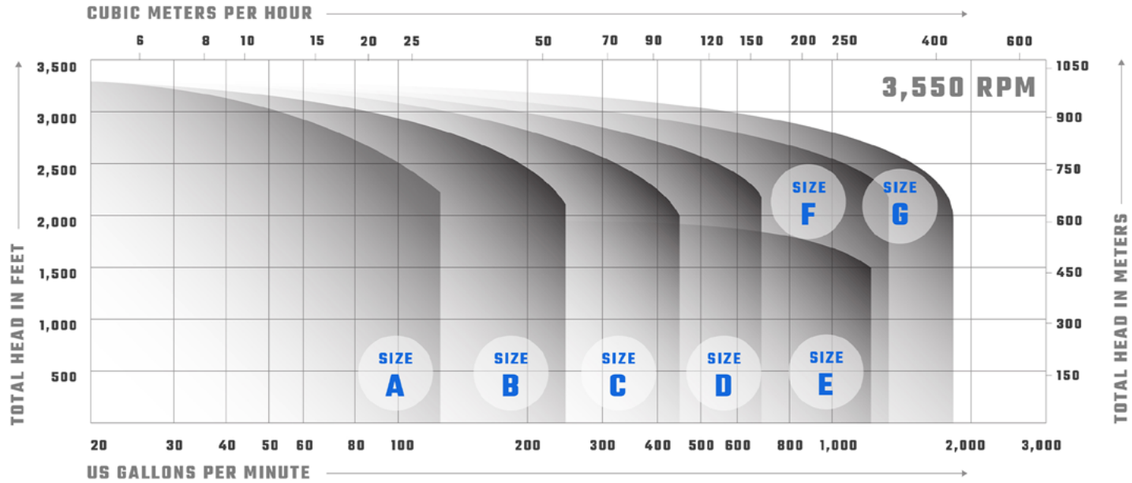
PACKING

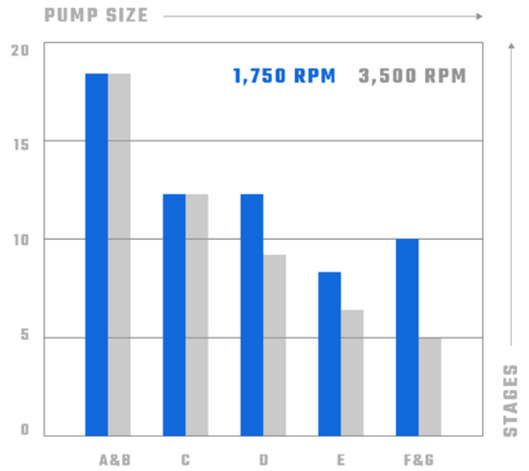


COMPONENT - SINGLE

Air-cooled seal support system for applications where external cooling fluid is unavailable Plan 23

HYDRAULIC COVERAGE





ISO 9001:2015 CERTIFICATION
intertek
TM
ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17021-1
MANAGEMENT SYSTEMS CERTIFICATION BODY

Member of: Hydraulic Institute

WHY AN RS?

- The ability to select the number of stages to meet the design point makes the RS a more cost-effective solution.

- Interstage diffusers minimize radial loads, for longer seal and bearing life, while carefully controlling fluid flow, for smooth and quiet operation.

- Lower rotational speed vs. high-speed gearbox pumps results in lower NPSHr, more durability and longer life.

- Suction and discharge casings can be rotated to meet a variety of piping configurations.

- Hydraulically balanced thrust loads at each stage preserve bearing life.

- Water and fan cooling are available for high-temperature applications.

HYDRAULICS

Flows to 1,800 GPM (408 m³/hr)
Heads to 3,400 feet (1,000 m)
Pressures to 1,500 psig (100 bar)
Temperatures from -20° F to 300° F (-30° C to 149° C)
Speeds to 3,550 RPM

STANDARD MATERIALS

Casing	Ductile Iron or CD4MCuN
Impeller	Cast Iron or CD4MCuN
Diffuser	Cast Iron or CD4MCuN
Shaft	17-4PH SS
Sleeve Bearing	Composite Material

Other Materials Available Upon Request

MECHANICAL DATA

Rotation	Clockwise as Standard
Flange Positions	3 Positions Available
Suction Flange	Class 300 ANSI R.F.
Discharge Flange	Class 600 or 900 ANSI R.F.
Bearings	Oil Lubricated

DISCOVER OUR PUMPS

GH - HORIZONTAL END-SUCTION PUMP

RS - MULTISTAGE RING SECTION PUMP

API MAXUM OH2 - END-SUCTION PUMP

KWP - NON-CLOGGING PROCESS PUMP

850 - HORIZONTAL FILTRATE PUMP

MAXUM OH1- HEAVY-DUTY, HORIZONTAL END-SUCTION PUMP

855 - TANK-MOUNTED FILTRATE PUMP

RSV - VERTICAL IN-LINE MULTISTAGE PUMP

VLO - VERTICAL LUBE OIL PUMP

G2C - VERTICAL CANTILEVER PUMP

G2S - VERTICAL SUMP PUMP

OH3 - VERTICAL IN-LINE PUMP

KEF - SELF PRIME PUMP

M SERIES – ASTM F998 CLOSE-COUPLED PUMP

PACKAGED PUMP SYSTEM

UL508A LISTED CONTROL PANELS

CARVER PUMP™
Built for purpose

85 years of experience

Since we built our first pumps in 1938, Carver Pump has become recognized as one of the leading centrifugal pump companies, building pumps to the most demanding engineering specifications and military standards in the world.

Carver Pump's quality management system is certified by Intertek to conform to ISO 9001:2015. Our commitment to quality includes not only our hardware, but also superior customer service, leading-edge R&D, and continuous improvement in everything we do.

So whether the job is refueling fighter jets on the deck of an aircraft carrier, supplying paint to an auto assembly line, or bringing water to the fountain in a city park, we put our reputation on the line everyday with every pump we build.

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