

WARMAN®
Centrifugal Slurry Pumps

Slurry
Equipment
Solutions



D,G,GH,SHG Heavy Duty Dredge & Gravel Pumps



Weir Minerals are specialists in delivering and supporting Slurry Equipment Solutions including pumps, hydrocyclones, valves and wear resistant linings for global mining and mineral processing, the power sector, and general industry.

We use our specialist slurry knowledge and experience from around the world to deliver reliable product and service solutions. Our global network ensures that we are close to our customer wherever they base their local operations.

We strive to understand the customer's needs and to reduce their total cost of equipment ownership. We aim to lead the market in application expertise, service-support and product development.

The strength of Weir Minerals products lies in the superiority of our hydraulic designs and wear and corrosion resistant materials.

The Warman range of Dredge and Gravel pumps is designed to provide continuous pumping of highly abrasive slurries containing large particles at high maintained efficiencies with low maintenance and ownership costs.

- **Enhanced performance - lower costs**
The new SHG Super Heavy Gravel pumps utilise the latest hydraulic technology increasing flow and head without compromising wear life.
- **Enhanced efficiencies - lower energy costs**
The new SHG pumps are fitted with high performance impellers with substantially enhanced efficiencies.
- **Enhanced abrasion resistance - longer life**
A variety of new advanced alloys, including HYPERCHROME® A61 provide enhanced abrasion resistance for the most arduous of applications.



World class manufacturing

Underlying our product capability is our introduction of the latest CAD CAM techniques and the implementation of lean manufacturing principles, keeping Weir Minerals at the forefront of manufacturing technology, delivering direct customer benefits.

Weir Minerals products are manufactured on all five continents by member companies of the Weir Minerals Division and Licensees in strategic locations around the world.

Worldwide sales and service

Weir Minerals has the geographical presence to service all the major minerals markets around the world.

In Europe and the Middle East, Weir Minerals sales offices are located in the Czech Republic, Finland, France, Germany, Hungary, Italy, the Netherlands, Poland, Russia, Romania, Sweden, the U.A.E. , the United Kingdom and in the Ukraine. Supported by a comprehensive network of agents and representatives they provide professional, qualified technical assistance and service.

Meeting international standards

The quality management systems of Weir Minerals Europe Limited in the UK are accredited to BS EN ISO 9001:2000 and our Environmental Management Systems are accredited to BS EN ISO 14001:1996.

Our customers range from the world's largest mining and minerals multinationals to single pumpset operators.

Weir Minerals capability supports an array of customer specifications with products easily adaptable to meet specific process requirements. We build close, long term partnerships through which we are able to help customers achieve the lowest cost of ownership.

Sand and Gravel

The Heavy Duty Gravel Pump is designed for higher head duties such as cyclone feed, long distance pipelines and high static discharge heads.

The Heavy Duty Dredge Pump, is specifically designed for low head duties such as hopper dredging and barge loading.

Hydraulic Mining

The new SHG Super Heavy Duty Gravel pump range is ideally suited to the extremely abrasive slurries in this type of application.



Sugar Beet & Other Root Vegetables

With special impellers designed to prevent damage to the solids the Dredge pump is widely used for handling Sugar Beet and other vegetable products.

Slag Granulation

Low NPSH requirements and robust design make the Dredge and Gravel pumps suitable for applications on slurries with higher than normal temperatures. This is illustrated by their wide use in Slag Granulation plants around the world.

Tunnelling

Severe space limitations and tough operating conditions are normal in tunnelling applications. The Gravel pump's compact design and optional impact resistant cast steel components make it ideally suited for the varied subsoils and long tunnel lengths that require a pump capable of multi staging on a high flow, high pressure, often surging application.



Low gland water costs ...

... result from the heavy shaft and reduced deflection which allow the use of a close tolerance lantern restrictor which reduces the quantity and therefore the cost of gland water..

An easily removable shaft sleeve ...

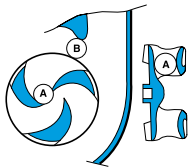
... manufactured in either hardened steel or ceramic coated steel with o-ring seals at both ends protects the shaft from abrasive or corrosive contaminants.

Simple impeller removal ...

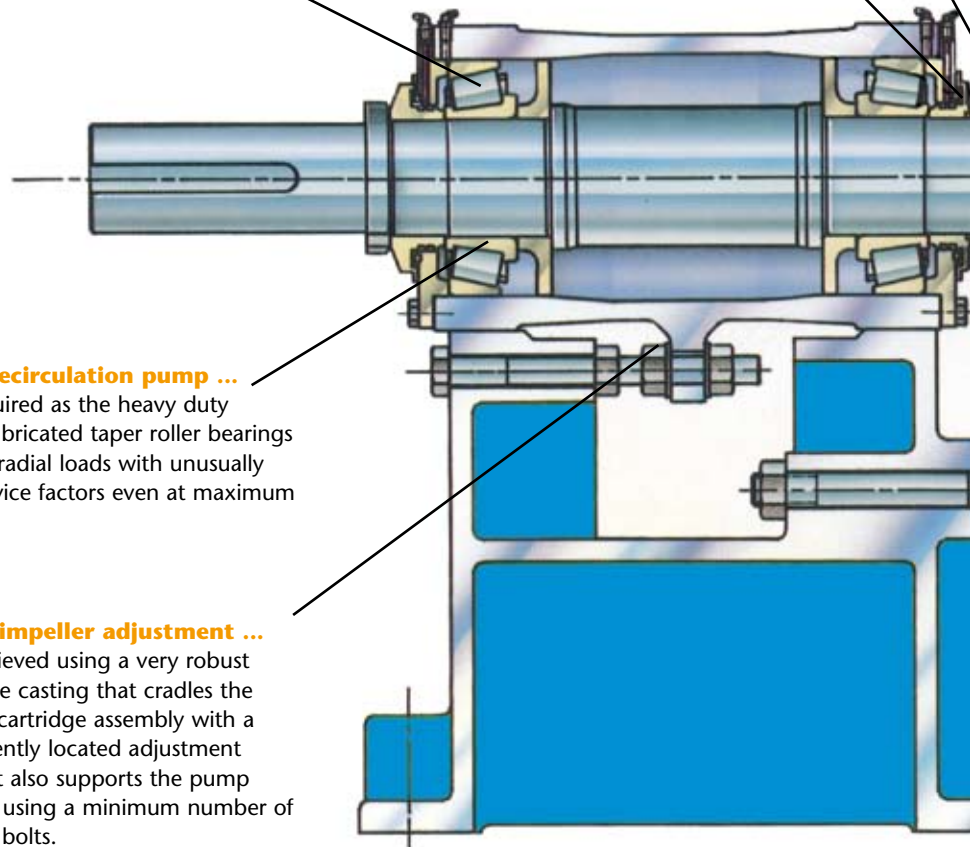
... on large sizes of pump is achieved by the use of a split release collar on the bearing side of the shaft sleeve.

Extended bearing life ...

... is achieved through the use of a large diameter shaft with the shortest possible overhang, with heavy duty roller bearings housed in a removable bearing cartridge.



MAXIMUM SPHERE	DIAMETER	
	A	B
14/14FD	216	127
20/20GD	178	170
30/26HD	480	480
36/36HD	530	530
6/4DG	82	82
6/6EG	127	140
8/8FG	178	178
12/10FG	222	222
12/10GG	222	222
14/12GG	240	240
18/16GG	254	254
18/16HG	254	254
20/18HG	330	330
24/20HG	380	380
28/24HG	380	380
24/20JG	380	380
28/24JG	380	380
200FSHG	150	150
250GSHG	180	180
300GSHG	203	203



No oil recirculation pump ...

... is required as the heavy duty grease lubricated taper roller bearings carry all radial loads with unusually high service factors even at maximum speed.

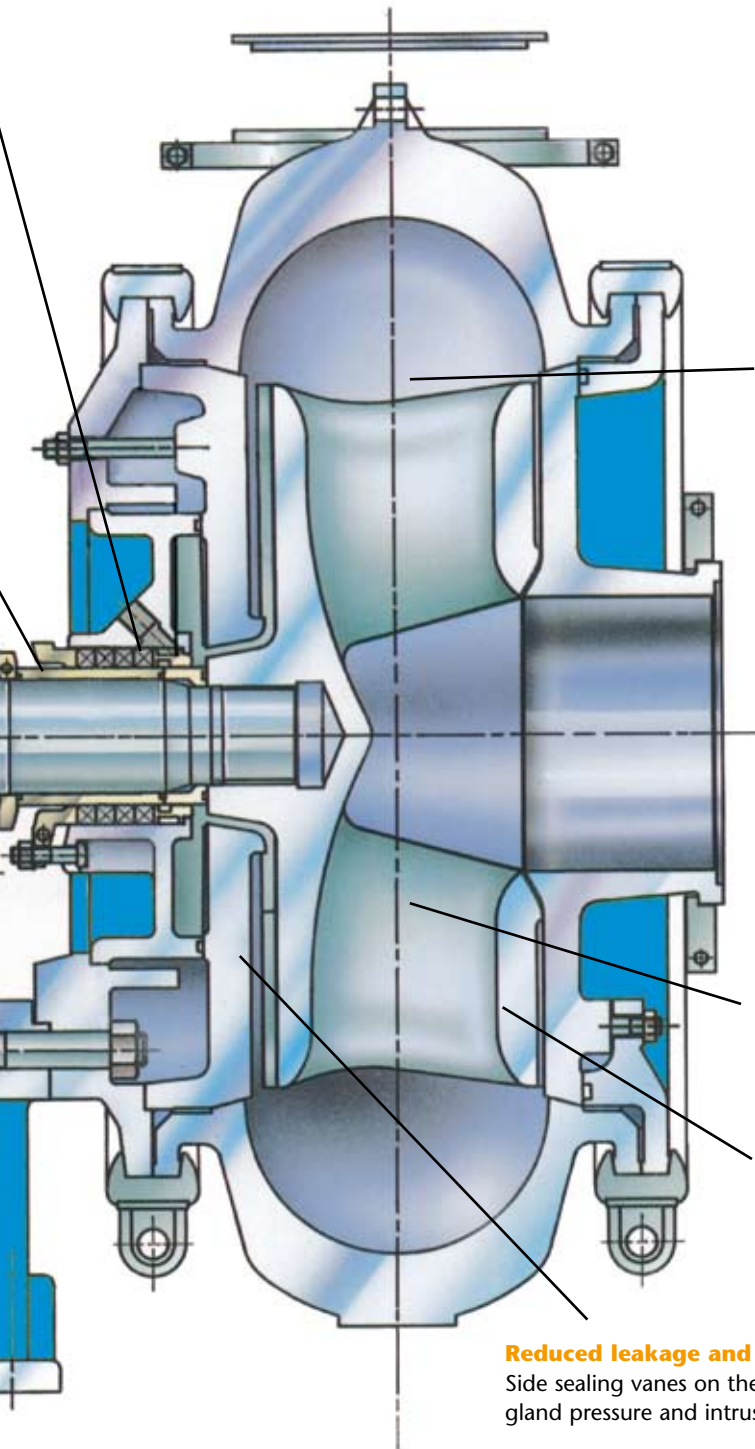
Simple impeller adjustment ...

... is achieved using a very robust one piece casting that cradles the bearing cartridge assembly with a conveniently located adjustment facility. It also supports the pump wet end using a minimum number of through bolts.



6/4G 6/6G 8/6GH 8/8G 14/14D 10/8GH 12/10G 200SHG 14/12G 20/20D 250SHG 12/10GH

The Warman Heavy Duty Gravel Pump



Longer casing life.
 The large volume of the casing reduces internal velocities resulting in reduced wear.

Lost production time is reduced and screening is avoided.
 Because the internal proportions of the Dredge and Gravel pump ranges allow extraordinary large particles to be passed.

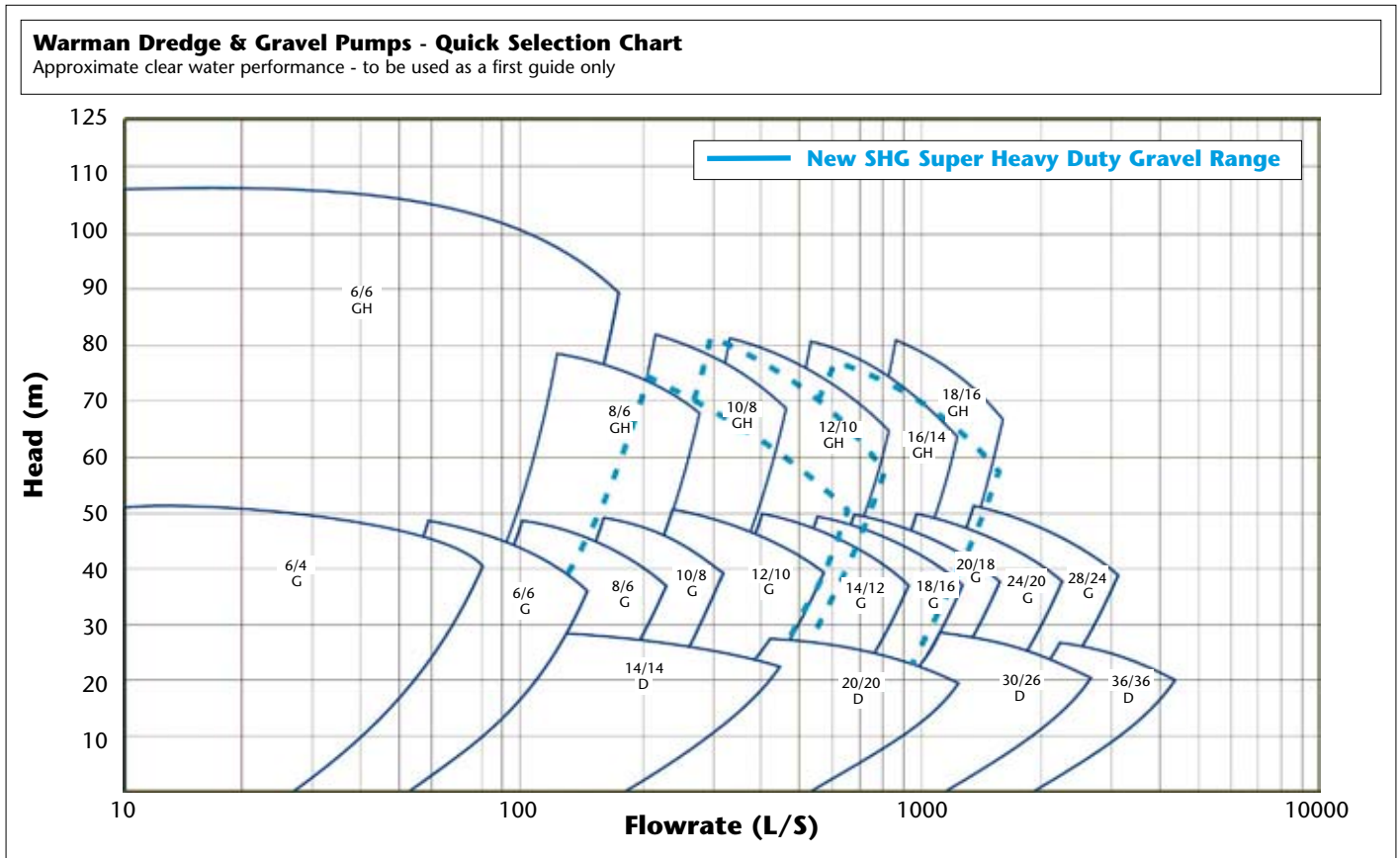
Long component life with no need for wear rings.
 The special shape of the impeller vanes and casing combine with side sealing vanes to reduce recirculation down the front of the impeller and exclude abrasive solids from between the impeller and casing.

Reduced leakage and wear.
 Side sealing vanes on the shaft side of the impeller reduce gland pressure and intrusion of solids into the gland area.



300SHG 18/16G 20/18G 16/14GH 18/16GH 24/20G 30/26D 28/24G 36/36D

Quick selection chart



Product Information Software

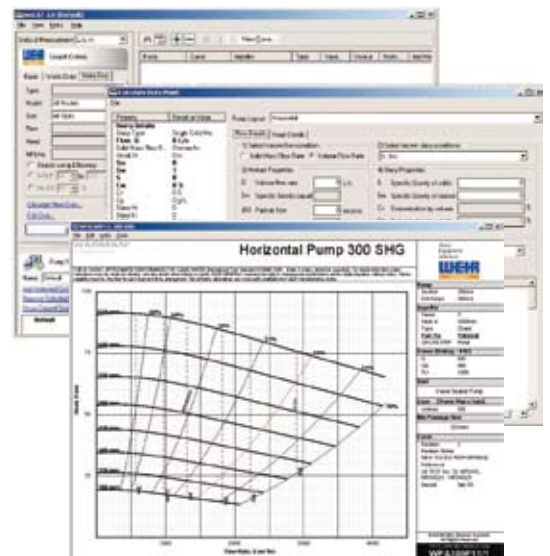
Weir Minerals product information software is available for download from the Weir Minerals website or on CD from your local sales office.

The Weir Minerals Catalogue wsCAT was developed by the Pump Technology Centre and is an integrated browser of two modules :

Pump performance curves, which are downloadable and unlocked by obtaining a key obtained via email from your local sales office, and

Technical reference which, due to file size, is only available on the CD version.

The technical reference information includes application data, drawings, engineering data, marketing data and operation and maintenance manuals.



Weir Minerals has the products and geographical presence to service all the major minerals markets around the world.



Market leading products

Weir Minerals has an advanced product range incorporating market leading brands covering virtually any application, in any environment.

The Weir Minerals brands :

WARMAN®

Centrifugal Slurry Pumps

GEHO®

PD Slurry Pumps

CAVEX®

Hydrocyclones

ISOGATE®

Slurry Valves

VULCO®

Wear Resistant Linings

Geographical footprint

Weir Minerals has the geographical presence to service all the major minerals markets around the world. This global supply capability provides a competitive advantage in this relatively fragmented market.

Weir Minerals has operations across:

- North America
- Europe
- South America
- Australasia
- Africa

Customer profile

Our customers range from the world's largest minerals and mining multinationals to single site coal producers.

Weir Minerals capability supports an array of customer specifications with products easily adaptable to meet specific process requirements.

We build close, long term partnerships through which we are able to help customers achieve process efficiencies.

Weir Minerals customers include:

- Alcoa
- Barrick
- Codelco
- De Beers
- Newmont
- WMC
- Anglo-American
- BHP-Billiton
- CVRD
- Grupo Mexico
- RTZ

We support customer operations worldwide with consistent products and local engineering expertise. As part of the Weir Group, we have the reach and resource to build close, long term relationships with all our customers, helping them to achieve ...

The Lowest Cost of Ownership

Top: Warman AH Heavy Duty Slurry Pumps in Finland.

Next: A Geho Piston Diaphragm slurry pump at Pacific Power.

Next: The IsoGate WS slurry gate valve ready for shipping to a customer in South America.

Next: A cluster of Cavex hydrocyclones used in an Australian gold mine.

Bottom: Vulco Trommel for a customer in Chile.



WARMAN[®] Centrifugal Slurry Pumps
GEHO[®] Positive Displacement Slurry Pumps
CAVEX[®] Hydrocyclones
ISOGATE[®] Slurry Valves
VULCO[®] Wear Resistant Linings

For further information on any of these products or
Total Care product support services contact your
nearest sales office or visit:

www.weirminerals.com

European Sales Offices :

<i>Czech Republic</i>	+420 543 518 300
<i>Finland</i>	+358 3 877 350
<i>France</i>	+33 4 72 81 72 72
<i>Germany</i>	+49 7062 95290
<i>Hungary</i>	+36 34 314 794
<i>Netherlands (BeNeLux)</i>	+31 77 3272 840
<i>Netherlands (Geho)</i>	+31 77 3895 200
<i>Italy</i>	+39 02 92 44 3201
<i>Poland</i>	+48 12 632 8469
<i>Romania</i>	+40 259 465 344
<i>Russia</i>	+7 495 775 0867
<i>Sweden</i>	+46 920 870 77
<i>Ukraine</i>	+38 056 373 6627
<i>United Arab Emirates</i>	+971 50 443 5512
<i>United Kingdom</i>	+44 1706 814 251

Weir Minerals Europe Limited

Halifax Road
Todmorden
Lancashire OL14 5RT
United Kingdom

Tel.: +44 1706 814 251
Fax.: +44 1706 815 350
Email: sales.uk@weirminerals.com

Slurry
Equipment
Solutions

