

# CIRCLE



ENGINEERING



**CIRCLE**



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**CIRCLE ENGINEERING**



## **ABOUT US**

Circle engineering was established in 2003 and has gained a lot of traction in the mining sector.

Circle engineering limited is made up of a group of specialists in numerous fields and offers a complete range of solutions for all your mining and engineering needs. We are based in South Africa and services numerous countries and mines throughout Africa.

### **Mission.**

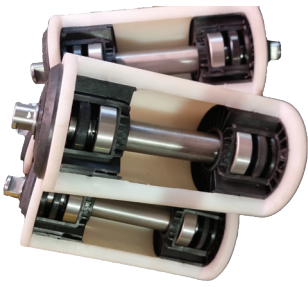
Circle engineering limited strives to build sustainable relationships and offer professional services to all our clients.

### **Vision.**

We as Circle engineering limited would like to build ourselves up, with the help of our clients to be a known professional and respected partner for mines in Africa. Providing quality products and services.

### **Policy.**

Circle engineering limited strives to provide the best quality products and services and we guarantee that we will always be professional and respectable.



# UHMWPE IDLERS

## ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE ROLLERS TECHNICAL ADVANTAGES

- Extremely high impact strength (replaces all impact rolls).
- Excellent abrasion resistant properties.
- Very low friction coefficient.
- Resistant to aggressive chemicals and corrosion.
- Anti-Static properties ensure zero build-up.
- Designed to ensure lower torque on inner bearings.
- Less deflection of idler shafts under load.

## EXCELLENT INGRESS PROTECTION

- Sealed bearing cavities (zero penetration of dust, water or other media).
- Bearing cavities filled with grease.
- Can run underwater for extended periods of time.
- Perfect for load-out applications (Pier at sea level).

## SAFETY

- Will not cut a costly conveyor belt.
- Will not ignite a conveyor belt.
- Suitable for underground operation (SABS tested).
- Anti Roll-back (Rollerbrake) optional.

## SPECIFIC SOLUTIONS FOR YOUR SPECIFIC NEEDS

- Shaft and idler diameters to suit any application.
- Unique bearing arrangements for different applications.
- Combination of seal types for extreme applications.
- Sealed end caps manufactured from 30% glass filled nylon for strength and impact absorption.
- Electronic tracking possible with optional sealed transponder and software.

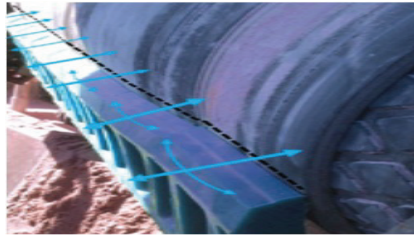
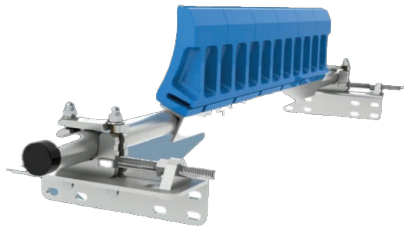
## LOW COST OF OWNERSHIP

- Longer intervals between maintenance reduce downtime of conveyors significantly.
- Lasts on average 4 times longer than normal steel rolls, resulting in a direct product cost saving of more than 250%
- Huge cost savings over longer periods.
- Ultra-long life in even the most severe applications.
- Stock holding reduced, as can also be used as impact idlers.
- Lasts more than 5 times longer than standard Polyethylene rolls.

# CONVEYOR ACCESORIES

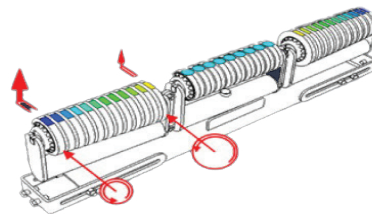
## SCRAPERS

- We offer a wide range of high-quality Primary and Secondary scrapers.
- Anti clogging paddles that follows the profile of the pulley.
- Each blade can be replaced separately.
- Automatic alignment of blades.
- High performance cleaning.



## BELT TRACKING (STAR TRACKER)

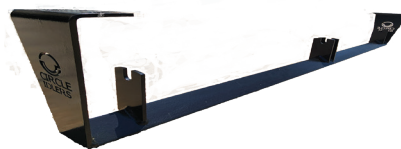
- Works flat or troughed.
- Equipped with anti-clogging skirts.
- Strong structure.
- Economical by only replacing the idlers in a few minutes.



## FRAMES

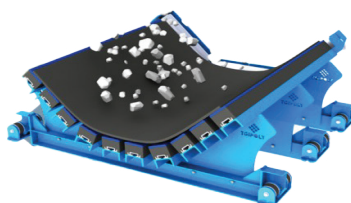
We manufacture all types of frames and brackets to suite your needs.

- Galvanized, powder coated or even stainless steel for longevity.
- Nonstandard sizes can be manufactured.



## IMPACT STATION (ATLAS)

- Great absorption capacity.
- Very robust construction.
- Shape manufactured on demand.
- Very easy to install.



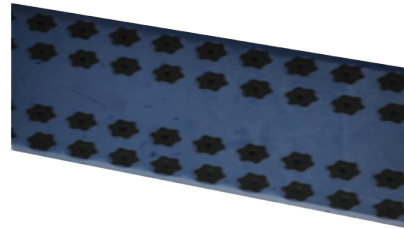
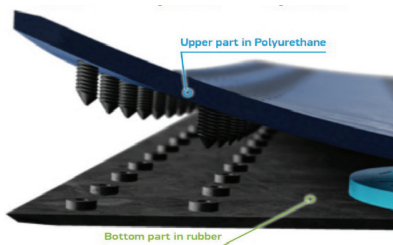
## SEALING SOLUTIONS (SEAL BLOCK)

- Great robustness.
- Optimum resistance to abrasion.
- Significant improvement of sealing.
- Fast replacement of worn block.



## BELTS AND SPLICES

- We offer a wide range of specialised belts.
- We offer the patented Super screw that eases belt repairs.
- Fix and go options available as well as the toolkits to ease installation.
- Supper screws can be used on all scrapers.



## SABS TEST CERTIFICATE

**SABS**

### TEST REPORT

CONTROL INSTALLATION & REPAIR  
CENTRE T/A CIRCLE Pty Ltd.  
**Att: Mr. C. Van Der Merwe**  
Private Bag X7  
NORTHRIDING  
2162

Your ref	Request & payment
	Dd 2018-11-19
Our ref	18ME 032
Enquiries	K. Malekutu
Tel	(012) 428 6984
Report No.	2536/BMT-190117-00031(R1)
Page	1 of 6
Date	2019 - 05 - 03

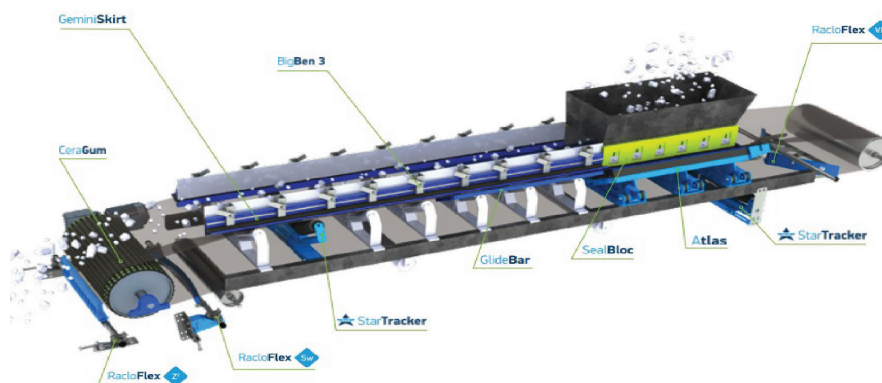
#### TESTING OF CONVEYOR BELT IDLERS ACCORDING TO SANS 1313 - 1: 2012

"Conveyor belt idlers Part 1: Troughed belt conveyor idlers (Metallic and non-metallic) for idler roller rotational speeds of up to 750 revolutions per minute"

*This report serves to revise and replace the report number BMT-190117-00031 dated 2019-04-23 and it is considered the only official and valid test report.*

#### 1 CONCLUSION

The submitted samples complied with the requirements of SANS 1313 - 1: 2012 "Conveyor belt idlers Part 1: Troughed belt conveyor idlers (Metallic and non-metallic) for idler roller rotational speeds of up to 750 revolutions per minute" specification. Refer to clauses 4 and 5 of this report for details of the results.



# VALVES

## MISSION

Developing, manufacturing and distributing high quality industrial process valves for on-off and throttling control, emphasizing slurry handling applications. Attaining and sustaining a pre-eminent position in our field through Total Customer Satisfaction by providing Value Added Products, Applications Expertise, On-Time Delivery and Cost Effective Repair parts support.

## INTRODUCTION

The Circle team has more than 40 years experience in technical and valve engineering in the slurry industry. We ensure our products are designed to suit customer specifications and requirements. Our team has designed valves from the ground up, based on application, pressure rating, face-to-face and size.

Based in Apex Industrial, Benoni, South Africa, we pride ourselves in being a local manufacturer of our entire range of products.

We manufacture a comprehensive range of gate valves, pinch valves, ball check valves and many more.

With over 47 products in our range, we have continued to engineer these products to increase longevity and ease of maintenance in situ, however this has not stopped us from finding new and innovative ways to increase the quality of our products.

With a strong team of determined and hard working engineers, we have successfully tackled some of the largest valve projects and have shipped our extensive range across the world.

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In the 40 years of manufacturing, Younique has made significant progress in the manufacturing of valves, as well as finding better solutions with materials that increase the wear life of our valves. All products are manufactured to ISO 9001:2015 and tested to ISO 5028 standards.

Our Products started with the DFV Valve which today still stands as our flagship model, adding to that, we have engineered and perfected many more products from Gate valves to Diaphragm Valves.

We manufacture in house, which gives us great flexibility to customize our valves to suit client requirements.

## VALVE APPLICATIONS

- Mining and mineral processing
- Power Generation
- Sand and gravel
- Chemical and soda ash
- Pulp and paper
- Environmental and effluent
- Slurry pipelines
- Deep well pumping
- Waterlines
- Sewage
- Pump suction
- Pump discharge
- Vacuum system

# OUR RANGE OF PRODUCTS

Ask for our full catalogue for your custom requirements.

## AIR RELEASE VALVES

### DSARV - DUAL SLURRY AIR RELEASE VALVE



**VALVE HOUSING:**

Valve Housing is Cast SG Iron, Fabricated Carbon Steel or Stainless Steel (304 or 316).

**LINING:**

Valve housing can be epoxy coated or natural rubber lined. A range of elastomer grades are available for corrosive duties.

**URETHANE BALL:**

Guided HDPE floating ball, solid Urethane or hollow stainless steel for high pressure.

**PRESSURE RATING:**

Working pressure standards are 10 up to 160 bar for Air Release Valves, and up to 25 Bar for combination valves for use of slurries.

**VALVE SEAT:**

Natural rubber or Stainless Steel (304 or 316).

**DRILLING PATTERNS:**

ANSI B16.5, DIN, SABS & BS, Optional.

**SIZE RANGE:**

50mm to 300mm.  
Larger sizes on Request.

**TEMPERATURE RATINGS:**

Operating Temperatures to 80°C. Higher conditions are possible if the valve is constructed from suitable materials.

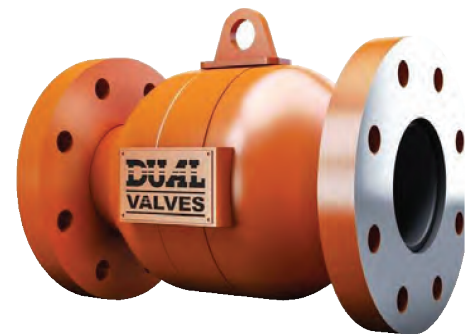
**MATERIAL CERTIFICATION:**

Certified chemical and physical test reports can be supplied.

## BALL CHECK VALVES

### DDWV - DUAL DEWATERING IN LINE BALL CHECK VALVE

<b>SIZE RANGE:</b>	80mm - 500mm.
<b>PRESSURE RATING:</b>	10 Bar - 60 Bar.
<b>VALVE TYPE:</b>	Ball Non-return valve.
<b>OPERATING TEMPERATURE:</b>	-10°C to +80°C.
<b>MEDIUM:</b>	Water. Mine water underground. Heavy, thick and viscous liquid.



<b>SIZE RANGE:</b>	80mm - 600mm.
<b>BODY:</b>	Fabricated Carbon Steel or Stainless Steel.
<b>BALL:</b>	Natural Rubber, EPDM, Butyl, Urethane.
<b>FLOW RATE:</b>	See pressure drop chart.
<b>WORKING TEMPERATURES:</b>	-20°C to 100°C.
<b>VALVE TYPE:</b>	Flanged.
<b>PRESSURE RATING:</b>	0 Bar to 100 Bar. For higher pressures, please consult our factory.
<b>FLANGE DRILLING:</b>	BS4504, ANSI and DIN.
<b>MATERIAL CERTIFICATION:</b>	Certified Chemical and Physical test reports can be supplied.

### DFV - DUAL VALVE

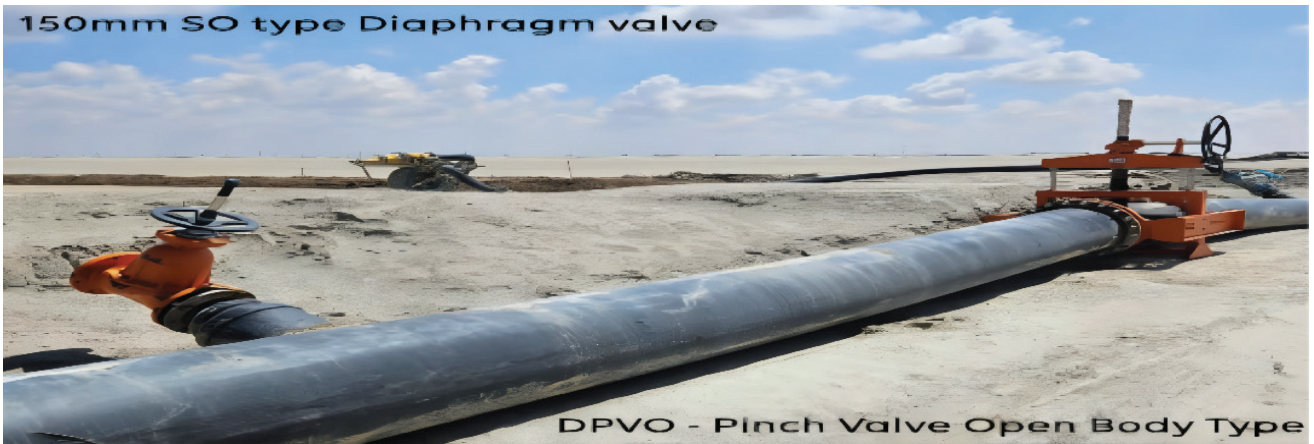


# DIAPHRAGM VALVES

## DSTDV - DUAL STRAIGHT THROUGH DIAPHRAGM VALVE



<b>BODY:</b>	Cast Aluminium, Cast SG Iron.
<b>ELASTOMER DIAPHRAGM:</b>	Gum Rubber, Red Rubber, EPDM, Butyl, Chlorobutyl, Neoprene, Polyurethane, Viton and Hypalon.
<b>SIZE RANGE:</b>	50mm - 400mm.
<b>PRESSURE RATING:</b>	16 Bar (For higher pressure consult factory).
<b>THRUST BEARINGS:</b>	To reduce operating torque (handwheel type).
<b>THREADED BODY:</b>	25mm to 80mm.
<b>VALVE INTERVALS:</b>	304 Stainless Steel spindles, Rubber diaphragm.
<b>BODY LINING:</b>	As per Elastomer diaphragm.
<b>MATERIAL CERTIFICATION:</b>	Certified chemical and physical test reports can be supplied.
<b>VALVE TYPE:</b>	Rising and non rising spindle.
<b>TEMPERATURE:</b>	-50°C to +140°C.



# GATE VALVES

## DOPGV - DUAL O-PORT GATE VALVE

<b>BODY:</b>	Wafer Pattern Cast SG Iron, Fabricated Steel, Epoxy Coated.
<b>SIZE RANGE:</b>	50mm to 1500mm.
<b>BLADE:</b>	316 or 304 Stainless Steel.
<b>ELASTOMER SLEEVES:</b>	Gum Rubber (standard), Nitrile, Viton, Chlorobutyl.
<b>PRESSURE RATING:</b>	DN50 to DN600 Rated to 360Psi (25 Bar). DN650 to DN1500 Rated to 150 Psi (10 Bar).
<b>GATE MATERIAL:</b>	316 Stainless Steel Standard - 316L, 317L, 17-4PH, Alloy 20, SAF 2205 S/S with optional wear coatings.
<b>DRILLING PATTERNS:</b>	DN50 to DN1500 Drilled and Tapped ASME B16.5, DIN, SABS & BS Optional.
<b>MATERIAL CERTIFICATION:</b>	Certified chemical and physical test reports can be supplied.



## DPFGV - DUAL PIVOT FLANGED GATE VALVE



<b>BODY:</b>	Fabricated Carbon Steel.
<b>SIZE RANGE:</b>	80mm to 1500mm.
<b>ELASTOMER SLEEVES:</b>	Gum Rubber (standard), Nitrile, EPDM, Neoprene or Butyl.
<b>RETAINER FLANGES:</b>	Rubber covered Carbon Steel flanges (80mm through to 1500mm).
<b>PRESSURE RATING:</b>	DN80 to DN600 rated to 360Psi / (25 Bar) using 316SS Blade, DN650 to DN1500 - 150Psi (10 Bar).
<b>GATE MATERIAL:</b>	316 Stainless Steel standard - 316L, 317L, 17-4PH, Alloy 20, SAF 2205 S/S with optional wear coatings.
<b>DRILLING PATTERNS:</b>	DN80 to DN250 drilled and tapped ASME B16.5, BS, DIN, SABS. DN300 to DN1500 flanges are slotted.
<b>MATERIAL CERTIFICATION:</b>	Certified chemical and physical test reports can be supplied.

## KNIFE GATE VALVES

### DFHPKG - DUAL FLANGED HIGH PRESSURE KNIFE GATE VALVE



<b>SIZE RANGE:</b>	3" - 36" (80mm - 900mm).
<b>BODY STYLE:</b>	Full Flanged. Slurry Knife Gate (High pressure).
<b>TEMPERATURE RANGE:</b>	176°F (80°C).
<b>RETAINER FLANGES:</b>	Rubber covered Carbon Steel Flanges (80mm through to 900mm).
<b>PRESSURE RATING:</b>	Up to 740 Psi (51 Bar).
<b>BODY:</b>	Fabricated Carbon Steel, 2 coat epoxy painted.
<b>GATE:</b>	17-4PH Stainless Steel, 316L Stainless Steel 2205 Duplex Stainless Steel, 2507 Duplex Stainless Steel, C276 Hastelloy.
<b>GATE / BLADE:</b>	Coated with fluorocarbon coating.
<b>SLEEVE (REPLACEABLE):</b>	Gum Rubber, high-temp EPDM, Neoprene, Nitrile, Chlorobutyl.
<b>DUTY:</b>	Medium to Heavy abrasive applications.
<b>HYDRO-STATIC TEST:</b>	1.5 Times the rated pressure.
<b>TEST AND MATERIAL CERTIFICATES:</b>	Standard Quality Documents on request.

## PINCH VALVES

### DLPOPV - DUAL LOW PRESSURE OPEN FRAME PINCH VALVE



<b>BODY:</b>	Fabricated Carbon Steel.
<b>SLEEVE:</b>	Natural Rubber, Butyl or Neoprene.
<b>SIZE RANGE:</b>	50mm - 600mm (For larger consult factory).
<b>PRESSURE RATING:</b>	16 Bar (For higher pressure consult factory).
<b>PINCH BARS:</b>	Carbon Steel Bar Stock.
<b>PINCH BAR GUIDES:</b>	Stainless Steel with protective covers.
<b>FLANGED:</b>	Drilled to SABS, ANSI B16.5, BS or DIN.
<b>VALVE INTERVALS:</b>	304 Stainless Steel spindles and guides, rubber sleeve, steel Pinch Bars and Nylon Bushing.
<b>TEMPERATURE:</b>	-20°C to +80°C
<b>MATERIAL CERTIFICATION:</b>	Certified chemical and physical test reports can be supplied.

# ACTUATORS

## DDAPA - DUAL DOUBLE ACTING PNEUMATIC ACTUATOR



<b>TOP &amp; BOTTOM PLATE:</b>	Carbon Steel or Aluminium, Epoxy Coated.
<b>BARREL:</b>	Light weight composite tubing, filament wound Fibre Glass.
<b>PISTON:</b>	304 Stainless Steel.
<b>PISTON ROD:</b>	304 Stainless Steel.
<b>TIE ROD &amp; NUTS:</b>	SAE Grade 5 Stainless Steel threaded rods.
<b>PRESSURE RATING:</b>	6 Bar.
<b>LIP SEAL:</b>	Nitrile.
<b>GUIDE RING:</b>	PTFE.
<b>SEAL RINGS:</b>	Neoprene O-Ring seal.
<b>PROTECTIVE COVER:</b>	304 Stainless Steel.
<b>ROD WIPER:</b>	Stainless Steel Housing with Internal Urethane Wiper.
<b>GLAND BUSHING:</b>	Bronze (SAE 660).
<b>TEMPERATURES:</b>	-20°C to 100°C.
<b>BELLOWS:</b>	Vinyl.
<b>PORTS:</b>	At 90° for convenient location.
<b>LIFTING LUGS:</b>	Steel, coated.

## VALVE EXTRAS

### DVD - DUAL VALVE DIAPHRAGMS



Dual manufactures a comprehensive range of flexible diaphragms for type WO and SO valves. All diaphragms are manufactured to the highest International quality standards. Dual Diaphragms are manufactured in South Africa, using our own techniques and expertise.

The diaphragms are moulded with reinforced flexible materials and are manufactured of natural and synthetic rubber compounds in sizes varying from 15mm to 350mm.

### DDC - DUAL DEFLECTION CONES



<b>MATERIAL:</b>	Urethane, Ni-hard or Cast High Chrome Steel.
<b>FLANGE THICKNESS:</b>	3mm.

Deflection cones are simple, effective means of protecting valve intervals against wear and scouring in abrasive services. Available in Polyurethane material for general services. 28% Chrome Iron metal option for high abrasion. Field replaceable design. High flow rates achieved by streamlined design. Contoured shape minimizes internal pockets. When using Chrome Iron deflection cones, a gasket is required between the valve and the deflection cone.

# PUMPS

Circle is dedicated to serving the Mining, Industrial, Pharmaceutical, Food & Beverage industries with specialised Pumps, Sealing Systems, and associated products. We supply and service South Africa as well as African countries.

We offer the highest quality pump and sealing products, pump system design and fabrication, after sales service and pump repairs.

Our dynamic sales team work directly with production & planning to ensure that our client needs are met to exact specifications, all while keeping within required delivery dates. We continuously strive to maintain high quality standards in our workshop facility, whilst all our products carry manufacturer's quality standards and certification.



## Our Range of Pumps

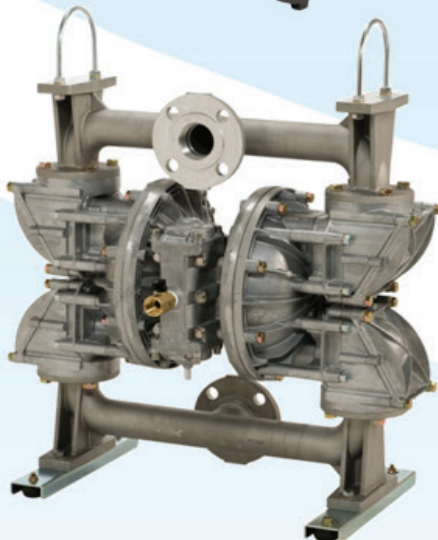
We are proud to represent world leading brands in the pump industry. Products that fill the needs of every application within ever changing environments.

- Dosing Pumps
- Progressive Cavity Pumps
- Dewatering Pumps
- Submersible Pumps
- Vertical Spindle Slurry Pumps
- Medium & Heavy Duty Slurry Pumps
- Chemical Process Pumps
- Hand Pumps
- Rotary Gear Pumps
- Sanitary Pumps
- Rotary Lobe Pumps
- Centrifugal Water Pumps
- Multistage Pumps
- Self-Priming Pumps
- Pontoon Mounted Dewatering Pumps
- Horizontal Split Case Pumps
- Air-Powered Diaphragm Pumps
- Water & Slurry Valves

## Sealing solutions

Providing efficient sealing solutions remains a huge focus point here at Circle. We are official distributors for the Chesterton range of mechanical seals, gland packing, and seals within Gauteng, Western, and Northern regions of South Africa.

Chesterton is at the forefront of developing technology and solutions that impact process efficiency, regulatory compliance, and reduced energy consumption.

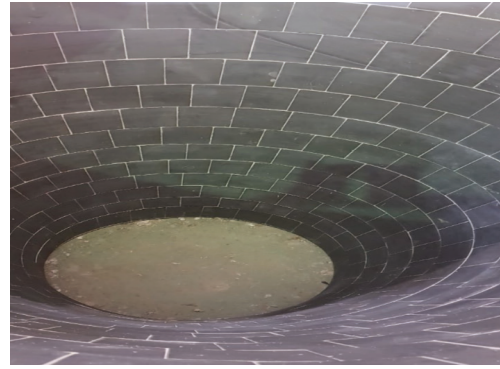


## ARC COMPOSITE COATING/ ANTI-CORROSIVE AND ANTI-ABRASIVE

Our sealing systems specialises in coating that meet the needs in process industries where chemical attacks, aggressive corrosion and severe abrasion occurs. ARC efficiency & protective coating is a product to protect the original substrate whilst enhancing performance of equipment.

## HARD WEARING COMPONENTS

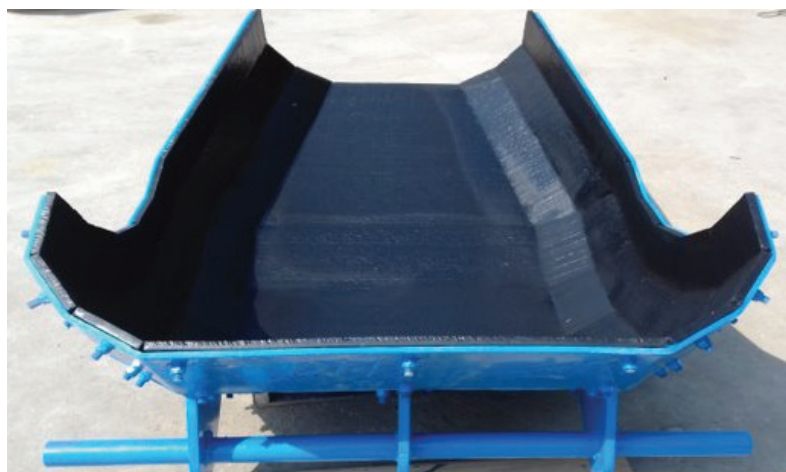
- Alumina ceramic tiles and liners
- Glazed Alumina ceramic tiles
- SiSiC liners and Cyclones
- Epoxy-based wearing compounds (KRAMBOND and KRAMWEAR)
- Silicone carbide (nitride and reaction bonded)
- Ceramic lined cyclones for mining industry
- Composite wear plates – Hard plate, Hardlite and Tuff plate (Precision plasma cut and stud to size)
- UHMWPE Wear liners
- Pipe fix
- Procurement
- Steel Fabrication
- Precision Engineering
- HDPE pipe fabrication
- Steel pipe fabrication and linings
- Artisan services



**BEFORE**



**AFTER**



# CRUSHER SPARES

Supply – Complete units and parts

- METSO
  - Jaw Crusher
  - Cone Crusher
  - Gyratory Crusher
- Telsmith
  - Jaw Crusher
  - Cone Crusher
  - Screens/ Feeders
- FFE
  - Gyratory Parts
- Sandvik
  - Jaw Crusher
  - Cone Crusher

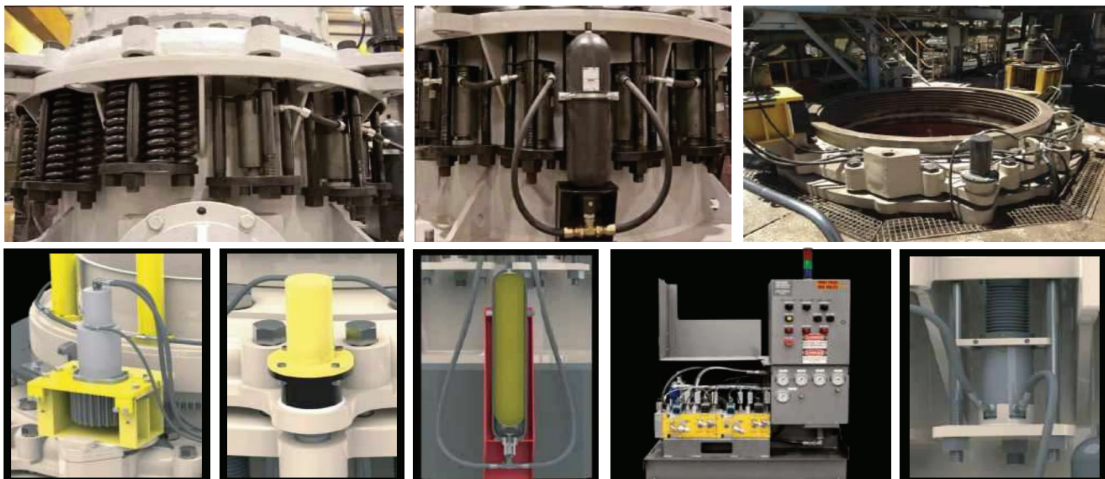


## Engineering Capability

Design Improvements / Innovation

### Circles Symons Tramp Release System

- Safely clears crushing cavity utilizing simple and reliable remote power unit.
- Drastic reduction of costly downtime with virtually instant cavity clearance.
- Constant clamping force between adjustment ring main and frame.
- Reduces “Ring- Bounce” and cuts down on related expenses.
- Requires little or no modifications to the existing frame.
- Maximize Tonnage - Adjust to sm all setting without risk of stalling.
- Built- in accumulators on clamping cylinders (other systems use expensive, high- maintenance, external accumulators)
- Heavy- Duty clamping cylinders mounted ends- down to minimize potential for damage.
- The Hydraulic Power Unit ( HPU) offers constant monitoring of hydraulic pressures, temperature and filter conditions
- Indicator and warning lights advise the operator of reservoir oil level, oil temperature, oil pressure in the tramp and lock post hydraulic circuits and filter status.



Gear Adjustments  
Motorized Bowl Turning Kit

Clearing Cylinders

Hydraulic Power Unit

Clamping Cylinders

# STRUCTURAL DETAILING

## Company Strategy

**Purpose:** To be the leader and first choice in Detailing Solutions by providing enhanced services and good customer relationships.

**Vision:** Our vision is not only to provide excellent quality service, but also to exceed the expectations of our esteemed customers.

**Mission Statement:** Our team of specialized detailers is dedicated to quality work done and on time delivery through effective planning, coordination and delivery on all detailing solutions worldwide,

**Core Values:** We incorporate good business ethics, integrity and honesty. We believe in treating all our customers with respect and to see to their needs in the fastest possible manner

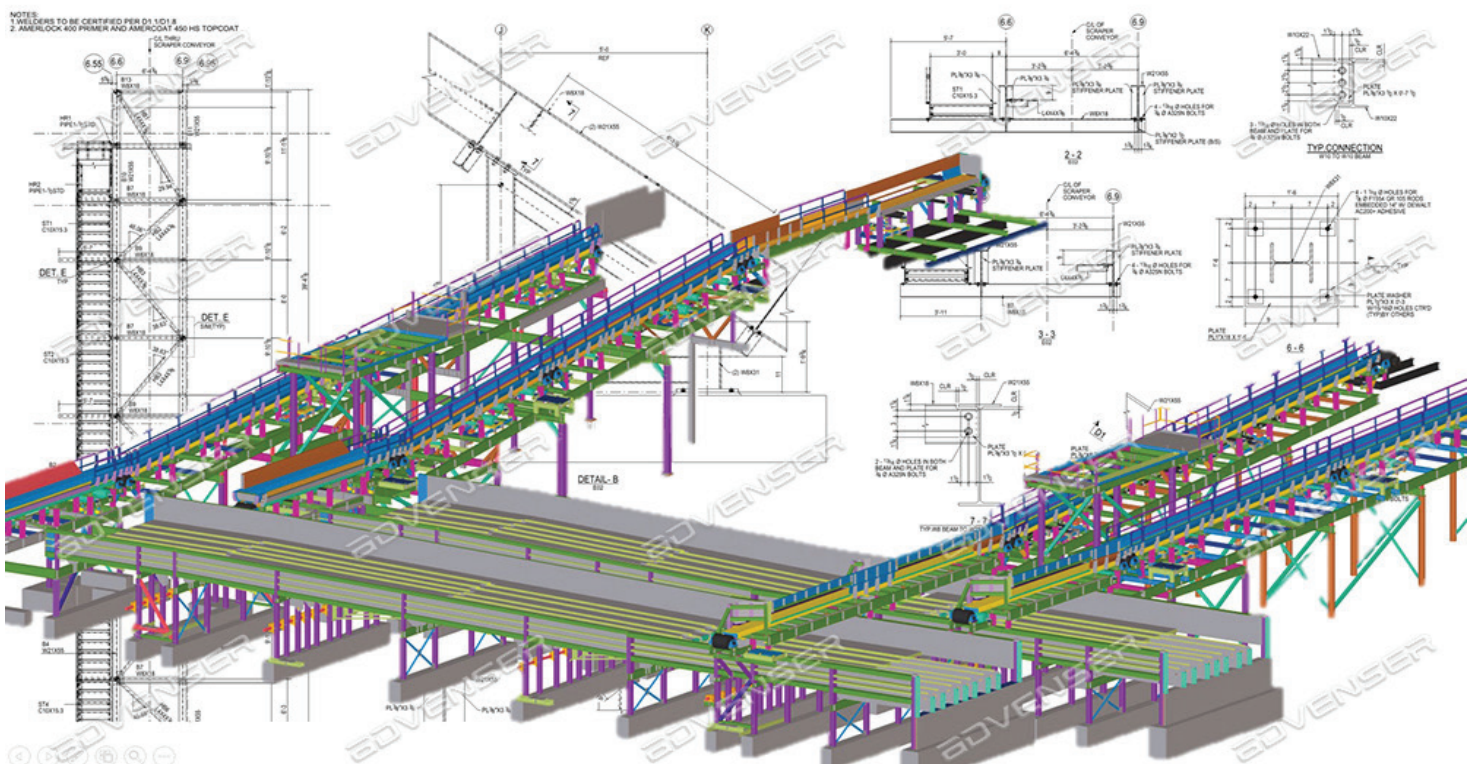
**Goals:** Develop a strong customer base relationship and expansion on a global level while maintaining a good reputation through the industry and become the preferred detailing service provider.

## Our Focus

At the starting point of each project Circle Structural Detailing will be able to give an accurate date as to when the detailing can be completed to ensure our clients have ample time for fabrication and are not put under pressure. We will also have direct contact with the design engineers as to resolve any queries and also to make sure that the fabricators and erection team remain the focus

## Services

Circle Structural Detailing offers unique detailing solutions by tailoring the needs that is required by the client. Apart from the detailed drawings, models and relevant files, informative lists and reports are also created as per client's requests and needs to ensure that the complete project life cycle is assisted and simplified for the best and most productive outcome.



# CIRCLE



ENGINEERING

◆ FRED VAN STADEN

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