Horizontal Pumps

HS
JC
3x6-18 JC
RX
CKX
HS
Large Solids Pump

INDUSTRY APPLICATIONS:
- Coal slurry
- Iron oxide slurry
- Mill scale
- Water & slag
- Grit
- Clay slip
- Raw sewage
- Paper stock
- Plant effluent
- Plant sewage & sludge
- Clarifier sludge
- Textile mill effluent
- Drainage
- Black liquor
- Filtrate

DESIGN FEATURES:
- Casing - Rugged one piece casing is designed to facilitate the flow of all types of solids and fibrous materials
- Replaceable shaft sleeve – Hook type sleeve protects shaft from media
- Heavy duty shaft – Large diameters to handle high loads and reduce shaft deflection
- Impeller - Will allow any sphere and virtually any solid that enters the suction nozzle to pass through the pump
- Stuffing box - Easily accessible for service.

CAPABILITIES:
- Since the impeller is clear of the pump casing, any solids, Fibrous material that can enter the suction inlet will be expelled through the pump discharge.
- Solids to 203mm (8 inches) and S.G’s to 1.5 can be handled.

PERFORMANCE:
- Heads up to 40m can be achieved at speeds 1750 rpm.
- The recessed impeller pump will have lower efficiencies than comparable size pump with impeller in the flow path.
### Parts Identification

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### Pump Drive Arrangements

- JD Model
- CV Driven
- ZV Driven
- CD Driven

### Performance Graph

The graph shows the capacity (GPM) and head (m) for different flow rates and pressures, with performance curves for various pump models such as 2x2.8, 3x3.10, 4x4.12, 6x6.18, and 8x8.22.
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Jc
Medium Duty Slurry Pump

INDUSTRY APPLICATIONS:
● Waste sludge
● Fracing slurries
● Carbon slurries
● Clay & sand slurries
● Paper mill wastes & liquors
● Soda ash
● Raw sugar liquor
● Dirty water
● 70% Kaolin clay
● Wet scrubber systems
● Lime mud
● Precipitated CaCO₃
● Ceramic slurry
● Fly ash slurry
● Water & molasses

DESIGN FEATURES:
● External impeller adjustment - Maintains original performance by adjustable screws without disassembly of pump.
● Heavy duty shaft - Rugged shaft design to handle high loads and vibration.
● Impeller - Back pump-out vane to reduce stuffing box pressure, it keeps solids out of stuffing box.
● Casing - Extra thick wall sections to reduce wear and a dual volute to reduce radial loads.
● Discharge nozzle - Can be rotated to any of eight different positions.

CAPABILITIES:
● In the smaller size pumps, solids of up to 50% of the pumps discharge size can be passed.
● In the larger VJC models, solids of up to 25% of the discharge size can be handled.
● S.G’s to 1.4 can be pumped.

PERFORMANCE:
● Heads in excess of 80m can be achieved at speed of less than 1800rpm.
● Best efficiency point varies from the mid-50’s in the smaller sizes & to the mid-70’s in the larger sized pumps.
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3x6-18 JC
Pump for High Shear Slurries

INDUSTRY APPLICATIONS:
Developed to pump high shear & shear sensitive slurry. Commonly found in the Kaolin and paper coating industries, shear sensitive slurry thicken with increasing impeller rpm, sometimes to the point of overloading the motor and shutting down the pump. The 3x6-18 is designed to deliver a given flow and head at a lower impeller rpm (not top speed) than the standard design Model JC 3 and 4 inch pumps.

DESIGN FEATURES:
● Single volute casing with back pullout.
● Enclosed, 5 vane impeller to reduce shear.
● Large casing clearances around front and back impeller shrouds to reduce shear.

CAPABILITIES:
● Maximum solids handling size of 15.5mm and SG’s to 1.5.

PERFORMANCE:
● Heads in excess of 80m can be achieved at speeds of less than 1800 rpm
## Parts Identification

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RX
Heavy Duty Slurry Pump

Industry Applications:
- Alumina plant
- Phosphate mining
- Cement slurries
- Hydro cyclone
- Underflow
- Caustic slurry
- Fly ash
- Soda ash
- Pot ash
- Remote pump locations
- Arid plant locations
- Sand slurry
- Bauxite slurry
- Lime slurry
- Chrome liquor slurry
- Mud liquor slurry
- Coal dust slurry
- Lead concentrate
- Zinc concentrate
- Zinc thickener

DESIGN FEATURES:
Back suction design advantages:
- Easy replacement of wearing parts without disturbing suction or discharge piping.
- The stuffing box is only subject to suction pressure. Series applications - the discharge of the first pump can be connected to the suction of the second pump with minimum pipe work and no pipe bends.
- IMPELLER - Thicker wall sections at wear points. Back pump-out vanes to reduce wear on the liner.
- CASING - Extra thick wall sections at wear points for extended life.
- REPLACABLE LINERS - Suction cover & end cover liners protect casing from abrasive wear.
- DOMED END COVER - Domed end cover construction provides extra strength for high pressure applications.
- SHAFT SLEEVE - Shaft sleeve fit & impeller hub thread are sealed from liquid being pumped for extended sleeve life.
- EASY PART REPLACEMENT - Casing clamp construction & back suction design facilitates easy part replacement without dismantling suction and discharge piping.
- HEAVY DUTY SHAFT - Rugged design to handle high loads and vibration.
- EXTERNAL IMPELLER ADJUSTMENT - Maintains original performance by adjustable screws.
- HEAVY DUTY BEARINGS - Bearings are sized for extended life.
## Parts Identification

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### Pump Drive Arrangements

- CV DRIVEN
- TV DRIVEN
- CD DRIVEN

### Performance Chart

- **CAPACITY (GPM)**
- **HEAD (m)**
- **CAPACITY (m³/h)**
- 3RXL
- 4RXL

- **HEAD (m)**
- **CAPACITY (m³/h)**
- 100
- 1000
- 350
- 300
- 250
- 200
- 150
- 100
- 50
CKX
Heavy Duty Slurry Pump

Industry Applications:
- Fracing slurry
- Pot ash tailings
- Coal slurry
- Cement slurry
- Bauxite slurry
- Sand slurry
- Red mud
- Fly ash
- Bottom ash
- Kaolin clay
- Phosphate ore
- Mud & silt
- Dredge tailings
- Mill scale
- Alumina hydrate
- Iron ore
- Slag
- Chalk slurry
- Lime slurry
- Clarifier sludge
- Coal refuse
- Textile wastes
- Copper ore slurry

DESIGN FEATURES:
- **IMPELLER** - Large flow passages boost the pumps ability to pass solids while a large diameter allows low-speed operation therefore reducing wear.
- **CASING** - Volute design to pass large solids with minimal turbulence and re-circulation. Extra thick wall sections at wear points for extended life.
- **STUFFING BOX** - Easily accessible, the stuffing box comes standard in a weep type arrangement as shown. A flush type design (lantern ring on the casing side of all packing rings)
- **SUCTION COVER & LINER** - Liner protects the suction cover form abrasive wear, reducing replacement costs. Easily removable providing access to the impeller.
- **HEAVY DUTY SHAFT** - Rugged design for handling loads and vibration. Threaded to the impeller, the shaft end is protected from abrasion.
- **EXTERNAL IMPELLER ADJUSTMENT** - Maintains original performance by adjustable screws without disassemble of your pump.
- **HEAVY DUTY BEARINGS** - Bearings are sized for extended life. A split housing simplifies periodic inspection. The deflector protects bearings for dirt and moisture.

CAPABILITIES:
- Solids ranging from 60mm to 228mm and S.G’s to 1.8 can be handled
- The CKX can be supplied in many convenient configurations. The pump is available in both horizontal and vertical arrangements which can either be direct or belt driven. The vertical model is offered for both wet sump and dry pit installations.

PERFORMANCE:
- Heads up to 60m and efficiencies to the 74% mark.
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### Pump Drive Arrangements

- CV DRIVER
- ZV DRIVER
- CD DRIVER

### Performance Graph

- **4CKX**
- **8CKX**
- **6CKX**

- **Capacity (GPM)**
- **Head (m)**
- **Capacity (m³/h)**
- **Head (ft)**
Vertical Pumps

VSP
VHS
VJC
Froth/Lekweba
VSP
The Haulage King

INDUSTRY APPLICATIONS:
● Mill scale
● Settled sludge
● Coal slurry
● Dirty water
● Clay slurry
● Waste water
● Water & slag
● Coal fines
● Clarifier sludge
● Plant waste
● Wash down water
● Ash slurry
● Coal pile runoff
● Foundry sand
● Drainage water
● Sewage treatment
● Food processing
● Abattoirs
● Chicken sludge
● Waste paper stock
● Black liquor
● Textile mill waste

DESIGN FEATURES:
● **Shaft** - No submerged bottom bearings, 80mm thick EN8. round bar
● **Casing** - Rugged one-piece casing is designed to facilitate the flow of all types of solids and fibrous materials — (28%chrome iron)
● **Impeller** - Slightly different to the VHS with a locknut locking it to the shaft. This method is used to prevent the impeller from turning off if the motor is started in the wrong rotation direction. The impeller will allow any sphere and virtually any solid that enters the suction nozzle to pass through the pump. - (28%chrome iron)
● **Bearing frame** - Solid cast one piece bearing frame 30mm thick wall thickness ensures precise alignment between bearings.
● **Stuffing box** - Minimizes blow-back of pumpage around shaft sleeve without actual sealing contact. (28%chrome iron)
● **Deflector** - Implemented to ensure that no water splash comes in contact with the bearing seals.

CAPABILITIES:
● Since the impeller is recessed in the pump casing any solids or fibrous material that can enter the suction inlet will be expelled through the pump discharge
● Solids to 76mm (3 inches) and S.G’s to 1.5 can be handled by this design
### QUICK REFERENCE CHART

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### Accessories

- **Strainer Box Options**
- **3D Model**
- **Pipes & Elbows**
- **Agitator Options**
  - Agitator Impeller
  - Agitator Casing
  - Agitator Guard

- **Motor/Frame Sizes**
  - 132M (7.5kW)
  - 160L (15kW)
  - 180M (22kW)
  - 200L (30kW)
  - 225S/M (37kW)
  - 256S/M (55kW)
VHS
Vertical Hydro Solids

INDUSTRY APPLICATIONS:
- Mill scale
- Settled sludge
- Coal slurry
- Dirty water
- Clay slurry
- Waste water
- Water & slag
- Coal fines
- Clarifier sludge
- Plant waste
- Wash down water
- Ash slurry
- Coal pile runoff
- Foundry sand
- Drainage water
- Sewage treatment
- Food processing
- Abattoirs
- Chicken sludge
- Waste paper stock
- Black liquor
- Textile mill waste

DESIGN FEATURES:
- No submerged bottom bearings.
- Rugged one-piece casing is designed to facilitate the flow of all types of solids and fibrous materials.
- The recessed Impeller will allow any sphere and virtually any solid that enters the suction nozzle to pass through the pump.
- High strength pipe column maintains alignment between bearing frame and casing; Stuffing Box minimizes blowback of pumpage around shaft sleeve without actual sealing contact.
## Parts Identification

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## Accessories

![Accessory Options](image)
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## Accessories

![Accessories Image]
VJC
Medium Duty Slurry Pump

INDUSTRY APPLICATIONS:
- Mine slurry
- Coal prep plants
- Sump water
- Carbide slurry
- Sand slurry
- Mill scale
- Phosphate mines
- Iron ore slurry
- Bauxite slurry
- Phosphoric acid plants
- Steel mills
- Power plants
- Foundries
- Alumina refineries
- Cement mills
- Water & paper pulp
- Paper plant waste water
- Sewage sludge
- Water & wood chips
- Slat brine
- Dirty water

DESIGN FEATURES:
- External impeller adjustment — Maintains original performance by adjustable screws without disassembly of pump.
- Cantilever shaft — No submerged bottom bearings.
- Casing — Extra thick wall section to reduce wear & a dual volute to reduce radial loads.
- Throttle bush — Minimizes leakage, helps contain pressure in casing.
- Impeller — Back pump-out vanes reduce stuffing box pressure, keeps solids out of the stuffing box.

CAPABILITIES:
- In the smaller size pumps, solids of up to 50% of the pumps discharge size can be passed.
- In the larger VJC models, solids of up to 25% of the discharge size can be handled.
- S.G’s to 1.4 can be pumped.

PERFORMANCE:
- Heads in excess of 80m can be achieved at speed of less than 1800rpm.
- Best efficiency point varies from the mid-50’s in the smaller sizes & to the mid-70’s in the larger sized pumps.
## Parts Identification

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<td>3D model</td>
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### Motor Frame Sizes

- 132M (7.5kW)
- 160L (110kW)
- 180M (220kW)
- 200L (340kW)
- 225H (370kW)
- 250H (550kW)
- 280H (90kW)
- 3150H (160kW)
3x6 - 18 VJC Parts Identification

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Accessories

![Pump & motor assembly off the factory floor](image1.png)

![3D Model](image2.png)
Froth Pump / Lekweba
Froth Process Accelerator

INDUSTRY APPLICATIONS:
● Platinum process
● Chrome process

DESIGN FEATURES:
● **Cantilever shaft** - No submerged bottom bearings with large diameters to handle load.
● **Casing** - Rugged one-piece casing is designed to facilitate the flow of all types of solids and fibrous materials.
● **Impeller** - Will allow any sphere and virtually any solid that enters the suction nozzle to pass through the pump.
● **Sump** - Conical in shape and manufactured from mild steel plate which is rubber lined to aid in a longer life.
● **Swing arm** - The swing arm was created to make disassembly and assembly at the hydraulic end easier as well as safer.

PURPOSE AND LAY-OUT:
The Becker Alert Pumpmor Froth Pump was designed with a unique feature called the froth breaker, this is the key to separating the air form the product making the process more efficient. The pump lay-out is designed around simple installation and top fed of the froth into a conical sump.

WEAR PARTS:
The wear parts on the Froth pump are easily replaceable, namely the pump casing, pump impeller and stuffing box cover. These components are available in Cast iron (SG1), Stainless steel (SS1) and Chrome iron (CR1)

PERFORMANCE:
● Heads to 40m can be achieved at speeds from 1800 rpm.
● The recessed impeller pump will have lower efficiencies than comparable size pumps with impeller in flow path. S.G’s to 2.0 can be handled.
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**Accessories**

- **Agitator Options**
  - Swing Arm
  - Belt Driven

**Pump & motor assembly off the factory floor**

**3D Model**
Submersible Pumps

HTMS
JTMS
3x6-18 JTMS
CTMS
5590
HTMS - Submersible Hydro-Solids Pump

INDUSTRY APPLICATIONS:
- Coal slurry
- Iron oxide slurry
- Mill scale
- Water and slag
- Grit
- Clay slip
- Raw sewage
- Most mine slurries
- Paper stock
- Plant effluent
- Plant sewage and sludge
- Clarifier sludge
- Textile mill effluent
- Drainage
- Black liquor
- Filtrate

DESIGN FEATURES:
- **Casing** - Rugged one-piece casing designed to facilitate the flow of all types of solids and fibrous materials. CR 28% standard material of manufacture.
- **Fully recessed impeller** - Will allow large, stringy or fibrous material to pass through the pump without binding or clogging. Also ensures extra wear life. CR 28% standard material of manufacture.
- **Materials of construction** – 28% chrome-iron, CD4MCU, SG1, SS316.
- **Casing bushes** - Bolt on area for a guard to be attached to allow correct solid size through and provides stability on the sump floor. (Guard not shown)
- **Heavy duty shaft** - Large diameters to handle high loads and reduce shaft deflection.
- **Mechanical seals** – Silicon / silicon;0 tungsten carbide.

CAPABILITIES:
- Temperatures to 90°C
- Pressures to 1 380 kPa
- Solids to 150mm
- Smaller models handle up to 1.8 S.G.
- Larger models handle up to 1.5 S.G
- Designed to handle large / stringy & abrasive solids

PERFORMANCE:
- Capacities to 636 m³/h
- Heads to 28m at 1450 4 pole speed
### Parts Identification

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![Graph showing performance characteristics](image)
JTMS - Submersible Medium Duty Slurry Pump

INDUSTRY APPLICATIONS:
- Waste sludge
- Fracing slurry
- Carbon slurry
- Clay and sand slurries
- Paper mill wastes and liquors
- Soda ash
- Raw sugar liquor
- Dirty water
- 70% Kaolin clay
- Wet scrubber systems
- Lime mud
- Precipitated CaCO₃
- Ceramic slurry
- Fly ash slurry
- Water and molasses

DESIGN FEATURES:
- Casing - Extra thick wall sections to reduce wear and a dual volute to reduce radial loads.
- Impeller - Back pump out vanes reduce stuffing box pressure, keep solids out of stuffing box.
- Guard - Bolt on guard to limit the solid size that passes through and provides stability on the sump floor.
- Heavy duty shaft - Rugged design and large diameters to handle high loads and reduce shaft deflection.
- Suction cover liner - To protect the casing from wear and is easy to replace
- Mechanical seals – Silicon / silicon; tungsten carbide.

CAPABILITIES:
- Designed for abrasive sump pump applications
- Temperatures to 90°C
- Pressures to 1250 kPa
- Solids to 57mm
- S.G’s to 1.4 can be handled

PERFORMANCE:
- Capacities to 910m³/h
- Heads to 80m at 1450 4 pole speed
Parts Identification

<table>
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3x6-18 JTMS Submersible
Submersible Pump for High Shear Slurries

DESIGN FEATURES:
- With a dry weight of ± 1000kg, pumps are fitted with 30mm (M30) eyebolt capable of lifting max weight of 3.6 tons per eyebolt at 0° angle.
- Twin mounting brackets on the discharge pipe adding to the support of the casing discharge. (NOT FOR LIFTING PURPOSES)
- Rubber lined discharge pipe and elbow prolongs a longer lifespan.
- Impeller lock nut is used to prevent the impeller from turning loose if the pump is started in the wrong rotational direction. Material: 28% CHROME IRON (SEE INSTALLATIONS OPERATIONS MANUAL)
- A high strength casing with extra thick wall sections to slow the wearing process. Material: 28% CHROME IRON
- High heads and pump efficiencies achieved by 18” closed vane impeller.
- The suction strainer designed limit the solid size that is allowed to pass through the suction inlet.

INDUSTRY APPLICATIONS:
Developed to pump high shear & shear sensitive slurry The 3JTMS18 is designed to deliver a given flow and head at a lower impeller rpm (not top speed) than the standard design Model 3JTMS and 4JTMS pumps.

CAPABILITIES:
- Maximum solids handling size of 15.5mm without suction strainer and S.G’s to 1.5.

PERFORMANCE:
- Heads to 80m can be achieved at 1480 rpm 4 pole speed
### Parts Identification

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CTMS - Submersible
Heavy Duty Submersible Slurry Pump

INDUSTRY APPLICATIONS:
● Fracing slurry
● Pot ash tailings
● Coal slurry
● Cement slurry
● Bauxite slurry
● Sand slurry
● Red mud
● Fly ash
● Bottom ash
● Kaolin clay
● Phosphate ore
● Mud & silt
● Dredge tailings
● Mill scale
● Alumina hydrate
● Iron ore
● Slag
● Chalk slurry
● Lime slurry
● Clarifier sludge
● Coal refuse
● Textile wastes
● Copper ore slurry

DESIGN FEATURES:
● Casing - Extra thick wall sections to reduce wear and a dual volute to reduce radial loads
● Impeller - Back pump out vanes reduce stuffing box pressure, keep solids out of stuffing box
● Guard - Bolt on guard to limit the solid size that passes through and provides stability on the sump floor
● Heavy duty shaft - Rugged design and large diameters to handle high loads and reduce shaft deflection
● Suction cover liner - To protect the casing from wear and is easy to replace
● Mechanical seals – Silicon / silicon; tungsten carbide

CAPABILITIES:
● Solids ranging form 60mm to 228mm and S.G’s to 1.8 can be handled.

PERFORMANCE:
● Heads up to 44m and efficiencies to the 72% mark.
### Parts Identification

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<th>Part Number</th>
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5590 Submersible Pump
Manufactured specially for Emergency dewatering for the mining industry.

DESIGN FEATURES:
- 55kW 4 pole motor
- 525 V 3PH with D.O.L start
- Oil box type sealing with silicon mechanical seals operating in oil
- Particle strainer at suction side to limit particle size
- A diffuser to guide fluids to the water jacket
- A water jacket surrounding the stator housing acting as a coolant system
- Multistage—3 stage configuration

INDUSTRY APPLICATIONS:
- Fracing slurry
- Pot ash tailings
- Coal slurry
- Cement slurry
- Bauxite slurry
- Sand slurry
- Red mud
- Fly ash
- Bottom ash
- Kaolin clay
- Phosphate ore
- Mud & silt
- Dredge tailings
- Mill scale
- Alumina hydrate
- Iron ore
- Slag
- Chalk slurry
- Lime slurry
- Clarifier sludge
- Coal refuse
- Textile wastes
- Copper ore slurry
DIMENSIONS:
- Height: 1785mm
- Width: 605mm
- Weight: 1000kg

CONSTRUCTION:
- Strainer: Fabricated from mild steel
- Volute and diffuser: Cast from high grade grey iron
- Wear plates: 27% Chrome iron
- Impellers: 27% Chrome iron
- Mouth rings: Vesconite & SG60 (600 Brinell)
- Stator housing: Fine grain cast iron
- Outer jacket: Rolled
- Top housing: Fine grain cast iron
- Bearings: Imported
- Cable: 50mm x 10m S.A. manufactured
Extra

Monitoring Unit
Test Bays
4” Monitoring Unit

APPLICATIONS:
● Slime Recovery
● High pressure sweeping
● Recycling of mineral processing

ADVANTAGES:
● Economical
● Labour saving
● Easy to operate
● Practical

Hydraulic mining is the use of a powerful jet of water to dislodge minerals present in unconsolidated material, including mine tailing, placer deposits, alluvium, laterites (soil rich in iron oxides) and saprolites (soil rich in clay). It has also been applied to consolidated materials from sandstones through coal to hard rock. Hydraulic mining encompasses hydraulicking, sluicing, and educing. Hydraulicking is the process of breaking up material and suspending it in a slurry. This is often done by using a large water cannon called a monitor. The process of moving the slurry is called sluicing. Educing is the process of introducing the slurry into an enclosed circuit. In the hydraulic mining of gold the rebounding stream of water and mineral fragments is directed into sluices in which the gold settles behind baffles but the lighter waste matter is washed away. In hydraulic mining of coal the water simply breaks the coal from the seam and washes it to a collecting point.

Nozzle Pressures

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<td>20mm Ø Hole Litres/minute</td>
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Test Bays

Dry Run Test Bay

Hydraulic Test Bay
HEAD OFFICE

PO BOX: P.O. BOX 82307
Doornpoort
0017
ADDRESS: Section 242
Enkeldoorn St
Montana
TEL: (012) 548 7204
E-MAIL: aqsmontana@aqslt.co.za
GPS: 25°40'1.69''S 28°15'18.20''E

PRETORIA

ADDRESS: Unit 4
N4 Gateway Industrial
Complex, Cnr N4 & Solomon
Mahlangu Drive, The Willows
Pretoria
TEL: (012) 803 0124
E-MAIL: aqspta@aqslt.co.za
GPS: 25°45'23.86''S 28°21'39.51''E

CAPE TOWN

ADDRESS: Unit 1
2 Tedric Street
Skitland
Cape Town
TEL: (021) 948 4134
E-MAIL: aqscapetown@aqslt.co.za
GPS: 33°54'5.31''S 18°39'44.80''E

DURBAN

ADDRESS: Unit 10 & 11
Briardene Industrial Park
28 Cordova Close
Durban
TEL: (031) 563 4301
E-MAIL: aqskzn@aqslt.co.za
GPS: 29°47'43.84''S 31°0'36.25''E

FOCHVILLE

ADDRESS: Unit 10
3 Munt St
Fochville
TEL: (018) 771 2393
E-MAIL: aqsfochville@aqslt.co.za
GPS: 26°29'43.61''S 27°29'48.24''E

RUSTENBURG

ADDRESS: Unit 3 & 4
ACBO Business Park
93 Heefer St
Rustenburg
TEL: (014) 596 7735
E-MAIL: aqsrus@aqslt.co.za
GPS: 25°40'6.43''S 27°15'46.00''E

STEELPOORT

ADDRESS: Unit 2
Chrome Business Park
Bergsering St
Steelpoort
TEL: (013) 230 9213
E-MAIL: aqssteelpoort@aqslt.co.za
GPS: 24°43’42.25”S 30°13’13.92”E

WELKOM

ADDRESS: Unit 23D
12th Street
Voorspoed East
Welkom
TEL: (057) 355 1830
E-MAIL: aqswelkom@aqslt.co.za
GPS: 27°59’4.06”S 26°46’36.70”E