

Selection of Major Project References



Piston Diaphragm Slurry Pumps Andina Mine/El Soldado Mine, Chile



For applications in the mining and metallurgical industry, such as

- Pipeline slurry transfer
- Autoclave feed
- Digester feed
- Mine dewatering
- Hydraulic ore hoisting

Capabilities

- Capacities up to: 1 400 m³/hr (6 164 gpm)
- Pressures up to: 30 MPa (4 350 psi)
- Drive power up to: 3 000 kW (4 000 hp)
- Temperatures up to: 220° C (428 F)

Project details

Location	Valparaiso/Nogales, Chile
Name of operation	Andina Mine/El Soldado Mine
Client	Codelco/AngloAmerican
Application	Tailings pond
Type of slurry	Copper trailings
Length of pipeline	3/2 km
Slurry temperature	Ambient
Type of pump	TPM 9" x 10"/TPM 8 ½" x 10"
Number of pumps	3/3

Type of operation	Continuous
Capacity per pump	140/115 m ³ /hr
Pressure per pump	4/2.5 MPa
Solid concentration	60 %
Installed power	160/100 kW
Year of installation	1997/1990

El Soldado system has operated for more than 150 000 hours without any unplanned downtime.

Piston Diaphragm Slurry Pumps

Antamina Mine, Peru



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Project details

Location	Antamina, Peru
Name of operation	Antamina Mine
Client	Compania Minera Antamina
Application	Concentrate pipeline transfer
Type of slurry	Copper/zinc
Length of pipeline	300 km
Slurry temperature	Ambient
Type of pump	TPK 2200
Number of pumps	4

Type of operation	Continuous
Capacity per pump	132 m ³ /hr
Pressure per pump	25 MPa
Solid concentration	60 %
Installed power	1 300 kW
Year of installation	2001
Engineering company	Ausenco PSI
Contractor	Bechtel

Facilities are located at an elevation of 4 200 m

Piston Diaphragm Slurry Pumps

Broken Hill Mine, Australia



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Project details

Location	Broken Hill, NSW, Australia
Name of operation	Broken Hill Mine
Client	Perilya
Application	Mine dewatering
Type of slurry	Dirty mine water
Length of pipeline	Vertical 1 100 m
Slurry temperature	Ambient
Type of pump	TPM 8½" x 10"

Number of pumps	4
Type of operation	Continuous
Capacity per pump	100 m ³ /hr
Pressure per pump	13 MPa
Solid concentration	3 – 5 %
Installed power	450 kW
Year of installation	1991

Piston Diaphragm Slurry Pumps

Central Treatment Plant, South Africa



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Project details

Location	Kimberley, South Africa
Name of operation	Central Treatment Plant
Client	Kimberley Ekapa Mining
Application	Tailings pipeline transfer
Type of slurry	Diamond tailings
Length of pipeline	5 km
Slurry temperature	Ambient
Type of pump	TPM 2200
Number of pumps	3

Type of operation	Continuous (2 operating, 1 standby)
Capacity per pump	380 m ³ /hr
Pressure per pump	12 MPa
Solid concentration	> 60 %
Installed power	1 575 kW
Year of installation	2002
Engineering company	Paterson & Cooke
Contractor	Fluor

Piston Diaphragm Slurry Pumps Century Zinc, Australia



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Project details

Location	North Western Queensland, Australia
Name of operation	Century zinc
Client	New Century
Application	Concentrate pipeline transfer
Type of slurry	Lead/zinc
Length of pipeline	308 km
Slurry temperature	Ambient
Type of pump	TPM 2200
Number of pumps	3

Type of operation	Continuous
Capacity per pump	177 m ³ /hr
Pressure per pump	20 MPa
Solid concentration	> 50 %
Installed power	1 300 kW
Year of installation	2002
Engineering company	Century/Bechtel/Minenco
Contractor	Bechtel

Longest single pump station pipeline in the world

Piston Diaphragm Slurry Pumps Fairbreeze Mine, South Africa



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We have experienced MHWirth's slurry pumps providing reliable performance in previous projects and we are looking forward to continuing our success story at the Fairbreeze mine.

Carl Erasmus
Project Engineering Manager, Tronox



Project details

Location	Richards Bay, South Africa
Name of operation	Fairbreeze Mine
Client	Tronox Ltd.
Application	Tailings pipeline transfer
Type of slurry	Heavy mineral tailings
Length of pipeline	6 km
Slurry temperature	Ambient
Type of pump	TPM 2200

Number of pumps	1/2
Type of operation	Continuous
Capacity per pump	620 m ³ /hr/475 m ³ /hr
Pressure per pump	7 MPa/8 MPa
Solid concentration	32 %
Installed power	1 450 kW/1 300 kW
Year of installation	2015/2001
Engineering Company	Paterson & Cooke

After nearly 15 years of successful operation, the two pumps from former Hillendale Mine have been refurbished and relocated to Fairbreeze Mine, where they continue to operate.

Piston Diaphragm Slurry Pumps

Goro Nickel Plant, New Caledonia



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Project details

Location	New Caledonia
Name of operation	Goro Nickel plant
Client	Vale
Application	Autoclave feed
Type of slurry	Nickel slurry
Slurry temperature	200° C
Type of pump	DPM 1250
Number of pumps	6

Type of operation	Continuous
Capacity per pump	460 m ³ /hr
Pressure per pump	5.4 MPa
Installed power	1 900 kW
Year of installation	2004
Engineering company	Hatch
Contractor	Bechtel/Technip/Hatch

Piston Diaphragm Slurry Pumps

Guizhou Alumina Plant, China



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Project details

Location	Guizhou, China
Name of operation	Guizhou Alumina Plant
Client	Chalco for Zunyi Alumina
Application	Digester feed
Type of slurry	Bauxite and sodium aluminate
Slurry temperature	90 – 110° C
Type of pump	TPM 2200

Number of pumps	4
Type of operation	Continuous
Capacity per pump	360 m ³ /hr
Pressure per pump	11.5 MPa
Solid concentration	22 – 25 %
Installed power	1 400 kW
Year of installation	2008

Piston Diaphragm Slurry Pumps

Hillendale Mine, South Africa



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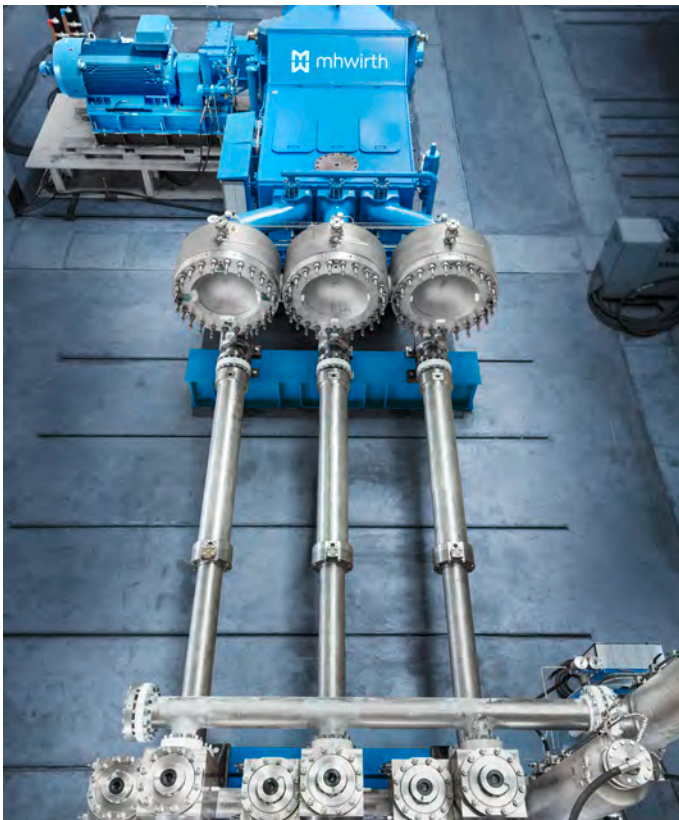
Project details

Location	Richards Bay, South Africa
Name of operation	Hillendale Mine
Client	Tronox Ltd.
Application	Tailings pipeline transfer
Type of slurry	Heavy mineral tailings
Length of pipeline	4.9 km
Slurry temperature	Ambient
Type of pump	TPM 2200
Number of pumps	2

Type of operation	Continuous
Capacity per pump	473 m ³ /hr
Pressure per pump	8 MPa
Solid concentration	32 %
Installed power	1 300 kW
Year of installation	2001
Engineering company	Ausenco PSI
Contractor	Paterson & Cooke

Piston Diaphragm Slurry Pumps

Huayou Nickel Cobalt, Indonesia



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Project details

Location	Indonesia Morowali Industrial Park
Name of operation	Nickel Cobalt HPAL project
Client	PT. Huayue Nickel Cobalt
Application	Autoclave feed
Type of slurry	Heated laterite nickel slurry
Slurry temperature	190 – 210° C
Type of pump	TPM 2200
Number of pumps	8

Type of operation	Continuous
Capacity per pump	430 m ³ /hr
Pressure per pump	5.3 MPa
Solid concentration	32 %
Installed power	580 kW
Year of installation	2020
Engineering company	Zhejiang Huayou Cobalt
Contractor	PT. Huayue Nickel Cobalt

Piston Diaphragm Slurry Pumps

McArthur River/Cigar Lake Mine, Canada



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Project details

Location	Saskatchewan, Canada
Name of operation	McArthur River Uranium Mine/ Cigar Lake Uranium Mine
Client	Cameco
Application	Ore hoisting
Type of slurry	Uranium
Length of pipeline	Vertical 640 m/vertical 580 m
Slurry temperature	Ambient

Type of pump	TPM 7" x 12"
Number of pumps	2/1
Capacity per pump	80 m ³ /hr
Pressure per pump	12.5/9.2 MPa
Solid concentration	> 50 %
Installed power	400/300 kW
Year of installation	1999/2006

The world's first hydraulic ore hoisting operation at Mc Arthur River

Piston Diaphragm Slurry Pumps

Minera Yauliyacu, Peru



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Project details

Location	Lima, Peru
Name of operation	Minera Yauliyacu
Client	Glencore/Empresa Minera Los Quenuales S.A.
Application	Tailings pipeline transfer
Type of slurry	Copper/zinc tailings
Length of pipeline	1.9/2.6/5.6 km
Slurry temperature	Ambient
Type of pump	TPM 8" x 10"

Number of pumps	3
Type of operation	Continuous
Capacity per pump	90 m ³ /hr
Pressure per pump	14.4 MPa
Solid concentration	60 %
Installed power	400 kW
Year of installation	1999

Facilities are at an elevation of 4 200 m located and can pump the tailings to three different locations

Piston Diaphragm Slurry Pumps

Neves-Corvo Mine, Portugal



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Project details

Location	Castro Verde, Portugal
Name of operation	Neves-Corvo Mine
Client	Lundin Mining
Application	Tailings pond
Type of slurry	Copper/zinc tailings
Length of pipeline	3 km
Slurry temperature	Ambient
Type of pump	TPM 2200

Number of pumps	2
Type of operation	Continuous
Capacity per pump	168 m ³ /hr
Pressure per pump	13 MPa
Solid concentration	68 %
Installed power	800 kW
Year of installation	2010/2011
Engineering company	Golder

Piston Diaphragm Slurry Pumps

Nikolaev Alumina Plant, Ukraine



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Project details

Location	Nikolaev, Ukraine
Name of operation	Nikolaev Alumina plant
Client	RUSAL
Application	Tailings pipeline transfer
Type of slurry	Red mud
Length of pipeline	5.5 km
Slurry temperature	55 – 80° C
Type of pump	TPM 2200

Number of pumps	2
Type of operation	Continuous
Capacity per pump	278 m ³ /hr
Pressure per pump	12 MPa
Solid concentration	50 – 55 %
Installed power	1 150 kW
Year of installation	2004
Engineering company	VAMI3/Paterson & Cooke

Piston Diaphragm Slurry Pumps Ok Tedi Mine, Papua New Guinea



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Project details

Location	Mt. Fubilan, Papua New Guinea
Name of operation	Ok Tedi Mine
Client	Ok Tedi Mining Limited
Application	Tailings pipeline transfer
Type of slurry	Copper tailings
Length of pipeline	128 km
Slurry temperature	Ambient
Type of pump	DPM 1250

Number of pumps	2
Type of operation	Continuous
Capacity per pump	400 m ³ /hr
Pressure per pump	9.7 MPa
Solid concentration	60 – 68 %
Installed power	1 900 kW
Year of installation	2008/2013
Engineering company	GolderDarlingPacific

Piston Diaphragm Slurry Pumps

Olympic Dam Mine, Australia



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Project details

Location	Roxby Downs, Australia
Name of operation	Olympic Dam Mine
Client	BHP Billiton
Application	Tailings pipeline transfer
Type of slurry	Uranium tailings
Length of pipeline	10 km
Slurry temperature	Ambient
Type of pump	DPM 1250

Number of pumps	3 + 1
Type of operation	Continuous
Capacity per pump	715 m ³ /hr
Pressure per pump	4.5 MPa
Solid concentration	55 %
Installed power	1 200 kW
Year of installation	2011 + 2020
Engineering company	Jacobs Engineering

Piston Diaphragm Slurry Pumps

OZ Minerals Carrapateena, Australia



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Project details

Location	Gawler Craton, South Australia
Name of operation	Carrapateena mine
Client	OZ Minerals Ltd (OZM)
Application	Positive displacement pump
Type of slurry	Copper-gold tailings
Slurry temperature	40° C
Type of pump	TPM 2200
Number of pumps	1

Type of operation	Continuous
Capacity per pump	600 m ³ /hr
Pressure per pump	9.33 MPa
Solid concentration	Up to 65 %
Installed power	2 000 kW
Year of installation	2020
Engineering company	Paterson & Cooke
Contractor	OZ Minerals Ltd (OZM)

Piston Diaphragm Slurry Pumps Quebrada Honda, Peru



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Project details

Location	Toquepala, Peru
Name of operation	Quebrada Honda
Client	Southern Peru Copper Corporation
Application	Tailings pond
Type of slurry	Copper tailings
Length of pipeline	4 km
Slurry temperature	Ambient
Type of pump	TPM 12" x 14"

Number of pumps	3/1
Capacity per pump	295/190 m ³ /hr
Pressure per pump	6/8 MPa
Solid concentration	54 %
Installed power	700/600 kW
Year of installation	2007
Engineering company	AMEC
Contractor	Bechtel

Piston Diaphragm Slurry Pumps

Ramu Nickel, Papua New Guinea



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Project details

Location	Papua New Guinea
Name of operation	Ramu Nickel project
Client	Ramu Nico Management (MCC) Ltd.
Application	Autoclave feed
Type of slurry	Heated laterite nickel slurry
Slurry temperature	200 – 210° C
Type of pump	TPM 2200
Number of pumps	6

Type of operation	Continuous
Capacity per pump	400 m ³ /hr
Pressure per pump	5.3 MPa
Solid concentration	32 %
Installed power	880 kW
Year of installation	2011
Engineering company	China ENFI Engineering Corporation
Contractor	Ramu Nico Management (MCC) Ltd.

Piston Diaphragm Slurry Pumps

Shanxi Alumina Plant, China



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Project details

Location	Shanxi, China
Name of operation	Shanxi Alumina plant
Client	Shanxi Luneng Jinbei Aluminum Co. Ltd
Application	Digester feed
Type of slurry	Bauxite and sodium aluminate
Slurry temperature	100° C
Type of pump	DPM 1250

Number of pumps	5
Type of operation	Continuous
Capacity per pump	550 m ³ /hr
Pressure per pump	8 MPa
Solid concentration	20 – 29 %
Installed power	1 500 kW
Year of installation	2007

Piston Diaphragm Slurry Pumps

Yarwun Alumina Refinery, Australia



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Project details

Location	Gladstone, Australia
Name of operation	Yarwun Alumina Refinery
Client	Rio Tinto Alcan
Application	Digester feed
Type of slurry	Bauxite and sodium aluminate
Slurry temperature	90° C
Type of pump	TPM 2200
Number of pumps	8/10 (18 in total)

Type of operation	Continuous
Capacity per pump	390/425 m ³ /hr
Pressure per pump	9.6 MPa
Solid concentration	> 60 %
Installed power	1 275/1 400 kW
Year of installation	2004/2009
Engineering company	Hatch
Contractor	Bechtel