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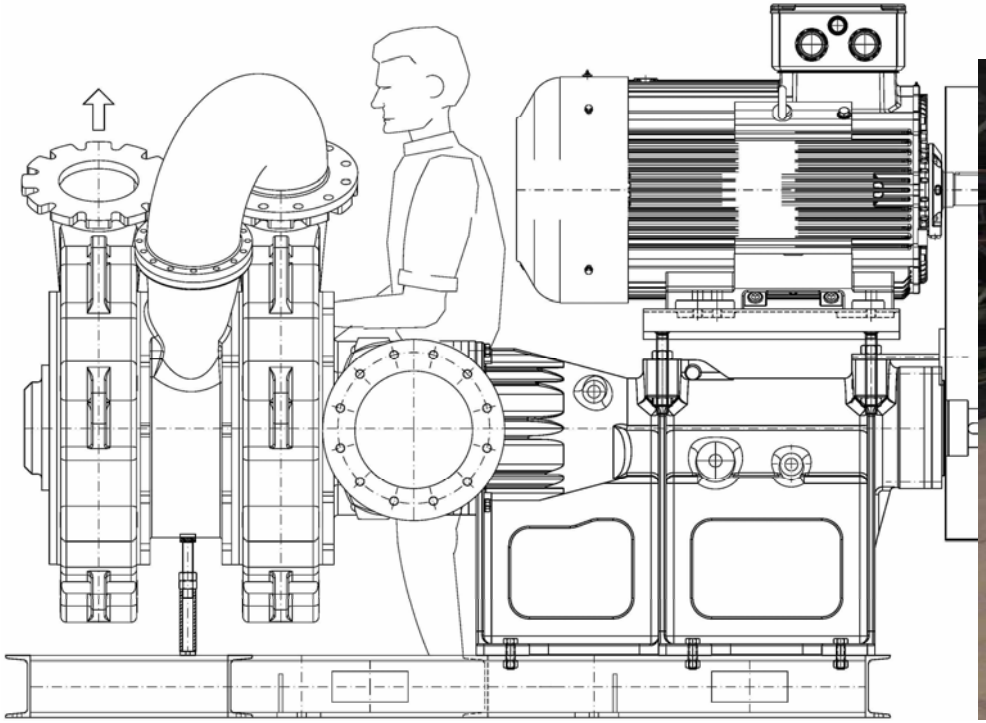
Corrosive/Abrasive Resistant

Horizontal PEMO Filter Press Feed Pumps



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PEMO Filter Press Feed Pumps are specifically designed for filter press applications.

Horizontal, vertical and submerged versions are all available, but the unique side suction design of the ***horizontal*** filter press pump offers key advantages:

- The seal only needs to address the feed slurry pressure instead of the high pressure from the pump discharge.
- Only a simple mechanical seal flushing system is required.
- The seal flush system is sealed so no water or sludge will leak during the flush cycle.

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There are three different types of Pemo Horizontal Filter Press Feed Pumps:

1. Hard Metal Models
2. Standard Models
3. Corrosive Application Models

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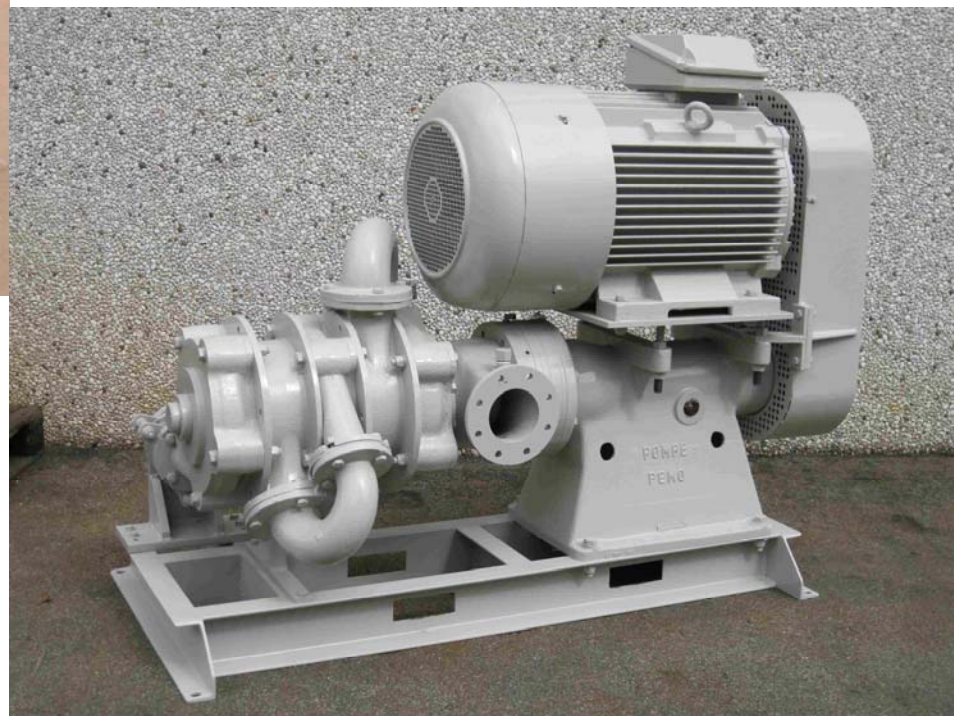
Hard metal Pumps

All the main wet parts, such as casings and impellers, are made completely of Hardalloy PEMO (HB 750-800).

model 1004-H DC



Other parts, such as the side inlet box, can be coated with rubber liners.

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The Hard Metal pumps are ideal for applications where there are:

- Final outlet heads up to 150 meters/H2O (492 ft) for (triple stage versions), and 85 meters/H2O (279 ft) (single stage versions).
- Neutral or basic applications (pH > or = 7).
- Slurry temperatures higher than 55-60 °C (130-140 °F).
- Minimum ambient temperature of 3 to 4 °C (38-40 °F), maximum of 55 °C (130°F).
- Slurries with coal particles content.
- Maximum particle size higher than 100 µm (US mesh 140), but lower than 1-2 mm (US mesh 10 or 18), depending on the composition of the particles.
- Filtration times longer than 30-40 minutes (for instance with sludges with very high clay content, or when particles are very fine, as in recycling plants with sand and gravel).

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Common Mechanical Description – Hard Metal Models

- Side suction, the pump is not self priming and must always be under a level.
- Casing (or casings, in the double stage option) completely made of PEMO Hardalloy-C (680-750 HB).
- Inlet flanges and Impellers of the open type with 3, 4, 5 or 6 blades, completely made of PEMO Hardalloy-I (HRB 750-800), dynamically balanced.
- Electric motor, 4 poles speed (1450 or 1750 rpm) of the multi-tension standard type, 380/440 Volt – 50/60 Hz, to be controlled by VFD or Inverter (never included in the quotations).
- V-belt transmission between motor and pump is the standard one, but under certain circumstances it is possible to supply pumps with direct transmission as well.

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Common Mechanical Description – continued

- Shaft made of steel C45 or 39NiCrMo4, with the part in the direct contact with the mechanical seals and the slurry coated with a thick layer of chromium (0,3 mm).

- Mechanical seal box is made of spheroidal cast iron, with the part in direct contact with the slurry coated with a thick layer of chromium (0.3 mm).

- Base with oil lubricated bearings.

- Sealing system is made with one pair of mechanical seals having stainless steel body and wear rings made of silica carbide or tungsten carbide (widia). Flushing and cooling of the mechanical seals is made with clean flushing water, 1-3 liters/min (1/4 to ¾ GPM) at a pressure that must be 0.5-1 bar (7-15 psi) higher than the slurry inlet pressure of the pump, up to a maximum of 5 bars (73 psi). If a constant source of clean, flushing water is not available, a closed loop flushing circuit with water or oil lubricants can be supplied at extra cost.

- If needed, ANSI adapting flanges (i.e. for ANSI standards) can be supplied at extra cost.

HARDALLOY PEMO Pump Models	Flow (1)	Pressure (2)		Piping (4)	
double stage – *triple stage*	(m3/h)	m.c.l.	bar (3)	Inlet (5)	Outlet (6)
S-FP AO/AB/AS-B3	60-70	45	6	100	65
S-FP AO/AB/AS-B57	60-70	60	8	125	80
603-HD AO/AB/AS-B57	90-120	65	8	125	80
K125-H AO/AB/AS-B77	90-120	50	7	150	100
K125-HMCA AO/AB/AS-B77	150-180	75	10	150	100
1004-HMCA AO/AB/AS-B77	200-250	70	9	200	150
P200-HMCA AO/AB/AS-B17	300-560	70	9	250	200
M280-HMCA AO/AB/AS-B20	800-1250	80	10	300	250
S-FP AO/AB/DC/AS-B57	60-70	100	14	125	65
S-FP AO/AB/DC/AS/BX-B77	60-70	120	16	150	80
S-FP AO/AB/TC/AS/BX-B77	60-70	150	20	150	80
603-HD AO/AB/DC/AS-B77	90-120	110	14	150	80
603-HD AO/AB/TC/AS/BX-B17 MINE	90-120	150	20	150	80
K125-HMCA AO/AB/DC/AS-B77 MINE	150-180	110	16	150	125
1004-HMCA AO/AB/DC/AS-B17 MINE	200-250	130	16	200	150
1004-HMCA AO/AB/TC/AS-B20 MINE	200-250	150	20	200	150
P200-HMCA AO/AB/DC/AS B20 MINE	300-560	120	16	250	200
M280-HMCA AO/AB/DC/AS-B20 MINE	800-1250	120	16	300	250

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“Standard” PEMO Pumps

The impellers in these pumps are completely made of Hardalloy PEMO (HB 750-800),

Casings are lined with special wear resistant rubbers.

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Standard pumps are ideal for applications where there are:

- Final outlet heads up to 100 meters/H2O (328 ft) (double stage versions), and 50 meters/H2O (164 ft) (single stage versions).
- Neutral or basic applications (pH > or = 7).
- Slurry temperatures lower than 55-60 °C (130-140 °F).
- Minimum ambient temperature of 3-4 °C (38-40 °F), and maximum ambient temperature of 45 °C (113°F).
- Slurries with quartz particles content.
- Maximum particle size smaller than 100 µm (US mesh 140).
- Filtration times shorter than 30-40 minutes.

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Common Mechanical Description - Standard Models

- Side suction, the pump is not self priming and must always have flooded suction.
- Casings made of standard cast iron or of spheroidal cast iron (for all the double stage versions), with vulcanized or separable (only for models 503 and 603 in the single stage version) thick layers of rubber linings our type RAP27 or P178.
- Impellers of the open type with 3, 4 or 5 blades, completely made of Hardalloy-PEMO (HRB 750-800), dynamically balanced.
- Electric motor, 4 poles speed (1450 or 1700 rpm) of the multi-tension standard type, 380/440 Volt – 50/60 Hz, protection grade IP 55, to be controlled by VFD or Inverter (VFD or inverter are never included in the quotations).
- V-belt transmission between motor and pump is the standard one, but under certain circumstances it is possible to supply pumps with direct transmission as well.

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Common Mechanical Description - Standard Models - continued

- Shaft made of steel C45 or 39NiCrMo4, with the part in direct contact with the mechanical seals and the slurry is coated with a thick layer of chromium (0,3 mm).

- Base with oil lubricated bearings (with the exception of the 302 model, where bearings are grease lubricated).

- Sealing system is made with one pair of mechanical seals having wear rings made of silica carbide or tungsten carbide (widia). Flushing and cooling of the mechanical seals is made with clean flushing water, 1-3 liters/min (1/4 to ¾ GPM) at a pressure that must be 0.5-1 bar (7-15 psi) higher than the one of the slurry at the inlet of the pump, up to a maximum of 5 bars (73 psi). If a constant source of clean, flushing water is not available, a closed loop flushing circuit with water or oil lubricants can be supplied at extra cost.

- If needed, ANSI adapting flanges (i.e. for ANSI standards) can be supplied at extra cost.

Rubber Lined PEMO Pump Models *double stage*	Flow (1)	Pressure		Piping (4)	
	(m3/h)	m.c.l. (2)	bar (3)	Inlet DN	Outlet DN
302 AO/ABM	10-20	30	4	65	40
403 AO/AB/AS-B3	30-40	40	5	80	50
503 AO/AB/AS-B3	50-60	45	6	100	65
603 AO/AB/AS-B57	90-120	55	7	125	80
K125 AO/AB/AS-B77	150-180	55	7	150	100
1004 AO/AB/AS-B77	200-250	45	6	200	150
P200 AO/AB/AS-B17	300-560	55	6,5	250	200
I-270 AO/AB/AS-B17	500-900	50	6	300	250
C300 AO/AB/AS-B17	800-1700	50	6	300	250
503 AO/AB/DC/AS-B57	60-70	95	13	100	65
603 AO/AB/DC/AS-B77	90-120	95	13	125	80
K125 AO/AB/DC/AS-B77	150-180	100	12,5	150	100
1004 AO/AB/DC/AS-B17	200-250	100	13	200	150
P200 AO/AB/DC/AS-B17	300-560	95	12	250	200

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Corrosive Application Pumps

- These are designed specifically for corrosive applications. All the main hydraulic parts, like impellers and casings, are coated with special rubbers, or are made of special metals like stainless steel, SuperDuplex, Hastelloy or others.

- Other components, such as the shaft or mechanical seal box, are made of special metals like stainless steel, SuperDuplex, Hastelloy, Titanium or others.

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Corrosive Application pumps are ideal for applications where there are:

- Final outlet heads up to 120 meters/H2O (393 ft) for alloy double stage versions, and 60 meters/H2O (196 ft) for alloy single stage versions.
- Final outlet heads up to 100 meters/H2O (328 ft) for rubber lined double stage versions, and 50 meters/H2O (164 ft) for rubber lined single stage versions
- Acid applications (pH < 7).
- Slurry temperatures lower than 80-90 °C (176-194 °F) for rubber lined versions.
- Minimum ambient temperature of 3-4 °C (38-40 °F), and maximum ambient temperature of 45 °C (113°F).
- Maximum particle size smaller than 100 µm (US mesh 140).
- Filtration times shorter than 30-40 minutes for rubber lined versions.

Two Different Motor Options

Single Speed Motors

- The Standard Model pump is supplied with a single speed motor that will need to be controlled by an inverter or variable frequency Drive (VFD).
- The inverter and/or VFD is not provided with the pump and must be supplied separately. The inverter and/or VFD is recommended to allow rapid fill of the filter press plates at the lower speed and then increase pressure at higher speed to produce the driest filter cake possible.

Double Speed Motors

- Double speed pumps were most commonly supplied in the past with one winding of the Dahlander type or with 2 separate windings at 4/2 or 6/4 poles.
- This style motor is still available but only provided on request.

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Pricing

- The PEMO price list contains pricing information for most but not all types and configurations of the Standard and Hard Metal model pumps.

- Since costs of the special materials used in the manufacture of the Corrosive Application Pumps can fluctuate widely dependent on market demand, pricing for these pumps is only available on special request, and not included in the standard PEMO price list.

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Application Engineering

- If other than standard pump flows or pressures are needed, or if there are unique operating requirements such as adaptable flanges or special ambient conditions (high altitude situations), the PEMO Application Engineering Department is available to design and quote custom pumps.

- When considering a Pemo Filter Press Feed pump, we highly recommended that you contact Perissinotto SpA first to evaluate the pump application operating conditions in order to determine the optimum solution for maximum performance and efficiency.