

## Combination of ABEL HMD and double-shaft screw conveyor transports compact Jarosite sludge

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fp ebk mol bpbba f k primerof eb mob fmf flk lc folk F fp dbkbo iiv  
fa tefib eb wfk lufab eolrde lkpfaboba l b t p b molar  
eb mol bpbba lc ib efkd ka r k b l f kba tf e b bk  
p rof k ab f k fp m o lc eb ib kfd fp mol bpbba f k mrob ka i fr o lk b l ob b k  
P Dolrm ka l mbo bp eb bib oliv f wfk ka l ebo b ip+ aaf fsb tef e k b r pba f k kv  
tloia p i odbp wfk bib oliv pfp afccbok mmif flk f k irafkd ol a  
mi k il ba f k eb f v lc P k eb P k Gr k ab fbs mi k e p k p or flk b +  
Gr k ab fbs f k lo ebok P m f k b p pcriiv l mbo ba afccbok B  
aaf flk l molar f k mrob wfk eb m r mp clo kv vb op F k aaf flk  
mi k ipl krc robp s oflrp p rof k ab f k ipl l mbo bp  
wfk iilvp dbo kfr aflufab m r m f kd pvp b tef e lk p f p lc  
bo rov ka primerof fa+ l i lc pbsbk evao rif iiv aofsbk  
t bof ip l b mof ofiv Arb l eb f k ob p f kd l mbo f kd lp p  
fk eb clo lc lk bk o ba mfp lk m r mp lo plifa m r mp lc eb mfp lk m r mp ka b rpb lc  
wfk primefab lobb l eb kb o v G olp b cfi bo hbp col eb bi b cfi b m r mp f t p mol ml pba  
mlo + eb lobb ob f kba f k iv mob p p b f k l p filp v b kp lc m r m b k B mfp lk b o kb m r m  
eb l m kv p ltk pf b f k pvp b + pelria b r pba l o k p m l o eb  
@ k of + eb wfk primefab fp eful olm r kb oiv l m G olp b  
ebk mol bpbba ol p ba f k l wfk G olp b fp ml p p r folk prime b piradb + o k p m l o f kd efdeiv o pfsb  
lufab ka primero aflufab + eb e fp molar ba col wfk lufab p piradb p r f kd mfp lk b o kb m r mp  
i odbp m o lc efp primero aflufab o lc eb ib efkd mol bpbba r o f k p p b lc eb o b ekf nr 8 m r m f kd

compact sludges such as filter cakes is an entirely new idea. The plant was already using an ABEL piston membrane pump to transport Jarosite, but in this case, the Jarosite was lightly thinned and still had a measurable degree of viscosity. However, pumping cakes directly as they are released from the belt filter presses represents a particularly challenging task for a piston membrane pump. Because the filter cake is not able to flow, it must be fed into the pump.

### The ABEL Technique

Together with a specialist in mechanical conveyor systems, ABEL tested a double-shaft screw conveyor for use as a feed device for the piston membrane pump. The goal of this test was to develop an idea of the screw shaft geometry and trough length required in order to utilise the thixotropy of the sludge and to begin to liquefy the sludge before it enters the piston membrane pump.

### The ABEL Solution

After making the necessary tests, the screw shaft geometry and the necessary pump size were determined. ABEL decided to use a stainless steel piston membrane pump of type HMD-H-50-0500-ED designed for a pump pressure of 2.5 MPa. The customer was already using a similar pump and was impressed by its smooth and quiet operation.

### Conclusion

In summer of 2007, pump and double shaft screw conveyor were produced and that fall, they were put into operation. All of the customer's expectations were met from day one. The combination of a screw conveyor and a piston membrane pump employs a unique



*Piston membrane pump type HMD-H-50-0500-ED with screw conveyor*



*Jarosite sludge entering the double-shaft screw conveyor*



*Belt filter press with dewatered Jarosite sludge*

design and thanks to its direct operation using an electric motor, runs smoothly and is more efficiently than other comparable systems. The residual pulsation that occurs with oscillating displacement pumps is reduced to a minimum using an appropriately-sized pulsation damper.



*ABEL HMD for transporting thinned Jarosite sludge*