

Complete lines with belt presses and thickeners
8. Martin - Vrútky ČOV, 62. Zamotulý ČOV, 130. Wieruszów ČOV, 132. Sedláňany ČOV, 152. Dębno ČOV, 158. Dolný Kubín ČOV, 171. Krotoczyn ČOV, 189. Nové Mesto nad Váhom ČOV, 239. Týn nad Vltavou ČOV, 259. Myszków ČOV, 263. Komárno ČOV, 276. Benátky nad Jizerou ČOV, 302. Šafa - Veča ČOV.
Complete lines with belt presses
1. Chocceň ČOV, 2. Budča Veľkovoýkrmňa ošipáných, 3. Brumov - Bilnice ČOV, 6. Hanušove ČOV + pivovar Holba a.s., 19. Olešnice ČOV, 28. Gbely ČOV, 29. Čáslav ČOV, 30. Nižná ČOV, 32. Trutnov ČOV, 33. Žilina ČOV Horný Hričov, 34. Rokytnice nad Jizerou ČOV, 38. Vážovka ČOV, 45. Kroměříž ČOV, 51. Revúca ČOV, 54. Handlová ČOV, 55. Veľký Šariš ČOV Pivovar Šariš a.s., 59. Stará Mlása ČOV, 72. Leňka ČOV, 78. Orembark ČOV, 82. Strumien ČOV, 101. Krušembark Košeluzňa A.S.D. BINKO spol. s r.o. Krušembark, 102. Krušovice Kráľovský pivovar Krušovice a.s., 103. Napajedla ČOV, 104. Barlink ČOV, 123. Veľký Krtíš ČOV, 124. Wagrowice ČOV, 125. Plock SADRÓB S.A. Zaklady Drobiarskie, 126. Grodków ČOV, 127. Wisła ČOV, 129. Frydlant nad Ostravicou ČOV, 135. Gorlice GUMAR S.A. - rafinéria nafty, 140. Karlove Vary ČOV, 141. Bytom KWK SA "Centrum - Szombierki" Bytom - úpravná uhlia, 142. Lúka Coca - Cola Beverages Slovakia s.r.o., 143. Turčianske Teplice ČOV, 144. Levoča ČOV, 145. Liptovský ČOV, 148. Trebiňňa EKONAFT Sp. z o.o. - rafinéria nafty, 150. Mysłowice Przedsiębiorstwo Wzmacniania Wegla Kamiennego "Carbo - Koncentrat" SA - úpravná uhlia, 154. Gliwice ČOV, 157. Przechlewo PRIME - FOOD S.A. Zaklady Mięsne, 160. Szczawinka ČOV, 169. Postřelmov ČOV, 170. Tarnowskie Gory ČOV, 175. Tarnavol ČOV, 177. Ustroń ČOV, 184. Olsány Olsánské papírny a.s., 187. Tarnów Opolski ČOV, 188. Wegierska Górka ČOV, 190. Vranov Bukocel a.s., 193. Czempin ČOV, 195. Czechovice - Dedice Rafinéria Czechovce SA - rafinéria nafty, 196. Oborniki Wilkp. ČOV, 200. Svidník ČOV, 208. Kostinbrod Sanitex Paper Mill Ltd, 211. Stanin ČOV, 214. Jelšava ČOV, 221. Klaipeđa AB Klaipeđos Kartonas, 225. Pwnciczna ČOV, 226. Zlaté Klasy ČOV, 229. Dežerice Veronika a.s., 230. Miedzibrodzie ČOV, 235. Czerniwka - Leszczynki ČOV, 236. Swiebodzin ČOV, 240. Ozorków ČOV, 243. Lučy ČOV, 244. Grabów nad Pilicą ČOV, 245. Trenčianska Teplá ČOV, 249. Bochnia ČOV, 252. Volžsk Marijsk ČBK, 254. Hlohovec Zentiva a.s., 255. Stropkov ČOV, 264. Radlin Kombinat Kokschemiczny S.A., 267. Korbielów ČOV, 269. Tczów ČOV, 278. Stochów ČOV, 279. Chelm Śląski ČOV, 280. Tylmanowa ČOV, 281. Spišská Belá ČOV, 283. Roztoky u Prahy Pojazdné zariadenie (ČOV v okolí), 284. Koscián ČOV, 289. Ligatné Papiereň, 290. Kechneč ČOV, 296. Humpolec ČOV, 299. Szczepieszyn ČOV, 300. Veľká Bystrice ČOV, 301. Sedlec - Přice ČOV, 310. Červený Kameň ČOV, 311. Sudak ČOV, 312. Leczna ČOV, 313. Krzeszowice ČOV, 314. Chrzanów ČOV, 315. Paradyž ČOV, 317. Nová Turovňa Calendula a.s.
Complete lines with thickeners
9. Čadca ČOV, 44. Šafa ČOV, 111. Kolín ČOV, 199. Pelhřimov ČOV, 209. Vsetín ČOV, 212. Hranice ČOV, 227. Kralupy ČOV, 233. Kolín - Ověčáry ČOV, 253. Trenčín ČOV (pravobrežná), 256. Ričany ČOV, 257. Námestovo ČOV, 271. Trenčianska Teplá Považský Čukor a.s., 285. Valašské Meziříčí ČOV, 286. Velké Karlovice ČOV, 287. Jeseník ČOV, 291. Gostyni ČOV, 297. Lidečko ČOV, 298. Hovězí ČOV, 307. Štěpánov ČOV, 319. Horní Slavkov ČOV, 326. Ostrov ČOV.
Solo components for the lines
4. Dunajská Streda Prefa Trend s.r.o., 11. Brno Kráľovopolská RIA a.s., 20. Partizánske ČOV, 22. Topoľčany ČOV, 23. Spišská Nová Ves ČOV, 36. Strakonice Fezko a.s., 37. Myjava ČOV, 39. Bytča ČOV, 43. Bratislava Slovnaft a.s., 57. Harmanec Harmanecké papierne a.s., 58. Trenčín Ekoprogres v.d., 63. Kežmarok ČOV, 64. Trnava Tepláňa Ústí nad Labem a.s., 66. Rajec Diamonmotor s.r.o., 68. Nová Bystrica Severosol, VAK Žilina, 74. Loučovice Papírny Vltavský mlyn Loučovice a.s., 76. Liptovský Mikuláš Maytex a.s., 84. Plock Zaklady Mięsne S.A., 86. Timače ČOV, 87. Řimavský ČOV, 97. Liptovský Hrádok Teepro S., 98. Nitra Vibresso s.r.o., 106. Ružomberok SCP a.s., 108. Plzeň JP - Servis s.r.o., 109. Prešov Sokoflok Slovakia s.r.o., 110. Warszawa Daewoo - FSO Motor Polska Sp. z o.o., 113. Liptovský Mikuláš Liptost a.s., 114. Prievidza Baňa Cigeľ (Horontianske bane a.s.), 117. Kazaň ČOV, 118. Znojmo ČOV, 119. Trnava Trnavský cukrovar a.s., 131. Púchov Matador a.s., 133. Kladno ČOV Kladno - Dubí (Energetika Kladno s.r.o.), 136. Vranov Bukóza Export - Import a.s., 155. Karviná ČOV, 161. Bila Voda ČOV San Valentino a.s., 162. Brno VZH DIS spol. s r.o., 163. Gorlice ČOV, 167. Šturovo AssiDomán Šturovo a.s., 168. Zvolen Tepláreň (Stredoslovenské energetické závody š.p. Žilina), 172. Turčiek Úpravná vody, 176. Chodov ČOV, 179. Banská Bystrica API SC spol. s r.o., 180. Krompachy ČOV, 186. Liptovský Mikuláš Gelima a.s., 192. Jaworzno Elektrownia Jaworzno III, 197. Banská Bystrica Smrečina Holding I. a.s., 201. Žilina Tento a.s., 203. Liptovský Mikuláš TATRA - LEDER spol. s r.o., 205. Prakoce ČOV, 207. České Budejovice Duropack Bupak Papírny s.r.o., 210. Slavošovce Papierne Slavošovce a.s., 215. Lučenec ČOV, 217. Liptovský Mikuláš Schafstall spol. s r.o., 218. Trnava Tepláňa Ústí nad Labem a.s., 220. Gdansk Rafinéria Gdańska S.A. - rafinéria nafty, 224. Ostrava ÚČOV, 228. Žiar nad Hronom ZSNP a.s., 231. Liptovský Mikuláš Ing. Jana Ivančičová, 232. Nowa Ruda Zaklad Przeróbcy Kopalni, 242. Slupce KONSOPOL - BIS Sp. z o.o., 251. Kozicín ČOV, 258. Olsztyn Indykpol Olsztyn, 261. Enns Biomontan GmbH Enns, 262. Ružomberok ČOV Hrboltová, 268. Sewierz ČOV, 274. Liptovský Mikuláš BS - FIN s.r.o., 277. Žatec ČOV, 282. Budaörs Ciba Speciality Ch. Hungary Ltd., 288. Klášterec nad Ohří ČOV, 292. Martin Transmisie Engineering a.s., 293. Mimoň VIA spol. s r.o., 294. Kadaň ČOV, 295. Údlice ČOV, 304. Pířbram ČOV, 305. Habartov ČOV, 306. Kladno - Vrapice ČOV, 308. Hostinné Krkonoské papírny a.s., 309. Ružomberok MONDI SCP Ružomberok, 316. Opole DEMPOL ECO Sp. z o.o., 318. Ferlach Koreko KWI, 320. Humenné ČOV, 327. Mikošov ČOV, 328. Piszarowice ČOV, 329. Bánovce nad Bebravou ČOV.
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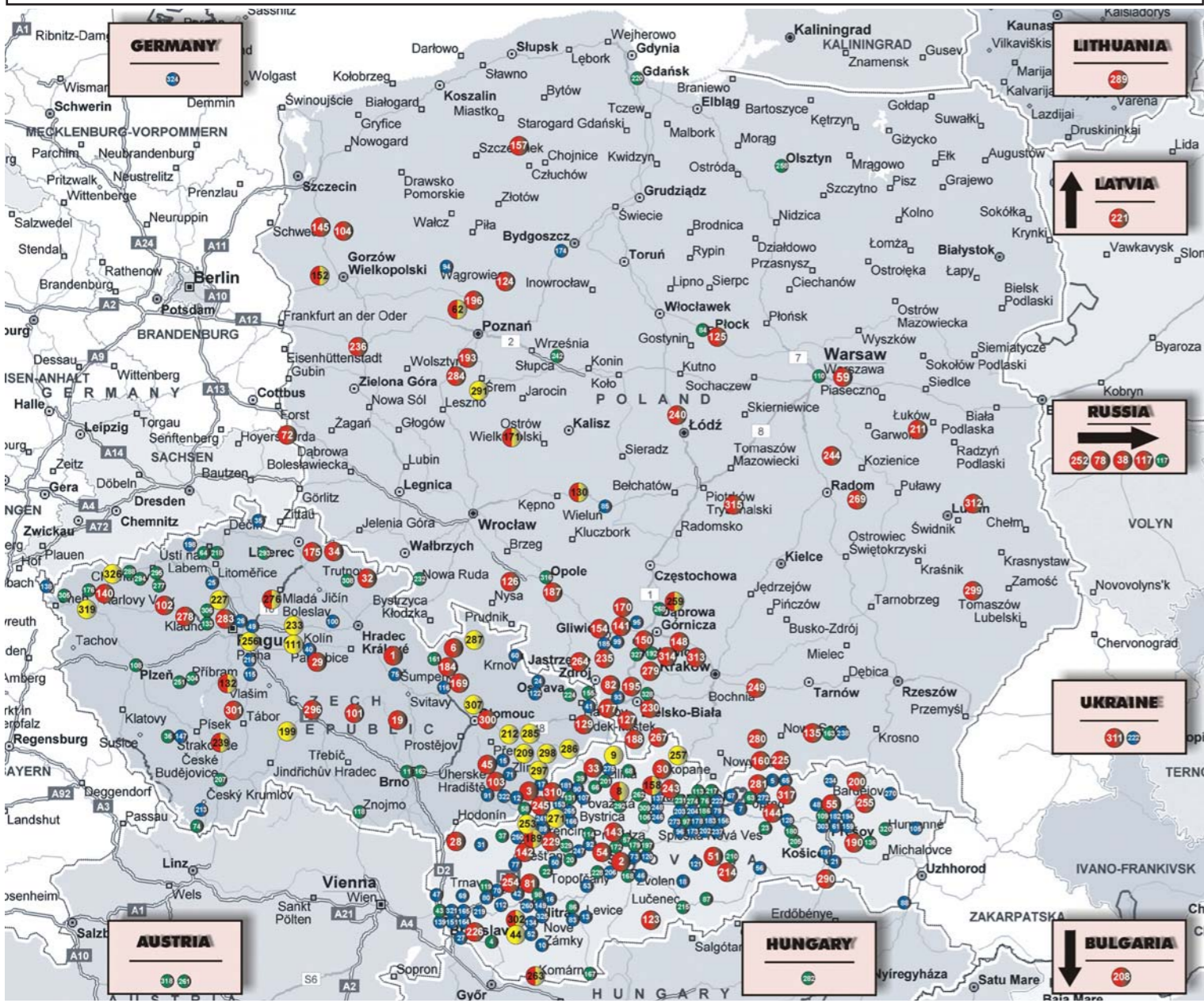
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LINES DESIGNED FOR SLUDGE DRAINING AND FOR DRAINING OF OTHER MEDIA

SLUDGE DRAINING LINE



Except belt presses and mobile lines for sludge draining Company Vanex spol. s r.o. (Vanex limited) produces for better environment thickeners, units for chemicals preparation (solutions from powdery substances - flocculants and from emulsions), tanks and plastic constructions for various purposes, low-speed belt conveyers and screw conveyers.
Vanex spol s r.o. delivers also components for sludge processing lines. The company carries out their assembly, maintenance as well as the reconstructions of older devices.
Address: VANEX spol. s r.o., Vyšné fabriky 763, 033 01 Liptovský Hrádok, Slovakia, tel./fax (+421 44)522 33 66, 522 32 39, e-mail: vanex@vanex.sk, www.vanex.sk

SLUDGE DRAINING LINE

One very important part of various technological processes is the draining and thickening of sludge and of other media.

The pressing on belt presses is one traditional, but very efficient method for sludge draining. Sludge thickening is accomplished mainly in belt thickeners.

Company Vanex produces classical belt presses of various dimensions achieving parameters according to enclosed table.

The expected dry matter output from a belt press is 20 – 30 %.



Belt Press Type	Belt Press Dimensions L x W x H (m)	Weight	Filter Belt (m)	Informative Press Performance	
				(kg D.S. h-1)	(m ³ h-1) with 4% Inlet Concentrate
VX – GORO 6	2,53 x 1,40 x 1,50	800	0,60	20 – 120	0,5 – 3,0
VX – GORO 8	2,60 x 1,60 x 1,45	950	0,60	30 – 200	0,8 – 5,0
VX – GORO 10	2,60 x 1,80 x 1,45	1 100	1,00	40 – 280	1,0 – 7,0
VX – GORO 12	2,60 x 2,00 x 1,45	1 200	1,20	50 – 344	1,2 – 8,6
VX – 6A	3,35 x 1,61 x 1,80	1 150	0,60	60 – 200	1,5 – 5,0
VX – 6	4,62 x 1,75 x 1,85	1 350	0,60	80 – 240	2,0 – 6,0
VX – 8	4,62 x 1,95 x 1,85	1 650	0,80	160 – 400	4,0 – 10,0
VX – 10	4,62 x 2,15 x 1,85	2 150	1,00	220 – 520	5,5 – 13,0
VX – 12	4,62 x 2,35 x 1,85	2 580	1,20	280 – 600	7,0 – 15,0
VX – 15	4,98 x 2,39 x 2,36	7 000	1,50	360 – 800	9,0 – 20,0
VX – 20	4,98 x 2,89 x 2,36	8 000	2,00	500 – 1 120	12,5 – 28,0



Another possibility how to increase the dry matter output, especially in pressing of industrial sludge, is to use a special high-pressure press - type VT. The dry matter output from this press type is 5 - 20% higher, depending on the sort of the pressed medium.

The performance and quality parameters of a line depend mainly on the physical features of the sludge, on the type of used flocculation medium, on the sieve and on the quality of the operating personnel. VANEX optimizes as a part of its delivery all the



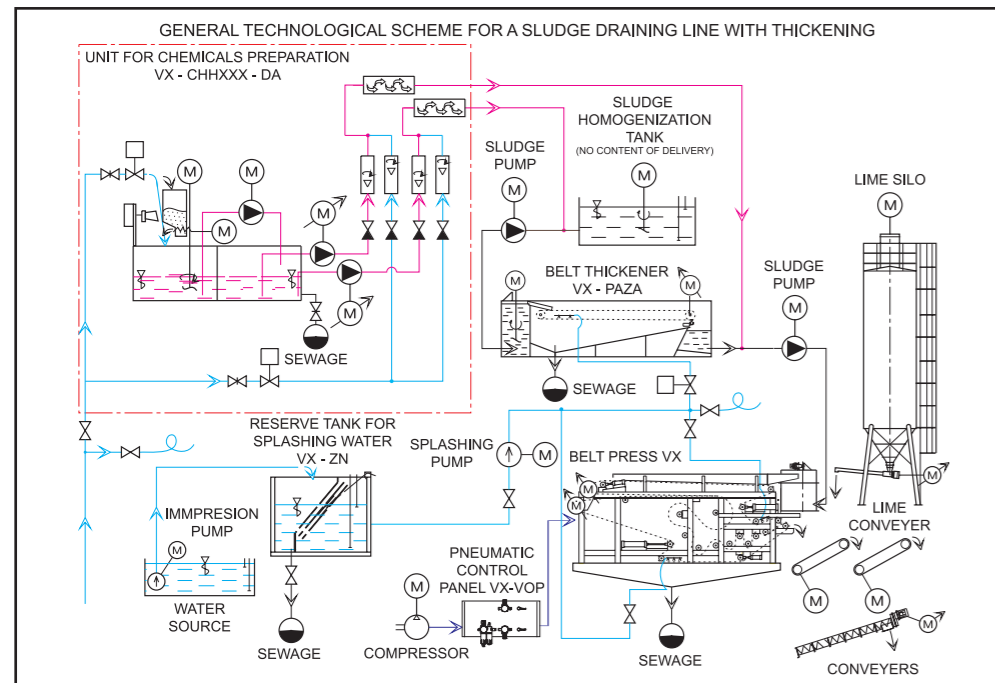
parameters and specifies the appropriate type of flocculation medium.

LINE DESCRIPTION

Vanex delivers all the components needed for operation of the belt presses, which are listed in the general technological chart.

The main component of a line is the **belt press VX**. Above mentioned press is supplied with the sludge directly to the upper sieve via **unit for preparation of flocculation media VX - FZ**. The upper sieve also has a function of a thickener because the sludge getting through this sieve on the clean bottom sieve is at the same time turned over.

This solution enables extending the gravitation sector for water separation to circa 6m (except for the press VX - GORO and VX - 6A).



This technical solution enables pressing of inhomogeneous sludge with low input dry matter even under 1%.

Following media are necessary for the operation of a belt press (they can be provided by other components of the line):

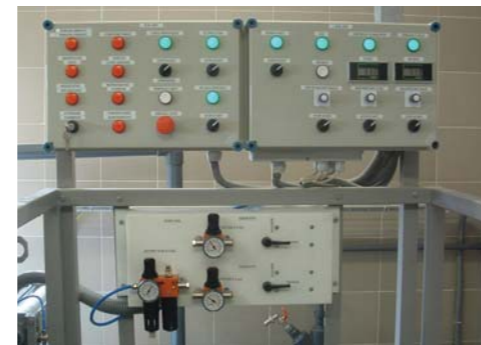
- compressed air circa 0,60 MPa, 1 m³ / h,
- pressure water for washing the filter sieves circa 6 m³ / h (VX - GORO, 6, 6A, 8 and 10) and 10 - 12 m³ / h (VX - 15 and 20), pressure circa 0,6 - 08 Mpa,
- power system 3/N/PE/AC 400/230 V 50 Hz TN - S, installed power capacity of the press 0,5 kW (VX - GORO), 0,75 kW (VX - 6, 6A, 8 and 10) and 1,75 kW (VX 15 and 20) including unit for preparation



- of flocculation media VX-FZ,
- flocculation medium solution for enhanced separation efficiency of the belt press.

Unit for preparation of flocculation media VX - FZ is made of polypropylene.

The technological line is operated from the **control panel VX - OP**, which is recommended to



be placed on the **operating platform of the belt press**. From this panel the whole pressing process can be easily checked and controlled by the operating personnel.

All line components are supplied with the electric power from the **main distributor VX - R**, which is recommended to be located in a separate room.

Vanex is able (after the consultation with the project engineer of the locality) to implement into mentioned distributors also other components eventually locking elements, that do not create the part of our standard delivery.

The line is recommended to be equipped against damage with following locking functions:

- sludge shortness (possible damage of the pump),
- shortness of flocculation medium (no sludge flocculation, flowing the sludge over and through the filter sieves)
- insufficient pressure in the compressed air system (the possibility of deviating the filter belts and of their destruction),
- monitoring of filter belts deviation (the second way of securing the filter sieves against damage),
- engine failure.

The **sludge** is usually dosed into the press via **displacement screw pump**.

The sludge homogenization is recommended before its pressing to achieve unvarying sludge quality during the pressing process.

This way the necessity for intervention of the operating personnel into the pressing process is reduced.

The amount of pumped sludge entering the

press has to be changed if inhomogeneous sludge is processed and if input dry matter is changing.

The possibility for changing the delivered sludge volume is ensured via frequency converter, that is controlled from the press through potentiometer on the control panel VX - OP.

The flocculation medium solution is added into the sludge before the belt press (before the mud pump or before the unit for preparation of flocculation media VX - FZ). This solution flocculates the sludge and in that manner water is separated from the sludge.

The mixing of the sludge with the flocculation medium solution and the flocculation itself takes place in the mud pump, in the piping and in the unit for preparation of flocculation medium VX - FZ, where the sludge also is mixed by a low-speed mixer.

The amount of pumped flocculation medium solution and of thinning water is measured through built-in rotameters. The indication of the pumped



amount can be seen on the display of the control panel VX - OP, eventually it can be sent to the control computer center.

The flocculated sludge from the flocculation unit supplies directly the upper filter sieve of the belt press.

The **flocculation medium solution** is prepared in an automatic cycle in the **unit for chemicals preparation VX-CHHXXX-DA** without any necessity for checking and controlling the cycle.

The responsibility of the operating personnel is reduced to supplying the storage bin with powdery flocculation medium or to the change of the emulsion cartridge after horn sounds.

The amount of powdery flocculation medium in the storage bin is read through capacitive stock level indicator. In case of insufficient amount of flocculation medium the operating personnel is informed by a horn.

The solution concentration is set up through a potentiometer in the separate distributor, that is placed on holders on the front side of VX - CHHXXX - DA unit.



The charge of pumped solution can be regulated through a frequency converter by the potentiometer from the press from control panel VX - OP.

Unit for chemicals preparation can be delivered with memory as a version VX - CHHXXX - DAP. In case of power failure this memory ensures the cycle continuation.

When processing sludge with low dry matter input slot thickeners can be used for its thickening before entering belt presses (eventually before entering sludge septization tower). The sludge is thickened in these thickeners to 3-10 % depending on sludge features.



In case of processing sludge with low dry matter volume and using thickeners before a belt press, the line can be arranged in two ways:

- The thickened sludge falls through directly into the horizontal gravitation sector of the press (this falling through should only minimally destroy the flakes of thickened sludge). It is sufficient in this case to add flocculant in one point before the thickener.
- The thickened sludge falls through into the interrupter tank and from there it is carried with another pump into the press. In most cases it is necessary to add flocculant also between the thickener and the belt press.

In this case special unit for chemicals preparation VS - CHHXXX - 2DA is used. Number 2 means that this unit has two separate pumps - one for the press, the other one for the thickener. Both pumps are controlled from the control panel VX - OP or from another required spot.



Spray water is recommended to be pumped through the **storage tank VX - ZN** using the high pressure pumps.

One rustproof sieve absorbing the dirt from feeding water is mounted in this tank. The tank construction enables simple and efficient cleaning of this rustproof sieve through implemented spray.

Above mentioned dirt could damage the pump or foul washing nozzles in the belt press.

The storage tank can be supplied with clean water from the water cleaning unit output using the **submersible pump** that is controlled in accordance with water level height in the storage tank VX - ZN by immersion sensors.

Another possibility is supplying of pressure water from the technical water distribution system in the building by handling electromagnetic valves eventually by a float valve.

The compressor must be implemented into the line in case that the **compressed air** for the controlling and tensioning system of the press is not available.

The compressor operation is fully automatic, it starts together with line activation.

The compressed filtrate and spray water is lead away from the press via polypropylene channels and drops-in into a concrete tank, eventually in another tank, under the press that at the same time has the function of the press foundation.

The filtrate and spray water is usually lead away from the tank from underneath the press towards water cleaning unit (sewage disposal plant) inlet.

The removal of the **filter press cake** is recommended to do by belt conveyers of our production.



They are characterized by their low speed (higher operating life) and special surface treatment designed for water cleaning units. This surface treatment increases anticorrosive features of the device.

The belt conveyers length can be adapted according to customer's requirements from 2,5 to circa 20 m.

Another possibility for removal of the filter press cake are worm conveyers.

But mentioned worm conveyers reduce optically, because of their mixing behavior, the dry matter output of the filter press cake.

They are used mainly in lines with hygienization of the filter press cake with powdery lime, for example in the sludge application in agriculture.

REFERENCES:

Nowadays Vanex products are delivered and put into operation in more than 340 localities.

For more information about our company, our products and references see our web page www.vanex.sk.

Representation:

