

DEWA NON-METALLIC CHAIN SCRAPER SYSTEM

DEWA non-metallic chain has been developed with vast experiences and utilising modern hi-technologies. DEWA chain is quite similar to the conventional steel chain system however, it has fabricated with plastic materials. Special attention has been paid for the form and materials of the chain to strengthened the maximum force, permanency of wears and functional performances. Hence, DEWA non-metallic chain mechanism has many advantages than the conventional systems.

DEWA chains consists of chain links, bushes, pins and lock rings. The pitch of the chain is 160 mm and the weight of the chain is 2,0 kg/m. Chain links and bushes are manufactured from polyacetal (POM) and the pins and the locking rings are made of polybutylene terephthalate (PBT). The maximum working load of the DEWA chain is 15 kN and the rupture load is more than 26 kN.

The connecting of the DEWA chains with scraper flights will be done by using connecting pieces which are made of AISI 304 or AISI 316 stainless steels hence, additional chain links are not required for connecting purposes. This means a considerable withdraws of excess spares. Thus, this will multiplies the overall performances and it is economical too. Connecting pieces together with bolts shall be delivered either AISI 304 or AISI 316 materials according to the customer's requirements.

FIBERGLAS SCRAPER FLIGHTS

Generally, scraper flights are classified in accordance with their models, like MV Sigma-150, MV C-150 and MV C-180, which is shown in the table given below. When sizing the flights, it is necessary to account the actual dimensions of the tanks, as well as client's point of views. Small scale of tanks (up to 8 m wide) is possible to equip with either MV Sigma 150 or MV C-1 50 type flights. In such a case where tanks widths are over 8 m has to be equipped with MV C-180 type flights. In this instance MV C-180 flights are strengthen with stiffeners to eliminate extra stresses.

Scraper flights, as well as stiffener plates, are manufactured with high-grade fibreglass materials based on extrusion press technique. It is possible to assemble rubber blades to the flight scrapers and this work can be carried without difficulties. Special attention has been paid particularly, for above matter when designing of the new C-type flights.

TYPE AND DIMENSIONS OF THE SCRAPER FLIGHTS

Type	Dim. HxL	Weight	Max. length
MV Sigma 150	150 x 80	2,1 kg/m	until 8 m
MV C-1 50	150 x 80	2,4 kg/m	until 8 m
MV C-180	180 x 80	2,6 kg/m	until 12 m

WEAR SHOES

Wear shoes are manufactured with high-grade polyethylene materials, which are 20 mm thick and shall be fastened to the flights. The main purpose of these wear shoes assembling is to protect the rubbing against tank bottom. Four pieces of wear shoes are being used to install each scraper flight (2 pcs carrying wear shoes and 2 pcs of return wear shoes). Flights which are over 8 m width are equipped with 3 pcs of carrying wear shoes because; those wider scraper mechanisms are contains 3 pcs of floor rails. Carrying wear shoes moves on bottom floor rails and return wear shoes moves on side rails. Wear shoes shall be connected both with AISI 304 or AISI 316 bolts to the specified locations of the flight.

BOTTOM RAILS OF THE COLLECTOR CHAIN SYSTEM

Bottom rails shall be mounted on the bottom of the tank. Wear shoes of the flight scrapers shall be sliding on these rails while scraping. The numbers of the bottom rails are varies from 2 - 3 pcs according to the tank dimensions.

The bottom rails shall be fastened with anchor bolts on the bottom of the tank. All bottom rails are made of AISI 304 or AISI 316. It is also possible to make these rails from polyethylene.

RETURN RAILS OF THE COLLECTOR CHAIN SYSTEM

Return rails shall be mounted on the side walls of the tank to carry the flights when returning after scraping. Wear shoes of the flight scrapers shall be sliding on these rails while returning.

The return rails shall be fastened to the supports by welding. Support brackets shall be fastened on the side wall by using anchor bolts. The distances of the support brackets are varies in accordance with the dimensions of the tanks.

DRIVE SPROCKETS OF THE COLLECTOR CHAIN SYSTEM

Drive sprockets are fastened to the drive shaft with the flange coupling. The drive sprockets are made of AISI 304 or AISI 316 and they are equipped with turnable polyamide tooth segments. These changeable and turnable tooth segments will multiply the lifetime of the entire system. The plastic teeth will protect against excess chain wears and are good compensation with non-metallic chain. These plastic teeth shall be connected with AISI 304 or AISI 316 bolts to the drive sprocket.

Drive sprockets are available in two different standard sizes, 8 teeth which reference diameter is 418 mm and 12 teeth which reference diameter is 618 mm. However, customised solutions are also possible in accordance with client's specifications.

It is necessary to pay special attention to the overall dimensions of the specified tanks, while defining the drive sprockets.

There are also sprockets, so-called split type, which can be installed to the existing drive shafts.

IDLER SPROCKETS OF THE COLLECTOR CHAIN SYSTEM

In the collector chain system all the sprockets which are installed in the idle shafts are called as idler sprockets. The main objective of the idler sprockets is, to direct and to keep the collector chain on the tracks. In generally, idler sprockets are toothed wheel types.

Idler sprockets are available in two different standard sizes, 8 teeth which reference diameter is 418 mm and 12 teeth which reference diameter is 618 mm. However, customised solutions are also possible in accordance with client's specifications.

It is necessary to pay special attention to the overall dimensions of the specified tanks, while defining the idler sprockets.

Construction material of the idler sprockets is Polyethylene.

There are also idler sprockets so-called split types, which can be installed to the existing idler shafts.

DRIVE SHAFT OF THE COLLECTOR CHAIN SYSTEM

The main shaft of the chain scraper mechanism is called as " Drive shaft and this shaft is through-going type. The construction of the drive shaft is depends on the tank dimensions, normally shaft consists of shaft and tube.

Drive shaft shall be equipped with bearings and bearing shells. The chain wheel of the main drive chain has mounted to the other end of the drive shaft. Using the key slot and locking screws will do locking of drive chain wheel.

Drive shaft is manufactured of AISI 304 or AISI 316 material. Drive sprockets shall be connected with AISI 304 or AISI 316 bolts together with flange of the drive shaft.

IDLER SHAFT OF THE COLLECTOR CHAIN SYSTEM

The number of the idler shafts varies from one to two depending on the type of clarifier. In the DEWA collector chain system, all the idler shafts are normally, through-going shafts.

Idler shaft is manufactured of AISI 304 or AISI 316 material. The construction of the idler shaft is so far depends on the tank dimensions. Idler shaft consists of shaft and tube.

Idler sprockets shall be positioned to idler shafts by using adjusting rings.

Stub type idler shaft systems are also available in DEWA scraper mechanisms.

TENSIONING SHAFT OF THE COLLECTOR CHAIN SYSTEM

The tensioning shaft makes it possible to tighten the collector chain, when necessary. The collector chain systems in generally, is equipped with at least one tensioning shaft. Tensioning shaft will be fastened to tensioning devices, which are installed on the tank walls.

Tensioning shaft as well as tensioning devices are made of AISI 304 or AISI 316 material. The construction of the tensioning shaft is so far depends on the tank dimensions. Tensioning shaft consists of shaft and tube.

Sprockets shall be positioned to tensioning shaft by using adjusting rings.

DRIVE UNIT OF THE COLLECTOR CHAIN SYSTEM

Drive motors are usually, helical geared electrical motors which are installed on assembling bed on the top of the tank. The assembling bed shall be facilitated to tightening the drive chain of the drive unit. Factory-made overload protection systems are available in the DEWA scraper mechanisms including various optional. Torque limiter and shear pin will protect drive unit and automatically trips at a predetermined overload value. In some cases, the secondary shaft of the gear unit is equipped with friction coupling, which will slipped during the overloading.

Overloading can be monitored by installing electrical coupler to the main control panel of the collector chain system.

BEARINGS OF THE COLLECTOR CHAIN SYSTEM

All the bearings, which are in touch with liquid, shall be sleeve type bearings. Bearings are consists of bearing block which are made of Polyacetal or Polyethylene and sleeves are made of high molecule Polyethylene. Bearings shall be mounted in wall-brackets, which are made of AISI 304 or AISI 316 material.

CROSS COLLECTORS

Specifications are as per above

SCUM PIPE

Scum pipes are available either with manual or automatic operation

LOCAL CONTROL PANEL

PLC or relay controlled panels are available on request