Operation Manual

FlexVey 60/75/90(HS)/125

Code No. 99-97-0579

Edition: 07/2012 GB

These instructions are a translation of the original instructions!

EC Declaration of conformity

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In accordance with EC Directives:

- **Machines 2006/42/EG, Annex II / Part 1 / Chapter A**

Further applicable EC directives:

- Electromagnetic compatibility 2004/108/EC
- Low voltage 2006/95/EC

CE

The product mentioned below was developed, constructed and produced in accordance with the above mentioned EC Directives and under sole responsibility of Big Dutchman.

Description:	Feed transport system
Type:	FlexVey
System no. and year of construction:	see customer order no.

The following harmonised standards apply:

- EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
- EN 60204-1:2006/AC:2010: Safety of machinery - Electrical equipment of machines Part 1: General requirements

Authorised person for technical documents: Productmanager "Fattening Systems"
Auf der Lage 2; 49377 Vechta

Vechta	16.01.2010	Managing Director	.....
Place	Date	Signer and information regarding signer	Signature

Overview of changes / updates in the manual

Chapter name	Type of change / update	Product information / *Editor's initials*	Issue date	Page
20.2 "Repair bend unit galvanised 45°"	Chapter added.	1238 *RSi*	07/2012	119
Entire manual	Flex-Vey 60 data expanded.	0521 *RSi*	06/2012	
Entire manual	Flex-Vey 90HS data expanded.	1184 *RSi*	06/2012	
14.3 "Pipe extension for transfer unit if tandem silo is used."	Chapter added.	1214 *RSi*	06/2012	97
9.2.1 "Suspension of conveying pipes"	Chapter expanded with a note on fully screwing in the frame screws.	*RSi*	08/2011	47
9.3.1 "Important information on shortening pipes and pipe bends"	Chapter added.	*RSi*	08/2011	50
12 "Welding of the auger"	Chapter fully reworked.	1136 *RSi*	08/2011	81
21.7 "Accessories for Flex-Vey 60/75/90/ 90HS/125"	Chapter expanded.	1167 *RSi*	08/2011	146

Chapter name	Type of change / update	Product information / *Editor's initials*	Issue date	Page
9.3.3 "Assembly of the conveying pipe directly behind the drive unit" and 9.3.4 "Assembly of the conveying pipe directly behind the boot"	note added regarding the assembly of the conveying tube		02/2011	53 and 54
6 "Important notes regarding the avoidance of assembly errors"	chapter added		02/2011	20
13.4 "Fastening the auger to the tension shaft in the lower part of the boot"	procedure modified concerning the shortening of the auger		02/2011	88
5 "Important instructions for commissioning the gear motors (ventilation)"	Chapter on venting of gearing added	923	07/2010	19
7.2.1 "Note regarding the lower parts for boot with passing conveying lines"	Shaft axle bearing for multi-line lower boot for Flex-Vey 75, 90 and 125 modified	1009	07/2010	28
9.3.2 "Assembling of conveying pipes from the silo to the outer wall of the house"	Wall panel for Flex-Vey added	971	07/2010	51
11.4 "Assembling the supply pipes"	New drop pipes with sensor for Flex-Vey 125	1039	07/2010	74

Chapter name	Type of change / update	Product information / *Editor's initials*	Issue date	Page
21.4 "Conveying pipes and bends"	New conveying tubes made of stainless steel for Flex-Vey 75, 90 and 125	1040	07/2010	133

Product information

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No. 1562 October 15, 2014

Frame for feed cleaner

Fig. 1: *Feed cleaner with frame and BD bucket*

Feeding stuff hygiene has top priority especially in the field of broiler finishing. Despite the high requirements of the regulations regarding feeding stuff hygiene it is still possible that foreign matters such as stones, metal parts or straw remains get into the feed. This feed impurity could damage the feed supply equipment. In order to prevent such an incident and to allow for a continuous feed supply we have been successfully using a special feed cleaner (option) for our Avimax system for years (fig. 2, cp. product information no. 1255).

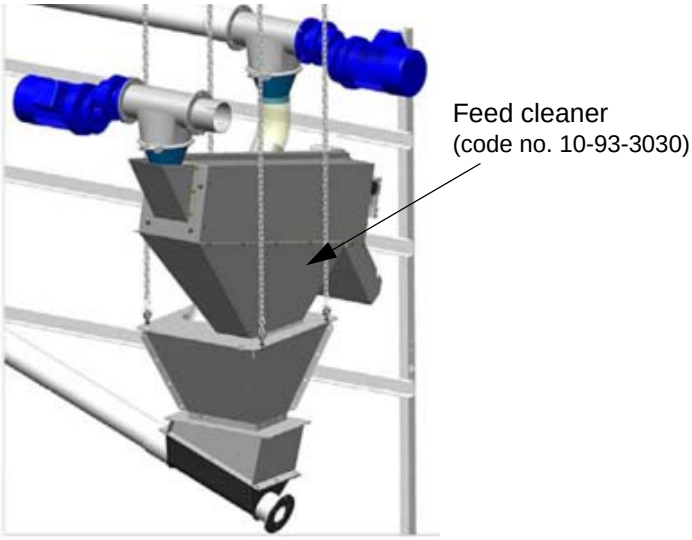


Fig. 2: *Feed cleaner in the AMX feed circuit*

As you can see in the above fig. 2, the feed cleaner is usually suspended from the house ceiling in Avimax houses by means of chains.

In order to have the same productive results for the application of the feed cleaner in floor management, we have developed a frame for the feed cleaner. This frame is illustrated in fig. 3.

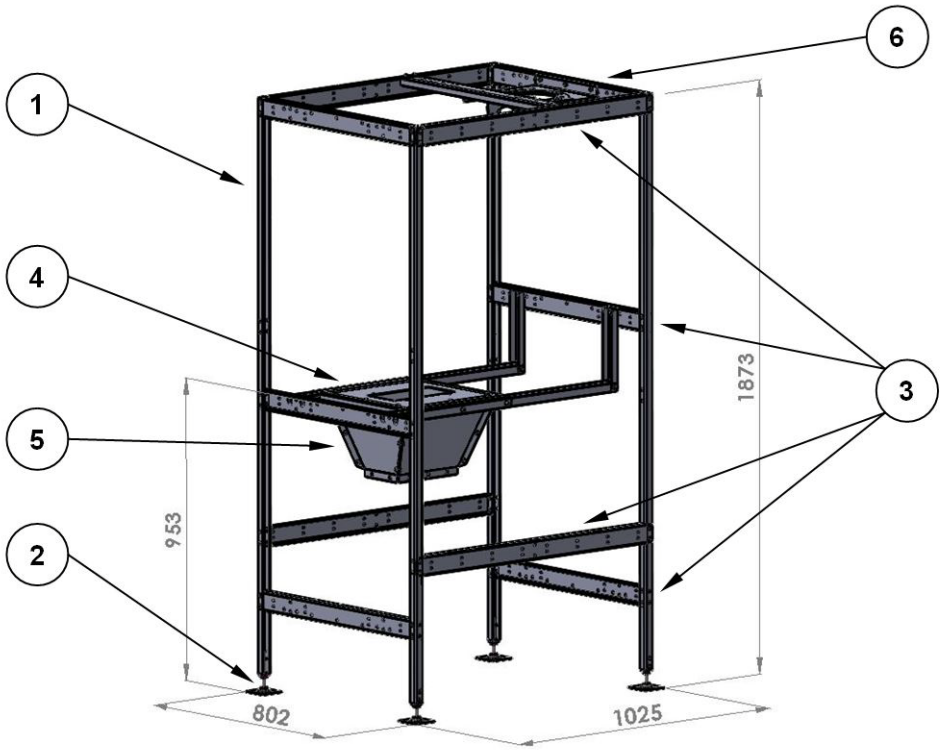


Fig. 3: *Frame for feed cleaner (code no. 83-13-0814)*

The frame mainly consists of four posts (pos. 1) with adjustable feet (pos. 2) which are screwed together by means of side rails and cross bars (pos. 3). The actual feed cleaner is fixed on the cover of the feed hopper (pos. 4). A 17,5 l small feed hopper (pos. 5) is positioned below. On the upper side of the frame, a fastener for the Flex-Vey drive is fixed (pos. 6).

The feed cleaner is inserted between the silo and the transfer tunnel in the Flex-Vey feeding line (fig. 4).

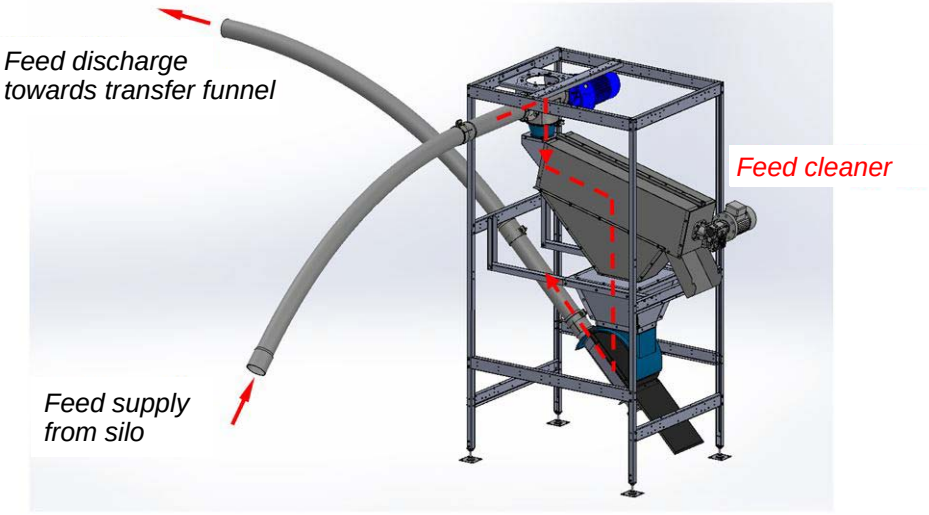


Fig. 4: *Mode of operation of feed cleaner*

Thanks to a rotatable fastener for the Flex-Vey drive, the feed supply to the feed cleaner can be effected from any direction (fix. 5).

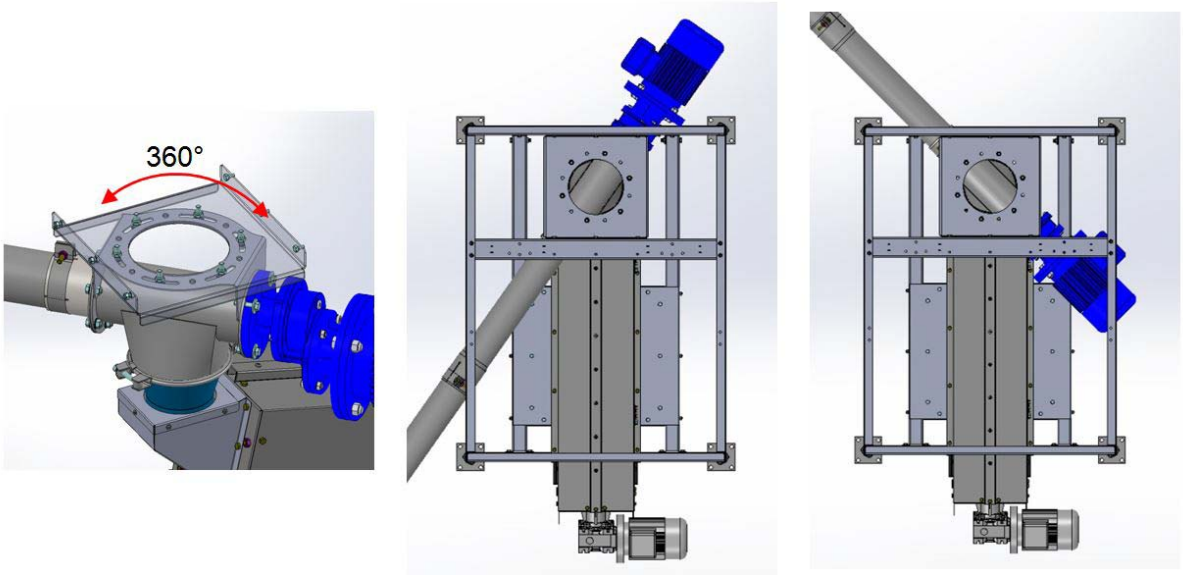
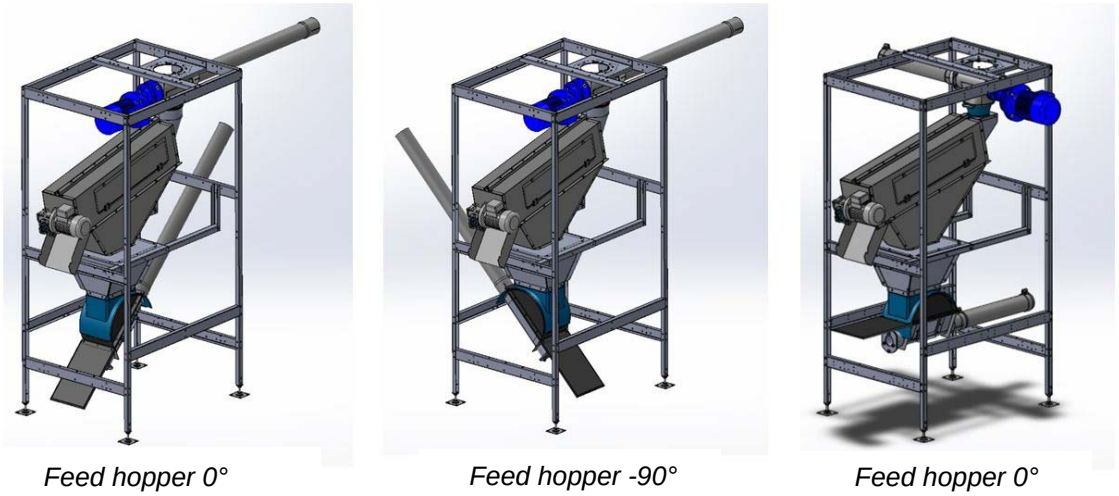


Fig. 5: *Fastener for Flex-Vey drive*

Also the feed hopper to which the boot is fixed can be adjusted in steps of 90° (fig. 6). For the feed transport from the feed cleaner a standard boot is applied. As usual, latter can be adjusted with a slope angle of 0-45°.



Feed hopper 0°
Boot 45°

Feed hopper -90°
Boot 45°

Feed hopper 0°
Boot 0°

Fig. 6: *Boot alignment*

A major advantage of the rotatable fastener and the 90° adjustable feed hopper as well as the inclinable boot is that the feed cleaner can be erected in a very flexible manner.

For the Flex-Vey connections all information and instructions of the Flex-Vey manual (code no. 99-97-0584) must be applied to.

Feed supply

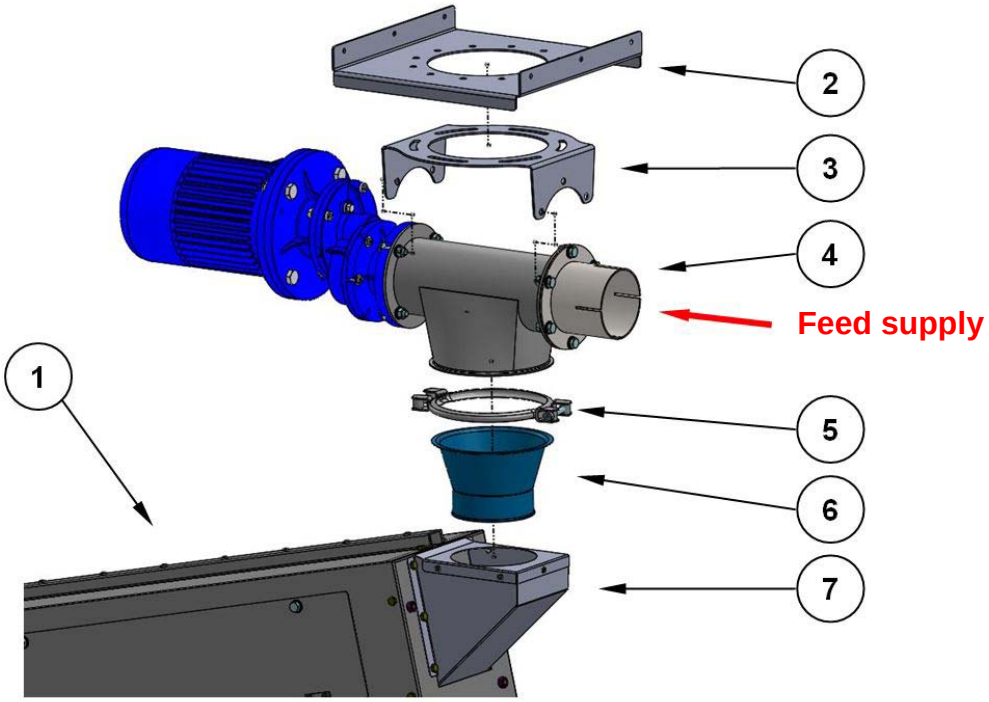


Fig. 7: *Feed supply towards the feed cleaner*

Pos.	Code no.	Description
1	10-93-3030	Feed cleaner 6.5t/h 0.18KW 230/400V 50Hz / 0.22KW 440/480V 60Hz
2	83-13-0810	Reception f/drive f/frame feed cleaner
3	83-13-7194	Bracket f/drive Flex-Vey 75/90/PUR f/frame feed cleaner
	83-13-7195	Bracket f/drive Flex-Vey 125 f/frame feed cleaner
4		Drive unit Flex-Vey with gear motor
5	25-16-3033	Tension ring 150 galv with sealing ring 1mm
6	83-06-4310	Reducing bush 150x110 galv for Flex-Vey 125
7	83-13-3424	Feed intake for feed cleaner

☞	**Drive unit for Flex-Vey (pos. 4)** is not included in the parts list of the frame for feed cleaner and **must be additionally ordered** according to the desired Flex-Vey diameter and drive**!**

☞	In case of **Flex-Vey 125** the bracket for drive (pox. 3, code no. *83-13-7194*), which is included in the standard parts list, must be exchanged with a different bracket (c*ode no. 83-13-7195*).

Feed discharge

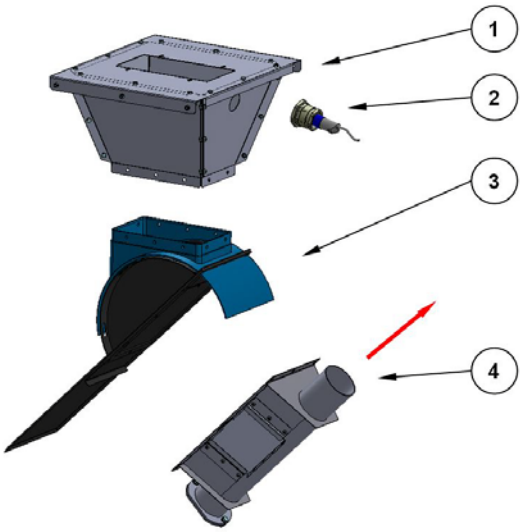


Fig. 8: *Feed discharge from feed cleaner*

Pos.	Code no.	Description
1		Feed hopper (frame f/feed cleaner)
2	91-00-3985	Sensor MS-45R 230V with union PG36 and counter ring
3	20-00-3210	Basic boot without funnel
4		Lower part f/boot

	The **lower part for boot (pos. 4)** is not included in the parts list of the frame for feed cleaner and **must be additionally ordered** according to the desired Flex-Vey diameter.

A sensor (pos. 2) is positioned in the small feed hopper. It guarantees that the feed supply towards the feed cleaner is automatically started when the feed is discharged from the feed cleaner. This makes sure that empty spots are prevented as much as possible.

Weather protection (option)

As the components of the feed cleaner must no longer be suspended, it can also be erected outside. For this purpose, a weather protection was designed. It is supposed to protect the feed cleaner and the electric drives against rain and snow.

The weather protection consists of a frame and a GRP corrugated roof light sheet which is mounted on the frame (fig. 9).

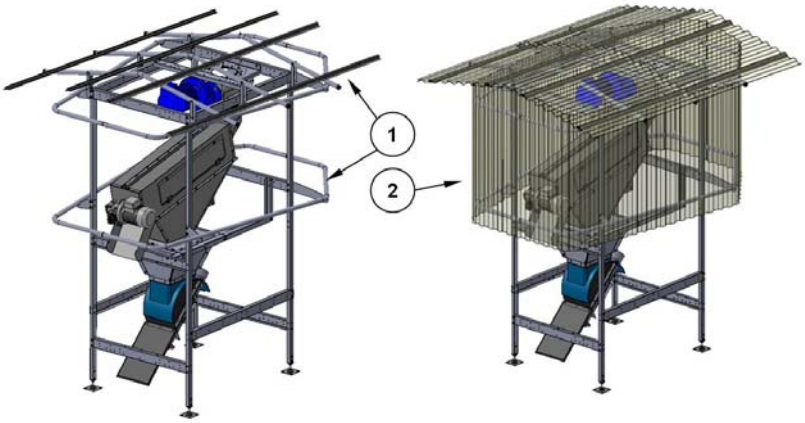


Fig. 9: *Additional option: weather protection*

Pos.	Code no.	Description
1	83-13-0808	Weather protection f/frame f/feed cleaner
2	10-93-3042	Corrugated roof light sheet GRP profile 76/18 roll= 5x1m f/weather protection

Coding

The frame for feed cleaner is not pre-mounted and must thus be assembled on site. The following parts are delivered with a frame order:

83-13-0814 - Frame for feed cleaner			
Pos.	**Code no.**	**Description**	**Pcs.**
1	83-13-0784	Cross rail for frame feed cleaner	7
2	83-06-4310	Reducing bush 150x110 galv for Flex-Vey 125	1
3	83-13-3424	Feed intake for feed cleaner	1
4	83-13-0791	Longitudinal support for hopper	2
5	83-13-0792	Bracket f/longitudinal support f/hopper	2
6	83-13-0793	Side wall short f/hopper	1
7	83-13-8310	Side wall short f/PG36 f/hopper	1
8	83-13-0794	Side wall long f/hopper	2
9	83-13-0797	Cover f/hopper	1
10	83-13-0810	Reception f/drive f/frame feed cleaner	1
11	83-13-7194	Bracket f/drive Flex-Vey 75/90/PUR f/frame feed cleaner	1
12	83-13-0788	Post f/frame feed cleaner	4
13	83-13-0789	Side rail f/frame feed cleaner	4
14	83-03-5164	Foot adjustable M12x140 SST/SST cpl w/plate large	4
15	38-40-0035	Retainer for foot M12x130 UV	4
16	25-16-3033	Tension ring 150 galv with sealing ring 1mm	1
17	20-00-3210	Basic boot without funnel	1
18	91-00-3985	Sensor MS-45R 230V with union PG36 and counter ring	1
19		Screws	
20	99-98-3410	Bucket BD orange 12l w/metal handle 5mm	1

In case of **Flex-Vey 125** the bracket (c*ode no. 83-13-7194*) must be exchanged with a bracket f/drive Flex-Vey 125 f/frame feed cleaner (*Code-Nr. 83-13-7195*) ausgetauscht werden!

Additionally, a Flex-Vey drive and the corresponding lower part for boot must be ordered.

83-13-0808 - Weather protection f/frame f/feed cleaner			
Pos.	**Code no.**	**Description**	**Pcs.**
1	83-13-7165	Longitudinal rail f/roof f/weather protection	4
2	83-13-1751	Tube f/roof f/weather protection	3
3	83-13-1749	Tube outside f/weather protection	4
4	83-13-0805	Bracket long f/tube outside f/weather protection	4
5	83-13-0804	Bracket short f/tube outside f/weather protection	4
6	83-13-0802	Bracket f/roof tube f/weather protection	6
7	65-02-4133	Plug for tube 3/4"	6
8	83-13-0803	Connector f/tube 3/4" f/weather protection	4
9	10-93-3042	Corrugated roof light sheet GRP provile 76/18 roll= 5x1m f/weather protection	2
10		Scews	

All items are available with immediate effect.

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Product information

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No. 1509 May 19, 2014

Flex-Vey 75/90 PUR as a new alternative of the feed supply

As of now a new Fley-Vey system is available - also retrofittable - for heavily loaded Flex-Vey systems and those that run under difficult conditions.

The centre piece of the system is a high-strength flexible tube for FV75 and FV90:

Code-no.	Description
25-57-3128	Flexible tube DN 75 PUR f/Flex-Vey
25-59-3128	Flexible tube DN 90 PUR f/Flex-Vey

This tube is manufactured of two components. The outer wall (see. sig. 1, pos. A) consists of PVC with incorporated plastic coil for the shaping. The inside (s. fig. 1, pos. B) is made of extremely wear-resistant polyurethane (PUR) and thus, insures a low wear.

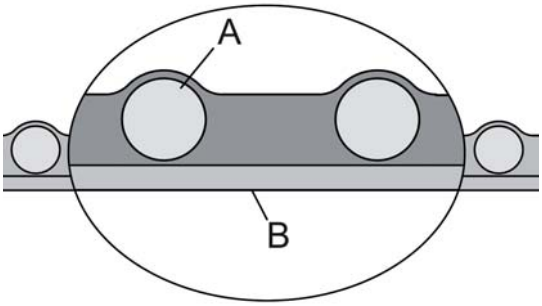


Fig. 1: *Outer wall and inside*

Fig. 2: *View of the flexibility*

In addition to the high wear-resistance and thus to avoid the risk of complaints, also the flexibility of the new Flex-Vey flexible tube (s. fig. 2) is on focus. Since pipe elbows do not apply, stepless bows can be used considering the minimal bending radius of 1500 mm.

Furthermore, it is to be mentioned that - due to the flexible tube - the operating noise of the Flex-Vey PUR is lower than the noise of a standard Flex-Vey with PVC conveying tubes. This leads to considerably calmer bird behaviour during the feeding.

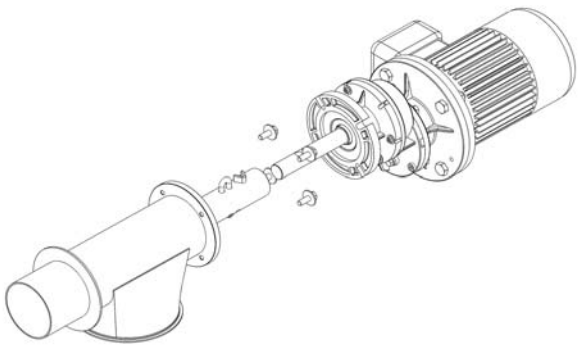
Conveying performance

FV-type	**Power horizontal**	**Power at 45°***	**Max. pellet-diameter**
Flex Vey 75 PUR	1,4 t/ h	1,0 t/ h	8 mm
Flex Vey 90 PUR	2,5 t/ h	1,8 t/ h	10 mm
*) For feed with specific weigth of 650 kg/m³			

Coding

Besides the proven basic silo boots, lower parts for silo boot, conveying augers and drop pipes new drives, outlets and flexible tubes are available for the new Flex-Vey PUR:

Drive

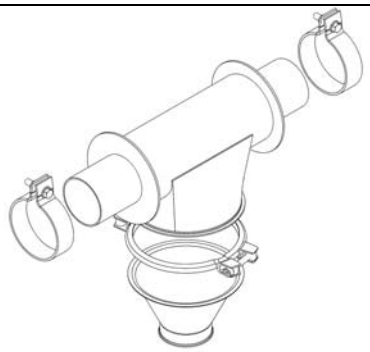


Pos.	**Code-no.**	**Description**	**Max. system length***
FV75	25-60-3063	Drive 1.10kW 400V 3Ph 50Hz Flex-Vey 75PUR**	40 m
FV75	25-60-3064	Drive 0.75kW 400V 3Ph 50Hz Flex-Vey 75PUR**	20 m
FV90	25-61-3063	Drive 1.10kW 400V 3Ph 50Hz Flex-Vey 90PUR***	30 m
FV90	25-61-3064	Drive 0.75kW 400V 3Ph 50Hz Flex-Vey 90PUR***	20 m
*) incl. 1 x 45°-bow. With every additional 45°-bow the max. system length decreases by 5 m.			
**) plus 25-60-3091 Access. for drive Flex-Vey 75 PUR			
***) plus 25-61-3091 Access. for drive Flex-Vey 90 PUR			

Flexible tube

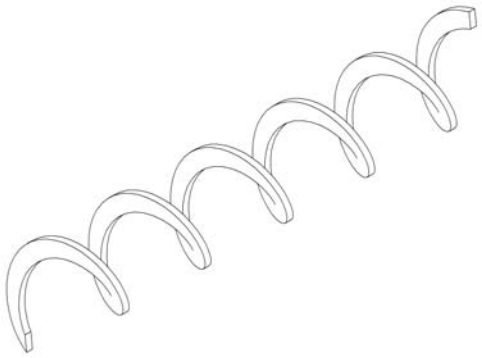
Pos.	Code-no.	Description
FV75	25-57-3128	Flexible tube DN 75 PUR f/Flex-Vey
FV90	25-59-3128	Flexible tube DN 90 PUR f/Flex-Vey

Outlet



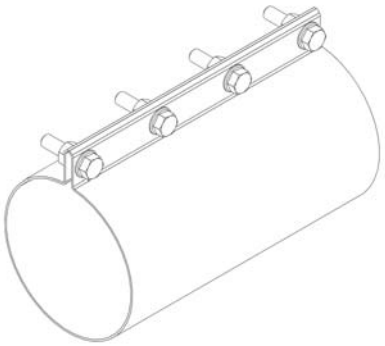
Pos.	Code-no.	Description
FV75	83-13-2749	Outlet cpl Flex-Vey 75PUR
FV90	83-13-2746	Outlet cpl Flex-Vey 90PUR

Conveying auger



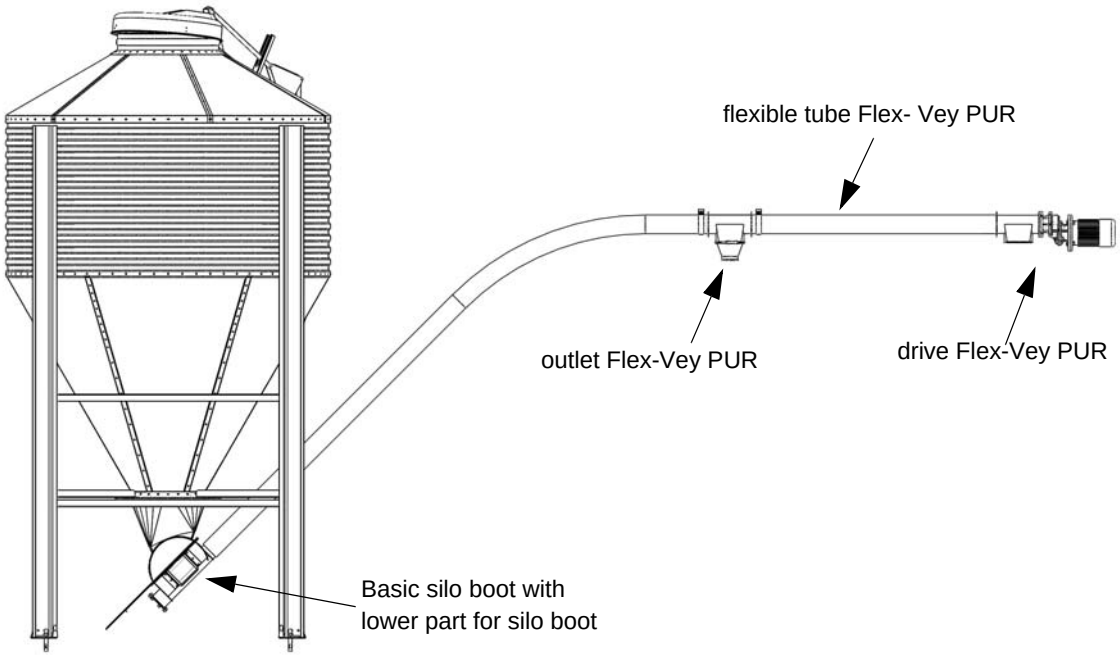
Pos.	Code-no.	Description
FV75	25-57-1702	Auger open core 60/60 right Flex-Vey 75
FV90	25-59-1702	Auger open core 70/65 right Flex-Vey 90

Connecting sleeve for flexible tube



Pos.	Code-no.	Description
FV75	83-13-1394	Connecting sleeve cpl Flex-Vey 75PUR
FV90	25-16-3021	Connecting sleeve S102

System overview Flex-Vey PUR



Planning instructions

The Flex-Vey PUR is projected according to the same basic principles as a normal Flex-Vey with PVC-conveying tubes. Although, it is required to follow the instructions described below.

Deviant to the standard Flex-Vey the maximal system length for the FV75 PUR is at 40 m and for the FV90 PUR it is approx. at 30 m. The length decreases by 5 m with every 45°-bow that is installed with the flexible tube.

Flexible tube and conveying auger have to be ordered separately according to the planned system length.

Due to the flexibility of the flexible tube the suspension points of the Flex-Vey PUR must not have a larger distance than 1 m compared to the standard Flex-Vey.

To connect the Flex-Vey PUR with silos and feed carts, the proven basic silo boots including lower part for silo boot are available. They can be found in the price list as well as in the Flex-Vey manual.

The Flex-Vey PUR can be combined with the standard Flex-Vey drop pipes for 2.3 m and 3.5 m ceiling height. They can also be found in the price list and in the Flex-Vey manual.

It must be considered that - as described before - new outlets are required for the Flex-Vey PUR.

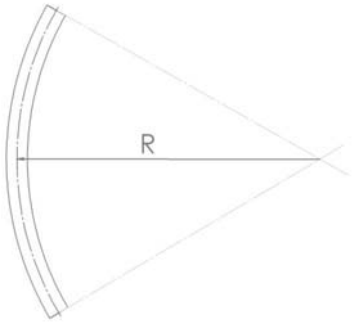
!	The outlets that are available for the Flex-Vey PUR cannot be locked!

Mounting instructions

In order to not excessively strain the auger in the tube, it is compulsively necessary that the minimum bending radius is not less than 1.5 m.

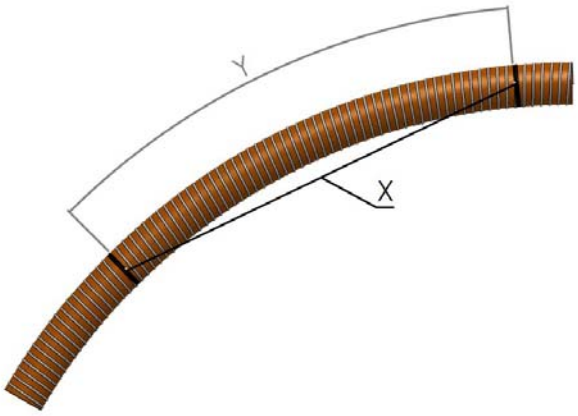
!	The bending radius of the flexible tube may not be less than 1.5 m in any case.

The bending radius R is defined as follows:



Since the tube the radius R cannot be calculated straightforward, due to the great flexibility, three approaches for the control of the minimum bending radius are listed below.

1. Determination of the bending radius by measuring the circular arc



The minimum bending radius of the flexible tube can be determined as follows by means of the table shown below and the dimensions X and Y:

1. marking of two points at the flexible tube (largest possible distance on the bow)
2. measuring of the dimension X (direct dimension between marking; chord)
3. determination of the full-length Y (measuring of the actual full-length by means of a measuring tape at the outside of the bow; circular arc)
4. search dimension X in the table
5. gather the appendant dimension Y from the table
6. compare the actual value Y with the Y value of the table

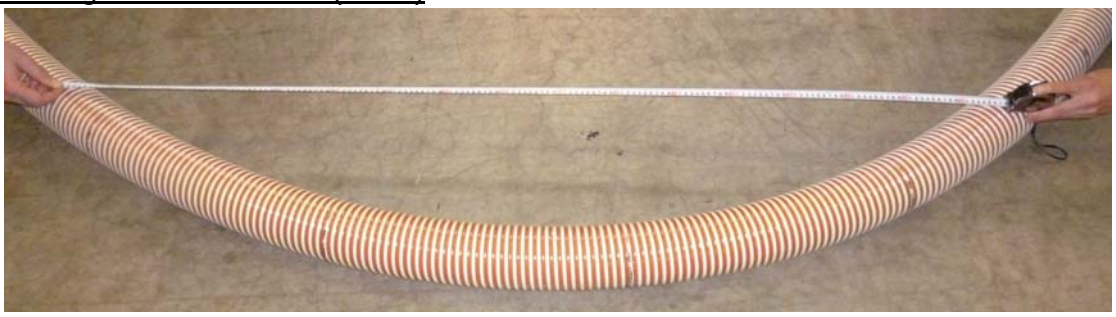
$$Y_{actual\ value} \leq Y_{table}$$

The value $Y_{actual\ value}$ must always be smaller than the value Y_{table} or equal. If the value is greater, the minimum bending radius falls below the limit and the auger is strained too much.

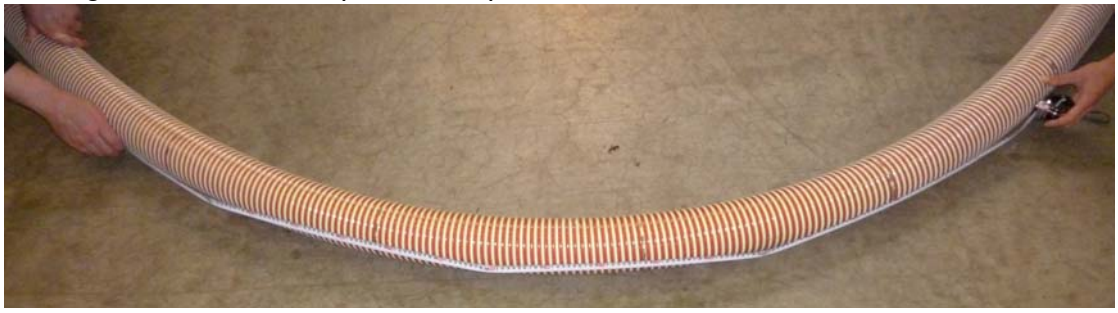
Table: see page 9.

Example:

1. Measuring of the distance X (chord)



2. Measuring of the distance Y (circular arc) at the outside of the bow



3. Search Y-value in the table

X-value in cm (chord)	Y-value in cm (circular arc)
81,0	84,8
82,0	85,8
83,0	86,9
84,0	88,0
85,0	89,1
86,0	90,1

4. Compare actual and nominal value

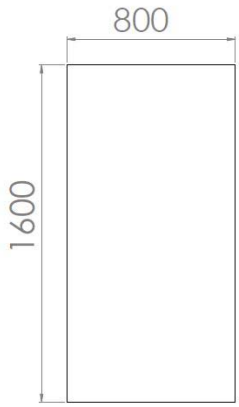
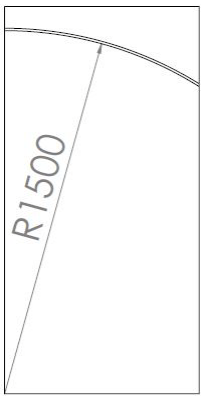
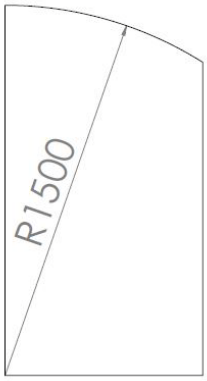
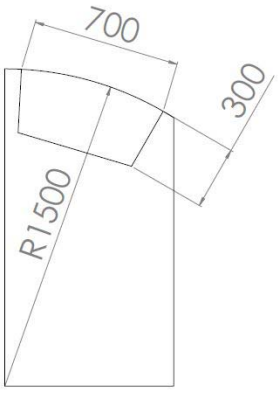
- X-value measured: 82,0 cm
- Y-value measured: 84,1 cm
- Y-value of the table: 85,8 cm

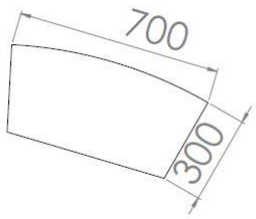
$$Y_{actual\ value} \leq Y_{table}$$

$$84{,}1\ \text{cm} \leq 85{,}8\ \text{cm}$$

➲ Condition fulfilled: bending radius is greater than 1,5 m

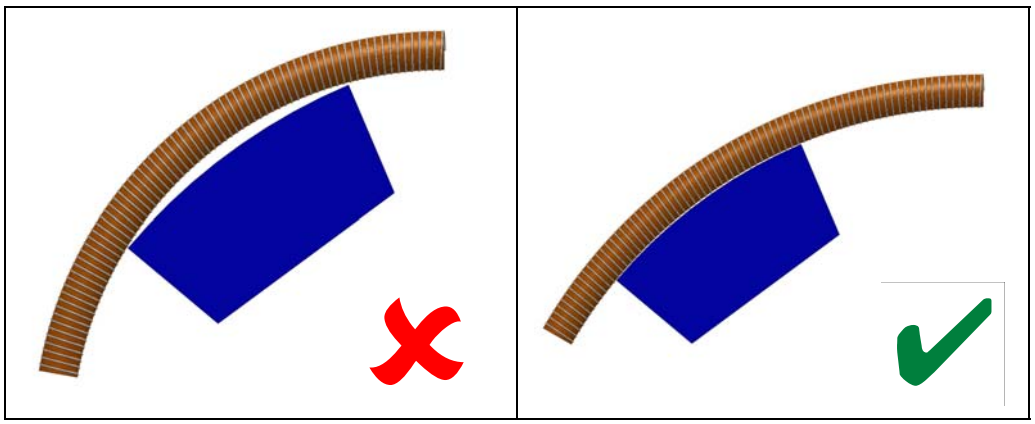
2. Preparation of a basic stencil for the control of the bending radius

	
1. Sheet, cardboard etc. for stencil	2. Create a semi circle by means of a string (length 1,5 m)
	
3. Remove the upper segment of the circle	4. Cut out a circle segment with a size of 700x300 mm

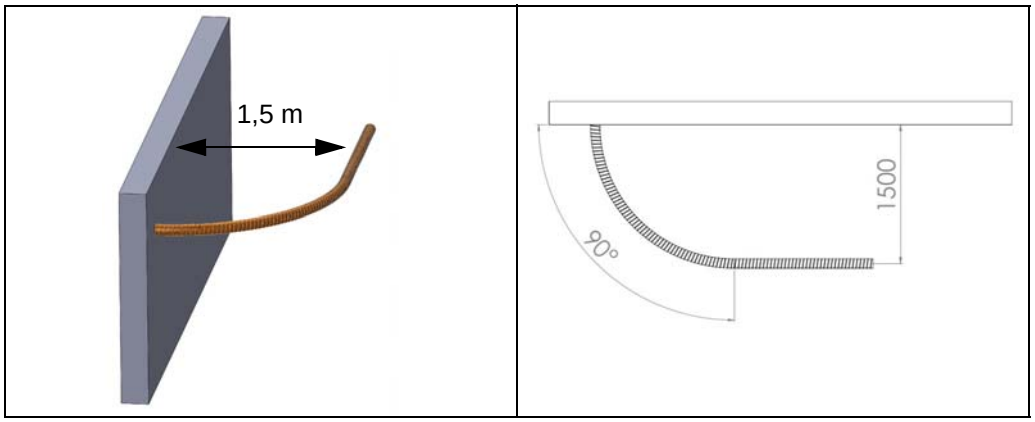


5. Finished stencil

By means of this stencil a quick and easy checking of the bending radius is flexibly possible.



3. Measuring of the bending radius for 90° bows



A value smaller than 1.5 m is not permitted!

In principle the following applies: During the installation of the Flex-Vey PUR deviations with a greatest possible bending radius are desirable (great, wide arcs).

X-value in cm (chord)	Y-value in cm (circular arc)		X-value in cm (chord)	Y-value in cm (circular arc)
50.0	51.9		101.0	106.4
51.0	53.0		102.0	107.5
52.0	54.0		103.0	108.6
53.0	55.1		104.0	109.7
54.0	56.1		105.0	110.8
55.0	57.2		106.0	112.0
56.0	58.2		107.0	113.1
57.0	59.3		108.0	114.2
58.0	60.3		109.0	115.3
59.0	61.4		110.0	116.4
60.0	62.4		111.0	117.5
61.0	63.5		112.0	118.6
62.0	64.5		113.0	119.7
63.0	65.6		114.0	120.8
64.0	66.6		115.0	122.0
65.0	67.7		116.0	123.1
66.0	68.8		117.0	124.2
67.0	69.8		118.0	125.3
68.0	70.9		119.0	126.4
69.0	71.9		120.0	127.6
70.0	73.0		121.0	128.7
71.0	74.1		122.0	129.8
72.0	75.1		123.0	131.0
73.0	76.2		124.0	132.1
74.0	77.3		125.0	133.2
75.0	78.3		126.0	134.4
76.0	79.4		127.0	135.5
77.0	80.5		128.0	136.6
78.0	81.5		129.0	137.8
79.0	82.6		130.0	138.9
80.0	83.7		131.0	140.1
81.0	84.8		132.0	141.2
82.0	85.8		133.0	142.4
83.0	86.9		134.0	143.5
84.0	88.0		135.0	144.7
85.0	89.1		136.0	145.9
86.0	90.1		137.0	147.0
87.0	91.2		138.0	148.2
88.0	92.3		139.0	149.3
89.0	93.4		140.0	150.5
90.0	94.5		141.0	151.7
91.0	95.5		142.0	152.9
92.0	96.6		143.0	154.0
93.0	97.7		144.0	155.2
94.0	98.8		145.0	156.4
95.0	99.9		146.0	157.6
96.0	101.0		147.0	158.7
97.0	102.1		148.0	159.9
98.0	103.2		149.0	161.1
99.0	104.3		150.0	162.3
100.0	105.3			

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No. 1496 March 19, 2014

Positioning of electrical drives and protected cable guiding

The Big Dutchman systems for animal houses are equipped with various electrical drive units and components which allow the realisation of different functions. Some of the drives and components must be installed directly in the animal area so that the birds have access to these electrical components.

The following is essential for a correct and permanently safe operation of the drives:

- the exact positioning inside the system according to the installation instructions
- preferred assembly outside the immediate animal area if no clear specification is made or cannot be made
- a correctly installed and protected electrical cabling

If these measures are carried out carefully, both points will contribute to the work safety and animal protection as well as a preventive fire protection.

The most important objective should be to position electrical drives and their cablings in the system that way that they are inaccessible to the animals, if possible.

Therfore, the drive units should not be placed directly in the animal area where a risk exists that the animals will damage the drives and the live connecting cables.
Notes regarding the mounting positions of the drive units are given in the documentation as well as the plan drawings for the respective system. The mounting positions described and recommended must implicitly be observed.

In case of the stand-alone nest BD-Colony-MB, for example, **it is not allowed** to install a drive **inside an aisle,** that means between two nest sections.

The connecting cables are lying exposed in the aisles and thus, the animals may lay the cables bare e.g. by „pecking“, or bend them at the electrical live lines respectively pull them out by „perching“!

Consequences:

Bare live lines can cause short circuits in the electrical system and lead to electric shocks at persons and animals.

Bent cables can cause cable breaks which could provoke a fire due to a possible overheating of the cable.

Drives which have to be positioned and cabled in the animal area due to their function, must be installed and connected with utmost care. These include e.g. the drive units for MPF chain feeding, Augermatic or automatic separating wire meshes in Natura systems. Even in some systems with laying nests, the installation of the drives for expel system in the animal area is indispensible.

The following points must implicitly be observed for the drives and their cable guidings in the animal area:

1. **Protected cable guiding:**
   The cables must be laid protected so that the animals cannot reach the cables and their live lines!

This can be realized by a very narrow cable guiding and fastening at the components of the system as well as by coverings resp. mechanical protective devices as tubes (flexible or rigid) and cable channels.
First you should try to realize the protection by a narrow and concealed cable guiding. Due to a bad accessibility for cleaning, a cable guiding in tubes or cable channels will reduce the quality of disinfection measures.

2. **Minimal admissible bending radius of the cables and lines:**
   The minimum admissible bending radiuses must be observed, depending on the mechanical structure of the cable / lines!

If the bending radiuses are not observed, the mechanical structure of the cable and lines can change due to the extension and shortening of the material!

Consequence:

The electrical characteristics of the cables could be affected and cable breaks can occur which then leads to short circuits or overheating of the cable, and this could provoke a fire.

3. **High tensile cable installation:**
   The cables and lines are to be installed that way that they are guaranteeing tensile strength!

The fastening of clips, cable straps, strain reliefs, etc. must be carried out that way that the electrical features of the cables and lines will not become lost in the loads to be expected during operation (including occurrence of overstress and short circuit).

4. **Cable entry in devices, connecting boxes, motors, etc. from below:**
   If possible, the cables and lines should **always be inserted from below** in the devices, connecting boxes, motors, etc.!

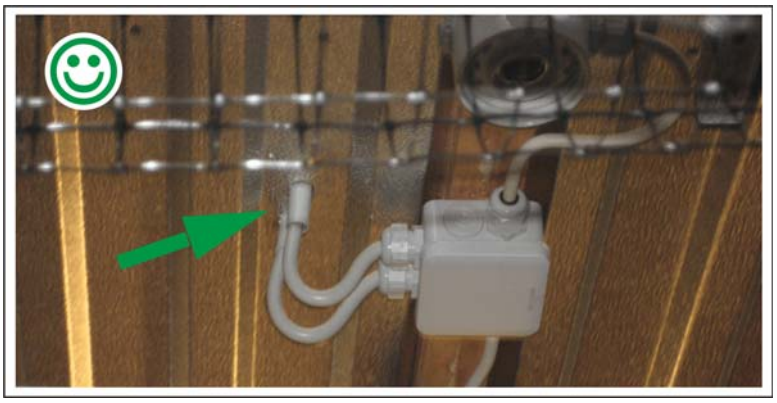
This type of cable entry prevents that condense- or cleaning water will flow along the cable, then penetrates the components and thus causes a short circuit.
*However, if this type of cable entry is not possible, a **drip bow** should be provided at the cable in front of the point of cable entry of a component. This prevents the water from penetrating the components.*

5. **Observe protection class (splashproof protection):**
   The splashproof protection must be guaranteed when inserting the cable into a housing!

The openings for cable entry may not be too large since otherwise, splash-water will penetrate the housing and could cause a short-circuit. The figure shows a branch box which is not appropriate for wet cleaning.

The points 4 and 5 are very important if the system will be cleaned with water later. Short-circuits can be avoided when observing these points.

6. **Cable guiding through sharp-edged components (e.g. metal covers):**
   Cables and lines which are guided through sharp-edged borings must **always be protected** at these points of lead-through!



The protection can be realized by using cable screwings or other mechanical protective components (e.g. tubes) at the point of lead-through.

If the cables are installed without protection, sharp-edged borings with burrs could lead to a damage of the cable insulation and exposing of live conductors!

Consequences:

Bare lines can cause a short-circuit and electric shocks in case of direct contact.

Below, we have explained the points mentioned above by means of illustrations of the drive unit for the expel system in the nest BD-Colony-MB.

Position of the drives:

Drive units must not be installed in the aisle! Here, the connecting cable is lying exposed (depending on the type of installation A, B or C in fig. 1) and can be damaged by the birds by „pecking“ or „perching“.

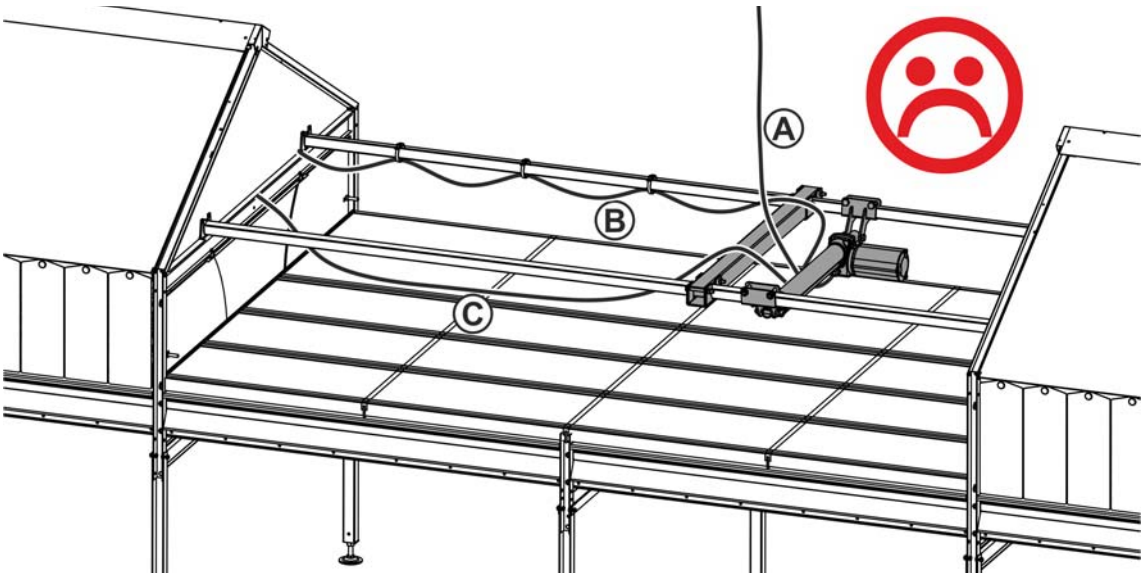


Fig. 1: *Drive for expel system imporperly mounted in the aisle, cable guiding not correct*

re 1: Protected cable guiding

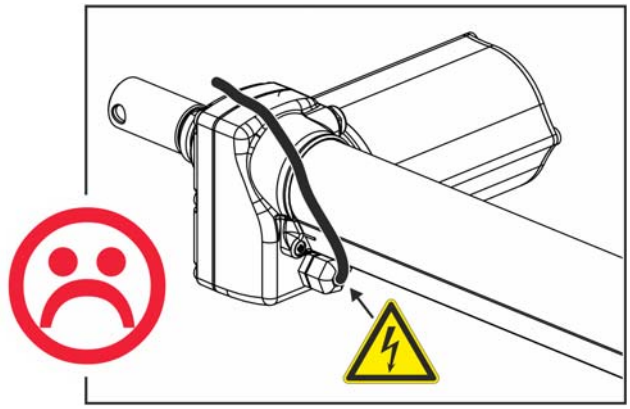
The cable is protected by the nest coverings which are installed between roof and stillage.

In this way, the birds cannot reach them.

Tube etc. are not required here.

Fig. 2:*Drive for expel system installed in nest section, cable guiding correct*

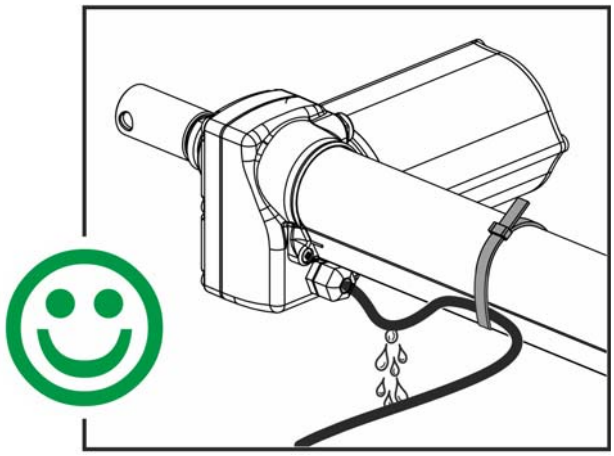
re 2: Minimum admissible bending radius of cable and lines



Risk of cable break if tensile forces are loading the cable periodically or permanently!

Fig. 3:*Minimum admissible bending radius not observed*

re 3 and 4: High tensile cable laying / cable entry with drip bow



Here, the cable is protected by an additional cable strap against affecting tensile forces.
The cable cannot be pulled out of the drive unit.

The water doesn‘t penetrate the drive since it can drain off the bow drip of the cable before.

Fig. 4: *Cable protected against tensile, drip bow existing and bending radius sufficiently dimensioned*

For the work safety and animal protection as well as the preventive fire protection, the following points must be observed at all drive units:

- Installation, connection and initial operation of the electrical components must only be carried out by electrically skilled persons.

Definition skilled electrician (nach DIN VDE 1000-10)	A skilled electrician is a person who can judge the assigned works and recognize possible dangers due to his technical training, knowledge and experiences as well as the knowledge of the relevant regulations.

- Notes and specificiations of the connection diagrams which are part of the system as well as documentations.

- Following international regulations:
  - IEC 60364-4-41 / VDE 0100-410
  Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock.
  - IEC 60364-5-51 / VDE 0100-510
  Electrical installations of buildings - Part 5-51: Selection and erection of electrical equipment - Common rules.
  - IEC 60364-5-52 / VDE 0100-520
  Low-voltage electrical installations - Part 5-52: Selection and erection of electrical equipment - Wiring systems .
  - IEC 60364-7-705 / VDE 0100-705
  Low-voltage electrical installations Part 7-705: Requirements for special installations or locations - Agricultural and horticultural premises .

- National regulations, specifications and norms which are applied in the respective country and which concern a professional erection of an electrical system.

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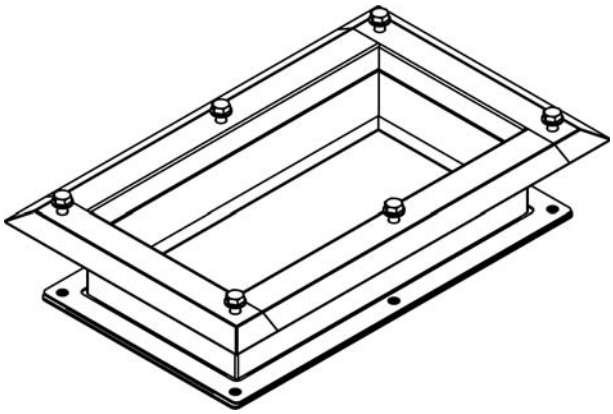
No. 1448 December 9, 2013

New decoupling of lower parts for silo boot and basic silo boot for silo weighing



The decoupling for the silo weighing was revised. The new decoupling has a feed hopper and a lower part that gear into each other telescopically so the feed has no contact to the outer protective foil anymore and the silo scale is not affected by the auger or Flex-Vex.

Coding

Code-no. OLD	Code-no. NEW	description
25-16-3361	25-16-3370	Decoupling for lower part of silo boot FV75/90/125 and S102/150/200

Affected parts lists:

Code-no.	description
25-16-3368	Decoupling module for silo boot cpl S102
25-16-3366	Decoupling module for boot cpl. S150
25-16-3367	Decoupling module for silo boot cpl S200
25-16-3363	Decoupling module for boot cplt Flex-Vey 60
25-16-3365	Decoupling module for boot cpl. Flex-Vey 75
25-16-3364	Decoupling module for boot cplt Flex-Vey 90
25-16-3369	Decoupling module for boot cpl. Flex-Vey125

Set-up

The new decoupling consists of the feed hopper (fig. 1, pos. 1), the lower part of the decoupler (fig. 1, pos. 2) and the dust protection foil (fig. 1, pos. 3).

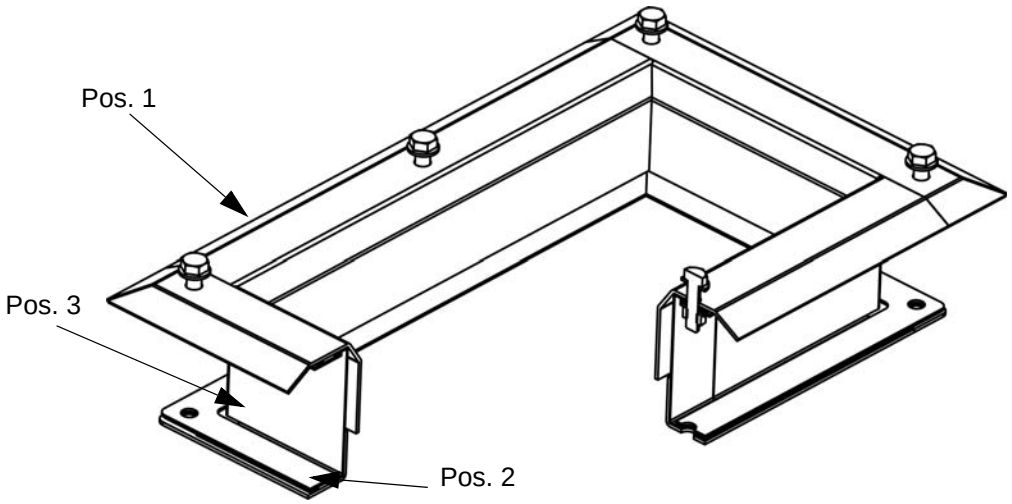


Fig. 1: *Set-up of the new decoupler*

The feed hopper and lower part of the decoupling are arranged in that way that they gear into each other and can move against each other. The screw protection foil prevents the entering of moist and the emission of dust.

Installation

The decoupling (fig. 2, pos. 1) is installed between the lower part for silo boot (fig. 2, pos. 2) and the basic silo boot (fig. 2, pos. 3).

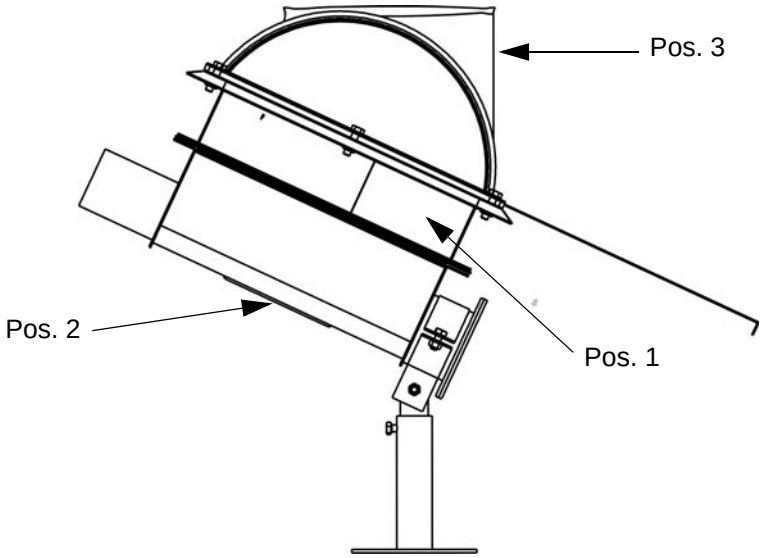


Fig. 2: *Correct installation of the decoupling*

The lower part for silo boot supported by either one support (S-augers, fig. 3) or two supports (Flex-Vey, fig. 4) according to the version.

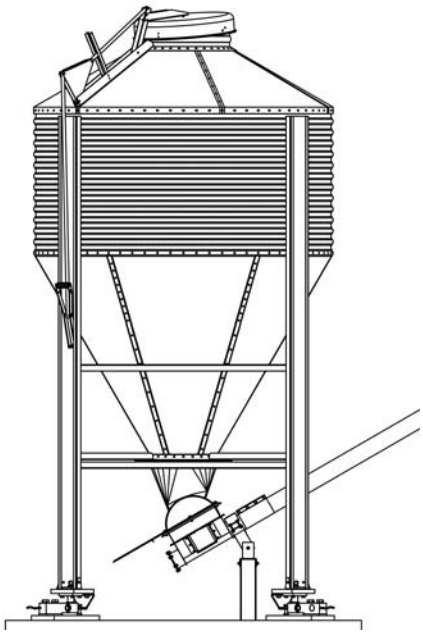


Fig. 3: *Decoupling in connection with an S-auger*

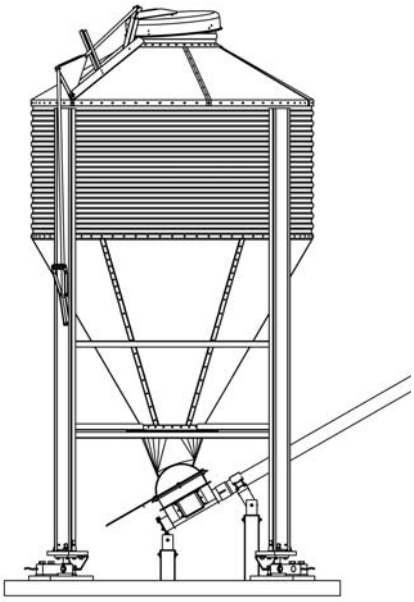


Fig. 4: *Decoupling in connection with a Flex-Vey*

The new decoupling is available since July 2013.

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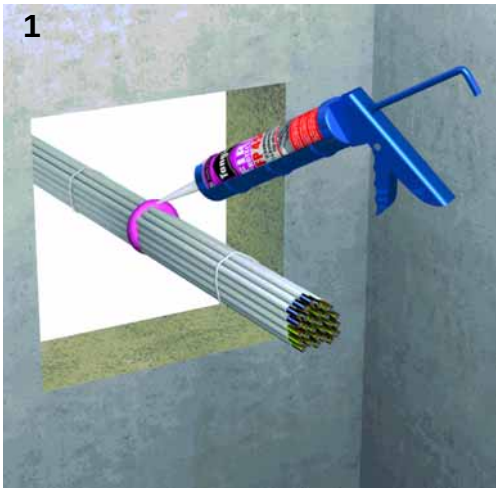
No. 1312 September 21, 2012

Fire precautions: fire-protection sealing of electric lines and Flex-Vey tubes

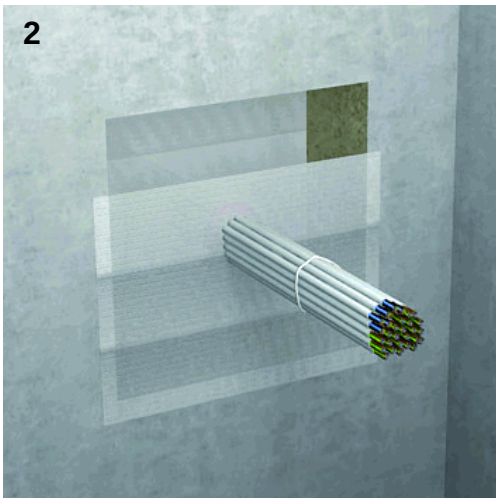
Specifications in laws and regulations exist for the preventive fire protection of livestock buildings (amongst others the Model Building Regulation 2002) and are continuously adapted to state-of-the-art.

In order to meet the increasing requirements for the constructional fire-protection measures when planning a building for livestock husbandry, we now include fire-protection products for fire-protection sealings of electric lines and Flex-Vey tubes in our product range.

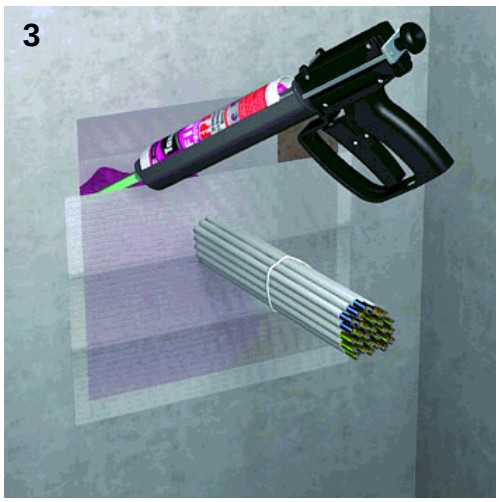
Sealing of cable bundles up to a diameter of 100 mm



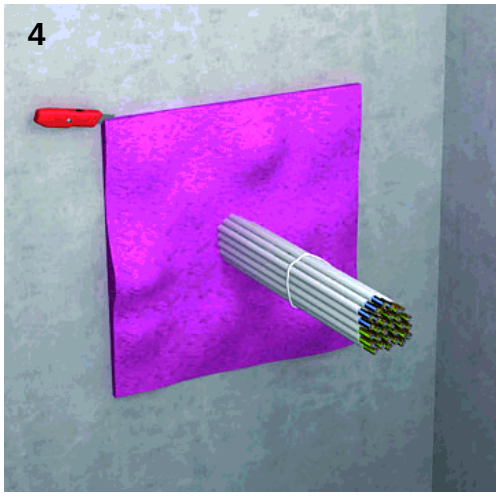
Apply the **fire protection paste FP 450 cartridge 300ml (10-00-0800)** with a layer thickness of the component part around and between the cables.



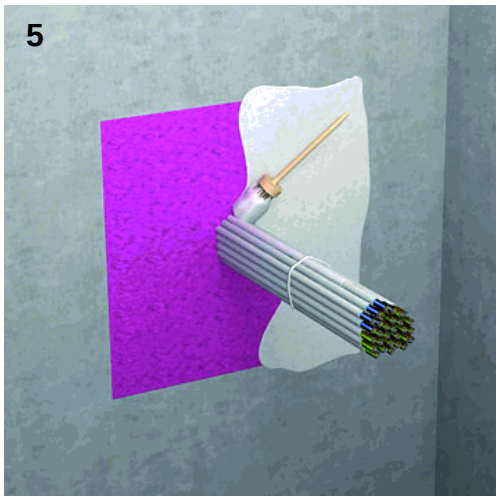
Create an auxiliary formwork with **adhesive tape FP 200 - 50m (10-00-0801)**.



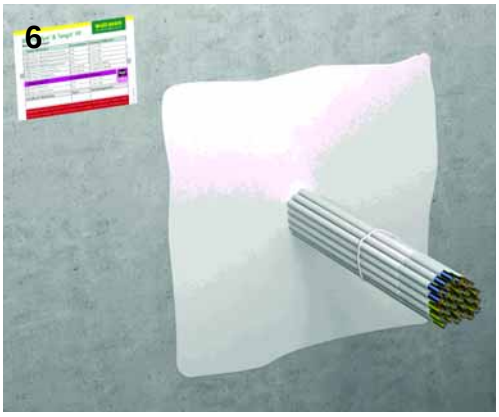
For flue gas sealing the **fire protection foam FP 550 300ml (10-00-0802)** is applied. Use **emulsion tube FP 504 f/fire protection foam(10-00-0804)**.



If desired, cut off the surplus foam.



Finally apply **fire protection coat FP 800 can (10-00-0803)** to the foam and 15 cm along the cables.



Fill in completely the plate for fire protection universal (10-00-0805) (incl. fire protections classification and signature) and install next to the sealing.

!	**This sealing has to be labeled!**

☞	**The figures show a square opening. The same procedure is applied to a core hole and the same products are used.**

Following material is required for a sealing of electric lines:

Code-No.	Description	Figure
10-00-0800	Fire protection paste FP 450 cartridge 300ml *Calc.: 1x per wall opening*	
10-00-0801	Adhesive tape FP 200 - 50m *Calc.: 1x per wall opening*	
10-00-0802	Fire protection foam FP 550 300ml *Calc.: 1x per wall opening*	
10-00-0804	Emulsion tube FP 504 f/fire protection foam *Calc.: 1x per wall opening*	
10-00-0803	Fire protection coat FP 800 can *Calc.: 1x per wall opening*	
99-98-3799	Brush no 2 *Calc.: 1x per fire protection paint*	
10-00-0805	Plate fire protection universal *Calc.: 1x per wall opening*	

Fire protection sleeve for the sealing of Flex-Vey tubes

The fire protection sleeve is suitable for the sealing of inflammable tubes on walls (solid walls or light partitions > 100 mm) and ceilings (> 150 mm). Thanks to the low sleeve height it is possible to install tube bends, couplings or T-connectors into the wall or directly below the ceiling (not in regard to a lead-through with slope). Despite the low place requirement, the fire protection bandage shows a high foaming behaviour and foaming pressure within the sleeve. Thus, in case of fire, a safe sealing can be guaranteed.

Tube diameter	**Sleeve height**
DN 32 - 100 mm	26 mm
DN 125 - 200 mm	40 mm

Mounting instruction

Install the Flex-Vey tube (red noise protection is usually not necessary) and seal the remaining gap with special mortar in a flue gas sealing manner.

Put the fire protection sleeve around the tube from the inside and outside (if applicable mark and prepare the fixing points). Optionally, the mounting links can be bent by 90° or can be bedded in mortar in the wall!)

Dowel the mounting links inside and outside; fill in **the fire protection plate universal (10-00-0805)** completely with marking of the fire protection class and signature and fix it next to the sealing.

The sleeves are to be installed on both sides of the wall (**2 pieces per wall opening are necessary**).

Special applications

At difficult installations, such as a lead-through with slope, the sleeve can be chosen larger (up to 3 sizes) **(maximum only to a sleeve size of 160 mm**).

Depending on the Flex-Vey and the kind of installation, following sealing can be chosen from the below table:

Code-No.	Description	Figure
10-00-0806	Fire protection sleeve AWM III 63mm for Flex-Vey 60: straight lead-through *Calc.: 2x per lead-through*	
10-00-0807	Fire protection sleeve AWM III 75mm for Flex-Vey 60: lead-through slope for Flex-Vey 75: straight lead-through *Calc.: 2x per lead-through*	
10-00-0808	Fire protection sleeve AWM III 90mm for Flex-Vey 75: lead-through with slope for Flex-Vey 90: straight lead-through *Calc.: 2x per lead-through*	
10-00-0809	Fire protection sleeve AWM III 110mm for Flex-Vey 90: lead-through with slope *Calc.: 2x per lead-through*	
10-00-0810	Fire protection sleeve AWM III 111-125mm for Flex-Vey 90: lead-through with slope for Flex-Vey 125: straight lead-through *Calc.: 2x per lead-through*	
10-00-0811	Fire protection sleeve AWM III 126-140mm for Flex-Vey 90: lead-through with slope for Flex-Vey 125: lead-through with slope *Calc.: 2x per lead-through*	
10-00-0812	Fire protection sleeve AWM III 141-160mm for Flex-Vey 125: lead-through with slope *Calc.: 2x per lead-through*	
10-00-0805	Plate fire protection universal *Calc.: 1x per wall opening*	

The fire protection sleeve is approved by the "Deutschen Institut für Bautechnik" (German institute for construction technology) according to **Z-19.17-1651** and is externally monitored by the MPA Braunschweig.

Jörg Hurlin
- Product Manager -
Fattening Systems

1 Basic instructions

!	Please take care of this manual and always keep it in the same place close to the installation for quick reference. All persons working with the system, assembling, cleaning and servicing have to be familiar with the contents of these instructions. Please observe the contained safety instructions! If this manual gets damaged or lost, request a new copy from **Big Dutchman**.

1.1 Basics

The **Big Dutchman** installation has been constructed according to the current state of the art and all acknowledged regulations regarding technical safety. The installation is reliable. Upon operation, however, dangers to life and limb of the user or third persons or impairments of the system or other material property are still possible.

The system may only be mounted, attended, repaired and used:

- for due use
- in an excellent state from the safety and technical point of view
- by persons who are familiar with the safety regulations

In the event of special problems which are not described in detail in this manual, we recommend to contact us for your own safety.

1.2 Explaining the symbols

1.2.1 Safety symbols in this manual

Upon reading this **manual** you will come across the following symbols

	**WARNING** This symbol indicates risks possibly leading to personal injury resulting in death or to severe injuries.
	**CAUTION** This symbol indicates risks or insecure procedures possibly leading to injuries or material damage.
	**NOTE** This symbol indicates notes leading to an effective, economic and environmentally-conscious handling of the installation.

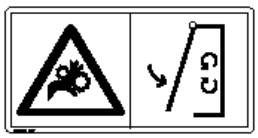
1.2.2 Safety symbols in the manual and on the installation

These safety symbols illustrate remaining dangers when handling the system. They are supplements to the above-mentioned symbols:

	Warning against dangerous electrical voltage
	Warning against the cold
	Warning against slippery surface

1.2.3 Safety symbols and notes on your installation

Depending on the type of installation you will find the following safety symbols. They indicate technically remaining dangers when handling the system and give information on how to avoid these dangers.

	**GENERAL DANGER !** Installation automatically starts working. Before starting repair, maintenance or cleaning work, put main switch to ”OFF”.
	**Danger of bruising due to rotating machine parts!** Close protective devices each time before taking the system into operation. Opening protective devices is only allowed when the system is in a standstill. People have to be authorised for this.
	**RISK OF INJURY due to operating auger, chain or cable discs!** Never reach into or climb into a feed container or trough while the motor is running.
	**DANGER OF SKIN CORROSION due to purifying agents!** Always wear protective clothing when repairing, maintaining and cleaning the installation. Always observe the manufacturer’s instructions when using acids!

Implicitly observe the instructions attached to the installation, such as the arrow on the motor indicating the direction of rotation.

The signs and safety instructions always have to be visible and must not be damaged. If they are soiled by dust, manure, feed remains, oil or grease, clean them by means of a water-detergent mixture.

	**If a safety symbol or instruction is fixed to a part to be replaced, ensure that it will be fixed to the new part as well.**

1.3 General safety instructions

All established safety precautions and other generally accepted safety regulations and medical references have to be observed. Please check safety and function control devices to ensure safe and accurate operation:

- before putting into operation
- at adequate time intervals
- after modifications and repairs.

Check the proper functioning of the system after any kind of repair works. You may only take the device into operation, when all protective systems have been put into place again. Follow the directions of the electric and water supply company.

1.4 Safety instructions when operating electrical appliances

You have to make sure that the system with the electrical appliances is operated and maintained according to the electro-technical regulations.

	Installations and work on the electric components/structural groups may only be carried out by qualified personnel according to electro-technical regulations (e.g. EN60204, DIN VDE 0100/0113/0160).

	Dangerous electric tensions are bare in case of open control equipment. Please be aware of the danger and keep workers of other professions away from the dangerous spot!

Do not install control units directly in the house but in the service room in order to prevent damages due to ammonia vapours (NH_3).

Immediately switch off the installation in the event of malfunctions of the power supply units. Use a bipolar voltage probe to make sure that the electrical equipment is not alive.

Check the electrical wiring and cables for recognisable damage before putting the device into operation. Replace damaged wiring and cables before taking the device into operation.

Only use the fuses indicated in the circuit diagram. Immediately replace damaged fuses.

 	**Warning** **Never repair or bypass the fuses!** Damaged fuses have to be replaced with new fuses!

Never cover the electrical motor. This can cause high temperatures so that fire results and the working means can break down. The control box as well as the terminal and connector boxes of the installation must always be kept shut. Have damaged or broken plugs replaced by an electrician. For the respective connections please see the enclosed connecting plan of the system parts delivered.

1.5 Dangers resulting from non-compliance with the safety instructions

Non-observance of these instructions can cause severe danger for life and health of people or can lead to material or environmental damages and to the forfeiture of any claim for damages. To be precise, the non-observance of these instructions can lead to:

- Failure of vital functions of the installation
- Failure of prescribed maintenance methods
- Dangers for people owing to electrical and mechanical influences.

1.6 Clothing for personal safety

When operating, maintaining and cleaning the system, avoid wearing wide, fluttering clothes, rings and watches.

Make sure that long hair is tied back when approaching moving system parts. Hair can get caught in the parts in motion and thus create severe injuries.

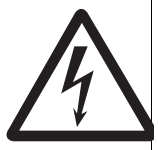
Wear protective clothes and safety footwear upon operating, maintaining and cleaning the system, if required also use a safety helmet, ear protection, safety glasses, protective gloves and gas mask.

1.7 Assembly and maintenance

Assembly of the system can be carried out by the operator himself or by an authorised person. We require that the operator or the authorised person possesses the required knowledge and practical experience or technical training and qualification necessary for a proper assembly.

Repairs may only be carried out by persons who are competent and can guarantee proper handling because of special training or knowledge and practical experience with the unit. The operator has the sole power of decision. Work on the electric components may only be carried out by technically skilled personnel and under consideration of German Industry Standards, VDE regulations, safety instructions and electro-technical regulations of the power supply industry (EVU). Only work with appropriate tools; in case of possible danger to hands, use protective gloves, and safety glasses in case of danger to the eyes.

Repair, maintenance and cleaning operations as well as the removal of functional disorders may generally only be carried out when the installation is turned off and the power supply is disconnected.



Protect the installation by means of a sign fixed to the main switch reading ”Do not put into operation!” Refer to maintenance works in case of need.

Check the proper functioning of the system after any kind of repair or maintenance. You may only take the device into operation, when all protective systems have been put into place again.

1.8 Employing external personnel

Mounting, maintenance and repair work is frequently carried out by non-operating personnel, which is not familiar with the special circumstances and the inherent dangers

As supervisor, you are responsible for the safety of external personnel!

You as operator are to survey the personnel and to define responsibilities and powers. Inform these people in detail on the dangers of their area of work. Check their method of working and intervene as soon as possible.

1.9 Ordering spare parts

Operational safety is the prime necessity!

For your own safety only use original **Big Dutchman** spare parts. For foreign products that have not been released or recommended or for modifications carried out (e.g. software, control units) we cannot judge whether there is a safety risk in connection with the **Big Dutchman** systems.

You can find the exact description (Code No.) of the parts for ordering spare parts by means of the position numbers in the spare parts lists (see appendix).

Indicate the following for ordering spare parts:

- Code No. and description of the spare part or
- Invoice No. of original invoice
- Power supply e.g. 230/400V-3Ph.- 50/60Hz

1.10 Obligations

Closely adhere to the instructions in this manual.

A basic condition for safe operation and trouble-free handling of this system is the knowledge of the basic safety instructions and regulations.

These mounting and operating instructions, particularly the safety instructions, have to be observed by everyone working with this system. Moreover, the regulations and instructions for the prevention of accidents valid at the respective place of use have to be observed.

The manufacturer is not responsible for any damages to the machine resulting from changes done by the user.

1.11 Warranty and liability

Warranty and liability claims regarding personal and material damage are excluded if they result from one or several of the following causes:

- non-designated use of the installation
- inappropriate mounting and operating of the system
- operating the system with defective safety equipment or not duly fixed or not functioning safety and protective devices,
- non-observance of the instructions in this manual regarding transport, stock keeping, mounting, maintenance, operating and upgrading of the system
- unauthorised modifications on the system
- inappropriate repairs
- in the event of disasters caused by foreign matters or force majeure.

1.12 Disorders due to power failure

We recommend the installation of warning systems for a better monitoring of your production units and the installation of an emergency power-generating set for adequate supply with power in case of power failure. By this, you protect the animals and thus your own economical health. For further information please contact your property insurance.

1.13 First aid

For the case of an accident, unless specified otherwise, a first-aid kit must always be available at the place of work. Material taken out and used is to be replaced immediately.

If you need help, describe the accident as follows:

- where it happened
- what happened
- the number of persons injured
- what type of injury
- who is reporting the accident (your data)!

1.14 Waste disposal

After finishing the assembly or repair of this installation, dispose of the packing material and remains which do not need to be further used according to the legal provisions for recycling. The same applies to the component parts after putting the installation out of service.

1.15 Notes for use

We reserve the right to modify the construction and technical data for reasons of further development. Therefore, no claims can be derived from the information, pictures, drawings and descriptions. Subject to correction! In addition to the safety-relevant instructions in this manual and the safety precautions valid in the country of use, also observe the generally acknowledged technical regulations (safe and appropriate working according to UVV, VBG, VDE etc.). In addition to these operating instructions, please also observe the instructions supplied by the manufacturers (e.g. sensors).

1.16 Copyright

For further information please contact:

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Phone +49(0)4447/801-0, Fax +49(0)4447/801-237

e-mail: big@bigdutchman.de, Internet: www.bigdutchman.de

2 Planning instructions for the assembly of the Flex-Vey Feed Conveying System

2.1 Definition of the information on the left and right hand

	The information "left" and "right" result from the viewing direction in the flow direction of the feed, i.e. from the silo to the feed line drive unit.

2.2 Notes

	**Important note:** Due to the manifold design options of a **Big Dutchman** Flex-Vey feed conveying system, it is not possible to describe every possible model type in this manual. **The type of the Flex Vey feed conveying system specific to your house** can be found in the planning instructions supplied by **Big Dutchman**. **There are, however, some points which should be considered already in the preliminary planning, in order to guarantee an efficient operation of the feed conveying system.**

- **If you you without tube bends to a large extent** and if you use a high part of straight-lined FlexVey lines, the feed can be conveyed with highest efficieny.

	**Important:** **The mounting of a left bends** should above all be avoided. Within a left bend the pipe wall will not be sufficiently protected by the conveyed feed, resulting in an increased wear of the pipe wall.

- **Do not mount any feed outlets in or directly after a bend.**
- See to a suitable electrical wiring guaranteeing the energy supply of the motors.

- In case of a necessary change of the conveying direction and in case of conveying lengths exceeding the prescribed maximum conveying length of the system, you have to use transfer units instead of a bend, if possible.

  Thus you avoid an idle running for a longer period of time at the end of the system.

- Install the transfer unit avoiding feed outets in the bend after the transfer unit and in the short tube between bend and transfer unit.
- In some cases the use of a bend in the system, can only be avoided by installing the transfer unit crossways. I

  This means: At a place where a bend would normally be used, the installation of a transfer unit would change the conveying direction by up to 90° in minimal space.

- The **longer part** of the line with the highest number of outlets, must be situated **behind the transfer unit.**

  Seen from the silo this means that the transfer unit has to be installed **within the first half of the total length** of the conveying system.

- If a bend is mounted in the system, a transfer unit should be mounted in front of the bend, in order to avoid wear in the bend.

Notes for the planning of a tandem system:

- A tandem system is a **straight-lined connection** of two silos. It permits a feed supply of the house **with one Flex-Vey conveying line only**.

  Furthermore this type of system allows the supply of two different types of feed or the doubling of the feed storage capacity without the use of a second conveying system.

!	**Important:** **The following instructions have absolutely to be observed when planning a tandem system :** • Both silos must be placed on the same concrete slab. Please observe the instructions of the manufacturer of the silo in this regard. • Never insert bends between two silos. • The max. distance between the silos to be connected may not exceed 3 m.

3 Designated use and description of Flex-Vey System

3.1 Designated use

The **Big Dutchman** Flex-Vey feed conveying system must only be used to transport suitable feed in feeding systems for pig and poultry management.

This **Big Dutchman** system may only be used according to its designated use. Every other use is considered as non-designated use. The manufacturer does not accept liability for damages resulting from other uses, the user alone has to bear the risk.

The designated uses also includes the exact following of the operation, maintenance and assembly conditions as prescribed by the manufacturer.

The limits mentioned in the technical data may in no case be exceeded.

3.2 Avoidance of foreseeable misuse

The following applications of the **Big Dutchman** Flex-Vey feed transport system are considered as misuse and are therefore strictly forbidden:

- Transport of non-conveyable material

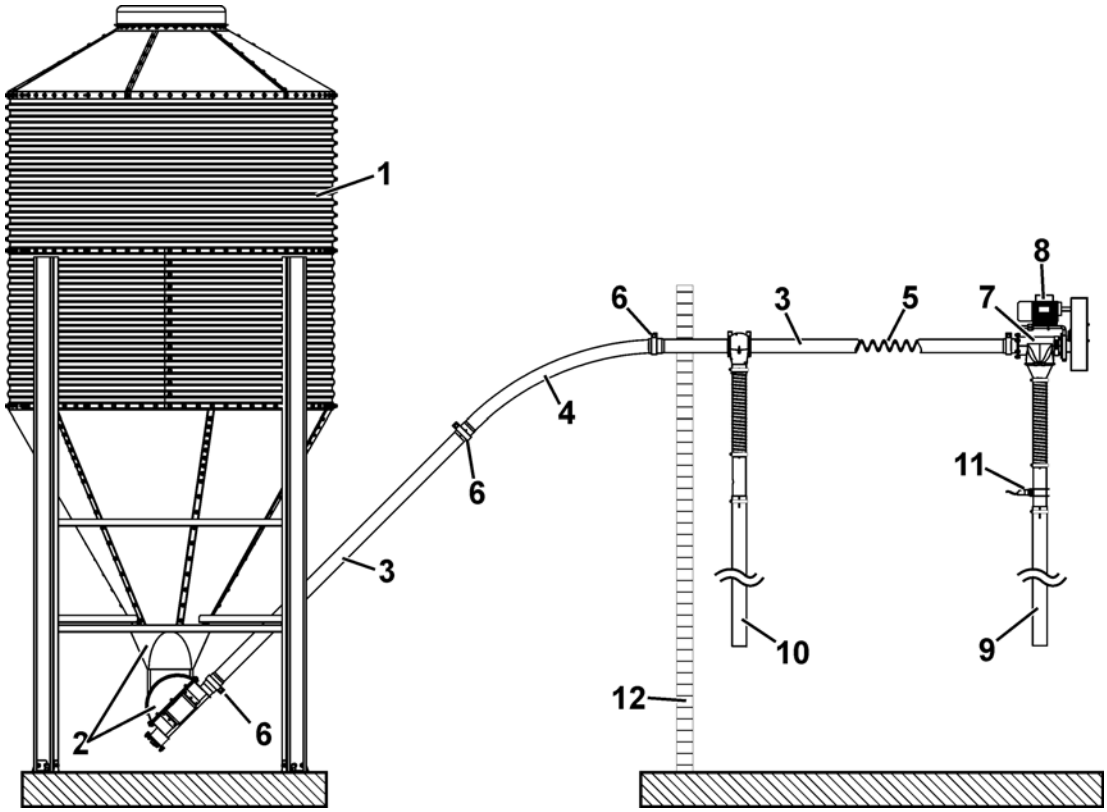
3.3 Description of Flex-Vey Feed Conveying System

The **Big Dutchman** Flex-Vey feed conveying system consists of:

- drive unit (boot for auger, tension shaft, drive)
- connection tubes with conveying auger
- control for drive unit Flex-Vey

4 Technical data

4.1 Overview of system



Pos.	Description	Pos.	Description
1	Silo	**7**	Drive unit
2	Funnel and boot	**8**	Electrical control
3	Conveying pipe	**9**	Drop pipe incl. sensor
4	Bend, plastic	**10**	Drop pipe with outlet
5	Conveying auger	**11**	Sensor
6	Clamp for pipe	**12**	Building

4.2 Available drive units (gear motors) and maximum possible system lengths

Flex Vey 60

Pos	Max. system length (*) [m]	Code No	Description
1	80	25-63-3065	Drive 0.75kW 400V 3PH 50/60Hz YZ Flex Vey 60
2	60	25-63-3067	Drive 0.75kW 200V 3PH 60Hz YZ Flex Vey 60
3	60	25-63-3066	Drive 0.75kW 230V 1PH 60Hz YZ Flex Vey 60

(*) = with **one** bend 45 degree. For each **additional** bend you have to deduct 5m from the length of system.

Flex Vey 75

Pos	max. length of system (*) [m]	Code No	Description
1	60	25-60-3065	drive 0,75KW 400V 3PH 50Hz Flex-Vey 75
2	60	25-60-3071	drive 0,75KW 400V 3PH 60Hz Flex-Vey 75
3	48	25-60-3067	drive 0,75KW 230V 1PH 50Hz Flex-Vey 75
4	48	25-60-3066	drive 0,75KW 230V 1PH 60Hz Flex-Vey 75
5	60	25-60-3073	drive 1,10KW 230V 1PH 50Hz Flex-Vey 75
6	60	25-60-3072	drive 1,10KW 230V 1PH 60Hz Flex-Vey 75

(*) = with **one** bend 45 degree. For each **additional** bend you have to deduct 5m from the length of system.

Flex Vey 90

Pos	max. length of system (*) [m]	Code No	Description
1	40	25-61-3065	drive 0,75KW 400V 3PH 50Hz Flex-Vey 90
2	40	25-61-3071	drive 0,75KW 400V 3PH 60Hz Flex-Vey 90
3	32	25-61-3068	drive 0,75KW 230V 1PH 50Hz Flex-Vey 90
4	32	25-61-3066	drive 0,75KW 230V 1PH 60Hz Flex-Vey 90
5	40	25-61-3073	drive 1,10KW 230V 1PH 50Hz Flex-Vey 90
6	40	25-61-3072	drive 1,10KW 230V 1PH 60Hz Flex-Vey 90

Only available on request for FV90

7	40		Drive 1.10kW 400V 3PH 50Hz YZ Flex Vey 90

(*) = with **one** bend 45 degree. For each **additional** bend you have to deduct 5m from the length of system.

Flex Vey 90HS (High Speed)

Pos	Max. system length (*) [m]	Code No	Description
1	40	25-61-3111	Drive 1.50kW 400V 3PH 50Hz YZ Flex Vey 90 HS
2	40	25-61-3112	Drive 1.50kW 400V 3PH 60Hz YZ Flex Vey 90 HS
3	40	25-61-3113	Drive 2.20kW 230V 1PH 50Hz YZ Flex Vey 90
4	40	25-61-3114	Drive 2.20kW 230V 1PH 60Hz YZ Flex Vey 90 HS

(*) = with **one** stainless steel bend 45 degrees and **without** transfer unit.

Important

As the speed of the Flex-Vey 90HS auger is 760 U/min, a maximum of only **one** 45° stainless steel bend may be used every 40m of the conveyor length.

Flex Vey 125

Pos	max. length of system (*) [m]	Code No	Description
1	25	25-62-3065	drive 1,10KW 400V 3PH 50Hz Flex-Vey 125
2	25	25-62-3071	drive 1,10KW 400V 3PH 60Hz Flex-Vey 125
3	20	25-62-3068	drive 1,10KW 230V 1PH 50Hz Flex-Vey 125
4	20	25-62-3066	drive 1,10KW 230V 1PH 60Hz Flex-Vey 125
5	25	25-62-3073	drive 1,50KW 230V 1PH 50Hz Flex-Vey 125
6	25	25-62-3072	drive 1,50KW 230V 1PH 60Hz Flex-Vey 125

(*) = with **one** bend 45 degree. For each **additional** bend you have to deduct 5m from the length of system.

4.3 Conveying capacity of the auger

4.3.1 Flex-Vey 60; 75; 90 and 125

FV model	Max. system length (3*) [m]		Max conveyor capacity (4*) [to/h]		Max. pellet diameter [mm]
			With conveying direction:		
	(1*)	(2*)	Horizontal	45 degrees	
Flex-Vey 60	80	160	0,7	0,5	4
Flex-Vey 75	60	120	1,4	1,0	8
Flex-Vey 90	40	80	2,5	1,75	10
Flex-Vey 125	25	50	4,5	3,15	10

(1*) = with **one** bend 45 degree

(2*) = with **one** bend 45 degree and **one** transfer station

(3*) = for each **addtional** bend 5 m of the system length have to be deducted

(4*) = for feed with a specific weight of 650 kg/m^3)

4.3.2 Flex-Vey 90HS (High Speed)

FV model	Max. system length [m]			Max conveyor capacity [to/h]	Max. pellet diameter [mm]
	(1*)	(2*)	(3*)	(4*)	
Flex-Vey 90HS	40	80	120	4	10

(1*) = with **one** stainless steel bend 45 degrees

(2*) = with **one** stainless steel bend 45 degrees and **one** transfer unit for F-V 90HS

(3*) = with **one** stainless steel bend 45 degrees and **two** transfer units for F-V 90HS

(4*) = for feed with a specific weight of 650 kg/m^3)

Important

As the speed of the Flex-Vey 90HS auger is 760 U/min, a maximum of only **one** 45° stainless steel bend may be used every 40m of the conveyor length.

4.4 Dimensions of auger

FV model	External diameter [mm]	Gradient [mm]
Flex-Vey 60	45	45
Flex-Vey 75	60	60 **(*)**
Flex-Vey 90 / 90HS	70	65
Flex-Vey 125	100	70

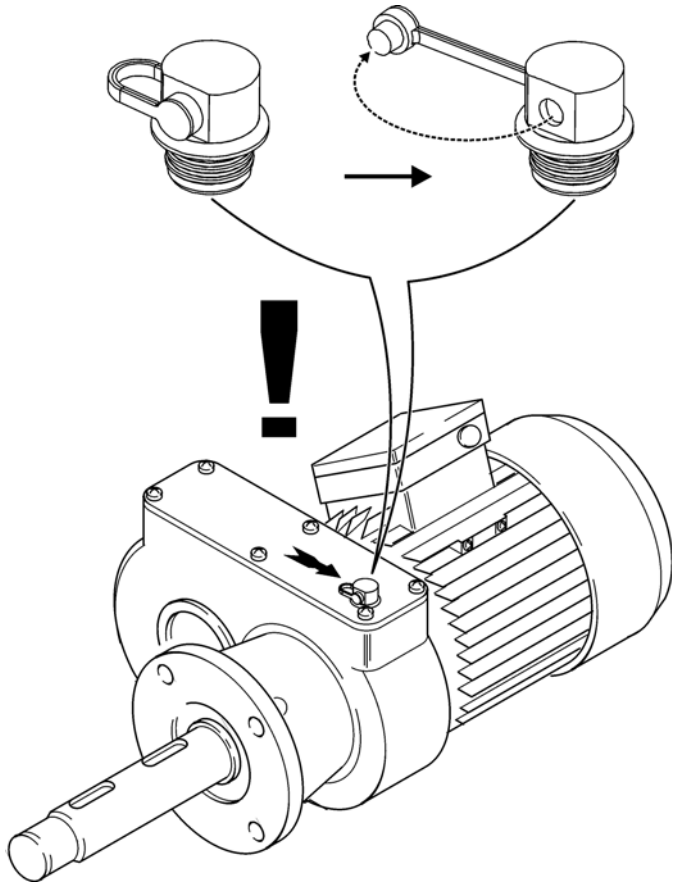
(*) = on request available even with 40mm available

4.5 Dimensions of conveying pipes

FV model	External diameter of pipe [mm]	Material / wall thickness [mm]	Pipe bend radius (45°/90°) [mm]
Flex-Vey 60	60	PVC / 3.3	1600
Flex-Vey 75	75	PVC **(*)** / 3.3	1533
	76,1	Stainless steel / 2.0	
Flex-Vey 90	90	PVC **(*)** / 3.5	1568
	88,9	Stainless steel / 2.0	
Flex-Vey 90HS	88,9	Stainless steel / 2.0	1568
Flex-Vey 125	125	PVC **(*)** / 5.0	2750
	125	Stainless steel / 2.0	

(*) = on request also available as zinc-coated pipe

5 Important instructions for commissioning the gear motors (ventilation)



Important:

Before commissioning the gear motors, pull the **plug out of the ventilation cap!**

This applies for all gear motors for:

- Feeding,
- Egg collection,
- Manure removal,
- and other assemblies

if automatic ventilation is not provided.

6 Important notes regarding the avoidance of assembly errors

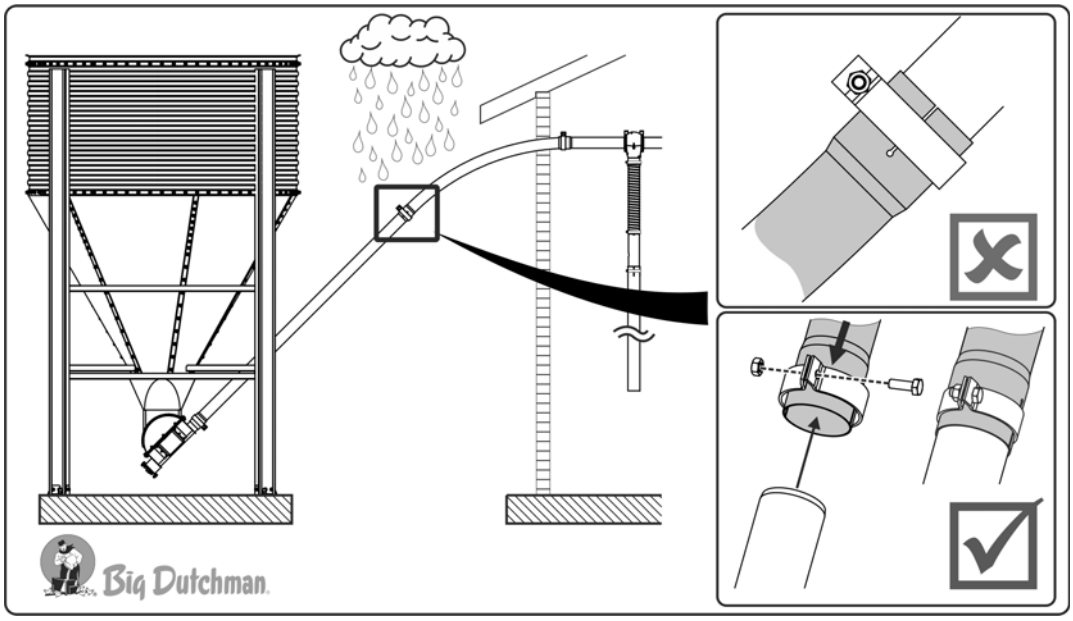
In the following chapters you will find notes which have to be absolutely observed when assembling and repairing the Flex-Vey system.

6.1 Conveying pipes and bends

Avoid ...

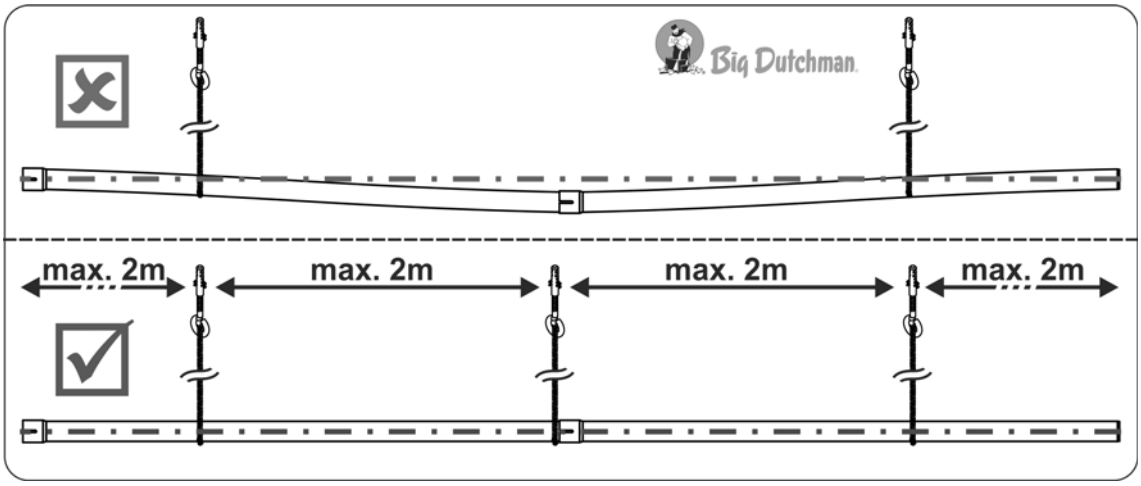
1. ...an alignment of the connecting sleeve outside the house and upwards.

   In this case, dripping water cannot enter in the pipes.



2. **... sagging pipes.**

   Ensure the building has a sufficient number of suspension points (<u>at least</u> one suspension point every 2m [F-V90HS every 1.5m]).

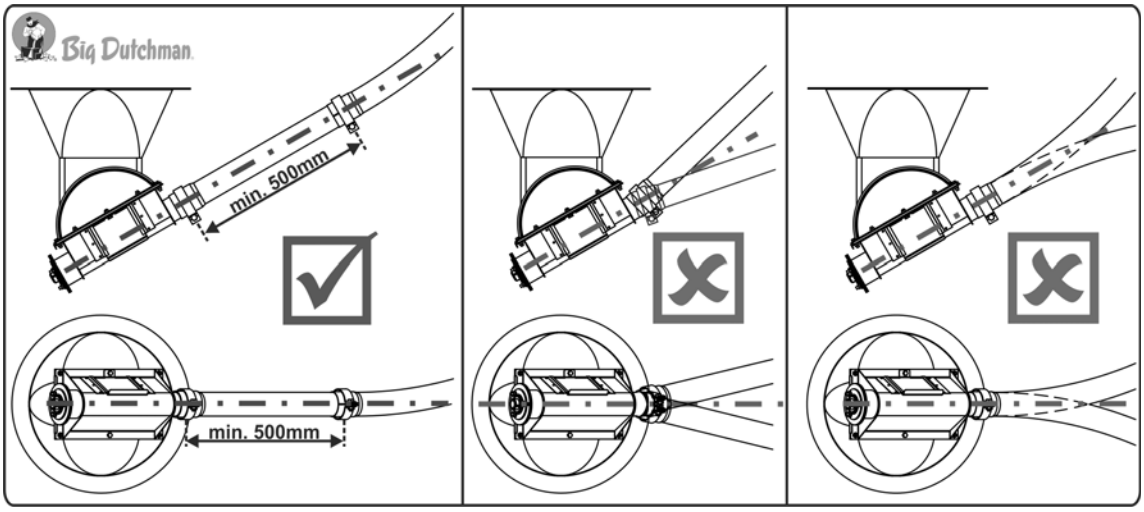


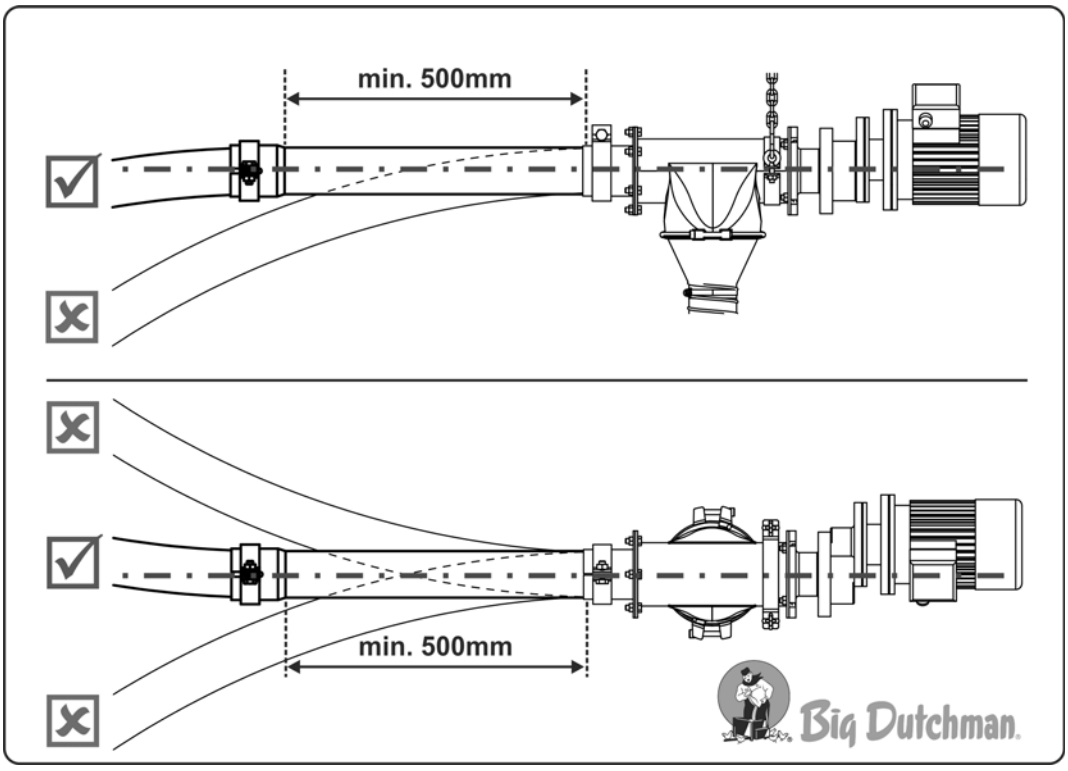
3. **...the assembly of a bend directly behind the boot as well as the assembly of a bend directly at the drive (applies to V-belt drive and gear motor).**

Important:

The conveying pipe must show a straight-lined course on the **first 500mm after the boot**.

The conveying pipe must show a straight-lined course on the **last 500mm in front of the drive**.





4. **...a canted fixing of a straight pipe at the flange of the lower part of the boot or at the flange of the drive unit.**

   (see also the previous illustration).

5. **...pipe courses with too many bends.**

   Use as little bends as possible.

6. **...the cutting / shortening of bends 45°.**

   Only use complete bends 45°.

6.2 Auger

6.2.1 Welding the auger

Avoid ...

1. **...the welded joint of the auger lies within a pipe bend section.**

   The welded joint **may only lie in a straight section of the conveying pipe.**

   If the welded joint lies in a pipe bend section after the repair, its position may be corrected, if necessary, by turning the complete auger by 180° (the end of the auger which was placed at the drive unit is now placed at the boot). If it doesn't lie in a straight part of the conveying pipe yet, the auger has to be replaced.

2. **....too hot welding of the auger.**

   Make sure that the adjustments at the electric welding device are correct. Too hot welding will affect the material property of the auger and thus increase the risk fo fracture.

3. **..quick cooling of the welding joint with water or other liquids.**

	Let the auger **slowly cool down at the air**. A cooling with any liquids makes the material of the auger brittle and thus increases the risk of fracture!

6.2.2 Insertion of the auger

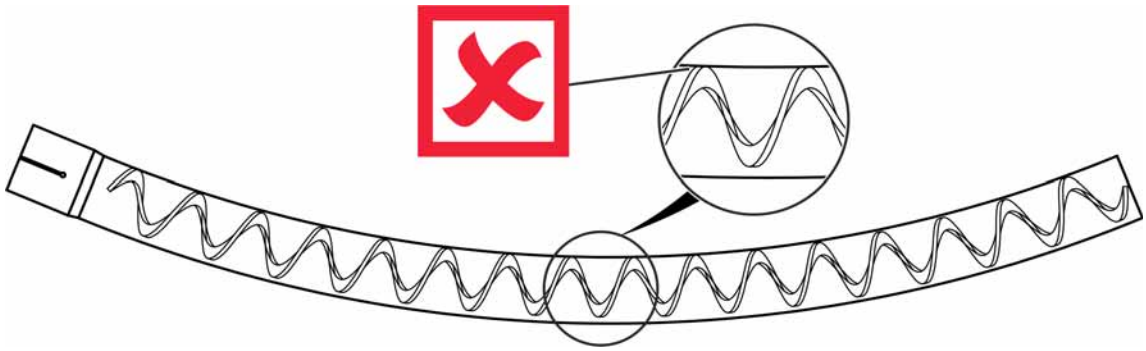
Avoid ...

1. **...inserting an auger which shows damages or bends.**

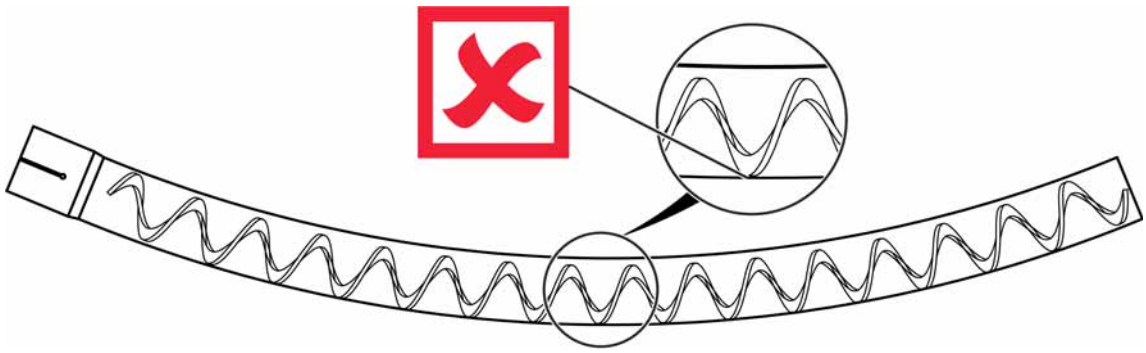
   Damaged or bent augers may damage the conveying pipes during the operation. Remove the damages or bends by removing these sections from the auger.

2. **...a too short or too long auger.**

   - too short augers will rub at the wall of the pipe bends during operation and may damage them



   - too long augers will rub at the wall of the pipe bends during operation and may damage them



3. **...the welding joint of the auger lies in a pipe bend section.**

   The welding joint is only to be made in a straight part of the auger.

   If the welded joint lies in a pipe bend section after the repair, its position may be corrected, if necessary, by turning the complete auger by 180° (the end of the auger which was placed at the drive unit is now placed at the boot). If it doesn't lie in a straight part of the conveying pipe yet, the auger has to be replaced.

4. **...inserting a conveying auger the welding joint of which has not been cleaned from slag, burrs and other welding residues.**

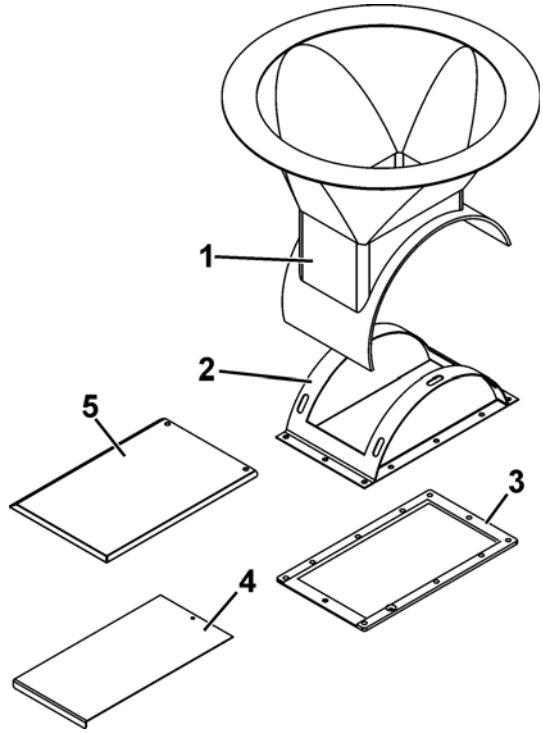
   Clean the welding joints thoroughly, but make sure that the auger is not damaged respectively that the cross section of the material is not weakened.

	**Do not use a right angle grinder** for cleaning.

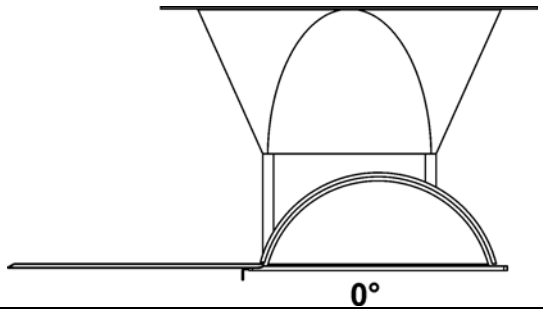
7 Assembling the Flex Vey boot

7.1 Survey of basic boot

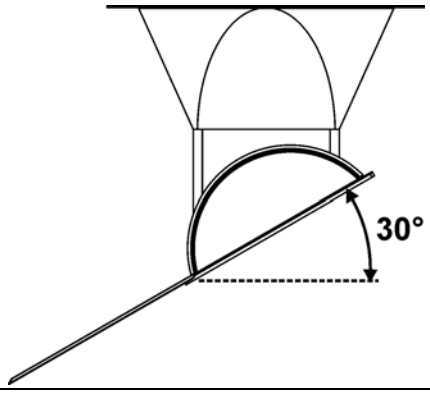
Component parts of basic boot for sheet metal and GRP silo



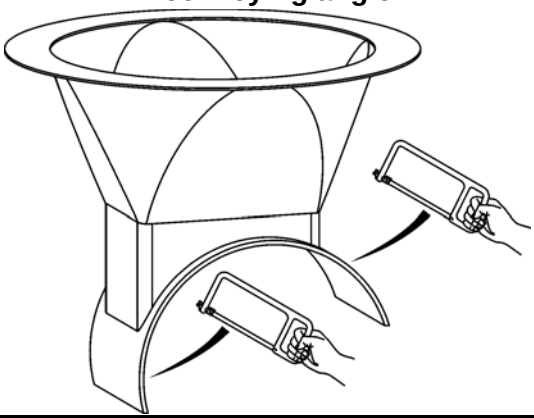
Upper part for boot set to 0 degree



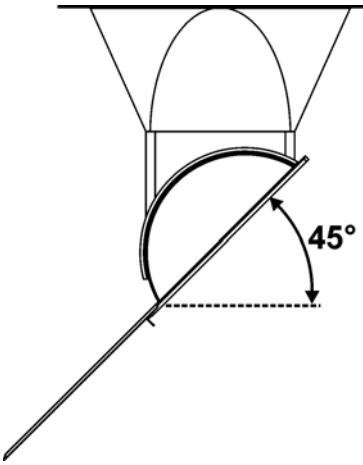
Upper part for boot set to 30 degree



The connection for the upper part has to be shortened according to the requested conveying angle.



Upper part for boot set to 45 degree

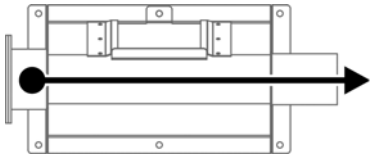
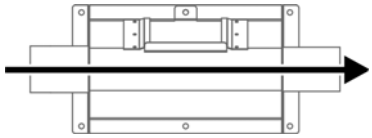
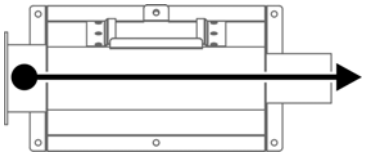
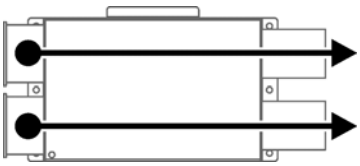
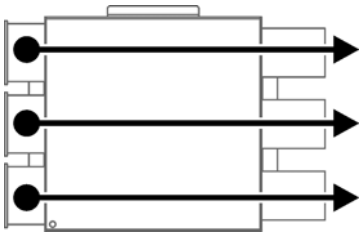
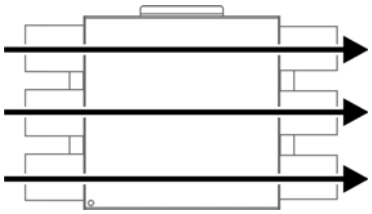


Pos.	Qty.	Code no.	Description
1	1		Funnel GRP f/boot (sheet metal or GRP-Silo)
2	1	25-16-3602	Upper part galv f/boot for flexible auger
3	1	25-16-3603	Shutter guide PE for boot
4	1	25-16-3607	Hand slide galv f/boot f/flex. auger
5	1	25-16-3625	Cover plate galv for hand slide

7.2 Survey: Conveying directions of the lower parts for boot

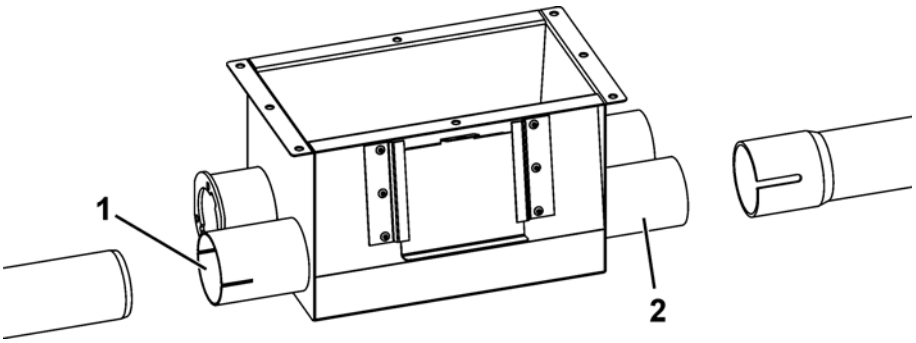
There are different types of lower parts for boot, depending on the required conveying direction and the use of one or more silos in combination.

You can find an overview of all lower parts for the silo boot in chapter 21.3.2.

1 line / 1 direction 	**1 line / passing** 	**Tandem** (for pushed auger with silos in Tandem-arrangement with 2. drive unit) 
2 lines / 1 direction 	**2 lines / passing** 	**2 lines / 2 directions** 
2 lines / 1 direction / 1 line passing 	**3 lines/ 1 direction** 	**3 lines / passing** 

(View from bottom)

7.2.1 Note regarding the lower parts for boot with passing conveying lines



The lower parts for boot with **passing conveying lines** have a **pipe flange with slots** on one side(1). Here the conveying pipe will be **inserted** with the smooth end.

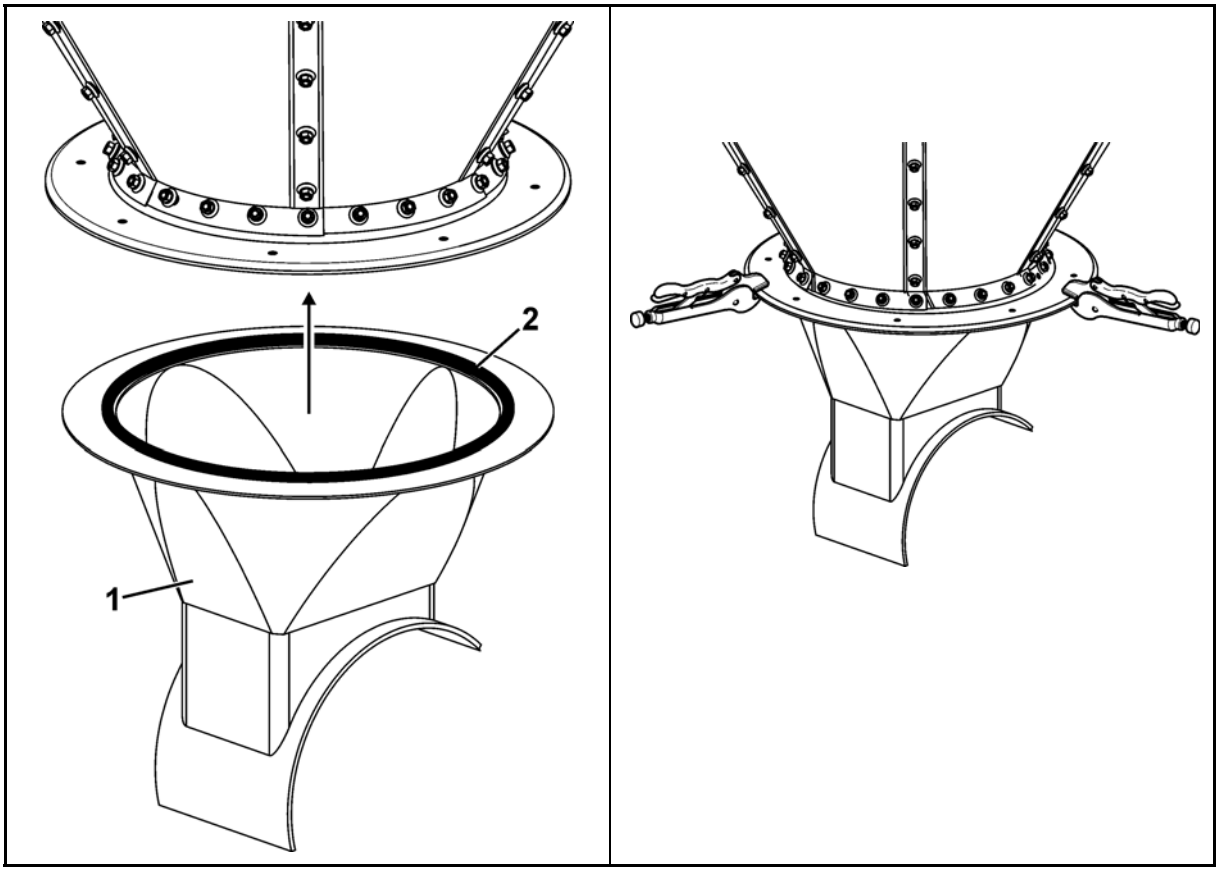
The end of the conveying pipes will be attached on the pipe flange at the other side with a socket.

7.3 Assembly of funnel for boot to the silo

	Note: The following assembly instructions are only applicable for **Big Dutchman** silos in connection with the **Big Dutchman** Flex-Vey feed conveying system.

Procedure:

1. Put a sealing strip (2) cut to correct size around the whole size of the funnel. **See to it that the sealing strip is put around the inner border of the funnel opening (not in the centre or outside).**
2. Clamp the funnel under the receiving ring of the silo hopper using vise-grip wrenches or thumbscrews. **Make sure that the funnel is already nearly aligned in the conveying direction of the auger.**



Pos.	Qty.	Code no.	Description
1	1	25-16-3629	Funnel GRP for boot for flex. auger for sheet metal silos (illustrated)
	1	25-16-3626	Funnel GRP for boot for flex. auger for silos GRP
2		25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m

7.4 Assembly components: Upper- and lower part for boot with shutter guide

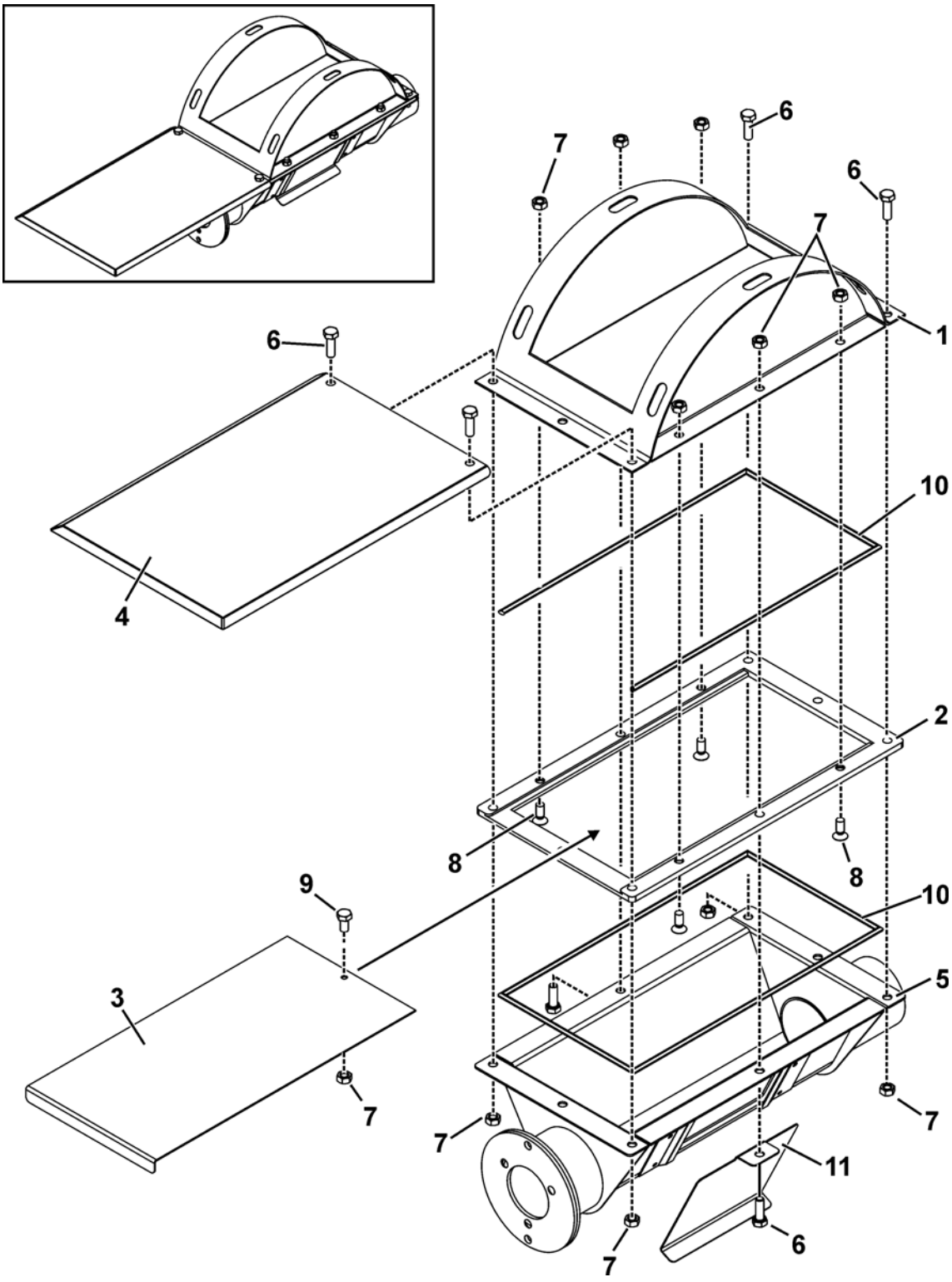
1. Put a sealing strip (10) cut to size around the whole inner border of the hole of the shutter guide (2).
2. Screw the shutter guide (2) and the upper part of the boot (1) by means of a cross recessed countersunk head screw M8x20 (8) and hexagon nuts M8 (7).

   The screws must be mounted **from the bottom to the top**.

   Make sure that the slot shows in direction of the guide of the hand slide (3) to the top and in direction of the cover plate (4).
3. **(!) Only for lower parts for boots with several lines:** Seal the bore at the bottom by means of a hexagon head screw M 8x16 (9) and by means of a hexagon nut M 8 (7).
4. Put a sealing strip (10) cut to size around the whole inner border of the hole of the lower part for boot (5).
5. Screw the lower part for boot (5), the upper part for boot (1) and the shutter guide (2) by means of hexagon head screws M8x25 (6) and hexagon nuts M8 (7).

   Make sure that the cleaning scraper (11) and the cover plate (4) are also screwed on one side of the lower part for boot.
6. Put the hand slide (3) into the opening of the shutter guide (2) and close the boring of the hand slide (3) by means of a hexagon head screw M 8x16 (9) and a hexagon nut M8 (7).

Pos.	Qty.	Code no.	Description
1	1	25-16-3602	Upper part galv f/boot for flexible auger
2	1	25-16-3603	Shutter guide PE for boot
3	1	25-16-3607	Hand slide galv f/boot f/flex. auger
4	1	25-16-3625	Cover plate galv for hand slide
5	1		lower part for boot (**shown here:** 25-16-3630 M75 1-line; 1 direction)
6	6	25-17-8766	Hexagon head screw M 8x 25 DIN 933 8.8 for silo BD
7	11	25-17-8753	Hexagon nut M 8 DIN 934 Kl. 8 for silo BD
8	4	99-10-1311	Cross recessed countersunk head screw M 8x16 DIN 965-5.8
9	1	99-10-1046	Hexagon head screw M8x 16 galv. DIN 933 8.8
10		25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m
11	1		Cleaning scraper


6
7
6
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11
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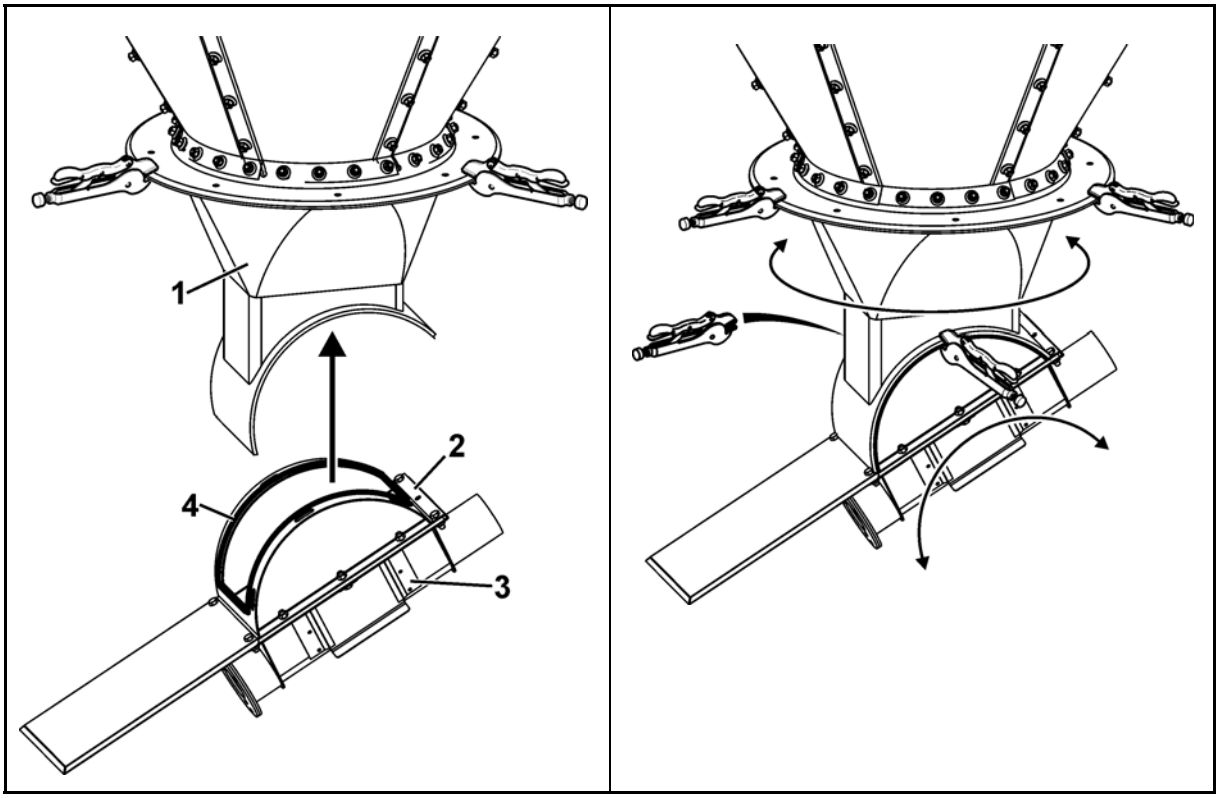
7.5 Assembling components (Upper- / lower part for boot) to the funnel

7.5.1 Alignment of boot and funnel

Procedure:

1. For adjusting, clamp the unit previously mounted by means of vise-grip wrenches or screw clamps under the funnel for boot (1).
2. In order to achieve the **correct angle of inclination (between 0° and 45°)** for the conveying pipe, the contact area of the funnel (1) has to be shortened according to the requested angle.
3. Align the **outlet** of the lower part for boot (3) **according to the conveying direction indicated in the planning drawing.**
4. The premounted unit will be adjusted, **until the conveying direction and the angle of inclination are right.** If necessary, turn the funnel (1) under the silo.
5. Put a sealing strip (4) around the inner border of the hole of the upper part for boot (2) after having finished the adjustment.



position numbers see the following page

Pos.	Qty.	Code no.	Description
1	1	25-16-3629	Funnel GRP for boot for flex. auger for sheet metal silos (shown)
	1	25-16-3626	Funnel GRP for boot for flex. auger for silos GRP
2	1	25-16-3602	Upper part galv f/boot for flexible auger
3	1		Lower part f/boot (**shown here:** 25-16-3630 M75 1-line; 1 direction)
4		25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m
5			Vise-grip wrench or screw clamp

7.5.2 Screwing the boot to the funnel and funnel to silo

!	**Important:** **Before** screwing the components make sure that the funnel and the boot are correctly positioned as shown in the plan drawing. **Vibrator to silo:** If a vibrator to silo has been planned, **the vibrator plate has to be screwed, too**. (see chapter 8).

7.5.2.1 Screwing for sheet metal silo

Procedure:

Screwing funnel / upper part for boot:

1. Drill holes (Ø 11 mm) at the junction point of funnel/upper part for boot.

   Use the existing oblong holes in the upper part for boot as drilling jig.

2. Screw the upper part for boot (3) and the funnel for boot (2) by means of hexagon head screws M10x25 (4), washers B10.5 (5) and hexagon nuts M10 (6).

   Make sure the the hexagon head screws M10x25 (4) are put into the bores of the funnel from the top.

Screwing funnel/collar of silo:

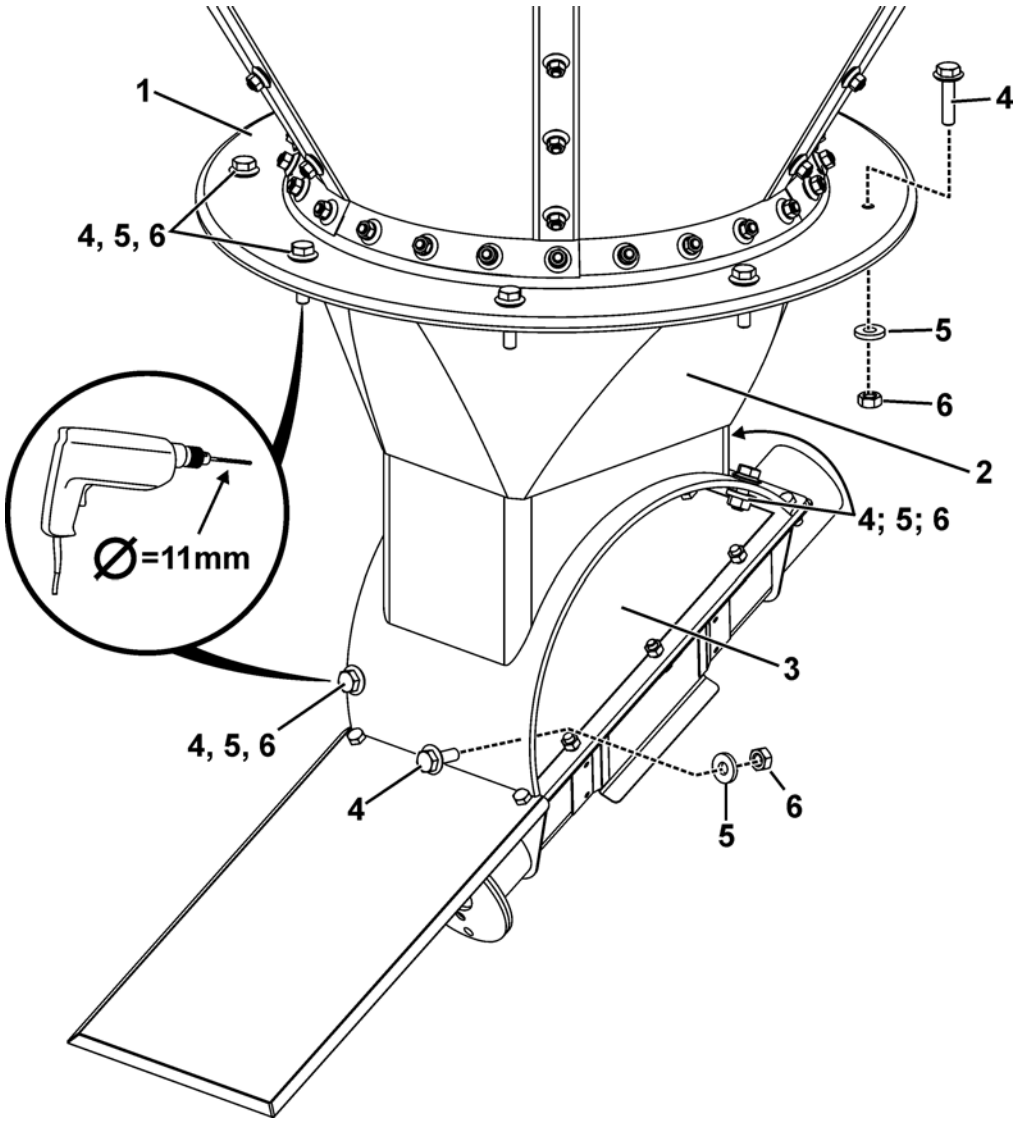
1. Drill holes (Ø 11 mm) from bottom into the collar of the funnel.

   Use the bore holes existing in the collar of the silo as drilling jig.

2. Screw the funnel for boot (2) and the collar of silo by means of hexagon head screws M10x25 (4), washers B10.5 (5) and hexagon nuts M10 (6).

   Make sure that the hexagaon head screws M 10x25 (4) are put into the bores of the collar of silo from the top.

Check whether all screws are firmly tightened.



Pos.	Qty.	Code no.	Description
1	1		Collar for boot for flexible auger
2	1	25-16-3629	Funnel GRP for boot for flex. auger for sheet metal silos
3	1	25-16-3602	Upper part galv f/boot for flexible auger
4	(*)	25-16-3608	Hexagon head screw M 10x 25 hot-galvan. with rubber gasket
5	(*)	99-50-1483	Washer A 10,5x30x2,5 DIN 9021 galv.
6	(*)	25-17-3259	Hexagon nut M10 hot-galvanised

(*) = The total number is dependent on the type of the sheet metal silo used.

7.5.2.2 Screwing for GRP-Silo

Procedure:

Screwing funnel / upper part for boot:

1. Drill holes (Ø11 mm) at the junction point funnel/upper part for boot. .

   Use the existing oblong holes in the upper part for boot as drilling jig.

2. Screw the upper part for boot (3) and the funnel for boot (2) by means of hexagon head screws M10x30 (5), washers M10 (6), washers B10.5 (7) and hexagon nuts M10 (8).

   Make sure that the hexagon head screws M10x30 (5) are put into the bore holes of the funnel from the top.

Screwing funnel/collar of silo:

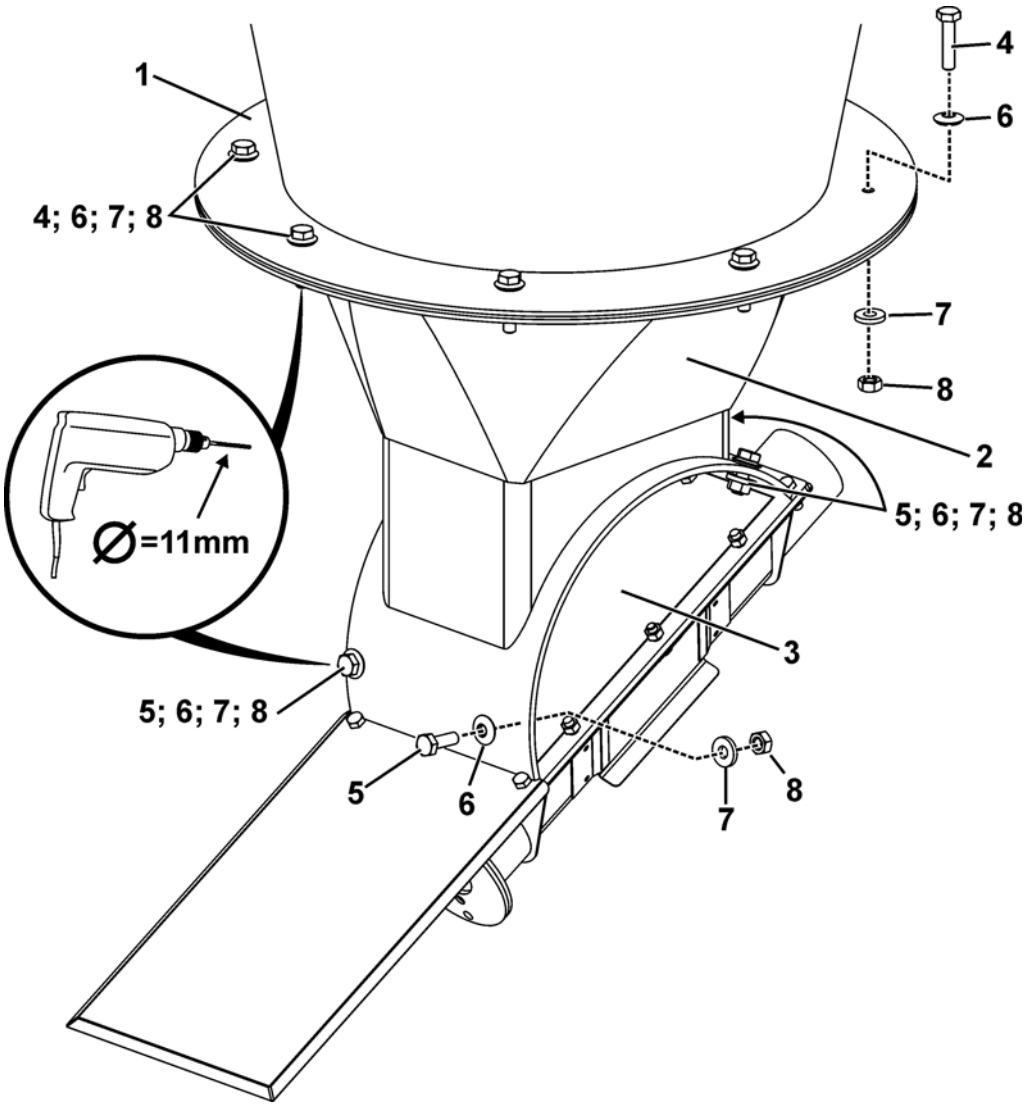
1. Drill holes (Ø 11 mm) from bottom into the collar of the funnel.

   Use the bore holes existing in the collar of the silo as drilling jig.

2. Screw the funnel for boot (2) and the collar of the silo by means of hexagon head screws M10x45 (4), washers M10 (6), washers B10.5 (7) and hexagon nuts M10 (8).

   Make sure that the hexagon head screws M10x45 (4) are put into the bore holes of the collar of the silo from the top.

Check whether all screws are firmly tightened.



Pos.	Qty.	Code no.	Description
1	1		Collar of GRP silo funnel
2	1	25-16-3626	Funnel GRP for boot for flex. auger for silos GRP
3	1	25-16-3602	Upper part galv. f/boot
4	(*)	99-20-1465	Hexagon head screw M 10x 45 DIN 933
5	4	99-20-1416	Hexagon head screw M10x 30 DIN 933
6	(*)	25-17-3255	Washer SST with mounted gasket for screw M10
7	(*)	99-20-1617	Washer 10,5x40x1,5 SST
8	(*)	99-20-1500	Hexagon nut M 10 SST DIN 934

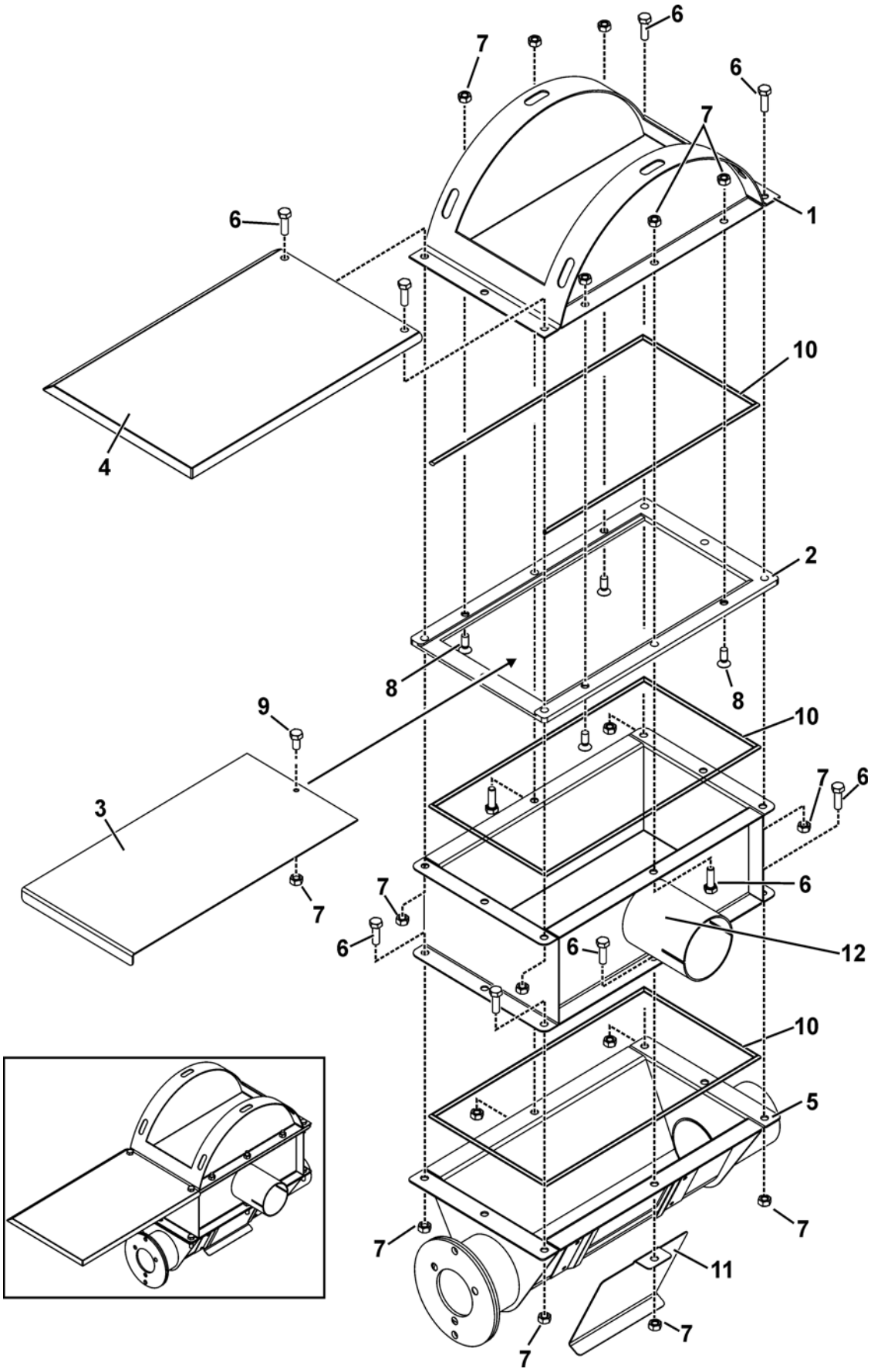
(*) = The total number is dependent on the type of the GRP silo used.

7.6 Assembling the boot for Tandem-Silo

Assembling must be carried out as described in chapter 7.4 **with the supplement of an additional intermediate flange** to be mounted :

1. Put a sealing strip (10) cut to size around the inner border of the hole of the intermediate flange (12).
2. Screw the intermediate flange (12), the upper part for boot (1) and the shutter guide (2) by means of hexagon head screws M 8x25 (6) and hexagon nuts M8 (7).

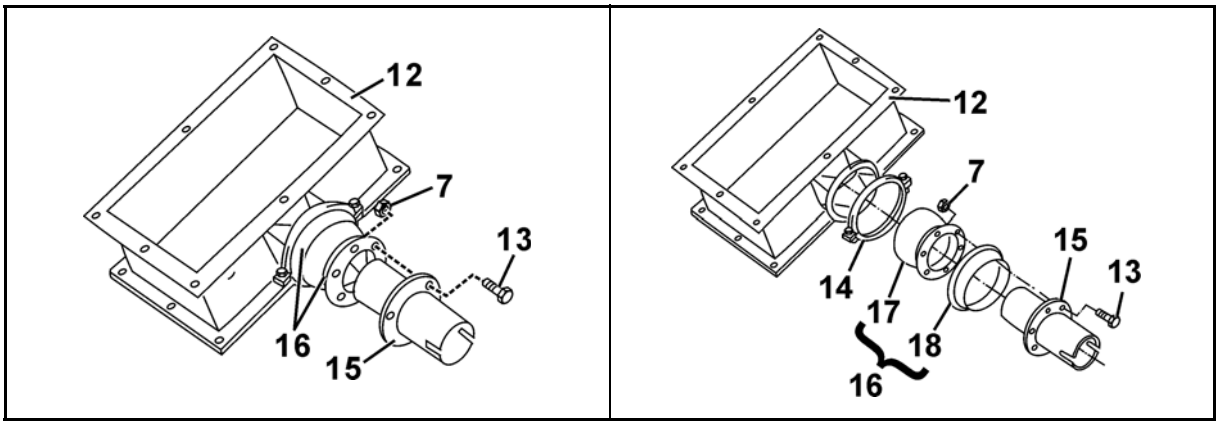
   Make sure that the lateral outlet at the intermediate flange points to the second silo and the the cleaning scraper (11) is also screws on one side of the lower part for boot.
3. Put the hand slide (3) into the opening of the shutter guide (2) and close the hole of the hand slide by means of a hexagon head screw M 8x16 (9) and a hexagon nut M8 (7).
4. Put a sealing strip (10) cut to size around the whole inner border of the hole of the lower part for boot (5).
5. Screw the lower part for boot (5) and the intermediate flange (12) by means of hexagon head screws M 8x25 (6) and hexagon nuts M8 (7).



position numbers see the following page

Assembling of intermediate flange with lateral ball bearing outlet:

6. Push the inner part for universal joint (18) over the ball housing (17).
7. Fix this unit by means of a tension ring (14) to the lateral outlet of the intermediate flange (12).
8. Screw the adapter for auger tandem (15) by means of hexagon head screws M 8x20 (13) and hexagon nuts M8 (7) to the flange of the ball housing(17).



Pos.	Qty.	Code no.	Description
1		25-16-3602	Upper part galv f/boot for flexible auger
2		25-16-3603	Shutter guide PE for boot
3		25-16-3607	Hand slide galv f/boot f/flex. auger
4		25-16-3625	Cover plate galv for hand slide
5			Lower part f/boot
6		25-17-8766	Hexagon head screw M 8x 25 DIN 933 8.8 for silo BD
7		25-17-8753	Hexagon nut M 8 DIN 934 Kl. 8 for silo BD
8		99-10-1311	Cross recessed countersunk head screw M 8x20 DIN 965-5.8
9		99-10-1046	Hexagon head screw M 8x 16 DIN 933 8.8 galv
10		25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m
11			Cleaning scraper
12		25-60-3098	Intermediate flange w/lateral outlet dia 75
		25-61-3098	Intermediate flange w/lateral outlet dia 90
			Intermediate flange w/lateral ball bearing outlet
13		99-10-1038	Hexagon head screw M 8x 20 DIN 933 galv
14		25-16-3033	Tension ring 150 galv with sealing ring 1mm
15			Adapter for Tandem-Auger
16			Universal joint 30deg (Nr. 4110971)
			consisting of:
17	1		Ball housing for universal joint 30° (S 154 000)
18	1		Inner part for universal joint S 102 (155 000)

7.6.1 Assembling components (Upper- / lower part for boot) to the funnel

The assembly of the group of components (upper/lower part for boot / intermediate flange) to the funnel is made as described in chapter 7.5.

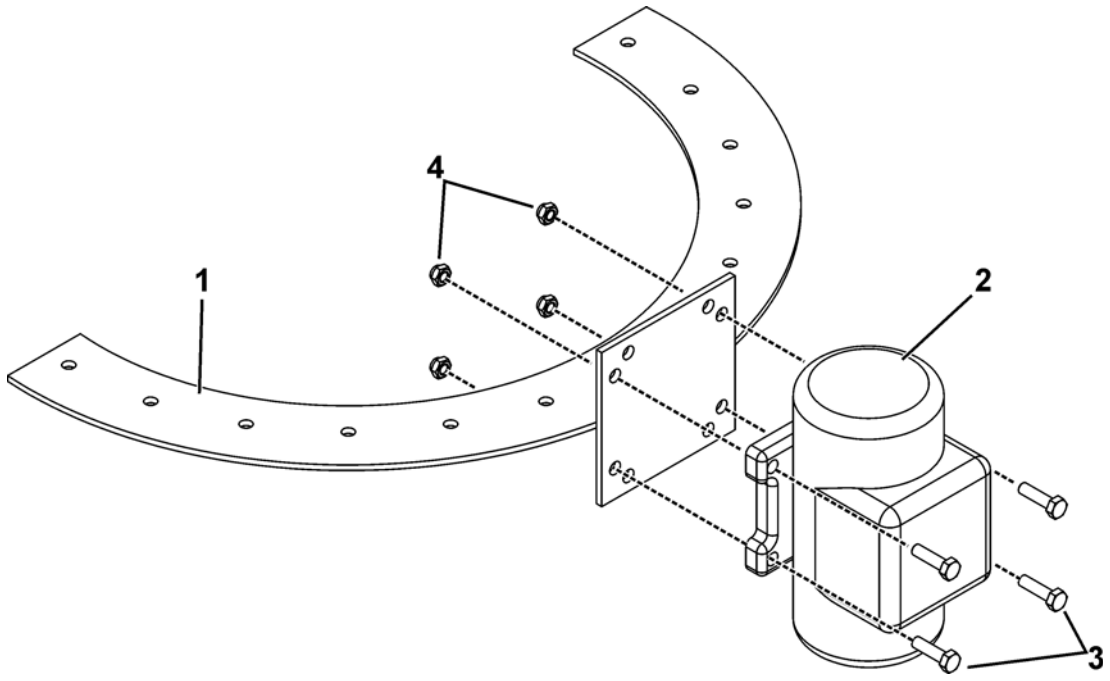
8 Assembling the electric vibrator (optional)

8.1 Pre-assembly of the vibrator

Important:

The electric vibrator is mounted vertically to the vibrator plate.

All screws must **firmly tightened** and must be **checked regularly for a firm fit**.



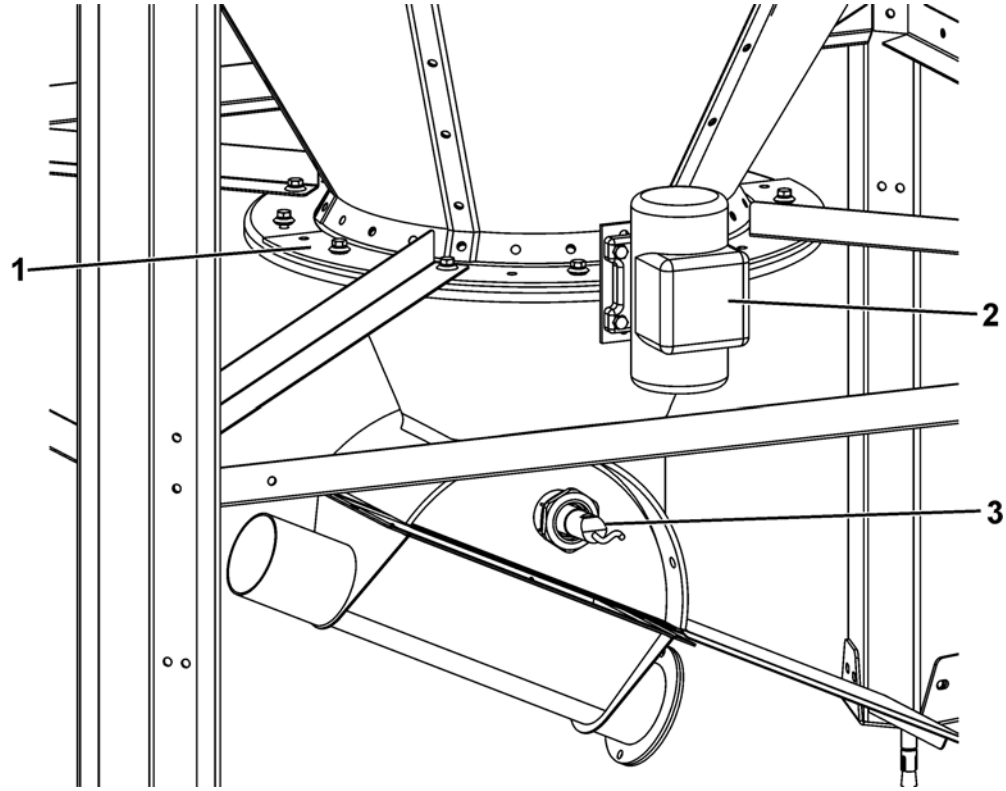
Pos.	Qty.	Code no.	Description
1	1	25-00-3702	Vibrator plate round galv without screws
2	1	25-00-1002	Vibrator 0,18KW 3000rpm 230/400V 50/60Hz
3	1	99-10-1058	Hexagon head screw M 8x 30 DIN 558 galv
4	1	99-20-1064	Self-locking counter nut M8 DIN 985-6 galv.

8.2 Assembly to the silo

The vibrator plate of the electric vibrator - lying on the horizontal collar - will be screwed to the horizontal collar and the funnel for boot.

Regarding the control of the vibrator, a sensor in the upper part of the boot and a control unit with timer will be installed.

(As regards the mode of operation of the sensor and the control unit: see chapter 8.3)



Pos.	Qty.	Code no.	Description
1	1	25-00-3702	Vibrator plate round galv without screws
2	1	25-00-1002	Vibrator 0,18KW 3000rpm 230/400V 50/60Hz
3	1	91-00-3985	Sensor MS-45R w/union

8.3 Function of the vibrator

A sensor MS45 is installed in the boot, switching on the electric vibrator as soon as there will be no more feed and switching it off if feed is supplied.

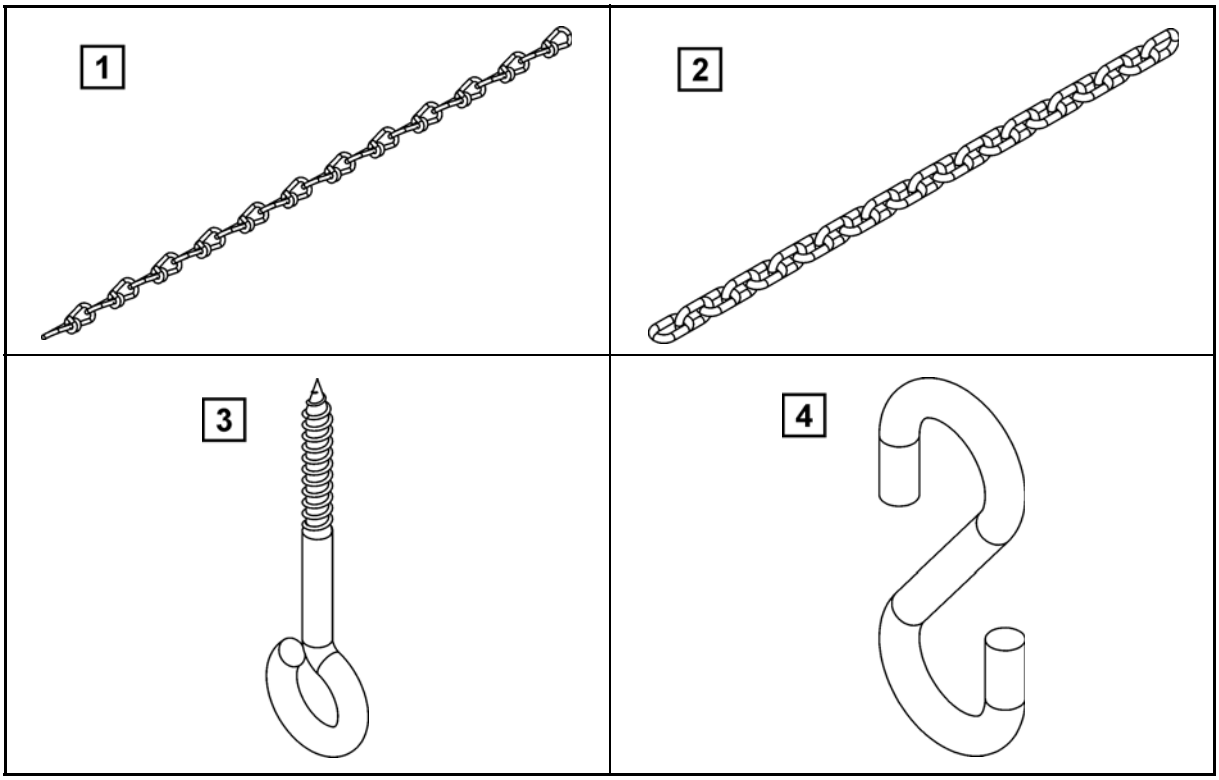
The running time is preset to approximately 10 sec. and can be changed if necessary. After expiration of this time the electric vibrator stops and will restart as soon as the sensor is again in contact with feed (e.g. with an empty silo and after refilling of the silo).

9 Assembling the conveying pipes and the suspension

	Note **Assembly direction:** From the silo into the building and then to the drive drive unit.

9.1 Survey suspension material

	Additional suspension material (dowels, cup hooks, S-hooks and suspension chains) has to be provided for according to the type of suspension.

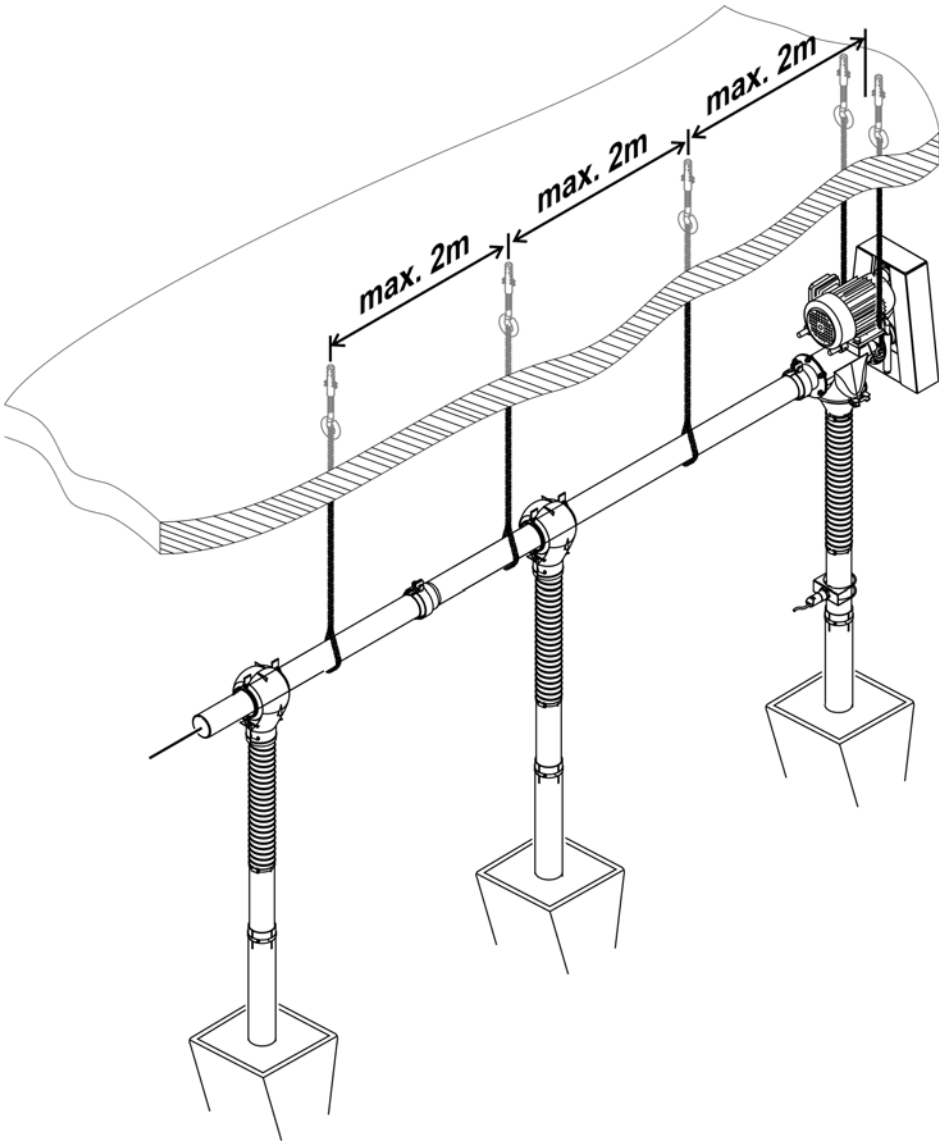


Pos.	Qty.	Code no.	Description
1		99-50-0012	Suspension chain K 27
2		99-50-0003	Ship chain galv. 5mm DIN 766
3		10-93-1629	Cup hook galv 80x22x7,8
		10-93-1642	Cup hook galv 120x22x7,8
		99-50-3834	Cup hook galv 140x22x7,8
4		99-50-0005	S-hook 2" no. 60/6x55

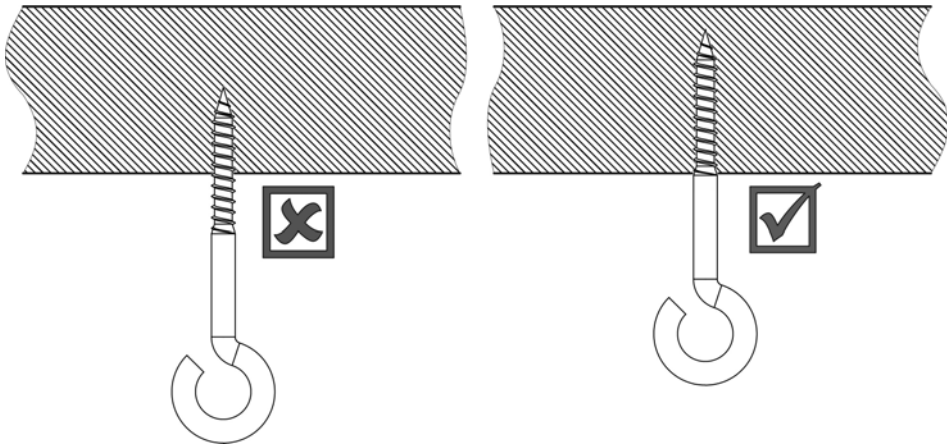
9.2 Notes for suspension and laying of conveying pipes

9.2.1 Suspension of conveying pipes

- Pay attention to a solid and firm fixing of the suspension points.
- **Maximum distance between the suspension points: 2m**. The distance between the feed outelets remain unaffected.
- **Important for Flex-Vey 90HS: Maximum distance between suspension points: 1.5m**. This does not affect the distance between the feed outlets.



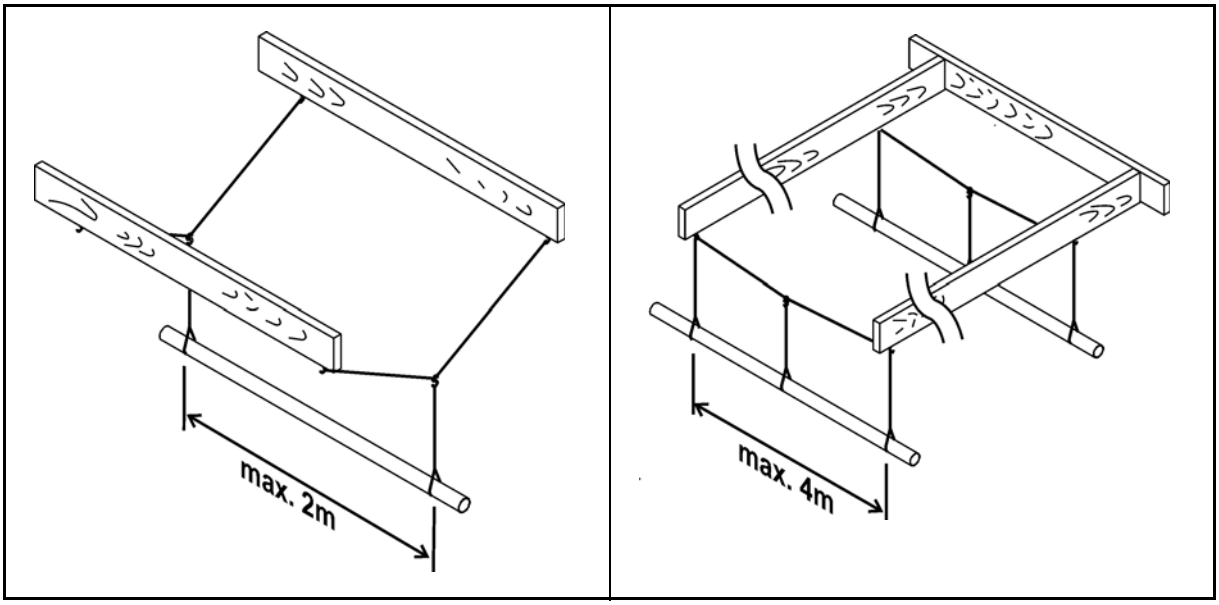
- The thread of the frame screws must be screwed in fully, otherwise corrosion could occur to the thread.



- If there are **not sufficient beams or supports** in the house for fixing the suspension points the following solutions are applicable:

	When using one of these solutions, you have to provide for **additional suspension material** e.g. cup hooks, S-hooks and suspension chains.

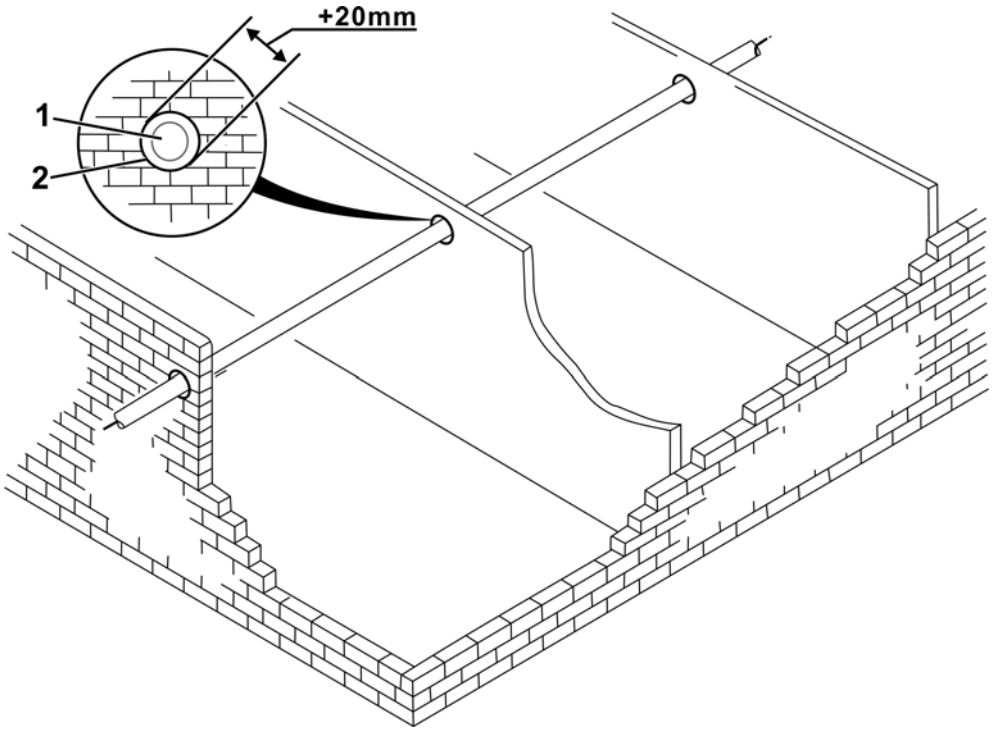
- **Important for Flex-Vey 90HS: Maximum distance between suspension points: 1.5m**. This does not affect the distance between the feed outlets.



9.2.2 Laying of conveying pipes

- If the conveying pipe is led through the wall, e.g. in case of smaller house departments, **the wall openings** must be made 20mm larger than the actual diameter of the conveying pipe.

Conveying pipe options:	Diameter of wall opening [mm]
Flex Vey 60	80
Flex Vey 75	95
Flex Vey 90	110
Flex Vey 125	145



1=	Conveying pipe
2=	Wall opening (= diameter Pos 1 + 20mm)

- **Always ensure that the conveying tube lies directly in the center of the wall opening.**

  This prevents wear of the tubes due to rubbing at the wall.

- As the spiral conveyor tube often not fully closes the opening in an outside wall, there is an extra wall panel available (instructions on the installation of the wall panel can be found on the following pages).

9.3 Assembling the conveying pipes

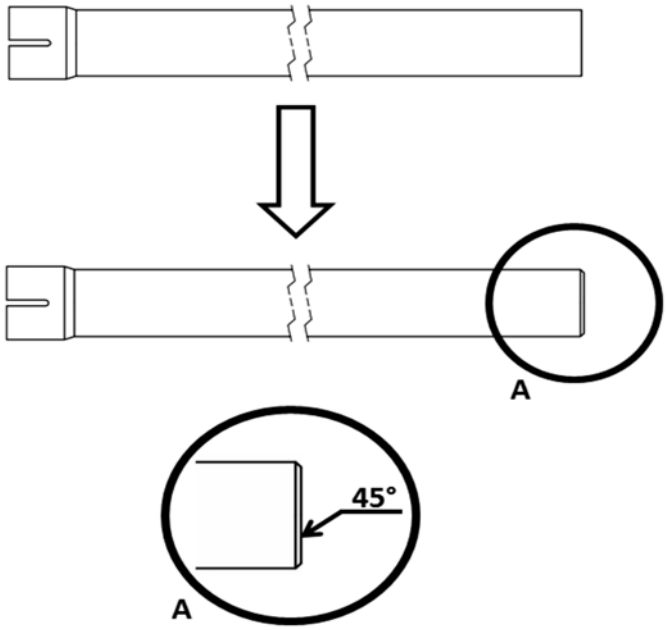
Important:

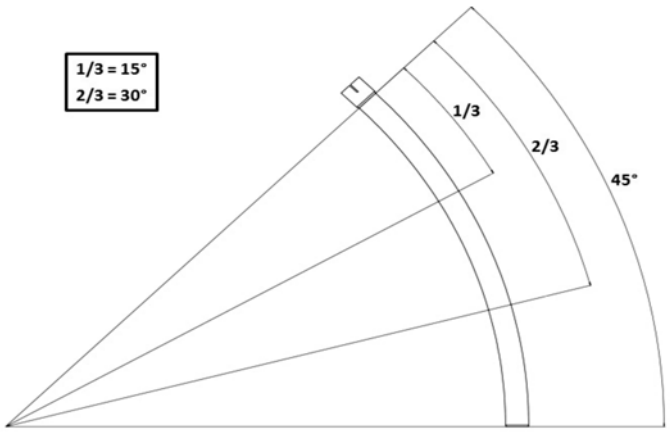
Do **not** use a plastic bend for the Flex-Vey 90HS.

9.3.1 Important information on shortening pipes and pipe bends

After the conveying pipe or pipe bend has been cut, it must be provided with a bevel of 45 degrees

This will ensure that no feed is deposited in the sleeve connection as well as reducing wear at this point

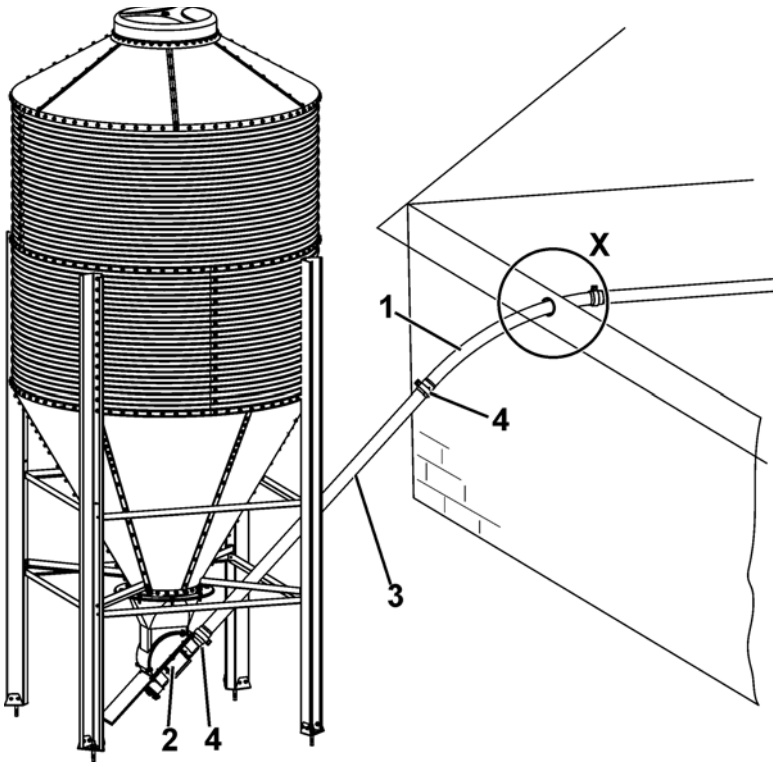




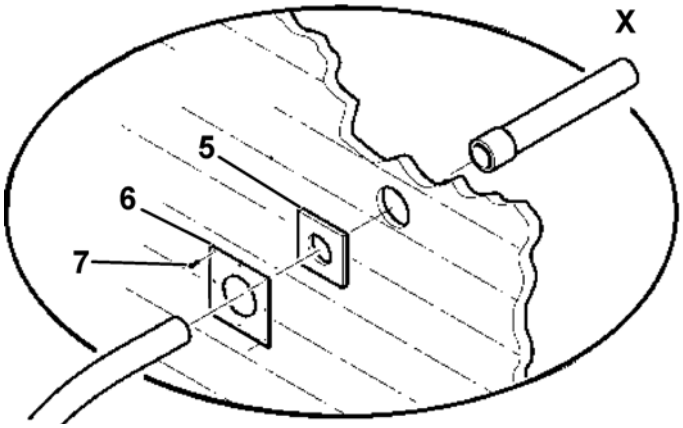
Where a cut is required, the 45 degree conveying pipe bend should if possible only be cut in increments of 15 degrees and 30 degrees.

This will ensure optimal guidance of the spiral as well as reducing wear in the area of the conveying pipe bend.

9.3.2 Assembling of conveying pipes from the silo to the outer wall of the house



Guide a one-quarter bend 45° (1) through the wall breakthrough. The socket end has to point towards the boot of the auger of the silo. Guide the tube through the neoprene ring (5) and through the metal plate (6) and fix the metal plate to the outer wall by means of 4 hexagon head wood screws (7). Fix the bend to the building wall in such a way that the end of the bend runs horizontally into the building.



Should the socket end of the bend not be long enough to fit onto the connecting socket of the lower boot (2), a custom-fitted piece of conveyor tube (3) has to be inserted.

Measure the distance between the connection socket of the lower part of the boot (2) and the end of the bend 45° (1).

Cut the conveyor tube (3) to the measured length.

Plug a tube clip (4) onto the socket of the conveyor tube and the bend.

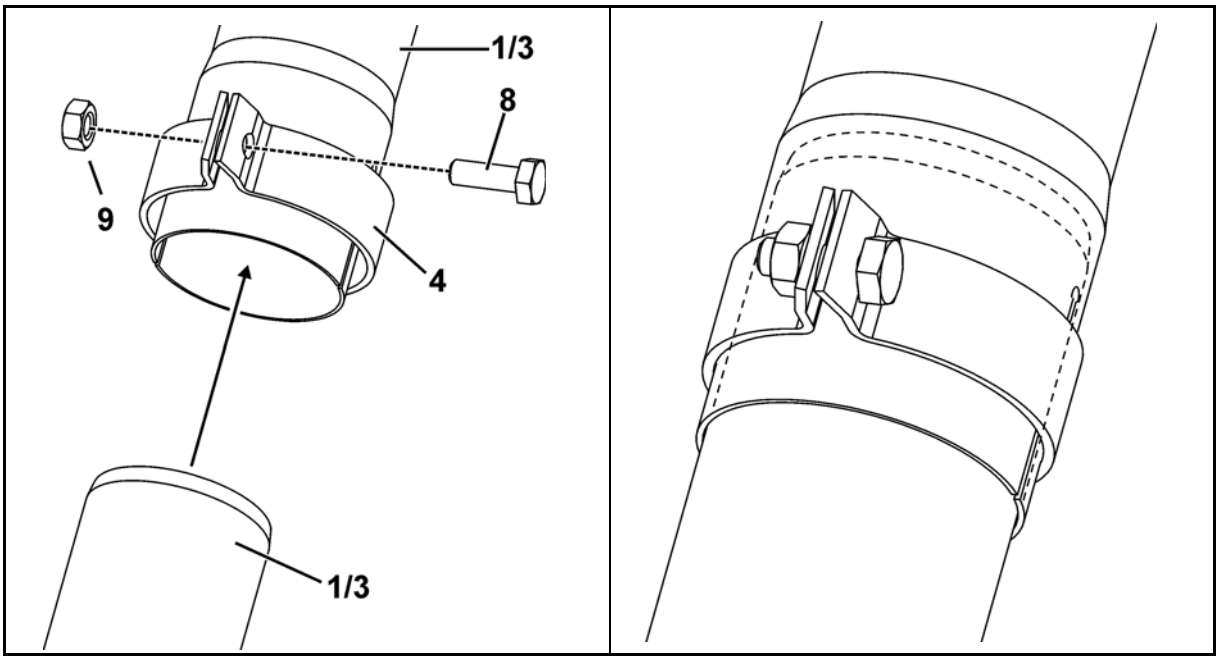
Plug the cut conveyor tube with the socket onto the connection socket of the lower boot (2), insert the other end in the socket of the bend (1).

Make sure that the ends are inserted in the sockets up to the limit!

Align the conveyor tube (3) and the bend (1) and tighten the screws of the tube clips (4).

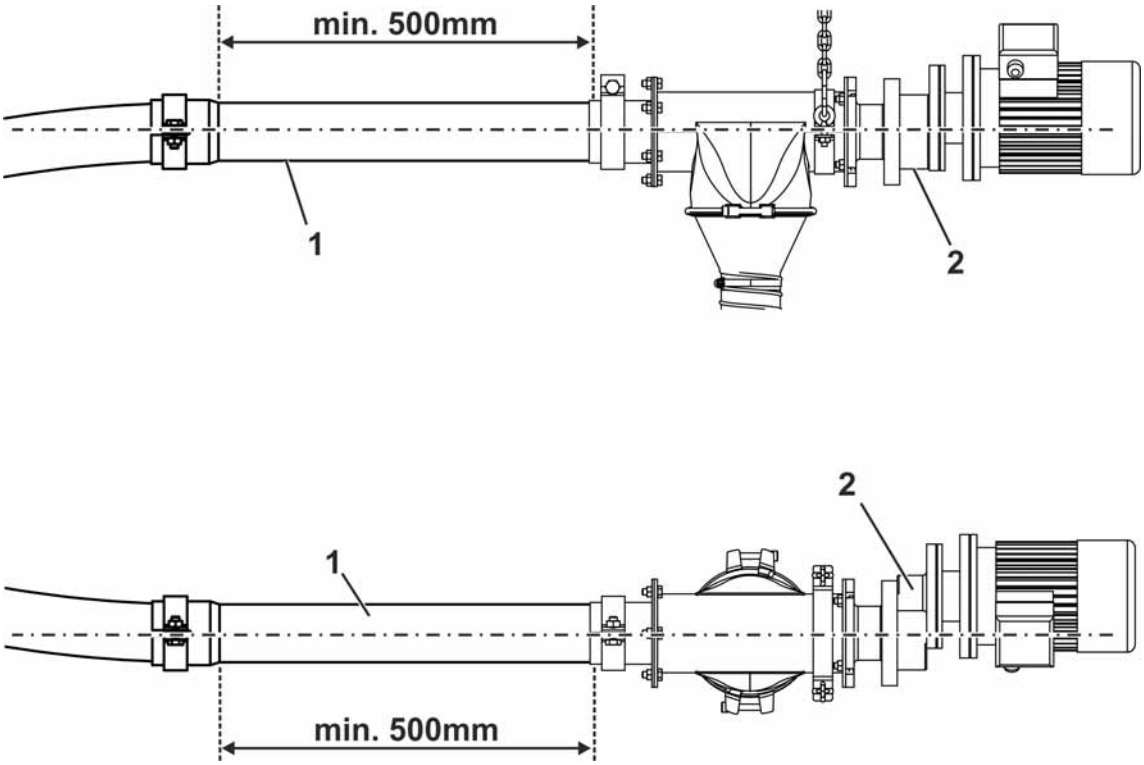
Note:

All sockets of the conveying pipes and bends **outside** the house must **be turned downwards**, in order to avoid any penetration of rain water.



Pos.	Qty.	Code no.	Description
1			Bend
2			Lower part for silo boot
3			Conveying pipe unit
4			Flex-Vey pipe clamp
5		83-05-9131	Flex-Vey cover plate
6		25-16-3422	Neoprene seal
7		99-10-3719	Hexagonal wood screw 6x 60 DIN 571-ST galv.
8			Hex screw
9			Hex bolt

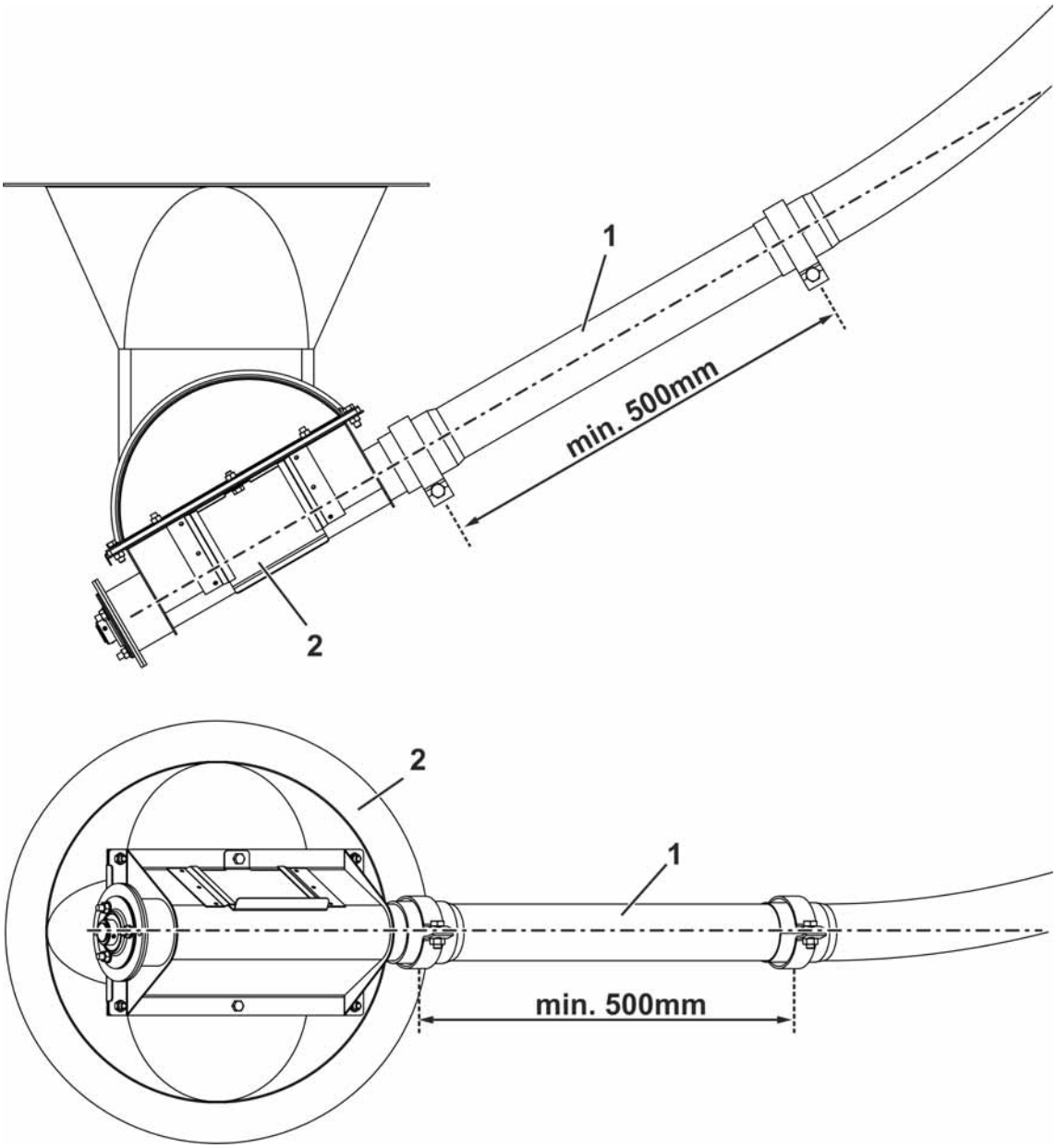
9.3.3 Assembly of the conveying pipe directly behind the drive unit



The conveying pipe (1) which is placed directly at the drive unit (2) must be straight and at least 0.5 m long.

	A bend or a bow-shaped connection may not be used!

9.3.4 Assembly of the conveying pipe directly behind the boot



The conveying pipe (1) which is placed directly at the lower part for silo boot (2) must be straight and at least 0.5m long.

	A bend or bow-shaped connection may not be used!

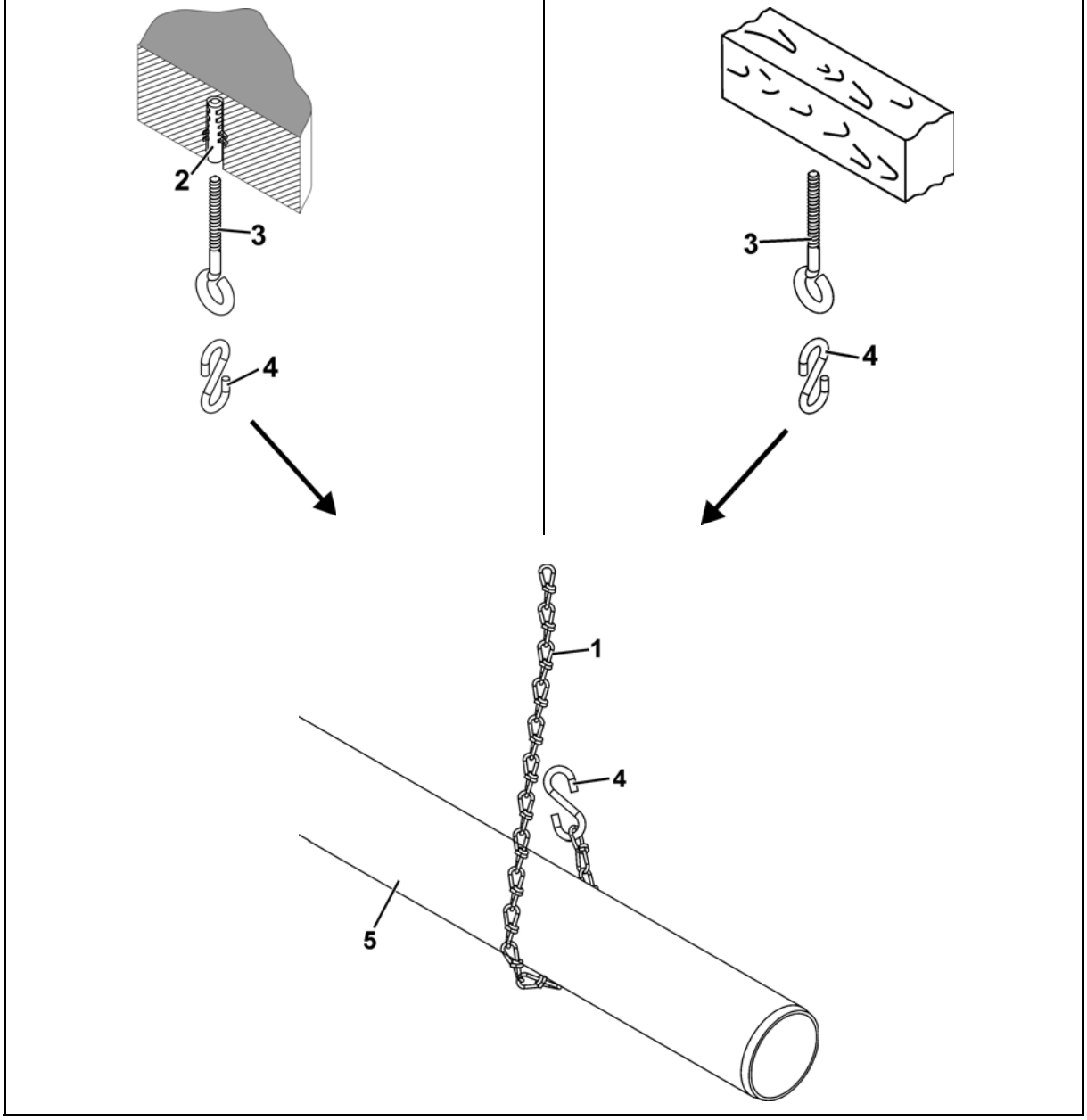
9.4 Assembling the suspensions and the conveying pipes in the building

Before assembling the horizontal conveying pipes in the house, the suspension has to be made for the conveying pipes.

Note

Which mounting material you have to use, will depend on the quality of the ceiling or the beams respectively.

Suspension to concrete ceiling	Suspension to wooden beam



Pos.	Qty.	Code no.	Description
1		99-50-0012	Suspension chain K 27
2			Dowel
3			Cup hook galv.
4		99-50-0005	S-hook 2" 6x55
5			Conveying pipe

1. Secure the frame screws (3) to the wooden beam or to ceiling at **intervals of max. 2m**.

   For the Flex-Vey 90 HS: Secure the frame screws (3) to the wooden beam or to ceiling at **intervals of max. 1.5m**.

2. Measure the required length of the suspension chain (1) and cut a length of chain for every suspension point.

   Ensure that the length of suspension chain is long enough to form the eye around the conveying pipe (5).

3. Suspend the conveying pipe (5) by the chain (1) and the S-hook (4). Adjust the **suspended** conveying pipe by increasing or decreasing the size of the eye around the conveying pipe.
4. Now install all the horizontal conveying pipes in the stall up to the intended location of the drive unit.
5. If necessary, cut the last conveying pipe before the drive unit to the correct length.
6. Place a pipe clamp on every conveying pipe sleeve and tighten the screws.

9.5 Procedure in case of repairs of the conveying pipes

Regarding the exact procedure in case of a repair of a conveying pipe see chapter 20.1.

Note:

In case of repairs or for other reasons it may happen that a conveying pipe must be cut.

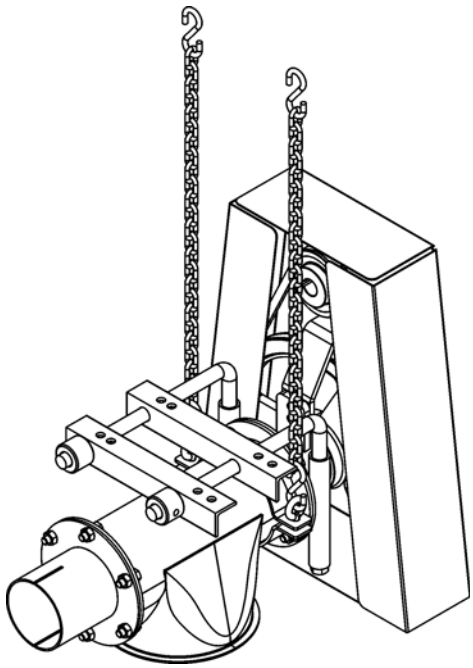
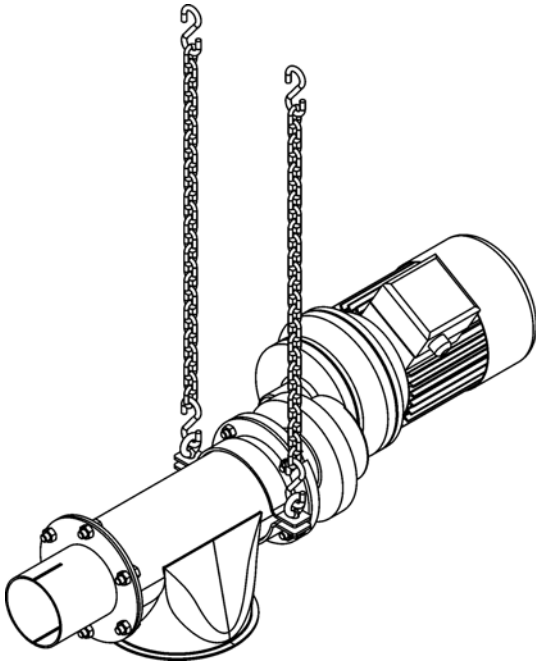
A repair without replacing the total conveying pipe is possible.

Use a coupler for pipe Flex-Vey to connect the conveying pipes.

10 Assembly of drive unit

Important:

Before commissioning the gear motors, make sure that the **ventilation plugs** of the gear motors **are open, without fail,** insofar as there is no automatic ventilation. (see chapter 5)

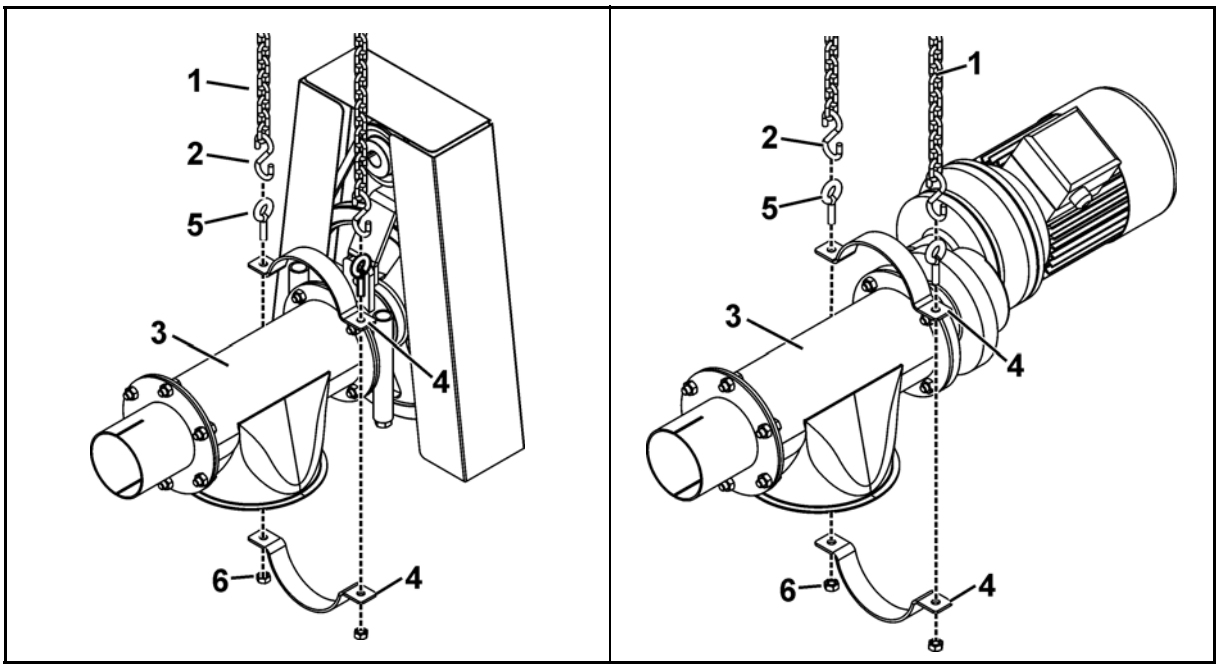
V-belt drive unit	Unit with geared motor
	

10.1 Suspension of drive unit

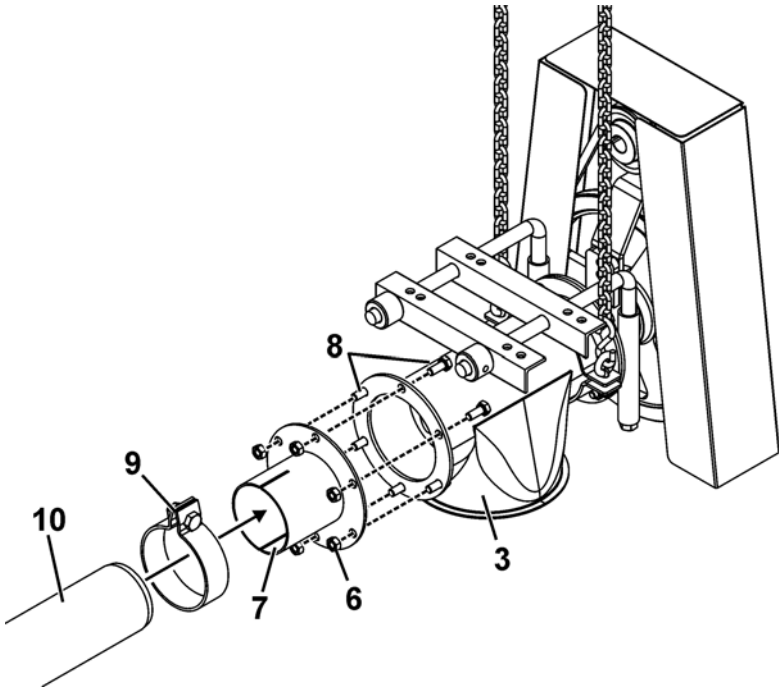
Note:

The **fastening of the cup hooks for the suspension of the drive unit** to the ceiling / wooden beam is made as described in chapter 9.4.

Fasten two cup hooks to the ceiling/wooden beam where the drive is to be placed. Cut 2 pieces ship chain (1) to the required length for the suspension. Hang one end each of the cut ship chains (1) into the cup hooks to the ceiling by means of S-hooks (2). Screw 2 mounting clips (4) with lifting eye bolts M 8x25 (5) and hexagon nuts M 8 (6) to the drive head (3). Hang one S-hook (2) each into the lower end of the ship chains (1) and also into the lifting eye bolts (5) of the mounting clips.



Screw an adapter (7) with hexagon head screws M 8x20 (8) and hexagon nuts M 8 (6) to the drive head (3). Push a tube clip (9) to the adapter (7). Push the conveying pipe (1) (if required: cut to size) into the socket of the adpater (7) and tighten the screw of the tube clip (9).



Pos.	Qty.	Code no.	Description
1		99-50-0003	Ship chain galv. 5mm DIN 766
2		99-50-0005	S-hook 2" 6x55
3	1	25-16-3610	Drive head S105000 for drive Flex-Vey
	1	81-05-3312	Drive head for drive Flex Vey 125
4	2	25-16-3622	Mounting clip for drive head Flex-Vey
5	2	99-10-1563	Lifting eyebolt M 8x 25 galv.
6		99-10-1040	Hexagon nut M8 galv. DIN 934-8
7	1	25-16-3611	Adapter for auger Flex-Vey 75
	1	25-16-3612	Adapter for auger Flex-Vey 90
	1	25-16-3613	Adapter for auger Flex-Vey 125
8		99-10-1038	Hexagon head screw M 8x 20 galv. DIN 933
9	1	99-50-0475	Clamp for pipe Flex-Vey 75
	1	99-50-0476	Clamp for pipe Flex-Vey 90
	1	99-50-0477	Clamp for pipe Flex-Vey 125
10			Conveying pipe

Align this entire line once again.

10.2 Assembly of drive unit with V-belt drive (electric motor)

Procedure:

1. Put the round bars angles (8a) of the motor bracket (8) into the receiving pipes of the flange bearing housing (16).
2. Push the angles for bracket for motor (8b) onto the round bars angles (8a).
3. Fasten the electric motor (5) to the angles for bracket for motor (8b) by means of hexagon head screws M 8x20 (3), washers (7) and hexagon nuts M8 (4).
4. Push the V-belt pulley (10) onto the shaft of the electric motor (5).

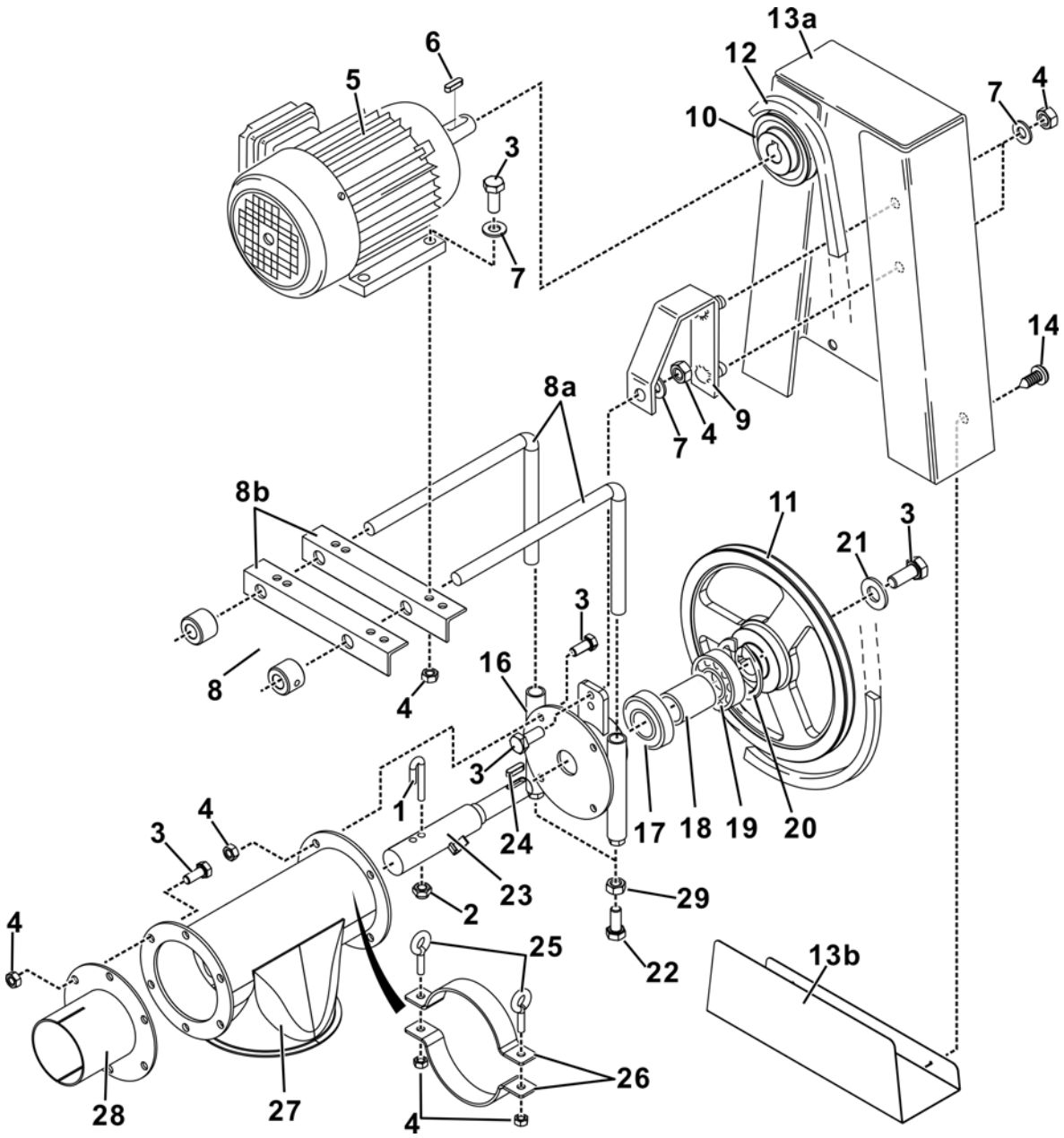
   Make sure that the key (6) is inserted into the groove of the motor shaft beforehand.
5. Push the V-belt pulley (11) onto the free shaft end of the auger tension device (23).

   Make sure that the key (24) is inserted into the groove of the auger tension device beforehand.
6. Fasten the V-belt pulley (11) by means of a washer dia 9 (21) and a hexagon head screw M 8x20 (3).
7. Align the V-belt pulley (10) parallely to the V-belt pulley (10) and fasten the head socket set screw in the center of the V-belt pulley (10).
8. Tighten all screws of the motor bracket cpl. (8) and the electric motor (5).
9. Put a V-belt (12) onto both V-belt pulleys (10; 11).
10. Tension the V-belt (12) by means of the hexagon head screws M10x80 (22) and lock these by means of the hexagon nuts M 10 (29) as counternuts.

!	**Important:** **An exact alignment** of the V-belt pulleys and **a correct tension** of the V-belt are **important** factors to achieve a **long life** of the V-belt. An **excessive** belt tension will more quickly wear out the bearings (17; 19). The **tension is correct**, if the V-belt can be pressed inwards by approximately 1 cm between the two V-belt pulley.

11. Screw the guard cap holder (9) to the flange bearing housing (16) by means of a hexagon head screw M 8x20 (3), a washer (7) and a hexagon nut M 8 (4).
12. Screw the upper part of the guard cap (13a) to the guard cap holder (9) by means of hexagon nuts M8 (4) and washers (7).

13. Screw the lower part of the guard cap (13b) to the upper part of the guard cap (13a) by means of tappings screws (14).



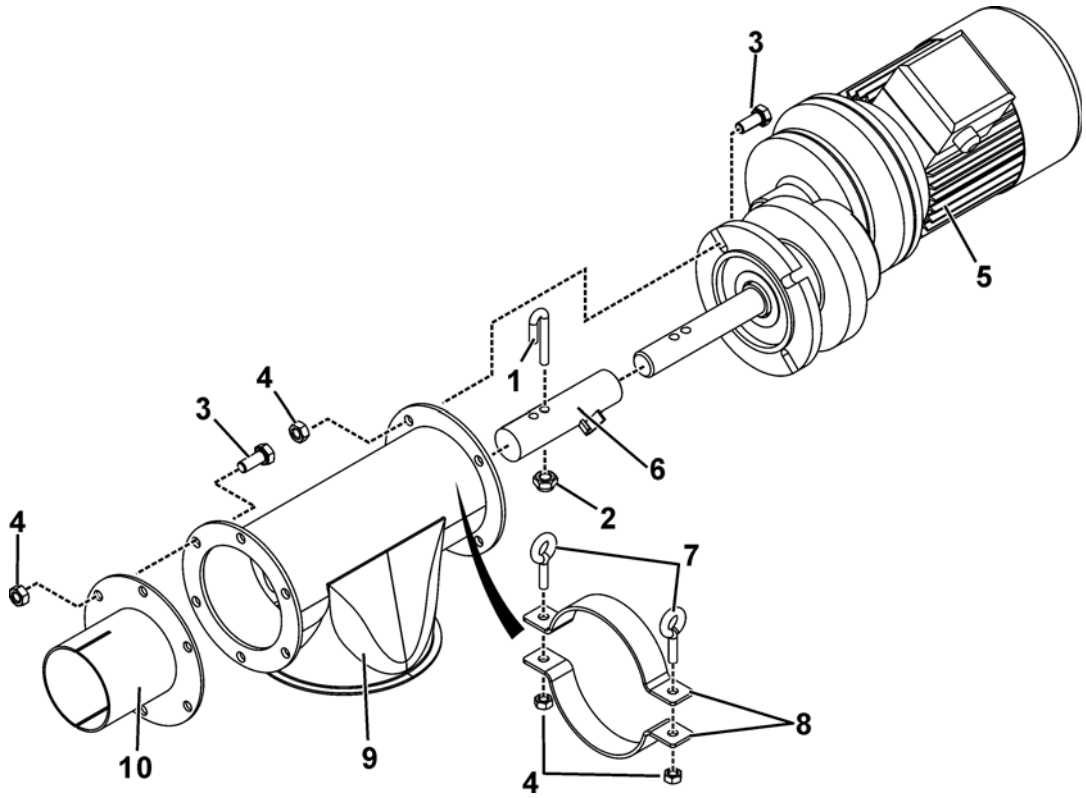
The parts lists for the position numbers can be found on the following pages.

Pos.	Qty.	Code no.	Description
1		99-10-3924	Hook bolt galv M8 x 63 Flex-Vey 60/75
		99-10-3909	Hook bolt galv M8 x 78 Flex-Vey 90
		99-10-3910	Hook bolt galv M8 x 102 8.8 for Flex-Vey 125
2	1	99-20-1064	Locknut M8 DIN 985-6 galv.
3		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933
4		99-10-1040	Hexagon nut M8 galvanised DIN 934-8
5	1	90-00-1507	E-motor 0.75KW 230/400 50/60 1500/1800U B3
	1	90-00-1508	E-motor 1.10KW 230/400 50/60 1500/1800U B3
	1	90-00-1533	E-motor 1.50KW 230/400 50/60 1500/1800U B3 (Flex-Vey 90HS only)
	1	90-00-3859	E-motor 2.20KW 230/400 50/60 1500/1800U B3 (Flex-Vey 90HS only)
6	1	99-50-3801	Parallel key 6x6x25 DIN 6885
7	6	99-20-1026	Washer A 8.4 DIN 125 galv.
8	1	25-16-3613	Motor bracket compl. S186000 for Flex-Vey motor
8a	2		Rod bend
8b	2		Angle iron for motor bracket
9	1	25-16-3614	Protective hood bracket S 109004
10	1	10-00-3719	V-belt disc 1R A 70x13-B19
	1	25-61-3152	V-belt disc 70/2/24 SPZ for 1.5kW (Flex-Vey 90HS only)
	1	25-61-3154	V-belt disc 80/2/24 SPZ for 1.5kW (Flex-Vey 90HS only)
	1	25-61-3153	V-belt disc 70/2/28 SPZ for 2.2kW (Flex-Vey 90HS only)
	1	25-61-3155	V-belt disc 80/2/28 SPZ for 2.2kW (Flex-Vey 90HS only)
11	1	25-16-3615	V-belt disc 1R 250/1/SPZ-B25
	1	25-61-3150	V-belt disc 150/2/25 SPZ (Flex-Vey 90HS only)
	1	25-61-3151	V-belt disc 160/2/25 SPZ (Flex-Vey 90HS only)
12	1	99-50-3853	V-belt 9.7x8- 950 DIN 7753 SPZ950
	1	25-61-3156	V-belt disc 9.5x800 SPZ (Flex-Vey 90HS only)
13	1	25-61-3090	Protective hood compl. for V-belt drive FV75-90 (S109000/ upper/lower part with bracket)
13a	1		Protective hood upper part (S 109 000)
13b	1		Protective hood lower part (S 109 000)
14	2		Sheet-metal screw Ø 4.2 x 10 DIN 7981
15(*)	1	25-16-3616	Flange bearing compl. with bearing 25 Flex-Vey 75/90
	1	25-62-3116	Flange bearing compl. with bearing 25 Flex-Vey 125
16	1	25-16-3617	Housing for flange bearing Flex-Vey 75/90
	1	81-04-0213	Housing for flange bearing Flex-Vey 125
17	1	25-16-3618	Cone roller bearing 30205A DIN 720
18	1	25-16-3619	Spacer sleeve 25/32-25 for Flex-Vey
19	1	25-16-3620	Ball bearing 6205 2ZR DIN 625
20	1	25-57-1018	Retaining ring DIN 472 -52x2.00

Pos.	Qty.	Code no.	Description
21	1		Washer Ø 9 / 40 - 4
22	2	99-10-1043	Hexagon bolt M10 x 80 galv. DIN 931
23	1	25-01-3034	Auger clamping device for E-motor Flex-Vey 75
	1	25-61-3130	Auger clamping device for E-motor Flex-Vey 90
	1	25-62-3035	Auger clamping device for E-motor Flex-Vey 125
24	1	99-50-3909	Parallel key 8x7x35 DIN 6885 Form A
25	2	99-10-1563	Eye bolt M8 x 25
26	2	25-16-3622	Mounting bracket - power head
27	1	25-16-3610	Power head S105000 for drive Flex-Vey
	1	81-05-3312	Power head for drive Flex Vey 125
28	1	25-16-3611	Connection nozzles for auger Flex-Vey 75
	1	25-16-3612	Connection nozzles for auger Flex-Vey 90
	1	25-16-3613	Connection nozzles for Flex-Vey 125 auger
29	2		Hex nut M10

(*) = Pos 15 cpl. consisting of 16; 17; 18; 19; 20; 21; 22; 29

10.3 Assembly of drive unit with geared motor



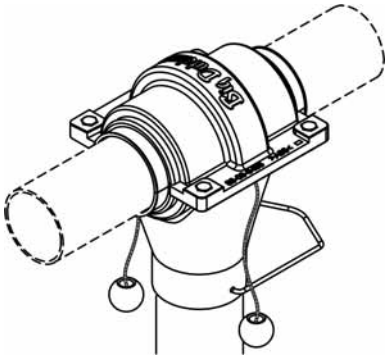
Pos.	Qty.	Code no.	Description
1	1	99-10-3924	Hook bolt galv M8 x 63 Flex-Vey 60/75
		99-10-3909	Hook bolt galv. M8 x 78 Flex-Vey 90
2	1	99-20-1064	Locknut M8 DIN 985-6 galv.
3		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933
4		99-10-1040	Hexagon nut M8 galvanised DIN 934-8
5	1	25-60-3068	G-motor 0.75 230/400 50 344U Flex-Vey YZ
	1	90-00-3968	G-motor 0.75 230/400 50 370U shaft 24 incl. spacer Flex-Vey 75
	1	90-00-3964	G-motor 0.75 230/400 50 370U shaft 24 incl. spacer Flex-Vey 90
	1	90-00-3969	G-motor 1.1 230/400 50 370U shaft 24 incl. spacer Flex-Vey 125
6(*)	1		Spacer sleeve
7	2	99-10-1563	Eye bolt M8 x 25
8	2	25-16-3622	Mounting bracket - power head
9	1	25-16-3610	Power head S105000 for drive Flex-Vey
	1	81-05-3312	Power head for drive Flex Vey 125
10	1	25-63-3044	Connection nozzles Flex-Vey 60
	1	25-16-3611	Connection nozzles for auger Flex-Vey 75
	1	25-16-3612	Connection nozzles for auger Flex-Vey 90
	1	25-16-3613	Connection nozzles for Flex-Vey 125 auger

(*) = For Flex-Vey 75; 90 and 125 only

11 Assembling the feed outlets (tap und drop-pipe)

11.1 Hand-operated tap for Flex-Vey 60

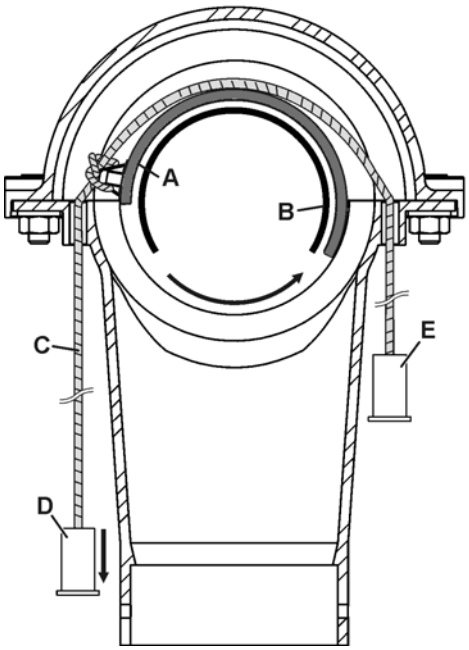
83-03-8487	Orange tap with rope activation complete DR1500
83-05-0436	Blue tap with rope activation complete DR1500



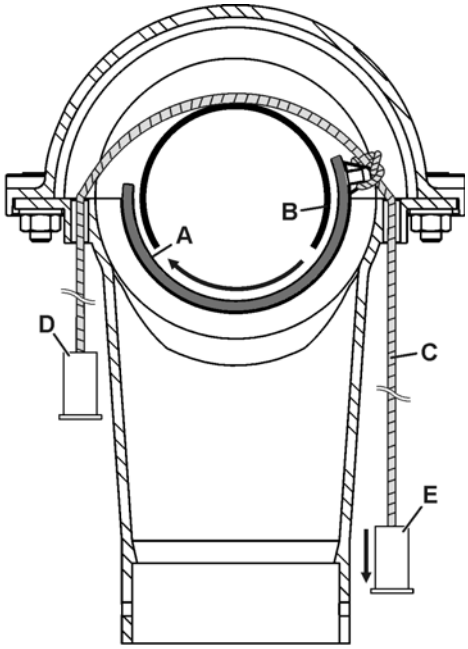
If the stall has several feed pipes, they may be differentiated by using different coloured taps (blue or orange).

11.1.1 Function

Shutter open



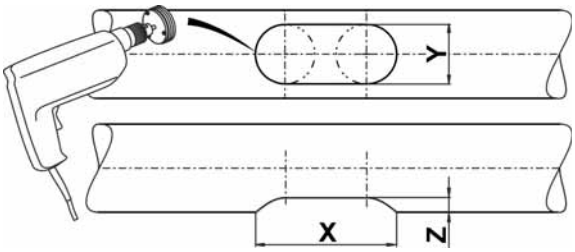
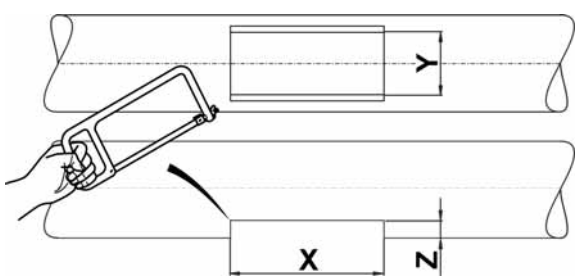
Shutter closed



A= Shutter
B= Flex-Vey tube
C= Pull cord
D= Draw-button green (opening of shutter)
E= Draw-button red (closing of shutter)

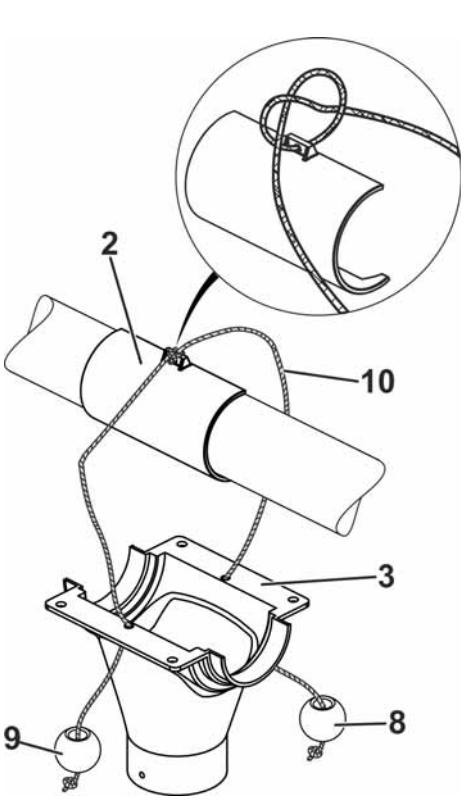
11.1.2 Making the openings for feed outlets in the conveying pipe

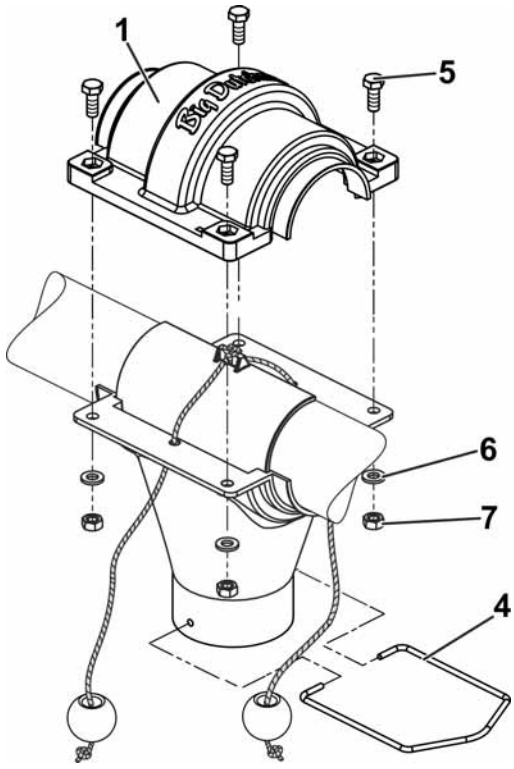
	Cut edges which have not been deburred can affect the flowability of the feed. Therefore, ensure that all burrs have been removed from the outlet openings.

Rounded opening	Rectangular opening
	

Model:	X	Y	Z
DR 1500	100mm	max. 40mm	10mm

11.1.3 Assembly to the pipe





position numbers see the following page

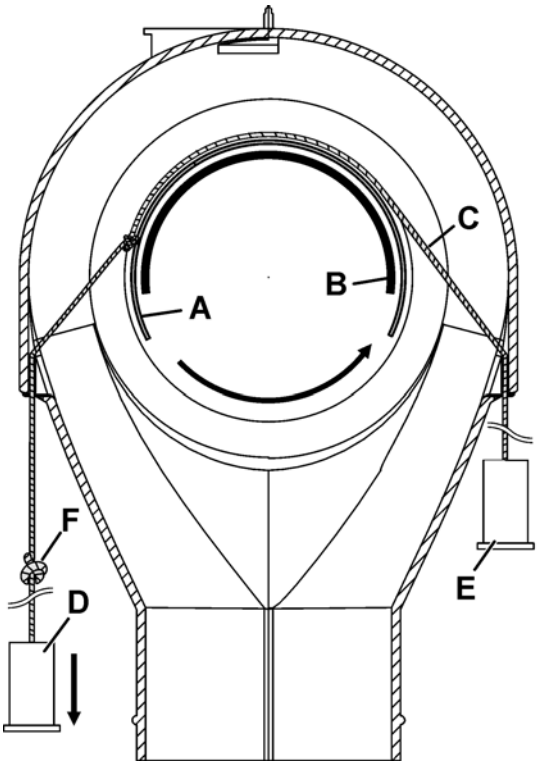
Pos.	Qty.	Code no.	Description
1		83-03-8483	Upper part for tap with DR1500 rope activation
2		83-03-8482	Shutter for tap with DR1500 rope activation
3		83-03-8484	Lower part for tap with DR1500 rope activation
4		83-03-8486	Stainless steel clamp for DR850/1500 rope-activated tap drop-pipe
5		99-20-1404	Hexagon bolt M6 x 16 stainless steel DIN 933
6		99-20-1602	Washer, stainless steel A6.4 DIN 125
7		99-20-1131	Locknut M6 DIN 985 stainless steel 1.4401
8		83-03-1992	Red draw-button for shutter rope activation
9		83-03-1991	Green draw-button for shutter rope activation
10		99-50-1006	Suspension rope 2.5mm PES white

11.2 Hand-operated tap for Flex-Vey 75; 90 and 125

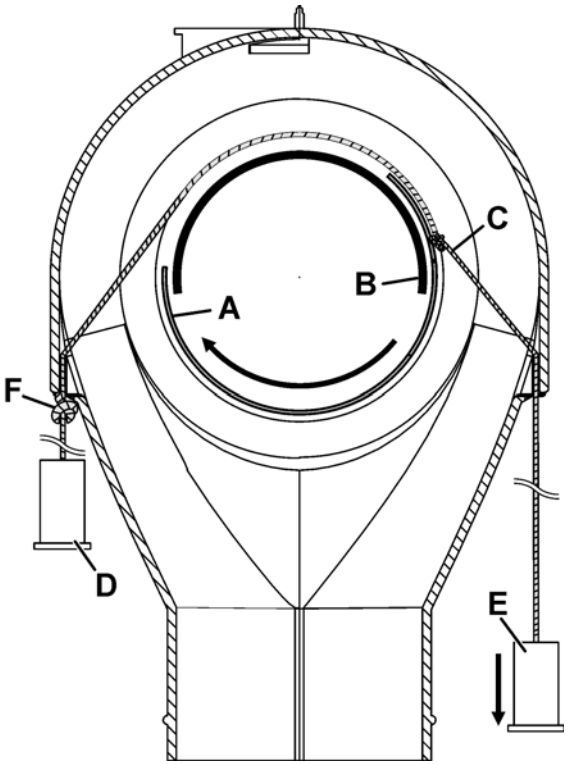
Pos.	Qty.	Code no.	Description
1		25-57-3160	Outlet B with shut-off & cable control cpl Flex-Vey 75
2		25-59-3160	Outlet B with shut-off & cable control cpl Flex-Vey 90
3		25-62-3160	Outlet B with shut-off & cable control cpl Flex-Vey 125

11.2.1 Function

Shutter opened



Shutter closed



A= Shutter
B= Flex-Vey tube
C= Pull cord
D= Draw-button green (opening of shutter)
E= Draw-button red (closing of shutter)
F= Knot for stopping the shutter

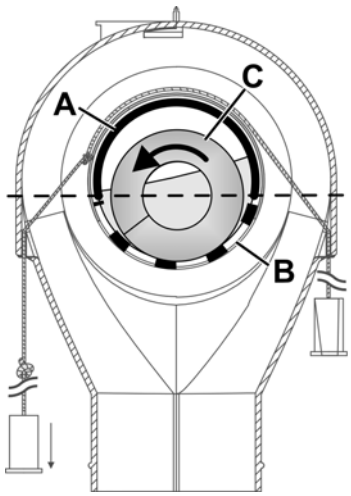
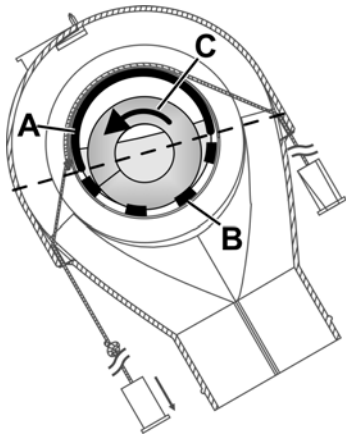
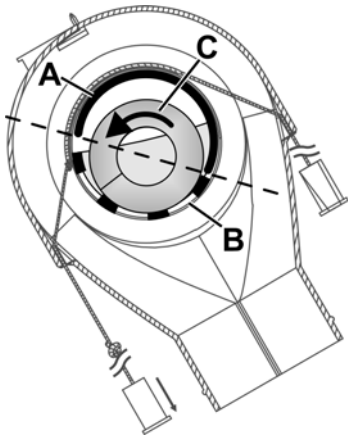
11.2.2 Position of the openings for feed outlet at the Flex-Vey tube

The conveying auger in the tube of the Flex-Vey rotates counter-clockwise (ccw) respectively to the left **(C)**, seen in conveying direction, i.e. from the silo towards the drive unit.

Thus the conveyed feed does not lie horizontally on the bottom of the conveying tube but accumulates at the right lower outer wall (4-5 o'clock position).

In order to ensure a complete feed emptying, it is extremely important that the openings built-in **(B)** in the conveying tube **(A)** show vertically downwards. The housing of the feed discharge has also to be mounted that way that it is directed vertically downwards.

!	If it is necessary, due to the situation at site, that the **Flex-Vey outlet must be moved laterally** and cannot be aligned vertically, this is allowable **up to the „4-o'clock-position" maximally (viewing direction: from the silo to the drive unit)**.

correct	**correct**	**wrong**
outlet and tube vertical	outlet and tube to 4-5 o'clock position	outlet to 4-5 o'clock position and tube to 7-8 o'clock position
		

11.2.3 Making the openings for feed outlets in the conveying pipe

Important:

The openings for the feed outlets in the conveying pipes must be made with the **utmost care**. It is best to use a drill bit. **We expressly recommend not using a grinder to make the outlet openings!**

The shape of the outlet opening **significantly influences** the **flow of the feed** and the ability of the conveying pipe to **keep its shape**.

Procedure:

1. Mark the places at the bottom of the conveying pipes where the holes must be cut.

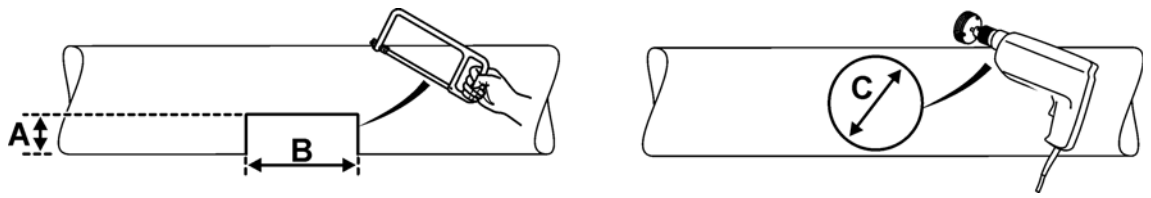
   Make sure that all the holes are exactly located on the the center line at the bottome of the conveying pipe.

In case you need two outlets one after the other, a distance of at least 17 cm is necessary.

If a **complete or partial emptying of the conveying pipe** has to take place at the outlets, the openings are to be made with dimensions indicated in the **following table.**

complete emptying partial emptying

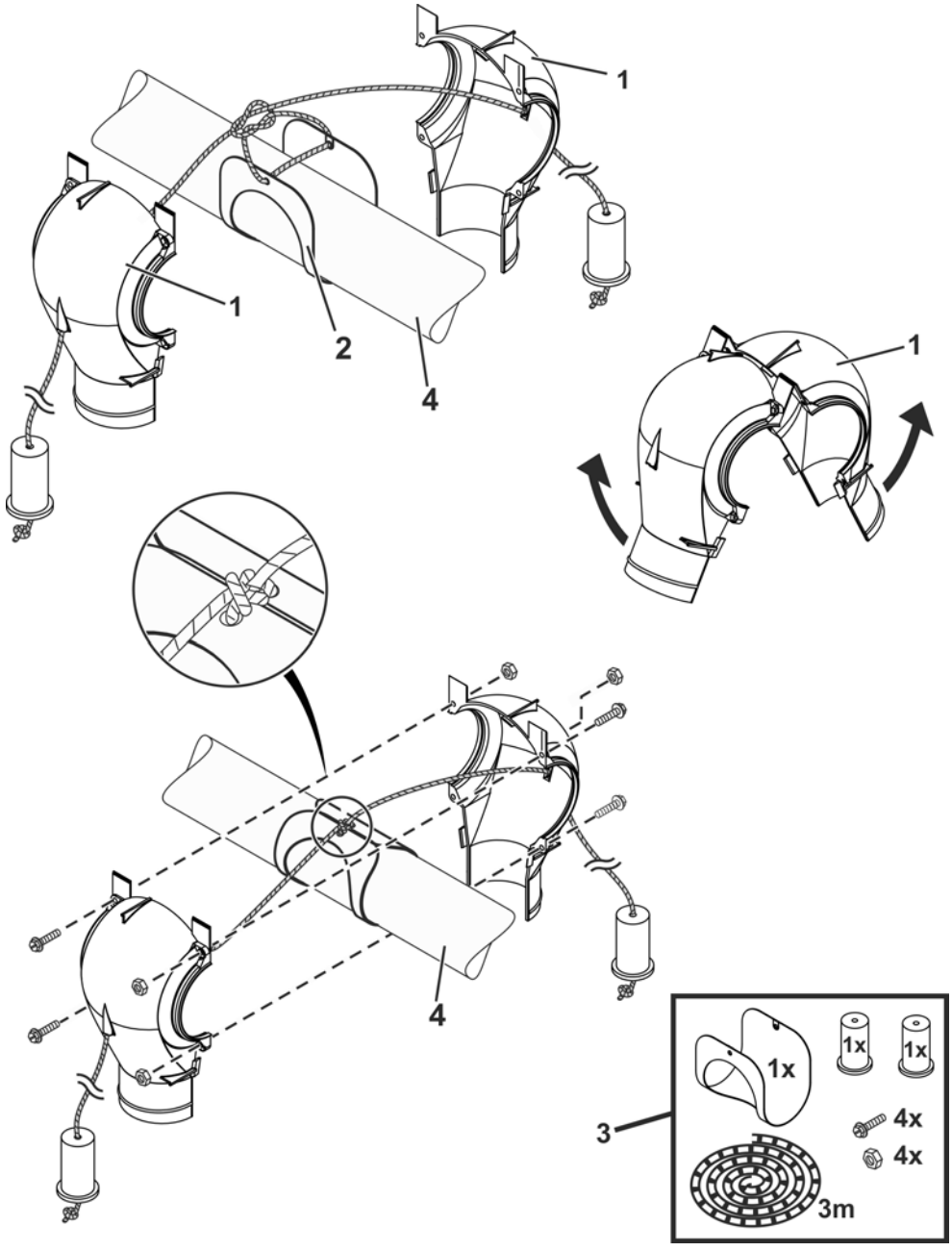
(side view) **(view from bottom)**



	complete feed emptying		partial feed emptying
FV-type	**A**	**B**	**C**
75	19mm	70mm	60mm
90	22mm	80mm	75mm
125	38mm	110mm	110mm

11.2.4 Assembly to the pipe

1. Mount the outlet in that way that the outlet openings in the conveying pipe lying underneath are within the outlet housing.



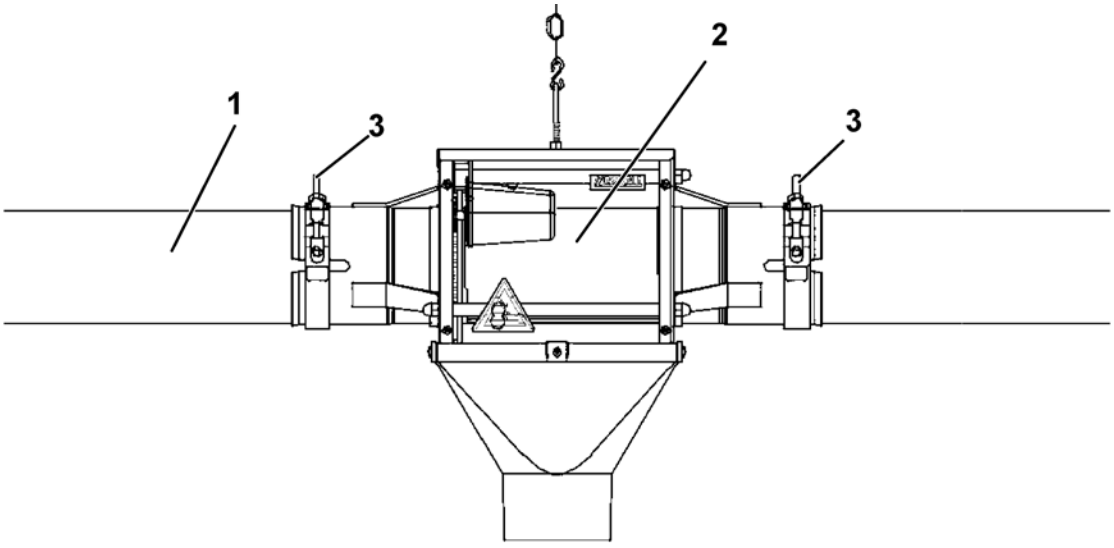
Pos.	Qty.	Code no.	Description
1	1		Housing for outlet
2	1		Shutter
3	1		Mounting set for outlet B Flex-Vey
4	1		Conveying pipe with outlet opening underneath

11.3 Assembling the automatic tap

Automatic outlets are used for example in broiler breeder feeding in order to weigh out certain amounts of feed in multiple feed hoppers by means of a continuous Flex-Vey system and FW99 feed scale.

Assembly instructions:

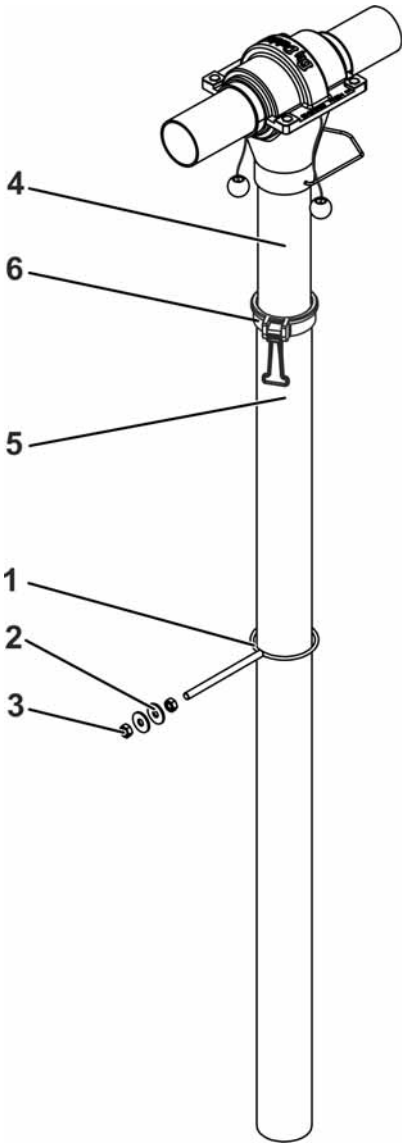
Assemble the automatic tap in the Flex-Vey section before screwing in the conveyor auger. This is necessary because the conveying pipe must be separated from the assembly. Only position the automatic tap in straight sections of pipe.



Pos.	Qty.	Code no.	Description
1			Flex-Vey
2		25-57-3131	Outlet automatic 24V DC incl. 2 tube clamps for Flex-Vey 75
		25-59-3131	Outlet automatic 24V DC incl. 2 tube clamps for Flex-Vey 90
3			Tube clamp

11.4 Assembling the supply pipes

11.4.1 Drop-pipe for Flex-Vey 60



Pos.	Qty.	Code no.	Description
1	1	10-88-4091	Stainless steel pipe bracket for 63mm telescopic drop-pipe
2	2	99-20-1177	K washer A8.4x25x2.0 DIN 9021 stainless steel
3	2	99-20-1176	Hex nut M8 stainless steel DIN 934
	1	**83-04-6806**	**Telescopic drop-pipe 60/65x2300 complete including tension ring for tap with rope activation**
			Comprised of:
4	1	83-04-6800	Translucent inner tube Ø60 for telescopic drop-pipe
5	1	83-04-6804	Translucent outer tube Ø65 for telescopic drop-pipe
6	1	83-04-6805	Tension ring 60/65 for telescopic drop-pipe

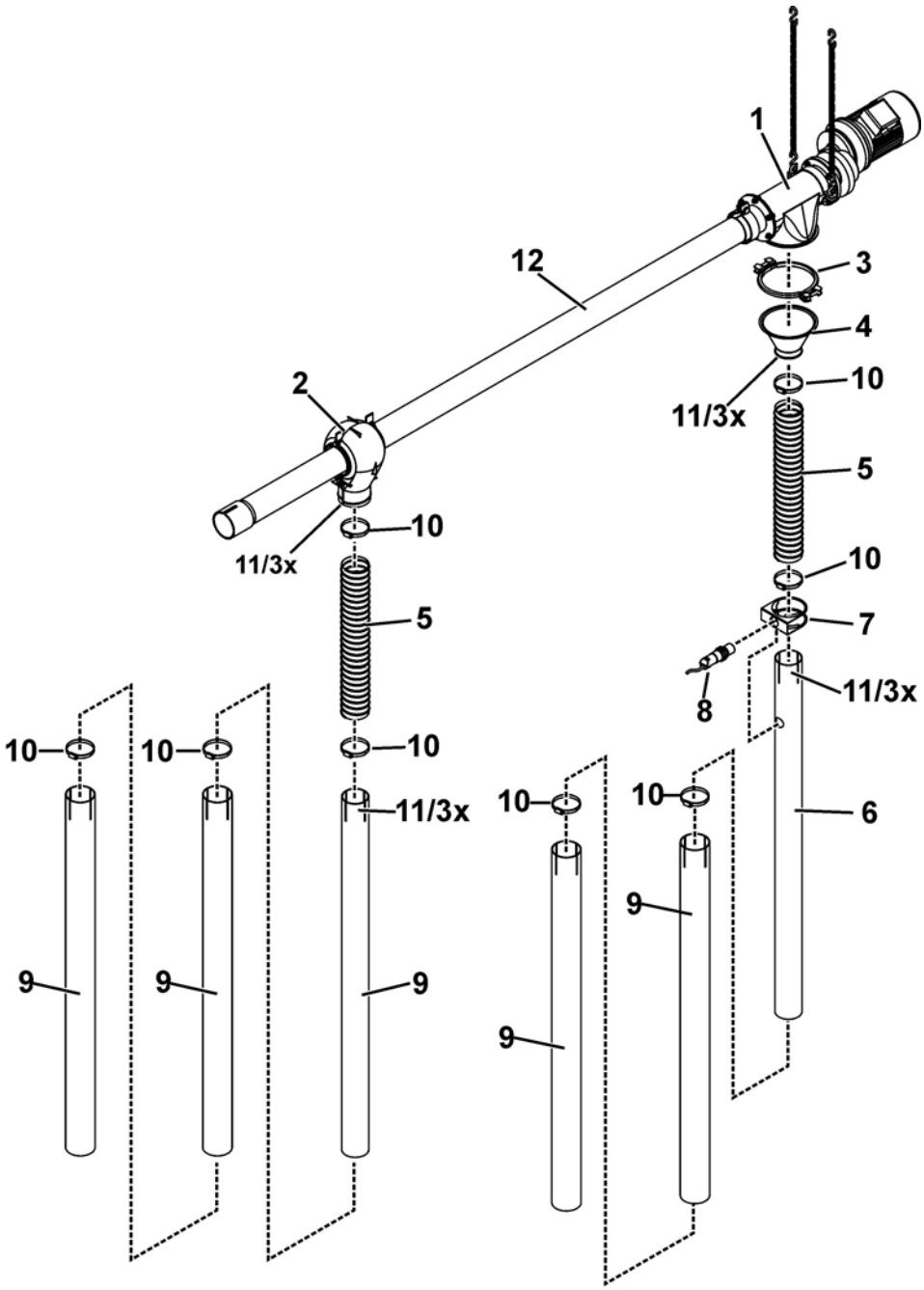
11.4.2 Drop-pipe for Flex-Vey 75; 90; 125

If necessary the **supply pipes and flexible tubes** can be shortened.

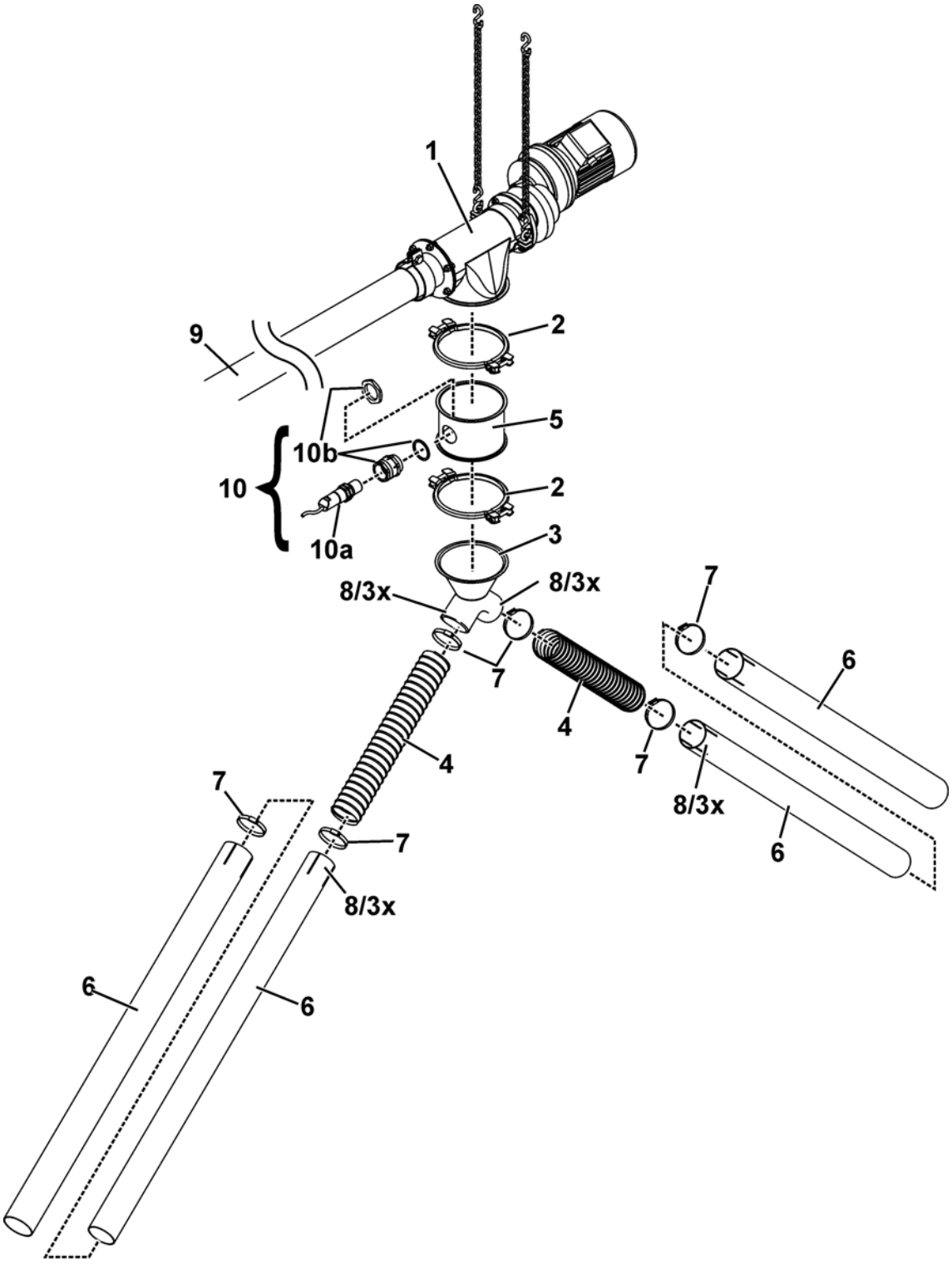
In order to prevent a congestion of feed in the drop pipe, the drives have to be combined with the respective drop pipes (for example drive Flex-Vey 125 with drop pipe Flex-Vey 125 (with or without sensor)).

11.4.2.1 Supply pipes single

Pos.	Qty.	Code no.	Description
1			Flex-Vey drive unit
2		25-57-3160	Outlet B with shut-off & cable control cpl Flex-Vey 75
		25-59-3160	Outlet B with shut-off & cable control cpl Flex-Vey 90
		25-62-3160	Outlet B with shut-off & cable control cpl Flex-Vey 125
3		25-16-3033	Tension ring 150 galv with sealing ring 1mm
4		83-00-5791	Reducing bush 150x75 galv
		83-00-5792	Reducing bush 150x90 galv
		83-06-4310	Reducing bush 150x110 galv for Flex-Vey 125
5		25-57-3127	Flexible hose DN 75 PUR-MH
		25-59-3129	Flexible hose DN 90 PUR-MH
		25-62-3128	Flexible hose DN 110 PUR
6			Tube with bore hole for sensor MS-45R (Code no. see parts lists in chapter 21.6)
7		83-00-4958	Bracket for sensor MS-45R at drop pipe 75/90
		83-06-4491	Bracket for sensor MS-45R at drop pipe f/FV125
8		60-40-0754	Sensor MS-45R 220V m/threaded
9			Tube PVC slit (Code no. see parts lists in chapter 21.6)
10		99-50-3829	Hose band clip 70-90
		99-50-1369	Hose band clip 90-110
		99-50-1370	Hose band clip 104-138
11		99-10-3891	Drilling screw 3.5x 16 DIN 7504-K
12			Conveyor pipe


1
12
3
4
2
10
11/3x
5
10
11/3x
10
5
10
7
8
11/3x
10
10
10
11/3x
10
10
6
9
9
9
9
9

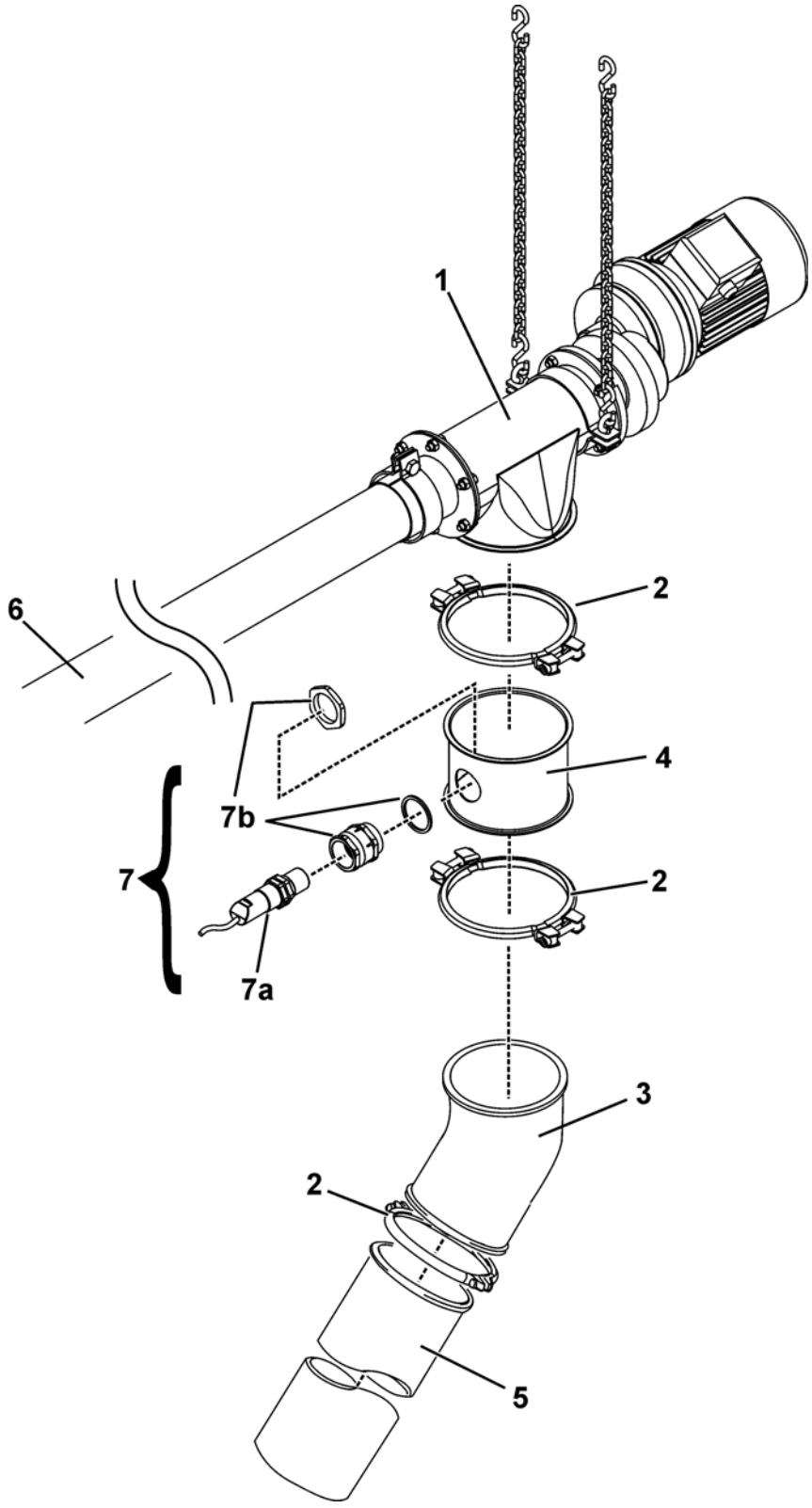
11.4.2.2 Supply pipe double with Y-piece for transfer to feed column or feed weigher



position numbers see the following page

Pos.	Qty.	Code no.	Description
1	1		Drive unit Flex-Vey
2	2	25-16-3033	Tension ring D150 galv. with sealing ring 1mm
3	1	25-16-3042	Y-piece galv. 150/70 2x30deg.
	1	25-16-3039	Y-piece galv. 150/2x150 2x45deg galv.
4		25-57-3127	Flexible tube DN 75 PUR-MH
		25-59-3129	Flexible tube DN 90 PUR-MH
		25-62-3128	Flexible tube DN 110 PUR
5	1	25-60-3100	Sleeve socket 150 for PG36
6			Pipe PVC slotted (Code No: see parts list in chapter 21.6)
7	6	99-50-3829	Hose band clip 70-90
	6	99-50-1369	Hose band clip 90-110
8	12	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K
9			Conveying pipe / bend
10	1	91-00-3985	Sensor MS-45R with union
consisting of:			
10a	1	60-40-0654	Sensor MS-45R 220V
10b	1	99-30-3001	Screw union PG36

11.4.2.3 Supply pipes with segment(s) 15; 30 and/or 45 degree



position numbers see the following page

Pos.	Qty.	Code no.	Description
1	1		Drive unit Flex-Vey
2		25-16-3033	Tension ring D150 galv. with sealing 1mm
3		25-16-3034	Segment 150/15Grd
		25-16-3035	Segment 150/30Grd
		25-16-3036	Segment 150/45Grd
4	1	25-60-3100	Sleeve socket 150 for PG36
5		25-16-3031	Tube 150x1,50-1000 galv.
		25-16-3032	Tube 150x1,50-2000 galv.
6			Conveying pipe / bend
7	1	91-00-3985	Sensor MS-45R with union
consisting of:			
7a	1	60-40-0654	Sensor MS-45R 220V
7b	1	99-30-3001	Screw union PG36

12 Welding of the auger

12.1 Important information regarding the assembly of the auger

Important:

The following notes should be observed before mounting the auger.

- The auger must be mounted with utmost care.
- Keep the auger dry.
- Remove all remains of string, wire, etc. from the auger before installing.
- Uncoil the auger from the reel and lay the uncoiled auger flat on the floor to prevent distortion.
- Kinks and bends in the auger must be removed and - if this is not possible the deformed part has to be removed and the auger must be welded again.
- In order to avoid any distortion during mounting, round off the two ends of the auger.

12.2 Welding of the auger

– **Selection of the welding filler metal**

a) Gas metal arc welding

Welding wire: SG 2 Ø 0.8mm

Description according to EN ISO 14341-A: G 42 3 M G3Si1

b) Manual arc welding

Stick electrode 2.5 x 350 [mm]

Description according to EN ISO 2560-A: E 38 2 RB 12

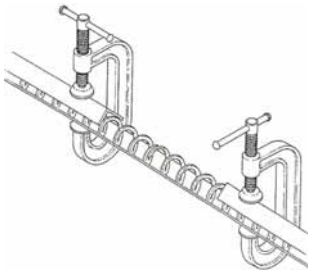
– **Procedure**

• *Step 1: Cleaning and degreasing of conveyor auger*

The ends of the auger must be thoroughly cleaned and degreased before the welding process. For this purpose it is possible to use for example customary wash dilution.

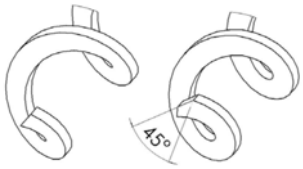
• *Step 2: Alignment of the conveyor augers to be welded*

Both ends of the auger must be aligned and fixed to each other as an L- or U-profile. The fixation of the conveyor augers can be done by means of normal screw clamps.

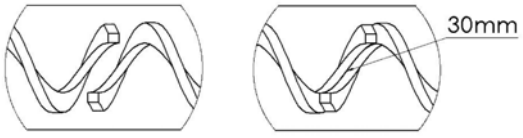


	The longer the profiles for the alignment, the more accurate the alignment of the conveyor augers to each other.

a) In order to prevent damages of the tubes due to sharp edges, the ends of the auger have to be furnished with amply 45° bevels and edges have to be removed.

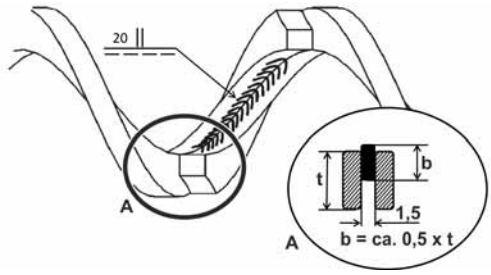


b) Both ends of the augers must overlap 30mm. It is important that they are pushed in front of each other and do not twist them together.



- *Step 3: Preparation of a welding seam*

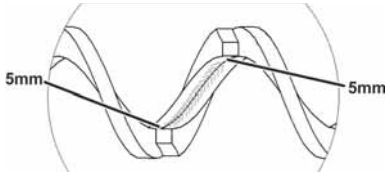
a) Join both auger ends with an internal welding seam with a length of 20mm.



t= height of the auger (in section)

b= maximum depth of the welding seam (approx. 0.5 x t)

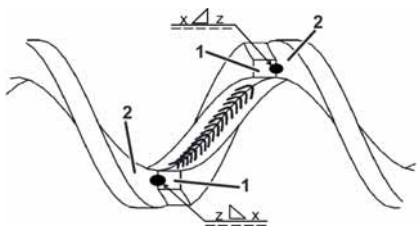
The distance of the welding seam must be 5mm from both ends of the auger.



	Let the auger **slowly cool down at the air**. A cooling with any liquids makes the material of the auger brittle and thus increases the risk of fracture!

b) After the 20mm welding seam has cooled down, the ends of the auger have to be welded to the respectively other auger by means of an additional welding seam.

Explanation of symbols of the welding seam:



x=	Material thickness e.g. Augermatic auger 3.85mm
b=	0.5 x height of the auger e.g. Augermatic auger 0.5 x 8 = 4[mm]

When the welder prepares the welding seam he has to start at point 1 and move the welding device towards point 2.

It must be observed that point 2 is not heated for too long as this spot will soften and consequently break during operation.

Do not use a right angle grinder for cleaning.

13 Assembling the Flex Vey-auger

13.1 Important information regarding the assembly of the auger

Important:

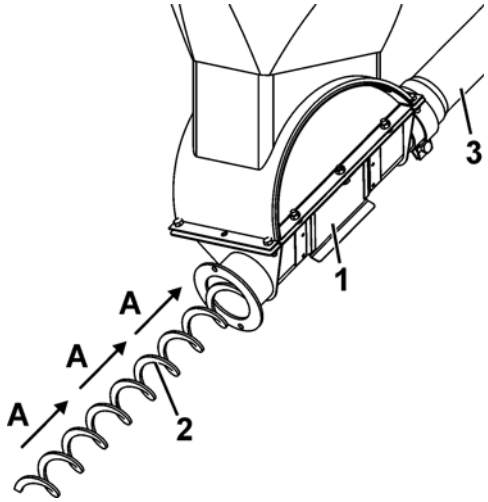
The following notes should be observed before mounting the auger.

- The auger must be mounted with utmost care.
- Keep the auger dry.
- Remove all remains of string, wire, etc. from the auger before installing.
- Uncoil the auger from the reel and lay the uncoiled auger flat on the floor to prevent distortion.
- Kinks and bends in the auger must be removed and - if this is not possible the deformed part has to be removed and the auger must be welded again.
- In order to avoid any distortion during mounting, round off the two ends of the auger.

13.2 Insertion of the auger

	Notes for inserting the auger: When inserting the auger into the pipe you will notice that it pushes easy at the beginning. The deeper you go into the pipe the more weight and friction will build up and the harder it becomes to push. This is quite normal.

1. Remove the tension bearing from the lower part of the boot (1).
2. Now push the auger (2) through the lower part of the boot (1).
3. Push the auger (2) through the conveying pipes (3) up to the drive.

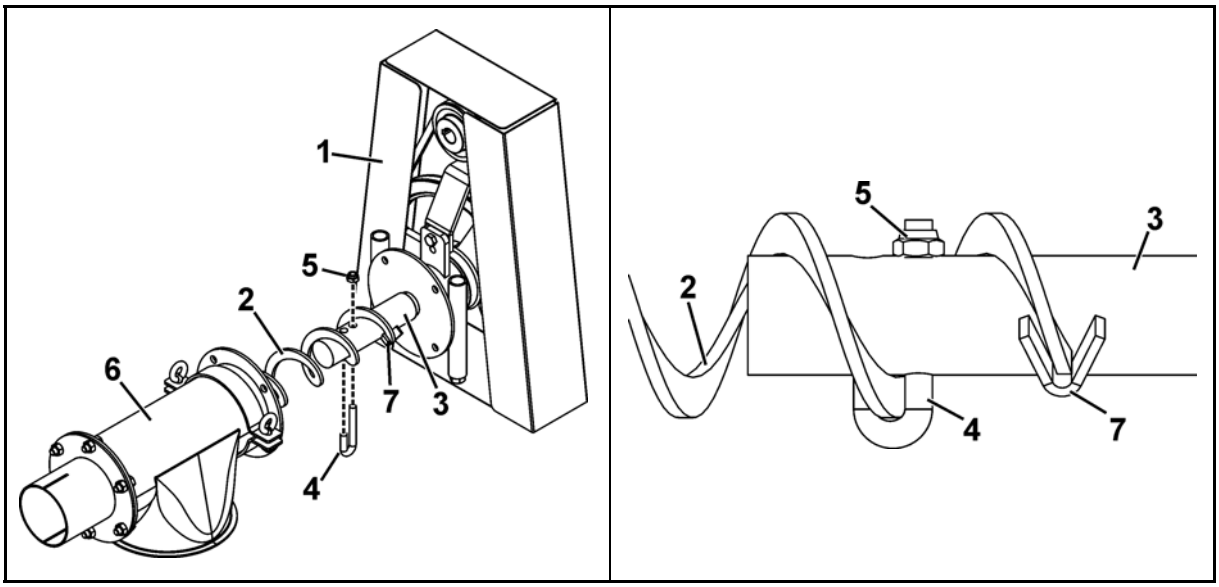
Important: **Make sure that you do not keep the auger too far away from the lower part of the boot (1). Push it through the conveying pipes (3) only in small steps (A).** **This procedure avoids a bending of the auger!**	

13.3 Fastening the auger to the drive unit

1. Release the drive (1) from the power head (6).
2. Push the spiral (2) onto the tension shaft (3).

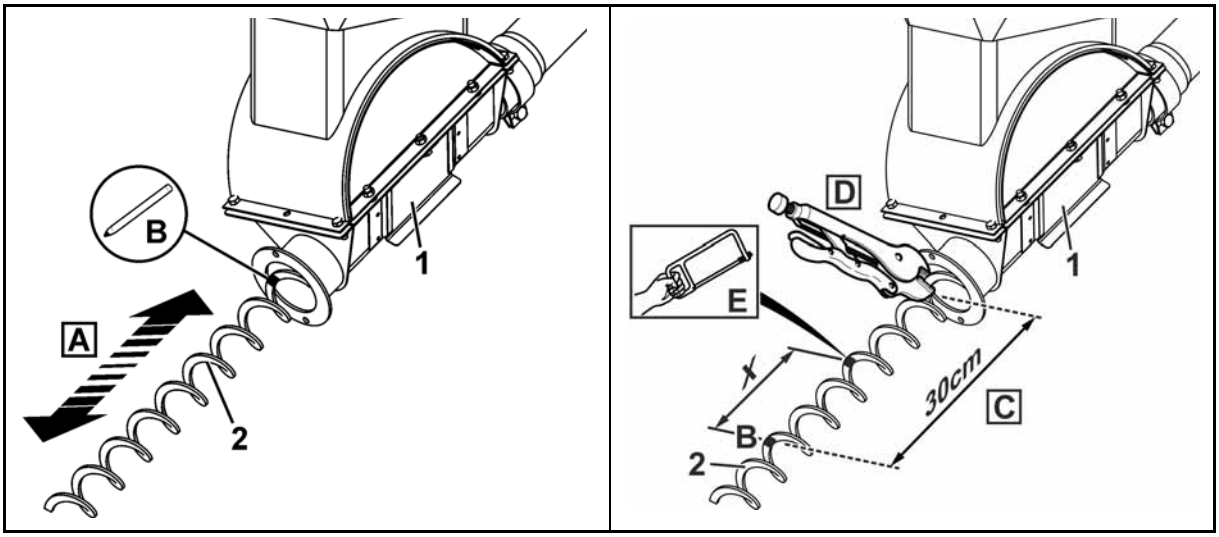
   Ensure that the end of the spiral lies in the stop angle (7) of the tension shaft.
3. Lock the spiral with a hook bolt (4) and a safety nut M8 (5).

   Ensure that the bent end of the hook bolt (4) is guided through the second bore hole of the tension shaft (3).
4. Screw the drive back onto the power head.



13.4 Fastening the auger to the tension shaft in the lower part of the boot

	**Note regarding the optimum tension of the auger:** When installing, the tension of the auger must generally be adjusted so that it can **easily turn in the pipe**. **Too high tension** of the auger will lead to too much wear on the inner wall of the bend. **Too low tension** of the auger will lead to friction on the outer wall of the bend and thus to increased wear.



1. Pull the auger (2) **repeatedly** out of the lower part of the boot (1) and relax it so that it can get its natural tension **(A)**.
2. Mark the place on the auger (2) where it flushes with the connecting flange at the lower part of the boot (1) **(B).**
3. **Shorten the auger:**
   - Conveying length **below** 15m: Pull the auger out of the lower part of the boot (1) approx. 30 cm (1) **(C)** and clamp it at the connection flange **(D)** by means of a vise-grip wrench. Measure **X = 5 cm** from this point **(B)** and then shorten at this place **(E)**.
   - Conveying length **above** 15 m: Pull the auger out of the lower part of the boot (1) approx. 30 cm **(C)** and clamp it at the connection flange **(D)** by means of a vise-grip wrench. Measure **X = 15 cm** from this point **(B)** and then shorten at this place **(E)**.
4. **Do not loosen** the vise-grip wrench **yet**.

13.4.1 Inserting and fastening the tension shaft

1. Insert the tension spaft (1) and the tube for the tension shaft (3) in the end of the spiral (3).

   Make sure to bring the spiral as close to the stop disc of the tension bearing (4) as possible.

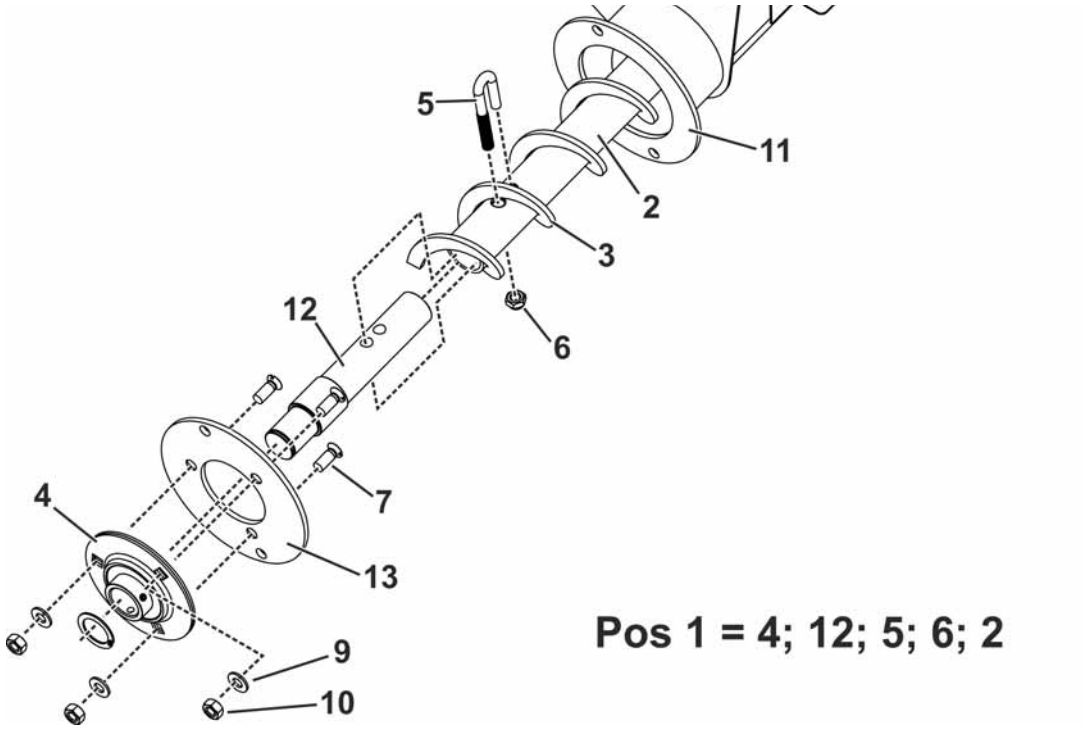
2. Fasten the spiral with a hook bolt (5) and a safety nut M8 (6) to the tension shaft (1) and the tube for tension shaft (2).

   Make sure to guide the hook bolt both through the bore holes of the tube and through the bore holes of the tension shaft.

3. Screw the entire assembly group to the connection flange of the lower boot (11) by means of hex. head screws 8x20 (8), U washers A8.4 (9) and hex. nuts M8 (10).

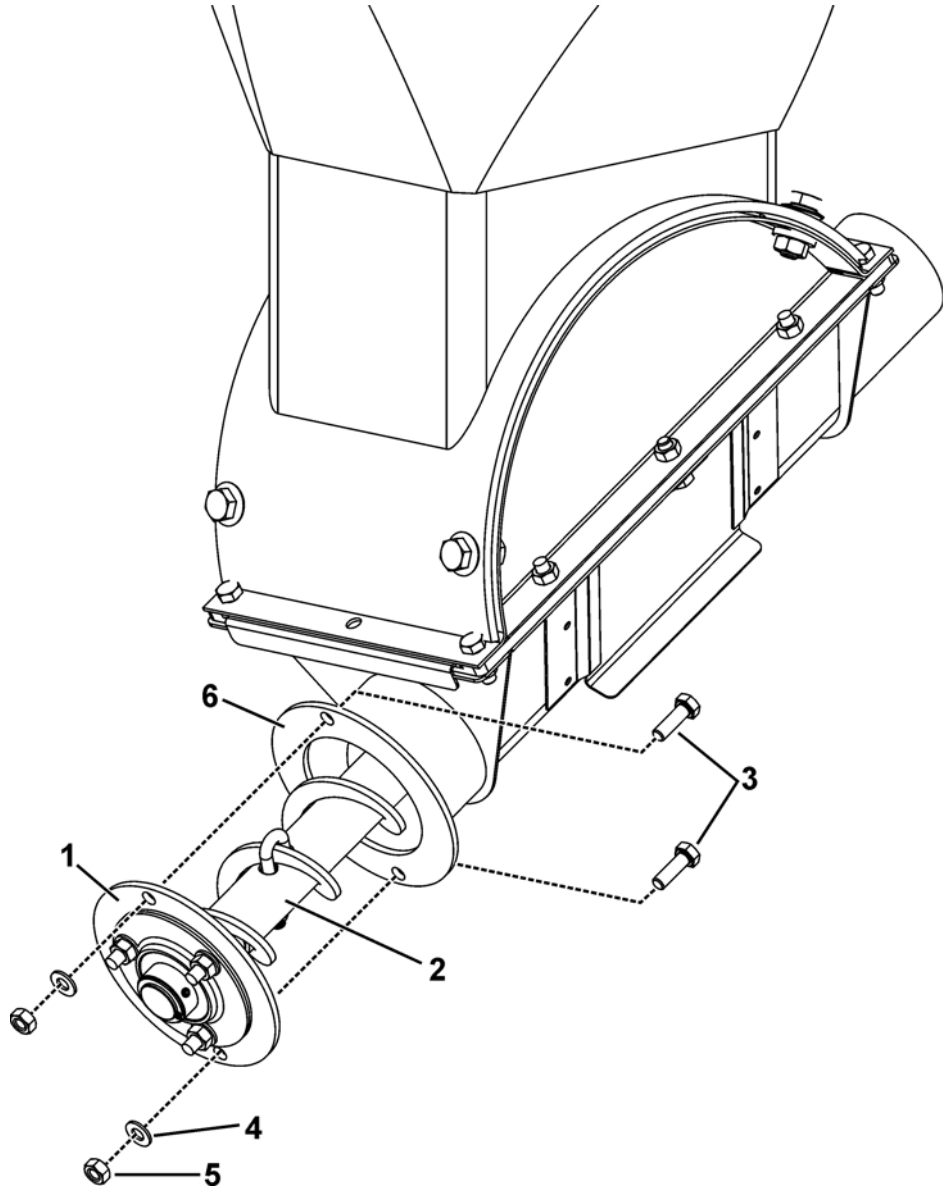
	In case of certain types of lower part of boot, there are no hexagon head screws, because these screws are already integrated into the connecting flange.

13.4.1.1 Inserting the tension shaft



Pos.	Qty.	Code no.	Description
1	1	25-63-3033	Shaft axle 23 with end position compl. M60
	1	25-01-3021	Shaft axle with end position compl. M75
	1	25-59-3021	Shaft axle with end position compl. M90
	1	25-62-3021	Shaft axle with end position compl. M125
2		25-01-3024	Pipe for shaft axle 70
		81-04-9163	Pipe for shaft axle with end position FV 90
		81-22-0771	Pipe for shaft axle 125
3		25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60
		25-57-1701	Auger open core 60x60x36.5x4.3 right Flex-Vey 75/US
		25-59-1701	Auger open core 70x65x46.5x4.3 right Flex-Vey 90/US
		25-62-1701	Auger open core 100x70x72x5.0 right Flex-Vey 125/US
4		25-01-3025	Radial insert ball bearing compl. for auger M75/90/125
5	1	99-10-3924	Hook bolt galv M8 x 63 Flex-Vey 60/75
	1	99-10-3909	Hook bolt galv M8 x 78 Flex-Vey 90
	1	81-22-0349	Hook bolt galv. Flex-Vey 125
6	1	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
7		99-10-1311	Countersunk screw/Philips head screw M8 x 20 DIN 965-5.8 galv.
8		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933
9	1	99-20-1026	Washer A 8.4 DIN 125 galv.
10		99-10-1040	Hexagon nut M8 galv. DIN 934-8
11			Connection flange for silo boot lower part
12			Shaft axle individual
13	1	25-63-3005	Flange plate for shaft axle silo boot lower part FV 60/75/90
	1	25-62-3105	Flange plate for shaft axle silo boot lower part FV 125

13.4.1.2 Fixing of tension shaft at the lower part of the boot



Pos.	Qty.	Code no.	Description
1	1	25-63-3033	Shaft axle 23 with end position compl. M60
	1	25-01-3021	Shaft axle with end position compl. M75
	1	25-59-3021	Shaft axle with end position compl. M90
	1	25-62-3021	Shaft axle with end position compl. M125
2		25-01-3024	Pipe for shaft axle 70
		81-04-9163	Pipe for shaft axle with end position FV 90
		81-22-0771	Pipe for shaft axle 125
3		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933
4	1	99-20-1026	Washer A 8.4 DIN 125 galv.
5		99-10-1040	Hexagon nut M8 galv. DIN 934-8
6			Connection flange for silo boot lower part

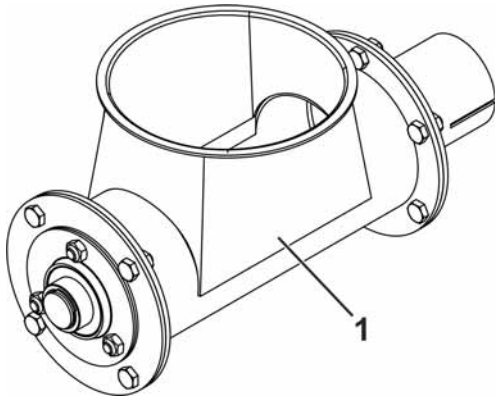
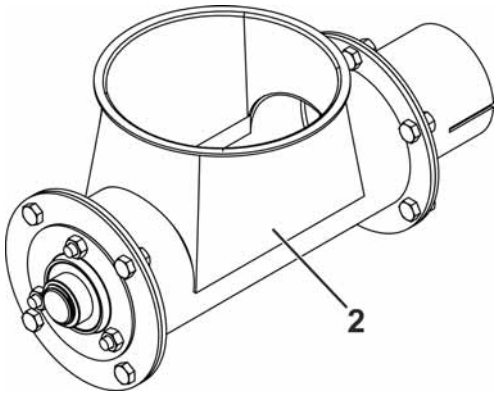
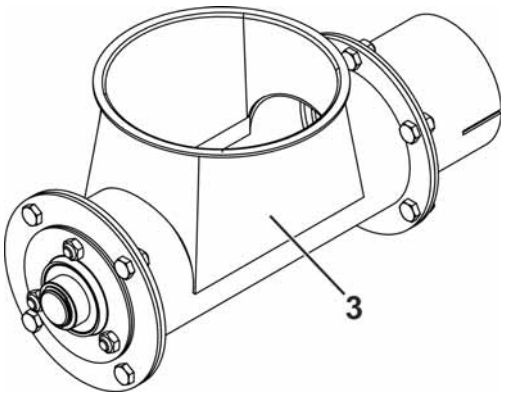
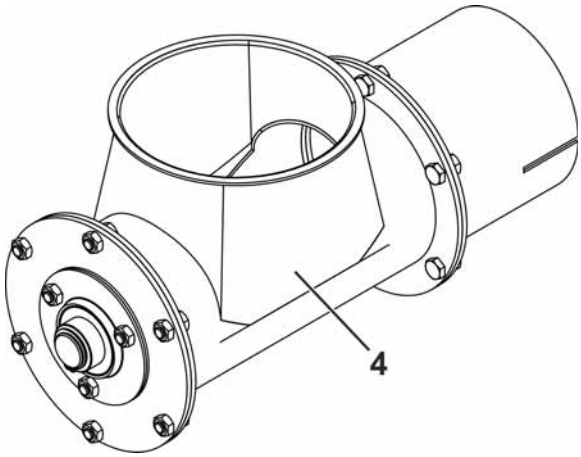
14 Assembling the Tranfer Unit

14.1 Available transfer units

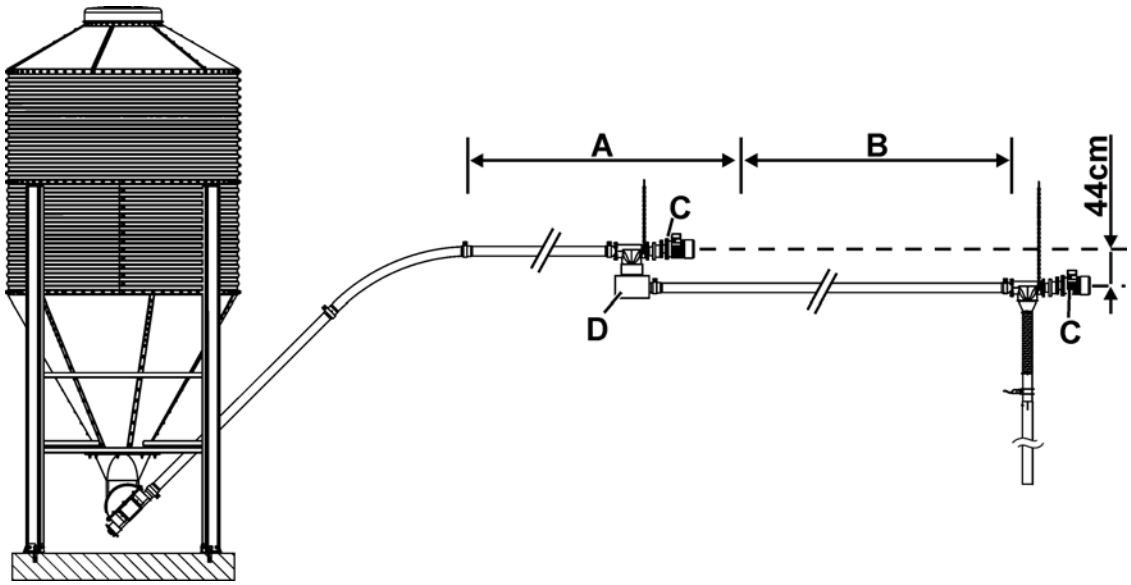
Note:

A transfer unit makes it possible to change the direction of the conveying line **by up to 90°** to the left or the right.

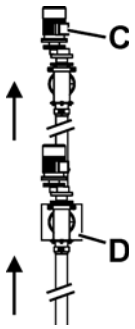
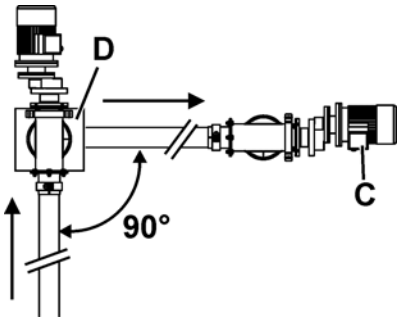
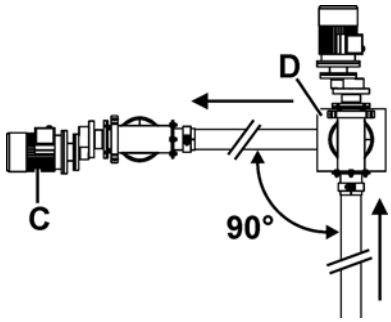
It is therefore possible to avoid having to install a bend and shorten the length of the conveying pipe.

Flex Vey 60	Flex Vey 75
	
Flex Vey 90	**Flex Vey 125**
	

Pos.	Qty.	Code no.	Description
1	1	25-63-3011	Funnel for transfer to 2nd auger Flex-Vey 60 (incl. shaft axle)
2	1	25-57-3011	Funnel for transfer to 2nd auger Flex-Vey 75 (incl. shaft axle)
3	1	25-59-3011	Funnel for transfer to 2nd auger Flex-Vey 90 (incl. shaft axle)
4	1	25-62-3011	Funnel for transfer to 2nd auger Flex-Vey 125 (incl. shaft axle)



A=	1. half of the conveying line	**C=**	Drive station
B=	2. half of the conveying line	**D=**	Transfer funnel

straight-lined	**up to 90 degrees right**	**up to 90 degrees left**
		

- In case of longer conveying lines an additional transfer unit can be mounted.

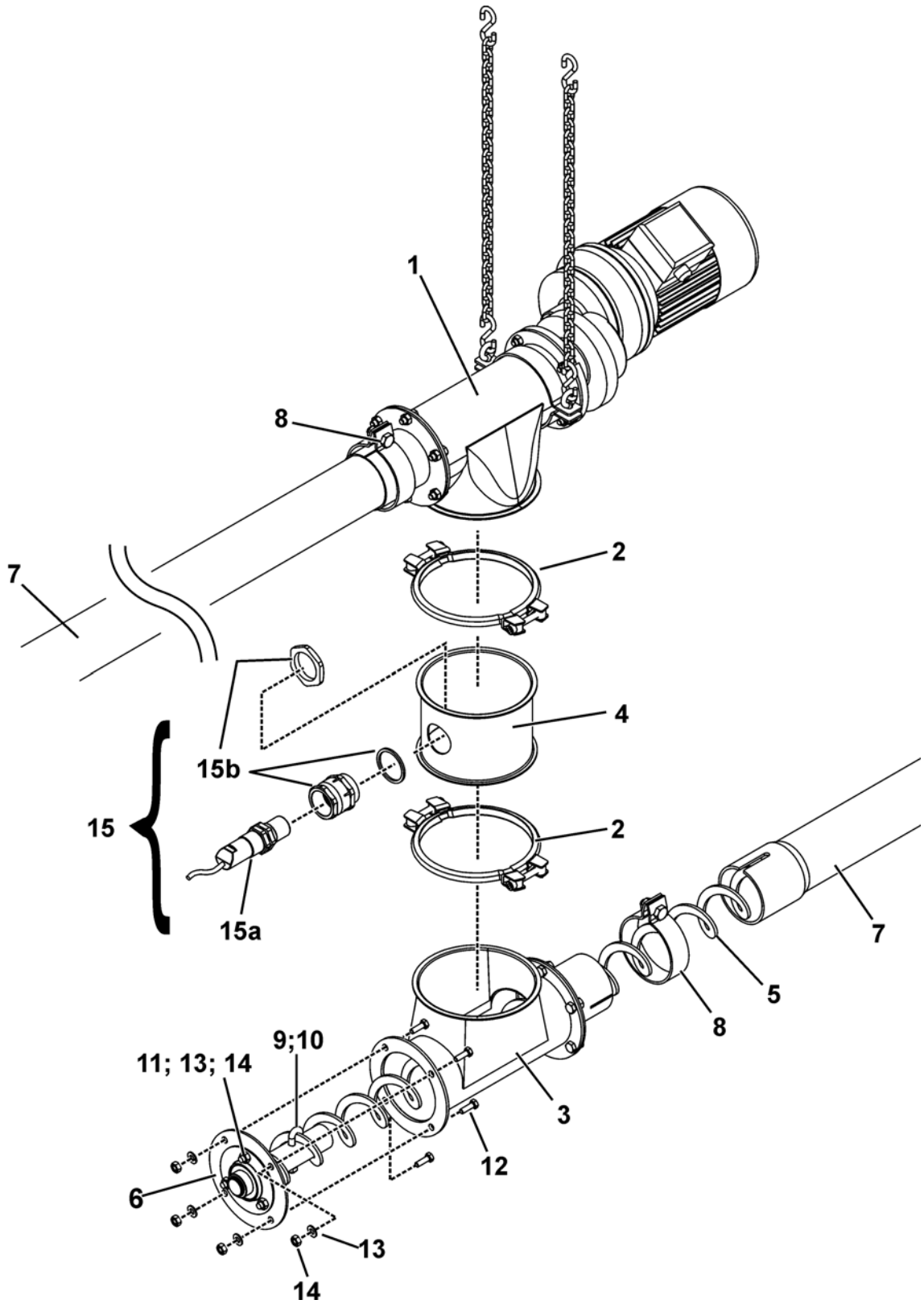
  Make sure that the transfer unit (D) is mounted before the end of the first half (A) of the total conveying line. When planning please consider that the conveying line will be lower behind the transfer unit by 44 cm.

14.2 Mounting

1. Fasten a sleeve socket 150 (4) to the drive head (1) by means of a tension ring (2).
2. Fasten the transfer funnel (3) to the sleeve socket (4) by means of a tension ring (2).
3. Turn the transfer funnel (3) into the desired conveying direction.
4. Turn the tenson ring (2) into the desired direction.
5. Tighten the screws of the tension rings.
6. Fix the screw union PG 36 (15b) and the sensor (15a) to the sleeve socket.
7. Mount the pipes (7) and their suspensions as described in chapter 9, the drive unit as described in chapter 10, the feed outlets as described in chapter 11 and the auger (5) as described in chapter 13.

Pos.	Qty.	Code no.	Description
1			Drive unit Flex-Vey
2		25-16-3033	Tension ring D150 galv. with seal 1mm
3		25-63-3011	Funnel for transfer to 2nd auger Flex-Vey 60 (incl. shaft axle)
		25-57-3011	Funnel for transfer to 2nd auger Flex-Vey 75 (incl. shaft axle)
		25-59-3011	Funnel for transfer to 2nd auger Flex-Vey 90 (incl. shaft axle)
		25-62-3011	Funnel for transfer to 2nd auger Flex-Vey 125 (incl. shaft axle)
4		25-60-3100	Sleeve socket 150 for PG36
5		25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60
		25-57-1701	Auger open core 60x60x36.5x4.3 right Flex-Vey 75/US
		25-59-1701	Auger open core 70x65x46.5x4.3 right Flex-Vey 90/US
		25-62-1701	Auger open core 100x70x72x5.0 right Flex-Vey 125/US
6			Shaft axle
7			Conveying pipe
8		99-50-0474	Pipe clamp Flex-Vey 60
		99-50-0475	Pipe clamp Flex-Vey 75
		99-50-0476	Pipe clamp Flex-Vey 90
		99-50-0477	Pipe clamp Flex-Vey 125
9		99-10-3924	Hook bolt galv M8 x 63 Flex-Vey 60/75
		99-10-3909	Hook bolt galv M8 x 78 Flex-Vey 90
		99-10-3910	Hook bolt galv M8 x 102 8.8 for Flex-Vey 125
10		99-20-1064	Self-locking nut M8 DIN 985-6 galv.
11		99-10-1311	Countersunk screw/Philips head screw M8 x 20 DIN 965-5.8 galv.
12		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933
13		99-20-1026	Washer A 8.4 DIN 125 galv.
14		99-10-1040	Hexagon nut M8 galv. DIN 934-8

Pos.	Qty.	Code no.	Description
15		91-00-3985	MS-45R sensor with threaded joint
		Comprised of:	
15a		60-40-0654	Sensor MS-45R 220V
15b		99-30-3001	Threaded joint PG36



14.3 Pipe extension for transfer unit if tandem silo is used.

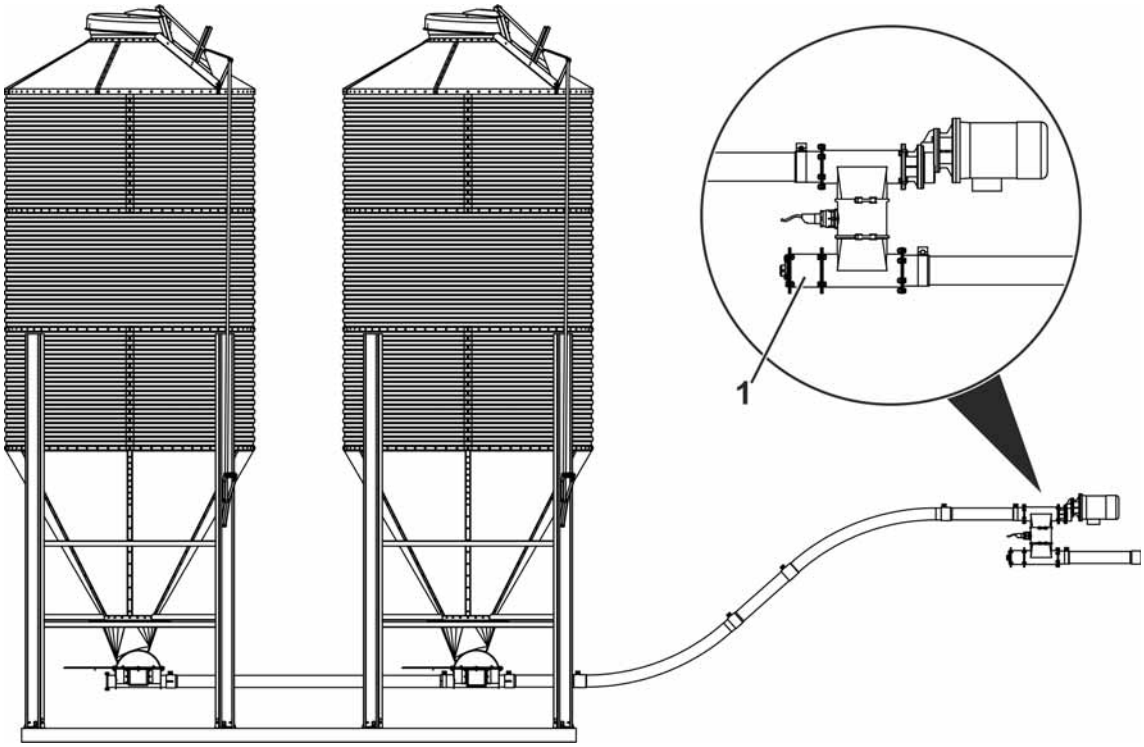
A pipe extension (1) for the “transfer unit to the 2nd auger Flex-Vey 60/75/90/125" is then always required if a tandem silo is simultaneously connected to the same Flex-Vey conveyor auger.

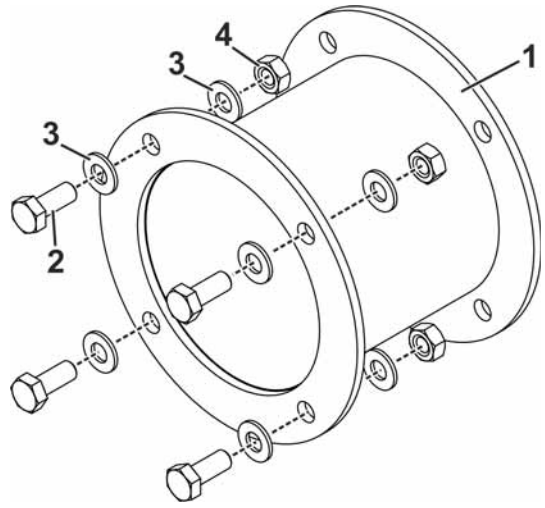
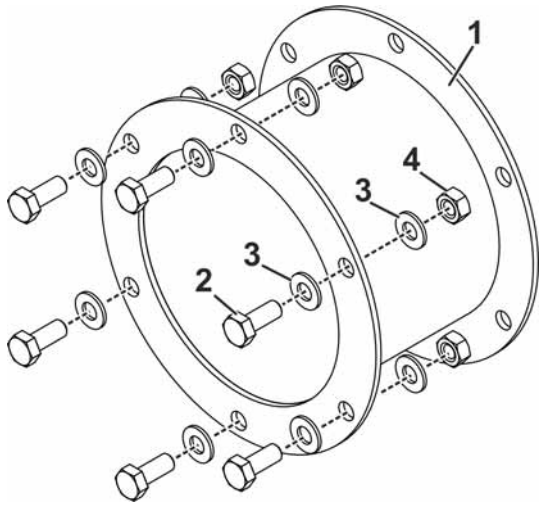
In this case, attention should be paid to the increased flow rate of the materials to be conveyed if a tandem silo is used.

The increased flow rate is caused by the missing shaft axle on the second and any subsequent silos. While the shaft axle on the first silo restricts the flow rate of the materials to be conveyed, the conveying pipe on every subsequent silo is almost 100% full due to the missing shaft axle, so that a greater volume of feed can be transported using the Flex-Vey auger.

This can lead to a feed status in the transfer unit. To counteract this blockage, the shaft axle of the transfer unit has been removed from the flow of the bulk goods by means of a pipe extension. The full cross-sectional area of the pipe is then available to remove the bulk goods.

As the increased flow rate also occurs in every additional transfer unit, pipe extensions must be planned for all transfers installed after a tandem silo.



Pipe extension Flex-Vey 60;75;90	Pipe extension Flex-Vey 125
	

Pos.	Qty.	Code no.	Description
1		25-60-3002	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 60 incl. screw set
		25-60-3003	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 75 incl. screw set
		25-59-3007	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 90 incl. screw set
		25-60-3001	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 125 incl. screw set

Screw set for Flex-Vey 60; 75; 90:

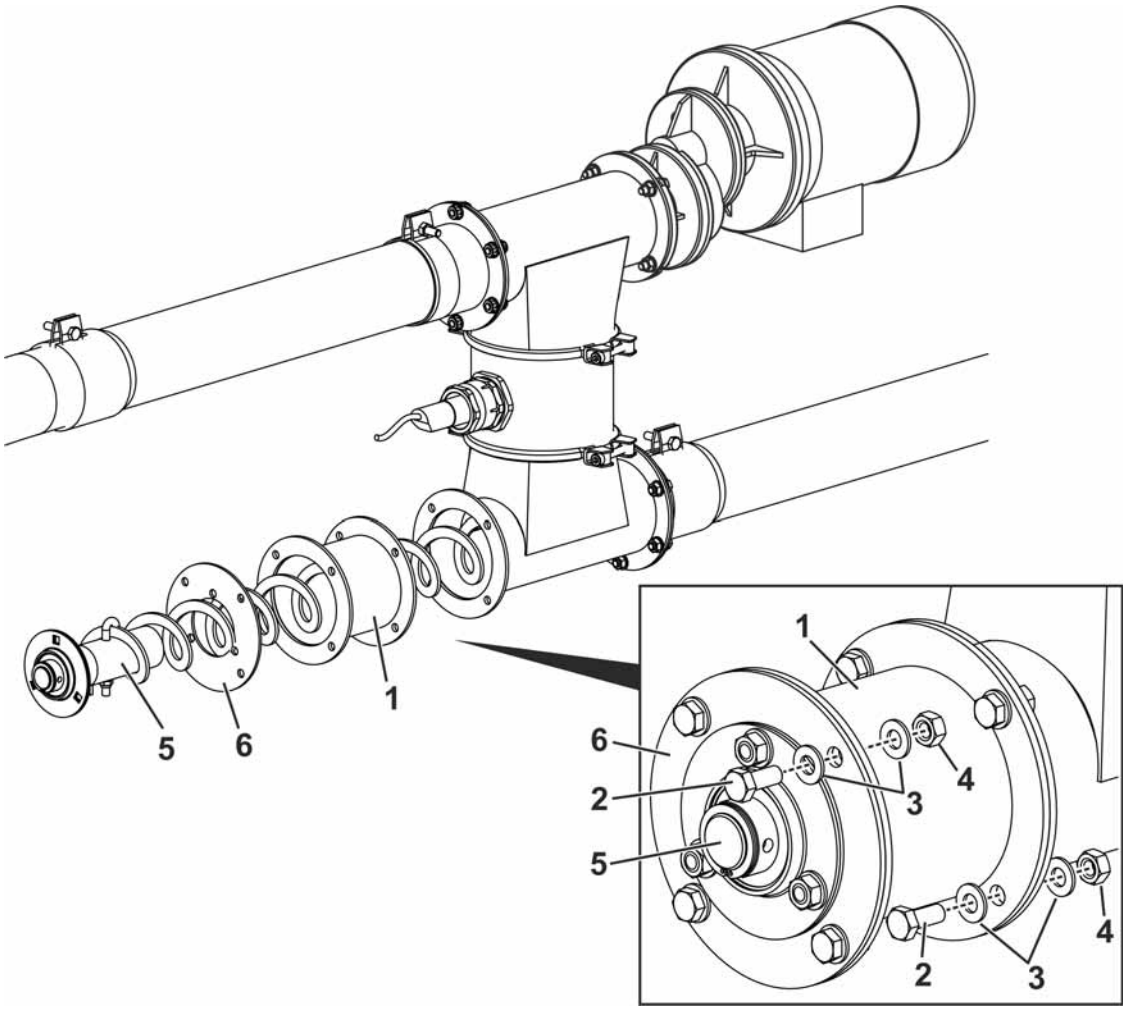
Pos.	Qty.	Code no.	Description
2	4	99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933 8.8
3	8	99-20-1026	Washer A 8.4 DIN 125 galv.
4	4	99-10-1040	Hexagon nut M8 galv. DIN 934-8

Screw set for Flex-Vey 125:

Pos.	Qty.	Code no.	Description
2	6	99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933 8.8
3	12	99-20-1026	Washer A 8.4 DIN 125 galv.
4	6	99-10-1040	Hexagon nut M8 galv. DIN 934-8

14.3.1 Mounting

The unit is assembled as described in chap. 14.2 , however it includes an additional step whereby a pipe extension is assembled on the “funnel for transfer” in the additional Flex-Vey.



Pos.	Qty.	Code no.	Description
1		25-60-3002	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 60 incl. screw set
		25-60-3003	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 75 incl. screw set
		25-59-3007	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 90 incl. screw set
		25-60-3001	Pipe extension for funnel for transfer to 2nd auger Flex-Vey 125 incl. screw set
2		99-10-1038	Hexagon bolt M8 x 20 galv. DIN 933 8.8
3		99-20-1026	Washer A 8.4 DIN 125 galv.
4		99-10-1040	Hexagon nut M8 galv. DIN 934-8
5			Shaft axle
6			Flange

15 Assembling the Tandem Auger

	The installation of the boot tandem is the same as the installation of the single boot, described in chapter 7. **Make sure that the hand slide (17) is directed towards the second silo.**

Measure the length of the conveying pipe (9) between the two adapters of the silos and cut the pipe to size.

Push the smooth end of the cut pipe (9) into the pipe union of the intermediate flange (11) and the pipe end with the sleeve onto the pipe union of the boot tandem (13).

Please make sure that a pipe clamp is pushed onto each end of the pipe beforehand.

Fasten both ends of the conveying pipe with the pipe clamps (8).

Measure the required length of the conveying auger (10) and cut it to size. Push the conveying auger into the conveying pipe (9) starting at the tadem drive (12).

	**Note regarding the required length of the conveying auger:** The distance between the end of the tension shaft (14) mounted at the tandem auger boot (13) and the inside of the intermediate flange (11) will be measured.

Push the conveying auger (10) onto the tension shaft (14) and the tube for tension shaft (7) at the tandem drive.

Fasten the conveying auger to the tension shaft (14) and the pipe for tension shaft (7) by means of a hooked bolt (1) and a self-locking counter nut (2).

Put the tension shaft (14) onto the shaft of the drive (12) using a key (6).

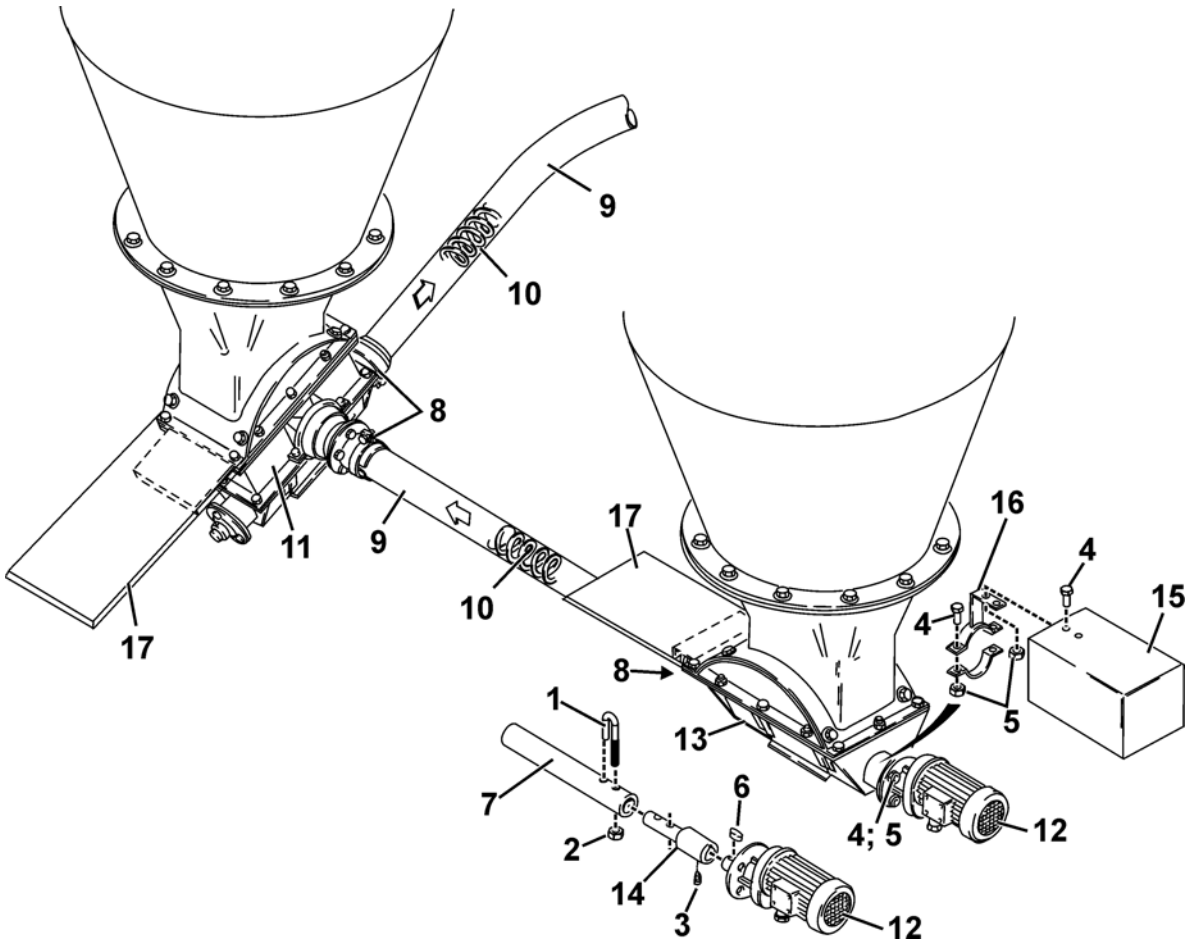
Screw the drive (12) by means of hexagon head screws M 8x20 (4) and hexagon nuts M8 (5) to the adapter of the tandem boot (13).

Screw the clamp for cap (16) using hexagon heads screws M 8x20 (4) and hexagon nuts M8 (5) to the pipe of the adapter.

Screw the protection cap for drive (15) using hexagon head screws M 8x20 (4) and hexagon nuts M8 (5) to the clip (16).

Pos.	Qty.	Code no.	Description
1	1		Hooked bolt
2	1	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv
3		99-10-3911	Hex socket set screw 6x 8 DIN 914-45H
4		99-10-1038	Hexagon head screw M 8x 20 galv. DIN 933
5		99-10-1040	Hexagon nut M 8 galv. DIN 934-8
6	1	99-50-3801	Key 6x6x25 DIN6885
7	1	25-01-3024	Pipe for tension shaft 70
	1		Pipe for tension shaft 90
	1	81-22-0771	Pipe for tension shaft 125
8		99-50-0475	Clamp f/pipe Flex-Vey 75
		99-50-0476	Clamp f/pipe Flex-Vey 90
		99-50-0477	Clamp f/pipe Flex-Vey 125
9		s. chapt 21.4	Conveying pipe
10		25-57-1701	Auger open core 60x60x36,5x4,3 right Flex-Vey 75/US
		25-57-1602	Auger open core 60x40x36,5x4,3 rh Flex-Vey 75/Tandem
		25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90
		25-62-1701	Auger open core100x70x72x5,0 right Flex-Vey125/US
11	1	25-60-3098	Intermediate flange w/lateral outlet dia 75
	1	25-61-3098	Intermediate flange w/lateral outlet dia 90
	1		Intermediate flange w/lateral ball headed outlet
12	1	25-60-3080	Drive 0,55KW Tandem 75 with pivot and tension shaft
	1	25-61-3080	Drive 0,55KW Tandem 75 with pivot and tension shaft
13	1	83-04-1320	Lower part for silo boot M75/100 tandem
	1	83-04-1322	Lower part for silo boot M90/100 tandem
14	1		Tension shaft for auger 70 Tandem
	1		Tension shaft for auger 90 Tandem
15	1	81-04-9101	Protection cap for drive Flex Vey
16	1	81-04-9102	Clamp for cap for Flex Vey
17	2	25-16-3625	Cover plate galv for hand slide

Position Numbers: see picture on following page



Piece numbers: see foregoing page

16 Electric control of the Flex-Vey System

16.1 Available control units

16.1.1 Standard control units

Pos.	Qty.	Code no.	Description
1	1	91-00-3625	Control box Flex-Vey 0,55/0,75KW
2	1	91-00-3626	Control box Tandem- 0,75/0,55KW

16.1.2 ECO control units

Pos.	Qty.	Code no.	Description
1	1	91-00-3640	Control-box ECO - Flex-Vey 0,75KW 230/400V 3Ph 1,80-2,60A 50/60Hz
2	1	91-00-3641	Control-box ECO - Flex-Vey 0,75KW 230V 1Ph 5,50-8,00A 50/60Hz
3	1	91-00-3642	Control-box ECO - Flex-Vey 0,75KW 200V 3Ph 3,70-5,50A 50/60Hz
4	1	91-00-3650	Control-box ECO - Flex-Vey 1,50KW 230/400V 3Ph 2,60-3,70A 50/60Hz
5	1	91-00-3651	Control-box ECO - Flex-Vey 1,50KW 230/400V 3Ph 2,60-3,70A 50/60Hz
6	1	91-00-3652	Control-box ECO - Flex-Vey1,50KW 200V 3Ph 5,50-8,0A 50/60Hz

Note:

In the case of the ECO control boxes there is no pre-wiring on the clamps. The cables of the motor, the sensors and the time clock have to be directly connected by an authorized person.

A limit of running time is not integrated!

Function of control box:

1. Single filling (ON/OFF switch is pushed)

a) Start by means of a switch

- Single starting of the system, switching-off is made by MS45

b) Start by means of a time clock

- Automatic starting by means of a time clock, switching off is made by MS45
- The set time of the time clock must be shorter than the running time of the Flex-Vey

c) An additional switching off by means of the "empty" signalling sensor

2. Permanent filling (ON/OFF switch is locked)

a) Start by means of a switch

- Switching on/off is made by means of MS45

b) Start by means of a time clock

- With the time clock switched on the switching on/off is made by means of MS45

c) An additional switching off by means of the "empty" signalling sensor is possible

16.2 Examples regarding possible types of electric control boxes of the Flex-Vey feed conveying system

Important:

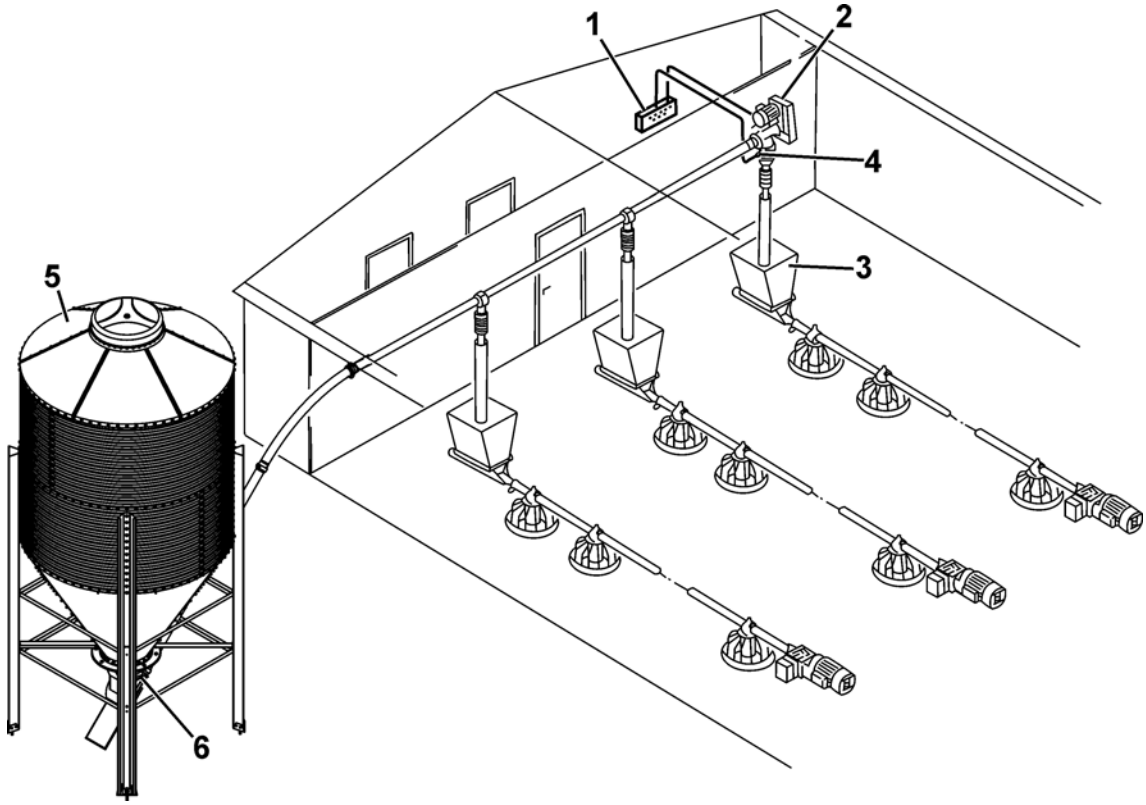
The connection to the electric control of the drive unit, the electric motors and the sensors must be carried out by an authorised specialist.Earthing or a protective circuit must be carried out carefully at site according to the respectively valid regulations for electrical installations. The connections for the earth conductor must by arranged easily accessible. When working at electrical installations, the safety regulations must be observed. Please check if the data of the protective motor switch correspond to the data indicated on the motor housing. The threaded terminal ends and clamped connections must be checked for perfect contact making before setting into operation.

Direction of rotation of the auger:

In order to check the direction of rotation of the auger, place yourself behind the drive so that you can look to the silo. If you have, for example, a right-handed auger and the motor turns clockwise, the direction of rotation of the auger is correct.

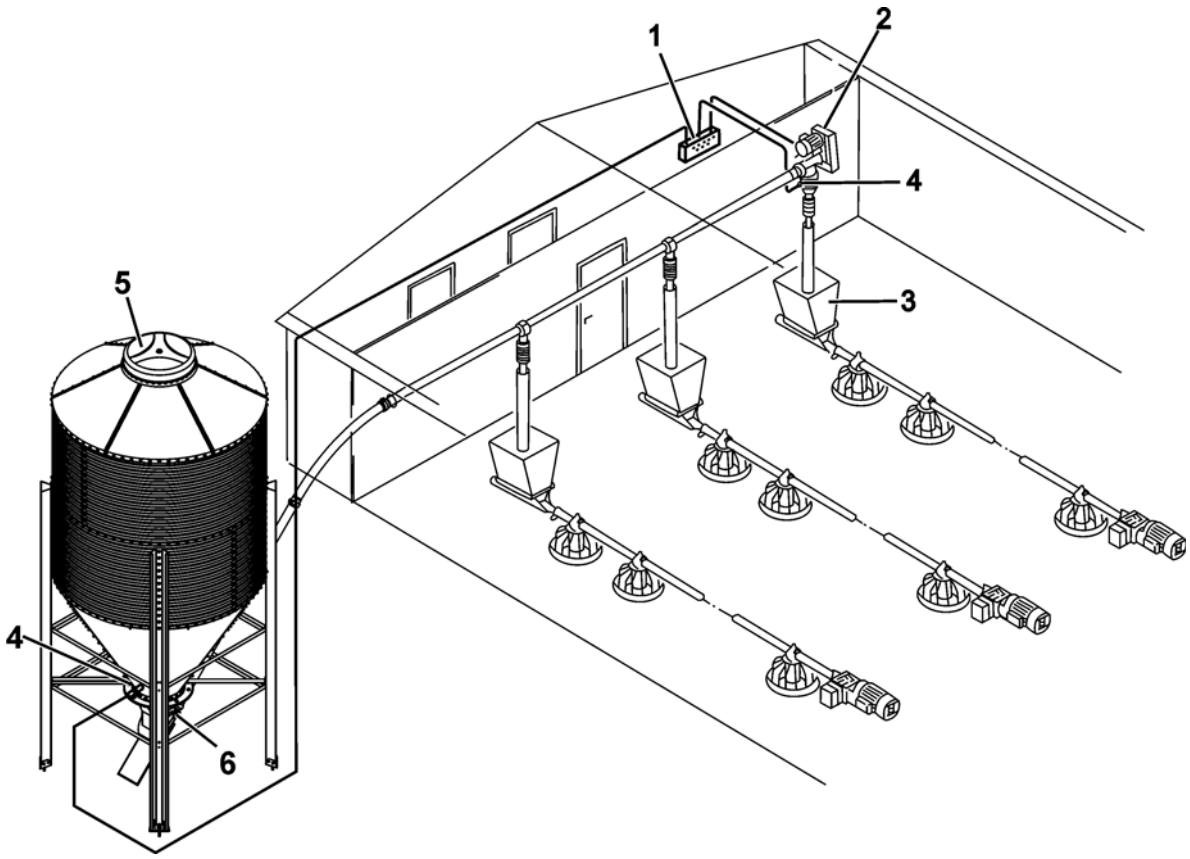
16.2.1 Control drive unit Flex-Vey auger

1=	Control for drive unit	**6=**	Boot with slide shut-off
2=	Drive Flex-Vey	**7=**	Intermediate flange with lateral outlet
3=	Feed container	**8=**	Boot for tandem auger
4=	Sensor with screw union	**9=**	Tandem drive
5=	Silo		



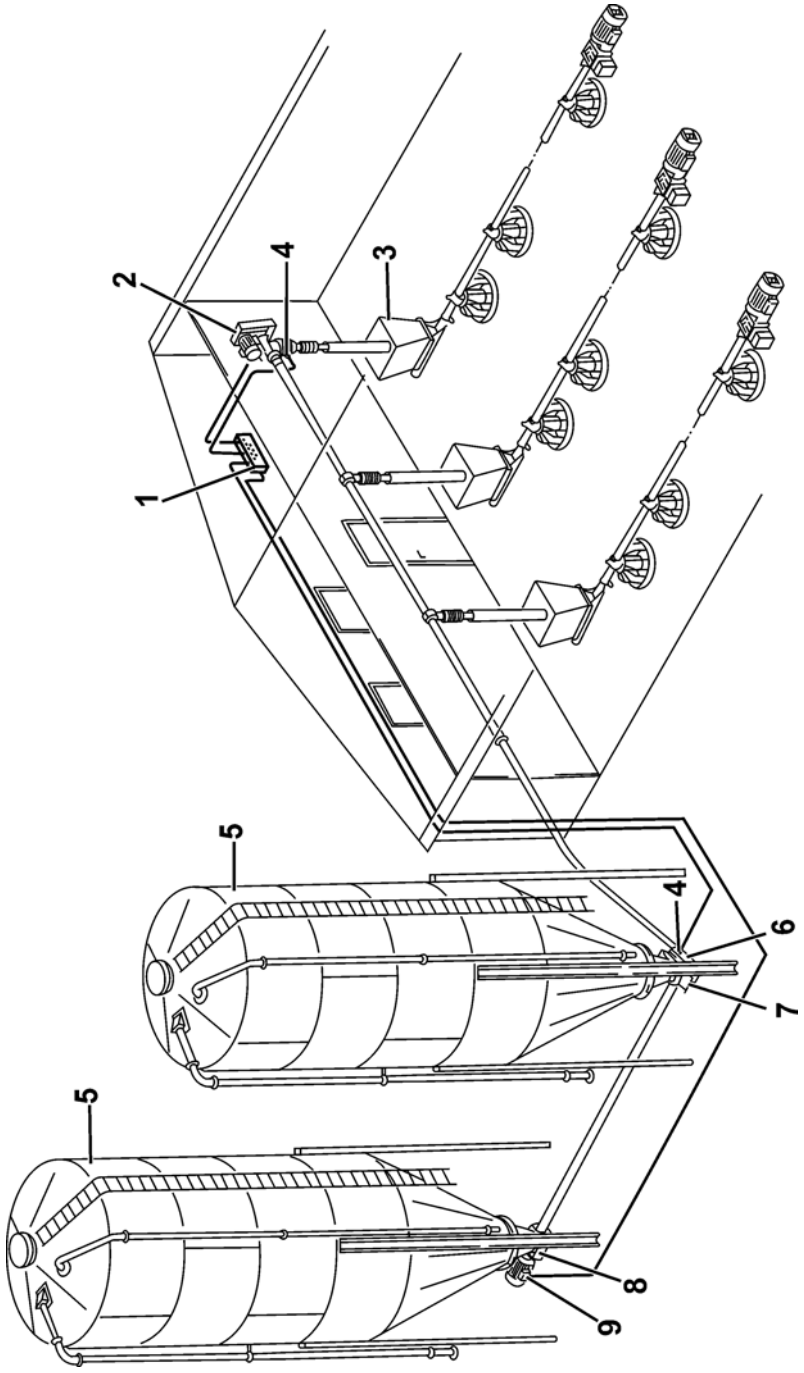
16.2.2 Control drive unit Flex-Vey-auger with the "empty" signalling sensor at the silo

1=	Control for drive unit	**6=**	Boot with slide shut-off
2=	Drive Flex-Vey	**7=**	Intermediate flange with lateral outlet
3=	Feed container	**8=**	Boot for tandem auger
4=	Sensor with screw union	**9=**	Tandem drive
5=	Silo		



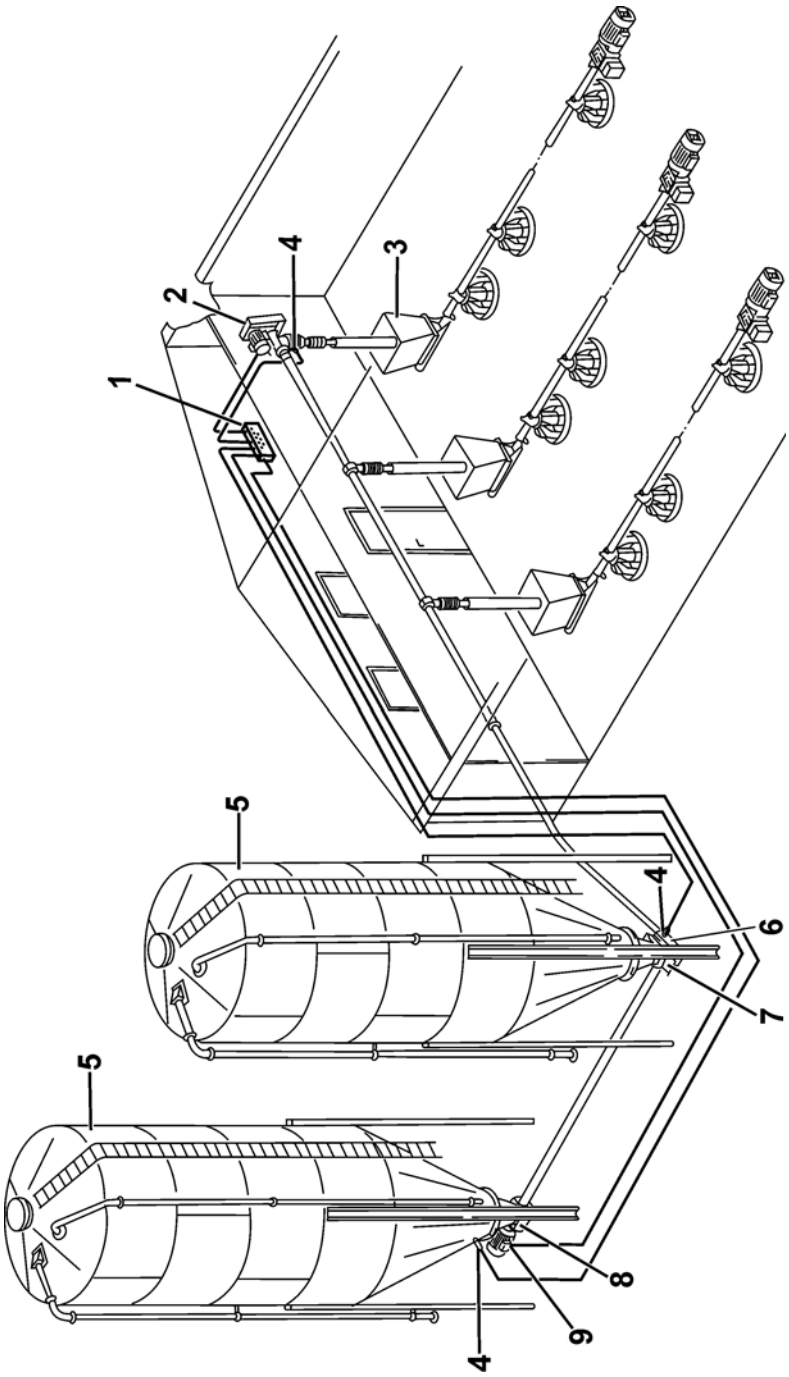
16.2.3 Control drive unit Flex-Vey Tandem Auger with the "empty" signalling sensor at one silo

1=	Control for drive unit	**6=**	Boot with slide shut-off
2=	Drive Flex-Vey	**7=**	Intermediate flange with lateral outlet
3=	Feed container	**8=**	Boot for tandem auger
4=	Sensor with screw union	**9=**	Tandem drive
5=	Silo		



16.2.4 Control drive unit Flex-Vey Tandem Auger with the "empty" signalling sensor at both silos

1=	Control for drive unit	**6=**	Boot with slide shut-off
2=	Drive Flex-Vey	**7=**	Intermediate flange with lateral outlet
3=	Feed container	**8=**	Boot for tandem auger
4=	Sensor with screw union	**9=**	Tandem drive
5=	Silo		



17 Operating Instructions

Important:

Completely remove the feed from the conveying system **before** a longer standstill period.

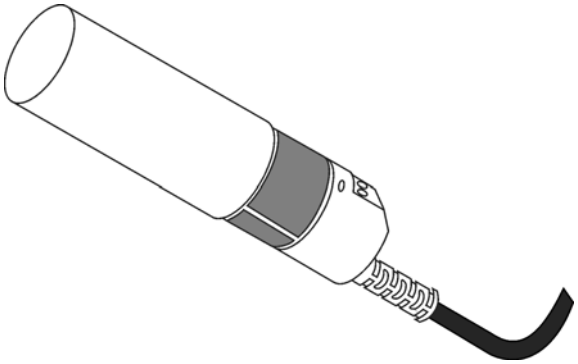
- Never run the feed conveying system without feed in the line.
- Use an "empty" signalling switch (sensor with union) for silos in the feed conveying system. This switch will stop the drive when the silo is empty.
- In the case of meal feeding, fully open the slide shut-off when the feed conveying system is running.
- In case of pellet feeding, adjust the feed supply by the slide-shut off, when the feed conveying system is running.
- When using feed with high moisture contents, clean the feed conveying system after each filling.
- New installed feed conveying systems must run in with maximum feed flow. The slide shut-off must be fully open.

18 Description and Operation of the Sensors MS45R

Sensor MS 45R is a capacitive sensor for solid matters in the range of grain and feed.

Sensor MS 45R has an integrated relay switch as well as adjustable time delay and sensitivity.

An electrical terminal connecting plan is appended to every sensor.



Sensor MS45R

Colour of LED	**Parameter**
green	sensitivity
red	time-delay
yellow	switch OFF/ON
black	set-up finished

Description of sensor MS45R

Product Description:

The MS 40R series is generally applicable capacitive sensors for usage in connection with solid and loose materials. The sensors have a relay output with a switch function.

Field of Application:
- Level control in silos and containers
- Control of filling and emptying

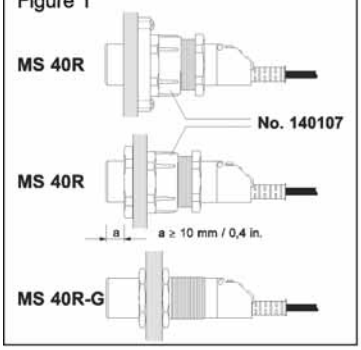
Mounting Guide (fig. 1):

The MS 40R series should be installed so at least 10 mm of the sensor contact point is free.

The MS 40R series in a smooth design is mounted efficiently in a special gland, additional accessory item number 140107.

The MS 40R-G series with M30 thread is mounted in a ø30 mm hole and is tightened with a locknut.

Figure 1



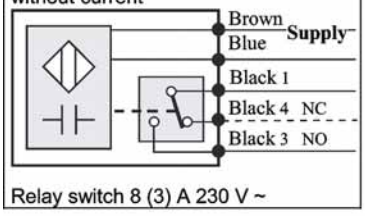
Installation Guide (fig. 2):

The power supply 90 V – 250 V AC is connected to the blue and brown wire. The load is connected in series with the relay contact of the sensor.

STOP by activating the sensor: use the black wires 1 and 3.
START by activating the sensor: use the black wires 1 and 4.

NOTICE! The internal relay is pulled when the power supply is connected and the sensor is not activated.

Figure 2: Activated sensor or sensor without current



User's Guide (fig. 3):

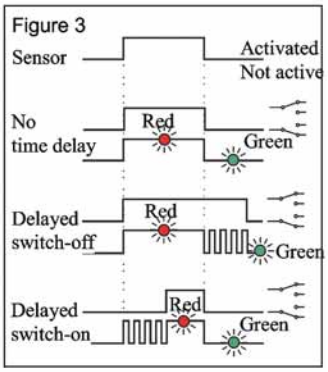
MS 41R has *no* time delay.

MS 43R has an option for delayed *switch-off* . When the activation stops, the time delay begins (red flash), and when this delay has run out, the relay switches back.

Besides the two options above the **MS 45R** can also be set for delayed *switch-on* (green flash). The time delay will start immediately when the sensor is activated. When the delay period runs out, the relay will switch. It does not switch back until the activation stops.

	Sensitivity	Off delay Delayed switch-off	On delay Delayed switch-on
41R	•		
43R	•	•	
45R	•	•	•

Figure 3



Technical Data:

Power supply:

High voltage model: 90 – 250 V 50 - 60 Hz

Item no. 100654

Low voltage model: 10 – 30 V AC/DC

Item no. 100655

Relay switch max. AC:

1.1 kVA at cos φ = 1
1.0 kVA at cos φ = 0.8
0.7 kVA at cos φ = 0.4

Temp. range: - 20 °C - + 70 °C
- 4 °F- +158 °F

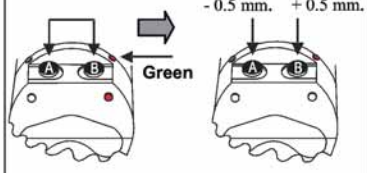
For USA and Canada: Max. 40 °C

Max. delay: 4 hours

1. Start Ajustment

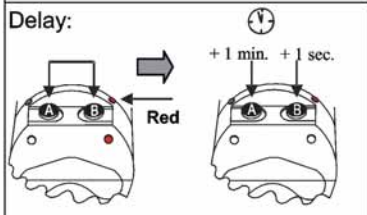
Press A and B simultaneously

Sensitivity:



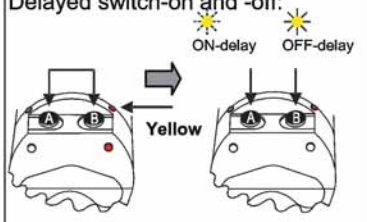
MS 41R: Adjustment completed

Delay:



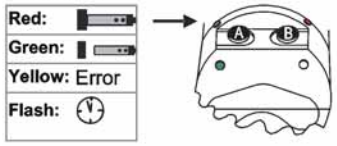
MS 43R: Adjustment completed

Delayed switch-on and -off:



MS 45R: Adjustment completed

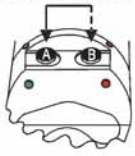
2. Status



3. Setting of Special Functions

Press A. Retain pressing.

Same procedure for B.



Reset	A + B (15 sec.)
Show delay	A + 2xB Red=1 min. Yellow=1 sec.
Adjust delay	A + 4xB (+10 sec.) A + 5xB (+5 sec.) A + 6xB (+1 h.)
Switch-off delay	A + 7xB
Switch off LED	A + 8xB
Switch on LED	A + 9xB

Adjustment of the time-delay mechanism of sensor MS 45R:

	Sensor MS 45R has an adjustable time-delay of 0-240 minutes.

The standard time-delay of sensor MS 45R, set by the manufacturer, is 30 seconds. We recommend, NOT to shorten the set time-delay. The duration of the time-delay can be activated by pushing and releasing buttons A and B simultaneously. The mode indicator has to be red. Each time button A is pushed, the time-delay is increased by 1 minute, each time button B is pushed, the time-delay is increased by 1 second.

Example: A time delay of 10 min and 5 sec means, that button A has to be pushed 10 times and button B 5 times.

Adjustment of the sensitivity of sensor MS 45R:

	The sensors' distinct reactivity ensures that varying moistness of the feed changes the set-time. For the adjustment, the feed should be as dry as possible. The drier the feed, the more secure the switching function of the sensor MS 45R.

The sensitivity can be activated by pushing and releasing buttons A and B simultaneously. The mode indicator has to be green. When pushing button A the sensitivity is decreased, when pushing button B it is increased.

If the sensor MS 45R does not interrupt the current supply to the drive, the sensitivity has to be **increased**.

If the Sensor MS 45R does not react and the motor of the drive does not start, the sensibility has to be **reduced**.

	For detailed information regarding the use of the sensor MS 45R see also the documentation attached to the sensor!

Reset to factory settings:

To reset to manufacturer's settings (30 seconds), buttons A and B have to be pushed simultaneously for at least 15 seconds.

19 Maintenance Instructions

Attention!

Turn off the power supply before carrying out any work at the system and mark the switch with a note reading: "Do not put into operation!"

Observe the manual!

Maintenance:

- **= daily or during operation**
- **= after each use**
- **= weekly**
- **= monthly**
- **= after each batch**

Big Dutchman

Code No. 00-00-2030 GB

Notes regarding the cleaning:

- **Clean the systems thoroughly (wet or dry)!**
- **During the cleaning process, all electric appliances such as motors and switch boxes etc. have to be protected against direct splash water!**
- **Attention: Cleaning agents and disinfectants may cause corrosion! Make sure to check the selection of agents in this regard and observe the corresponding recommendations for dosing!**
- **In order to minimize corrosion, the drying should be accelerated by maximum ventilation after wet cleaning!**

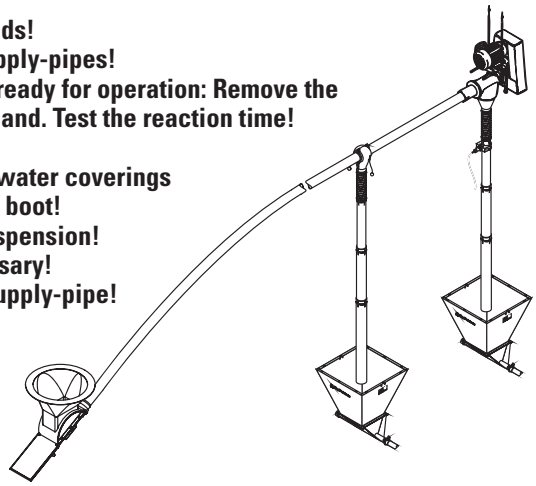
Big Dutchman

Code No. 00-00-2002 GB

Feed supply (conveying auger/FlexVey):

- Check conveying pipes and bends!
- Check the functioning of the supply-pipes!
- Check whether all sensors are ready for operation: Remove the sensors and hold them in your hand. Test the reaction time!

- Check screw connections, rainwater coverings and tension shaft bearing of the boot!
- Check the functioning of the suspension!
- Clean the boot outside, if necessary!
- Check the flexible tube at the supply-pipe!

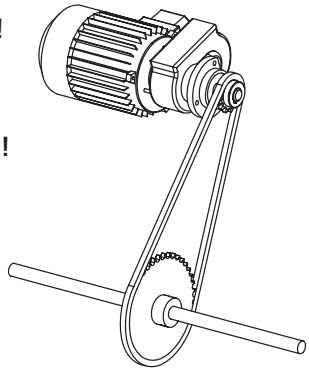


Big Dutchman
Code No. 00-00-2018 GB

Drives:

- Lubricate all roller chains and wheels in the drive unit with a brush (oil SAE 90)!
- Clean the cooling webs and ventilator cowls of the motor in order to avoid overheating!
- Check pre-tension of the roller chains and re-tension, if necessary!
- Check pre-tension of V-belt and locking pin, if necessary!
- Gear motors: visual check for leakage!

- Check roller chains and tightener for wear!
- Protect the motors against splash water when cleaning!
- After wet cleaning: Lubricate chain drive immediately!



Big Dutchman
Code No. 00-00-2023 GB

20 Troubles and their Remedies

Trouble	Possible causes	Remedy
Feed conveying systemfails to run	Motor defective	Replace motor
	Motor overloaded; stalls	Check for foreign material in the feed
	"Empty" signalling switch stops the system because there is not feed	Check feed supply, remove possible obstructions
	Power failure	Check circuits, fuses, etc.
Motor overloaded afterrunning briefly	Too low voltage (motor runs too slowly and overheats)	Check the voltage at motor (Check size of cable and change, if necessary)
	Motor defective	Replace motor
	Wrong wiring of motor (no feed transport)	Check direction of rotation of motor and change poles, if necessary
	Foreign object in the auger	Check auger and remove foreign object
Auger runs erratically and untrue	Ball bearing is dry, weared out or got stuck	Grease or replace ball bearing
	Auger too long	Shorten auger, check auger length afterwards
	Wrong suspension (kinks in pipes, too many bends)	Provide for more suspension points; readjust suspension; use less bends.
	Kinked or poorly welded auger	Adjust auger, if required replace the defective part. Weld auger according to specifications
Motor run is normal, but auger does not turn	Defective auger tensioning device (e.g. hooked bolt is broken)	Check auger tension device and replace it, if necessary
	If system is driven with electric motor: V-belt too slack or weared out)	Tension or replace Vbelt
Bend is weared out	Auger too long (wear at the outside of the bend)	Replace bend and shorten auger
	Auger too short (wear at the inside of the bend)	Replace bend and extend auger

Trouble	Possible causes	Remedy
Straight conveying pipe is weared out	Auger is kinked	Replace kinked auger part and replace and repair respectively the conveying pipe
Feed conveying system is repeatedly switched on and off	"Empty" signalling switch is wrongly installed	Displace "empty" signalling switch

20.1 Procedure when repairing the conveying pipes

Note:

In case of repairs or for other reasons it may become necessary to cut in two a conveying pipe.

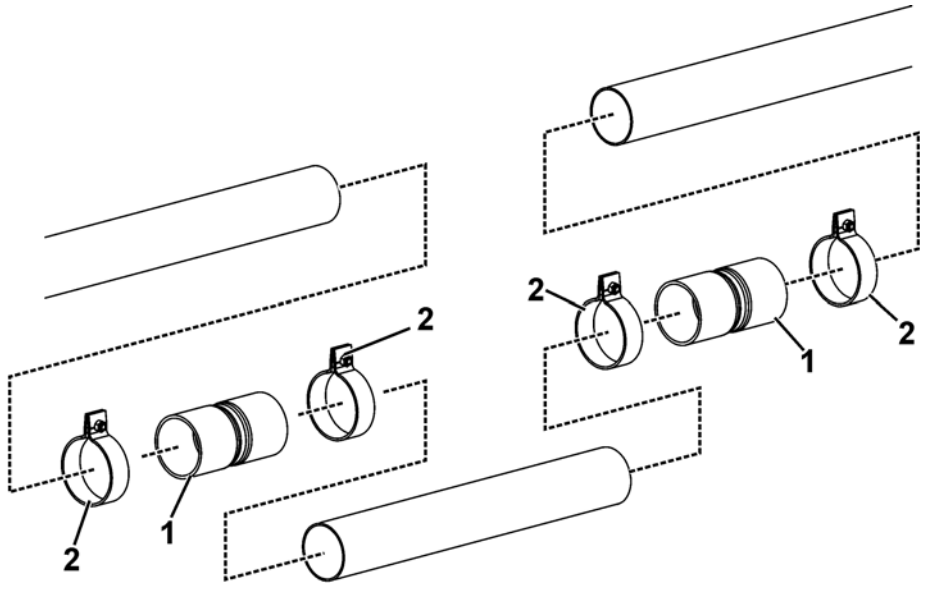
A repair with replacing the total conveying pipe is necessary.

Important:

When cutting in two the conveying pipes please see to a clean, rectangular cut.

Remove the conveying auger before you start repairs.

1. Cut the piece of conveying pipe which is defective or which has to be replaced out of the line.
2. Insert a new piece of conveying pipe cut to size and connect each cut surface with a coupler (1). Fasten the couplers with clamps for pipe (2).
3. Re-insert the conveying auger.



position numbers see the following page

Flex Vey 60

Pos.	Qty.	Code no.	Description
	1	25-62-3090	Coupling for pipe Flex-Vey 60
			Comprised of:
1	1	25-63-3012	Coupling PVC for conveying pipe Flex-Vey 60
2	2	99-50-0474	Pipe clamp Flex-Vey 60

Flex Vey 75

Pos.	Qty.	Code no.	Description
	1	25-57-1110	Coupler for pipe Flex-Vey 75
			consisting of:
1	1	25-57-1112	Coupler PVC for conveying pipe Flex-Vey 75
2	2	99-50-0475	Clamp for pipe Flex-Vey 75

Flex Vey 90

Pos.	Qty.	Code no.	Description
	1	25-59-1110	Coupler for pipe Flex-Vey 90
			consisting of:
1	1	25-59-1112	Coupler PVC for conveying pipe Flex-Vey 90
2	2	99-50-0476	Clamp for pipe Flex-Vey 90

Flex-Vey 125

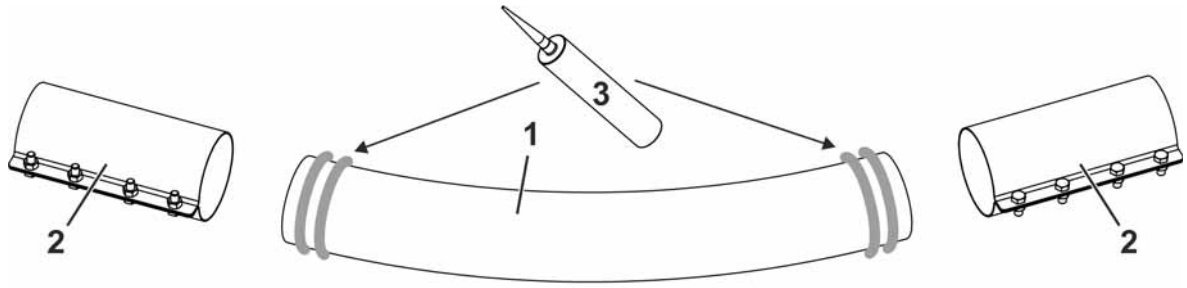
Pos.	Qty.	Code no.	Description
	1	25-62-1110	Coupler for pipe Flex-Vey 125
			consisting of:
1	1	25-61-3011	Coupler PVC for conveying pipe Flex-Vey 125
2	2	99-50-0477	Clamp f/pipe Flex-Vey125

20.2 Repair bend unit galvanised 45°

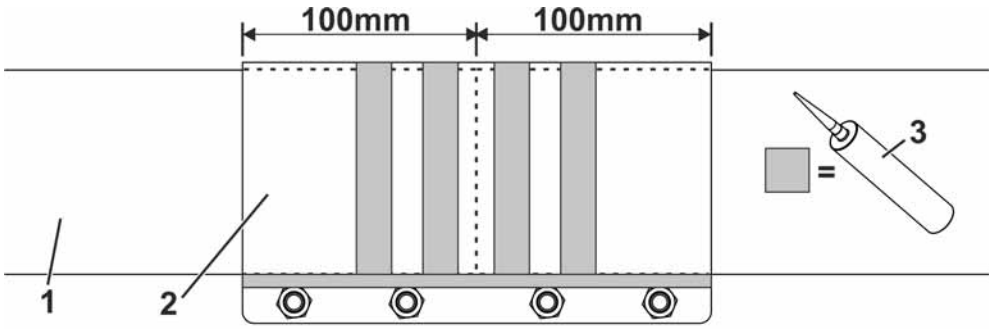
The repair bend can be exchanged 1 for 1 with the standard bend and is used if a plastic bend is replaced due to extreme wear and tear through overload.

Important

When assembling the pipe coupling, ensure that both pipe ends are assembled seamlessly and the pipe coupling is secured centrally on both pipe ends. **The entire connection area must be completely watertight.** Silicon should be used for this purpose. **The join in the pipe connection (with the screws) must be directed downwards.**



Assembly:



Pos.	Qty.	Code no.	Description
	1	**25-57-1061**	**Repair bend unit galvanised 45° Flex-Vey 75**
1	1	25-57-1060	Repair bend 45° galvanised Flex-Vey 75
2	2	25-57-1117	Pipe coupling galv. for conveying pipe Flex-Vey 75
3	1	83-00-2730	PUR silicon grey Sikaflex / 300ml cartridge

Pos.	Qty.	Code no.	Description
	1	**25-59-1061**	**Repair bend unit galvanised 45° Flex-Vey 90**
1	1	25-59-1060	Repair bend 45° galvanised Flex-Vey 90
2	2	25-57-1118	Pipe coupling galv. for conveying pipe Flex-Vey 90
3	1	83-00-2730	PUR silicon grey Sikaflex / 300ml cartridge

21 Spare parts

21.1 Drive units and acccessories for drive unit

21.1.1 Drive unit with V-belt drive

21.1.1.1 Flex-Vey 75

Pos.	Qty.	Code no.	Description
		25-60-3005	**Drive unit Flex-Vey 75 0.75 kW 0-60 m V-belt drive**
			consisting of:
1	1	90-00-1507	Electric motor 0.75KW 230/400 50/60 1500/1800r B3
2	1	25-16-3033	Tension ring 150 galv with sealing ring 1mm
3	1	25-01-3021	Tension shaft with bearing cpl M75
4	1	25-60-3055	Drive without motor Flex-Vey 75 for 0.75 kW
5	2	99-50-0475	Clamp f/pipe Flex-Vey 75
6	4	99-50-0005	S-hook 2" no. 60/6x55
7	2m	99-50-0003	Ship chain galv 5mm DIN 766
8	2	99-10-1563	Lifting eye bolt M8x25 galv
9	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
10	1	99-50-3810	Silicone transparent 310ml
11	1	83-00-5791	Reducing bush 150x75 galv
12	1	25-57-1110	Coupler for pipe Flex-Vey 75

21.1.1.2 Flex-Vey 90

Pos.	Qty.	Code no.	Description
		25-61-3005	**Drive unit Flex-Vey 90 0.75 kW 0-30m V-belt drive**
			consisting of:
1	1	90-00-1507	Electric motor 0.75KW 230/400 50/60 1500/1800r B3
2	1	25-16-3033	Tension ring 150 galv with sealing ring 1mm
3	1	25-59-3021	Tension shaft with bearing cpl M90
4	1	25-61-3055	Drive without motor Flex-Vey 90 for 0.75 kW
5	2	99-50-0476	Clamp f/pipe Flex-Vey 90
6	4	99-50-0005	S-hook 2" no. 60/6x55
7	2m	99-50-0003	Ship chain galv 5mm DIN 766
8	2	99-10-1563	Lifting eye bolt M8x25 galv
9	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
10	1	99-50-3810	Silicone transparent 310ml
11	1	83-00-5792	Reducing bush 150x90 galv
12	1	25-59-1110	Coupler for pipe Flex-Vey 90

21.1.1.3 Flex-Vey 90HS (High Speed)

Pos.	Qty.	Code no.	Description
	1	**25-61-3120**	**Drive unit Flex-Vey 90 HS 1.5kW (3Ph 50Hz) 0-40m V-belt drive**
1	1	90-00-1533	E-motor 1.50KW 230/400 50/60 1500/1800U B3
2	1	25-16-3033	Tension ring D150 galv. with seal 1mm
3	1	25-59-3021	Shaft axle with end position compl. M90
4	1	25-61-3101	Drive without motor FV 90 HS for 1.5KW 50Hz with V-belt 80/160 and V-belt pulleys
5	2	99-50-0476	Pipe clamp Flex-Vey 90
6	4	99-50-0005	S-hook 2" No. 60/6x55
7	2 M	99-50-0003	Ship chain galv. 5mm DIN 766
8	2	99-10-1563	Eyebolt M8 x 25 galv
9	2	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
10	1	99-50-3810	Transparent silicon / 310ml cartridge
11	1	83-00-5792	Red piece 150 x 90 galv.
12	1	25-59-1110	Coupling for pipe Flex-Vey 90

Pos.	Qty.	Code no.	Description
	1	**25-61-3115**	**Drive unit Flex-Vey 90 HS 1.5kW (3Ph 60Hz) 0-40m V-belt drive**
1	1	90-00-1533	E-motor 1.50KW 230/400 50/60 1500/1800U B3
2	1	25-16-3033	Tension ring D150 galv. with seal 1mm
3	1	25-59-3021	Shaft axle with end position compl. M90
4	1	25-61-3102	Drive without motor FV 90 HS for 1.5KW 60Hz with V-belt 70/150 and V-belt pulleys
5	2	99-50-0476	Pipe clamp Flex-Vey 90
6	4	99-50-0005	S-hook 2" No. 60/6x55
7	2 M	99-50-0003	Ship chain galv. 5mm DIN 766
8	2	99-10-1563	Eyebolt M8 x 25 galv
9	2	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
10	1	99-50-3810	Transparent silicon / 310ml cartridge
11	1	83-00-5792	Red piece 150 x 90 galv.
12	1	25-59-1110	Coupling for pipe Flex-Vey 90

Pos.	Qty.	Code no.	Description
	1	**25-61-3110**	**Drive unit Flex-Vey 90 HS 2.2kW (1Ph 50Hz) 0-40m V-belt drive**
1	1	90-00-3859	E-motor 2.20KW 230/400 50/60 1500/1800U B3
2	1	25-16-3033	Tension ring D150 galv. with seal 1mm
3	1	25-59-3021	Shaft axle with end position compl. M90
4	1	25-61-3103	Drive without motor FV 90 HS for 2.2KW 50Hz with V-belt 80/160 and V-belt pulleys
5	2	99-50-0476	Pipe clamp Flex-Vey 90
6	4	99-50-0005	S-hook 2" No. 60/6x55
7	2 M	99-50-0003	Ship chain galv. 5mm DIN 766
8	2	99-10-1563	Eyebolt M8 x 25 galv
9	2	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
10	1	99-50-3810	Transparent silicon / 310ml cartridge
11	1	83-00-5792	Red piece 150 x 90 galv.
12	1	25-59-1110	Coupling for pipe Flex-Vey 90

Pos.	Qty.	Code no.	Description
	1	**25-61-3105**	**Drive unit Flex-Vey 90 HS 2.2kW (1Ph 60Hz) 0-40m V-belt drive**
1	1	90-00-3859	E-motor 2.20KW 230/400 50/60 1500/1800U B3
2	1	25-16-3033	Tension ring D150 galv. with seal 1mm
3	1	25-59-3021	Shaft axle with end position compl. M90
4	1	25-61-3104	Drive without motor FV 90 HS for 2.2KW 60Hz with V-belt 70/150 and V-belt pulleys
5	2	99-50-0476	Pipe clamp Flex-Vey 90
6	4	99-50-0005	S-hook 2" No. 60/6x55
7	2 M	99-50-0003	Ship chain galv. 5mm DIN 766
8	2	99-10-1563	Eyebolt M8 x 25 galv
9	2	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
10	1	99-50-3810	Transparent silicon / 310ml cartridge
11	1	83-00-5792	Red piece 150 x 90 galv.
12	1	25-59-1110	Coupling for pipe Flex-Vey 90

21.1.1.4 Flex-Vey 125

Pos.	Qty.	Code no.	Description
		25-62-3005	**Drive unit Flex-Vey 125 1.10kW 0-25m V-belt drive**
			consisting of:
1	1	90-00-1508	Electric motor 1.10KW 230/400 50/60 1500/1800r B3
2	1	25-16-3033	Tension ring 150 galv with sealing ring 1mm
3	1	25-62-3021	Tension shaft with bearing cpl M125
4	1	25-62-3055	Drive without motor Flex-Vey 125 for 1.10 kW
5	2	99-50-0477	Clamp f/pipe Flex-Vey125
6	4	99-50-0005	S-hook 2" no. 60/6x55
7	2m	99-50-0003	Ship chain galv 5mm DIN 766
8	2	99-10-1563	Lifting eye bolt M8x25 galv
9	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
10	1	99-50-3810	Silicone transparent 310ml
11	1	83-06-4310	Reducing bush 150x110 galv for Flex-Vey 125
12	1	25-62-1110	Coupler f/pipe Flex-Vey125

21.1.2 Drives (gear motors)

21.1.2.1 Flex-Vey 60

Pos.	Qty.	Code no.	Description
1	1	25-63-3065	Drive 0.75kW 400V 3PH 50/60Hz YZ Flex Vey 60
2	1	25-63-3067	Drive 0.75kW 200V 3PH 60Hz YZ Flex Vey 60
3	1	25-63-3066	Drive 0.75kW 230V 1PH 60Hz YZ Flex Vey 60

21.1.2.2 Flex-Vey 75

Pos.	Qty.	Code no.	Description
1	1	25-60-3065	Drive 0,75KW 400V 3PH 50Hz Flex-Vey 75
2	1	25-60-3071	Drive 0,75KW 400V 3PH 60Hz Flex-Vey 75
3	1	25-60-3067	Drive 0,75KW 230V 1PH 50Hz Flex-Vey 75
4	1	25-60-3066	Drive 0,75KW 230V 1PH 60Hz Flex-Vey 75
5	1	25-60-3073	Drive 1,10KW 230V 1PH 50Hz Flex-Vey 75
6	1	25-60-3072	Drive 1,10KW 230V 1PH 60Hz Flex-Vey 75

21.1.2.3 Flex-Vey 90

Pos.	Qty.	Code no.	Description
1	1	25-61-3065	Drive 0,75KW 400V 3PH 50Hz Flex-Vey 90
2	1	25-61-3071	Drive 0,75KW 400V 3PH 60Hz Flex-Vey 90
3	1	25-61-3068	Drive 0,75KW 230V 1PH 50Hz Flex-Vey 90
4	1	25-61-3066	Drive 0,75KW 230V 1PH 60Hz Flex-Vey 90
5	1	25-61-3073	Drive 1,10KW 230V 1PH 50Hz Flex-Vey 90
6	1	25-61-3072	Drive 1,10KW 230V 1PH 60Hz Flex-Vey 90

21.1.2.4 Flex-Vey 90HS (High Speed)

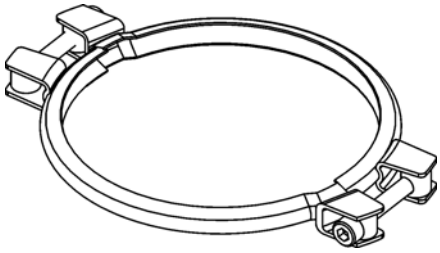
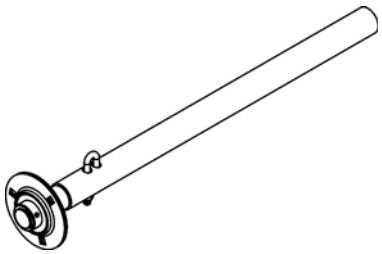
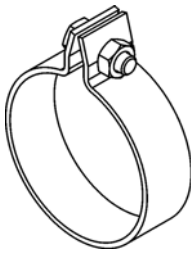
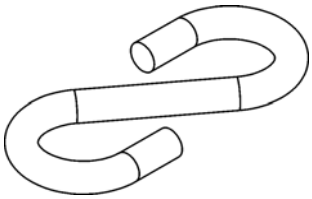
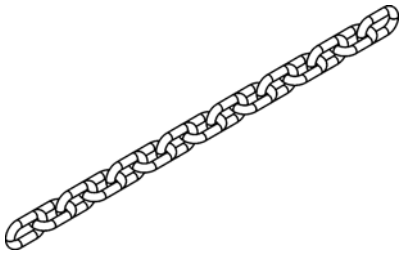
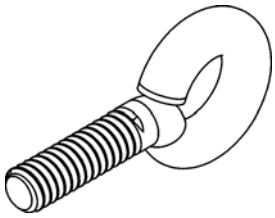
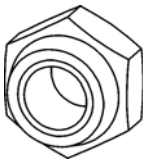
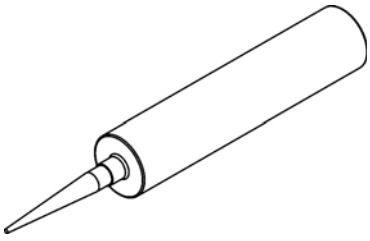
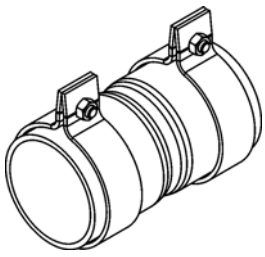
Pos.	Qty.	Code no.	Description
1	1	25-61-3111	Drive 1.50kW 400V 3PH 50Hz YZ Flex Vey 90 HS
2	1	25-61-3112	Drive 1.50kW 400V 3PH 60Hz YZ Flex Vey 90 HS
3	1	25-61-3113	Drive 2.20kW 230V 1PH 50Hz YZ Flex Vey 90 HS
4	1	25-61-3114	Drive 2.20kW 230V 1PH 60Hz YZ Flex Vey 90 HS

21.1.2.5 Flex-Vey 125

Pos.	Qty.	Code no.	Description
1	1	25-62-3065	Drive 1,10KW 400V 3PH 50Hz Flex-Vey 125
2	1	25-62-3071	Drive 1,10KW 400V 3PH 60Hz Flex-Vey 125
3	1	25-62-3068	Drive 1,10KW 230V 1PH 50Hz Flex-Vey 125
4	1	25-62-3066	Drive 1,10KW 230V 1PH 60Hz Flex-Vey 125
5	1	25-62-3073	Drive 1,50KW 230V 1PH 50Hz Flex-Vey 125
6	1	25-62-3072	Drive 1,50KW 230V 1PH 60Hz Flex-Vey 125

21.1.3 Accessories for drives

Exact description of the positions: see chapter 21.1.3.2 to 21.1.3.4

Pos. 1 	**Pos. 2** 
Pos. 3 	**Pos. 4** 
Pos. 5 	**Pos. 6** 
Pos. 7 	**Pos. 8** 
Pos. 9 	**Pos. 10** 

21.1.3.1 Flex-Vey 60

Pos.	Qty.	Code no.	Description
	1	**25-63-3001**	**Accessories for drive Flex-Vey 60**
			Comprised of:
1	1	25-16-3033	Tension ring D150 galv. with seal 1mm
2	1	25-63-3033	Shaft axle 23 with end position compl. M60
3	1	99-50-0481	Pipe clamp for drive Flex-Vey 60
4	4	99-50-0005	S-hook 2" No. 60/6x55
5	2 M	99-50-0003	Ship chain galv. 5mm DIN 766
6	2	99-10-1563	Eyebolt M8 x 25 galv
7	2	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
8	1	99-50-3810	Transparent silicon / 310ml cartridge
9	1	83-01-3526	Red piece 150 x 60 galv.
10	1	25-63-3090	Coupling for pipe Flex-Vey 60
			Comprised of:
10a	1	25-63-3012	Coupling PVC for conveying pipe Flex-Vey 60
10b	2	99-50-0474	Pipe clamp Flex-Vey 60

21.1.3.2 Flex-Vey 75

Pos.	Qty.	Code no.	Description
	1	**25-60-3000**	**Accessories for drive Flex-Vey 75**
			consisting of:
1	1	25-16-3033	Tension ring D150 galv. with sealing ring 1mm
2	1	25-01-3021	Tension shaft cpl. with bearing kplt M75
3	2	99-50-0475	Clamp f/pipe Flex-Vey 75
4	4	99-50-0005	S-hook 2" No. 60/6x55
5	2m	99-50-0003	Ship chain galv. 5mm DIN 766
6	2	99-10-1563	Lifting eye bolt M 8x 25
7	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv
8	1	99-50-3810	Silicone transparent 310ml
9	1	83-00-5791	Reducing bush 150 x 75 galv
10	1	25-57-1110	Coupler for pipe Flex-Vey 75
			consisting of:
10a	1	25-57-1112	Coupler PVC for conveying pipe Flex-Vey 75
10b	2	99-50-0475	Clamp for pipe Flex-Vey 75

21.1.3.3 Flex-Vey 90 and Flex-Vey 90HS

Pos.	Qty.	Code no.	Description
	1	**25-61-3000**	**Accessories for drive Flex-Vey 90**
			consisting of:
1	1	25-16-3033	Tension ring D150 galv. with sealing ring 1mm
2	1	25-59-3021	Tension shaft w/bearing cpl M90
3	2	99-50-0476	Clamp for pipe Flex-Vey 90
4	4	99-50-0005	S-hook 2" No. 60/6x55
5	2m	99-50-0003	Ship chain galv 5mm DIN 766
6	2	99-10-1563	Lifting eye bolt M 8x 25 galv
7	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
8	1	99-50-3810	Silicon transparent 310ml
9	1	83-00-5792	Reducing bush 150 x 90 galv.
10	1	25-59-1110	Coupler for pipe Flex-Vey 90
			consisting of:
10a	1	25-59-1112	Coupler PVC for conveying pipe Flex-Vey 90
10b	2	99-50-0476	Clamp for pipe Flex-Vey 90

21.1.3.4 Flex-Vey 125

Pos.	Qty.	Code no.	Description
	1	**25-62-3000**	**Accessories for drive Flex-Vey 125**
			consisting of:
1	1	25-16-3033	Tension ring D150 galv with gasket 1 mm
2	1	25-62-3021	Tension shaft with bearing cpl M125
3	2	99-50-0477	Clamp f/pipe Flex-Vey125
4	4	99-50-0005	S-hook 2" no. 60/6x55
5	2m	99-50-0003	Ship chain galv 5mm DIN 766
6	2	99-10-1563	Lifting eye bolt M8x25
7	2	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
8	1	99-50-3810	Silicone transparent Silisto-E 310ml
9	1	83-06-4310	Reducing bush 150x110 galv for Flex-Vey 125
10	1	25-62-1110	Coupler for tube Flex-Vey 125
			consisting of:
10a	1	25-61-3011	Coupler PVC for conveying tube Flex-Vey 125
10b	2	99-50-0477	Clamp f/pipe Flex-Vey125

Available as option:

Pos.	Qty.	Code no.	Description
3	2	99-50-0477	Clamp for pipe Flex-Vey 125
10	1	25-61-3011	Coupler PVC for conveying pipe Flex-Vey 125

21.2 Control units

21.2.1 Standard control units

Pos.	Qty.	Code no.	Description
1	1	91-00-3625	Control-box Flex-Vey 0,55/0,75KW
2	1	91-00-3626	Control-box Tandem- 0,75/0,55KW

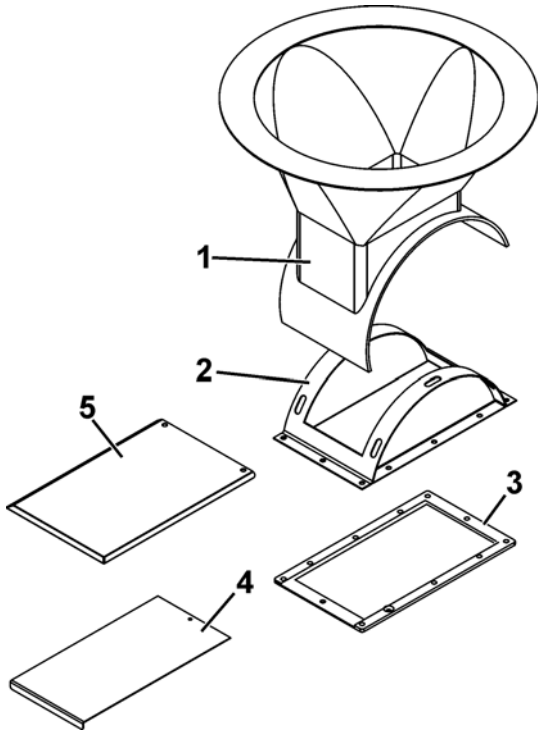
21.2.2 ECO control units

Pos.	Qty.	Code no.	Description
1	1	91-00-3640	Control-box ECO - Flex-Vey 0,75KW 230/400V 3Ph 1,80-2,60A 50/60Hz
2	1	91-00-3641	Control-box ECO - Flex-Vey 0,75KW 230V 1Ph 5,50-8,00A 50/60Hz
3	1	91-00-3642	Control-box ECO - Flex-Vey 0,75KW 200V 3Ph 3,70-5,50A 50/60Hz
4	1	91-00-3650	Control-box ECO - Flex-Vey 1,50KW 230/400V 3Ph 2,60-3,70A 50/60Hz
5	1	91-00-3651	Control-box ECO - Flex-Vey 1,50KW 230V 1Ph 12,0-16,0A 50/60Hz
6	1	91-00-3652	Control-box ECO - Flex-Vey 1,50KW 200V 3Ph 5,50-8,0A 50/60Hz

21.3 Boots under silo

21.3.1 Basic boots

Exact description of the positions: see this page and the following

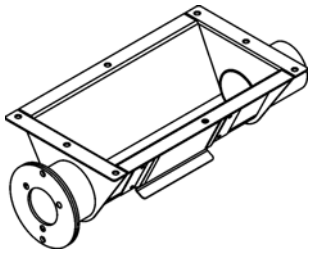
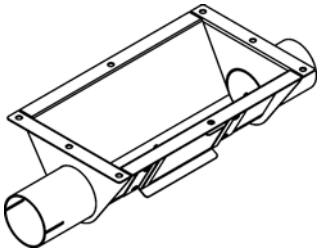
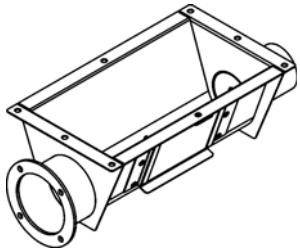
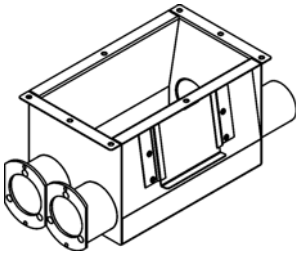
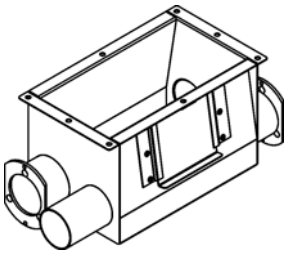
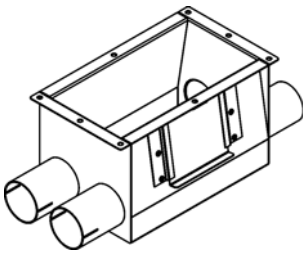
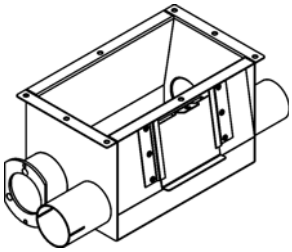
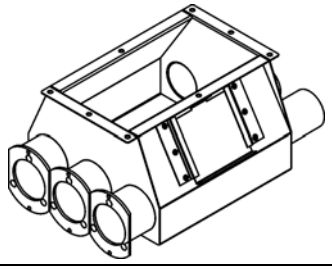
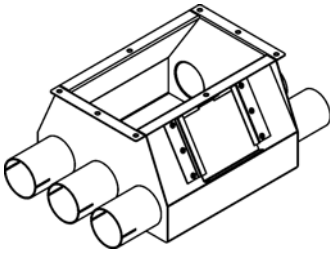
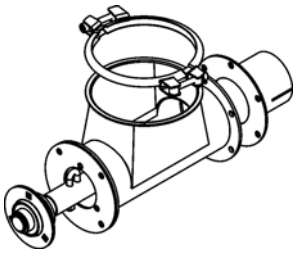


Pos.	Qty.	Code no.	Description
	1	**20-00-3215**	**Basic-boot for sheet metal and inner silo**
			consisting of:
1	1	25-16-3629	Funnel GRP for boot for flex. auger for sheet metal silos
2	1	25-16-3602	Upper part galv f/boot for flexible auger
3	1	25-16-3603	Shutter guide PE for boot
4	1	25-16-3607	Hand slide galv f/boot f/flex. auger
5	1	25-16-3625	Cover plate galv for hand slide
6	1	20-00-3216	Fixing material for basic boot for sheet metal silo
			consisting of:
6a	16	25-16-3608	Hexagon head screw M 10x 25 hot-galvanised. with rubber gasket
6b	16	99-50-1483	Washer A 10,5x30x2,5 DIN 9021 galv.
6c	4	99-10-1311	Cross recessed countersunk head screw M 8x20 DIN 965-5.8
6d	1	99-10-1046	Hexagon head screw M8x 16 galv. DIN 933 8.8
6e	6	25-17-8766	Hexagon head screw M 8x 25 DIN 933 8.8 for silo BD
6f	11	25-17-8753	Hexagon nut M 8 DIN 934 Kl. 8 for silo BD
6g	16	25-17-3259	Hexagon nut M 10 hot-galvanised
6h	0,5	25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m

Pos.	Qty.	Code no.	Description
	1	**20-00-3220**	**Basic-boot for für GRP-silo**
			consisting of:
1	1	25-16-3626	Funnel GRP for boot for flex. auger for silos GRP
2	1	25-16-3602	Upper part galv f/boot for flexible auger
3	1	25-16-3603	Shutter guide PE for boot
4	1	25-16-3607	Hand slide galv f/boot f/flex. auger
5	1	25-16-3625	Cover plate galv for hand slide
6	1	20-00-3221	Fixing material for basic boot for GRP-silo
			consisting of:
6a	16	99-20-1465	Hexagon head screw M 10x 45 DIN 933
6b	20	25-17-3255	Washer SST with mounted gasket for screw M10
6c	20	99-20-1500	Hexagon nut M 10 SST DIN 934
6d	6	25-17-8766	Hexagon head screw M 8x 25 DIN 933 8.8 for silo BD
6e	11	25-17-8753	Hexagon nut M 8 DIN 934 Kl. 8 for silo BD
6f	4	99-10-1311	Cross recessed countersunk head screw M 8x20 DIN 965-5.8
6g	1	99-10-1046	Hexagon head screw M8x 16 galv. DIN 933 8.8
6h	4	99-20-1416	Hexagon head screw M10x 30 DIN 933
6i	20	99-20-1617	Washer 10,5x40x1,5 SST
6j	0,5	25-17-8758	Sealing strip Butyl 2x10mm reel = 2x20m

21.3.2 Lower parts for boots and funnel cpl. for transfer to second auger

Exact description of the positions: see the following page

Pos. 1 	**Pos. 2** 
Pos. 3 	**Pos. 4** 
Pos. 5 	**Pos. 6** 
Pos. 7 	**Pos. 8** 
Pos. 9 	**Pos. 10** 

21.3.2.1 Flex-Vey 60

Pos.	Qty.	Code no.	Description
1	1	83-04-1335	Lower part for silo boot M 60 1-track 1 direction
2	1	83-04-1331	Lower part for silo boot M 60 1-track uninterrupted
4	1	83-04-1332	Lower part for silo boot M 60 2-track 1 direction
5	1	83-04-1333	Lower part for silo boot M 60 2-track 2 directions
8	1	83-04-1334	Lower part for silo boot M 60 3-track 1 direction

21.3.2.2 Flex-Vey 75

Pos.	Qty.	Code no.	Description
1	1	25-16-3630	Lower part for silo boot M 75 1-line 1 direction
2	1	83-03-8498	Lower part for silo boot M 75 1tram passing auger
3	1	83-04-1320	Lower part for silo boot M75/100 tandem
4	1	83-03-8529	Lower part for silo boot M 75 2-line 1 direction
5	1	83-03-8535	Lower part for silo boot M 75 2-line 2 directions
6	1	83-03-8537	Lower part for silo boot M 75 2lines passing augers
7	1	83-03-1321	Lower part f/boot f/flex. M 75 2line 1direct. 1tram pas. aug.
8	1	83-03-8545	Lower part for silo boot M 75 3-line 1 direction
9	1	83-03-4546	Lower part for silo boot M 75 3lines passing augers
10	1	25-57-3012	Transfer funnel cpl onto second auger Flex-Vey 75

21.3.2.3 Flex-Vey 90

Pos.	Qty.	Code no.	Description
1	1	25-16-3605	Lower part for silo boot M 90 1-line 1 direction
2	1	83-03-8868	Lower part for silo boot M 90 1line passing auger
3	1	83-04-1322	Lower part for silo boot M90/100 tandem
4	1	83-03-9189	Lower part for silo boot M 90 2-line 1 direction
5	1	83-04-1323	Lower part for silo boot M 90 2-line 2 direction
6	1	83-04-1325	Lower part for silo boot M 90 2lines passing augers
7	1	83-04-1326	Lower part f/boot f/flex. M 90 2line 1direct. 1tram pas. aug.
8	1	83-03-9197	Lower part for silo boot M 90 3-line 1 direction
9	1	83-04-1324	Lower part for silo boot M 90 3lines passing augers
10	1	25-59-3012	Transfer funnel cpl onto second auger Flex-vey 90

21.3.2.4 Flex-Vey 125

Pos.	Qty.	Code no.	Description
1	1	83-03-2966	Lower part for silo boot M125 1-line 1 direction
2	1	83-04-3706	Lower part for silo boot M125 1line passing auger
4	1	83-04-1327	Lower part for silo boot M125 2-line 1 direction
6	1	83-04-1328	Lower part for silo boot M125 2lines passing augers
8	1	83-04-1329	Lower part for silo boot M125 3-line 1 direction
9	1	83-04-1330	Lower part for silo boot M125 3lines passing augers

21.4 Conveying pipes and bends

21.4.1 Flex-Vey 60

21.4.1.1 Plastic

Pos.	Qty.	Code no.	Description
	1	**25-63-3010**	**Pipe 60x4550 compl. Flex-Vey**
			Comprised of:
1	1	83-01-1976	Conveying pipe 60x3.3-4550 PVC Flex-Vey 60
2	1	99-50-0474	Pipe clamp Flex-Vey 60
3	4.55m	25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60

Pos.	Qty.	Code no.	Description
	1	**25-63-3015**	**Bend plastic compl. 45° radius 1600 Flex-Vey 60**
			Comprised of:
1	1	83-01-2162	Bend 45° 60x3.3 Radius 3000 Flex-Vey 60
2	1	99-50-0474	Pipe clamp Flex-Vey 60
3	2.3m	25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60

21.4.2 Flex-Vey 75

21.4.2.1 Plastic

Pos.	Qty.	Code no.	Description
	1	**25-57-3005**	**Pipe 75x3080 cpl Flex-Vey**
			consisting of:
1	1 pc	83-03-6810	Conveying pipe 75x3,3-3080 PVC Flex-Vey 75
2	1 pc	99-50-0475	Clamp f/pipe Flex-Vey 75
3	3 m	25-57-1701	Auger open core 60x60x36,5x4,3 right Flex-Vey 75

Pos.	Qty.	Code no.	Description
	1	**25-57-3016**	**Bend plastic cpl 45deg radius 1533 Flex-Vey 75**
			consisting of:
1	1 pc	83-03-6812	Bend 45deg 75x3,3 radius 1533 Flex-Vey 75
2	1 pc	99-50-0475	Clamp f/pipe Flex-Vey 75
3	2 m	25-57-1701	Auger open core 60x60x36,5x4,3 right Flex-Vey 75

21.4.2.2 SST

Pos.	Qty.	Code no.	Description
	1	25-57-3170	**Pipe 75x3000 SST cpl Flex-Vey 75**
			consisting of:
1	1	83-04-2982	Conveying pipe 76.1x2.0-3000 SST Flex-Vey 75
2	1	99-50-0478	Clamp f/pipe SST Flex-Vey 75
3	3.00m	25-57-1701	Auger open core 60x60x36,5x4,3 right Flex-Vey 75

Pos.	Qty.	Code no.	Description
	1	**25-57-3171**	**Bend SST cpl 45deg radius 1533 Flex-Vey 75**
			consisting of:
1	1	83-04-2998	Bend 45deg 76.1x2.0 radius 1533 SST Flex-Vey 75
2	1	99-50-0478	Clamp f/pipe SST Flex-Vey 75
3	1.5m	25-57-1701	Auger open core 60x60x36,5x4,3 right Flex-Vey 75

21.4.3 Flex-Vey 90

21.4.3.1 Plastic

Pos.	Qty.	Code no.	Description
	1	**25-59-3005**	**Pipe 90x3095 cpl Flex-Vey**
			consisting of:
1	1 pc	83-03-6811	Conveying pipe 89x3,5-3095 PVC Flex-Vey 90
2	1 pc	99-50-0476	Clamp f/pipe Flex-Vey 90
3	3 m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

Pos.	Qty.	Code no.	Description
	1	**25-59-3016**	**Bend plastic cpl 45deg radius 1568 Flex-Vey 90**
			consisting of:
1	1	83-03-6813	Bend 45deg 89x3,5 radius 1568 Flex-Vey 90
2	1	99-50-0476	Clamp f/pipe Flex-Vey 90
3	1.5m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

21.4.3.2 SST

Pos.	Qty.	Code no.	Description
	1	25-57-3180	**Pipe 90x3000 SST cpl Flex-Vey 90**
			consisting of:
1	1	83-04-2987	Conveying pipe 88.9x2.0-3000 SST Flex-Vey 90
2	1	99-50-0479	Clamp f/pipe SST Flex-Vey 90
3	3.00m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

Pos.	Qty.	Code no.	Description
	1	**25-57-3181**	**Bend SST cpl 45deg radius 1568 Flex-Vey 90**
			consisting of:
1	1	83-04-3014	Bend 45deg 88.9x2.0 radius 1568 SST Flex-Vey 90
2	1	99-50-0479	Clamp f/pipe SST Flex-Vey 90
3	1.5m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

21.4.4 Flex-Vey 90HS (High Speed)

21.4.4.1 Plastic

Pos.	Qty.	Code no.	Description
	1	**25-59-3005**	**Pipe 90x3095 cpl Flex-Vey**
			consisting of:
1	1 pc	83-03-6811	Conveying pipe 89x3,5-3095 PVC Flex-Vey 90
2	1 pc	99-50-0476	Clamp f/pipe Flex-Vey 90
3	3 m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

Important:

Do **not** use a plastic bend for the Flex-Vey 90HS.

21.4.4.2 SST

Pos.	Qty.	Code no.	Description
	1	**25-57-3181**	**Bend SST cpl 45deg radius 1568 Flex-Vey 90**
			consisting of:
1	1	83-04-3014	Bend 45deg 88.9x2.0 radius 1568 SST Flex-Vey 90
2	1	99-50-0479	Clamp f/pipe SST Flex-Vey 90
3	1.5m	25-59-1701	Auger open core 70x65x46,5x4,3 right Flex-Vey 90

21.4.5 Flex-Vey 125

21.4.5.1 Plastic

Pos.	Qty.	Code no.	Description
	1	**25-62-3006**	**Pipe 125x3120 cpl Flex-Vey**
			consisting of:
1	1	83-01-2437	Conveying pipe125x5,0-3120 PVC Flex-Vey 125
2	1	99-50-0477	Clamp f/pipe Flex-Vey125
3	3.13m	25-62-1701	Auger open core 100x70x72x5,0 right Flex-Vey 125/US

Pos.	Qty.	Code no.	Description
	1	**25-62-3030**	**Bend plastic cpl 45deg radius 2750 Flex-Vey 125**
			consisting of:
1	1	25-62-3034	Bend 45deg 125x5,0 radius 2750 Flex-Vey 125
2	1	99-50-0477	Clamp f/pipe Flex-Vey125
3	3.0m	25-62-1701	Auger open core 100x70x72x5,0 right Flex-Vey 125/US

21.4.5.2 SST

Pos.	Qty.	Code no.	Description
	1	25-57-3190	**Pipe 125x3000 SST cpl Flex-Vey 125**
			consisting of:
1	1	83-04-2989	Conveying pipe 125x2.0-3000 SST Flex-Vey 125
2	1	99-50-0480	Clamp f/pipe SST Flex-Vey 125
3	3.00m	25-62-1701	Auger open core 100x70x72x5,0 right Flex-Vey 125/US

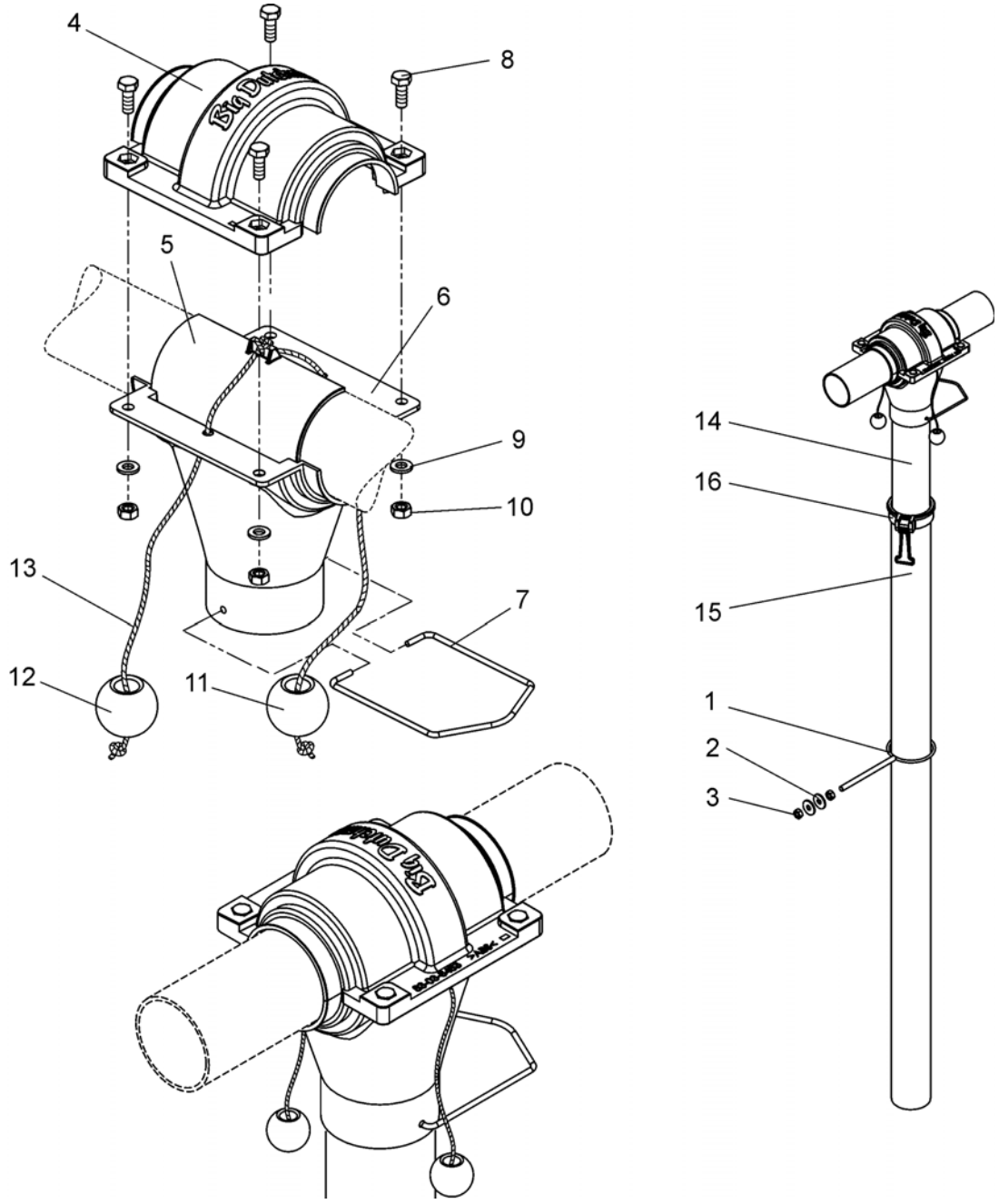
Pos.	Qty.	Code no.	Description
	1	**25-57-3191**	**Bend SST cpl 45deg radius 2750 Flex-Vey 125**
			consisting of:
1	1	83-04-2996	Bend SST cpl 45deg 125x2.0 radius 2750 Flex-Vey 125
2	1	99-50-0480	Clamp f/pipe SST Flex-Vey 125
3	1.5m	25-62-1701	Auger open core 100x70x72x5,0 right Flex-Vey 125/US

21.5 Auger open core

Pos.	Qty.	Code no.	Description
1	m	25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60
2	m	25-57-1701	Auger open core 60x60x36.5x4.3 right Flex-Vey 75/US
3	m	25-59-1701	Auger open core 70x65x46.5x4.3 right Flex-Vey 90/US
4	m	25-62-1701	Auger open core 100x70x72x5.0 right Flex-Vey 125/US
5	m	25-57-1602	Auger open core 60x40x36.5x4.3 right Flex-Vey 75/ Tandem

21.6 Outlet and drop pipes

21.6.1 Hand-operated tap with drop-pipe for Flex-Vey 60

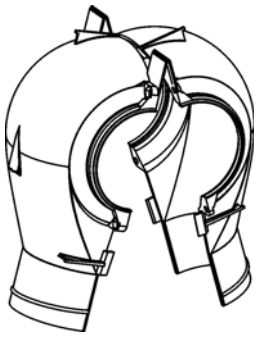
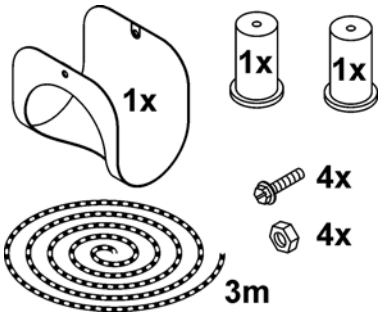


Pos.	Qty.	Code no.	Description
	1	**83-04-4081**	**Orange tap with DR1500 rope activation and telescopic drop-pipe 60/65x2300**
1	1	10-88-4091	Stainless steel pipe bracket for 63mm telescopic drop-pipe
2	2	99-20-1177	K washer A8.4x25x2.0 DIN 9021 stainless steel
3	2	99-20-1176	Hex nut M8 stainless steel DIN 934
	1	**83-03-8487**	**Orange tap with rope activation complete DR1500**
4	1	83-03-8483	Upper part for tap with DR1500 rope activation

Pos.	Qty.	Code no.	Description
5	1	83-03-8482	Shutter for tap with DR1500 rope activation
6	1	83-03-8484	Lower part for tap with DR1500 rope activation
7	1	83-03-8486	Stainless steel clamp for DR850/1500 rope-activated tap drop-pipe
8	4	99-20-1404	Hexagon bolt M6 x 16 stainless steel DIN 933
9	4	99-20-1602	Washer, stainless steel A 6.4 DIN 125
10	4	99-20-1102	Hex nut M6 stainless steel DIN 934
11	1	83-07-3824	Ball handle red for tap DR
12	1	83-07-3826	Ball handle green for tap DR
13	1m	99-50-1004	PES white 3mm suspension rope
	1	**83-04-6806**	**Telescopic drop-pipe 60/65x2300 complete including tension ring for tap with rope activation**
14	1	83-04-6800	Translucent inner tube Ø60 for telescopic drop-pipe
15	1	83-04-6804	Translucent outer tube Ø65 for telescopic drop-pipe
16	1	83-04-6805	Clamping device 60/65 for telescopic drop-pipe

Pos.	Qty.	Code no.	Description
	1	**83-05-0438**	**Blue tap with DR1500 rope activation and telescopic drop-pipe 60/65x2300**
1	1	10-88-4091	Stainless steel pipe bracket for 63mm telescopic drop-pipe
2	2	99-20-1177	K washer A8.4x25x2.0 DIN 9021 stainless steel
3	2	99-20-1176	Hex nut M8 stainless steel DIN 934
	1	**83-05-0436**	**Blue tap with rope activation complete DR1500**
4	1	83-03-8483	Upper part for tap with DR1500 rope activation
5	1	83-03-8482	Shutter for tap with DR1500 rope activation
6	1	83-03-8484	Lower part for tap with DR1500 rope activation
7	1	83-03-8486	Stainless steel clamp for DR850/1500 rope-activated tap drop-pipe
8	4	99-20-1404	Hexagon bolt M6 x 16 stainless steel DIN 933
9	4	99-20-1602	Washer, stainless steel A 6.4 DIN 125
10	4	99-20-1102	Hex nut M6 stainless steel DIN 934
11	1	83-07-3824	Ball handle red for tap DR
12	1	83-07-3826	Ball handle green for tap DR
13	1m	99-50-1004	PES white 3mm suspension rope
	1	**83-04-6806**	**Telescopic drop-pipe 60/65x2300 complete including tension ring for tap with rope activation**
14	1	83-04-6800	Translucent inner tube Ø60 for telescopic drop-pipe
15	1	83-04-6804	Translucent outer tube Ø65 for telescopic drop-pipe
16	1	83-04-6805	Clamping device 60/65 for telescopic drop-pipe

21.6.2 Hand-operated tap for Flex-Vey 75; 90 and 125

Pos. 1	Pos. 2
	

21.6.2.1 Flex-Vey 75

Pos.	Qty.	Code no.	Description
		25-57-3160	**Outlet B with shut-off & cable control cpl Flex-Vey 75**
			consisting of:
1	1	83-01-6117	Housing for outlet B with shut-off Flex-Vey 75
2	1	25-57-3161	Mounting-set for outlet B Flex-Vey 75

21.6.2.2 Flex-Vey 90

Pos.	Qty.	Code no.	Description
		25-59-3160	**Outlet B with shut-off & cable control cpl Flex-Vey 90**
			consisting of:
1	1	83-01-6119	Housing for outlet B with shut-off Flex-Vey 90
2	1	25-59-3161	Mounting-set for outlet B Flex-Vey 90

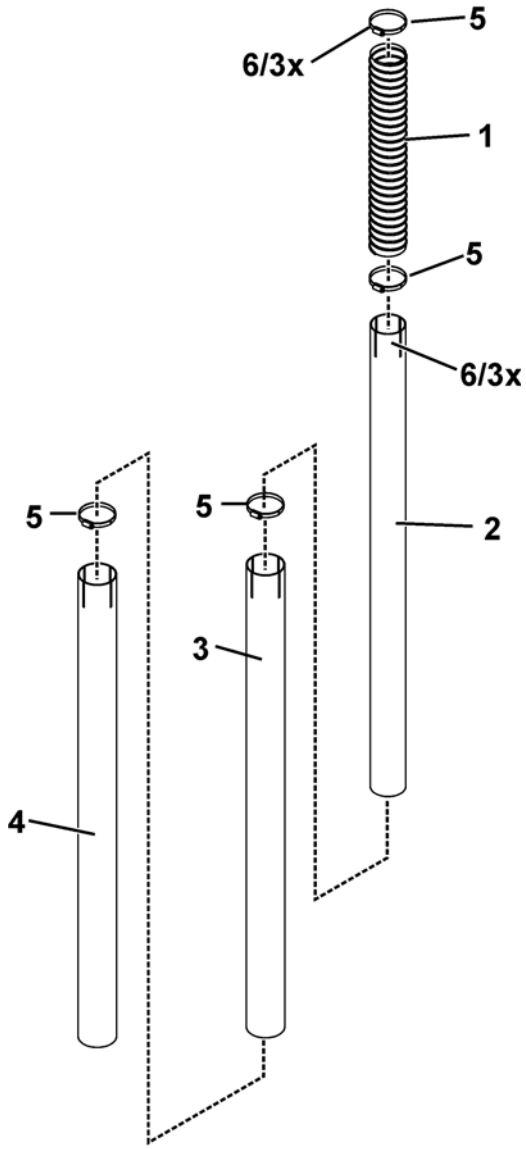
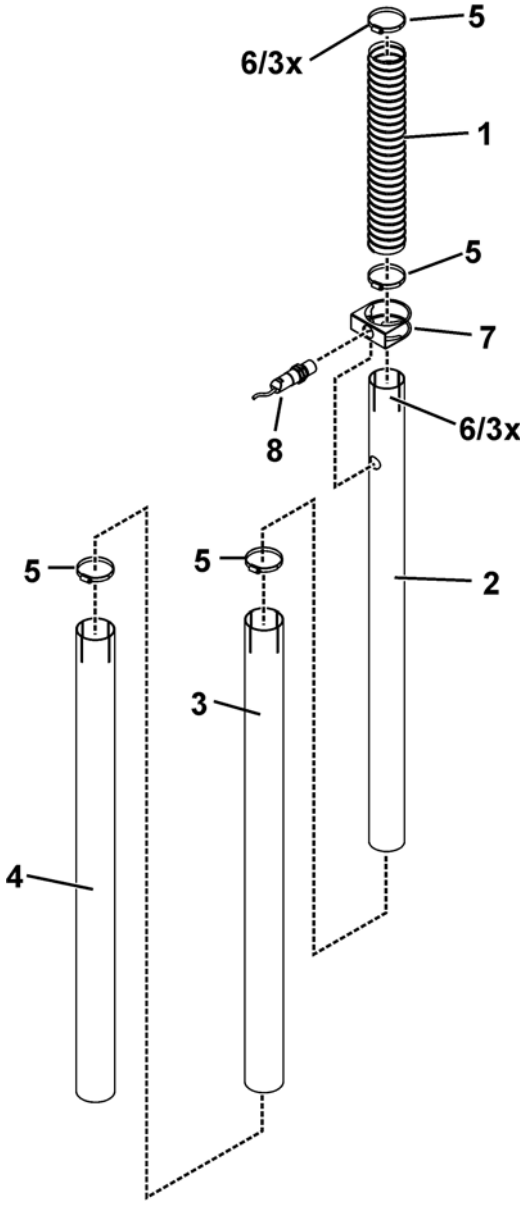
21.6.2.3 Flex-Vey 125

Pos.	Qty.	Code no.	Description
		25-62-3160	**Outlet B with shut-off & cable control cpl Flex-Vey 125**
			consisting of:
1	1	83-01-6121	Housing for outlet B with shut-off Flex-Vey 125
2	1	25-62-3161	Mounting-set for outlet B Flex-Vey 125

Pos.	Qty.	Code no.	Description
1;2	1	**25-62-3130**	**Outlet with shut-off incl. cable control Flex-Vey 125**

21.6.3 Drop-pipe for Flex-Vey 75; 90 and 125

Exact description of the positions: see chapter 21.6.3.1 to 21.6.3.3.

with sensor	without sensor
	

21.6.3.1 Flex-Vey 75

Position numbers: see drawings on page 142

Pos.	Qty.	Code no.	Description
		25-57-3125	**Drop pipe Flex-Vey 75-2 max. height of ceiling 2,3 m**
			consisting of:
1	0,5m	25-57-3127	Flexible tube DN 75 PUR-MH
2	1	83-00-5085	Pipe 75x2,00-1200 PVC slotted
3	1	83-00-5086	Pipe 81,5x2,00-1200 PVC slott.
5	3	99-50-3829	Hose band clip 70- 90
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K

Pos.	Qty.	Code no.	Description
		25-57-3126	**Drop pipe Flex-Vey 75-3 max. height of ceiling 3,5 m**
			consisting of:
1	0,5m	25-57-3127	Flexible tube DN 75 PUR-MH
2	1	83-00-5085	Pipe 75x2,00-1200 PVC slotted
3	1	83-00-5086	Pipe 81,5x2,00-1200 PVC slott.
4	1	83-00-5087	Pipe 90x3,50-1200 PVC slotted
5	4	99-50-3829	Hose band clip 70- 90
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K

Pos.	Qty.	Code no.	Description
		25-57-3135	**Drop pipe Flex-Vey 75 -> 2,3m incl. sensor MS-45R**
			consisting of:
1	0,5m	25-57-3127	Flexible tube DN 75 PUR-MH
2	1	83-00-5828	Pipe 75x2,00-1200 with boring for sensor MS-45R
3	1	83-00-5086	Pipe 81,5x2,00-1200 PVC slott.
5	3	99-50-3829	Hose band clip 70- 90
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K
7	1	83-00-4958	Bracket for sensor MS-45R at drop pipe 75/90
8	1	60-40-0754	Sensor MS-45R 220V threaded

Pos.	Qty.	Code no.	Description
		25-57-3136	**Drop pipe Flex-Vey 75 -> 3,5m incl. sensor MS-45R**
			consisting of:
1	0,5m	25-57-3127	Flexible tube DN 75 PUR-MH
2	1	83-00-5828	Pipe 75x2,00-1200 with boring for sensor MS-45R
3	1	83-00-5086	Pipe 81,5x2,00-1200 PVC slott.
4	1	83-00-5087	Pipe 90x3,50-1200 PVC slotted
5	4	99-50-3829	Hose band clip 70- 90
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K
7	1	83-00-4958	Bracket for sensor MS-45R at drop pipe 75/90
8	1	60-40-0754	Sensor MS-45R 220V threaded

21.6.3.2 Flex-Vey 90

Position numbers: see drawings on page 142

Pos.	Qty.	Code no.	Description
		25-59-3125	**Drop pipe Flex-Vey 90-2 max. height of ceiling 2,3 m**
			consisting of:
1	0,5m	25-59-3129	Flexible tube DN 90 PUR-MH
2	1	83-00-5087	Pipe 90x3,50-1200 PVC slotted
3	1	83-00-5088	Pipe 102x4,00-1200 PVC slott.
5	3	99-50-1369	Hose band clip 90-110
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K

Pos.	Qty.	Code no.	Description
		25-59-3126	**Drop pipe Flex-Vey 90-3 max. height of ceiling 3,5 m**
			consisting of:
1	0,5m	25-59-3129	Flexible tube DN 90 PUR-MH
2	1	83-00-5087	Pipe 90x3,50-1200 PVC slotted
3	1	83-00-5088	Pipe 102x4,00-1200 PVC slott.
4	1	83-00-5089	Pipe 110x3,00-1200 PVC slott.
5	4	99-50-1369	Hose band clip 90-110
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K

Pos.	Qty.	Code no.	Description
		25-59-3135	**Drop pipe Flex-Vey 90 up to 2.3 m incl. sensor MS-45R**
			consisting of:
1	0.5m	25-59-3129	Flexible hose DN 90 PUR-MH
2	1	83-00-5829	Pipe 90x3,50-1200 with boring for sensor MS-45R
3	1	83-00-5088	Pipe 102x4.00-1200 PVC 65mm slotted
5	3	99-50-1369	Hose band clip 90-110
6	6	99-10-3891	Drilling screw 3.5x 16 DIN 7504-K
7	1	83-00-4958	Bracket for sensor MS-45R at drop pipe 75/90
8	1	60-40-0754	Sensor MS-45R 220V m/threaded

Pos.	Qty.	Code no.	Description
		25-59-3136	**Drop pipe Flex-Vey 90 up to 3.5m incl. sensor MS-45R**
			consisting of:
1	0.5m	25-59-3129	Flexible hose DN 90 PUR-MH
2	1	83-00-5829	Tube 90x3.50-1200 with bore hole for sensor MS-45R
3	1	83-00-5088	Pipe 102x4.00-1200 PVC 65mm slott
4	1	83-00-5089	Pipe 110x3.00-1200 PVC 65mm slott
5	4	99-50-1369	Hose band clip 90-110
6	6	99-10-3891	Drilling screw 3.5x 16 DIN 7504-K
7	1	83-00-4958	Bracket for sensor MS-45R at drop pipe 75/90
8	1	60-40-0754	Sensor MS-45R 220V m/threaded

21.6.3.3 Flex-Vey 125

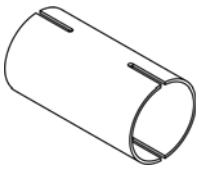
Position numbers: see drawings on page 142

Pos.	Qty.	Code no.	Description
		25-62-3126	**Drop pipe Flex-Vey 125-2 max. height of ceiling 3,5 m**
			consisting of:
1	0,5m	25-62-3128	Flexible tube DN 110 PUR
2	1	83-00-5089	Pipe 110x3,00-1200 PVC slott.
3	1	25-62-3127	Pipe 102x4,00-2500 PVC slott.
5	4	99-50-1370	Hose band clip 104-138
6	6	99-10-3891	Drilling screw 3,5x 16 DIN 7504-K

Pos.	Qty.	Code no.	Description
		25-62-3135	**Drop pipe Flex-Vey 125 up to 3.5m incl. sensor MS-45R**
			consisting of:
1	0.5m	25-62-3128	Flexible tube DN110 PUR
2	1	83-06-8307	Pipe 102x4.00-2500 PVC with hole for sensor MS45
4	1	83-00-5089	Pipe 110x3.00-1200 PVC 65mm slott
5	4	99-50-1370	Hose band clip 104-138
6	6	99-10-3891	Drilling screw 3.5x 16 DIN 7504-K
7	1	83-06-4491	Bracket for sensor MS-45R at drop pipe f/FV125
8	1	60-40-0754	Sensor MS-45R 220V m/threaded

21.7 Accessories for Flex-Vey 60/75/90/90HS/125

21.7.1 Coupling for pipe

Picture	Code No.	Description
	25-63-3012	Coupling PVC for conveying pipe Flex-Vey 60
	25-57-1112	Coupling PVC for conveying pipe Flex-Vey 75
	25-59-1112	Coupling PVC for conveying pipe Flex-Vey 90
	25-61-3011	Coupling PVC for conveying pipe Flex-Vey 125

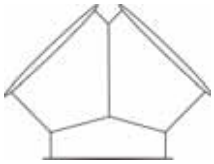
21.7.2 Pipe clamp

Picture	Code No.	Description
	99-50-0474	Pipe clamp Flex-Vey 60
	99-50-0475	Pipe clamp Flex-Vey 75
	99-50-0476	Pipe clamp Flex-Vey 90
	99-50-0477	Pipe clamp Flex-Vey 125

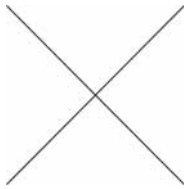
21.7.3 Reduction fitting

Picture	Code No.	Description
	83-01-3526	Red piece 150 x 60 galv.
	83-00-5791	Red piece 150 x 75 galv.
	83-00-5792	Red piece 150 x 90 galv.
	83-06-4310	Red piece 150 x 110 galv. for Flex-Vey 125

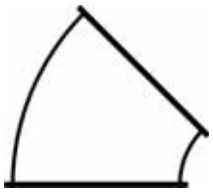
21.7.4 Y-piece

Picture	Code No.	Description
	25-16-3042	Y-piece 150/70 2x30 degrees galv.
	25-16-3039	Y-piece 150/2x150 2x45 degrees galv.

21.7.5 T-piece

Picture	Code No.	Description
	25-16-3041	T-piece galv. 150x150 45 degrees

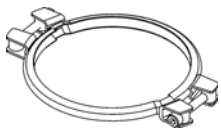
21.7.6 Segment

Picture	Code No.	Description
	25-16-3034	Segment 150/15 degrees
	25-16-3035	Segment 150/30 degrees
	25-16-3036	Segment 150/45 degrees

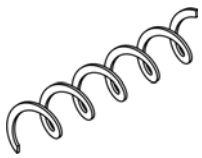
21.7.7 Pipe

Picture	Code No.	Description
	25-16-3031	Pipe 150x1.50-1000 galv.
	25-16-3032	Pipe 150x1.50-2000 galv.

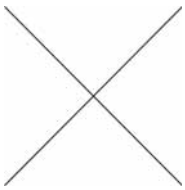
21.7.8 Tension ring

Picture	Code No.	Description
	25-16-3033	Tension ring D150 galv. with seal 1mm

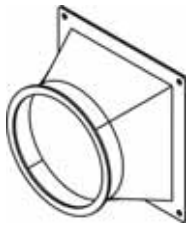
21.7.9 Auger

Picture	Code No.	Description
	25-63-1712	Auger open core 45x45x25x3.3 right Flex-Vey 60
	25-57-1701	Auger open core 60x60x36.5x4.3 right Flex-Vey 75/US
	25-57-1602	Auger open core 60x40x36.5x4.3 right Flex-Vey 75/ Tandem
	25-59-1701	Auger open core 70x65x46.5x4.3 right Flex-Vey 90/US
	25-62-1701	Auger open core 100x70x72x5.0 right Flex-Vey125/US

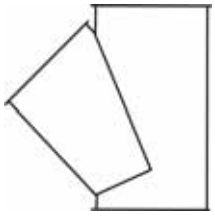
21.7.10 Half-coupling

Picture	Code No.	Description
	25-57-1111	Half-coupling for pipe Flex-Vey 75
	25-59-1111	Half-coupling for pipe Flex-Vey 90

21.7.11 Inlet - round and rectangular

Picture	Code No.	Description
	25-16-3220	K150 inlet, dia. 150

21.7.12 Fork piece

Picture	Code No.	Description
	25-62-3013	Fork piece, 1 x 45 deg., dia. 150mm, galv., t=2mm

21.7.13 Distributor - auxiliary branch

Picture	Code No.	Description
	83-03-7494	Distributor D150, two-way w/ manual flap / M&M auxiliary branch pipe
	83-03-7503	Distributor D150, two-way with automatic flap / 45 deg.&MM auxiliary branch pipe

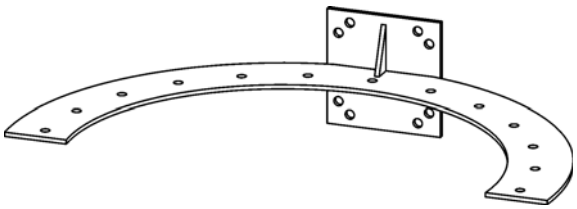
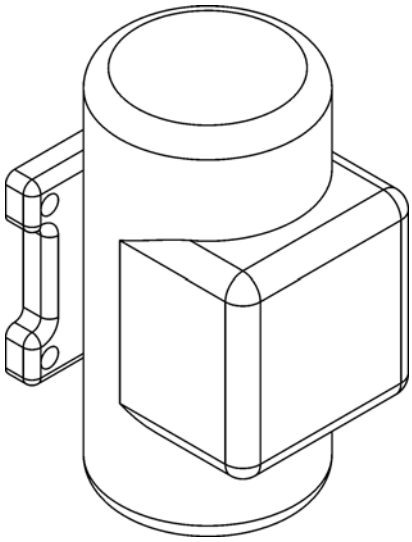
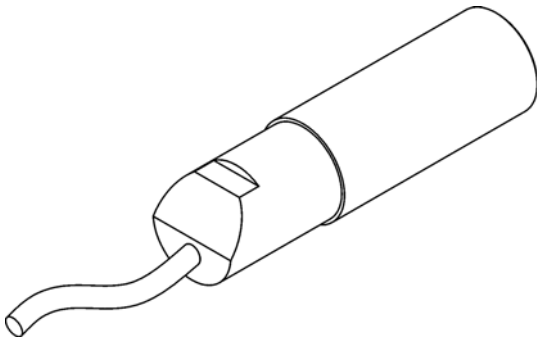
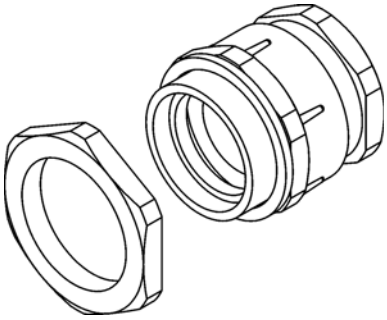
21.7.14 Distributor - Y-junction

Picture	Code No.	Description
	83-03-7495	Distributor D150, two-way with manual flap / M&M Y-junction
	83-03-7501	Distributor D150, two-way with automatic flap / M&M Y-junction

21.7.15 Fixing material

Pos.	Qty.	Code no.	Description
1		10-93-1629	Cup hook galv 80x22x7,8
2		10-93-1642	Cup hook galv 120x22x7,8
3		99-50-3834	Cup hook galv 140x22x7,8
4		99-10-3780	Hexagon wood screw 8x 80 DIN 571-ST galv
5		99-10-3814	Hexagon wood screw 8x120 DIN 571-ST galv
6		99-10-3832	Hexagon wood screw 8x180 DIN 571-ST galv
7		99-10-3783	Hexagon wood screw 10x 80 DIN 571-ST galv
8		99-10-3823	Hexagon wood screw 10x120 DIN 571-ST galv
9		99-10-3887	Hexagon wood screw 10x180 DIN 571-ST galv
10		99-50-3525	Angle 1780-40x40x4 galv
11		99-50-3025	Flat steel 6000-25x5 galv
12		99-10-1038	Hexagon head screw M8x 20 galv DIN 933
13		99-10-1040	Hexagon nut M8 galv DIN 934-8
14		99-50-0003	Ship chain galv 5mm DIN 766
15		99-50-0012	Suspension chain K 27
16		99-50-0005	S-hook 2" 6x55

21.8 Vibrator for silo (optional)

Pos. 1	Pos. 2
	
Pos. 4a	**Pos. 4b**
	

Pos.	Qty.	Code no.	Description
	1	**25-00-1000**	**Vibrator cpl for silo**
			consisting of:
1	1	25-00-3702	Vibrator plate round galv without screws
2	1	25-00-1002	Vibrator 0,18KW 3000rpm 230/400V 50/60Hz
3	1	25-00-1003	Control-box for electric vibrator 0,18KW
4	1	91-00-3985	Sensor MS-45R with union
			consisting of:
4a	1	60-40-0654	Sensor MS-45R 220V
4b	1	99-30-3001	Screw union PG 36