AGRO

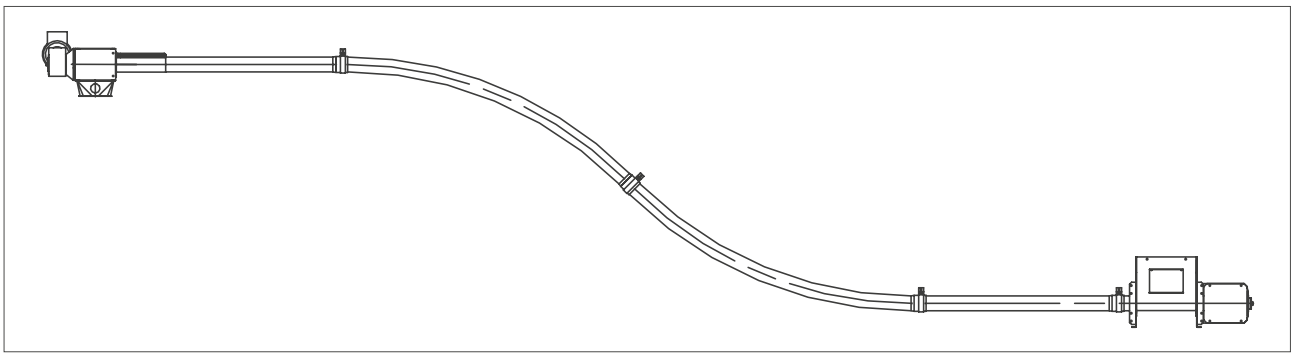
INSTALLATION AND OPERATING INSTRUCTIONS

FLEX AUGERS

75, 90 og 125 mm

TUNETANKEN

09.02.2021



Flex augers from Tunetanken.

Contents

1. Packing and transport instruction

The flexible auger is sent in several packages, the number of packages depends on the length of the auger.

- Inlet and outlet are packed in one carton.
- The motor is delivered in a carton of its own.
- The auger is delivered in a roll with a diameter of approx. 1 metre.
- Tubes and bends are delivered loose.

1.1 Centre of gravity

At the carton for inlet and outlet, the distance from the end towards the middle is 33 cm, then 25 cm from the bottom upwards along the carton.
For all other lengths, bends and cartons the centre of gravity is in the middle.

1.2 Weight and measures

Carton with inlet and outlet:

- Type 75 mm og 90 mm: 34 kg, L91 x B39 x H53 cm.
- Type 125 mm: 57 kg, L111 x B39 x H52 cm.

Lengths of plastic tube på 3 m:

- Type 75 mm: 4 kg.
- Type 90 mm: 7 kg.
- Type 125 mm: 8,5 kg.

Plastic bends 45° 1,5 m:

- Type 75 mm: 3,5 kg.
- Type 90 mm: 4,1 kg.
- Type 125 mm: 4,5 kg.

Motor 1.5HP:	15 kg.	L39 x WB22 x H26 cm
Motor 2HP:	17,7 kg.	L39 x WB22 x H26 cm
Motor 3HP:	24 kg.	L41 x WB26 x H29 cm
Motor 4HP:	27 kg.	L41 x WB26 x H29 cm

*) See technical drawings.

2. Directions for use

2.1 Use

The Tunetanken flexible auger conveys meal forage, grain, protein concentrates and similar materials.

For fixed mounting of auger under closed silo.

The flexible auger is meant to be mounted at the outlet of a closed silo or the like.

When using the flexible auger in other ways, it is important to secure the inlet likewise the outlet by mounting a grating with holes tiny enough to prevent fingers from entering the auger.

Use original inlet.

It is only possible to use the flexible auger mounted with the original inlet; it works only when mounted to shafts at each end.
It is not possible to use the flexible auger as a suction-blow fan, i.e. used by placing a nozzle into a loose heap of grain.

Flat profile or round profile?

If many extra outlets are required, the spiral must be a flat profile type. This type is also the most suitable for transport of ground grain from loading hoppers. For all other purposes, the two types are equally suitable, though the round type is slightly stronger than the flat type.

Gear motor or V-belt drive?

When the drive is mounted close to inflammable material, e.g. straw/hay storage, a drive with a gear motor must be used rather than a V-belt drive.

2.2 Quantity

When material with a density of 550 kg/m³ and above is conveyed, the regulation lever must be pressed as far as possible into the outlet pipe of the inlet.

Inlet regulation is a rod that comes through the shaft into the inlet with a piece of tube which set in different positions controls the inlet to the auger.

When fully inserted, most of the inlet is shut (approx. 15%).
The inlet regulation for 75mm and 90mm is 1.02.0190* and for 125 mm 1.03.0190*.

For each 90° bend the total length is reduced by 5 m. A flexible auger should not have more than three 90° bends.

Wear hearing protection

Usually the noise level of the flexible auger will be below the allowable noise level, but when the flexible auger is not full or runs empty, hearing protection is required when working nearby.

3. Mounting instructions

The drive station
The drive station is installed horizontally with a clearance to 40 cm below the hopper's outlet.

The inlet
The inlet should be installed horizontally, however, at maximum 30° upwards using bend no. 1.02.0124*. However, this requires a clearance below the hopper's outlet of approx. 70 cm for type 75 and 90 mm and 90 cm for type 125.

Reduction of the output must be expected. As a main rule, the auger may be lifted approx. 5 m but some material may deviate from this.

The outlet
The outlet is then fastened in its position so that fingers cannot enter the auger.

The motor
The motor is mounted. An inlet position is preferable, especially when the flexible auger is long, but an outlet position is also possible. A conversion kit is available for this option.

Tubes and bends
Tubes and bends are laid out and assembled by means of sockets and clips. A screwdriver or a 7 mm shank-type spanner is used for this purpose.

Extra outlet
When mounting an extra outlet it is necessary to drill a 35-40 mm hole in the tube if the plant is used for pig food (small pellets or meal forage).
If the plant is used for cattle food, the holes must be made as large as possible owing to the pellet size.

Customization
The auger is pushed into the tube and it is shortened to fit the tube using an angle cutter. It is then fastened to the shaft at both ends using a 17 mm shank-type spanner or a spin type socket wrench.

Mounting of plate
The enclosed galvanized plate 75 x 15 x 3 mm with 2 holes is to be placed between the spiral and the shaft if a spiral of the round type is used; if a flat spiral is used, the plate is removed.

Tightening
Do not tighten the spiral. If the motor is placed at the outlet, the spiral may, however, be tightened by approx. 1%.

Installation of pipes
The tube is fastened and it is supported by tube holders or similar devices for every 1.5 m.

*) See technical drawings.

It is essential that the tube is fitted so that it does not squeeze the spiral.

A bending radius
A bending radius of 1.9 m must be observed and is obtained by using our original plastic bends: 45° - length 1.5 m.

3.1 IMPORTANT before starting up the auger!
When starting a new system, the admission of material must be reduced to prevent clogging caused by oil residues on the spiral.

As the regulation lever only reduces admission by 15%, it is therefore necessary to scoop very little material into the inlet by hand until approx. 50kg have run through the auger which will then be free from the oil and grease residues which may remain from the manufacturing process.

Use hearing protection when starting up an empty system.
During start-up and until the auger is full, the noise level may exceed the permitted standards, therefore hearing protection should be used during this process.

If the material is inclined to bridging over the auger in the inlet it is possible to lay down a massive hard plastic ball to remedy this problem. The plastic ball is ordered as additional equipment item no. 9.02.0500, not pictured.
If this is not sufficient, a special inlet with an agitator, driven by a separate motor, is available.

The flexible auger should never run empty
Empty running may cause vibrations which may result in metal fatigue.

Empty running may occur in part of the auger, e.g. at many extra outlets, where the augers should be fitted with 2 level controls so that the auger automatically runs with short intervals.

The auger MUST be fitted with an emergency stop
The auger does not supply the auger with emergency stops or any other electrical equipment. This should be supplied and installed by an authorised electrician.

The following points should be checked upon completion of mounting:

- minimum bending radius is observed?
- all joints are mounted correctly?
- the tube is suspended properly?
- inlet and outlet are secured according to regulations?
- the auger is fastened and secured?
- the motor is fastened and secured?
- the conveyed material/food emerges from the outlet?
- the auger is running smoothly and without problems?

4. Maintenance instructions

Cleaning: activate the emergency stop.

4.1 V-belt
V-belts must be checked and tightened regularly, the first time after approx. 10 hours use.

Activate the emergency stop. Dismount the guard (1.05.0116)* by removing the four attaching bolts (9.01.0354)*.

Examine the belt for fissures and fractures, i.e. wear and tear. If damaged, the belt must be replaced by a new one. This is done by loosening the centre nuts (9.01.0469)* which are fastened on the reverse of the motor plate on to which the motor is placed (1.02.0108)*.

For augers type 75 one V-belt is required; for types 90 and 125 two V-belts are used.

Belts are always replaced by new ones when damaged. To tighten the V-belt: tighten the centre nuts (9.01.0469)* until the belt is so tight that it can only be stretched 1-2 cm to each side.

Make sure bolts are tightened, so that the belt runs in the centre of the groove in the V-grooved pulley, which means that the motor plate (1.02.0108)* is at a right angle to the multi-bracket (1.05.0072)*.

Lock with the nuts which are mounted on top of the bolts (9.01.0469)*.
Remount the guard by use of bolts. All bolts must be tightened before the emergency stop is deactivated.

4.2 The Motor
Instruktion, montage, drift og vedligehold af motor
Motor instructions, installation, operation and maintenance
A protective motor switch must be installed or the thermal cut-out installed in the motor must be used to prevent overloading of the motor.

The gear is delivered filled with synthetic oil: No service or refilling is required in a service life of 15.000 operating hours acc. to SP1.0. (15.000 hours at 3-4 operating hours a day with 1 start/stop per hour). Motors with the following item nos. have shorter service lives (8-10,000 hours): 9.03.0458*, 9.03.0490*, 9.03.0754*, 9.03.049* and 9.03.0487*.

For refilling gear oil, use a synthetic oil SHELL TIVELA sc320 or similar.

Excess oil may spill from the motor during the first 100 operating hours.

Oil round the sealing ring is normal and due to grease melting as the ring adapts.

4.3 Temperature
The gear must be well ventilated, and the cooling fans free from dust.

Check that the ventilation temperature does not exceed 40°C

Measure the temperature after 2 operating hours and check that the difference between the measured motor temperature and the surrounding temperature does not exceed 80°C, However, the temperature of the motor may not exceed 100°C at any time.

4.4 Tubes, bends and spiral
If conveyed material emerges from the side of the tube, the spiral has worked its way through the side of it.

In this case the rest of the flexible auger must be examined closely to spot any breakages elsewhere on the tube.

Activate the emergency stop.
Dismount the hatch at both ends of the auger (1.05.0172 and 1.05.0103)*.

The bolts that hold the auger (9.01.0550 and 9.01.0551)* must be loosened with a 17 mm shank-type spanner or a spin-type socket wrench is used.

Loosen the nuts on the flange or the hose clamps on the socket at the end with the most convenient access. Use a screwdriver or a 7 mm shank-type spanner.

Pull the auger out of the tube. Then change the tubes and bends which should be replaced.

4.5 Examine the spiral for wear and tear
If it has any sharp edges, it must be replaced. Check that the minimum bending radius has been observed.

When this is not the case, the bends must be stretched until the minimum requirements are met.

Remount the tubes and bends; push the auger back into the tube.

4.6 Bearings and shafts
If any abnormal sounds emerge, it could be due to damaged bearings or shafts.

Activate the emergency stop. At the drive: dismount the guard (1.05.0116)* by removing the four attaching bolts (9.01.0354)*.

*) See technical drawings.

The bearings must be examined by pulling the shaft from one side to the other to detect any play or slackness in the bearings. Turn the shaft to detect any resistance in the bearing itself. In case of any play, slackness or resistance, the bearings must be replaced.

Also check that shaft does not turn inside the bearings.

The diameter of the shaft must be Ø20 mm (tolerance of +0.01/-0.05 mm). When the shaft is worn/fails to make contact with the bearings, it should also be replaced.

4.7 Cover and gable
If any conveyed material emerges from the cover or the gable, this part should be replaced.

The nuts (9.01.0354)* are removed by means of a 10 mm shank-type spanner or a spin type socket wrench. Cover or gable is removed and replaced by a similar new part.

Item nos. are to be found on the detail drawing. Replacement: remember to use weather strips (9.09.0100, not pictured) in all joints!

5. Dismounting

All parts can be dismounted in opposite order of mounting order.

All iron parts can be delivered as scrap iron to the local scrap dealer.

Plastic parts are made from polyethylene and can therefore be recycled.

6. Guarantee

The auger is sold with a twelve-month guarantee from date of delivery. The guarantee covers defective material, but not any expenses concerning mounting, shipping, haulage etc.

This guarantee shall lapse in the event of incorrect mounting, or if motor sizes exceed the sizes specified in the diagram.

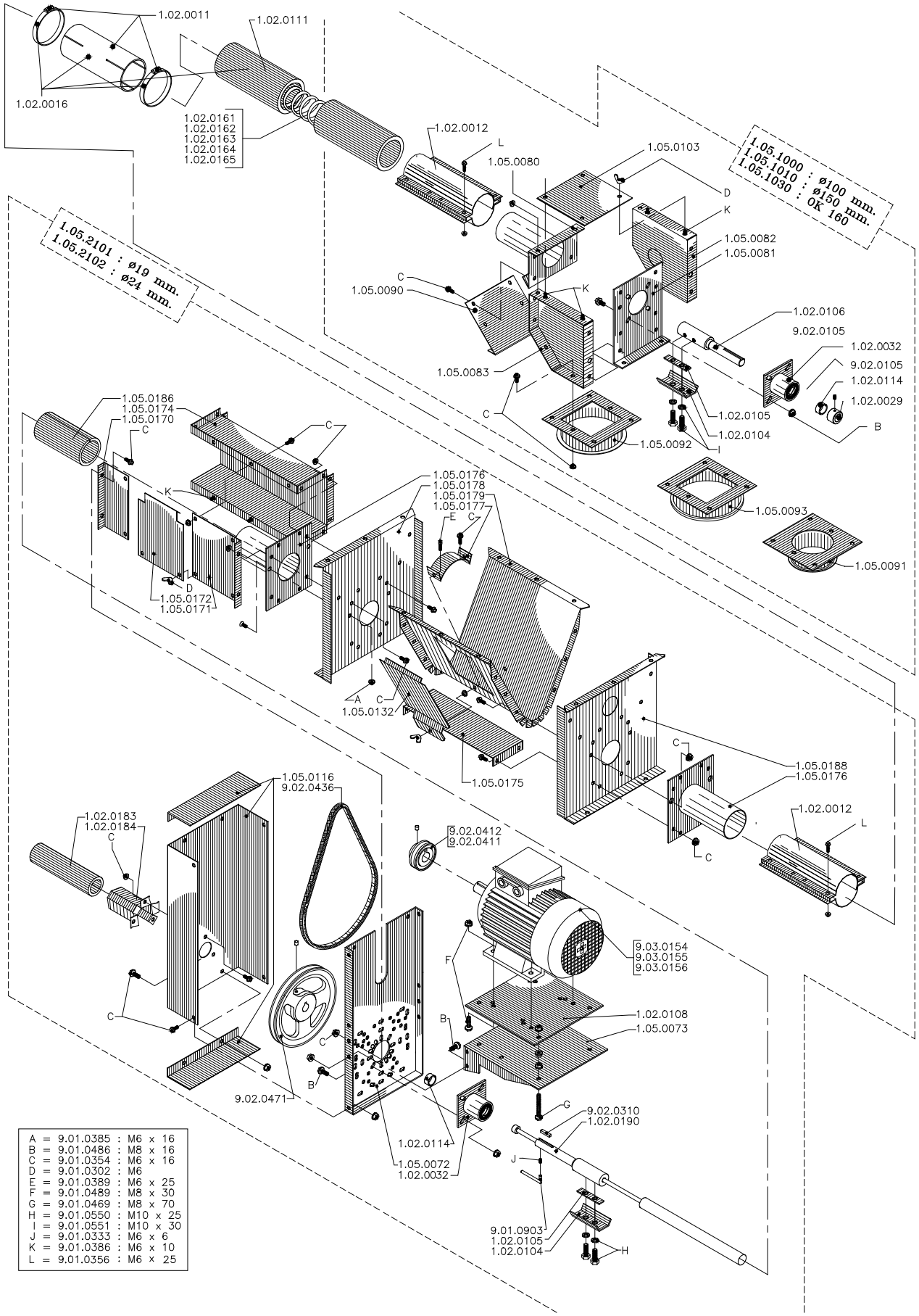
7. Technical instructions

Flexible auger – 75 mm, 90 mm og 125 mm.

See technical instructions on the following pages.

*) See technical drawings.

75 mm Flexible auger – Nr. 4-5



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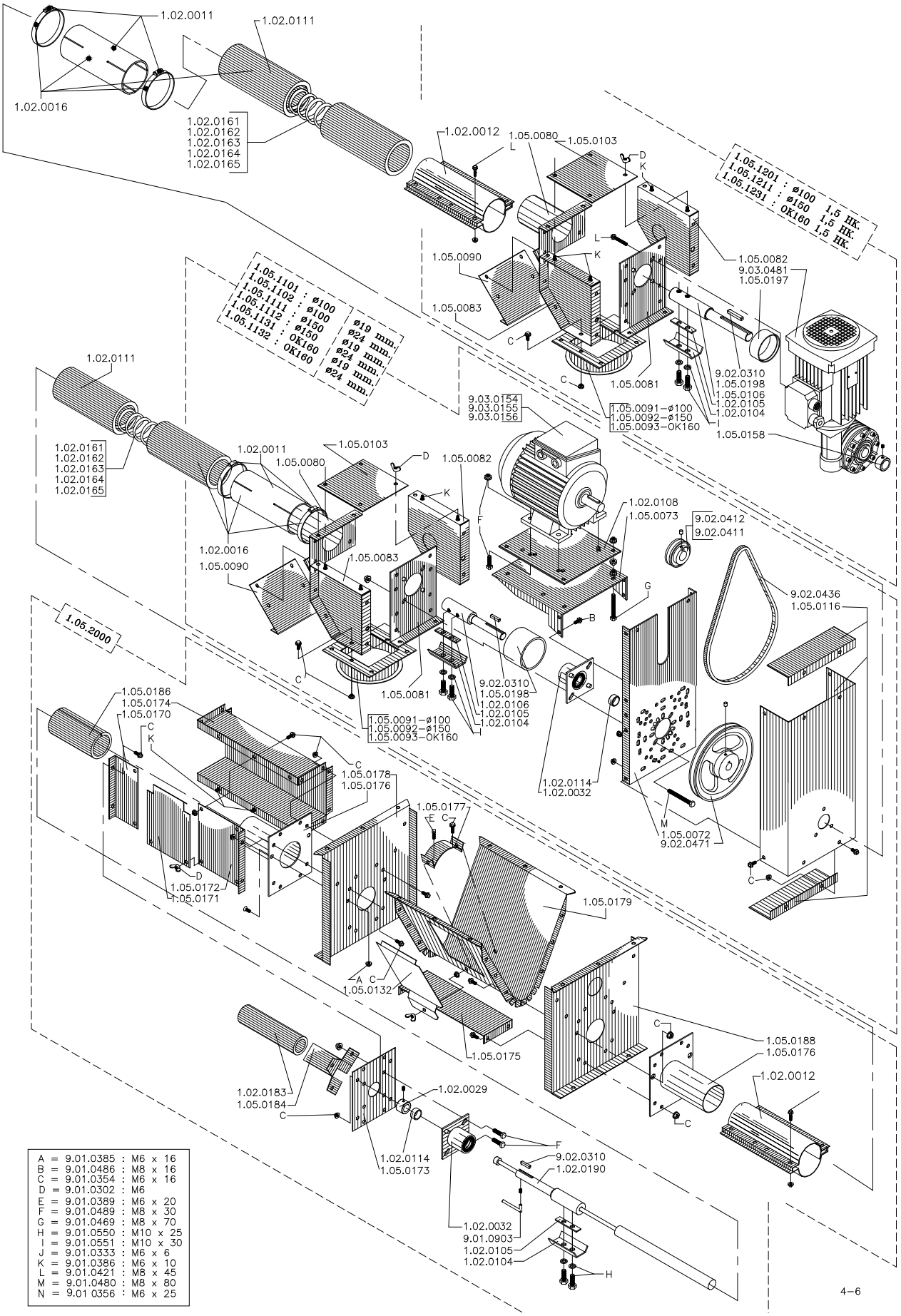
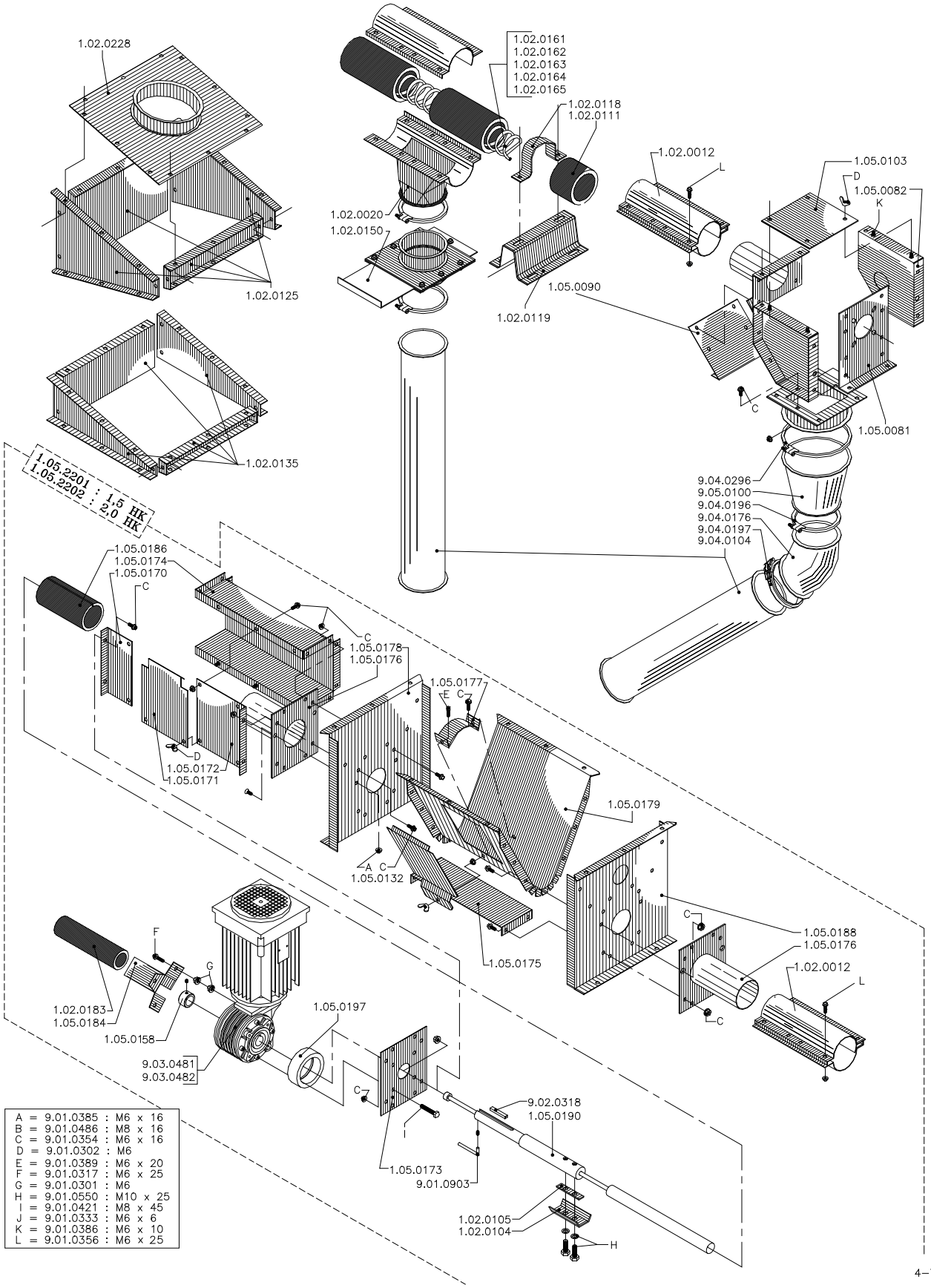
B	=	9.01.0486	: M8 x 16
C	=	9.01.0354	: M6 x 16
D	=	9.01.0302	: M6
E	=	9.01.0389	: M6 x 25
F	=	9.01.0489	: M8 x 30
G	=	9.01.0469	: M8 x 70
H	=	9.01.0550	: M10 x 25
I	=	9.01.0551	: M10 x 30
J	=	9.01.0333	: M6 x 6
K	=	9.01.0386	: M6 x 10
L	=	9.01.0356	: M6 x 25

75 mm Flexible auger – Nr. 4-6

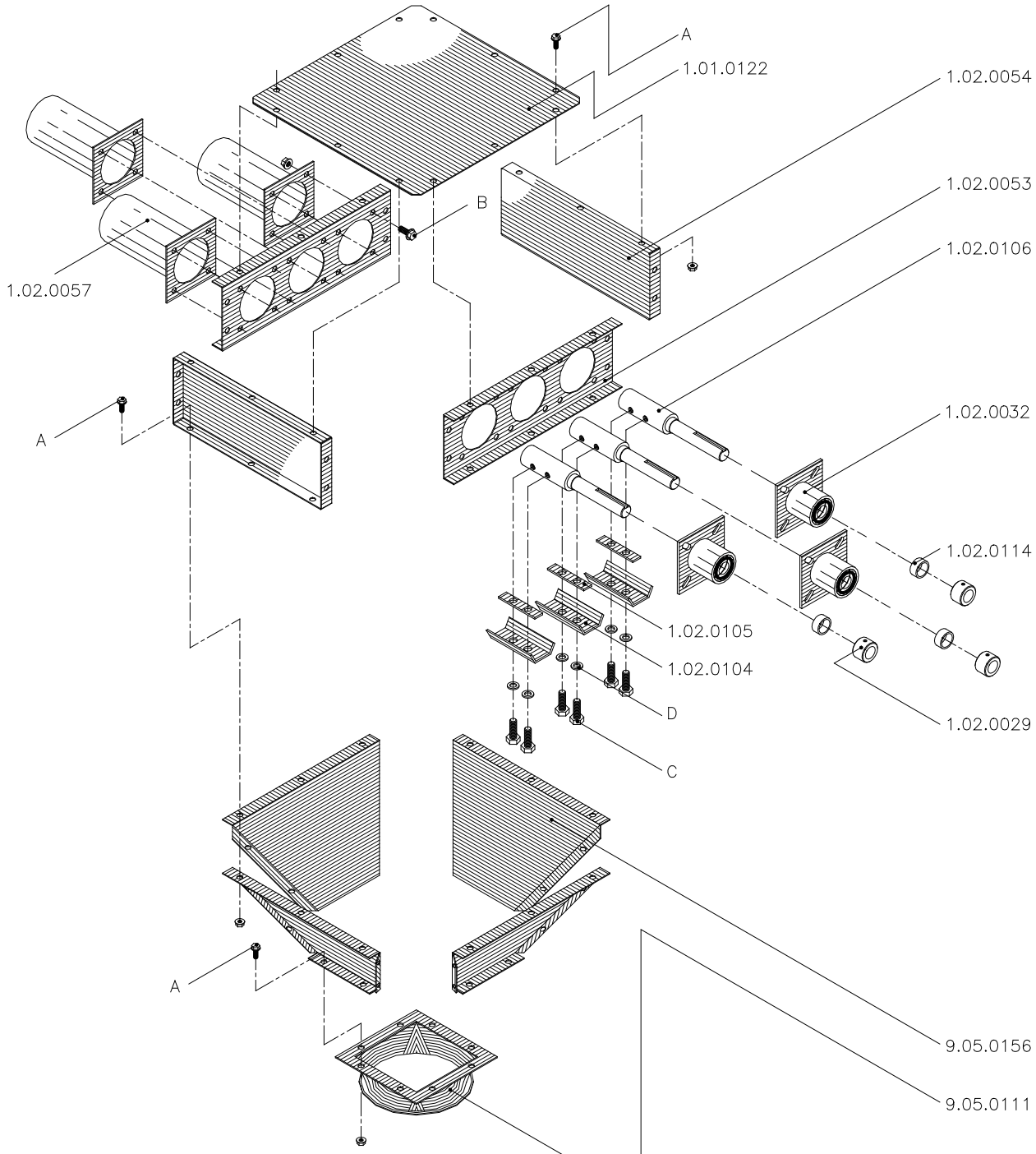


A	=	9.01.0385 : M6 x 16	
B	=	9.01.0486 : M8 x 16	
C	=	9.01.0354 : M6 x 16	
D	=	9.01.0302 : M6	
E	=	9.01.0389 : M6 x 20	
F	=	9.01.0489 : M8 x 30	
G	=	9.01.0469 : M8 x 70	
H	=	9.01.0550 : M10 x 25	
I	=	9.01.0551 : M10 x 30	
J	=	9.01.0333 : M6 x 6	
K	=	9.01.0386 : M6 x 10	
L	=	9.01.0421 : M8 x 45	
M	=	9.01.0480 : M8 x 80	
N	=	9.01 0356 : M6 x 25	

75 mm Flexible auger – Nr. 4-7



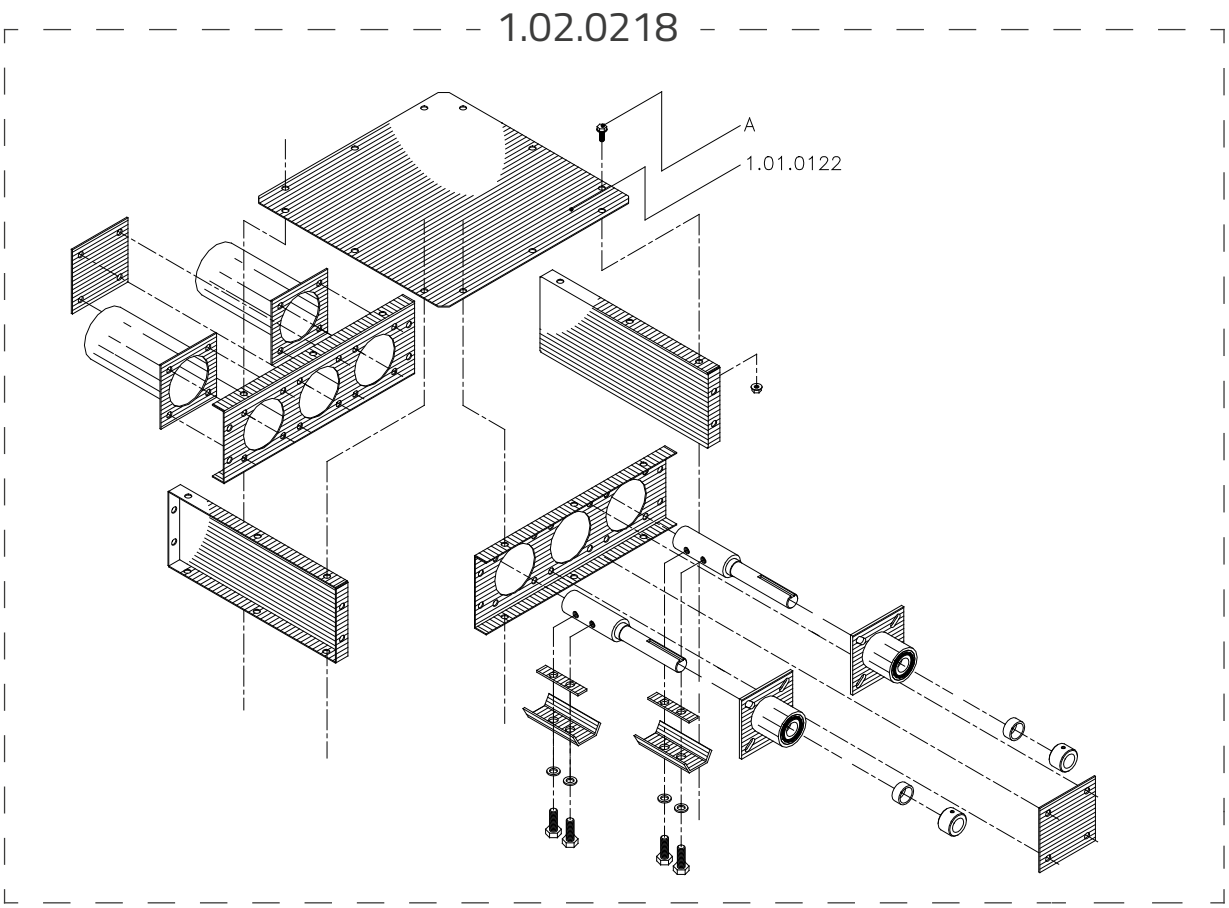
75 mm Flexible auger – Nr. 4-8

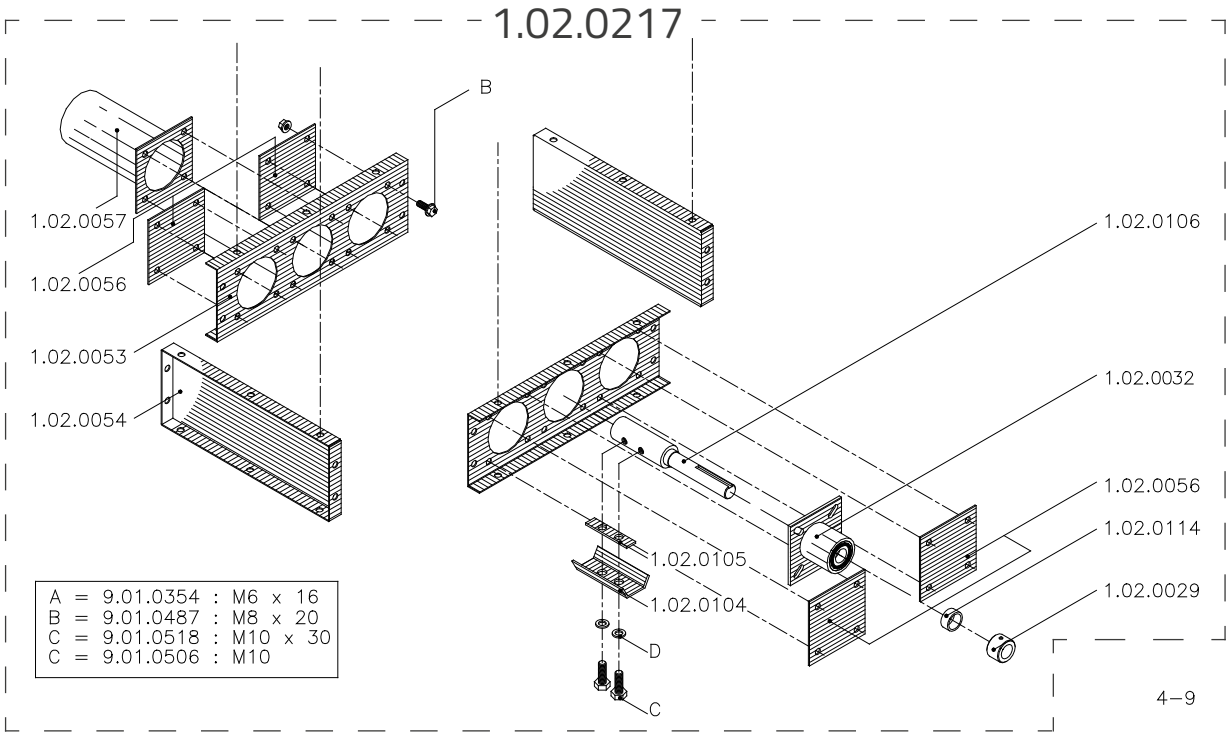


A	=	9.01.0354 : M6 x 16
B	=	9.01.0487 : M8 x 20
C	=	9.01.0518 : M10 x 30
C	=	9.01.0506 : Ø10

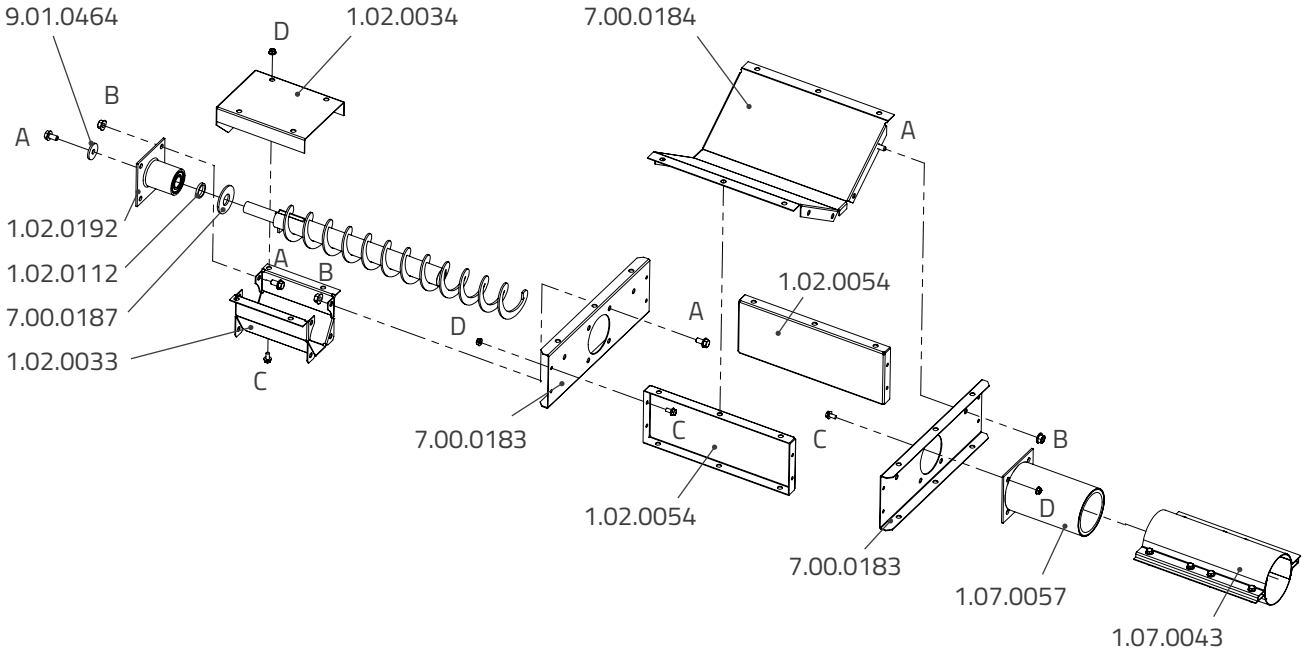
4–8

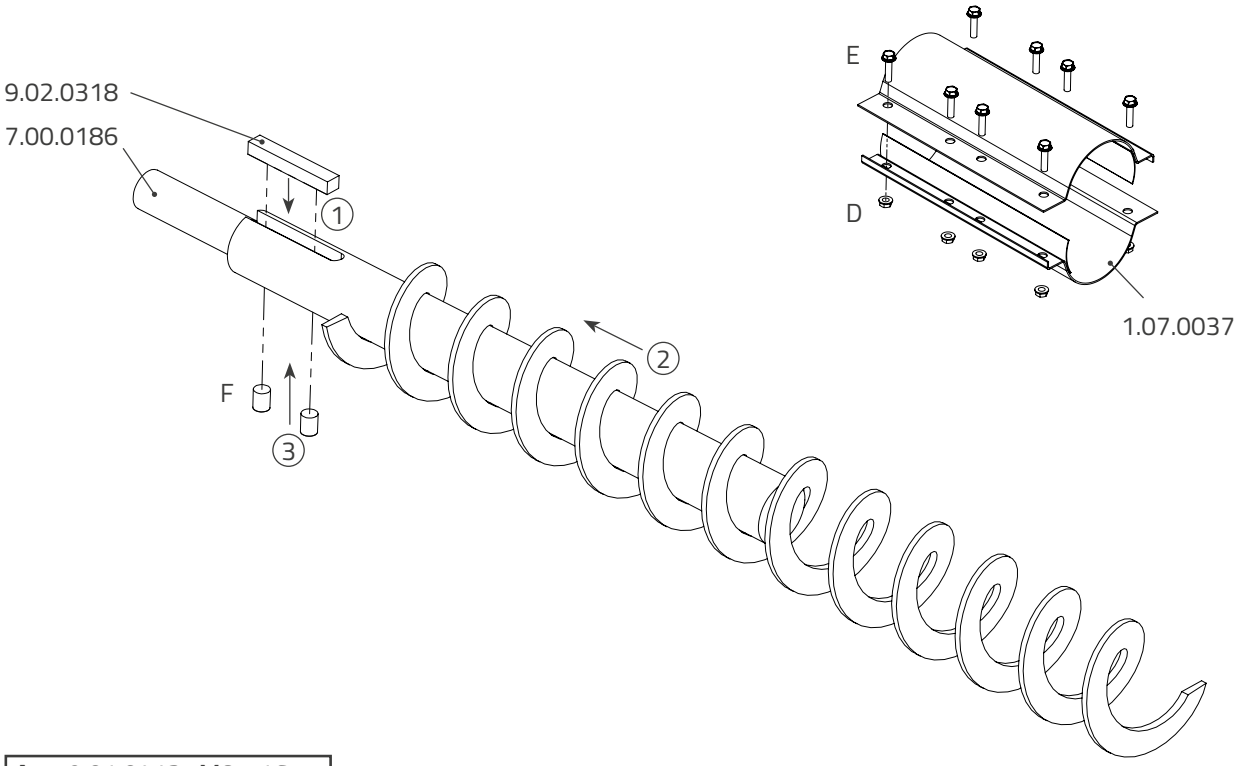
75 mm Flexible auger – Nr. 4-9





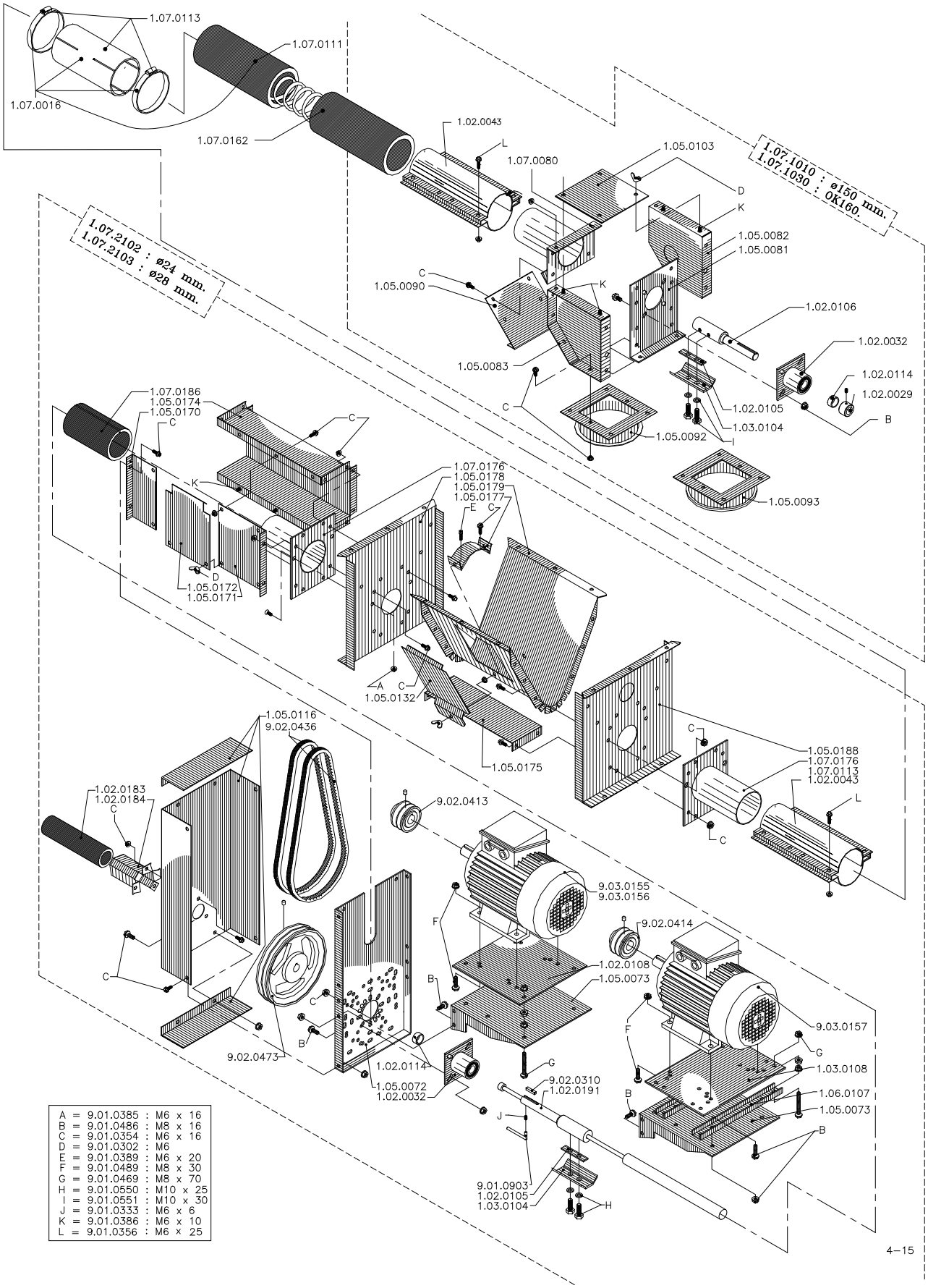
75 mm Flexible auger – Drawing: auger





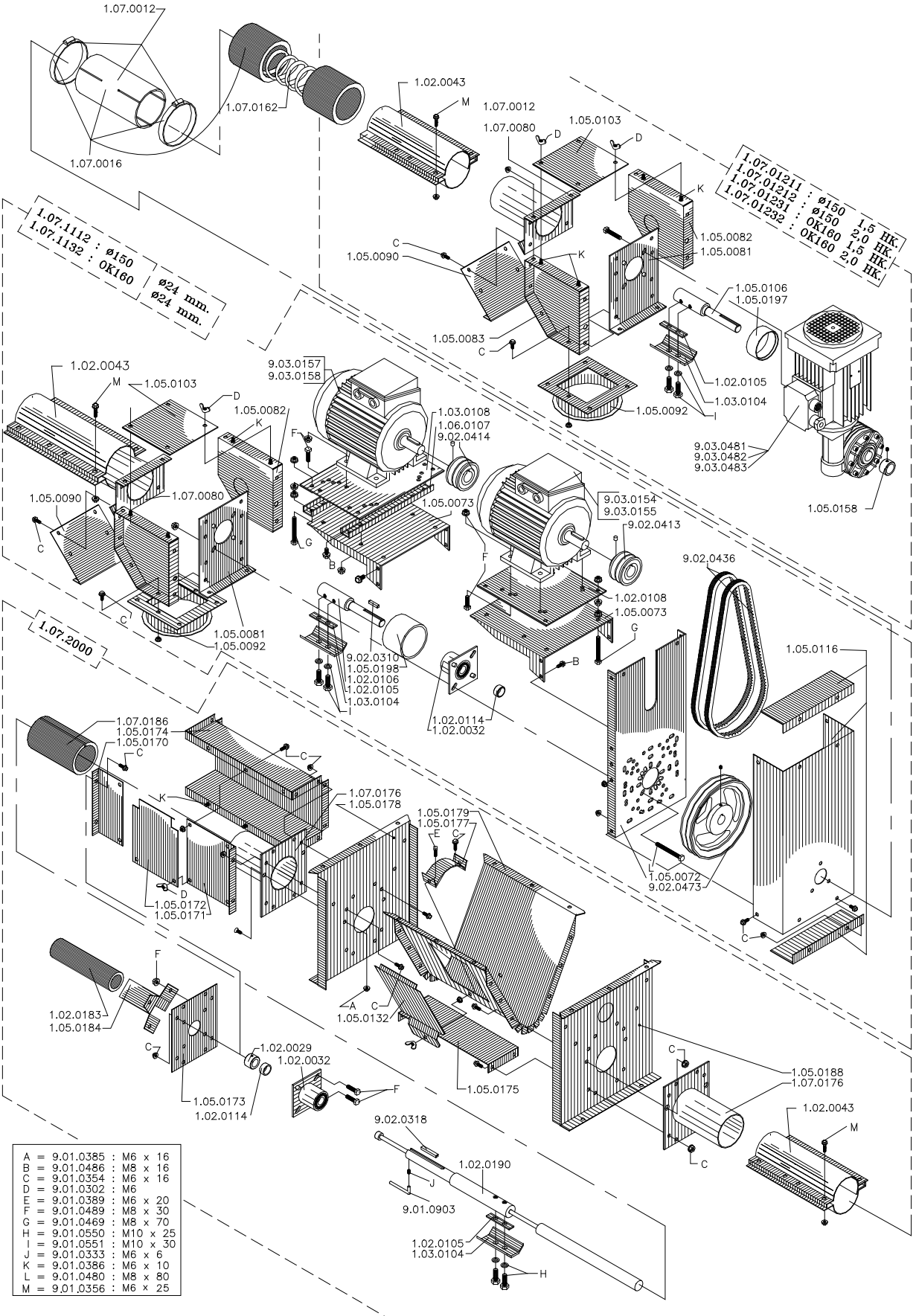
A	= 9.01.0413 : M8 x 16
B	= 9.01.0401 : M8
C	= 9.01.0311 : M6 x 12
D	= 9.01.0301 : M6
E	= 9.01.0317 : M6 x 25
F	= 9.01.0438 : M8 x 10

90 mm Flexible auger – Nr. 4-15



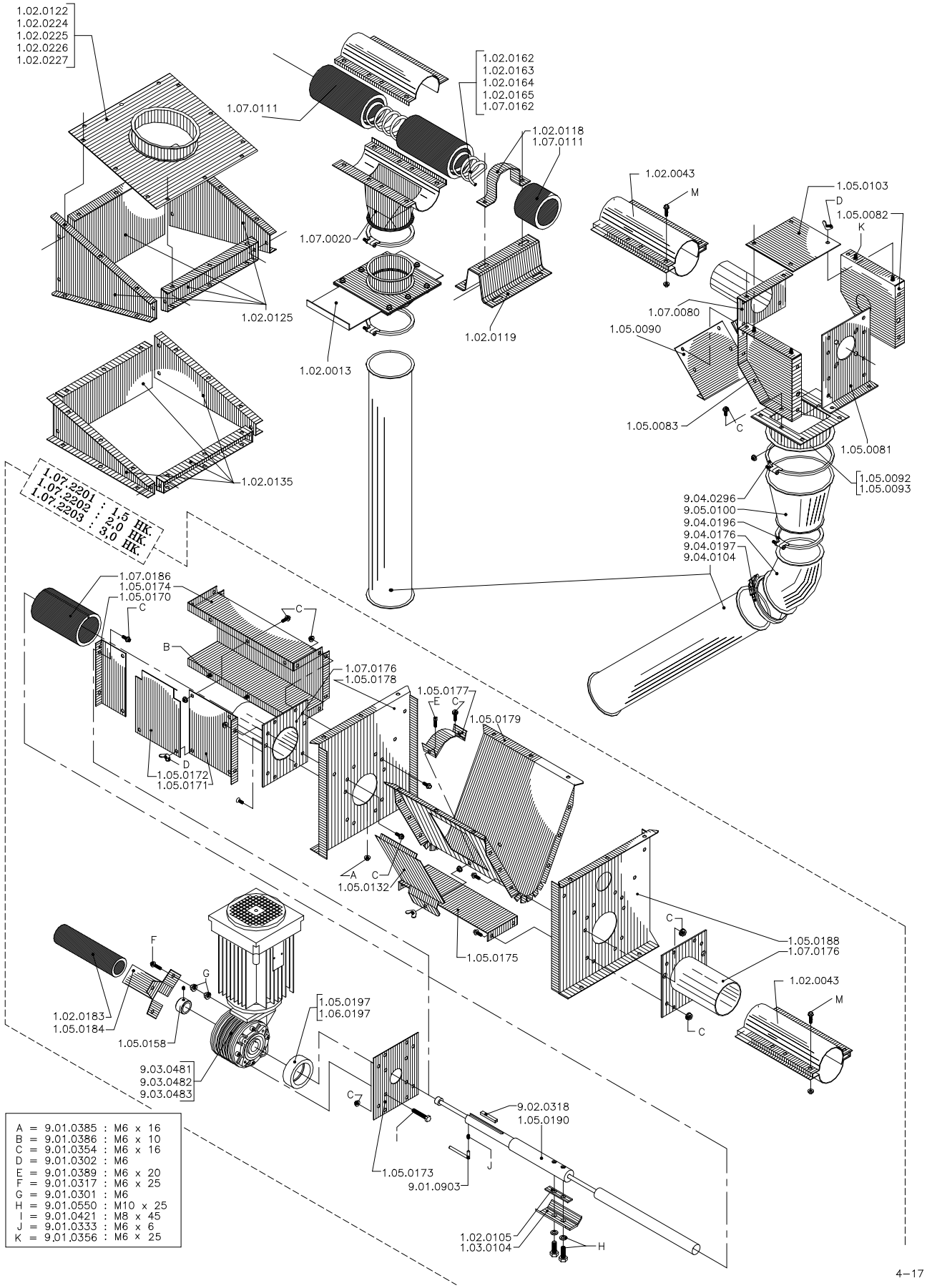
A	= 9.01.0385 : M6 x 16
B	= 9.01.0486 : M8 x 16
C	= 9.01.0354 : M6 x 16
D	= 9.01.0302 : M6
E	= 9.01.0389 : M6 x 20
F	= 9.01.0489 : M8 x 30
G	= 9.01.0469 : M8 x 70
H	= 9.01.0550 : M10 x 25
I	= 9.01.0551 : M10 x 30
J	= 9.01.0333 : M6 x 6
K	= 9.01.0386 : M6 x 10
L	= 9.01.0356 : M6 x 25

90 mm Flexible auger – Nr. 4-16



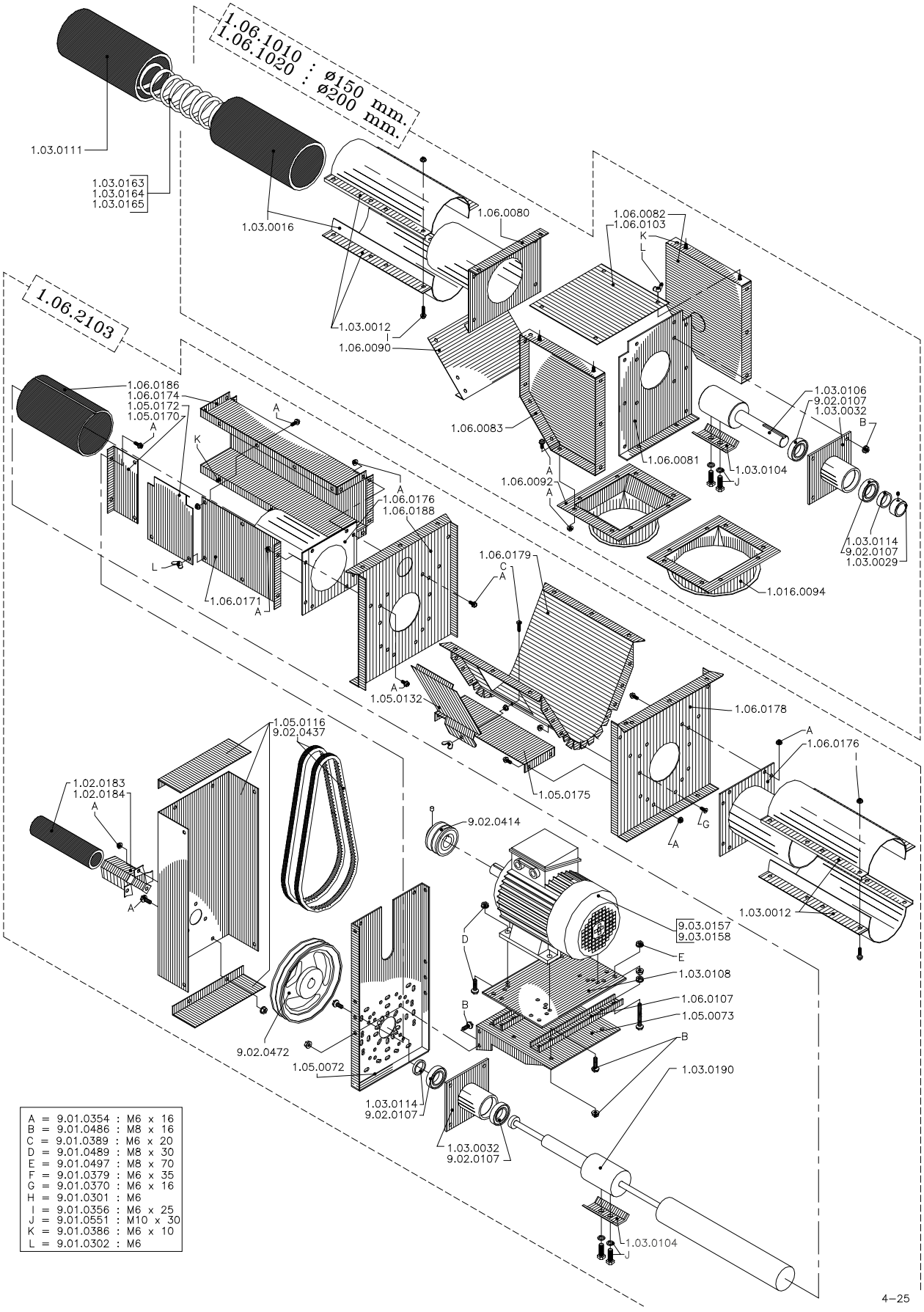
4–16

90 mm Flexible auger – Nr. 4-17



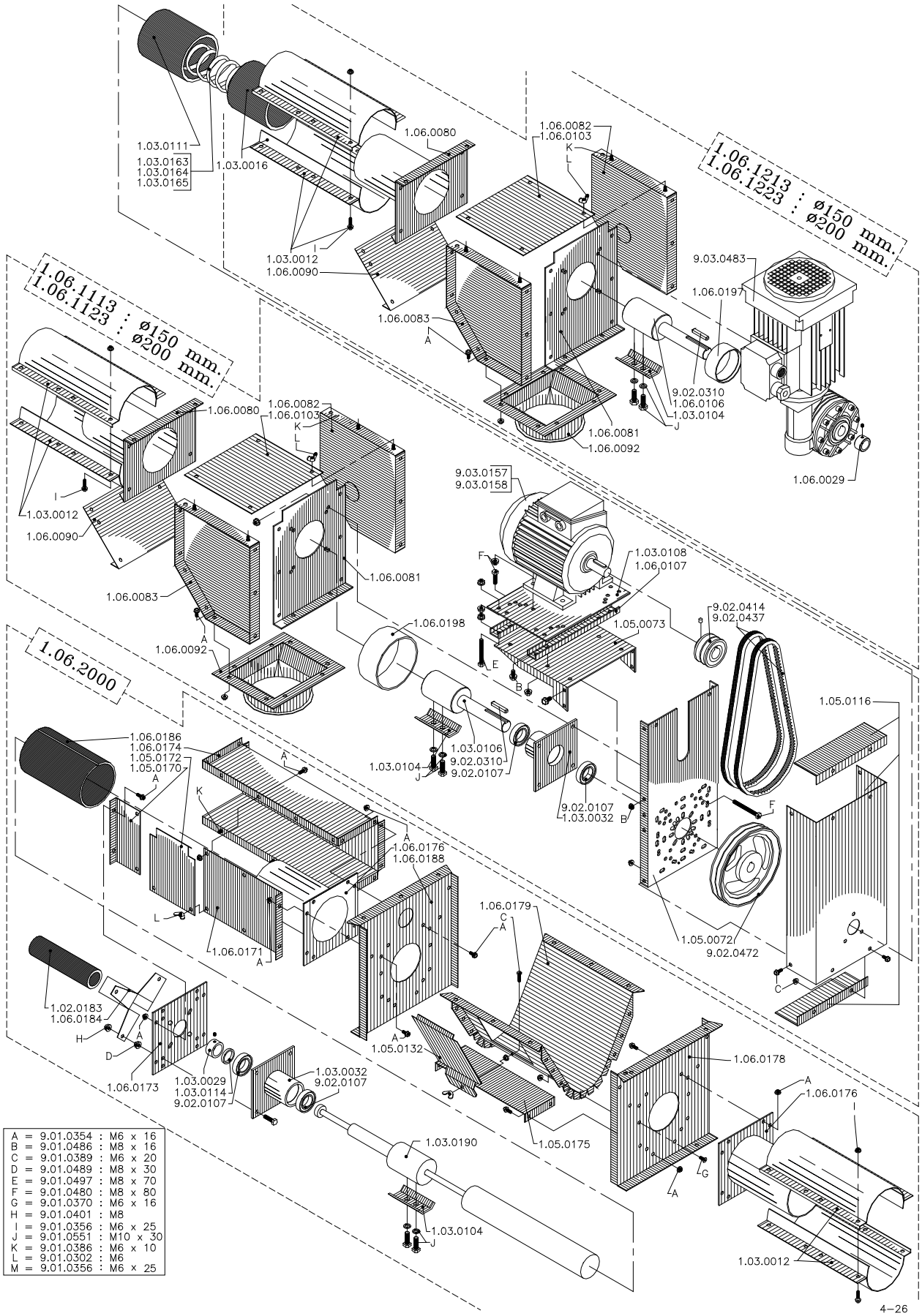
4–17

125 mm Flexible auger – Nr. 4-25

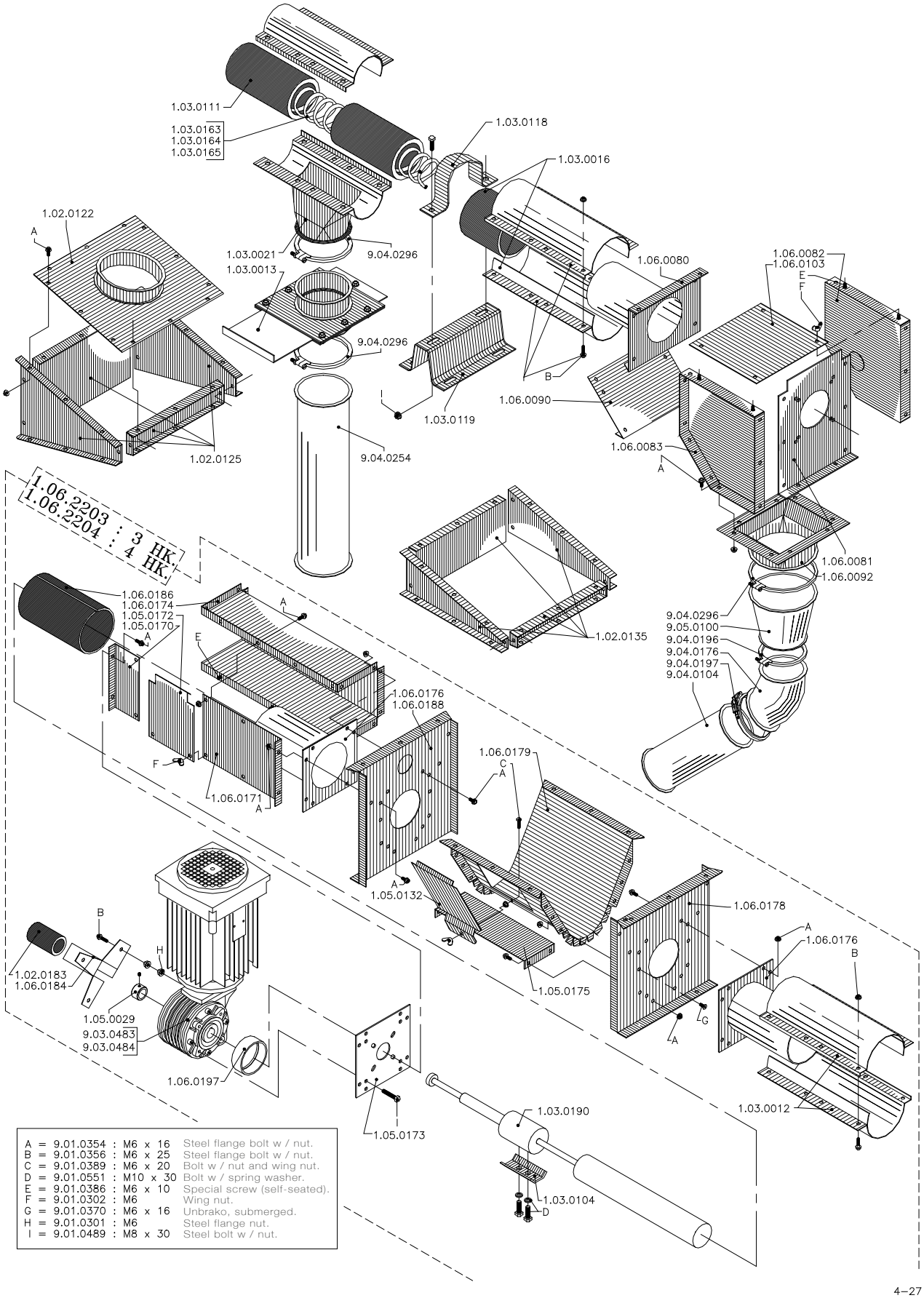


A	=	9.01.0354	: M6 x 16
B	=	9.01.0486	: M8 x 16
C	=	9.01.0389	: M6 x 20
D	=	9.01.0489	: M8 x 30
E	=	9.01.0497	: M8 x 70
F	=	9.01.0379	: M6 x 35
G	=	9.01.0370	: M6 x 16
H	=	9.01.0301	: M6
I	=	9.01.0356	: M6 x 25
J	=	9.01.0551	: M10 x 30
K	=	9.01.0386	: M6 x 10
L	=	9.01.0302	: M6

125 mm Flexible auger – Nr. 4-26



125 mm Flexible auger – Nr. 4-27



4–27