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KCA Chain Conveyor

Technical specifications

Kongskilde KCA chain conveyors meet the demands for a conveyor able to convey both horizontal and with an inclination to give a vertical lift. Max inclination allowed for the KCA conveyor in any configuration is 45 degrees. The KCA conveyors are as standard supplied with capacities for 60, 80 and 120 t/h. The capacities are for grain with a bulk density of 750 kg/m^3.
The KCA conveyors are mainly produced in galvanized material to give max. protection against the impact from the weather on outdoor installations.

Standard Version

The standard version of each size of the chain and flight conveyors consists of a drive section, a tightening section and a number of extensions installed between these two units. The extension sections are available both as closed versions and with side inlet openings. Angle sections of 30 and 45 degrees are available to allow for building part of the conveyor with an inclination of 30 or 45 degrees upwards. After a certain distance, it is possible to add another angle section to revert to horizontal conveying.

The components are designed for a total building length of the conveyor of up to:

KCA 60 - 50 m closed extensions.
KCA 80 - 40 m closed extensions.
KCA 120 - 48 m closed extensions.

If extensions with side inlet or angle sections are used, the total possible physical building length is shorter.

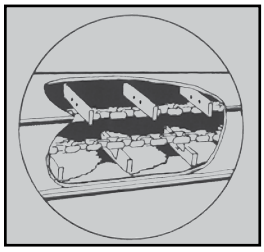
The intermediate extensions are available in lengths of 2.97 - 1.27 - 0.67 - 0.37 m for each conveyor size. Two variants of intermediate extensions are available.

1. Extensions fully closed, which are used for conveying from one point to another.

2. Extensions with side inlets, which are used as part of the conveyor, e.g. in the bottom of grain pits. These extensions are used, where it is beneficial to introduce the grain into the conveyor along the side of the conveyor.

The power consumption of the conveyor depends on the length of the conveyor and some of the optional equipment chosen.

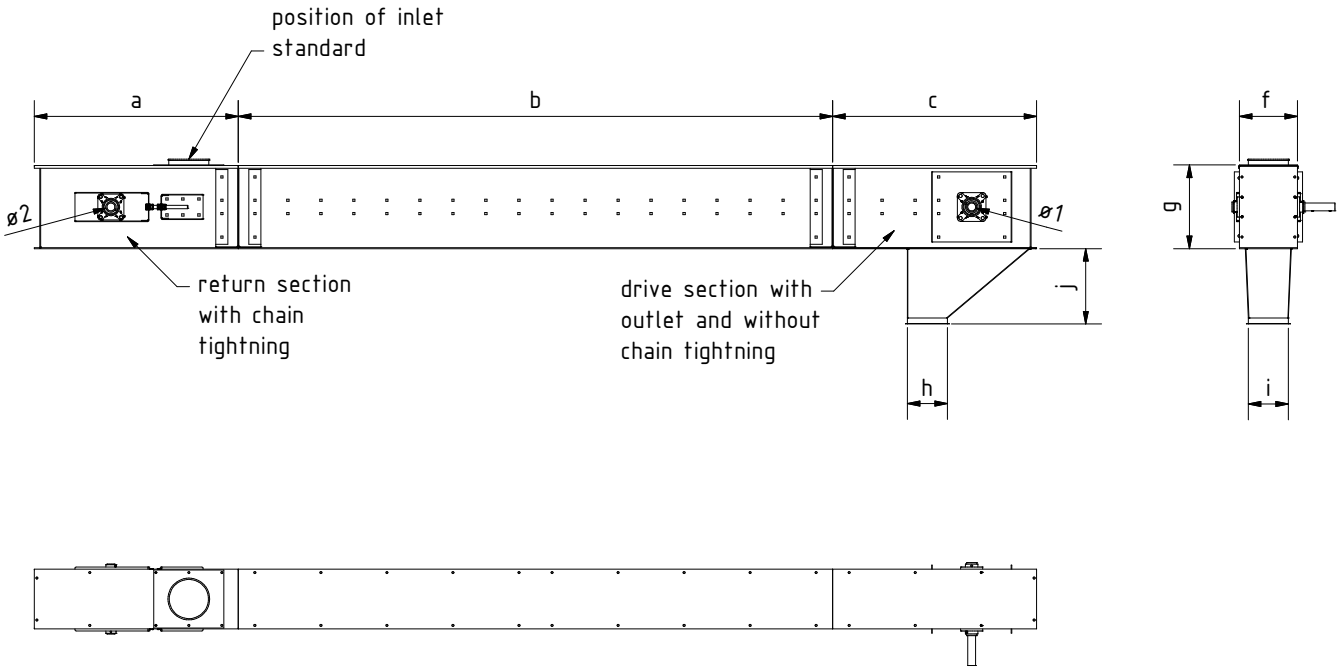
Drive sections for each of the conveyor sizes are then available with different shaft diameters to adapt to different sizes of geared motors. The drive unit is a geared motor. The gear unit is a high efficient type with conical tooth wheel with the motor placed in an angle of 90 degrees to the elevator drive shaft. This is giving the most compact, efficient and stable design.



Examples of Conveyor Configurations

The different examples shown on the three drawings below can be combined on the same conveyor.

The KCA chain conveyor built as a straight conveyor. This conveyor can be used for conveying with an inclination of up to 45 degrees.
The inlet is installed on the tightening section. The opening for the inlet has to be cut at the installation.

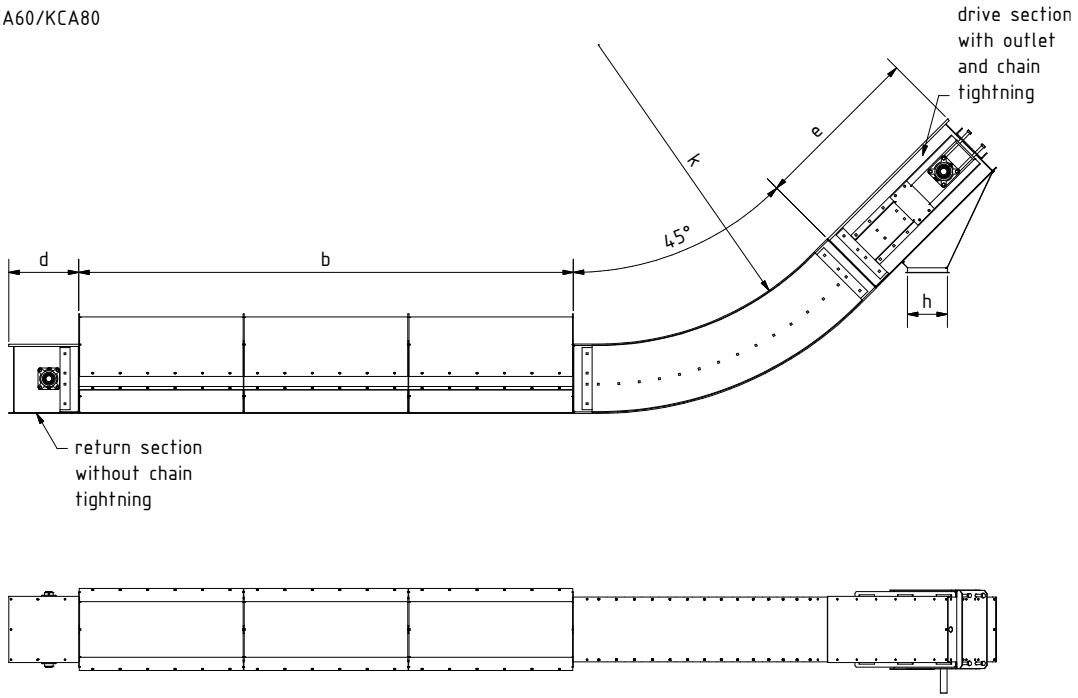


KCA Angle Chain Conveyor with One Angle Section Going 30 or 45 Degrees Upwards

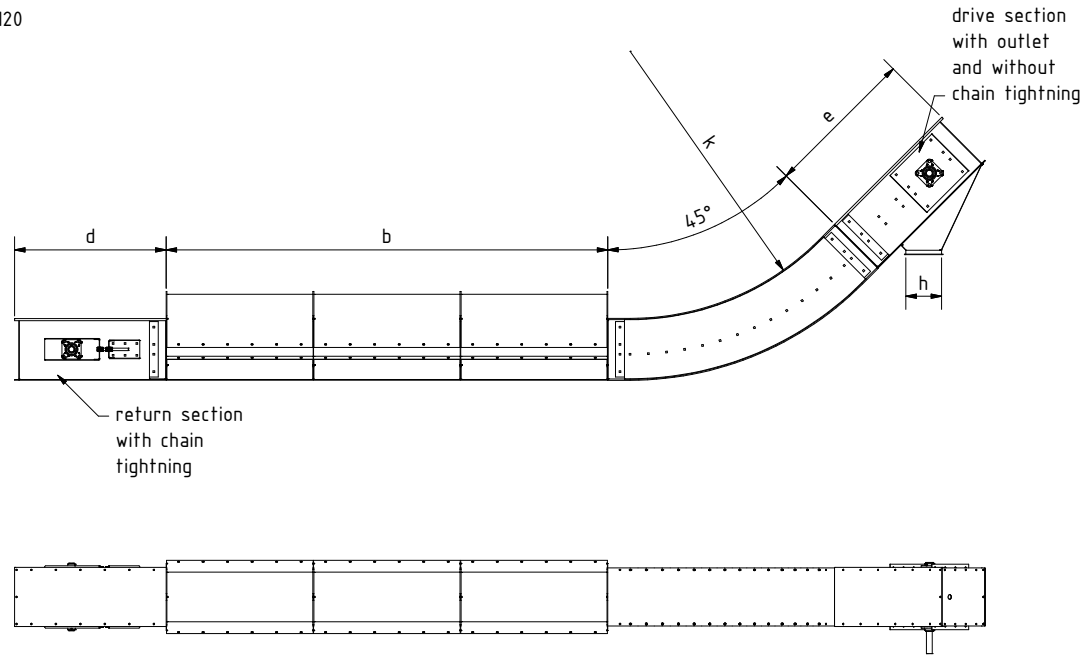
This is typically used to convey from the pit into the inlet of e.g. a bucket elevator.
A part of or the full length of extensions used horizontally is then with side inlet.

For KCA 60 and 80 the drive section can optionally have a tightening device for the conveying chain.
When the drive section with tightening device is used, the return section at the other end of the conveyor is a short section without tightening device.

KCA60/KCA80

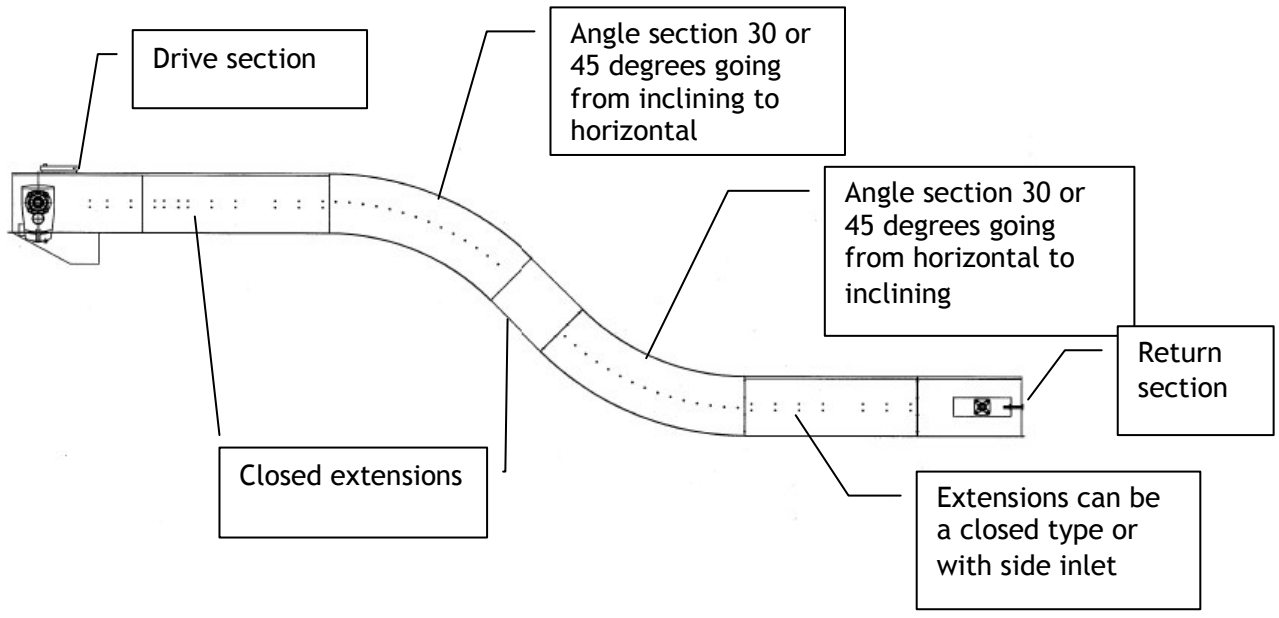


KCA120



Dimension	KCA 60	KCA 80	KCA 120
a	1020	1020	1020
b	2970	2970	2970
c	1020	1020	1020
d	420	420	-
e	1020	1020	-
f	230	330	430
g	410	410	550
h	200	240	300
i	200	240	300
j	347	347	262
k	1800	1800	2000
Ø1	50	50	70
Ø2	40	40	50

KCA Chain Conveyor with Two Angle Sections



For KCA 60 and KCA 80 the chain tightening can either be in the drive section or in the return section.

Accessories

A range of inlet adapters are available making is possible to connect a pipe system to the unit.
The inlet is installed on the return section with the tightening as close as possible to the flange joint to the first following extension.

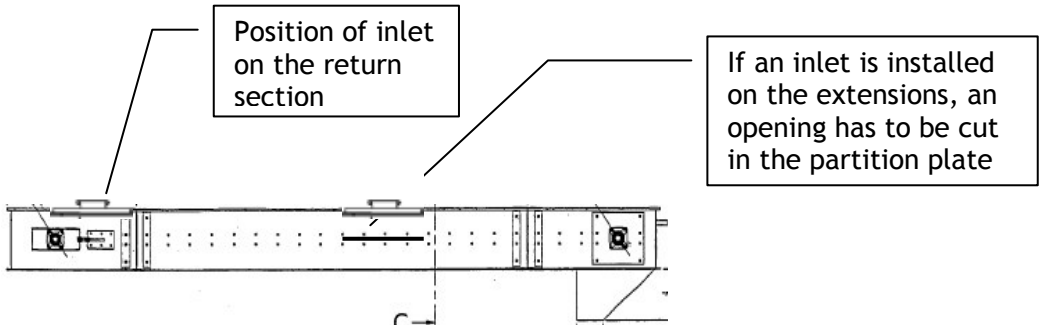
When installing the inlet, it is necessary to cut a hole in the top cover on the conveyor. Holes for mounting the screws also have to be drilled.

The inlet can also be installed on the extensions. In this case it is necessary to cut out the intermediate bottom below the inlet in a distance of 3 times the diameter-size of the chosen inlet dimension.

If the inlet chosen is FK250, the partition plate has to be cut out in a distance of 750 mm symmetrical to the inlet FK250.

Inlets available in the product range:

KCA 60:	OK200
	FK250
KCA 80:	FK250
	FK300
	Q24
KCA 120	FK250
	FK300
	Q30



A range of adapters in relevant diameters is available for the drive section making connection to a down pipe system or to the inlet of a KBE bucket elevator possible.

Intermediate Outlets Available in the Product Range

The intermediate outlets for the KCC conveyors can also be installed on the closed extensions for KCA conveyors. The extensions have to be installed in horizontal position.

In order to be able to install the intermediate outlets a special adapter with chain lift has to be installed on the KCA extension.

If the adapter with chain lift is not used, the flights on the conveying chain will drop down in the hole made for the outlet and thus hit the edge of the hole in the bottom of the extension.

The adapter section has two bars carrying the conveying chain over the opening for the intermediate outlet.

Please note that when the outlet shutter is closed, there will be a layer of grain on the top side of the shutter not moving (30 - 50 mm).

In case there is a demand to avoid this grain to be mixed up with other varieties to be conveyed later, the outlets has to be cleaned out.

Outlets from the KCC chain conveyor range that can be used together with the adapter section on the KCA conveyors:

KCA 60:

137 000 176	KCC 60 Outlet manual
137 000 177	KCC 60 Outlet manual with remote chain operation
137 000 178	KCC 60 Outlet motorized operation
137 000 198	KCC 60 Adapter for outlet to FK250

KCA 80:

137 000 321	KCC 80 Outlet manual
137 000 216	KCC 80 Outlet manual with remote chain operation
137 000 217	KCC 80 Outlet motorized operation
137 000 218	KCC 80 Adapter for outlet to FK250

KCA 120:

137 000 664	KCA 120 Outlet pneumatic operated, 24VDC control w. 2 coils, 2 position indicators.
137 000 665	KCA 120 Transition intermediate outlet to FK250.

137 000 180	Position switch for outlet. Same unit used for all outlets.

Max. two outlets can be installed on a 1.27 m closed extension, and max. 4 outlets can be installed on a 2.97 m closed extension.

Rain Cover

For outdoor installation it is recommended to install a rain cover to protect the motor against impact from the weather.

Technical Data:

Item	Unit	**KCA 60** (60 t/h)	**KCA 80** (80 t/h)	**KCA 120** (120 t/h)
Drive section				
Rotations on shaft nominal	RPM	60	55	35
Shaft diameter	Ø mm	50	50	70
Shaft Ø for gear motor	Ø mm	40 - 50	40 - 50 - 60	50 - 60
Diameter on sprocket wheel (mid)	Ø mm	261	261	326
Teeth on sprocket wheel	mm	8	8	8
Length of section	mm	1020	1020	1020
Material thickness steel bottom	mm	3	3	3
Flights plastic	mm	10	10	10
Weight	kg	83	90	145
Outlets		Q24 45 degr. to inlet bucket elevator	Q24 45 degr. to inlet bucket elevator	Q30 45 degr. to inlet bucket elevator
		Q24 30 degr. to inlet bucket elevator	Q24 30 degr. to inlet bucket elevator	Q30 30 degr. to inlet bucket elevator
		90 degr. to OK200	90 degr. to FK250	90 degr. to FK300
		90 degr. to FK250	45 degr. to FK250	45 degr. to FK300
Grid for inlet to bucket elevator		45 degr. to OK200		
Grid size		45 degr. to FK250		

Tightening section				
Diameter on sprocket wheel (mid)	Ø mm	261	261	326
Length	mm	1020	1020	1020
Material thickness	mm	2 - 3	2 - 3	2 - 3
Weight	kg	70	75	135
Transitions for inlet available	#			Q30
”	Ø	OK200	FK250	FK300
”	Ø	FK250		

Item	Unit	**KCA 60** (60 t/h)	**KCA 80** (80 t/h)	**KCA 120** (120 t/h)
Extensions				
Standard lengths of extensions	m	2.97-1.27-0.67-0.37	2.97-1.27-0.67-0.37	2.97-1.27-0.67-0.37
Number of bolts in flange joints	pcs	4 x 4	4 x 4	4 x 4
Screw dimension in flange joint	M x l	8 x 30, 8 x 16	8 x 30, 8 x 16	8 x 30, 8 x 16
Material thickness in extensions	mm	2/3	2/3	2/3
Max. total building length	m	48	38	46
Max. distance between supports	m	6	6	6
Inlets available	# - Ø Ø	OK200 FK250	FK250	Q30 FK300
Weight with chain	kg/m	45	51	65
Cross dimension of extension inside	w x h mm	230x410	330x410	430x550
Partition plate		Yes	Yes	Yes
Inlets		OK200, FK250	FK250, FK300, Q24	FK250, FK300, Q30

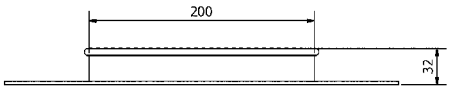
Extensions with side inlet				
Standard lengths in range	m	2.97-1.27-0.67-0.37	2.97-1.27-0.67-0.37	2.97-1.27-0.67-0.37
Number of bolts in flange joints	pcs.	14 - 4	14 - 4	14 - 4
Bolt dimensions	M x l	8x16, 8x30	8x16, 8x30	10x20, 10x30
Material thickness in extensions	mm	2/3	2/3	2/3
Max. building length of extensions	m	30	25	30
Weight	kg	45	51	65
Increase in power consumption	%	50	50	50

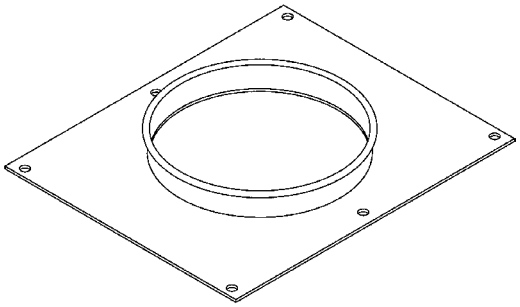
Item	Unit	**KCA 60** (60 t/h)	**KCA 80** (80 t/h)	**KCA 120** (120 t/h)
Conveying chain				
Standard conveying chain	DIN	8165	8165	8165
Partition on chain	mm	200	200	250
Chain speed	m/sec	0.82	0.77	0.6
Weight of chain	kg/m	5.5	6	8.5
Flights PEHD (each sec. link)	mm	10 (230x140)	10 (330x145)	10 (430x220)
Cleaning flights. Full size PEHD paddles		2 pcs on each 2.97 m extension	2 pcs on each 2.97 m extension	2 pcs on each 2.97 m extension
Return section w.o. chain tightening		Available	Available	NA
Length of return section	mm	420	420	
Weight	kg	28	33	
Spec. drive section				
Drive section w. chain tightening		Available	Available	NA
Length	mm	1020	1020	
Diameter on shaft for gear drive	Ø mm	38 - 48 - 60	38 - 48 - 60	
Weight	kg	94	104	
Speed control				
		Motor protection	Motor protection	Motor protection
Rain cover for motor Rain cover		Option	Option	Option
Angle section				
Standard angles		30 and 45 degr.	30 and 45 degr.	30 and 45 degr.
Horizontal → 30 degr. up		Option	Option	Option
30 degr. up → horizontal		Option	Option	Option
Horizontal → 45 degr. up		Option	Option	Option
45 degr. up → horizontal		Option	Option	Option
Power consumption equals to standard extensions per angle section	m	10	10	10
Weight	kg	93	123	166

Outdoor installation				
Precautions		Mastics to be used in joints	Mastics to be used in joints	Mastics to be used in joints

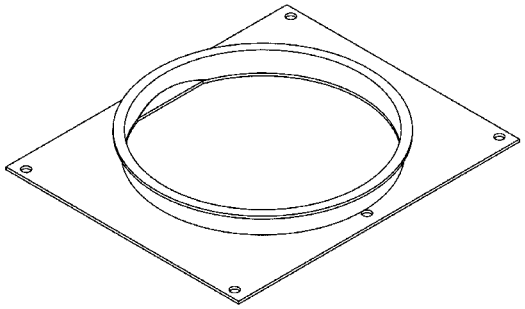
Item	Unit	**KCA 60** (60 t/h)	**KCA 80** (80 t/h)	**KCA 120** (120 t/h)
Motor power requirement				
1.5 kW	m			
2.2 kW	m	< 11	< 5	
3.0 kW	m	11.1 - 17	5.1 - 11	< 5
4.0 kW	m	17.1 - 26	11.1 - 16	6.1 - 9
5.5 kW	m	26.1 - 41	16.1 - 25	9.1 - 15
7.5 kW	m	41.1 - 50	25.1 - 40	15.1 - 23
11.0 kW	m			23.1 - 38
15.0 kW	m			38.1 - 48
Max. equivalent conveying distance	m	50	40	48
Power consumption, side inlet		1.5 x standard length closed	1.5 x standard length closed	1.5 x standard length closed
Power consumption, angle section		10 m standard length closed	10 m standard length closed	10 m standard length closed

Assesories - Chain Conveyors type KCA 60



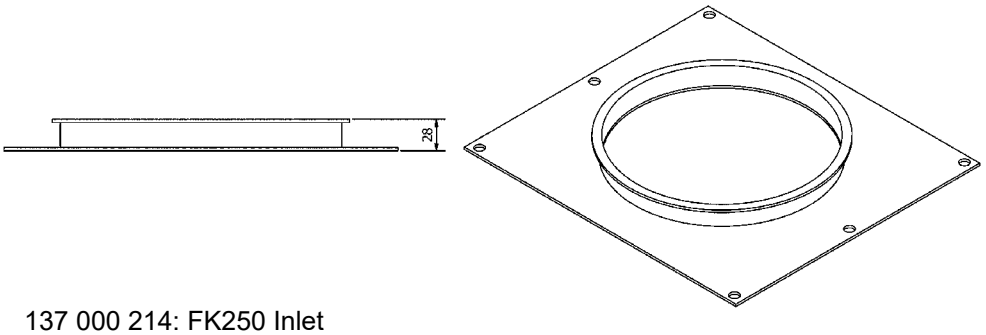


137 000 174: OK200 Inlet

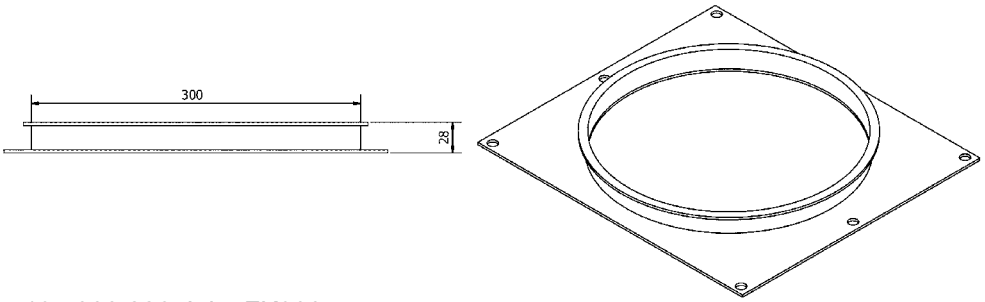


137 000 196: FK250 Inlet

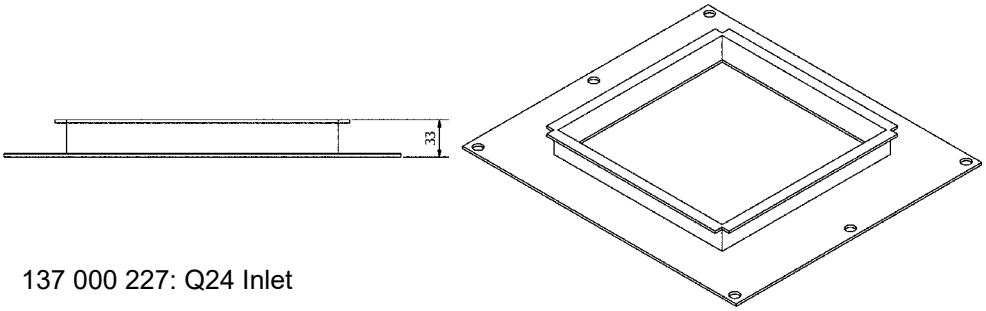
Assesories - Chain Conveyors type KCA 80



137 000 214: FK250 Inlet

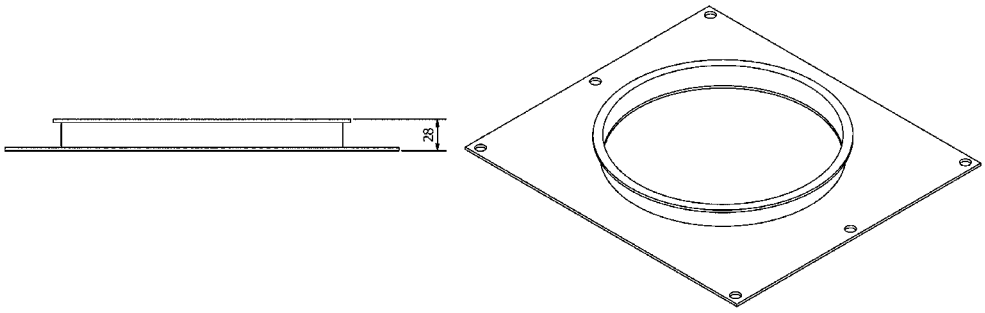


137 000 226: Inlet FK300

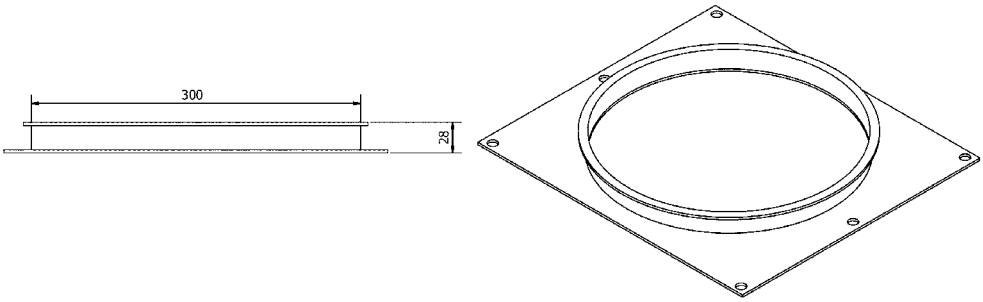


137 000 227: Q24 Inlet

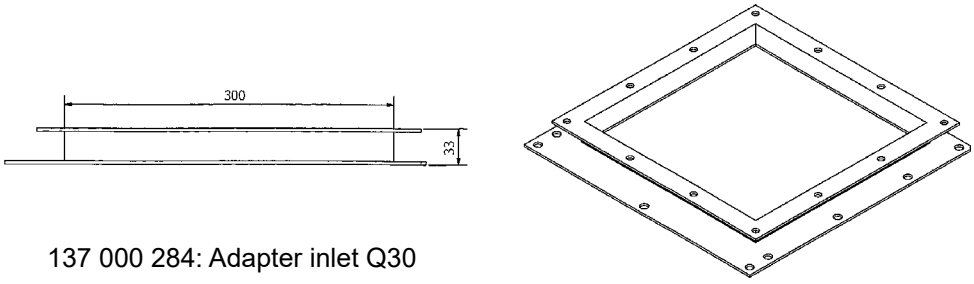
Assesories - Chain Conveyors type KCA 120



137 000 214: FK250 Inlet



137 000 226: Inlet FK300



137 000 284: Adapter inlet Q30

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