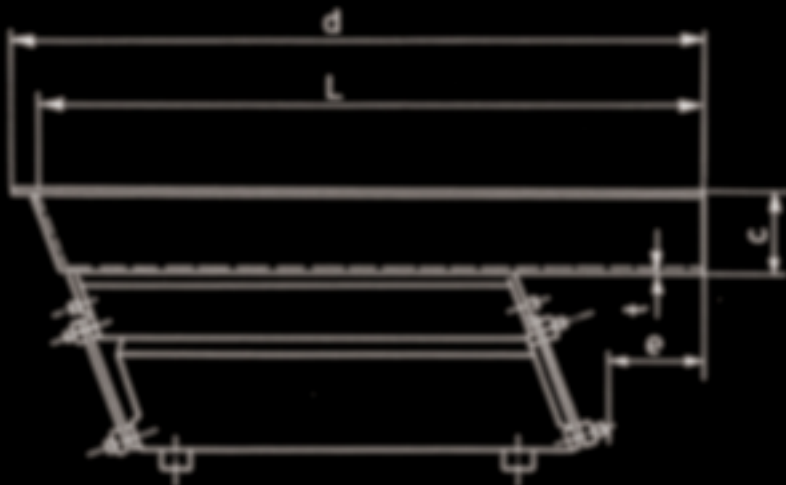
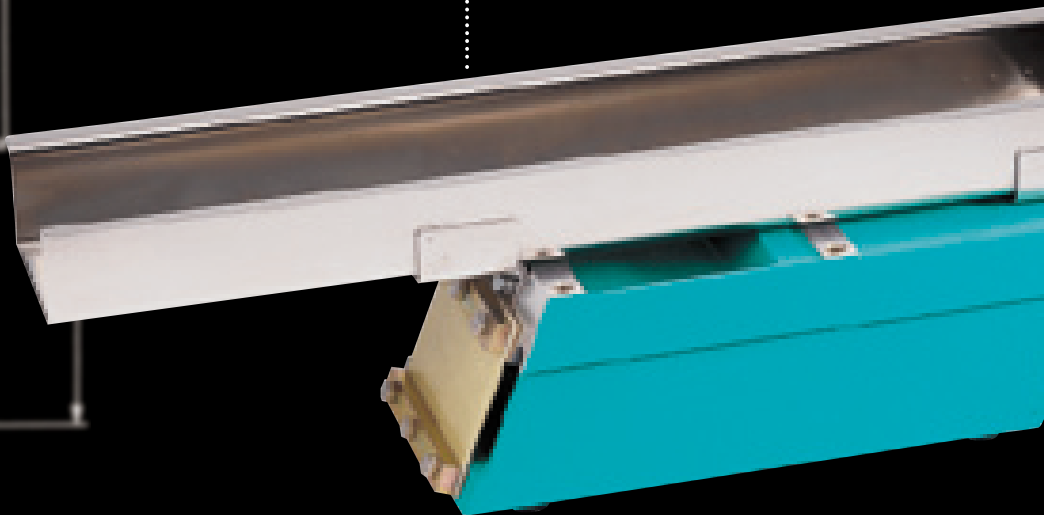
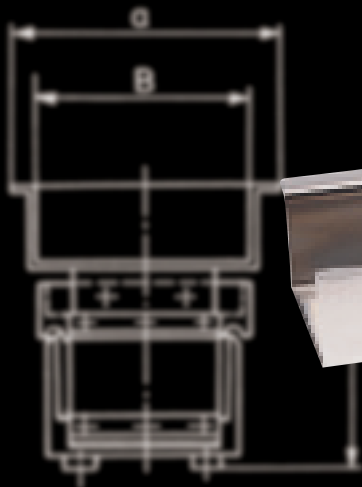


Conveying and Dosing of Bulk Material



We move
you forward.

Conveying and Dosing

Small-parts conveyors are vibrating conveyors used for discharging, conveying, feeding, dosing and distributing fine-grained bulk materials and not for bulky material. AViTEQ Vibrationstechnik, formerly AEG Vibrationstechnik, has been manufacturing these conveyors for over 50 years.

They are used in many branches of industry, for example in the chemical and synthetic materials industries, food processing, sand, gravel and stone quarries, for small-parts assembly mechanisms, in the foodstuffs and luxury food sectors, the paper-making industry, sugar refineries, oil refineries and foundries.

Compact *small-parts conveyor drives* are available in a wide range of sizes fitted with quick-change attachments such as troughs, tubes and rails.

- open troughs for conveying and dosing bulk materials
- closed troughs and tubes for dust-sealed conveying and dosing of bulk goods
- workpiece-specific rails for conveying and oriented storage of parts

Small-parts conveyor drives are available with a ready-mounted trough. These are standard items in our programme of equipment for conveying and dosing of bulk materials. They can also be supplied with variable-height feed hoppers and hopper vibrators as required.

Our *Vibtronic-S controllers* allow the conveyors to run off AC mains with amplitude settings at any level between near-zero and the rated level.

Advantages of AViTEQ small-parts conveyors: generous conveying capacities with compact dimensions

- reliable operation over long periods
- specially designed two-mass vibration system
- vibration characteristics are unaffected by weight of conveyed material
- maintenance-free drive unit
- conform to all EU guidelines applying to these devices
- also available in explosion-protection enclosures as well as for 60 Hz mains and other voltage levels

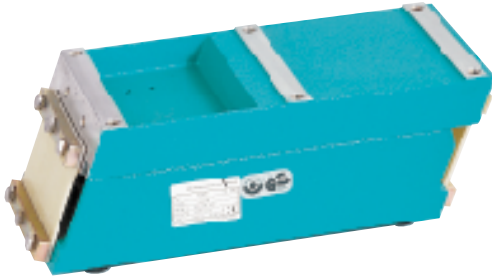


Small-parts conveyors with various conveyor attachments

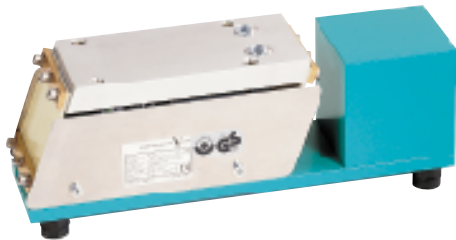


CE = This declaration certifies conformance with the specified standards and directives of the EU
GS = Tested for safety

Small-parts Conveyors



Small-parts conveyor drive, preferable for use with attachments for conveying and dosing bulk materials



Smart parts conveyor drive, preferable for use with attachments for conveying and oriented storage of parts

Construction and mode of operation

Small-parts conveyors are two-mass vibration systems tuned to near resonance. The drive section contains the vibration-inducing elements, i.e. electromagnet and leaf-spring bundles.

The attachment is affixed to the drive unit so as to be readily removable. Optimum system design and balancing ensure uniform vibration.

Individual components are available separately and are always compatible. A small-parts conveyor system thus always consists of the small-parts conveyor drive and conveyor attachment (trough or conveyor rail).

An appropriate Vibtronic-S control unit is required for all drives. Its amplitude controller provides for wide-range adjustment of conveyor feed.

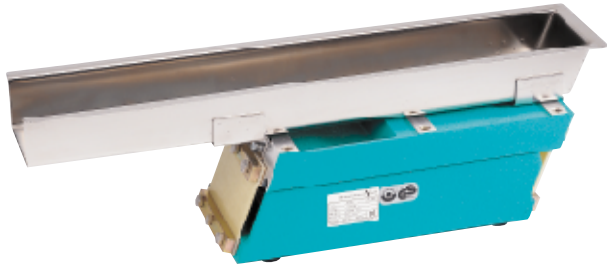
The small-parts conveyor stands on rubber mounts to minimize vibration transmission to the environment.

Small-parts conveyor drives

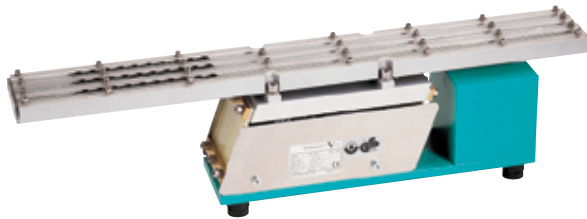
Two types are available for all potential applications.

The first type (models KR-2, KF 1, KF 6, KF 12) is particularly suitable for discharging and conveying bulk material, e.g. distribution of components in mixer plants. The small-parts conveyor is fitted with a trough or tube accordingly. Types KF 1, KF 6 and KF 12 are also available in (Ex) eG4 versions for use in rooms with an explosion hazard.

The other type (KF 0.3, KF 0.5, KF 0.7, KF 0.9) is used mainly as a rail drive unit for conveying oriented parts, e.g. in a transport or holding section between the parts conveyor and downstream equipment or machines. In this case, a conveyor rail is mounted on the small-parts conveyor that is adapted exactly to the part to be transported. Another variant is the "CR" version, used for example in the food-processing and pharmaceutical industries. These small-parts conveyors have no painted parts, are easy to clean, are resistant to UV light, alcohols and formalin and suitable for use in sterile working environments. They can therefore also be fitted with a trough or tube for conveying bulk materials.



Small-parts conveyor with standard trough in open version with open discharge outlet and rectangular cross-section for conveying and dosing bulk materials



Small-parts conveyor with workpiece-specific 3-element rail for oriented storage and conveyance of parts



Small-parts conveyor with standard trough and adjustable-height feed hopper for storage and dosing of bulk materials

Conveying attachment

Small-parts conveyors with open troughs in standard dimensions are shown on page 7. Depending on requirements, these attachments can be fitted with covers as well as inlet and outlet mufflers.

Attachments with different dimensions, or in the form of conveyor tubes fitted with e.g. sieve inserts, refrigerated surfaces, etc. can also be supplied.

Long conveying distances can be mastered by means of additional small-parts conveyor units (multiple-drive units).

Rails for conveying oriented parts are always built to order according to parts dimensions.

Standard attachments are made of special steel and electrochemically polished.

Depending on specific requirements, the conveyor attachments are also given various coatings such as polyurethane, rubber, ceramics, Teflon or fitted with conveyor brush material.

In cases where customers provide their own conveying attachments (trough, rail, etc.), they must provide for sufficient vibration rigidity of components used. Long constructions, low side-walls without edge foldings, thin sheet metal or excessive widths without reinforcing struts must be avoided. Nominal weight and positioning of the attachment on the drive unit must be carefully considered.

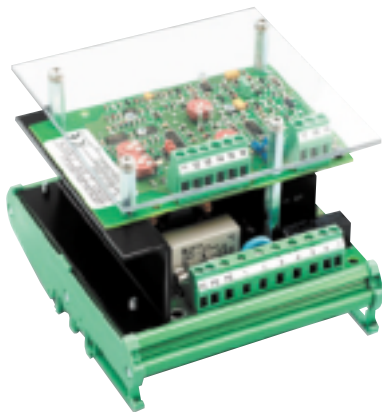
Feed hoppers

Three sizes of special steel feed hoppers are available to suit the range of different small-parts conveyors. The volume of the hopper and the diameter of the discharge outlet are determined by the width of the standard trough used. The feed hoppers are adjustable for height and are attached to a special frame. The base-plate of the frame supports the small-parts conveyor, thereby forming a single unit. The vertical adjustment makes it easy to regulate the layer height in the trough, which in turn controls the delivery flow. If required, the feed hopper can be supplied with a vibrator which causes the material being conveyed to discharge more easily.

Power Connection



Vibronic-S control unit, model series SRA... in standard housing



Vibronic-S control unit, model series SRAE... for Clip-On installation on a standard C-bar



Vibronic-S control unit, model series SW... in standard housing

Vibronic-S Controllers

Conveyors for small parts are connected either to 50 Hertz or to 60 Hertz mains by different controllers. Modern controllers type SRA... ensure a safe and reliable operation of magnetic driven conveyors with a current range of 0.05 A to 6.0 A max.

The controllers can be applied universally with various standard functions and additional options and can easily be adapted to many different operations and also to individual requirements.

In the housing version of the control mains switch and amplitude regulator are mounted into the front of the device. The connectors for conveyor and sensoric devices are plug-in types. The open frame device is designed for a Clip-On installation on a standard C-bar according to EN 50022.

The controller is equipped with the following standard functions:

- output voltage regulation; thus amplitude remains constant despite of a fluctuation of the mains voltage within $\pm 10\%$.
- the amplitude and thus the feedrate of the conveyor can be varied from 0 to 100%; both are proportional to the set value.
- the set value of the amplitude can either be given by potentiometer or by one of the external signals 0-10 V, 0-20 mA or 4-20 mA.
- an output signal Run-Fault is available
- the controller can be started by a switch in the mains, by an interlocking contact or by an interlocking voltage signal 24 V-DC.

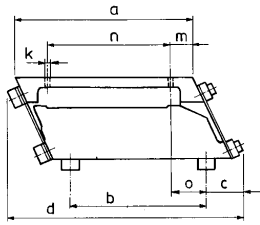
For conveyors with a rated current below 0.1 A a simple controller type SW... is available. For conveyors with rated current more than 6.0 A a controller SCE... must be used.

Various sensors, such as fork light barriers, inductive proximity sensors and limit switches are available for the combination of the conveyors with other components of the installation and handling technology

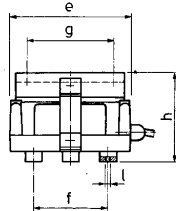
For the use of the controllers in hazardous environment, they must be equipped with over-voltage and overcurrent protection according to the special conditions of the "Physikalisch-Technische Bundesanstalt (PTB)". They must be installed in a non-dangerous area or they must be pressure-proof encapsulated.

All controllers comply with the EU electromagnetic compatibility regulations (EMC) and EG regulations 89/336/EWG and revisions of 91/263/EWG and 92/31/EWG.

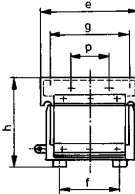
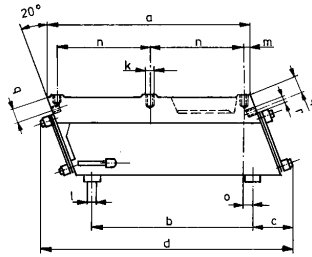
Small-parts Conveyor Drives



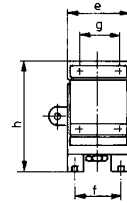
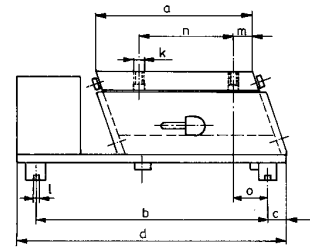
Small-parts conveyor drive
Type KR-2



Small-parts conveyor drive
Type KF 1, KF 6, KF 12



Small-parts conveyor drive
Type KF 0.3; KF 0.5;
KF 0.7; KF 0.9



Small-parts conveyor drives

Type	For attachment ¹⁾ with			Weight without attachment	Amplitude/min. on 50 Hz mains	Max. current consumption at 230 V, 50 Hz	Protection type acc. to DIN 40050	Permissible ambient temperature °C
	Ideal weight	max. weight ²⁾	max. length L					
	kg	kg	mm	kg		A		
KR- 2	0.8	1.5	400	3.8	3,000	0.27	IP 45	40
KF 1 ³⁾	1.5	3.5	600 ⁴⁾	8.0	6,000	0.20	IP 55	40
KF 6 ³⁾	3.0	7.0	1,000 ⁴⁾	20.0	3,000	0.85	IP 55	40
KF 12 ³⁾	6.0	20.0	1,500 ⁴⁾	33.0	3,000	2.20	IP 55	40
KF 0.3 ⁵⁾	0.3	0.5	350 ⁶⁾	1.5	6,000	0.06	IP 55	40
KF 0.5 ⁵⁾	0.5	0.8	450 ⁶⁾	2.8	6,000	0.08	IP 55	40
KF 0.7 ⁵⁾	1.5	2.7	700 ⁶⁾	10.0	6,000	0.32	IP 55	40
KF 0.9 ⁵⁾	3.0	5.5	950 ⁶⁾	18.0	3,000	1.20	IP 55	40

¹⁾ Attachment = conveyor trough or conveyor rail.

²⁾ Must be factory-coordinated with attachment.

³⁾ Also for use in rooms with explosion hazards in (Ex) eG4. Same data, type designation plus (Ex), e.g. KF 1 (Ex).

⁴⁾ Guideline value only, since it depends solely on the bending strength of the attachment. Assembly recommendation: protrusion – L – a, on outlet end only.

⁵⁾ Also available in CR version, e.g. for food and pharmaceuticals industry.

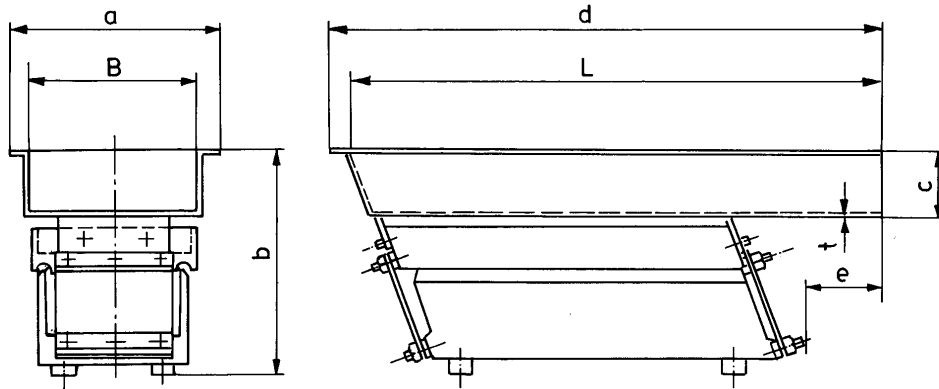
⁶⁾ Guideline value only, since it depends solely on the bending strength of the attachment. Assembly recommendation: protrusion – L – a, on inlet end 1/4, on outlet end 3/4.

Dimensions

Type	a	b	c	d	e	f	g	h	k	l	m	n	o	p	q	r
KR- 2	144	115	30	200	106	65	76	78	5,5	M4	20,0	104	30	–	–	–
KF 1	247	200	45	305	123	70	100	107	M5	M4	7,5	110	14	40	15	M5
KF 6	340	270	65	425	163	100	140	145	M8	M6	10,0	155	14	60	17	M6
KF 12	415	345	70	515	203	140	180	164	M8	M6	10,0	190	25	80	19	M8
KF 0,3	90	140	10	160	35	25	25	65	M4	M4	15,0	55	29	–	–	–
KF 0,5	120	180	15	210	50	35	33	85	M5	M4	15,0	72	27	–	–	–
KF 0,7	180	290	15	320	75	60	55	110	M6	M4	15,0	120	38	–	–	–
KF 0,9	200	330	23	375	100	75	80	140	M8	M6	20,0	130	42	–	–	–

All dimensions in mm

Small-parts Conveyors



Dimensions

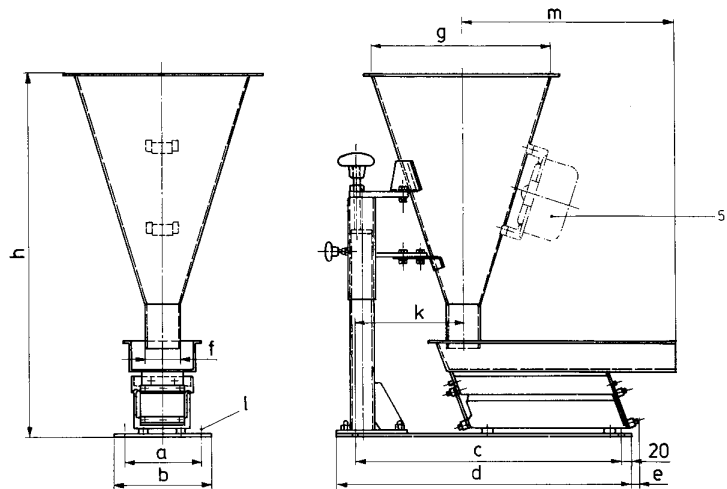
Type ¹⁾	L/B mm	Material ²⁾	Delivery flow ³⁾ m ³ /h	Dimensions in mm						Through weight kg	dimension m (Page 8)
				a	b	c	d	e	t		
KF 1 / 400/ 50		1.4301	0.8	80	155	40	415	75	1.0	0.60	360
KF 1 / 450/ 50		1.4301	0.7	80	155	40	465	125	1.5	0.95	410
KF 1 / 500/ 50		1.4301	0.7	80	155	40	515	175	1.0	0.75	460
KF 1 / 600/ 50		1.4301	0.7	80	155	40	615	275	1.5	1.25	560
KF 1 / 400/100		1.4301	2.2	130	175	60	415	70	1.5	1.70	330
KF 1 / 500/100		1.4301	2.1	130	175	60	515	170	1.5	1.90	430
KF 6 / 500/100		1.4301	3.0	130	210	60	515	65	1.5	1.90	430
KF 6 / 550/100		1.4301	3.0	130	210	60	565	115	1.5	2.10	480
KF 6 / 630/100		1.4301	2.8	130	210	60	645	195	1.5	2.30	560
KF 6 / 800/100		1.4301	2.6	130	210	60	815	365	1.5	2.70	730
KF 6 /1000/100		1.4301	2.5	130	210	60	1,015	460	1.5	3.20	840
KF 6 / 700/150		1.4301	4.4	190	210	60	720	265	1.5	2.90	630
KF 6 / 850/150		1.4301	4.2	190	210	60	870	415	1.5	3.40	780
KF 6 /1000/150		1.4301	4.0	190	210	60	1,020	550	1.5	4.00	930
KF 6 / 500/200		1.4301	5.8	240	210	60	520	65	1.5	2.80	430
KF 6 / 630/200		1.4301	5.6	240	210	60	650	180	1.5	3.40	560
KF 12 / 630/200		1.4301	9.7	240	270	100	650	80	2.0	4.70	510
KF 12 / 800/200		1.4301	9.5	240	270	100	820	250	2.0	5.70	680
KF 12 /1000/200		1.4301	9.3	240	270	100	1,020	400	2.0	6.90	840
KF 12 / 630/300		1.4301	14.5	340	270	100	650	80	2.0	6.65	510
KF 12 / 800/300		1.4301	16.5	360	295	125	820	250	2.0	9.10	680
KF 12 /1100/300		1.4301	14.2	360	270	100	1,120	500	2.0	10.60	940
KF 12 / 630/400		1.4301	17.3	440	270	100	650	80	2.0	8.70	510
KF 12 / 800/400		1.4301	25.0	440	320	150	820	250	2.0	12.10	680
KR- 2 / 275/ 50		1.4301	0.8	80	125	40	290	55	1.0	0.40	—
KR- 2 / 400/ 50		1.4301	0.7	80	125	40	415	130	1.0	0.55	—
KF 0.5 / 350/ 13		1.4301	0.1	45	115	25	350	125	1.0	0.50	320
KF 0.5 / 275/ 50		1.4301	0.8	80	130	40	290	65	1.0	0.50	225
KF 0.5 / 400/ 50		1.4301	0.7	80	130	40	415	145	0.8	0.50	350
KF 0.7 / 630/ 50		1.4301	0.7	80	155	40	645	250	1.5	1.50	575
KF 0.7 / 400/100		1.4301	2.2	130	175	60	415	50	1.25	1.50	330
KF 0.9 / 500/100		1.4301	2.8	130	205	60	515	90	1.5	2.00	430
KF 0.9 / 800/100		1.4301	2.7	130	205	60	815	350	1.5	2.80	730
KF 0.9 / 700/150		1.4301	4.1	130	205	60	715	250	1.5	3.00	630

¹⁾ See page 6 for drive.

²⁾ electrochemically polished

³⁾ Information is based on the bulk material quartz sand with a bulk density of $\rho = 1.5 \text{ t/m}^3$, grain size 0.3–0.5 mm, dry; pile height: 80% of dimension c.

Small-parts Conveyors with Feed Hoppers



Main dimensions

Suitable for small-parts conveyor ¹⁾	Material feed hopper and frame ²⁾	Hopper capacity dm ³	Dimensions in mm										Weight for feed hopper incl. frame kg	
Type			a	b	c	d	e	øf	øg	h	k	øl	m	
KF 1 /.../...	Special steel	9	120	150	480	520	—	43	300	620	195	7		8.5
KF 1 /.../...	Special steel	25 ³⁾	180	200	480	520	—	90	400	730	205	7		11.5
KF 6 /.../...	Special steel	25	180	200	530	570	13	90	400	765	205	7		12.0
KF 12 /.../...	Special steel ⁴⁾	50	230	260	600	640	50	159	510	940	235	9		28.0
KF 0.5/.../...	Special steel	9	120	150	390	430	—	43	300	580	195	7		8.0
KF 0.7/.../...	Special steel	9	120	150	480	520	—	43	300	580	195	7		8.5
KF 0.7/.../...	Special steel	25 ³⁾	180	200	480	520	—	90	400	730	205	7		11.5
KF 0.9/.../...	Special steel	25	180	200	560	600	—	90	400	765	205	7		12.0

¹⁾ See page 7 for trough dimensions.

²⁾ Electrochemically polished.

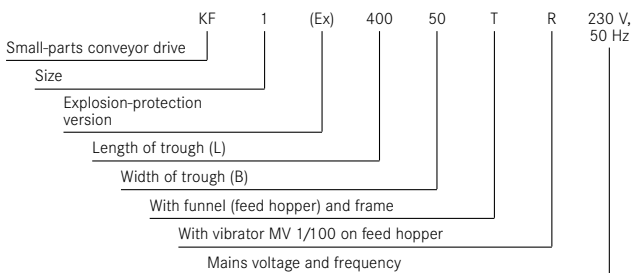
³⁾ From trough width 100 mm.

⁴⁾ Frame St 37, painted. Height adjustment deviates from Fig. 12.

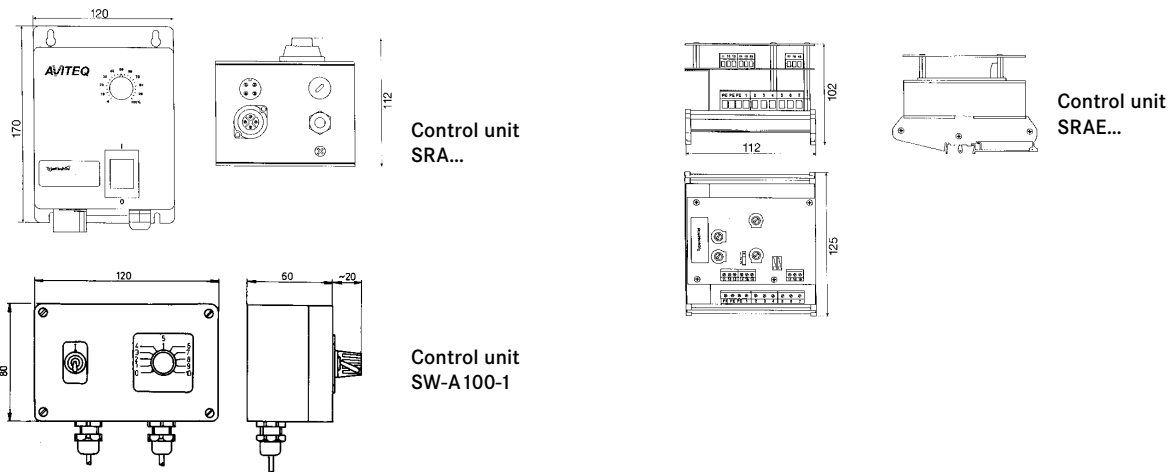
⁵⁾ With vibrator MV 7/100 on request.

Meaning of type designation symbols:

KF 1 (Ex)/400/50-T-R 230 V, 50 Hz = Example of designation of small-parts conveyor



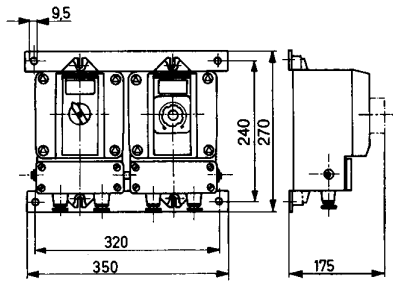
Control Units



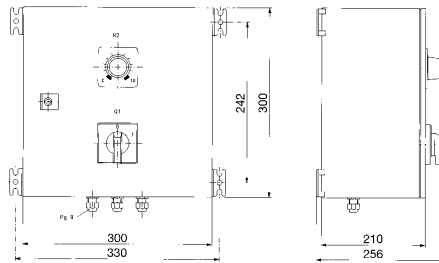
Vibtronic® control units for small-parts conveyor drives

Device for connection	No. of vibrations at 50 Hz	Control unit 230 V, 50 Hz without level scanning system/part overflow				Control unit 230 V, 50 Hz with level scanning system/part overflow			
		Type	Rated current A	Protection type as per EN 60529	Weight kg	Type	Rated current A	Protection type as per EN 60529	Weight kg
KR 2	3,000	SRA-C50/01-1-1	6.0	IP 54	1.4	SRA-C50/01-2-1	6.0	IP 54	1.4
		SRAE-C50/01-1-1	6.0	IP 00	0.7	SRAE-C50/01-2-1	6.0	IP 00	0.7
KF 1	6,000	SRA-C100/01-1-1	6.0	IP 54	1.4	SRA-C100/01-2-1	6.0	IP 54	1.4
		SRAE-C100/01-1-1	6.0	IP 00	0.7	SRAE-C100/01-2-1	6.0	IP 00	0.7
KF 6	3,000	SRA-C50/01-1-1	6.0	IP 54	1.4	SRA-C50/01-2-1	6.0	IP 54	1.4
		SRAE-C50/01-1-1	6.0	IP 00	0.7	SRAE-C50/01-2-1	6.0	IP 00	0.7
KF 12	3,000	SRA-C50/01-1-1	6.0	IP 54	1.4	SRA-C50/01-2-1	6.0	IP 54	1.4
		SRAE-C50/01-1-1	6.0	IP 00	0.7	SRAE-C50/01-2-1	6.0	IP 00	0.7
KF 0.3	6,000	SW-A100-1	0.1	IP 54	0.5	SRA-C100/01-2-1	6.0	IP 54	1.4
		SRA-C100/01-1-1	6.0	IP 54	1.4	SRAE-C100/01-2-1	6.0	IP 00	0.7
		SRAE-C100/01-1-1	6.0	IP 00	0.7				
KF 0.5	6,000	SW-A100-1	0.1	IP 54	0.5	SRA-C100/01-2-1	6.0	IP 54	1.4
		SRA-C100/01-1-1	6.0	IP 54	1.4	SRAE-C100/01-2-1	6.0	IP 00	0.7
		SRAE-C100/01-1-1	6.0	IP 00	0.7				
KF 0.7	6,000	SRA-C100/01-1-1	6.0	IP 54	1.4	SRA-C100/01-2-1	6.0	IP 54	1.4
		SRAE-C100/01-1-1	6.0	IP 00	0.7	SRAE-C100/01-2-1	6.0	IP 00	0.7
KF 0.9	3,000	SRA-C50/01-1-1	6.0	IP 54	1.4	SRA-C50/01-2-1	6.0	IP 54	1.4
		SRAE-C50/01-1-1	6.0	IP 00	0.7	SRAE-C50/01-2-1	6.0	IP 00	0.7

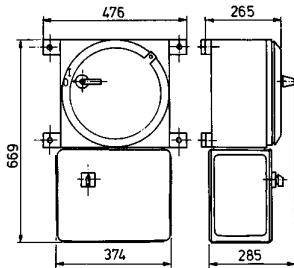
Type SRA... control units are also available for small-parts conveyors in the (Ex) version. The type designation is then eSRA... for placement outside the room with the explosion hazard or dSRA... if the pressure-proof encapsulated control unit as per Euronorm EN 50 018/19 is to be installed in this room.



Operating elements
in pressure-proof
housing.
Left: dFS20-1 (with
mains switch).
Right: dFRW1-1
(with amplitude
width controller).



Control unit
eSRA...



Control unit dSRA...
in pressure-proof
housing.

Housing versions for special purposes

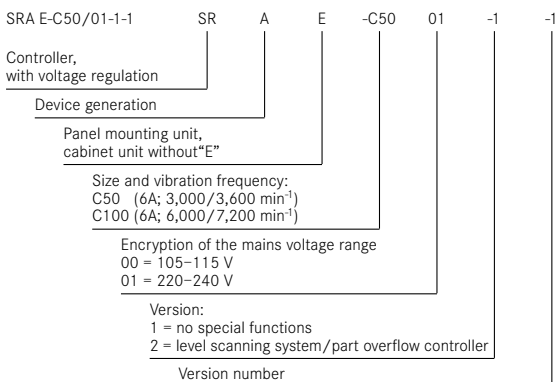
The figures show the dimensions of the control unit.

Type eSRA... for use outside the room with the explosion hazard. When the small-parts conveyor is used to load scales in coarse/fine-flow operation, the corresponding control unit is also installed in this housing.

Pressure-proof encapsulation of the operating elements or the complete control unit is required for use in a room in which an explosion hazard exists.

Meaning of type designation symbols:

Example



For devices intended for use in rooms with an explosion hazard, e or d comes before the type designation, e.g.: eSRAE-C50/01-1-1.

e = Install control unit outside room with explosion hazard.

d = Install control unit in room with explosion hazard, encapsulated pressure-proof.

Customer Enquiries

When planning projects including small-parts conveyors, please provide as much detail as possible. We have drawn up a checklist to help you. Fill in and send to us accompanied by a sketch of the installation situation.

Purpose for which conveyor is required

- Discharging Conveying Distributing
 Dosing Loading Storing
 Conveying over a distance of mm

Additional use, e.g. separating, screening or

Inlet end:
 bunker, silo, conveyor belt, centrifuge, container scales, slide, parts conveyor or

Outlet end:
 conveyor belt, scales hopper, comminution machine, roller, packaging machine, mixer, parts conveyor, positioning/sorting unit or

Position in installation

Give drawing of installation overleaf with details of distances, height difference and dimensions of the conveyor

Designation of bulk material

Bulk density t/m³
 Grain size from mm
 to mm
 Angle of repose °
 External moisture %
 Minimum level
 Dry Moist Wet

Bulk material temperature
 Normal °C
 Maximum °C

Other properties

e.g. adhesive, free-flowing, dusty, abrasive, chemically aggressive, toxic, explosive, hygroscopic

Grain form

Delivery flow

Normal t/h
 Maximum t/h
 Not variable
 Can be reduced to %
 Controllable depending on, for example, motor current, temperature, or

Continuous Batchwise operation
 Permitted deviation from nominal value %

Other conditions

Extreme climatic conditions
 Ambient temperature °C
 Humidity %
 Corrosive influences, e.g. proximity to sea or

Conveyor unit setup

Outdoors Under roof In building

Control unit installation

Outdoors Under roof In building

Mains connection

Nominal voltage V
 Nominal frequency Hz
 Voltage fluctuations
 (customer power supply?), details

Small-parts conveyor type

Standard Explosion-protection
 "CR" for pharmaceutical and food-processing applications

Electrical control units type

In housing
 Enclosed version
 With level scanning system
 With part overflow controller
 Frequency controller
 Explosion-protection
 Control unit in Ex room
 Operating elements only in Ex room

Attachment

Trough Rail Tube

Dimensions
 Length mm
 Width mm
 Material
 Enclosure
 Material
 Inlet muff Δ mm
 Outlet muff Δ mm
 With feed hopper With vibrator

Any further desirable features, e.g. lining, cleaning port, pile height adjustment?

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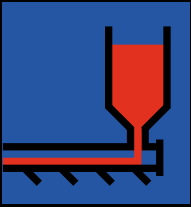
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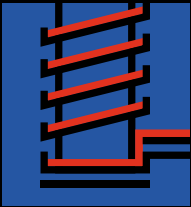
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Vibration technology applications



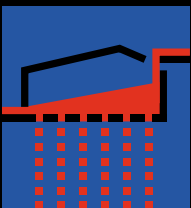
Horizontal conveying
Troughs: 1–1,500 m³/h
Tubes: 1–80 m³/h



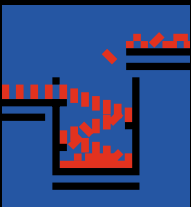
Elevating
Helical conveyors: up to 30 m³/h



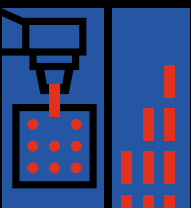
Discharging and charging
Troughs: 1–5,000 m³/h
Tubes: 1–100 m³/h



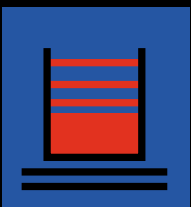
Screening, sorting, de-watering
Vibrating screens: from a few kg/h to 1,000 t/h
Bar grid screens: 24 to 1,000 m³/h



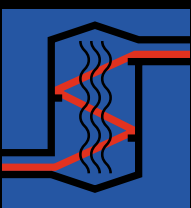
Orienting, dosing, storing
Bowl feeder from 100 to 1,000 mm dia.
Small-parts conveyor from a few g/h to 25 m³/h



Feeding, handling
Feeding systems, separating equipment & positioning equipment
Practice oriented solutions based on economical system components



Compacting
Vibrating tables with surface areas from 160 x 250 mm to 3,000 x 5,000 mm



Cooling, heating, drying, chemical reactions
Conveyor troughs, conveyor tubes, helical conveyors, vibration conveyor trough installations

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