

VIBRA SCHULTHEIS



Batching trough conveyors

with
electromagnetic vibrator units
Series ER
Vibration frequency 50/60 Hz
Series ERF
Vibration frequency 20-30 Hz

New generation



Batching trough conveyors

with electromagnetic vibrator units

- New generation -

Series ER Vibration frequency 50/60 Hz

Series ERF Vibration frequency 20-30 Hz

Now with even more advantages:

- Higher conveying capacity
- Effective weights up to 100 kg
- Simple adaptation to different production conditions:
 - Center-of-gravity compensation,
 - Wiring optionally on the left or right,
 - Option of helical compression springs instead of rubber cushions
- Side walls made of stainless steel with a highly polished finish
- All-stainless steel version optionally available
- Low cost



Fig. 1



Fig. 2

General

Batching trough conveyors with ER and ERF vibrator units are already proven in thousands of installations. These vibrating conveyors are ideal for countless applications where powdery or granular products have to be batched, filled, or spread. They feature an adjustable electromagnetic vibrator for effective weights from 3 to 100 kg and are characterized by a modular design, in other words the vibrator unit, the conveyor tray, the feed hopper, and the thyristor control are manufactured as separate units in several different versions and combined according to each customer's specific requirements.

Series ER vibrators operate at a vibration frequency of 50 or 60 Hz according to the line frequency. **Series ERF** models are designed for operation with a frequency control at vibration frequencies between 20 and 30 Hz and larger amplitudes. They are consequently perfect for lightweight bulk materials as well as ones which tend to cake or are easily caught up.

Matching open or enclosed conveyor trays are available for each of the six vibrator sizes together with feed hoppers with different capacities. Application-specific sizes are possible for both the conveyor trays and the feed hoppers, as are various special designs – for instance with a screen insert, a cooled or heated conveyor tray, a diagonal spreading slot, or multiple tracks.

Thyristor or electronic frequency controls can be supplied for controlling and adjusting the conveying capacity.

Figures 1 to 6 show just a few of the many potential applications.



Fig. 3



Fig. 4



Fig. 5



Fig. 6

Design and applications

Together with the conveyor tray (effective weight), the vibrator unit forms a vibrating system which is excited near the natural frequency by a cast resin-encapsulated, vibrating magnet. The vibrator operates silently and without wearing. The conveying capacity can be adjusted within wide limits by means of the separately installed thyristor or frequency control. Four rubber pads (optional: helical compression springs) prevent harmful vibrations from being transferred to the supporting structure. Standard or application-specific conveyor trays in an open or enclosed design are available for ER(F) 12 to ER(F) 41 vibrators. ER(F) 52 to ERF 62 vibrator units are supplied with customized trays. The conveyor tray is mounted on the vibrator unit using four or six bolts. V-shaped, multiple-track, or tubular delivery profiles can be ordered as feed attachments as an alternative to the ordinary conveyor trays as well as trays with screen inserts.

The feed hoppers used with the unit are mounted on special feet and are not directly connected to the batching trough conveyors. The hoppers for ER 12 to ER(F) 22 are standardized. Only project-specific feed hoppers and bins are offered for all other sizes.

All **ERF vibrator units** are designed for low vibration frequencies and operated by means of electronic magnetic frequency controls. The MFS works in tandem with an accelerometer with a line frequency that is independent of the output frequency and adjusted automatically according to the selected acceleration. The vibration amplitude thus remains constant regardless of any variations in the bulk material connection or the line voltage.

ER 12 to ER 52 vibrator units can be loaded with an effective weight from 3 to 60 kg. ERF 22 to ERF 62 units are designed for effective weights from 10 to 100 kg. Heavy or long conveyors can also be operated with several vibrators (see example in Figure 8).



Fig. 7
ER 22 batching trough conveyor
with 100 l feed hopper

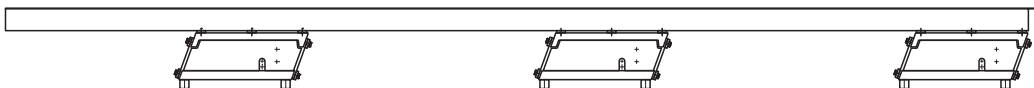


Fig. 8

The photographs and diagram on page 5 show the following typical applications:

- Fig. 9: ERF 20/3 batching trough conveyors for feeding a multiple-head balance
- Fig. 10: Vibrating trough conveyors with ER vibrator units in a food processing plant
- Fig. 11: ER 22 batching trough conveyor with 200 l hopper
- Fig. 12: Use as a spreader trough
- Fig. 13: Multiple-track trough conveyor for fish fingers



Fig. 9



Fig. 11



Fig. 10

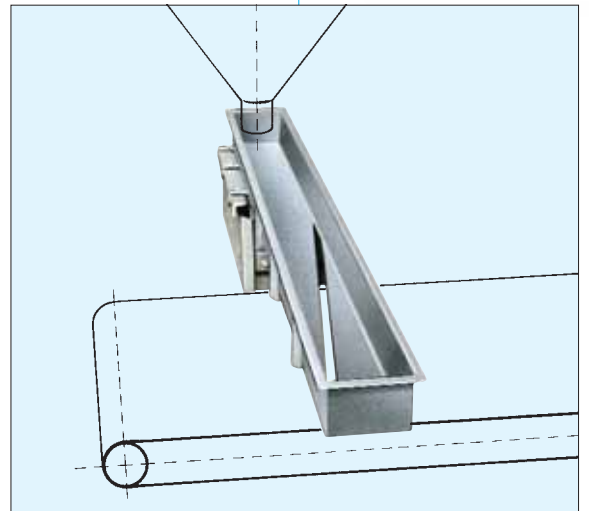


Fig. 12



Fig. 13

Types / technical data

Table 1

Typ	Power input (VA)	Current(A) at 230 V, 50 Hz	Max. permissible tray dimensions		Permissible effective weight (kg)*	Max conveying capacity with plastics pellets m ³ /h
			Trough width* (mm)	Trough length* (mm)		
ER 12	60	0.25	70	500	1 - 3	1
ER 22	120	0.50	300	800	3 - 8	5
ER 32	290	1.25	500	1500	10 - 20	12
ER 42	570	2.50	600	2000	20 - 40	15
ER 52	1200	5.30	600	2000	40 - 60	20

Degree of protection: IP54

The electrical connection is always made via the electronic thyristor control (type VST 6-...)

* The effective weight comprises the weight of the mounted conveyor tray or tube and the connected product. The specified maximum values apply to the length or width, providing the maximum effective weight is not exceeded.

Dimensions

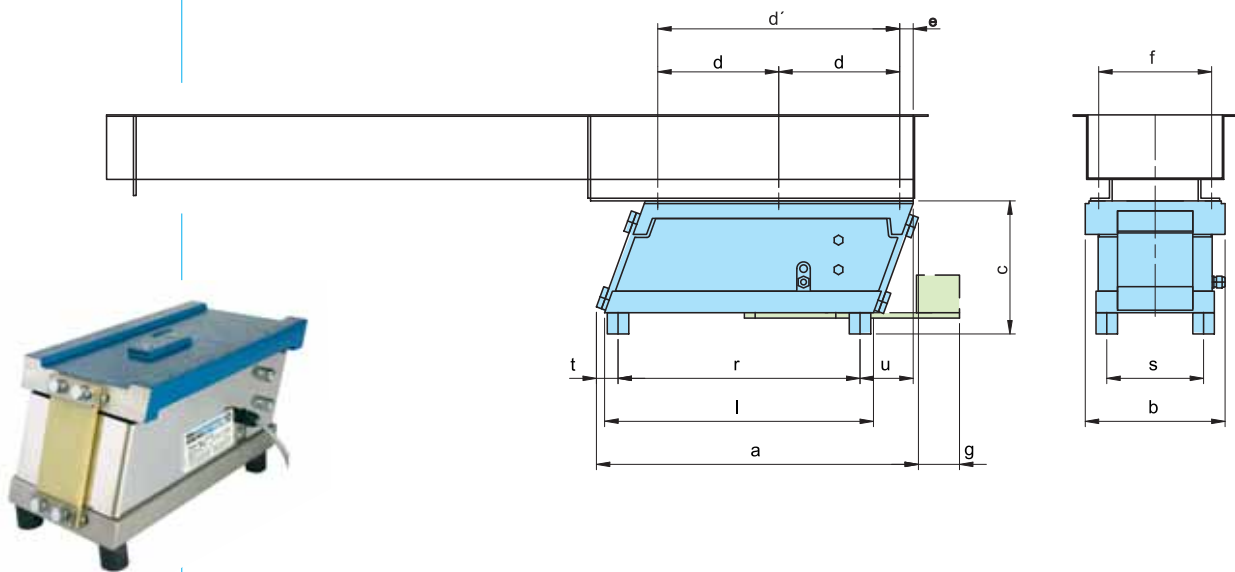


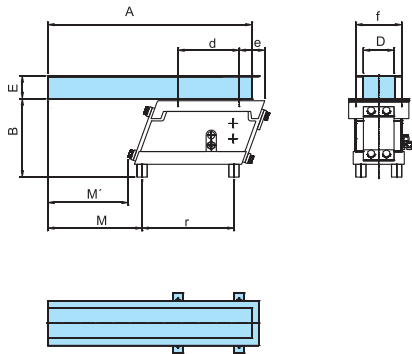
Table 2

Type	Main dimensions													Weight	
	a	b	c	d	d'	e	f	g	l	r	s	t	u	(kg)	
ER 12	290	118	150	-	120	50	90	85	210	180	70	33	60	11	
ER 22	360	170	175	-	160	71	150	80	265	235	120	35	70	20	
ER 32	445	200	200	150	-	20	175	95	340	310	150	40	80	40	
ER 42	630	260	250	225	-	25	210	80	500	450	180	55	100	60	
ER 52	630	260	250	225	-	25	210	80	500	450	180	55	100	70	

Conveyor trays

Standard conveyor trays for ER 12 and ER 22

open design



Enclosed design with Plexiglas cover

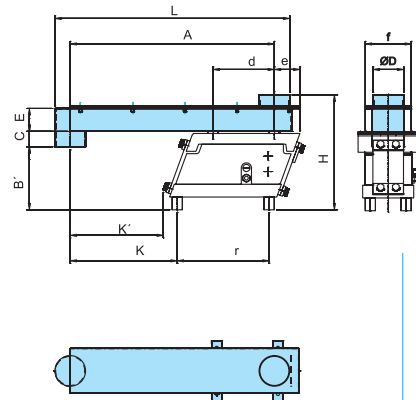
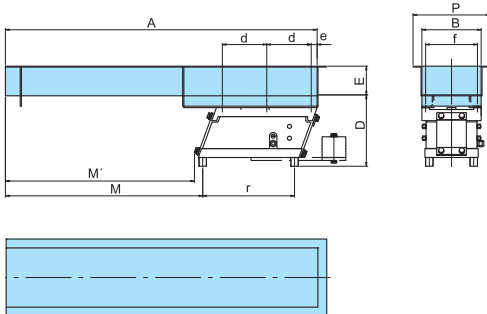


Table 3

Type	Main dimensions															
	A	B	B'	C	D	E	H	L	K	K'	M	M'	d'	e	f	r
ER 12	400	155	125	30	60	45	225	465	210	190	185	160	120	25	90	180
ER 22	450	180	150	30	100	60	265	550	255	230	195	170	160	25	150	235

Norm-Rinnentröge für ER 32 und ER 42

open design



Enclosed design with Plexiglas cover

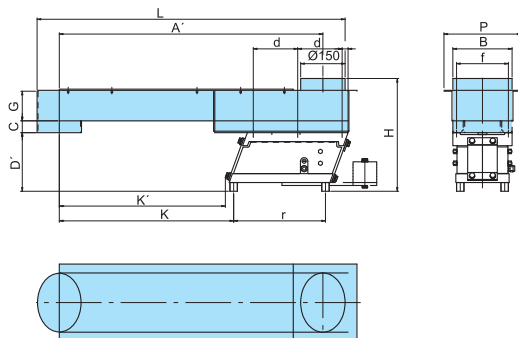


Table 4

Type	Main dimensions																		
	A	A'	B	C	D	D'	E	G	H	K	K'	L	M	M'	d	e	f	r	
ER 32	1000	750	250	40	240	200	120	100	380	450	405	910	618	573	150	25	175	310	
																			200
																			300
ER 42	1500	1000	250	40	290	250	150	120	450	540	485	1160	958	903	225	25	210	450	
																			200
																			300

Conveyor trays for ER 52 Only available on request.



Electronic thyristor controls (VST)

For Series ER vibrator units
and other electromagnetic vibrators

Linearised control curve
Voltage stabilization

All ER electromagnetic vibrator units are connected to the AC line via a separately installed thyristor control. The setpoint for the vibration severity can be selected using a potentiometer or by means of external 0 to 10 V or 4 to 20 mA signals

Standard version 230 V, 50 Hz, max. 6 A
Type VST 6-230-36
Aluminum housing to IP54

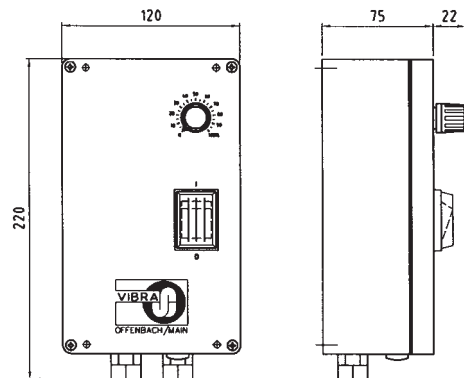
Panel mounted version to IP00
Type VST 6-230-36-E

Second potentiometer for
coarse and fine feed
Suffix:-2

Dimensions

Gehäuseausführung:
gemäß nebenstehender Abbildung

Einbauausführung:
190 x 110 x 45 mm (L x B x H)



Feed hoppers and tanks

Feed hoppers or tanks that protrude into the trays of the batching trough conveyors are required to batch bulk material to processing or weighing and packaging equipment.

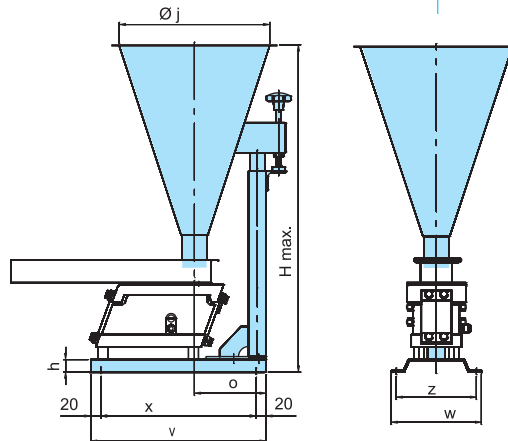
ER 12 and ER 22 batching trough conveyors are mainly intended for low batching capacities. The standard feed hoppers described below can be used for this purpose.

Standard feed hopper with single-spindle adjustment for ER 12 and ER 22

Single-spindle adjustment is suitable for light bulk materials up to a bulk weight of 0.6 kg/dm³.

Table 5

Type	Main Dimensions								Capacity
	H max.	h	j	o	v	w	x	z	
ER 12	685	25	300	135	350	180	310	160	10 l
ER 22	785	30	440	190	435	235	395	210	25 l

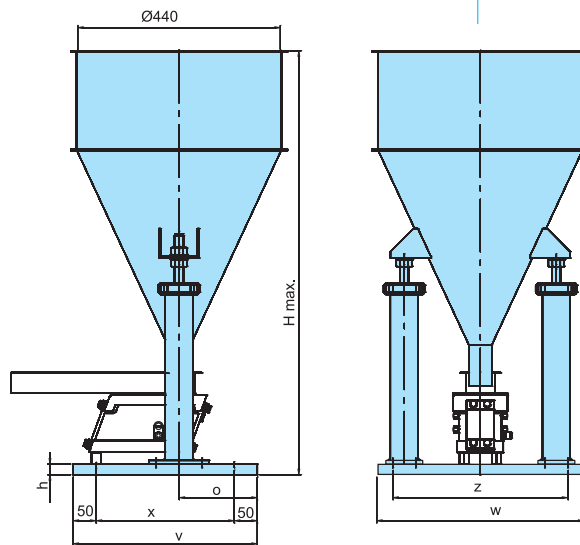


Standard feed hopper with two-spindle adjustment for ER 12 and ER 22

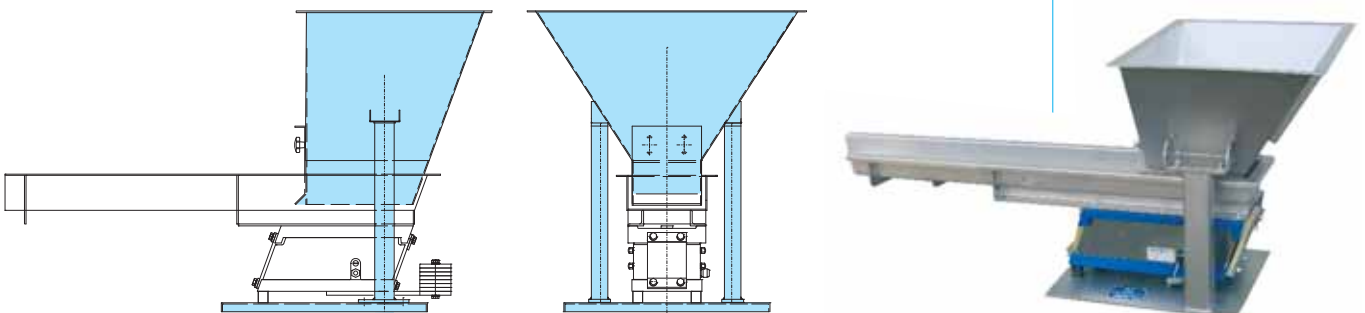
Two-spindle adjustment is suitable for heavy bulk materials

Table 6

Type	Main Dimension							Capacity
	H max.	h	o	v	w	x	z	
ER 12	755							25 l
	930	25	170	400	450	300	380	50 l
	1255							100 l
ER 22	785							25 l
	955	25	170	400	450	300	380	50 l
	1280							100 l



Feed hoppers and bins for batching trough conveyors with an ER 32 or ER 42 vibrator unit are only offered on request



Types / technical data

Tabelle 7

Typ	Power input (VA)	Current(A) t 230 V, 50 Hz	Max. permissible tray dimensions		Permissible effective weight (kg)*	Max conveying capacity with plastics pellets m ³ /h
			Trough width (mm)	Trough length* (mm)		
ERF 22	65	0.27	300	800	3 - 10	8
ERF 32	160	0.70	500	1500	10 - 20	20
ERF 42	340	1.45	600	2000	20 - 45	30
ERF 52	820	3.53	600	2000	30 - 50	35
ERF 62	1200	5.20	600	2500	50 - 100	40

Degree of protection: IP54

The electrical connection is always made via the electronic frequency control (type MFS ...)

* The effective weight comprises the weight of the mounted conveyor tray or tube and the connected product. The specified maximum values apply to the length or width, providing the maximum effective weight is not exceeded.

Dimensions

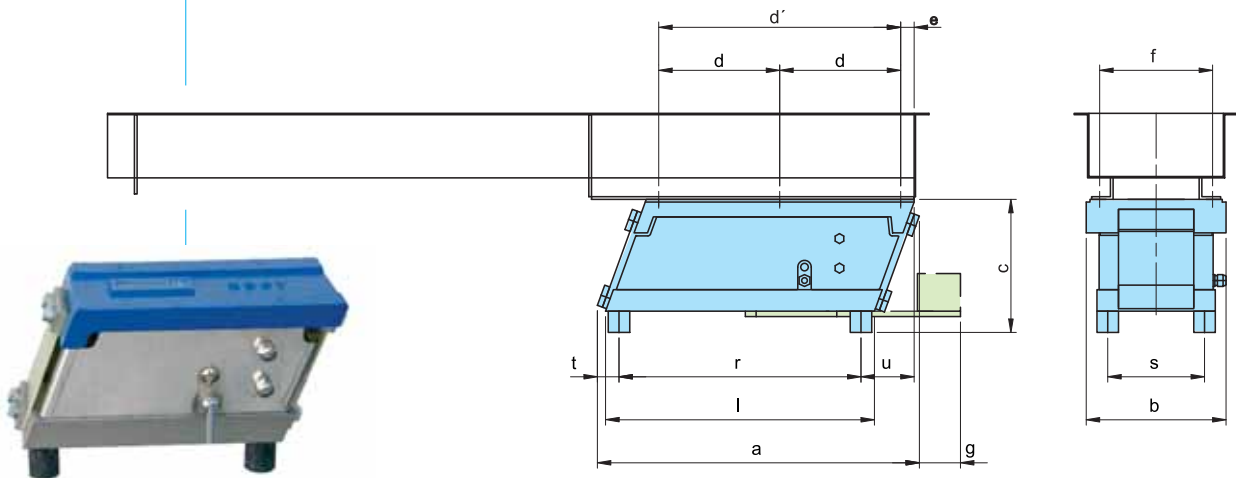


Table 8

Type	Main dimensions															Weight (kg)
	a	b	c	d	e	f	g	h	i	l	n	r	s	t	u	
ERF 32	445	200	200	150	20	175	95	260	320	340	-	310	150	40	80	40
ERF 42	630	260	250	225	25	210	80	310	370	500	-	450	180	55	100	60
ERF 52	630	260	250	225	25	210	80	310	370	500	-	450	180	55	100	70
ERF 62	875	325	325	325	80	265	-	-	-	-	270	720	210	70	85	136

Conveyor trays for ERF vibrator units

The standard conveyor trays for ER 22 to ER 42 (see page 7) are also compatible with ERF 22, ERF 32, and ERF 42 vibrators.

ERF vibrator units are eminently suitable for applications involving high specific conveying capacities and problematic loads, and conveyor trays which are specially tailored to individual customer requirements are frequently requested. In particular, they include trays with screen inserts or made of textured metal – the ideal answer, for instance, for all damp products that tend to stick to the bottom of the trough.

Feed tanks

The necessary feed hoppers, tanks, and bins are also designed and offered according to the needs of each individual project.

Electronic magnetic frequency controls (MFS) for ERF vibrator units and other electromagnetic vibrators

Frequency converter with sinusoidal output frequency;
Automatic natural frequency search in tandem with an accelerometer;
Constant conveying capacity regardless of variations in the line voltage or bulk material connection;
Adjustable overload protection;
Operated by means of keys and display or external setpoint

Standard version

230 V, 50 Hz, max. 6 A, type MFS 268-6-230, aluminum housing to IP54

Panel-mounted version

IP00

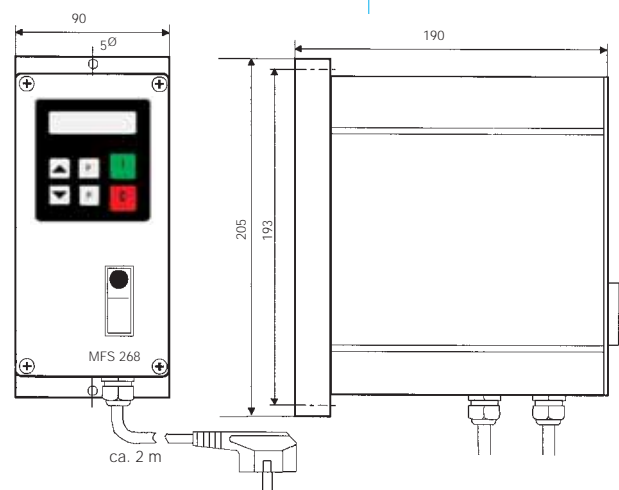
SW 78 accelerometer:

Output signal: 0.6 V DC per g;
24 V DC supply voltage;
Ready to use and encapsulated in an aluminum housing

Dimensions

Housing design:
As shown opposite

Panel-mounted version: 205 x 70 x 202 mm





VIBRA SCHULTHEIS



VIBRA MASCHINENFABRIK SCHULTHEIS GmbH & Co.

Im Großen Ahl 45 - 51

D-63075 Offenbach am Main

Phone +49 (0)69/86 00 03-0

Fax +49 (0)69/86 00 03 45

P. Box 13 01 48

D- 63032 Offenbach am Main

Internet: <http://www.vibra-schultheis.com> • E-mail: info@vibra.de

VIBRA MASCHINENFABRIK SCHULTHEIS GmbH & Co.

Utberg/Weimar branch office

Am Peterborn 3

D-99428 Utberg/Weimar

Phone +49 (0)3 62 03/7 33 77-0

Fax +49 (0)3 62 03/7 33 77 10