



VAHLE 
MOBILIZING ELECTRICITY

**Insulated conductor system
FABA 100**

SYSTEME IN BEWEGUNG



Insulated conductor system FABA 100

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General

FABA 100 insulated conductor rails comply with VDE 0100. They satisfy today's requirements for conductor line safety and are protected against accidental contact in compliance with VDE 0470, Part 1 (Safety Class IP 21).

Naturally for the collector this contact protection exists only when the brushes are completely in the conductor rails. Conductor lines systems in the manual area, in which the collector moves out of the conductor rail during operation, require provisions by the customer to prevent accidental contact such as blocking off or switch-off. However this applies only for voltages above 25 VAC or 60 VDC.

Fig. 1 (top right) shows that the VDE finger cannot make contact with the conductive parts.

The insulating shrouding for mounting the conductor rail channel provides good insulation and maximum safety.

Conductor lines with any number of poles can be used. The space requirement is minimal.
The standard delivery length is 5 m, shorter lengths are also available.

The ground conductor is marked with yellow with a continuous green stripe along the insulating shrouding.
Provisions are present to prevent mixing up the collectors for ground and phases.

Use

For interior systems only.
Exterior systems only after consultation.

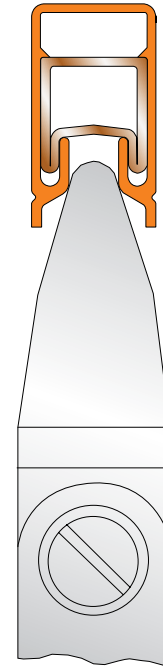


Fig. 1: VDE-Finger

Approvals

UL approved. Please check when ordering.

Suspension

The maximum suspension interval between compact hangers is 0.8 m, in curves 0.4 m.

Connectors

The conductor rail sections are connected electrically and mechanically with rail connectors. Each joint is protected against accidental contact by a cover.

Expansion

Use only centered, fixed points for straight systems up to 60 m. If the length of the conductor rails is subject to change (caused by variations in the ambient temperature and/or power heat-up) mount the conductor rails in fix point clamps so that they can slide.
On systems over 60 m long and in straight sections between curves provide for expansion points. If both ends of the rail are fixed (switches, elevators), expansion sections are also required.

Feed terminals

Feed terminals are possible as joint feed. Our product line also includes joint caps and isolating assemblies with feed connection possibilities.

Insulated conductor system FABA 100 (General)

Joint caps

Joint caps protect the conductor rail at the end against accidental contact and separate the rails mechanically (switches, elevating stations, etc.). Joint caps are available with and without feed terminals.

Isolating assemblies

Isolating assemblies interrupt the conductor electrically. Operationally driving over collectors for the purpose of connecting or disconnecting the power is permissible only at low power (control currents). We supply isolating assemblies with and without feed terminals for control purposes, in-feed sections, maintenance sections, etc.

Curves

Insulated conductor systems can be used in horizontal and vertical curves. The rails can be bent on site with a special bending tool.

Collectors

The collectors consist of impact-resistant plastic and re-inforced metal parts. The power is drawn with a carbon brush.

The length of the collector connecting cable must not exceed 3 m, when the overload protector is not laid out for the load rating of this connecting cable. See also DIN VDE 0100, Part 430 and DIN EN 60204-32. (Note: The former occurs frequently when a number of collectors are present per system.)

The connecting cables supplied are sufficiently dimensioned for the rated currents specified. It is necessary to take the reduction factors specified in DIN VDE 0298-4 into consideration for other types of laying.

Safety precautions

To avoid pinching hazards it is necessary to ensure that the safety intervals between fixed and moving system parts (0.5 m) are maintained by arranging the conductor rails/conductor lines and collectors/towing arms accordingly at site!

Conductor rail values

Type	Electrical values: Dielectric strength acc. to DIN 53481	Spec. Forward resistance acc. to IEC 60093	Surface-resistance acc. to IEC 60093	Comparison figure/ Tracking acc. to IEC 60112	Application temperature ⁽²⁾	Combustibility
Standard version, orange	> 22.4 kV/mm	> 8 x 10 ¹⁵ Ohm x cm	2 x 10 ¹³ Ohm x cm	CTI 600 – 1.1	– 30 °C to + 55 °C	flame-resistant, self-extinguishing, UL 94

Chemical resistance: ⁽¹⁾ Highly resistant to gasoline, oils, weak alkalies and weak acids

Type	Electrical values: Dielectric strength acc. to DIN 53481	Spec. Forward resistance acc. to IEC 60093	Surface-resistance acc. to IEC 60093	Comparison figure/ Tracking acc. to IEC 60112	Application temperature ⁽²⁾	Combustibility
Heat-resistant version, halogen-free, orange	> 22.4 kV/mm	> 8 x 10 ¹⁵ Ohm x cm	2 x 10 ¹³ Ohm x cm	CTI 600 – 1.1	– 30 °C to + 80 °C	flame-resistant, self-extinguishing, UL 94

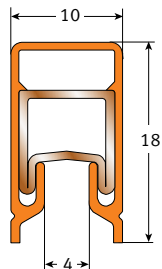
Chemical resistance: ⁽¹⁾ highly resistant to gasoline, oils, weak alkalies and weak acids

⁽¹⁾ Please check with us before using in systems with synthetic oils and greases.

⁽²⁾ Please check separately for applications with continuous temperatures below 0°C (cold storage).

Insulated Conductor Rails FABA 100 (Technical Data)

Section



Part number code

FABA = Insulated Conductor Rails
 100 = Current rating in A
 25 = Conductor cross section (mm²)
 C = Copper conductor

Length

5 m standard length
 Shorter lengths possible

Support spacing

For straight sections 0.8 m
 In curves 0.4 m

Conductor spacing

Standard = 15 mm

Conductor rails can be bent

at the factory or on the construction site with special FABA 100 curve tool

Chemical and electrical values:

See page 4

Use

for indoor systems only, please contact us for consultation for outdoor systems

Type Faba 100 Standard version, orange	Weight kg/m		Part No.Phase	Part No. PE
5 m	0,268		2 805 928	2 805 931
3 m	0,268		2 805 927	2 805 930

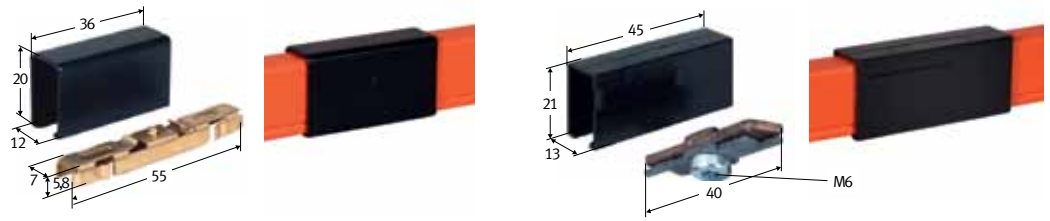
Type Faba 100 Heat-resistant version, halogen-free, orange	Weight kg/m		Part No.Phase	Part No. PE
5 m	0,268		2 806 019	2 806 021
3 m	0,268		2 806 018	2 806 020

Conductor rail values

Type	Conductor cross section Cu mm ²	Jacket creep path mm	Max. voltage	Max. continuous current A	Resistance Ohm/1000m	Impedance ⁽¹⁾ Ohm/1000m
FABA conductor rails 100	25	32	1000	100	0,77	0,78

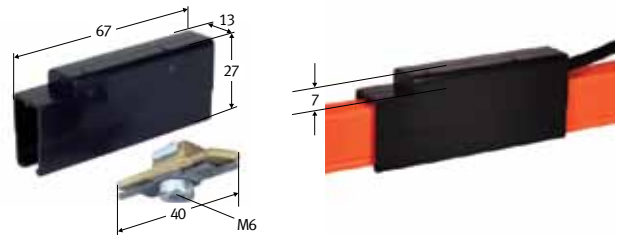
⁽¹⁾ At phase interval of 15 mm and frequency of 50 Hz.

FABA 100 Accessories



Joints

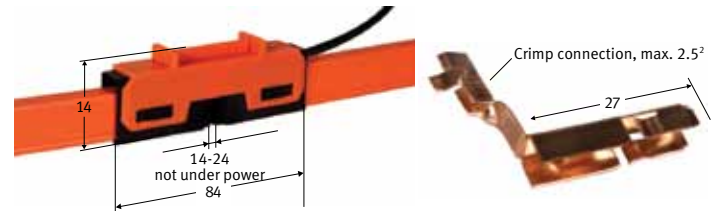
Type	Weight kg		Part No.
Joint	0,008		2 806 668
Bolted Joint	0,017		2 806 664



Feed Joints

Type	Weight kg		Part No.
Feed Joint 50 A	0,024		2 807 174
Feed Joint 100 A	0,030		2 807 148

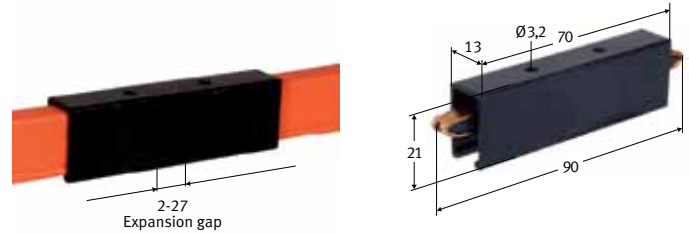
Use: 100 A for fix point clamps, construction height 32 mm



Isolating assembly

Type	Symbols	Weight kg		Part No. Construction height 27	Part No. Construction height 32
Separation without connecting cable		0,021		2 807 352	2 807 353
Separation with 1 connecting cable		0,051		2 807 367	2 807 368
Separation with 2 Connecting cable		0,083		2 807 364	2 807 365
Separation with jumper cable		0,031		2 807 370	2 807 371

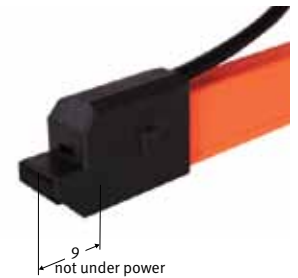
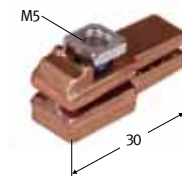
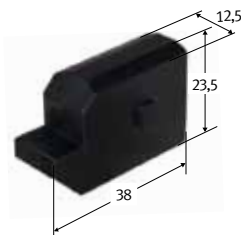
FABA 100 Accessories



Note: Expansion without jumper line suitable for max. 50 A

Expansion section

Type	Weight kg		Part No.Phase	Part No. PE
Expansion section	0,014		2 809 008	2 809 008
Jumper cable	0,178		2 810 537	2 810 538

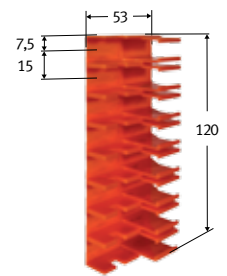


Joint cap

with or without feed terminal (used as end cap and in combination with support with support as fix point)

Max. perpendicular and lateral offset: 2 mm in relation to one another. Please contact us for higher tolerances.

Type	Weight kg	Feed		Part No.
Transition cap w/o feed connection possibility	0,005	w/o		2 807 210
Transition cap with feed connection possibility	0,026	for max. 4 mm ²		2 807 213



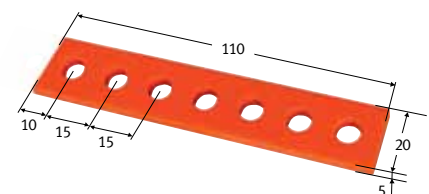
Support for joint cap

for screwing to the track, arrangement as desired depending on number of poles

Support can be adjusted by ± 5 mm in direction of conductor.

Type ⁽¹⁾⁽³⁾	No. of poles	Width	Weight kg		Part No.
Support	8	120	0,038		2 806 793

Spacer for support

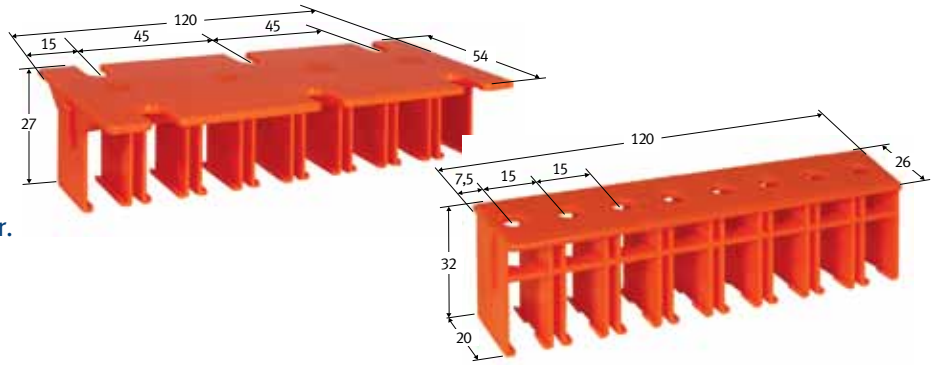


Type ⁽²⁾⁽³⁾	No. of poles	Width	Weight kg		Part No.
Spacer 5 mm	8	110	0,010		2 807 312

⁽¹⁾ For construction height 27 mm ⁽²⁾ For construction height 32 mm ⁽³⁾ Order mounting hardware separately

Support point clamp and fix point FABA 100

With support point clamps any number of poles can be connected together.



Support clamp for screwing on, up to 8-pole

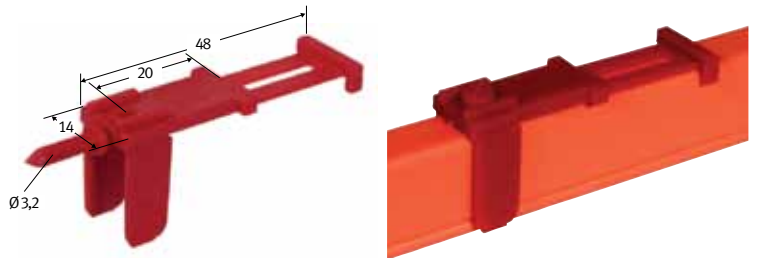
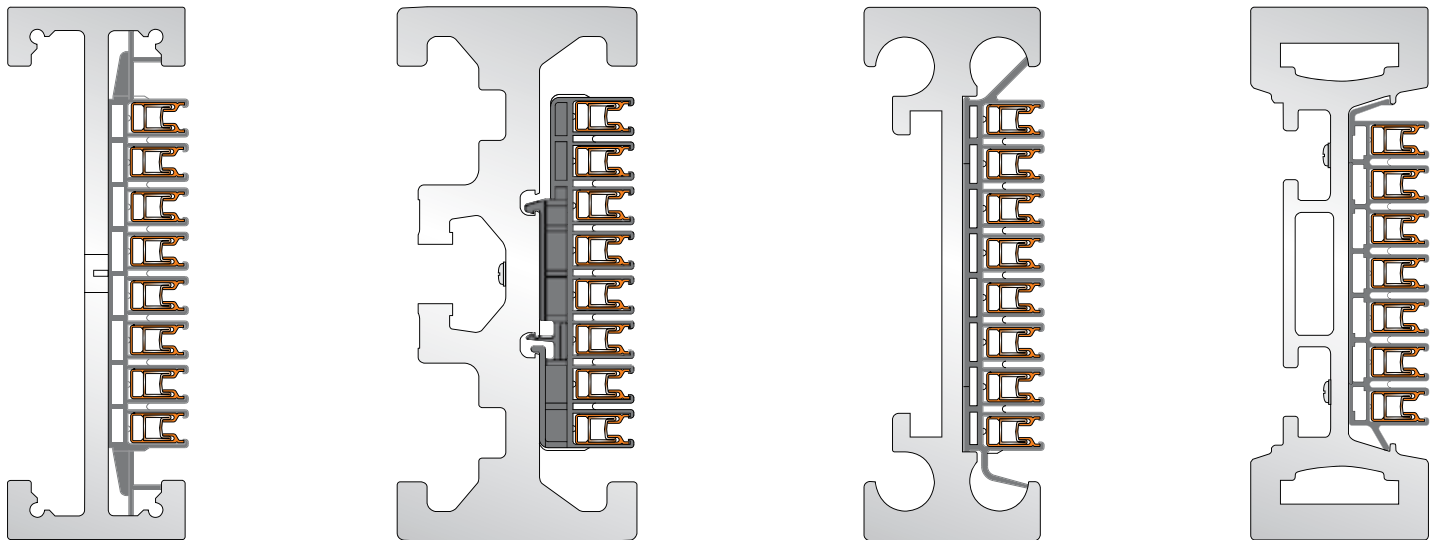
Rail interval 15 mm

Type	Number of poles or assignment	Length L	Weight kg	Construction height		Part No.
Support clamp	8	120	0,03	27		2 806 822
Support clamp	8	120	0,024	32		2 807 012

Note: Order mounting hardware separately

Support clamp, special version, up to 10-pole

Production for your system on request



Fix point

Type	Weight kg		Part No.
Fix point lug	0,002		2 807 042

Collectors for FABA 100

Collector set D-EAS

suitable for funnel

Phase distance: 15 mm

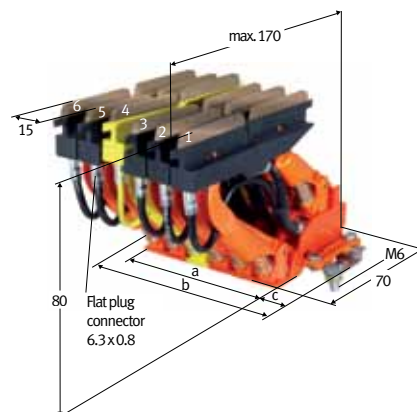
Max. current: 30 A

Lift ± 12 mm, Lateral tolerance ± 20 mm

Pressure: 4 N per brush

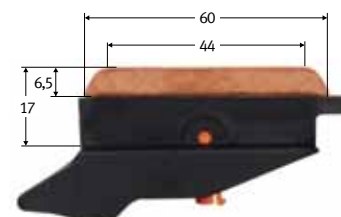
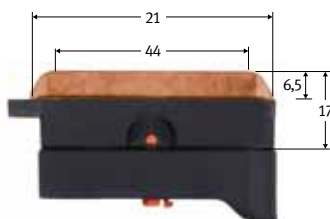
PE at position 4 with 3 poles at, other arrangements possible.

Ground is always first contact.



Type	No. of poles	Dimension a mm	Dimension b mm	Dimension c mm	Weight kg	Support rail	Part No.
D-EAS 2/30-1	1	15	50	17,5	0,172	1-pole	2 823 603
D-EAS 2/30-2	2	30	75	22,5	0,302	2-pole	2 823 604
D-EAS 2/30-3	3	45	100	27,5	0,432	4-pole	2 823 605
D-EAS 2/30-4	4	60	100	20,0	0,55	4-pole	2 823 606
D-EAS 2/30-5	5	75	125	25,0	0,68	6-pole	2 823 607
D-EAS 2/30-6	6	90	125	17,5	0,798	6-pole	2 823 608
D-EAS 2/30-7	7	105	150	22,5	0,928	8-pole	2 820 991
D-EAS 2/30-8	8	120	150	15,0	1,046	8-pole	2 820 993

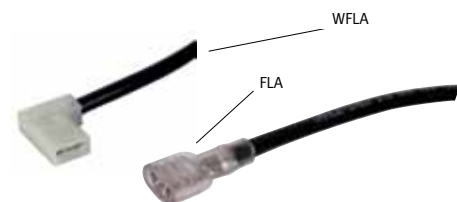
Wear parts for collector FABA 100



Replacement heads for collector DEAS

Type	RH/mm	Weight kg	Part No. Phase	Part No. PE
Rear replacement head	0,5	0,016	2 808 580	2 808 581
Front replacement head	0,5	0,016	2 808 575	2 808 576

Connecting cable



Connecting cable, double insulation, highly flexible

for collectors, length: 1 m

Type	Cross section mm ²	A ø mm	Weight kg		Part No. Phase black	Part No. PE green/yellow
WFLA 2,5	2,5	4,5	0,038		2 809 179	2 809 183
FLA 2,5	2,5	4,5	0,038		2 809 171	2 809 175
FLA 4	4	5,3	0,078		2 823 085	2 823 086

Connecting cable, double insulation, flexible

for feed joint with cable lug M6, length: 1 m



Type	Cross section mm ²	A ø mm	Weight kg		Part No. Phase black	Part No. PE green/yellow
Connecting cable	2,5	4,5	0,045		2 808 979	2 808 978
Connecting cable	4	5,3	0,063		2 808 751	2 808 752
Connecting cable	6	6,5	0,086		2 808 745	2 808 759
Connecting cable	10	8,3	0,145		2 808 753	2 808 754
connection line	16	10,7	0,234		2 808 756	2 808 762

Connecting cable, double insulation, flexible

for joint cap with cable lug M5, length: 1 m



Type	Cross section mm ²	A ø mm	Weight kg		Part No. Phase black	Part No. PE green/yellow
Connection line	2,5	4,5	0,044		2 808 971	2 808 958
Connection line	4	5,3	0,084		2 821 809	2 821 810

Terminal boxes and brush wear indicator for FABA 100

Terminal boxes AKE

for feed terminal and isolating assembly, max. 7 terminals 6 mm², 2 terminals 6 mm² PE



Type	Weight kg		Part No.
AKE	0,445		169 462

Terminal boxes AKE

for separating sections



Type	Weight kg		Part No.
AKB	0,469		169 481

Brush wear indicator KVT 100 N

The brush wear indicator automatically checks the brushes for wear. A pulse is triggered when a brush is worn out. Installation in front of a repair section is practical for automatic operation of a switch. Adjusted at factory. Required cutout in FS channel. Length: 80 mm, height: See table



Type	No. of poles	Height		Part No.
KVT 100 N-2	2	32		2 807 533
KVT 100 N-3	3	47		2 807 534
KVT 100 N-4	4	62		2 807 535
KVT 100 N-5	5	77		2 807 536
KVT 100 N-6	6	92		2 807 537
KVT 100 N-7	7	107		2 807 538
KVT 100 N-8	8	122		2 807 539

Assembly accessories for FABA 100



Curve tool

for bending FABA 100 vertically and horizontally.

Order filling rods separately.

Type	Weight kg		Part No.
FABA 100 curve tool 100	11		2 809 323
Filling rods 100 m in rolls	3,2		2 806 611
Curve Profile 5 m in rods	0,25		2 806 612



Table saw

for cutting insulator and conductor profiles with length gauge. Connection: 230 Volts, 50 Hz.

Type	Weight kg		Part No.
KS	6,500		165 276
Replacement saws spare blade SB	0,070		165 263



Conductor joint assembly tool

For connecting with joints.

Type	Weight kg		Part No.
Conductor joint assembly tool	1,420		2 809 345

Allen screw SW 4



Type	Weight kg		Part No.
Allen screw	0,036		2 812 962

Assembly accessories for FABA 100

Assembly handle for joints, plugable



Type	Weight kg		Part No.
Assembly handle	0,010		2 809 348

Deburring tool flat hand file HRF

for deburring the outer face of the profile for short sections.



Type	Weight kg		Part No.
Flat hand file	0,085		2 812 964

Screwdriver PH1



Type	Weight kg		Part No.
Screwdriver	0,014		2 812 963

Questionnaire

Co.: _____

Date: _____

Tel.: _____

Fax: _____

Email: _____

Internet: _____

1. Number of conductor systems: _____
2. Type of crane/machinery to be electrified: _____
3. Operating voltage: _____ Volts Phases: _____ Frequency: _____ Hz
 Three phase: AC: DC:
4. Length of conductor systems: _____
5. Number of conductors: _____ Power lines: _____ Control lines: _____ Neutral (ground): _____
6. Arrangement of conductors:
 Conductor line suspended / collector cable downward Conductor line suspended / Collector cable lateral⁽¹⁾
 Suspension interval m (max. 2 m) Other: _____
7. Number of cranes or machines to be electrified by one system: _____
8. Indoor: Outdoor:
9. Special operating conditions (humidity, dust, chemical effects, etc.) _____
10. Ambient temperature: _____ °C min. _____ °C max.
11. Position and number of feed terminals⁽¹⁾: _____
12. Position and number of isolating sections (e.g. for repair sections)⁽¹⁾: _____
13. Where are the conductor lines to be located?⁽¹⁾: _____
14. Supply screw consoles: Yes No Support center distance – Middle of conductor line _____
 Flange width of support: _____
15. Traveling speed for longitudinal motion: _____ In curves: _____ At overpasses: _____
16. Current consumption of individual loads: _____
 (Please use table below.)
17. Max. voltage drop from feeder point to collectors in consideration of start-up currents:
 3% or _____ % of rated current.

Motor data	Crane/machinery 1						Crane/machinery 2							
	Power output kW	Rated current			Start-up current		Type of drive ⁽²⁾	Power output kW	Rated current			Start-up current		Type of drive ⁽²⁾
		A	cos φ _N	% ED	A	cos φ _A			A	cos φ _N	% ED	A	cos φ _A	
Elevator														
Auxiliary lift														
Carriage														
Trolley traveling winch														

Mark motors which can be switched on simultaneously, with *.

Mark motors which can start up simultaneously with Δ.

Other data: _____

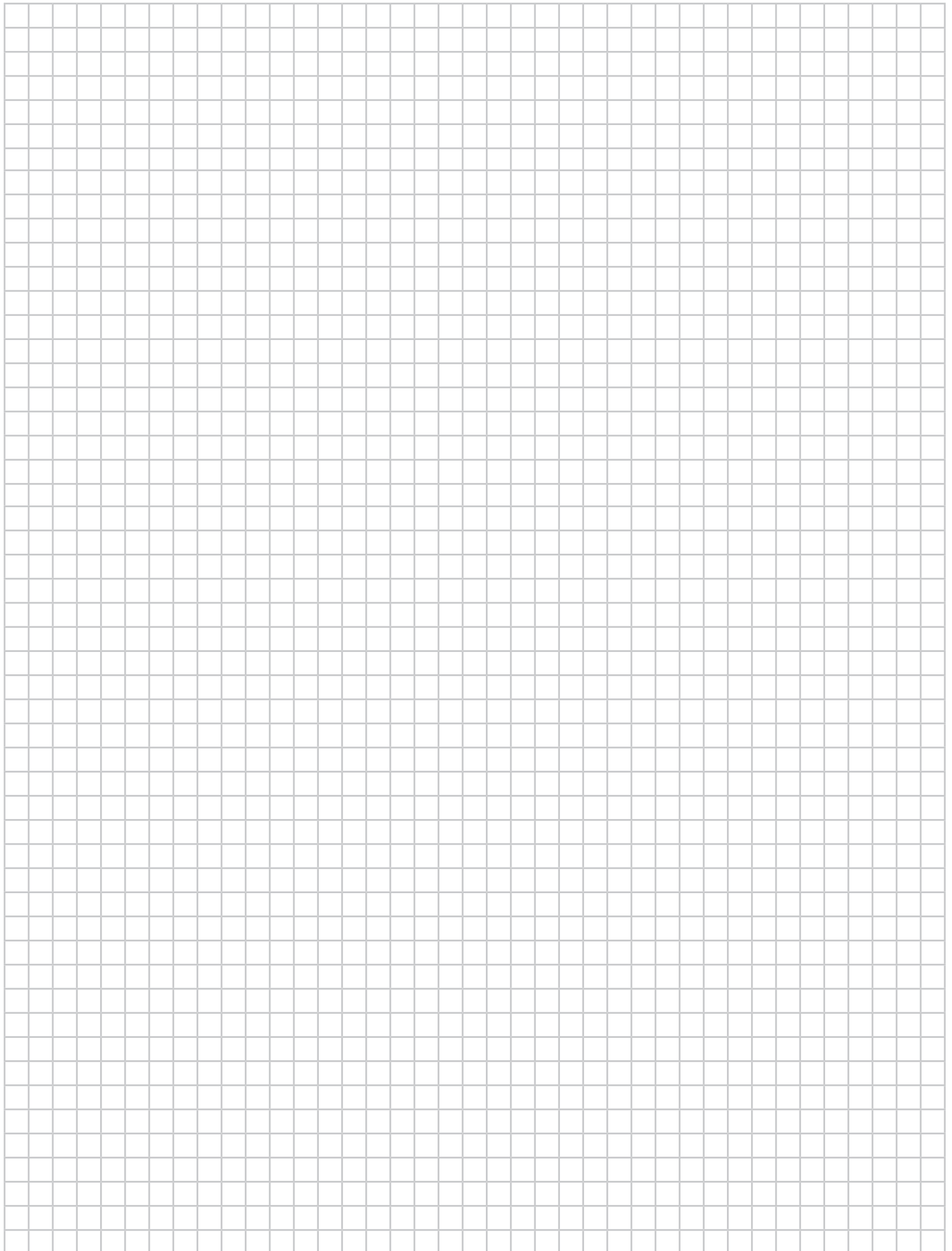
⁽¹⁾ Sketches required to work out offer

⁽²⁾ Enter type of drive: K for squirrel-cage motor, S for slip-ring rotor, F for frequency controlled motor

We reserve all rights to technical modifications in the interest of progress.

Please copy questionnaire and send by fax.

Signature _____



Products and Services

Catalog No.

1 Open conductor systems	
Open conductor systems	1a
2 Insulated conductor system	
U10	2a
FABA 100	2b
U15, U25, U35	2c
U20, U30, U40	2d
3 Compact conductor systems	
VKS 10	3a
VKS - VKL	3b
4 Enclosed conductor systems	
KBSL - KSL	4a
KBH	4b
MKLD - MKLF - MKLS	4c
LSV - LSVG	4d
5 Contactless Power Supply	
Contactless Power Supply (CPS®)	5a
6 Data transmission	
VAHLE Powercom®	6a
Slotted Microwave Guide (SMG)	6b
7 Positioning system	
VAHLE APOS®	7a
8 Cable roller equipment and lines	
Cable roller equipment for □ -running rails	8a
Cable roller equipment for flat lines on I running rails	8b
Cable roller equipment for round lines on □ running rails	8c
Cable roller equipment for ◇ -running rails	8d
Lines	8e
9 Reels	
Spring return cable reels	9a
Motor driven cable reels	9b
10 Other	
Battery charging systems	10a
Heavy enclosed conductor systems	10b
Tender	10c
Contact wire	10d

Assemblies / Commissioning

Spare parts / Maintenance service



DQS - certified in compliance with DIN EN
ISO 9001:2000
OHSAS 18001 (Reg. No. 003140 QM OH)