

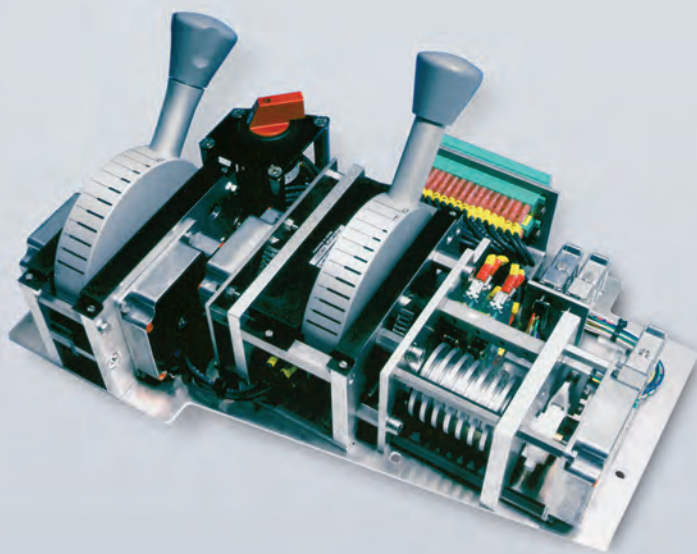


GESSMANN

Industrial Controllers



precision
competence
innovation



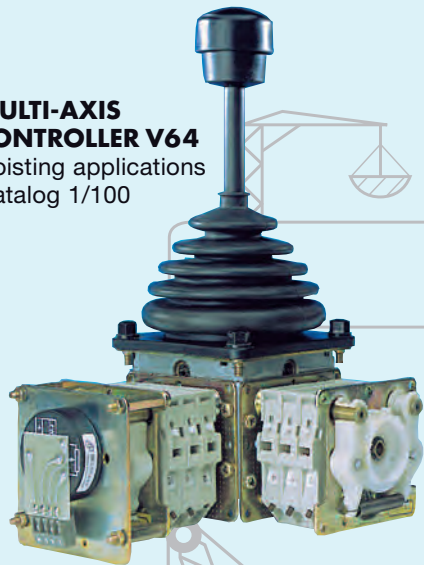
Catalog 2010



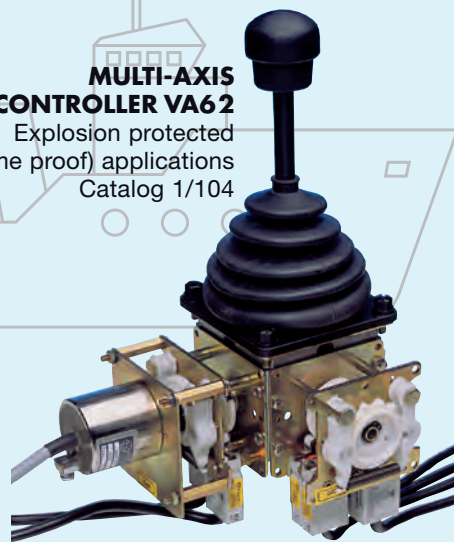
Our product range includes:

- Multi-axis controller, Double-handle controller, Control switch (Masterswitch), Gear Limit switch for hoisting-, electro-hydraulic application-, material-handling technology and remote control
- Complete crane control unit, portable control unit, pedant control unit, including wiring for all types of cranes and vehicles
- Control pedestal, controllers for offshore application and nautical control devices (ship-drive)
- Pedal controller for welding machine control and speed control
- Master controller for rolling stock
- Displays for forklift and construction machinery
- Proportional control electronic for solenoid valves
- Control electronic with digital and analog outputs matching our controllers
- Control electronic with Profi-Bus interface or CAN-Bus interface matching our controllers (input/output cards)
- DC-contact, signal cam controller for high voltage systems
- Customised solutions for operating units for any type of machinery and vehicles

**MULTI-AXIS
CONTROLLER V64**
Hoisting applications
Catalog 1/100



**MULTI-AXIS
CONTROLLER VA62**
Explosion protected
(flame proof) applications
Catalog 1/104



**MULTI-AXIS
CONTROLLER V11**
Hoisting applications
Catalog 1/110



**MULTI-AXIS
CONTROLLER V10**
Remote control and
Electro-hydraulic applications
Catalog 1/140



**SINGLE-AXIS
CONTROLLER S22**
Electro-hydraulic
applications
Catalog 1/204



**SINGLE-AXIS
CONTROLLER S23**
Electro-hydraulic
applications and
Offshore
Catalog 1/208



**MULTI-AXIS
CONTROLLER V21**
Electro-hydraulic
applications
Catalog 1/146



**SINGLE-AXIS
CONTROLLER S4**
Command devices
Catalog 1/214



**MULTI-AXIS
CONTROLLER V8B1**
Electro-hydraulic applications
Catalog 1/130



**DOUBLE-HANDLE
CONTROLLER D8**
Electro-hydraulic applications
Catalog 1/162



**MULTI-AXIS
CONTROLLER VV8**
Electro-hydraulic applications
Catalog 1/130



**SINGLE-AXIS
CONTROLLER S1**
Remote control and Electro-
hydraulic applications
Catalog 1/180



**MULTI-AXIS
CONTROLLER V14**
Remote control and
hoisting applications
Catalog 1/142



**MULTI-AXIS
CONTROLLER V20**
Remote control and
other applications
Catalog 1/144



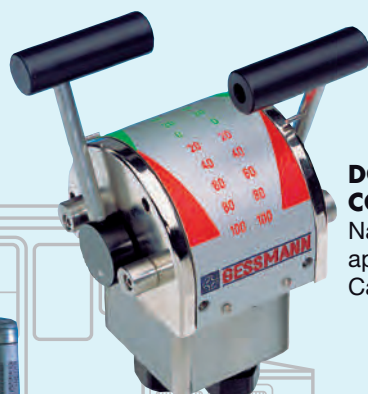
**MULTI-AXIS
CONTROLLER V85**
Electro-hydraulic
applications
Catalog 1/132



**MULTI-AXIS
CONTROLLER V25**
Electro-hydraulic
applications
Catalog 1/134



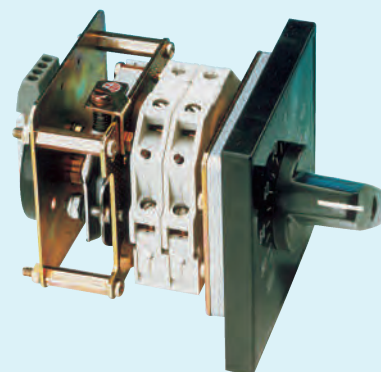
**DOUBLE-HANDLE
CONTROLLER D3**
Nautical navigation
applications
Catalog 1/164



**MULTI-AXIS
CONTROLLER VV5**
Electro-hydraulic applications
Catalog 1/122



CONTROL SWITCHES N6
Hoisting and Electro-hydraulic applications
Catalog 1/230



PALM GRIP B1...22
Catalog 1/270ff.



B9



B10

B14



B3



B4



B5



B6



B20



B22



Industrial Controllers

CRANE CONTROL UNIT KST 4

swivelling manual adjustment
Catalog 2/040



CRANE CONTROL UNIT KST 15

swivelling manual and/or motorized adjustment
Catalog 2/102



CRANE CONTROL UNIT KST 5

swivelling manual adjustment
Catalog 2/050



Our fields of activity are:

- Crane operation systems
- Remote control, hoisting application
- materials-handling technology, forklift
- Ports, Terminals, Offshore
- Steel Mills
- Mining, Tunnelling
- Forestry
- Welding machine control
- Railtrain, Vehicle application
- High voltage systems
- Explosion protected (flame proof) application

Please ask for our detailed catalog!

CRANE CONTROL UNIT KST 10

swivelling adjustment manual
Catalog 2/100



CRANE CONTROL UNIT KST 19

swivelling manual adjustment
Catalog 2/110



PEDAL CONTROLLER P10

Electro-hydraulic applications
Catalog 3/104



CONTROL PEDESTAL FOR OFFSHORE U22/32

Catalog 2/160



PEDAL CONTROLLER P7

Welding machine control
Catalog 3/100



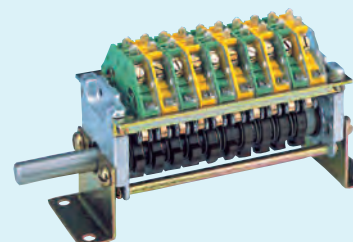
PEDANT CONTROL UNIT HT1

Catalog 2/170



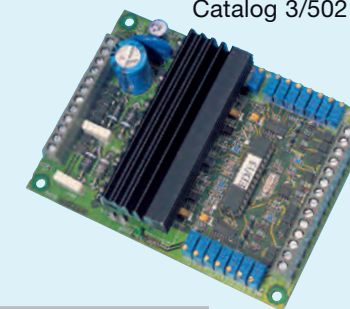
PORTABLE CONTROL UNIT TS22

Catalog 2/152



ELECTRONIC CONTROL UNIT ES/43

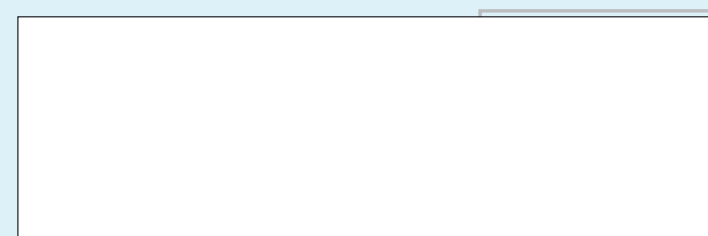
Serves for control of proportional valves
Catalog 3/502



SIGNAL CAM CONTROLLER NU 1

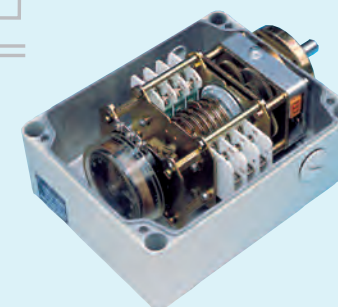
Hv Systems
Catalog 3/402

REPRESENTATION IN YOUR COUNTRY:



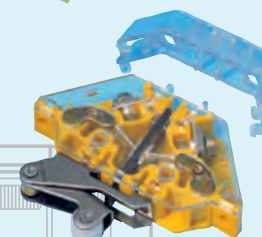
GEAR LIMIT SWITCH GE1

Hoisting applications
Catalog 3/200



DC-CONTACT S01.10

Signalling and announcement applications
Catalog 3/400





For our general conditions for sale and delivery please refer to the internet at www.gessmann.com

Please note additional:

Our catalog prices do not include value added tax, which is added separately.

The prices are ex-works in Leingarten excluding packaging. Packaging is charged at cost and cannot be returned. Our gross prices apply for orders below EURO 78,-. There is a minimum charge of EURO 47,-. Where possible, small orders should be combined.

We are entitled to charge any handling and production costs resulting from modifications of the order caused by the customer (both technical modifications and noncompliance of dead lines).

Payment may be made within 30 days without discount.

These conditions of payment shall be deemed to apply on receipt of our written order confirmation.

All delivery goods remain our sole and absolute property until paid for in full.

The **delivery period** commences only when all technical details have been clarified. Unforeseen circumstances justify an appropriate extension of the delivery period. All documents such as drawings, dimensional drawings, circuit diagrams, etc., are non-binding. We reserve the right to make any changes necessary, in particular technical changes.

Court venue will be exclusively 74072 Heilbronn, Federal Republic of Germany.

 Warning

Hazardous voltages are present on specific parts in this electrical device during operation.

Only qualified personal, paying attention to the relevant safety precautions, should install, maintain, modify or fit accessories to the controller. Non-observance of this warning can result in death, severe personal injury or substantial property damage.

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Commercial register:

Stuttgart HRB 100312

Managing Director:

Alwin Ehrensperger

Tax No.: 65205/74401 Finanzamt Heilbronn
Sale tax ID No.: DE 145786508



Pos.		Part No.	Type	Page
1	Multi-axis controller	5100... 5102... 5104... 510X... 510X... 5110... 5120... 5122... 513... 513... 5145... 5140... 5142... 5144... 5146... 5150...	V 6 VV 6 VA 6 Ex VVB 6 VVC 6 V 11 V 5 VV 5 V 8/VV 8 V 85/VV 85 V 25 V 10 V 14 V 20 V 21 V 3	1/100 1/102 1/104 1/106 1/108 1/110 1/120 1/122 1/130 1/132 1/134 1/140 1/142 1/144 1/146 1/150
	Double-handle controller	5160... 5162... 5164...	D/DD 64 D 8 D 3	1/160 1/162 1/164
	Single-axis controller	5180... 5214... 5200... 5202... 5204... 5208... 5212... 5216...	S 1 S 14 S 2/SS 2 S 21/SS 21 S 22/SS 22 S 23 S 3 S 4 S 6	1/180 1/188 1/200 1/202 1/204 1/208 1/212 1/214 1/220
	Control-switch	5220...	N 6	1/230
	Potentiometer/Encoder e.t.c.			1/240
	Operator handles			1/270
	Palm grip	5284... 5285... 5286... 5288... 5289... 5290... 5292... 5294... 5296... 5297... 5298...	B 1 B 2 B 3 B 4 B 5 B 6 B 7/8 B 9 B 10 B14/15 B 20 B22	1/284 1/285 1/286 1/288 1/290 1/291 1/292 1/294 1/296 1/300 1/310 1/314
	Housing			1/350
	Command and indicating devices			1/360
2	Crane control unit		KST 3 KST 4 KST 5 KST 6 KST 7 KST 75 KST 8 KST 85 KST 9 KST 10 KST 15 KST 18 KST 19	2/030 2/040 2/050 2/060 2/070 2/072 2/080 2/082 2/090 2/100 2/102 2/108 2/110
	Driver's seat		KFS 2 KFS 4 KFS 6 KFS 7 KFS 8 KFS 9 KFS 10	2/130 2/132 2/134 2/136 2/138 2/140 2/142
	Portable control unit		TS 1 TS 2	2/150 2/152
	Control pedestal for offshore		U 22/32 U 23/23 U 25/32	2/160 2/162 2/164
	Pedant control unit		HT 1/2	2/170
3	Pedal-controller		P 7/PP 7 P 8/PP 8 P 10/P 11 P 12	3/100 3/102 3/104 3/106
	Gear limit switch		GE 1/2	3/200
	Copy-cam controller		KVS	3/300
	DC-contact		SO/SS	3/400
	Signal-cam controller		NU 1 NU 2 NU 3	3/402 3/404 3/406
	Regulator electronic board Electronic (Amplifier)		ES/43 ES/61	3/502 3/504
	Matching Electronic Matching Electronic Profi-Bus Matching Electronic CAN-Bus Electronic CAN-Bus I/O Karte		E EPB ECB EB/49	3/510 3/520 3/530 3/531
4	Spare parts (please order separately)			4./...
5	Description data			5/001
	Technical data			5/100
	Representatives / another thing			5/900



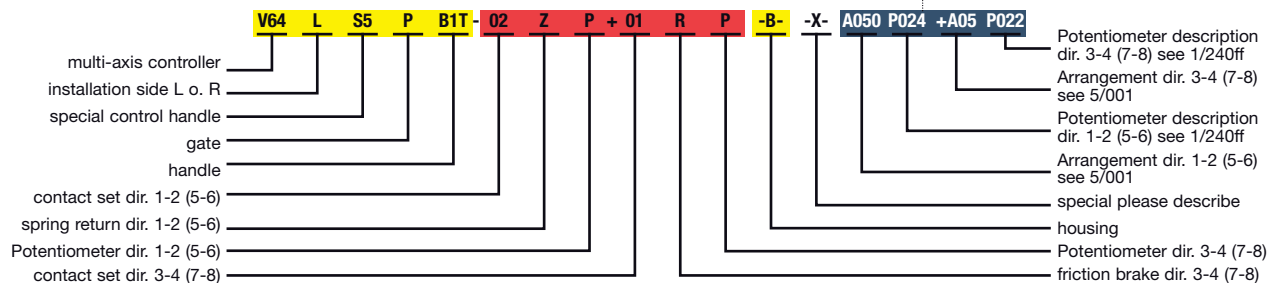
GESSMANN
Industrial controllers

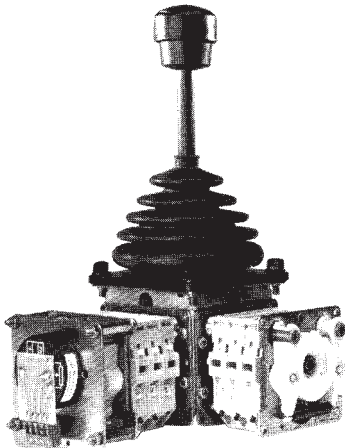
Ordering example Multi-axis controller V 6

2010

Pos.	V 61	V 61.1	V 62	V 64	V 64.1	Type expansion		Weight gramm	Type	Price EURO					
1								960	V 61						
2								980	V 61.1						
3								980	V 62						
4								1010	V 64						
5								960	V 64.1						
7.1	Multi-axis controller left		(dir. 1-2, 3-4)						L						
7.2	Multi-axis controller right		(dir. 5-6, 7-8)						R						
10	Gate cross-shaped		(prohibits diagonal shifting)					60	P						
11	Gate special-shaped		(e.g. H-gate)					60	PX						
20	Control-handle with knob solid														
21	Control-handle with latch for mechanical zero interlock														
21.1	by lifting														
21.2	by lifting, interlocking the gate														
21.4	by pushing down														
21.5	Mechanical zero interlock with command devices see catalog 1/274														
22	Control-handle with dead man's button 1 NO														
23	Control-handle with signal button 1 NO														
24	Control-handle with push button 1 NO														
25	Control-handle with flat push button 1 NO														
26	Control-handle with palm grip B 1														
27	Control-handle with palm grip B 1 with push button top 1 NO														
28	Control-handle long or short														
28.1	-40 mm														
28.2	-20 mm														
28.3	+20 mm														
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff														
30	Masterswitch (contact set) switching sequence 4-0-4											No. of contacts 2	290	01	
31												4	350	02	
32	Direction 1-2 and 3-4 each 1 masterswitch						6	410	03						
33	Switching program according contact-arrangement MS... see catalog 5/001					A...	8	470	04						
34	or to your contact-arrangement						10	530	05						
35							12	590	06						
36	Switching sequence 5-0-5 or 6-0-6														
37	Micro changeover contact (MZT 1) positive opening						2								
38	Spring return in 0-position (for each direction)								Z						
39	Friction brake adjustable (for each direction)								R						
40	Potentiometer e.t.c. each masterswitch with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k $\triangleq$ P021, 2 x 1k $\triangleq$ P022, 2 x 2k $\triangleq$ P023, 2 x 5k $\triangleq$ P024, 2 x 10k $\triangleq$ P025					...P02		70	P						
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°								(P)						
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable								(P)						
43	more Potentiometer e.t.c. see catalog 1/240ff					C..., P...									
50	Steel sheet housing B 200 masterswitch max. size 04							1300	B						
51	Steel sheet housing B 230 x 340 masterswitch max. size 06							1500	B						
52	More housing see catalog 1/350														
60	Indicating labels not engraved with 2 or 4 arrows														
61	Engraving, each 10 characters														
70	Command and indicating devices see catalog 1/360														

description of one axis is enough, if both axes are identical, eg.:
A05 P024 + A05 P024 => A05 P024





Type V62L-03ZP+03Z-...

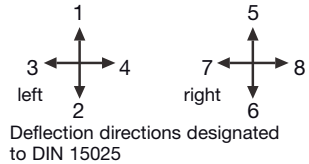
The multi-axis controller V 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The V 6 is resistant to oil, maritime climate, ozone and UV radiation.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/002

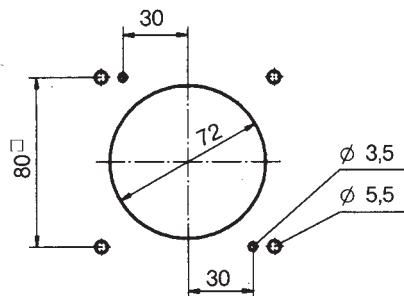
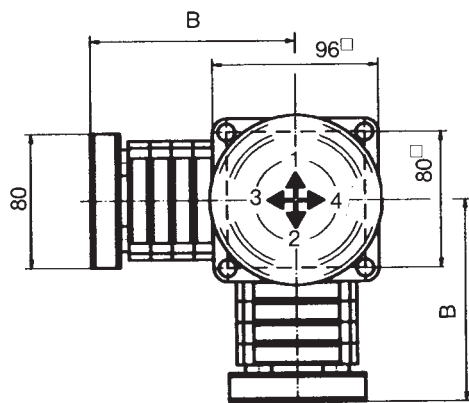
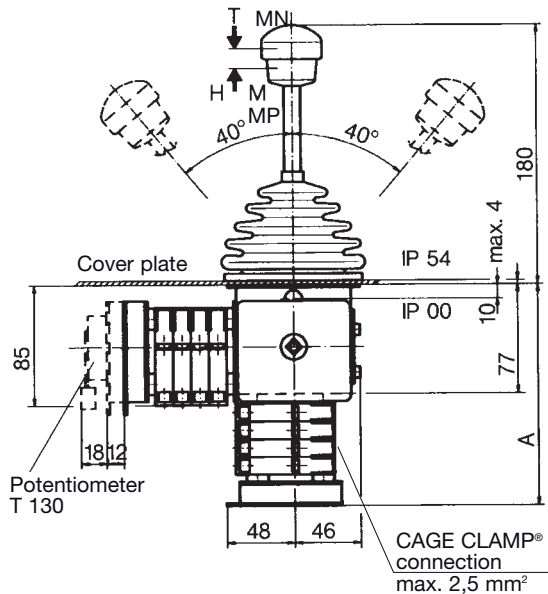
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



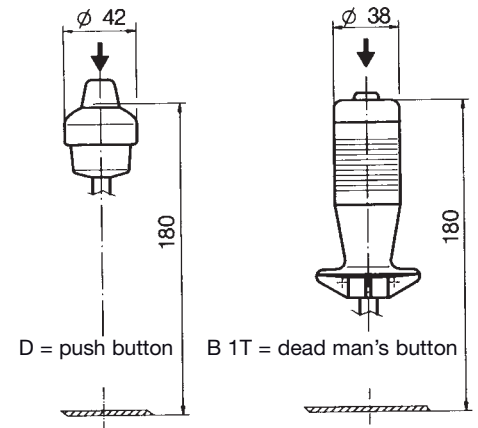
Pos.	V 61	V 61.1	V 62	V 64	V 64.1	Type expansion		Weight gramm	Type	Price EURO
1								960	V 61	
2								980	V 61.1	
3								980	V 62	
4								1010	V 64	
5								960	V 64.1	
7.1	Multi-axis controller left (dir. 1-2, 3-4)								L	
7.2	Multi-axis controller right (dir. 5-6, 7-8)								R	
10	Gate cross-shaped (prohibits diagonal shifting)							60	P	
11	Gate special-shaped (e.g. H-gate)							60	PX	
20	Control-handle with knob solid									
21	Control-handle with latch for mechanical zero interlock									
21.1	by lifting							50	M	
21.2	by lifting, interlocking the gate							60	MP	
21.4	by pushing down							50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274									
22	Control-handle with dead man's button 1 NO							100	T	
23	Control-handle with signal button 1 NO							100	H	
24	Control-handle with push button 1 NO							110	D	
25	Control-handle with flat push button 1 NO							110	DV	
26	Control-handle with palm grip B 1							40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO							60	B 1T	
28	Control-handle long or short									
28.1	-40 mm								S3	
28.2	-20 mm								S5	
28.3	+20 mm								S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff									
30	Masterswitch (contact set) switching sequence 4-0-4						No. of contacts 2	290	01	
31							4	350	02	
32	Direction 1-2 and 3-4 each 1 masterswitch						6	410	03	
33	Switching program according contact-arrangement MS... see catalog 5/001					A...	8	470	04	
34	or to your contact-arrangement						10	530	05	
35							12	590	06	
36	Switching sequence 5-0-5 or 6-0-6									
37	Micro changeover contact (MZT 1) positive opening						2			
38	Spring return in 0-position (for each direction)							110	Z	
39	Friction brake adjustable (for each direction)							30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k $\triangle$ P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025					...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°								(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.								(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					C..., P...				
50	Steel sheet housing B 200 masterswitch max. size 04							1300	B	
51	Steel sheet housing B 230 x 340 masterswitch max. size 06							1500	B	
52	More housing see catalog 1/350									
60	Indicating labels not engraved with 2 or 4 arrows									
61	Engraving, each 10 characters									
70	Command and indicating devices see catalog 1/360									



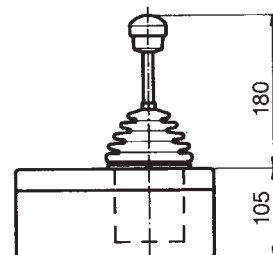
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



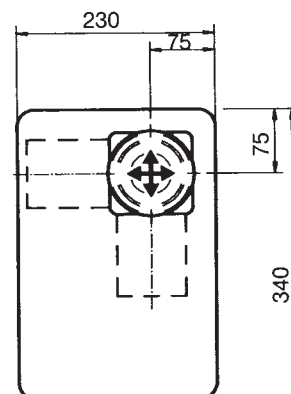
Hole pattern



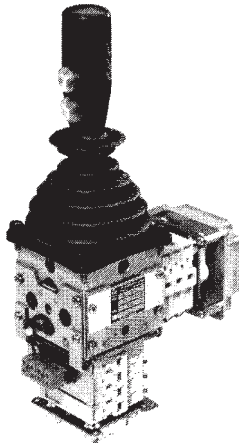
Type	No. of contacts	Dimension A	Dimension B
01	2	119	82
02	4	131	94
03	6	144	107
04	8	156	119
05	10	169	132
06	12	181	144



Steel sheet housing



	V64	L	S5	P	B1T - 02	Z	P + 01	R	P	-B-	-X-	A050	P024	+A05	P022	
multi-axis controller																Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R																Arrangement dir. 3-4 (7-8) see 5/001
special control handle																Potentiometer description dir. 1-2 (5-6) see 1/240ff
gate																Arrangement dir. 1-2 (5-6) see 5/001
handle																special please describe
contact set dir. 1-2 (5-6)																housing
spring return dir. 1-2 (5-6)																Potentiometer dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)																friction brake dir. 3-4 (7-8)
contact set dir. 3-4 (7-8)																



Type V64LB12D-04Z+03ZC-...

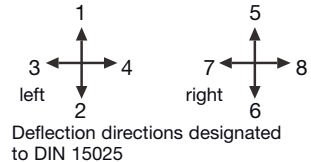
The multi-axis controller VV 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The VV 6 is resistant to oil, maritime climate, ozone and UV radiation.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life 20 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

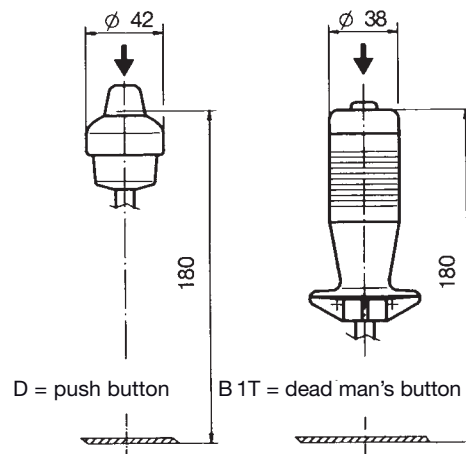
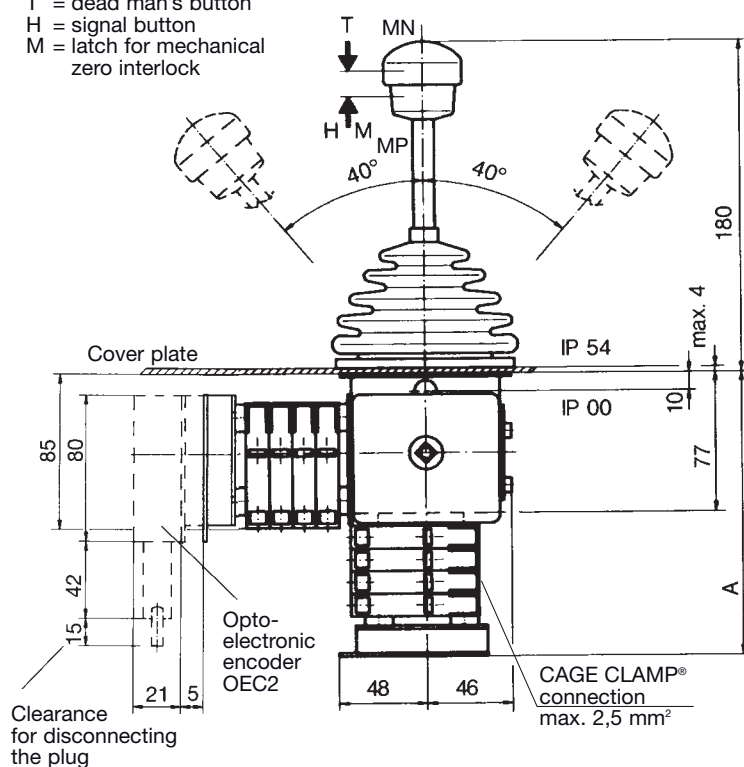
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



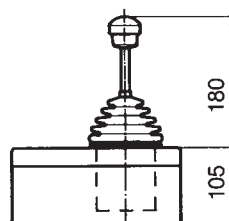
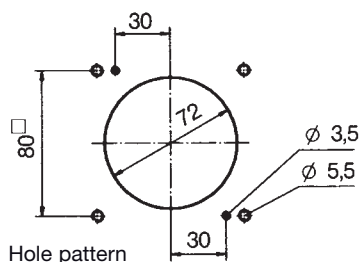
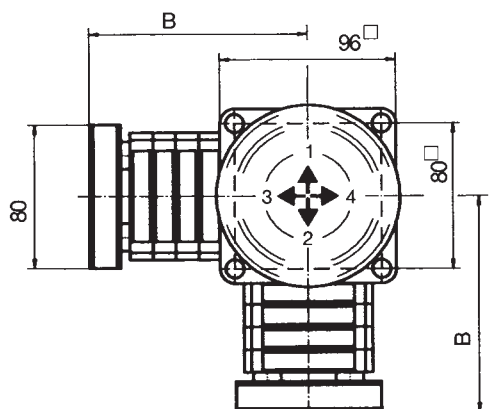
Pos.	VV 61	VV 61.1	VV 62	VV 64	VV 64.1	Type expansion		Weight gramm	Type	Price EURO
1	1	1	1	1	1			960	VV 61	
2	1-2	1	1-2	1-2	1			980	VV 61.1	
3	2	2	3	3	2			980	VV 62	
4	2	2	4	4	2			1010	VV 64	
5	1-2	1-2	3-4	3-4	2			960	VV 64.1	
7.1	Multi-axis controller left		(dir. 1-2, 3-4)						L	
7.2	Multi-axis controller right		(dir. 5-6, 7-8)						R	
10	Gate cross-shaped		(prohibits diagonal shifting)					60	P	
11	Gate special-shaped		(e.g. H-gate)					60	PX	
20	Control-handle with knob solid									
21	Control-handle with latch for mechanical zero interlock									
21.1	by lifting							50	M	
21.2	by lifting, interlocking the gate							60	MP	
21.3	by lifting, interlocking in the joint bracket							60	MP	
21.4	by pushing down							50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274									
22	Control-handle with dead man's button 1 NO							100	T	
23	Control-handle with signal button 1 NO							100	H	
24	Control-handle with push button 1 NO							110	D	
25	Control-handle with flat push button 1 NO							110	DV	
26	Control-handle with palm grip B 1							40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO							60	B 1T	
28	Control-handle long or short									
28.1			-40 mm						S3	
28.2			-20 mm						S5	
28.3			+20 mm						S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff									
30	Masterswitch (contact set) switching sequence 4-0-4						No. of contacts 2	290	01	
31							4	350	02	
32	Direction 1-2 and 3-4 each 1 masterswitch				A...		6	410	03	
33	Switching program according contact-arrangement MS... see catalog 5/001						8	470	04	
34	or to your contact-arrangement						10	530	05	
35							12	590	06	
36	Switching sequence 5-0-5 or 6-0-6									
38	Spring return in 0-position (for each direction)							110	Z	
39	Friction brake adjustable (for each direction)							30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k $\pm$ P021, 2 x 1k $\pm$ P022, 2 x 2k $\pm$ P023, 2 x 5k $\pm$ P024, 2 x 10k $\pm$ P025				...P02 $\square$			70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°								(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				C..., P...				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff									
50	Steel sheet housing B 200 masterswitch max. size 04							1300	B	
51	Steel sheet housing B 230 x 440 masterswitch max. size 06							1600	B	
52	More housing see catalog 1/350									
60	Indicating labels not engraved with 2 or 4 arrows									
61	Engraving, each 10 characters									
70	Command and indicating devices see catalog 1/360									



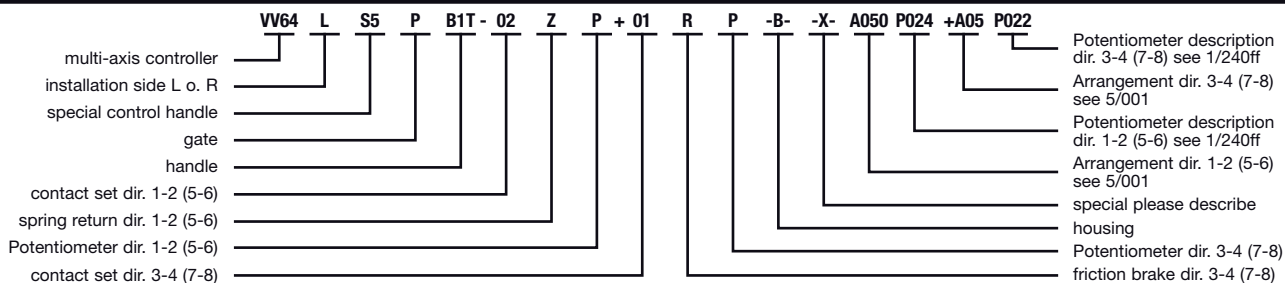
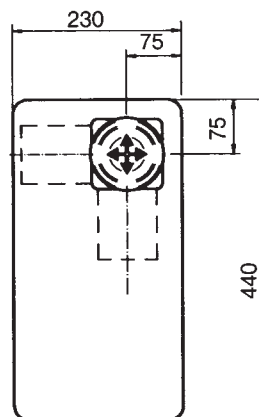
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



Type	No. of contacts	Dimension A	Dimension B
01	2	119	82
02	4	131	94
03	6	144	107
04	8	156	119
05	10	169	132
06	12	181	144



Steel sheet housing





Type VA62L-01ZP+01Z-...

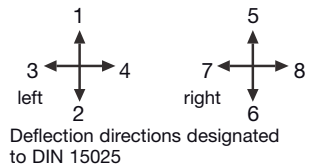
The multi-axis controller VA 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The VA 6 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life 10 million (operating cycles)
Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

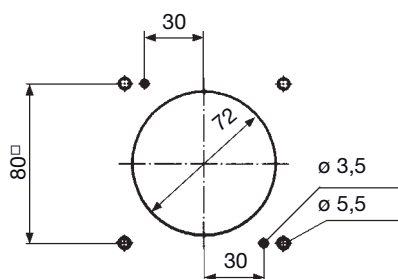
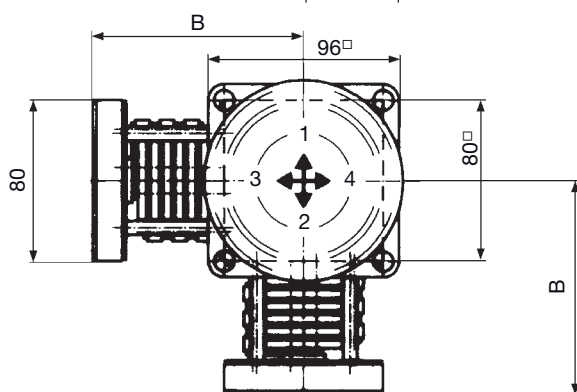
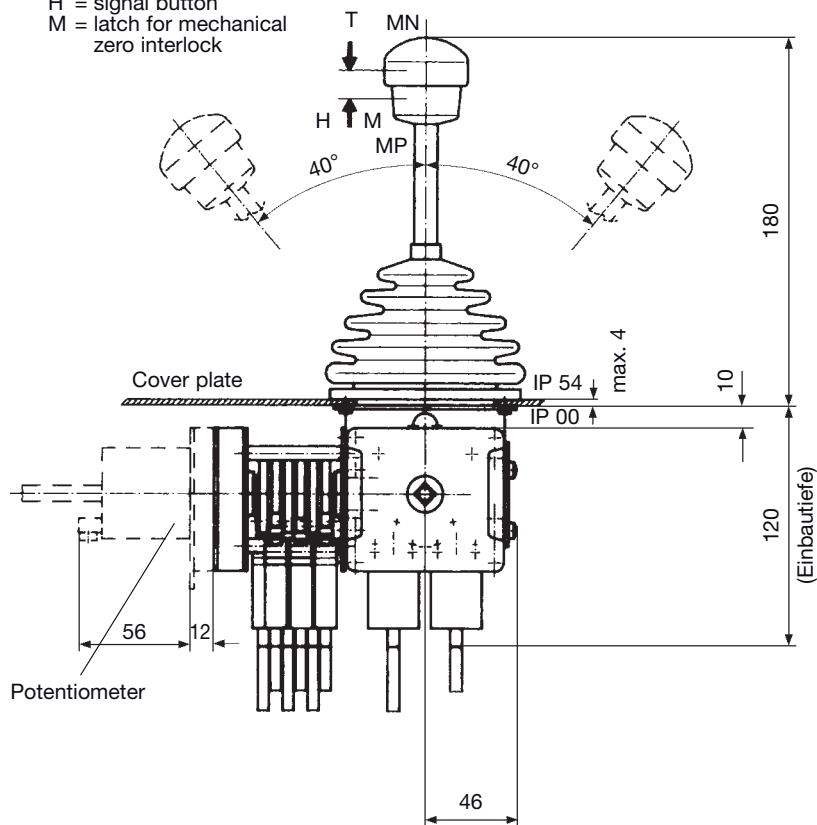
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



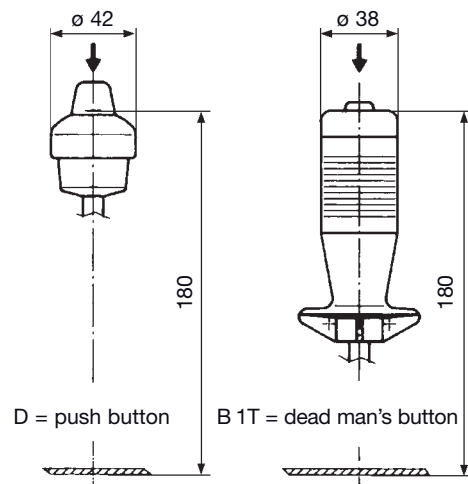
Pos.	VA 61	VA 61.1	VA 62	VV 64.1	Type expansion		Weight gramm	Type	Price EURO		
1							960	VA 61			
2							980	VA 61.1			
3							980	VA 62			
4											
5											
7.1	Multi-axis controller left (dir. 1-2, 3-4)							L			
7.2	Multi-axis controller right (dir. 5-6, 7-8)							R			
10	Gate cross-shaped (prohibits diagonal shifting)						60	P			
11	Gate special-shaped (e.g. H-gate)						60	PX			
20	Control-handle with knob solid				Microchange over contact explosion protection EExdIICT 6 PTB No. Ex-91C 1083 X sealed cable 3 metre long						
21	Control-handle with latch for mechanical zero interlock										
21.1	by lifting									50	M
21.2	by lifting, interlocking the gate									60	MP
21.4	by pushing down									50	MN
22	Control-handle with dead man's button 1 NO									100	T
23	Control-handle with signal button 1 NO									100	H
24	Control-handle with push button 1 NO									110	D
25	Control-handle with flat push button 1 NO									110	DV
26	Control-handle with palm grip B 1									40	B 1
27	Control-handle with palm grip B 1 with push button top 1 NO									60	B 1T
28	Control-handle long or short										
28.1	-40 mm										S3
28.2	-20 mm										S5
28.3	+20 mm										S8
30	Masterswitch (contact) switching sequence 4-0-4				A...	No. of contacts	2	290	01		
31							4	350	02		
32	Direction 1-2 and 3-4 each 1 masterswitch						6	410	03		
33	Switching program according contact-arrangement MS see cat. 5/001						8	470	04		
34	or to your contact-arrangement						10	530	05		
35							12	590	06		
36	Switching sequence 5-0-5 or 6-0-6										
38	Spring return in 0-position (for each direction)						110	Z			
39	Friction brake adjustable (for each direction)						30	R			
40	Potentiometer e.t.c. each direction with mounted Conductive plastic potentiometer T 396, with centre tap linear Life 5 x 10 ⁷ switching cycles resistance 2 x 5 kOhm, 0,5 Watt wiper current max. 1 mA in housing explosion protection EExdIICT 6 PTB-No. Ex-85/1131 sealed cable 3 metre long				...P134		70	P			
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°										
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.										
52	Housing see catalog 1/350										
60	Indicating labels not engraved with 2 or 4 arrows										
61	Engraving, each 10 characters										
70	Command and indicating devices on enquiry										



T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



Hole pattern



Type	No. of contacts	Dimension B
01	2	82
02	4	94
03	6	107
04	8	119
05	10	132
06	12	144

	VA62	L	S5	P	T - 02	Z	P + 01	R	P	-B-	-X-	A050	P084	+A05	P082	
multi-axis controller																Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R																Arrangement dir. 3-4 (7-8) see 5/001
special control handle																Potentiometer description dir. 1-2 (5-6) see 1/240ff
gate																Arrangement dir. 1-2 (5-6) see 5/001
handle																special please describe
contact set dir. 1-2 (5-6)																housing
spring return dir. 1-2 (5-6)																Potentiometer dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)																friction brake dir. 3-4 (7-8)
contact set dir. 3-4 (7-8)																



GESSMANN

Industrial controllers

Multi-axis controller VVB 6 kontakt S800 with magnetic blow out

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2010



Type VVB64LD-06Z+06Z-...

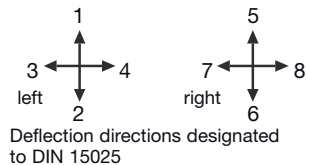
The multi-axis controller VVB 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The VVB 6 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 250 V DC 13

Mechanical life 20 million (operating cycles)
Operation -40° C to +60° C
Permissible ambient temperature Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).

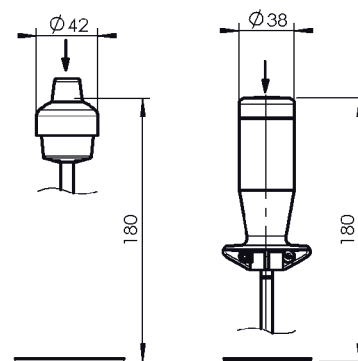


Pos.	VVB 61	VVB 61.1	VVB 62	VVB 64	VVB 64.1	Type expansion		Weight gramm	Type	Price EURO
1								960	WB 61	
2								980	WB 61.1	
3								980	WB 62	
4								1010	WB 64	
5								960	WB 64.1	
7.1	Multi-axis controller left			(dir. 1-2, 3-4)				60	L	
7.2	Multi-axis controller right			(dir. 5-6, 7-8)				60	R	
10	Gate cross-shaped			(prohibits diagonal shifting)				110	P	
11	Gate special-shaped			(e.g. H-gate)				30	PX	
20	Control-handle with knob solid						Pos. 22-25, 27 not possible for VVB 64...			
21	Control-handle with latch for mechanical zero interlock									
21.1	by lifting							50	M	
21.2	by lifting, interlocking the gate							60	MP	
21.3	by lifting, interlocking in the joint bracket							60	MP	
21.4	by pushing down							50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274									
22	Control-handle with dead man's button 1 NO							150	T	
23	Control-handle with signal button 1 NO							150	H	
24	Control-handle with push button 1 NO							160	D	
25	Control-handle with flat push button 1 NO							160	DV	
26	Control-handle with palm grip B 1							40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO							110	B 1T	
28	Control-handle long or short									
28.1									S3	
28.2									S5	
28.3									S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff									
30	Masterswitch (contact) switching sequence 4-0-4					A...	No. of contacts 2	390	01	
31							4	550	02	
32	Direction 1-2 and 3-4 each 1 masterswitch						6	710	03	
33	Switching program according contact-arrangement MS... see catalog 5/001						8	970	04	
34	or to your contact-arrangement						10	1130	05	
35							12	1390	06	
36	Switching sequence 5-0-5 or 6-0-6									
38	Spring return in 0-position			(for each direction)					Z	
39	Friction brake adjustable			(for each direction)					R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k $\triangle$ P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025					...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°								(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.								(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff									
60	Indicating labels not engraved with 2 or 4 arrows									
61	Engraving, each 10 characters									

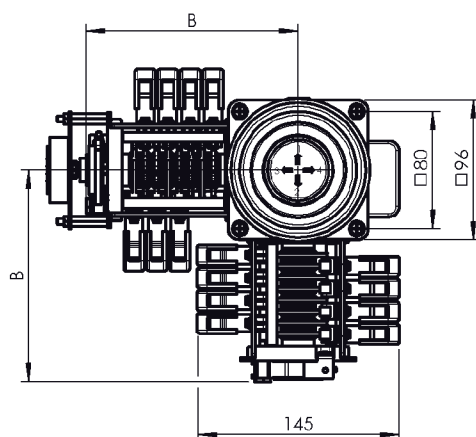


Contact S800 with magnetic blow out

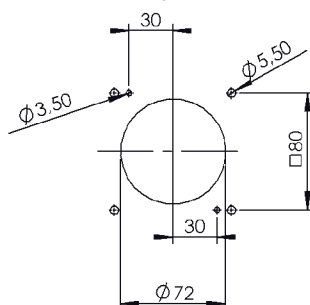
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D = push button B 1T = dead man's button



Hole pattern



Type	No. of contacts	Dimension A	Dimension B
01	2	136	99
02	4	152	115
03	6	167	130
04	8	183	146
05	10	198	161
06	12	214	177

	VVB64	L	S5	P	B1T - 02	Z	P + 01	R	P	-B-	-X-	A050	P024	+A05	P022	
multi-axis controller																Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R																Arrangement dir. 3-4 (7-8) see 5/001
special control handle																Potentiometer description dir. 1-2 (5-6) see 1/240ff
gate																Arrangement dir. 1-2 (5-6) see 5/001
handle																special please describe housing
contact set dir. 1-2 (5-6)																Potentiometer dir. 3-4 (7-8)
spring return dir. 1-2 (5-6)																friction brake dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)																
contact set dir. 3-4 (7-8)																

**GESSMANN**

Industrial controllers

Multi-axis controller VVC 6

contact 3XP9 221-1E with magnetic blow out

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Type VVC64L-8Z+8Z-...

The multi-axis controller VVC 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The VVC 6 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 8 A 24 V DC 13

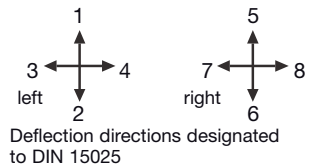
Mechanical life
Permissible ambient temperature

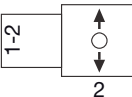
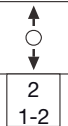
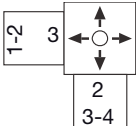
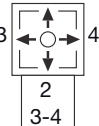
20 million (operating cycles)
Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant
Damp heat cyclic
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

IEC 60068-2-78
IEC 60068-2-30
IP 54 IEC/EN 60529

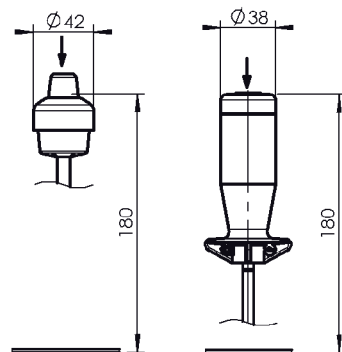
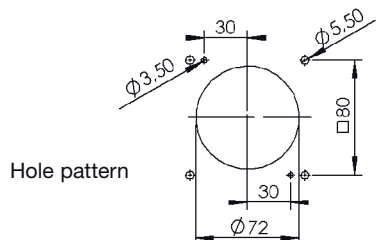
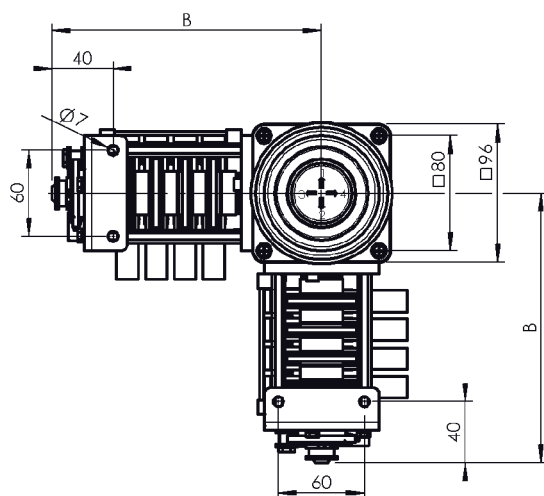
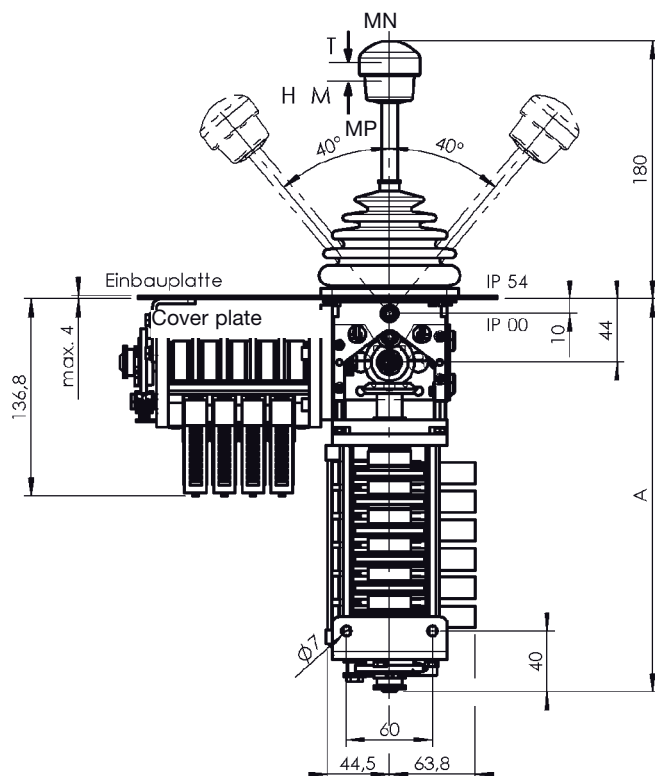
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



Pos.	VVC 61	VVC 61.1	VVC 62	VVC 64	VVC 64.1	Type expansion		Weight gramm	Type	Price EURO
1								960	VVC 61	
2								980	WC 61.1	
3								980	VVC 62	
4								1010	VVC 64	
5								960	WC 64.1	
7.1	Multi-axis controller left		(dir. 1-2, 3-4)				60	L		
7.2	Multi-axis controller right		(dir. 5-6, 7-8)				60	R		
10	Gate cross-shaped		(prohibits diagonal shifting)				110	P		
11	Gate special-shaped		(e.g. H-gate)				30	PX		
20	Control-handle with knob solid						Pos. 22-25, 27 not possible for VVC 64...			
21	Control-handle with latch for mechanical zero interlock									
21.1	by lifting							50	M	
21.2	by lifting, interlocking the gate or the joint bracket							60	MP	
21.3	by lifting, interlocking in the joint bracket							60	MP	
21.4	by pushing down							50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274									
22	Control-handle with dead man's button 1 NO							200	T	
23	Control-handle with signal button 1 NO							200	H	
24	Control-handle with push button 1 NO							210	D	
25	Control-handle with flat push button 1 NO							210	DV	
26	Control-handle with palm grip B 1							40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO							160	B 1T	
28	Control-handle long or short									
28.1									S3	
28.2									S5	
28.3									S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff									
30	Masterswitch (contact) switching sequence 4-0-4					A...	No. of contacts 2	490	2	
31							4	750	4	
32	Direction 1-2 and 3-4 each 1 masterswitch						6	1010	6	
33	Switching program according contact-arrangement MS... see catalog 5/001						8	1370	8	
34	or to your contact-arrangement						10	1630	10	
35							12	1990	12	
36	Switching sequence 5-0-5 or 6-0-6									
38	Spring return in 0-position		(for each direction)					Z		
39	Friction brake adjustable		(for each direction)					R		
40										
50										
60	Indicating labels not engraved with 2 or 4 arrows									
61	Engraving, each 10 characters									

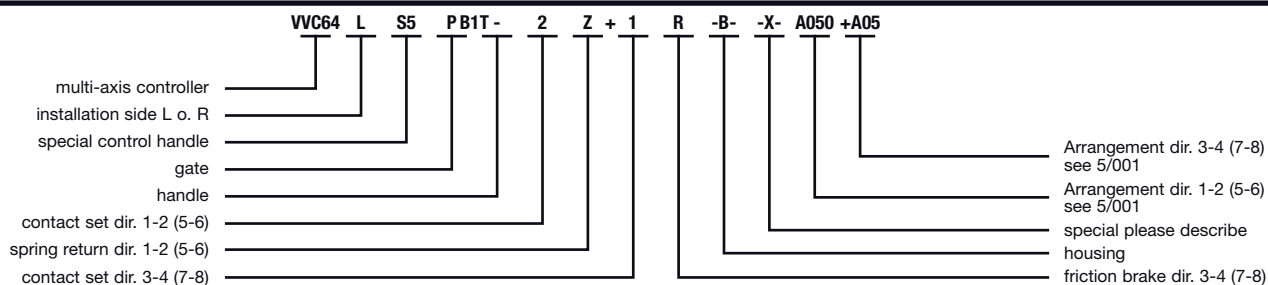


T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



D = push button B 1T = dead man's button

Type	No. of contacts	Dimension A	Dimension B
1	1	169	125
2	2	189	145
3	3	209	165
4	4	229	185
5	5	249	205
6	6	269	225
7	7	289	245
8	8	309	265
9	9	329	285
10	10	349	305
11	11	369	325
12	12	389	345





Type V11LT-02Z+02Z-...

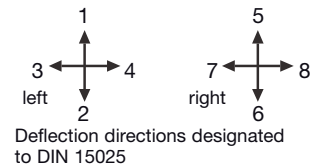
The multi-axis controller V 11 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications. The modular design enables the switching device to be used universally. The V 11 is resistant to oil, maritime climate, ozone and UV radiation.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation left
(right-hand side installation is mirror image).

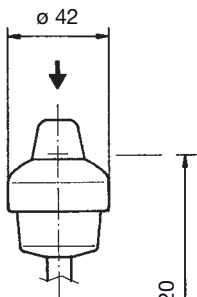


Pos.	V 11.1	V 11	Type expansion		Weight gramm	Type	Price EURO
1					400	V 11.1	
2							
3					500	V 11	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			60	P	
11	Gate special-shaped	(e.g. H-gate)			60	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock						
21.1	by lifting				50	M	
21.2	by lifting, interlocking the gate				60	MP	
21.4	by pushing down				50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				100	T	
23	Control-handle with signal button 1 NO				100	H	
24	Control-handle with push button 1 NO				110	D	
25	Control-handle with flat push button 1 NO				110	DV	
26	Control-handle with palm grip B 1				40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO				60	B 1T	
28	Control-handle long or short						
28.1		-20 mm				S5	
28.2		+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact set) switching sequence 4-0-4			No. of contacts 2	70	01	
31				4	130	02	
32	Direction 1-2 and 3-4 each 1 masterswitch			6	190	03	
33	Switching program according contact-arrangement MS... see catalog 5/001		A...				
34	or to your contact-arrangement						
38	Spring return in 0-position (for each direction)				25	Z	
39	Friction brake adjustable (for each direction)				20	R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 365, with centre tap linear Life 10 ⁷ switching cycles resistance 2 x 5 kOhm, 0,5 Watt wiper current max. 1 mA		...P324		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°					(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff		C..., P...				
50	Plastic housing I 160 x 240, masterswitch max. size 03				800	I	
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



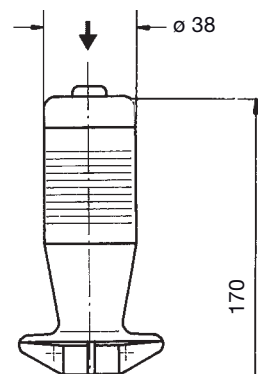
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock

Knob solid

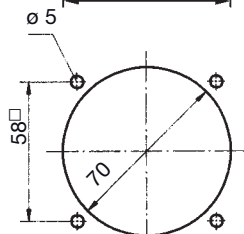
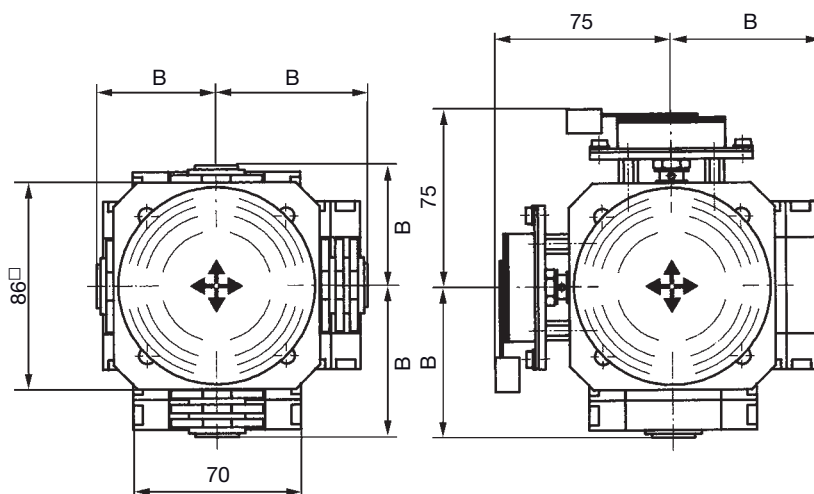
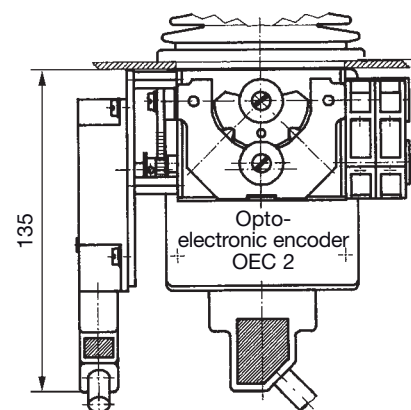
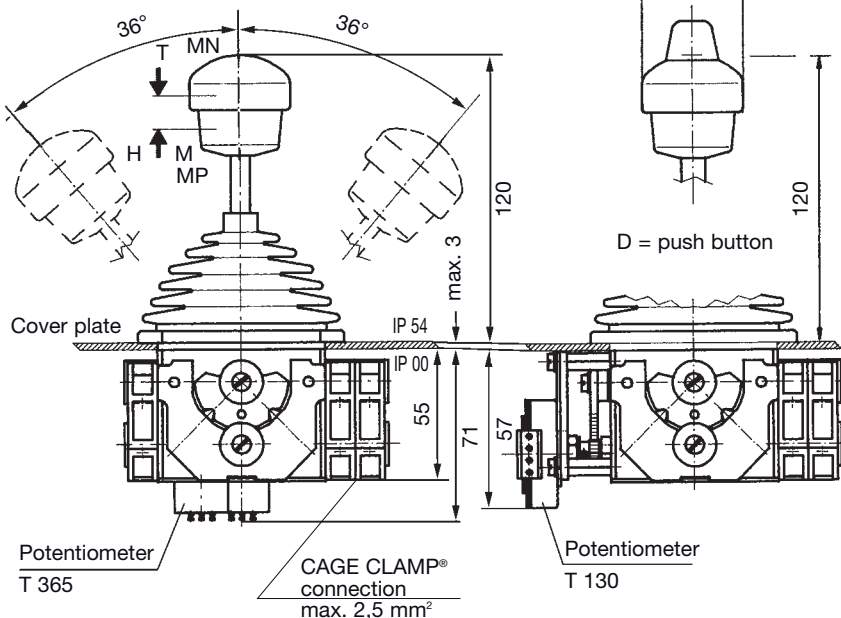


D = push button

Palm grip B 1

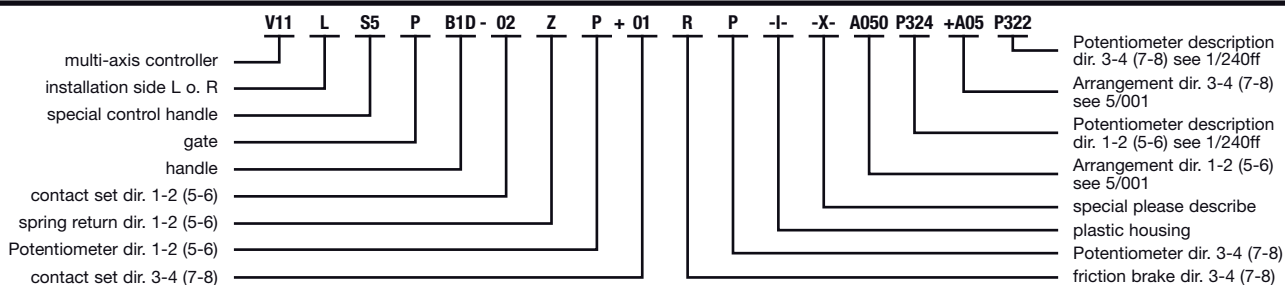


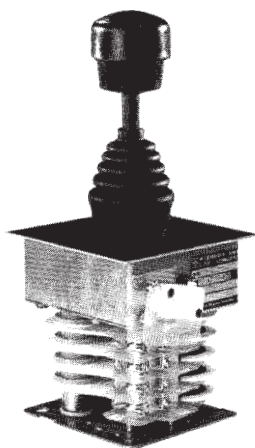
B 1T = dead man's button



Hole pattern

Type	No. of contacts	Dimension B
01	2	51
02	4	64
03	6	76





Type V5LT-4Z+4Z-...

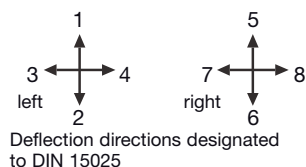
The multi-axis controller V 5 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The V 5 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life 6 million (operating cycles)
Operation -40° C to +60° C
Permissible ambient temperature Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

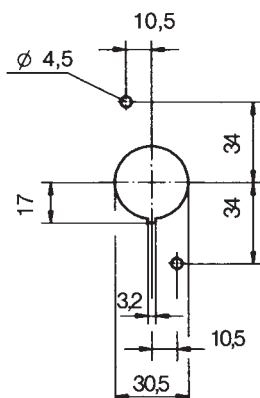
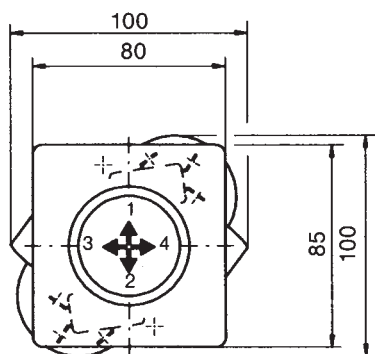
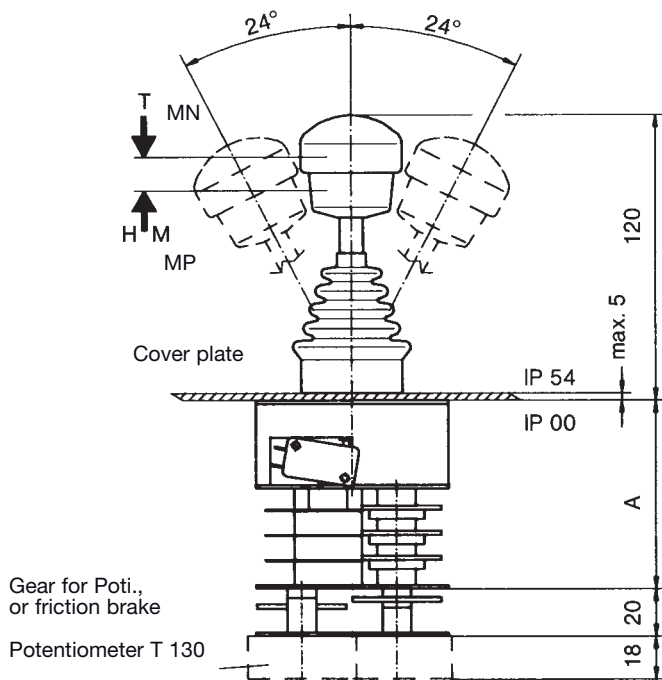
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



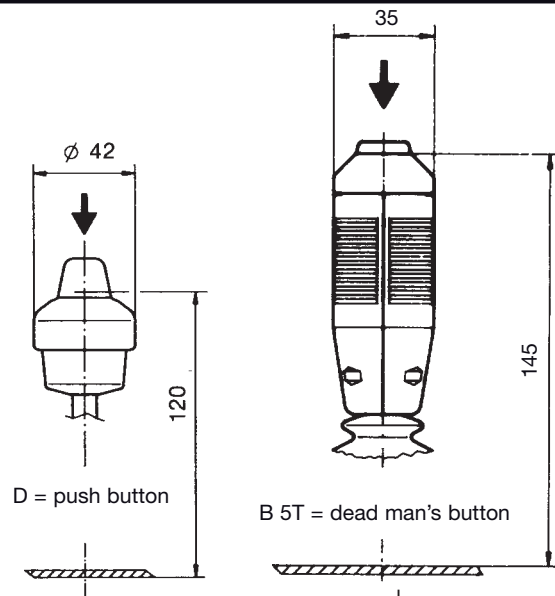
Pos.	V 51	V 5	Type expansion		Weight gramm	Type	Price EURO
1					400	V 51	
2							
3					500	V 5	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			50	P	
11	Gate special-shaped	(e.g. H-gate)			50	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock						
21.1	by lifting				50	M	
21.2	by lifting, interlocking the gate				60	MP	
21.4	by pushing down				50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				50	T	
23	Control-handle with signal button 1 NO				50	H	
24	Control-handle with push button 1 NO				60	D	
25	Control-handle with flat push button 1 NO				60	DV	
26	Control-handle with palm grip B 5				40	B 5	
27	Control-handle with palm grip B 5 with push button top 1 NO				60	B 5T	
28	Control-handle long or short						
28.1		-20 mm				S5	
28.2		+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) switching sequence 3-0-3		A...	No. of contacts 1	150	1	
31				2	160	2	
32	Direction 1-2 and 3-4 each 1 masterswitch			3	170	3	
33	Switching program according contact-arrangement MS... see catalog 5/001 or to your contact-arrangement			4	180	4	
34				5	190	5	
35				6	200	6	
36	Switching sequence 4-0-4						
37	Micro changeover contact (MZT 1) with positive opening operation (additional price)			1			
38	Spring return in 0-position (for each direction)				25	Z	
39	Friction brake adjustable (for each direction)				30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k P022, 2 x 2k P023, 2 x 5k P024, 2 x 10k P025		...P02 k		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°					(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff		P...				
50	Plastic housing I 120 x 160, masterswitch max. size 6				600	I	
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



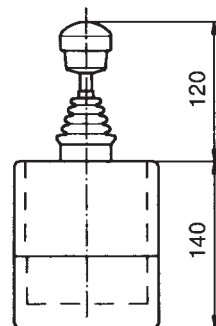
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



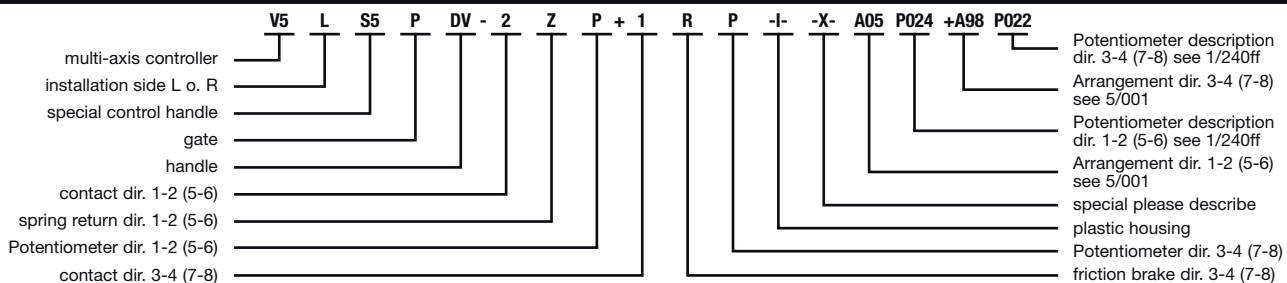
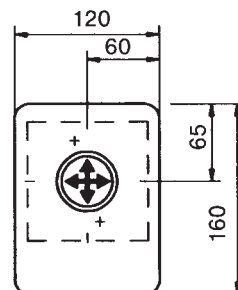
Hole pattern

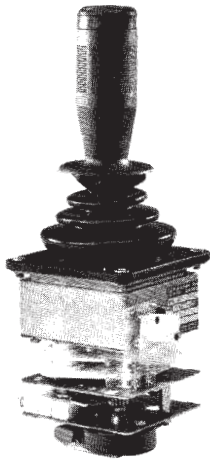


Type	No. of contacts	Dimension A
1	1	58
2	2	69
3	3	79
4	4	90
5	5	100
6	6	111



Plastic housing





Type VV51LB1T-2RP-...

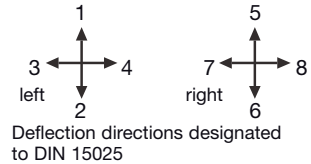
The multi-axis controller VV 5 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications.
The modular design enables the switching device to be used universally.
The VV 5 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life 10 million (operating cycles)
Operation -40° C to +60° C
Permissible ambient temperature Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

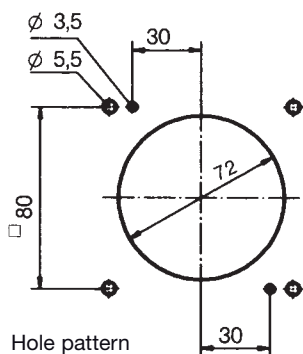
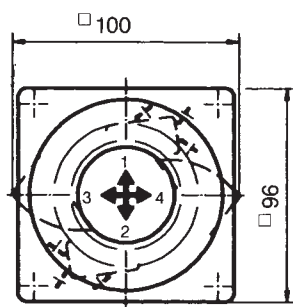
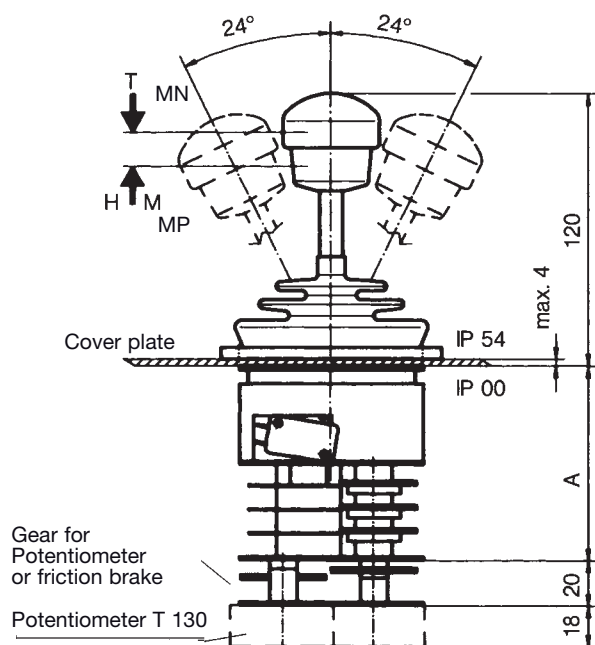
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



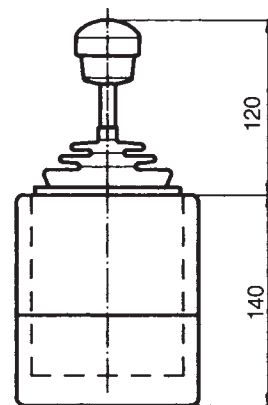
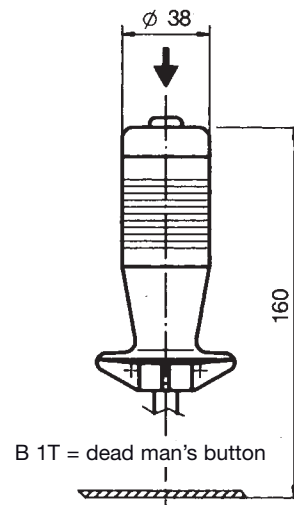
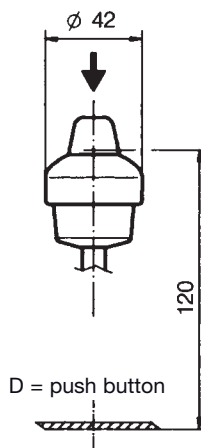
Pos.	VV 51	VV 5	Type expansion		Weight gramm	Type	Price EURO
1					500	VV 51	
2							
3					600	VV 5	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			60	P	
11	Gate special-shaped	(e.g. H-gate)			60	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock						
21.1	by lifting				50	M	
21.2	by lifting, interlocking the gate				60	MP	
21.4	by pushing down				50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				100	T	
23	Control-handle with signal button 1 NO				100	H	
24	Control-handle with push button 1 NO				110	D	
25	Control-handle with flat push button 1 NO				110	DV	
26	Control-handle with palm grip B 1				40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO				60	B 1T	
28	Control-handle long or short						
28.1	-20 mm					S5	
28.2	+20 mm					S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) switching sequence 3-0-3		A...	No. of contacts 1	150	1	
31				2	160	2	
32	Direction 1-2 and 3-4 each 1 masterswitch			3	170	3	
33	Switching program according contact-arrangement MS... see catalog 5/001			4	180	4	
34	or to your contact-arrangement			5	190	5	
35				6	200	6	
36	Switching sequence 4-0-4						
38	Spring return in 0-position (for each direction)				25	Z	
39	Friction brake adjustable (for each direction)				30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k P022, 2 x 2k P023, 2 x 5k P024, 2 x 10k P025		...P02 □		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°					(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff		P...				
50	Plastic housing I 120 x 160, masterswitch max. size 4				600	I	
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



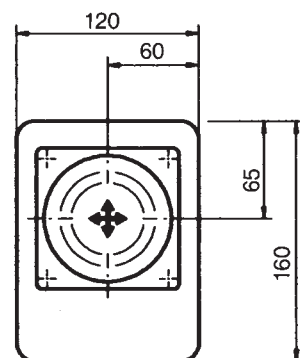
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



Type	No. of contacts	Dimension A
1	1	66
2	2	77
3	3	87
4	4	98
5	5	108
6	6	119



Plastic housing



	VV5	L	S5	P	B1T - 2	Z	P + 1	R	P	-I-	-X-	A05	P024	+A98	P022	
multi-axis controller																Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R																Arrangement dir. 3-4 (7-8) see 5/001
special control handle																Potentiometer description dir. 1-2 (5-6) see 1/240ff
gate																Arrangement dir. 1-2 (5-6) see 5/001
handle																special please describe plastic housing
contact dir. 1-2 (5-6)																Potentiometer dir. 3-4 (7-8)
spring return dir. 1-2 (5-6)																friction brake dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)																
contact dir. 3-4 (7-8)																



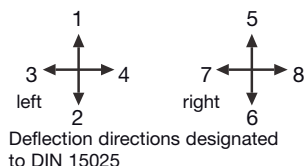
Type V8LB3DSRPA12-2ZP+2ZP-...

The multi-axis controller V 8 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The V 8 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life V 8 10 million (operating cycles)
Mechanical life VV 8 20 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C
Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



Pos.	V 81	V 8	Type expansion		Weight gramm	Type	Price EURO
1	1	1			800	V 81	
2	↑	↑			800	VV 81	
3	○	3 ← ○ → 4			900	V 8	
4	↓	↓			900	VV 8	
5	2	2					
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			60	P	
11	Gate special-shaped	(e.g. H-gate)			60	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock						
21.1	by lifting				50	M	
21.2	by lifting, interlocking the gate				60	MP	
21.3	by lifting, interlocking in the joint bracket (only VV 8)				60	MP	
21.4	by pushing down				50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				100	T	
23	Control-handle with signal button 1 NO				100	H	
24	Control-handle with push button 1 NO				110	D	
25	Control-handle with flat push button 1 NO				110	DV	
26	Control-handle with palm grip B 1				40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO				60	B 1T	
28	Control-handle long or short						
28.1	-20 mm					S5	
28.2	+20 mm					S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) switching sequence -0-			No. of contacts 1	20	1	
31				2	40	2	
32	Direction 1-2 and 3-4 each 1 masterswitch			3	60	3	
33	Switching program according contact-arrangement MS... see catalog 5/001		A...				
34	or to your contact-arrangement						
36	Switching sequence 3-0-3						
38	Spring return in 0-position (for each direction)				30	Z	
39	Friction brake adjustable (for each direction)				30	R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 301, with centre tap linear 0,5 Watt wiper current max. 1 mA resistance 2 x 1k P182, 2 x 2k ± P183, 2 x 5k ± P184, 2 x 10k ± P185 Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 120°		...P18 □		70	P	
41	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
42	more Potentiometer e.t.c. see catalog 1/240ff		P...			(P)	
43							
45	Electronic (Amplifier, Profi-Bus, CAN-Bus) see catalog 3/510ff		E...				
50	Cover housing				300	B	
51	Filter plug M 20 for air-condition				20		
52	Cable entry M 20 with anti-kink protection and strain relief				30		
53	Plug in socket 14-pole female insert CPC 17 wired				150		
54	Connector 14-pole male insert CPC 17 unwired				150		
55	Wiring plug in socket or connector each wired-connection						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						

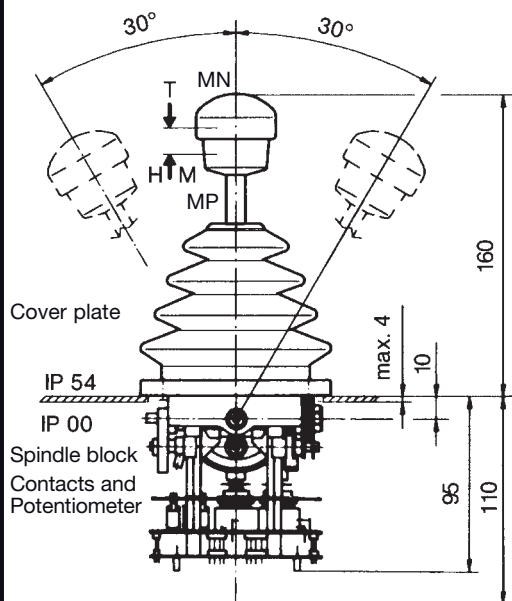


T = dead man's button
H = signal button
M = latch for mechanical zero interlock

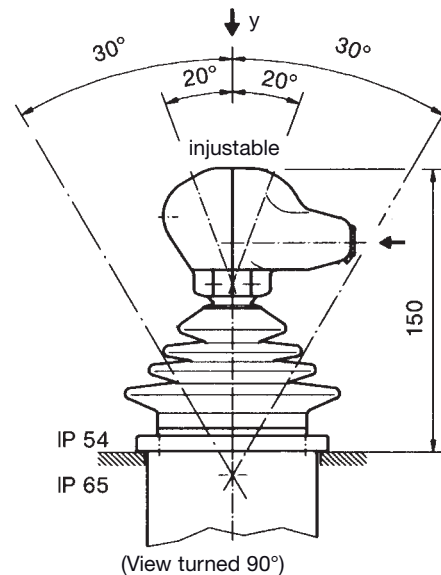
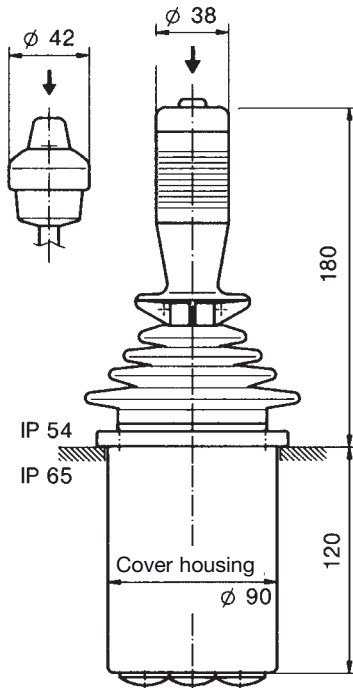
Knob solid
D = -push button

Palm grip B 1
B 1T = dead man's button
see catalog 1/284

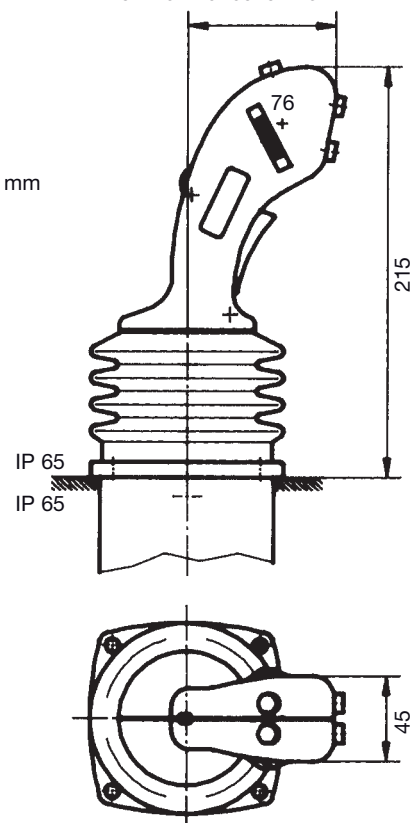
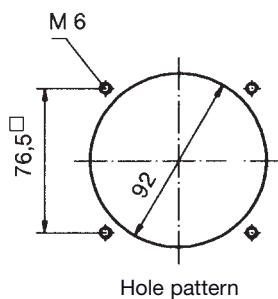
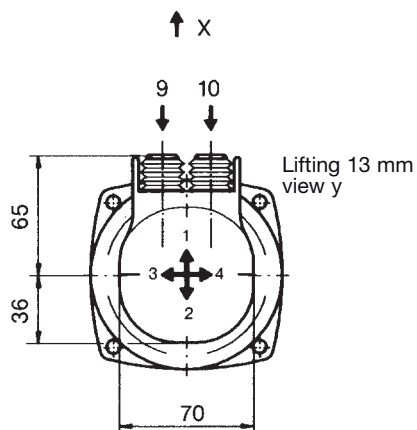
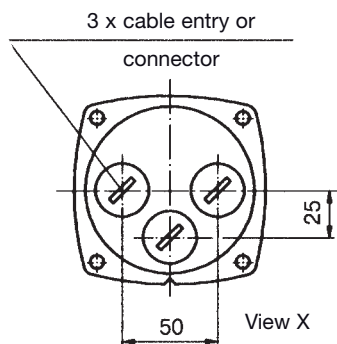
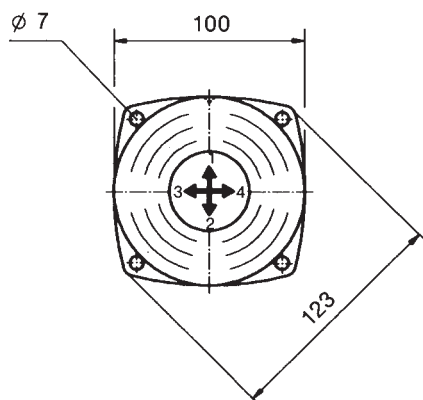
Palm grip B 2
for the 3. direction 9-10
see catalog 1/285



Expanse for impedance-converter
and board with solder-, plug-, or screw terminal



Palm grip B 3
see catalog 1/286
for the 3. direction 11-12
for the 4. direction 13-14



	V8	L	S5	P	B3K - 3	Z	P + 1	R	P	-B-	-X-	A050	P184	+A98	P182	
multi-axis controller																Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R																Arrangement dir. 3-4 (7-8) see 5/001
special control handle																Potentiometer description dir. 1-2 (5-6) see 1/240ff
gate																Arrangement dir. 1-2 (5-6) see 5/001
handle																special please describe housing
contact dir. 1-2 (5-6)																Potentiometer dir. 3-4 (7-8)
spring return dir. 1-2 (5-6)																friction brake dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)																
contact dir. 3-4 (7-8)																

**GESSMANN**

Industrial controllers

**Multi-axis controller V 85 / VV 85
with contactless Sensors****1/132****2010**

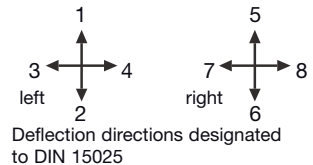
Type V85L-2ZS+2ZS-B...

The multi-axis controller V 85 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The V 85 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life V 85 10 million (operating cycles)
 Mechanical life VV 85 20 million (operating cycles)
 Permissible ambient temperature Operation -40° C to +60° C
 Storage -50° C to +80° C
 Climate resistance IEC 60068-2-78
 Damp heat constant IEC 60068-2-30
 Damp heat cyclic IP 54 IEC/EN 60529
 Degree of protection front
 Technical data see catalog 5/100
 Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
 Version shown for left-hand side installation (right-hand side installation is mirror image).



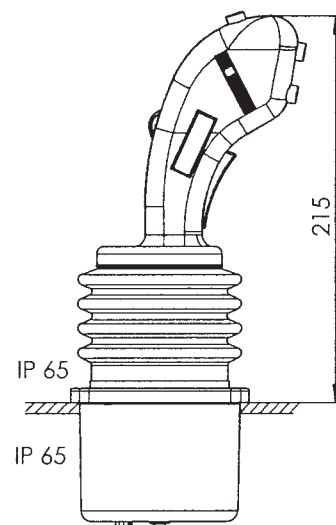
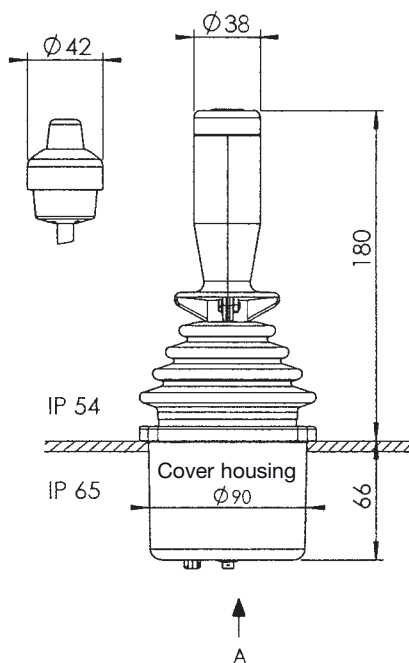
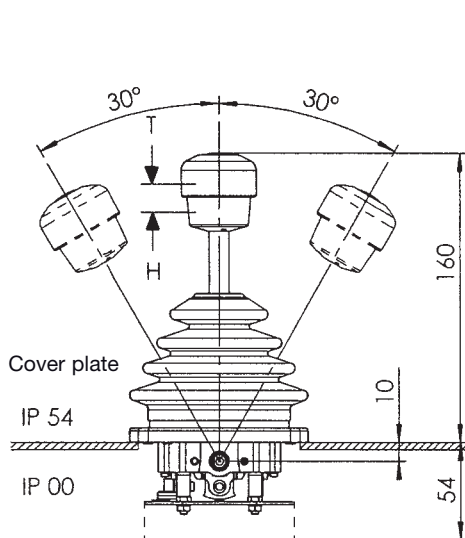
Pos.	V 85.1	V 85	Type expansion		Weight gramm	Type	Price EURO
1					800	V 85.1	
2					800	VV 85.1	
3					900	V 85	
4					900	VV 85	
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			60	P	
11	Gate special-shaped	(e.g. H-gate)			60	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock by lifting				50	M	
21.1					100	T	
22	Control-handle with dead man's button 1 NO				100	H	
23	Control-handle with signal button 1 NO				110	D	
24	Control-handle with push button 1 NO				110	DV	
25	Control-handle with flat push button 1 NO				40	B 1	
26	Control-handle with palm grip B 1				60	B 1T	
27	Control-handle with palm grip B 1 with push button top 1 NO						
28	Control-handle long or short					S5	
28.1		-20 mm				S8	
28.2		+20 mm					
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) switching sequence -0-			No. of contacts 1	20	1	
31				2	40	2	
32	Direction 1-2 and 3-4 each 1 masterswitch		A...				
33	Switching program according contact-arrangement MS... see catalog 5/001						
34	or to your contact-arrangement						
38	Spring return in 0-position (for each direction)				30	Z	
39	Friction brake adjustable (for each direction)				30	R	
40	Potentiometer e.t.c. each direction with mounted Magnet KEM for redundant Hallsensors				70	S	
42	Voltage output impressed 0,5-2,5-4,5 Volt electronic for 1 axis		EU 15				
43	electronic for 2 axis		EU 16				
	Technical data: Power supply 4,6-5,5 Volt output 0,5-2,5-4,5 Volt + 5 mA, output characteristic Linear						
45	more Electronic (Amplifier, Profi-Bus, CAN-Bus) see catalog 3/510ff		E...				
50	Cover housing				300	B	
51	Filter plug M 20 for air-condition				20		
52	Cable entry M 20 with anti-kink protection and strain relief				30		
53	Plug in socket 9-pole female insert D-SUB9 wired				150		
54	Connector 9-pole male insert D-SUB9 unwired				150		
55	Wiring plug in socket or connector each wired-connection						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						



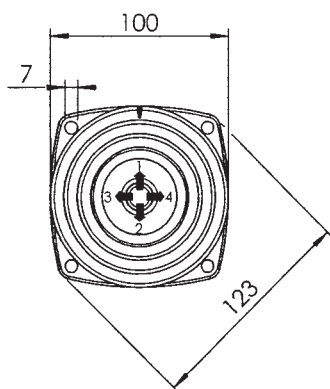
T = dead man's button
H = signal button

Knob solid
D = -push button

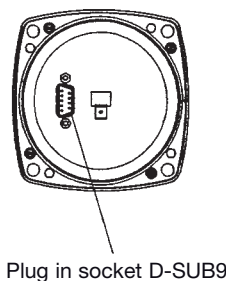
Palm grip B 1
B 1T = dead man's button
see catalog 1/284



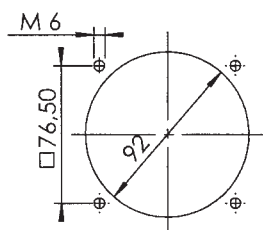
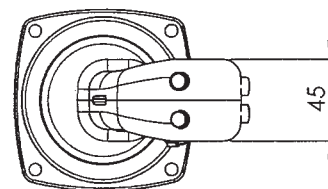
Palm grip B 3
see catalog 1/286
for the 3. direction 11-12
for the 4. direction 13-14



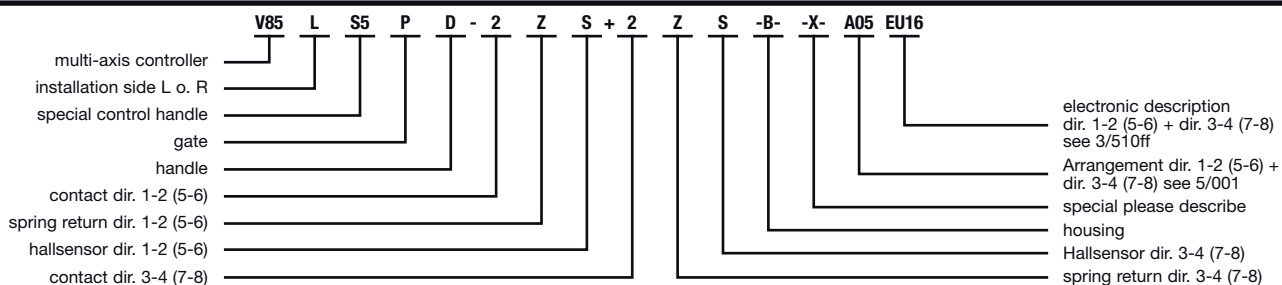
View A



Plug in socket D-SUB9



Hole pattern



**GESSMANN**

Industrial controllers

**Multi-axis controller V 25
with contactless Sensors****1/134****2010**

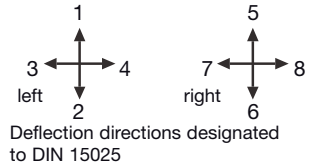
Type V25LT-2ZS+2ZS-B...

The multi-axis controller V 25 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The V 25 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life V 25 8 million (operating cycles)
 Permissible ambient temperature Operation -40° C to +60° C
 Storage -50° C to +80° C
 Climate resistance IEC 60068-2-78
 Damp heat constant IEC 60068-2-30
 Damp heat cyclic IP 54 IEC/EN 60529
 Degree of protection front
 Technical data see catalog 5/100
 Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
 Version shown for left-hand side installation (right-hand side installation is mirror image).



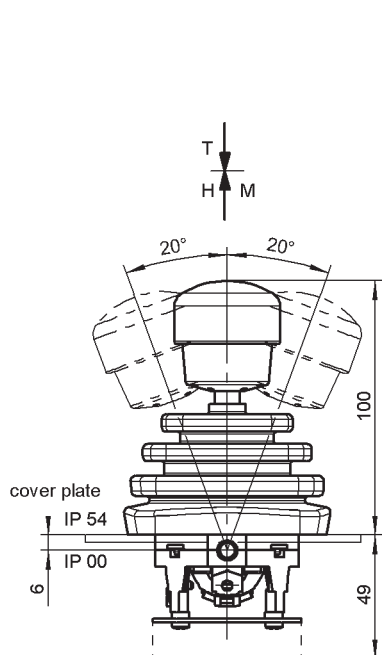
Pos.	V 25.1	V 25	Type expansion		Weight gramm	Type	Price EURO
1					500	V 25.1	
2							
3					500	V 25	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			60	P	
11	Gate special-shaped	(e.g. H-gate)			60	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock by lifting				50	M	
21.1					100	T	
22	Control-handle with dead man's button 1 NO				100	H	
23	Control-handle with signal button 1 NO				110	D	
24	Control-handle with push button 1 NO				110	DV	
25	Control-handle with flat push button 1 NO				40	B 1	
26	Control-handle with palm grip B 1				60	B 1T	
27	Control-handle with palm grip B 1 with push button top 1 NO						
28	Control-handle long or short						
28.1		+20 mm					
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					S8	
30	Masterswitch (contact) switching sequence -0-		A...	No. of contacts 1	20	1	
31				2	40	2	
32	Direction 1-2 and 3-4 each 1 masterswitch						
33	Switching program according contact-arrangement MS... see catalog 5/001						
34	or to your contact-arrangement						
38	Spring return in 0-position	(included in the spindle block)			30	Z	
40	Potentiometer e.t.c. each direction with mounted Magnet KEM for redundant Hallsensors				70	S	
42	Voltage output impressed 0,5-2,5-4,5 Volt electronic for 1 axis		EU 15 EU 16				
43	Voltage output impressed 0,5-2,5-4,5 Volt electronic for 2 axis						
	Technical data: Power supply 4,6-5,5 Volt output 0,5-2,5-4,5 Volt + 5 mA, output characteristic Linear						
45	more Electronic (Amplifier, Profi-Bus, CAN-Bus) see catalog 3/510ff						
50	Cover housing		E...		300	B	
51	Filter plug M 20 for air-condition				20		
52	Cable entry M 20 with anti-kink protection and strain relief				30		
53	Plug in socket 9-pole female insert D-SUB9 wired				150		
54	Connector 9-pole male insert D-SUB9 unwired				150		
55	Wiring plug in socket or connector each wired-connection						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						



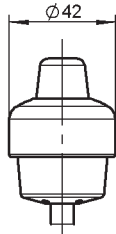
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock

palm grip B1
B 1T= dead man's button
see catalog 1/284

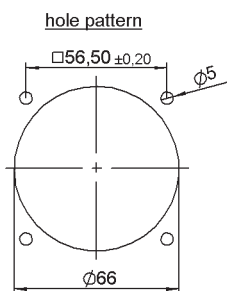
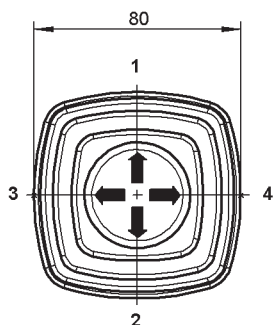
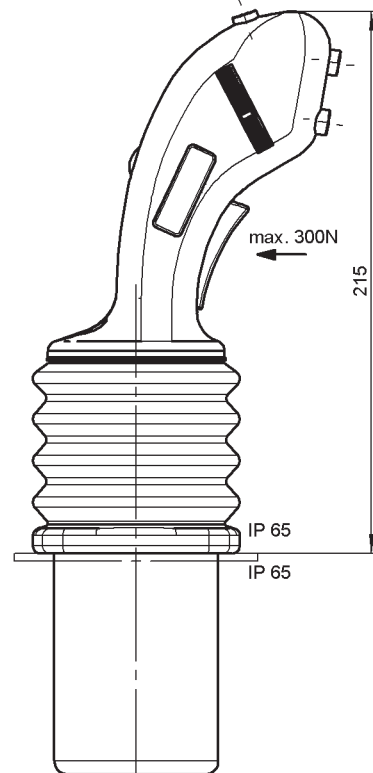
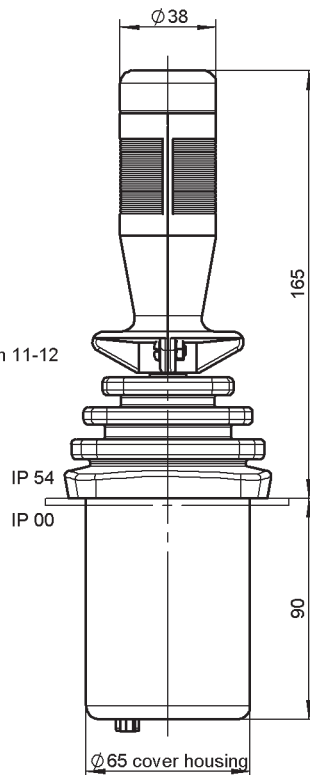
palm grip B3
see catalog 1/286
for the 3rd direction 11-12
for the 4th direction 13-14



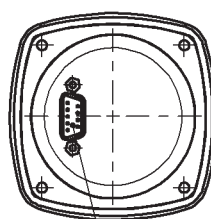
knob solid
D= push button



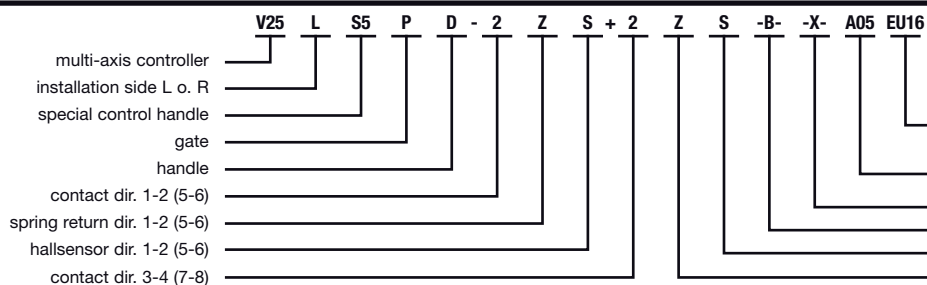
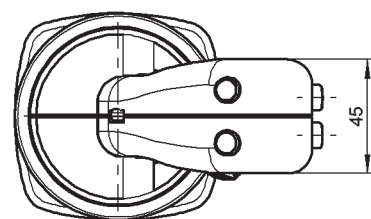
knob GSP
see catalog
1/277 Pos. 5
for the 3rd direction 11-12



view A



plug in socket D-Sub 9



electronic description
dir. 1-2 (5-6) + dir. 3-4 (7-8)
see 3/510ff
Arrangement dir. 1-2 (5-6) +
dir. 3-4 (7-8) see 5/001
special please describe
housing
hallsensor dir. 3-4 (7-8)
spring return dir. 3-4 (7-8)



Type V10L-01ZP+01ZP-...

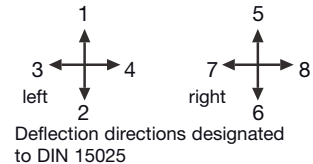
The multi-axis controller V 10 is a rugged switching device according IEC/EN 60947-5-1 for remote control and electro-hydraulic applications.
The V 10 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life 8 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).

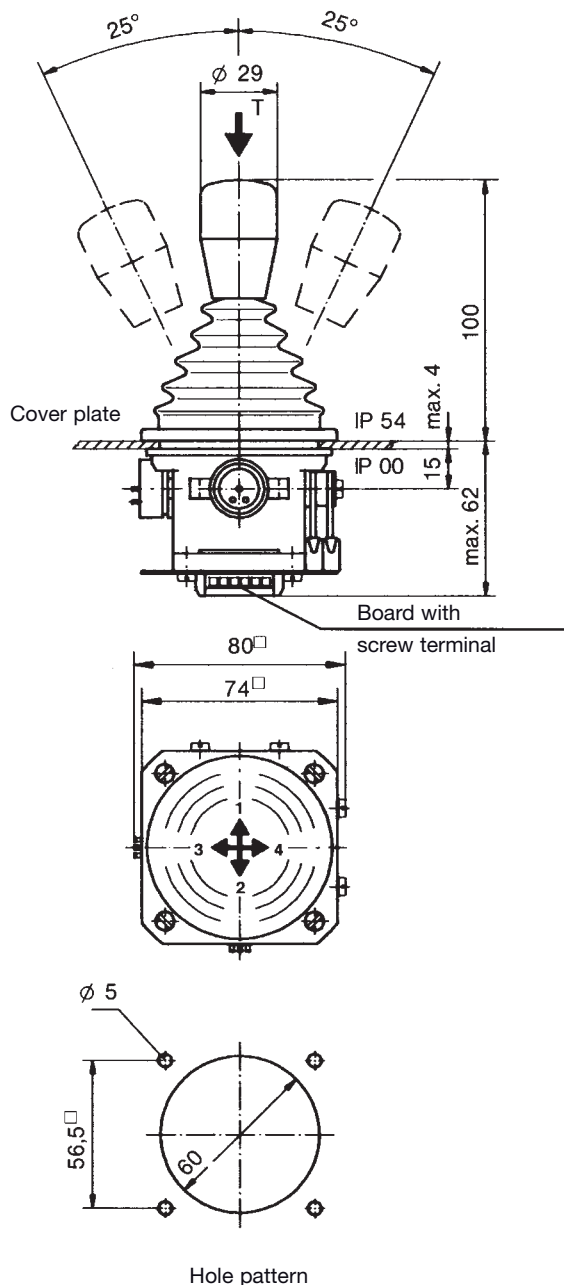


Pos.	V 10.1	V 10	Type expansion		Weight gramm	Type	Price EURO
1					200	V 10.1	
2							
3					250	V 10	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			20	P	
11	Gate special-shaped	(e.g. H-gate)			20	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock by lifting				50	M	
21.1					80	T	
22	Control-handle with dead man's button 1 NO						
23							
24							
25							
26	Control-handle with palm grip B 5				40	B 5	
27	Control-handle with palm grip B 5 with push button top 1 NO				60	B 5D	
28							
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) without switching sequence		A...	No. of contacts 2	20	01	
31				4	40	02	
32	Direction 1-2 and 3-4 each 1 masterswitch			6	60	03	
33	Switching program according contact-arrangement MS... see catalog 5/001 or to your contact-arrangement						
34							
35							
36	Switching sequence 4-0-4						
38	Spring return in 0-position	(included in the spindle block)				Z	
39	Friction brake adjustable	(for each direction)				R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 320, with centre tap linear 0,5 Watt wiper current max. 1 mA resistance 2 x 1k P252, 2 x 5k ± P254		...P25 □		20	P	
41							
42							
43	more Potentiometer e.t.c. see catalog 1/240ff		P...				
45	Electronic (Amplifier, Profi-Bus, CAN-Bus) see catalog 3/510ff		E...				
50	Plastic housing I 122 x 120				350	I	
51							
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						

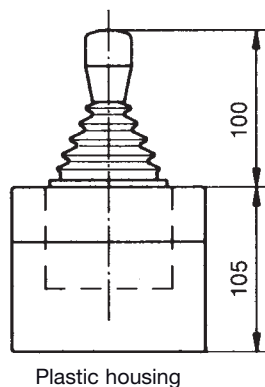
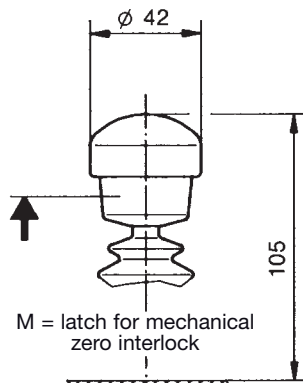


Knob solid

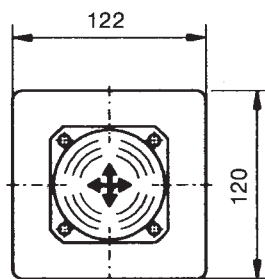
T = dead man's button



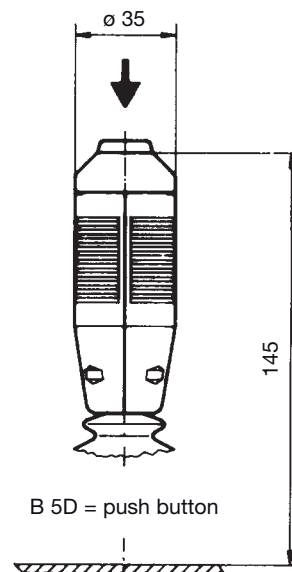
Ball grip



Plastic housing



Palm grip B 5



	V10	L	P	T - 02	Z	P + 01	Z	P	-I-	-X-	A050	P524	+A98	P252	
multi-axis controller															Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R															Arrangement dir. 3-4 (7-8) see 5/001
gate															Potentiometer description dir. 1-2 (5-6) see 1/240ff
handle															Arrangement dir. 1-2 (5-6) see 5/001
contact dir. 1-2 (5-6)															special please describe plastic housing
spring return dir. 1-2 (5-6)															Potentiometer dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)															spring return dir. 3-4 (7-8)
contact dir. 3-4 (7-8)															



Type V14L-03Z+00CZ-...

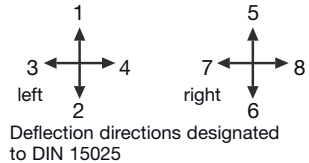
The multi-axis controller V 14 is a rugged switching device according IEC/EN 60947-5-1 for remote control and hoisting applications.
The V 14 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 with positive opening operation

Mechanical life 6 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529
Description data see catalog 5/020

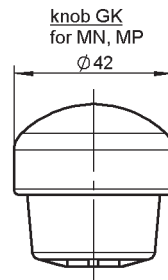
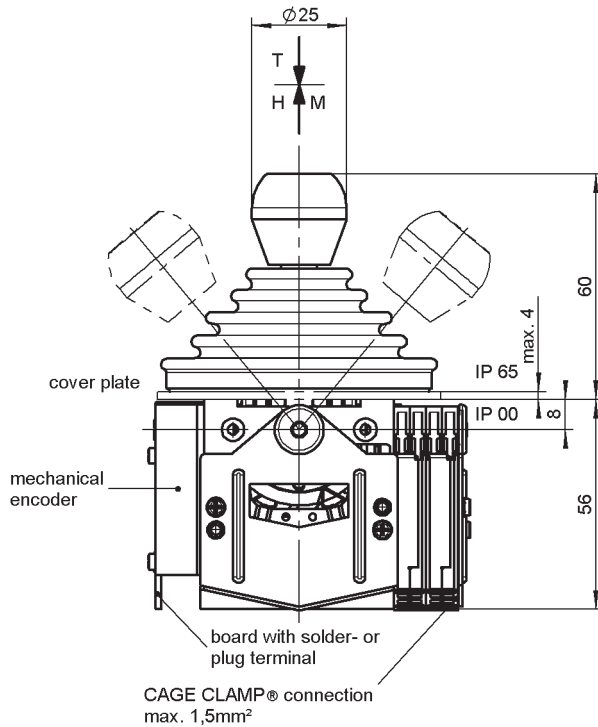
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



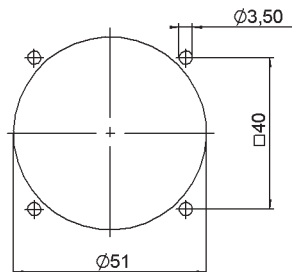
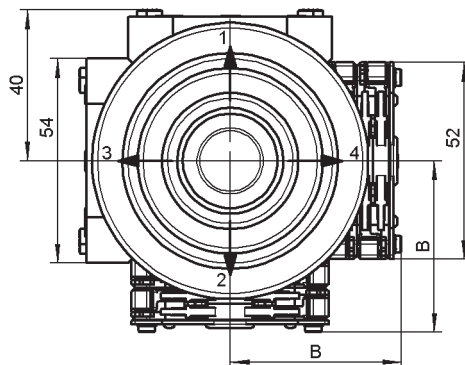
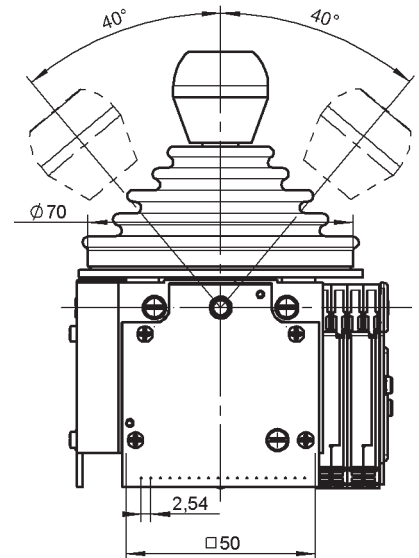
Pos.	V 14.1	V 14	Type expansion		Weight gramm	Type	Price EURO
1					175	V 14.1	
2							
3					200	V 14	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			20	P	
11	Gate special-shaped	(e.g. H-gate)			20	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock						
21.1	by lifting				50	M	
21.3	by lifting, interlocking the joint bracket (knob 42mm Ø)				60	MP	
21.4	by pushing down (knob 42mm Ø)				50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				80	T	
23	Control-handle with signal button 1 NO				80	H	
28	Control-handle long +20 mm					S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact set) switching sequence 4-0-4 adjustable (with encoder 6-0-6)			No. of contacts 2	70	01	
31				4	130	02	
32	Direction 1-2 and 3-4 each 1 masterswitch			6	190	03	
33	Switching program according contact-arrangement MS... see catalog 5/001		A...				
34	or to your contact-arrangement						
38	Spring return in 0-position (included in the spindle block)					Z	
39	Friction brake adjustable (for each direction)					R	
40	Set point encoder for redundant hallsensors with electronic, magnet KEM, each direction, with mounted						
41	Elektronic voltage output impressed 0,5-2,5-4,5 Volt (+5 mA)		EU21				
41	output characteristic linear power supply 4,6-5,5 Volt DC		EI32				
41	Elektronic output power impressed 4-20 mA						
41	output characteristic linear power supply 18-30 Volt DC						
44	Mechanical encoder with mounted direction 1-2 and 3-4 each 1 encoder life 5 x 106 switching cycles, 0,5 Watt wiper current max. 1 mA with solder- or plug terminal						
44	Mechanical encoder MEC 1-2 male connector EA/02-10 contact-arrangement MS 26-0 see catalog 5/001		C61		30	C	
45	Conductive-plastic potentiometer with centre tap linear resistance 2 x 10 kOhm						
45	Mechanical encoder MEC 1-7 male connector EA / 10-10 contact-arrangement MS 26-0-1 see catalog 5/001		C62		20	C	
45	Conductive-plastic potentiometer with centre tap linear resistance 2 x 5 kOhm						
46	Mechanical encoder MEC 1-6 male connector EA / 09-10, 6 Bit Gray-Code		C63		30	C	
47	Mechanical encoder MEC 1-6-5 male connector ER / 36-10 Power supply 24 V DC, output power impressed 4-20 mA		C64		30	C	
48	Mechanical encoder MEC 1-6-8 male connector ER / 36-12 Power supply 24 V DC, output power impressed 0-20 mA		C65		30	C	
49	Mechanical encoder MEC 1-10 male connector EA / 17-10 contact-arrangement MS21-0 + MS21 see catalog 5/001		C66		30	C	
49	Conductive-plastic potentiometer with centre tap, Linear resistance 2 x 1,5 kOhm						
52	Housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



knob GSP
see catalog 1/277 Pos. 5
for the 3rd direction 11-12



hole pattern

type	no. of contacts	dimension B
01	2	36
02	4	45
03	6	54

	V14	L	S8	P	T - 02	Z	C + 01	R	C	-X-	A050	C61	+A05	C62	
multi-axis controller															Encoder description dir. 3-4 (7-8)
installation side L o. R															Arrangement dir. 3-4 (7-8) see 5/001
special control handle															Encoder description dir. 1-2 (5-6)
gate															Arrangement dir. 1-2 (5-6) see 5/001
handle															special please describe
contact set dir. 1-2 (5-6)															Potentiometer dir. 3-4 (7-8)
spring return dir. 1-2 (5-6)															friction brake dir. 3-4 (7-8)
Potentiometer dir. 1-2 (5-6)															contact set dir. 3-4 (7-8)



Type V20L-0ZC+0ZC-...

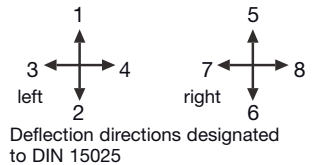
The multi-axis controller V 20 is a rugged switching device according IEC/EN 60947-5-1 for remote control and other applications.
The V 20 is resistant to oil, maritime climate, ozone and UV radiation.

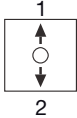
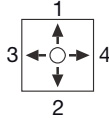
Mechanical life 3 million (operating cycles)
Permissible ambient temperature Operation -30° C to +70° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529

Description data see catalog 5/020

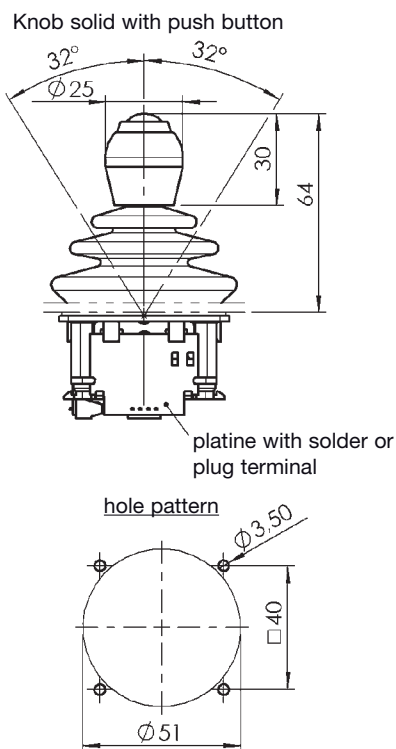
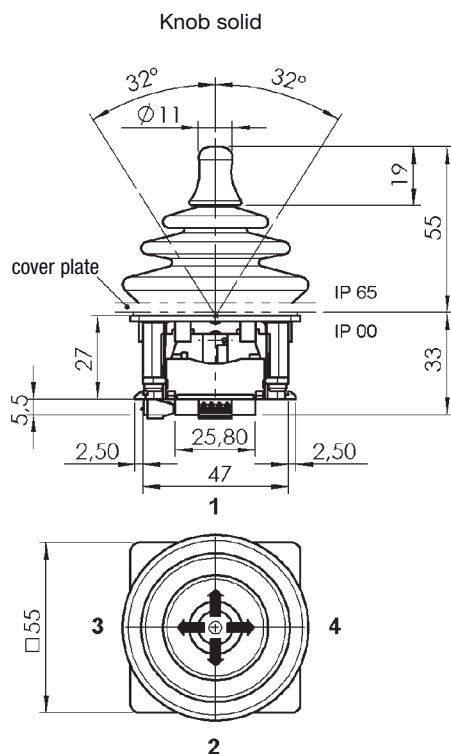
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



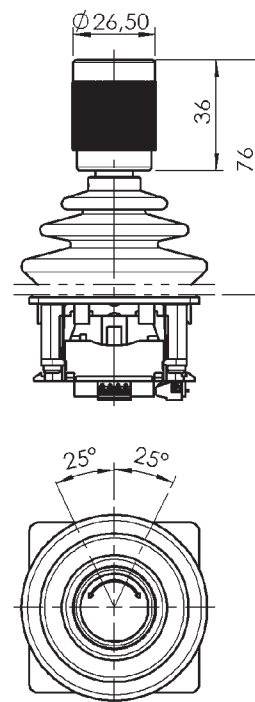
Pos.	V 20.1	V 20	Type expansion		Weight gramm	Type	Price EURO
1					80	V 20.1	
2							
3					90	V 20	
4							
5							
6	Degree of Protection, front IP67 by bellow						
7.1	Multi-axis controller left (dir. 1-2, 3-4)					L	
7.2	Multi-axis controller right (dir. 5-6, 7-8)					R	
9	Gate open-shaped for open shifting switching sequence 1-0-1 to 3-0-3					P	
10	Gate cross-shaped (prohibits diagonal shifting)					PX	
11	Gate special-shaped (e.g. H-gate)						
20	Control-handle with knob solid				50	D	
24	Control-handle with push-button						
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	without switching sequence						
36	switching sequence 4-0-4						
38	Spring return in 0-position (included in the spindle block)					Z	
40	Set point encoder for redundant hallsensors with electronic, magnet KEM, each direction, with mounted Electronic voltage output impressed 0,5-2,5-4,5 Volt (+5 mA) output characteristic linear power supply 4,6-5,5 Volt DC		EU 23				
41	Electronic output power impressed 4-20 mA output characteristic linear power supply 18-30 Volt DC		EI33				
44	Mechanical encoder with mounted direction 1-2 and 3-4 each 1 encoder life 3 x 106 switching cycles 0,5 Watt wiper current max. 1 mA with solder or plug terminal Mechanical encoder MEC 2-1 male connector EA/15-10 contact-arrangement MS 224-0 see catalog 5/001		C 70		15	C	
45	Conductive-plastic potentiometer with centre tap linear resistance 2 x 5 kOhm Mechanical encoder MEC 2-2 male connector EA / 11-10 contact-arrangement MS 24-0 see catalog 5/001 Conductive-plastic potentiometer with centre tap linear resistance 2 x 5 kOhm		C 71		15	C	
50	Cover housing KBQ 905 (IP65)						
52	Housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



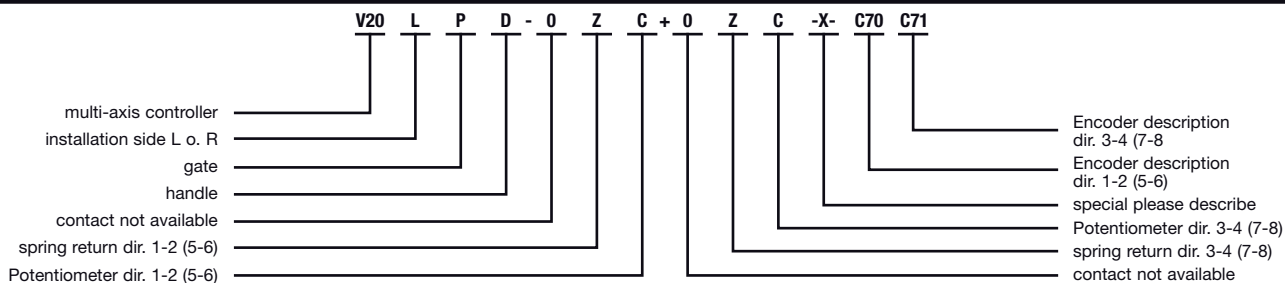
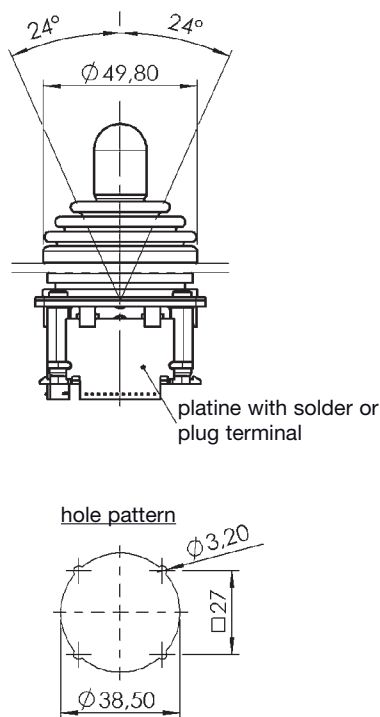
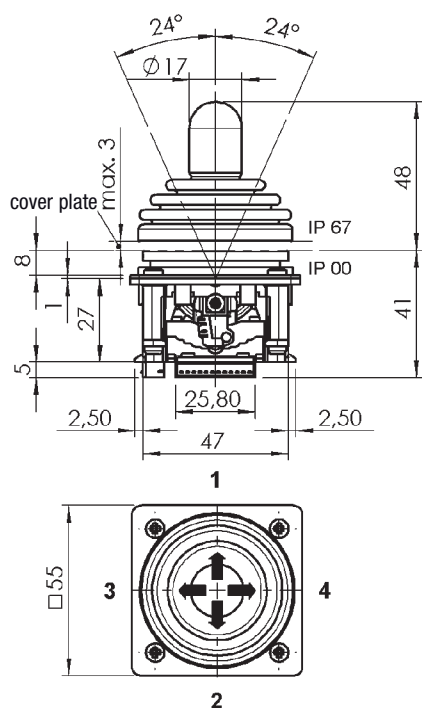
Degree of Protection front IP 65



Knob GPS see catalog 1/277
Pos. 5 for the 3rd direction 11-12



Degree of Protection front IP 67



**GESSMANN**

Industrieschaltgeräte

Multi-axis controller V 21**1/146****2010**

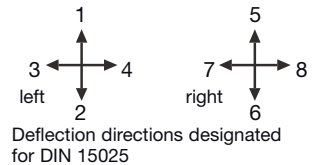
Type V21

The Multi-axis controller V 21 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications. The V 21 is resistant to oil, maritime climate, ozone and UV radiation. The V 21 has a highly flexible single wire 0,1 mm² x 450 mm long.

Mechanical life	5 millionen operating cycles
operating force	1,6 N up to 3,5 N
max. load	200 N
permissible ambient temperature	operation -40° C bis +60° C storage -50° C bis +80° C

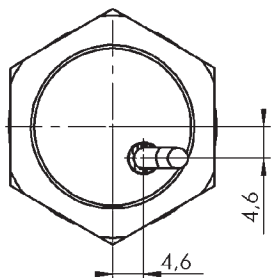
climate resistance	IEC 60068-2-78/30
damp heat constant/cyclic	IP 67 IEC/EN 60529
degree of protection front	

spindle block with schematic representation of the controller installation and deflection directions. Version shown for left-hand side installation (right-hand side installation is mirror image)

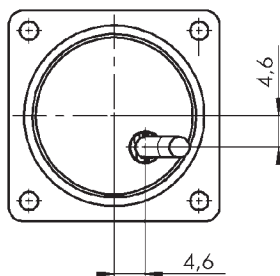


Pos.	V 21.1	V 21	Type-expansion		weight gramm	Type	Price EURO
1					350	V 21.1	
2							
3					350	V 21	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
8	mounting from the top with hexagonal nut (standard)					A	
8.1	mounting from below with flange					B	
8.2	mounting from the top with flange					P	
10	Gate cross-shaped	(prohibits diagonal shifting)				PX	
11	Gate special-shaped						
36	switching sequence 4-0-4						
38	spring return in 0-position	(included in the spindle block)				Z	
40	Setpoint device					S	
	Magnet for redundant hall sensors	(included in the spindle block)					
41	Voltage output impressed 0,5-2,5-4,5 Volt		EU 19 EU 20 EU 21 EU 22				
42	electronic for 1 axis redundante	(counter rotate)					
42	electronic for 1 axis redundante	(unidirectional)					
44	electronic for 2 axis redundante	(counter rotate)					
	electronic for 2 axis redundante	(unidirectional)					
	Technical data:						
	power supply 5 Volt DC stabilized						
	output 0,5V (+0,1/-0,1V) 2,5V (+0,2/-0,2V) 4,5V (+0,1/-0,1V)						
	output characteristic linear						
	current consumption 28 mA max. 44 mA						
	overvoltage protection to +8,5V/-8,5V for short time +14,4V/-14,4V						
52	Housing see Catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see Catalog 1/360						

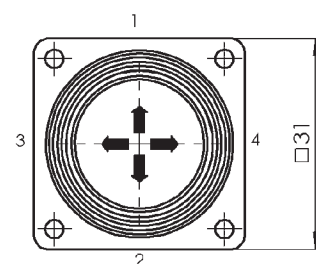
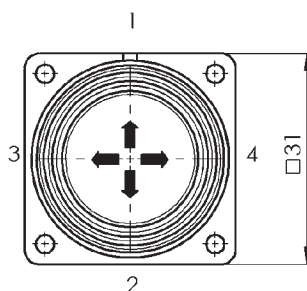
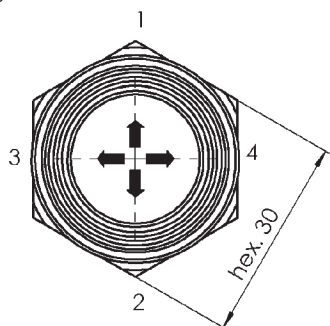
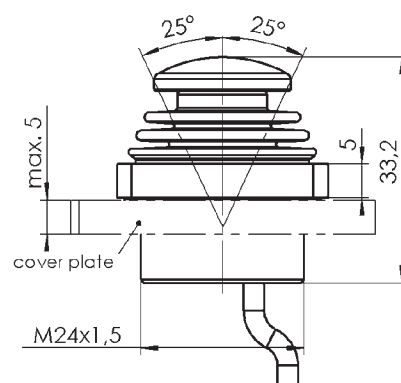
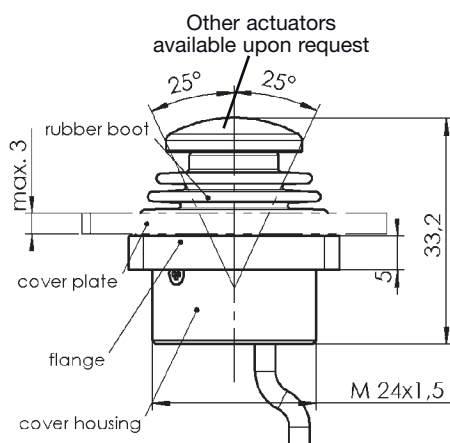
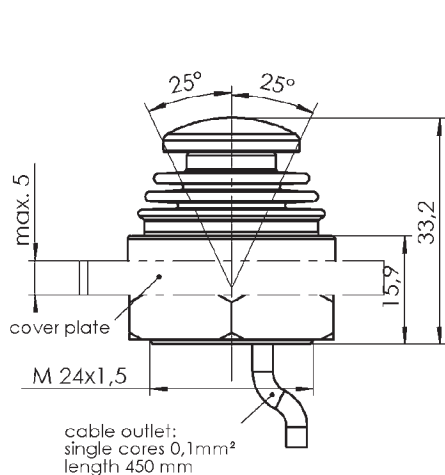
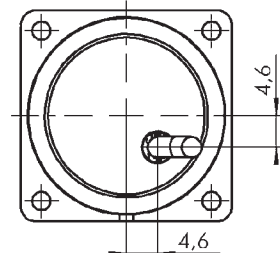
Standard mounting from the top



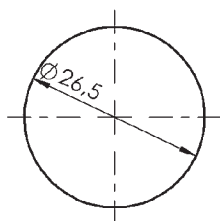
Version A with flange mounting from below



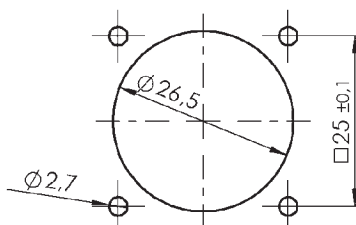
**Version B with flange
mounting from the top**



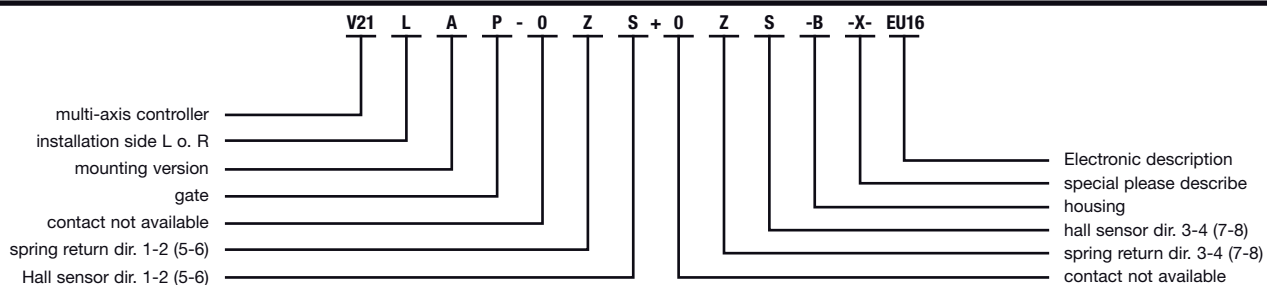
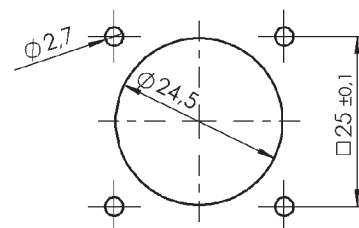
hole pattern



hole pattern



hole pattern





Type V3LT-02Z+02ZP-...

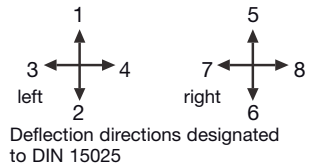
The multi-axis controller V 3 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications.
The modular design enables the switching device to be used universally.
The V 3 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 4 A 350 V AC 15 or 1 A 24 V DC 13 with positive opening operation

Mechanical life 6 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

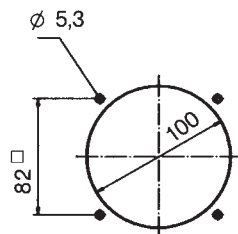
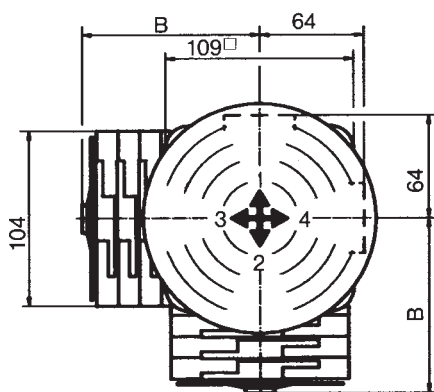
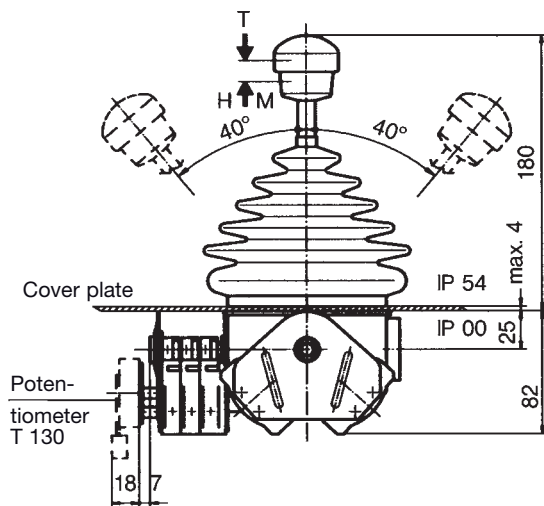
Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).

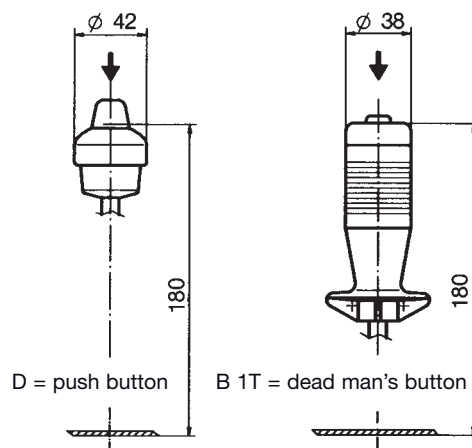


Pos.	V 31	V 3	Type expansion		Weight gramm	Type	Price EURO
1					940	V 31	
2							
3					1000	V 3	
4							
5							
7.1	Multi-axis controller left	(dir. 1-2, 3-4)				L	
7.2	Multi-axis controller right	(dir. 5-6, 7-8)				R	
10	Gate cross-shaped	(prohibits diagonal shifting)			100	P	
11	Gate special-shaped	(e.g. H-gate)			110	PX	
20	Control-handle with knob solid						
21	Control-handle with latch for mechanical zero interlock by lifting				50	M	
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				100	T	
23	Control-handle with signal button 1 NO				100	H	
24	Control-handle with push button 1 NO				110	D	
25	Control-handle with flat push button 1 NO				110	DV	
26	Control-handle with palm grip B 1				40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO				60	B 1T	
28	Control-handle long or short						
28.1		-20 mm				S5	
28.2		+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact) switching sequence 4-0-4		A...	No. of contacts 2	290	01	
31				4	350	02	
32	Direction 1-2 and 3-4 each 1 masterswitch			6	410	03	
33	Switching program according contact-arrangement MS... see catalog 5/001 or to your contact-arrangement			8	470	04	
34				10	530	05	
35				12	590	06	
36	Switching sequence 5-0-5						
38	Spring return in 0-position (for each direction)				110	Z	
39	Friction brake adjustable (for each direction)				50	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k ≙ P022, 2 x 2k ≙ P023, 2 x 5k ≙ P024, 2 x 10k ≙ P025		...P02 □		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°		P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff						
50	Steel sheet housing B 200 masterswitch max. size 04				1300	B	
51	Steel sheet housing B 230 masterswitch max. size 06				1400	B	
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						

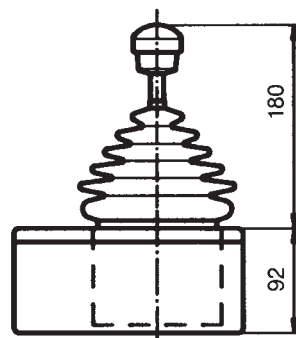
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



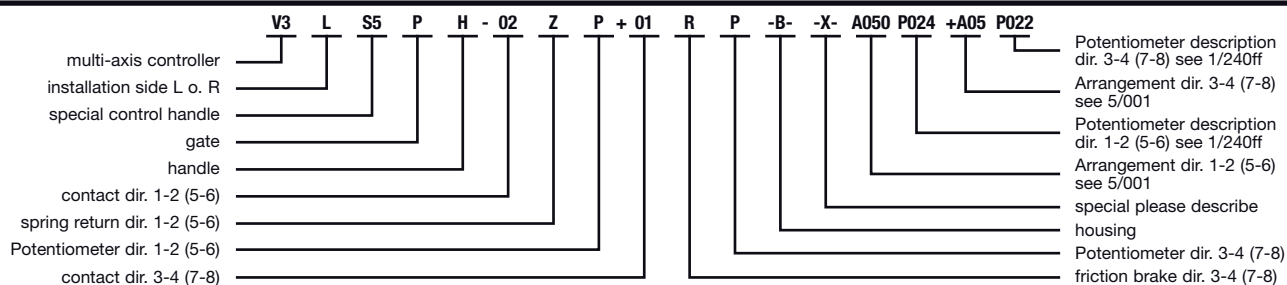
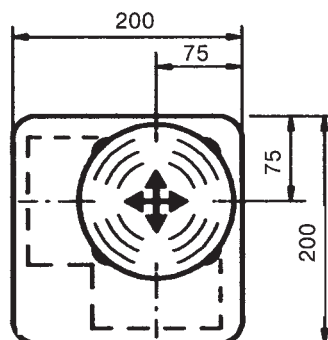
Hole pattern

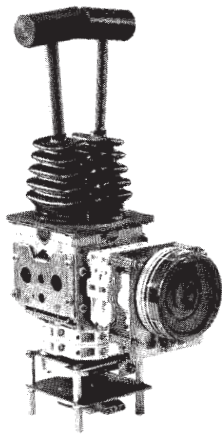


Type	No. of contacts	Dimension B
01	2	77
02	4	89
03	6	102
04	8	114
05	10	127
06	12	139



Steel sheet housing





Type D64LQQ-02ZP+02ZP-...

The double-handle controller is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications. The modular design enables the switching device to be used universally. The D 64 is resistant to oil, maritime climate, ozone and UV radiation.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life D 64 10 million (operating cycles)
Mechanical life DD 64 20 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529

Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).

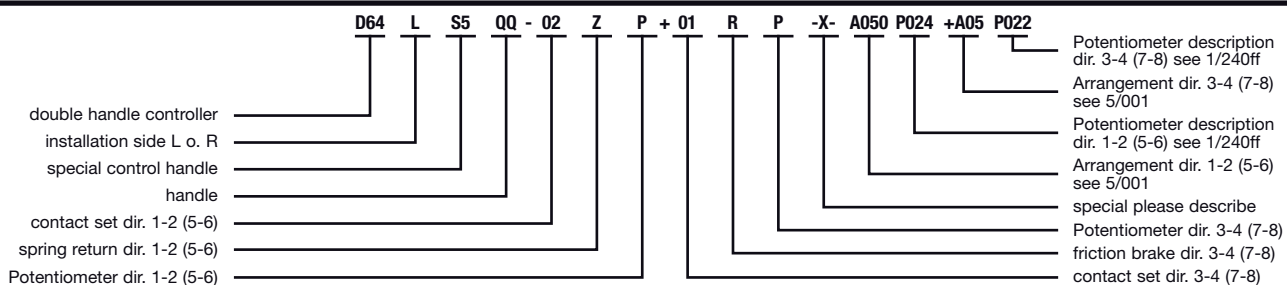


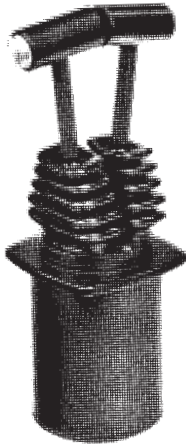
Deflection directions designated to DIN 15025

Pos.	D 64	DD 64	Type expansion		Weight gramm	Type	Price EURO
1							
2							
3					1100	D 64	
4					1100	DD64	
5							
7.1	Double-handle controller left	(dir. 1-2, 3-4)				L	
7.2	Double-handle controller right	(dir. 5-6, 7-8)				R	
10							
20	Control-handle with knob solid			(for each direction for Pos. 20-28)	50	M	
21	Control-handle with latch for mechanical zero interlock				60	MP	
21.1	by lifting				50	MN	
21.2	by lifting, interlocking the gate						
21.4	by pushing down						
21.5	Mechanical zero interlock with command devices see catalog 1/274						
22	Control-handle with dead man's button 1 NO				100	T	
23	Control-handle with signal button 1 NO				100	H	
24	Control-handle with push button 1 NO				110	D	
25	Control-handle with flat push button 1 NO				110	DV	
26	Control-handle with T-grip				40	Q	
27	Control-handle with T-grip and push button side 1 NO				60	QD	
28	Control-handle long or short						
28.1		-20 mm				S5	
28.2		+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff						
30	Masterswitch (contact set) switching sequence 4-0-4			No. of contacts 2	290	01	
31				4	350	02	
32	Direction 1-2 and 3-4 each 1 masterswitch			6	410	03	
33	Switching program according contact-arrangement MS... see catalog 5/001		A...	8	470	04	
34	or to your contact-arrangement			10	530	05	
35				12	590	06	
36	Switching sequence 5-0-5 or 6-0-6						
38	Spring return in 0-position (for each direction)				110	Z	
39	Friction brake adjustable (for each direction)				30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025		...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°					(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff		C..., P...				
52	More housing see catalog 1/350						
60	Indicating labels not engraved with 2 or 4 arrows						
61	Engraving, each 10 characters						
70	Command and indicating devices see catalog 1/360						



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2010





Type D8LQD-2ZP+2ZP-B...

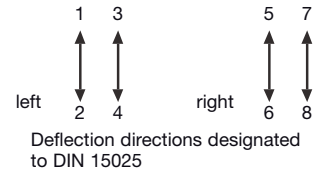
The double-handle controller D 8 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The D 8 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)
or I max < 300 mA 0,4 V DC 12 max. capacity 0,12 Watt do not exceed!
I min >0,2 mA 2 V DC 12 max. contact reliability for very low current (special)

Mechanical life 8 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

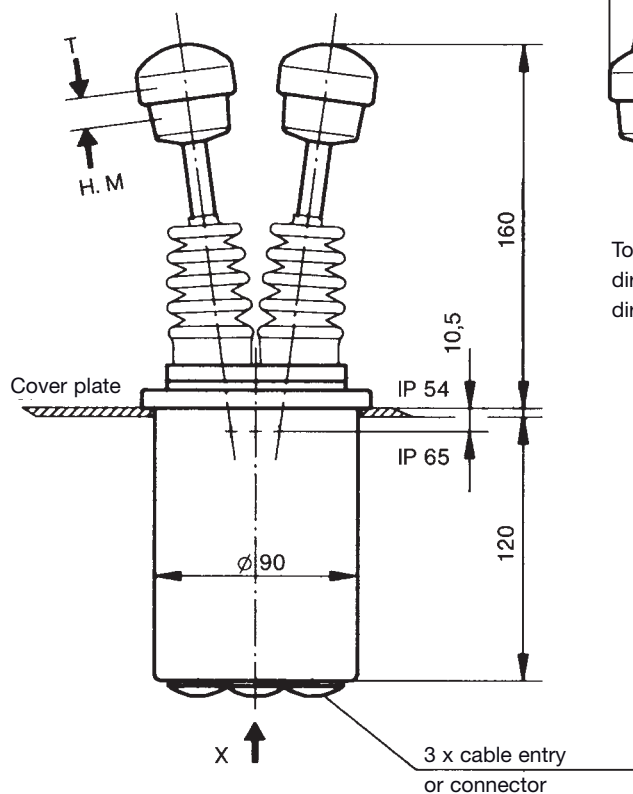
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



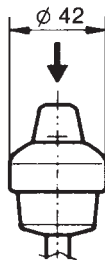
Pos.	D 8	Type expansion		Weight gramm	Type	Price EURO
1						
2						
3				1000	D 8	
4						
5						
7.1	Double-handle controller left (dir. 1-2, 3-4)				L	
7.2	Double-handle controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid		(for each direction for Pos. 20-28)			
21	Control-handle with latch for mechanical zero interlock by lifting			50	M	
22	Control-handle with dead man's button 1 NO			100	T	
23	Control-handle with signal button 1 NO			100	H	
24	Control-handle with push button 1 NO			110	D	
25	Control-handle with flat push button 1 NO			110	DV	
26	Control-handle with T-grip			40	Q	
27	Control-handle with T-grip and push button side 1 NO			60	QD	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact) switching sequence -0-	A...	No. of contacts 1	20	1	
31			2	40	2	
32	Direction 1-2 and 3-4 each 1 masterswitch		3	60	3	
33	Switching program according contact-arrangement MS... see catalog 5/001					
34	or to your contact-arrangement					
36	Switching sequence 3-0-3					
38	Spring return in 0-position (for each direction)			30	Z	
39	Friction brake adjustable (for each direction)			30	R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 301, with centre tap linear 0,5 Watt wiper current max. 1 mA resistance 2 x 1k P182, 2 x 5k ± P184	...P18 □		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 120°	P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					
45	Electronic (Amplifier, Profi-Bus, CAN-Bus) see catalog 3/510ff	E...				
50	Cover housing			300	B	
51	Filter plug M 20 for air-condition			20		
52	Cable entry M 20 with anti-kink protection and strain relief			30		
53	Plug in socket 14-pole female insert CPC 17 wired			150		
54	Connector 14-pole male insert CPC 17 unwired			150		
55	Wiring plug in socket or connector each wired-connection					
60	Indicating labels not engraved with 2 or 4 arrows					
61	Engraving, each 10 characters					



T = dead man's button
H = signal button
M = latch for mechanical
zero interlock

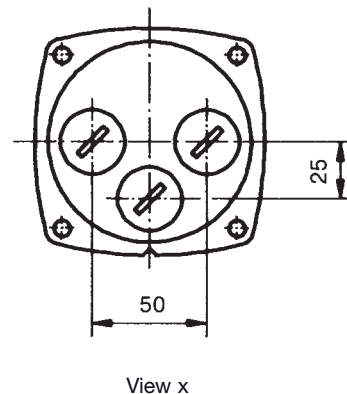
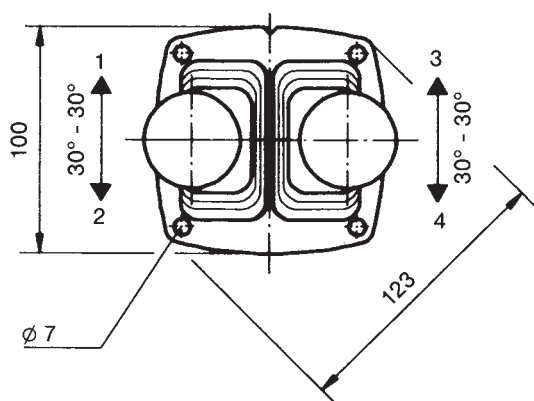
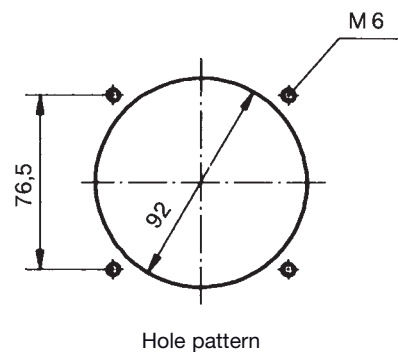
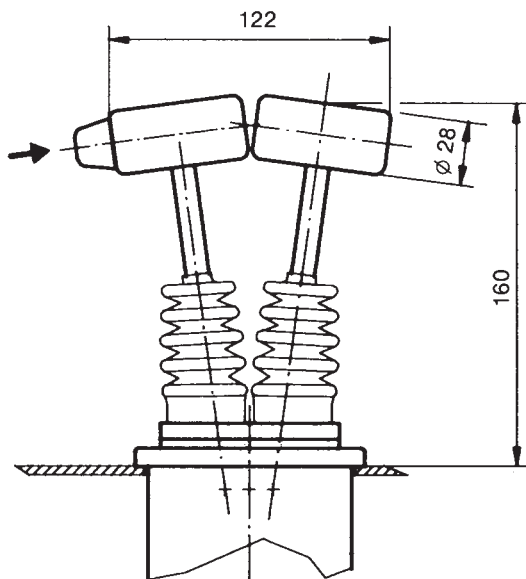


Knob solid
D = push button



To build in:
direction 1-2
direction 3-4

T-grip
D = push button



	D8	L	S5	QDQ - 2	Z	P + 1	R	P	-B-	-X-	A05	P18	+A98	P182	
double handle controller															Potentiometer description
installation side L o. R															dir. 3-4 (7-8) see 1/240ff
special control handle															Arrangement dir. 3-4 (7-8)
handle															see 5/001
contact dir. 1-2 (5-6)															Potentiometer description
spring return dir. 1-2 (5-6)															dir. 1-2 (5-6) see 1/240ff
Potentiometer dir. 1-2 (5-6)															Arrangement dir. 1-2 (5-6)
contact dir. 3-4 (7-8)															see 5/001
															special please describe
															housing
															Potentiometer dir. 3-4 (7-8)
															friction brake dir. 3-4 (7-8)



Type D3LQQ-2ZP+2ZP-B...

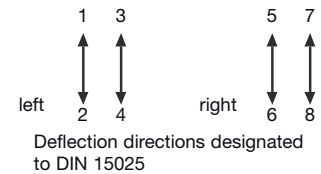
The double-handle controller D 3 is a rugged switching device according IEC/EN 60947-5-1 for nautical navigation applications. The modular design enables the switching device to be used universally. The D 3 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

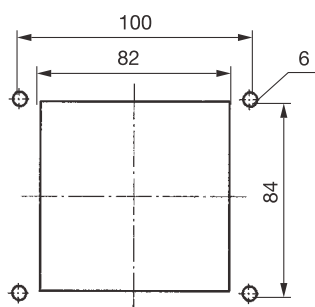
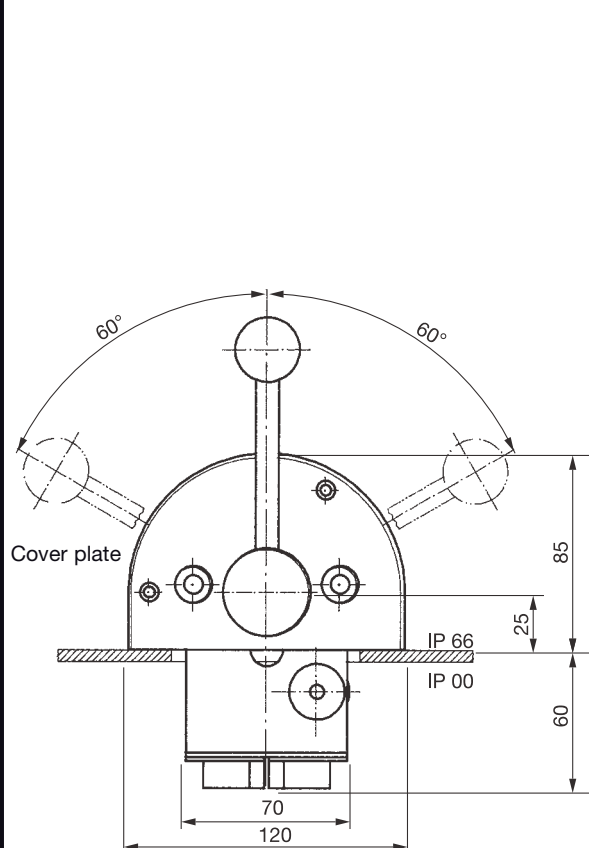
Mechanical life 12 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 66 IEC IEN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



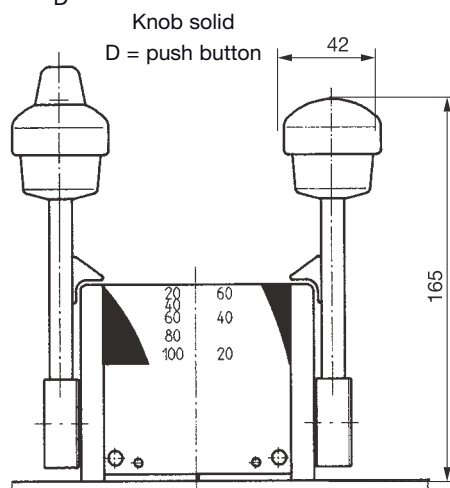
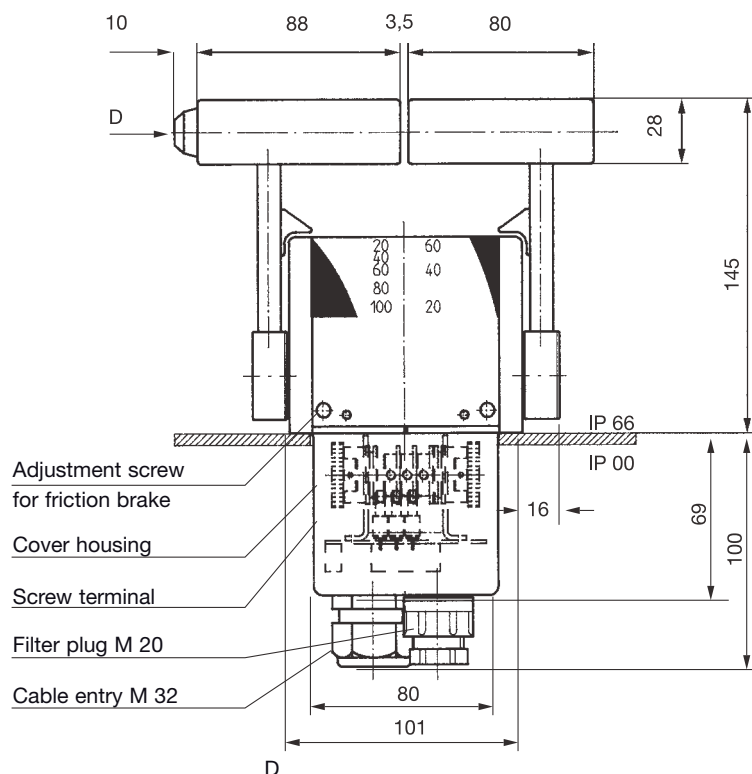
Pos.	D 3	Type expansion		Weight gramm	Type	Price EURO
1						
2						
3				4000	D 3	
4						
5						
7.1	Double-handle controller left (dir. 1-2, 3-4)				L	
7.2	Double-handle controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid					
21						
22						
23						
24	Control-handle with push button 1 NO			110	D	
25						
26	Control-handle with T-grip			40	Q	
27	Control-handle with T-grip and push button side 1 NO			60	QD	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
29						
30	Masterswitch (contact) switching sequence -0-	A...	No. of contacts 1	20	1	
31			2	40	2	
32	Direction 1-2 and 3-4 each 1 masterswitch		3	60	3	
33	Switching program according contact-arrangement MS... see catalog 5/001 or to your contact-arrangement					
35	Switching sequence special					
36						
38						
39	Friction brake adjustable (for each direction)			30	R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 246, with centre tap linear 0,5 Watt wiper current max. 1 mA, resistance 2 x 5k P214	...P21 □		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 75°	P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					
50	Cover housing			300	B	
51	Filter plug M 20 for air-condition			20		
52	Cable entry M 32 with anti-kink protection			30		
60	Indicating label eloxal aluminium plate silvery (included in the spindle block)					
61	Engraving, each 10 characters					



Hole pattern

T-grip
D = push button

Direction 1-2 Direction 3-4



	D3	L	S5	QQ - 2	R	P + 1	R	P	-B-	-X-	A05	P214	+A98	P214	
double handle controller															Potentiometer description dir. 3-4 (7-8) see 1/240ff
installation side L o. R															Arrangement dir. 3-4 (7-8) see 5/001
special control handle															Potentiometer description dir. 1-2 (5-6) see 1/240ff
contact set dir. 1-2 (5-6)															Arrangement dir. 1-2 (5-6) see 5/001
friction brake dir. 1-2 (5-6)															special please describe housing
Potentiometer dir. 1-2 (5-6)															Potentiometer dir. 3-4 (7-8)
contact set dir. 3-4 (7-8)															friction brake dir. 3-4 (7-8)



Type S1LGS8-00ZP-...

Type S1LGK4-00ZP-...

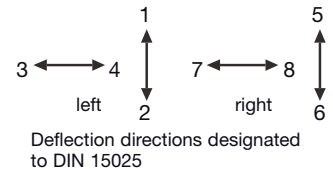
The single-axis controller S 1 is a rugged switching device according IEC/EN 60947-5-1 for remote control and electro-hydraulic applications. The S 1 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life 6 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

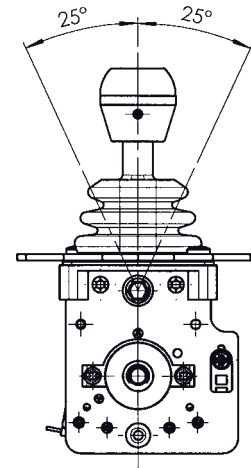
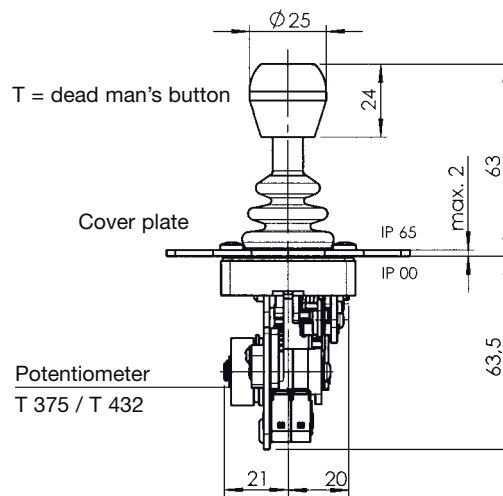
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



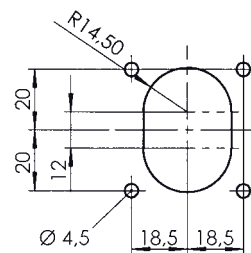
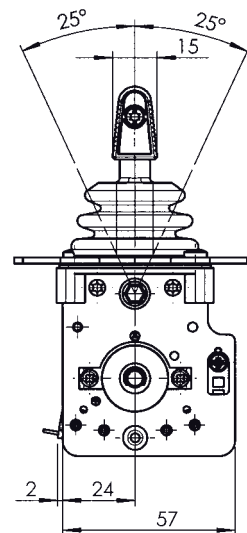
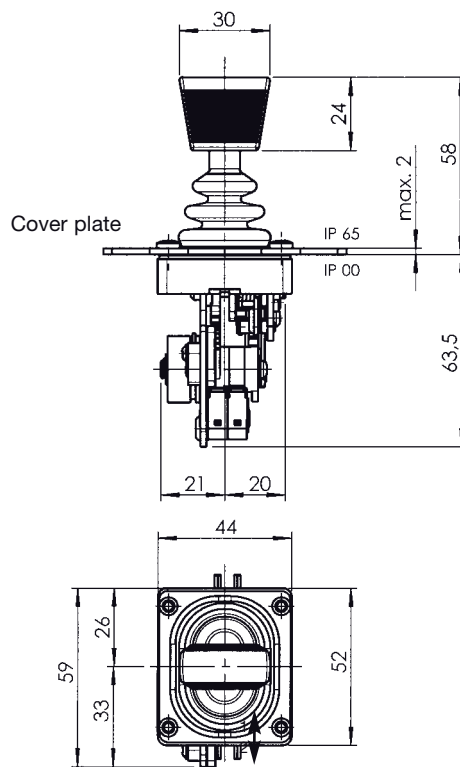
Pos.	S 1	Type expansion		Weight gramm	Type	Price EURO
1				150	S 1	
2						
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid GK 4					
21	Control-handle with latch for mechanical zero interlock by lifting			50	M	
21.1				80	T	
22	Control-handle with dead man's button 1 NO					
23					D	
24	Control-handle with push button 1 NO					
25						
26	Control-handle with knob GS 8				GS 8	
30	Masterswitch (contact) switching sequence -0-		No. of contacts 2	20	01	
	Switching program according contact-arrangement MS see catalog 5/001 or to your contact-arrangement	A...	4	40	02	
36	switching sequence 2-0-2					
38	Spring return in 0-position (for each direction)				Z	
39	Friction brake adjustable (for each direction)				R	
44	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 375, with centre tap linear life 10 ⁷ switching cycles resistance 2 x 5 kOhm 0,5 Watt wiper current max. 1 mA	...P37 □		20	P	
45	Conductive-plastic potentiometer T 430 with centre tap linear life 10 ⁷ switching cycles resistance 2 x 5 kOhm 2 conductive-plastic-contact way arrangement MSP 21 (catalog 5/001) 0,5 Watt wiper current max. 1 mA	...P27 □		25	P	
52	Housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



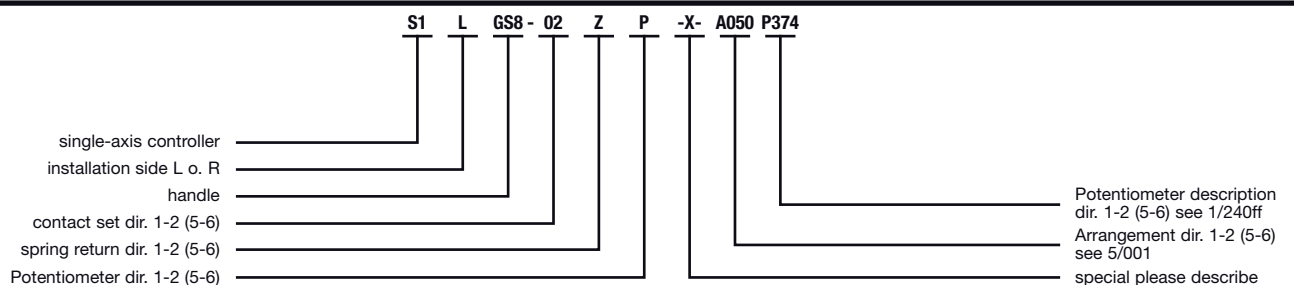
S 1 with knob solid GK 4



S 1 with knob GS 8



Hole pattern





Type S14L-01ZP-...

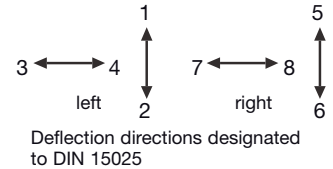
The single-axis controller S 14 is a rugged switching device according IEC/EN 60947-5-1 for remote control and hoisting applications. The S 14 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 with positive opening operation

Mechanical life 6 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529
Technical data see catalog 5/100
Description data see catalog 5/020

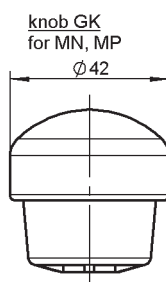
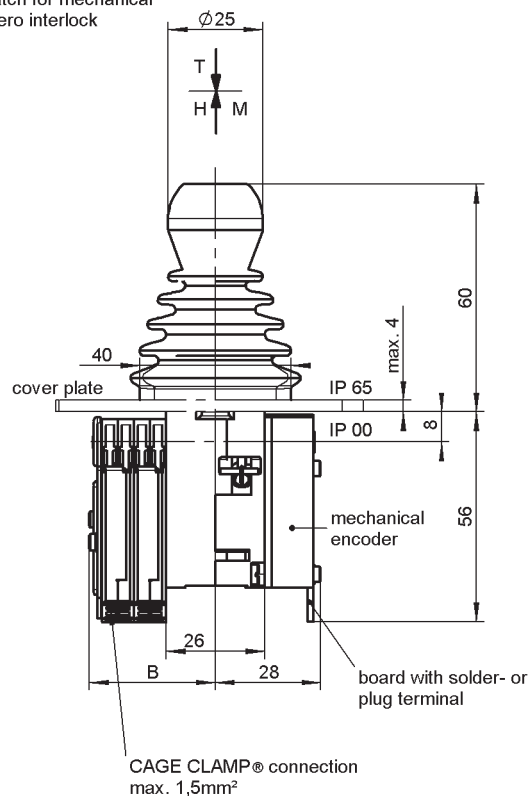
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



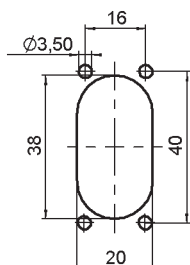
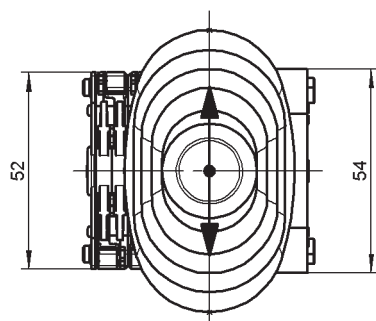
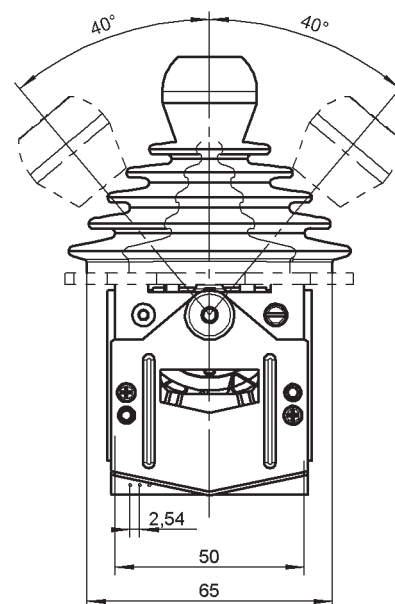
Pos.	S 14	Type expansion		Weight gramm	Type	Price EURO
1				150	S 14	
2						
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid					
21	Control-handle with latch for mechanical zero interlock					
21.1	by lifting			50	M	
21.3	by lifting, interlocking in the joint bracket (knob 42 mm Ø)			60	MP	
21.4	by pushing down (knob 42 mm Ø)			50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274					
22	Control-handle with dead man's button 1 NO			80	T	
23	Control-handle with signal button 1 NO			80	H	
28	Control-handle long +20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact set) switching sequence 4-0-4 adjustable (with encoder 6-0-6)		No. of contacts 2	70	01	
31			4	130	02	
32	Direction 1-2 or 3-4		6	190	03	
33	Switching program according contact-arrangement MS... see catalog 5/001	A...				
34	or to your contact-arrangement					
38	Spring return in 0-position (for each direction)				Z	
39	Friction brake adjustable (for each direction)				R	
40	Set point encoder for redundant hallsensors with electronic, magnet KEM, each direction, with mounted	EU 21				
41	Electronic voltage output impressed 0,5-2,5-4,5 Volt (+5 mA)	EI32				
	output characteristic linear power supply 4,6-5,5 Volt DC					
	Electronic output power impressed 4-20 mA					
	output characteristic linear power supply 18-30 Volt DC					
44	Mechanical encoder with mounted direction 1-2 or 3-4 life 5 x 10 ⁶ switching cycles, 0,5 Watt wiper current max. 1 mA with solder- or plug terminal	C 61		30	C	
	Mechanical encoder MEC 1-2 male connector EA/02-10 contact-arrangement MS 26-0 see catalog 5/001					
	Conductive-plastic potentiometer with centre tap linear resistance 2 x 10 kOhm					
45	Mechanical encoder MEC 1-7 male connector EA / 10-10 contact-arrangement MS 26-0-1 see catalog 5/001	C 62		20	C	
	Conductive-plastic potentiometer with centre tap linear resistance 2 x 5 kOhm					
46	Mechanical encoder MEC 1-6 male connector EA / 09-10, 6 Bit Gray-Code	C 63		30	C	
47	Mechanical encoder MEC 1-6-5 male connector ER / 36-10	C 64		30	C	
	Power supply 24 V DC, output power impressed 4-20 mA					
48	Mechanical encoder MEC 1-6-8 male connector ER / 36-12	C 65		30	C	
	Power supply 24 V DC, output power impressed 0-20 mA					
49	Mechanical encoder MEC 1-10 male connector EA / 17-10 contact-arrangement MS21-0 + MS21 see catalog 5/001	C 66		30	C	
	Conductive-plastic potentiometer with centre tap, Linear resistance 2 x 1,5 kOhm					
52	Housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



T = dead man's button
H = signal button
M = latch for mechanical
zero interlock

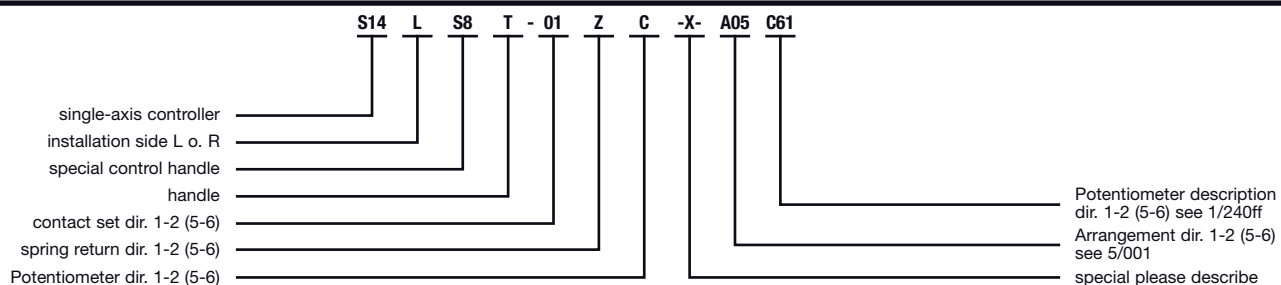


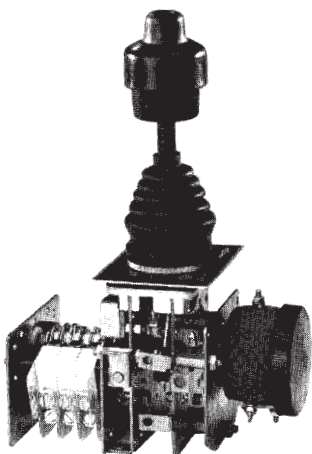
knob GSP
see catalog 1/277 pos. 5
for the 3rd direction 11-12



hole pattern

type	no. of contacts	dimension B
01	2	24
02	4	33
03	6	42





Type S2LD-03ZP-...

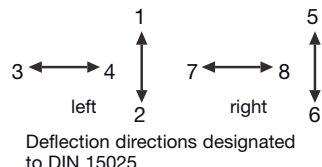
The single-axis controller S 2 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications.
The modular design enables the switching device to be used universally.
The S 2 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life S 2 6 million (operating cycles)
Mechanical life SS 2 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

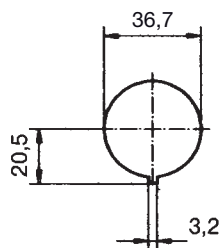
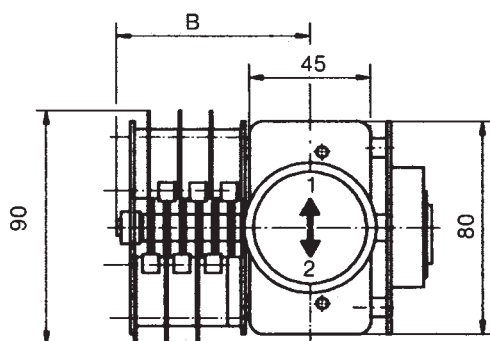
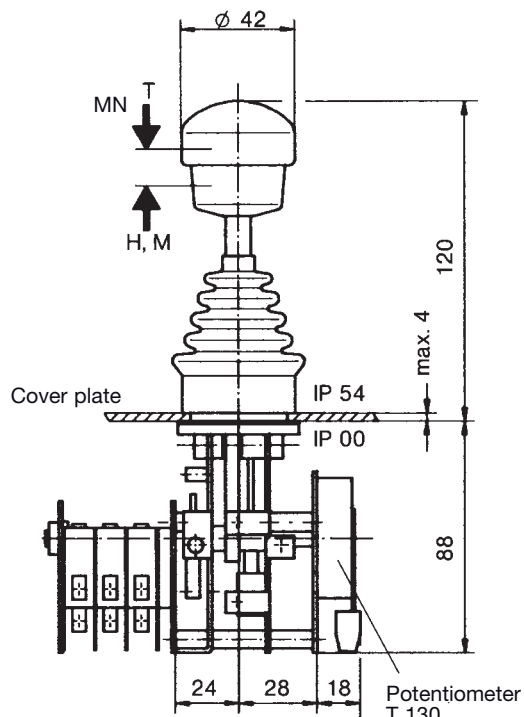
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



Pos.	S 2	Type expansion		Weight gramm	Type	Price EURO
1				600	S 2	
2				650	SS 2	
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
11	Gate special-shaped (for position view) M 1699			60	P	
20	Control-handle with knob solid					
21	Control-handle with latch for mechanical zero interlock					
21.1	by lifting			50	M	
21.4	by pushing down			50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274					
22	Control-handle with dead man's button 1 NO			50	T	
23	Control-handle with signal button 1 NO			50	H	
24	Control-handle with push button 1 NO			60	D	
25	Control-handle with flat push button 1 NO			60	DV	
26	Control-handle with palm grip B 5			40	B 5	
27	Control-handle with palm grip B 5 with push button top 1 NO			60	B 5T	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact) switching sequence 5-0-5	A...	No. of contacts 3	300	02	
31			5	330	03	
32			7	360	04	
33	Switching program according contact-arrangement MS... see catalog 5/001		9	390	05	
34	or to your contact-arrangement					
35						
37	Micro change over contact (MZT1) with positive opening operation (additional price)		1			
38	Spring return in 0-position (for each direction)			20	Z	
39	Friction brake adjustable (for each direction)			20	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k ± P022, 2 x 2k ± P023, 2 x 5k ± P024, 2 x 10k ± P025	...P02 □		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°	C..., P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					
50	Steel sheet housing B 200 masterswitch Gr. 05			1300	B	
52	More housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



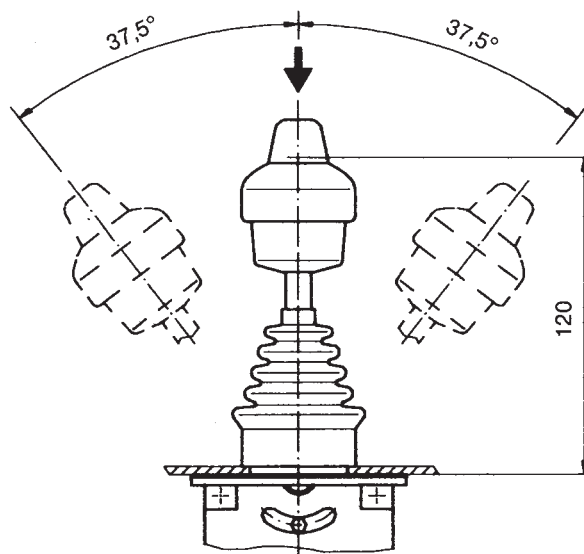
T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



Hole pattern

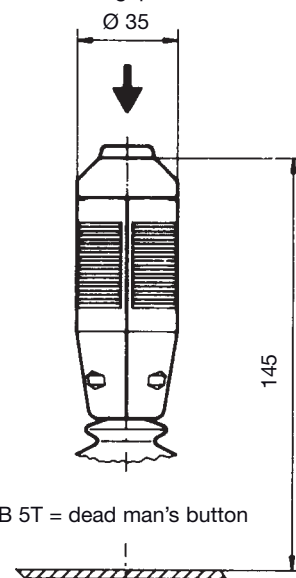
Knob solid

D = -push button

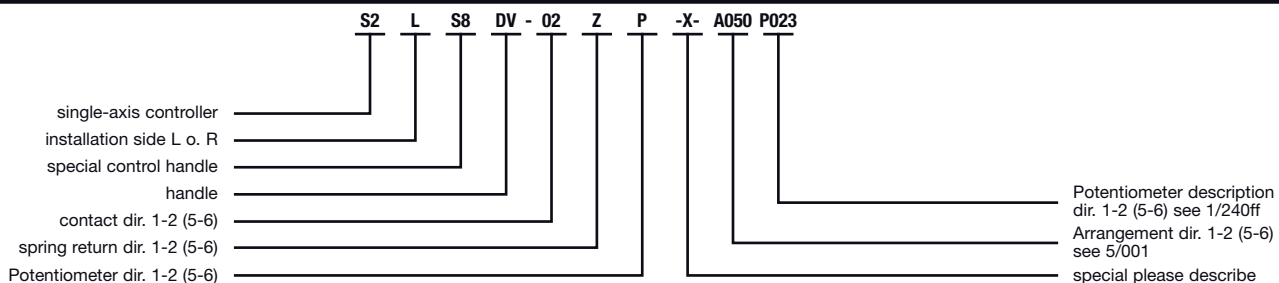


Type	No. of contacts	Dimension B
02	3	62
03	5	72
04	7	83
05	9	93

Palm grip B 5



B 5T = dead man's button





Type S21LB12D-02ZP-...

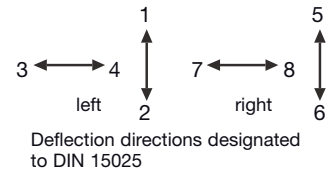
The single-axis controller S 21 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications.
The modular design enables the switching device to be used universally.
The S 21 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life S 21 6 million (operating cycles)
Mechanical life SS 21 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

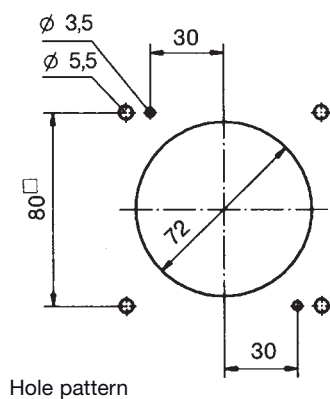
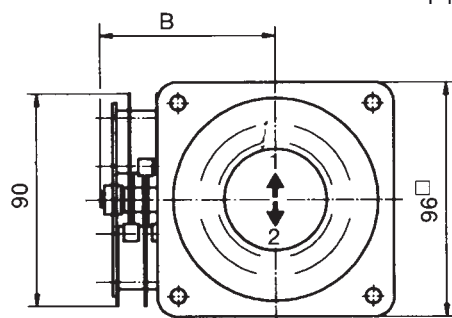
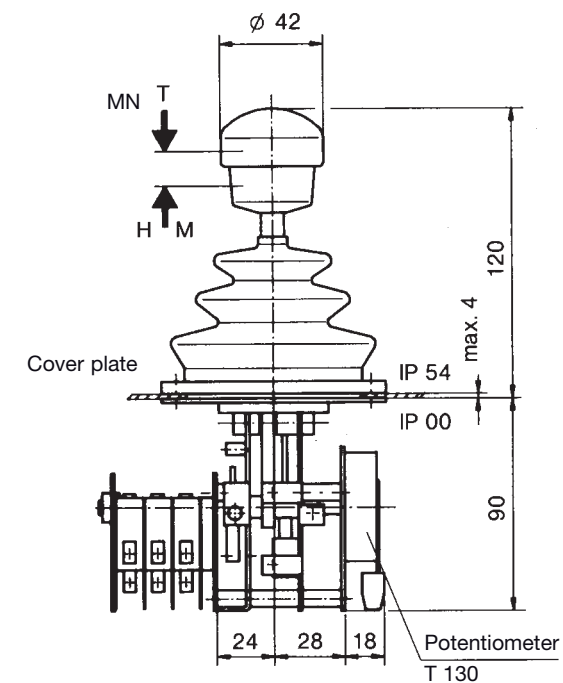
Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).



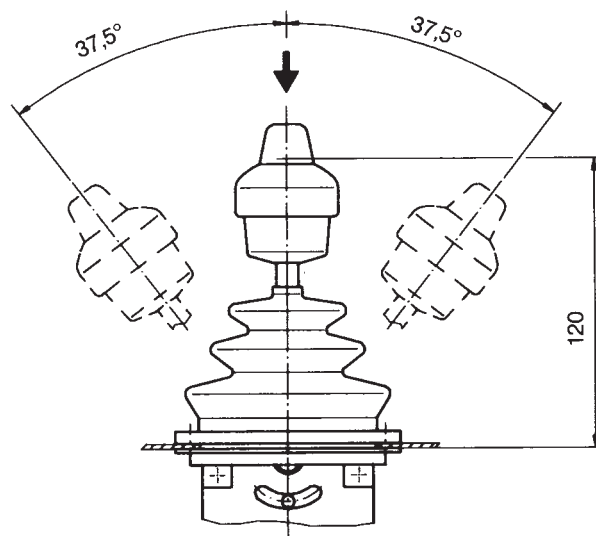
Pos.	S 21	Type expansion		Weight gramm	Type	Price EURO
1				650	S 21	
2				650	SS 21	
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
20	Control-handle with knob solid					
21	Control-handle with latch for mechanical zero interlock					
21.1	by lifting			50	M	
21.4	by pushing down			50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274					
22	Control-handle with dead man's button 1 NO			100	T	
23	Control-handle with signal button 1 NO			100	H	
24	Control-handle with push button 1 NO			110	D	
25	Control-handle with flat push button 1 NO			110	DV	
26	Control-handle with palm grip B 1			40	B 1	
27	Control-handle with palm grip B 1 with push button top 1 NO			60	B 1T	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact) switching sequence 5-0-5		No. of contacts 3	300	02	
31			5	330	03	
32			7	360	04	
33	Switching program according contact-arrangement MS... see catalog 5/001		9	390	05	
34	or to your contact-arrangement	A...				
35						
36						
38	Spring return in 0-position (for each direction)			20	Z	
39	Friction brake adjustable (for each direction)			20	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025	...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°				(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff	C..., P...				
50	Steel sheet housing B 200 masterswitch Gr. 05			1300	B	
51						
52	More housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



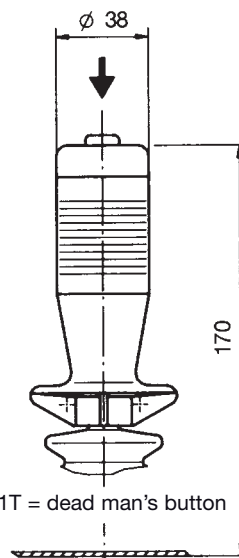
T = dead man's button
H = signal button
M = latch for mechanical zero interlock



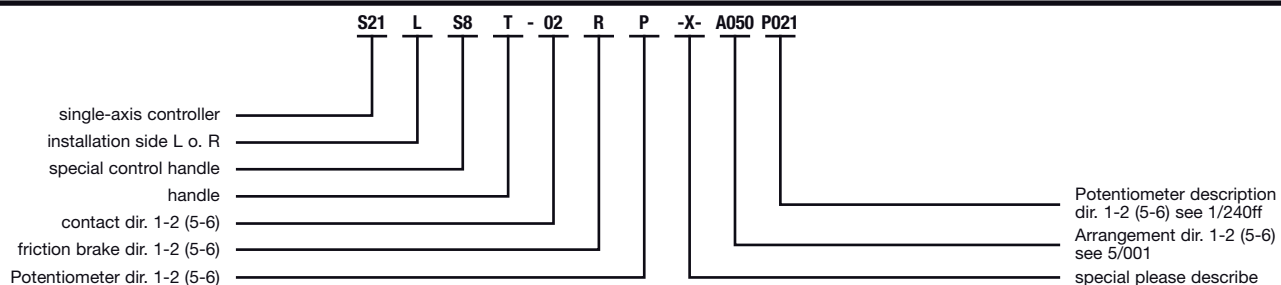
Knob solid
D = push button

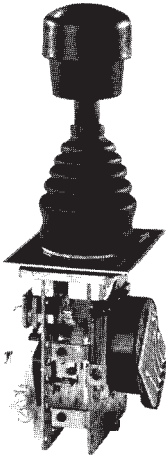


Palm grip B 1



Type	No. of contacts	Dimension B
02	3	62
03	5	72
04	7	83
05	9	93





Type S22LT-2ZP-...

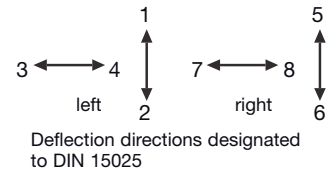
The single-axis controller S 22 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications.
The modular design enables the switching device to be used universally.
The S 21 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Mechanical life S 22 6 million (operating cycles)
Mechanical life SS 22 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

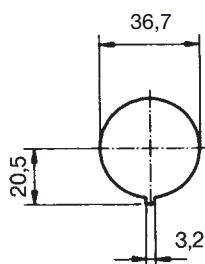
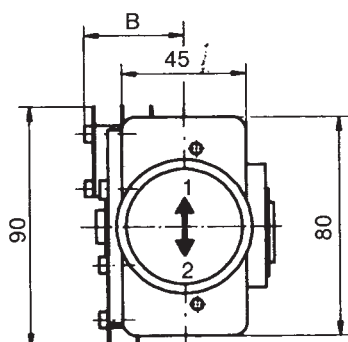
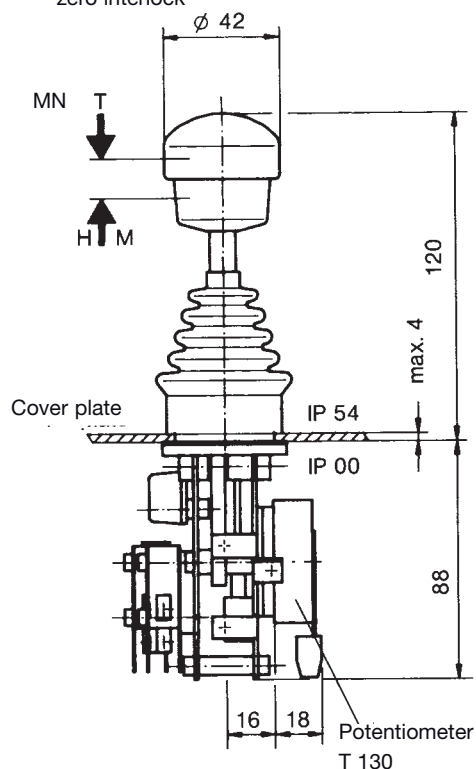
Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions.
Version shown for left-hand side installation (right-hand side installation is mirror image).

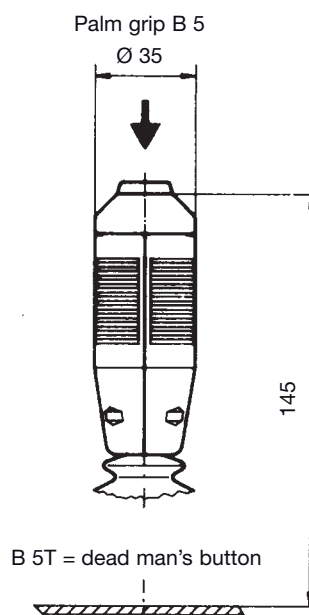
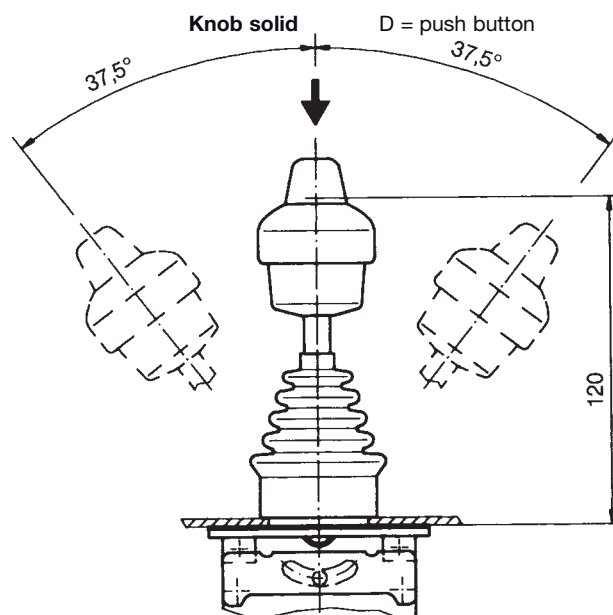


Pos.	S 22	Type expansion		Weight gramm	Type	Price EURO
1				600	S 22	
2				650	SS 22	
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
20	Control-handle with knob solid					
21	Control-handle with latch for mechanical zero interlock					
21.1	by lifting			50	M	
21.4	by pushing down			50	MN	
21.5	Mechanical zero interlock with command devices see catalog 1/274					
22	Control-handle with dead man's button 1 NO			50	T	
23	Control-handle with signal button 1 NO			50	H	
24	Control-handle with push button 1 NO			60	D	
25	Control-handle with flat push button 1 NO			60	DV	
26	Control-handle with palm grip B 1			40	B 5	
27	Control-handle with palm grip B 1 with push button top 1 NO			60	B 5T	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
29	More knobs, grips and T-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact) switching sequence -0-		No. of contacts 1	150	1	
31			2	170	2	
32			3	190	3	
33	Switching program according contact-arrangement MS... see catalog 5/001	A...	4	210	4	
34	or to your contact-arrangement					
35						
36	Switching sequence 2-0-2					
38	Spring return in 0-position (for each direction)			20	Z	
39	Friction brake adjustable (for each direction)			20	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025	...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°				(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff	C..., P...				
50	Steel sheet housing B 200 masterswitch Gr. 4			1300	B	
51						
52	More housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					

T = dead man's button
H = signal button
M = latch for mechanical
zero interlock



Hole pattern

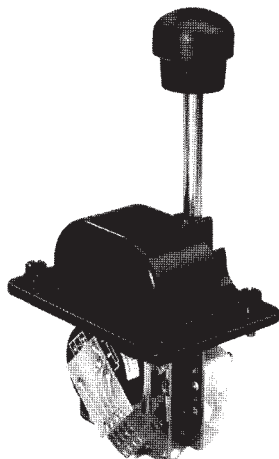


B 5T = dead man's button

Type	No. of contacts	Dimension B
1	1	25
2	2	31
3	3	36
4	4	42

	SS22	L	S8	H - 2	Z	P	-X-	A050	P025
single-axis controller	_____	_____							
installation side L o. R		_____							
special control handle			_____						
handle				_____					
contact dir. 1-2 (5-6)					_____				
spring return dir. 1-2 (5-6)						_____			
Potentiometer dir. 1-2 (5-6)							_____		

Potentiometer description
dir. 1-2 (5-6) see 1/240ff
Arrangement dir. 1-2 (5-6)
see 5/001
special please describe



Type S23L-2ZP-...

The single-axis controller S 23 is a rugged switching device according IEC/EN 60947-5-1 for electro-hydraulic applications and offshore.
The modular design enables the switching device to be used universally.
The S 23 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

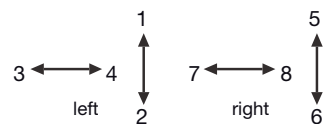
Mechanical life 6 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529

Technical data see catalog 5/100
Description data see catalog 5/020

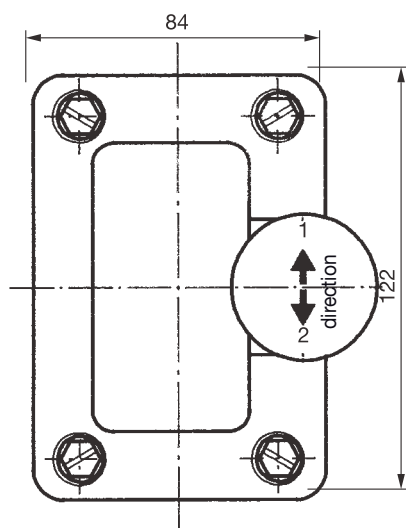
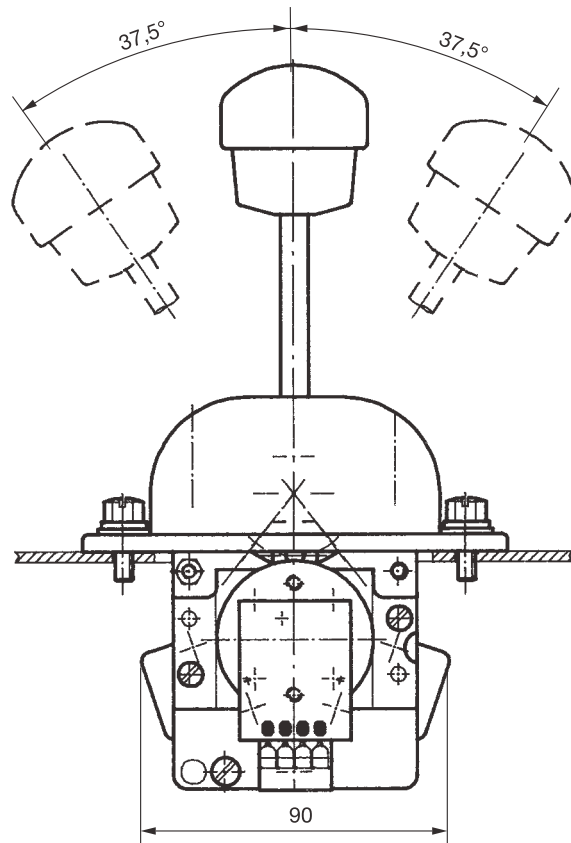
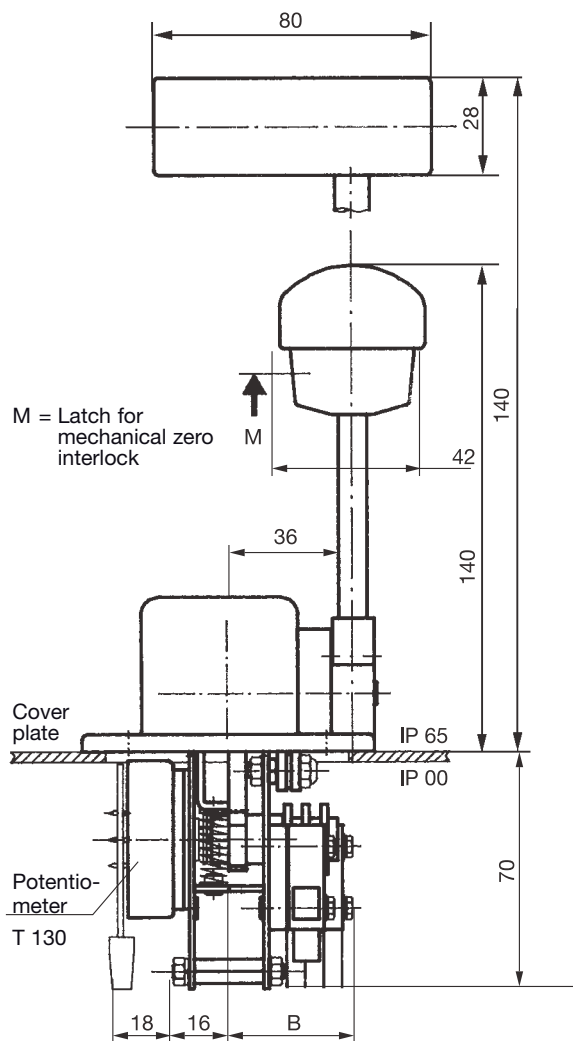
Spindle block with schematic representation of the master controller installation and deflection directions.

Version shown for left-hand side installation (right-hand side installation is mirror image).

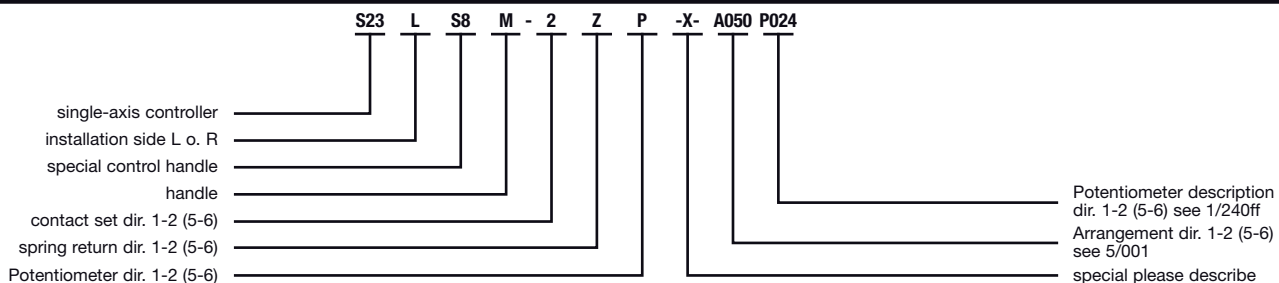
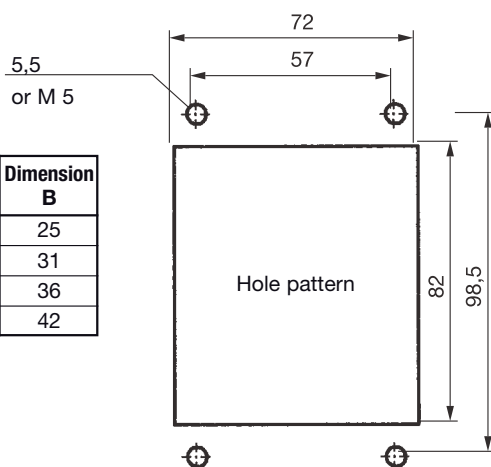


Deflection directions designated to DIN 15025

Pos.	S 23	Type expansion		Weight gramm	Type	Price EURO
1				700	S 23	
2						
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid			50	M	
21	Control-handle with latch for mechanical zero interlock					
21.1	by lifting					
22						
23						
24				40	Q	
25						
26	Control-handle with T-grip					
27						
28	Control-handle long or short					
28.1	-20 mm			S5 S8		
28.2	+20 mm					
29	more knobs, grips and t-grips with and without signal devices see catalog 1/270ff					
30	Masterswitch (contact) switching sequence -0-	A...	No. of contacts 1	150	1	
31			2	170	2	
32			3	190	3	
33	Switching program according contact-arrangement MS... see catalog 5/001		4	210	4	
34	or to your contact-arrangement					
35						
36	Switching sequence 2-0-2					
38	Spring return in 0-position (for each direction)			20	Z	
39	Friction brake adjustable (for each direction)			20	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k ≙ P022, 2 x 2k ≙ P023, 2 x 5k ≙ P024, 2 x 10k ≙ P025	...P02 □		70	P	(P) (P)
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°	P...				
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.					
43	more Potentiometer e.t.c. see catalog 1/240ff					
50	Steel sheet housing B 200 masterswitch Gr. 4			1300	B	
51						
52	More housing see catalog 1/350					
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



Type	No. of contacts	Dimension B
1	1	25
2	2	31
3	3	36
4	4	42





Type S3LQ-2ZP-B...

The single-axis controller S 3 is a rugged switching device according IEC/EN 60947-5-1 for nautical navigation applications. The modular design enables the switching device to be used universally. The S 3 is resistant to oil, maritime climate, ozone and UV radiation.

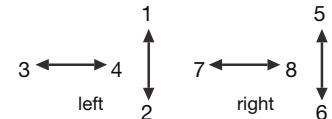
Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life 12 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C
Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 66 IEC/EN 60529

Technical data see catalog 5/100
Description data see catalog 5/020

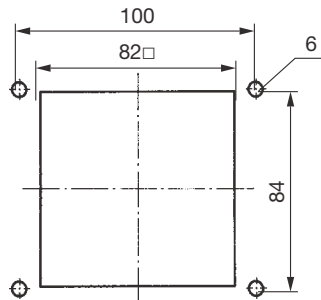
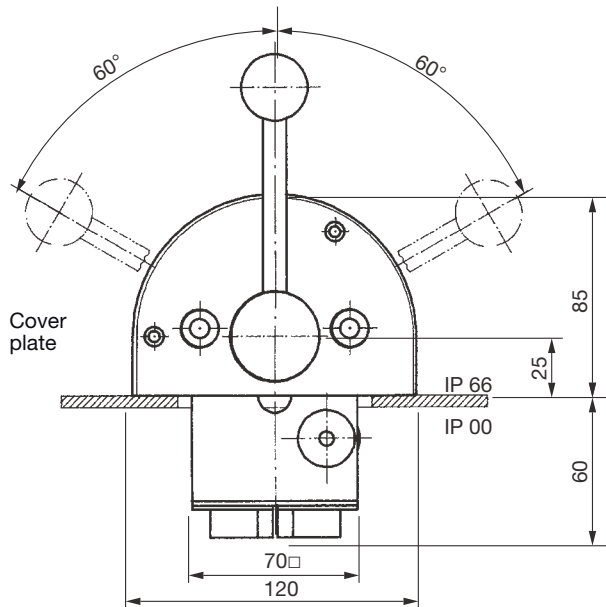
Spindle block with schematic representation of the master controller installation and deflection directions.

Version shown for left-hand side installation (right-hand side installation is mirror image).

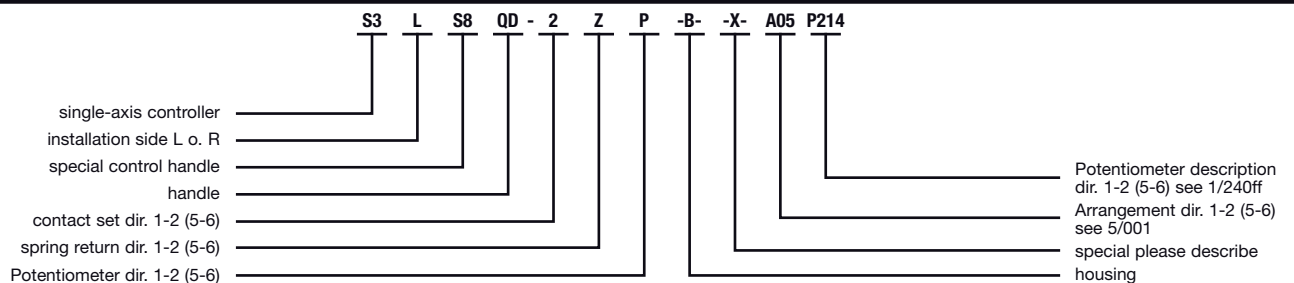
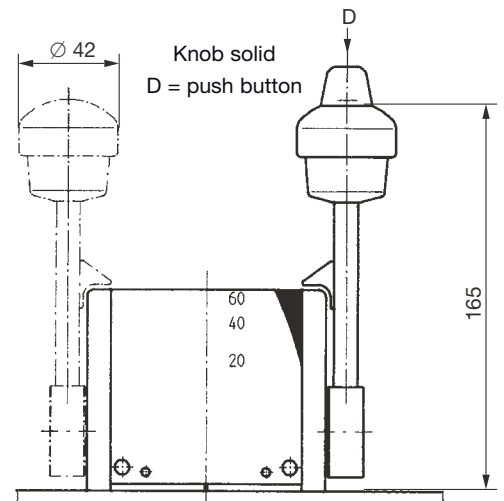
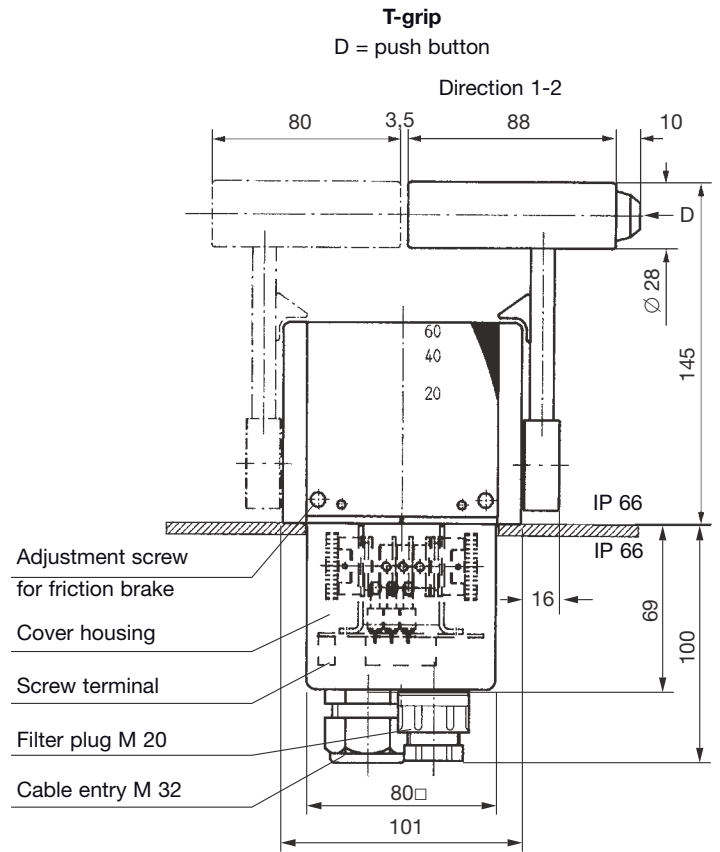


Deflection directions designated to DIN 15025

Pos.	S 3	Type expansion		Weight gramm	Type	Price EURO
1				2700	S 3	
2						
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with knob solid					
21						
22						
23						
24	Control-handle with push button 1 NO			110	D	
25						
26	Control-handle with T-grip			40	Q	
27	Control-handle with T-grip and push button side 1 NO			60	QD	
28	Control-handle long or short					
28.1	-20 mm				S5	
28.2	+20 mm				S8	
30	Masterswitch (contact) switching sequence -0-	A...	No. of contacts 1	20	1	
31			2	40	2	
32	Direction 1-2 or 3-4		3	60	3	
33	Switching program according contact-arrangement MS... see catalog 5/001					
34	or to your contact-arrangement					
35						
36	Switching sequence special					
38	Spring return in 0-position (for each direction)			30	Z	
39	Friction brake adjustable (for each direction)			30	R	
40	Potentiometer e.t.c. each direction with mounted Conductive-plastic potentiometer T 246, with centre tap linear Life 10 ⁷ switching cycles resistance 2 x 5 kOhm, 0,5 Watt wiper current max. 1 mA	...P214		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 75°	P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					
50	Cover housing			300	B	
51	Filter plug M 20 for air-condition			20		
52	Cable entry M 32 with anti-kink protection			30		
60	Indicating label eloxal aluminium plate silvery (included in the spindle block)					
61	Engraving, each 10 characters					



Hole pattern





Type S4-01-2 ...

The single-axis controller S 4 is designed as a rugged switching device according to IEC/EN 60947-5-1. The S 4 is resistant to oil, maritime climate, ozone and UV radiation.
Depending on the current position of the operating lever, a certain digital output signal is generated.
The following variations are available:
various detents (rest- or tip-function), switching sequences, handle versions.
The modular micro change over silver contacts are positive opening.
Gold-plated (ca. 0,2µ) contacts are also available.
The switching point accuracy is $\pm 0,15$ mm

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Microswitch terminal	screwed no. 1, faston terminals no. 2 6,3x0,8mm
Mechanical life	6 million (operating cycles)
Permissible ambient temperature	Operation -40° C to +60° C
	Storage -50° C to +80° C

Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection front	IP 66 IEC/EN 60529
Technical data / description data see catalog	5/010

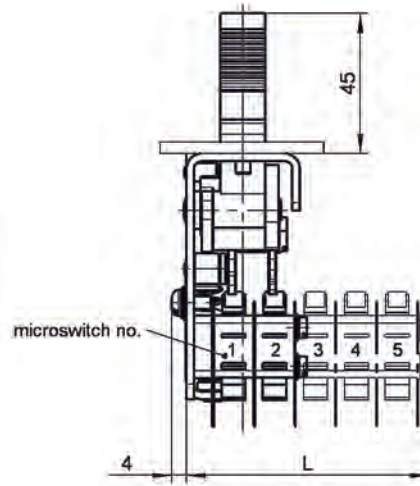
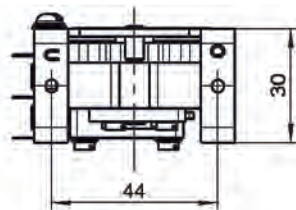
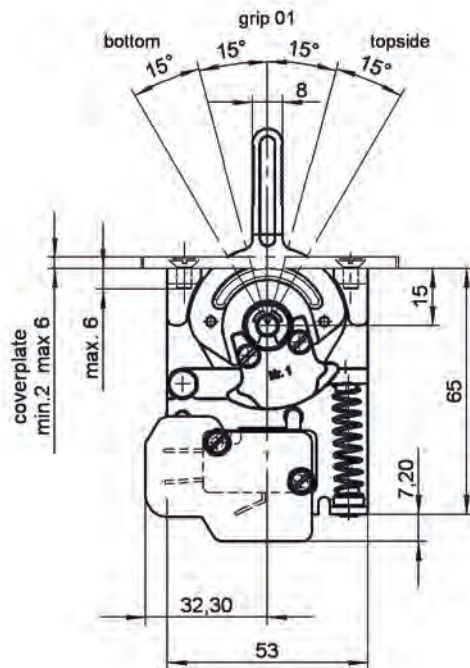
Spindle block with schematic representation of the microswitch and deflection directions.

O (top side)



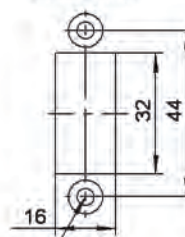
U (bottom side)

Pos.	S 4	Type expansion		Weight gramm	Type	Price EURO
1	 O (top side) U (bottom side)			180	S 4	
2						
3						
4						
5						
15	Control-handle with grip 01 (included in Pos. 1)				01	
16	Control-handle with grip 02				02	
17	Control-handle with grip 03				03	
18	Control-handle with grip 04				04	
19	Control-handle with grip 05				05	
27	Control-handle with grip 13				13	
28	Control-handle with grip 14				14	
29	Control-handle with grip 15				15	
30	Microswitch		No. of contacts 1		1	
31	detend and switching sequence		2		2	
32	see catalog 5/010		3		3	
33			5		4	
34			5		5	
35	contacts gold-plated ca. 0,2 µ each microswitch				G	
36	switching point accuracy $\pm 0,05$ mm each microswitch					



no. of microswitch	dimension L
1	30
2	30
3	44
4	53
5	64

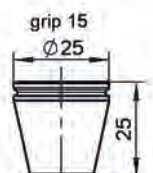
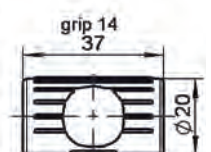
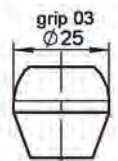
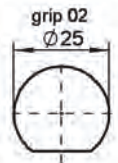
hole pattern



chamfering DIN 66-4

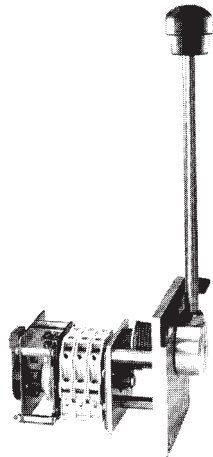
Grip versions

Grip 01 (shown)



Ordering information (versions) see catalog 5/010

S 4	-	01	-	2	-	MS31	/	03 S	/	11 G	/	• • •	-	2	-	X
Single-axis controller (Lever switches)		Grip version		Number of microswitches		Detend no.		Microswitch 1 Program no. Silver-contact		Microswitch 2 Program no. Gold-plated contact		Microswitch 3 • •		Microswitch terminal		Special please describe



Type S6L-03ZP-...

The single-axis controller S 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting applications. The modular design enables the switching device to be used universally. The S 6 is resistant to oil, maritime climate, ozone and UV radiation.

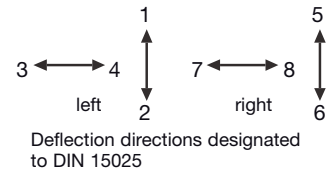
**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life 10 million (operating cycles)
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

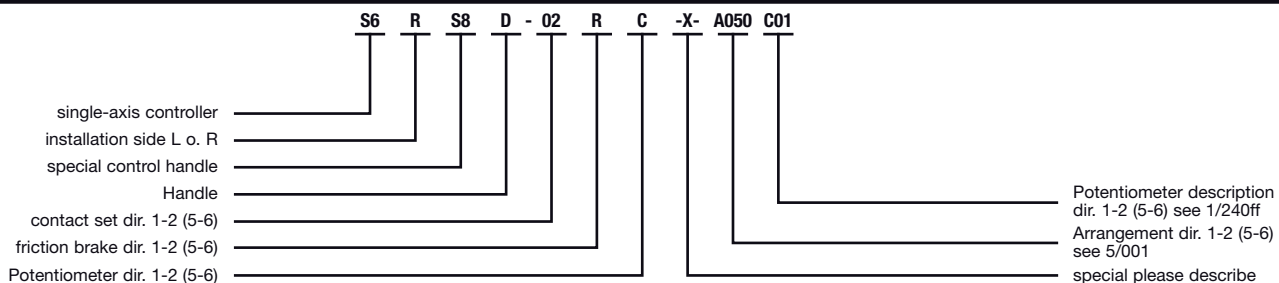
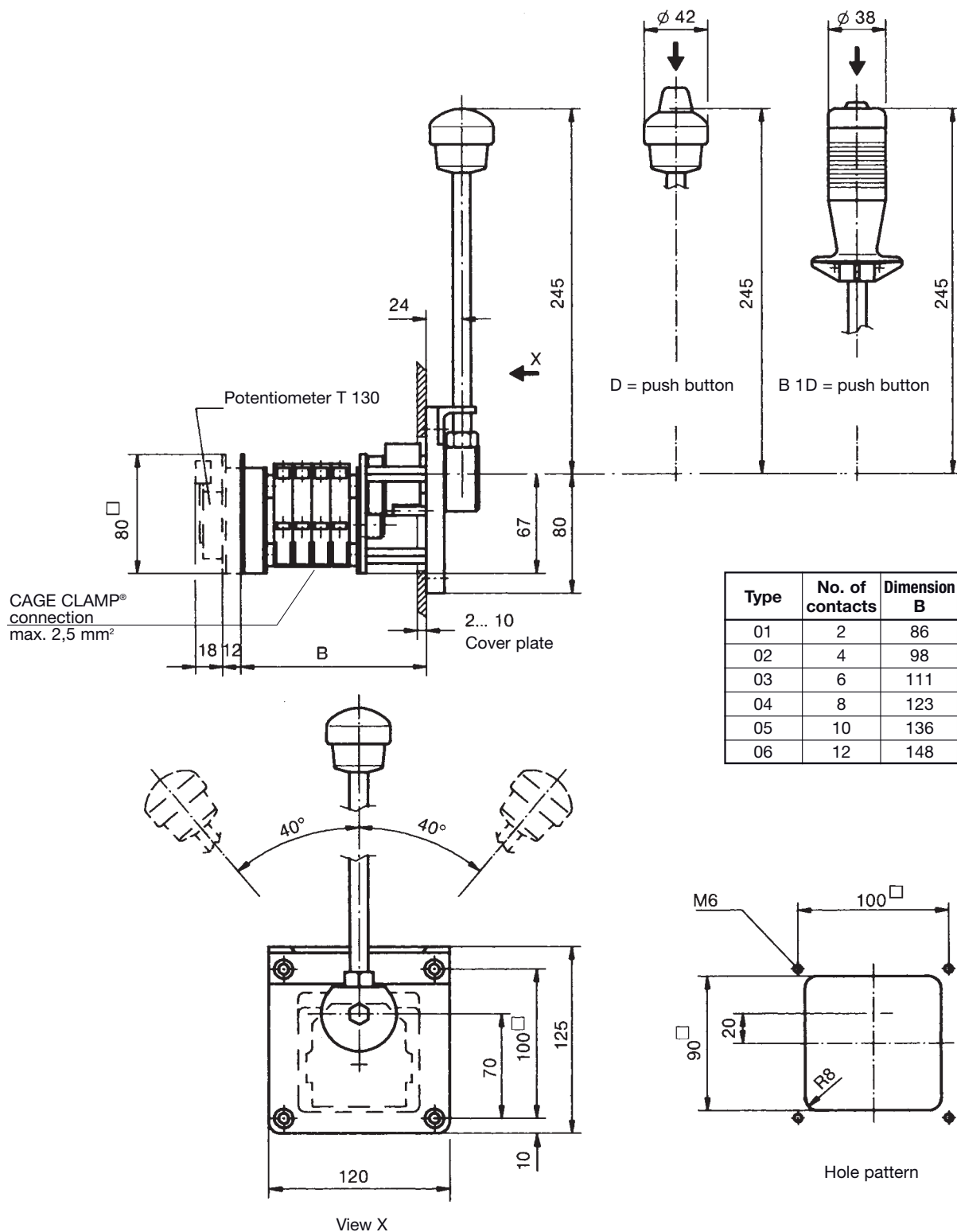
Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529

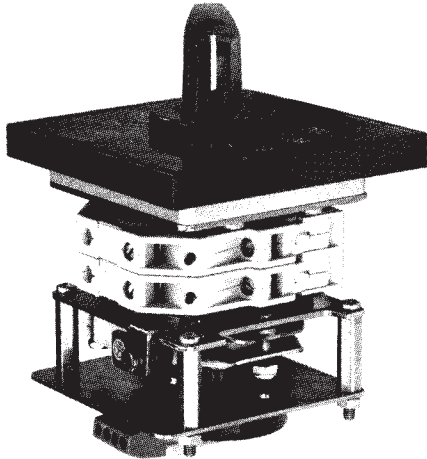
Technical data see catalog 5/100
Description data see catalog 5/020

Spindle block with schematic representation of the master controller installation and deflection directions. Version shown for left-hand side installation (right-hand side installation is mirror image).



Pos.	S 6	Type expansion		Weight gramm	Type	Price EURO
1				960	S 6	
2						
3						
4						
5						
7.1	Single-axis controller left (dir. 1-2, 3-4)				L	
7.2	Single-axis controller right (dir. 5-6, 7-8)				R	
10						
20	Control-handle with push button 1 NO with flexible cable Control-handle with palm grip B 1 Control-handle with palm grip B 1 with push button top 1 NO Control-handle long or short -20 mm +20 mm		No. of contacts 2 4 6 8 10 12	110	D	
24				40	B 1	
25				60	B 1D	
26						
27						
28						
28.1					S5	
28.2					S8	
30	Masterswitch (contact set) switching sequence 4-0-4	A...	2	290	01	
31			4	350	02	
32	Direction 1-2 or 3-4		6	410	03	
33	Switching program according contact-arrangement MS... see catalog 5/001		8	470	04	
34	or to your contact-arrangement		10	530	05	
35			12	590	06	
36	Switching sequence 5-0-5 or 6-0-6					
38	Spring return in 0-position (for each direction)			110	Z	
39	Friction brake adjustable (for each direction)			30	R	
40	Potentiometer e.t.c. each direction with mounted Wire-wound potentiometer T 130, with centre tap, 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025	...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°	C..., P...			(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff					
50	More housing see catalog 1/350					
51						
52						
60	Indicating labels not engraved with 2 arrows					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					





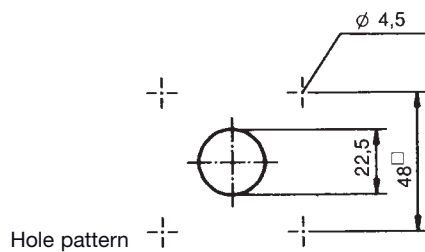
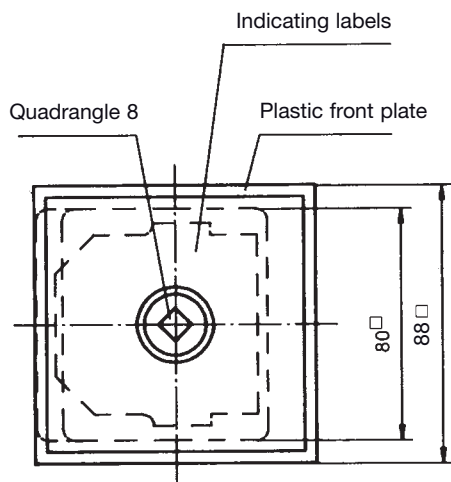
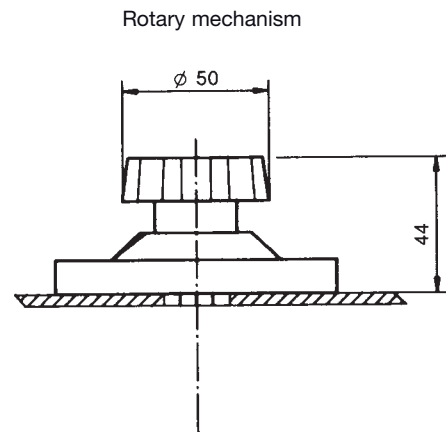
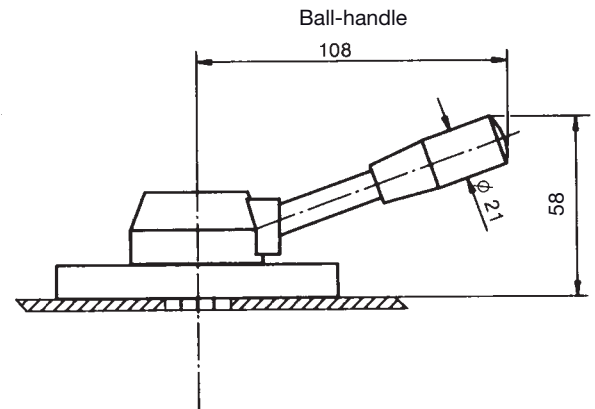
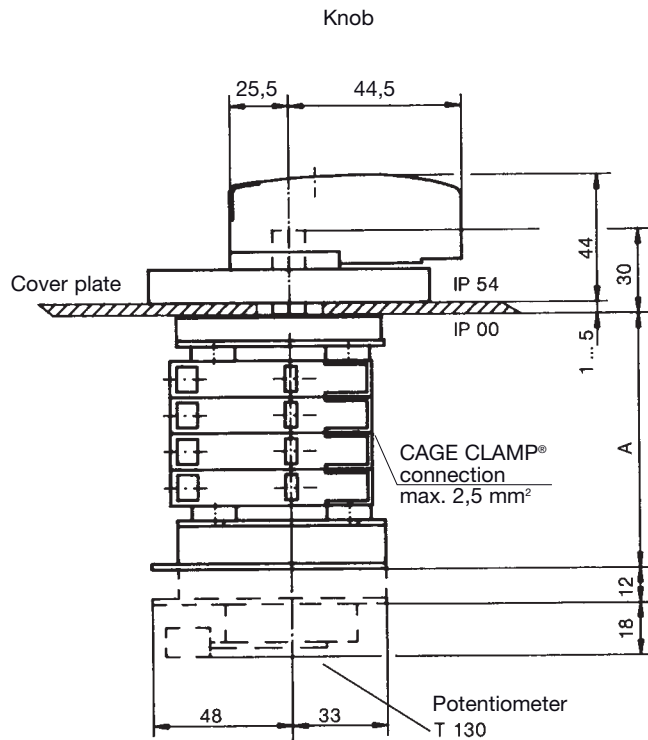
Form N6-KN-02RP...

The control-switch N 6 is a rugged switching device according IEC/EN 60947-5-1 for hoisting and electro-hydraulic applications.
The modular design enables the switching device to be used universally.
The N 6 is resistant to oil, maritime climate, ozone and UV radiation.

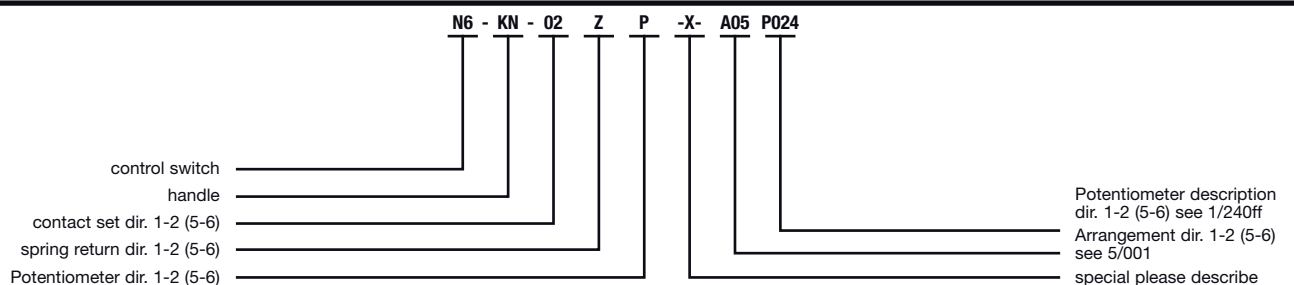
**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

Mechanical life	10 million (operating cycles)
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection front	IP 54 IEC/EN 60529
Technical data see catalog 5/100	
Description data see catalog 5/020	

Pos.		Type expansion		Weight gramm	Type	Price EURO
1	Drive with free shaft end with front plate 88x88 mm				N6	
2	Knob			30	KN	
3	Ball-handle			50	HG	
4	Rotary mechanism			30	DG	
5						
6	Degree of protection, front IP 65 by seal ring (for Pos. 1)					
30	Control-switch insert (contact set)		No. of contacts 2	290	01	
31	with free shaft end		4	350	02	
32	Switching sequence 4-0-4		6	410	03	
33	Switching program according contact-arrangement MS see catalog 5/001	A...	8	470	04	
34	or to your contact-arrangement		10	530	05	
35			12	590	06	
36	Switching sequence 5-0-5 or 6-0-6 or 0-18					
37	Micro changeover contact (MZT1) positive opening (additional price)		2			
38	Spring return in 0-position max. 100 Grad (2 x 70°)			110	Z	
39	Friction brake adjustable max. 260 Grad (2 x 130°)			30	R	
40	Potentiometer e.t.c. with mounted Wire-wound potentiometer T 130 with centre tap linear 1,5 Watt wiper current max. 10 mA resistance 2 x 0,5k P021, 2 x 1k $\triangle$ P022, 2 x 2k $\triangle$ P023, 2 x 5k $\triangle$ P024, 2 x 10k $\triangle$ P025	...P02 $\square$		70	P	
41	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 2 x 150°				(P)	
42	Prepared for mounting potentiometer e.t.c. adjusting-angle variable.				(P)	
43	more Potentiometer e.t.c. see catalog 1/240ff	C..., P...				
52	Housing see catalog 1/350					
60	Indicating labels not engraved					
61	Engraving, each 10 characters					
70	Command and indicating devices see catalog 1/360					



Type	No. of contacts	Dimension A	Spring return
01	2	51	+25
02	4	63	
03	6	76	
04	8	88	
05	10	101	
06	12	113	





□ = resistance value linear and part number $\triangle$

1 = 0.5 kOhm, with centre tap	2 x 0.5 kOhm
2 = 1.0 kOhm, with centre tap	2 x 1.0 kOhm
3 = 2.0 kOhm, with centre tap	2 x 2.0 kOhm
4 = 5.0 kOhm, with centre tap	2 x 5.0 kOhm
5 = 10.0 kOhm, with centre tap	2 x 10.0 kOhm

Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6	Part No. 5240...	Type- expansion	Weight gramm	Type	Price EURO
1	Wire-wound potentiometer linear life 10 ⁷ switching cycles 1,5 Watt max. wiper current 10 mA	...00100 □	T 129	60	P01 □	
2	Wire-wound potentiometer linear with centre tap life 10 ⁷ switching cycles 1,5 Watt max. wiper current 10 mA	...00200 □	T 130	60	P02 □	
3	Wire-wound potentiometer linear life 10 ⁷ switching cycles 2,5 Watt max. wiper current 10 mA	...00300 □	T 131	70	P03 □	
4	like T 131 but with oil-filling protection for corrosion	...00400 □	T 131-Oel	80	P04 □	
5	Wire-wound potentiometer linear with centre tap life 10 ⁷ switching cycles 2,5 Watt max. wiper current 10 mA	...00500 □	T 132	70	P05 □	
6	like T 132 but with oil-filling protection for corrosion	...00600 □	T 132-Oel	80	P06 □	
7	Wire-wound potentiometer characteristic progressive with centre tap life 10 ⁷ switching cycles 1,5 Watt max. wiper current 10 mA	...00700 □	T 178	70	P07 □	
8						
9						
10	Wire-wound potentiometer linear with centre tap life 10 ⁶ switching cycles 60 Watt	...01000 □	T 133	150	P10 □	
11	Wire-wound potentiometer linear life 10 ⁶ switching cycles 60 Watt	...01100 □	T 134	150	P11 □	
12	Conductive-plastic potentiometer linear life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...01200 □	T 374	20	P12 □	
13	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...01300 □	T 396	20	P13 □	
14						
15						
16						
	for mounting on: V 8 / D 8 / P 10 / P 12					
17	Wire-wound potentiometer linear with centre tap life 5 x 10 ⁶ switching cycles 1 Watt max. wiper current 10 mA	...01700 □	T 239	20	P17 □	
18	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...01800 □	T 301	20	P18 □	
19	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles; 3 conductive-plastic contact way arrangement MSP 21-0 (catalog 5/001) 0,5 Watt max. wiper current 1 mA	...01900 □	T 426	25	P19 □	
20	Conductive-plastic potentiometer double linear with centre tap life 10 ⁷ switching cycles; 0,5 Watt max. wiper current 1 mA	...02000 □	T 432	25	P20 □	
21	Conductive-plastic potentiometer with centre tap life 10 ⁷ switching cycles	...02100 □	T 246	20	P21 □	
22	Conductive-plastic potentiometer with centre tap life 10 ⁷ switching cycles	...02200 □	T 362	20	P22 □	
23						
	for mounting on: V 10 / S 1					
24	Wire-wound potentiometer linear with centre tap life 5 x 10 ⁶ switching cycles 1 Watt max. wiper current 10 mA	...02400 □	T 321	20	P24 □	
25	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...02500 □	T 320	20	P25 □	
26	Conductive-plastic potentiometer linear life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...02600 □	T 337	20	P26 □	
27	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles; 2 conductive-plastic contact way arrangement MSP 21 (catalog 5/001) 0,5 Watt max. wiper current 1 mA	...02700 □	T 430	25	P27 □	
28	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA	...02800 □	T 375	20	P37 □	
29						
30					P31 □	
	for mounting on: V 11	...03100 □		20		
31	Wire-wound potentiometer linear with centre tap life 5 x 10 ⁶ switching cycles 1 Watt max. wiper current 10 mA	...03200 □	T 316	20	P32 □	
32	Conductive-plastic potentiometer linear with centre tap life 10 ⁷ switching cycles 0,5 Watt max. wiper current 1 mA		T 365		P99 □	
40	Special potentiometer	...04100				
41	Prepared for mounting potentiometer adjusting-angle switching device $\triangle$ potentiometer	...04200				
42	Prepared for mounting potentiometer adjusting-angle variable					

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Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6	Type-expansion	Weight gramm	Type	Price EURO
1	Opto-electronic encoder T 366 Output voltage impressed 0 – 10 Volt	OEC 2-3-□-1		C11□	
2					
3					
4					
□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive Technical data Power supply 18-30 V DC Output 0–10 V (+5 mA) Scanning 6 bit Gray-Code Rotation angle max. ± 150° direction-signal left direction-signal right zero adjustment with LED 6 Bit-type T366 PIN-connection 1 not connected 2 not connected 3 not connected 4 not connected 5 not connected 6 not connected 7 not connected 8 housing 0 V 9 input 18-30 V DC 10 not connected 11 output current 12 directional-signal left 13 directional-signal right 14 not connected 15 not connected – cable screen colour-code – – – – – – blue brown – green yellow grey – – white					
5	Opto-electronic encoder T 367 Output voltage impressed ± 10 Volt	OEC 2-3-□-2		C15□	
6					
7					
8					
□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive Technical data Power supply 18-30 V DC Output ±10 V (±5 mA) Scanning 6 bit Gray-Code Rotation angle max. ± 150° direction-signal right direction-signal left zero adjustment with LED 6 Bit-type T367 PIN-connection 1 not connected 2 not connected 3 not connected 4 not connected 5 not connected 6 not connected 7 not connected 8 housing 0 V 9 input 18-30 V DC 10 not connected 11 output current 12 directional-signal left 13 directional-signal right 14 not connected 15 not connected – cable screen colour-code – – – – – – blue brown – green yellow grey – – white					
40	Cable Llcy 7 x 0,34 mm ² 2000 mm long wired on connector DA 15 with end splice				
41	Prepared for mounting encoder adjusting-angle switching-gear Δ encoder			(C)	
42	Prepared for mounting encoder adjusting-angle variable			(C)	
43	Additional price per metre cable Llcy 14 x 0,25 mm ²				



Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6	Type-expansion	Weight gramm	Type	Price EURO																																																														
1	Opto-electronic encoder Output power impressed 4 – 20 mA T 368	OEC 2-3-□-5	410	C19□																																																															
2	Opto-electronic encoder Output power impressed 0 – 20 mA T 368	OEC 2-3-□-8	410	C20□																																																															
3																																																																			
4																																																																			
	□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive Technical data Power supply 18-30 V DC Output 4/0–20 mA Scanning 6 bit Gray-Code Rotation angle max. ± 150° zero adjustment with LED	6 Bit-type T368 PIN-connection <table><tr><td>1</td><td>not connected</td><td>colour-code</td><td>–</td></tr><tr><td>2</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>3</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>4</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>5</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>6</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>7</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>8</td><td>housing 0 V</td><td>blue</td><td>–</td></tr><tr><td>9</td><td>input 18-30 V DC</td><td>brown</td><td>–</td></tr><tr><td>10</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>11</td><td>output current</td><td>green</td><td>–</td></tr><tr><td>12</td><td>directional-signal left</td><td>yellow</td><td>–</td></tr><tr><td>13</td><td>directional-signal right</td><td>grey</td><td>–</td></tr><tr><td>14</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>15</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>–</td><td>cable screen</td><td>white</td><td>–</td></tr></table>	1	not connected	colour-code	–	2	not connected	–	–	3	not connected	–	–	4	not connected	–	–	5	not connected	–	–	6	not connected	–	–	7	not connected	–	–	8	housing 0 V	blue	–	9	input 18-30 V DC	brown	–	10	not connected	–	–	11	output current	green	–	12	directional-signal left	yellow	–	13	directional-signal right	grey	–	14	not connected	–	–	15	not connected	–	–	–	cable screen	white	–	
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5	Opto-electronic encoder T 369 Output power impressed ± 20 mA	OEC 2-3-□-6	410	C23□																																																															
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	□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive Technical data Power supply 18-30 V DC Output ±20 mA Scanning 6 bit Gray-Code Rotation angle max. ± 150° zero adjustment with LED	6 Bit-type T369 PIN-connection <table><tr><td>1</td><td>not connected</td><td>colour-code</td><td>–</td></tr><tr><td>2</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>3</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>4</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>5</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>6</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>7</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>8</td><td>housing 0 V</td><td>blue</td><td>–</td></tr><tr><td>9</td><td>input 18-30 V DC</td><td>brown</td><td>–</td></tr><tr><td>10</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>11</td><td>output current</td><td>green</td><td>–</td></tr><tr><td>12</td><td>directional-signal left</td><td>yellow</td><td>–</td></tr><tr><td>13</td><td>directional-signal right</td><td>grey</td><td>–</td></tr><tr><td>14</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>15</td><td>not connected</td><td>–</td><td>–</td></tr><tr><td>–</td><td>cable screen</td><td>white</td><td>–</td></tr></table>	1	not connected	colour-code	–	2	not connected	–	–	3	not connected	–	–	4	not connected	–	–	5	not connected	–	–	6	not connected	–	–	7	not connected	–	–	8	housing 0 V	blue	–	9	input 18-30 V DC	brown	–	10	not connected	–	–	11	output current	green	–	12	directional-signal left	yellow	–	13	directional-signal right	grey	–	14	not connected	–	–	15	not connected	–	–	–	cable screen	white	–	
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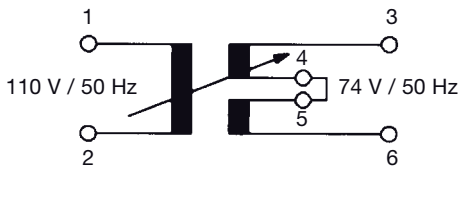
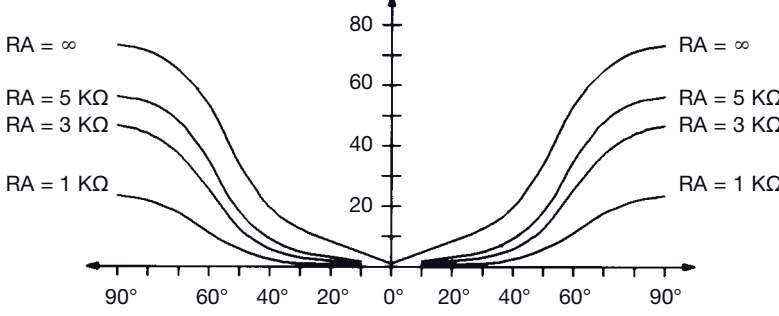
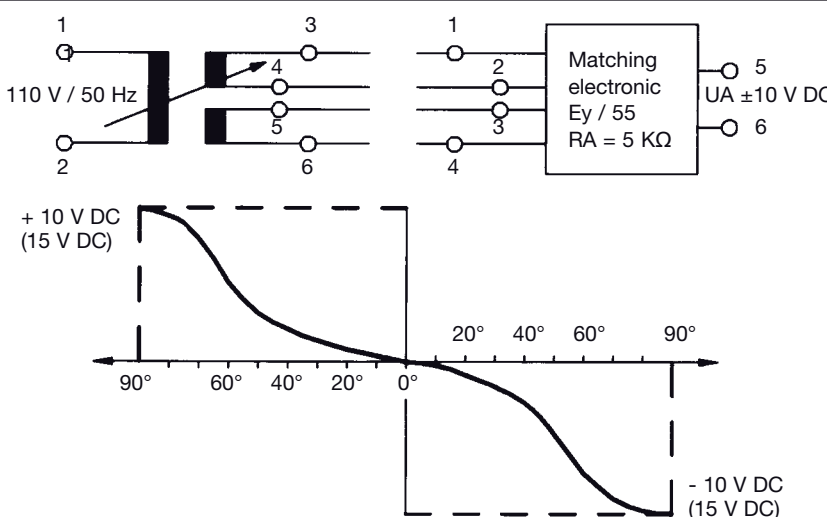
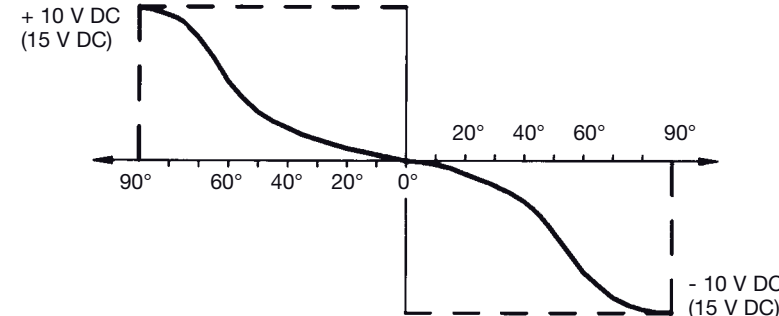
GESSMANN
Industrial controllers

Opto-electronic encoder Output digital OEC 4 with Profi-Bus System DP with attach to our switching device

1/244
2010

Pos.	for mounting on: V 6 / D 64 / V 11 / S 2 / S 6 / N 6		Type-expansion	Weight gramm	Type	Price EURO
1	Opto-electronic encoder	8 Bit Gray-Code T 496	OEC 4-1-1-2	820	C27	
2		8 Bit Binary-Code T 496	OEC 4-2-1-2	820	C28	
3		6 Bit Gray-Code T 496	OEC 4-3-□-2	820	C29□	
4		6 Bit Binary-Code T 496	OEC 4-4-□-2	820	C30□	
5		9 Bit Gray-Code T 497	OEC 4-5-□-2	820	C31□	
6		9 Bit Binary-Code T 497	OEC 4-6-□-2	820	C32□	
□ = Output characteristic 1 = Linear 2 = Quadratic 3 = Progressive 4 = Linear one sided right turn 5 = Linear one sided left turn 9 Bit direction-signal 0° 360° DA 15 DE 9 Technical data Power supply 18-30 V DC, Output 6, 8 or 9 Bit, Scanning Gray-Code Communication Profibus DP (DIN 19245 Part 3) PNO certificate no. Z01366 Ident.-No. 045 CH address 0-99 adjustable above selector-switch Rotation angle max. ± 150° (360°), with connection for OEC 2 see catalog 1/241 for 1 axis-controller 1 Pc.OEC4... is required for 2 axis-controller 1 Pc.OEC4... and 1PC.OEC2... see catalog 1/241 are required EMC-part OEC4 X2 1 11 +Ub red 0V black Profibus X1 3 B-Line 4 RTS 5 GND 6 +5V 8 A-Line 9 9 8 8 7 7 6 6 5 5 4 4 3 3 2 2 15 15 14 14 13 13 12 12 10 10 +Ub red 0V black D1 blue D2 rose D3 gray D4 yellow D5 green D6 wh/gre D7 re/bl D8 gra/ros R/D9 violett L violet N white optional OEC2 9 9 8 8 7 7 6 6 5 5 4 4 3 3 2 2 15 15 14 14 13 13 12 12 10 10 LED: red: BUS-error green: OEC zero orange: red + green						
38	Profibus-cable FDPL2/F/P 1 x 2 x 0,64mm² 2000mm long wired on 2 connectors DE9					
39	Cable (power supply) for 1 axis-controller Llycy 2 x 0,25mm² 2000mm long wired on connector DA15 with end splice					
40	Cable for 2 axis-controller Llycy 16 x 0,25mm² x 150mm lang wired on 2 connectors DA15 for OEC4/OEC2 with cable (power supply) 2 x 0,25mm² 2000mm long wired with end splice					
41	Prepared for mounting encoder adjusting-angle switching-gear Δ encoder				(C)	
42	Prepared for mounting encoder adjusting-angle variable				(C)	
43	Additional price per metre cable Llycy 14 x 0,25 mm²					
44	Additional price per metre Profibus-cable FDPL2/F/P 1 x 2 x 0,64mm²					



Pos.	for mounting on: V 6 / V 11 / D 64 / S 2 / S 6 / N 6	Type-expansion	Weight gramm	Type	Price EURO
2	Inductive transducer IG 1 T 440		850	I	
 Technical data Mechanical life 2×10^7 switching cycles Input voltage AC 110 V, 50 Hz Output voltage AC 74 V, 50 Hz Transfer power max. 3 VA Rotation angle, max. $\pm 90^\circ$ 					
3	Inductive transducer IG 1 with matching electronic Ey / 55 ± 10 V DC T 434			I	
 Matching electronic Ey / 55 RA = 5 KΩ UA ± 10 V DC 					
20	Transformer with capacitor 4 mF for connection 220 V 50 Hz	MTD			
41	Prepared for mounting transducer adjusting-angle switching-gear $\hat{=}$ transducer			(I)	
42	Prepared for mounting transducer adjusting-angle variable.			(I)	



1/270
2010

switch devices

[illegible]

X = DESIGN PRACTICABLE



1/272
2010

switch devices →

[illegible]

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**GESSMANN**

Industrial controllers

**Mechanical zero interlock
with command devices
with attach to our switching devices****MATRIX****1/274**

2010

Type →

Mechanical zero interlock with command devices

T=dead man's button, H=signal button, D=push button, DV=flat push button, DR=push button operated by twisting

switch devices
↓

	MN T	M H	MP H	M D	MP D	M DV	MP DV	MP DR								
V 6	X	X	X		X		X	X								
V 61 V 62	X	X	X	X	X	X	X	X								
VV 6	X	X	X		X		X	X								
VV 61 VV 62	X	X	X	X	X	X	X	X								
V 11	X		X		X		X	X								
V 5 VV 5		X	X	X	X	X	X									
V 8 VV 8	X	X	X		X		X	X								
V 85 VV 85																
V 25																
V 10																
V 14	X	X	X	X	X	X	X	X								
D 64 DD 64	X	X	X	X	X	X	X	X								
D 8																
S 14	X	X	X	X	X	X	X	X								
S 2 SS 2		X		X		X										
S 21 SS 21		X		X		X										
S 22 SS 22		X		X		X										
S 23		X		X		X										



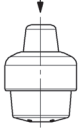
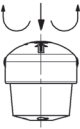
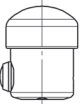
This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.



GESSMANN
Industrial controllers

**Operator handles
with attach to our switching device**

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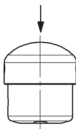
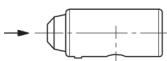
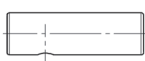
Pos.				Contact-complement	Weight gramm	Type	Price EURO
1		Knob solid 42 mm Ø	KBAD 66		35	GK1	
2		Knob 42 mm Ø with push button top	KBAD/593	1 change over contact 1,5 A 24 V DC 13	25	GK2	
3		Knob 42 mm Ø with 3 push down button operated by twisting the upper knob half	KBAD/230	3 change over contact 1,5 A 24 V DC 13	170	GK3	
4		Knob 25 mm Ø with M 6	KBAD 271		10	GK4	
5		Knob 27 mm Ø with M 8	KBAD 302		15	GK5	
6		Knob 42 mm Ø with 1 push button top 1NO+1NC 1 push button side 1NO	KBAD/605	1,5 A 24 V DC 13 0,1 A 24 V DC 13	170	GK6	
7							
8							
9							
10		Knob solid 29 mm Ø	KBAD/141		70	GS6	
11		Knob 29 mm Ø with push button top	KBAD/210	1 change over contact 1,5 A 24 V DC 13	60	GS7	
21		Cable 4 x 0,25 mm ² x 450 mm long, wired included Pos. 1 – 12 Additional price per metre cable 4-pole					

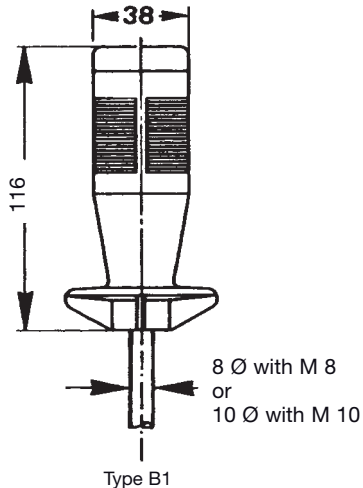


GESSMANN
Industrial controllers

**Operator handles
with attach to our switching device**

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Pos.				Contact-complement	Weight gramm	Type	Price EURO
1		Knob 42 mm Ø with sensor button regular electronic board EY/92 1NO	KBAD/476		150	GKS	
2							
3							
4							
5		Knob with return spring 2 x 30° actuating by rotating Conductive plastic potentiometer T 934, 10 ⁷ switching cycles, 2x5 kOhm, 2 conductive-plastic contactway arrangement MSP21 (catalog 5/001) 0,5 Watt, max wiper current 1 mA	KEQ/583		200	GSP	
6							
7							
8		T-grip solid 28 mm Ø x 58 mm	KBAD 148		50	Q8	
9		T-grip 28 mm Ø x 58 mm with push button side	KBAD 147	1,5 A 24 V DC 13	60	Q9	
10		T-grip solid 28 mm Ø x 80 mm	KBAD 355		50	Q10	
11		T-grip 28 mm Ø x 98 mm with push button side	KBAD 329	1,5 A 24 V DC 13	60	Q11	
21		Cable 4 x 0,25 mm ² x 450 mm long, wired included Pos. 1 – 12 Additional price per metre cable 4-pole					



The palm grip B 1 is an actuating element for our multi-axis and single-axis controller. It can also be used as an actuating element with hydraulic drives. Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements. These devices have micro changeover contacts.

The palm grip has a highly flexible cable 4 (8) x 0,25 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole M 8 or M 10 (standard = M 10).

The palm grip B 1 is made of PA plastic and is black in colour.

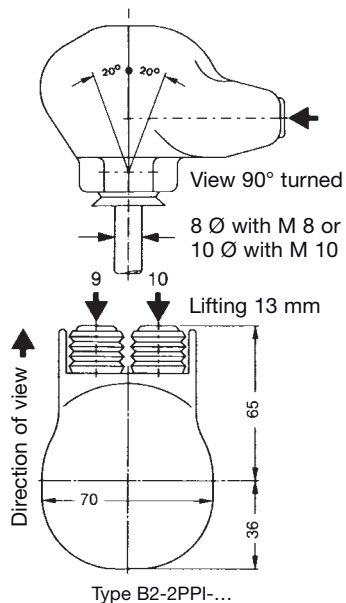
Contact complement **2 A 250 V AC 15 / 3 A 24 V DC 13**
or **0,5 A 250 V AC 15 / 1,5 A 24 V DC 13**

Micro change over contacts

Permissible ambient temperature Operating -40°C to +60°C
Storage -50°C to +80°C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 54 IEC/EN 60529
Degree of protection front

Pos.				Contact-complement	Weight gramm	Type	Price EURO
1		Without built in		KBAD / 22	100	B 1	
2		Rocker switch top tip-0-tip	T-0-T installed Pos. 1	KBAD / 18	2 change over contact 3 A 24 V DC 13	B 1 W	
3		Rocker switch top tip-0-rest	T-0-R installed Pos. 1				
4		Rocker switch top rest-0-rest	R-0-R installed Pos. 1				
5		Rocker switch top tip-0-tip with push button side	T-0-T installed Pos. 1 installed Pos. 3	KBAD / 29	2 change over contact 3 A 24 V DC 13 1 change over contact 1,5 A 24 V DC 13	B 1 WD	
6		Rocker switch top tip-0-tip with 2 push button side	T-0-T installed Pos. 1 installed Pos. 2+3	KBAD / 67	2 change over contact 3 A 24 V DC 13 2 change over contact 1,5 A 24 V DC 13	B 1 W2D	
7		Push button top with mechanical operation	installed Pos. 1	KBAD / 27 KBAD / 25	1 change over contact 1,5 A 24 V DC 13	B 1 T B 1 D	
8		Push button top	installed Pos. 1				
9		Push button top with 1 push button side	installed Pos. 1	KBAD / 20	2 change over contact 1,5 A 24 V AC 13 3 change over contact 1,5 A 24 V DC 13	B 1 2D B 1 3D	
10		Push button top with 2 push button side	installed Pos. 2 installed Pos. 2+3				
11		1 push button side	installed Pos. 1	KBAD / 31	change over contact 1,5 A 24 V DC 13	B 1 D B 1 2D B 1 3D	
12		2 push button side	installed Pos. 2				
13		3 push button side	installed Pos. 3				
14		Push button top with rocker switch side tip-0-tip (protection IP 41)	installed Pos. 1 T-0-T installed Pos. 2	KBAD / 75	1 change over contact 1,5 A 24 V DC 13 2 change over contact 1,5 A 24 V DC 13	B 1 DW	
15		Lever switch side 0-tip mechanical operation		KBAD / 586	change over contact 3 A 24 V DC 13	B 1 K B 1 KD B 1 K2D	
16		Lever switch side 0-tip 1 contact		KBAD / 54			
17		Lever switch side 0-tip 2 contacts		KBAD / 54			
21		Cable 4 or 8 x 0,25 mm ² x 450 mm long					
22		wired included Pos. 1-17					
		Additional price per metre cable 4-pole					
		Additional price per metre cable 8-pole					



The palm grip B 2 is an actuating element for our multi-axis controller V 8. It can also be used as an actuating element for hydraulic drives. With each of the two push button one direction-contact (micro change over contact) also one potentiometer pushed. These palm grip realised the 3. direction 9-10 (3. axis) on our multi-axis controller V 8.

The palm grip has a highly flexible cable
8 x 0,25 mm² x 450 mm long.

The mounting piece for the drive rod can be adjusted steplessly up to 20° in all directions.

The palm grip B 2 is made of PA plastic and is black in colour.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Micro change over contacts available on request

Permissible ambient temperature	Operating -40°C to +60°C
	Storage -50°C to +80°C
Climate resistance	IEC 60068-2-78
Damp heat constant	IEC 60068-2-30
Damp heat cyclic	IP 54 IEC/EN 60529
Degree of protection front	

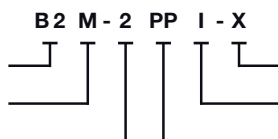
Pos.			Contact-complement	Weight gramm	Type	Price EURO
1	Palm grip with mounting piece for control-handle			200	B 2	
2	Latch for mechanical interlock for the push buttons			30	M	
3	2 direction-contacts		2 normally open	30	2	
4	2 wire-wound potentiometer T 239 linear life 5 x 10 ⁶ switching cycles resistance 1,2,5 kOhm 1 Watt wiper current max. 10 mA			60	PP	
5	2 conductive-plastic potentiometer T 301 linear life 10 ⁷ switching cycles resistance 1,2,5 kOhm 0,5 Watt wiper current max. 1 mA			50	PP	
6	more potentiometer e.t.c. see catalog 1/240					
10	Impedance converter Input ±15 Volt, Output ±10 V /5 mA			50	I	
22	Cable 8 x 0,25 mm ² x 450 mm long wired included Pos. 1-10 Additional price per metre cable 8-pole					

Example for type-sign

Palm grip

Mechanical interlock

No. of contacts



Special please describe

Impedance converter

Potentiometer e.t.c.



Type B32DWKPA11-...

The palm grip B 3 is an actuating element for our multi-axis controller V 8, VV 8, V 6, VV 6, VV 5. It can also be used as an actuating element for hydraulic drives.
Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements.
The drives with potentiometer PA 11/12 and PA 13 realised the direction 11-12 resp. 13-14 (3. resp. 4 axis) on our multi-axis controllers.

The palm grip has a highly flexible single wire 0,1 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole 12 or 10 mm (standard = 12 mm).

The palm grip B 3 is made of PA plastic and is black in colour.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Micro change over contacts available on request

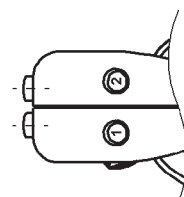
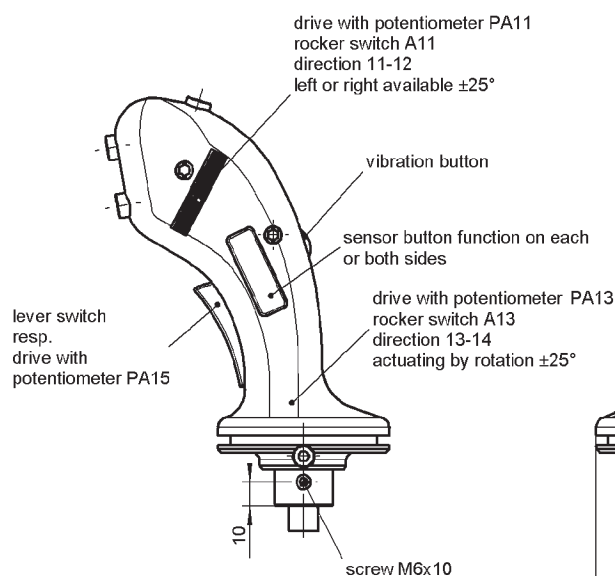
Permissible ambient temperature Operating -40°C to +60°C
Storage -50°C to +80°C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 65 IEC/EN 60529

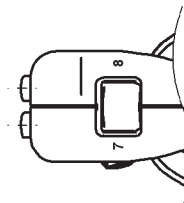
Pos.			Contact-complement	Weight gramm	Type	Price EURO
1	Palm grip with mounting piece for control-handle			200	B 3	
2	Push button color red RD, black BK, yellow YE, green GN, blue BU					
2.1	Push button protection IP65 installed Pos. 1, 2, 3, 4, 5, 6	KMD179	1 normally open	20	D	
2.2	Push button protection IP67 installed Pos. 1, 2, 3, 4, 5, 6		1 normally open	20	D	
2.3	Push button protection IP65 installed Pos. 1-10, + 15-16	KDA21	1NO 0,1 A 24V DC 13	20	D	
4	Rocker switch installed Pos. 7 + 8	KEM/92	2 normally open			
4.1	Rocker switch tip-0-tip T-0-T			30	W	
4.2	Rocker switch 0-tip 0-T			30	W	
4.3	Rocker switch rest-0-tip R-0-T			30	W	
4.4	Rocker switch rest-0-rest R-0-R			30	W	
4.5	Rocker switch 0-rest 0-R			30	W	
4.6	Rocker switch rest - rest R - R			30	W	
6	Lever switch		1 normally open	30	K	
7	Sliding switch tip-0-tip T-0-T installed Pos. 13 + 14		2 normally open	40	ST	
8	Sliding switch rest-0-rest R-0-R installed Pos. 13 + 14		2 normally open	40	SR	
9	Push button with 2 steps Latch for mechanical interlock 4 contacts arrangement MS 212 see catalog 5/001 installed Pos. 11 + 12		4 normally open	90	ZD	
11	Drive with potentiometer PA 11 actuating by rocker wheel installed Pos. left or right with spring return in the centre position			90	PA 11	
	1 conductive-plastic potentiometer T 375 with centre tap Linear 10' switching cycles resistance 2 x 5 kOhm 0,5 Watt wiper-current max. 1 mA, 2 direction-contacts		2 normally open			
11.1	Rocker switch tip-0-tip T-0-T		2 normally open	70	A11	
11.2	Rocker switch rest-0-rest R-0-R		2 normally open	70	A11	
12	Drive with potentiometer PA 12 actuating by push button (details exactly PA 11) installed Pos. 11 + 12			90	PA 12	
13	Drive with potentiometer PA 13 actuating by rotating palm grip left resp. right with spring return in the centre position			90	PA 13	
	1 conductive-plastic potentiometer T 375 with centre tap Linear 10' switching cycles resistance 2 x 5 kOhm 0,5 Watt wiper current max. 1 mA, 2 direction-contacts		2 normally open			
13.1	Rocker switch tip-0-tip T-0-T		2 normally open	70	A13	
13.2	Rocker switch rest-0-rest R-0-R		2 normally open	70	A13	
15	Drive with potentiometer PA 15 actuating by lever switch with spring return in 0-position, 1 conductive-plastic potentiometer T 375 Linear 10' switching cycles resistance 5 kOhm 0,5 Watt wiper current max. 1 mA, 1 direction-contact		1 normally open	90	PA 15	
20	Vibrator button actuating through solenoid 24 V DC impulse signal 100% duty cycle factor (e.g. indication of cable movement)			60	V	
21	Sensor button and/or annexed with a regulator electronic board EY/42-10 or -11 24 V DC (separate)			20	SE	
30	Bellow for palm grip B 3 required for multi-axis controller V 8, VV 8	KMD 109				
31	Bellow for palm grip B 3 and front plate with 4 screws M5 x 15 (for mounting the bellow) required for multi-axis controller V 6, VV 6, VV 5	KMD 190 KBF 905				



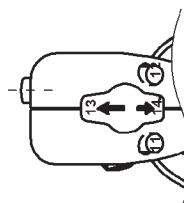
B3 with push button look catalog 1/286 Pos. 2.1 or 2.2



edition:
push button



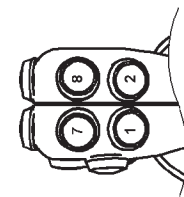
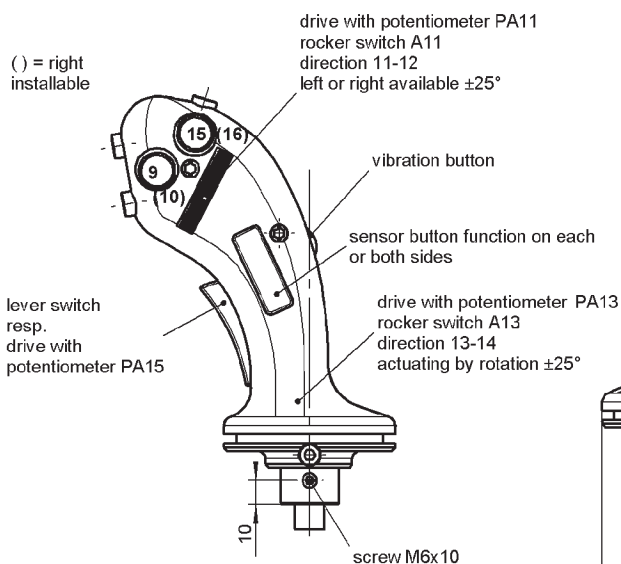
edition:
rocker switch
installed Pos. 7,8
installed Pos. 3,4 inapplicable



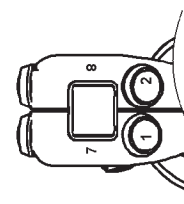
edition:
sliding switch
installed Pos. 13,14
installed Pos. 1,2,4,6,7,8
inapplicable
drive with potentiometer PA12 resp.
push button with 2 steps ZD
installed Pos. 11,12
PA11 resp. A11 inapplicable

edition: (only one option possible)
vibration button, drive with potentiometer PA 13 resp. A13, drive with potentiometer PA 15 resp. lever switch

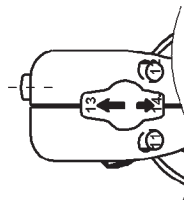
B3 with push button look catalog 1/286 Pos. 2.3



edition:
push button



edition:
rocker switch
installed Pos. 7,8
push button
installed Pos. 1,2



edition:
sliding switch
installed Pos. 13,14
installed Pos. 1,2,4,6,7,8,10,16
inapplicable
drive with potentiometer PA12 resp.
push button with 2 steps ZD
installed Pos. 11,12
PA11 resp. A11 inapplicable

edition: (only one option possible)
vibration button, drive with potentiometer PA 13 resp. A13, drive with potentiometer PA 15 resp. lever switch

Example for type-sign

Palm grip
Push button
Rocker switch
Lever switch



Special please describe
Drive with potentiometer PA 13
Drive with potentiometer PA 11
Sensor button



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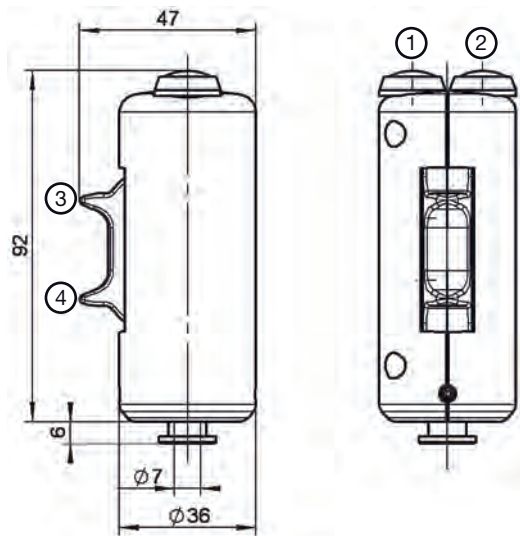


IP 65 IEC/IEN 60529

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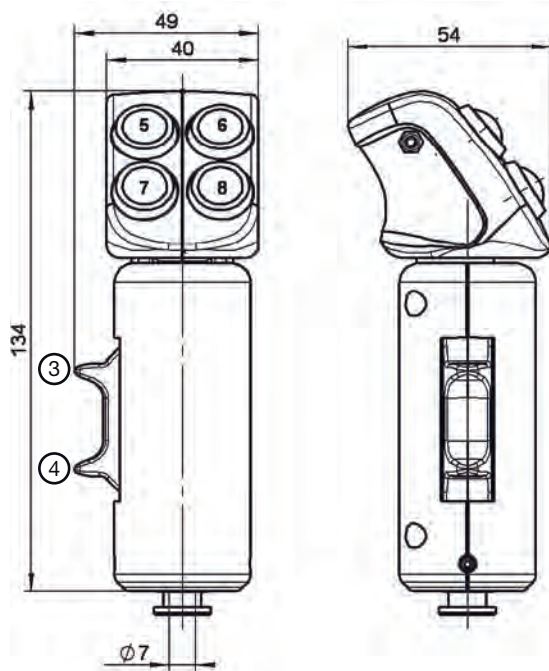


B 4

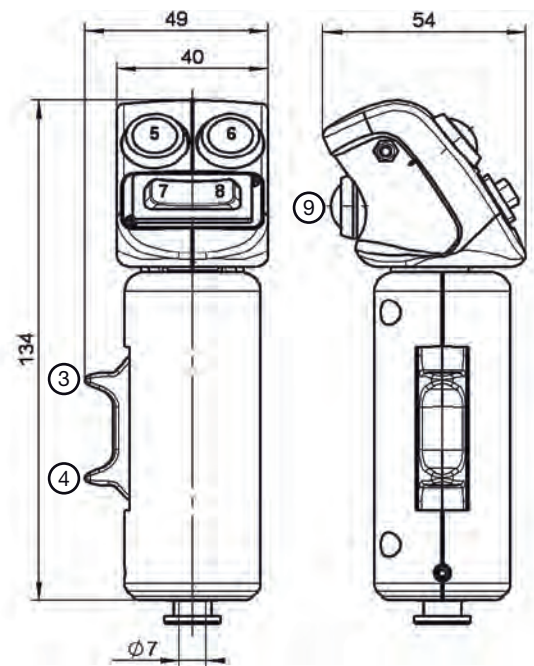


Edition:
Push button installed Pos. 1 - 2
Drive with potentiometer PA 11 installed Pos. 3 - 4

B 4-1 (B 4-2 mirror image)



Edition:
Push button installed Pos. 5 - 6, 7 - 8
Drive with potentiometer PA 11 installed Pos. 3 - 4



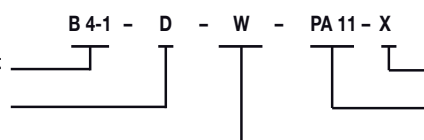
Edition:
Push button installed Pos. 5 - 6, 9
Rocker switch installed Pos. 7 - 8
Drive with potentiometer PA 11 installed Pos. 3 - 4

Example for type design

Palmgrip with annex component

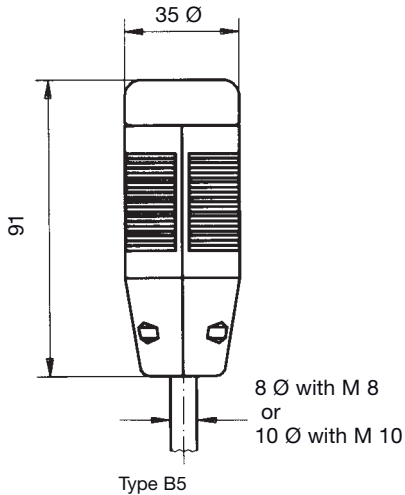
Push button

Rocker switch



Special please describe

Drive with potentiometer



The palm grip B 5 is an actuating element for our multi-axis and single-axis controller. It can also be used as an actuating element for hydraulic drives. Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements.

The palm grip has a highly flexible cable 4 (8) x 0,25 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole M 8 or M 10 (standard = M 10).

The palm grip B 5 is made of PA plastic and is black in colour.

Contact complement **2 A 250 V AC 15 / 3 A 24 V DC 13**
or **0,5 A 250 V AC 15 / 1,5 A 24 V DC 13**

Micro change over contacts

Permissible ambient temperature

Operating -40°C to +60°C
Storage -50°C to +80°C

Climate resistance

Damp heat constant

Damp heat cyclic

Degree of protection front

IEC 60068-2-78

IEC 60068-2-30

IP 54 IEC/EN 60529

Pos.				Contact-complement	Weight gramm	Type	Price EURO
1		without built in		KBAD / 254		B 5	
2		Rocker switch top tip-0-tip	T-0-T installed Pos. 1	KBAD / 248	2 change over contact 3 A 24 V DC 13	B 5 W	
3		Rocker switch top tip-0-rest	T-0-R installed Pos. 1				
4		Rocker switch top rest-0-rest	R-0-R installed Pos. 1				
5		Rocker switch top tip-0-tip with push button side	T-0-T installed Pos. 1 installed Pos. 2	KBAD / 294	2 change over contact 3 A 24 V AC 13 1 change over contact 1,5A 24 V DC 13	B 5 WD	
7		Push button top mechanical operation	installed Pos. 1	KBAD / 311 KBAD / 250	1 change over contact 1,5A 24 V DC 13	B 5 T B 5 D	
8		Push button top	installed Pos. 1				
9		Push button top with 1 push button side	installed Pos. 1 installed Pos. 2	KBAD / 252	2 change over contact 1,5A 24 V DC 13	B 5 2D	
11		1 push button side	installed Pos. 1	KBAD / 246	change over contact 1,5A 24 V DC 13	B 5 D B 5 2D	
12		2 push button side	installed Pos. 2				
21		Cable 4 or 8 x 0,25 mm ² x 450 mm long wired included in Pos. 1-12					
22		Additional price per metre cable 4-pole Additional price per metre cable 8-pole					





Type B76DV-...

Type B86DV-...

The palm grip B 7 is an actuating element for our multi-axis controller V 8, VV 8, V 6, VV 6, VV 5 design left, B 8 for design right.
It can also be used as an actuating element for hydraulic drives.
Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements.

The palm grip has a highly flexible single wire 0,1 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole 12 or 10 mm (standard = 12 mm).

The palm grip B 7/8 is made of PA plastic and is black in colour.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Micro change over contacts available on request

Permissible ambient temperature

Operating -40°C to +60°C

Storage -50°C to +80°C

Climate resistance

Damp heat constant

Damp heat cyclic

Degree of protection front

IEC 60068-2-78

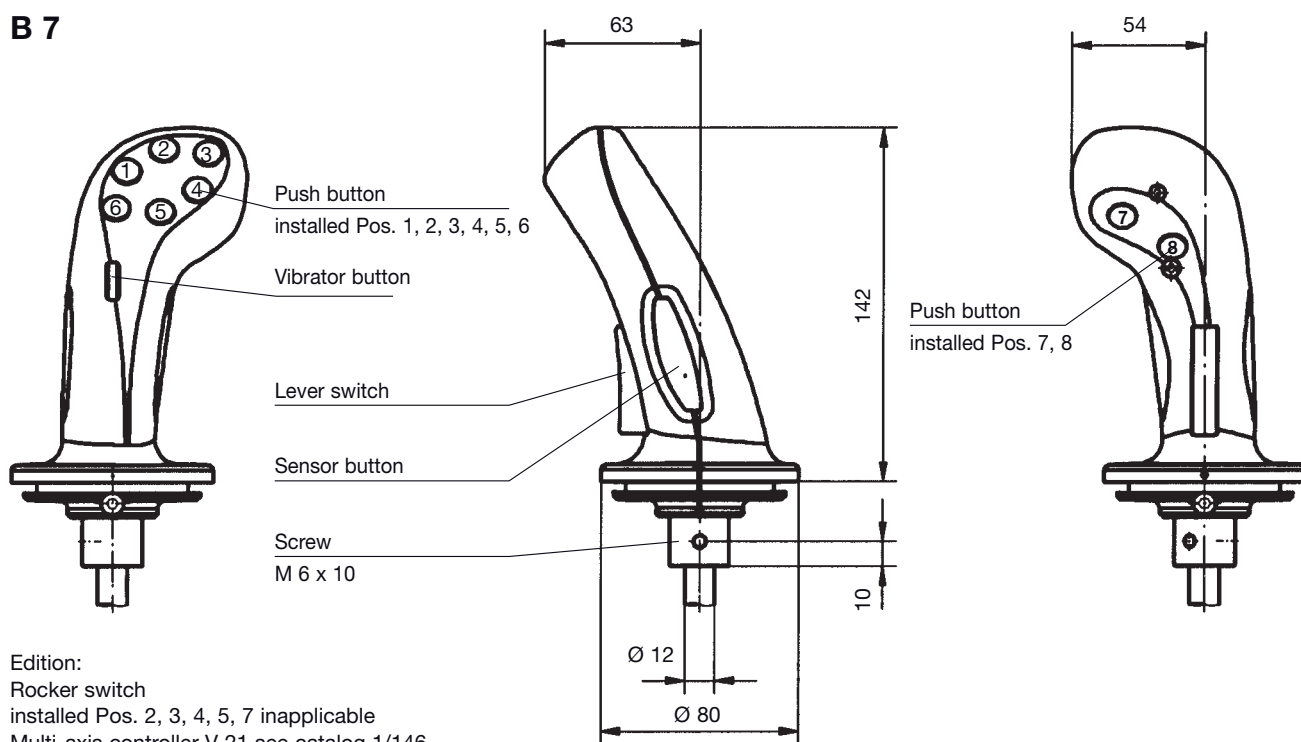
IEC 60068-2-30

IP 65 IEC/EN 60529

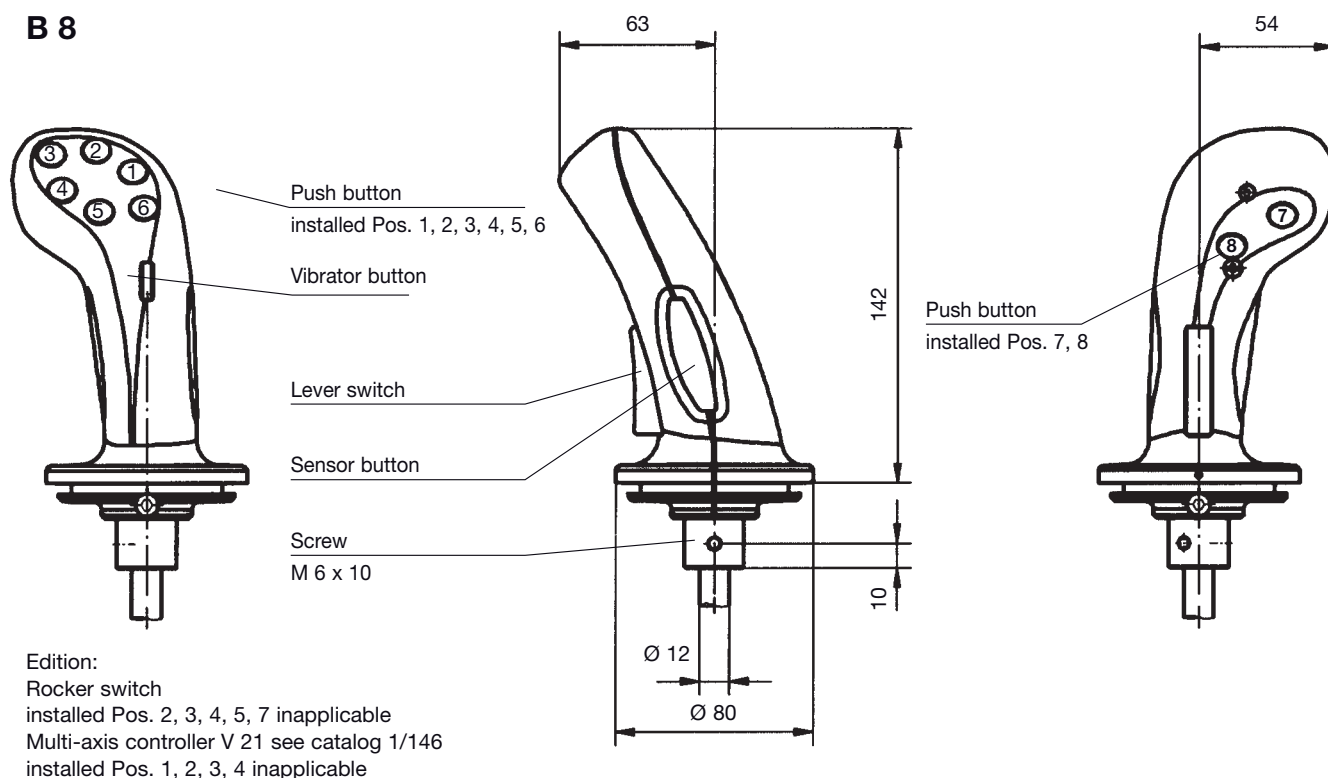
Pos.			Contact-complement	Weight gramm	Type	Price EURO
1	Palm grip with mounting piece for control-handle design left			200	B 7	
2	Palm grip with mounting piece for control-handle design right			200	B 8	
3	Push button installed Pos. 1, 2, 3, 4, 5, 6, 7, 8 color red RD, black BK, yellow YE, green GN, blue BU, white WH		1 normally open	20	D	
4	Rocker switch installed Pos. 2, 3, 4	KEM/59	2 normally open			
4.1	Rocker switch tip-0-tip T-0-T			30	W	
4.2	Rocker switch 0-tip 0-T			30	W	
4.3	Rocker switch rest-0-tip R-0-T			30	W	
4.4	Rocker switch rest-0-rest R-0-R			30	W	
4.5	Rocker switch 0-rest 0-R			30	W	
4.6	Rocker switch rest - rest R - R			30	W	
7	Lever switch		1 normally open	30	K	
20	Vibrator button actuating through solenoid 24 V DC impulse signal 100% duty cycle factor			60	V	
21	Sensor button and/or annexed with a regulator electronic board EY / 42-10 or -11 24 V DC (separate)			20	SE	
22	Multi-axis controller V 21 see catalog 1/146 installed Pos. 1-4					
30	Bellow for palm grip B 7/8 required for multi-axis controller V 8, VV 8	KMD 109				
31	Bellow for palm grip B 7/8 and front plate with 4 screws M5 x 15 (for mounting the bellow) required for multi-axis controller V 6, VV 6, VV 5	KMD 190 KBF 905				
32	Pressure cap protection IP 67 for push button Pos. 3 color red RD, black BK, yellow YE, green GN, blue BU	KMD 179				



B 7

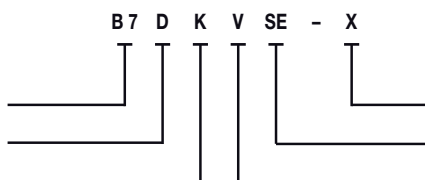


B 8



Example for type-sign

Palm grip
Push button
Lever switch



Special please describe
Sensor button
Vibrator button



Type B96DKT-...

The palm grip B 9 is an actuating element for our multi-axis controller V 8, VV 8, V 6, VV 6, VV 5. It can also be used as an actuating element for hydraulic drives. Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements. The drives with potentiometer PA 11 and PA 13 realised the direction 11-12 resp. 13-14 (3. resp. 4 axis) on our multi-axis controllers.

The palm grip has a highly flexible single wire 0,1 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole 12 or 10 mm (standard = 12 mm).

The palm grip B 9 is made of PA plastic and is grey in colour.

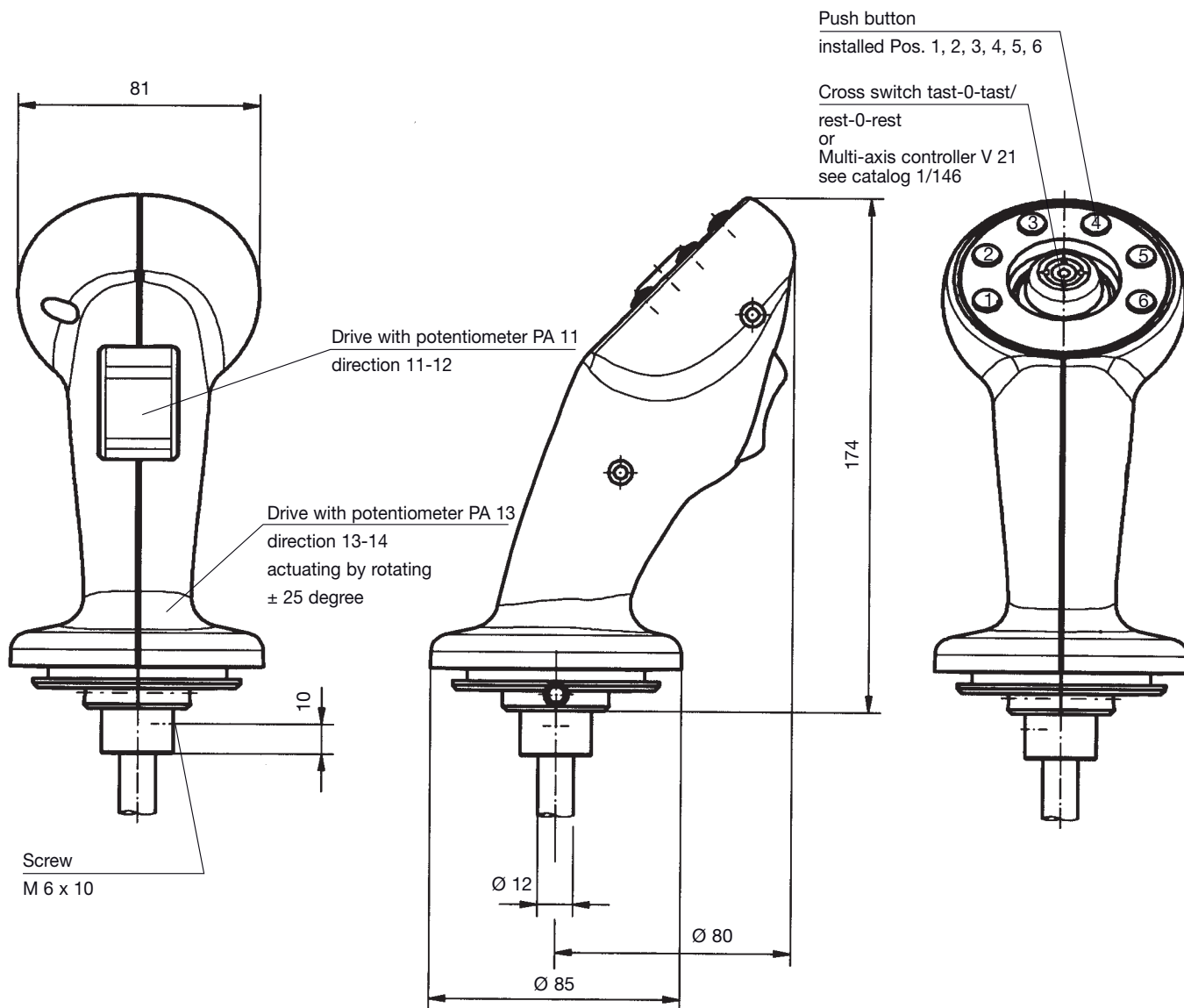
Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Micro change over contacts available on request

Permissible ambient temperature	Operating -40°C to +60°C
	Storage -50°C to +80°C

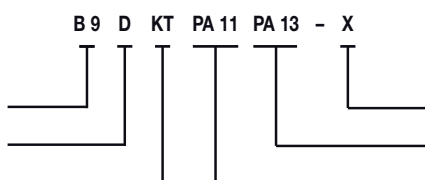
Climate resistance	IEC 60068-2-78
Damp heat constant	IEC 60068-2-30
Damp heat cyclic	IEC 60068-2-30
Degree of protection front	IP 65 IEC/EN 60529

Pos.			Contact-complement	Weight gramm	Type	Price EURO
1	Palm grip with mounting piece for control-handle			230	B 9	
2	Push button installed Pos. 1, 2, 3, 4, 5, 6 color red RD, black BK, yellow YE, green GN, blue BU, white WH		1 normally open	20	D	
3	Cross switch tip-0-tip T-0-T / T-0-T		4 normally open	60	KT	
5	Cross switch rest-0-rest R-0-R / R-0-R		4 normally open	60	KR	
6						
10						
11	Drive with potentiometer PA 11 actuating by rocker wheel with spring return in the centre position 1 conductive-plastic potentiometer T 394 with centre tap Linear 10 ⁷ switching cycles resistance 2 x 5 kOhm 0,5 Watt wiper current max. 1 mA, 2 direction-contacts		2 normally open	90	PA 11	
13	Drive with potentiometer PA 13 actuating by rotating palm grip left resp. right with spring return in the centre position 1 conductive-plastic potentiometer T 375 with centre tap Linear 10 ⁷ switching cycles resistance 2 x 5 kOhm 0,5 Watt wiper current max. 1 mA, 2 direction-contacts		2 normally open	90	PA 13	
22	Multi-axis controller V 21 see catalog 1/146					
30	Bellow for palm grip B 9 required for multi-axis controller V 8, VV 8	KMD 109				
31	Bellow for palm grip B 9 and front plate with 4 screws M5 x 15 (for mounting the bellow)	KMD 190				
32	required for multi-axis controller V 6, VV 6, VV 5	KBF 905				
33						



Example for type-sign

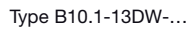
Palm grip
Push button
Cross switch



Special please describe
Drive with potentiometer PA 13
Drive with potentiometer PA 11



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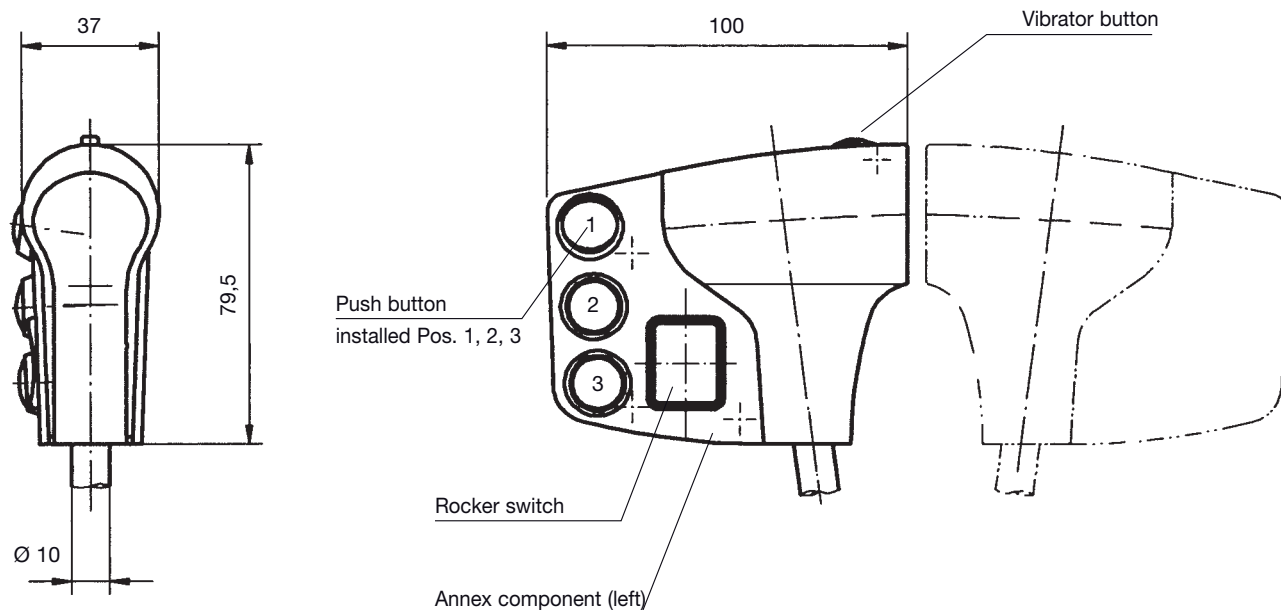


IEC 60068-2-78
IEC 60068-2-30
IP 65 IEC/EN 60529

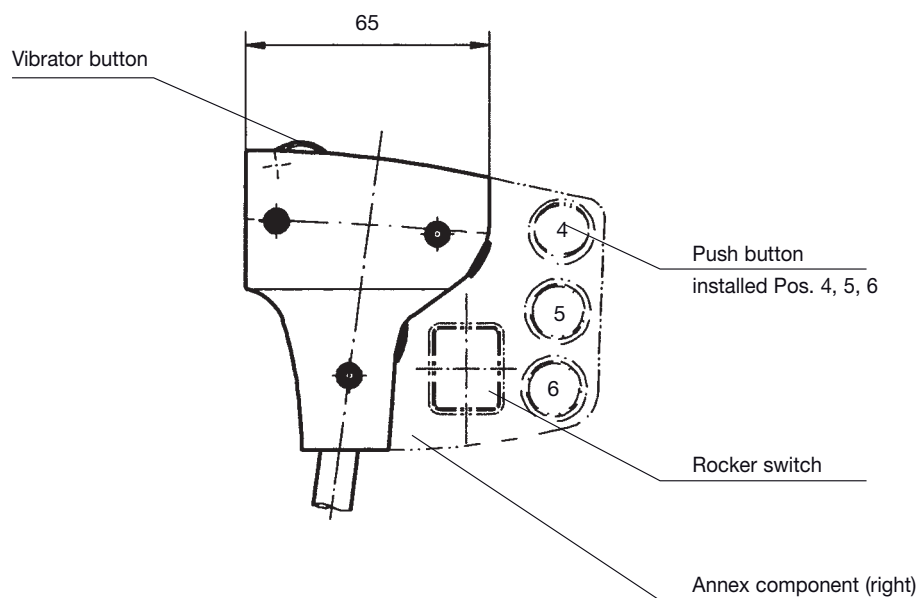
90



B 10-1



B 10-2



Example for type-sign

Palm grip
Palm grip with annex component
Push button



Special please describe
Vibrator button
Rocker switch



Type B142D-...

Type B152D-...

The palm grip B 14 is an actuating element for our multi-axis controller V 8, VV 8, V 6, VV 6, VV 5 design left, B 15 for design right.
It can also be used as an actuating element for hydraulic drives.
Push buttons, rocker switches, e.t.c., can also be fitted to suit appropriate requirements.

The palm grip has a highly flexible single wire 0,1 mm² x 450 mm long.

The mounting piece for the drive rod can be supplied with a tapped hole 12 or 10 mm (standard = 12 mm).

The palm grip B 14/15 is made of PA plastic and is black in colour.

Contact complement 0,125 A 110 V AC 15 or 0,1 A 24 V DC 13

Permissible ambient temperature

Operating -40°C to +60°C

Storage -50°C to +80°C

Climate resistance

Damp heat constant

Damp heat cyclic

Degree of protection front

IEC 60068-2-78

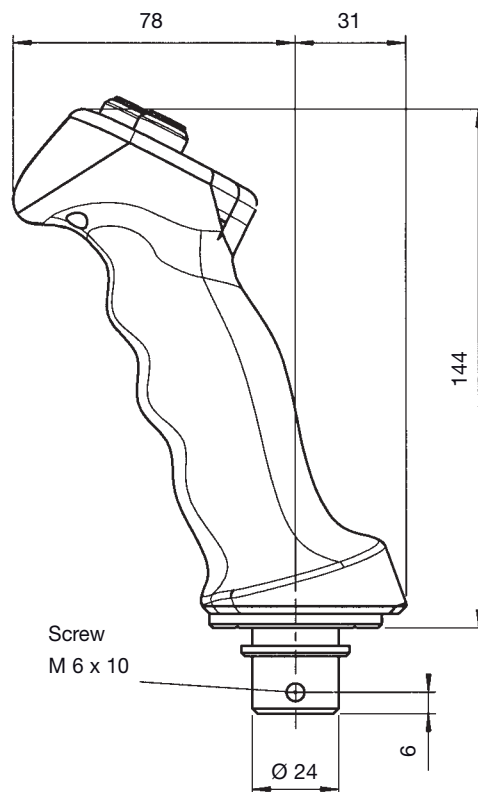
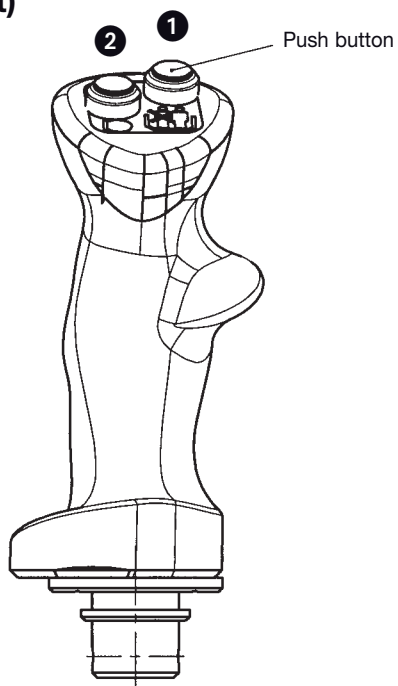
IEC 60068-2-30

IP 65 IEC/EN 60529

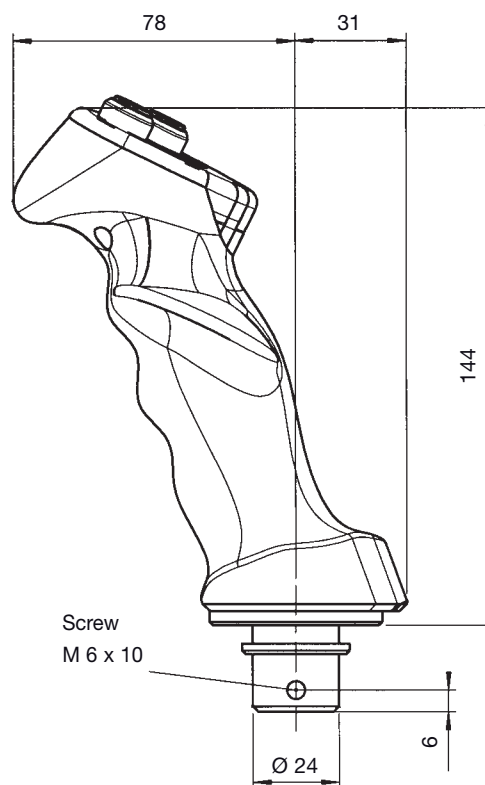
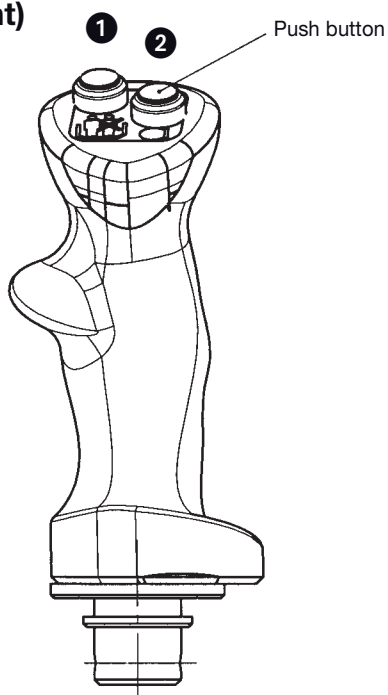
Pos.			Contact-complement	Weight gramm	Type	Price EURO
1	Palm grip with mounting piece for control-handle design left			200	B 14	
2	Palm grip with mounting piece for control-handle design right			200	B 15	
3	Push button installed Pos. 1, 2 color red RD, black BK, yellow YE, green GN, blue BU, white WH	KDA21	1 NO 0,1 A 24 V DC 13	20	D	
30						
31						
32						
33						



B 14 (left)



B 15 (right)



Example for type-sign

Palm grip
Push button





Type B 20

The Palm grip B 20 is an actuating element for our multi-axis controller V 8, VV 8, V 85, VV 85, V6, VV6. It can also be used as an actuating element for hydraulic drives. Push buttons, rocker switches, etc. can also be fitted to suit appropriate requirements. The palm grip has a highly flexible wire 0,1 mm² x 450 mm long. The mounting piece for the drive rod can be supplied with a tapped hole 12 mm. The palm grip B 20 is made of PAGF35 plastic and is black in colour.

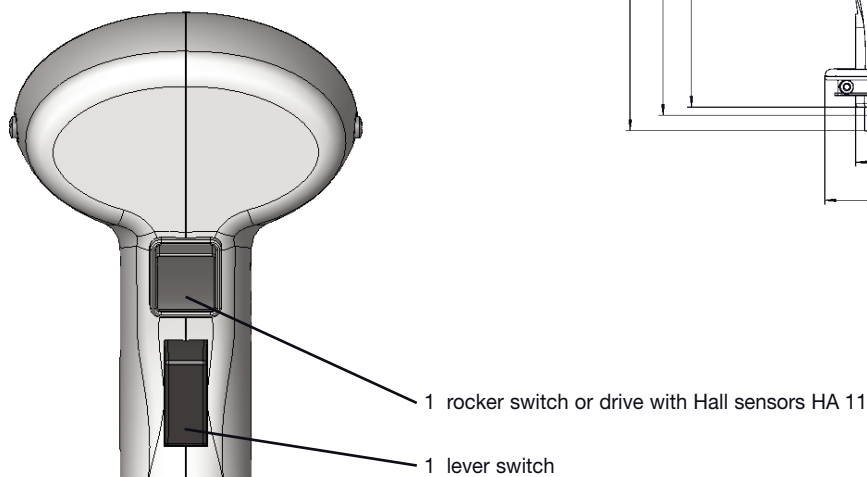
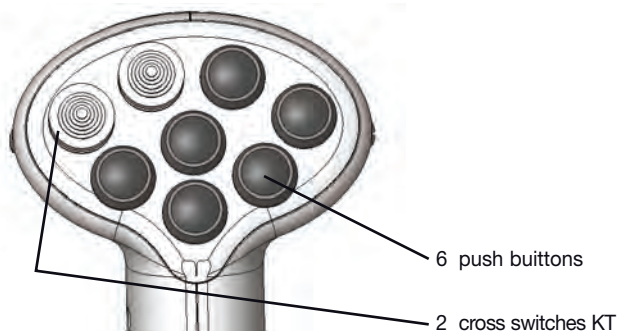
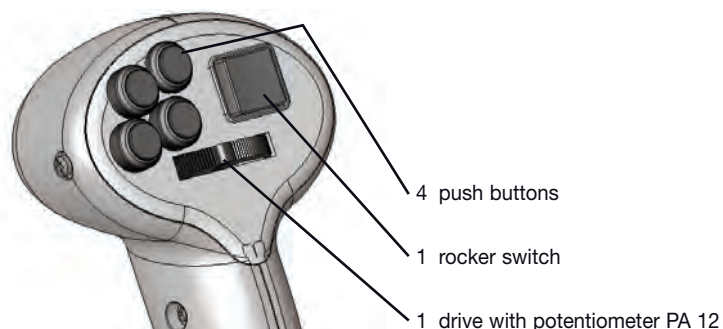
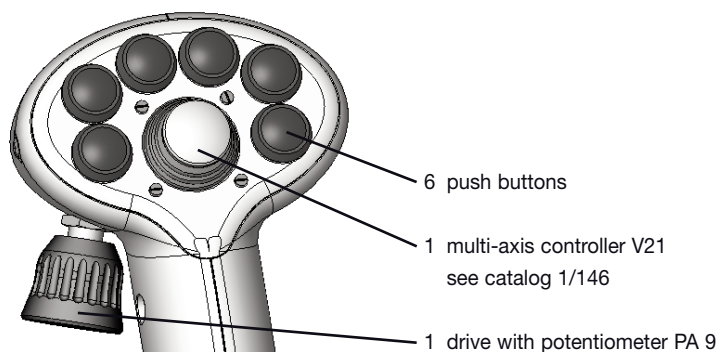
Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Micro change over contacts available on request

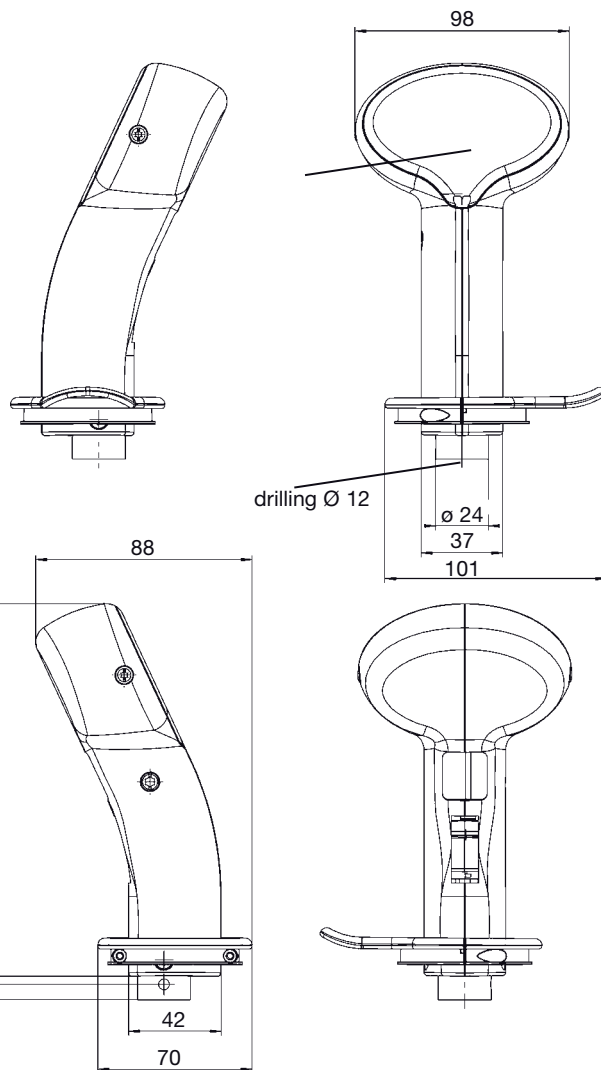
permissible ambient temperature operating -40° C bis +60° C
storage -50° C bis +80° C

climate resistance IEC 60068-2-78
damp heat constant IEC 60068-2-30
damp heat cyclic IP 65 IEC/EN 60529
degree of protection front

Pos.			Contact-complement	Weight gramm	Type	Pice EURO
1	Palm grip with mounting piece for control handle with hand rest left or right				B 20	
2	Push button colour red RD, black BK, yellow YE, green GN, blue BU		1 normally open	20	D	
3	Push button colour red RD, black BK, yellow YE, green GN, blue BU	KDA21	1 NO 0,1 A 24 V DC 13	20	D	
8	Rocker switch	KEM 59	2 normally open			
8.1	Rocker switch tip-0-tip T-0-T			30	W	
8.2	Rocker switch 0-tip 0-T			30	W	
8.3	Rocker switch rest-0-tip R-0-T			30	W	
8.4	Rocker switch rest-0-rest R-0-R			30	W	
8.5	Rocker switch 0-rest 0-R			30	W	
8.6	Rocker switch rest - rest R - R			30	W	
11	Lever switch		1 normally open	30	K	
12	Cross switch tip-0-tip T-O-T / T-O-T color red RD, black BK, grey GR	T 4	4 normally open	30	KT	
14	Drive with potentiometer PA9, actuating by rotary mechanism 1 wire-wound potentiometer T... 5 kOhm 2 Watt	KBAD 670		70	PA 9	
17	Drive with Hall sensors HA 11, actuating by rocker wheel installed with spring return in centre position, with electronic redundant Voltage output impressed Power supply 4,6-5,5 Volt output 0,5-2,5-4,5 Volt +5 mA output characteristic linear			90	HA 11	
18	Drive with potentiometer PA 12, actuating by rocker wheel installed with spring return in centre position, 1 conductive plastic potentiometer T 375 with centre tap 10 ⁷ switching cycles, resistance 2 x 5 kOhm 0,5 Watt wiper current max 1 mA, 2 direction contacts		2 normally open	90	PA 12	
19	Drive with Hall sensors HA 12, actuating by rocker wheel installed with spring return in centre position, with electronic redundant Voltage output impressed Power supply 4,6-5,5 Volt output 0,5-2,5-4,5 Volt +5 mA output characteristic linear			90	HA 12	
20	Drive with potentiometer PA 13, actuating by rotating palm grip left resp. right with spring return in centre position, 1 conductive plastic potentiometer T 375 with centre tap 10 ⁷ switching cycles, resistance 2x5 kOhm 0,5 Watt wiper current max 1 mA, 2 direction contacts		2 normally open	90	PA 13	
21	Drive with Hall sensors HA 13, actuating by rotating palm grip left resp. right with spring return in centre position, with electronic redundant Voltage output impressed Power supply 4,6-5,5 Volt output 0,5-2,5-4,5 Volt +5 mA output characteristic linear			90	HA 13	
22	Multi-axis controller V 21 look Catalog 1/146				V 21	
25	Vibrator button actuating through solenoid 24V DC impulse signal 100% duty cycle (e.g. indication of cable movement)			60	V	
30	Bellow for palm grip B 20 required for multi-axis controller V 8, VV 8, V 85, VV 85	KMD 109		60		
31	Bellow for palm grip B 20 and front plate with 4 screws M5 x 15 (for mounting the bellow) required for multi-axis controller V 6, VV 6	KMD 229 KBF 905				
32	Rubber cap protection IP 67 for push button Pos. 2 color red RD, black BK, yellow YE, green GN, blue BU	KMD 179				

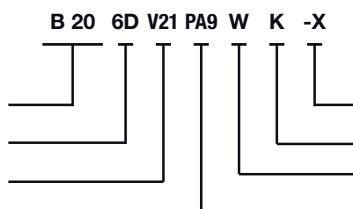


more variants available upon request



Example for type-sign

palm grip
push button
multi-axis controller V 21



special please describe
lever switch
rocker switch
drive with potentiometer PA9



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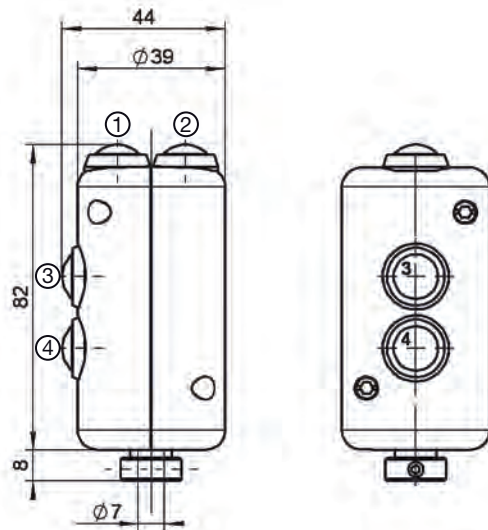


IP 65 IEC/IEN 60529

96



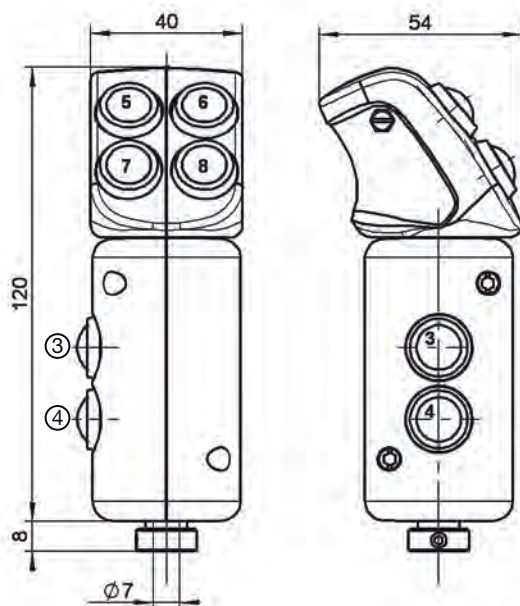
B 22



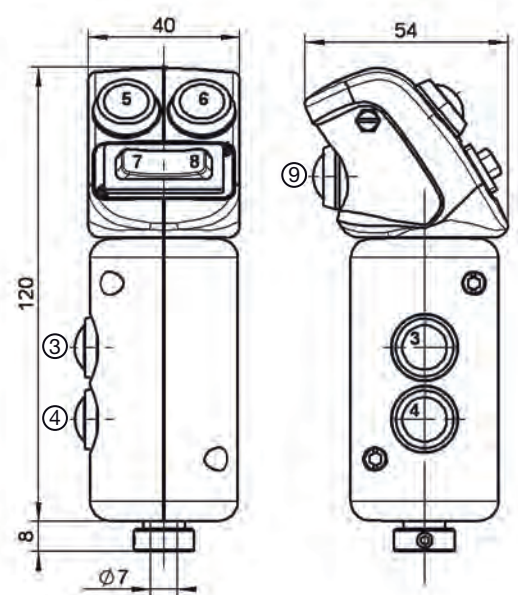
Edition:
Push button installed Pos. 1 - 4

B 22-1

(B 22-2 mirror image)



Edition:
Push button installed Pos. 3 - 4, 5 - 6, 7 - 8
Sensor button function on each or both sides

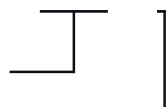


Edition:
Push button installed Pos. 3 - 4, 5 - 6, 9
Rocker switch installed Pos. 7 - 8

Example for type sign

B 22-1 - D - W - X

Palm grip with annex component
Push button



Special please describe
Rocker switch





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GESSMANN
Industrial controllers

Housing for our switching device

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2010

Pos.	Dimension outside in mm	Dimension inside in mm		Remarks	Weight kg	Type	Price EURO
Steel sheet housing material thickness 1/1,5 mm Protection IP 54 painting RAL 7032 pebble-grey textured varnish							
1	200 x 200 x 92	166 x 166 x 90			1,3	B 200	
2	230 x 230 x 105	196 x 196 x 102			1,4	B 230	
3	230 x 340 x 105	196 x 306 x 102			1,5	B 230 x 340	
4	230 x 440 x 105	196 x 406 x 102			1,6	B 230 x 440	
5	250 x 250 x 150	216 x 216 x 147			1,6	B 250 x 250	
6							
7	150 x 400 x 105	116 x 366 x 102			3,2	B 150 x 400	
8	150 x 500 x 105	116 x 466 x 102			3,5	B 150 x 500	
9	150 x 600 x 105	116 x 566 x 102			3,8	B 150 x 600	
10	260 x 500 x 105	226 x 466 x 102			3,8	B 260 x 500	
11	260 x 600 x 105	226 x 566 x 102			4,2	B 260 x 600	
12	Dimensions special			on enquiry			
Plastic housing polycarbonat Protection IP 65 colour RAL 7035 fair-grey							
13	120 x 122 x 105	113 x 115 x 98			0,35	I 120 x 122	
14	120 x 160 x 140	113 x 134 x 133			0,6	I 120 x 160	
15	160 x 240 x 120	153 x 215 x 114			0,8	I 160 x 240	
16	160 x 360 x 100	153 x 352 x 94			1,0	I 160 x 360	
17	230 x 300 x 110	223 x 293 x 103			1,15	I 230 x 300	
18							
19							
20							
21							
22							
Plastic housing polyester Protection IP 65 colour RAL 7000 grey							
23	220 x 335 x 115	200 x 292 x 108		colour alternative RAL 9011 black	1,65	I 220 x 335	
24	220 x 465 x 115	200 x 432 x 108		colour alternative RAL 9011 black	2,24	I 220 x 465	
25	250 x 255 x 120	236 x 243 x 110			2,65	I 250 x 255	
26	250 x 400 x 120	236 x 386 x 110			3,65	I 250 x 400	
27	250 x 600 x 120	236 x 586 x 110			5,24	I 250 x 600	
28							
29							
30							
31							
32							
Accessory parts							
33	Hinges each housing (2 pcs.)				0,2		
34	Armrest with clamp adjustable straps				0,5		
35	Chest panel and straps				0,6		
36	Base bracket each housing (2 pcs.)				0,3		
37	Filter plug M 20			for air-condition	0,15		
38	Cable entry M 20 cable 7–13 mm			with anti-kink protection and strain relief	0,15		
39	Cable entry M 32 cable 11–21 mm			with anti-kink protection and strain relief	0,2		
40	Cable entry M 40 cable 19–28 mm			with anti-kink protection and strain relief	0,25		
41	Pillar with flange 100 x 100 x 535 mm high			flange 150 x 150 mm	14,0		
42	Indicating labels not engraved						
43	Engraving, each 10 characters						
44							
45							



GESSMANN
Industrial controllers

**Command and indicating devices
for 22 mm mounting diameter
to install in our housing**

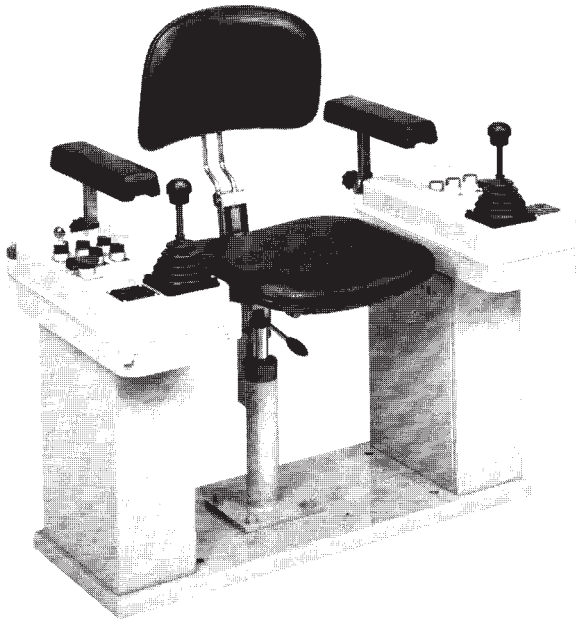
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2010

Manufacture Siemens 3 SB 22 mm

Pos.	Command devices		Contact-complement	Weight gramm	Type	Price EURO
1	Push button		1 NO + 1 NC	40	D	
2	Selector switch 0-1	2 positions	1 NO + 1 NC	50	W	
3	Selector switch 1-0-2	3 positions	2 NO + 2 NC	60	W	
4						
5						
6	Key switch 0-1	2 positions	1 NO + 1 NC	130	S	
7	Key switch 1-0-2	3 positions	2 NO + 2 NC	140	S	
8						
9						
10	Mushroom key switch latching		1 NO + 1 NC	80	PS	
11	Mushroom head push button latching		1 NC	60	PV	
12						
13						
14						
15	Contact block additional (max. 3 pcs.)		1 NO + 1 NC	10		
	Command and indicating devices					
16	Illuminated push button diode 24 V AC/DC		1 NO + 1 NC	40	LD	
17	Illuminated push button diode 220 V AC/DC		1 NO + 1 NC	40	LD	
18						
19						
20	Contact block additional (max. 3 pcs.)		1 NO + 1 NC	10		
	Indicating devices					
21	Indicator light diode 24 V AC/DC			40	L	
22	Indicator light diode 220 V AC/DC			40	L	
23						
24						
25						
	Special devices					
26	Drilling diameter 22 mm					
27	Blind plug 22					
28	Push button KDA/70 mounting Ø 15 mm color red RD, green GN		1 change over contact 1,5 A 24 V DC 13	30		
29	Push button with 2 steps RTTG 22 KLK ... / MHR 3 / MT 97 / MTO		2 NO + 1 NC	200		
30	Push button with 2 steps ST 1-3-2 mounting Ø 30 mm		2 NO + 1 NC	300		
31	Push button with 3 steps ST 1-4-3 mounting Ø 30 mm		3 NO + 1 NC	350		
32	Push button with 4 steps ST 1-5-4 mounting Ø 30 mm		4 NO + 1 NC	400		
33	Push button with potentiometer PT 1-2-P mounting Ø 30 mm		1 NO + 1 NC	350		
34	Wire-wound potentiometer T 237 linear Life 10 ⁶ switching cycles					
35	resistance 0,5/1,0/2,0/5,0 kOhm 1 Watt wiper current max. 10 mA					
36	Drive for potentiometer M4168 with friction brake, switching sequence -0-, contact (potentiometer look 1/240) mounting Ø 30 mm			250		
37	Summer EKS 24 V DC / 48 V AC / 220 V AC			250		
38	Knee button FAK-S/KC/I		1 NO + 1 NC	350		
39	Foot button 3SE 3902-OAB20		1 NO + 1 NC	450		
40	Coordinate switch 2 positions horizontal T-O-T 3SB 1201-7DV01		2 NO	102		
41	Coordinate switch 2 positions vertical T-O-T 3SB 1201-7FV01		2 NO	102		
44	Coordinate switch 4 positions T-O-T / T-O-T 3SB 1208-7JV01		4 NO	112		
50	Push button M4274 Hallsensors redundant mounting Ø 12 mm			20		
	Power supply 5 Volt (4,5 - 5,5 V)					
	Voltage output impressed 0 Volt (<0,4 V) - 5 Volt (>2,4 V) +5 mA characteristic linear					



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Type KST3KFS2-...

The crane control unit KST 3 combines in its design the crane driver's seat and the control and monitoring devices. Ready wired, it can be easily and quickly installed in the crane cabin.

Equipment boxes: Plastic polyester.

The equipment boxes with the devices fitted have hinged tops that can be locked in position and armrests. They contain the termination and connection facilities and a lockable plug-in cover on the inside.

Seat KFS 2: The seat backrest can be tipped forwards and further tipped together with the cushion.

The cushion and seat backrest are padded.

Adjusting possibilities: Cushion horizontally and vertically.

Height adjustment via a gas-loaded spring in the seat base.

Seat backrest horizontally and vertically to the cushion.

Armrests padded and adjustable in height.

Fixed to the equipment boxes.

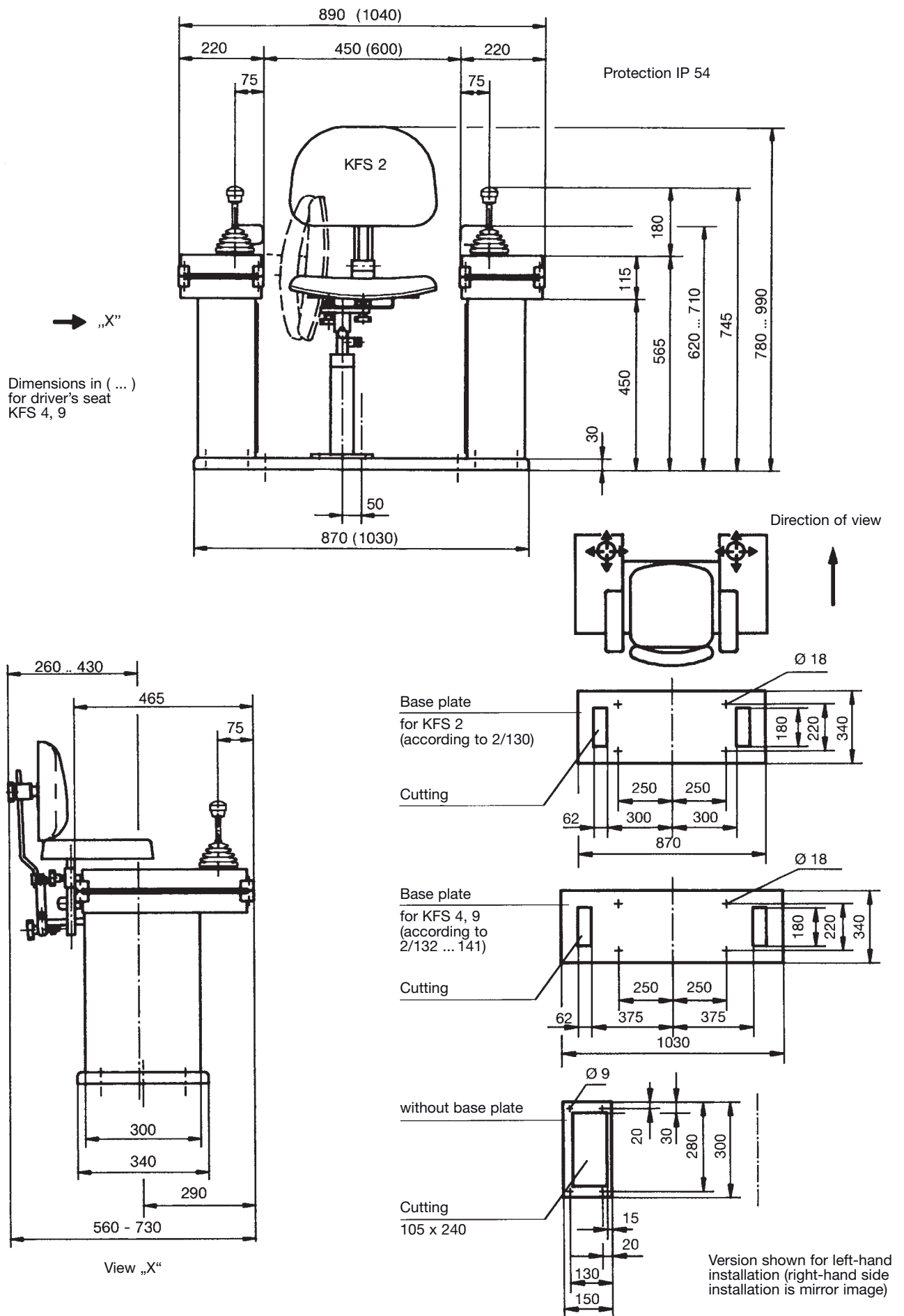
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey. textured Varnish

All non-painted metal parts are electrogalvanized and chromed.

Description data see catalog 5/023/024

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Pos.					Weight kg	Type	Price EURO
1	Crane control unit with driver's seat	KFS 2	with base plate		36	KST 3	
2	Crane control unit with driver's seat	KFS 2	without base plate		31	KST 31	
3	Crane control unit without driver's seat	KFS 2	with base plate		21	KST 32	
4	Crane control unit without driver's seat	KFS 2	without base plate		16	KST 33	
5							
10	Driver's seat	see catalog 2/130 (picture shows)				KFS 2	
11							
12	Driver's seat	see catalog 2/132				KFS 4	
13							
14							
15	Driver's seat	see catalog 2/140				KFS 9	
20	Multi-axis controller	see catalog 1/100					
21	Single-axis controller	see catalog 1/180					
22							
23	Control-switch	see catalog 1/230					
24	Command and indicating devices	see catalog 1/360					
25							
30	Terminal block 4 mm ² without wiring each terminal					KL	
31	Terminal block 4 mm ² with wiring wire 1 mm ² each terminal					KL	
32	External wiring single wire highly flexible 1,5 mm ² 5 metre long						
33	Additional or subtract price each metre						
34							
35							
40	Special painted						
41	Indicating labels not engraved with 2 or 4 arrows						
42	Engraving, each 10 characters						
43							





Type KST41KFS92-...

The swivelling crane control unit KST 4 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: Sheet steel.

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrests. Cabling is run through aduct in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material, with headrest.

Adjusting possibilities: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension, right equipment box turnable.

Cross-member: Steel selection, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

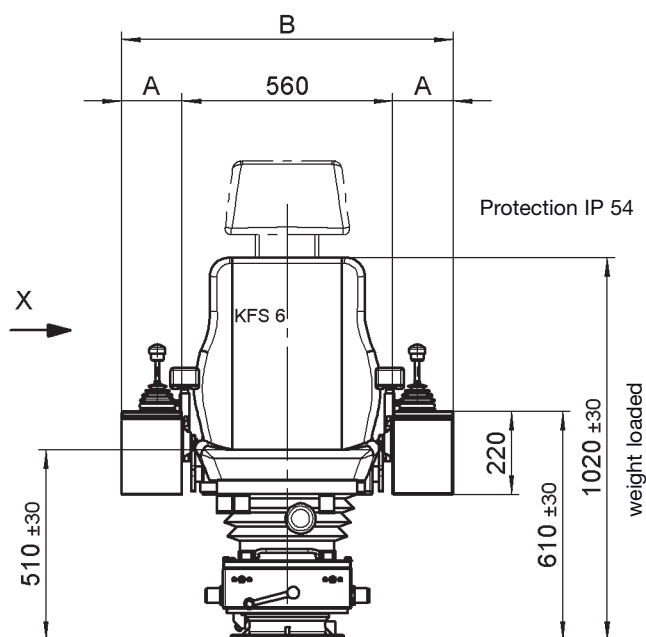
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black. textured varnish

All non-painted metal parts are electrogalvanized and chromed.

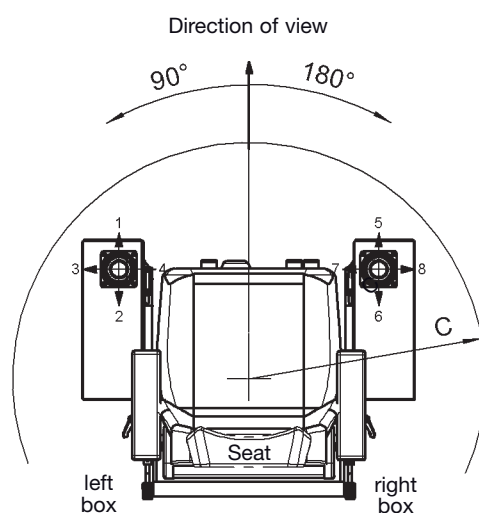
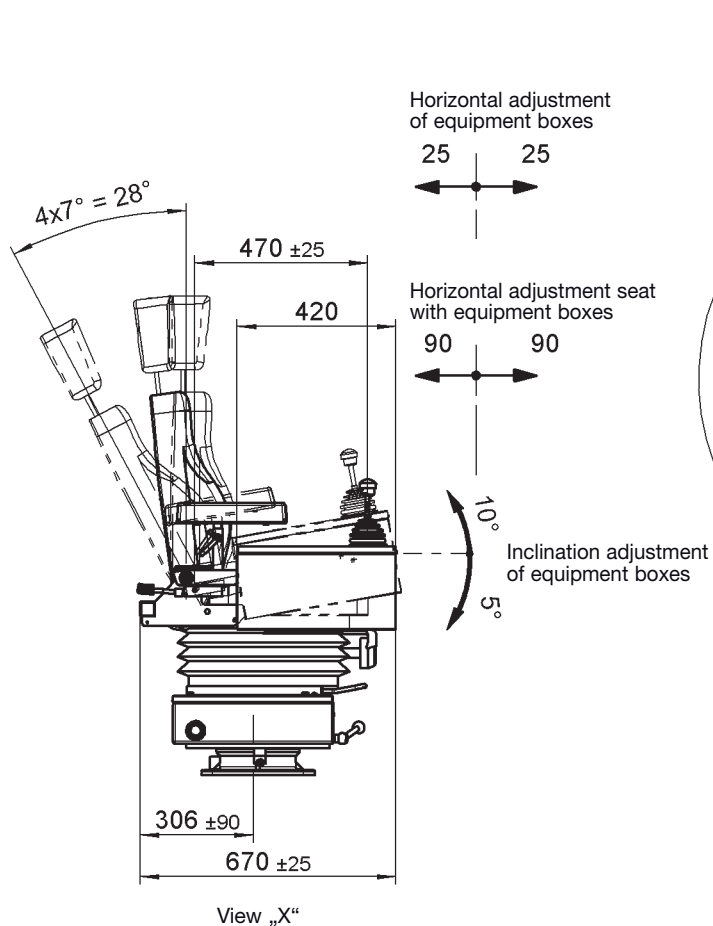
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/023/024

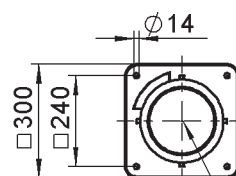
Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design	Equipment boxes 160 x 420 mm		58	KST 41	
2	Crane control unit standard design	Equipment boxes 200 x 420 mm		60	KST 42	
3						
4						
5	Crane control unit standard design	Equipment boxes special dimensions			KST 4x	
6	additional variations for driver's seat KFS 6 see catalog 2/134				KFS 6	
7	Driver's seat KFS 9	see catalog 2/140			KFS 9	
8						
9						
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm					
13						
14						
15						
16	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m³/h mounted on the swivel base sidwise					
17						
18						
19						
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					



Type	Dimension A	Dimension B	Dimension C
KST 41	160	880	<625 >700
KST 42	200	960	<655 >730



Floor mounting



Cable inlet $\varnothing$ 100



Type KST51KFS92-...

The swivelling crane control unit KST 5 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: Sheet steel. The top panel of the equipment boxes with the devices can be raised and locked in position. The terminal strip is easily accessible via an opening on the inside that can be closed with a lockable cover.

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material, with headrest, with armrests.

Adjusting possibilities: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

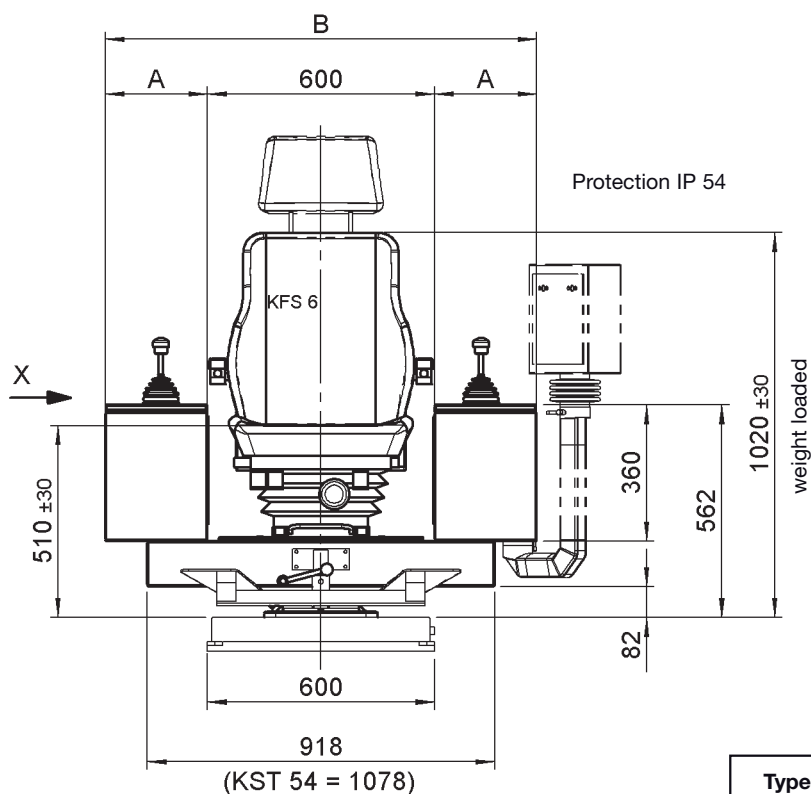
Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey. textured varnish
All non-painted metal parts are electrogalvanized and chromed.

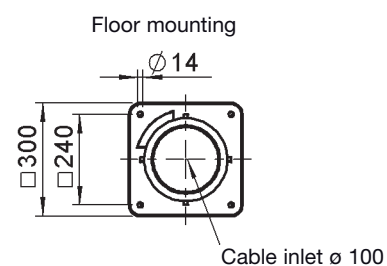
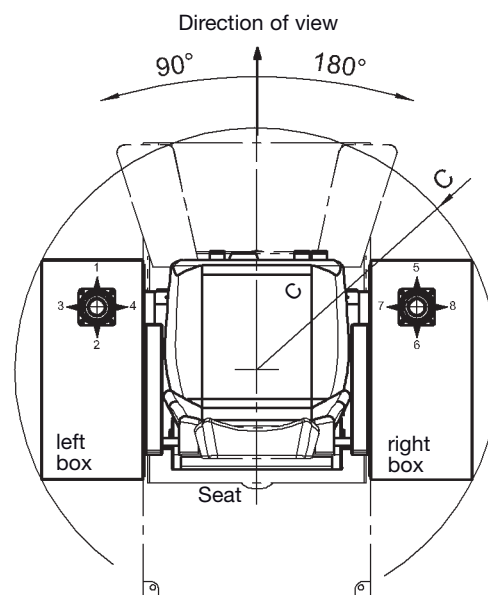
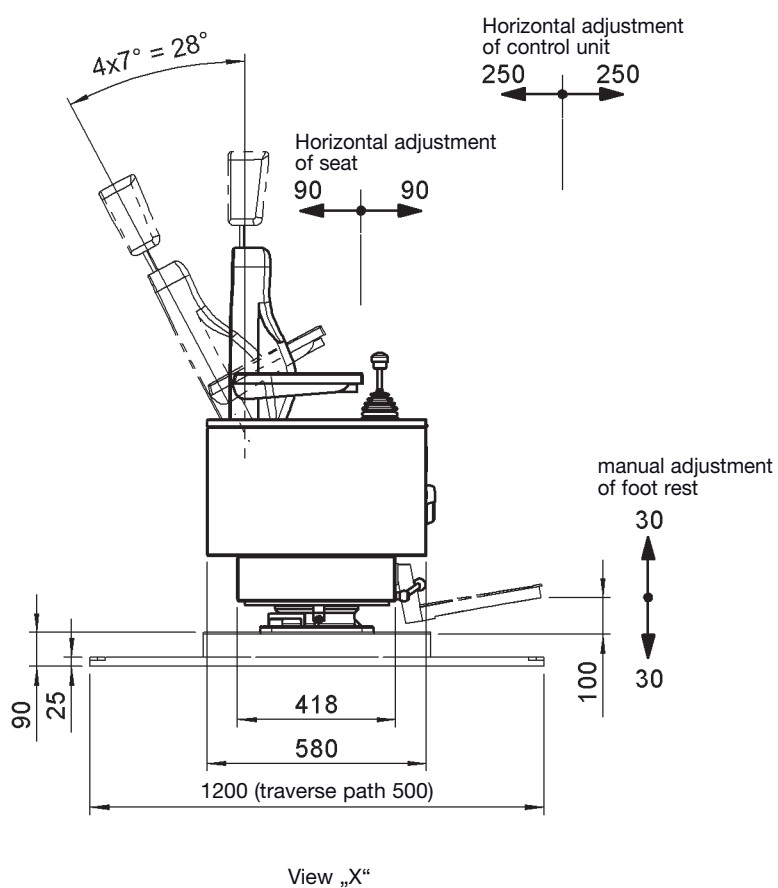
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/023/024

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design	Equipment boxes 200 x 580 mm		84	KST 51	
2	Crane control unit standard design	Equipment boxes 270 x 580 mm		88	KST 52	
3						
4	Crane control unit standard design	Equipment boxes 320 x 580 mm		92	KST 54	
5	Crane control unit standard design	Equipment boxes special dimensions			KST 5x	
6	additional variations for driver's seat KFS 6 see catalog 2/134				KFS 6	
7	Driver's seat KFS 9	see catalog 2/140			KFS 9	
8	Driver's seat KFS 10	see catalog 2/142			KFS 10	
9	Monitor mounting support left or right T 478			10		
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12	Manual adjustment of equipment boxes horizontal adjustable ± 75 mm					
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
14	Manual adjustment of control unit vertical (gas loaded spring) adjustable 80 mm			25		
15						
16						
17						
18	Motorized adjustment of control unit swivelling (drive 24 V DC seat height + 30 mm)			8		
19	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m ³ /h mounted on the swivel base sidewise					
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm ² without wiring each terminal				KL	
31	Terminal block 4 mm ² with wiring wire 1 mm ² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm ² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					



Type	Dimension A	Dimension B	Dimension C
KST 51	200	1000	580
KST 52	270	1140	640
KST 54	320	1240	690





Type KST6KFS92-...

The swivelling crane control unit KST 6 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: plastic PU foam

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrests. Cabling is run through aduct in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material, with headrest, with armrests.

Adjusting possibilities: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

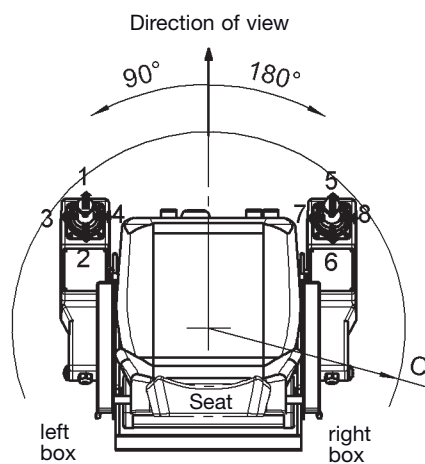
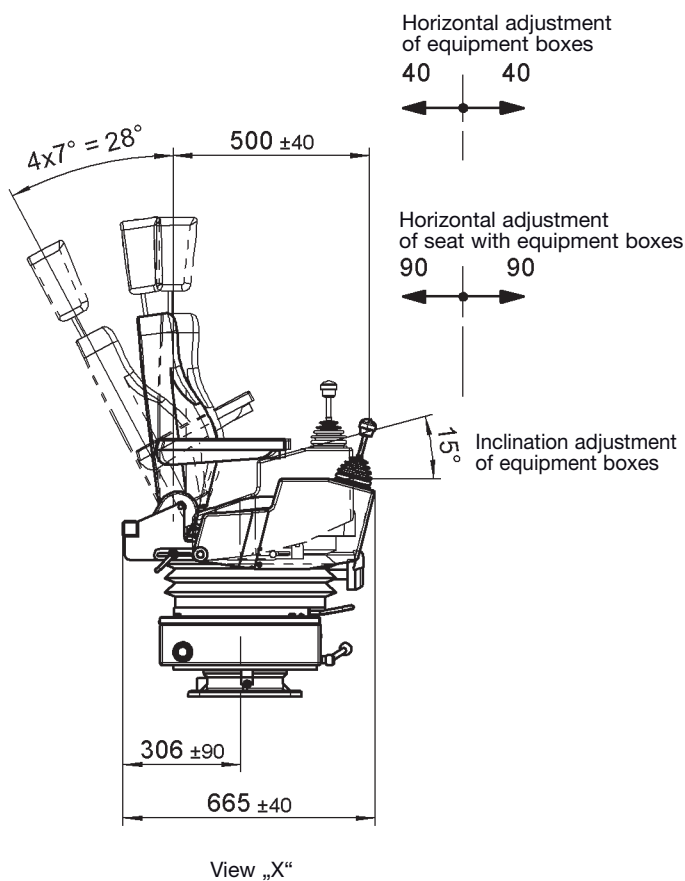
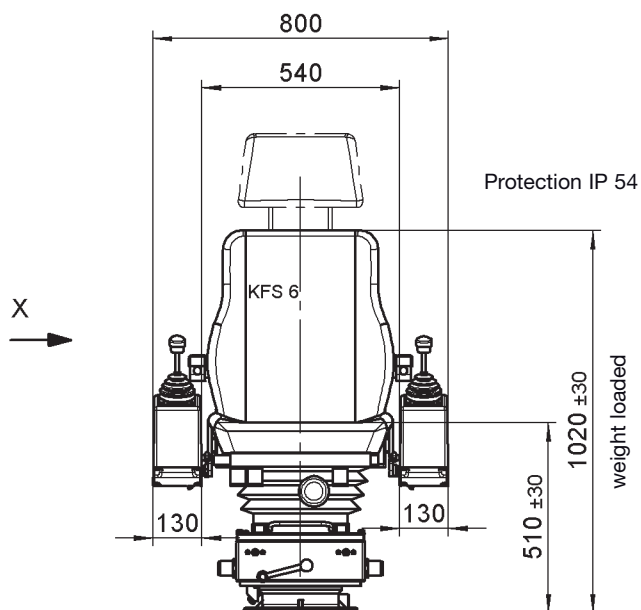
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black. textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

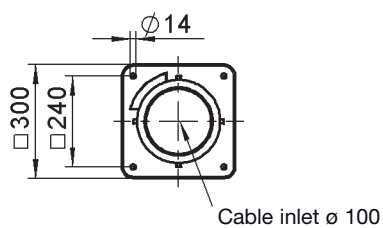
Description data see catalog 5/023/024

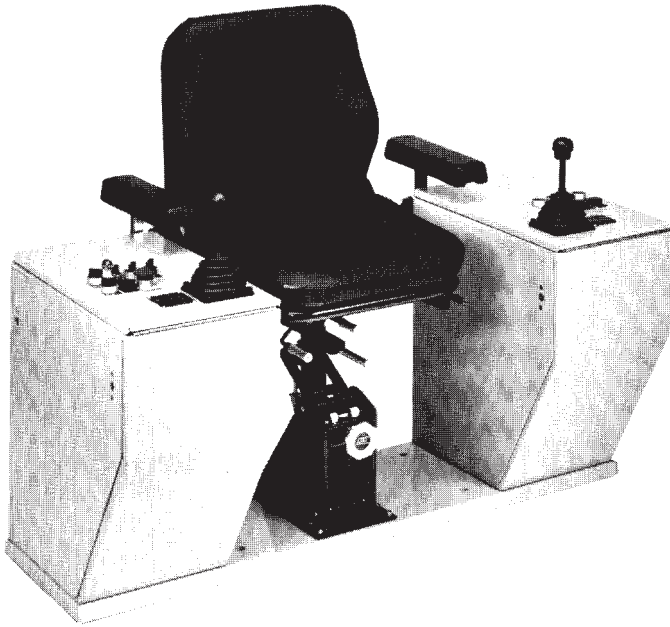
Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design			48	KST 6	
2	Crane control unit standard design not swivelled			48	KST 61	
3	Crane control unit standard design without swivel base and cross-member			38	KST 62	
4						
5						
6	additional variations for driver's seat KFS 6 see catalog 2/134				KFS 6	
7	Driver's seat KFS 9 see catalog 2/140				KFS 9	
8						
9						
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12						
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
14						
15						
16						
17						
18						
19	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m³/h mounted on the swivel base sidwise					
20	Multi-axis controller see catalog 1/100					
21	Single-axis controller see catalog 1/180					
22	Double-handle controller see catalog 1/160					
23	Control-switch see catalog 1/230					
24	Command and indicating devices see catalog 1/360					
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					



Rotation radius 'C' - minimal adjustment = 520 mm
Rotation radius 'C' - maximal adjustment = 620 mm

Floor mounting





Type KST72KFS4-...

The crane control unit KST 7 combines in its design the crane driver's seat and the control and monitoring devices. Ready wired, it can be easily and quickly installed in the crane cabin.

Equipment boxes: Sheet steel.

The equipment boxes with the devices fitted have hinged tops that can be locked in position and armrests. They contain the termination and connection facilities and a lockable plug-in cover on the inside.

Seat KFS 2: The seat backrest can be tipped forwards and further tipped together with the cushion.

The cushion and seat backrest are padded.

Adjusting possibilities: Cushion horizontally and vertically.

Height adjustment via a gas-loaded spring in the seat base.

Seat backrest horizontally and vertically to the cushion.

Armrests padded and adjustable in height.

Fixed to the equipment boxes.

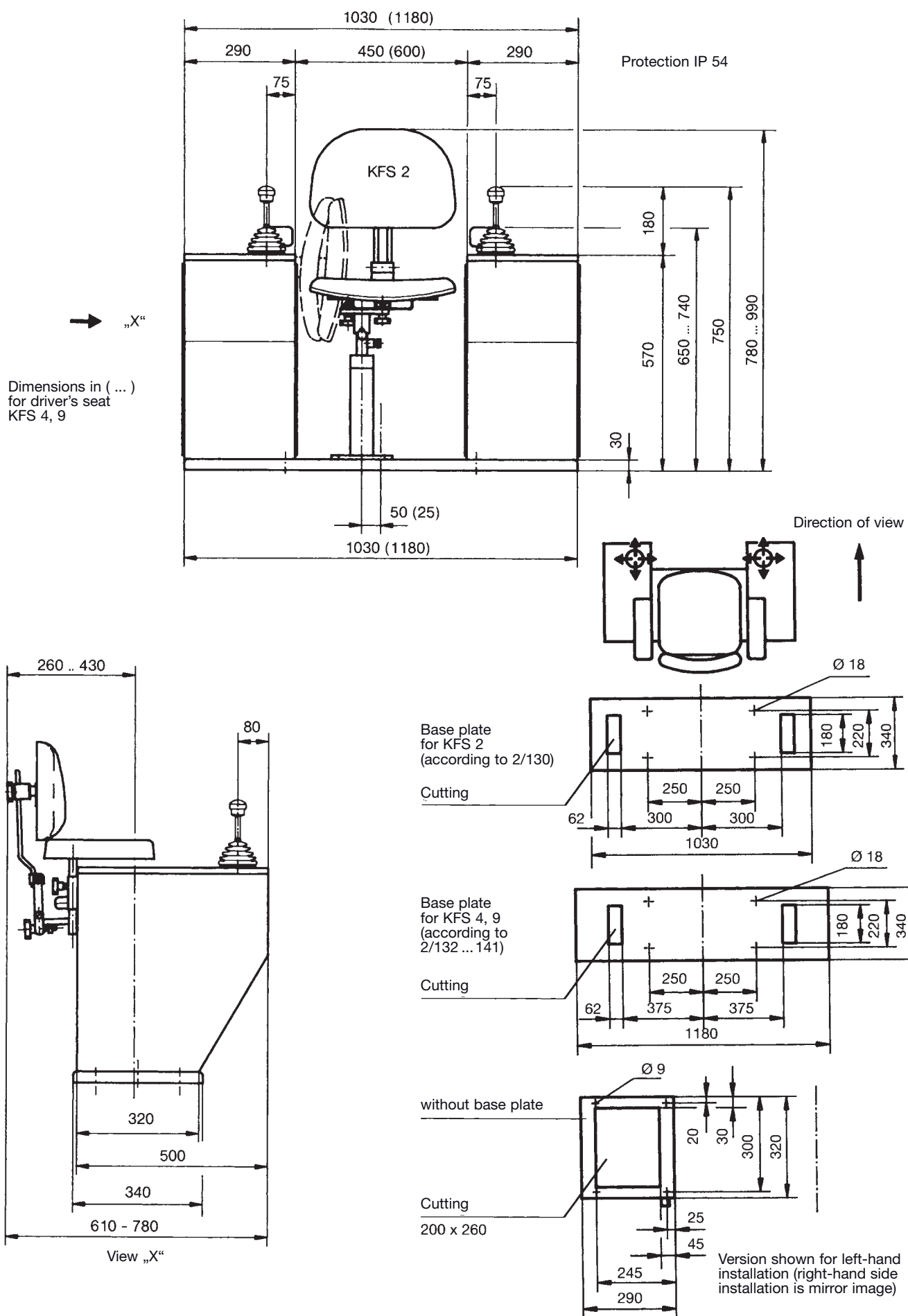
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey, textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Description data see catalog 5/023/024

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Pos.					Weight kg	Type	Price EURO
1	Crane control unit with driver's seat	KFS 2	with base plate		51	KST 7	
2	Crane control unit with driver's seat	KFS 2	without base plate		46	KST 71	
3	Crane control unit without driver's seat	KFS 2	with base plate		36	KST 72	
4	Crane control unit without driver's seat	KFS 2	without base plate		31	KST 73	
5							
10	Driver's seat	see catalog 2/130				KFS 2	
11							
12	Driver's seat	see catalog 2/132 (picture shows)				KFS 4	
13							
14							
15	Driver's seat	see catalog 2/140				KFS 9	
20	Multi-axis controller	see catalog 1/100					
21	Single-axis controller	see catalog 1/180					
22	Double-handle controller	see catalog 1/160					
23	Control-switch	see catalog 1/230					
24	Command and indicating devices	see catalog 1/360					
25							
30	Terminal block 4 mm ² without wiring each terminal					KL	
31	Terminal block 4 mm ² with wiring wire 1 mm ² each terminal					KL	
32	External wiring single wire highly flexible 1,5 mm ² x 5 metre long						
33	Additional or subtract price each metre						
34							
35							
40	Special painted						
41	Indicating labels not engraved with 2 or 4 arrows						
42	Engraving, each 10 characters						
43							





Type KST75KFS2-...

The crane control unit KST 75 combines in its design the crane driver's seat and the control and monitoring devices. Ready wired, it can be easily and quickly installed in the crane cabin.

Equipment boxes: Sheet steel.

The equipment boxes with the devices fitted have hinged tops that can be locked in position and armrests.

They contain the termination and connection facilities and a lockable plug-in cover on the inside.

Seat KFS 2: The seat backrest can be tipped forwards and further tipped together with the cushion.

The cushion and seat backrest are padded.

Adjusting possibilities: Cushion horizontally and vertically.

Height adjustment via a gas-loaded spring in the seat base.

Seat backrest horizontally and vertically to the cushion.

Armrests padded and adjustable in height.

Fixed to the equipment boxes.

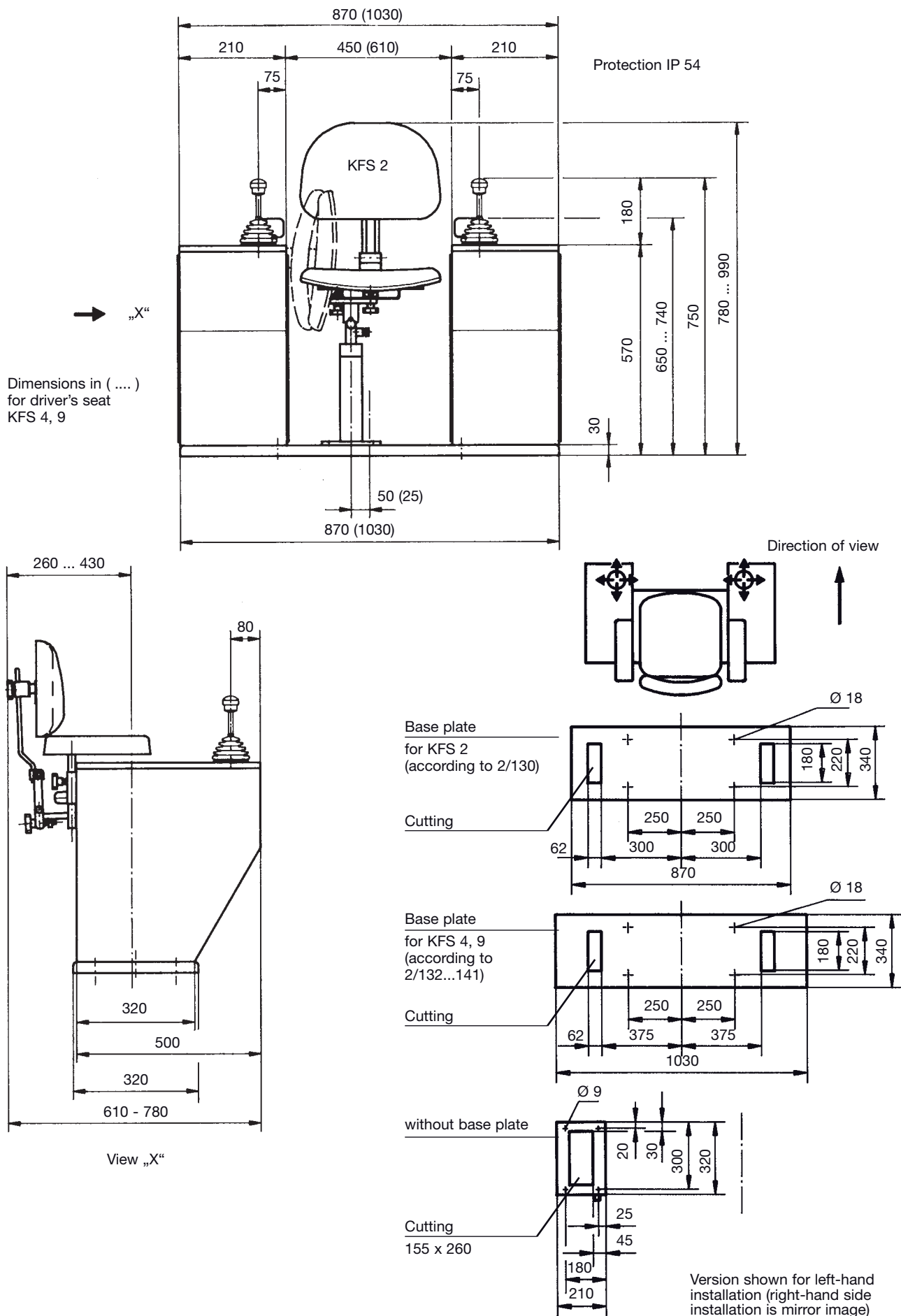
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey, textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Description data see catalog 5/023/024

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Pos.						Weight kg	Type	Price EURO
1	Crane control unit with driver's seat	KFS 2	with base plate			51	KST 75	
2	Crane control unit with driver's seat	KFS 2	without base plate			46	KST 76	
3	Crane control unit without driver's seat	KFS 2	with base plate			36	KST 77	
4	Crane control unit without driver's seat	KFS 2	without base plate			31	KST 78	
5								
10	Driver's seat	see catalog 2/130 (picture shows)					KFS 2	
11								
12	Driver's seat	see catalog 2/132					KFS 4	
13								
14								
15	Driver's seat	see catalog 2/140					KFS 9	
20	Multi-axis controller	see catalog 1/100						
21	Single-axis controller	see catalog 1/180						
22	Double-handle	see catalog 1/160						
23	Control-switch	see catalog 1/230						
24	Command and indicating devices	see catalog 1/360						
25								
30	Terminal block 4 mm ² without wiring each terminal						KL	
31	Terminal block 4 mm ² with wiring wire 1 mm ² each terminal						KL	
32	External wiring single wire highly flexible 1,5 mm ² x 5 metre long							
33	Additional or subtract price each metre							
34								
35								
40	Special painted							
41	Indicating labels not engraved with 2 or 4 arrows							
42	Engraving, each 10 characters							
43								





Type KST8KFS62-...

The swivelling crane control unit KST 8 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: plastic PU foam

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrests. Cabling is run through aduct in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material.

Adjusting possibilities: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension. Right equipment box turnable.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

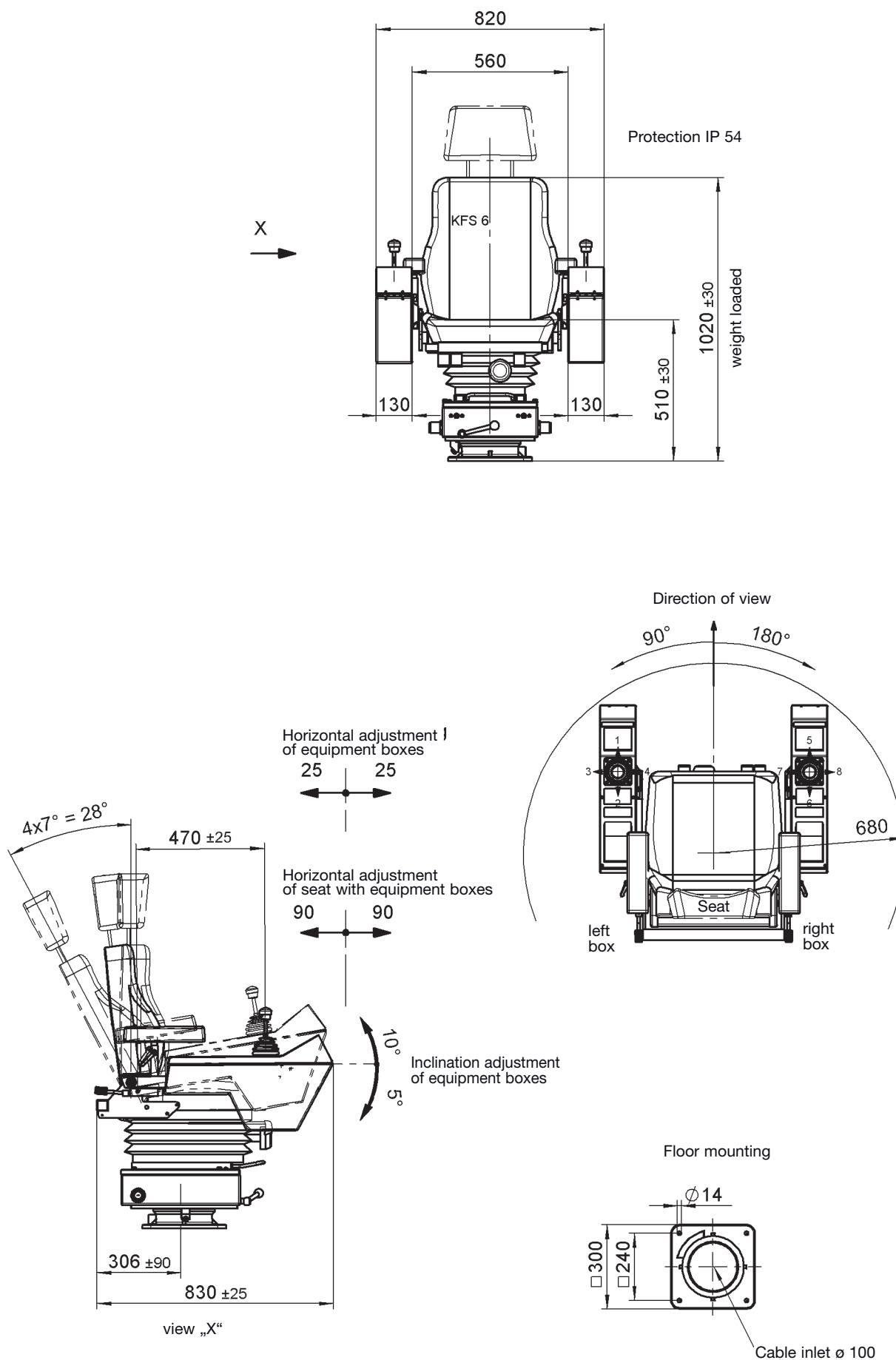
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black. textured varnish

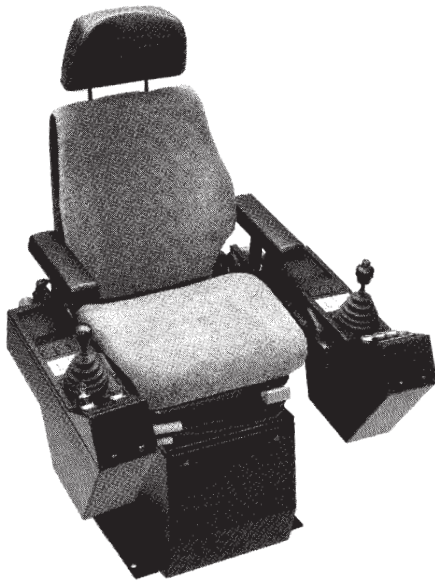
All non-painted metal parts are electrogalvanized and chromed.

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/025

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design			48	KST 8	
2	Crane control unit standard design not swivelled			48	KST 81	
3	Crane control unit standard design without swivel base and cross-member			38	KST 82	
4						
5						
6	additional variations for driver's seat KFS 6 see catalog 2/134				KFS 6	
7	Driver's seat KFS 9 see catalog 2/140				KFS 9	
8						
9						
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12						
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
14						
15						
16						
17						
18						
19	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m³/h mounted on the swivel base sidwise					
20	Multi-axis controller see catalog 1/100					
21	Single-axis controller see catalog 1/180					
22	Double-handle controller see catalog 1/160					
23	Control-switch see catalog 1/230					
24	Command and indicating devices see catalog 1/360					
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					





Type KST85KFS8-...

The crane control unit KST 85 is ergonomically designed and provides a high degree of comfort.

The standard design includes following.

Equipment boxes: plastic PU foam

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrest. Cabling is run through duct on the terminal block. (The terminal block housing is mounting behind the seat)

Seat: Comfortable static mounted seat KFS 8, covered with air-permeable artificial leather or with textil material and with roller-bearing swivel system, with headrest.

Adjusting possibilities: Seat horizontally and vertically.

Inclination of cushion, backrest and armrest also adjustable.

Seat with the equipment boxes swivelled 90° one sided.

Endpoints to look. Right equipment box turnable.

Console: Heating 2 steps 2 x 2 kW 380 V AC

Ventilator 380 V AC air volume ca 1000 m³/h air circulation (opening in the rear side of the console) fresh air circulation (opening in the underside of the console). Selector switch for heating/ventilator are in the box. The seat can be tilted forward to reach the terminal block of the heating / ventilator.

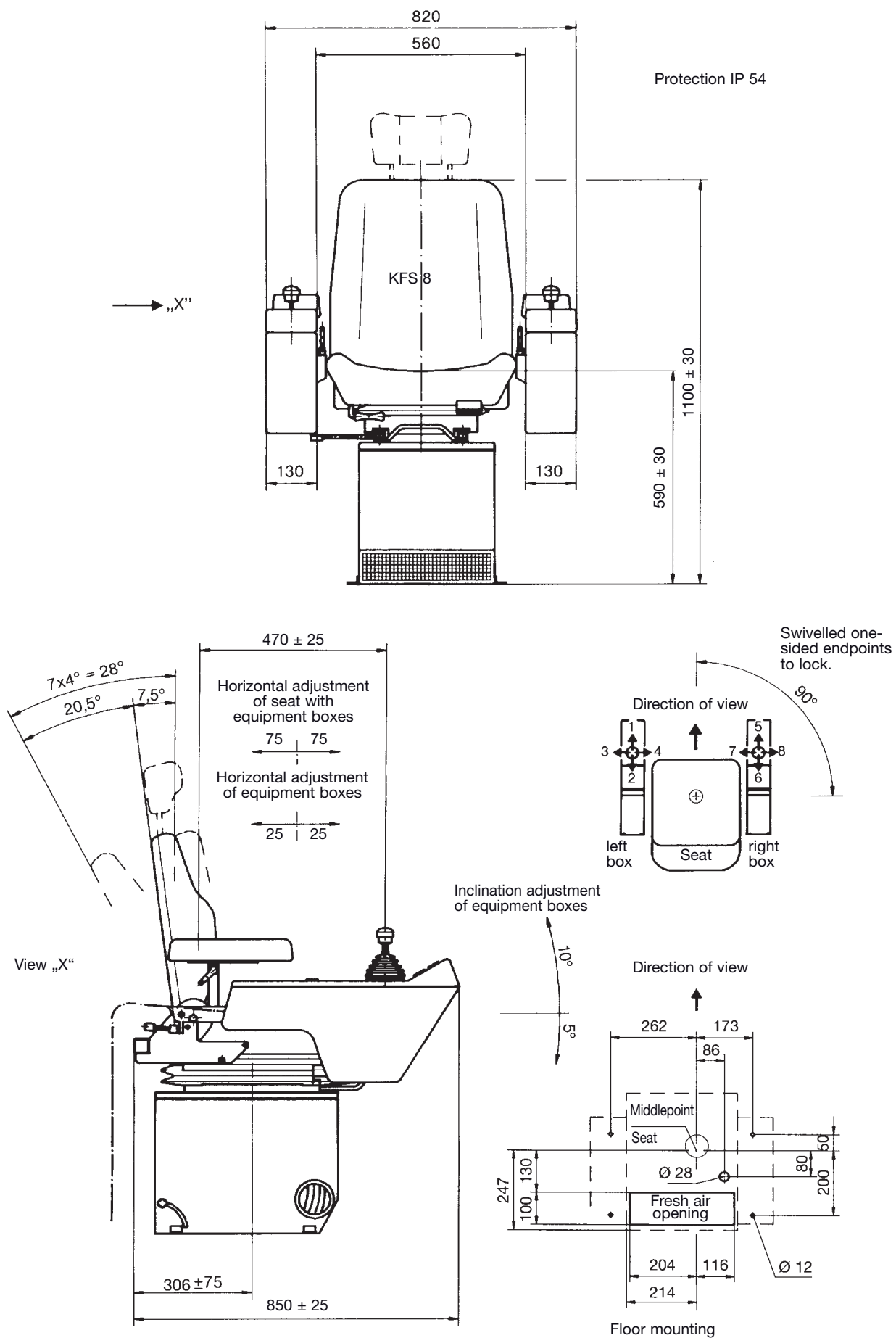
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black. textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/025

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design with heating/ventilator			48	KST 85	
2						
3				45	KST 87	
4						
5	Crane control unit standard design without heating/ventilator					
6						
7						
8						
9	additional variations for driver's seat KFS 8 see catalog 2/138				KFS 8	
10						
11						
12						
13	Footrest mounted onto console adjustable ± 30 mm			8		
14						
15						
16						
17						
18						
19						
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					





Type KST9KFS92-...

The swivelling crane control unit KST 9 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: plastic PU foam

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrests. Cabling is run through aduct in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material, with headrest.

Adjusting possibilities: Seat horizontally and vertically.
Inclination of cushion, backrest and armrest also adjustable.
Weight setting for optimum spring suspension.
Right equipment box turnable.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

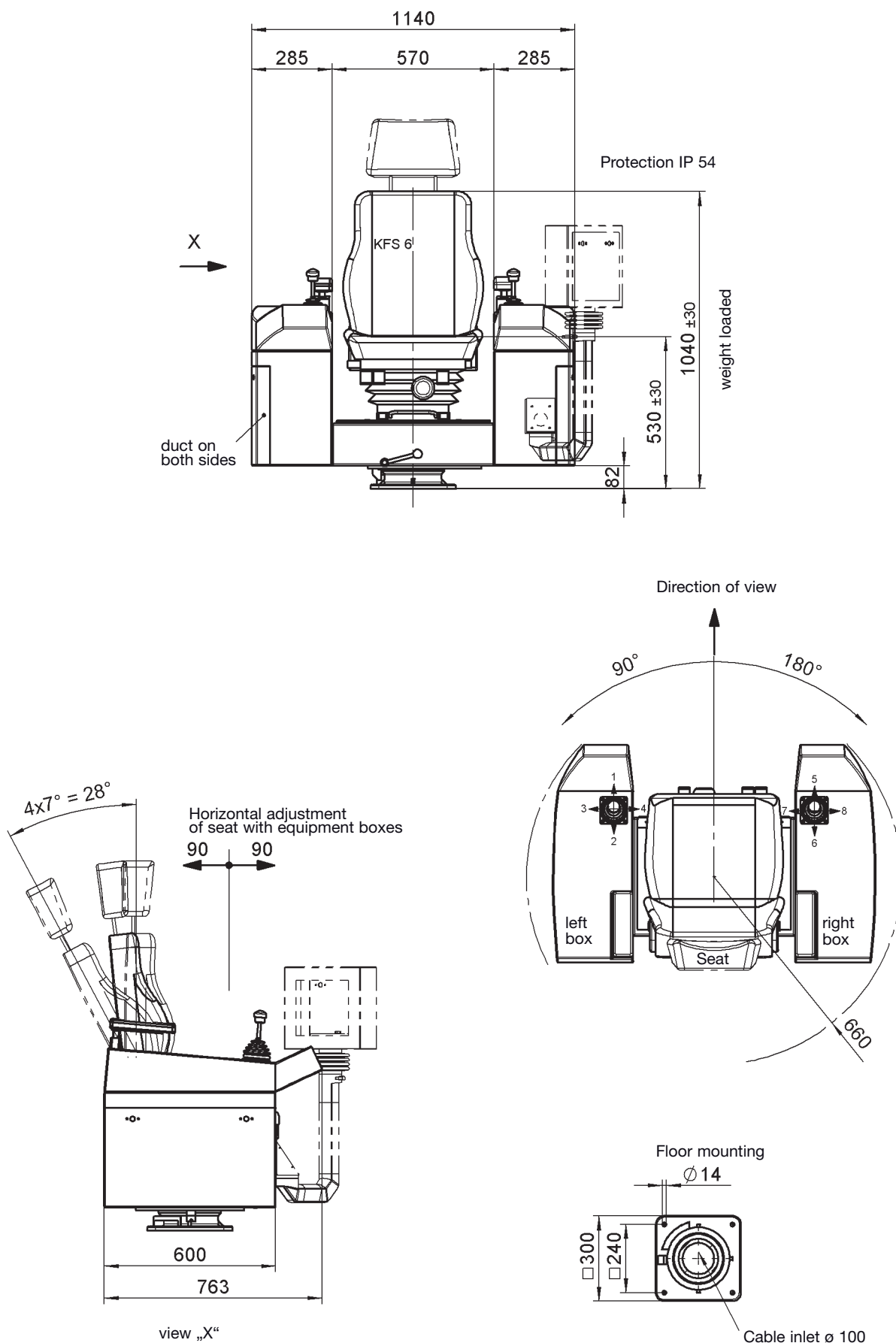
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black.
textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/026/027

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design			48	KST 9	
2						
3						
4						
5						
6	additional variations for driver's seat KFS 6	see catalog 2/134			KFS 6	
7	Driver's seat KFS 9	see catalog 2/140			KFS 9	
8	Driver's seat KFS 10	see catalog 2/142			KFS 10	
9	Monitor mounting support left or right T 478			10		
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12						
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm					
14	Manual adjustment of control unit vertical (gas loaded spring) adjustable 80 mm					
15						
16						
17						
18	Motorized adjustment of control unit swivelling (drive 24 V DC, seat height + 30 mm)					
19						
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm ² without wiring each terminal				KL	
31	Terminal block 4 mm ² with wiring wire 1 mm ² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm ² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					





Type KST10KFS6-...

The swivelling crane control unit KST 10 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: plastic PU foam

The equipment boxes with the devices can be vertically and horizontally adjusted together with the armrests. Cabling is run through a duct in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 6, with an oilhydraulic vibration absorption system, weight adjustment and air-permeable artificial leather or textil material, with headrest.

Adjusting possibilities: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat can be tilted backwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

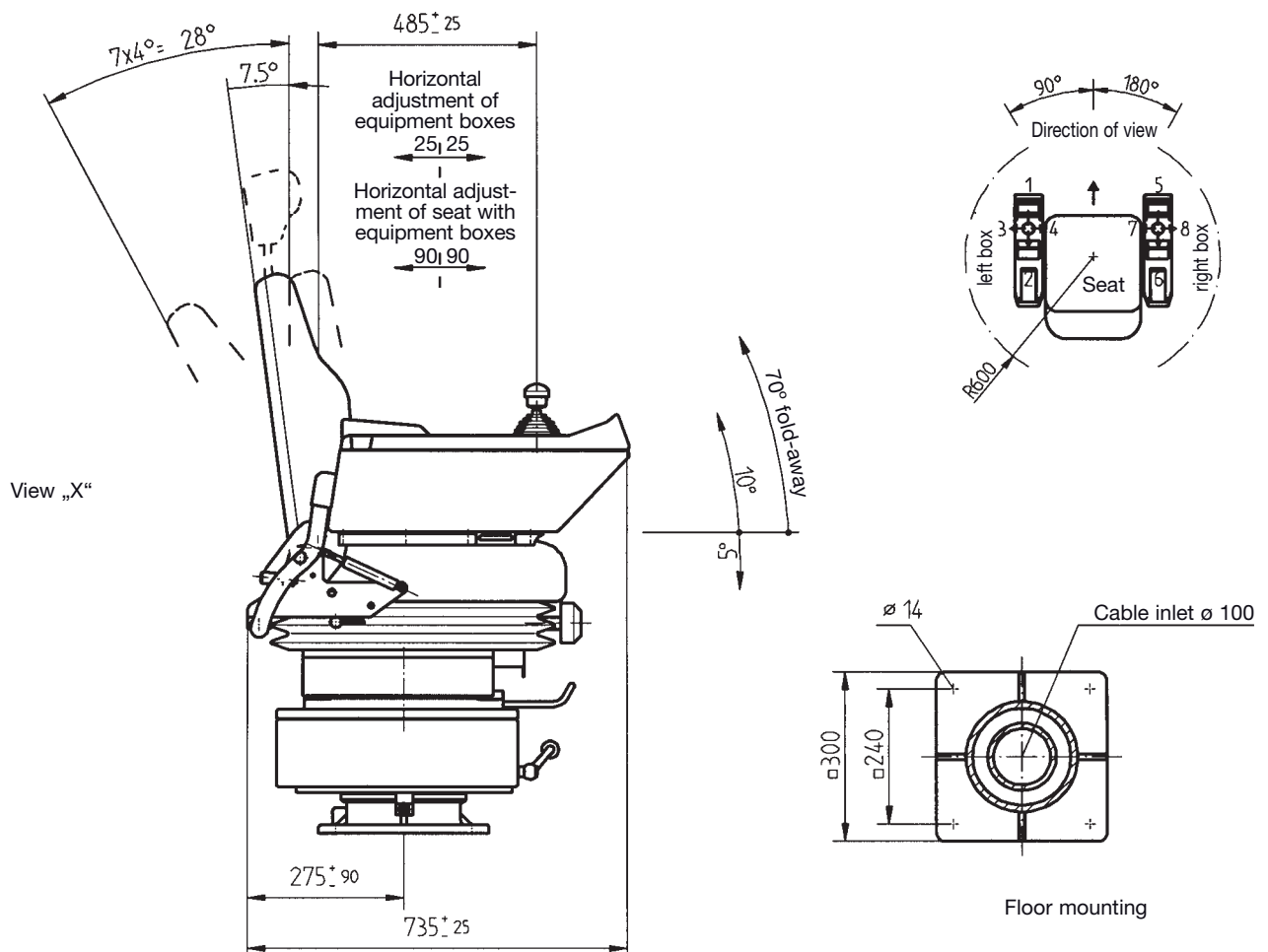
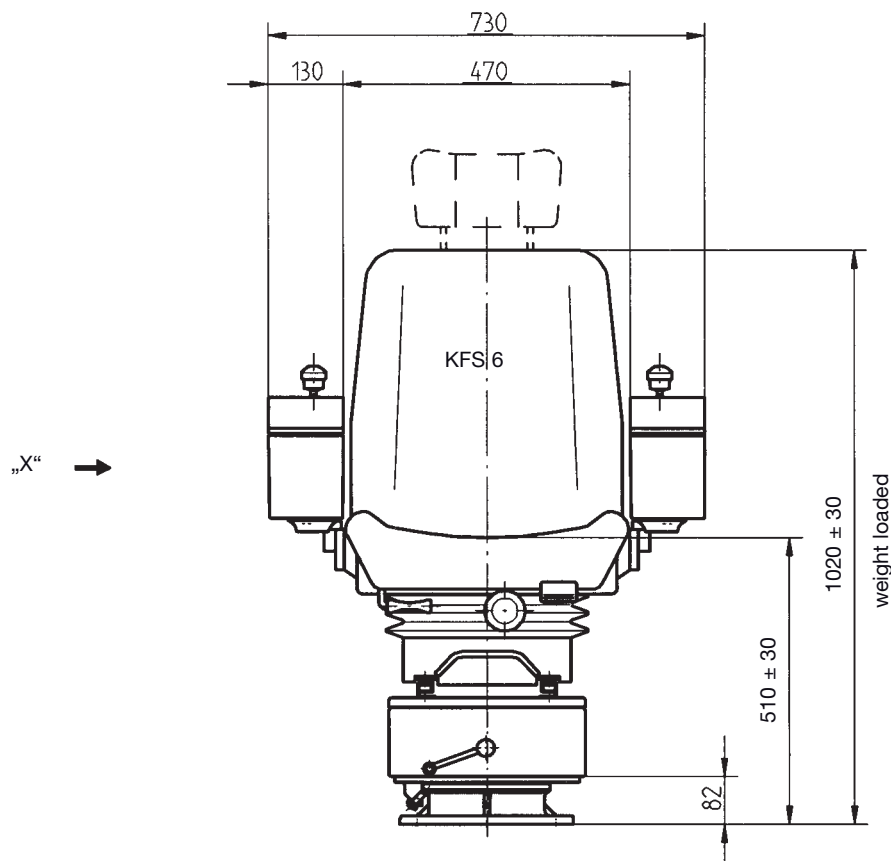
Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 9011 black. textured varnish

All non-painted metal parts are electrogalvanized and chromed.

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Description data see catalog 5/028

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design			48	KST 10	
2	Crane control unit standard design not swivelled			48	KST 101	
3	Crane control unit standard design without swivel base and cross-member			38	KST 102	
4						
5						
6	additional variations for driver's seat KFS 6 see catalog 2/134				KFS 6	
7						
8						
9						
10	Footrest mounted onto swivel base adjustable ± 30 mm			8		
11						
12						
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
14						
15						
16						
17						
18						
19	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m³/h mounted on the swivel base sidewise					
20	Multi-axis controller V11, V 14, V 25, V 85 see catalog 1/110					
21						
22						
23						
24	Command and indicating devices see catalog 1/360					
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					





Type KST15XKFS92-...

The swivelling crane control unit KST 15 is ergonomically designed and provides a high degree of comfort.

The standard design includes following:

Equipment boxes: Sheet steel. The top panel of the equipment box with the devices can be raised and locked in position. The terminal strip is easily accessible via an opening on the inside that can be closed with a lockable cover. The external wiring is run through aduct from the equipment boxes in the cross-member.

Seat: Comfortable spring mounted seat KFS 10, with a pneumatic vibration absorption system by compressor 24 V DC, weight adjustment and airpermeable artificial leather or textil material, with headrest, with armrests.

Manual adjustments: Seat horizontally and vertically. Inclination of cushion, backrest and armrest also adjustable. Weight setting for optimum spring suspension.

Motorized adjustments: Seat with equipment boxes vertical (inclinations adjustments forward/backward). Seat with equipment boxes horizontal. Selector switches for motorized-drives are in the equipment box. Motor 24 V DC ca. 15 ampere.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat with the boxes can be tilted forwards so that the cable duct in the cross-member is accessible.

Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey. textured varnish
All non-painted metal parts are electrogalvanized and chromed.

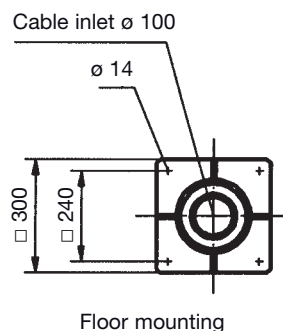
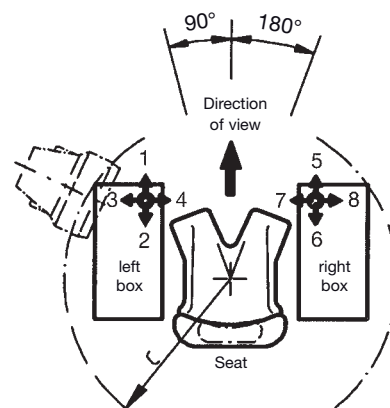
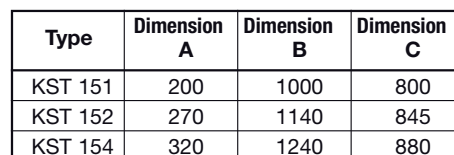
Description data see catalog 5/023/024

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design	Equipment boxes 200 x 580 mm		236	KST 151	
2	Crane control unit standard design	Equipment boxes 270 x 580 mm		240	KST 152	
3						
4	Crane control unit standard design	Equipment boxes 320 x 580 mm		244	KST 154	
5	Crane control unit standard design	Equipment boxes special dimensions			KST 15x	
6	additional variations for driver's seat KFS 10 see catalog 2/142				KFS 10	
7	Driver's seat KFS 6	see catalog 2/134			KFS 6	
8	Driver's seat KFS 9	see catalog 2/140			KFS 9	
9	Monitor mounting support left or right			10		
10	Footrest (required) mounted onto swivel base adjustable ± 15 mm			8		
11						
12	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
13						
14	Motorized adjustment of equipment boxes vertical adjustable ± 25 mm 24 V DC					
15	Motorized adjustment of equipment boxes horizontal adjustable ± 40 mm 24 V DC					
16						
17	Motorized adjustment of control unit swivelling (drive 24 V DC, seat height + 70 mm)			18		
18	Heating 2 x 2 kW with ventilator 230 V 50 Hz					
19	airvolume ca. 300 m³/h mounted on the swivel base sidewise					
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					



2/103
2010





Type KST181KFS92-...

The swivelling crane control unit KST 18 is ergonomically designed and provides a high grade of comfort.

The standard design includes following:

Equipment boxes: Sheet steel. The top panel of the equipment box with the devices can be raised and locked in position and is provided with armrests. Cabling is run through duct from the equipment boxes in the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 9, with an oilhydraulic vibration absorption system, weight adjustment and airpermeable artificial leather or textil material, with headrest.

Manual adjustments: Seat horizontally and vertically.
Inclination of cushion, backrest and armrest also adjustable.
Weight setting for optimum spring suspension.
Equipment boxes horizontally and vertically.

Motorized adjustments: Seat with equipment boxes vertical (inclinations adjustments forward/backward).
Seat with equipment boxes horizontal.
Selector switches for motorized-drives are in the equipment box.
Motor 24 V DC ca. 15 ampere.

Cross-member: Steel section, top of which can be raised to lay cabling. The seat with the boxes can be tilted forwards so that the cable duct in the cross-member is accessible.

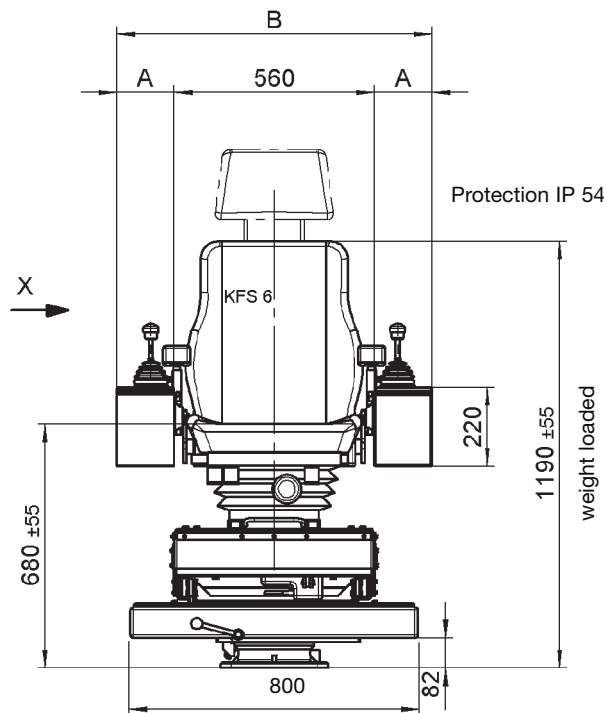
Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey. textured varnish
All non-painted metal parts are electrogalvanized and chromed.

Description data see catalog 5/023/024

Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

Pos.				Weight kg	Type	Price EURO
1	Crane control unit standard design	Equipment boxes 160 x 420 mm		148	KST 181	
2	Crane control unit standard design	Equipment boxes 200 x 420 mm		150	KST 182	
3						
4						
5	Crane control unit standard design	Equipment boxes special dimensions			KST 18x	
6	additional variations for driver's seat KFS 6	see catalog 2/134			KFS 6	
7	Driver's seat KFS 9	see catalog 2/140			KFS 9	
8						
9						
10	Footrest (required) mounted onto swivel base adjustable ± 15 mm			8		
11						
12						
13	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
14						
15						
16						
17						
18	Motorized adjustment of control unit swivelling (drive 24 V DC, seat height + 30 mm)			16		
19	Heating 2 x 2 kW with ventilator 230 V 50 Hz airvolume ca. 300 m³/h mounted on the swivel base sidewise					
20	Multi-axis controller	see catalog 1/100				
21	Single-axis controller	see catalog 1/180				
22	Double-handle controller	see catalog 1/160				
23	Control-switch	see catalog 1/230				
24	Command and indicating devices	see catalog 1/360				
30	Terminal block 4 mm² without wiring each terminal				KL	
31	Terminal block 4 mm² with wiring wire 1 mm² each terminal				KL	
32	External wiring single wire highly flexible 1,5 mm² 5 metre long					
33	Additional or subtract price each metre					
40	Special painted					
41	Indicating labels not engraved with 2 or 4 arrows					
42	Engraving, each 10 characters					



Type	Dimension A	Dimension B	Dimension C
KST 181	160	880	<625 >815
KST 182	200	960	<655 >835

Motorized
horizontal adjustment of
seat with equipment boxes
20 160

Manual
horizontal adjustment of
equipment boxes
25 25

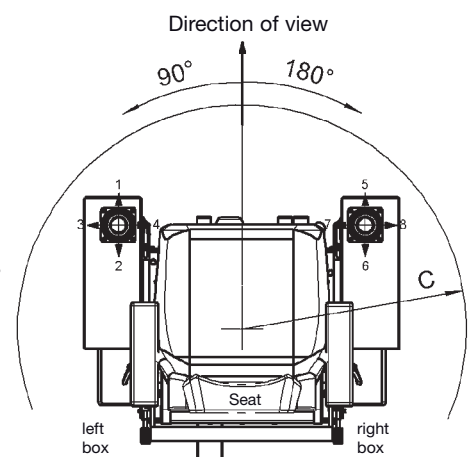
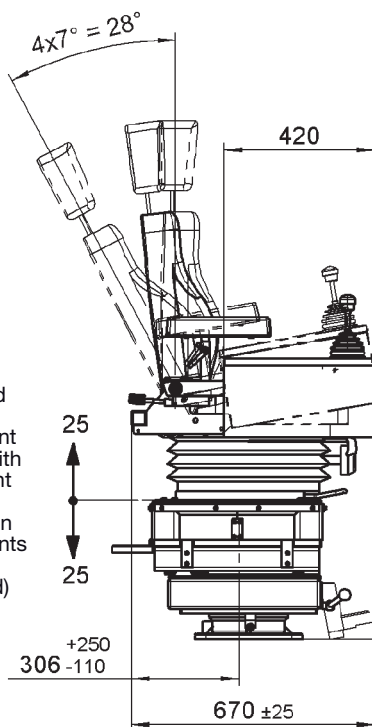
Manual
horizontal adjustment of
seat with equipment boxes
90 90

30
Manual
vertical adjustment
of seat with
equipment boxes
30

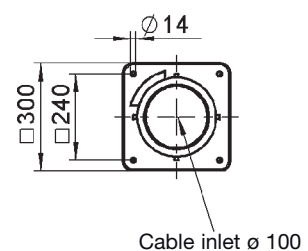
Manual inclination adjustment
of seat with equipment boxes
10° 5°

15
Manual
vertical adjustment
of footrest
15

Motorized
vertical adjustment
of seat with
equipment boxes
(inclination
adjustments
forward/
backward)



Floor mounting





Type KST19KFS102-...

The swivelling crane control unit KST 19 is designed in accordance with ergonomical and medical guidelines and provides a high grade of comfort.

The standard design includes following:

Equipment boxes: Sheet steel with armrest. The top panel of the equipment box (screwed together) includes the devices. Cabling is run through a duct into the cross-member. (Terminal block).

Seat: Comfortable spring mounted seat KFS 10, with a pneumatic vibration absorption system by compressor 24 V DC, weight adjustment and airpermeable artificial leather or textil material, with headrest and seat cushion deep prolongation.

Manual adjustments: (see catalog 2/111 Pos.)

- 1 Crane control unit swiveling
- 2 Horizontal adjustment seat with equipment boxes
- 3 Vertical weight adjustment seat incl. equipment boxes
- 5 Backrest adjustable
- 6 Horizontal adjustment of seat
- 7 Left / right equipment box is tiltable
- 8 Horizontal adjustment equipment box
- 9 Height adjustment equipment boxes to seat
- 10 Equipment boxes adjustment
- 11 Inclination adjustment of equipment boxes
- 12 Monitor mounting support rotatable
- 13 Monitor mounting support vertically adjustable

Cross-member: Steel section, can be opened (system tray) for easy accessibility of the terminals.

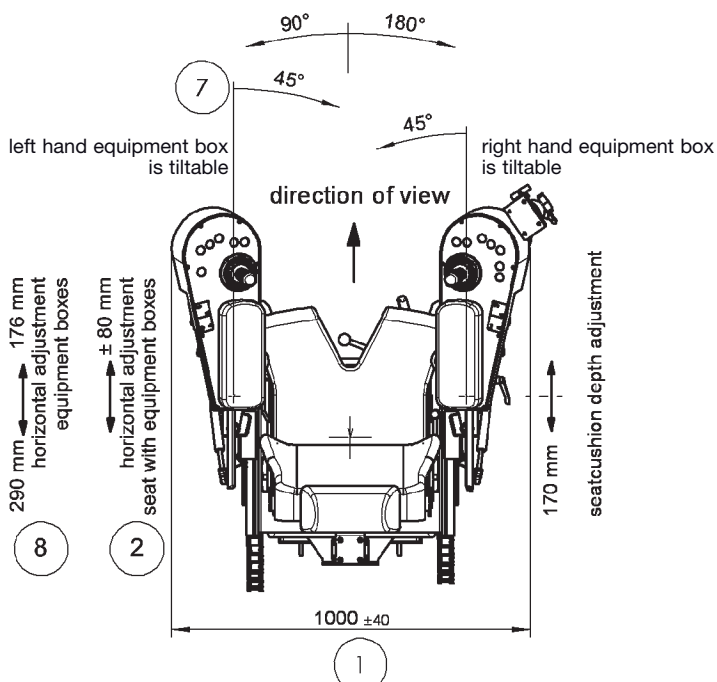
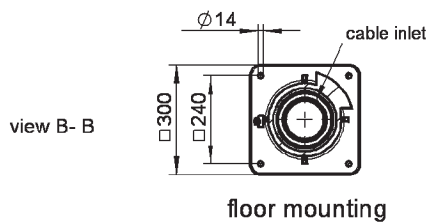
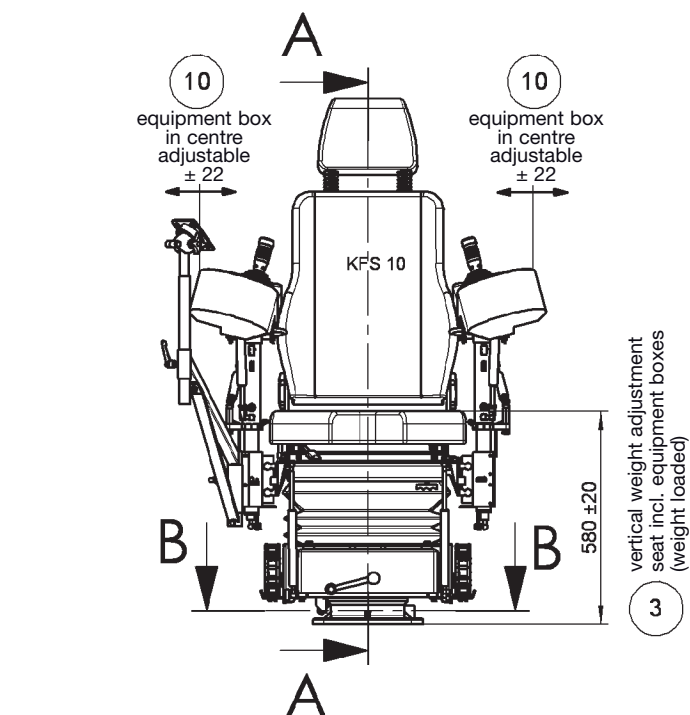
Swivel base: Zero-end-float spring-loaded bearing. Rotational movement 180° right, 90° left, stopped by friction brake.

Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey. textured varnish
All non-painted metal parts are electrogalvanized and chromed.

Description data see catalog 5/029

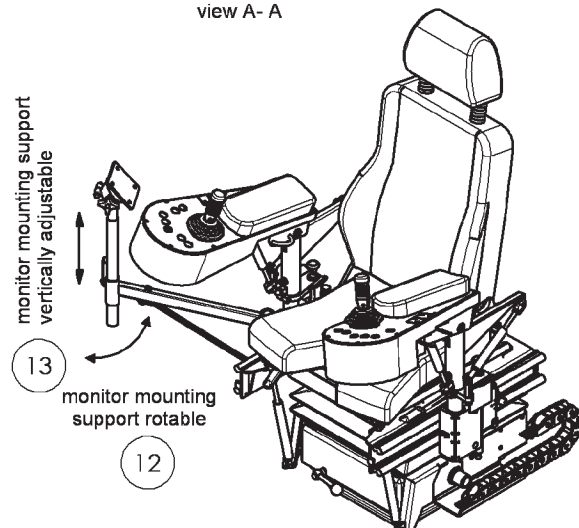
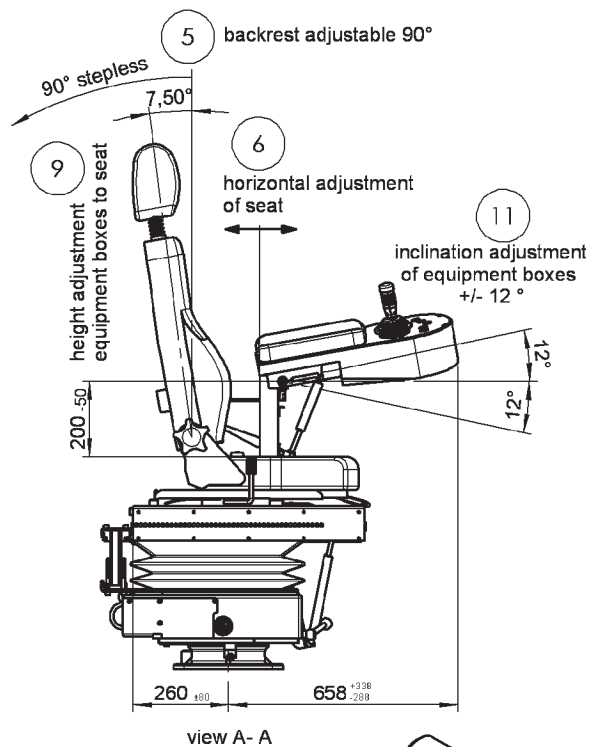
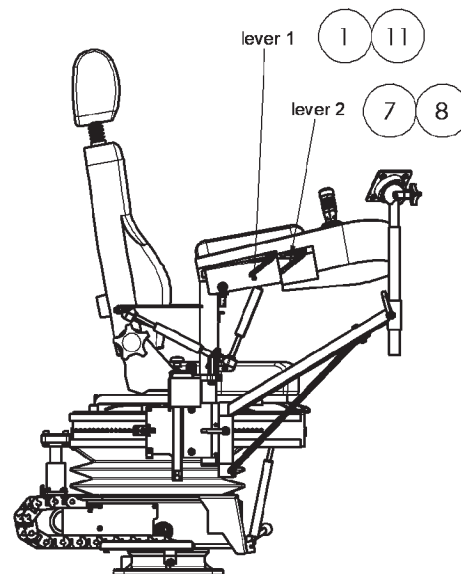
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 54 IEC/EN 60529

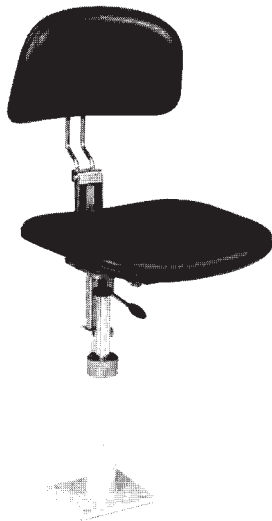
Pos.				Weight kg	Type	Price EURO
1 2 3	Crane control unit standard design			140	KST 19	
6 7	additional variations for driver's seat KFS 10 see catalog 2/142				KFS 10	
9 10 11	Monitor mounting support left or right Footrest (required) mounted onto swivel base adjustable ± 30 mm			10 8		
12 13 14	Plate for horizontal manual adjustment of control unit adjustable ± 250 mm			95		
20 21 22 23 24	Multi-axis controller V 11, V 14, V 25, V 85 see catalog 1/110 Command and indicating devices see catalog 1/360					
30 31 32 33	Terminal block 4 mm ² without wiring each terminal Terminal block 4 mm ² with wiring wire 1 mm ² each terminal External wiring single wire highly flexible 1,5 mm ² 5 metre long Additional or subtract price each metre				KL KL	
40 41 42	Special painted Indicating labels not engraved with 2 or 4 arrows Engraving, each 10 characters					



turning circle; without monitor:

working position = 750 mm
min. = 590 mm
max. = 1100 mm





Type KFS2

The crane driver's seat KFS 2 has stepless high adjustment by means of a gas-loaded spring.

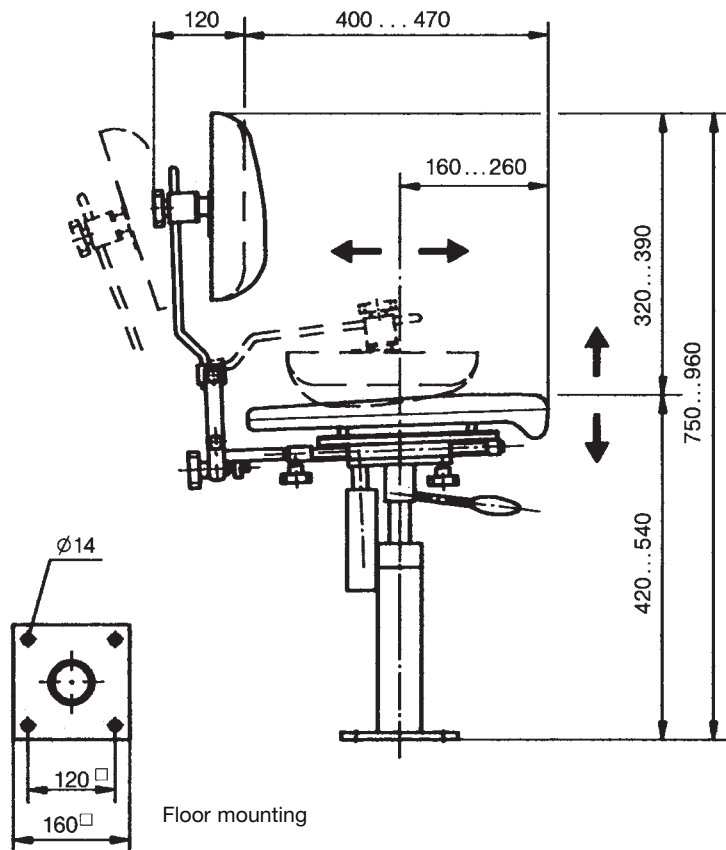
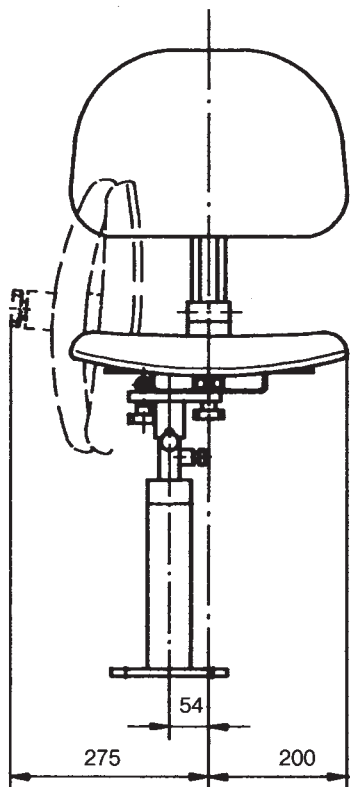
The backrest can be tilted, forwards onto the cushion, which in turn can then be tilted 90° sideways.

All these functions are performed easily via levers.

The metal parts are protected against corrosion and painted black.

Technical details:

Horizontal adjustment	100 mm
Backrest adjustment, fine control inclination backwards	max. 10°
Height adjustment	120 mm



Floor mounting

Pos.				Weight kg	Type	Price EURO
1	Driver's seat with air-permeable artificial leather cover black			15	KFS 21	
2	Driver's seat with textil cover grey / black			14	KFS 22	
3						
4						
5						
6						
7						
8						
9						
10						



Type KFS4

The crane driver's seat KFS 4 has stepless high adjustment by means of a gas-loaded spring and an oilhydraulic vibration absorption system with weight adjustment.

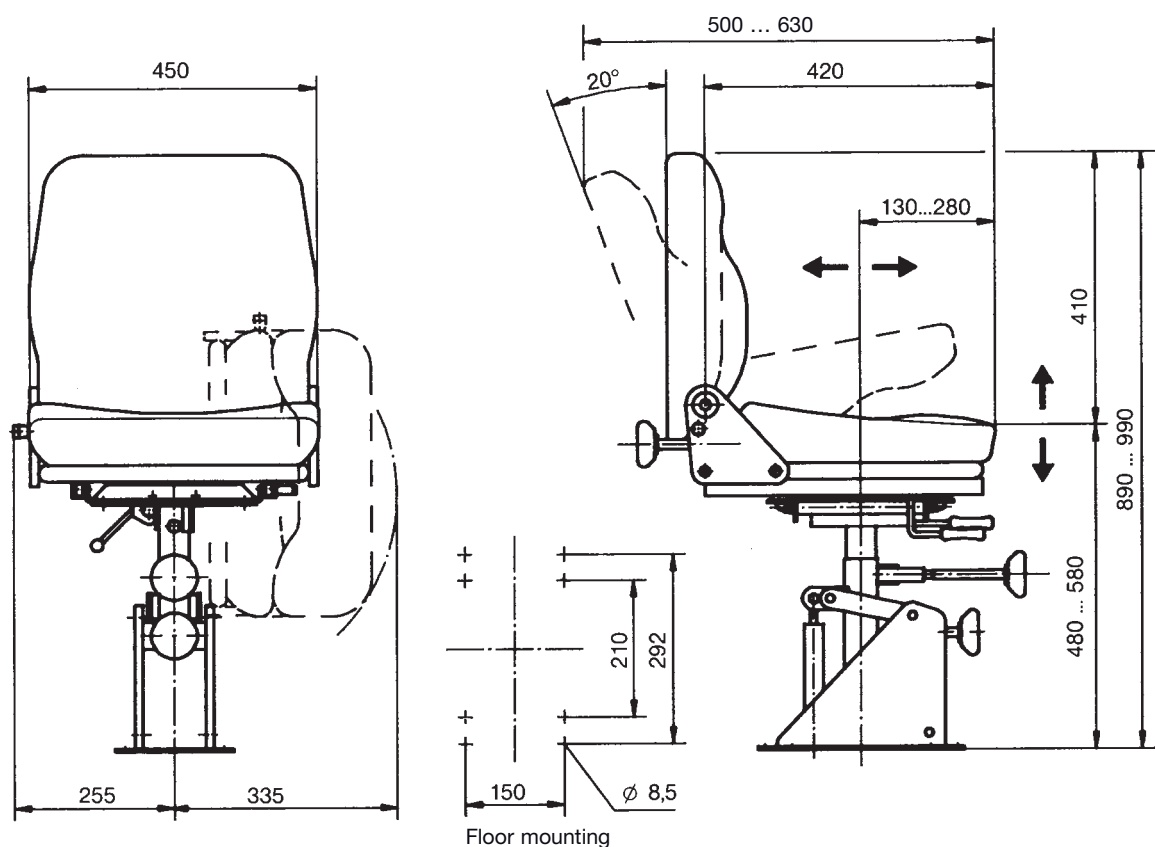
The backrest can be tilted, forwards onto the cushion, which in turn can then be tilted 90° sideways.

All these functions are performed easily via levers.

The metal parts are protected against corrosion and painted black.

Technical details:

Suspension stroke	80 mm
Weight adjustment	50-130 kg
Horizontal adjustment	150 mm
Backrest adjustment, fine control inclination backwards	max. 20°
Height adjustment	100 mm



Pos.				Weight kg	Type	Price EURO
1	Driver's seat with air-permeable artificial leather cover black			24	KFS 41	
2	Driver's seat with textil cover grey / black			24	KFS 42	
3						
4	Armrest fully adjustable (2 pieces) 50 mm wide					
5	Armrest fully adjustable (2 pieces) 100 mm wide					
6						
7						
8						
9						
10						



Type KFS62-2-5-6-24

The crane driver's seat KFS 6 is ergonomically designed and provides a high grade of comfort.

The driver's seat is a low level mechanical suspension seat with an oilhydraulic vibration absorption system with weight adjustment.

All adjustment controls are positioned ergonomically within easy access.

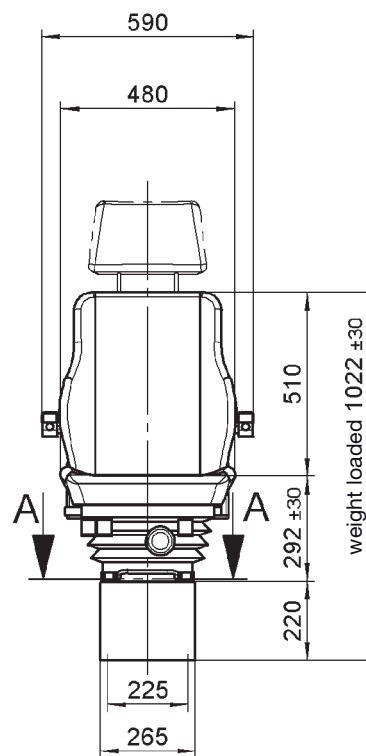
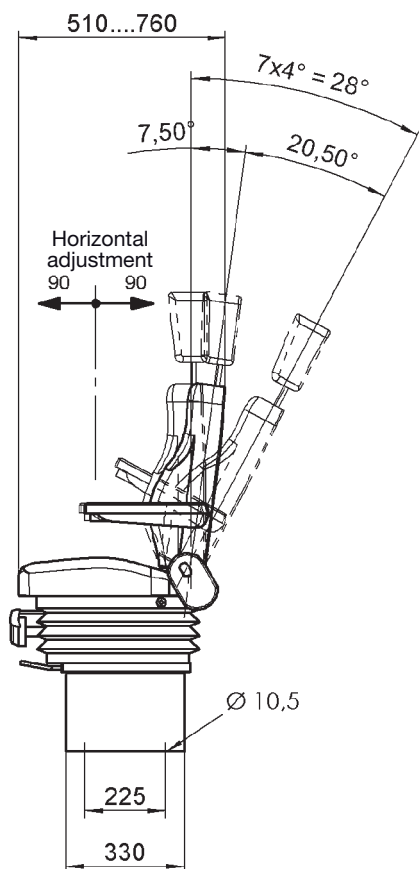
For this comfort driver's seat KFS 6 a lot of efficient accessories are available look Pos. 5-25.

The metal parts are protected against corrosion and painted black.

Technical detail:

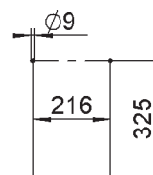
Suspension stroke	95 mm
Weight adjustment	40-130 kg
Horizontal adjustment	180 mm
Backrest adjustment, fine control inclination backwards	28° (90°)
Height and slope adjustment	65 mm

Pos.				Weight kg	Type	Price EURO
1	Driver's seat standard design with air-permeable artificial leather cover black			25	KFS 61	
2	Driver's seat standard design with textil cover grey / yellow			25	KFS 62	
3						
4						
5	Headrest raint					
6	Armrest fully adjustable (2 pieces) 50 mm wide					
7	Armrest fully adjustable (2 pieces) 100 mm wide					
8	Backrest high + 100 mm inclination backwards max. 56°					
9	Backrest standard with lumbar support manual adjustment					
10						
11	Seat cushion deep adjustment mechanical 60 mm					
12						
13	Seat contact 1 NO 1,5 A 24 V DC					
14	Seat cushion and backrest standard with heating element 24 V DC 42 Watt					
15						
16	Safety belt 2 point fixing					
17	Safety belt 4 point fixing (trouser braces belt) (Pos. 5 additionally required)					
18						
19						
20						
21						
22						
23						
24	Console			10		
25						



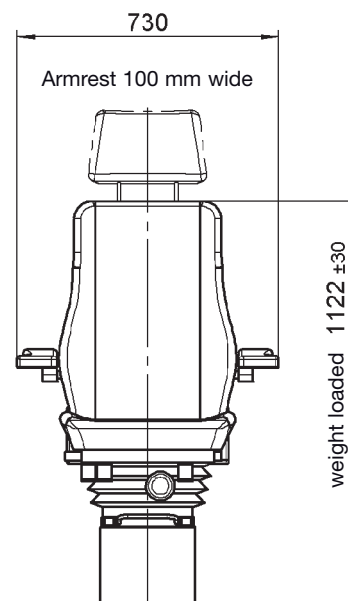
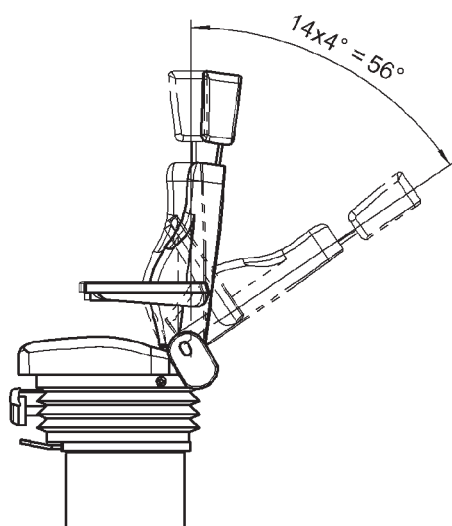
View A-A

Fastener dimensions
of seat slide



Backrest high

Special equipment





Type KFS72-2-5-7-24

The crane driver's seat KFS 7 is ergonomically designed and provides a high grade of comfort.

The driver's seat is a low level mechanical suspension seat with an oilhydraulic vibration absorption system with weight adjustment.

All adjustment controls are positioned ergonomically within easy access.

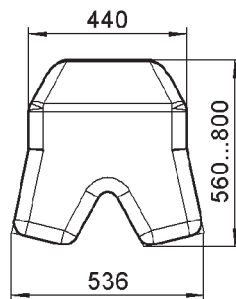
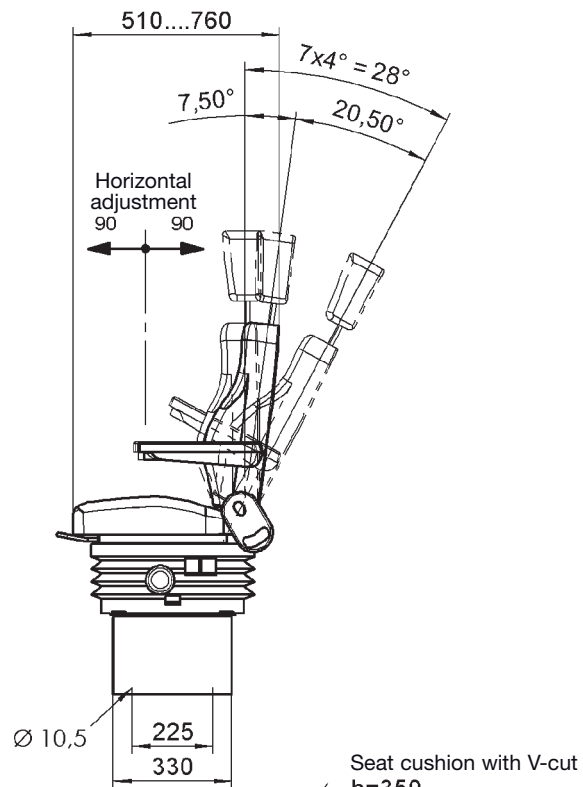
For this comfort driver's seat KFS 7 a lot of efficient accessories are available look Pos. 5-25.

The metal parts are protected against corrosion and painted black.

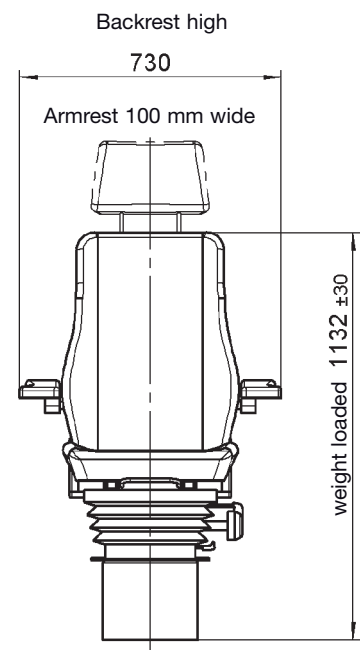
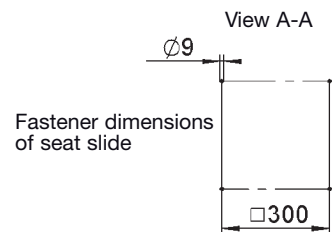
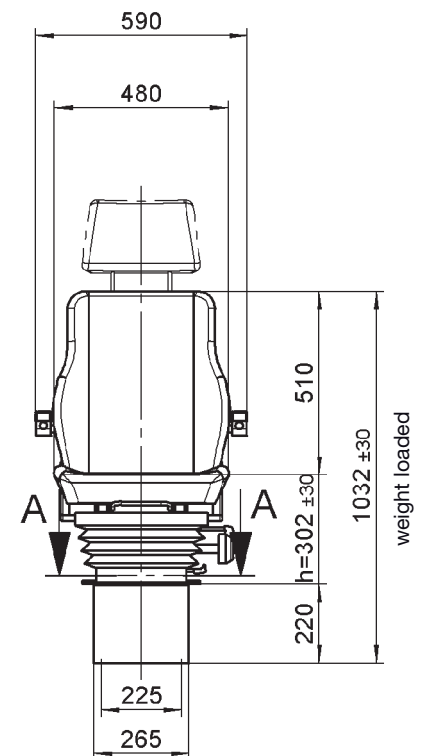
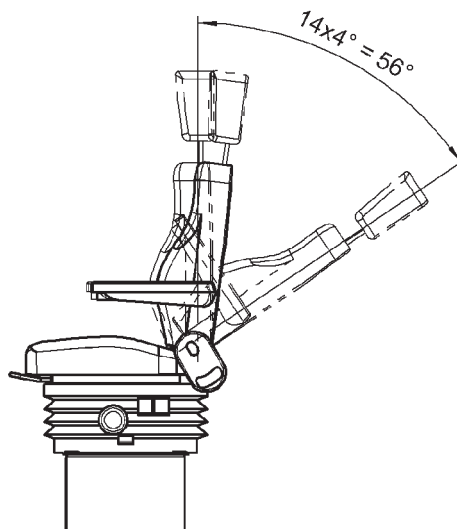
Technical detail:

Suspension stroke	60 mm
Weight adjustment	40-130 kg
Horizontal adjustment	180 mm, dual 300 mm
Backrest adjustment, fine control inclination backwards	28° (90°)
Height and slope adjustment	65 mm

Pos.				Weight kg	Type	Price EURO
1	Driver's seat standard design with air-permeable artificial leather cover black			25	KFS 71	
2	Driver's seat standard design with textil cover grey / yellow			25	KFS 72	
3						
4						
5	Headrest raint					
6	Armrest fully adjustable (2 pieces) 50 mm wide					
7	Armrest fully adjustable (2 pieces) 100 mm wide					
8	Backrest high + 100 mm inclination backwards max. 56°					
9	Backrest standard with lumbar support manual adjustment					
10						
11	Seat cushion deep adjustment mechanical 60 mm					
12	Seat cushion V-cut (free sight to down)					
13	Seat contact 1 NO 1,5 A 24 V DC					
14	Seat cushion and backrest standard with heating element 24 V DC 42 Watt					
15						
16	Safety belt 2 point fixing					
17	Safety belt 4 point fixing (trouser braces belt) (Pos. 5 additionally required)					
18						
19	Horizontal adjustment dual 180 + 120 mm (total 300 mm)					
20						
21						
22						
23						
24	Console			10		
25						



Special equipment





Type KFS82-2-5-6-24-25

The crane driver's seat KFS 8 is a static seat with ergonomically designed and provides a high grade of comfort.

The driver's seat KFS 8 is equipped with roller-bearing swivel system.

All adjustment controls are positioned ergonomically within easy access.

For this comfort driver's seat KFS 8 a lot of efficient accessories are available look Pos. 5-25.

The console are available to build in the heating 2-steps 2 x 2 kW 380 V AC, ventilator 380 V AC, airvolume ca. 1000 m³/h, air circulation (opening in the underside of the console), selector switch for heating / ventilator.

The metal parts are protected against corrosion and painted black.

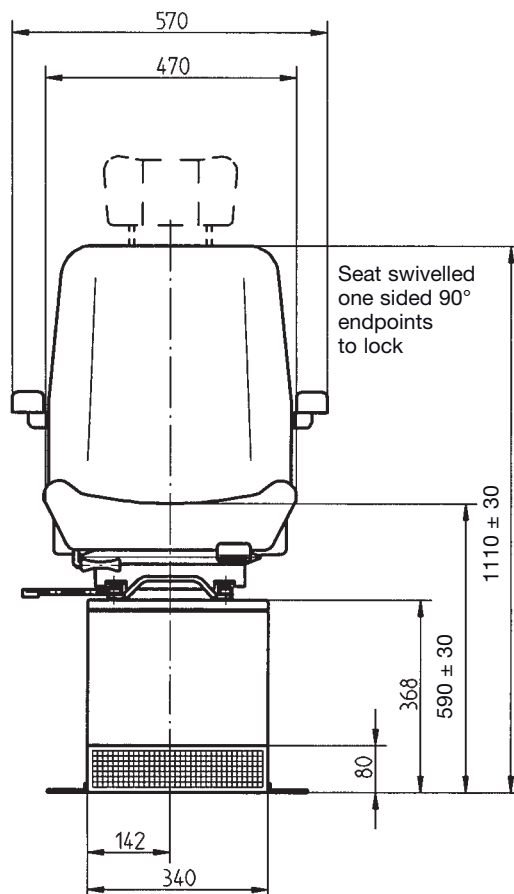
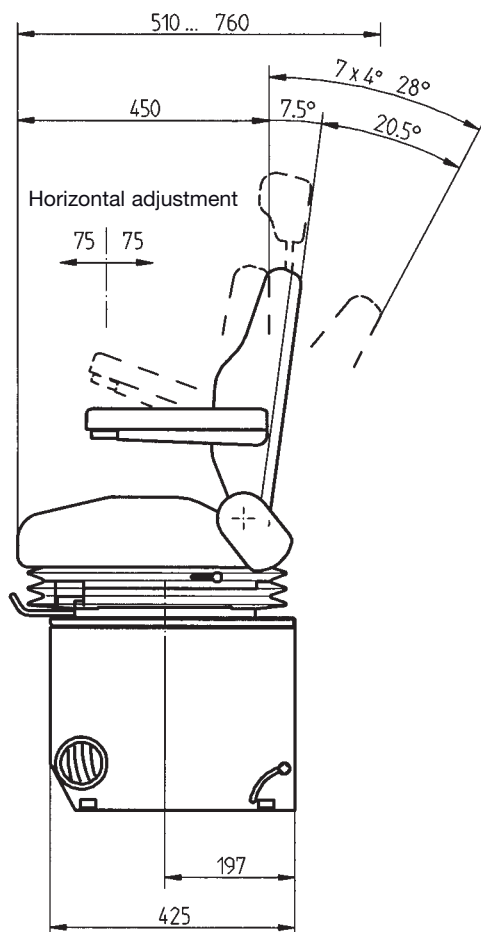
Technical detail:

Horizontal adjustment 150 mm

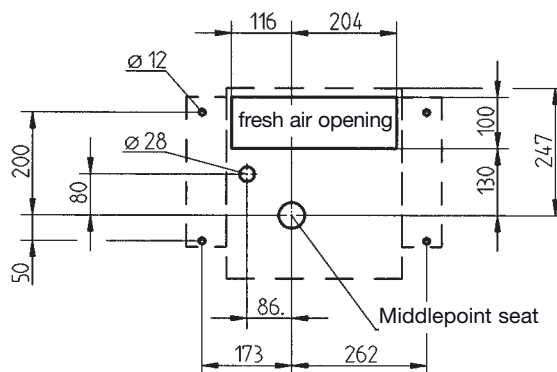
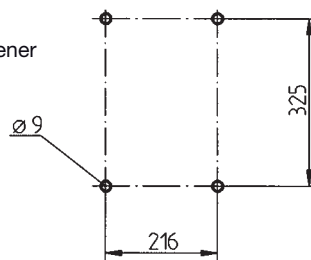
Backrest adjustment, fine control
inclination backwards 28°

Height and slope adjustment 65 mm

Pos.				Weight kg	Type	Price EURO
1	Driver's seat standard design with air-permeable artificial leather cover black			25	KFS 81	
2	Driver's seat standard design with textil cover grey / black			25	KFS 82	
3						
4						
5	Headrest raint					
6	Armrest fully adjustable (2 pieces) 50 mm wide					
7	Armrest fully adjustable (2 pieces) 100 mm wide					
8	Backrest high + 100 mm inclination backwards max. 90°					
9	Backrest with lumbar support manual adjustment					
10						
11	Seat cushion deep adjustment mechanical 60 mm					
12						
13						
14	Seat cushion and backrest standard with heating element 24 V DC 42 Watt					
15						
16	Safety belt 2 point fixing					
17	Safety belt 4 point fixing (trouser braces belt) (Pos. 5 additionally required)					
18						
19						
20						
21						
22						
23	Roller-bearing swivel system for seat (included in Pos. 1, 2)					
24	Console			10		
25	Heating 2 steps 2 x 2 kW 380 V AC with ventilator 380 V AC airvolume ca. 1000 m³/h with selector switch for heating / ventilator mounting into the console			10		



seat slide fastener
dimension





Type KFS92-2-5-6-24

The crane driver's seat KFS 9 is ergonomically designed and provides a high grade of comfort.

The driver's seat is a low level mechanical suspension seat with an oilhydraulic vibration absorption system with weight adjustment.

All adjustment controls are positioned ergonomically within easy access.

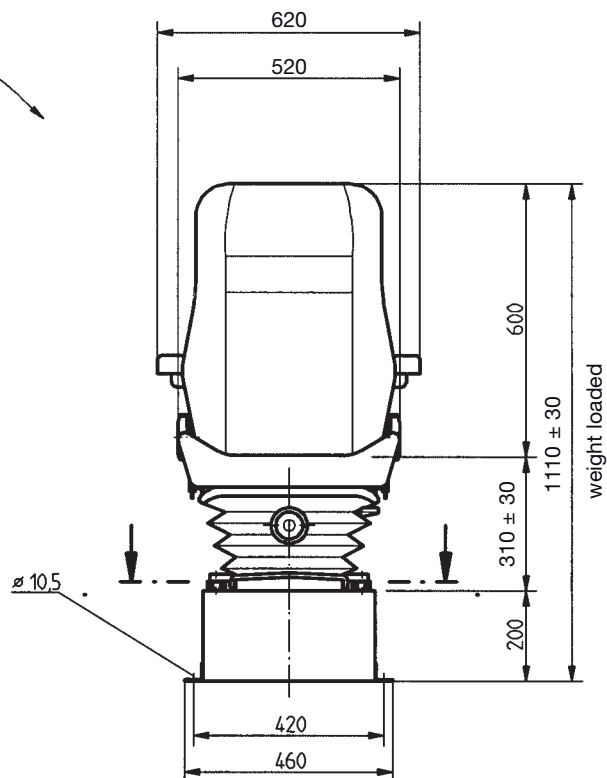
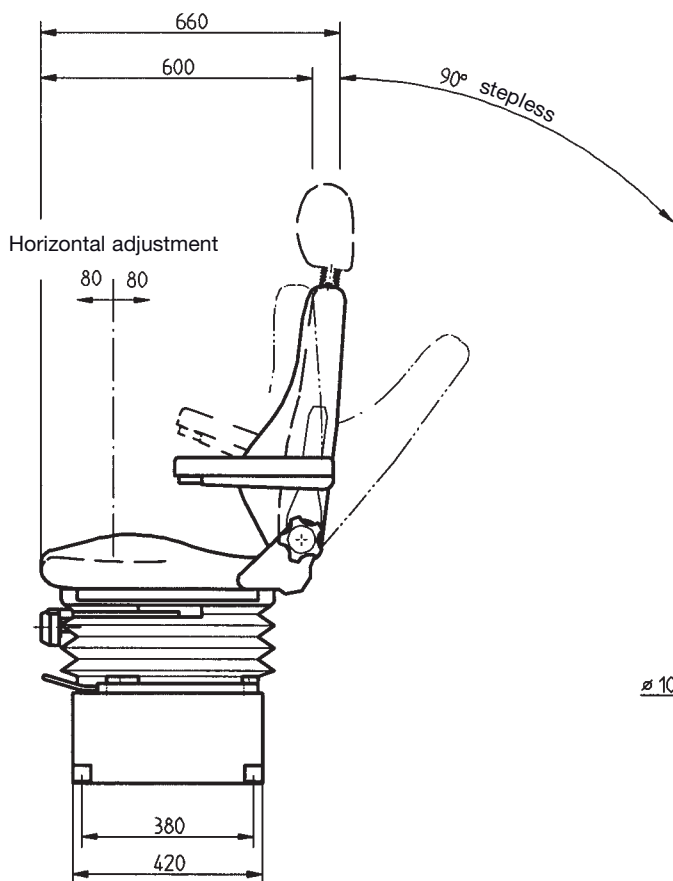
For this comfort driver's seat KFS 9 a lot of efficient accessories are available look Pos. 5-25.

The metal parts are protected against corrosion and painted black.

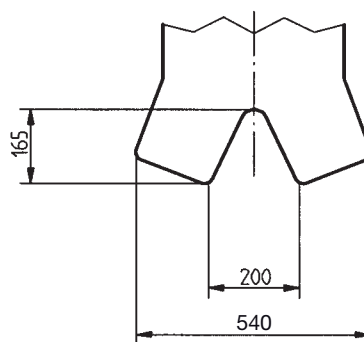
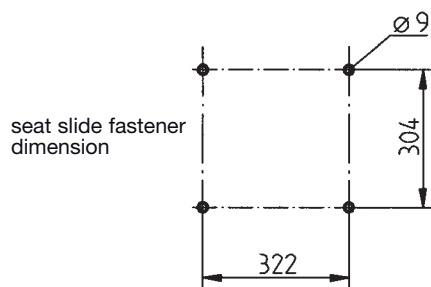
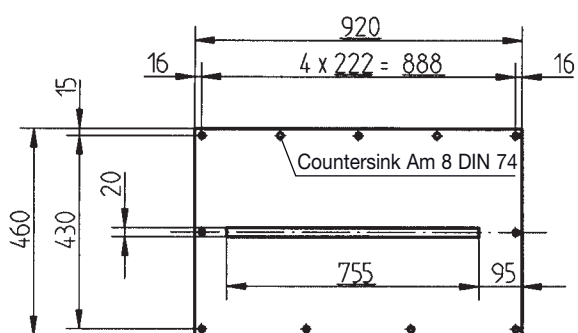
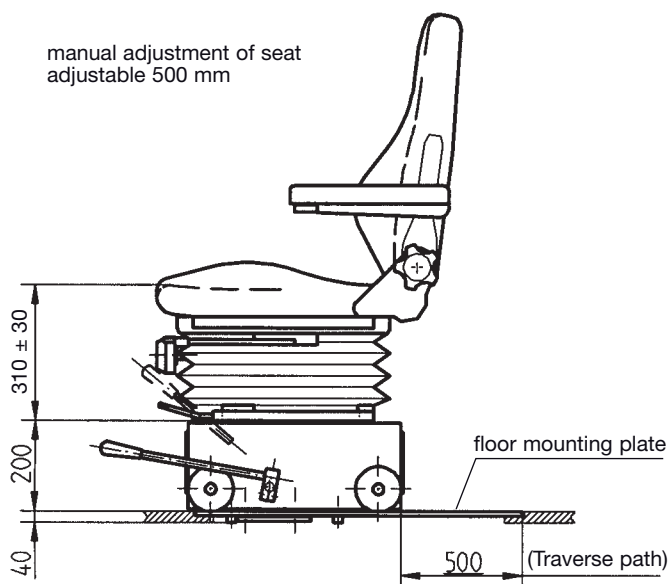
Technical detail:

Suspension stroke	80 mm
Weight adjustment	50–120 kg
Horizontal adjustment	160 mm
Backrest adjustment stepless inclination backwards	90°
Height and slope adjustment	60 mm

Pos.				Weight kg	Type	Price EURO
1	Driver's seat standard design with air-permeable artificial leather cover black			25	KFS 91	
2	Driver's seat standard design with textil cover grey / black			25	KFS 92	
3						
4						
5	Headrest raint					
6	Armrest adjustable (2 pieces) 50 mm wide					
7	Armrest adjustable (2 pieces) 100 mm wide					
8						
9	Backrest with lumbar support manual adjustment 2 movement					
10	Backrest with lumbar support manual adjustment 4 movement					
11						
12	Seat cushion V-cut (free sight to down) (Pos. 19 required)					
13	Seat contact 1 NO 1,5 A 24 V DC					
14	Seat cushion and backrest standard with heating element 24 V DC 47 Watt					
15	Seat cushion deep prolongation + 35 mm					
16	Safety belt 2 point fixing					
17	Safety belt 4 point fixing (trouser braces belt) (Pos. 5 additionally required)					
18						
19	Horizontal adjustment dual 160 + 120 mm (total 280 mm seat height + 30 mm)					
20	Pneumatic vibration absorption system with weight adjustment by compressor 24 V DC 8 Ampere					
21	Plate for horizontal manual adjustment of seat adjustable 500 mm with floor mounting plate					
22						
23	Loose cover					
24	Console					
25				10		



manual adjustment of seat
adjustable 500 mm





Type KFS102-2-5-7-12-24

The crane driver's seat KFS 10 is ergonomically designed and provides a high grade of comfort.

The driver's seat is a low level mechanical suspension seat with a pneumatic vibration absorption system with weight adjustment by compressor 24 V DC 8 Ampere.

All adjustment controls are positioned ergonomically within easy access.

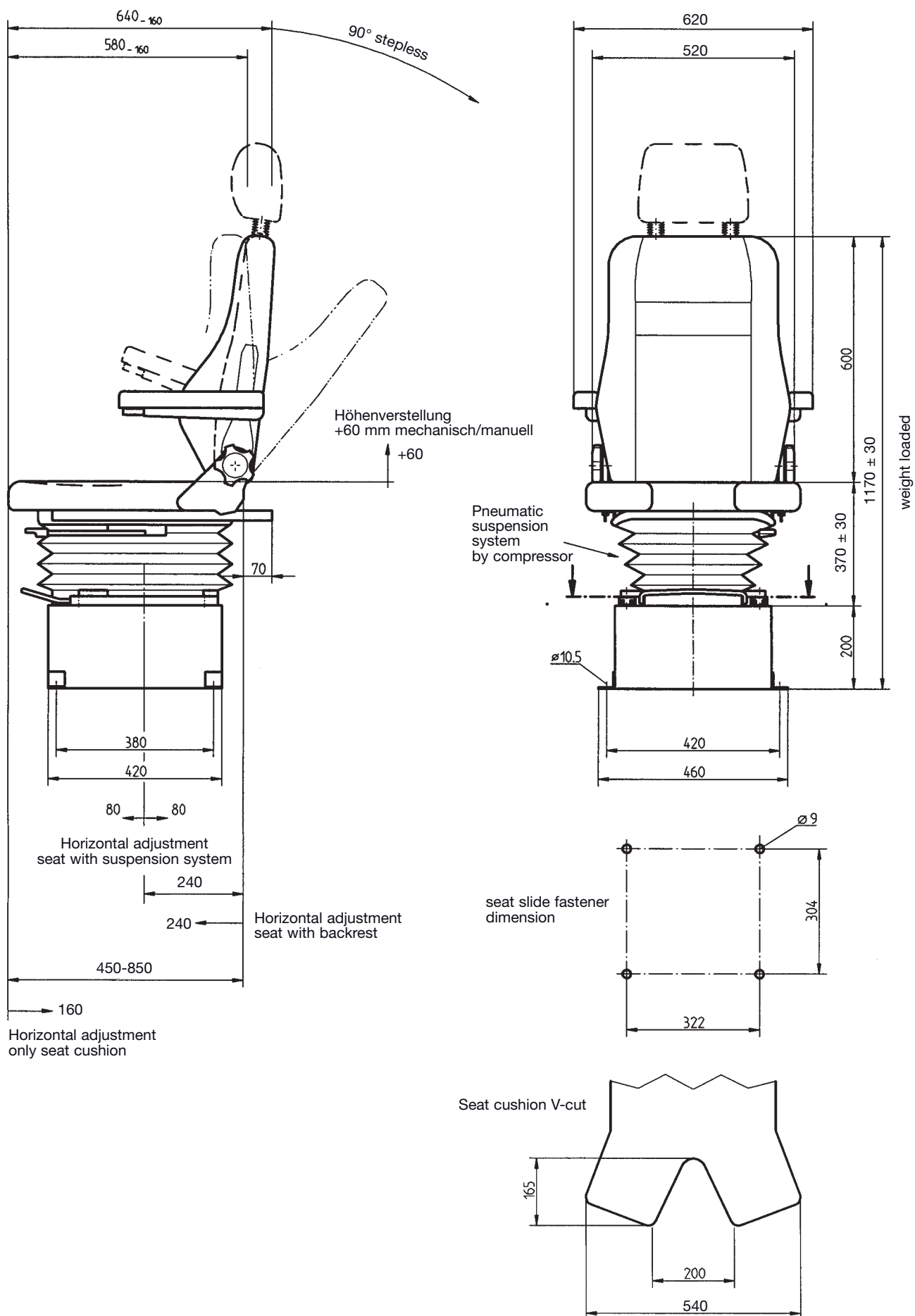
For this comfort driver's seat KFS 10 a lot of efficient accessories are available look Pos. 5-25.

The metal parts are protected against corrosion and painted black.

Technical detail:

Suspension stroke pneumatic	80 mm
Weight adjustment	50–130 kg
Horizontal adjustment seat with suspension system	160 mm
Horizontal adjustment seat with backrest	260 mm
Horizontal adjustment only seat cushion	150 mm
Backrest adjustment stepless inclination backwards	90°
Height and slope adjustment mechanical	60 mm

Pos.				Weight kg	Type	Price EURO
1	Driver's seat standard design with air-permeable artificial leather cover black			25	KFS 101	
2	Driver's seat standard design with textil cover grey / black			25	KFS 102	
3						
4						
5	Headrest raint					
6	Armrest adjustable (2 pieces) 50 mm wide					
7	Armrest adjustable (2 pieces) 100 mm wide					
8						
9	Backrest with lumbar support manual adjustment 2 movement					
10	Backrest with lumbar support manual adjustment 4 movement					
11						
12	Seat cushion V-cut (free sight to down)					
13	Seat contact 1 NO 1,5 A 24 V DC					
14	Seat cushion and backrest standard with heating element 24 V DC 47 Watt					
15	Seat cushion deep prolongation +35 mm					
16	Safety belt 2 point fixing					
17	Safety belt 4 point fixing (trouser braces belt) (Pos. 5 additionally required)					
18						
19						
20						
21						
22						
23						
24	Console			10		
25						





Type TS1-1-5

The portable control unit TS 1 accommodates all the devices necessary for control and monitoring. The chest panel and straps enable the operator to carry it without becoming tired. An adjustable carrying strap can also be fitted for use without the chest plate.

The control console is made of polyester (glass fibre reinforced plastic).
Colour RAL 7032 pebble-grey.
It can also be supplied as RAL 1021 yellow.

Permissible ambient temperature

Operation -40° C to +60° C

Storage -50° C to +80° C

Climate resistance

Damp heat constant

Damp heat cyclic

Degree of protection

IEC 60068-2-78

IEC 60068-2-30

control unit IP 65 with

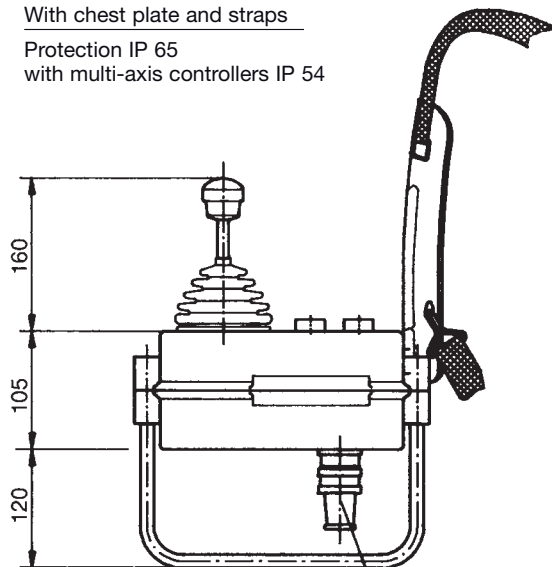
multi-axis controller IP 54

to IEC/EN 60529

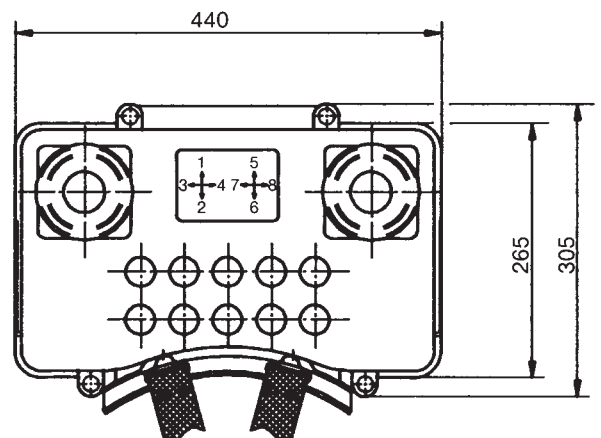
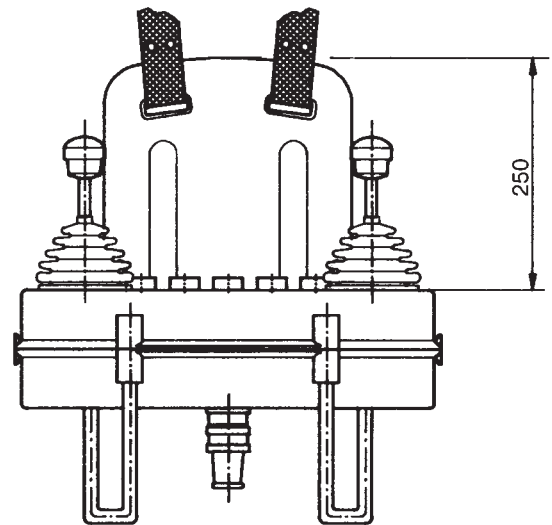
Pos.				Weight gramm	Type	Price EURO
1	Control unit with chest plate and straps			3300	TS 1	
2	Control unit with straps			3000	TS 11	
3						
4	Plastic housing with surface resistance of less than < 10 ⁹ Ohm/cm					
5	Legs for control unit alu-tube 2 pieces			320		
6	Legs for control unit stainless steel-tube V2 A 2 pieces			600		
7	Reeling hooks for control unit stainless steel V2 A			1200		
8	Cable entry M 32 for cable 11-21 mm or M 40 for cable 19-28 mm			80		
9						
10	Multi-axis controller	see catalog 1/100				
11	Single-axis controller	see catalog 1/180				
12						
13	Control-switch	see catalog 1/230				
14	Command and indicating devices	see catalog 1/360				
15	Plug in socket 16-pole male insert	HAN 16 E without wiring		200		
16	Connector 16-pole female insert	HAN 16 E without wiring		250		
17	Plug in socket 24-pole male insert	HAN 24 E without wiring		320		
18	Connector 24-pole female insert	HAN 24 E without wiring		340		
19	Plug in socket 32-pole male insert	HAN 32 A without wiring		380		
20	Connector 32-pole female insert	HAN 32 A without wiring		400		
21	Cable Oelflex 18 x 1 mm ² 13,4 mm ø	-5° C to +80° C each metre		320		
22	Cable Oelflex 25 x 1 mm ² 15,4 mm ø	-5° C to +80° C each metre		450		
23	Cable Oelflex 34 x 1 mm ² 18,6 mm ø	-5° C to +80° C each metre		600		
24	Cable Neoflex 18 x 1 mm ² 19,2 mm ø	-30° C to +80° C each metre		470		
25	Cable Neoflex 24 x 1 mm ² 22,1 mm ø	-30° C to +80° C each metre		650		
26	Cable Neoflex 36 x 1 mm ² 26,1 mm ø	-30° C to +80° C each metre		910		
27						
30	Terminal block 2,5 mm ² without wiring each terminal				KL	
31	Terminal block 2,5 mm ² with wiring wire 1 mm ² each terminal				KL	
32	Wired plug in socket, connector or cable each wire terminal					
33						
34						
40	Indicating labels not engraved with 2 or 4 arrows					
41	Engraving, each 10 characters					



With chest plate and straps
Protection IP 65
with multi-axis controllers IP 54

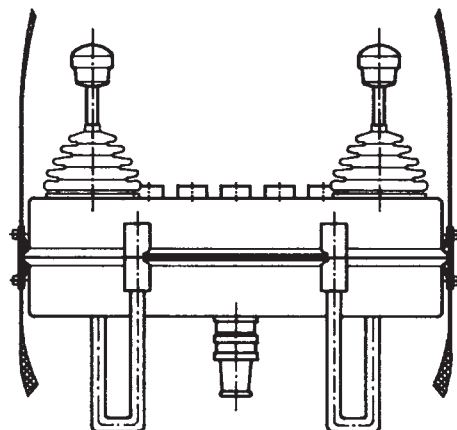
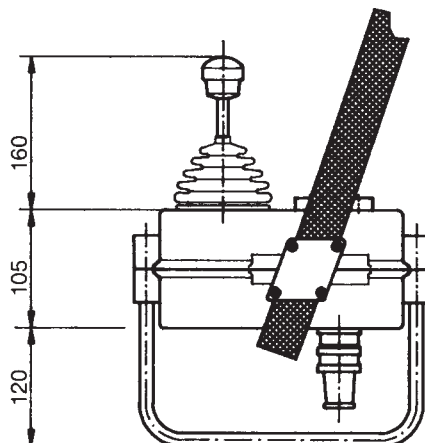


Cable entry
with anti-kink protection and
strain relief or connectors



Direction of view

With adjustable carrying strap
Protection IP 65
with multi-axis controllers IP 54





Type TS22-3-9-...

The portable control unit TS 2 accommodates all the devices necessary for control and monitoring. The chest panel and straps enable the operator to carry it without becoming tired. An adjustable carrying strap can also be fitted for use without the chest plate.

The control console is made of polyester (glass fibre reinforced plastic).
Colour RAL 7032 pebble-grey.
It can also be supplied as RAL 1021 yellow.

Permissible ambient temperature

Operation -40° C to +60° C
Storage -50° C to +80° C

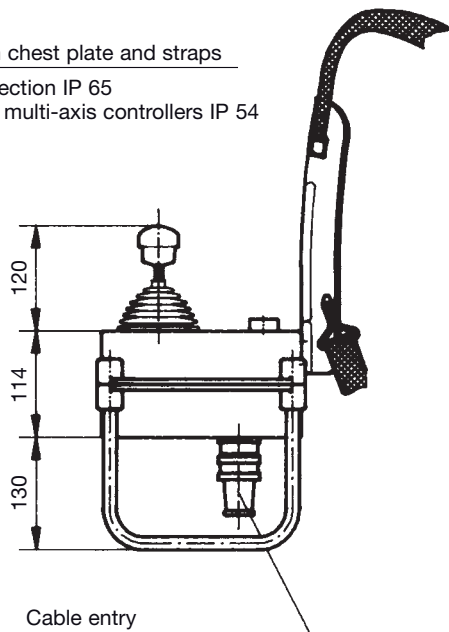
Climate resistance
Damp heat constant
Damp heat cyclic
Degree of protection

IEC 60068-2-78
IEC 60068-2-30
control unit IP 65 with
multi-axis controller IP 54
to IEC/EN 60529

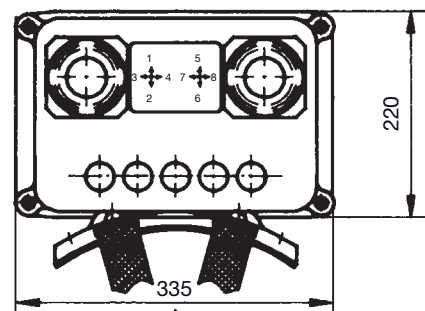
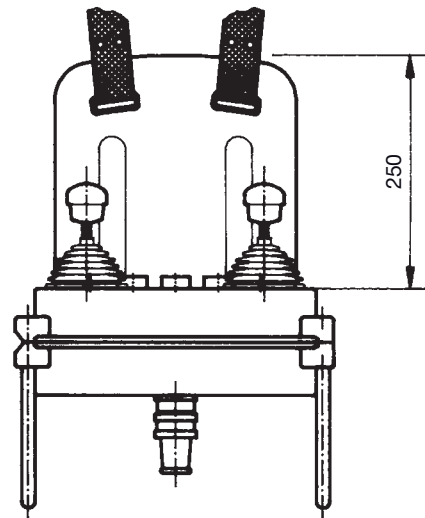
Pos.				Weight gramm	Type	Price EURO
1	Control unit with chest plate and straps			2400	TS 2	
2	Control unit with straps			2100	TS 21	
3	Control unit with bracket and straps			2400	TS 22	
4	Plastic housing with surface resistance of less than < 10 ⁹ Ohm/cm					
5	Legs for control unit alu-tube 2 pieces			320		
6	Legs for control unit stainless steel-tube V2 A 2 pieces			600		
7	Reeling hooks for control unit stainless steel V2 A			1200		
8	Cable entry M 32 for cable 11-21 mm or M 40 for cable 19-28 mm			80		
9	Cable entry 180° swivelling M 32 for cable 11-21 mm or M 40 for cable 19-28 mm			190		
10	Multi-axis controller	see catalog 1/100				
11	Single-axis controller	see catalog 1/180				
12						
13	Control-switch	see catalog 1/230				
14	Command and indicating devices	see catalog 1/360				
15	Plug in socket 16-pole male insert	HAN 16 E without wiring		200		
16	Connector 16-pole female insert	HAN 16 E without wiring		250		
17	Plug in socket 24-pole male insert	HAN 24 E without wiring		320		
18	Connector 24-pole female insert	HAN 24 E without wiring		340		
19	Plug in socket 32-pole male insert	HAN 32 E without wiring		380		
20	Connector 32-pole female insert	HAN 32 E without wiring		400		
21	Cable Oelflex 18 x 1 mm ² 13,4 mm ø	-5° C to +80° C each metre		320		
22	Cable Oelflex 25 x 1 mm ² 15,4 mm ø	-5° C to +80° C each metre		450		
23	Cable Oelflex 34 x 1 mm ² 18,6 mm ø	-5° C to +80° C each metre		600		
24	Cable Neoflex 18 x 1 mm ² 19,2 mm ø	-30° C to +80° C each metre		470		
25	Cable Neoflex 24 x 1 mm ² 22,1 mm ø	-30° C to +80° C each metre		650		
26	Cable Neoflex 36 x 1 mm ² 26,1 mm ø	-30° C to +80° C each metre		910		
27						
30	Terminal block 2,5 mm ² without wiring each terminal				KL	
31	Terminal block 2,5 mm ² with wiring wire 1 mm ² each terminal				KL	
32	Wired plug in socket, connector or cable each wire-connection					
33						
34						
40	Indicating labels not engraved with 2 or 4 arrows					
41	Engraving, each 10 characters					



With chest plate and straps
Protection IP 65
with multi-axis controllers IP 54

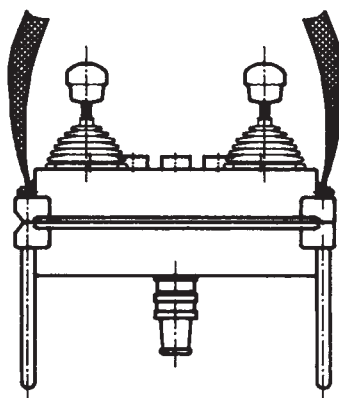
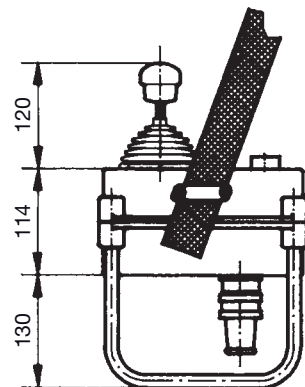


Cable entry
with anti-kink protection and
stain relief or connectors

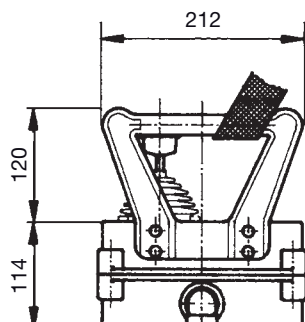


Direction of view

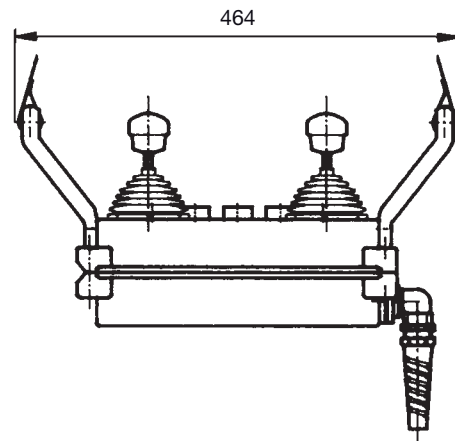
With adjustable carrying strap
Protection IP 65
with multi-axis controllers IP 54

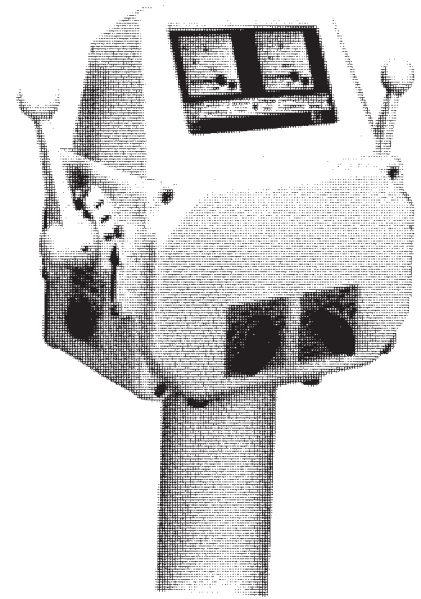


With bracket and cable entry swivelling
Protection IP 65 with multi-axis controllers IP 54



Cable entry 180°
swivelling
with anti-kink protection
and stain relief or connectors





Type U22/32/FD/HD/IA/RS/-...

The control pedestal U 22/32 accommodates the devices necessary for control and monitoring.

Ready wired, it can be quickly and easily installed on the sea deck.
The housing (pedestal head) is made of seawater-resistant aluminium.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

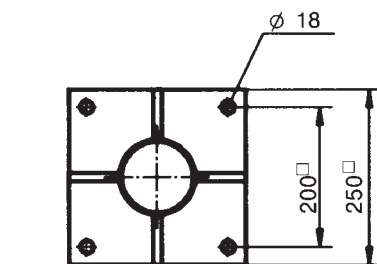
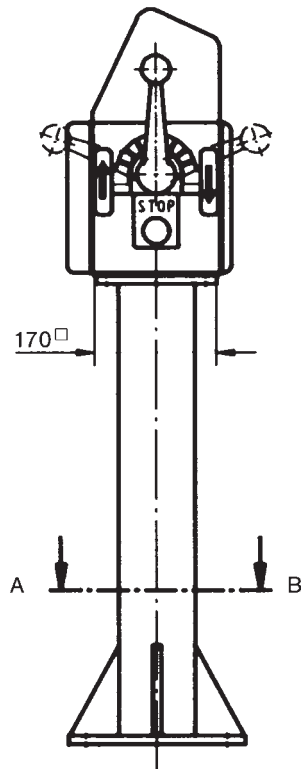
Surface treatment: Anti-corrosion primer, top coat: two coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey textured varnish

All non-painted metal parts are electrogalvanized and chromed.
All mechanical operating parts are made of non-rusting materials.

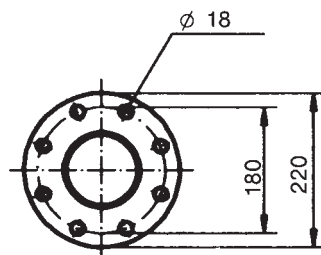
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection IP 66 IEC/EN 60529

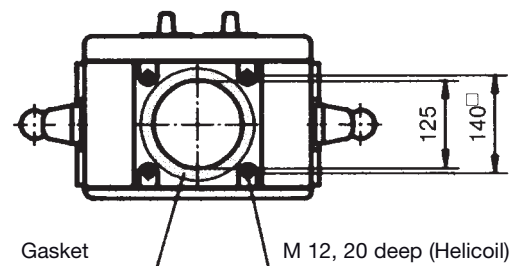
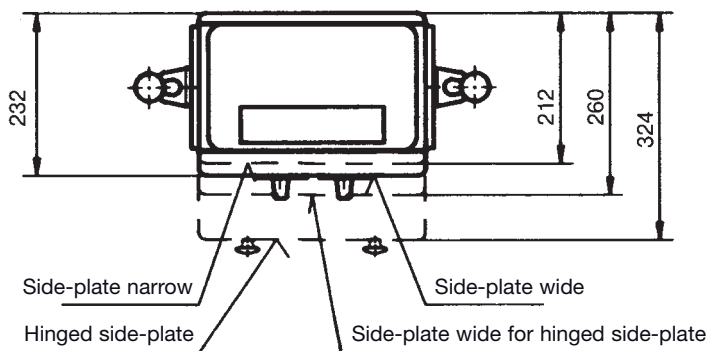
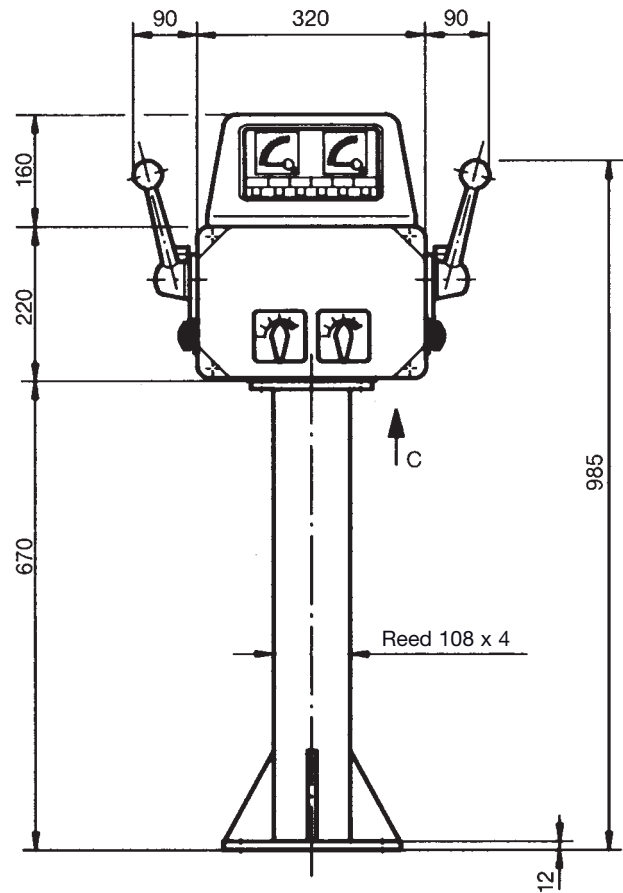
Pos.			Weight kg	Type	Price EURO
1	Housing U 22 / 32 with 1 narrow side-plate with pillar-gasket		6,8	U22/32	
2	Side-plate narrow gasket		1,8	FD	
3	Side-plate wide with gasket (required for command and indicating devices Pos. 22-26)		2,4	HD	
4	Hinged side-plate with gasket that can be locked in position (cover for command and indicating devices)		4,0	KD	
5	Monitoring devices cover with gasket for max. 2 monitors 72 x 72 mm or 4 monitors 72 x 36 mm and max. 6 indicating devices Pos. 28, 29		2,9	IA	
6	Pillar 108 mm ø 670 mm height with flange quadratic or round		18,8	RS	
10	Masterswitch with 6 contacts, with spring return in 0-position with ball handle and indicating labels drive		2,0	N61-HG-03Z	
11	Control-switches with 4 contacts with knob and indicating label		0,7	N62-KN-02 ± 01	
12	Additional or subtract price each 2 contacts				
13	more variants see catalog 1/230				
14	Wire-wound potentiometer T 130 with centre tap linear life 10 ⁷ switching cycles resistance 2 x 0,5 / 1 / 2 / 5 / 10 kOhm 1,5 Watt wiper current max. 10 mA		0,07	P	
15	more potentiometer see catalog 1/240ff				
16	Control-switch with 4 contacts with knob and indicating label	protection IP67	0,4	RWSE	
17	Additional or subtract price each 2 contacts				
20	Heating 20 Watt 220 or 110 V / 50/60 Hz		0,15	H	
21	Mushroom head push button latching 22 with indicating label	1 NC	0,1	PV	
22	Mushroom head push button 22 with indicating label	1 NO	0,1	P	
23	Push button 22 with indicating label	1 NO	0,1	D	
24	Selector switch 0-1 22 with indicating label	1 NO	0,1	W	
25	Indicator light 22 with indicating label	Diode 24 Volt	0,1	L	
26	Indicator light 22 with indicating label	Diode 230 Volt AC	0,1	L	
27	Contact block additional	1 NO or 1 NC			
28	Indicator light 22 with indicating label	Diode 24 Volt protection IP65	0,05	L	
29	Indicator light 10 with indicating label	Diode 24 Volt protection IP65	0,03	L	
35	Power monitoring PQ 72 1 mA DC	Engraved your instructions	0,2	PQ	
36	Power monitoring PQ 72 x 36 1 mA DC	Engraved your instructions	0,3	PQ	
37	Ampere monitoring EQ 72 100 / 200 / 1 A	Engraved your instructions	0,2	EQ	
38	Ampere monitoring EQ 72 x 36 100 / 200 / 1 A	Engraved your instructions	0,3	EQ	
39	Monitoring illuminated	24 Volt			
40	Another electrical value are available				
45	Terminal block 2,5 mm ² without wiring	each terminal		KL	
46	Terminal block 2,5 mm ² with wiring wire 0,75 mm ²	each terminal		KL	
47					
48					
49					
50	Engraving, each 10 characters				



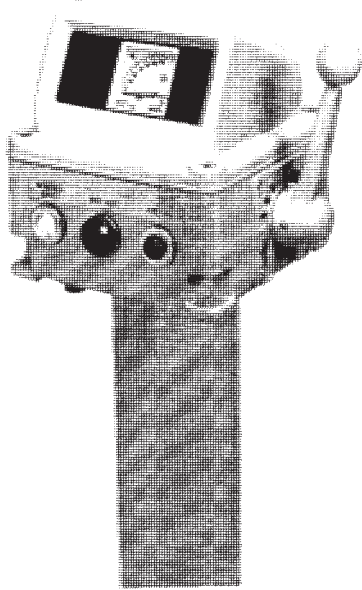
View A - B



View A - B
(option flange NW 100, DIN 2633)



View C



Type U23/23/IA/RS/...

The control pedestal U 23/23 accommodates the devices necessary for control and monitoring.

Ready wired, it can be quickly and easily installed on the sea deck.
The housing (pedestal head) is made of seawater-resistant aluminium.

**Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation**

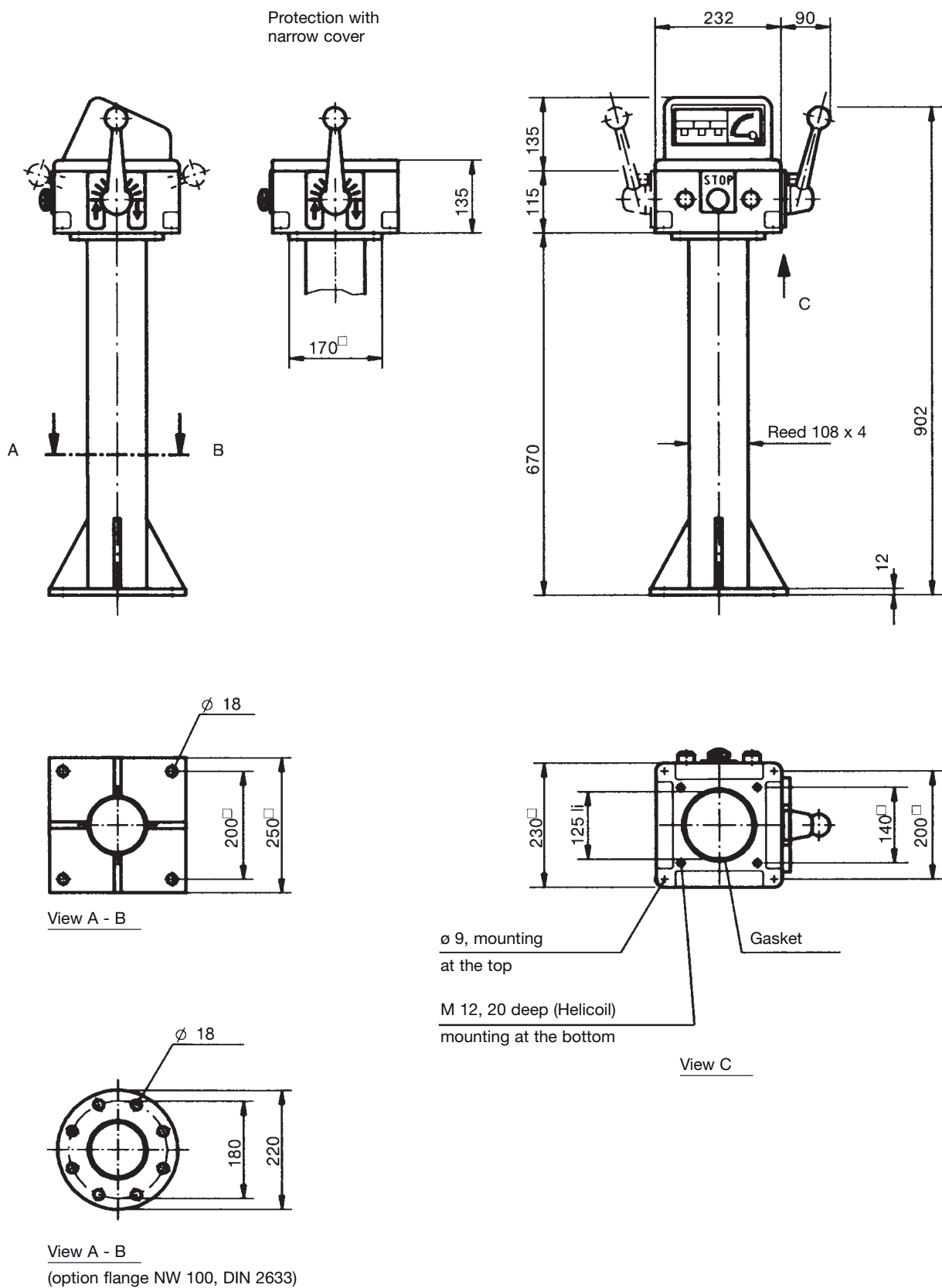
Surface treatment: Anti-corrosion primer, top coat: two coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey textured varnish

All non-painted metal parts are electrogalvanized and chromed.
All mechanical operating parts are made of non-rusting materials.

Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection IP 66 IEC/EN 60529

Pos.			Weight kg	Type	Price EURO
1	Housing U 23 / 23 with 1 narrow cover with pillar-gasket		5,3	U23/23	
2	Housing U 23 / 23 with 1 narrow cover without thrilling in the housing		5,4	U23/23	
3					
4					
5	Monitoring devices cover with gasket for max. 2 monitors 72 x 72 mm or 1 monitors 72 x 72 mm and max. 6 indicating devices Pos. 28, 29		2,3	IA	
6	Pillar 108 mm ø 670 mm height with flange quadratic or round		18,8	RS	
10	Masterswitch with 6 contacts, with spring return in 0-position, with ball handle and indicating labels drive		2,0	N61-HG-03Z	
11	Control switches with 4 contacts with knob and indicating label		0,7	N62-KN-02	
12	Additional or subtract price each 2 contacts			± 01	
13	more variants see catalog 1/230				
14	Wire-wound potentiometer T 130 with centre tap linear life 10 ⁷ switching cycles resistance 2 x 0,5 / 1 / 2 / 5 / 10 kOhm 1,5 Watt wiper current max. 10 mA		0,07	P	
15	more potentiometer see catalog 1/240ff				
16	Control-switch with 4 contacts with knob and indicating label		0,4	RWSE	
17	Additional or subtract price each 2 contacts				
20	Heating 20 Watt 220 V or 110 V / 50/60 Hz		0,15	H	
21	Mushroom head push button latching 22 with indicating label	1 NC	0,1	PV	
22	Mushroom head push button 22 with indicating label	1 NO	0,1	P	
23	Push button 22 with indicating label	1 NO	0,1	D	
24	Selector switch 0-1 22 with indicating label	1 NO	0,1	W	
25	Indicator light 22 with indicating label	Diode 24 Volt	0,1	L	
26	Indicator light 22 with indicating label	Diode 230 Volt AC	0,1	L	
27	Contact block additional	1 NO or 1 NC			
28	Indicator light 22 with indicating label	Diode 24 Volt protection IP65	0,05	L	
29	Indicator light 10 with indicating label	Diode 24 Volt protection IP65	0,03	L	
35	Power monitoring PQ 72 1 mA DC	Engraved your instructions	0,2	PQ	
36					
37	Ampere monitoring EQ 72 100 / 200 / 1 A	Engraved your instructions	0,2	EQ	
38					
39	Monitoring illuminated	24 Volt			
40	Another electrical value available				
45	Terminal block 2,5 mm ² without wiring	each terminal		KL	
46	Terminal block 2,5 mm ² with wiring wire 0,75 mm ²	each terminal		KL	
47					
48					
49					
50	Engraving, each 10 characters				





Type U25/32/IA/RS/...

The control pedestal U 25/32 accomodates the devices necessary for control and monitoring.

Ready wired, it can be quickly and easily installed on the sea deck.
The housing (pedestal head) is made of seawater-resistant aluminium.

Contact complement 2 A 250 V AC 15 or 1 A 24 V DC 13 (standard)
or 4 A 250 V AC 15 (special) with positive opening operation

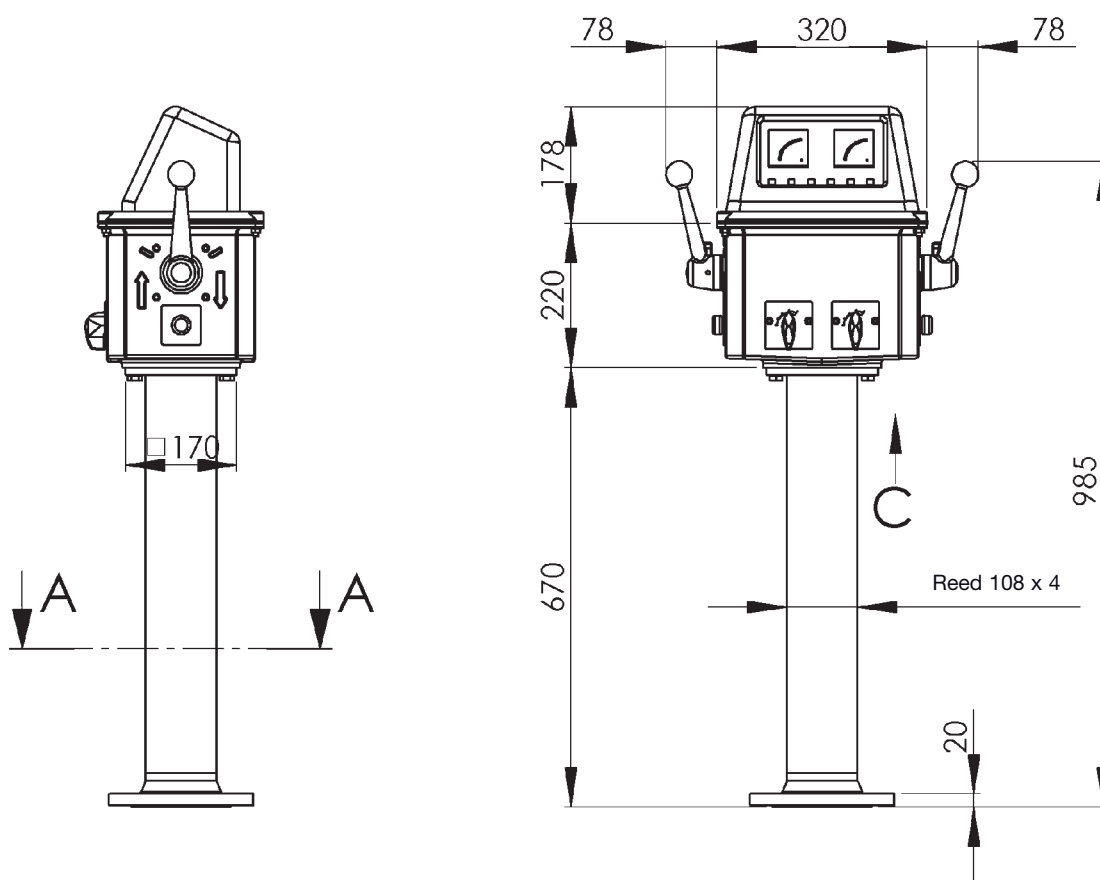
Surface treatment: Anti-corrosion primer, top coat: two coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey textured varnish

All non-painted metal parts are electrogalvanized and chromed.
All mechanical operating parts are made of non-rusting materials.

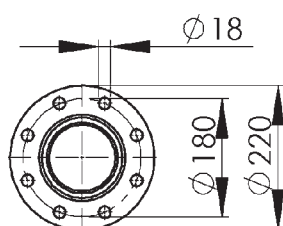
Permissible ambient temperature	Operation	-40° C to +60° C
	Storage	-50° C to +80° C

Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection	IP 66 IEC/EN 60529

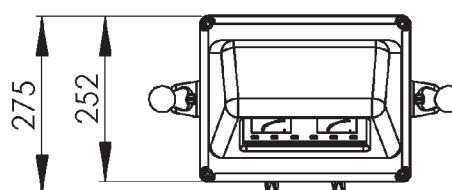
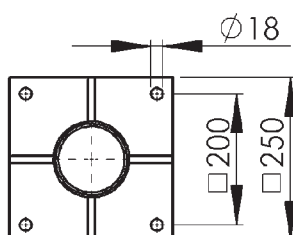
Pos.			Weight kg	Type	Price EURO
1	Housing U 25 / 32 with 1 narrow side-plate with pillar-gasket		6,8	U25/32	
2					
3					
4					
5	Monitoring devices cover with gasket for max. 2 monitors 72 x 72 mm or 4 monitors 72 x 36 mm and max. 6 indicating devices Pos. 28, 29		2,9	IA	
6	Pillar 108 mm ø 670 mm height with flange quadratic or round		18,8	RS	
10	Masterswitch with 6 contacts, with spring return in 0-position with ball handle and indicating labels drive		2,0	N61-HG-03Z	
11	Control-switches with 4 contacts with knob and indicating label		0,7	N62-KN-02 ± 01	
12	Additional or subtract price each 2 contacts				
13	more variants see catalog 1/230				
14	Conductive-plastic potentiometer T... with centre tap linear life 10 ⁷ switching cycles resistance 2 x 1 / 5 / 10 kOhm 0,5 Watt wiper current max. 1 mA		0,07	P	
15	more potentiometer see catalog 1/240ff				
16	Control-switch with 4 contacts with knob and indicating label		0,4	RWSE	
17	Additional or subtract price each 2 contacts				
20	Heating 20 Watt 220 V or 110 V / 50/60 Hz		0,15	H	
21	Mushroom head push button latching 22 with indicating label	1 NC	0,1	PV	
22	Mushroom head push button 22 with indicating label	1 NO	0,1	P	
23	Push button 22 with indicating label	1 NO	0,1	D	
24	Selector switch 0-1 22 with indicating label	1 NO	0,1	W	
25	Indicator light 22 with indicating label	Diode 24 Volt	0,1	L	
26	Indicator light 22 with indicating label	Diode 230 Volt AC	0,1	L	
27	Contact block additional	1 NO or 1 NC			
28	Indicator light 22 with indicating label	Diode 24 Volt protection IP65	0,05	L	
29	Indicator light 10 with indicating label	Diode 24 Volt protection IP65	0,03	L	
35	Power monitoring PQ 72 1 mA DC	Engraved your instructions	0,2	PQ	
36	Power monitoring PQ 72 x 36 1 mA DC	Engraved your instructions	0,3	PQ	
37	Ampere monitoring EQ 72 100 / 200 / 1 A	Engraved your instructions	0,2	EQ	
38	Ampere monitoring EQ 72 x 36 100 / 200 / 1 A	Engraved your instructions	0,3	EQ	
39	Monitoring illuminated	24 Volt			
40	Another electrical value are available				
45	Terminal block 2,5 mm ² without wiring	each terminal		KL	
46	Terminal block 2,5 mm ² with wiring wire 0,75 mm ²	each terminal		KL	
47					
48					
49					
50	Engraving, each 10 characters				



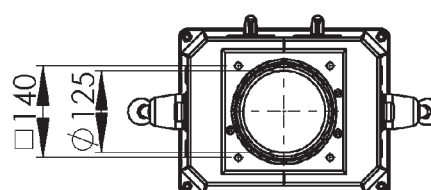
View A - A
Flange NW 100 DIN 2633

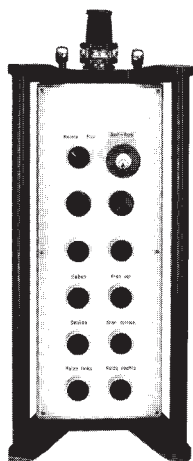


option flange 250 x 250



View C
(without pedestal)





Type HT11...

The pedant control units HT 1 and HT 2 contain the control and monitoring devices.

The units are easy to grasp and are protected against damage and unintentional operation of the controls.

Cable entry has anti-kink protection and strain relief.
The pedants are made of sheet steel.

Device arrangements:

HT 11	max. 12 command or indicating devices	double-row
HT 12	max. 16 command or indicating devices	double-row
HT 13	max. 20 command or indicating devices	double-row
HT 21	max. 32 command or indicating devices	four-row
HT 22	max. 40 command or indicating devices	four-row

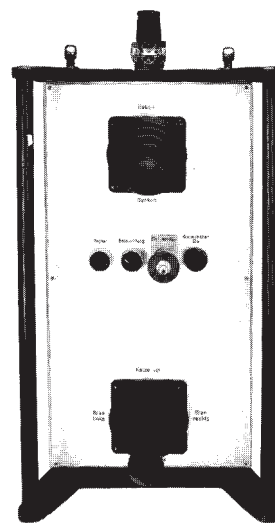
The multi-axis controller V 11 with 2 x 6 contacts to take away the mounting positions of 6 command or indicating devices.

The multi-axis controller V 62 with 2 x 6 contacts to take away the mounting positions of 8 command or indicating devices.

Surface treatment: Anti-corrosion primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey, textured varnish

Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant IEC 60068-2-78
Damp heat cyclic IEC 60068-2-30
Degree of protection IP 54 IEC/EN 60529



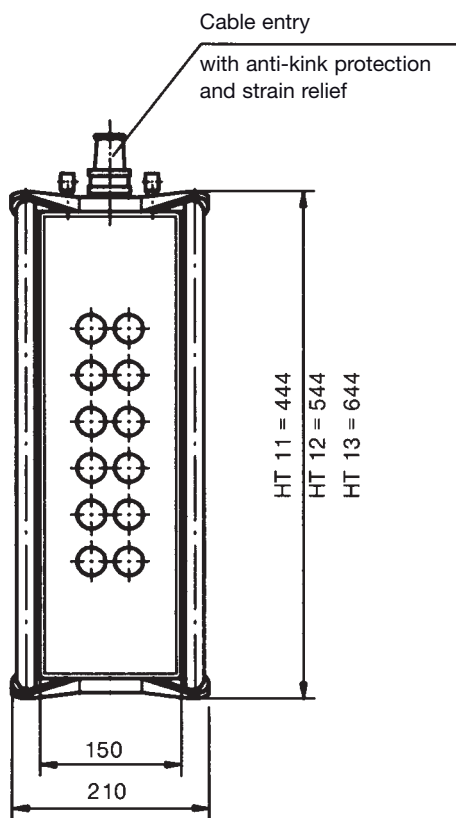
Type HT21...

Pos.				Weight kg	Type	Price EURO
1	Pedant control unit	150 x 400 x 105 mm		3,5	HT 11	
2	Pedant control unit	150 x 500 x 105 mm		4,0	HT 12	
3	Pedant control unit	150 x 600 x 105 mm		4,5	HT 13	
4						
5	Pedant control unit	260 x 500 x 105 mm		4,5	HT 21	
6	Pedant control unit	260 x 600 x 105 mm		5,0	HT 22	
7						
8						
9						
10	Cable entry M 32 with anti-kink protection and strain relief	cable 11 – 21 mm				
11	Cable entry M 40 with anti-kink protection and strain relief	cable 19 – 28 mm				
13	Cable entry M 50 with anti-kink protection and strain relief	cable 27 – 35 mm				
14						
15	Multi-axis controller V 6 or V 11	see catalog 1/100	1/110			
16	Control-switch		see catalog 1/230			
17	Command and indicating devices		see catalog 1/360			
18						
19						
20	Terminal block 2,5 mm ² without wiring	each terminal			KL	
21	Terminal block 2,5 mm ² with wiring wire 1 mm ²	each terminal			KL	
22						
23						
24						
25	Eloxal aluminium front plate silvery for HT 1					
26	Eloxal aluminium front plate silvery for HT 2					
27	Indicating labels not engraved with 2 or 4 arrows					
28	Engraving, each 10 characters					



HT 1

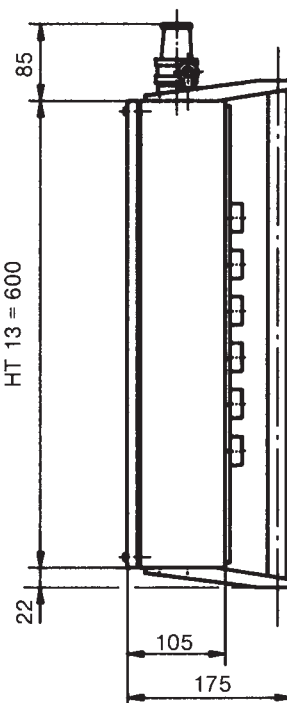
Protection IP 54



HT 11 = 400

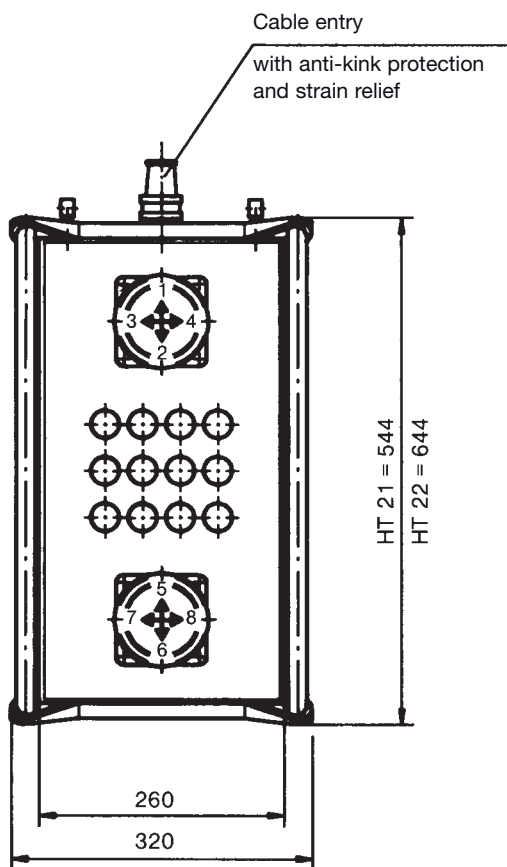
HT 12 = 500

HT 13 = 600



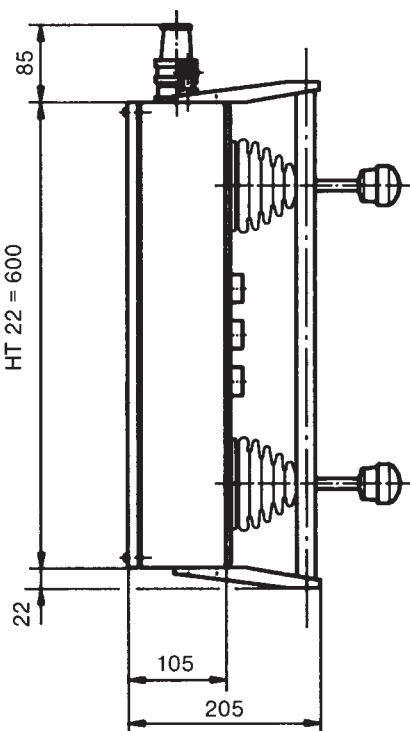
HT 2

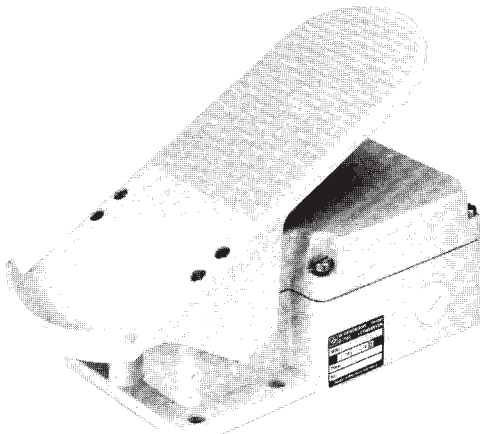
Protection IP 54



HT 21 = 500

HT 22 = 600



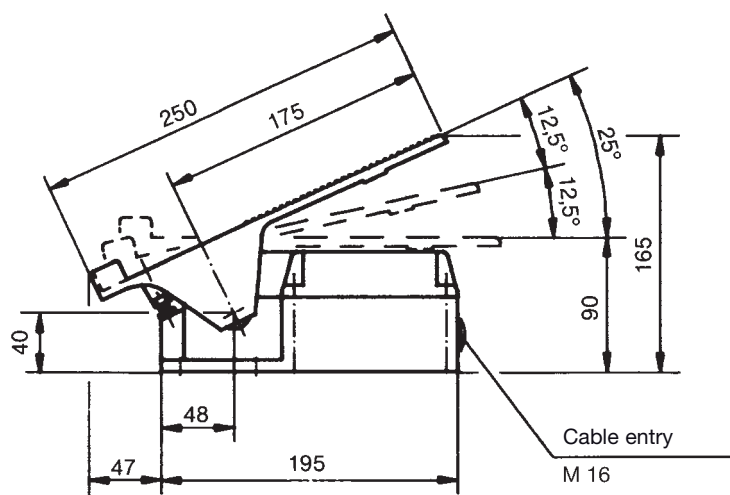


Type P7-1ZP-...

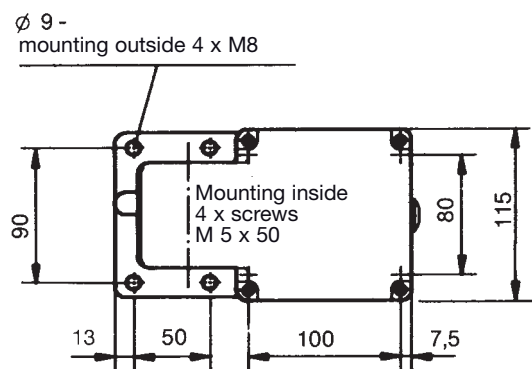
The pedal-controller P 7 and PP 7 is a rugged switching devices to IEC/EN 60947-5-1, for footing applications.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Surface treatment		Primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey textured varnish
Mechanical life	P 7	6 million operating cycles
	PP 7	10 million operating cycles
Permissible ambient temperature		Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance		IEC 60068-2-78
Damp heat constant		IEC 60068-2-30
Damp heat cyclic		IP 54 IEC/EN 60529
Degree of protection	P 7	IP 65 IEC/EN 60529
	PP 7	



View at the top without rocker

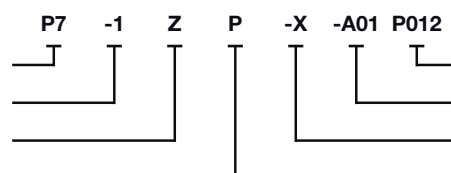


Example for type-sign

Pedal-controller

No. of contacts

Spring return



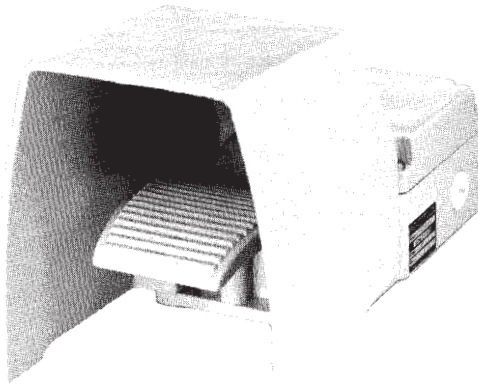
Potentiometer description

Arrangement

special please describe

Potentiometer e.t.c.

Pos.		Type-expansion	Weight gramm	Type	Price EURO
1	Pedal-controller standard version		1700	P 7	
2	Pedal-controller heavy-duty version		1800	PP 7	
4	Switching sequence max. 0-4 or max. 2-0-2		150		
8	No. of contacts (microswitch) max. 6 pcs.	A...	30	1	
9	Switching program according contact-arrangement MS look catalog 5/001		40	2	
10	or to your contact-arrangement		50	3	
11	Spring return in 0-position		100	Z	
12	Friction brake		50	R	
15	Potentiometer e.t.c. with mounted Wire-wound potentiometer T 129 linear 1,5 Watt wiper current max. 10 mA resistance 1k $\geq$ P012, 2k $\geq$ P013, 4k $\geq$ P014, 10k $\geq$ P015	P01 □	70	P	
16	Prepared for mounting potentiometer shaft 6 mm adjusting-angel 300°	P...		(P)	
17	More potentiometer e.t.c. look catalog 1/240ff				



Type P8-1ZP-...

The pedal-controller P 8 and PP 8 is a rugged switching devices to IEC/EN 60947-5-1, for footing applications.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

Surface treatment:

Primer, top coat: 2 coats of epoxy-resin paint, standard colour
RAL 7032 pebble-grey textured varnish

Mechanical life

P 8
PP 8

6 million (operating cycles)
10 million (operating cycles)

Permissible ambient temperature

Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance

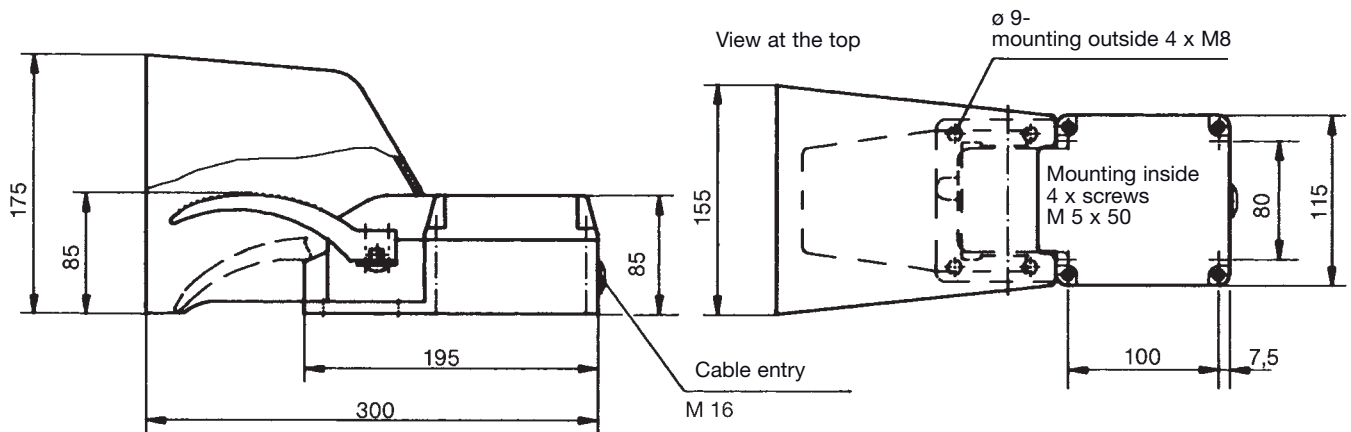
Damp heat constant

Damp heat cyclic

Degree of protection

P 8
PP 8

IEC 60068-2-78
IEC 60068-2-30
IP 54 IEC/EN 60529
IP 65 IEC/EN 60529

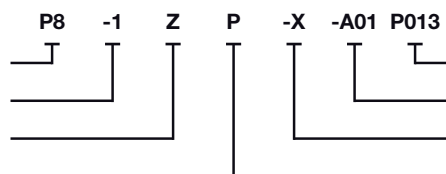


Example for type-sign

Pedal-controller

No. of contacts

Spring return



Potentiometer description

Arrangement

special please describe

Potentiometer e.t.c.

Pos.		Type-expansion		Weight gramm	Type	Price EURO
1	Pedal-controller standard version			2500	P 8	
2	Pedal-controller heavy-duty version			2600	PP 8	
4	Switching sequence max. 0-4			150		
8	No. of contacts (microswitch) max. 6 pcs.	A...		30	1	
9	Switching program according contact-arrangement MS look catalog 5/001			40	2	
10	or to your contact-arrangement			50	3	
11	Spring return in 0-position			100	Z	
12	Friction brake adjustable			50	R	
15	Potentiometer e.t.c. with mounted Wire-wound potentiometer T 129 linear 1,5 Watt wiper current max. 10 mA resistance 1k $\geq$ P012, 2k $\geq$ P013, 4k $\geq$ P014, 10k $\geq$ P015	P01 □		70	P	
16	Prepared for mounting potentiometer shaft 6 mm adjusting-angle 300°	P...			(P)	
17	More potentiometer e.t.c. look catalog 1/240ff					

**GESSMANN**

Industrial controllers

Pedal-controller P 10 / P 11**3/104**

2010



Type P10-1ZP-B...

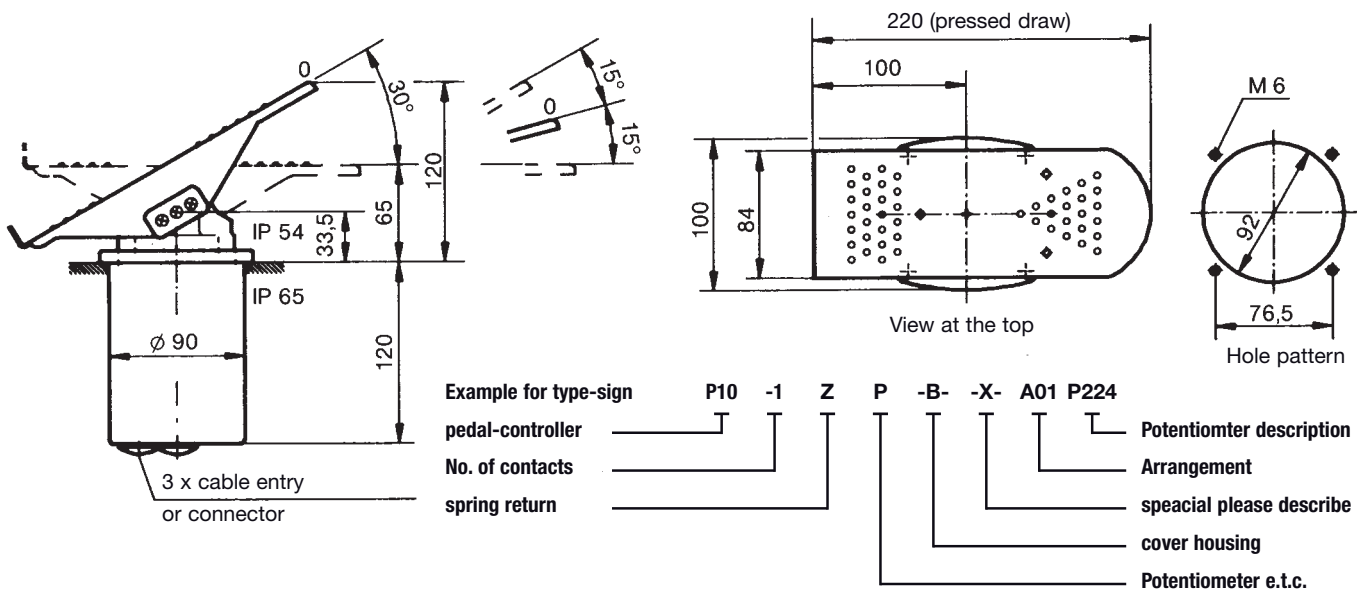
The pedal-controller P 10 / P 11 is a rugged switching device to IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The P 10 / P 11 is resistant to oil, maritime climate, ozone and UV radiation.

Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

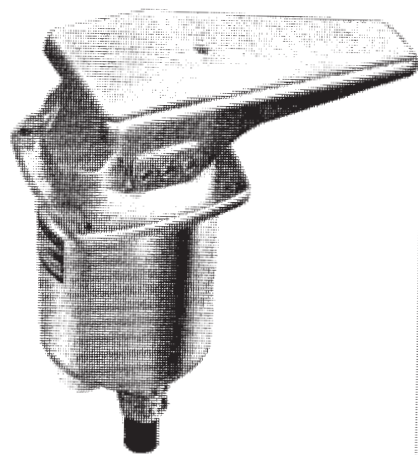
Mechanical life 8 million (operating cycles)
 Permissible ambient temperature Operation -40° C to +60° C
 Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
 Damp heat constant IEC 60068-2-30
 Damp heat cyclic IP 54 IEC/EN 60529
 Degree of protection front

Technical data look catalog 5/100



Pos.		Type-expansion	Weight gramm	Type	Price EURO
1	Pedal-controller standard version		1300	P 10	
2	Pedal-controller centre position notching max. 1-0-1		1300	P 11	
3	Switching sequence max. 0-3				
7	No. of contacts (microswitch) max. 3 pcs.		20	1	
8	Switching program according contact-arrangement MS look catalog 5/001	A...	40	2	
9	or to your contact-arrangement		60	3	
11	Spring return in 0-position		30	Z	
12	Friction brake adjustable		30	R	
15	Potentiometer e.t.c. with mounted Conductive-plastic potentiometer T 362 linear with centre tap life 10 ⁷ switching cycles Resistance 2 x 5 kOhm 0,5 Watt wiper current max. 1 mA	P224 □	70	P	
16	Prepared for mounting potentiometershaft 6 mm adjusting angle 120°	P...		(P)	
17	More potentiometer e.t.c. look catalog 1/240ff				
18	Impedance converter Input ± 15 Volt, output ± 10 Volt / 5 mA	I...		I	
20	Cover housing		300	B	
21	Filter plug M 20 for air-condition		20		
22	Cable entry M 20		30		
23	Plug in socket 14-pole female insert CPC 17 wired		150		
24	Connector 14-pole male insert CPC 17 unwired		150		
25	Wiring plug in socket or connector each wired-connection				
26	Electronic (Amplifier, Profi-Bus, CAN-Bus) look catalog 3/510ff	E...			



Type P12-1ZP-B...

The pedal-controller P 12 is a rugged switching device to IEC/EN 60947-5-1 for electro-hydraulic applications. The modular design enables the switching device to be used universally. The P 12 is resistant to oil, maritime climate, ozone and UV radiation.

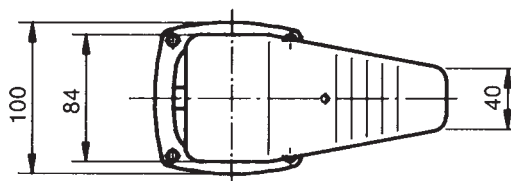
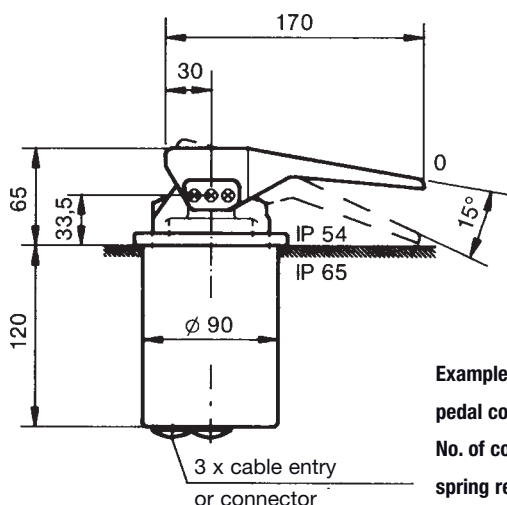
Contact complement 0,5 A 110 V AC 15 or 1,5 A 24 V DC 13
I min > 0,2 mA 2 V DC 12 Gold plated for max. load of 0,12 Watt (standard)

Mechanical life 8 million (operating cycles)

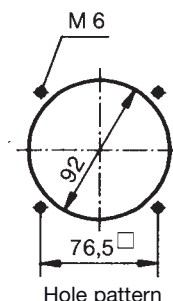
Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IEC 60068-2-30
Degree of protection front IP 54 IEC/EN 60529

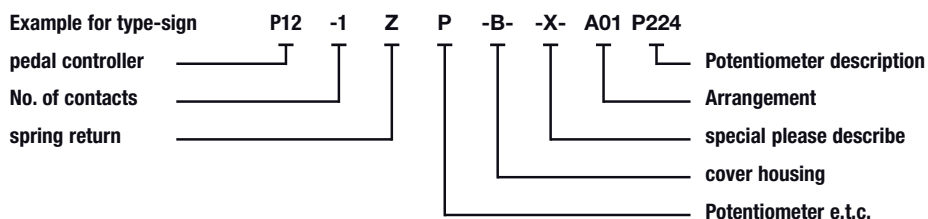
Technical data look catalog 5/100



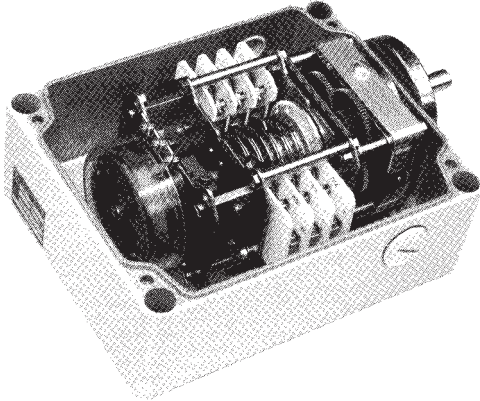
View at the top



Hole pattern



Pos.		Type-expansion	Weight gramm	Type	Price EURO
1	Pedal-controller standard version		1300	P 12	
2					
3	Switching sequence max. 0-3				
7	No. of contacts (microswitch) max. 3 pcs.		20	1	
8	Switching program according contact-arrangement MS look catalog 5/001	A...	40	2	
9	or to your contact-arrangement		60	3	
11	Spring return in 0-position		30	Z	
12	Friction brake adjustable		30	R	
15	Potentiometer e.t.c. with mounted Conductive-plastic potentiometer T 362 linear life 10 ⁷ switching cycles Resistance 5 kOhm 0,5 Watt wiper current max. 1 mA	P224 □	70	P	
16	Prepared for mounting potentiometershaft 6 mm adjusting angle 120°			(P)	
17	More potentiometer e.t.c. look catalog 1/240ff	P...			
18	Impedance converter Input + 15 Volt, output + 10 Volt / 5 mA	I...		I	
20	Cover housing		300	B	
21	Filter plug M 20 for air-condition		20		
22	Cable entry M 20 with anti-kink protection and strain relief		30		
23	Plug in socket 14-pole female insert CPC 17 wired		150		
24	Connector 14-pole male insert CPC 17 unwired		150		
25	Wiring plug in socket or connector each wired-connection				
26	Electronic (Amplifier, Profi-Bus, CAN-Bus) look catalog 3/510ff	E...			



Type GE1-40-6P-U...

The gearing limit switch GE 1 / GE 2 is a rugged switching device to IEC/EN 60947-5-1 designed for hoisting applications. The modular micro changeover contacts with positive opening operation.

Contact complement 2 A 250 V AC 15 or 3 A 24 V DC 13

The device is programmed by means of stepless adjustment of double cam disks, which can be provided from 18° to 192° contact disks according to the switching program required.

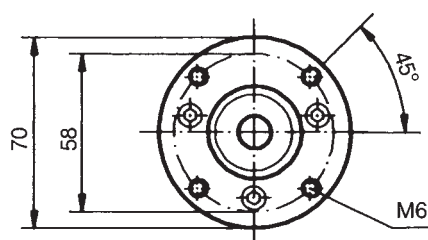
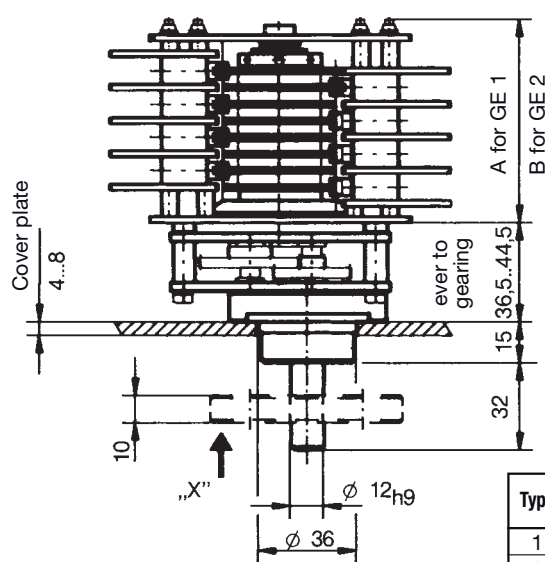
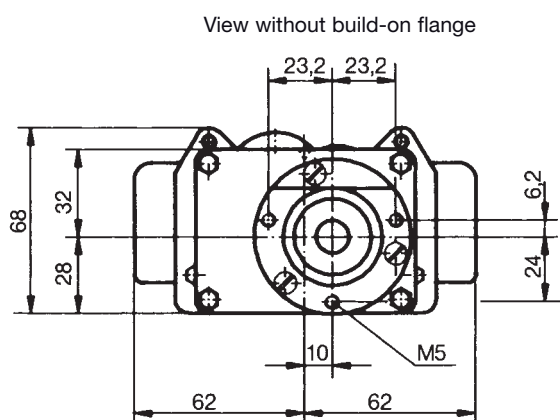
The type GE 1 includes a double cam disk conjointly lockable.
The type GE 2 includes a double cam disk individually lockable.

The following gear ratios (n:1) are possible:
from 2 to 320
Further ratios can be provided as required.
The maximum usable rotational angle at the spindle is 342°.

Surface treatment	Primer, top coat: 2 coats of epoxy-resin paint, standard colour RAL 7032 pebble-grey textured varnish
Mechanical life	10 million (operating cycles)
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection (in housing)	IP 65 IEC/EN 60529

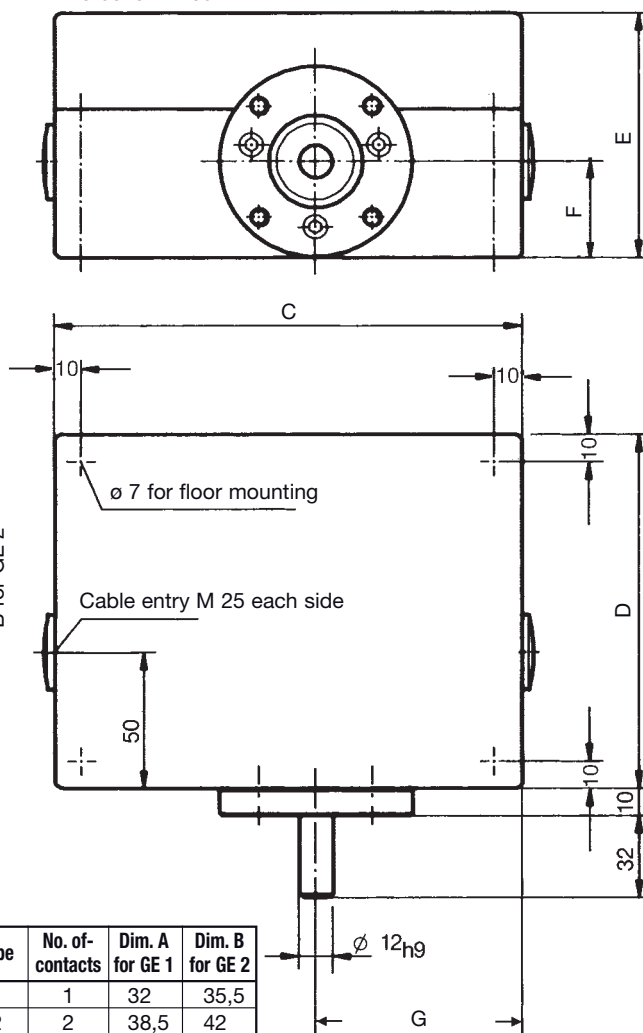
Technical data look catalog 5/100, GE 1 T 576, GE 2 T 577

Pos.		Type-expansion		Weight gramm	Type	Price EURO
1	Drive with drive shaft, with mounting flange			350	GE1	
2	Drive with drive shaft, with mounting flange			350	GE2	
3	Gearing Ratios (n : 1) 2 : 1 to 10 : 1			400		
4	11 : 1 to 20 : 1			450		
5	21 : 1 to 40 : 1			500		
6	41 : 1 to 80 : 1			550		
7	81 : 1 to 160 : 1			600		
8	161 : 1 to 320 : 1			650		
9	or ratios to your instructions					
10	Limit switch		No. of contacts 2	350	2	
11			3	400	3	
12	Switching program with 18°, 24°, 30°, 36°, 45°, 60°, 75°, 90°, 110°, 120°, 176° or 192° contact ways program-disks (please select)		4	450	4	
13			5	500	5	
14			6	550	6	
15			7	600	7	
16			8	650	8	
17			9	700	9	
18			10	750	10	
19			11	800	11	
20			12	850	12	
21			13	900	13	
22			14	950	14	
23			15	1000	15	
24			16	1050	16	
25			1			
27	Potentiometer e.t.c. with mounted Wire-wound potentiometer PW 70 d linear, 5 Watt wiper current max. 30 mA resistance 1k $\triangleq$ P992, 2k $\triangleq$ P993, 5k $\triangleq$ P994, 10k $\triangleq$ P995	P99 ☐		100	P	
28	Prepared for mounting potentiometer (gearing metal)				(P)	
29	Prepared for mounting potentiometer e.t.c. adjusting angle variable More potentiometer e.t.c. look catalog 1/240ff	P...			(P)	
30	Aluminium housing U 17 / 13 for max. 8 contacts GE 1			1500	U5	
31	Aluminium housing U 16 / 16 for max. 12 contacts GE 1 , max. 6 contacts GE 2			2000	U6	
32	Aluminium housing U 16 / 20 for max. 16 contacts GE 1 , max. 10 contacts GE 2			2500	U7	
33	Aluminium housing U 16 / 26 for max 16 contacts GE 1			3000	U8	
34	Aluminium housing U 16 / 35			3500	U9	



Build-on flange, view „X”

Protection IP 65



Type	No. of-contacts	Dim. A for GE 1	Dim. B for GE 2
1	1	32	35,5
2	2	38,5	42
3	3	44,5	48
4	4	50,5	54
5	5	56,5	60
6	6	63	66,5
7	7	69	72,5
8	8	75	78,5
9	9	81	84,5
10	10	87	90,5
11	11	93	96,5
12	12	99	102,5
13	13	105,5	109
14	14	111,5	115
15	15	117,5	121
16	16	123,5	127

Type	Dim. C	Dim. D	Dim. E	Dim. F	Dim. G
U17/13	170	130	90	35,5	75
U16/16	160	160	91	45	70
U16/20	160	200	100	45	70
U16/26	160	260	91	45	70
U16/35	160	350	100	45	70

Example for type-sign

gear limit switch

gear ratios

No. of contacts

GE1 -40 8 P -U- -X- P994-18-24



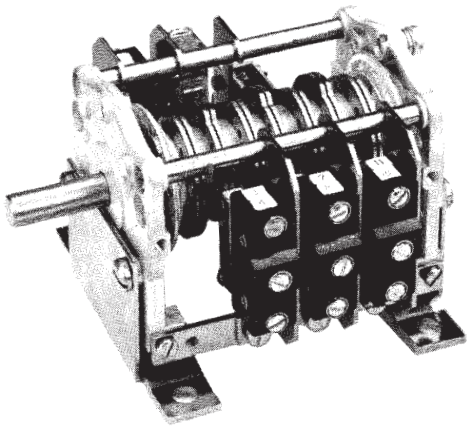
program-disk contact 1, 2...

Potentiometer description

special please describe

aluminium housing

Potentiometer e.t.c.



Type KVS-03-...

The copy-cam controller KVS is a rugged switching device to IEC/EN 60947-5-1 and is designed for packing machines. The free spindle end is intended for a gearwheel, sprocket wheel or for direct coupling to the driven machine. Gearing for matching rotational speed can be supplied (see 3/200).

The work sequence of the machine is "copied". The drum controller is supported in a bearing, is extremely accurate and has a long service life. The contact blocks, micro-switches, proximity initiators (items 15-19) can be replaced individually or can be combined.

The unit is programmed via double cam disks which can be adjusted steplessly and which have a 180° contact deck.

Surface treatment

Primer, top coat: 2 coats of epoxy-resin paint, standard colour
RAL 7032 pebble-grey textured varnish

Mechanical life

20 million (operating cycles)

Permissible ambient temperature

Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance

Damp heat constant

IEC 60068-2-78

Damp heat cyclic

IEC 60068-2-30

Degree of protection (in housing)

IP 65 IEC/EN 60529

Technical data look catalog 5/100, T 104

Proximity initiator

Type IN 5002-FPKG plus switching

Type IN 5002-FNKG minus switching

Connection voltage

18-30 V DC

Current loading

100 mA

Current consumption, not switched

10 mA

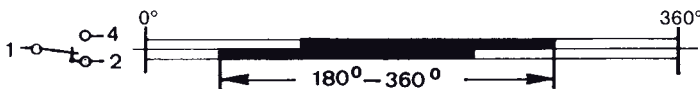
Ambient temperature, compensated

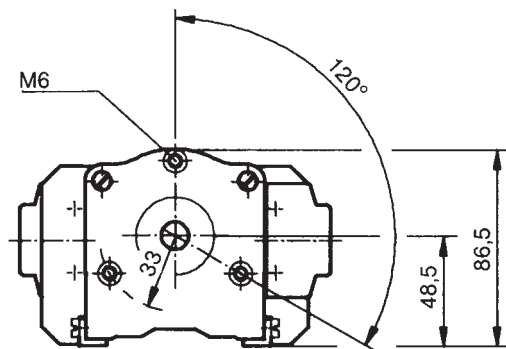
-25° C/+80° C

Output: contact-free, short-circuit proof and protected against polarity reversal, switching state displayed via LED

Pos.				Weight kg	Type	Price EURO
1	Copy-cam controller		No. of contacts 3	0,7	01	
2	with free shaft end 12 mm ø		5	0,9	02	
3	without contacts		7	1,1	03	
4	without proximity initiator		9	1,3	04	
5			11	1,5	05	
6	Switching program 180° each contact way		13	1,7	06	
7			15	1,9	07	
8			17	2,1	08	
9			19	2,3	09	
10			21	2,5	10	
11			23	2,7	11	
12						
15	Cam operated switch 4 A 350 V AC 15	1 NC	1	0,08	5	
16						
17	Microswitch 8 A 250 V AC 15	1 NC + 1 NO	1	0,08	7	
18	Proximity initiator plus switching	1 NC or 1 NO	1	0,08	8	
19	Proximity initiator minus switching	1 NC or 1 NO	1	0,08	8	
20	Impulse device hall generator 15 Imp./rev via slot disk			0,08	I	
25	Second, free shaftend 12 mm ø				F	
26	Mounting angles 2 pieces each copy-cam controller			0,1	W	
30	Aluminium housing U 15 / 14 IP 54 up to type 03			1,7	U1	
31						
32	Aluminium housing U 15 / 30 IP 54 up to type 11			2,9	U3	

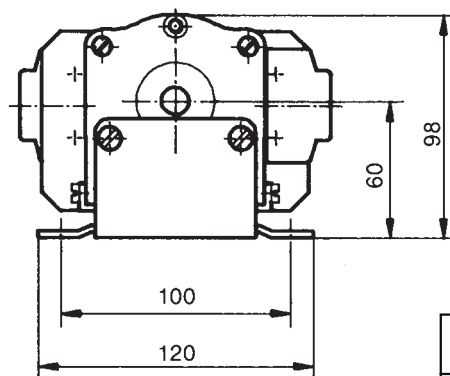
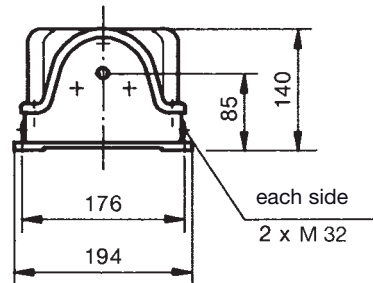
The program-disks are infinitely adjustable within 360°.



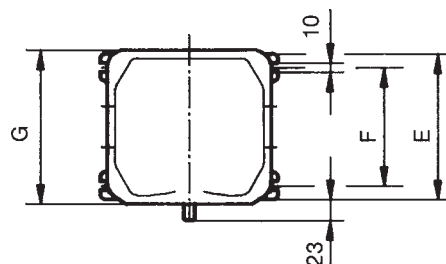


Mounting at the top

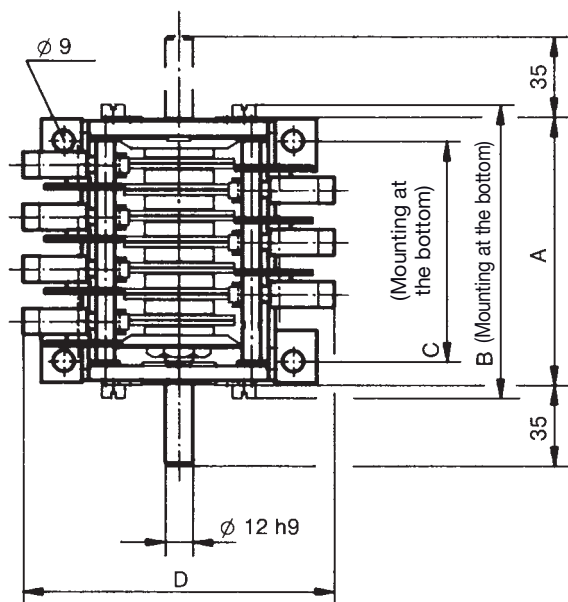
U 15 / ..
Protection IP 54



Mounting at the bottom
(with mounting angles)



U 15 / ..	Dimension E	Dimension F	Dimension G
/14	160	130	169
/30	320	290	329



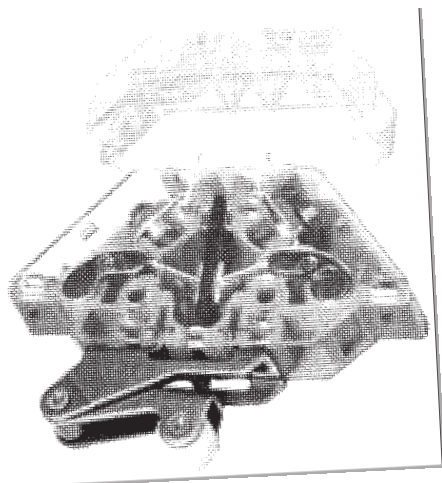
Type	No. of contact	Dimension A	Dimension B	Dimension C
01	3	72	87	51
02	5	95	110	74
03	7	118	133	97
04	9	141	156	120
05	11	164	180	143
06	13	187	202	166
07	15	210	225	189
08	17	233	248	212
09	19	256	271	235
10	21	279	294	258
11	23	302	317	281

Type	Dimension D	Screw-connection
KVS 5	125	M 4
KVS 7	145	M 3
KVS 8	140	M 3

Example for type-sign
Copy-cam controller
No. of contacts
Contact-type



Special please describe
Aluminium housing



Type SO1.10-R-...

The DC contact block to IEC/EN 60947-5-1 is used for signalling and annunciation applications.

The snap-action mechanism prevents slow contact opening when the plunger is operated slowly. Quenching of the arc that occurs with DC is supported by two-capacity permanent magnets. These are arranged so that the polarity can be ignored when connecting +/- cabling.

However, the polarity of the quenching magnets must be noted when installing the contact blocks to prevent the magnets adversely affecting each other. Contact blocks in four different colours are available for polarity identification of the magnets when fitted (see diagram below left).

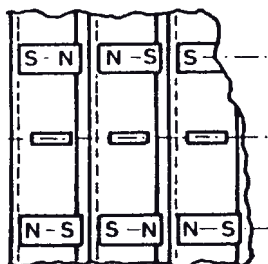
The contact blocks may only be installed on non-magnetizable materials with screws, etc. made of non-ferrous metal. The self-cleaning silver contacts are designed for low switching frequency, low currents and voltages. Gold coated contacts can be supplied (approx. 0,2 µ), less than 42 Volt required. The screw connection M3.5 at the side is suitable for 2 conductors max. 2.5 mm². The plug-in connection at the top 4.8 x 0.8 mm DIN 46247.

Several contact blocks can be plugged on top of each other and operated jointly. The plug-type terminals are then only accessible on the top unit. The contact blocks can be provided with shock protection to DIN VDE 0106 Part 100.

Please consult our technical department in the event of:
application in extreme nuisance, confined switching points or increased breaking currents.

blue grey blue
green yellow green

— Normally closed (NC)
— Normally open (NO)



Unless otherwise requested, equal quantities grey/blue or yellow/green will be supplied.

Switching capacity

	NC	NO	Time constant
250 V DC	2 A	1 A	20 ms
125 V DC	4 A	3 A	20 ms
50 V DC	6 A	6 A	20 ms
30 V DC	10 A	10 A	20 ms
250 V AC 15	6 A	6 A	

Mechanical life
Electrical service life

2 million operating cycles
50.000 operating cycles
at 2 A 250 V DC L/R 20 ms

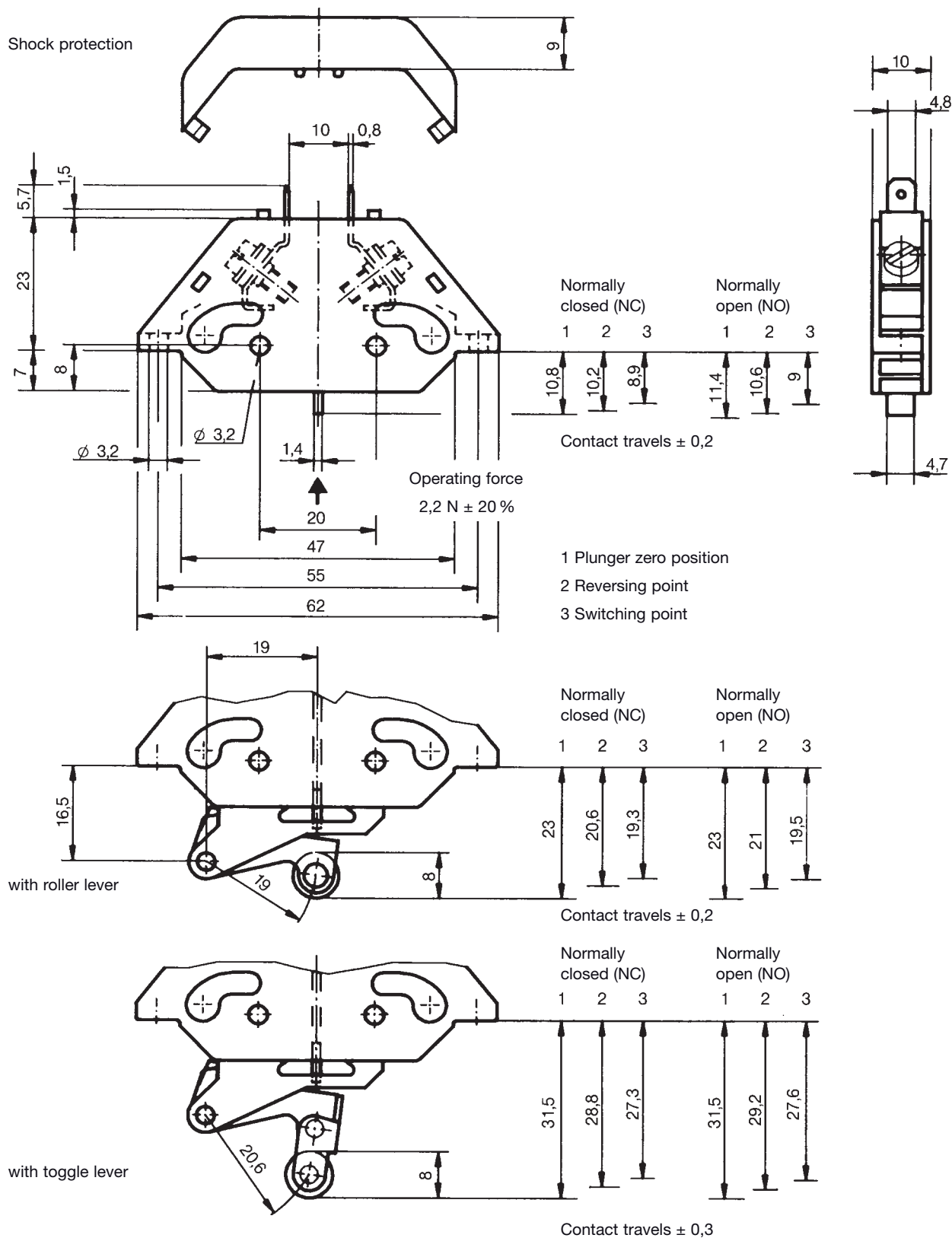
Permissible ambient temperature

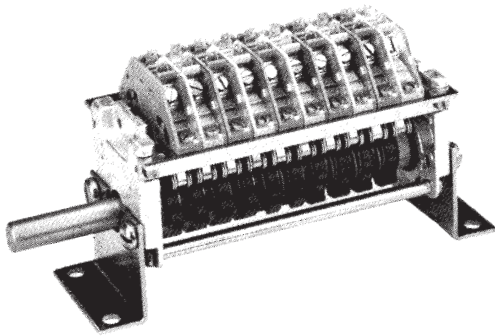
Operation -40° C to +60° C
Storage -50° C to +80° C

Climate resistance
Damp heat constant
Damp heat cyclic
Degree of protection

IEC 60068-2-78
IEC 60068-2-30
IP 40 IEC/EN 60529

Pos.				Weight gramm	Type	Price EURO
1	DC-contact normally closed (NC)			20	SO 1.10	
	Colour code grey or blue					
2	DC-contact normally open (NO)			20	SS 1.10	
	Colour code yellow or green					
3	Shock protection KEG 142 to DIN VDE 0106 Part 100				B	
4	Roller lever			10	R	
5	Toggle lever (switching in one direction only)			15	K	
6	Plug-in connection at side 4,8 x 0,8 mm (2 pieces)				F	
7	Contacts gold-coated approx. 0,2 µm				AU	
8	Contact without quenching magnets (for AC only) subtract price					
9	Contact without quenching magnets (for AC only) and without snap-action mechanism subtract price					





Type NU1-10-W...

The cam controller NU 1 is used as a signal and announcement switch in HV systems. This rugged switching device to IEC/EN 60947-5-1 has cam disks made of insulation material that can be set at 10° intervals.

The switching rating of the contacts (NC with snap-action mechanism) is 6 A 250 V AC 15 or 2 A 250 V DC. Time constant L/R = 20 ms.

NO contacts can also be supplied. The DC contact blocks are designed to permit series assembly, which can then be operated simultaneously.

This requires additional components for mounting the contacts.

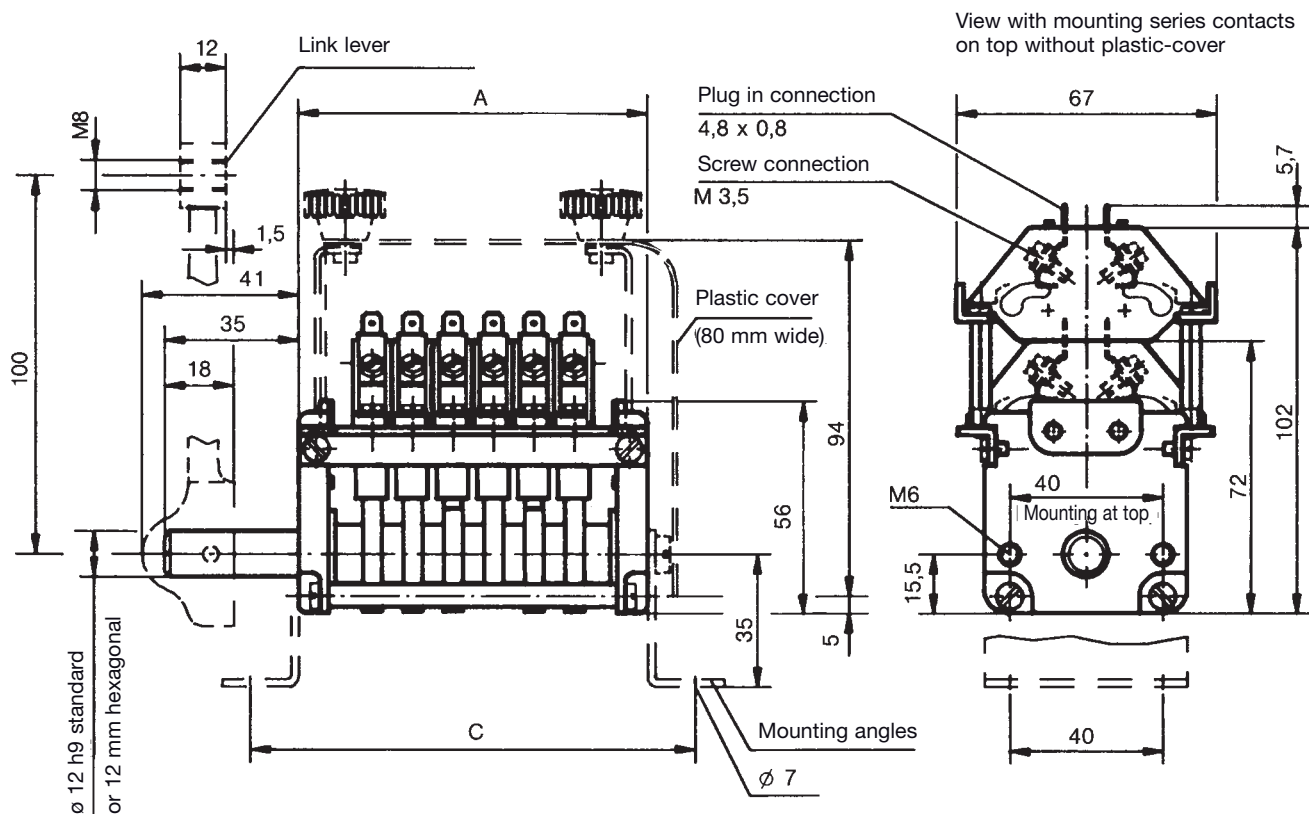
Mechanical life 2 million operating cycles

Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

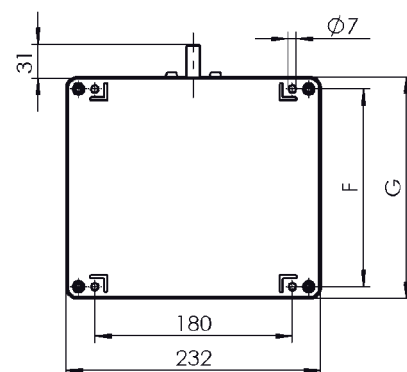
Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IP 65 IEC/EN 60529

Technical data look catalog 5/100

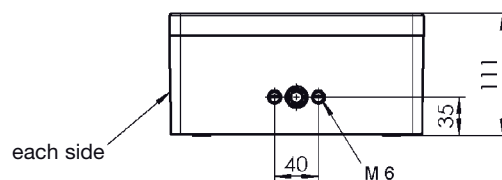
Pos.				Weight gramm	Type	Price EURO
1	Signal-cam controller	No. of contacts 2		350	2	
2	with free shaftend 12 mm ø standard	4		460	4	
3	or 12 mm hexagonal	6		570	6	
4	Switching program	8		680	8	
5		10		790	10	
6		12		900	12	
7		14		1010	14	
8	or to your contact-arrangement	16		1120	16	
9	Switching program to your contact-arrangement	2				
10	Components for mounting series contacts on top	4		110	+4	
11	with DC-contacts	8		200	+8	
12		12		290	+12	
13		16		380	+16	
14						
15	Second free shaftend 12 mm ø standard or 12 mm hexagonal				F	
16	Spring return in 0-position			110	Z	
17	Switching sequence 4-0-4					
18	Mounting angles 2 pieces each signal-cam controller			80	W	
19	Link lever for shaft 12 mm ø standard or 12 mm hexagonal			70	GH	
21	Plastic-cover (Astralon)	up to max 4			A	
22	(Dust and shock protection)	8			A	
23		12			A	
24		16			A	
25	Shock protection KEG 142 for DC-contacts to DIN VDE 0106 Part 100					
30	Aluminium housing U 23 / 20 up to type 10			2500	U11	
31	Aluminium housing U 23 / 28 up to type 16			3000	U12	



Type	No. of contact	Dimens. A	Dimens. C	Housing	Dimens. F	Dimens. G
2	2	49	74	U 23/20	180	202
4	4	70	95			
6	6	91	117			
8	8	113	138			
10	10	134	159			
12	12	155	180	U 23/28	260	280
14	14	176	201			
16	16	197	222			



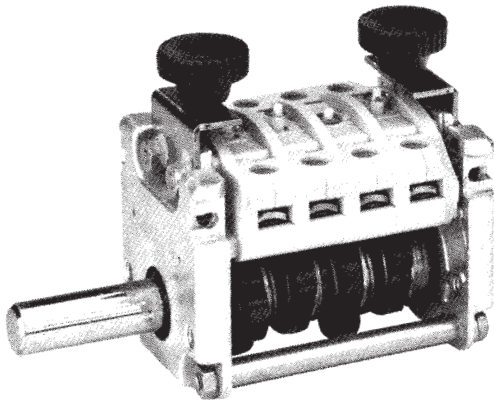
Aluminium housing
protection IP 65



Example for type-sign
Signal-cam controller
No. of contacts
Link rod



Special please describe
Plastic-cover
Mounting angles



Type NU2-14-...

The cam controller NU 2 is used as a signal and announcement switch in HV systems. This rugged switching device to IEC/EN 60947-5-1 has cam disks made of insulation material that can be set at 10° intervals.

The switching rating of the contacts (with positive opening operation) is
4 A 350 V AC 15 or 1 A 24 V DC 13.

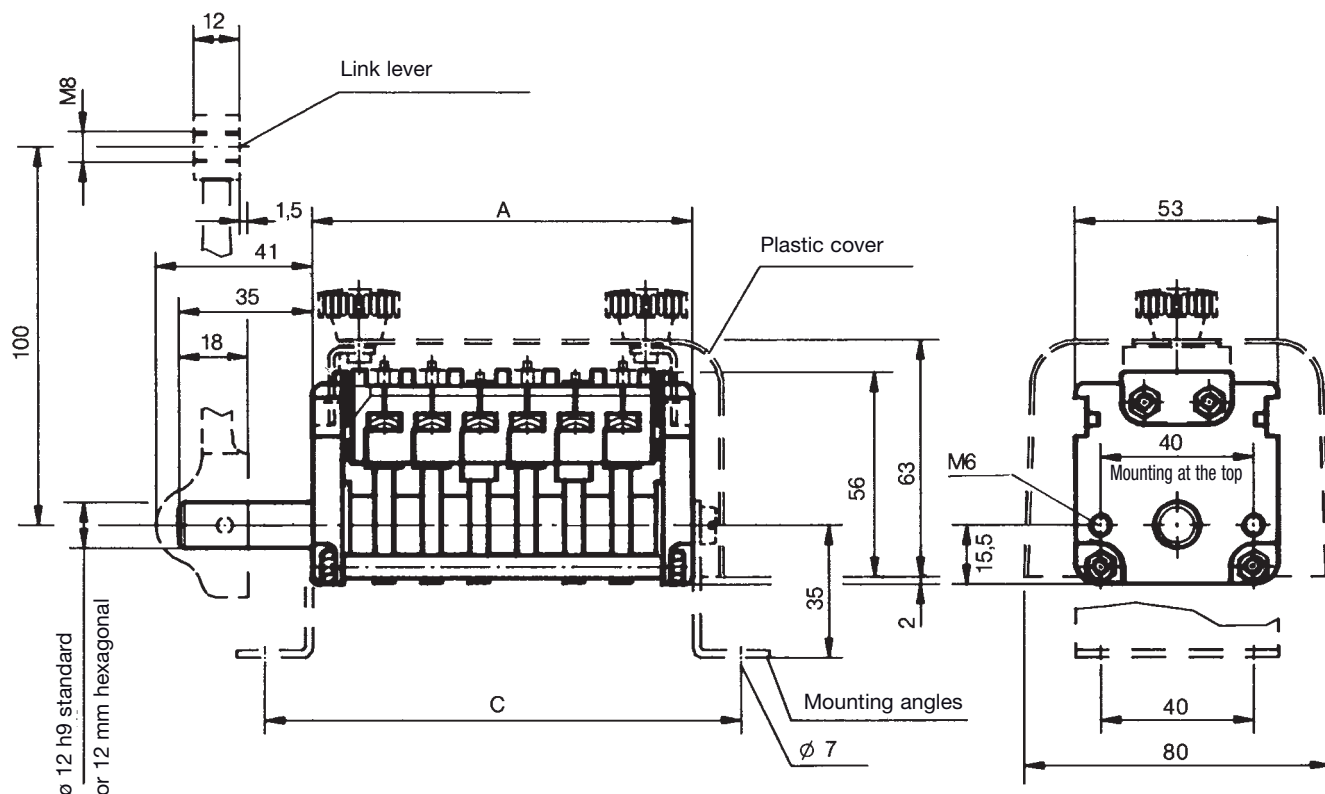
Mechanical life 6 million operating cycles

Permissible ambient temperature Operation -40° C to +60° C
Storage -50° C to +80° C

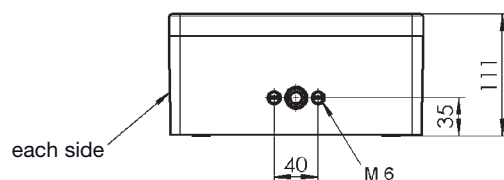
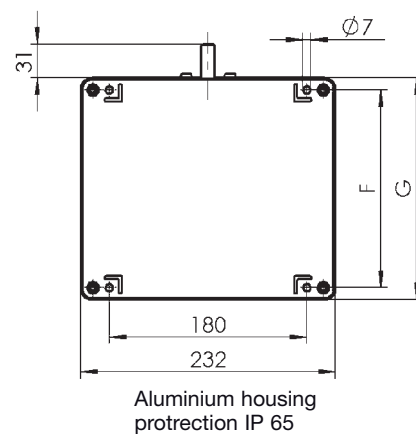
Climate resistance IEC 60068-2-78
Damp heat constant IEC 60068-2-30
Damp heat cyclic IEC 60068-2-30
Degree of protection (in housing) IP 65 IEC/EN 60529

Technical data look catalog 5/100

Pos.				Weight gramm	Type	Price EURO
1	Signal-cam controller	No. of contact 2		280	2	
2	with free shaftend 12 mm ø standard	4		380	4	
3	or 12 mm hexagonal	6		480	6	
4	Switching program	8		580	8	
5		10		680	10	
6		12		780	12	
7		14		880	14	
8	or to your contact-arrangement	16		980	16	
9	Switching program to your contact-arrangement	2				
10						
11	Second free shaftend 12 mm ø standard or 12 mm hexagonal				F	
12	Spring return in 0-position			110	Z	
13	Switching sequence 4-0-4					
14	Mounting angles 2 pieces each signal-cam controller			80	W	
15	Link lever for shaft 12 mm ø standard or 12 mm hexagonal			70	GH	
21	Plastic-cover (Astralon)	up to max. 4			A	
22	(Dust and shock protection)	8			A	
23		12			A	
24		16			A	
25						
30	Aluminium housing U 23 / 20 up to type 10			2500	U11	
31	Aluminium housing U 23 / 28 up to type 16			3000	U12	



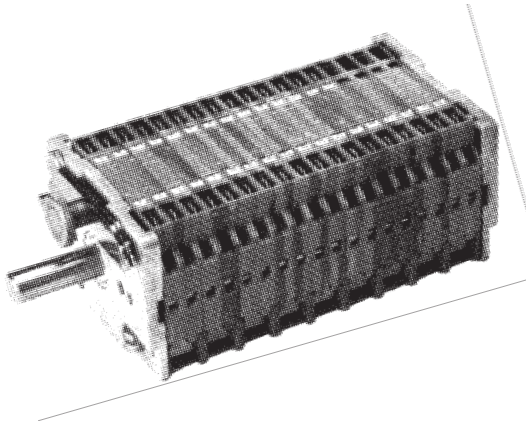
Type	No. of contact	Dimens. A	Dimens. C	Housing	Dimens. F	Dimens. G
2	2	50	75	U 23/20	180	202
4	4	75	100			
6	6	100	125			
8	8	125	150			
10	10	152	177			
12	12	177	202	U 23/28	260	280
14	14	202	227			
16	16	227	252			



Example for type-sign
Signal-cam controller
No. of contacts
Spring return



Special please describe
Aluminium housing
Link rod



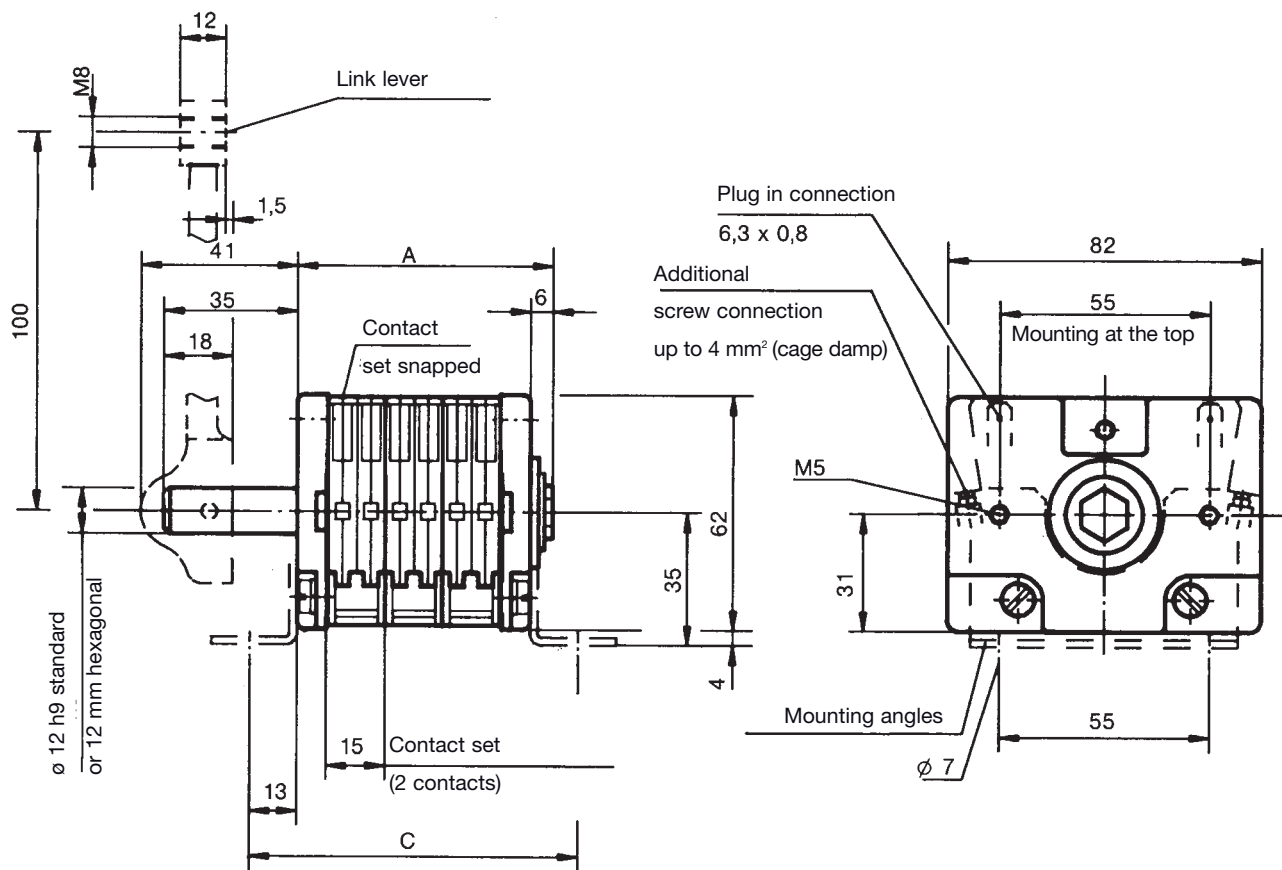
Type NU3-09-...

The cam controller NU 3 is used as a signal and annunciation switch in HV systems. This rugged switching device to IEC/EN 60947-5-1 has cam disks that can be programmed.

The switching rating of the contacts (with positive opening and positive closed operations) is 8 A 250 V AC 15 or 2,5 A 250 V DC.
Time constant L/R = 20 ms.

Mechanical life	1 million operating cycles
Permissible ambient temperature	Operation -40° C to +60° C Storage -50° C to +80° C
Climate resistance	
Damp heat constant	IEC 60068-2-78
Damp heat cyclic	IEC 60068-2-30
Degree of protection (in housing)	IP 54 IEC/EN 60529
Technical data look catalog 5/100	

Pos.				Weight gramm	Type	Price EURO
1	Signal-cam controller	No. of contacts 2		450	01	
2	with free shaftend 12 mm ø standard	4		600	02	
3	or 12 mm hexagonal	6		750	03	
4	Contacts with connector lugs	8		900	04	
5	Switching program to your	10		1050	05	
6	contact-arrangement	12		1200	06	
7		14		1350	07	
8		16		1500	08	
9		18		1650	09	
10		20		1800	10	
11		22		1950	11	
12		24		2100	12	
13		26		2250	13	
14		28		2400	14	
15		30		2550	15	
16		32		2700	16	
20	Contacts with additional screw connection each	2				
21	Second free shaftend 12 mm ø standard or 12 mm hexagonal				F	
22	Spring return in 0-position			110	Z	
23	Switching sequence 4-0-4					
24	Mounting angles 2 pieces each signal-cam controller			80	W	
25	Link lever for shaft 12 mm ø standard or 12 mm hexagonal			70	GH	



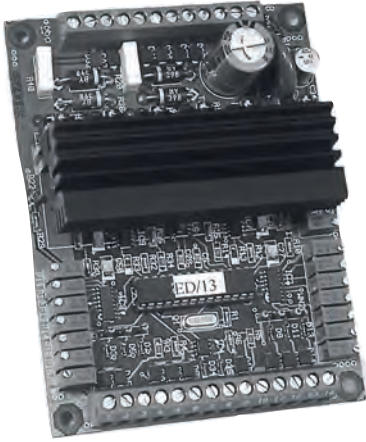
Type	No. of contacts	Dimension A	Dimension C
01	2	37	57
02	4	52	72
03	6	67	87
04	8	82	102
05	10	97	117
06	12	112	132
07	14	127	147
08	16	142	162
09	18	157	177
10	20	172	192
11	22	187	207
12	24	202	222
13	26	217	237
14	28	232	252
15	30	247	267
16	32	262	282

Example for type-sign
Signal-cam controller
No. of contacts
Second free shaftend

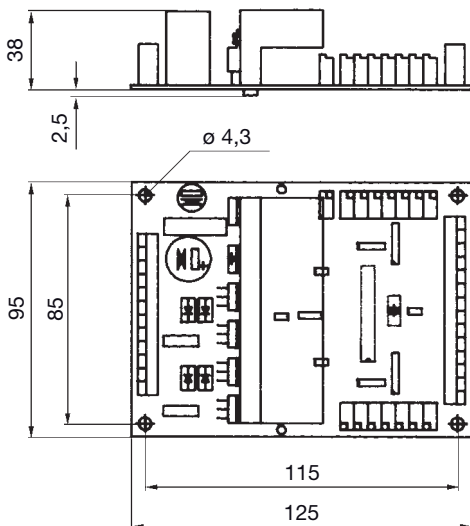
NU 3-04- F W GH- X



Special please describe
Link rod
Mounting angles



Type ES/43-10-...



The electronic control unit ES / 43 serves for control of proportional valves without position control.

Features:

- Stabilized voltage
- Chopper output stage with adjustable frequency
- Ramp time setting ON / OFF delay
- Creep speed circuit adjustable
- Solenoid current setting separate for minimum current and maximum current
- Output current controlled independently of temperature and solenoid
- Power output short-circuit-proof with overload protection
- Voltage input protected against polarity reversal
- Mechanical selection of direction by means of contacts
- Actuation of 4 proportional valves solenoid connections drawing ES / 43-10
- Actuation of 2 proportional valves solenoid connections drawing ES / 43-11
- LED operating voltage and working display
- Microprocessor technology therefore especially adaptable

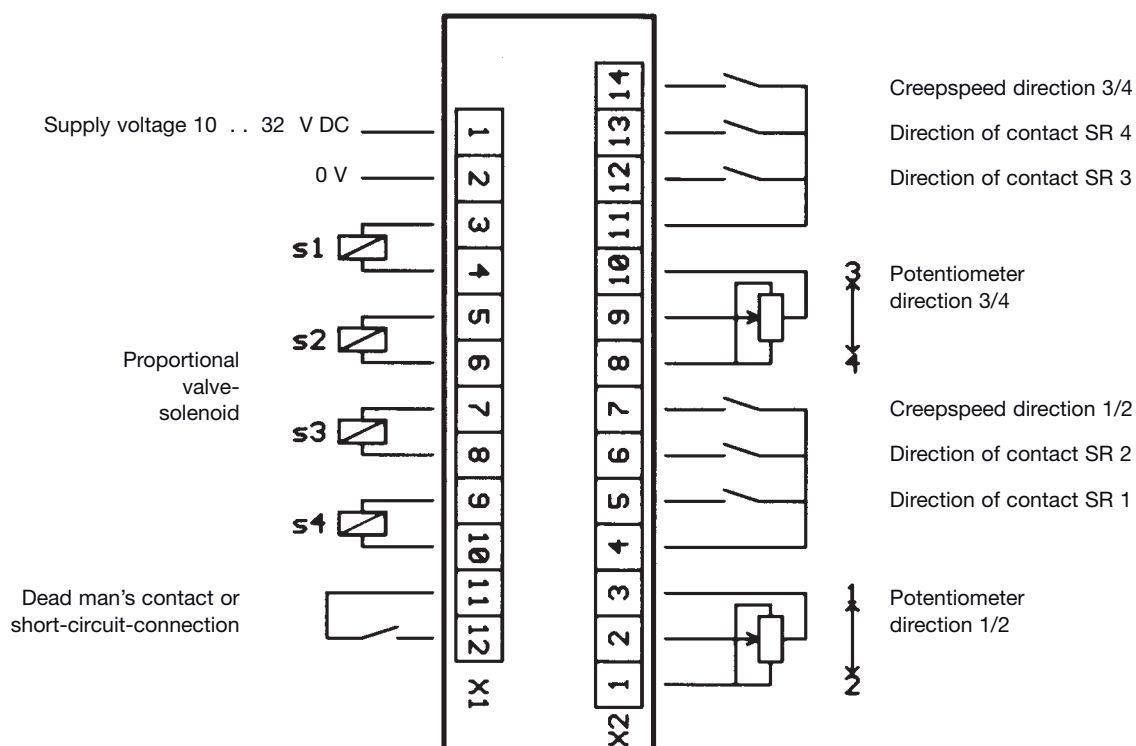
Characteristics:

- | | | | |
|----------------------------|--------------------|--------------------|----------------|
| - Supply voltage | | 10 ... | 32 V DC |
| - Residual ripple | | 20% | |
| - Control voltage range | Ue | 0 ... | 5 V |
| - Control current | Ie | < 1 mA | |
| - Dither frequency | f | 25 ... | 250 Hz |
| - Proportional valve S 1-4 | I min. | 0 ... | 1 A |
| Output | I max. = I min ... | | 2 A at 12 Volt |
| Output | I max. = I min ... | | 1 A at 24 Volt |
| - Ramp time setting | t on | 0,2 ... | 25 sec |
| | t off | 0,2 ... | 25 sec |
| - Creep speed | | variable reduction | 25 ... 75% |
| - Operating temperature | | -20°C to +60°C | |
| - Storage temperature | | -40°C to +80°C | |

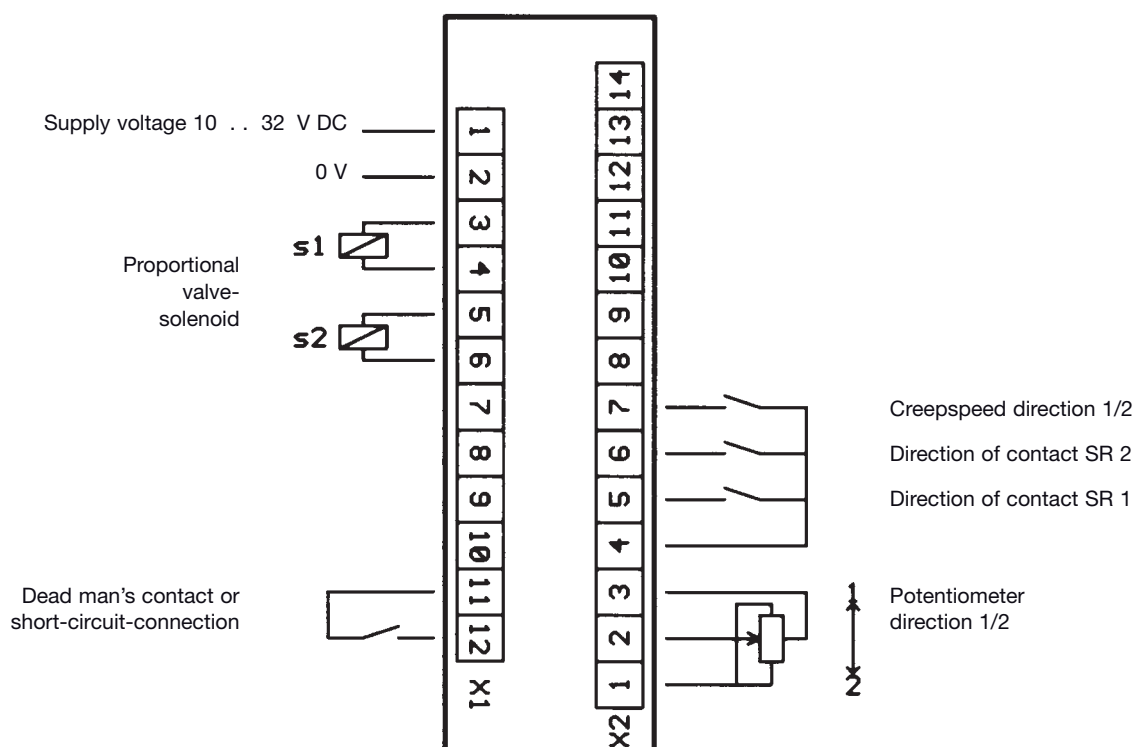
Pos.				Weight gramm	Type	Price EURO
1	Electronic control unit for 4 proportional valves solenoid			250	ES/43-10	
2	Electronic control unit for 2 proportional valves solenoid			200	ES/43-11	
3						



ES / 43-10 4 Proportional valves-solenoid



ES / 43-11 2 Proportional valves-solenoid





GESSMANN
Industrial controllers

**Electronic (Amplifier)
ES/61
current controlled 0–1 Ampere**

3/504
2010

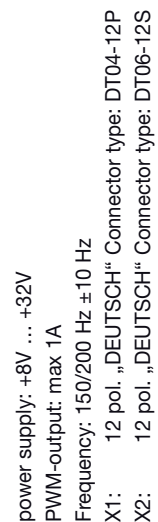
Pos.	for mounting on V 8 with potentiometer		Type	Weight gramm	Type	Price EURO
1	Elektronic (Amplifier) Technical data: Power supply 8–32 V DC Current controlled PWM 0–1 A per axis can be a characteristic curve deposited Dither frequency 150 or 200 Hz adjustable Ramp time adjustable or Current input 4–20 mA Current output 2 A RS 232 interface with PC work parameter attitude and diagnosis Error journal for 41 errors with operating time active/inactively recognition Connector DT04-12P / DT06-12S		ES/61	250	EV01	
90	Humidity protection (circuit board moulded) for use with high condensation					



3/505
2010

directions

1 2 3 4





GESSMANN
Industrial controllers

**Matching Electronic
with digital and analog outputs
for potentiometer applications**

3/510
2010

Pos.	for mounting on: V 10, V 8, VV 8, D 8, P 10, P 11, P 12			Weight gramm	Type	Price EURO
10 11 12						
15 16 17						
30 31 32 33	Voltage output impressed +10...0...+10 Volt ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 0-10 Volt (+ 5 mA) Output characteristic linear		EP/84 EP/239	150	EU101 EU102 EU103	
35 36 37 38	Voltage output impressed ± 10 Volt ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output ± 10 Volt (± 5 mA) Output characteristic linear		EP/84 EP/239	150	EU105 EU106 EU107	
40 41 42 43	Output power impressed +20...0...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 0-20 mA Output characteristic linear		ER/15 ER/16 EP/25 EP/231		EI101 EI102 EI103	
45 46 47 48	Output power impressed +20...+4...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 4-20 mA Output characteristic linear		ER/15 ER/16 EP/25 EP/231		EI105 EI106 EI107	
50 51 52 53	Output power impressed +4...+12...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output +4-12-20 mA Output characteristic linear		ER/19	150	EI109 EI110 EI111	
55 56 57 58	Output power impressed ± 20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output ± 20 mA Output characteristic linear		ER/44	150	EI113 EI114 EI115	
90	Humidity protection (circuit board moulded) for use with high condensation					



GESSMANN
Industrial controllers

**Matching Electronic
with digital and analog outputs
for redundant Hallsensors**

3/515
2010

Pos.	for mounting on: V 25, V 85, VV 85			Weight gramm	Type	Price EURO
10 11 12	8bit Gray-code DIGITAL electronic for 1 axis electronic for 2 axis Technical data: Power supply 18-30 V DC Output PNP 24 V DC 10 mA) Output characteristic linear		EP/340	150	ED11 ED12	
15 16 17	8bit Binär-code DIGITAL electronic for 1 axis electronic for 2 axis Technical data: Power supply 18-30 V DC Output PNP 24 V DC 10 mA) Output characteristic linear		EP/340	150	ED13 ED14	
30 31 32 33	Voltage output impressed +10...0...+10 Volt ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 0-10 Volt (+ 5 mA) Output characteristic linear		EP/318	150	EU109 EU110 EU111	
35 36 37 38	Voltage output impressed ± 10 Volt ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output ± 10 Volt (± 5 mA) Output characteristic linear		EP/318	150	EU113 EU114 EU115	
40 41 42 43	Voltage output impressed +20...0...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 0-20 mA Output characteristic linear		EP/324 EP/370	150	EI117 EI118 EI119	
45 46 47 48	Output power impressed +20...+4...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output 4-20 mA Output characteristic linear		EP/324 EP/370	150	EI121 EI122 EI123	
50 51 52 53	Output power impressed +4...+12...+20 mA ANALOG electronic for 1 axis electronic for 2 axis electronic for 3 axis Technical data: Power supply 18-30 V DC Output +4-12-20 mA Output characteristic linear		EP/324	150	EI125 EI126 EI127	
55 56 57 58						
90	Humidity protection (circuit board moulded) for use with high condensation					



GESSMANN
Industrial controllers

**Matching Electronic with Profi-Bus Interface
for potentiometer applications**

3/520
2010

Pos.	for mounting on: V 10, V 8, VV 8, D 8, P 10, P 11, P 12			Weight gramm	Type	Price EURO
1	Electronic Profi-Bus DP Technical data: Power supply 18-32 V DC distinctively poled Profi-Bus Baud rate max. 12 MBit/s Address outside adjustable 0...99 by rotary switch (default 99) potentiometer output value 0 / 128 / 255 or 255 / 0 / 255 Input 3 analog ports for 3 potentiometers (3-axis) 6 digital ports for 3 x 2 direction-contacts 8 digital ports for 8 switches Connection D-SUB 9 socket (female insert) 3 B-line 4 RTS 5 GND 6 +5 V 8 A-line Connector 2-pole 1 24 V 2 0 V Communication Profi-Bus DP (DIN 192 45 section 3) Ident-No. 068 BH		EB/85		EPB01	
90	Humidity protection (circuit board moulded) for use with high condensation					



GESSMANN
Industrial controllers

Matching Electronic with Profi-Bus Interface for redundant Hallsensors

3/525
2010

Pos.	for mounting on: V 85, VV 85, V 25			Weight gramm	Type	Price EURO
1	Electronic Profi-Bus DP Technical data: Power supply 18-32 V DC distinctively poled Profi-Bus Baud rate max. 12 MBit/s Address outside adjustable 0...99 by rotary switch (default 99) Hallsensors output value 0 / 128 / 255 or 255 / 0 / 255 Input 3 analog ports for 3 potentiometers (3-axis) 6 digital ports for 3 x 2 direction-contacts 8 digital ports for 8 switches Connection D-SUB 9 socket (female insert) 3 B-line 4 RTS 5 GND 6 +5 V 8 A-line Connector 2-pole 1 24 V 2 0 V Communication Profi-Bus DP (DIN 192 45 section 3) Ident-No. 068 BH		EB/85	150	EPB11	
90	Humidity protection (circuit board moulded) for use with high condensation					

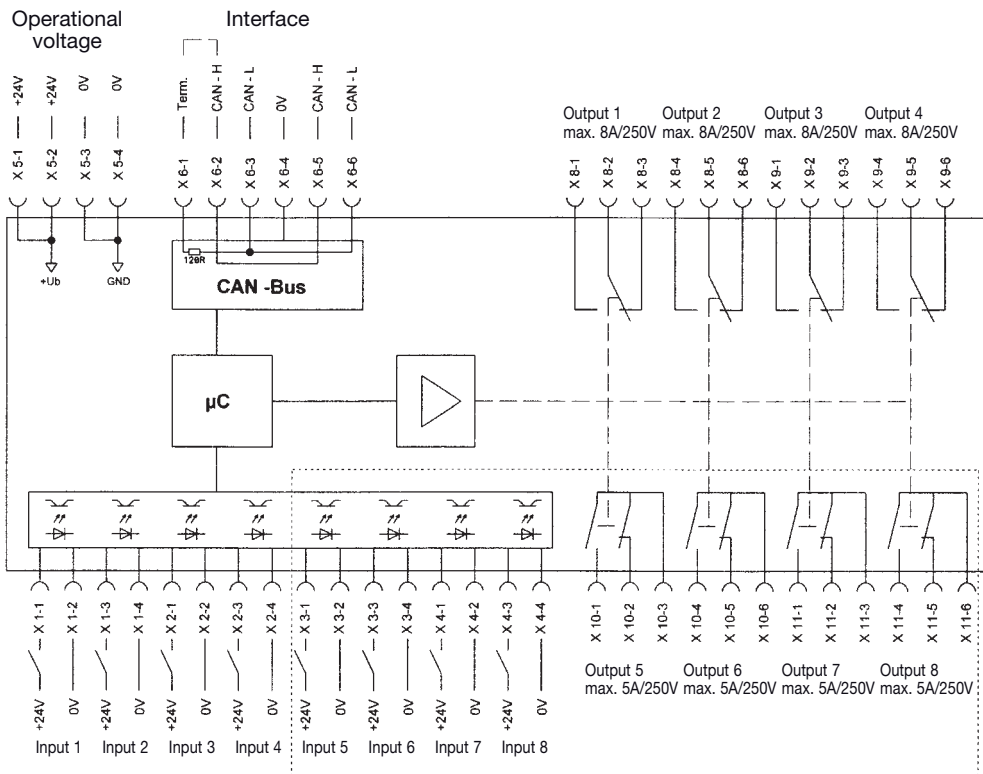


Pos.	for mounting on: V 10, V 8, VV 8, D 8, P 10, P 11, P 12			Weight gramm	Type	Price EURO
1	Electronic CAN-Bus Technical data: Power supply 9-32 V DC distinctively poled CAN-Bus level: physical layer acc. ISO 11898 Baud rate 125 kBit/s...1Mbit/s Bus-exclusion DIP switch hook up Identifier / CAN-open-ID adjustable by DIP switch Input 4 analog ports for 4 potentiometer (4-axis) 8 digital ports for 4 x 2 direction-contacts 8 digital ports for 8 switches Connection D-SUB 9 socket protection IP 65 (male) 2 CAN-L in 3 GND 7 CAN-H in 9 Supply voltage Connection D-SUB 9 socket protection IP 65 (female) 2 CAN-L out 3 GND 7 CAN-H out 9 Supply voltage Protocol CAN open according to CIA DS 301 or customer preference other functions upon request		T 646 EB/40	150	ECB01	
90	Humidity protection (circuit board moulded) for use with high condensation					

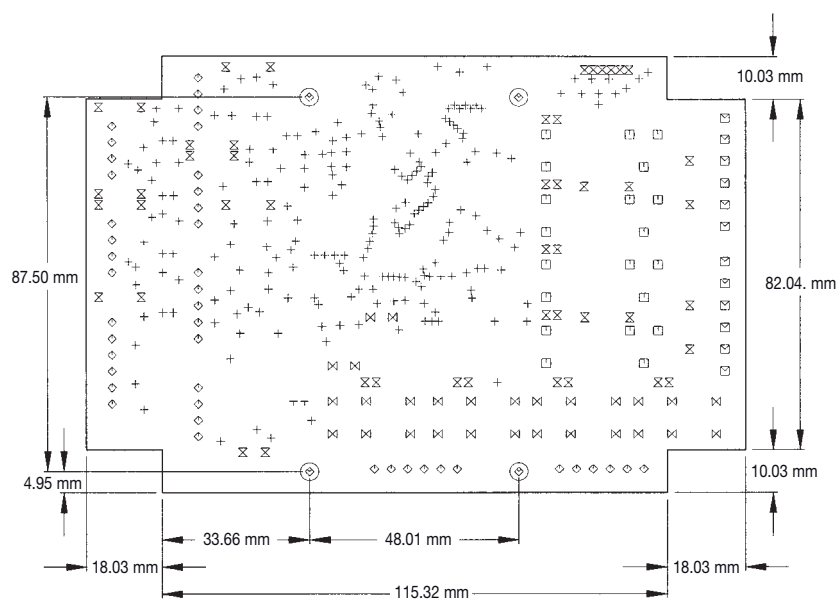


Pos.			Type	Weight gramm	Type	Price EURO
1	Elektronic CAN-Bus I/O card Techncal data: Power supply 9-36 V distinctively poled Baudrate 125 KBit/s Bus-Exclusion DIP switch hook up Identifier / CAN-open-ID adjustable by DIP switch Input: Output: Connection; 8 digitale ports 8 digitale ports Connector pin and socket		EB/49	100	ECB02	

**Electrical
diagram**



**Scale
drawing**



50	Plastic housing (EMV) 120x170x66 with 3 holes for cable entry M20			350	I	
90	Humidity protection (circuit board moulded) for use with high condensation					



Pos.	for mounting on: V 25, V 85, VV 85			Weight gramm	Type	Price EURO
1	Electronic CAN-Bus Technical data: Power supply 9-32 V DC distinctively poled CAN-Bus level: physical layer acc. ISO 11898 Baud rate 125 kBit/s...1Mbit/s Bus-exclusion DIP switch hook up Identifier / CAN-open-ID adjustable by DIP switch V 25 max 3 directions Input 4 analog ports for 4 potentiometer (4-axis) 8 digital ports for 4 x 2 direction-contacts 8 digital ports for 8 switches Connection D-SUB 9 socket protection IP 65 (male) 2 CAN-L in 3 GND 7 CAN-H in 9 Supply voltage Connection D-SUB 9 socket protection IP 65 (female) 2 CAN-L out 3 GND 7 CAN-H out 9 Supply voltage Protocol CAN-Open according to CIA DS 301 or customer preference other functions upon request		EB/66 EB/72	150	ECB11	
90	Humidity protection (circuit board moulded) for use with high condensation					



Notice

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.





GESSMANN
Industrial controllers

Standard contact-arrangement for master switch

5/001
2010

Pos.	Type	Type	Pos.	Type	Type
01	MS 11		A01		
02	MS 12		A02		
03	MS 13		A03		
04	MS 14		A04		
05	MS 21		A05		
06	MS 22		A06		
07	MS 212		A07		
08	MS 222		A08		
09	MS 23		A09		
10	MS 213		A10		
11	MS 24		A11		
12	MS 214		A12		
13	MS 224		A13		
14	MS 25		A14		
15	MS 26		A15		
16	MS 0		A98		
17	Contact arrangement special				A99
18	Contact in 0-Position normally closed (NC) Additional code - 0				A...0
19	Contact in 0-Position normally open (NO) Additional code - 1				A...1
20	Potentiometer MSP				
21	Micro change over contact for control handle with dead man's button signal button push button				
				- left 1 3 ← 4 left 2 - right 5 7 ← 8 6 right Deflection directions designated to DIN 15025	
				Contact 5 05 = direction 1/4/5/8 Contact 3 03 = direction 2/3/6/7	



GESSMANN

Industrial controllers

Standard contact-arrangement (lever switch) S4, S41-43, S44-45

5/010

2010

Detents:

position of operator (direction)					switching sequence detent no.
bottom U		0	top O		
2	1		1	2	
R				R	MS31
B	B			R	MS32
R			B	B	MS33
R	R		R	R	MS34
B	B		R	R	MS35
R	R		B	B	MS36
T				T	MS37
B	B			T	MS38
T			B	B	MS39
B	B		T	T	MS40
T	T		B	B	MS41
R				T	MS42
T				R	MS43
R	T		T	R	MS44
B	B		T	R	MS45
R	T		B	B	MS46
B	R		R	R	MS47

R=rest
B=blocked
T=tip

switching
sequence
detent no.

position of operator (direction)					
bottom U			0	top O	
2	1	1		2	
MS48	R	T		T	B
MS49	B	T		T	R
MS50	T	T		T	T
MS51	B	R		R	B
MS52	R			T	R
MS53	R				R
MS54	B	T		T	B
MS55	R	R		T	R
MS56	T	T		T	R
MS57	R	T			T
MS58	T	R		R	R
MS59	T			T	R
MS60	R	T		T	T
MS61	B	T		R	R
MS62	R			R	R

Ordering information: special version

Detents

R=rest
B=blocked
T=tip

position of operator (direction)					switching sequence microswitch
bottom U		0	top O		
2	1		1	2	
					1
					2
					3
					4
					5

Switching program

X = contact closed
X-X = contact
continuously closed

position of operator (direction)					switching sequence microswitch
bottom U		0	top O		
2	1		1	2	
					1
					2
					3
					4
					5

Switching program:

position of operator (direction)					switching sequence program no.
bottom U		0	top O		
2	1		1	2	
j					01
o					02
c					03
k l e o c k e d		X	X	X	04
		X			05
		X		X	06
			X		07
		X	X	X	08
		X			09
		X			10
		X			11
c k e d				X = cont	
X	X		X	X-X = cont cont	
			X		
X					
	X				
X			X		
	X	X			
	X	X			
					17
					18
					19
					20
					21
					22
X	X		X	X	23
		X			24
			X	X	25
X	X				26

the shown switching
sequences apply to
the microswitch
contacts 1/2 (NC)

X = contact closed

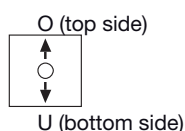
X-X = contact
continuously closed

switching sequence
program no.

switching sequence no.	position of operator (direction)				
	bottom U		0	top O	
	2	1		1	2
27				X	X
28	X	X			
29	X				X
30		X		X	
31	X		X		X
32		X	X	X	
33					X
34	X				
35				X	
36		X			
37			X		X
38	X				
39			X	X	
40		X	X		
41		X			X
42	X			X	
43		X		X	X
44	X	X		X	
45			X		X
46	X		X	X	
47		X	X	X	
48		X	X	X	
49	X			X	X
50	X	X			X
51	X		X	X	

Required ordering information for S4, S41-43, S44-45 catalog 1/214...1/218

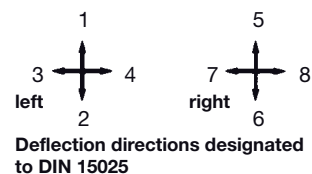
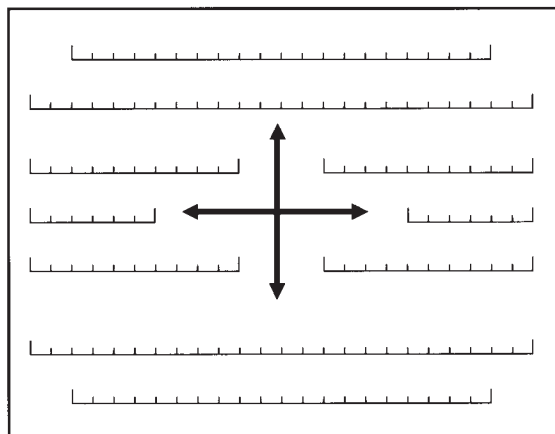
handle design no.	
contact material	standard silver (Ag) S
	Special gold plated (Au) G
contact:	snap action switch
	... with positive opening operation
terminals:	screwed contact no. 1
	fast-on terminal 6,3x0,8mm no. 2
	cage clamp connection no. 3
	connector no. 4
color of centering ring:	black anodized 0
	alu coloured anodized 8
anti twist device:	V





Customer _____ Order No. _____

Multi-axis controller
Left / right
Indicating label
Black
Engraved white
Lettering height
3,5 mm



Direction 1-2 / 5-6 _____ Direction 3-4 / 7-8 _____

Switching program _____ Switching program _____

Drive _____ Plant ref. _____ Drive _____ Plant ref. _____

Switching sequence

Destination	1	2	3	4	5	6	7	8	9	10	11	12
01												
02												
03												
04												
05												
06												
07												
08												
09												
010												
011												
012												

A M S Potentiometer ☐ ☒ contact closed ☐ contact opening

☐ Spring return
☐ Friction brake
☐ Special switching sequence _____

Switching sequence

Destination	1	2	3	4	5	6	7	8	9	10	11	12
01												
02												
03												
04												
05												
06												
07												
08												
09												
010												
011												
012												

A M S Potentiometer ☐ ☒ contact closed ☐ contact opening

☐ Spring return
☐ Friction brake
☐ Special switching sequence _____

Additional functions in the control-handle _____

☐ Dead man's button T ☐ Signal button H ☐ Push button D
Destination _____ Destination _____ Function _____ Destination _____

Control-handle long or short _____ mm _____

☐ Gate cross-shaped ☐ Gate special-shaped (enclose drawing)

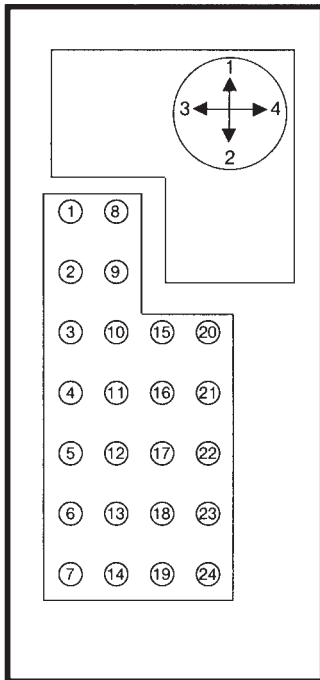
Type key: Type _____

X = _____



Customer _____ Order No. _____

Equipment box left



Maximum installation of command and indicating devices 22 (see 1/360) in our control units and housings if our multi-axis controllers V 62 (see 1/100) are used. Additional command and indicating devices can be installed if multi-axis controllers V 64 or V 11 (see 1/110) are used. (please enquire)

Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						

Control unit (see 2/030ff)

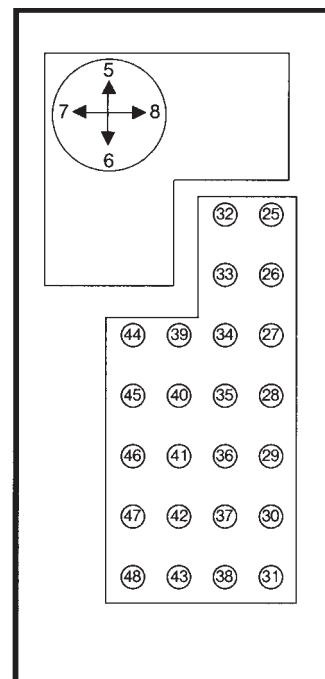
Type		No. of pieces max.
KST 3	1 - 6, 8 - 13, 15 - 18	16
KST 41/181	1 - 5, 10 - 12	8
KST 42/182	1 - 5, 8 - 12, 15 - 17	13
KST 51/151	3 - 7, 10 - 14, 15 - 19, 20 - 24	20
KST 52/54/152/154	1 - 24	24
KST 6	3 - 4, 10 - 11, 15 - 16	6
KST 7	1 - 24	24
KST 75	1 - 19	19



Customer _____ Order No. _____

Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
25	_____	_____	_____	_____	_____	_____
26	_____	_____	_____	_____	_____	_____
27	_____	_____	_____	_____	_____	_____
28	_____	_____	_____	_____	_____	_____
29	_____	_____	_____	_____	_____	_____
30	_____	_____	_____	_____	_____	_____
31	_____	_____	_____	_____	_____	_____
32	_____	_____	_____	_____	_____	_____
33	_____	_____	_____	_____	_____	_____
34	_____	_____	_____	_____	_____	_____
35	_____	_____	_____	_____	_____	_____
36	_____	_____	_____	_____	_____	_____
37	_____	_____	_____	_____	_____	_____
38	_____	_____	_____	_____	_____	_____
39	_____	_____	_____	_____	_____	_____
40	_____	_____	_____	_____	_____	_____
41	_____	_____	_____	_____	_____	_____
42	_____	_____	_____	_____	_____	_____
43	_____	_____	_____	_____	_____	_____
44	_____	_____	_____	_____	_____	_____
45	_____	_____	_____	_____	_____	_____
46	_____	_____	_____	_____	_____	_____
47	_____	_____	_____	_____	_____	_____
48	_____	_____	_____	_____	_____	_____

Equipment box right



Maximum installation of command and indicating devices 22 (see 1/360) in our control units and housings if our multi-axis controllers V 62 (see 1/100) are used. Additional command and indicating devices can be installed if multi-axis controllers V 64 or V 11 (see 1/110) are used. (please enquire)

25 - 30, 32 - 37, 39 - 42

25 - 29, 34 - 36

25 - 29, 32 - 36, 39 - 41

27 - 31, 34 - 38, 39 - 43, 44 - 48

25 - 48

27 - 28, 34 - 35, 39 - 40

25 - 48

25 - 43

No. of
pieces max.

16

8

13

20

24

6

24

19

Control unit (see 2/030ff)

Type

KST 3

KST 41/181

KST 42/182

KST 51/151

KST 52/54/152/154

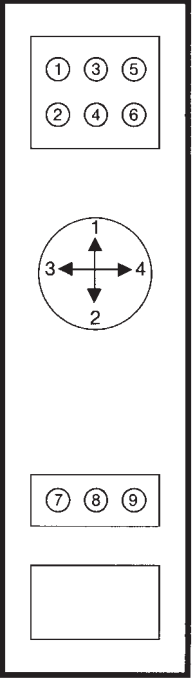
KST 6

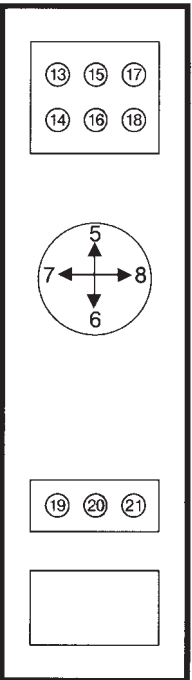
KST 7

KST 75



Customer _____ Order No. _____

Equipment box left	Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
 Max. 6 pcs. installation of command and indicating devices 22 (see 1/360) or 1 pcs. monitoring device 72 x 72 mm Multi-axis controller V 64 (see 1/100) or V 11 (see 1/110) Max. 3 pcs. installation of command and indicating devices 22 (see 1/360) Place to put on devices	1	_____	_____	_____	_____	_____	_____
	2	_____	_____	_____	_____	_____	_____
	3	_____	_____	_____	_____	_____	_____
	4	_____	_____	_____	_____	_____	_____
	5	_____	_____	_____	_____	_____	_____
	6	_____	_____	_____	_____	_____	_____
	7	_____	_____	_____	_____	_____	_____
	8	_____	_____	_____	_____	_____	_____
	9	_____	_____	_____	_____	_____	_____
	10	_____	_____	_____	_____	_____	_____
	11	_____	_____	_____	_____	_____	_____
	12	_____	_____	_____	_____	_____	_____

Equipment box right							
 Max. 6 pcs. installation of command and indicating devices 22 (see 1/360) or 1 pcs. monitoring device 72 x 72 mm Multi-axis controller V 64 (see 1/100) or V 11 (see 1/110) Max. 3 pcs. installation of command and indicating devices 22 (see 1/360) Place to put on devices	13	_____	_____	_____	_____	_____	_____
	14	_____	_____	_____	_____	_____	_____
	15	_____	_____	_____	_____	_____	_____
	16	_____	_____	_____	_____	_____	_____
	17	_____	_____	_____	_____	_____	_____
	18	_____	_____	_____	_____	_____	_____
	19	_____	_____	_____	_____	_____	_____
	20	_____	_____	_____	_____	_____	_____
	21	_____	_____	_____	_____	_____	_____
	22	_____	_____	_____	_____	_____	_____
	23	_____	_____	_____	_____	_____	_____
	24	_____	_____	_____	_____	_____	_____



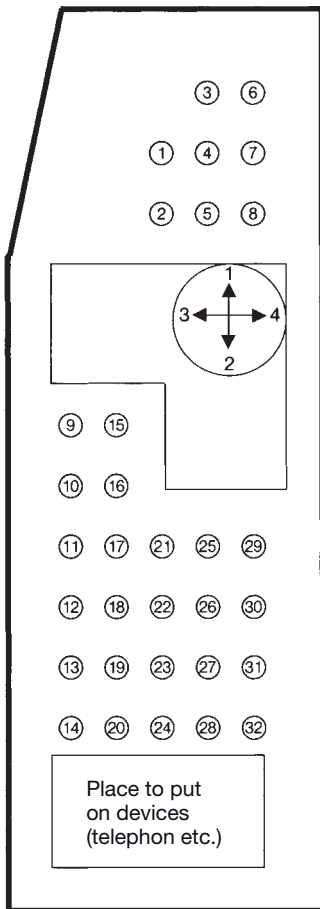
Notice

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.



Customer _____ Order No. _____

Equipment box left



Position Nr.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

Maximum installation of command and indicating devices 22 (see 1/360) if our multiaxis controllers V 62 (see 1/100) are used.

Additional command and indicating devices can be installed if multi-axis controller V 64 or V 11 (see 1/110) are used.

(please enquire)

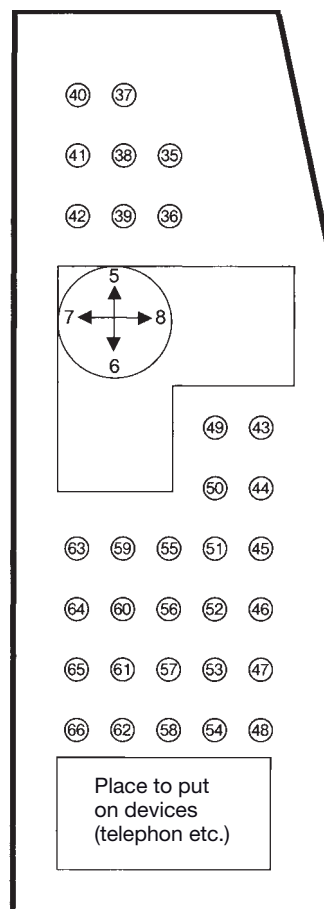
Pos. 1-8 alternative
max. 2 pcs. monitoring
devices 72 x 72 mm



Customer _____ Order No. _____

Position Nr.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
35	_____	_____	_____	_____	_____	_____
36	_____	_____	_____	_____	_____	_____
37	_____	_____	_____	_____	_____	_____
38	_____	_____	_____	_____	_____	_____
39	_____	_____	_____	_____	_____	_____
40	_____	_____	_____	_____	_____	_____
41	_____	_____	_____	_____	_____	_____
42	_____	_____	_____	_____	_____	_____
43	_____	_____	_____	_____	_____	_____
44	_____	_____	_____	_____	_____	_____
45	_____	_____	_____	_____	_____	_____
46	_____	_____	_____	_____	_____	_____
47	_____	_____	_____	_____	_____	_____
48	_____	_____	_____	_____	_____	_____
49	_____	_____	_____	_____	_____	_____
50	_____	_____	_____	_____	_____	_____
51	_____	_____	_____	_____	_____	_____
52	_____	_____	_____	_____	_____	_____
53	_____	_____	_____	_____	_____	_____
54	_____	_____	_____	_____	_____	_____
55	_____	_____	_____	_____	_____	_____
56	_____	_____	_____	_____	_____	_____
57	_____	_____	_____	_____	_____	_____
58	_____	_____	_____	_____	_____	_____
59	_____	_____	_____	_____	_____	_____
60	_____	_____	_____	_____	_____	_____
61	_____	_____	_____	_____	_____	_____
62	_____	_____	_____	_____	_____	_____
63	_____	_____	_____	_____	_____	_____
64	_____	_____	_____	_____	_____	_____
65	_____	_____	_____	_____	_____	_____
66	_____	_____	_____	_____	_____	_____

Equipment box right

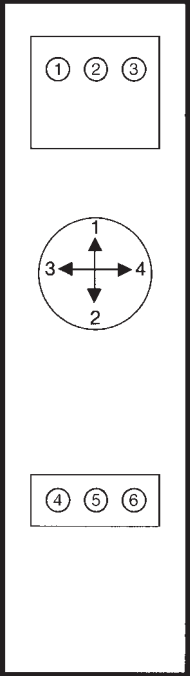


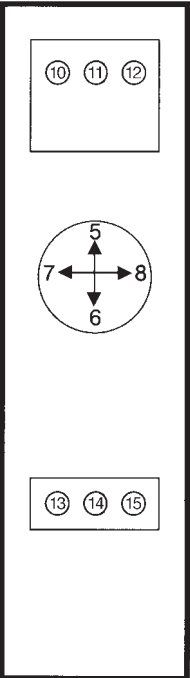
Maximum installation of command and indicating devices 22 (see 1/360) if our multiaxis controllers V 62 (see 1/100) are used. Additional command and indicating devices can be installed if multi-axis controller V 64 or V 11 (see 1/110) are used. (please enquire)

Pos. 35-42 alternative max. 2 pcs. monitoring devices 72 x 72 mm



Customer _____ Order No. _____

Equipment box left	Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
	1	_____	_____	_____	_____	_____	_____
	2	_____	_____	_____	_____	_____	_____
	3	_____	_____	_____	_____	_____	_____
	4	_____	_____	_____	_____	_____	_____
	5	_____	_____	_____	_____	_____	_____
	6	_____	_____	_____	_____	_____	_____
	7	_____	_____	_____	_____	_____	_____
	8	_____	_____	_____	_____	_____	_____
	9	_____	_____	_____	_____	_____	_____

Equipment box right	Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant ref.	Destination	Notes
	10	_____	_____	_____	_____	_____	_____
	11	_____	_____	_____	_____	_____	_____
	12	_____	_____	_____	_____	_____	_____
	13	_____	_____	_____	_____	_____	_____
	14	_____	_____	_____	_____	_____	_____
	15	_____	_____	_____	_____	_____	_____
	16	_____	_____	_____	_____	_____	_____
	17	_____	_____	_____	_____	_____	_____
	18	_____	_____	_____	_____	_____	_____



5/029
2010

Customer _____ Order No.. _____

Equipment box left	Position No.	Type	Colour	Label text (max. 2 x 12 characters)	Plant-ref.	Destination	Notes
Multi axis controller V 11, V 14, V 25, V 85 see 1/110ff max. 7 installations of command and indicating devices 22 (see 1/360)	1						
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						

[illegible]


Utilization categories for control switches to IEC/EN 60947-5-1.

Type of current	Utilization category	Typical examples of application	Normal conditions of use					
		I = current made, I _c = current broken I _e = rated operational current, U = voltage before make U _e = rated operational voltage U _r = recovery voltage t 0,95 = time in ms, to reach 95% of the steady-state current. P = U _e · I _e = steady-state power consumption in watts	Make			Break		
			$\frac{I}{I_e}$	$\frac{U}{U_e}$	cos φ	$\frac{I_c}{I_e}$	$\frac{U_r}{U_e}$	cos φ
AC	AC 12	Control of resistive loads and solid state loads with isolation by opto couplers	1	1	0,9	1	1	0,9
	AC 15	Control of a.c. electromagnetic loads (> 72 VA)	10	1	0,3	1	1	0,3
			$\frac{I}{I_e}$	$\frac{U}{U_e}$	t 0,95	$\frac{I_c}{I_e}$	$\frac{U_r}{U_e}$	t 0,95
DC	DC 12	Control of resistive loads and solid state loads with isolation by opto couplers	1	1	1 ms	1	1	1 ms
	DC 13	Control of d.c. electromagnets	1	1	6 · P	1	1	6 · P

The value 6 · P results from an empirical relationship with is found to represent most d.c. magnetic loads to an upper limit of P = 50 W viz 6 · P = 300 ms. Loads having power consumption greater than 50 W are assumed to consist of smaller loads in parallel. Therefore 300 ms is to be an upper limit, irrespective of the power consumption value.

Attach our switching device		V 6 S 6 N 61	N 6 N 62	VV 6 DD 64	V 11	V 5 S 2-S 23	VV 5 SS2-SS21	V 8 V 85 D 8	VV 8 VV 85 D 3 S 3	V 10 V 25 S 1	V 14 S 14	V 3	dead man's button signal button push button
Rated isolation voltage in Volt	Ui	250		250	250	250	250	110	110	110	250	500	250
Rated operational voltage in Volt	Ue	250		250	250	250	250	110	110	110	250	350	250
Rated operational current in Ampere	Ie AC 12	6 or 16		6 or 16	6 or 16	10	10	2	2	2	6	16	6
	AC 15	2	4	2	4	2	2	0,5	0,5	0,5	2	4	2
	DC 12	24 V 48 V 110 V 220 V 24 V	6 2 0,5 0,1 5 mA	8 4 1 0,5 5 mA	6 2 0,5 0,1 5 mA	8 4 1 0,5 5 mA	4 2 0,2 0,1 5 mA	2 1 0,1 0,1 5 mA	2 1 0,1 0,1 5 mA	2 1 0,1 0,1 5 mA	6 2 0,5 0,1 5 mA	8 4 1 0,5 5 mA	4 2 0,2 0,1 5 mA
Contacts gold-coated	DC 13	24 V 48 V 110 V 220 V	1 0,5 0,2 0,05	1 0,5 0,2 0,05	1 0,5 0,2 0,05	3 1,5 0,1 0,05	3 1,5 0,1 0,05	1,5 0,5 0,05	1,5 0,5 0,05	1,5 0,5 0,05	1 0,5 0,2 0,05	1 0,5 0,2 0,05	3 1,5 0,1 0,05
Short-circuit-protection in Ampere Fuse Circuit-breaker G-characteristic	9 L	6 6	16 16	6 6	16 16	10 10	10 10	4 4	4 4	4 4	6 6	16 16	6 6
Terminal screws Plug-in connection CAGE CLAMP® connection is a registered trademark of WAGO Kontakttechnik GmbH Germany		M 3,5 2,5 mm²		M 3,5 2,5 mm²	M 3,5 2,5 mm²	M 3,5 6,3 x 0,8	M 3,5 6,3 x 0,8	Solder terminal				M 4 6,3 x 0,8	M 3,5 6,3 x 0,8
Conductor sizes in mm2 finely stranded with end steeves		1,5		1,5	1,5	1,5	1,5	0,5	0,5	0,5	1	1,5	1,5
Mechanical life in million (operation cycles) max. switching frequency c/h 1000		10		20	10	6	10	8	12	8	6	6	10
Mechanical shock resistance to IEC 68-2-27		Shock-amplitude > 15 Shock duration 20 ms											
Clearances and creepage distances to IEC 947-1; 2.5.46.51		Overvoltage category III pollution grade 3											
Degree of protection to IEC/EN 605290		1. numeral protection of contact and foreign bodies IP 00 No protection IP 54 Protection deposits of dust IP 65 Protection complete of dust IP 66 Protection complete of dust 2. numeral protection of water No protection Protection splashing of water Protection hosed of water Protection hosed strong of water											



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