TÜNKERS® Swivel unit with electric motor

EKS ...

Operating Instructions

Subject to technical modifications.. **27.01.2009**

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Contents

Please include the information on the model tag in the event of questions and spare parts orders!

1.0 Description

The electrical swivel unit is a high performance tool designed for swivel and feed operations in the fixture. It consists of a hollow shaft electrical motor with a ballscrew, a swivel housing with attaching options on all sides and a swivel arm with a holding fixture for the swivel material.

The ballscrew of the electrical motor for transmitting power acts on an integrated toggle joint, which triggers the rotational movement of the arm during the swivel process. The position of the arm is controlled via query elements integrated in the housing. The electric motor is equipped with adjustable braking sensors for braking the rotational movement, which feed the required control signals to an external PLC. The electric motor is equipped with a spring powered emergency stop brake, which brakes the swivel operation within < 1 sec in an emergency. A heat monitor continuously monitors the winding of the electrical motor.

2.0 Safety instructions

Safety precautions to be observed by the user

This description contains the information required to use the products for the purpose for which they were designed. This information is intended for the use of suitably qualified persons.
The term “qualified” refers to persons older than 18 years of age, whose education, experience and training – along with their knowledge of the applicable norms, rules, accident-prevention regulations and working practices – qualify them to take responsibility for the safe operation of the machine and carry out the corresponding tasks to ensure that possible hazards can be identified and avoided (definition of qualified staff as per IEC 364).

Danger warnings:

The following warnings are designed to ensure the personal safety of operating staff and also the safe operation both of the products described and of items of equipment connected to them.

DANGER: This means that there is an immediate danger to the life or health of the user, if the corresponding preventative precautions are not observed.

CAUTION: Indicates a possible danger of damage to the machine or other items of equipment, if the corresponding preventative precautions are not observed.

- The electrical swivel unit is not a ready for use complete tool and is therefore not a equipped with a separate security device. Only through the proper installation in a manufacturing system and the establishment of a corresponding safety control unit are the technical safety requirements fulfilled.
- These operating instructions must be read prior to the assembly and start-up of the swivel unit and must be followed in detail!!

CAUTION: Danger of crushing There is danger of fingers being crushed or amputated during adjustment of the swivel unit!

- Do not reach into the swivel area while the swivel unit is operated!
- Shut down the swivel unit immediately in the event of any malfunction that is likely to affect personal safety.
- Refrain from any work method that inhibits the safety of the swivel unit.
- The electric power supply must be interrupted prior to working in the tool area!
- All maintenance work must be carried out by qualified service personnel and with the machine shut down.
- Ensure that all safety devices are refitted correctly after maintenance work has been carried out.
- Only use ORIGINAL assembly and spare parts from the manufacturer for safety reasons. Our warranty expires when using parts from other suppliers.

3.0 Assembly

The swivel unit can be mounted in any installation position.

- The swivel unit must be assembled on a sufficiently dimensioned console, which is also suitable for the dynamic loads of the moving system. The attachment is realized via cheese-head screws and the positioning via two dowel pins.

- Produce the electrical power supply according to the connection diagram.

The minimum cycle time (2.3 sec opening 120°/2.3 se c closing 120°) may not be underrun. The guidelines for the maximum arm weight must be complied with (see technical data sheet)!

4.0 Setting the swivel unit

It must be secured by a suitable load carrying device when setting with a mounted swivel application.

The swivel arm of the swivel unit of versions .2 and . 5 is secured by powerful circular locking elements. The factory installed installation position is adjusted to ± 10' in the end position. This connection should not be disconnected again, if possible. An adjustment of the swivel application can be reached via suitable adjusting plate.

A clear angular position is achieved via the connecting square of the swivel pin in versions .4 and .6.

- Screw the feed unit on the mounting arm.
- Feed to the swivel unit. Move the toggle joint to the over dead point position until it is audibly locked over the over dead point.
- Calculating the differential measurement on the swivel application.
- Balancing the differential measurement with suitable adjusting plates.

Caution! Risk of crushing injuries! There is danger of fingers being crushed or amputated during adjustment of the swivel unit! Do not reach into the swivel area while the swivel unit is operated! Interrupt the electrical power supply prior to working in the tool area!

5.0 Changing the opening angle

Changing the opening angle with internal stop:

The opening angle can only be changed by service personnel of TÜNKERS Maschinenbau GmbH by replacing the end stop buffer and a readjustment of the T12 sensing system.

Changing the opening angle with an external stop:

The opening angle with an external stop can only be changed by trained personnel by readjusting the T12 sensing system to the changed opening angle.

The changed opening angle can only be selected smaller without requiring a change on the internal stop. If the opening angle must be selected larger, the internally installed stop (buffer) must be removed or replaced.

6.0 Assembly of circular locking elements of the swivel versions .2 and .5

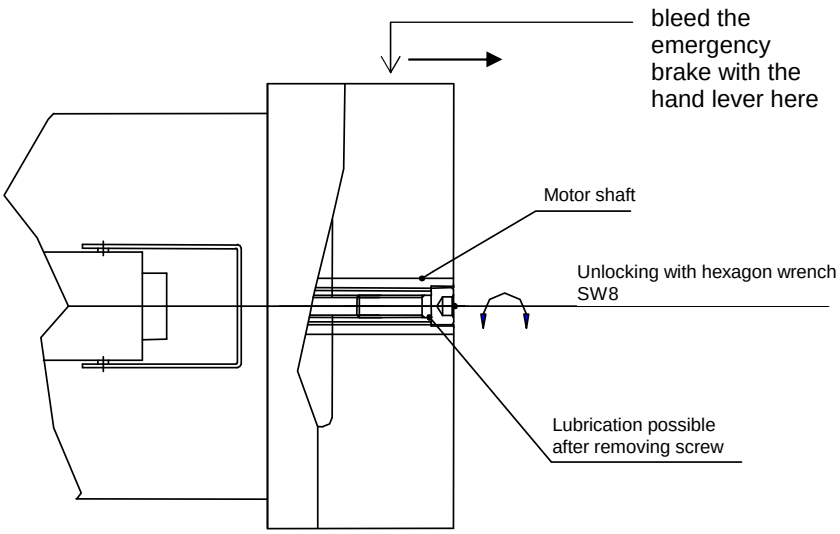
The installed circular locking elements must be assembled according to manufacturer guidelines in every case when adjusting or dismantling the clamping arm.

1. Lightly oil the clamping elements (S).
   Do not use oil with molybdenum sulphide or high pressure additives and no grease.
2. Push on the hub and insert the clamping element.
3. Tighten the clamping screws manually in a diagonal pattern, align the hub.
4. Diagonally tighten clamping screws at half the torque by using a torque wrench. Then tighten them diagonally at the full tightening torque.
5. Sequentially tighten the clamping screws several times at the full tightening torque. The tightening process is only completed, if screws no longer turn during tightening.

Type	Number of screws	Tightening torque per screw Nm]
EKS 100.2	15	17
EKS 160.2	12	41

7.0 Unlocking the swivel unit

The swivel motion can be unlocked or adjusted manually

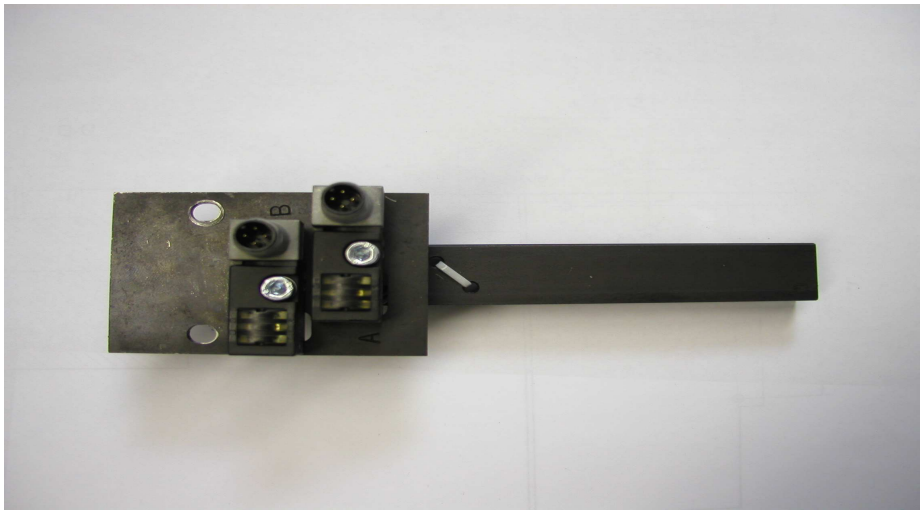


Caution! Danger of crushing Do not reach into the swivel range of the swivel arm during the unlocking process!

If the toggle joint is located in the over the dead point position, the swivel unit can be mechanically unlocked and therefore opened by manually turning the motor shaft (spindle):

- Switch off the power supply.
- Bleed the emergency brake with the hand lever.
- Move the motor shaft (spindle) to the desired swivel position by turning it with a hexagon wrench SW8.
- Move the emergency brake back to "brake position" after completing the unlocking process.

8.0 Replacement of the monitoring cassette



- Move the swivel arm to the "locked" position.
- Switch off the power supply.
- Unscrew both electric couplings.
- Dismantle the monitoring cassette by releasing the screws.
- Adjust the monitoring cassette to the required opening angle and braking distance and assemble.
- The monitoring cassette is equipped with two limit switches each for the end position monitor (A) and for switching on the brake distance (B).
  The limit switches are set to the required swivel angle at the factory and may only be changed by skilled personnel.
  Caution!
  Since the limit switch are triggered shortly before the end position, a waiting period of approx. 200ms must be provided in models with an external end stop prior to switching off the motor.

9.0 Electrical connection

This information does not replace the detailed SEW operating instructions. You can obtain these from SEW under order No. 10505806/DE and 11401001/DE. The MOVIMOT system may only be installed by skilled electricians by observing the valid accident prevention regulations.

The attached motor control unit MOVIMOT is the connection between the hollow shaft motor and a precisely coordinated frequency converter.

The speed of the drive is variably adjustable. All required control, safety and monitoring functions are integrated in the frequency converter.

The motor control unit facilitates the following:

- two directions of rotation
- Positioning at two speeds
- selectable acceleration
- Deceleration
- continuous speed adjustment.

Caution! Danger of injury! The temperature of the surface of the motor control unit, specifically the cooler, can equal more than 60° during the operation!

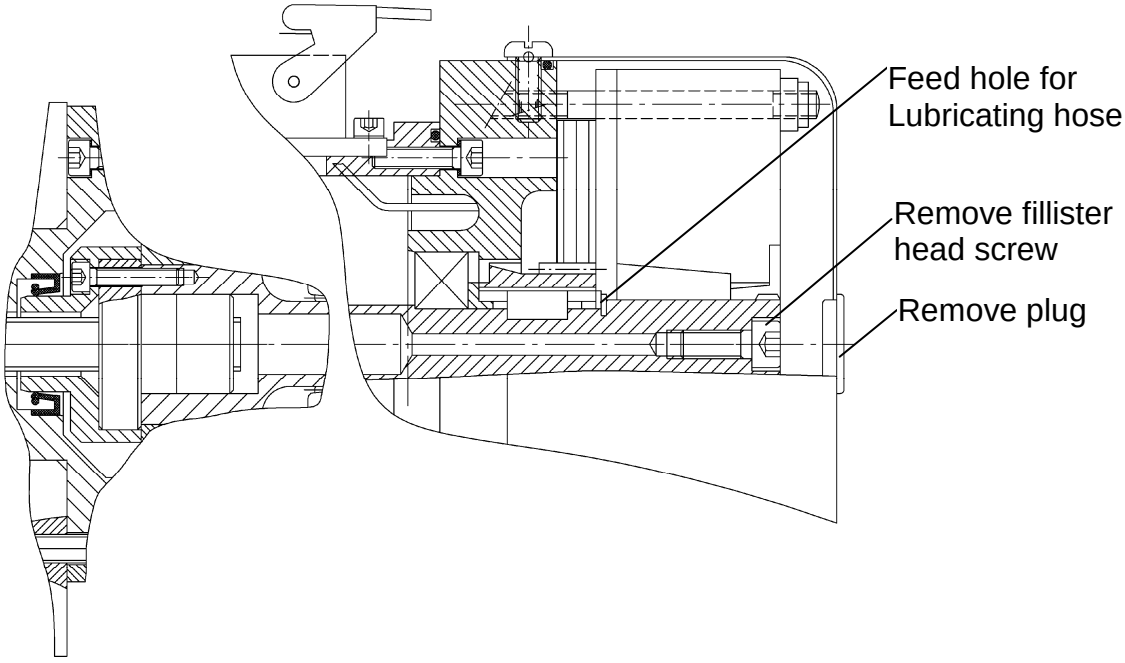
10.0 Maintenance

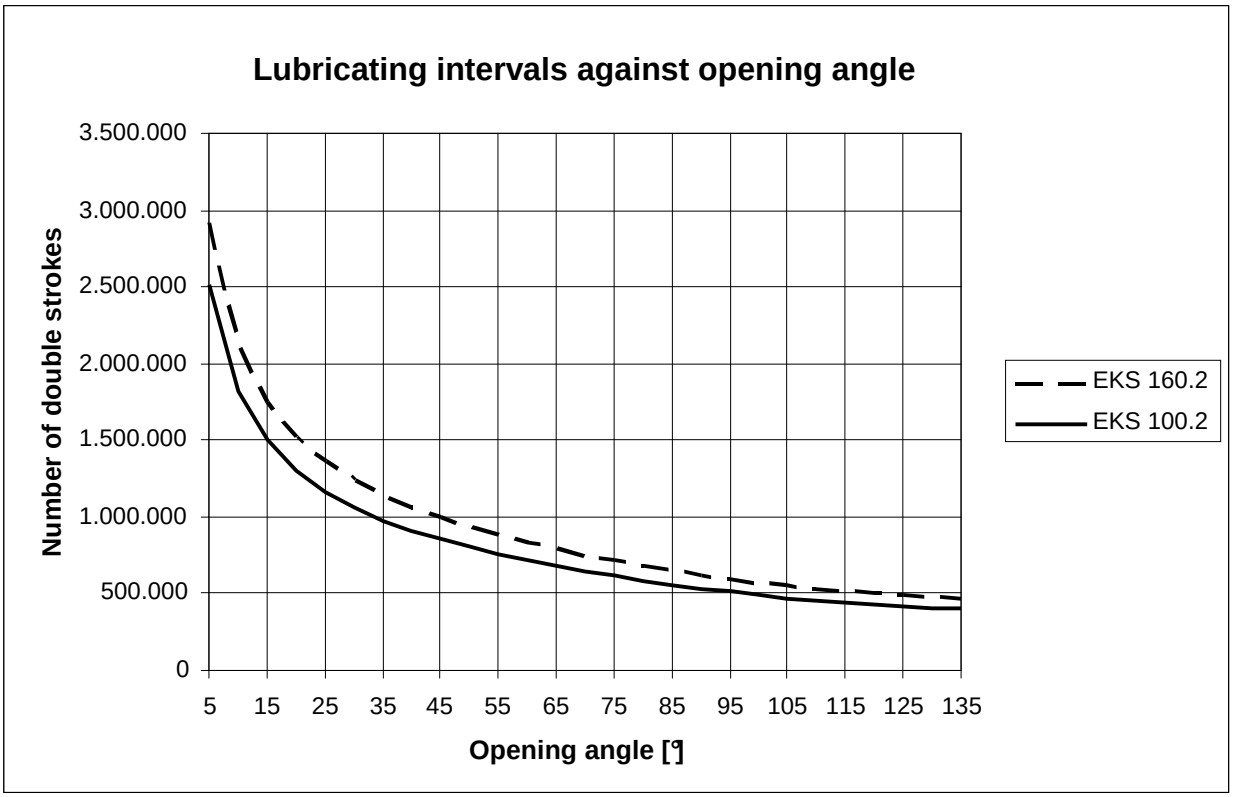
The swivel head is equipped with low-maintenance bearings and guides in view of the use in large series production. It provides a service life of 2 million power strokes without any significant developments of wear.

The sensing system for pivot angles and the brake distance sensing are maintenance-free.

Electric motor with installed ballscrew:
The installed ballscrew must be lubricated every 150 km (traverse path of the spindle nut), relative to the opening angle or 1 time annually by using
approx. 3 cm^3 of anti-friction bearing grease NLGI class 02 according to DIN 51818. Unscrew the M10 cheese-head screw on the motor shaft in front of the head and lubricate with a grease press.

Lubricating hose
(feed for grease)
ID No.: 275880





The bearing of the motor shaft is maintenance-free.

The emergency stop brake activates only when the electrical motor is shut down during "normal operations". It is not a work brake. Wear on the friction lining only develops during an emergency, if the brake must also brake the slowing motor shaft.

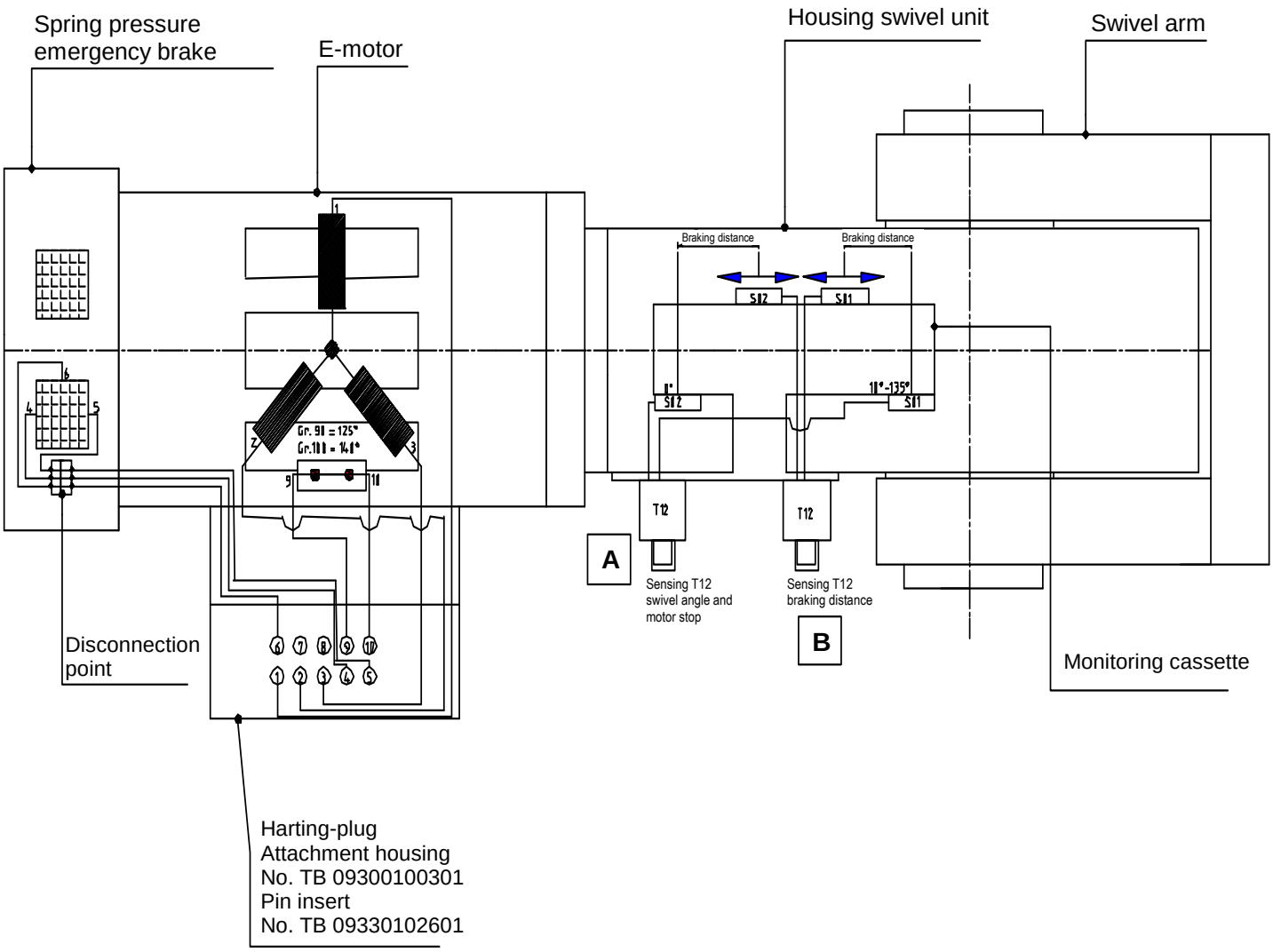
The friction lining of the emergency brake must always be inspected when lubricating the spindle.

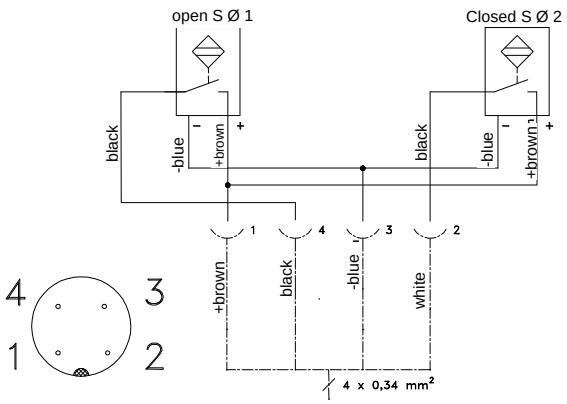
11.0 Appendix

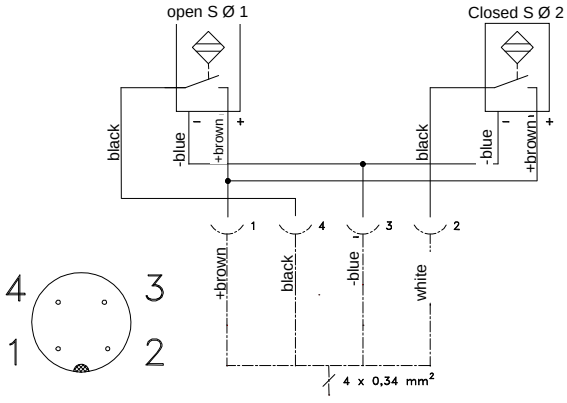
- Connection diagram
- Data sheets EKS…
- Connection diagram versions MS..
- Pin allocation monitoring cassette

Connection diagram

Swivel unit with electrical motor EKS ...



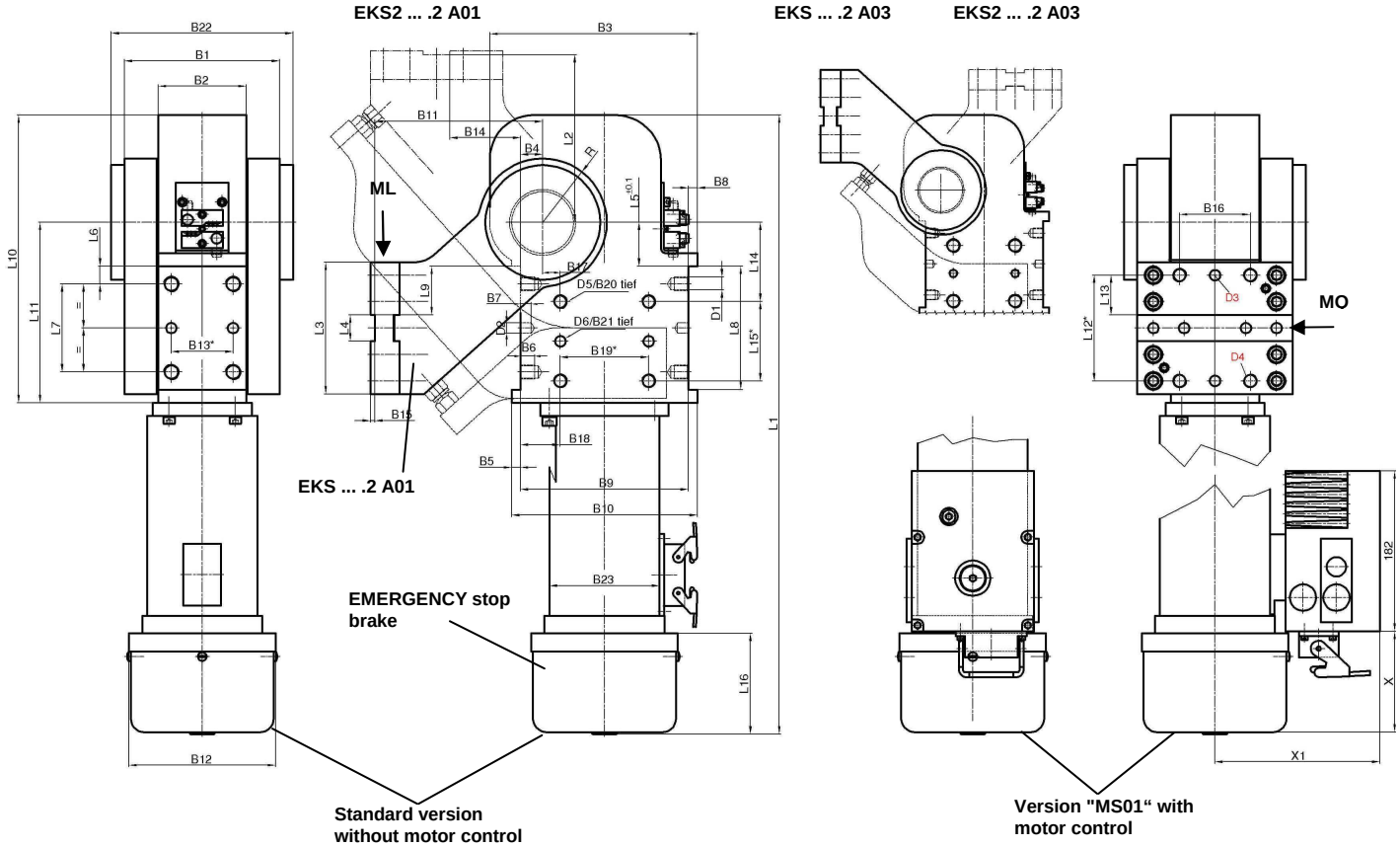




Swivel unit

with electric drive and EMERGENCY stop brake

EKS … .2



Ordering example:

EKS 160.2 S A01 T12 120° MS01

EKS 160.2:	Type
SG:	Prepared for external stop
S:	External stop (incl. SG)
A01:	Swivel arm version
T12:	Sensing system
120°	opening angle
MS01:	SEW control unit MOVIMOT mounted on the engine side

Order code for Tünkers sensing systems:

...T00	without sensing
...T12	Inductive sensor 24 V, 1 output with integrated LEDs, opening angle sensing and motor end cutoff

Standard opening angle:

Type EKS … A01/A03 max. 120°
(opening angle 135° upon sensing)
Type EKS2 … A01 max. 90°
Type EKS2 … A03 max. 45°

Order code for swivel arm versions:

…A01	Standard swing arm
…A00	without swing arm

Order code for motor control unit:

…MS01	SEW control unit MOVIMOT mounted on the engine side
…MS04	SEW control unit MOVIMOT/frequency converter according to BMW standard version 12/2007

An adequate damping is required for an opening angle < 45°.

Please send us the complete built-in situation for approval.

**For the torque curve for the angle of tilt see separate data sheet.

Torque caused by load = mass of clamp arm complete x distance of load centre

Holding brake

Type	** Max. approved Load torque ML max. 0° 120°	Transversal load Torque MQ max.	Turn time at max. 120° opening angle	Weight (kg) (without swivel traverse)	Nominal voltage	Rated current I G	Activation time	Brake torque	Brake SEW Type:
EKS 100.2	140 Nm	380 Nm	2.3 sec	~52 Kg	230 VAC	0.44 A	100% ED	20 Nm	BMG 20
EKS 160.2	250 Nm	1000 Nm	2.3 sec	~60 Kg	230 VAC	0.44 A	100% ED	20 Nm	BMG 20

Driving motor

Type	Rated voltage U Y AC	Rated current I	Activation time	Rated consumption	Power consumption	Rated speed nB [1/min]	Engine-Md at nB	Control unit Movimot SEW	Type of protection DIN 40050	B1	B2 ±0,1
EKS 100.2	400 V	1,1 A	20% ED	230 W	550 W	800	3,4 Nm	0,37 kW	IP 52	145	80
EKS 160.2	400 V	2,9 A	20% ED	575 W	1200 W	900	7,6 Nm	0,75 kW	IP 52	176	100

Type	B3	B4	B5	B6	B7	B8	B9 ±0,1	B10	B11	B12 Ø	B13*	B15	B16	B17 ±0,05	B18 ±0,1	B19*	B20	B21	B22	B23 Ø	X	X1
EKS 100.2	180	20	8	18	12	8	140	156	155	166	50	5	60	10	30	85	16	10	175	110	106	173
EKS 160.2	235	25	10	16	12	10	190	210	190	166	70	5	80	20	45	100	16	12	206	125	112	183

Type	D1	D2 H7	D3 H7	D4	D5	D6 H7	L1 ~	L3	L4 ±0,1	L5 ±0,1	L6 ±0,1	L7 ±0,1	L8 +0,1	L9	L10 ~	L11 ±0,02	L12*	L13 ±0,1	L14 ±0,05	L15 *	L16	R
EKS 100.2	M12	10	10	M12	M16	12	615	110	30	50	15	50	80	25	280	178	90	30	85	60	115	52,5
EKS 160.2	M16	12	12	M16	M16	12	703	150	30	50	20	100	140	55	327	205	120	45	90	90	115	72,5

*Tolerance for dowel holes ± 0.02, for threaded holes ± 0.1.

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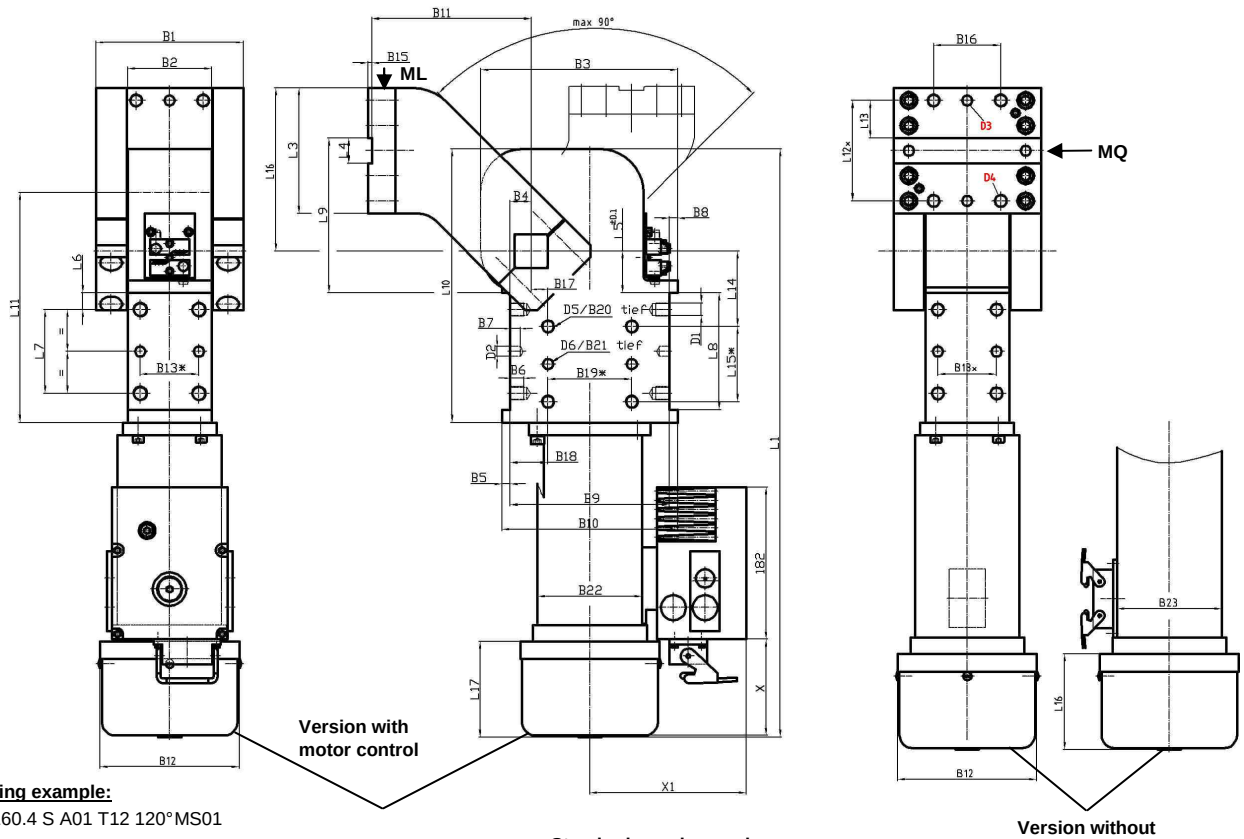
Swivel unit

with electric drive and EMERGENCY stop brake

EKS 4

EKS 4 A03



Ordering example:

EKS 160.4 S A01 T12 120°MS01

EKS 160.4:	Type
SG:	Prepared for external stop
S:	External stop (incl. SG)
A01:	Swivel arm version
T12:	Sensing system
120°	opening angle
MS01:	SEW control unit MOVIMOT mounted on the engine side

Order code for Tünkers sensing systems:

...T00 without sensing
...T12 Inductive sensor 24V, 1 output with integrated LEDs Opening angle sensing and motor end cutoff

Order code for motor control unit:

…MS01 SEW control unit MOVIMOT, mounted on the motor side
…MS04 SEW control unit MOVIMOT/frequency converter according to BMW standard version 12/2007

Standard opening angle:

Type EKS … A01/A03 max. 120° (opening angle 135°upon sensing)
Type EKS2 … A01 max. 90°
Type EKS2 … A03 max. 45°

Order code for swivel arm versions:

…A01 Standard swing arm
…A00 without swing arm

An adequate damping is required for an opening angle < 45°.

Please send us the complete built-in situation for approval.

**For the torque curve for the angle of tilt see separate data sheet.

Torque caused by load = mass of clamp arm complete x distance of load centre

					Holding brake				
Type	** Max. approved Load torque ML max. 0° 120°	Transversal load Torque MQ max.	Turn time at max. 120° opening angle	Weight (kg) (without swivel traverse)	Nominal voltage	Rated current I G	Activation time	Brake torque	Brake SEW Type:
EKS 100.4	140 Nm	380 Nm	2,3 sec.	~52 Kg	230 VAC	0,44 A	100% ED	20 Nm	BMG 20
EKS 160.4	250 Nm	1000 Nm	2,3 sec.	~60 Kg	230 VAC	0,44 A	100% ED	20 Nm	BMG 20

	Driving motor										
Type	Rated voltage U Y AC	Rated current I	Activation time	Rated consumption	Power consumption	Rated speed nB [1/min]	Engine-Md at nB	Control unit Movimot SEW	Type of protection DIN 40050	B1	B2 ±0,1
EKS 100.4	400 V	1,1 A	20% ED	230 W	550 W	800	3,4 Nm	0,37 kW	IP 52	145	80
EKS 160.4	400 V	2,9 A	20% ED	575 W	1200 W	900	7,6 Nm	0,75 kW	IP 52	176	100

Type	B3	B4	B5	B6	B7	B8	B9 ±0,1	B10	B11	B12 Ø	B13*	B15	B16	B17 ±0,05	B18 ±0,1	B19*	B20	B21	B22	B23 Ø	X	X1
EKS 100.4	180	20	8	18	12	8	140	156	155	166	50	5	60	10	30	85	16	10	175	110	106	173
EKS 160.4	235	25	10	16	12	10	190	210	190	166	70	5	80	20	45	100	16	12	206	125	112	183

Type	D1	D2 H7	D3 H7	D4	D5	D6 H7	L1 ~	L3	L4 ±0,1	L5 ±0,1	L6 ±0,1	L7 ±0,1	L8 +0,1	L9	L10 ~	L11 ±0,02	L12*	L13 ±0,1	L14 ±0,05	L15 *	L16	R
EKS 100.4	M12	10	10	M12	M16	12	615	110	30	50	15	50	80	25	280	178	90	30	85	60	115	52,5
EKS 160.4	M16	12	12	M16	M16	12	703	150	30	50	20	100	140	55	327	205	120	45	90	90	115	72,5

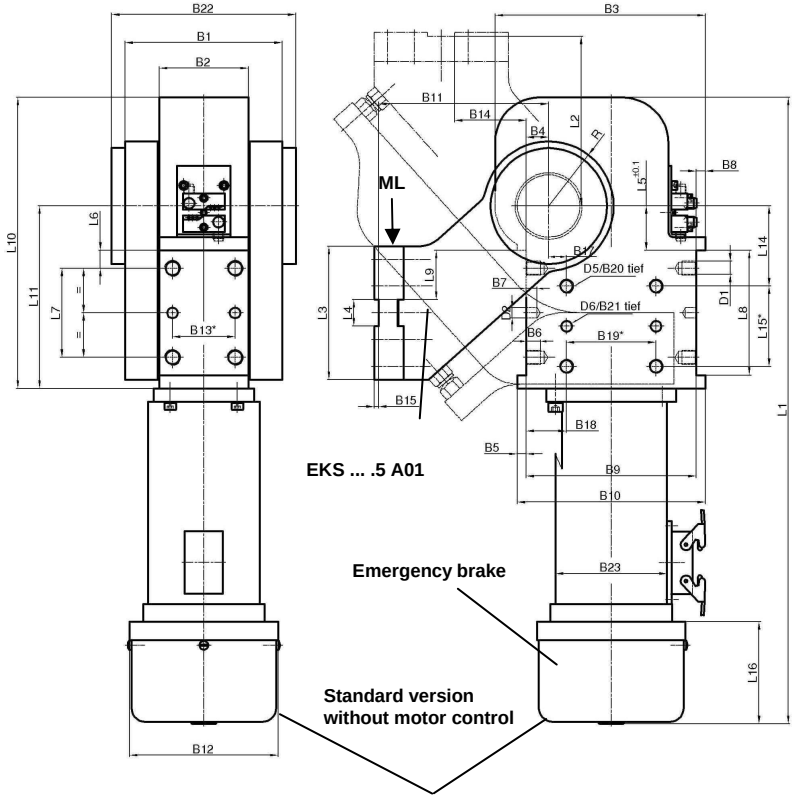
*Tolerance for dowel holes ± 0.02, for threaded holes ± 0.1.

Swivel unit

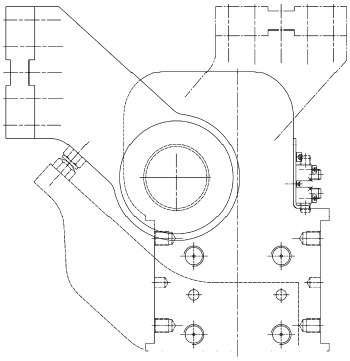
with electric drive and emergency brake

EKS 5

EKS2 ... .5 A01



EKS ... .5 A03 **EKS2 ... .5 A03**



Ordering example:

EKS 160.5 S A01 T12 120°MS00

EKS 160.5:		Type
SG:		Prepared for external stop
S:		External stop (incl. SG)
A01:		Swivel arm version
T12:		Sensing system
120°		Opening angle
MS00:		without frequency converter with 10-pin plug

Ordering example swivel arm versions:

…A01 Standard swivel arm
…A00 Without swivel arm

Standard opening angles:

Type EKS … A01/A03 max. 120°
(Opening angle 135° on sensing)
Type EKS2 … A01 max. 90°
Type EKS2 … A03 max. 45°

With an opening angle < 45° an adequate damping is required.

Please send us the situation of positioning for checking.

**For the torque curve for the angle of tilt see separate data sheet.

Torque caused by load = mass of clamp arm complete x throat depth

*Tolerance for dowel holes ± 0,02, for threaded holes ± 0,1.

Ordering example Tünkers sensing systems:

...T00 Without sensing
...T12 Inductive sensor 24 V, 1 output with integrated LED's,

					Holding brake				
Type	****Torque caused by load ML max. 0°-120°**	**Torques by horizontal forces MQ max.**	**Swivel time at 120° opening angle**	**Weight (kg) (without swivel traverse)**	**Nominal voltage**	**Rated current I G**	**On-time**	**Braking torque**	**Brake Fa. SEW Type:**
EKS 100.5	180 Nm	380 Nm	2,3 sec.	~ 52	230 VAC	0,44 A	100% ED	20 Nm	BMG 20
EKS 160.5	320 Nm	1000 Nm	2,3 sec.	~ 60	230 VAC	0,44 A	100% ED	20 Nm	BMG 20
EKS 200.5	450 Nm	1000 Nm	2,5 sec.	~ 78	230 VAC	0,44 A	100% ED	20 Nm	BMG 20

	Driving motor										
Type	**Nominal voltage U Y AC**	**Rated current I**	**On-time**	**Rated output**	**Rated input**	**Rated speed nB [1/min]**	**Motor-Md at nB**	**Motor control Movimot Fa.SEW**	**Protection system DIN 40050**	**B1**	**B2** ±0,1
EKS 100.5	400 V	1,3 A	20% ED	280 W	760 W	830	3,2 Nm	0,37 kW	IP 52	145	80
EKS 160.5	400 V	3,3 A	20% ED	720 W	1900 W	900	7,6 Nm	0,75 kW	IP 52	176	100
EKS 200.5	400 V	5,6 A	20% ED	1700 W	3200 W	1230	13,0 Nm	1,5 kW	IP 52	176	100

Type	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9** ±0,1	**B10**	**B11**	**B12** Ø	**B13***	**B15**	**B16**	**B17** ±0,05	**B18** ±0,1	**B19***	**B20**	**B21**	**B22**	**B23** Ø	**X**	**X1**
EKS 100.5	180	20	8	18	12	8	140	156	155	166	50	5	60	10	30	85	16	10	155	110	106	173
EKS 160.5	235	25	10	16	12	10	190	210	190	166	70	5	80	20	45	100	16	12	186	125	112	183
EKS 200.5	235	25	10	16	12	10	190	210	190	160	70	5	80	20	45	100	16	12	206	160	122	200

Type	**D1**	**D2** H7	**D3** H7	**D4**	**D5**	**D6** H7	**L1** ~	**L3**	**L4** ±0,1	**L5** ±0,1	**L6** ±0,1	**L7** ±0,1	**L8** +0,1	**L9**	**L10** ~	**L11** ±0,02	**L12***	**L13** ±0,1	**L14** ±0,05	**L15** *	**L16**	**R**
EKS 100.5	M12	10	10	M12	M16	12	615	110	30	50	15	50	80	25	280	178	90	30	85	60	115	52,5
EKS 160.5	M16	12	12	M16	M16	12	703	150	30	50	20	100	140	55	327	205	120	45	90	90	115	72,5
EKS 200.5	M16	12	12	M16	M16	12	733	150	30	50	20	100	140	55	327	205	120	45	90	90	115	72,5

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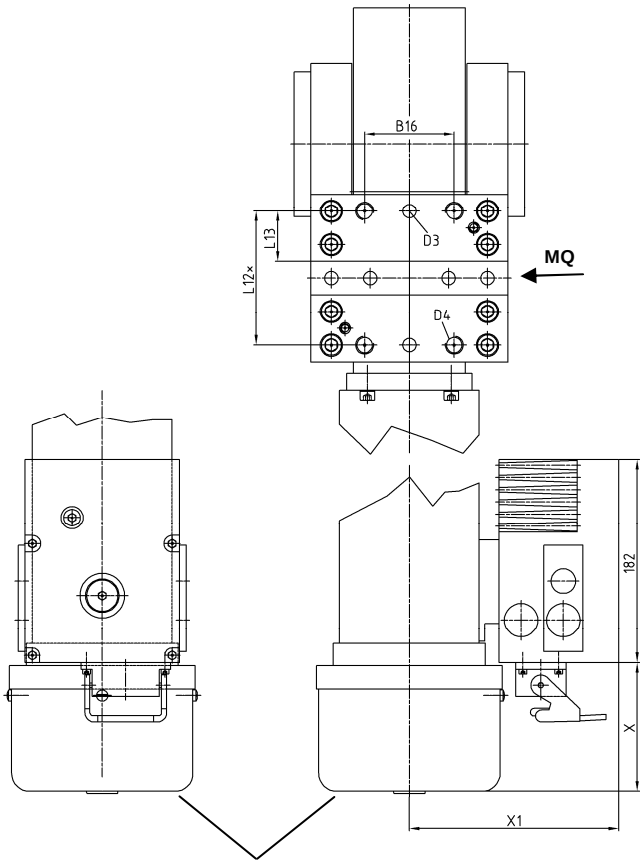


Version „MS01/MS04“
with motor control

Order code for motor control unit:

…MS00	without converter with 10 pin plug
…MS01	converter SEW-MOVIMOT mounted on the motor side with 6 pin plug for the bus activation
…MS04	converter SEW-MOVIMOT mounted on the motor side with 3x6 pin plug for the bus activation or digital activation
…MS11	Converter for an external assembly of SEW-MOVIMOT with a 6 pin plug and connecting cable (standard = 1 m length) for bus activation
…MS14	Converter for an external assembly of SEW-MOVIMOT with a 3x6 pin plug and connecting cable (standard = 1 m length) for bus activation or digital activation

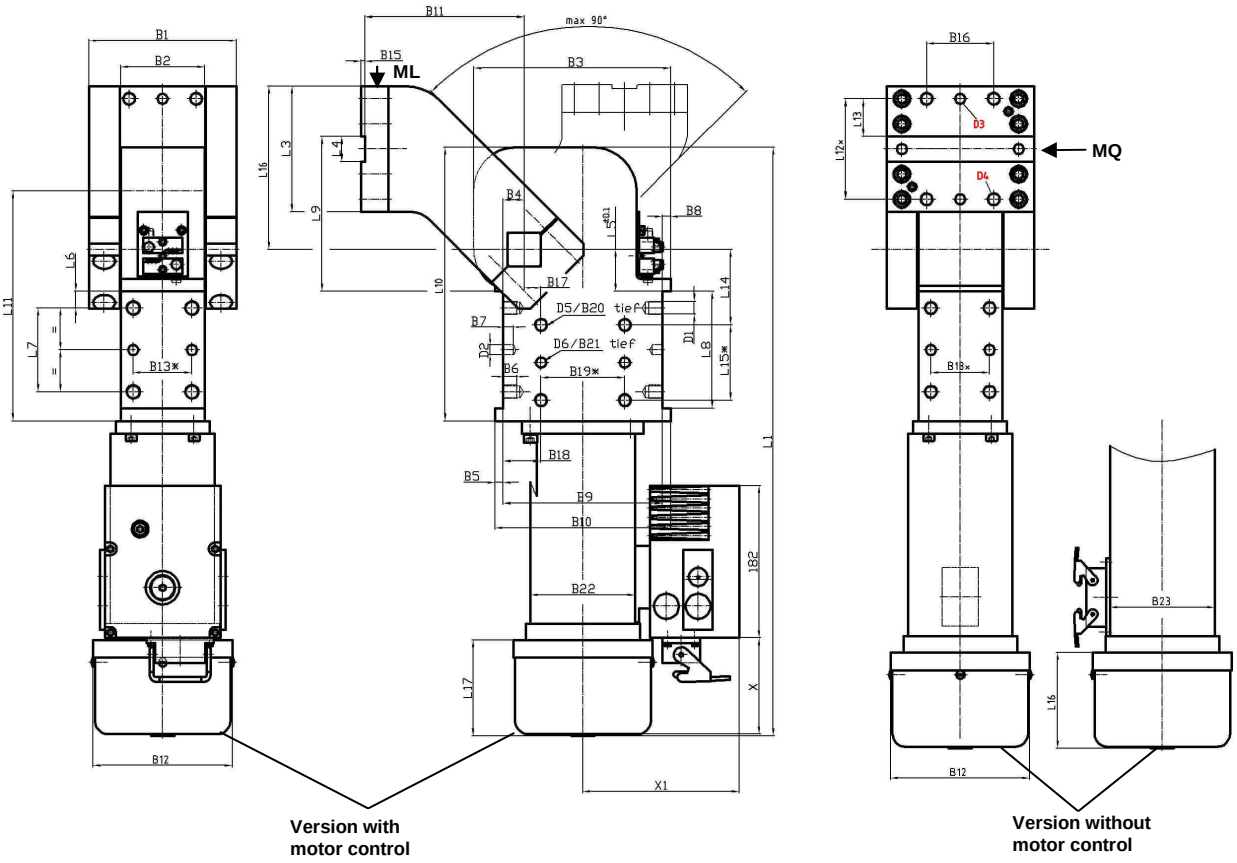
*Tolerance for pin holes ± 0.02, for female threads ± 0.1.

Swivel unit

with electric drive and emergency brake

EKS 6

EKS 6 A03



Version with motor control

Version without motor control

Ordering example:

EKS 160.6 S A01 T12 120°MS01

EKS 160.6:		Type
SG:		Prepared for external stop
S:		External stop (incl. SG)
A01:		Swivel arm version
T12:		Sensing system
120°		Opening angle
MS01:		Frequency converter MOVIMOT mounted on motor side

Ordering example Tünkers sensing systems:

...T00	Without sensing
...T12	Inductive sensor 24 V, 1 output with integrated LED's, sensing of opening angle and motor limit stop

Ordering example swivel arm versions:

…A01	Standard swivel arm
…A00	Without swivel arm

Standard opening angles:

Type EKS … A01/A03 max. 120° (Opening angle 135° on sensing)

Type EKS2 … A01 max. 90°

Type EKS2 … A03 max. 45°

An adequate damping is required for an opening angle < 45°.

Please send us the complete built-in situation for approval.

**For the torque curve for the angle of tilt see separate data sheet.

Torque caused by load = mass of clamp arm complete x distance of load center

***USA-version available with 460 V.

*Tolerance for dowel holes ± 0,02, for threaded holes ± 0,1.

					Holding brake				
Type	****Torque caused by load ML max. 0°-120°**	**Torques by horizontal forces MQ max.**	**Swivel time at max. 120° opening angle**	**Weight (kg) (without swivel traverse)**	**Nominal voltage*****	**Rated current I G**	**On-time**	**Braking torque**	**Brake Fa. SEW Type**
EKS 100.6	180 Nm	380 Nm	2,3 sec.	~52 Kg	230 VAC	0,44 A	100% ED	20 Nm	BMG 20
EKS 160.6	320 Nm	1000 Nm	2,3 sec.	~60 Kg	230 VAC	0,44 A	100% ED	20 Nm	BMG 20

					Driving motor						
Type	**Nominal voltage U Y AC**	**Rated current I**	**On-time**	**Rated output**	**Rated input**	**Rated speed nB [1/min]**	**Motor-Md at nB**	**Motor control Movimot Fa.SEW**	**Protection system DIN 40050**	**B1**	**B2** ±0,1
EKS 100.6	400 V	1,3 A	20% ED	280 W	760 W	830	3,2 Nm	0,37 kW	IP 52	145	80
EKS 160.6	400 V	3,3 A	20% ED	720 W	1900 W	900	7,6 Nm	0,75 kW	IP 52	176	100

Type	**B3**	**B4**	**B5**	**B6**	**B7**	**B8**	**B9** ±0,1	**B10**	**B11**	**B12** Ø	**B13***	**B15**	**B16**	**B17** ±0,05	**B18** ±0,1	**B19***	**B20**	**B21**	**B22**	**B23** Ø	**X**	**X1**
EKS 100.6	180	20	8	18	12	8	140	156	155	166	50	5	60	10	30	85	16	10	175	110	106	173
EKS 160.6	235	25	10	16	12	10	190	210	190	166	70	5	80	20	45	100	16	12	206	125	112	183

Type	**D1**	**D2** H7	**D3** H7	**D4**	**D5**	**D6** H7	**L1** ~	**L3**	**L4** ±0,1	**L5** ±0,1	**L6** ±0,1	**L7** ±0,1	**L8** +0,1	**L9**	**L10** ~	**L11** ±0,02	**L12***	**L13** ±0,1	**L14** ±0,05	**L15** *	**L16**	**R**
EKS 100.6	M12	10	10	M12	M16	12	615	110	30	50	15	50	80	25	280	178	90	30	85	60	115	52,5
EKS 160.6	M16	12	12	M16	M16	12	703	150	30	50	20	100	140	55	327	205	120	45	90	90	115	72,5

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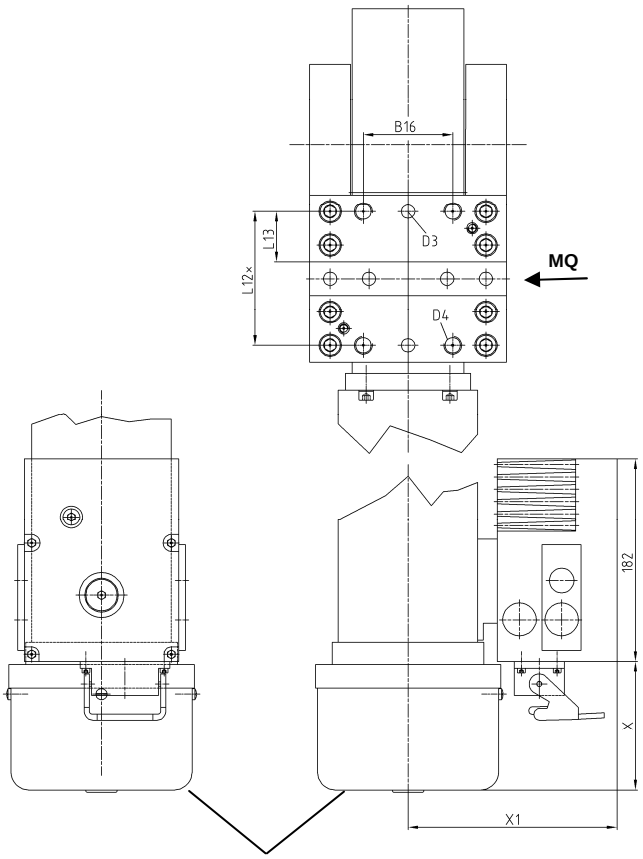


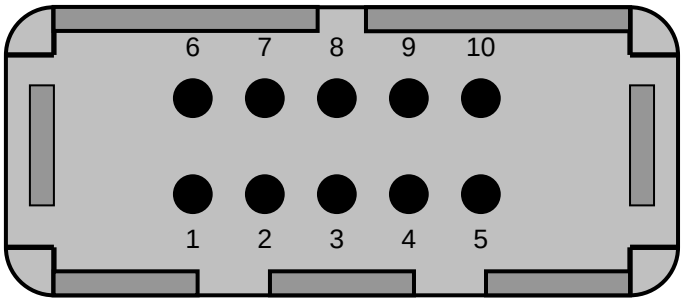
Version „MS01/MS04“
with motor control

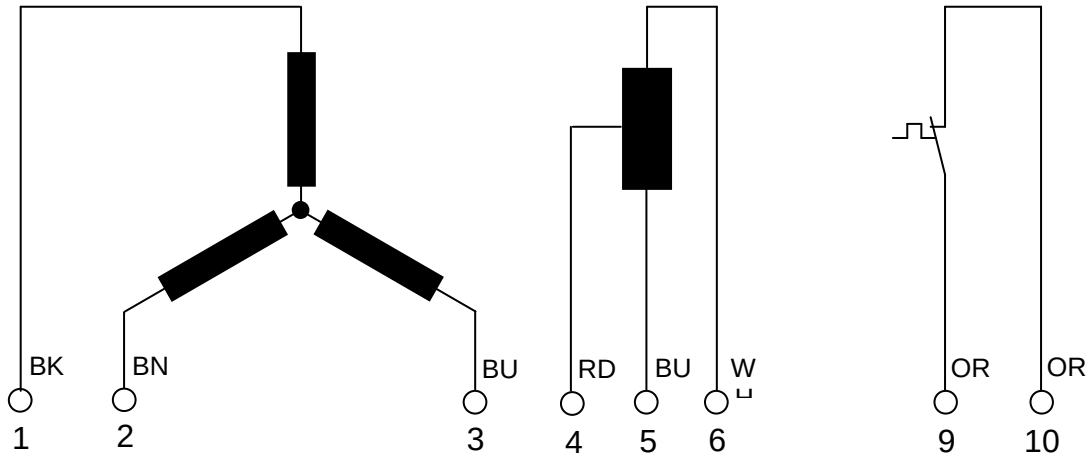
Ordering example motor controls:

…MS00	without frequency converter with 10-pin plug
…MS01	frequency converter SEW-MOVIMOT mounted on motor side with 6-pin plug for bus controller
…MS04	frequency converter SEW-MOVIMOT mounted on motor side with 3x6-pin plug for bus controller or digital control
…MS06	USA-version motor 460 V/60 Hz and modified SEW-MOVIMOT unit
…MS11	frequency converter SEW-MOVIMOT for external mounting with 6-pin plug and connecting cable (standard = 1 m length) for bus controller
…MS14	frequency converter SEW-MOVIMOT for external mounting with 3x6-pin plug and connecting cable (standard = 1 m length) for bus controller or digital control

*Tolerance for dowel holes ± 0,02, for threaded holes ± 0,1.

Connecting diagram for electrical swivel unit EKS version MS00





BK	Black
BN	Brown
BU	Blue
RD	Red
WH	White
OR	Orange

Version 01.2008

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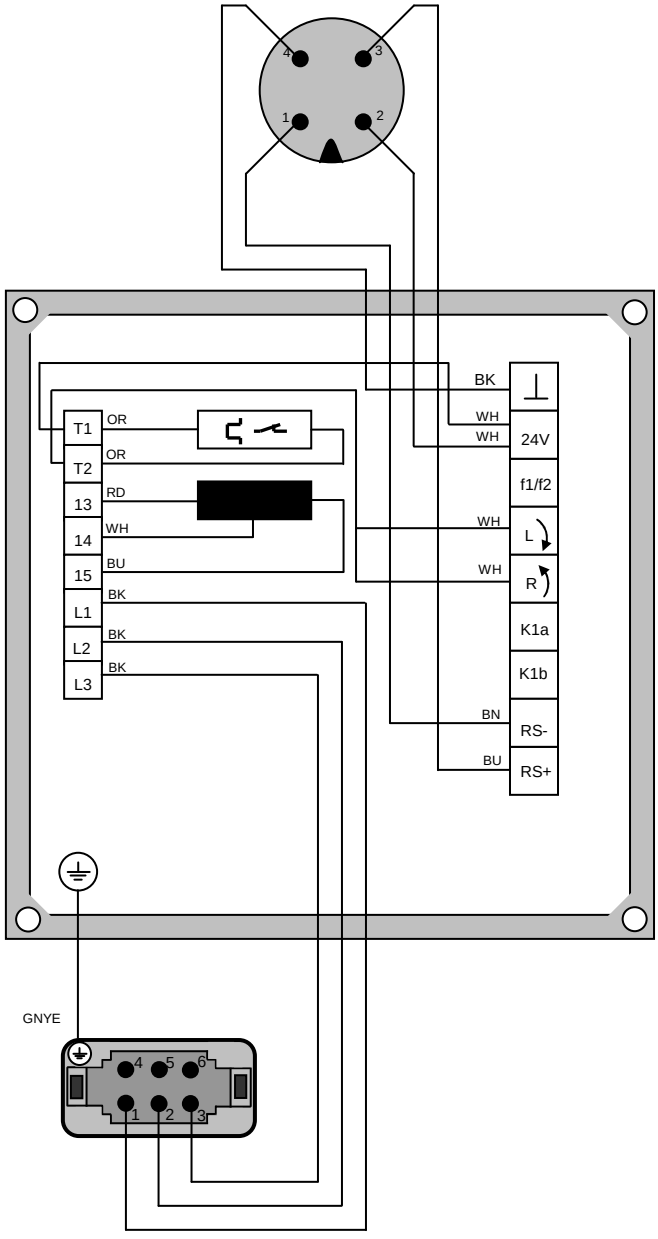
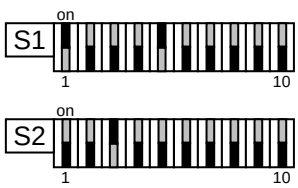
Connecting diagram for electrical swivel unit EKS version MS01



BN	brown
WH	white
BU	blue
BK	Black
GNYE	Green yellow
OR	Orange

Wire colours according to DIN IEC 757



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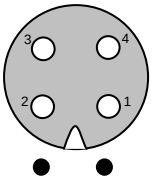
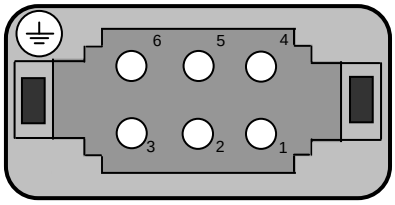
Connecting diagram for electrical swivel unit EKS version MS01

Connecting bus (RS-485) for the customer

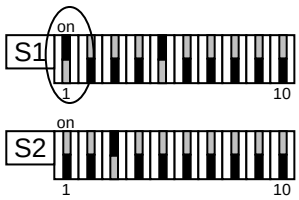




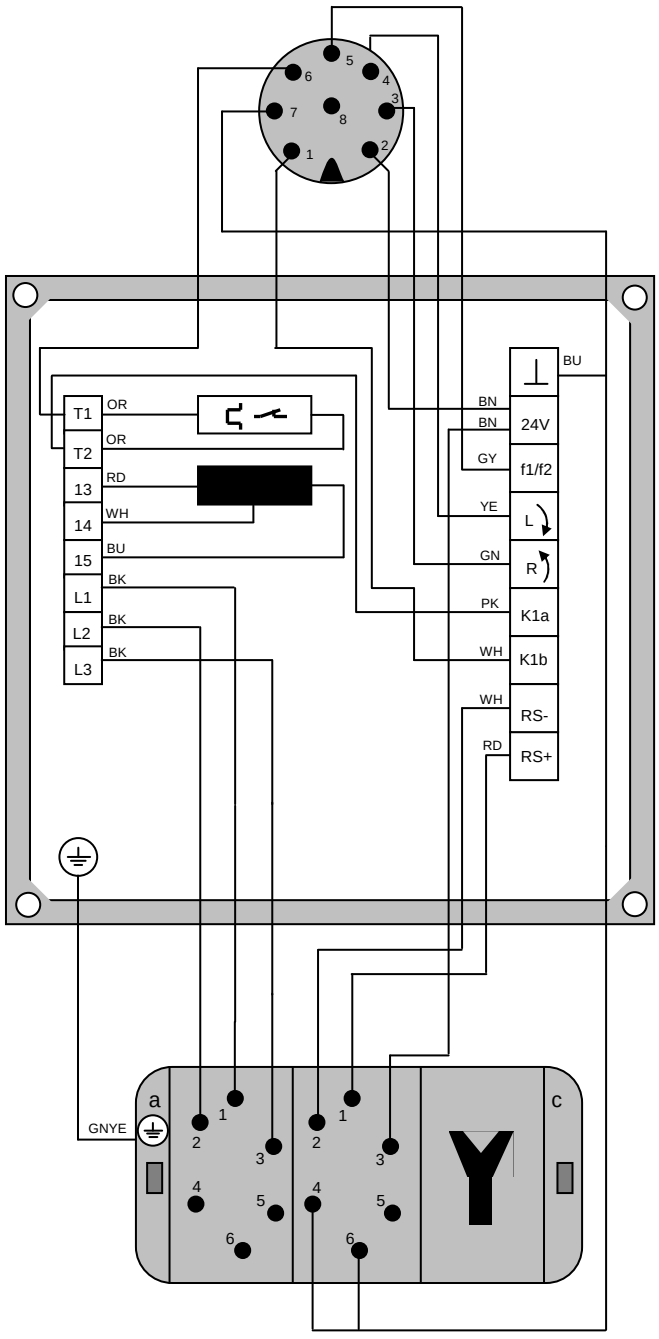
1	Brown/RS-
2	White/24V+
3	Blue/RS+
4	Black/0V

1	L1
2	L2
3	L3
4	--
5	--
6	--

DIP switch 1 on S1 to OFF



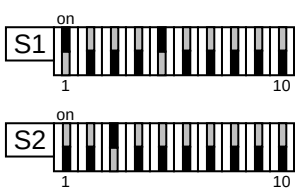
Connecting diagram for electrical swivel unit Version MS04



BN	brown
RD	red
GY	grey
YE	yellow
GN	green
PK	pink
WH	white
BU	blue
BK	black
OR	orange
GNYE	green yellow

Wire colours according to DIN IEC 757

view of contact side of pin contacts



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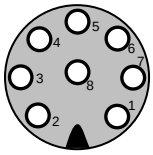
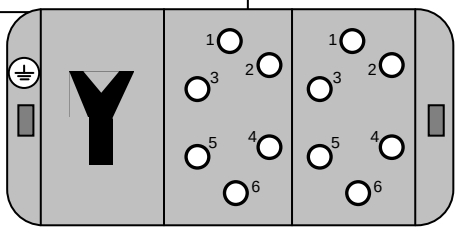
Connecting diagram for electrical swivel unit EKS version MS04

Binary connection by the customer



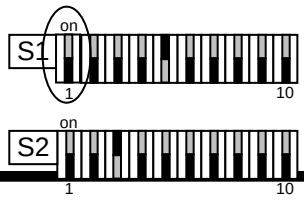


view of contact side of bush contacts

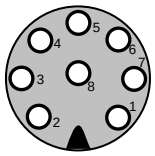
1	White/ready Converter and motor
2	Brown/24V+
3	Green right/stop
4	Yellow left/stop
5	Grey f1/f2
6	Pink ready
7	Blue/0V
8	Screen

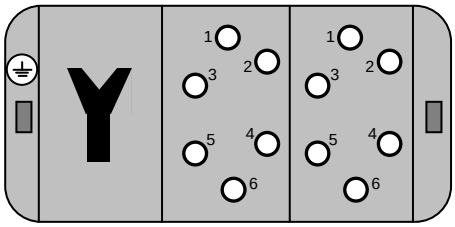
1	L1
2	L2
3	L3
4	--
5	--
6	--

DIP switch 1 on S1 to OFF



Connecting bus (RS-485) for the customer





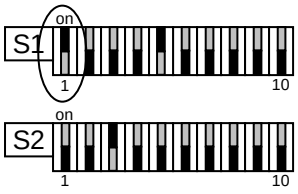
view of contact side of bush contacts

1	
2	
3	
4	
5	
6	
7	
8	

1	L1
2	L2
3	L3
4	--
5	--
6	--

1	RS+
2	RS-
3	24V+
4	0V
5	--
6	0V

DIP switch 1 on S1 to ON



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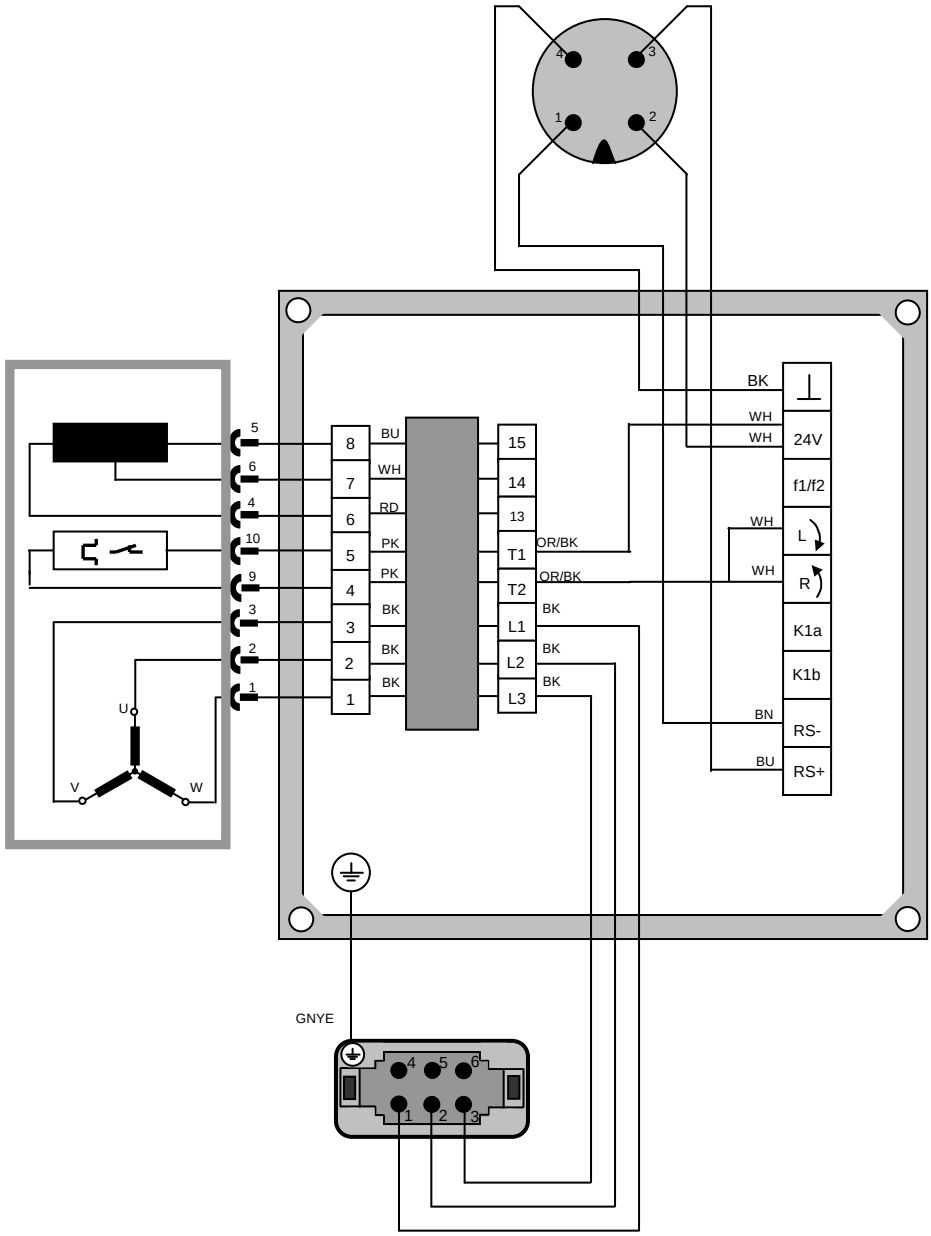
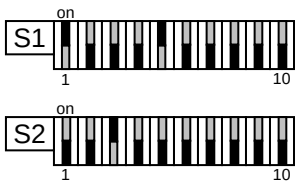
Connecting diagram for electrical swivel unit version MS11 Converter extern



BN	Brown
WH	White
BU	Blue
BK	Black
GNYE	Green Yellow
OR	Orange

Wire colours according to DIN IEC 757



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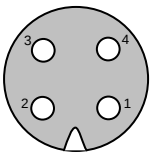
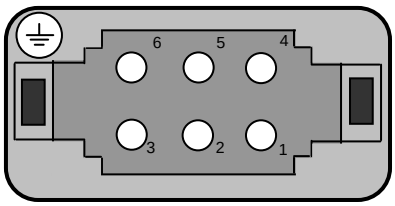
Connecting diagram for electrical swivel unit version MS11 Converter extern

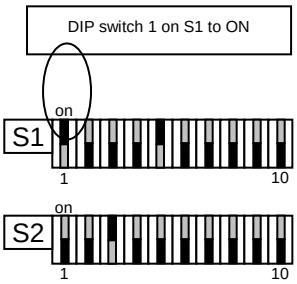
Connecting bus for the customer



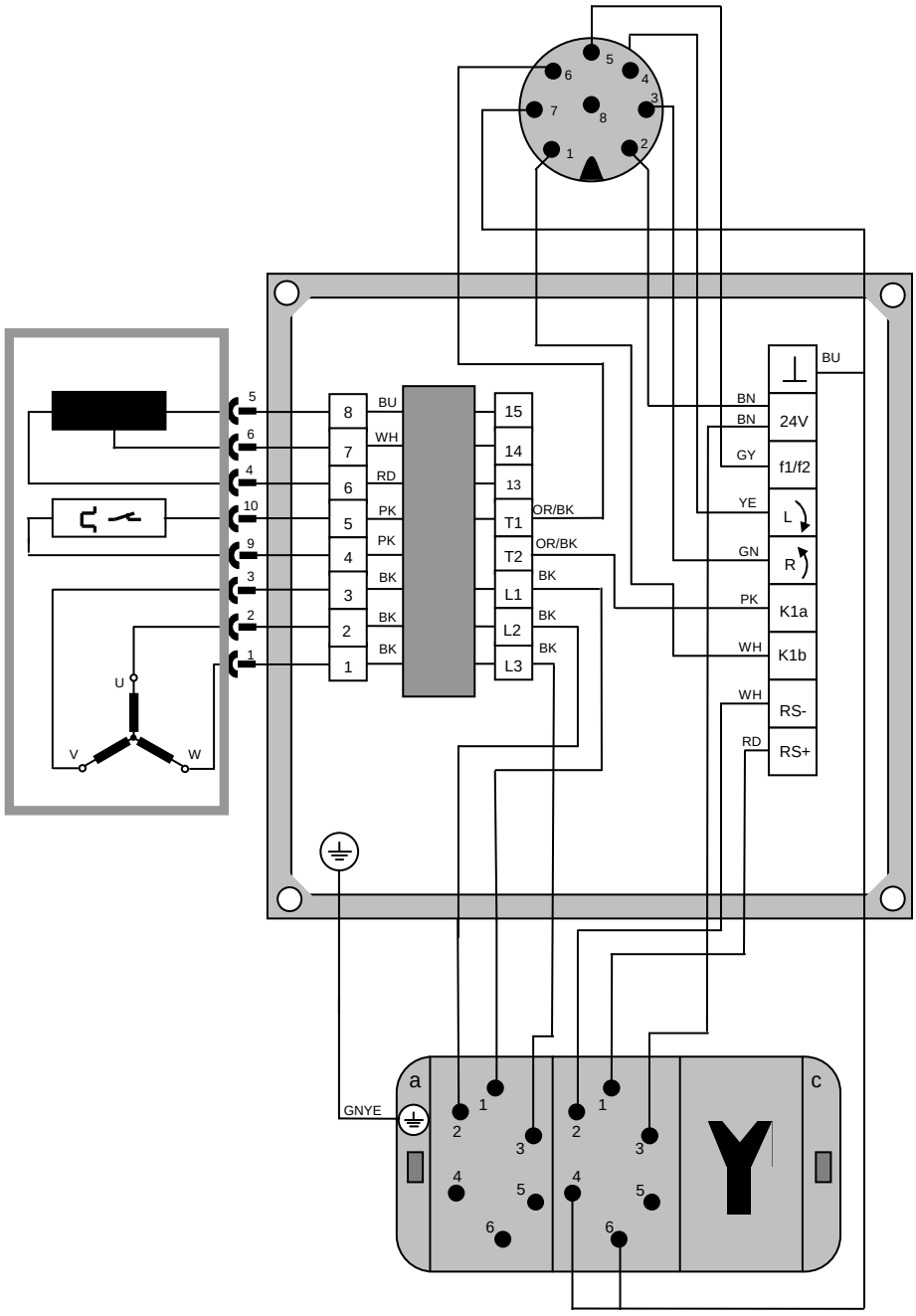


1	Brown/RS-
2	White/24V+
3	Blue/RS+
4	Black/0V

1	L1
2	L2
3	L3
4	--
5	--
6	--



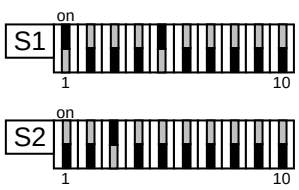
Connecting diagram for electrical swivel unit version MS14 Converter extern



BN	brown
RD	red
GY	grey
YE	yellow
GN	green
PK	pink
WH	white
BU	blue
BK	black
OR	orange
GNYE	green yellow

Wire colours according to DIN IEC 757

view of contact side of pin contacts



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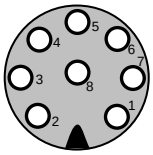
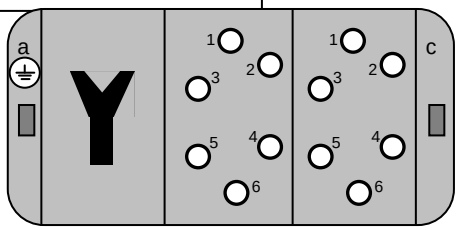
Connecting diagram for electrical swivel unit version MS14 Converter extern

Binary connection by the customer



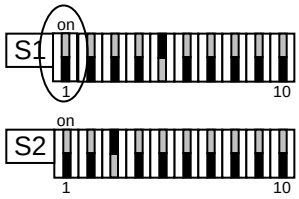


view of contact side of bush contacts

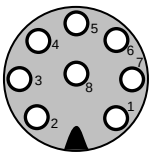
1	White/ready Converter and motor
2	Brown/24V+
3	Green right/stop
4	Yellow left/stop
5	Grey f1/f2
6	Pink ready
7	Blue/0V
8	Screen

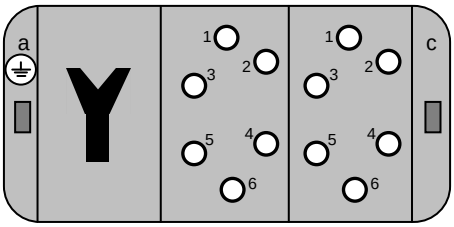
1	L1
2	L2
3	L3
4	--
5	--
6	--

DIP switch 1 on S1 to OFF



Connecting bus for the customer





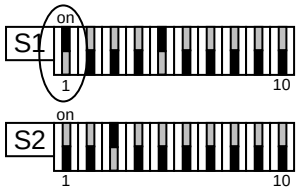
view of contact side of bush contacts

1	
2	
3	
4	
5	
6	
7	
8	

1	RS+
2	RS-
3	24V+
4	0V
5	--
6	0V

1	L1
2	L2
3	L3
4	--
5	--
6	--

DIP switch 1 on S1 to ON



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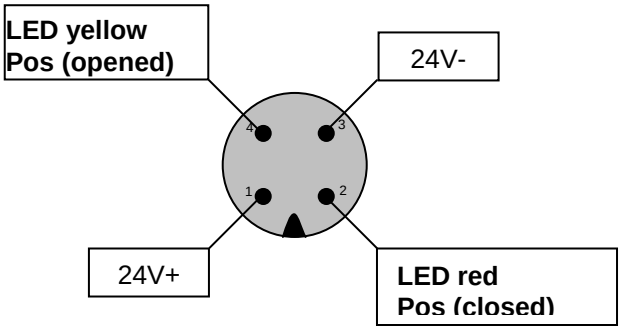
Electrical swivel EKS 100.....200

Limit switch position end position swivel **(A)**



Limit switch position (speed switch) **(B)**