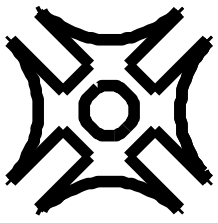
Cutting, forming and bending machine

Type C043 E

Translation of the original operating manual



Burst & Zick GmbH

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EC Declaration of Conformity
In according to EC Machinery Directive 2006/42/EC
Appendix II A

We herewith declare that the machine described hereinafter satisfies the essential safety and health requirements set out in the EC Machinery Directive with regard to its design and construction as well as the type marketed by us.

In case of an alteration of the machine without our agreement this declaration shall become void.

We furthermore point out that for the installation of spare parts only original parts of the company Burst & Zick GmbH may be used.

Description of the machine:	**Cutting, forming and bending machine**
Machine type:	**C 043 E**
Machine number:	
Applicable directives:	EC Machinery Directive (2006/42/EC appendix II A) EC Low Voltage Directive (2014/35/EC); EC Electromagnetic Compatibility Directive (2014/30/EG)
Applied harmonized standards, particularly:	EN ISO 12100:2010 DIN EN 13857 DIN EN 60204-1 DIN EN 61000-6-1 DIN EN 61000-6-3 DIN EN 14070 was pulled up informatively
Attachment of the CE label:	**CE**
Place/Date/Signature:	Karlsruhe, den 05.12.2019

Managing director

General

1. Notes on industrial safety

The following notes on industrial safety have to be specially adhered to:

- The cutting, forming and bending machine C043 E has been constructed according to the current state of the art and conforms to the ESD regulations. Nevertheless, perils may arise from this machine if it is used by untrained personnel or for other than the intended purposes.
- **Statement on the residual risk**
  1. Danger of electric shock if the switchbox is opened while voltage-carrying. Work in and on the electrical equipment may principally only be carried out by qualified electricians.
  2. Danger of contusion and shearing during setup operation.
  3. The electric motor can reach an operating temperature of more than 60°C/140°F.

  The danger areas are marked with signs.

- Applicable accident prevention regulations have to be adhered to by the user, particularly the

  - DGUV Regulation 1

- The machine may only be operated by trained personnel.
- Any mode of operation which can impair the safety of the machine has to be refrained from.
- The user undertakes to operate the machine only in perfect condition.
- Unauthorized alterations or variations which impair safety have to be refrained from.
- Safety devices may principally not be dismantled or put out of operation. If it is indispensable to dismantle safety devices for the purpose of tool changes or for maintenance and repair work, the safety device has to be reinstalled immediately afterwards.

2. Table of contents

Page

General....4

1. Notes on industrial safety....4
2. Table of contents....5
3. General description....7
4. Technical data....9

Commissioning....10

1. Installation....10
2. Electric connection....10
3. Working with the machine....10
   - Switch on the machine,....10
   - Feeding in of component tape....11
   - Adjustment of tape guide to tape width....12
   - Adjusting tape guide for tape width <58mm (optional)....12
   - Component centering (optional)....13

Tool change and adjustment....15

1. General notes on the adjustment....15
2. Tool change with fixed tools....16
   - 2.1 Cutting / bending tools (rear tool)....16
   - 2.2 Cutting / bending tools (front tool)....16
3. Tool change with adjustable tool....18
   - 3.1 Front tool pair....18
   - 3.2 Rear tool pair....19
   - 3.3 Bending tools....20

   Wire strength 0,4 - 0,8 mm....20
   - 3.4. Exchange the bending pusher....21
   - 3.5 Exchange the bending jaws....21
4. Fine adjustment of the tools....22
5. Correction of the bending angle....23
6. Setting of the pitch dimension....24
7. Setting of the cutting length....25
8. Height adjustment of the component supply to compensate belt tolerances....26
9. Digital display of cutting length and pitch dimension (Optional)....28

Additional sets....29

1. B Mounting kit for axial components for vertical mounting....29
2. Manual feed for loose components....31

Faults and their rectification....32

Maintenance....33

1. Maintenance plan....33
2. Lubricating instructions....34

Technical documents.....35
1. Circuit diagram C043 E standard 35
2. Circuit diagram C043 E with digital display 36
3. Circuit diagram C043 E with counter.....37
4. Circuit diagram C043 E with digital display and counter.....38
5. Parts and spare parts list electrical parts C043 E.....39
6. Recommended spare parts (mechanical parts).....40
7. Counter (optional) 42
8. Certification for protective disks 43
Spare parts catalogue 44

3. General description

The cutting, forming and bending machine C043 E has been specially developed for the processing of taped components. It permits the efficient bending and forming of axial components both for horizontal and vertical mounting for manual placement. Special importance was attached to the exactness and accurate dimensions of the lead bending die.

By using interchangeable forming dies, any desired form shape can be produced.
The die jaws can be adjusted according to the lead diameter.

The leads are clamped prior to forming and bending and the forming and bending procedures for the left and the right side are staggered. This is the optimum solution to the problem of traction relief of the leads so that even mechanically sensitive components can be processed without damaging the component body.

The pitch dimension and the bending length can be adjusted and corrected exactly by means of separate elevating spindles.

Within less than five minutes, the machine can easily be changed from a horizontal to a vertical axial component shape.

Options:

1. Mounting kit for horizontal axial components (B mounting kit)
2. Manual feed for loose (non-taped) components
3. Dispenser for standard tape reels
4. Separate digital sensors for the setting of pitch and cutting length
5. Preselection and quantity counter

Operational Sequence

1. Forming Procedure

   The advancing front forming dies clamp the leads, cut them from the tape and form the lead shape.

   In order to avoid axial tensile stress in the component body, the forming procedures of both dies are staggered.

2. Bending Procedure

   After the forming procedure the rear forming dies are retracted downwards. Previously, traction relieving springs clamp the component leads from both sides against the rear bending jaws.

   The succeeding bending dies fold back the formed component leads. Afterwards the bending dies return to their starting position.

   The finished component is ejected automatically and is dropped into a bin for collection. The tape remains emerge from the front end of the machine and can be collected in a wastebasket.



Fig. 1
Cutting, forming and bending machine C043 E

4. Technical data

Dimensions	Widht: Depth: Height:	600 mm 480 mm 450 mm
Weight:		app. 55 kg
Cycle time:		app. 8000 components / hour
Electrical connection		230 V / 50 Hz or 115V 60 Hz LOOK AT THE LABLE !!
Pitch size	Horizontal:	max. 50 mm
	Vertical:	2,5 mm or 5 mm
Lead Ø	Horizontal:	app. 0,4-1,3 mm
	Vertical:	max. 0,8 mm



Axial components for horizontal mounting

Axial components for vertical mounting

Fig. 2
Component shapes

Commissioning

1. Installation

The machine is delivered fully assembled and installed. Please check the shipment immediately with the help of the delivery note and/or the packing list. In case the consignment is incomplete or if damages have occurred during transport, please inform us immediately.

Place the machine on a stable, level working table.

2. Electric connection

Connect power cable with 230V / 50 Hz socket.

3. Working with the machine

Switch on the machine,

1. Close protection cover (for safety reasons the machine can only be started with closed protection cover).
2. Actuate power switch.
3. Push the start button.
4. Gradually increase speed on the potentiometer until the desired cycle time is reached. Normally 100%.
5. To stop push stop button and turn potentiometer back to zero.

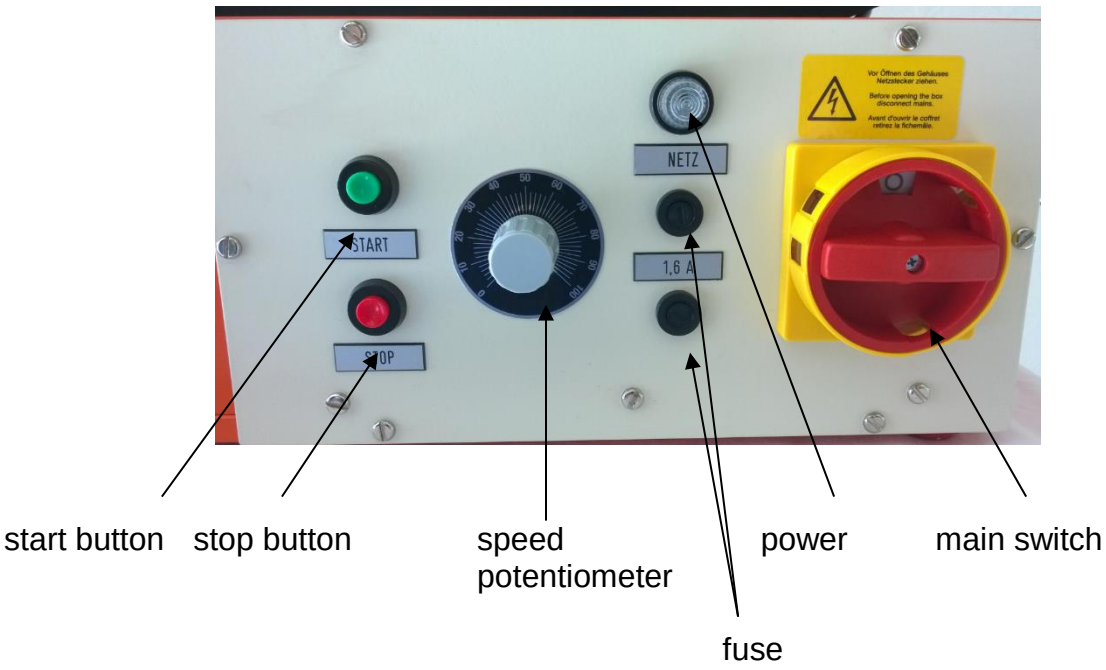


Fig. 3
Control panel

Feeding in of component tape

1. Switch off the machine and remove protection cover.
2. Disengage index pin at the hand wheel. Rotate machine by hand wheel into arrow-head direction for further setting.
3. Swing upwards tape conveyor unit.
4. Open left and right tape pawl. For this purpose, move tape pawls upwards by approx. 5 mm and fold them outward.
5. Feed in component tape and pull it forward until the first two components are gripped by the conveyor graspers on both sides.
6. Close tape pawls.

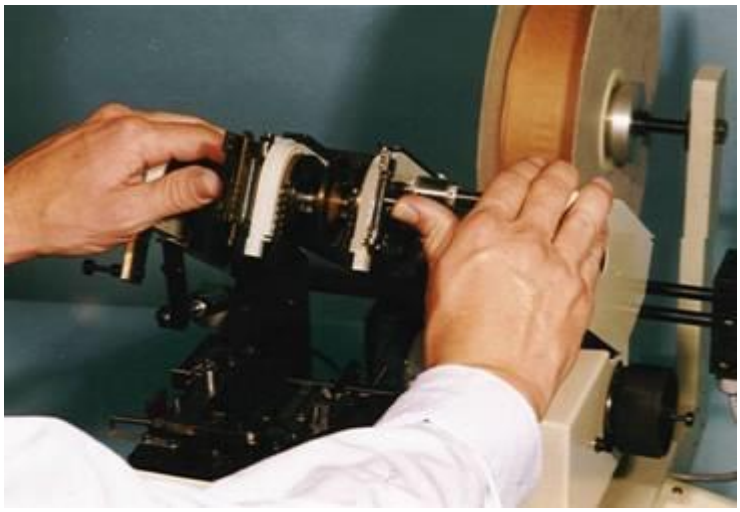


Fig. 4
Swing upwards tape conveyor and open tape pawls

Machine only use when the hood is closed - open hood only when power is off.



Fig. 5
Feed in component tape

Machine only use when the hood is closed - open hood only when power is off.

Adjustment of tape guide to tape width

1. Insert tape into tape guide rails. Ensure the tape moves freely through both guide rails with a maximum 0,5mm side-to-side play.
   For necessary adjustments follow these guide lines:
2. Loosen the 2 locking screws (1) and transport mechanism adjustment knob (3).
3. Turn tape width adjustment knob (2) to open guide rails as needed.
4. Check to make sure that the component is centered between the bending anvils. Make necessary adjustments with the transport mechanism adjustment knob (3).
5. Retighten the 2 locking nuts (1) when finished.

Adjusting tape guide for tape width <58mm (optional)

This type of tape requires an additional component centering step to achieve satisfactory results.

1. Remove protective cover.
2. Mount right and left strip to the upper section of the tape guide rail.
3. Ensure the tape moves freely through both guide rails with a maximum 0,5mm side-to-side play. For necessary adjustments follow these guide lines:
4. Loosen the two locking screws (1) and transport mechanism knob (3).
5. Turn tape width adjustment knob (2) to open the guide rails as needed.
6. Check to make sure that the component is centered between the bending anvils. Make necessary adjustments with the transport mechanism adjustment knob (3)
7. Retighten the 2 locking nuts (1) when finished.
8. Hand cycle the components until they are positioned in the gate teeth assembly.
9. With all adjustments made correctly the component lead now touches the strips.

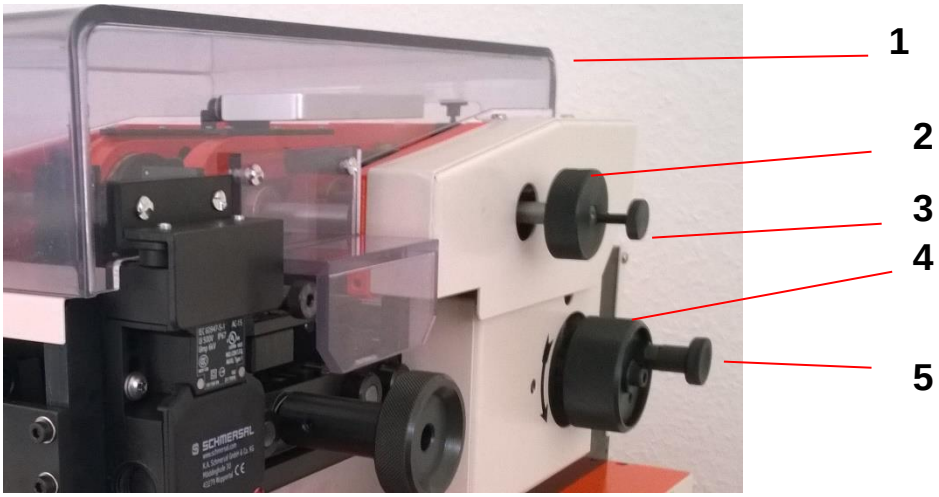


Fig. 6 Adjustment of the tape guide

1. Clamping screws
2. Spindle for the adjustment of the tape guide
3. Adjusting screw (position of component bodies)
4. Hand wheel
5. Click-stop pin

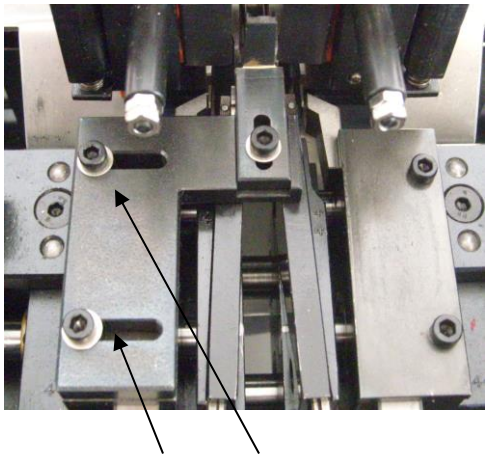


Fig. 7 mount right and left strip

Machine only use when the protective hood is closed

Component centering (optional)

The centering device is used to center the additional components in a poorly taped component tape. The component centering is screwed on the left cover of the tools. By means of two oblong holes, the left and right component centering and means of an elongated hole can be adjusted fore and aft. The component centering must be adjusted so that the component is located in the center of the centering and abutting the component leads to the increase of the centering



Lower component centering

Fig. 8
Fix the component centering

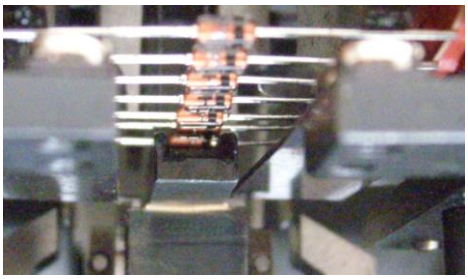


Fig. 9
Adjust the component centering

Machine only use when the protective hood is closed

Tool change and adjustment

1. General notes on the adjustment

- Machine retooling and maintenance cover to prevent accidental (unauthorized) switching can be carried out.

  Pull ON / OFF switch to **OFF** and power plug.
  Shut off the compressed air and check air pressure display (0)
- Disengage click-stop pin at the hand wheel and then rotate the machine by hand into arrow-head direction. Any faults can be ascertained and rectified without considerable damage.
- After all adjustments to be carried out on the machine please ensure that all un-screwed screws, bolts and nuts are tightened again, even if this is not expressly mentioned in the following text.
- Furthermore, please take into account that every sprocket belt will lengthen slightly after a certain time. Therefore please check the single belt drives and re-tighten them if necessary.
- If it should become necessary to remove the sprocket belt during repair work, it is advisable to mark the position of the wheels previously so that afterwards the synchronism between conveyor grasper and tools can be re-established.

2. Tool change with fixed tools

2.1 Cutting / bending tools (rear tool)

Dismantling:

1. Remove the 2 allen screws on the rear tool and remove the cover plate.

Installation:

1. Put the tool into the two in wholes.
2. Tighten the two allen screws.

2.2 Cutting / bending tools (front tool)

Dismantling:

1. Remove the 4 allen screws of the front tool and remove the cover plate with the complete tool .

Installation:

1. Insert the front tool attach under the flap and easily create the 4 socket head screws.
2. Turn the tools by hand (turn handwheel by hand) careful together so that the front tool drives into the rear tool.
3. Tighten the 4 allen screws of the front tool.

(Figure 10 and 11)

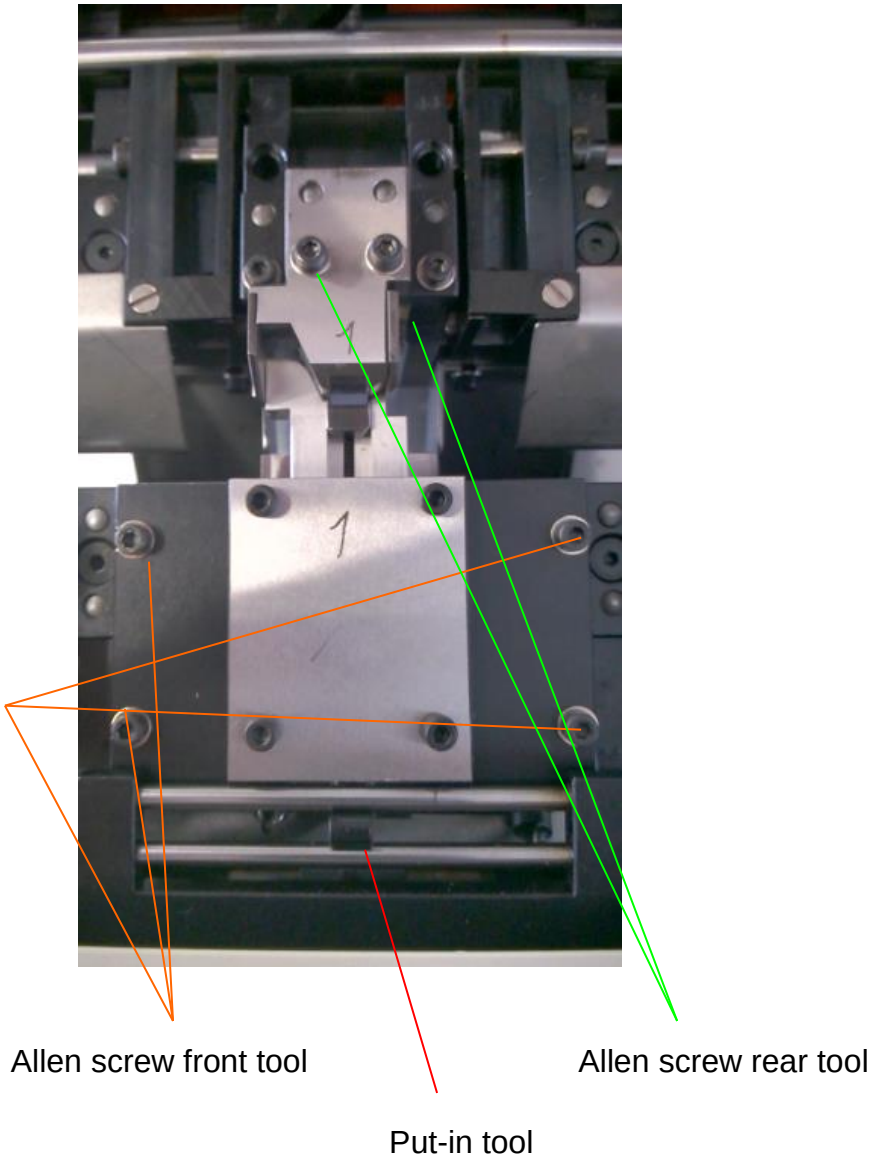


Fig. 10 Exchange the fixed tool

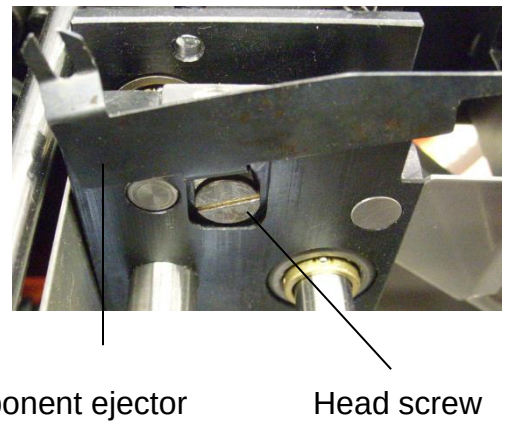


Fig. 11 Exchange the fixed tool

3. Tool change with adjustable tool

3.1 Front tool pair

Dismantling:

1. Move apart tools (home position).
2. Disengage tool actuators.
3. Remove the two cap screws (1) and take off the cover plate (2).
4. Take cutting tool (3) out of the guide.

Installation:

1. Set tool into the guide.
2. Fasten cover plate.
3. Repeat procedure on the second tool.
4. Re-engage the tool actuators.

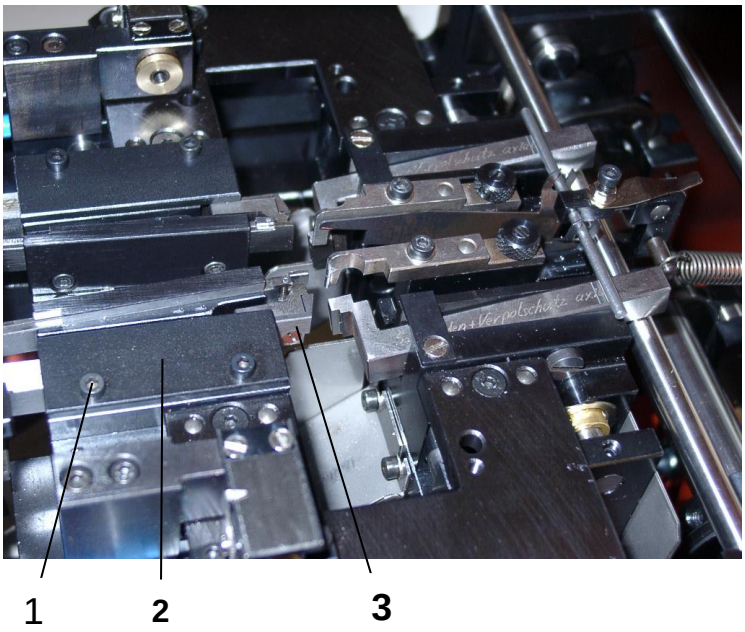


Fig. 12 Exchange of the cutting tools

1. Cap screw
2. Cover plate
3. Cutting tool

Machine only use when the protective hood is closed

3.2 Rear tool pair

Dismantling:

1. Remove lateral bearing screw (1).
2. Loosen countersunk screw (2) and swing aside retainer plate (3).
3. Take bending tool (4) out of the holder. Prevent tool spring from falling out.

Installation:

1. Macy install component ejector.
2. Put tool spring into the borefit of the new bending tool.
3. Keep spring slightly depressed with a finger and push the bending tool into the tool holder.
4. Swing retainer plate back over the tool and retighten the countersunk screw.
5. Screw lateral bearing screw back in.
6. NOTE: Tool (4) may not moved so far to the inside, that this collides with the bending slider (5).

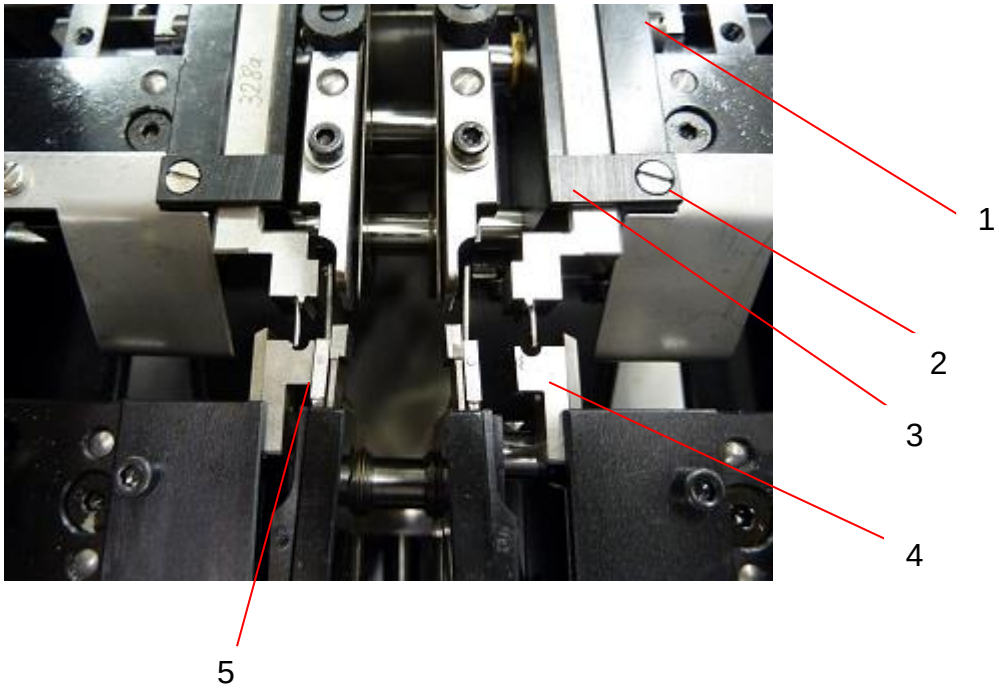


Fig. 13 Exchange of the cutting tools

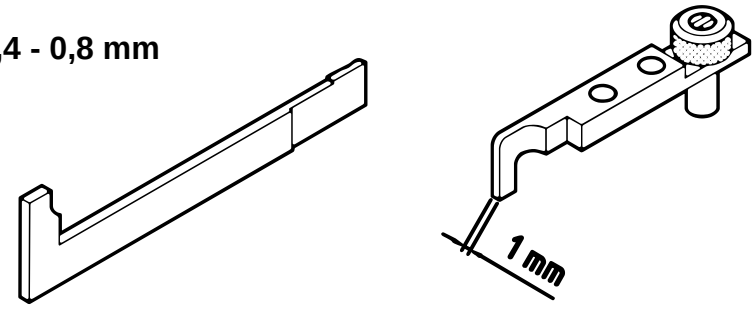
1. Bearing screw
2. Countersunk screw for fastening the cover plate
3. Cover plate
4. Cutting tool
5. Bending slider

Machine only use when the protective hood is closed

3.3 Bending tools

Please note: the execution of bending tools is the strength of the wire components depends

Wire strength 0,4 - 0,8 mm



Wire strength 0,8 – 1,3 mm

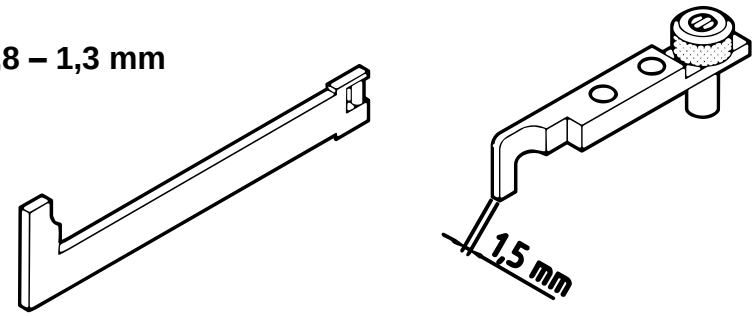
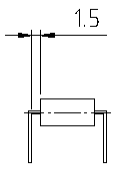
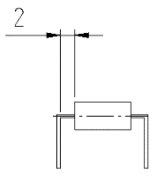


Fig. 14
Bending tools, depending on the wire strength



bending part to 0.8

Pitch dimension = Component body +
3 mm + wire strength



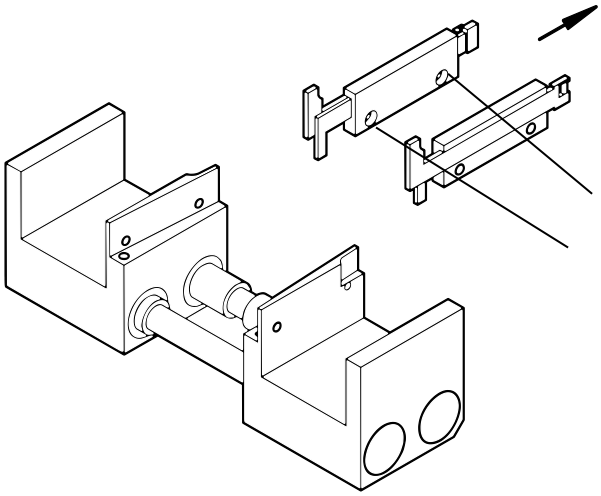
bending part 0.8 - 1.3

Pitch dimension = Component body +
4 mm + wire strength

ATTENTION: When editing wire diameters of 0.9 to 1.3 mm, it is essential to the bending part for large diameter wire used otherwise threatening tool breakage!!!!!

3.4. Exchange the bending pusher

1. Remove left and right bending aggregate (Screw out the allen screws and turn off the guide).
2. Exchange the bending pusher (The device for holding down stay at the guide).
3. Replace the bending aggregate at the same position.



Allen screw M3x6

Allen screw M3x4

Tighten the screws only hand-tight !!!!

Fig. 15
Exchange the bending pusher

3.5 Exchange the bending jaws

1. Screw out the allen screws and turn off the bending jaws.
2. The new bending jaws mounting in reserve order.

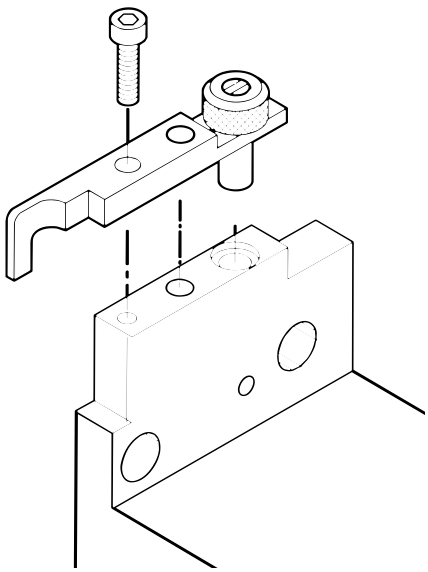


Fig. 16
Exchange the bending jaws

4. Fine adjustment of the tools

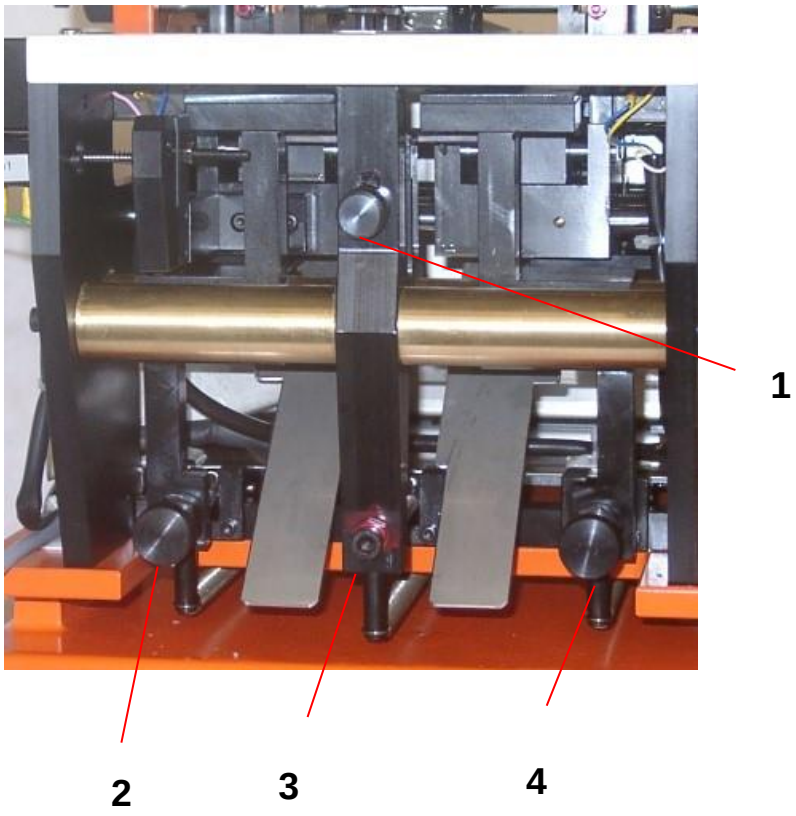


Fig. 17

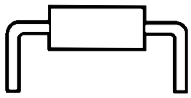
Figure without guide plate, shown for a better view.

Caution: The machine has been adjusted by the factory. Changes should only be made after consulting the manufacturer.

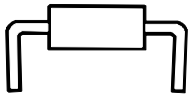
Adjusting screw 1	Push-down device open/closed – clamping of the components. In home position 3.5 – 4 mm distance to the bending die. **Please do not change setting.**
Adjusting screw 2	Tool motion left component side. The forming depth can be changed here. Correction option for differing lead∅. The setting has to be determined through test forming procedures.
Adjusting screw 3	Adjustment of the bending motion. **Please do not change setting.**
Adjusting screw 4	Tool motion right component side. The forming depth can be changed here. Correction option for differing lead∅. The setting has to be determined through test forming procedures.

5. Correction of the bending angle

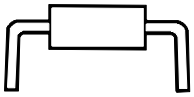
The bending of the components is supposed to be 90° and must not have any indentations. Changing lead diameters may entail corrections.



Component bent by 90° -
No correction required.



Component overbent –
Swing bending jaw inwards.



Component underbent –
Swing bending jaw outwards.

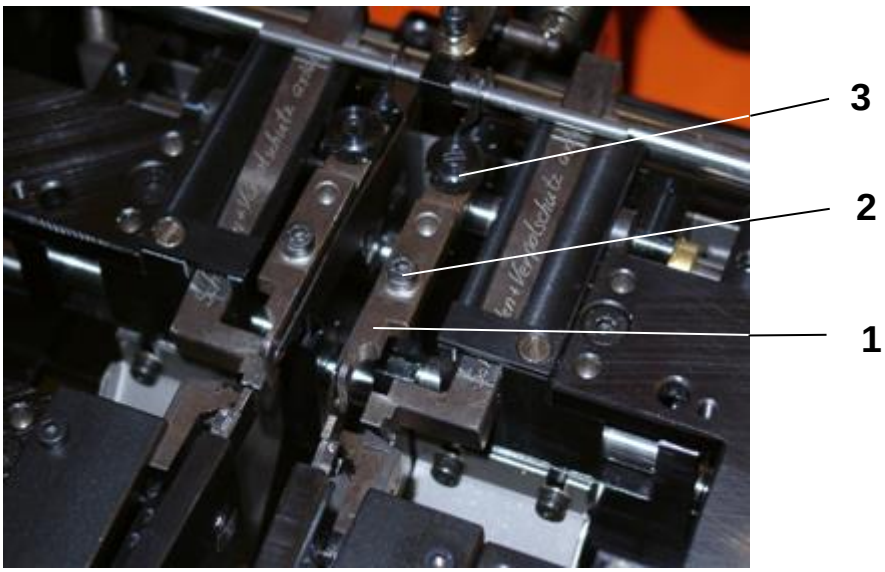


Fig. 18 – Correction of the bending angle

1. Bending jaw
2. Fastening screw for bending jaw
3. Eccentric pin

Correction:

1. Loosen fastening screw (2).
2. Swing bending jaw inwards or outwards (as required) with the eccentric pin (3).

Machine only use when the hood is closed - open hood only when energy supply is off.

6. Setting of the pitch dimension

The desired pitch dimension is infinitely variable by means of the spindle (1). The respective setting can be read off the scale (2) or the digital display (optional).

A fine correction of the pitch dimension is carried out after the processing and measuring of the first components.

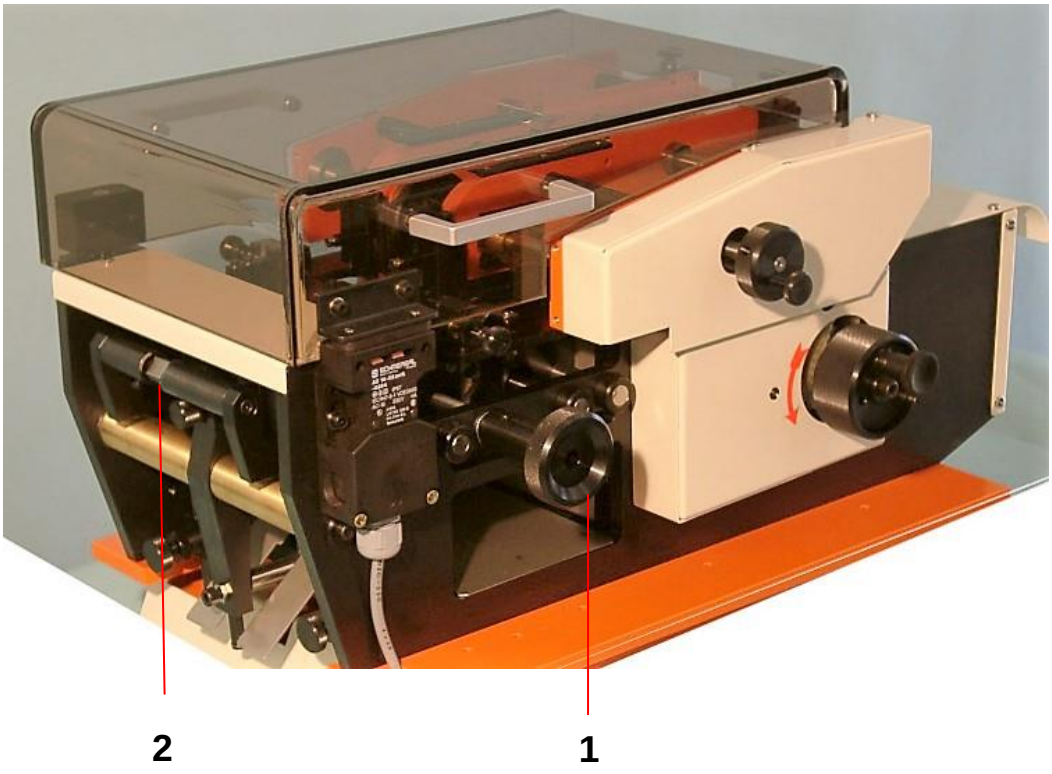


Fig. 19 Setting of the pitch dimension

1. Spindle
2. Scale

7. Setting of the cutting length

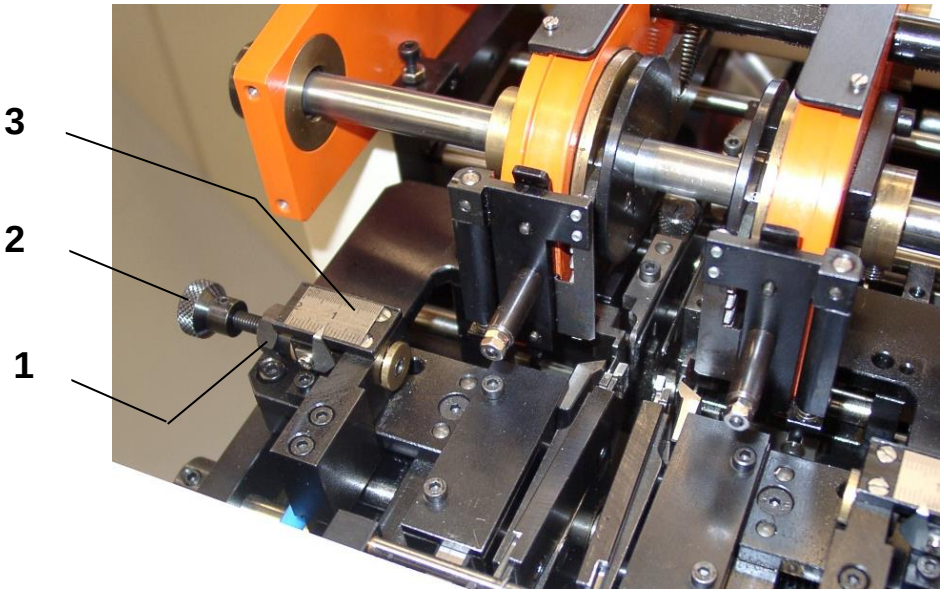


Fig. 20 Setting of the cutting length

1. Counter-nut
2. Adjusting screw
3. Scale for cutting length

The cutting length (bending length) can be adjusted separately left and right with the upper tool pushers.

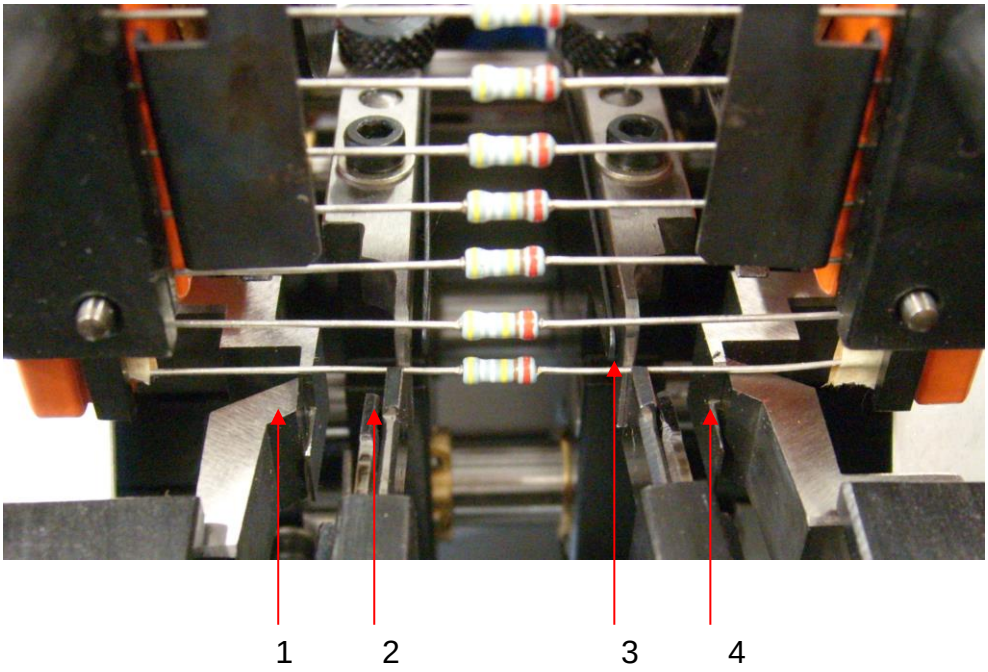
1. Loosen counter-nut (1) of the adjusting screw.
2. Set desired length at the adjusting screw (2). The respective setting can be read off the scale (3).
3. Retighten counter-nut.

Fig. 19 shows the setting of the left side. The setting of the right side is performed by analogy.

Machine only use when the hood is closed - open hood only when energy supply is off.

8. Height adjustment of the component supply to compensate belt tolerances

Some component belts, it may be possible that the Gurttoleranz (spacing of the taped components to each other) is slightly too big. This may result in that the components are not processed correctly by the machine, as for example, the clamping die that component still holds, but the tool to the component moves down past. (See fig. 20)
To compensate this belt tolerances there is a possibility to adjust the height from the component supply by 2 Allen screws. The belt feed must be adjusted in height so that the clamping die keeps the construction part and the tool processes the component pins. (Fig. 21 and Fig.22)



1. Tool left
2. Clamping die left
3. Clamping die right
4. Tool right

Fig. 21

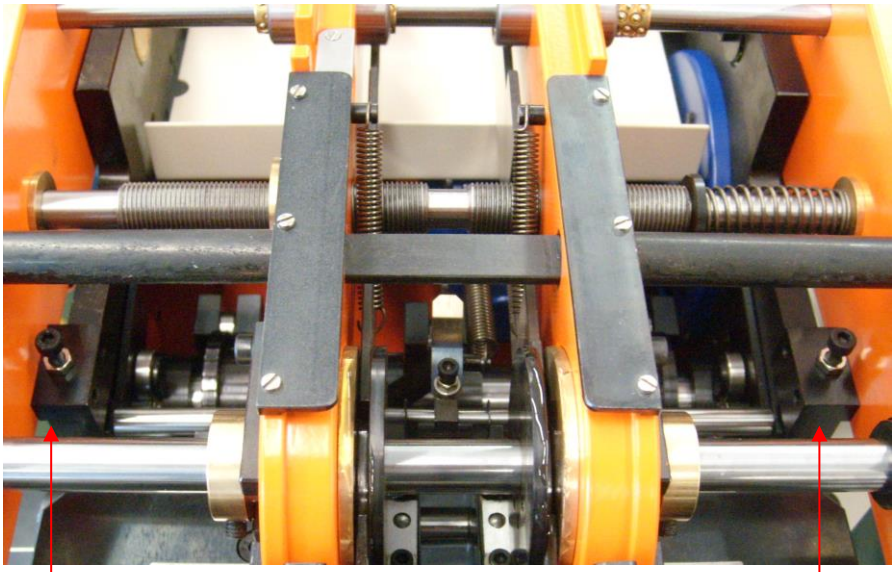
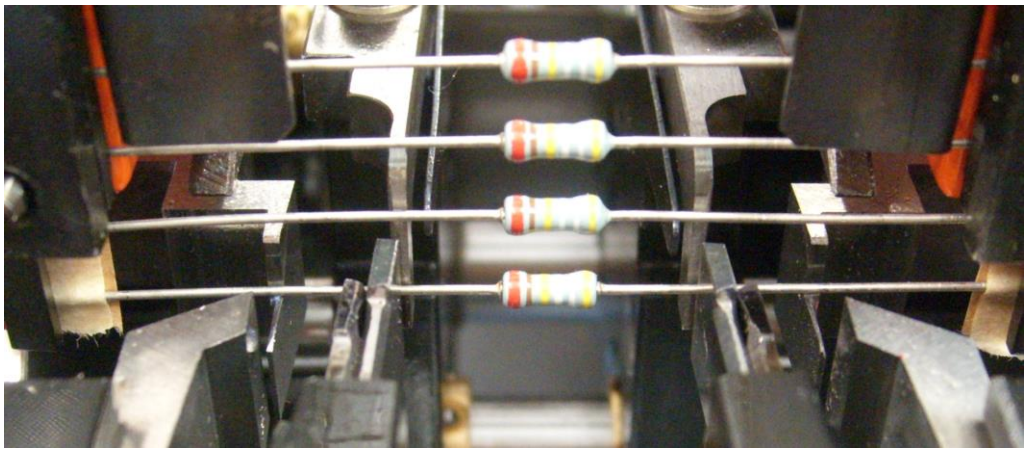


Fig. 22

Height adjustment left
(Allen screw with locknut)

Height adjustment right
(Allen screw with locknut)

1. Unscrew locknut
2. Turn Allen screw left or right
3. Turn right = height adjustment up; turn left = height adjustment down
4. Check component in the correct position at the processing phase. Clap componentd supply down and turn drive by hand wheel.
5. If the component is in the right position, fix locknuts.
6. Clap component supply down.
7. Close safety hood and start the machine.



The component is in the right position.

Fig. 23

9. Digital display of cutting length and pitch dimension (Optional)



Abb. 24
Digital display

1. Toggle switch
   Switch position 1 ⇨ cutting length left side
   Switch position 2 ⇨ pitch dimension
   Switch position 3 ⇨ cutting length right side

2. Display

Additional sets

1. B Mounting kit for axial components for vertical mounting

Conversion from horizontal to vertical mounting of axial components.

1. Remove left and right bending jaws by unscrewing the cap screws and lifting out the bending jaws afterwards.
2. Remove left and right bending set. (Unscrew cap screws and take away the guides laterally).
3. Insert supplied bending jaw of the B kit in the same place the right bending jaw was removed previously.
4. Bring together tool pushers to “Pitch dimension 10” by means of the hand wheel.
5. Slightly lift the clevis head of the bending pusher actuator and insert the B mounting kit in the same place the two bending sets were removed previously and fasten with two cap screws.
6. Feed in new component tape.
7. Loosen clamping screws (fig. 5 – item 1) and move the tape conveyor unit to the left until no collision with the bending nose can occur. Minimum distance to component body 2 mm.
8. Bauteilkörper 2mm.

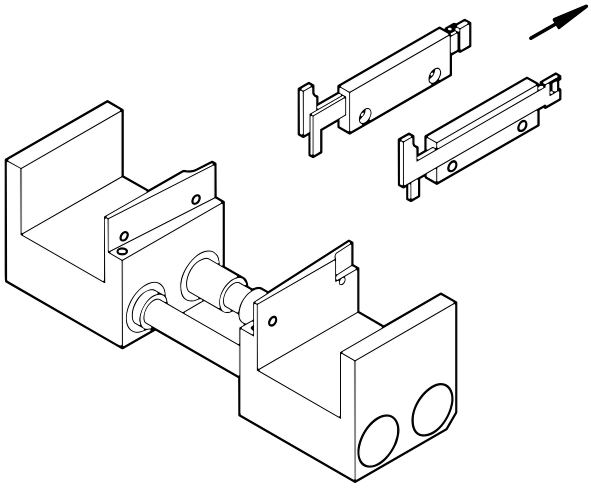


Fig. 25
Remove bending sets

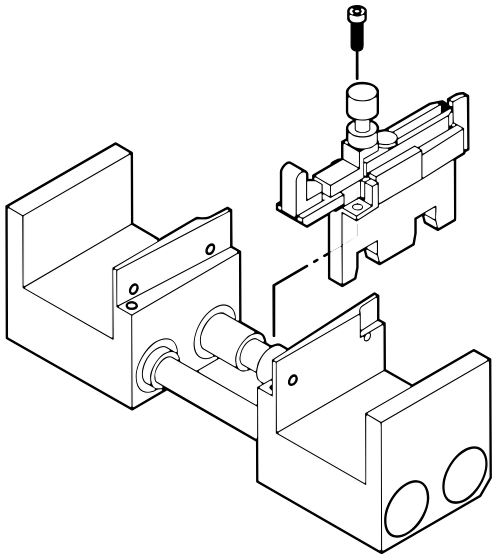


Fig. 26
Insert mounting kit

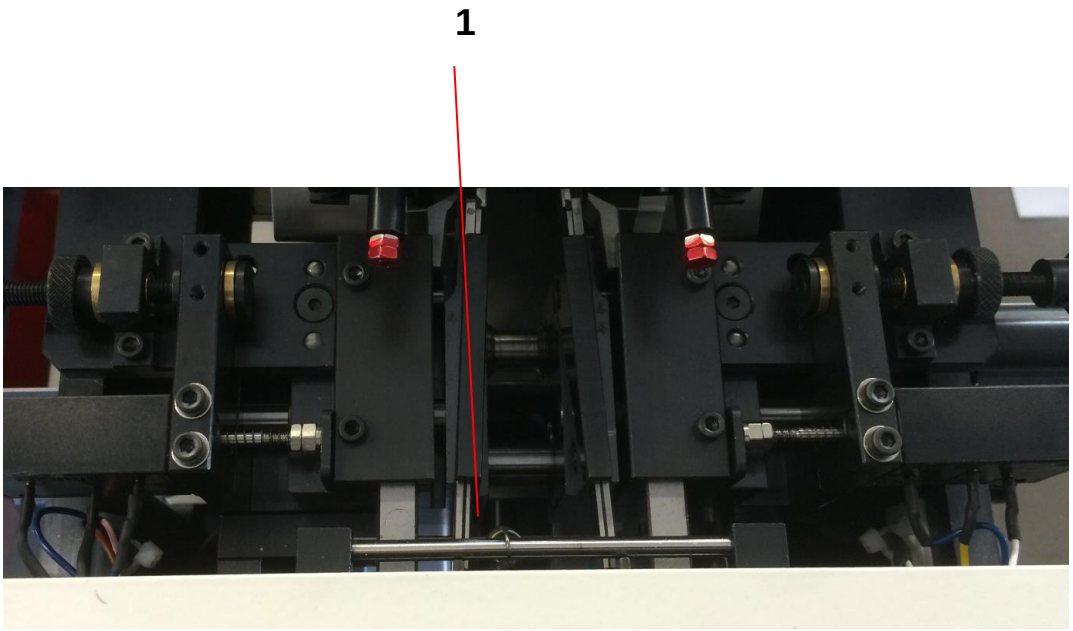
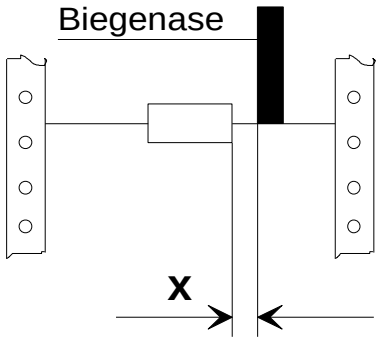


Fig. 27 Actuation of bending pusher

1. Clevis head - something Raise at the install of the Conversion kit.

Machine only use when the protective hood is closed



$X_{min} = 2$ mm

Fig. 28

Position of the component body of axial components for vertical mounting

2. Manual feed for loose components

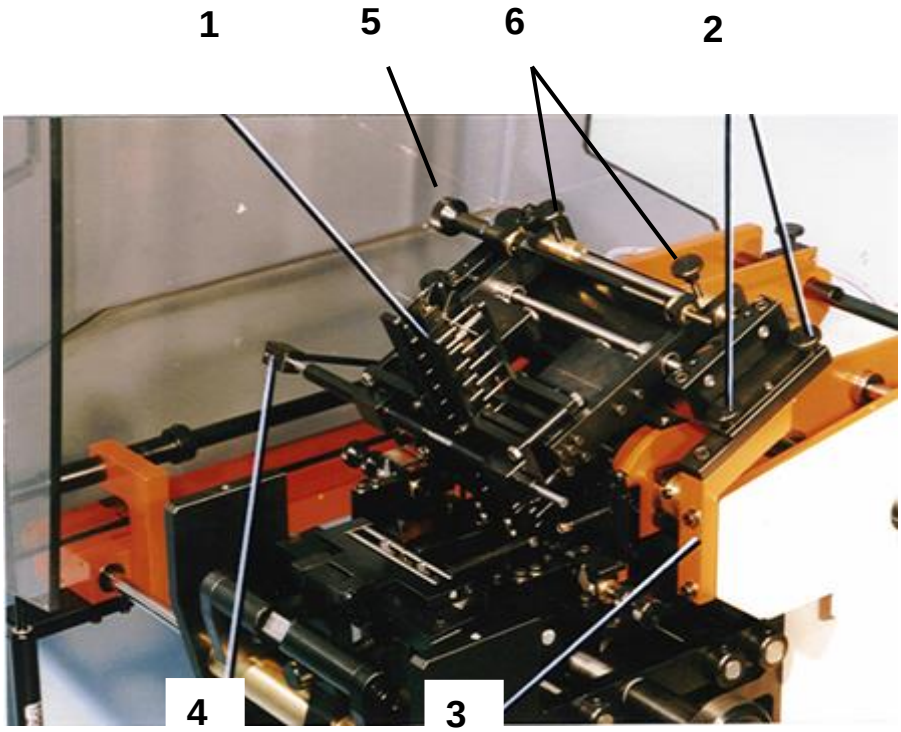


Fig. 29
Manual feed

1. Manual feed
2. Knurled screw for the fastening at the holders
3. Right holder (left holder concealed)

Caution: **When using the manual feed, reduce the machine speed.**

When used with manual feed, the maximum allowable diameter of the component body may be 18 mm and the maximum allowable length of the component body may be 40 mm.

In this case set control potentiometer to scale position “8”.

It is not possible to use the manual feed with aggregate „B“ .

Faults and their rectification

Caution: **All maintenance and repair work may only be performed by qualified and trained personnel!**

If used properly, the machine will function virtually without trouble. If, contrary to expectation, faults should occur, please inform your supplier first.

Your contact: **Burst & Zick GmbH, Tel. +49 721/61 17 75**

The type of fault discussed consequently can be taken down in the following table with the description of causes and measures for the correction of the faults.

Type of fault	Cause	Measures

Maintenance

1. Maintenance plan

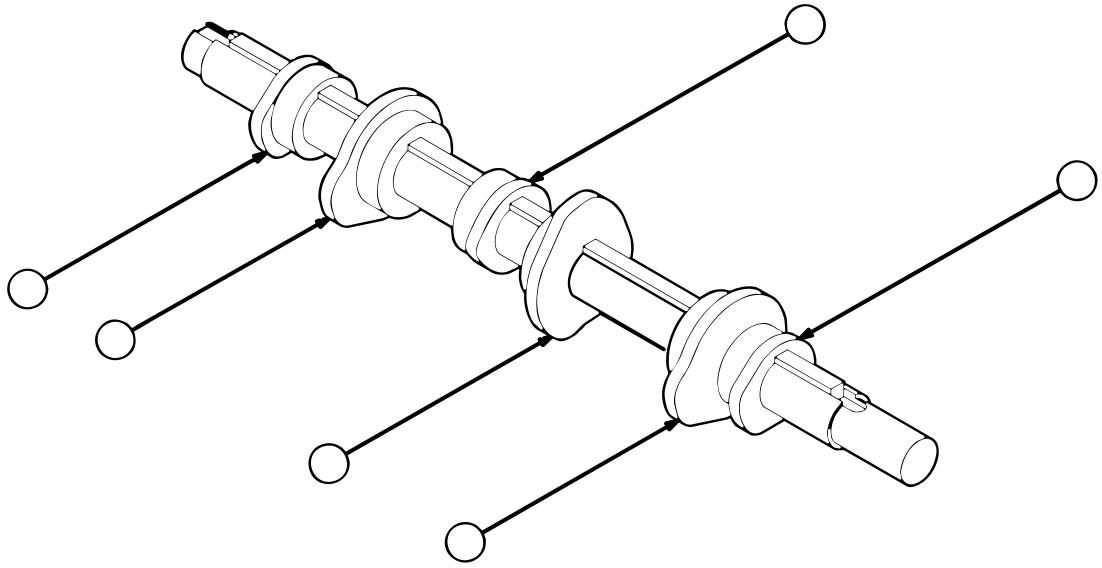
	Interval				Task
	d	w	m	y	
Machine, general	X				Vacuum-clean or clean from wire clip-pings and other remains with a brush.
Tools		X			Check bending and cutting tools for tin deposits and remove these, if necessary, without damaging the tools.
All sliding parts such as cam disks, conveyor graspers etc.		X			Clean and lubricate slightly with oil. **No grease**
Sprocket belt			X		Check tension. Retighten belt if necessary.
Electrical check			X	X	To note local provisions as in Germany DGUV Regulation 3

d = daily
w = weekly
m = monthly
y = annualy

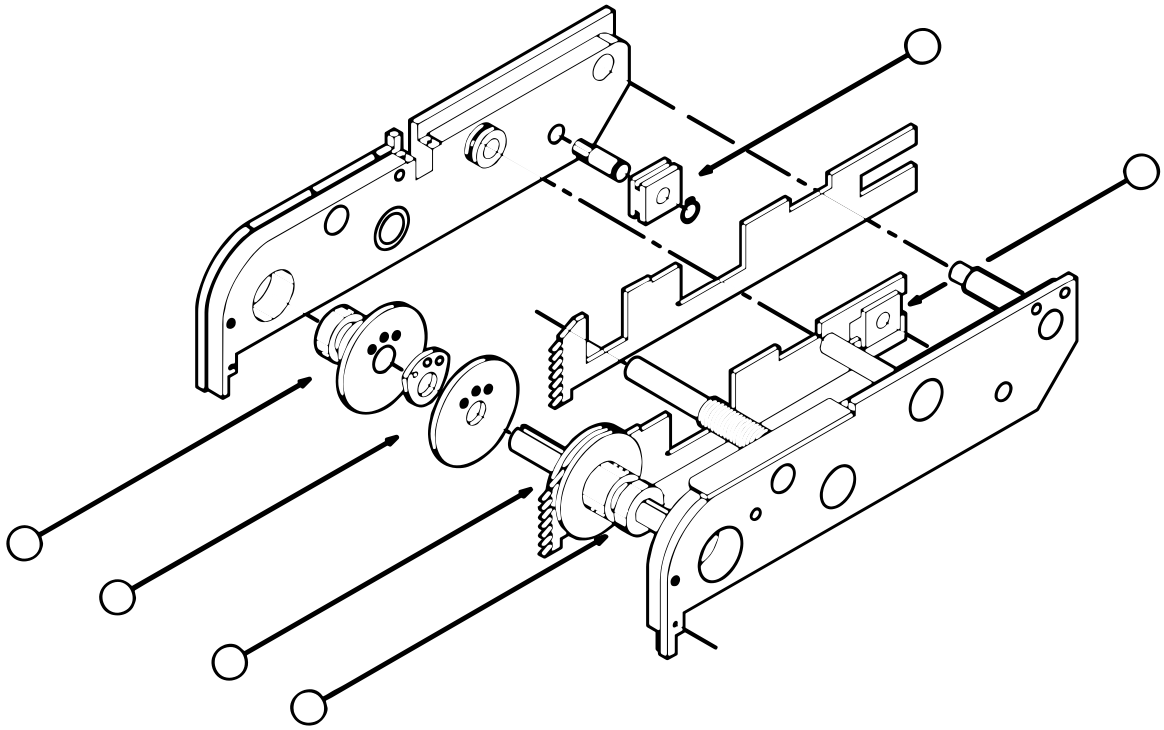
Caution: All maintenance and repair work may only be performed by trained specialists!

Caution: No grease may be used for lubricating moving and sliding parts. Use thin lubricants only.

2. Lubricating instructions



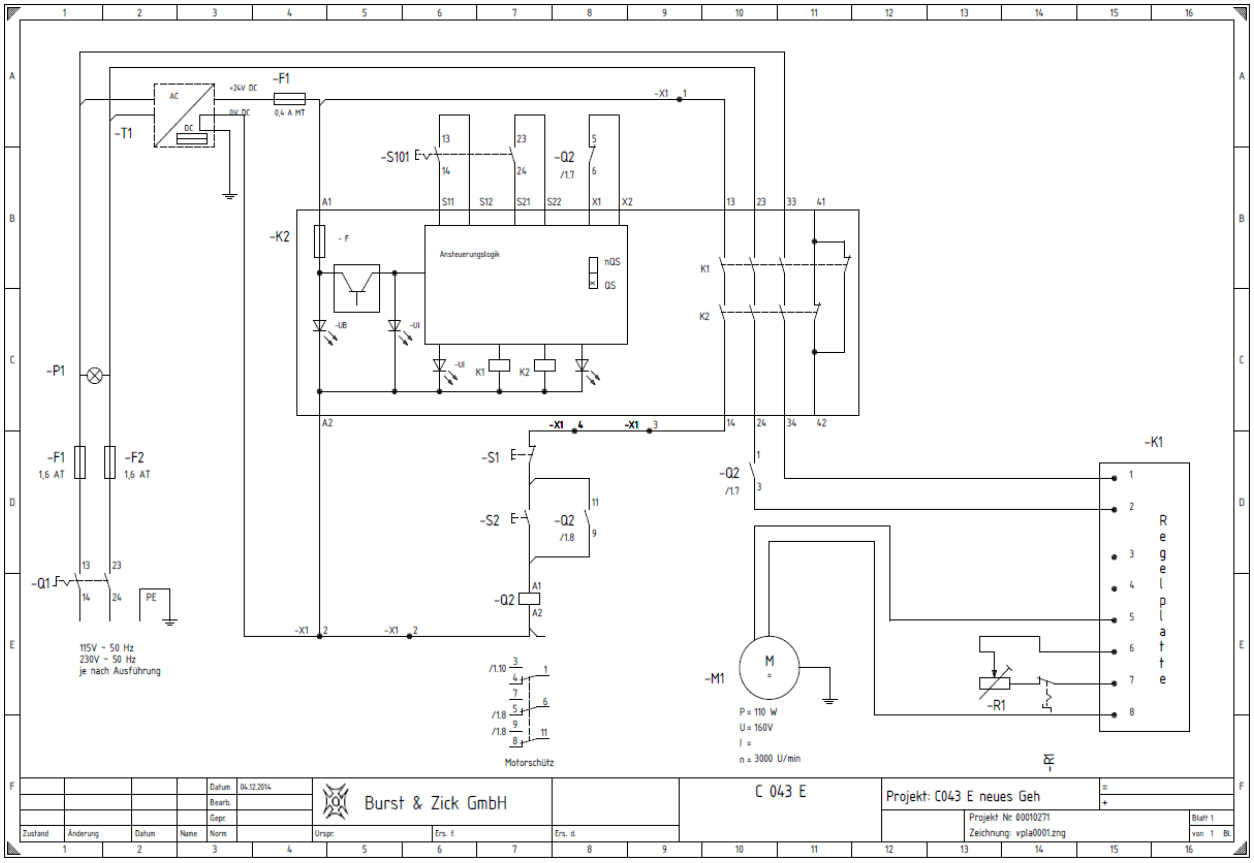
Slightly oil control cam disks at weekly intervals



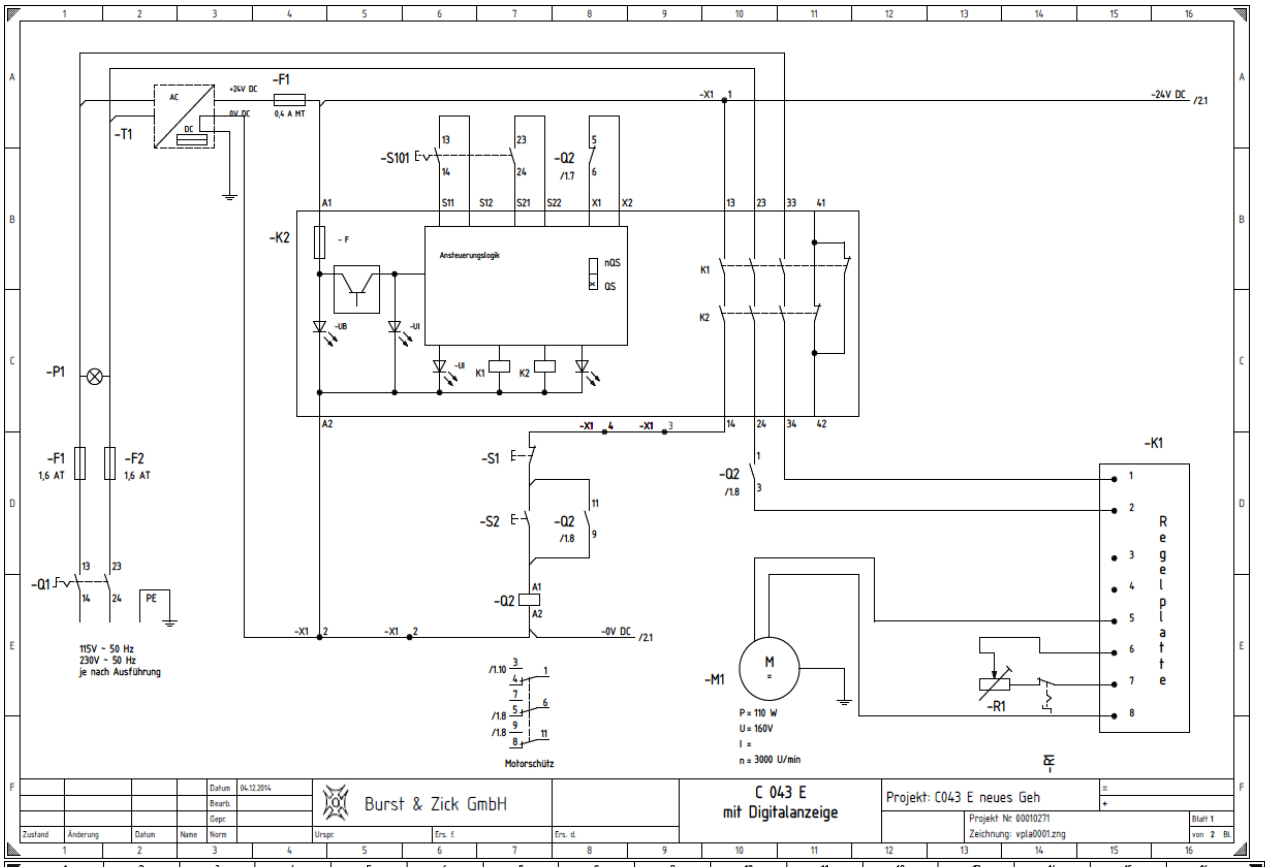
Clean and oil graspers and tape conveyor at weekly intervals

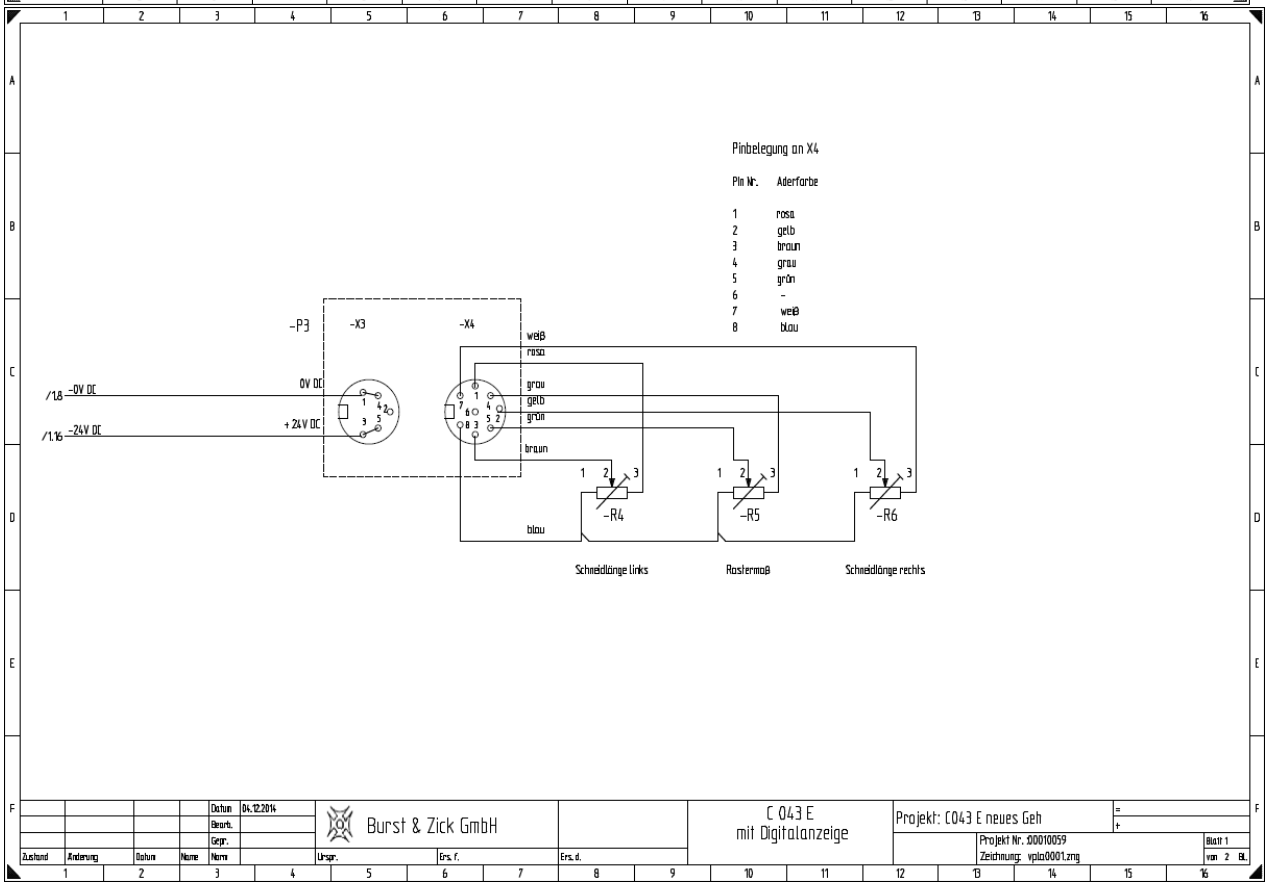
Technical documents

1. Circuit diagram C043 E standard

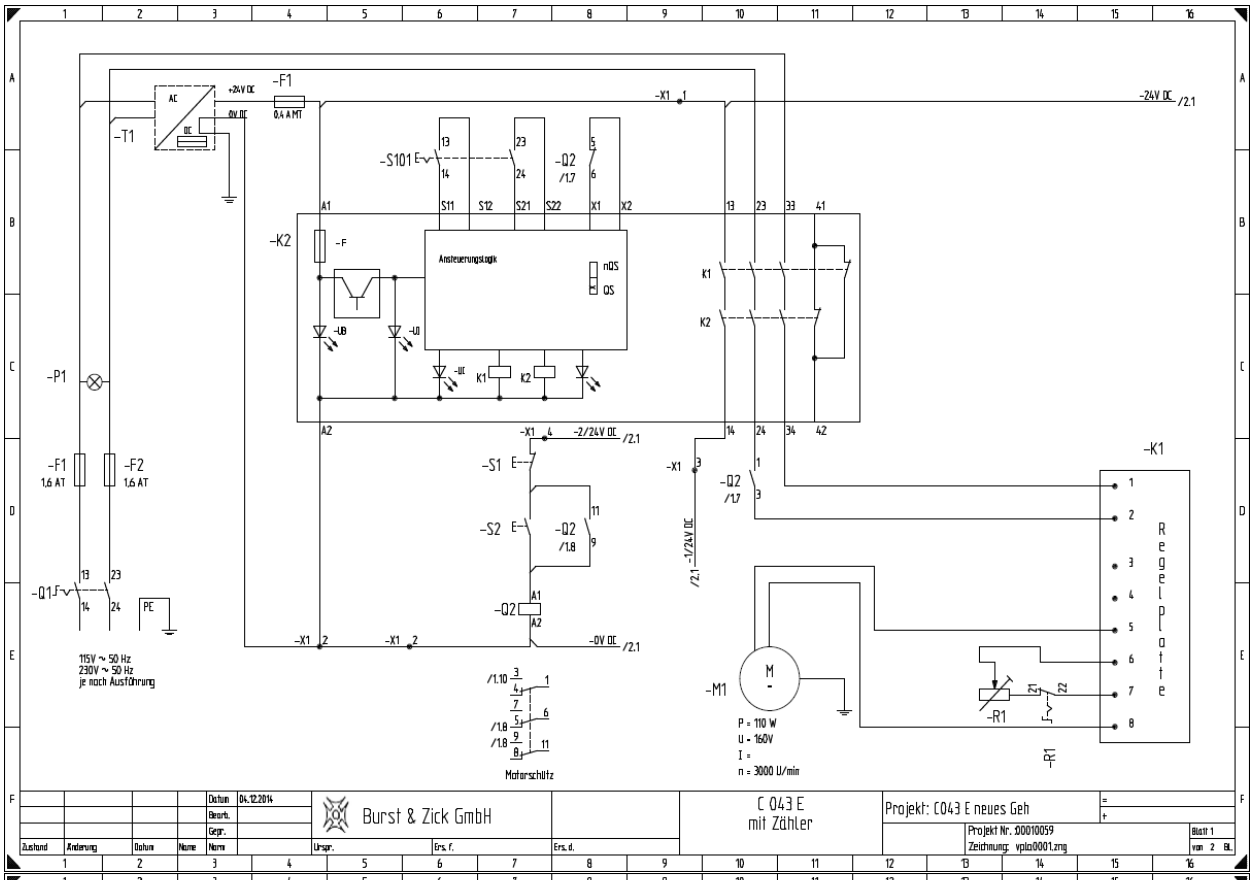


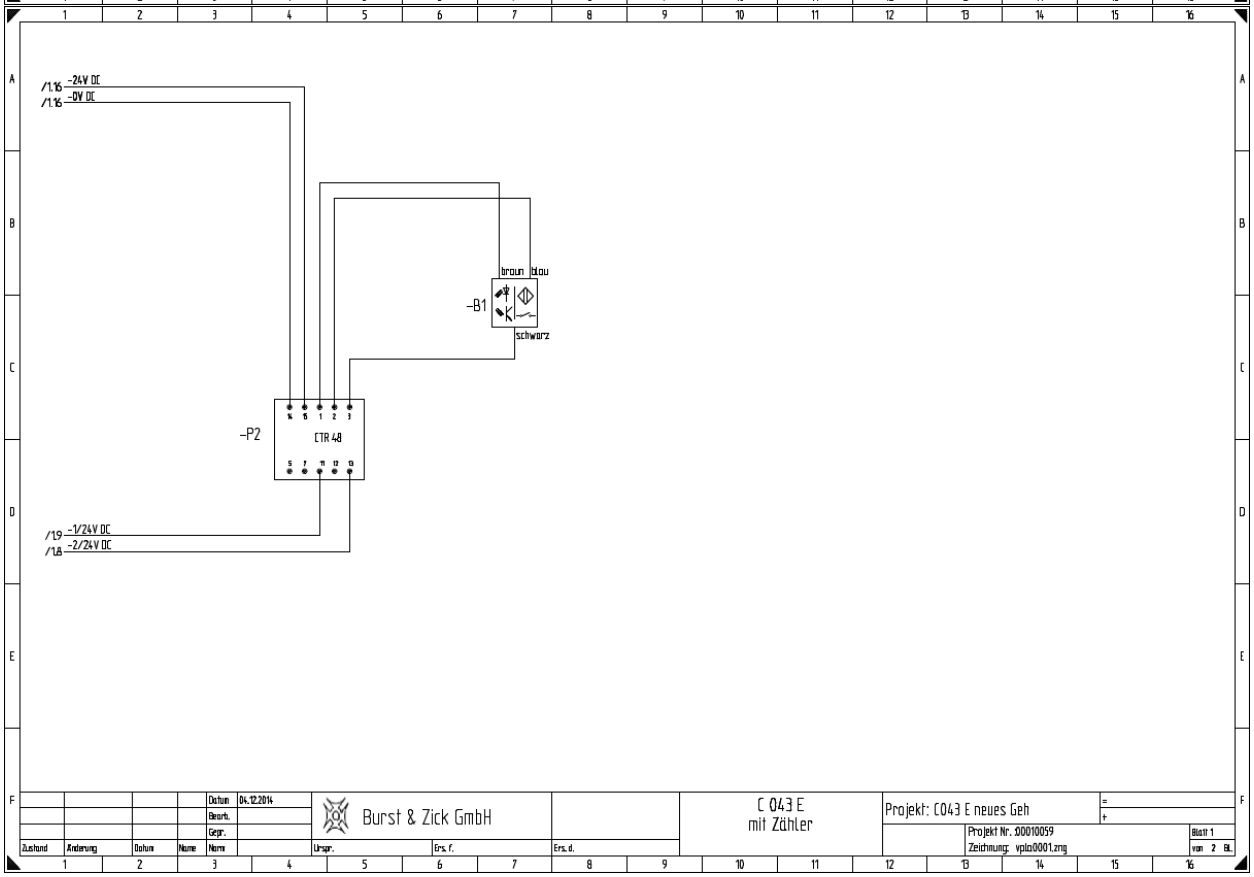
2. Circuit diagram C043 E with digital display



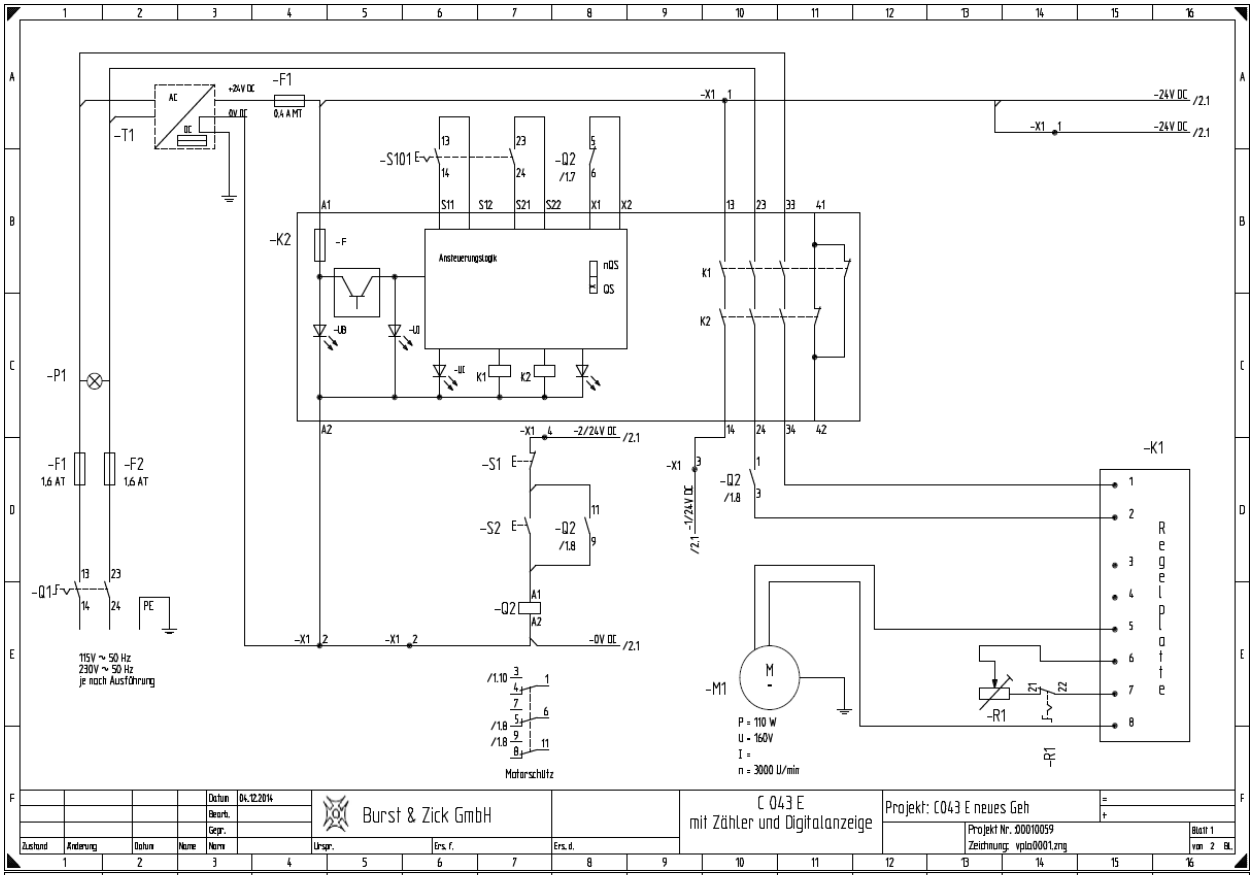


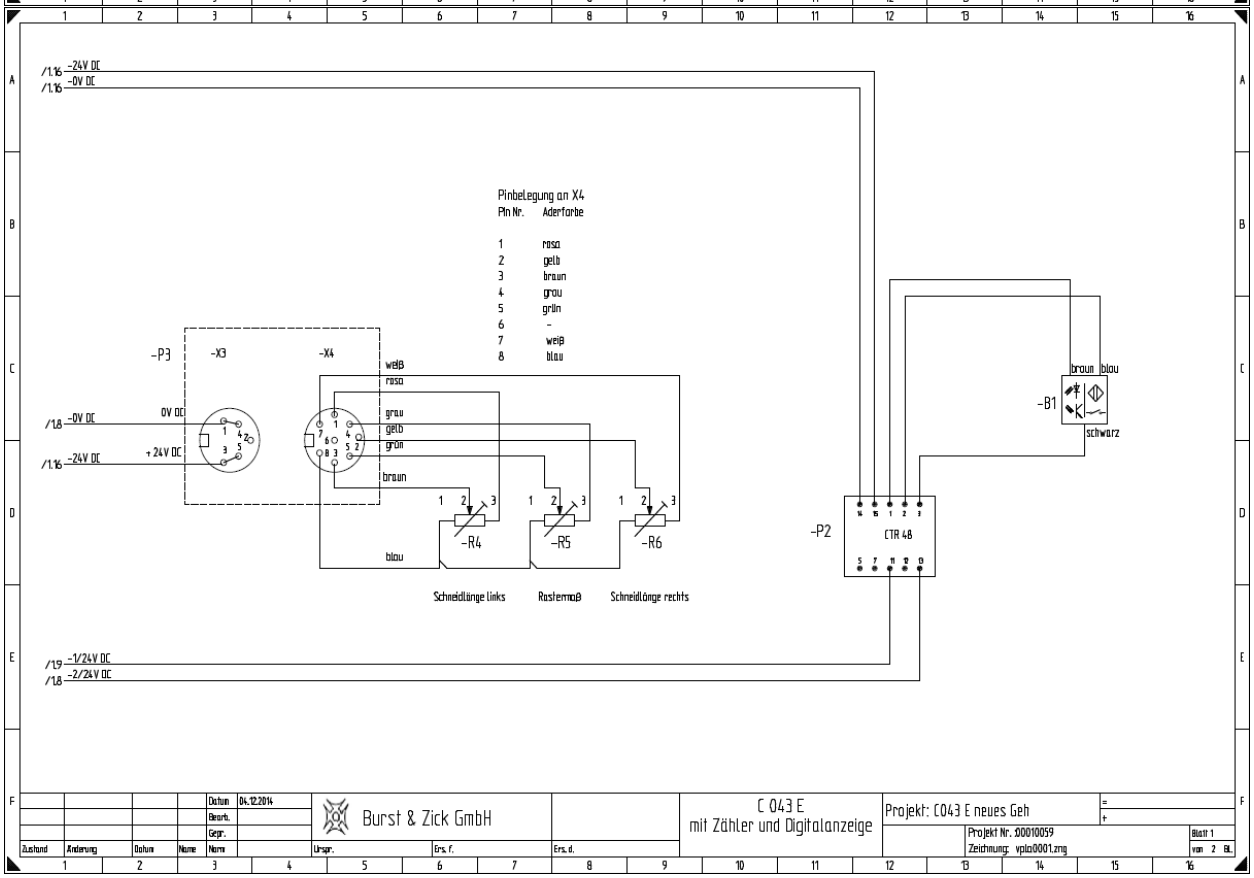
3. Circuit diagram C043 E with counter





4. Circuit diagram C043 E with digital display and counter





5. Parts and spare parts list electrical parts C043 E

Dec.	Component type	Order No.	Recommended spare parts
Q1	Switch	CA10 T302/D-A004 EG	
F1,F2	Fuse holder FPG1 Torsion fuse Fuse 1,6AT	3101.0210 0696.0033 419-993	 10 pieces
F3	Fuse holder Fuse 0,4 A MT	UK 5 HESI 5x20mm	 1 piece
P1	Lamp holder Lamp 230V Lamp cover	1.60502.1020214 578-367 5.52011.026	
T1	Power supply	STEP-PS/1AC/24VDC/0,5	
Q1	Relais Relais socket	60.13.9.0024.0070 90.03	
K2	Safety relais	SRB-E-301MC	
X1	Terminal blocks	WDK 2,5	
K1	Motor control plate	80100000/230V or 80100001/115V	
R1	Potentiometer 470 KOhm	CIP20C-KS-IL-LIN 470K	1 piece
S1	Push button red	101001011/0301	
S2	Push button green	101001001/0507	
S101	Safety switch Actuator	AZ 16-02 zvrk AZ 15/16 B1	
M1	Motor	PM 1 85-40 160V Getr. VE31-GR5-i=15:1	
P2	Counter	CTR 48	
P3	Digital display	DVM C043/mm DVM C043/Zoll	
R5	Distance transmitter	MM30 R5K	
R4, R6	Distance transmitter	MM15 R2K	
B1	Falk light barrier	OGU 10	

6. Recommended spare parts (mechanical parts)

6.1 For the „A“ set (horizontal parts)

Item	Qty.	Drawing-No.	Description
7	2	C043 E Tz 3 T.7	Bending jaw
9	2	C043 E Tz 3 T.9	Push-down device
10	2	C043 E Tz 3 T.10 with T.30	Bending die Ø 1,3
10a	2	C043 E Tz 3 T.10a	Bending die Ø 0,8

6.2 For the „B“ set (vertical parts)

Item	Qty.	Drawing-No.	Description
1	1	C043 E Tz 4 T.1	Bending jaw, pitch 2.5 mm
2	1	C043 E Tz 4 T.2	Bending jaw, pitch 5 mm
3	2	C043 E Tz 4 T.3	Bending pliers

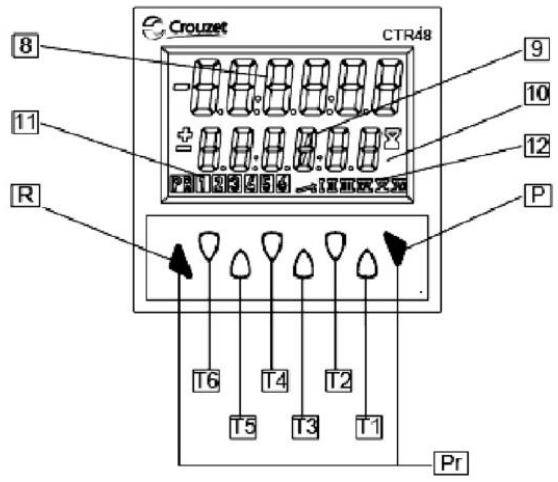
6.3 For the basic machine

Tz 2 Body and Drive			
Item	Qty.	Drawing-No.	Description
50	1		Synchr. sprocket belt T5/420 – 10 wide
51	1		Synchr. sprocket belt T5/330 – 10 wide
52	1		Synchr. sprocket belt T5/260 – 10 wide
53	1		Gas cylinder GS-15-025 AA- K9189
56	2		Tension spring Z-075 H (rocker)
57	1		Tension spring Z-077 (ejector lever)
Tz 3 Tool carrier			
Item	Qty.	Drawing-No.	Description
28	2	C043 E Tz 3 T.28	Eccentric pin
39	2	C043 E Tz 3 T.39	Screw
45	2	C043 E Tz 3 T.45	Ejector
67	2		Compression spring

Tz 5 Control lever – Bending dies			
Item	Qty.	Drawing-No.	Description
9	1	C043 E Tz 5 T.9	Adjusting screw
10	1	C043 E Tz 5 T.10	Washer
20	1		Compression spring
21	1		Compression spring
Tz 6 Control lever – Push-down device			
Item	Qty.	Drawing-No.	Description
22	2	C043 E Tz 6 T.22	Nut
23	2	C043 E Tz 6 T.23 und T.24	Adjusting screw, compl.
40	1		Tension spring
Tz 8 Camshaft			
Item	Qty.	Drawing-No.	Description
1x Camshaft, compl. consisting of:			
2	2	C043 E Tz 8 T.2	Cam (cutting and forming)
3	2	C043 E Tz 8 T.3	Cam (rocker)
4	1	C043 E Tz 8 T. 4	Cam (bending dies)
6	1	C043 E Tz 8 T.6	Cam (ejector)
7	1	C043 E Tz 8 T.7	Main shaft
Tz 9 hand wheel			
Item	Qty.	Drawing-No.	Description
15	1		Click-stock pin GN 617.1-6-A
Tz 10 Component feed			
Item	Qty.	Drwaing-No.	Description
3	2	C043 E Tz 10 T.3	Grasper
7	2	C043 E Tz 10 T.7	Blocking pawl
1x Conveyor blocking pawl, compl.			

7. Counter (optional)

Extract from original instruction of the manufacturer, Crouzet



T1–6	Decade key T1…T6
P	Prog/Mode key
R	Reset key
8	Current count value/main counter
9	Preset value/Total count/Batch counter
10	Run display for Timer
11	Shows which preset value is being displayed
12	Shows which preset output is active
PR	Keys necessary for programming the parameters (highlighted in grey)

8. Certification for protective disks

Bescheinigung für Schutzscheiben ESLON-DC PVC 401 AS nach EN 10204

Bescheinigung nach EN 10204 (Werksbescheinigung)
Certification of Compliance with the Order

Best.: 820700

Wir bescheinigen die Übereinstimmung unserer Lieferungen mit den Lieferbedingungen / Bestellungen der	We certifies the compliance of the delivered parts with the delivery standards / purchase order of

Theodor Schmid GmbH
Glasgroßhandlung
An der Roßweid 2
76229 Karlsruhe

Bescheinigende Firma	Certifying Company

Sekisui Chemical GmbH
Cantadorstr. 3
40211 Düsseldorf

Bemerkungen	Remarks

ESLON-DC PVC 401AS
antistatisch, klar, transparent
1000x2000x5mm
Oberflächenwiderstand
$3 \times 10^7 \sim 5 \times 10^7\ \Omega/sq$

SEKISUI CHEMICAL GmbH
Cantadorstr. 3
40211 Düsseldorf

11.04.2008

Datum	Unterschrift / Stempel	Date	Signature / Stamp

Spare parts catalogue

Table of contents

Pedestal and protective hood ..... Tz 1

Body and drive ..... Tz 2

Tool carrier ..... Tz 3

B mounting kit ..... Tz 4

Control lever – bending dies ..... Tz 5

Control lever – push-down device and cutting tool ..... Tz 6

Cam lever ..... Tz 7

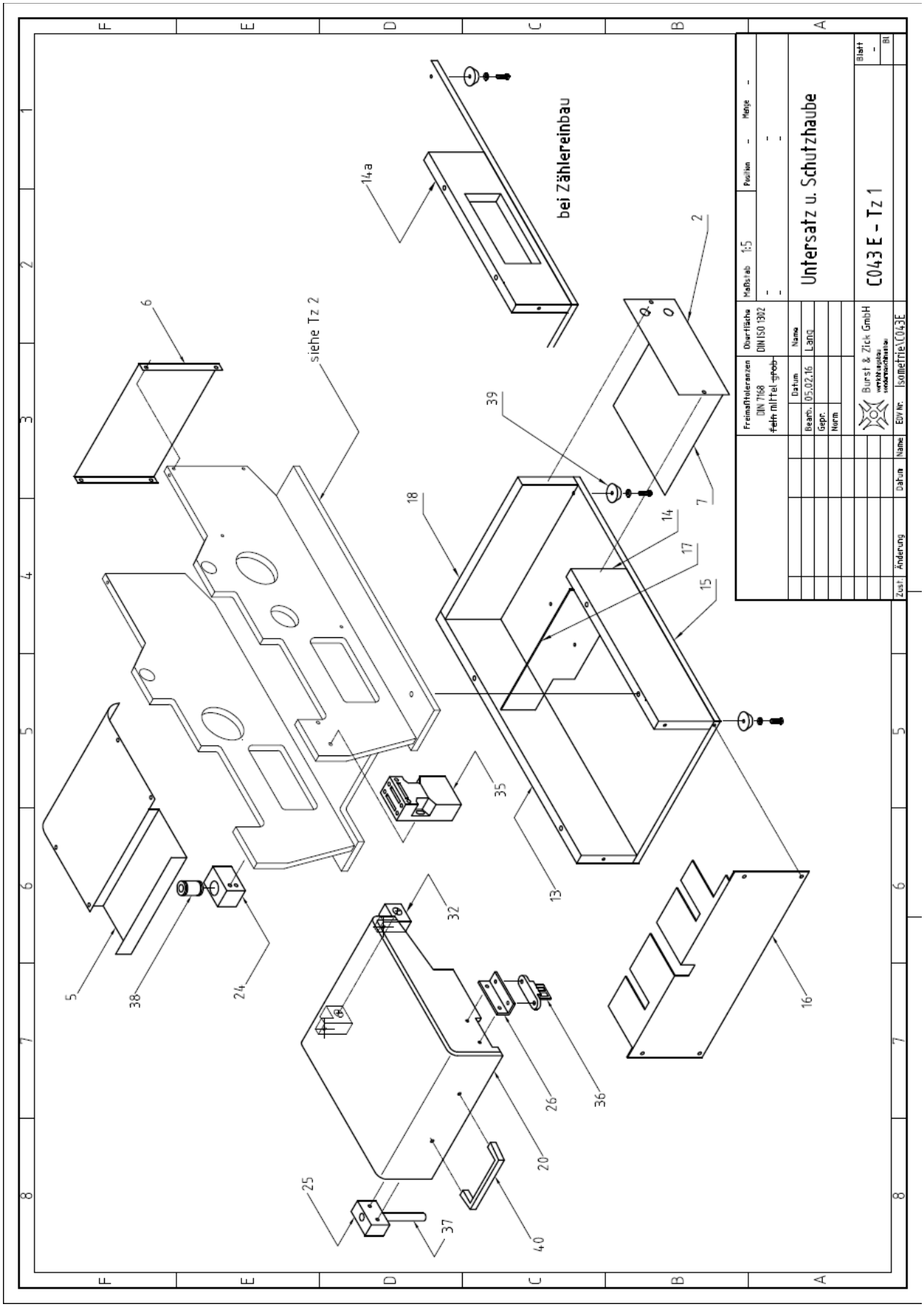
Cam shaft ..... Tz 8

Hand wheel ..... Tz 9

Component feed ..... Tz 10

Tz 1 Pedestal and protective hood

Item	Qty.	Drawing-No.	Description	Rem.
2	1	C043 E Tz 1 T.2	Front plate	
5	1	C043 E Tz 1 T.5	Delivery plate	
6	1	C043 E Tz 1 T.6	Sheet metal	
7	1	C043 E Tz 1 T.7	Chassis	
13	1	C043 E Tz 1 T.13	Side carrier left	
14	1	C043 E Tz 1 T.14	Side carrier right	
14a	1	C043 E Tz 1 T.14a	Side carrier right with counter	
15	1	C043 E Tz 1 T.15	Plate	
16	1	C043 E Tz 1 T.16	Cover plate	
17	1	C043 E Tz 1 T.17	Intermediate plate	
18	1	C043 E Tz 1 T.18	Rear plate	
20	1	C043 E Tz 1 T.20	Protective hood	
24	1	C043 E Tz 1 T.24	Bearing	
25	1	C043 E Tz 1 T.25	Bearing	
26	1	C043 E Tz 1 T.26	Angle	
35	1		Safety switch AZ 16-02 zvrk	
36	1		Actuator AZ 15/16 B1	
37	1		Shaft, hardened ∅10h6 x 100	
38	1		Reciculating ball bushing	
39	4		Rubber foot	
40	1		Handle	

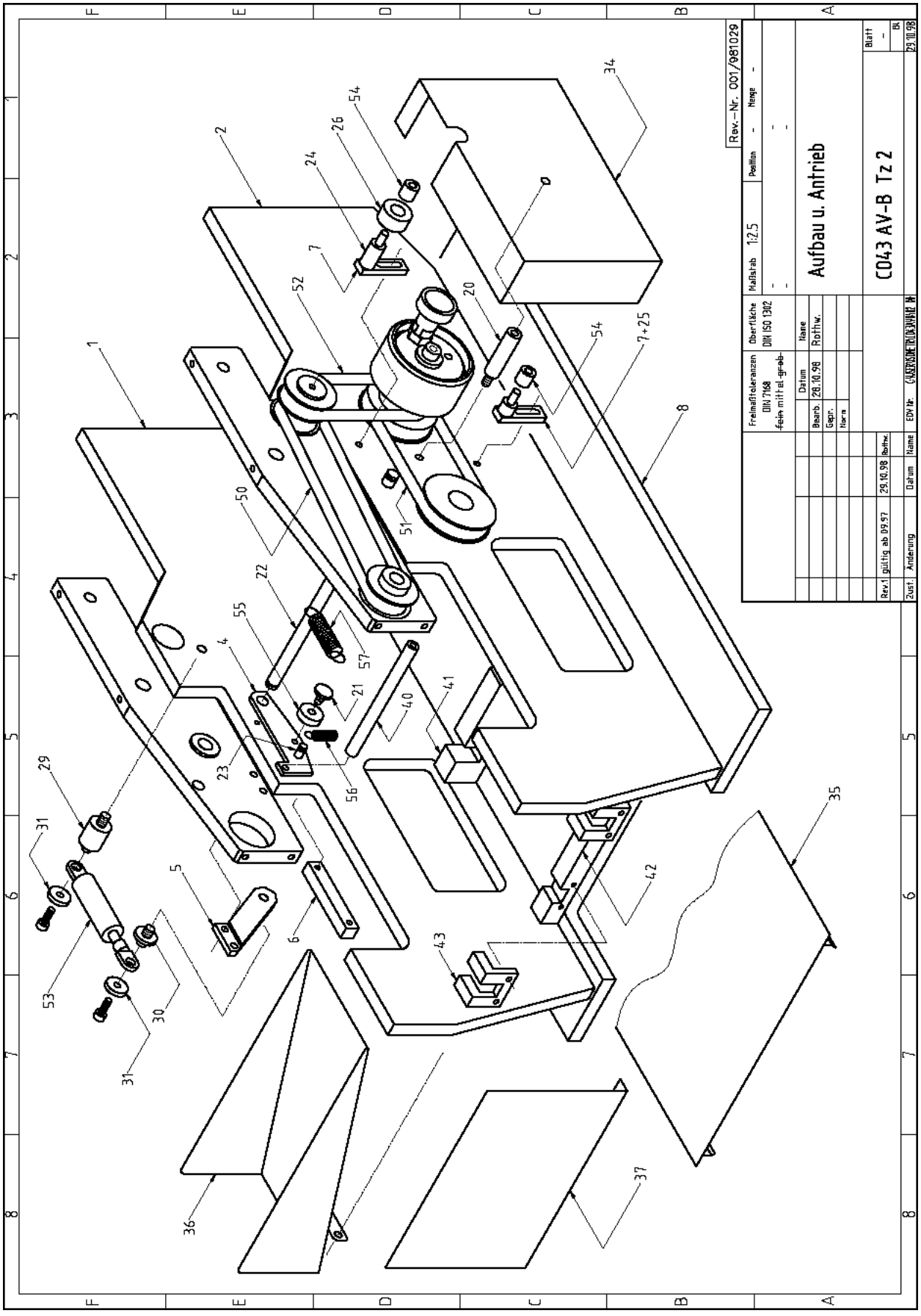

bei Zählereinbau
siehe Tz 2
Untersatz u. Schutzhaube
C043 E - Tz 1
Burst & Zick GmbH
Maßstab 1:5
Oberfläche DIN ISO 1302
Freimaßtoleranzen DIN 7168 fein mittel grob
Datum
Name
Beam. 05.02.16 Lang
Gepr.
Norm
Zust. Änderung Datum Name
Ers.Nr. IsoNetTileVC043E
Blatt -
Bl.
Menge -
Position -
14a
2
6
39
18
14
17
15
7
35
13
5
38
24
32
16
26
36
20
25
37
40

Tz 2 Body and drive

Item	Qty.	Drawing-No.	Description	Rem.
1	1	C043 E Tz 2 T. 1	Lateral part, left	
2	1	C043 E Tz 2 T. 2	Lateral part, right	
4	2	C043 E Tz 2 T. 4	Angle	
5	1	C043 E Tz 2 T. 5	Lever	
6	1	C043 E Tz 2 T. 6	Plate	
7	2	C043 E Tz 2 T. 7	Belt tightener	
8	1	C043 E Tz 2 T. 8	Base plate	
18	3	C043 E Tz 2 T. 18	Stud bolt	
19	2	C043 E Tz 2 T. 19	Flange bolt	
20	1	C043 E Tz 2 T. 20	Stud bolt	
21	2	C043 E Tz 2 T. 21	Spring pin	
22	1	C043 E Tz 2 T. 22	Spring suspension	
23	2	C043 E Tz 2 T. 23	Stud bolt	
24	1	C043 E Tz 2 T. 24	Stud bolt	
25	1	C043 E Tz 2 T. 25	Belt tightener	
26	1	C043 E Tz 2 T. 26	Unwinding piece	
27	je2	C043 E Tz 2 T. 27	Spring suspension	
28	1	C043 E Tz 2 T. 28	Stud bolt	
29	1	C043 E Tz 2 T. 29	Stud bolt	
30	1	C043 E Tz 2 T. 30	Distance ring	
31	2	C043 E Tz 2 T. 31	Belt tightener	
34	1	C043 E Tz 2 T. 34	Cover	
35	1	C043 E Tz 2 T. 35	Cover	
36	1	C043 E Tz 2 T. 36	Chute	
37	1	C043 E Tz 2 T. 37	Plate	
40	1	C043 E Tz 2 T. 40	Shaft, hardened ∅8h6 x 184	
41	1	C043 E Tz 2 T. 41	Guide	
42	1	C043 E Tz 2 T. 42	Guide	
43	1	C043 E Tz 2 T. 43	Angle bracket	
50	1		Synchr. sprocket belt T5/ 420 10-wide	***)**

Item	Qty.	Drawing-No.	Description	Rem.
51	1		Synchr. sprocket belt T5/ 330 10-wide	***)**
52	1		Synchr. sprocket belt T5/ 260 10-wide	***)**
53	1		Gas cylinder GS-15-025 AA- K9189	***)**
54	2		Needle bearing NK 5/10	
55	2		Grooved ball bearing 625-2z	
56	2		Tension spring Z-075 H (rocker)	***)**
57	1		Tension spring Z-077 (ejector lever)	***)**

***) = Recommended spare part**

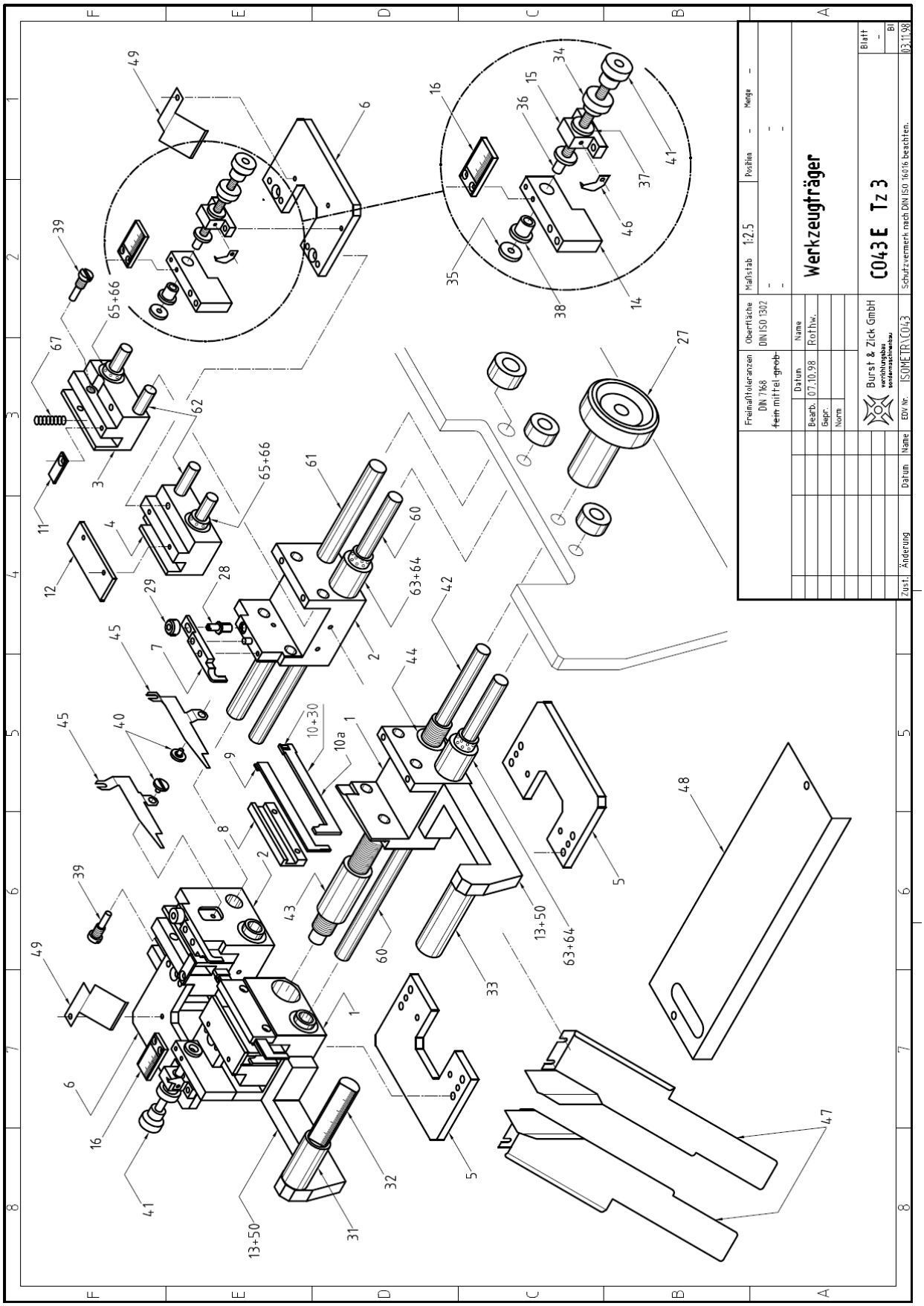

Rev.-Nr. 001/981029
Aufbau u. Antrieb
C043 AV-B Tz 2
Maßstab 1:2.5
Position
Menge
Oberfläche DIN ISO 1302
Freimaßtoleranzen DIN 7168 fein mittel grob
Datum
Name
Bearb. 28.10.98 Rothw.
Gepr.
Norm
Rev.1 gültig ab 09.97 29.10.98 Rothw.
Zust. Änderung Datum Name
EDV Nr. C:\AUFTRAEGE\C043\AVB\C043AVB.M4
Blatt
29.10.98

Tz 3 Tool carrier

Item	Qty.	Drawing-No.	Description	Rem.
1	2	C043 E Tz 3 T. 1	Bearing	
2	2	C043 E Tz 3 T. 2	Bearing	
3	2	C043 E Tz 3 T. 3	Bearing	
4	2	C043 E Tz 3 T. 4	Bearing	
5	2	C043 E Tz 3 T. 5	Plate	
6	2	C043 E Tz 3 T. 6	Plate	
7	2	C043 E Tz 3 T. 7	Bending jaw	***)**
8	2	C043 E Tz 3 T. 8	Holder	***)**
9	2	C043 E Tz 3 T. 9	Clamping die	***)**
10	2	C043 E Tz 3 T. 10	Bending die Ø 1,3 (with Tz3 T.30)	***)**
10a	2	C043 E Tz 3 T. 10a	Bending die Ø 0,8	***)**
11	2	C043 E Tz 3 T. 11	Plate	
12	2	C043 E Tz 3 T. 12	Cover plate	
13	2	C043 E Tz 3 T. 13	Scale	
14	2	C043 E Tz 3 T. 14	Bearing	
15	2	C043 E Tz 3 T. 15	Bearing	
16	2	C043 E Tz 3 T. 16	Scale holder	
27	1	C043 E Tz 3 T. 27	Handle	
28	2	C043 E Tz 3 T. 28	Eccentric pin	***)**
29	2	C043 E Tz 3 T. 29	Handle	
30	2	C043 E Tz 3 T. 30	Roller	***)**
31	1	C043 E Tz 3 T. 31	Scale holder	
32	1	C043 E Tz 3 T. 32	Scale	
33	1	C043 E Tz 3 T. 33	Scale holder	
34	2	C043 E Tz 3 T. 34	Counter nut	
35	2	C043 E Tz 3 T. 35	Cover washer	
36	2	C043 E Tz 3 T. 36	Spindle	
37	2	C043 E Tz 3 T. 37	Tapped bushing	
38	2	C043 E Tz 3 T. 38	Bushing	
39	2	C043 E Tz 3 T. 39	Screw	***)**
40	2	C043 E Tz 3 T. 40	Screw	
41	2	C043 E Tz 3 T. 41	Knurled knob	

Item	Qty.	Drawing-No.	Description	Rem.
42	1	C043 E Tz 3 T. 42	Elevating spindle	
43	1	C043 E Tz 3 T. 43	Tapped bushing	
44	1	C043 E Tz 3 T. 44	Tapped bushing	
45	2	C043 E Tz 3 T. 45	Ejector	***)**
46	2	C043 E Tz 3 T. 46	Indicator	
47	2	C043 E Tz 3 T. 47	Outlet plate	
48	1	C043 E Tz 3 T. 48	Cover	
49	2	C043 E Tz 3 T. 49	Tape inlet plate	
50	2	C043 E Tz 3 T. 50	Scale	
60	2		Shaft, hardened ∅10h6 x 230	
61	1		Shaft, hardened ∅12h6 x 230	
62	8		Shaft, hardened ∅8h6 x 60	
63	4		Steel bushing ∅20 x ∅14 x 33	
64	4		Ball cage ∅14 x ∅10 x 38	
65	4		Steel bushing ∅18 x ∅13 x 30	
66	4		Ball cage ∅13 x ∅8 x 40	
67	2		Compression spring	***)**

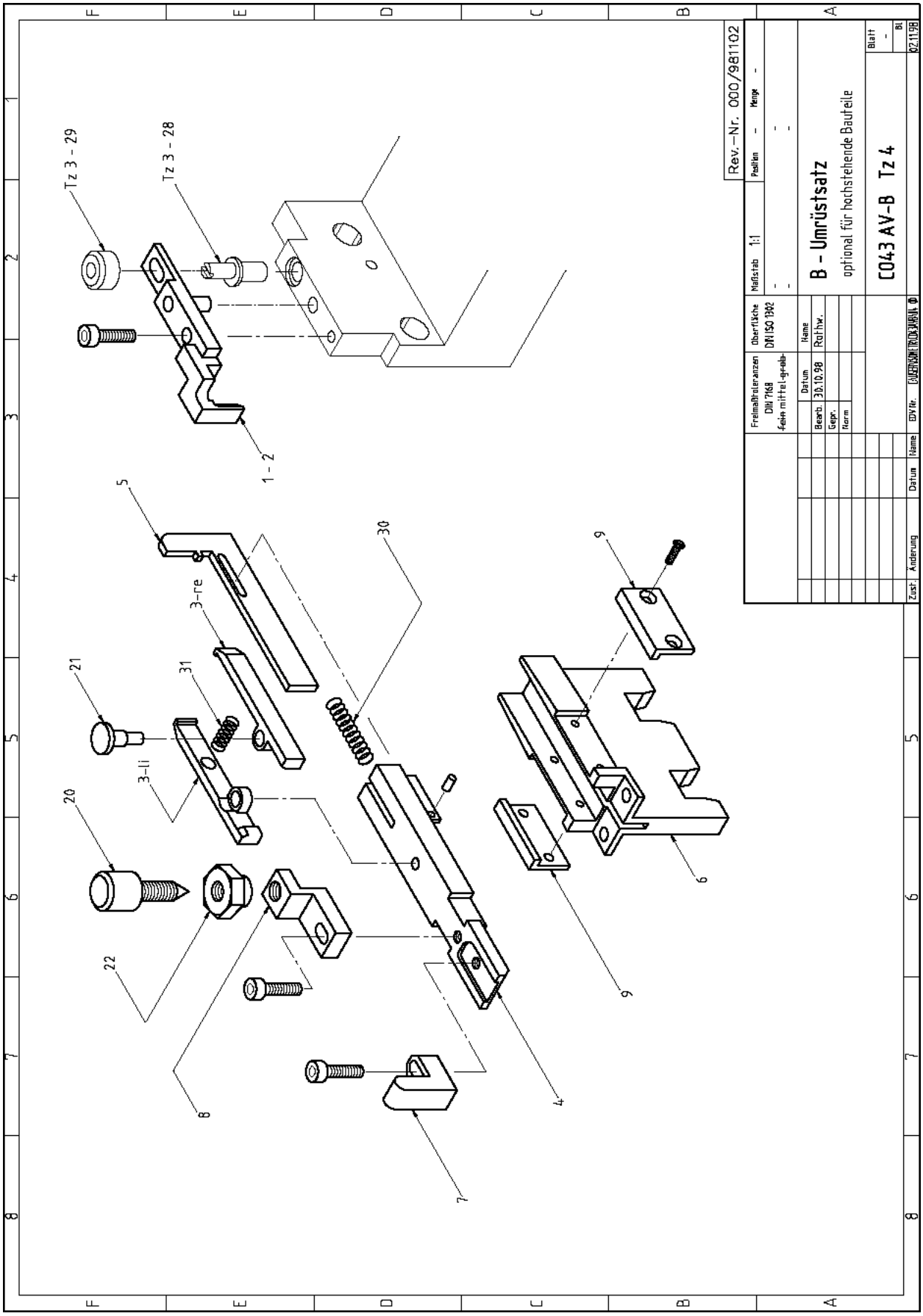
***) = Recommended spare part**


Werkzeugträger
C043E Tz3
Burst & Zick GmbH
Maßstab 1:2,5
Position -
Menge -
Oberfläche DIN ISO 1302
Freimaßtoleranzen DIN 7168 fein mittel grob
Datum 07.10.98
Name Rothw.
Bearb.
Gepr.
Norm
EDV Nr. ISOMETRIC043
Schutzvermerk nach DIN ISO 16016 beachten.
Blatt - Bl
Zust. Änderung
Datum
Name
03.11.98

Tz 4 B-Conversion set

Item	Qty.	Drawing-No.	Description	Rem.
1	1	C043 E Tz 4 T. 1	Bending die, pitch 2,5	***)**
2	1	C043 E Tz 4 T. 2	Bending die, pitch 5	***)**
3	2	C043 E Tz 4 T. 3	Bending iron	***)**
4	1	C043 E Tz 4 T. 4	Holder,bending iron	
5	1	C043 E Tz 4 T. 5	Clamping die	
6	1	C043 E Tz 4 T. 6	Holder bending unit	
7	1	C043 E Tz 4 T. 7	Angle	
8	1	C043 E Tz 4 T. 8	Adjustment	
9	2	C043 E Tz 4 T. 9	Holding rail	
20	1	C043 E Tz 4 T. 20	Knurled screw	
21	1	C043 E Tz 4 T. 21	Bolt	
22	1	C043 E Tz 4 T. 22	Knurled nut	
30	1		Compression spring	
31	1		Compression spring	

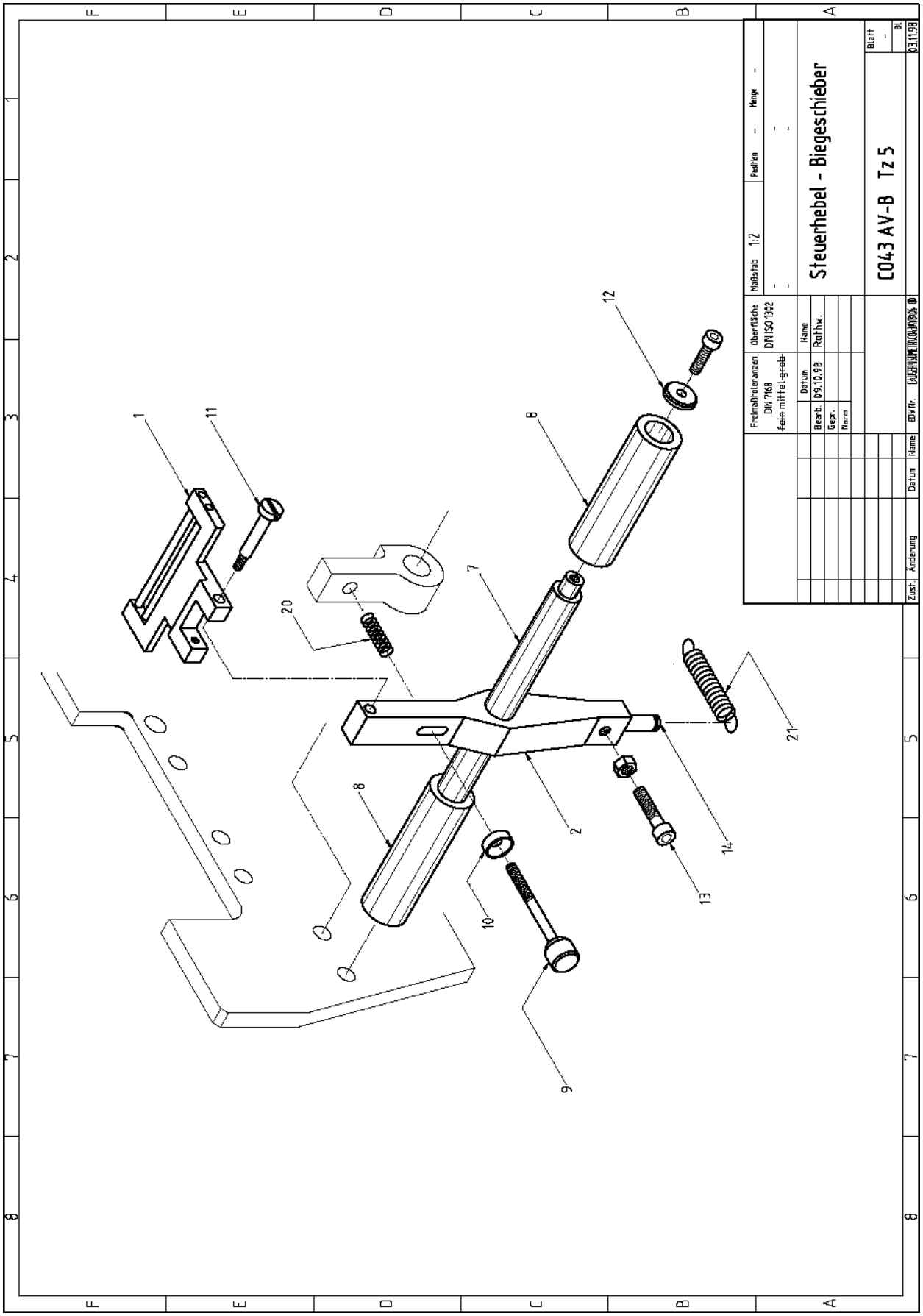
***) = Recommended spare part**


Tz 3 - 29
Tz 3 - 28
1 - 2
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3-re
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21
31
3-li
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4
9
9
6
Rev.-Nr. 000/981102
Maßstab 1:1
Position -
Menge -
B - Umrüstsatz
optional für hochstehende Bauteile
C043 AV-B Tz 4
Blatt -
Bl
Freimaßtoleranzen DIN 7168 fein mittel grob
Oberfläche DIN ISO 1302
Name
Datum
Bearb. 30.10.98 Rothw.
Gepr.
Norm
EDV-Nr.
Zust. Änderung Datum Name

Tz 5 Control lever – Bending dies

Item	Qty.	Drawing-No.	Description	Rem.
1	1	C043 E Tz 5 T. 1	Clevis head	
2	1	C043 E Tz 5 T. 2	Lever	
7	1	C043 E Tz 5 T. 7	Shaft	
8	2	C043 E Tz 5 T. 8	Distance bushing	
9	1	C043 E Tz 5 T. 9	Adjusting screw	***)**
10	1	C043 E Tz 5 T. 10	Washer	***)**
11	1	C043 E Tz 5 T. 11	Adjusting screw	
12	6	C043 E Tz 5 T. 12	Cover washer	
13	1	C043 E Tz 5 T. 13	Cap screw	
14	1	C043 E Tz 6 T. 17	Spring pin	
20	1		Compression spring	***)**
21	1		Tension spring	***)**

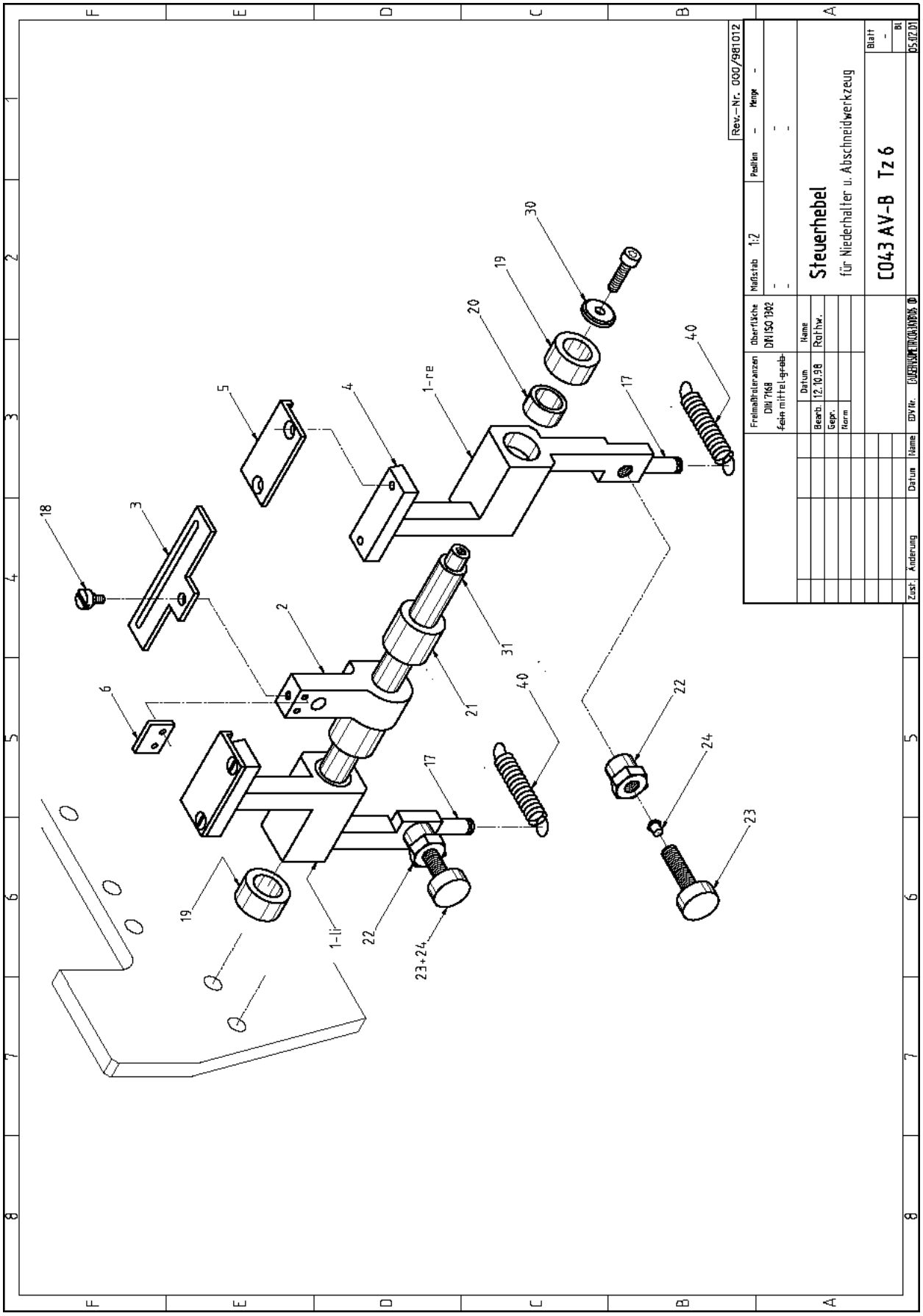
***) = Recommended spare part**


Steuerhebel - Biegeschieber
C043 AV-B Tz 5
Maßstab 1:2
Blatt -
Bl
Freimaßtoleranzen DIN 7168 fein mittel grob
Oberfläche DIN ISO 1302
Name
Datum
Bearb. 09.10.98 Rothw.
Gepr.
Norm
Zust. Änderung Datum Name
EDV-Nr.
1
11
20
12
8
7
21
2
14
13
10
9

Tz 6 Control lever – Push-down device

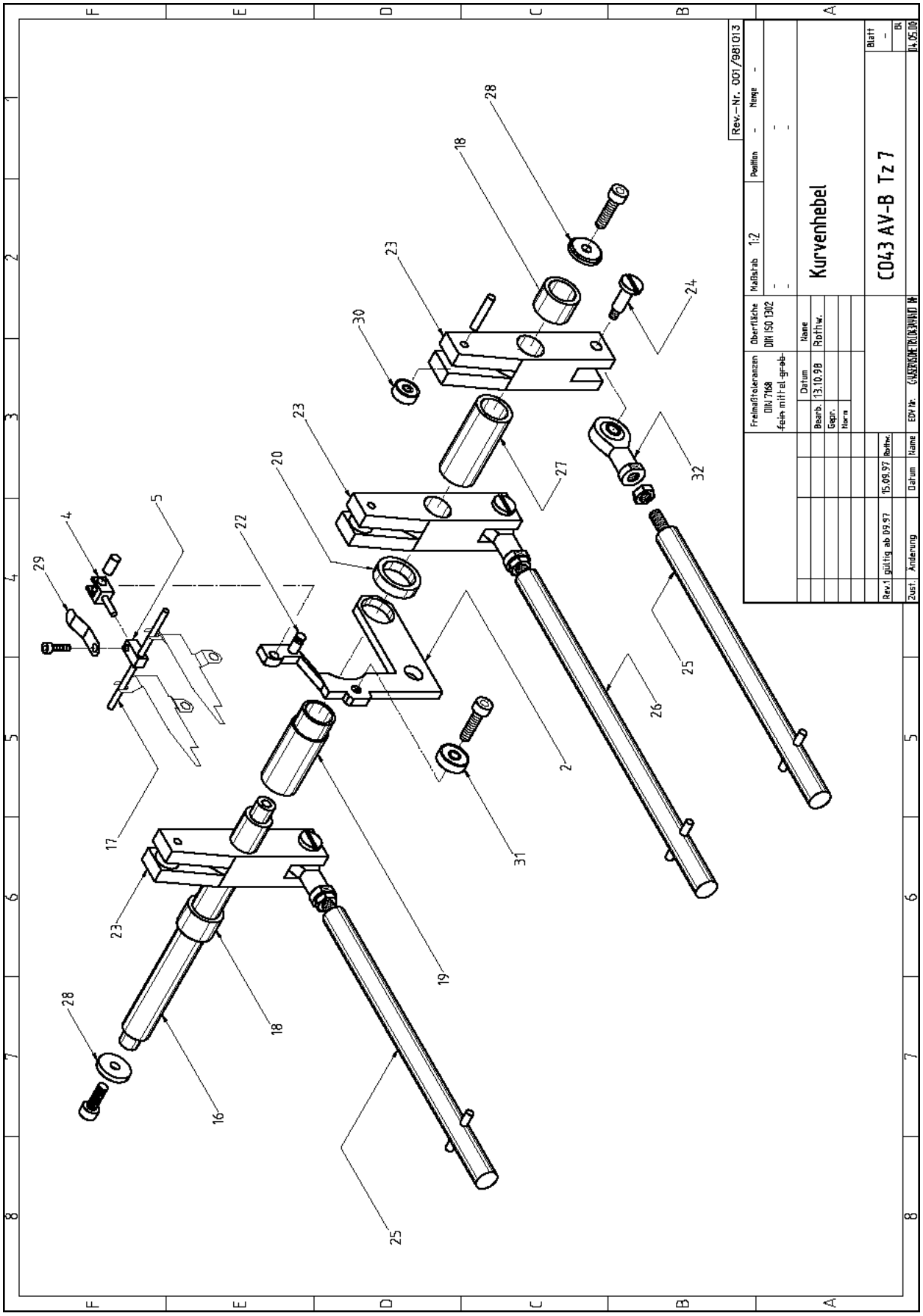
Item	Qty.	Drawing-No.	Description	Rem.
1	2	C043 E Tz 6 T. 1	Lever	
2	1	C043 E Tz 6 T. 2	Lever	
3	1	C043 E Tz 6 T. 3	Adjusting piece	
4	2	C043 E Tz 6 T. 4	Press-on plate	
5	2	C043 E Tz 6 T. 5	Return angle	
6	1	C043 E Tz 6 T. 6	Press-on plate	
17	2	C043 E Tz 6 T. 17	Spring pin	
18	1	C043 E Tz 6 T. 18	Fitting screw	
19	2	C043 E Tz 6 T. 19	Distance bushing	
20	4	C043 E Tz 6 T. 20	Bushing	
21	2	C043 E Tz 6 T. 21	Distance bushing	
22	2	C043 E Tz 6 T. 22	Nut	***)**
23	2	C043 E Tz 6 T. 23	Adjusting screw	***)**
24	2	C043 E Tz 6 T. 24	Cap	***)**
30	2	C043 E Tz 5 T. 12	Cover washer	
31	1	C043 E Tz 7 T. 16	Shaft	
40	1		Tension spring	***)**

***) = Recommended spare part**


Steuerhebel
für Niederhalter u. Abschneidwerkzeug
C043 AV-B Tz 6
Rev.-Nr. 000/9811012
Maßstab 1:2
Positionen - Menge -
Oberfläche DIN ISO 1302
Freimaßtoleranzen DIN 7168 fein mittel grob
Name
Datum
Bearb. 12.10.98 Rothw.
Gepr.
Norm
Zust. Änderung Datum Name
EDV-Nr.
Blatt - Bl.
05.02.01
1-re
1-li
23+24

Tz 7 Cam lever

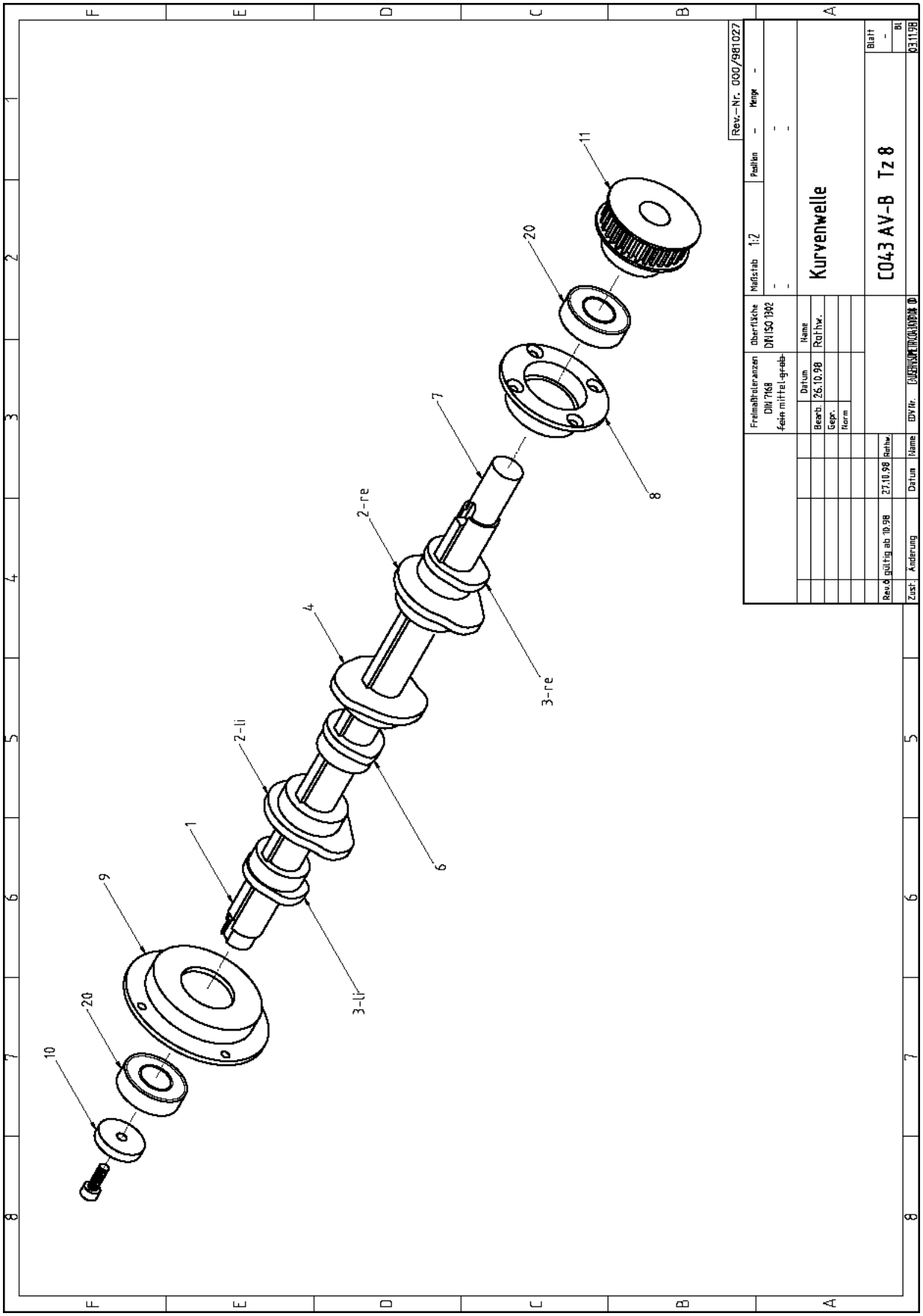
Item	Qty.	Drawing-No.	Description	Rem.
2	1	C043 E Tz 7 T. 2	Lever	
4	1	C043 E Tz 7 T. 4	Clevis	
5	1	C043 E Tz 7 T. 5	Joint	
16	2	C043 E Tz 7 T. 16	Shaft	
17	2	C043 E Tz 7 T. 17	Shaft	
18	2	C043 E Tz 7 T. 18	Distance bushing	
19	1	C043 E Tz 7 T. 19	Distance sleeve	
20	2	C043 E Tz 7 T. 20	Adjusting ring	
22	2	C043 E Tz 7 T. 22	Spring pin	
23	3	C043 E Tz 7 T. 23	Lever	
24	3	C043 E Tz 7 T. 24	Stud bolt	
25	2	C043 E Tz 7 T. 25	Push rod	
26	1	C043 E Tz 7 T. 26	Push rod	
27	1	C043 E Tz 7 T. 27	Distance sleeve	
28	2	C043 E Tz 5 T. 12	Cover washer	
29	1	C043 E Tz 7 T. 29	Push-on spring	
30	3		Grooved ball bearing 624 -2z	
31	1		Grooved ball bearing 625 -2z	
32	3		Swivel head SGS - M6	


Rev.-Nr. 001/981013
Maßstab 1:2
Position - Menge -
Kurvenhebel
C043 AV-B Tz 7
Blatt -
Freimaßtoleranzen DIN 7168 fein mittel grob
Oberfläche DIN ISO 1302
Name
Datum
Bearb. 13.10.98 Rothw.
Gepr.
Norm
Rev.1 gültig ab 09.97 15.09.97 Rothw.
Zust. Änderung Datum Name
EDV-Nr.
04.05.00

Tz 8 Cam shaft

Item	Qty.	Drawing-No.	Description	Rem.
1	1	C043 E Tz 8 T. 1	Fitting key	
2	2	C043 E Tz 8 T. 2	Cam (cutting and forming)	***)**
3	2	C043 E Tz 8 T. 3	Cam (rocker)	***)**
4	1	C043 E Tz 8 T. 4	Cam (bending jaws)	***)**
6	1	C043 E Tz 8 T. 6	Cam (ejector)	***)**
7	1	C043 E Tz 8 T. 7	Main shaft	***)**
8	1	C043 E Tz 8 T. 8	Bearing bushing	
9	1	C043 E Tz 8 T. 9	Bearing bushing	
10	1	C043 E Tz 8 T. 10	Cover washer	
11	1	C043 E Tz 8 T. 11	Sprocket belt wheel	
20	2		Grooved ball bearing 6003–2z	

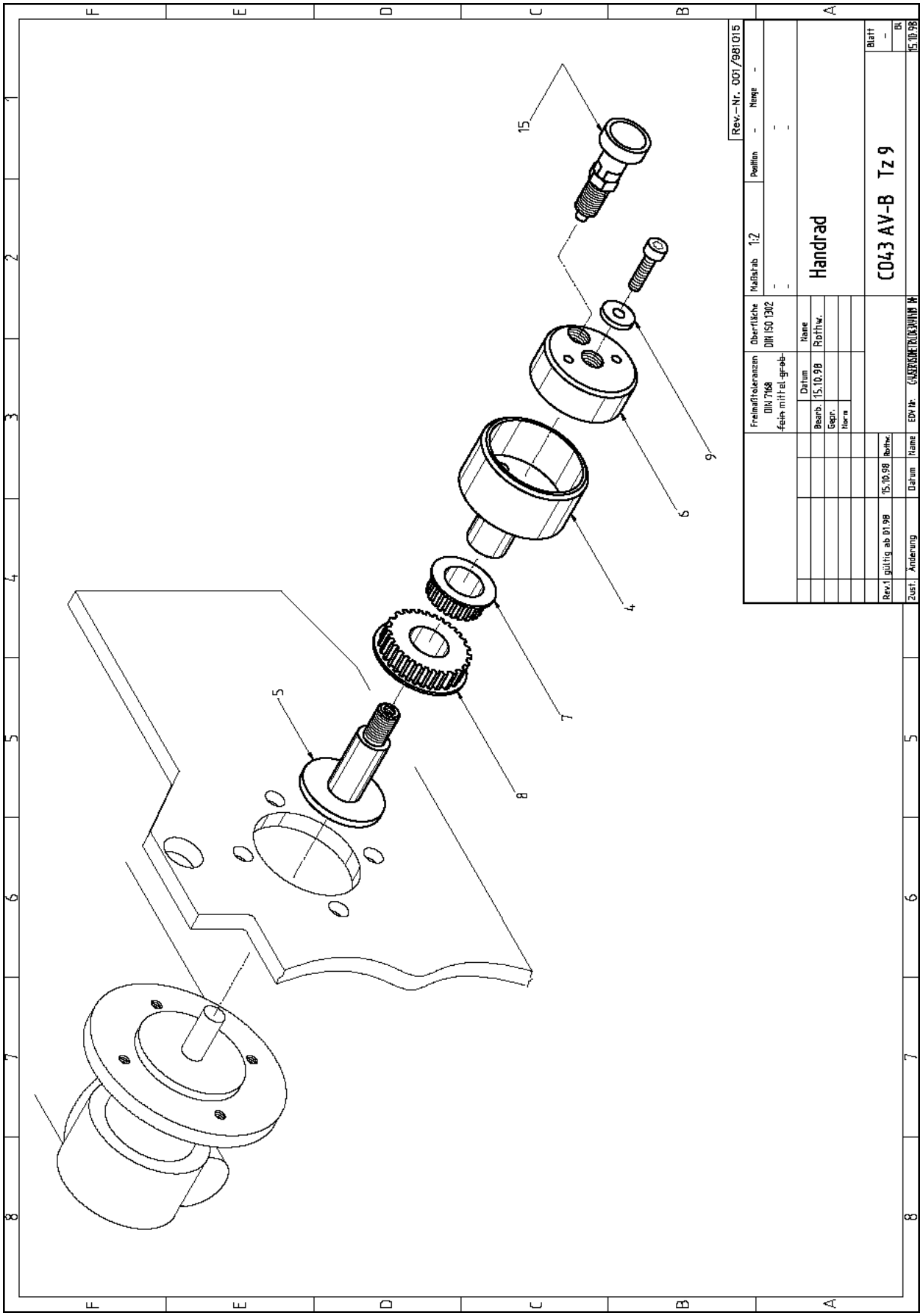
***) = Recommended spare part**


Rev.-Nr. 000/9811027
Maßstab 1:2
Positionen - Menge -
Kurvenwelle
C043 AV-B Tz 8
Blatt -
Freimaßtoleranzen DIN 7168 fein mittel grob
Oberfläche DIN ISO 1302
Name
Datum
Bearb. 26.10.98 Rathw.
Gepr.
Norm
Rev.d gültig ab 10.98 27.10.98 Rathw.
Zust. Änderung Datum Name
EDV-Nr.
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3-re
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11
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Tz 9 Hand wheel

Item	Qty.	Drawing-No.	Description	Rem.
4	1	C043 E Tz 9 T. 4	Hand wheel	
5	1	C043 E Tz 9 T. 5	Shaft	
6	1	C043 E Tz 9 T. 6	Tapped nut	
7	1	C043 E Tz 9 T. 7	Sprocket belt wheel	
8	1	C043 E Tz 9 T. 8	Sprocket belt wheel	
9	1	C043 E Tz 9 T. 9	Cover washer	
15			Click-stop pin GN 617.1-6-A	***)**

***) = Recommended spare part**

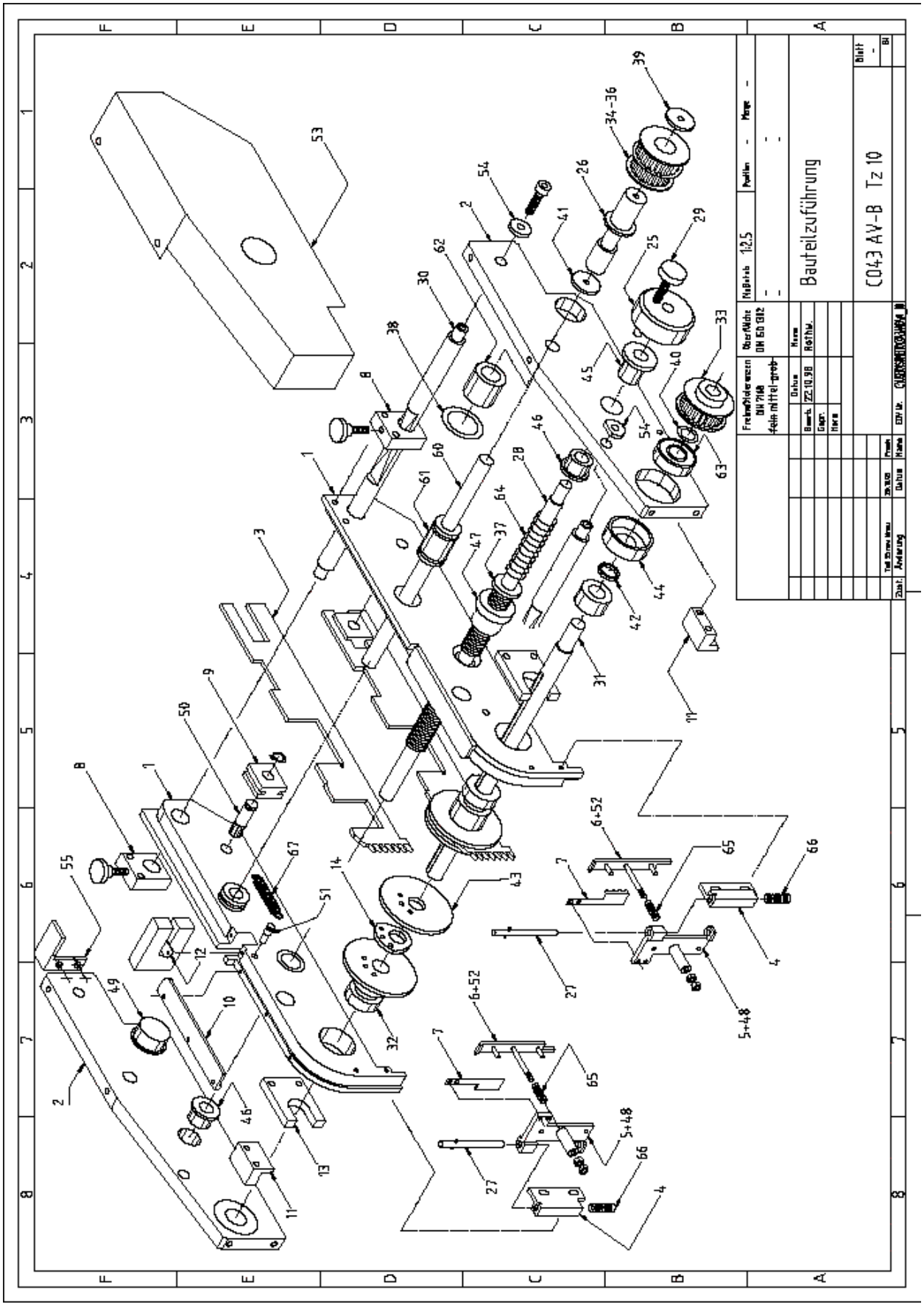

Rev.-Nr. 001/981015
Maßstab 1:2
Position - Menge -
Handrad
C043 AV-B Tz 9
Blatt -
Freimaßtoleranzen DIN 7168 fein mittel grob
Oberfläche DIN ISO 1302
Name
Datum
Bearb. 15.10.98 Rothw.
Gepr.
Norm
Rev.1 gültig ab 01.98 15.10.98 Rothw.
Zust. Änderung Datum Name
EDV Nr.
15.10.98
15
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Tz 10 Component feed

Item	Qty.	Drawing-No.	Description	Rem.
1	2	C043 E Tz 10 T. 1	Guide plate	
2	2	C043 E Tz 10 T. 2	Feed, lateral part	
3	2	C043 E Tz 10 T. 3	Grasper	***)**
4	2	C043 E Tz 10 T. 4	Adjusting plate	
5	2	C043 E Tz 10 T. 5	Pitch plate	
6	2	C043 E Tz 10 T. 6	Skid	
7	2	C043 E Tz 10 T. 7	Backstop	***)**
8	2	C043 E Tz 10 T. 8	Plate	
9	2	C043 E Tz 10 T. 9	Grasper guide	
10	2	C043 E Tz 10 T. 10	Guide rail	
11	2	C043 E Tz 10 T. 11	Centering angle	
12	2	C043 E Tz 10 T. 12	Plate	
13	2	C043 E Tz 10 T. 13	Distance plate	
14	2	C043 E Tz 10 T. 14	Equiangular washer	
25	1	C043 E Tz 10 T. 25	Hand wheel	
26	1	C043 E Tz 10 T. 26	Shaft	
27	2	C043 E Tz 10 T. 27	Shaft	
28	1	C043 E Tz 10 T. 28	Elevating spindle	
29	1	C043 E Tz 10 T. 29	Spindle	
30	2	C043 E Tz 10 T. 30	Distance spindle	
31	1	C043 E Tz 10 T. 31	Guide spindle	
32	2	C043 E Tz 10 T. 32	Driving wheel	
33	1	C043 E Tz 10 T. 33	Sprocket belt wheel	
34	1	C043 E Tz 10 T. 34	Sprocket belt wheel	
35	1	C043 E Tz 10 T. 35	Sprocket belt wheel	
36	1	C043 E Tz 10 T. 36	Flanged wheel	
37	2	C043 E Tz 10 T. 37	Distance washer	
38	1	C043 E Tz 10 T. 38	Distance washer	
39	1	C043 E Tz 10 T. 39	Washer	
40	1	C043 E Tz 10 T. 40	Washer	
41	1	C043 E Tz 10 T. 41	Washer	
42	1	C043 E Tz 10 T. 42	Washer	

Item	Qty.	Drawing-No.	Description	Rem.
43	2	C043 E Tz 10 T. 43	Washer	
44	2	C043 E Tz 10 T. 44	Bushing	
45	1	C043 E Tz 10 T. 45	Bushing	
46	2	C043 E Tz 10 T. 46	Bushing	
47	2	C043 E Tz 10 T. 47	Bushing	
48	2	C043 E Tz 10 T. 48	Bushing	
49	1	C043 E Tz 10 T. 49	Pin	
50	2	C043 E Tz 10 T. 50	Pin	
51	2	C043 E Tz 10 T. 51	Spring pin	
52	2	C043 E Tz 10 T. 52	Stud bolt	
53	1	C043 E Tz 10 T. 53	Cover	
54	4	C043 E Tz 10 T. 54	Cover washer	
55	1	C043 E Tz 10 T. 55	Stop	
60	1		Shaft, hardened ∅10h6 x 230	
61	2		Steel bushing ∅20 x ∅14 x 33 Ball cage ∅14 x ∅10 x 38	
62	1		Needle bearing NKI – 10/20	
63	2		Grooved ball bearing 6001-2z	
64	1		Compression spring D- 189	
65	2		Compression spring D- 030 B	
66	2		Compression spring D- 103	
67	2		Tension spring	

***) = Recommended spare part**


C043 AV-B Tz 10
Bauteilzuführung
Maßstab 1:2,5
Position
Menge
Datum
Name
Bearb. 22.10.98 Röthig
Gepr.
Norm
Freiheitsgrad
Oberflächen
Blatt
Änderung
Datum
Prüfen
Norm
ZEICHNUNGSNUMMER