Working Instruction english

Revision	D
Datum	17.03.2006
Ersteller	NH

This operating instruction is not subject to the updating

Vor Beginn aller Arbeiten Betriebsanleitung lesen!

Read operating instruction before beginning of all works!

Betriebsanleitung immer AUFBEWAHREN! griffbereit am Gerät

Always KEEP operating instruction! In a ready hand way at the device

Achtung: Vor Inbetriebnahme Gerät auf mängelfreien Zustand und technisch einwandfreie Funktion kontrollieren.

Caution: Before starting-up check device on faultless condition and technically perfect function.

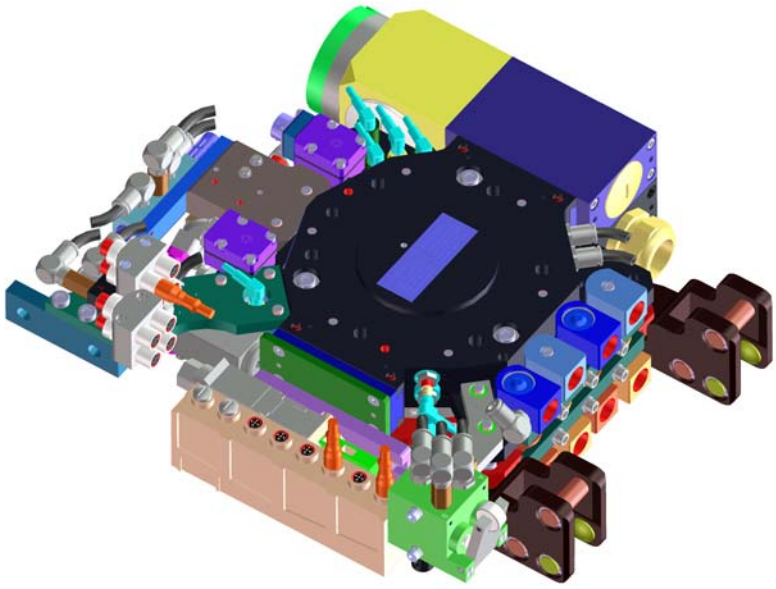
Das Original ist die deutsche Fassung

The German version is the original

Tool changer for industrial robot typ 91489

carrying force 25 KN

1-91489-2-FT524-AAAB-Y10-LI
1-91489-0-LT524-AAAB-Y10-LI



This coupling is a high-quality product with particular focus on high functionality, simple handling, safety and reliability. As a technical component the coupling is designed for the use in the industrial field and for operators who were trained by specialists with the handling of technical systems / tools.

We offer an individual customer service and are ready to support you without obligation in all questions regarding the use and operation of the coupling or possibly arising problems. Please contact our customer service. We would be pleased to be able to assist you.

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2 General

This manual contains all regulations for operation, commissioning and maintenance of the Tool changer 91489.

All information and references in this operating instruction were compiled under consideration of the valid regulations, the current engineering development stage as well as our years of knowledge and experiences.

The translations of the operating instruction was made according to best knowledge.
However, we can not take over any liability for translation errors. The German version of this operating instruction is decisive.

The actual scope of delivery can possibly deviate from the explanations and drawings described in this document in case of special designs, when making use of additional order options or due to the latest technical changes.
Contact the manufacturer in case of arising questions.

☞ This operating instruction is to be carefully read through before the beginning of all works at or with the device, in particular before commissioning!
The manufacturer takes over no liability for damages and failures due to disregard of operating instruction.

The operating instruction is to be kept right next to the device and accessible to all persons working at or with the device.
It is not permitted to hand over the operating instruction to third parties, otherwise if this situation should arise it can lead to compensation claims.
Further claims reserved.

We reserve the right to make modifications at the product within the framework of the improvement for the application characteristic features and further development.

3 Safety instructions

The usage of this coupling requires from the operator to observe all relevant industrial safety regulations. It is up to the duty of care of the user of the coupling to plan protective measures which guarantee an orderly operation and to control their realization.

☞ Danger references
In case of wrong product selection, inappropriate use and non-effected maintenance, there is a danger that damage can be caused to persons and objects. This may result from

- dangerous spreading of medium or individual particles / coupling parts
- improper functioning of connected installations or tools

☞ In particular, the operator must guarantee that

- coupling is always used according to specification.
- coupling is always used in an orderly, functionable way
- operating instruction is always available to the operators in a complete and readable form.
- operating personnel is sufficiently informed about the operating and safety instructions of the coupling.
- for repair, couplings are returned to our factory
- during operation of the coupling, no safety devices are removed and/or set out of function.
- coupling is not pressurized before mounting/dismounting of the coupling.

☞ The following items have to be observed after assembly and installation as well as before the first use of the coupling:

Check again whether all screw-type connections are firmly fixed.

Before the first use of the coupling, a functional test must be made
(see "Maintenance and functional test").

4 Proof documentation according to EC machinery guidelines

4.1 System description

The tool quick change system is a mechanic, electric, pneumatic and hydraulic interface between industrial robots and working-, assembling- or handling tools.

Scope of delivery:
The tool quick change system consists of:

- tool changer part – robot side 1-91489-2-FT5..–....-Y10-..
- tool changer part – tool side 1-91489-0-LT5..–....-Y10-..

At least two tool sides belong to each robot side to enable tool change.

Scope of delivery does not include:

- connection to energy supply- and cooling circuits
- control system and connection to control system
- assembly at robot and tool
- separating protection units.

4.2 General description

The tool change system is designed according to the modular principle. According to its requirement it can be equipped with different or fluidic transmission elements or mechanic, pneumatic or electro modules. The compact construction with integrated locking cylinder enables a quick tool change of high loads at low own weight and minimum interference contours. With reference to the robot and tool side the standard version has no interference contours protuding over the plate thicknesses. The coupling mechanism has an automatic and free from play lock, as a result of this the tool remains locked over a longer period also in case of pressure drop.

An unintentional disconnection of the tool can be prevented by an optional mechanical-pneumatical safety circuit. The disconnection energy can only be switched on by activating a mechanical controlled valve (local control cam) whose function can be inquired sequentially and whose sole failure does not lead to the loss of the safety function when designing the control accordingly.

An optional electric saftey circuit can also guarantee by means of an safety switch and the operator that the energy for reswitching the valve is available in the parking position only.

Tools are preferably parked vertically into tool parking stations according to the gravity principle. Possible parking techniques:

- gravity parking with guiding bolts and supporting roll type 95812
- gravity parking with double sword guidance type 95813.

If a malfunction occurred after a crash robot and tool side can be disconnected by means of an emergency separation facility.

While the tool changer type Z03 can be operated in pull-in and push-pull technique type 91489-Y10 is provided for force neutral push-pull technique.

4.3 Duly usage

The tool change system is no independent machine within the meaning of the EC machinary guidelines and is only allowed to put into operation in case that the total facility corresponds to the instructions of the machinary guidelines.

The tool change system is exclusively for automatic docking, disconnecting and changing of tools at industrial robots in the area of the tool parking stations within the separating protection units.

Outside the area of the tool parking stations a disconnection/tool change is only allowed in case that safety is guaranteed on the basis of other measures.

Couple procedures are only allowed with depressurised fluidic elements and voltage free electro connectors.

The provided kind of operation is push-pull-technique, i.e. robot carries out couple movement and tool changer locks the connected changer halves. Besides the valve spring forces of the fluidic elements and the frictional forces the robot must take up no further reaction forces (force neutral push-pull technique) in the process.

- Compressed air connection for locking unit: 6 and/or 12 bar
- max. carrying force F_T = 25 KN ,see 2.
- Max. torque moment (robot axis 6): M_T = 5,000 Nm
- max bending moment M_B = 5,000 Nm
- Periodic intervals for maintenance: 800,000 up to 1.5 million couple cycles (depending on operating conditions)
- Technical data of electro plugs, fluidic elements: see 3.
- Surrounding conditions (storage and operation condition)
  temperature: +5° up to +40° C
  relative humidity of air: 20 up to 80%

4.4 Obvious, improper use

- The maximum static holding load must not be exceeded. Acceleration values have to be considered by the robot movement.
- In case of compressed air drop/failure (especially locking line) it is not allowed to work on; it is merely allowed to finish cycle of work. The free from play lock of the coupling mechanism is still kept in case of air pressure drop but it must not be used for automatic and set-up operation.
- The maximum pressure for the locking unit and the fluidic elements must not be exceeded
- The maximum current and tension values for the electro plug connectors must not be exceeded.
- The tool change system may be assembled, installed, adjusted and maintained by authorized and skilled staff only.
- It is not allowed to modify the tool change system without any authoration or to change it otherwise.
- Connection cables and hoses have to be provided with a tension relief which allows a movement of the subassembly elements but not too strong tension loads.
- The tool change system may be used in the provided kind of operation only.
- The tool change system at normal operation is basically to be used only in case that all protection units of the total system are available, regularly installed and totally operative.
- In case that there is installed a safety circuit it is not allowed to make it ineffective.
- After assembly, a crash or a repair the tool changer must only be put into operation (again) if the faultless quality of the components and the correct function especially of the coupling mechanism(automatic, free from play lock) was stated.

5 Technical data

Overall height 96 mm; main dimensions according to drawing.

Weights:

- robot side = 9.2 kg at max. population in standard version
- tool side = 6.2 kg at max. population in standard version.

Quick change system;
the robot can move to the final position with up to 100% speed.

Connecting time: approx. 1,5 s
Disconnecting time: < 1 s
(without any movement of the robot in push technique).

Compressed air connection (at the locking unit): 6 bar and/or 12 bar
(see data sheet for loads).

Max. carrying force: 25 kN
(see load diagram on next page).

Position repeatability:

- X-axis/ Y-axis: ± 0,03 mm
- Z-axis: ± 0,01 mm

Mass center of gravity (in relation to robot flange) = 58 mm.

Periodic intervals for maintenance:
800.000 up to 1.5 million couple cycles depending on operating conditions.

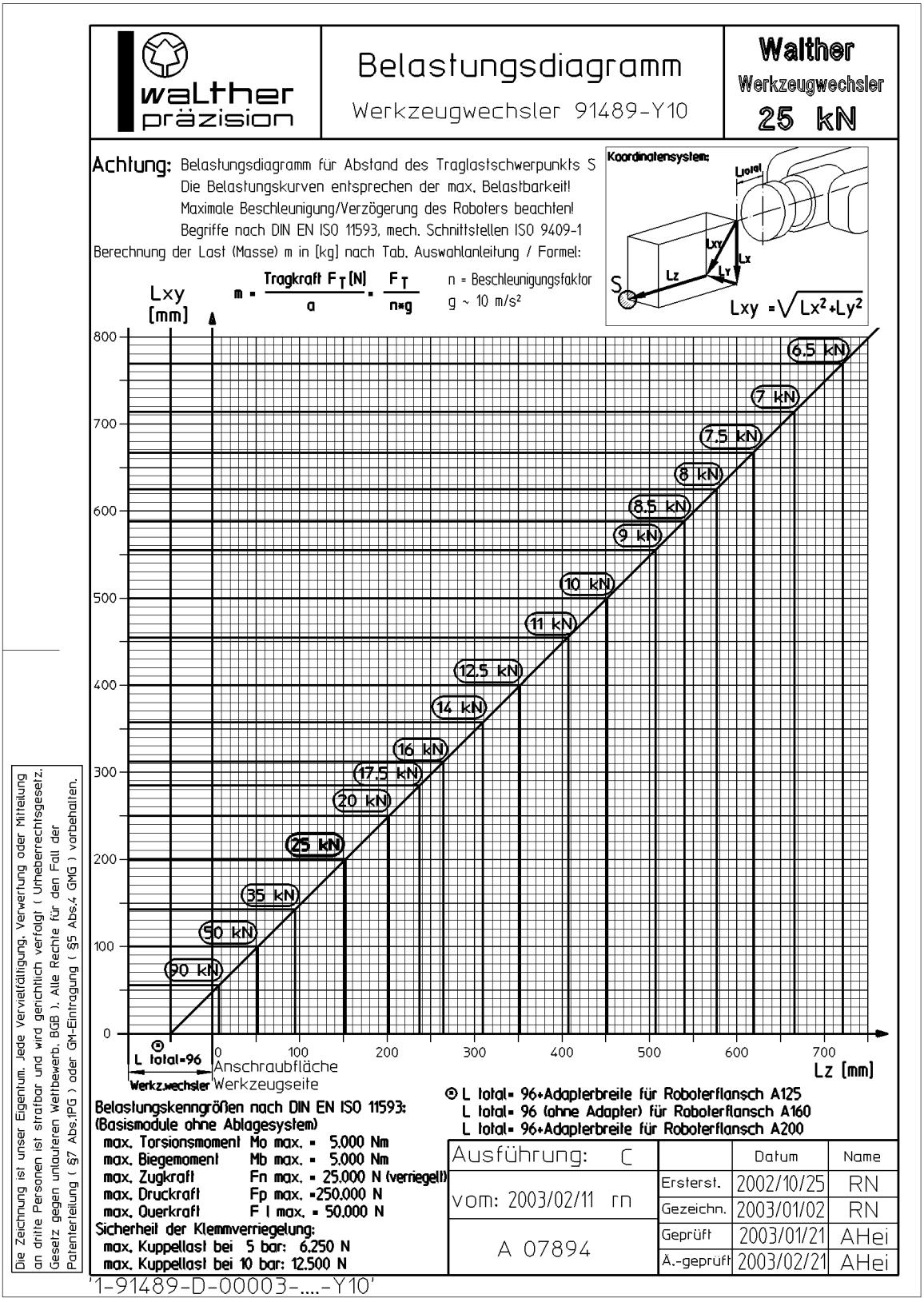
In case of function mode push-pull technique the robot takes over the connection process until just before final position und must overcome the reaction forces of the elements:

- elements without pressure:
  - reaction force of each cooling water element = 230 N
  - reaction force of each compressed air element = 60 N
- elements pressurized:
  - reaction force of each cooling water element = 250 N (5 barg)
  - reaction force of each compressed air element = 205 N (6 barg).

The tool changer only pulls in the residual stroke and locks large loads with 5 bar cylinder pressure.
After the first relief (load over head) the tool changer has also safely locked loads
which are higher than the maximum
coupling load up to the load upper limit.
Also see section 5.2 functional sequences

ATTENTION:
Please observe load statements of the robot manufacturer

Technical data



6 Description of equipment

Max. 8 pressure or cooling water elements can be mounted in any combination (sideways assembly):

Medium	Type	Nominal bore	C_v	Max. pressure (barg)	Connection	Housing material	Valve (robot side)	Valve tool side
Compressed air	N6/K6	10	3,75	10	G 1/2 L 90°	AL hardcoated	X	-
cooling water	N7/K7	10	3,75	10 (5-80°C)	G 1/2 L 90°	Stainless steel	X	X

Extras:
Elements in other materials, elements for high pressure.

Necessary cooling water quality
- The cooling water used should be processed by a sequential array of softening, desalination, degas and filtration equipment.
- With regards to particle contamination the cooling water should not be worse than potable water. A cleanliness to NAS 1638 CLASS 8 (ISO 4406: 17/14) is sufficient.
  The central filtration should work automatically and have a max. mesh width of 100 µm.
- The remaining hardness of the cooling water should not exceed 1° dH after processing.
  (1° dH = 1.787 French hardness = 1.25 English hardness).
  1° dH equals 10 mg calcium (CaO) or 7.14 mg magnesium (MgO) in 1 l water
- As protection against boiler scale and corrosion the p_h ought to be ≥ 9.2 (= alkaline) and the water should be degassed of carbon dioxide (CO_2) and oxygen (O_2)..

2 mounting locations are available for electro plugs which can either be equipped with single plug housings or combination plug housings for different applications.

6.1 Application: welding current

Type	Number of poles	Rated voltage	Rated current	Connetion cross section	Connection	Cable-Ø	Housing material	Contact material
95285-Z05	2 + PE	630 V 630 V 630 V	* 110 A * 135 A * 150 A	16 mm² 25 mm² 35 mm²	Pg 29 Pg 29 Pg 29	24 ... 28 mm	POM	Silver plated

Extras: Receptacle for primary connector 25 or 35 mm² instead of Pg 29 on the robot side

*depending on cable

6.2 Application: control current

Type	Number of poles assembly group III	Rated voltage	Rated current contacts	Connection cross section	Connection	Cable-Ø	Housing material	Contact material
95285 -Z02	36 + PE 24 + PE 27	250 V 250 V 24 V	16 A 16 A 16 A	1.5 mm^2 1.5 mm^2 1.5 mm^2	Pg 29 (Pg 9) Pg 29 (Pg 9) Pg 29 (Pg 9)	24 28 24 28 24 28	POM (Al)	Silver plated

Extras:
- hand connector 25-way with HAN mounting housing
- hand connector 26-way to MIL 26482instead of Pg 29
- 2 x Pg 29
- electro plug shielded for bus data, contacts gold plated

6.3 **Application: power current** and control current combination ("servo guns") in combined plug housing

Type	Number of poles Assembly group III	Rated voltage	Rated current contacts	Connection cross section	Connec-tion	Cable-Ø	Housing material	Contact material
95285 -Z13	36 + PE 6 + PE	250 V 400 V	16 A 21 A	1.5 mm^2 2.5 mm^2	Pg 29/ Pg 21 Pg 29/ Pg 21		AL	silver plated

Extras:
- electro plug shielded; contacts gold plated
- variable number of poles up to 36 +PE of each contact insert
- variable cable entry
- integrable connection block for sensors and actuators

Tool changer can be provided with different modules/equipment packages.
An operative unit with adjusted signal transmitters for the inquiry of the plunger position (lock) results from the modules no. 0 and no. 2.
The basic module no. 1 must not be operated without signal transmitters, damage danger!

6.4 Funktions- und Basis-Module

Lfd. Nr.	Mechnik-Module	Pakete
1	**1-91489-B-FT500-....-Y10**	**Basismodul Roboterseite**
2	**1-91489-B-LT500-....-Y10**	**Basismodul Werkzeugseite**

6.5 Signal transmitter

Marking	Type	Inquiry condition	Mounting position	Equipment
SE1.1	Limit switch	Docking control: docked	plate robot side (left)	Standard
SE1.2	Limit switch	Docking control: docked	plate robot side (right)	Standard
SE1R	Proximity switch	Lock locked (cylinder "IN")	plate robot side (assembly side)	Standard
SE1V	Proximity switch	Lock unlocked (cylinder "OUT")	plate robot side (docking side)	Standard
SD1	Press switch	Pressure control for unlocking	Holding device robot side	Extras (safety circuit)
SE2	Safety switch with control switch	Parking position achieved	Robot side	Extras at the electric safety circuit

7 Description of installation (standard version) Fehler! Textmarke nicht definiert.

7.1 Assembly

Before assembly the tool changer as well as all moving parts and the subassembly elements have to be checked for damages and contaminations and these must be eliminated.

7.1.1 Robot assembly

See assembly instruction item 7.3

- For robot mounting the tool changer is provided with a flange to ISO 9409-1-A160.
- Assembly of coding pin (e.g. parallel pin 10x20) at the flange of the robot hand.
- Insert robot side of the tool changer into the centering of the robot flange; adjust by turning to the coding pin and press down.
- Apply adhesive Loctite 242 to 6 fillister head screws DIN 912 – M 10x55 (10.9) for safety reasons, screw and then draw them up crosswise.
  Torque = 62 Nm.

Note:
Plain washers (item 31) must absolutely be available.

7.1.2 Disassembly

- Prior to the disassembly the subassembly elements and electro plugs are to be taken off or hoses and cable connections are to be loosened.
- Unscrew the 6 fillister head screws and pull off the tool changer half from the robot flange.
- If the tool changer is very close it can be loosened by means of 2 pulling-off screws DIN 912 – M 8x50. For this purpose loosen 2 screws item 18 and screw in pulling-off screws.

CAUTION!
Then apply again adhesive Loctite 242 to the original screws item 18 and 20 for safety reasons, screw in and tighten them.

Torque = 32 Nm. (10.9)

7.1.3 Tool assembly

Please find mechanical interfaces/flanges in appendix.
See mounting note item 10.4

Fastening at the tool on the graduated circle diameter 160

- Assembly of coding pin (e.g. parallel pin) at the tool flange.
- place tool side of the tool changer onto the centering shoulder of the tool flange; levelling by turning to the coding pin and press down.
- Apply adhesive Loctite 242 to 6 fillister head screws DIN 912 – M 10x40 for safety reasons, screw them in and then draw them up crosswise.
  Torque = 62 Nm. (10.9)

7.1.4 Disassembly

CAUTION!!

Disassembly only when tool is parked and secured!

- Prior to the disassembly the subassembly elements are to be taken off or hose and cable connections are to be loosened.
- Unscrew the 6 fillister head screws and pull off tool changer half from tool flange.

Caution!

Graduated circle 125 may not be used for changer with 25 kN.

7.2 Pneumatic installation

7.2.1 Installation of locking cylinder

Caution!

Do not use any sealing materials whose particles can come into the locking cylinder and lead to functional impairment!

Installation of connections between pneumatic control and connections A and B of the cylinder according to pneumatic plan and/or connection to the compressed air supply.

Pneumatic plan see appendix II.

Caution!

Use only valves which open and close overlapping-free.If valves are used that do not guarantee this function with a plunger in an undefined position which pressurizes both lines, the tool changer may disconnect in an uncontrooled way and the tool can fall down. Due to this reason, we recommend to use the series MARK, L, ISO and CL of Numatics.

7.2.2 Installation of compressed air elements

Caution!

- **Do not use any sealing materials whose particles can come into the locking cylinder and lead to functional impairment!**
- **Tube and hose system must be cleaned before installation/start-up!**
- **The subassemby elements must not be connected to rigid pipes in order to keep floating position in any case.**
- **Connecting hoses are to be held with a suitable support attachment (tension relief).**

Installation of flexible, fluidic connections between the adaptor elements with the energy supply and/or control. Installation of flexible, fluidic connections between coupling elments with the tool.

7.3 Hydraulic installation

7.3.1 Installation of locking cylinder

Not planned.

7.3.2 Installation of cooling water elements

Caution!

- **Do not use any sealing materials whose particles can come into the elements and lead to functional impairment!**
- **Tube and hose system must be cleaned before installation/start-up!**
- **The subassemby elements must not be connected to rigid pipes in order to keep floating position in any case.**
- **Connecting hoses are to be held with a suitable support attachment (tension relief).**

Installation of flexible, fluidic connections between the adaptor elements with the cooling water supply. Installation of flexible, fluidic connections between coupling elements with the tool.

7.4 Electro installation (standard)

7.4.1 Installation of sensors (signal transmitters)and acutators (valve electromagnets)

The signal transmitters are adjusted at factory; electro installation must still be carried out if necessary.
Sensors and actuators have plug connections in the standard version.
Depending on the installation package and scope of delivery connection is carried out via connection cable to the signal plug, interbus module or actuator sensor box.
See 3rd equipment description
electro modules nos. 3, 5, 7,....

Caution!

The connection cables must be installed and fastened in such a way that they cannot be damaged when thetool changer is connected, when mounting them at the robot or during operation.

Docking controls SE1.1 und SE1.2

The built-in limit switches are switched in case that the coupling plates are docked (distance size = 0 and/or plate distance = 12 mm).

Lock controls SE1R and SE1V

- SE1R is switched if the piston of the locking cylinder is pulled in (= IN). In case that the coupling plates are docked the locked position is indicated.
- SE1V is switched if the piston of the locking cylinder is extended (= OUT). Thus indicates the unlocked condition.
- In case that only SE1R or SE1V is required and a proximity switch is removed, a threaded pin.
  DIN 913 – M 8x1x 50 must be installed and secured with a hexagon nut!

Caution

Carefully mount threaded pin to avoid damage of the plastic socket in the cylinder.

1. Before the assembly of a proximity switch one of the both nuts of the proximity switch has to be removed.

2. Observe that the PG-connection of the screwed cable gland when mounting to the electro connection can be adjusted in such a way that it shows into a defined direction:
   - overturning of the plastic thread up to 180°.
   - by changing the thread side (turn angle) up to 360°.

7.4.2 Adjustment of docking controls

- The limit switches must be adjusted in such a way that they switch max. 0.3 mm before reaching the distance size 0 and/or plate distance 12 mm.
- Adjustment is made easier by means of assembly wrench BM-01-124-001 and adjusting tool BM-01-139-001.
  The position of the round nuts must be secured with Loctite in the process.

7.4.3 Adjustment of locking controls **SE1V** und **SE1R**

SE1V:

1. It is possible to adjust the proximity switch in coupled and uncoupled situation of the WALTHER tool changer.

2. The proximity switch in the **SE1V** position has to be connected with an electronic testing device which is able to supply the current for the proximity switch and to show its electrical operation position (ON or OFF).

3. The proximity switch has to be carefully and slowly screwed in until its electrical operation position ON is indicated by the electronic device.

4. After that the proximity switch is turned in so far more further that the angle plug of the connecting cable protrudes out of the plate cut out in an inclined way to avoid a too strong bending of the cable.

Caution!

Carefully assemble the proximity switch to avoid damage of the plastic socket in the cylinder.

5. Check whether the proximity switch is well adjusted by driving the piston several times out and in. Please observe during this procedure whether the electronic testing device indicates the signal ON in every pulled in position of the piston.

6. Couple and uncouple the tool side at least three times and observe electrical operation position of the proximity switch during these procedures.
   (The coupled situation of the whole tool changer means that both sides are connected **and** locked.)

7. If the electronic testing device shows in every case the changing in the position of the locking piston it is well adjusted. If not the proximity switch has to be screwed out by several turns and the procedure has to be restarted from (item D).

SE1R:

The adjustment of the proximity switch **SE1R** has to be carried out in the same way. But the above mentioned procedure must begin with a piston in the extended position. The adjustment of **SE1R** must be carried out without the tool side

7.4.4 Installation of signal current plug Pg 29 (screwed cable gland Pg 29)

Caution!

The insert sealing of the screwed cable gland must be suited to the cable diameter! If necessary the insert sealing must be exchanged.

Signal plug with plastic housing

Cable diameter	Colour code	Part-No.	Delivey condition
11 – 15.5	white	7-132- E 155/16	-
14 – 18,0	blue	7-132- E 155/18	-
17 – 20.5	brown	7-132- E 155/20	-
20 – 25,0	orange	7-132- E 155/25	-
24 – 28,0	Light yellow	7-132- E 155/28	X

Installation sequence

1. Disassembly of parallel pins item 28/67 by means of a hammer ormandrel Ø 7. Pins with female thread can be removed with a suitable pull off device.

2. Push electro pin sideways out of the guide.

3. Release the 4 countersunk head screws M5 with a hexagon screw driver SW 3.

Attention:

Screws are not secured against falling out.!

4. Mark fitting position of the socket and/or pin insert to the housing part with a coloured pencil.

5. Pull socket/plug insert holder out of the electro plug housing part.

6. Take off circlip for shafts with circlip pliers.

7. Linearly pull out socket/plug insert (insulating body).

8. Lead electro cable through screwed cable gland and circlip for shafts.

9. Dismantle line and strip the insulation of the single conductors, both according to dimension.

Description of installation

10. Crimp (4 point crimping) single conductor to contact socket/contact pin.
    Strands must be visible in window after crimping.

11. Absolutely avoid solder beads at the outside of the contacts when soldering

12. Pre-plug contact sockets into the rear of the socket insert (contact pins in pin insert), row for row. Blind bores must be sealed with blanking plugs.

    Caution!
    Please observe position of the earth contact!

13. Linearly slide in contact sockets/ contact pins with a WALTHER assembly tool (inserting tool) until they snap in – row for row.

14. Check the perfect snap in by a slight pulling at the single conductors.

15. Disassemble the contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.

16. Linearly insert ready made socket/pin insert into socket/pin insert holder.

17. Secure socket/pin insert with circlip of shafts (circlip pliers).

18. Insert socket/pin insert holder into the housing part according to the colour marking. In doing so please note that cable is pushed back so far through the screwed cable gland that a sufficient overlength remains in the plug housing.

19. Fasten socket insert holder with4 countersunk head screws M5 with a hexagon screw driver SW3.

20. Tighten screwed cable gland so that sealing and internal cable tension relief becomes effective.

21. Sideways sliding in of the electro plugs into the guide of the tool changer plate until it matches with the pin bores.

22. Beat in and counterbore parallel pins from inside through plate and electro plug.

Description of installation

Signal plug with Aluminium housing (screwed cable gland Pg 21)**Fehler! Textmarke nicht definiert.**

Shielded version **Fehler! Textmarke nicht definiert.**
1-95285-1-XX001-....-Z10
1-95285-4-XX001-....-Z10
(Cable-Ø 11,5 ... 15,5)

Unshielded version
1-95285-1-XX001-....-Z11
1-95285-4-XX001-....-Z11
(Cable-Ø 13 ... 18)

Installation sequence

1. Disassembly of parallel pins item 28/67 by means of a hammer or mandrel Ø 7. Pins with female thread can be removed with a suitable pull off device.
2. Push electro pin sideways out of the guide.
3. Release the 4 countersunk head screws M5 with a hexagon screw driver SW 3.
4. Fitting position of the socket and pin insert to the housing part is determined by a pin coding.
5. Pull socket/plug insert holder out of the electro plug housing part.
6. Take off circlip for shafts in socket and/or pin insert holder with assembly tool.
7. Linearly pull out socket/plug insert (insulating body).
8. Lead electro cable through screwed cable gland.
9. Dismantle line and strip the insulation of the single conductors, both according to dimension. In case of shielded version connect shield by interrupting the cable sheath in the area of the ring spring of the screwed cable gland (see appendix II) or internal twisting in plug housing and clamping with threaded pin.
10. Crimp (4 point crimping) single conductor to contact socket/contact pin.
    Strands must be visible in window after crimping.
11. Absolutely avoid solder beads at the outside of the contacts when soldering.
12. Pre-plug contact sockets into the rear of the socket insert (contact pins in pin insert), row for row. Blind bores must be sealed with blanking plugs.

Caution!

Please observe position of the earth contact!

13. Linearly slide in contact sockets/ contact pins with a WALTHER assembly tool (inserting tool) until they snap in – row for row.

14. Check the perfect snap in by a slight pulling at the single conductors.

15. Disassemble the contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.

16. Linearly insert ready made socket/pin insert into socket/pin insert holder

17. Secure socket/pin insert with circlip for shafts (circlip pliers).

18. Insert socket/pin insert holder with circlip for shafts according to pin coding. In doing so please note that cable is pushed back so far through the screwed cable gland that a sufficient overlength remains in the plug housing.

19. Fasten socket insert holder with4 countersunk head screws M5 with a hexagon screw driver SW3.

20. Tighten screwed cable gland so that sealing and internal cable tension relief becomes effective.

21. Sideways sliding in of the electro plugs into the guide of the tool changer plate until it matches with the pin bores.

22. Beat in and counterbore parallel pins from inside through plate and electro plug.

Connection of 2 plug with 1 hybrid cable inserts

See above process

To lead the cable from one plug nest to the other the blanking plug item 16 and/or 34 can be taken off. With a suitable tool a cable can be guided while being put through the bore. Then mount the blanking plug item 16/34 again.

Description of installation

Signal plug with aluminium housing populated with 1 to 3 pieces

1-95289-1-XX...-....-Z..
1-95289-4-XX...-....-Z..

Installation sequence

1. These signal plugs can be supplied in two different versions:

   A hard-wired version with a plug receptacle. Concerning this version only the cable plug with cable is plugged in during installation.
   The lock makes a twisting and an exchanging of the contacts impossible.
   Furthermore the direction of the outgoing cable can be determined by a twisting (max. ±90°) of the angled outlet.
   For that purpose the counternut at the angled outlet is released, the direction is adjusted and then the counternut is tightended again.

2. A version which is not wired.

   In case of this version the procedure is as follows:

A) To install the signal plug both plug carriers 1-91489-B-00023-....-Y10 need neither to be released from the robot nor the tool side.

B) The signal plugs are dismantled by removing the pilot screws (item 6) and the signal plugs out of the guide.

C) Release the 4 countersunk head screws M5 with a hexagon screw driver SW 3.

D) Fitting position of the socket and pin insert to the housing part is determined by a pin coding.

E) Pull socket/plug insert holder out of the electro plug housing part.

F) Take off circlip for shafts in socket and/or pin insert holder with assembly tool.

G) Linearly pull out socket/plug insert (insulating body).

H) Lead electro cable through screwed cable gland.

J) Dismantle line and strip the insulation of the single conductors, both according to dimension.
   In case of shielded version:
   connect shield by interrupting the cable sheath in the area of the ring spring of the screwed cable gland (see appendix II) or internal twisting in plug housing and clamping with threaded pin.

K) Crimp (4 point crimping) single conductor to contact socket/contact pin. Strands must be visible in window after crimping.

Description of installation

L) Absolutely avoid solder beads at the outside of the contacts when soldering.

M) Pre-plug contact sockets into the rear of the socket insert (contact pins in pin insert), row for row. Blind bores must be sealed with blanking plugs.

Caution!

Please observe position of the earth contact!

N) Linearly slide in contact sockets/ contact pins with a WALTHER assembly tool (inserting tool) until they snap in – row for row.

O) Check the perfect snap in by a slight pulling at the single conductors.

P) Disassemble contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.

Q) Linearly insert ready made socket/pin insert into socket/pin insert holder.

R) Secure socket/pin insert with circlip for shafts (circlip pliers).

S) Insert socket/pin insert holder with circlip for shafts according to pin coding. In doing so please note that cable is pushed back so far through the screwed cable gland that a sufficient overlength remains in the plug housing.

T) Fasten socket insert holder with4 countersunk head screws M5 with a hexagon screw driver SW3.

U) Tighten screwed cable gland so that sealing and internal cable tension relief becomes effective.

V) Then the signal plugs are slided onto the guide of the plug carrier and fixed with the pilot screw (item 6).

7.5 Installation of welding current plug (screwed cable gland Pg 29)

Caution!

**The insert sealing of the screwed cable gland must be suited to the cable diameter!
If necessary the insert sealing must be exchanged.**

Also see 7.4.4.

Installation sequence

1. Disassembly of parallel pins item 28/67 by means of a hammer or mandrel Ø 7.
   Pins with female thread can be removed with a suitable pull off device.

2. Push electro pin sideways out of the guide.

3. Release 4 countersunk head screws M5 with a hexagon screw driver SW 3.

   ## Caution:

   Screws are not secured against falling out!

4. Mark fitting position of the socket and/or pin insert to the housing part with a coloured pencil.

5. Pull socket/pin insert out the electro plug housing part.

6. Squeeze electro contacts out of the socket/pin insert.

7. Release press sleeves by unscrewing the fillister head screw M6 with
   a hexagon screw driver SW5.

   ## Caution!

   **Press sleeves must be adapted to the cable connection cross section
   (16 mm^2, 25 mm^2, 35 mm^2)!**

8. Lead electro cable through screwed cable gland.

9. Dismantle line and strip the insulation of the single conductors, both according to dimension,
   see plan for dismantling 1-95285-E-00007-..-.-Z01

10. Crimp single conductor and press sleeve together with a pressing tool.
    Strands must be visible in window after crimping.

11. Absolutley avoid solder beads at the outside of the contacts when soldering.

12. Insert press sleeves into electro contact and screw down and tighten fillister head screw M5
    and tooth washer.

13. Linearly plug and hold tight contact sockets/contact pins in the rear of the socket/pin insert.

14-16) Deleted.

17. Insert socket/pin insert into the housing part according to the colour marking. In doing so hold on contacts and push back cable so far through the screwed cable gland that a small overlength remains in the plug housing and/or no sideways tension comes on contacts.

18. Fasten socket insert holder with4 countersunk head screws M5 with a hexagon screw driver SW3.

19. Tighten screwed cable gland so that sealing and internal cable tension relief becomes effective.

20. Sideways sliding in of the electro plugs into the guide of the tool changer plate until it matches with the pin bores.

21. Beat in and counterbore parallel pins from inside through plate and electro plug.

7.6 Installation of combined plugs (screwed cable gland Pg 29 ... Pg 9)

The combination plug can hold in its housing max. 2 different or same contact inserts up to size 3. (A 3rd contact insert can be fitted with the mounting housing.)
The contact inserts are taken up in separate insert holders and can be shielded separately. Due to openings of the housing the connection can be carried out with separate cables or with a common hybrid cable (max. cable-Ø 28 mm).

Connection of a signal plug insert

See item 7.4.4.2. – Installation sequence

Caution:
During installation process T) take care that the sealing ring item 18 and/or 36 is inserted!

Connection of a power plug insert

See item 7.4.4.2. – Installation sequence

Caution:
Metal housing is to be included in the protective measure!

Earthing at pin/socket insert holder (cover) up to 1,5 mm^2.
Earthing at the electro plug housing part up to 6 mm^2.

Caution:
During installation process T) take care that the sealing ring item 18 and/or 36 is inserted!

8 Comments to application preparation Fehler! Textmarke nicht definiert.

8.1 General safety instructions Fehler! Textmarke nicht definiert.

- Please note that the tool changer is to be used according to requirements!
- Observe permissible load and working conditions according to items 1, 2 and 3!
- The use of the tool in applications where people`s safety depends on its function is inadmissible.
- The tool changer may be activated only if the complete machine/facility meets the EC machinery guideline!

8.2 Functional sequences Fehler! Textmarke nicht definiert.

The tool changer can exclusively be operated in function mode push-pull technique.

8.2.1 Push-pull technique **Fehler! Textmarke nicht definiert.**

In function mode push-pull technique the connection process will be done by the robot movement until just before final position and therefore the robot has to carry all the reaction forces of the elements – see

- section 2.0 technical data

Circuit without safety module:

- flow chart 1-91489-F-00002-....-Y10
  1-91489-F-00006-....-Y10
- pneumatic schedule 1-91489-P-00004-....-Y10 (5/3 directional control valve)
  1-91489-P-00007-….-Y10 (5/2 directional control valve)
  1-91489-P-00009-….-Y10 (5/3 directional control valve)

Pneumatic safety circuit 2nd generation **Fehler! Textmarke nicht definiert.**:

- flow chart 1-91489-F-00007-....-Y10
- pneumatic schedule 1-91489-P-00013-....-Y10

Type of circuit and scope of delivery according to acknowledgement of order.

See appendix II - connection and flow schedules
See appendix III - description of optional feature.

8.2.2 Pull-in technique

This technique exclusively refers to tool changers of type 91489-Z02/Z03.

In function mode pull-in technique connection process will be done by the tool changer. No reaction forces occur for the robot. However, in case of same compressed air connection the tool changer can only couple a smaller load than with the push-pull technique .

8.3 Adjusting and programming of the robot

8.3.1 Safety instructions to adjust

The recommended functional sequence is specified in the flow charts (see 8.2).

Caution!

It is forbidden for any person to be right next or below the tool changer during adjusting (e.g. tipp operation when releasing switching process)! In case of maloperation the tool changer can unintentionally disconnect and thus can cause an uncontrolled falling down of the tool side (when using type without safety circuit)!

Caution!

Connection and disconnection processes should only be carried out in the provided positions in the area of the tool parking stations, because a dangerous movement cannot be avoided in case of an EMERGENCY switching off/voltage breakdown.
The automatic safety lock becomes effective only after a complete connection process so that then the tool changer remains connected and locked in case of an EMERGENCY shutdown.

Caution!

After an EMERGENCY switching off or failure of the voltage supply the couple procedure must completely be repeated in case of a reoperation.

Caution!

Connection and disconnection processes must be carried out with voltage free switched electro connectors and depressurized fluid elements.

Caution!

Do not grab between the tool changer halves during set-up operation,
squeezing dange!

Prerequisites to adjust
Correct assembly and installation according to item 7.

The stated tolerances for parallelism of the plates, misalignment of the angle as well as the center line and the following adjustment instruction refer to the use of WALTHER parking stations working with gravity (vertical without clamping of the tool). They are especially suited to this technique and they make bigger misalignments of the roboter position possible.When using other parking procedures or parking stations of other companies it must be worked according to their set-up instructions (which is not in the esponsibility of WALTHER).

Comments to application preparation

Caution

Before beginning of the adjustment works the tool changer is to be examined for transport damages.The setting-up may occur only if

- **there are no mechanical damages,**
- **the electrical and pneumatic control components are functional,**
- **energy is available (voltage and compressed air).**

Caution

Take care when putting on the energy supply!

8.3.2 Set-up/adjustment for push-pull technige

It is necessary to observe this adjustment procedure to be able to park and/or dock the tools in a force neutral way (force neutral means without any force) into parking stations (tool parking stations) with the WALTHER tool changer 91489-Y10 in push-pull technique.

Locking procedure

1. Approach the robot side of the tool changer to the tool side of the tool changer by movement of the robot up to a distance between the plates of 26 mm (+3 mm = tolerance).Check the distance of the plates as well as the parallelism and the misalignment of the angle and the center lines by means of a short metal ruler. Position the steel ruler at all side faces. The misalignment of the center lines lies in the fringe range if all side faces are flush.
2. Total extending of the locking piston by switching the directional control valve(s).
3. The piston of the locking cylinder must remain depressurized during moving into docking position so that it cannot be pushed back by clamping and frictional forces.
4. Parallely approach the robot side by movement of the robot until a distance of 1.5 up to 0 mm (distance between the plates 13.5 up to 12 mm).
5. Lock the sides of the tool changer by switching the directional control valve(s) (position R).Check the lock by controlling the status of SE1.1/SE1.2 and SE1R and carry out a visual check as well.**No** clearance between the unlocking ring of the robot side and the plane surface of the tool side.
   To give the locking control efficient time to react and become effective after the command of the robot we recommend a waiting time of 500 msec.. It is quite possible to check the status of the proximity switches in this time.
6. Lift the tool out of the parking station by the robot. In doing so please carry out a visual check (interrupt the movement of the robot if needed). There has to be no clearance and no relative movement between the robot side and the tool side of the tool changer. Observe the distances to avoid collisions.
   If a failure is noticed the movement of the robot must immediately be interrupted and the tool brought into the starting position (parking station).Carry out a visual check of the locking parts as well as a check of the function (movement) of the locking piston.
   Start the new locking procedure with item 1.

Unlocking procedure

1. Move the tool into the parking station by the robot in such a way that the center lines of the parking areas (tool side) are in line with the center lines of the pick-up areas of the tool parking station.
   Approach up to a distance of 0 mm until parking position.
2. Reversal of the directional control valve(s) and extending of the piston of the locking cylinder.
3. Control status of locking controls
   SE1R not switched
   SE1V switched.
4. Lift the robot side out of the parking station by the robot. In doing so please carry out a visual check (interrupt the movement of the robot if needed). The tool side must not get caught at the robot side. If a failure is noticed the movement of the robot must immediately be interrupted and the tool brought into the starting position (parking station).If the failure is detected and eliminated restart unlocking procedure as stated under item 1.

8.3.3 What happens in case of an EMERGENCY SHUTDOWN/voltage drop during connection and/or disconnection process:

EMERGENCY SHUTDOWN with separation from compressed air network

1. The movement caused by energy (compressed air) is interrupted.
2. The started disconnection process ends without pressure, i.e. due to gravity tool side sinks up into final position (tool parking station).
3. Due to gravity a reverse movement cycle occurs in case of started connection process (see 2.1).

EMERGENCY SHUTDOWN without separation from compressed air networkand/or voltage breakdown (trouble)

1. with 5/3 directional control valve without safety circuit:
   movement interruption.
2. with 5/2 impulse valve without safety circuit:
   started connection/disconnection process is carried out without interruption.
3. with pneumatic safety circuit (2nd generation):
   a started connection/disconnection process is carried out without interruption.
4. with electrical safety circuit

8.4 Tool parking station

The parking of the tools is carried out vertically into WALTHER standard tool parking stations (welding guns) according to the gravity principle.

8.4.1 Gravity parking station with guiding bolt and supporting roll **Fehler! Textmarke nicht definiert.** Type 95812

Tools are parked in such a way, that the tool side of the tool changer with the parking segments which are provided with bushes is plunged in 2 locating bolts of the tool parking station. During the lowering/ picking up process the vertical movement is beared up by a support device with roll to prevent a tipping. The support roll must be adapted and adjusted when installing at the tool. Due to their dimensions gripper tools are parked in special parking stations of the tool supplier, however, the support principle must be maintained as well.

Caution

A parked tool side of the tool changer is to be protected against contamination and welding chips!

WALTHER standard parking stations are designed in modular system:

- stand
- level adjustment
- roll support
- hinged cover
- installation package electro
- installation package pneumatic

Permissible deviations during tool change:
see robot installation plan

1-91489-F-00001-00-0-Z03 and
1-91489-F-00003-00-0-Z03

8.4.2 Gravity parking station with doublesword guidance Type 95813

The parking technique is like item 8.4.1, only that bolts which are mounted crosswise into the bearings of the tool side are plunged into the sword guidances of the tool parking station. Because of this construction an additional support device as for 8.4.1 is not necessary for most of the applications. The torque is received within the sword recepticles. For tool loads > 300 kg an additional torque support is necessary.

8.5 Requirements on a reliable function

- Permissible loads and working conditions are to be kept (see item 1 and 2)!
- Described control and maintenance works must be carried out (see item 9)!
- Max. deviations during tool change are to be kept (see item 8.4)!
- Installation instructions must be observed (see item 7)!

9 Commissioning, operation and maintenance

9.1 General safety instructions

Caution!

It is forbidden for any person to be right next or below the tool changer during operation! In case of wrong control the tool changer can unintentionally disconnect and thus can cause an uncontrolled falling down of the tools (when using type without safety circuit)!

Caution!

In case of compressed air or voltage breakdown the facility (of the robots) must be shut down! Reoperation after failure corrective action only!

In case of compressed air or voltage breakdown after a complete couple cycle the tool changer remains connected and locked to be able to move the tool back into starting position (tool parking station).

Caution!

Cause of trouble and failure corrective action not under hanging load of the tool!

Caution!

Working within the protection fence only by skilled, authorized staff.

Caution!

During the couple movement do not grab between the tool change halves when they are moving together.

Caution!

Endangering by spurting of cooling water due to leak or defective lines, elements or connections.

9.2 Preventive checks

WALTHER tool changers are to be operated in such a way that external damages especially all moving parts, fluidic elements and electro plugs are excluded. According to our practical experience multicouplings will give long-term, trouble free service if care is taken to recognize and repair any possible damages in good time.

Preventive visual checks are to be carried out once a week or after 10,000 couple cycles each; furthermore the contact pins are to be checked after approx. 100.000 coupling cycles for mechanical damage and have to be cleaned and lubricated.

9.2.1 Check of mechanics (base modules)

- Please observe the interference fit of all screwed cable glands.

- Check for cracks and deformations, especially:
  - emergency unlocking ring item 19
  - cylinder cover item 3
  - guiding bolt item 8
  - mounted parking subassemblies

- Check for ball impressions/scorings, especially:
  - locking ring item 6
  - locking bush item 53

If ball impressions/scorings are clearly visible and can be made out by touching a lock function test is to be carried out by cutting of compressed air after a couple process.

Caution:
Carry out function test in the area of the tool parking station (lifted by approx. 3 mm) only!

If cracks and deformations are stated the tool changer is to be stopped for repair and in case of a safety locking malfunction as well!

9.2.2 Check of control elements

1. Visible check of the limit switches, proximity switches and press switches for deformations at the switch and damages of the connection cables!
2. Check switches by hand on interference fit.
3. Check of state of switches automatically follows from trouble free service according to flow chart and/or indication LED with appropriate piston and plate position (see item 3).
4. Defect control elements are to be exchanged.

9.2.3 Check of fluidic elements

- Check of plug elements, moving parts, sealing surfaces and seals for damages, contamination and tightness.
- Plug surfaces and seals are to be slightly greased according to the existing internal instructions.
- If damages are visible which adversely affect sealing or function the damaged parts are to be exchanged.

Note:

For safety reasons and to avoid downtimes it is recommended to exchange the subassembly elements at regular intervals. Completely replace all seals in the dismantled elements to have the elements ready when the next exchange is expected.

9.2.4 Check of electro plugs

- Visible check for damages and cracks of the plastic housing.
- Check on interference fit of the electro plug and function of the separate tension relief.
- Visible check for damages and wear of the electro contacts.
- Damaged parts are to be exchanged.
- Plug surfaces and seals are to be slightly greased according to the existing internal instructions.
- First lubrication of contacts according to 9.3.

9.3 Maintenance

Depending on use of the tool changer periodic intervals for maintenance of 800,000 up to 1,5 million couple cycles are reached.

We therefore recommend for WALTHER tool changers all 800,000 couple ycles

- exchange of electro contacts
- exchange of mechanical locking parts item 6 and 53.

Otherwise the guidelines to item 9.2 are valid:

- lubrication of the electro contacts:
  - cleansing with MEK, industrial alcohol or similar (**no** media affecting elastomers such as acetone).
  - contacts with Ø 1 ... 3 mm are to be treated with contact oil Dodukonta B12K (spray or brush coat).
  - contacts with Ø > 3 mm are to be lubricated with contact grease Synthesin PDL 250/1 (Klüber Lubrication) (thin grease film).
- Lubrication of the fluidic elements:
  - cleansing with usual cleaning material.
  - plug surfaces and seals are to be slightly greased according to the existing internal instructions.
  - Lubrication of seals and sliding surfaces of the pull-in and locking cylinder with grease Arcanol Multi 3.
  - Lubrication of locking parts according to existing internal instructions:
    - locking ring item 6
    - locking bush item 53
    - balls and ball cage of the piston group item 15 + 4

10 Works on malfunction and damages

10.1 General safety instructions

In case of malfunction and damages (e.g. after a crash) the tool changer is to be returned into starting position (tool to tool parking station) and stopped.

Caution!
Carry out function test in the area of the tool parking station (lifted approx. 3 mm) only!

10.2 Cause of trouble and assessment of damage

If a malfunction occurs without coming to a crash before, the fault finding is to start as follows:

1. Is the voltage supply guaranteed? (Emergency shutdown?)
2. Is the compressed air supply guaranteed?
3. Can the valves/valve be reversed (faulty magnet/valve)?
4. Is locking cylinder pressurized (faulty line)?
5. Is the control sequence blocked due to a missing signal (faulty proximity switch)?
6. Is there a malfunction at the locking mechanism?
7. Commissioning after faulty clearance only!

Check and assessment of damage after a crash:
All checks have immediately to be carried out – as described in item 9.2!

If the tool changer with its pneumatic cylinder cannot be separated any longer separation of the tool side is effected by means of the emergency separation facility (see item 10.4).
Then the tool changer is to be taken off from the robot to repair pull-in and locking mechanism (see item 7.1).
If the fluidic elements and electro plugs do not show any damages they need not to be dismantled but removed out of the tool changer plate of the robot side only (see items 10.5 and 10.6).
The repair of the pull-in and locking mechanics is exclusively to be carried out at the manufacturer.

10.3 Central cylinder cover fastening Fehler! Textmarke nicht definiert.

The cylinder cover limits the stroke of the piston.
Due to loose fastening screw (item 16) (DIN 912 – M 10x55) caused by mounting error or crash the piston extends too much which may lead to a falling out of the balls.
This will be prevented by an assembly carried out to the regulations:

- screw locking Loctite 242
- torque = 30 Nm

10.4 Emergency separation facility

The tool changer is to be moved with the mounted tool and the robot towards the tool parking station. In doing so the tool changer must be lowered up to 0 mm distance.

The 12 unlocking screws item 21 (sealed with yellow lacquer) being at the periphery of the unlocking ring item 19 are to be released by means of hexagon socket screw key SW4 / approx. 130 mm long. For that purpose lead in screw driver straight above and below the plug housing in an inclined way into the center line of the tool changer between subassembly elements.

The unlocking screws are to be released by at least 10 mm (= 10 rotations) or entirely unscrewed.

Slowly vertically extend robot out of the tool parking station; tool remains in the tool parking station.

Caution!
If the tool (tool side) is also lifted with the vertical extension the robot movement is to be stopped and lowered again!

A slight jamming is then to be eliminated by means of a shaking movement at the tool side and the robot extended again.

Reactivation of the locking function at the robot side:

- Check of mechanics – see item 9.2.1.
- Damages can occur after a crash especially at the unlocking ring and the unlocking screws – for that reason please check carefully!
- Damaged parts (cracks, deformations, ball indentations) are to be replaced.
- Push in locking ring item 6 in annular recess at the robot side and turn it so much that the radial bores correspond with the radial bores in the unlocking ring item 19.
- Apply adhesive Loctite 242 to threads of the 12 unlocking screws item 21 for safety reasons, slightly grease blunt start.
- Screw in 12 unlocking screws with a hexagon screw driver SW4 and then drive them in crosswise.
  Torque= 5,5 Nm.

Assembly instruction

Special extras (welding plug with primary box or stamping-riveting/bolt elementcarrier) can cover one or more screws of the emergency unlock.

To be able to operate the emergency unlock these extensions must be taken off first.

For that purpose it is necessary that the fastening elements (cylinder pins of the electro plugs) or screws remain accessiblewhen the tool changer is fitted at the tool side or at the robot side.

10.5 Disassembly of fluidic elements

The fluidic elements 4 of which can be installed in one plane are hold with a common fastening ridge.

After the 3 fillister head screws are released with a hexagon socket screw key SW5 and the fastening ridge is removed all fluidic elements of this plane can sideways be pulled out of the plate.

Assembly is carried out in reverse order.

Screw torque = 4.5 Nm.

We recommend Arcanol Multi 3 (follow internal instructions) for greasing the subassembly elements.

10.5.1 Repair of compressed air elements

Adaptor element 1-70-010-2-XX...-..-.-Z01(robot side) – valve seal:

1. Spirally take off Smalley retaining ring with suitable tool out of the groove.
2. Completely remove valve with valve butment to the back; in doing so press from the adaptor side against the valve.
3. Put on valve onto a soft metallic or hard plastic plate and knock out grooved pin item 8 with hammer and mandrel.
4. Slide valve bush item 3 from valve bolt item 2 and remove old seal item 7.
5. Clean sealing surfaces and check them for mechanical damages.
6. Grease new seal and slide it onto valve bolt.
7. Slide on valve bush until it matches with the cross holes and beat in new grooved pin item 8 with a hammer and then counterbore it with a mandrel.
8. Check seal item 6 for damages, if necessary exchange/grease it.
9. Insert valve with valve spring item 5 into valve butment and completely slide in from the back into adaptor housing until stop.
10. Spirally insert Smalley retaining ring into the groove and let it snap in all around.
11. Clean plug surface, check for damages and slightly grease it.

Coupling element 1-70-010-7-XX...-..-.-Z01 (tool side) – housing seal:

1. Remove old housing seal item 23 with suitable tool out of the groove.
2. Clean sealing groove and check it for mechanical damages.
3. Grease new seal and insert into sealing groove.
4. Do not twist or damage seal during insertion.
5. Clean plug surfaces, check them for damages and then slightly grease them.

10.5.2 Repair of cooling water elements

Adaptor element 1-EC-010-2-XX...-....-Y13 (robot side) housing and valve seal

1. Unscrew fillister head screw item 29 with hexagon socket screw key SW4 and then take it off.

Caution:

Strong valve spring item 24 drives valve piston item 22 and valve plunger item 21 out of the housing – hold fast!

2. Take out all valve parts and valve spring.
3. Pull out shaft circlip item 28 with a suitable tool from the groove and then take it off.
4. Slide valve washer item 23 from valve plunger item 21 and take out old seal item 26.
5. Clean sealing surfaces and check them for mechanical damages.
6. Grease new seal and slide it onto valve plunger.
7. Slide on valve washer und shaft circlip onto valve bolt and place shaft circlip into the groove until it snaps in.
8. Remove old housing seal item 25 with suitable tool out of the groove.
9. Clean sealing groove and check it for mechanical damages.
10. Grease new seal and insert into sealing groove.
11. Do not twist or damage seal during insertion.
12. Clean grease chamber in adaptor housing and fill it with new grease;slightly grease sliding surface for valve piston.
13. Check bottom seal item 27 for damages and exchange/grease it if necessary.
14. Clean thread of the fillister head screw item 29 and then apply adhesive Loctite 242 to it for safety reasons.
15. Insert valve plunger (with new seal), valve piston and valve spring into housing and press valve spring so far until valve plunger sticks in the bore of the housing bottom.
16. Screw in fillister head screw. In doing so hold up valve plunger and draw up fillister head screw with hexagon socket screw key SW4

    Torque = 4 Nm

Works on malfunction and damages

Coupling element 1-EC-010-0-XX...-....-Y13 (tool side) – valve seal

1. Spirally take off Smalley retaining ring with suitable tool out of the groove.
2. Completely remove valve with valve butment to the back; in doing so press from the adaptor side against the valve.
3. Put on valve onto a soft metallic or hard plastic plate and knock out grooved pin item 8 with hammer and mandrel.
4. Slide valve bush item 3 from valve bolt item 2 and remove old seal item 8.
5. Clean sealing surfaces and check them for mechanical damages.
6. Grease new seal and slide it onto valve bolt.
7. Slide on valve bush until it matches with the cross holes and beat in new grooved pin item 9 with a hammer and then counterbore it with a mandrel.
8. Check seal item 6 for damages, if necessary exchange/grease it.
9. Insert valve with valve spring item 5 into valve butment and completely slide in from the back into adaptor housing until stop.
10. Spirally insert Smalley retaining ring into the groove and let it snap in all around.
11. Clean plug surface, check for damages and slightly grease it.

Coupling element1-EC-010-0-XX...-....-Y13(tool side) – housing seal

1. Remove old housing seal item 7 with suitable tool out of the groove.
2. Clean sealing groove and check it for mechanical damages.
3. Do not twist or damage seal during insertion.
4. Clean plug surfaces, check them for damages and then slightly grease them.

10.6 Disassembly of electro plugs

1. Disassembly of parallel pins item 28/67 by means of a hammer or mandrel Ø 7. Pins with female thread can be removed with a suitable pull off device.
2. Push electro pin sideways out of the guide.

10.6.1 Repair of signal plugs

Assembly and installation see item 7.4.4. / 7.6.

Cable removal

- Loosen screwed cable gland and slide cable into the opened electro plug housing.
- After dismounting the insulating body cut off single conductor as short as possible behind the electro contacts with a suitable tool (side cutting pliers).
- Replace insulating body and electro contacts by new parts.
- If single electro contacts are damaged before reaching the wear and tear limit or regular maintenance or are inoperative they can be exchanged.

  Disassemble contacts with:

  WALTHER socket disassembly tool and/or
  WALTHER pin disassembly tool.

The insulating body is to be exchanged in case of insulating body damages and/or if contacts do not safely stay in the fitting position any more.

10.6.2 Repair of welding current plugs

Assembly and installation see item 7.4.4.

Cable removal

- Loosen screwed cable gland and slide cable into the opened electro plug housing.
- After dismounting the electro contacts unscrew fillister head screws M6 approx. 3 turns with hexagon socket screw key SW5 and separate connection by a slight knocking on the screw.
- Completely unscrew screws and exchange worn-out or defective electro contacts.

10.7 Disassembly of the plug carrier (2-3 way)

1-91489-B-00022-....-Y10
1-91489-B-00023-....-Y10

When disassemble plug carrier it is not necessary to remove possibly fitted signal plugs out of the plug carrier.

Knock out parallel pins (item 5) with hammer and mandrel ∅ 7.

Pins with female thread can be removed with a suitable pull off device.

Then remove plug carrier sideways out of the guide.

Appendix:
Drawings and parts lists

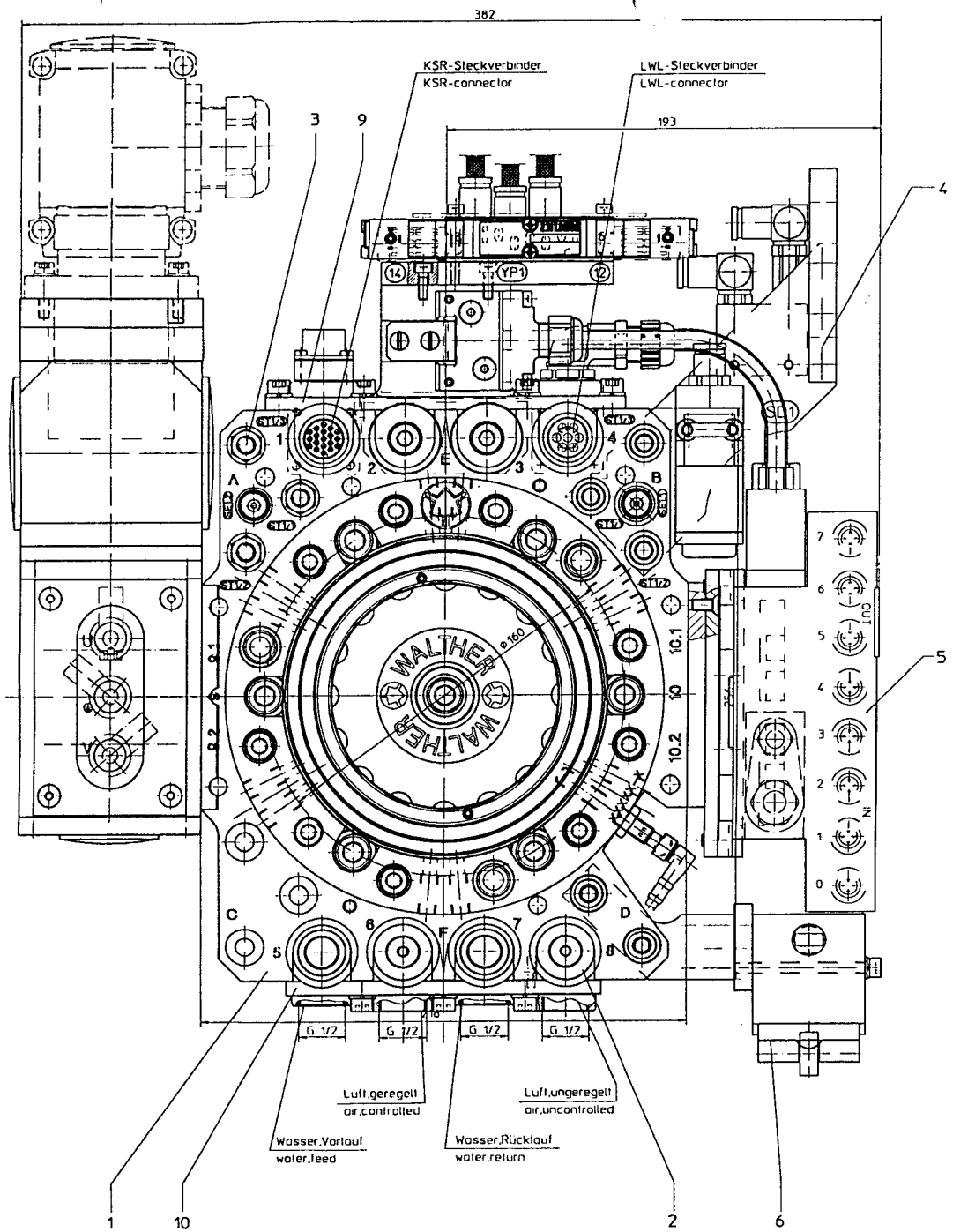
11 Appendix

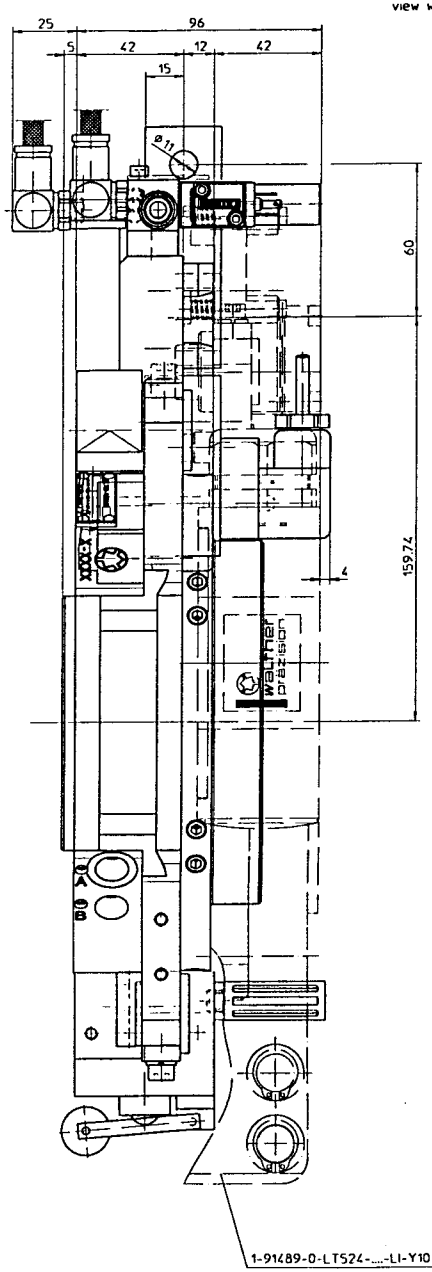
11.1 Drawings and parts lists

Appendix:
Drawings and parts lists

11.1.1 **1-91489-2-FT524-AAAB-LI-Y10**
tool changer – robot side LWL welding

1-91489-0-LT524-AAAB-LI-Y10
tool changer – tool side LWL welding
1-91489-B-FT001-AAAB-LI elements equipment (robot side) welding
1-91489-B-LT001-AAAB-LI elements equipment – (tool side) welding





Ansicht ohne Elektrostecker, Verbindungskabel, Schlauche
view without electrical equipment

walther präzision	hierzu gehört: 1-91489-0-LT524-....-LI-Y10 to this belongs:			
	1-91489-2-FT524-....-LI-Y10			
	Maßstab: 1:1	Ersatz für:		
Fertigungs- und Prüfvorschriften nach WALTHER Werksnorm-Nr. 12100 B3	Ausführung: A		Datum	Name
	vom:	Erstellung	2003/03/11	TG
	A	Geprüft	2003/03/11	TG
		Gegeprüft	2003/03/12	RN
CAD-Zeichnung nur mit 2D-System ändern !		A-gegeprüft	2004/01/08	RN
K D-GB PJ 6360	Werkzeugwechsler (Roboterseite)- LWL Schweißen tool changer (robot side)- LWL welding			

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Basismodul (Roboterseite)	1-91489-B-FT500-AAAA-Y10	1	Unterstückliste	
	basis module (robot side)			as per separate list	
02	Elementeausrüstung	1-91489-B-FT001-AAAB-LI	1	Unterstückliste	
	elements equipment			as per separate list	
03	Werkzeugkodierung (Roboterseite)	1-91489-E-00048-AAAA-Y10 (B)	1	Unterstückliste	
	Tool codling (robot side)			as per separate list	
04	Zugentlastungshalter	1-91489-B-00001-31-.-Z04	1	Unterstückliste	
	tension relief holder			as per separate list	
05	Installationspaket Elektro	1-91489-E-00039-AAAA-Y10	1	Unterstückliste	RuL auf Platz 10
	electrical equipment			as per separate list	RuL on place 10
06	Installationspaket Pneumatik	1-91489-P-00013-AAAA-Y10	1	Unterstückliste	
	pneumatical equipment			as per separate list	
07					
08					
09	Befestigungsleiste Standard, lang	1-91489-B-00006-AAAA-Z02	1	Unterstückliste	
	fastening ridge standard, long			as per separate list	
10	Befestigungsleiste Standard, kurz	1-91489-B-00015-AAAA-Y10	1	Unterstückliste	
	fastening ridge standard, shot			as per separate list	

Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

walther präzision

Ausf.: B vom: 11.03.2003 TG

A 07995

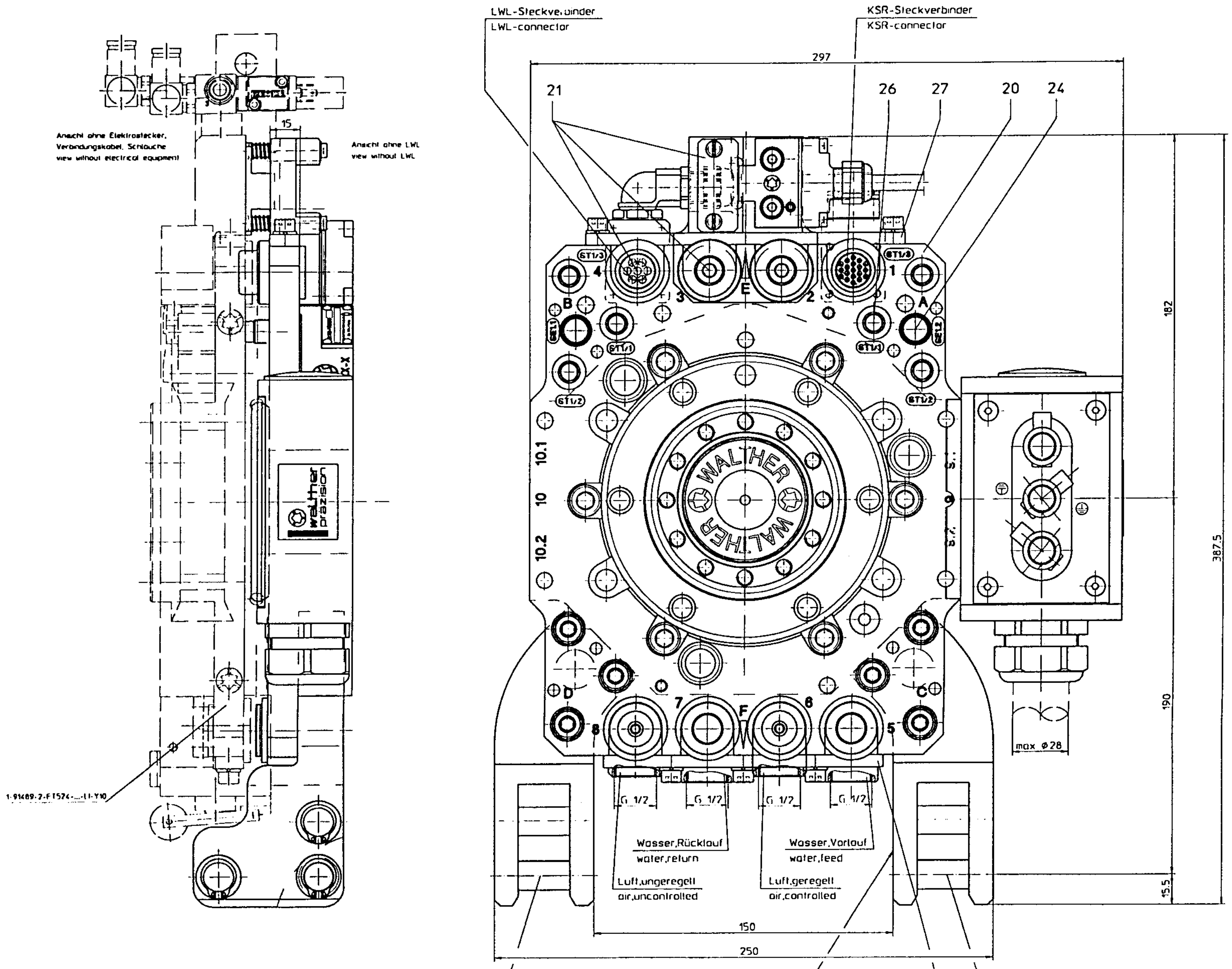
	Datum	Name
Ersterst.	19.02.2003	RN
Geschr.	19.02.2003	RN
Geprüft	19.02.2003	AHei

Werkzeugwechsler-Roboterseite LWL Schweißen
tool changer-robot side LWL welding

K-D-GB

Bestellnummer:
1-91489-2-FT524-AAAB-LI-Y10

DIN A 4



Achtung!
Verwendung der Ablagevorrichtung
ohne Zusatzabstützung nur bis 300kg,
ansonsten Zusatzabstützung erforderlich.

Attention!
Use stacking device without auxiliary support
only to 300kg, otherwise auxiliary support necessarily.

walther präzision

Hierzu gehört: 1-91489-2-FT524-....-LI-Y10
to this belongs:

1-91489-0-LT524-....-LI-Y10

Maßstab: 1:1 | Ersatz für:

Fertigungs- und Prüfvorschriften nach WALTHER Werknorm-Nr.: 121.00.03

Ausführung: A		Datum	Name
vom:	Erstellt	2003/03/10	TG
	Gezeichn.	2003/03/10	TG
A	Geprüft	2003/03/12	RN
CAD-Zeichnung nur mit 20-System ändern!	A-geprüft	2003/03/12	RN

Werkzeugwechsler-Werkzeugseite (LWL Schweißen)
tool changer-tool side (LWL welding)

K | D-GB | PT 6380

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
20	Basismodul (Werkzeugseite)	1-91489-B-LT500-AAAA-Y10	1	Unterstückliste	
	basis module (tool side)			as per separate list	
21	Elementeausrüstung	1-91489-B-LT001-AAAB-LI	1	Unterstückliste	
	elements equipment			as per separate list	
22	Lagerung (rechts)	1-91489-B-00009-36-.-Y10	1	Unterstückliste	
	recipient (right)			as per separate list	
23	Lagerung (links)	1-91489-B-00010-36-.-Y10	1	Unterstückliste	
	recipient (left)			as per separate list	
24	Installationspaket Elektro	1-91489-E-00007-AAAA-Y10	1	Unterstückliste	
	electrical equipment			as per separate list	
25					
26	Werkzeugkodierung (Werkzeugseite)	1-91489-E-00011-AAAA-Y10	1	Unterstückliste	
	Tool codling (Tool side)			as per separate list	
27	Befestigungsleiste Standard, lang	1-91489-B-00006-AAAA-Z02	1	Unterstückliste	
	fastening ridge standard, long			as per separate list	
28	Befestigungsleiste Standard, kurz	1-91489-B-00015-AAAA-Y10	1	Unterstückliste	
	fastening ridge standard, shot			as per separate list	

Blatt von Blatt | Ersatz für: .

CAD-Stückliste nicht manuell ändern!

	Name	Datum	
Gezeichnet	AHei	19.02.2003	Erstellt
Geprüft	RN	19.02.2003	Geschr.
	RN	19.02.2003	Erstellt

Ausf.: A vom: 19.02.2003 RN

A .....

Werkzeugwechsler-Werkzeugseite
LWL Schweißen
tool changer-tool side
LWL welding

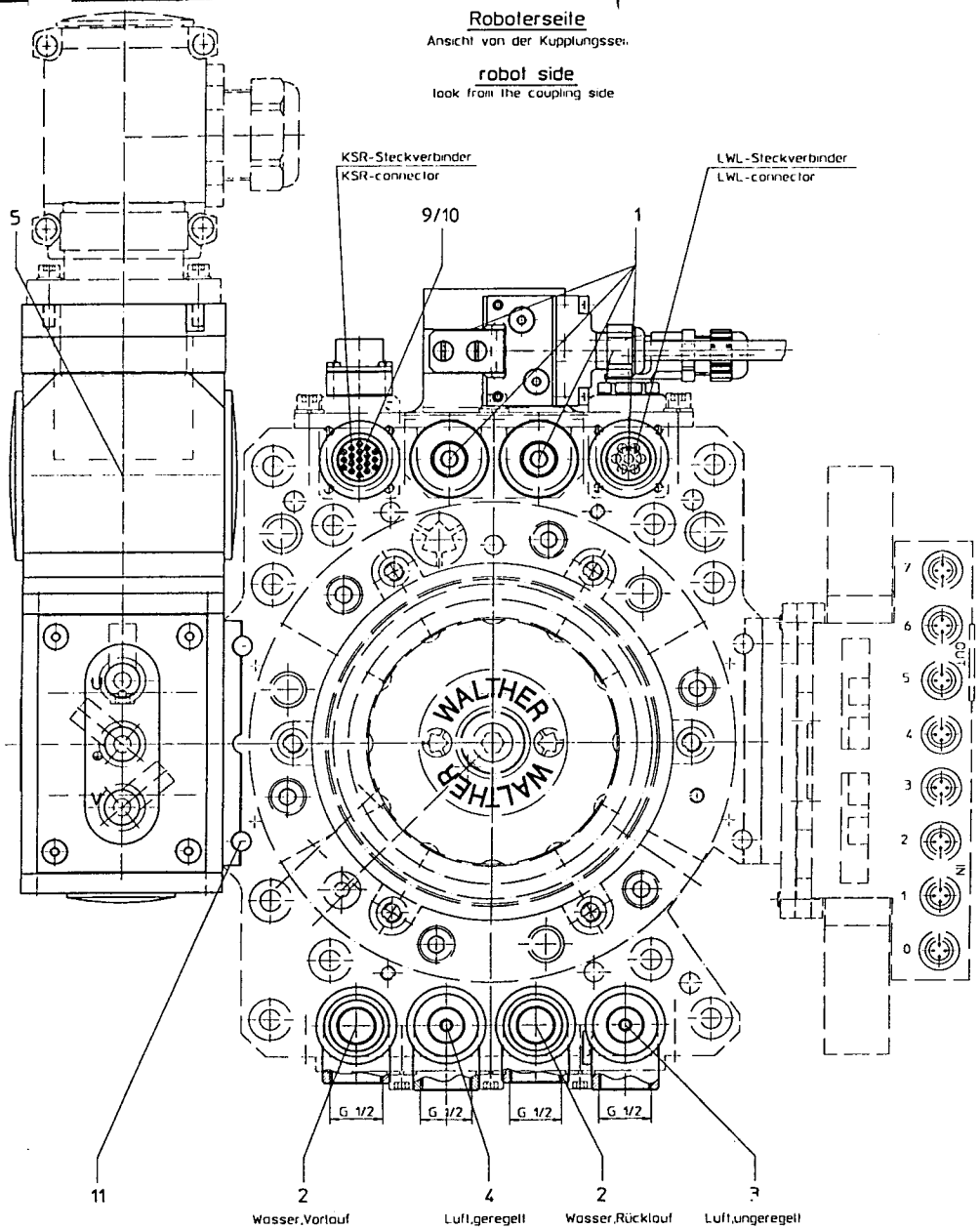
K-D-GB

Bestellnummer:
1-91489-0-LT524-AAAB-LI-Y10

DIN A 4

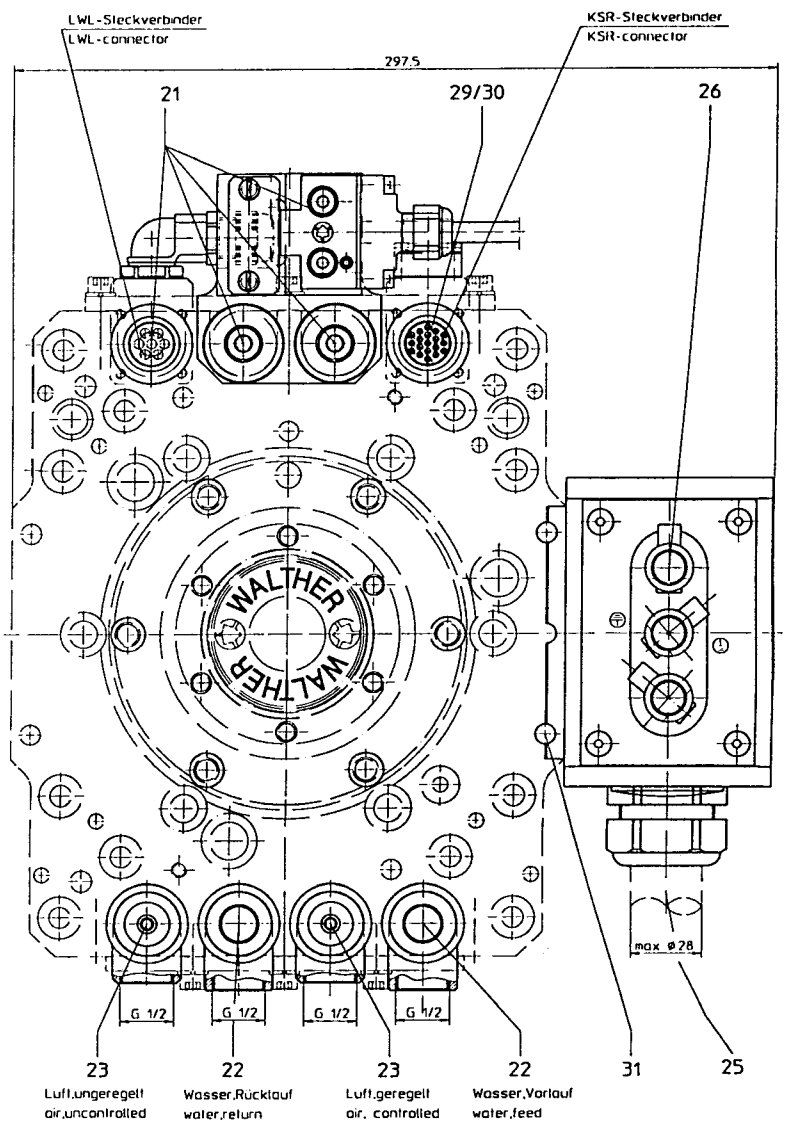
Roboterseite
Ansicht von der Kupplungsseite

robot side
look from the coupling side



Werkzeugseite
Ansicht von der Kupplungsseite

tool side
look from the coupling side



walther präzision	1-91489-B-FT001-....-LI 1-91489-B-LT001-....-LI
Maßstab 1:1	Ersatz für:
Fertigungs- und Prüfvorschriften nach WALTHER vom: 2005/09/09 TG	Ausführung: F
Werknorm-Nr.: 121.00.03	A 10624
CAD-Zeichnung nur auf 2D-System ändern !	

	Datum	Name
Erstellt	2002/09/25	JP
Geprüft	2002/09/25	JP
Freigegeben	2002/10/31	KHK
Ä-gestellt	2005/09/15	RN

K | D-GB | PT 6108

Elementausrüstung - Schweißen
elements equipment - welding

walther präzision

Ausf.: E vom: 09.09.2005 TG			
A10624			
	Datum	Name	
Erstellt.	25.09.2002	JP	
Geschr.	25.09.2002	JP	
Geprüft	25.09.2002	KHK	

Elementeausrüstung-Roboterseite
Schweißen
elements equipment-robot side
welding

Bestellnummer:
1-91489-B-FT001-AAAB-LI

K-D-GB

DIN A 4

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	LWL-Paket Roboterseite	1-91489-E-00043-AAAA-Y10	1	Unterstückliste	RuL auf Platz 10
	LWL-equipment robot side			as per separate list	RuL on place 10
02	Clean-Break-Nippelelement DN 10	1-EC-010-2-XX004-02-2-Y13-P015 (E)	2	Unterstückliste	Kühlwasser (G1/2)
	clean-break-adaptor element n.b. 10			as per separate list	cooling water
03	Verschlußnippelelement DN 10	1-70-010-2-XX005-39-2-Z01-P015 (E)	1	Unterstückliste	Druckluft (G1/2+G1/8)
	self-sealing adaptor element n.b. 10			as per separate list	air pressure
04	Verschlußnippelelement DN 10	1-70-010-2-XX003-39-2-Z01-P015 (E)	1	Unterstückliste	Druckluft (G1/2)
	self-sealing adaptor element n.b. 10			as per separate list	air pressure
05	Buchsengehäuse	1-95285-4-XX003-46-2-Z05-MA (E)	1	Unterstückliste	Leistungsstecker
	socket housing			as per separate list	power connector
06	(E)				
07					
08					
09	Buchsengehäuse	1-95288-4-XX003-AAAB-Y02	1	Unterstückliste	Mess-Signalstecker
	socket housing			as per separate list	metering signal connector
10	Elektrobuchse 8-polig	1-C5274-4-ET010-2N-0-AM	1	Unterstückliste	1.0 qmm
	electro socket 8-way			as per separate list	
11	Zylinderstift	DIN 7979 - D 8m6 x 40	2	St-BR	
	parallel pin				

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
21	LWL-Paket Werkzeugseite	1-91489-E-00042-AAAA-Y10 (D)	1	Unterstückliste	RuL auf Platz 10
	LWL-equipment tool side			as per separate list	RuL on place 10
22	Clean-Break-Kupplungselement DN 10	1-EC-010-0-XX003-02-2-Y13	2	Unterstückliste	Kühlwasser (G1/2)
	clean-break coupling element n.b. 10			as per separate list	cooling water
23	Durchgangskupplungselement DN 10	1-70-010-7-XX004-39-2-Z01	2	Unterstückliste	Druckluft (G1/2)
	thru-type coupling element n.b. 10			as per separate list	air pressure
24					
25	Stiftgehäuse	1-95285-1-XX008-46-2-Z05	1	Unterstückliste	Leistungsstecker
	pin housing			as per separate list	power connector
26	Stiftkontaktsatz 3-polig	1-C5285-1-ET350-2N-0-AB	1	Unterstückliste	35 qmm
	plug contact set 3-way			as per separate list	
27					
28					
29	Stiftgehäuse	1-95288-1-XX002-AAAB-Y02	1	Unterstückliste	Mess-Signalstecker
	pin housing			as per separate list	metering signal connector
30	Elektrostecker 8-polig	1-C5274-1-ET010-2N-0-AM	1	Unterstückliste	1.0 qmm
	electro plug 8-way			as per separate list	
31	Zylinderstift	DIN 7979 - D 8m6 x 40	2	St-BR	
	parallel pin				

Ausf.: D vom: 13.12.2002 AF

A07724

	Datum	Name
Erstellt.	25.09.2002	JP
Geschr.	25.09.2002	JP
Geprüft	25.09.2002	KHK

Elementeausrüstung-Werkzeugseite
Schweißen
elements equipment-tool side
welding

K-D-GB

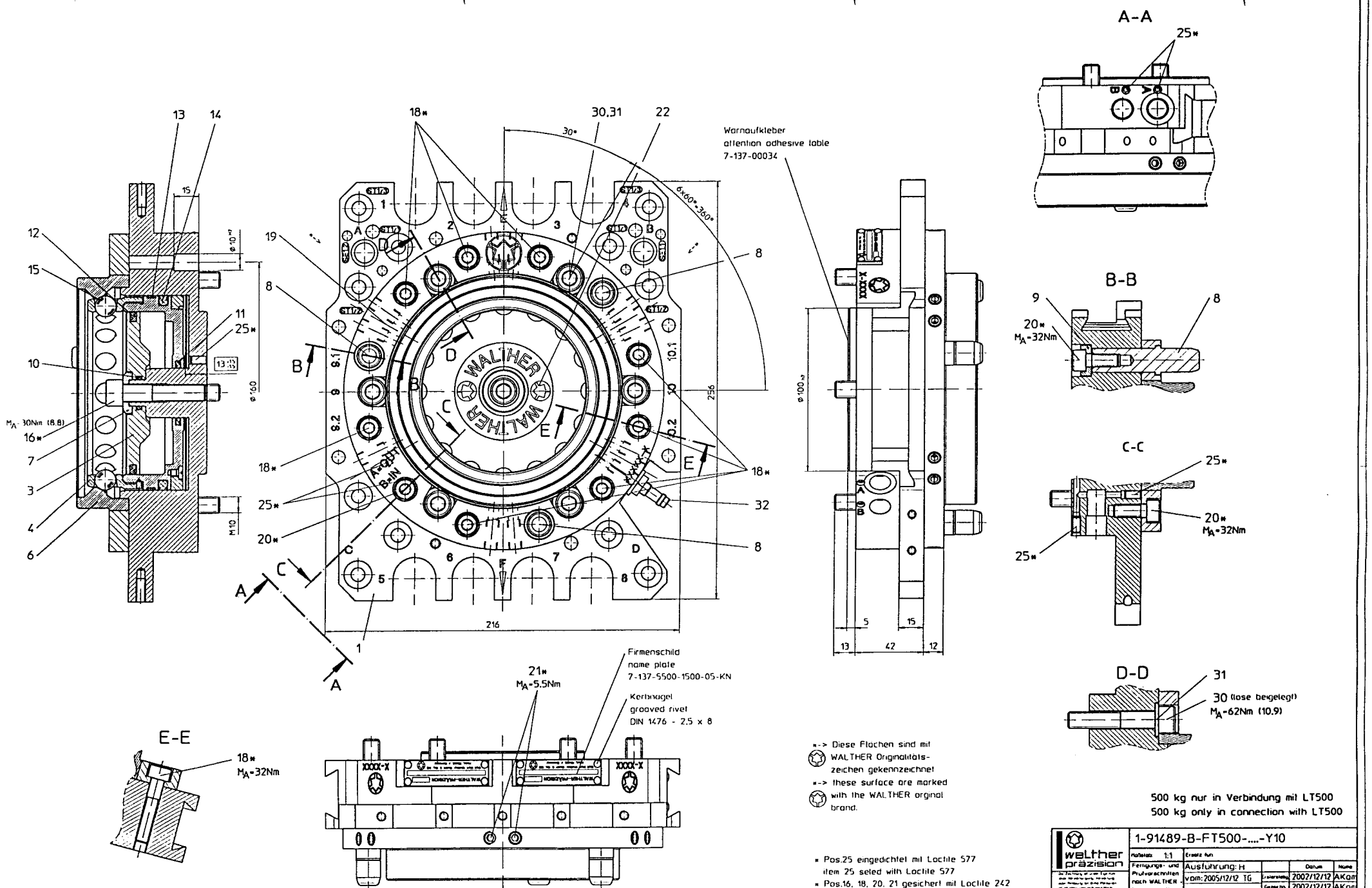
Bestellnummer:
1-91489-B-LT001-AAAB-LI

DIN A 4

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.2 1-91489-B-FT500-AAAA-Y10 basic module (robot side)



* -> Diese Flächen sind mit WALTHER Originalitäts-zeichen gekennzeichnet

* -> these surface are marked with the WALTHER orginal brand.

* Pos.25 eingedichtet mit Loctite 577
item 25 seted with Loctite 577

* Pos.16, 18, 20, 21 gesichert mit Loctite 242
item 16, 18, 20, 21 locked with Loctite 242

* Pos.21 zusätzlich mit gelben Lack gekennzeichnet
item 21 additionally marked with yellow lacquer

500 kg nur in Verbindung mit LT500
500 kg only in connection with LT500

walther präzision	1-91489-B-FT500-....-Y10			
	Maßstab: 1:1	Ersatz für:		
	Fertigungs- und Prüfvorschriften nach WALTHER	Ausführung: H		Datum / Name
		VDM: 2005/12/12 TG	Erstellung	2007/12/12 AKam
	Werksnorm-Nr.: 121.00.03	A 100199	Gezeichn.	2002/12/12 AKam
			Geprüft	2003/01/23 RN
	CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2006/01/19 RN
K	D-GB	PT 6352	Basismodul-Roboterseite (500kg) basic modul-robot side (500kg)	

walther präzision

	Name	Datum
Erstellt:	AKam	10.12.2002
Geschr.:	AKam	10.12.2002
Geprüft:	RN	10.12.2002

A 09434

Ausf.: D vom: 16.06.2004 TG

Basismodul (Roboterseite)
basic module (robot side)

Bestellnummer:
1-91489-B-FT500-AAAA-Y10

K-D-GB

DIN A 4

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Fertiggruppe Nippelplatte manufacturing group adaptor plate	1-91489-S-00003-AAAB-Y10	1	Unterstückliste as per separate list	Nippelplatte ab Ausführung AA
03	Deckel cover	4-91489-510-..-Y10	1	3.2315-Ex-rot	
04	Kolben-Fertiggruppe piston-manufacturing group	1-91489-S-00001-AAAA-Y10	1	Unterstückliste as per separate list	ab Ausführung B
06	Verriegelungsring locking ring	4-91489-513-..-00500-Y10	1	1.7131 E-BR	
07	Haltescheibe holding washer	4-91489-514	1	1.0718 K-VZ	
08	Führungsbolzen guide bolt	4-91489-515-..-00500-Y10	3	1.7225 V-IONIT-OX	
09	Scheibe washer	4-91489-516-..-00500-Y10	3	1.0718 K-VZ	
10	O-Ring O ring	15.54 x 2.62	1	FPM	
11	AIRZET-Stangendichtung AIRZET-bar seal	B 2528-057.848	1	NBR-82 shore	Fa. Merkel
12	AIRZET-Kolbendichtung AIRZET-piston seal	B 2529-055.967	1	NBR-82 shore	Fa. Merkel
13	Kolbenführungsband piston guiding band	F2 0367 033 15050 A	1	PTFE	Fa. Parker
14	Kolbendichtsatz piston seling set	OA-0120 00811	1	PTFE/NBR	Fa. Parker
15	Kugel ball	DIN 5401 -12.7MM-G80-N (D)	16	1.4034	
16	Zylinderschraube fillister head screw	DIN 912 - M10 x 50	1	8.8 - VZ	
18	Zylinderschraube fillister head screw	DIN 912 - M8 x 40	8	10.9 - VZ	
19	Entriegelungsring unlocking ring	4-91489-504-..-00500-Y10	1	1.7225V - BR	
20	Zylinderschraube fillister head screw	DIN 912 - M8 x 20	4	10.9 - VZ	
21	Entriegelungsschraube unlocking screw	4-91489-506-..-Y10	12	45H-br	
22	Aufkleber adhesive lable	4-91489-524-..-Z01	1	PVC-Klebefolie PVC-adhesive lable	
25	Gewindestift screw bolt	DIN 913 - M5 x 10	5	A2-70	
30	Zylinderschraube fillister head screw	DIN 912 - M10 x 55	6	10.9 - VZ	
31	Scheibe washer	DIN 125 - A 10,5	6	St - VZ	
32	Näherungsinitiator proximity switch	DW-AS-503-M8-001	2		Fa. CONTRINEX

* alternativ: 3RG4611-7AG01
Fa. Siemens-BERO

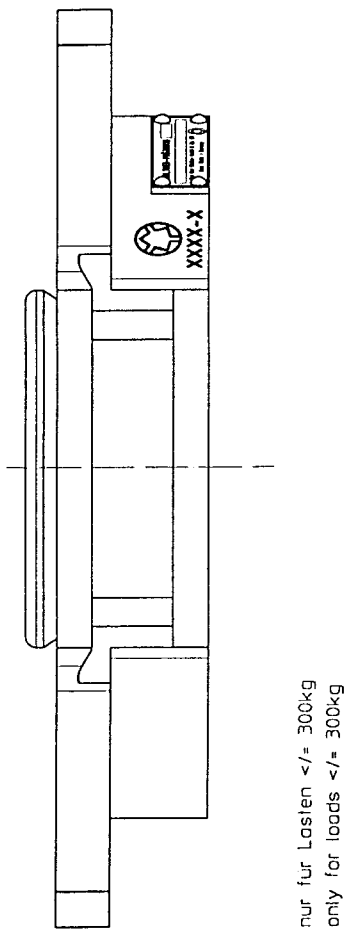
Firmenschild name plate	7-137-5500-1500-05-KN
Kerbnagel grooved rivet	DIN 1476 - 2,5 x 8
Warnaufkleber attention adhesive lable	7-137-00034

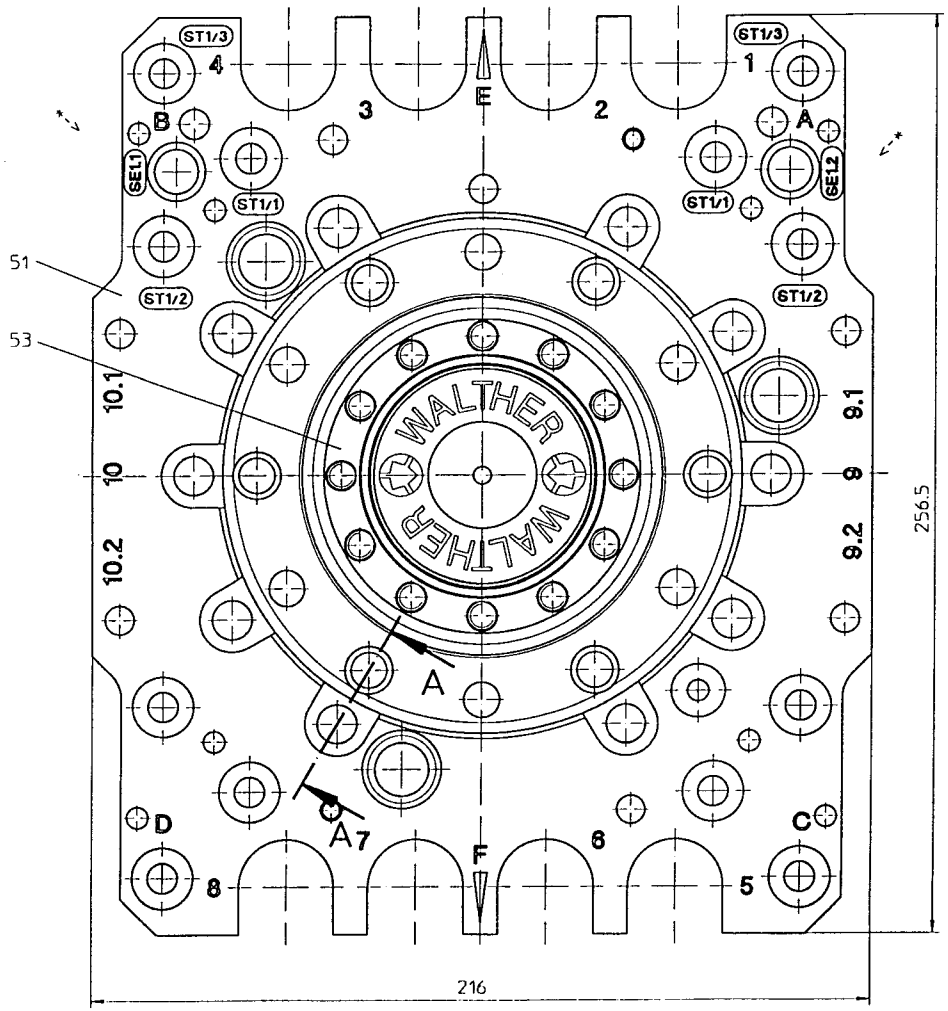
Blatt von Blatt | Ersatz für: .

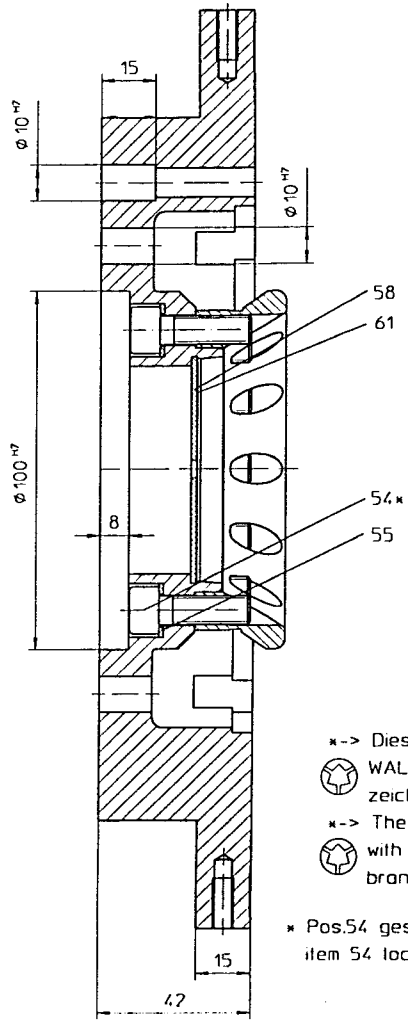
CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.3 1-91489-B-LT500-AAAA-Y10 basic modul (tool side)

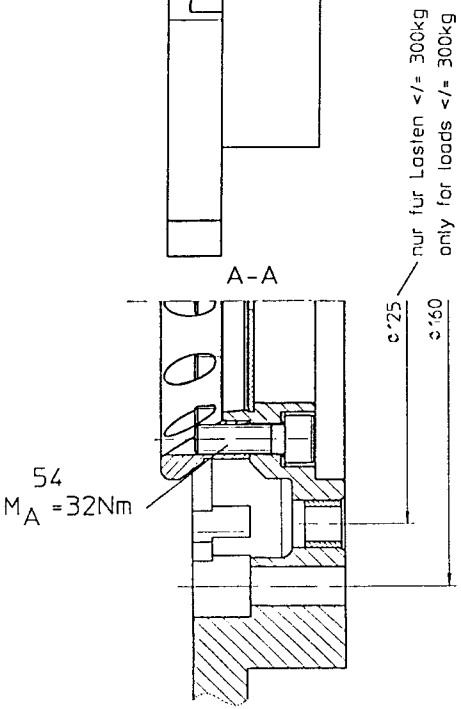


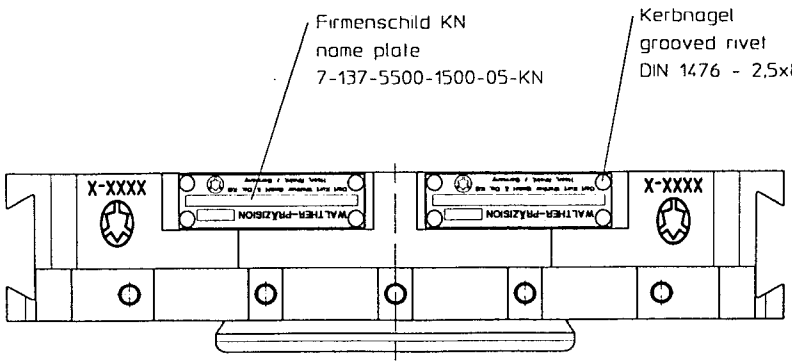




*-> Diese Flächen sind mit WALTHER Originalitäts-zeichen gekennzeichnet
*-> These surface are marked with the WALTHER orginal brand.

* Pos.54 gesichert mit Loctite® 242
item 54 locked with Loctite® 242





500 kg nur in Verbindung mit FT500
500 kg only in connection with FT500

walther präzision	1-91489-B-LT500-....-Y10			
Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: D		Datum	Name
	vom: 2005/12/12 TG	Ersterstellg.	2002/12/17	AKam
	A100199	Gezeichn.	2002/12/17	AKam
		Geprüft	2003/01/23	RN
	CAD-Zeichnung nur mit 3D-System ändern !	A-geprüft	2006/01/19	RN
K D-GB PT	Basismodul-Werkzeugseite (500kg) basic modul-tool side (500kg)			

DIN A 2

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
51	Fertiggruppe Kupplungsplatte manufacturing group copuling plate	1-91489-S-00002-AAAB-Y10	1	Unterstückliste as per separate list	ab Ausführung R
52					
53	Verriegelungsbuchse locking bush	4-91489-520-..-.-00000-Y10	1	1.7131 E-BR	ab Ausführung H
54	Zylinderschraube fillister head screw	DIN 912 - M8 x 20	12	10.9 - VZ	
55	Stützscheibe anti-extrusion washer	DIN 988 -S 9 x 15 (B)	12	Federstahl (B)	Fa. Seeger
56					
57					
58	Beschriftungsschild lettering plate	4-91489-522-..-.-00000-Z01	1	PVC (blau/blue)	Fa. Otto
59					
60	Zylinderschraube fillister head screw	DIN 912 - M10 x 40	6	10.9 - VZ	
61	Aufkleber adhesive lable	4-91489-524-..-.-00000-Z01	1	PVC-Klebefolie PVC adhesive film	
	Firmenschild - KN name plate	7-137-5500-1500-05-KN			
	Kerbnagel grooved rivet	DIN 1476-2.5 x 8			

Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

walther präzision

Ausf.: B vom: 06.09.2005 TG

A 10621

	Datum	Name
Ersterst.	10.12.2002	AKam
Geschr.	10.12.2002	AKam
Geprüft	10.12.2002	RN

K-D-GB

Basismodul (Werkzeugseite)
basic modul (tool side)

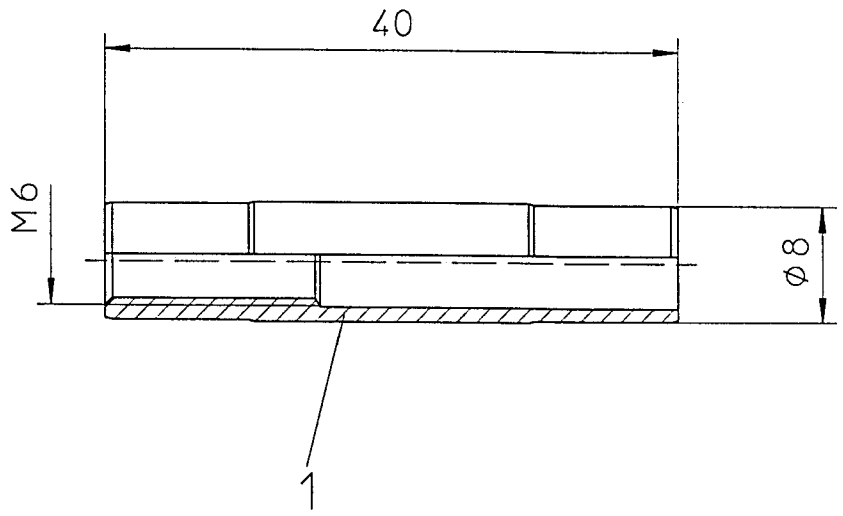
Bestellnummer:
1-91489-B-LT500-AAAA-Y10

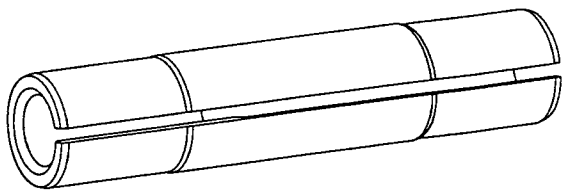
DIN A 4

Appendix:
Drawings and parts lists

11.1.4 1-91489-B-00059-....-Y10
Spreizbefestigung für SZ-System

1-91489-D-00012-Y10 Spannstiftbefestigung SZ-System





Iso. Ansicht

hierzu gehört: Beipackzettel / instruction leaflet
to this belongs: 1-91489-D-00012-Y10

Ⓑ komplett überarbeitet

walther präzision	1-91489-B-00059-....-Y10				
	Maßstab: 2:1	Ersatz für:			
	Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
		vom: 2006/01/23 TG	Erststellg.	2006/01/19	AKam
		A100308	Gezeichn.	2006/01/19	AKam
			Geprüft	2006/01/19	RN
	CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2006/01/23	RN
	Spreizbefestigung für SZ-System (Spannstiftbefestigung / split pin fastening)				
K | D-GB | PT					

DIN A 4

walther präzision

Ausf.: design:	B	vom: of:	23.01.2006 TG
		Datum date	Name name
Erstellt. design.		18.01.2006	AKam
Geschr. work on		18.01.2006	AKam
Geprüft appr.		18.01.2006	RN

A 10911

Spreitzbefestigung
für SZ-System
spread-fastening
for SZ-system

K-D-GB

Bestellnummer / order no.:
1-91489-B-00059-AAAA-Y10

DIN A 4

Pos. pos.	Benennung description	Zeichnungsnummer / Abmessung drawing no. / dimension	Stck. pcs.	Werkstoff / Ident-Nr. material / ID-no.:	Bemerkung remarks
01	Spannstift split pin	4-91489-509-..-00001-Y10	1	1.7225.V- BR	
	hierzu gehört: to this belongs:				
	Beipackzettel instruction leaflet	1-91489-D-00012-Y10			
		Ⓑ komplett überarbeitet			

Blatt page · von of · Blatt page

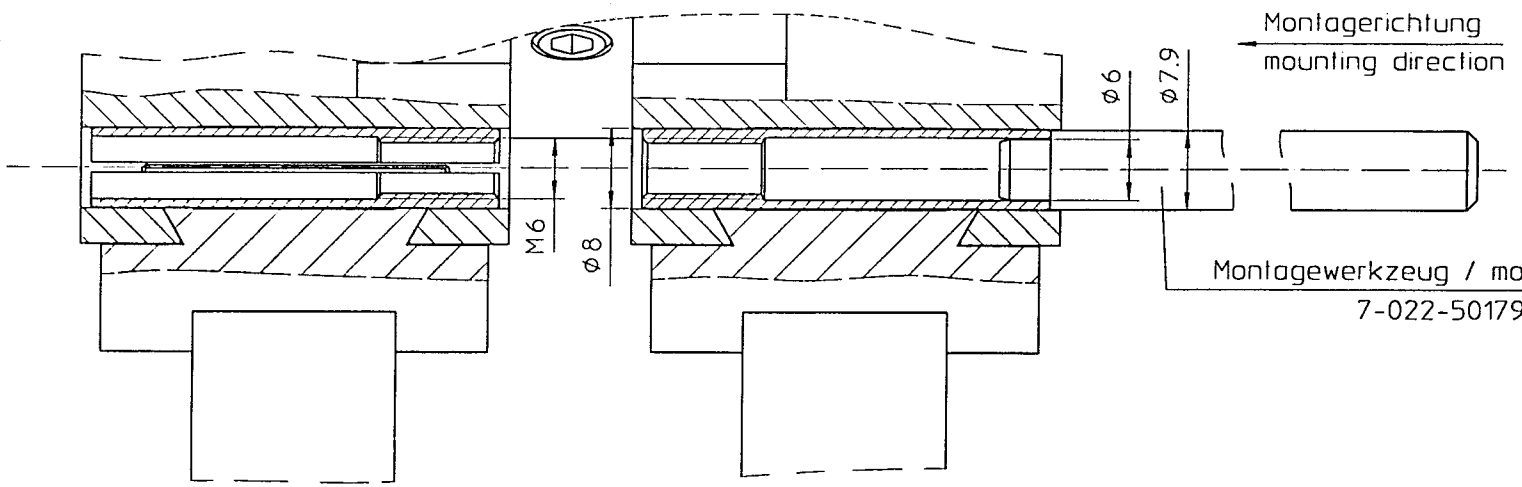
Ersatz für: replacement for: ·

CAD-Stückliste nicht manuell ändern!
Do not modify this CAD parts list manually !

Roboterseite
robot side

Werkzeugseite
tool side

Montagerichtung
mounting direction



Montagerichtung
mounting direction

Montagewerkzeug / mounting tool
7-022-50179

Montagehinweis:
- Ersatz für bisherige Befestigung Zylinderstift DIN7979- D8x40
- Nur noch neues Befestigungssystem einsetzen, ermöglicht größeren Toleranzausgleich

Mounting note:
- replacement for previous fastening paralell pin DIN7979- 8x40
- only use new fastening system, because of higher tolerance compensation

Beipackzettel
instruction leaflet

walther präzision

K | D-GB | PT

1-91489-D-00012-Y10

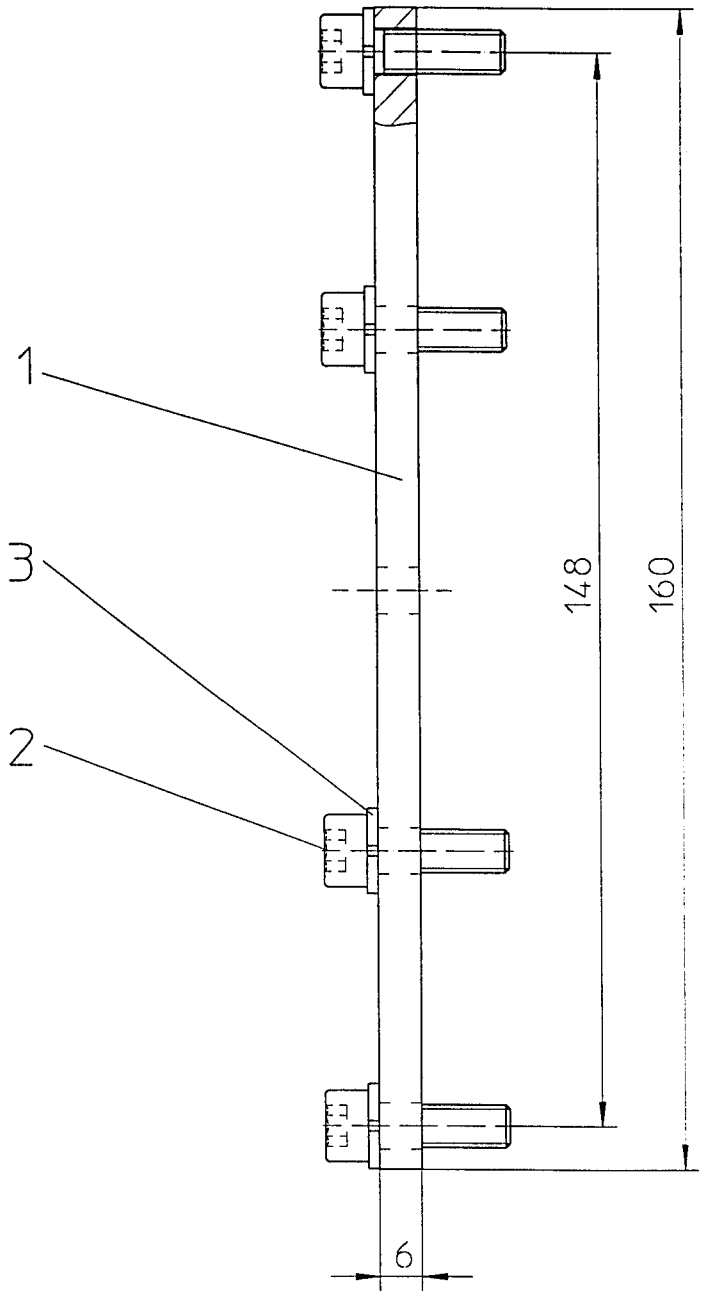
Maßstab: 2:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2006/01/30 TG	Erststellg.	2006/01/23	TG
	A100333	Gezeichn.	2006/01/23	TG
		Geprüft	2006/01/23	RN
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2006/01/30	RN

Spannstiftbefestigung SZ-System
split pin fastening SZ system

DIN A 3

Appendix:
Drawings and parts lists

11.1.5 1-91489-B-00006-AAAA-Z02
fastening ridge standard, long



walther präzision

1-91489-B-00006-....-Z02 K-D-GB

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom:18.01.2002 AF	Ersterstellg.	08.11.2000	ZC
	A06816	Gezeichn.	08.11.2000	ZC
		Geprüft	08.11.2000	RN
CAD-Zeichnung nicht manuell ändern !				

Befestigungsleiste Standard,lang
fastening ridge standard, long

DIN A 4

walther präzision

	Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
	01	Befestigungsleiste fastening ridge	4-91489-505-..-.-00000-Z02	1	3.3206.71-Ex-silber/silver	(B)
	02	Zylinderschraube fillister head screw	DIN 912 - M6 x 20 (B)	4	A2 - 70	
	03	Federring circlip	DIN 127 - B6 (B)	4	A2	

	Datum	Name
Erstellt	08.11.2000	ZC
Geschr.	08.11.2000	ZC
Geprüft	07.11.2000	RN

A06730

Ausf.: B vom: 14.12.2001 TG

Befestigungsleiste
Standard, lang
fastening ridge
standard, long

Bestellnummer:
1-91489-B-00006-AAAA-Z02

K-D-GB

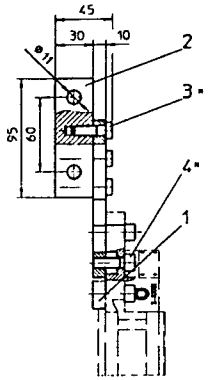
DIN A 4

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

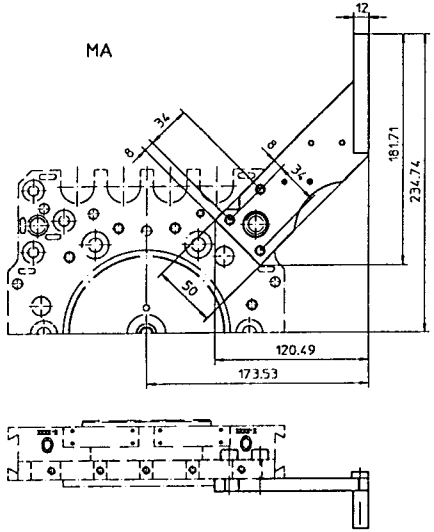
11.1.6 1-91489-B-00001-31-.-Z04-M. tension relief holder

Montagevarianten / assymbly variants

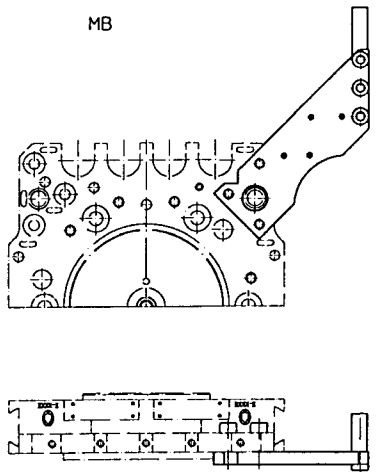


* gesichert mit Loctite 242
secured with Loctite 242

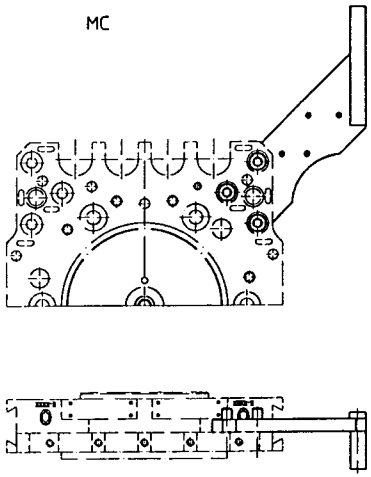
MA



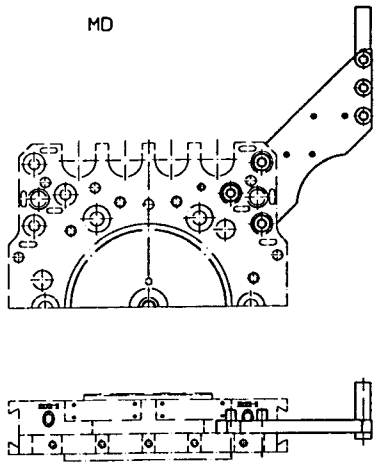
MB



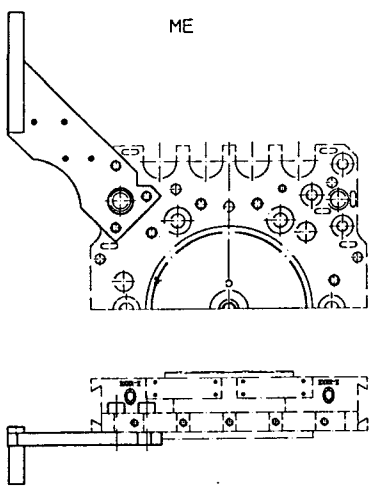
MC



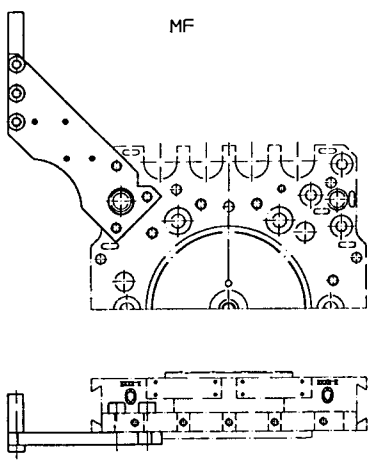
MD



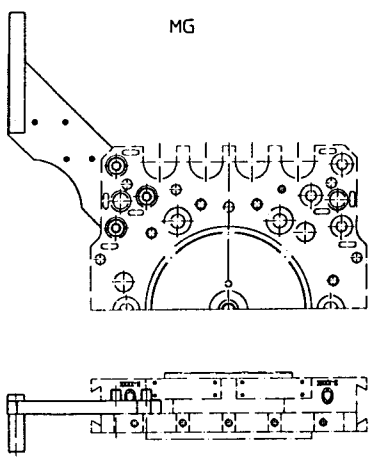
ME



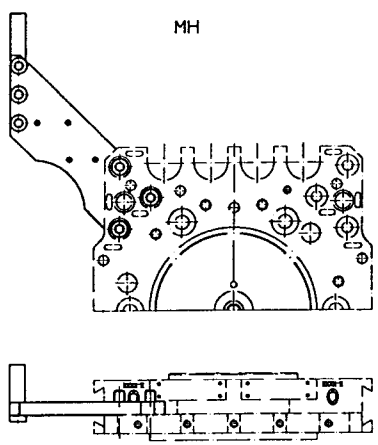
MF



MG



MH



Ⓞkomplett überarbeitet

walther präzision	1-91489-B-00001-..-.-Z04-M.				
Maßstab 1:2	Ersatz für:				
Fertigungs- und Prüfvorschriften nach WALTHER	Ausführung: 0			Datum	Name
	vom: 2004/09/21 TG		Erstellung	1999/02/02	AKa
Werksnorm-Nr.: 12100.03	A09764		Gezeichn.	1999/02/02	AKa
			Geprüft	2002/07/11	RN
CAD-Zeichnung nur mit 3D-System ändern !			Ä-geprüft	2004/09/23	RN
K	D-GB	PT	Zugentlastungshalter tension relief holder		

DIN A 1

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Befestigungsplatte	4-91489-520-..-Z04	1	3.3206-Ex-silber	
02	Aufnahmeplatte	4-91489-521-..-Z04	1	3.3206-Ex-silber	
03	Zylinderschraube	DIN 6912-M8 x 25	3	A2-70	
04	Zylinderschraube	DIN 912-M8 x 25	3	A2-70	
	Stücklisteninhalt identisch mit:	1-91489-B-00001-31-.-Z04-MA			
		1-91489-B-00001-31-.-Z04-MB			
		1-91489-B-00001-31-.-Z04-MC			
		1-91489-B-00001-31-.-Z04-MD			
		1-91489-B-00001-31-.-Z04-ME			
		1-91489-B-00001-31-.-Z04-MF			
		1-91489-B-00001-31-.-Z04-MG (J)			
		1-91489-B-00001-31-.-Z04-MH (J)			

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

walther präzision

Ausf.: J vom: 24.09.2004 TG

A09784

	Datum	Name
Ersterst.	02.02.99	AKa
Geschr.	02.02.99	AKa
Geprüft	02.02.99	DW

Zugentlastungshalter

Bestellnummer:
1-91489-B-00001-31-.-Z04-M.

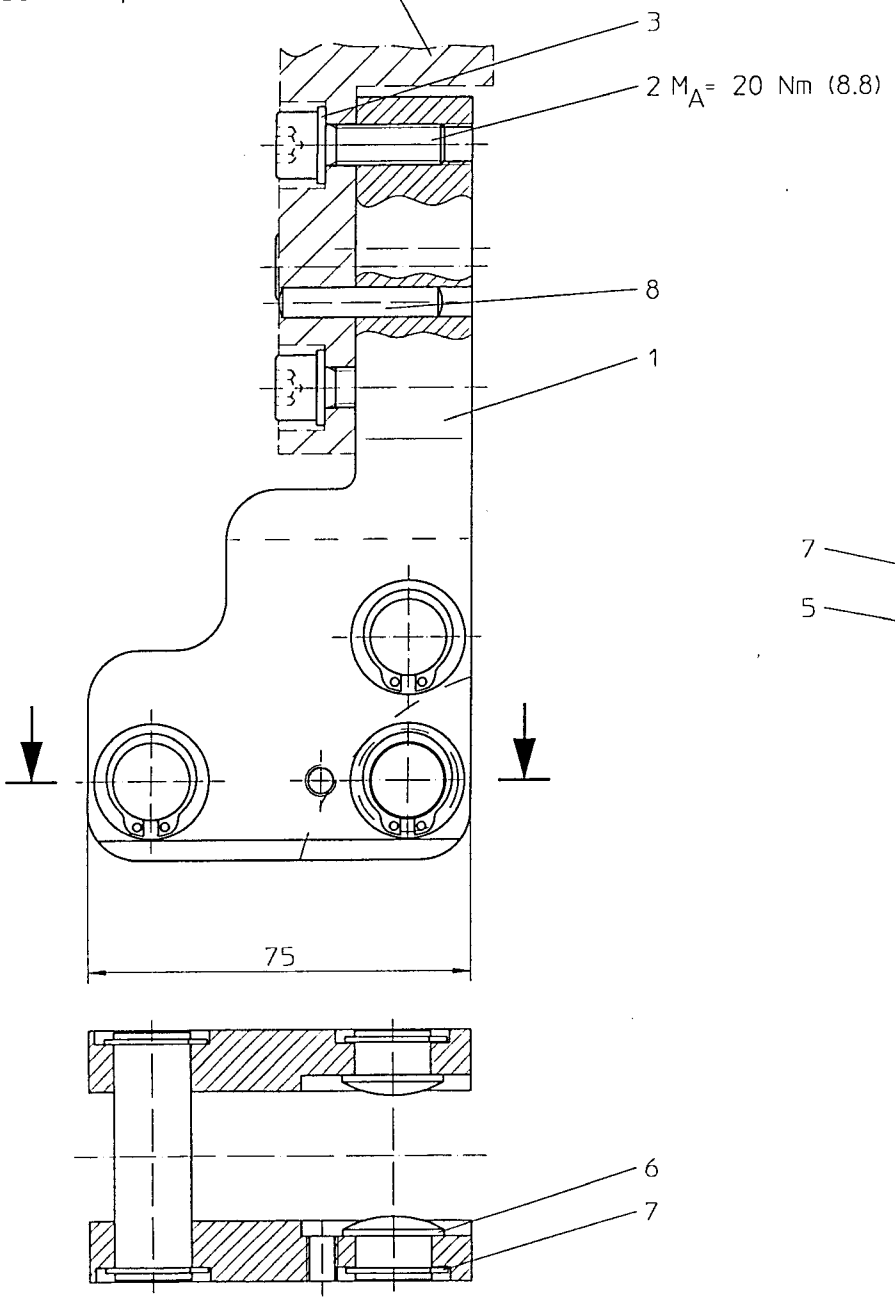
DIN A 4

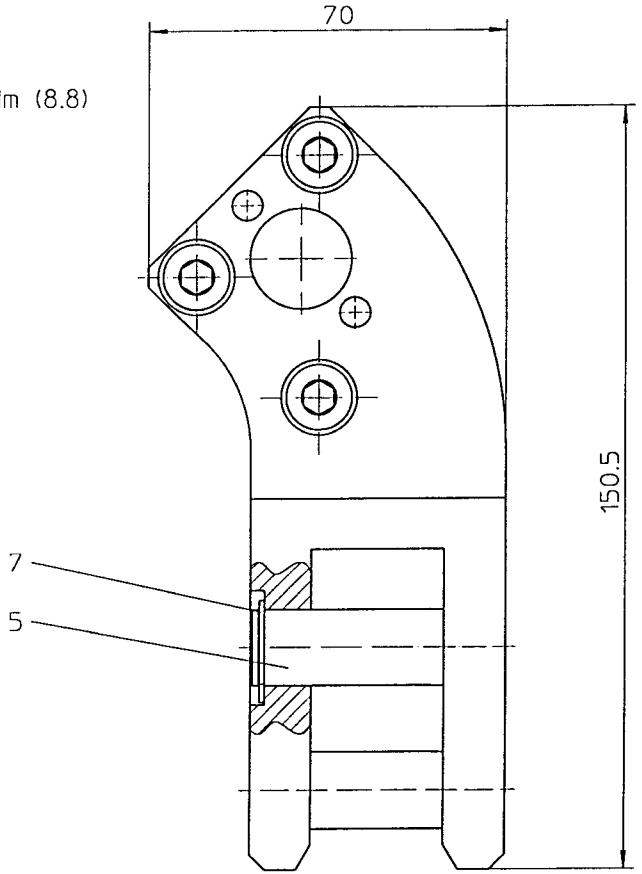
Appendix:
Drawings and parts lists

11.1.7 1-91489-B-00009-36-.-Y10
Lagerung (rechts)

Werkzeugseite (Losteil) Y10

tool-side (free part) Y10





walther präzision

K | D-GB | PT

1-91489-B-00009-..-.-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: D		Datum	Name
	vom: 2004/10/05 TG	Erststellg.	2000/07/14	AF
	A09809	Gezeichn.	2000/07/14	AF
		Geprüft	2004/03/15	RN
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/10/08	RN

Lagerung (rechts)

bearing (right)

DIN A 3

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Lagergabel rechts bearing fork right	4-91489-523-..-00003-Y10	1	3.4365.71 Ex-rot	
02	Zylinderschraube fillister head screw	DIN 912-M8 x 25	3	8.8 - VZ	
03	Scheibe washer	DIN 433-8.4	3	8 - VZ	
04					
05	Lagerbolzen bearing angle block	4-91489-547-..-Y10	2	1.0503 - Br	
06	Begrenzungsbolzen limitation bolt	4-91489-524-..-Y10	2	1.2379 - NT (J)	
07	Sicherungsring retaining ring	DIN 471 - 15 x 1	6	A2	
08	Zylinderstift parallel pin	DIN 7 - 6_{m6} x 32	2	A2	

	Name	Datum
Erstellt:	AF	13.07.2000
Geschr.	AF	13.07.2000
Geprüft	RN	13.07.2000

A09423

Ausf.: J vom: 15.06.2004 TG

Lagerung (rechts)
bearing (right)

K-D-GB

Bestellnummer:
1-91489-B-00009-36-.-Y10

DIN A 4

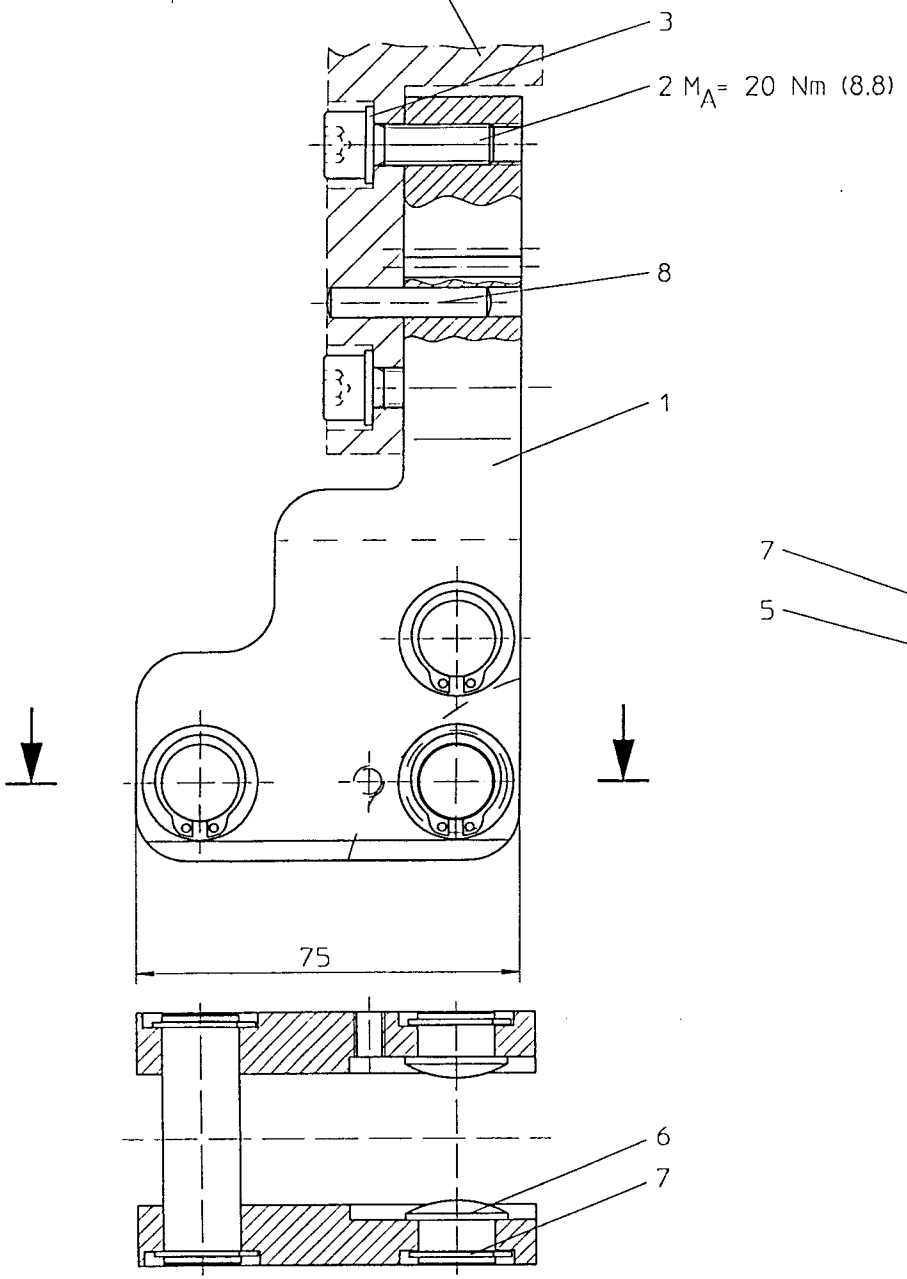
Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

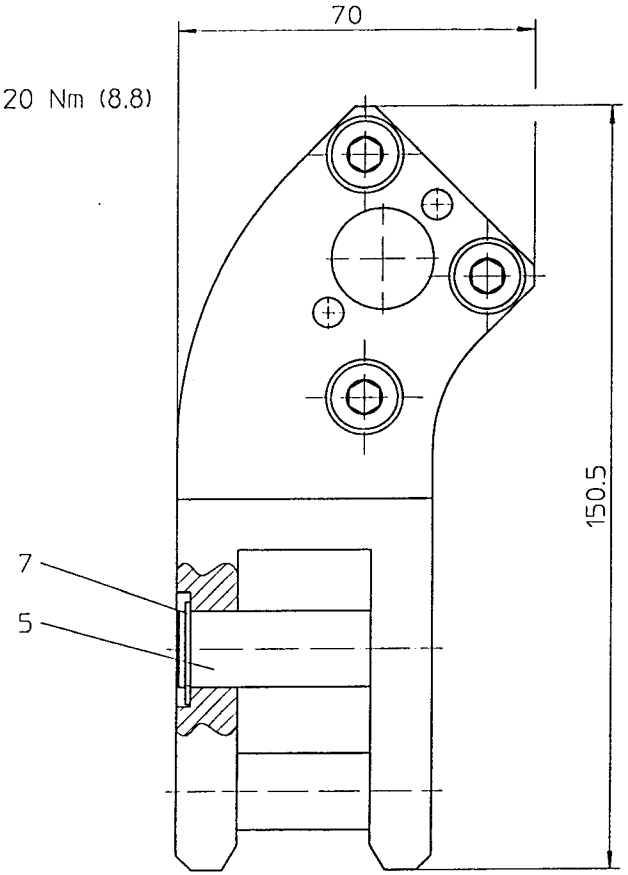
Appendix:
Drawings and parts lists

11.1.8 1-91489-B-00010-36-.-Y10
Lagerung (links)

Werkzeugseite (Losteil) Y10

tool-side (free part) Y10





walther präzision	1-91489-B-00010-..-.-Y10				
	Maßstab: 1:1	Ersatz für:			
	Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: D		Datum	Name
		vom: 2004/10/05 TG	Erststellg.	2000/07/13	AF
		A09809	Gezeichn.	2000/07/13	AF
			Geprüft	2004/03/15	RN
		CAD-Zeichnung nur mit 2D-System ändern !	A-geprüft	2004/10/08	RN
	Lagerung (links) bearing (left)				

K | D-GB | PT

DIN A 3

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Lagergabel links bearing fork left	4-91489-523-..-00004-Y10	1	3.4365.71 Ex-rot	
02	Zylinderschraube fillister head screw	DIN 912-M8 x 25	3	8.8 - VZ	
03	Scheibe washer	DIN 433-8.4	3	8 - VZ	
04					
05	Lagerbolzen bearing angle block	4-91489-547-..-Y10	2	1.0503 - Br	
06	Begrenzungsbolzen limitation bolt	4-91489-524-..-Y10	2	1.2379 - NT (J)	
07	Sicherungsring retaining ring	DIN 471 - 15 x 1	6	A2	
08	Zylinderstift parallel pin	DIN 7 - 6 $_{m6}$ x 32	2	A2	

		Datum	Name
Ersterst.		13.07.2000	AF
Geschr.		13.07.2000	AF
Geprüft		13.07.2000	RN

A09423

Ausf.: J vom: 15.06.2004 TG

Lagerung (links)
bearing (left)

K-D-GB

Bestellnummer:
1-91489-B-00010-36-.-Y10

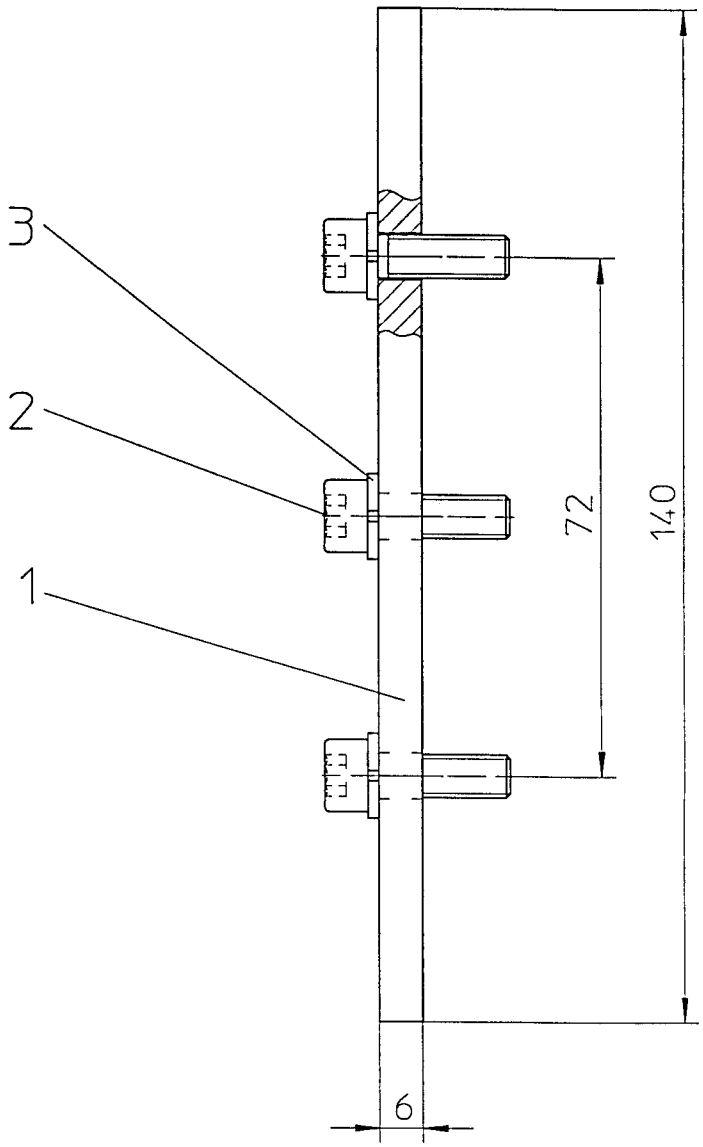
Blatt von Blatt | Ersatz für: .

CAD-Stückliste nicht manuell ändern!

DIN A 4

Appendix:
Drawings and parts lists

11.1.9 1-91489-B-00015-AAAA-Y10
fastening ridge standard, short



walther präzision	1-91489-B-00015-....-Y10			K-D-GB
	Maßstab: 1:1	Ersatz für:		
	Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: A		Datum / Name
		vom:07.11.2000	Ersterstellg.	07.11.2000 AF
		A05694	Gezeichn.	07.11.2000 AF
			Geprüft	07.11.2000 RN
	CAD-Zeichnung nicht manuell ändern !			

Befestigungsleiste Standard, kurz
fastening ridge standard, short

DIN A 4

walther präzision

		Datum	Name
Erstellt		07.11.2000	AF
Geschr		07.11.2000	AF
Geprüft		07.11.2000	RN

A05694

Ausf.: A vom: 07.11.2000

Befestigungsleiste Standard, kurz
fastening ridge standard, short

Bestellnummer:
1-91489-B-00015-AAAA-Y10

K-D-GB

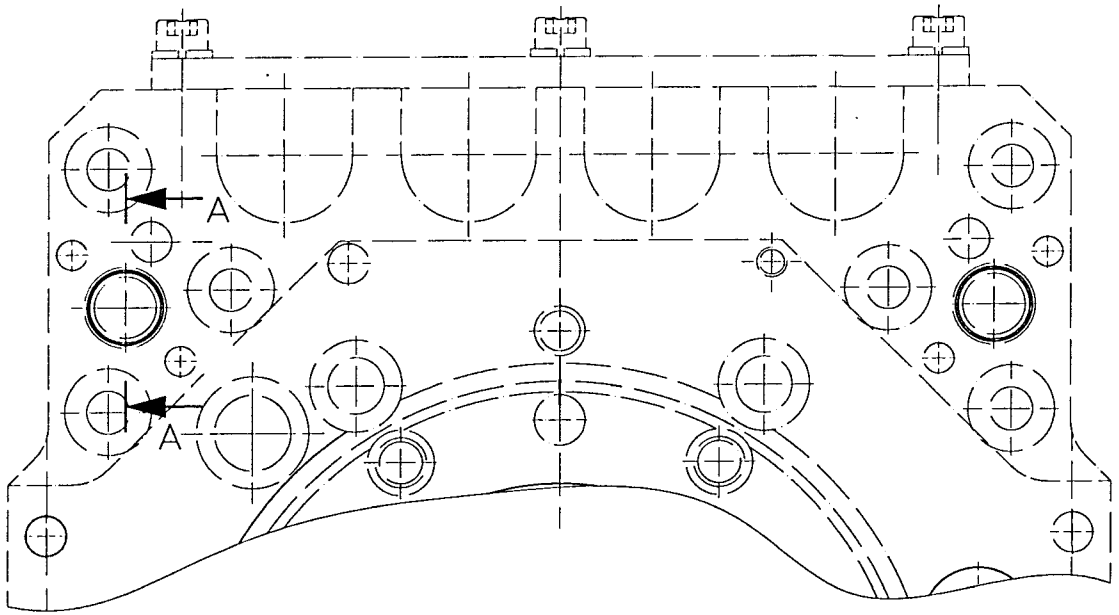
Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Befestigungsleiste fastening ridge	4-91489-505-..-.-00002-Y10	1	3.3206-Ex-silber/silver	
02	Zylinderschraube fillister head screw	DIN 912 - M6 x 20	3	A2 - 70	
03	Federring circlip	DIN 127 - B6	3	A2	

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

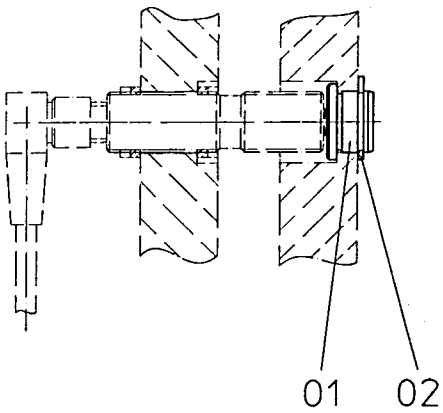
DIN A 4

Appendix:
Drawings and parts lists

11.1.10 1-91489-E-00007-AAAA-Y10
electrical equipment (tool side)



A-A



K-D-GB

walther präzision

pt 5736

hierzu gehört 1-91489-E-00006-....-Y10
to this belongs

1-91489-E-00007-....-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: C		Datum	Name
	vom:02.02.2000 AnS	Ersterstellg.	06.12.1999	AnS
	A04852	Gezeichn.	06.12.1999	AnS
		Geprüft	06.12.1999	RN
CAD-Zeichnung nicht manuell ändern !				

Installationspacket Elektro (Werkzeugseite)
electrical equipment (tool side)

DIN A 3

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Schaltbolzen switch bolt Ⓑ	4-91489-521-..-.-00000-Y10 Ⓑ	2	1.0718K-VZ	
02	Sicherungsring circlip Ⓑ	DIN 471 - 12x1 Ⓑ	2	Federstahl spring steel	

	Datum	Name
Erstellt:	30.11.99	AnS
Geschr.	30.11.99	AnS
Geprüft	30.11.99	RN

Ausf.: B vom: 31.012000RN

A04852

Installationspaket Elektro
(Werkzeugseite)
electrical equipment
(tool side)

K-D-GB

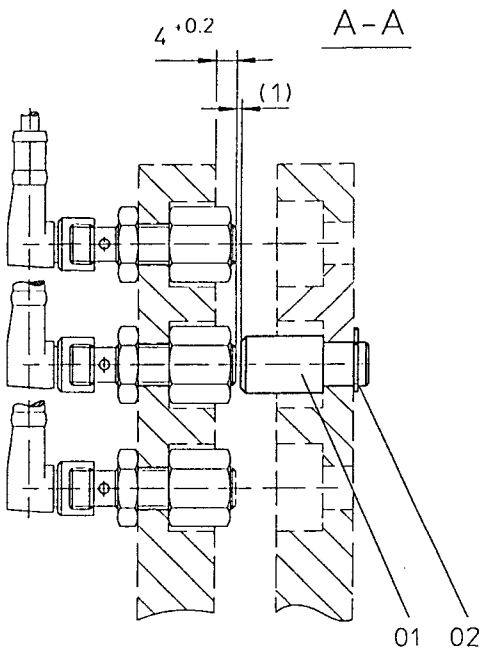
Bestellnummer:
1-91489-E-00007-AAAA-Y10

Blatt von Blatt | Ersatz für:

CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.11 1-91489-E-00011-AAAA-Y10 tool – coding 1-3 (tool side)

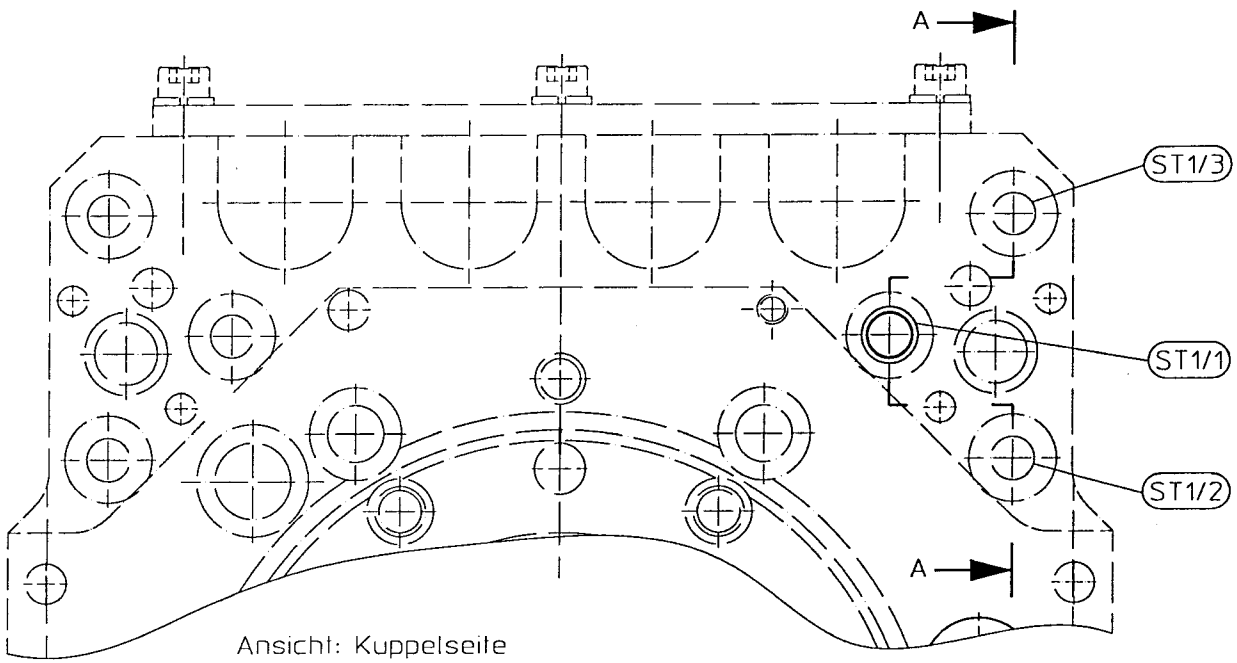


Roboter Seite
robot side

Werkzeug Seite
tool side

Variante B
Kodierbolzen rechts
coding bolt , right

Variante A
Kodierbolzen links
coding bolt , left



Ansicht: Kuppelseite
view : coupling side

gezeichnet: Kodierung 1
drawn : coding 1

walther präzision

K	D-GB	PT 5736	

1-91489-E-00011-....-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: C		Datum	Name
	vom: 2002/07/12 JP	Ersterstellg.	2000/06/29	ZC
	A07342	Gezeichn.	2000/06/29	ZC
		Geprüft	2002/07/12	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2002/07/12	KHK

Werkzeug-Kodierung 1-3 (Werkzeugseite)
tool-coding 1-3 (tool side)

DIN A 3

walther präzision

	Name	Datum
Erstellt	ZC	28.06.00
Geschr.	ZC	28.06.00
Geprüft	RN	28.06.00

A-----

Ausf.: A vom: 28.06.00 ZC

Werkzeug-Kodierung 1-3
(Werkzeugseite)
tool-coding 1-3
(tool side)

K-D-GB

Bestellnummer:
1-91489-E-00011-AAAA-Y10

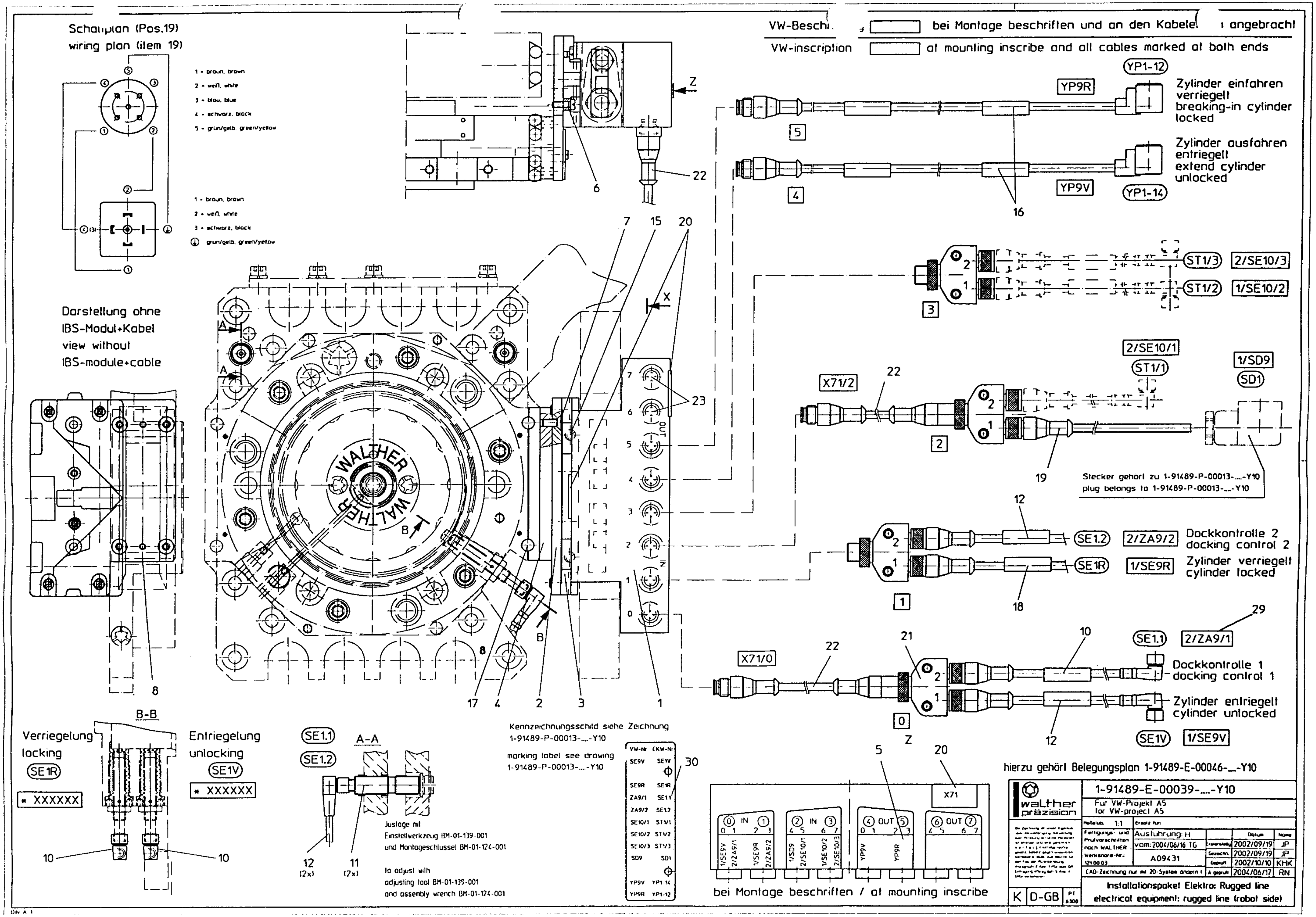
Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Kodierbolzen	4-91489-551-....-Y10	1	1.078K-VZ	
	coding bolt				
02	Sicherungsring	DIN 471 - 8x0.8	1	Federstahl	
	circlip			spring steel	

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.12 1-91489-E-00039-AAAA-Y10 electrical equipment (robot side) with secutity module)

1-91489-E-00046-....-Y10 Wiring plan



Schaltplan (Pos.19)
wiring plan (item 19)
1 - braun, brown
2 - weiß, white
3 - blau, blue
4 - schwarz, black
5 - grün/gelb, green/yellow
1 - braun, brown
2 - weiß, white
3 - schwarz, black
grün/gelb, green/yellow
Darstellung ohne IBS-Modul+Kabel
view without IBS-module+cable
VW-inscription
bei Montage beschriften und an den Kabeln angebracht
at mounting inscribe and all cables marked at both ends
YP1-12
YP9R
Zylinder einfahren verriegelt
breaking-in cylinder locked
Zylinder ausfahren entriegelt
extend cylinder unlocked
YP9V
YP1-14
ST1/3
2/SE10/3
ST1/2
1/SE10/2
2/SE10/1
ST1/1
1/SD9
SD1
X71/2
Stecker gehört zu 1-91489-P-00013-....-Y10
plug belongs to 1-91489-P-00013-....-Y10
SE1.2
2/ZA9/2
Dockkontrolle 2
docking control 2
SE1R
1/SE9R
Zylinder verriegelt
cylinder locked
X71/0
SE1.1
2/ZA9/1
Dockkontrolle 1
docking control 1
Zylinder entriegelt
cylinder unlocked
SE1V
1/SE9V
B-B
Verriegelung
locking
SE1R
XXXXXX
Entriegelung
unlocking
SE1V
XXXXXX
A-A
Justage mit
Einstellwerkzeug BM-01-139-001
und Montageschlüssel BM-01-124-001
to adjust with
adjusting tool BM-01-139-001
and assembly wrench BM-01-124-001
Kennzeichnungsschild siehe Zeichnung 1-91489-P-00013-....-Y10
marking label see drawing 1-91489-P-00013-....-Y10
hierzu gehört Belegungsplan 1-91489-E-00046-....-Y10
bei Montage beschriften / at mounting inscribe
walther präzision
1-91489-E-00039-....-Y10
Für VW-Projekt A5
for VW-project A5
Ausführung: H
vom: 2004/06/16 TG
A09431
2002/09/19 JP
2002/09/19 JP
2002/10/10 KHK
2004/06/17 RN
Installationspaket Elektro: Rugged line
electrical equipment: rugged line (robot side)
K D-GB

walther präzision

	Name	Datum
Gezeichnet	KHK	19.09.2002
Geprüft	JP	19.09.2002
Gesch.	JP	19.09.2002
Erstersl.		

A 10904

Ausf.: L vom: 19.01.2006 AKam
Issue: from:

Installationspaket Elektro (Roboterseite)
mit Sicherheitsmodul (with security module)
electrical equipment (robot side)

Bestellnummer: 1-91489-E-00039-AAAA-Y10
Part no.:

K-GB-D

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	Rugged Line (Interbus) rugged line (interbus)	IBS RL 24 DIO 8/8/8/R-LK Art. Nr: 2734 167	1		Fa. Phoenix Contact oder Kundenbeistellung
02	Montageplatte (Rugged-Line) assembly plate	4-91489-563-..-Y10	1	3.2315 - Ex-silber	
03	Montageplatte assembly plate	IBS RL AP Art.-Nr.: 2731 128	1		Fa. Phoenix Contact oder Kundenbeistellung
04	Träger carrier	4-91489-562-..-Y10	1	3.3206 Ni	
05	Beschriftungsschild, groß lettering plate, great	IBS RL MARKER-SET Art.-Nr.: 2734727	4		Fa. Phoenix
06	Zylinderschraube fillister head screw	DIN EN ISO 1207 (DIN 84) - M4x12	6	A2 - 70	
07	Senkschraube countersunk screw	DIN 7991 M5 x 12	4	A2 - 70	
08	Zylinderkerbstift parallel growed pin	DIN 1473 - 4 x 10	2	A2	
09					
10	Verbindungskabel (Contr. / RL) connecting cable	RST3-RKMWV-LED A3-224/0,3m	1		Fa. Lumberg
11	Grenztaster Limitswitch	EGM12-SAM3C 1868	2		Fa. Euchner
12	Verbindungskabel (Euchner / RL) connecting cable	RST3-RKMWV-LED A3-224/0,6m	2		Fa. Lumberg
13					
14					
15	Zylinderschraube Hexagon socket head cap screw	DIN 912 - M4 x 10	2	A2 - 70	
16	Verbindungskabel (Ventil / RL) connection cable	RST5-3-VCD1A-1-3-17/0,6m	2		Fa. Lumberg
17	Spreitzbefestigung für SZ-System spreaded-fastening for SZ-system (L)	1-91489-B-00059-AAAA-Y10	2	Unterstückliste	
18	Verbindungskabel (Euchner / RL) connection cable	RST3-RKMWV-LED A3-224/0,3m	1		Fa. Lumberg
19	Steckverbinder (Drucksch./ASB) plug connector	RST 5-259/2m	1		Fa. Lumberg
20	Beschriftungsschild, klein lettering plate, small	IBS RL MARKER-SET Art.-Nr.: 2734730	2		Fa. Phoenix
21	2-fach Block-Verteiler (5polig) dual distribution block (5-way)	FSM5-2FKM5.4/S89	4		Fa. Escha
22	Verbindungskabel (Balluf,Euchner/RL) connecting cable	RST5-RKT5-181/0,3m	2		Fa. Lumberg
					Fa. Siemens-BERO

 Ersatz für: CAD-Stückliste nicht manuell ändern!

DIN A 4

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
23	Schutzkappe protection cap	IBS IP PROT 10 Art.Nr.2759 919	2		Fa. Phoenix Contact
24					
25					
26					
27					
28					
29	Kennzeichnungsschild marking label	7723	24	Al-elox	Fa. SMF
30	Kennzeichnungsschild marking label	4-91489-573-..-Y10	1	Al-elox	Fa. SMF
31					
32					
33					
34					
35					
36					
37					
38					
39					

Ausf.: Issue: L vom: from: 19.01.2006 AKam

A 10904

	Datum	Name
Erstert.	03.12.2002	JP
Geschr.	03.12.2002	JP
Geprüft	03.12.2002	KHK

Installationspaket Elektro (Roboterseite)
mit Sicherheitsmodul (with security module)
electrical equipment (robot side)

Bestellnummer: Part no.: 1-91489-E-00039-AAAA-Y10

K-GB-D

Blatt 2 von 2 Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

DIN A 4

Belegungsplan für
1-91489-E-00039-....-Y10
1-91489-E-00065-....-Y10

RL	Y-Verteiler	Kabelbezeichnung
0	1	1/SE9V
	2	2/ZA9/1
1	1	1/SE9R
	2	2/ZA9/2
2	1	1/SD9
	2	2/SE10/1
3	1	1/SE10/2
	2	2/SE10/3
4		YP9V
5		YP9R
6		
7		

walther präzision

1-91489-E-00046-....-Y10

Maßstab: 1:1

Ersatz für:

Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03

Ausführung: C

vom: 2004/07/07 AM

A09510

CAD-Zeichnung nur mit 2D-System ändern !

	Datum	Name
Erstellg.	2002/12/20	JP
Gezeichn.	2002/12/20	JP
Geprüft	2003/01/07	KHK
A-geprüft	2004/07/07	KHK

Belegungsplan

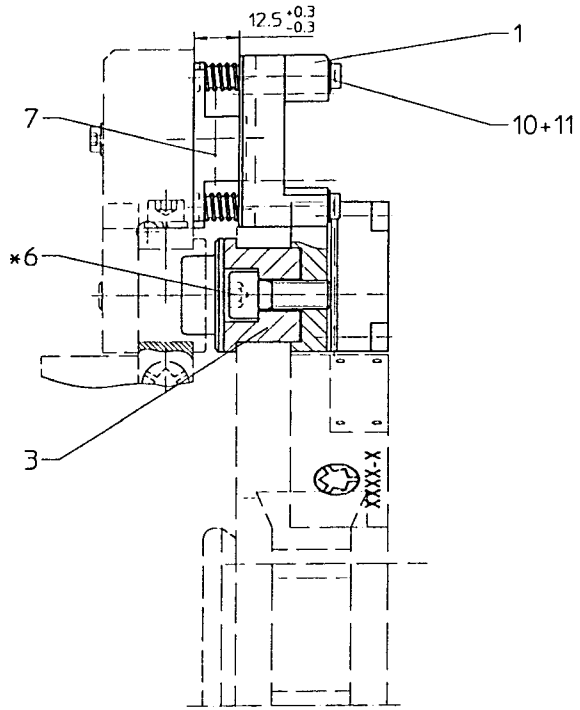
DIN A 4

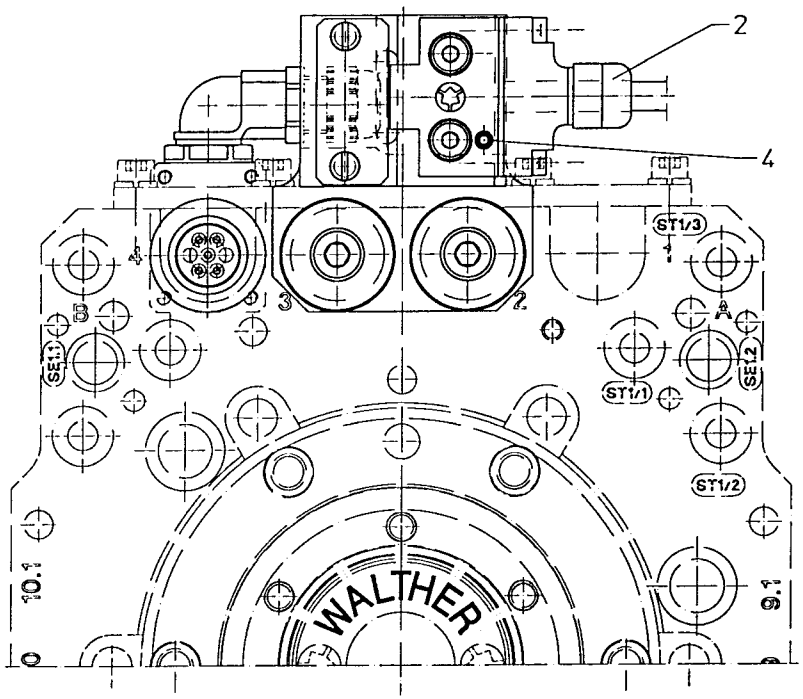
Appendix:
Drawings and parts lists

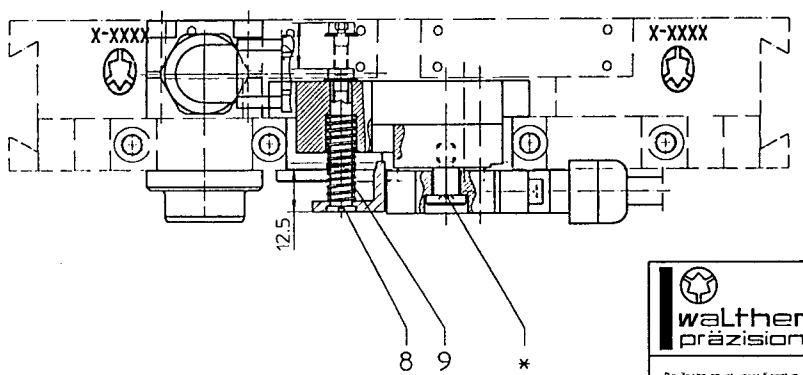
11.1.13 1-91489-E-00042-AAAA-Y10
LWL – equipment (tool – side)

1-91489-E-00044-AAAA-Y10 fibre optic plug (tool side)
1-91489-E-00062-AAAA-Y10 fibre optic socket with buscable
1-95248-1-XX001-AAAA-Z01 Fibre optic transmitter - plug
1-95288-1-XX001-AAAC-Y03 pin housing in elements style
1-C5274-1-ET015-2.-0-AO electro plug 5-way

Ansicht ohne LWL-Stecker
view without fibre optic socket







* mit LOCTITE 243 gesichert
* secured with LOCTITE 243

walther präzision

1-91489-E-00042-....-Y10

hierzu gehört:
1-91489-E-00038-....-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2004/09/29 JP	Erststellg.	2002/12/13	AF
	A09795	Gezeichn.	2002/12/13	AF
		Geprüft	2002/12/14	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/09/29	KHK

LWL-Paket Werkzeugseite
LWL-equipment tool side

K | D-GB | PT 6308

DIN A 2

walther präzision

Ausf.: Issue:	A vom: from:	13.12.2002	AF
Erstellt.		13.12.2002	AF
Geschr.		13.12.2002	AF
Geprüft		13.12.2002	KHK

A 07724

LWL-Paket Werkzeugseite
LWL-equipment tool side

Bestellnummer: Part no.: 1-91489-E-00042-AAAA-Y10

K-GB-D

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	Aufnahme holding fixture	4-91489-566-..-.-00000-Y10	1	3.4365.71 - NI	
02	LWL - Stecker fibre optic socket	1-91489-E-00044-AAAA-Y10	1	Unterstückliste	
03	Bolzen bolt	4-91489-565-..-.-00000-Y10	2	3.0615.71 - NI	
04	Spannstift roll pin	DIN 1481 - 4 x 16 - A	1	A2	
05					
06	Zylinderschraube fillister head screw	DIN 912 - M8 x 20	2	A2 - 70	
07	Schutzwinkel prtaction angle	4-91489-567-..-.-00000-Y10	1	3.2315 - Ni	
08	Bolzen bolt	4-91489-568-..-.-00000-Y10	2	1.4301	
09	Druckfeder pressure spring	4-91489-569-..-.-00000-Y10	2	1.4310 K+A	
10	Zylinderschraube fillister head screw	DIN 6912 - M4 x 10	2	A2 - 70	
11	Scheibe washer	DIN 125 - B4,3	2	A2	

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

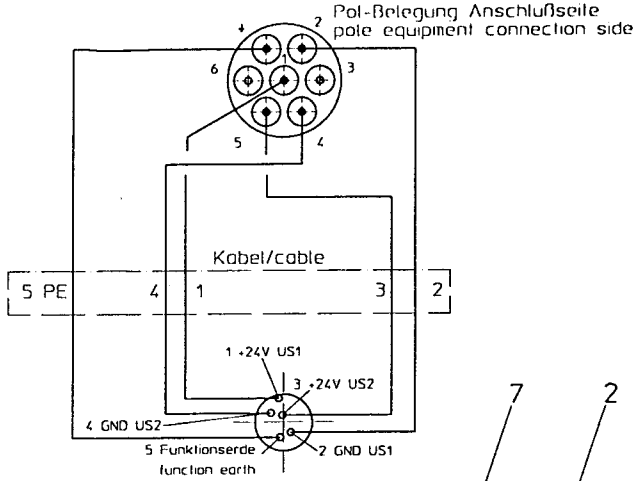
DIN A 4

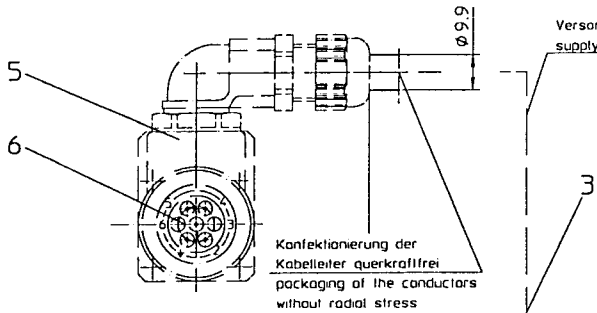
Beistellung: Stiftgehäuse 1-95288-1-XX001-AAAC-Y03
Elektrostecker 1-C5274-1-ET015-2N-0-A0
placed at disposal: pin housing 1-95288-1-XX001-AAAC-Y03
electro plug 1-C5274-1-ET015-2N-0-A0

Busstecker bus plug	Kabel cable	Elektrostecker electro plug
1	1	1
2	2	2
3	3	5
4	4	4
5 PE	5 PE	PE ⏚

Spannungsversorgung
power supply

Elektrostecker/electro plug





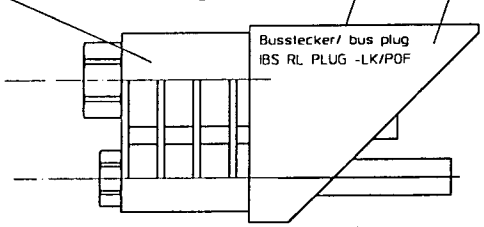
Versorgungskabel
supply cable

3

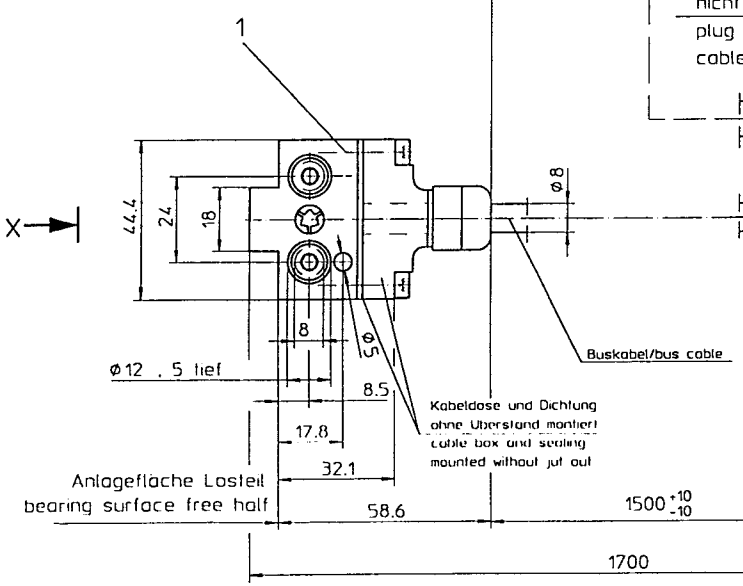
Achtung, bei Steckeranschluß auf richtige Kabellage achten!
Remark : pay attention to correct cable position in case of plug connection !

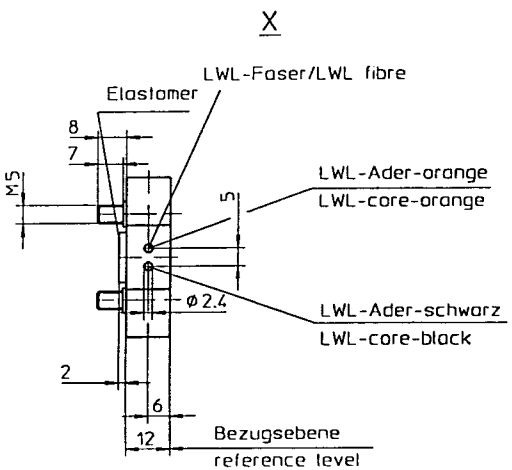
Stecker und beide Kabel nicht verdrahtet
plug and both cables not wired

Busstecker
bus plug



Stecker wird lose mitgeliefert
plug will be enclosed unpacked





Dämpfung mit Kabel und LWL-Buchse ≤ 2dB
mit Werkszeugnis
current attenuation with cable and LWL-socket ≤ 2dB
with test certificate

walther präzision	1-91489-E-00044-....-Y10			
	Hierzu gehört 1-91489-E-00045-....Y10 to this belongs 1-91489-E-00045-....Y10			
	Maßstab. 1:1	Ersatz für:		
	Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00 03	Ausführung: F		Datum / Name
		vom: 2004/08/12 AM	Erstellg.	2002/12/13 AF
		A09636	Gezeichn.	2002/12/13 AF
			Geprüft	2002/12/14 KHK
	CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/08/13 KHK
	LWL- Stecker (Werkzeugseite) fibre optic socket (tool side)			
	K D-GB PT 6308			

DIN A 2

walther präzision

	Name	Datum
Ersterst.	AF	13.12.2002
Geschr.	AF	13.12.2002
Geprüft	KHK	13.12.2002

A 09636

Ausf.: F vom: 11.08.2004 AM
Issue: F from: 11.08.2004 AM

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	LWL-Stecker mit Buskabel	1-91489-E-00062-AAAA-Y10 (F)	1	Unterstückliste as per separate list	Lieferumfang Fa. Jowo (F)
	fibre obtic plug with buscable				
02	Busstecker	IBS RL Plug-LK/POF	1		Fa. Phoenix Contact
	bus plug	Art.-Nr.: 27 31 076			Lieferumfang Fa. Jowo (F)
03	Versorgungskabel	IBS PWR/5HD/F	1	Länge 1700mm	Fa. Phoenix Contact
	supply cable	Art.-Nr.: 27 31 775		length 1700mm	Lieferumfang Fa. Jowo (F)
04					
05	Stiftgehäuse	1-95288-1-XX001-AAAC-Y03	1	Unterstückliste as per separate list	
	pin housing				
06	Elektrostecker	1-C5274-1-ET015-2N-0-A0	1	Unterstückliste as per separate list	
	electro plug				
07	Beschriftungsschild. klein	IBS RL MARKER-SET	1		Fa. Phoenix Contact
	lettering plate, small	Art.-Nr.: 27 34 730			Lieferumfang Fa. Jowo (F)
	Dämpfung mit Kabel und LWL-Buchse ≤ 2dB (F)				
	mit Werkszeugnis				
	current attenuation with cable and LWL-socket ≤ 2dB				
	with test certificate				
	Pos.1, 3-7				
	komplett gefertigt, verdrahtet und geprüft nach Zeichnung 1-91489-E-00044-....-Y10				
	completly fabricated, wired and checked according to drawing 1-91489-E-00044-....-Y10				

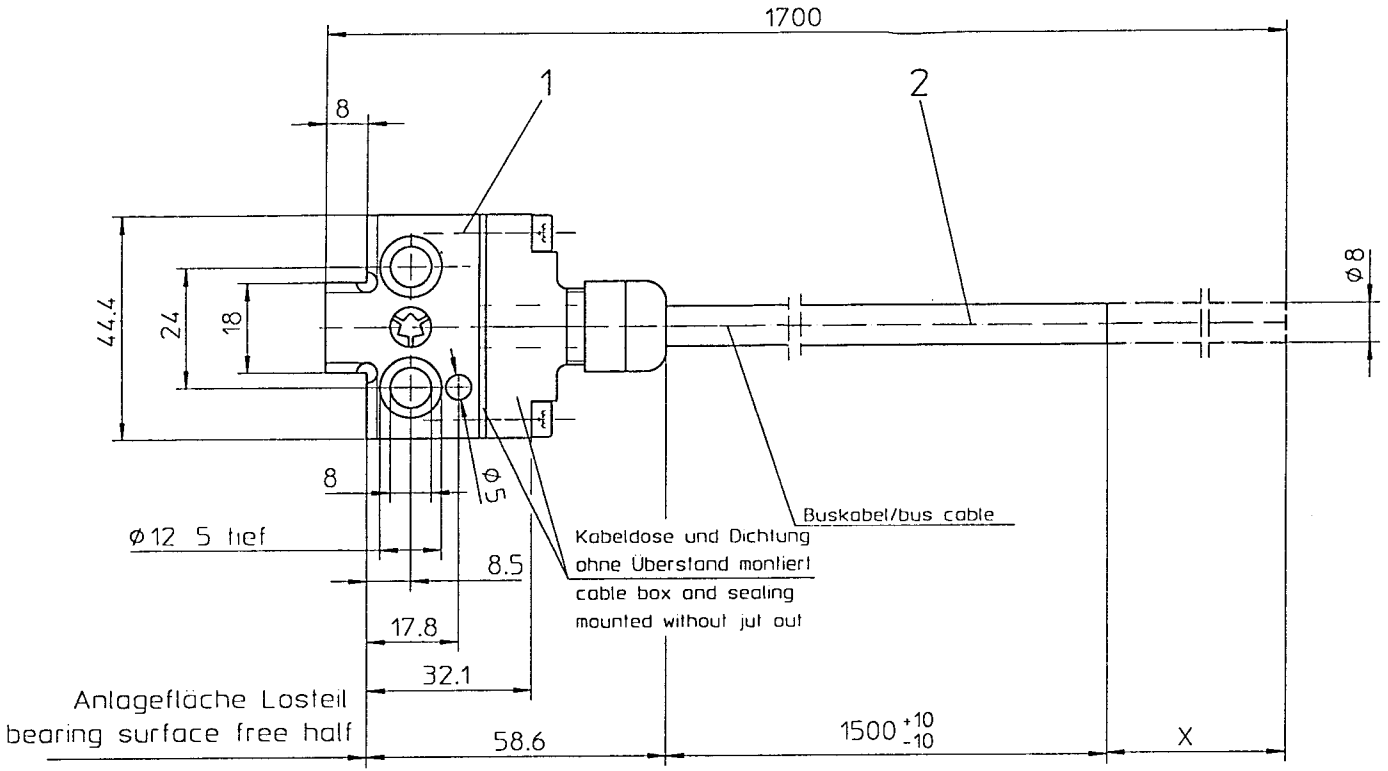
LWL-Stecker (Werkzeugseite)
fibre obtic plug (tool side)

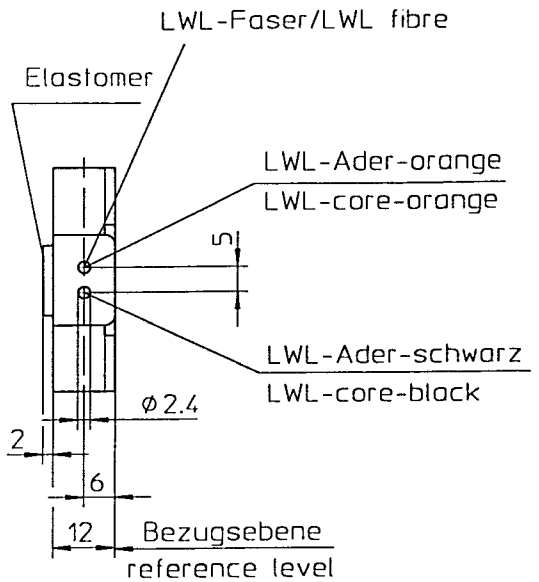
Bestellnummer:
Part no.:
1-91489-E-00044-AAAA-Y10

K-GB-D

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

DIN A 4





für Busstecker-Montage
zusätzliches Endmontagematerial
in case of bus plug mounting
additional mounting material
for final assembly

LWL-Kabel : Duplex 1000 my PMMA-Faser
bedingt schweißspritzbeständig
Fasermantel -ø: 2.2 mm
Dämpfung : ≦ 2dB mit Kabel und LWL-Buchse
mit Werkszeugnis
Faser poliert
Schwimmende Ausrichtung +/- 0.3mm

LWL-cable : Duplex 1000 my PMMA-fibre
relatively welding-squirt resistant
fibre casing -ø: 2.2 mm
absorbing : ≦ 2dB with cable and LWL-socket
with test certificate
fibre polished
floating alignment +/- 0.3mm

walther präzision

K | D-GB | PT 6136

1-91489-E-00062....-Y10

Hierzu gehört 1-91489-E-00061-....Y10
to this belongs 1-91489-E-00061-....Y10

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: E		Datum	Name
	vom: 2004/08/12 AM	Erststellg.	2003/12/16	JP
	A09636	Gezeichn.	2003/12/16	JP
		Geprüft	2003/12/16	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/08/13	KHK

LWL- Stecker mit Buskabel
fibre optic plug with buscable

DIN A 3

walther präzision

Ersterst.		A 09636	Ausf.: C vom: 12.08.2004 AM
Geschr.	16.12.2003		
Geprüft	16.12.2003		
	KHK	JP	JP

LWL - Stecker mit Buskabel
fibre optic socket with buscuble

Bestellnummer:
1-91489-E-00062-AAAA-Y10

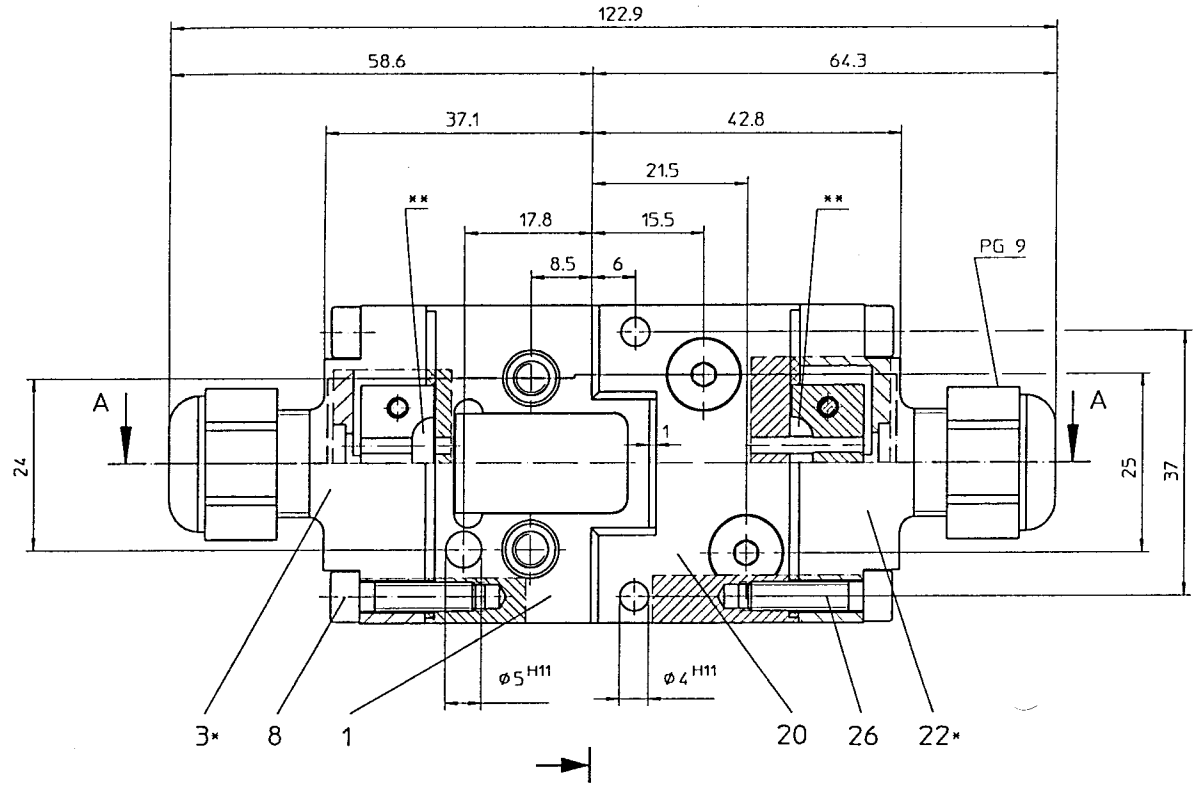
K-D-GB

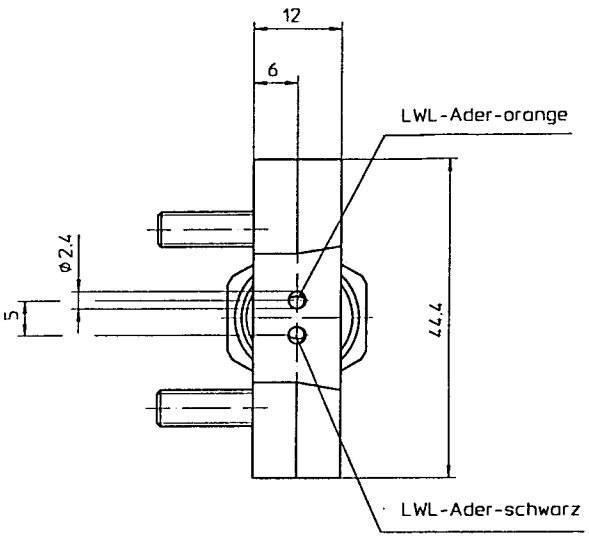
Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	LWL- Stecker	JW 187-0 ©	1		Lieferumfang Fa. Jowo ©
	fibre optic plug	bei Eigenfertigung: 1-95248-1-XX001-AAAA-Z01			
02	Buskabel	PSM-LWL/Rugged-Flex-980/1000	1	Montagelänge 1700mm	Fa. Phoenix Contact
	bus cable	Art.-Nr. 2744335		mounting length 1700mm	Lieferumfang Fa. Jowo ©
	©				
	Dämpfung mit Kabel und LWL-Buchse ≦ 2dB				
	mit Werkszeugnis				
	current attenuation with cable and LWL-socket ≦ 2dB				
	with test certificate				

Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

DIN A 4

1-95248-1-XX001-....-Z01 (JW 187-0) → 1-95248-4-XX001-....-Z01 (JW 188-0)

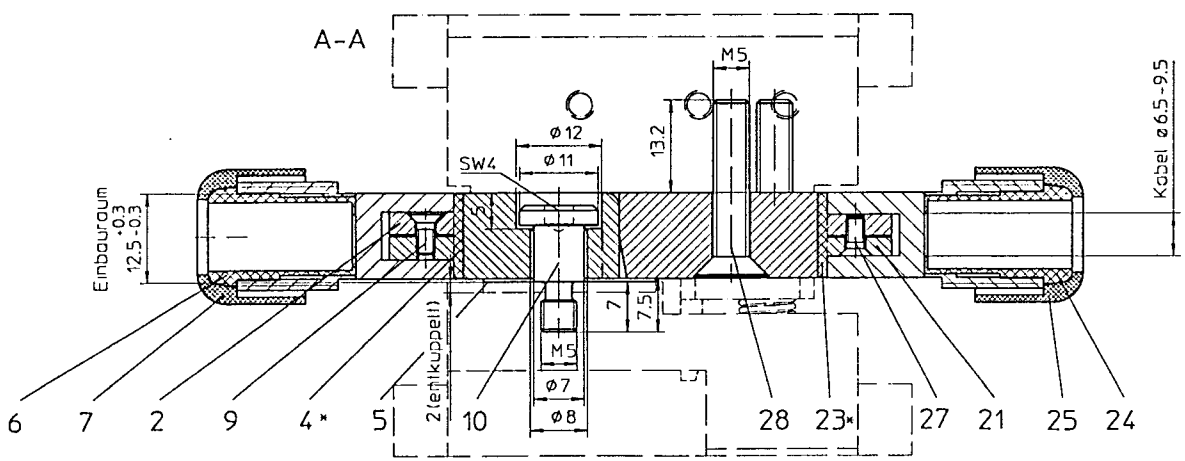




Dämpfung mit Kabel ≦ 2dB
mit Werkszeugnis
current attenuation with cable ≦ 2dB
with test certificate

** LWL-Ader nur im Bereich der Zugentlastung mit UHU Schnellfest Art.-45700 (Epoxidkleber) gesichert

Frei von lackverlaufstörenden Substanzen



* Kabeldose und Dichtung ohne Überstand montiert
cable box and sealing mounted without jut out

walther präzision	1-95248-1-XX001-....-Z01 (JW187-0)			
	1-95248-4-XX001-....-Z01 (JW188-0)			
Maßstab: 2:1	Ersatz für:			
Fertigungs- und Prüfvorschriften noch WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: H		Datum	Name
	vom: 2004/08/11 AM	Erstersteilg	2002/09/06	JP
	A09642	Gezeichn.	2004/07/01	JP
		Geprüft	2004/07/06	KHK
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/08/18	KHK
PT 6259	LWL-Übertragungseinheit			

DIN A 2

walther präzision

Ersterst.		Datum	Name
Geschr.	A	29.07.2003	JP
Geprüft	-----	29.07.2003	JP
KHK			

Ausf.: A vom: 29.07.2003 JP

LWL-Stecker

Fibre optic transmitter - plug

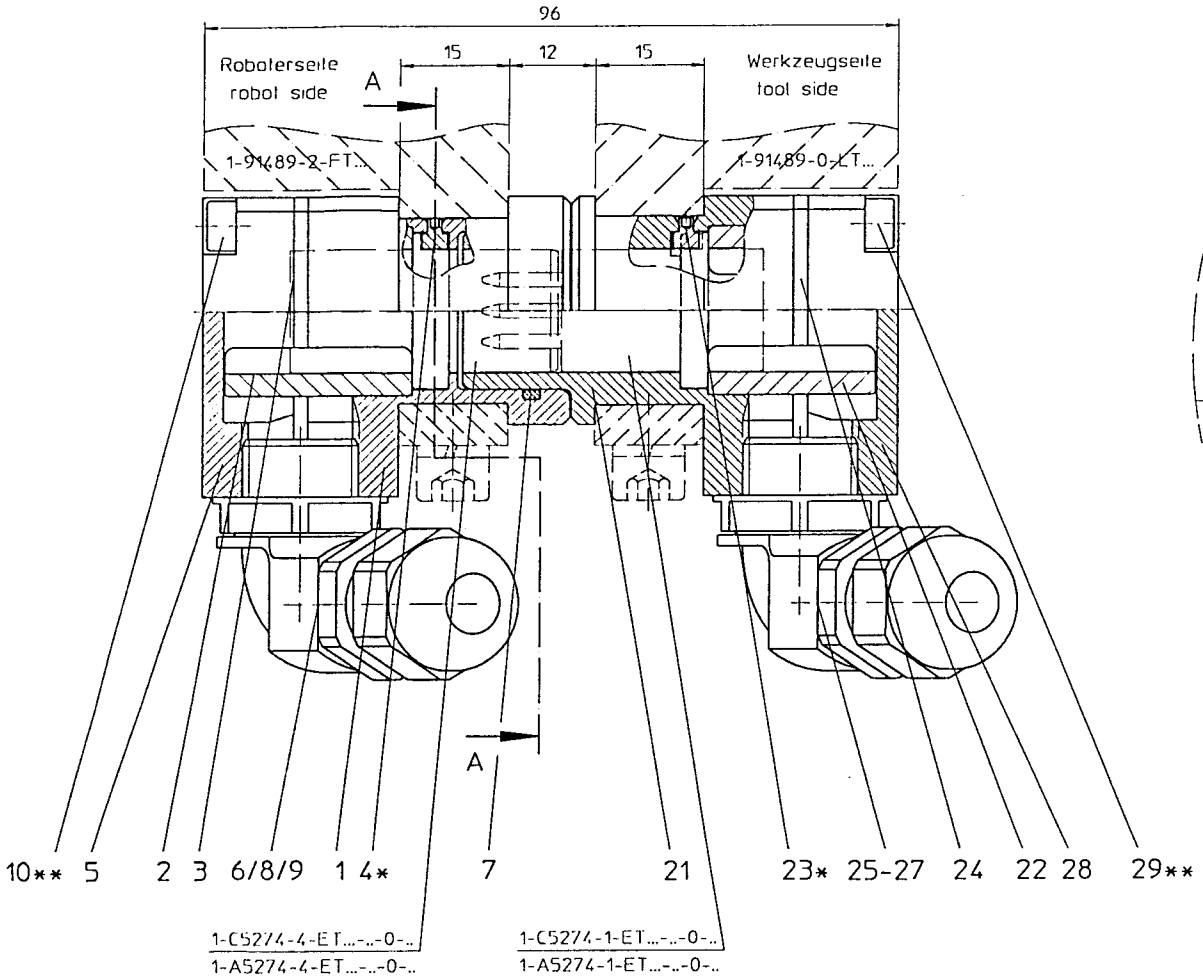
Bestellnummer:
1-95248-1-XX001-AAAA-Z01

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Stecker plug	4-95248-501-..-.-00000-Z01	1	1.4404	
02	Klemmstück Clamping plate	4-95248-502-..-.-00000-Z01	1	1.4301	
03	Kabelgehäuse Cable housing	4-95248-503-..-.-XX001-Z01	1	POM - schwarz POM - black	
04	Dichtung Seal	4-95248-504-..-.-00000-Z01	1	NBR 80+5 Shore	
05	Dämmungsstück Insulating board	4-95248-505-..-.-00000-Z01	1	Cellasto MH 24-45	
06	UNI Dichteinsatz UNI seal insert	E 150/9	1	PVC	
07	UNI Druckschraube UNI pressure screw	DS 150 n	1	PA	
08	Zyl.-Schraube Fillister head screw	DIN 912 - M4 x 16	2	A2 - 70	
09	Senkschraube Countersunk head screw	DIN 965 - M2,5 x 6	2	A2 - 70	
10	Flachkopfschraube Pan head screw	4-95248-514-..-.-00000-Z01	2	5.8 - V2	

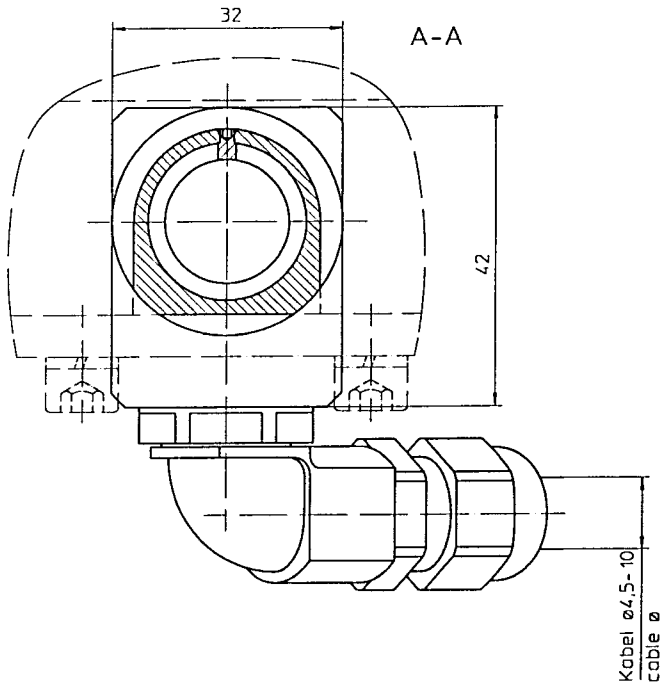
Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

DIN A 4

1-95288-4-XX001-..-.-Y02



1-95288-1-XX001-..-.-Y03



Schutzart IP 55

Konfektionierung der Kabelleiter querkraftfrei
packaging of the conductors without radial stress

* =nach Montage mit Körnerschlag verklemmt und mit Loctite gesichert.

* =after assembling with centre punch blow clamping and secured with Loctite

** =mit Loctite 243 gesichert

** =secured with Loctite 243

walther präzision	1-95288-4-XX001-..-.-Y02			
	1-95288-1-XX001-..-.-Y03			
Maßstab: 2:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: 1		Datum	Name
	vom: 2004/10/18 DW	Erstersteilg.	2002/09/30	JP
	A09832	Gezeichn.	2002/12/12	JP
		Geprüft	2002/12/16	KHK
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/10/19	KHK
K D-GB PT 6308	Buchsen- und Stiftgehäuse in Elementbauweise socket and pin housing in elements style			

DIN A 2

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
21	Stiftgehäuse pin housing	4-95288-502-..-.-00000-Y03	1	3.0615-71 - NI	
22	Distanzhülse distance sleeve	4-95288-505-..-.-00000-Y03	1	3.0615-71 - NI	
23	Fixierstift postioning pin	4-95288-504-..-.-00000-Y02	1	1.4305	
24	Dichtung seal	4-95288-503-..-.-00000-Y02	1	NBR 80+5 Shore	Fa. Seal-Jet
25	Kabelverschraubung: Skintop ST-M (M16 x 1.5) cable coupling: Skintop ST-M (M16 x 1.5)	Best.-Nr.: 5311 1210	1	PA	Fa. Lapp
26	Winkelverschraubung threaded elbow joint	Best.-Nr.: 5210 6210	1	PA	Fa. Lapp
27	Mutter nut	Best.-Nr.: 5311 9010	1	PA	Fa. Lapp
28	Deckel cover	4-95288-508-..-XX001-Y02 (C)	1	3.0615-71 - NI	
29	Zyl.-Schraube fillister head screw	DIN 912 - M4 x 16 (ISO 4762)	4	A2	

Blatt von Blatt | Ersatz für:

CAD-Stückliste nicht manuell ändern!

walther präzision

Ausf.: Issue: C vom: from: 24.10.2003 TG

A 08660

	Datum	Name
Ersterst.	12.12.2002	JP
Geschr.	12.12.2002	JP
Geprüft	12.12.2002	KHK

Stiftgehäuse in Elementebauweise
pin housing in elements style

K-D-GB

Bestellnummer: Part no.: 1-95288-1-XX001-AAAC-Y03

DIN A 4

walther präzision

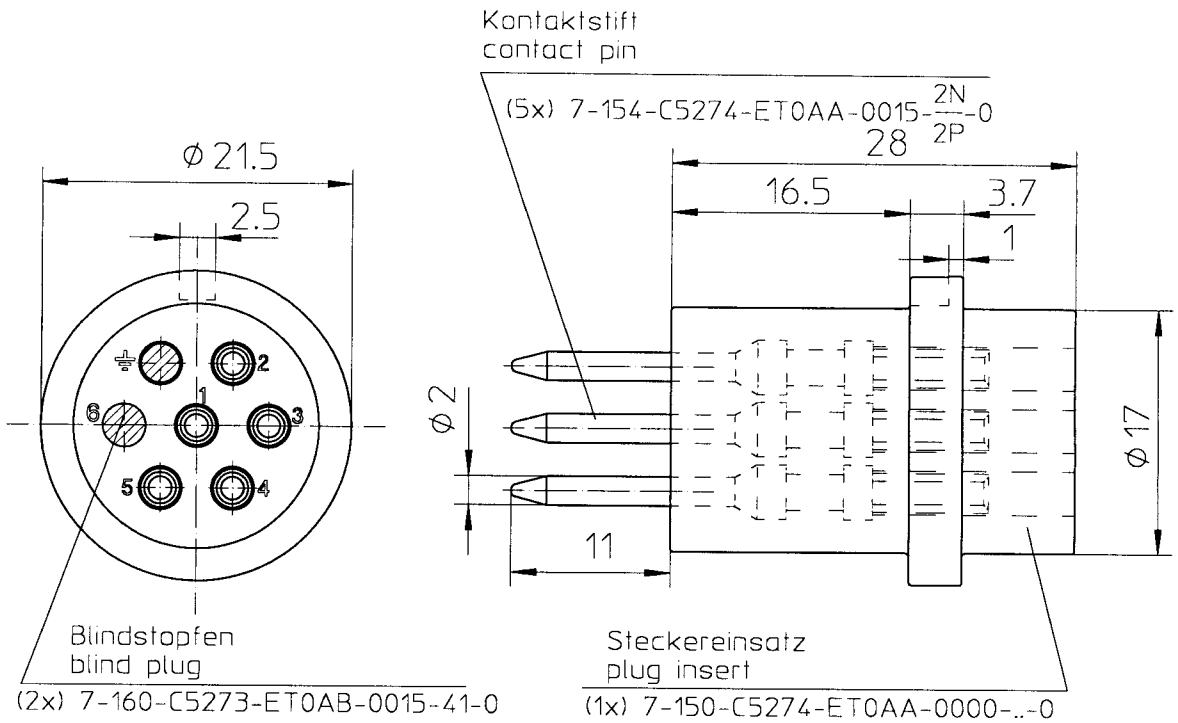
Elektrostecker 5-polig

Anschlußquerschnitt 0,5-1,5qmm

electro plug 5 way

cross section for connection 0,5-1,5qmm

M-5/7



Montagewerkzeug: / assembly tool:
CKW-Bestell-Nr.: / CKW-part-no.: 50079 / 50150 / 50151 / 50156

CKW-Bestell-Nr.: / CKW-part-no.: 1-C5274-1-ET015-2N/2P-0-A0

Bemessungsspannung: / rated voltage: Polbild für Bemessungsspannung 220 V / pole picture for rated voltage 220 V

Bemessungsstrom: / rated current: 5 A (30°C)

Bemerkung: / remark: Metallgehäuse sind in die Schutzmaßnahme einzubeziehen / metal housings are to be included into the protective measures

Anschlußart: / connection category: Crimpanschluß / Lötanschluß / crimp connection/ soldered connection

Werkstoff: / material: Kontakte : MS, versilbert(2N) bzw. MS, vergoldet(2P) siehe übergeordnete Stückliste / contact pin's: brass, silver-plated(2N) or brass, gold-plated(2P) see higher ranking list of parts

Hierzu gehören: / to this belongs: Elektrobuchse/ electro socket 1-C5274-4-ET015-2N/2P-0-A0

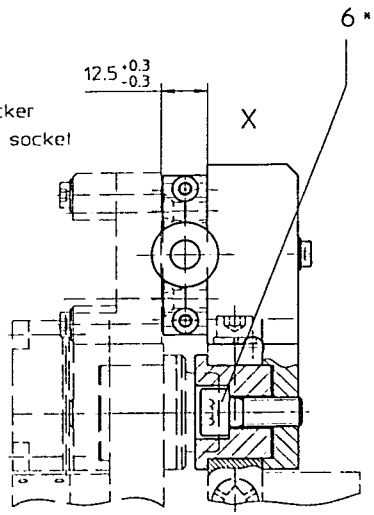
K-D-GB

Ausführung: E		Datum	Name
vom: 2005/02/24 AKam	Ersterst.	2002/10/01	JP
	Gezeichn.	2002/10/09	JP
A 10112	Geprüft	2002/10/11	KHK
	A.-geprüft	2005/03/01	KHK

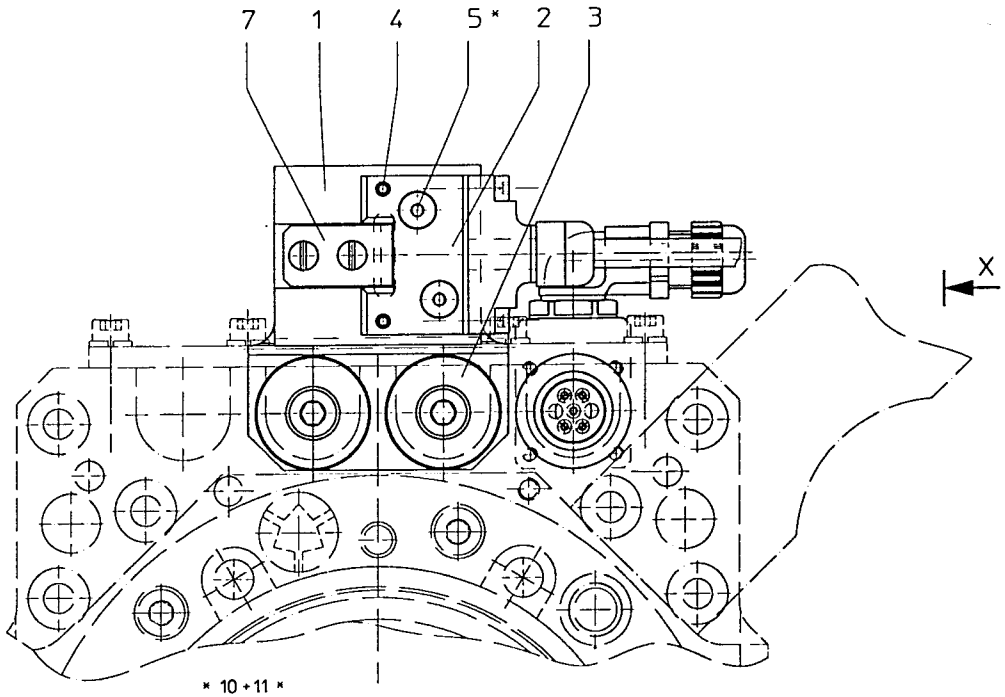
11.1.14 1-91489-E-00043-AAAA-Y10
LWL – equipment robot side

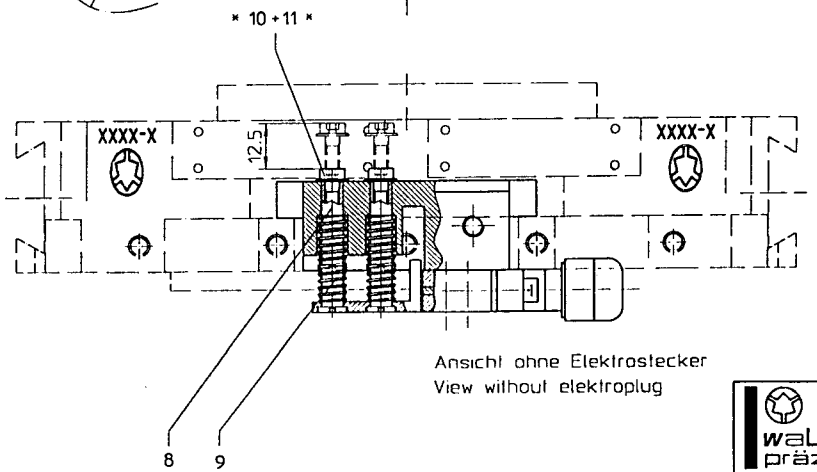
1-91489-E-00045-AAAA-Y10 fibre optic socket robot side
1-91489-E-00061-AAAA-Y10 fibre optic socket with buscable
1-95248-4-XX001-AAAA-Z01 Fibre optic transmitter - socket
1-95288-4-XX001-AAAC-Y02 socket housing in elements style
1-C5274-4-ET015-2.-0-AO electro socket 5-way

Ansicht ohne LWL-Stecker
view without fibre optic socket



Ansicht ohne Elektrostecker
View without elektroplug





Ansicht ohne Elektrostecker
View without elektroplug

* Mit LOCTITE 243 gesichert
* secured with LOCTITE 243

walther präzision	1-91489-E-00043-....-Y10			
	hierzu gehört: 1-91489-E-00037-....-Y10			
	Maßstab: 1:1	Ersatz für:		
Die Zeichnung ist unser Eigentum ...	Fertigungs- und Prüfvorschriften noch WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum / Name
		vom: 2004/07/20 TG	Erststellg.	2002/12/12 AF
		A09562	Gezeichn.	2002/12/13 AF
			Geprüft	2002/12/14 KHK
	CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/07/27 RN
K D-GB PT 6308	LWL-Paket Roboterseite LWL-equipment robot side			

DIN A 2

walther präzision

Ersterst.			Ausf.: A
Geschr.	Datum	A 07724	vom: 13.12.2002
Geprüft	Name		AF
13.12.2002	13.12.2002		
KHK	AF		

Bestellnummer: Part no.: 1-91489-E-00043-AAAA-Y10

LWL-Paket Roboterseite
LWL-equipment robot side

K-GB-D

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	Aufnahme holding fixture	4-91489-532-..-.-00000-Y10	1	3.4365.71 - NI	
02	LWL- Buchse fibre optic socket	1-91489-E-00045-AAAA-Y10	1	Unterstückliste	
03	Bolzen bolt	4-91489-561-..-.-00000-Y10	2	3.0615.71 - NI	
04	Spannstift roll pin	DIN 1481 - 4 x 16 - A	2	A2	
05	Senkschraube countersunk screw	DIN 7991 M5 x 25	2	A2 - 70	
06	Zylinderschraube fillister head screw	DIN 912 - M8 x 20	2	A2 - 70	
07	Schutzwinkel protaction angle	4-91489-572-..-.-00000-Y10	1	3.2315 - Ni	
08	Bolzen bolt	4-91489-568-..-.-00000-Y10	2	1.4301	
09	Druckfeder pressure spring	4-91489-569-..-.-00000-Y10	2	1.4310 K+A	
10	Zylinderschraube fillister head screw	DIN 6912 - 4 x 10	2	A2-70	
11	Scheibe washer	DIN 125-B4,3	2	A2	

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

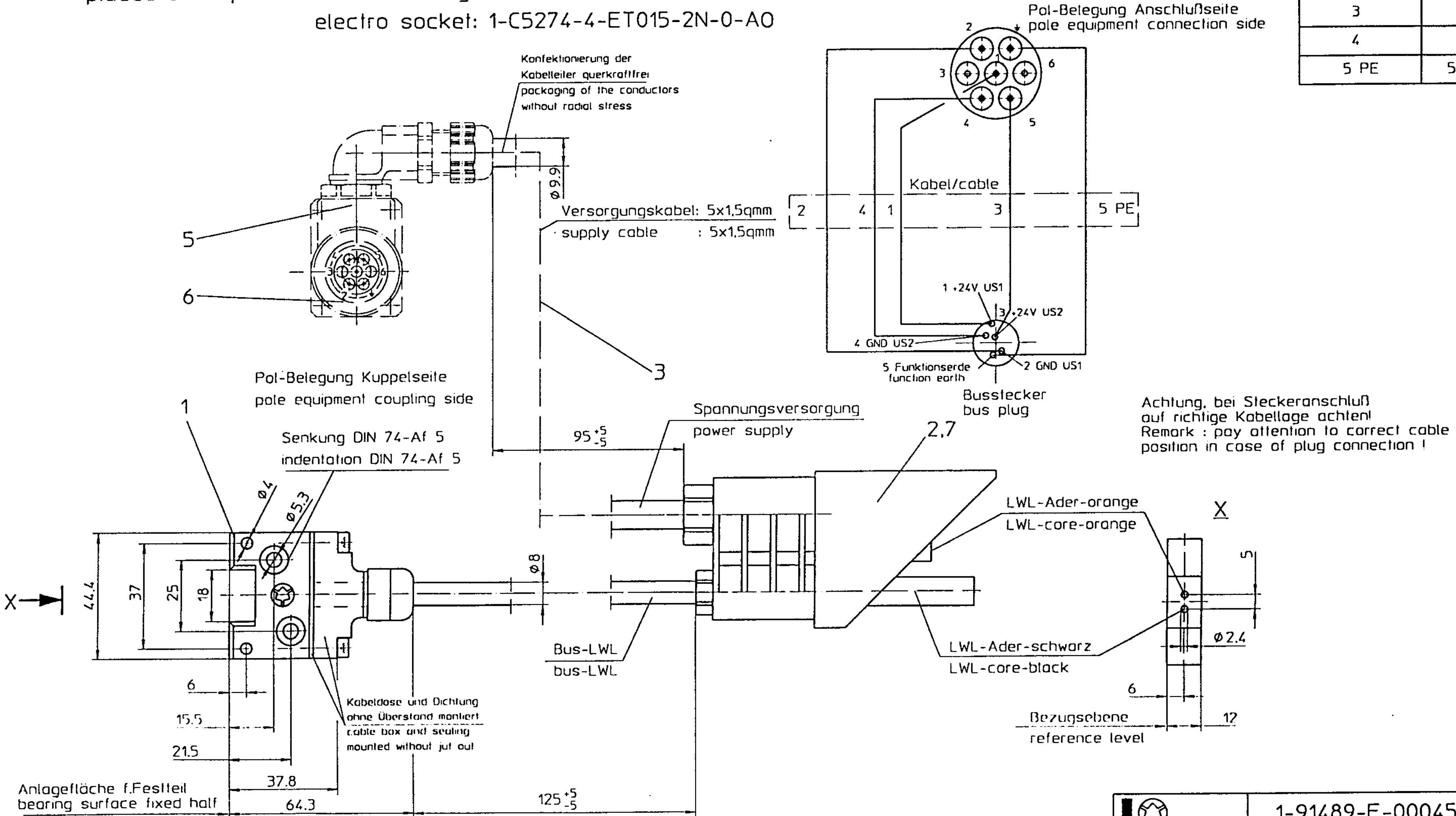
DIN A 4

Beistellung: Buchsengehäuse 1-95288-4-XX001-AAAC-Y02
Elektrobuchse: 1-C5274-4-ET015-2N-0-AO

placed at disposal: socket housing 1-95288-4-XX001-AAAC-Y02
electro socket: 1-C5274-4-ET015-2N-0-AO

Spannungsversorgung
power supply

Busstecker bus plug	Kabel cable	Elektrostecker electro plug
1	1	1
2	2	2
3	3	5
4	4	4
5 PE	5 PE	PE ⏚



Dämpfung mit Kabel und LWL-Stecker ≤ 2dB
mit Werkszeugnis
current attenuation with cable and LWL-plug ≤ 2dB
with test certificate

walther präzision	1-91489-E-00045-....-Y10			
	Hierzu gehört 1-91489-E-00044-....Y10 to this belongs 1-91489-E-00044-....Y10			
Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: E		Datum	Name
	vom: 2004/08/13 AM	Erstellt	2002/12/13	AF
	A09636	Gezeichn.	2002/12/13	AF
		Geprüft	2002/12/14	KHK
	CAD-Zeichnung nur mit 2D-System ändern !	A-geprüft	2004/08/13	KHK
K D-GB PT 6308	LWL - Buchse (Roboterseite) fibre optic socket (robot side)			

walther präzision

		Datum	Name
Ersterst.		13.12.2002	AF
Geschr.		13.12.2002	AF
Geprüft		13.12.2002	KHK

A 09636

Ausf.: C vom: 11.08.2004 AM
Issue: from:

LWL-Buchse (Roboterseite)
fibre obtic socket (robot side)

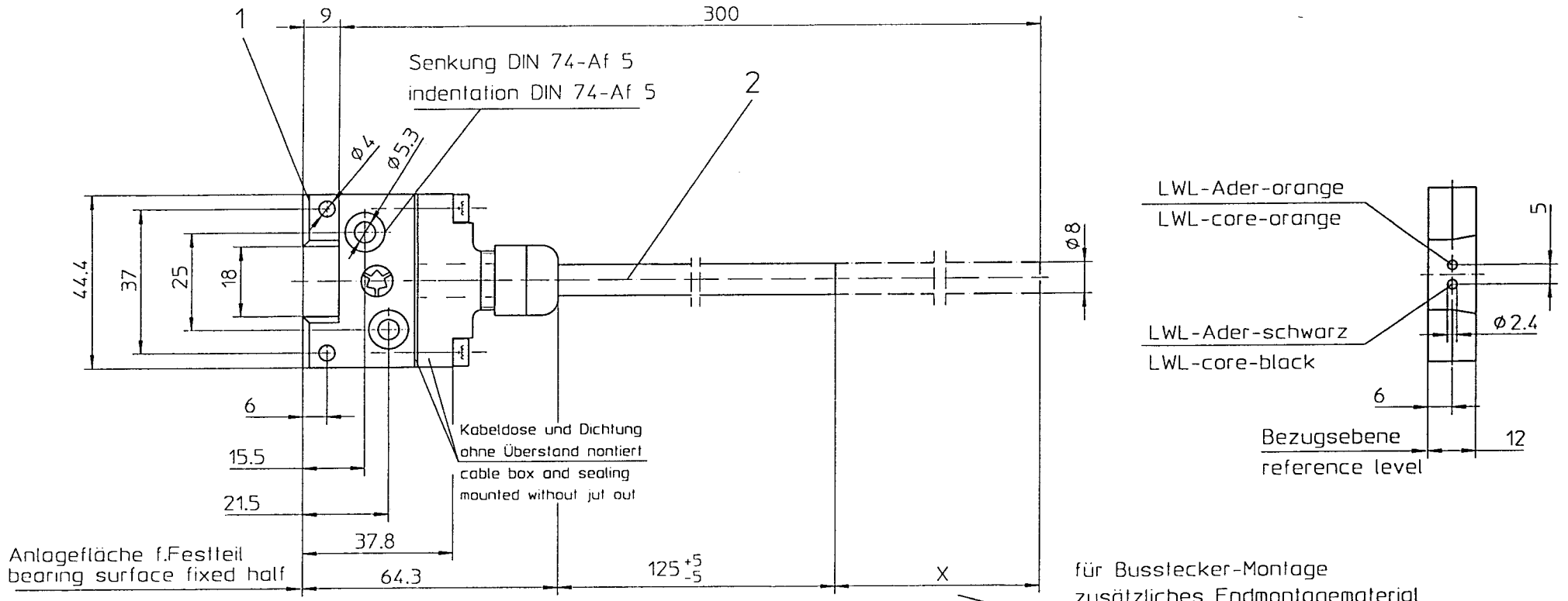
Bestellnummer: 1-91489-E-00045-AAAA-Y10
Part no.:

K-GB-D

DIN A 4

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	LWL-Buchse mit Buskabel	1-91489-E-00061-AAAA-Y10 (C)	1	Unterstückliste as per separate list	Lieferumfang Fa. Jowo (F)
	fibre obtic socket with buscable				
02	Busstecker	IBS RL Plug-LK/POF	1		Fa. Phoenix Contact
	bus plug	Art.-Nr.: 27 31 076			Lieferumfang Fa. Jowo (F)
03	Versorgungskabel	IBS PWR/5HD/F	1	Montagelänge 300mm	Fa. Phoenix Contact
	supply cable	Art.-Nr.: 27 31 775			Lieferumfang Fa. Jowo (F)
04					
05	Buchsengehäuse	1-95288-4-XX001-AAAC-Y02	1	Unterstückliste as per separate list	
	socket housing				
06	Elektrobuchse	1-C5274-4-ET015-2N-0-A0	1	Unterstückliste as per separate list	
	electro socket				
07	Beschriftungsschild. klein	IBS RL MARKER-SET	1		Fa. Phoenix Contact
	lettering plate, small	Art.-Nr.: 27 34 730			Lieferumfang Fa. Jowo (F)
	Dämpfung mit Kabel und LWL-Stecker ≤ 2dB (F) mit Werkszeugnis current attenuation with cable and LWL-plug ≤ 2dB with test certificate				
	Pos.1-7				
	komplett gefertigt, verdrahtet und geprüft nach Zeichnung 1-91489-E-00045-....-Y10				
	completly fabricated, wired and checked according to drawing 1-91489-E-00045-....-Y10				

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!



LWL-Kabel : Duplex 1000 my PMMA-Faser
bedingt schweißspritzbeständig

Fasermantel -ø: 2.2 mm

Dämpfung : ≤ 2dB mit Kabel und LWL-Stecker
mit Werkszeugnis
Faser poliert

LWL-cable : Duplex 1000 my PMMA-fibre
relatively welding-squirt resistant

fibre casing -ø: 2.2 mm

absorbing : ≤ 2dB with cable and LWL-plug
with test certificate
fibre polished

walther präzision

K | D-GB | PT 6136

1-91489-E-00061-....-Y10

Hierzu gehört 1-91489-E-00062-....Y10
to this belongs 1-91489-E-00062-....Y10

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: C		Datum	Name
	vom: 2004/08/11 AM	Erststellg.	2003/12/16	JP
	A09636	Gezeichn.	2003/12/16	JP
		Geprüft	2003/12/16	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2004/08/13	KHK

LWL - Buchse mit buscable
fibre optic socket with buscable

DIN A 3

walther präzision

Ausf.: B vom: 11.08.2004 AM			
A 09636			
	Ersterst.	16.12.2003	JP
	Geschr.	16.12.2003	JP
	Geprüft	16.12.2003	KHK

LWL - Buchse mit Buskabel
fibre optic socket with buscable

K-D-GB

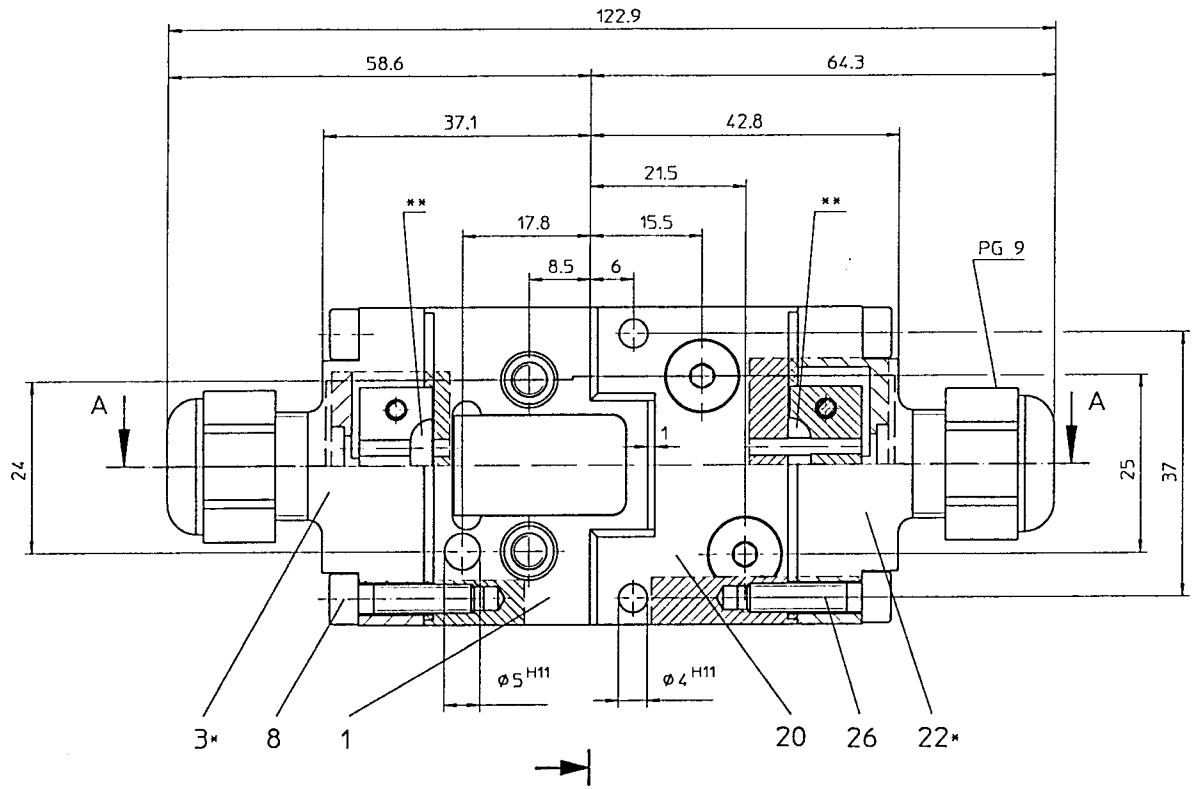
Bestellnummer:
1-91489-E-00061-AAAA-Y10

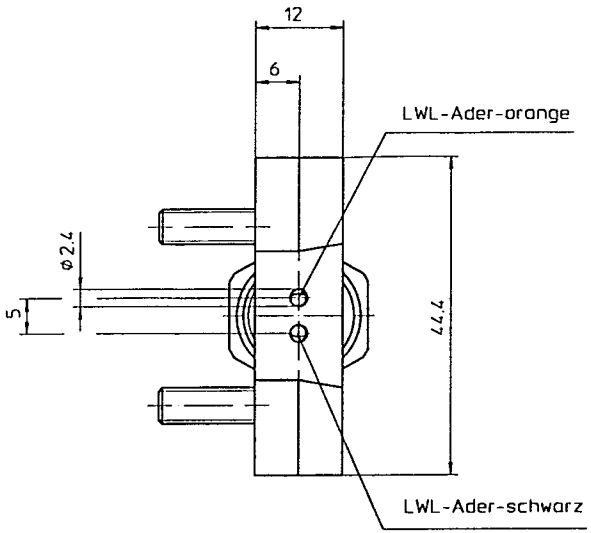
Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	LWL- Buchse	JW 188-0 (B)	1		Lieferumfang Fa. Jowo (B)
	fibre optic socket	bei Eigenfertigung: 1-95248-4-XX001-AAAA-Z01			
02	Buskabel	PSM-LWL/Rugged-Flex-980/1000	1	Montagelänge 300mm	Fa. Phoenix Contact
	bus cable	Art.-Nr. 2744335		mounting length 300mm	Lieferumfang Fa. Jowo (B)
	Dämpfung mit Kabel und LWL-Stecker ≦ 2dB				
	mit Werkszeugnis				
	current attenuation with cable and LWL-plug ≦ 2dB				
	with test certificate				

Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

DIN A 4

1-95248-1-XX001-....-Z01 (JW 187-0) → 1-95248-4-XX001-....-Z01 (JW 188-0)

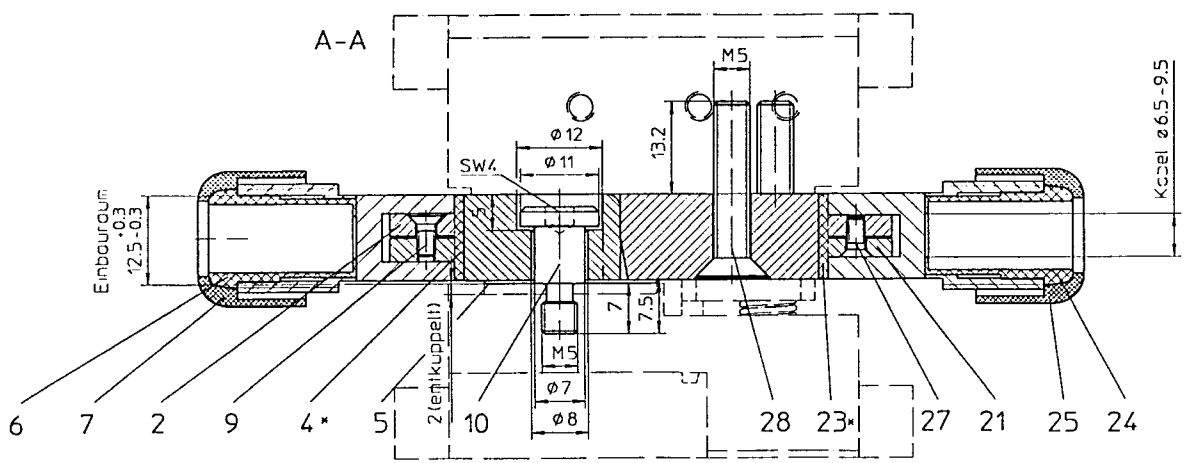




Dämpfung mit Kabel ≤ 2dB
mit Werkszeugnis
current attenuation with cable ≤ 2dB
with test certificate

** LWL-Ader nur im Bereich der Zugentlastung mit UHU Schnellfest Art.-45700 (Epoxidkleber) gesichert

Frei von lackverlaufstörenden Substanzen



* Kabeldose und Dichtung ohne Überstand montiert
cable box and sealing mounted without jut out

walther präzision	1-95248-1-XX001-....-Z01 (JW187-0)			
	1-95248-4-XX001-....-Z01 (JW188-0)			
Die Zeichnung ist unser Eigentum ...	Maßstab: 2:1	Ersatz für:		
	Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: H		
		vom: 2004/08/11 AM	Erststellg.	2002/09/06 JP
		A09642	Gezeichn.	2004/07/01 JP
			Geprüft	2004/07/06 KHK
	CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/08/18 KHK
PT 6259	LWL-Übertragungseinheit			

DIN A 2

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
20	Buchse Socket	4-95248-506-..-.-00000-Z01	1	1.4404	
21	Klemmstück Clamping plate	4-95248-502-..-.-00000-Z01	1	1.4301	
22	Kabelgehäuse Cable housing	4-95248-503-..-.-XX001-Z01	1	POM - schwarz POM - black	
23	Dichtung Seal	4-95248-504-..-.-00000-Z01	1	NBR 80+5 Shore	
24	UNI Dichteinsatz UNI seal insert	E 150/9	1	PVC	
25	UNI Druckschraube UNI pressure screw	DS 150 n	1	PA	
26	Zyl.-Schraube Fillister head screw	DIN 912 - M4 x 16	2	A2 - 70	
27	Senkschraube Countersunk head screw	DIN 965 - M2,5 x 6	2	A2 - 70	
28	Senkschraube Countersunk head screw	DIN 7991 - M5 x 25	2	A2 - 70	

	Datum	Name
Erstellt:	29.07.2003	JP
Geschr.	29.07.2003	JP
Geprüft	29.07.2003	KHK

A ------

Ausf.: A vom: 29.07.2003 JP

LWL-Buchse

Fibre optic transmitter - socket

Bestellnummer:

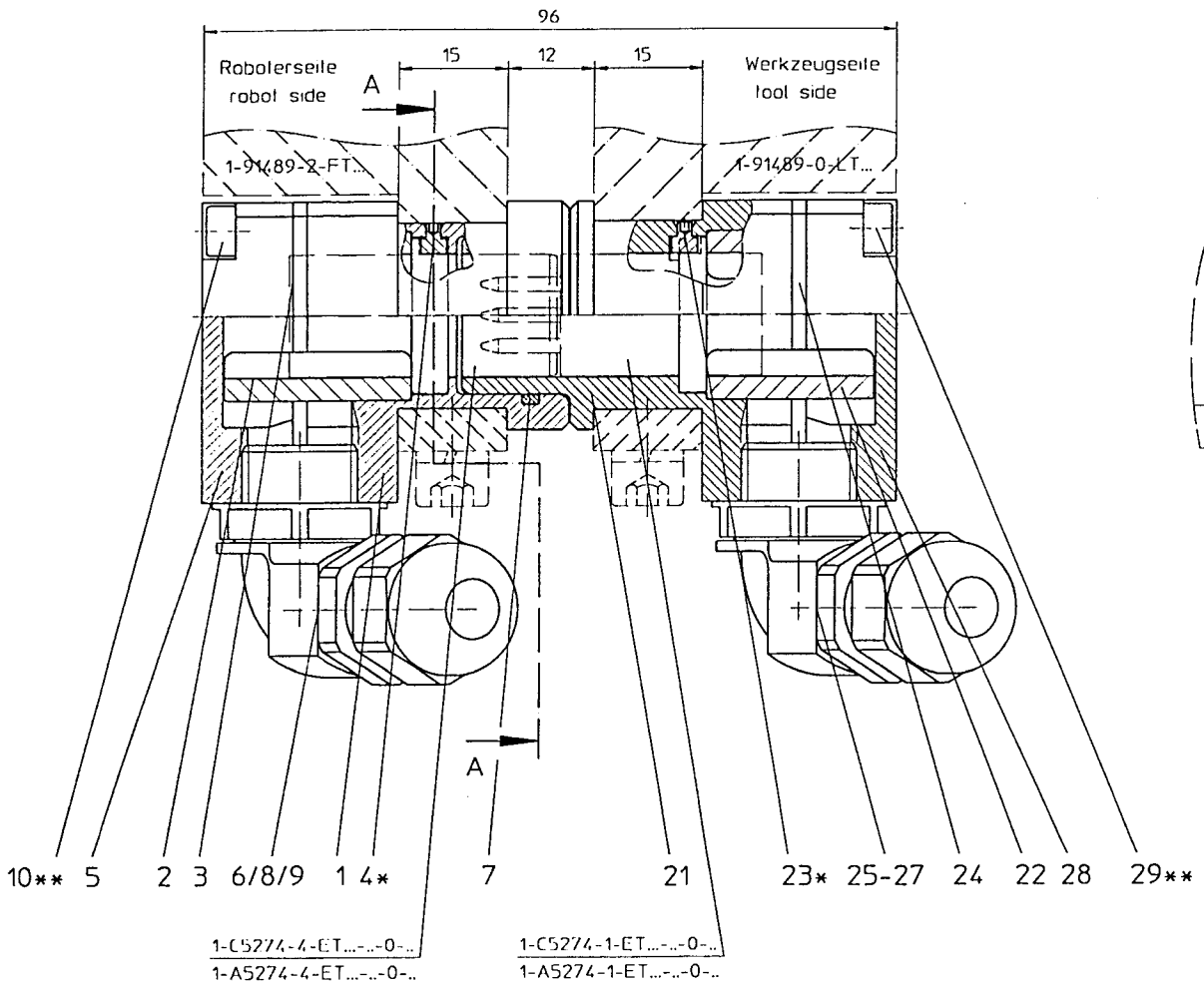
1-95248-4-XX001-AAAA-Z01

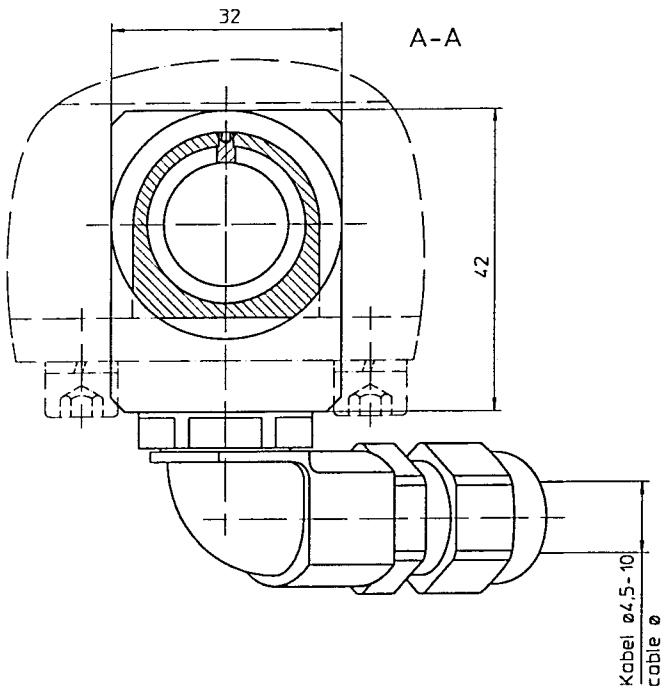
Blatt von Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

DIN A 4

1-95288-4-XX001-..-.-Y02

1-95288-1-XX001-..-.-Y03





Schutzart IP 55

Konfektionierung der Kabelleiter querkraftfrei
packaging of the conductors without radial stress

* =nach Montage mit Körnerschlag verklemmt und mit Loctite gesichert.

* =after assembling with centre punch blow clamping and secured with Loctite

** =mit Loctite 243 gesichert

** =secured with Loctite 243

walther präzision

1-95288-4-XX001-..-.-Y02				
1-95288-1-XX001-..-.-Y03				
Maßstab: 2:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: I		Datum	Name
	vom: 2004/10/18 DW	Ersterstellg.	2002/09/30	JP
	A09832	Gezeichn.	2002/12/12	JP
		Geprüft	2002/12/16	KHK
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/10/19	KHK

K | D-GB | PT 6308

Buchsen- und Stiftgehäuse in Elementbauweise
socket and pin housing in elements style

DIN A 2

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	Buchsengehäuse socket housing	4-95288-501-..-.-XX003-Y02	1	3.0615-71 - NI	
02	Distanzhülse distance sleeve	4-95288-506-..-.-00000-Y02	1	3.0615-71 - NI	
03	Dichtung seal	4-95288-503-..-.-00000-Y02	1	NBR 80+5 Shore	Fa. Seal-Jet
04	Fixierstift postioning pin	4-95288-504-..-.-00000-Y02	1	1.4305	
05	Deckel cover	4-95288-508-..-XX001-Y02 (G)	1	3.0615-71 - NI	
06	Kabelverschraubung: Skintop ST-M (M16 x 1.5) cable coupling: Skintop ST-M (M16 x 1.5)	Best.-Nr.: 5311 1210	1	PA	Fa. Lapp
07	O-Ring o-ring	21.95 x 1.78	1	FPM	
08	Winkelverschraubung threaded elbow joint	Best.-Nr.: 5210 6210	1	PA	Fa. Lapp
09	Mutter nut	Best.-Nr.: 5311 9010	1	PA	Fa. Lapp
10	Zyl.-Schraube filister head screw	DIN 912 - M4 x 16 (ISO 4762)	4	A2	

	Datum	Name
Erstellt:	01.10.2002	JP
Geschr.	01.10.2002	JP
Geprüft	01.10.2002	KHK

Ausf.: G vom: 24.10.2003 TG
Issue: from:

A 08660

Buchsengehäuse in Elementebauweise
socket housing in elements style

K-D-GB

Bestellnummer:
Part no.:
1-95288-4-XX001-AAAC-Y02

DIN A 4

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

walther präzision

Elektrobuchse 5-polig

Anschlußquerschnitt 0,5-1,5qmm

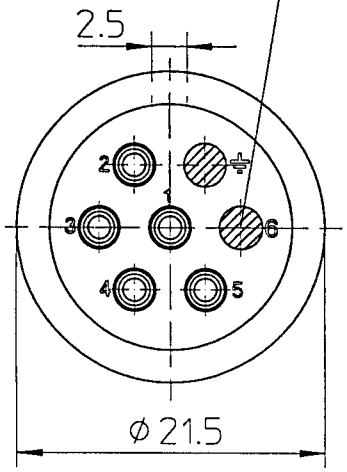
electro socket 5 way

cross section for connection 0,5-1,5qmm

M-5/7

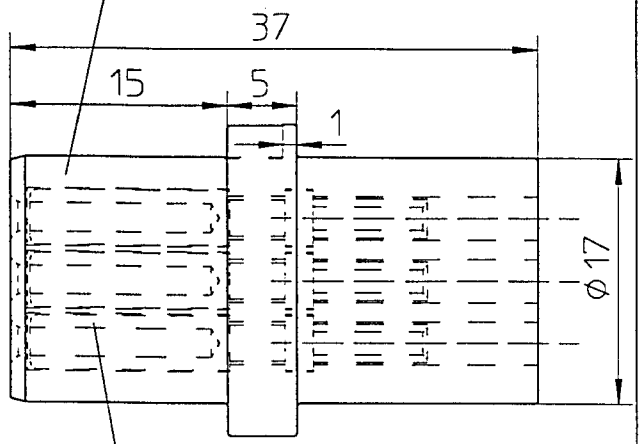
Blindstopfen
blind plug

(2x) 7-160-C5273-ET0AB-0015-..-0



Buchseneinsatz
bush insert

(1x) 7-152-C5274-ET0AA-0000-.-0



Kontaktbuchse
contact socket

(5x) 7-155-C5274-ET0AA-0015-$\frac{2N}{2P}$-0

Montagewerkzeug: / Assembly tools: CKW-Bestell-Nr.: / CKW-part-no.: 50079 / 50157 / 50150 / 50151

C.K. Walther Bestell-Nr.: / C.K. Walther part-no.: 1-C5274-4-ET015-$\frac{2N}{2P}$-0-A0

Bemessungsspannung: / rated voltage: Polbild für Bemessungsspannung 220 V / pole picture for rated voltage 220 V

Bemessungsstrom: / rated current: 5 A (30°C)

Bemerkung: / remark: Metallgehäuse sind in die Schutzmaßnahme einzubeziehen / metal housings are to be included into the protective measures

Anschlußart: / connection category: Crimpanschluß / Lötanschluß / crimp connection / soldered connection

Werkstoff: / material: Kontakte : MS, versilbert(2N) bzw. MS, vergoldet(2P) siehe übergeordnete Stückliste / contact pin's: brass, silver-plated(2N) or brass, gold-plated(2P) see higher ranking list of parts

Hierzu gehören: / to this belongs: Elektrostecker/ electro plug

1-C5274-1-ET015-$\frac{2N}{2P}$-0-A0

K-D-GB

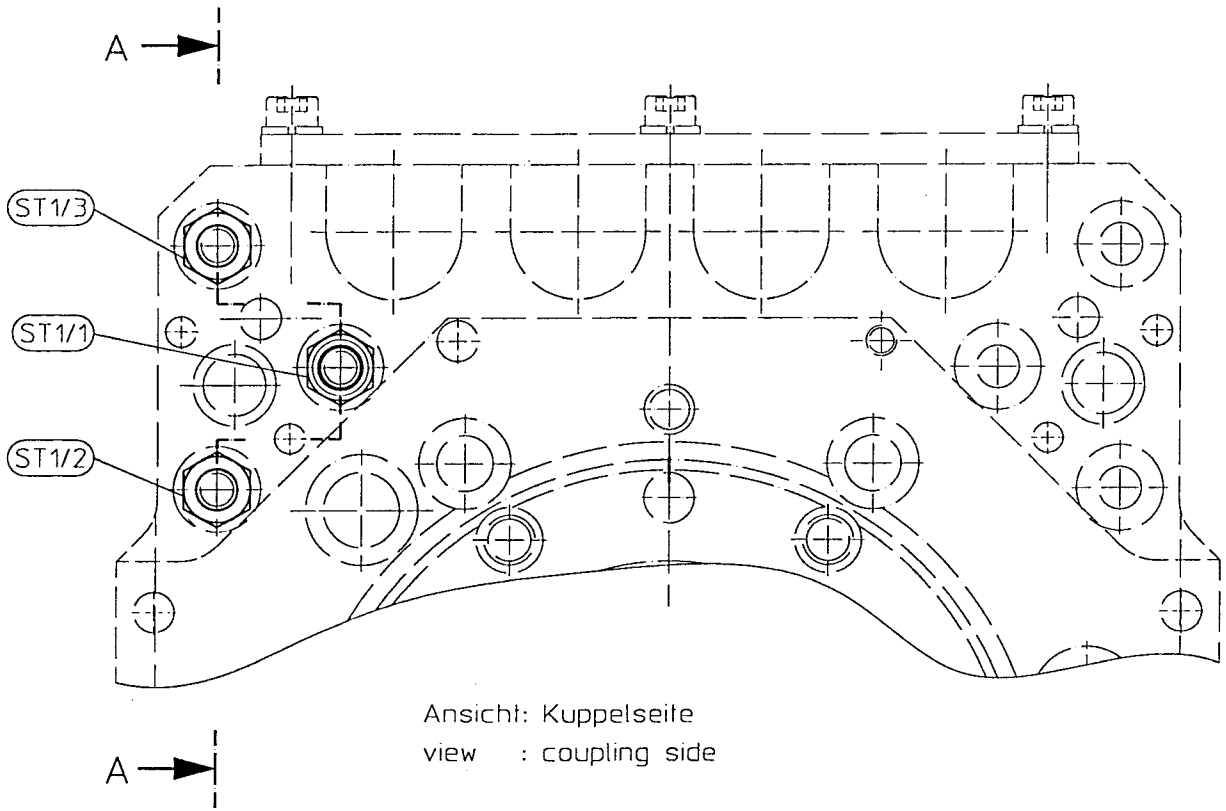
Ausführung: D		Datum	Name
vom: 2005/02/24 AKa	Ersterst.	2002/10/01	JP
	Gezeichn.	2002/10/09	JP
A 10112	Geprüft	2002/10/11	KHK
	A.-geprüft	2005/03/01	KHK

Appendix:
Drawings and parts lists

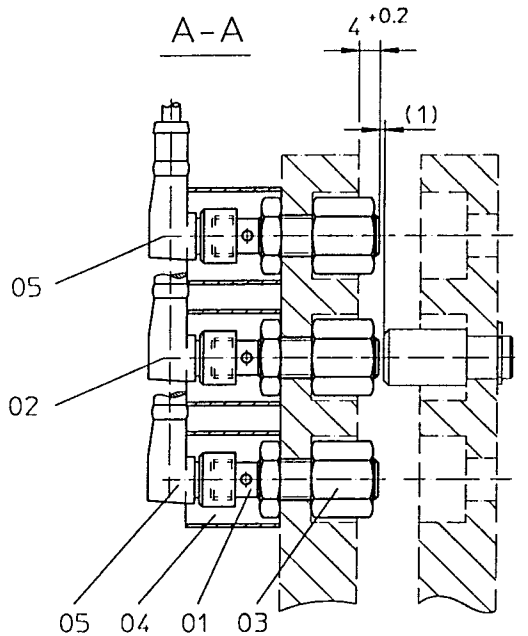
11.1.15 1-91489-E-00048-AAAA-Y10
tool – coding 3-way (robot side)

Variante A
Kodierschalter links
coding switch , left

Variante B
Kodierschalter rechts
coding switch , right



Ansicht: Kuppelseite
view : coupling side



Roboter Seite
robot side

Werkzeug Seite
tool side

gezeichnet: Kodierung 1
drawn : coding 1

walther präzision

K | D-GB | PT

1-91489-E-00048-....-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: A		Datum	Name
	vom:	Ersterstellg.	2003/02/20	JP
	A	Gezeichn.	2003/02/20	JP
		Geprüft	2003/02/20	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/02/20	KHK

Werkzeug-Kodierung 3-fach(Roboterseite)
tool-coding 3-way (robot side)

DIN A 3

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Näherungsinitiator	BES 516-324-E5-C-S 49	3		Fa. Balluf
	proximity switch				
02	Verbindungskabel	RST3-RKMWV-LED A3-224/0.3m Ⓑ	1		Fa. Lumberg
	connecting cable				
03	Haltemutter	4-91489-550-..-Y10	3	1.0718K-VZ	
	holding nut				
04	Schrumpfschlauch	KG-300/190 x20mm Fa. Hellermann	3	Kunststoff silikonfrei	RS Components
	shrink hose	bei Montage abgelängt. cut into lengths during mounting		plastic silikonfree	
05	Verbindungskabel	RST3-RKMWV-LED A3-224/0.6m Ⓑ	2		Fa. Lumberg
	connecting cable				
	* gilt in Verbindung mit Rugged Line 1-91489-E-00039-AAAA-Y10				

Ausf.: B vom: 02.02.2005 TG

A 10047

	Datum	Name
Ersterst.	20.02.03	JP
Geschr.	20.02.03	JP
Geprüft	20.02.03	KHK

Werkzeug-Kodierung 3-fach (Roboterseite) *
tool-coding 3-way (robot side)

K-D-GB

Bestellnummer:
1-91489-E-00048-AAAA-Y10

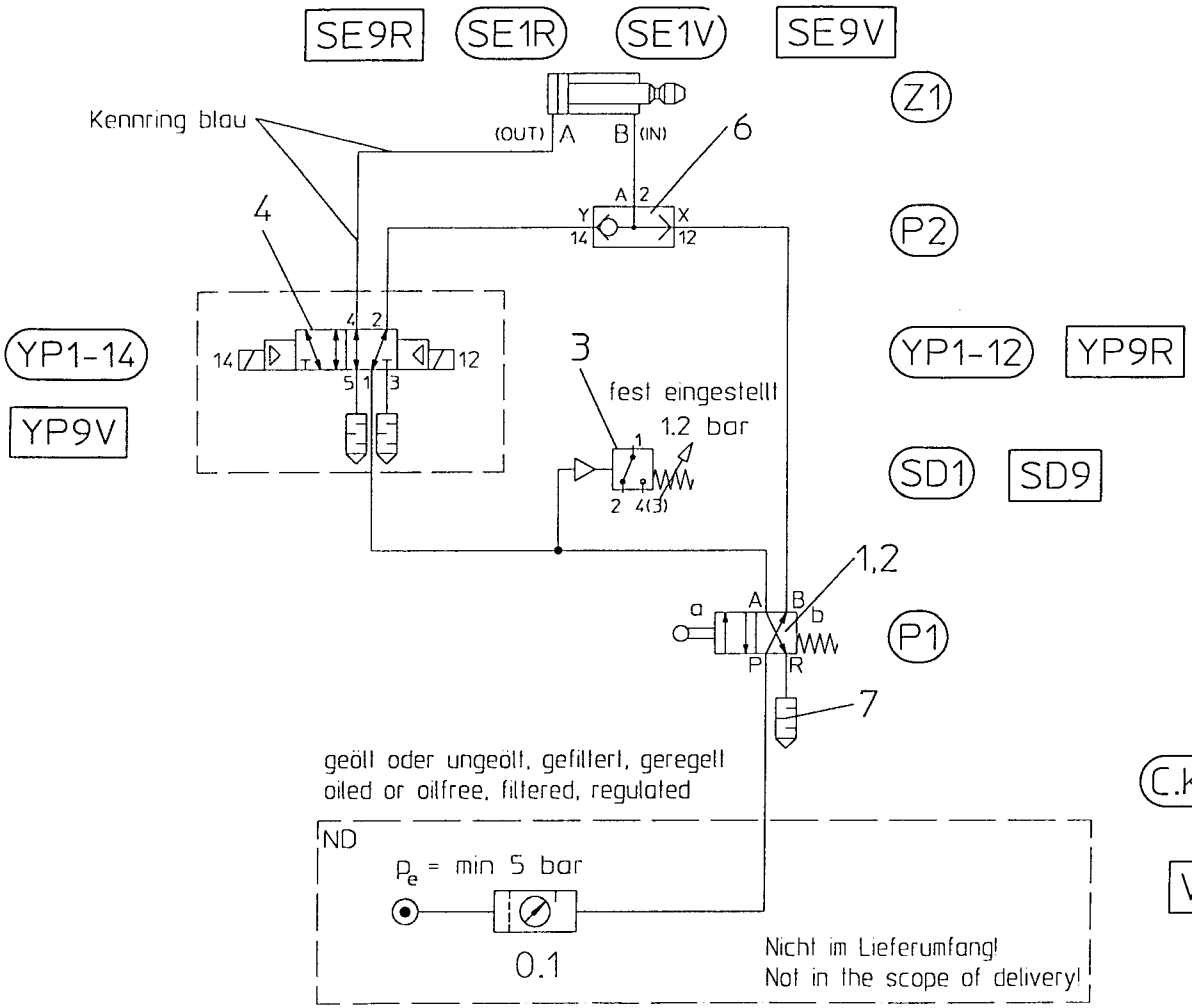
DIN A 4

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.16 1-91489-P-00013-AAAA-Y10 pneumatic (VW-safety 2)

1-91489-B-00003-AAAA-Y10 mounting



C.K. Walther-Nr.

VW - Nr.

Für VW-Projekt A5
for VW-project A5

walther präzision

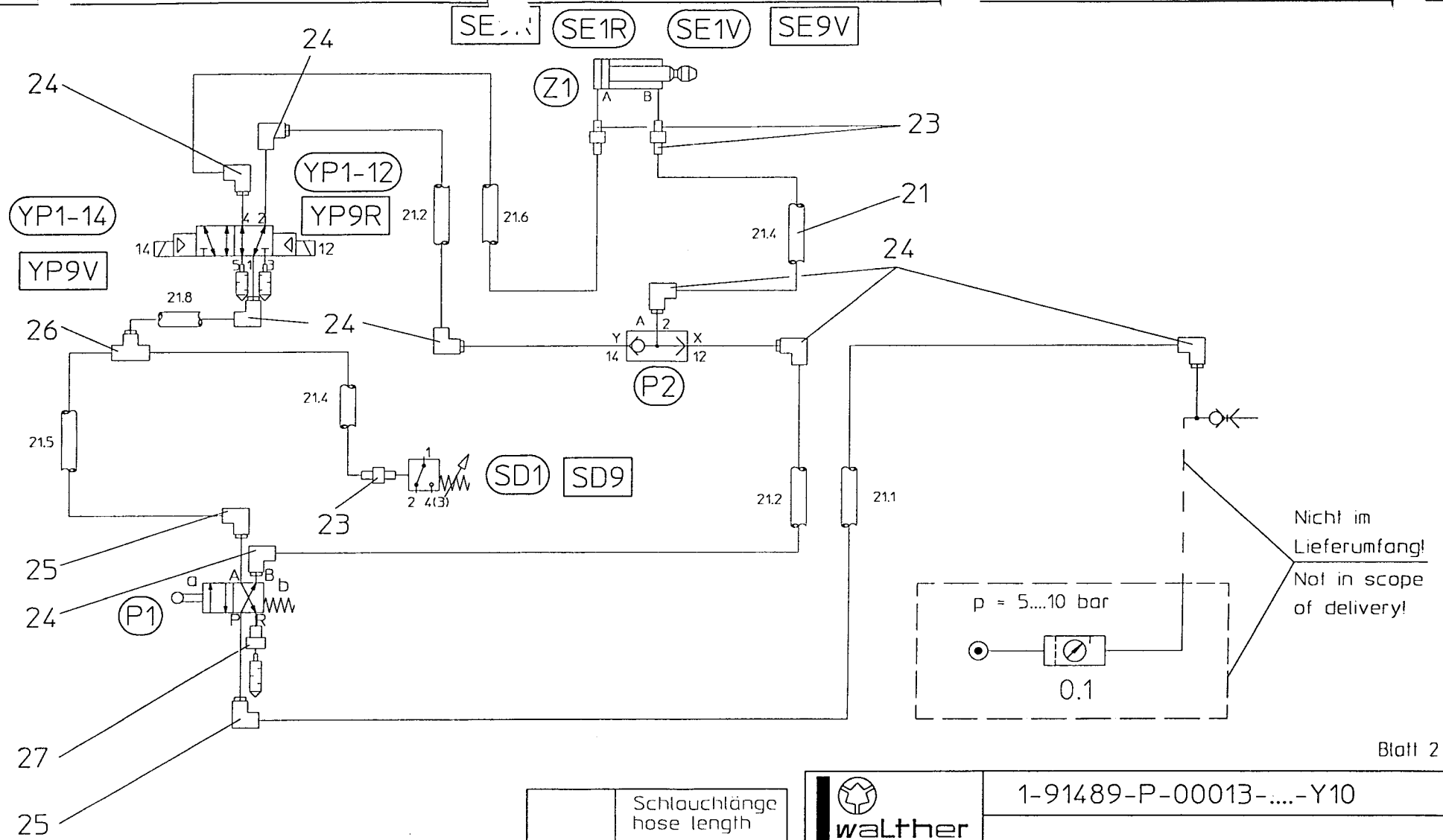
1-91489-P-00013-....-Y10

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: F		Datum	Name
	vom: 2003/04/28 JP	Ersterstellg.	2002/09/24	JP
	. A08147	Gezeichn.	2002/09/24	JP
		Geprüft	2002/10/31	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/04/29	KHK

K | D-GB | PT 6308

Pneumatik (VW-Sicherheit 2) Pneumatikplan
pneumatic (VW-safety 2) pneumatic plan

DIN A 3



Blatt 2 von 3

	Schlauchlänge hose length
21.1	*
21.2	*
21.3	*
21.4	*
21.5	*
21.6	*
21.7	*
21.8	*

C.K. Walther-Nr.

VW - Nr.

Für VW-Projekt A5
for VW-project A5

walther präzision

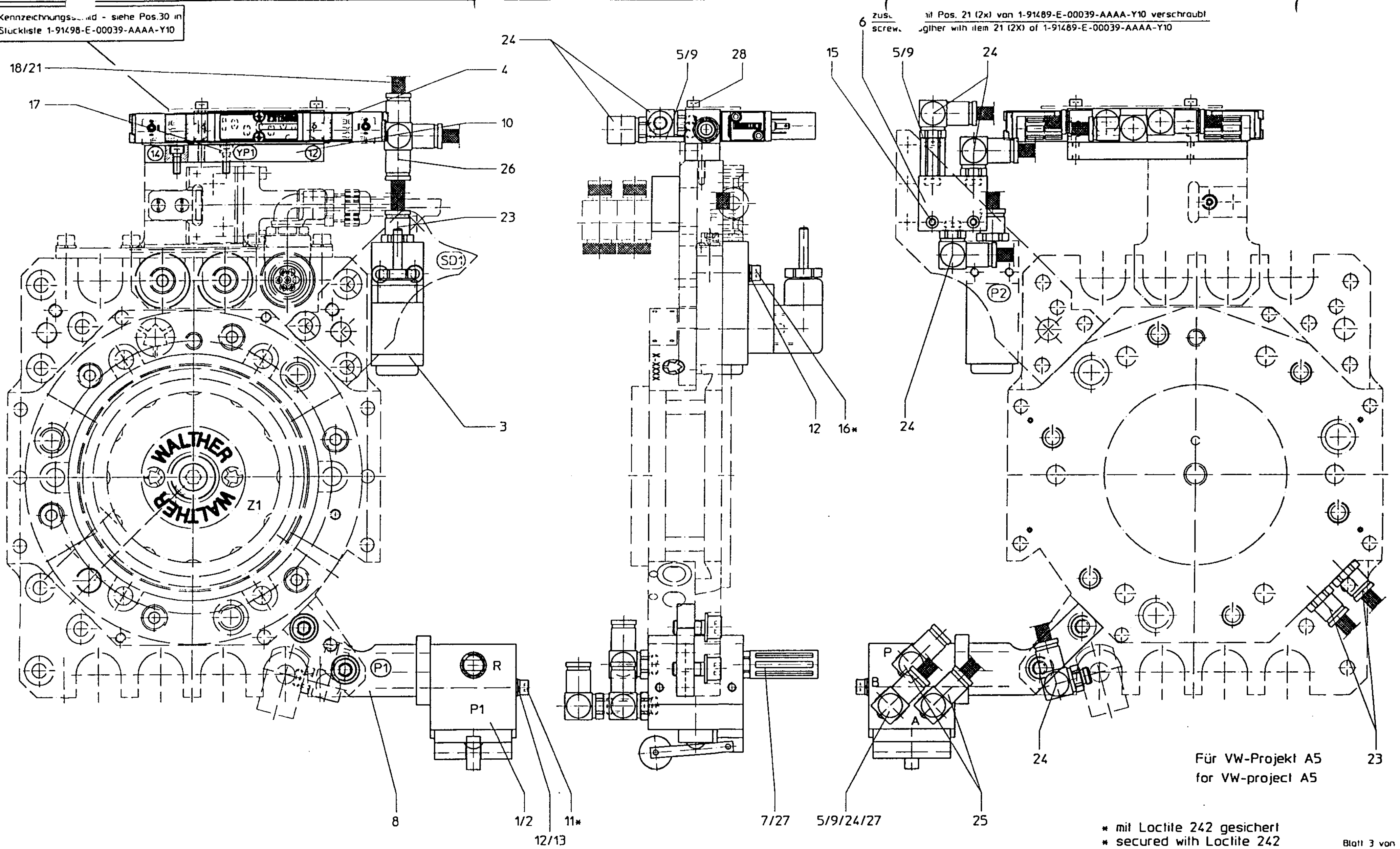
K | D-GB | PT 6308

1-91489-P-00013-....-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: F		Datum	Name
	vom: 2003/04/28 JP	Ersterstellg.	2002/09/24	JP
	A08147	Gezeichn.	2002/09/24	JP
		Geprüft	2002/10/31	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/04/29	KHK

Pneumatik (VW-Sicherheit 2) Installationsplan
pneumatic (VW-safety 2) installation plan

DIN A 3



Für VW-Projekt A5
for VW-project A5

* mit Loctite 242 gesichert
* secured with Loctite 242

Bei Ausführung ohne Druckluftelementen
Druckluftanschluß direkt an P1/P (G1/4)
1xPos.24 + 1xPos.25 + 1xPos.21.1 entfallen

version without air pressure elements
direkt at P1/P (G1/4)
delete 1x item 24 + 1x item 25 + 1x item 21.1

Blatt 3 von 3

walther präzision

1-91489-P-00013-....-Y10

Maßstab: 1:1	Ersatz für:	Datum	Name
Fertigungs- und Prüfvorschriften nach WALTHER - Werknorm-Nr.: 121003	Ausführung: F		
	vom: 2003/04/28 JP	Erstellt 2002/09/24	JP
	A08147	Gezeichn. 2002/09/24	JP
		Geprüft 2002/10/31	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft 2003/04/29	KHK

Pneumatik (VW-Sicherheit 2.LWL) Lageplan
pneumatic (VW-safety 2. LWL) layout plan

K | D-GB | P1 6308

walther präzision

	Name	Datum
Erstellt:	AF	23.09.2002
Geschr.	AF	23.09.2002
Geprüft	KHK	23.09.2002

A 08147

Ausf.: G vom: 28.04.2003 JP

Pneumatik (VW-Sicherheit 2)

pneumatic (VW-safty 2)

Bestellnummer: 1-91489-P-00013-AAAA-Y10

K-D-GB

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	4/2 Nockenventil NG6(G1/4) 4/2 cam valve	VW-Mat.-Nr.: 121 7324	1		Bosch 0 820 401 001 (**)
02	Rollenhebelvorsatz roller lever attachment	VW-Mat.-Nr.: 121 7404	1		Bosch 2 827 030 006 (**)
03	Druckschalter pressure switch	VW-Mat.-Nr.: 121 6871	1		FESTO 10773 PEV-1/4-B mit Steckdose/with socket
04	5/2-Wege-Einheit DC 24V komplett 5/2-way unit DC 24V complete	Best.-Nr. 009921	1		Fa. Numatics
	Beinhaltet: includes:				
	1 Ventil: 181BB400C0B9961 1 valve :	VW-Nr. 39D1336/A18 (G)			
	1 Einzelanschlußplatte Type 203-594 1 plate for single valve connection				
	2 Schalldämpfer Best.-Nr. 28.9400 2 sound absorber	VW-Mat.-Nr. 6900 (G)			
	(G)				
05	Adapter adapter	4-91489-533-..-.-00000-Y10	3	2.0401-26-Nl	
06	ODER- Glied (G1/8) OR element	Best.-Nr.: OS-1/8-B(VW-Mat.-Nr.121 6968)	1		Fa. Festo
07	Schalldämpfer (G1/8) sound absorber	Best.-Nr.:U-1/8-B (VW-Mat.-Nr.121 6915)	1	Kunstst./Al-plastics/Al	Fa. Festo
08	Halterung mounting	1-91489-B-00003-AAAA-Y10	1	Unterstückliste as per separate list	
09	O-Ring o-ring	8 x 1.5 (G)	3	NBR	
10	Ventilplatte valve plate	4-91489-534-..-.-00000-Y10	1	3.3206.71	Ex-silber
11	Zylinderschraube fillister head screw	DIN 912 - M5 x 60	2	A2-70	
12	Scheibe washer	DIN 125 - A 5,3	4	A2	
13	Federring circlip	DIN 127 - B 5	2	A2	
14					
15	Zylinderschraube fillister head screw	DIN 912 - M4 x 60 (G)	2	A2-70	
16	Zylinderschraube fillister head screw	DIN 912 - M5 x 35	2	A2-70	
17	Zylinderschraube fillister head screw	DIN 912 - M4 x 12	2	A2-70	
18	Kabelbinder (Verschlußband) closing band	VB50- 204 x 4,7 blau Best.-Nr. 359-2338	2	PA 6.6	Fa. Hellermann Tyton

(**) Pos.1+2 bestellen als komplett montiert+geprüft (ergibt 4/2Rollenhebelventil Bosch 0 820401002)

Blatt 1 von 2 Blatt | Ersatz für: . | CAD-Stückliste nicht manuell ändern!

DIN A 4

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
21	flamex-Steckschlauch 8x4 flamex-plug hose 8x4	Best.-Nr.:114-0804x1,3m (VW-Mat.-Nr.:1585)	1	PUR	Fa. Eisele
22					
23	Gerader Einschraubanschluss G1/4 / ø8 straight threaded connection G1/4 / ø8	Best.-Nr.:828-0406 (VW-Mat.-Nr.:7805)	3	Ms-Ni/NBR	Fa. Eisele
24	Winkel-Eischraubanschluss G1/8 / ø8 angle threaded connection G1/8 / ø8	Best.-Nr.:886-0206 (VW-Mat.-Nr.:7761)	8	Ms-Ni/NBR (G)	Fa. Eisele
25	Winkel-Eischraubanschluss G1/4 / ø8 angle threaded connection G1/4 / ø8	Best.-Nr.:886-0406 (VW-Mat.-Nr.:7762)	2	Ms-Ni/NBR (G)	Fa. Eisele
26	T-Anschluss 8/6 / ø8 T-connection 8/6 / ø8	Best.-Nr.:878-0600	1	Ms-Ni/NBR	
27	Reduziernippel G 1/4 A / G 1/8 I Reducing nipple G 1/4 A / G 1/8 I	Best.-Nr.:70-0401 (VW-Mat.-Nr.:7366)	2	Ms (G)	Fa. Eisele
28	Zylinderschraube (G) filister head screw	DIN7984 - M4 x 30	2	A2-70	
	Installationsmaterial				
	Pos.21-27 entspricht BV 1.13				

	Datum	Name
Erstellt	24.09.2002	JP
Geschr.	24.09.2002	JP
Geprüft	24.09.2002	KHK

A08147

Ausf.: G vom: 28.04.2003 JP

Pneumatik (VW-Sicherheit 2)

pneumatic (VW-safty 2)

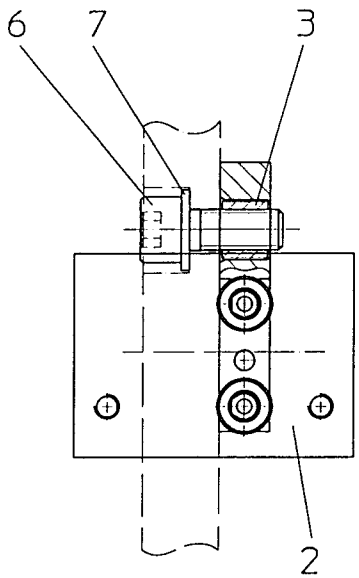
K-D-GB

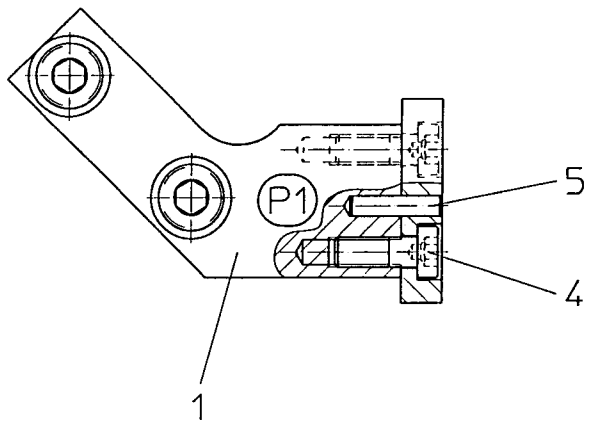
Bestellnummer:

1-91489-P-00013-AAAA-Y10

Blatt 2 von 2 Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

DIN A 4





walther präzision

1-91489-B-00003-..-.-Y10

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: F		Datum	Name
	vom: 2002/06/28 AF	Ersterstellg.	1999/12/20	AnS
	A07286	Gezeichn.	2002/06/28	AF
		Geprüft	2002/07/01	RN
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2002/07/01	RN

K | D-GB | PT 5736

Halterung
mounting

DIN A 3

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Halteblech holding plate	4-91489-543-..-.-00000-Y10	1	3.3206-EX-silber/silver	
02	Befestigungsblech fastening plate	4-91489-544-..-.-00000-Y10	1	3.3206-EX-silber/silver	
03	Gewindeeinsatz threaded insert	ENSAT 337 0 080 16 (D)	2	St-VZ	Fa. Kerb-Konus
04	Zylinderschraube fillister head screw	DIN 6912 - M6 x 16	2	A2-70	
05	Zylinderstift parallel pin	DIN 7 - 4m6 x 18	1	A2	
06	Zylinderschraube fillister head screw	DIN 912 - M8 x 20	2	A2-70	
07	Scheibe washer	DIN 125 - A 8,4	2	A2	

Ausf.: D vom: 06.02.2002 AF

A06868

	Datum	Name
Erstellt	20.12.99	AnS
Geschr.	20.12.99	AnS
Geprüft	20.12.99	RN

Halterung
mounting

K-D-GB

Bestellnummer:
1-91489-B-00003-AAAA-Y10

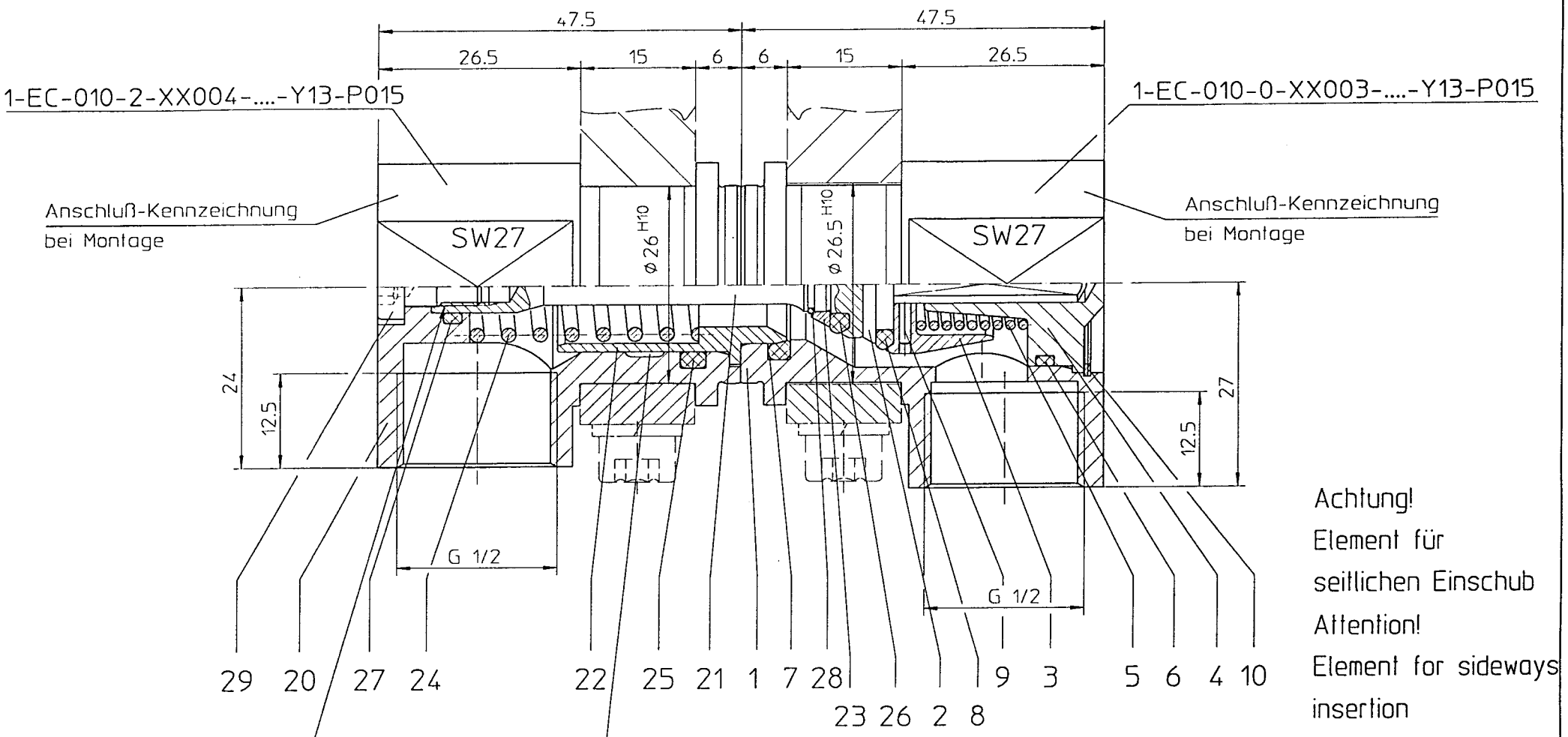
DIN A 4

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

11.1.17 1-EC-010-0-XX003-02-2-Y13-P015 Clean-Break-Coupling element n.b. 10

1-EC-010-2-XX004-02-2-Y13-P015 Clean-Break-adaptor element n.b. 10



walther präzision

K | D-GB | PT 5388

1-EC-010-0-XX003-....-Y13-P015
1-EC-010-2-XX004-....-Y13-P015

Maßstab: 2:1 | Ersatz für:

Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03

Ausführung: F

vom: 2004/09/22 AM

A09770

CAD-Zeichnung nur mit 2D-System ändern !

	Datum	Name
Erststellg.	2000/06/27	ZC
Gezeichn.	2003/09/19	AM
Geprüft	2003/09/22	RN
A-geprüft	2004/09/23	NH

Clean-Break-Kupplung DN 10
Clean-break coupling n.b. 10

DIN A 3

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
01	Kupplungsgehäuse Coupling housing	4-EC-010-001-..-.-XX003-Y13	1	1.4305	
02	Ventilbolzen Valve bolt	4-EC-008-044-..-.-Z04	1	1.4305	
03	Ventilbuchse Valve bush	4-LC-006-048	1	1.4305	
04	Ventilwiderlager Valve butment	4-EC-010-045-..-.-Y13	1	1.4305	
05	Ventilfeder Valve spring	4-70-010-005-05	1	1.4310 K+A	
06	O-Ring O-ring	18.77 x 1.78	1	FPM	
07	O-Ring O-ring	15.54 x 2.62	1	FPM	
08	O-Ring O-ring	11.91 x 2.62	1	FPM	
09	Zylinderkerbstift Parallel grooved pin	DIN 1473 - 1.5 x 16	1	A2	
10	Sicherungsring Retaining ring	WH-93	1	A2	Fa. Smalley

Ausf.: E vom: 19.09.2003 AM
Issue: E from:

Änderungs-Auftrags-Nr.: A08513
Change Order No.:

	Datum	Name
Gepr.	27.06.00	RN
Geschr.	27.06.00	ZC

Clean-Break-Kupplungselement DN 10
Clean-Break coupling element n.b. 10

K-D-GB

Bestellnummer: 1-EC-010-0-XX003-02-2-Y13-P015
Part No.:

04.09.91 / DIN A 4

Blatt von Blatt | Ersatz für: 1-EC-010-0-XX003-02-2-Y13 | CAD-Stückliste nicht manuell ändern!

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
20	Verschlußnippelmuffe Self-sealing adaptor body	4-EC-010-010-..-.-XX004-Y13	1	1.4305	
21	Ventilstößel Valve plunger	4-EC-010-047-..-.-Y13	1	1.4305	
22	Ventilkolben Valve piston	4-EC-010-046-..-.-Y13	1	1.4305	hartverchromt nach Zeichnung hard-chrome plated to drawing
23	Ventilscheibe Valve washer	4-EC-010-501-..-.-Y13	1	1.4305	
24	Ventilfeder Valve spring	4-EC-010-205-..-.-Y13	1	1.4310 K+A	
25	O-Ring (Gehäuse) O-ring (housing)	17.12 x 2.62	1	FPM	
26	O-Ring O-ring	7.59 x 2.62	1	FPM	
27	O-Ring O-ring	6,75 x 1,78	1	FPM	
28	Wellen-Federring Shaft circlip	5-005-008-020-00060	1	1.4310 K+A	
29	Zylinderschraube Fillister head screw	DIN 6912 - M 5 x 10	1	A2 - 70	

Blatt von Blatt | Ersatz für: 1-EC-010-2-XX004-02-2-Y13 | CAD-Stückliste nicht manuell ändern!

walther präzision

Ausf.: Issue: E vom: from: 19.09.2003 AM

Änderungs-Auftrags-Nr.: Change order No.: A08513

	Datum	Name
Geschr.	27.06.00	ZC
Geprüft	27.06.00	RN

Clean-Break-
Nippelelement DN 10
Clean-Break
adaptor element n.b. 10

K-D_GB

Bestellnummer: Part no.: 1-EC-010-2-XX004-02-2-Y13-P015 (E)

04.09.91 / DIN A 4

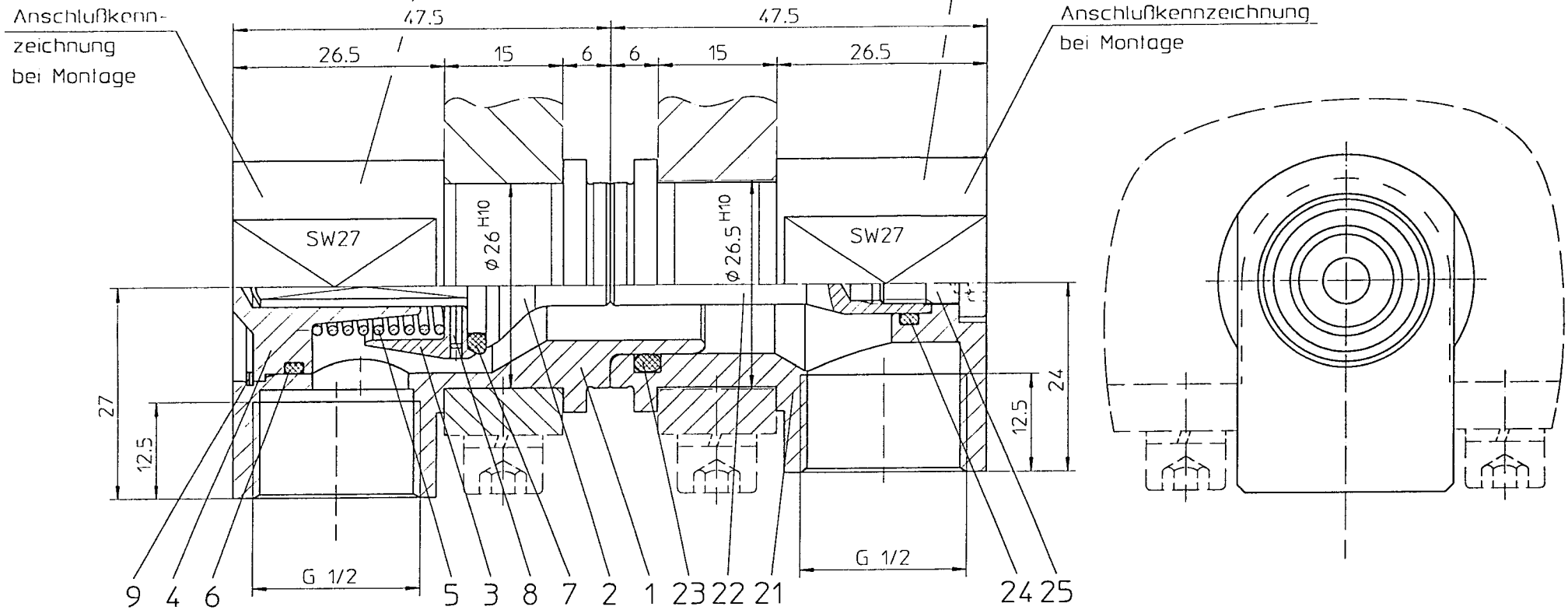
Appendix:
Drawings and parts lists

11.1.18 1-70-010-2-XX003-39-2-Z01-P015
Adaptor element n.b. 10

1-70-010-2-XX005-39-2-Z01-P015 Adaptor element n.b. 10
1-70-010-7-XX004-39-2-Z01-P015 Thru-type coupling element with Valve plunger n.b. 10

1-70-010-2-XX003-..-.-Z01-P015

1-70-010-7-XX004-....-Z01-P015



	Material	Material and sealing code or ident. no.	Premissible working pressure in bar (static) without consideration of the connections			
			connected	disconnected		
VK	Alu	AAAA	16	16		
VN	Alu	39-2		16		
VK						
VN						

K	D-GB	PT 5166

walther präzision

1-70-010-2-XX003-..-.-Z01-P015

1-70-010-7-XX004-....-Z01-P015

Maßstab: 2:1	Ersatz für: 1-70-010-2-XX003-..-.-Z01 1-70-010-7-XX004-....-Z01		
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: E		Datum / Name
	vom: 2003/09/03 AM	Erststellg.	2000/06/28 ZC
	A08500	Gezeichn.	2000/06/28 ZC
		Geprüft	2003/09/04 AHei
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/09/04 AHei

Verschlußnippel & Duchgangskupplung DN10
self-sealing adaptor & thru-type coupling n.b.10

DIN A 3

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
01	Verschlußnippelmuffe Self-sealing adaptor body	4-70-010-010-..-.-XX003-Z01	1	3.0615 - HC	
02	Ventilbolzen Valve bolt	4-70-010-044	1	3.2315 - HC	
03	Ventilbuchse Valve bush	4-LC-006-048	1	3.0615.71 - HC	
04	Ventilwiderlager Valve butment	4-EC-010-045-..-.-00000-Y13	1	3.0615.71 - HC	
05	Ventilfeder Valve spring	4-70-010-005-05	1	1.4310 K+A	
06	O-Ring O-ring	18.77 x 1.78	1	FPM	
07	O-Ring O-ring	11.91 x 2.62	1	FPM	
08	Zylinderkerbstift Parallel grooved pin	DIN 1473 - 1.5 x 16	1	A2	
09	Sicherungsring Retaining ring	WH - 93	1	A2	Fa. Smalley
10					

Ausf.: E Issue: E
Änderungs-Auftrags-Nr.: A08500
Change order No.:
vom: 03.09.2003 AM
from:

	Datum	Name
Gezeichnet	28.06.00	ZC
Geprüft	28.06.00	RN

Verschlußnippelelement DN 10
Adaptor element n.b. 10

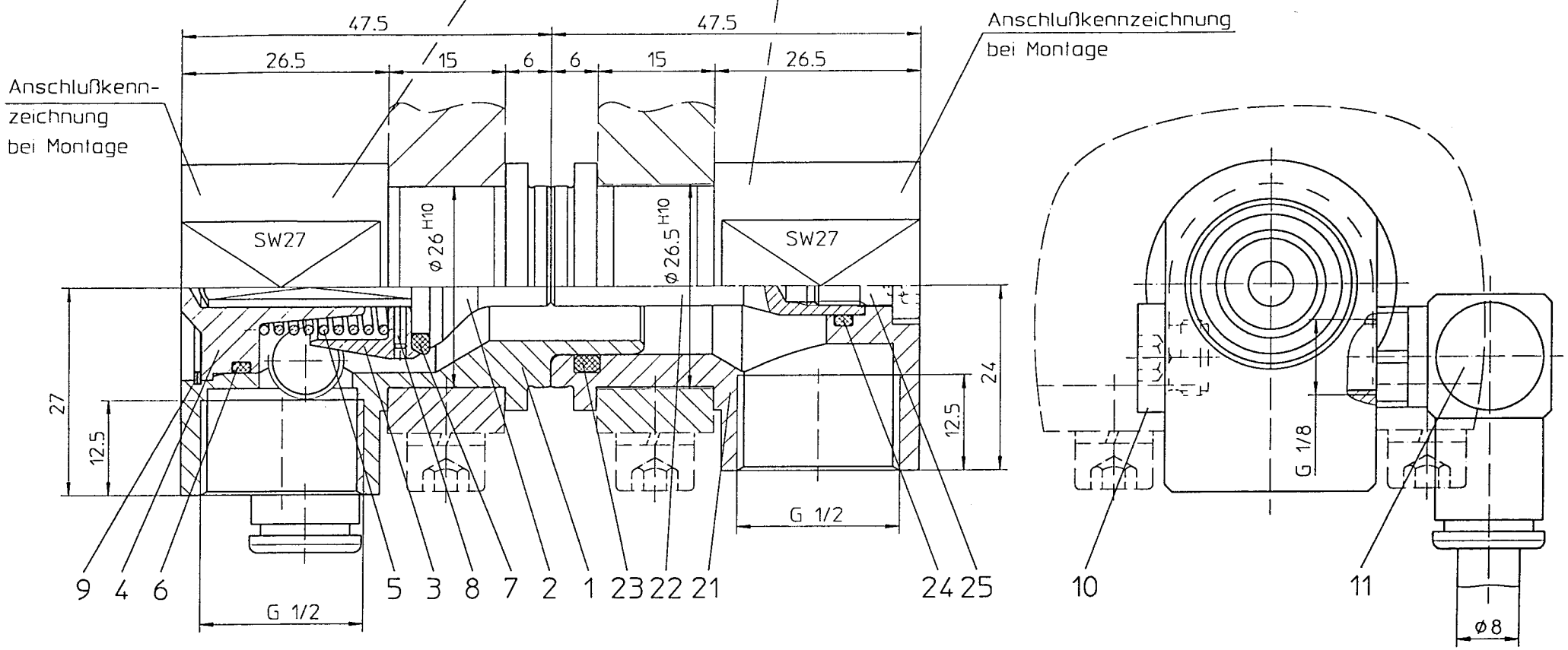
Bestellnummer:
Part no.:
1-70-010-2-XX003-39-2-Z01-P015

K-D-GB

Blatt von Blatt | Ersatz für: 1-70-010-2-XX003-39-2-Z01 | CAD-Stückliste nicht manuell ändern!

1-70-010-2-XX005-..-.-Z01-P015

1-70-010-7-XX004-....-Z01-P015



	Material	Material and sealing code or ident. no.	Premissible working pressure in bar (static) without consideration of the connections			
			connected	disconnected		
VK	Alu	AAAA	16	16		
VN	Alu	39-2		16		
VK						
VN						

K | D-GB | PT

walther präzision

1-70-010-2-XX005-..-.-Z01-P015

1-70-010-7-XX004-....-Z01-P015

Maßstab: 2:1

Ersatz für: 1-70-010-2-XX005-..-.-Z01
1-70-010-7-XX004-....-Z01

Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03

Ausführung: F

vom: 2005/04/25 TG

A 10249

CAD-Zeichnung nur mit 2D-System ändern !

	Datum	Name
Ersterstellg.	2000/11/06	AF
Gezeichn.	2000/11/06	AF
Geprüft	2003/09/04	AHei
A-geprüft	2005/04/25	RN

Verschlußnippel & Durchgangskupplung DN10
self-sealing adaptor & thru-type coupling

DIN A 3

walther präzision

	Name	Datum
Geprüft	RN	06.11.2000
Geschr.	AF	06.11.2000

Änderungs-Auftrags-Nr.: A10249
Ausf.: F
Issue: F
vom: 25.04.2005 TG
from: 25.04.2005 TG

Bestellnummer: 1-70-010-2-XX005-39-2-Z01-P015
Part no.:

Verschlußnippelelement DN 10
Adaptor element n.b. 10

K-D-GB

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
01	Verschlußnippelmuffe Self-sealing adaptor body	4-70-010-010-..-XX005-Z01	1	3.0615 - HC	
02	Ventilbolzen Valve bolt	4-70-010-044	1	3.2315 - HC	
03	Ventilbuchse Valve bush	4-LC-006-048	1	3.0615.71 - HC	
04	Ventilwiderlager Valve butment	4-EC-010-045-..-Y13	1	3.0615.71 - HC	
05	Ventilfeder Valve spring	4-70-010-005-05	1	1.4310 K+A	
06	O-Ring O-ring	18.77 x 1.78	1	FPM	
07	O-Ring O-ring	11.91 x 2.62	1	FPM	
08	Zylinderkerbstift Parallel grooved pin	DIN 1473 - 1.5 x 16	1	A2	
09	Sicherungsring Retaining ring	WH - 93	1	A2	Fa. Smalley
10	Verschlußschraube G 1/8 lock screw G 1/8	23-0200 G NI (VW-Mat.-Nr.: ..)	1	Ms-Ni	Fa. Eisele
11	Winkelsteckanschluss G 1/8 ø8 (F) angle connector G 1/8 ø8	7-125-886-0206 (VW-Mat.-Nr.: 7761)	1	Ms-Ni	Fa. Eisele

Blatt von Blatt | Ersatz für: 1-70-010-2-XX005-39-2-Z01 | CAD-Stückliste nicht manuell ändern!

04.09.91 / DIN A 4

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
21	Durchgangsgehäuse Thru-type housing	4-70-010-401-..-.-XX004-Z01	1	3.0615.71 - HC	
22	Ventilstößel Valve plunger	4-70-010-047	1	3.0615.71 - HC	
23	O-Ring (Gehäuse) O-ring (housing)	17.12 x 2.62	1	FPM	
24	O-Ring O-ring	7.1 x 1.8	1	FPM	
25	Zylinderschraube Fillister head screw	DIN 6912 - M5 x 10	1	A2 - 70	
26					

Ausf.: Issue: E vom: from: 03.09.2003 AM

Änderungs-Auftrags-Nr.: Change Order No.: A08500

	Name	Datum
Geschr	ZC	28.06.00
Geprüft	RN	28.06.00

Durchgangskupplungselement mit Ventilöffnungsstößel DN 10
Thru-type coupling element with Valve plunger n.b. 10

K-D-GB

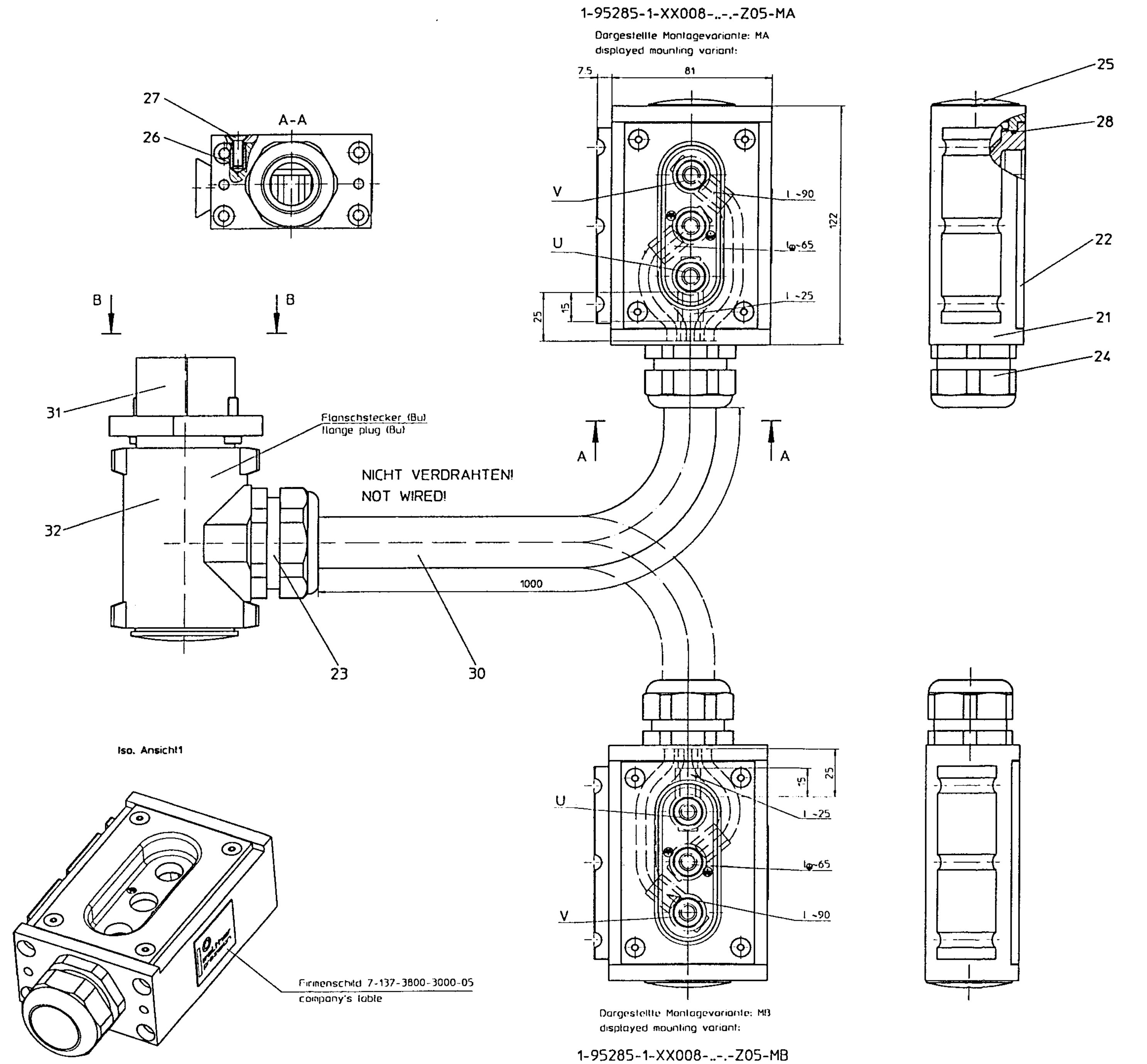
Bestellnummer: Part no.: 1-70-010-7-XX004-39-2-Z01-P015 (E)

Blatt von Blatt | Ersatz für: 1-70-010-7-XX004-39-2-Z01-P000 | CAD-Stückliste nicht manuell ändern!

Appendix:
Drawings and parts lists

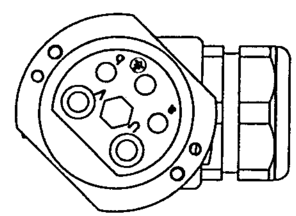
11.1.19 1-95285-1-XX008-46-2-Z05-M.
pin housing for contact insert assembly III
for sideways plate mounting

1-95285-E-00008-..-.-Z05 wiring plan (35 mm)



Dockstecker dock plug	⊕	U	V
Kabel-Nr. / Farbe cable-no. / colour	grün/gelb green/yellow	1	2
Kabellänge ungekürzt cable length not shortened	1250	1250	1250
Flanschstecker (Bu) flange plug (Bu)	⊕	U	V

B-B



Prüfanweisung (Prüfspannung 3310 V ~):
Test instruction (testing voltage 3310 V ~):

1. Stecker durch Mehrfachsteckung auf Steckbarkeit und sicheren Sitz der Kontakte in den Einsätzen prüfen!
   Check the plug by means of multiple plugging whether it is pluggable and the contacts are inserted safely!
2. Einzeladern auf Durchgang und Kontaktierung prüfen!
   Check single leads of the cable on passage and bonding!
3. Alle Adern sind gegeneinander auf fehlerhafte Verbindung zu prüfen!
   All conductors have to be checked against each other on faulty connection!
4. Jede Ader gegen Gehäuse messen!
   Each conductor has to be measured against housing!

walther präzision

1-95285-1-XX008-..-.-Z05-M.

Maßstab 1:1 | Ersatz für:

Fertigungs- und Prüfvorschriften nach WALTHER Werknorm-Nr.: 1210003

Ausführung: D
vom: 2004/07/12 TG
A09447

	Datum	Name
Entworfen	2002/12/02	JP
Gezeichn.	2002/12/02	JP
Geprüft	2002/12/10	KHK
A-geprüft	2004/07/14	RN

CAD-Zeichnung nur mit 3D-System ändern !

Stiftgehäuse
pin housing

K | D-GB

walther präzision

		Datum	Name
Erstellt:		02.12.2002	JP
Geschr.		02.12.2002	JP
Geprüft		02.12.2002	KHK

Änderungs-Auftrags-Nr.: Change Order No.: A 1904

Ausf.: Issue: F vom: from: 18.01.2006 AKam

Stiftgehäuse für Kontakteinsätze Bgr III für seitlichen Plattenanbau
pin housing for contact insert assembly III for sidways plate mounting

Bestellnummer: Part no.: 1-95285-1-XX008-46-2-Z05-MA/MB

K-D-GB

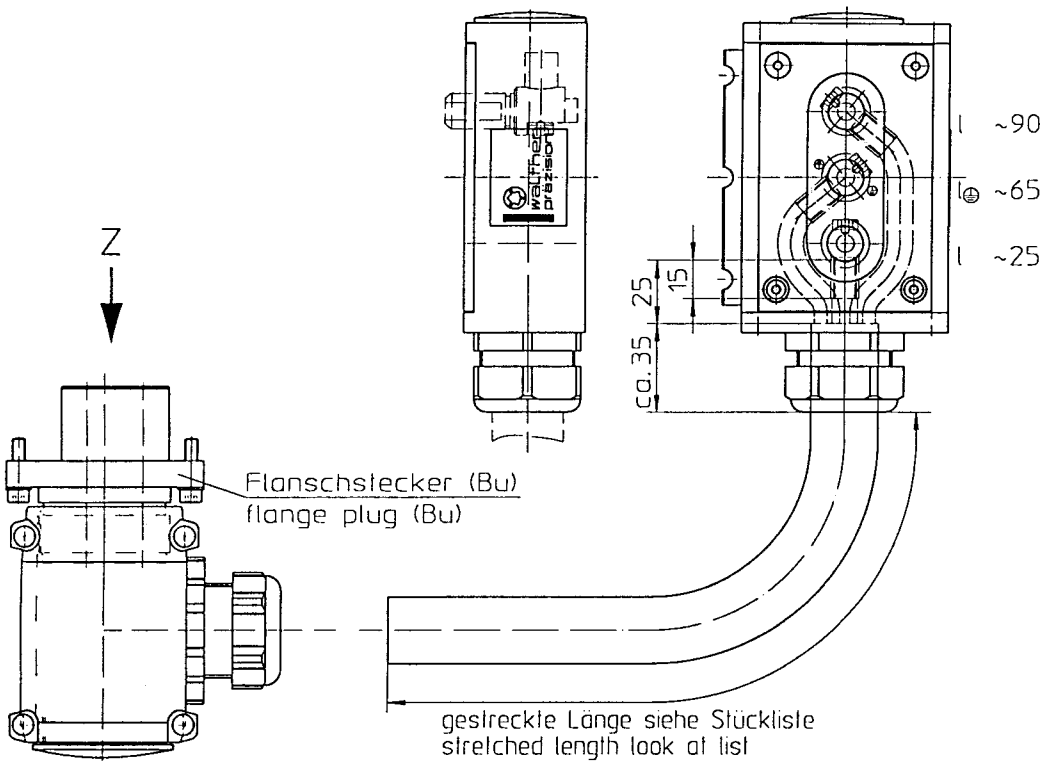
DIN A 4

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
21	Elektrostecker-Gehäuseteil electro plug-housing part	4-95285-501-..-Z05	1	POM - schwarz	
22	Stifteinsatz 3-polig pin insert 3 way	4-95285-502-..-Z05	1	POM - schwarz	
23	Kabelverschraubung PG 36/29 screwed cable gland PG 36/29	Best.-Nr.: 156 55 U 28	1	PA	Fa. Pflitsch
24	Kabelverschraubung PG 29 screwed cable gland PG 29	Best.-Nr.: 155 U 28	1	PA	Fa. Pflitsch
25	Blindstopfen PG 29 blanking plug PG 29	Best.Nr.: 514/29	1	Polystyrol	Fa. Pflitsch
26	Gewindeeinsatz threaded insert	ENSAT 308 050 16	4	St - VZ	Fa. Kerb - Konus
27	Senkschraube countersunk screw	DIN 7991 - M5 x 16	4	A2 - 70	
28	O-Ring o-ring	78 x 1.5 (oder alternativ 80 x 1.5)	1	FPM	
29					
30	Rundkabel 3x35mm² round cable 3x35mm²	ERK 0957 Rev. 1 - 1.35 m	1	*	Fa. ELOCAB
31	Primärkreisstecker (Bu) 3-polig primary circuit plug (Bu) 3 way	TSB 150/35 Best.-Nr.: 30.0001	1		Fa. Multi-Contact
32	Endgehäuse end housing	EG-TS-Pg 36/150 Best.-Nr.: 30.0020	1		Fa. Multi-Contact
32	Spreitzbefestigung für SZ-System Ⓕ spreaded-fastening for SZ-system	1-91489-B-00059-AAAA-Y10	2	Unterstückliste	
	Verdrahtungsplan wiring plan	1-95285-E-00008-..-.-Z05			
	* Pos. 30 nicht mit Pos. 31 verdrahten!				
	Firmenschild selbstklebend name plate adhesive		1		

Stücklisteninhalt -MA und -MB identisch

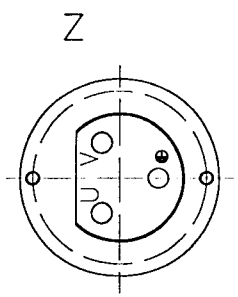
Blatt von Blatt | Ersatz für: 1-95285-1-XX008-46-2-Z05 | CAD-Stückliste nicht manuell ändern!

Dockstec… dock plug	⏚	U	V
Kabel-Nr. / Farbe cable-no. / colour	grün/gelb green/yellow	1	2
Kabellänge ungekürzt cable length not shortened	1250	1250	1250
Flanschstecker (Bu) flange plug (Bu)	⏚	U	V



Prüfanweisung (Prüfspannung 3310 V ~):
Test instruction (testing voltage 3310 V ~):

1. Stecker durch Mehrfachsteckung auf Steckbarkeit und sicheren Sitz der Kontakte in den Einsätzen prüfen!
   Check the plug by means of multiple plugging whether it is pluggable and the contacts are inserted safely!
2. Einzeladern auf Durchgang und Kontaktierung prüfen!
   Check single leads of the cable on passage and bonding!
3. Alle Adern sind gegeneinander auf fehlerhafte Verbindung zu prüfen!
   All conductors have to be checked against each other on faulty connection!
4. Jede Ader gegen Gehäuse messen!
   Each conductor has to be measured against housing!



walther präzision

1-95285-E-00008-..-.-Z05

Maßstab: 1:2	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2005/07/08 TG	Ersterstellg.	2002/12/02	JP
	A 10461	Gezeichn.	2002/12/02	JP
		Geprüft	2002/12/10	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2005/07/11	RN

K | D-GB | PT

Verdrahtungsplan (35 mm)
wiring plan (35 mm)

DIN A 3

Appendix:
Drawings and parts lists

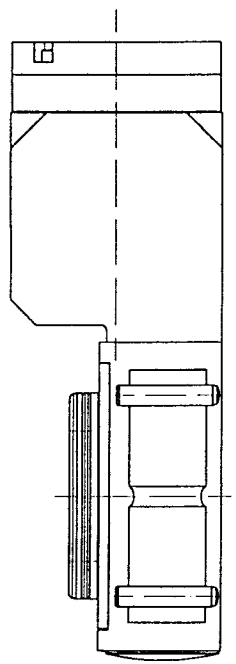
11.1.20 1-95285-4-XX003-46-2-Z05-MA
socket housing for 3x35 mm² with primary circuit plug

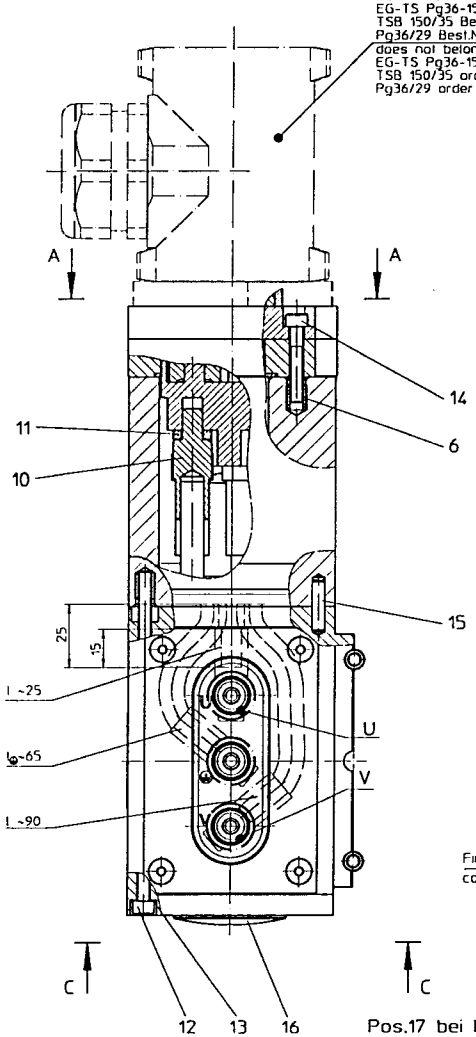
1-95285-4-XX100-46-2-Z05-M. electro socket housing 3-way (without connection)
for sideways plate mounting
1-C5285-4-ET350-2.-0-AB socket-contact set 3-way
1-C5285-4-ET350-2.-0-AA electro socket 1-way

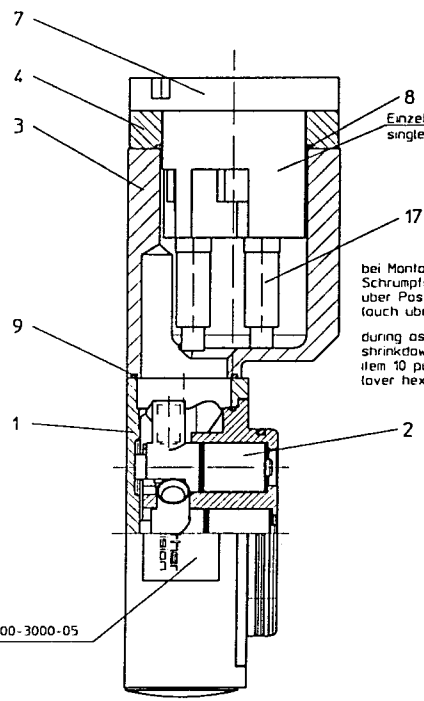
Montagevariante A

nicht im Lieferumfang
EG-TS Pg36-150 Best.Nr.30.0020 (MC)
TSB 150/35 Best.Nr.30.0001 (MC)
Pg36/29 Best.Nr. 15655U28 (Pfiitsch)

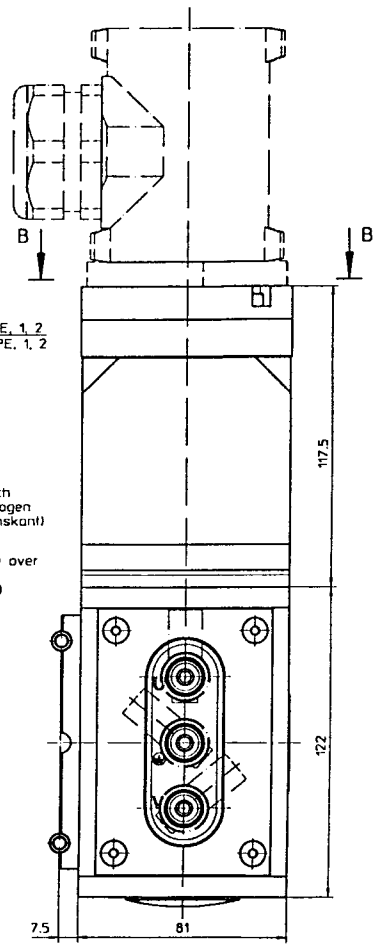
does not belongs to scope of delivery
EG-TS Pg36-150 order no. 30.0020 (company MC)
TSB 150/35 order no. 30.0001 (company MC)
Pg36/29 order no. 115655U28 (company Pfiitsch)





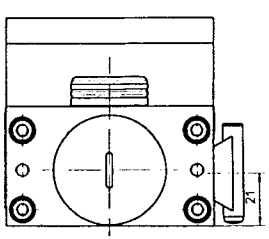


Montagevariante B



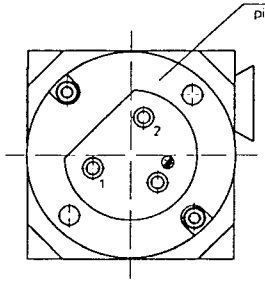
Pos.17 bei Montage abgelängt und abisoliert
item 17 during assembly cut into length and strip the insulation

C-C

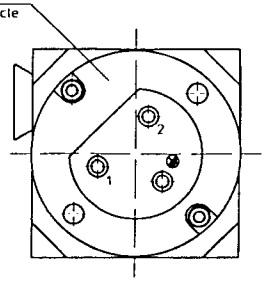


Dockstecker dock plug	⊕	U	V
Kabel-Nr. / Farbe cable-no. / colour	grün/gelb green/yellow	1	2
Aderlänge conductor length	106	72	125
Stift- Einbaudose pin receptacle	⊕	U	V

A-A



B-B



Prüfanweisung (Prüfspannung 3310 V ~):
Test instruction (testing voltage 3310 V ~):

1. Stecker durch Mehrfachsteckung auf Steckbarkeit und sicheren Sitz der Kontakte in den Einsätzen prüfen!
   Check the plug by means of multiple plugging whether it is pluggable and the contacts are inserted safely!
2. Einzeladern auf Durchgang und Kontaktierung prüfen!
   Check single leads of the cable on passage and bonding!
3. Alle Adern sind gegeneinander auf fehlerhafte Verbindung zu prüfen!
   All leads have to be checked against each other on faulty connection!
4. Jede Ader gegen Gehäuse messen!
   Each lead has to be measured against housing!

weither präzision	1-95285-4-XX003-..-.-Z05-M.			
Maßstab: 1:1	Ersetzt für:			
Fertigungs- und Prüfvorschriften nach WALTHER Werksnorm-Nr.: 121.00.03	Ausführung: H		Datum	Name
	vom: 2005/08/25 16	Erstellung	2004/07/08	TG
	A10547	Gezeichn.	2003/11/25	TG
		Geprüft	2003/11/27	RN
CAD-Zeichnung nur mit 3D-System ändern !		Freigegeben	2005/08/31	RN
K D-GB P1 5736	Buchsengehäuse (seitlicher Plattenanbau) socket housing (side plate attachment)			

DIN A4

walther präzision

	Name	Datum
Gepr.	RN	01.12.99
Gesch.	AnS	01.12.99

Änderungs-Auftrags-Nr.: A09711

Ausf.: H vom: 09.09.2004 TG

Buchsengehäuse 3x35qmm mit Primärkreisstecker

socket housing for 3x35sqmm with primary circuit plug

Bestellnummer: 1-95285-4-XX003-46-2-Z05-MA

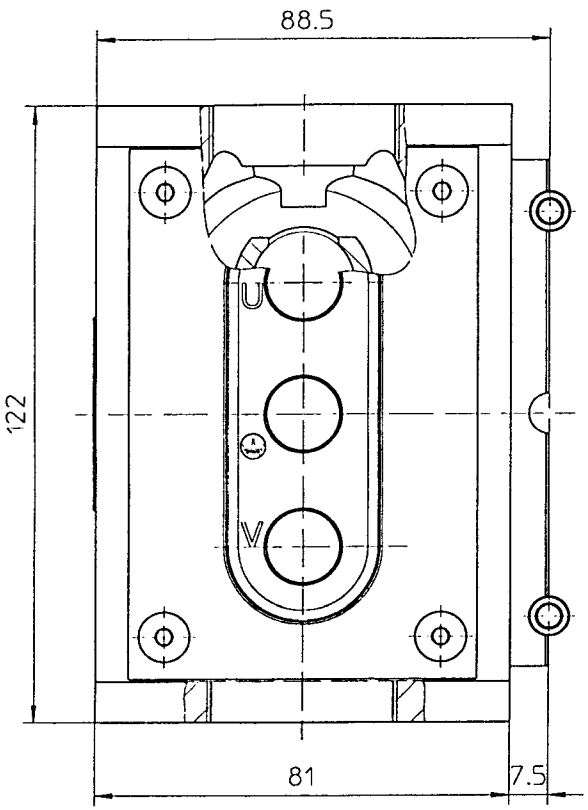
K-D-GB

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing NO. / Dimension	Stck. pc.	Werkstoff/Identnummer Material/Ident no.	Bemerkung Remark
01	Elektrobuchsengehäuse electro socket housing	1-95285-4-XX100-46-2-Z05-MA	1	Unterstückliste	
02	Elektrobuchsensatz 3-polig electro socket set 3 way	1-C5285-4-ET350-2N-0-AB	1	Unterstückliste	
03	Dosengehäuse box housing	4-95285-505-..-XX003-Z05	1	POM-schwarz/black	
04	Zwischenring intermediate ring	4-95285-504-..-XX003-Z05	1	POM-schwarz/black	
05	(H)				
06	Gewindeeinsatz threaded insert	ENSAT 308 050 16	6	St - VZ	Fa. Kerb - Konus
07	Einbaudose 35 mm² socket insert 35mm²	TID-S8/M8 Best.-Nr.:30.0019	1		Fa. Multi-Contact
08	O-ring o-ring	59 x 2	1	FPM	
09	O-ring o-ring	37 x 2	1	FPM	
10	Schraub-Preßanschluß 35mm² screw-press connecting 35mm²	4-95285-506-..-.-00035-Z05	3	E-Cu-verzinnt	
11	Distanzscheibe distance washer	4-95285-507-..-.-00035-Z05	3	Ms-verzinnt	
12	Zylinderschraube fillister head screw	DIN 912 - M 5 x 130	4	8.8 - VZ	
13	Federscheibe spring washer	DIN 137 B - 5	4	FSt	
14	Zylinderschraube fillister head screw	DIN 912 - M 5 x 30	2	A2 - 70	
15	Zylinderkerbstift parallel grooved pin	DIN 7 - A5 x 20	2	St	
16	Blindstopfen PG 29 blanking plug PG 29	Best.-Nr.: 514/29	1	Polystyrol	Fa. Pflitsch
17	Rundkabel 3x35mm² round cable 3x35mm²	ERK 0957 Rev.1 0.2 m	1		Fa. ELOCAB
18	Schrumpfschlauch shrinkdown hose	Art.Nr.: 181315 19-9 / Länge=0,05m	3		Fa. CEF
	Firmenschild selbstklebend name plate adhesive				

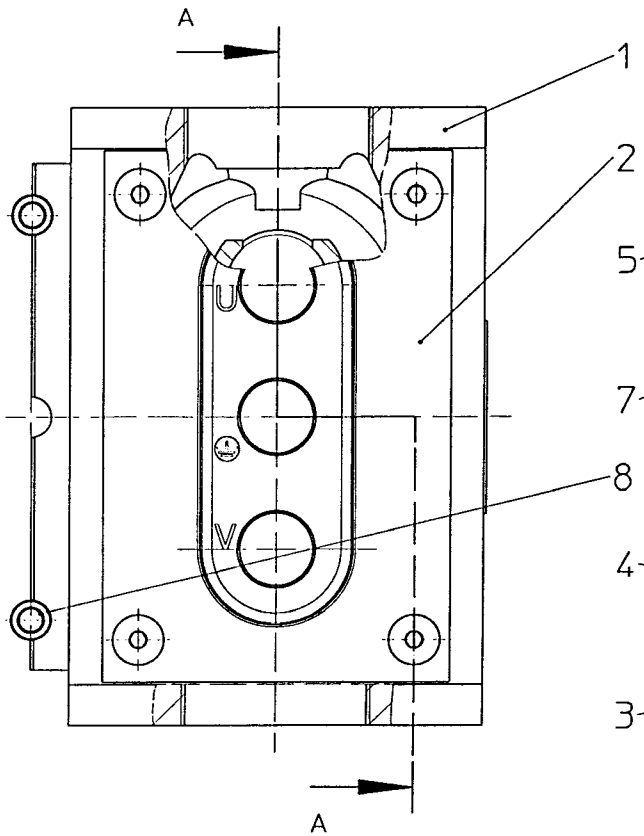
Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

04.09.91 / DIN A 4

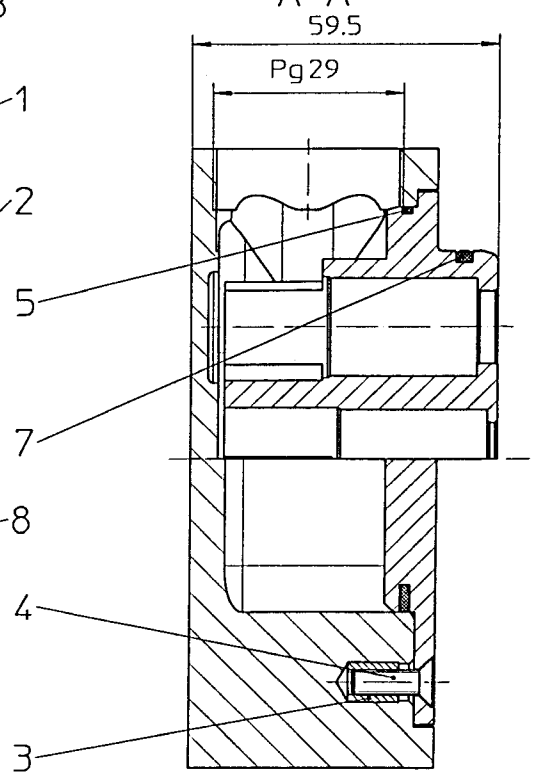
1-95285-4-XX100-..-.-Z05-MA

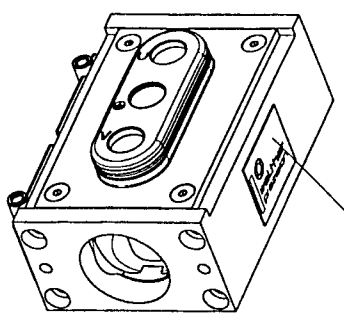


1-95285-4-XX100-..-.-Z05-MB



A-A





Iso. Ansicht
1:2

Firmenschild 7-137-3800-3000-05
company's lable 7-137-3800-3000-05

walther präzision

1-95285-4-XX100-..-.-Z05-M.

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2004/06/15 TG	Ersterstellg.	2003/11/24	TG
	A09430	Gezeichn.	2003/11/24	TG
		Geprüft	2003/11/27	RN
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/06/17	RN

Elektrobuchsengehäuse (3-polig)
electro socket housing (3-way)

K | D-GB | PT 6489

DIN A 3

walther präzision

Ersterst.	11.11.2003	TG	
Geschr.	11.11.2003	TG	
Geprüft	11.11.2003	RN	

A 10904

Ausf.: D vom: 18.01.2006 AKam

Elektrobuchsengehäuse 3-polig (ohne Anschluß) für seitlichen Plattenanbau

electro socket housing 3-way (without connection) for sideways plate mounting

Bestellnummer: 1-95285-4-XX100-46-2-Z05-MA/MB

K-D-GB

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Elektrostecker-Gehäuseteil electro plug-housing part	4-95285-501-..-.-Z05	1	POM-schwarz/black	
02	Buchseneinsatz 3-polig socket insert 3-way	4-95285-503-..-.-Z05	1	POM-schwarz/black	
03	Gewindeeinsatz threaded insert	ENSAT 308 050 16	4	St - VZ	Fa. Kerb - Konus
04	Senkschraube countersunk screw	DIN 7991 - M5 x 16	4	A2 - 70	
05	O-ring o-ring	78 x 1.5 (oder alternativ 80 x 1.5)	1	FPM	
06					
07	O-ring o-ring	55.25 x 2.62	1	FPM	
08	Spreitzbefestigung für SZ-System spreaded-fastening for SZ-system Ⓓ	1-91489-B-00059-AAAA-Y10	2	Unterstückliste	
	Stückliste -MA, -MB inhaltlich identisch				
	Firmenschild selbstklebend name plate adhesive		1		

Blatt von Blatt | Ersatz für: .

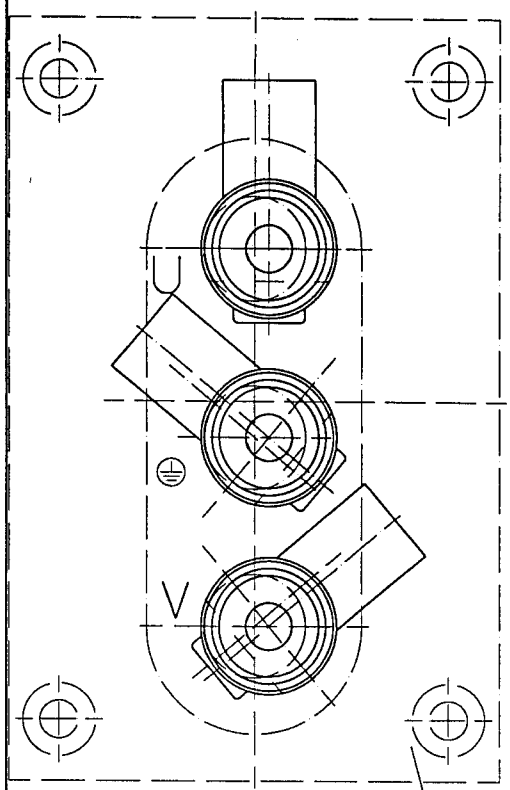
CAD-Stückliste nicht manuell ändern!

DIN A 4

walther präzision

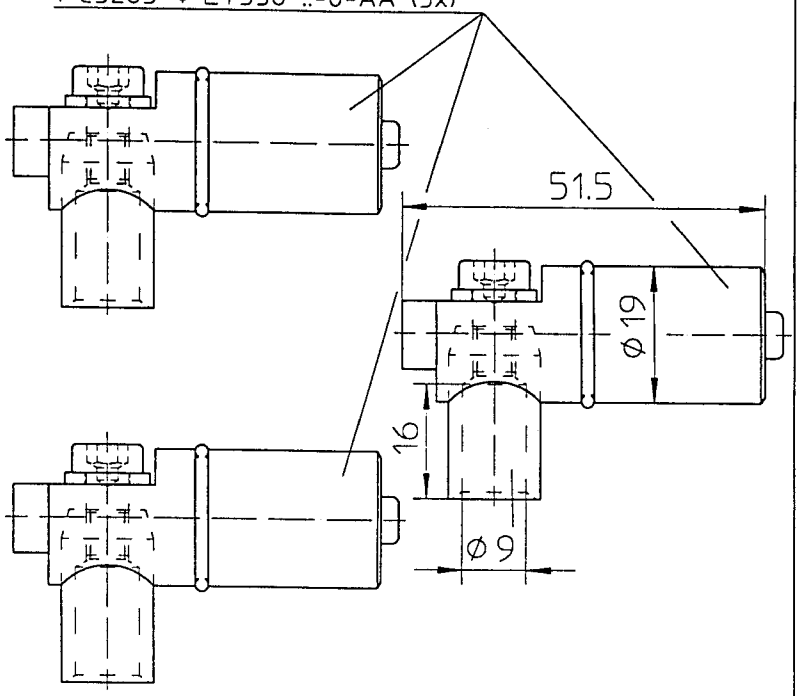
Buchsen-Kontaktsatz 3-polig
socket-contact set 3-way
3 x 35sq.mm

M - 3



1-95285-4-XX...-..-.-Z01 / Z05

Elektrobuchse 1-pol. (35qmm)
electro socket 1-pol. (35sq.mm)
1-C5285-4-ET350-..-0-AA (3x)



CKW
Bestell-Nr.:
part-no.: 1-C5285-4-ET350-$\frac{2N}{2P}$-0-AB

Anschlußart: Preßanschluß/ Lötanschluß
type of connection: crimp connection/ soldered connection

Werkstoff: Ms, versilbert (2N) / brass, silver plated (2N)
siehe übergeordnete Stückliste
material: Ms, vergoldet (2P) / brass, gold plated (2P)
see higher ranking list of parts

Preßwerkzeug: CKW-Bestell-Nr.: 50145 / 50153
tool:

Hierzu gehören: Stift-Kontaktsatz / plug contact set
to this belongs: 1-C5285-1-ET350-$\frac{2N}{2P}$-0-AB

K-D-GB

Ausführung: D		Datum	Name
vom: 2004/07/19 TG	Ersterst.	1999/11/03	AnS
	Gezeichn.	2004/07/19	TG
A 09556	Geprüft	2004/07/20	RN
	A.-geprüft	2004/07/20	RN

walther präzision

		Datum	Name
Ausf.: B vom: 19.07.2004 TG			
A 09556	Erstert.	29.07.2003	TG
	Geschr.	29.07.2003	TG
	Geprüft	29.07.2003	RN

Buchsen-Kontaktsatz 3-polig (3 x 35mm²)

Bestellnummer: 1-C5285-4-ET350-2N-0-AB

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Elektrobuchse 1-pol. Ⓑ	1-C5285-4-ET350-2N-0-AA	3	Unterstückliste	

Blatt von Blatt | Ersatz für:

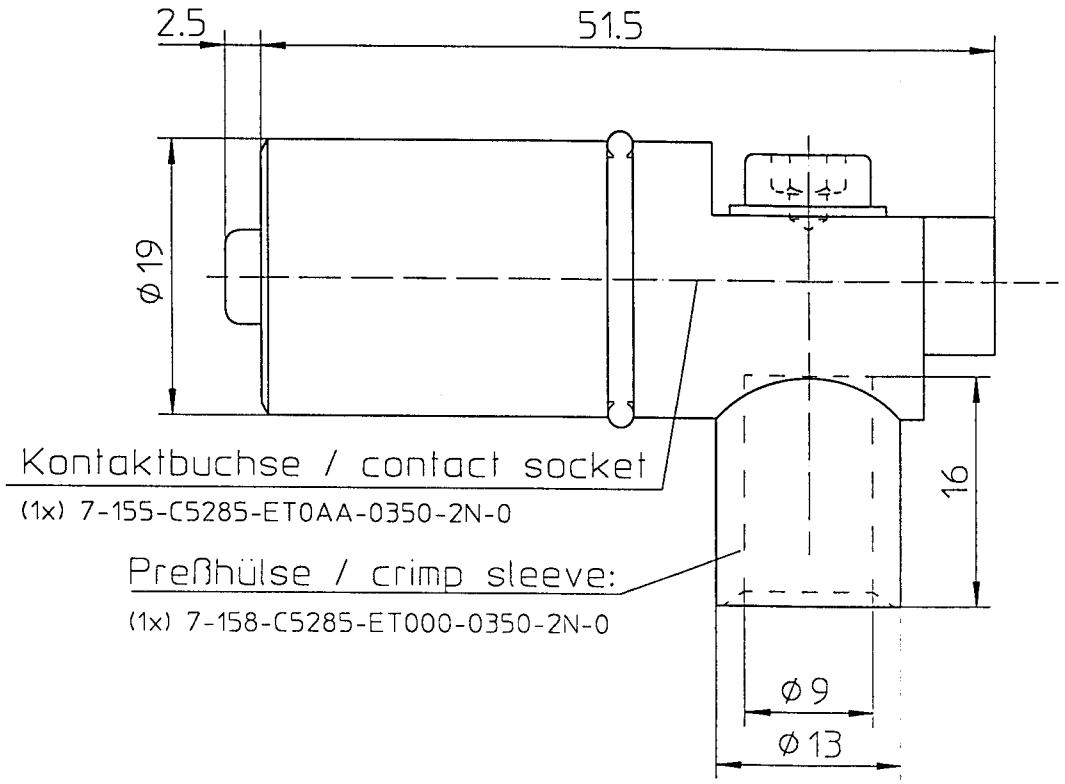
CAD-Stückliste nicht manuell ändern!

DIN A 4

walther präzision

Elektrobuchse 1-polig
electro socket 1-way
35sq.mm

M - 1



Kontaktbuchse / contact socket
(1x) 7-155-C5285-ET0AA-0350-2N-0

Preßhülse / crimp sleeve:
(1x) 7-158-C5285-ET000-0350-2N-0

CKW
Bestell-Nr.:
part-no.: 1-C5285-4-ET350-$\frac{2N}{2P}$-0-AA

Anschlußart: type of connection:	Preßanschluß / Lötanschluß crimp connection / soldered connection
Werkstoff: material:	Ms, versilbert (2N) / brass, silver plated (2N) siehe übergeordnete Stückliste Ms, vergoldet (2P) / brass, gold plated (2P) see higher ranking list of parts
Preßwerkzeug: tool:	CKW-Bestell-Nr.: 50145 / 50153
Hierzu gehören: to this belongs:	Elektrostecker / electro plug 1-C5285-1-ET350-$\frac{2N}{2P}$-0-AA

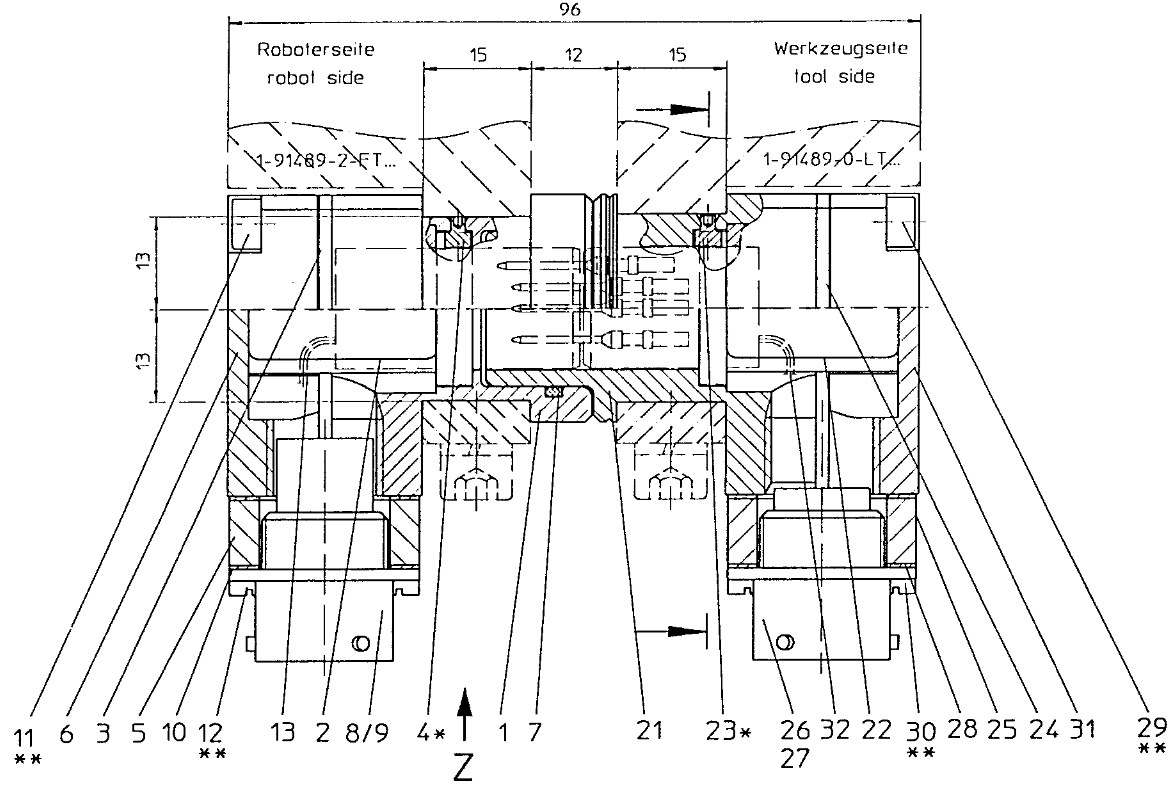
K-D-GB

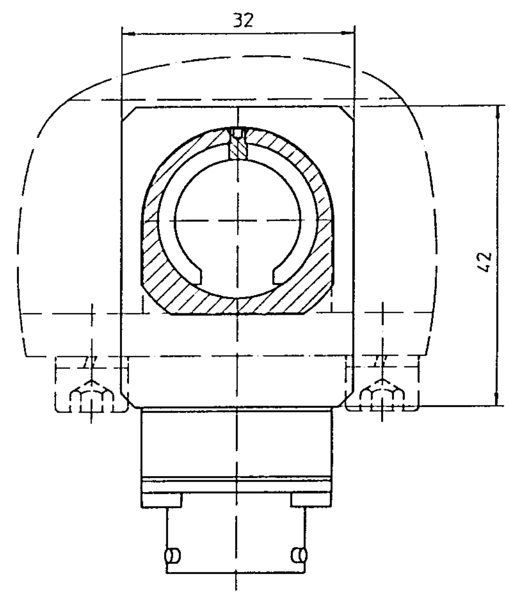
Ausführung: E		Datum	Name
vom: 2005/09/19 TG	E-erst.	1998/10/06	UH
	Gezeichn.	2004/07/19	TG
A 10670	Geprüft	2004/07/20	RN
	A.-geprüft	2005/09/20	RN

Appendix:
Drawings and parts lists

11.1.21 1-95288-1-XX002-AAAB-Y02
pin housing in elements style

1-95288-E-00001-....-Y02 wiring plan

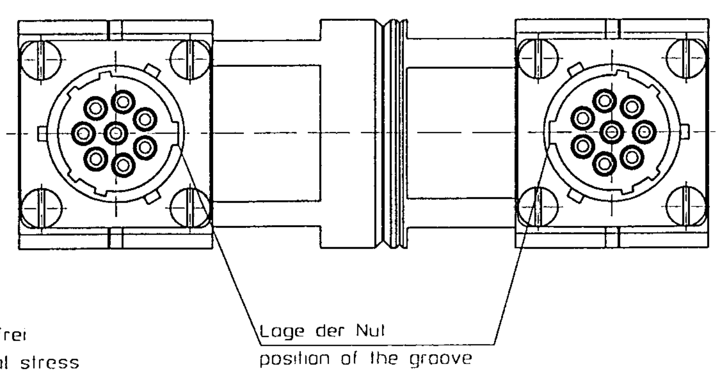




* =nach Montage mit Körnerschlag verklemmt und mit Loctite gesichert
** =mit Loctite 243 gesichert

* =after assembling with centre punch blow clamping and secured with Loctite
** =secured with Loctite 243

Z



Konfektionierung der Kabelleiter querkraftfrei
packaging of the conductors without radial stress

Hierzu gehört Verdrahtungsplan 1-95288-E-00001-....-Y02

walther präzision	1-95288-4-XX003-..-.-Y02		
	1-95288-1-XX002-..-.-Y02		
Maßstab: 2:1	Ersatz für:		
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: E	Datum	Name
	vom: 2004/09/14 AM	Erstersteltg 2002/09/30	JP
	A09739	Gezeichn. 2003/02/24	JP
		Geprüft 2003/02/24	KHK
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft 2004/09/14	KHK
K D-GB PT 6308	Buchsen- und Stiftgehäuse in Elementebauweise		
	socket and pin housing in elements style		

DIN A 2

walther präzision

		Datum	Name
Ersterst.		01.10.2002	JP
Geschr.		01.10.2002	JP
Geprüft		01.10.2002	KHK

A 08660

Ausf.: 1 vom: 24.10.2003 TG

Stiftgehäuse in Elementebauweise
pin housing in elements style

Bestellnummer: Part no.: 1-95288-1-XX002-AAAB-Y02

K-D-GB

DIN A 4

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
21	Stiftgehäuse pin housing	4-95288-502-..-.-XX002-Y02	1	3.0615-71 - NI	
22	Distanzhülse distance sleeve	4-95288-505-..-.-00000-Y02	1	3.0615-71 - NI	
23	Fixierstift postioning pin	4-95288-504-..-.-00000-Y02	1	1.4305	
24	Dichtung seal	4-95288-503-..-.-00000-Y02	1	NBR 80+5 Shore	Fa. Seal-Jet
25	Distanzstück separator	4-95288-510-..-.-00000-Y02	1	3.2315	
26	Flanschdose flange socket	Best.-Nr.: UT00128SHT	1		Fa. Argenta
27	Kontakte contacts	Best.-Nr.: RC16M23K	8		Fa. Argenta
28	Dichtung seal	Best.-Nr.: UTFD13B	2		Fa. Argenta
29	Zyl.-Schraube filister head screw	DIN 912 - M4 x 16 (ISO 4762)	4	A2	
30	Zyl.-Schraube filister head screw	DIN ISO 1207 - M3 x 16	4	A2	
31	Deckel cover	4-95288-508-..-XX001-Y02 (1)	1	3.0615-71 - NI	
32	Mehrfachkabel 34x1 multiple cable 34x1	7-113-Ölflex 34x1 grau einzel numeriert -0.2m	1		
		Bei Montage abgelängt, abgemantelt und überzählige Adern entfernt			
		7-113-Oilflex 34x1 grey particular numbered -0.2m			
		by assembly cut to length, dismantled and surplus lines removed			
	hierzu gehört Verdrahtungsplan 1-95288-E-00001-....-Y02				

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

Multi- Contact Stecker/Buchse	Ader- Ziffernaufdruck	Fa. Argenta Buchse/Stecker
1		A
2		B
3	nicht belegt	
4	nicht belegt	
5	nicht belegt	
6	nicht belegt	
7		C (Schirm)
8	nicht belegt	
9		D
10	nicht belegt	
11	nicht belegt	
12	nicht belegt	
13	nicht belegt	
14	nicht belegt	
15		E
16		F
17		G
18	nicht belegt	
⏚	PE/ gn/gb	H ⏚

walther präzision

1-95288-E-00001-....-Y02

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2003/01/22 JP	Erstellg.	2002/10/10	JP
	A07812	Gezeichn.	2002/10/10	JP
		Geprüft	2002/10/31	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/01/23	KHK

Verdrahtungsplan

DIN A 4

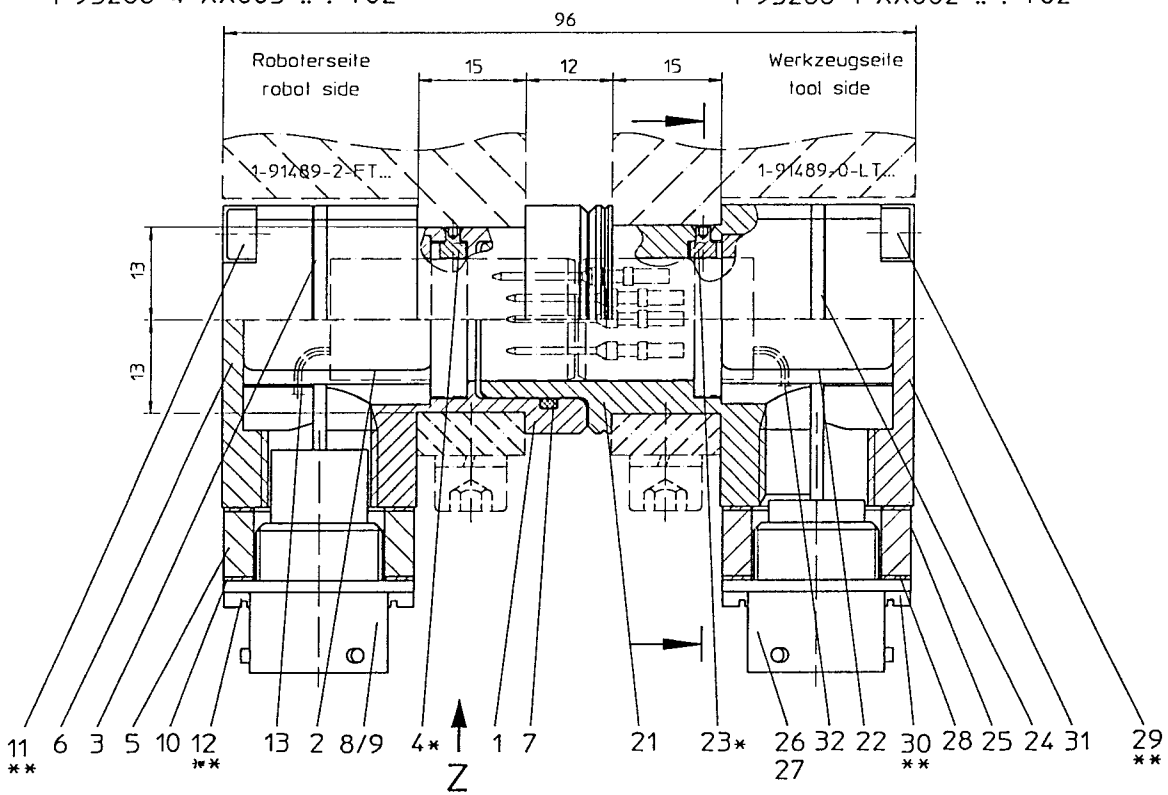
Appendix:
Drawings and parts lists

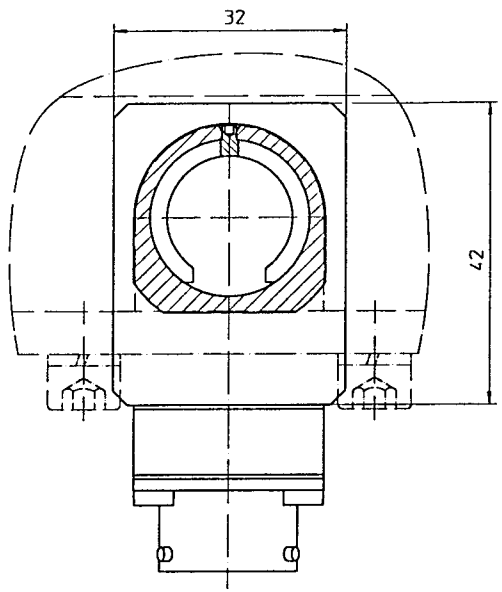
11.1.22 1-95288-4-XX003-AAAB-Y02
socket housing in elements style

1-95288-E-00001-....-Y02 cable plan

1-95288-4-XX003-..-.-Y02

1-95288-1-XX002-..-.-Y02





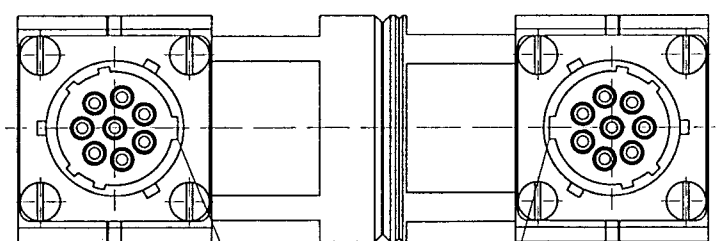
* =nach Montage mit Körnerschlag verklemmt und mit Loctite gesichert

** =mit Loctite 243 gesichert

* =after assembling with centre punch blow clamping and secured with Loctite

** =seured with Loctite 243

Z



Konfektionierung der Kabelleiter querkraftfrei
packaging of the conductors without radial stress

Hierzu gehört Verdrahtungsplan 1-95288-E-00001-....-Y02

walther präzision

1-95288-4-XX003-..-.-Y02

1-95288-1-XX002-..-.-Y02

Maßstab: 2:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER Werksnorm-Nr.: 121.00.03	Ausführung: E		Datum	Name
	vom: 2004/09/14 AM	Erstersteig.	2002/09/30	JP
	A09739	Gezeichn.	2003/02/24	JP
		Geprüft	2003/02/24	KHK
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2004/09/14	KHK

K | D-GB | PT 6308

Buchsen- und Stiftgehäuse in Elementebauweise
socket and pin housing in elements style

DIN A 2

walther präzision

Pos. Item	Benennung Description	Zeichnungsnummer / Abmessung Drawing no. / Dimension	Stck. pc.	Werkstoff / Identnummer Material / Ident no.	Bemerkung Remark
01	Buchsengehäuse socket housing	4-95288-501-..-.-XX003-Y02	1	3.0615-71 - NI	
02	Distanzhülse distance sleeve	4-95288-506-..-.-00000-Y02	1	3.0615-71 - NI	
03	Dichtung seal	4-95288-503-..-.-00000-Y02	1	NBR 80+5 Shore	Fa. Seal-Jet
04	Fixierstift postioning pin	4-95288-504-..-.-00000-Y02	1	1.4305	
05	Distanzstück separator	4-95288-510-..-.-00000-Y02	1	3.2315	
06	Deckel cover	4-95288-508-..-XX001-Y02 Ⓒ	1	3.0615-71 - NI	
07	O-Ring o-ring	21.95 x 1.78	1	FPM	
08	Flanschdose flange socket	Best.-Nr.: UT00128PHT	1		Fa. Argenta
09	Kontakte contacts	Best.-Nr.: RM16M23K	8		Fa. Argenta
10	Dichtung seal	Best.-Nr.: UTFD13B	2		Fa. Argenta
11	Zyl.-Schraube filister head screw	DIN 912 - M4 x 16 (ISO 4762)	4	A2	
12	Zyl.-Schraube filister head screw	DIN ISO 1207 - M3 x 16	4	A2	
13	Mehrfachkabel 34x1 multiple cable 34x1	7-113-Ölflex 34x1 grau einzel numeriert -0.2m Bei Montage abgelängt, abgemantelt und überzählige Adern entfernt 7-113-Oilflex 34x1 grey particular numbered -0.2m by assembly cut to length, dismantled and surplus lines removed	1		
	hierzu gehört Verdrahtungsplan 1-95288-E-00001-....-Y02				

	Name	Datum
Gepr.	KHK	01.10.2002
Gesch.	JP	01.10.2002
Erstell.	JP	01.10.2002

A 08660

Ausf.: C vom: 24.10.2003 TG

Buchsengehäuse in Elementebauweise
socket housing in elements style

Bestellnummer: 1-95288-4-XX003-AAAB-Y02

K-D-GB

Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

DIN A 4

Multi- Contact Stecker/Buchse	Ader- Ziffernaufdruck	Fa. Argenta Buchse/Stecker
1		A
2		B
3	nicht belegt	
4	nicht belegt	
5	nicht belegt	
6	nicht belegt	
7		C (Schirm)
8	nicht belegt	
9		D
10	nicht belegt	
11	nicht belegt	
12	nicht belegt	
13	nicht belegt	
14	nicht belegt	
15		E
16		F
17		G
18	nicht belegt	
⏚	PE/ gn/gb	H ⏚

walther präzision

1-95288-E-00001-....-Y02

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: B		Datum	Name
	vom: 2003/01/22 JP	Erststellg.	2002/10/10	JP
	A07812	Gezeichn.	2002/10/10	JP
		Geprüft	2002/10/31	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/01/23	KHK

Verdrahtungsplan

DIN A 4

Appendix:
Drawings and parts lists

11.1.23 1-C5274-1-ET010-2.-0-AM
electro plug 8-way

Elektrostecker 8-polig
electro plug 8 way

Anschlußquerschnitt 1qmm
cross section f. connection 1qmm

M-8/18

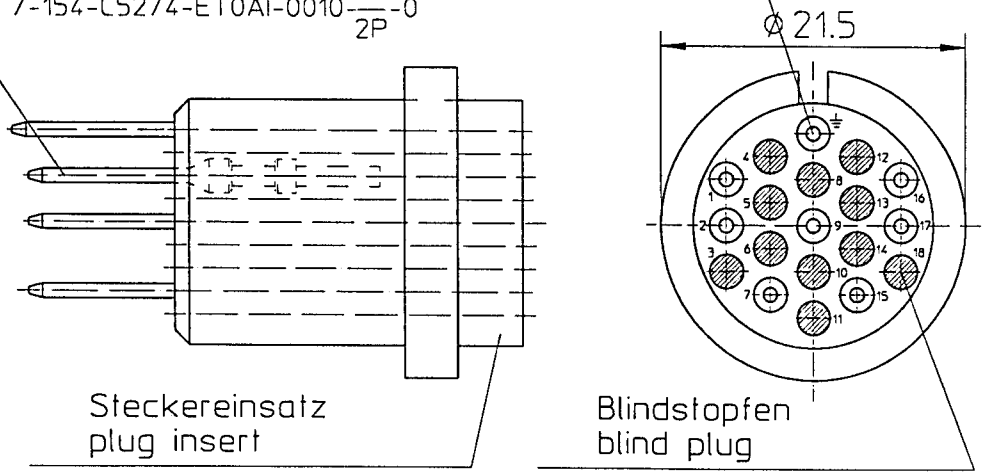
Kontaktstift, voreilend
contact pin, pre-mating

(1x) 7-154-C5274-ET0AI-0010-$\frac{2N}{2P}$-0

Kontaktstift
contact pin

(7x) 7-154-C5274-ET0AI-0010-$\frac{2N}{2P}$-0

Ansicht Anschlußseite
view connection side



Steckereinsatz
plug insert

(1x) 7-150-C5274-ET0AI-0000-...-0

Blindstopfen
blind plug

(11x) 7-160-C5274-ET000-0010-41-0

Montagewerkzeug: CKW-Bestell-Nr.:
Assembly tools: CKW-part-no.: 50150 / 50151 / 50131 / 50133

C.K. Walther Bestell-Nr.:
C.K. Walther part-no.: 1-C5274-1-ET010-$\frac{2N}{2P}$-0-AM

Bemessungsspannung: Polbild für Bemessungsspannung 220 V
rated voltage: pole picture for rated voltage 220 V

Bemessungsstrom: 5 A (30°C)
rated current:

Bemerkung: Metallgehäuse sind in die Schutzmaßnahme einzubeziehen
remark: metal housings are to be included into the protective measures

Anschlußart: Crimpanschluß / Lötanschluß
connection category: crimp connection / soldered connection

Werkstoff: Kontakte : MS, versilbert(2N) bzw. MS, vergoldet(2P)
siehe übergeordnete Stückliste
material: contact pin's: brass, silver-plated(2N) or brass, gold-plated(2P)
see higher ranking list of parts

Hierzu gehören: Elektrobuchse/ electro socket
to this belongs: 1-C5274-4-ET010-$\frac{2N}{2P}$-0-AM

K-D-GB

Ausführung: E		Datum	Name
vom: 2004/01/08 AM	Ersterst.	2001/09/21	KS
	Gezeichn.	2002/09/03	AF
A 08913	Geprüft	2002/09/04	KHK
	A.-geprüft	2004/01/08	NH

Appendix:
Drawings and parts lists

11.1.24 1-C5274-4-ET010-2.-0-AM
electro socket 8-way

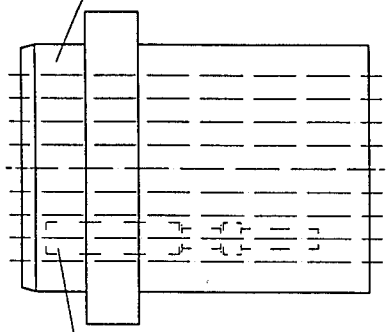
walther präzision

Elektrobuchse 8-polig
electro socket 8 way
Anschlußquerschnitt 1qmm
cross section f. connection 1qmm

M-8/18

Buchseneinsatz
bush insert

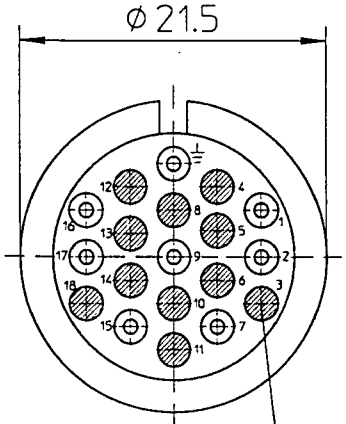
(1x) 7-152-C5274-ET0AI-0000-.-0



Kontaktbuchse
contact socket

(8x) 7-155-C5274-ET0AI-0010-$\frac{2N}{2P}$-0

Ansicht Anschlußseite
view connection side



Blindstopfen
blind plug

(11x) 7-160-C5274-ET000-0010-41-0

Montagewerkzeug: CKW-Bestell-Nr.: 50150 / 50151 / 50131 / 50132
Assembly tools: CKW-part-no.:

C.K. Walther Bestell-Nr.: 1-C5274-4-ET010-$\frac{2N}{2P}$-0-AM
C.K. Walther part-no.:

Bemessungsspannung: Polbild für Bemessungsspannung 220 V
rated voltage: pole picture for rated voltage 220 V

Bemessungsstrom: 5 A (30°C)
rated current:

Bemerkung: Metallgehäuse sind in die Schutzmaßnahme einzubeziehen
remark: metal housings are to be included into the protective measures

Anschlußart: Crimpanschluß / Lötanschluß
connection category: crimp connection / soldered connection

Werkstoff: Kontakte : MS, versilbert(2N) bzw. MS, vergoldet(2P)
siehe übergeordnete Stückliste
material: contact pin's: brass, silver-plated(2N) or brass, gold-plated(2P)
see higher ranking list of parts

Hierzu gehören: Elektrostecker/ electro plug
to this belongs:

1-C5274-1-ET010-$\frac{2N}{2P}$-0-AM

K-D-GB

Ausführung: C

vom: 2004/01/08 AM

A 08913

	Datum	Name
Ersterst.	2001/09/21	KS
Gezeichn.	2001/09/21	KS
Geprüft	2003/08/26	KHK
Ä.-geprüft	2004/01/16	NH

11.1.25 1-C5285-1-ET350-2.-0-AB plug contact set (3-way)

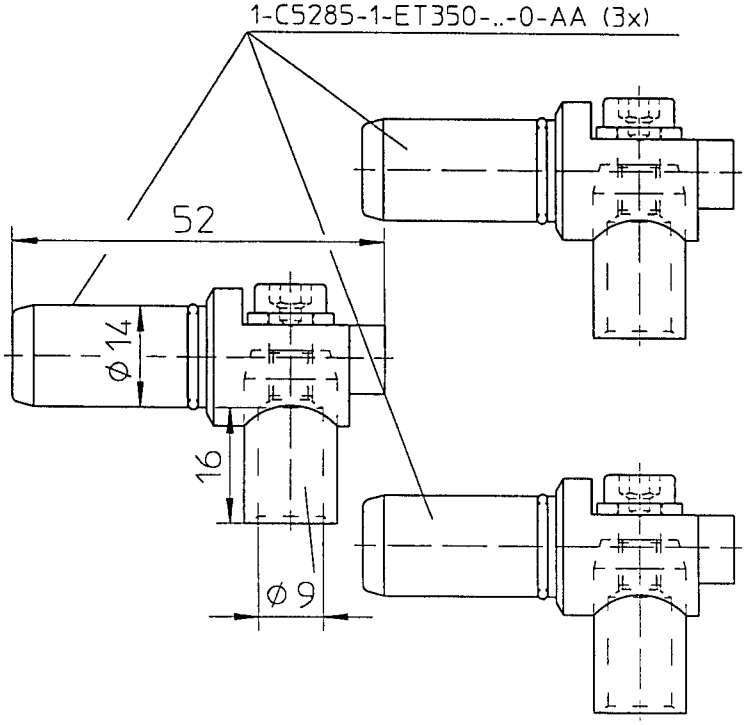
1-C5285-1-ET350-2.-0-AA electro plug 1-way

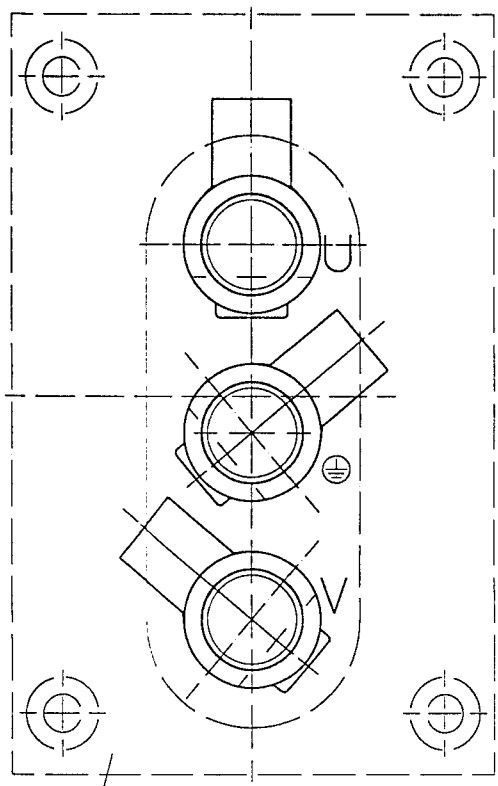
walther präzision

Stift-Kontaktsatz (3-polig)
plug-contact set (3-way)
3 x 35sq.mm

M - 3

Elektrostecker 1-pol. (35qmm)
electro plug 1-pol. (35sq.mm)
1-C5285-1-ET350-..-0-AA (3x)





1-95285-1-XX...-..-.-Z01 / Z05

CKW
Bestell-Nr.:
part-no.: 1-C5285-1-ET350-$\frac{2N}{2P}$-0-AB

Anschlußart: type of connection:	Preßanschluß / Lötanschluß crimp connection/soldered connection
Preßwerkzeug: tool:	CKW-Bestell-Nr.: 50145 / 50153
Werkstoff: Material:	Ms, versilbert (2N) / brass, silver plated (2N) siehe übergeordnete Stückliste Ms, vergoldet (2P) / brass, gold plated (2P) see higher ranking list of parts
Hierzu gehören: to this belongs:	Buchsen-Kontaktsatz / socket contact set 1-C5285-4-ET350-$\frac{2N}{2P}$-0-AB

K-D-GB

Ausführung: D		Datum	Name
vom: 2004/07/19 TG	Erstellt	1999/11/03	AnS
	Gezeichn.	2004/07/19	TG
A 09556	Geprüft	2004/07/20	RN
	Freigeprüft	2004/07/20	RN

walther präzision

Pos.	Benennung	Zeichnungsnummer / Abmessung	Stck.	Werkstoff/ Ident-Nr.	Bemerkung
01	Elektrostecker 1-pol. (B)	1-C5285-1-ET350-2N-0-AA	3	Unterstückliste	

		Datum	Name
Erstersl.		29.07.2003	TG
Geschr.		29.07.2003	TG
Geprüft		29.07.2003	RN

Ausf.: B vom: 19.07.2004 TG

A 09556

Stift-Kontaktsatz (3-polig)

(3 x 35mm²)

Bestellnummer:

1-C5285-1-ET350-2N-0-AB

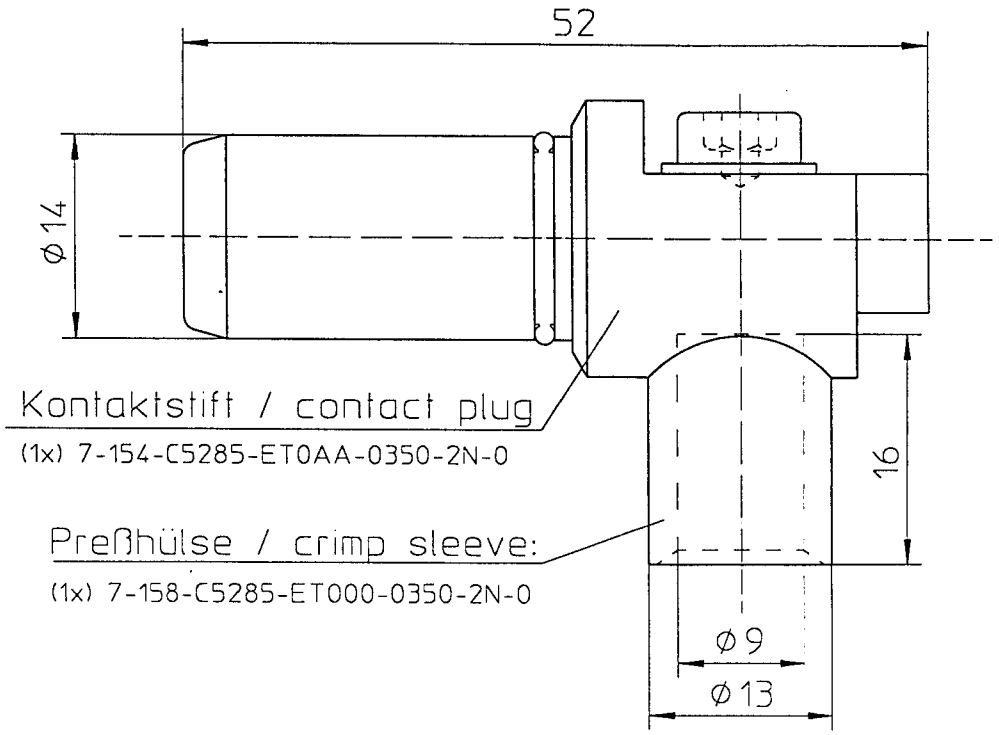
Blatt von Blatt | Ersatz für: | CAD-Stückliste nicht manuell ändern!

DIN A 4

walther präzision

Elektrostecker 1-polig
electro plug 1-way
35sq.mm

M - 1



CKW
Bestell-Nr.:
part-no.: 1-C5285-1-ET350-$\frac{2N}{2P}$-0-AA

Anschlußart: Preßanschluß / Lötanschluß
type of connection: crimp connection / soldered connection

Werkstoff: Ms, versilbert (2N) / brass, silver plated (2N)
siehe übergeordnete Stückliste
material: Ms, vergoldet (2P) / brass, gold plated (2P)
see higher ranking list of parts

Preßwerkzeug: CKW-Bestell-Nr.: 50145 / 50153
tool:

Hierzu gehören: Elektrobuchse / electro socket
to this belongs: 1-C5285-4-ET350-$\frac{2N}{2P}$-0-AA

K-D-GB

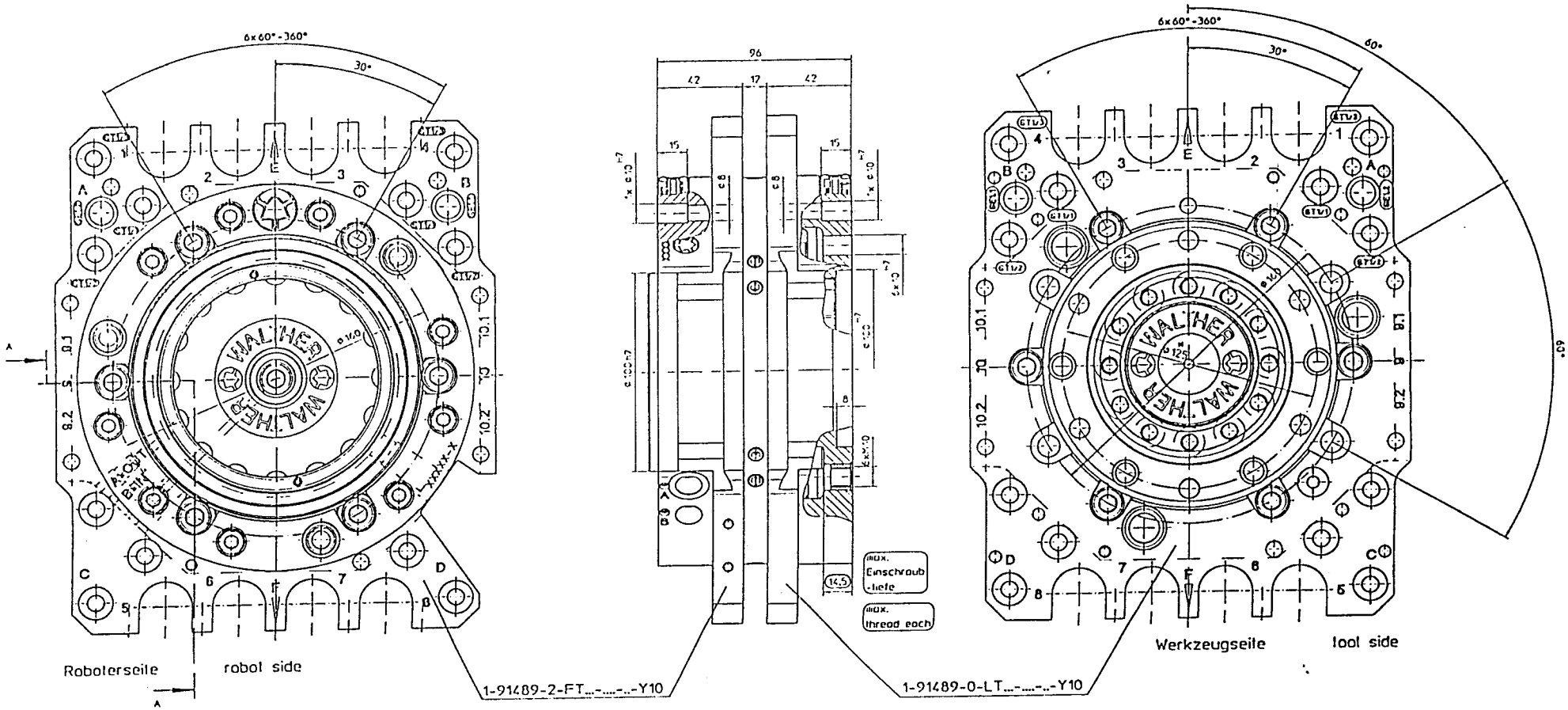
Ausführung: C		Datum	Name
vom: 2003/12/08 AM	Ersterst.	1998/10/06	UH
	Gezeichn.	2003/07/28	TG
A 08828	Geprüft	2003/09/18	RN
	A.-geprüft	2003/12/15	RN

Appendix: Connection and flow schedules, load diagram

11.2 Connection and flow schedules, load diagram

Appendix:
Connection and flow schedules, load diagram

11.2.1 1-91489-D-00004-....-Y10 Mechanical interfaces to 91489-Y10



* ø125 nur für Lasten <= 300kg
ø125 only for loads <= 300KG

walther präzision	1-91489-D-00004-....-Y10			
	Maßstab 1:1	Ersatz für:		
		Ausführung: A		Datum / Name
		vom: 2003/10/15 TG	Konstruktion	2003/10/15 TG
		A08633	Gezeichnet	2003/10/15 TG
			Geprüft	2003/10/24 RN
	(CAD-Zeichnung nur auf 3D-System ändern!)		Freigegeben	2003/10/24 RN
	Hechon. Schnittstellen für 91489-Y10 Mechanical interfaces to 91489-Y10			
K	D-GB			

Appendix:
Connection and flow schedules, load diagram

11.2.2 1-91489-D-00002
Mechanical interfaces / flanges of tool changer 91489

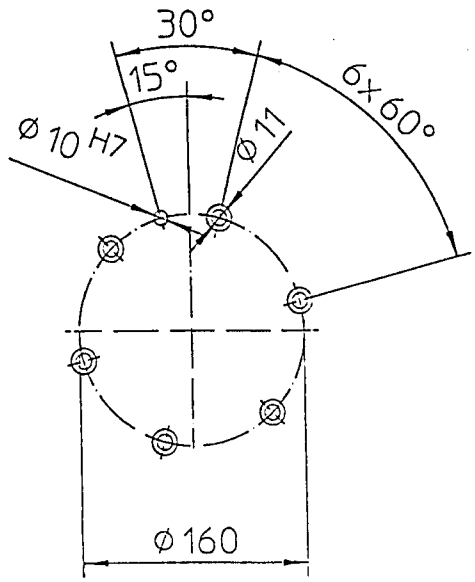
walther präzision

Schnittstellenplan zum Werkzeugwechsler 91489
Mechanical interfaces / flanges of tool changer 91489

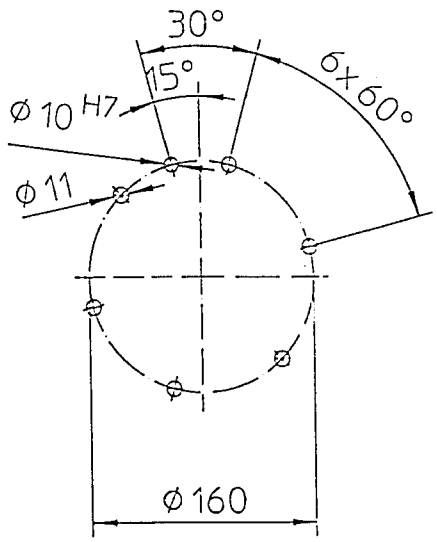
1-91489-D-00002	Ausf.:	Datum:	Bearb.:
	C	08.05.2000	RN
			A 05110

Roboterseite
Robot side

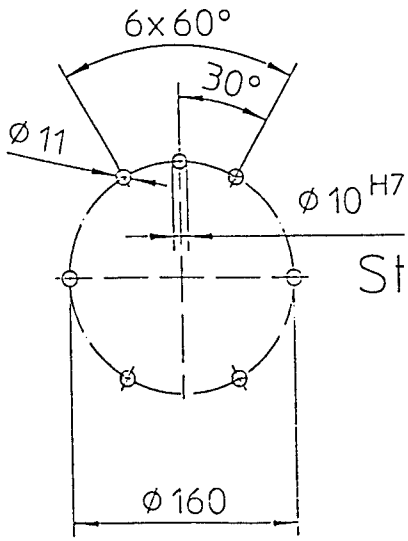
Z01



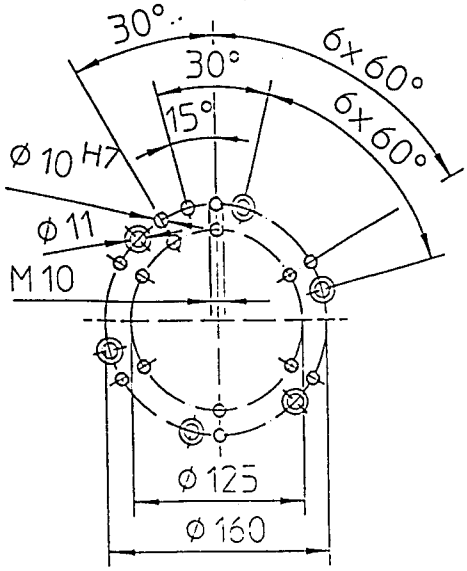
Z02

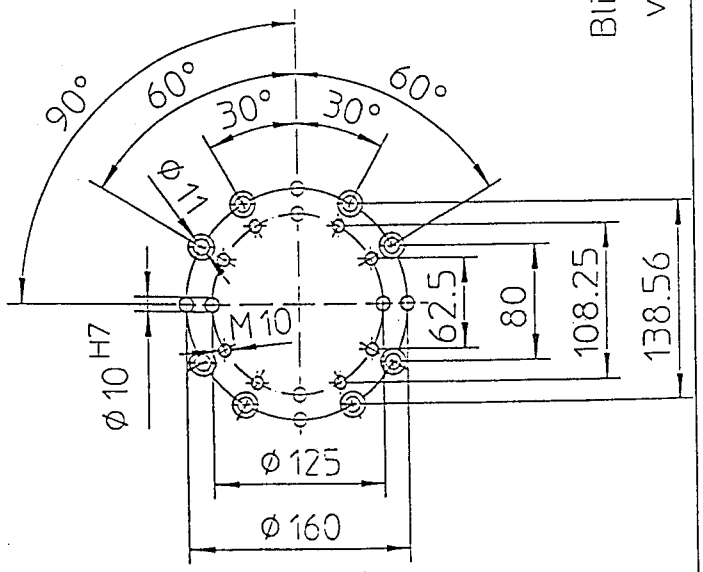


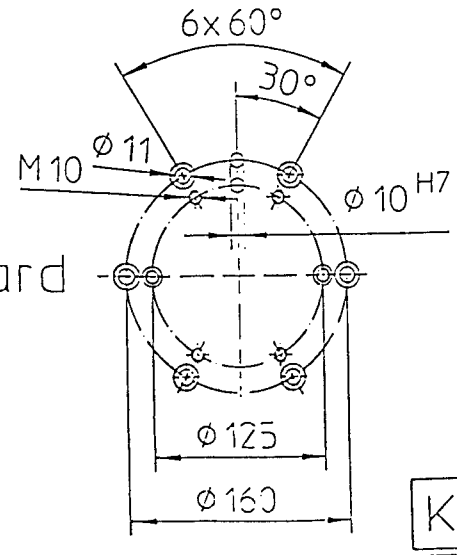
Z03
Y10



Werkzeugseite
Tool side







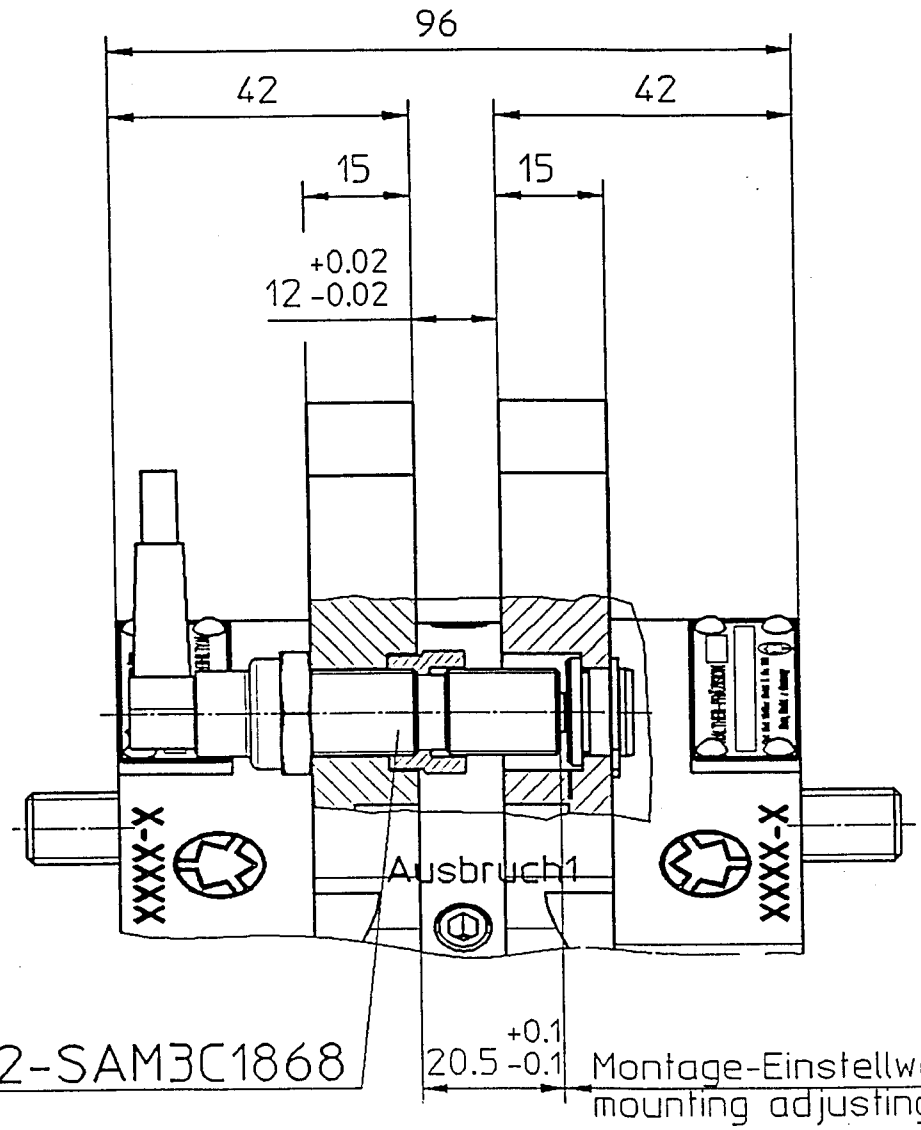
Standard

Blickrichtung auf Roboterachse 6
view direction on Robot axes 6

K-D-GB

Appendix:
Connection and flow schedules, load diagram

11.2.3 1-91489-D-00008-Y10 adjustment plan limit switch



K	D-GB	PT		

1-91489-D-00008-Y10

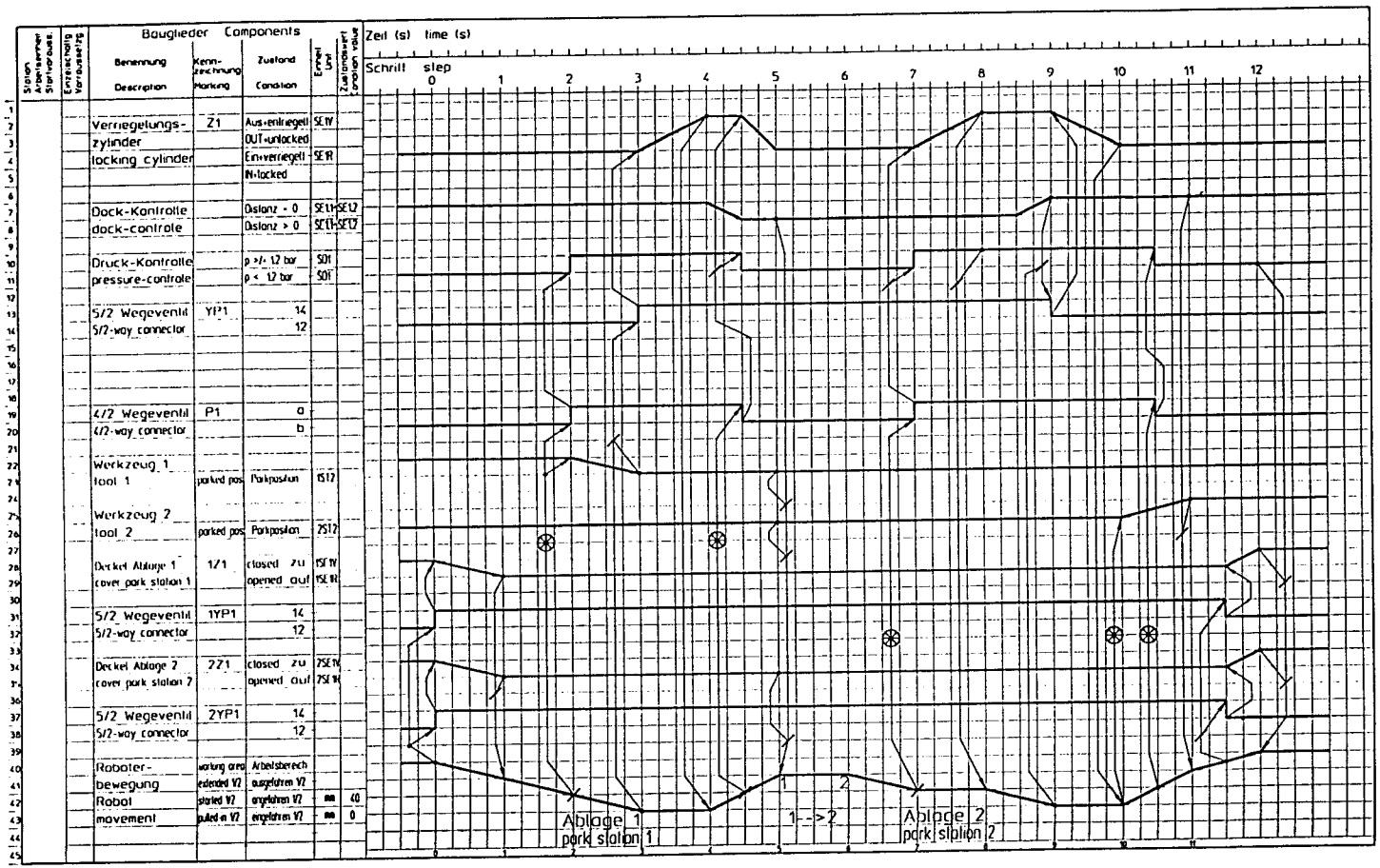
Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: A		Datum	Name
	vom:	Ersterstellg.	2005/09/02	TG
	A	Gezeichn.	2005/09/02	TG
		Geprüft	2005/09/06	RN
CAD-Zeichnung nur mit 3D-System ändern !		A-geprüft	2005/09/06	RN

Einstellplan Grenztaster
adjustment plan limit switch

DIN A 4

Appendix:
Connection and flow schedules, load diagram

11.2.4 1-91489-F-00007-....-Y10 security module 2 / park station with cover



Bemerkung / Remark:

Pneumatikpläne siehe 1-91489-P-00013-....-Y10 und 1-95813-P-00003-....-Z03 !
Pneumatik plans see 1-91489-P-00013-....-Y10 and 1-95813-P-00003-....-Z03 !

Installationspaket Elektro siehe 1-91489-E-00039-....-Y10 !
Electrical equipment see 1-91489-E-00039-....-Y10 !

Festlegung der Funktionsbezeichnung erfolgt bei E-Plan-Aufnahme!
Definition of the funktion description when preparing the E-plan!

Abstand zu Störkonturen beachten! Feinabstimmung erfolgt bei Inbetriebnahme!
Please observe distance to interference contours! Fine tuning when starting up!

Funktionsdiagrammm Stoßtechnik
Flow chart push-pull technique

walther präzision

1-91489-F-00007-....-Y10

Maßstab:	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: A		Datum	Name
	vom:	Erstersteller	2003/02/20	JP
	A	Gezeichn.	2003/02/20	JP
		Geprüft	2003/02/20	KHK
CAD-Zeichnung nur mit 2D-System ändern !		A-geprüft	2003/02/20	KHK

Sicherheitsmodul 2 /Ablage mit Schutzdeckel
security module 2 / park station with cover

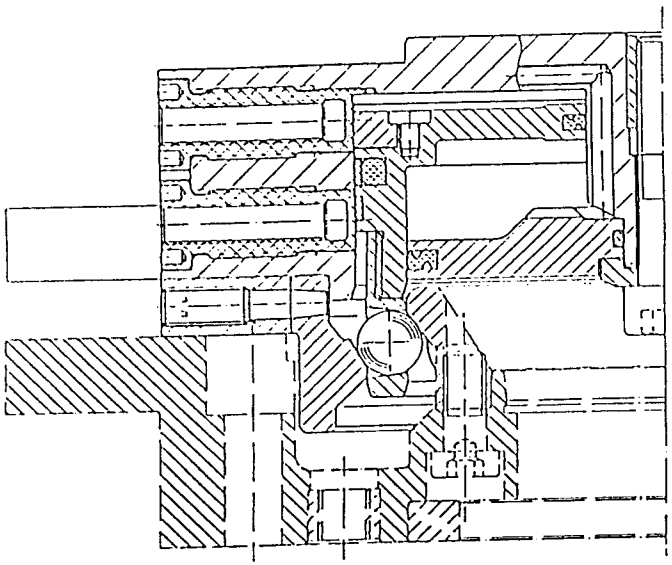
K | D-GB | PT 6308

Appendix:
Description of extra equipment

11.3 Description of extra equipment

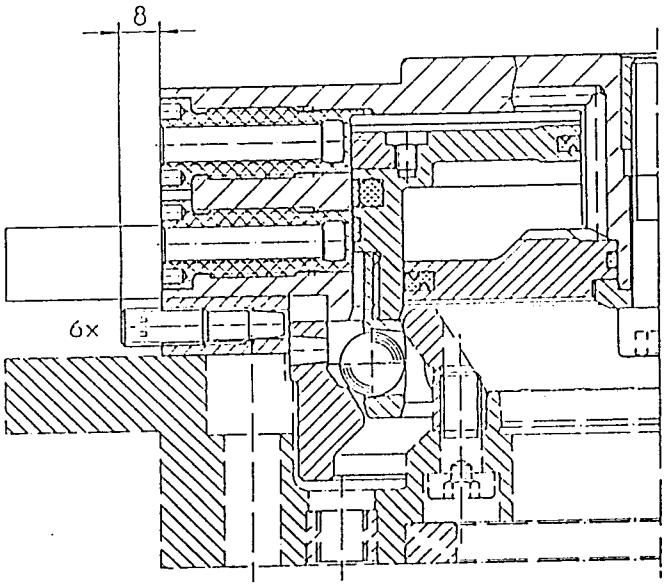
Appendix:
Description of extra equipment

11.3.1 1-91489-D-00006
Emergency separation facility



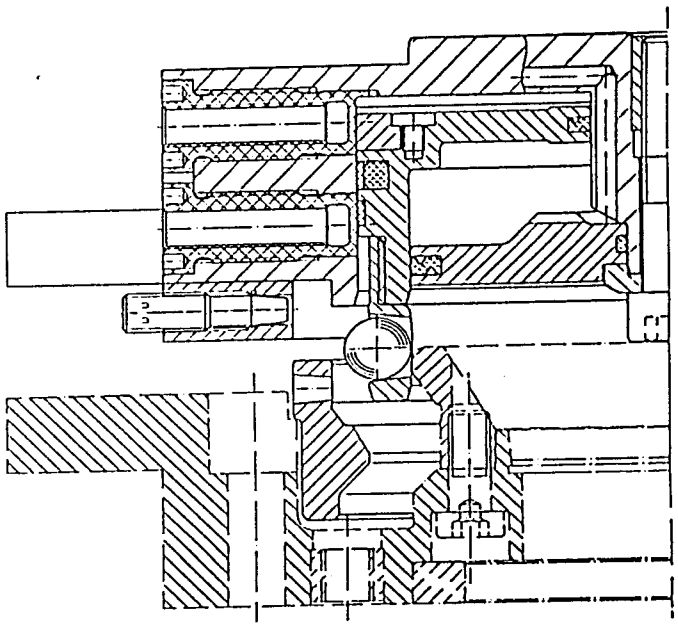
Notfrennvorrichtung nicht betätigt
Roboterseite mit Werkzeugseite gedockt

Emergency separation facility not operated
Robot side docked with tool side



Notfrennvorrichtung betätigt
Querversiffung gelöst

Emergency separation facility operated
dog point released



Notfrennvorrichtung betätigt
Roboter- und Werkzeugseite getrennt

Emergency separation facility operated
Robot and tool side disconnected

walther präzision

1-91489-D-00006 K-D-GB

Maßstab: 1:1	Ersatz für:			
Fertigungs- und Prüfvorschriften nach WALTHER - Werksnorm-Nr.: 121.00.03	Ausführung: A		Datum	Name
	vom: 21.02.2001 ..	Ersterstellg	21.02.2001	RN
	A.....	Gezeichn.	21.02.2001	RN
		Geprüft	21.02.2001	BSi
CAD-Zeichnung nicht manuell ändern !				

Notfrennvorrichtung
Emergency separation facility

11.3.2 Optical fibre for tool changer

Technical data

Type robot side	1-91489-E-00043-AAAA-Y10
Type tool side	1-91489-E-00042-AAAA-Y10
Cladding diameter	0.98/1 mm
Single core diamete	2.2 mm
Outer cladding diameter	8 mm
Cable connection	Schraubklemmung
Mechanical strength	Vibration to IEC60068-2-6-5g, criterion 1; Shock to IEC60068-2-27-30g, criterion 1
Climate	0 – 65° C
Optical attenuation: 1,000 µm polymer fibre from fibre end LWL module to fibre end bus plug	2 dB
Min. bending radius LWL cable	65 mm
Min. bending radius copper cable	50 mm
Weight robot side	0.255 kg
Weight tool side	0.215 kg

Application voltage supply plug and signal plug
1-95288-4/1-XX001-Y02/3 and 1-95288-4/1-XX002-Y02

Type	Pole number	Rated voltage	Rated current	Connection cross section	Connection	Cable-Ø	Housing material	Contact material
95288-Y2/3	6 + PE	250 V	16 A	1.5 mm^2	Cable screwing	4.5 – 10	AL	Silver plated
95288-Y02	18	250 V	5 A	1.0 mm^2	Flanged female plug flanged Male socket		AL	Silver plated

Installation optical fibre coupling and voltage supply plug

Drawing 1-91489-E-00042-....-Y10
1-91489-E-00043-....-Y10

Installation sequence

a) Disassembly is carried out by releasing of screw item 6/3.
b) Take away hexagon socket screws of the fastening ridge.
c) Remove double plug from bus module.
d) The complete unit conisting of optical fibre plug/optical fibre socket and supply plug/supply socket provided with a serial number can be removedsideways from guide.
e) Assembly of complete unit is to becarried out in reverse order.

Appendix:
Description of extra equipment

Installation of voltage supply plug

Drawing 1-95288-4/1-XX001-Y02/3
Connection screwed cable gland
M 16x1,5,
Cable diameter 4,5 – 10

Installation sequence

a) Disassembly/assembly see 7.4(disassembly of fluid elements).
b) Slide electro plug/electro socket sideways out of the guide.
c) Unscrew the 4 cover screws with screwdriver for hexagon socket SW 3.
   Caution
   Screws are not secured against falling out.
d) Remove distance sleeve.
e) Linearly pull out socket/plug insert (insulating body).
f) Dismantle line and strip the insulation of the single conductors, both according to dimension.
g) Lead electro cable through screwed cable gland.
h) Crimp (4 point crimping) single conductor to contact socket/contact pin. Strands must be visible in window after crimping.
i) Absolutely avoid solder beads at the outside of the contacts when soldering.
j) Pre-plug contact sockets into the rear of the socket insert (contact pins in pin insert), row for row.Blind bores must be sealed with blanking plugs.
   Caution!
   Please observe position of the earth contact!
k) Linearly slide in contact sockets/ contact pins with a WALTHER assembly tool (inserting tool) until they snap in – row for row.
l) Check the perfect snap in by a slight pulling at the single conductors.
m) Disassemble the contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.
n) Linearly insert ready made socket/pin insert into socket/pin insert holder.
o) Insert cover seal and crosswise fasten cover with 4 screws with screw driver SW 3. Prior to screwing provide screws with screw safety LOCTITE 243.
p) Tighten screwed cable gland.
q) Push electro plug/electro socket sideways into the guide.
r) Further assembly in reverse order as described under A).

Appendix:
Description of extra equipment

Installation of signal plug

Drawing 1-95288-4/1-XX002-Y02
Connection flanged male socket/pins

Installation sequence

a) Aus-/Einbau siehe 7.4 (Ausbau der Fluid-Elemente).
b) Slide electro plug/electro socket sideways out of the guide
c) Unscrew the 4 cover screws with screwdriver for hexagon socket SW 3.
d) Unscrew the 2 screws of the flanged male socket/pins with screwdriver.
e) Remove distance sleeve.
f) Linearly pull out socket insert/plug insert (insulating body).
g) Strip the insulation of the necessary conductors..
h) Crimp (4 point crimping) conductor to contact socket/contact pins of the flanged male socket/flanged male pins.
i) Linearly slide in contact sockets/contact pins with a WALTHER assembly tool inserting tool) until they snap in – row for row.
j) Check the perfect snap in by a slight pulling at the single conductors.
k) Disassemble the contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.
l) Cut conductor into required length and strip the insulation.
m) Crimp (4 point crimping) single conductor to contact socket/contact pin. Strands must be visible in window after crimping.
n) Pre-plug contact sockets into the rear of the socket insert (contact pins in pin insert), row for row.
Blind bores must be sealed withblanking plugs.
Caution!
Please observe position of the earth contact!
o) Linearly slide in contact sockets/ contact pins with a WALTHER assembly tool (inserting tool) until they snap in – row for row.
p) Check the perfect snap in by a slight pulling at the single conductors.
q) Disassemble the contact sockets/ contact pins by means of a suitable disassembly tool – squeeze out from plug side.
r) Linearly insert ready made socket/pin insert into socket/pin insert holder.
s) Insert cover seal and crosswise fasten cover with 4 screws with a screwdriver.
t) Fasten screws of the flanged male socket/pins with a screwdriver.
u) Push electo plug/electro socket sideways into the guide.
v) Further assembly in reverse order as described under A)

Appendix:
Description of extra equipment

Check of optical fibre coupling

- Visual check for mechanical operation.
- Check fastening screws for firm seat.
- Check floating position of optical fibre plug for perfect movability (tool side).
- Regular check and removal of dirt in the transmission range of optical fibres.
- Check optical fibre cable for external damage.

11.4 Bought in components

Appendix:
Bought-in components

11.4.1 Assembly instructions MA202 (Multi-Contact)

Montageanleitung *MA202*

MC³-Mehrpolige Stift- und Buchseneinsätze 2-polig+PE bis 109-polig+PE

☞Bei der Benützung von anderen als von MC³ angegebenen Einzelteilen und Werkzeugen, sowie bei Abweichung der hier beschriebenen Vorgänge zur Vorbereitung und Montage, kann bei der Selbstkonfektionierung weder die Sicherheit, noch die Einhaltung der technischen Daten gewährleistet werden.

☞Zum Schutz vor einem elektrischen Schlag müssen die Bauteile bei der Montage oder Demontage immer allseitig von der Stromversorgung getrennt sein.

☞Das Stecken und Trennen von Steckverbindungen hat generell in spannungslosem Zustand zu erfolgen.

Assembly instructions *MA202*

MC³-Multipole pin and socket inserts 2-pole+PE up to 109-pole+PE

☞The use of parts and tools other than those stated by MC³ or disregarding these preparation instructions, can have an effect on safety and quality. Therefore, technical data cannot be guaranteed.

☞For protection against electrical shock, parts must be isolated from the power supply while being assembled or disassembled.

☞Connectors may not be connected or disconnected under load.

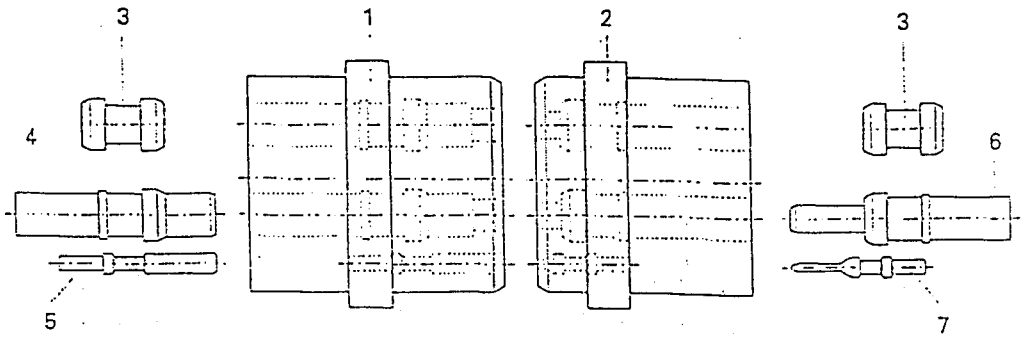
Instructions de montage *MA202*

Inserts mâles et femelles multipolaires MC³ 2-pôles+T jusqu'à 109-pôles+T

☞Lors d'une confection personnelle, si des composants et des outils différents de ceux prescrits par MC³ sont utilisés, si en outre les instructions de montage ci-après ne sont pas strictement appliquées, le respect des règles élémentaires de sécurité, des caractéristiques techniques indiquées, ne saurait être garanti.

☞En vue de garantir une protection contre les chocs électriques, il est indispensable de réaliser les opérations de montage et de démontage hors tension, en veillant à déconnecter les différents composants de toute alimentation électrique.

☞En règle générale, il ne faut pas embrocher ou débrocher un connecteur sous charge.



ILL.1

1 = Buchsenträger
2 = Stiftträger
3 = Verschlussstopfen[1]
4 = Buchse Ø 5mm – Ø 11mm
5 = Buchse Ø 1mm – Ø 3mm
6 = Stift Ø 5mm – Ø 11mm
7 = Stift Ø 1mm – Ø 3mm

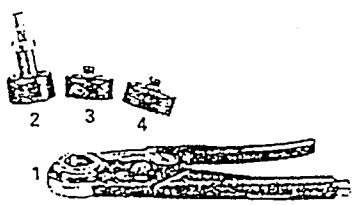
[1] Passend für Nenn-Ø 1mm – Ø 8mm
Farbe: Ø1mm/rot, Ø 1,2mm – Ø 2mm/blau Ø 2,38mm und Ø 3mm/gelb, Ø 5mm/weiss, Ø 6mm/schwarz, Ø 8mm/schwarz

1 = Socket carrier
2 = Pin carrier
3 = Blind plugs[1]
4 = Socket Ø 5mm – Ø 11mm
5 = Socket Ø 1mm – Ø 3mm
6 = Pin Ø 5mm – Ø 11mm
7 = Pin Ø 1mm – Ø 3mm

[1] Suitable for nom.-Ø 1mm – Ø 8mm
Colours: Ø1mm/red, Ø 1,2mm – Ø 2mm/blue Ø 2,38mm and Ø 3mm/yellow, Ø 5mm/white, Ø 6mm/black, Ø 8mm/black

1 = Support de douilles
2 = Support de broches
3 = Bouchon d'obturation[1]
4 = Douille Ø 5mm – Ø 11mm
5 = Douille Ø 1mm – Ø 3mm
6 = Broche Ø 5mm – Ø 11mm
7 = Broche Ø 1mm – Ø 3mm

[1] Convient for nom.-Ø 1mm – Ø 8mm
Couleurs: Ø 1mm/rouge, Ø 1,2mm – Ø 2mm/bleu Ø 2,38mm and Ø 3mm/jaune, Ø 5mm/blanc, Ø 6mm/noir, Ø 8mm/noir



ILL.2

A Notwendiges Werkzeug

(ILL. 2)
Crimpzange M-CZ (1) mit Einsätzen (2-4) für Kontakt Ø 1mm – Ø 3mm

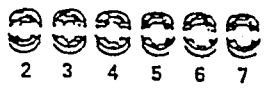
A Tools required

(ILL. 2)
Crimping tool M-CZ (1) with inserts (2-4) for contact Ø 1mm – Ø 3mm

A Outillage nécessaire

(ILL. 2)
Pince à sertir M-CZ (1) avec inserts (2-4) pour contact de Ø 1mm – Ø 3mm

Position	verstellbar adjustable réglable	nicht verstellbar not adjustable non réglable	Bestell-Nr. Order-No. No. de Cde	Nenn-Ø Stift/Buchse Nom.-Ø pin/socket Ø nom. broche/douille	Leiterquerschnitt Conductor cross-section Section du câble	Bestellung Order Commande
				mm	mm²	
1	M-CZ		18.3600			
Locator zu / to / pour M-CZ						
2	MES-CZ		18.3301	1-3	0,14–4	1+2
3		MES-CZ-1,5/2	18.3302	1,5/2	0,5–1,5	1+3
4		MES-CZ-1/1,57	18.3303	1/1,57	0,25–1,5	1+4



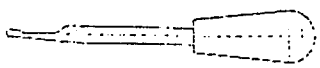
ILL.3

(ILL. 3)
Crimpzange (1) M-PZ-13 mit Einsätzen (2-7) für Leiterquerschnitte 6mm² – 50mm²

(ILL. 3)
Crimping tool (1) M-PZ-13 with inserts (2-7) for conductor cross-sections 6mm² – 50mm²

(ILL. 3)
Pince à sertir (1) M-PZ-13 avec inserts (2-7) pour câbles de sections 6mm² – 50mm²

Position	Typ / Type / Type	Bestell-Nr. / Order-No. / No. de Cde	Nenn-Ø Stift/Buchse / Nom.-Ø pin/socket / Ø-nom. broche/douille	Leiterquerschnitt / Conductor cross-section / Section du câble	Bestellung / Order / Commande
			mm	mm²	
1	M-PZ-13	18.3700			
Einsätze zu / Inserts to / Inserts pour M-PZ-13					
2	MES-PZ-TB5/6	18.3701	5/6	6	1+2+8
3	MES-PZ-TB8/10	18.3702	6	10	1+3+8
4	MES-PZ-TB9/16	18.3703	6	16	1+4+8
5	MES-PZ-TB11/25	18.3704	6/8/11	25	1+5+8
6	MES-PZ-TB13/35	18.3705	8/11	35	1+6+8
7	MES-PZ-TB14,5/50	18.3706	8/11	50	1+7+8



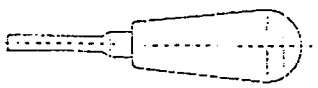
ILL.4

(ILL. 4)
Einsetzwerkzeug Stift/Buchse

(ILL. 4)
Insert on tool pin/socket

(ILL. 4)
Outil de montage broche/douille

Typ / Type / Type	Bestell-Nr. / Order-No. / No. de Cde	Für Nenn-Ø Stift/Buchse / For Nom.-Ø pin/socket / Pour Ø-nom. broche/douille
ME-WZ-1	18.3000	1/1,2
ME-WZ-1,5/2	18.3003	1,5/1,57/2/2,36
ME-WZ-3	18.3010	3
ME-WZ-5	18.3013	5
ME-WZ-6	18.3016	6
ME-WZ-11/38	18.3021	8/11



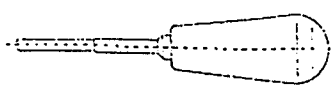
ILL.5

(ILL. 5)
Stiftausbauwerkzeug

(ILL. 5)
Extraction tool (pin)

(ILL. 5)
Outil de démontage (broche)

Typ / Type / Type	Bestell-Nr. / Order-No. / No. de Cde	Für Nenn-Ø Stift/Buchse / For Nom.-Ø pin/socket / Pour Ø-nom. broche/douille
MSA-WZ-1	18.3002	1/1,2
MSA-WZ-1,5	18.3005	1,5/1,57
MSA-WZ-1,5/109	18.3020	1,5[1]
MSA-WZ-2	18.3009	2
MSA-WZ-3	18.3012	2,35/3
MSA-WZ-5	18.3015	5
MSA-WZ-6	18.3018	6
MSA-WZ-8	18.3022	8/Buchse 11/ socket 11/ douille 11



ILL.6

(ILL. 6)
Buchsenausbauwerkzeug

(ILL. 6)
Extraction tool (socket)

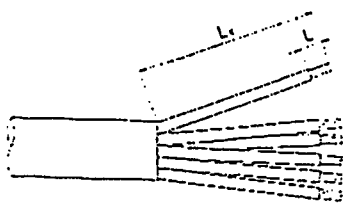
(ILL. 6)
Outil de démontage (douille)

Typ / Type / Type	Bestell-Nr. / Order-No. / No. de Cde	Für Nenn-Ø Stift/Buchse / For Nom.-Ø pin/socket / Pour Ø-nom. broche/douille
MBA-WZ-1	18.3001	1/1,2
MBA-WZ-1,5	18.3004	1,5/1,57
MBA-WZ-1,5/109	18.3019	1,5[1]
MBA-WZ-2	18.3008	2/2,36
MBA-WZ-3	18.3011	3
MBA-WZ-5	18.3014	5/Stift 11/pin 11/broche 11
MBA-WZ-6	18.3017	6/8

[1] Für 88 polige bzw. 109-polige Ausführung

[1] For 88-pole or 109-pole connectors

[1] Pour les connecteurs 88-pôles ou 109-pôles



ILL.7

Gehäusegrösse Housing size Taille du boîtier	Lx (mm)
1	40
2	40
3	55
4	70

Tab. 1

B Vorbereiten der Leitung

(ILL. 7)
Leitung auf Mass Lx abisolieren. Lx entsprechend Gehäusegrösse und Leitungsart ermitteln.
Richtwerte für MC⁴-Standardgehäuse:

Einzelleiter auf Mass L abisolieren gem. *Tab. 1* und *Tab. 2*.

B Cable preparation

(ILL. 7)
Strip cable insulation to dimension Lx. Lx depends on housing size and cable type.
Approximate figures for standard MC⁴-housings.

Strip wire insulation to dimension L according to *Tab. 1* and *Tab. 2*.

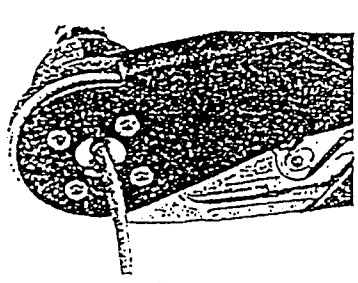
B Préparation du câble

(ILL. 7)
Dégainer le câble sur la longueur Lx. Lx dépend de la taille du boîtier et du type de câble.
Valeurs approximatives pour les boîtiers standards MC⁴.

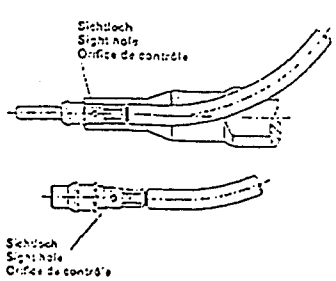
Dénuder les conducteurs sur la longueur L selon *Tab. 1* et *Tab. 2*.

Nenn-Ø Stift/Buchse Nom.-Ø pin/socket Ø nom. broche/douille	Leiterquerschnitt Conductor cross-section Section du câble		L ±0,5	Crimpzange M-CZ Crimping pliers M-CZ Pince à sertir M-CZ	Selektor AWG Nr. Selector AWG No. Sélecteur AWG No.	Einsatz für Presszange Insert for crimping pliers Insert pour pince à sertir
mm	mm²	AWG	mm	AWG Nr./No./No.		M-PZ-13
1/1,5	0,14/0,2/0,34/0,5	26/24/22/20	5	26/24/22/20	2/3/4	
1,2	0,25-0,75	22/20	5	22/20	3/4	
1,57	0,5	20	5	20	4	
1/1,5/2	0,5	20/18	7	20/18	4/5	
1/1,5/2	0,75		7	18	5	
1/1,5/2	1	18	7	18	5	
1,5/2	1,5	16	7	16	6	
2	1,5/2,5	16/14	7	14/12	7/8	
2,36	0,5-1,5	20/16	7	20/18/16	4/5/6	
3	2,5	12	7	12	8	
3	4		7	12	8	
5/6	6		11			MES-PZ-TB5/6
5/6	10		13			MES-PZ-TB8/10
6	16		13			MES-PZ-TB9/16
6/8	25		15			MES-PZ-TB11/25
8/11	35		15			MES-PZ-TB13/35
11	50		22			MES-PZ-TB14,5/50

Tab. 2



ILL.8



ILL.9

C Crimpen der Kontakte

(ILL. 8)
Einzelleiter in die Crimp-/Presshülse des Kontaktes bis zum Anschlag einführen.

Achtung:
Im Bedarfsfall Pg-Verschraubung und Gehäuserückteil, vor Ancrimpen bzw. -pressen, auf Leitung auffädeln.

Crimp- bzw. Pressvorgang ausführen. Leiter dabei leicht in axialer Richtung in Crimphülse drücken.

(ILL. 9)
Angeschlossene Leiter müssen nach dem Crimpen bzw. Pressen im Sichtloch sichtbar sein. Leiter darf sich nicht aus der Crimp- bzw. Presshülse herausziehen oder abreissen lassen.
Kontrolle!!

C Crimping the contacts

(ILL. 8)
Fully insert lead into the crimping sleeve.

Attention:
Slip the Pg-threaded gland and back section of housing on the cable before crimping.

Crimp the wire, pushing it gently into the sleeve while doing so.

(ILL. 9)
Wire must be visible in the sight hole after crimping. Check to make sure that the wire can not be pulled or torn out of the crimping sleeve.
Control!!

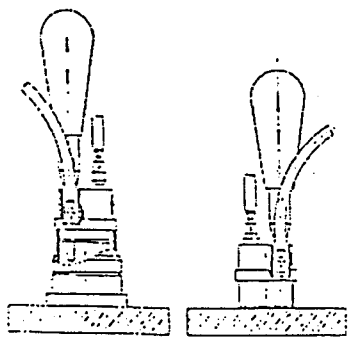
C Sertissage des contacts

(ILL. 8)
Introduire le câble dans la cosse à sertir jusqu'en butée.

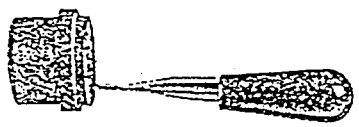
Attention:
Avant de sertir, enfiler le presse-étoupe (Pg) et le boîtier arrière sur la câble.

Sertir, tout en maintenant le conducteur en position dans le fût (pousser axialement).

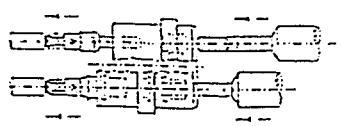
(ILL. 9)
Le conducteur doit être visible dans l'orifice de contrôle après sertissage. Vérifier la qualité de sertissage en exerçant une traction sur le conducteur.
Contrôle!!



ILL.10



ILL.11



ILL.12

D Einbau der Kontakte

Hinweis:
Der Einpressvorgang kann erleichtert werden, wenn die Stift- bzw. Buchsenträger vor dem Einsetzen der Kontakte in Spiritus oder Industriealkohol getaucht werden. Keine fetthaltigen Medien (kein Talkum) benutzen. Freie Kontaktkammern müssen mit Verschlussstopfen versehen werden.

(ILL. 10)
Kontakte in die Kontaktkammern der Stift- bzw. Buchsenträger von der Anschlussseite her (grösserer Ø der Kontaktkammern) mit normaler Handkraft vorstecken. Kontakte mit Kontakteinsetzwerkzeug *(ILL. 4)* eindrücken.
Beim Stifteinbau wird als Montagehilfe ein Stiftgehäusevorderteil empfohlen.
Beim Buchseneinbau wird der Buchsenträger direkt auf eine ebene Unterlage gestellt.

(ILL. 11)
Werkzeug beim Eindrücken und Herausziehen parallel zur Achse führen.

E Überprüfung auf einwandfreie Konfektionierung

Beim Stifteinsatz müssen alle Stifte steckseitig gleich weit aus dem Stiftträger stehen, mit Ausnahme des PE-Stiftes bei Kontakten bis Ø 2mm, vorstehend ca. 2mm.

Beim Buchsenträger liegen die Buchsen (bis Ø 2mm) in einer Ebene hinter dem verjüngten Einlauf. Bei Buchsen ab Ø 3mm eilt die PE-Buchse vor.

(ILL. 12)
Zu weit eingedrückte Buchsen werden mit dem Buchsenausbauwerkzeug *(ILL. 6)* bis zu ihrer Einrastlage zurückgedrückt.

Bei Belegungsfehlern und bei Reparaturen werden die Kontakte mit den entsprechenden Ausbauwerkzeugen *(ILL. 5)* *(ILL. 6)* aus den Kontaktträgern gedrückt und neu eingesetzt.

D Installation of the contacts

Installation tips:
To facilitate installation, immerse the pin or socket carrier in spirits or industrial alcohol before inserting the contacts.
Do not use any greasy media (no talc).
Plug any unoccupied contact holes with blind plugs.

(ILL. 10)
Insert contacts by hand into the contact holes of the pin or socket carrier from the connection side (larger hole Ø).
Press in the contacts with the insertion tool. *(ILL. 4)*.
For pin installation, it is advisable to use a front section of the right size housing as assembly jig. For socket installation, simply place socket carrier directly onto a flat bench.

(ILL. 11)
Be sure to keep tool straight when installing or removing contacts.

E Control of correct assembly

In the case of pin carriers, all pins should project the same distance out of the carrier. Exception: The PE-pin or contacts up to Ø 2mm should project about 2mm further.

In the case of socket carriers, the sockets (up to Ø 2mm) should be set in one plane following the tapered inlet. The PE-socket is advanced in the case of sockets on Ø 3mm or larger.

(ILL. 12)
Sockets pressed in too far can be turned back to their proper seating position with the socket extraction tool *(ILL. 6)*.

In the case of repairs or installation errors, remove the contacts from the contact carrier with the respective extraction tools *(ILL. 5)* *(ILL. 6)* and then reinstall them correctly.

D Assemblage du connecteur

Remarques:
Le montage des broches et des douilles peut être facilité, en plongeant les support dans du "White-Spirit" ou un alcool industriel, mais ne pas utiliser des substances grasses (pas de talc). Mettre des bouchons d'obturation dans les logements non-utilisés.

(ILL. 10)
Emmancher à la main les contacts dans leur logement respectif, par la face arrière du corps isolant (grand Ø des logements).
Terminer le montage des contacts à l'aide de l'outil approprié *(ILL. 4)*.
Pour le montage des broches, poser le support isolant sur le boîtier avant correspondant.
Pour le montage des douilles, poser le support isolant sur une surface plane

(ILL. 11)
Lors du montage ou du démontage des contacts, veiller à manipuler les outils parallèlement à l'axe du support.

E Contrôle de montage

Après leur mise en place, vérifier que l'ensemble des broches sont au même niveau par rapport au support isolant. Exception: les broches de terre pour contacts de Ø 2mm max. doivent être 2mm plus en avant par rapport aux autres broche

Toutes les douilles, jusqu'au Ø 2mm, doivent être au même niveau dans le support. A partir du Ø 3mm, la douille de terre sera en avant par rapport aux autres douilles du support.

(ILL. 12)
Les douilles montées trop en avant peuvent être ramenées dans leur position nominale à l'aide de l'outil de démontage (pour douille). *(ILL. 6)*.

Lors d'une réparation les contacts seront extraits du support isolant avec les outils de démontage approprié *(ILL. 5)* *(ILL. 6)*.

Appendix:
Bought-in components

11.4.2 Inductive Proximity Switch

CONTRINEX data sheet

Induktiver Näherungsschalter
Détecteur de proximité inductif
Inductive Proximity Switch
DW - A□ - 50□ - M8

Durchmesser / Diamètre / Diameter	Schaltabstand / Portée / Operating distance	Einbau / Montage / Mounting
M8	3 mm	quasi-bündig / quasi-noyable / quasi-embeddable

Ausführung mit grossem Schaltabstand
Gehäuse zylindrisch M8

Appareil à longue portée
Boîtier cylindrique M8

Long operating distance model
Cylindrical housing, M8 threaded

Wichtigste Eigenschaften:
- Grosser Schaltabstand: 3 mm
- Betriebsspannung 10...30 VDC, Ausgangsstrom 200 mA
- LED, Kurzschlussschutz, Induktionsschutz, Verpolungsschutz eingebaut
- PNP- und NPN- Ausführung, Schliesser und Öffner
- Anschluss über Kabel oder Stecker S8 und S12

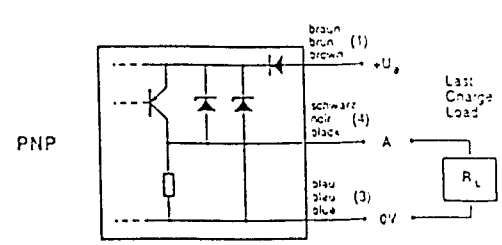
Caractéristiques principales:
- Grande portée: 3 mm
- Tension de service 10 ... 30 VDC, courant à la sortie 200 mA
- LED, protections contre les courts-circuits, les surtensions induites et l'inversion de tension incorporées
- Disponibles en PNP, NPN, à fermeture et à ouverture
- Raccordement par câble ou par connecteur S8 et S12

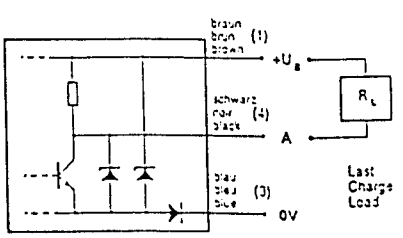
Main features:
- Long operating distance: 3 mm
- Supply voltage 10 ... 30 VDC, output current 200 mA
- LED, protections against short-circuits, induced overvoltages and power supply reversal built-in
- PNP and NPN executions, N.O. and N.C.
- Cable and S8 / S12 connector versions

Technische Daten: (gemäss IEC 60947-5-2)	Caractéristiques techniques: (selon CEI 60947-5-2)	Technical data: (according to IEC 60947-5-2)	
Bemessungsschaltabstand s_n	Portée nominale s_n	Rated operating distance s_n	3 mm
Hysterese	Hystérèse	Hysteresis	≤ 10% s_r
Normmessplatte	Cible normalisée	Standard target	9 x 9 x 1 mm
Wiederholgenauigkeit	Reproductibilité	Repeat accuracy	0,15 mm*
Betriebsspannungsbereich U_B	Tension de service U_B	Supply voltage range U_B	10 ... 30 VDC
Zulässige Restwelligkeit	Ondulation admissible	Max. ripple content	≤ 20% U_B
Ausgangsstrom	Courant de sortie	Output current	≤ 200 mA
Spannungsabfall an Ausgängen	Chute de tension aux sorties	Output voltage drop	≤ 2,0 V bei / à / at 200 mA
Leerlaufstrom	Courant hors-charge	No-load supply current	≤ 10 mA
Sperrstrom der Ausgänge	Courant résiduel	Leakage current	≤ 0,1 mA
Schaltfrequenz	Fréquence de commutation	Switching frequency	≤ 1'000 Hz
Oszillatorfrequenz	Fréquence d'oscillateur	Oscillator frequency	300 kHz
Bereitschaftsverzögerung	Retard à la disponibilité	Time delay before availability	50 msec.
LED	LED	LED	eingebaut / intégrée / built-in
Umgebungstemperaturbereich T_A	Plage de température ambiante T_A	Ambient temperature range T_A	-25 ... + 70 °C
Temperaturdrift von s_r	Dérive en température de s_r	Temperature drift of s_r	≤ 10%
Kurzschlussschutz	Protection contre les courts-circuits	Short-circuit protection	eingebaut / intégrée / built-in
Verpolungsschutz	Protection contre les inversions	Voltage reversal protection	eingebaut / intégrée / built-in
Induktionsschutz	Protection contre tensions induites	Induction protection	eingebaut / intégrée / built-in
Schocks und Schwingungen	Chocs et vibrations	Shocks and vibration	IEC 60947-5-2 / 7.4
Leitungslänge	Longueur du câble	Cable length	300 m max.
Gewicht (Kabel / Stecker)	Poids (câble / connecteur)	Weight (cable / connector)	48,5 g / 23,5 g, 19,5 g
Schutzart	Classe de protection	Degree of protection	IP 67
EMV - Schutz:	Protection CEM:	EMC protection:	
IEC 60255-5	CEI 60255-5	IEC 60255-5	1 kV
IEC 61000-4-2	CEI 61000-4-2	IEC 61000-4-2	Level 2
IEC 61000-4-3	CEI 61000-4-3	IEC 61000-4-3	Level 3
IEC 61000-4-4	CEI 61000-4-4	IEC 61000-4-4	Level 2
Gehäusematerial	Matériel du boîtier	Housing material	Messing vernickelt / nickel plated brass
Aktive Fläche	Face sensible	Sensing face	PBTP
Anschlusskabel (andere Längen auf Anfrage)	Câble de raccordement (autres longueurs sur demande)	Connection cable (other lengths on request)	PVC 3 x 0,14mm² / 18 x 0,1mm Ø 2m

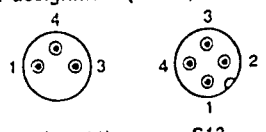
*(U_B = 20 ... 30 VDC, T_A = 23 °C ± 5 °C)

Anschlussschemen / Schémas de raccordement / Wiring diagrams





Steckerbelegung (Gerät)
Attribution des pins (appareil)
Pin assignment (device)



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Abmessungen / Dimensions / Dimensions:

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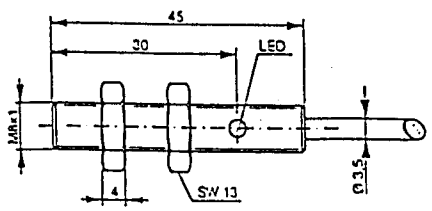
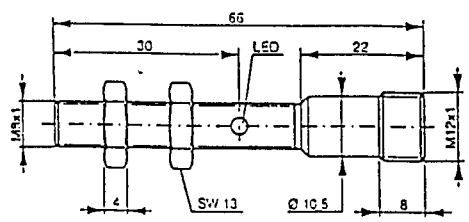
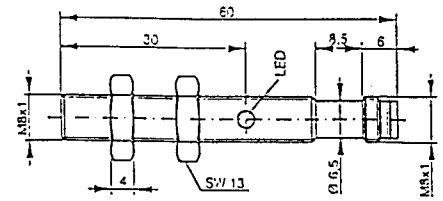
These drawings can be downloaded from Internet (http://www.contrinex.ch) in .dxf format.



DW-AD-50□-M8

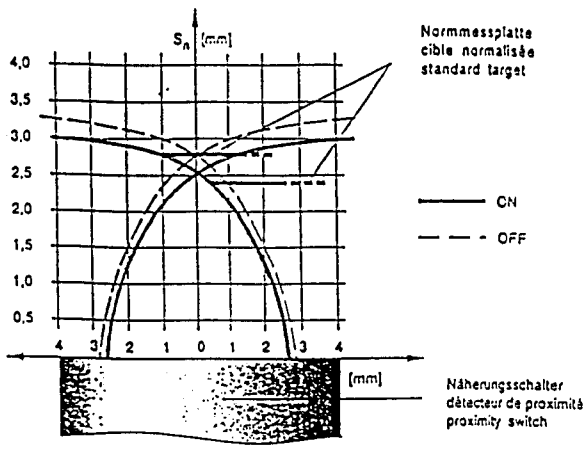


DW-AS-50□-M8

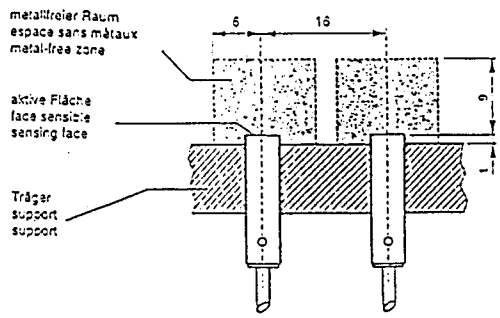


DW-AS-50□-M8-001

Ansprechkurve* / Courbe de réponse* / Response diagram*:



Einbau / Montage / Installation:



* typische Werte / valeurs typiques / typical values

Reduktionsfaktoren* / Coefficients de réduction* / Correction factors*

Stahl FE 360 Acier FE 360 Steel FE 360	1,0	Kupfer cuivre copper	0,30	Aluminium aluminium aluminum	0,35	Messing laiton brass	0,45	Edelstahl V2A acier INOX V2A stainless steel V2A	0,70

Typenspektrum / Types disponibles / Available types:

Artikelnummer Numéro d'article Part number	Typenbezeichnung désignation type reference	Schaltung polarité polarity	Anschluss raccordement connection	Ausgang sortie output
320 020 702	DW-AD-501-M8	NPN	Kabel / câble / cable	Schliesser / à fermeture / N.O.
320 020 876	DW-AD-502-M8	NPN	Kabel / câble / cable	Öffner / à ouverture / N.C.
320 020 704	DW-AD-503-M8	PNP	Kabel / câble / cable	Schliesser / à fermeture / N.O.
320 020 899	DW-AD-504-M8	PNP	Kabel / câble / cable	Öffner / à ouverture / N.C.
320 020 964	DW-AS-501-M8	NPN	Stecker / connecteur / connector S12	Schliesser / à fermeture / N.O.
320 020 865	DW-AS-502-M8	NPN	Stecker / connecteur / connector S12	Öffner / à ouverture / N.C.
320 020 784	DW-AS-503-M8	PNP	Stecker / connecteur / connector S12	Schliesser / à fermeture / N.O.
320 020 866	DW-AS-504-M8	PNP	Stecker / connecteur / connector S12	Öffner / à ouverture / N.C.
320 020 927	DW-AS-501-M8-001	NPN	Stecker / connecteur / connector S3	Schliesser / à fermeture / N.O.
320 120 001	DW-AS-502-M8-001	NPN	Stecker / connecteur / connector S3	Öffner / à ouverture / N.C.
320 020 923	DW-AS-503-M8-001	PNP	Stecker / connecteur / connector S3	Schliesser / à fermeture / N.O.
320 120 002	DW-AS-504-M8-001	PNP	Stecker / connecteur / connector S3	Öffner / à ouverture / N.C.

Der Einsatz dieser Geräte in Anwendungen, wo die Sicherheit von Personen von deren Funktion abhängt, ist unzulässig. Änderungen und Liefermöglichkeiten vorbehalten. Ces détecteurs ne peuvent être utilisés dans des applications où la protection ou la sécurité de personnes est concernée. Sous réserve de modifications et de possibilités de livraison. These proximity switches are unsuitable for safety-related applications. Terms of delivery and rights to change design reserved.

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CONTRINEX data sheet

Induktiver Näherungsschalter
Détecteur de proximité inductif
Inductive Proximity Switch
DW - A□ - 51□ - M8

Durchmesser / Diamètre / Diameter	Schaltabstand / Portée / Operating distance	Einbau / Montage / Mounting
M8	6 mm	nicht bündig / non noyable / non-embeddable

Ausführung mit grossem Schaltabstand
Gehäuse zylindrisch M8

Wichtigste Eigenschaften:
- Grosser Schaltabstand: 6 mm
- Betriebsspannung 10...30 VDC, Ausgangsstrom 200 mA
- LED, Kurzschlussschutz, Induktionsschutz, Verpolungsschutz eingebaut
- PNP- und NPN-Ausführung, Schliesser und Öffner
- Anschluss über Kabel oder Stecker S8 und S12

Appareil à longue portée
Boîtier cylindrique M8

Caractéristiques principales:
- Grande portée: 6 mm
- Tension de service 10 ... 30 VDC, courant à la sortie 200 mA
- LED, protections contre les courts-circuits, les surtensions induites et l'inversion de tension incorporées
- Disponibles en PNP, NPN, à fermeture et à ouverture
- Raccordement par câble ou par connecteur S8 et S12

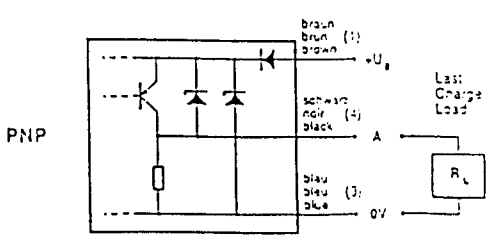
Long operating distance model
Cylindrical housing, M8 threaded

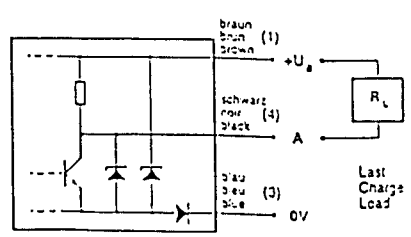
Main features:
- Long operating distance: 6 mm
- Supply voltage 10 ... 30 VDC, output current 200 mA
- LED, protections against short-circuits, induced overvoltages and power supply reversal built-in
- PNP and NPN executions, N.O. and N.C.
- Cable and S8 / S12 connector versions

Technische Daten: (gemäss IEC 60947-5-2)	Caractéristiques techniques: (selon CEI 60947-5-2)	Technical data: (according to IEC 60947-5-2)	
Bemessungsschaltabstand s_n	Portée nominale s_n	Rated operating distance s_n	6 mm
Hysterese	Hystérèse	Hysteresis	≤ 10% s_r
Normmessplatte	Cible normalisée	Standard target	18 x 18 x 1 mm
Wiederholgenauigkeit	Reproductibilité	Repeat accuracy	0,30 mm*
Betriebsspannungsbereich U_B	Tension de service U_B	Supply voltage range U_B	10 ... 30 VDC
Zulässige Restwelligkeit	Ondulation admissible	Max. ripple content	≤ 20% U_B
Ausgangsstrom	Courant de sortie	Output current	≤ 200 mA
Spannungsabfall an Ausgängen	Chute de tension aux sorties	Output voltage drop	≤ 2,0 V bei / à / at 200 mA
Leerlaufstrom	Courant hors-charge	No-load supply current	≤ 10 mA
Sperrstrom der Ausgänge	Courant résiduel	Leakage current	≤ 0,1 mA
Schaltfrequenz	Fréquence de commutation	Switching frequency	≤ 500 Hz
Oszillatorfrequenz	Fréquence d'oscillateur	Oscillator frequency	300 kHz
Bereitschaftsverzögerung	Retard à la disponibilité	Time delay before availability	50 msec.
LED	LED	LED	eingebaut / intégrée / built-in
Umgebungstemperaturbereich T_A	Plage de température ambiante T_A	Ambient temperature range T_A	-25 ... + 70 °C
Temperaturdrift von s_r	Dérive en température de s_r	Temperature drift of s_r	≤ 10%
Kurzschlussschutz	Protection contre les courts-circuits	Short-circuit protection	eingebaut / intégrée / built-in
Verpolungsschutz	Protection contre les inversions	Voltage reversal protection	eingebaut / intégrée / built-
Induktionsschutz	Protection contre tensions induites	Induction protection	eingebaut / intégrée / built-in
Schocks und Schwingungen	Chocs et vibrations	Shocks and vibration	IEC 60947-5-2 / 7.4
Leitungslänge	Longueur du câble	Cable length	300 m max.
Gewicht (Kabel / Stecker)	Poids (câble / connecteur)	Weight (cable / connector)	48,5 g / 19,5 g, 19,5 g
Schutzart	Classe de protection	Degree of protection	IP 67
EMV - Schutz:	Protection CEM:	EMC protection:	
IEC 60255-5	CEI 60255-5	IEC 60255-5	1 kV
IEC 61000-4-2	CEI 61000-4-2	IEC 61000-4-2	Level 2
IEC 61000-4-3	CEI 61000-4-3	IEC 61000-4-3	Level 3
IEC 61000-4-4	CEI 61000-4-4	IEC 61000-4-4	Level 2
Gehäusematerial	Matériel du boîtier	Housing material	Messing vernickelt / nickel-plated brass
Aktive Fläche	Face sensible	Sensing face	PBTP
Anschlusskabel (andere Längen auf Anfrage)	Câble de raccordement (autres longueurs sur demande)	Connection cable (other lengths on request)	PVC 3 x 0,14mm² / 18 x 0,1mm Ø 2 m

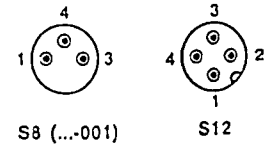
*(U_B = 20 ... 30 VDC, T_A = 23 °C ± 5 °C)

Anschlussschemen / Schémas de raccordement / Wiring diagrams





Steckerbelegung (Gerät)
Attribution des pins (appareil)
Pin assignment (device)



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Abmessungen / Dimensions / Dimensions:

Diese Zeichnungen lassen sich aus dem Internet (http://www.contrinex.ch) im .dxf - Format herunterladen.
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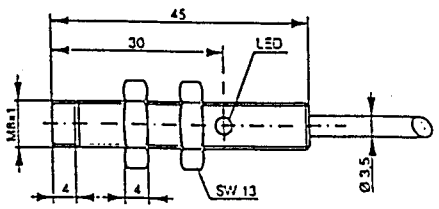
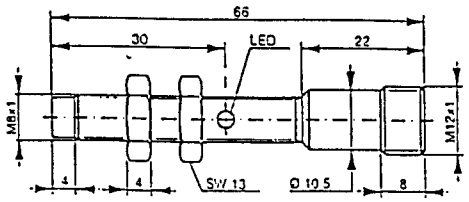
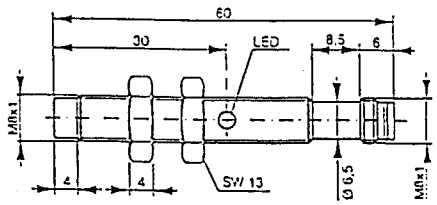


DW-AD-51□-M8

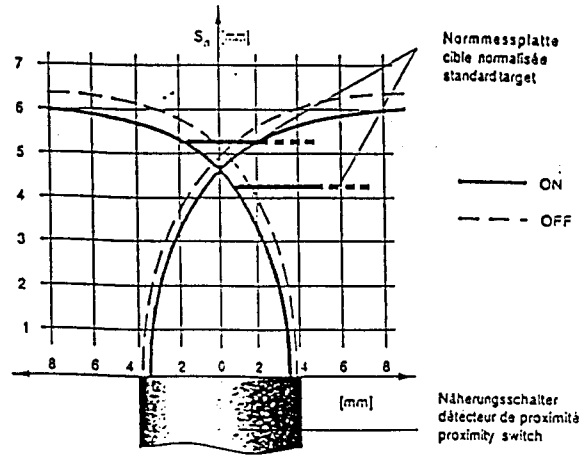


DW-AS-51□-M8

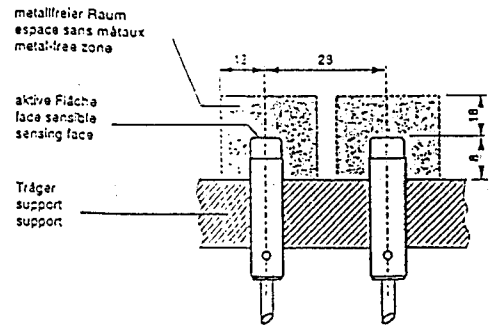


DW-AS-51□-M8-001

Ansprechkurve* / Courbe de réponse* / Response diagram*:



Einbau / Montage / Installation:



* typische Werte / valeurs typiques / typical values

- Reduktionsfaktoren* / Coefficients de réduction* / Correction factors*

Stahl FE 360 Acier FE 360 Steel FE 360	1,0	Kupfer cuivre copper	0,30	Aluminium aluminium aluminum	0,35	Messing laiton brass	0,45	Edelstahl V2A acier INOX V2A stainless steel V2A	0,70

Typenspektrum / Types disponibles / Available types:

Artikelnummer Numéro d'article Part number	Typenbezeichnung désignation type reference	Schaltung polarité polarity	Anschluss raccordement connection	Ausgang sortie output
320 120 215	DW-AD-511-M8	NPN	Kabel / câble / cable	Schliesser / à fermeture / N.O.
320 120 272	DW-AD-512-M8	NPN	Kabel / câble / cable	Öffner / à ouverture / N.C.
320 120 219	DW-AD-513-M8	PNP	Kabel / câble / cable	Schliesser / à fermeture / N.O.
320 120 273	DW-AD-514-M8	PNP	Kabel / câble / cable	Öffner / à ouverture / N.C.
320 120 289	DW-AS-511-M8	NPN	Stecker / connecteur / connector S12	Schliesser / à fermeture / N.O.
320 120 296	DW-AS-512-M8	NPN	Stecker / connecteur / connector S12	Öffner / à ouverture / N.C.
320 120 290	DW-AS-513-M8	PNP	Stecker / connecteur / connector S12	Schliesser / à fermeture / N.O.
320 120 270	DW-AS-514-M8	PNP	Stecker / connecteur / connector S12	Öffner / à ouverture / N.C.
320 120 283	DW-AS-511-M8-001	NPN	Stecker / connecteur / connector S8	Schliesser / à fermeture / N.O.
320 120 298	DW-AS-512-M8-001	NPN	Stecker / connecteur / connector S8	Öffner / à ouverture / N.C.
320 120 284	DW-AS-513-M8-001	PNP	Stecker / connecteur / connector S8	Schliesser / à fermeture / N.O.
320 120 299	DW-AS-514-M8-001	PNP	Stecker / connecteur / connector S8	Öffner / à ouverture / N.C.

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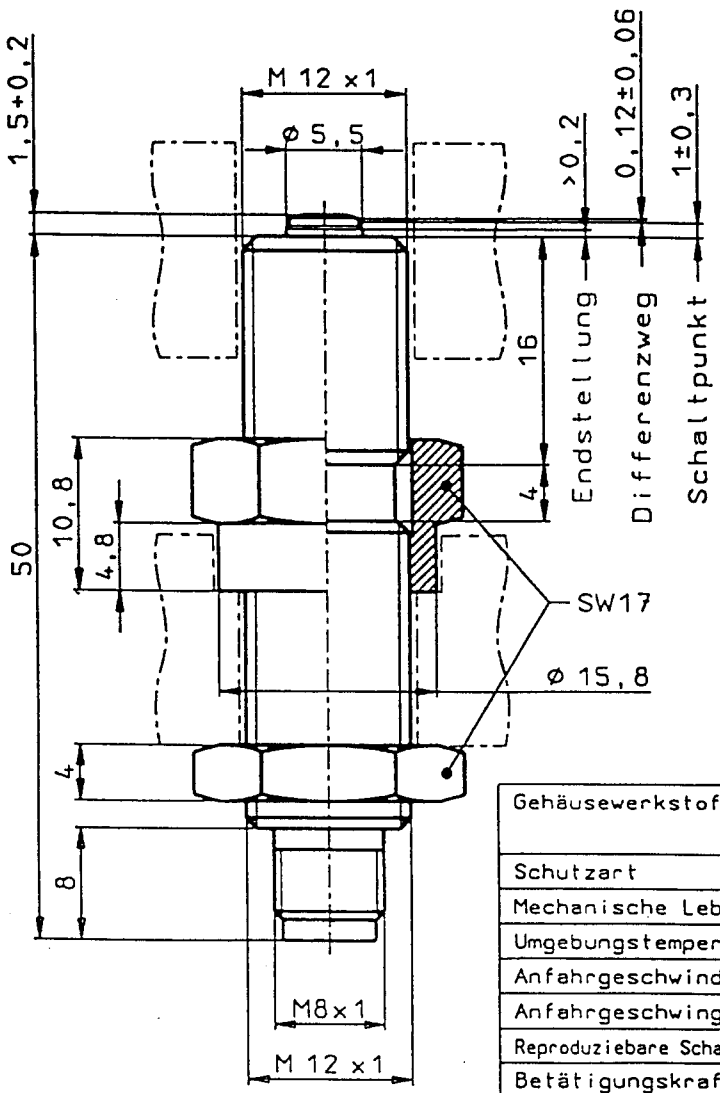
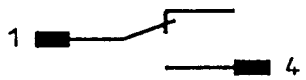
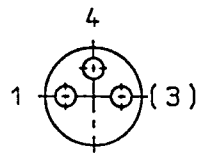
11.4.3 Euchner limit switch

Masse in mm





Ansicht Steckseite



Sofern keine Schutzkleinspannung vorliegt muß das Metallgehäuse mit dem Schutzleiter verbunden sein.

Gehäusewerkstoff		Gewindeteil: Stahl rostfrei Hülse: Stahl rostfrei
Schutzart		IP 65
Mechanische Lebensdauer [1]		10^6 Schaltspiele
Umgebungstemperatur		-20°C bis +85°C
Anfahrgeschwindigkeit max.[1]		8 m/min
Anfahrgeschwingigkeit min.[1]		0,01 m/min
Reproduziebare Schaltpunktgenauigkeit		±0,03
Betätigungskraft		10N
Schalthäufigkeit max.		30 min^{-1}
Schaltglied		1 Wechsler
Schaltprinzip		Sprungschalter
Bemessungsisolations-spannung		U_i 50V
Bemessungsstoss-spannungsfestigkeit		Uimp 1,5 kV
Gebrauchskategorie	AC-15	I_e 1A U_e 24V
	DC-13	I_e 0,3A U_e 50V I_e 0,6A U_e 24V
Schaltspannung min.		12V
Schaltstrom min. bei 12V		10 mA
Anschlussart		Steckverbinder M8 3-polig
Kurzschluss-Schutz (Steuersicherung)		6A flink 4A träge

[1] Bei axialer Betätigung

Ausg.	Aend.-Nr.	Tag	Name
2	—	07.10.99	Wadewitz
3	—	02.11.99	Krauter
4	00405	23.10.00	Krauter
5	00472	05.12.00	Raff
6	03304	23.05.03	Raff
Ersetzt durch		Ersatz fuer	

99	Tag	Name
Bearb.	29.07.	Krauter
Gepr.	23.05.03	
Norm		

EUCHNER

Technische Änderungen vorbehalten
Subject to technical modifications

Masst. 2:1

Blatt 1

Benennung: Einbaugrenztaster EGM12-SAM3C1868

Ident-Nr./Zeichg. Nr.: 077228

Bemerkg.: EGM12-C1868

Klass. Nr.: 1119

12 Index

Index