

Operating instructions

DOK-176-GB Rev. 3

Piston pump 30-10

■ 090-2786

„DUO“-spray appliance

■ 090-2745 (includes DOK-013, Spray gun DUO-H)

„Airless“- spray appliance

■ 090-2746 (includes DOK-016, Spray gun KS-1)

- keep for further use -

CE

Krautzberger 

EG-Konformitätserklärung CE Declaration of Conformity, Déclaration de conformité européenne, Declaración de conformidad CE

gemäß Anhang II A der EG – Maschinenrichtlinie 98/37/EG in acc. with Annex II A of the EC Machine Directive 98/37/EC, Selon la directive européenne 98/37/CEE, annexe II A, relative aux machines, según Anexo II A de la Directiva sobre maquinaria CE 98/37/EG



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HIERMIT ERKLÄREN WIR, DASS FOLGENDE PRODUKTE We hereby declare that the following product, garantissons que la version livrée des machines mentionées ci-dessous, Por la presente declaramos que el siguiente producto

<p>Bezeichnung Designation, Désignation, Denominación</p>	<p>Kolbenpumpen 30-10, 9-20, 30-20, 60-20, 4-50, 15-50, 30-50, 60-50, 1-115, 5-115, 11-115, 22-115</p>
<p>Geräte-Nummer Unit no., N° de l'appareil, Núm. aparatos</p>	<p>■ 7110, ■ 7100, ■ 7120, ■ 7140 ■ 7200, ■ 7220, ■ 7240 ■ 7260, ■ 7300, ■ 7320, ■ 7340 ■ 7360</p>
<p>Funktion Function, Fonction, Funcionamiento</p>	<p>Druckluft betriebene Verdrängerkolbenpumpen zur Druckbeaufschlagung von flüssigen bis hochviskosen Medien Compressed air-driven pump for painting and coating applications, Pompe à commande pneumatique étudiée pour répondre aux besoins de la technologie de pulvérisation, Bomba accionada por aire comprimido para el sector de pintura y recubrimientos</p>

IN DER GELIEFERTEN AUSFÜHRUNG FOLGENDEN BESTIMMUNGEN ENTSPRICHT complies with the following provisions in its delivered version:, satisfait aux exigences suivantes :, de la versión suministrada responde a las siguientes disposiciones:.

- **EG-Maschinenrichtlinie 98/37 EG** EC Machine Directive 98/37/EC, Directive européenne 98/37/CEE relative aux machines, Directiva sobre maquinaria CE 98/37/EG

FOLGENDE HARMONISIERTE EU-NORMEN WURDEN ANGEWENDET: The following harmonised EU standards were applied:, Les normes d'harmonisation européennes suivantes ont été appliquées :, Se han aplicado las siguientes normas UE armonizadas:

- DIN EN 292 Teil 1 und 2
- DIN EN 809
- DIN EN 12639
- DIN EN 1050

FOLGENDE NATIONALE NORMEN WURDEN ANGEWENDET The following national standards were applied:, Les normes nationales suivantes ont été appliquées :, Se han aplicado las siguientes normas nacionales:.

- DIN 24289 Teil 1 und 2
- DIN 24299 Teil 1 und 2

Datum / Unterschrift Date / Signature, Date/ signature, Fecha / Firma 21.11.1997

i.A. 

Angaben zum Unterzeichner Details of signatory, Fonction, Mención del firmante
Leiter Konstruktion Head of Design, Directeur de la construction, Director de diseño

M. Stoffels

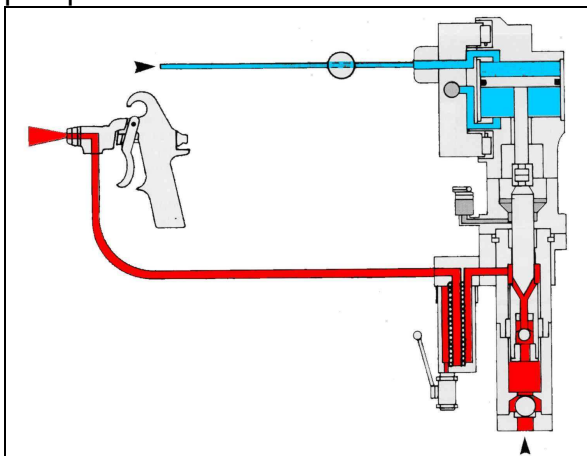
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The "Airless" process

Atomization and agent application are brought about without the use of air, thus the term Airless. The agent is being atomized by squeezing it under an extremely high pressure through the small bore of the material nozzle. In the process the agent is disintegrated into individual particles.

The pressure required for the Krautzberger Airless process may attain up to **480bar** and is generated by compressed air operated positive-displacement piston pumps.



Advantages of the "Airless" spray

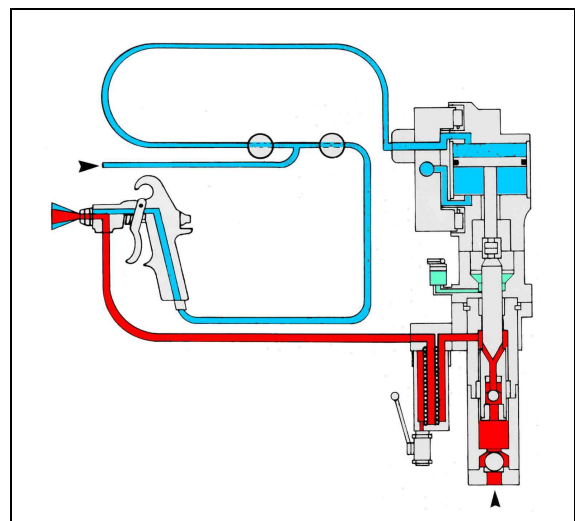
- upgraded spray performances

- instant surface coating due to a full and saturated homogeneous spray pattern and instant film formation
- reduced spray time
- increased material yield due to minimized spray fogs and low material rebound.
- fatigueless working brought about by a light and handy spray gun design equipped with only on material supply hose
- optimized atomisation even of high viscous materials

The „DUO“ (*Airmix*) process

Advantages of the „DUO“ spray

- reduced pressure, reduced recoil forces
- reduced level of wear



Method of operation

By means of an independently controlled air motor which is alternately applying pressure onto the motor piston, the recuperator piston of the pump is moved upwards and downwards.


Air motor and recuperator piston are interconnected via an coupling system.

Whilst moving upwards the suction valve is opened and the agent is sucked into the lower chamber of the hydraulic unit. Simultaneously the pressure valve located in the piston is being closed and the recuperator piston feeds the agent into the hydraulic unit.


The set spray pressure and the adopted nozzle size determine the stroke frequency, the air consumption. and thus the respective spray performance of the positive-displacement pump.


All agent conveying pump components consist of special steel 18/8


General safety notes


 PERSONNEL MAY ONLY WORK WITH SPRAY GUNS AND PUMPS IF THEY HAVE BEEN TRAINED AND INSTRUCTED IN THE FOLLOWING POINTS:

- POTENTIAL HAZARDS WHEN USING SPRAY GUNS AND PUMPS
- SAFETY REGULATIONS
- CONDUCT IN THE EVENT OF ACCIDENT AND MALFUNCTION
- ◆ CONTENTS OF THE OPERATING INSTRUCTIONS


 SPRAY GUNS AND PUMPS MAY ONLY BE OPERATED IN LINE WITH THE OPERATING PARAMETERS (PRESSURES ETC.) SPECIFIED UNDER "TECHNICAL DATA"!


 THE OPERATOR MUST CHECK THE COMPATIBILITY OF THE GUN/PUMP MATERIALS WITH THE COATING SUBSTANCE TO BE USED. TO ENSURE COMPATIBILITY, REFER TO THE SAFETY DATA SHEET SUPPLIED BY THE MANUFACTURER OF THE COATING SUBSTANCE!

 ALL WORK CONNECTED WITH INSTALLATION AND MAINTENANCE MUST BE PERFORMED ON A PRESSURELESS GUN BY SUITABLY QUALIFIED PERSONNEL. ALWAYS USE ORIGINAL PARTS WHEN REPLACING WORN OR DAMAGED PARTS!


 EACH TIME BEFORE YOU START WORKING, CHECK THE MATERIAL AND COMPRESSED AIR CONNECTIONS FOR FIRM SEAT AND DAMAGE! LOOSE, PRESSURISED HOSES MAY CAUSE ACCIDENTS DUE TO WHIPLASH-LIKE MOVEMENT AND THE DISCHARGE OF FLUIDS!

 NEVER POINT COMPRESSED AIR AT PEOPLE OR ANIMALS!


 HIGHLY ABRASIVE, CHEMICALLY AGGRESSIVE, EXTREMELY HOT OR EXTREMELY COLD MATERIALS MAY ONLY BE USED IN CONSULTATION WITH KRAUTZBERGER GMBH!

 DEPENDING ON THE NOZZLE, WORKING WITH SPRAY GUNS CAN CREATE NOISE LEVELS THAT MAY DAMAGE HEARING! ALWAYS WEAR EAR MUFFS WHEN WORKING!

Safety notes when using hazardous substances

 ALWAYS COMPLY WITH THE STIPULATIONS IN THE SAFETY DATA SHEET OF THE MANUFACTURER OF THE COATING SUBSTANCE. IN PARTICULAR, ADHERE TO INSTRUCTIONS RELATING TO:

- THE WEARING OF PERSONAL PROTECTIVE EQUIPMENT.
- THE AVOIDANCE OF EXPLOSIVE OR HARMFUL ENVIRONMENTS.

 FRICTION CHARGING DUE TO FLOWING COATING SUBSTANCES AND/OR COMPRESSED AIR CAN LEAD TO ELECTRIC SHOCKS DUE TO ELECTROSTATIC DISCHARGE!
THE SPRAY GUN AND THE PUMP MUST THEREFORE BE EARTHED!
WHEN THE GUN IS USED IN POTENTIALLY EXPLOSIVE AREAS, THE AIR AND COATING MATERIAL LINES MUST –BE ELECTRICALLY CONDUCTIVE (<1 MEGAOHM) AND MUST BE EARTHED.

! ROOMS IN WHICH HAZARDOUS SUBSTANCES ARE STORED OR PROCESSED MUST HAVE ADEQUATE VENTILATION. IT MAY BE NECESSARY TO INSTALL A TECHNICAL VENTILATION SYSTEM. IF THE VENTILATION SYSTEM FAILS, WORK MUST BE STOPPED IMMEDIATELY!

! IN THE WORKING ZONE, AVOID OPEN FLAMES AND RED-HOT COMPONENTS AS WELL AS EQUIPMENT, TOOLS AND PARTS THAT CAN CREATE IGNITABLE SPARKS.

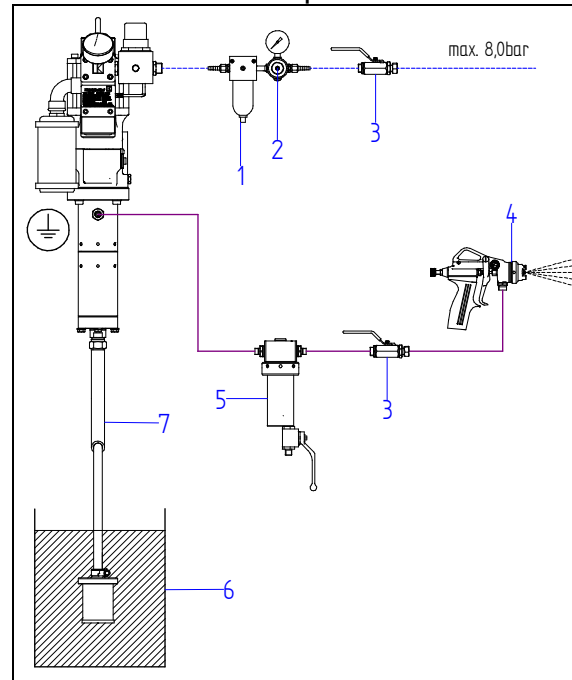
! HANG UP "NO SMOKING" SIGNS IN A 5 METRE RADIUS OF THE WORKING ZONE. MAKE FIRE EXTINGUISHERS AVAILABLE IF THESE ARE NOT ALREADY IN PLACE!

! MIXING OF DIFFERENT COATING SUBSTANCES CAN CREATE SUBSTANCES WITH INCREASED HAZARD POTENTIAL. ADHERE TO THE INSTRUCTIONS OF THE MANUFACTURER!

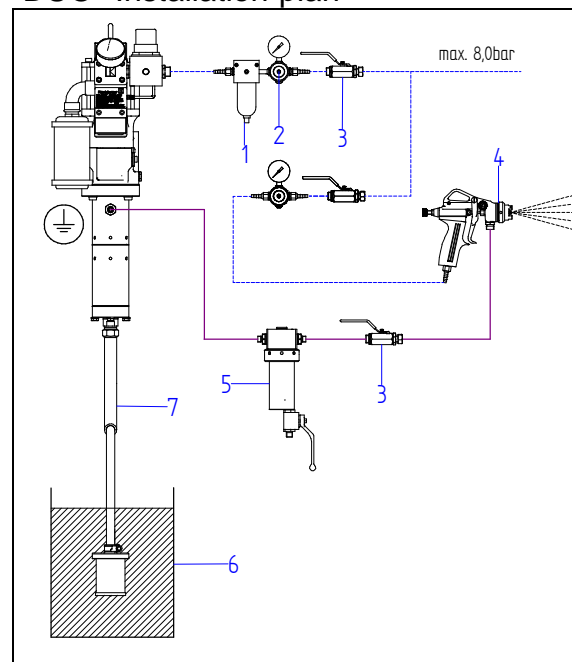
! COMPLY WITH ALL NATIONAL AND REGIONAL WATER PROTECTION REGULATIONS.
COMPLY WITH ALL NATIONAL AND REGIONAL WASTE DISPOSAL REGULATIONS.

Mounting and installation

"Airless"-Installation-plan



"DUO"-Installation-plan



1	Oil- /water seperator
2	Pressure regulator (compressed air)
3	Ball valve
4	Spray gun
5	Filter
6	container
7	Suction hose

The Airless pump is to be installed in such a way as to render it easily accessible for maintenance and cleaning purposes.

The pump holder is provided with an earthing screw to which the ground wire must be connected in order to ground the static charge generated by the agent flowing within the hose.

Connect the Airless pump only with a heavy duty compressed-air supply net: designed for a maximum compressed air consumption.

PRIOR TO START-UP, CLOSE THE PRESSURE REGULATOR OF THE AIRLESS PUMP BY COUNTER-CLOCKWISE TURNING THE HAND-WHEEL.

The piping supplying compressed air to the Airless-pump should have a nominal width of 9.

Furthermore we recommend to provide the compressed air supply net with an oil- and water separator in order to prevent foreign bodies from penetrating into both air motor and independently operating control system.

If need be a compressed air-oiler with deicing agent maybe installed between airless pump and oil/water separator.

Use only the original suction gear in order to ensure proper pump sucking.

Engage spray gun`s safety catch and connect the material supply hose at the outlet of the high-pressure filter.

WHEN IT COMES TO MATERIAL SUPPLY HOSES WITH SAFETY CONDUCTOR IN ORDER TO PREVENT ELECTROSTATIC CHARGES FROM BEING GENERATED.

CAUTION:

With regard to operating the Airless pump we prefer to the safety rules edited and

published by the applicable employers liability insurance.

Start-up

- Entirely close pressure regulator at motor
- connect compressed air-hose (max. 8bar)
- in case the pump is provided with a material filter, (strongly recommended by us) a filter mesh matching the nozzle requirements must be used. See table
- Fill rinsing agent into the rinsing chamber, until the sight glass shows a 70% fillin level
- Slowly open pressure regulator until air motor starts working.
- Rinse the Airless pump by means of the rinsing agent in order to get the preservatives out of the pump
- put the suction hose into the spray agent
- open spray gun in order to evacuate the air still contained in the system
- When the spray agent starts to emerging from the spray gun, close spray gun and set the required working pressure at the pressure regulator (max 8bar)

Under no-load conditions the Airless-pump must only be operated for a short time and at a slow running level.

Otherwise motor, suction valve, piston valve and the pump sealing may be damaged.

CAUTION!

The spay jet emerging from the spray gun is dangerous. For this reason aim the spray gun only downwards

Switching off

- Entirely close pressure regulator at motor
- disconnect spray gun and render the system pressureless.
- remove and clean the spray nozzle
- remove suction hose out of the spray agent and put it in a thinner
- slowly open pressure regulator whilst the spay gun is being opened, until the air motor starts working
- rinse spray gun and pump by means of a thinner. In the process make sure that the motor runs at a slow level only
- for rough cleaning of the filter during rinsing , shortly open the cock at filter

Maintenance

Daily check rinsing agent level during operation. Sight glass must show a 70% filling level.

In case the rinsing agent is contaminated by the spray agent, replace the rinsing agent. If, after a short time only, the rinsing agent should again be contaminated or should the rinsing agent level displayed by the sight glass increase, we recommend to replace the gasket set.

By replacing these gasket sets, the recuperator piston prevented from being worn out prematurely.

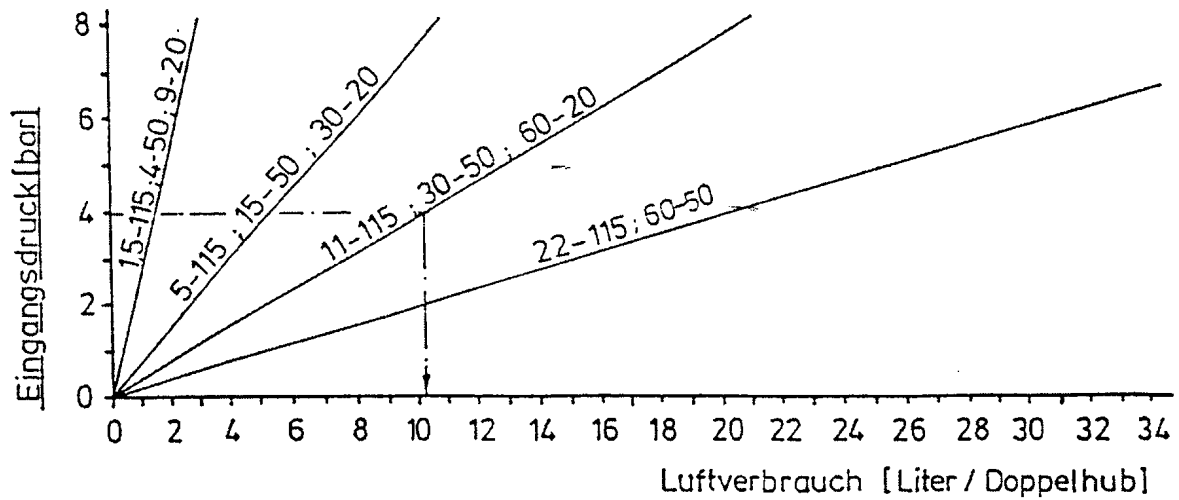
We recommend to open the material filter at fixed intervals in order to clean the filter housing, mesh inclusive.

CAUTION!

Prior to opening material filter refer to instructions

Technical data

Air consumption

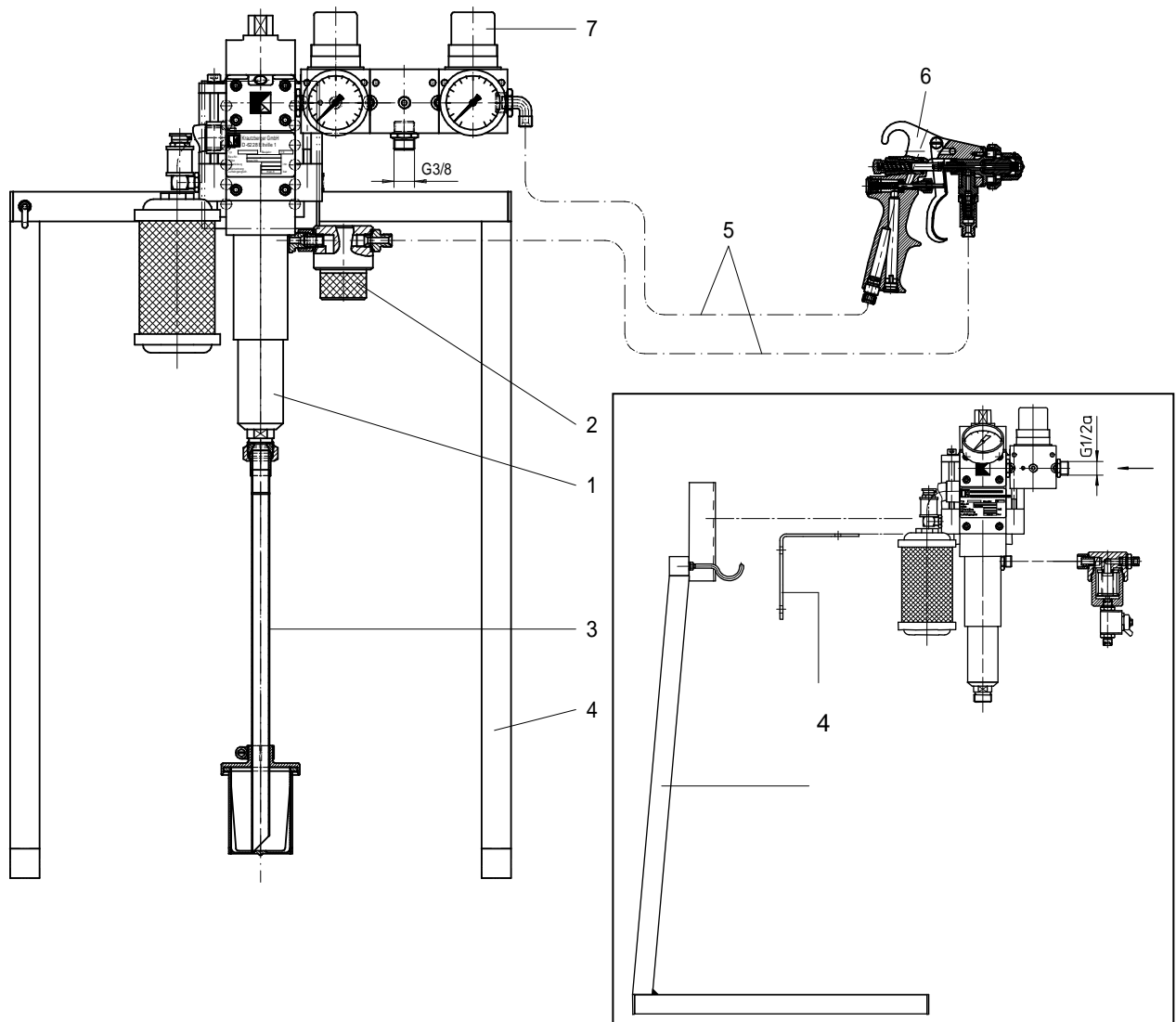


Example
input air pressure: 4,0bar
pump type: 30-50
air consumption/double stroke: 5.45litres

pressure transformation ratio	30:1
delivery volume/double stroke	20ccm
max. recommended double strokes/minute	50
max. air pressure	8bar
max. spray agent pressure in bar	240bar
recommended delivery volume	1,0l/min (50 double strokes/minute)
max. delivery volume	2,0l/min (100 double strokes/minute)

Trouble shooting guide

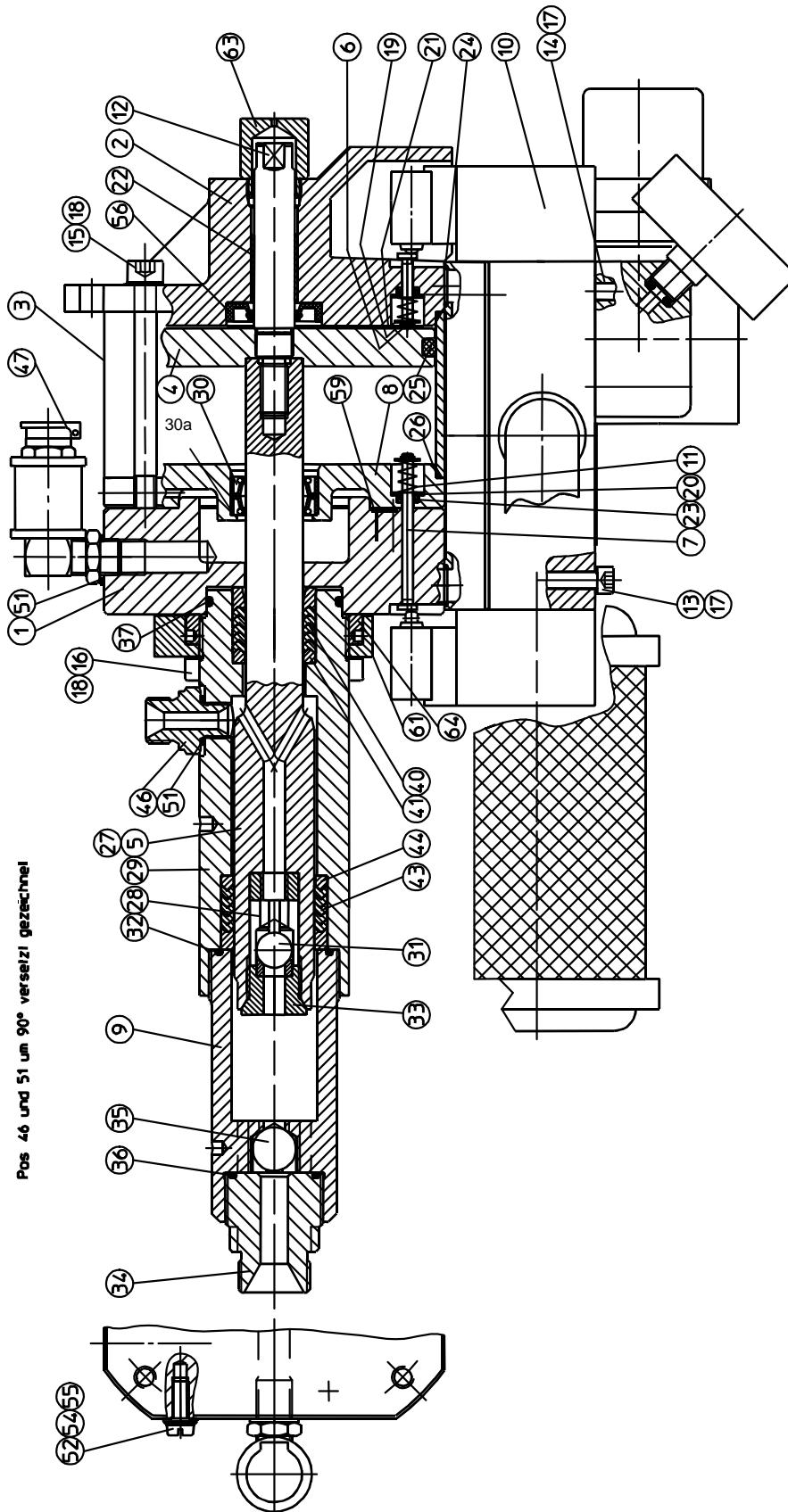
kind of mal- function	pump does not start or Stops running durin operation	no or insufficient pump sucking	spray pressure to low	uneven operation of pump	pump continues running even though spray gun is closed	pump feeds agent into rinsing chamber	iced con- trol
origin of mal- function (unit)							
drive	clean control and de- fective parts			clean control and defec- tive parts			pump runs too fast
hydraulic unit		insufficient venting, leak- ing screwing between hydraulic unit and suc- tion gear		insufficient venting, leak- ing screwing between hydraulic unit and suction gear			
suction gear		mesh basket obstructed		mesh basket obstructed			
high pressure filter	filter contaminated, check for passage and cleanliness						
high pressure material hose	choked hose, check for passage and cleanliness						
suc- tion/pressure valve		worn or blocked, replace defective parts					
sealing sets		leaking gaskets				upper gasket set leaking	
atomizer nozzle	nozzle bore choked		excessive nozzle bore				excessive nozzle bore
pressure reducing valve	air pressure too low		air pressure too low				
compressed air piping	insufficient air quantity, air pressure too low		insufficient air quan- tity, air pressure too low				
spray agent		viscosity too high					



Item	Designation	Order-No.
1	Piston pump 30-10	090-2312
2	Filter	080-2951
3	suction device for piston pump 30-10	080-0298
	suction device for „Airless“- and „DUO“-spray appliance	090-0131
4	Pump holder	080-2953
	Bracket	080-2963
5	Hose set (<i>only „DUO“-spray appliance</i>)	110-0100
6	Spray gun DUO-H (<i>only „DUO“-spray appliance</i>)	090-2594
	Spray gun KS-1 (<i>only „Airless“-spray appliance</i>)	090-1128
7	Regulation unit (<i>only „DUO“-spray appliance</i>)	080-2048

Piston pump 30-10

Pos. 47 um 90° versetzt gezeichnet

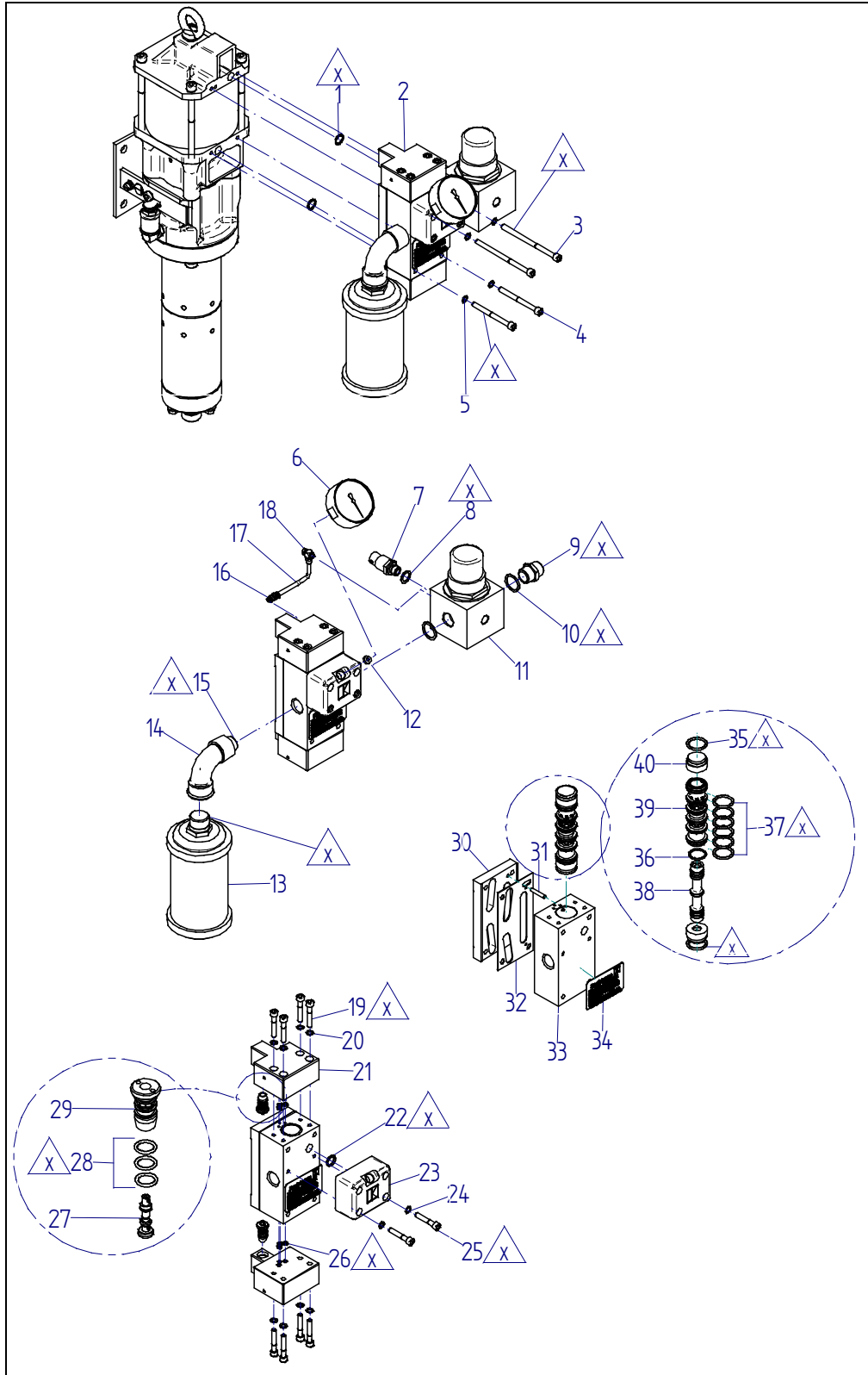


Pos 46 und 51 um 90° versetzt gezeichnet

Spare parts piston pump 30-10

item.	Order-No.	Designation	item	Order-No.	Designation
1	040-3947	Lower part motor	30	010-0776	Slotted ring
2	040-4349	Upper part motor	30a	010-0275	Slotted ring
3	040-3884	Cylinder tube motor	31	030-2746	Ball
4	040-4315	Piston	32	010-0557	O-Ring
5	080-2438	Piston, cpl. (Pos. 27; 28; 31; 33)	33	In item 27	Sealing screw cpl.
6	040-0034	Tappet rod	34	040-4540	Double nipple
7	040-3899	Tapped rot	35	030-2749	Ball
8	080-2914	Seal panel	36	010-0790	O-Ring
9	040-3949	Pump fastener	37	010-0750	O-Ring
10	080-3141	Control unit	40	010-0975	Gasket cpl.
11	020-0076	Spring (2 pcs)	41	040-0590	Ring
12	040-4311	Guide	43	010-0303	Gasket cpl. PTFE
13	030-0310	Screw (2 pcs)		010-0316	Gasket cpl. PTFE/Leather
14	030-0315	Screw (2 pcs)		010-0317	Gasket cpl. Leather
15	030-2960	Screw (4 pcs)	44	040-0591	Ring
16	030-0338	Screw (4 pcs)	46	040-0601	Double nipple, G3/8xG1/4
17	030-0706	Locking washer (4 pcs)	46	040-0582	Double nipple, G1/4
18	030-0714	Locking washer (8 pcs)	47	030-1879	Gauge
19	030-0719	Locking washer (2 pcs)	51	010-0244	Gasket (2 pcs)
20	030-2857	Disk (2 pcs)	52	030-0274	Screw
21	030-2856	Disk (2 pcs)	54	030-2863	Screw
22	030-4435	Bearing bush	55	030-2894	Serrated lock washer
23	010-0247	Slotted ring (2 pcs)	56	010-0778	Slotted ring
24	010-0241	O-Ring (2 pcs)	59	010-0046	O-Ring
25	010-0254	O-Ring	61	040-4374	Flange
26	010-0255	O-Ring (2 pcs)	63	040-4348	Seal screw
27	040-3945	Piston cpl. (item 28, 31, 33)	64	040-4373	Threaded ring
28	040-0598	Ball guide			
29	040-3948	Upper part pipe			

Control unit



x = lightly grease parts

Spare parts control unit

Item	Designation	Order-No.	quant.
1	O-Ring NBR 70	7120-010-0241	2
2	Control valve, cpl	7120-130-0305	1
3	Screw M6x95 (M-70) Screw, M6x100	7120-030-0533 7120-030-0315	2
4	Screw M6x68 (M-70) Screw, M6x70	7120-040-4896 7120-030-0310	2
5	Circlip, VA 1.4122 für Schraube M6	7120-030-0706	4
6	Pressure gauge, 10bar	7120-030-0720	1
7	Safety valve 8,0bar Safety valve 6,0bar	7120-130-0179 7120-030-2838	1 1
8	Flat gasket, Copper	7120-010-0287	1
9	Double nipple , brass, 2xG3/4"	7120-030-1991	2
10	Flat gasket, Copper	7120-010-0287	2
11	Compressed air regulator	7120-030-1313	1
12	Gasket, aluminium	7120-010-0251	1
13	Sound absorber	7120-030-0711	1
14	Bend, short	7120-030-2020	1
15	Extension IG ¾"-AG1/2"	7120-030-0708	1
16	Quick coupling piece, brass, PH 3-5	7120-030-2406	1
17	Hose, max. 8bar, l=82mm	7120-100-0439	1
18	Swivle screw connection, brass, PH 3-5	7120-080-0207	1
19	Screw, M6x35	7120-030-0294	8
20	Circlip	7120-030-0706	8
21	Housing, valve	7120-040-4618	2
22	O-Ring, NBR 70	7120-010-0243	1
23	Connecting piece	7120-040-0446	1
24	Circlip, VA 1.4122 for screw M6	7120-030-0706	2
25	Screw, M6x35	7120-030-0294	2
26	O-Ring, NBR 70	7120-010-0636	6
27	Control piston	7120-010-0835	2
28	O-Ring, EPDM	7120-010-0188	6
29	Sleeve	7120-040-3902	2
30	Air distributor	7120-040-0316	1
31	Split pin	7120-030-2720	1
32	Flat gasket	7120-010-0245	1
33	Housing, valve	7120-040-4617	1
34	Type plate	7120-040-1874	1
35	O-Ring, NBR 70	7120-010-0352	2
36	O-Ring, NBR	7120-010-0741	1
37	O-Ring, NBR 70	7120-010-0352	6
38	Pusher, aluminium	7120-030-3852	1
39	Inner part, valve, brass	7120-030-4141	1
40	Spacer	7120-040-3329	2