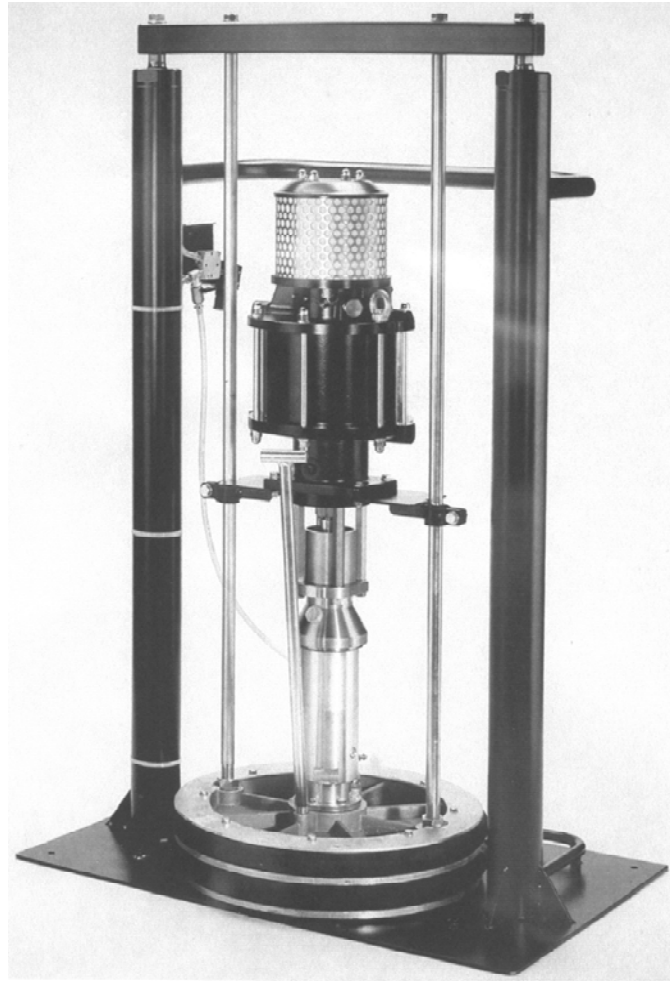




### Grease Ram System for 200 kg Barrels with Air Operated Piston Pump

**Important:** Read this manual carefully before installing, operating or servicing this equipment.



**Ratio 54:1**

System-No.:

Manufacturer:



Pumpen und Dosiertechnik

Heger Pumps, Inc.

+1 562-989-5432

info@hegerpumps.com



## DECLARATION OF CONFORMITY

### Declaration of Incorporation

according Appendix II, No. 1 B of Machinery Directive 2006 / 42 / EU

We, the company:                   IST Pumpen und Dosiertechnik GmbH  
  Enselskamp 3 - 5  
  D - 51674 Wiehl

Hereby declare in sole responsibility that the product "Grease Pump System"

**GP0145-200-54-V**  
and all variations,

to which this declaration relates, being part of a system it is forbidden to operate the grease pump system if the whole system is not declared in accordance with the mentioned machine directives 2006 / 42 / EU.

The grease Pump System above specified has been designed, manufactured, checked and tested in accordance with the following directives:


1.1.2, 1.1.3, 1.1.5, 1.1.6, 1.3.1, 1.3.2, 1.3.4, 1.3.7, 1.3.8.1, 1.4.1, 1.5.2, 1.5.3, 1.5.4, 1.5.6, 1.5.7, 1.5.8, 1.6.1, 1.6.2, 1.6.4, 1.7.1, 1.7.3, 1.7.4.1, 1.7.4.2

The special technical descriptions are in accordance to Appendix VII Part B of Directive 2006 / 42 / EU.

### EU – Declaration of Conformity


The Grease Pump System conforms with the relevant provisions of EC directive 94/9/EU for equipment and protective systems intended for use in potentially explosive atmospheres and is certified for safe use in Group II category 2 area's.

The listed equipment is EX – proven in Group II category 2G

Marked:                   

Wiehl – Marienhagen, 01. 04. 2016

Registered Address, Date



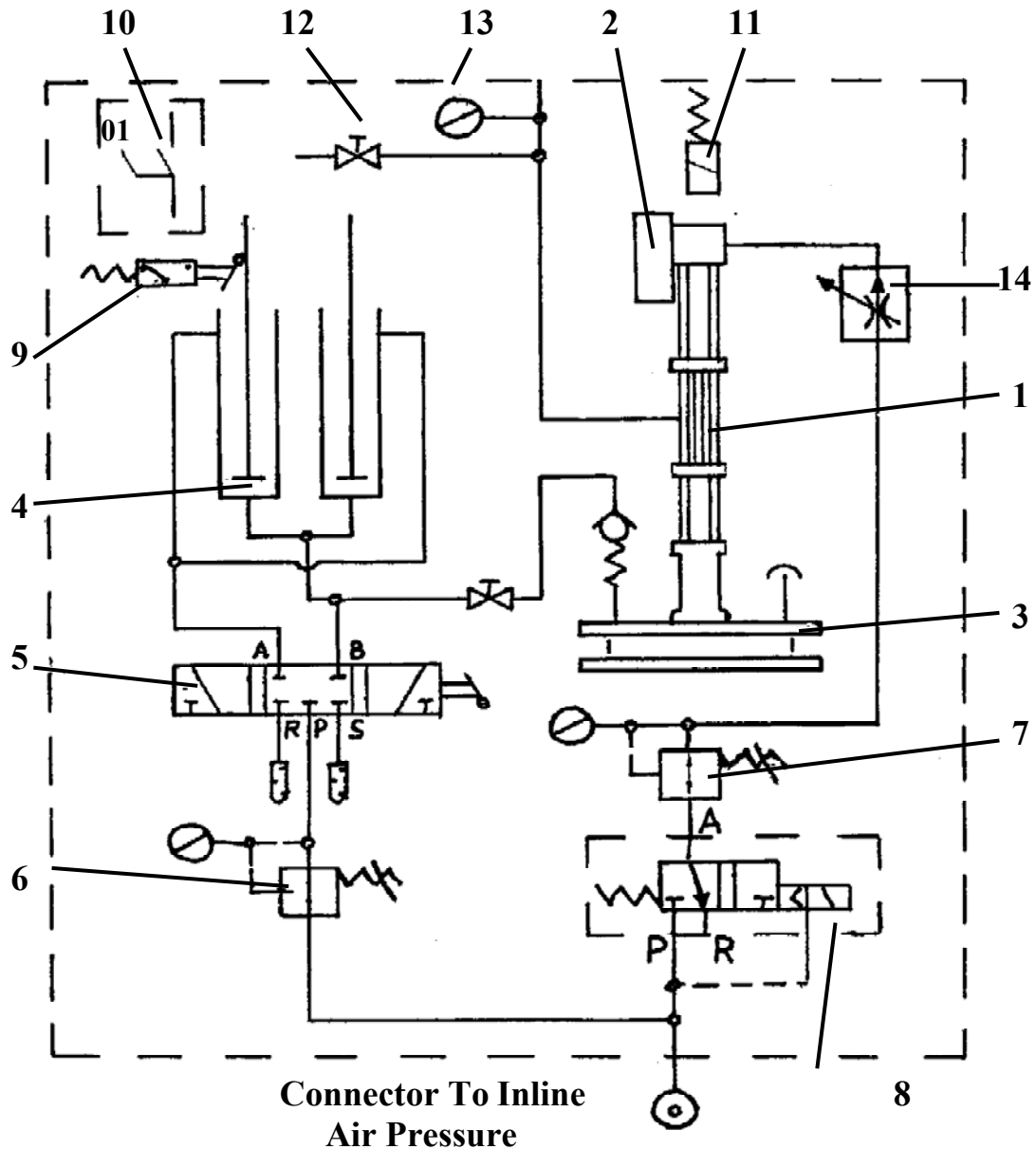
Responsible Person:

Ingo Steiniger  
Managing Director



# Pumpen und Dosiertechnik

## Design - Drawing Grease Ram System 200 kg (55 US Gal.) Model GP0145 - 200 - 54 - V





## Main Components / Parts List Grease Ram System 200 kg Barrels (55 US Gal.) Model GP0145 – 200 - 54 - V

Pos.	Qty.	Description	Code / Mark	Article – No.
1	1	IST – Chop Check Piston Pump, air operated, Ratio 54:1, Carbon Steel Construction	740087	KHP540134 C
2	1	Silencer	D200/120	730973
3	1	Follower Plate, Cast Alu	for 200 Liter (55 US Gal.)	736682
	2	Wiper Seal for Follower Plate	020013/00	580602
4	1	Two Post Ram, pneumatic, 0,75 to	000 9/00	733702
5	1	5/3 Hand Valve with Lever for Ram Control	Norgren - Herion	438366N-H
6	1	Pressure Regulator for Ram	1/4" BSP (F)	AR20F02H
7	1	Filter / Regulator / Lubricator / Gauge	3/8" (F)	SA10564
8	1	2/3 Solenoid Air Valve	Norgren - Herion	8010750.303002400 24V
9*	1	Stop Switch	Klöckner-Möller	LSM-11S IEC60947-5-1 IP67
10*	1	Service – Switch	Klöckner-Möller	Handswitch RWK1R Contact element BK11
10.1*	1	Momentary Switch, manual Pump Control	Klöckner-Möller	
10.2*	1	Junktion Box	RAPOTEC	CA-290, Type 1
11*	1	Stroke Counter	Turck	Bi5-E18K-AP6X
12*	1	High Pressure Material Outlet	HK27903507	20100605
13*	1	Gauge, 1/4" D63, 0-600bar	IST	131.11 1/4", An hin
14*	1	Safety-Stop, Pneumatic Pressure control	224040	MST 224 3/4"
15	1	Follower Plate Adapter for Lower Pump End	IST	574251

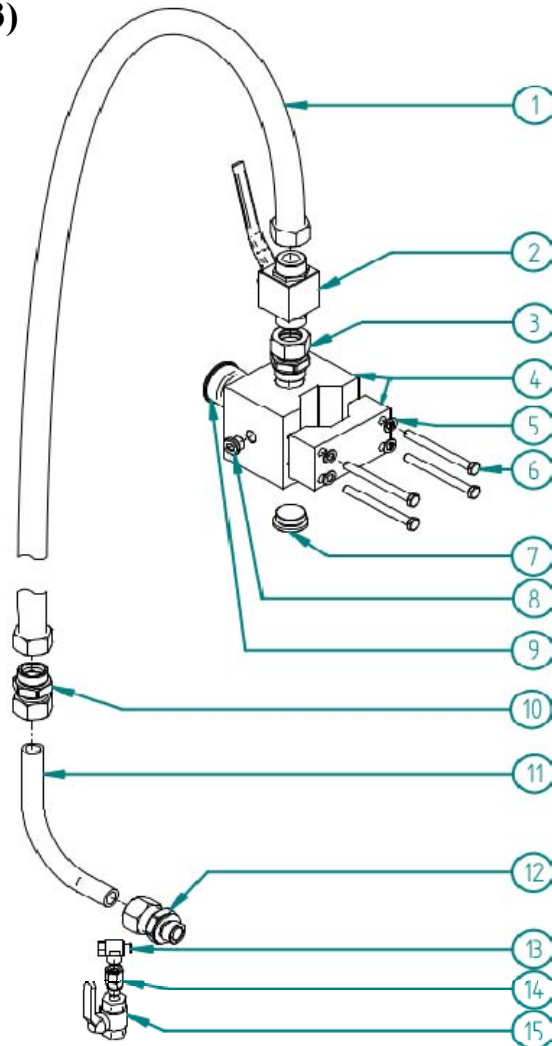
\* Available on demand.



# Pumpen und Dosiertechnik

## Assembly of High Pressure Material Outlet with Distributor (OPTION 12 + 13)

Order-Nr.: 20100605

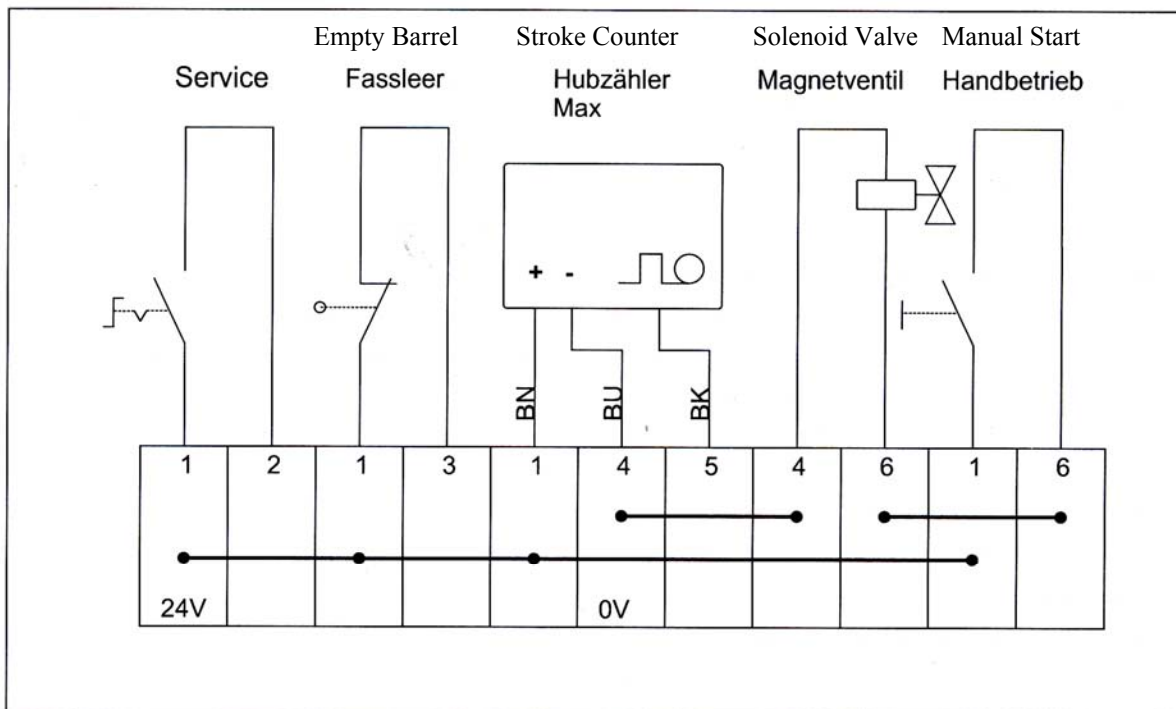


Pos.	Qty.	Description	Addenum	Item – Nr.
1	1	High Pressure Hose 1700	IST	4SH25 DKO SS
2	1	Ball Valve	IST	BKH 30 S
3	1	Fitting, straight 1 1/4" to 30S	IST	GE 30 SR ED CF
4	1	Distributor, with Bracket, Ports; 1 x SAE 2", 1 x 1 1/4", 1/2", 1/4"	IST	MW-HM HDV 91920 2010
5	4	Spring Washer	IST	M12
6	4	Screw	IST	M12 x 130
7	1	Plug	IST	1/2" VSTI
8	1	Plug	IST	1/4" VSTI
9	1	Gauge, D63, 0-600 bar, glycerine damped	IST	131.11 1/4" An hin
10	1	Nipple, straight	IST	G30SCF
11	1	90° elbow	IST	R30 5CF
12	1	Fitting, straight, 1" NPT to 30S	IST	GE30 S1 NPT CF
13	1	Swivel	IST	D SWVE 12 S R3/8"
14	1	Nipple, straight	IST	D EGE 12 S R 3/8"
15	1	Ball Valve (for Venting)	IST	KHB-G3/8" PN500

## 10 – 10.2

### Connections of Electric Wires and Elements (Distribution Box)

#### Klemmenbelegung Schaltkasten

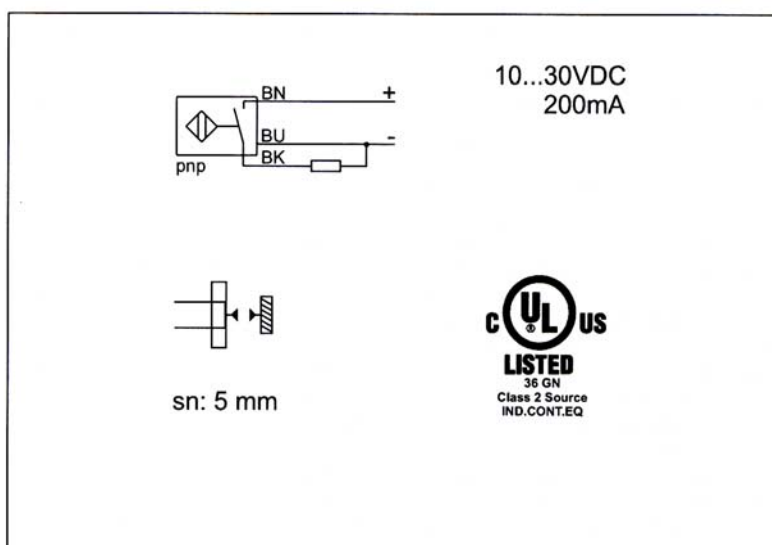


**Ground to Box Cover = 0,5<sup>2</sup>**

Erdung am Deckel (auch Deckelfang) = 0,5<sup>2</sup>

## 11

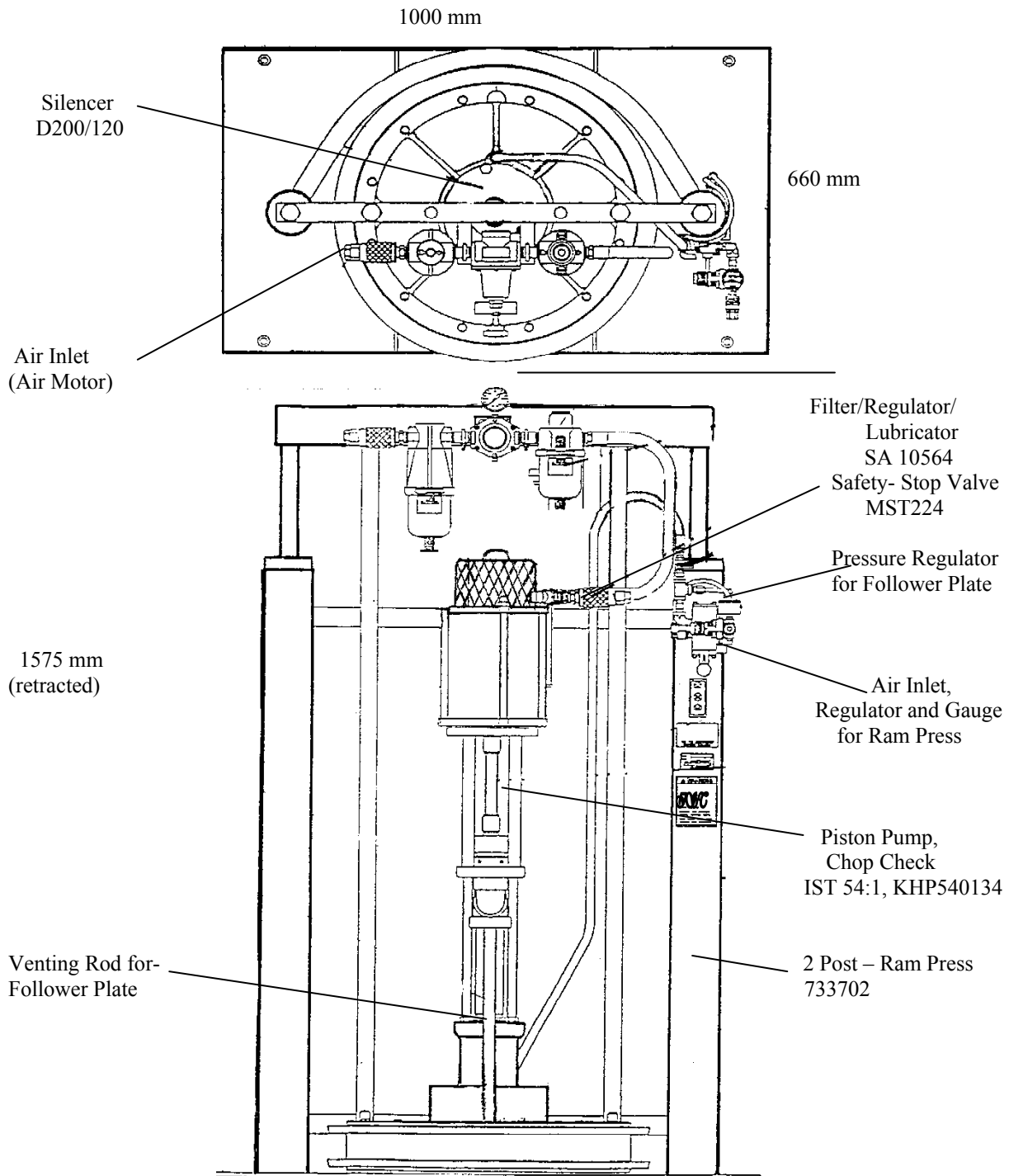
### Electric Connections to Stroke Counter Schaltbild Hubzähler





## GP0145-200-54 - V View and Components

Total Erected Height of Grease Ram System: 2.575 mm



max. pressure force of 2 Post Ram : 0,75 to



## User's Manual of Grease Ram System IST GP0145-200-54-V

**This User's Handbook must always be available to operating staff.**

### Contents:

- A. Safety Instructions
- B. Machine Description
- C. Starting Operations
- D. Cleaning / Change of Material
- E. Maintenance / Service / Repair
- F. Trouble – Shooting

### A Safety Instructions

This *IST* Grease Ram System was designed and built in accordance with all safety aspects. It corresponds with the present standards of technical regulations and current rules for accident prevention. The System left our factory in perfect condition and warrants a high level of safety. However the following dangers exist if operated wrongly or used inappropriately:

- to life and limb of operator or third persons
- for the machine and other goods belonging to the owner of this machine
- for the efficient working of the machine

All personnel involved in the starting, operation and maintenance of the machine must read the following notes carefully and observe them. **It is a matter of safety!** We recommend that the machine operation management have this confirmed in writing.

Additionally please pay attention to the following:

Manufacturer's notes and operating guidelines for high viscous material and pumping this material should be observed at all time. In principle no method of working should be exercised which impairs the safety of this product and the operating personnel.

The rules for the prevention of accidents „Machining Of Coating Materials“ (German VBG23) as well as the „Directives For Liquid Jet Systems“ (German ZH1/406) of the professional association must be complied with under all circumstances. Liquid jet systems have to be checked for safe operation by a specialist upon requirement, however at least every 12 month. The results of such check must be recorded in writing. We recommend to enclose all directives and rules for the prevention of accidents in the user's manual.

In case of injuries consult a physician or go to the next hospital without delay. If paint or other material or solvent has gone into the skin, the physician has to be informed about the type of this material applied. Therefore always see to it that the material data sheet or product specification sheet with the address and emergency telephone number of the manufacturer is at your disposal.

### B Machine Description

The extrusion pump is designed for pumping and applying non – flowing coating materials such as grease, adhesives, sealing compounds, mastics, etc. The extrusion pump is mounted mainly on a ram or a lift and installed in an existing plant or before a dosing unit.

Other use is not in line with the regulations. Before *IST* equipment is used for other purposes or with other materials and therefore not according to the regulations, permission should be obtained from the manufacturer as the guarantee is otherwise invalid. The observation of technical documentation and compliance with specified operation, maintenance and starting guidelines are a component of the use in accordance with the regulations.

Remember that *IST* extrusion pumps operate under extreme pressure procedures and that it can cause life – endangering injuries if used inappropriately





## Pay attention to the following notes:

For design reasons the danger of getting squashed or sheared in the material feed area of the pump and between the hydraulic motor and the material pump is very high. Before working in such areas release the pressure from the extrusion pump by interrupting the compressed air supply line.

Material hoses must conform to maximum working pressure, whereby a safety factor must be included in the statement.

Never try to seal leaks on joints and high pressure hoses with your hand or by patching the spot. Should a leak occur the whole system are to be depressurised immediately. Defective parts are to be replaced. Do not repair defected material hoses by yourself.

Before maintenance and cleaning work at the equipment and jet system accessories take the pressure from the complete system. The compressed air supply must be interrupted.

If the machine stops up, pressure may still exist despite depressurisation. This must be kept in mind when carrying out repairs! Special care must be taken when dismantling the material hoses and extrusion guns especially.

Only conductive material hoses should be used. All original *IST* material hoses are conductive and compatible with our equipment. The maximum admissible working pressure on the hoses must correspond to the maximum operating pressure of each machine.

Should the safety air valve (OPTION) need replacing, please see the enclosed spare parts list for its order number. Take care that the safety valve corresponds with the maximum admissible air inlet pressure of the ram press. Never use other than the original valves.

The maximum operating pressure of this machine is to be ad here to in principle for all parts.

When using substances containing the following materials:

- **Trichlorfluormethane (R-11)**
- **1.1.2 Trichlorine**
- **1.1.2.2 Tetrachlorine**
- **1.2.2 Fluorethane (R-113)**
- **1.2 Difluorethane (Perchloroethylene)**
- **Trichloroethane (Trichloroethylene)**
- **Dichloromethane (Methylenechloride)**
- other solvents with halogenated chlorohydrocarbon (FCKW)

it is essential to use a rustproof extrusion pump as otherwise dangerous chemical reactions are possible.

If you wish to work with the above solvents or with lacquers or paints or materials which contain them, it is recommended to contact the *IST* customer service.



## WARNING

For design reasons the danger of getting squashed or sheared in the material feed area of the pump and between the hydraulic motor and the material pump is very high. Before working in such areas release the pressure from the extrusion pump by interrupting the compressed air supply line.

Before maintenance and cleaning work at the equipment and jet system accessories take the pressure from the complete system. The compressed air supply must be interrupted.

The system may only be operated if all the guards and safety devices are present and fully functional, e.g. detachable guards!

Alignment when changing production as well as servicing and cleaning may be carried out by trained operating personnel only.

Maintenance and repair may be carried out by trained and qualified personnel only.

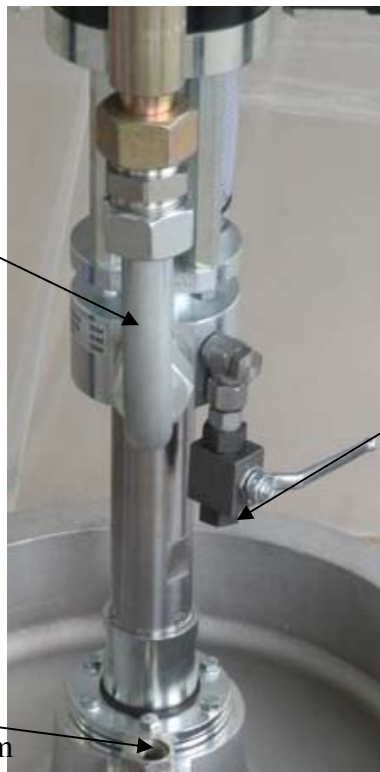
## ATTENTION, WARNING:

**IST High Pressure Piston Pumps enable an outlet pressure depending on the product range of nearly 1.000 bar.** Before maintenance and cleaning work at the equipment and jet system accessories take the pressure from the complete system. Interrupt the compressed air supply.

***Before starting operation or a test run the material outlet ports must be coupled to the hoses or pipe work or shut with a plug that withstands the high pressure. The orifice of the venting valve in the High Pressure Head must be orientated downwards to the pump foot (material inlet).***

**ATTENTION: always wear personnel protective clothing, never place your body to tight and unprotected in front of ports.**

**High Pressure Line  
Material Outlet**  
(up to 1.000 bar)



Venting port of Follower Plate.  
(during operation closed with  
a T-handle).  
To open when changing the drum  
for air release.



Venting Valve of  
the High Pressure  
Head  
**Always closed  
during operation!**  
Only to open for  
first set up of the  
pump to release air  
from the inner pump  
tube.  
Orifice of the Valve  
must show always  
downwards.



## Authorised Operators

Employees under the age of 16 should not operate this equipment. The management in charge of the operation of the machine must make the user's manual available to the operator and must make sure, that the operator has read and understood it. Only then may the system be put into operation.

We recommend the manager has this confirmed in writing. The operator of the machine is obliged to report any changes in the machine which might affect its safety to the manager as he must ensure that the machine is still functional.

The responsibilities for the different activities on the system must be laid down clearly and adhered to. No unclear competences may remain as these could endanger the safety of the users.

The operator must make sure that only authorised persons work on the machine. He is responsible to third parties in the working vicinity of the system.

The operator of the equipment is obliged to repeat instructions about dangers and safety measures at regular intervals (at least once a year, for young person twice a year).

We call to your attention that the valid guidelines and requirements in accordance with work surroundings (mining, closed areas etc.) must be adhered to absolutely.

Please wear the prescribed protective clothing at all times as solvent vapours and solvent splashes cannot be completely avoided.



The noise pressure level of the equipment is below 75 dB (A). Nevertheless appropriate noise protection means should be made available to the operating staff.

## Safety measures at installation site

The system must have a fixed position and sufficient space to ensure safe operating. The passage to the safety fittings must already be free.

Keep the working area especially all gangways and standing areas clean.

Ensure there is sufficient ventilation at the workplace to prevent damage to health and property. Observe the manufacturer's processing instructions at all times.

Comply strictly with the current rules for accident prevention.

Precept in case of emergency

## Leaks

If leaks occur in the system it must be shut down immediately and the entire system depressurised.

- Cut off the hydraulic and compressed air supply.
- Open the drain valve.

Replace defective parts immediately. Check all other parts before operating the machine again.

### **Injury**

Should an injury occur through contact with liquid spray we recommend to consult a doctor immediately.

Inform the doctor of the material sprayed (e.g. paint) and the solvent (thinner). Have the product data sheet on hand (address and telephone number of supplier or manufacturer, name of material and material number).

- Memorize where you can call for aid.
- Memorize the local emergency phone numbers.
- In any case get familiar with the first – aid measures.

### **Fires**

- Read the instructions for fire alarm and escape routes put up in your factory.
- Memorize the local emergency phone numbers.
- Memorize location and operation of fire alarms, fire extinguishers and sprinkler installations.
- Take care that sufficient information notes / labels for fire prevention are provided.
- Do not apply other extinguishing agents than that which is prescribed by the manufacturer of the materials.

All equipment is delivered with the following protective fitting:

### **Safety Valve (OPTION)**

The safety valve prevents the maximum admissible hydraulic or air entry pressure being exceeded.

With the pressure supply interrupted, the pressure of the extrusion pump is released by shortly triggering the extrusion gun and / or opening the material outlet for a short time.

All protection devices must be checked!

- before each commissioning of the machine
- Before each start of machine operation
- After all aligning work
- After cleaning and servicing
- After maintenance and repair

If a protective device is not fully operative, or another defect is detected on the machine, interrupt the hydraulic and air supply to the machine immediately and open the drain valve. The machine may be restarted only if perfect operation is restored.

Alignment, servicing, maintenance and repair of the machine

Alignment when changing production as well as servicing and cleaning may be carried out by trained operating personnel only.

Maintenance and repair may be carried out by trained and qualified personnel only.

Before starting work, the hydraulic supply and air supply of the machine must be shut off. Make sure that the machine is absolutely free from pressure. For this, hold the drain hose into an open container and open the drain valve. In any case, the function of all protective devices as well as perfect function of the machine must be checked after completion of the work.



## Handling of auxiliary materials

When handling the materials to be worked, solvents, oils, greases and other chemical substances comply with the safety and dosing instructions of the manufacturer and the generally applicable prescriptions.

Remains of solvents, oils, greases and other chemical substances must be collected according to the legal prescriptions for recycling and waste disposal.

The local official laws for the protection of waste water must be observed.

Interrupt the complete power supply of the machine, even for short transport routes.

Before transportation empty the machine.

Pay attention when loading; with our without hoisting device.

- When loading the machine with hoisting devices pay attention to sufficient load capacity.
- Never stay under oscillating loads or in the loading area due to exposing your life to danger!
- Only use suitable transportation vehicles with sufficient load capacity.
- Secure the load on the transportation vehicle against slipping and falling down.
- Parts or equipment dismounted for transportation purposes must be properly remounted to application by a specialist before start-up.

## C Starting Operations

You wish to erect the machine at the site and prepare it for operation.

### Prerequisite

The material to be worked is prepared.

All materials to be pumped should be marked with information on viscosity, processing temperatures, mixing proportions etc. If this is not the case please acquire this data from the relevant manufacturer.

*IST* offers a wide selection of accessories for the optimum processing of coating materials, e.g.:

- Follower Plates
- Follower Cover
- Ram Systems
- Lifts
- Air Maintenance Units or Pressure Regulators
- Non Return Valves
- Material Pressure Regulators
- Material Hoses
- Extrusion Guns

and a lot more useful things, please contact us.



## Procedure

The machine is to be set up securely on a level and solid surface. All operating elements must be easily accessible. In order that the necessary volume of compressed air is guaranteed, the compressor capacity must comply with the amount of air needed by the machine and the diameter of the supply hoses must correspond to the joints. Information on the air consumption can be found on the machine card.

Extrusion pumps can be integrated in plants inside or outside of production rooms. Depending on the pump version supplied, certain accessories may have been unscrewed and packed in a separate box.

Please add these parts in accordance with the technical description of the machine.

When using accessories observe and adhere to the respective operating instructions. Extrusion pumps are operating at high pressures.

- Check all parts that can be turned, nuts, screws and hose couplings and tighten them to avoid material from passing through these connections and causing injuries.
- Check the permissible maximum pressure for the material hose and extrusion gun. It must be greater than or equal to the maximum operational pressure for the system, which is shown on the nameplate on the extrusion pump or on the machine card.
- Compare the maximum operating pressure of the safety valve with the information on the machine card or the nameplate. **The information must correspond.**
- Prepare the plant where the extrusion pump shall be integrated. *IST* offers various rams and lifts for application with the extrusion pump. Follower plates or covers can be attached to each device. Observe and adhere to the corresponding operating instructions of these devices.
- Install the extrusion pump into the existing plant.
- Connect the extrusion pump to the air supply. Take care, that the compressed air supply is interrupted, e.g. by an air stop valve. An air maintenance unit or a compressed air regulator can be connected directly to the ram.
- Connect a material hose or line to the material outlet of the extrusion pump.
- Now fill up the wet cup to the half with lubricating liquid. This liquid is used for lubricating the piston and to avoid wear and hardening of the upper packing. **It is recommended to use *IST Wet Lub*.**
- Fill in pneumatic oil D-32 (SAE 10) or *IST anti icing agent* respectively in the oil cup (Lubricator) of the maintenance unit (if available) and set it up accordingly as described.

## Result

Now the machine is ready for operation. You can proceed with first cleaning.

### Start Up - First Cleaning And Operating

This machine was factory tested, after assembly, for perfect functioning with a test medium. However, the extrusion pump and / or the entire system should first be flushed (Wash Thinner) before spray operation begins so that the material to be sprayed is not affected by the test medium.





## Prerequisite

### You will need:

- 1 open pail or container filled up with the material to be worked.
- 1 empty open pail to hold the rest of material which is still in the extrusion pump from cleaning.
- The extrusion pump is properly installed in the plant, all material – hydraulic and air connectors are correctly fastened.

## Procedure

- Air operated pump is shut off.
- Move up the extrusion pump with the two post ram (pneumatic driven) and put the pail (without cover) below the follower plate in position. Pay attention to the safety notes concerning this operation. Furthermore, observe and adhere to the notes of the operating instructions of the applied rams / lifts.
- Hold the material hose respectively extrusion gun (if mounted) into the empty container.
- Slowly start the pump with the regulator of the equipment.
- The pump starts running. Now pump material into the empty container until clean material is protruding.
- Now shut the line again.
- Open the drain valve for pressure release and let the protruding material flow into the container with the contaminated material.
- Connect the material hose to the device provided for this purpose or to the equipment.
- For restart open the supply line again.  
For that pay attention to the following:
  - Increase of the supply pressure results in
    - higher material outlet pressure
    - higher material flow
  - The maximum operating speed of the extrusion pump amounts to 30 double strokes per minute. (The slower the operating speed the better the results).
  - The required operating pressure is adjusted at the hydraulic pump or air regulator.

## Result

The extrusion pump is ready for operation.

## Interruption of Work

- Interrupt the air supply.
- When using an extrusion gun press the trigger for a short moment for pressure relieve.

## D Cleaning / Change Of Material

You wish to clean the extrusion pump for a longer shutdown or a change of material.

## Prerequisite

The solvent recommended by the material manufacturer is available.



## Procedure

- Interrupt the air supply line.
- Carry out pressure relieve of the extrusion pump.
- Slowly lift the extrusion pump off the material pail.
- Put the extrusion pump into the container filled with solvent.
- Apply the hydraulic supply to the extrusion pump.
- Put the material hose respectively the extrusion gun into the empty waste bin until clean solvent agent protrudes.
- Clean all accessories with the solvent recommended by the material manufacturer. Observe and adhere to the notes mentioned in the respective instructions.

## E Maintenance / Service / Repair

According to the rules for the prevention of accidents „Working With Liquid Jet Systems“ (German VBG 87) the equipment must be checked and overhauled at regular intervals by a qualified specialist.

The equipment must be checked:

- Before the first start up.
- After changes and repairs of equipment parts having effect on safety.
- After an interruption of operating of more than 6 months.
- However at least every 12 months.

For equipment, which has been taken out of operation, the check can be postponed up to the next start up. The results of the check must be recorded in writing and kept until the next check. The checking certificate or a copy of it must be available at the place where the equipment is used.

Before each start up check the level of the lubricating liquid and, if necessary, refill lubricating liquid in the wet cup of the pump and oil in the air line maintenance unit.

- Check lubricant once every 50 operating hours for discoloration with spraying material.
- If light discoloration, turn the wet cup a little to the right to clamp the packing.

## Disturbances During Operation And Trouble – Shooting

Disturbance	Possible Cause	Trouble - Shooting
A.Extrusion pump does not start despite having triggered extrusion gun or opened material outlet.	1. Air stop valve is closed.	1. Open the air stop valve.
	2. Material outlet is clogged.	2. Clean the material outlet.
	3. Defective air motor	3. Repair the air motor. Replace the air motor. This work has to be done by trained personnel only. (See Parts List).
B.Extrusion pump is working regularly, however the required pressure is not reached.	1. Air pressure too low.	1. 1.Increase the air pressure 2.Check the air lines for correct cross sections
	2. Material outlet oversized.	2. Reduce material outlet bore
	3. Nozzle tip diameter to large.	3. Insert a smaller nozzle
C. Extrusion pump is working irregularly, does not reach the required pressure, does not stop even with closed extrusion gun or closed material outlet.	1. Viscosity of the material to be worked is too high.	1. Increase the operating pressure of the ram. Use an other, higher pressurising extrusion pump Eventually heat the material to be worked
	2. Leaky valves and packings	2. Replace wear parts.



## Description of Maintenance Unit

Filter / Regulator / Lubricator / Gauge

SA10009 – SA10815

GS03.09A

This IST Maintenance Unit was designed for all common pneumatic equipment to provide clean, dry and filtered compressed air. The regulator is for controlling pressure and the working speed of the equipment.

This FRL is build up with a solid metal body for daily use under hard industrial conditions.

Control of the compressed air supply at the air maintenance unit:

- Increase of the air supply pressure: Push up the knob and turn clockwise, when the required pressure is shown on the gauge, push the knob down for fixing.
- Decrease of the air pressure: Push up the knob and turn anticlockwise, when the required pressure is shown on the gauge, push the knob down for fixing.

The following is applicable for the lubricator unit only:

- Check the lubricant for the air motor in the bowl of the air lubricator and refill, if required.
- Check the sight glass of the fog oiler if one drop of lubricant is fed into the compressed air at every 10 – 15 double strokes of the air motor. To achieve more or less lubricating the adjusting screw on the fog oiler has to be set accordingly. Please use only Air Lubricating Oil (SAE10) or IST AID Lubricant.

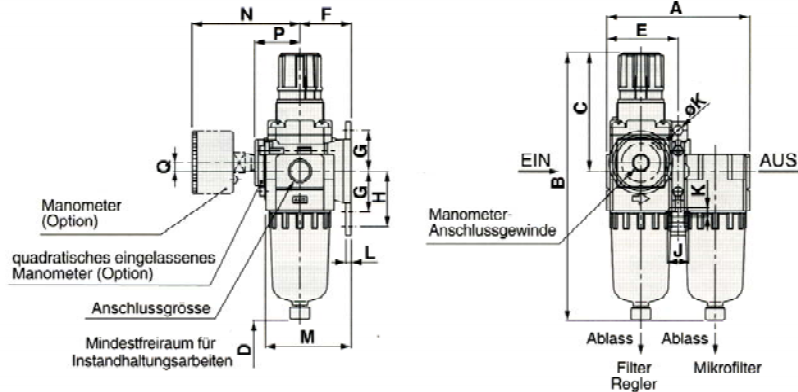
Condensed Water Drain:

- Before each application and in the case of high humidity, any condensed water should be discharged via the drain valve even during operation.

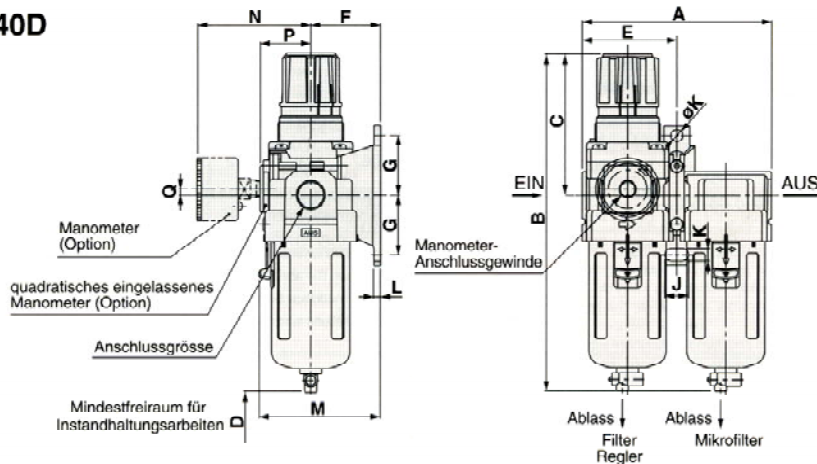


## Dimensions / Description of Components

### SA 10212 AC20D



### SA10009 – SA10564 AC30D, 40D



Verwendbares Modell	AC20D			AC30D, AC40D, AC40D-06			
Optionen	mit autom. Kondensatablass (N.C.)	Metallbehälter	mit autom. Kondensatablass (N.O./N.C.)	Metallbehälter	Metallbehälter mit Niveau-Anzeige	mit Ablass ohne Ventilfunktion	Ablasshahn mit Schlauchfülle
	M5		N.O.: Schwarz N.C.: Grau ø10-Steck- verbindung			Schlüsselweite 1/4	Schlauchfülle Verwendbarer Schlauch: T0604

Modell	Anschlussgröße	Standardausführung													Zubehör			
		A	B	C	D	Größe Befestigungselement										mit Manometer		
					E	F	G	H	J	K	øK	L	M	N	P	Q	B	
AC20D	1/8, 1/4	83	160	73	45	41.5	30	24	33	12	5.5	5.5	3.2	50	63	27	5	177
AC30D	1/4, 3/8	110	201	86	55	55	41	35	—	14	7	7	4	71	66	30.5	3.5	242
AC40D	1/4, 3/8, 1/2	145	239	92	80	72.5	50	40	—	18	9	9	4	88	76	38.5	1.5	278
AC40D-06	3/4	155	242	93	80	77.5	50	40	—	18	9	9	4.6	88	76	38.5	1.2	278

Modell	Optionen Anm. 1)			
	mit Schlauchfülle	mit Ablass ohne Ventilfunktion	Metallbehälter	Metallbehälter mit Niveau-Anzeige
	B	B	B	B
AC20D	—	—	160	—
AC30D	209	208	214	234
AC40D	247	246	251	272
AC40D-06	250	249	255	275

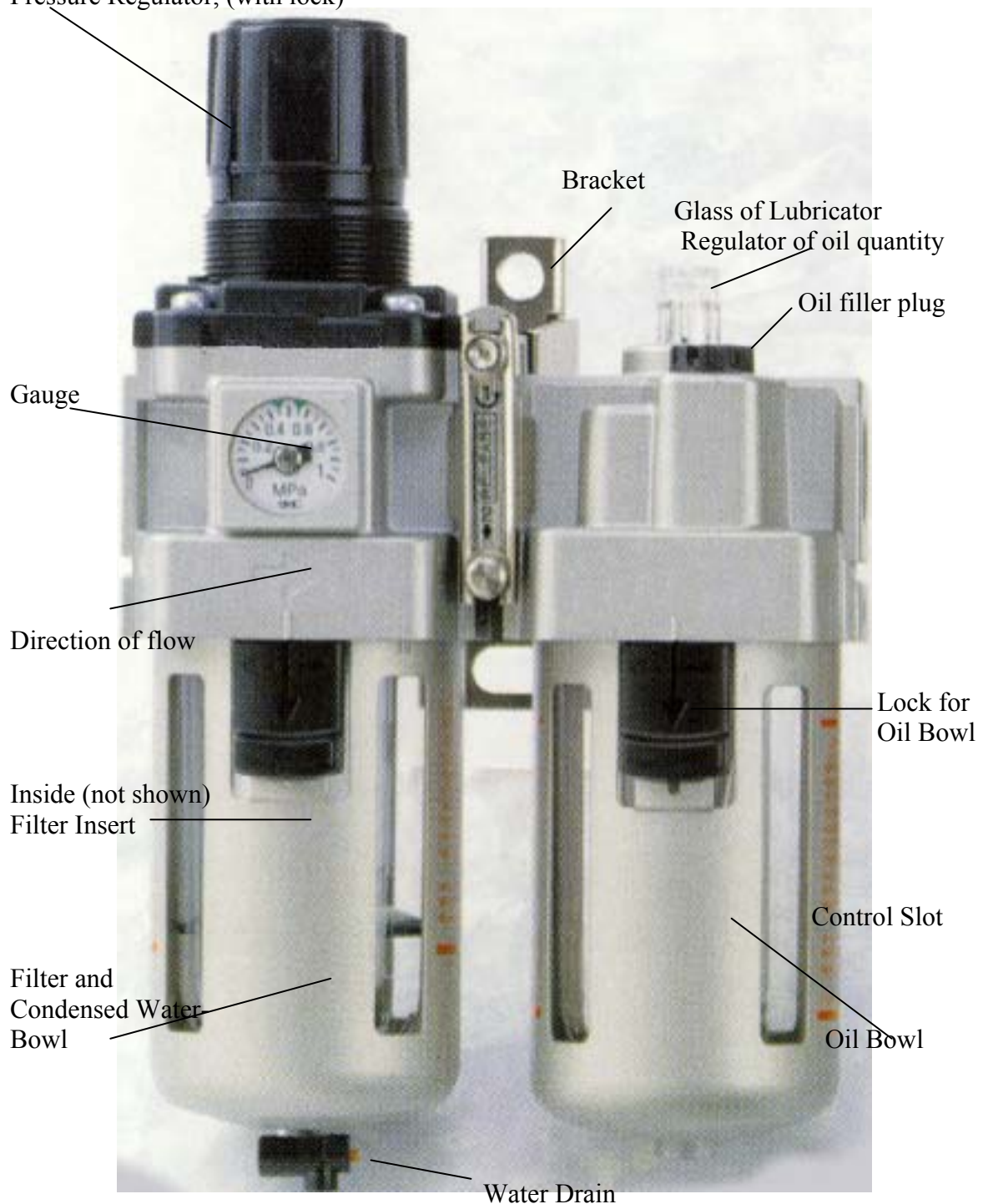


Anm. 1) Bei den Optionen (mit Schlauchfülle, mit Ablass ohne Ventilfunktion, mit Metallbehälter oder mit Niveau-Anzeige) variiert die Gesamtlänge (Abmessung für B).



# Pumpen und Dosiertechnik

Pressure Regulator, (with lock)

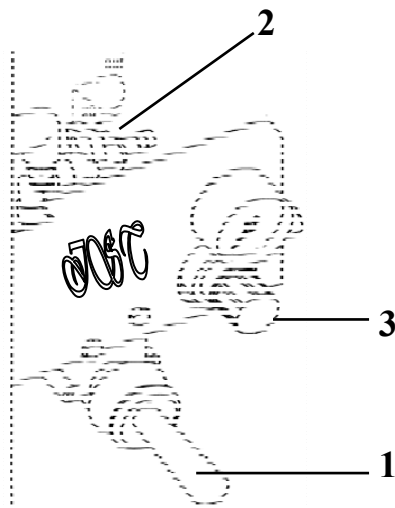


Spare Parts: 29850 Gauge, 0-10 bar, 1/8"(M)

Filter Insert: 111585A Filter Insert

For further information look at the technical data sheets in the annexure.





## Air Control Panel for 2 – Post Ram

1. Control Valve Lever, 3 Steps (DOWN–STOP–UP)
2. Ball Valve (Follower Plate Venting Valve)
3. Air Pressure Regulator (adjust at 2,0 bar)

### Operation

- Check if all accessories are correctly connected.
- Set the compressed air control panel on 2 bar.
- Set the lever on „UP“.
- The extrusion pump becomes slowly lifted up.
- Place the material container / barrel on the base of the two post ram press.
- Set the lever on „DOWN“. (This is the normal working position for emptying the barrel).
- The extrusion pump is slowly lowered. Pay attention that the container is placed centred in such a way, that the follower plate can move into it.
- Screw the locking toggle off the follower plate to let the air escape.
- Screw the locking toggle back into the follower plate as soon as the material protrudes.
- Set the pressure at the requested operating pressure at the compressed air control panel.

### Note:

Switch off the air supply when interrupting or stopping operation.

### Exchange of the Container:

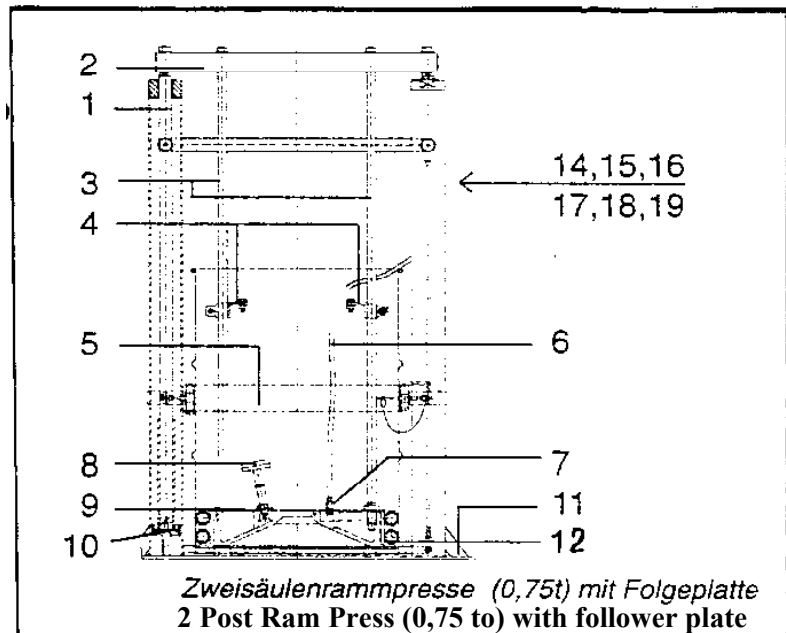
- Open the ball valve.
- Set the compressed air on 2 bar at the compressed air control panel.
- Set the lever (Item 1) on „UP“. The extrusion pump becomes lifted.
- Press the container down by hand. If the follower plate is lifted off the container, you can put the empty one away and place a new one.





## 2 – Post Ram System

### Details of Components



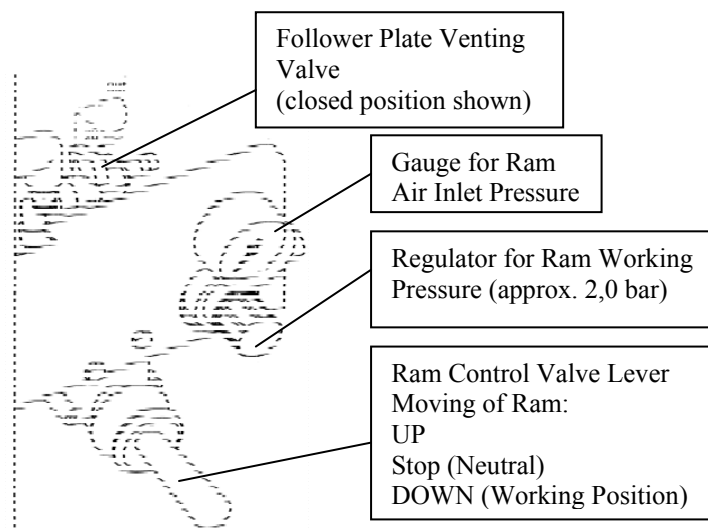
### Description of Components / Elements:

- |  |   |
|--|---|
| 1. Cylinder (pneumatic)                  | 11. Base Plate                              |
| 2. Horizontal Bracket                    | 12. Wiper Seal                              |
| 3. Vertical Support Rod                  | 13. Drum Cover (Option)                     |
| 4. Bracket for Pump mounting             | 14. Air Control Valve, 3 - Way              |
| 5. Drum Lock Ring (Option)               | 15. Gauge                                   |
| 6. Air Hose (Venting for Follower Plate) | 16. Air Control Valve (Ram)                 |
| 7. Air Hose barb                         | 17. Air Inlet (Ram)                         |
| 8. Vent Plug                             | 18. Ball Valve (for Venting Follower Plate) |
| 9. Follower Plate                        | 19. Air Exhaust Muffler                     |
| 10. Piston (Air Cylinder)                |   |

### Details of Ram Control

For Attention:

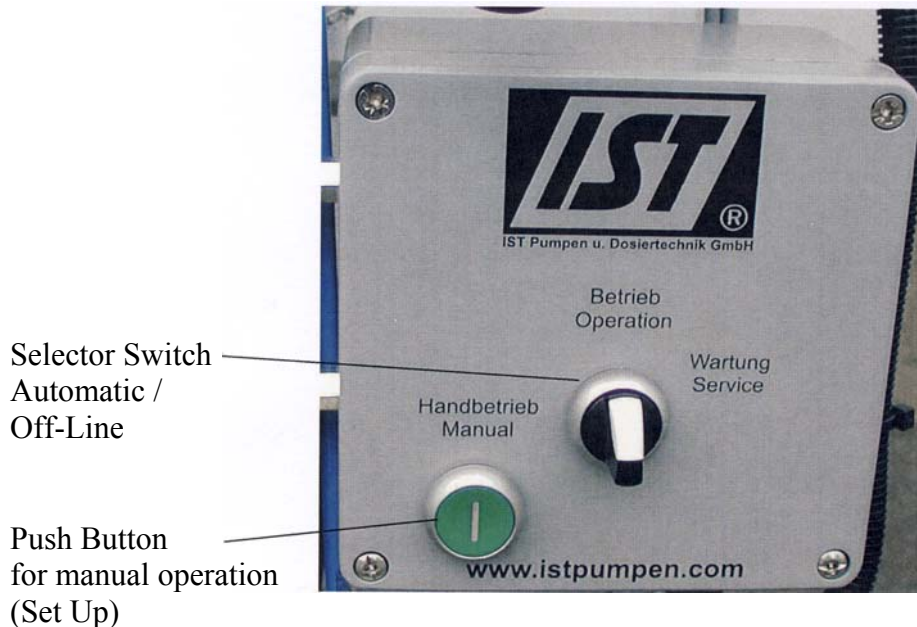
Working position of the ram air control valve (14) is „DOWN“ only in this position the air pressure moves the cylinders down to press the material into the pump.







## Design and Function of Junction Box for Pump Control (OPTION)



**Centre Position of Selector Switch:** “Operation”, that means external control of pump from centre control unit or control board. This is the standard operating condition.

**Right Position of Selector Switch:** Maintenance / Service, that means, external control of pump is “Off – Line”. This position of the selector switch is required for the exchange of the barrel, exchange or repair of the pump. The pump is switched off and unable to start, although as a reason of safety the air supply should be interrupted.

**Push Button for manual operation:** by pressing and holding the button the pump is working in continuous operation. This function is required for filling up the supply tubing, or after exchange of barrels for air release in the enclosed system. After release of the switch and when the selector switch is in centre position the pump turns back to automatic operation.



## User's Manual Air Operated Piston Pump KHP540134-C Ratio 54 : 1

Read all safety advises before installing, operating or servicing this equipment.

The management in charge of the operation of the machine must make the user's manual available to the operator and must make sure, that the operator has read and understood it.

### Technical Data

#### Performance:

Working Pressure (max. – bar):	432
Ratio:	54:1
Air Supply Pressure (max. – bar):	8
Delivery / Double Stroke (Cycle) in cm <sup>3</sup> :	134

#### Air Motor

Model:	820/120
Piston Diameter (mm):	8"
Stroke (mm):	120

#### Service – and Repair Kits:

- \* Seal Kit Order – No.: 730977
- Repair Kit Order – No.: 731185  
(seal kit is including in repair kit 731185)

#### Lower Pump End:

Model:	EX 134/120 C
Material of Packing:	SDM (UHMW-PE)
Material of Pump housing:	Carbon Steel

#### Service and Repair Kits:

- \* Seal Kit Order – No.: 732835-XXX (XXX = please add the required material code)
- Repair Kit Order – No.: 732836-XXX

We recommend to order the **Full Size Kit 732837-XXX**, in this Kit are both, Seal – Kit 732835 and Repair – Kit 732836 including.

Please add to the Order-No. the required material of the packing, for example PTFE (Teflon), SDM (Ultra High Molecular Weighted – Polyethylene) or HDP (Industrial Ceramic)

Please look for further information in the exploded diagrams and spare parts lists attached.  
If there are any questions, please do not hesitate to contact us at by phone +1 562-989-5432

## Recommendation for preventive maintenance and storage of smart parts

The daily use of IST Grease Ram Systems and the material to be pumped are very different at every working place.

Especially the technical, chemical and physical influence of the material, the viscosity, conduction under pressure, gliding quality and so on, will allow no periodical recommendation for maintenance.

Based on long experiences with the grease ram systems, the operator has to check by his own before every use:

Check the pump, ram, hoses, connectors and air lines (hoses) for wear and defective parts. Check the air filter (FRL) and release condensed water through the drain valve. In case of high humidity even during operation.

Check and fill up the lubricant in the bowl of the pneumatic lubricator.

Check and fill up (only to half) the packing fluid in the wet cup of the lower pump end.

At every exchange of the container or drum check the follower plate seal for tear and wear or other damages. Normally the follower seal is totally enclosed, sealing the material in the system from air and moisture, preventing premature cure – out of the material. This allows for either continuous or intermittent use of the system and reduces the need for daily system clean – up.

### Approximate every 50 hours of use:

Check and control function of the electric switches (Option) for stroke counter and stop switch (empty barrel).

Check the air inlet pressure and the fluid outlet pressure at the gauges and increase / decrease the air pressure if necessary. Operate the pump only with the required pressure, this is the best use for lowest wear.

Check the packing fluid in the wet cup. If there is pumping material in it, release the pressure of the pump and turn the wet cup clockwise. On this way the packing gets tighter and seals again. The packing fluid is for good lubrication and guarantees longer maintenance turns and it keeps off dust and moisture from the seals for a longer life.

Following are recommendation for Service – and Repair Kits and Smart Parts that the operator should have on hand for the quick maintenance to reduce down - time.

Pos.	Item No.	Description	Quantity
01	731185	Service Kit (including Seal Kit) for Air Motor 820 / 120	1 x
02	732837-XXX	Service Kit (Seal-and Repair Kit) Lower Pump End EX134/120-C	1 x
03	933580	Seal Kit for 2 Post Ram Press	1 x
04	580602	Wiper Seal for follower Plate (1Pair of)	1 x
05	IST WLP	“Wet – Lub Plus” Packing Lubrication (0,5 Liter)	1 x

Please look for further information in the exploded diagrams and spare parts lists attached. If there are any questions, don't hesitate to contact IST USA - Heger Pumps, Inc. at +1 562-989-5432 or email at [info@hegerpumps.com](mailto:info@hegerpumps.com) Germany.

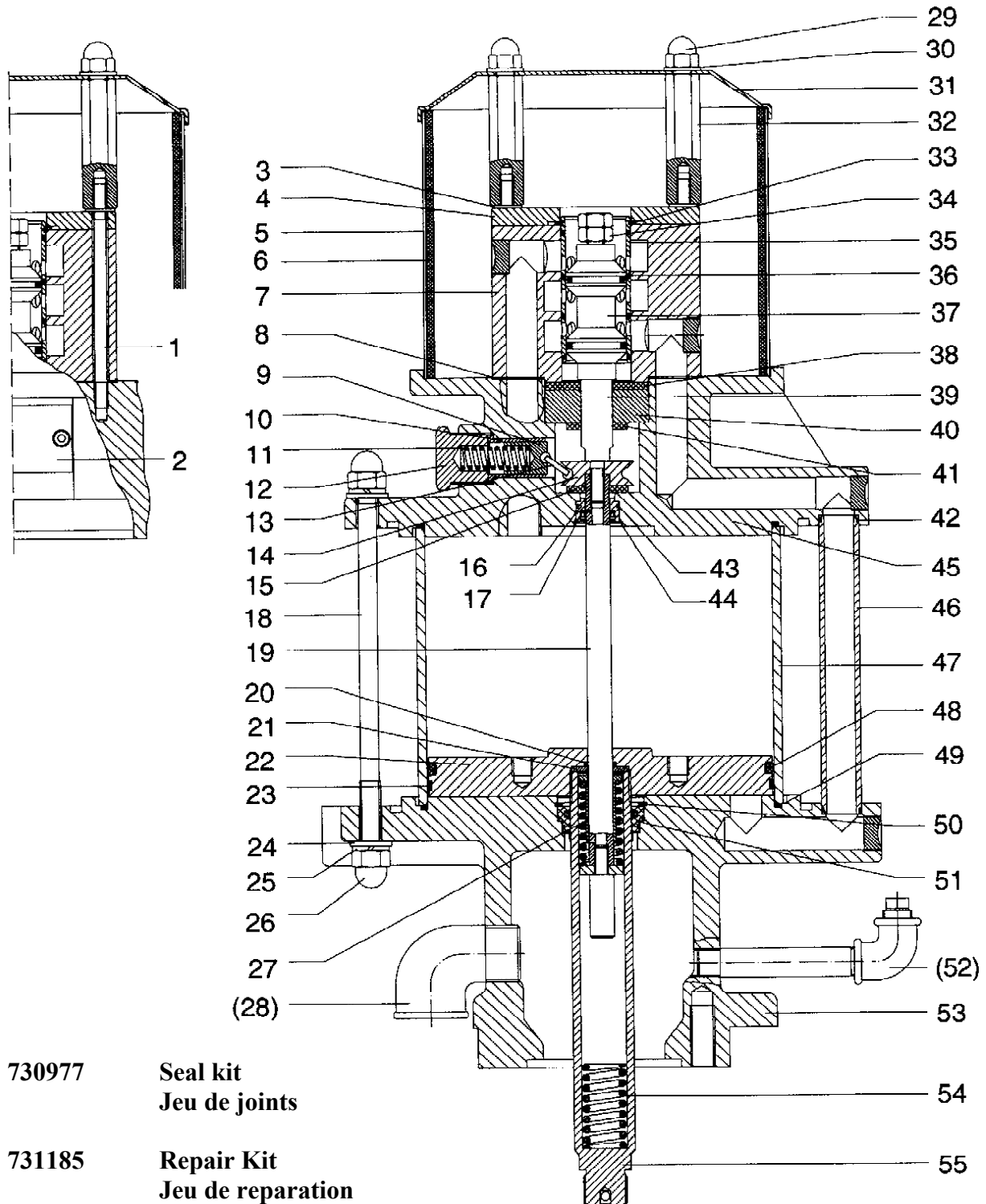


Air Motor 820/120

Order – No.: 731024

Exploded Diagram and Partslist

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- 730977 Seal kit  
Jeu de joints
- 731185 Repair Kit  
Jeu de reparation





Air Motor 820/120

Order – No.: 731024

Exploded Diagram and Partslist

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Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
01	557551	Stehbolzen	Threaded Stud	4
02	255547	Platte	Plate	1
03	552134	U - Scheibe	Washer	4
04	565430	Deckel, kompl.	Cover, ass'y	1
05	730972	Lochblech	Metal Housing	1
06	730973	Dämmring	Muffler	1
07	553831	Steuergehäuse, kompl.	Control Housing, ass'y	1
08* °	557594	Dichtung	Gasket	1
09"	312707	Schnäpperlager	Toggle Bearing	2
10	312699	Lagerbuchse	Bush	2
11"	507074	Druckfeder	Spring	2
12	312680	Halteschraube	Retaining Screw	2
13"	255733	Schnäpper	Toggle	2
14" °	312672	Mitnehmer	Carrier	1
15" °	558795	Dämpfungsscheibe	Dampener	1
16	581728	Führungsbuchse	Guide Bush	1
17" ° *	403023	Nutring	U - Seal	1
18	553696	Stehbolzen	Threaded Stud	6
19"	730979	Umsteuerachse, kompl.	Guide Axle ass'y	1
20" ° *	403155	O - Ring	O - Ring	1
21"	313288	Scheibe	Spacer	1
22	730968	Kolbenplatte	Piston Plate	1
23" ° *	569112	Führungsbuchse	Guide Bush	1
24	553011	U - Scheibe	Washer	12
25	552851	Federring	Wave Washer	12
26	555715	Hutmutter	Dome Nut	10
	555707	Ringmutter (ohne Abb.)	Ring Nut (not shown)	2
27	313334	Anschlagbuchse	Bump Stop	1
29	552169	Hutmutter	Dome Nut	4
30	552533	U - Scheibe	Washer	4
31	731121	Deckel	Cover	1
32	731122	Gewindestück	Intermediate Tube	4
33°	557602	Sicherungsring	Retaining Ring	1
34°	552568	Mutter	Nut	2
35	553801	Steuerzylinder	Control Cylinder	1
36° *	403109	O - Ring	O - Ring	4
37" °	557624	Steuerkolben, komplett	Control Piston ass'y	1
38°	730748	Dämpfungsscheibe	Dampening Spacer	1
39	557610	Steuerachse	Control Axle	1
40	730361	Führungsscheibe	Guide Ring	1



**Air Motor 820/120**

**Order – No.: 731024**

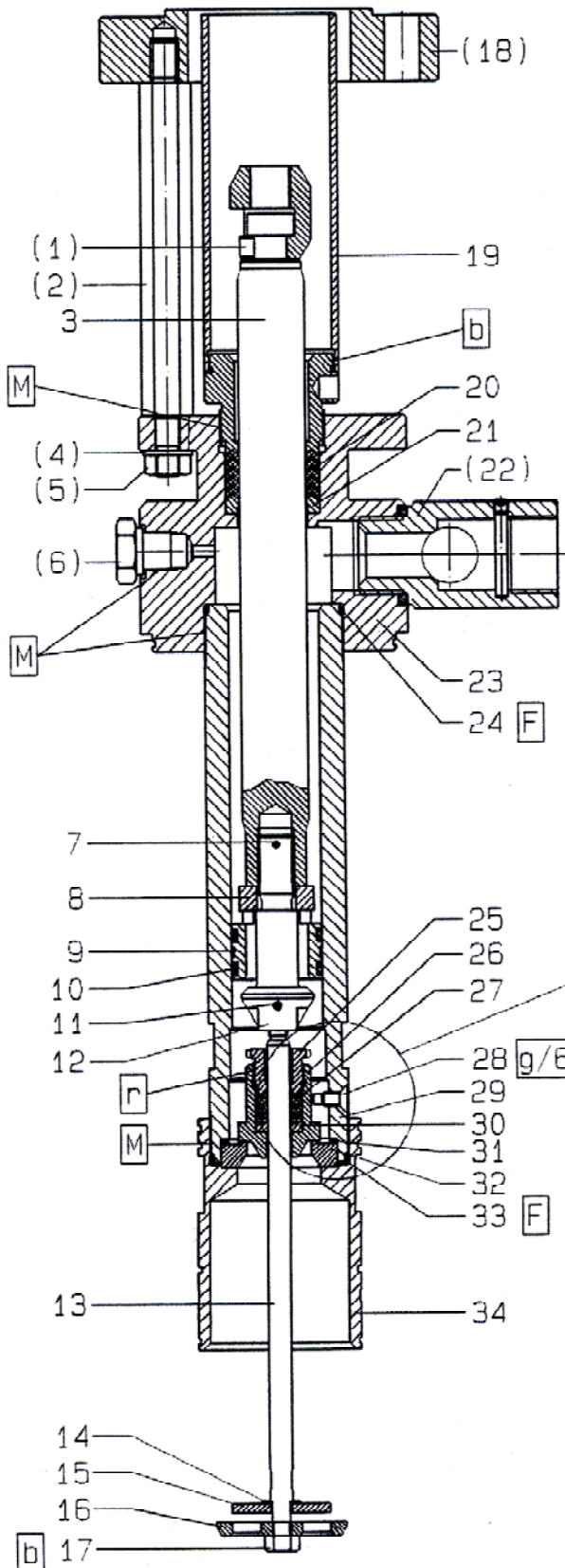
**Exploded Diagram and Partslist**

**Page 3 / 3** Released: IST/GS09.05A

Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
41" °	507198	Dämpfungsscheibe	Dampening Spacer	1
42° *	402102	O - Ring	O - Ring	4
43° *	402102	O - Ring	O - Ring	1
44°	553216	Sicherungsring	Retaining Ring	1
45	730358	Oberteil, kompl.	Cylinder head, ass'y	1
46	730360	Belüftungsrohr	Air Inlet Pipe	2
47"	730967	Zylinder	Air Cylinder	1
48" ° *	403333	O - Ring	O - Ring	1
49° *	403341	O - Ring	O - Ring	2
50°	553157	Sicherungsring	Retaining Ring	1
51" ° *	570615	Führungsbuchse	Guide Bush	1
(52)	255555	Einfüllstutzen	Filler Neck (Elbow)	1
53	730359	Unterteil, komplett	Base, ass'y	1
54°	507090	Druckfeder	Spring	2
55"	730753	Motorachse	Motor Axle	1

**730977**      **Seal kit**  
**Jeu de joints**

**731185**      **Repair Kit**  
**Jeu de reparation**

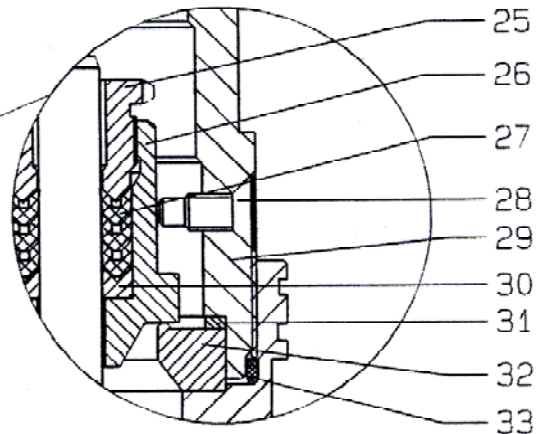


**732835 Dichtungssatz**  
**Seal Kit**  
**Jeu de joints**

**732836 Reparatursatz**  
**Repair Kit**  
**Jeu de reparation**

recommended:

**732837 Full Service Kit**  
 including both, 732835 Seal Kit  
 and 732836 Repair Kit

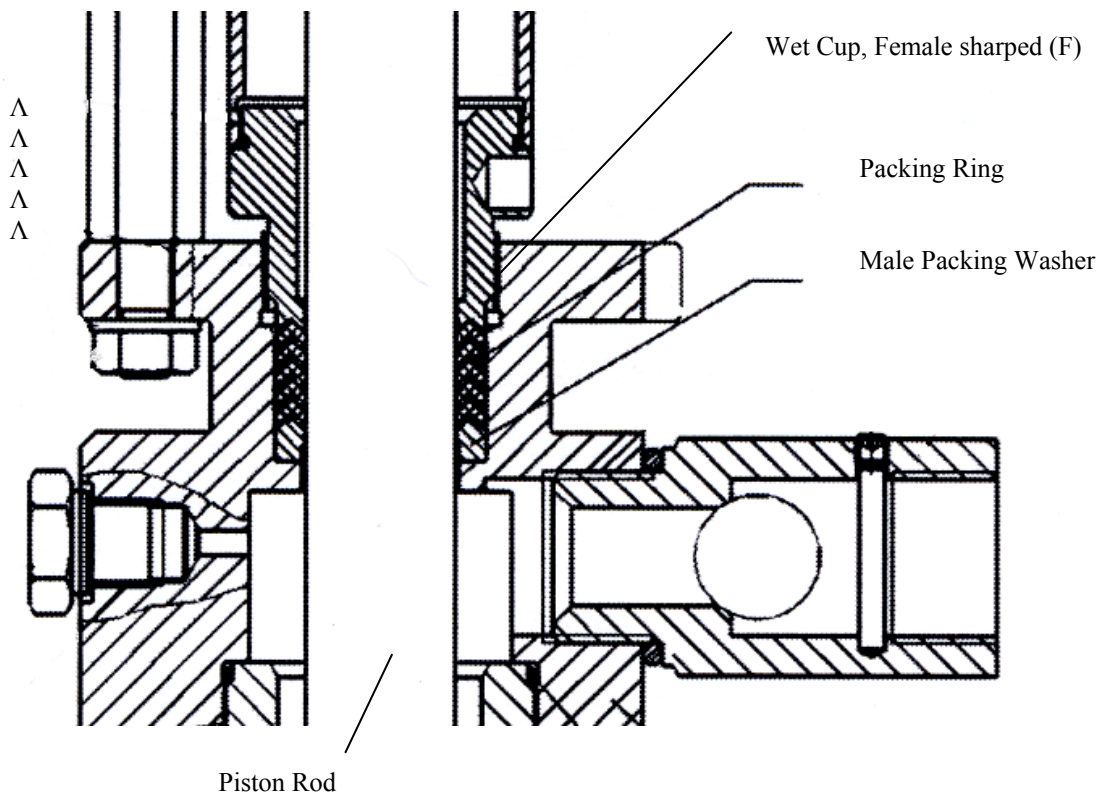


**Sicherungsmittel / Thread Sealant**  
 b mittel / medium  
 g hochfest / high-streng  
 r schwach / light

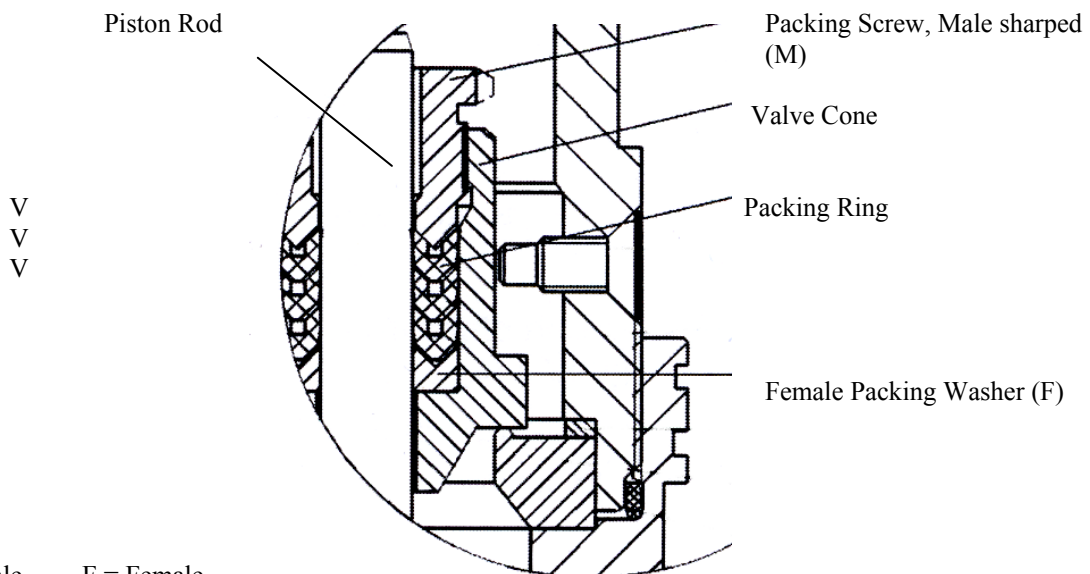
**Montagemittel / Machinery materials**  
 F Fett, säurefrei / acid free grease  
 M Montagepaste / assembly paste



## Mounting of Upper Packing Seals



## Mounting of Lower Packing Seals



M = Male, F = Female

We recommend to order the **Full Size Kit 732837-XXX**, in this Kit are both, Seal – Kit 732835 and Repair – Kit 732836 included.

Please add to the Order-No. the required material of the packing, for example PTFE (Teflon), SDM (Ultra High Molecular Weighted – Polyethylene) or HDP (Industrial Ceramic) Please look for further information in the exploded diagrams and spare parts lists attached.



Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
(01)	732700	Kupplung (EX 134/15, 134/27)	Coupling (EX134/15, 134/27)	1
	732701	Kupplung (EX 134/54, 134/73)	Coupling (EX134/54, 134/73)	1
(02)	732703	Abstandsbolzen (EX134/15, 134/27)	Spacer Rod (EX134/15, 134/27)	4
	732704	Abstandsbolzen (EX134/54, 134/73)	Spacer Rod (EX134/54, 134/73)	4
03 "	732629	Kolbenstange	Piston Rod	1
(04)	552533	Unterlegscheibe	Washer	4
(05)	732568	Mutter	Nut	4
(06)	731949	Stopfen	Plug	1
<b>07 °</b>	552665	Spannhülse	Tension Pin	1
08	569886	Scheibe	Spacer	1
09 "	732626	Kolben	Piston	1
<b>10 *</b>	732636	Dichtring	Gasket	2
<b>11 °</b>	552770	Spannhülse	Tension Pin	1
12	732622	Ventilschraube	Valve Screw	1
13	732609	Stange	Rod	1
14	570645	Scheibe	Spacer	1
15	569894	Scheibe	Spacer	1
16	569827	Ventilscheibe	Valve Spacer	1
17	552112	Mutter	Nut	1
(18)	732708	Zwischenring (EX 134/54, 134/73)	Intermediate Ring (EX 134/54, 134/73)	1
19	732670	Nachstell - und Schmiertasse	Packing - and Wet Cup	1
<b>20 °</b>	722777	Packung, PTFE	Packing, PTFE	5
<b>21 °</b>	735892	Stützring (M)	Male Packing Washer	1
(22)	580667-1	Rückschlagventil	Non Return Valve	1
23	734377	Hochdruckkopf	Pump Body	1
<b>24 *</b>	309825	Dichtring	Gasket	1
25	569902	Stopfbuchschraube	Packing Screw	1
26"	732611	Ventilkegel	Valve Cone	1
<b>27 °</b>	569944	Packung, PTFE	Packing, PTFE	3
28	732624	Druckzylinder	Pressure Cylinder	1
29	721951	Schraube	Screw	3
<b>30 °</b>	570011	Sattelring (Stützring, F)	Female Packing Washer	1
<b>31 *</b>	721952	Dichtung	Gasket	1
32 "	569910	Ventilsitz	Valve Seat	1
<b>33 *</b>	309825	Dichtring	Gasket	1
34	731796	Füllrohr	Supply Cylinder	1

\* Parts of Seal Kit

° Parts of Repair Kit

“ Wear Parts

732835-XXX Seal Kit

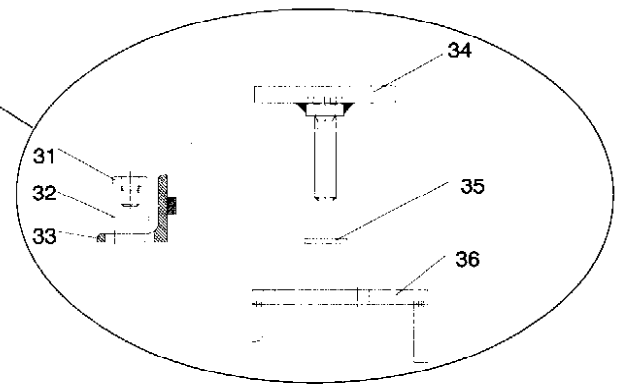
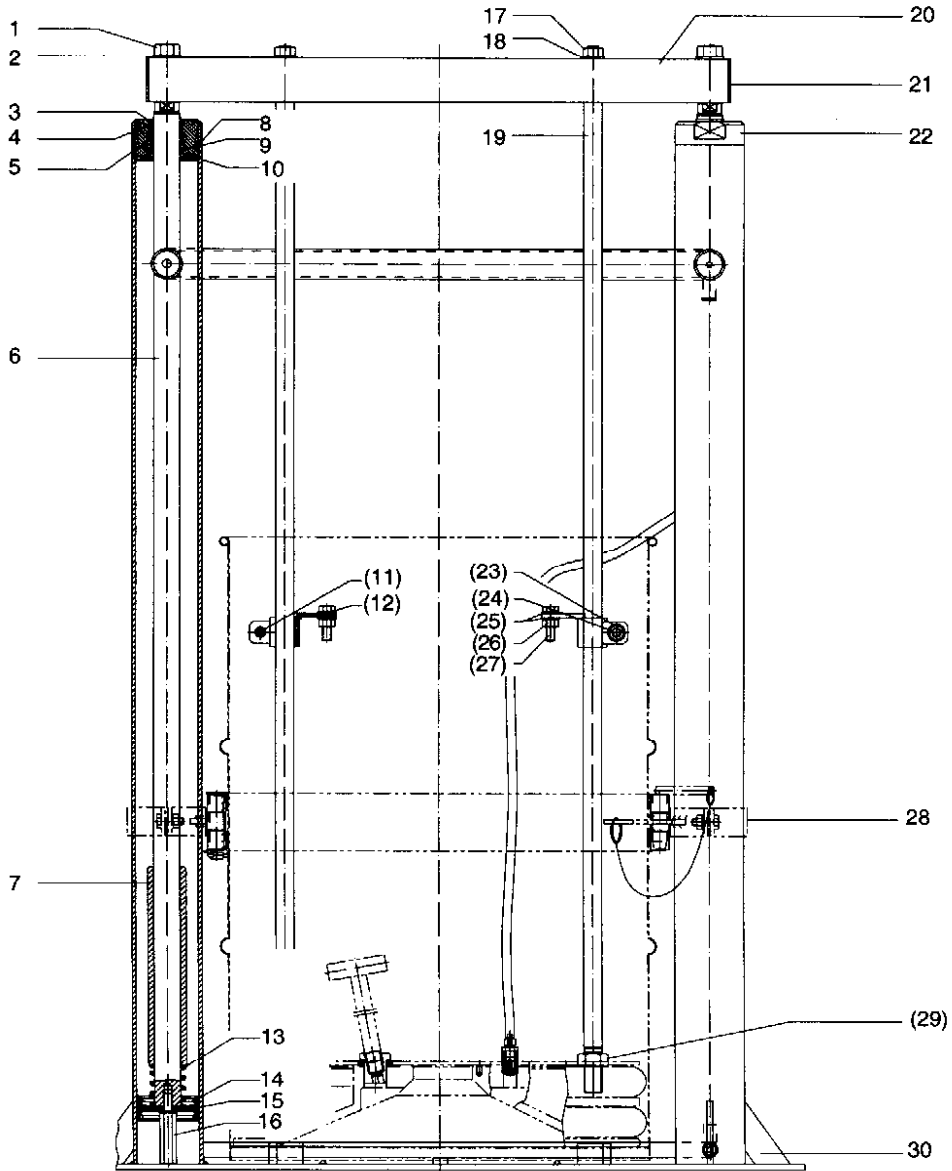
732836-XXX Repair Kit

732837-PTFE Full Service Kit, containing 732835 Seal Kit and 732836 Repair Kit

other kits:

**732837-SDM Full Service Kit with SDM (UHMW-PE) Packing.**
**732837-HDP Full Service Kit with HDP Packing (Industrial Ceramic), staggered with SDM (UHMW-PE) packing.**









## 2 – Post Ram Press 0,75 to Exploded Diagram and Parts List

Order – No.: 733702

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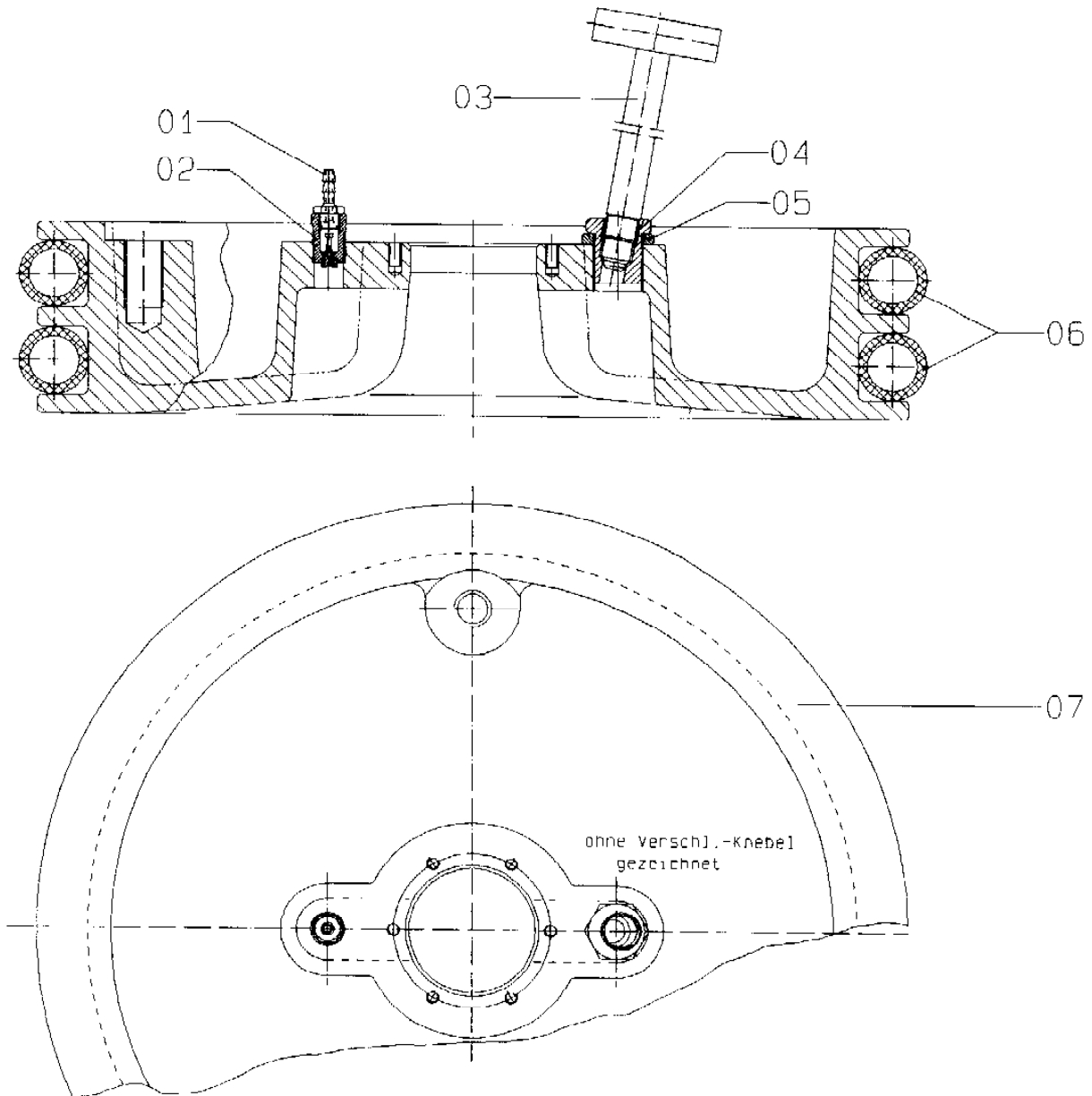
Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
01	553084	Mutter	Nut	2
02	552541	Unterlegscheibe	Washer	2
03	553599	Abstreifer	Stripper	2
04	729927	Segerring	Retaining Ring	2
05	726826	Buchse	Bush	2
06	726824	Kolbenstange	Piston Rod	2
07	726828	Distanzbuchse	Spacer	2
08	574537	O - Ring	O - Ring	2
09 *	578532	Nutring	Lip - Seal	2
10	729927	Segerring	Retaining Ring	2
(11)	554947	Schraube	Screw	2
(12)	563815	Halter	Bracket	2
13	502382	Druckfeder	Spring	2
14 *	726834	Kolben, komplett	Piston, assembly	2
15	553011	Unterlegscheibe	Washer	2
16	726827	Anschlagschraube	Stop Screw	2
17	552886	Mutter	Nut	2
18	552309	Unterlegscheibe	Washer	2
19	726849	Druckstange	Vertical Support Rod	2
20	726853	Traverse	Mounting Arm	1
21	726837	Vierkantstopfen	Square Plug	2
22	726825	Zylinderdeckel	Cylinder Cover	2
(23)	553011	Unterlegscheibe	Washer	4
(24)	552843	Mutter	Nut	2
(25)	553011	Unterlegscheibe	Washer	8
(26)	552843	Mutter	Nut	4
(27)	714657	Schraube	Screw	4
(28)	726869	Faßhaltering	Drum Clamp Bracket	1
29	564884	Mutter	Nut	2
30	726890	Grundrahmen (Pos.31-36)	Frame (Pos. 31-36)	1
31	721874	Schraube	Screw	2
32	552533	Unterlegscheibe	Washer	2
33	721872	Anschlag	Stop	2
34	721709	Knebelschraube	T Handle Screw	2
35	553011	Unterlegscheibe	Washer	2
36	721871	Faßhalter	Drum Bracket	2

731250	Anbausatz, fahrbar	Mounting Kit, mobil	1
933580	Dichtungssatz *	Seal Kit *	1



**Follower Plate, assembly  
for 200 Liter (55 US Gal.) Drums  
Exploded Diaphragm and Parts List**

**Order-No.: 736682**  
Page 1/1 Released: IST/GS 07.04C



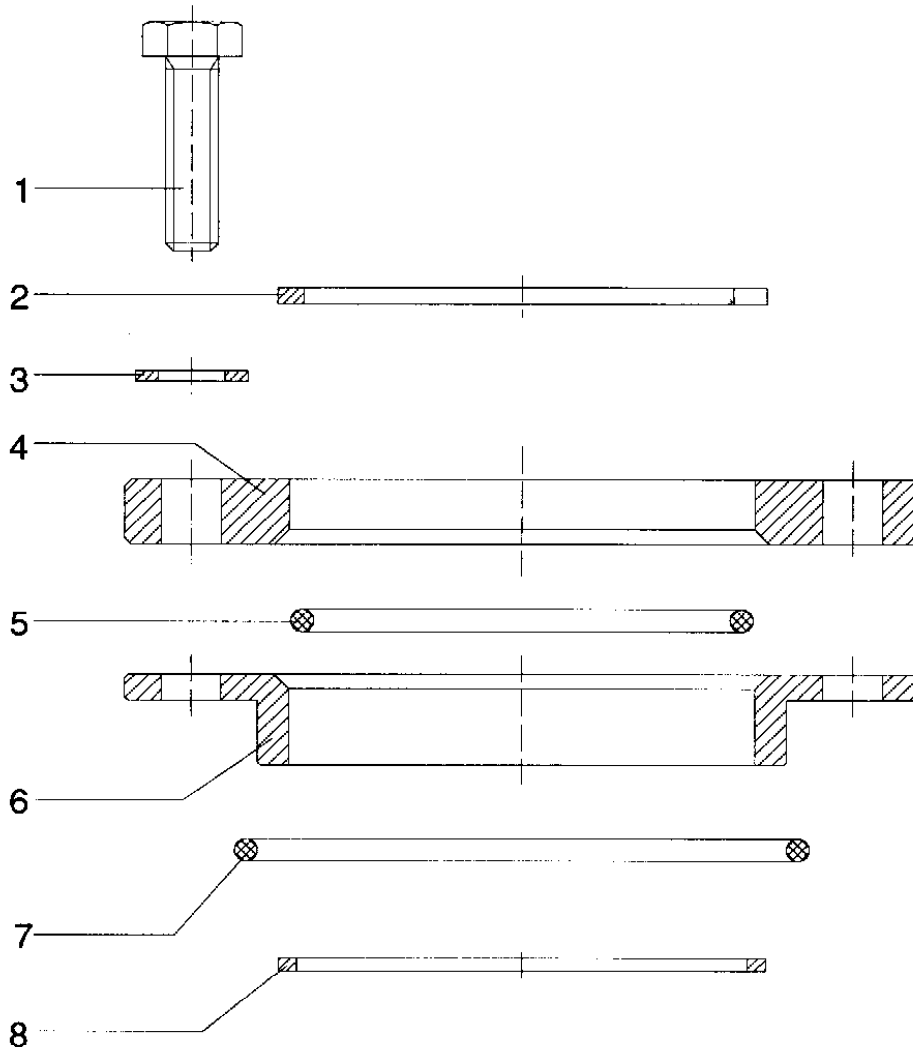
Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
01	554285	Schlauchtülle	Stem (Hose Barb)	1
02	564714	Rückschlagventil, kompl.	Non Return Valve, ass'y	1
03	564760	Entlüftungsknebel	T-Handle	1
04	721577	Gewindebuchse	Threaded Bush	1
05	721578	Mutter	Nut	1
06	580602	Wischring, Paar	Pair of Wiper Seals	2
07	736420	Folgeplatte	Follower Plate	1



## Mounting Kit for Follower Plate Exploded Diagram and Parts List

Order – No.: 574251

Page 1/1 Revised: IST/GS 12.02B



Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
01	552444	Schraube	Screw	6
02	567500	Segerring	Retaining Ring	1
03	552134	Unterlegscheibe	Washer	6
04	569045	Spannplatte	Forcing Plate	1
05	582742	O - Ring	O - Ring	1
06	585040	Adapter	Adapter	1
07	585067	O - Ring	O - Ring	1
08	732602	Sprengring	Spring Ring	1

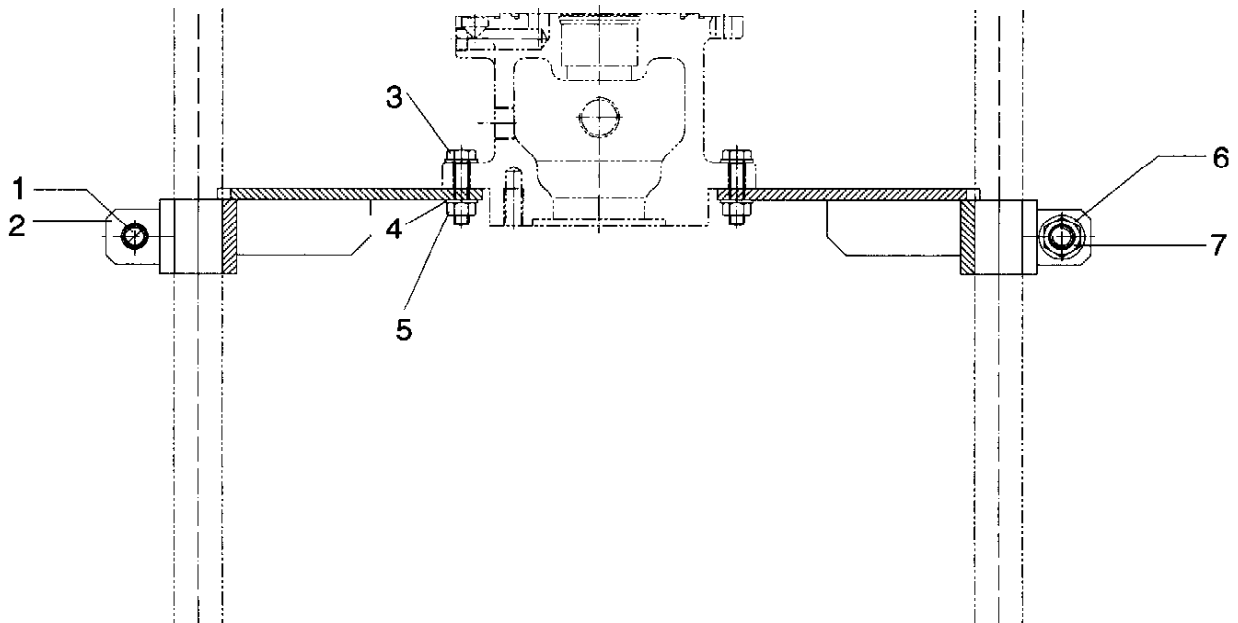


## Bracket for Pump

Order – No.: 732898

### Exploded Diagram and Parts List

Page 1/1 Revised: IST/GS 12.02B



Pos. - Nr. Pos. - No.	Bestell - Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
01	554947	Schraube	Screw	2
02	732897	Klemmhalter	Bracket	2
03	552444	Schraube	Screw	4
04	552134	Unterlegscheibe	Washer	8
05	552112	Mutter	Nut	4
06	553011	Unterlegscheibe	Washer	4
07	552843	Mutter	Nut	2

Sample

## CERTIFICATE OF TRAINING AND OPERATING

This certificate corresponds to the EU guideline for working substances 85/655/EWG, Paragraph II, Article 7.

The owner of the following equipment has trained the operating personnel.

.....  
(Make, Model, Year of Construction, Serial- No.)

The training was conducted by the following designated person:

.....  
(Foreman or responsible Superior, Name, Department)

**The persons trained have read and understood the user’s manual for the above mentioned machine or equipment, especially the chapter Safety, and are certain that they can operate this machine safely.**

.....  
(Operating Personnel, Personnel – No., Date, Name, Signature)

.....  
(Personnel for Maintenance and Repair, Personnel – No., Date, Name, Signature)

.....  
(Personnel for Electric / Electronics, Personnel – No., Date, Name, Signature)

.....  
(Supervisor, responsible Person: Date, Signature)



## User's Manual and Partslist

**IMPORTANT:** Read this manual carefully before installing, operating or servicing this equipment.

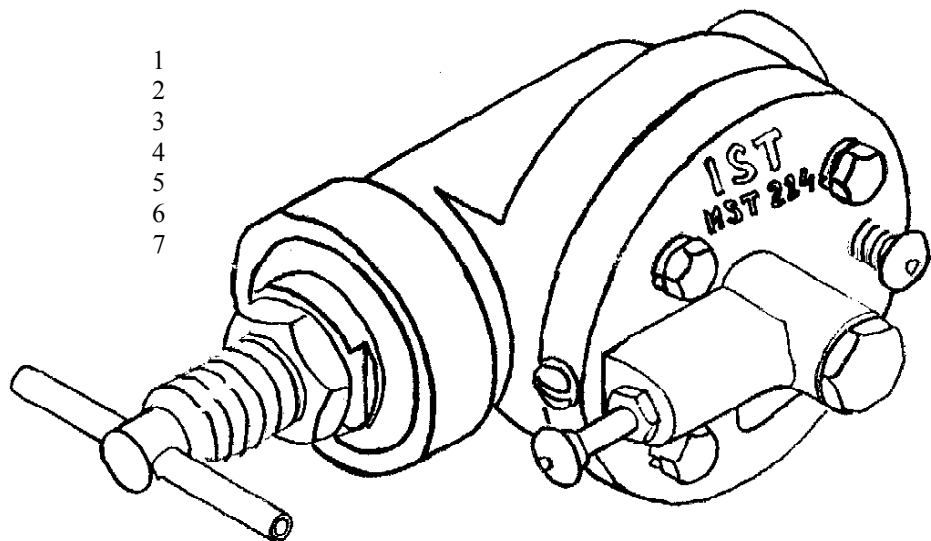
### Safety Stop Valve

MST 224

max. Working Pressure 8,5 bar (120 psi)

#### Table of Contents

Warnings	1
Installation	2
Operation	3
Troubleshooting	4
Service	5
Partslist / Drawings	6
Technical Dat	7



IST GS 02.03 A



Heger Pumps, Inc.  
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info@hegerpumps.com





## 1. Warning

### EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the Safety Stop Valve to rupture or malfunction and result in serious injury.

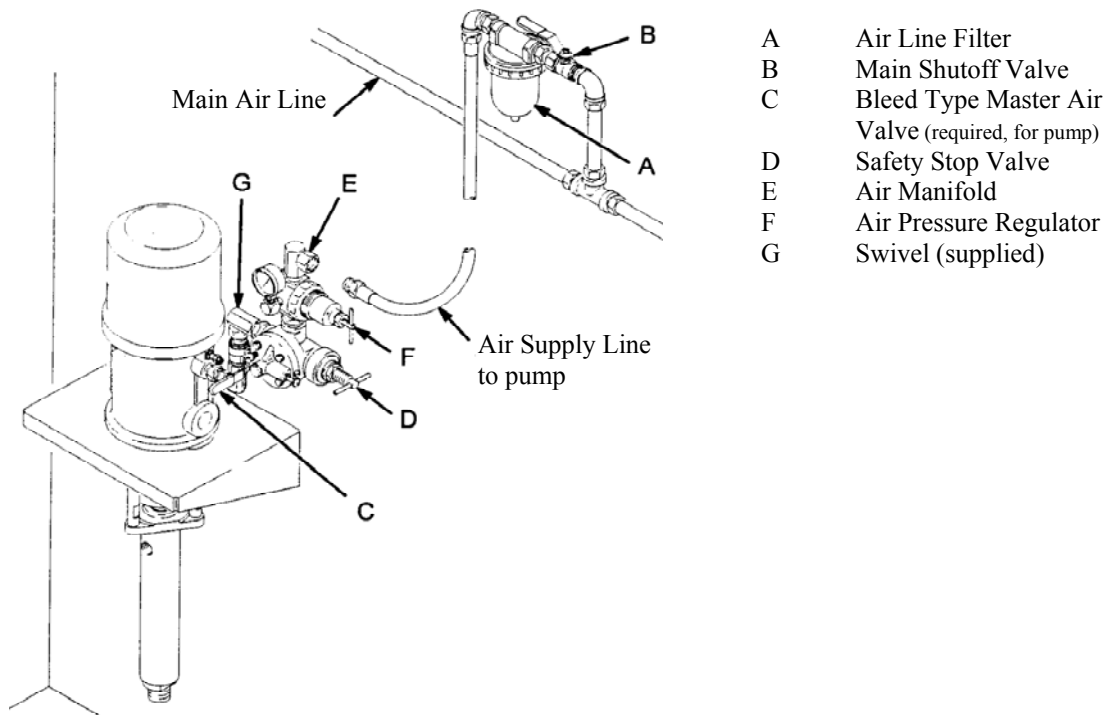
- This equipment is for professional use only.
- Read all instruction manuals, tags and labels before operating the equipment.
- This valve is for use only with compressed air. It is not designed for use with any other power source. Do not use any other gas or fluid in the MST 224 safety stop valve.
- Use the equipment only for its intended purpose. If you are not sure, call Heger Pumps, Inc. +1 562-989-5432 or e-mail to: [info@hegerpumps.com](mailto:info@hegerpumps.com)
- Do not alter or modify this Safety Stop Valve.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Test the Safety Stop Valve periodically and perform routine maintenance and cleaning.
- Do not exceed the maximum working pressure of the lowest rated system component. The maximum working pressure of this Safety Stop Valve is 120 psi (8,5 bar).
- Wear ear protection when operating this equipment.
- Comply with all applicable local, state, and national fire, electric, and safety regulations.
- Do not use the Safety Stop Valve as a pump shutoff valve. Under normal operation, when the valve trips the pump will stop, although a small amount of air will still flow. However, if there is a leak in the valve, the pump may continue to operate slowly after the valve trips.
- Before servicing the equipment, follow the PRESSURE RELIEF PROCEDURE to prevent the equipment from starting unexpectedly.

### Installation:

Install an air filter (A) to remove harmful dirt and moisture from the compressed air supply. Install a main air shutoff valve (B) to isolate the Safety Stop Valve for servicing. If you supply your own accessories, be sure they are adequately sized and pressure-rated to meet the system's requirements. A typical installation shown next page is only for example.

Install one Safety Stop Valve for each pump; the valve will control only one pump.

**WARNING:** A bleed-type master air valve (C) is required in your system. It relieves air trapped between this valve and the pump after the air is shut off. Trapped air can cause the pump to cycle unexpectedly. Locate the valve close to the pump.



- A Air Line Filter
- B Main Shutoff Valve
- C Bleed Type Master Air Valve (required, for pump)
- D Safety Stop Valve
- E Air Manifold
- F Air Pressure Regulator
- G Swivel (supplied)

## Signal Port (see next figure)

When the Safety Stop Valve trips, the signal port (S) is pressurized. This air pressure will operate a pilot-operated valve to turn on a remote device such as a signal lamp or alarm horn. The pressure at this port will be 15% less than the inbound air pressure. The volume of air passing through the port will be low.

When no remote sensor is being used, this port is plugged with a screw (3).

## Operation

### Causes of a Runaway Pump

Pump runaway refers to a rapid acceleration in pump speed, which can result in serious damage to the pump parts caused by overheating and scoring. Conditions which can cause pump runaway are:

- the fluid supply container is empty, or the fluid supply has been interrupted.
- the pump is cavitating, which means that it has lost its prime because an air pocket has formed around the pump intake. This happens most frequently with highly viscous fluids.
- A fluid hose downstream from the pump has ruptured, resulting in an increased pump cycle rate.

NOTE: The Safety Stop Valve may also trip if changes to the system result in an increased cycle rate. For example, if you increase the number of gun drops, you should readjust the valve to account for the increased cycle rate.

When in a runaway condition, the pump requires much more air than during normal operation. The Safety Stop Valve senses this rapid increase in the volume of air being used and greatly reduces the air flow, stopping pump operation.

NOTE: The sudden surge of air when starting the pump may cause the valve to trip. Turn on the air slowly, or readjust the valve.



## Adjusting the Safety Stop Valve:

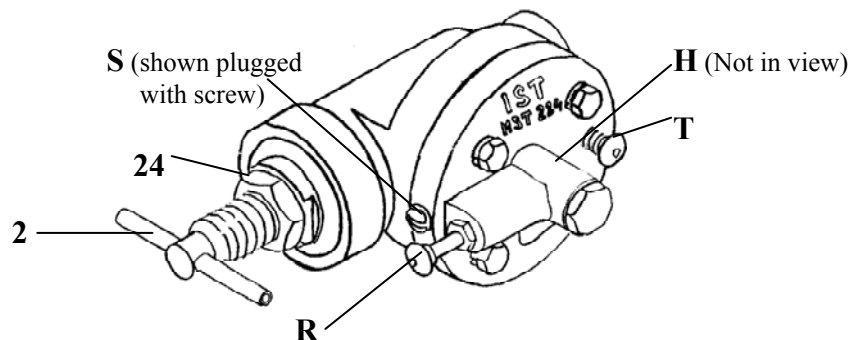
1. Loosen the adjustment locknut (24). See Fig. 2
2. Check that the T-handle (2) is turned all the way **counterclockwise**.
3. Open the dispensing valve or trigger the spray gun.
4. Slowly open the main air shutoff valve (B), the air regulator (F), and the bleed-type master air valve ( C) See Fig. 1

**NOTE:** A faint hissing sound from the runaway valve is normal. The valve vents a small amount of air from the poppet vent (H) during operation.

5. Adjust the pump to the desired regulated air pressure and cycle rate.
6. Turn the T-handle **clockwise** until the Safety Stop Valve trips. Press and hold the RESET valve ( R); you will feel pressure on the RESET valve. Turn the handle (2) **counterclockwise** (approximately 1 to 5 turns) until pressure on the RESET valve decreases. Release the RESET valve.

**NOTE:** At low pressure or a slow cycle rate, perform step 6, then turn the T-handle (2) **clockwise** until you feel a slight pressure pushing on the RESET valve ( R). (Turn it approximately half the counterclockwise distance in step 6.) This may take several tries to achieve the proper setting.

7. Tighten the locknut (24).
8. Test the Safety Stop Valve as described in the following paragraph.



## Testing the Valve

Test the Safety Stop Valve periodically, to ensure proper operation. To test, press the TEST valve (T). The Safety Stop Valve should trip. Start the pump by pressing the RESET valve ( R) and holding it in for 5 seconds.

Dirt and debris in the compressed air supply may collect in the Safety Stop Valve and affect operation. If the valve does not operate properly when tested, disassemble and clean the valve as explained.

## Resetting the Valve

1. Determine the condition that caused the Safety Stop Valve to trip. Correct the condition.
2. If the air was shut off, turn it back on slowly. A sudden surge of air will cause the Safety Stop valve to trip.
3. Press the RESET valve ( R) and hold it in for 5 seconds. The pump should restart.

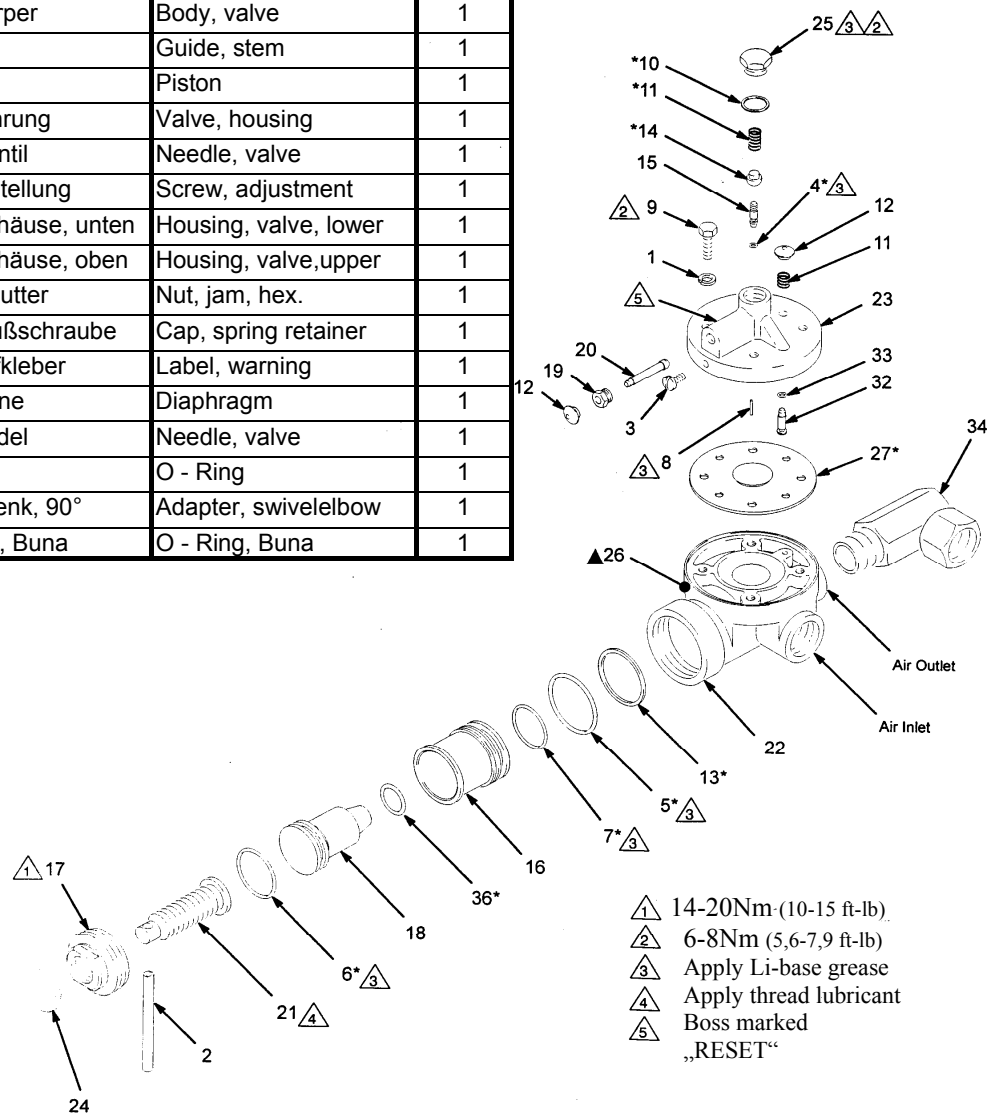
**NOTE:** In some installations, particularly where there is low air volume, it may be necessary to turn off the air supply to reset the valve.



<b>Troubleshooting</b>		
<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Safety Stop Valve does not slow down pump when it should; pump runs away.	Valve is not adjusted properly.	Readjust valve and test. See page 4.
	Ruptured diaphragm. (If diaphragm is ruptured, the TEST button will have no effect).	Replace the diaphragm.
	Decreased air pressure has caused pump speed to decrease.	Readjust valve and test. See page 4.
	Valve piston is stuck.	Disassemble and clean valve. Replace o – rings.
	Poppet valve (11, 14, 15) is stuck closed.	Disassemble and clean poppet valve.
Constant blast of air from vent when air supply is turned on.	Poppet valve (11, 14, 15) is stuck open.	Disassemble and clean poppet valve.
Safety Stop Valve shuts down for no apparent reason.	Increased air pressure has caused pump speed to increase.	Readjust valve and test.
	Interrupted or exhausted fluid supply.	Check fluid supply and ensure that it remains constant.
	Valve is not adjusted properly.	Readjust valve and test. See page 4.
	Decreased pump outlet pressure.	Check for properly adjust fluid outlet pressure.
	Defective poppet valve.	Check and repair.
	Air supply was turned on too quickly.	Press RESET valve.
	Air leaking around TEST valve.	Replace TEST valve.
Safety Stop Valve does not reset when RESET valve is pressed.	Valve piston is stuck; no air is escaping from vent.	Disassemble and clean Safety Stop Valve.
	Air is blowing from poppet vent.	Remove RESET valve. Clean needle and seat area.
	Valve is not adjusted properly.	Readjust valve and test. See page 4.
	Poppet vent hole plugged.	Disassemble and clean poppet valve.

## Exploded Diagram and Partslist

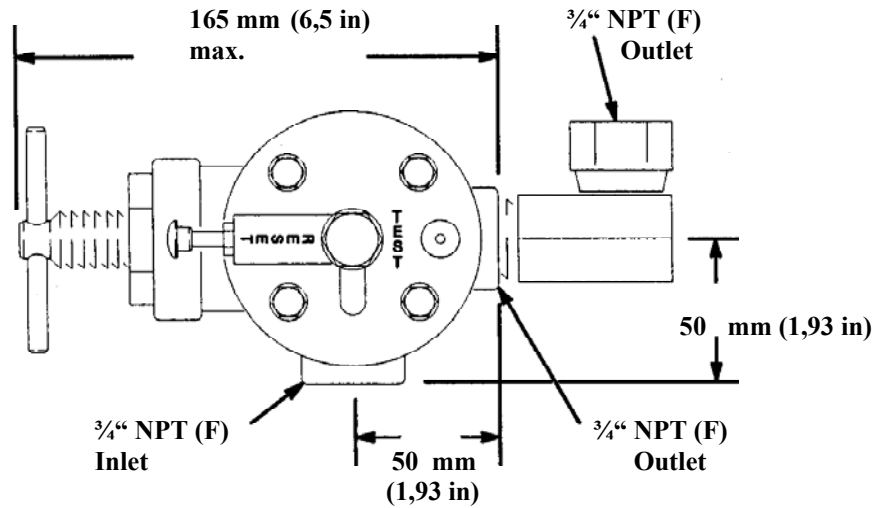
P.-Nr. P.-No.	Bestell-Nr. Order - No.	Artikelbezeichnung	Part Description	Stück Pieces
1	191936	Federring	Lockwasher	4
2	193993	Paßstift	Pin, spring, straight	1
3	195753	Schraube	Screw	1
4 °	195927	O - Ring, Buna	O - Ring, Buna	1
5 °	195930	O - Ring, Buna	O - Ring, Buna	1
6 °	197319	O - Ring, NBR	O - Ring, Nitr.	1
7 °	202702	O - Ring, Buna	O - Ring, Buna	1
8	197322	Zentrierstift	Dowel Pin	1
9	203607	Schraube, M6 x 1	Screw, M6 x 1	4
10 °	242371	Cu - Dichtung	Gasket, Copper	1
11 °	250838	Druckfeder	Spring, compression	2
12	250840	Druckknopf	Pushbutton	2
13 °	258521	Dichtung, PTFE	Gasket, PTFE	1
14 °	261138	Schnüffelventil	Poppet Valve	1
15	268591	Druckstift	Pin, push	1
16	278626	Ventilkörper	Body, valve	1
17	278627	Führung	Guide, stem	1
18	278628	Kolben	Piston	1
19	278629	Ventilführung	Valve, housing	1
20	278630	Nadelventil	Needle, valve	1
21	278631	Feineinstellung	Screw, adjustment	1
22	278633	Ventilgehäuse, unten	Housing, valve, lower	1
23	278634	Ventilgehäuse, oben	Housing, valve, upper	1
24	279465	Kontermutter	Nut, jam, hex.	1
25	279469	Verschlussschraube	Cap, spring retainer	1
26	279774	Warnaufkleber	Label, warning	1
27 °	316865	Membrane	Diaphragm	1
32	280022	Ventilnadel	Needle, valve	1
33	249548	O - Ring	O - Ring	1
34	252247	Drehgelenk, 90°	Adapter, swivel elbow	1
36 °	202947	O - Ring, Buna	O - Ring, Buna	1





# Pumpen und Dosiertechnik

## Dimensions and Technical Data of the *IST* Safety Stop Valve MST224



max. Air Input Pressure:	8,5	bar	(120 psi)
Air pressure range:	1,5 – 8,5	bar	(20 – 120 psi)
Air volume range:	0,14 – 7,0	m <sup>3</sup> / min.	(5 – 250 cfm)
max. Operating Temperature:	65	°C	(150°F)
Sound power (accord. with ISO 3744):	unter 70	dB (A)	(less than 70 dBa)
Weight:	(without swivel attached):	1,05	kg (2 lb 5 oz)
	(with swivel attached):	1,35	kg (3 lb)